for Preparation Click here

1.When working on the vehicle, disconnect the cable from the negative (-) battery terminal.

2.Do not carelessly loosen any oil pressure pipes or bleeder plugs, as high pressure remains in the actuators even if the engine is stopped.

3.When parts and/or pipes have been removed, make sure that foreign matter does not enter them, and replace all O-rings and gaskets with new ones.

4.Do not reuse oil drained from the vehicle.

5.Only use suspension fluid AHC. Do not use other types of oil.

6.When depressing the brake pedal, vehicle height control is only possible for 5 seconds. After that, vehicle height control stops.

for Preparation Click here

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

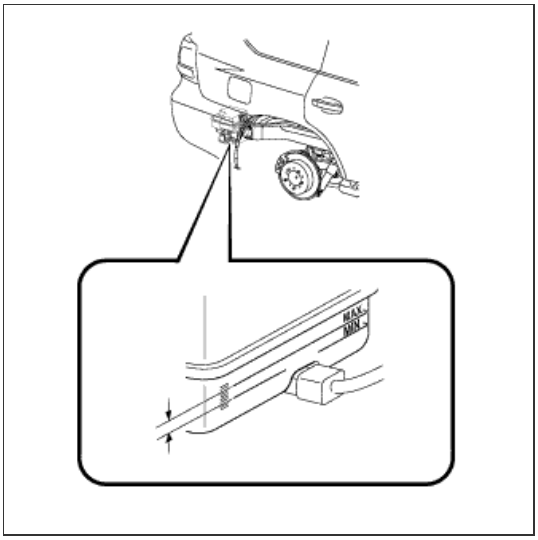
Suspension Control System

Symptom	Suspected Area	See page
Vehicle height is extremely low when vehicle is parked	Check for fluid leakage	Click here
Vehicle leans to right or left	Check for fluid leakage	Click here
	Check for DTC	-
	Check vehicle height	Click here
	Height offset calibration	Click here
	Adjust height control sensor link for front	Click here
	Adjust height control sensor link for rear	Click here
	Front shock absorber (worn)	Click here
	Rear shock absorber (worn)	Click here
Vehicle leans to front or rear	Check for fluid leakage	Click here
	Check that height control switch is not off	-
	Check for DTC	-
	Height offset calibration	Click here
	Adjust height control sensor link for front	Click here
	Adjust height control sensor link for rear	Click here
	Front shock absorber (worn)	Click here
	Rear shock absorber (worn)	Click here
Vehicle ride is uncomfortable	Check for fluid leakage	Click here
	Check for DTC	-
	Check damping force control actuator for front side	Click here
	Check damping force control actuator for rear side	Click here
	Front shock absorber (worn)	Click here
	Rear shock absorber (worn)	Click here
Vehicle ride is too soft	Check for fluid leakage	Click here
	Check for DTC	-
	Check damping force control actuator for front side	Click here
	Check damping force control actuator for rear side	Click here
	Front shock absorber (worn)	Click here
	Rear shock absorber (worn)	Click here
Vehicle steering roll is different from right and left turn	Check for fluid leakage	Click here
	Check for DTC	-
	Suspension control cylinder	Click here
	Check damping force control actuator for front side	Click here
	Check damping force control actuator for rear side	Click here
	Front shock absorber (worn)	Click here
	Rear shock absorber (worn)	Click here

for Preparation Click here

1. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).



HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.

2. INSPECT FOR SUSPENSION FLUID LEAK

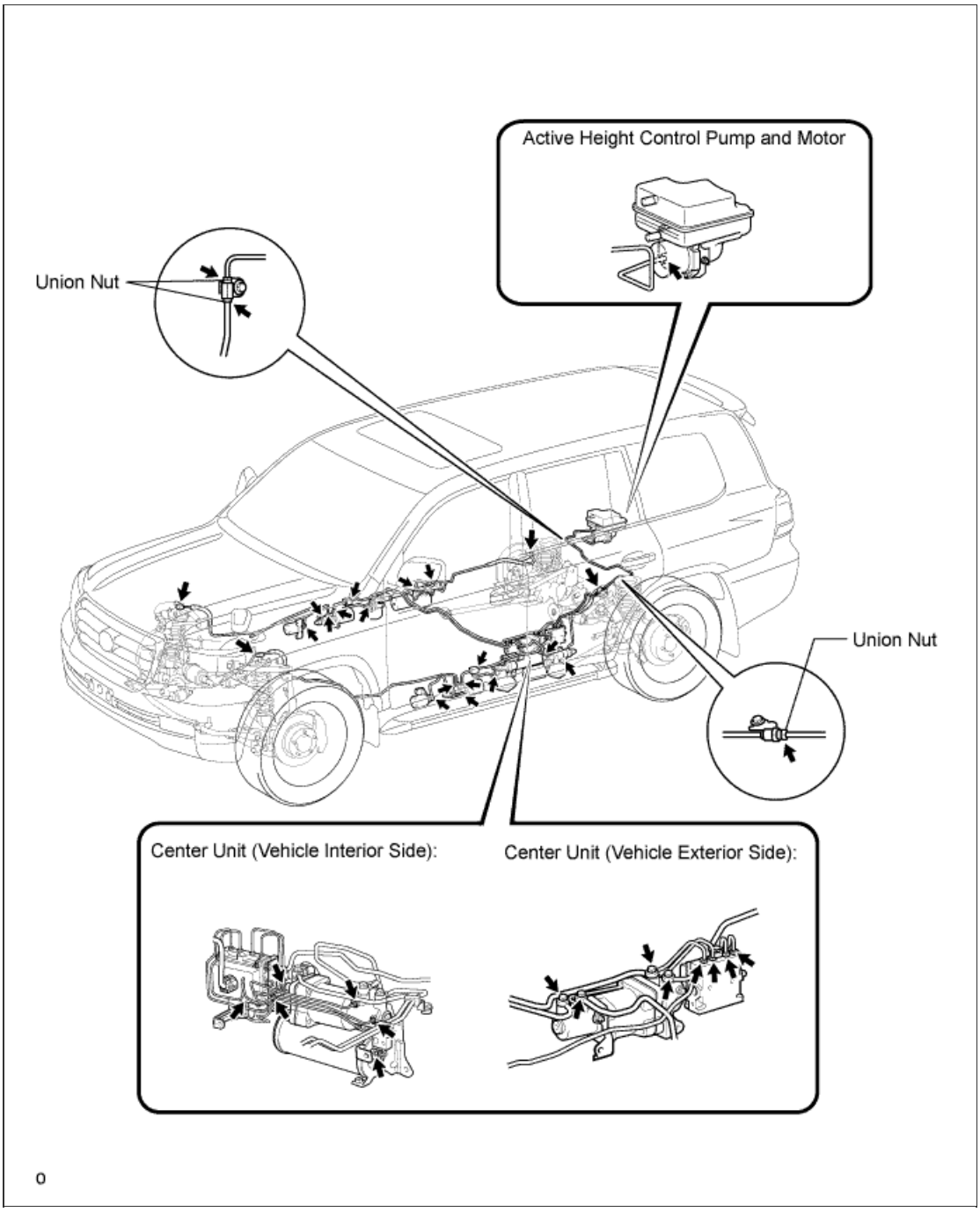
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



o

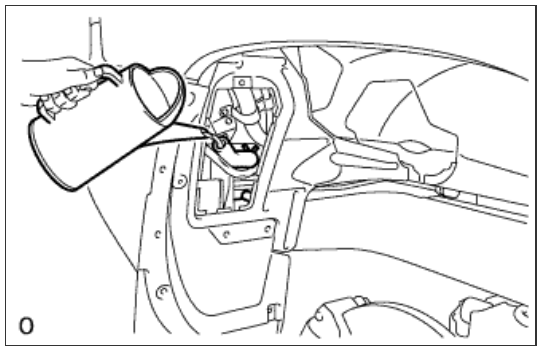
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

for Preparation Click here

1. BLEED AIR FROM SUSPENSION FLUID

a. With the engine stopped, fill the reservoir tank with fluid.



NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

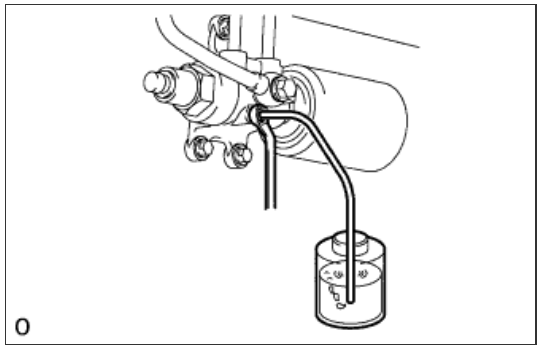
HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.

b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

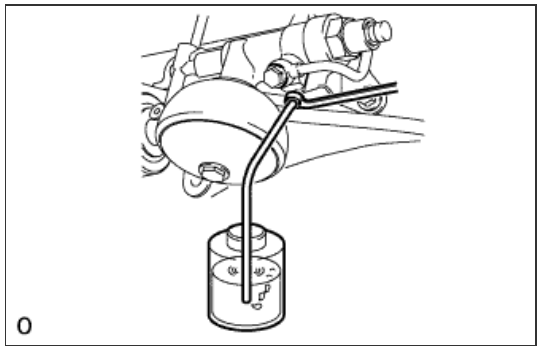
e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

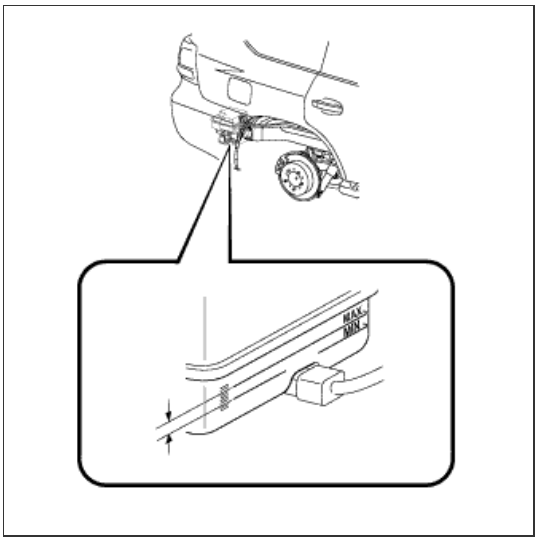
If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

2. CHECK SUSPENSION FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO

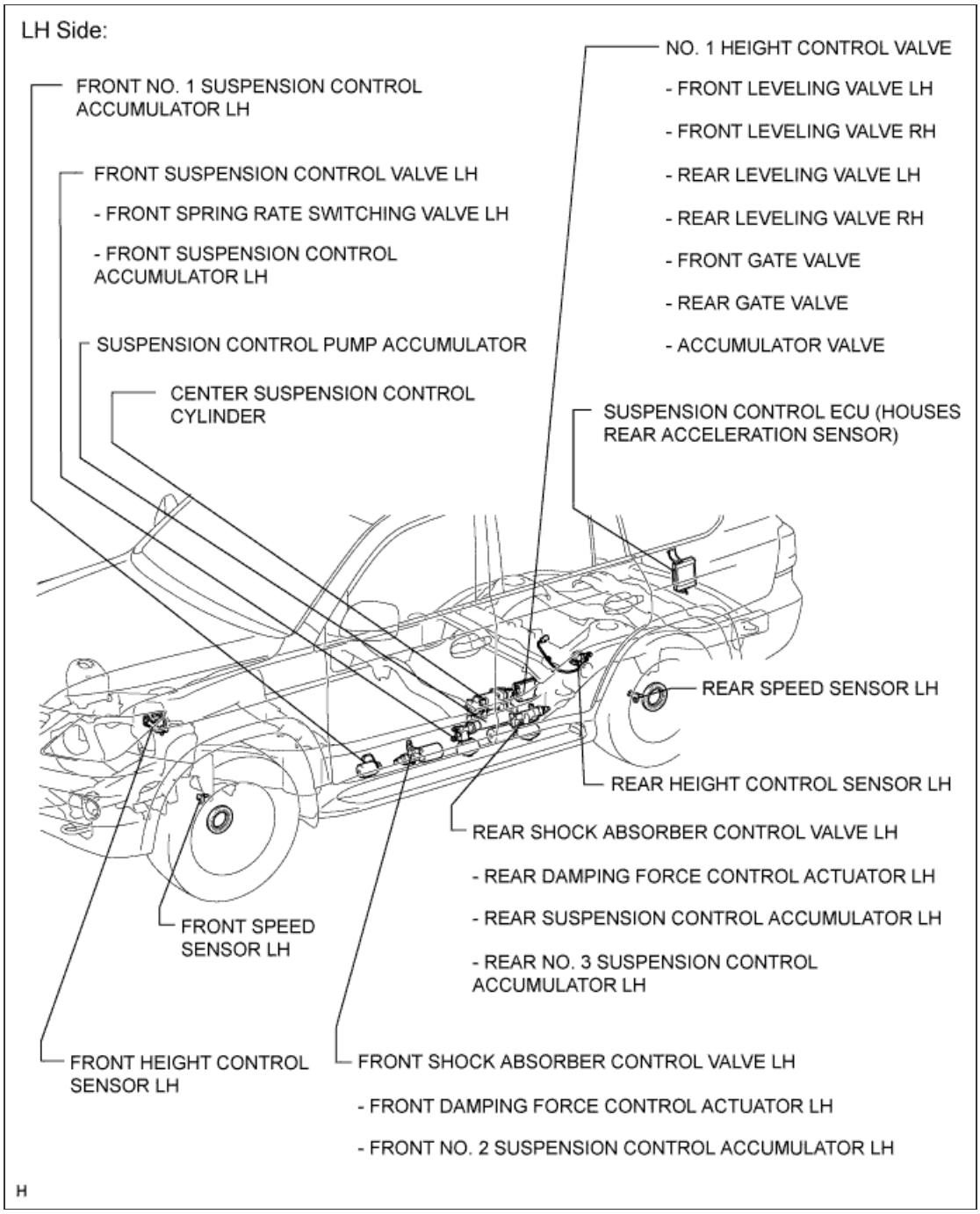
d. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

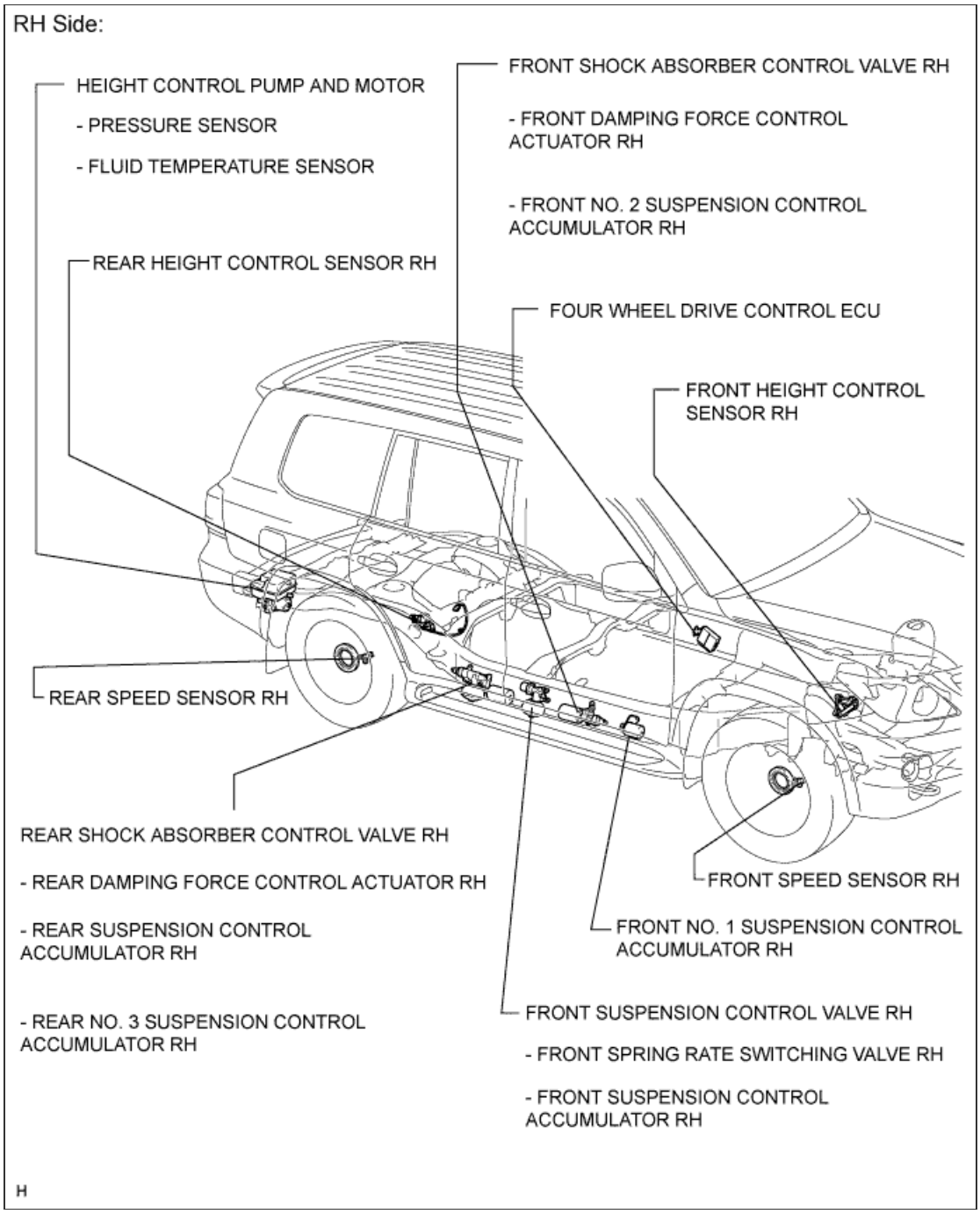


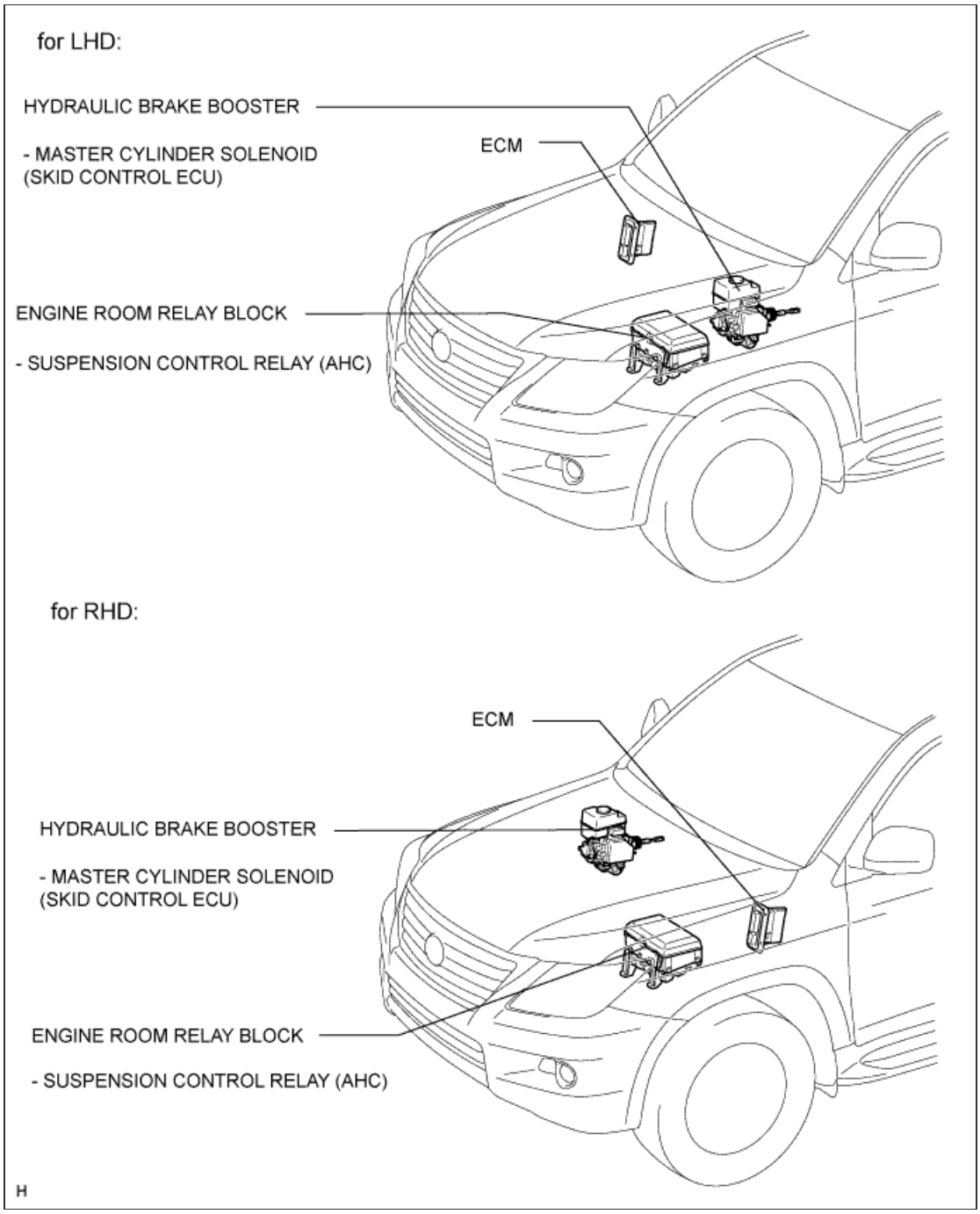
HINT:

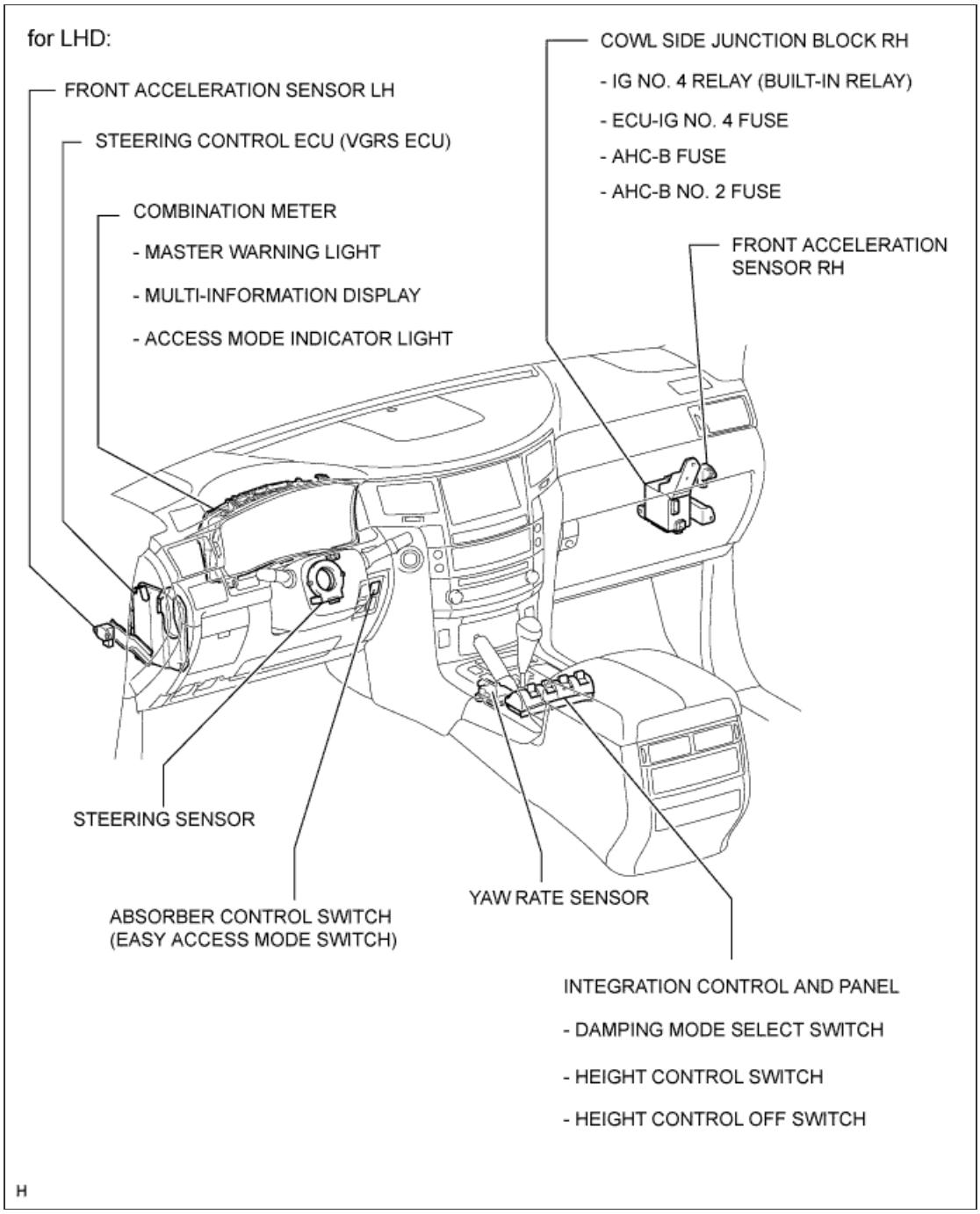
After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.

for Preparation Click here

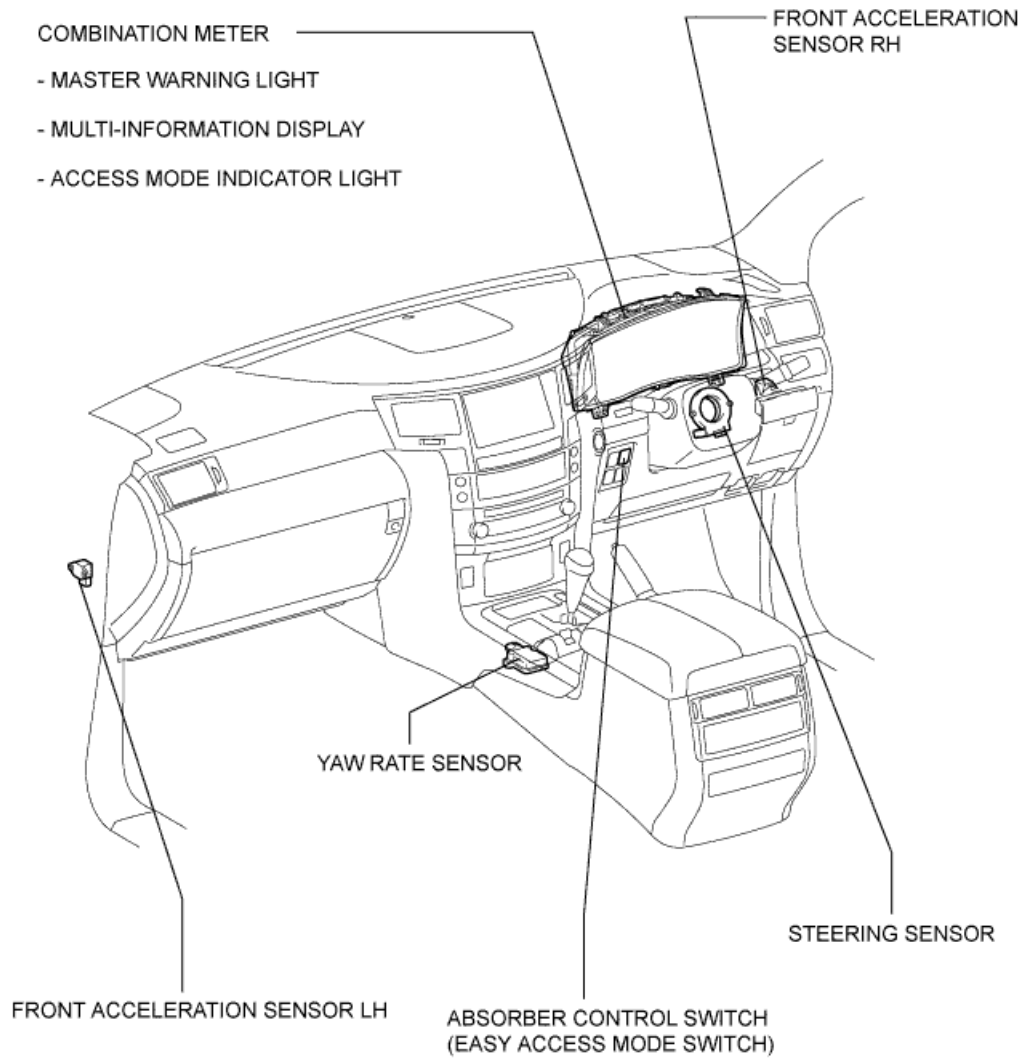



RH Side:
HEIGHT CONTROL PUMP AND MOTOR
- PRESSURE SENSOR
- FLUID TEMPERATURE SENSOR
FRONT SHOCK ABSORBER CONTROL VALVE RH
- FRONT DAMPING FORCE CONTROL ACTUATOR RH
- FRONT NO. 2 SUSPENSION CONTROL ACCUMULATOR RH
REAR HEIGHT CONTROL SENSOR RH
FOUR WHEEL DRIVE CONTROL ECU
FRONT HEIGHT CONTROL SENSOR RH
REAR SPEED SENSOR RH
REAR SHOCK ABSORBER CONTROL VALVE RH
- REAR DAMPING FORCE CONTROL ACTUATOR RH
- REAR SUSPENSION CONTROL ACCUMULATOR RH
- REAR NO. 3 SUSPENSION CONTROL ACCUMULATOR RH
FRONT SPEED SENSOR RH
FRONT NO. 1 SUSPENSION CONTROL ACCUMULATOR RH
FRONT SUSPENSION CONTROL VALVE RH
- FRONT SPRING RATE SWITCHING VALVE RH
- FRONT SUSPENSION CONTROL ACCUMULATOR RH
H

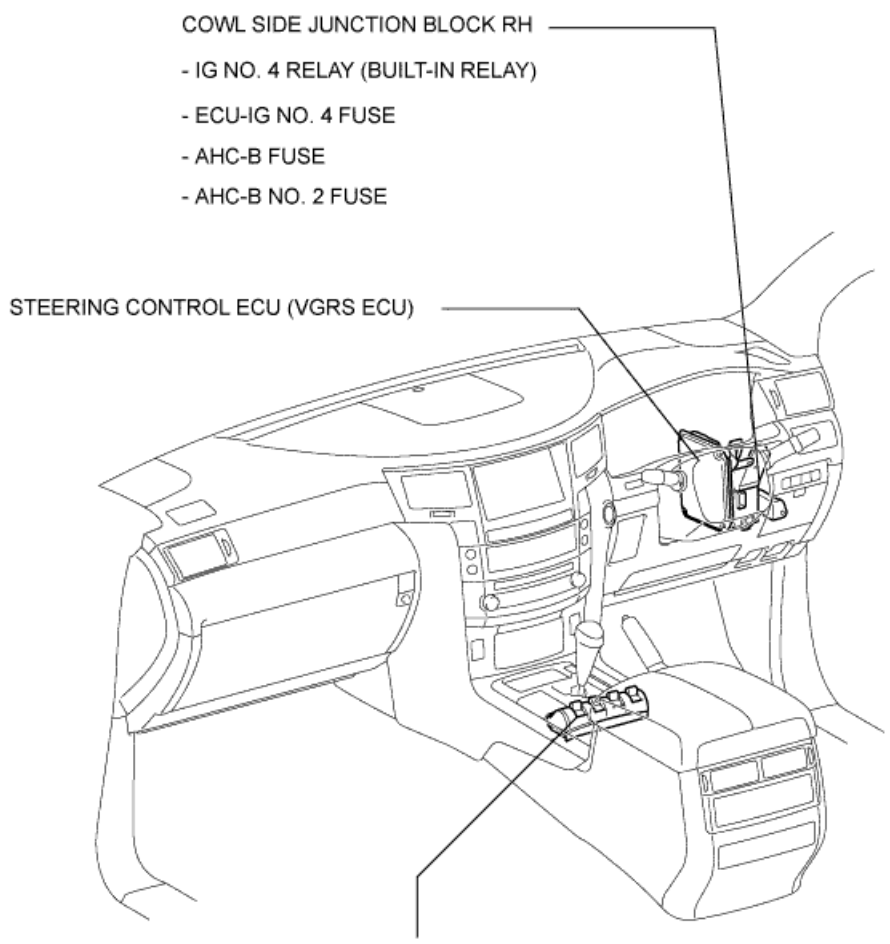

for LHD:
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ECM
ENGINE ROOM RELAY BLOCK
- SUSPENSION CONTROL RELAY (AHC)
for RHD:
ECM
HYDRAULIC BRAKE BOOSTER
- MASTER CYLINDER SOLENOID
(SKID CONTROL ECU)
ENGINE ROOM RELAY BLOCK
- SUSPENSION CONTROL RELAY (AHC)
H


for LHD:
FRONT ACCELERATION SENSOR LH
STEERING CONTROL ECU (VGRS ECU)
COMBINATION METER
- MASTER WARNING LIGHT
- MULTI-INFORMATION DISPLAY
- ACCESS MODE INDICATOR LIGHT
COWL SIDE JUNCTION BLOCK RH
- IG NO. 4 RELAY (BUILT-IN RELAY)
- ECU-IG NO. 4 FUSE
- AHC-B FUSE
- AHC-B NO. 2 FUSE
FRONT ACCELERATION SENSOR RH
STEERING SENSOR
ABSORBER CONTROL SWITCH (EASY ACCESS MODE SWITCH)
YAW RATE SENSOR
INTEGRATION CONTROL AND PANEL
- DAMPING MODE SELECT SWITCH
- HEIGHT CONTROL SWITCH
- HEIGHT CONTROL OFF SWITCH
H

for RHD:

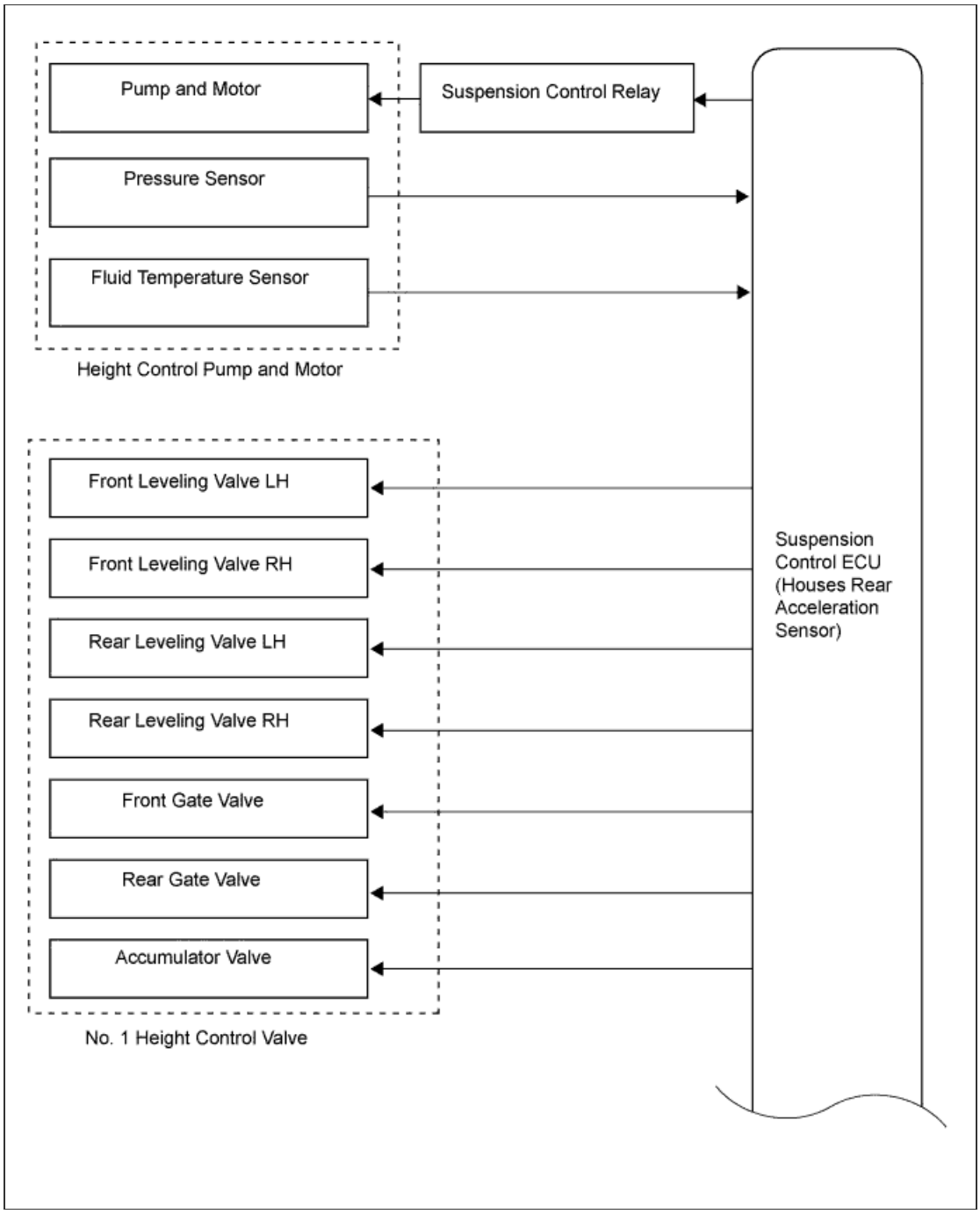

COMBINATION METER
- MASTER WARNING LIGHT
- MULTI-INFORMATION DISPLAY
- ACCESS MODE INDICATOR LIGHT
FRONT ACCELERATION SENSOR RH
YAW RATE SENSOR
STEERING SENSOR
FRONT ACCELERATION SENSOR LH
ABSORBER CONTROL SWITCH (EASY ACCESS MODE SWITCH)

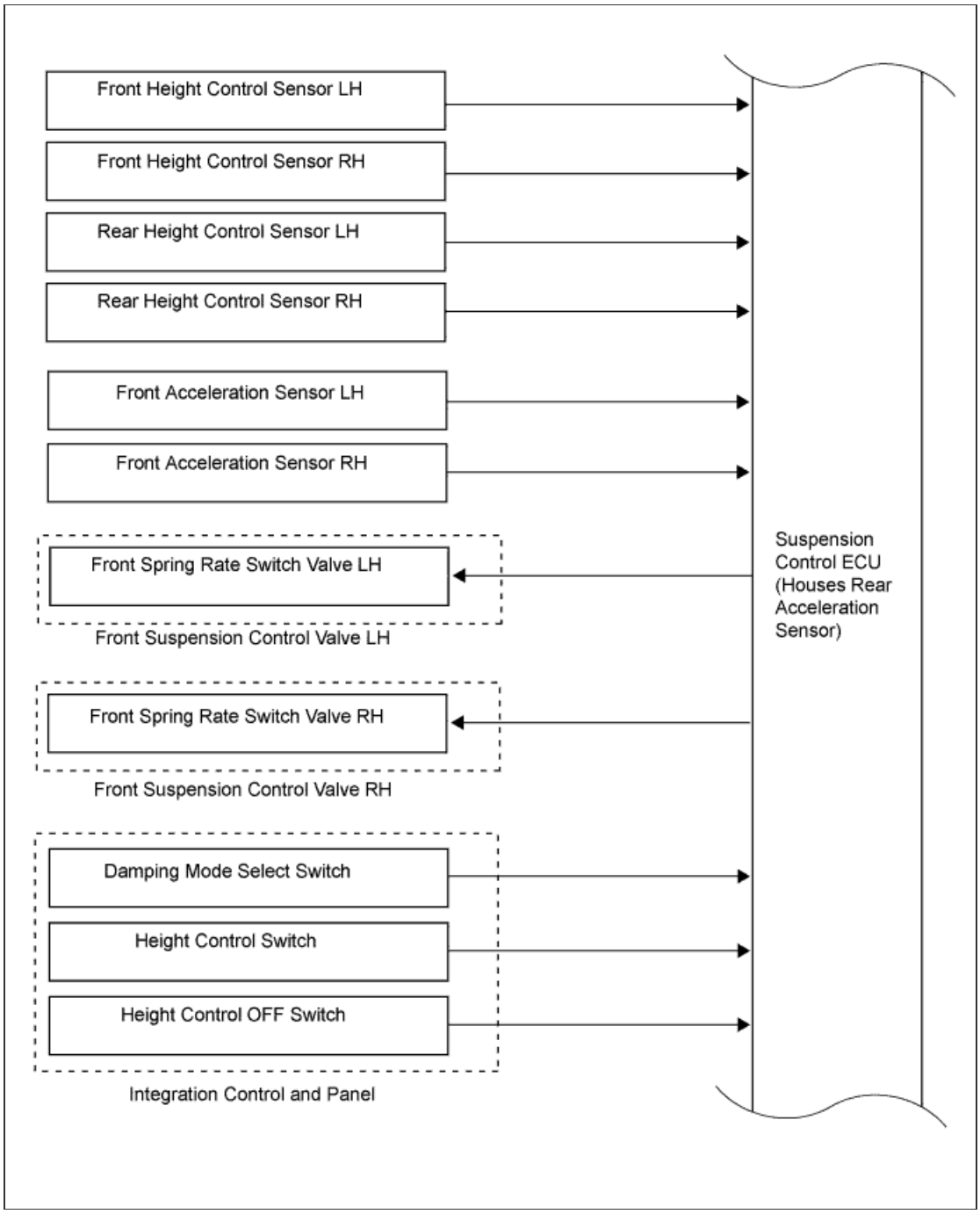
for RHD:

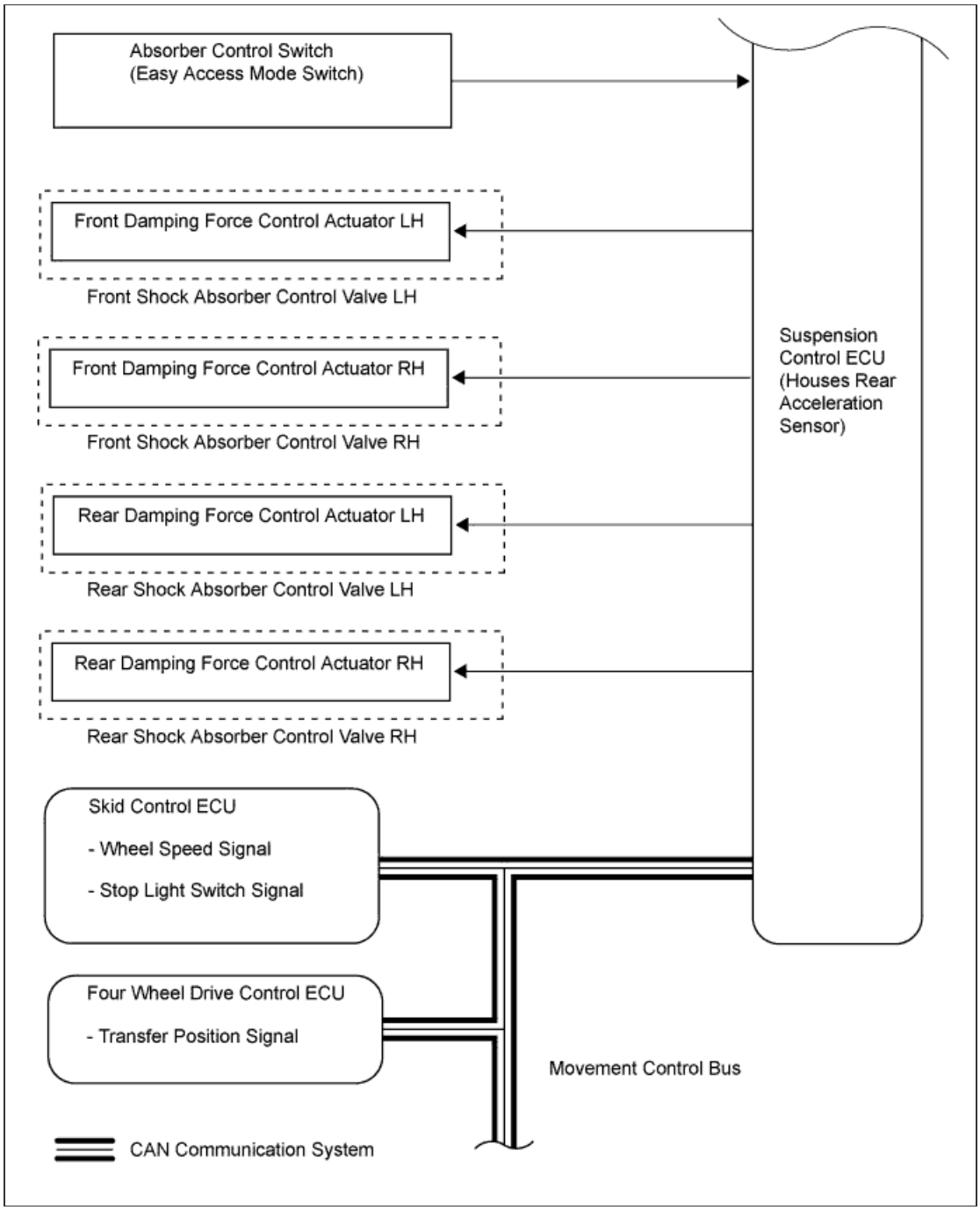

COWL SIDE JUNCTION BLOCK RH
- IG NO. 4 RELAY (BUILT-IN RELAY)
- ECU-IG NO. 4 FUSE
- AHC-B FUSE
- AHC-B NO. 2 FUSE
STEERING CONTROL ECU (VGRS ECU)
INTEGRATION CONTROL AND PANEL
- DAMPING MODE SELECT SWITCH
- HEIGHT CONTROL SWITCH
- HEIGHT CONTROL OFF SWITCH

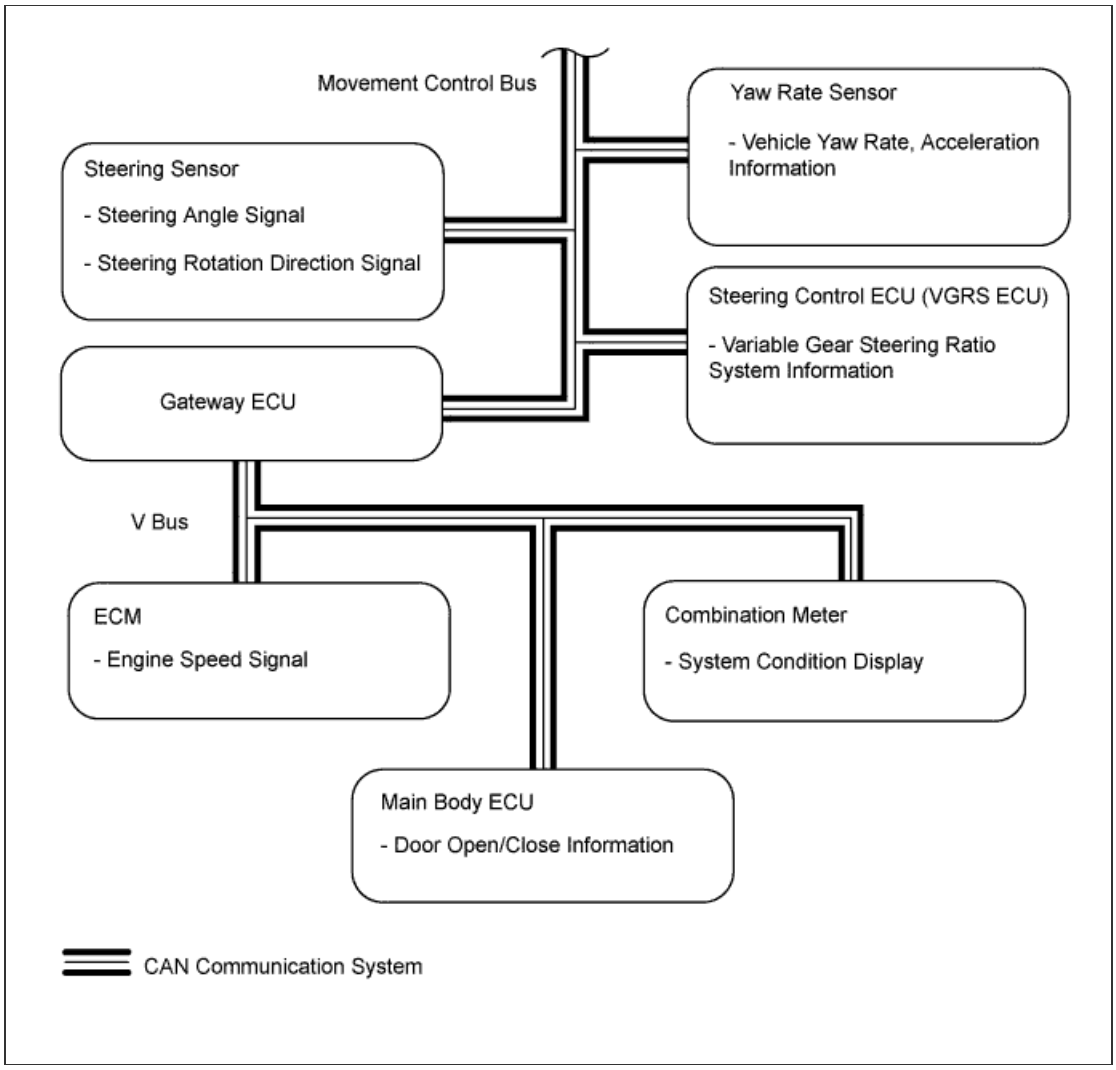
H

for Preparation Click here




Front Height Control Sensor LH
Front Height Control Sensor RH
Rear Height Control Sensor LH
Rear Height Control Sensor RH
Front Acceleration Sensor LH
Front Acceleration Sensor RH
Front Spring Rate Switch Valve LH
Front Suspension Control Valve LH
Front Spring Rate Switch Valve RH
Front Suspension Control Valve RH
Damping Mode Select Switch
Height Control Switch
Height Control OFF Switch
Integration Control and Panel
Suspension Control ECU (Houses Rear Acceleration Sensor)


Absorber Control Switch
(Easy Access Mode Switch)
Front Damping Force Control Actuator LH
Front Shock Absorber Control Valve LH
Front Damping Force Control Actuator RH
Front Shock Absorber Control Valve RH
Rear Damping Force Control Actuator LH
Rear Shock Absorber Control Valve LH
Rear Damping Force Control Actuator RH
Rear Shock Absorber Control Valve RH
Suspension Control ECU (Houses Rear Acceleration Sensor)
Skid Control ECU
- Wheel Speed Signal
- Stop Light Switch Signal
Four Wheel Drive Control ECU
- Transfer Position Signal
Movement Control Bus
CAN Communication System


Movement Control Bus
Yaw Rate Sensor
- Vehicle Yaw Rate, Acceleration Information
Steering Sensor
- Steering Angle Signal
- Steering Rotation Direction Signal
Steering Control ECU (VGRS ECU)
- Variable Gear Steering Ratio System Information
Gateway ECU
V Bus
ECM
- Engine Speed Signal
Combination Meter
- System Condition Display
Main Body ECU
- Door Open/Close Information
CAN Communication System

for Preparation Click here

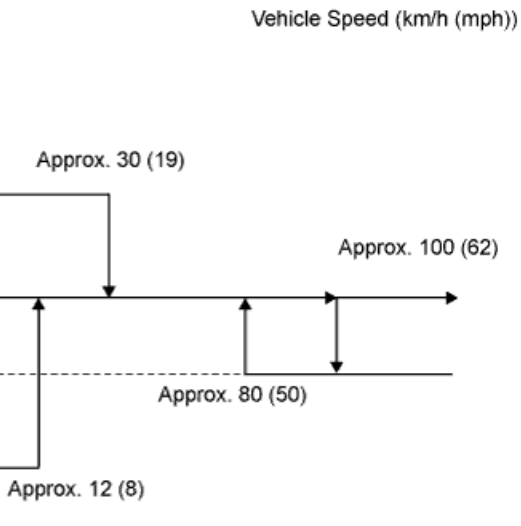
SYSTEM DESCRIPTION

a. Vehicle height auto-leveling function:
This function maintains a fixed vehicle height regardless of load conditions (occupants, cargo).

b. Vehicle speed sensing function:

- When the vehicle height is NORMAL and the vehicle speed is approximately 100 km/h (62 mph), the vehicle height automatically lowers to FAST LO. When the vehicle speed decreases to approximately 80 km/h (50 mph), the vehicle height automatically returns to NORMAL. When the vehicle height is HI, the vehicle height automatically returns to NORMAL at a vehicle speed of approximately 30 km/h (19 mph). When the vehicle height is LO, the vehicle height automatically returns to NORMAL at a vehicle speed of approximately 12 km/h (8 mph) or more.

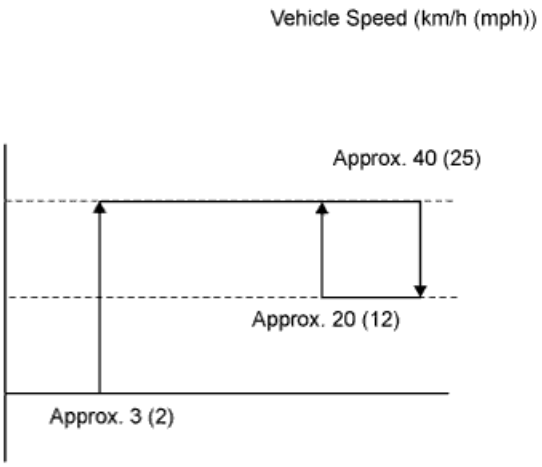
Vehicle Condition	Vehicle Height Change Values (mm (in.))	
	Front	Rear
HI	+50 (+1.97)	+60 (+2.36)
NORMAL	0	0
FAST LO	-20 (-0.787)	-15 (-0.591)
LO	-60 (-2.36)	-40 (-1.57)



- When the transfer position switch is set to L4, the vehicle height automatically changes to HI at a vehicle speed of approximately 3 km/h (2 mph). When the vehicle speed reaches approximately 40 km/h (25 mph), the vehicle height automatically lowers to L4 HI. When the vehicle speed decreases to approximately 20 km/h (12 mph), the vehicle height automatically rises to HI.

Transfer Position Switch L4

Vehicle Height Condition	Vehicle Height Change Values (mm (in.))	
	Front	Rear
HI	+50 (+1.97)	+60 (+2.36)
L4 HI	+25 (+0.984)	+25 (+0.984)
NORMAL	0	0



c. Extra-high vehicle height control:

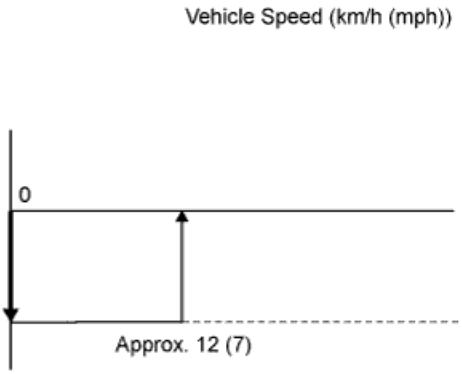
- When the transfer is in the L4 position and the vehicle height is HI, the vehicle height automatically rises +20 mm (+0.787 in.)

from HI if the suspension control ECU determines the vehicle is stuck.

- For vehicles with CRAWL (CRAWL control), when the transfer is in the L4 position, the vehicle height automatically rises +20 mm (+0.787 in.) from HI if the suspension control ECU receives information from the skid control ECU via CAN communication that CRAWL control is operating.

d. Easy access mode control:
With the vehicle height NORMAL, vehicle height control not operating, the engine running, easy access mode on and the shift lever in P, when the engine switch is turned off, the vehicle height lowers to ACCESS LO. If the vehicle is driven with the vehicle height in ACCESS LO, when the vehicle speed reaches approximately 12 km/h (7 mph) or more, the vehicle height returns to normal.

Vehicle Height Condition	Vehicle Height Change Values (mm (in.))	
	Front	Rear
Normal	0	0
ACCESS LO	-60 (-2.36)	-40 (-1.57)



e. Spring rate switching control (front only):
Located in the front suspension control valve.

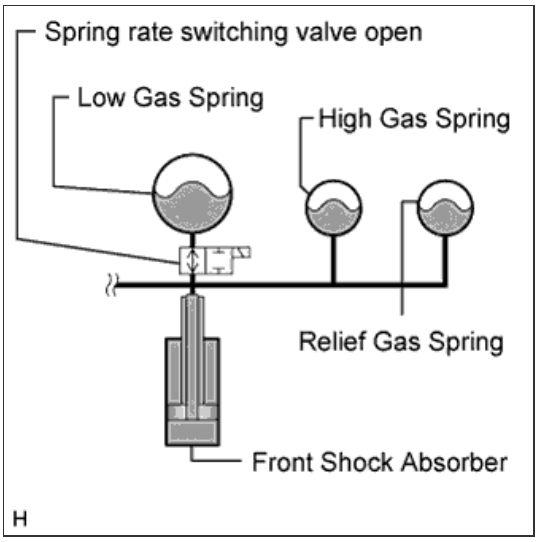
i. During normal driving, the low gas, high gas, and relief gas springs are used to maintain a low wheel rate with the spring rate switching valve open.

HINT:

Low Gas Spring: Front suspension control accumulator

High Gas Spring: Front No. 2 suspension control accumulator

Relief Gas Spring: Front No. 1 suspension control accumulator



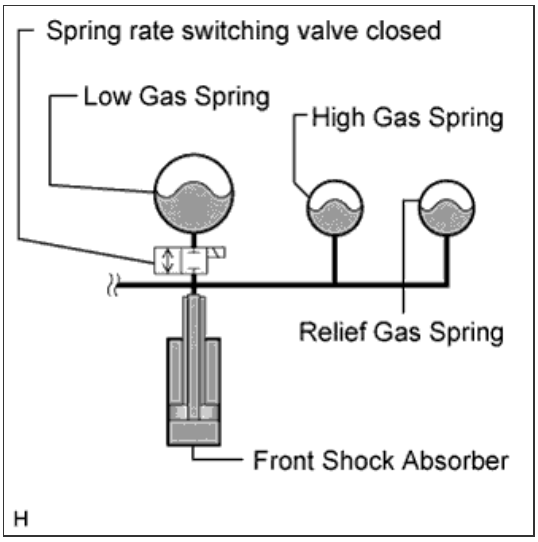
ii. When the steering wheel is turned and a yaw rate is detected while the vehicle is driven at a speed of 30 km/h (19 mph) or more, or when the brake pedal is depressed while the vehicle speed is 50 km/h (31 mph) or more, the high gas and relief gas springs are used to maintain a high wheel rate with the spring rate switching valve closed.

HINT:

Low Gas Spring: Front suspension control accumulator

High Gas Spring: Front No. 2 suspension control accumulator

Relief Gas Spring: Front No. 1 suspension control accumulator



FUNCTION OF COMPONENTS

Component	Function
Damping Mode Select Switch	Selects the damping force (COMFORT/NORMAL/SPORT). Located in the integration control and panel.
Height Control Switch	Selects the vehicle height (low/normal/high). Located in the integration control and panel.
Height Control OFF Switch	Stops vehicle height control. However, when the vehicle is driven, vehicle height control automatically becomes enabled according to the vehicle speed (Vehicle height NORMAL: approximately 80 km/h (50 mph), vehicle height not NORMAL: approximately 30 km/h (19 mph)).
Easy Access Mode Switch	Turns access mode on/off.
Height Control Sensors	Detects the vehicle height and displacement volume of the suspension caused by unevenness of the road.
Steering Sensor	Detects the steering angle and steering rotation direction.
Acceleration Sensors	Detects the body vertical accelerated motion.
Height control pump and motor	Creates the high oil pressure essential for vehicle height adjustment.
No. 1 Height Control Valve	Leveling valves: There is a leveling valve for each wheel (total of 4). They open and close the oil paths from the pump to the wheels according to suspension control ECU signals. Normally, they are close. Gate valves: Used for centering of the piston inside the center cylinder (front gate valve and rear gate valve). Accumulator valve: Used for accumulating pressure.
Pressure Sensor	Detects the fluid pressure. Located in the height control pump and motor assembly.
Fluid Temperature Sensor	Detects the fluid temperature. Located in the height control pump and motor assembly.
Damping force Control Actuators	• Located in the shock absorber valve. Changes the damping force. The damping force is set from 1 to 16 and becomes stiffer as the number increases. • When the transfer is in the L4 position, the damping force is fixed at 8.
Yaw Rate Sensor	Detects the yaw rate and acceleration.
Skid Control ECU	Receives the signals of the stop light switch and speed sensor, and sends them to the suspension control ECU.
ECM	Sends engine speed information to the suspension control ECU.
Suspension Control ECU	• Controls the damping force and vehicle height according to the operation modes. • When a malfunction in the active height control suspension is detected, the driver is informed of the malfunction using the multi-information display. • When changed to the diagnostic mode, indicates any malfunction by DTCs. • Detects the rear body vertical accelerated motion.
Suspension Control Pump Accumulator	When the vehicle height rises, the accumulated oil pressure is released to increase the speed at which the vehicle rises.
Center Suspension Control Cylinder	Mechanically operates to send and receive oil to and from the wheels according to the pressure balance of the 4 wheels.

FAIL-SAFE FUNCTION

a. When the system is determined to be malfunctioning, the vehicle height is returned to NORMAL at a vehicle speed of 30 km/h (19 mph) only when possible.

b. Conditions when vehicle height control stops:

- When the stop light switch is on, after operating for a few seconds, control stops. However, when the transfer is in the L4 position, control does not stop.
- When the vehicle is driving on an uneven road and the vehicle height increases or decreases rapidly due to bumps, etc., control stops.
- On an inclined road, when the inclination is approximately 20° front to back or approximately 17° side to side, control stops.
- When the height control pump and motor continuously operates for approximately 85 seconds, control stops.
- When the oil temperature is -30°C (-22°F) or less, or 100°C (212°F) or more, control stops.

for Preparation Click here

HINT:

- **Use these procedures to troubleshoot the active height control suspension.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3.CHECK FOR DTC*

a. Check for DTCs (Click here).

b. Clear the DTCs.

c. Recheck for DTCs.

Result

Result	Proceed to
DTC is not output	A
CAN DTC is output (for LHD)	B
CAN DTC is output (for RHD)	C
DTC is output	D

B. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

C. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

D. → Go to step 6

A

4.PROBLEM SYMPTOMS TABLE*

Result:

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B. → Go to step 6

A

5.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

6.ADJUST, REPAIR OR REPLACE*

NEXT

7.CONFIRMATION TEST

NEXT

END

for Preparation Click here

HINT:

- **Use these procedures to troubleshoot the active height control suspension.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3.CHECK FOR DTC*

a. Check for DTCs (Click here).

b. Clear the DTCs.

c. Recheck for DTCs.

Result

Result	Proceed to
DTC is not output	A
CAN DTC is output (for LHD)	B
CAN DTC is output (for RHD)	C
DTC is output	D

B. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

C. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

D. → Go to step 6

A

4.PROBLEM SYMPTOMS TABLE*

Result:

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B. → Go to step 6

A

5.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

6.ADJUST, REPAIR OR REPLACE*

NEXT

7.CONFIRMATION TEST

NEXT

END

for Preparation Click here

HINT:

- **Use these procedures to troubleshoot the active height control suspension.**
- ***: Use the intelligent tester.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.INSPECT BATTERY VOLTAGE

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3.CHECK FOR DTC*

a. Check for DTCs (Click here).

b. Clear the DTCs.

c. Recheck for DTCs.

Result

Result	Proceed to
DTC is not output	A
CAN DTC is output (for LHD)	B
CAN DTC is output (for RHD)	C
DTC is output	D

B. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

C. → Go to CAN communication system (How to Proceed with Troubleshooting) (**Click here**)

D. → Go to step 6

A

4.PROBLEM SYMPTOMS TABLE*

Result:

Result	Proceed to
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B. → Go to step 6

A

5.OVERALL ANALYSIS AND TROUBLESHOOTING

a. Terminals of ECU (Click here).

NEXT

6.ADJUST, REPAIR OR REPLACE*

NEXT

7.CONFIRMATION TEST

NEXT

END

for Preparation Click here

DESCRIPTION

a. If replacing the suspension control ECU and/or height control sensor, perform the vehicle height offset calibration.

VEHICLE HEIGHT OFFSET CALIBRATION

NOTICE:

- **Make sure that the pressure of the tires is normal.**
- **Make sure that the vehicle is empty.**
- **Make sure that the parking brake is released and that the shift lever is in N.**
- **Make sure that the easy access mode switch is off.**

1.PERFORM VEHICLE HEIGHT INSPECTION

a. Adjust the pressure of the tires.

b. Stabilize the suspension by releasing the parking brake and bouncing the corners of the vehicle up and down.

c. Start the engine.

d. Perform the following operation twice:

Set the vehicle height to LO with the height control switch, and then return the vehicle height to NORMAL.

e. Turn the engine switch off.

f. Connect the intelligent tester to the DLC3.

g. Move the shift lever to N and move the vehicle forward and rearward.

h. Turn the engine switch on (IG) and the intelligent tester on.

HINT:

Make sure the engine is not running.

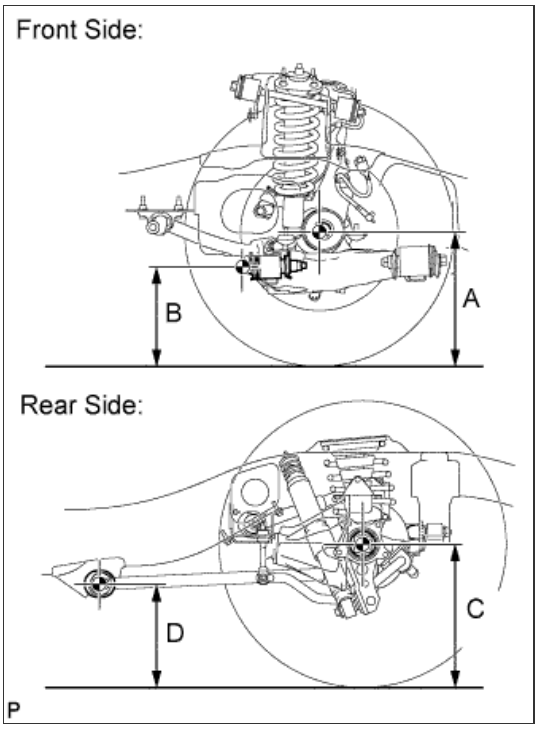
i. Check that the vehicle height is NORMAL.

HINT:

The N of the multi-information display height control indicator in the combination meter turns on.

j. Perform the vehicle height inspection.

Measuring points:
A:
Ground clearance of front wheel center
B:
Ground clearance of the front adjusting cam bolt center
C:
Ground clearance of the rear axle shaft center
D:
Ground clearance of the rear lower control arm front side center



Standard Vehicle Height:

Front (A minus B)	Rear (C minus D)
101 mm (3.98 in.)	94 mm (3.70 in.)

k. Using a jack, set the vehicle to the standard vehicle height and eliminate any difference in height between the left and right sides of the vehicle.

NOTICE:

The vehicle height may be outside the calibration range if there is a difference in height between the left and right sides of the vehicle.

l. Using the intelligent tester, enter the following menus: Chassis / AHC / Data List. Then read and record the values for "After Height Adjust" and "Height Adjust" for each wheel.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnosis Note
FR Height Adjust	Display of vehicle height offset recorded value of front right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FL Height Adjust	Display of vehicle height offset recorded value of front left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RR Height Adjust	Display of vehicle height offset recorded value of rear right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RL Height Adjust	Display of vehicle height offset recorded value of rear left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FR After Height Adjust	Display of after-calibration vehicle height value of front right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FL After Height Adjust	Display of after-calibration vehicle height value of front left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RR After Height Adjust	Display of after-calibration vehicle height value of rear right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RL After Height Adjust	Display of after-calibration vehicle height value of rear left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-

m. Turn the engine switch off.

NEXT

2.PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

NOTICE:

The possible vehicle height automatic adjustment value is 20 mm (0.787 in.). If the "Height Adjust value + (Standard value - Measurement value - After Height Adjust value)" is 20 mm (0.787 in.) or more, first perform the vehicle height adjustment for the front side (Click here), and for the rear side (Click here).

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Utility / Height offset.

e. For each wheel, follow the instructions on the intelligent tester screen and input the input value to complete the vehicle height offset calibration.

HINT:

Input value = Measurement value and standard value

f. Remove the jack.

g. Start the engine.

h. Set the vehicle height to LO and check that LO of the multi-information display height control indicator stops blinking and illuminates.

i. Set the vehicle height to NORMAL and check that N of the height control indicator stops blinking and illuminates.

j. Turn the engine switch off.

k. Perform the vehicle height inspection. Check that the result is within +/-8 mm (+/-0.315 in.) of the standard value.

l. Perform yaw rate and G sensor zero point calibration (Click here).

NEXT

END

for Preparation Click here

TEST MODE PROCEDURE

HINT:

- **When entering the test mode, the suspension control ECU stores all the test mode DTCs first. After completing the test mode for each check item, the test mode DTCs that are determined to be normal by the suspension control ECU will be cleared. The test mode DTCs for other check items may not be cleared when only a certain signal is inspected.**
- **When the test mode returns back to the normal mode, all the test mode DTCs will be cleared.**

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Utility / Signal Check.

e. Read the test mode DTCs by following the prompts on the intelligent tester screen.

f. After completing the test mode, disconnect the intelligent tester and turn the engine switch off.

TEST MODE DTC CHART

If a trouble code is output during the test mode DTC check, check the circuit listed for that code. For details of each code, refer to the "See page" for the respective DTC code in the chart.

HINT:

When entering test mode, the suspension control ECU outputs all the test mode DTCs. If the clear conditions for a test mode DTC are met, it is cleared.

DTC Code	Detection Item	Clear Condition	See page
C1791	Damping mode select switch circuit malfunction	When each position (COMF/NORMAL/SPORT) of the damping mode select switch is detected.	Click here
C1792	Height control switch circuit malfunction	When the height control switch up and down operation is detected.	Click here
C1794	Height control off switch circuit malfunction	When the signal of the height control OFF switch is detected.	Click here
C1795	Easy access mode switch circuit malfunction	When the signal of the easy access mode switch is detected.	Click here
C1796	Front acceleration sensor RH circuit malfunction	On a level surface, the G sensor input is +/-1.96 m/s^2 for 1 second.	Click here
C1797	Front acceleration sensor LH circuit malfunction		
C1798	Rear acceleration sensor circuit malfunction		

for Preparation Click here

TEST MODE PROCEDURE

HINT:

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- **When the test mode returns back to the normal mode, all the test mode DTCs will be cleared.**

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Utility / Signal Check.

e. Read the test mode DTCs by following the prompts on the intelligent tester screen.

f. After completing the test mode, disconnect the intelligent tester and turn the engine switch off.

TEST MODE DTC CHART

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C1794	Height control off switch circuit malfunction	When the signal of the height control OFF switch is detected.	Click here
C1795	Easy access mode switch circuit malfunction	When the signal of the easy access mode switch is detected.	Click here
C1796	Front acceleration sensor RH circuit malfunction	On a level surface, the G sensor input is +/-1.96 m/s^2 for 1 second.	Click here
C1797	Front acceleration sensor LH circuit malfunction		
C1798	Rear acceleration sensor circuit malfunction		

for Preparation Click here

TEST MODE PROCEDURE

HINT:

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- **When the test mode returns back to the normal mode, all the test mode DTCs will be cleared.**

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Utility / Signal Check.

e. Read the test mode DTCs by following the prompts on the intelligent tester screen.

f. After completing the test mode, disconnect the intelligent tester and turn the engine switch off.

TEST MODE DTC CHART

If a trouble code is output during the test mode DTC check, check the circuit listed for that code. For details of each code, refer to the "See page" for the respective DTC code in the chart.

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C1797	Front acceleration sensor LH circuit malfunction		
C1798	Rear acceleration sensor circuit malfunction		

for Preparation Click here

HINT:

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

Active Height Control Suspension

Symptom	Suspected Area	See page
Lifting up position of height control indicator does not change according to operation of height control switch	Check that the height control is not off.	-
	Check test mode DTC	Click here
	Indicator circuit	Click here
Vehicle height control function does not operate	Check test mode DTC	Click here
	ECU power source circuit	Click here
	Indicator circuit	Click here
Height control function is normal, but vehicle height is uneven	Initialization	Click here
	Height control sensor link (for front side)	Click here
	Height control sensor link (for rear side)	Click here
	Suspension control ECU	Click here
Drivability problem	Fluid leakage	Click here
	Center suspension control cylinder	Click here

for Preparation Click here

HINT:

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
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Active Height Control Suspension

Symptom	Suspected Area	See page
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	Check test mode DTC	Click here
	Indicator circuit	Click here
Vehicle height control function does not operate	Check test mode DTC	Click here
	ECU power source circuit	Click here
	Indicator circuit	Click here
Height control function is normal, but vehicle height is uneven	Initialization	Click here
	Height control sensor link (for front side)	Click here
	Height control sensor link (for rear side)	Click here
	Suspension control ECU	Click here
Drivability problem	Fluid leakage	Click here
	Center suspension control cylinder	Click here

for Preparation Click here

HINT:

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Active Height Control Suspension

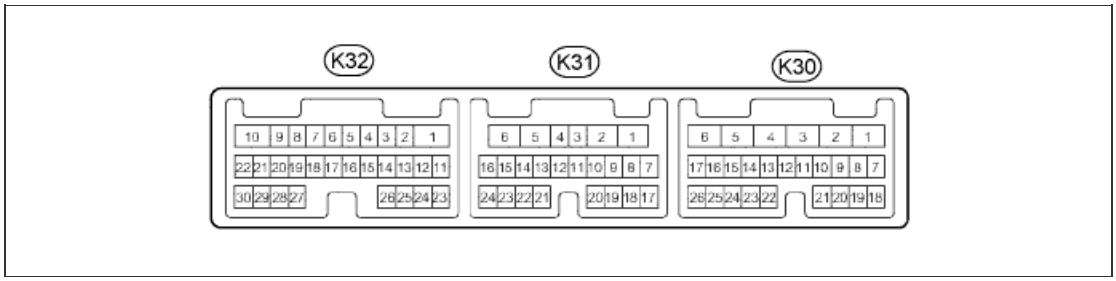
Symptom	Suspected Area	See page
Lifting up position of height control indicator does not change according to operation of height control switch	Check that the height control is not off.	-
	Check test mode DTC	Click here
	Indicator circuit	Click here
Vehicle height control function does not operate	Check test mode DTC	Click here
	ECU power source circuit	Click here
	Indicator circuit	Click here
Height control function is normal, but vehicle height is uneven	Initialization	Click here
	Height control sensor link (for front side)	Click here
	Height control sensor link (for rear side)	Click here
	Suspension control ECU	Click here
Drivability problem	Fluid leakage	Click here
	Center suspension control cylinder	Click here

for Preparation Click here

CHECK SUSPENSION CONTROL ECU

HINT:

Inspect the connectors from the back side while the connectors are connected.



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
K32-1 (SLB) - K30-1 (GND)	R - W-B	No. 1 height control valve assembly and front suspension control valve power supply	Engine running	9 to 14 V
K32-2 (FBL+) - K30-1 (GND)	R - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-3 (FAL-) - K30-1 (GND)	L - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-4 (FAL+) - K30-1 (GND)	B - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-5 (FAR-) - K30-1 (GND)	L - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-6 (FAR+) - K30-1 (GND)	R - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-7 (SLFR) - K30-1 (GND)	R - W-B	Front leveling valve RH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-8 (SLFL) - K30-1 (GND)	W - W-B	Front leveling valve LH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-9 (SLRR) - K30-1 (GND)	R - W-B	Rear leveling valve RH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-10 (SLAC) - K30-1 (GND)	B - W-B	Accumulator valve	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-11 (CRFR) - K30-1 (GND)	G - W-B	Front spring rate switch valve RH	• Engine running • Shift lever in P • Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-12 (FBL-) - K30-1 (GND)	P - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-13 (SHB3) - K30-1 (GND)	B - W-B	Rear height control sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V

K32-14 (SHB2) - K30-1 (GND)	B - W-B	Front height control sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K32-15 (SHG2) - K30-1 (GND)	G - W-B	Front height control sensor LH ground	Always	Below 1 Ω
K32-16 (RC) - K30-1 (GND)	G - W-B	Pump motor relay	Engine switch on (IG)	Below 1 V
			• Engine running • Up button of height control switch pushed when vehicle height NORMAL	0 to 14 V
K32-17 (FBR-) - K30-1 (GND)	P - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-18 (FBR+) - K30-1 (GND)	R - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-19 (SHG4) - K30-1 (GND)	G - W-B	Rear height control sensor LH ground	Always	Below 1 Ω
K32-20 (SHG3) - K30-1 (GND)	G - W-B	Rear height control sensor RH ground	Always	Below 1 Ω
K32-22 (SLRL) - K30-1 (GND)	G - W-B	Rear leveling valve LH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-23 (CRFL) - K30-1 (GND)	B - W-B	Front spring rate switch valve RH	• Engine running • Shift lever in P • Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-24 (SHRR) - K30-1 (GND)	W - W-B	Rear height control sensor RH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-25 (SHB4) - K30-1 (GND)	B - W-B	Rear height control sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K32-26 (SHFR) - K30-1 (GND)	L - W-B	Front height control sensor RH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-27 (SHRL) - K30-1 (GND)	R - W-B	Rear height control sensor LH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-28 (SHR2) - K30-1 (GND)	Y - W-B	Rear height control sensor (for AFS)	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-29 (SLRG) - K30-1 (GND)	L - W-B	Rear gate valve	Rear Gate Valve item of Active Test activated	ON: Alternating between 10 and 15.5 V OFF: 0 to 0.5 V
K32-30 (SLFG) - K30-1 (GND)	GR - W-B	Front gate valve	Front Gate Valve item of Active Test activated	ON: Alternating between 10 and 15.5 V OFF: 0 to 0.5 V
K31-1 (BAT) - K30-1 (GND)	W - W-B	Power supply for damping force control actuator	Always	11 to 14 V
K31-2 (RAL-) - K30-1 (GND)	R - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-3 (RAL+) - K30-1 (GND)	W - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-4 (RBR-) - K30-1 (GND)	G - W-B	Rear suspension control actuator RH	Engine switch off	12.0 to 13.6 Ω
		Rear damping force		

K31-5 (RAR+) - K30-1 (GND)	W - W-B	control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-6 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
K31-7 (RBL-) - K30-1 (GND)	G - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-8 (RBL+) - K30-1 (GND)	L - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-10 (SPB) - K30-1 (GND)	B - W-B	Fluid pressure sensor power source	Engine switch on (IG)	4.75 to 5.25 V
K31-11 (SHG5) - K30-1 (GND)	P - W-B	Height control sensor ground (for AFS)	Always	Below 1 Ω
K31-12 (SHG1) - K30-1 (GND)	G - W-B	Front height control sensor RH ground	Always	Below 1 Ω
K31-13 (RBR+) - K30-1 (GND)	L - W-B	Rear damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-14 (RAR-) - K30-1 (GND)	R - W-B	Rear damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-15 (SHB1) - K30-1 (GND)	B - W-B	Front height control sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V
K31-17 (TOIL) - K30-1 (GND)	W - W-B	Fluid temperature sensor	Engine switch on (IG)	0.15 to 4.79 V
K31-18 (STG) - K30-1 (GND)	G - W-B	Fluid temperature sensor ground	Always	Below 1 Ω
K31-19 (SPG) - K30-1 (GND)	G - W-B	Fluid pressure sensor ground	Always	Below 1 Ω
K31-20 (PACC) - K30-1 (GND)	W - W-B	Fluid pressure sensor	Engine switch on (IG)	0.47 to 4.62 V
			• Engine running • While vehicle height changing from NORMAL to LO	Approx. 0.5 V
K31-21 (SHFL) - K30-1 (GND)	W - W-B	Front height control sensor LH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K31-22 (SHF2) - K30-1 (GND)	GR - W-B	Front height control sensor (for AFS)	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K31-23 (SHB5) - K30-1 (GND)	L - W-B	Height control sensor power source (for AFS)	Engine switch on (IG)	4.75 to 5.25 V
K30-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
K30-2 (TSW1) - K30-1 (GND)	GR - W-B	Damping mode select switch	• Engine switch on (IG) • Damping mode select switch in normal or "COMF" position	9 to 14 V
			• Engine switch on (IG) • Damping mode select switch in "SPORT" position	Below 1.5 V
K30-3 (BAT2) - K30-1 (GND)	R - W-B	Power supply for No. 1 height control valve and front suspension control valve	Always	11 to 14 V
K30-5 (IG) - K30-1 (GND)	G - W-B	IG power supply	Engine switch on (IG)	11 to 14 V
K30-7 (CANH) - K30-8 (CANL)	V - L	CAN communication line	Engine switch off	54 to 69 Ω
K30-9 (TSW2) - K30-1 (GND)	B - W-B	Damping mode select switch	• Engine switch on (IG) • Damping mode select switch in normal or "SPORT" position	9 to 14 V
			• Engine switch on (IG) • Damping mode select switch in "COMF" position	Below 1.5 V
			• Engine switch on (IG)	

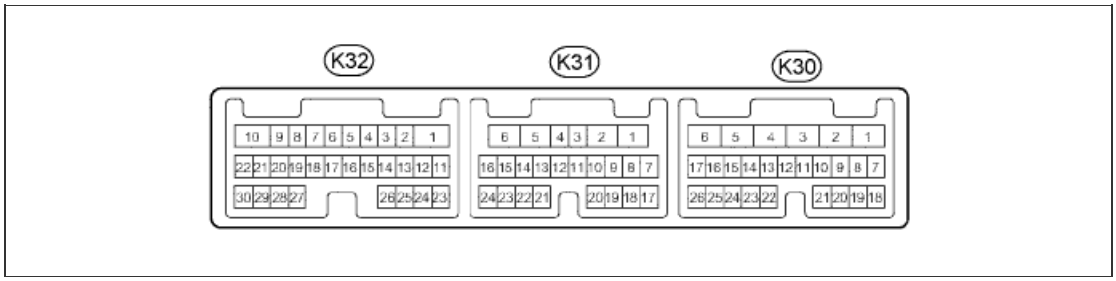
K30-10 (LMSW) - K30-1 (GND)	L - W-B	Easy access mode switch	• Engine switch on (IG) • Easy access mode on	Below 1.5 V
			• Engine switch on (IG) • Easy access mode off	9 to 14 V
K30-11 (TD) - K30-1 (GND)	W - W-B	Height control OFF switch	• Engine switch on (IG) • Height control off	9 to 14 V
			• Engine switch on (IG) • Height control on	Below 1.5 V
K30-13 (SGG2) - K30-1 (GND)	G - W-B	Front acceleration sensor LH ground	Always	Below 1 Ω
K30-14 (SGG1) - K30-1 (GND)	G - W-B	Front acceleration sensor RH ground	Always	Below 1 Ω
K30-15 (SGB1) - K30-1 (GND)	B - W-B	Front acceleration sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V
K30-20 (UPSW) - K30-1 (GND)	LG - W-B	Height control switch (Up)	• Engine switch on (IG) • Up button of height control switch pushed	Below 1.5 V
K30-21 (DNSW) - K30-1 (GND)	G - W-B	Height control switch (Down)	• Engine switch on (IG) • Down button of height control switch pushed	Below 1.5 V
K30-22 (SGFL) - K30-1 (GND)	W - W-B	Front acceleration sensor LH	• Engine switch on (IG) • Vehicle kept still without any vertical movement for 1 second	Approx. 2.5 V
K30-23 (SGB2) - K30-1 (GND)	B - W-B	Front acceleration sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K30-24 (SGFR) - K30-1 (GND)	W - W-B	Front acceleration sensor RH	• Engine switch on (IG) • Vehicle kept still without any vertical movement for 1 second	Approx. 2.5 V

for Preparation Click here

CHECK SUSPENSION CONTROL ECU

HINT:

Inspect the connectors from the back side while the connectors are connected.



Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
K32-1 (SLB) - K30-1 (GND)	R - W-B	No. 1 height control valve assembly and front suspension control valve power supply	Engine running	9 to 14 V
K32-2 (FBL+) - K30-1 (GND)	R - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-3 (FAL-) - K30-1 (GND)	L - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-4 (FAL+) - K30-1 (GND)	B - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-5 (FAR-) - K30-1 (GND)	L - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-6 (FAR+) - K30-1 (GND)	R - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-7 (SLFR) - K30-1 (GND)	R - W-B	Front leveling valve RH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-8 (SLFL) - K30-1 (GND)	W - W-B	Front leveling valve LH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-9 (SLRR) - K30-1 (GND)	R - W-B	Rear leveling valve RH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-10 (SLAC) - K30-1 (GND)	B - W-B	Accumulator valve	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-11 (CRFR) - K30-1 (GND)	G - W-B	Front spring rate switch valve RH	• Engine running • Shift lever in P • Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-12 (FBL-) - K30-1 (GND)	P - W-B	Front damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K32-13 (SHB3) - K30-1 (GND)	B - W-B	Rear height control sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V

K32-14 (SHB2) - K30-1 (GND)	B - W-B	Front height control sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K32-15 (SHG2) - K30-1 (GND)	G - W-B	Front height control sensor LH ground	Always	Below 1 Ω
K32-16 (RC) - K30-1 (GND)	G - W-B	Pump motor relay	Engine switch on (IG)	Below 1 V
			• Engine running • Up button of height control switch pushed when vehicle height NORMAL	0 to 14 V
K32-17 (FBR-) - K30-1 (GND)	P - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-18 (FBR+) - K30-1 (GND)	R - W-B	Front damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K32-19 (SHG4) - K30-1 (GND)	G - W-B	Rear height control sensor LH ground	Always	Below 1 Ω
K32-20 (SHG3) - K30-1 (GND)	G - W-B	Rear height control sensor RH ground	Always	Below 1 Ω
K32-22 (SLRL) - K30-1 (GND)	G - W-B	Rear leveling valve LH	• Engine running • Up or Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-23 (CRFL) - K30-1 (GND)	B - W-B	Front spring rate switch valve RH	• Engine running • Shift lever in P • Down button of height control switch pushed when vehicle height NORMAL	During control: Alternating between 10 and 15.5 V After control: 0 to 0.5 V
K32-24 (SHRR) - K30-1 (GND)	W - W-B	Rear height control sensor RH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-25 (SHB4) - K30-1 (GND)	B - W-B	Rear height control sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K32-26 (SHFR) - K30-1 (GND)	L - W-B	Front height control sensor RH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-27 (SHRL) - K30-1 (GND)	R - W-B	Rear height control sensor LH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-28 (SHR2) - K30-1 (GND)	SB - W-B	Rear height control sensor (for AFS)	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K32-29 (SLRG) - K30-1 (GND)	L - W-B	Rear gate valve	Rear Gate Valve item of Active Test activated	ON: Alternating between 10 and 15.5 V OFF: 0 to 0.5 V
K32-30 (SLFG) - K30-1 (GND)	GR - W-B	Front gate valve	Front Gate Valve item of Active Test activated	ON: Alternating between 10 and 15.5 V OFF: 0 to 0.5 V
K31-1 (BAT) - K30-1 (GND)	W - W-B	Power supply for damping force control actuator	Always	11 to 14 V
K31-2 (RAL-) - K30-1 (GND)	R - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-3 (RAL+) - K30-1 (GND)	W - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-4 (RBR-) - K30-1 (GND)	G - W-B	Rear suspension control actuator RH	Engine switch off	12.0 to 13.6 Ω
		Rear damping force		

K31-5 (RAR+) - K30-1 (GND)	W - W-B	control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-6 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
K31-7 (RBL-) - K30-1 (GND)	G - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-8 (RBL+) - K30-1 (GND)	L - W-B	Rear damping force control actuator LH	Engine switch off	12.0 to 13.6 Ω
K31-10 (SPB) - K30-1 (GND)	B - W-B	Fluid pressure sensor power source	Engine switch on (IG)	4.75 to 5.25 V
K31-11 (SHG5) - K30-1 (GND)	P - W-B	Height control sensor ground (for AFS)	Always	Below 1 Ω
K31-12 (SHG1) - K30-1 (GND)	G - W-B	Front height control sensor RH ground	Always	Below 1 Ω
K31-13 (RBR+) - K30-1 (GND)	L - W-B	Rear damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-14 (RAR-) - K30-1 (GND)	R - W-B	Rear damping force control actuator RH	Engine switch off	12.0 to 13.6 Ω
K31-15 (SHB1) - K30-1 (GND)	B - W-B	Front height control sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V
K31-17 (TOIL) - K30-1 (GND)	W - W-B	Fluid temperature sensor	Engine switch on (IG)	0.15 to 4.79 V
K31-18 (STG) - K30-1 (GND)	G - W-B	Fluid temperature sensor ground	Always	Below 1 Ω
K31-19 (SPG) - K30-1 (GND)	G - W-B	Fluid pressure sensor ground	Always	Below 1 Ω
K31-20 (PACC) - K30-1 (GND)	W - W-B	Fluid pressure sensor	Engine switch on (IG)	0.47 to 4.62 V
			• Engine running • While vehicle height changing from NORMAL to LO	Approx. 0.5 V
K31-21 (SHFL) - K30-1 (GND)	W - W-B	Front height control sensor LH	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K31-22 (SHF2) - K30-1 (GND)	GR - W-B	Front height control sensor (for AFS)	Engine switch on (IG)	0.5 to 4.5 V
			• Engine running • Completion of vehicle height control from HI to NORMAL	Approx. 2.5 V
K31-23 (SHB5) - K30-1 (GND)	L - W-B	Height control sensor power source (for AFS)	Engine switch on (IG)	4.75 to 5.25 V
K30-1 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
K30-2 (TSW1) - K30-1 (GND)	GR - W-B	Damping mode select switch	• Engine switch on (IG) • Damping mode select switch in normal or "COMF" position	9 to 14 V
			• Engine switch on (IG) • Damping mode select switch in "SPORT" position	Below 1.5 V
K30-3 (BAT2) - K30-1 (GND)	R - W-B	Power supply for No. 1 height control valve and front suspension control valve	Always	11 to 14 V
K30-5 (IG) - K30-1 (GND)	G - W-B	IG power supply	Engine switch on (IG)	11 to 14 V
K30-7 (CANH) - K30-8 (CANL)	V - L	CAN communication line	Engine switch off	54 to 69 Ω
K30-9 (TSW2) - K30-1 (GND)	B - W-B	Damping mode select switch	• Engine switch on (IG) • Damping mode select switch in normal or "SPORT" position	9 to 14 V
			• Engine switch on (IG) • Damping mode select switch in "COMF" position	Below 1.5 V
			• Engine switch on (IG)	

K30-10 (LMSW) - K30-1 (GND)	L - W-B	Easy access mode switch	• Engine switch on (IG) • Easy access mode on	Below 1.5 V
			• Engine switch on (IG) • Easy access mode off	9 to 14 V
K30-11 (TD) - K30-1 (GND)	W - W-B	Height control OFF switch	• Engine switch on (IG) • Height control off	9 to 14 V
			• Engine switch on (IG) • Height control on	Below 1.5 V
K30-13 (SGG2) - K30-1 (GND)	G - W-B	Front acceleration sensor LH ground	Always	Below 1 Ω
K30-14 (SGG1) - K30-1 (GND)	G - W-B	Front acceleration sensor RH ground	Always	Below 1 Ω
K30-15 (SGB1) - K30-1 (GND)	B - W-B	Front acceleration sensor RH power source	Engine switch on (IG)	4.75 to 5.25 V
K30-20 (UPSW) - K30-1 (GND)	LG - W-B	Height control switch (Up)	• Engine switch on (IG) • Up button of height control switch pushed	Below 1.5 V
K30-21 (DNSW) - K30-1 (GND)	G - W-B	Height control switch (Down)	• Engine switch on (IG) • Down button of height control switch pushed	Below 1.5 V
K30-22 (SGFL) - K30-1 (GND)	W - W-B	Front acceleration sensor LH	• Engine switch on (IG) • Vehicle kept still without any vertical movement for 1 second	Approx. 2.5 V
K30-23 (SGB2) - K30-1 (GND)	B - W-B	Front acceleration sensor LH power source	Engine switch on (IG)	4.75 to 5.25 V
K30-24 (SGFR) - K30-1 (GND)	W - W-B	Front acceleration sensor RH	• Engine switch on (IG) • Vehicle kept still without any vertical movement for 1 second	Approx. 2.5 V

for Preparation Click here

DIAGNOSIS SYSTEM

a. If a malfunction is detected in the active height control suspension, the master warning light illuminates, and "Check 4-WHEEL AHC System" is displayed on the multi-information display.

b. Test mode

    i. By switching from normal mode into test mode, the front acceleration sensor, rear acceleration sensor and suspension control switch can be inspected (Click here).

INITIAL CHECK

a. The initial check operates for approximately 3 seconds after the engine switch is turned on (IG). Therefore, the vehicle height information does not display on the height control indicator in the multi-information display. After the initial check is finished, the vehicle height information is displayed.

for Preparation Click here

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for Preparation Click here

CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Read the DTCs by following the prompts on the intelligent tester screen.

e. Refer to the Diagnostic Trouble Code Chart for DTC information (Click here).

CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Clear DTCs.

for Preparation Click here

CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Read the DTCs by following the prompts on the intelligent tester screen.

e. Refer to the Diagnostic Trouble Code Chart for DTC information (Click here).

CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Clear DTCs.

for Preparation Click here

CHECK DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Read the DTCs by following the prompts on the intelligent tester screen.

e. Refer to the Diagnostic Trouble Code Chart for DTC information (Click here).

CLEAR DTC

a. Connect the intelligent tester to the DLC3.

b. Turn the engine switch on (IG) and the intelligent tester on.

c. Enter the following menus: Chassis / AHC / DTC.

d. Clear DTCs.

for Preparation Click here

READ DATA LIST

HINT:

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading / min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (Front RH) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading / min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (Front LH) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading / min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (Rear) is bounced.
(Back&Forth)G Sensor	G sensor reading / min.: -4.5952 m/s^2 max.: 4.5953 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle is bounced.
Oil Pressure Sensor	Fluid pressure sensor reading / min.: -784.79 MPa (-8002.540 kgf/cm^2, -113824.688 psi) max.: 784.76 MPa (8002.296 kgf/cm^2, 113821.215 psi)	-	-
Oil Temperature Sensor	Fluid temperature sensor reading / min.: -3276.8°C (-5866.24°F) max.: 3276.7°C (5930.06°F)	-	-
Gravity Sensor(Side to Side)	Yaw rate sensor information / min.: -1176.37 m/s^2 max.: 1176.33 m/s^2	-	-
FR Height Control Sensor	Front height control sensor RH reading / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FL Height Control Sensor	Front height control sensor LH reading / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RR Height Control Sensor	Rear height control sensor RH reading / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RL Height Control Sensor	Rear height control sensor LH reading / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-

Height Offset Max	Display of amount of vehicle height calibration that is possible / min.: 0 mm (0 in.) max.: 655.35 mm (25.801 in.)	min.: 0 mm (0 in.) max.: 20 mm (0.787 in.)	-
FR Height Adjust	Display of vehicle height offset recorded value of front right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FL Height Adjust	Display of vehicle height offset recorded value of front left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RR Height Adjust	Display of vehicle height offset recorded value of rear right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RL Height Adjust	Display of vehicle height offset recorded value of rear left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FR After Height Adjust	Display of after-calibration vehicle height value of front right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
FL After Height Adjust	Display of after-calibration vehicle height value of front left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RR After Height Adjust	Display of after-calibration vehicle height value of rear right wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
RL After Height Adjust	Display of after-calibration vehicle height value of rear left wheel / min.: -3276.8 mm (-129 in.) max.: 3276.7 mm (129 in.)	-	-
Stop Light Switch	Stop light switch / ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
SPORT Switch	Damping mode select switch (SPORT) / ON or OFF	ON: SPORT OFF: NORMAL or COMFORT	-
COMFORT Switch	Damping mode select switch (COMFORT) / ON or OFF	ON: COMFORT OFF: NORMAL or SPORT	-
Door Switch	Door courtesy light switch / ON or OFF	ON: Door open OFF: All doors closed	-
Access Mode Switch	Easy access mode switch / ON or OFF	ON: Easy access mode switch pushed and held OFF: Easy access mode switch not pushed	-
Height Control Switch(Up)	Height control switch (Up) / ON or OFF	ON: Up button of height control switch pushed OFF: Height control switch not pushed	-
Height Control Switch(Down)	Height control switch (Down) / ON or OFF	ON: Down button of height control switch pushed OFF: Height control switch not pushed	-
Height Offset	Vehicle height offset calibration condition reading / ON or OFF	ON: Vehicle height offset calibration complete OFF: Before vehicle height offset calibration	-
TD Terminal	TD terminal / ON or OFF	ON: Height control OFF switch pushed OFF: Height control OFF switch not pushed	-
TC Terminal	TC terminal / ON or OFF	ON: DTC output OFF: DTC not output	-

TS Terminal	TS terminal / ON or OFF	ON: During test mode OFF: Normal mode	-
Differential Lock Switch	Center differential lock switch / ON or OFF	ON: Center differential locked OFF: Center differential free	-
L4 Switch	Transfer position switch / ON or OFF	ON: Transfer position switch set to L4 OFF: Transfer position switch set to H4	-
IG Power Source Voltage	ECU power supply voltage / min.: 0 V max.: 25.5 V	Engine switch on (IG): 11 to 14 V	-
+B Power Source Voltage	Power supply for damping force control actuator / min.: 0 V max.: 25.5 V	Engine switch on (IG): 11 to 14 V	-
+B2 Power Source Voltage	Power supply for No. 1 height control valve and front suspension control valve / min.: 0 V max.: 25.5 V	Engine switch on (IG): 11 to 14 V	-
Steering Angle	Steering angle sensor reading / min.: -49152° max. 49150.5°	Actual steering angle Left turn: reading increases Right turn: reading decreases	-
Engine Speed	Engine speed / min.: 0 rpm max.: 25500 rpm	Actual engine speed	The speed indicated on the combination meter.
FR Wheel Speed	Front right wheel speed reading / min.: 0 km/h (0 mph) max.: 255 km/h (159 mph)	-	-
FL Wheel Speed	Front left wheel speed reading / min.: 0 km/h (0 mph) max.: 255 km/h (159 mph)	-	-
RR Wheel Speed	Rear right wheel speed reading / min.: 0 km/h (0 mph) max.: 255 km/h (159 mph)	-	-
RL Wheel Speed	Rear left wheel speed reading / min.: 0 km/h (0 mph) max.: 255 km/h (159 mph)	-	-
Driving Torque	Actual driving torque / min.: -1024 Nm max.: 1023 Nm	-	-
Damper Step FR	Damper step (Front RH) / min.: 1 step max.: 255 step	min.: 1 step max.: 16 step	-
Damper Step FL	Damper step (Front LH) / min.: 1 step max.: 255 step	min.: 1 step max.: 16 step	-
Damper Step RR	Damper step (Rear RH) / min.: 1 step max.: 255 step	min.: 1 step max.: 16 step	-
Damper Step RL	Damper step (Rear LH) / min.: 1 step max.: 255 step	min.: 1 step max.: 16 step	-
Max Damper Step FR	Damper step (Front RH) / min.: 0 step max.: 255 step	16 step	-
Max Damper Step FL	Damper step (Front LH) / min.: 0 step max.: 255 step	16 step	-
Max Damper Step RR	Damper step (Rear RH) / min.: 0 step max.: 255 step	16 step	-
Max Damper Step RL	Damper step (Rear LH) / min.: 0 step max.: 255 step	16 step	-

Adaptive Variable Suspension(AVS) Mode	Adaptive variable suspension mode / NORMAL / COMFORT / SEMI CO / SEMI SP / SPORTS	Actual conditions displayed	-
Height Mode	Height mode / NORMAL / ACCE LO / LO / STAN LO / FAST LO / L4 HI / HI / EX HI	Actual conditions displayed	-
Access Mode	Easy access mode / ON or OFF	ON: Easy access mode enabled OFF: Easy access mode off	-
Height Control Prohibition	Vehicle height control prohibition information / Permiss or Prohibi	-	-
Front Right Height Solenoid	Front height solenoid RH / ON or OFF	-	-
Front Left Height Solenoid	Front height solenoid LH / ON or OFF	-	-
Rear Right Height Solenoid	Rear height solenoid RH / ON or OFF	-	-
Rear Left Height Solenoid	Rear height solenoid LH / ON or OFF	-	-
Front Gate Valve	Front gate valve / ON or OFF	-	-
Rear Gate Valve	Rear gate valve / ON or OFF	-	-
Accumulator Valve	Accumulator valve / ON or OFF	-	-
FR Gas spring Switch Valve	Front gas spring switch valve RH / ON or OFF	-	-
FL Gas spring Switch Valve	Front gas spring switch valve LH / ON or OFF	-	-
Pump Motor Relay	Pump motor relay / ON or OFF	-	-
Main Relay for Valve	Main relay for valve / ON or OFF	-	-
Main Relay for Actuator	Main relay for actuator / ON or OFF	-	-
Number of Trouble Codes	Number of DTCs recorded / min.: 0 max.: 255	-	-

PERFORM ACTIVE TEST

HINT:

Using the intelligent tester to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. According to the display on the intelligent tester, perform the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Damper Step FR	Changes front damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.
Accumulator Valve	Accumulator valve	ON or OFF	Operation of the solenoid can be heard.
FR Gas Spring Switch Valve	Front gas spring switch valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front gas spring switch valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.
Front Right Wheel Up/Down	Right front vehicle height	UP, DOWN or OFF	-
Front Left Wheel Up/Down	Left front vehicle height	UP, DOWN or OFF	-
Rear Right Wheel Up/Down	Right rear vehicle height	UP, DOWN or OFF	-
Rear Left Wheel Up/Down	Left rear vehicle height	UP, DOWN or OFF	-
Front Wheel Up/Down	Front vehicle height	UP, DOWN or OFF	-
Rear Wheel Up/Down	Rear vehicle height	UP, DOWN or OFF	-
Front Wheel Up by Accumulator	Raising of front vehicle height	UP or OFF	-
Rear Wheel Up by Accumulator	Raising of rear vehicle height.	UP or OFF	-

for Preparation Click here

HINT:

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

Active Height Control Suspension

DTC Code	Detection Item	See page
C1711	Front Height Control Sensor RH Circuit Malfunction	Click here
C1712	Front Height Control Sensor LH Circuit Malfunction	Click here
C1713	Rear Height Control Sensor RH Circuit Malfunction	Click here
C1714	Rear Height Control Sensor LH Circuit Malfunction	Click here
C1715	Front Acceleration Sensor RH Malfunction	Click here
C1716	Front Acceleration Sensor LH Malfunction	Click here
C1717	Rear Acceleration Sensor Malfunction	Click here
C1718	Pressure Sensor Circuit Malfunction	Click here
C1719	Oil Temperature Sensor Circuit Malfunction	Click here
C1731	Front Damping Force Control Actuator RH Circuit Malfunction	Click here
C1732	Front Damping Force Control Actuator LH Circuit Malfunction	Click here
C1733	Rear Damping Force Control Actuator RH Circuit Malfunction	Click here
C1734	Rear Damping Force Control Actuator LH Circuit Malfunction	Click here
C1736	Front Suspension Control Valve RH Malfunction	Click here
C1737	Front Suspension Control Valve LH Malfunction	Click here
C1741	Front Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1742	Front Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1743	Rear Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1744	Rear Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1753	Accumulator Solenoid Valve Malfunction	Click here
C1754	Front Gate Solenoid Valve Malfunction	Click here
C1755	Rear Gate Solenoid Valve Malfunction	Click here
C1756	Suspension Control Relay Malfunction	Click here
C1763	Abnormal Pump Motor Oil Pressure	Click here
C1764	Abnormal Leveling Valve Oil Pressure	Click here
C1765	Abnormal Accumulator Valve Oil Pressure	Click here
C1766	Height Control Pump Motor Current	Click here
C1781	Suspension Control ECU Malfunction	Click here
C1782	Power Source Voltage Malfunction	Click here
C1783	Speed Signal Communication Error	Click here
C1784	Steering Angle Sensor Communication Error	Click here
C1785	Steering Control ECU Communication Error	Click here
C1787	Forward/Rearward/Sideways G Sensor Communication Error	Click here
C1791	Absorber Control Switch Circuit (Test Mode DTC)	Click here
C1792	Height Control Switch Circuit (Test Mode DTC)	Click here
C1794	Height Control OFF Switch Circuit (Test Mode DTC)	Click here
C1795	Access Mode Switch Circuit (Test Mode DTC)	Click here
C1796	Front Acceleration Sensor RH Malfunction (Test Mode DTC)	Click here
C1797	Front Acceleration Sensor LH Malfunction (Test Mode DTC)	Click here
C1798	Rear Acceleration Sensor Malfunction (Test Mode DTC)	Click here
U0100	Lost Communication with ECM / PCM "A"	Click here
U0101	Lost Communication with TCM	Click here
U0114	Lost Communication with 4WD Control ECU	Click here
U0122	Lost Communication with Vehicle Dynamics Control Module	Click here
U0124	Lost Communication with Lateral Acceleration Sensor Module	Click here

U0126	Lost Communication with Steering Angle Sensor Module	Click here
U0130	Lost Communication with VGRS	Click here
U0140	Lost Communication with Main Body ECU	Click here

for Preparation Click here

HINT:

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

Active Height Control Suspension

DTC Code	Detection Item	See page
C1711	Front Height Control Sensor RH Circuit Malfunction	Click here
C1712	Front Height Control Sensor LH Circuit Malfunction	Click here
C1713	Rear Height Control Sensor RH Circuit Malfunction	Click here
C1714	Rear Height Control Sensor LH Circuit Malfunction	Click here
C1715	Front Acceleration Sensor RH Malfunction	Click here
C1716	Front Acceleration Sensor LH Malfunction	Click here
C1717	Rear Acceleration Sensor Malfunction	Click here
C1718	Pressure Sensor Circuit Malfunction	Click here
C1719	Oil Temperature Sensor Circuit Malfunction	Click here
C1731	Front Damping Force Control Actuator RH Circuit Malfunction	Click here
C1732	Front Damping Force Control Actuator LH Circuit Malfunction	Click here
C1733	Rear Damping Force Control Actuator RH Circuit Malfunction	Click here
C1734	Rear Damping Force Control Actuator LH Circuit Malfunction	Click here
C1736	Front Suspension Control Valve RH Malfunction	Click here
C1737	Front Suspension Control Valve LH Malfunction	Click here
C1741	Front Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1742	Front Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1743	Rear Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1744	Rear Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1753	Accumulator Solenoid Valve Malfunction	Click here
C1754	Front Gate Solenoid Valve Malfunction	Click here
C1755	Rear Gate Solenoid Valve Malfunction	Click here
C1756	Suspension Control Relay Malfunction	Click here
C1763	Abnormal Pump Motor Oil Pressure	Click here
C1764	Abnormal Leveling Valve Oil Pressure	Click here
C1765	Abnormal Accumulator Valve Oil Pressure	Click here
C1766	Height Control Pump Motor Current	Click here
C1781	Suspension Control ECU Malfunction	Click here
C1782	Power Source Voltage Malfunction	Click here
C1783	Speed Signal Communication Error	Click here
C1784	Steering Angle Sensor Communication Error	Click here
C1785	Steering Control ECU Communication Error	Click here
C1787	Forward/Rearward/Sideways G Sensor Communication Error	Click here
C1791	Absorber Control Switch Circuit (Test Mode DTC)	Click here
C1792	Height Control Switch Circuit (Test Mode DTC)	Click here
C1794	Height Control OFF Switch Circuit (Test Mode DTC)	Click here
C1795	Access Mode Switch Circuit (Test Mode DTC)	Click here
C1796	Front Acceleration Sensor RH Malfunction (Test Mode DTC)	Click here
C1797	Front Acceleration Sensor LH Malfunction (Test Mode DTC)	Click here
C1798	Rear Acceleration Sensor Malfunction (Test Mode DTC)	Click here
U0100	Lost Communication with ECM / PCM "A"	Click here
U0101	Lost Communication with TCM	Click here
U0114	Lost Communication with 4WD Control ECU	Click here
U0122	Lost Communication with Vehicle Dynamics Control Module	Click here
U0124	Lost Communication with Lateral Acceleration Sensor Module	Click here

U0126	Lost Communication with Steering Angle Sensor Module	Click here
U0130	Lost Communication with VGRS	Click here
U0140	Lost Communication with Main Body ECU	Click here

for Preparation Click here

HINT:

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page" below.

Active Height Control Suspension

DTC Code	Detection Item	See page
C1711	Front Height Control Sensor RH Circuit Malfunction	Click here
C1712	Front Height Control Sensor LH Circuit Malfunction	Click here
C1713	Rear Height Control Sensor RH Circuit Malfunction	Click here
C1714	Rear Height Control Sensor LH Circuit Malfunction	Click here
C1715	Front Acceleration Sensor RH Malfunction	Click here
C1716	Front Acceleration Sensor LH Malfunction	Click here
C1717	Rear Acceleration Sensor Malfunction	Click here
C1718	Pressure Sensor Circuit Malfunction	Click here
C1719	Oil Temperature Sensor Circuit Malfunction	Click here
C1731	Front Damping Force Control Actuator RH Circuit Malfunction	Click here
C1732	Front Damping Force Control Actuator LH Circuit Malfunction	Click here
C1733	Rear Damping Force Control Actuator RH Circuit Malfunction	Click here
C1734	Rear Damping Force Control Actuator LH Circuit Malfunction	Click here
C1736	Front Suspension Control Valve RH Malfunction	Click here
C1737	Front Suspension Control Valve LH Malfunction	Click here
C1741	Front Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1742	Front Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1743	Rear Height Control Solenoid Valve RH Circuit Malfunction	Click here
C1744	Rear Height Control Solenoid Valve LH Circuit Malfunction	Click here
C1753	Accumulator Solenoid Valve Malfunction	Click here
C1754	Front Gate Solenoid Valve Malfunction	Click here
C1755	Rear Gate Solenoid Valve Malfunction	Click here
C1756	Suspension Control Relay Malfunction	Click here
C1763	Abnormal Pump Motor Oil Pressure	Click here
C1764	Abnormal Leveling Valve Oil Pressure	Click here
C1765	Abnormal Accumulator Valve Oil Pressure	Click here
C1766	Height Control Pump Motor Current	Click here
C1781	Suspension Control ECU Malfunction	Click here
C1782	Power Source Voltage Malfunction	Click here
C1783	Speed Signal Communication Error	Click here
C1784	Steering Angle Sensor Communication Error	Click here
C1785	Steering Control ECU Communication Error	Click here
C1787	Forward/Rearward/Sideways G Sensor Communication Error	Click here
C1791	Absorber Control Switch Circuit (Test Mode DTC)	Click here
C1792	Height Control Switch Circuit (Test Mode DTC)	Click here
C1794	Height Control OFF Switch Circuit (Test Mode DTC)	Click here
C1795	Access Mode Switch Circuit (Test Mode DTC)	Click here
C1796	Front Acceleration Sensor RH Malfunction (Test Mode DTC)	Click here
C1797	Front Acceleration Sensor LH Malfunction (Test Mode DTC)	Click here
C1798	Rear Acceleration Sensor Malfunction (Test Mode DTC)	Click here
U0100	Lost Communication with ECM / PCM "A"	Click here
U0101	Lost Communication with TCM	Click here
U0114	Lost Communication with 4WD Control ECU	Click here
U0122	Lost Communication with Vehicle Dynamics Control Module	Click here
U0124	Lost Communication with Lateral Acceleration Sensor Module	Click here

U0126	Lost Communication with Steering Angle Sensor Module	Click here
U0130	Lost Communication with VGRS	Click here
U0140	Lost Communication with Main Body ECU	Click here

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

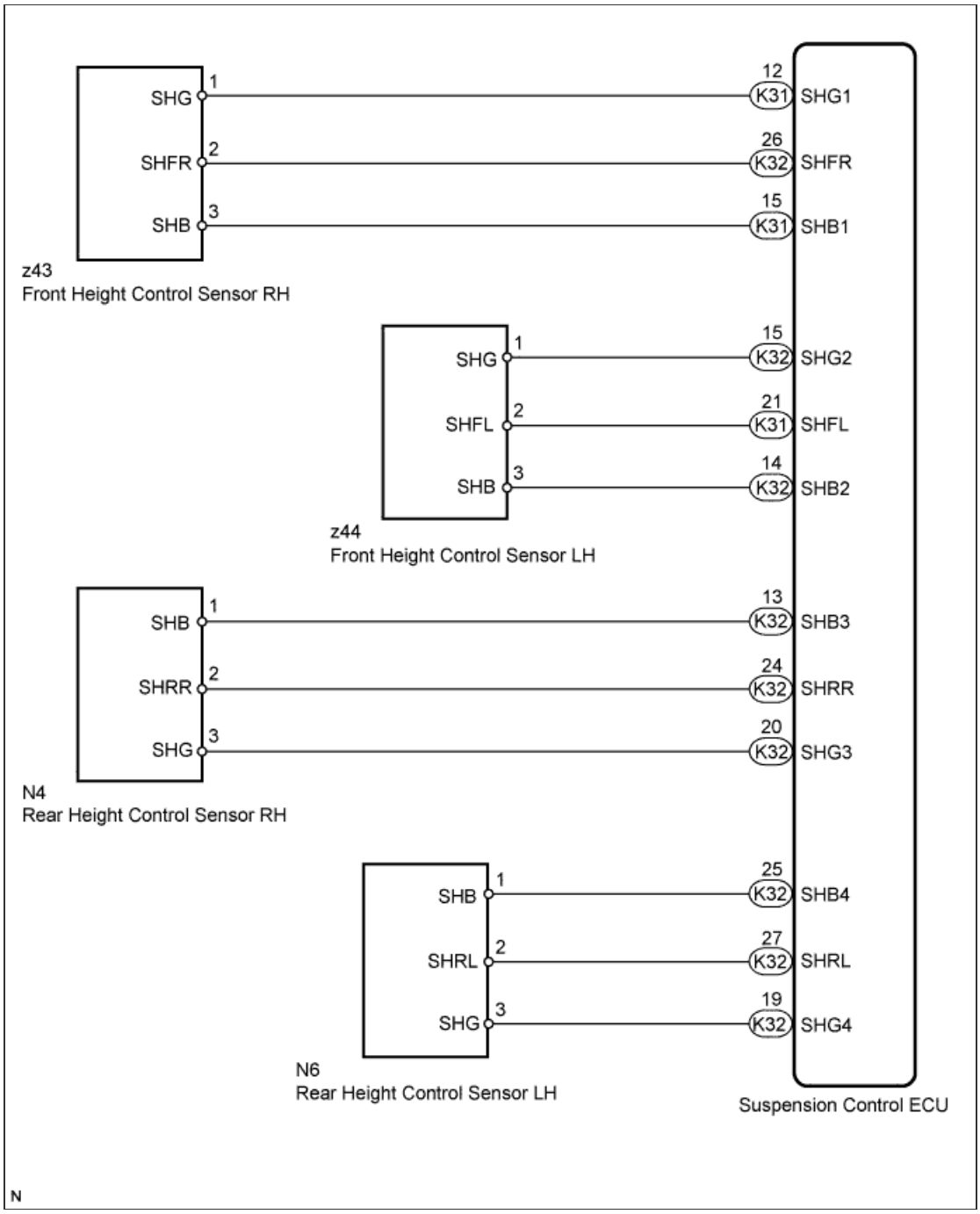
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

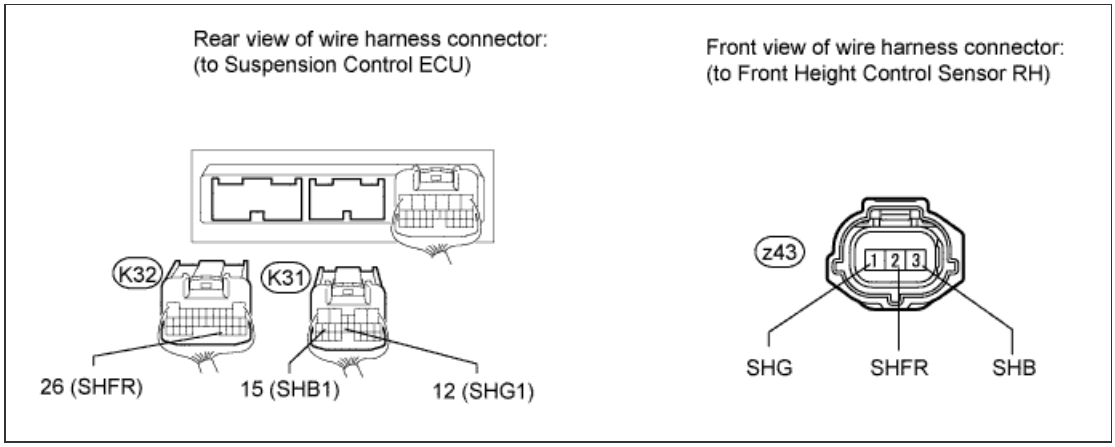
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

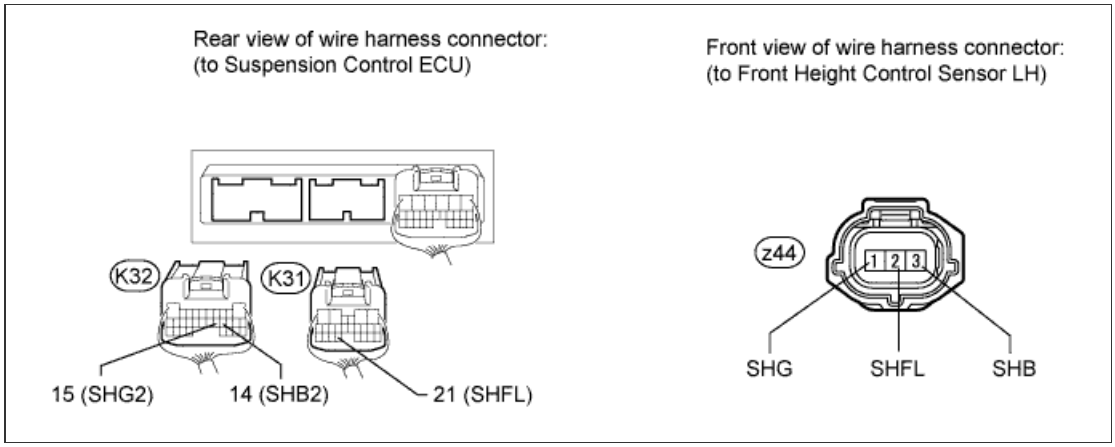
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

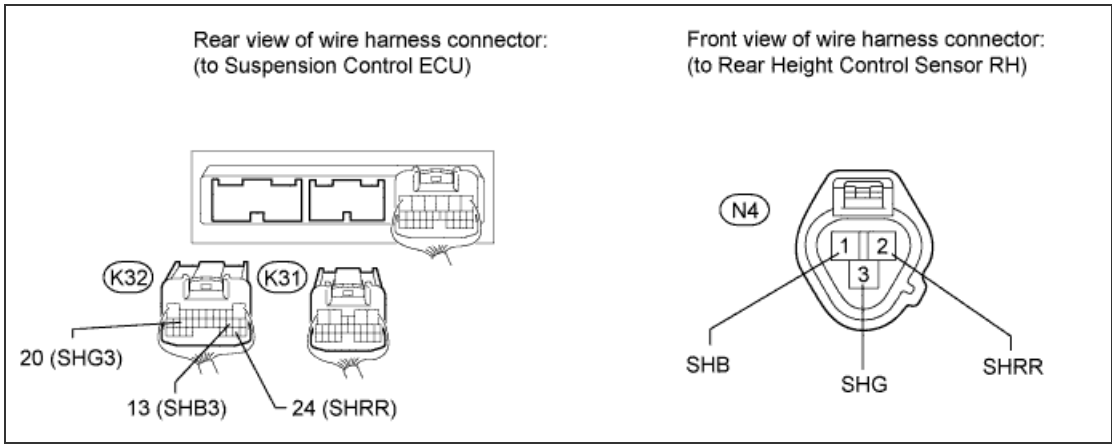
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

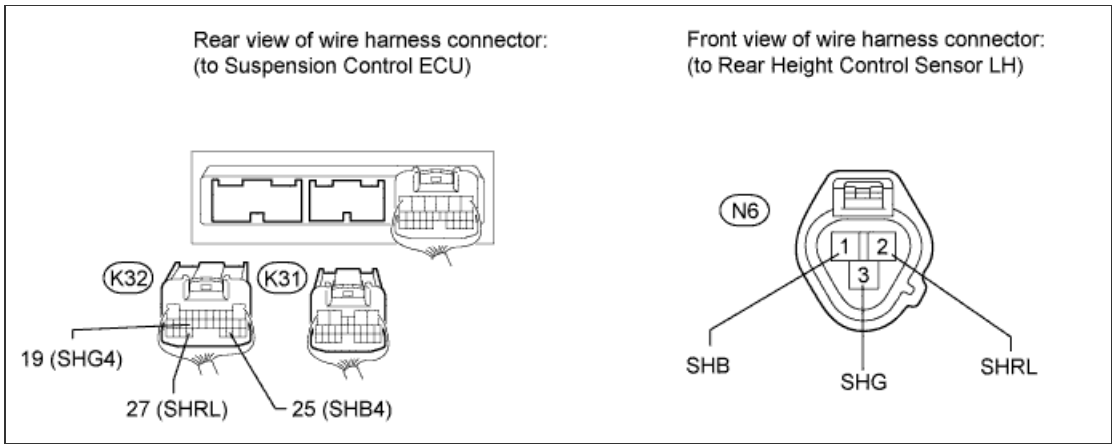
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

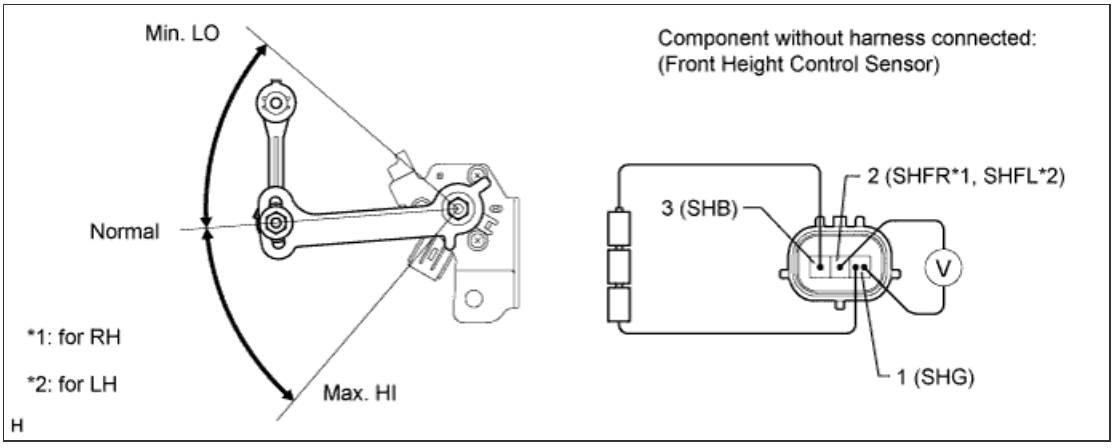
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

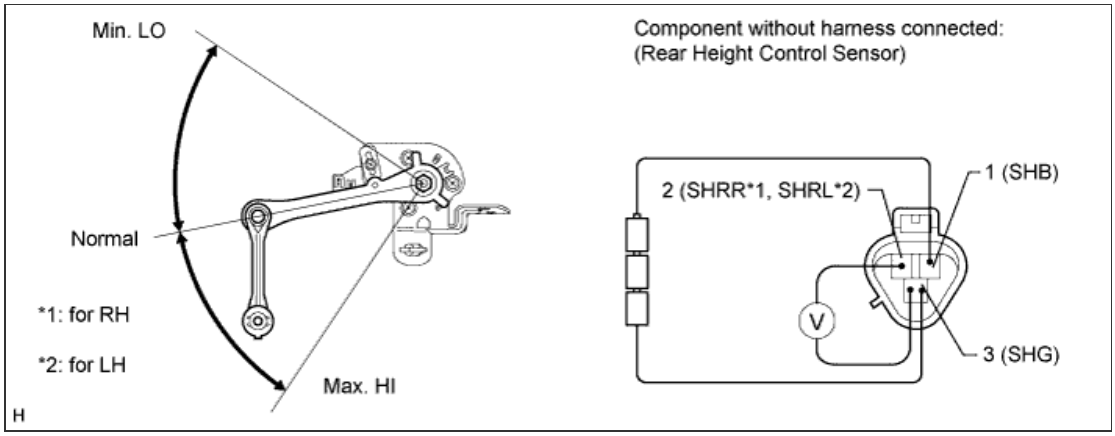
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

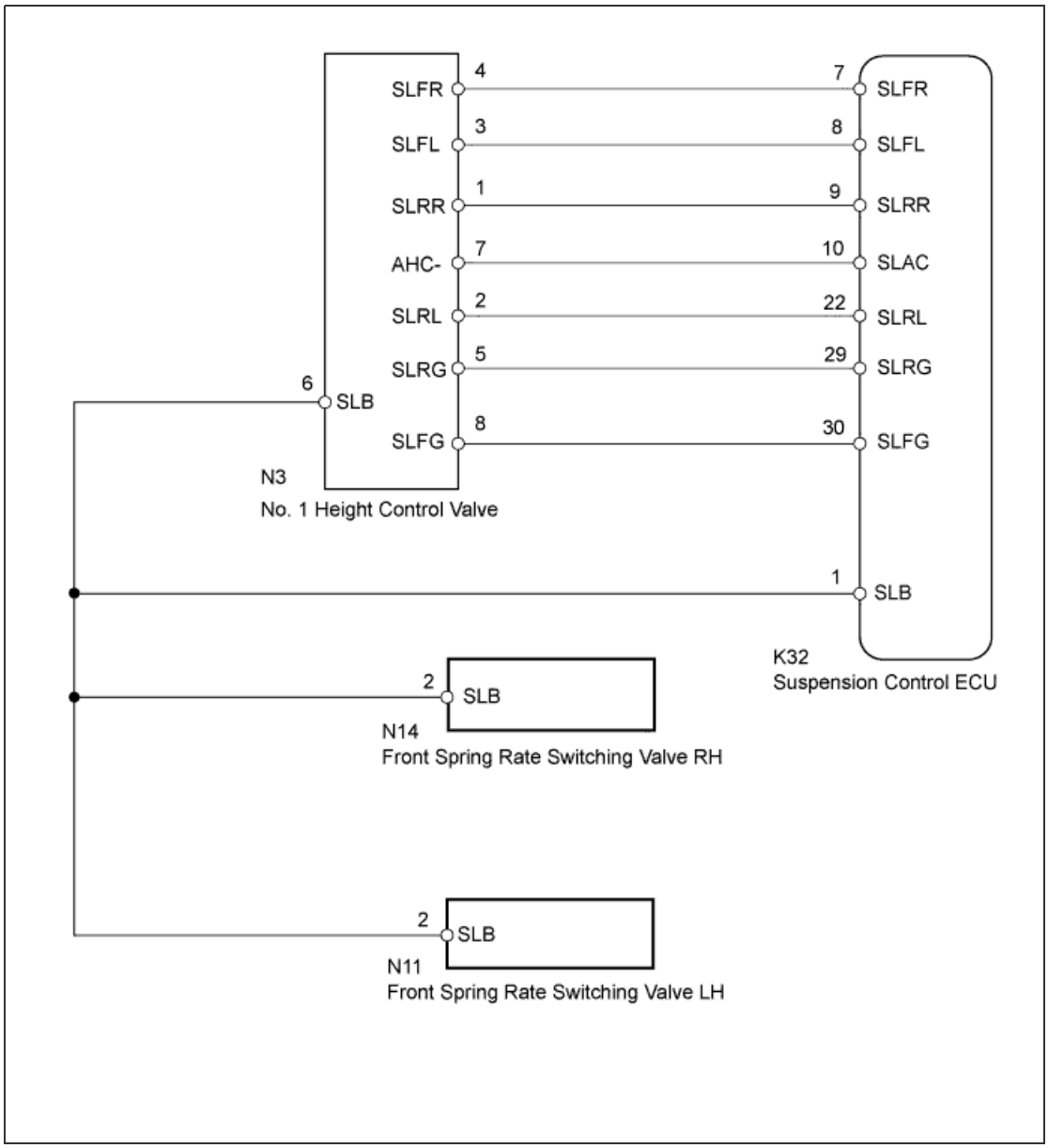
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

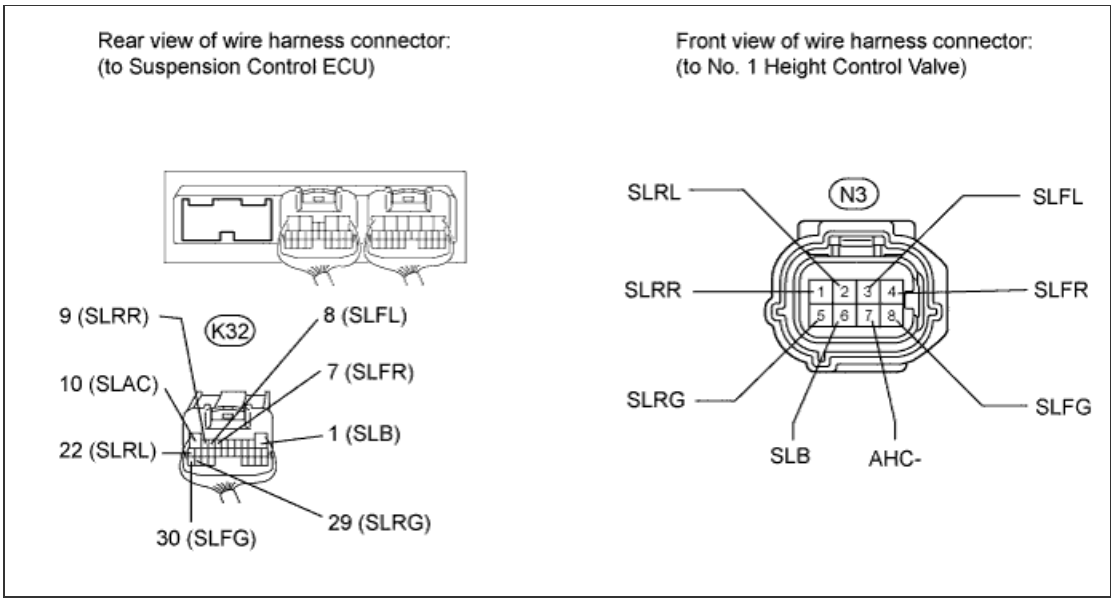
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

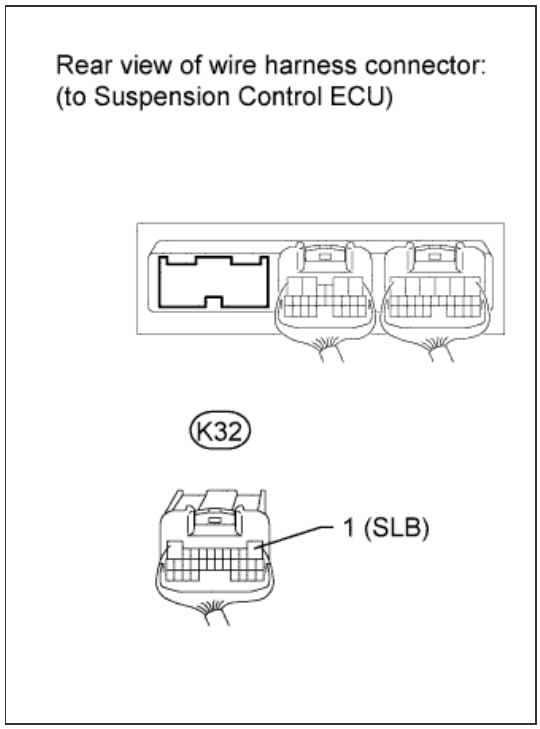
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

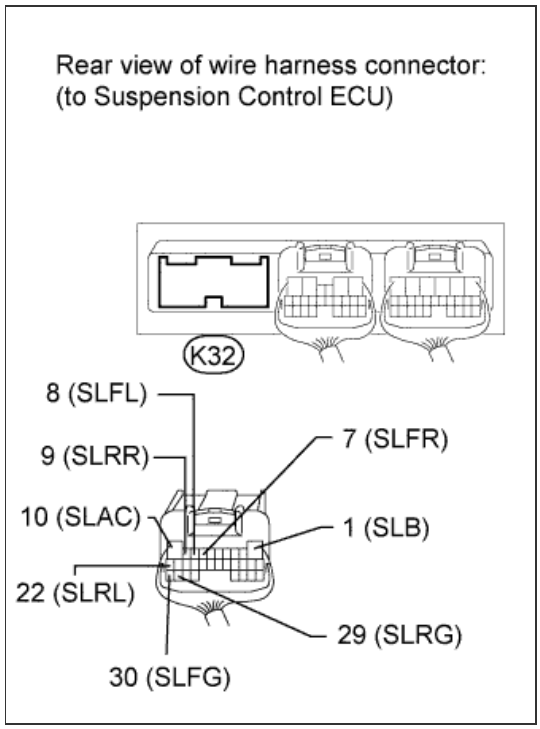
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

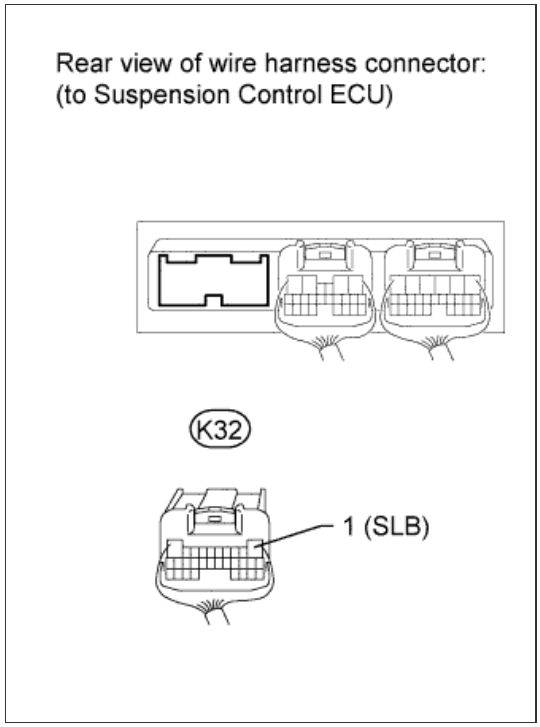
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

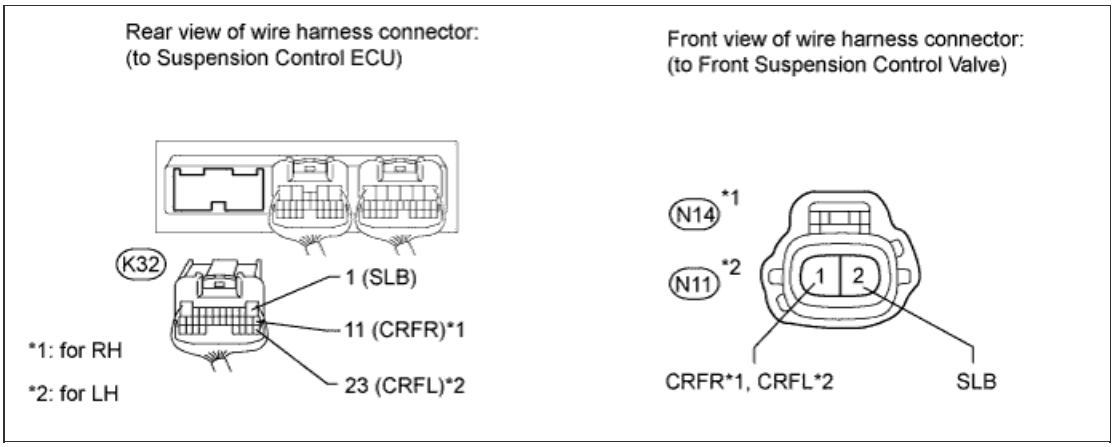
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

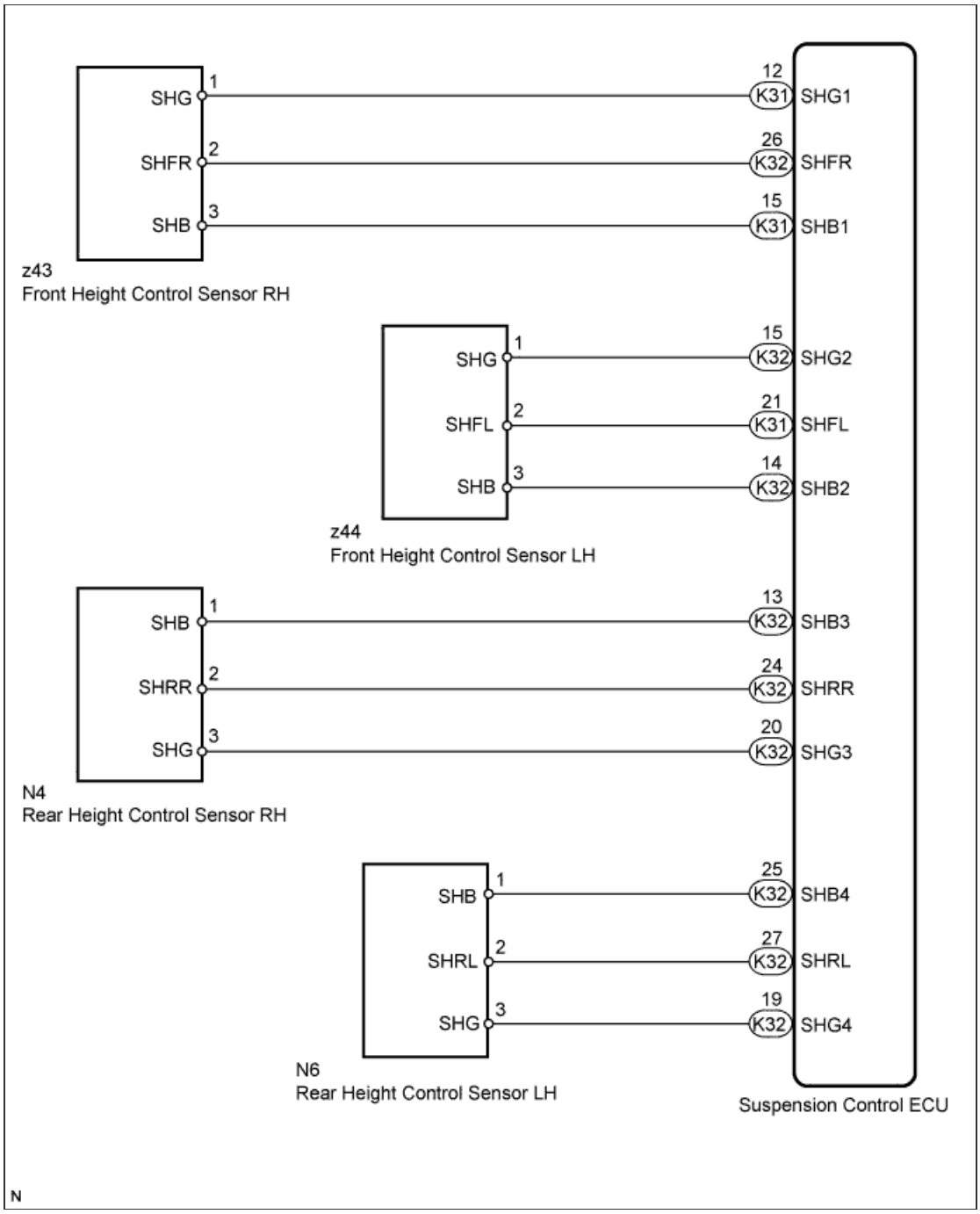
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

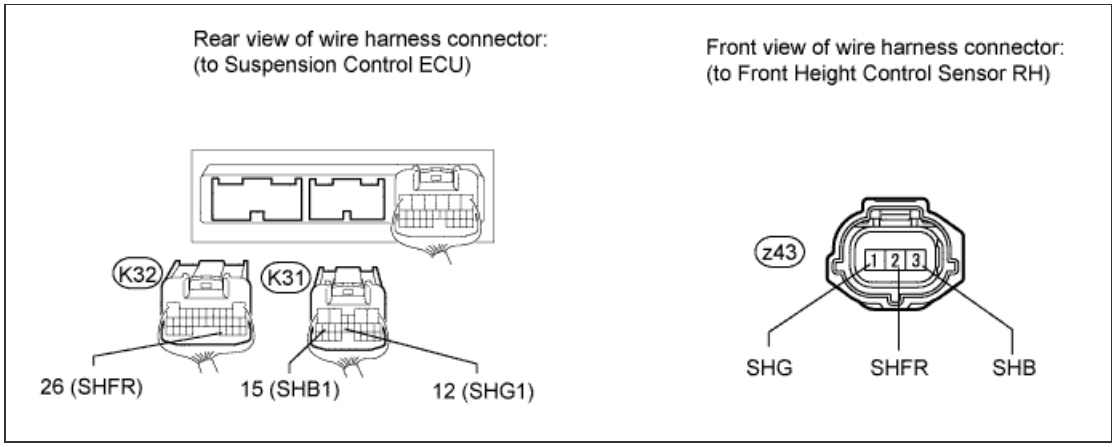
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

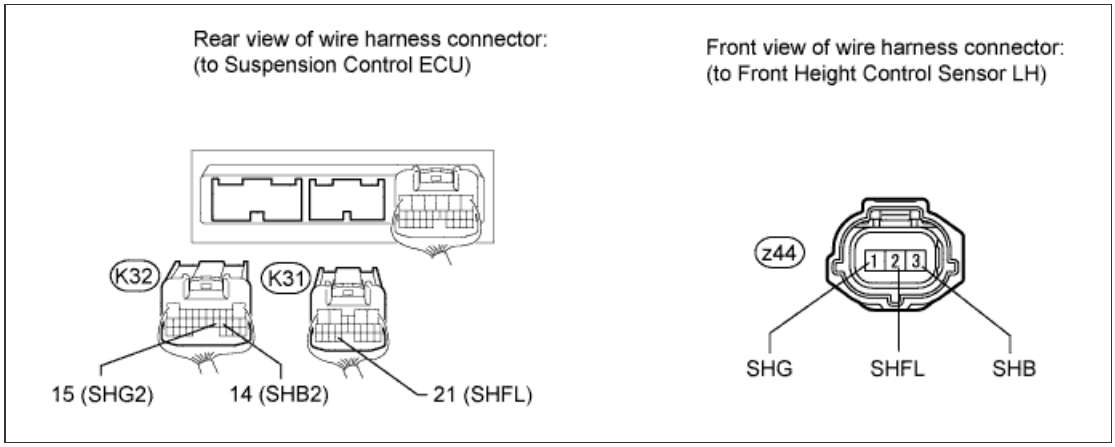
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

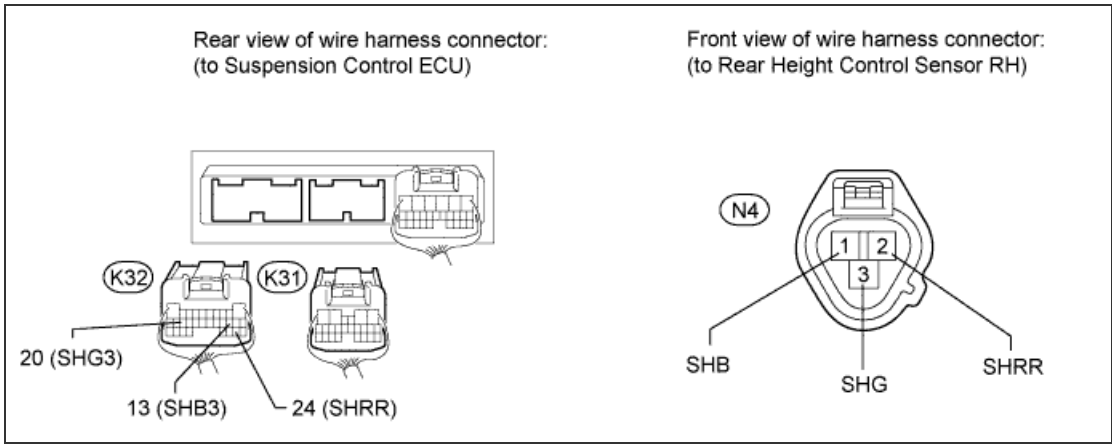
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

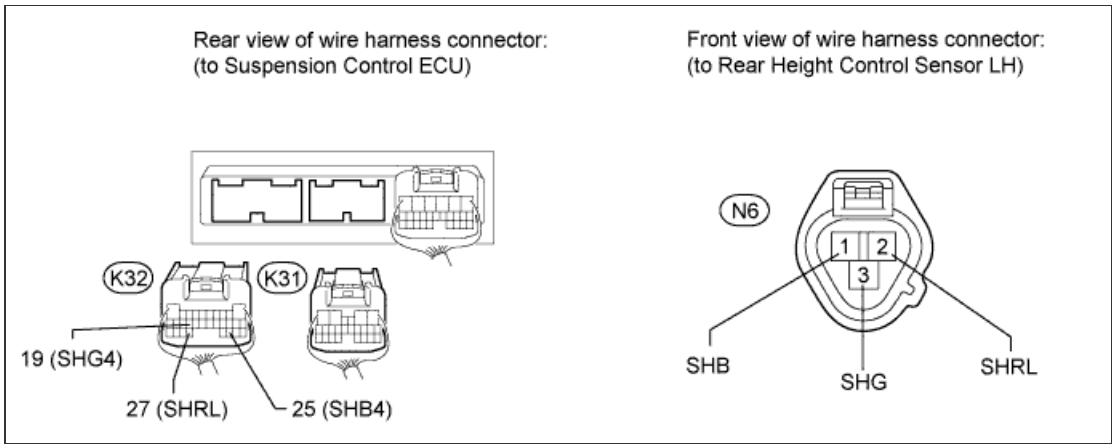
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

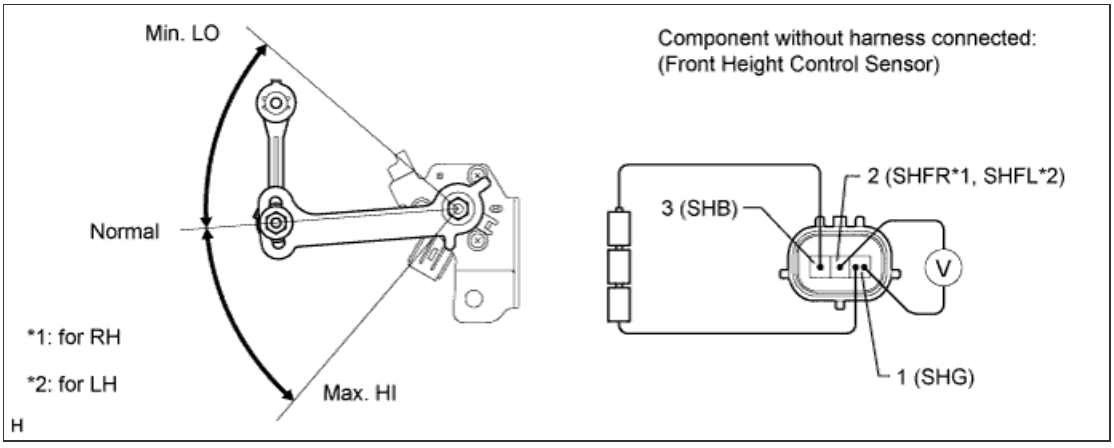
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

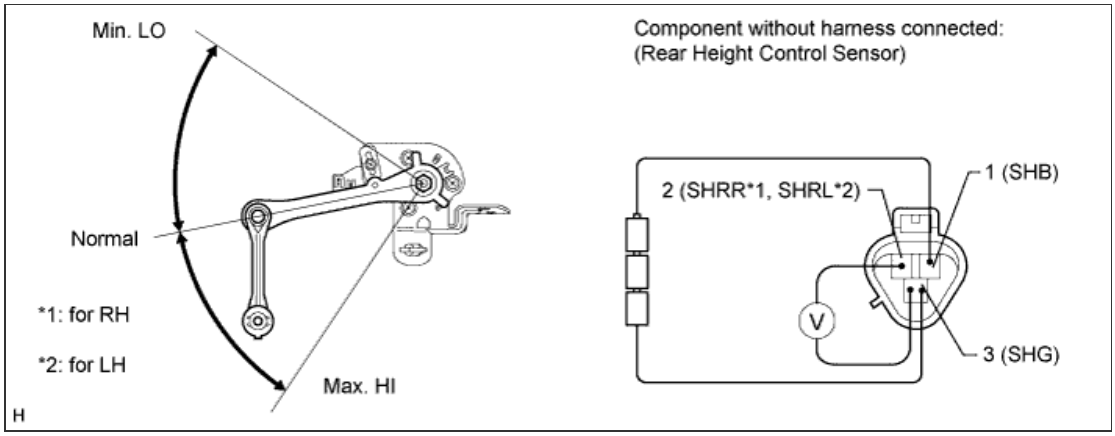
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

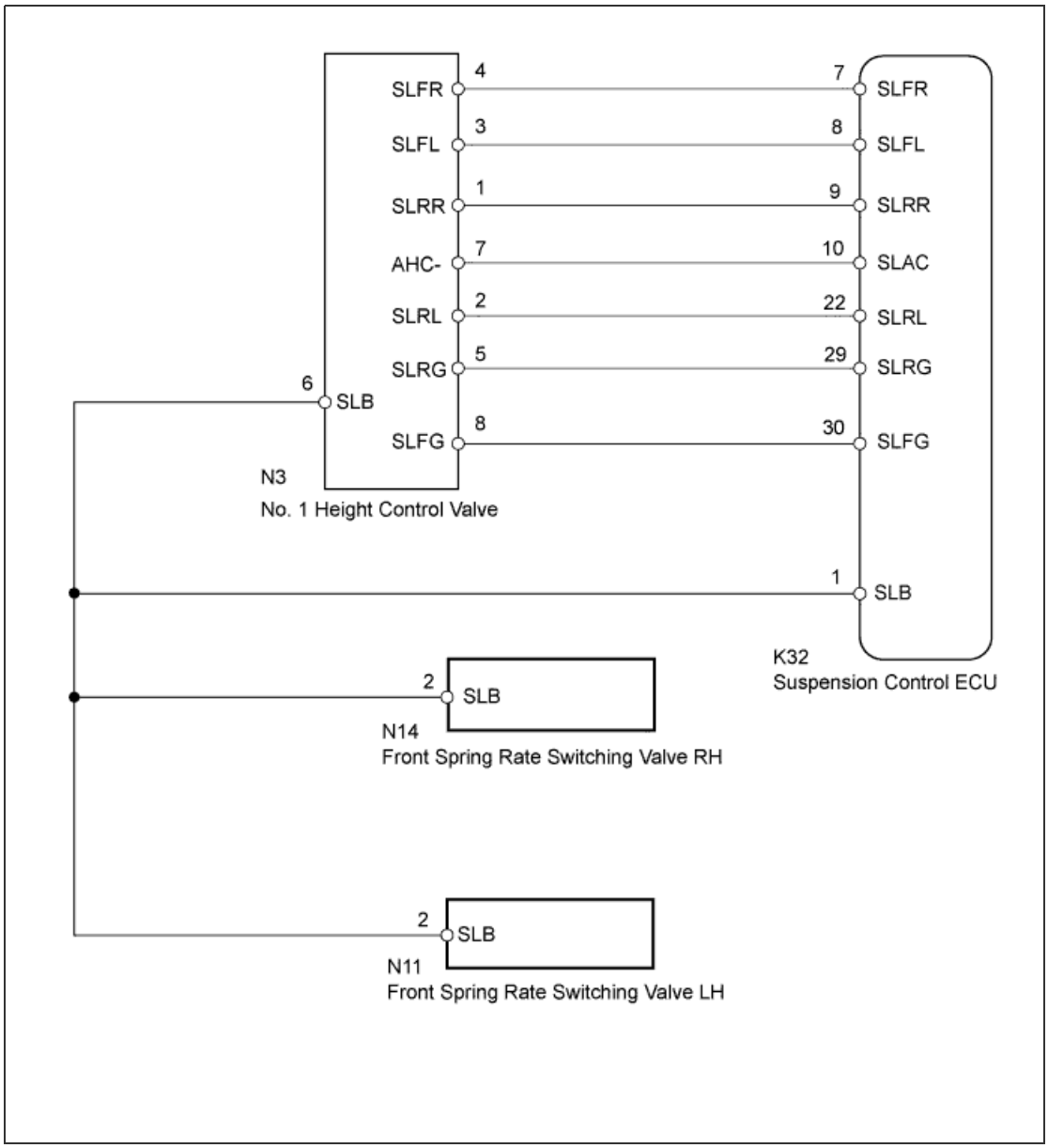
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DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

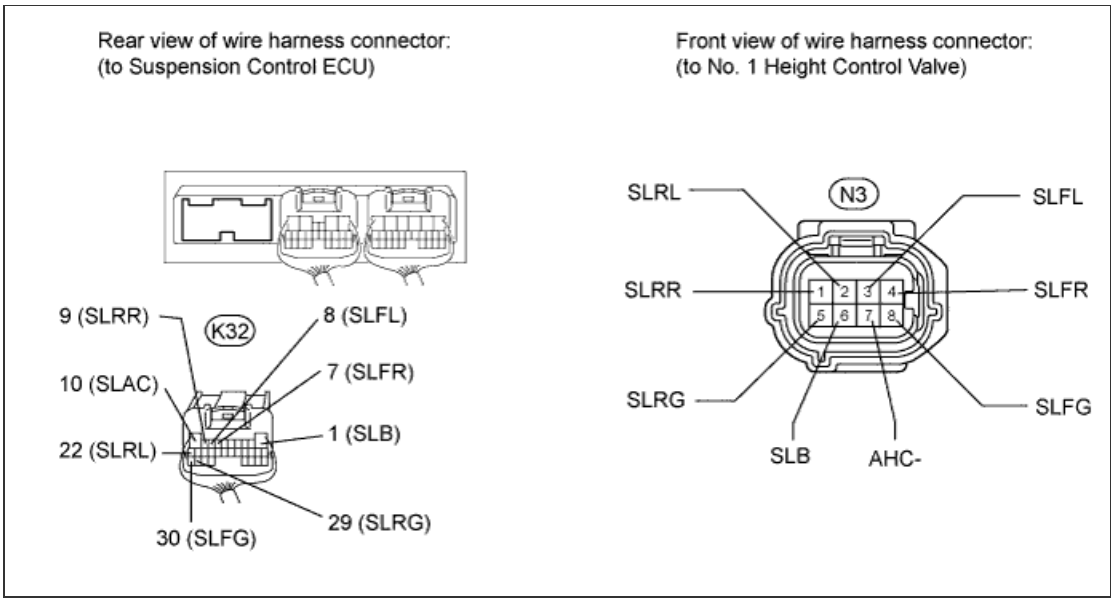
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

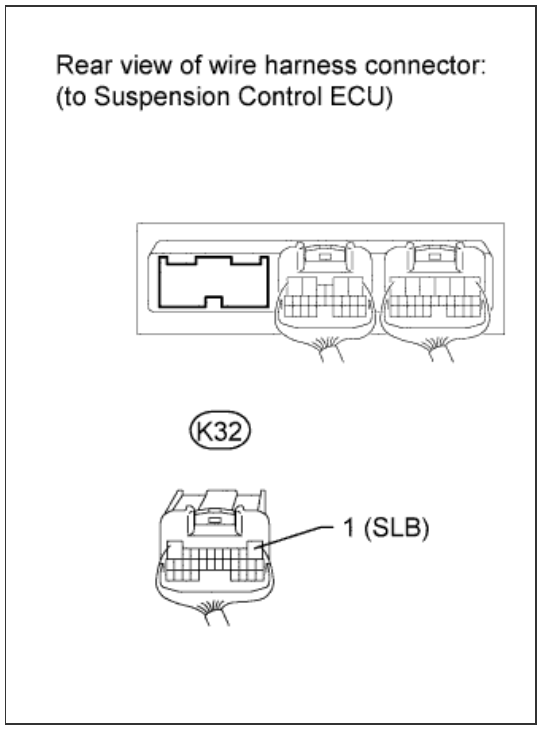
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

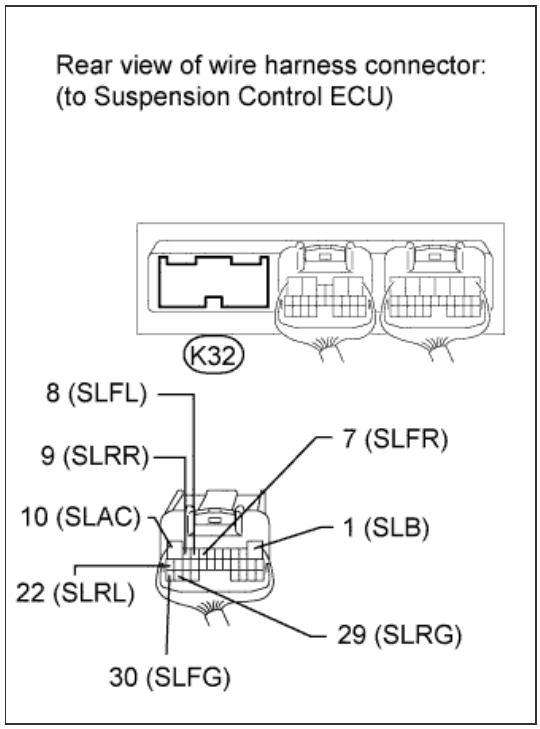
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

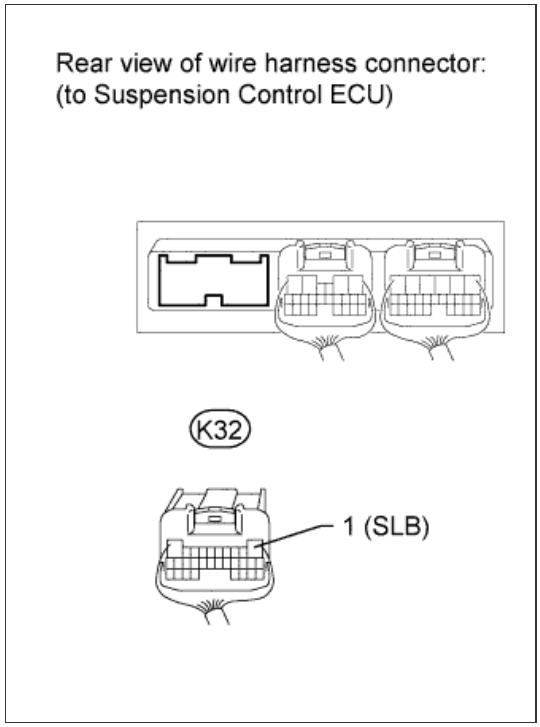
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

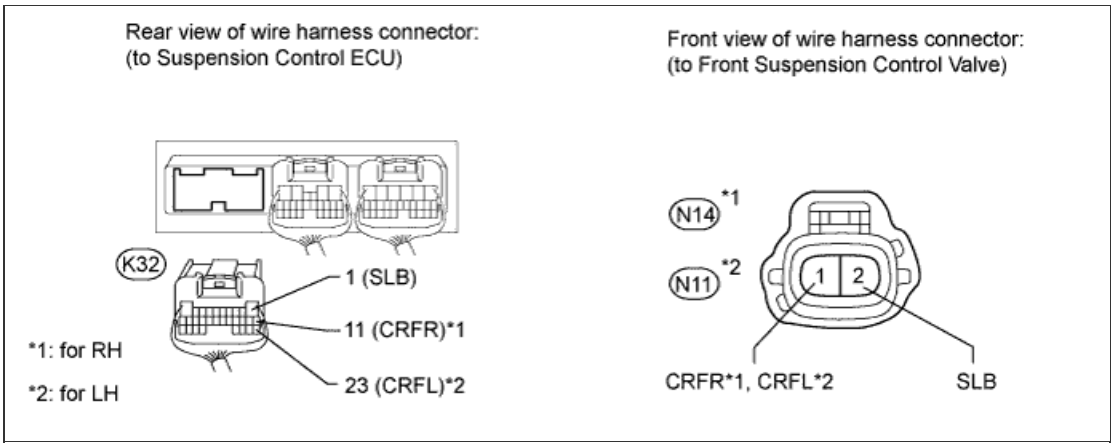
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

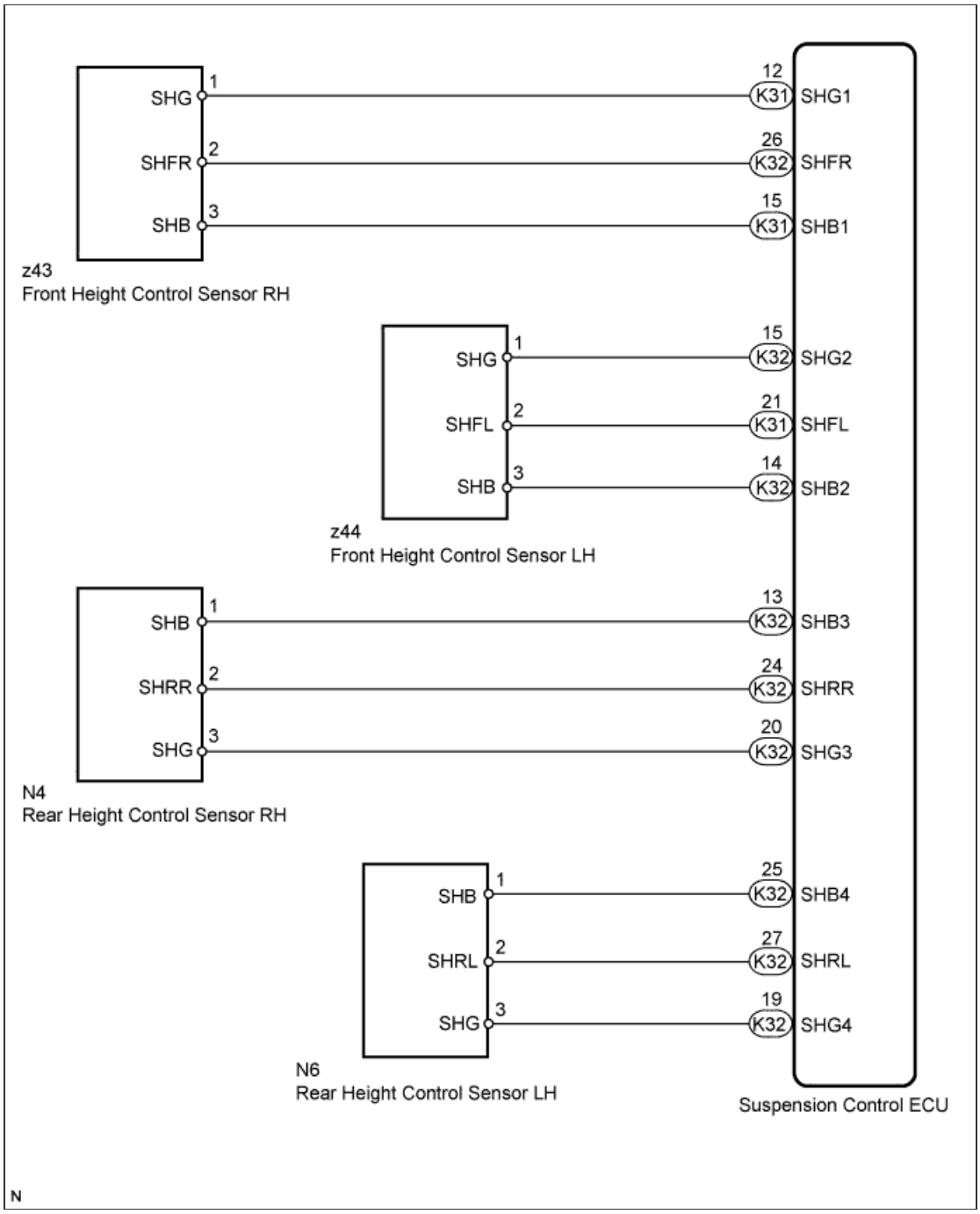
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

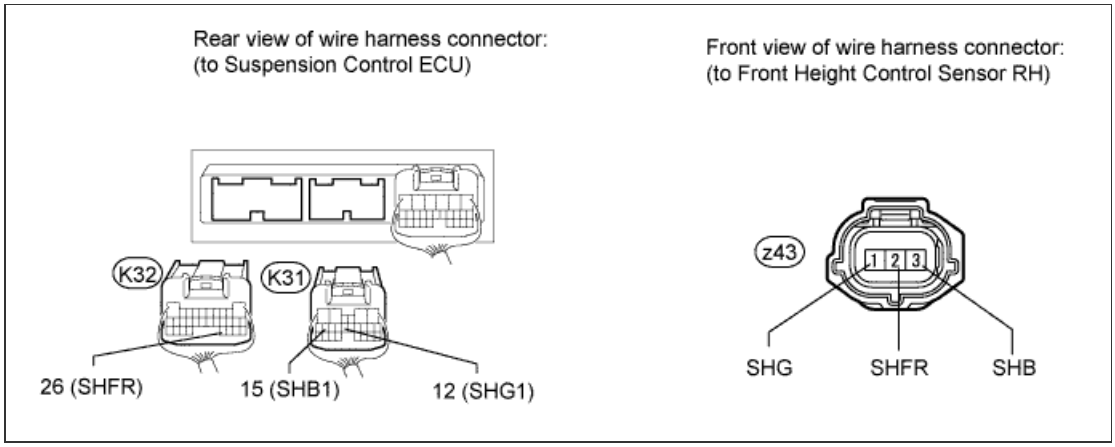
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

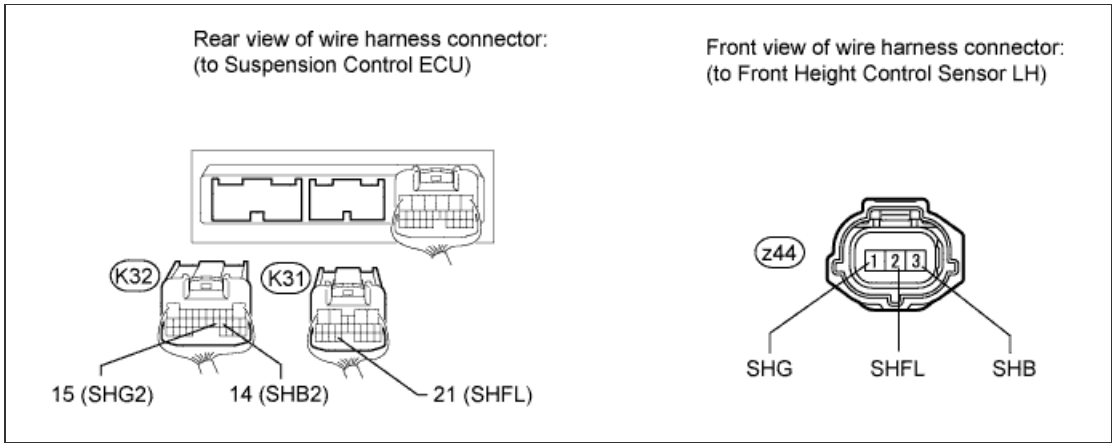
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

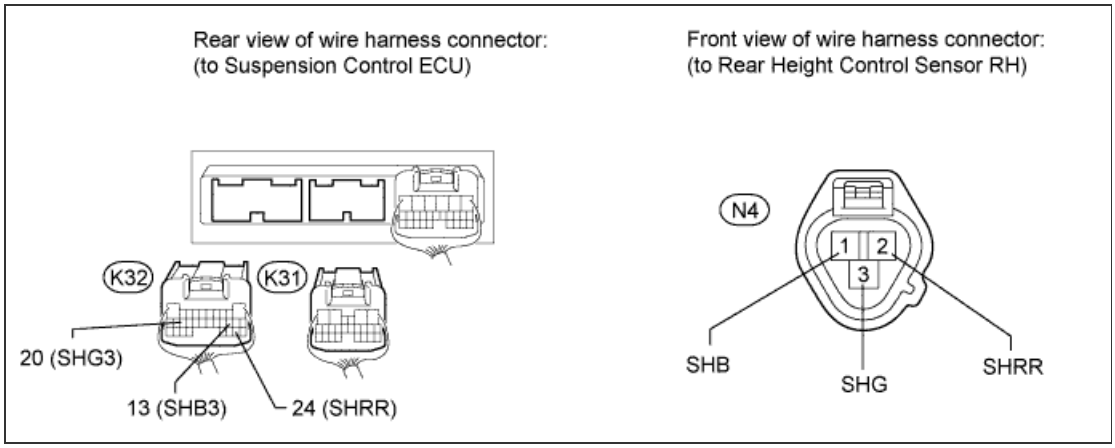
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

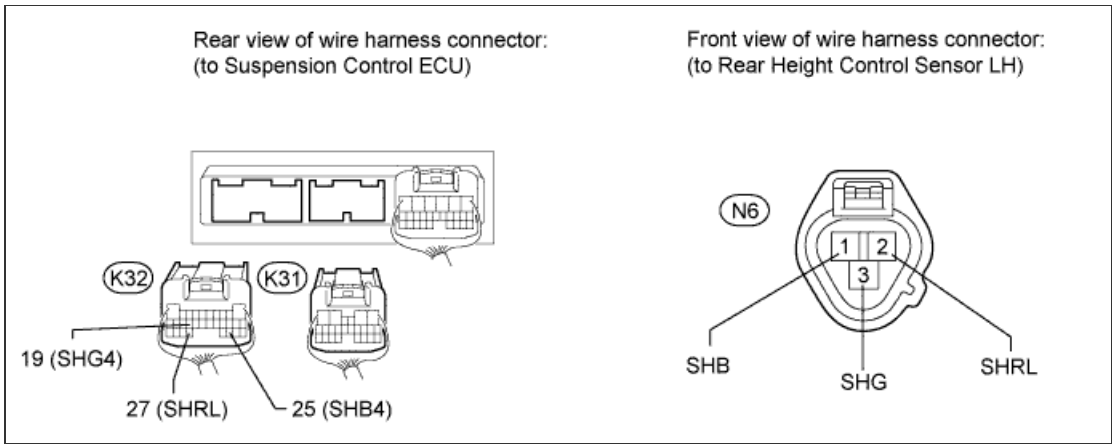
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

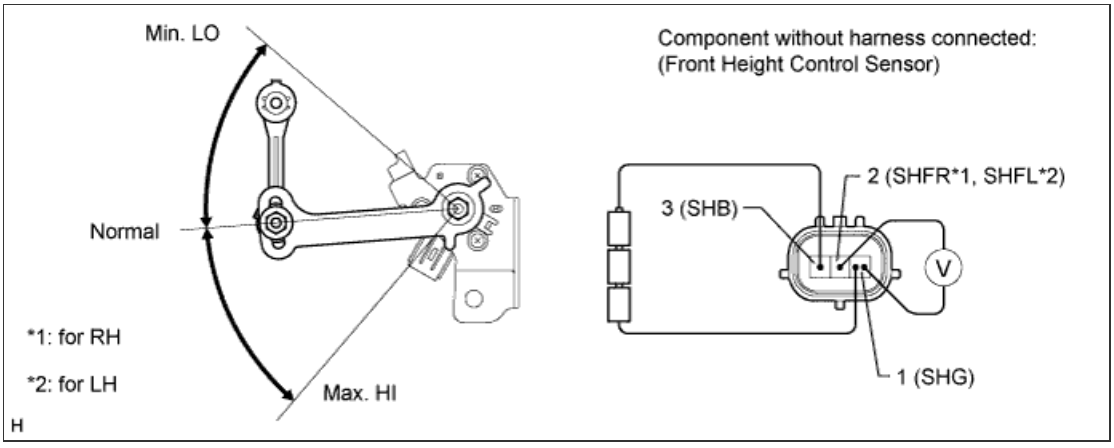
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

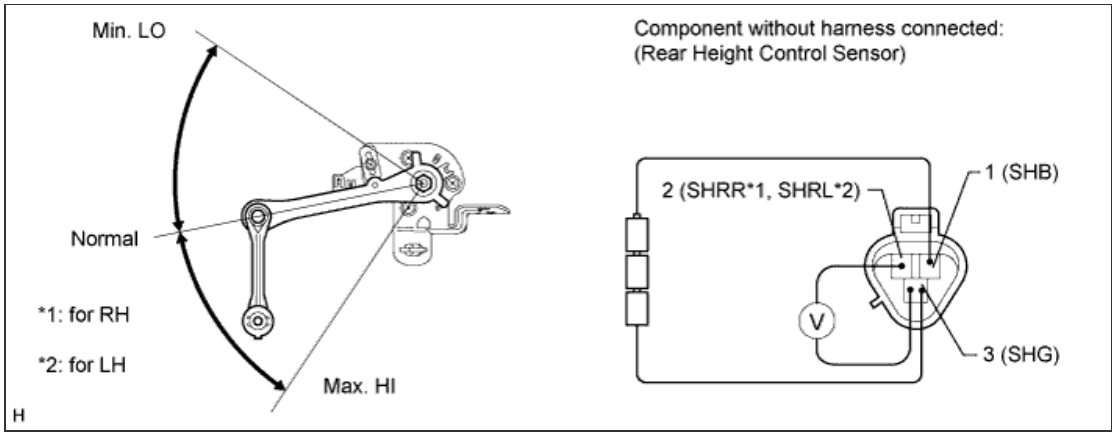
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

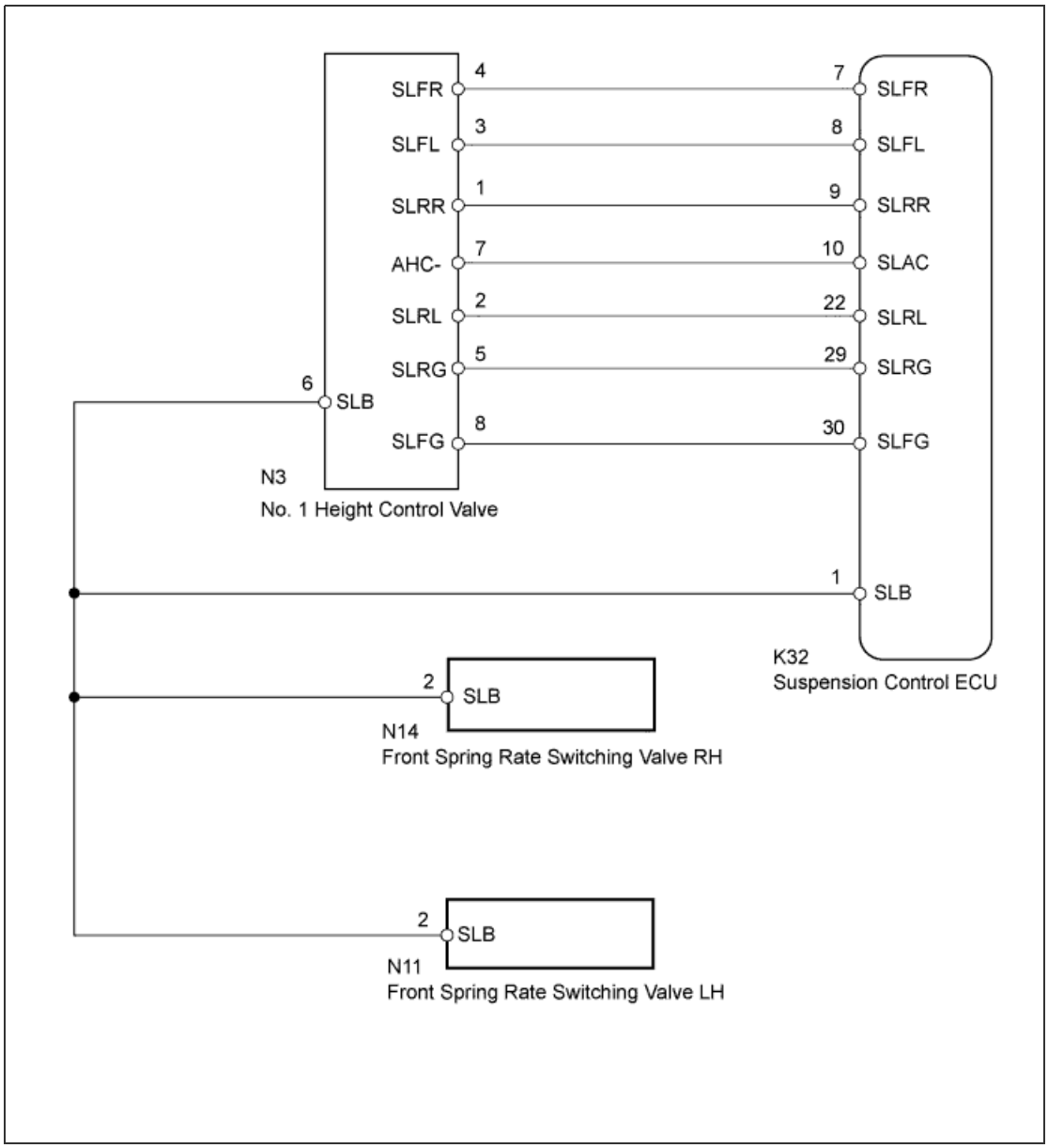
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

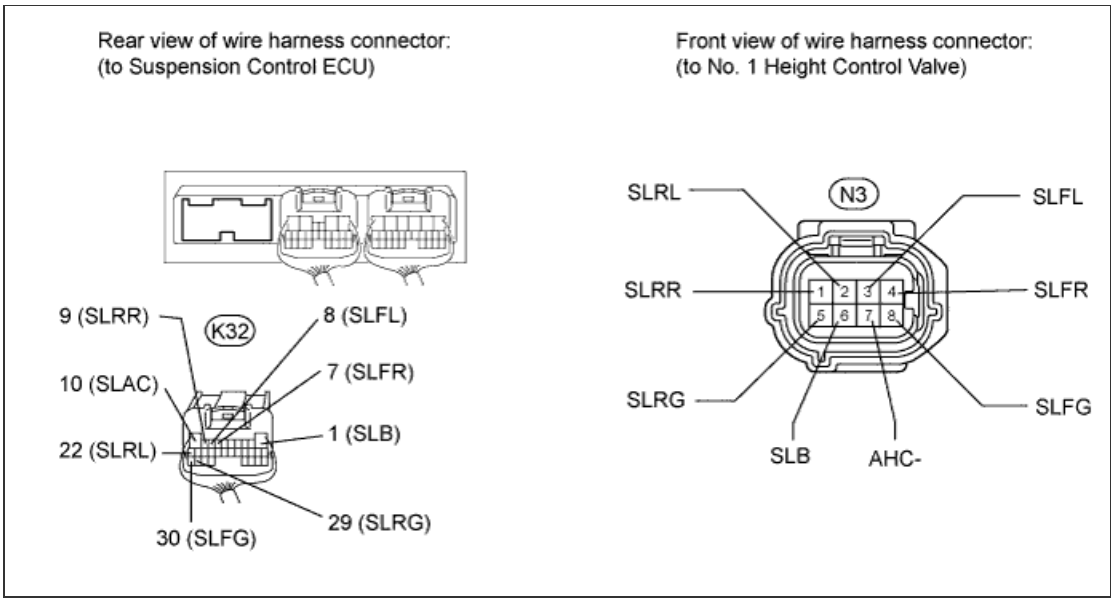
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

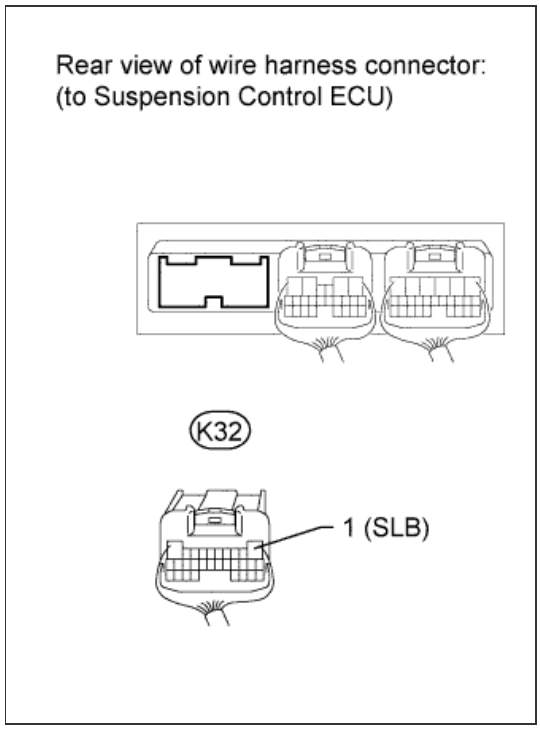
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

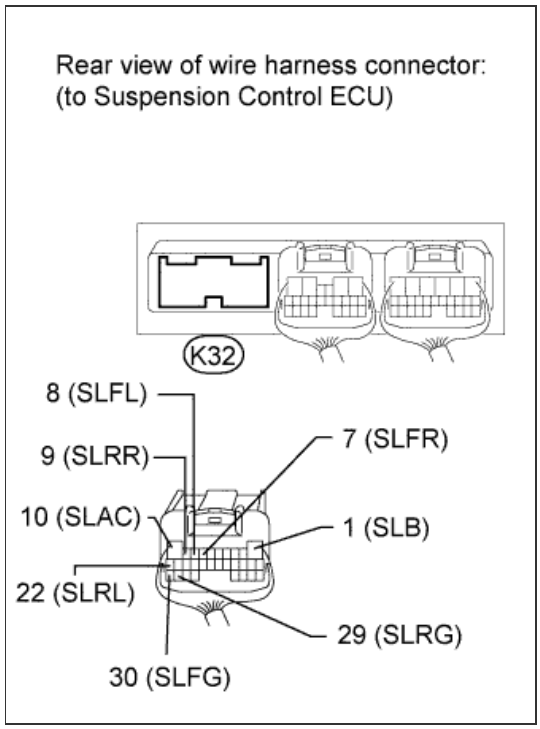
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

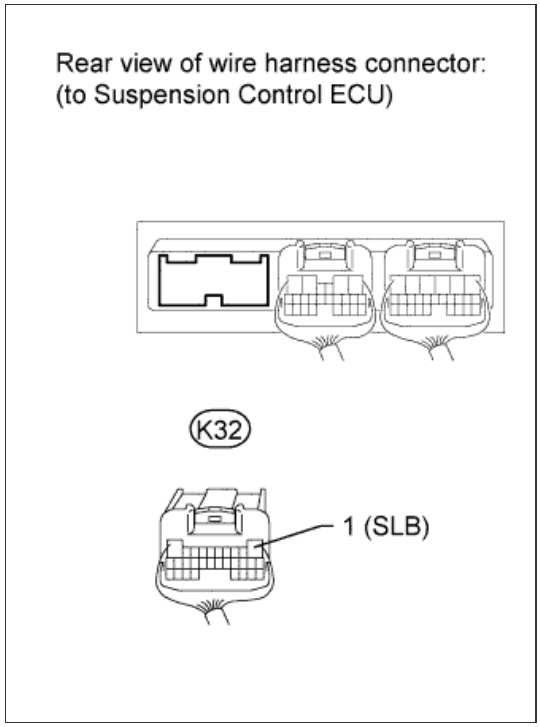
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

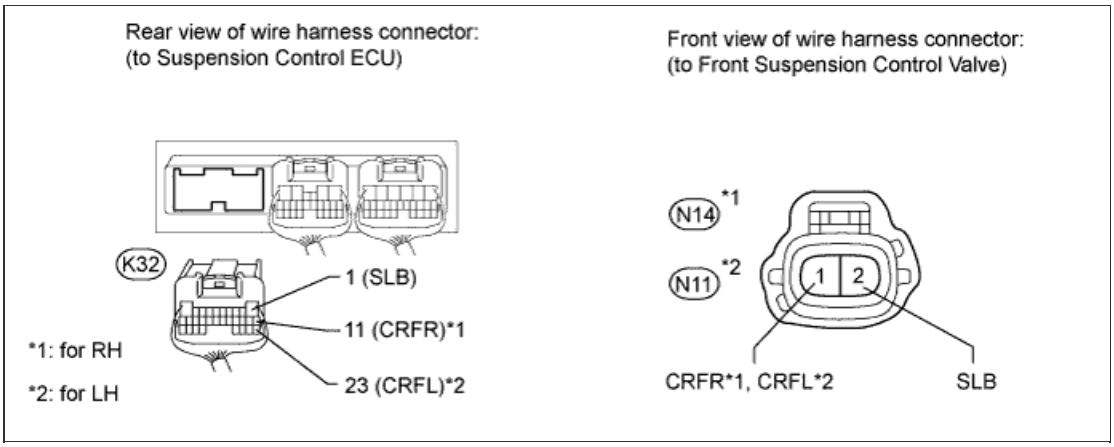
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

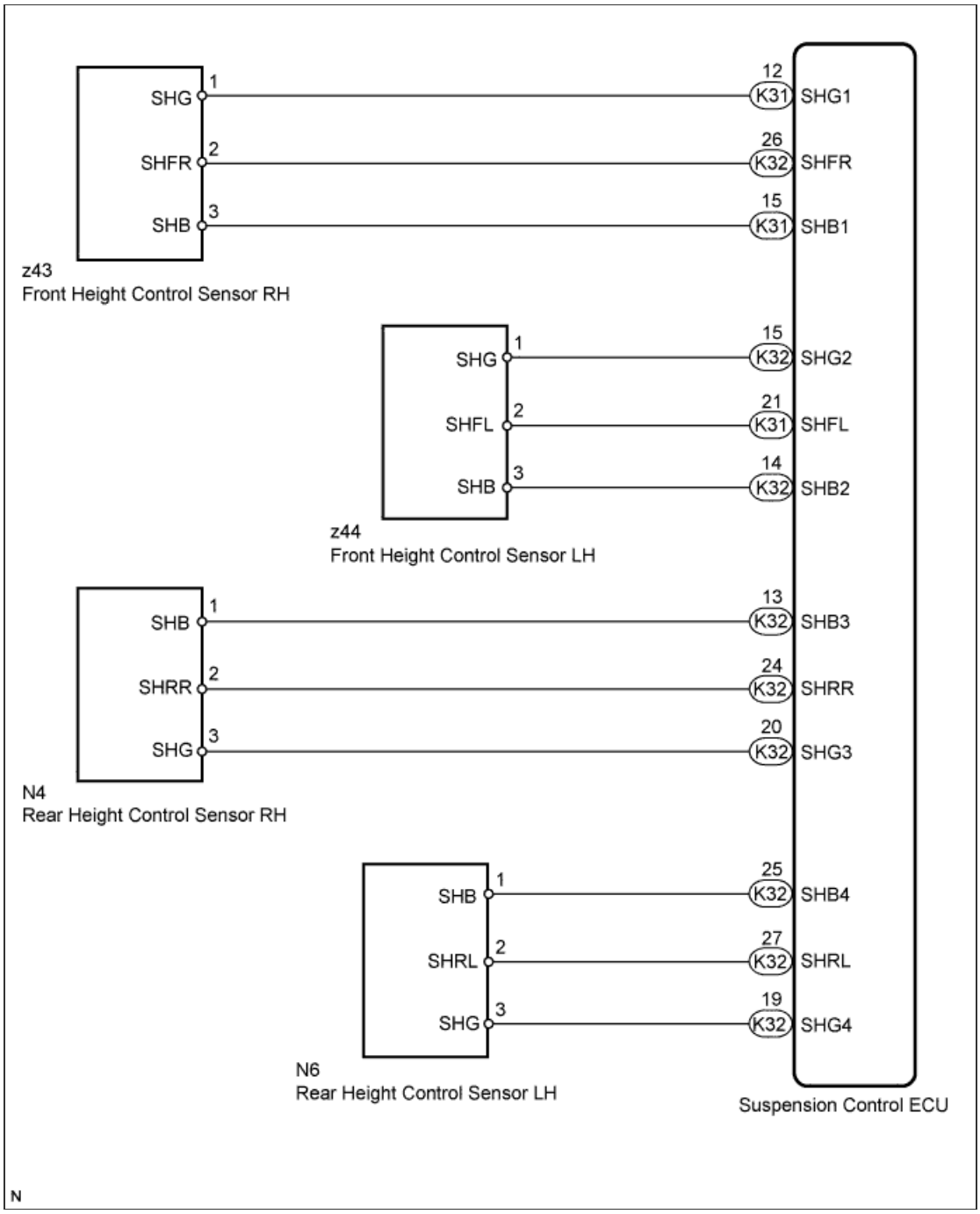
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

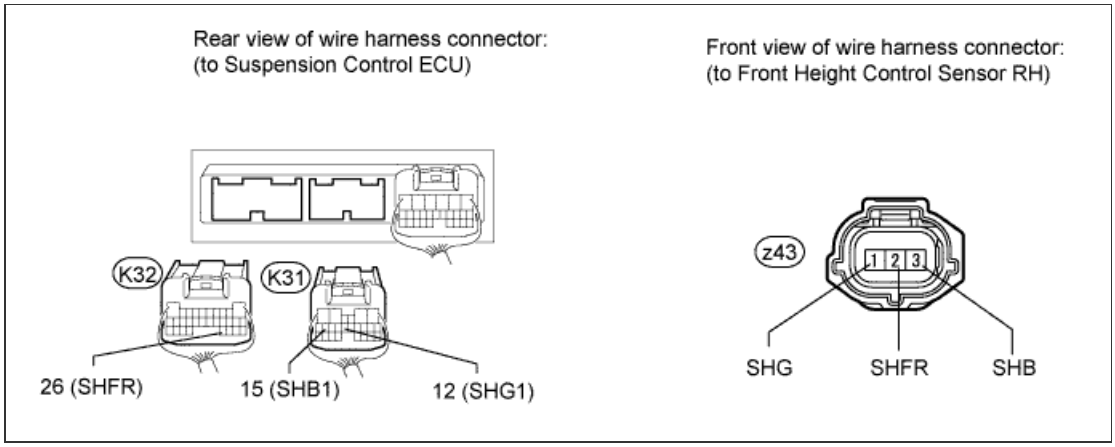
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

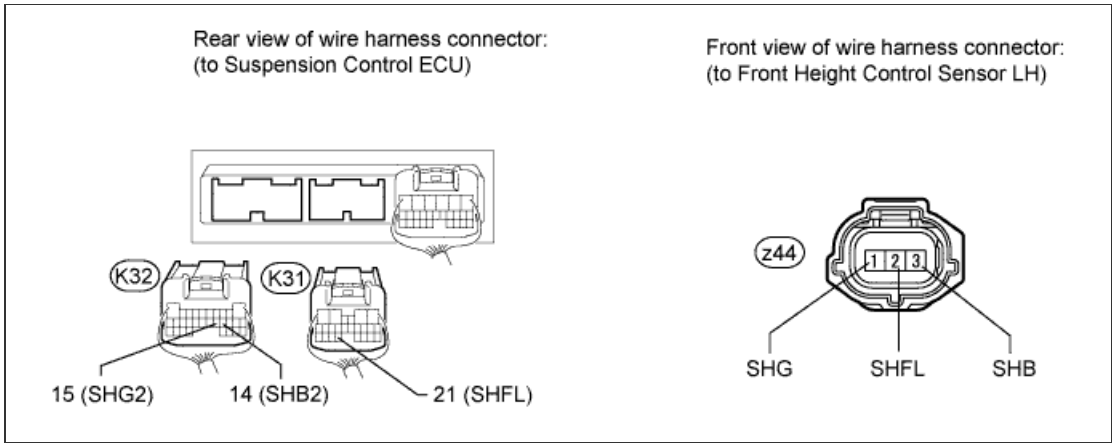
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

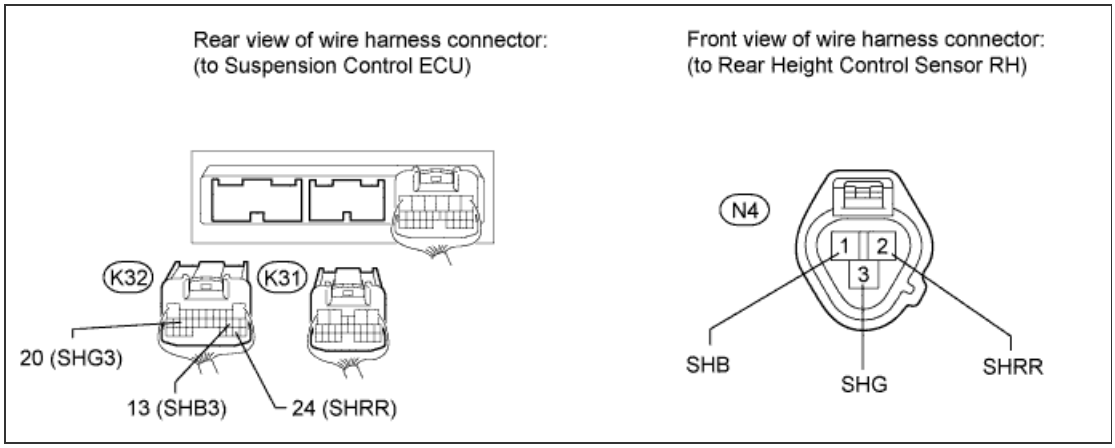
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

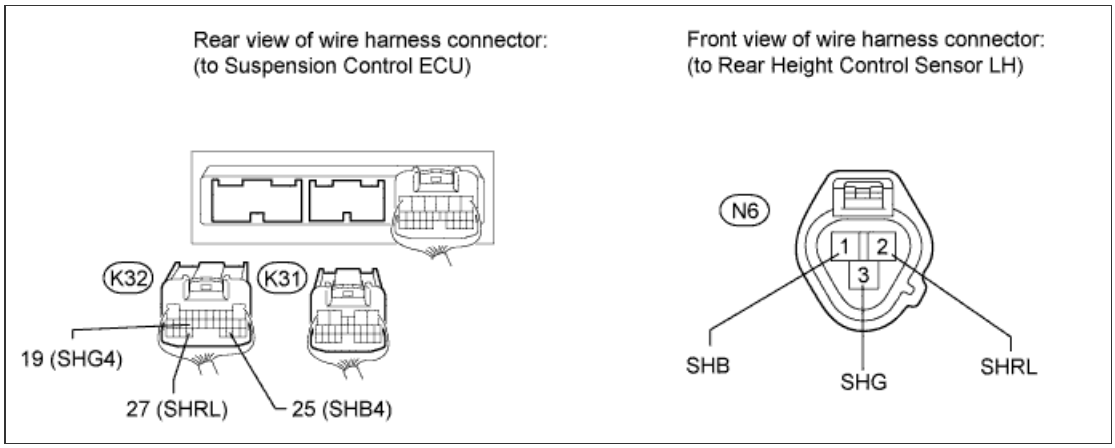
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

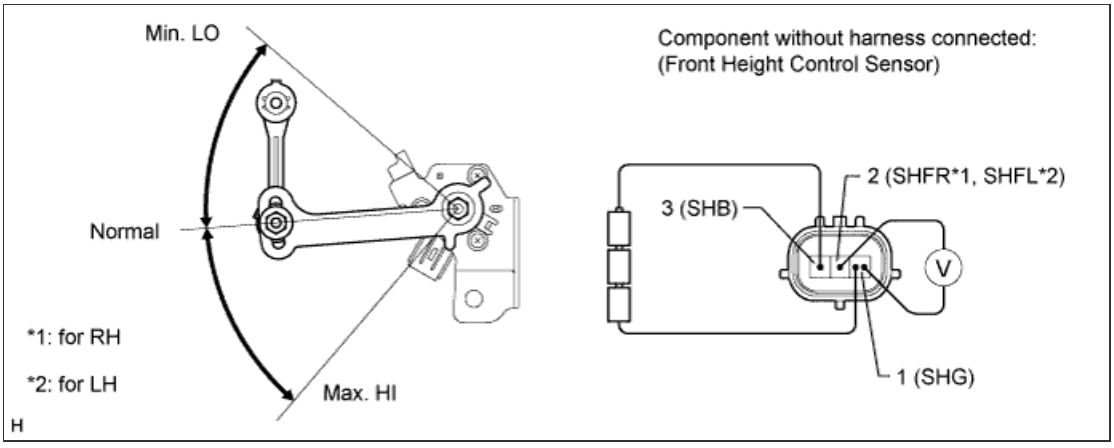
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

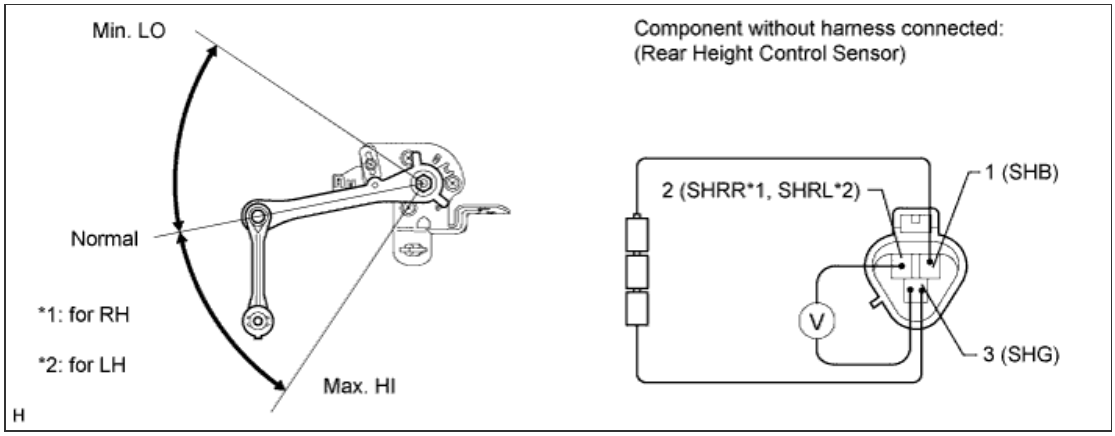
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1756 Suspension Control Relay Malfunction

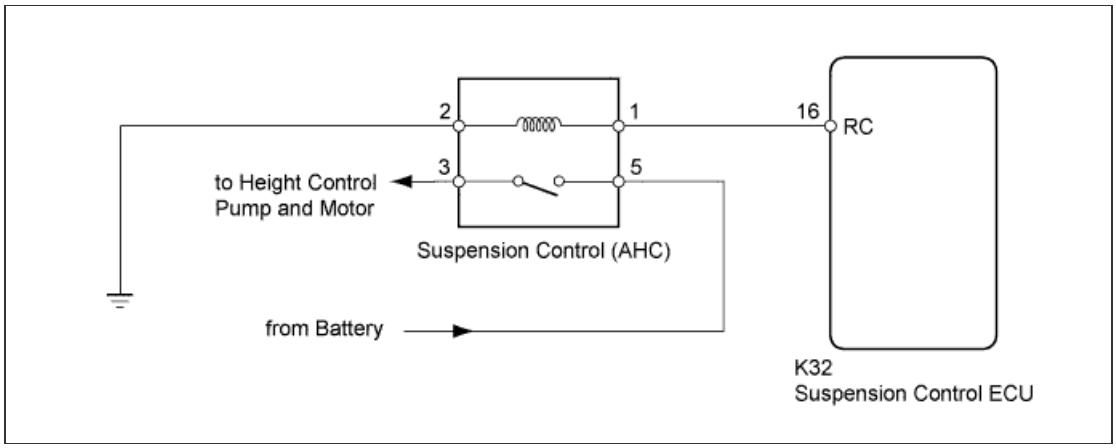
for Preparation Click here

DESCRIPTION

This relay is to supply the power source to the pump and motor. The relay stays on while the height control is operated.

DTC Code	Detection Condition	Trouble Area
C1756	When either of the following is detected: • With the suspension control relay not activated, an open signal of the suspension control relay is detected for 1 second or more. • With the suspension control relay activated, a short signal of the suspension control relay is detected 8 times successively.	• Harness or connector • Suspension control relay • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

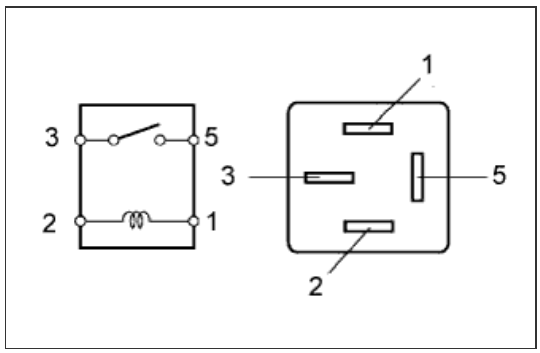
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

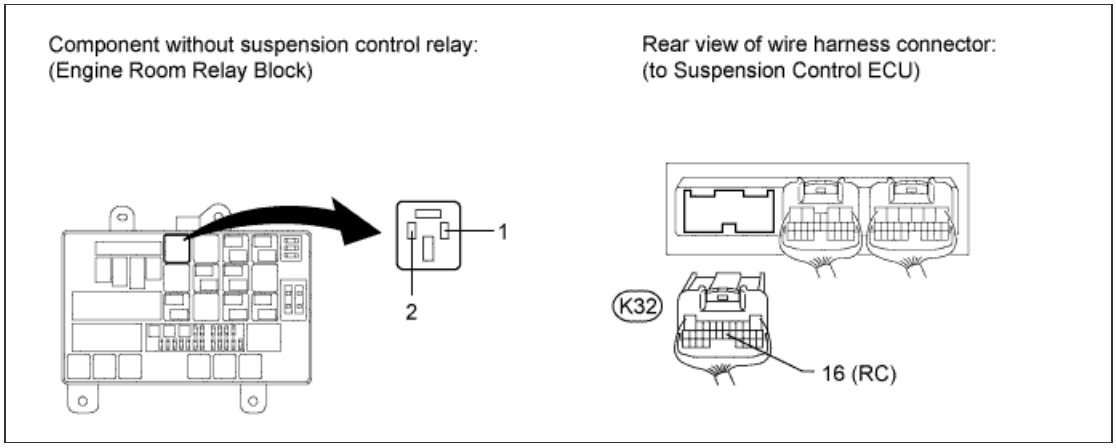
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY BLOCK AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

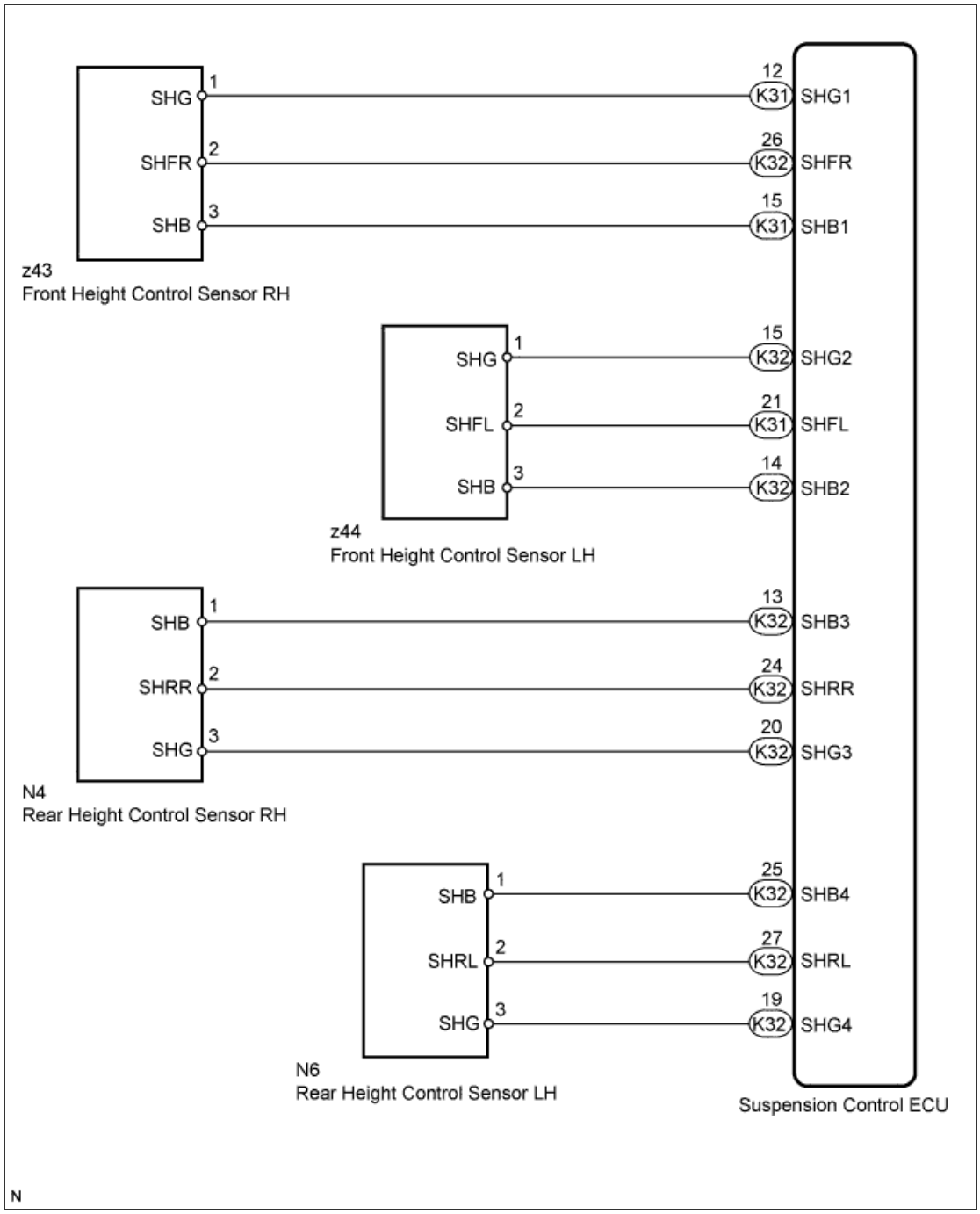
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

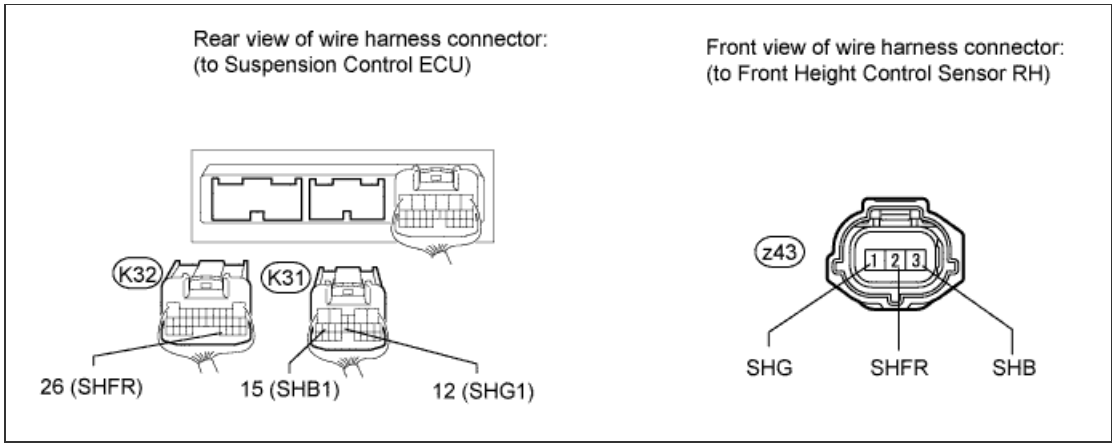
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

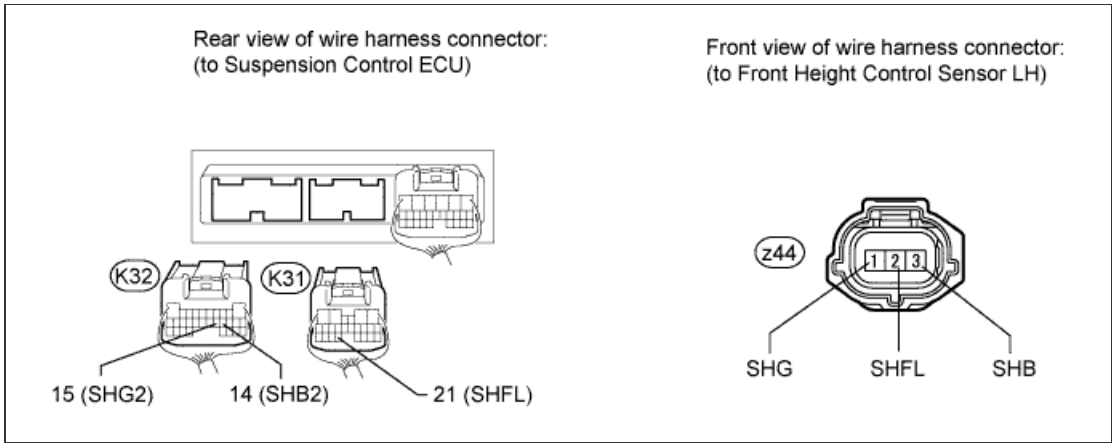
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

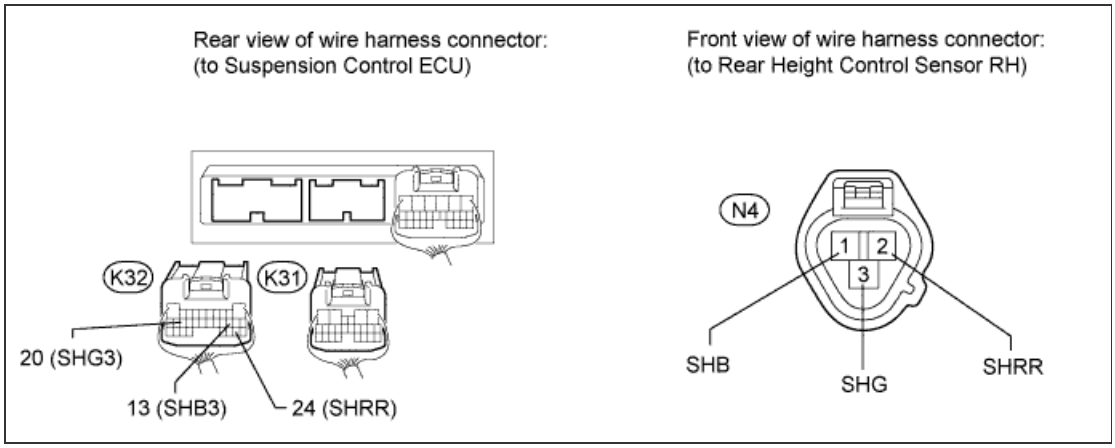
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

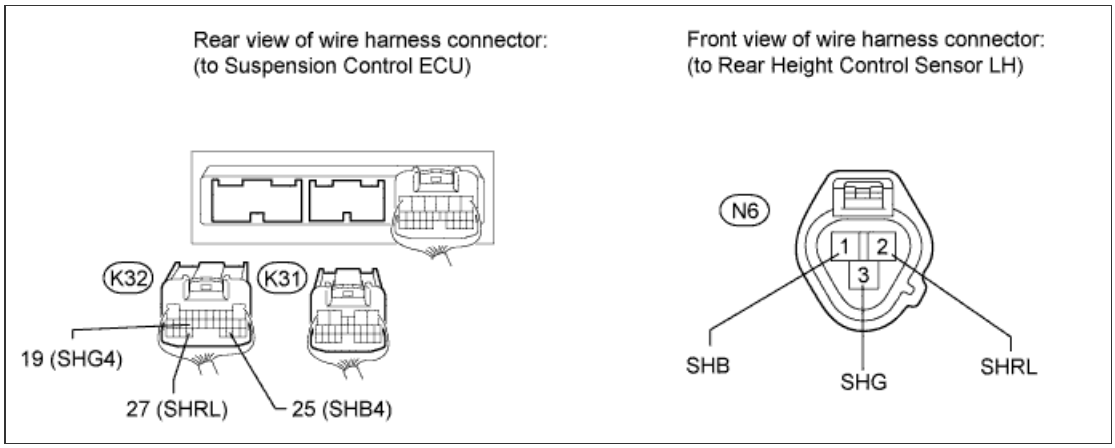
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

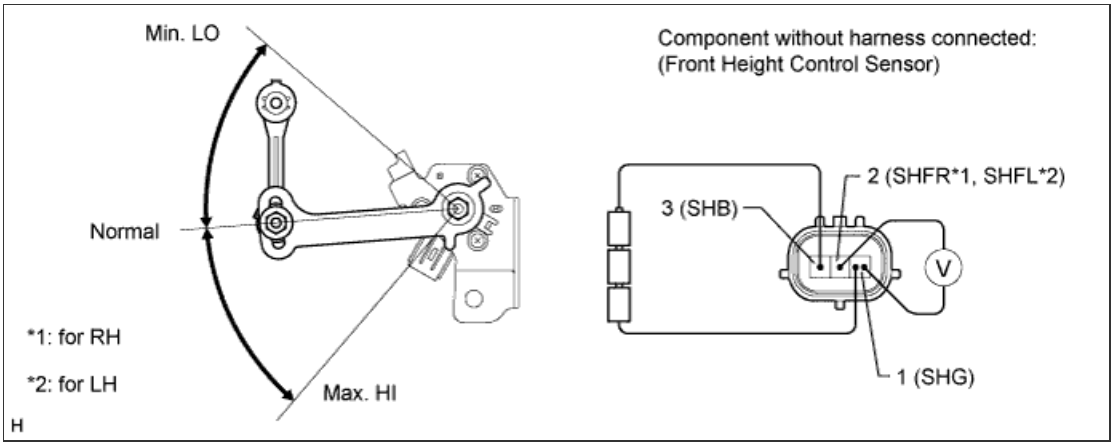
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

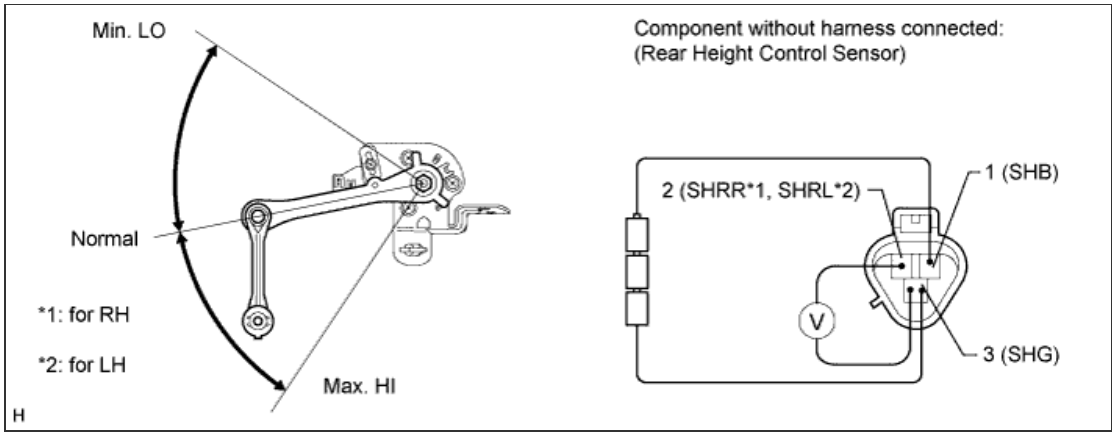
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1756 Suspension Control Relay Malfunction

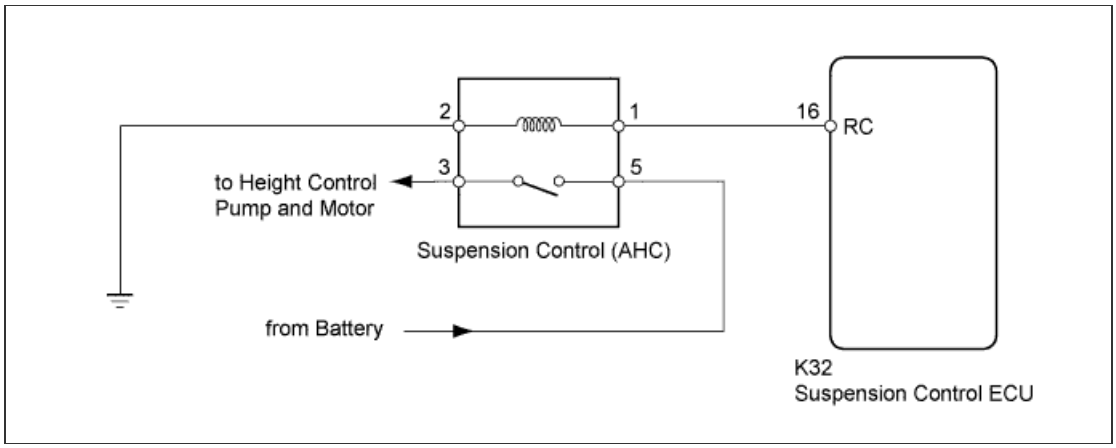
for Preparation Click here

DESCRIPTION

This relay is to supply the power source to the pump and motor. The relay stays on while the height control is operated.

DTC Code	Detection Condition	Trouble Area
C1756	When either of the following is detected: • With the suspension control relay not activated, an open signal of the suspension control relay is detected for 1 second or more. • With the suspension control relay activated, a short signal of the suspension control relay is detected 8 times successively.	• Harness or connector • Suspension control relay • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

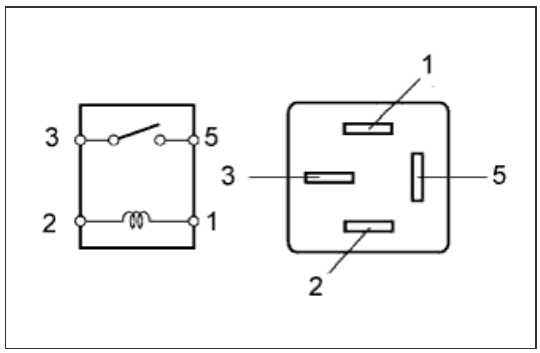
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

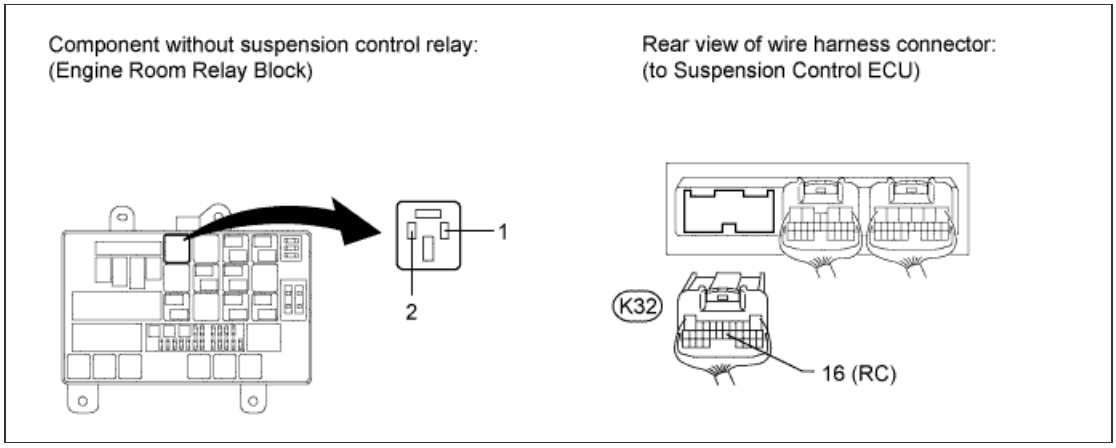
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY BLOCK AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

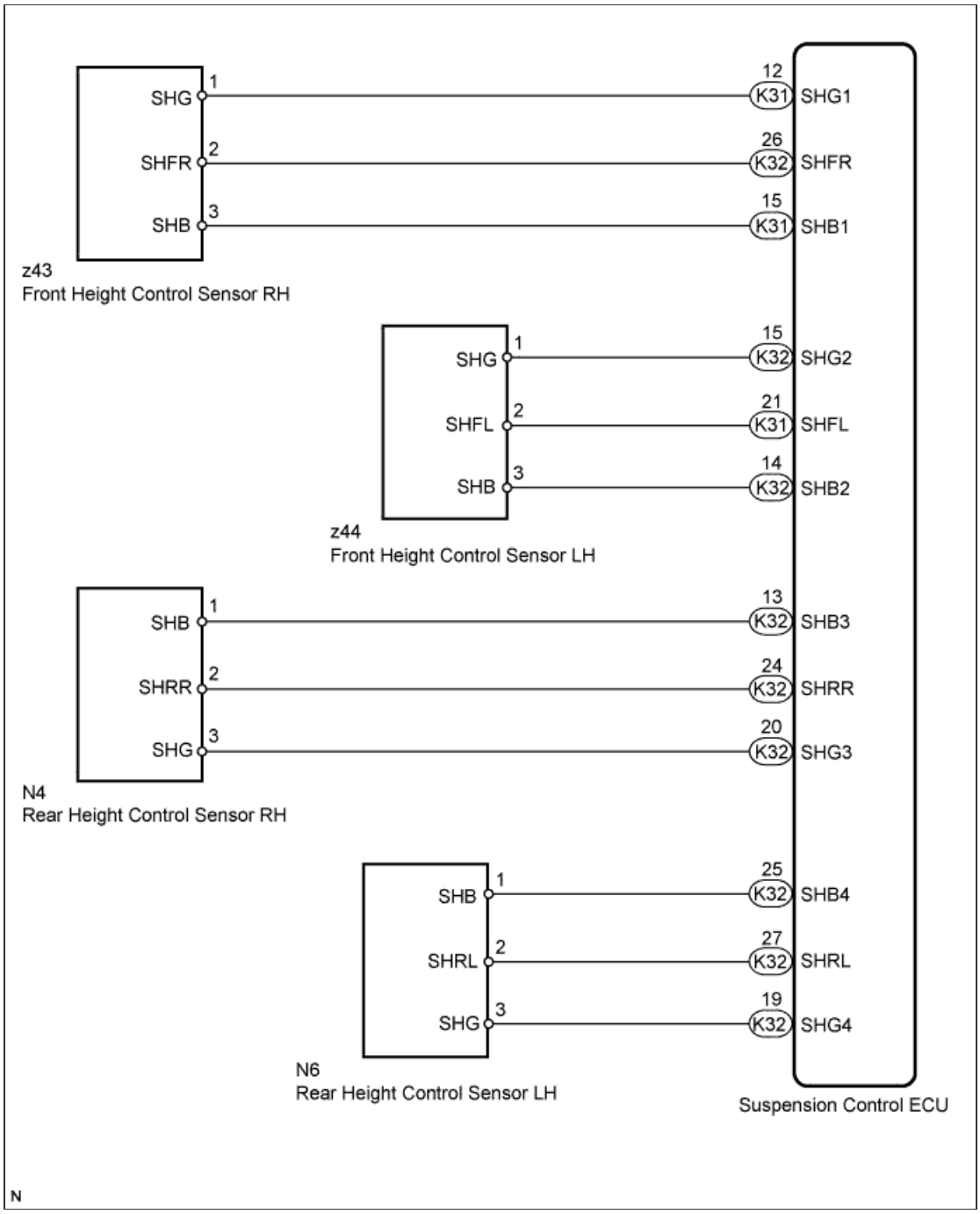
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

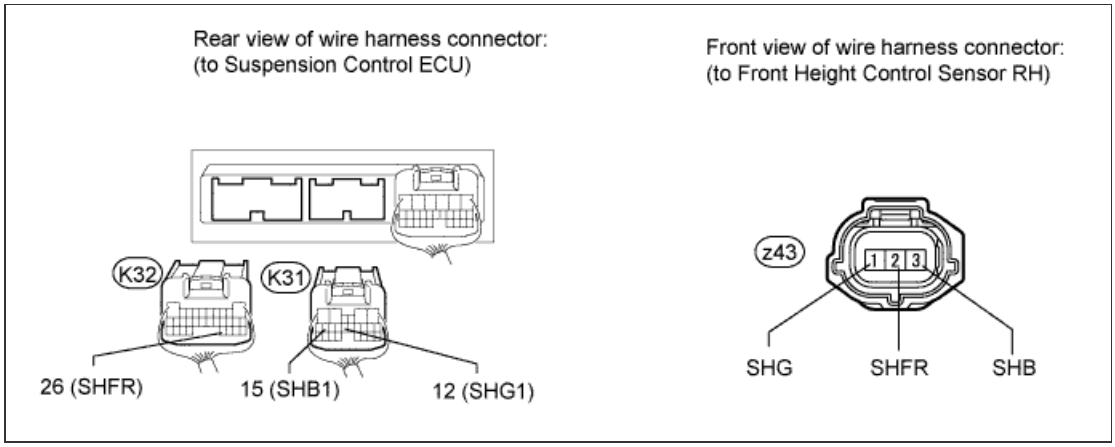
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

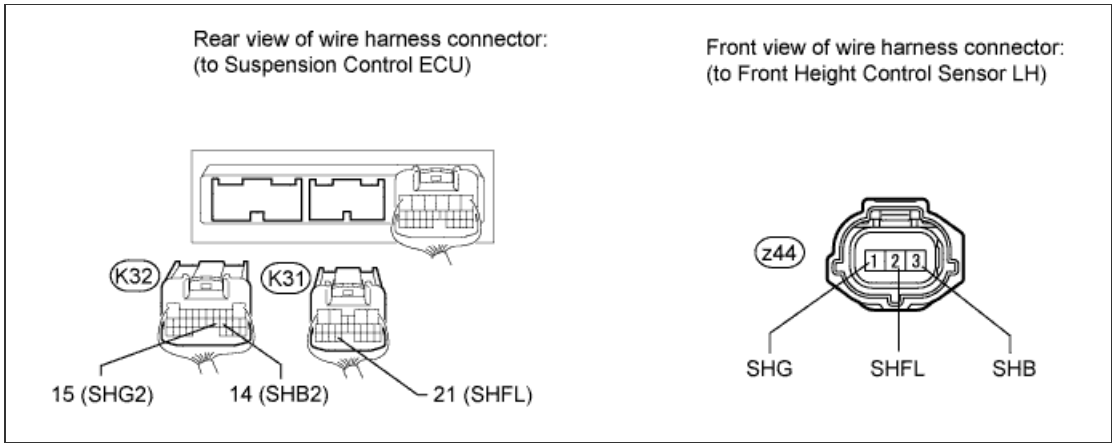
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

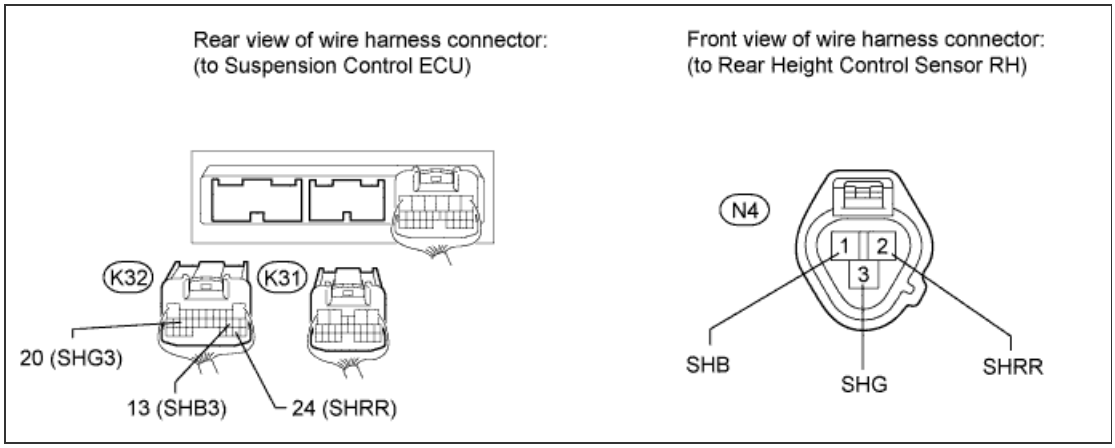
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

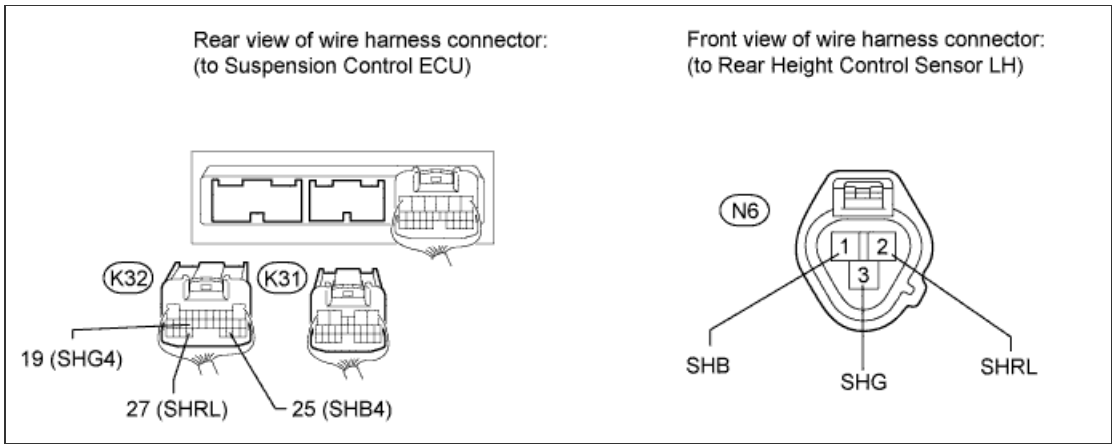
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

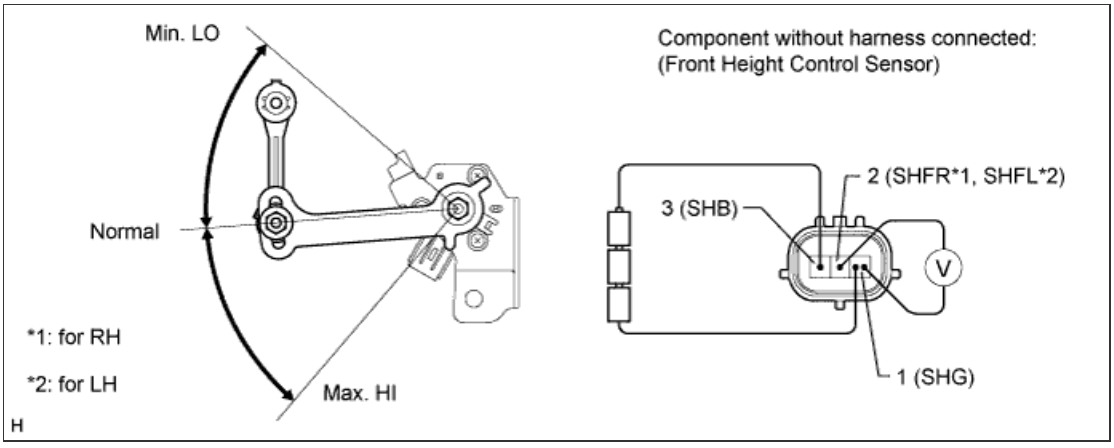
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

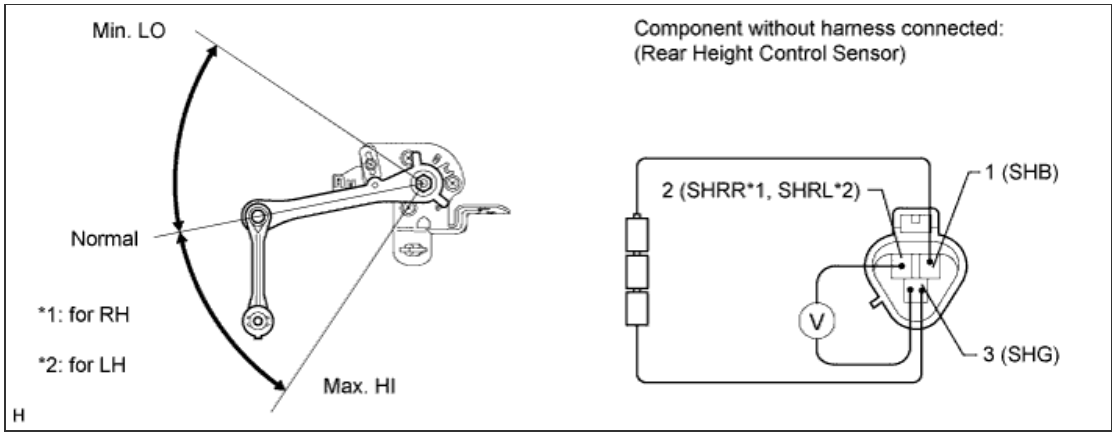
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1756 Suspension Control Relay Malfunction

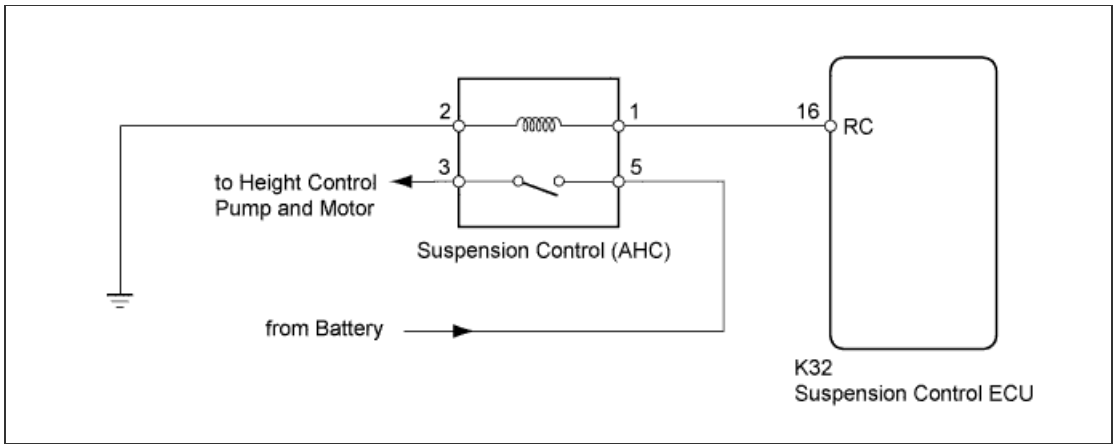
for Preparation Click here

DESCRIPTION

This relay is to supply the power source to the pump and motor. The relay stays on while the height control is operated.

DTC Code	Detection Condition	Trouble Area
C1756	When either of the following is detected: • With the suspension control relay not activated, an open signal of the suspension control relay is detected for 1 second or more. • With the suspension control relay activated, a short signal of the suspension control relay is detected 8 times successively.	• Harness or connector • Suspension control relay • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

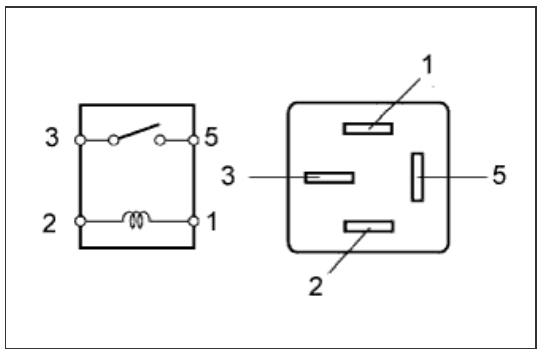
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

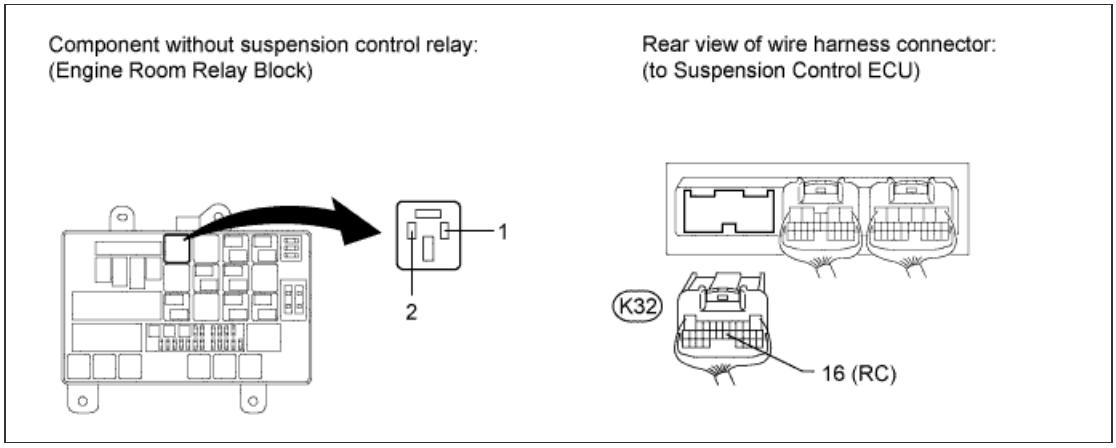
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY BLOCK AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

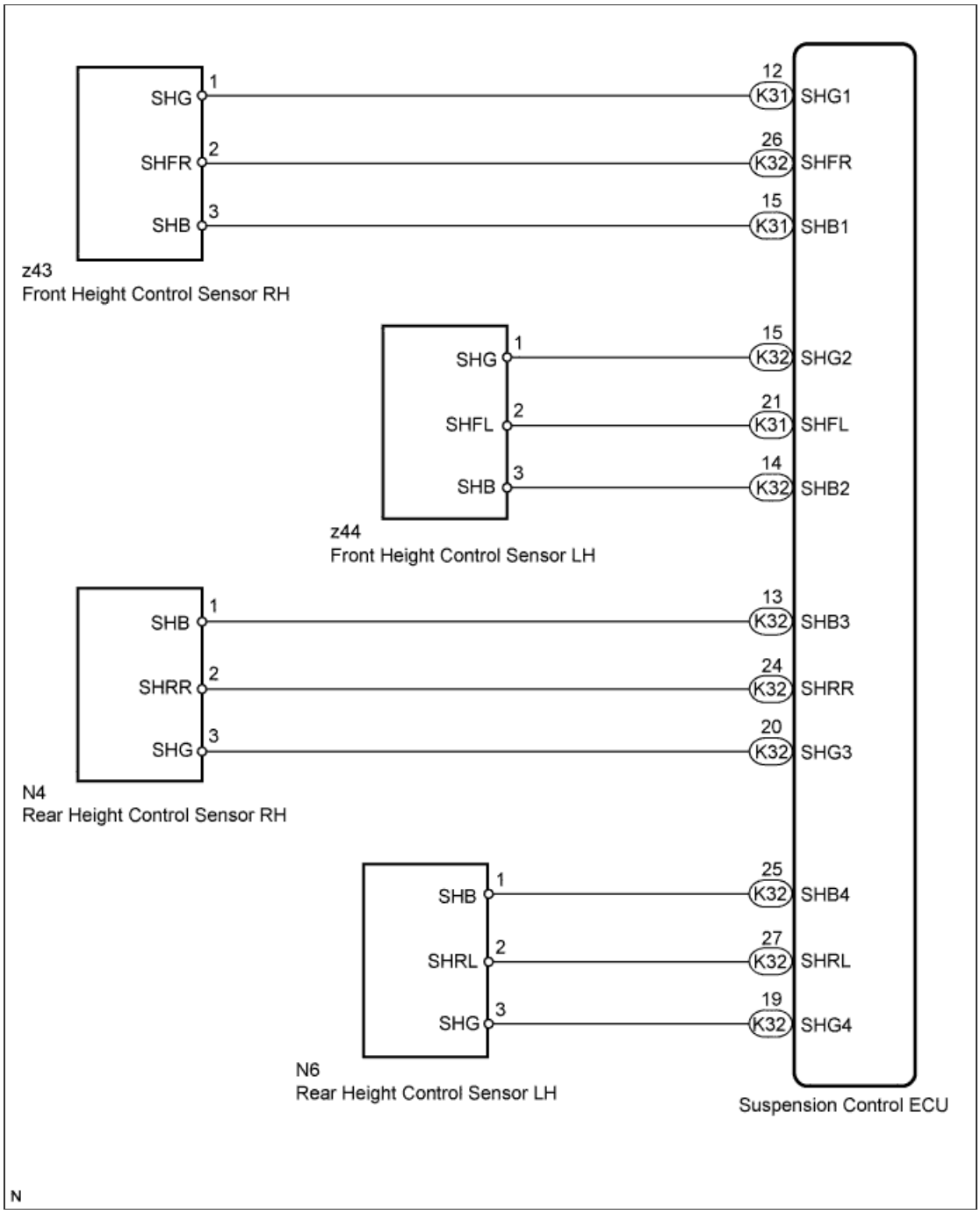
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

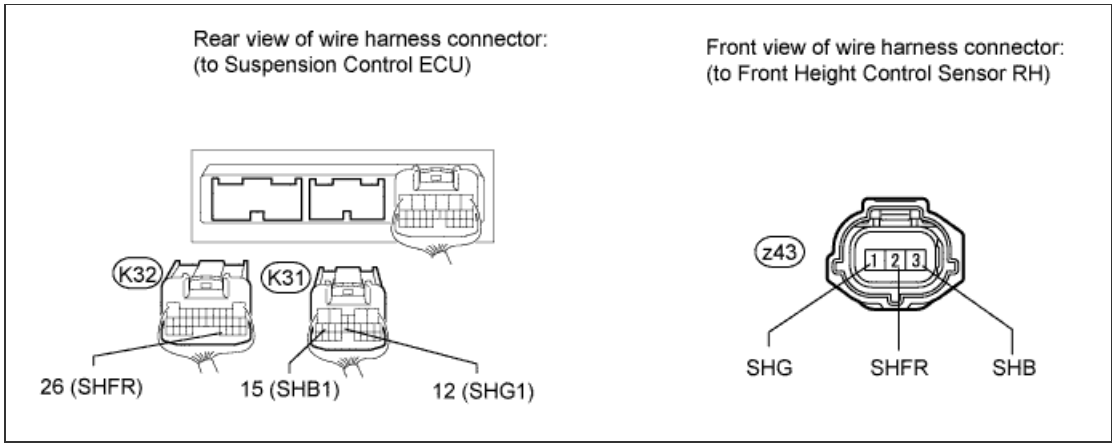
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

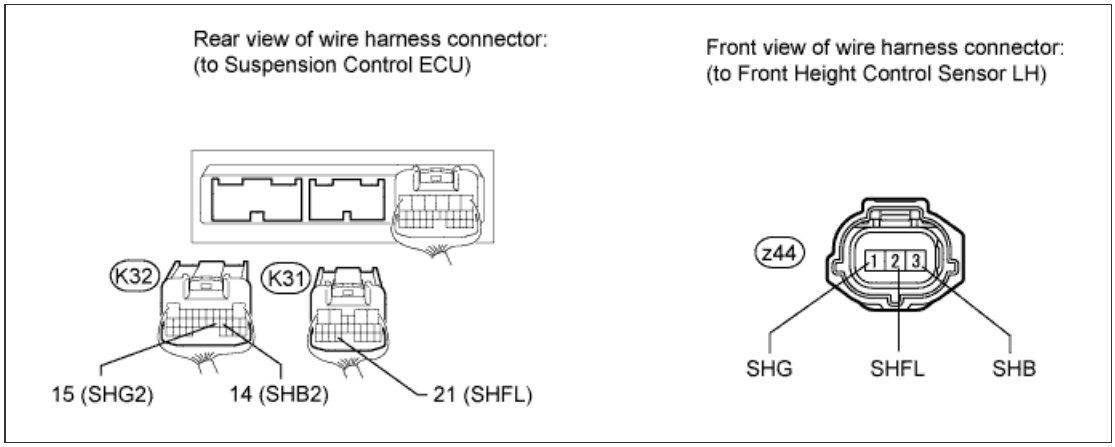
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

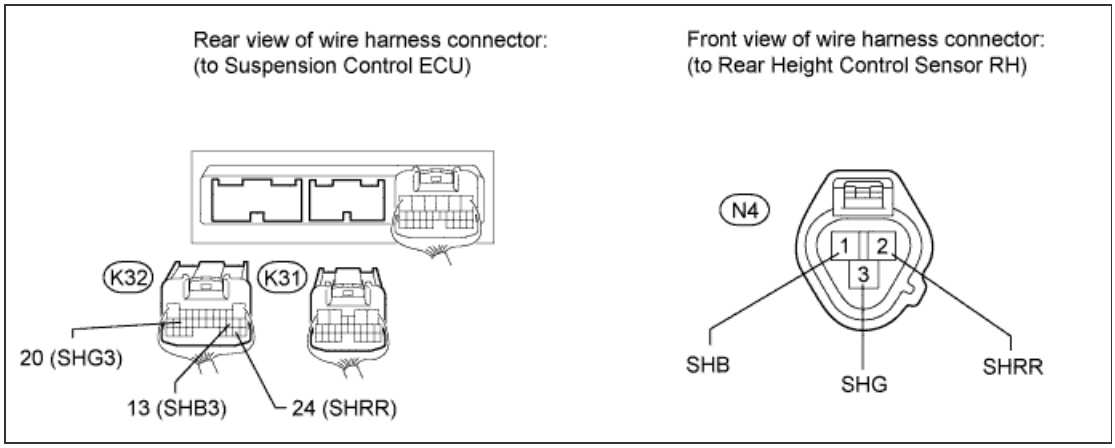
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

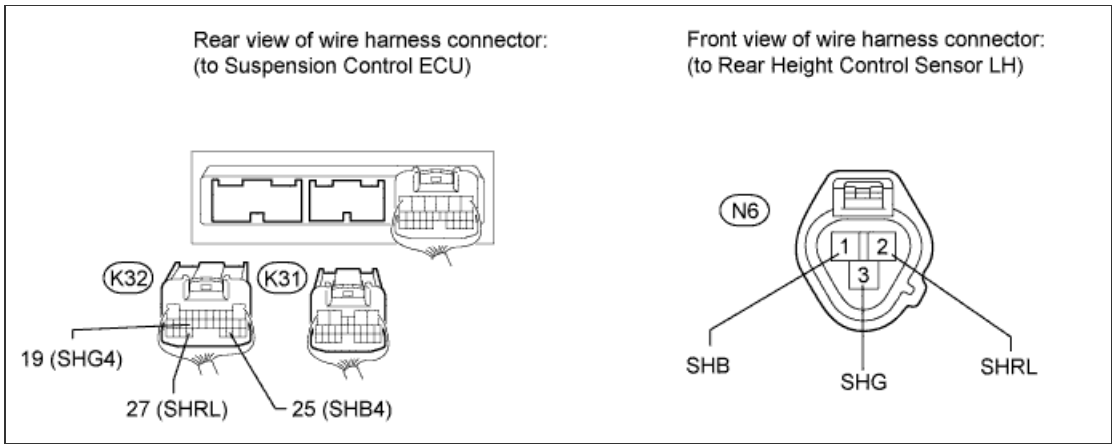
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

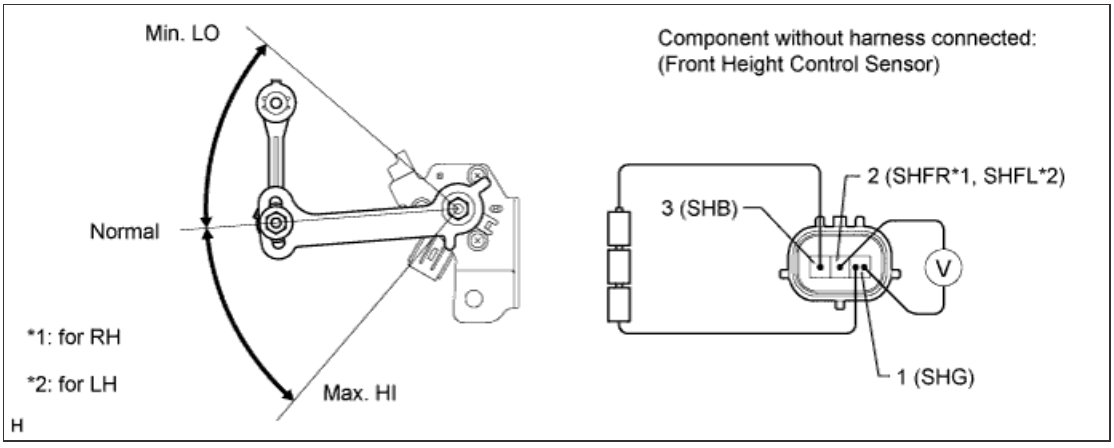
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

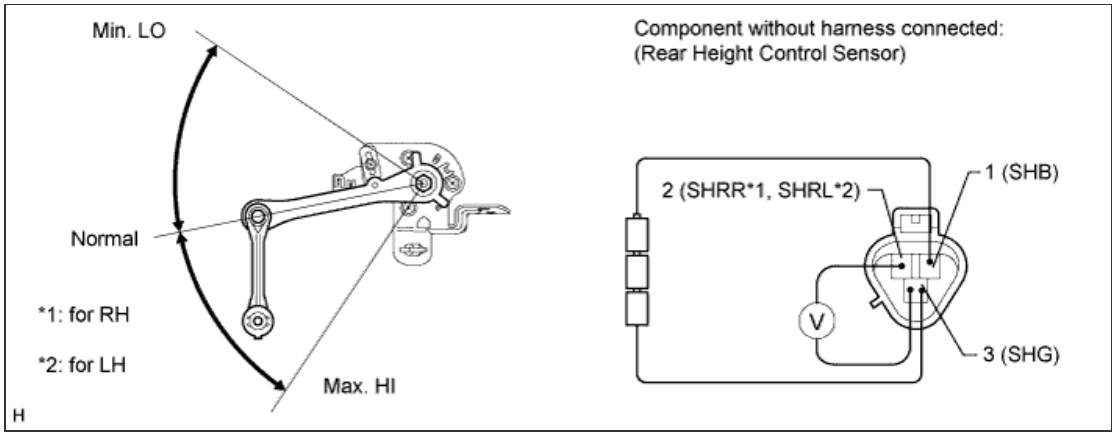
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

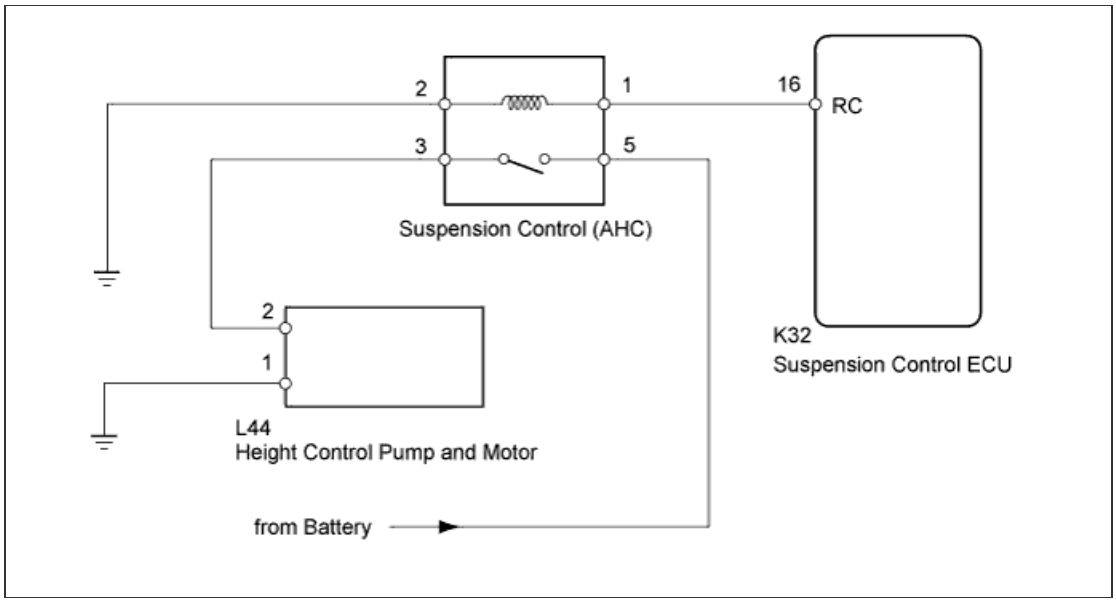
DTC C1763 Abnormal Pump Motor Oil Pressure

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1763	While the motor relay is in operation, the condition that the fluid pressure is 0.6 MPa (6.1 kgf/cm^2, 87 psi) or less continues for 0.6 seconds.	• Harness or connector • Suspension control relay • Height control pump and motor • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

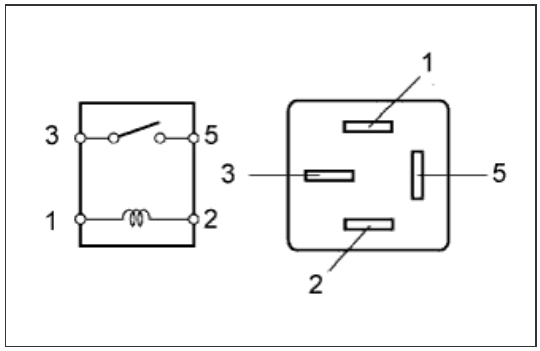
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

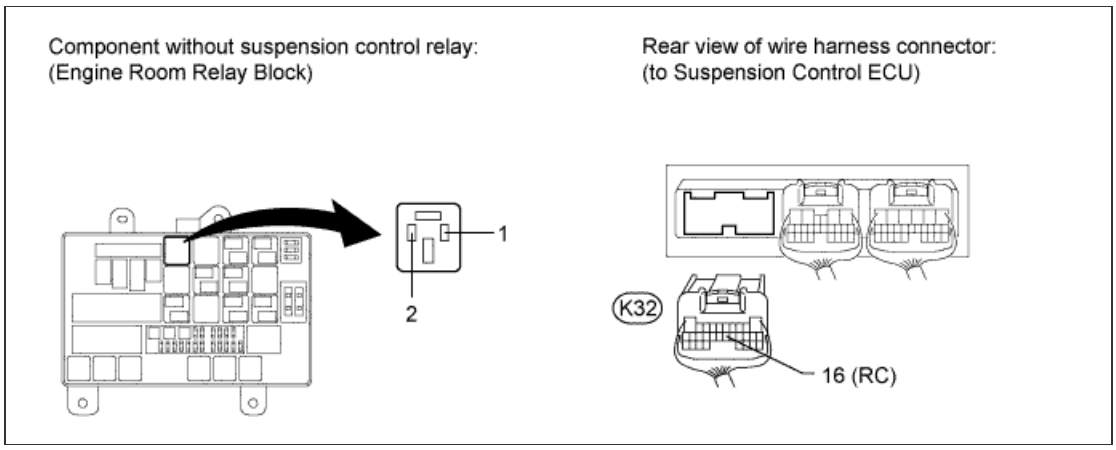
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY (AHC) AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

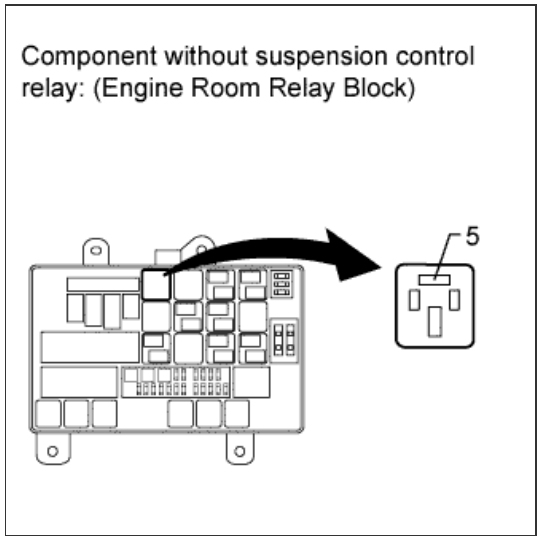
3.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL RELAY)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 5 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

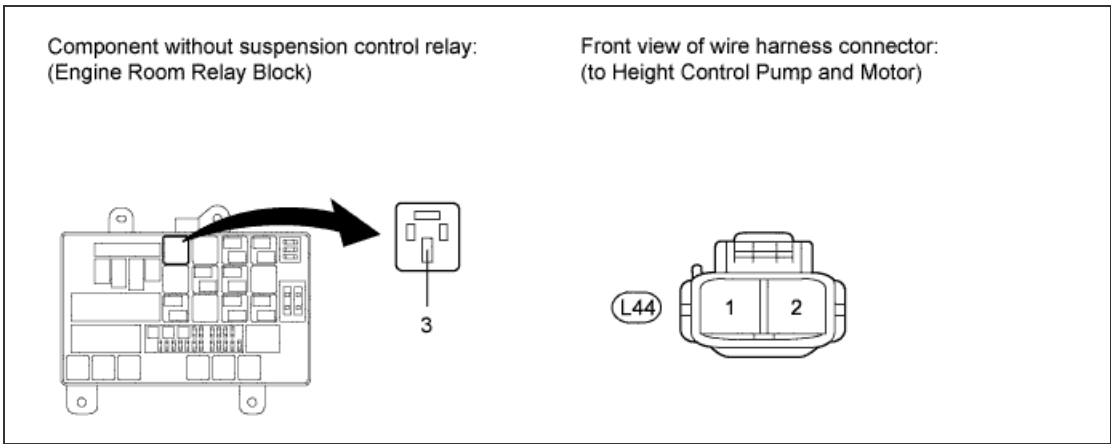
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL RELAY - PUMP AND MOTOR AND BODY GROUND)

a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the L44 pump and motor connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 3 - L44-2	Always	Below 1 Ω
Relay block suspension control relay terminal 3 - Body ground	Always	10 kΩ or higher
L44-1 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Apply battery voltage to the height control pump and motor and check the operation of the motor.

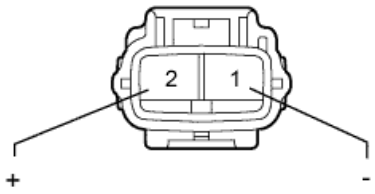
OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Be careful of fluid spray when the height control pump and motor is operating.**
- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**

Component without harness connected:
(Height Control Pump and Motor)



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

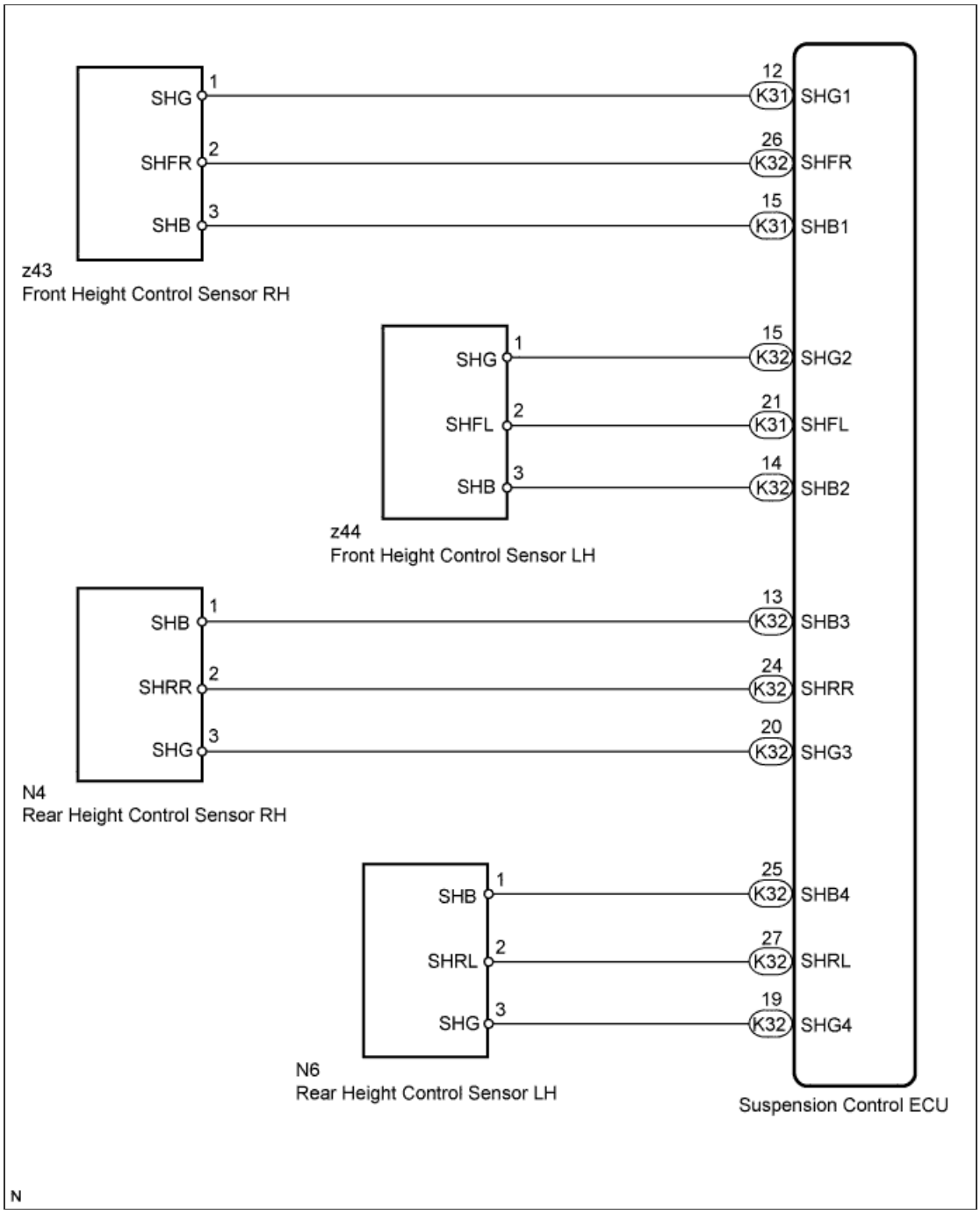
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

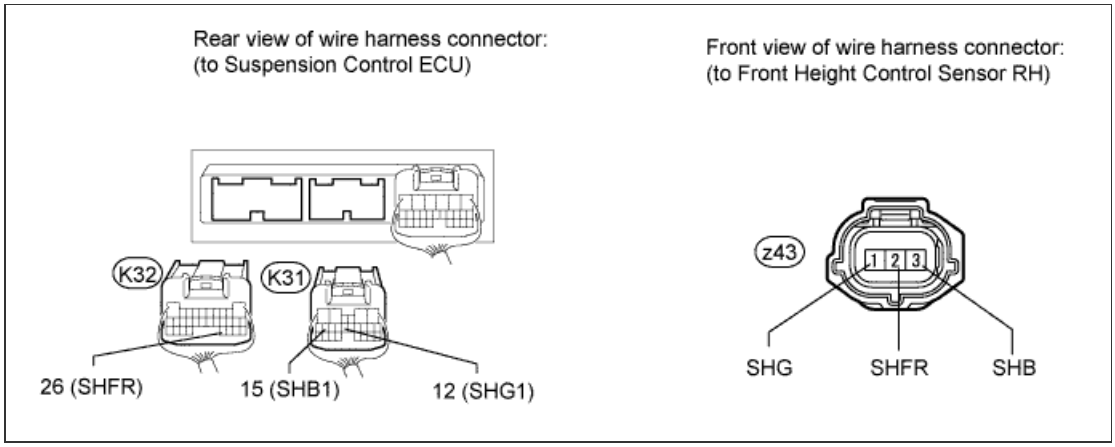
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

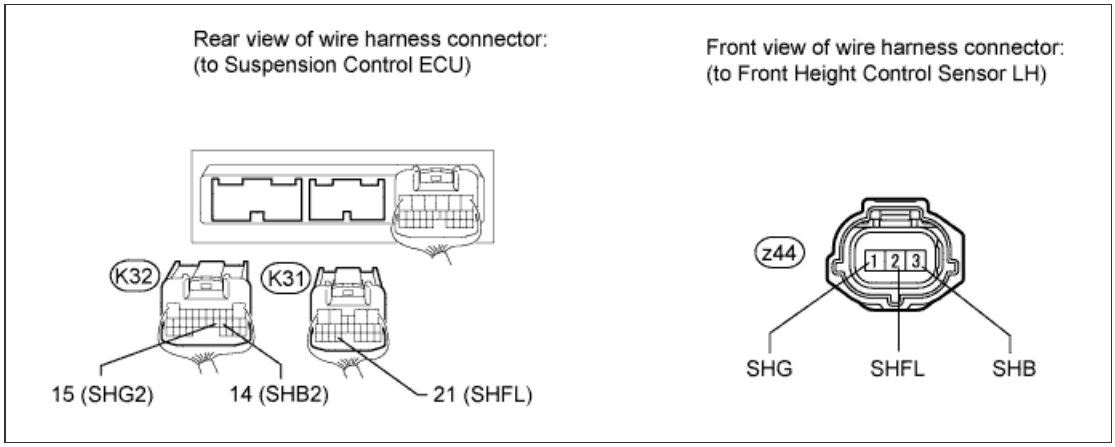
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

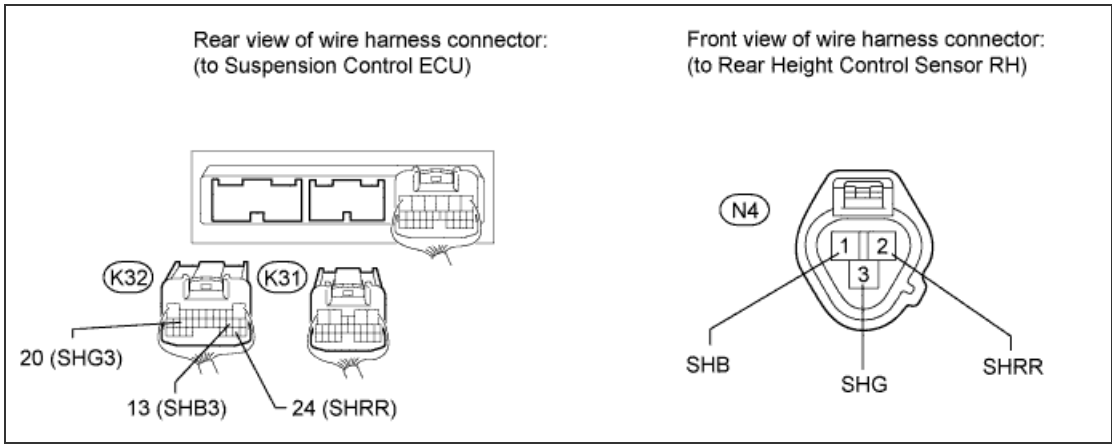
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

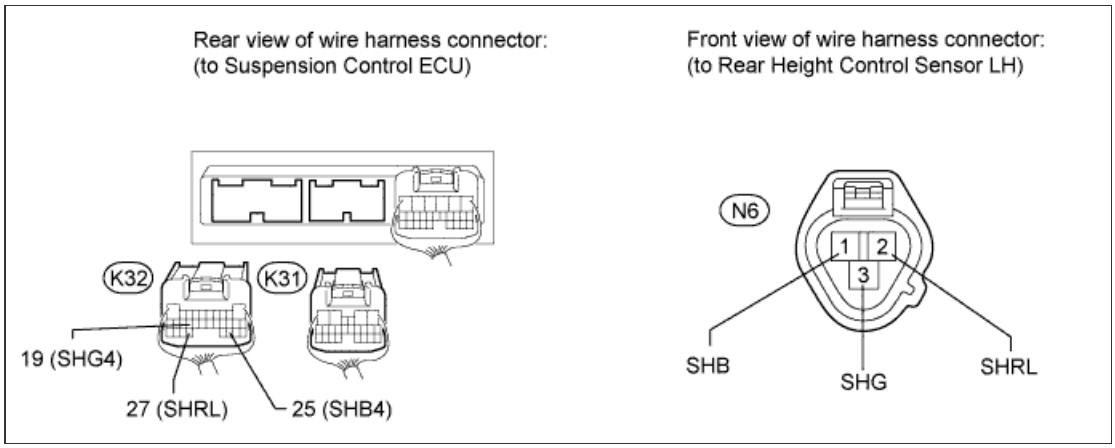
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

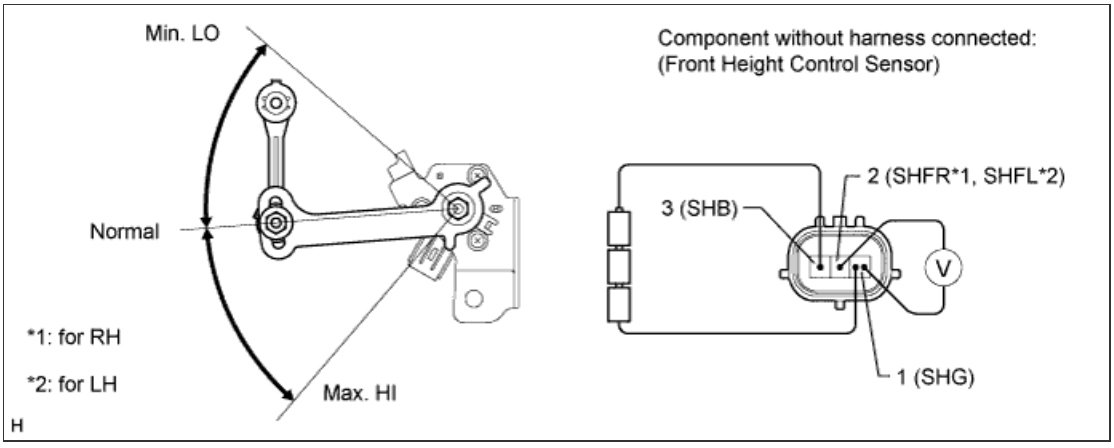
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

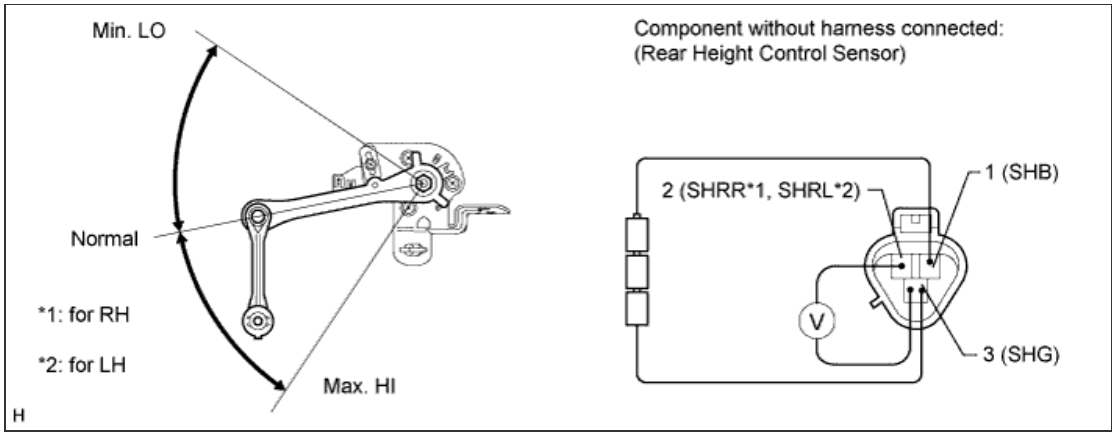
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

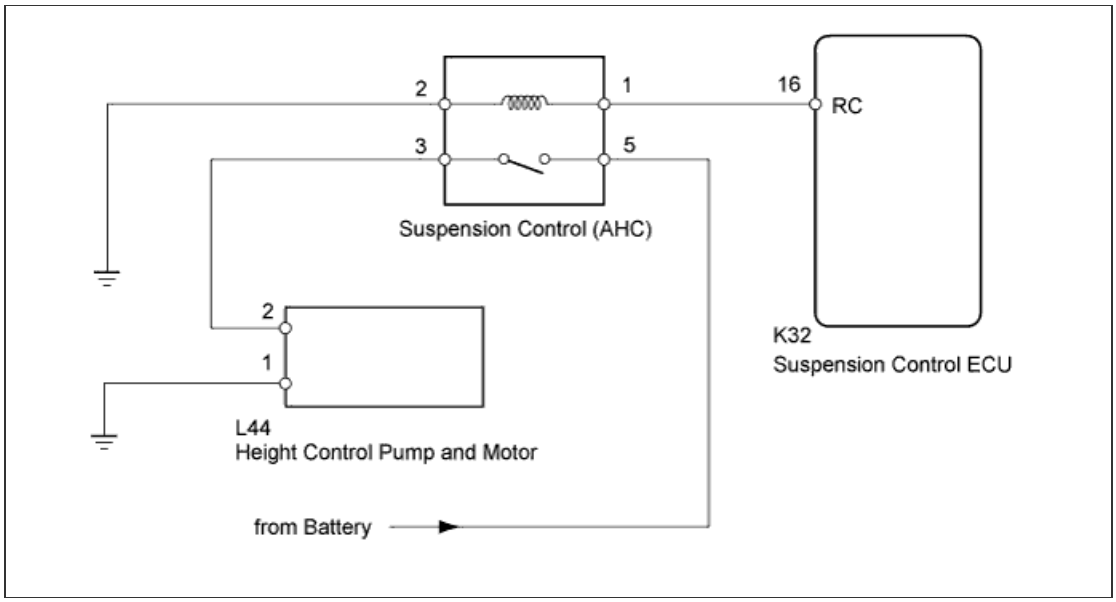
DTC C1763 Abnormal Pump Motor Oil Pressure

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1763	While the motor relay is in operation, the condition that the fluid pressure is 0.6 MPa (6.1 kgf/cm^2, 87 psi) or less continues for 0.6 seconds.	• Harness or connector • Suspension control relay • Height control pump and motor • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

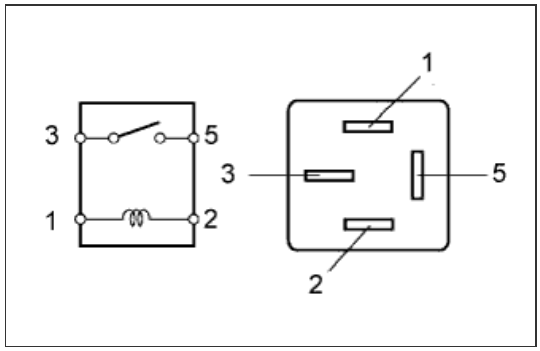
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

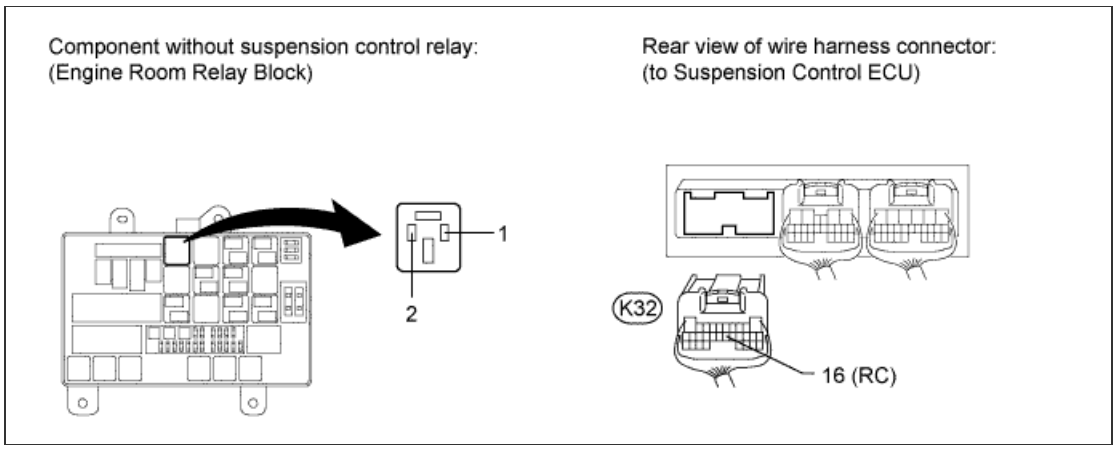
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY (AHC) AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

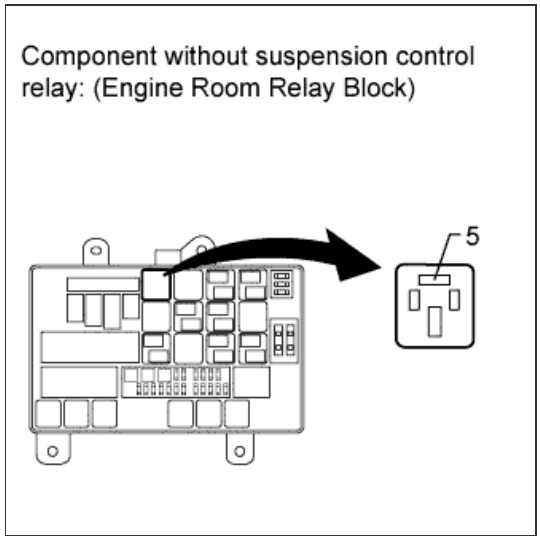
3.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL RELAY)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 5 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

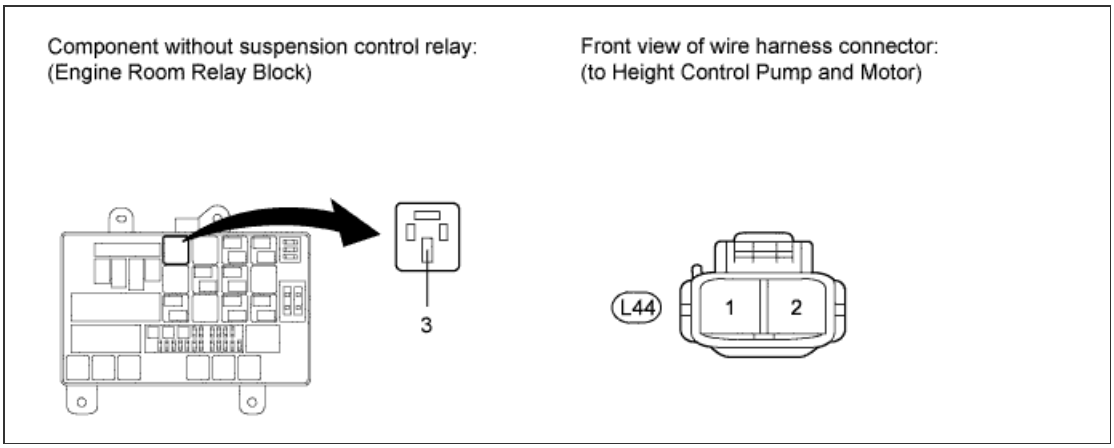
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL RELAY - PUMP AND MOTOR AND BODY GROUND)

a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the L44 pump and motor connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 3 - L44-2	Always	Below 1 Ω
Relay block suspension control relay terminal 3 - Body ground	Always	10 kΩ or higher
L44-1 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Apply battery voltage to the height control pump and motor and check the operation of the motor.

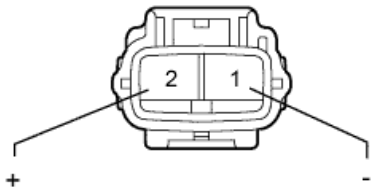
OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Be careful of fluid spray when the height control pump and motor is operating.**
- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**

Component without harness connected:
(Height Control Pump and Motor)



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

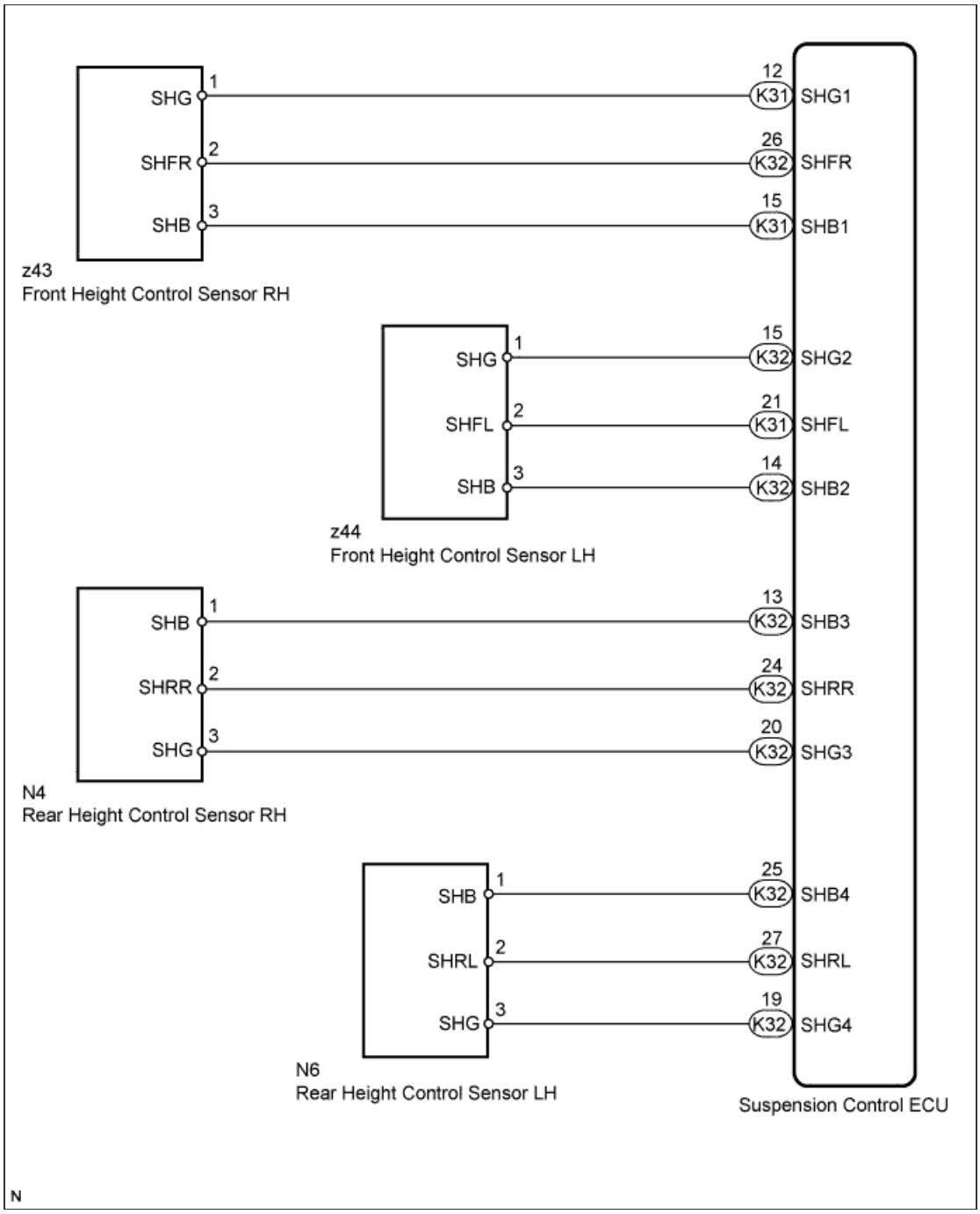
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

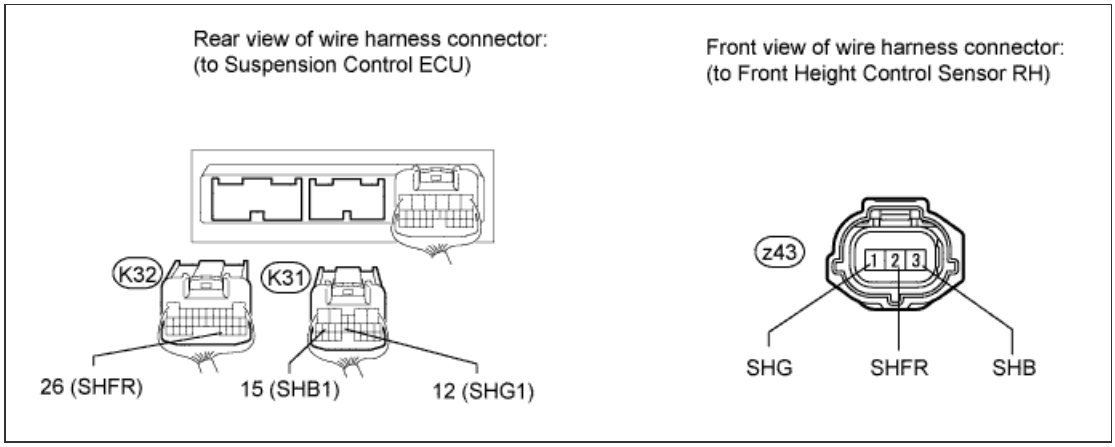
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

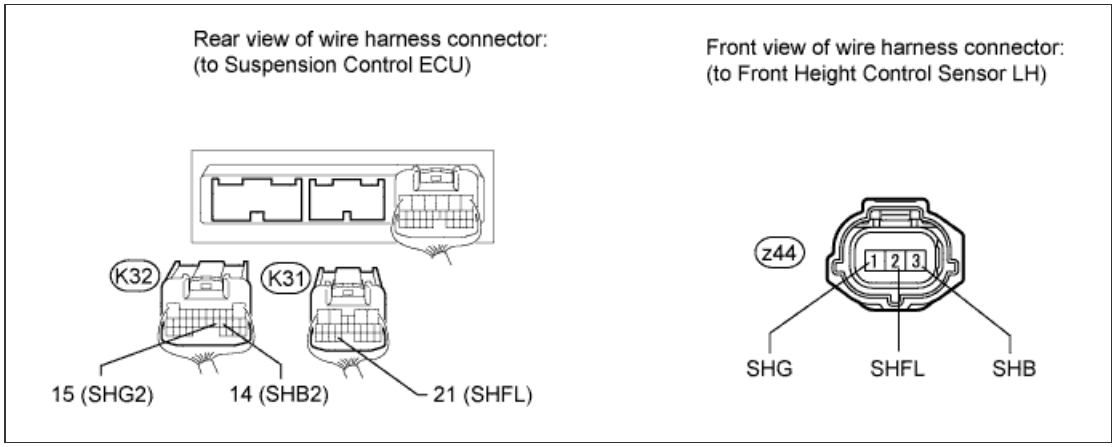
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

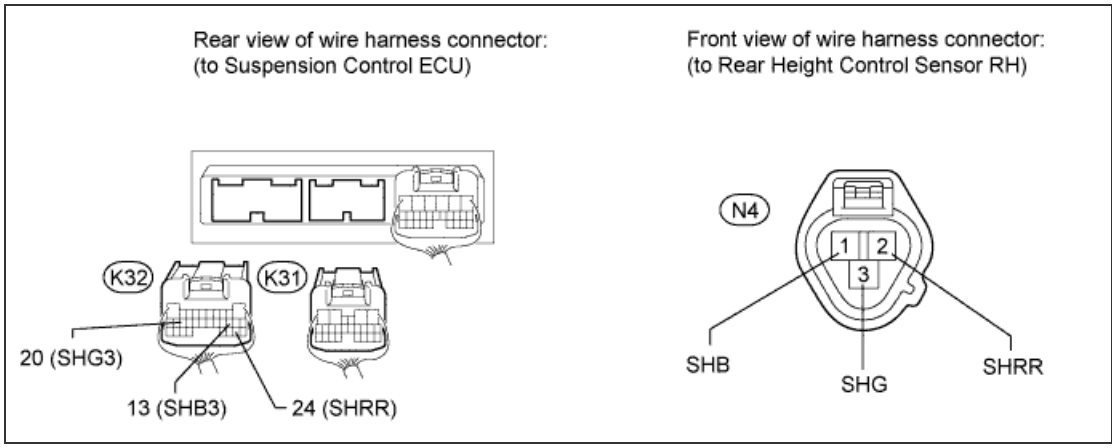
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

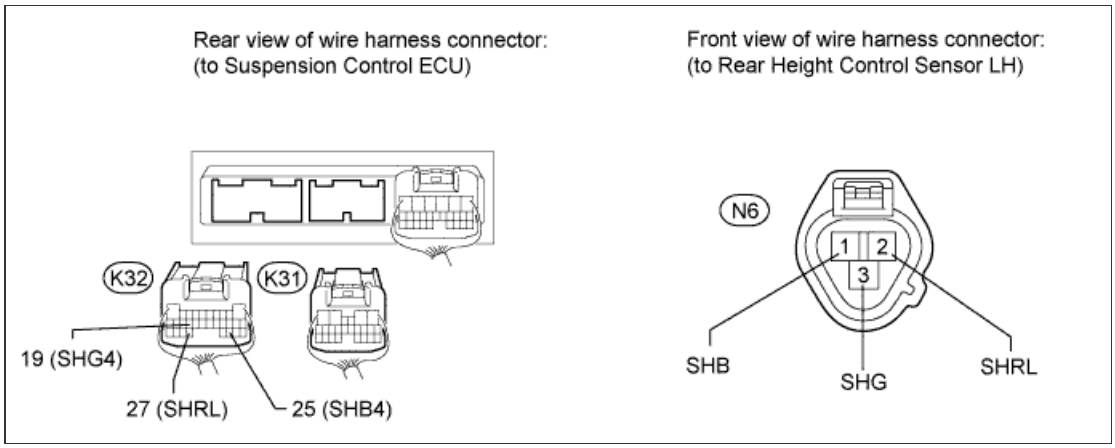
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

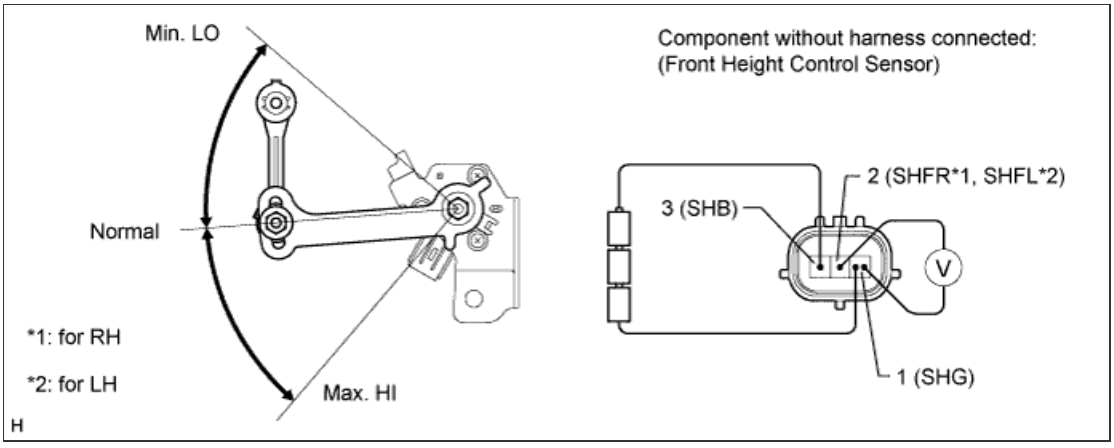
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

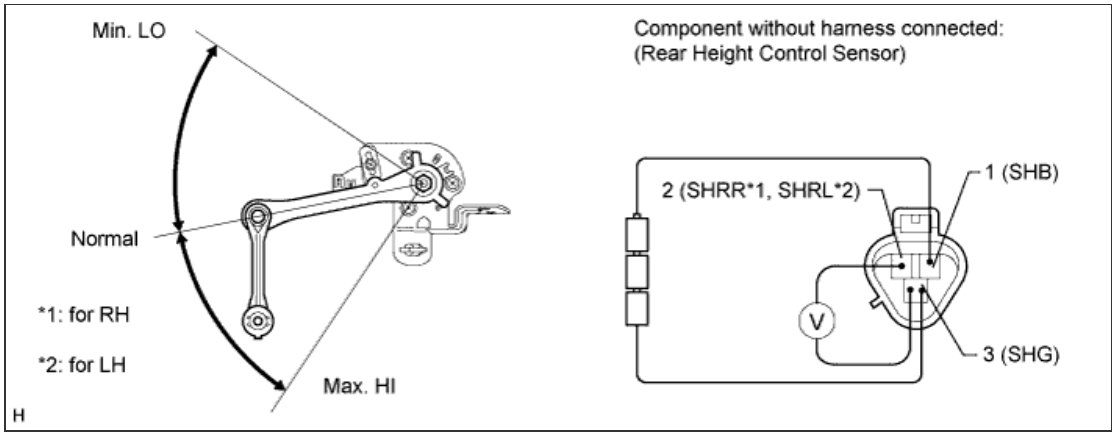
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

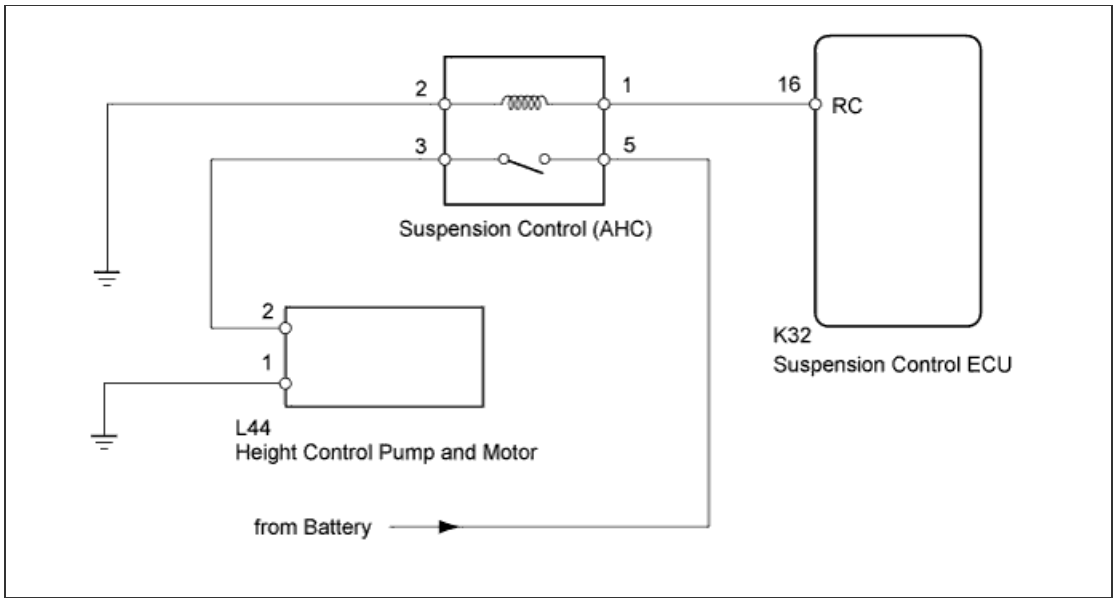
DTC C1763 Abnormal Pump Motor Oil Pressure

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1763	While the motor relay is in operation, the condition that the fluid pressure is 0.6 MPa (6.1 kgf/cm^2, 87 psi) or less continues for 0.6 seconds.	• Harness or connector • Suspension control relay • Height control pump and motor • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

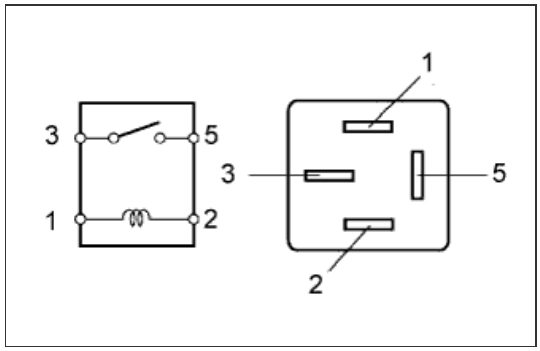
1.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

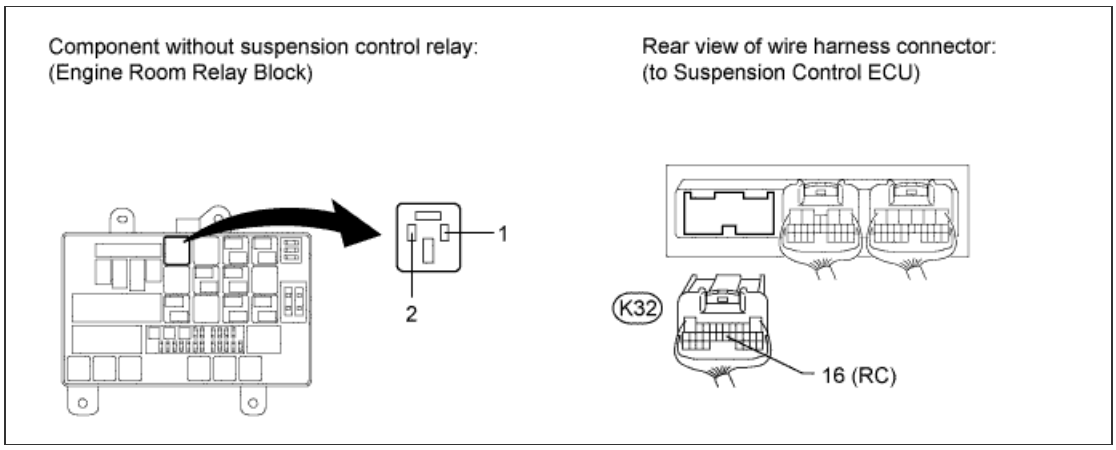
Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - RELAY (AHC) AND BODY GROUND)



a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-16 (RC) - Relay block suspension control relay terminal 1	Always	Below 1 Ω
K32-16 (RC) - Body ground	Always	10 kΩ or higher
Relay block suspension control relay terminal 2 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

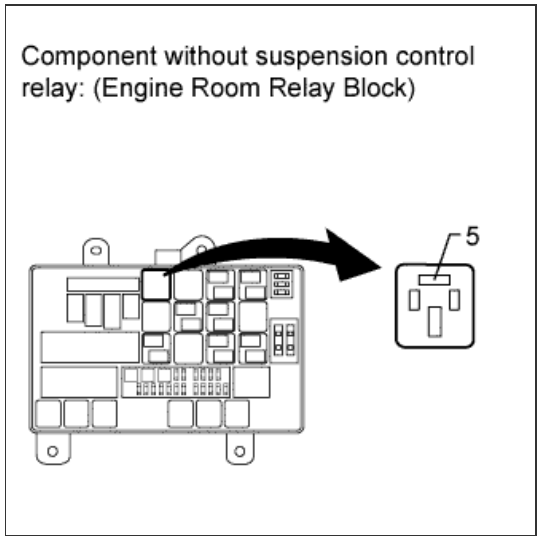
3.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL RELAY)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 5 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

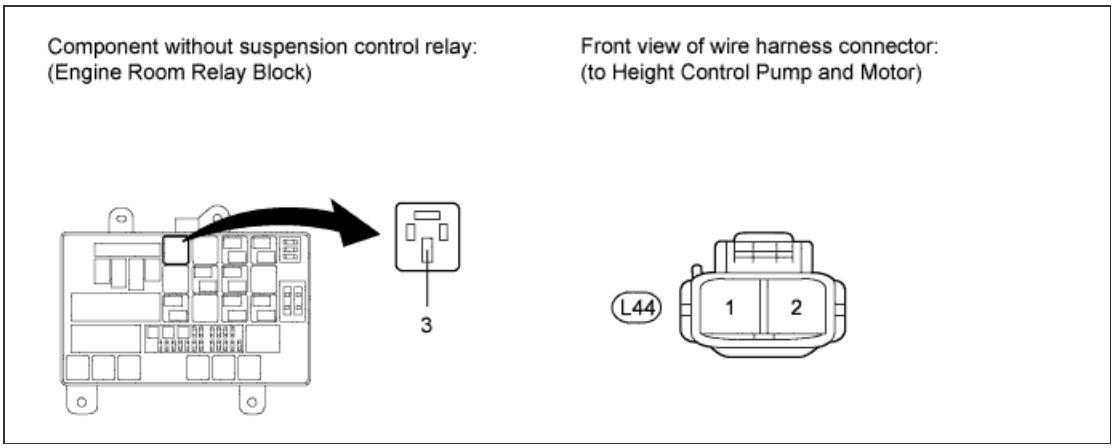
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL RELAY - PUMP AND MOTOR AND BODY GROUND)

a. Remove the suspension control relay from the engine room relay block.

b. Disconnect the L44 pump and motor connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
Relay block suspension control relay terminal 3 - L44-2	Always	Below 1 Ω
Relay block suspension control relay terminal 3 - Body ground	Always	10 kΩ or higher
L44-1 - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Apply battery voltage to the height control pump and motor and check the operation of the motor.

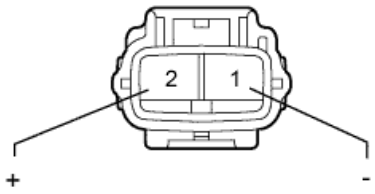
OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Be careful of fluid spray when the height control pump and motor is operating.**
- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**

Component without harness connected:
(Height Control Pump and Motor)



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

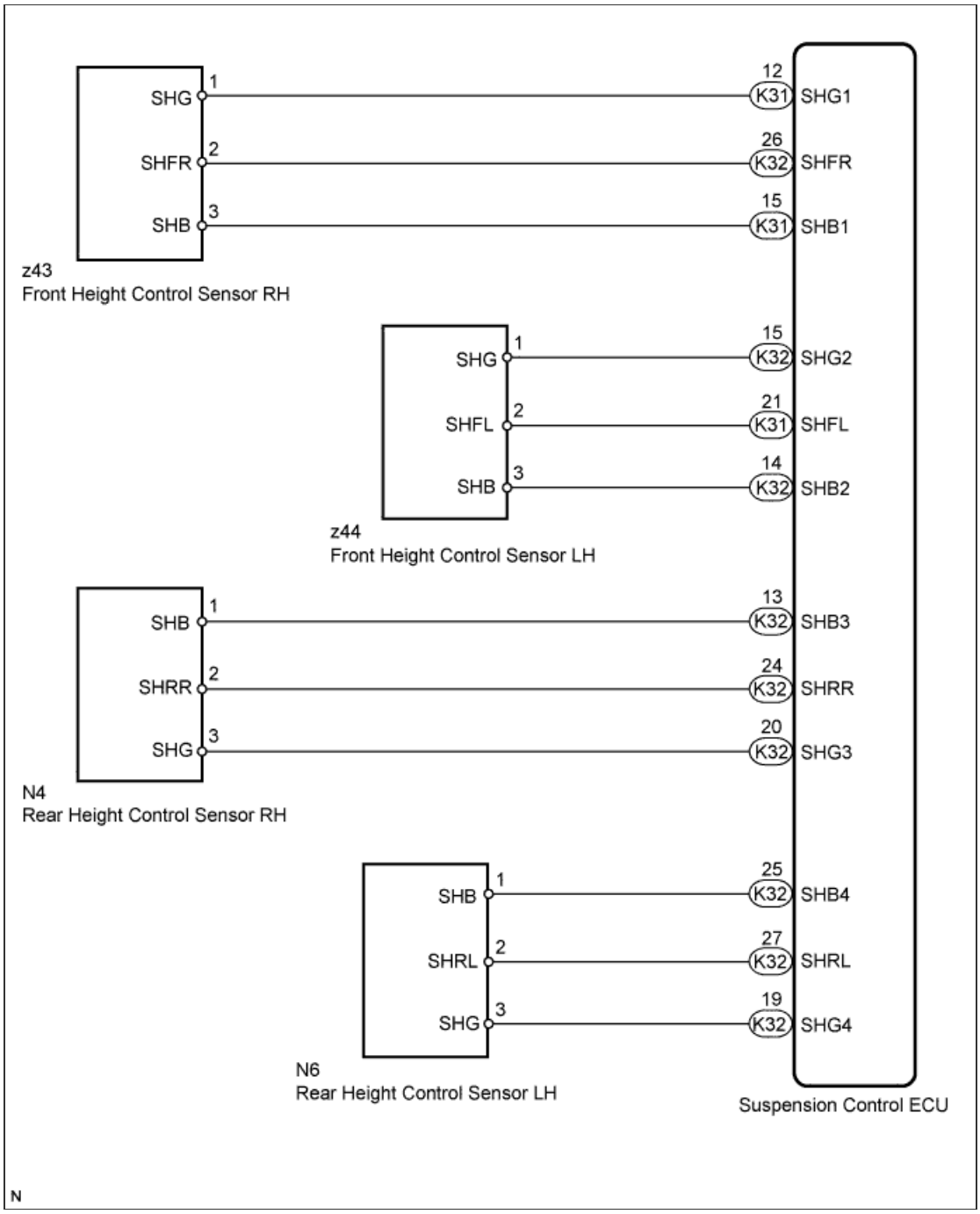
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

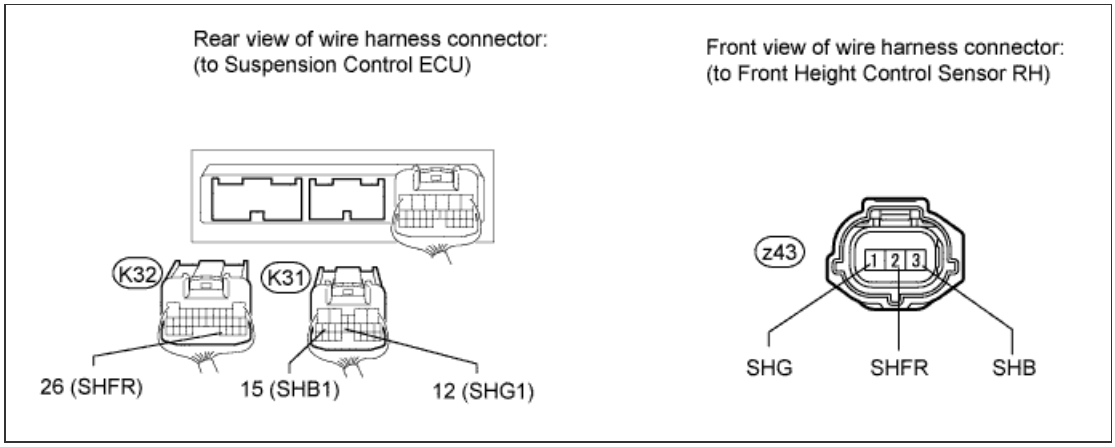
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

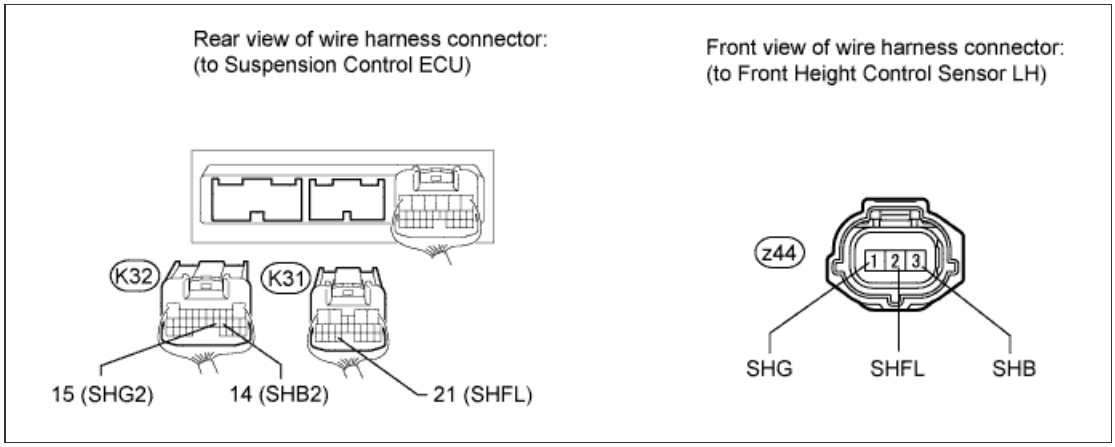
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

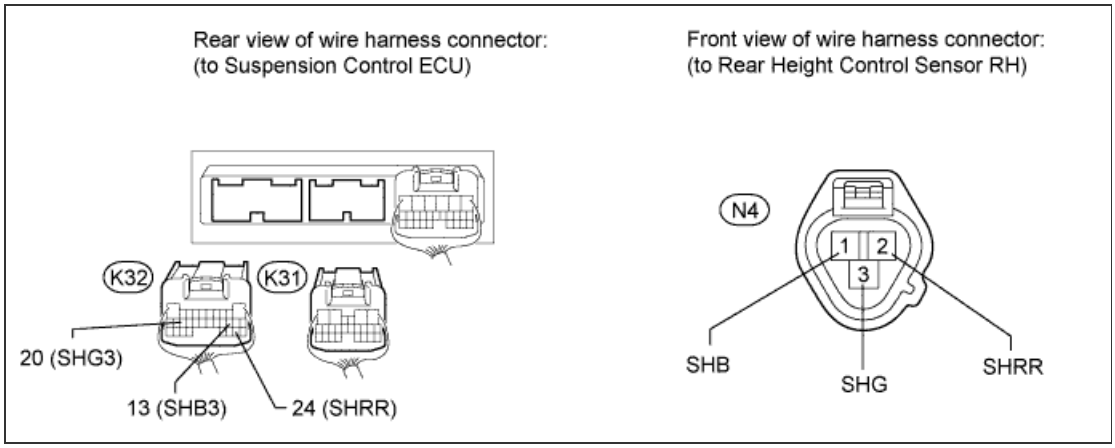
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

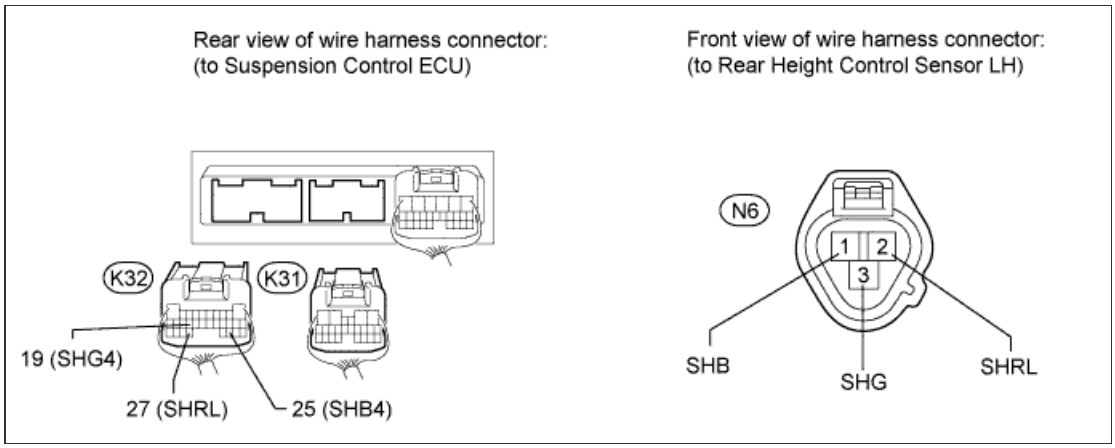
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

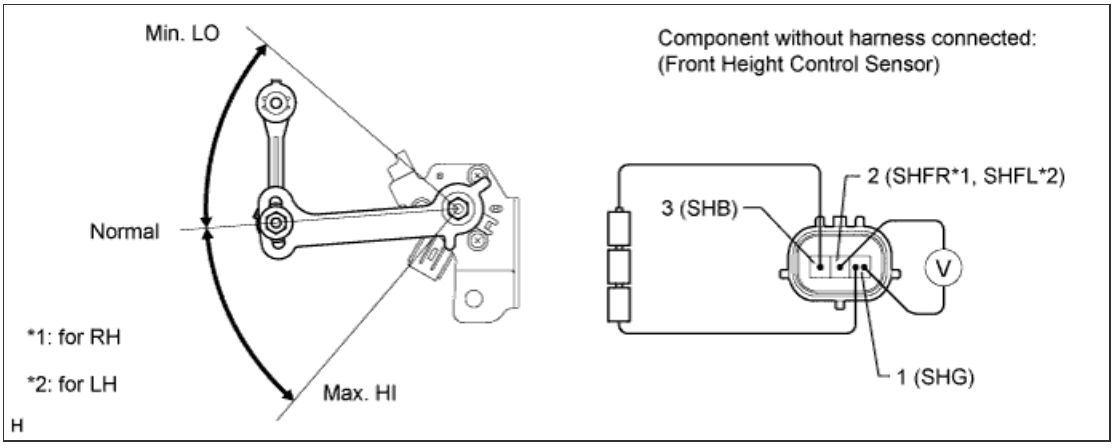
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

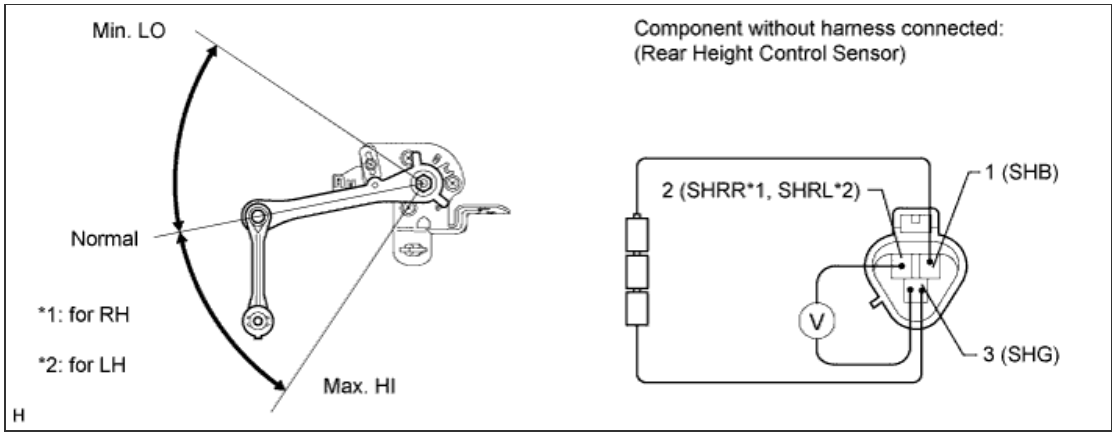
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

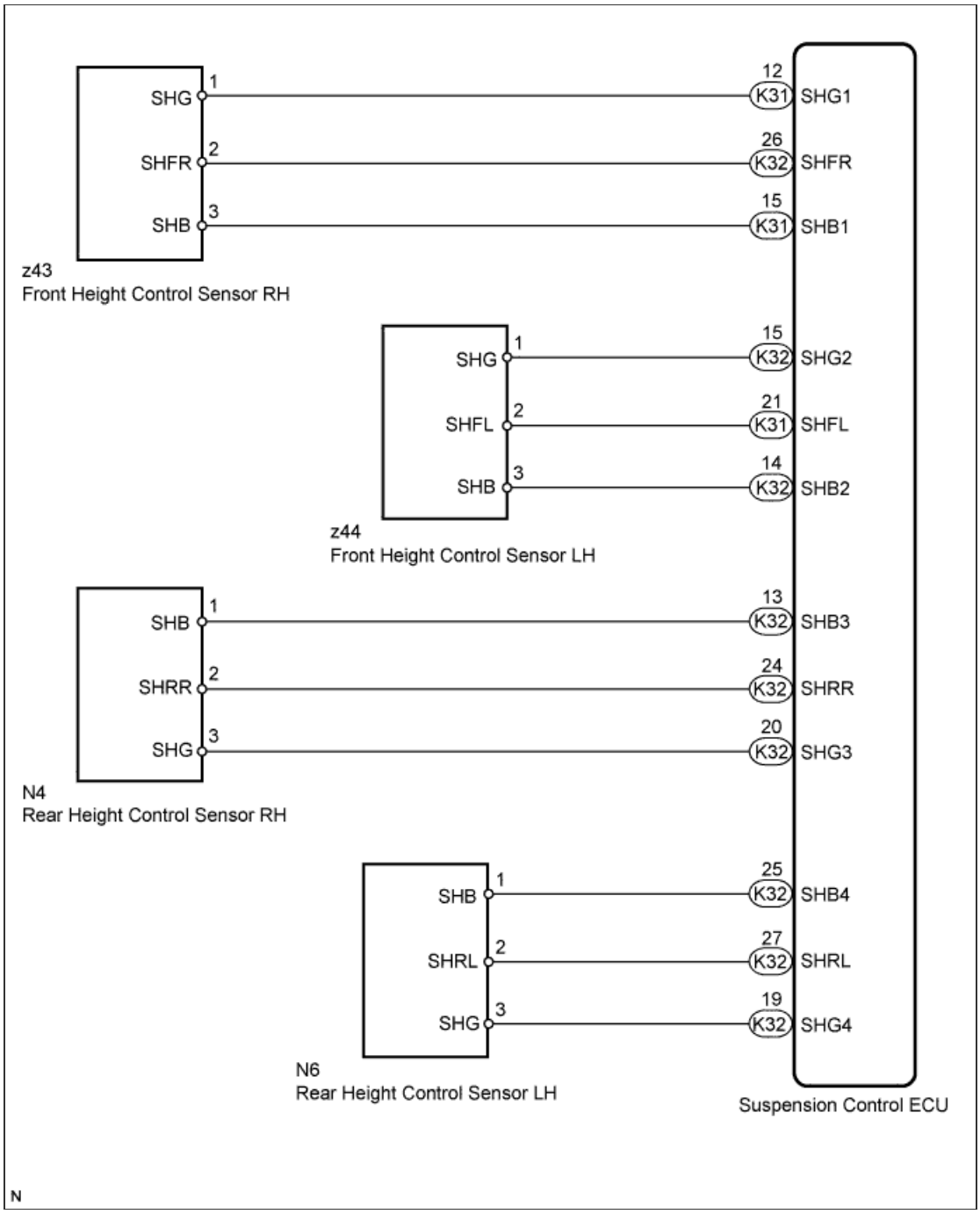
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

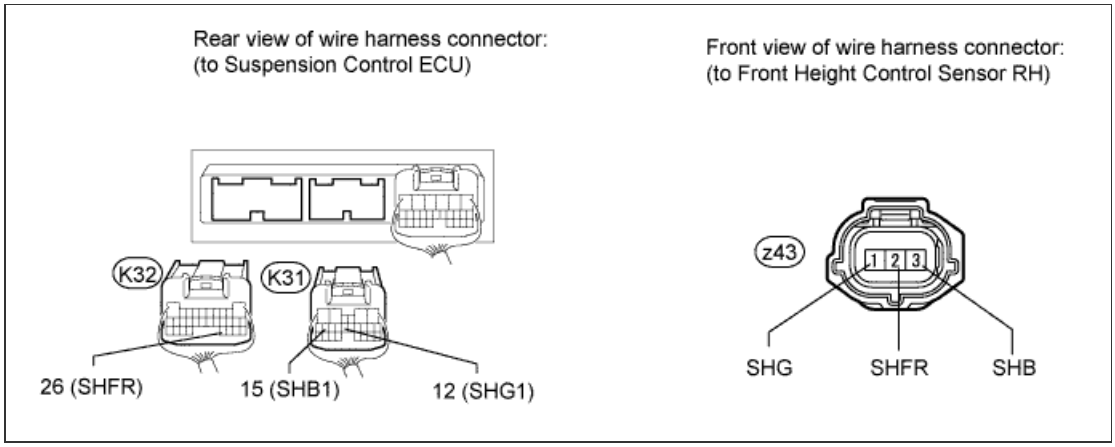
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

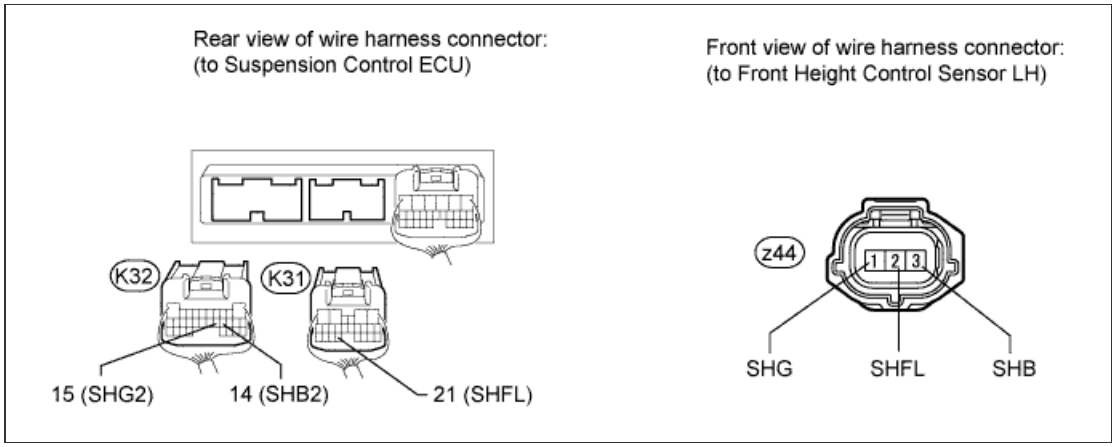
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

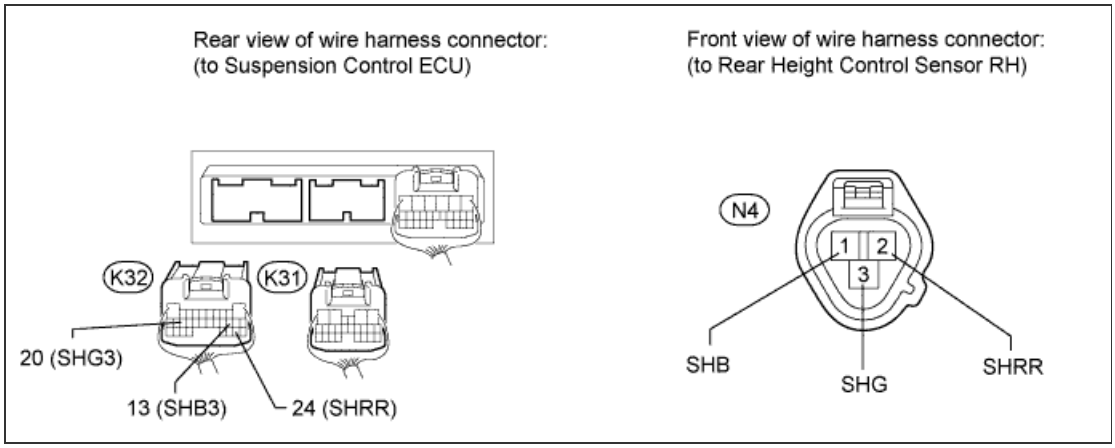
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

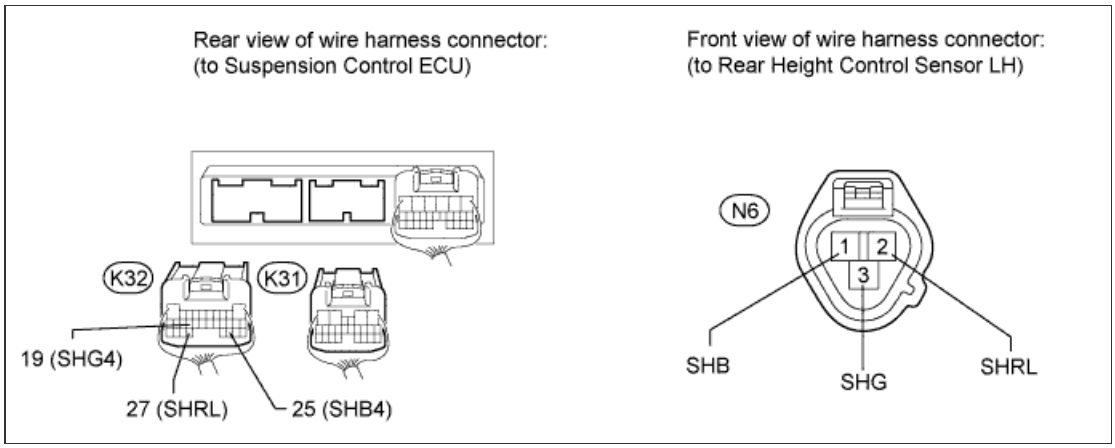
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

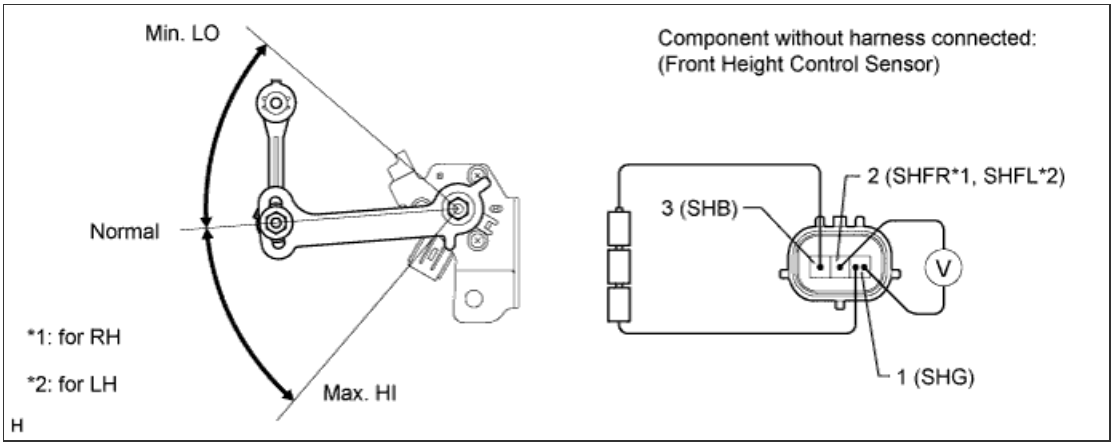
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

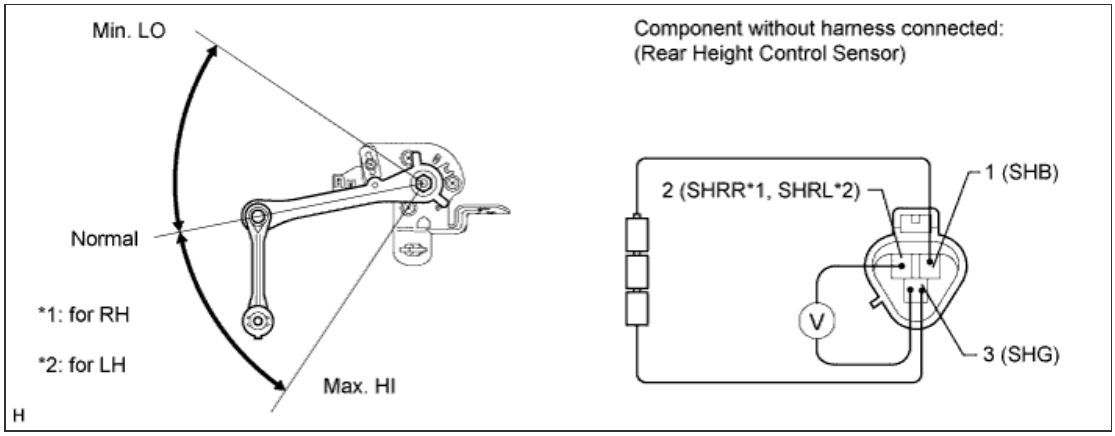
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1711 Front Height Control Sensor RH Circuit Malfunction

DTC C1712 Front Height Control Sensor LH Circuit Malfunction

DTC C1713 Rear Height Control Sensor RH Circuit Malfunction

DTC C1714 Rear Height Control Sensor LH Circuit Malfunction

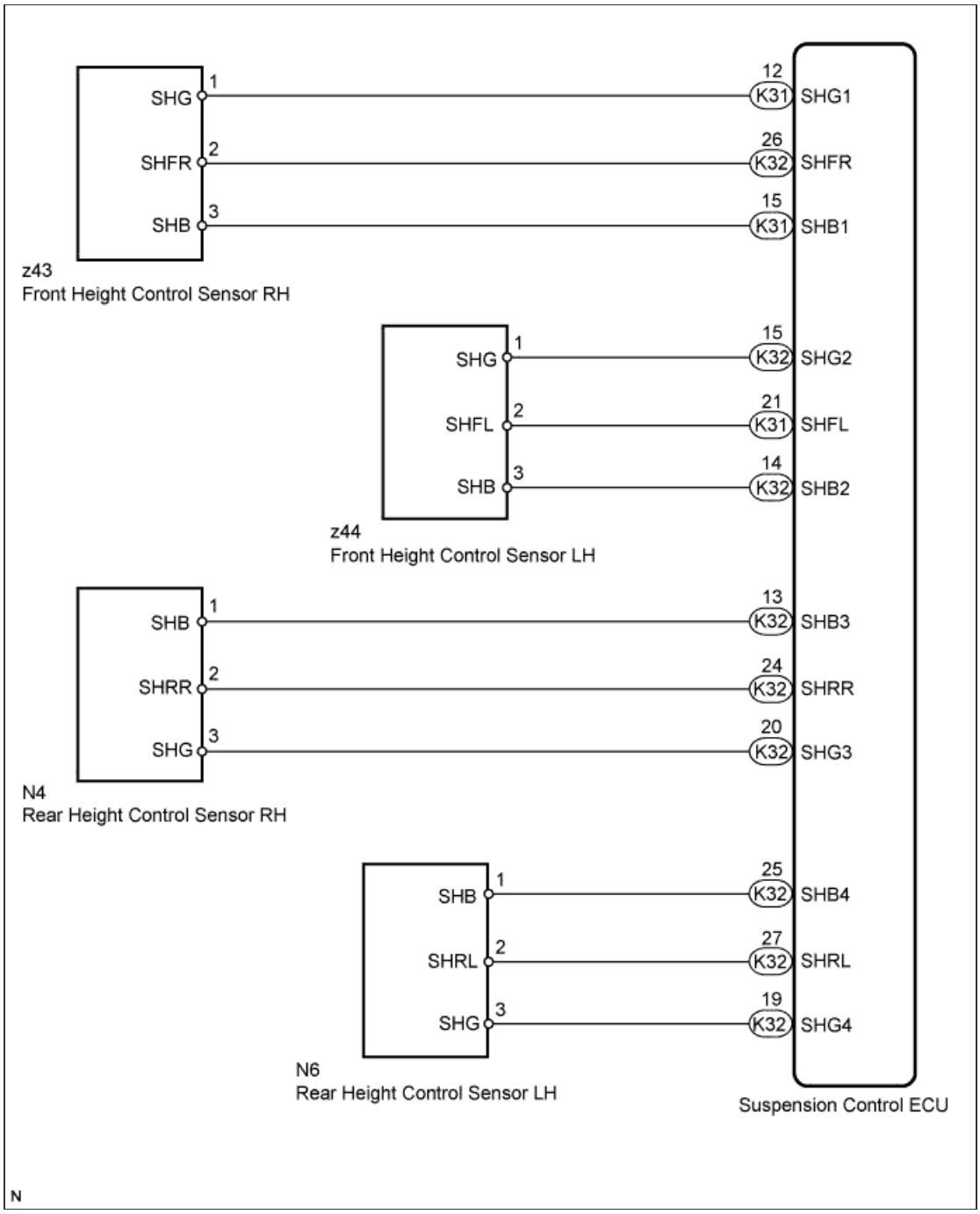
for Preparation Click here

DESCRIPTION

The height control sensor changes its resistance value based on changes in vehicle height. The suspension control ECU outputs a fixed voltage of 5 V to the SHB terminal of the height control sensor. If the sensor resistance value changes, the sensor voltage value changes accordingly. The suspension control ECU then receives the voltage value from the sensor to detect the vehicle height change.

DTC Code	Detection Condition	Trouble Area
C1711	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor RH • Suspension control ECU
C1712	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Front height control sensor LH • Suspension control ECU
C1713	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor RH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor RH • Suspension control ECU
C1714	When one of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear height control sensor LH is detected for 1 second. • When there is a height control sensor power supply voltage malfunction. • When the height control sensor is determined to be stuck (When the sensor output is constant while the vehicle is turning, the sensor is determined to be stuck).	• Harness or connector • Rear height control sensor LH • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

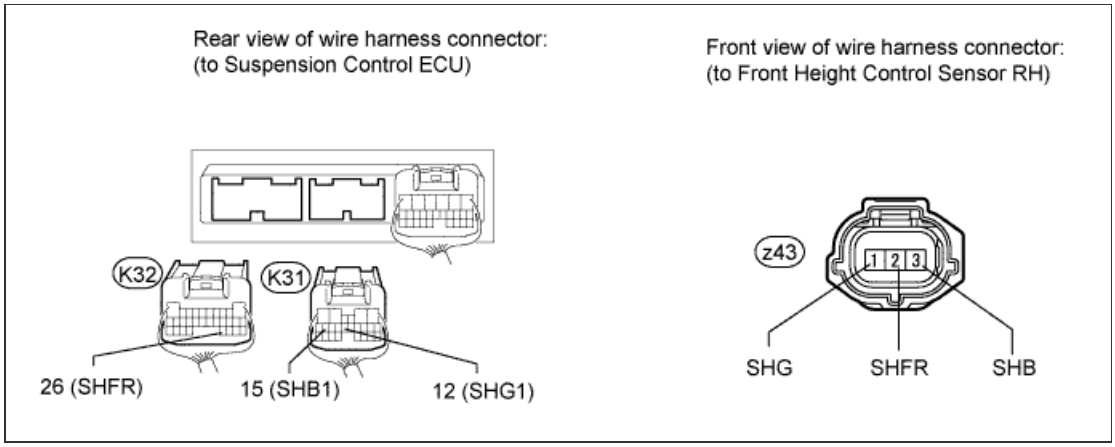
When inspecting the wire harnesses between the suspension control ECU and each sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect each sensor connector (front RH, front LH, rear RH and rear LH) on the ECU side.

a. Check the front height control sensor RH side: (C1711)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

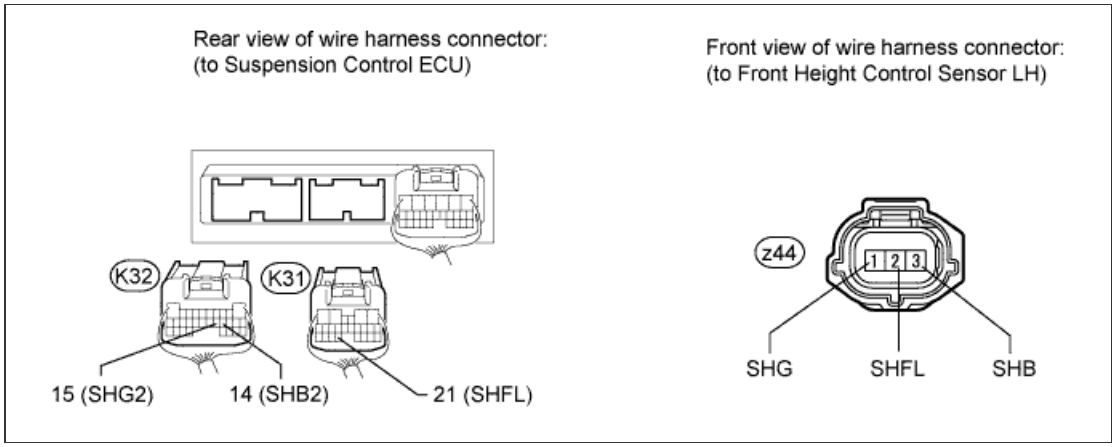
Tester Connection	Condition	Specified Condition
z43-1 (SHG) - K31-12 (SHG1)	Always	Below 1 Ω
z43-2 (SHFR) - K32-26 (SHFR)	Always	Below 1 Ω
z43-3 (SHB) - K31-15 (SHB1)	Always	Below 1 Ω
z43-1 (SHG) - Body ground	Always	10 kΩ or higher
z43-2 (SHFR) - Body ground	Always	10 kΩ or higher
z43-3 (SHB) - Body ground	Always	10 kΩ or higher

b. Check the front height control sensor LH side: (C1712)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the z44 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition

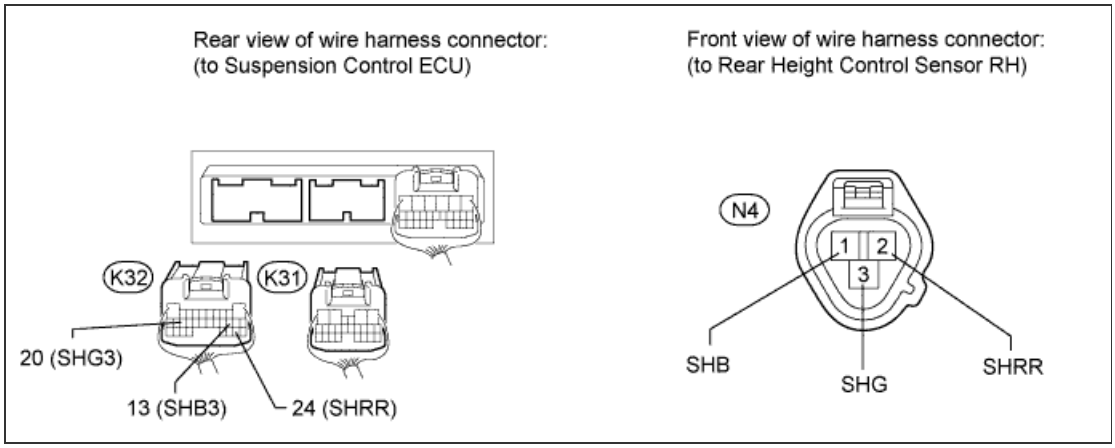
z44-1 (SHG) - K32-15 (SHG2)	Always	Below 1 Ω
z44-2 (SHFL) - K31-21 (SHFL)	Always	Below 1 Ω
z44-3 (SHB) - K32-14 (SHB2)	Always	Below 1 Ω
z44-1 (SHG) - Body ground	Always	10 kΩ or higher
z44-2 (SHFL) - Body ground	Always	10 kΩ or higher
z44-3 (SHB) - Body ground	Always	10 kΩ or higher

c. Check the rear height control sensor RH side: (C1713)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N4 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

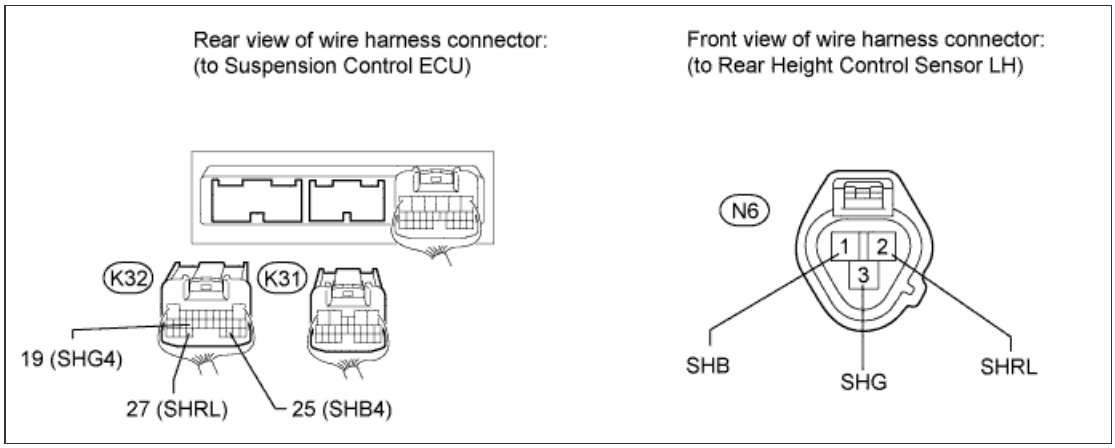
Tester Connection	Condition	Specified Condition
N4-3 (SHG) - K32-20 (SHG3)	Always	Below 1 Ω
N4-2 (SHRR) - K32-24 (SHRR)	Always	Below 1 Ω
N4-1 (SHB) - K32-13 (SHB3)	Always	Below 1 Ω
N4-3 (SHG) - Body ground	Always	10 kΩ or higher
N4-2 (SHRR) - Body ground	Always	10 kΩ or higher
N4-1 (SHB) - Body ground	Always	10 kΩ or higher

d. Check the rear height control sensor LH side: (C1714)

i. Disconnect the K31 and K32 ECU connectors.

ii. Disconnect the N6 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
N6-3 (SHG) - K32-19 (SHG4)	Always	Below 1 Ω
N6-2 (SHRL) - K32-27 (SHRL)	Always	Below 1 Ω
N6-1 (SHB) - K32-25 (SHB4)	Always	Below 1 Ω
N6-3 (SHG) - Body ground	Always	10 kΩ or higher
N6-2 (SHRL) - Body ground	Always	10 kΩ or higher
N6-1 (SHB) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

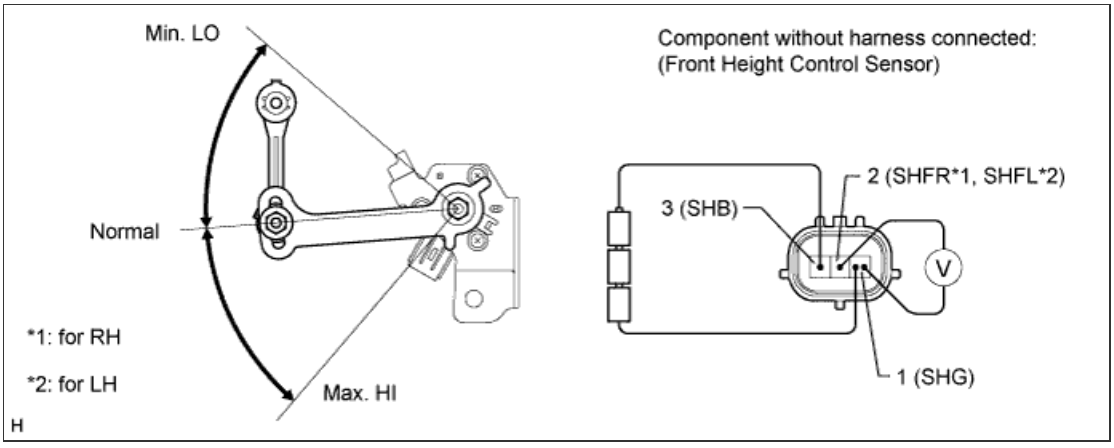
2.INSPECT HEIGHT CONTROL SENSOR

a. Check the front height control sensor:

i. Remove the front height control sensor RH or front height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1 or SHFL*2) and terminal 1 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

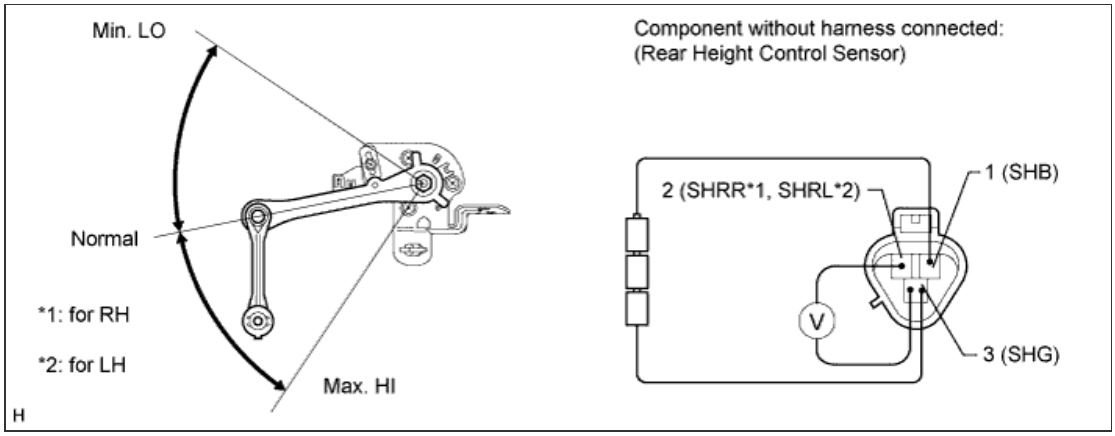
Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

b. Check the rear height control sensor.

i. Remove the rear height control sensor RH or rear height control sensor LH (Click here).

NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.



ii. Connect 3 1.5 V dry cell batteries in series.

iii. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1 or SHRL*2) and terminal 3 (SHG).

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

*1: for RH

*2: for LH

iv. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

Result

Result	Proceed to
OK	A
Front height control sensor RH malfunction	B
Front height control sensor LH malfunction	C
Rear height control sensor RH malfunction	D
Rear height control sensor LH malfunction	E

B → REPLACE FRONT HEIGHT CONTROL SENSOR RH (Click here)

C → REPLACE FRONT HEIGHT CONTROL SENSOR LH (Click here)

D → REPLACE REAR HEIGHT CONTROL SENSOR RH (Click here)

E → REPLACE REAR HEIGHT CONTROL SENSOR LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

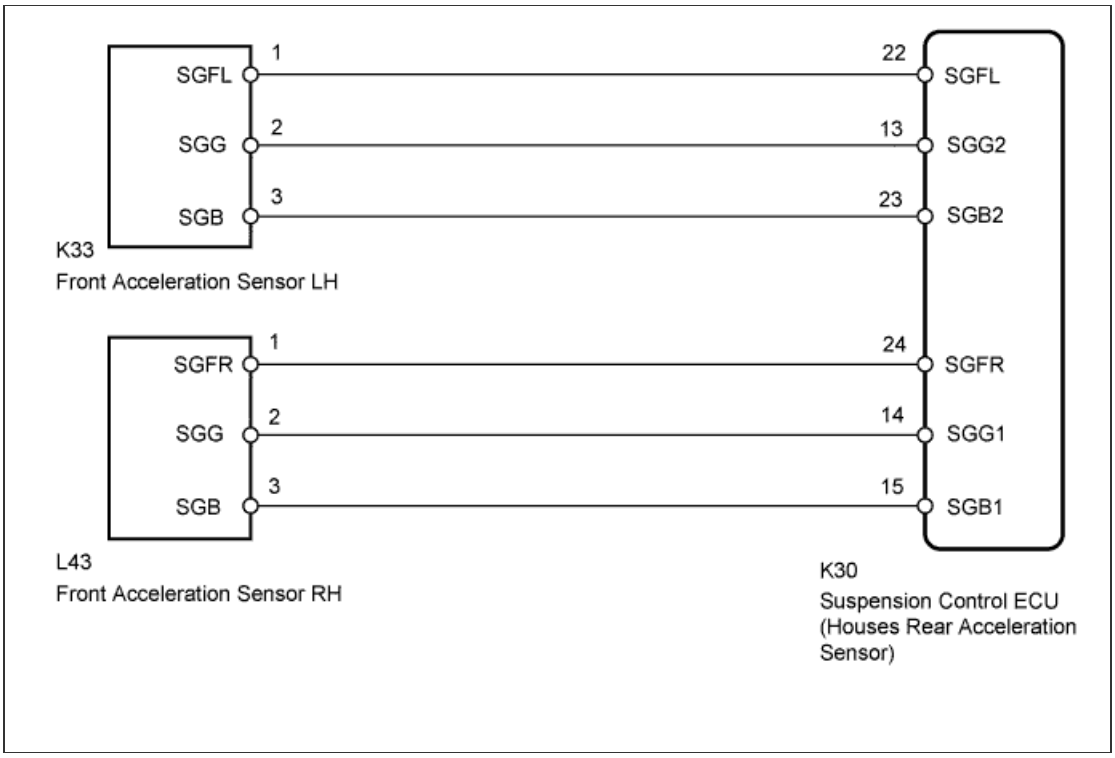
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

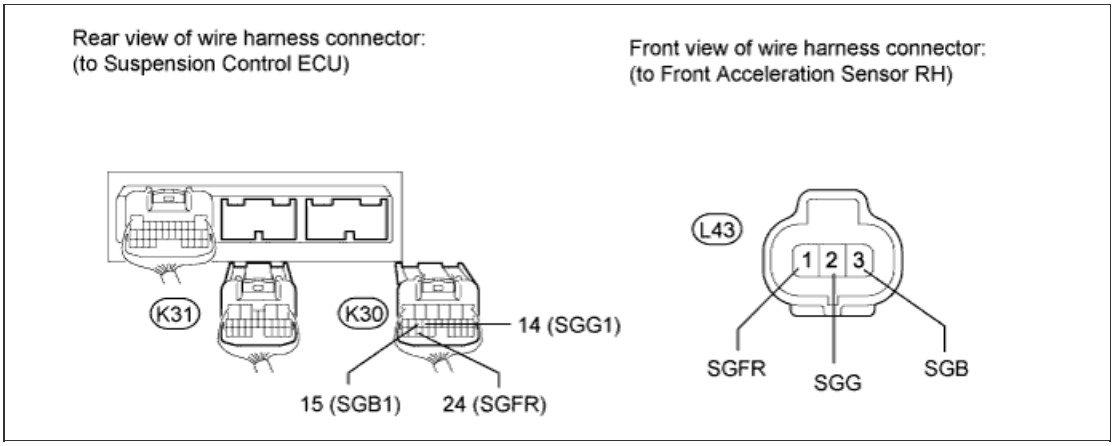
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

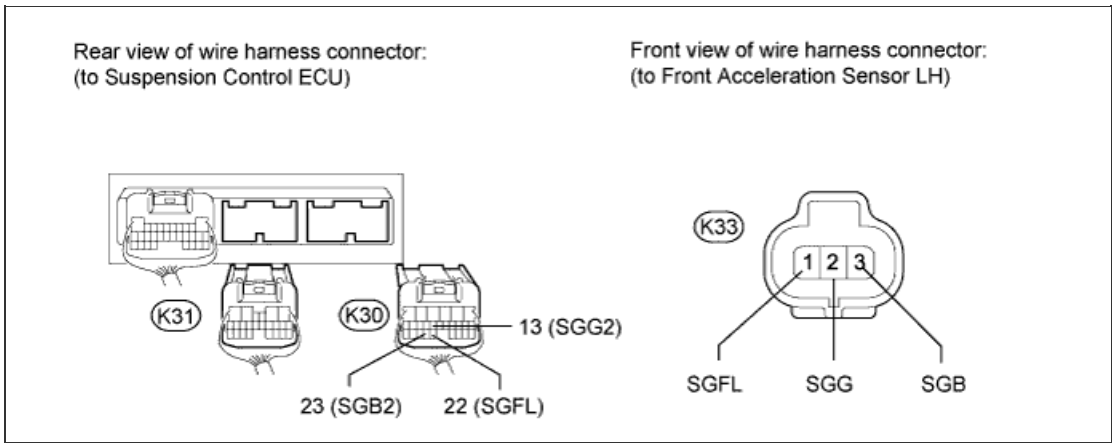
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

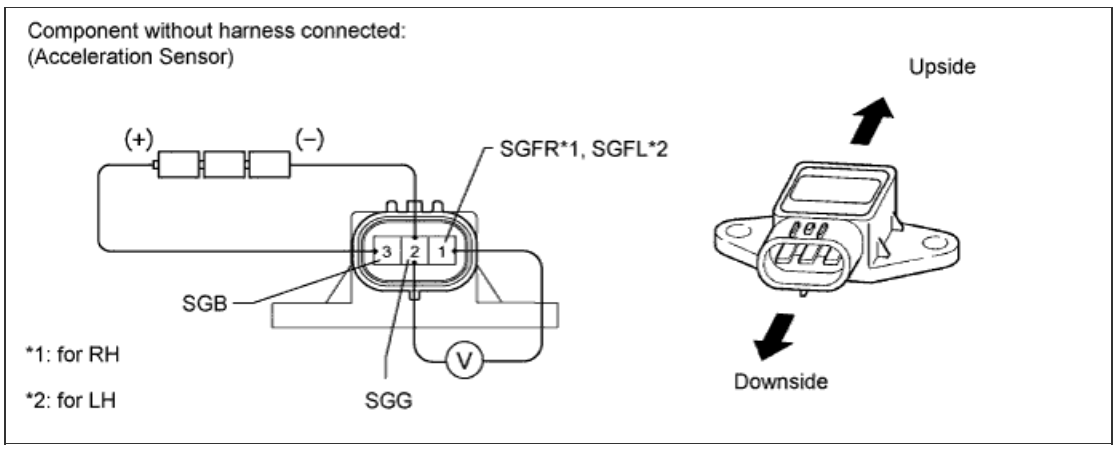
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

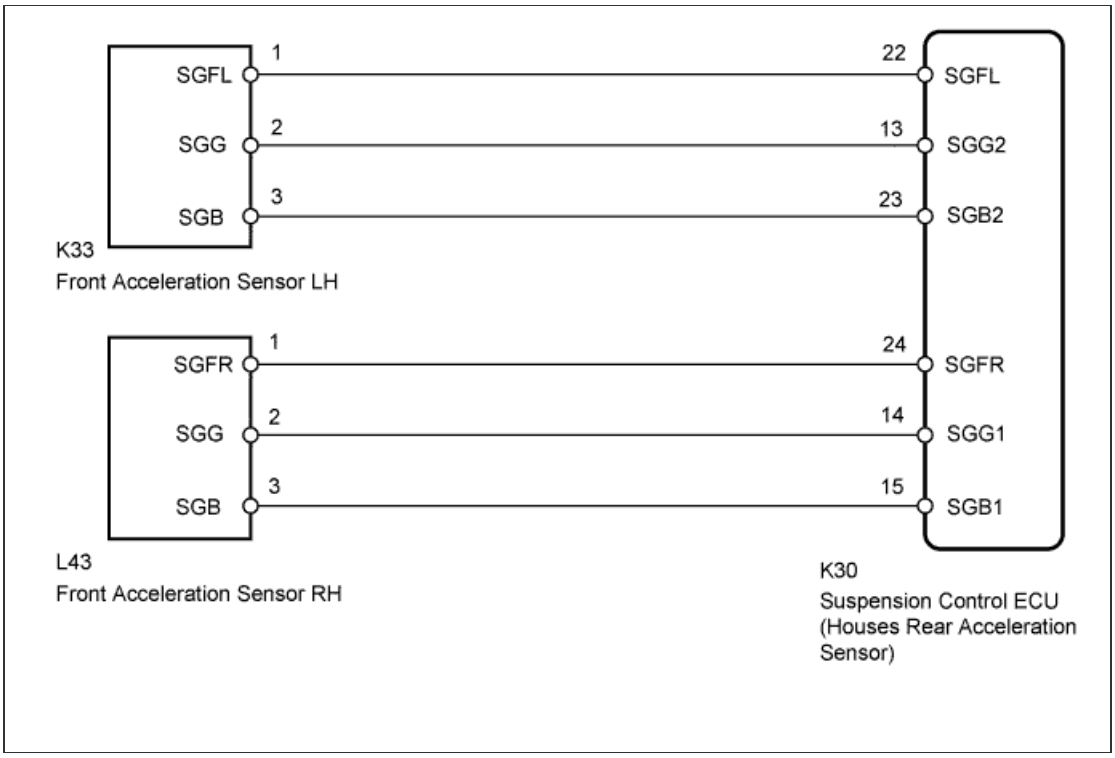
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

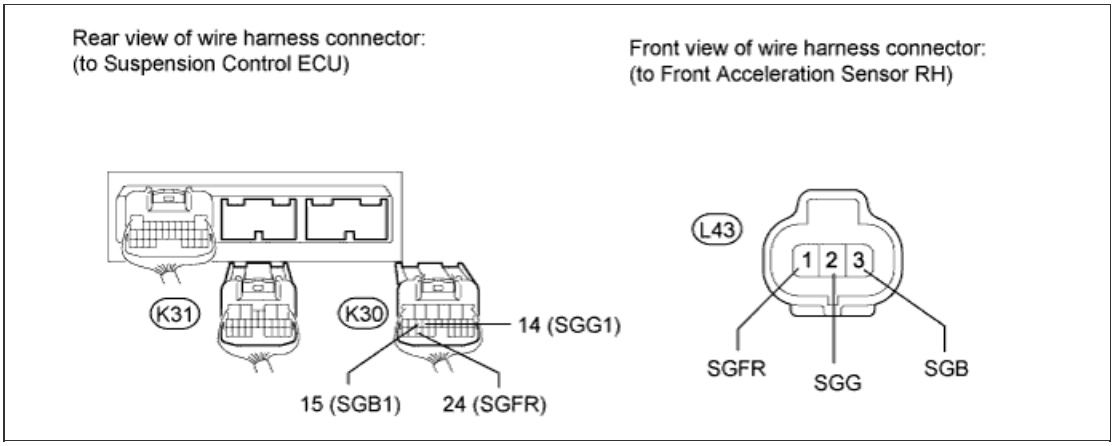
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

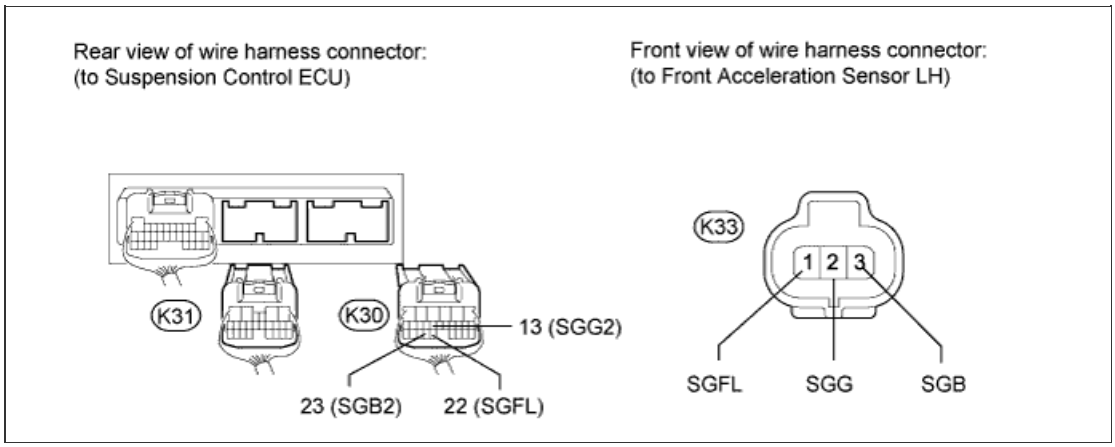
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

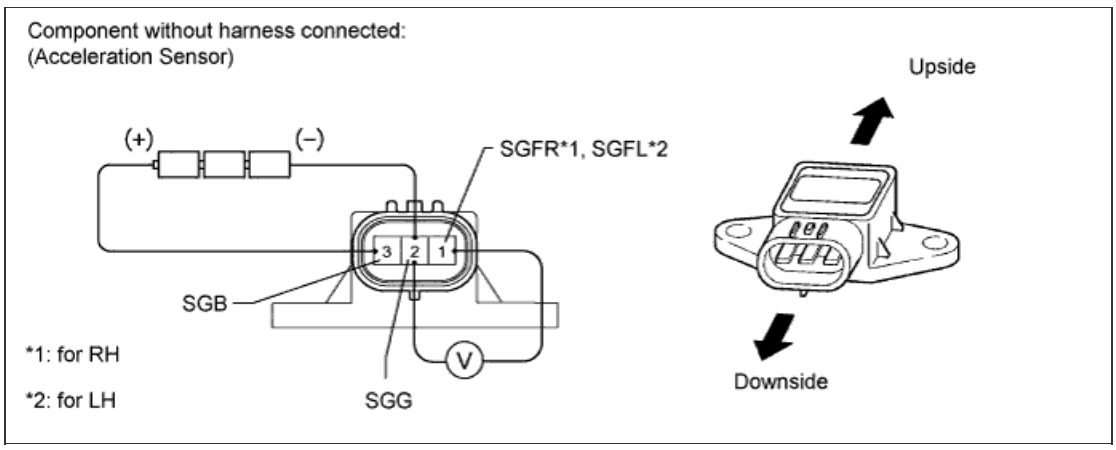
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

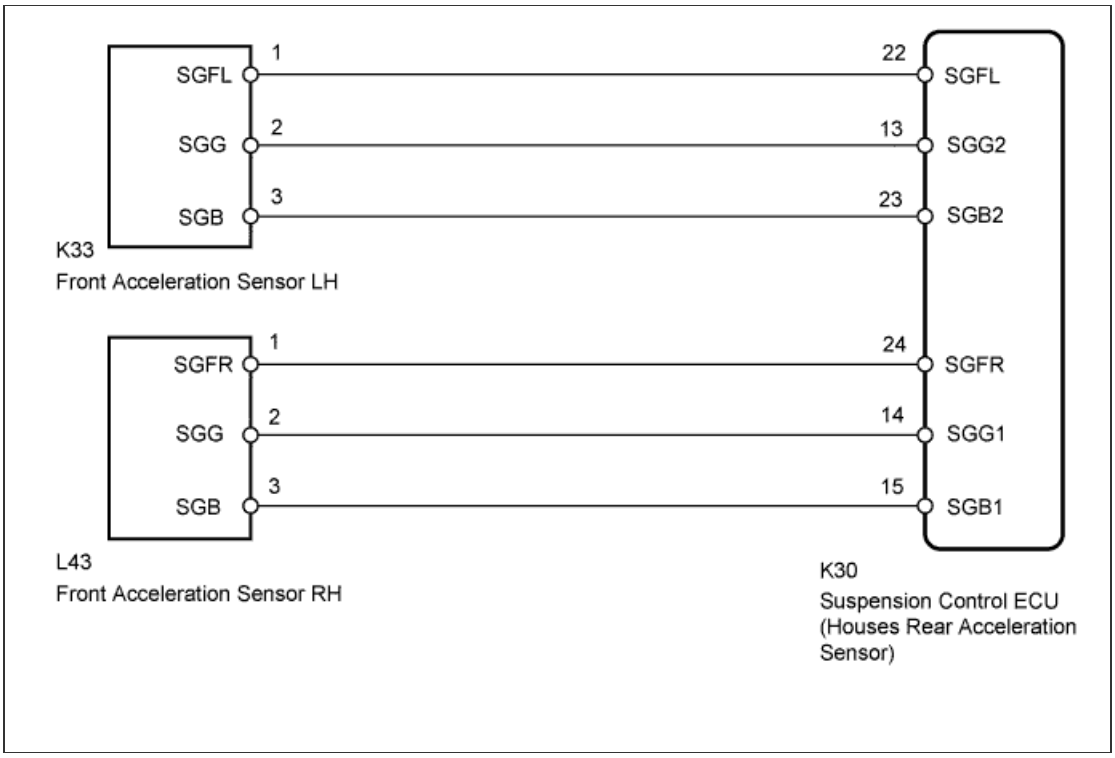
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

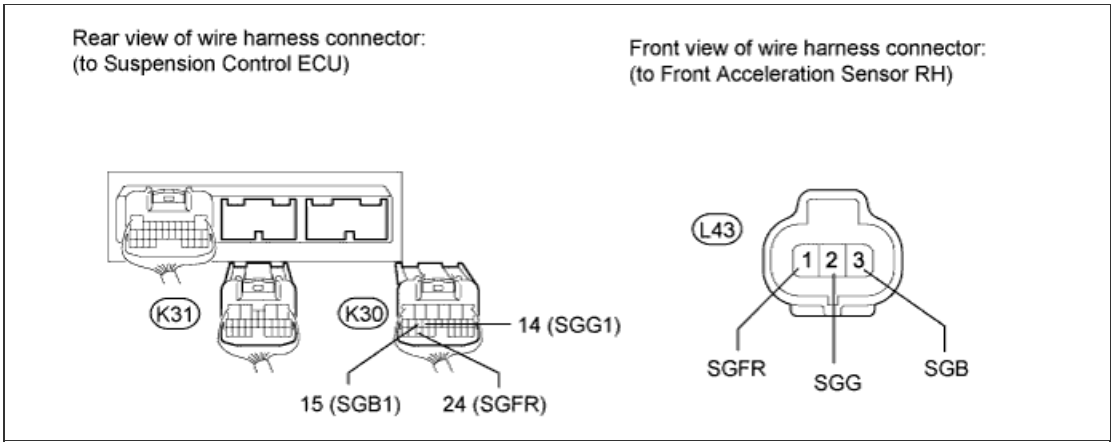
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

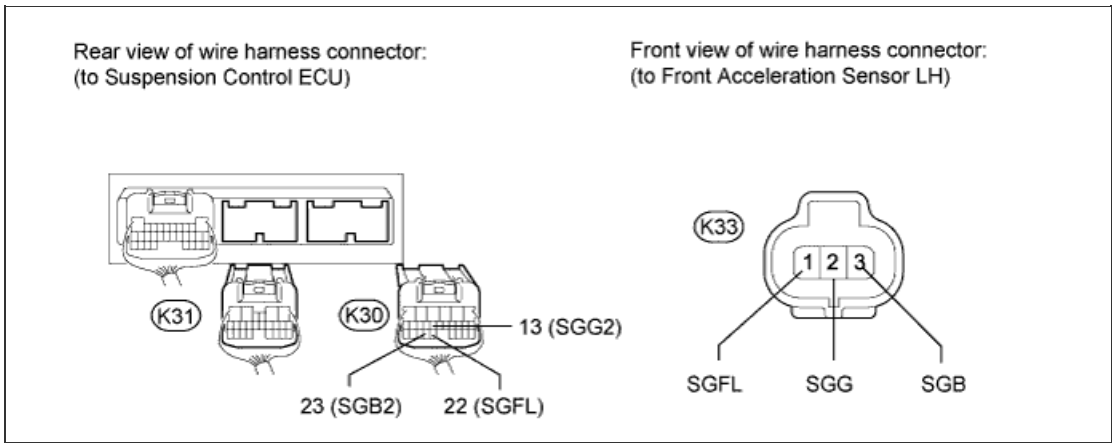
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

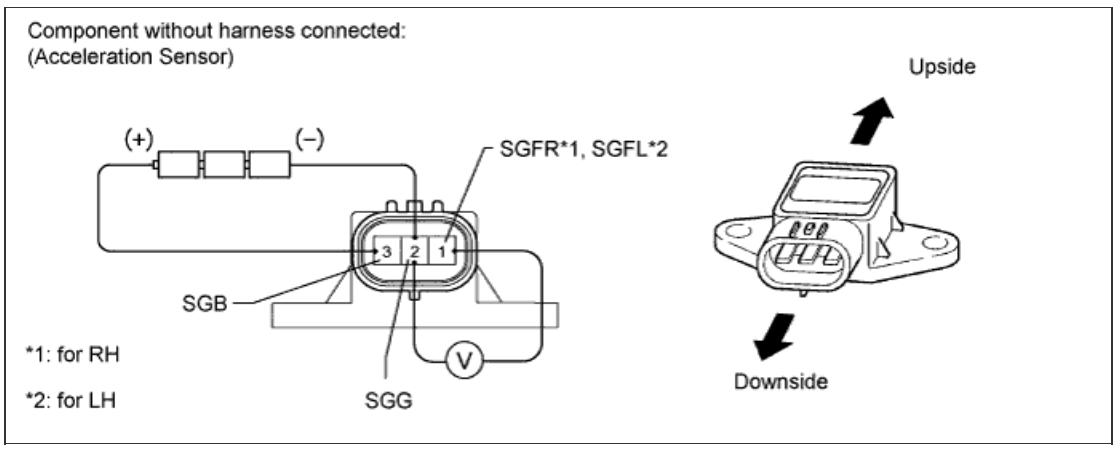
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1764 Abnormal Leveling Valve Oil Pressure

DTC C1765 Abnormal Accumulator Valve Oil Pressure

for Preparation Click here

DESCRIPTION

The solenoid valve is located in the No. 1 height control valve. When the vehicle height is adjusted, the fluid line is opened or closed according to the signal from the suspension control ECU. If the height control pump and motor activates when the fluid line is closed due to the solenoid valve malfunctioning, the solenoid valve being stuck, or foreign matter clogging the fluid line, fluid pressure increases abnormally. When this problem with the fluid pressure is detected, DTC C1764 and/or DTC C1765 is stored.

DTC Code	Detection Condition	Trouble Area
C1764	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU
C1765	When the height control pump and motor activates and the fluid pressure is 18.5 MPa (188.6 kgf/cm^2, 2683 psi) or more for 0.3 seconds.	• No. 1 height control valve (Each solenoid valve is stuck) • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (EACH LEVELING VALVE AND ACCUMULATOR VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation sound of the solenoid or vibration of the leveling valve solenoid and accumulator valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.

OK:

The operation sound of the solenoid should be heard or the vibration of the leveling valve solenoid or accumulator valve solenoid should be felt.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

2.CHECK FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- **Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is**

not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.

- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

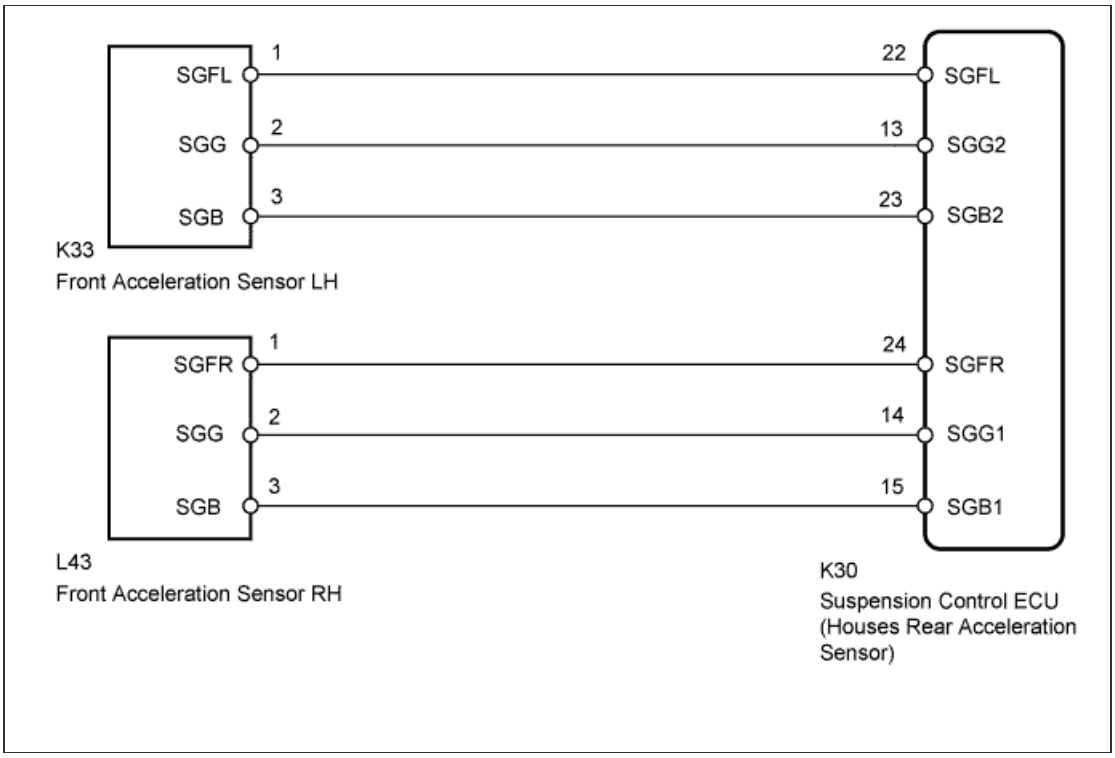
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

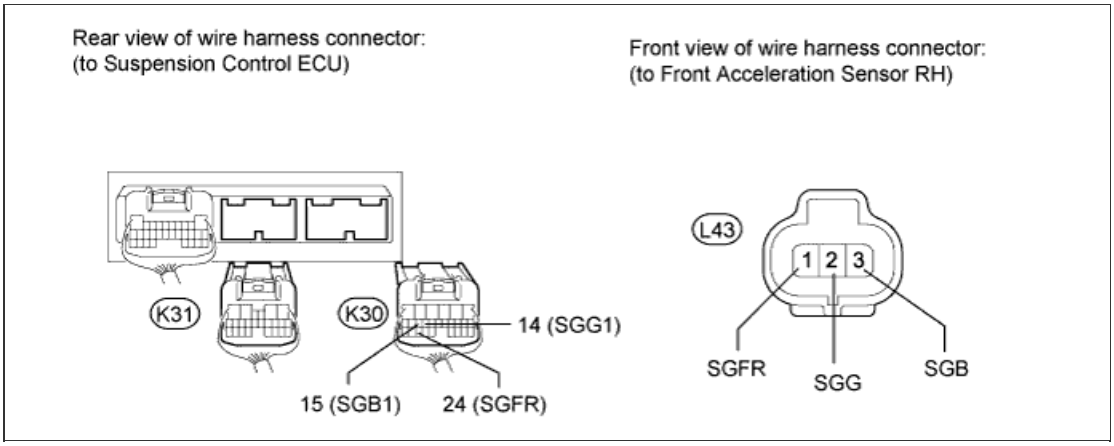
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

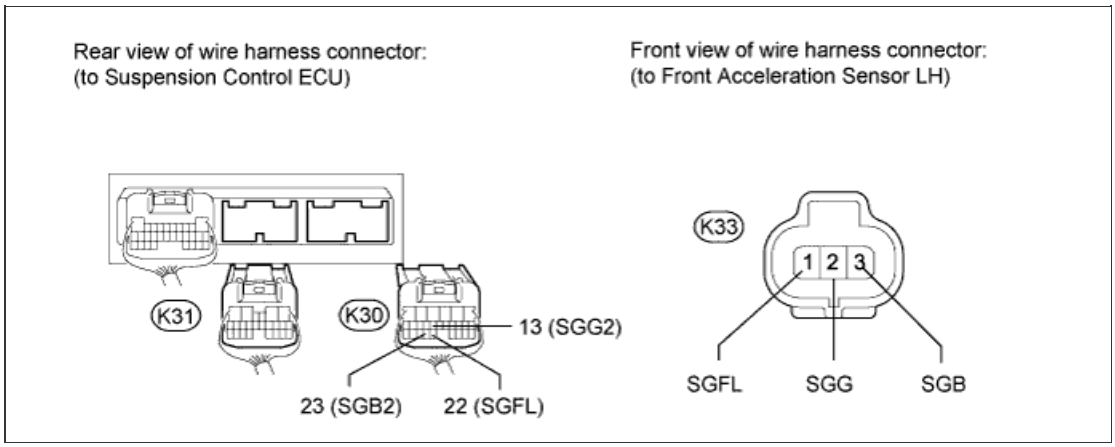
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

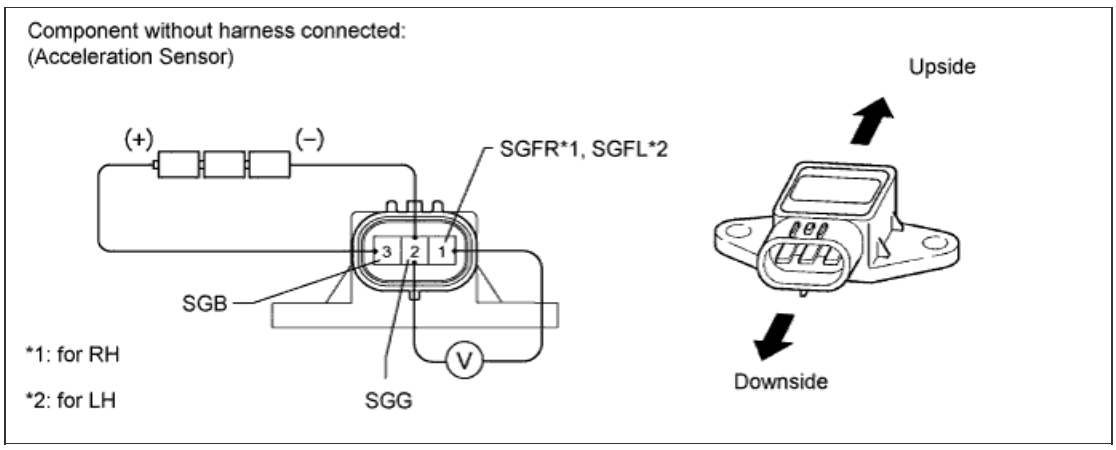
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1766 Height Control Pump Motor Current

for Preparation Click here

DESCRIPTION

In case that the height control has not finished in spite of performing the raise control for a certain period of time, the ECU interrupts the height control.

DTC Code	Detection Condition	Trouble Area
C1766	When the height control pump and motor operates continuously for 135 seconds.	• Fluid leakage • No. 1 height control valve • Suspension control relay • Height control pump and motor • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **When the cargo weight is extremely heavy, this DTC may be stored.**

1.INSPECT FOR FLUID LEAK

a. Inspect for fluid leaks (Click here).

NG → **REPAIR FLUID LEAK OR REPLACE LEAKING PART(S)**

OK

2.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (LEVELING VALVE, ACCUMULATOR VALVE AND GATE VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator valve solenoid and/or gate valve solenoid operates.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

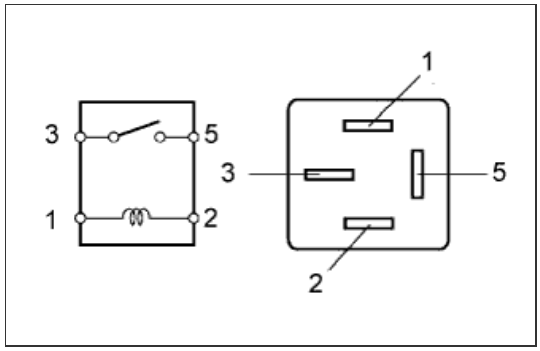
3.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

4.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Inspect if the compressor is stuck.

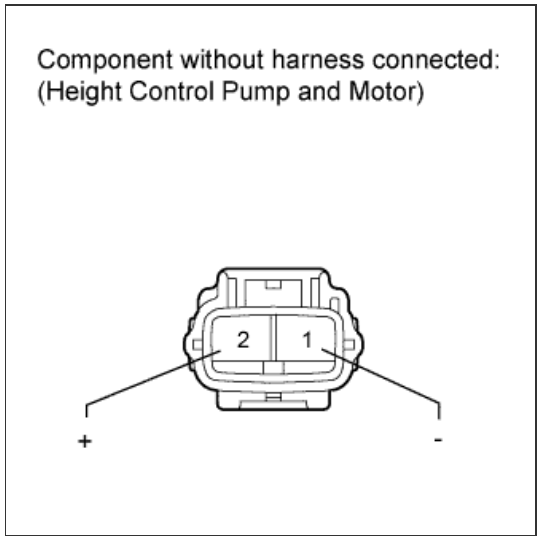
i. Apply battery voltage to the compressor motor and check the operation of the motor.

OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

5.INSPECT FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.
- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

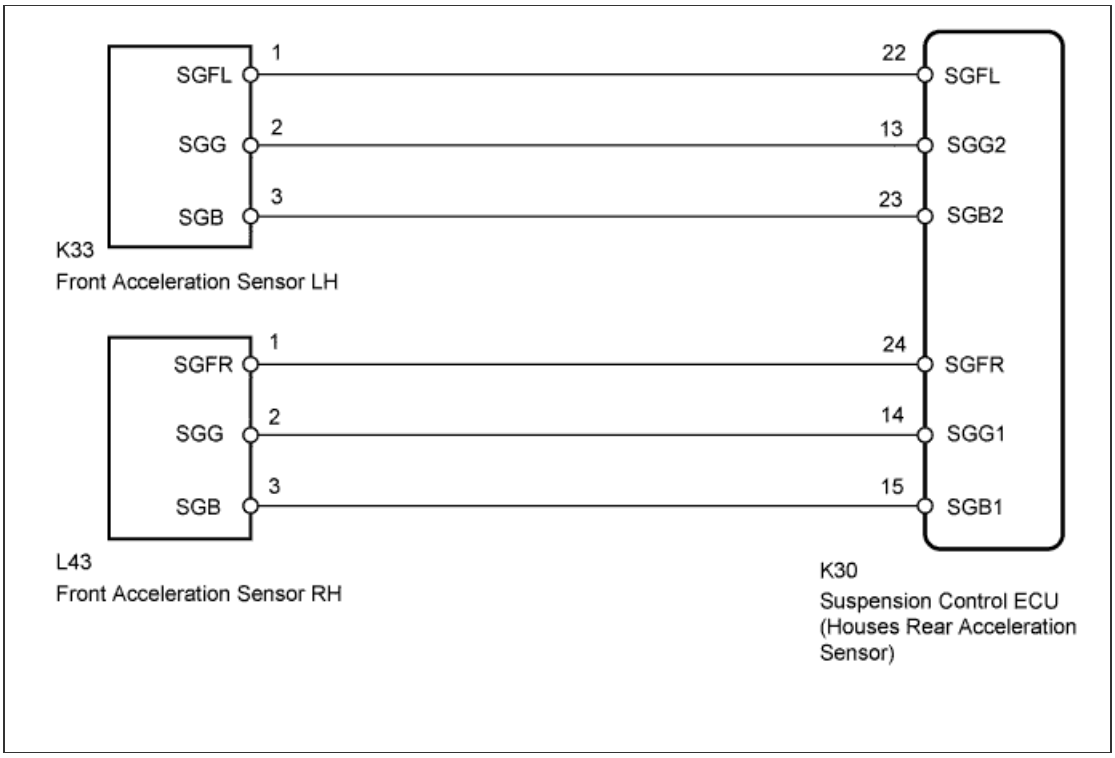
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

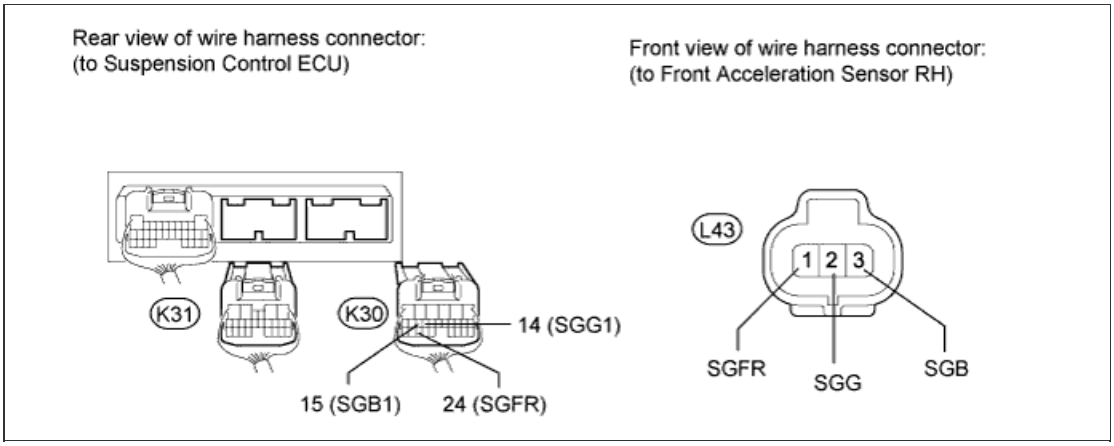
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

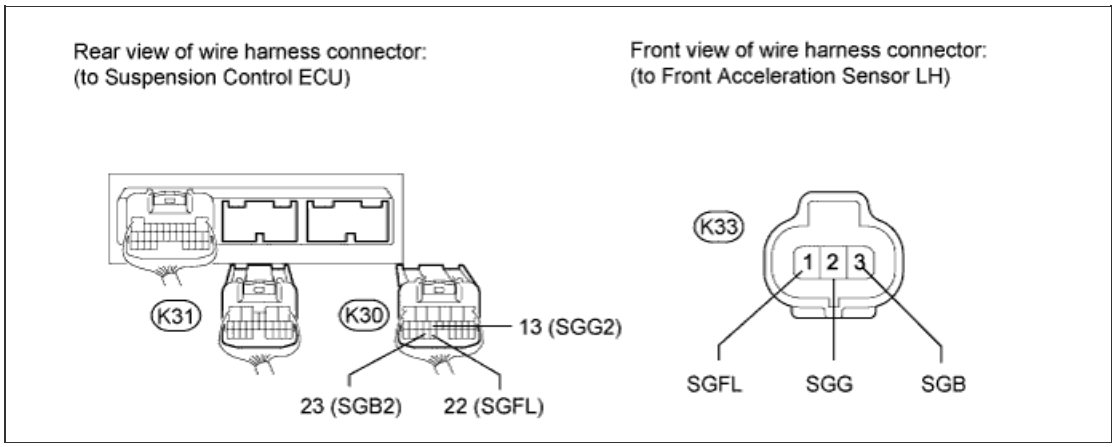
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

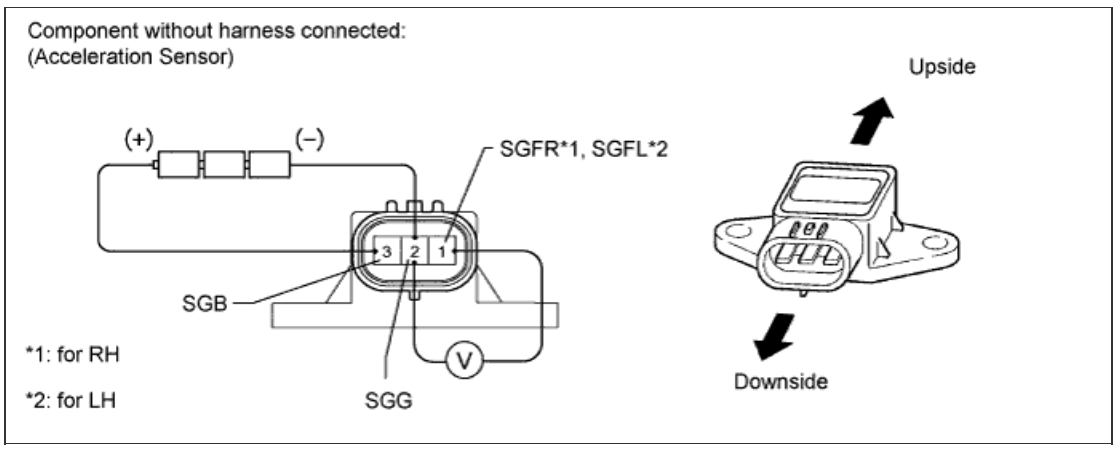
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1766 Height Control Pump Motor Current

for Preparation Click here

DESCRIPTION

In case that the height control has not finished in spite of performing the raise control for a certain period of time, the ECU interrupts the height control.

DTC Code	Detection Condition	Trouble Area
C1766	When the height control pump and motor operates continuously for 135 seconds.	• Fluid leakage • No. 1 height control valve • Suspension control relay • Height control pump and motor • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **When the cargo weight is extremely heavy, this DTC may be stored.**

1.INSPECT FOR FLUID LEAK

a. Inspect for fluid leaks (Click here).

NG → **REPAIR FLUID LEAK OR REPLACE LEAKING PART(S)**

OK

2.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (LEVELING VALVE, ACCUMULATOR VALVE AND GATE VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator valve solenoid and/or gate valve solenoid operates.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

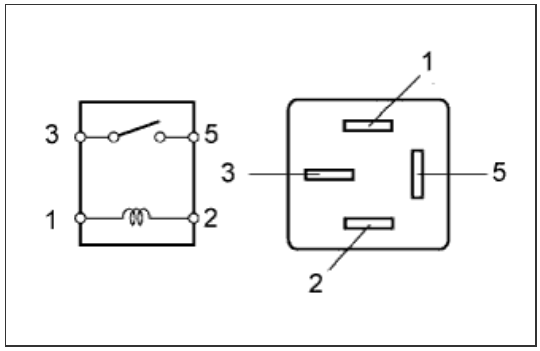
3.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

4.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Inspect if the compressor is stuck.

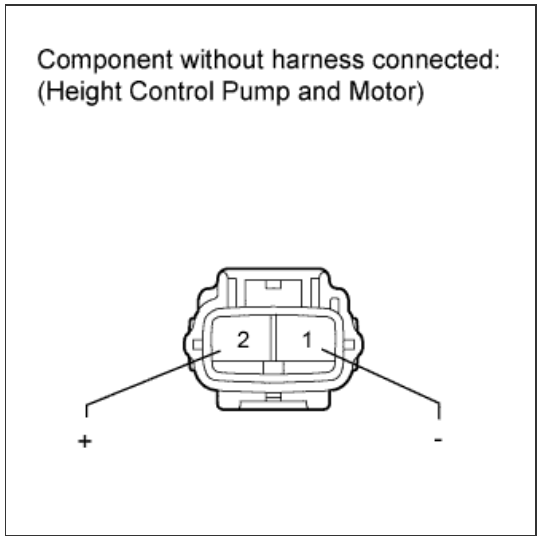
i. Apply battery voltage to the compressor motor and check the operation of the motor.

OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

5.INSPECT FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.
- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

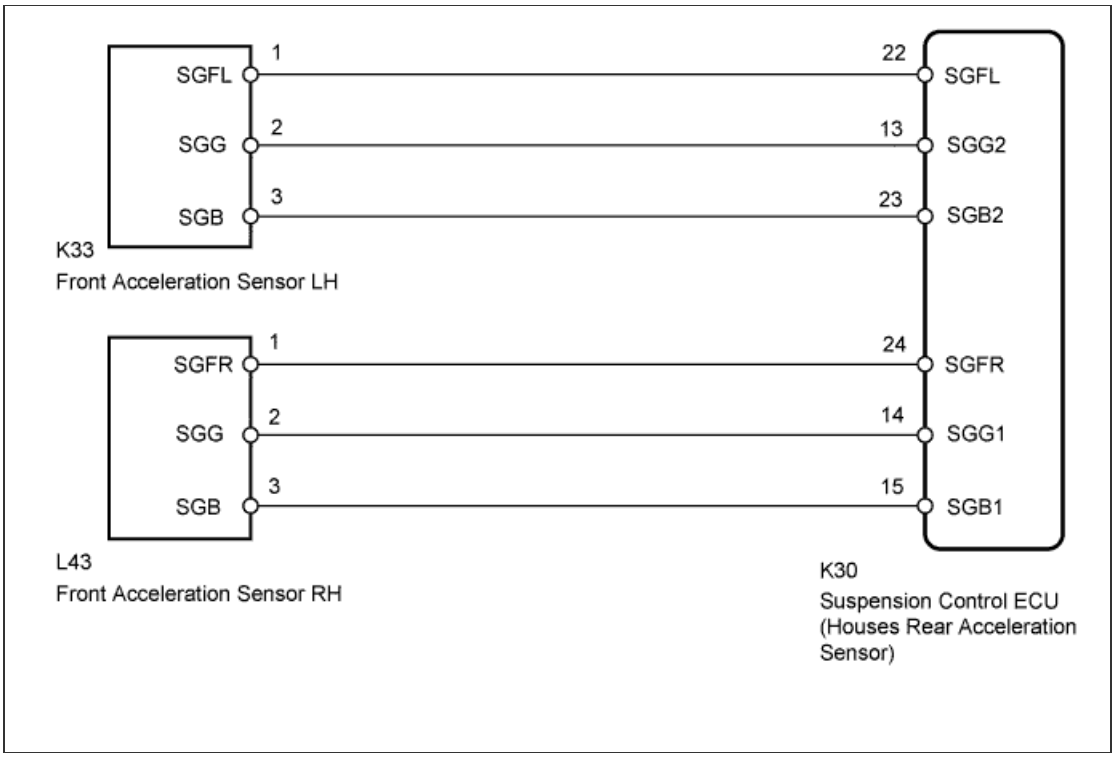
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

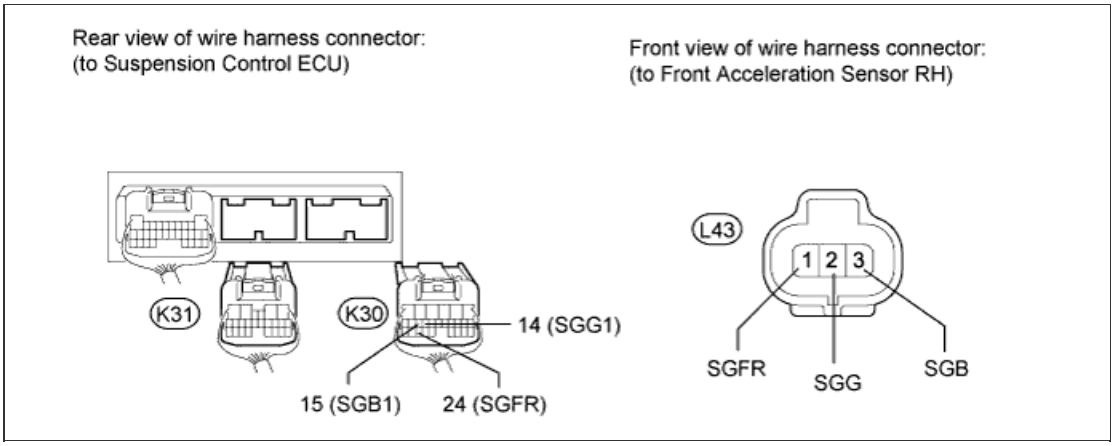
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

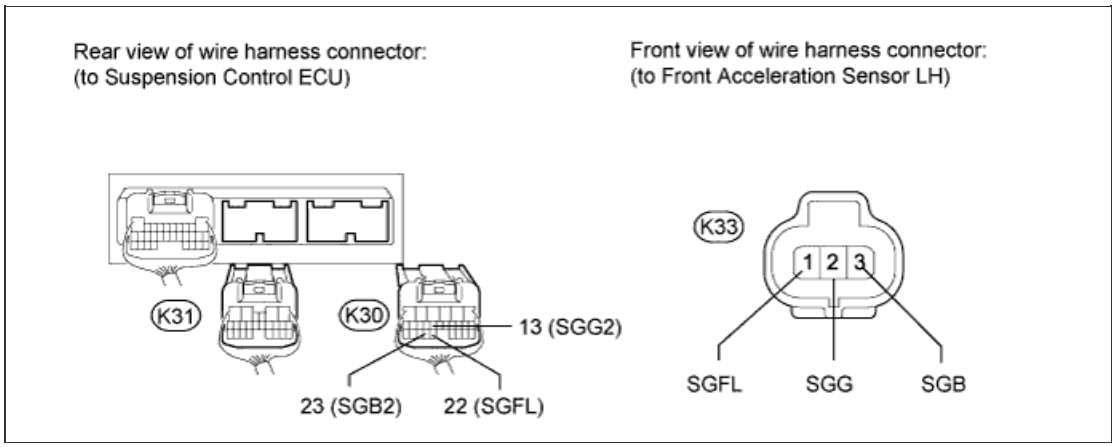
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

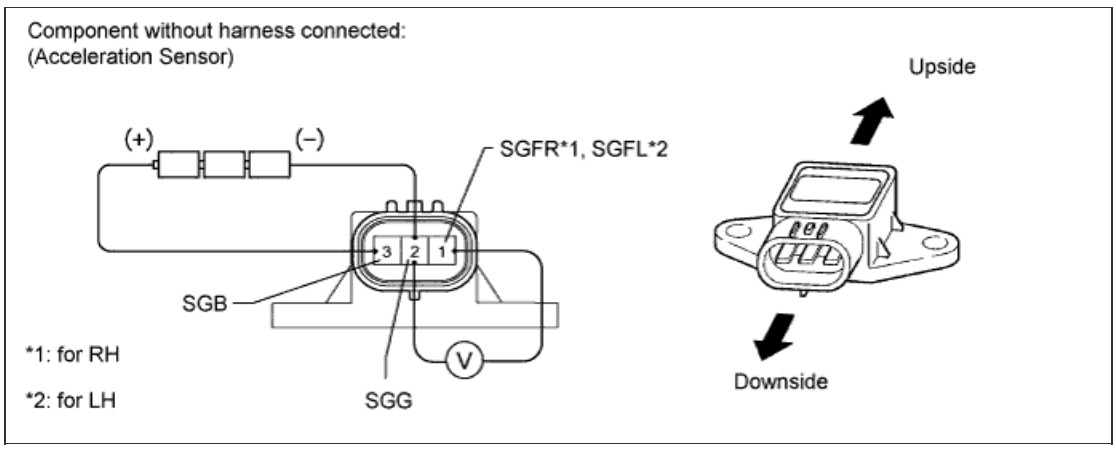
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1766 Height Control Pump Motor Current

for Preparation Click here

DESCRIPTION

In case that the height control has not finished in spite of performing the raise control for a certain period of time, the ECU interrupts the height control.

DTC Code	Detection Condition	Trouble Area
C1766	When the height control pump and motor operates continuously for 135 seconds.	• Fluid leakage • No. 1 height control valve • Suspension control relay • Height control pump and motor • Clog in the fluid line • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **When the cargo weight is extremely heavy, this DTC may be stored.**

1.INSPECT FOR FLUID LEAK

a. Inspect for fluid leaks (Click here).

NG → **REPAIR FLUID LEAK OR REPLACE LEAKING PART(S)**

OK

2.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (LEVELING VALVE, ACCUMULATOR VALVE AND GATE VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator valve solenoid and/or gate valve solenoid operates.

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

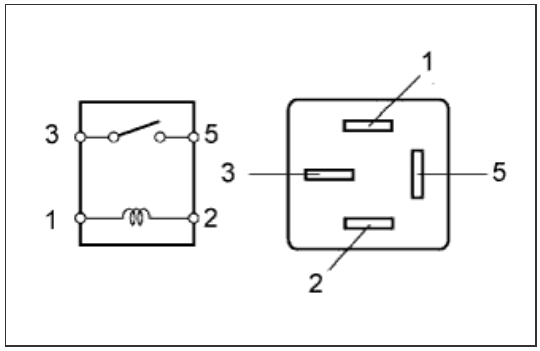
3.INSPECT SUSPENSION CONTROL RELAY (AHC)

a. Remove the suspension control relay from the engine room relay block.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminal 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminal 1 and 2	Below 1 Ω



NG → REPLACE SUSPENSION CONTROL RELAY

OK

4.CHECK OPERATION OF HEIGHT CONTROL PUMP AND MOTOR

a. Remove the height control pump and motor (Click here).

b. Inspect if the compressor is stuck.

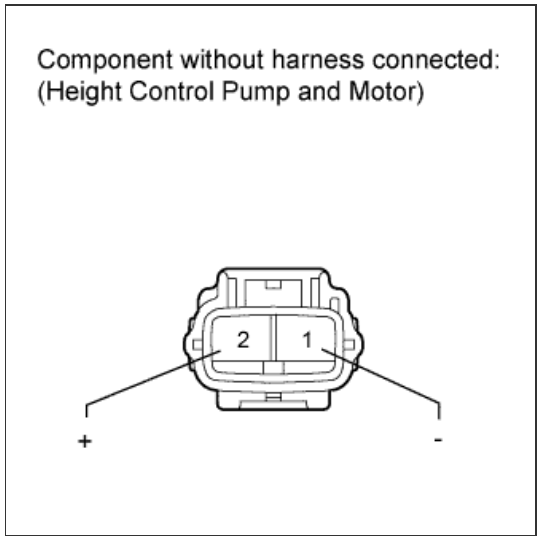
i. Apply battery voltage to the compressor motor and check the operation of the motor.

OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

NOTICE:

- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

5.INSPECT FLUID LINE

a. Check if the fluid line is clogged.

HINT:

- Check if the fluid line that connects the height control pump and motor and No. 1 height control valve is clogged. If it is not clogged, there probably is foreign matter clogging the interior of the No. 1 height control valve.
- Follow the removal and installation procedures for each part, as all parts need to be removed.

NG → REPAIR OR REPLACE CLOGGED PARTS

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

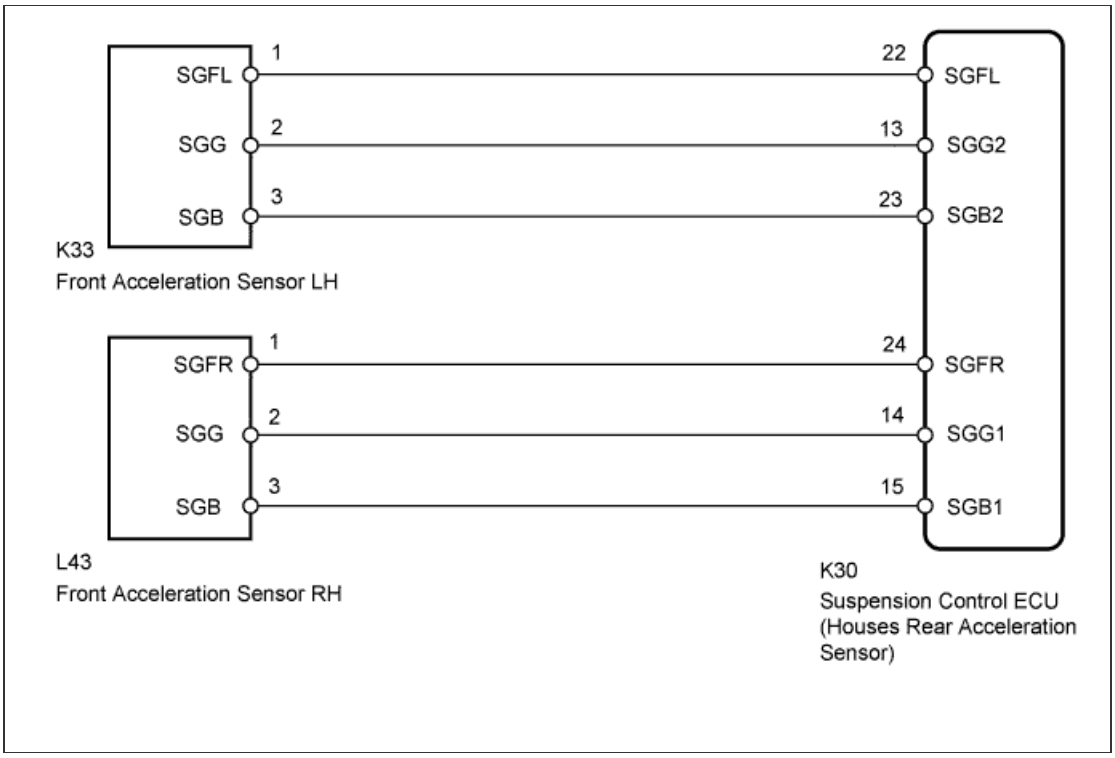
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

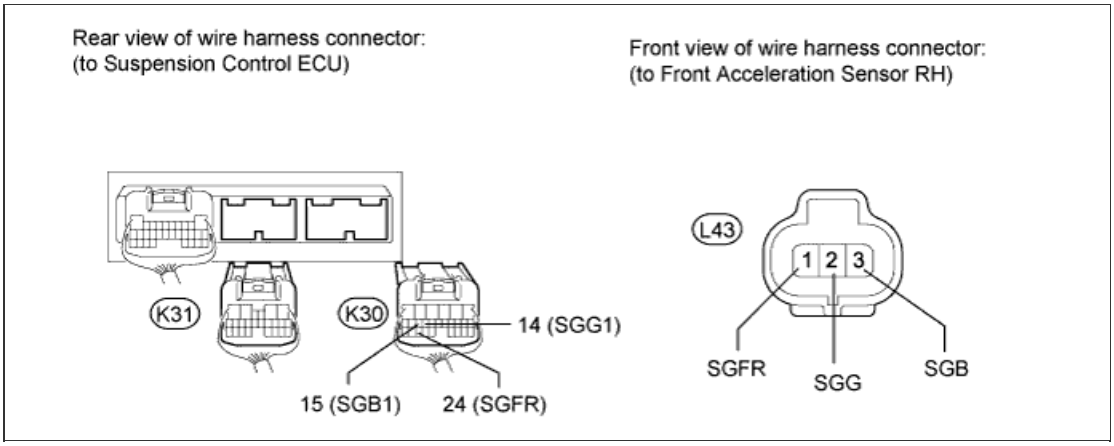
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

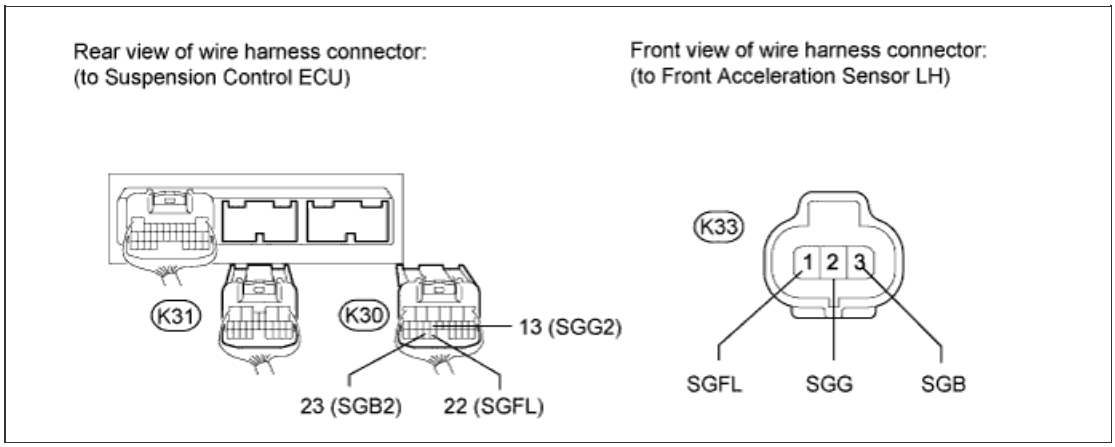
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

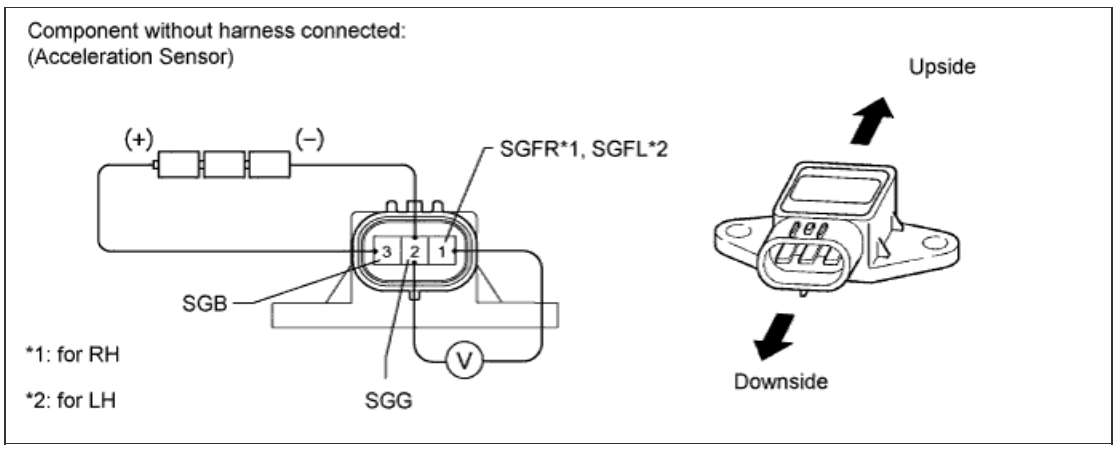
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1781 Suspension Control ECU Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1781	A suspension control ECU malfunction is detected.	Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If DTC C1782 is stored at the same time, perform the inspection for DTC C1782 first.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK FOR DTC

a. Check for DTCs (Click here).

OK:
C1781 is not output.

NG → **REPLACE SUSPENSION CONTROL ECU (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

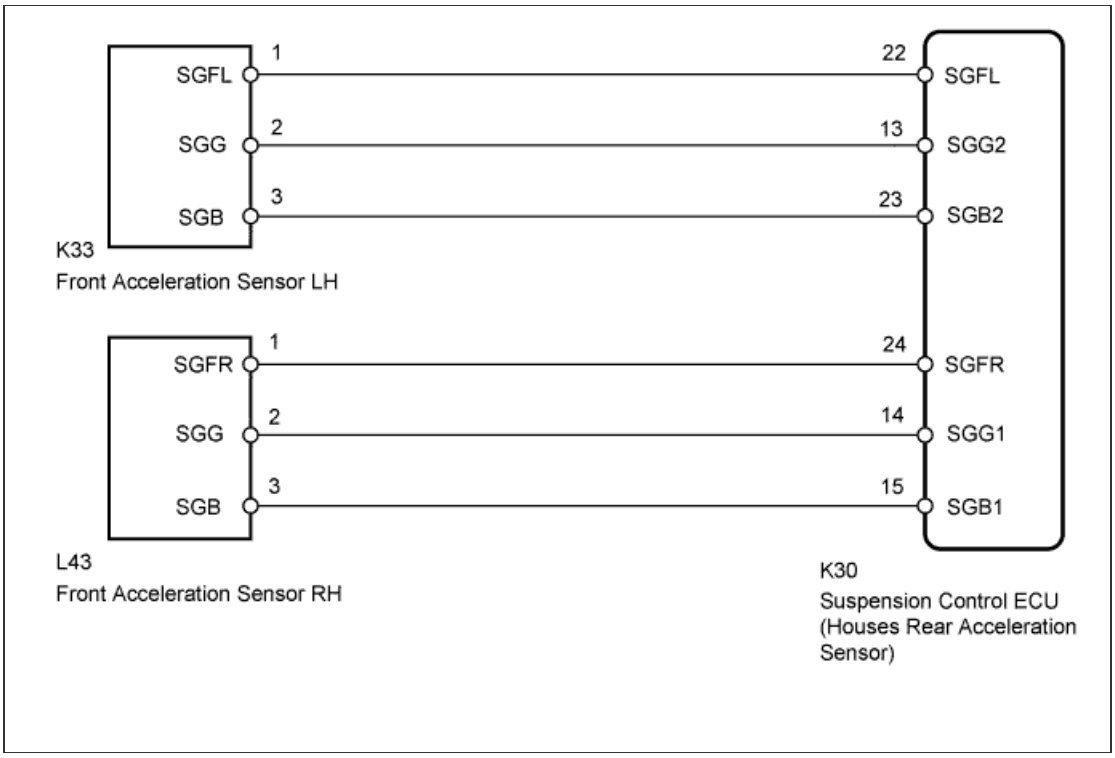
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

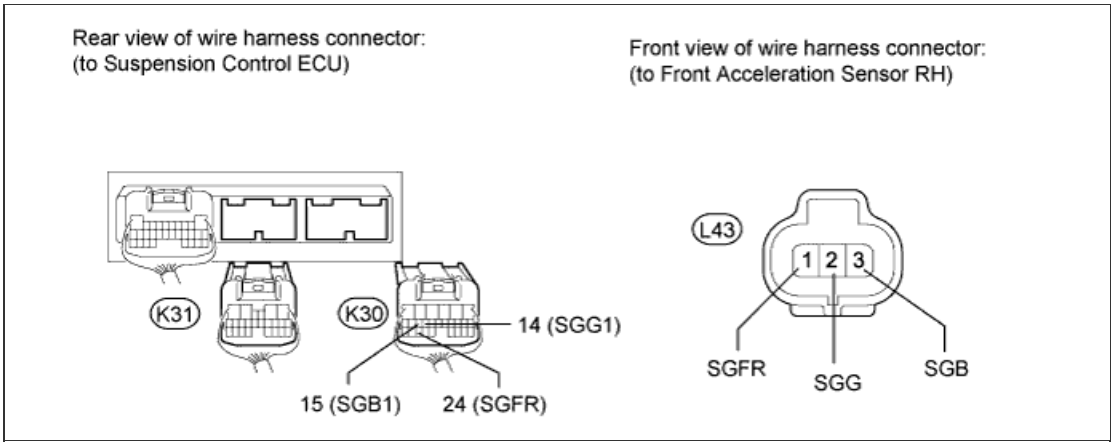
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

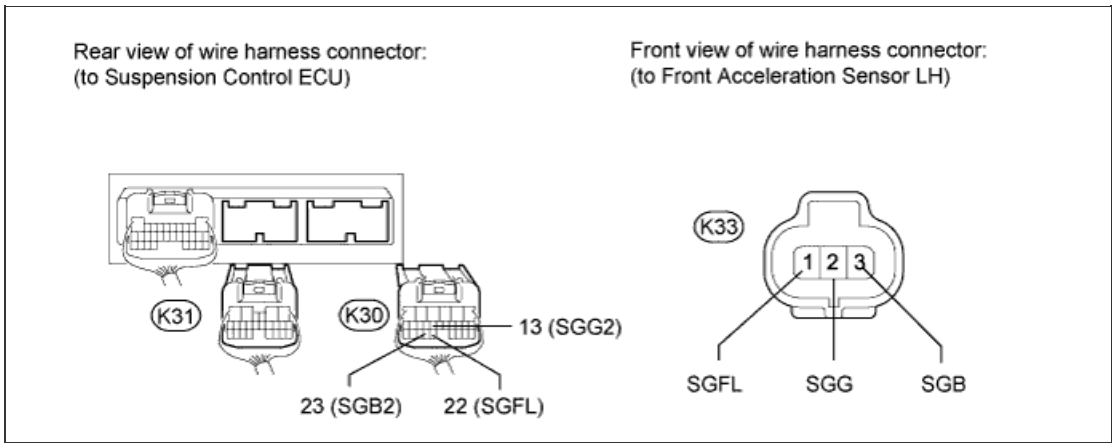
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

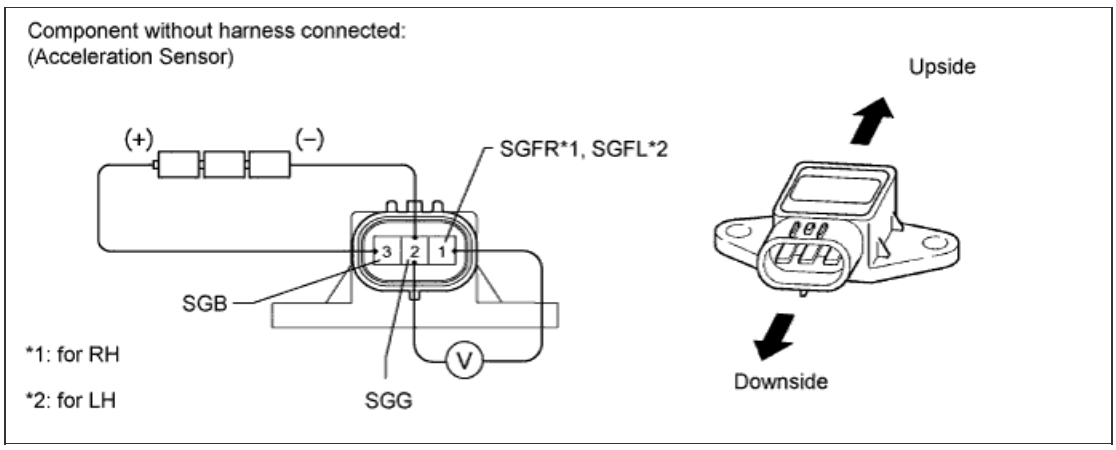
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1781 Suspension Control ECU Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1781	A suspension control ECU malfunction is detected.	Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If DTC C1782 is stored at the same time, perform the inspection for DTC C1782 first.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK FOR DTC

a. Check for DTCs (Click here).

OK:
C1781 is not output.

NG → **REPLACE SUSPENSION CONTROL ECU (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

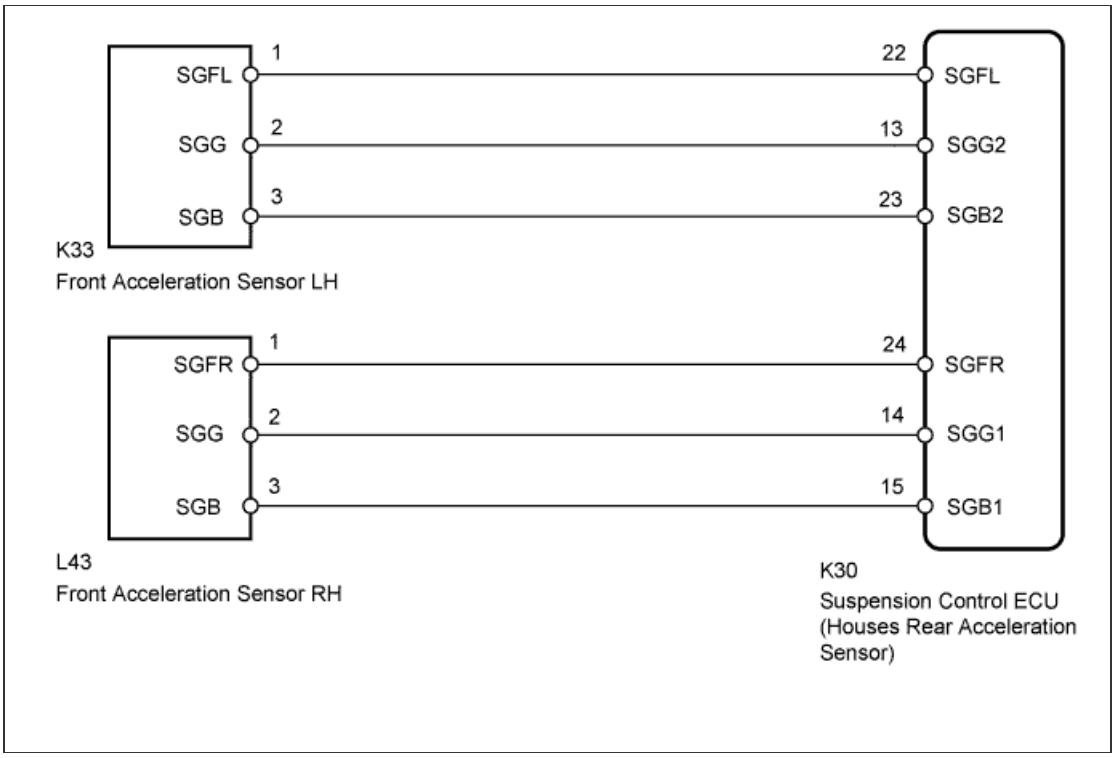
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

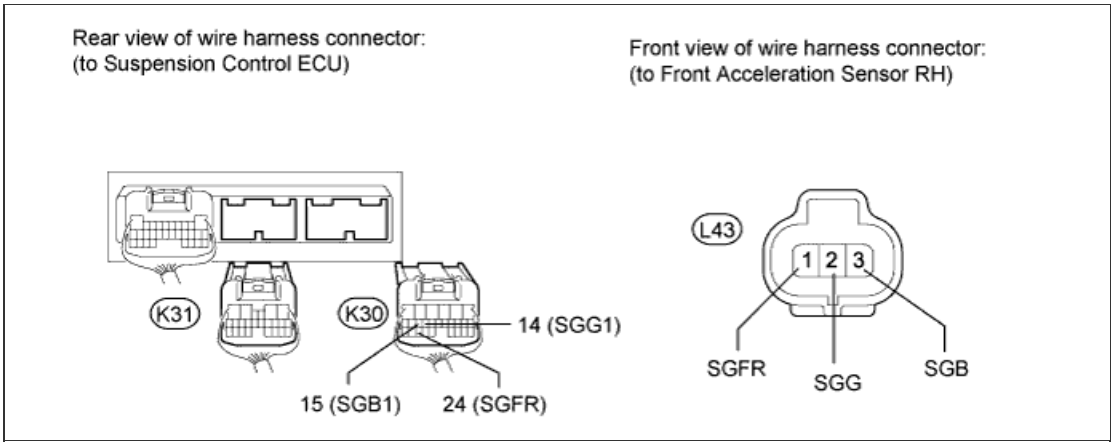
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

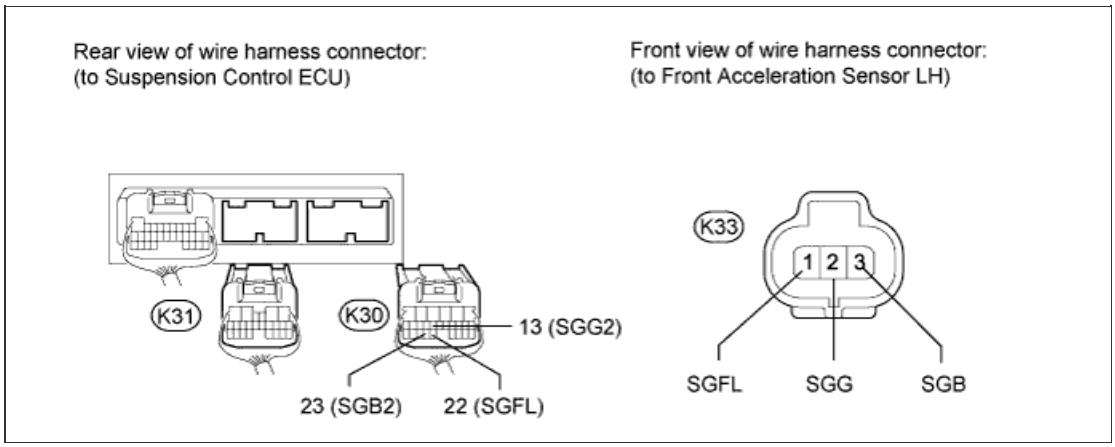
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

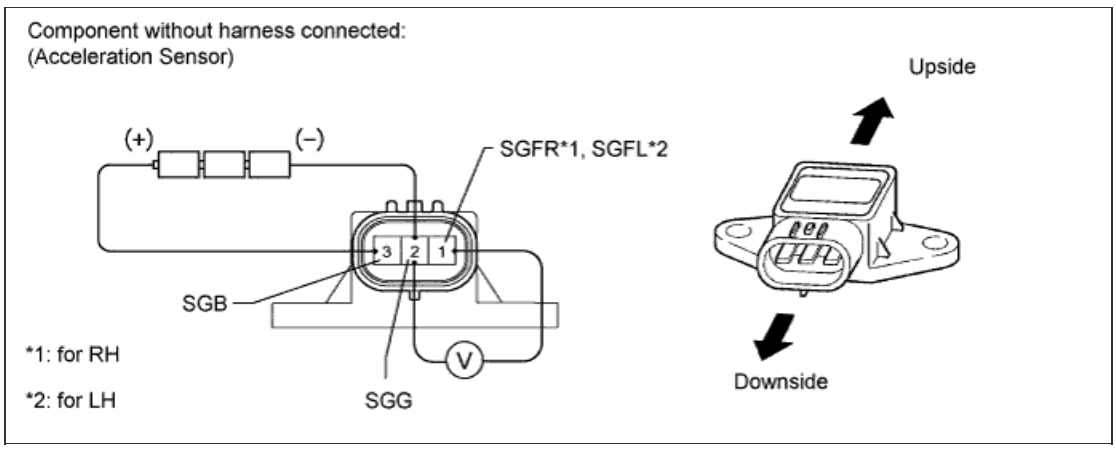
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1781 Suspension Control ECU Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1781	A suspension control ECU malfunction is detected.	Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **If DTC C1782 is stored at the same time, perform the inspection for DTC C1782 first.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK FOR DTC

a. Check for DTCs (Click here).

OK:
C1781 is not output.

NG → **REPLACE SUSPENSION CONTROL ECU (Click here)**

OK

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

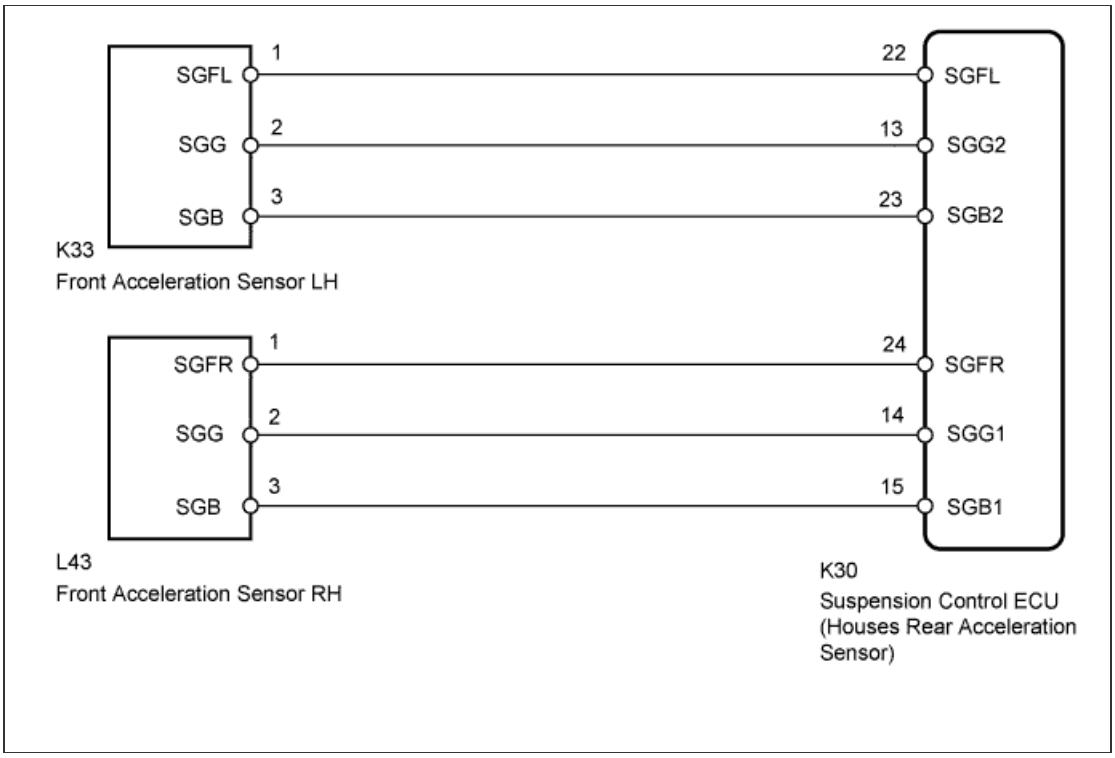
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

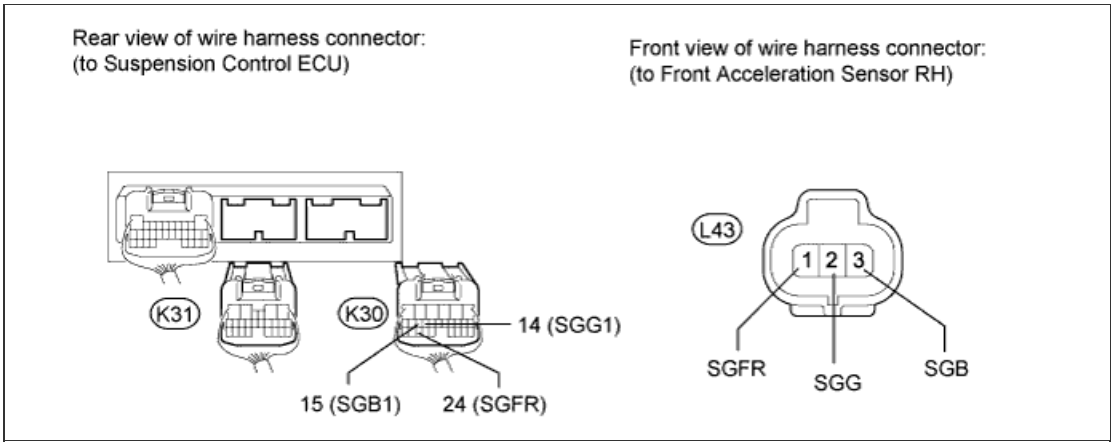
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

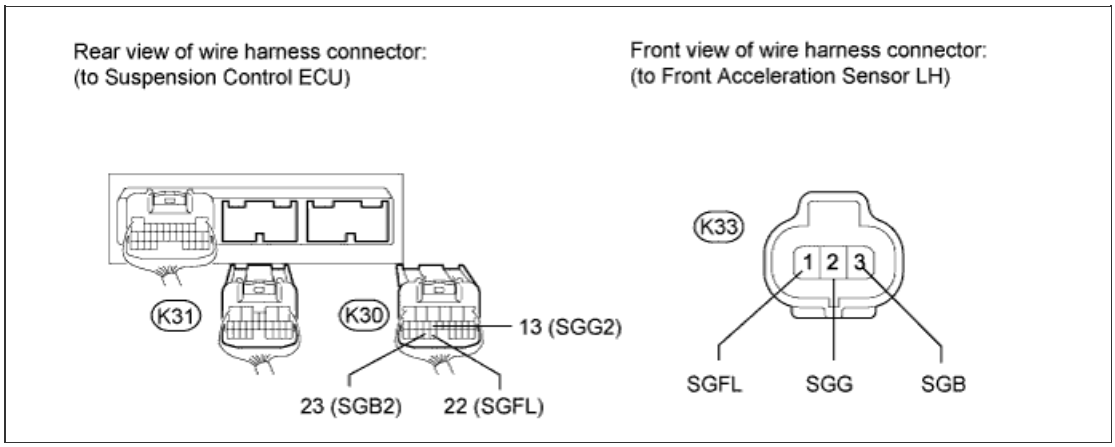
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

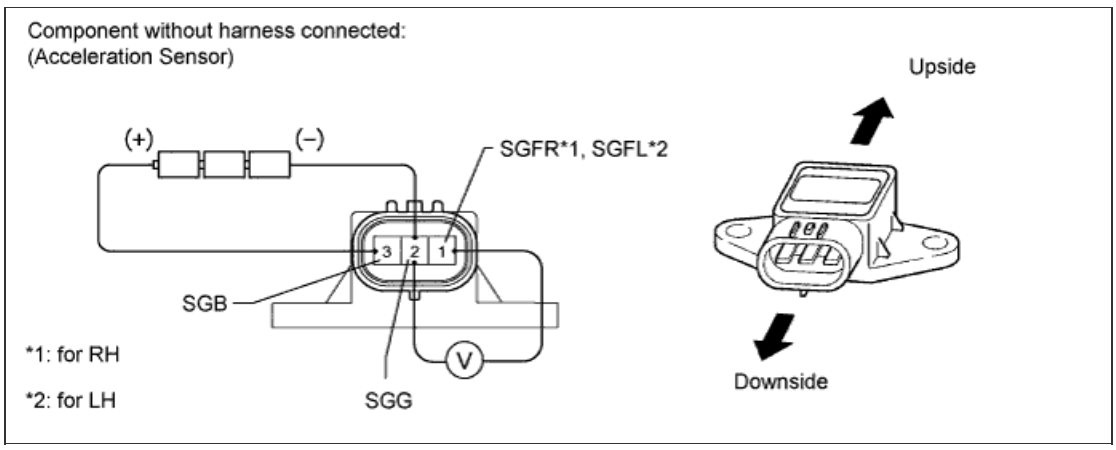
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

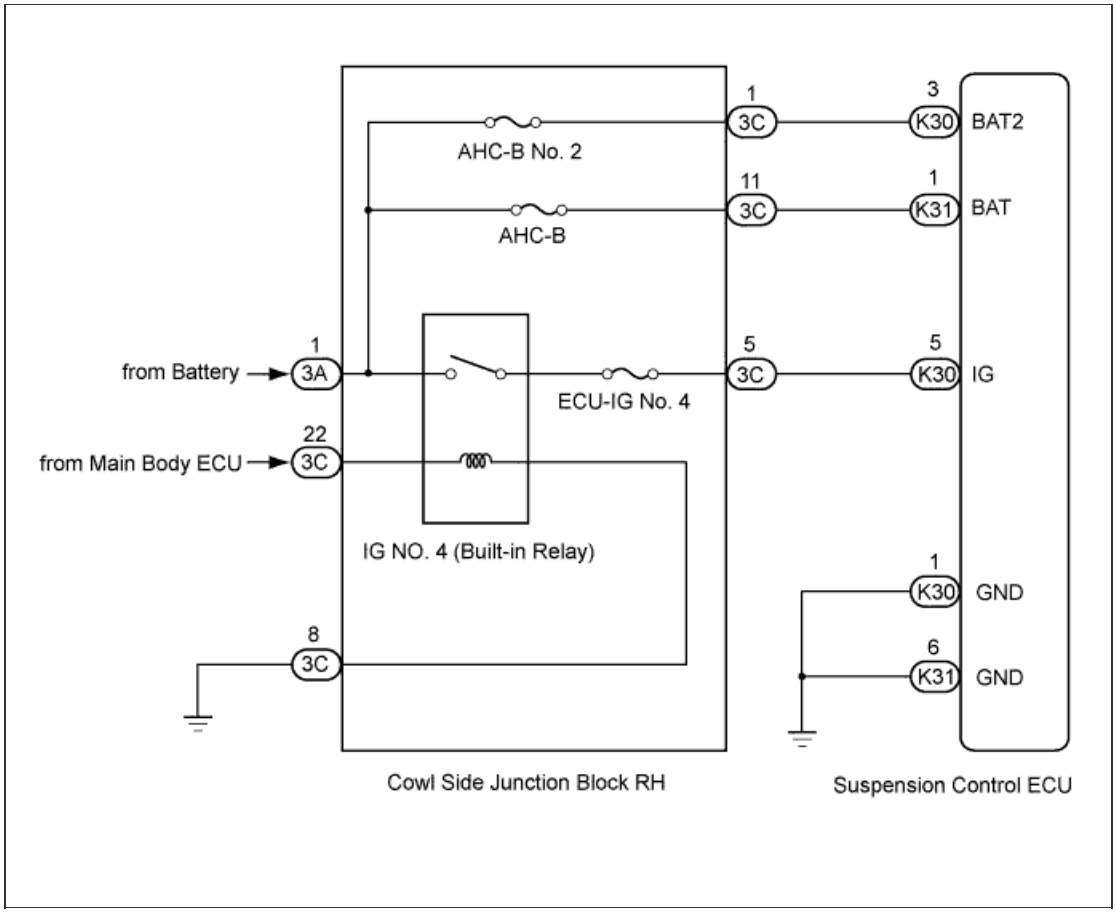
DTC C1782 Power Source Voltage Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1782	While the engine switch is on (IG), voltage at terminal IG, BAT and/or BAT2 is 10 V or less, or 16 V or more for 0.5 seconds.	• Battery • Charging system • Harness or connector • AHC-B fuse • AHC-B No. 2 fuse • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Even if DTC C1781 is stored at the same time, perform the inspection for DTC C1782 first.**
- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 6

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

3.READ VALUE USING INTELLIGENT TESTER (+B POWER SOURCE VOLTAGE, +B2 POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
+B Power Source Voltage	Power supply for absorber control actuator / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-
+B2 Power Source Voltage	Power supply for No. 1 height control valve and front suspension control valve / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.INSPECT FUSE (AHC-B, AHC-B NO. 2)

a. Remove the AHC-B and AHC-B No. 2 fuses from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
AHC-B fuse	Always	Below 1 Ω
AHC-B No. 2 fuse	Always	Below 1 Ω

NG → CHECK FOR SHORT IN ALL HARNESSES AND CONNECTORS CONNECTED TO FUSE AND REPLACE FUSE

OK

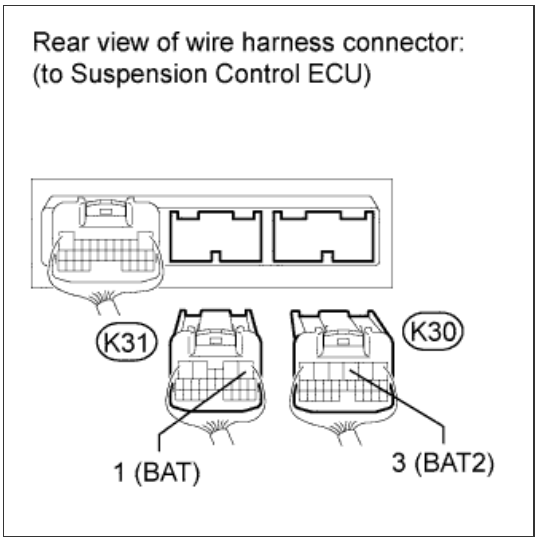
5.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL ECU)

a. Disconnect the K30 and K31 ECU connectors.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-3 (BAT2) - Body ground	Engine switch on (IG)	11 to 14 V
K31-1 (BAT) - Body ground	Engine switch on (IG)	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

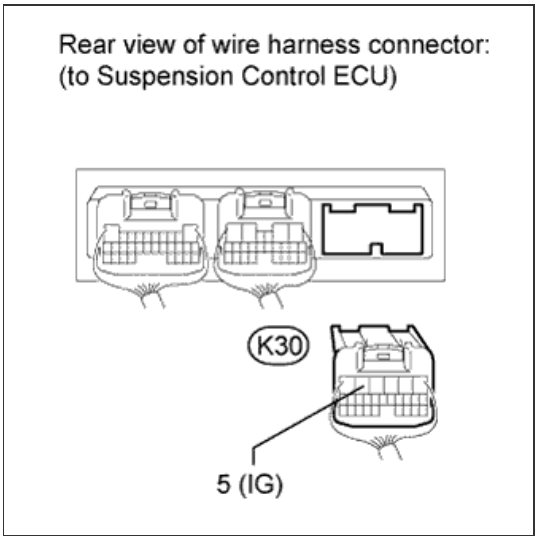
6.CHECK HARNESS AND CONNECTOR (BATTERY - ECU AND BODY GROUND)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V



NG → BATTERY VOLTAGE IS LOW OR CHARGING SYSTEM HAS MALFUNCTION

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

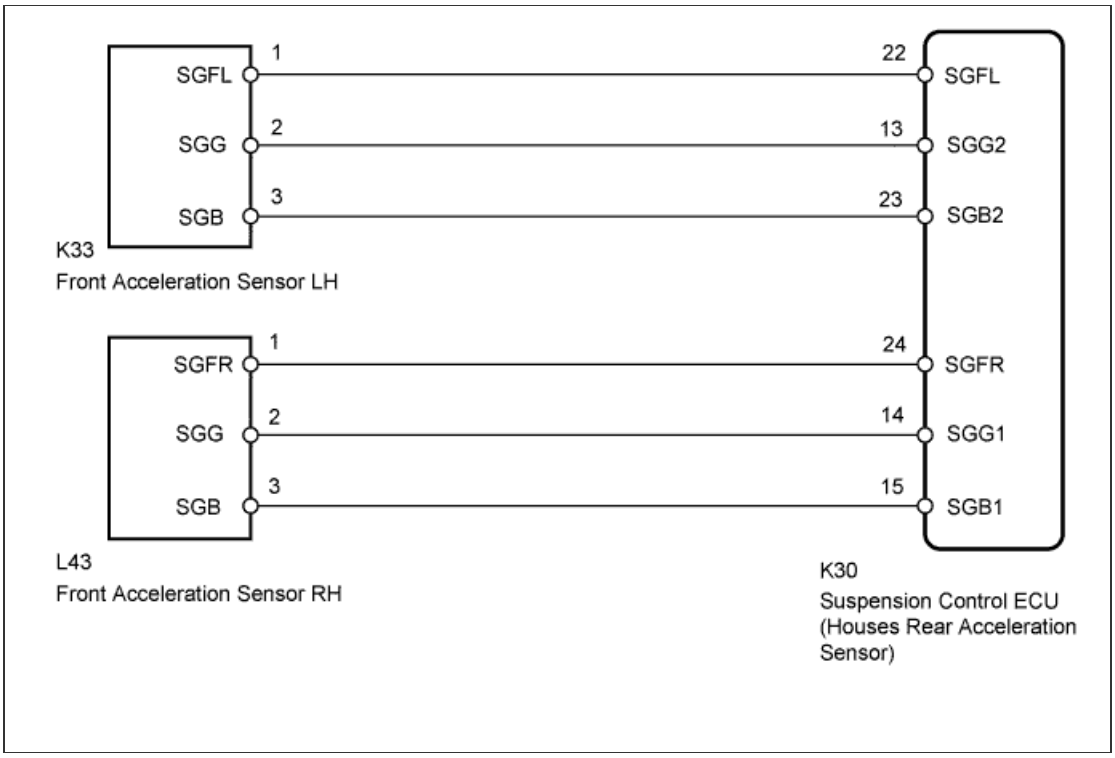
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

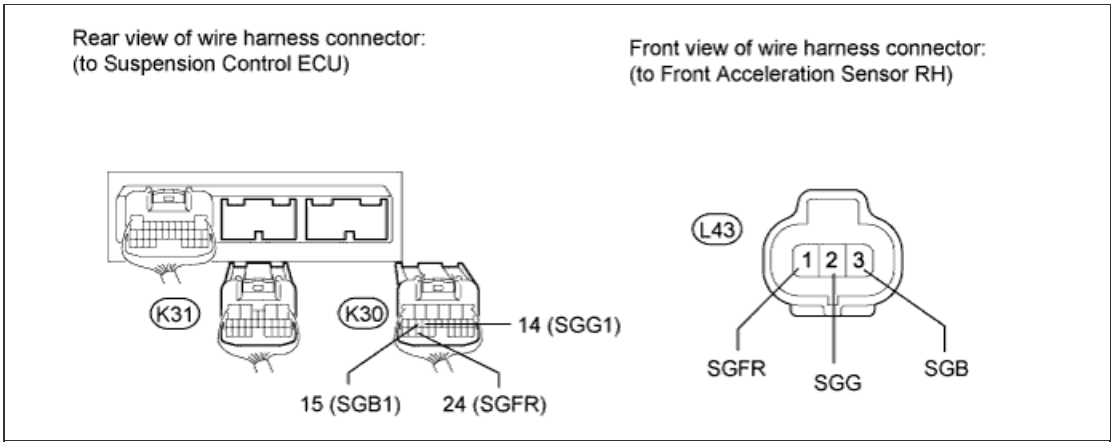
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

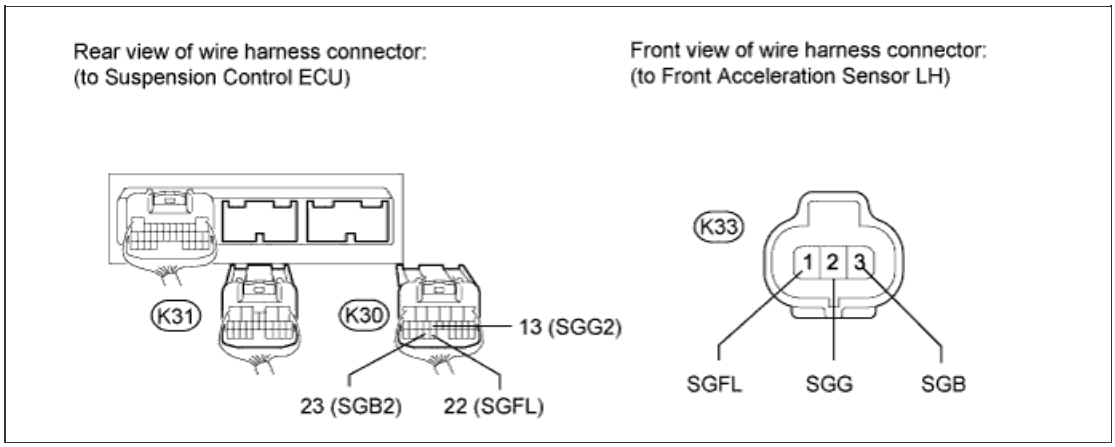
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

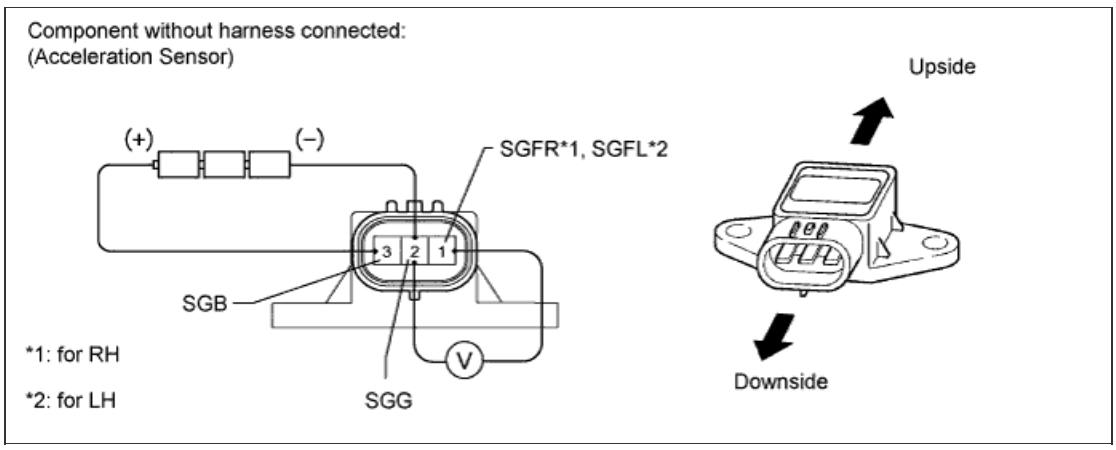
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

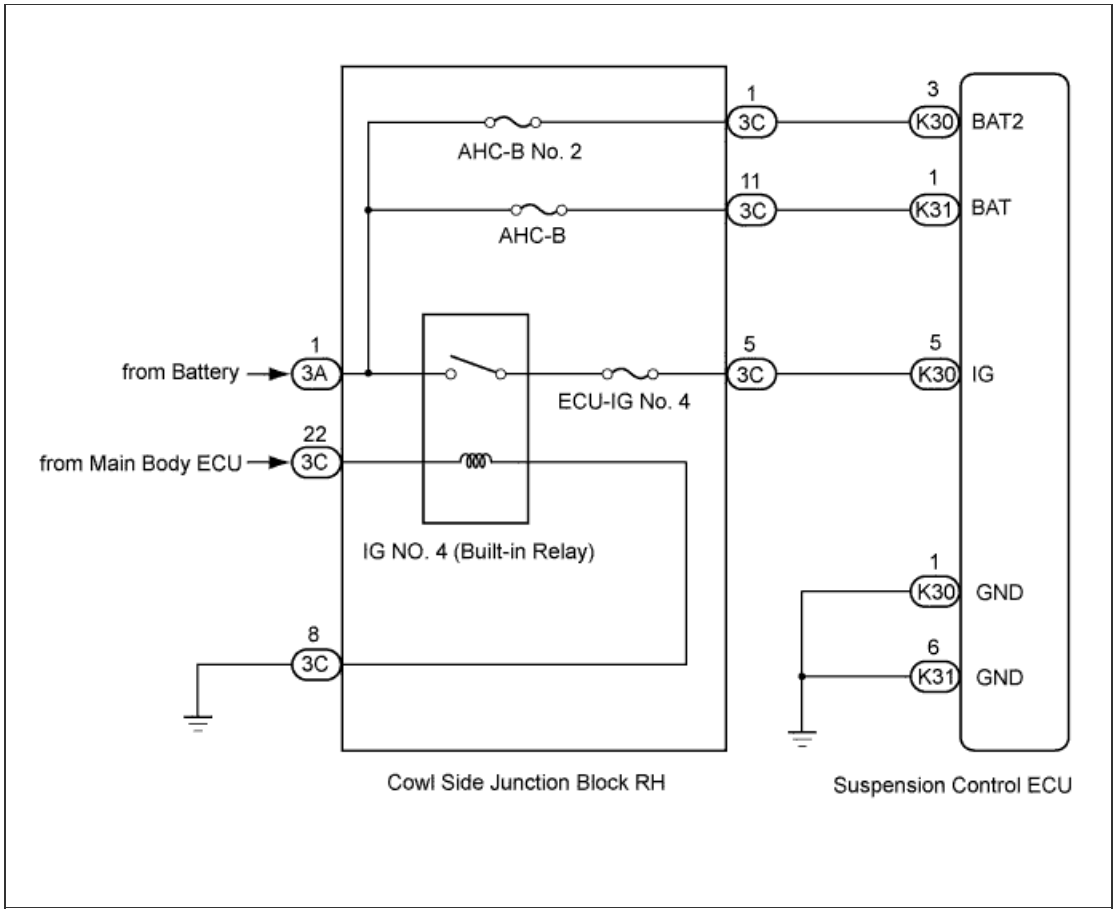
DTC C1782 Power Source Voltage Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1782	While the engine switch is on (IG), voltage at terminal IG, BAT and/or BAT2 is 10 V or less, or 16 V or more for 0.5 seconds.	• Battery • Charging system • Harness or connector • AHC-B fuse • AHC-B No. 2 fuse • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Even if DTC C1781 is stored at the same time, perform the inspection for DTC C1782 first.**
- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 6

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

3.READ VALUE USING INTELLIGENT TESTER (+B POWER SOURCE VOLTAGE, +B2 POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
+B Power Source Voltage	Power supply for absorber control actuator / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-
+B2 Power Source Voltage	Power supply for No. 1 height control valve and front suspension control valve / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.INSPECT FUSE (AHC-B, AHC-B NO. 2)

a. Remove the AHC-B and AHC-B No. 2 fuses from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
AHC-B fuse	Always	Below 1 Ω
AHC-B No. 2 fuse	Always	Below 1 Ω

NG → CHECK FOR SHORT IN ALL HARNESSES AND CONNECTORS CONNECTED TO FUSE AND REPLACE FUSE

OK

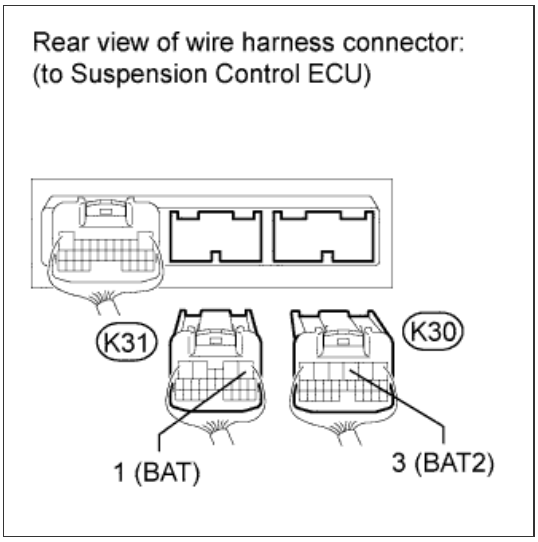
5.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL ECU)

a. Disconnect the K30 and K31 ECU connectors.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-3 (BAT2) - Body ground	Engine switch on (IG)	11 to 14 V
K31-1 (BAT) - Body ground	Engine switch on (IG)	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

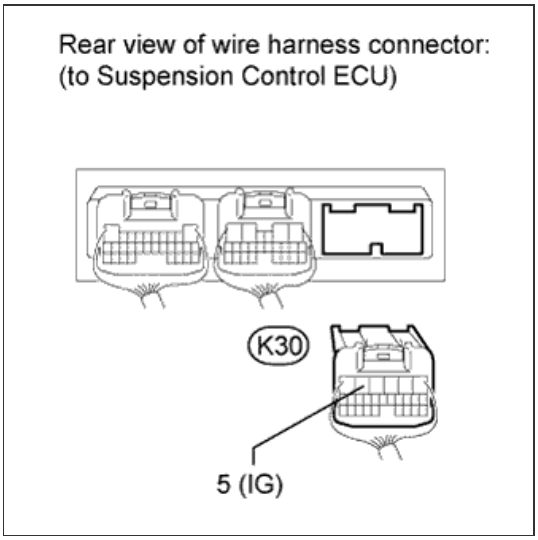
6.CHECK HARNESS AND CONNECTOR (BATTERY - ECU AND BODY GROUND)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V



NG → BATTERY VOLTAGE IS LOW OR CHARGING SYSTEM HAS MALFUNCTION

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

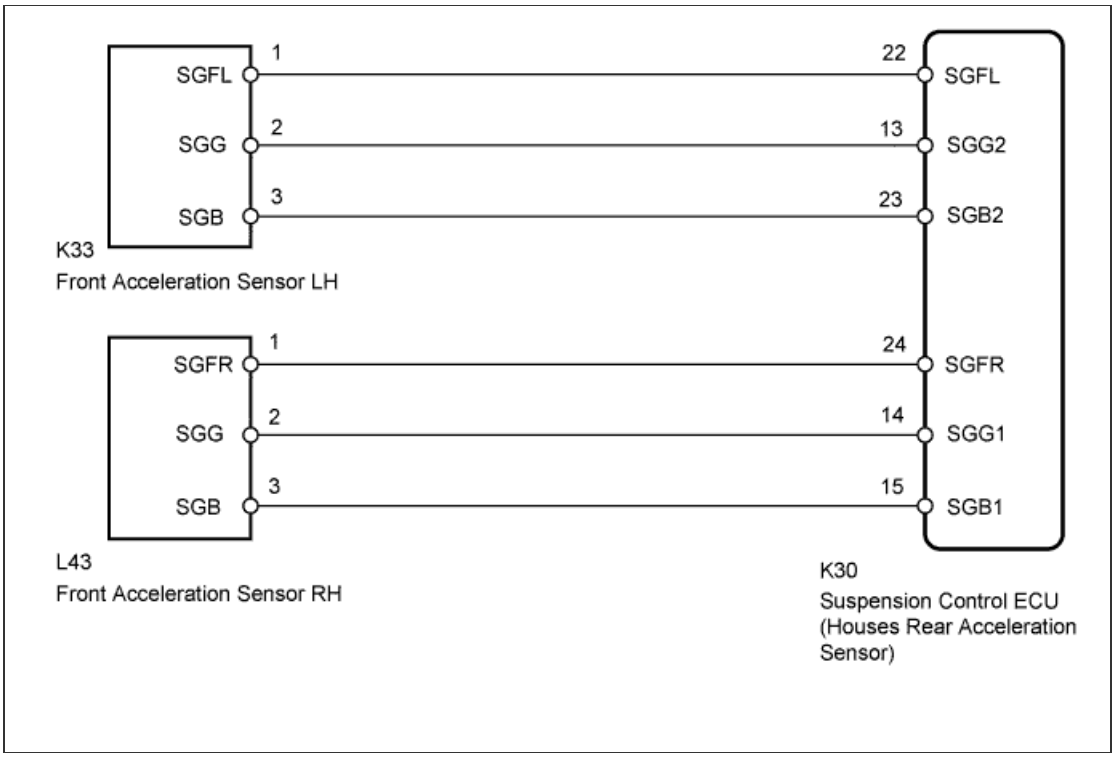
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

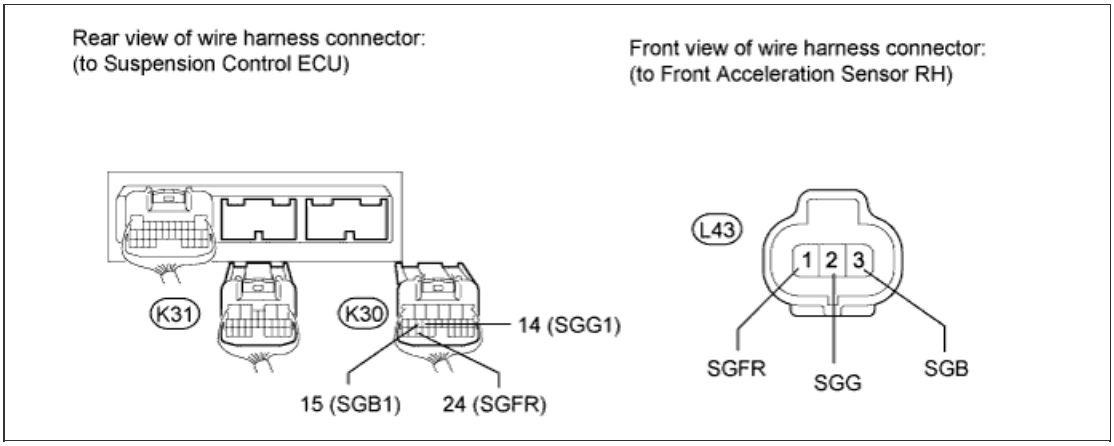
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

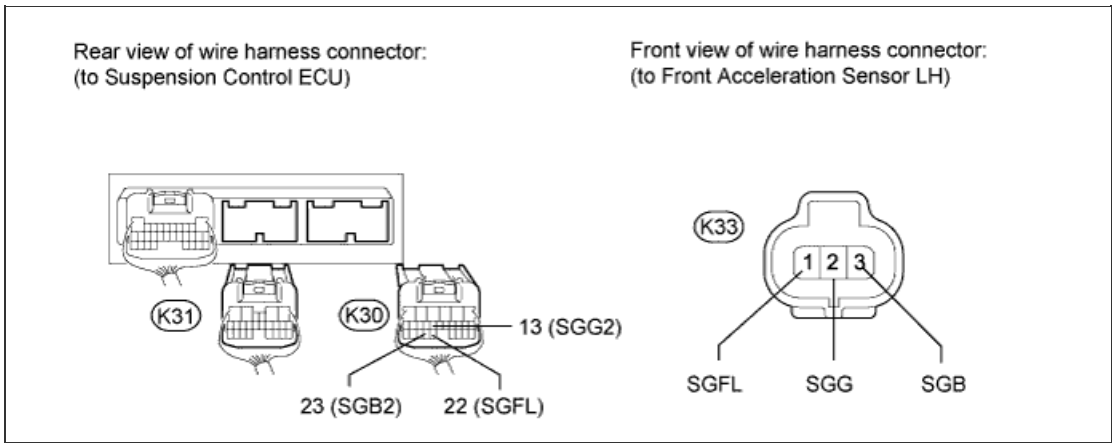
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

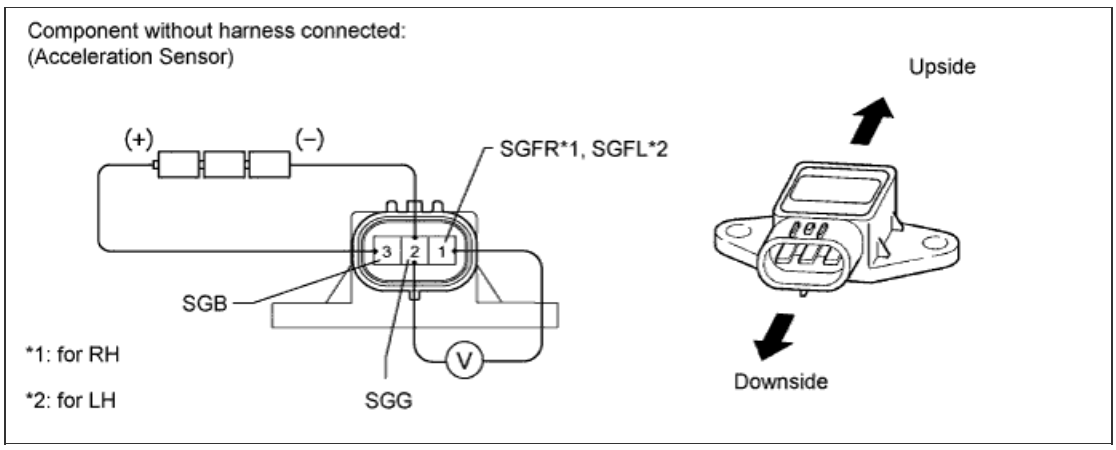
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

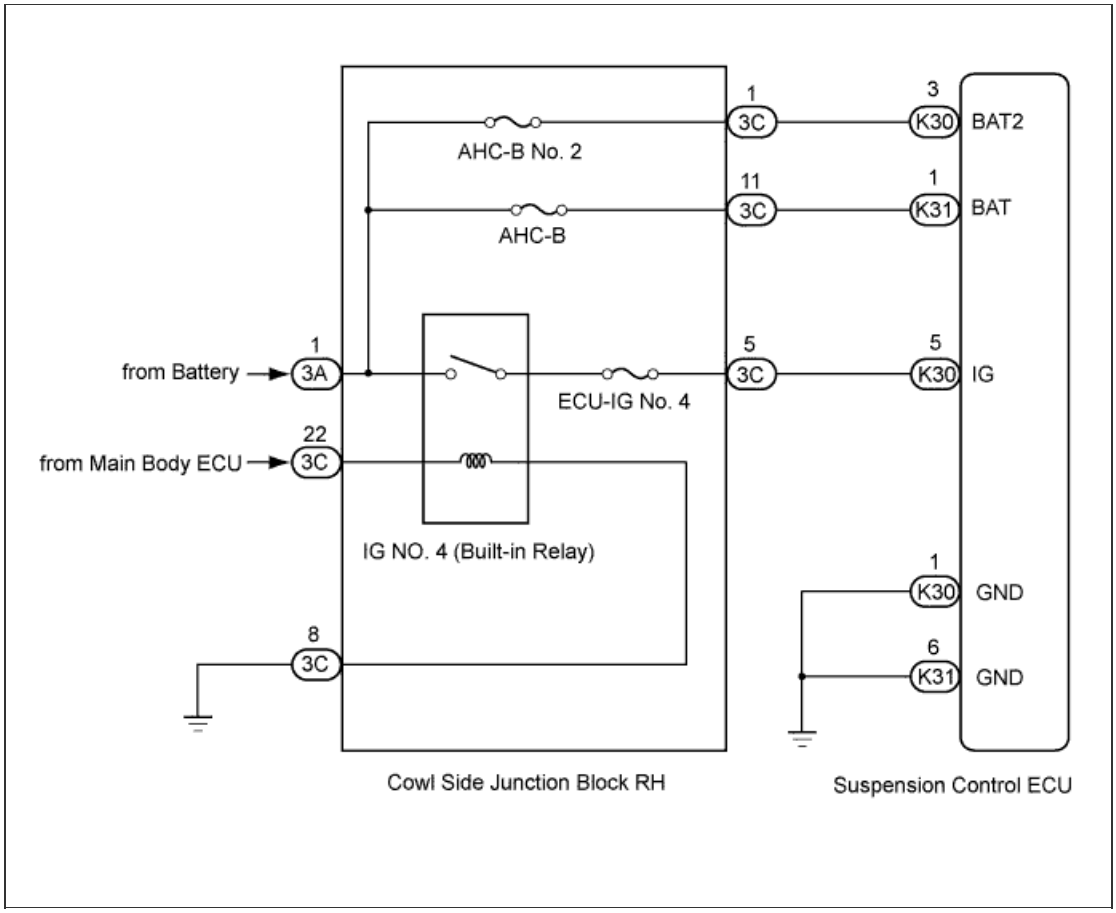
DTC C1782 Power Source Voltage Malfunction

for Preparation Click here

DESCRIPTION

DTC Code	Detection Condition	Trouble Area
C1782	While the engine switch is on (IG), voltage at terminal IG, BAT and/or BAT2 is 10 V or less, or 16 V or more for 0.5 seconds.	• Battery • Charging system • Harness or connector • AHC-B fuse • AHC-B No. 2 fuse • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Even if DTC C1781 is stored at the same time, perform the inspection for DTC C1782 first.**
- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 6

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

3.READ VALUE USING INTELLIGENT TESTER (+B POWER SOURCE VOLTAGE, +B2 POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
+B Power Source Voltage	Power supply for absorber control actuator / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-
+B2 Power Source Voltage	Power supply for No. 1 height control valve and front suspension control valve / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.INSPECT FUSE (AHC-B, AHC-B NO. 2)

a. Remove the AHC-B and AHC-B No. 2 fuses from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
AHC-B fuse	Always	Below 1 Ω
AHC-B No. 2 fuse	Always	Below 1 Ω

NG → CHECK FOR SHORT IN ALL HARNESSES AND CONNECTORS CONNECTED TO FUSE AND REPLACE FUSE

OK

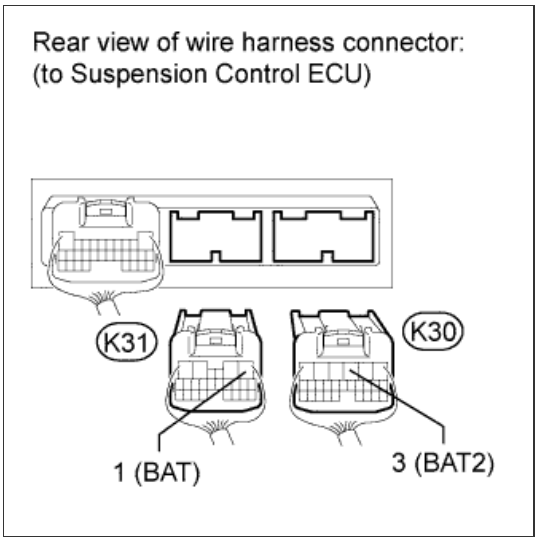
5.CHECK HARNESS AND CONNECTOR (BATTERY - SUSPENSION CONTROL ECU)

a. Disconnect the K30 and K31 ECU connectors.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-3 (BAT2) - Body ground	Engine switch on (IG)	11 to 14 V
K31-1 (BAT) - Body ground	Engine switch on (IG)	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

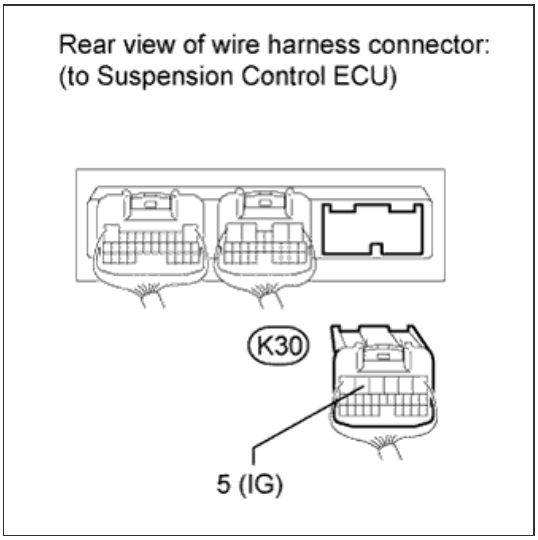
6.CHECK HARNESS AND CONNECTOR (BATTERY - ECU AND BODY GROUND)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V



NG → BATTERY VOLTAGE IS LOW OR CHARGING SYSTEM HAS MALFUNCTION

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

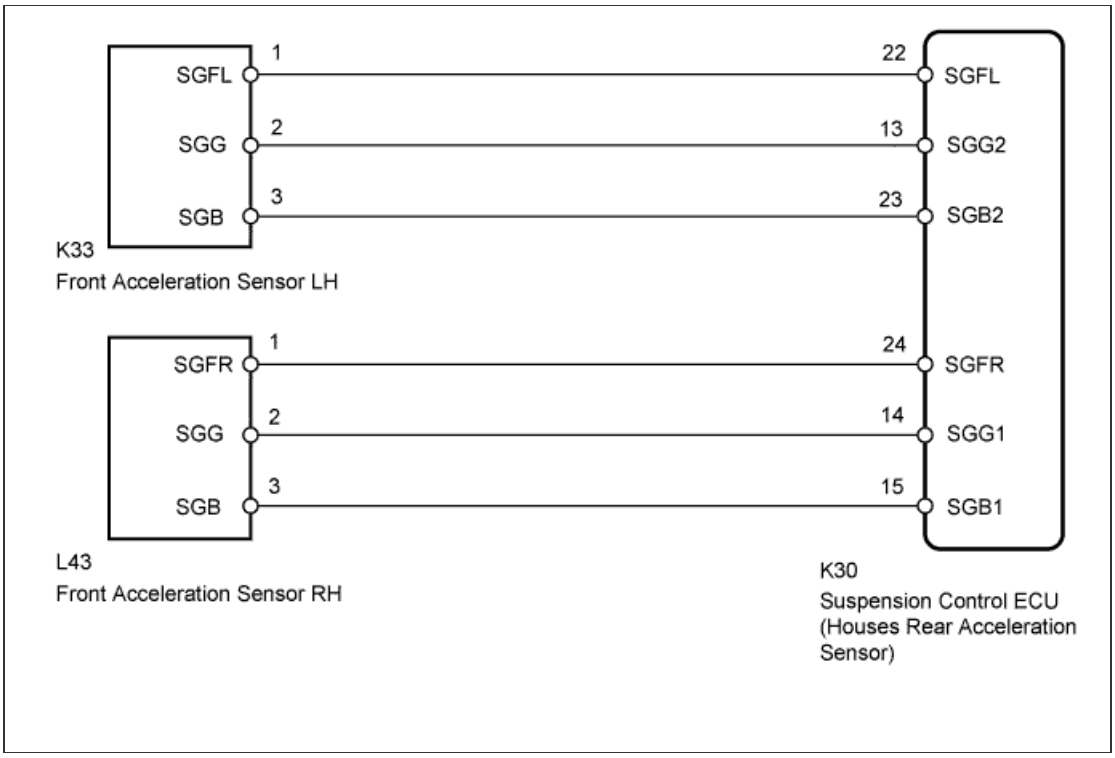
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

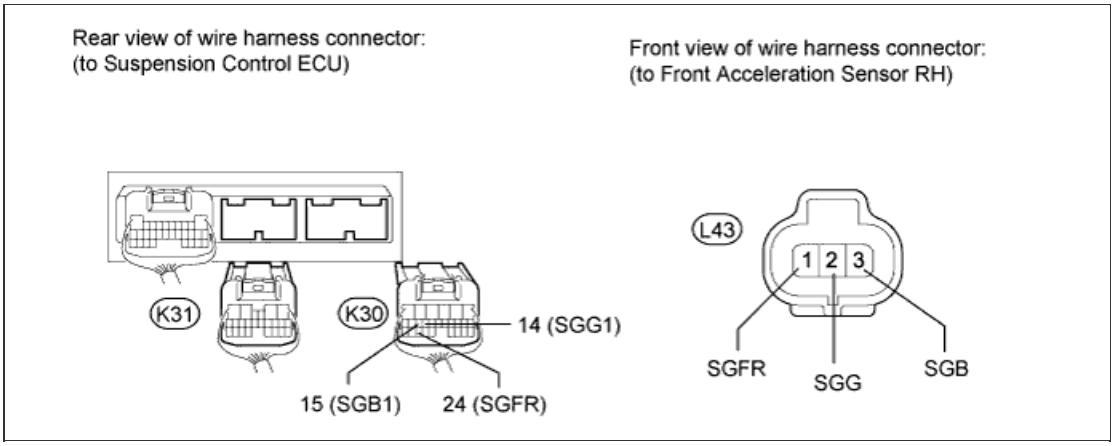
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

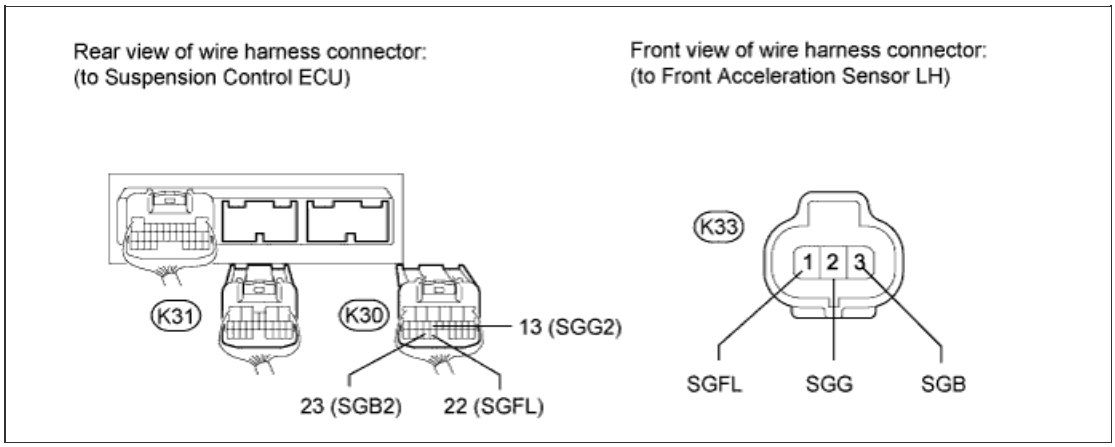
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

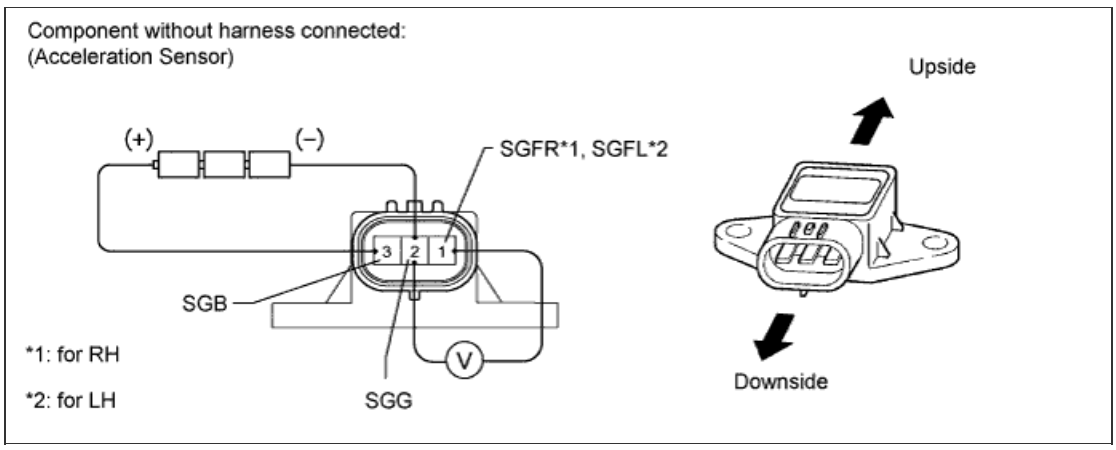
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1783 Speed Signal Communication Error

for Preparation Click here

DESCRIPTION

The speed sensors monitor the speed of the wheels, and send appropriate speed signals to the suspension control ECU through the skid control ECU. If trouble occurs in either the front speed sensor or rear speed sensor, DTC (C1783) is output.

DTC Code	Detection Condition	Trouble Area
C1783	A speed sensor circuit malfunction for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a speed sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1783 is output	A
DTC C1783 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

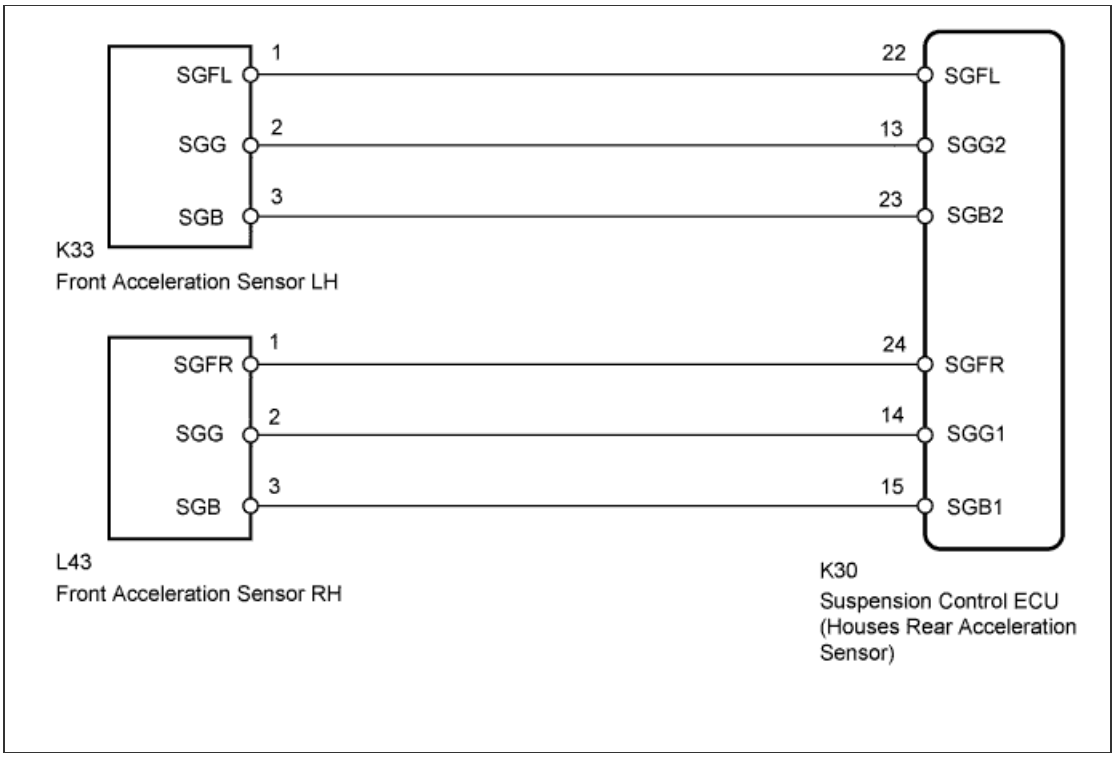
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

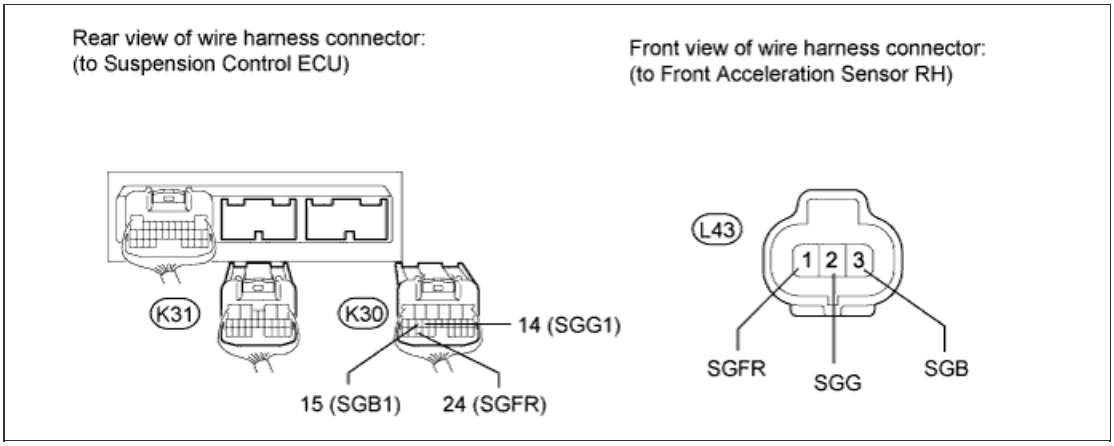
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

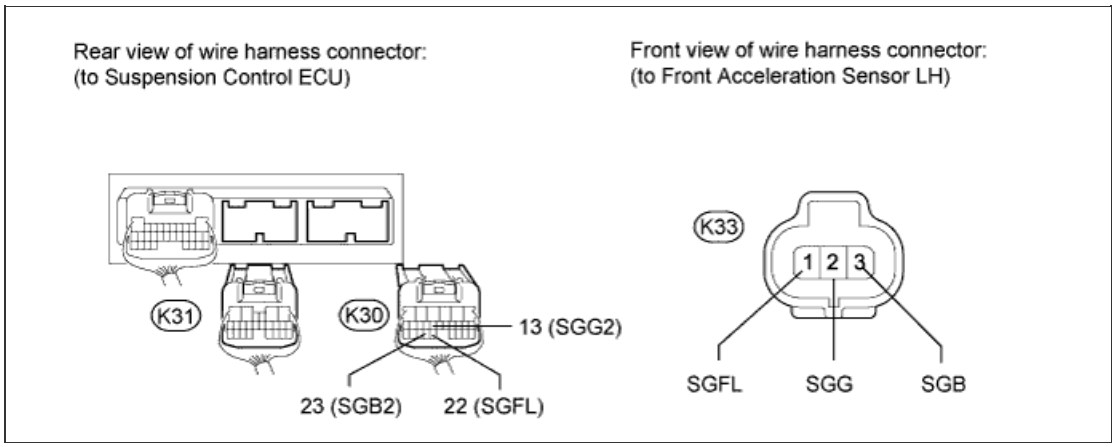
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

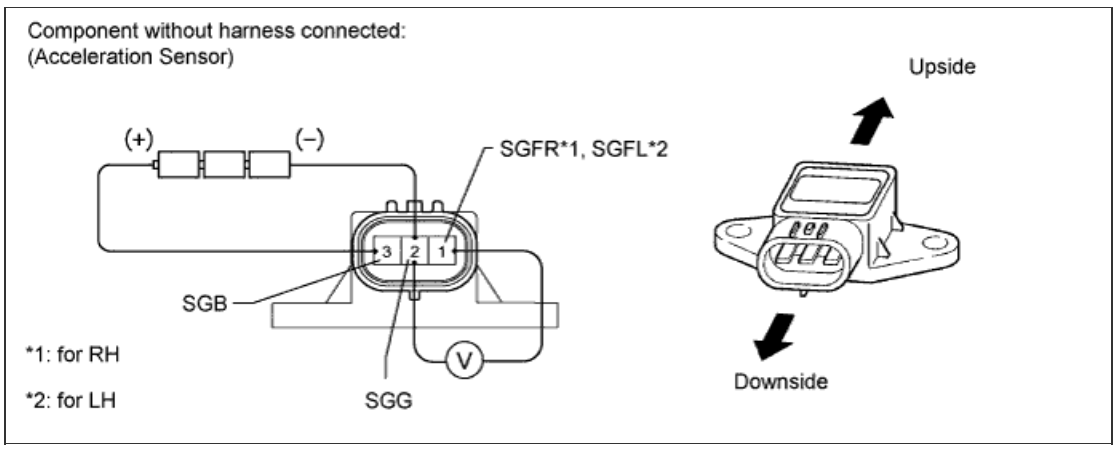
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1783 Speed Signal Communication Error

for Preparation Click here

DESCRIPTION

The speed sensors monitor the speed of the wheels, and send appropriate speed signals to the suspension control ECU through the skid control ECU. If trouble occurs in either the front speed sensor or rear speed sensor, DTC (C1783) is output.

DTC Code	Detection Condition	Trouble Area
C1783	A speed sensor circuit malfunction for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a speed sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1783 is output	A
DTC C1783 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

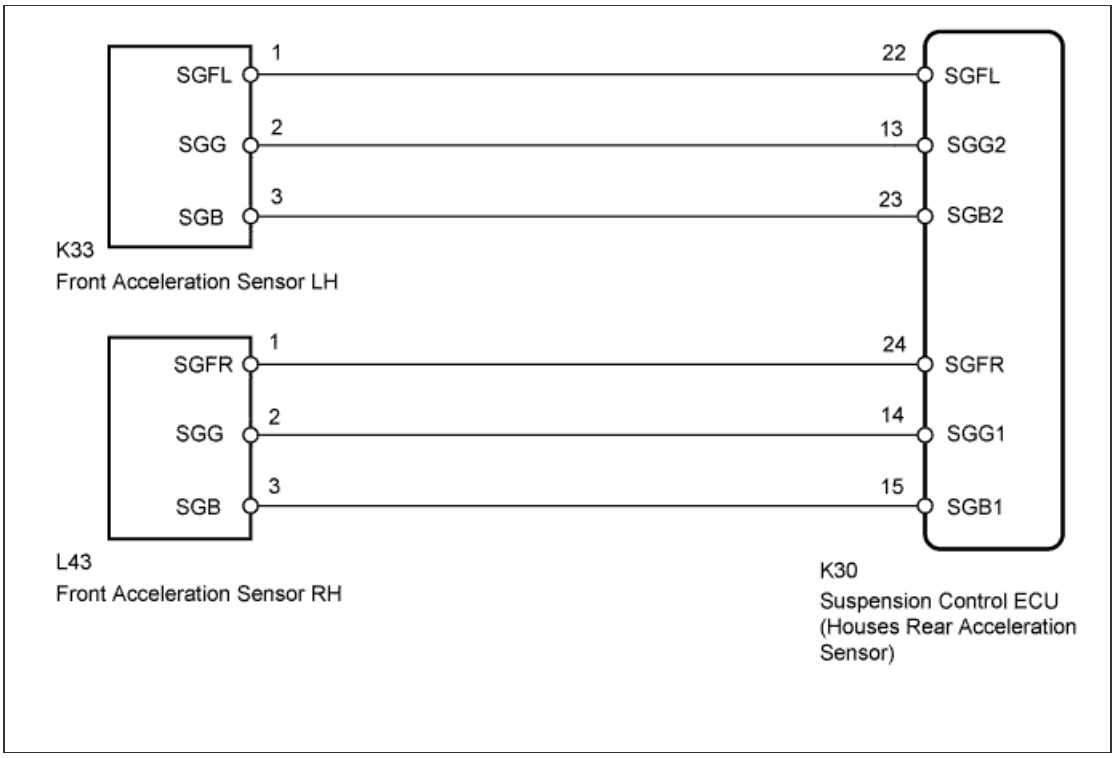
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

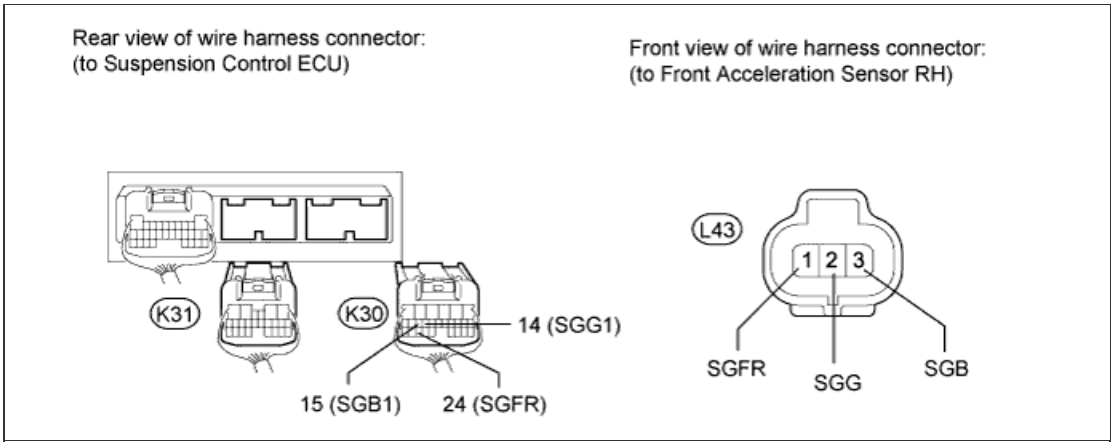
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

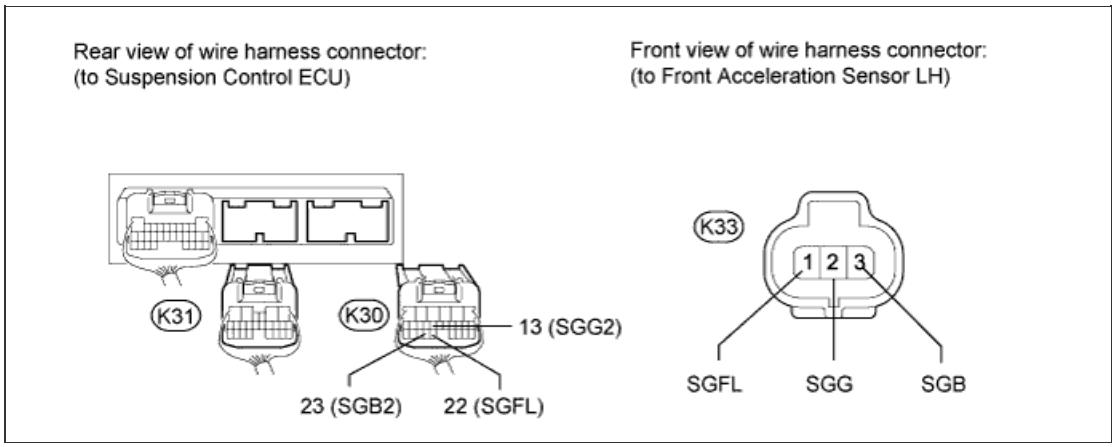
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

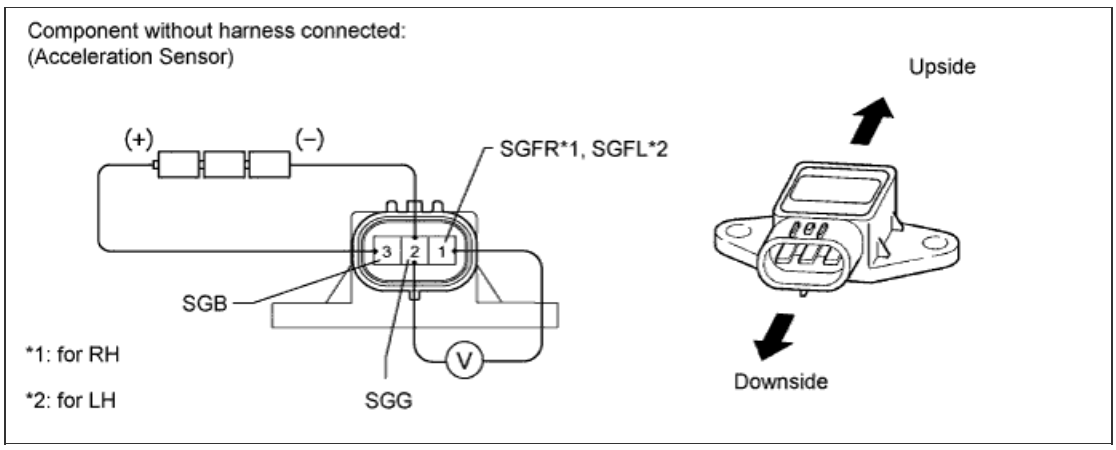
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1783 Speed Signal Communication Error

for Preparation Click here

DESCRIPTION

The speed sensors monitor the speed of the wheels, and send appropriate speed signals to the suspension control ECU through the skid control ECU. If trouble occurs in either the front speed sensor or rear speed sensor, DTC (C1783) is output.

DTC Code	Detection Condition	Trouble Area
C1783	A speed sensor circuit malfunction for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a speed sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1783 is output	A
DTC C1783 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

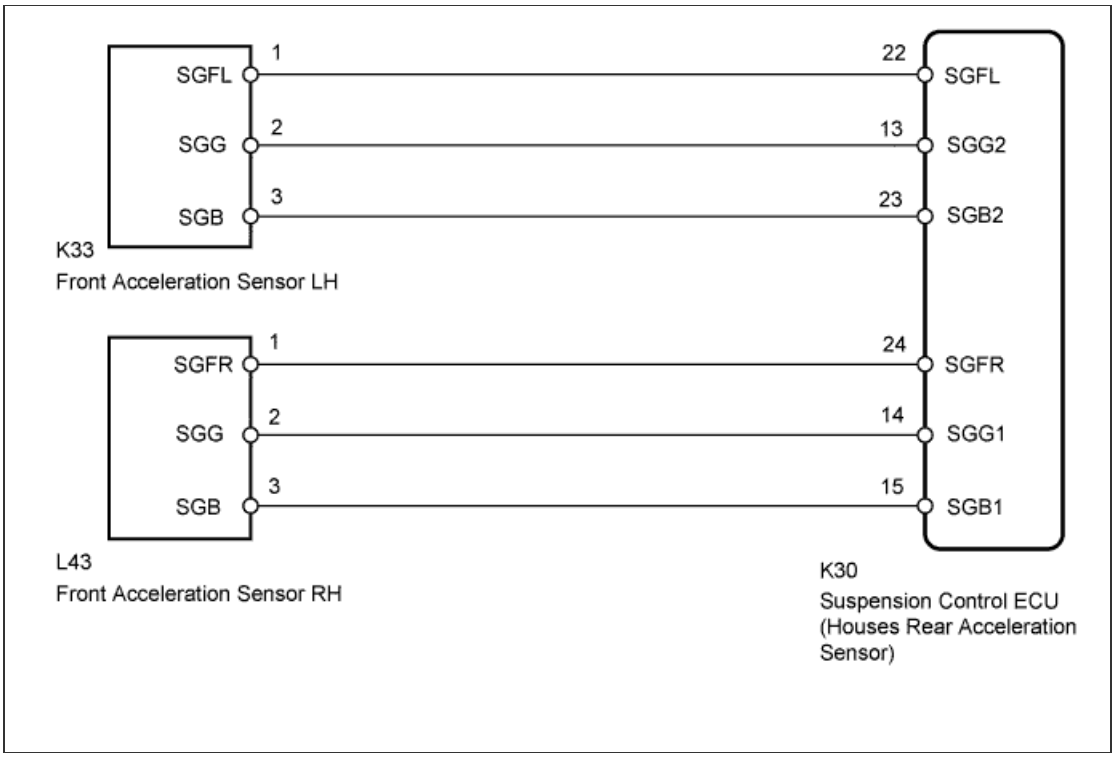
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

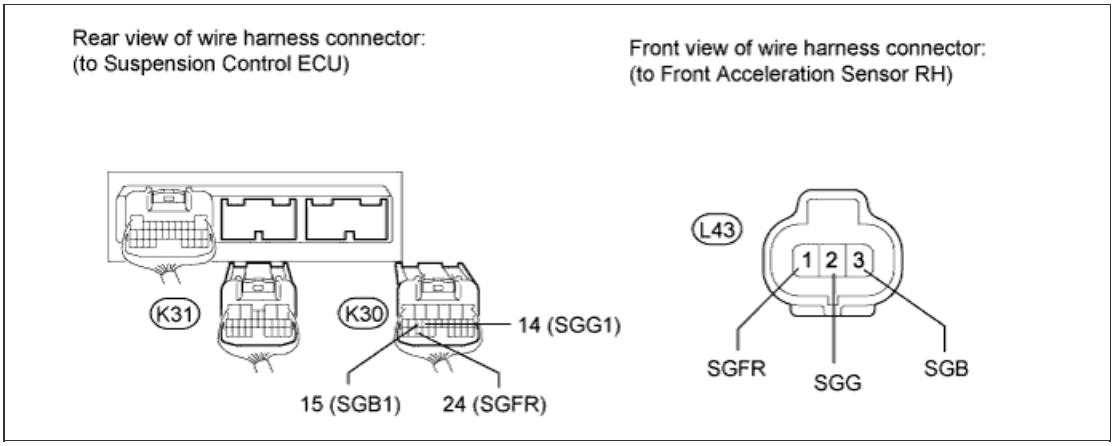
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

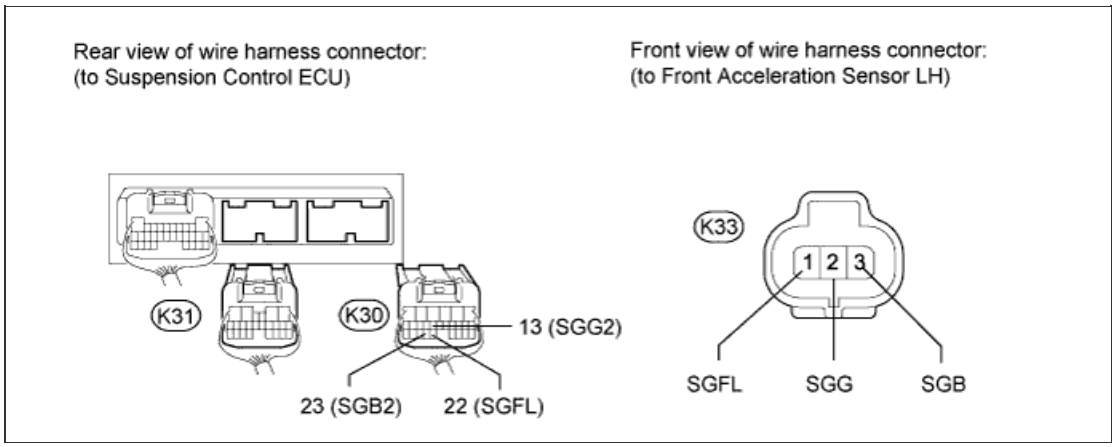
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

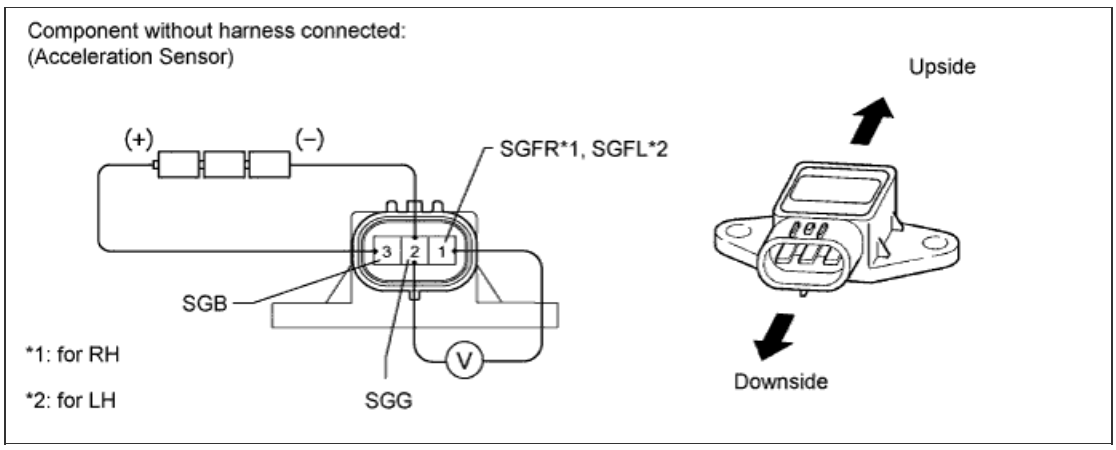
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1784 Steering Angle Sensor Communication Error

for Preparation Click here

DESCRIPTION

The steering sensor signal is sent to the suspension control ECU through the CAN communication system. When there is a communication malfunction, it will be detected by the diagnosis function.

DTC Code	Detection Condition	Trouble Area
C1784	A steering angle sensor signal malfunction is detected, or the steering angle sensor power malfunction signal is detected for 5 seconds or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a steering sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1784 is output	A
DTC C1784 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

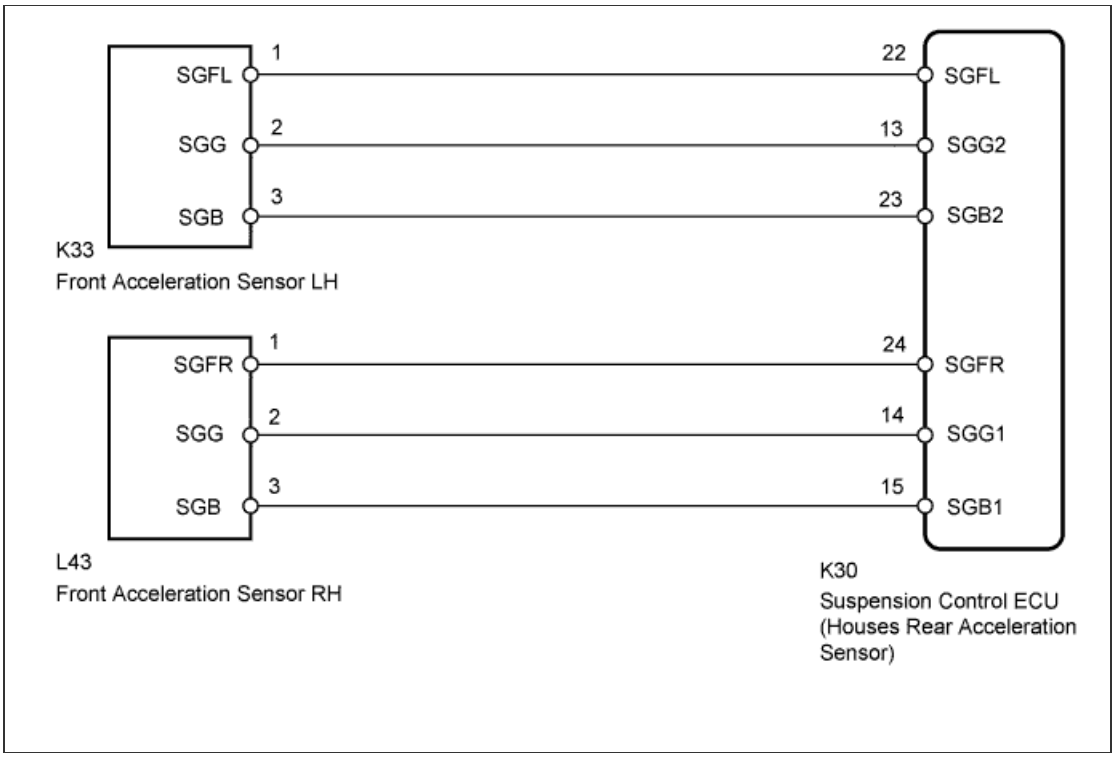
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

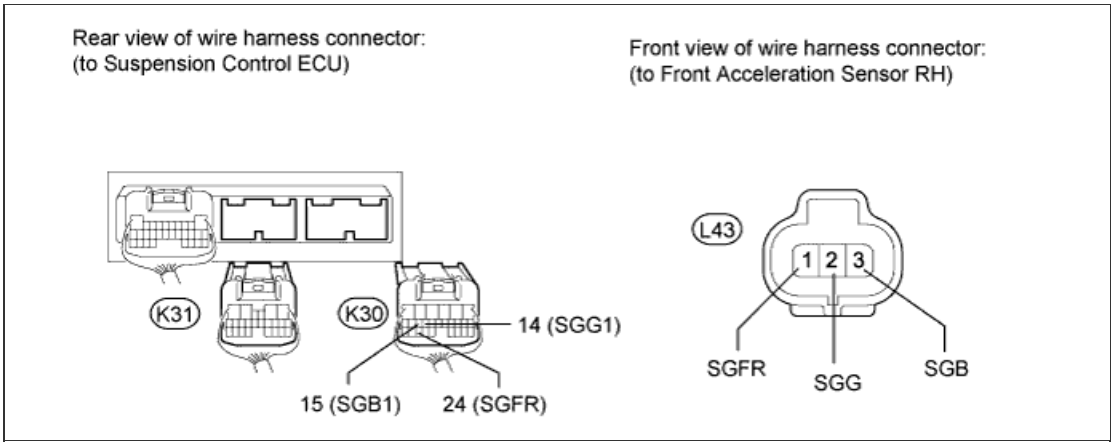
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

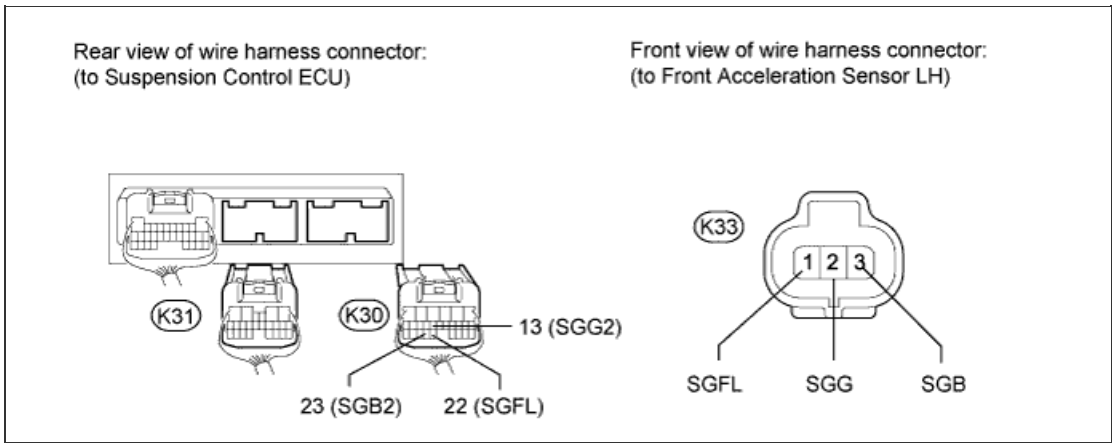
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

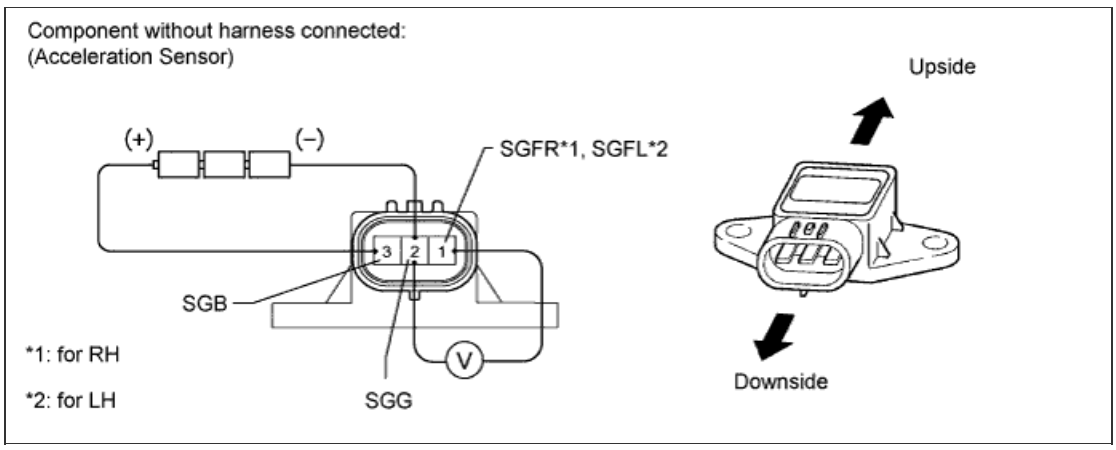
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1784 Steering Angle Sensor Communication Error

for Preparation Click here

DESCRIPTION

The steering sensor signal is sent to the suspension control ECU through the CAN communication system. When there is a communication malfunction, it will be detected by the diagnosis function.

DTC Code	Detection Condition	Trouble Area
C1784	A steering angle sensor signal malfunction is detected, or the steering angle sensor power malfunction signal is detected for 5 seconds or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a steering sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1784 is output	A
DTC C1784 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1715 Front Acceleration Sensor RH Malfunction

DTC C1716 Front Acceleration Sensor LH Malfunction

DTC C1717 Rear Acceleration Sensor Malfunction

DTC C1796 Front Acceleration Sensor RH Malfunction (Test Mode DTC)

DTC C1797 Front Acceleration Sensor LH Malfunction (Test Mode DTC)

DTC C1798 Rear Acceleration Sensor Malfunction (Test Mode DTC)

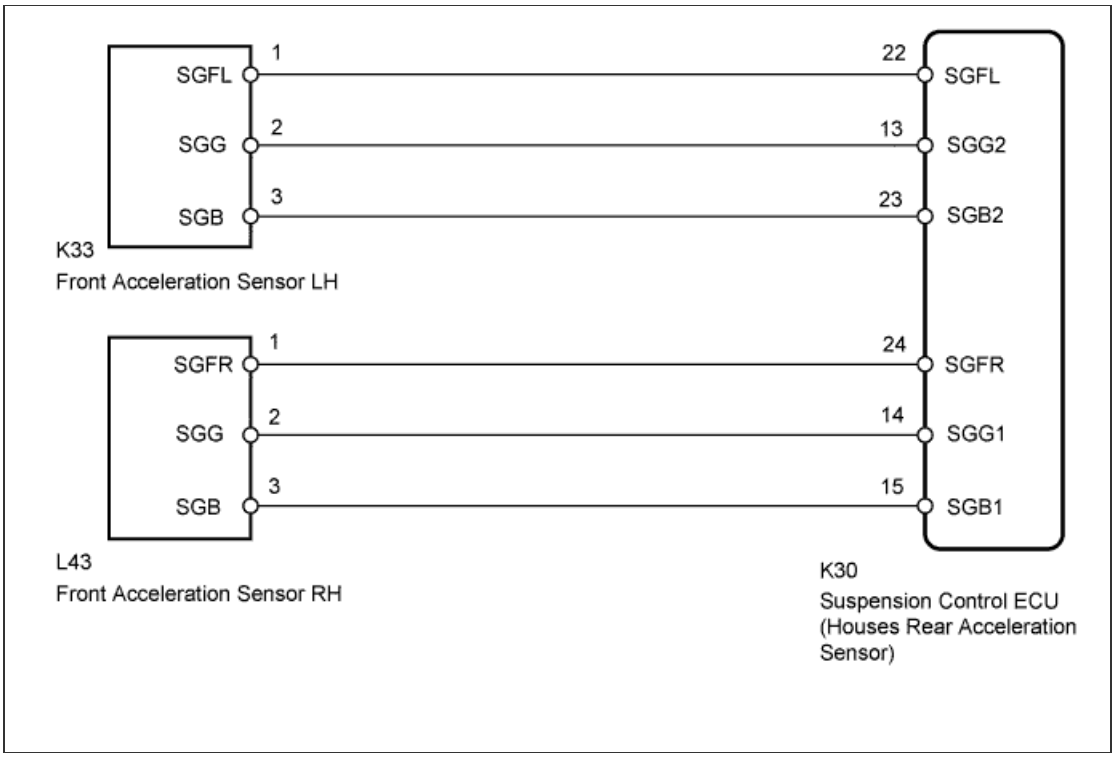
for Preparation Click here

DESCRIPTION

The acceleration sensor (up and down G sensor) detects the upward and downward acceleration of the vehicle, and outputs it as a voltage to the suspension control ECU. Up and down G sensors are installed in 3 locations: 1) the suspension control ECU, 2) the driver side instrument panel, and 3) the passenger side instrument panel. Each up and down G sensor independently detects the upward and downward acceleration. During a test mode inspection, the suspension control ECU reads the fluctuations in the signal of each sensor. When the sensor cannot detect +/-1.96 m/s^2 for 1 second or more during test mode, DTCs C1796, C1797 and C1798 are stored.

DTC Code	Detection Condition	Trouble Area
C1715 C1796	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor RH is detected for 1 second. • When there is a front acceleration sensor RH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor RH • Suspension control ECU
C1716 C1797	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the front acceleration sensor LH is detected for 1 second. • When there is a front acceleration sensor LH power supply voltage malfunction.	• Harness or connector • Front acceleration sensor LH • Suspension control ECU
C1717 C1798	When either of the following conditions is met: • With the engine switch on (IG), a voltage of 4.7 V or higher, or 0.3 V or less at the rear acceleration sensor is detected for 1 second. • When there is a rear acceleration sensor power supply voltage malfunction.	Suspension control ECU (Houses rear acceleration sensor)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**
- **If DTCs C1717 and C1798 (Rear Acceleration Sensor Malfunction) are stored, replace the suspension control ECU (houses rear acceleration sensor).**

1.READ VALUE USING INTELLIGENT TESTER (ACCELERATION SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(Up&Down)G Sensor FR	G (up and down) front acceleration sensor RH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FR) is bounced.
(Up&Down)G Sensor FL	G (up and down) front acceleration sensor LH reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (FL) is bounced.
(Up&Down)G Sensor Rear	G (up and down) rear acceleration sensor reading/ min.: -1045.29 m/s^2 max.: 1045.26 m/s^2	0 +/-0.98 m/s^2 at still condition	The reading changes when the vehicle (rear) is bounced.

OK:

Reading changes when vehicle is bounced.

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

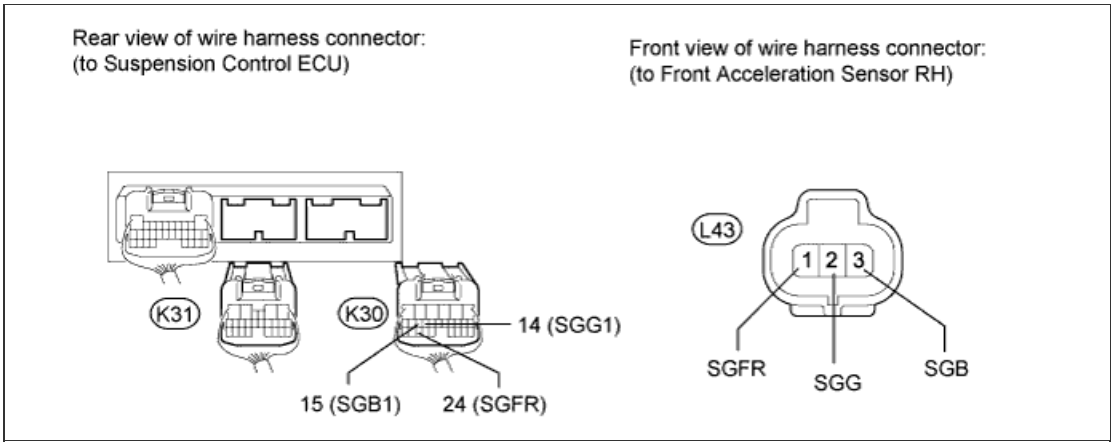
A

3.CHECK HARNESS AND CONNECTOR (ACCELERATION SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harnesses between the suspension control ECU and acceleration sensors, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the acceleration sensors (front RH, front LH), the fluid temperature sensor, and fluid pressure sensor on the ECU side.

a. Check the front acceleration sensor RH side: (C1715)



i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the L43 sensor connector.

iii. Measure the resistance according to the value(s) in the table below.

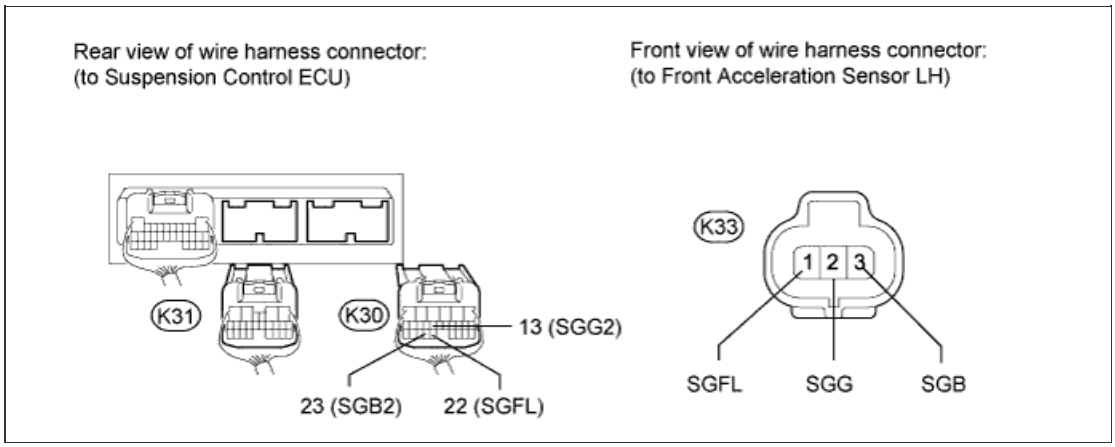
Standard Resistance:

Tester Connection	Condition	Specified Condition
L43-1 (SGFR) - K30-24 (SGFR)	Always	Below 1 Ω
L43-2 (SGG) - K30-14 (SGG1)	Always	Below 1 Ω
L43-3 (SGB) - K30-15 (SGB1)	Always	Below 1 Ω
K30-24 (SGFR) - Body ground	Always	10 kΩ or higher
K30-14 (SGG1) - Body ground	Always	10 kΩ or higher
K30-15 (SGB1) - Body ground	Always	10 kΩ or higher

b. Check the front acceleration sensor LH side: (C1716)

i. Disconnect the K30 and K31 ECU connectors.

ii. Disconnect the K33 sensor connector.



iii. Measure the resistance according to the value(s) in the table below.

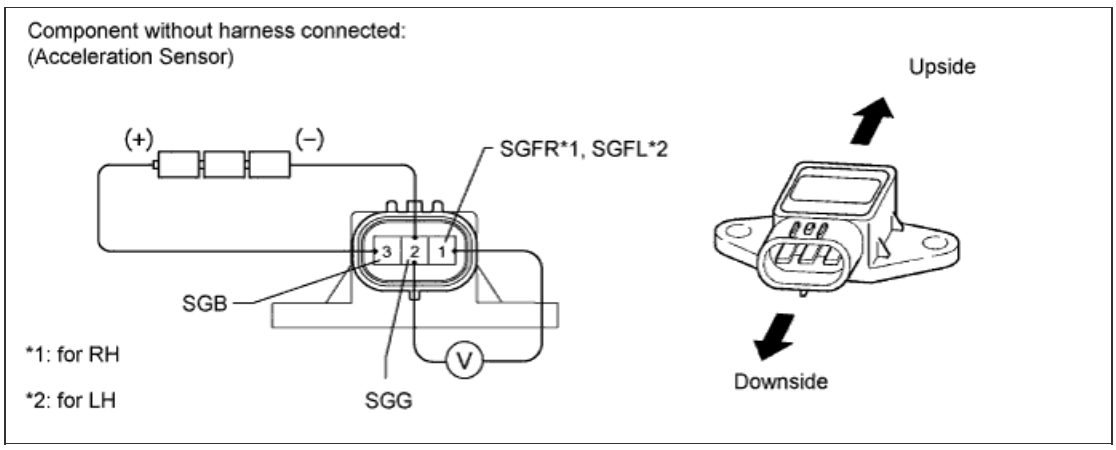
Standard Resistance:

Tester Connection	Condition	Specified Condition
K33-1 (SGFL) - K30-22 (SGFL)	Always	Below 1 Ω
K33-2 (SGG) - K30-13 (SGG2)	Always	Below 1 Ω
K33-3 (SGB) - K30-23 (SGB2)	Always	Below 1 Ω
K30-22 (SGFL) - Body ground	Always	10 kΩ or higher
K30-13 (SGG2) - Body ground	Always	10 kΩ or higher
K30-23 (SGB2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT ACCELERATION SENSOR



a. Turn the engine switch off.

b. Remove the front acceleration sensor (Click here).

NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

c. Connect 3 1.5 V dry cell batteries in series.

d. Connect the positive (+) end of the batteries to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the batteries to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

NOTICE:

Do not apply a voltage of more than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NG → REPLACE ACCELERATION SENSOR (Click here)

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1784 Steering Angle Sensor Communication Error

for Preparation Click here

DESCRIPTION

The steering sensor signal is sent to the suspension control ECU through the CAN communication system. When there is a communication malfunction, it will be detected by the diagnosis function.

DTC Code	Detection Condition	Trouble Area
C1784	A steering angle sensor signal malfunction is detected, or the steering angle sensor power malfunction signal is detected for 5 seconds or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a steering sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1784 is output	A
DTC C1784 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1718 Pressure Sensor Circuit Malfunction

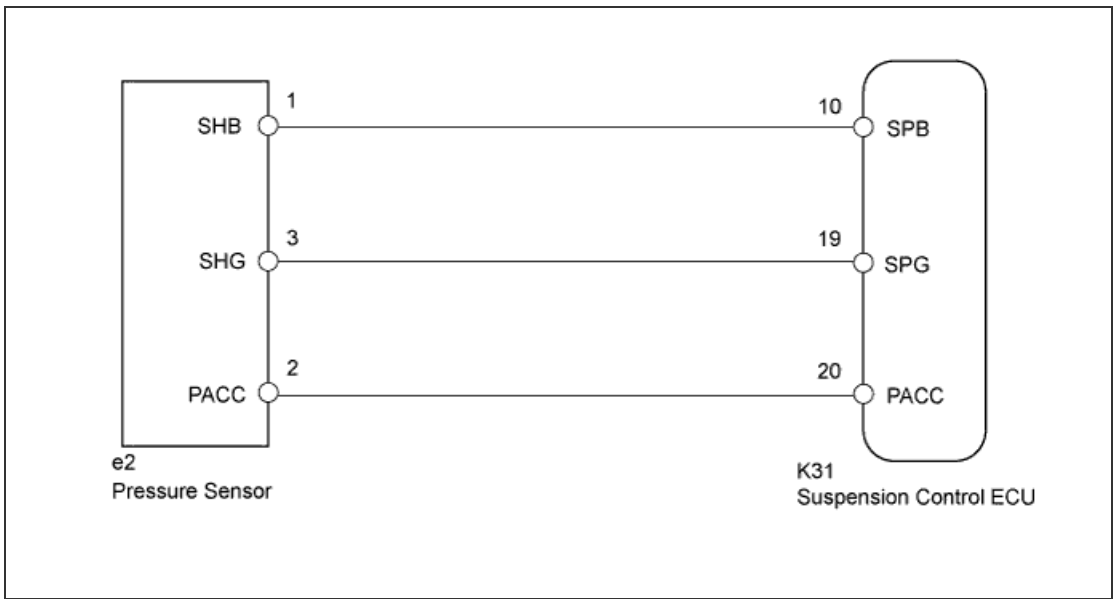
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the pressure output from the pump. The abnormality of the fluid pressure is judged by the ECU.

DTC Code	Detecting Condition	Trouble Area
C1718	When one of the following conditions is met: • When detecting an abnormal signal from the pressure sensor (pressure sensor terminal voltage of ECU is 0.3 V or less or 4.6 V or more) for 1 second. • When there is a pressure sensor power supply voltage malfunction. • When a pressure of 1 MPa (10.2 kgf/cm ^{2}, 145 psi) or more is placed on the pressure sensor for 20 seconds or more, no voltage is flowing to the height control pump and motor, and the vehicle height control is not operating, it is determined that there is a sensor stuck malfunction.	• Harness or connector • Height control pump and motor (Pressure sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

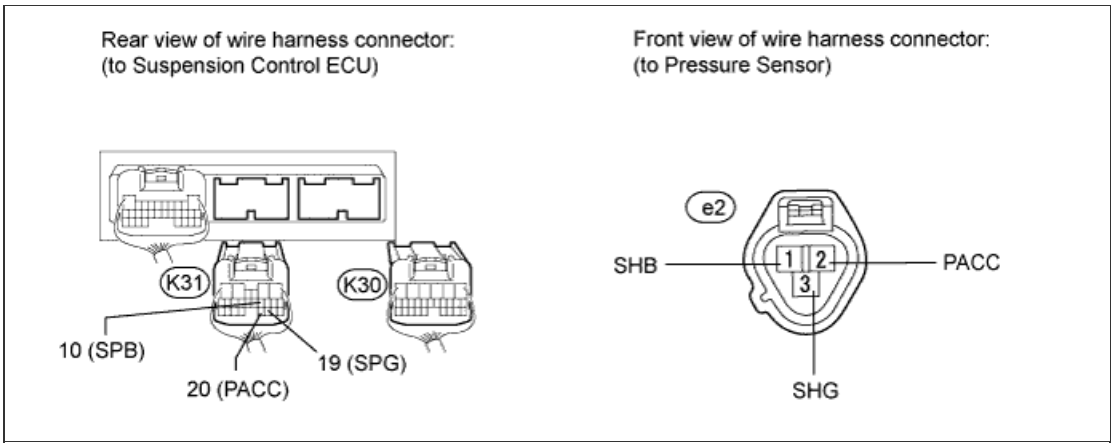
1.CHECK HARNESS AND CONNECTOR (PRESSURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and pressure sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the pressure sensor, the acceleration sensors (front RH, front LH) and fluid temperature sensor on the ECU side.

a. Disconnect the e2 pressure sensor connector.

b. Disconnect the K30 and K31 ECU connectors.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-10 (SPB) - e2-1 (SHB)	Always	Below 1 Ω
K31-19 (SPG) - e2-3 (SHG)	Always	Below 1 Ω
K31-20 (PACC) - e2-2 (PACC)	Always	Below 1 Ω
K31-10 (SPB) - Body ground	Always	10 kΩ or higher
K31-19 (SPG) - Body ground	Always	10 kΩ or higher
K31-20 (PACC) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK SUSPENSION CONTROL ECU

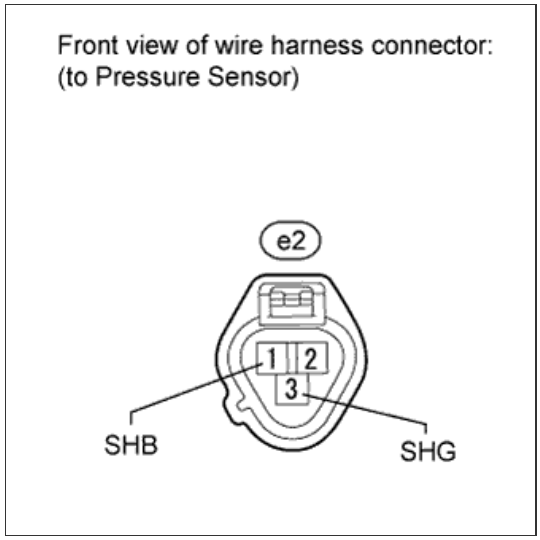
a. Connect the K30 and K31 suspension control ECU connectors.

b. Disconnect the e2 pressure sensor connector.

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
e2-1 (SHB) - e2-3 (SHG)	Engine switch on (IG)	4.75 to 5.25 V



NG → REPLACE SUSPENSION CONTROL ECU (Click here)

OK

3.CHECK PRESSURE SENSOR

a. Connect the K30 and K31 suspension control ECU connectors.

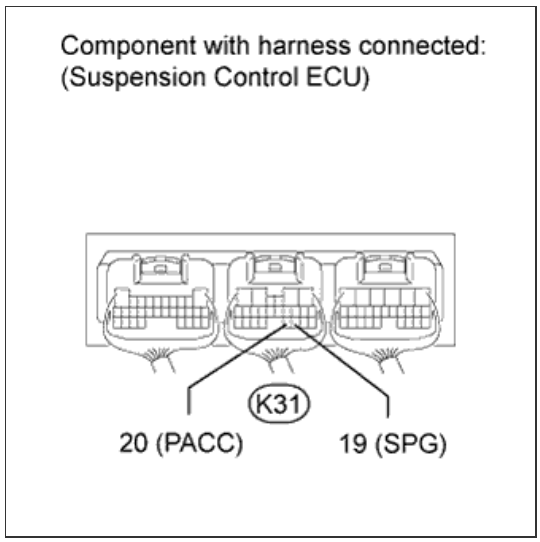
b. Connect the e2 pressure sensor connector.

c. Start the engine and push the up button of the height control switch to activate height control.

d. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K31-20 (PACC) - K31-19 (SPG)	While height control is operating.	1.48 to 2.54 V



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1785 Steering Control ECU Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the steering control ECU via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1785	While the engine switch is on (IG), the steering control ECU malfunction signal is received for 5 seconds.	• Variable gear ratio steering system (VGRS system) • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VARIABLE GEAR RATIO STEERING SYSTEM)

a. Check if a DTC is output from the variable gear ratio steering system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VARIABLE GEAR RATIO STEERING SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1785 is output	A
DTC C1785 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1718 Pressure Sensor Circuit Malfunction

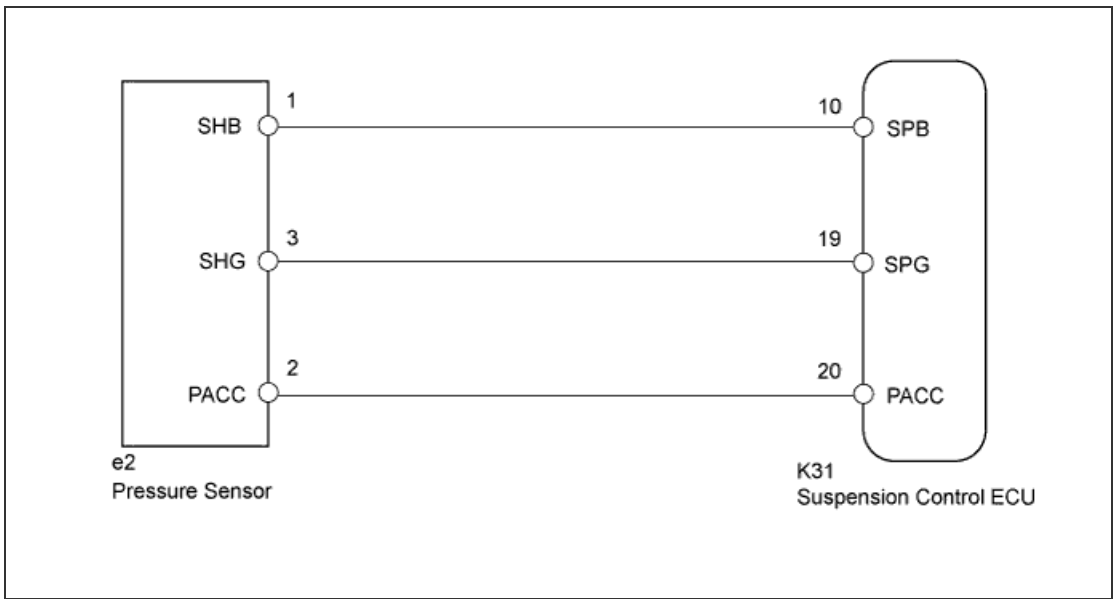
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the pressure output from the pump. The abnormality of the fluid pressure is judged by the ECU.

DTC Code	Detecting Condition	Trouble Area
C1718	When one of the following conditions is met: • When detecting an abnormal signal from the pressure sensor (pressure sensor terminal voltage of ECU is 0.3 V or less or 4.6 V or more) for 1 second. • When there is a pressure sensor power supply voltage malfunction. • When a pressure of 1 MPa (10.2 kgf/cm ^{2}, 145 psi) or more is placed on the pressure sensor for 20 seconds or more, no voltage is flowing to the height control pump and motor, and the vehicle height control is not operating, it is determined that there is a sensor stuck malfunction.	• Harness or connector • Height control pump and motor (Pressure sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

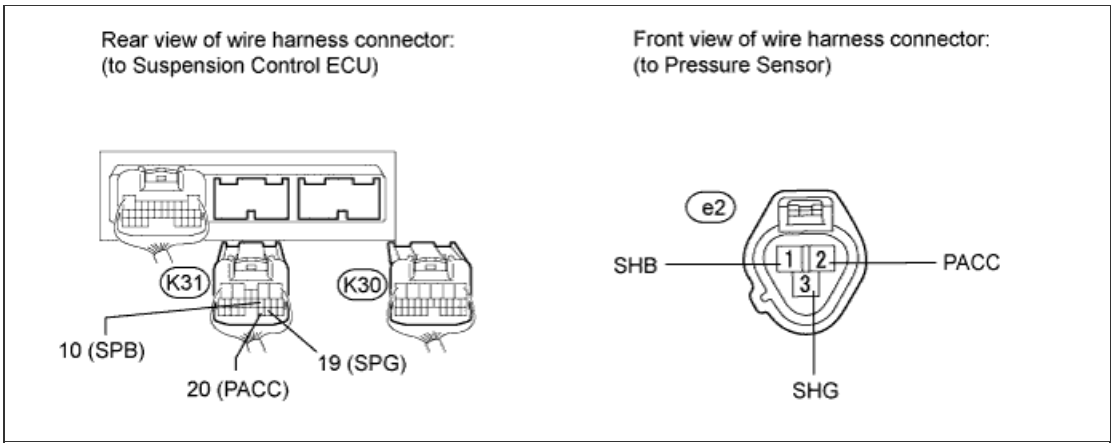
1.CHECK HARNESS AND CONNECTOR (PRESSURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and pressure sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the pressure sensor, the acceleration sensors (front RH, front LH) and fluid temperature sensor on the ECU side.

a. Disconnect the e2 pressure sensor connector.

b. Disconnect the K30 and K31 ECU connectors.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-10 (SPB) - e2-1 (SHB)	Always	Below 1 Ω
K31-19 (SPG) - e2-3 (SHG)	Always	Below 1 Ω
K31-20 (PACC) - e2-2 (PACC)	Always	Below 1 Ω
K31-10 (SPB) - Body ground	Always	10 kΩ or higher
K31-19 (SPG) - Body ground	Always	10 kΩ or higher
K31-20 (PACC) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK SUSPENSION CONTROL ECU

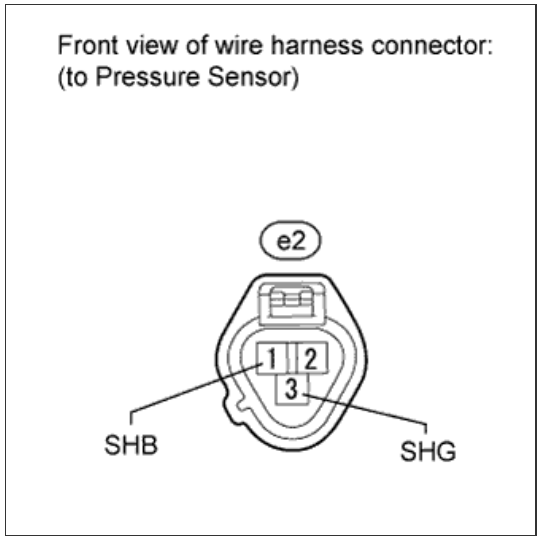
a. Connect the K30 and K31 suspension control ECU connectors.

b. Disconnect the e2 pressure sensor connector.

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
e2-1 (SHB) - e2-3 (SHG)	Engine switch on (IG)	4.75 to 5.25 V



NG → REPLACE SUSPENSION CONTROL ECU (Click here)

OK

3.CHECK PRESSURE SENSOR

a. Connect the K30 and K31 suspension control ECU connectors.

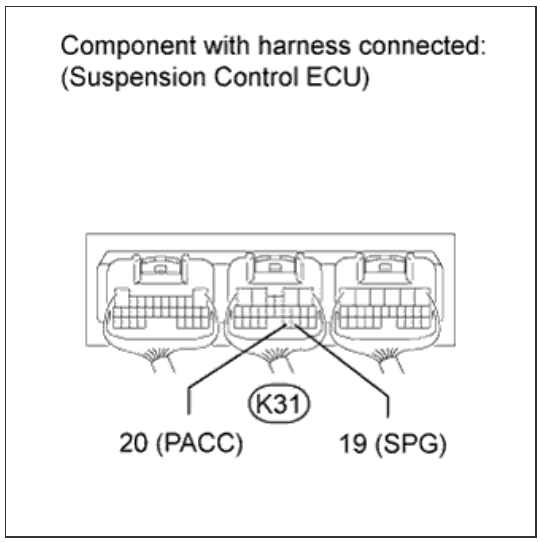
b. Connect the e2 pressure sensor connector.

c. Start the engine and push the up button of the height control switch to activate height control.

d. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K31-20 (PACC) - K31-19 (SPG)	While height control is operating.	1.48 to 2.54 V



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1785 Steering Control ECU Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the steering control ECU via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1785	While the engine switch is on (IG), the steering control ECU malfunction signal is received for 5 seconds.	• Variable gear ratio steering system (VGRS system) • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VARIABLE GEAR RATIO STEERING SYSTEM)

a. Check if a DTC is output from the variable gear ratio steering system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VARIABLE GEAR RATIO STEERING SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1785 is output	A
DTC C1785 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1718 Pressure Sensor Circuit Malfunction

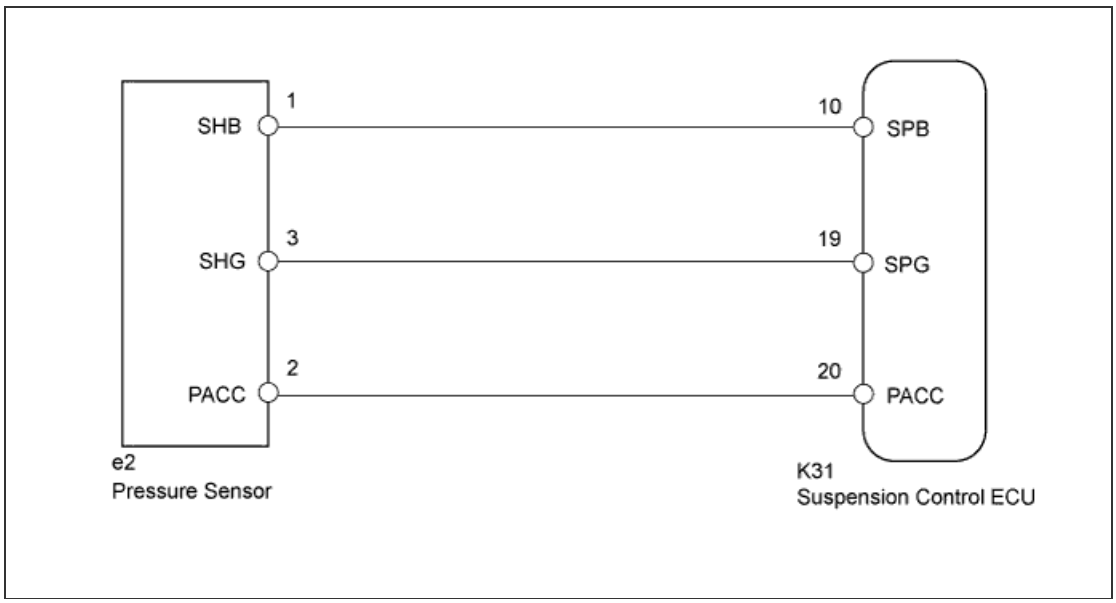
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the pressure output from the pump. The abnormality of the fluid pressure is judged by the ECU.

DTC Code	Detecting Condition	Trouble Area
C1718	When one of the following conditions is met: • When detecting an abnormal signal from the pressure sensor (pressure sensor terminal voltage of ECU is 0.3 V or less or 4.6 V or more) for 1 second. • When there is a pressure sensor power supply voltage malfunction. • When a pressure of 1 MPa (10.2 kgf/cm ^{2}, 145 psi) or more is placed on the pressure sensor for 20 seconds or more, no voltage is flowing to the height control pump and motor, and the vehicle height control is not operating, it is determined that there is a sensor stuck malfunction.	• Harness or connector • Height control pump and motor (Pressure sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

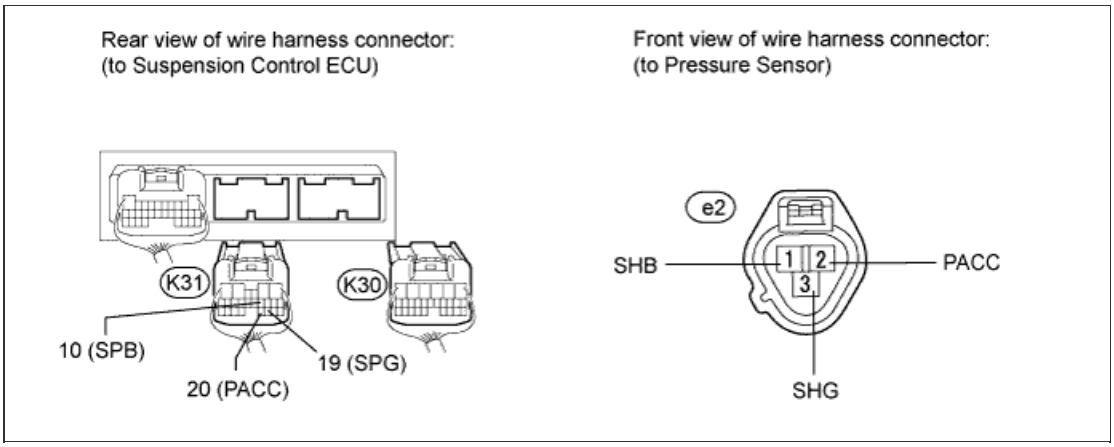
1.CHECK HARNESS AND CONNECTOR (PRESSURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and pressure sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the pressure sensor, the acceleration sensors (front RH, front LH) and fluid temperature sensor on the ECU side.

a. Disconnect the e2 pressure sensor connector.

b. Disconnect the K30 and K31 ECU connectors.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-10 (SPB) - e2-1 (SHB)	Always	Below 1 Ω
K31-19 (SPG) - e2-3 (SHG)	Always	Below 1 Ω
K31-20 (PACC) - e2-2 (PACC)	Always	Below 1 Ω
K31-10 (SPB) - Body ground	Always	10 kΩ or higher
K31-19 (SPG) - Body ground	Always	10 kΩ or higher
K31-20 (PACC) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2.CHECK SUSPENSION CONTROL ECU

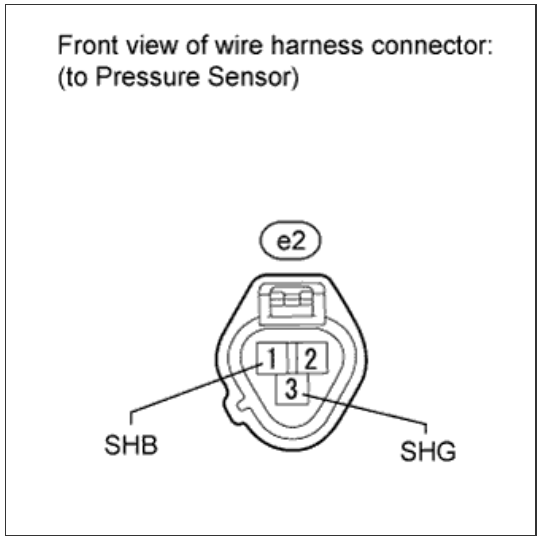
a. Connect the K30 and K31 suspension control ECU connectors.

b. Disconnect the e2 pressure sensor connector.

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
e2-1 (SHB) - e2-3 (SHG)	Engine switch on (IG)	4.75 to 5.25 V



NG → REPLACE SUSPENSION CONTROL ECU (Click here)

OK

3.CHECK PRESSURE SENSOR

a. Connect the K30 and K31 suspension control ECU connectors.

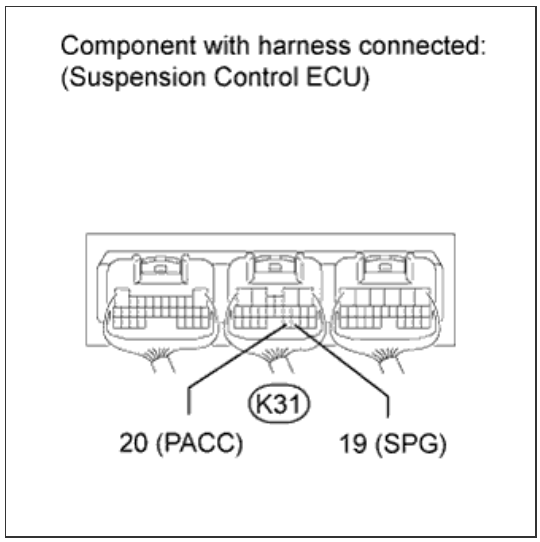
b. Connect the e2 pressure sensor connector.

c. Start the engine and push the up button of the height control switch to activate height control.

d. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K31-20 (PACC) - K31-19 (SPG)	While height control is operating.	1.48 to 2.54 V



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR

OK → REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1785 Steering Control ECU Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the steering control ECU via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1785	While the engine switch is on (IG), the steering control ECU malfunction signal is received for 5 seconds.	• Variable gear ratio steering system (VGRS system) • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VARIABLE GEAR RATIO STEERING SYSTEM)

a. Check if a DTC is output from the variable gear ratio steering system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VARIABLE GEAR RATIO STEERING SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1785 is output	A
DTC C1785 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1719 Oil Temperature Sensor Circuit Malfunction

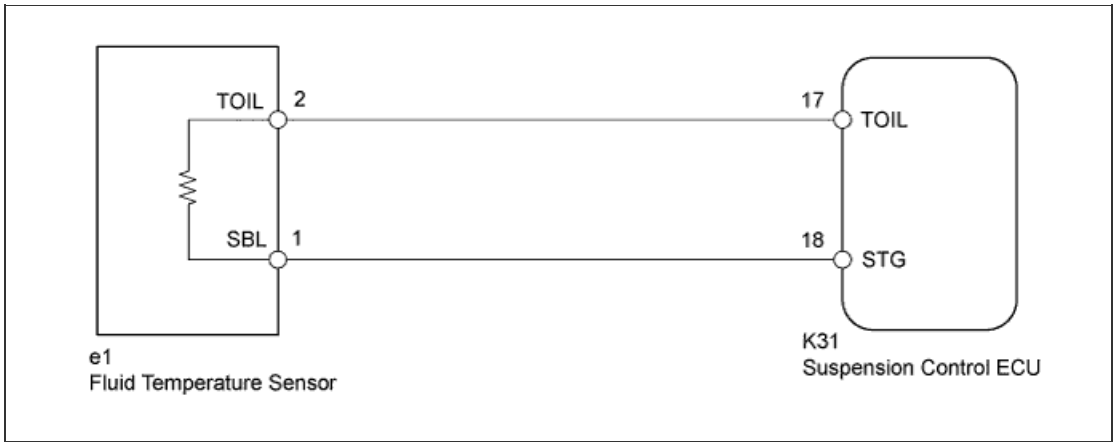
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the fluid temperature of the pump. The abnormality of the fluid is judged by the ECU.

DTC Code	Detection Condition	Trouble Area
C1719	When one of the following conditions is met: • When detecting an abnormal signal from the fluid temperature sensor (fluid temperature sensor terminal voltage of ECU is 0.1 V or less or 4.8 V or higher) for 1 second. • When there is a fluid temperature sensor power supply voltage malfunction.	• Harness or connector • Height control pump and motor (Fluid temperature sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (OIL TEMPERATURE SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Oil Temperature Sensor	Fluid temperature sensor reading / min.: -3276.8°C (-5866.24°F) max.: 3276.7°C (5930.06°F)	Actual fluid temperature	-

OK:

Same as actual fluid temperature

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC C1719 is output	A
DTC C1719 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

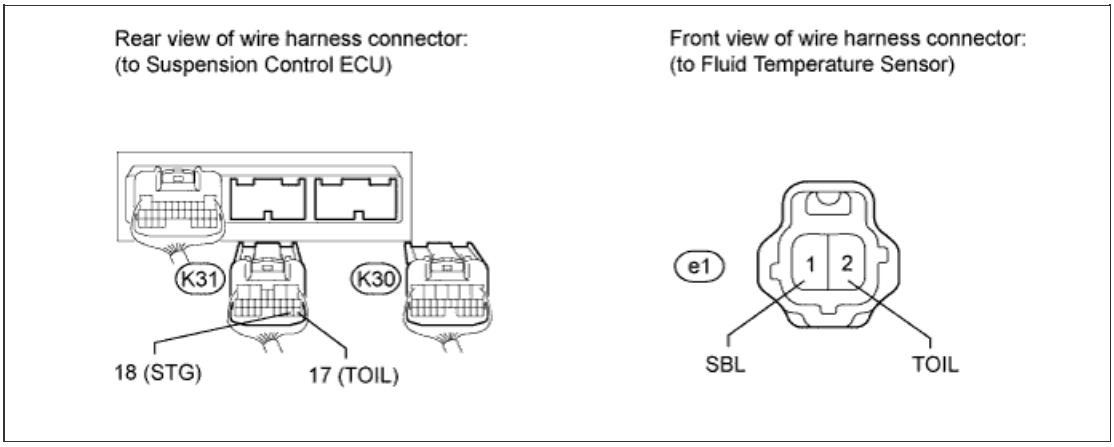
3.CHECK HARNESS AND CONNECTOR (TEMPERATURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and temperature sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the temperature sensor, the acceleration sensors (front RH, front LH) and pressure accumulator sensor on the ECU side.

a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the e1 sensor connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - e1-2 (TOIL)	Always	Below 1 Ω
K31-17 (TOIL) - Body ground	Always	10 kΩ or higher
K31-18 (STG) - e1-1 (SBL)	Always	Below 1 Ω
K31-18 (STG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT FLUID TEMPERATURE SENSOR

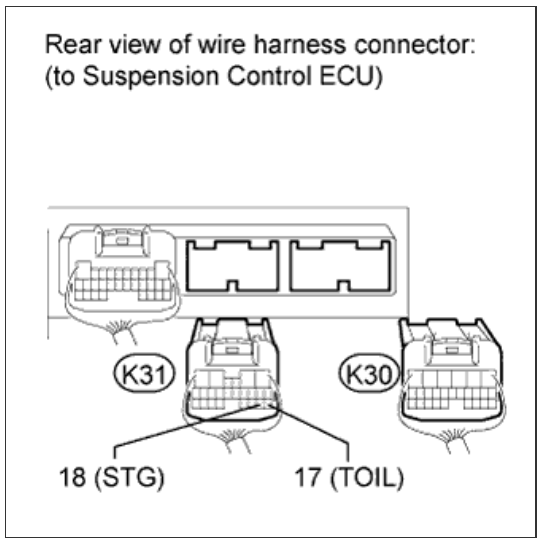
a. Connect the e1 temperature sensor connector.

b. Disconnect the K30 and K31 ECU connectors.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - K31-18 (STG)	20°C (68°F)	2.32 to 2.59 kΩ



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1787 Forward/Rearward/Sideways G Sensor Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the yaw rate sensor via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1787	While the engine switch is on (IG), the yaw rate sensor malfunction signal is detected for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a yaw rate sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1787 is output	A
DTC C1787 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1719 Oil Temperature Sensor Circuit Malfunction

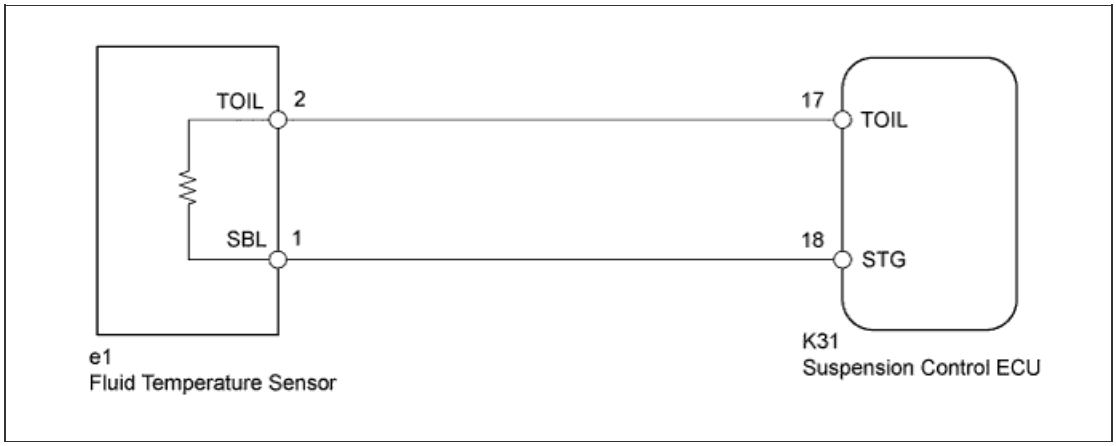
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the fluid temperature of the pump. The abnormality of the fluid is judged by the ECU.

DTC Code	Detection Condition	Trouble Area
C1719	When one of the following conditions is met: • When detecting an abnormal signal from the fluid temperature sensor (fluid temperature sensor terminal voltage of ECU is 0.1 V or less or 4.8 V or higher) for 1 second. • When there is a fluid temperature sensor power supply voltage malfunction.	• Harness or connector • Height control pump and motor (Fluid temperature sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (OIL TEMPERATURE SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Oil Temperature Sensor	Fluid temperature sensor reading / min.: -3276.8°C (-5866.24°F) max.: 3276.7°C (5930.06°F)	Actual fluid temperature	-

OK:

Same as actual fluid temperature

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC C1719 is output	A
DTC C1719 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

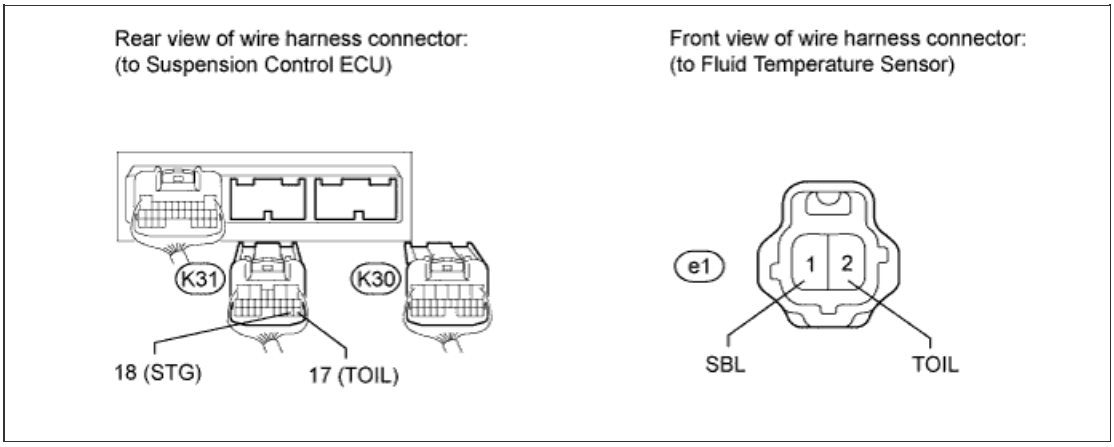
3.CHECK HARNESS AND CONNECTOR (TEMPERATURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and temperature sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the temperature sensor, the acceleration sensors (front RH, front LH) and pressure accumulator sensor on the ECU side.

a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the e1 sensor connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - e1-2 (TOIL)	Always	Below 1 Ω
K31-17 (TOIL) - Body ground	Always	10 kΩ or higher
K31-18 (STG) - e1-1 (SBL)	Always	Below 1 Ω
K31-18 (STG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT FLUID TEMPERATURE SENSOR

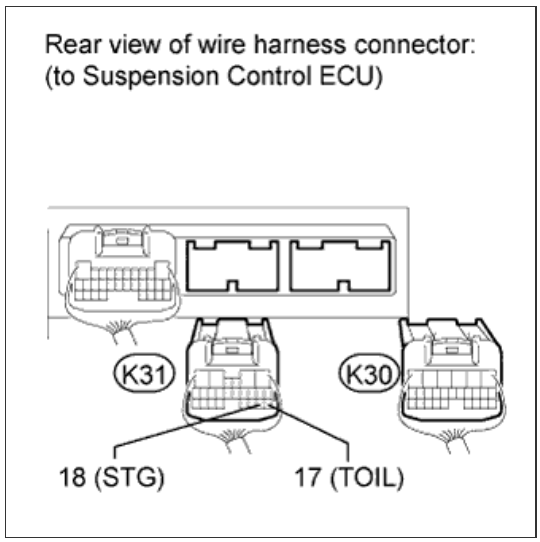
a. Connect the e1 temperature sensor connector.

b. Disconnect the K30 and K31 ECU connectors.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - K31-18 (STG)	20°C (68°F)	2.32 to 2.59 kΩ



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1787 Forward/Rearward/Sideways G Sensor Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the yaw rate sensor via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1787	While the engine switch is on (IG), the yaw rate sensor malfunction signal is detected for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a yaw rate sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1787 is output	A
DTC C1787 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1719 Oil Temperature Sensor Circuit Malfunction

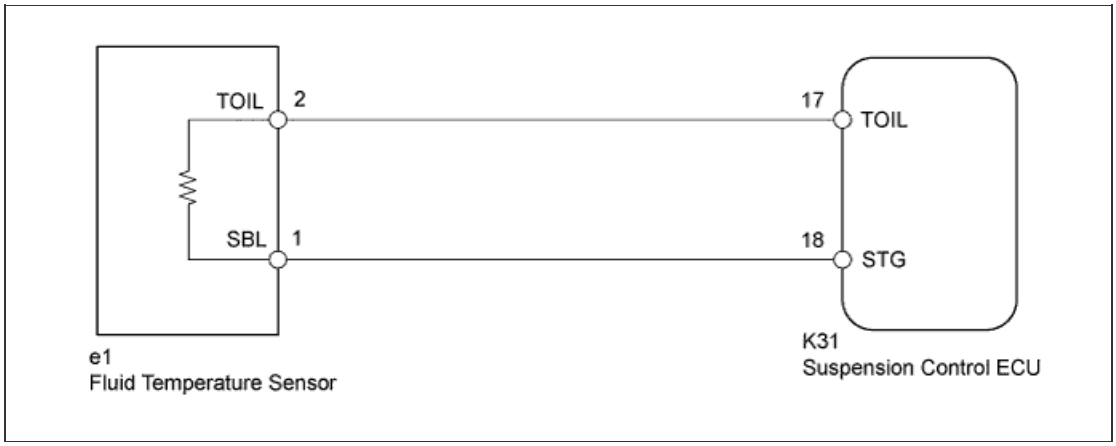
for Preparation Click here

DESCRIPTION

This circuit is used for sending the data to detect the fluid temperature of the pump. The abnormality of the fluid is judged by the ECU.

DTC Code	Detection Condition	Trouble Area
C1719	When one of the following conditions is met: • When detecting an abnormal signal from the fluid temperature sensor (fluid temperature sensor terminal voltage of ECU is 0.1 V or less or 4.8 V or higher) for 1 second. • When there is a fluid temperature sensor power supply voltage malfunction.	• Harness or connector • Height control pump and motor (Fluid temperature sensor) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (OIL TEMPERATURE SENSOR)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Oil Temperature Sensor	Fluid temperature sensor reading / min.: -3276.8°C (-5866.24°F) max.: 3276.7°C (5930.06°F)	Actual fluid temperature	-

OK:

Same as actual fluid temperature

NG → Go to step 3

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC C1719 is output	A
DTC C1719 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

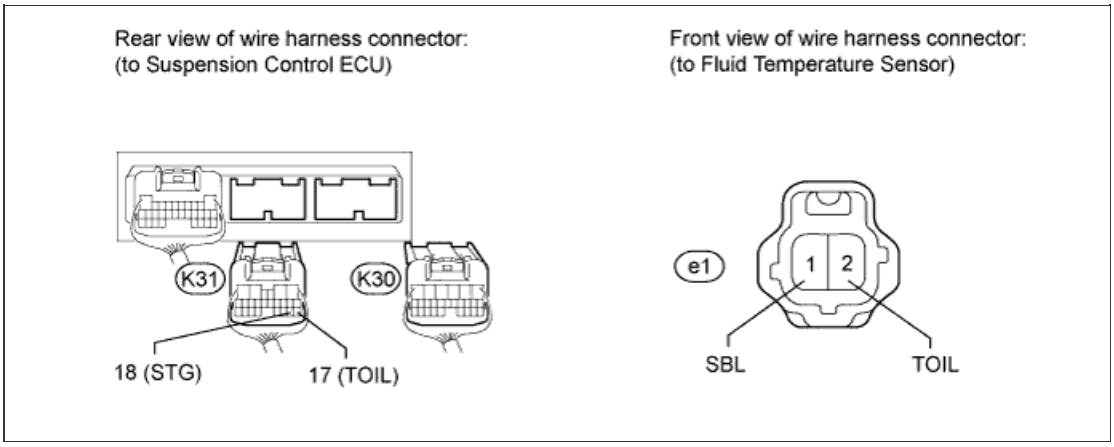
3.CHECK HARNESS AND CONNECTOR (TEMPERATURE SENSOR - SUSPENSION CONTROL ECU)

NOTICE:

When inspecting the wire harness between the suspension control ECU and temperature sensor, it is difficult to determine the malfunctioning area if there is a sensor power supply malfunction. Therefore, disconnect the connectors for the temperature sensor, the acceleration sensors (front RH, front LH) and pressure accumulator sensor on the ECU side.

a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the e1 sensor connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - e1-2 (TOIL)	Always	Below 1 Ω
K31-17 (TOIL) - Body ground	Always	10 kΩ or higher
K31-18 (STG) - e1-1 (SBL)	Always	Below 1 Ω
K31-18 (STG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.INSPECT FLUID TEMPERATURE SENSOR

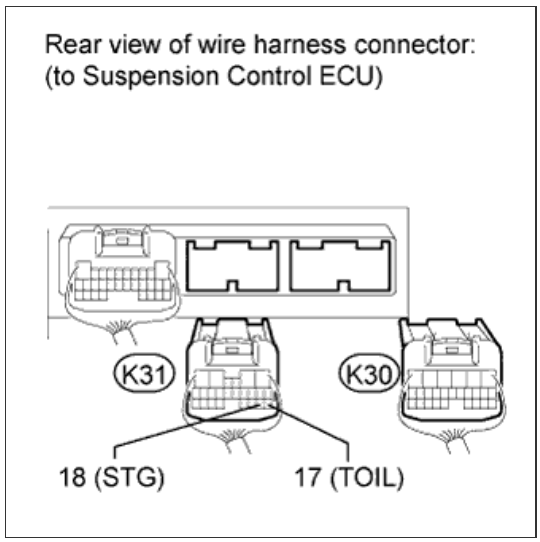
a. Connect the e1 temperature sensor connector.

b. Disconnect the K30 and K31 ECU connectors.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K31-17 (TOIL) - K31-18 (STG)	20°C (68°F)	2.32 to 2.59 kΩ



NG → REPLACE HEIGHT CONTROL PUMP AND MOTOR (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1787 Forward/Rearward/Sideways G Sensor Communication Error

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the yaw rate sensor via CAN communication.

DTC Code	Detection Condition	Trouble Area
C1787	While the engine switch is on (IG), the yaw rate sensor malfunction signal is detected for 1 second or more.	• Vehicle stability control system • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CHECK DTC (VEHICLE STABILITY CONTROL SYSTEM)

a. Check if a yaw rate sensor malfunction DTC is output under the vehicle stability control system (Click here).

Result

Result	Proceed to
DTC is not output	A
DTC is output	B

B → GO TO VEHICLE STABILITY CONTROL SYSTEM (DIAGNOSTIC TROUBLE CODE CHART) (Click here)

A

2.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

3.CHECK DTC

a. Check for DTCs.

Result

Result	Proceed to
DTC C1787 is output	A
DTC C1787 is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

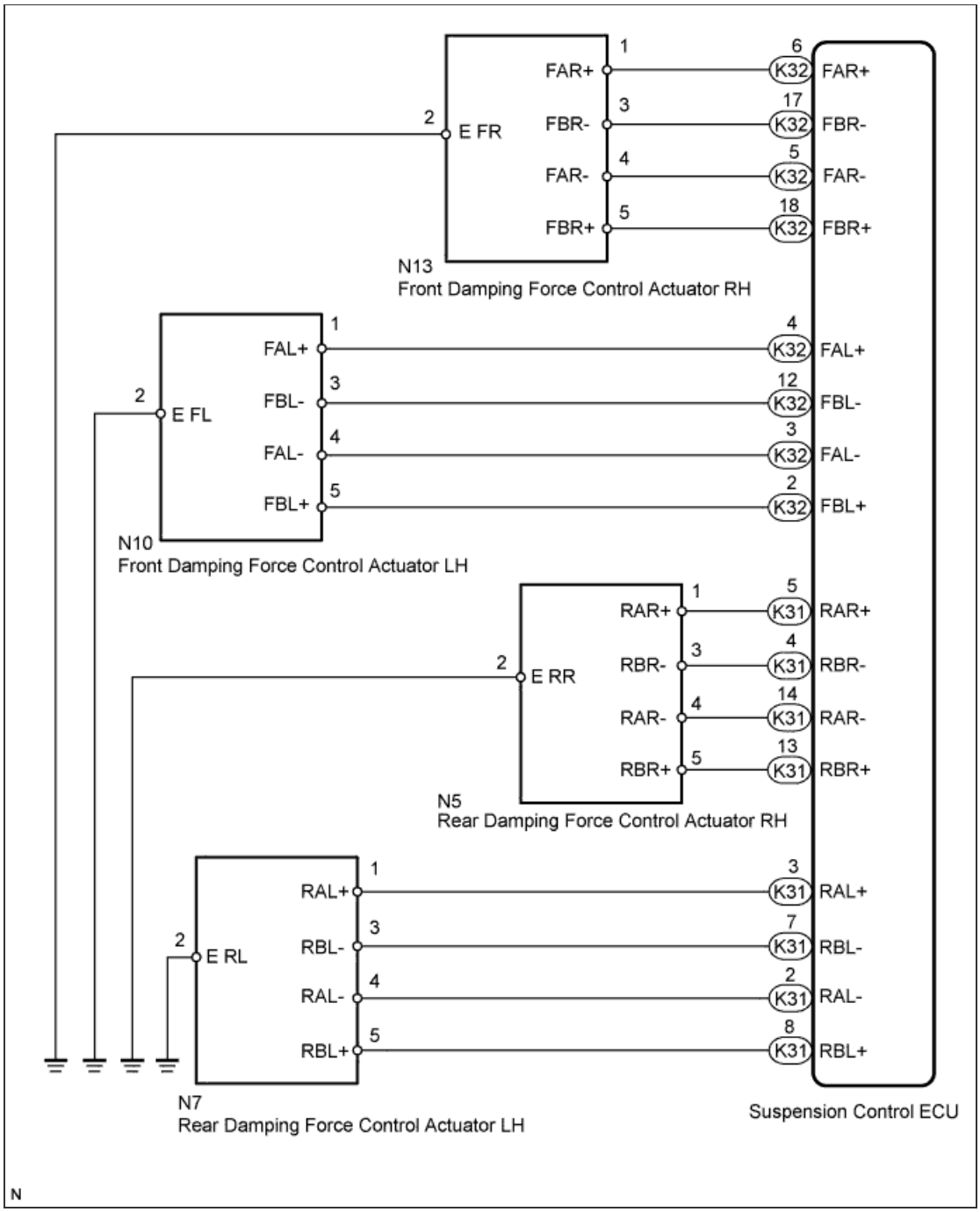
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

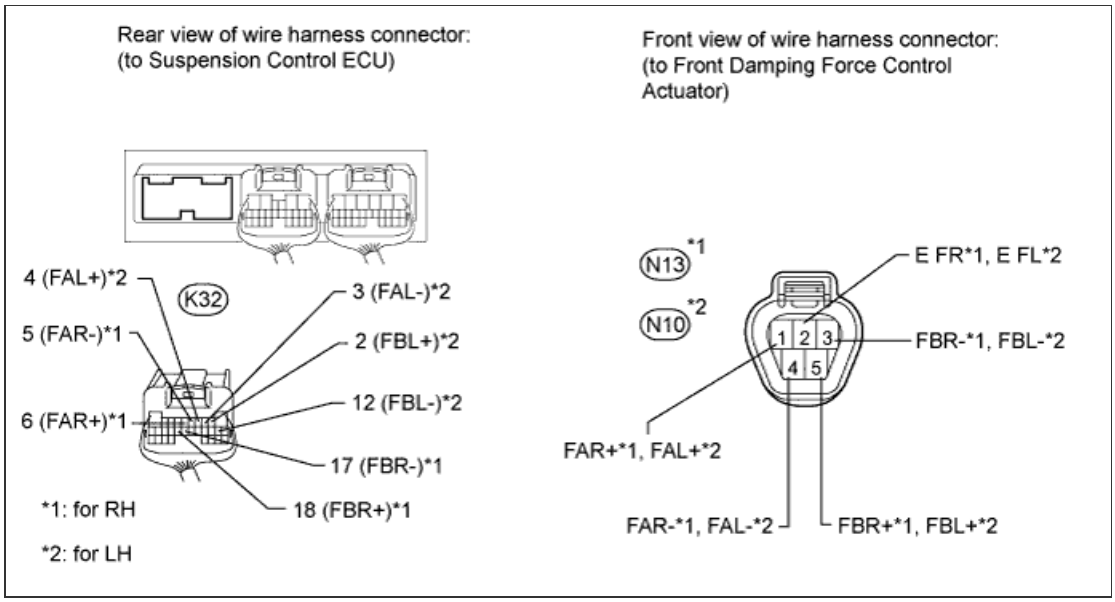
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

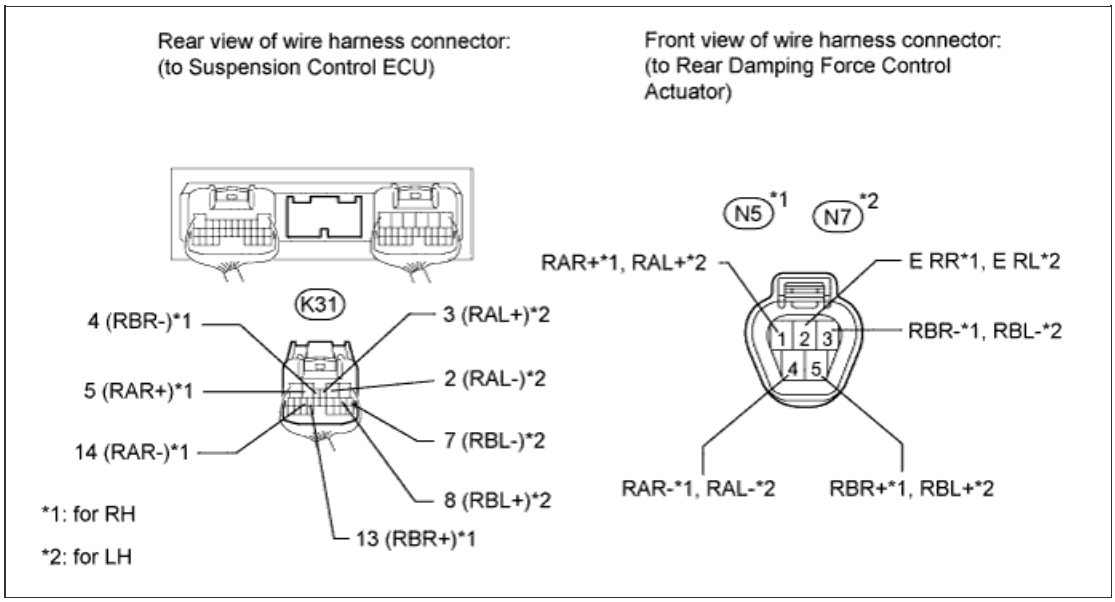
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

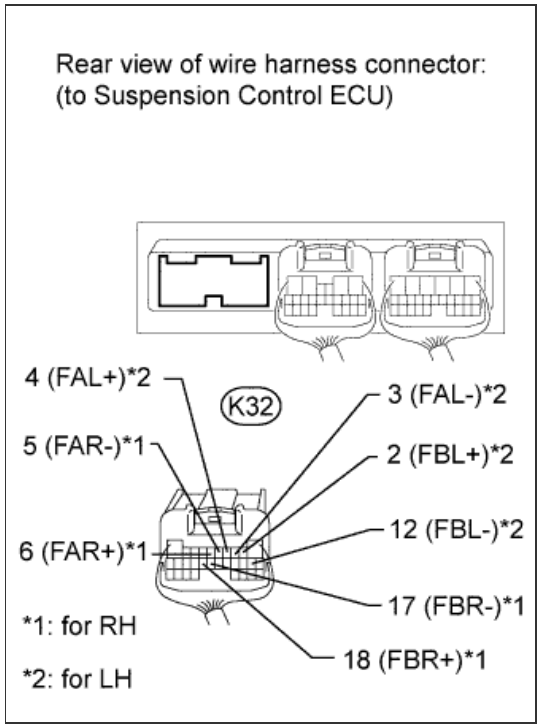
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

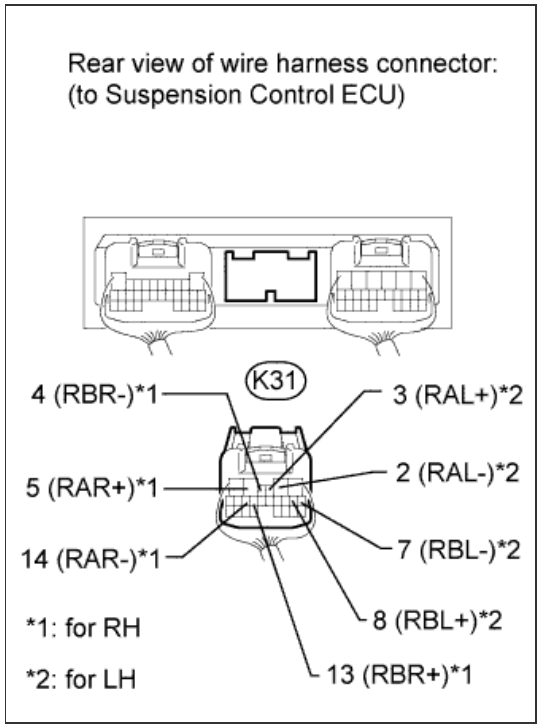
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1791 Absorber Control Switch Circuit (Test Mode DTC)

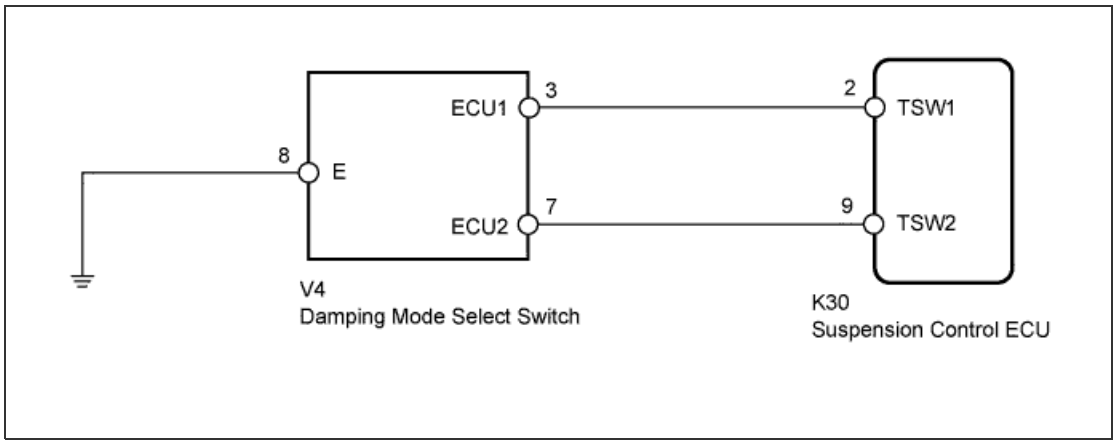
for Preparation Click here

DESCRIPTION

This circuit is used for sending the signal to the suspension control ECU to switch to the damping mode selected by the damping force control switch.

DTC Code	Detection Condition	Trouble Area
C1791	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Damping mode select switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (SPORT SWITCH, COMFORT SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPORT Switch	Damping mode select switch (SPORT) / ON or OFF	ON: SPORT OFF: NORMAL or COMFORT	-
COMFORT Switch	Damping mode select switch (COMFORT) / ON or OFF	ON: COMFORT OFF: NORMAL or SPORT	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → **Go to step 3**

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1791 is cleared (Click here).

Result

Result	Proceed to
DTC C1791 is not cleared	A
DTC C1791 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (DAMPING MODE SELECT SWITCH)

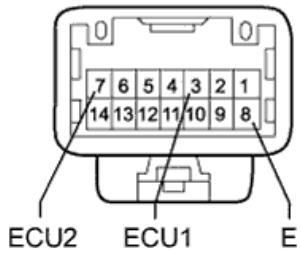
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
3 (ECU1) - 8 (E)	SPORT	Below 1 Ω
	Except SPORT	10 kΩ or higher
7 (ECU2) - 8 (E)	COMF	Below 1 Ω
	Except COMF	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

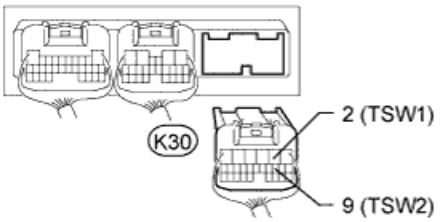


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

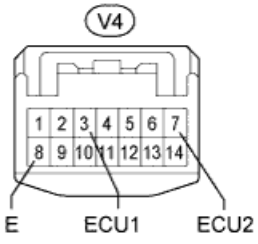
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-2 (TSW1) - V4-3 (ECU1)	Always	Below 1 Ω
K30-2 (TSW1) - Body ground	Always	10 kΩ or higher
K30-9 (TSW2) - V4-7 (ECU2)	Always	Below 1 Ω
K30-9 (TSW2) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

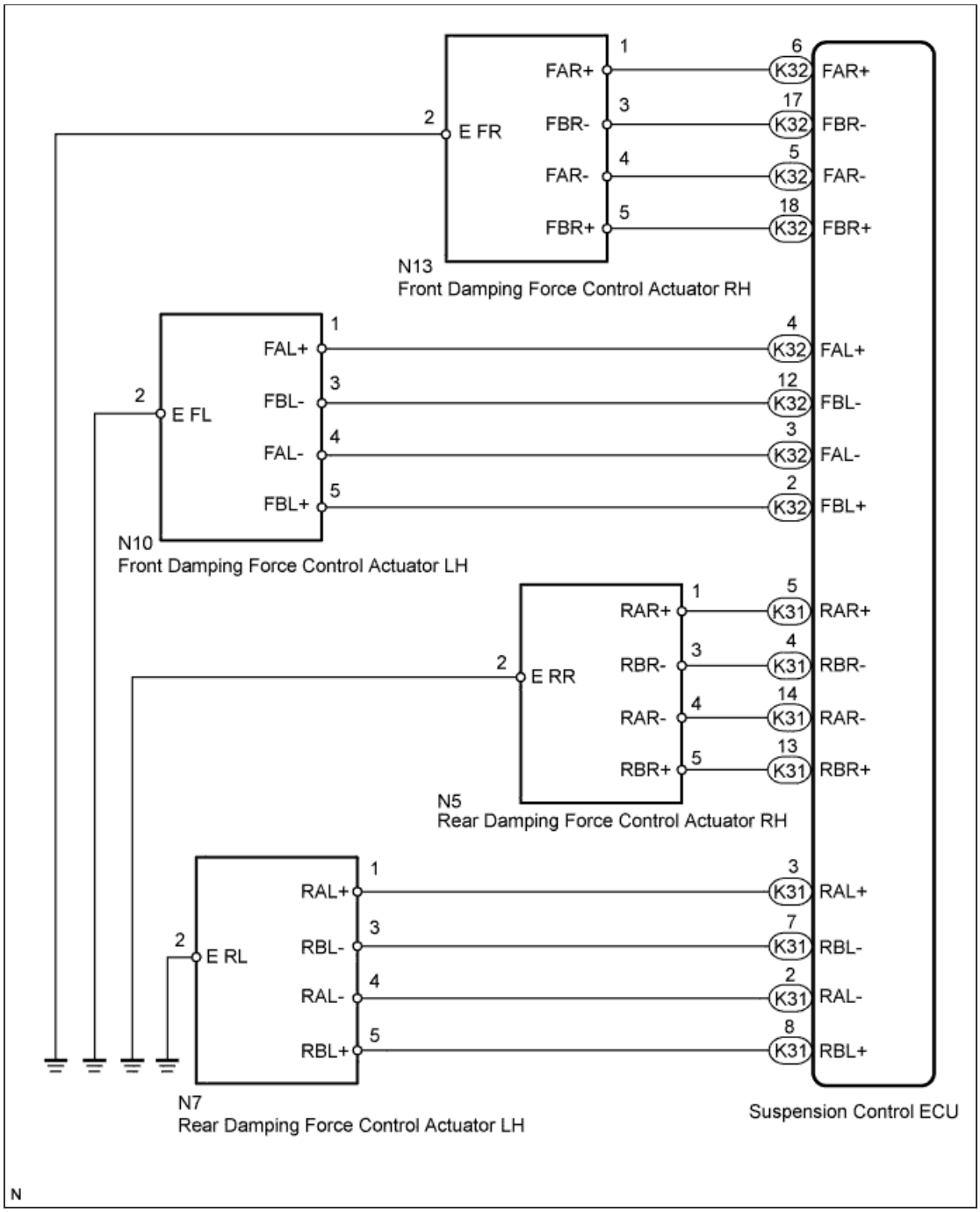
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

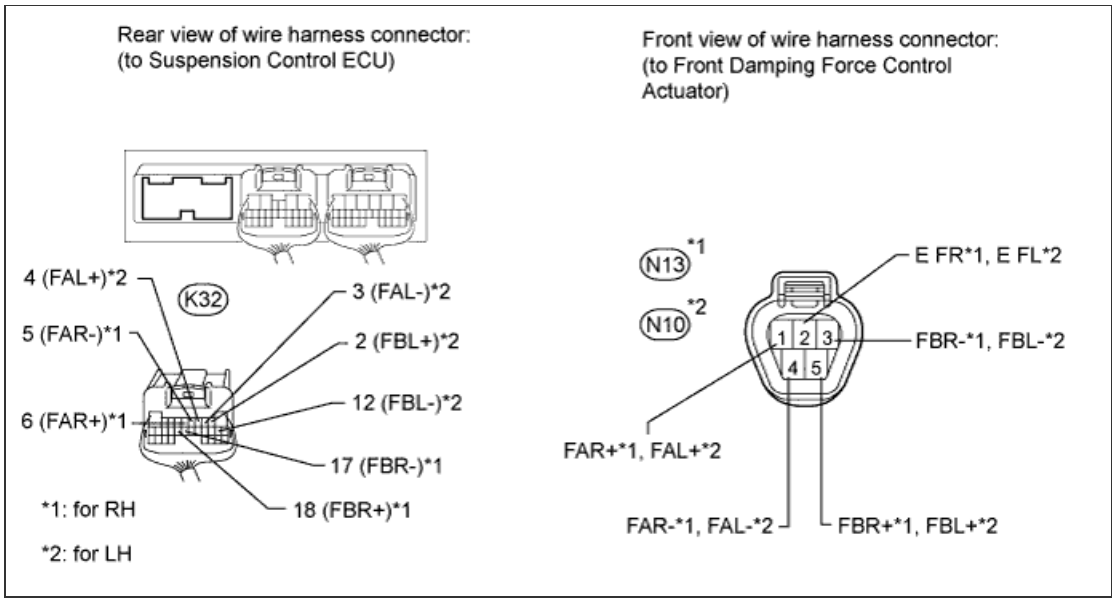
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

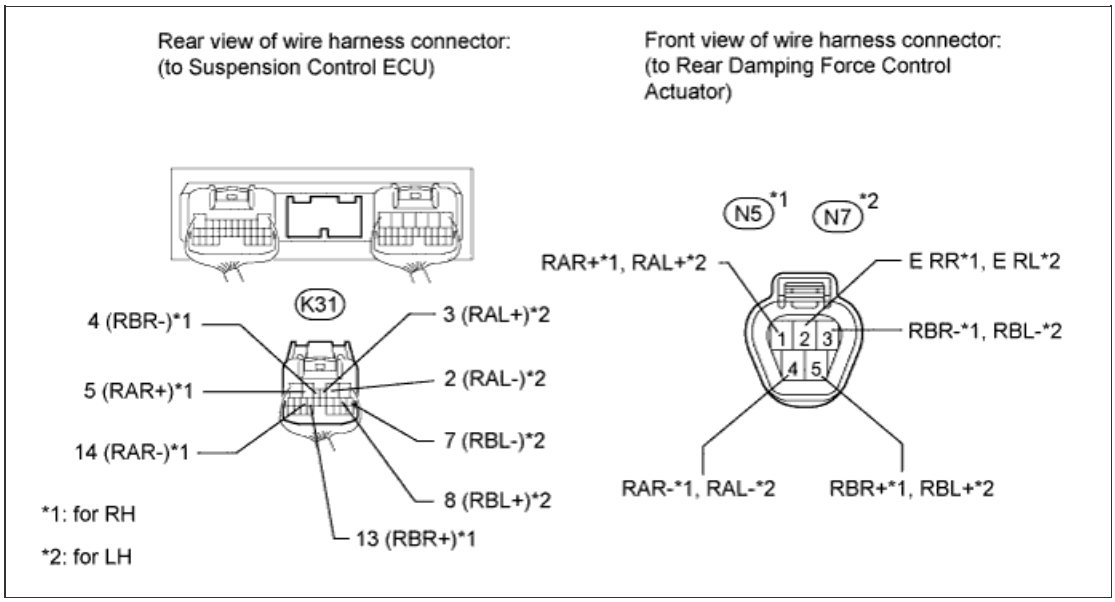
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

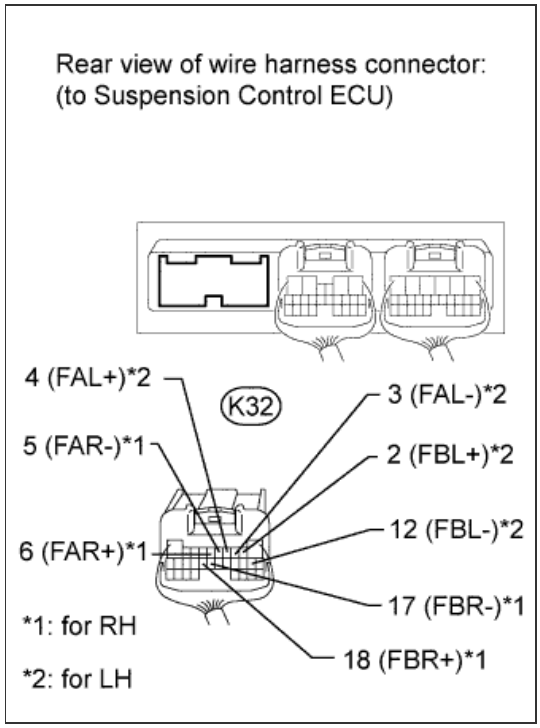
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

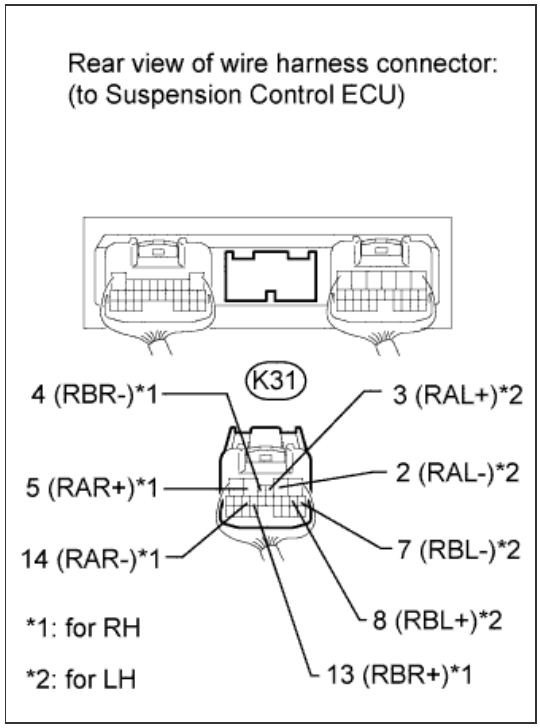
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1791 Absorber Control Switch Circuit (Test Mode DTC)

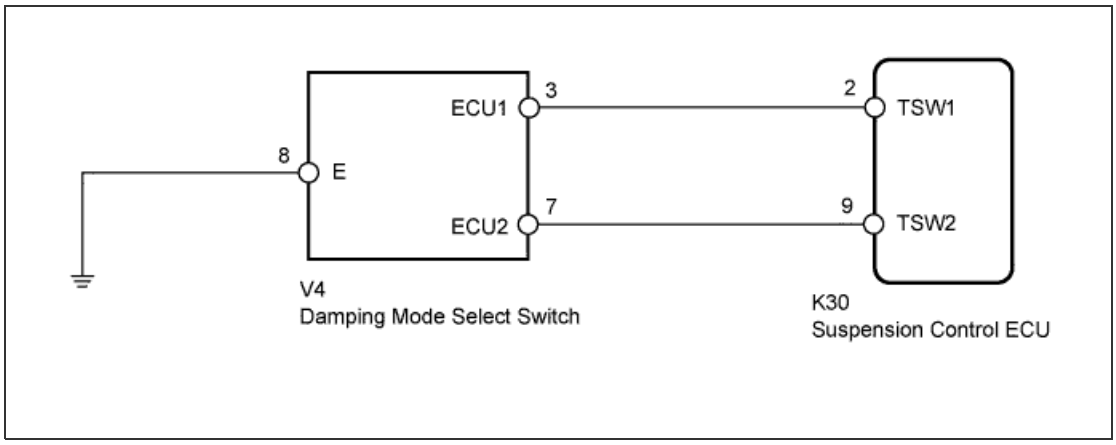
for Preparation Click here

DESCRIPTION

This circuit is used for sending the signal to the suspension control ECU to switch to the damping mode selected by the damping force control switch.

DTC Code	Detection Condition	Trouble Area
C1791	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Damping mode select switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (SPORT SWITCH, COMFORT SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPORT Switch	Damping mode select switch (SPORT) / ON or OFF	ON: SPORT OFF: NORMAL or COMFORT	-
COMFORT Switch	Damping mode select switch (COMFORT) / ON or OFF	ON: COMFORT OFF: NORMAL or SPORT	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → **Go to step 3**

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1791 is cleared (Click here).

Result

Result	Proceed to
DTC C1791 is not cleared	A
DTC C1791 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (DAMPING MODE SELECT SWITCH)

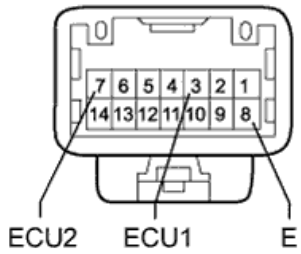
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
3 (ECU1) - 8 (E)	SPORT	Below 1 Ω
	Except SPORT	10 kΩ or higher
7 (ECU2) - 8 (E)	COMF	Below 1 Ω
	Except COMF	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

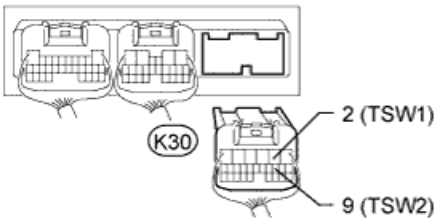


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

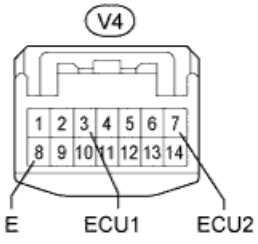
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-2 (TSW1) - V4-3 (ECU1)	Always	Below 1 Ω
K30-2 (TSW1) - Body ground	Always	10 kΩ or higher
K30-9 (TSW2) - V4-7 (ECU2)	Always	Below 1 Ω
K30-9 (TSW2) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

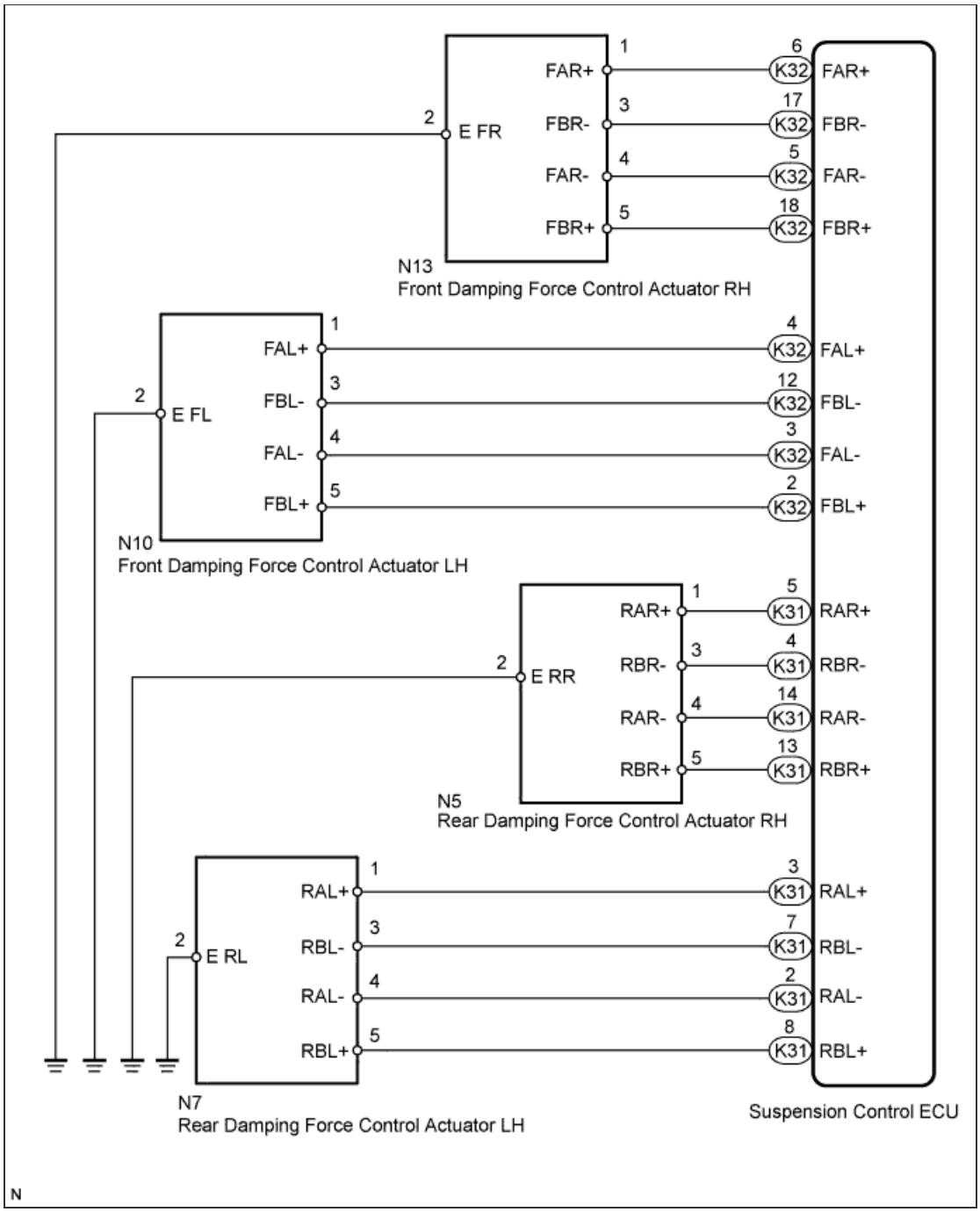
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

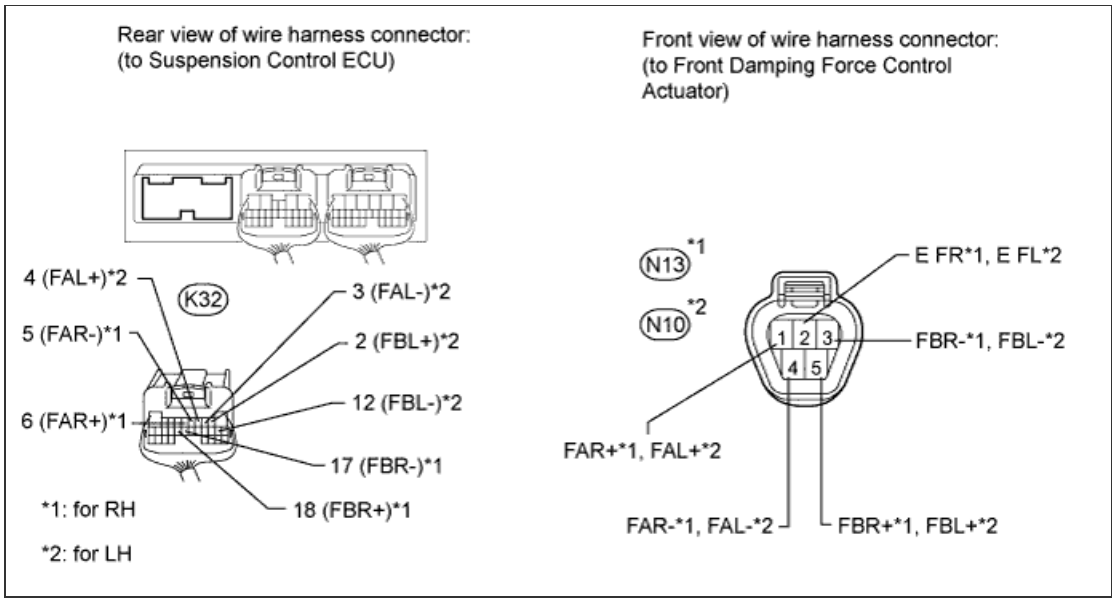
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

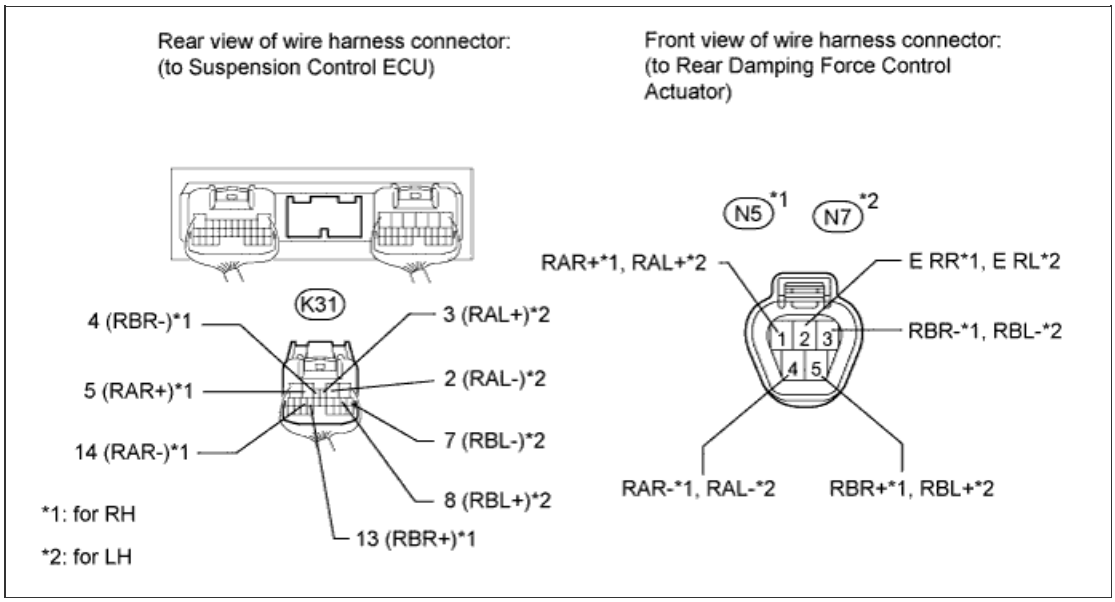
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

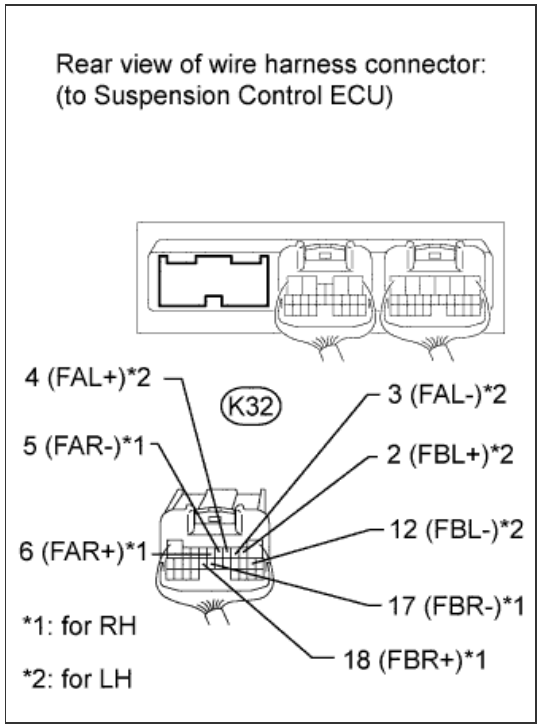
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

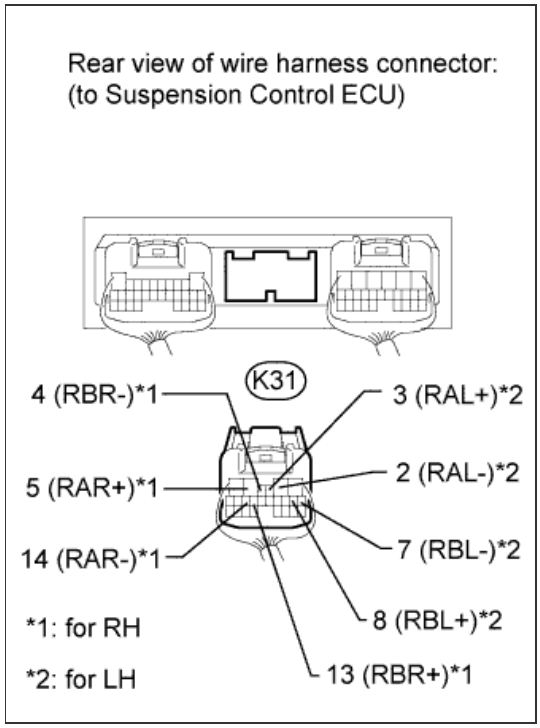
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1791 Absorber Control Switch Circuit (Test Mode DTC)

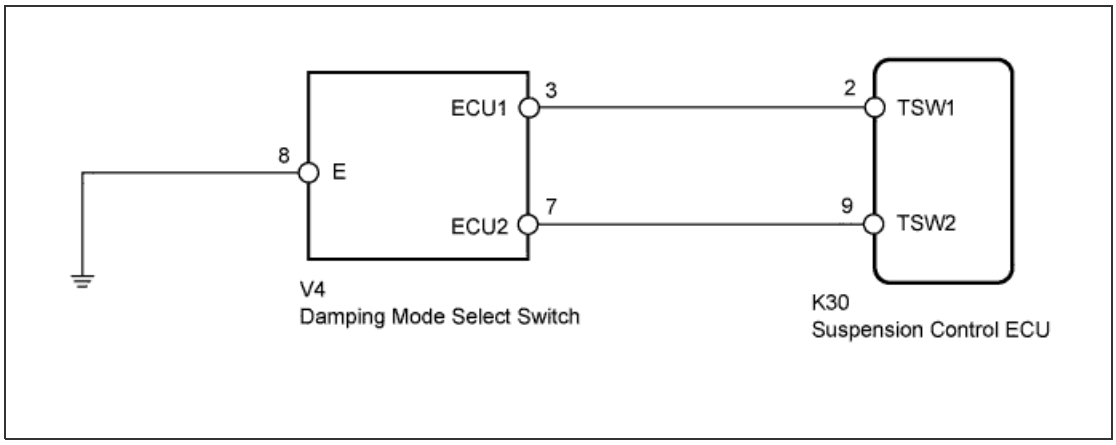
for Preparation Click here

DESCRIPTION

This circuit is used for sending the signal to the suspension control ECU to switch to the damping mode selected by the damping force control switch.

DTC Code	Detection Condition	Trouble Area
C1791	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Damping mode select switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (SPORT SWITCH, COMFORT SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPORT Switch	Damping mode select switch (SPORT) / ON or OFF	ON: SPORT OFF: NORMAL or COMFORT	-
COMFORT Switch	Damping mode select switch (COMFORT) / ON or OFF	ON: COMFORT OFF: NORMAL or SPORT	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → **Go to step 3**

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1791 is cleared (Click here).

Result

Result	Proceed to
DTC C1791 is not cleared	A
DTC C1791 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (DAMPING MODE SELECT SWITCH)

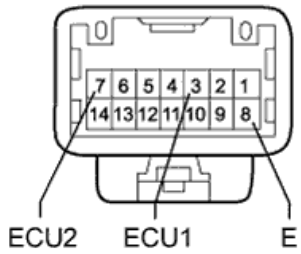
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
3 (ECU1) - 8 (E)	SPORT	Below 1 Ω
	Except SPORT	10 kΩ or higher
7 (ECU2) - 8 (E)	COMF	Below 1 Ω
	Except COMF	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

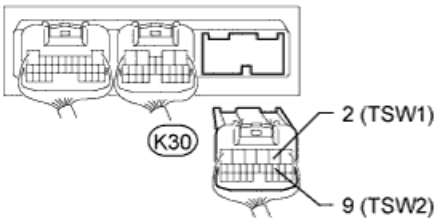


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

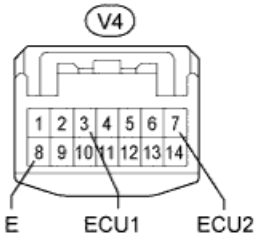
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-2 (TSW1) - V4-3 (ECU1)	Always	Below 1 Ω
K30-2 (TSW1) - Body ground	Always	10 kΩ or higher
K30-9 (TSW2) - V4-7 (ECU2)	Always	Below 1 Ω
K30-9 (TSW2) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

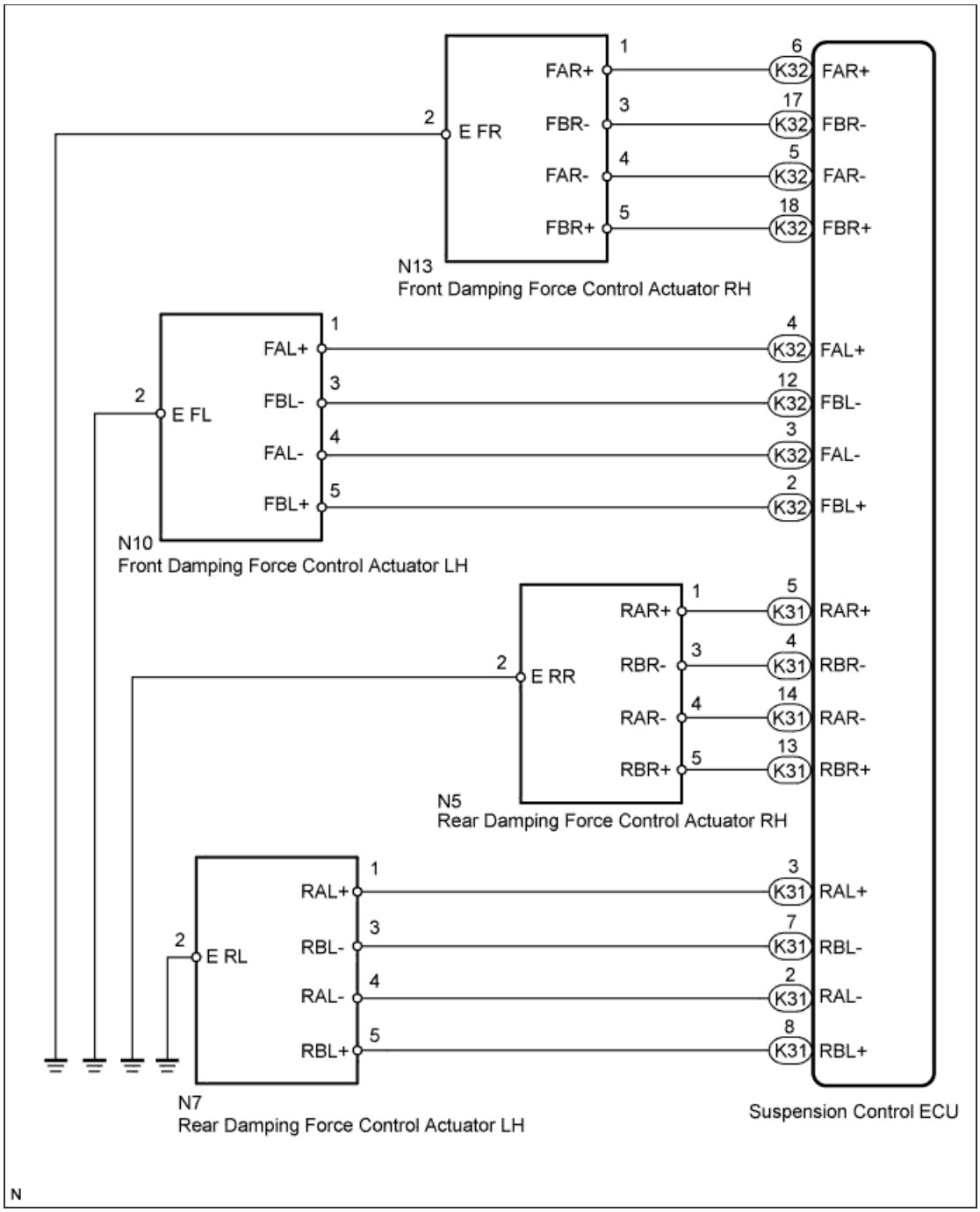
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

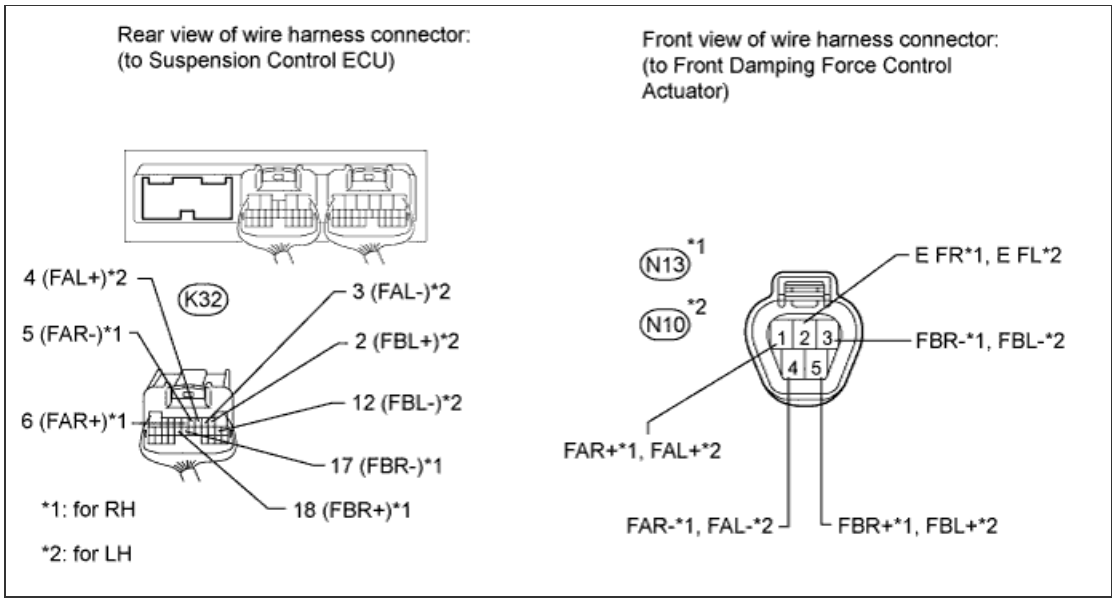
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

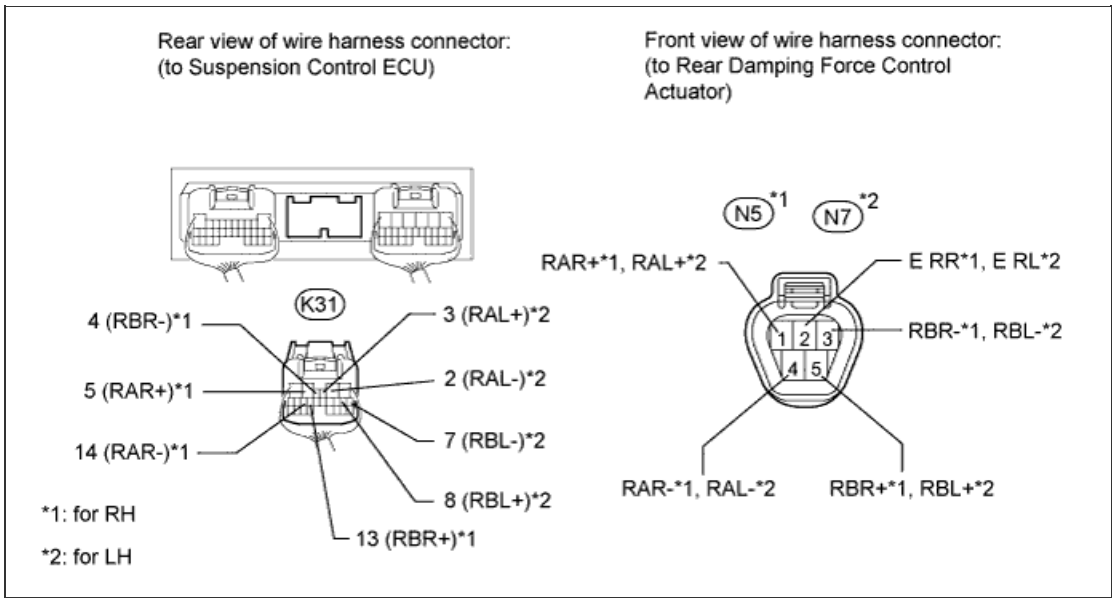
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

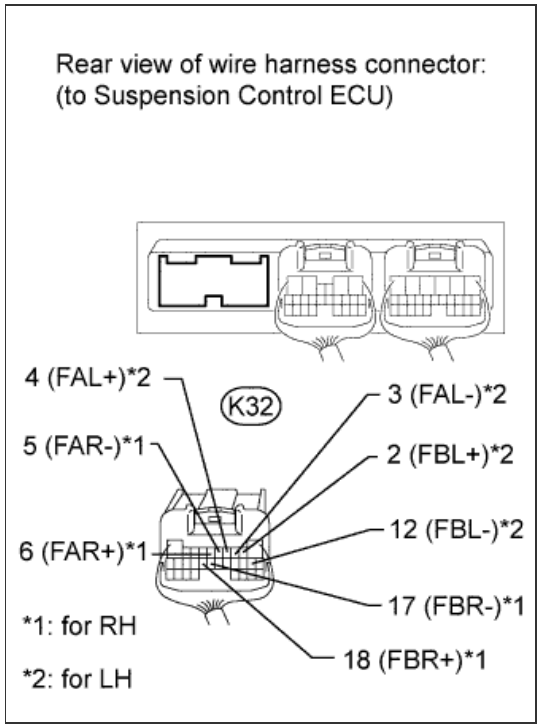
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

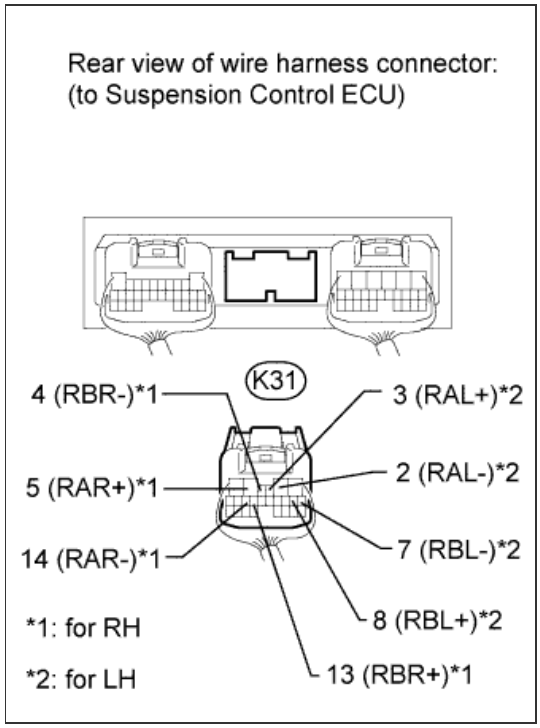
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1792 Height Control Switch Circuit (Test Mode DTC)

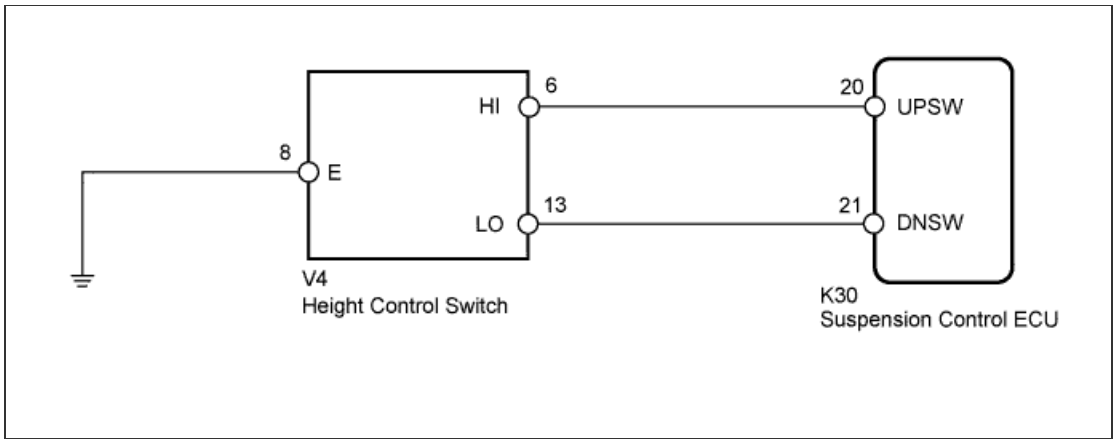
for Preparation Click here

DESCRIPTION

This circuit sends a signal to the suspension control ECU in order to adjust the height to the selected height by the height control switch.

DTC Code	Detection Condition	Trouble Area
C1792	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (HEIGHT CONTROL SWITCH (UP), HEIGHT CONTROL SWITCH (DOWN))

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Height Control Switch(Up)	Height control switch (Up) / ON or OFF	ON: Up button of height control switch pushed OFF: Height control switch not pushed	-
Height Control Switch(Down)	Height control switch (Down) / ON or OFF	ON: Down button of height control switch pushed OFF: Height control switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1792 is cleared (Click here).

Result

Result	Proceed to
DTC C1792 is not cleared	A
DTC C1792 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL SWITCH)

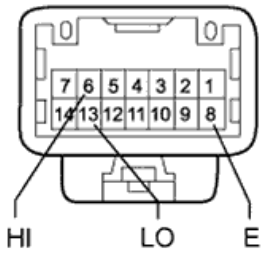
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
13 (LO) - 8 (E)	Down button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the up button is pushed.	10 kΩ or higher
6 (HI) - 8 (E)	Up button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the down button is pushed.	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

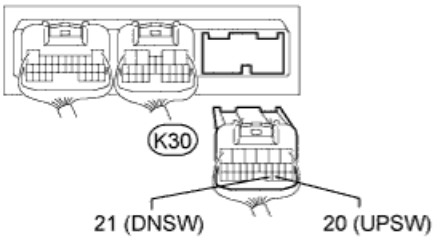


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

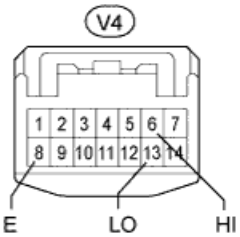
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-20 (UPSW) - V4-6 (HI)	Always	Below 1 Ω
K30-20 (UPSW) - Body ground	Always	10 kΩ or higher
K30-21 (DNSW) - V4-13 (LO)	Always	Below 1 Ω
K30-21 (DNSW) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

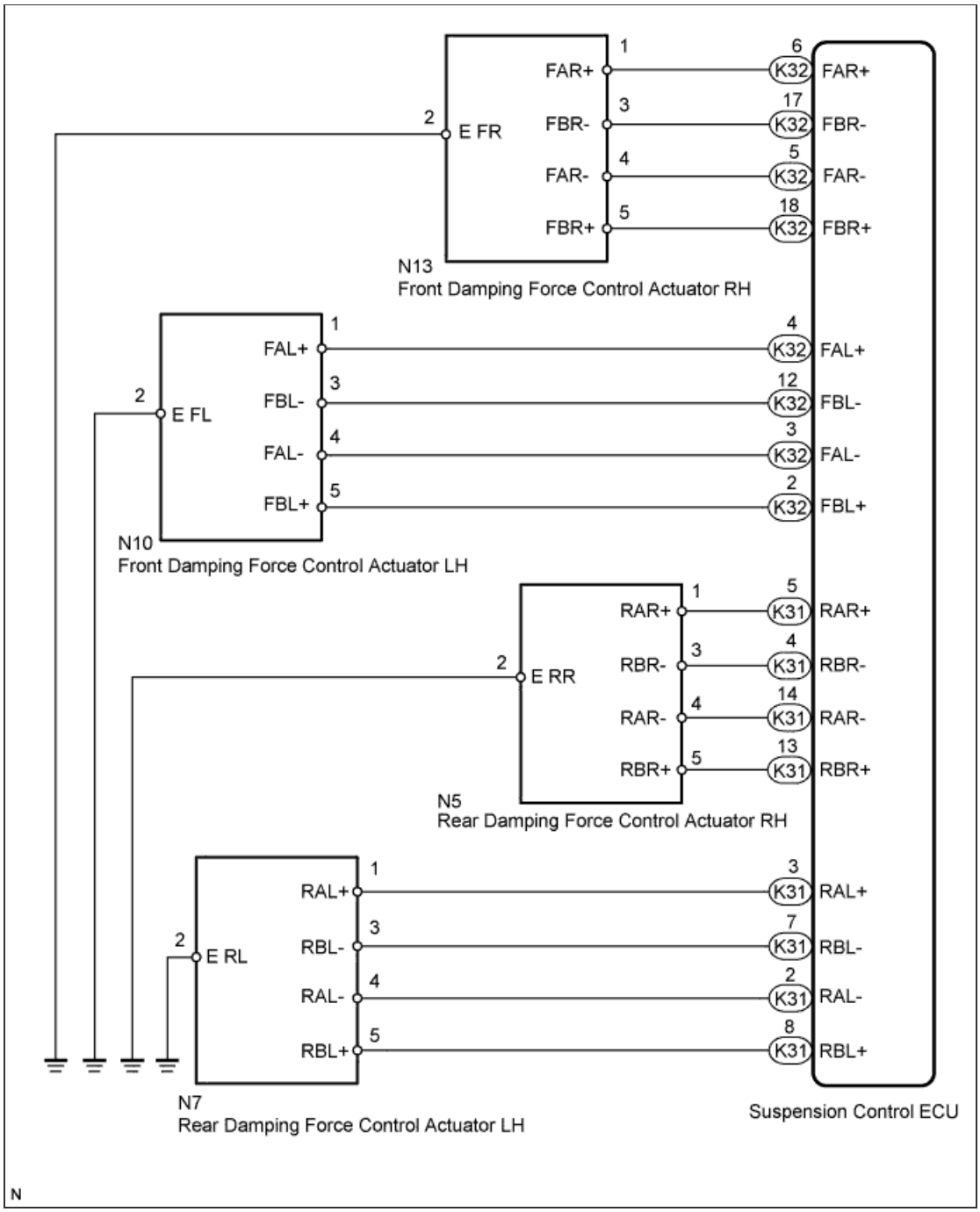
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

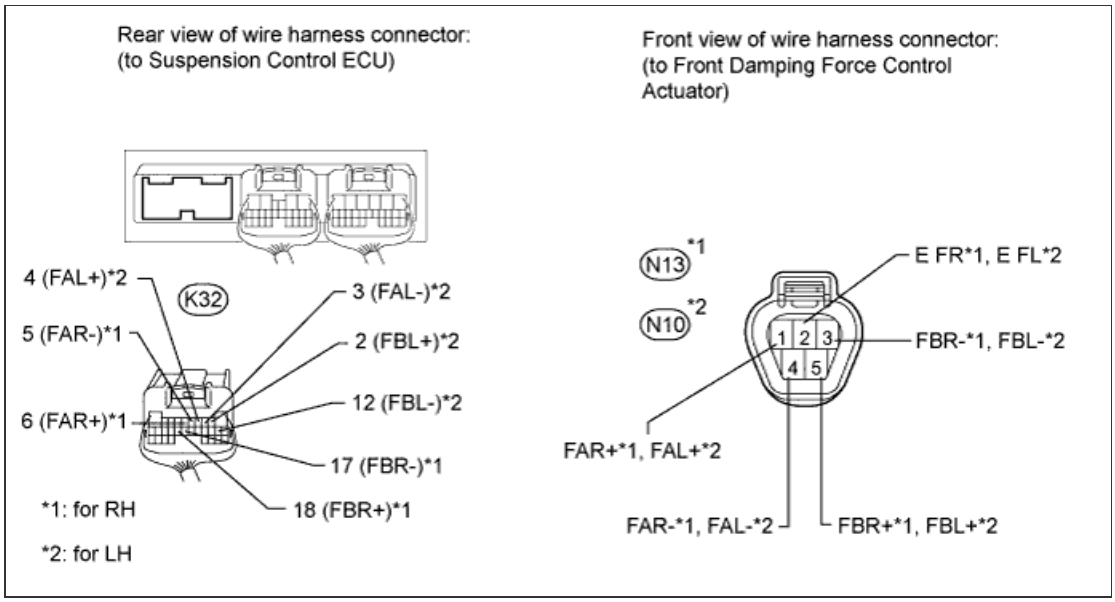
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

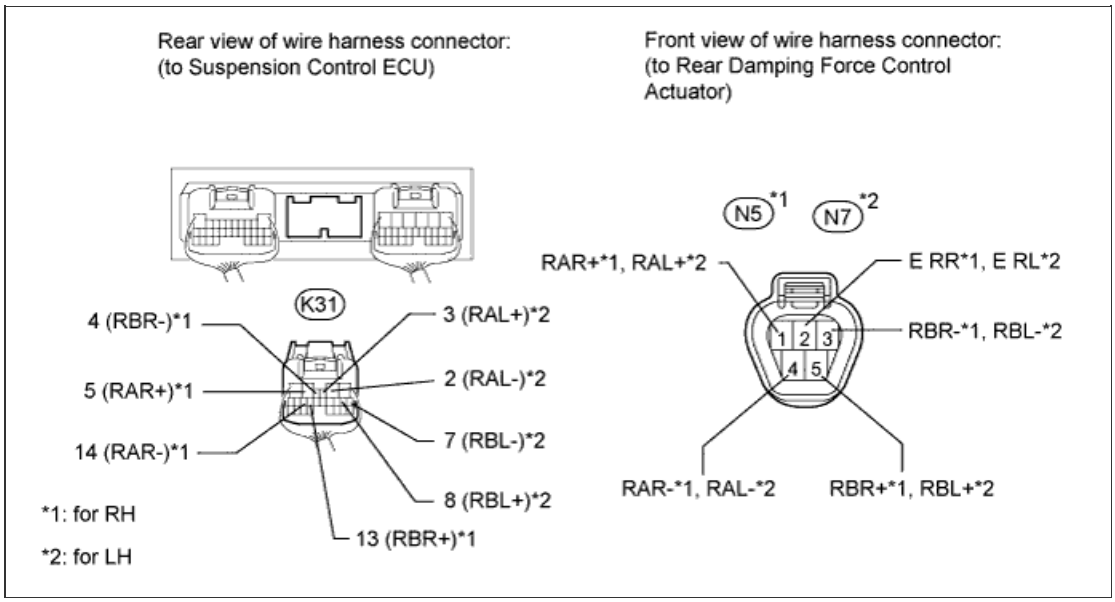
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

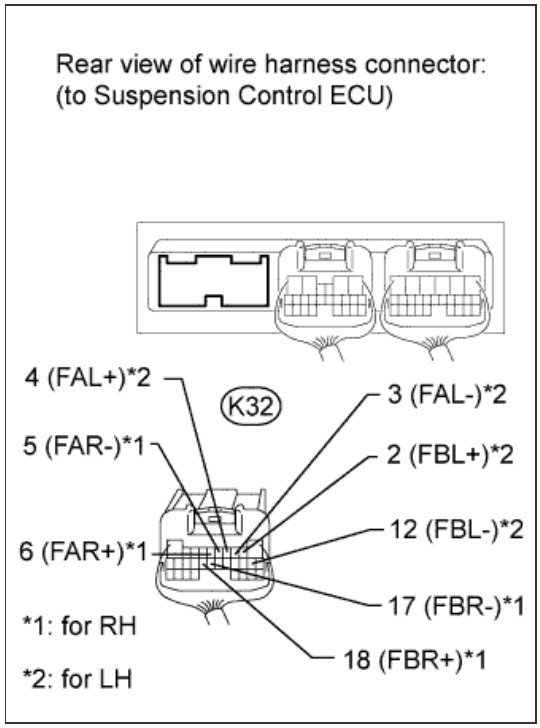
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

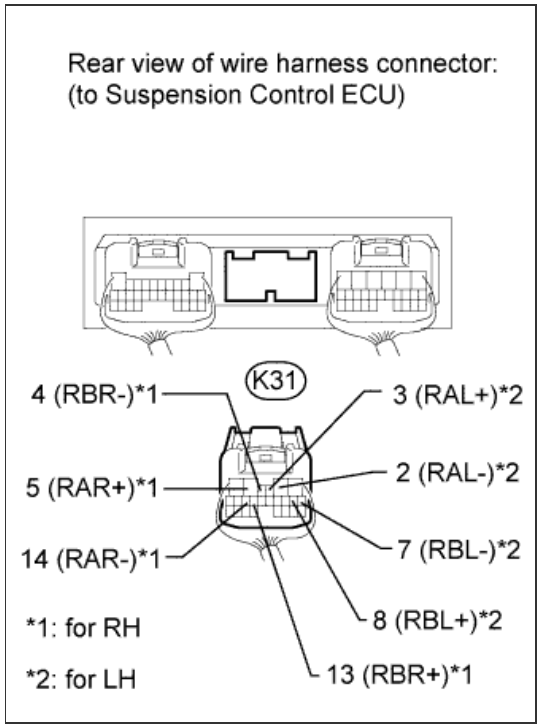
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1792 Height Control Switch Circuit (Test Mode DTC)

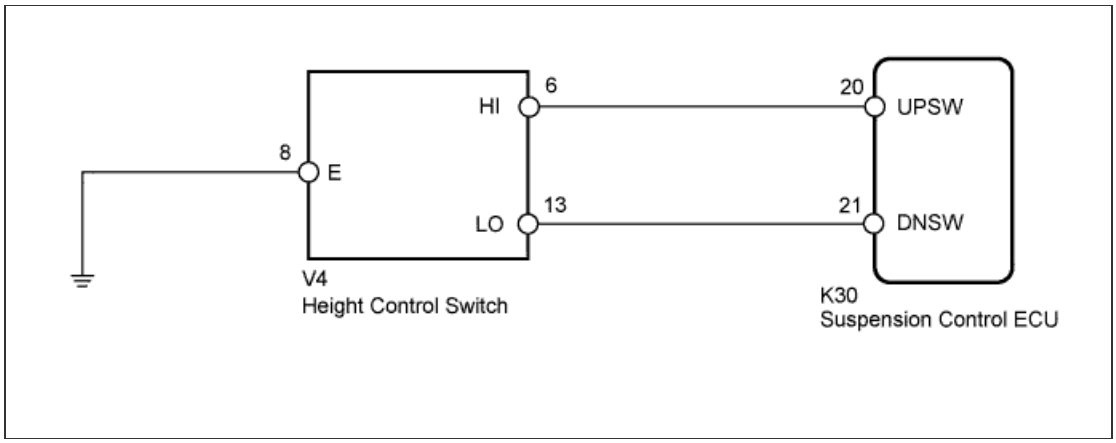
for Preparation Click here

DESCRIPTION

This circuit sends a signal to the suspension control ECU in order to adjust the height to the selected height by the height control switch.

DTC Code	Detection Condition	Trouble Area
C1792	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (HEIGHT CONTROL SWITCH (UP), HEIGHT CONTROL SWITCH (DOWN))

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Height Control Switch(Up)	Height control switch (Up) / ON or OFF	ON: Up button of height control switch pushed OFF: Height control switch not pushed	-
Height Control Switch(Down)	Height control switch (Down) / ON or OFF	ON: Down button of height control switch pushed OFF: Height control switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1792 is cleared (Click here).

Result

Result	Proceed to
DTC C1792 is not cleared	A
DTC C1792 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL SWITCH)

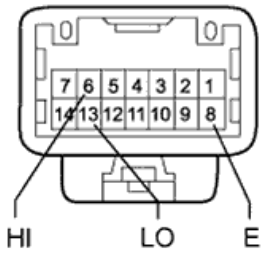
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
13 (LO) - 8 (E)	Down button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the up button is pushed.	10 kΩ or higher
6 (HI) - 8 (E)	Up button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the down button is pushed.	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

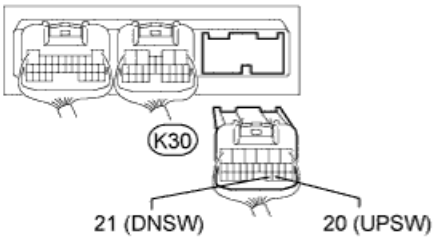


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

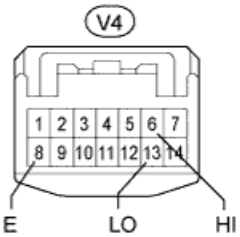
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-20 (UPSW) - V4-6 (HI)	Always	Below 1 Ω
K30-20 (UPSW) - Body ground	Always	10 kΩ or higher
K30-21 (DNSW) - V4-13 (LO)	Always	Below 1 Ω
K30-21 (DNSW) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

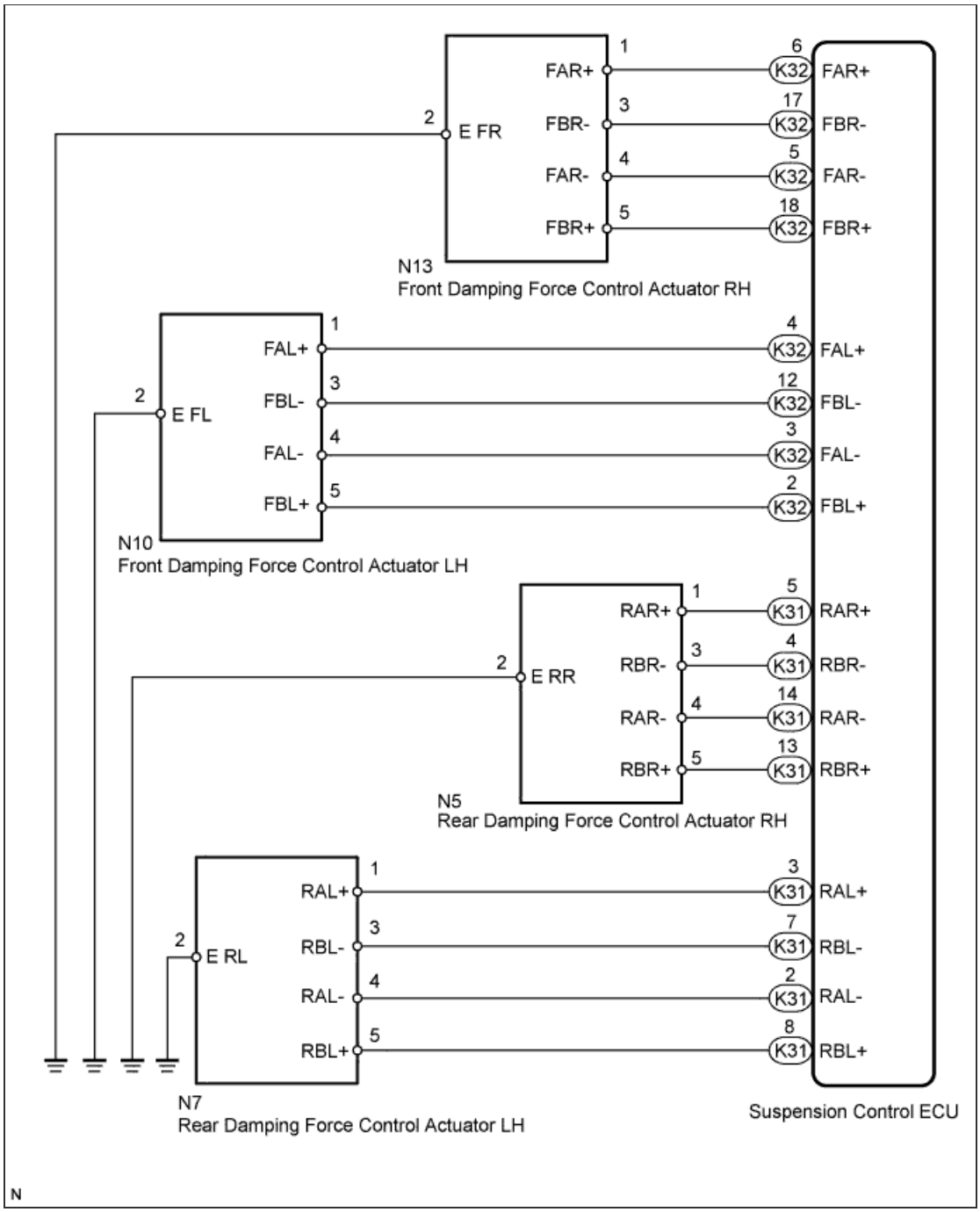
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

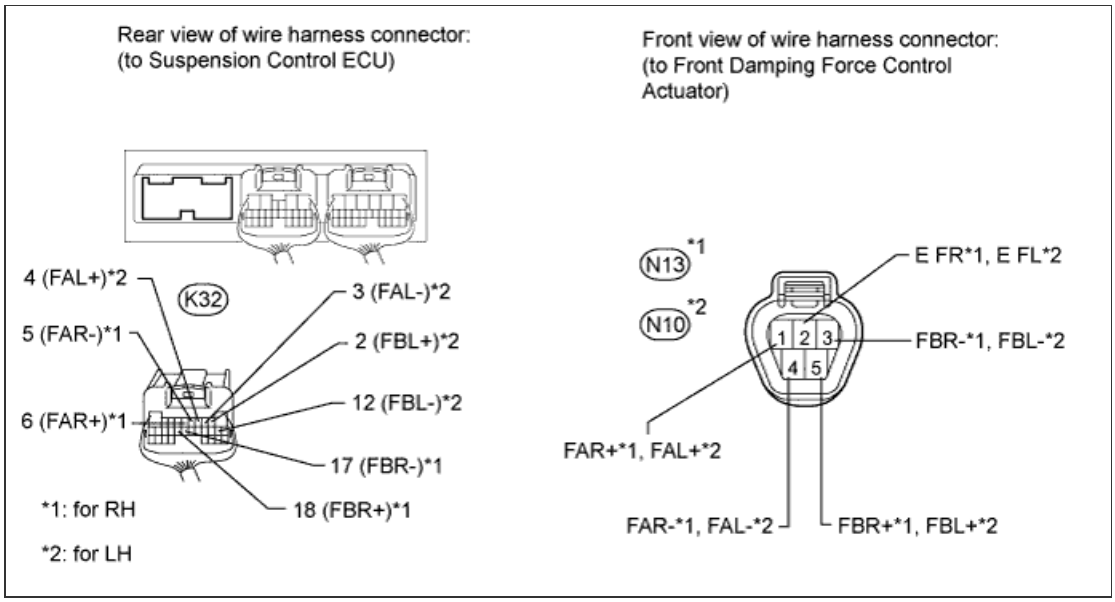
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

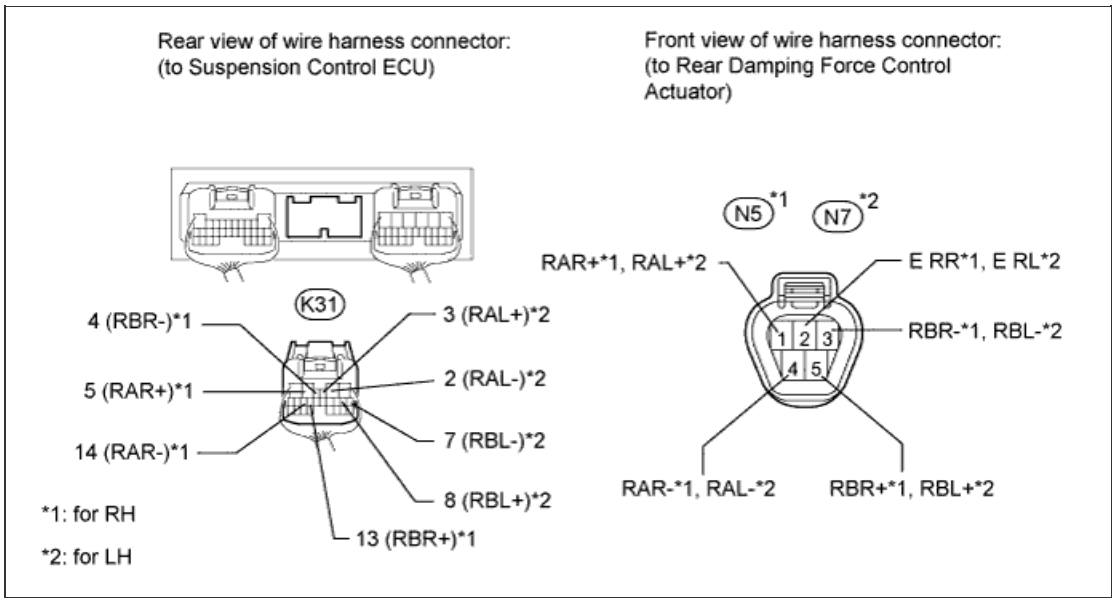
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

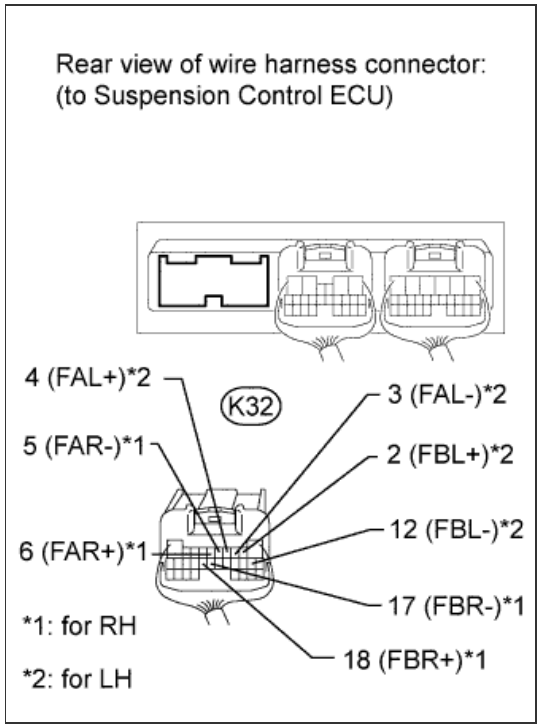
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

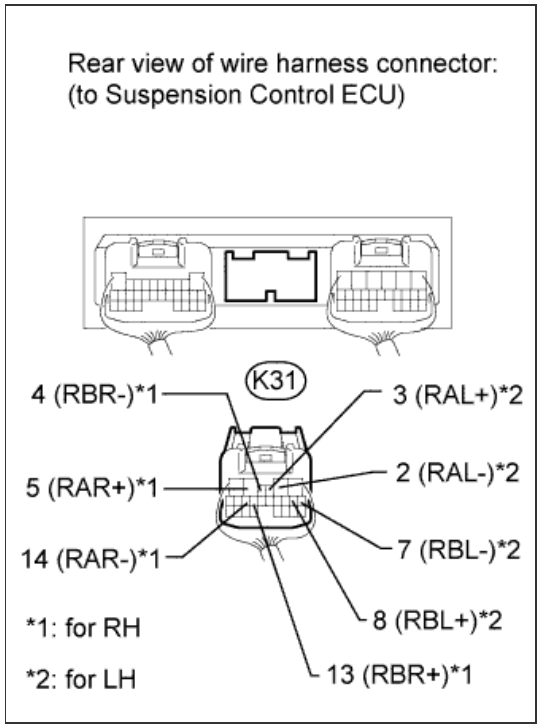
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1792 Height Control Switch Circuit (Test Mode DTC)

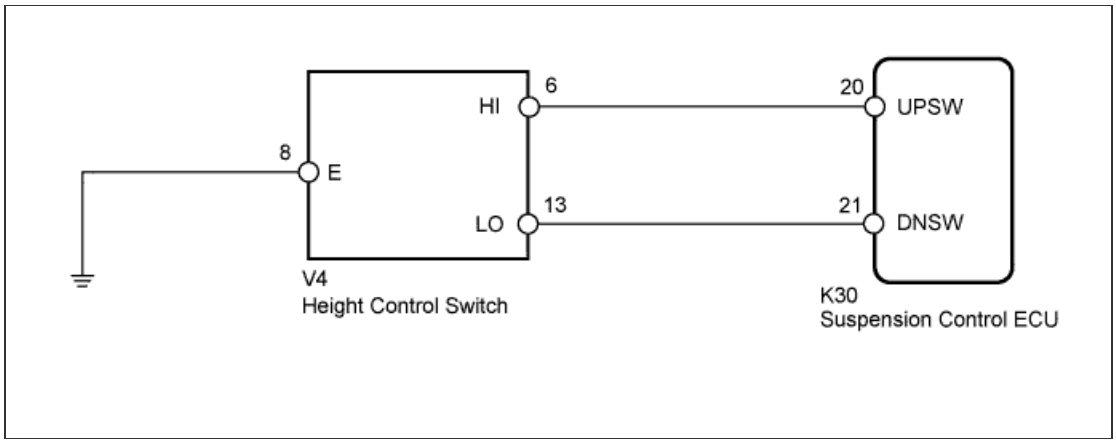
for Preparation Click here

DESCRIPTION

This circuit sends a signal to the suspension control ECU in order to adjust the height to the selected height by the height control switch.

DTC Code	Detection Condition	Trouble Area
C1792	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (HEIGHT CONTROL SWITCH (UP), HEIGHT CONTROL SWITCH (DOWN))

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Height Control Switch(Up)	Height control switch (Up) / ON or OFF	ON: Up button of height control switch pushed OFF: Height control switch not pushed	-
Height Control Switch(Down)	Height control switch (Down) / ON or OFF	ON: Down button of height control switch pushed OFF: Height control switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1792 is cleared (Click here).

Result

Result	Proceed to
DTC C1792 is not cleared	A
DTC C1792 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL SWITCH)

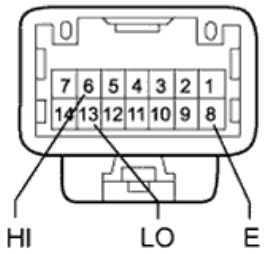
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
13 (LO) - 8 (E)	Down button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the up button is pushed.	10 kΩ or higher
6 (HI) - 8 (E)	Up button of the height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or the down button is pushed.	10 kΩ or higher

Component without harness connected:
(Integration Control and Panel)

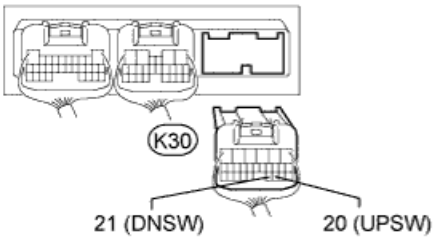


NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

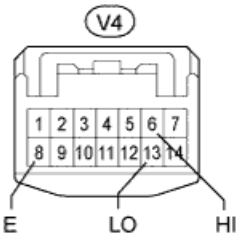
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)

Rear view of wire harness connector:
(to Suspension Control ECU)



Front view of wire harness connector:
(to Integration Control and Panel)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-20 (UPSW) - V4-6 (HI)	Always	Below 1 Ω
K30-20 (UPSW) - Body ground	Always	10 kΩ or higher
K30-21 (DNSW) - V4-13 (LO)	Always	Below 1 Ω
K30-21 (DNSW) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

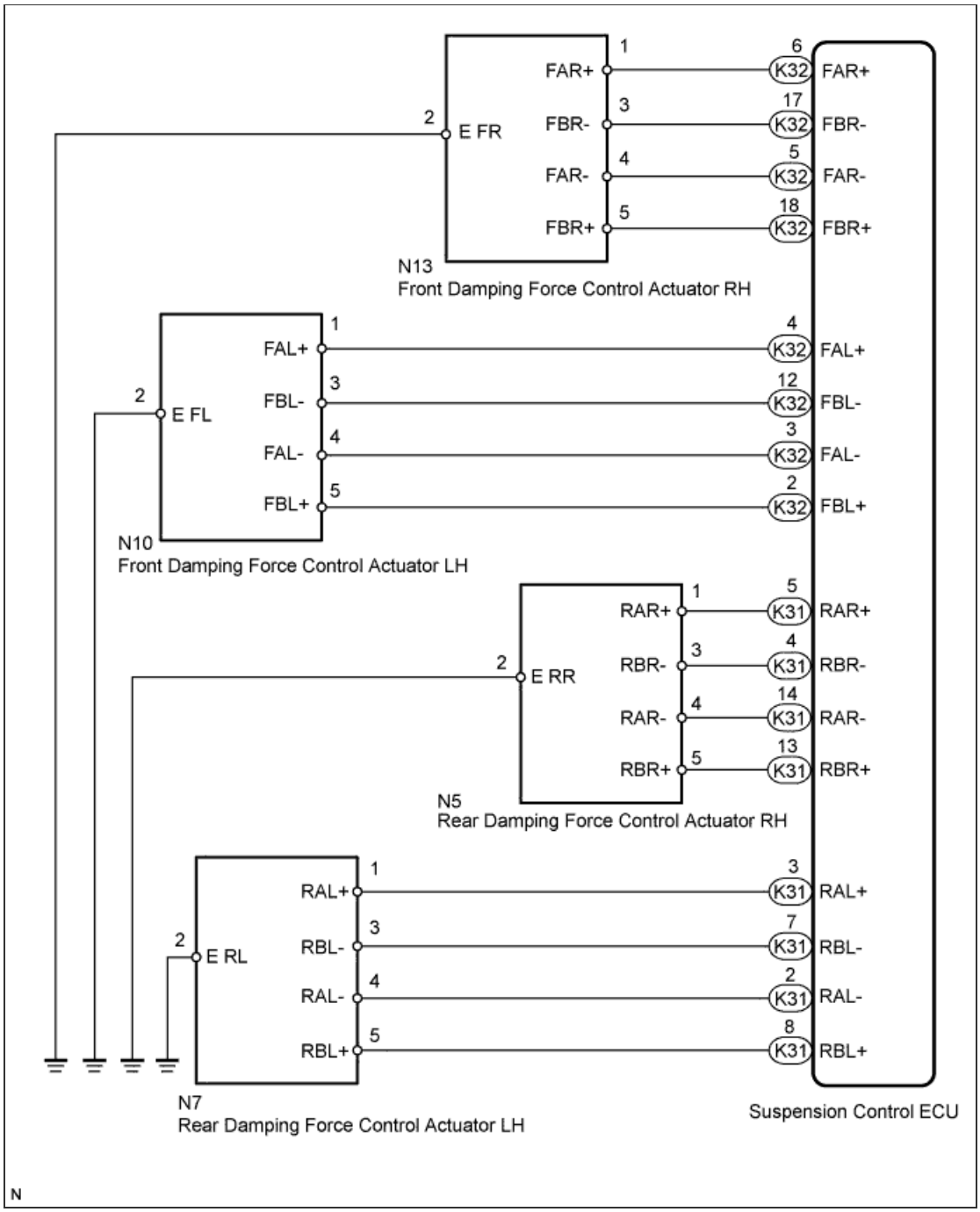
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

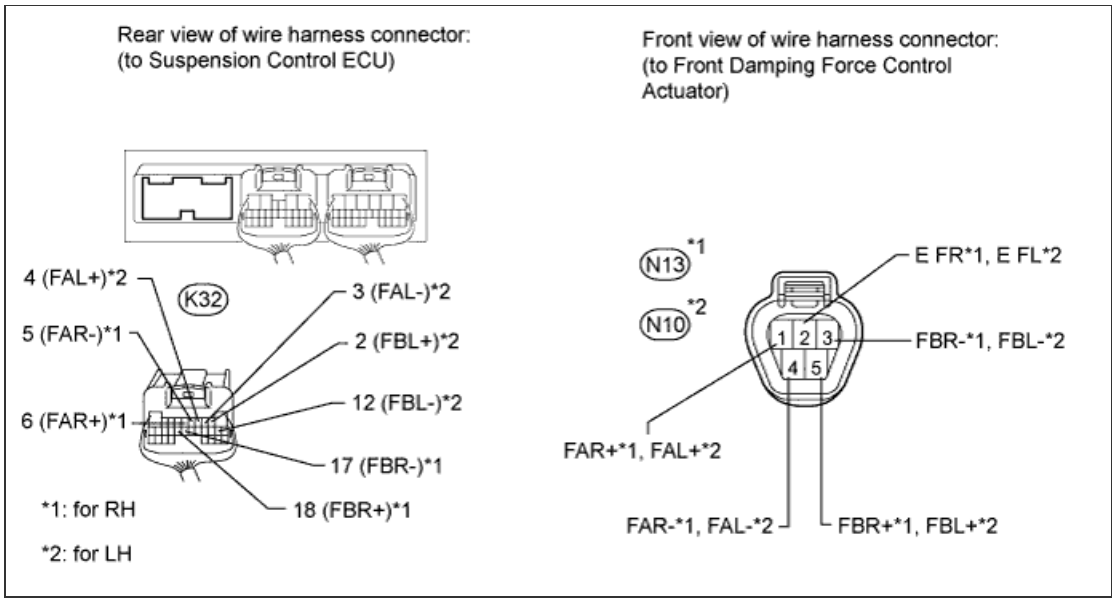
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

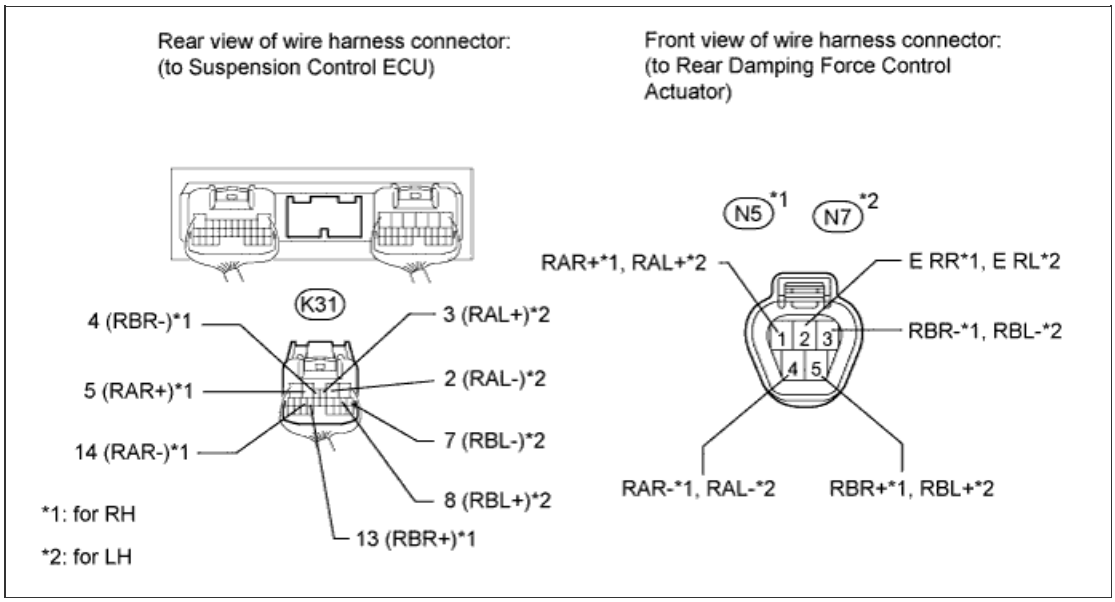
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

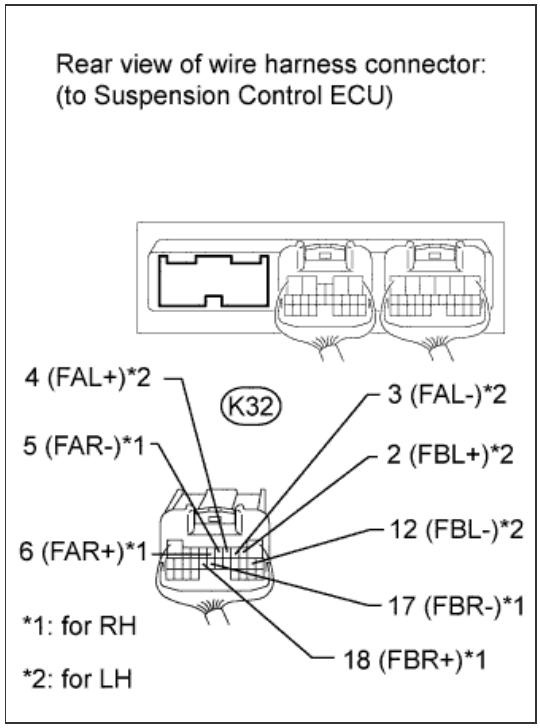
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

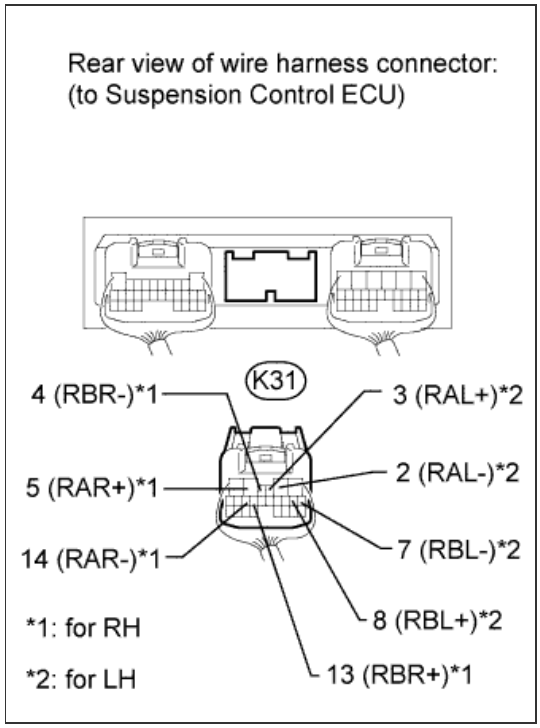
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1794 Height Control OFF Switch Circuit (Test Mode DTC)

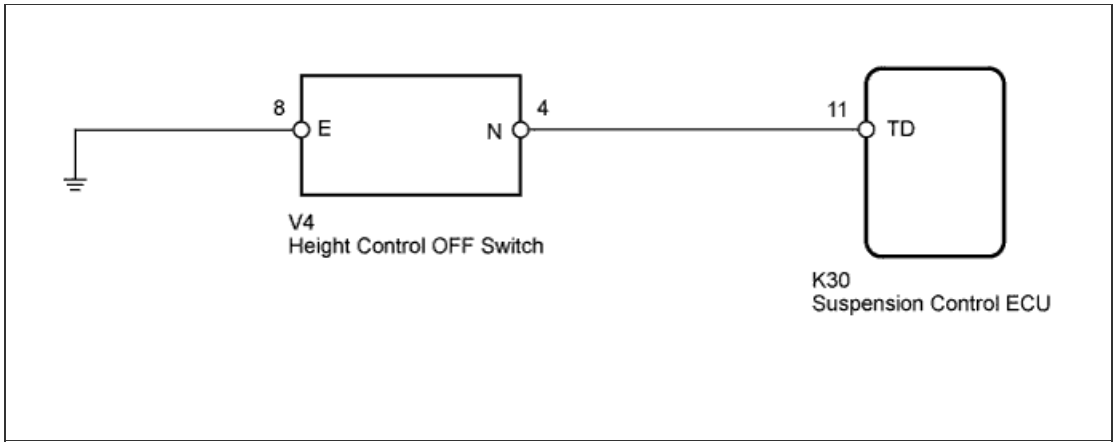
for Preparation Click here

DESCRIPTION

This is the height control system main switch. When the height control switch is pushed, the height control OFF indicator light lights up and height control turns off.
The off condition of the height control will not be canceled until the height control switch is pushed again or the vehicle is driven.

DTC Code	Detection Condition	Trouble Area
C1794	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control OFF switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL OFF SWITCH)

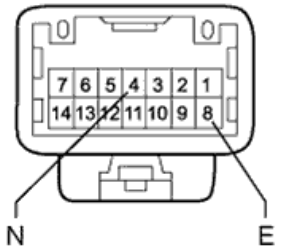
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
4 (N) - 8 (E)	Height control OFF switch is pushed.	Below 1 Ω
	Height control OFF switch is not pushed.	10 kΩ or higher

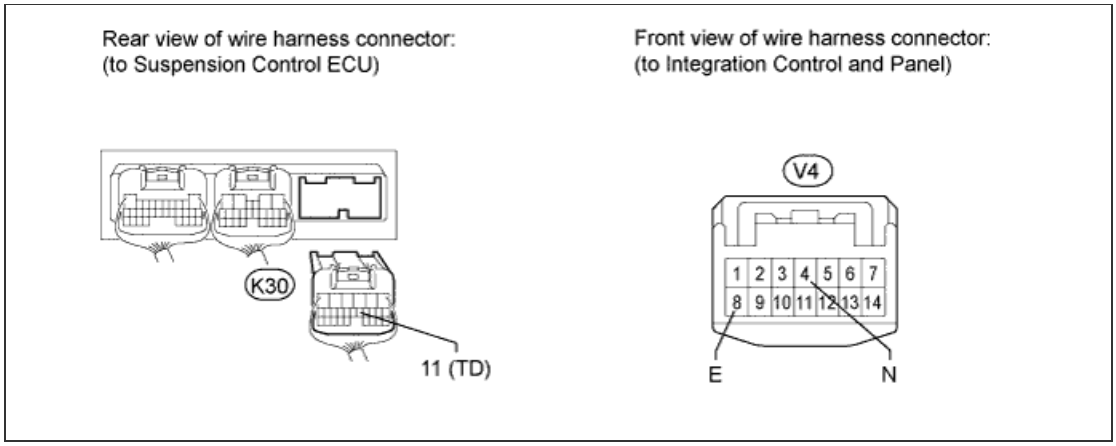
Component without harness connected:
(Integration Control and Panel)



NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-11 (TD) - V4-4 (N)	Always	Below 1 Ω
K30-11 (TD) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

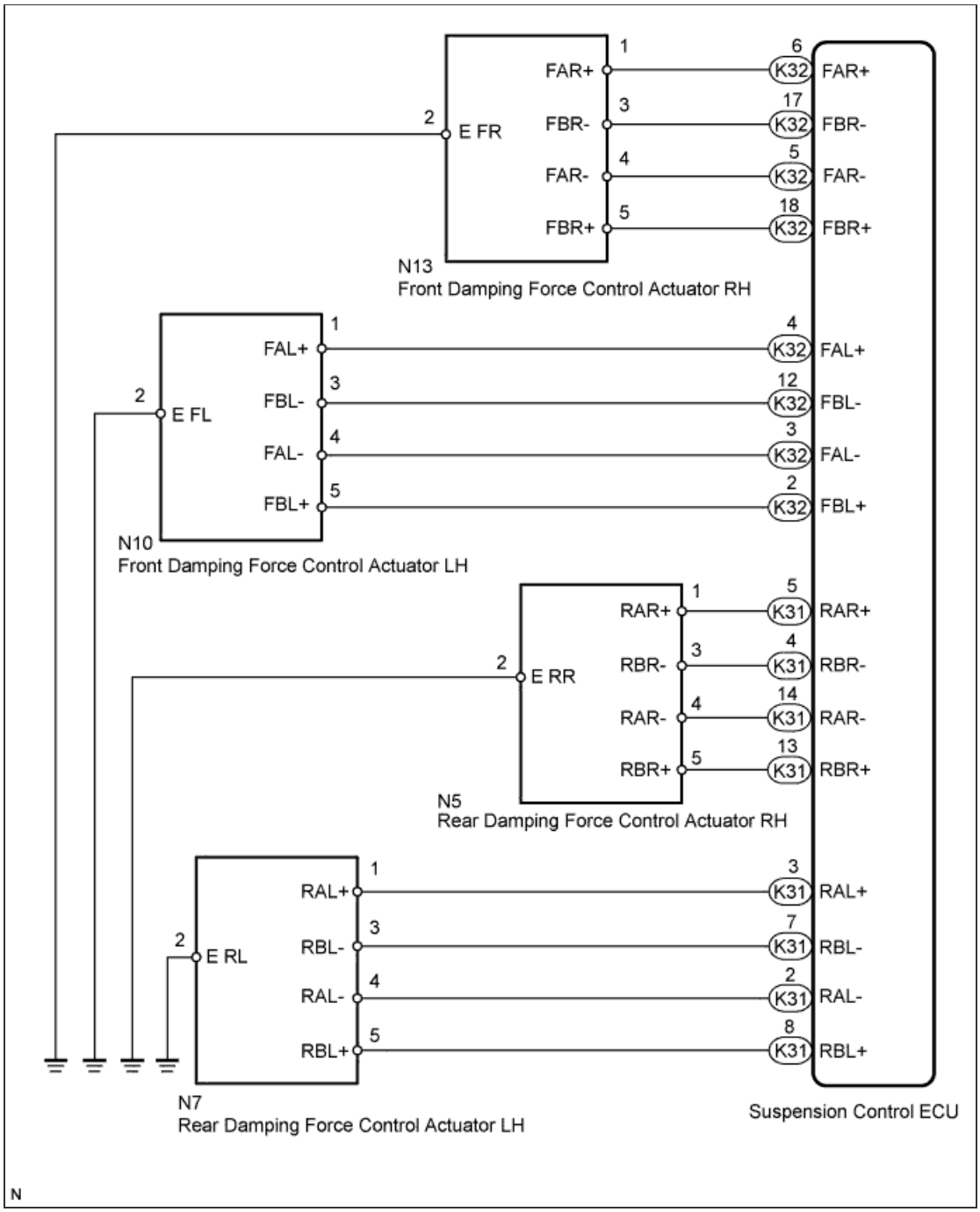
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

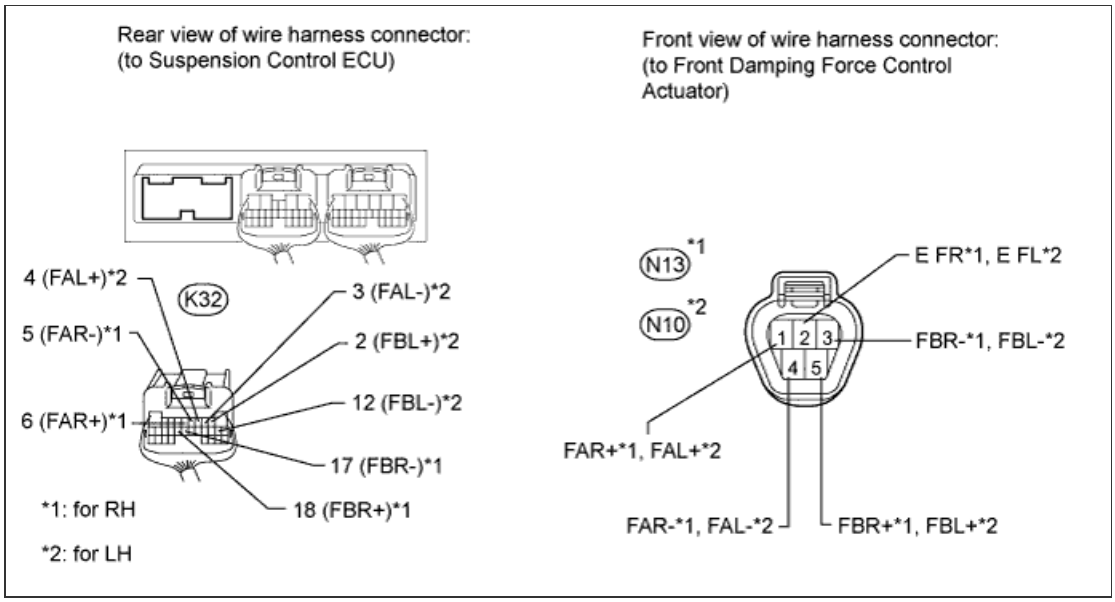
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

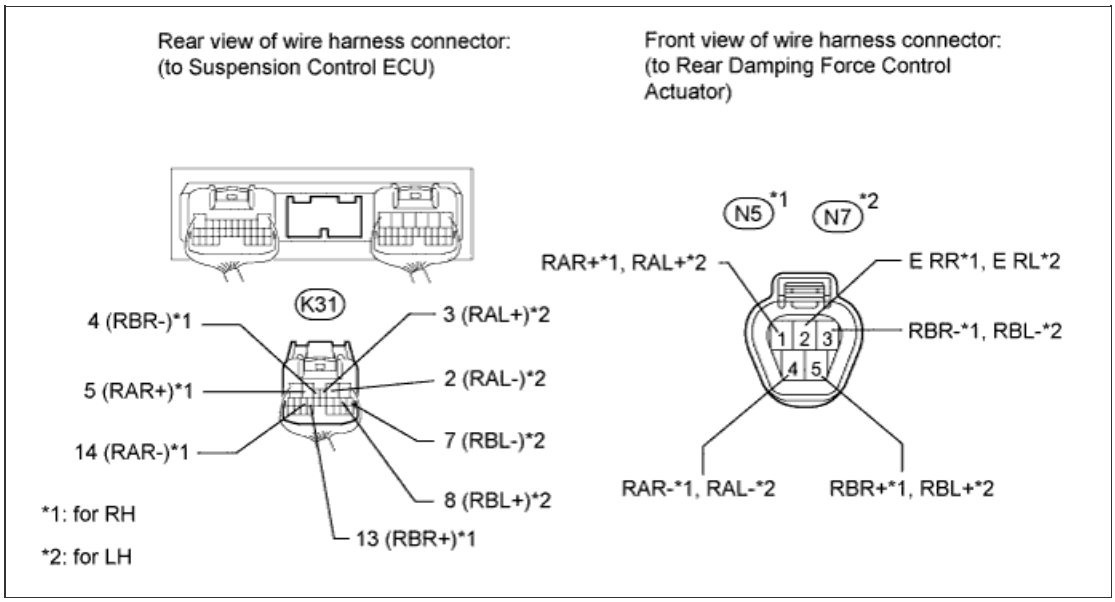
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

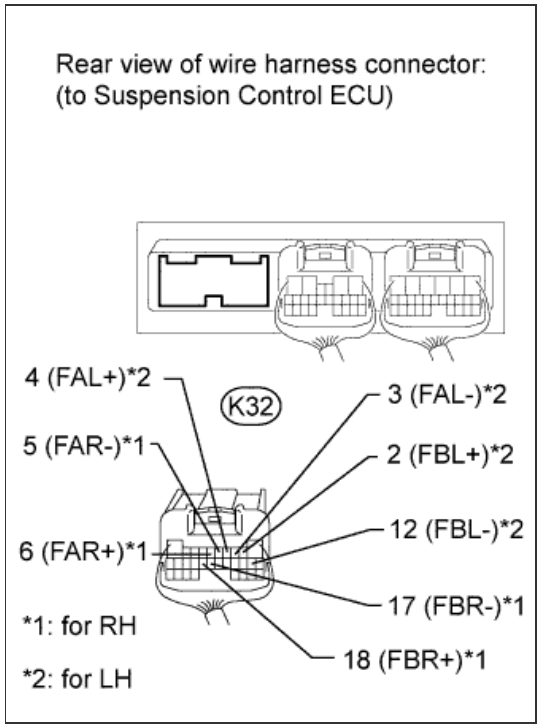
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

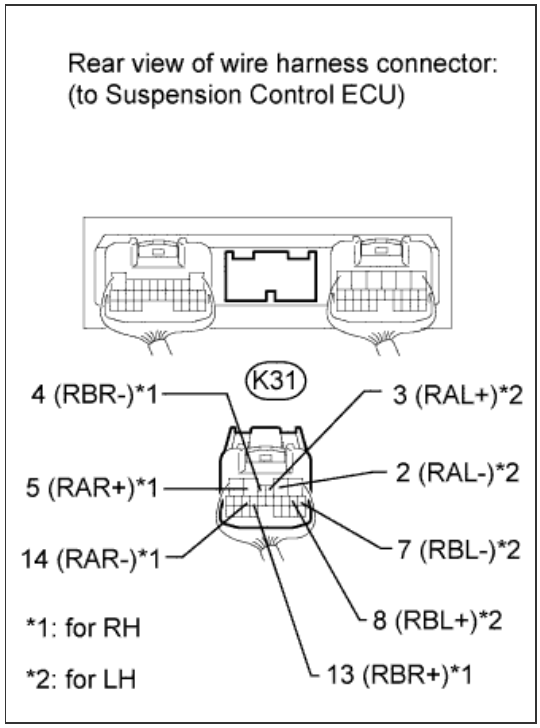
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1794 Height Control OFF Switch Circuit (Test Mode DTC)

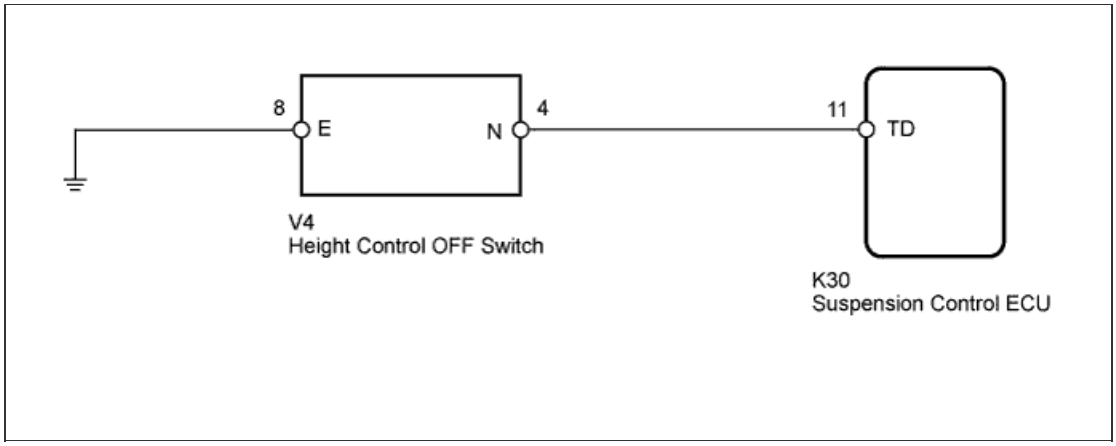
for Preparation Click here

DESCRIPTION

This is the height control system main switch. When the height control switch is pushed, the height control OFF indicator light lights up and height control turns off.
The off condition of the height control will not be canceled until the height control switch is pushed again or the vehicle is driven.

DTC Code	Detection Condition	Trouble Area
C1794	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control OFF switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL OFF SWITCH)

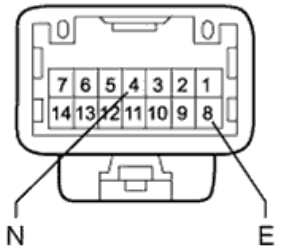
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
4 (N) - 8 (E)	Height control OFF switch is pushed.	Below 1 Ω
	Height control OFF switch is not pushed.	10 kΩ or higher

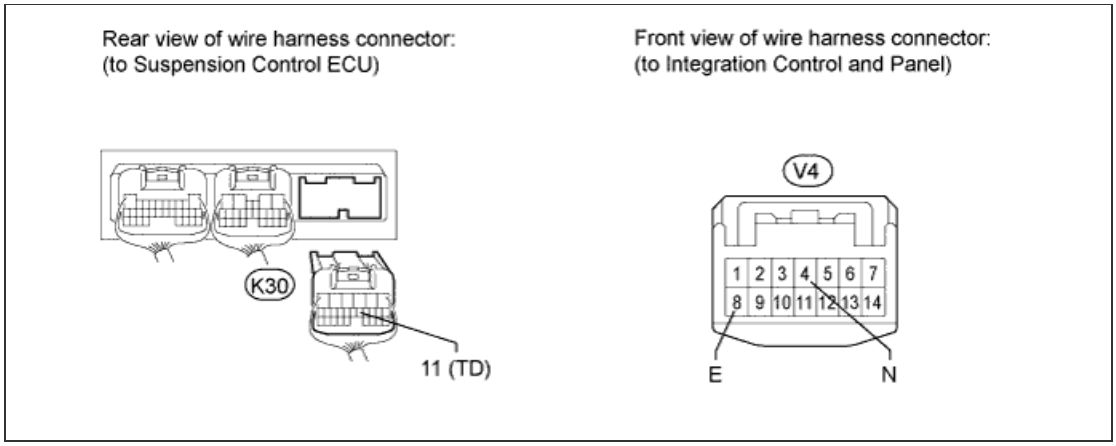
Component without harness connected:
(Integration Control and Panel)



NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-11 (TD) - V4-4 (N)	Always	Below 1 Ω
K30-11 (TD) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

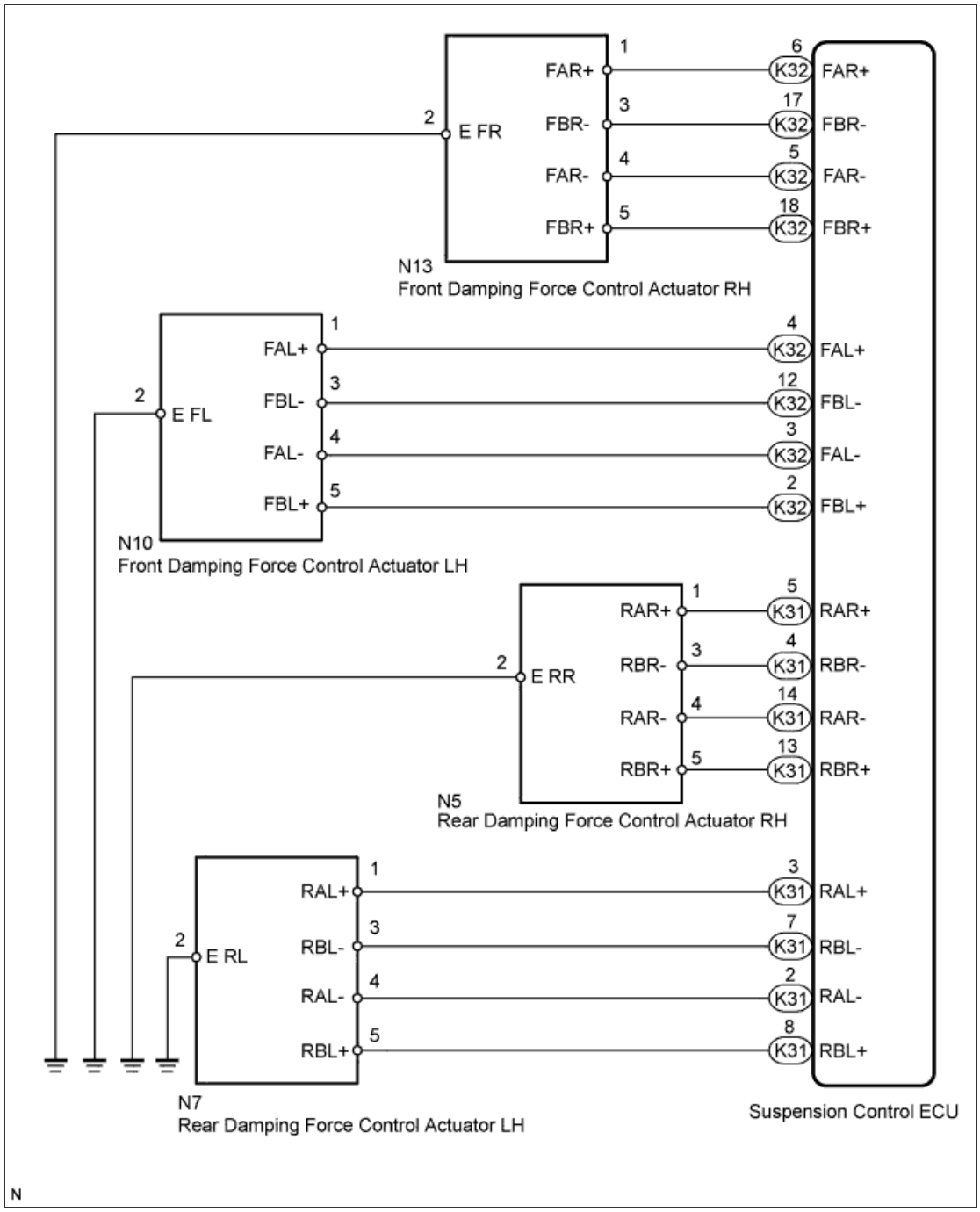
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

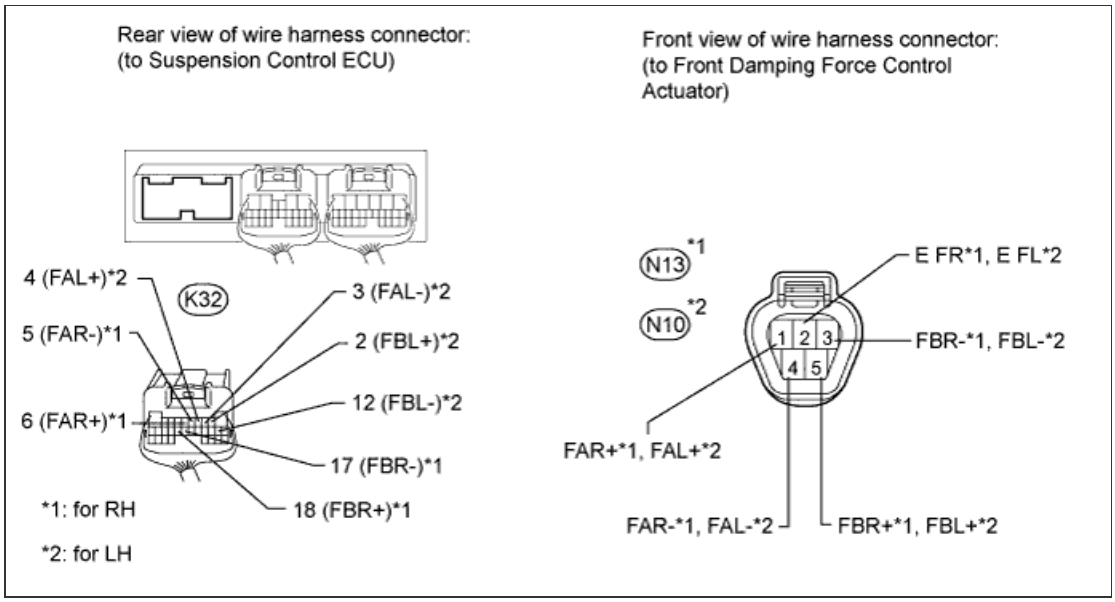
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

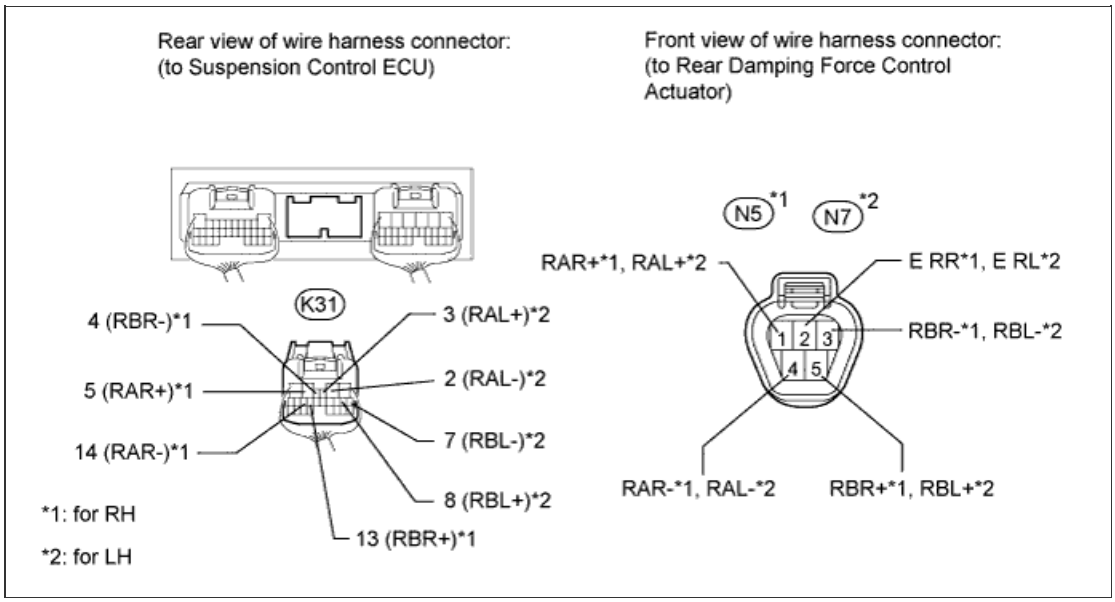
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

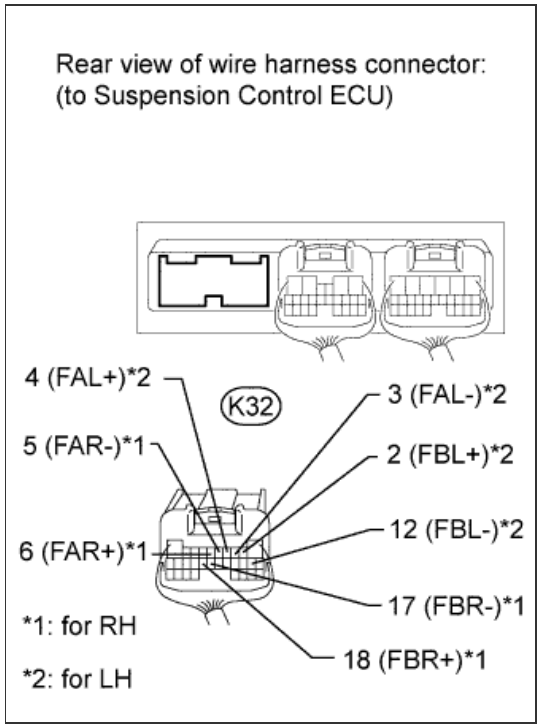
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

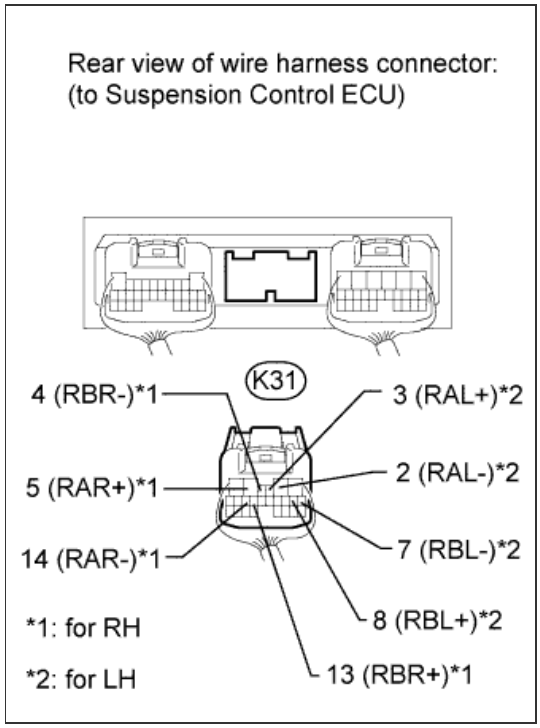
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1794 Height Control OFF Switch Circuit (Test Mode DTC)

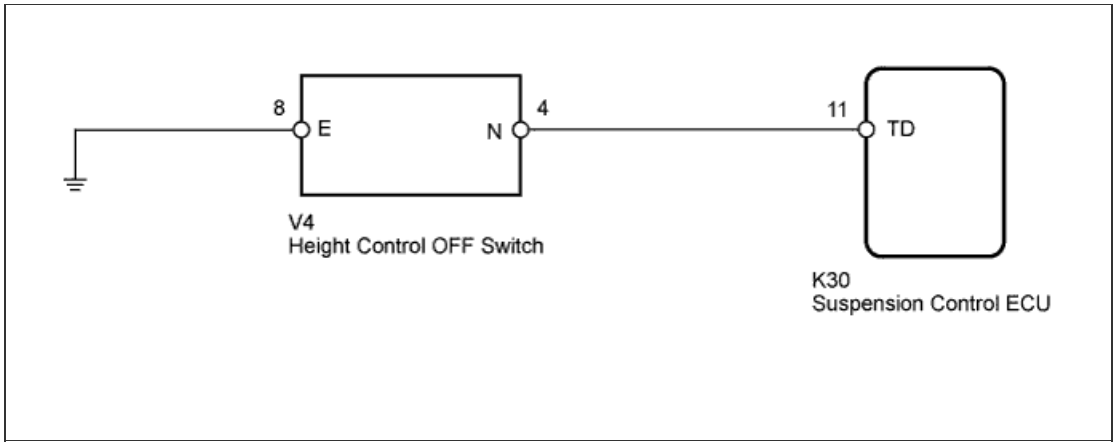
for Preparation Click here

DESCRIPTION

This is the height control system main switch. When the height control switch is pushed, the height control OFF indicator light lights up and height control turns off.
The off condition of the height control will not be canceled until the height control switch is pushed again or the vehicle is driven.

DTC Code	Detection Condition	Trouble Area
C1794	The test mode procedure is performed.	• Harness or connector • Integration control and panel (Height control OFF switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.INSPECT INTEGRATION CONTROL AND PANEL (HEIGHT CONTROL OFF SWITCH)

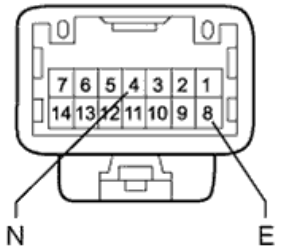
a. Remove the integration control and panel (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
4 (N) - 8 (E)	Height control OFF switch is pushed.	Below 1 Ω
	Height control OFF switch is not pushed.	10 kΩ or higher

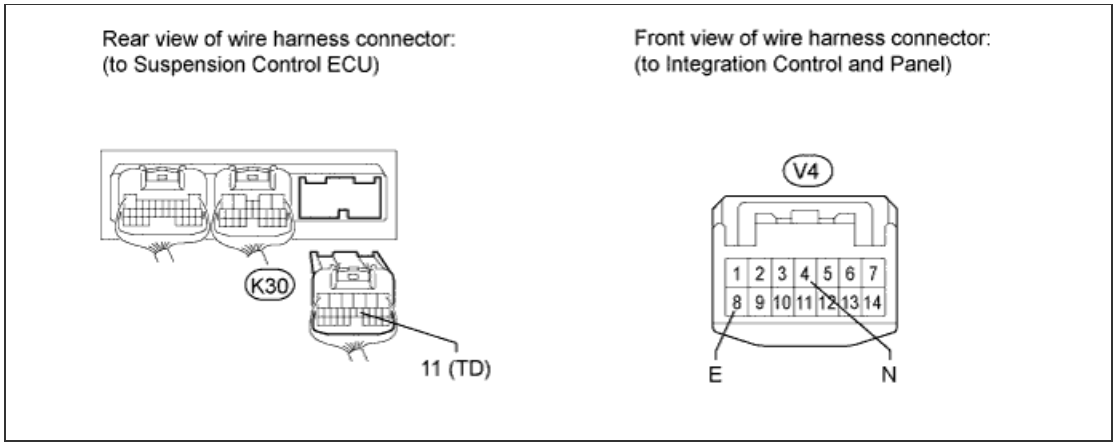
Component without harness connected:
(Integration Control and Panel)



NG → REPLACE INTEGRATION CONTROL AND PANEL (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH AND BODY GROUND)



a. Disconnect the K30 ECU connector.

b. Disconnect the V4 integration control and panel connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-11 (TD) - V4-4 (N)	Always	Below 1 Ω
K30-11 (TD) - Body ground	Always	10 kΩ or higher
V4-8 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

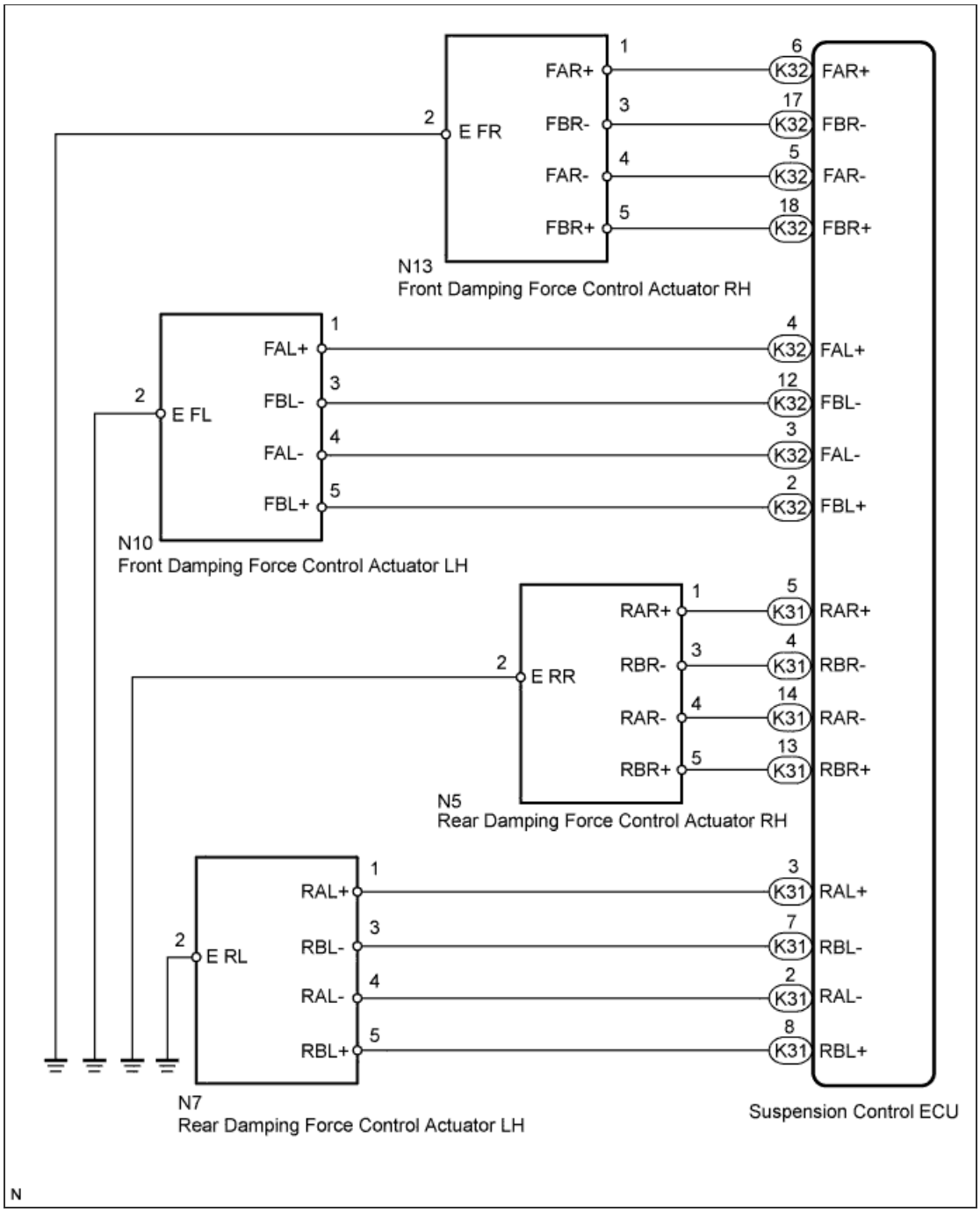
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

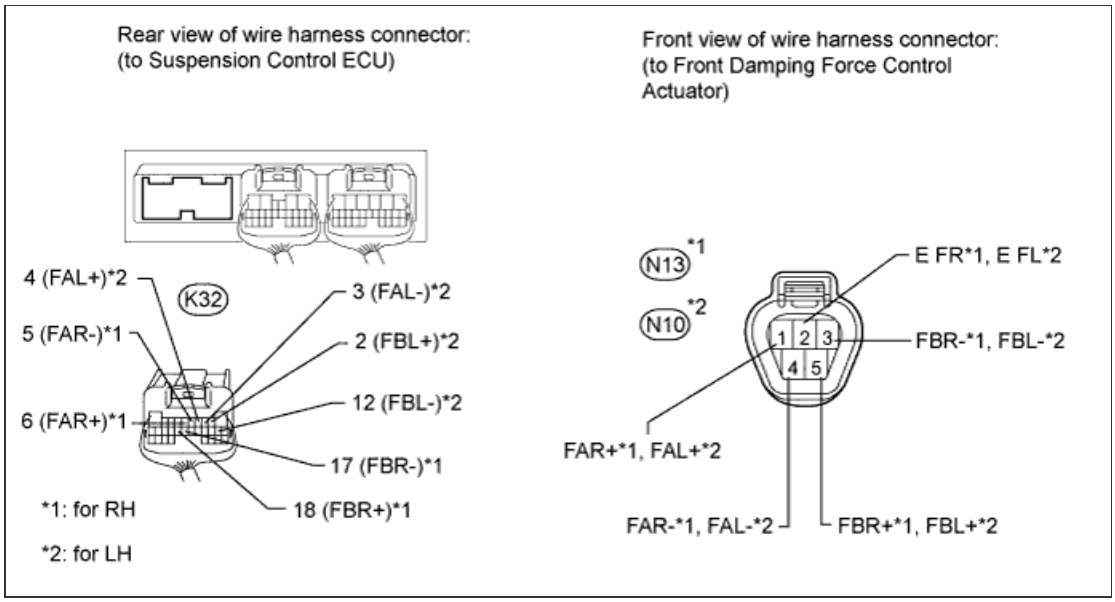
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

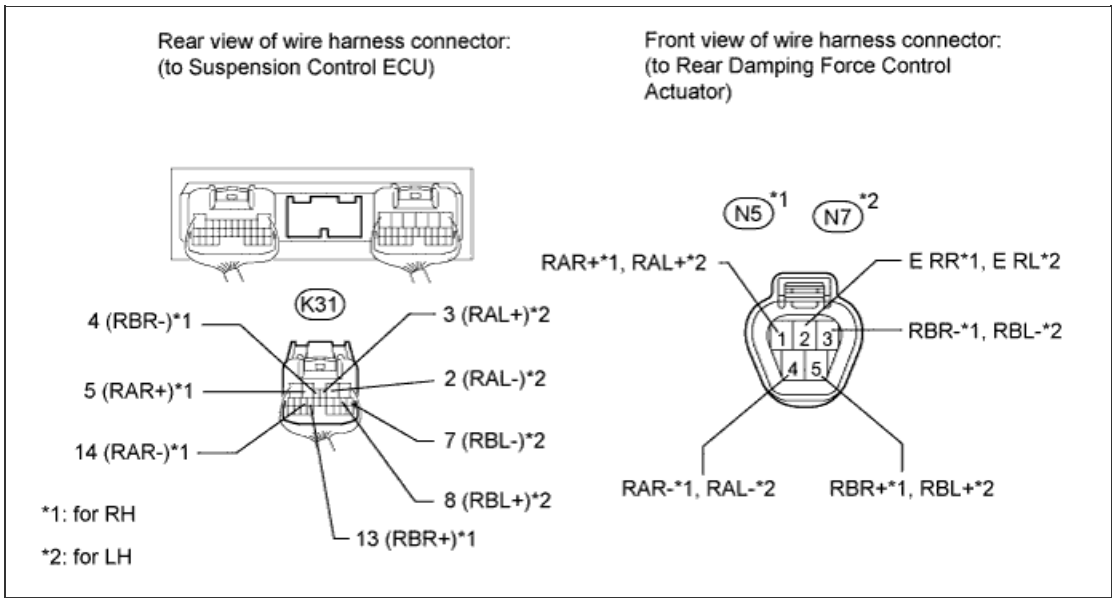
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

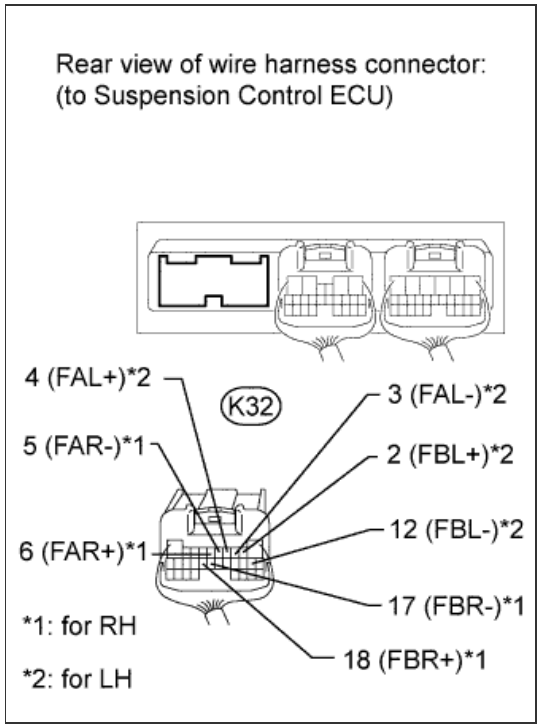
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

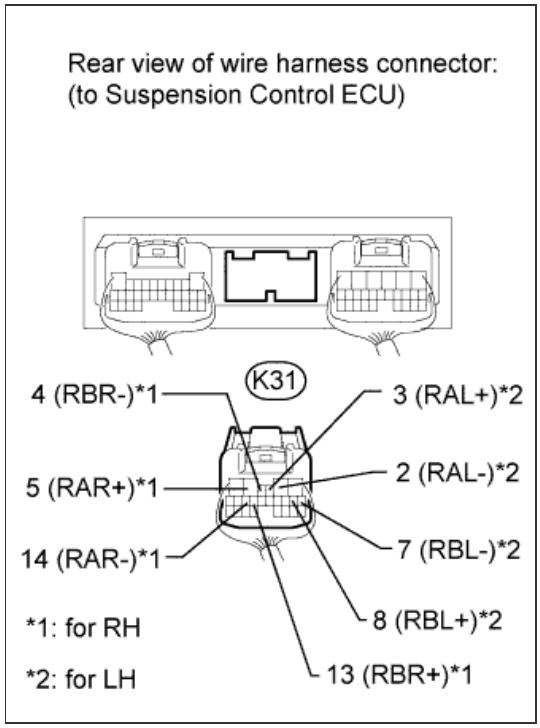
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1795 Access Mode Switch Circuit (Test Mode DTC)

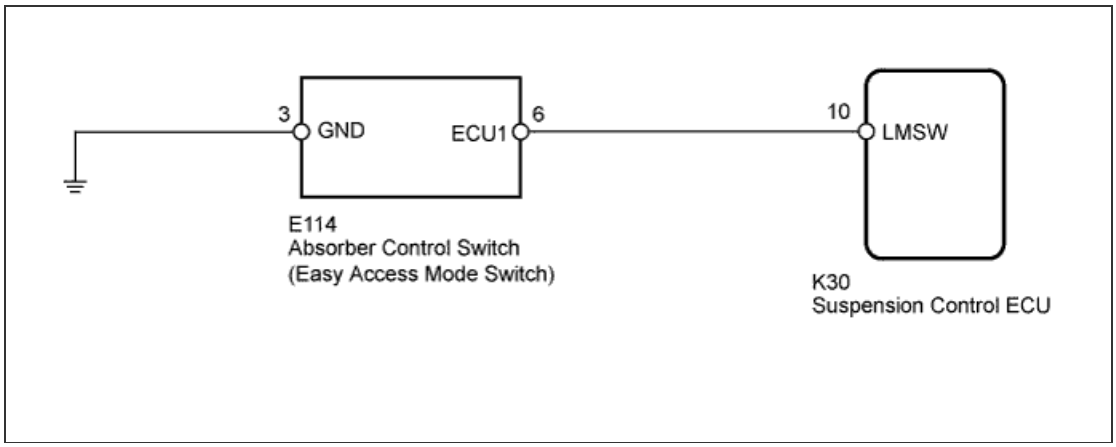
for Preparation Click here

DESCRIPTION

According to the signal from the easy access mode switch, the suspension control ECU turns easy access mode control on/off.

DTC Code	Detection Condition	Trouble Area
C1795	The test mode procedure is performed.	• Harness or connector • Absorber control switch (Easy access mode switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (ACCESS MODE SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Access Mode Switch	Easy access mode switch / ON or OFF	ON: Easy access mode switch pushed and held OFF: Easy access mode switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1795 is cleared (Click here).

Result

Result	Proceed to
DTC C1795 is not cleared	A
DTC C1795 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT ABSORBER CONTROL SWITCH (EASY ACCESS MODE SWITCH)

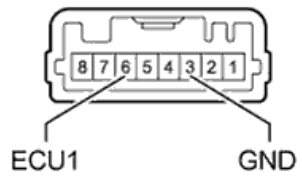
a. Remove the absorber control switch (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
6 (ECU1) - 3 (GND)	Pushed and held	Below 1 Ω
	Not pushed	10 kΩ or higher

Component without harness connected:
(Absorber Control Switch)



H

NG → REPLACE ABSORBER CONTROL SWITCH (Click here)

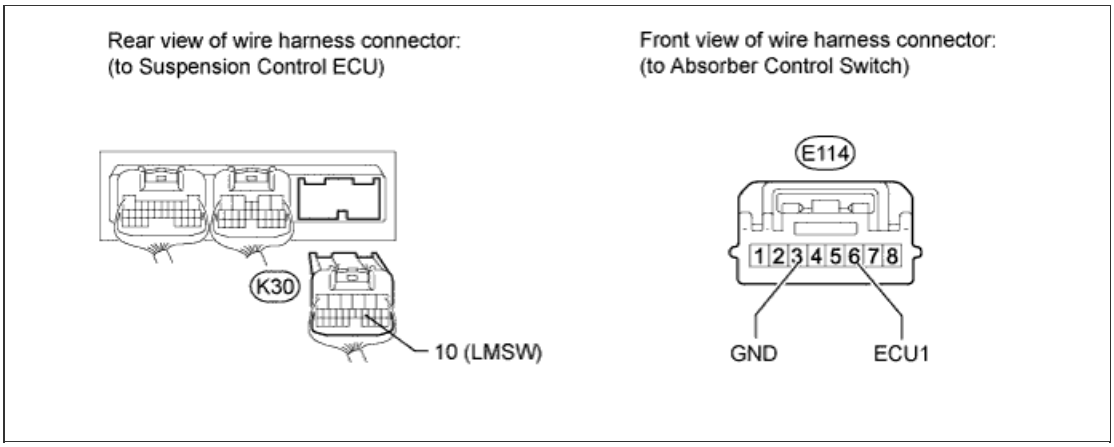
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH)

a. Disconnect the K30 ECU connector.

b. Disconnect the E114 switch connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-10 (LMSW) - E114-6 (ECU1)	Always	Below 1 Ω
K30-10 (LMSW) - Body ground	Always	10 kΩ or higher
E114-3 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

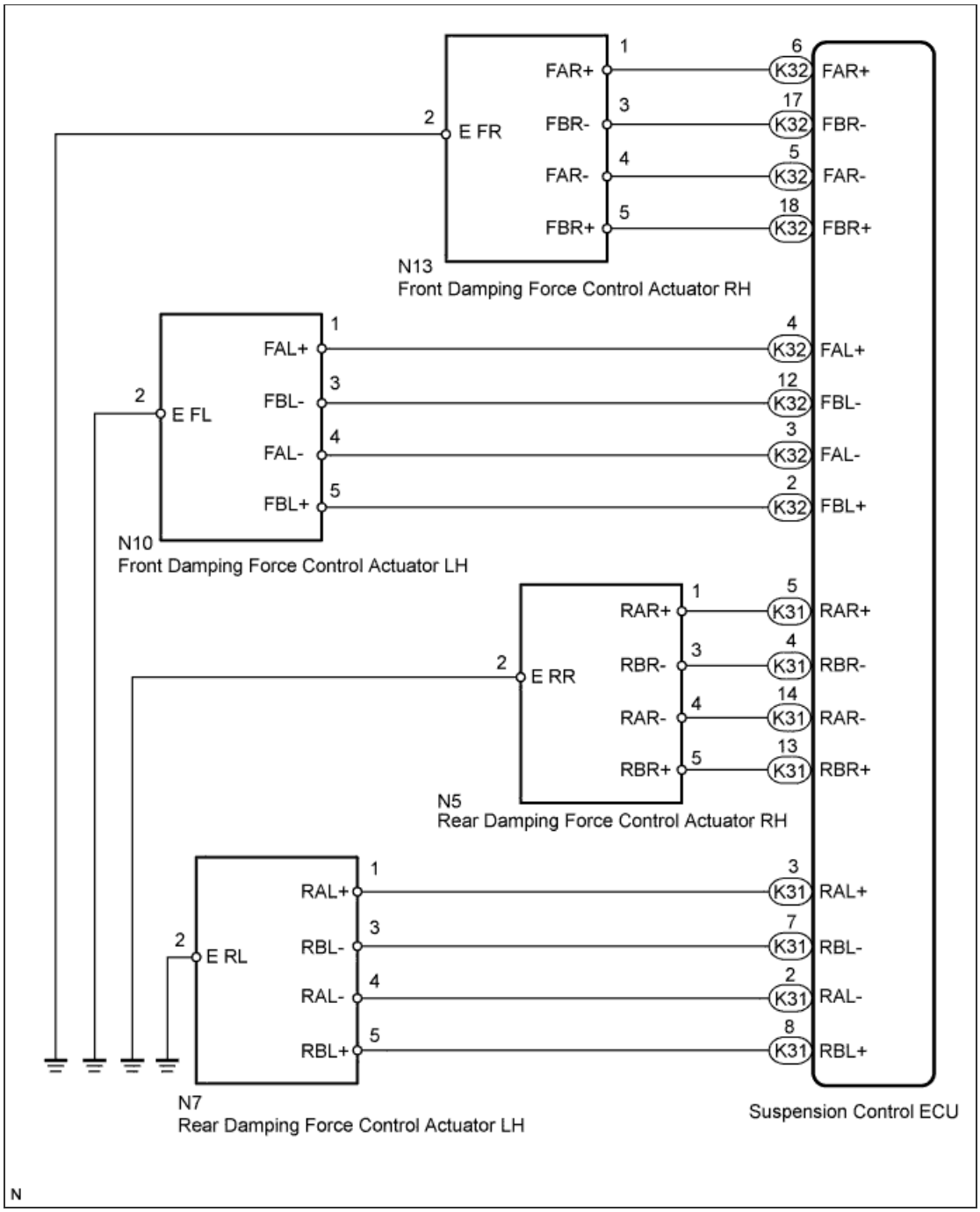
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

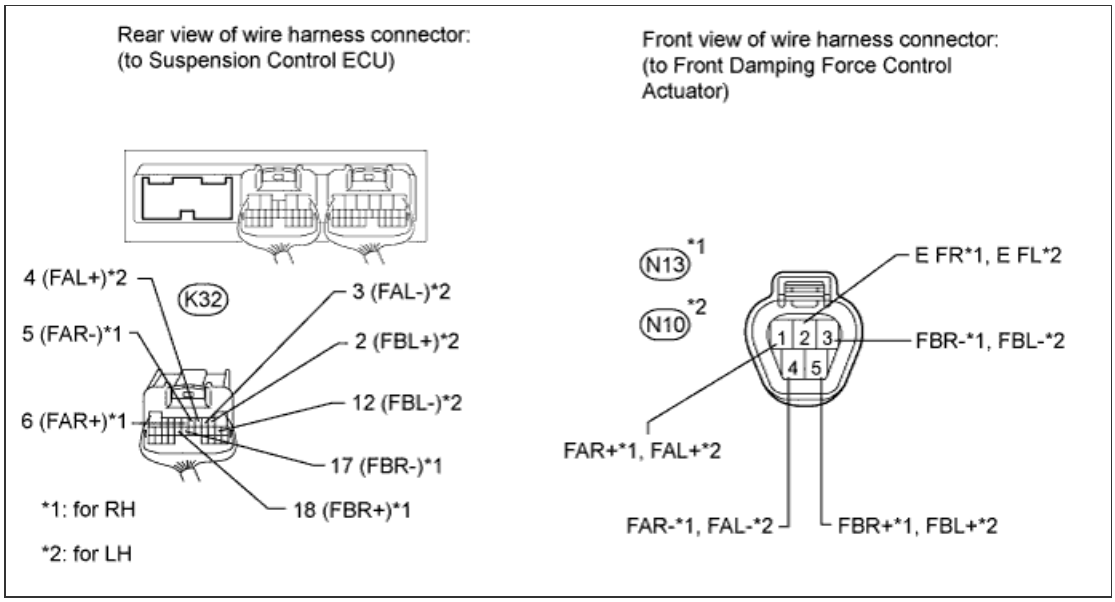
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

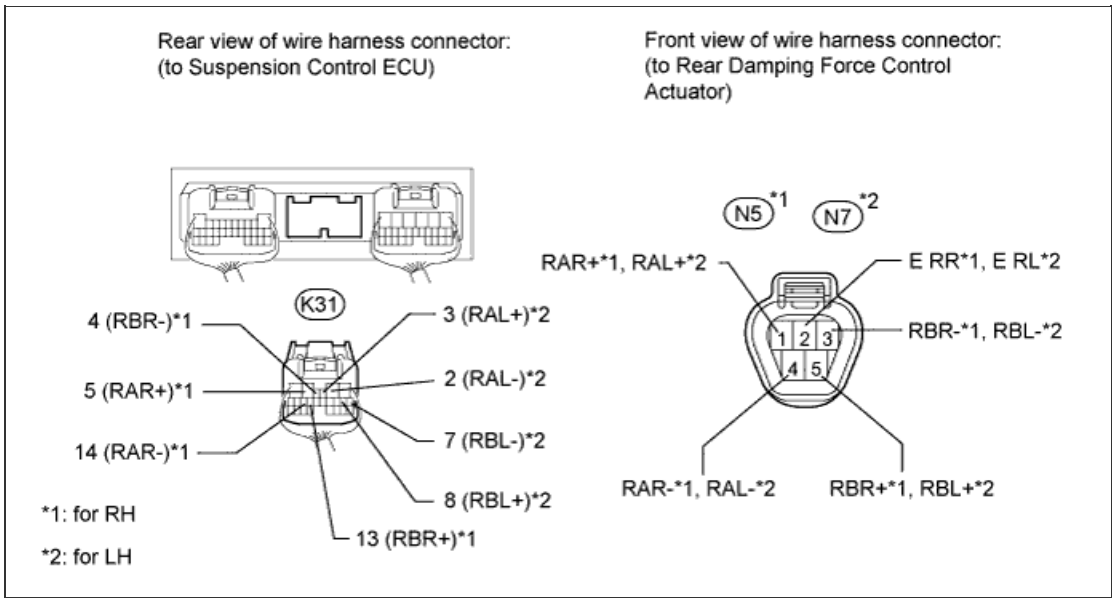
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

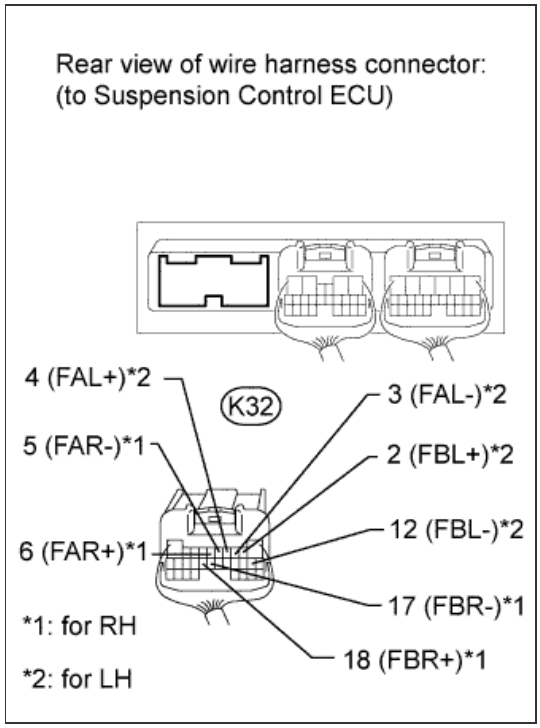
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

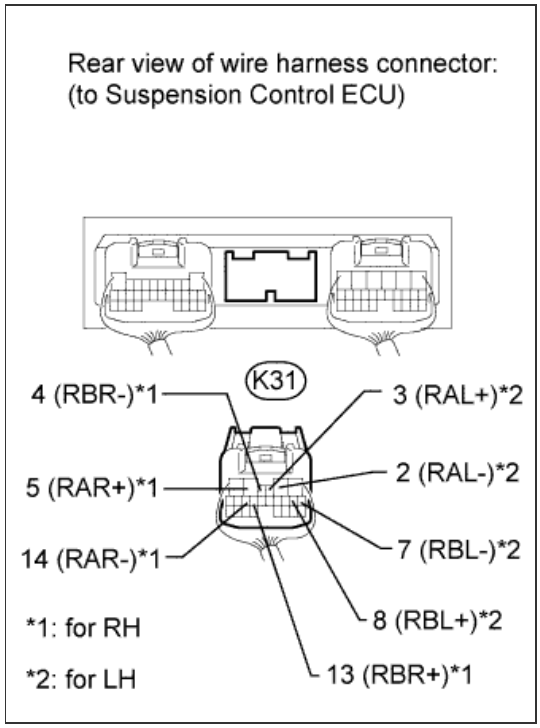
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1795 Access Mode Switch Circuit (Test Mode DTC)

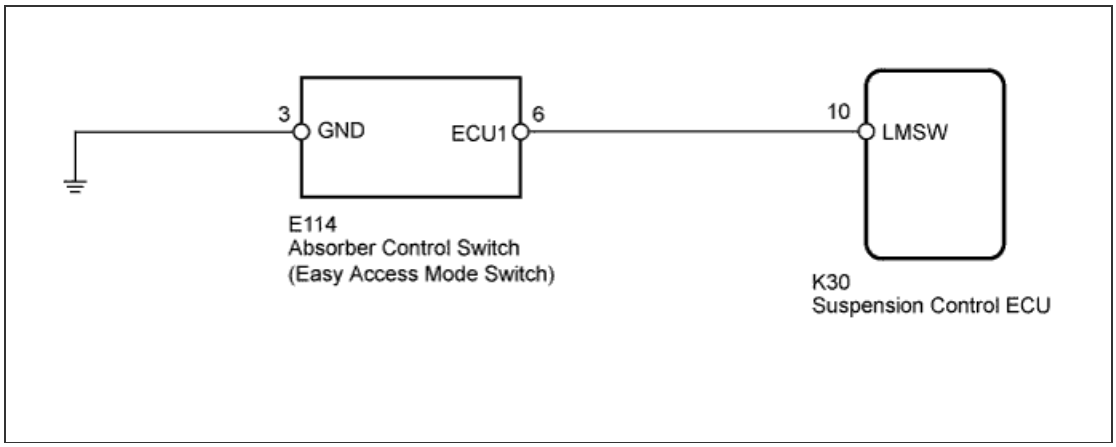
for Preparation Click here

DESCRIPTION

According to the signal from the easy access mode switch, the suspension control ECU turns easy access mode control on/off.

DTC Code	Detection Condition	Trouble Area
C1795	The test mode procedure is performed.	• Harness or connector • Absorber control switch (Easy access mode switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (ACCESS MODE SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Access Mode Switch	Easy access mode switch / ON or OFF	ON: Easy access mode switch pushed and held OFF: Easy access mode switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1795 is cleared (Click here).

Result

Result	Proceed to
DTC C1795 is not cleared	A
DTC C1795 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT ABSORBER CONTROL SWITCH (EASY ACCESS MODE SWITCH)

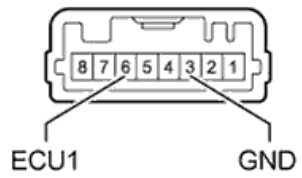
a. Remove the absorber control switch (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
6 (ECU1) - 3 (GND)	Pushed and held	Below 1 Ω
	Not pushed	10 kΩ or higher

Component without harness connected:
(Absorber Control Switch)



H

NG → REPLACE ABSORBER CONTROL SWITCH (Click here)

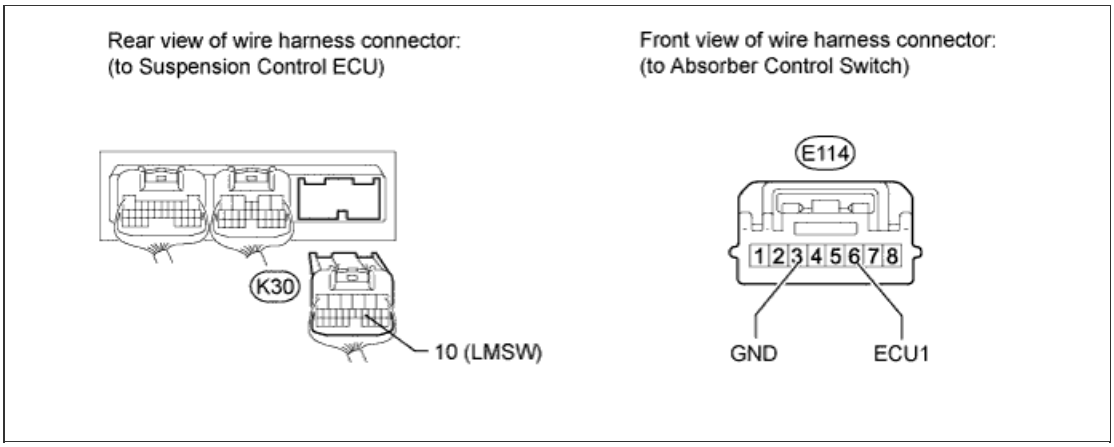
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH)

a. Disconnect the K30 ECU connector.

b. Disconnect the E114 switch connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-10 (LMSW) - E114-6 (ECU1)	Always	Below 1 Ω
K30-10 (LMSW) - Body ground	Always	10 kΩ or higher
E114-3 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1731 Front Damping Force Control Actuator RH Circuit Malfunction

DTC C1732 Front Damping Force Control Actuator LH Circuit Malfunction

DTC C1733 Rear Damping Force Control Actuator RH Circuit Malfunction

DTC C1734 Rear Damping Force Control Actuator LH Circuit Malfunction

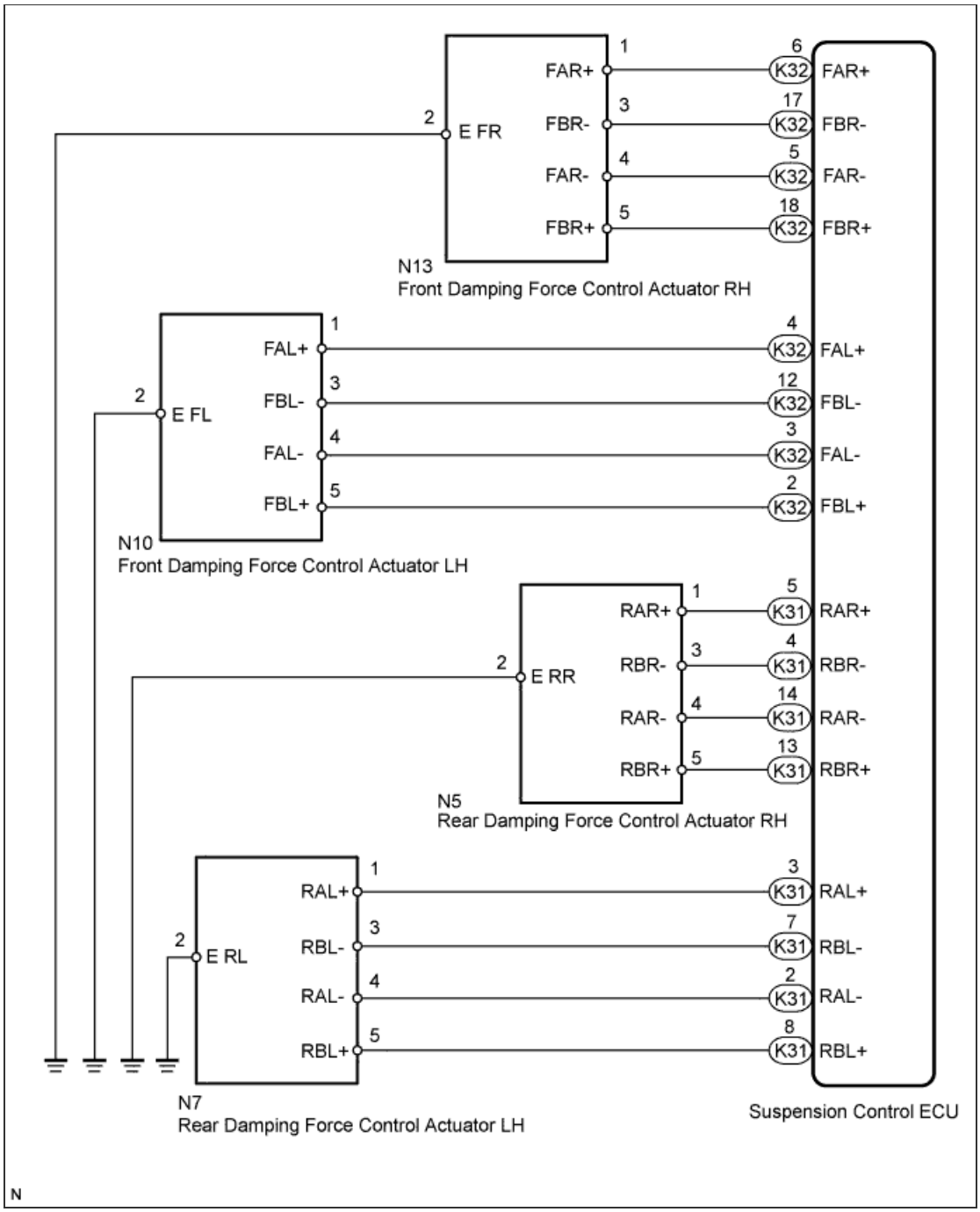
for Preparation Click here

DESCRIPTION

The ECU sends a signal to the damping force control actuator to drive the rotary valve of the shock absorber changing the shock absorber damping force.
The actuator is driven electromagnetically by a step motor so that it can accurately follow the driving conditions that change frequently.

DTC Code	Detection Condition	Trouble Area
C1731	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve RH (Front damping force control actuator RH) • Suspension control ECU
C1732	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Front shock absorber control valve LH (Front damping force control actuator LH) • Suspension control ECU
C1733	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve RH (Rear damping force control actuator RH) • Suspension control ECU
C1734	When either of the following is detected: • An actuator open-circuit signal is detected for at least 1 second when the actuator operates. • An actuator short-circuit signal is consecutively detected 8 times when the actuator operates.	• Harness or connector • Rear shock absorber control valve LH (Rear damping force control actuator LH) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (DAMPER STEP)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check if the damping force control actuator operates in accordance with the Active Test.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
		min.: 1 step	

Damper Step FR	Changes front damper RH step	max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step FL	Changes front damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RR	Changes rear damper RH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.
Damper Step RL	Changes rear damper LH step	min.: 1 step max.: 16 step	The Damper Step item of the Data List changes to the step selected in the Active Test.

OK:

The damping force control actuator operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

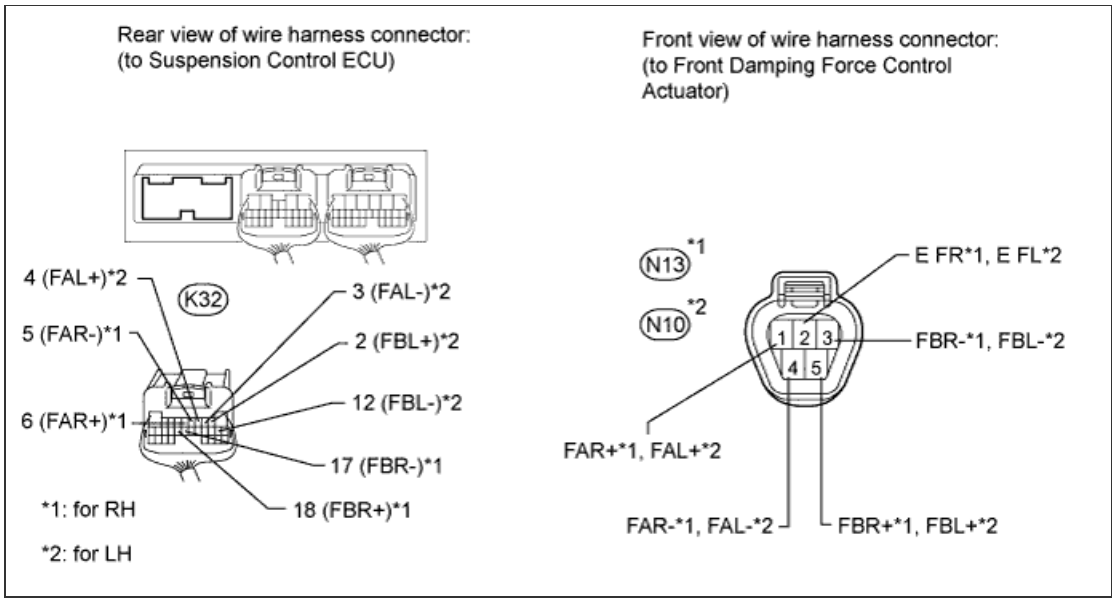
A

3.CHECK HARNESS AND CONNECTOR (DAMPING FORCE CONTROL ACTUATOR - SUSPENSION CONTROL ECU)

a. Check the front side damping force control actuator.

i. Disconnect the N13 and/or N10 actuator connector.

ii. Disconnect the K32 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - N13-4 (FAR-)	Always	Below 1 Ω
K32-5 (FAR-) - Body ground	Always	10 kΩ or higher
K32-6 (FAR+) - N13-1 (FAR+)	Always	Below 1 Ω
K32-6 (FAR+) - Body ground	Always	10 kΩ or higher
K32-17 (FBR-) - N13-3 (FBR-)	Always	Below 1 Ω
K32-17 (FBR-) - Body ground	Always	10 kΩ or higher
K32-18 (FBR+) - N13-5 (FBR+)	Always	Below 1 Ω
K32-18 (FBR+) - Body ground	Always	10 kΩ or higher
N13-2 (E FR) - Body ground	Always	Below 1 Ω

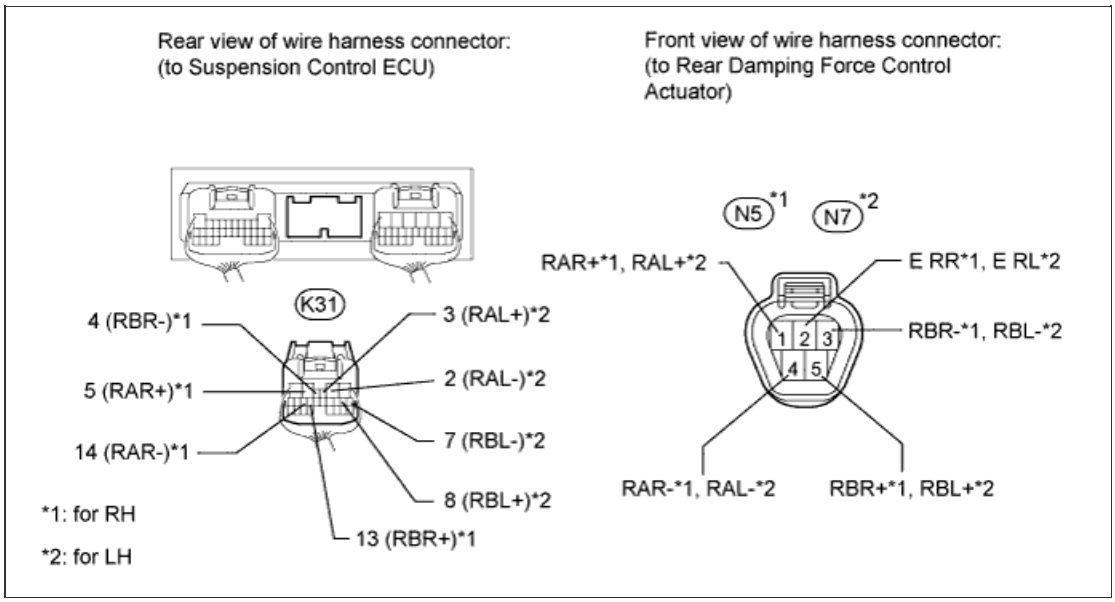
for LH (C1732)

Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - N10-5 (FBL+)	Always	Below 1 Ω
K32-2 (FBL+) - Body ground	Always	10 kΩ or higher
K32-3 (FAL-) - N10-4 (FAL-)	Always	Below 1 Ω
K32-3 (FAL-) - Body ground	Always	10 kΩ or higher
K32-4 (FAL+) - N10-1 (FAL+)	Always	Below 1 Ω
K32-4 (FAL+) - Body ground	Always	10 kΩ or higher
K32-12 (FBL-) - N10-3 (FBL-)	Always	Below 1 Ω
K32-12 (FBL-) - Body ground	Always	10 kΩ or higher
N10-2 (E FL) - Body ground	Always	Below 1 Ω

b. Check the rear side damping force control actuator.

i. Disconnect the N5 and/or N7 actuator connector.

ii. Disconnect the K31 ECU connector.



iii. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - N5-3 (RBR-)	Always	Below 1 Ω
K31-4 (RBR-) - Body ground	Always	10 kΩ or higher
K31-5 (RAR+) - N5-1 (RAR+)	Always	Below 1 Ω
K31-5 (RAR+) - Body ground	Always	10 kΩ or higher
K31-13 (RBR+) - N5-5 (RBR+)	Always	Below 1 Ω
K31-13 (RBR+) - Body ground	Always	10 kΩ or higher
K31-14 (RAR-) - N5-4 (RAR-)	Always	Below 1 Ω
K31-14 (RAR-) - Body ground	Always	10 kΩ or higher
N5-2 (E RR) - Body ground	Always	Below 1 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - N7-4 (RAL-)	Always	Below 1 Ω
K31-2 (RAL-) - Body ground	Always	10 kΩ or higher
K31-3 (RAL+) - N7-1 (RAL+)	Always	Below 1 Ω
K31-3 (RAL+) - Body		10 kΩ or

ground	Always	higher
K31-7 (RBL-) - N7-3 (RBL-)	Always	Below 1 Ω
K31-7 (RBL-) - Body ground	Always	10 kΩ or higher
K31-8 (RBL+) - N7-5 (RBL+)	Always	Below 1 Ω
K31-8 (RBL+) - Body ground	Always	10 kΩ or higher
N7-2 (E RL) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

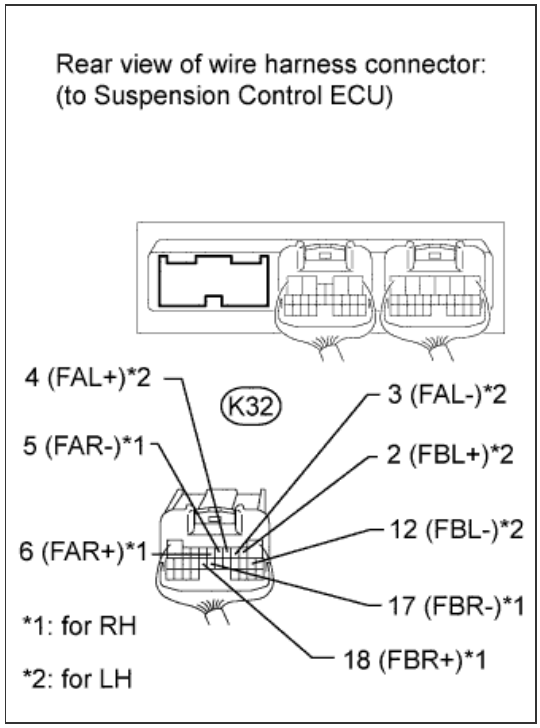
4.INSPECT DAMPING FORCE CONTROL ACTUATOR

a. Check the front side damping force control actuator.

i. Connect the N13 and/or N10 front absorber control actuator connector.

ii. Disconnect the K32 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1731)

Tester Connection	Condition	Specified Condition
K32-5 (FAR-) - Body ground	Always	12.0 to 13.6 Ω
K32-6 (FAR+) - Body ground	Always	12.0 to 13.6 Ω
K32-17 (FBR-) - Body ground	Always	12.0 to 13.6 Ω
K32-18 (FBR+) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1732)

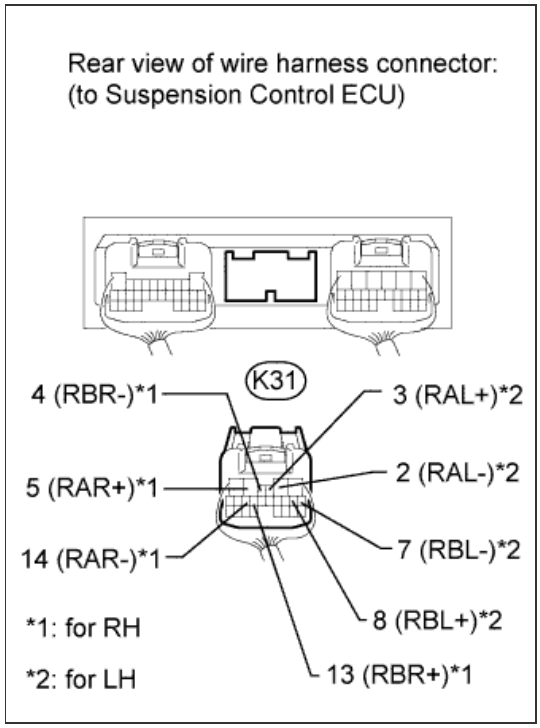
Tester Connection	Condition	Specified Condition
K32-2 (FBL+) - Body ground	Always	12.0 to 13.6 Ω
K32-3 (FAL-) - Body ground	Always	12.0 to 13.6 Ω
K32-4 (FAL+) - Body ground	Always	12.0 to 13.6 Ω
K32-12 (FBL-) - Body ground	Always	12.0 to 13.6 Ω

b. Check the rear side damping force control actuator.

i. Connect the N5 and/or N7 rear absorber control actuator connector.

ii. Disconnect the K31 ECU connector.

iii. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH (C1733)

Tester Connection	Condition	Specified Condition
K31-4 (RBR-) - Body ground	Always	12.0 to 13.6 Ω
K31-5 (RAR+) - Body ground	Always	12.0 to 13.6 Ω
K31-13 (RBR+) - Body ground	Always	12.0 to 13.6 Ω
K31-14 (RAR-) - Body ground	Always	12.0 to 13.6 Ω

for LH (C1734)

Tester Connection	Condition	Specified Condition
K31-2 (RAL-) - Body ground	Always	12.0 to 13.6 Ω
K31-3 (RAL+) - Body ground	Always	12.0 to 13.6 Ω
K31-7 (RBL-) - Body ground	Always	12.0 to 13.6 Ω
K31-8 (RBL+) - Body ground	Always	12.0 to 13.6 Ω

Result

Result	Proceed to
OK	A
Front damping force control actuator RH malfunction	B
Front damping force control actuator LH malfunction	C
Rear damping force control actuator RH malfunction	D
Rear damping force control actuator LH malfunction	E

B → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE RH (Click here)

C → REPLACE FRONT SHOCK ABSORBER CONTROL VALVE LH (Click here)

D → REPLACE REAR SHOCK ABSORBER CONTROL VALVE RH (Click here)

E → REPLACE REAR SHOCK ABSORBER CONTROL VALVE LH (Click here)

A

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1795 Access Mode Switch Circuit (Test Mode DTC)

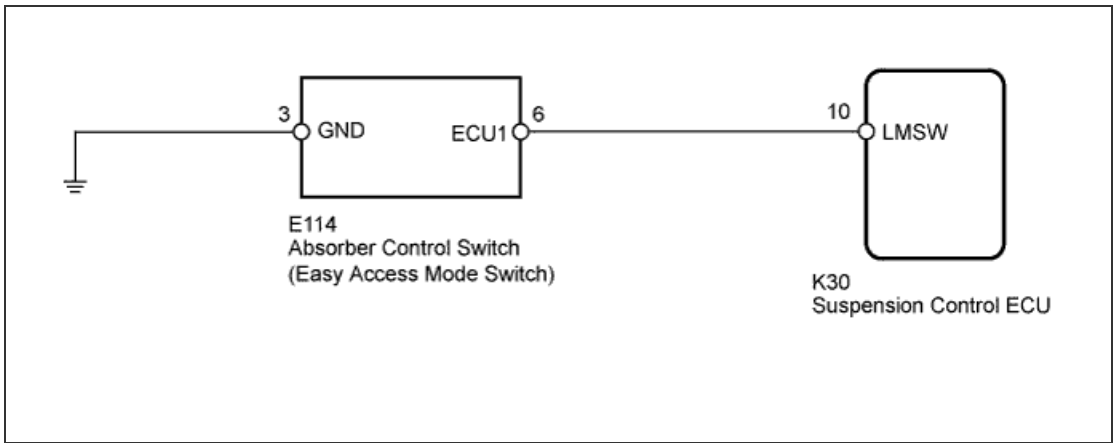
for Preparation Click here

DESCRIPTION

According to the signal from the easy access mode switch, the suspension control ECU turns easy access mode control on/off.

DTC Code	Detection Condition	Trouble Area
C1795	The test mode procedure is performed.	• Harness or connector • Absorber control switch (Easy access mode switch) • Suspension control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (ACCESS MODE SWITCH)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Access Mode Switch	Easy access mode switch / ON or OFF	ON: Easy access mode switch pushed and held OFF: Easy access mode switch not pushed	-

OK:

On the intelligent tester screen, item changes between ON and OFF according to switch operation.

NG → Go to step 3

OK

2.TEST MODE INSPECTION

a. Refer to the Test Mode Procedure and perform the signal check. Check that test mode DTC C1795 is cleared (Click here).

Result

Result	Proceed to
DTC C1795 is not cleared	A
DTC C1795 is cleared	B

B → USE SIMULATION METHOD TO CHECK (Click here)

A → REPLACE SUSPENSION CONTROL ECU (Click here)

3.INSPECT ABSORBER CONTROL SWITCH (EASY ACCESS MODE SWITCH)

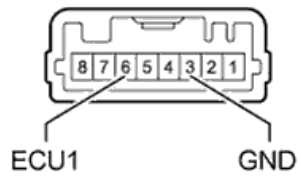
a. Remove the absorber control switch (Click here).

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
6 (ECU1) - 3 (GND)	Pushed and held	Below 1 Ω
	Not pushed	10 kΩ or higher

Component without harness connected:
(Absorber Control Switch)



H

NG → REPLACE ABSORBER CONTROL SWITCH (Click here)

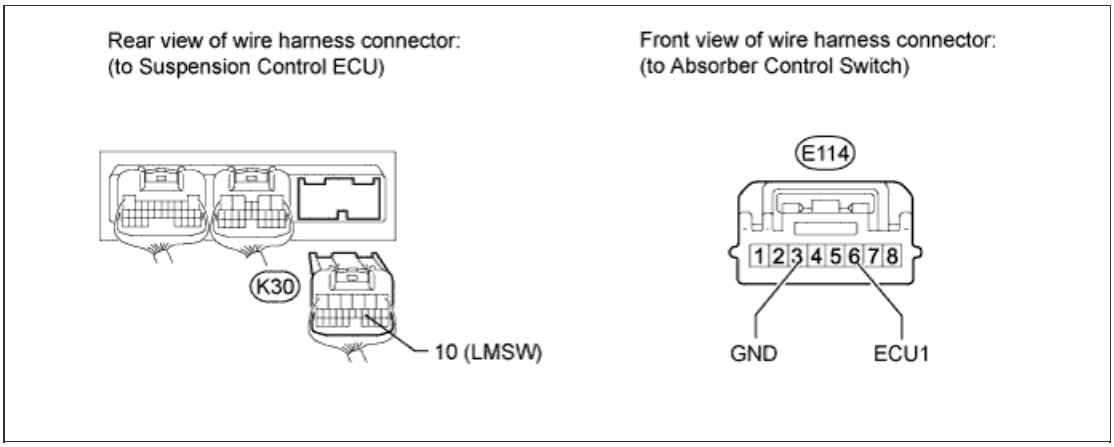
OK

4.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - SWITCH)

a. Disconnect the K30 ECU connector.

b. Disconnect the E114 switch connector.

c. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-10 (LMSW) - E114-6 (ECU1)	Always	Below 1 Ω
K30-10 (LMSW) - Body ground	Always	10 kΩ or higher
E114-3 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

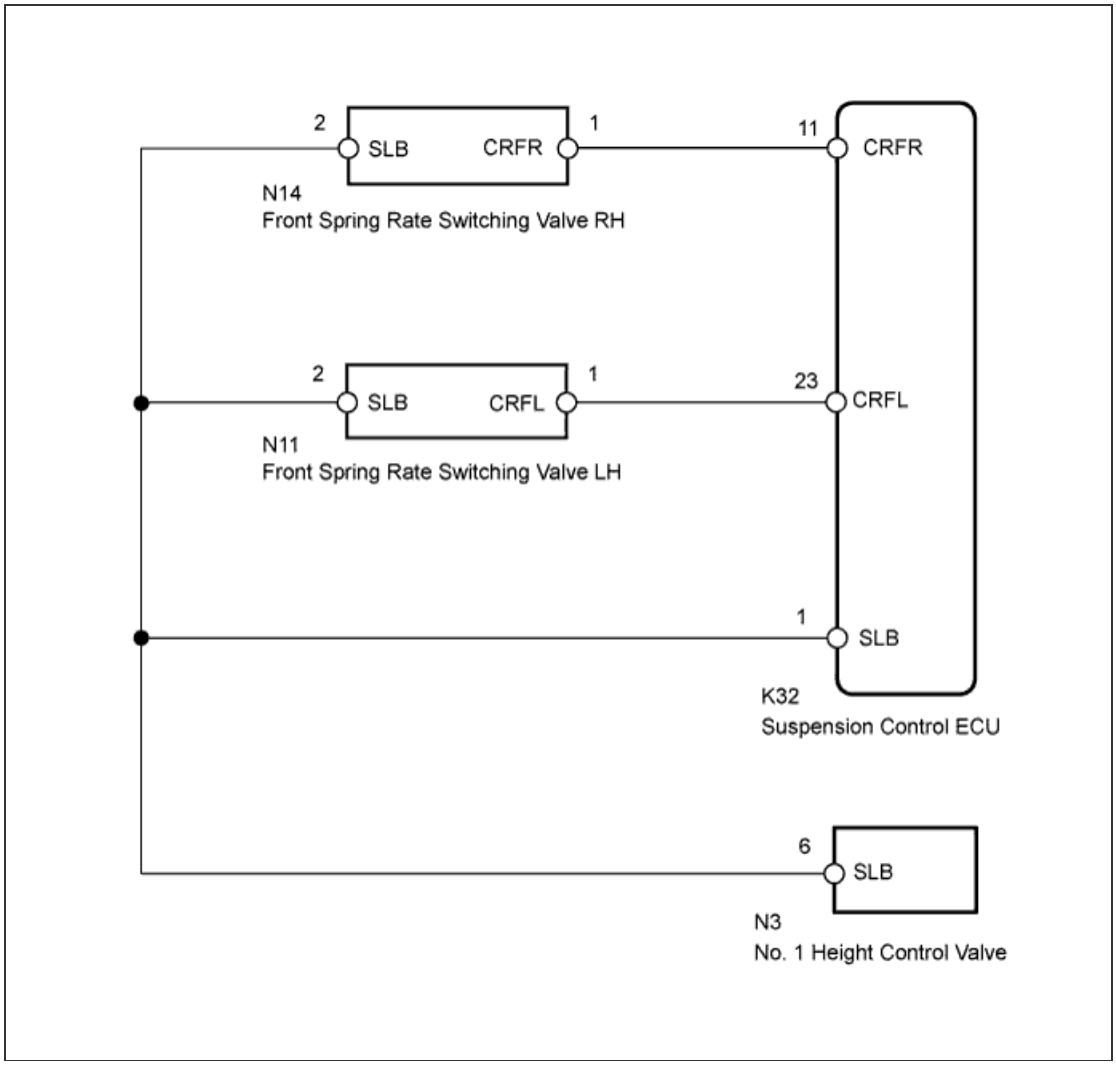
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

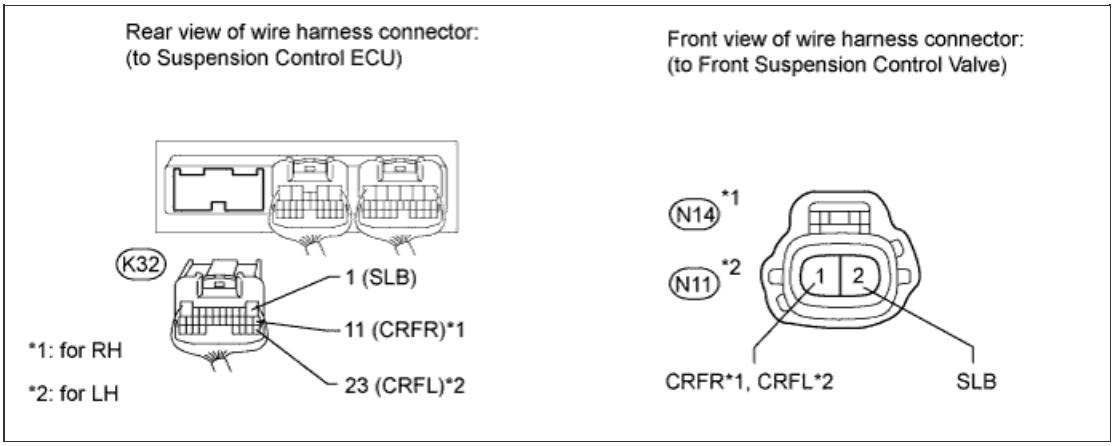
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

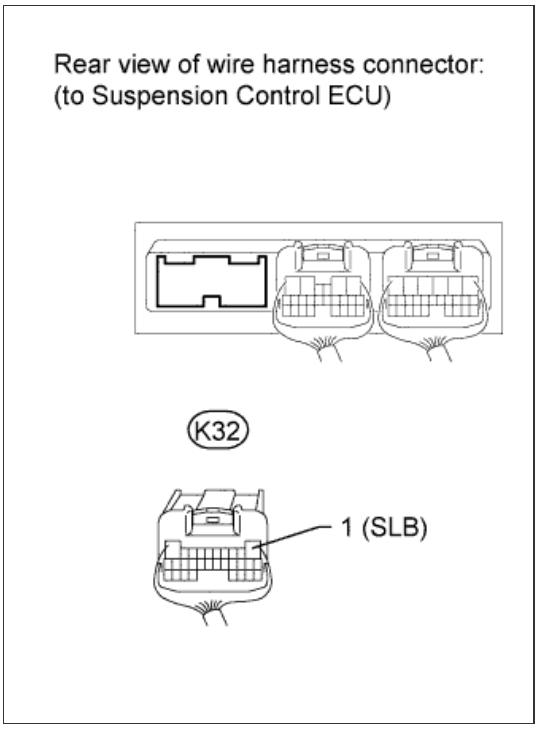
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

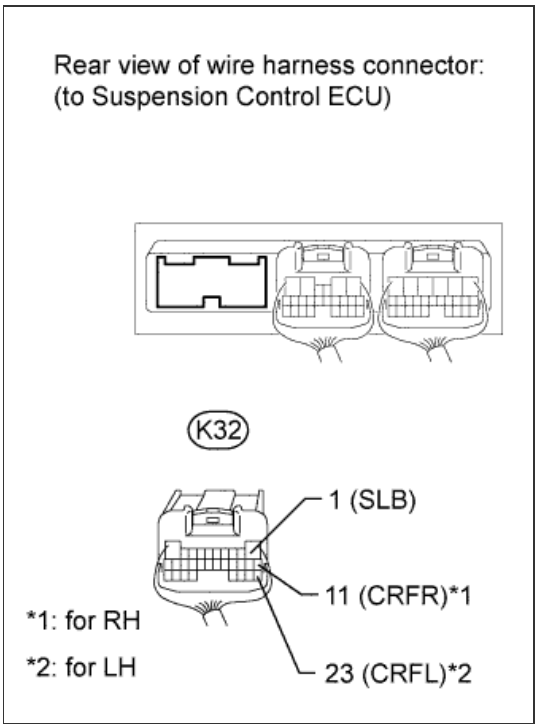
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

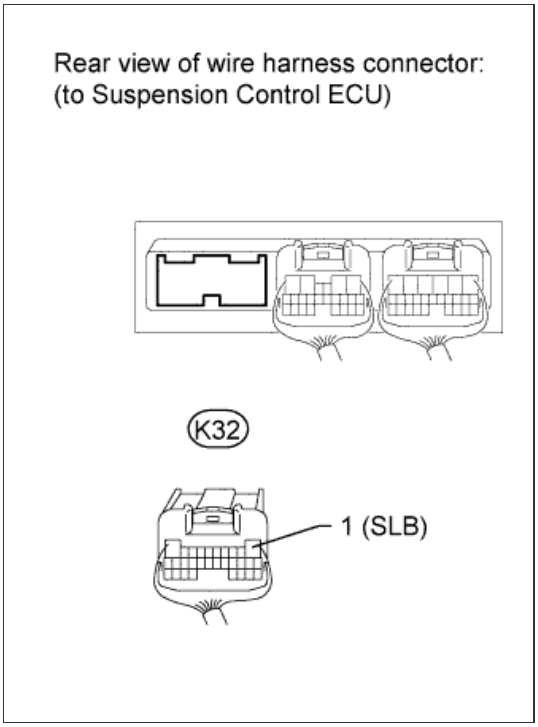
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



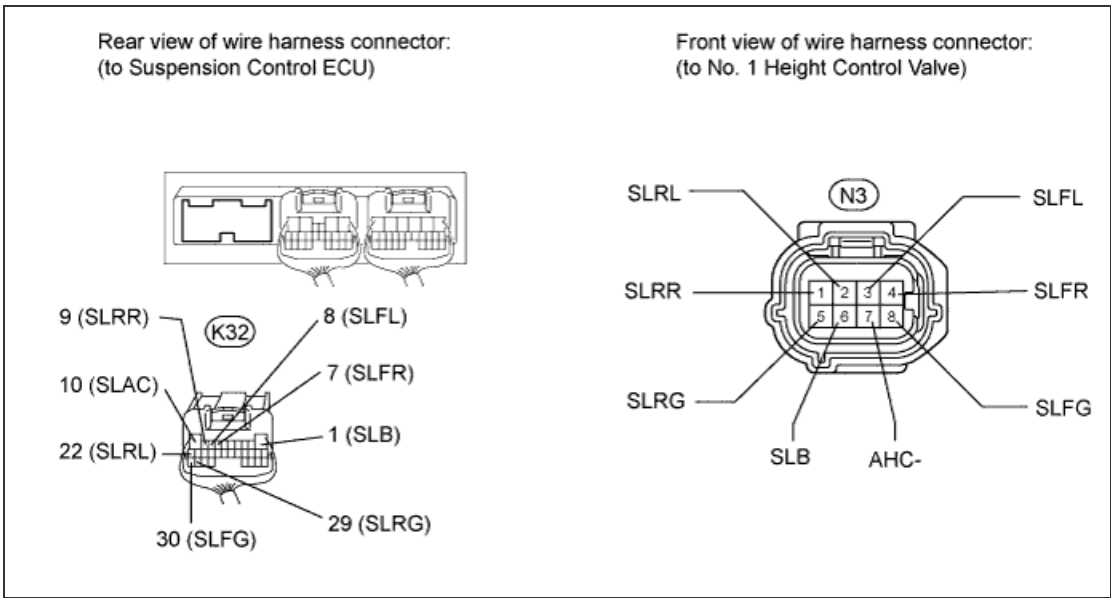
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

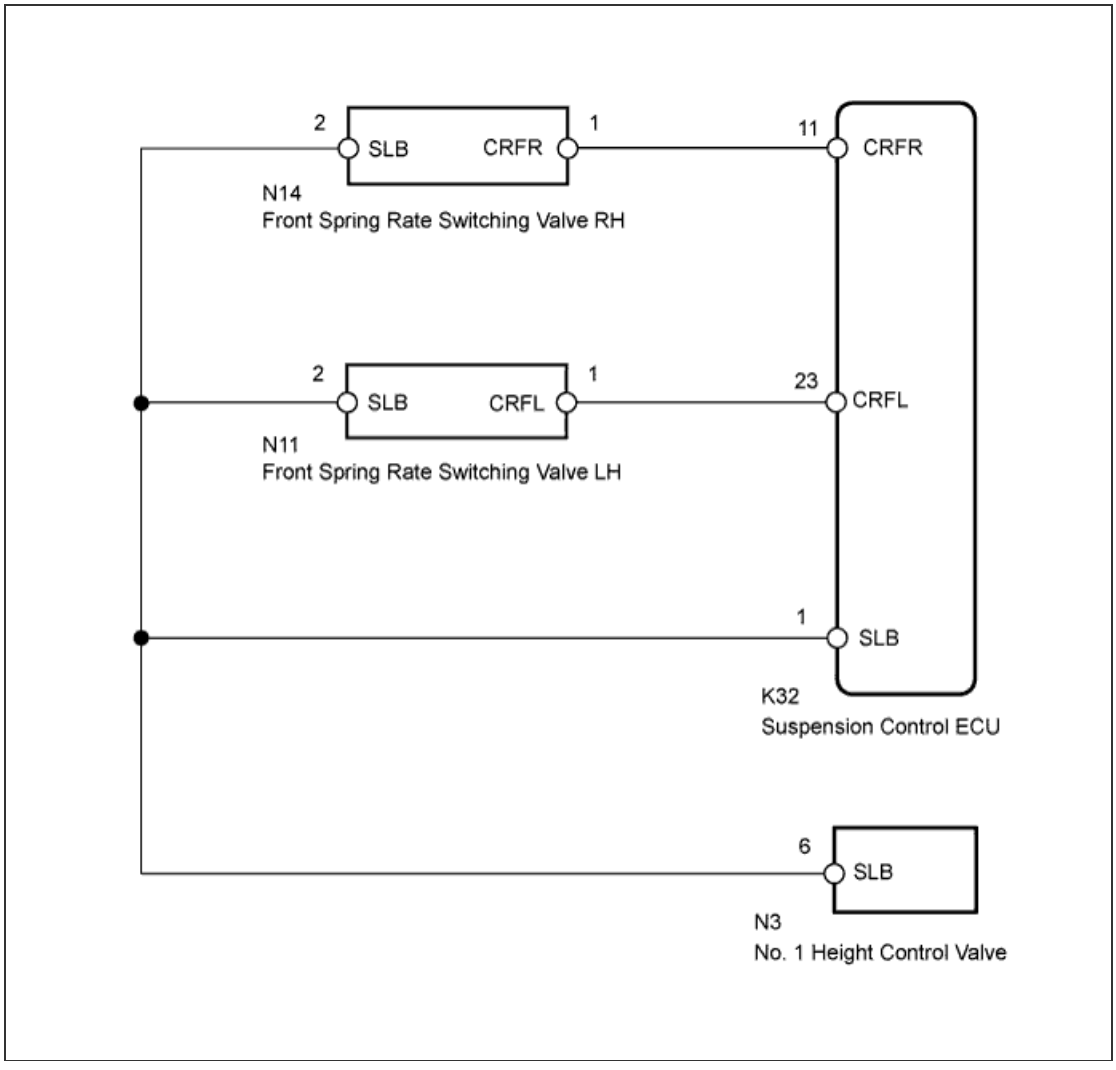
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

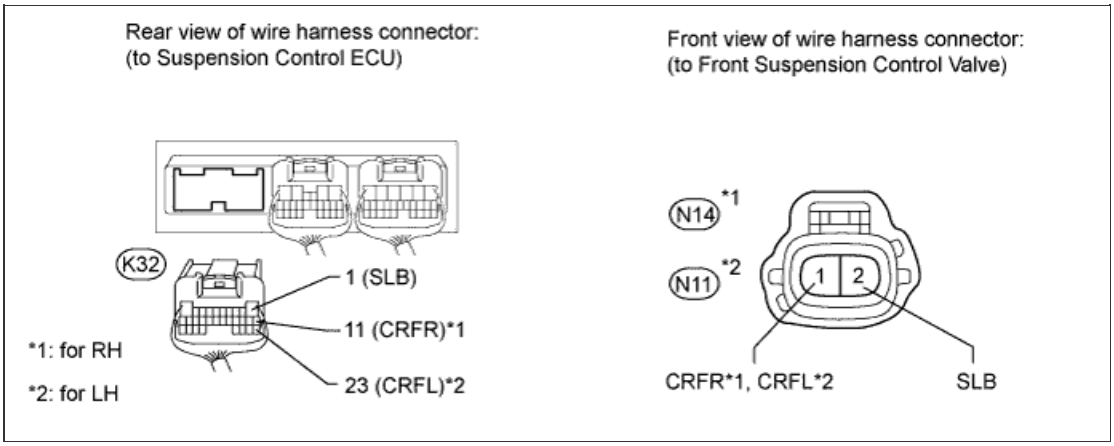
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

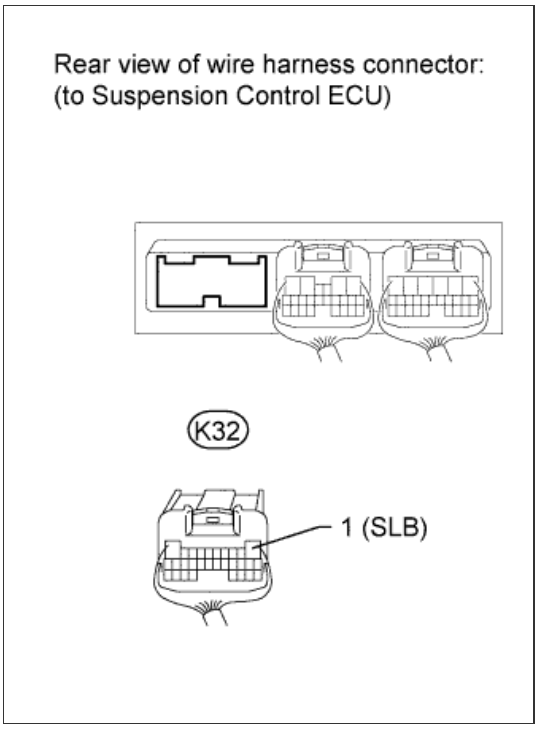
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

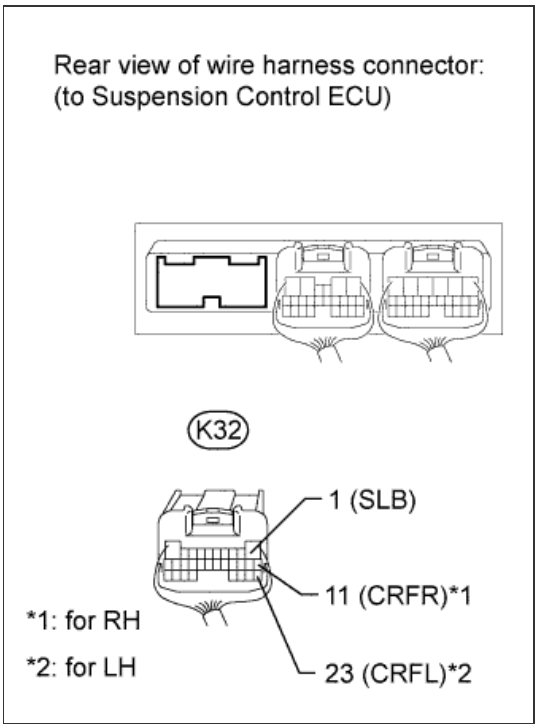
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

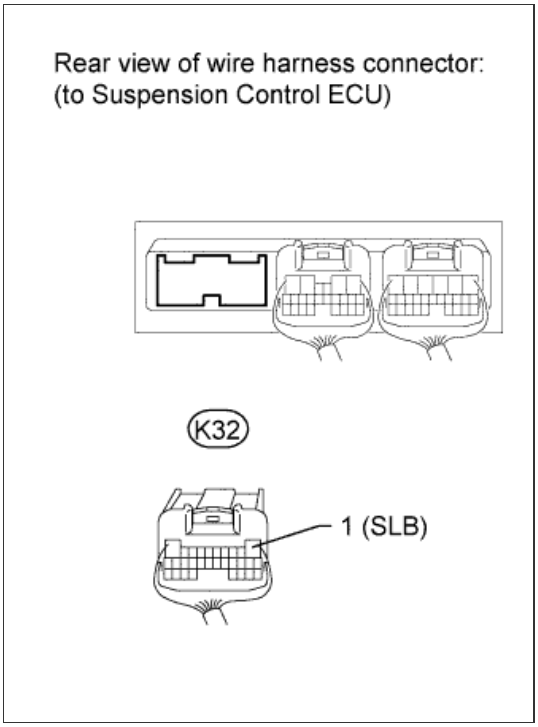
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



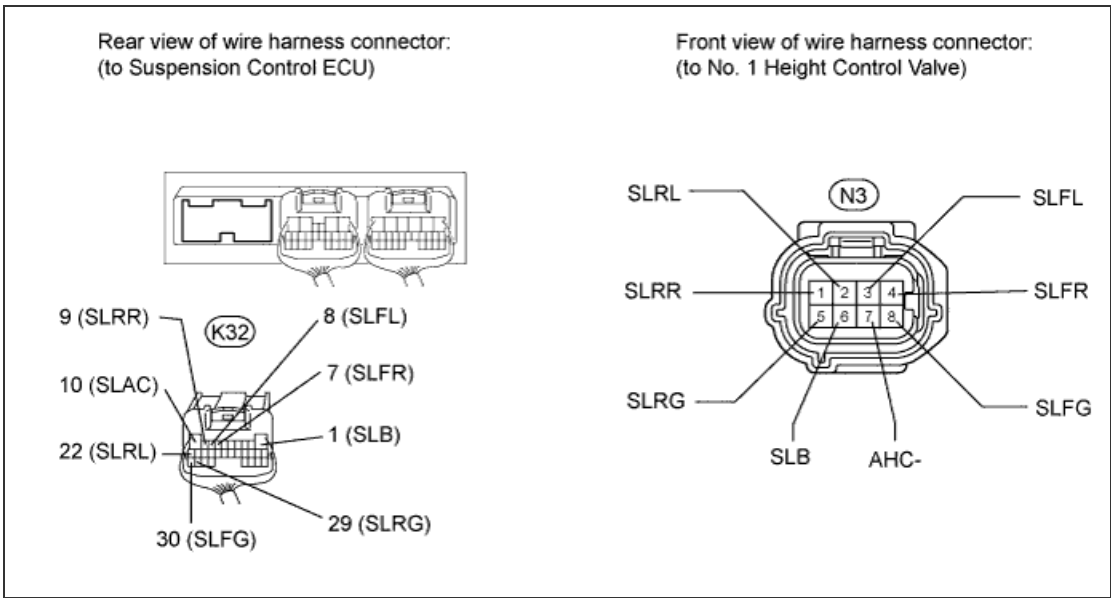
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

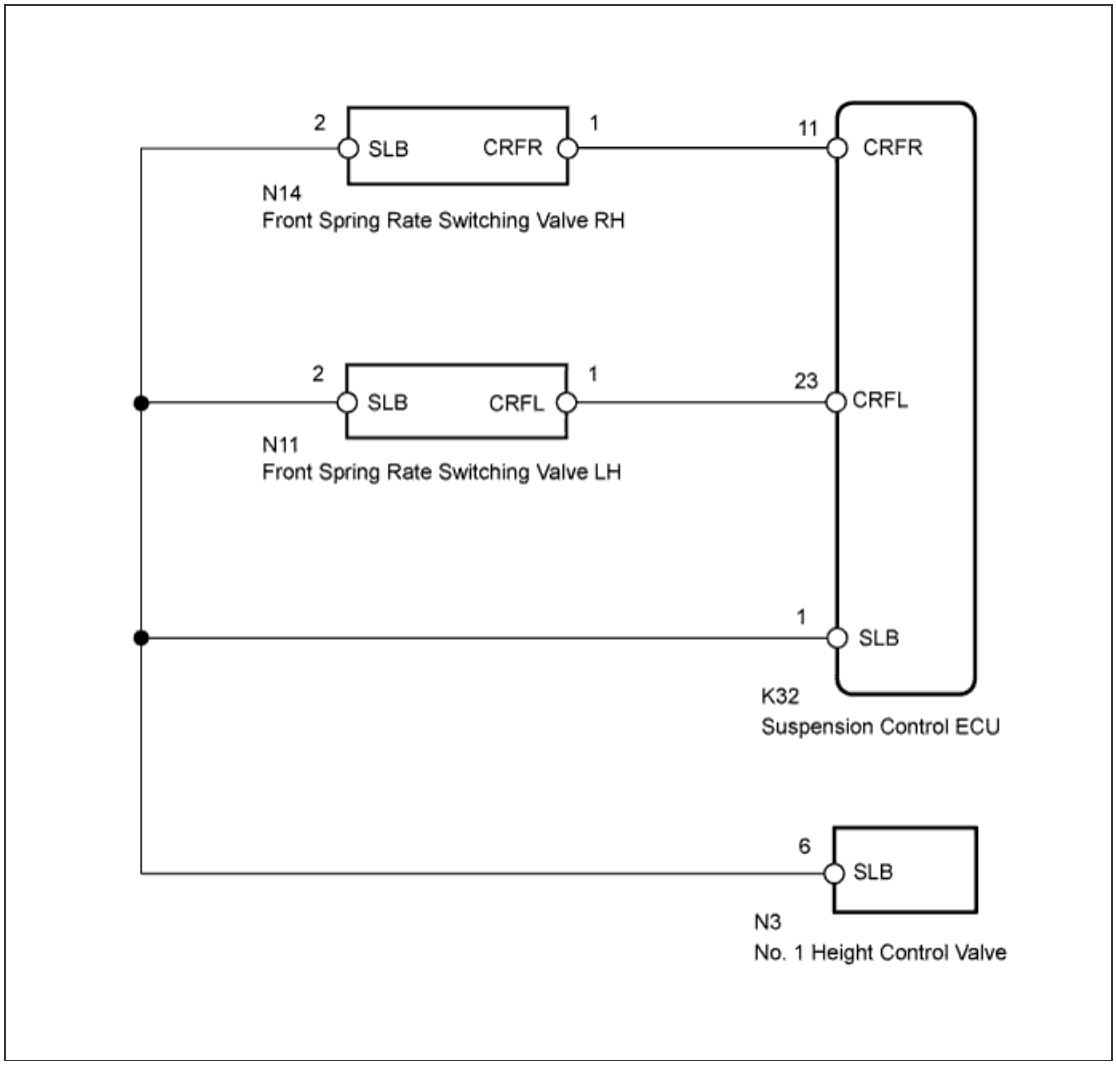
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

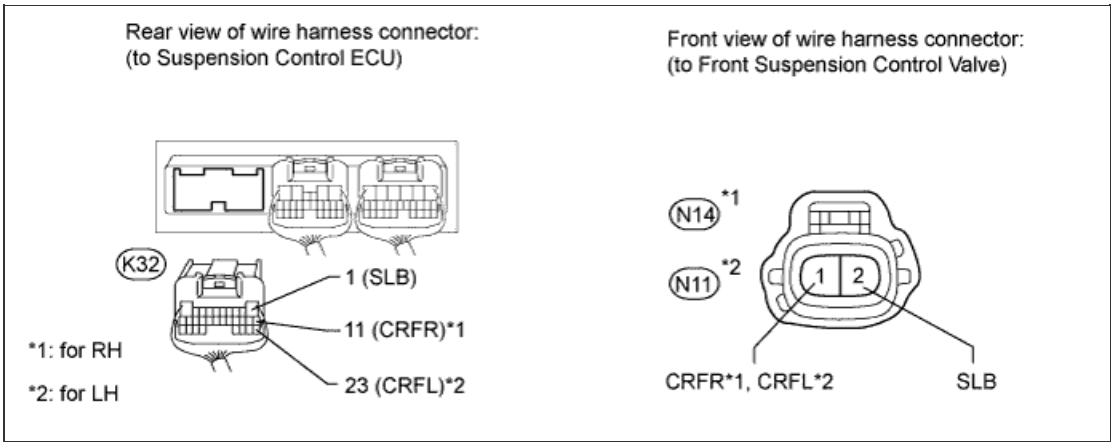
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

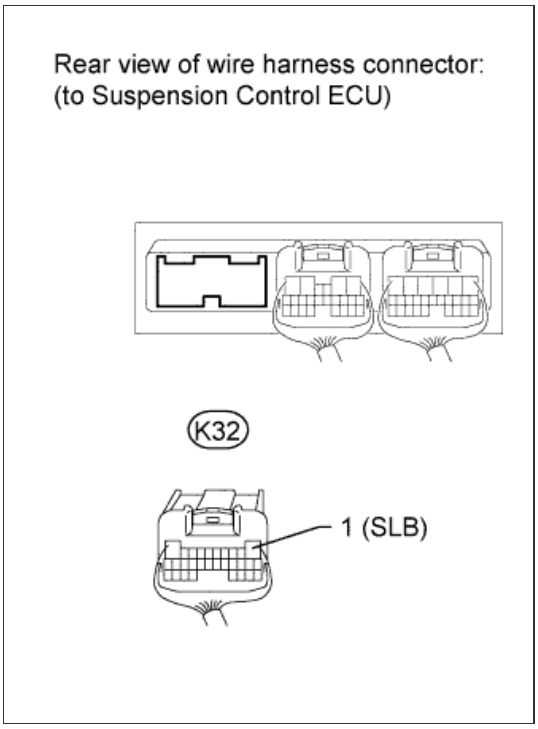
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

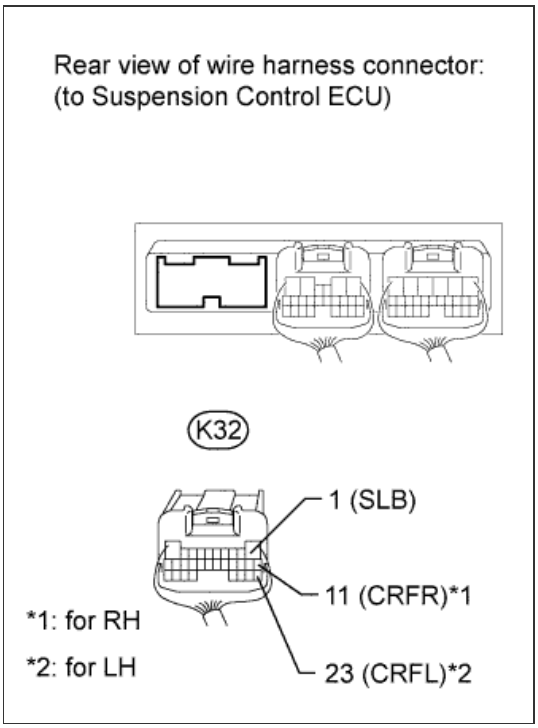
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

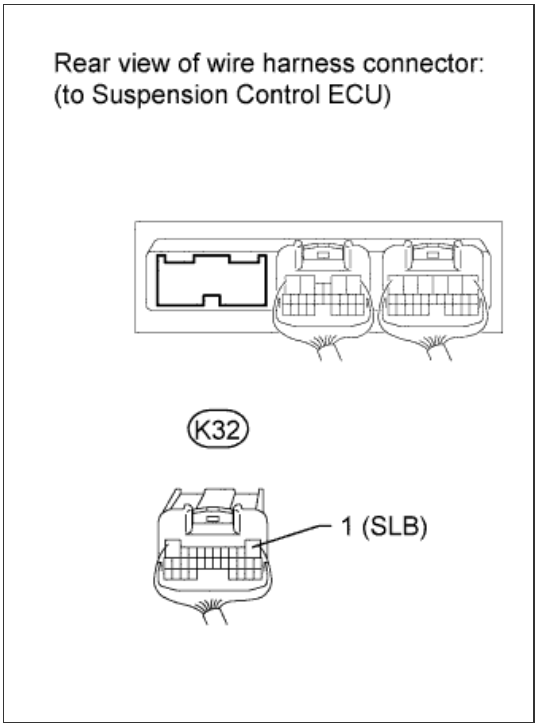
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



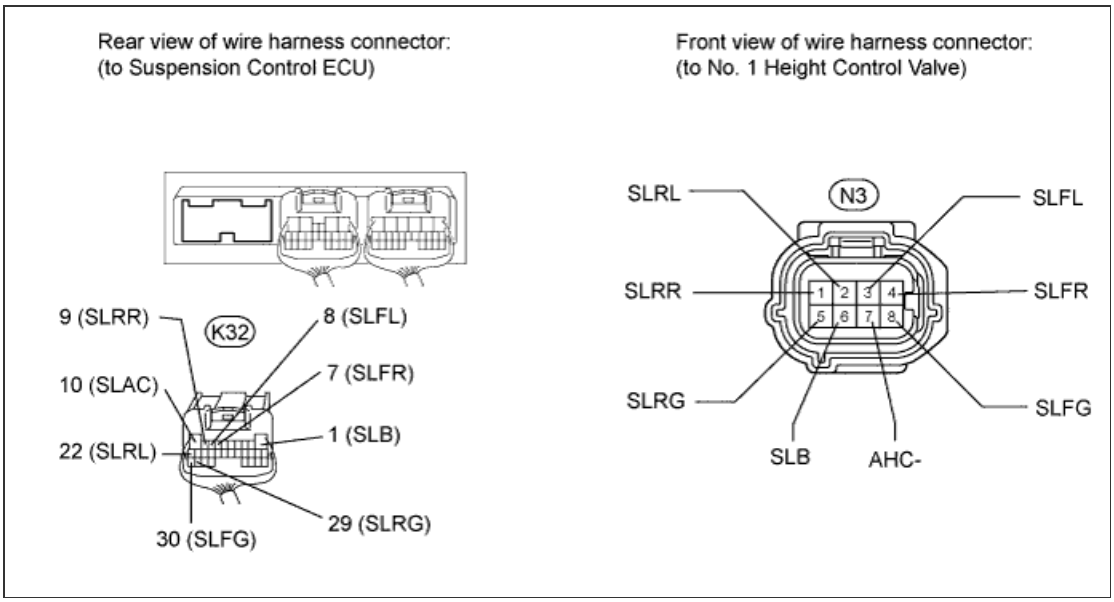
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

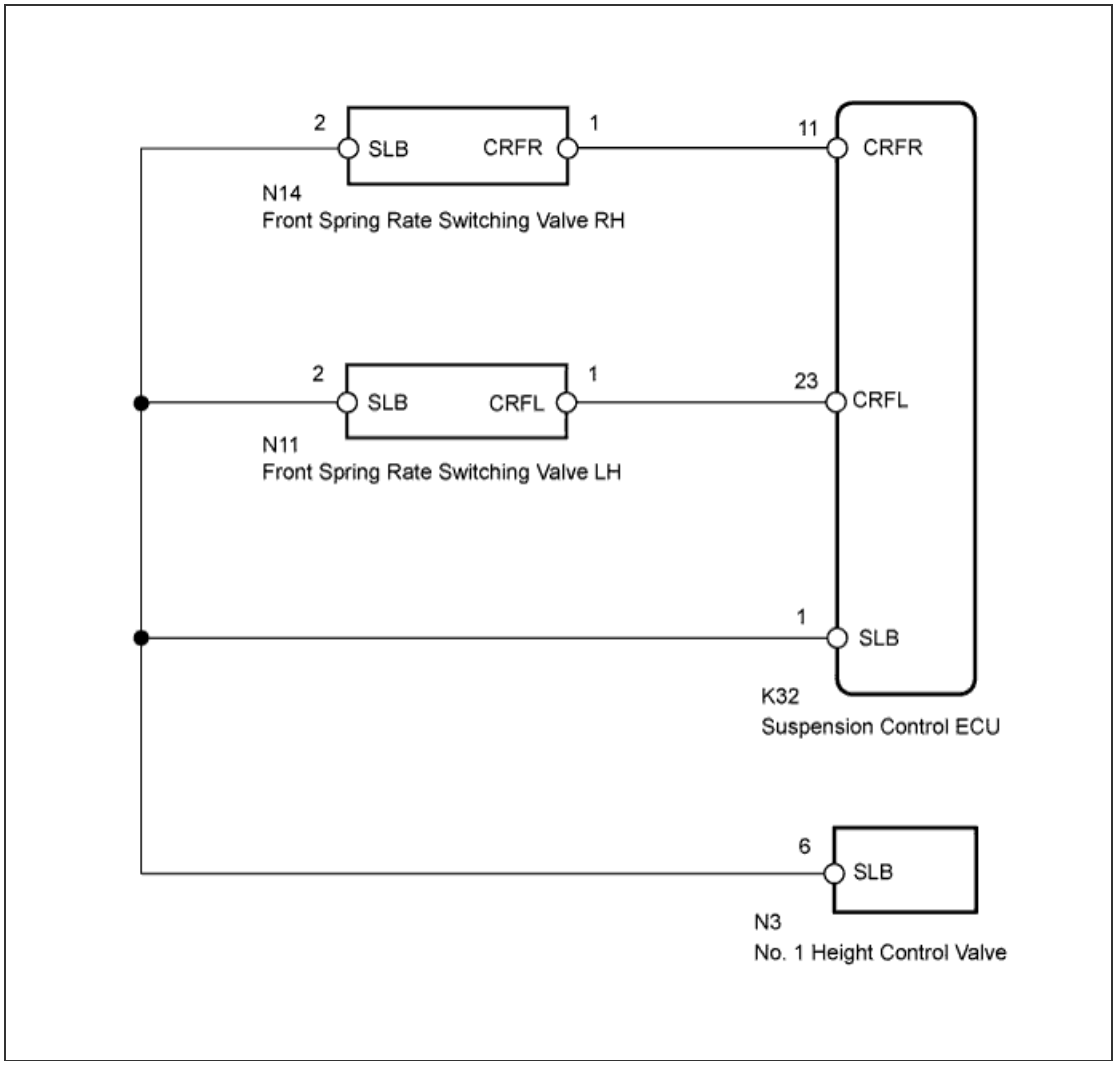
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

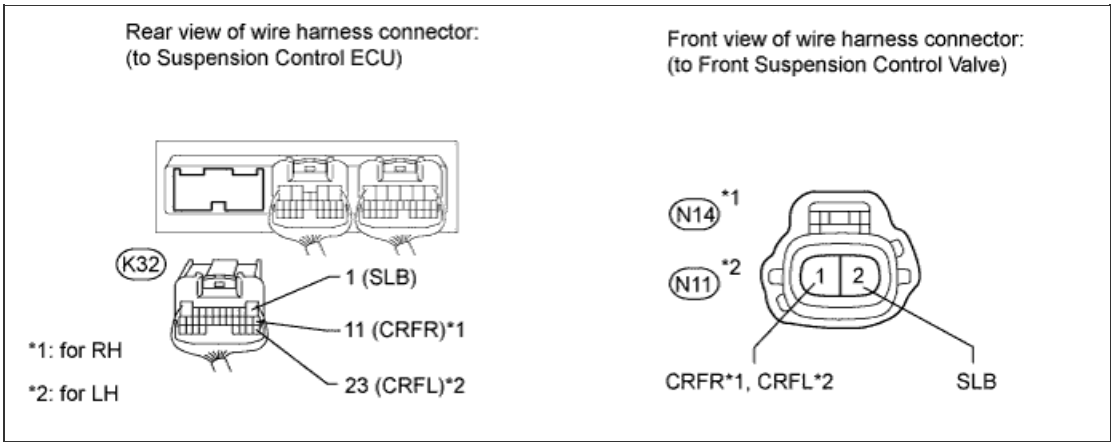
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

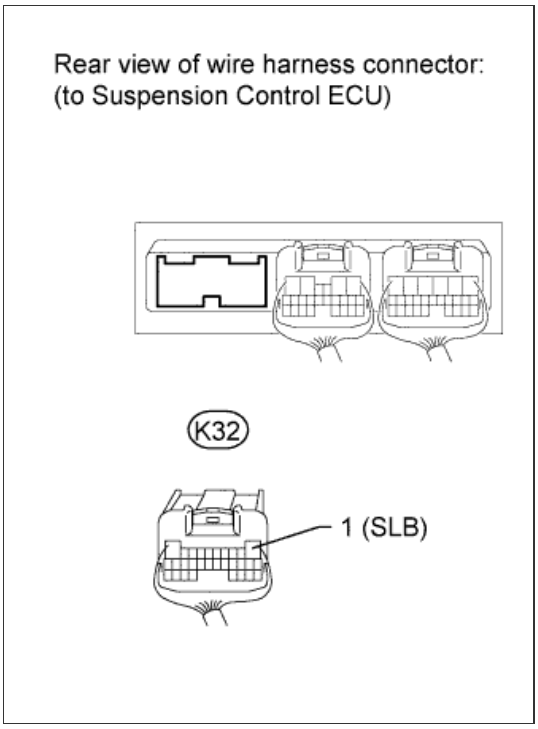
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

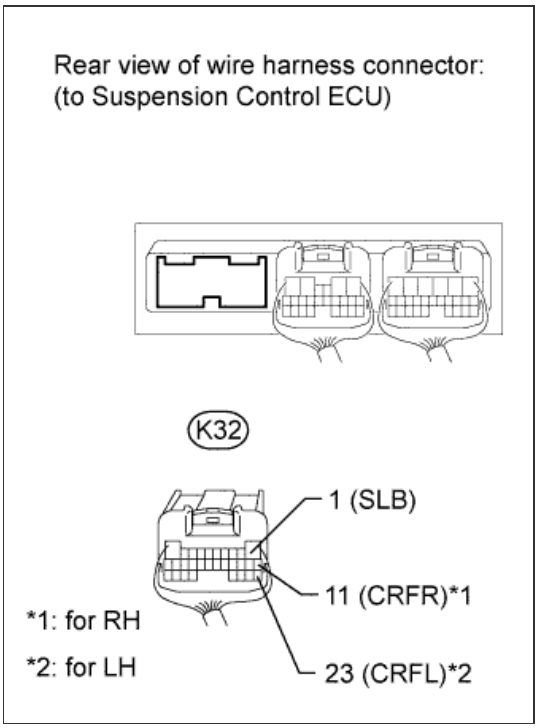
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

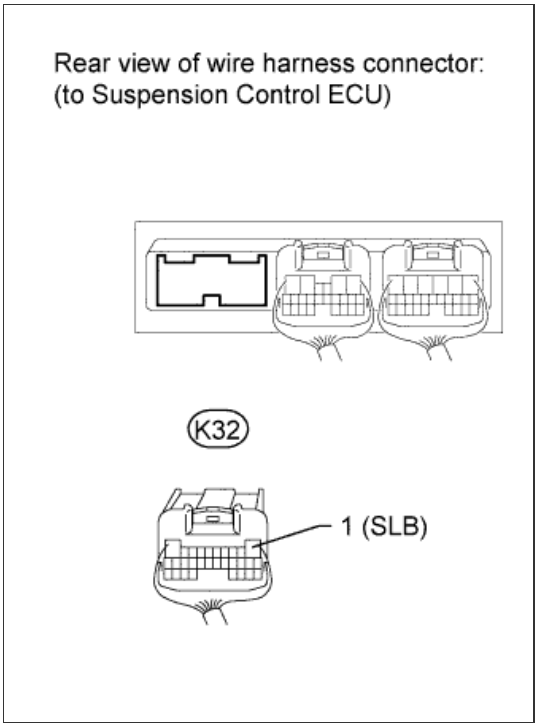
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



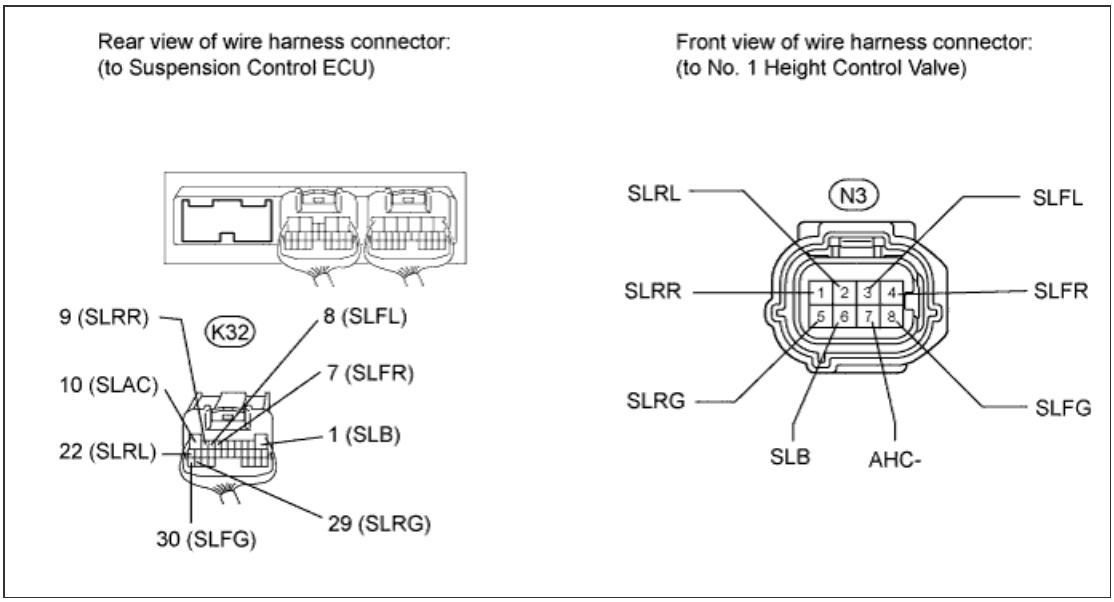
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

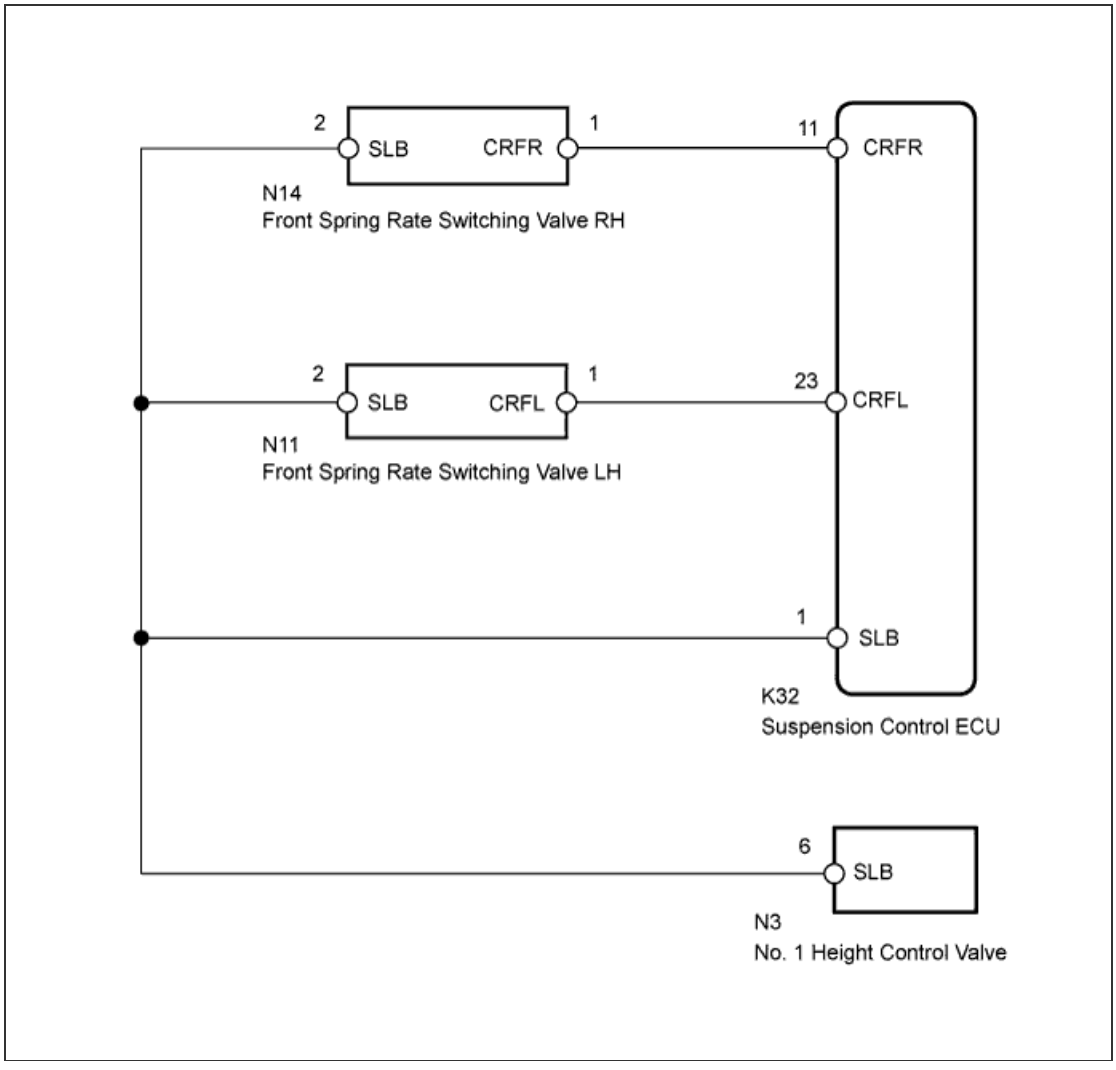
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

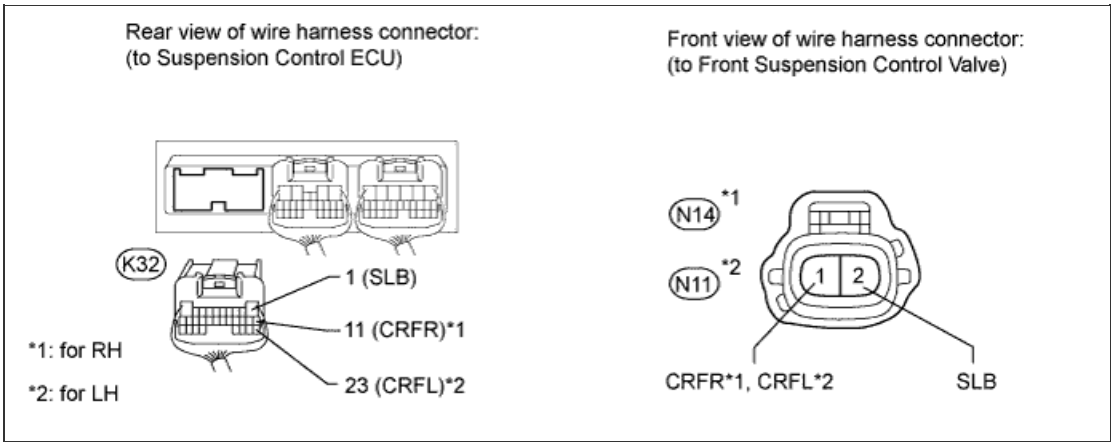
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

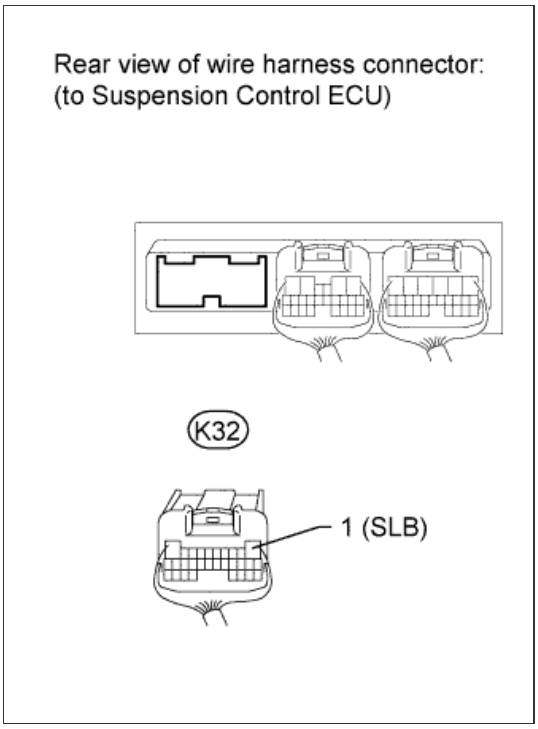
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

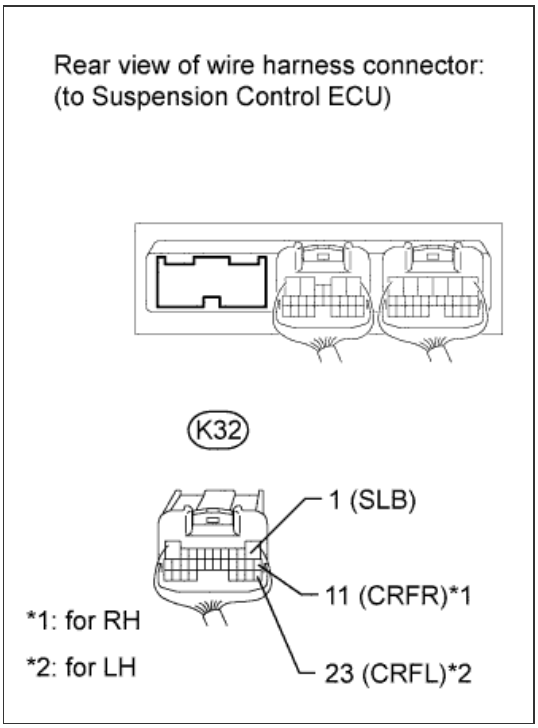
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

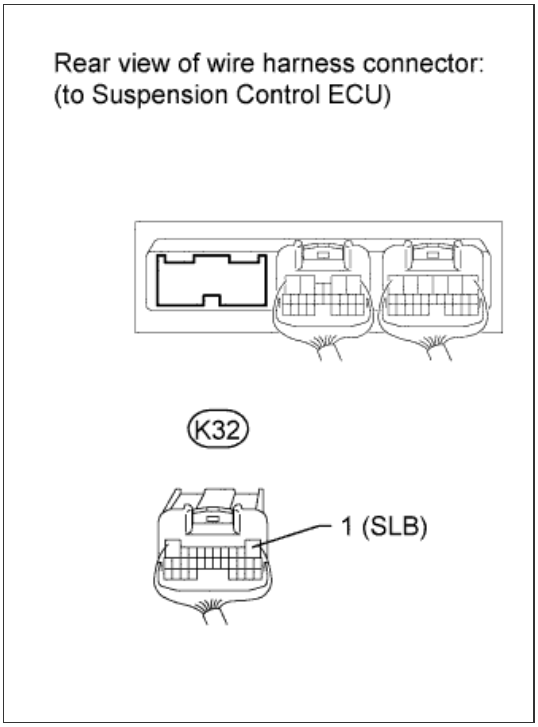
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



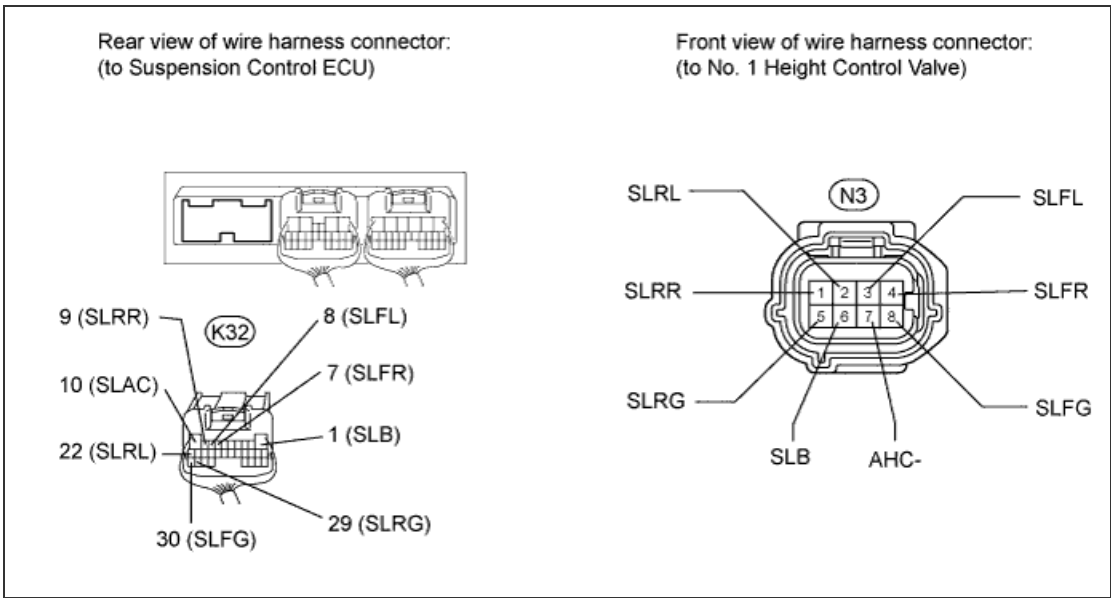
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1736 Front Suspension Control Valve RH Malfunction

DTC C1737 Front Suspension Control Valve LH Malfunction

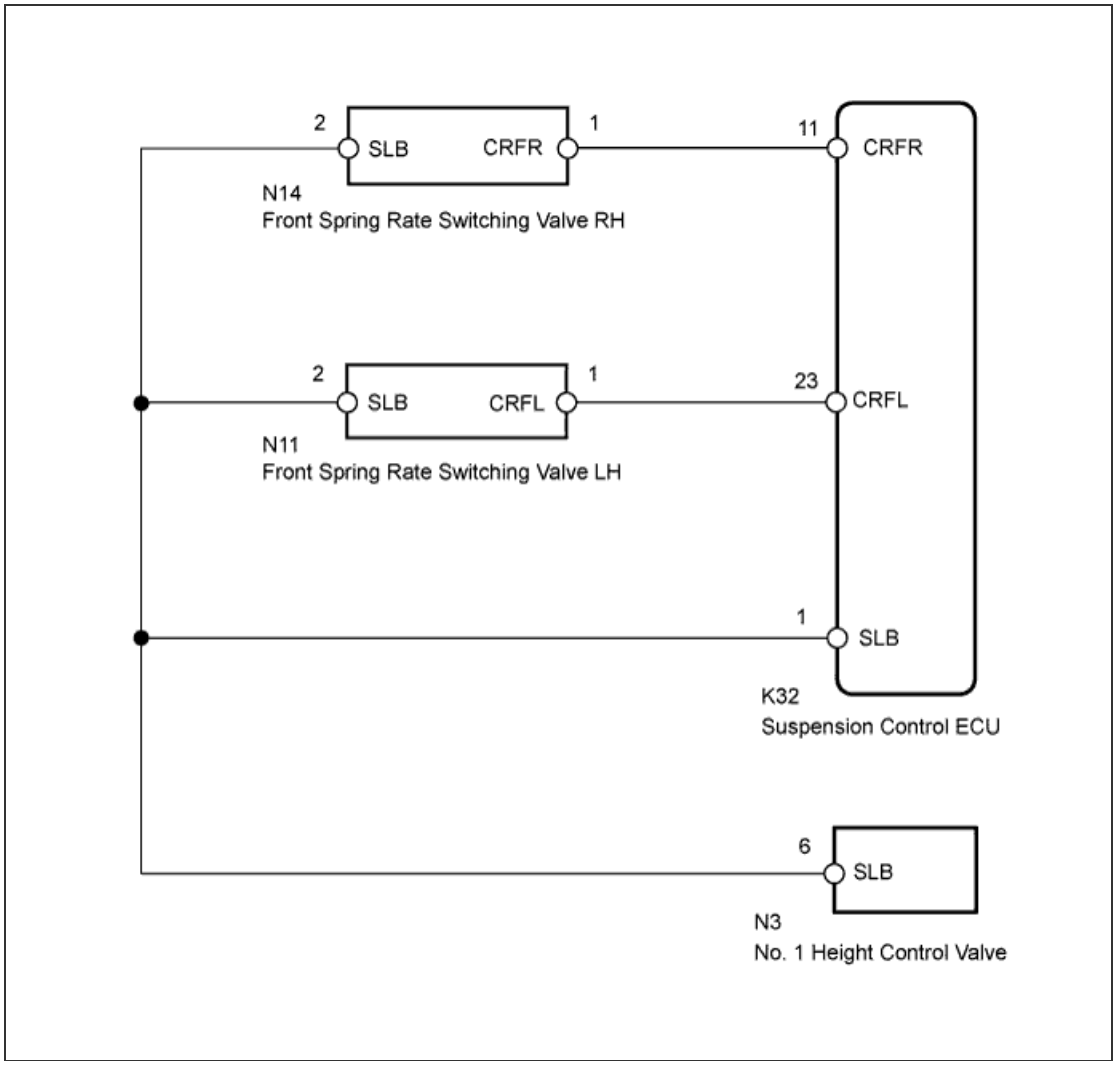
for Preparation Click here

DESCRIPTION

In order to decrease roll angle/pitch angle, the suspension control ECU turns the spring rate switching valve in the front suspension control valve off/on to change the fluid lines when the acceleration sensor or yaw rate sensor signal is input into the suspension control ECU. Normally, the spring rate switching valve is open.

DTC Code	Detection Condition	Trouble area
C1736	When either of the following is detected: • With the spring rate switch valve RH not activated, an open signal of the spring rate switch valve RH is detected for 1 second or more. • With the spring rate switch valve RH activated, a short signal of the spring rate switch valve RH is detected 8 times successively.	• Harness or connector • Front suspension control valve RH (Front spring rate switching valve RH) • Suspension control ECU • No. 1 height control valve
C1737	When either of the following is detected: • With the spring rate switch valve LH not activated, an open signal of the spring rate switch valve LH is detected for 1 second or more. • With the spring rate switch valve LH activated, a short signal of the spring rate switch valve LH is detected 8 times successively.	• Harness or connector • Front suspension control valve LH (Front spring rate switching valve LH) • Suspension control ECU • No. 1 height control valve

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the front suspension control valve and No. 1 height control valve from the suspension control ECU. If a short occurs in the power supply circuit in the No. 1 height control valve, DTC C1736 and/or C1737 will be stored. In this case, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (FRONT SPRING RATE SWITCHING VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the front spring rate switching valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
FR Gas Spring Switch Valve	Front spring rate switching valve RH	ON or OFF	When the FR Gas Spring Switch Valve item of the Active Test is operated, the FR Gas Spring Switch Valve item of the Data List changes to ON/OFF.
FL Gas Spring Switch Valve	Front spring rate switching valve LH	ON or OFF	When the FL Gas Spring Switch Valve item of the Active Test is operated, the FL Gas Spring Switch Valve item of the Data List changes to ON/OFF.

OK:

The front spring rate switching valve operates.

NG → **Go to step 3**

OK

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → **USE SIMULATION METHOD TO CHECK (Click here)**

A

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

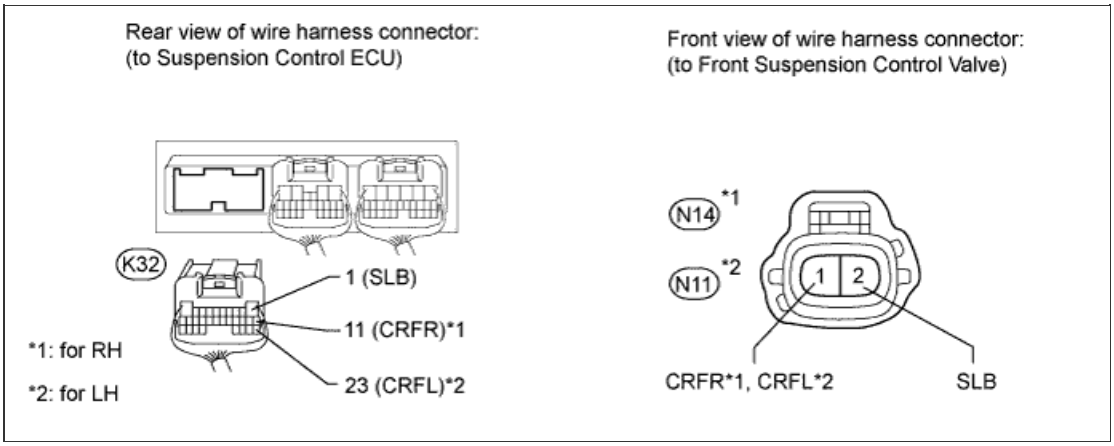
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the K32 ECU connector.

b. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

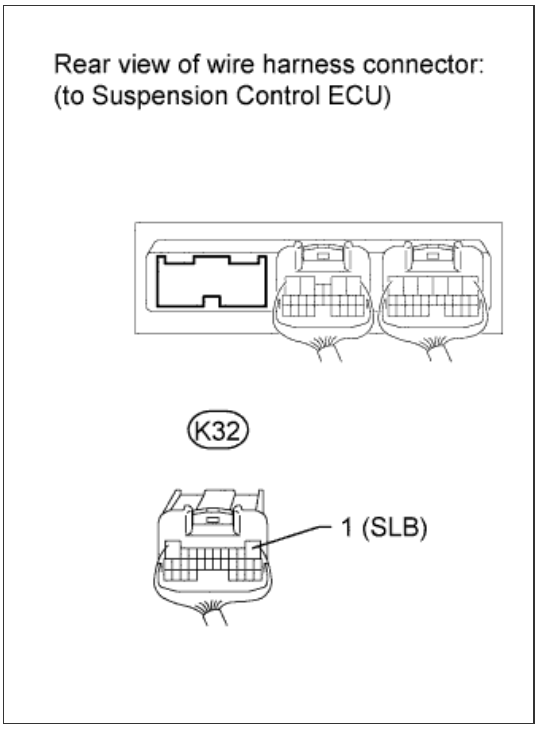
*1: for RH

*2: for LH

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT FRONT SUSPENSION CONTROL VALVE

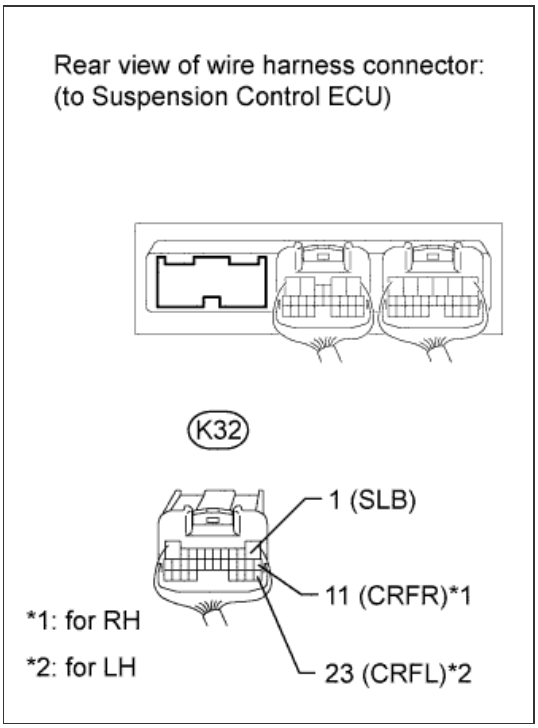
a. Connect the N14 and/or N11 front suspension control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω
K32-23 (CRFL) - K32-1 (SLB)	at 20°C (68°F)	4.58 to 5.02 Ω



NG → REPLACE FRONT SUSPENSION CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

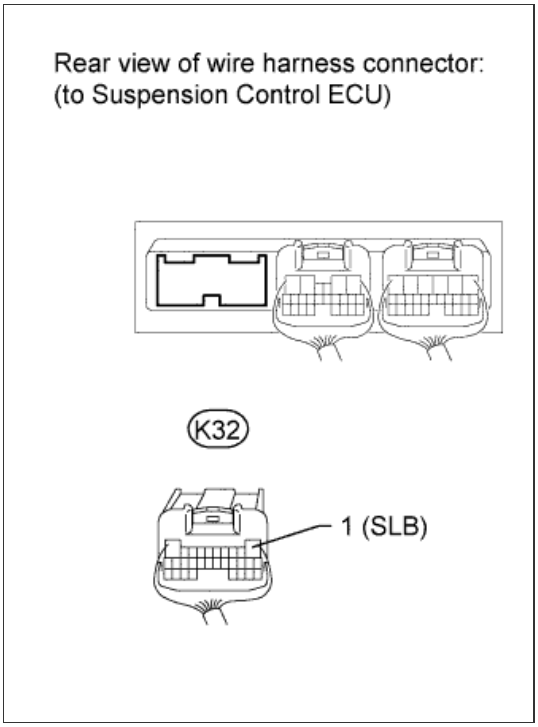
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



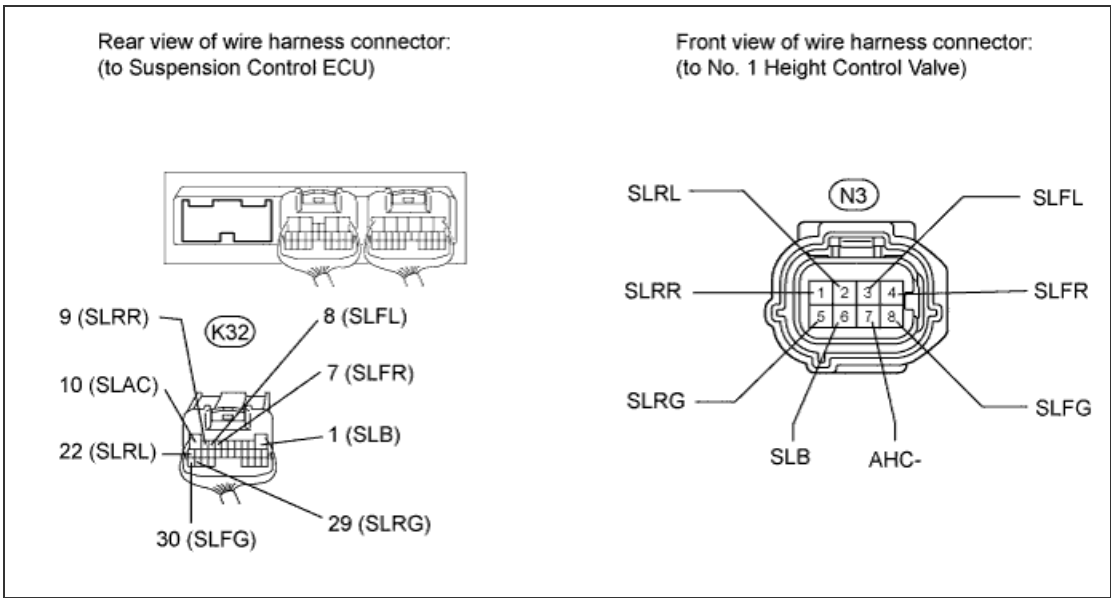
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

		Specified

Tester Connection	Condition	Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

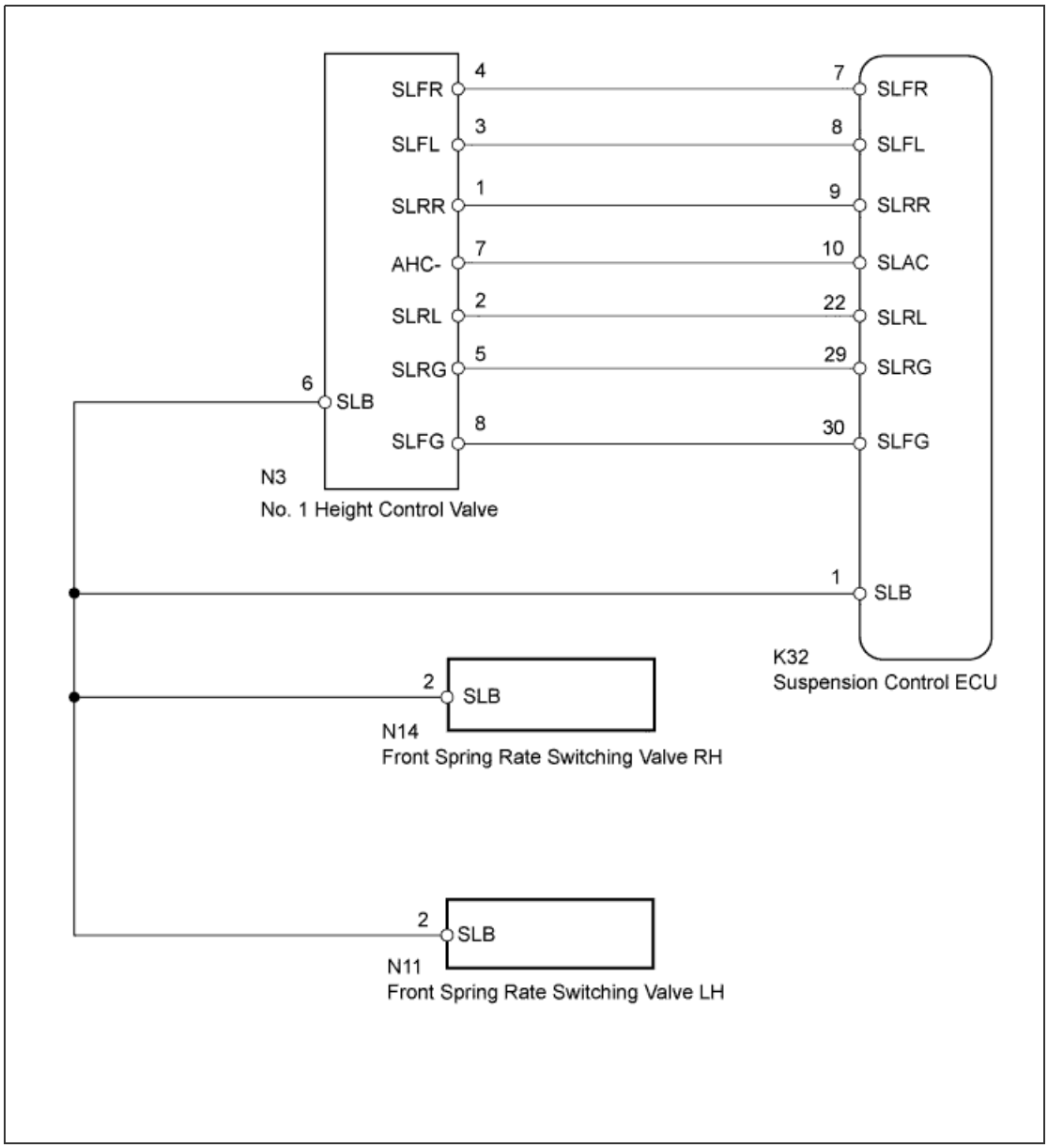
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

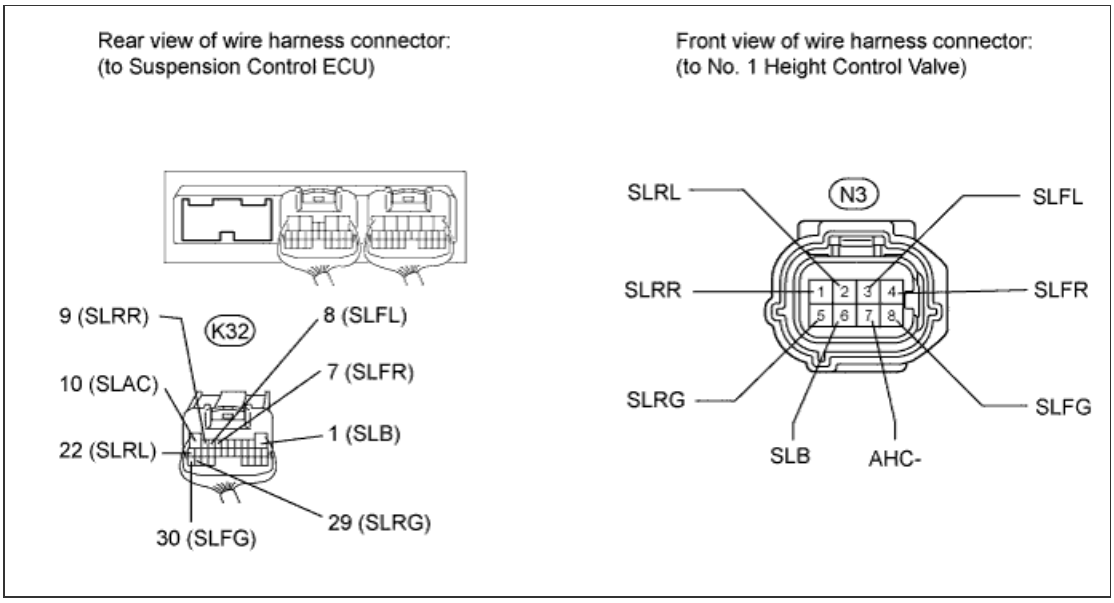
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

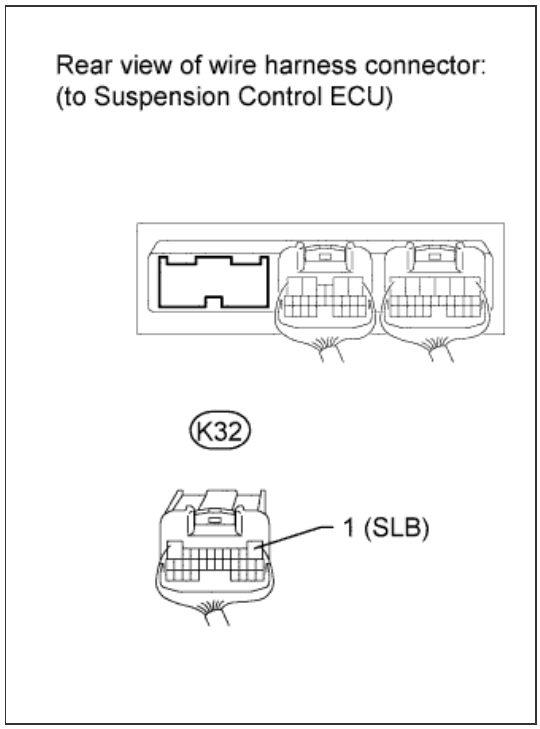
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

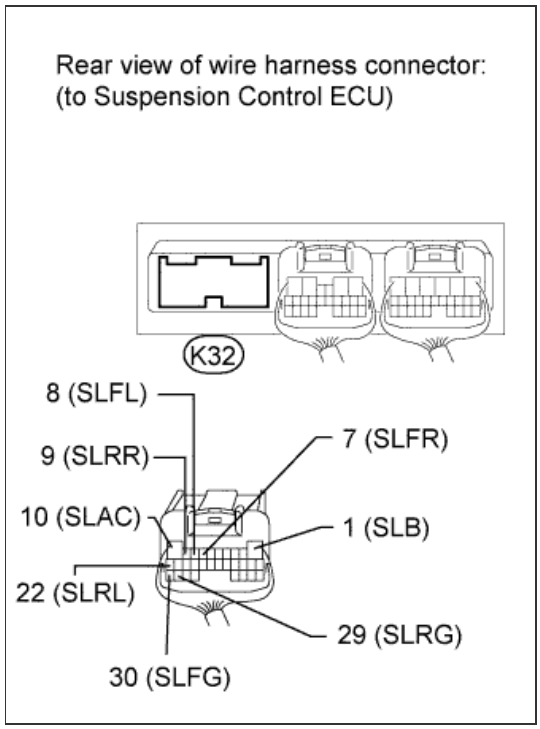
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

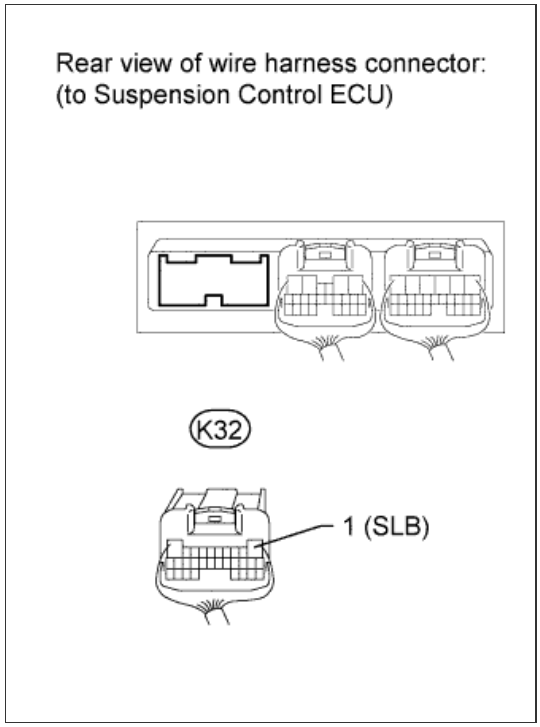
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

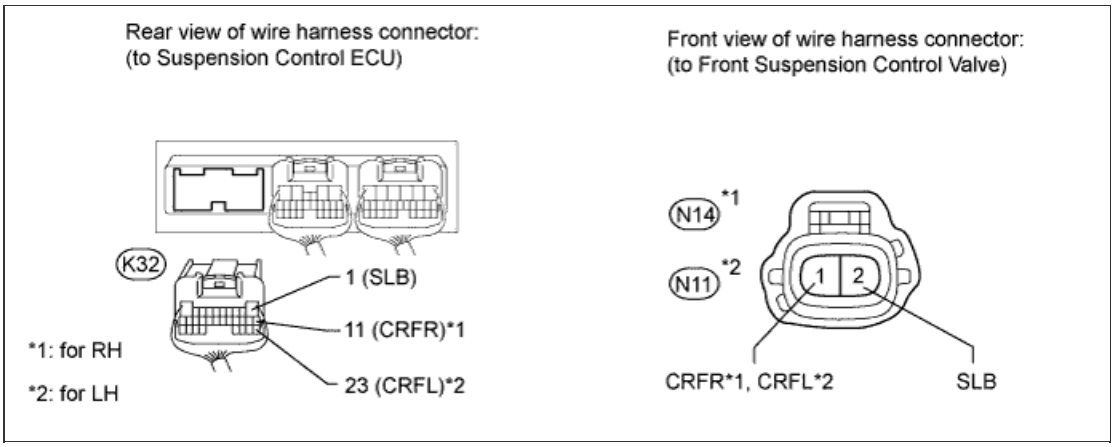
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

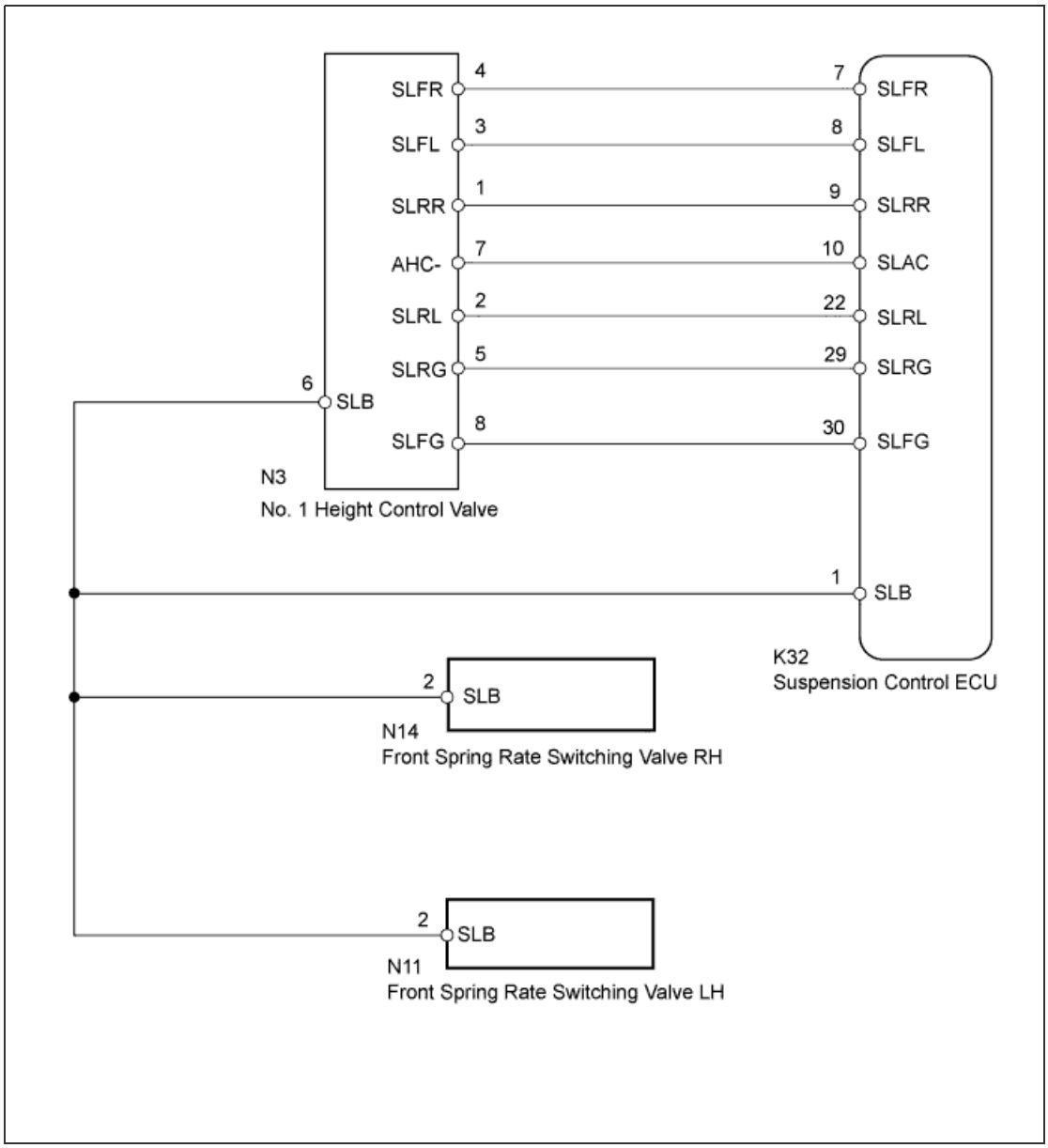
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

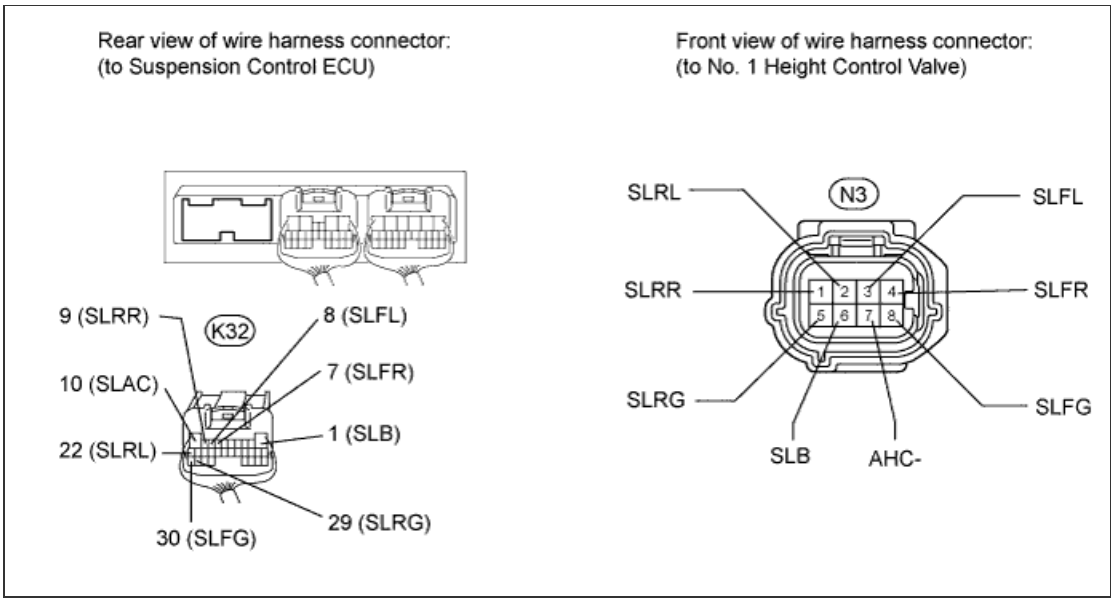
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

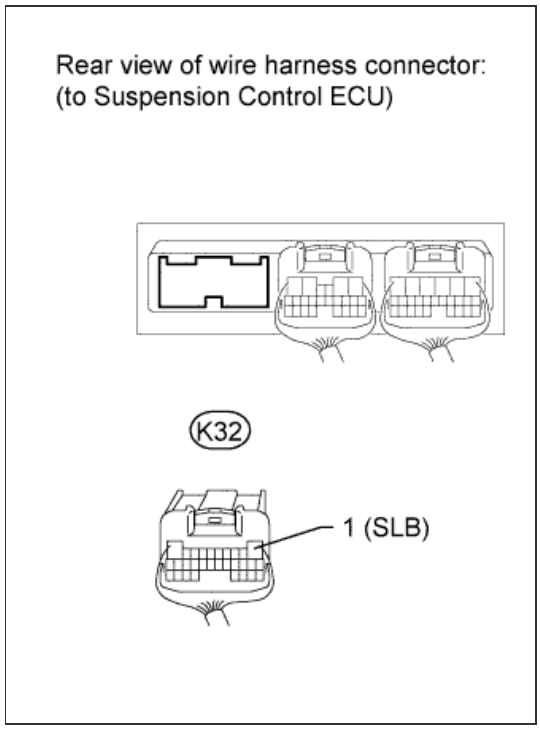
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

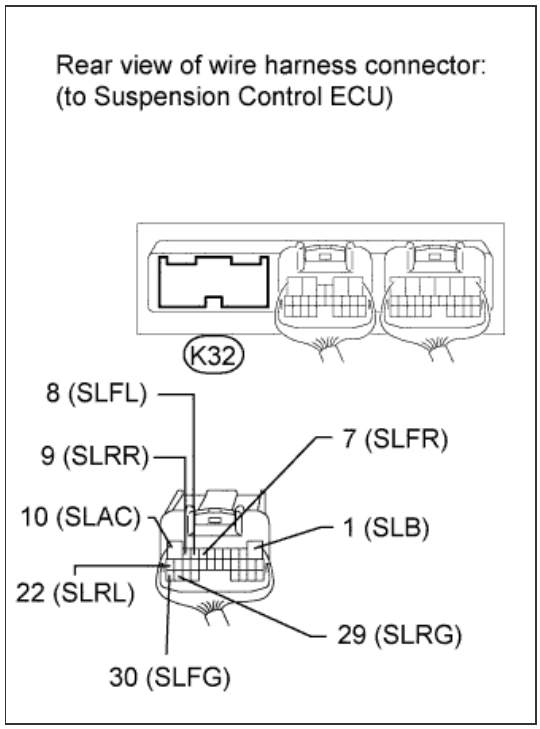
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

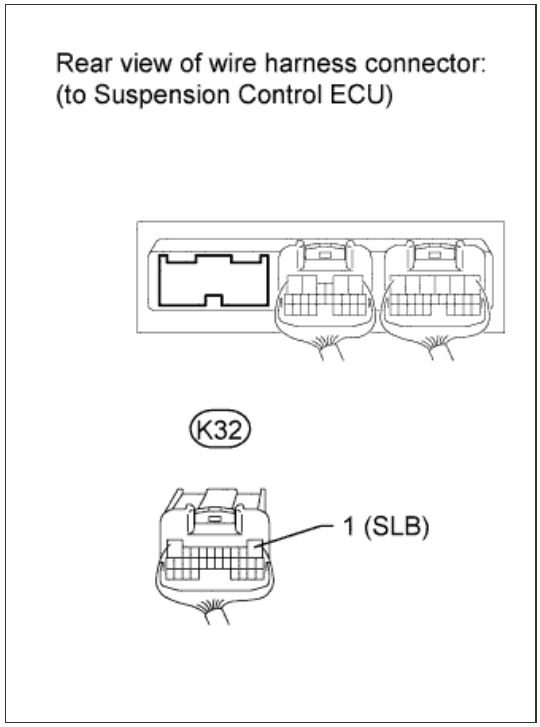
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

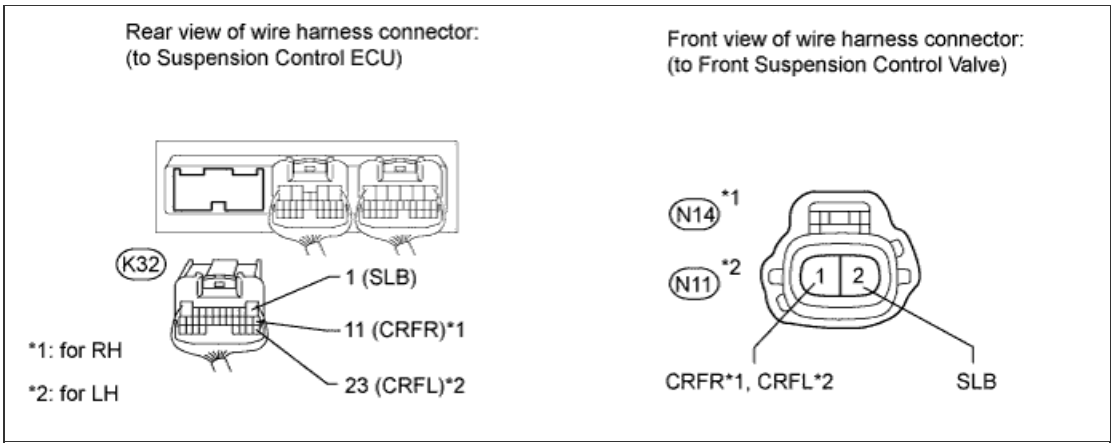
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

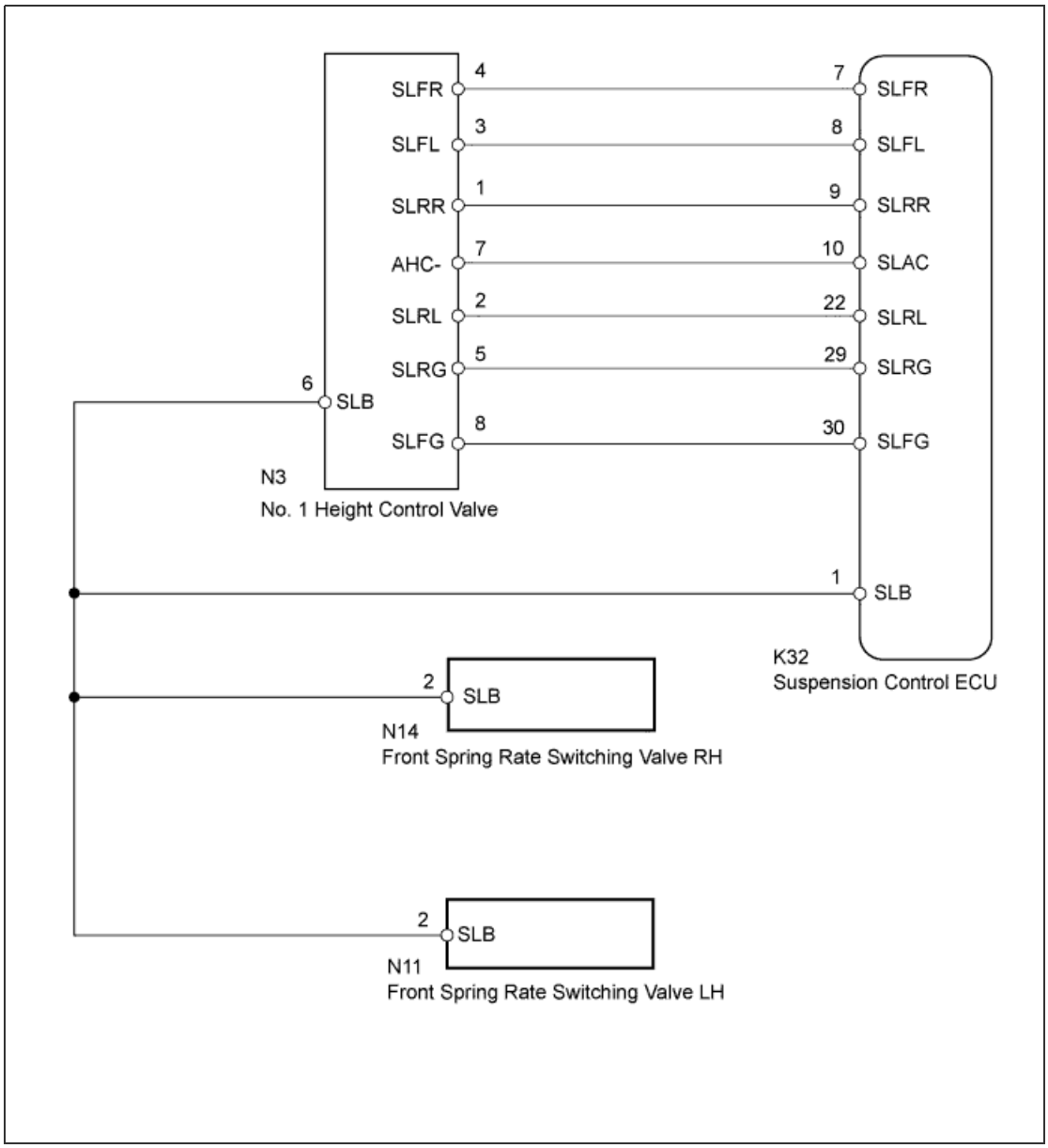
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

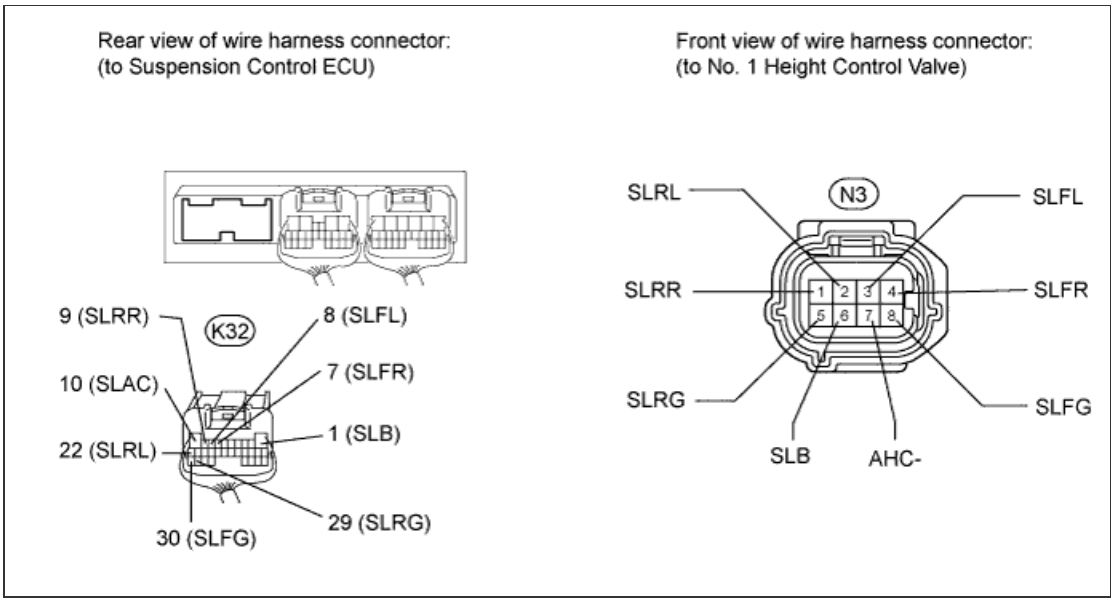
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

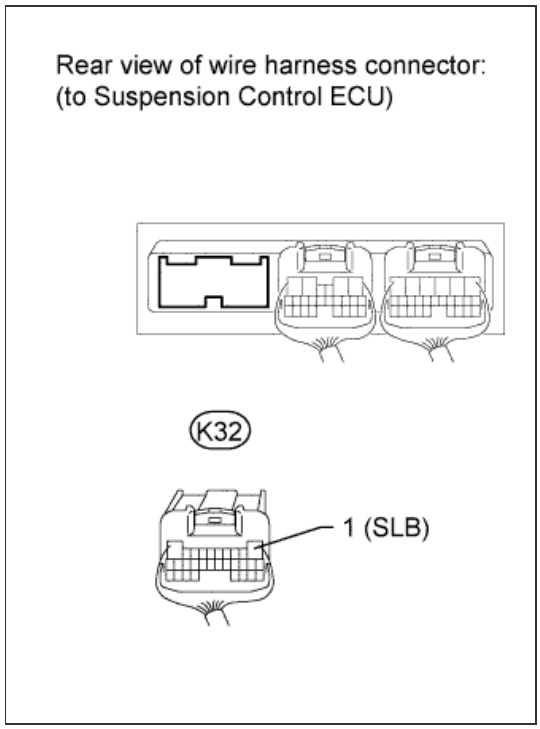
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

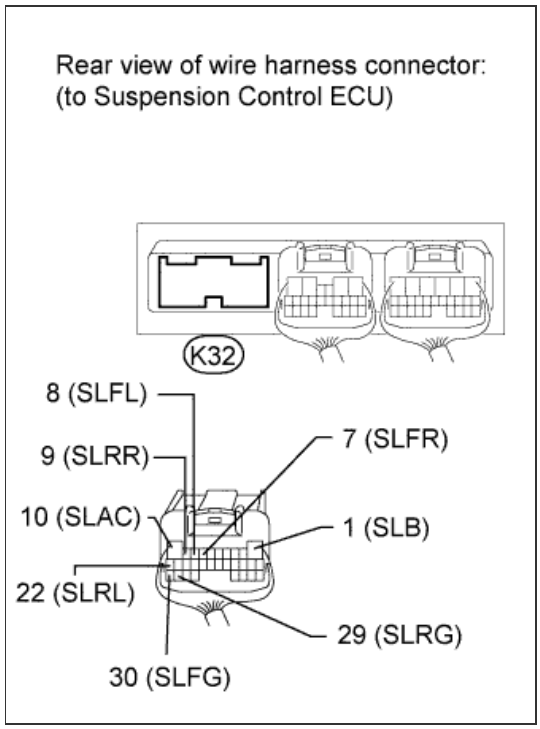
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

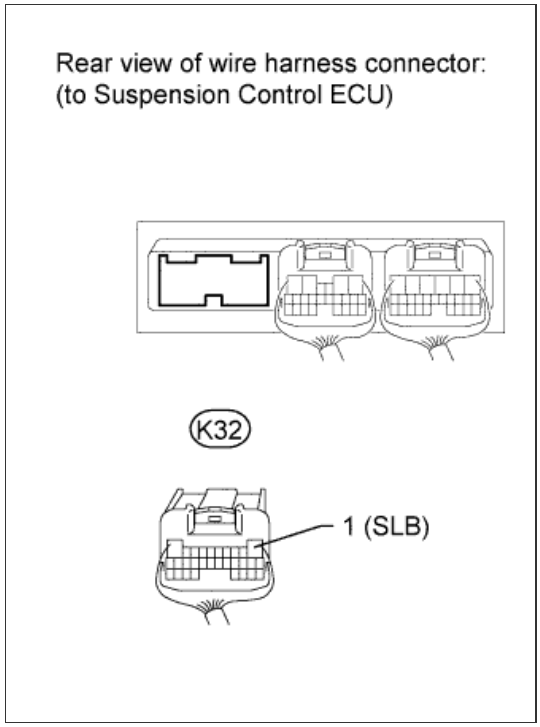
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

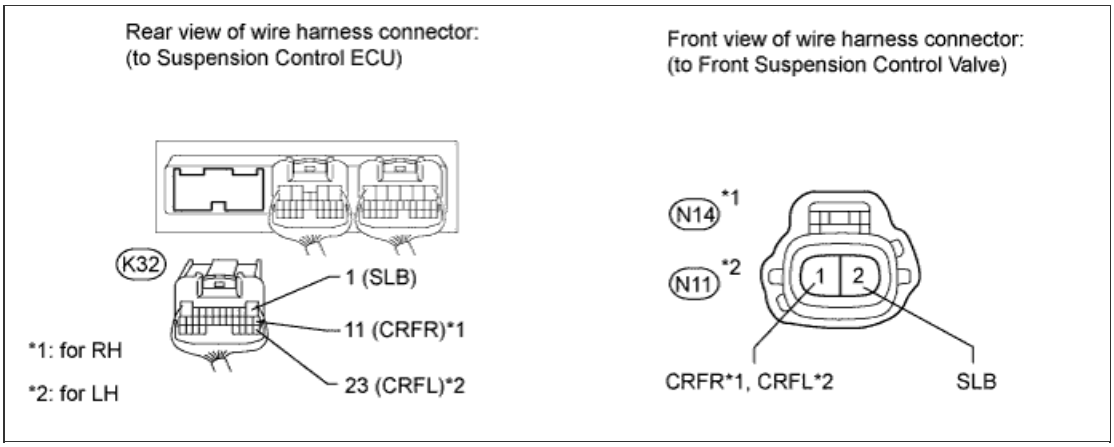
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

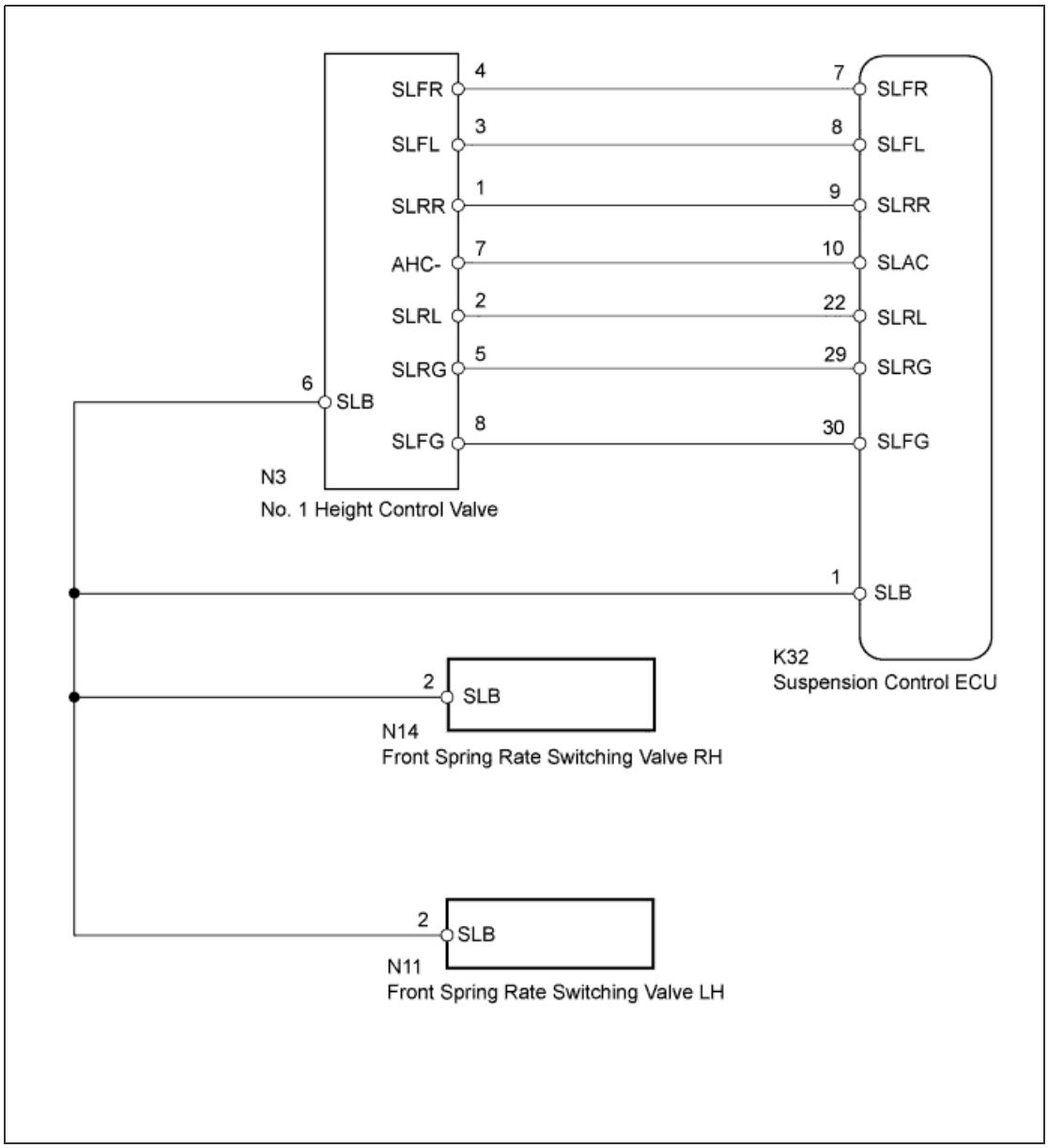
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

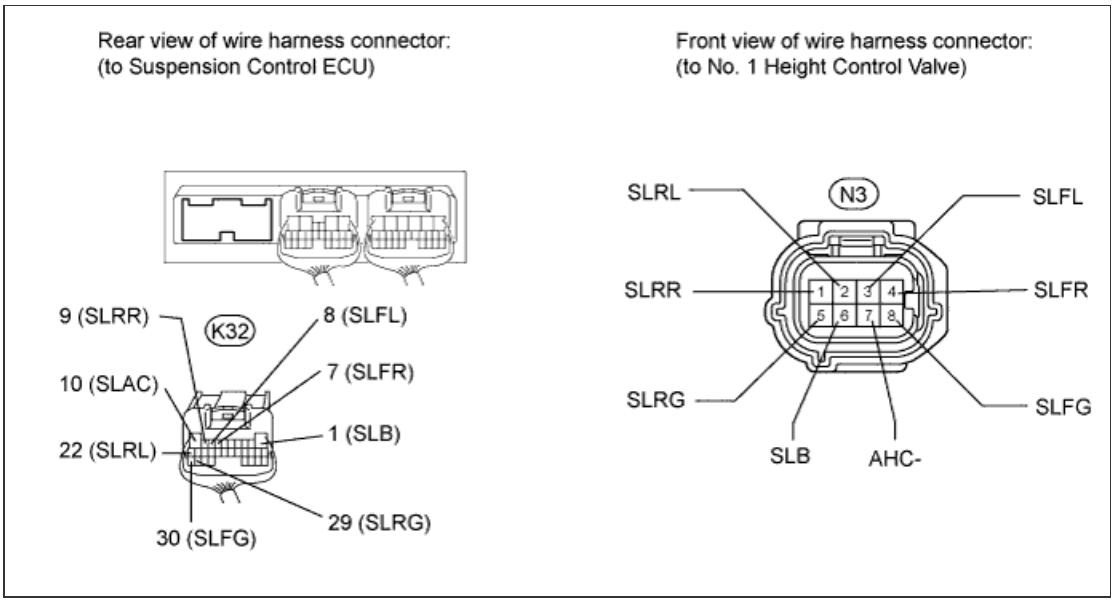
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

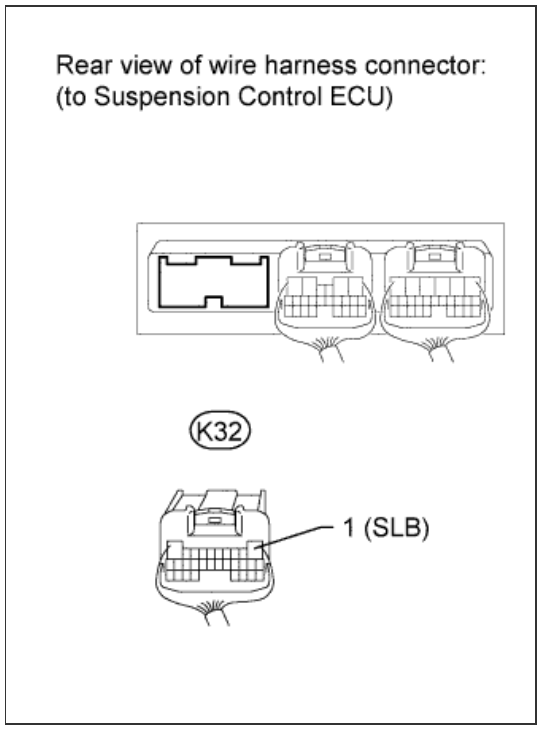
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

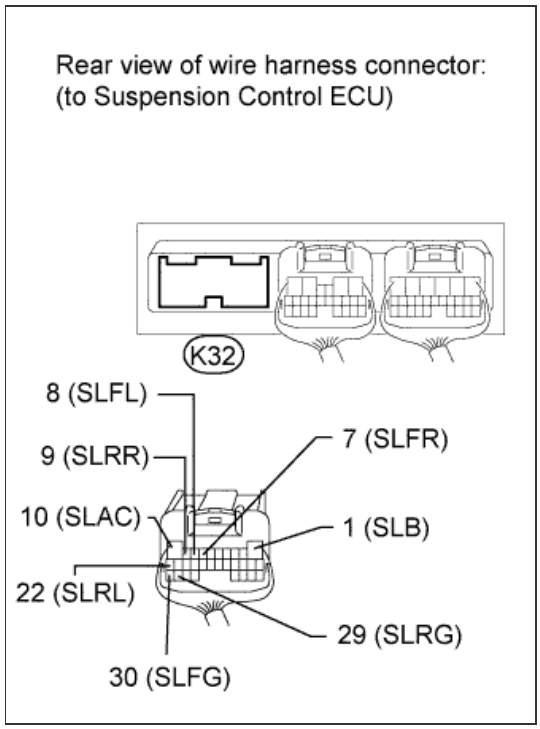
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

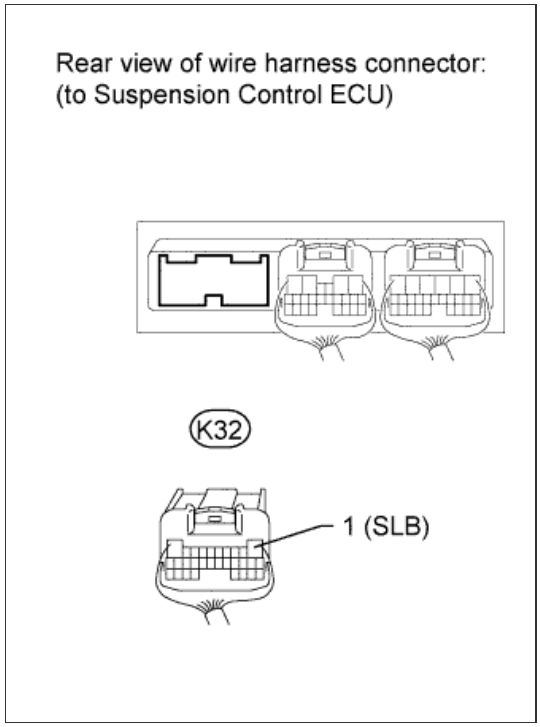
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

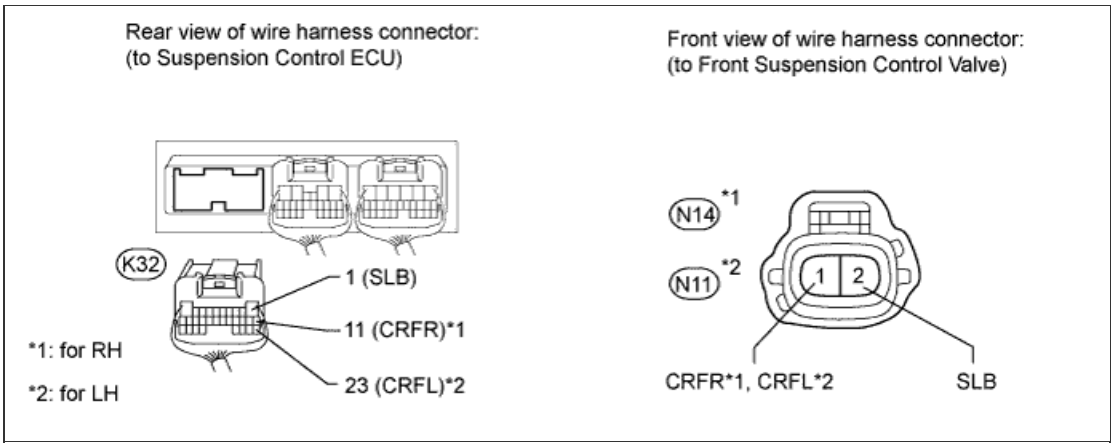
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

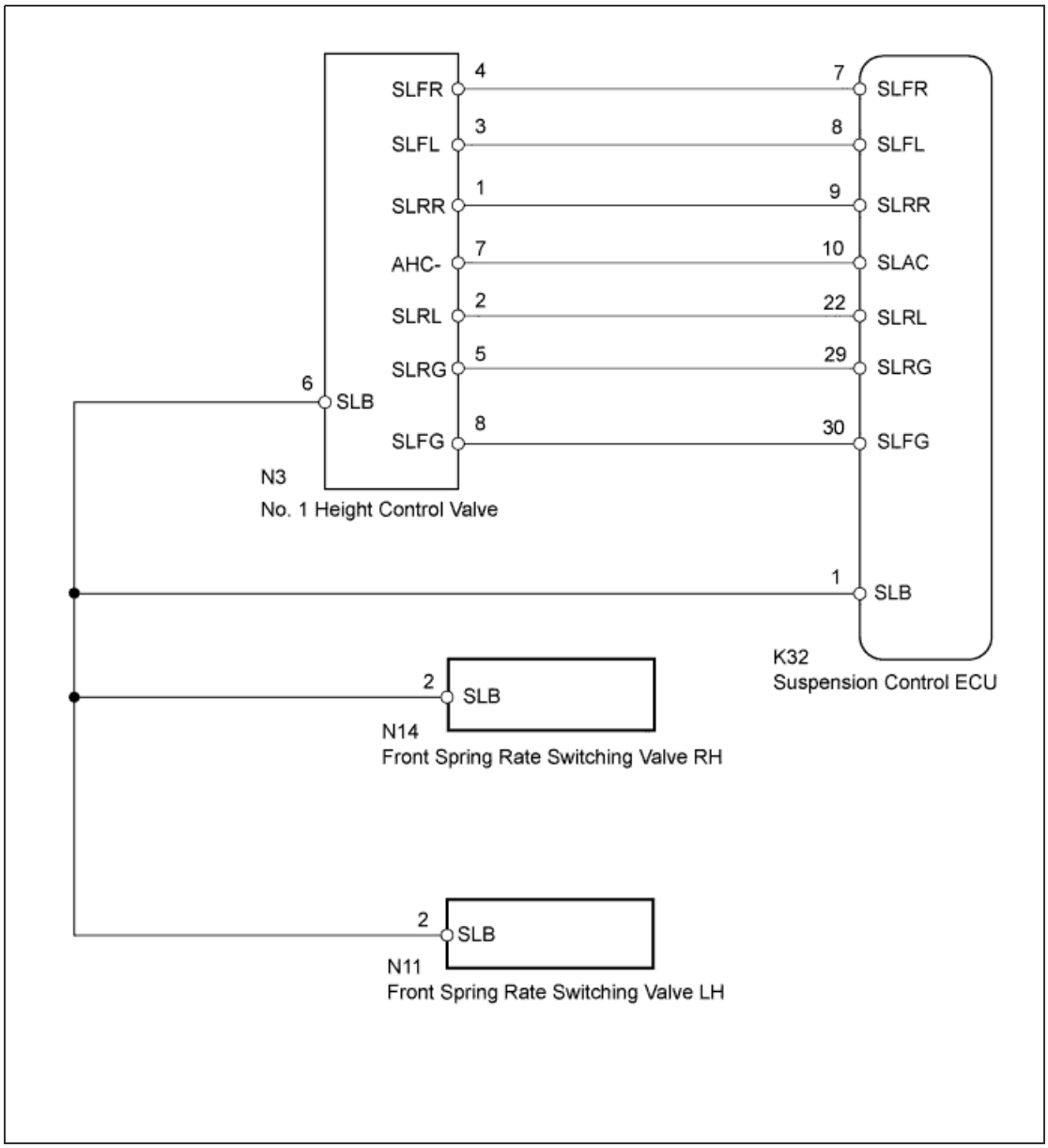
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

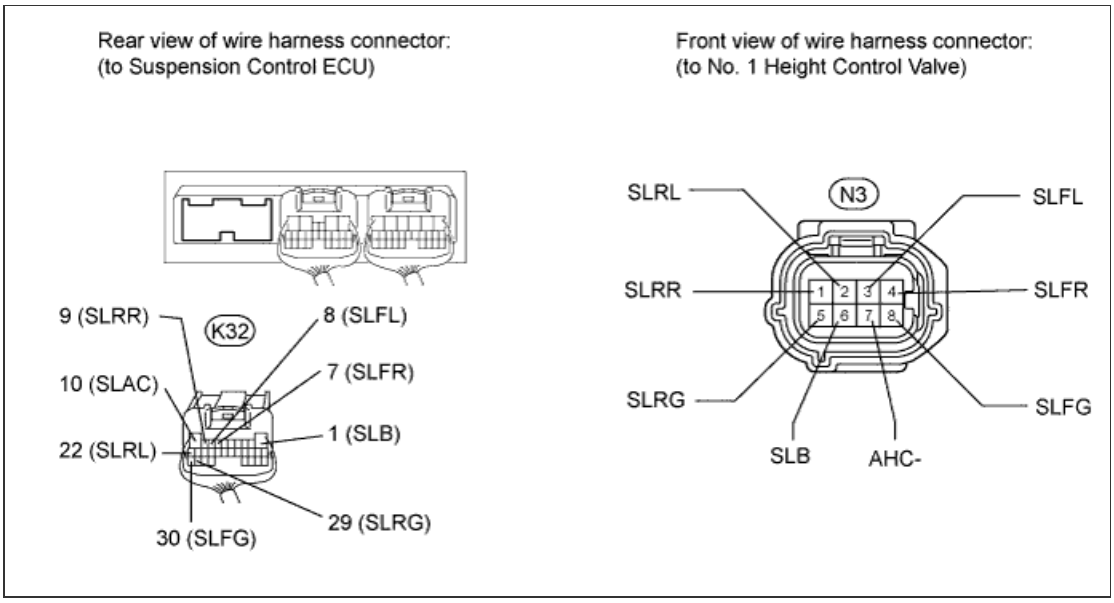
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

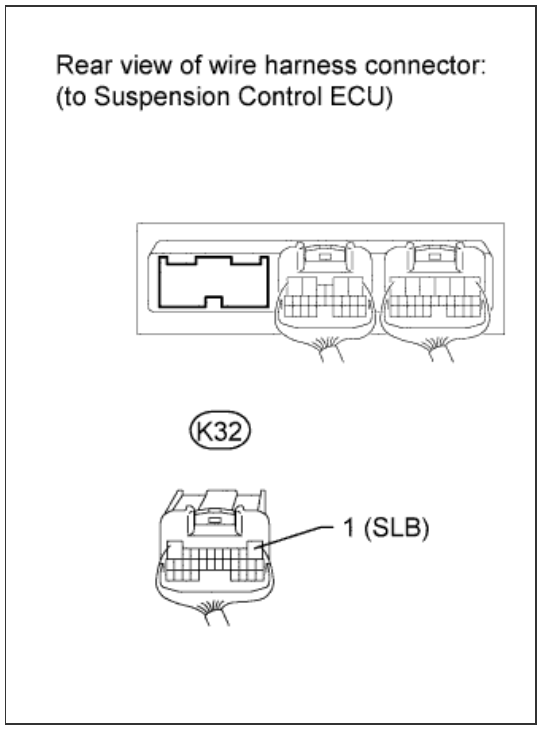
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

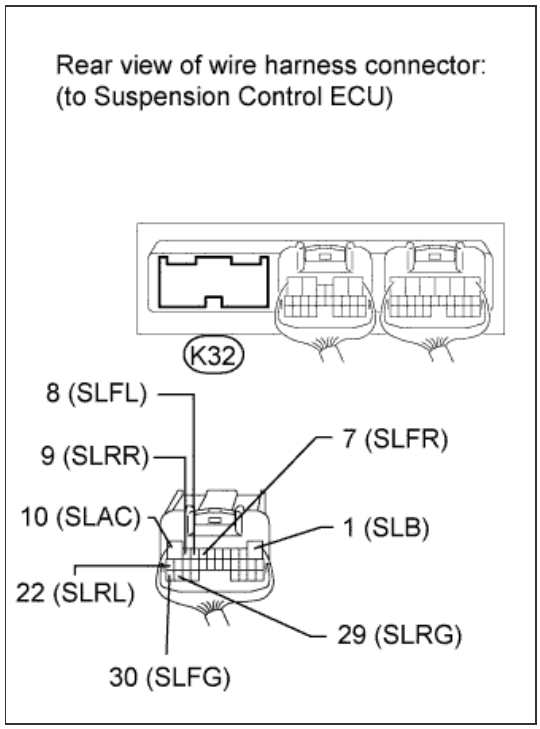
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

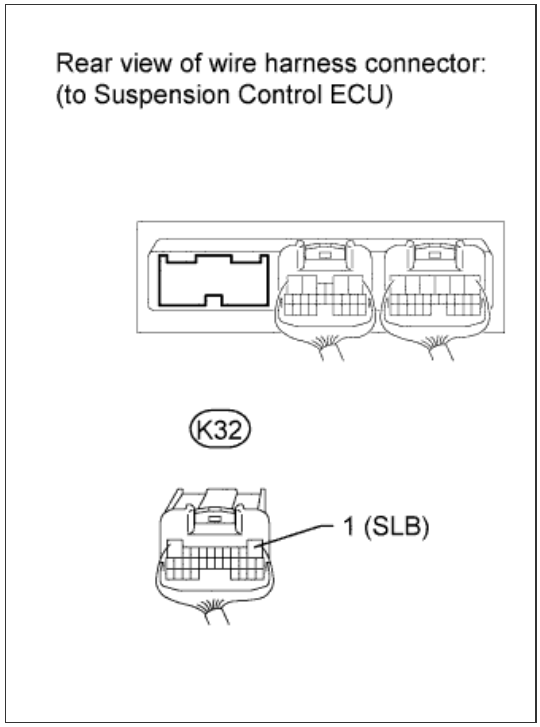
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

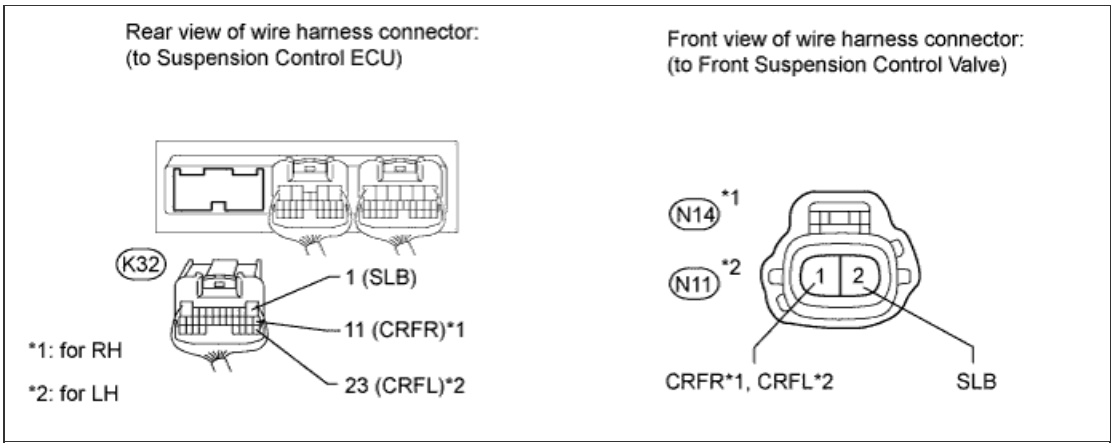
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

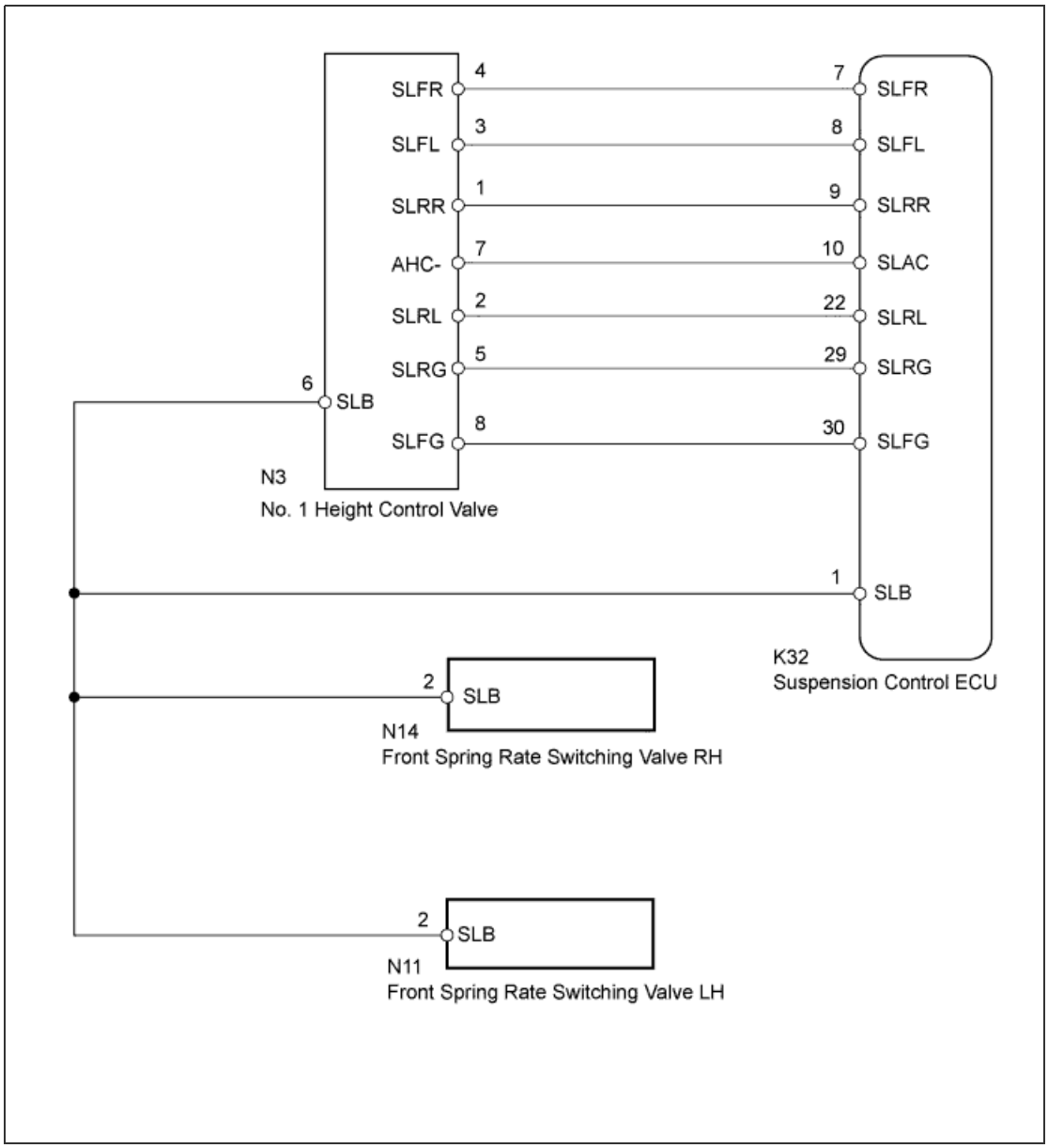
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

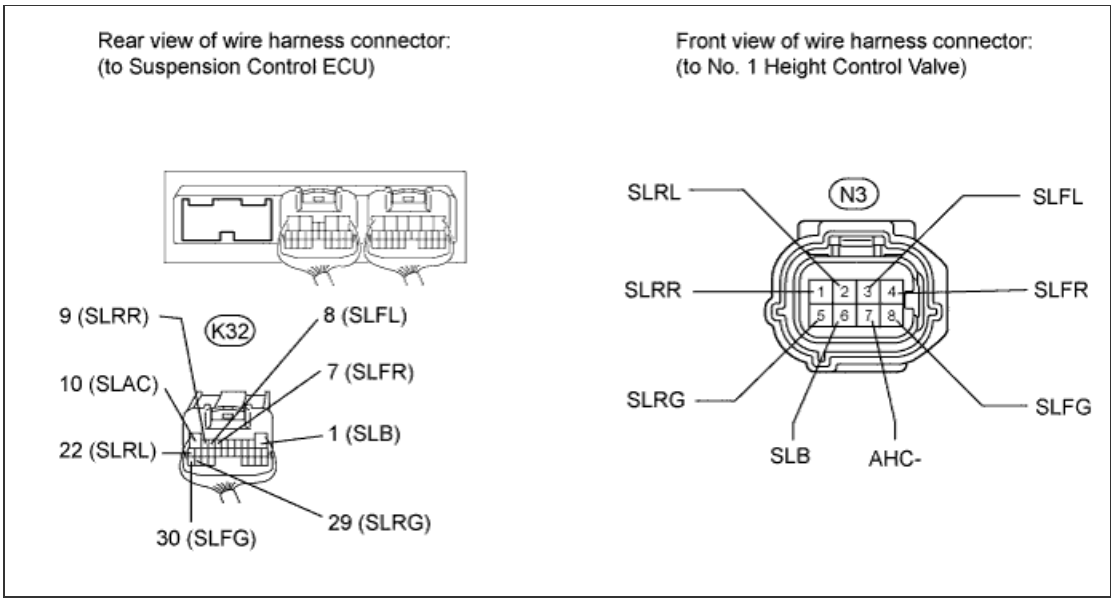
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

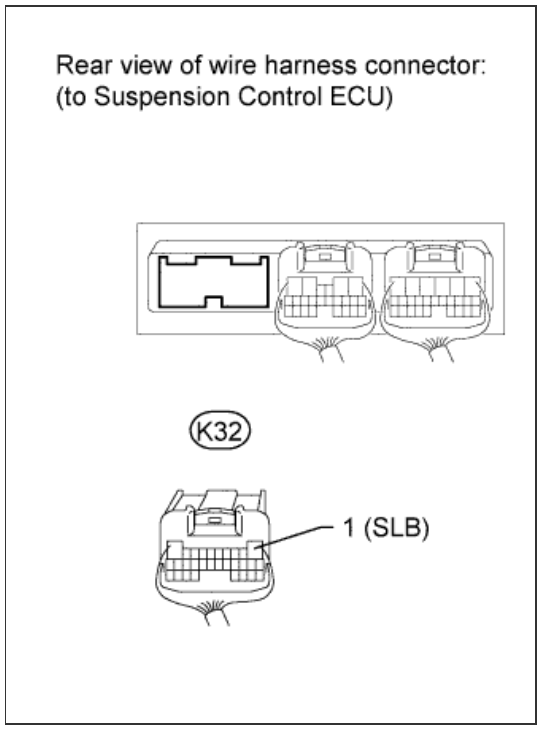
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

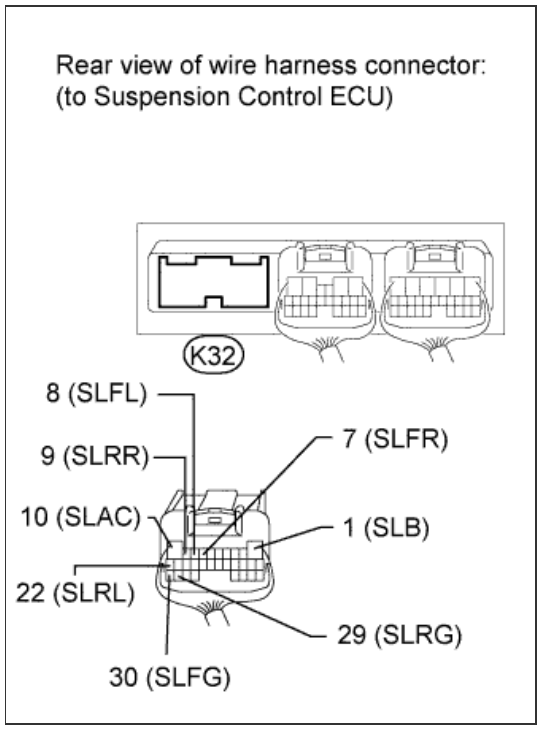
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

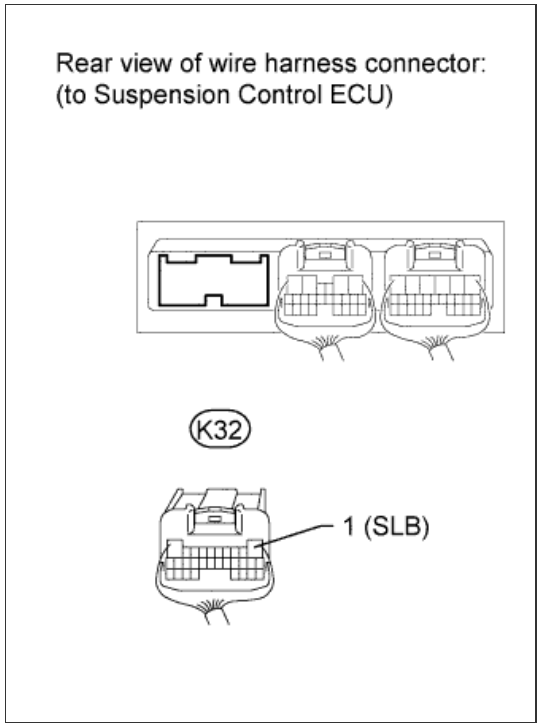
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

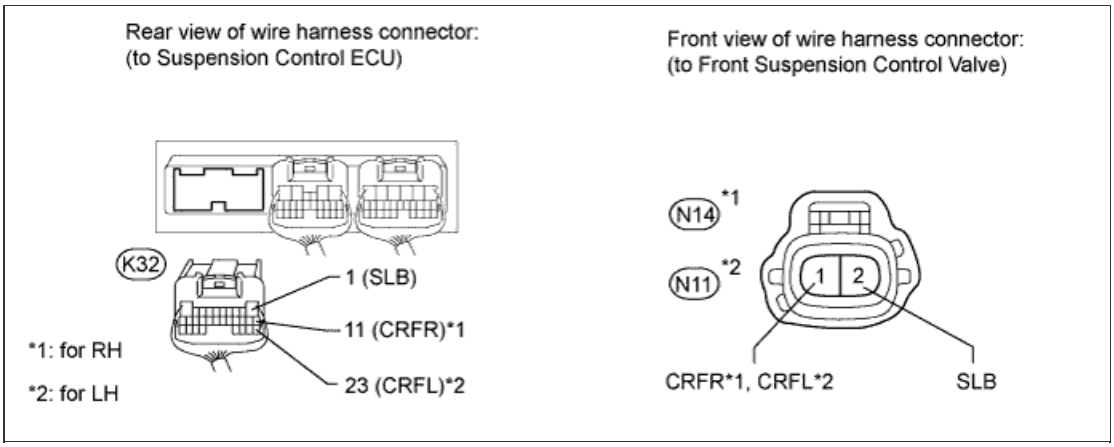
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

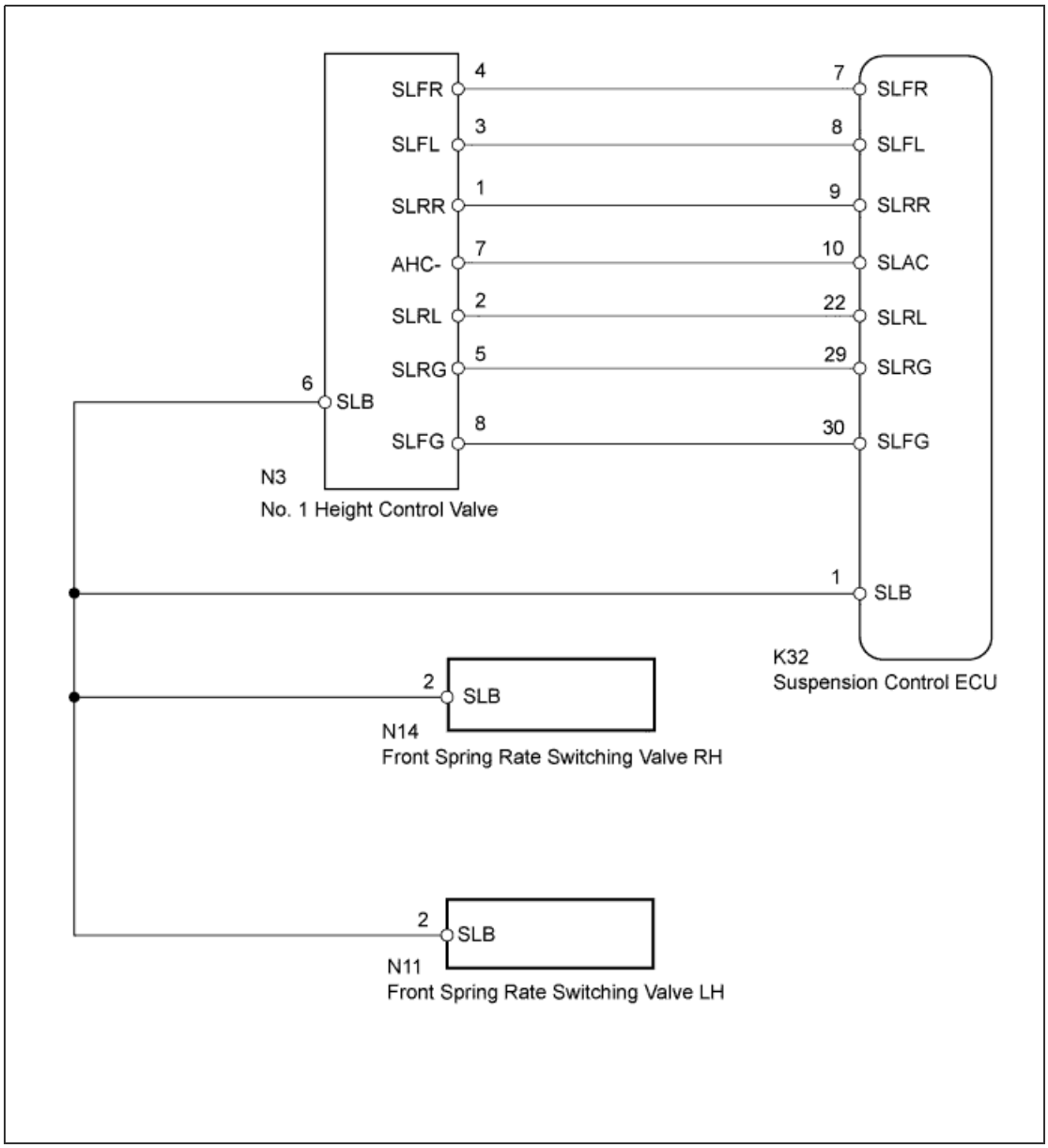
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

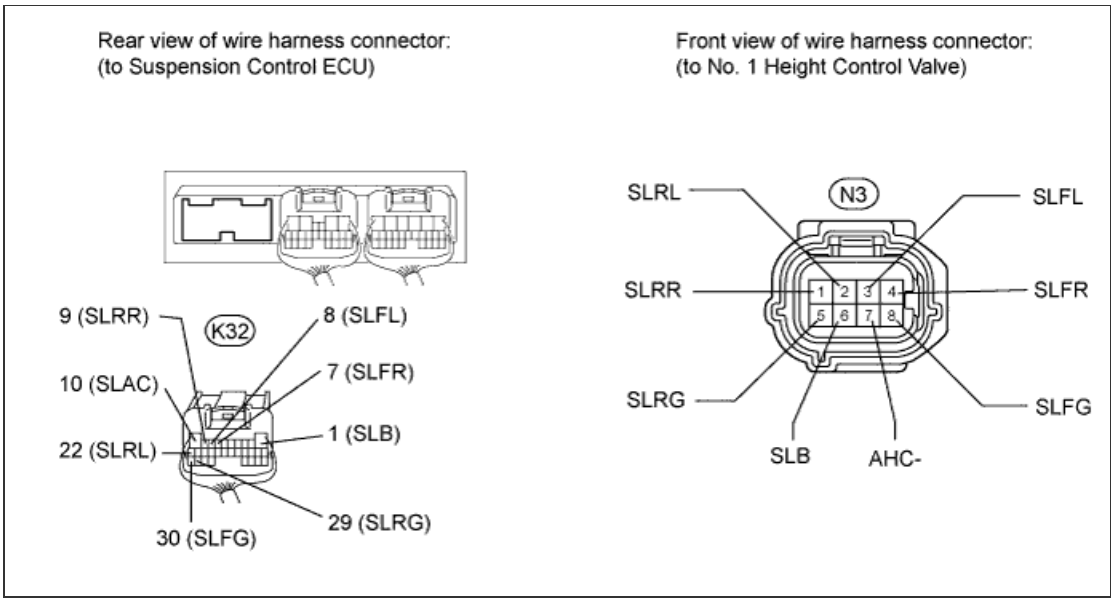
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

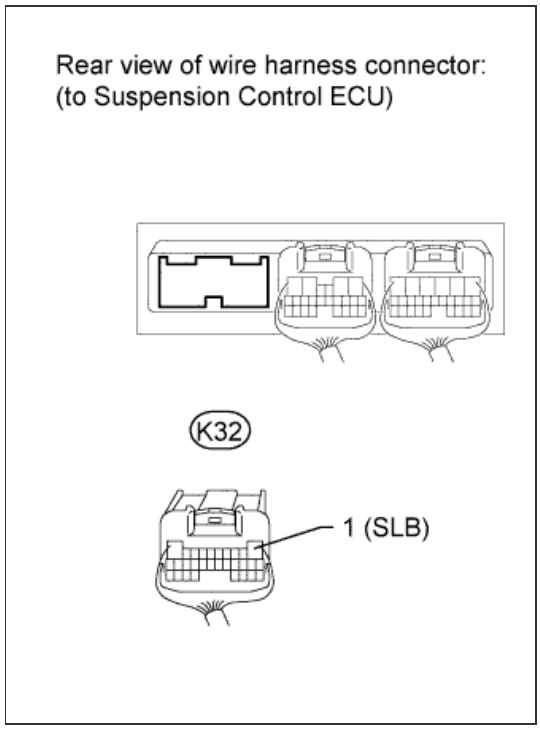
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

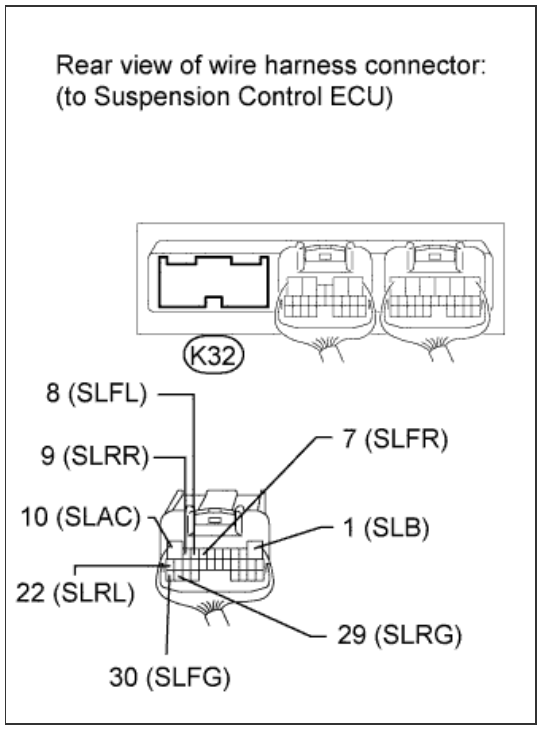
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

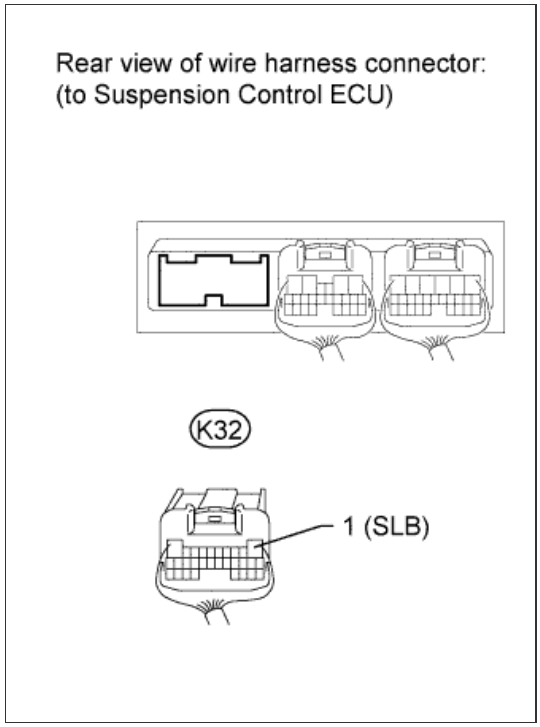
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

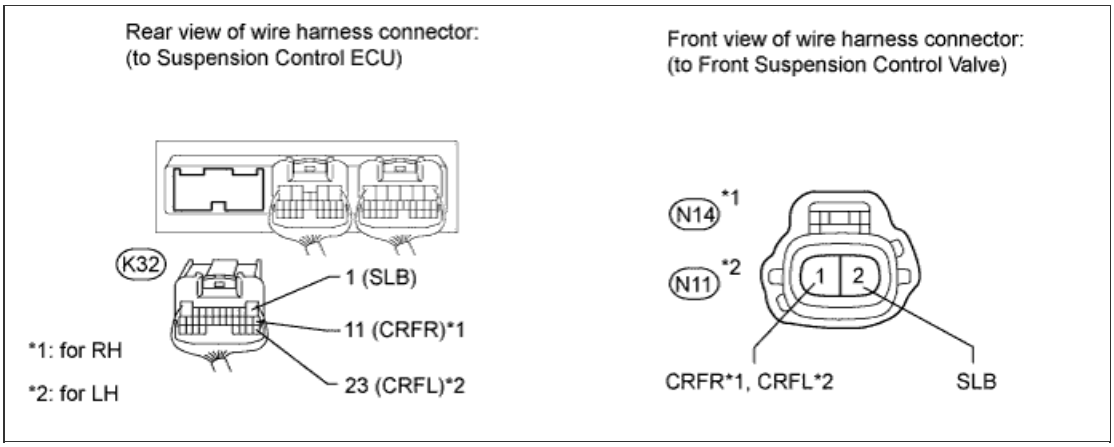
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

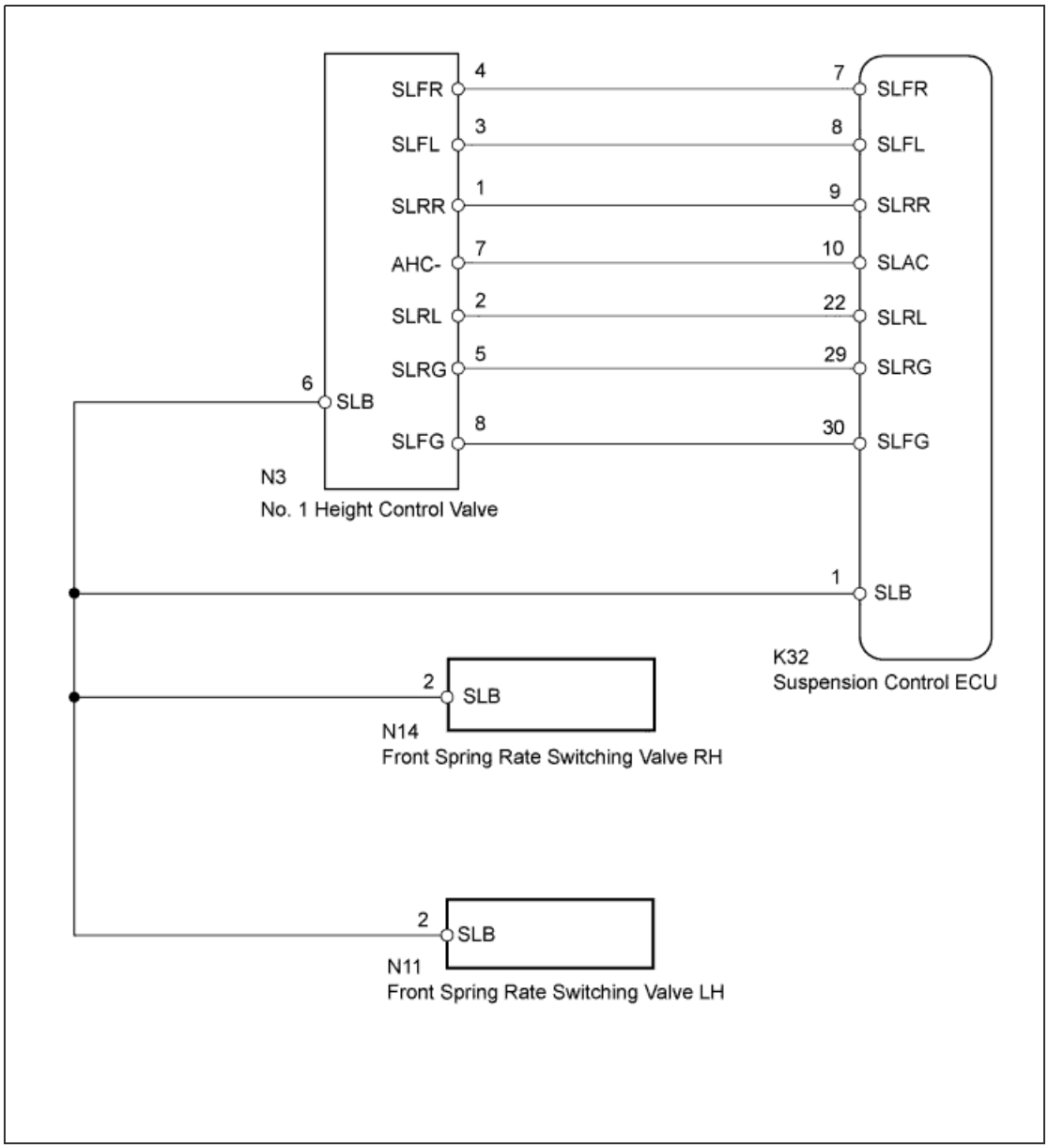
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

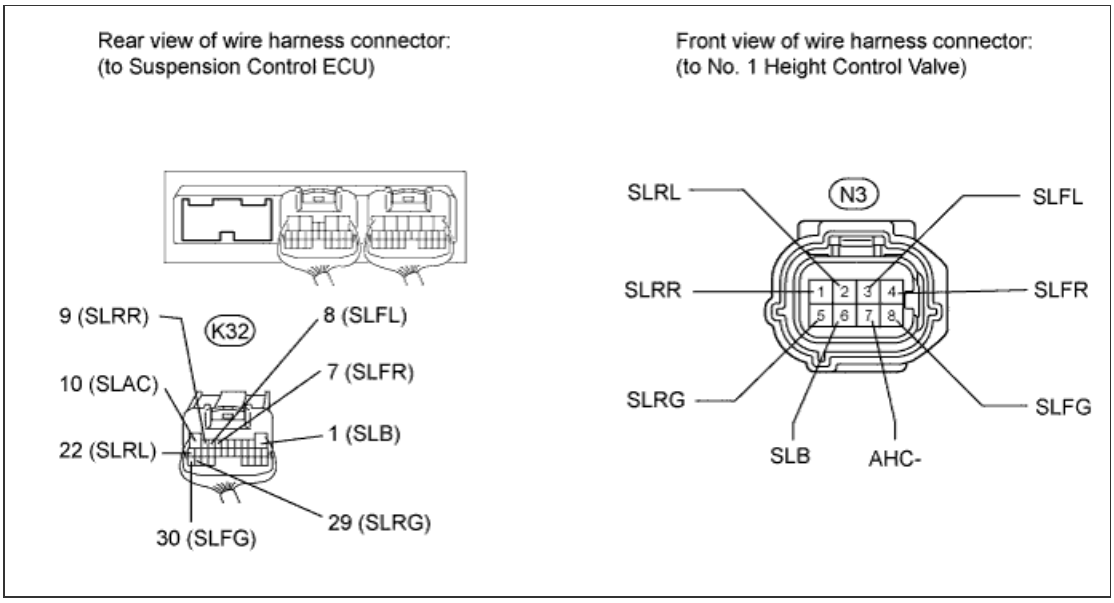
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

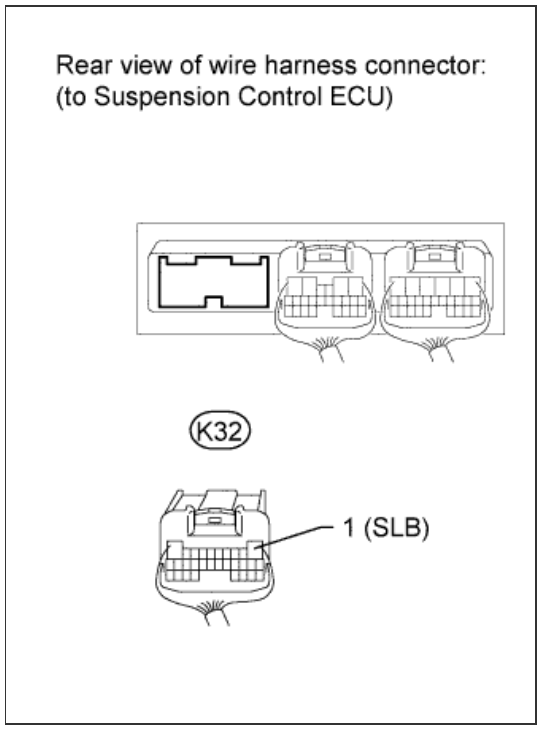
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

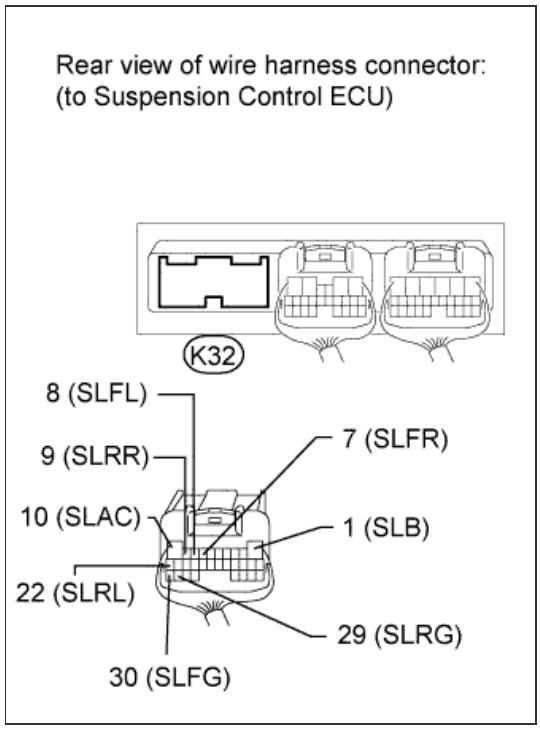
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

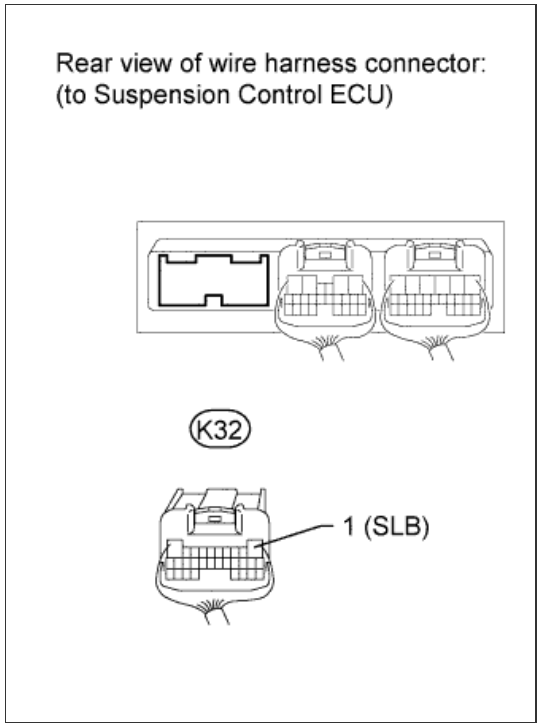
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

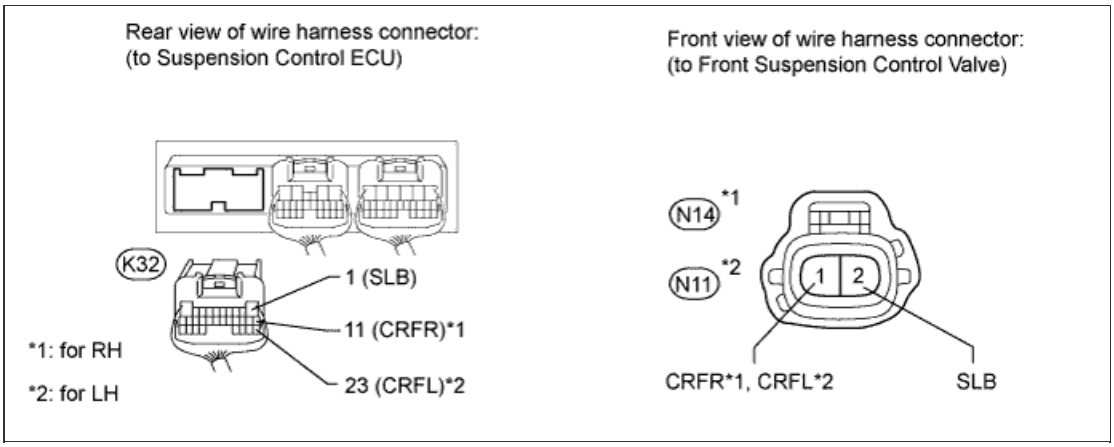
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

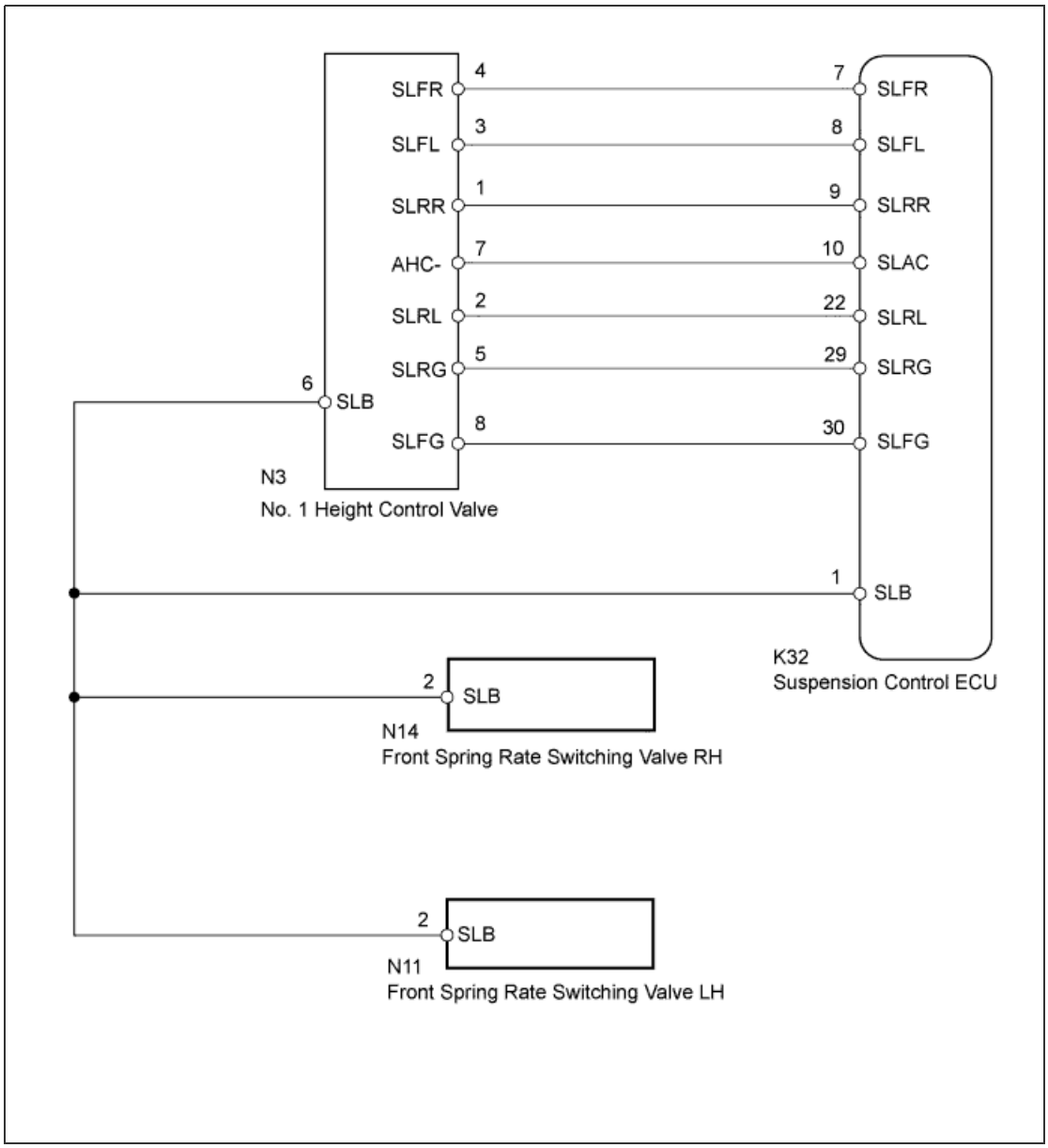
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

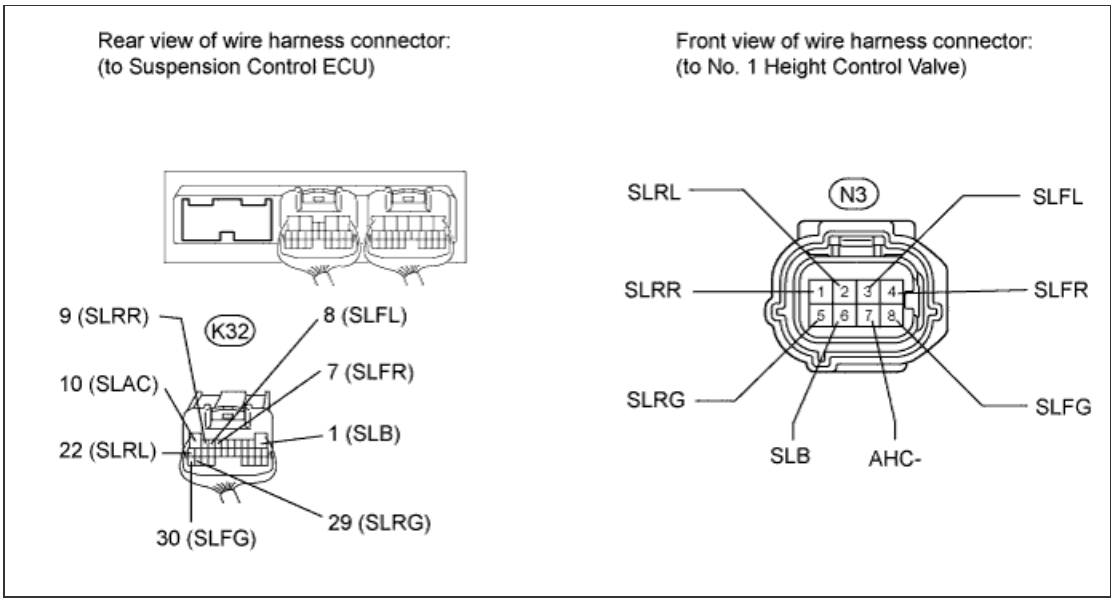
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

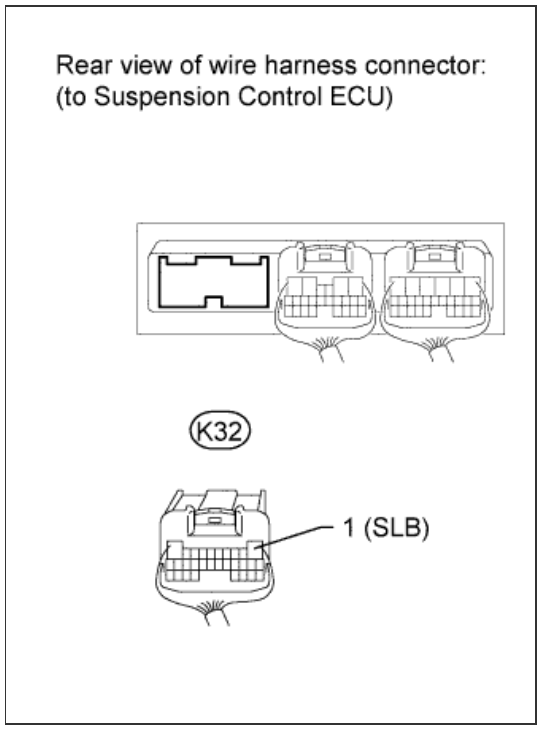
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

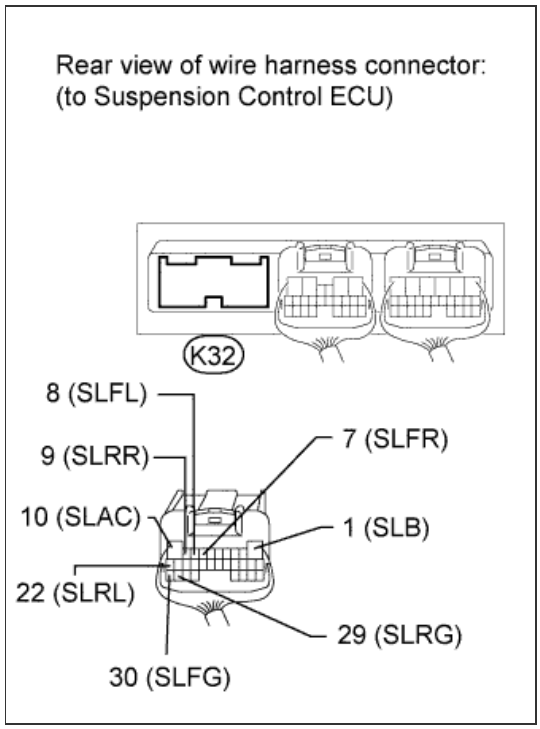
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

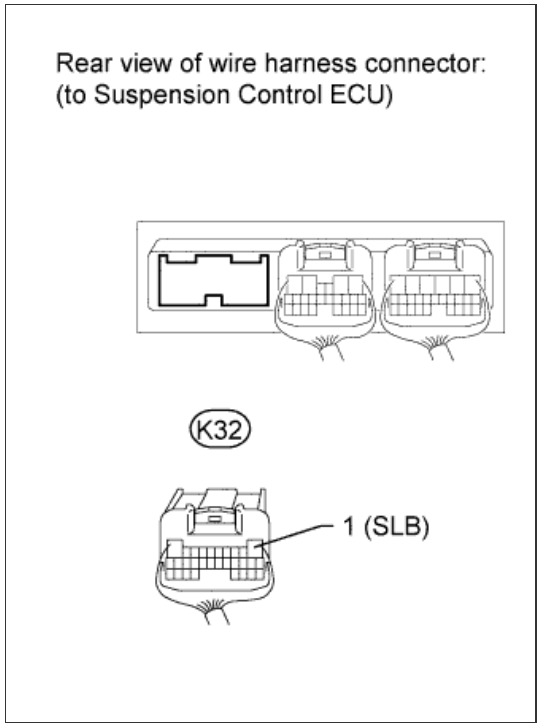
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

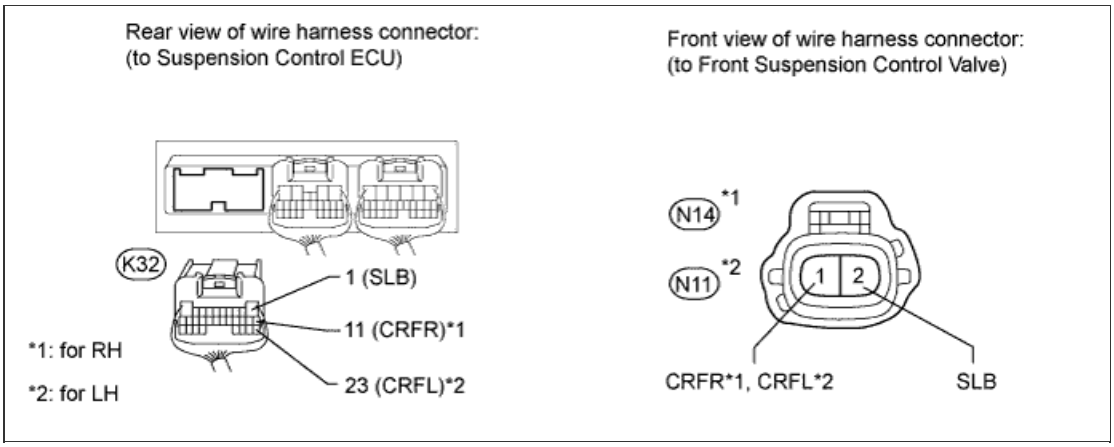
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

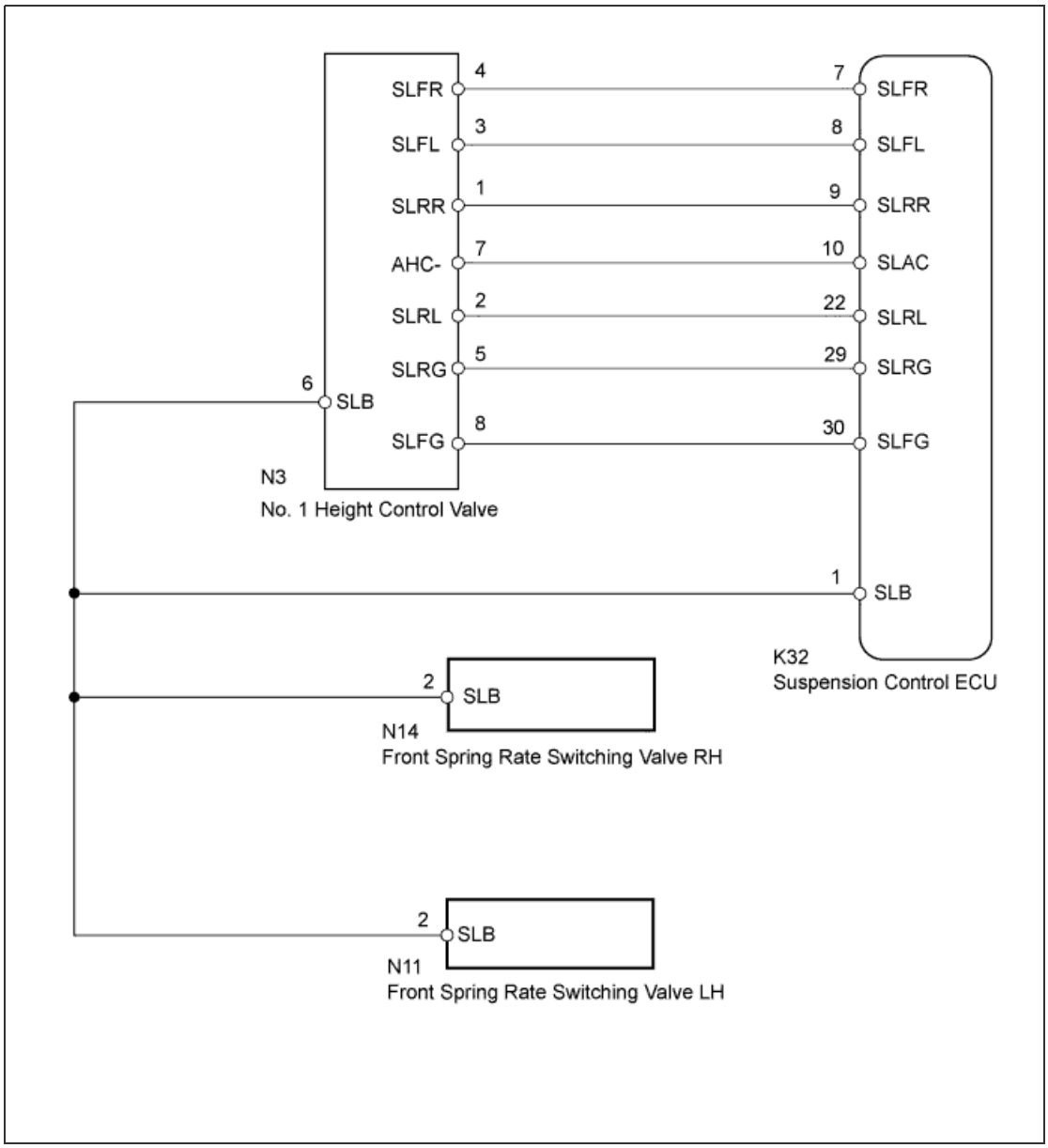
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

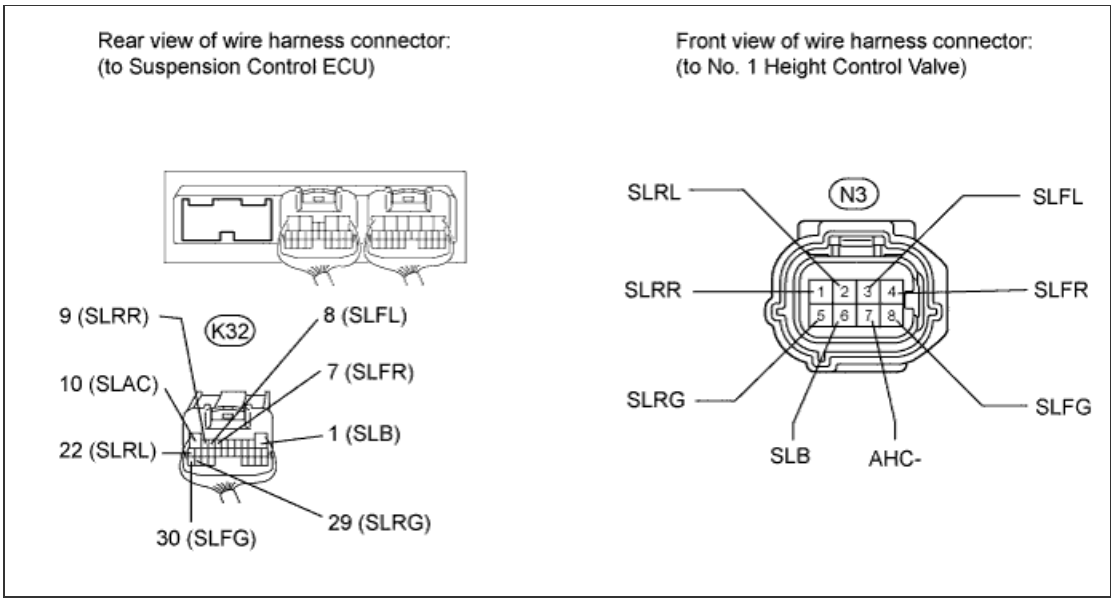
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

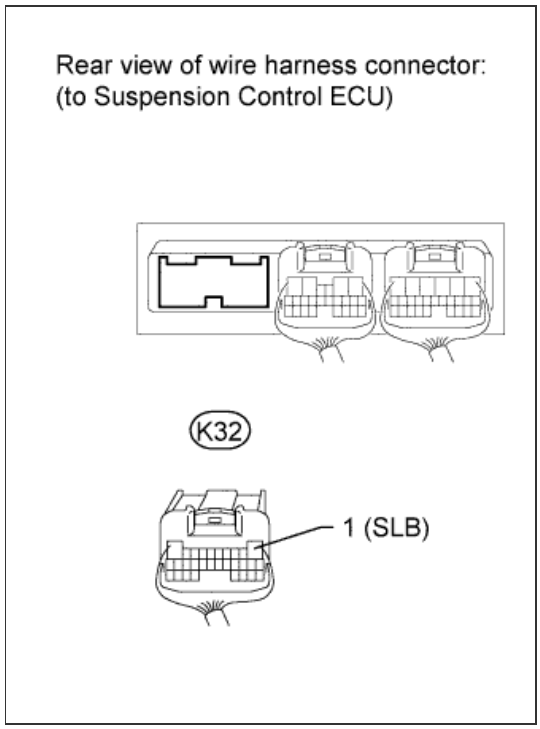
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

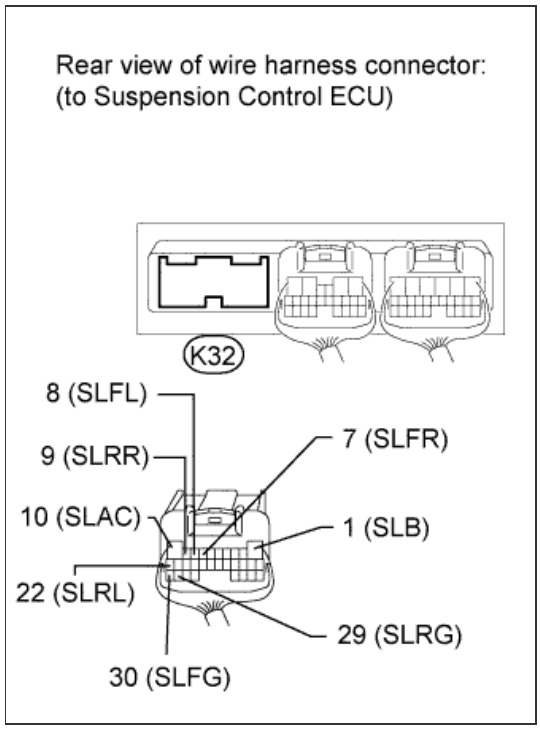
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

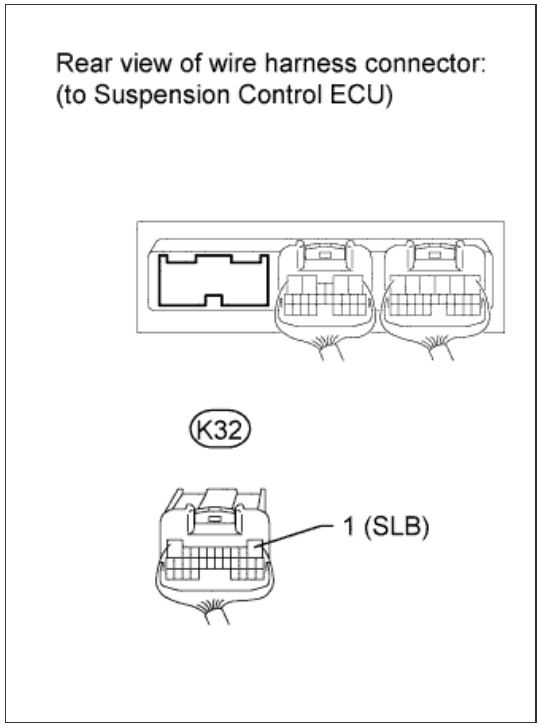
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

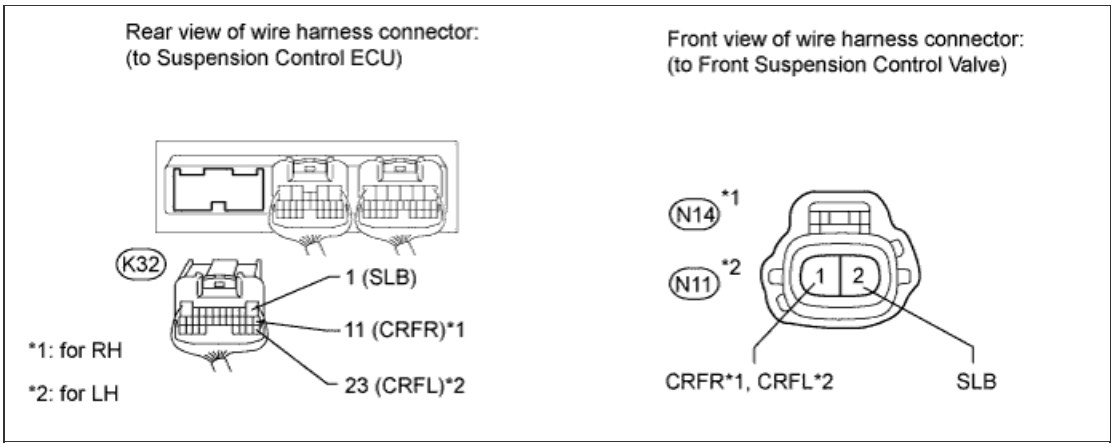
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

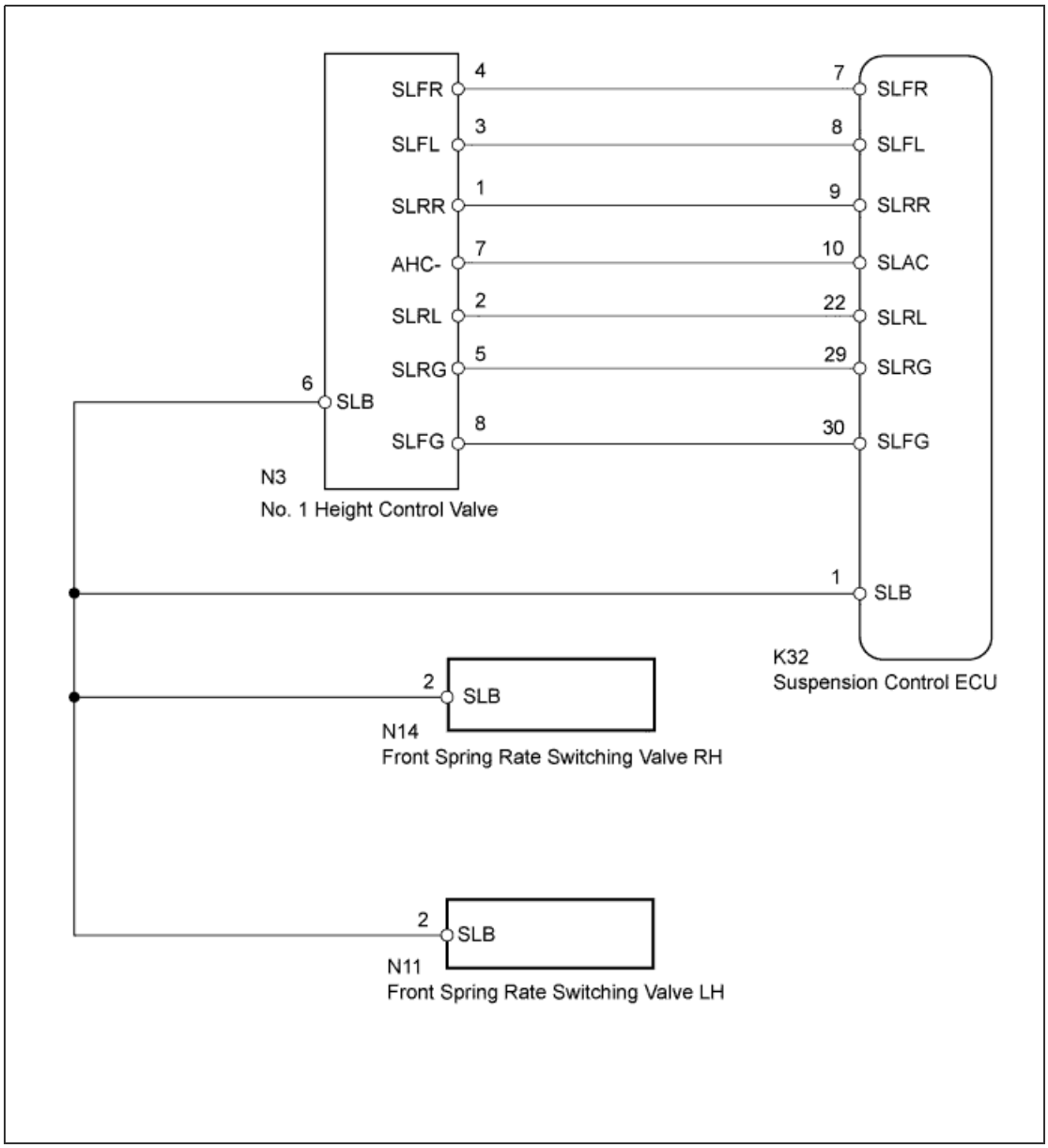
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

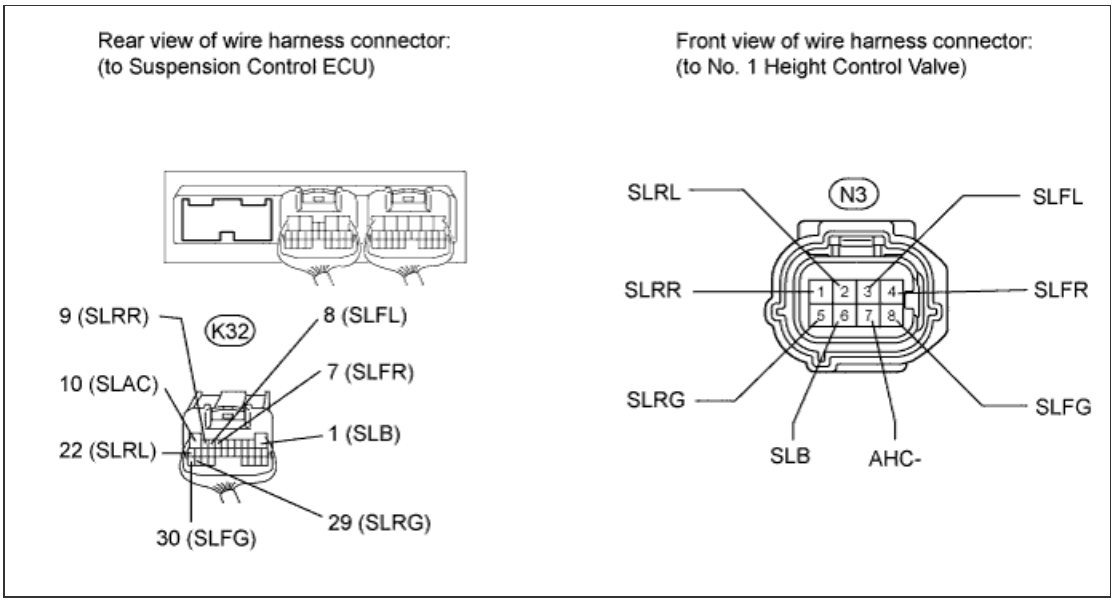
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

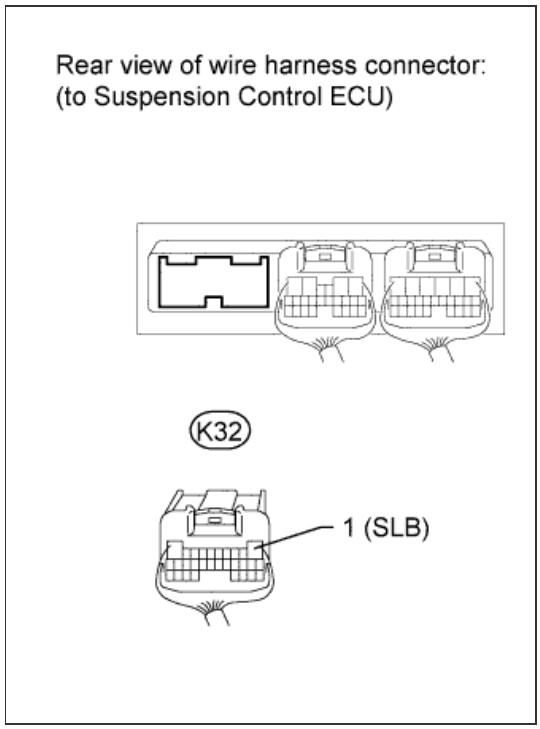
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

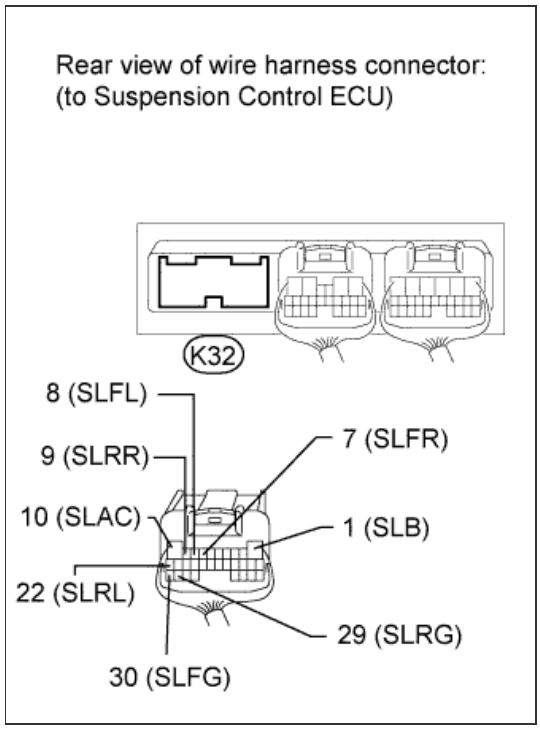
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

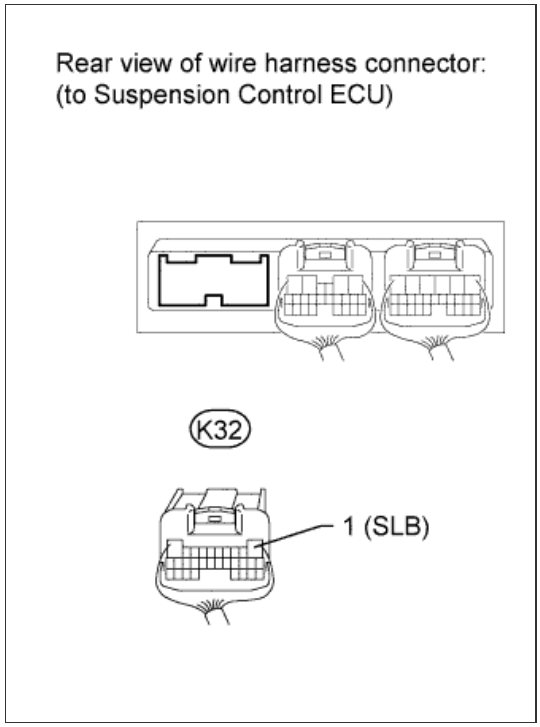
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

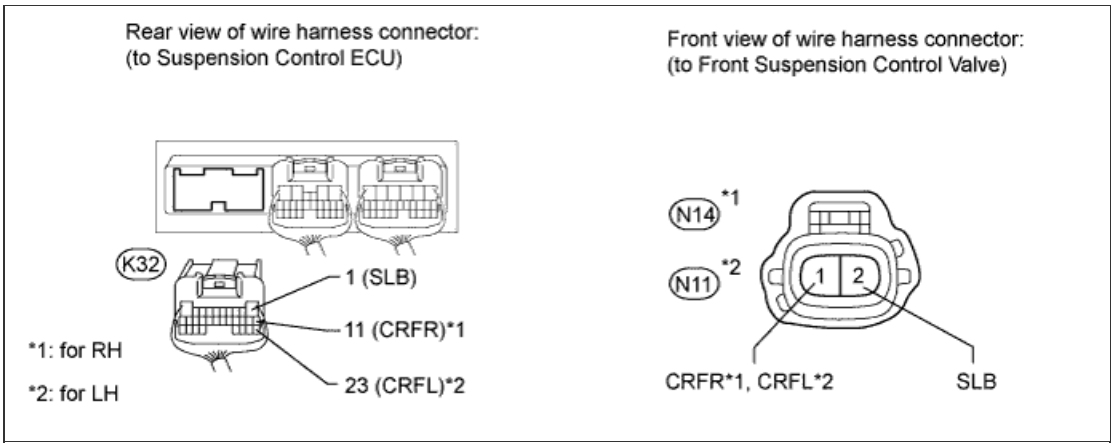
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

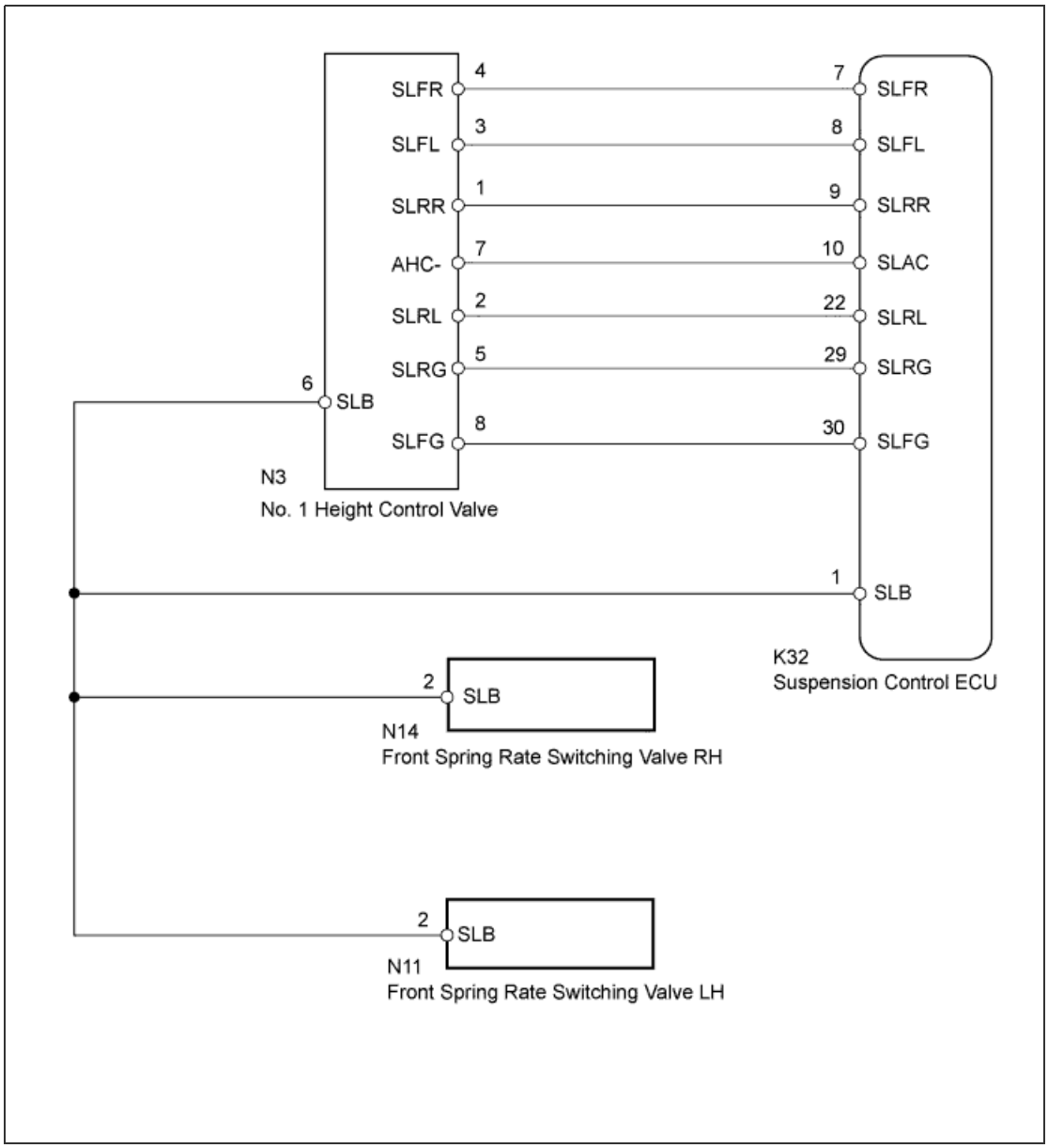
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

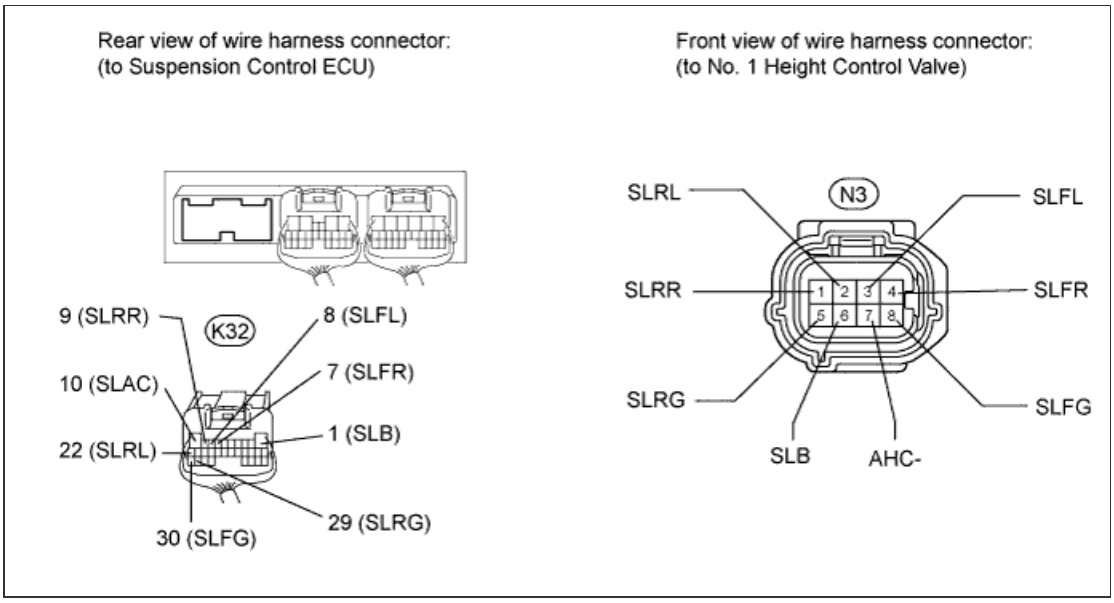
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

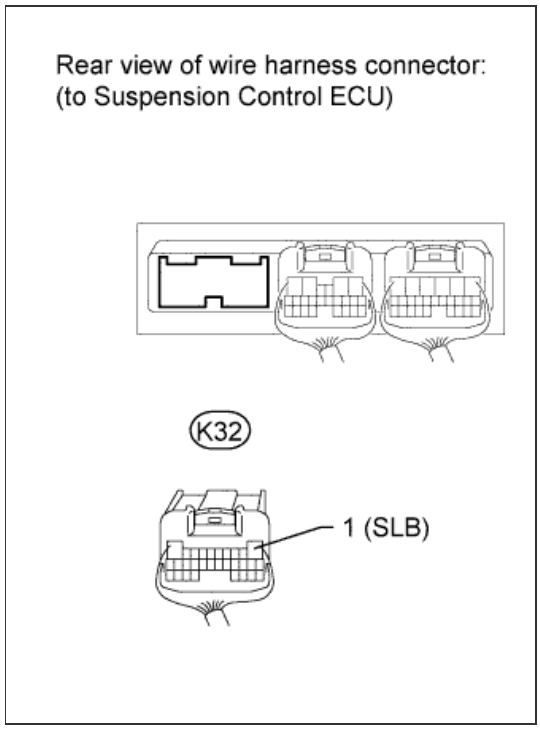
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

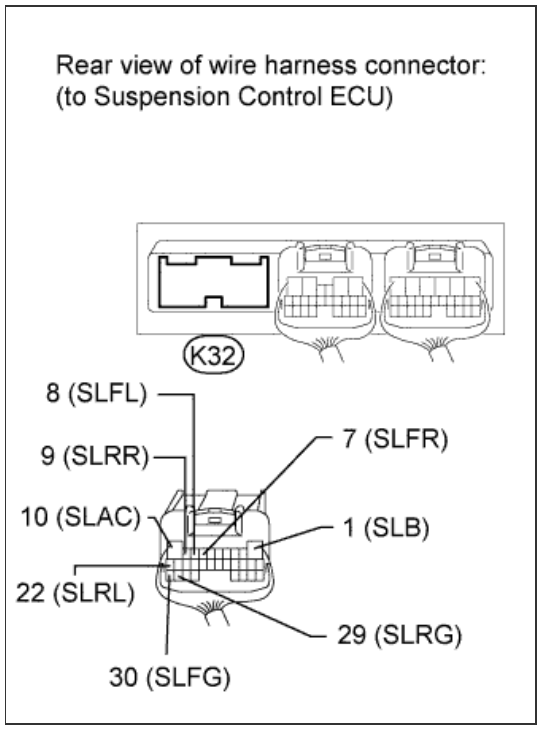
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

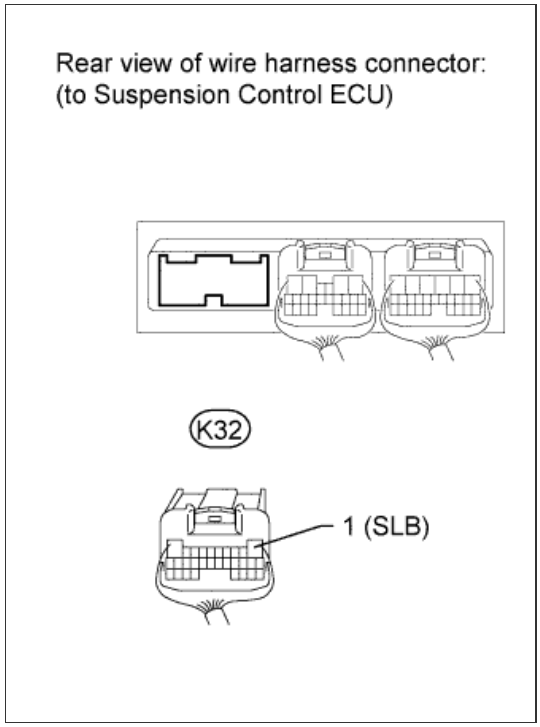
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

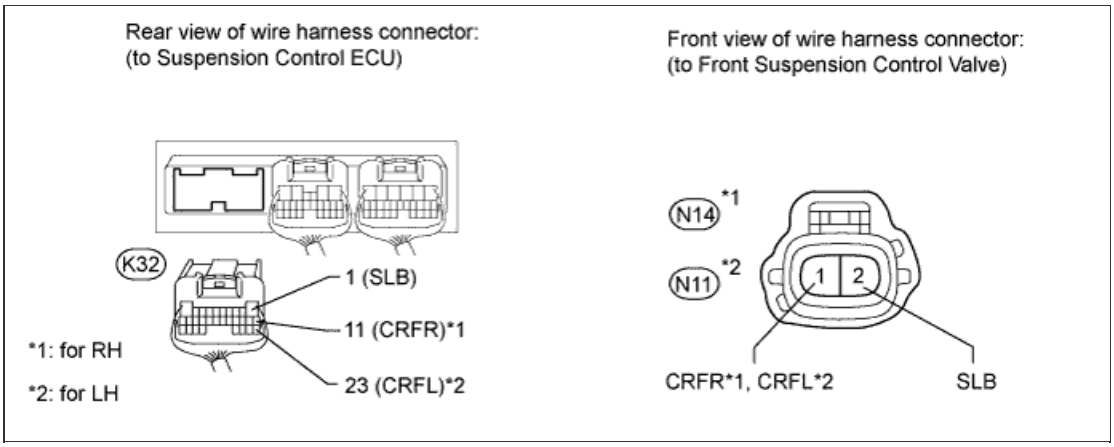
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

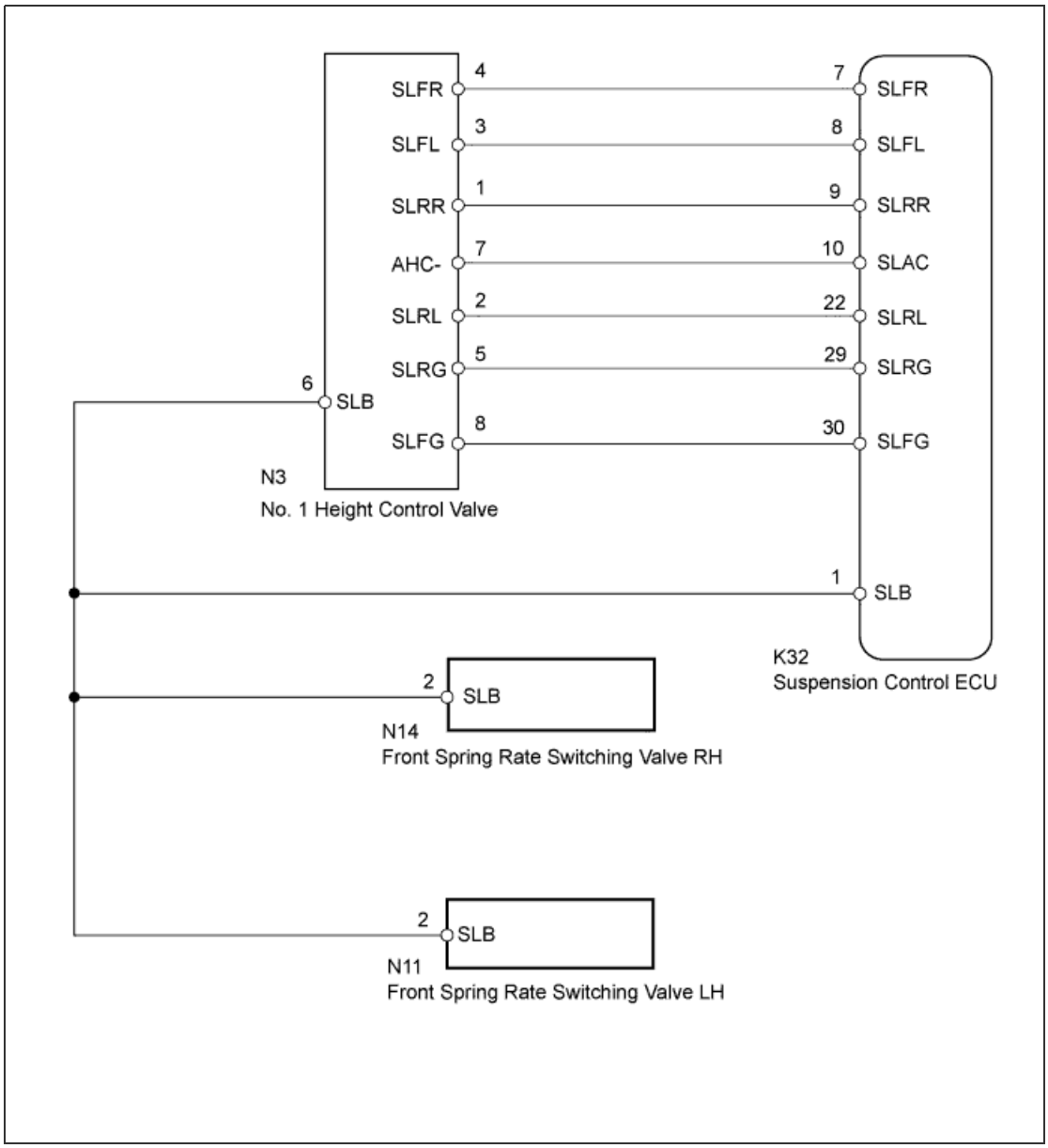
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

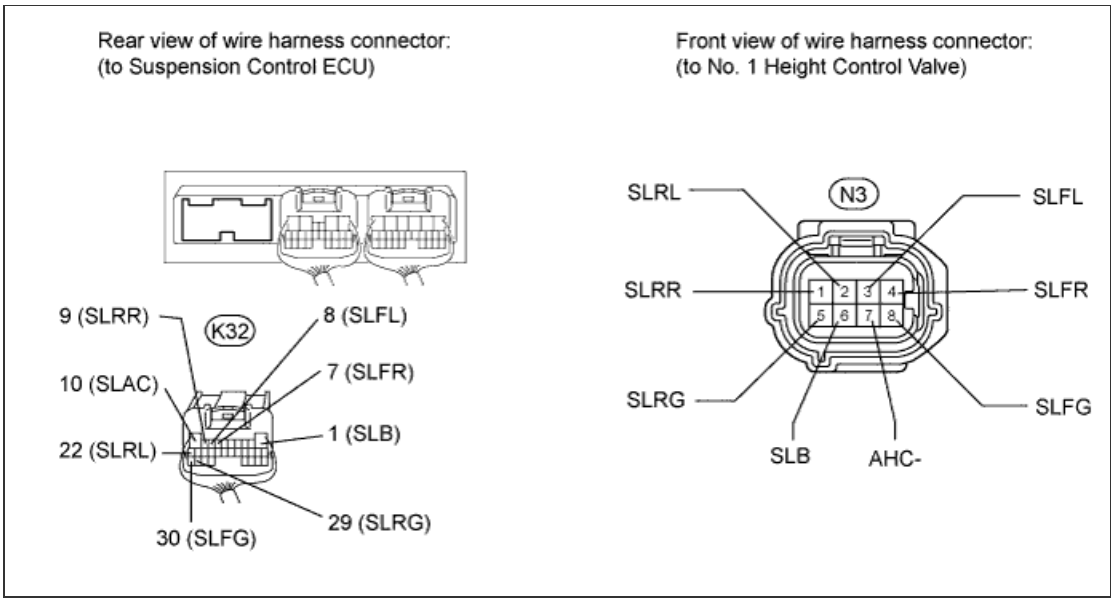
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

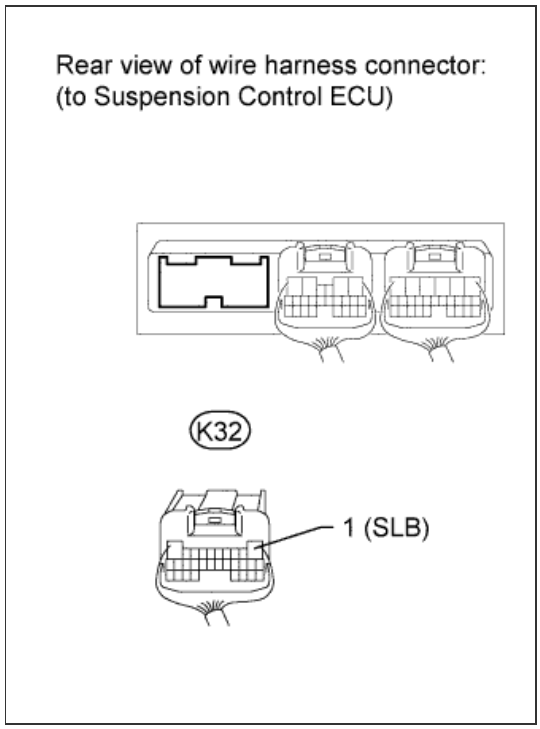
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

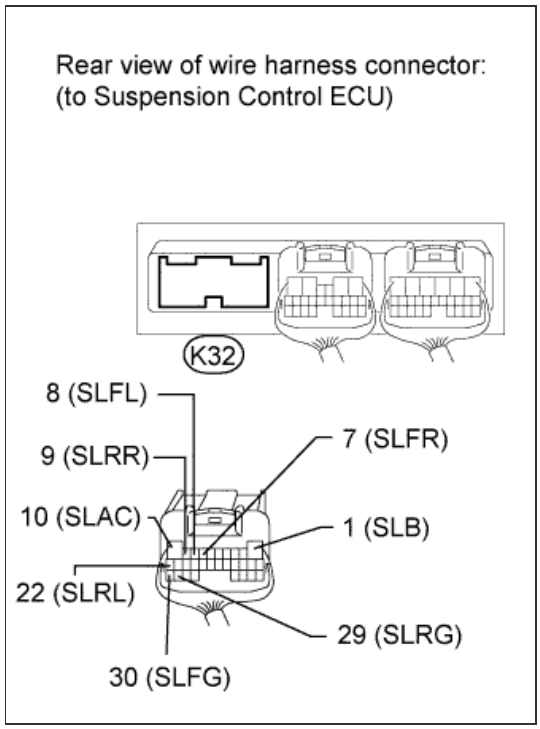
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

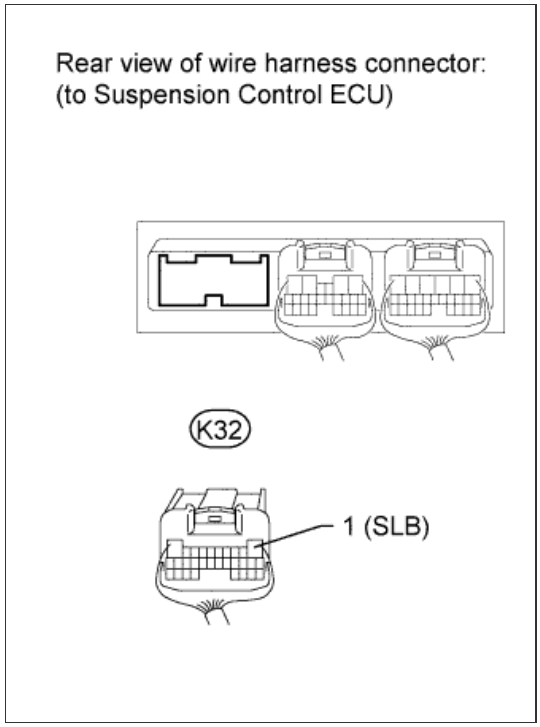
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

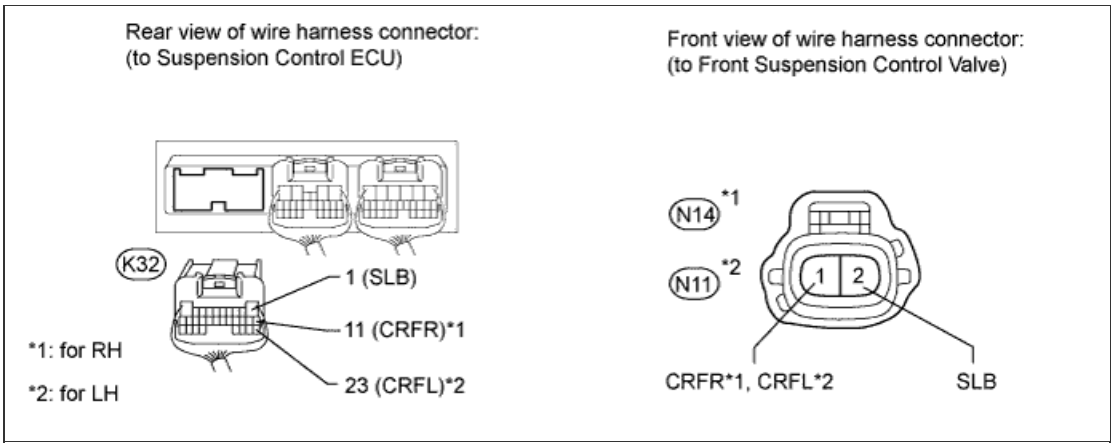
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

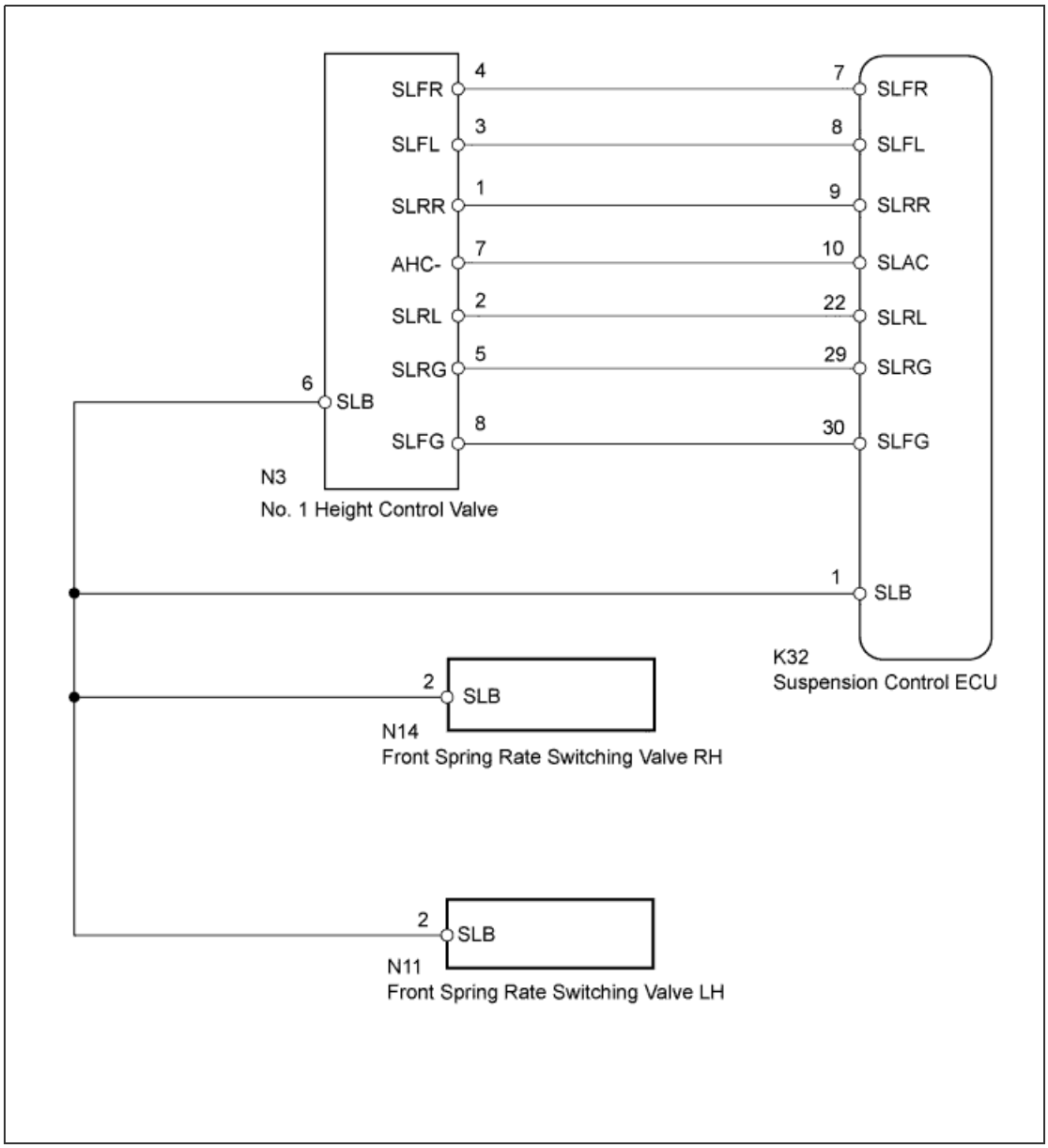
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

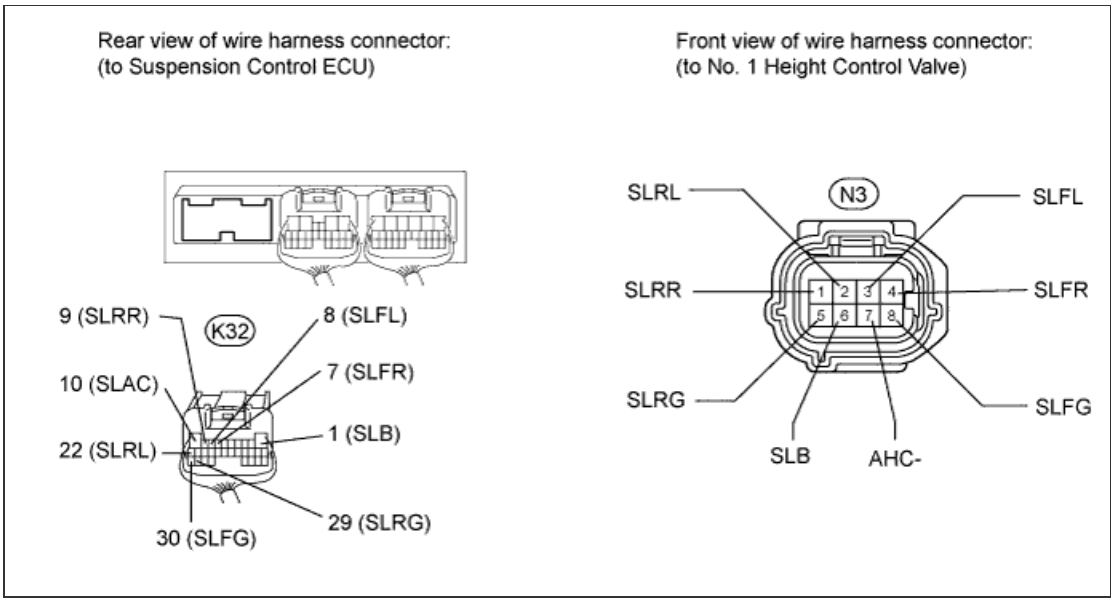
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

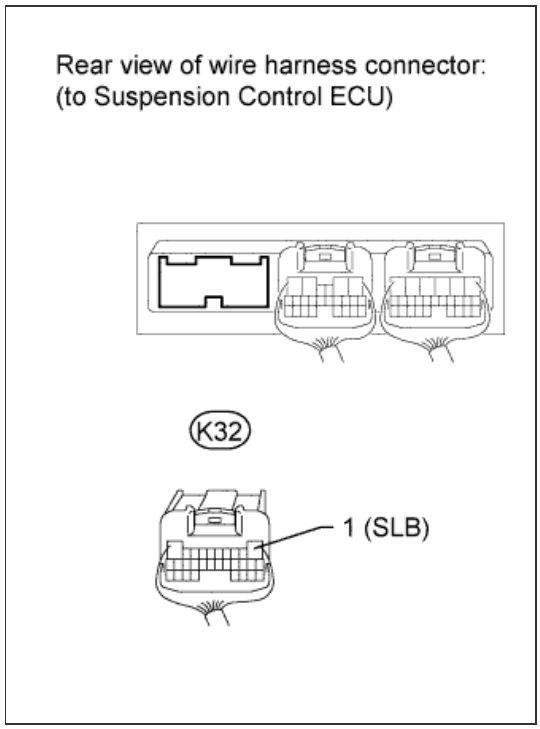
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

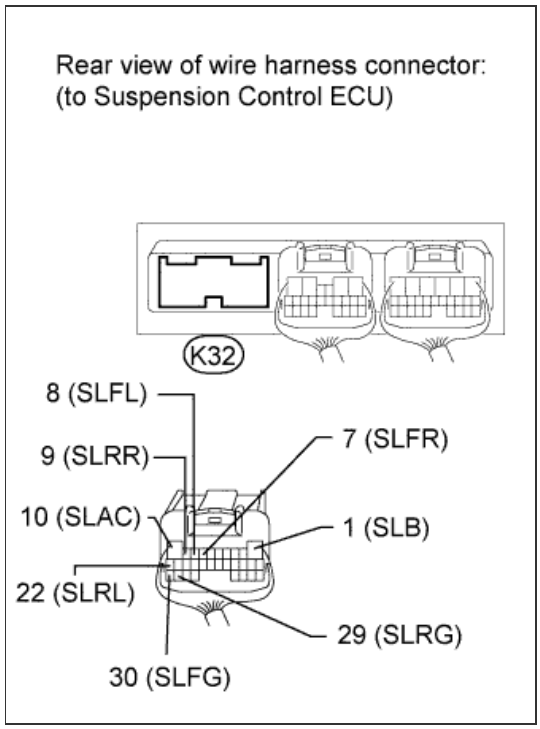
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

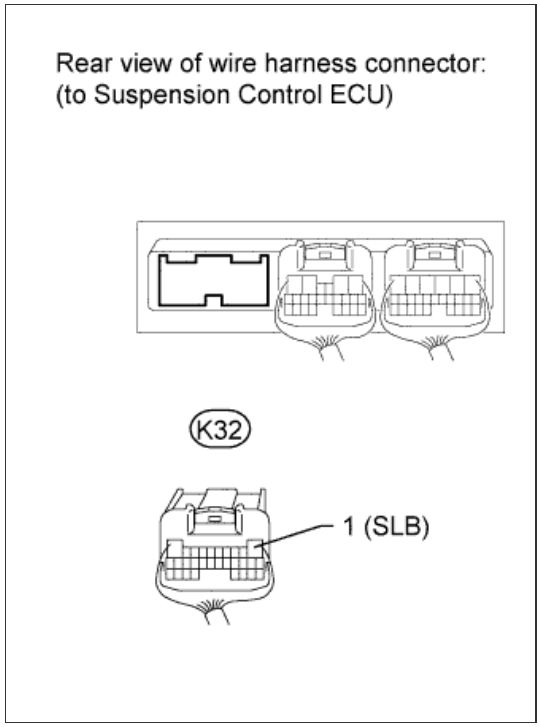
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

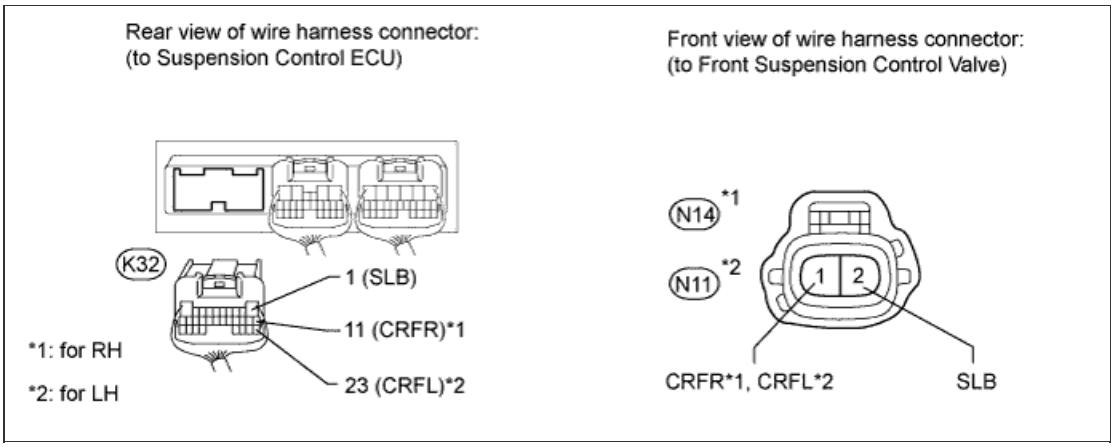
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

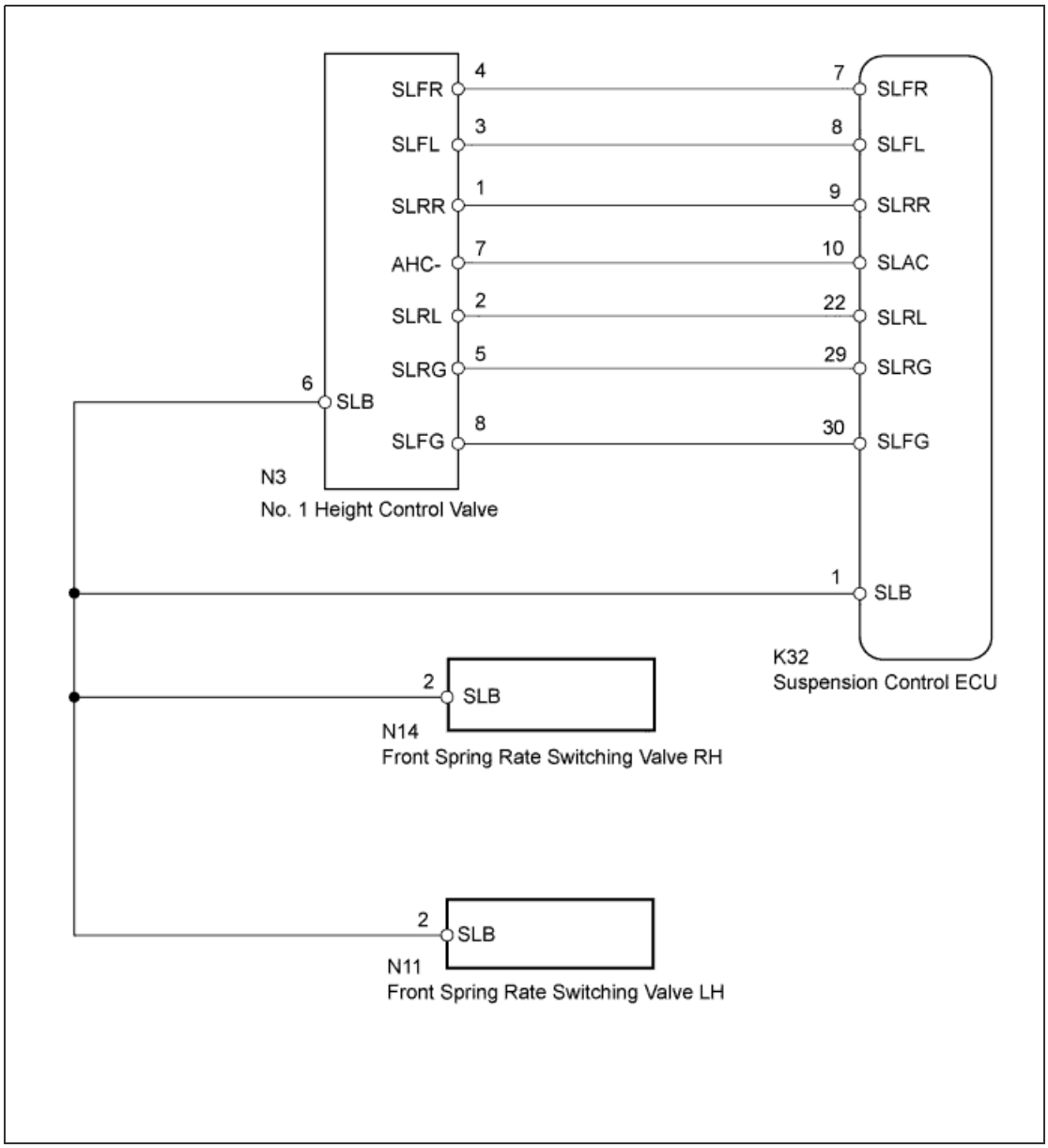
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

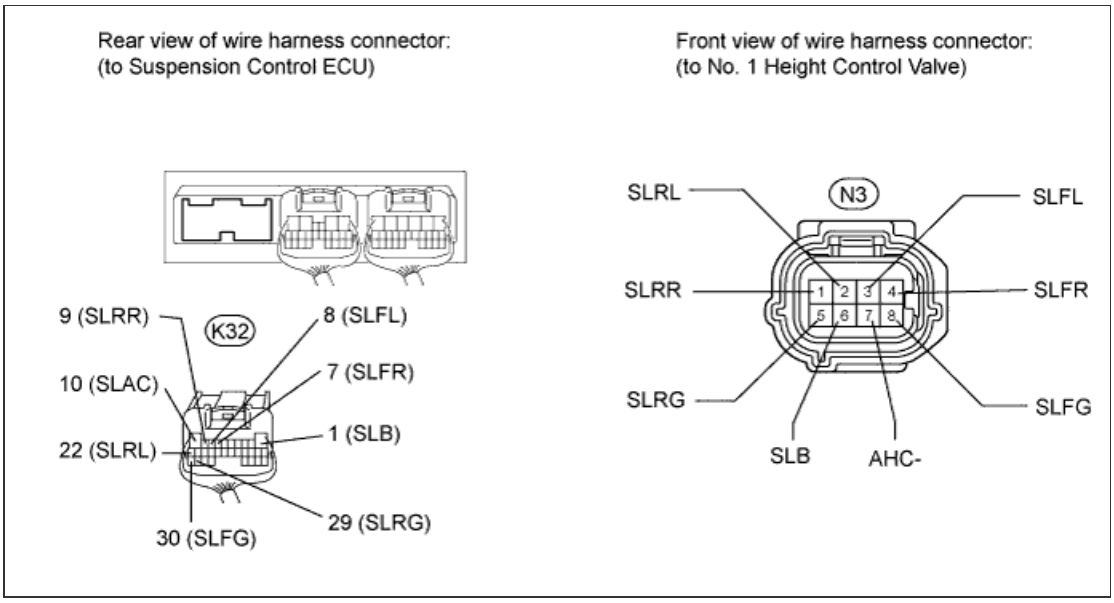
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

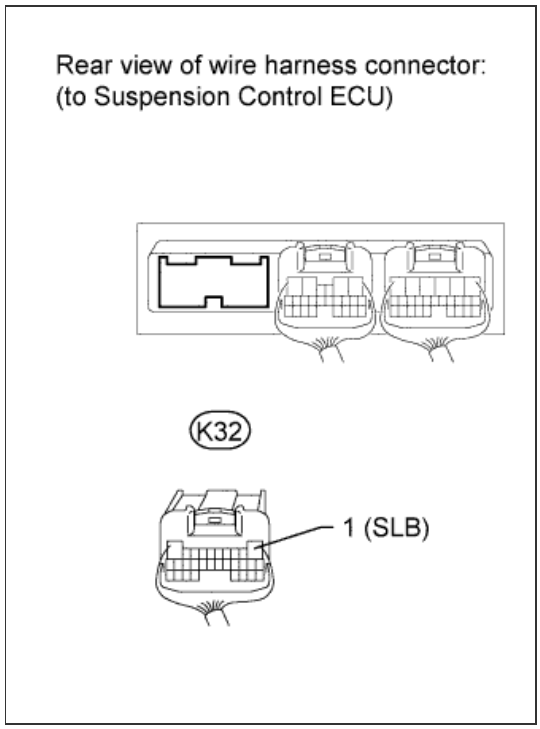
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

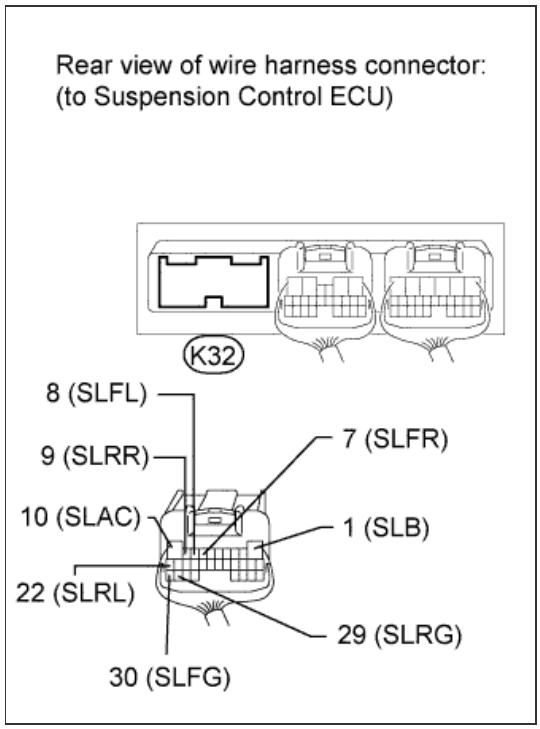
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

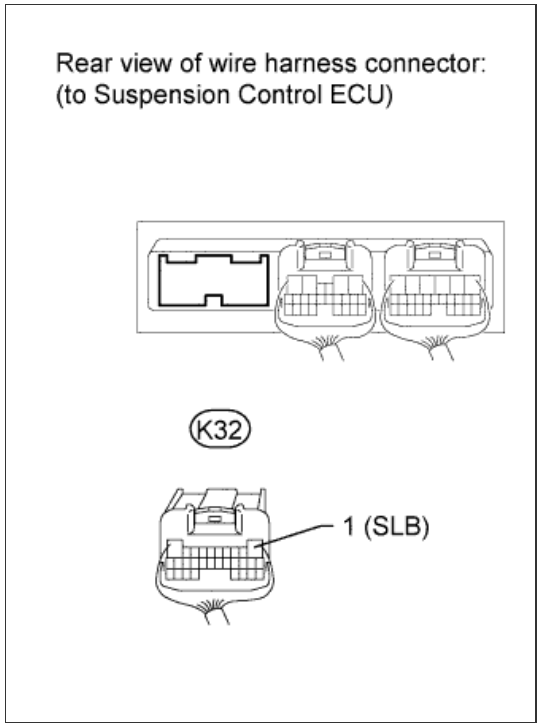
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

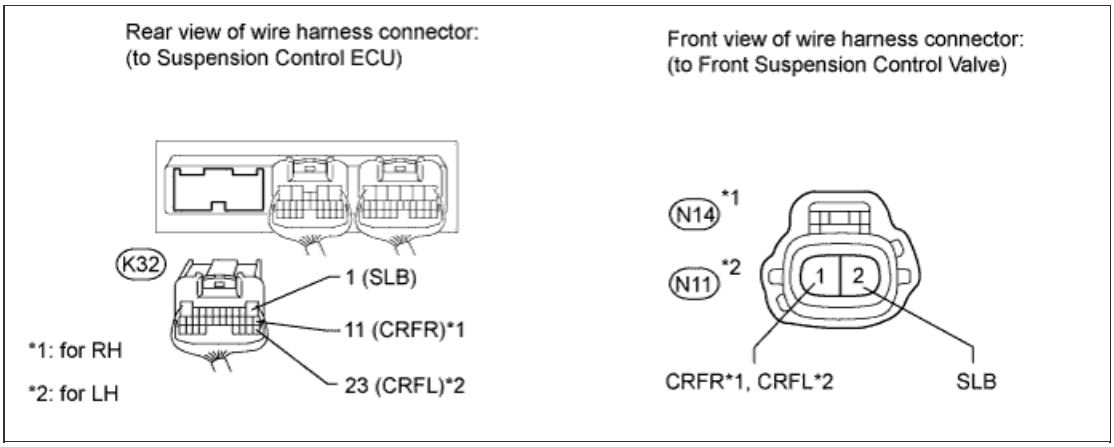
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

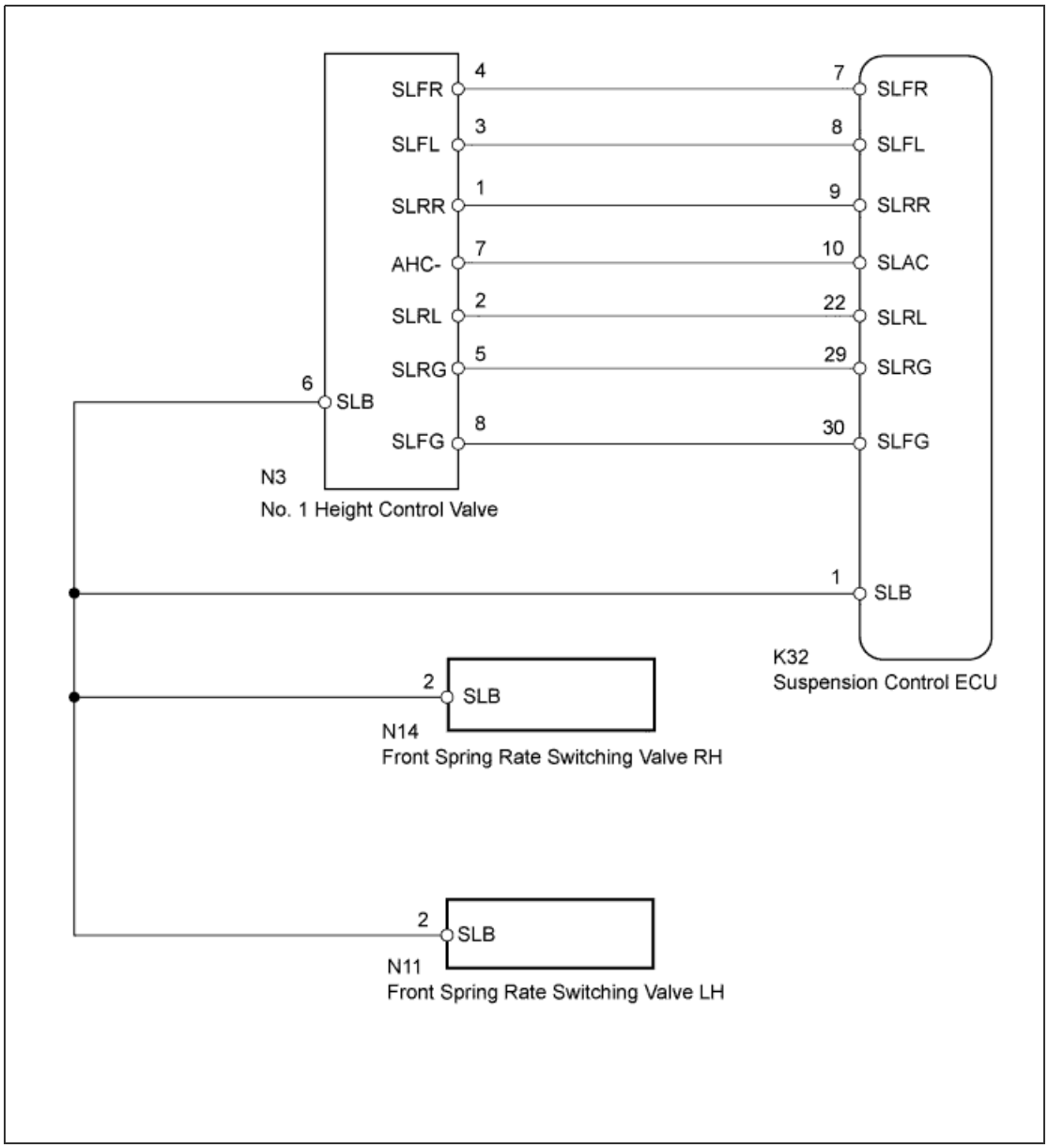
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

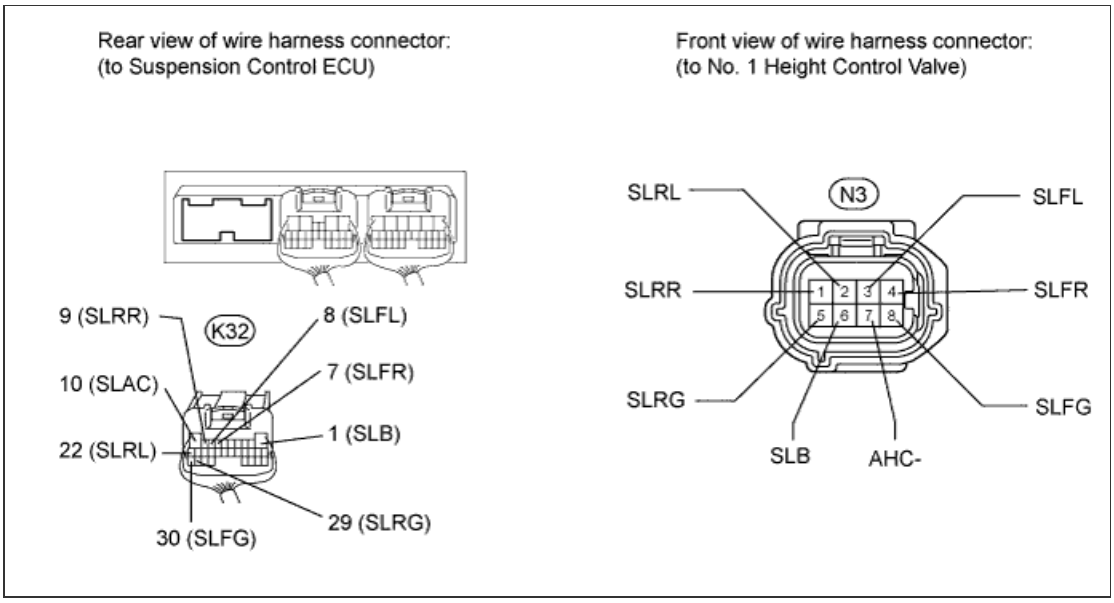
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

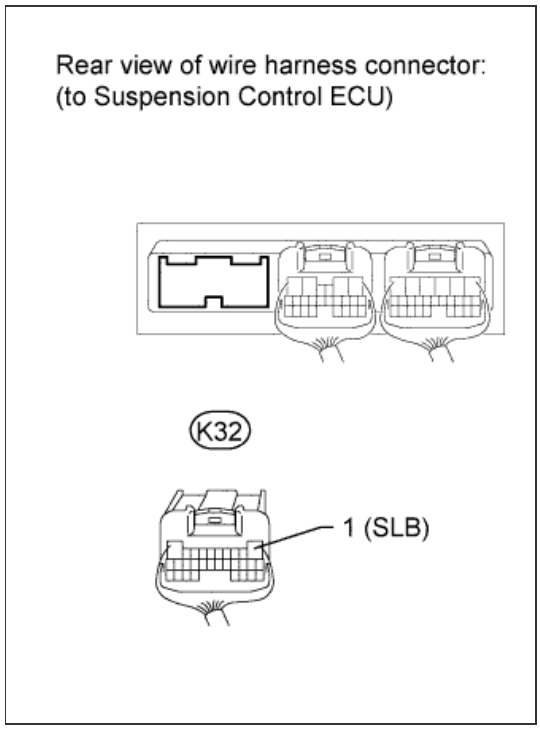
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

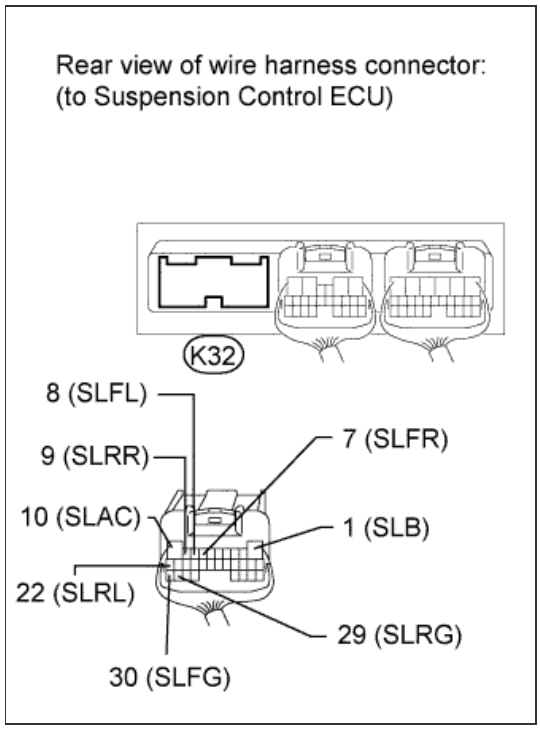
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

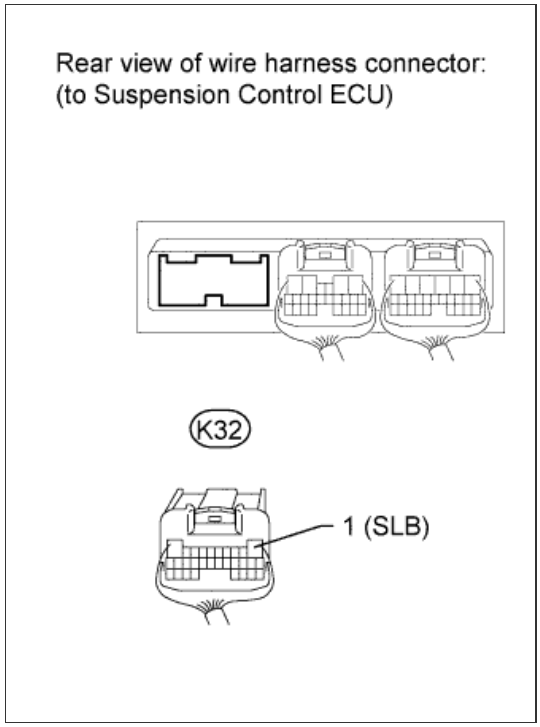
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

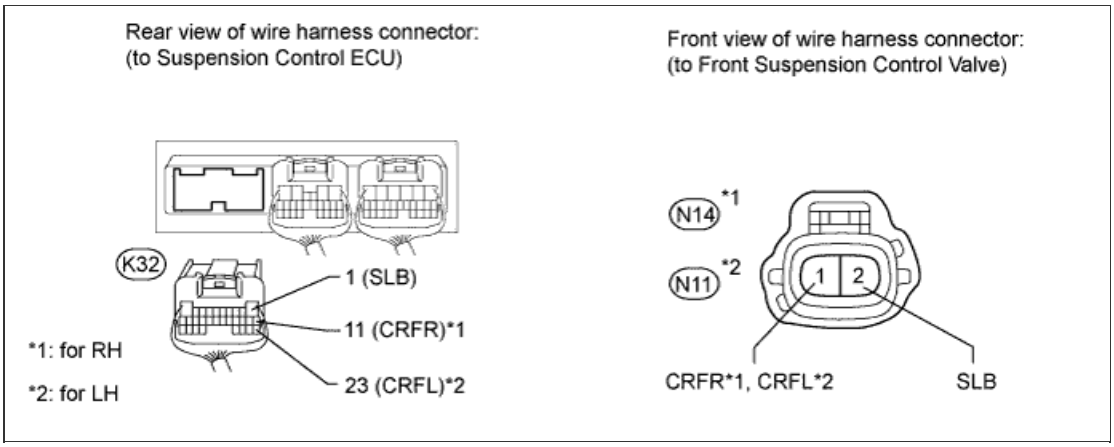
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

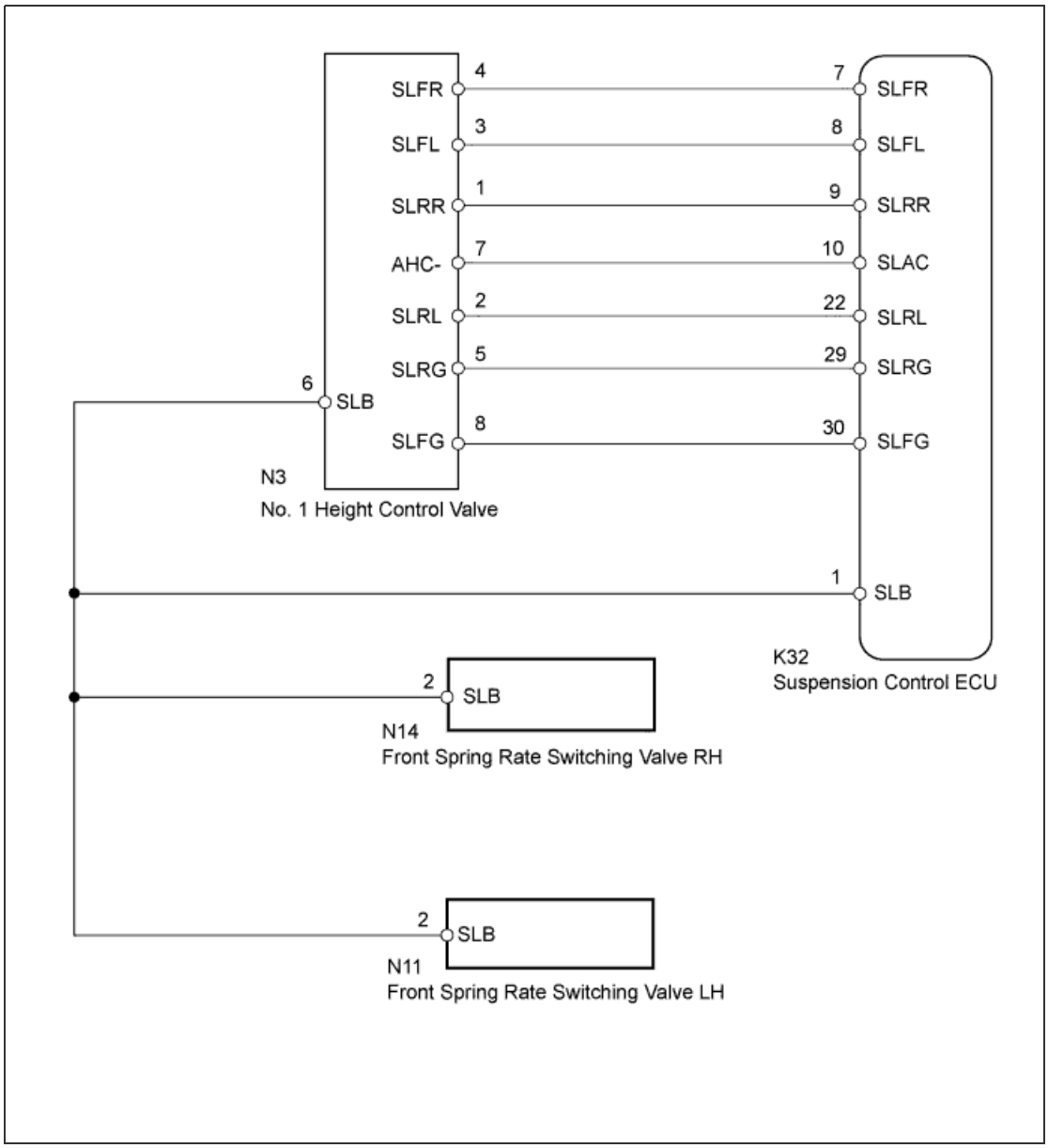
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

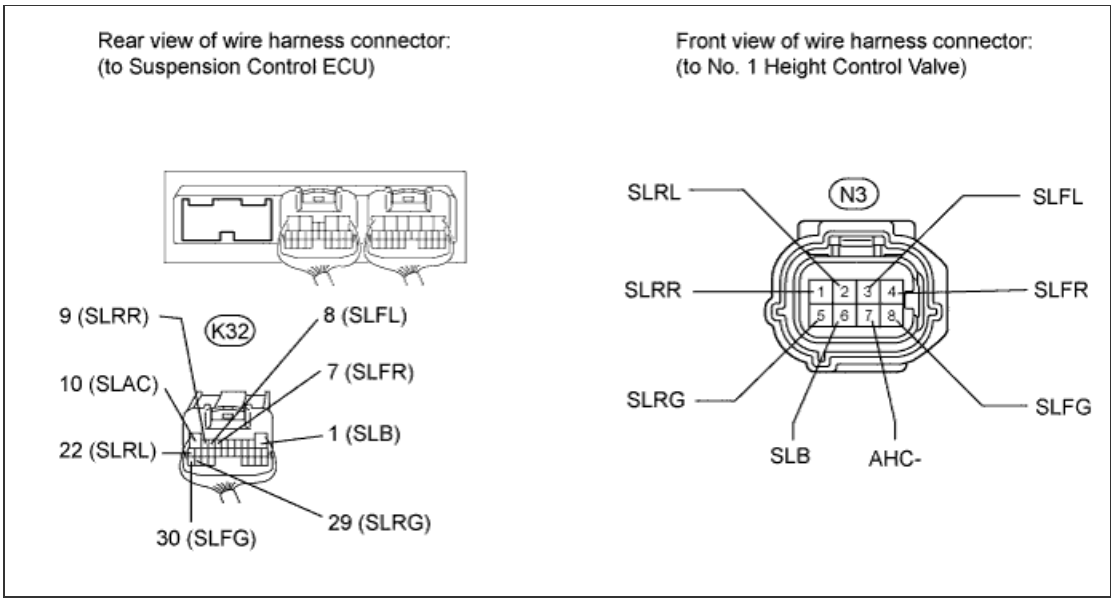
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

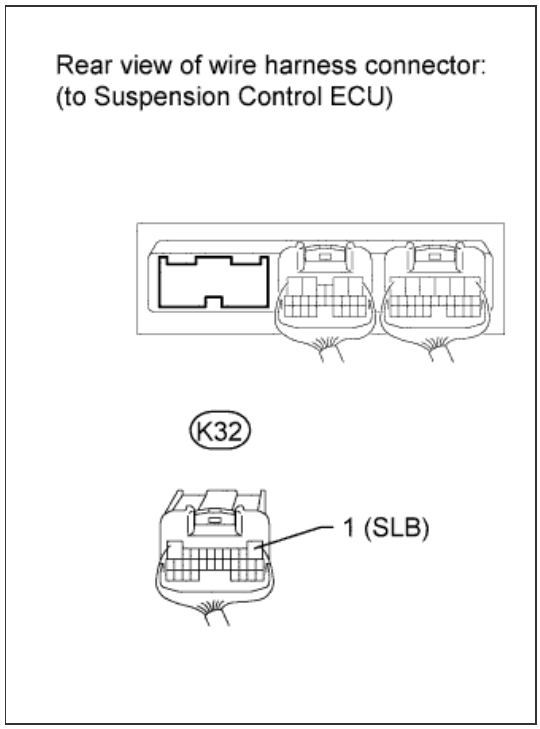
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

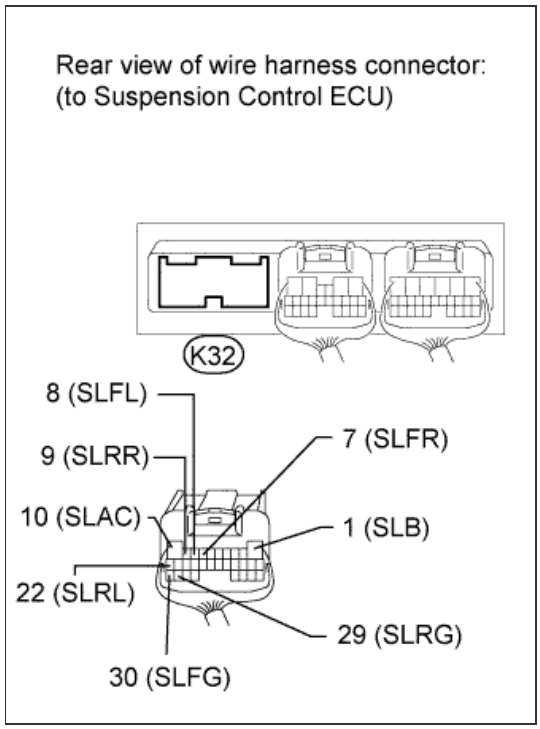
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

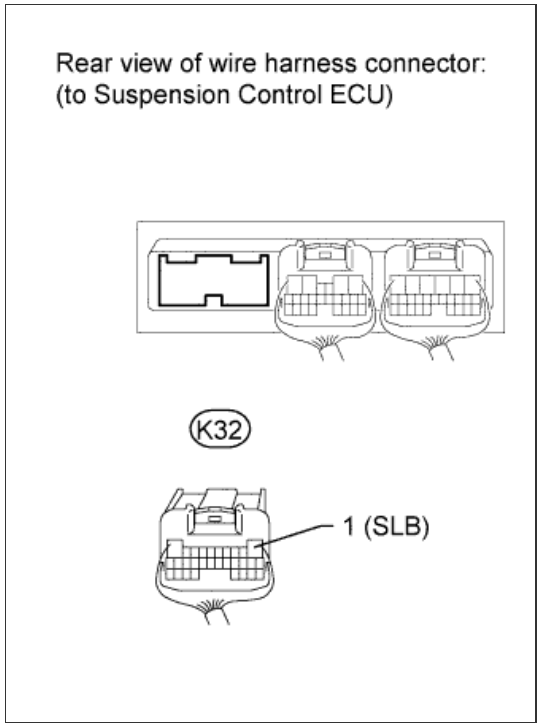
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

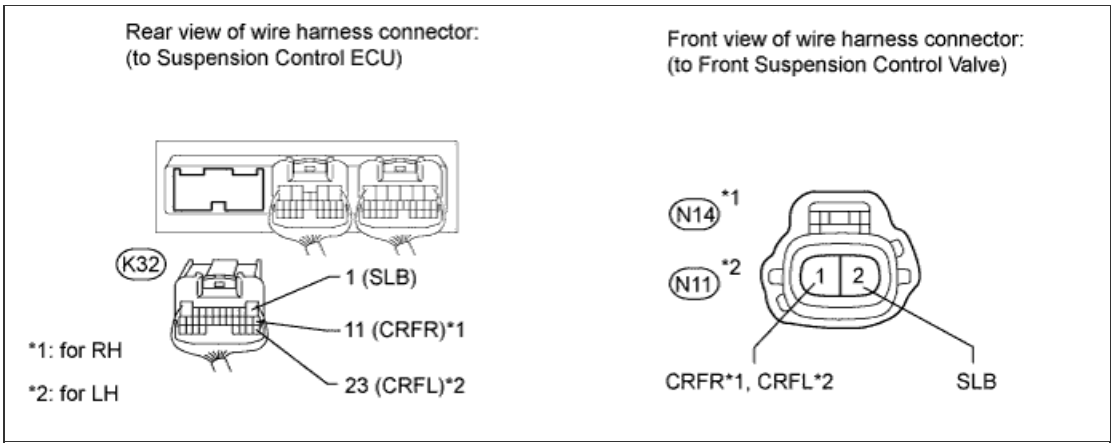
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

DTC C1741 Front Height Control Solenoid Valve RH Circuit Malfunction

DTC C1742 Front Height Control Solenoid Valve LH Circuit Malfunction

DTC C1743 Rear Height Control Solenoid Valve RH Circuit Malfunction

DTC C1744 Rear Height Control Solenoid Valve LH Circuit Malfunction

DTC C1753 Accumulator Solenoid Valve Malfunction

DTC C1754 Front Gate Solenoid Valve Malfunction

DTC C1755 Rear Gate Solenoid Valve Malfunction

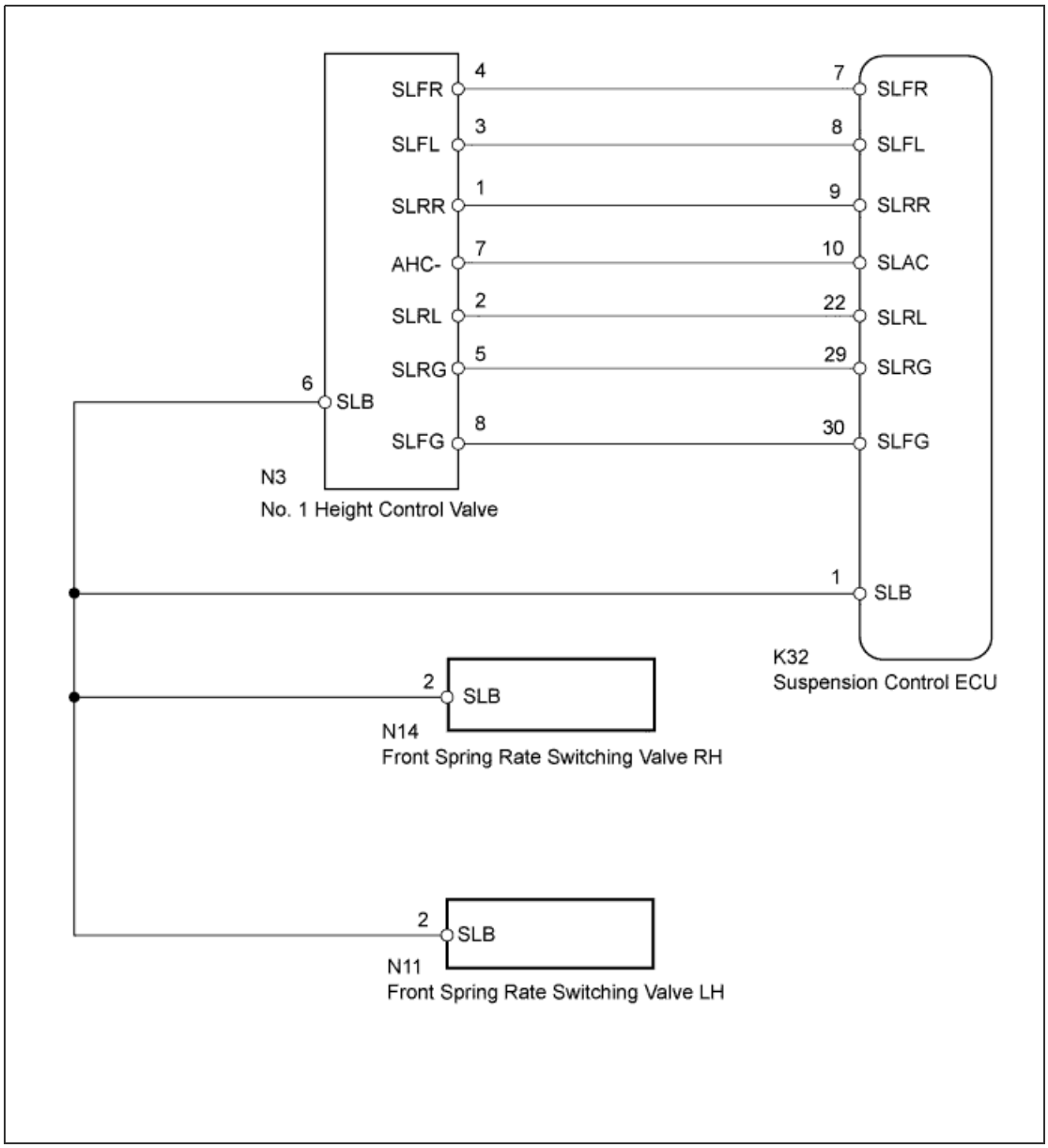
for Preparation Click here

DESCRIPTION

The control valve solenoid assembly consists of each front and rear leveling valve, gate valve and accumulator valve. It performs the height control and connects and disconnects the fluid line of the right and left shock absorber by operating the solenoid valve with the control signal from the ECU.

DTC Code	Detection Condition	Trouble Area
C1741	When either of the following is detected: • With the front leveling valve RH not activated, an open signal of the front leveling valve RH is detected for 1 second or more. • With the front leveling valve RH activated, a short signal of the front leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1742	When either of the following is detected: • With the front leveling valve LH not activated, an open signal of the front leveling valve LH is detected for 1 second or more. • With the front leveling valve LH activated, a short signal of the front leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1743	When either of the following is detected: • With the rear leveling valve RH not activated, an open signal of the rear leveling valve RH is detected for 1 second or more. • With the rear leveling valve RH activated, a short signal of the rear leveling valve RH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1744	When either of the following is detected: • With the rear leveling valve LH not activated, an open signal of the rear leveling valve LH is detected for 1 second or more. • With the rear leveling valve LH activated, a short signal of the rear leveling valve LH is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1753	When either of the following is detected: • With the accumulator valve not activated, an open signal of the accumulator valve is detected for 1 second or more. • With the accumulator valve activated, a short signal of the accumulator valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1754	When either of the following is detected: • With the front gate valve not activated, an open signal of the front gate valve is detected for 1 second or more. • With the front gate valve activated, a short signal of the front gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)
C1755	When either of the following is detected: • With the rear gate valve not activated, an open signal of the rear gate valve is detected for 1 second or more. • With the rear gate valve activated, a short signal of the rear gate valve is detected 8 times successively.	• Harness or connector • No. 1 height control valve • Suspension control ECU • Each front suspension control valve (Each front spring rate switching valve)

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

HINT:

Power is supplied to the No. 1 height control valve and front suspension control valve from the suspension control ECU. If a short occurs in the power supply circuit in the front suspension control valve, DTC C1741, C1742, C1743, C1744, C1753, C1754 and/or C1755 will be stored. In this case, DTC C1736 and/or C1737 will also be stored.

1.PERFORM ACTIVE TEST USING INTELLIGENT TESTER (NO. 1 HEIGHT CONTROL VALVE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Active Test.

e. Check the operation of the leveling valve solenoid, accumulator valve solenoid and gate valve solenoid when operating the solenoid with the intelligent tester.

AHC

Tester Display	Test Part	Control Range	Diagnostic Note
Front Right Height Solenoid	Front height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Front Left Height Solenoid	Front height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Rear Right Height Solenoid	Rear height control solenoid valve RH	ON or OFF	Operation of the solenoid can be heard.
Rear Left Height Solenoid	Rear height control solenoid valve LH	ON or OFF	Operation of the solenoid can be heard.
Accumulator Valve	Accumulator solenoid valve	ON or OFF	Operation of the solenoid can be heard.
Front Gate Valve	Front gate solenoid valve	ON or OFF	When the Front Gate Valve item of the Active Test is operated, the Front Gate Valve item of the Data List changes to ON/OFF.
Rear Gate Valve	Rear gate solenoid valve	ON or OFF	When the Rear Gate Valve item of the Active Test is operated, the Rear Gate Valve item of the Data List changes to ON/OFF.

OK:

The leveling valve solenoid, accumulator solenoid and/or gate valve solenoid operates.

NG → Go to step 3

OK ↓

2.RECONFIRM DTC OUTPUT

a. Clear the DTCs (Click here).

b. Perform a road test.

c. Check for DTCs.

Result

Result	Proceed to
DTC is output	A
DTC is not output	B

B → USE SIMULATION METHOD TO CHECK (Click here)

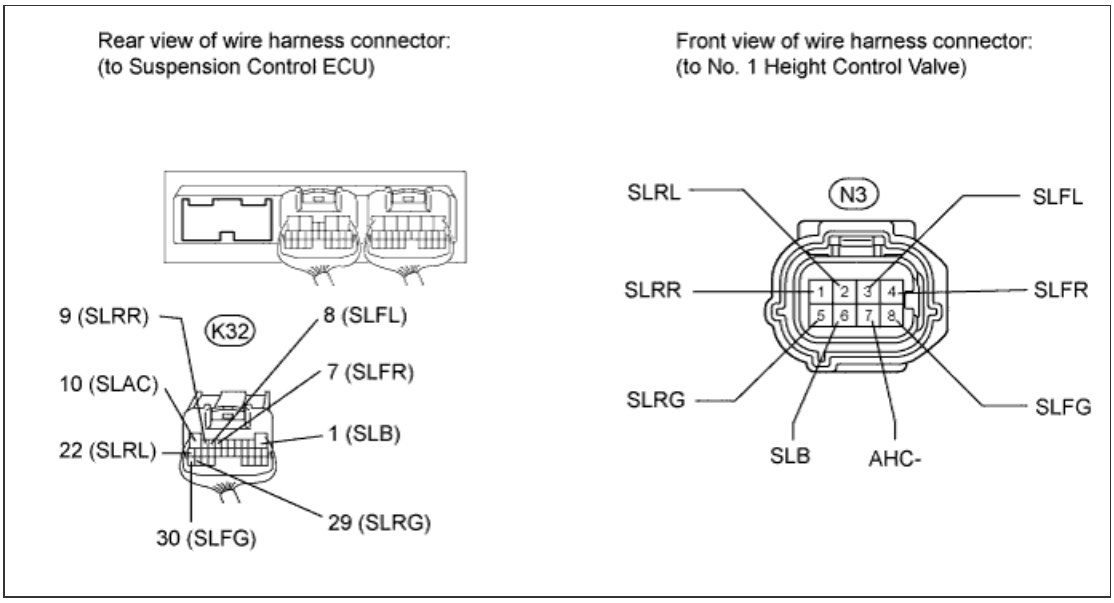
A ↓

REPLACE SUSPENSION CONTROL ECU (Click here)

3.CHECK HARNESS AND CONNECTOR (NO. 1 HEIGHT CONTROL VALVE - SUSPENSION CONTROL ECU)

a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - N3-6 (SLB)	Always	Below 1 Ω
K32-7 (SLFR) - N3-4 (SLFR)	Always	Below 1 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - N3-3 (SLFL)	Always	Below 1 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - N3-1 (SLRR)	Always	Below 1 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - N3-7 (AHC-)	Always	Below 1 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - N3-2 (SLRL)	Always	Below 1 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - N3-5 (SLRG)	Always	Below 1 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - N3-8 (SLFG)	Always	Below 1 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - NO. 1 HEIGHT CONTROL VALVE)

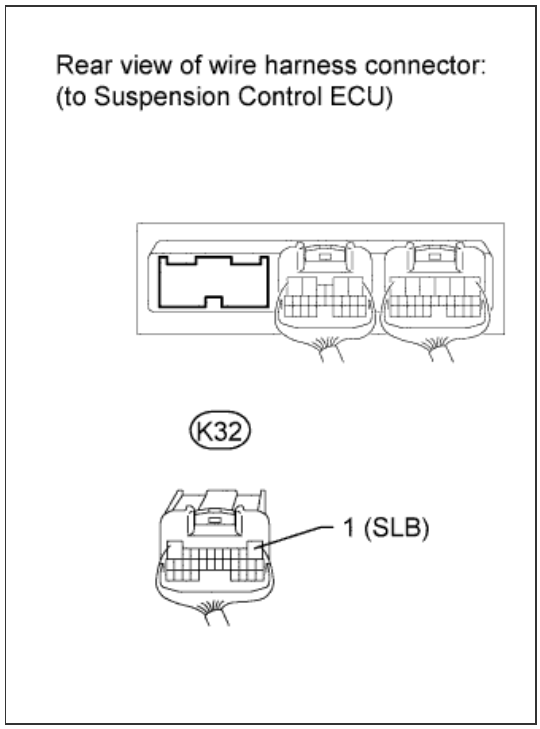
a. Disconnect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → Go to step 6

OK

5.INSPECT NO. 1 HEIGHT CONTROL VALVE

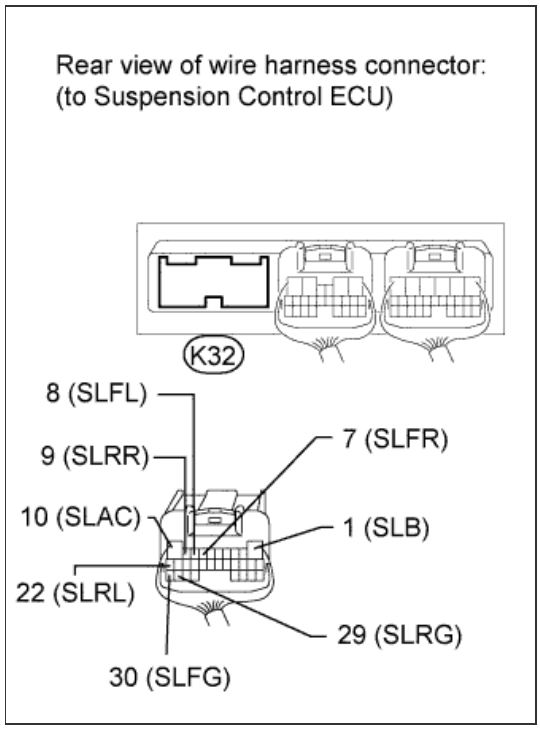
a. Connect the N3 No. 1 height control valve connector.

b. Disconnect the K32 ECU connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-7 (SLFR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-7 (SLFR) - Body ground	Always	10 kΩ or higher
K32-8 (SLFL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-8 (SLFL) - Body ground	Always	10 kΩ or higher
K32-9 (SLRR) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-9 (SLRR) - Body ground	Always	10 kΩ or higher
K32-10 (SLAC) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-10 (SLAC) - Body ground	Always	10 kΩ or higher
K32-22 (SLRL) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-22 (SLRL) - Body ground	Always	10 kΩ or higher
K32-29 (SLRG) - K32-1 (SLB)	Always	3.0 to 3.8 Ω
K32-29 (SLRG) - Body ground	Always	10 kΩ or higher
K32-30 (SLFG) - K32-1		



(SLB)	Always	3.0 to 3.8 Ω
K32-30 (SLFG) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - Body ground	Always	10 kΩ or higher

NG → REPLACE NO. 1 HEIGHT CONTROL VALVE (Click here)

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

6.CHECK HARNESS AND CONNECTOR (BODY GROUND BETWEEN ECU - FRONT SUSPENSION CONTROL VALVE)

a. Disconnect the N14 and N11 front suspension control valve connectors.

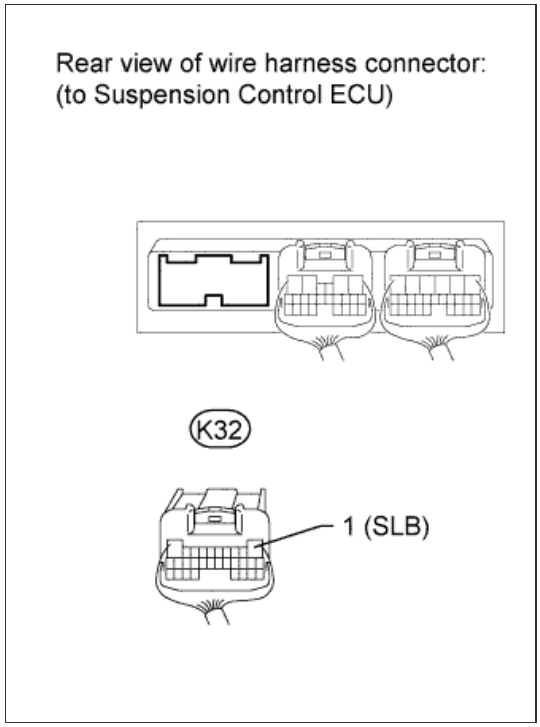
b. Disconnect the N3 No. 1 height control valve connector.

c. Disconnect the K32 ECU connector.

d. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-1 (SLB) - Body ground	Always	10 kΩ or higher



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - FRONT SUSPENSION CONTROL VALVE)

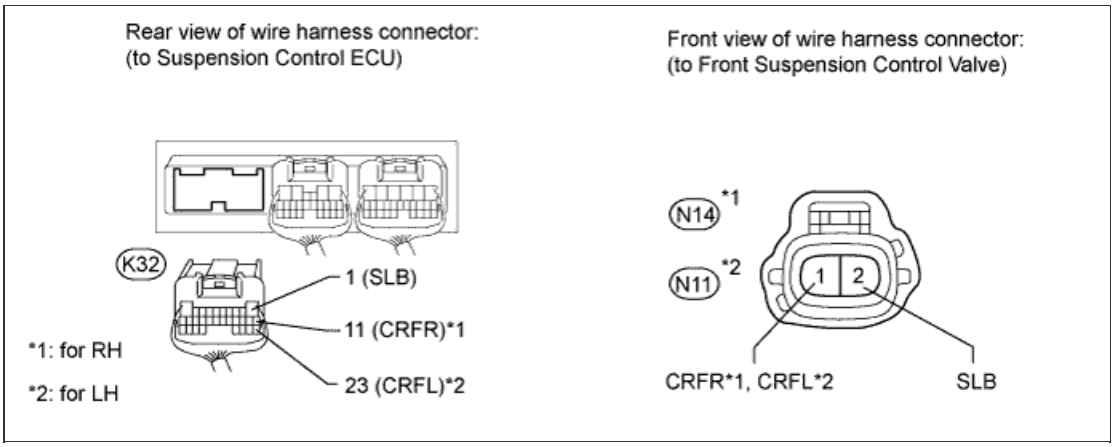
a. Disconnect the N14*1 and/or N11*2 front suspension control valve connector.

HINT:

*1: for RH

*2: for LH

b. Disconnect the K32 ECU connector.



c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K32-11 (CRFR) - N14-1 (CRFR)	Always	Below 1 Ω
K32-11 (CRFR) - Body ground	Always	10 kΩ or higher
K32-23 (CRFL) - N11-1 (CRFL)	Always	Below 1 Ω
K32-23 (CRFL) - Body ground	Always	10 kΩ or higher
K32-1 (SLB) - N14-2 (SLB)	Always	Below 1 Ω
K32-1 (SLB) - N11-2 (SLB)	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK → REPLACE FRONT SUSPENSION CONTROL VALVE

DTC U0100 Lost Communication with ECM / PCM "A"

DTC U0101 Lost Communication with TCM

DTC U0114 Lost Communication with 4WD Control ECU

DTC U0122 Lost Communication with Vehicle Dynamics Control Module

DTC U0124 Lost Communication with Lateral Acceleration Sensor Module

DTC U0126 Lost Communication with Steering Angle Sensor Module

DTC U0130 Lost Communication with VGRS

DTC U0140 Lost Communication with Main Body ECU

for Preparation Click here

DESCRIPTION

The suspension control ECU receives signals from the ECM, four wheel drive control ECU, skid control ECU, yaw rate sensor, steering sensor, steering control ECU and main body ECU via CAN communication. When DTCs indicating a CAN communication system malfunction are output, repair the CAN communication system first.

DTC Code	Detection Condition	Trouble Area
U0100	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0101	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and ECM stops for 3 seconds or more.	• CAN communication system • ECM • Suspension control ECU
U0114	While driving at 30 km/h (19 mph), CAN communication between the suspension control ECU and four wheel drive control ECU stops for 3 seconds or more.	• CAN communication system • Four wheel drive control ECU • Suspension control ECU
U0122	CAN communication between the suspension control ECU and skid control ECU stops for 3 seconds or more.	• CAN communication system • Skid control ECU • Suspension control ECU
U0124	CAN communication between the suspension control ECU and yaw rate sensor stops for 3 seconds or more.	• CAN communication system • Yaw rate sensor • Suspension control ECU
U0126	CAN communication between the suspension control ECU and steering sensor stops for 3 seconds or more.	• CAN communication system • Steering sensor • Suspension control ECU
U0130	5 seconds after the engine switch is turned on (IG), CAN communication between the suspension control ECU and steering control ECU stops for 3 seconds or more.	• CAN communication system • Steering control ECU • Suspension control ECU
U0140	CAN communication between the suspension control ECU and main body ECU stops for 5 seconds or more.	• CAN communication system • Main body ECU • Suspension control ECU

INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.CLEAR DTC

a. Clear the DTCs (Click here).

NEXT

2.CHECK DTC

a. Perform a road test.

b. Check for DTCs.

OK:
DTC is not output.

Result

Result	Proceed to
OK	A
NG (for LHD)	B
NG (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (Click here)

A

USE SIMULATION METHOD TO CHECK (Click here)

for Preparation Click here

1. OPERATE HEIGHT CONTROL SWITCH AND CHECK CHANGE OF VEHICLE HEIGHT

NOTICE:

- **Perform the inspection with the vehicle empty.**
- **When operating the height control switch, operate the switch with the driver door opened, and then close the driver door after getting out of the vehicle.**

HINT:

Vehicle height control starts just after closing the door.

a. Set the tires to the specified tire pressure, and adjust all 4 wheels.

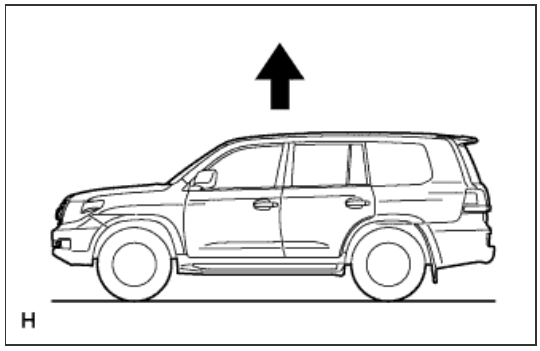
b. For the front side, measure the ground clearance of the front adjusting cam bolt center.
For the rear side, measure the ground clearance of the rear lower control arm front side center.

HINT:

Refer to the following for the measurements (Click here).

c. Start the engine.

d. Push the height control switch to change from "N" to "HI" mode.



e. Check the time required for the height change and the changed amount of the vehicle height.

Standard Value:

Vehicle Condition	Fluid Temperature Condition	Reference Value
"HI" mode (Up time)	20°C (68°F) +/- 10°C (50°F)	Approximately 15 seconds

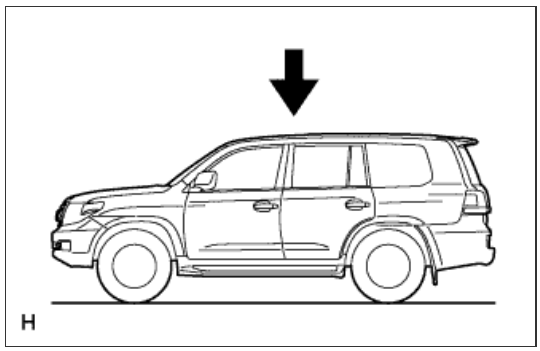
Amount of Change in Vehicle Height:

Item	Specified Condition
Front	Approximately +50 mm (+1.97 in.)
Rear	Approximately +60 mm (+2.36 in.)

NOTICE:

After vehicle height control has been completed, wait for approximately 20 seconds until the height is fixed securely, then check the changed amount of vehicle height.

f. Push the height control switch to change from "N" to "LO" mode.



g. Check the time required for the height change and the changed amount of the vehicle height.

Standard Value:

Vehicle Condition	Fluid Temperature Condition	Reference Value
"LO" mode (Down time)	20°C (68°F) +/- 10°C (50°F)	Approximately 10 seconds

Amount of Change in Vehicle Height:

Item	Specified Condition
Front	Approximately -60 mm (-2.36 in.)
Rear	Approximately -40 mm (-1.57 in.)

NOTICE:

After vehicle height control has been completed, wait for approximately 20 seconds until the height is fixed securely, then check the changed amount of vehicle height.

2. INSPECT FLUID PRESSURE

NOTICE:

With the vehicle empty, perform this inspection with 1 person sitting in the driver seat in order to confirm that the switch operation and vehicle height change have been completed.

HINT:

The average weight for one person is about 75 kg (165.3 lb).

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Start the engine and turn the intelligent tester on.

d. Press the UP button of the height control switch. Using the Data List, check the oil pressure when the vehicle height changes from NORMAL to HI.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Oil Pressure Sensor	Fluid pressure sensor reading / min.: -784.79 MPa (-8002.66 kgf/cm^2, -113794.55 psi) max.: 784.76 MPa (8002.354 kgf/cm^2, 113790.2 psi)	-	-

Standard Pressure:

Vehicle Condition	Fluid Temperature Condition	Reference Value
When vehicle height changes from NORMAL to HI	20°C (68°F) +/-10°C (50°F)	The oil pressure begins rising when control is started and reaches approximately 13 MPa (132.6 kfg/cm^2, 1885 psi) when the vehicle height is almost finished changing to HI.

e. Set the vehicle height to LO and press the UP button of the height control switch. Then check the oil pressure when the vehicle height changes from LO to NORMAL.

Standard Pressure:

Vehicle Condition	Fluid Temperature Condition	Reference Value
When vehicle height changes from LO to NORMAL	20°C (68°F) +/-10°C (50°F)	The oil pressure begins rising when control is started and reaches approximately 8 MPa (81.6 kfg/cm^2, 1160 psi) when the vehicle height is almost finished changing to NORMAL.

3. INSPECT VEHICLE SPEED SENSING FUNCTION

HINT:

When the vehicle speed sensing function control operates, nothing displays on the indicator in the combination meter.

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Using the Data List, check the vehicle speed sensing function.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Height Mode	Height mode / NORMAL / ACCE LO / LO / STAN LO / FAST LO / L4 HI / HI / EX	Actual conditions are	-

	HI	displayed	

e. When the transfer is in the L4 position:

i. When the vehicle is driven at a speed of approximately 3 km/h (2 mph) or more, check that the vehicle height changes to HI using the Data List.

OK:
The display changes to HI.

ii. Using the Data List, check if the vehicle height changes from HI to L4 HI when the vehicle speed is 40 km/h (25 mph) or more.

OK:
The display changes to L4 HI.

f. When driving at a high speed:

i. Using the Data List, check that the vehicle height lowers when the vehicle height is NORMAL and the vehicle speed is 100 km/h (62 mph) or more.

OK:
The display changes to FAST LO.

ii. Using the Data List, check that the vehicle height returns to NORMAL when the vehicle speed is reduced to less than 80 km/h (50 mph).

OK:
The display changes to NORMAL.

g. Easy access mode control:
Using the Data List, check that the vehicle height changes to ACCE LO when the engine switch is turned off with the engine running, the vehicle height NORMAL, easy access mode on and the shift lever in P.

OK:
The display changes to ACCE LO.

h. When vehicle height control is prohibited:

i. Press the height control OFF switch to prohibit vehicle height control.

ii. Drive the vehicle at 80 km/h (50 mph) or more with the vehicle height NORMAL, or drive the vehicle at 30 km/h (19 mph) or more with the vehicle height not NORMAL and, using the Data List, check that vehicle height control prohibition is canceled.

AHC

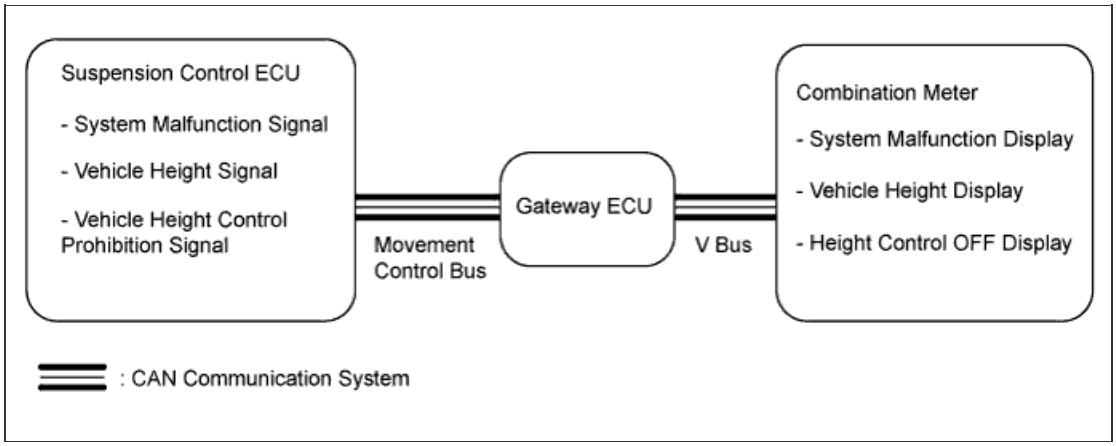
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Height Control Prohibition	Vehicle height control prohibition information/ Permiss or Prohibi	Actual conditions are displayed	-

OK:
The display changes from Prohibi to Permiss.

for Preparation Click here

DESCRIPTION

The multi-information display in the combination meter displays the vehicle height, the state of the height control OFF switch, and system malfunctions. To display items, the multi-information display uses CAN communication between the combination meter and suspension control ECU via the gateway ECU.



INSPECTION PROCEDURE

1.CHECK ECUS CONNECTED TO CAN BUS

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Check the ECUs connected to the CAN bus for LHD (Click here) or for RHD (Click here).

Result

Result	Proceed to
No malfunction appears	A
Malfunction appears (for LHD)	B
Malfunction appears (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

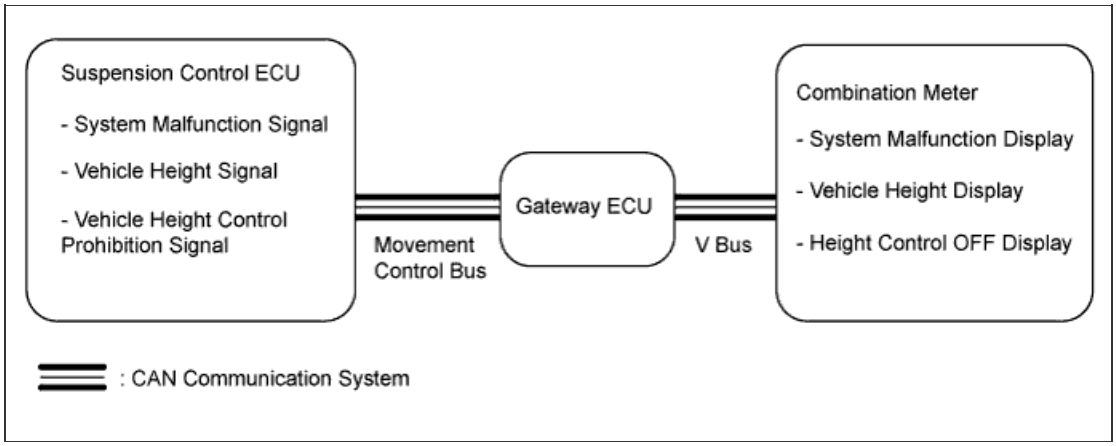
A

GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

for Preparation Click here

DESCRIPTION

The multi-information display in the combination meter displays the vehicle height, the state of the height control OFF switch, and system malfunctions. To display items, the multi-information display uses CAN communication between the combination meter and suspension control ECU via the gateway ECU.



INSPECTION PROCEDURE

1.CHECK ECUS CONNECTED TO CAN BUS

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Check the ECUs connected to the CAN bus for LHD (Click here) or for RHD (Click here).

Result

Result	Proceed to
No malfunction appears	A
Malfunction appears (for LHD)	B
Malfunction appears (for RHD)	C

B → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

C → GO TO CAN COMMUNICATION SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

A

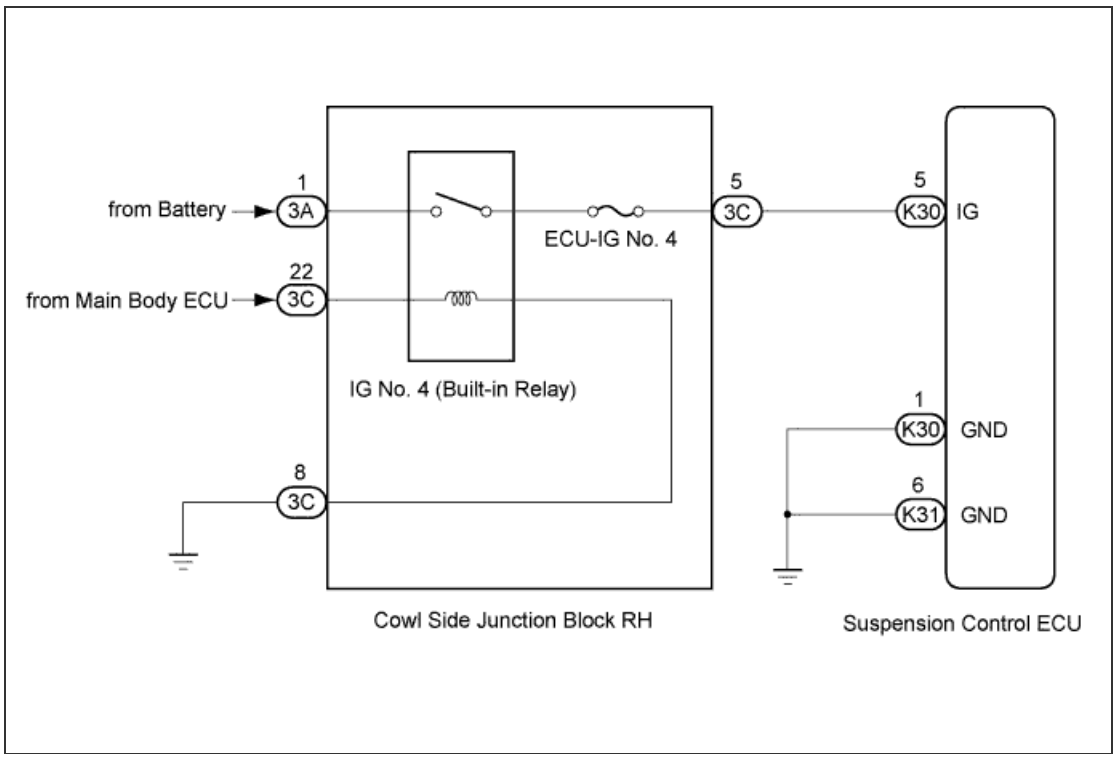
GO TO METER / GAUGE SYSTEM (HOW TO PROCEED WITH TROUBLESHOOTING) (**Click here**)

for Preparation Click here

DESCRIPTION

This circuit supplies the power source to the suspension control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → **Go to step 2**

OK

CHECK INDICATOR CIRCUIT (Click here)

2.INSPECT FUSE (ECU-IG NO. 4)

a. Remove the ECU-IG No. 4 fuse from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
ECU-IG No. 4 fuse	Always	Below 1 Ω

NG → Go to step 7

OK

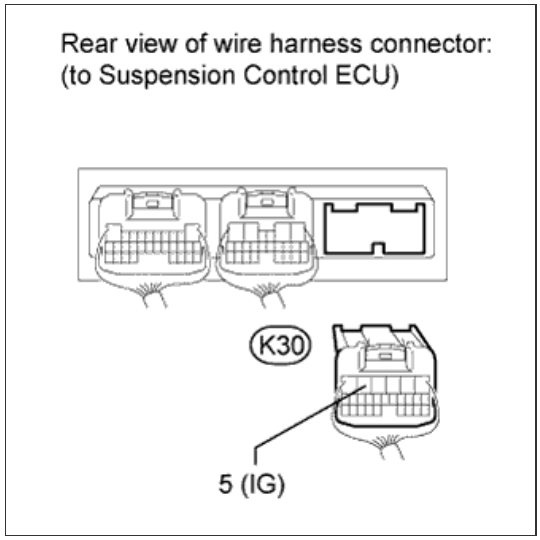
3.INSPECT COWL SIDE JUNCTION BLOCK RH (IG NO. 4 RELAY)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V

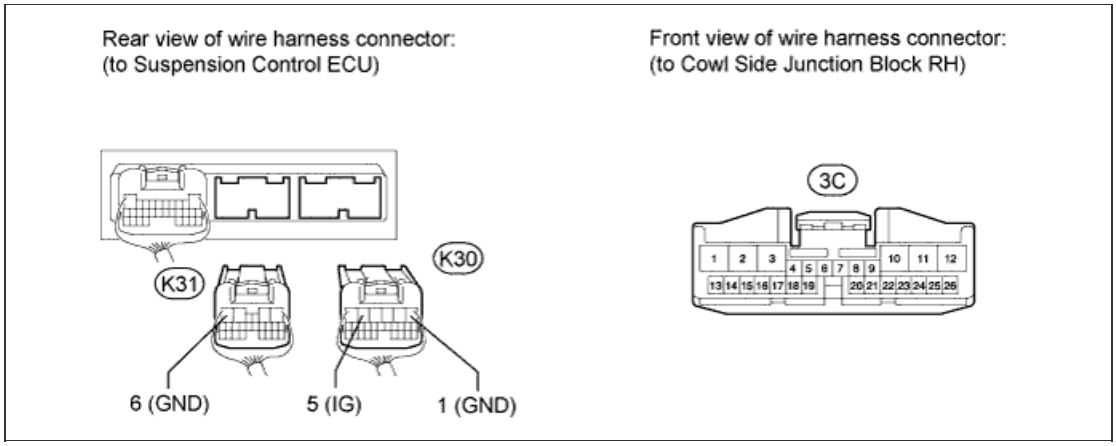


NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU AND BODY GROUND)



a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the 3C cowl side junction block RH connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - 3C-5	Always	Below 1 Ω
K30-1 (GND) - Body ground	Always	Below 1 Ω
K31-6 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

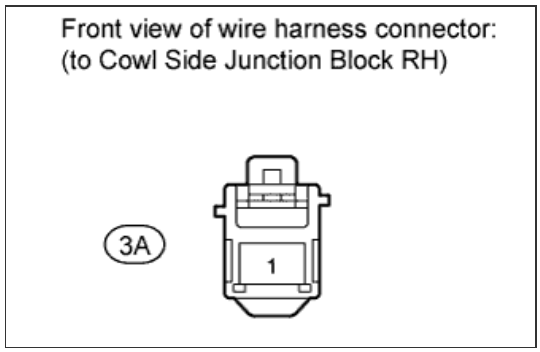
5.CHECK HARNESS AND CONNECTOR (BATTERY - COWL SIDE JUNCTION BLOCK RH)

a. Disconnect the 3A cowl side junction block RH connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3A-1 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - COWL SIDE JUNCTION BLOCK RH AND BODY GROUND)

a. Disconnect the 3C cowl side junction block RH connector.

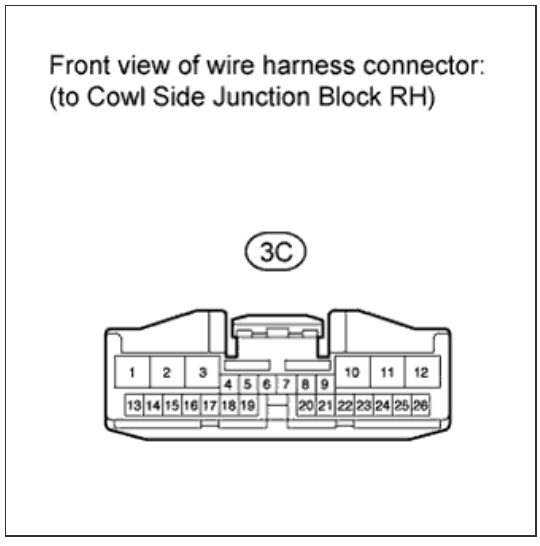
b. Measure the voltage and resistance according to the value(s) in the tables below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3C-22 - Body ground	Engine switch on (IG)	11 to 14 V

Standard Resistance:

Tester Connection	Condition	Specified Condition
3C-8 - Body ground	Always	Below 1 Ω



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU)

a. Disconnect the K30 ECU connector.

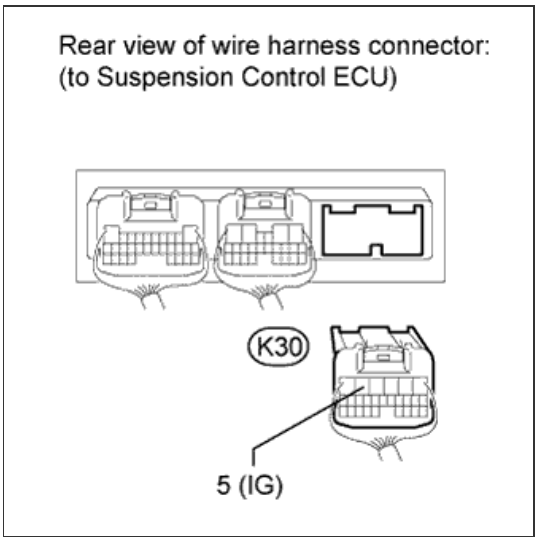
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Always	10 kΩ or higher

HINT:

If a fuse is blown, replace the fuse.



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

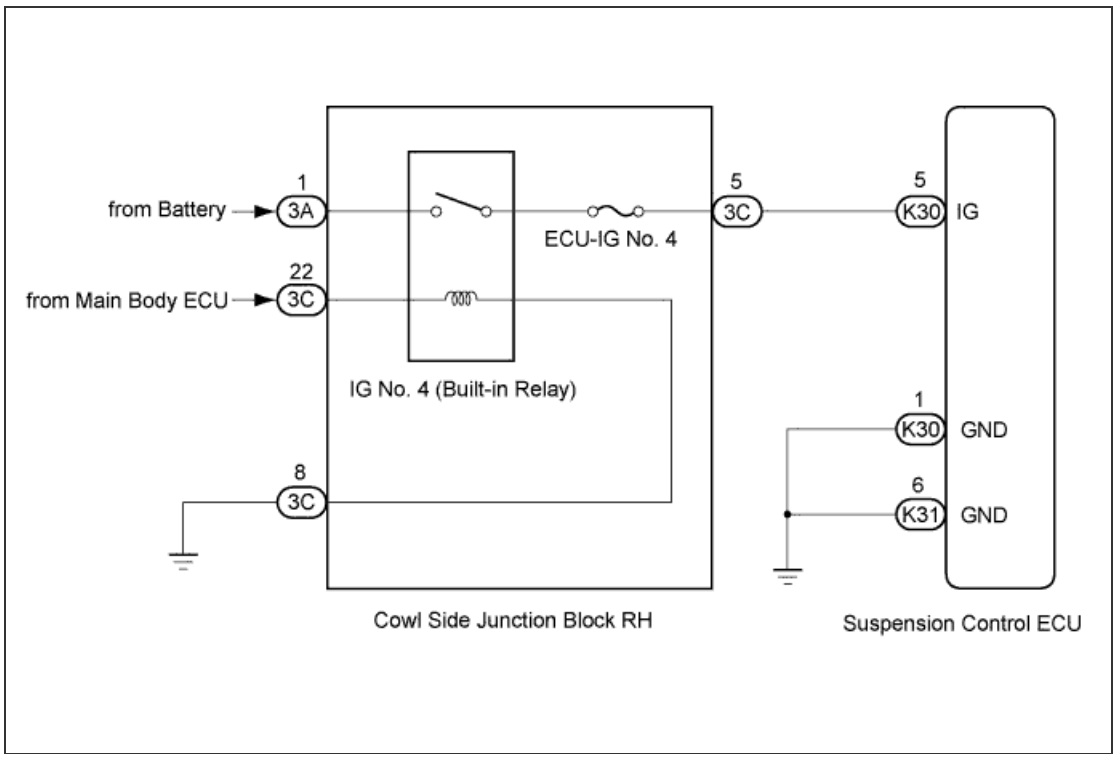
REPLACE COWL SIDE JUNCTION BLOCK RH

for Preparation Click here

DESCRIPTION

This circuit supplies the power source to the suspension control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → **Go to step 2**

OK

CHECK INDICATOR CIRCUIT (Click here)

2.INSPECT FUSE (ECU-IG NO. 4)

a. Remove the ECU-IG No. 4 fuse from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
ECU-IG No. 4 fuse	Always	Below 1 Ω

NG → Go to step 7

OK

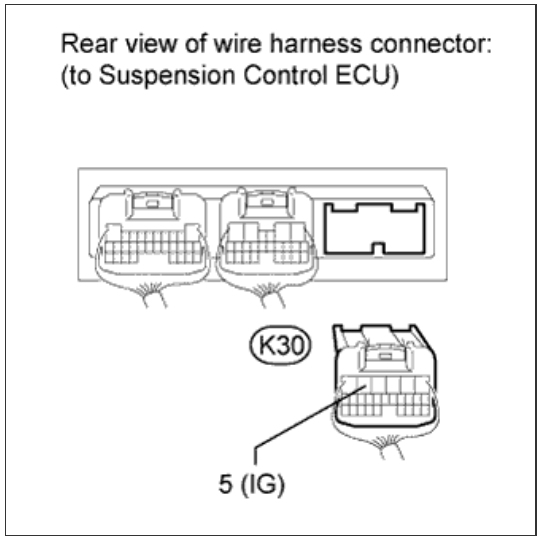
3.INSPECT COWL SIDE JUNCTION BLOCK RH (IG NO. 4 RELAY)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V

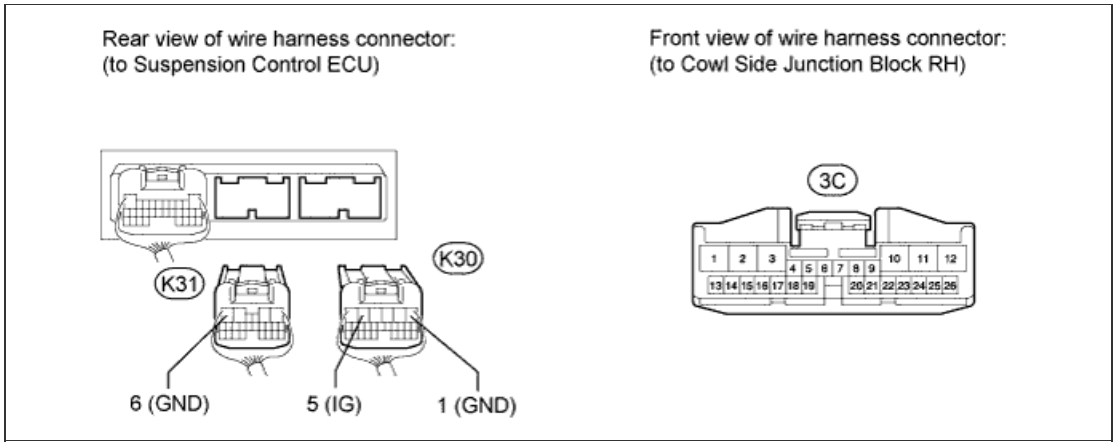


NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU AND BODY GROUND)



a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the 3C cowl side junction block RH connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - 3C-5	Always	Below 1 Ω
K30-1 (GND) - Body ground	Always	Below 1 Ω
K31-6 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

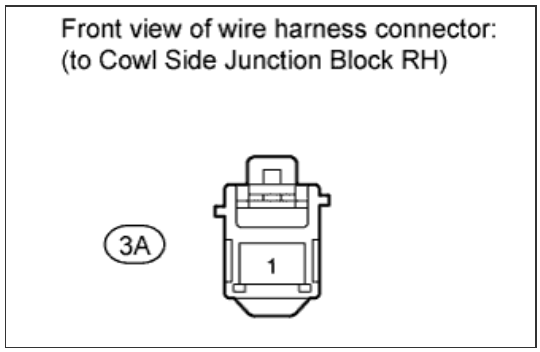
5.CHECK HARNESS AND CONNECTOR (BATTERY - COWL SIDE JUNCTION BLOCK RH)

a. Disconnect the 3A cowl side junction block RH connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3A-1 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - COWL SIDE JUNCTION BLOCK RH AND BODY GROUND)

a. Disconnect the 3C cowl side junction block RH connector.

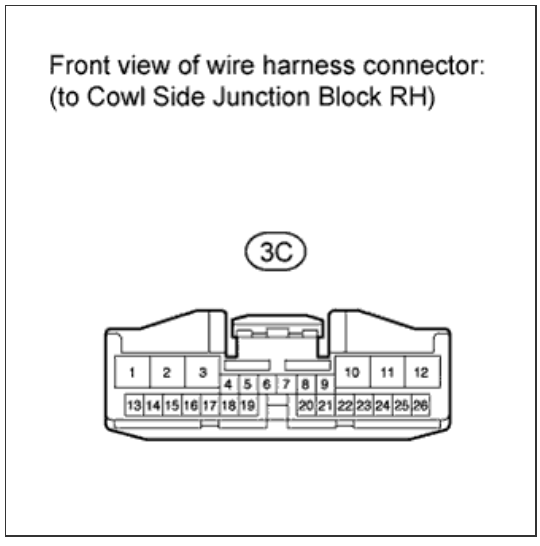
b. Measure the voltage and resistance according to the value(s) in the tables below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3C-22 - Body ground	Engine switch on (IG)	11 to 14 V

Standard Resistance:

Tester Connection	Condition	Specified Condition
3C-8 - Body ground	Always	Below 1 Ω



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU)

a. Disconnect the K30 ECU connector.

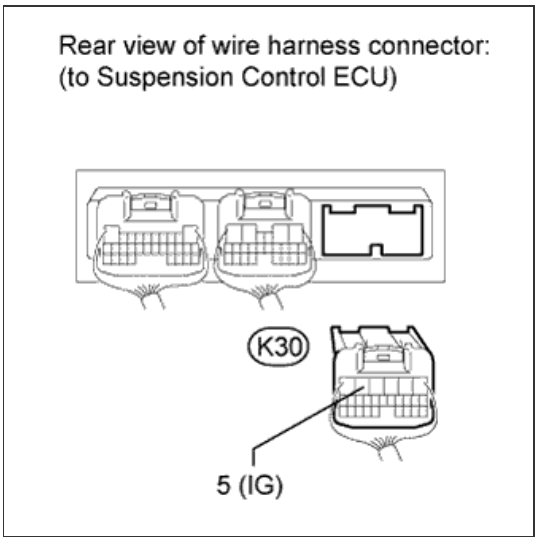
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Always	10 kΩ or higher

HINT:

If a fuse is blown, replace the fuse.



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

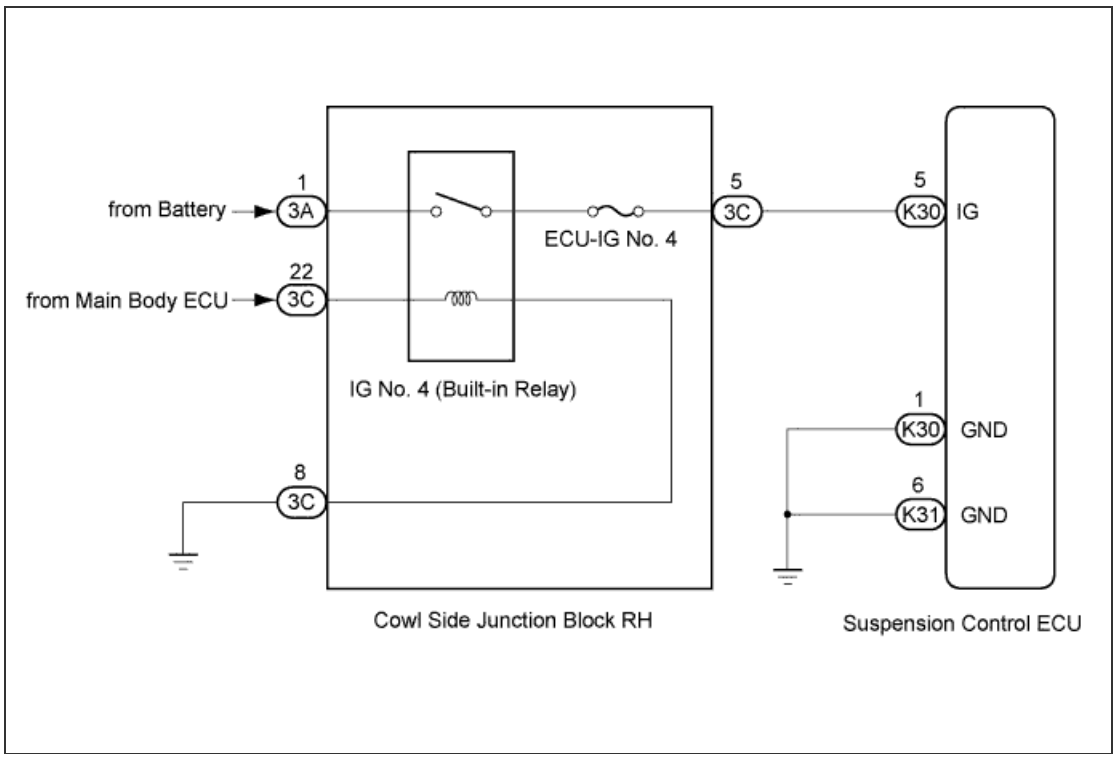
REPLACE COWL SIDE JUNCTION BLOCK RH

for Preparation Click here

DESCRIPTION

This circuit supplies the power source to the suspension control ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **Before performing troubleshooting, inspect the connectors of related circuits.**
- **If the suspension control ECU or height control sensor is replaced, the vehicle height offset calibration must be performed (Click here).**

1.READ VALUE USING INTELLIGENT TESTER (IG POWER SOURCE VOLTAGE)

a. Turn the engine switch off.

b. Connect the intelligent tester to the DLC3.

c. Turn the engine switch on (IG) and the intelligent tester on.

d. Enter the following menus: Chassis / AHC / Data List.

e. According to the display on the intelligent tester, read the Data List.

AHC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
IG Power Source Voltage	Power supply voltage / min.: 0 V max.: 255 V	Engine switch on (IG): 11 to 14 V	-

OK:
11 to 14 V

NG → **Go to step 2**

OK

CHECK INDICATOR CIRCUIT (Click here)

2.INSPECT FUSE (ECU-IG NO. 4)

a. Remove the ECU-IG No. 4 fuse from the cowl side junction block RH.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
ECU-IG No. 4 fuse	Always	Below 1 Ω

NG → Go to step 7

OK

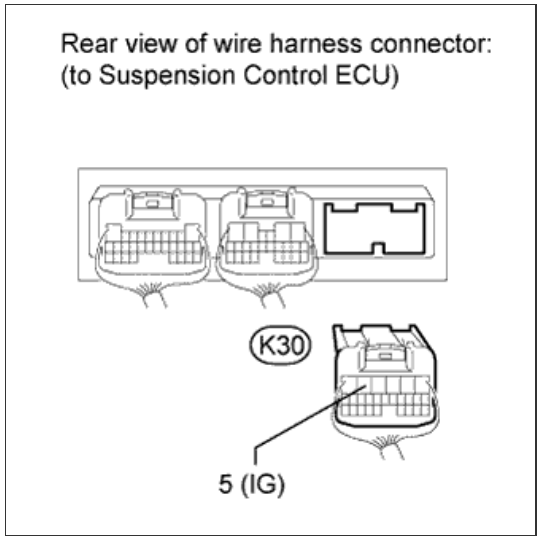
3.INSPECT COWL SIDE JUNCTION BLOCK RH (IG NO. 4 RELAY)

a. Disconnect the K30 ECU connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Engine switch on (IG)	11 to 14 V

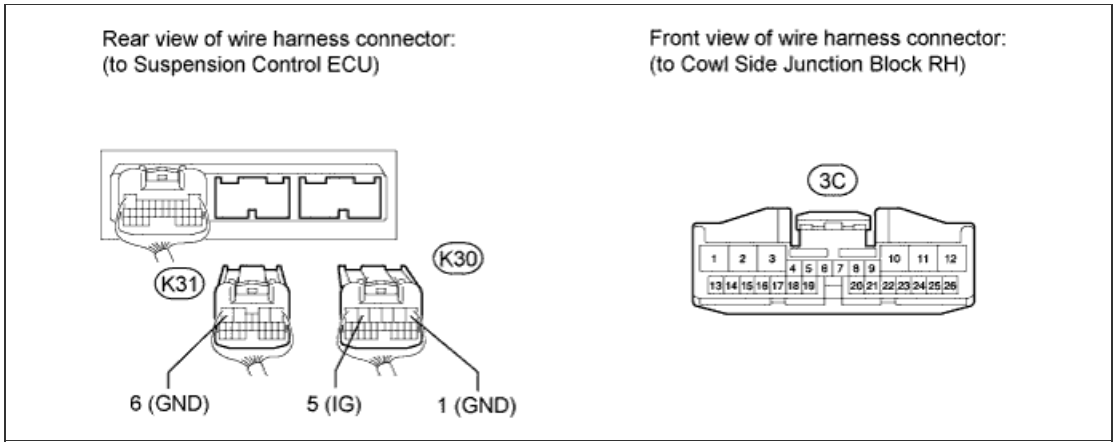


NG → Go to step 4

OK

REPLACE SUSPENSION CONTROL ECU (Click here)

4.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU AND BODY GROUND)



a. Disconnect the K30 and K31 ECU connectors.

b. Disconnect the 3C cowl side junction block RH connector.

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - 3C-5	Always	Below 1 Ω
K30-1 (GND) - Body ground	Always	Below 1 Ω
K31-6 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

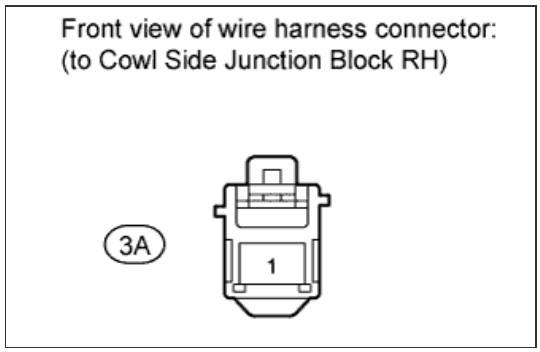
5.CHECK HARNESS AND CONNECTOR (BATTERY - COWL SIDE JUNCTION BLOCK RH)

a. Disconnect the 3A cowl side junction block RH connector.

b. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3A-1 - Body ground	Always	11 to 14 V



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6.CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - COWL SIDE JUNCTION BLOCK RH AND BODY GROUND)

a. Disconnect the 3C cowl side junction block RH connector.

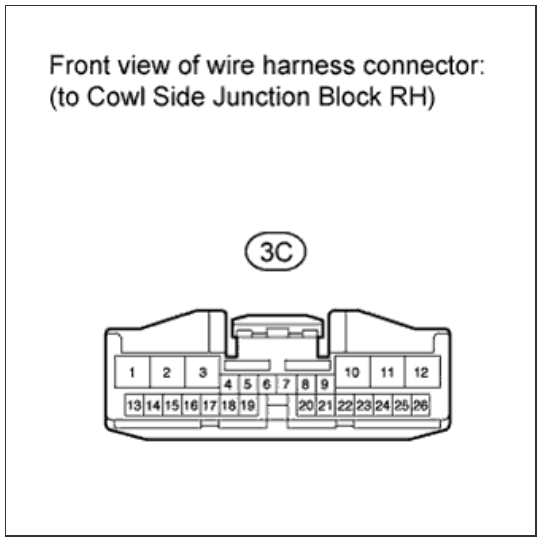
b. Measure the voltage and resistance according to the value(s) in the tables below.

Standard Voltage:

Tester Connection	Condition	Specified Condition
3C-22 - Body ground	Engine switch on (IG)	11 to 14 V

Standard Resistance:

Tester Connection	Condition	Specified Condition
3C-8 - Body ground	Always	Below 1 Ω



NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

7.CHECK HARNESS AND CONNECTOR (COWL SIDE JUNCTION BLOCK RH - ECU)

a. Disconnect the K30 ECU connector.

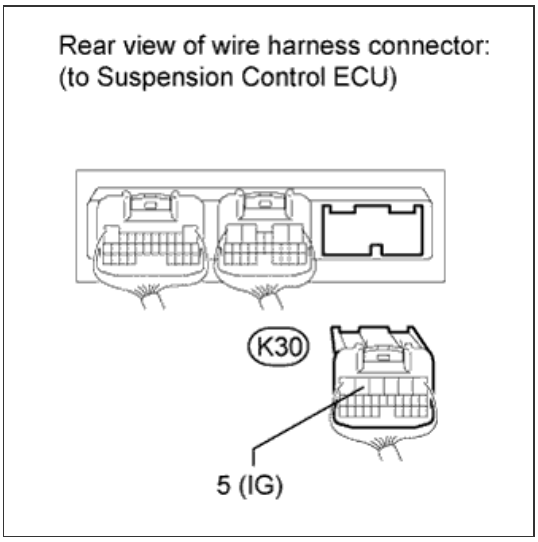
b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
K30-5 (IG) - Body ground	Always	10 kΩ or higher

HINT:

If a fuse is blown, replace the fuse.

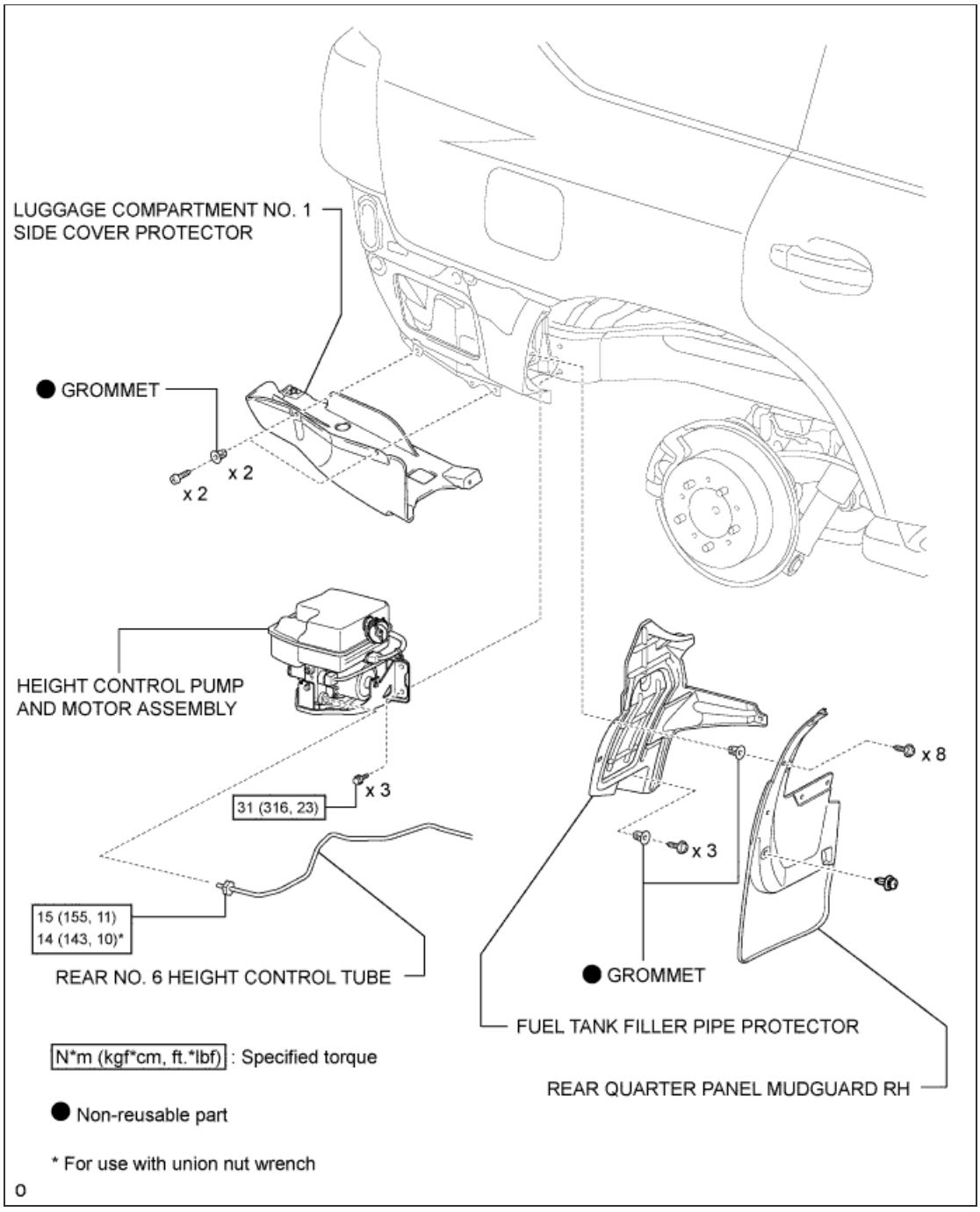


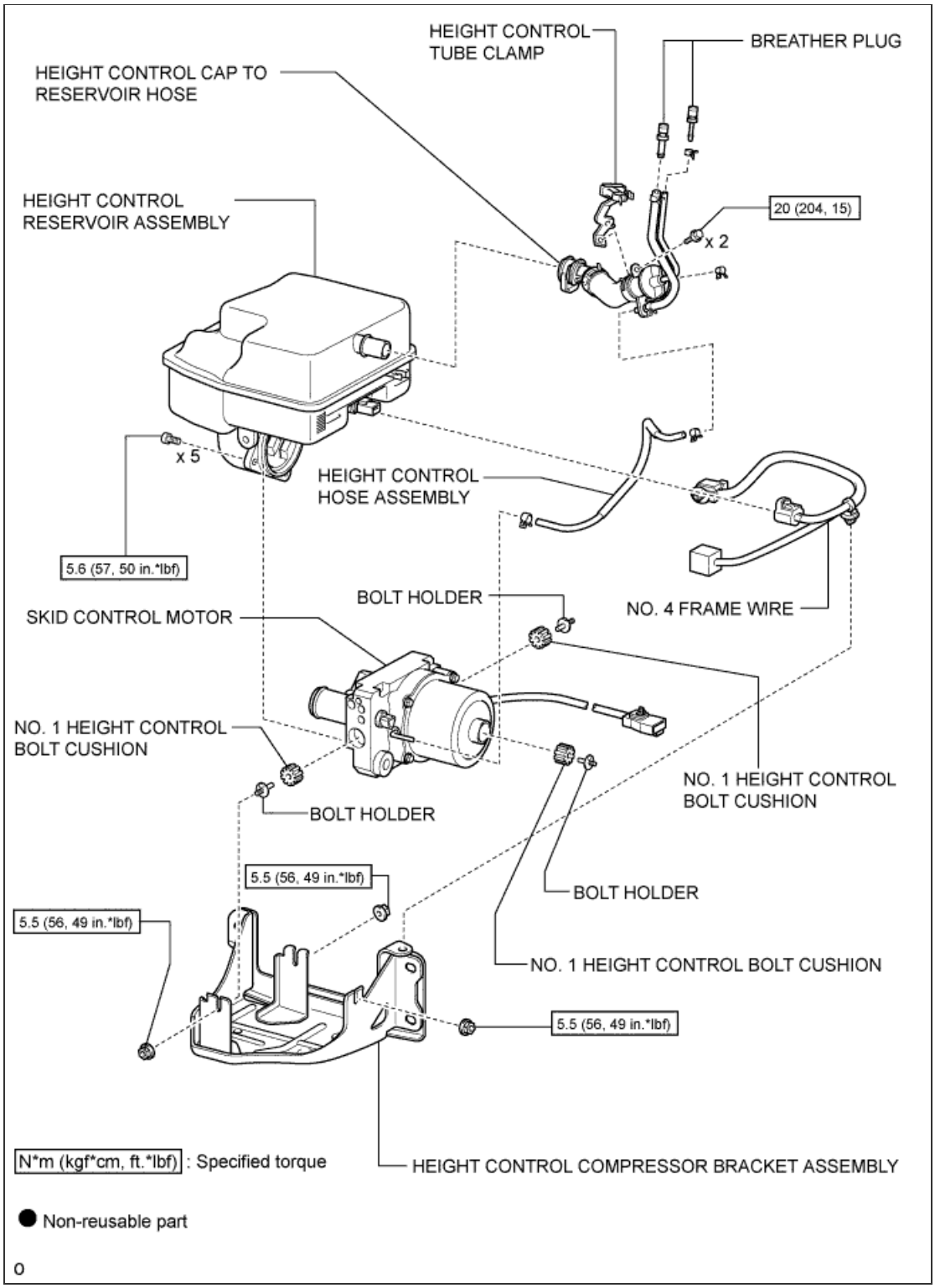
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COWL SIDE JUNCTION BLOCK RH

for Preparation Click here




HEIGHT CONTROL TUBE CLAMP
BREATHER PLUG
HEIGHT CONTROL CAP TO RESERVOIR HOSE
HEIGHT CONTROL RESERVOIR ASSEMBLY
20 (204, 15)
x 2
x 5
HEIGHT CONTROL HOSE ASSEMBLY
5.6 (57, 50 in.*lbf)
BOLT HOLDER
NO. 4 FRAME WIRE
SKID CONTROL MOTOR
NO. 1 HEIGHT CONTROL BOLT CUSHION
BOLT HOLDER
NO. 1 HEIGHT CONTROL BOLT CUSHION
5.5 (56, 49 in.*lbf)
BOLT HOLDER
5.5 (56, 49 in.*lbf)
NO. 1 HEIGHT CONTROL BOLT CUSHION
5.5 (56, 49 in.*lbf)
N*m (kgf*cm, ft.*lbf) : Specified torque
HEIGHT CONTROL COMPRESSOR BRACKET ASSEMBLY
● Non-reusable part
o

for Preparation Click here

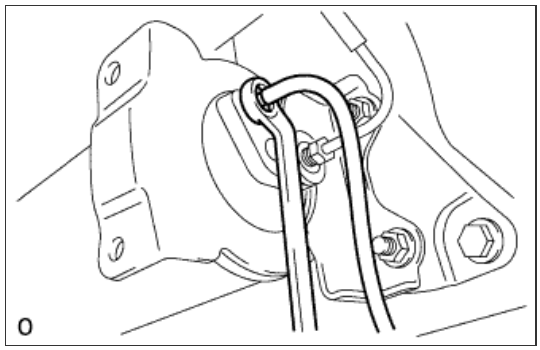
1. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

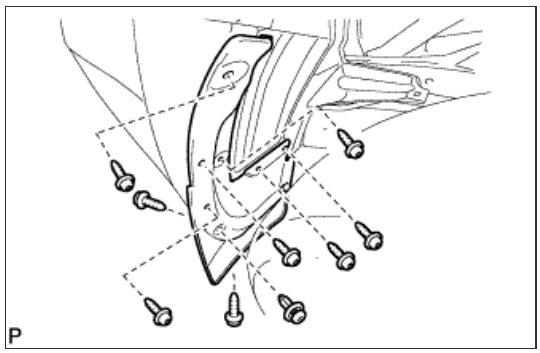
Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



2. REMOVE REAR QUARTER PANEL MUDGUARD RH

a. Remove the clip.

b. Using a T30 "TORX" socket, remove the 8 screws and mudguard.



3. REMOVE REAR BUMPER COVER

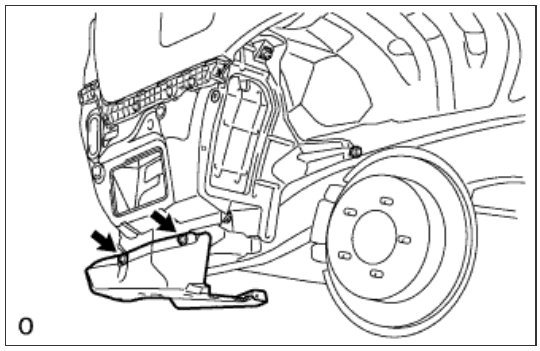
a. for Standard:
Remove the bumper cover (Click here).

b. w/ Towing Hitch:
Remove the bumper cover (Click here).

c. w/ Pintle Hook:
Remove the bumper cover (Click here).

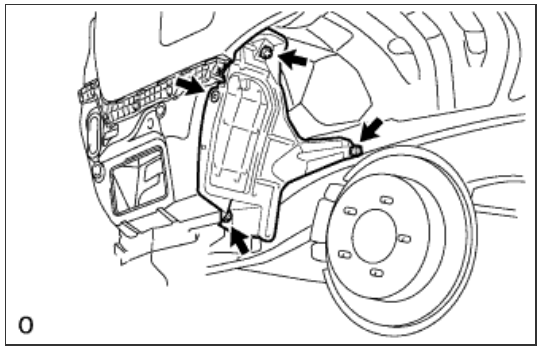
4. REMOVE NO. 1 LUGGAGE COMPARTMENT SIDE COVER PROTECTOR

a. Remove the 2 screws, 2 grommets and protector.



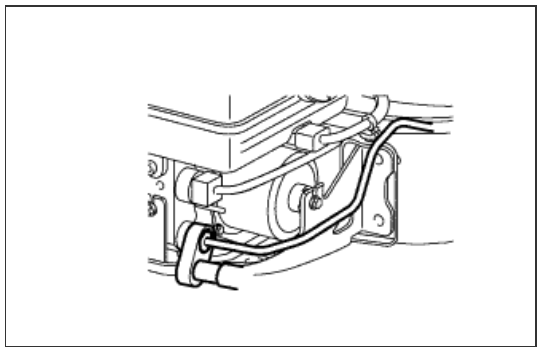
5. REMOVE FUEL TANK FILLER PIPE PROTECTOR

a. Using a T30 "TORX" socket wrench, remove the 3 screws, 2 grommets and pipe protector.



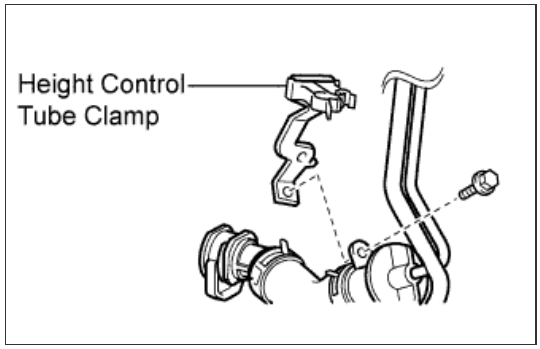
6. DISCONNECT REAR NO. 6 HEIGHT CONTROL TUBE

a. Using a union nut wrench, disconnect the No. 6 height control tube from the pump and motor.



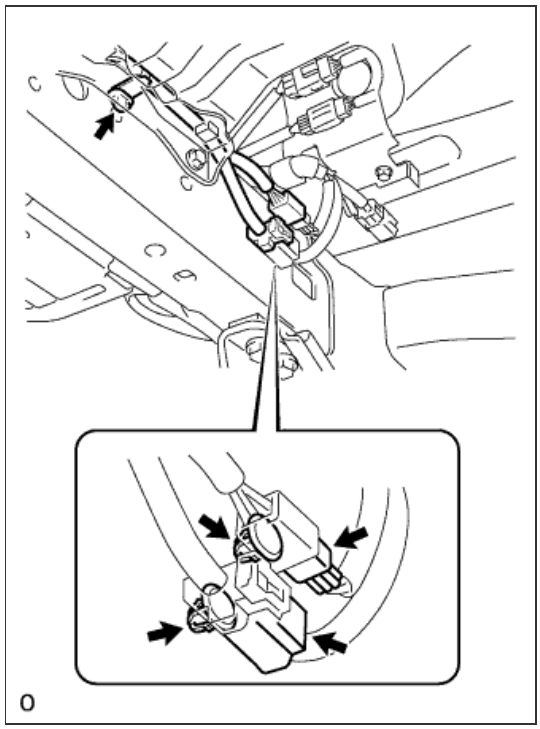
7. REMOVE HEIGHT CONTROL TUBE CLAMP

a. Disconnect the tube clamp from the hose, then remove the 2 bolts and tube clamp.

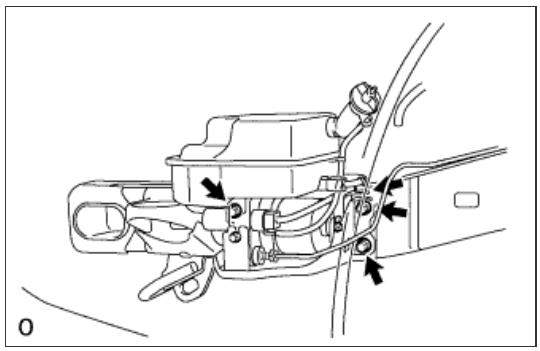


8. REMOVE HEIGHT CONTROL PUMP AND MOTOR ASSEMBLY

a. Disconnect the 2 connectors and 3 clamps.



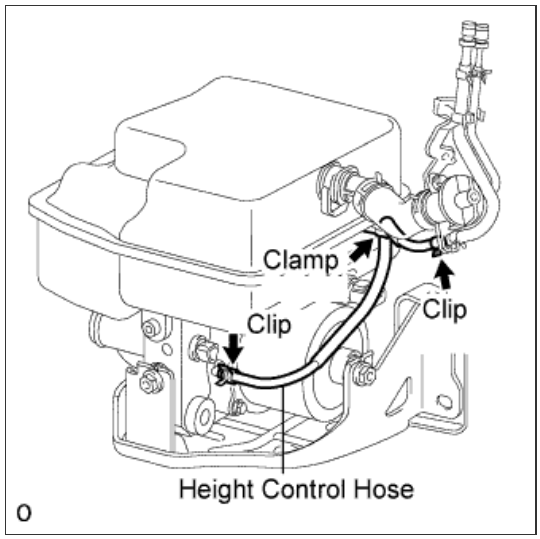
b. Remove the 3 bolts and pump and motor.



for Preparation Click here

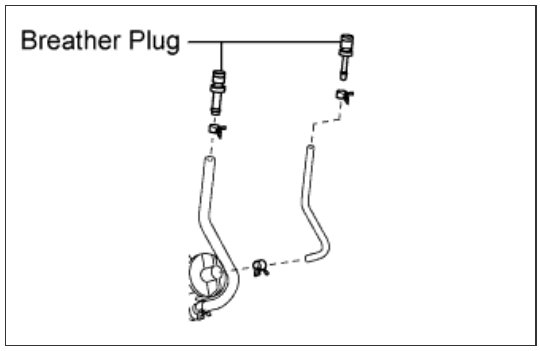
1. REMOVE HEIGHT CONTROL HOSE ASSEMBLY

a. Disconnect the clamp from the reservoir, then remove the 2 clips and hose.

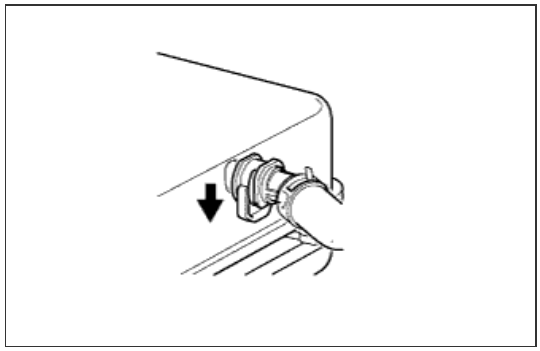


2. REMOVE HEIGHT CONTROL CAP TO RESERVOIR HOSE

a. Remove the 3 clips, 2 breather plugs and hose from the reservoir hose.

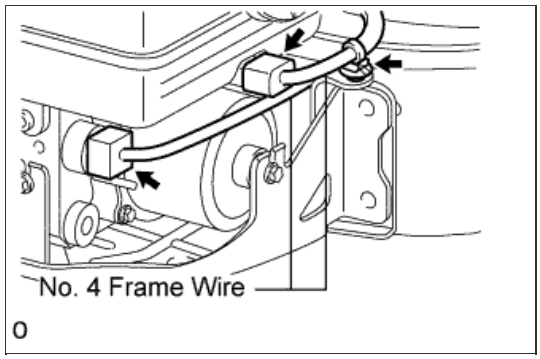


b. Pull the connector down to detach it and remove the hose from the reservoir tank.



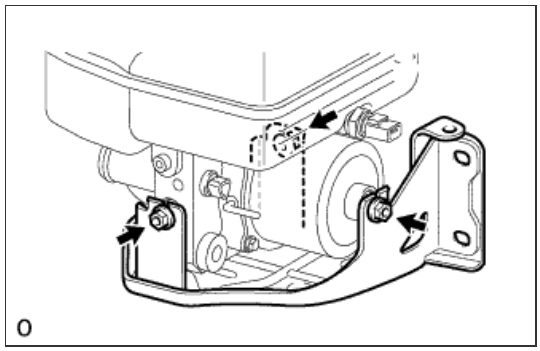
3. DISCONNECT NO. 4 FRAME WIRE

a. Disconnect the 2 connectors, clamp and frame wire.



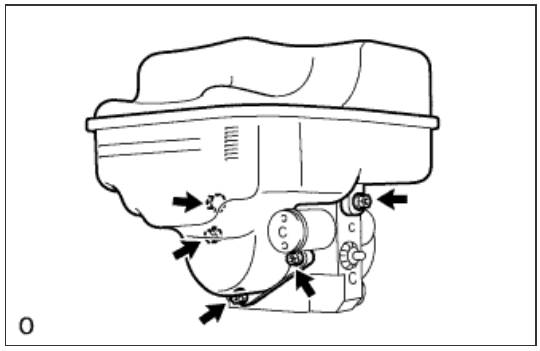
4. REMOVE HEIGHT CONTROL COMPRESSOR BRACKET ASSEMBLY

a. Remove the 3 nuts and bracket from the pump and motor.



5. REMOVE HEIGHT CONTROL RESERVOIR ASSEMBLY

a. Using a 5 mm hexagon wrench, remove the 5 bolts and reservoir from the pump and motor.



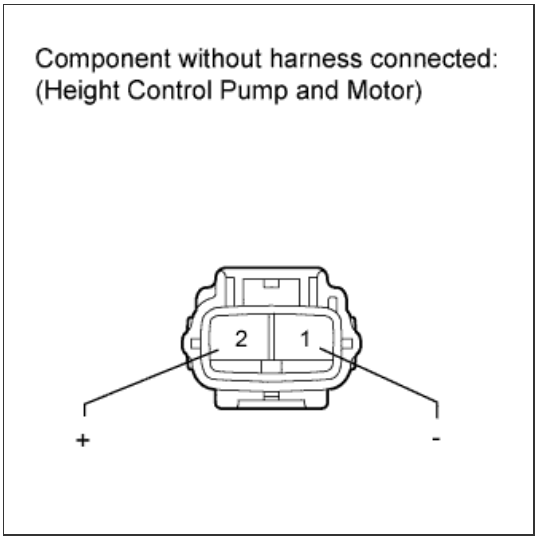
6. REMOVE NO. 1 HEIGHT CONTROL BOLT CUSHION

a. Remove the 3 bolt holders and 3 bolt cushions from the pump and motor.

for Preparation Click here

1. INSPECT HEIGHT CONTROL PUMP AND MOTOR

a. Check the pump and motor operation.



i. Apply battery voltage to the pump and motor and check the operating sound of the height control pump and motor.

NOTICE:

- **Be careful of fluid spray when the height control pump and motor is operated.**
- **Do not allow the motor to operate for 60 seconds or more.**
- **If the height control pump and motor is shorted, locked, or has a similar type of malfunction, a large amount of current will be flowing. Therefore, if the motor does not operate, immediately stop this inspection.**

OK:

Measurement Condition	Specified Condition
Battery positive (+) → Terminal 2 Battery negative (-) → Terminal 1	Motor operates

If the result is not as specified, replace the height control pump and motor.

for Preparation Click here

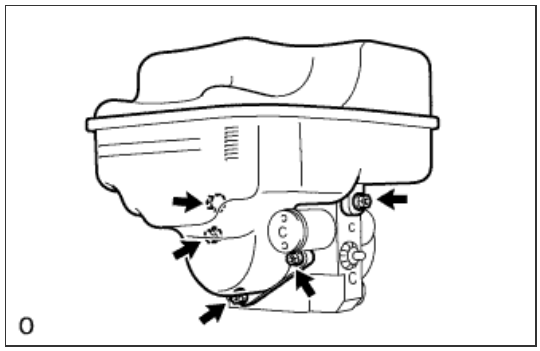
1. INSTALL NO. 1 HEIGHT CONTROL BOLT CUSHION

a. Install the 3 bolt cushions and 3 bolt holders to the pump and motor.

2. INSTALL HEIGHT CONTROL RESERVOIR ASSEMBLY

a. Using a 5 mm hexagon wrench, install the reservoir with the 5 bolts.

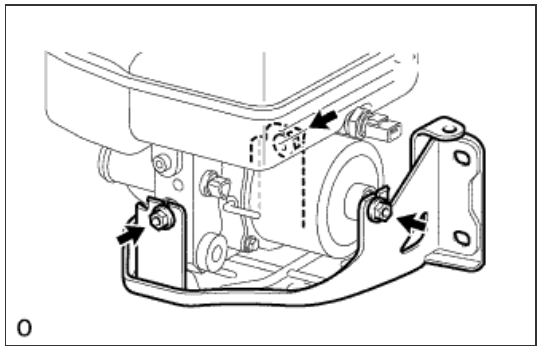
Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



3. INSTALL HEIGHT CONTROL COMPRESSOR BRACKET ASSEMBLY

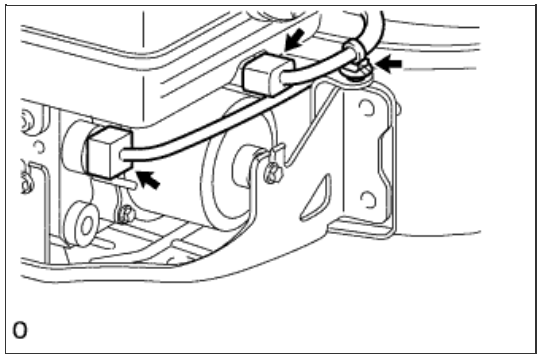
a. Install the bracket with the 3 nuts.

Torque:
5.5 N*m{ 56 kgf*cm , 49 in.*lbf }



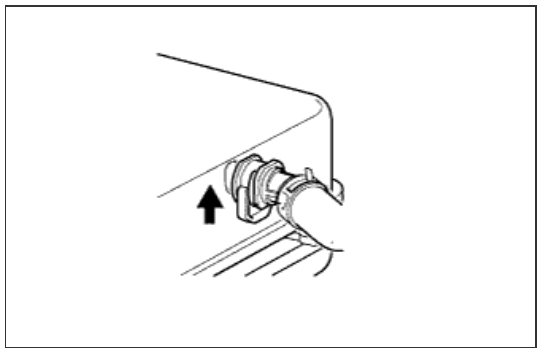
4. CONNECT NO. 4 FRAME WIRE

a. Connect the 2 connectors, clamp and frame wire.

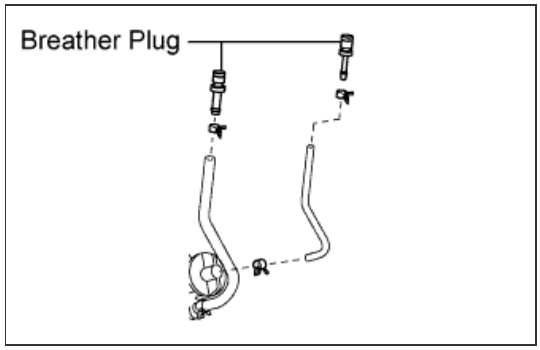


5. INSTALL HEIGHT CONTROL CAP TO RESERVOIR HOSE

a. Install the hose to the reservoir tank, and push the connector up to attach it.



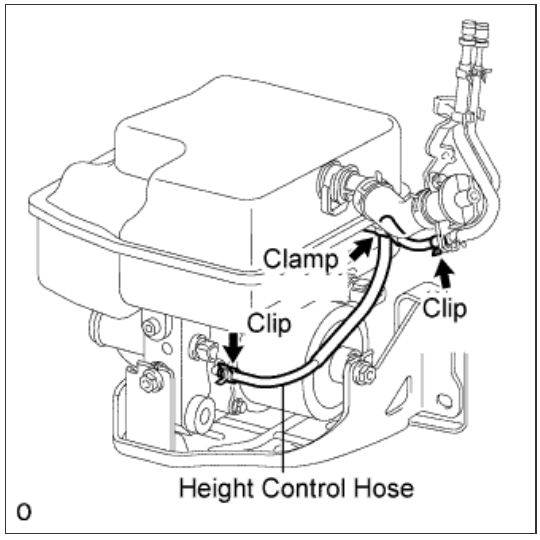
b. Install the hose, 2 breather plugs and 3 clips to the reservoir hose.



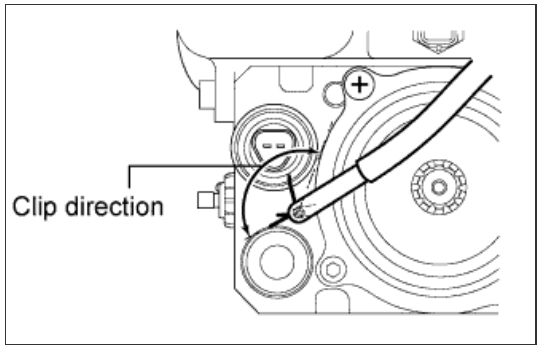
6. INSTALL HEIGHT CONTROL HOSE ASSEMBLY

a. Install the hose to the reservoir and motor with the 2 clips.

b. Connect the clamp to the reservoir.



c. Check that the direction of the hose clip is as shown in the illustration.

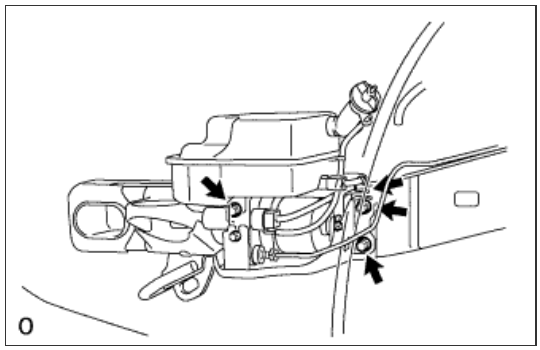


for Preparation Click here

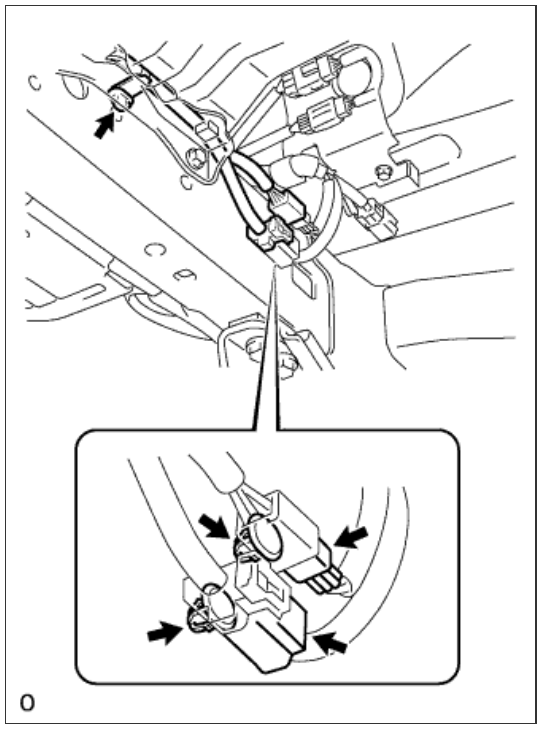
1. INSTALL HEIGHT CONTROL PUMP AND MOTOR ASSEMBLY

a. Install the pump and motor with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



b. Connect the 2 connectors and 3 clamps.

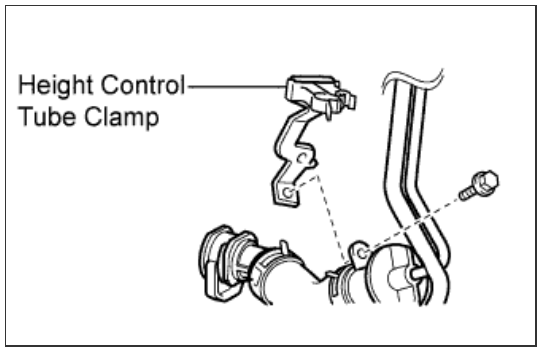


2. INSTALL HEIGHT CONTROL TUBE CLAMP

a. Install the tube clamp with the 2 bolts.

Torque:
20 N*m{ 204 kgf*cm , 15 ft.*lbf }

b. Connect the reservoir hose to the tube clamp.



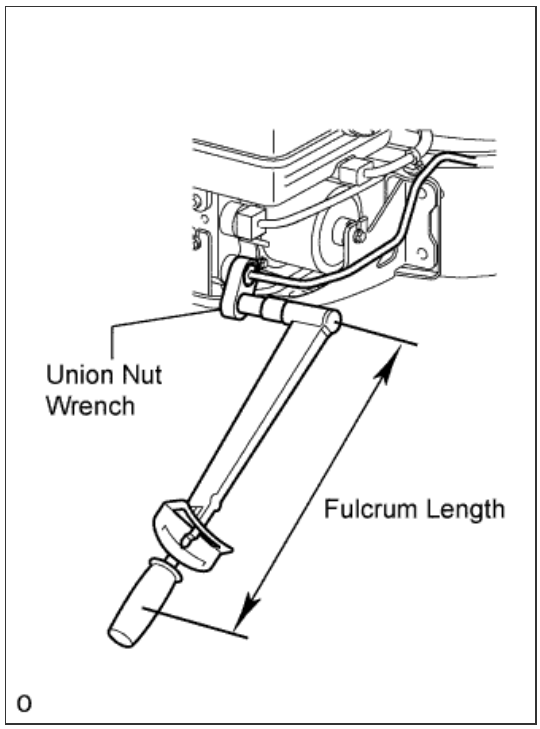
3. CONNECT REAR NO. 6 HEIGHT CONTROL TUBE

a. Using a union nut wrench, connect the control tube to the pump and motor.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



4. BLEED AIR FROM SUSPENSION FLUID

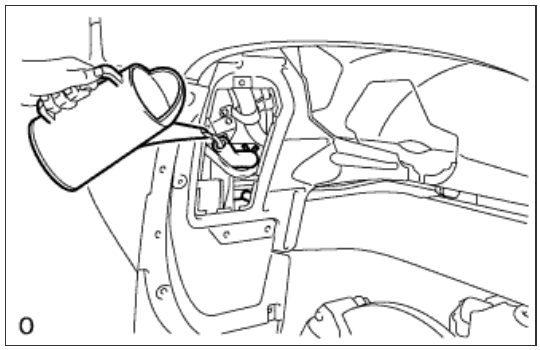
a. With the engine stopped, fill the reservoir tank with fluid.

NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.



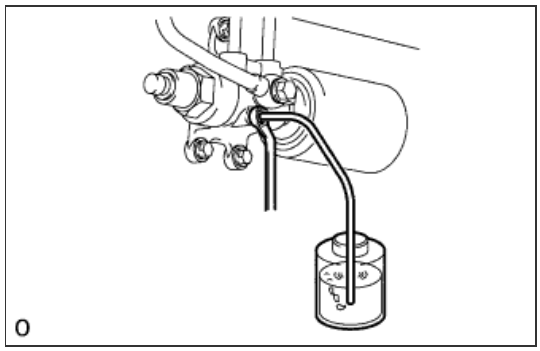
b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.



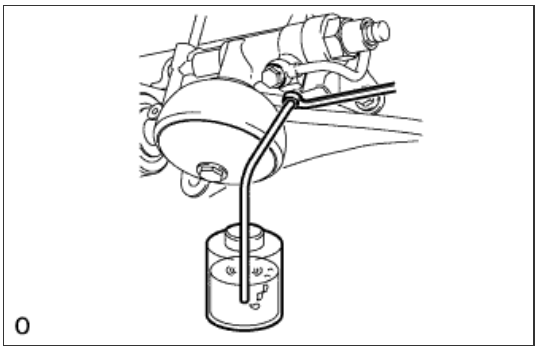
e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

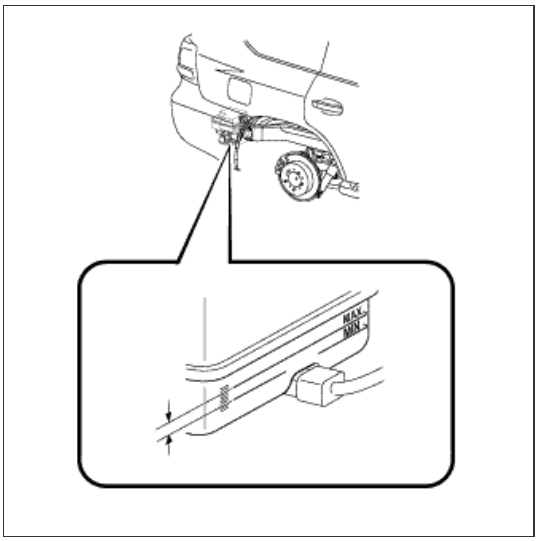
HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

5. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).



HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.

6. INSPECT FOR SUSPENSION FLUID LEAK

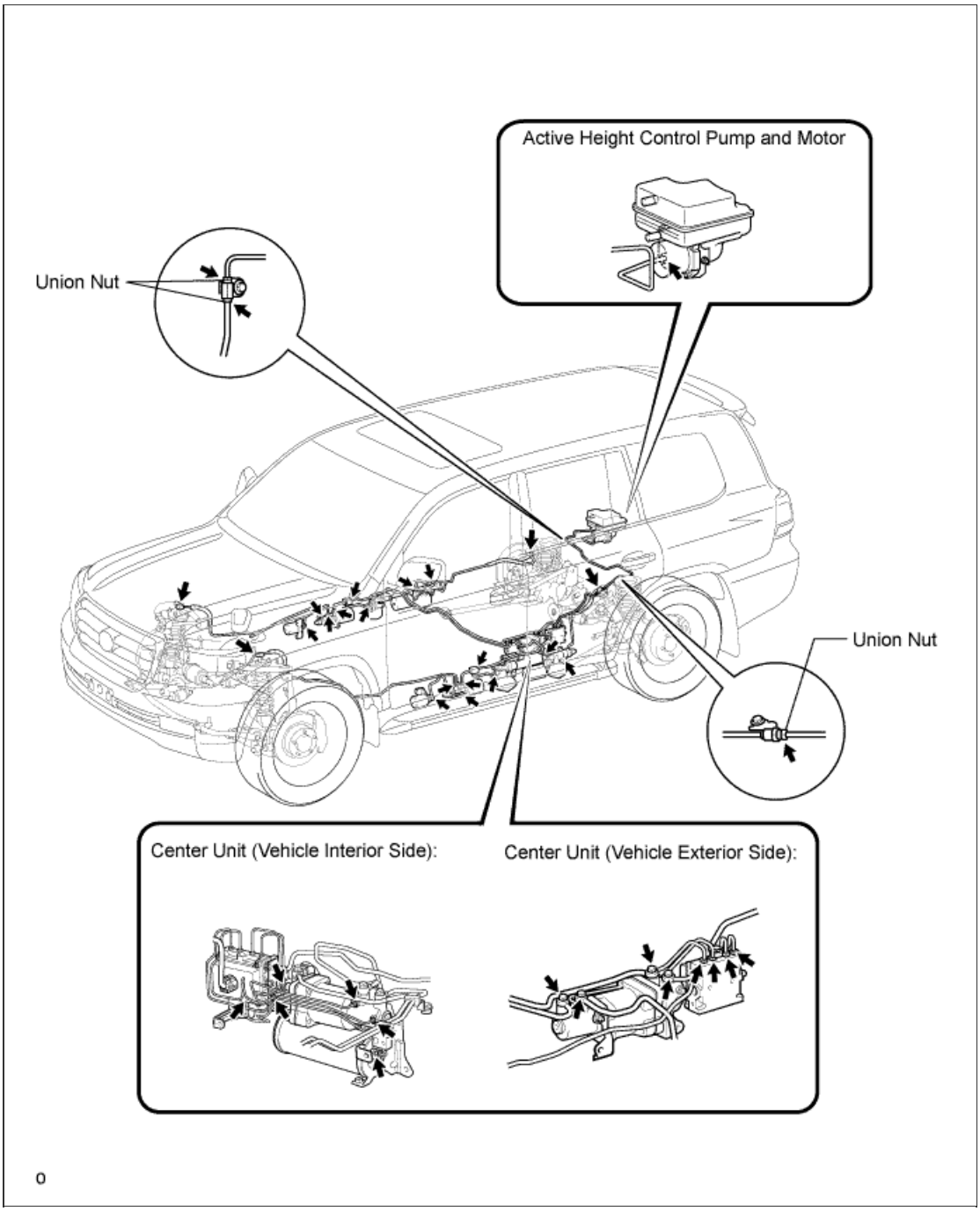
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.

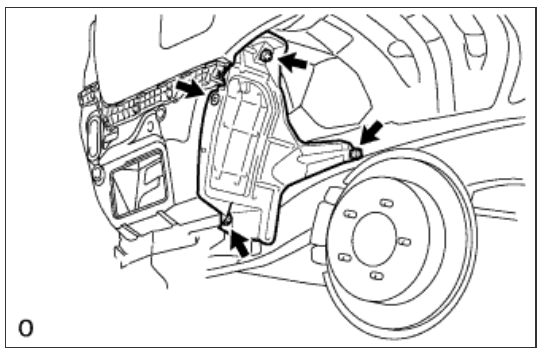


HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

7. INSTALL FUEL TANK FILLER PIPE PROTECTOR

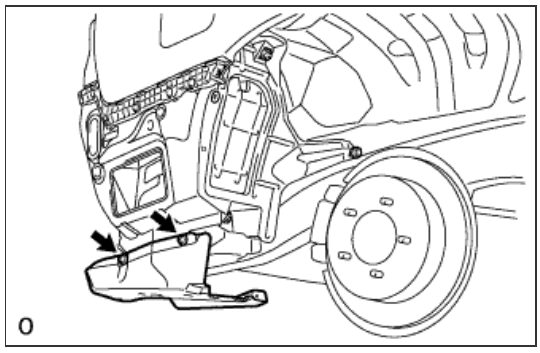
a. Using a T30 "TORX" socket wrench, install the pipe protector with the 3 screws and 2 new grommets.



8. INSTALL NO. 1 LUGGAGE COMPARTMENT SIDE COVER PROTECTOR

a. Install the protector with 2 new grommets.

b. Install the 2 screws.



9. INSTALL REAR BUMPER COVER

a. for Standard:
Install the bumper cover (Click here).

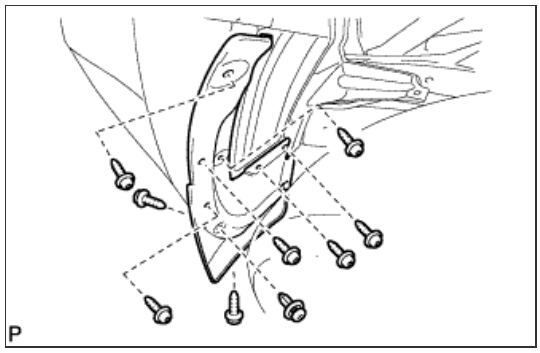
b. w/ Towing Hitch:
Install the bumper cover (Click here).

c. w/ Pintle Hook:
Install the bumper cover (Click here).

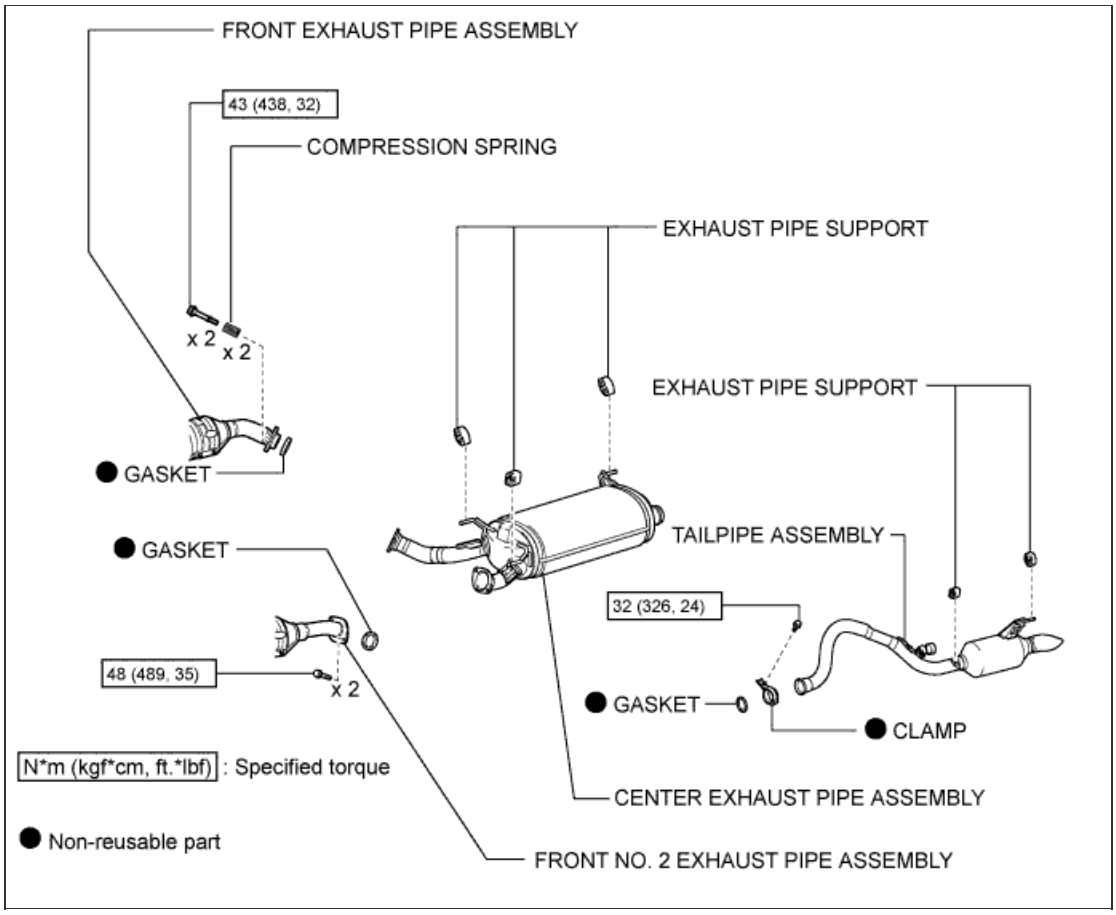
10. INSTALL REAR QUARTER PANEL MUDGUARD RH

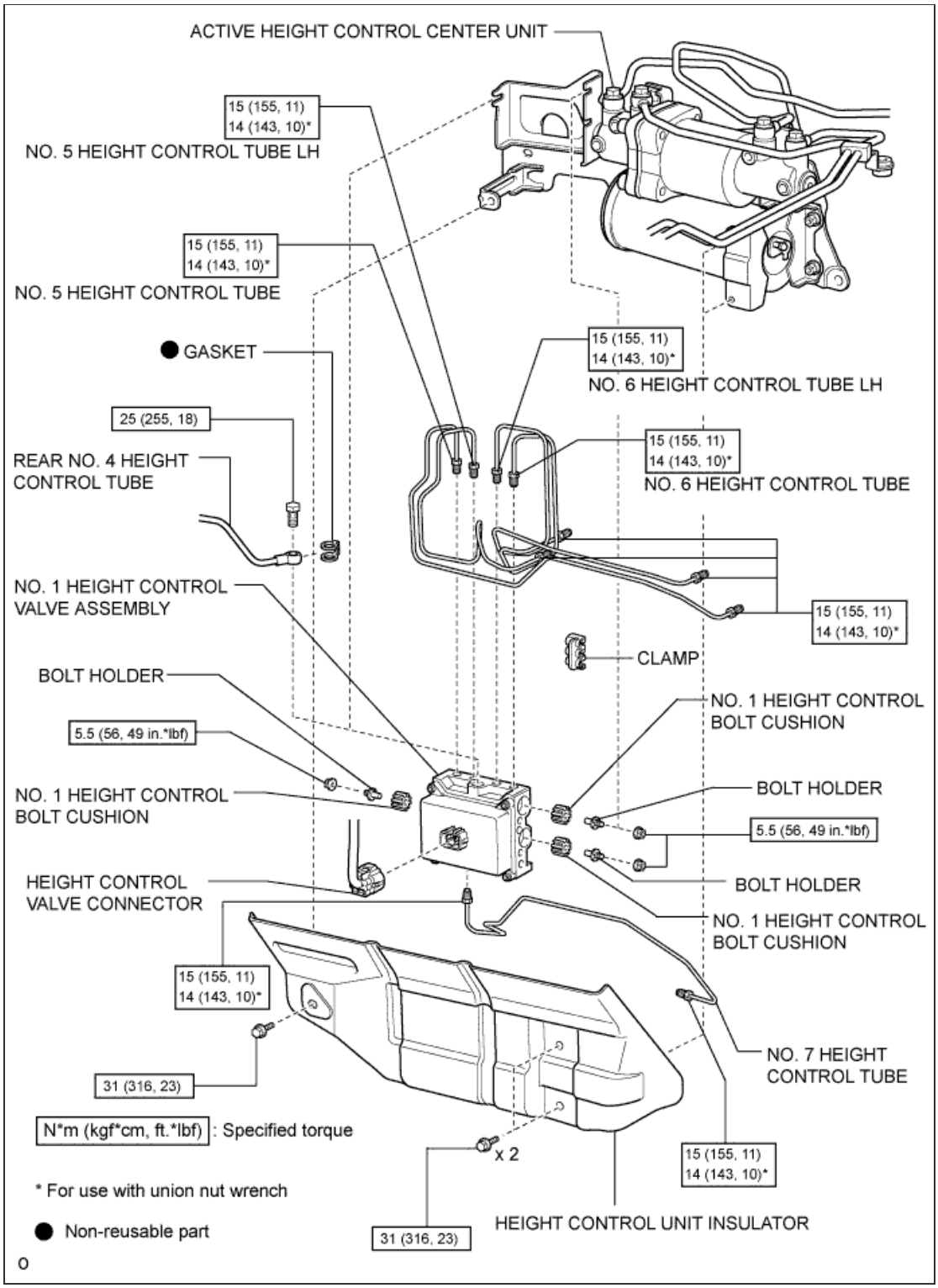
a. Install the mudguard with the clip.

b. Using a T30 "TORX" socket, install the 8 screws.



for Preparation Click here




ACTIVE HEIGHT CONTROL CENTER UNIT
15 (155, 11)
14 (143, 10)*
NO. 5 HEIGHT CONTROL TUBE LH
15 (155, 11)
14 (143, 10)*
NO. 5 HEIGHT CONTROL TUBE
GASKET
15 (155, 11)
14 (143, 10)*
NO. 6 HEIGHT CONTROL TUBE LH
25 (255, 18)
REAR NO. 4 HEIGHT
CONTROL TUBE
15 (155, 11)
14 (143, 10)*
NO. 6 HEIGHT CONTROL TUBE
NO. 1 HEIGHT CONTROL
VALVE ASSEMBLY
15 (155, 11)
14 (143, 10)*
CLAMP
BOLT HOLDER
NO. 1 HEIGHT CONTROL
BOLT CUSHION
5.5 (56, 49 in.*lbf)
NO. 1 HEIGHT CONTROL
BOLT CUSHION
BOLT HOLDER
5.5 (56, 49 in.*lbf)
HEIGHT CONTROL
VALVE CONNECTOR
BOLT HOLDER
NO. 1 HEIGHT CONTROL
BOLT CUSHION
15 (155, 11)
14 (143, 10)*
NO. 7 HEIGHT
CONTROL TUBE
31 (316, 23)
N*m (kgf*cm, ft.*lbf) : Specified torque
x 2
15 (155, 11)
14 (143, 10)*
* For use with union nut wrench
Non-reusable part
31 (316, 23)
HEIGHT CONTROL UNIT INSULATOR
o

for Preparation Click here

1. REMOVE TAILPIPE ASSEMBLY

a. Remove the bolt, clamp and gasket.

b. Remove the tailpipe from the 2 exhaust pipe supports.

c. Remove the bolt and clamp, and then disconnect the tailpipe from the center exhaust pipe.

2. REMOVE CENTER EXHAUST PIPE ASSEMBLY

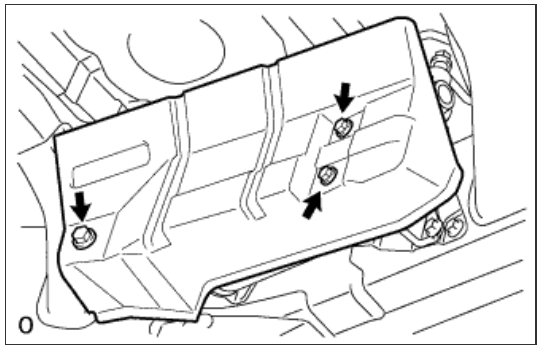
a. Remove the 4 bolts.

b. Remove the center exhaust pipe from the 3 exhaust pipe supports.

c. Remove the 2 gaskets from the front exhaust pipe and front No. 2 exhaust pipe.

3. REMOVE HEIGHT CONTROL UNIT INSULATOR

a. Remove the 3 bolts and insulator from the control unit.



4. REMOVE CLAMP

a. Remove the clamp from the 3 height control tubes.

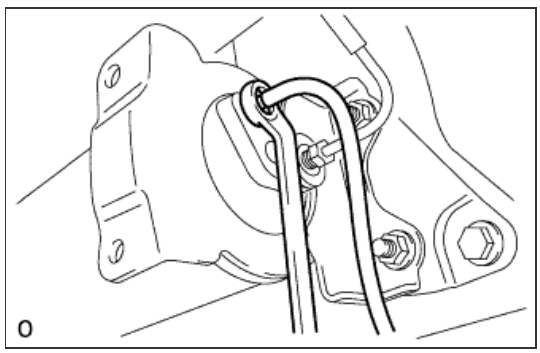
5. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

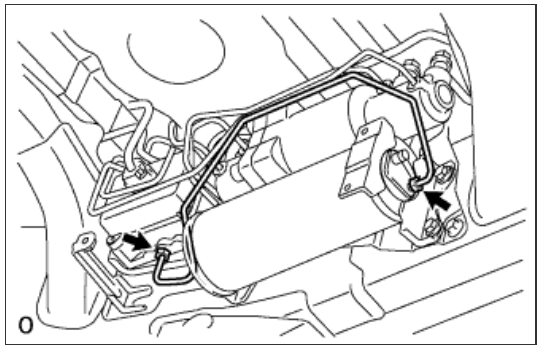
c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



6. REMOVE NO. 7 HEIGHT CONTROL TUBE

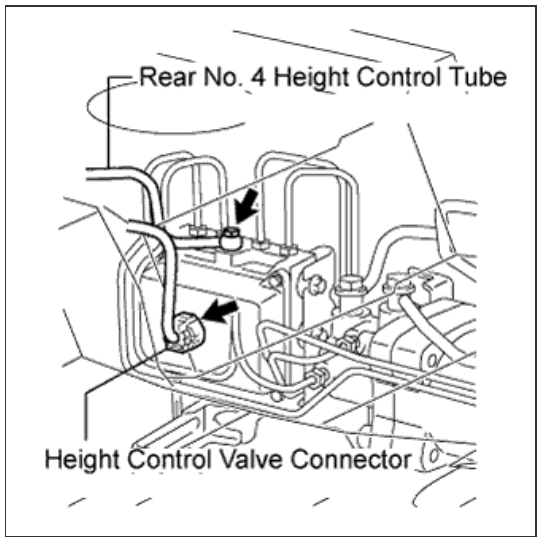
a. Using a union nut wrench, remove the control tube from the control valve and pump accumulator.



7. DISCONNECT REAR NO. 4 HEIGHT CONTROL TUBE

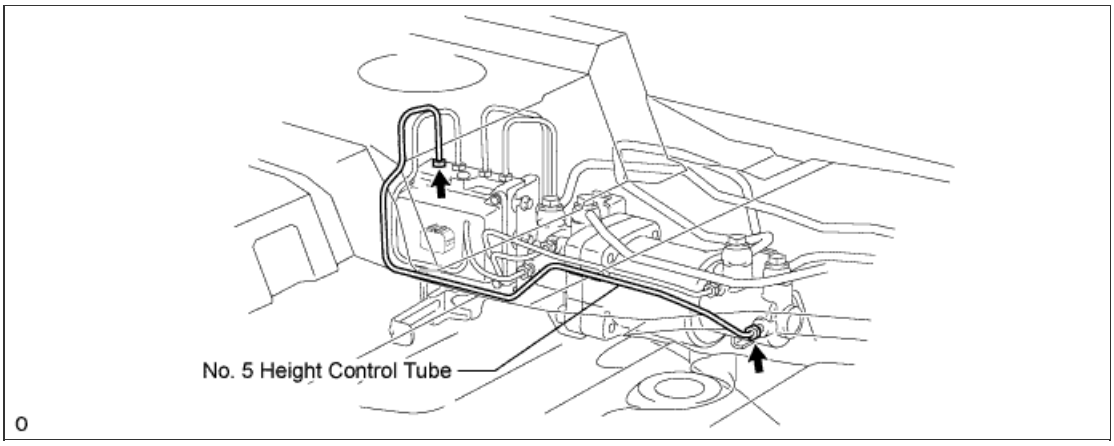
a. Disconnect the connector.

b. Remove the union bolt and gasket, then disconnect the rear No. 4 height control tube from the control valve.



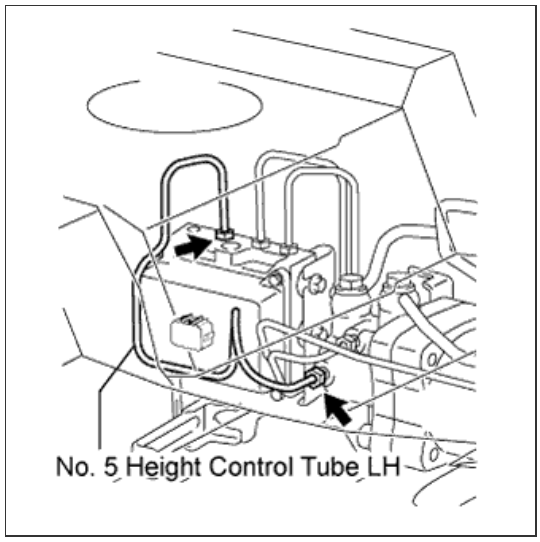
8. REMOVE NO. 5 HEIGHT CONTROL TUBE

a. Using a union nut wrench, remove the No. 5 height control tube from the control valve and center cylinder.



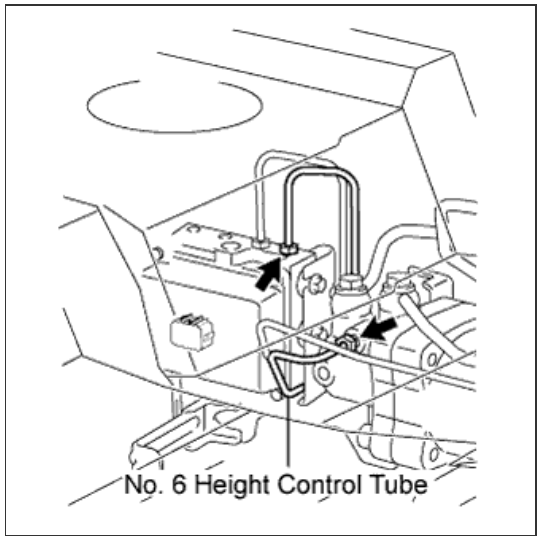
9. REMOVE NO. 5 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, remove the No. 5 height control tube LH from the control valve and center cylinder.



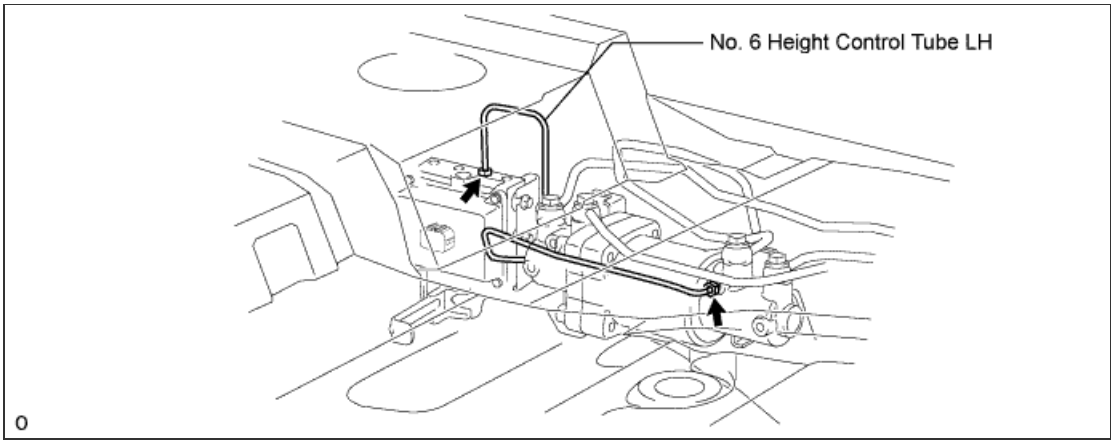
10. REMOVE NO. 6 HEIGHT CONTROL TUBE

a. Using a union nut wrench, remove the No. 6 height control tube from the control valve and center cylinder.



11. REMOVE NO. 6 HEIGHT CONTROL TUBE LH

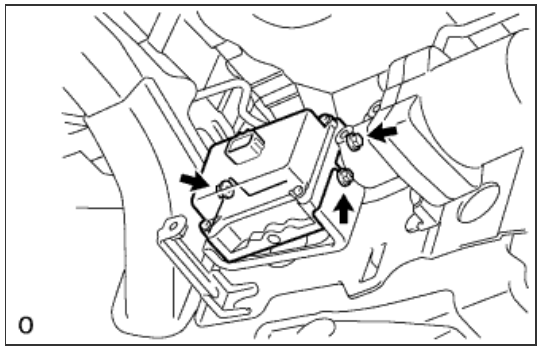
a. Using a union nut wrench, remove the No. 6 height control tube LH from the control valve and center cylinder.



12. REMOVE NO. 1 HEIGHT CONTROL VALVE ASSEMBLY

a. Remove the 3 nuts and control valve.

b. Remove the 3 bolt holders and 3 bolt cushions from the control valve.



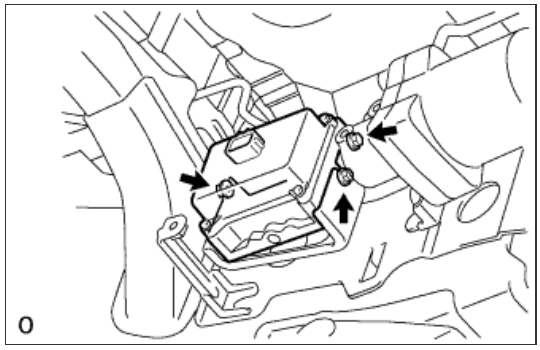
for Preparation Click here

1. INSTALL NO. 1 HEIGHT CONTROL VALVE ASSEMBLY

a. Install the 3 bolt cushions and 3 bolt holders to the control valve.

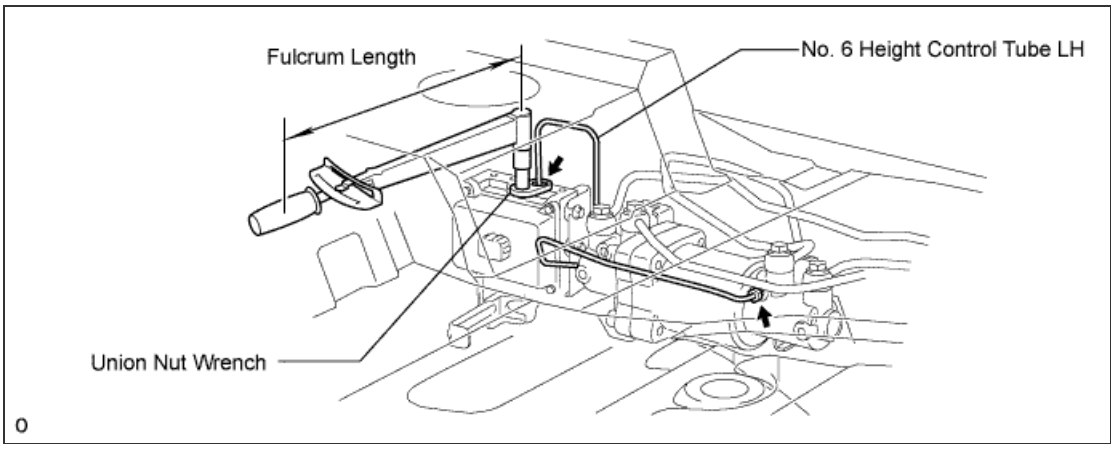
b. Install the control valve with the 3 nuts.

Torque:
5.5 N*m{ 56 kgf*cm , 49 in.*lbf }



2. INSTALL NO. 6 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, install the No. 6 height control tube to the control valve and center cylinder.



Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

3. INSTALL NO. 6 HEIGHT CONTROL TUBE

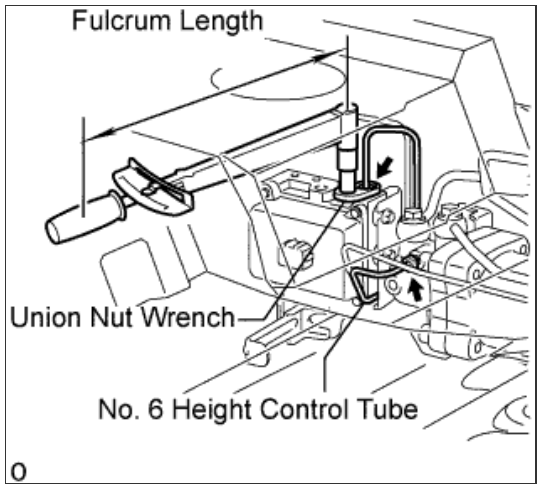
a. Using a union nut wrench, install the No. 6 height control tube to the control valve and center cylinder.

Torque:

without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



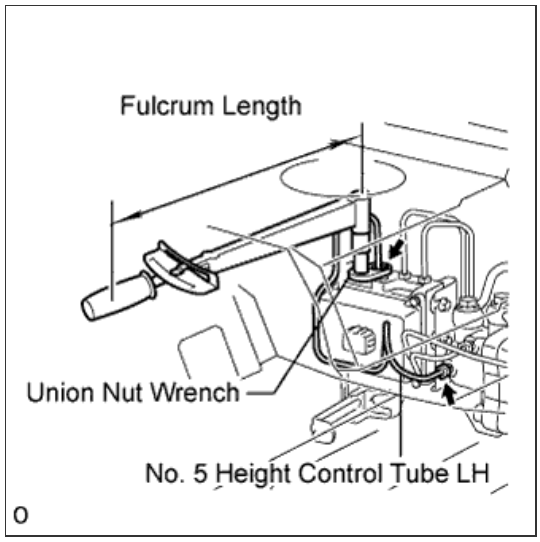
4. INSTALL NO. 5 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, install the No. 5 height control tube to the control valve and center cylinder.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

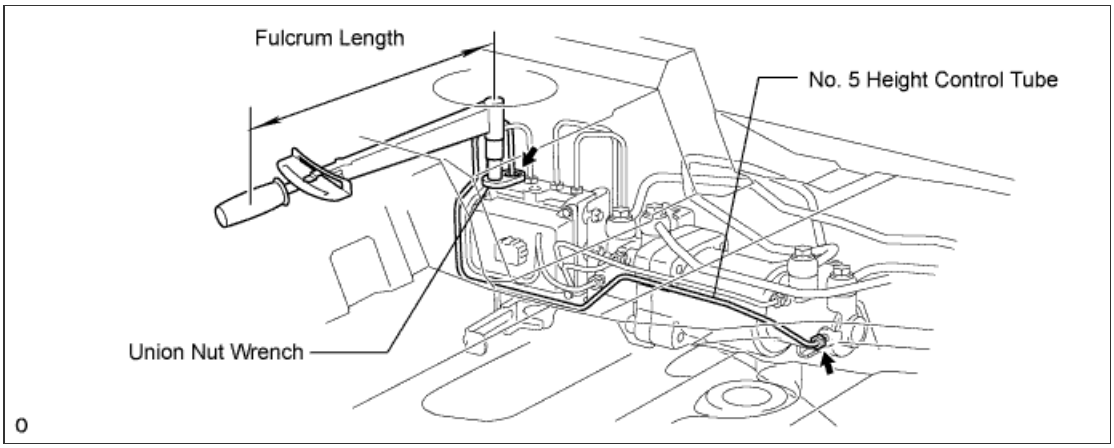
HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



5. INSTALL NO. 5 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 5 height control tube to the control valve and center cylinder.



Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }

with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

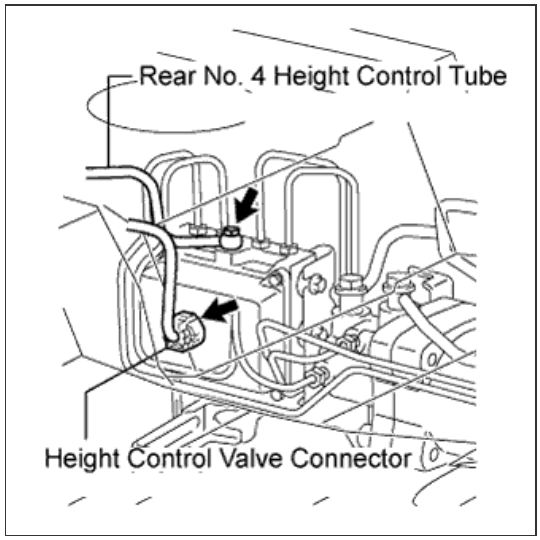
- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

6. CONNECT REAR NO. 4 HEIGHT CONTROL TUBE

a. Install a new gasket to the control tube, and connect the control tube with the union bolt.

Torque:
25 N*m{ 255 kgf*cm , 18 ft.*lbf }

b. Connect the height control valve connector.



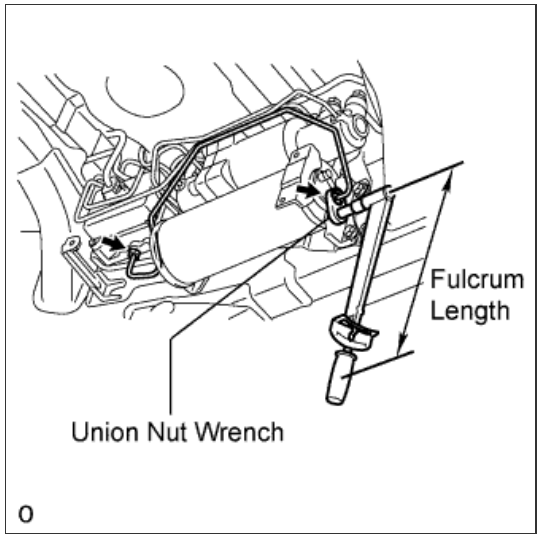
7. INSTALL NO. 7 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 7 control tube to the control valve and accumulator.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



8. INSTALL CLAMP

a. Install the clamp to the 3 height control tubes.

9. INSTALL CENTER EXHAUST PIPE ASSEMBLY

a. Install 2 new gaskets to the front exhaust pipe and front No. 2 exhaust pipe.

b. Install the center exhaust pipe to the 3 exhaust pipe supports, and then install the 4 bolts.

Torque:

48 N*m{ 489 kgf*cm , 35 ft.*lbf }

10. INSTALL TAILPIPE ASSEMBLY

a. Install the tailpipe to the 2 exhaust pipe supports.

b. Install a new gasket to the center exhaust pipe.

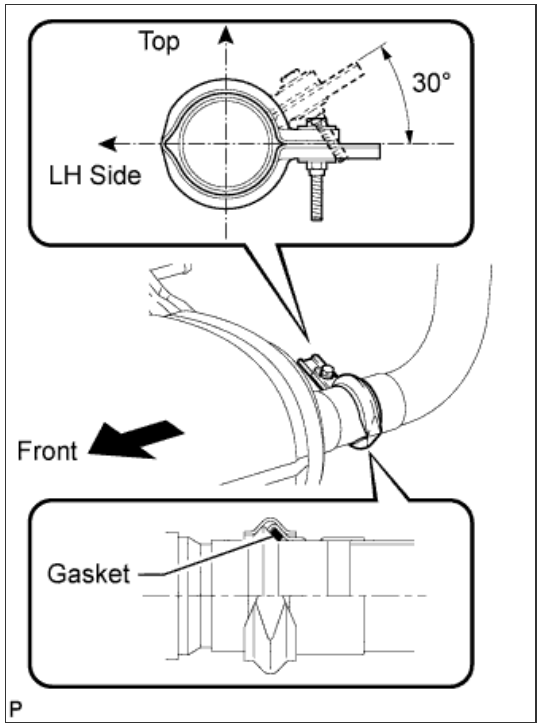
c. Connect the tailpipe to the center exhaust pipe.

d. Attach a new clamp to the tailpipe and center exhaust pipe. Then install the bolt to the clamp.

Torque:
32 N*m{ 326 kgf*cm , 24 ft.*lbf }

HINT:

Install the clamp within the angle range shown in the illustration.



11. BLEED AIR FROM SUSPENSION FLUID

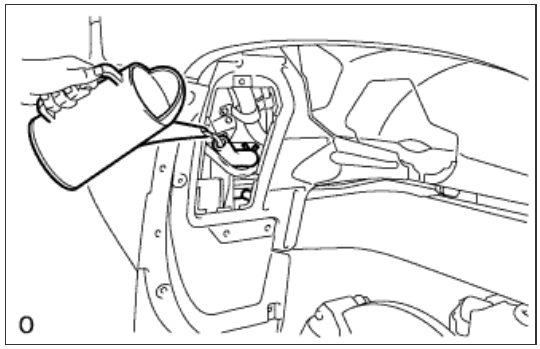
a. With the engine stopped, fill the reservoir tank with fluid.

NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.



b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

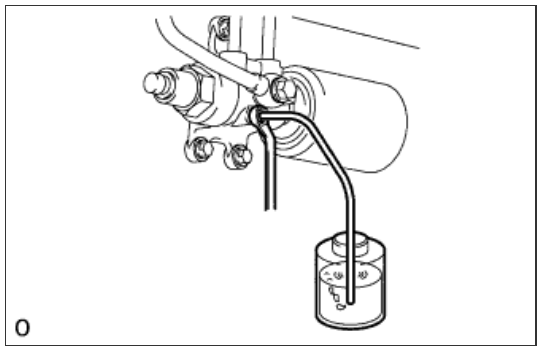
Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.

CAUTION:

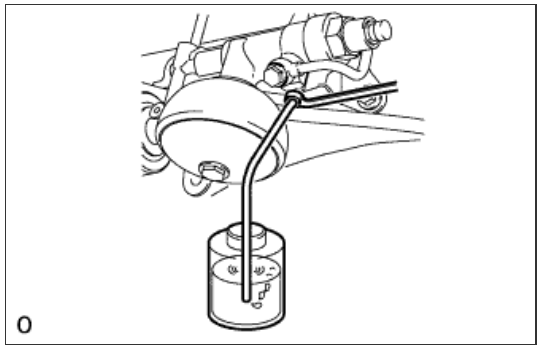
Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



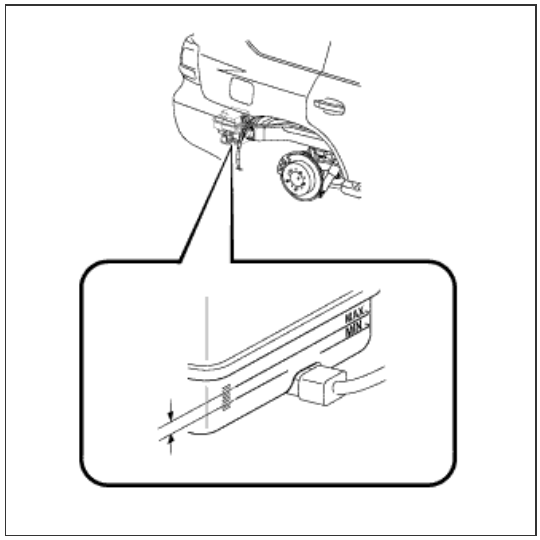
h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

12. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.



13. INSPECT FOR SUSPENSION FLUID LEAK

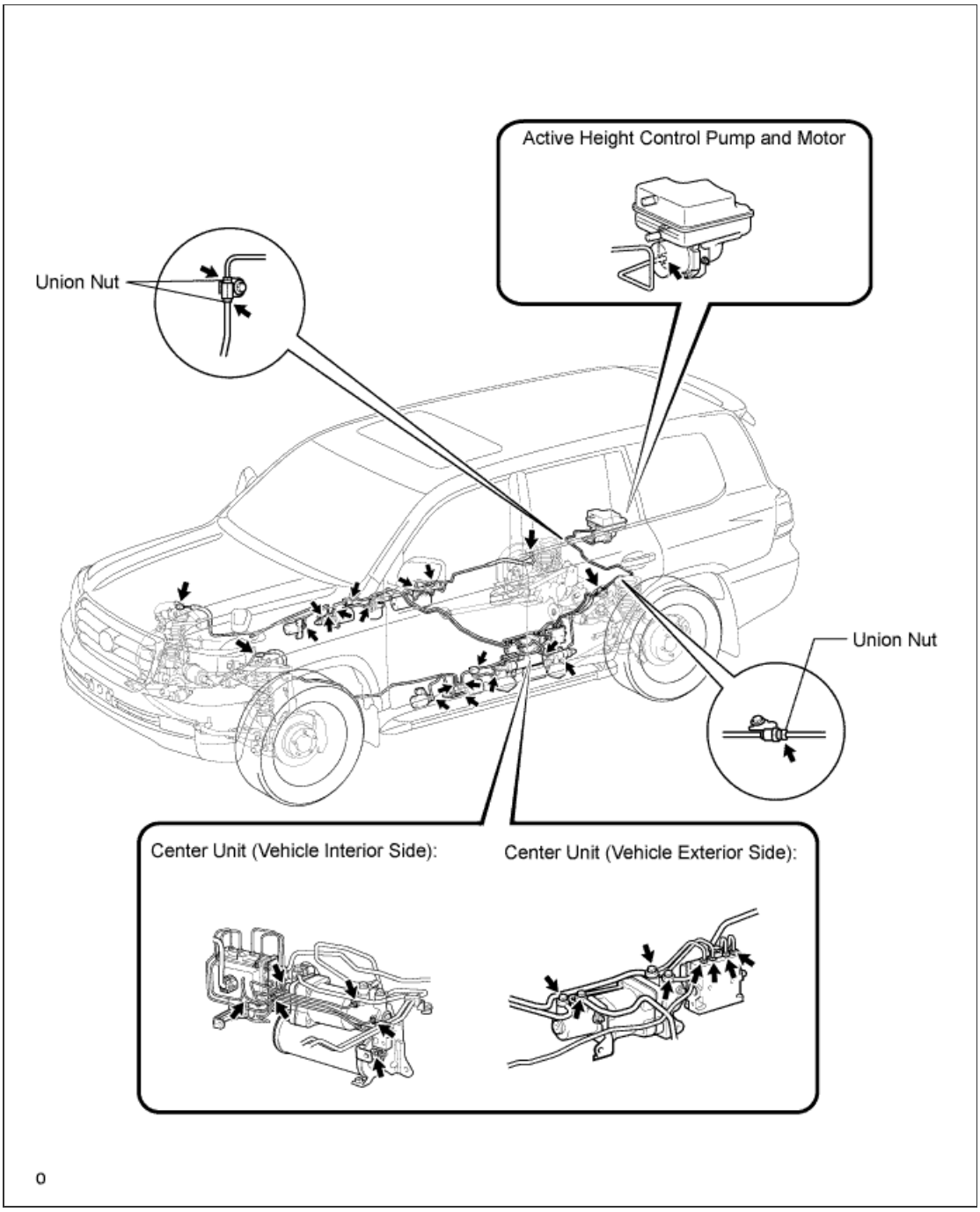
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



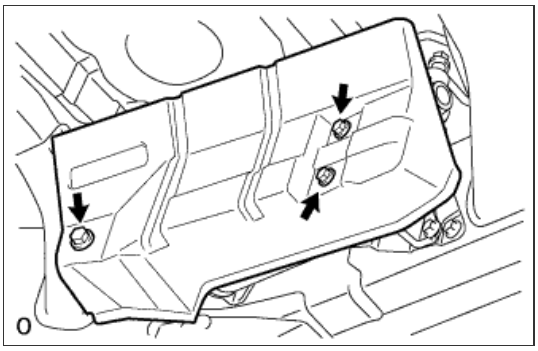
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

14. INSTALL HEIGHT CONTROL UNIT INSULATOR

a. Install the insulator to the height control unit with the 3 bolts.

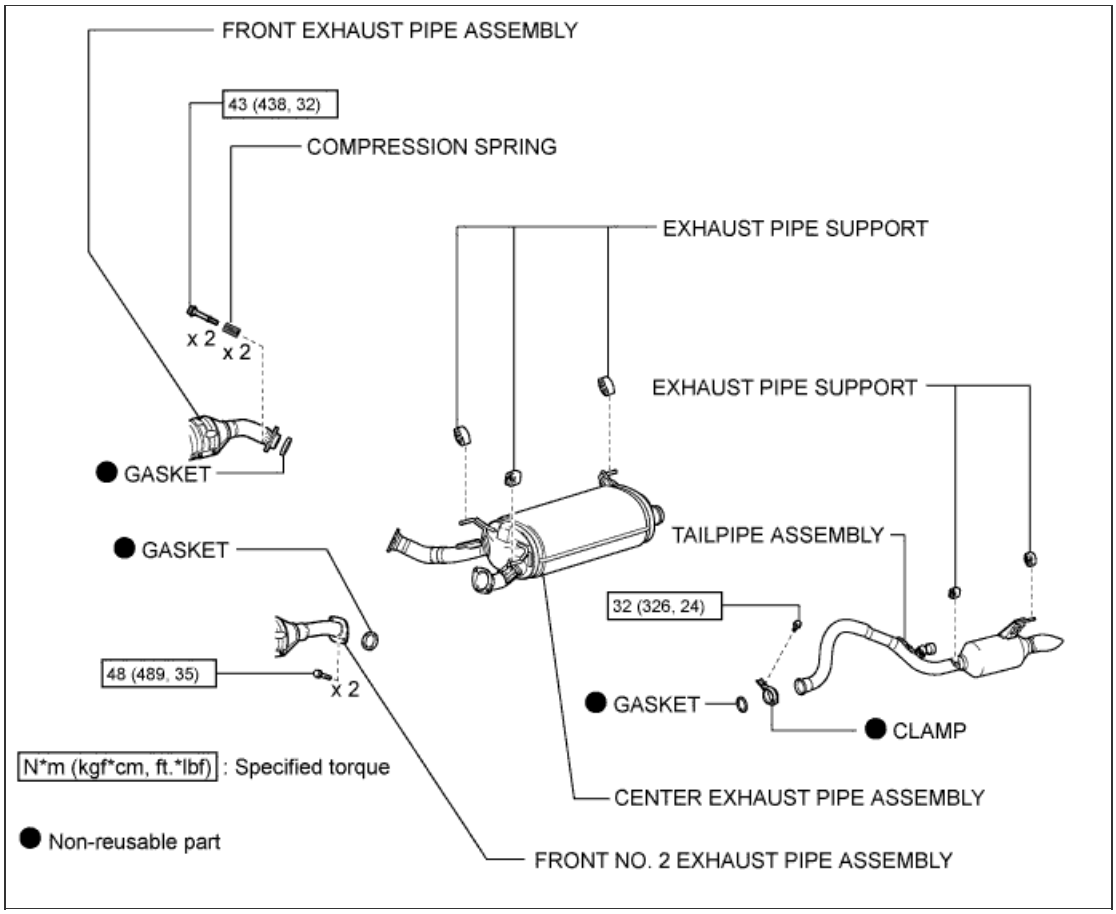
Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }

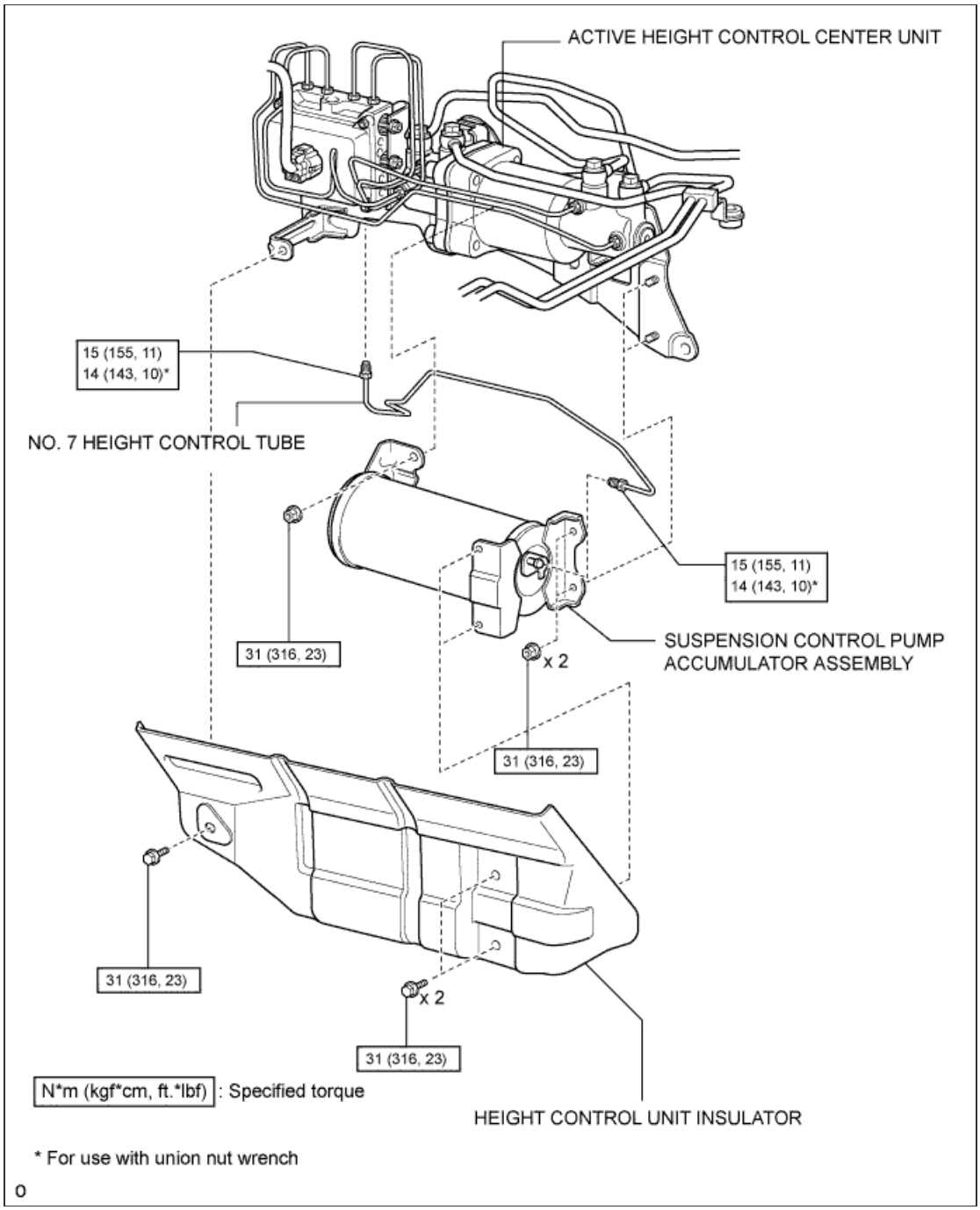


15. INSPECT FOR EXHAUST GAS LEAK

If gas is leaking, tighten the areas necessary to stop the leak. Replace damaged parts as necessary.

for Preparation Click here




ACTIVE HEIGHT CONTROL CENTER UNIT
15 (155, 11)
14 (143, 10)*
NO. 7 HEIGHT CONTROL TUBE
15 (155, 11)
14 (143, 10)*
31 (316, 23)
x 2
SUSPENSION CONTROL PUMP
ACCUMULATOR ASSEMBLY
31 (316, 23)
31 (316, 23)
x 2
31 (316, 23)
N*m (kgf*cm, ft.*lbf) : Specified torque
HEIGHT CONTROL UNIT INSULATOR
* For use with union nut wrench

o

for Preparation Click here

1. REMOVE TAILPIPE ASSEMBLY

a. Remove the bolt, clamp and gasket.

b. Remove the tailpipe from the 2 exhaust pipe supports.

c. Remove the bolt and clamp, and then disconnect the tailpipe from the center exhaust pipe.

2. REMOVE CENTER EXHAUST PIPE ASSEMBLY

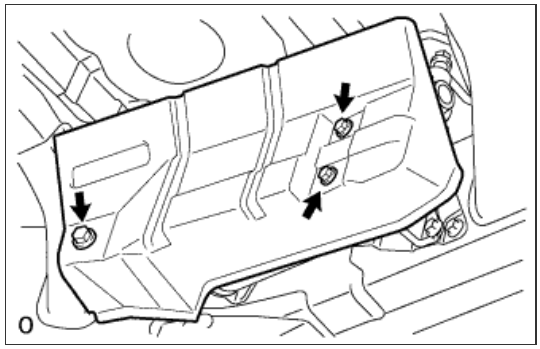
a. Remove the 4 bolts.

b. Remove the center exhaust pipe from the 3 exhaust pipe supports.

c. Remove the 2 gaskets from the front exhaust pipe and front No. 2 exhaust pipe.

3. REMOVE HEIGHT CONTROL UNIT INSULATOR

a. Remove the 3 bolts and insulator from the control unit.



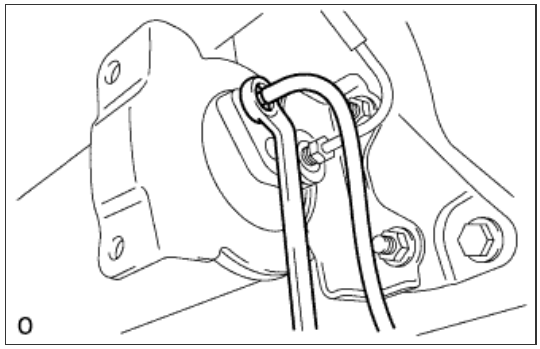
4. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

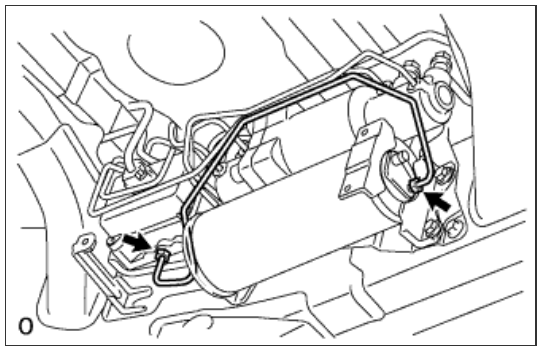
c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



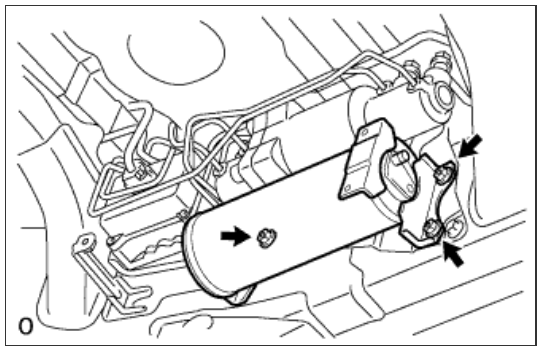
5. REMOVE NO. 7 HEIGHT CONTROL TUBE

a. Using a union nut wrench, remove the control tube from the control valve and pump accumulator.



6. REMOVE SUSPENSION CONTROL PUMP ACCUMULATOR ASSEMBLY

a. Remove the 3 nuts and pump accumulator.

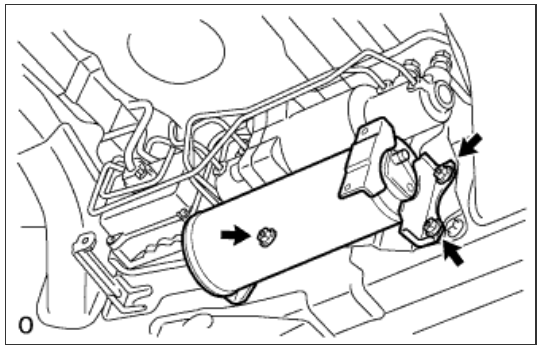


for Preparation Click here

1. INSTALL SUSPENSION CONTROL PUMP ACCUMULATOR ASSEMBLY

a. Install the accumulator with the 3 nuts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



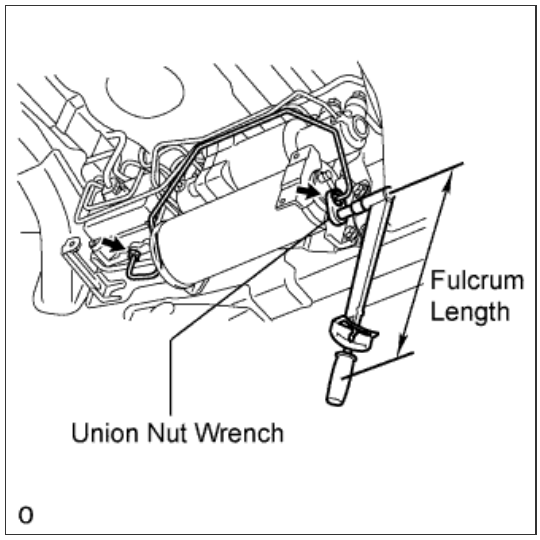
2. INSTALL NO. 7 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 7 control tube to the control valve and accumulator.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



3. INSTALL CENTER EXHAUST PIPE ASSEMBLY

a. Install 2 new gaskets to the front exhaust pipe and front No. 2 exhaust pipe.

b. Install the center exhaust pipe to the 3 exhaust pipe supports, and then install the 4 bolts.

Torque:
48 N*m{ 489 kgf*cm , 35 ft.*lbf }

4. INSTALL TAILPIPE ASSEMBLY

a. Install the tailpipe to the 2 exhaust pipe supports.

b. Install a new gasket to the center exhaust pipe.

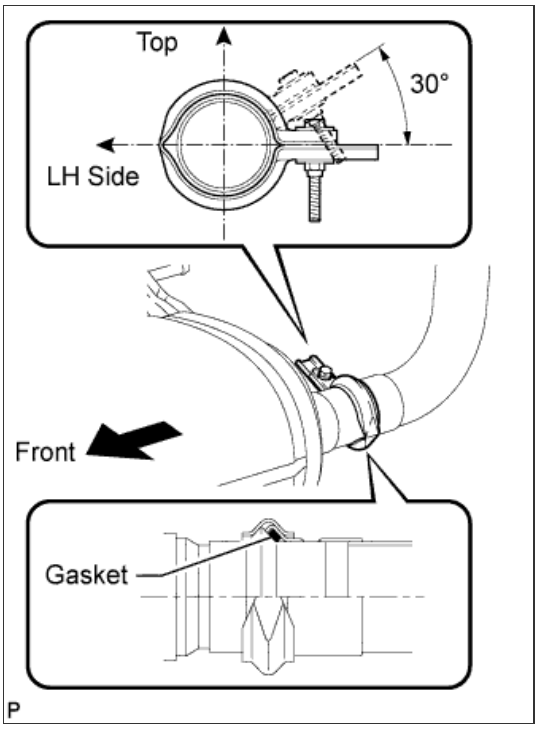
c. Connect the tailpipe to the center exhaust pipe.

d. Attach a new clamp to the tailpipe and center exhaust pipe. Then install the bolt to the clamp.

Torque:
32 N*m{ 326 kgf*cm , 24 ft.*lbf }

HINT:

Install the clamp within the angle range shown in the illustration.



5. BLEED AIR FROM SUSPENSION FLUID

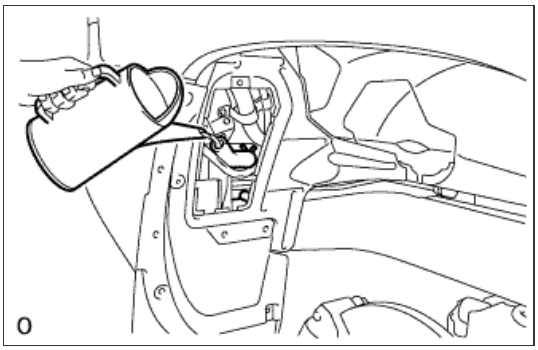
a. With the engine stopped, fill the reservoir tank with fluid.

NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.



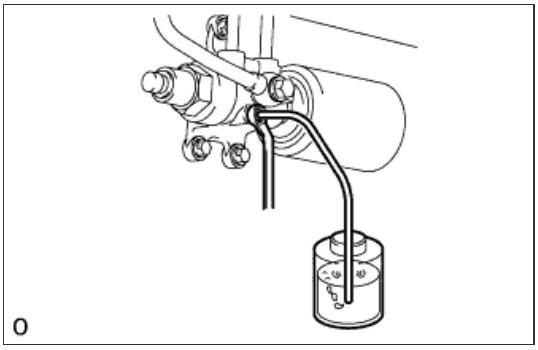
b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.



e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

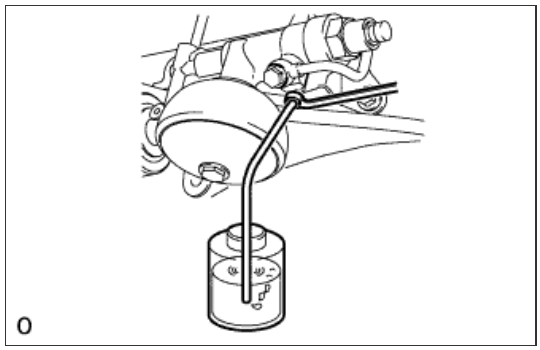
HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.

CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.



g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

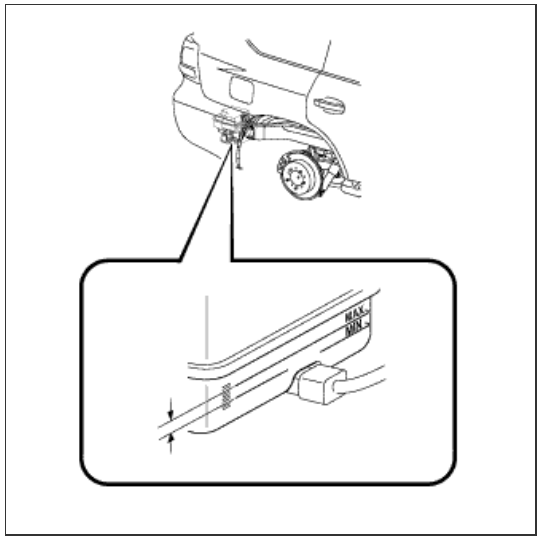
HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

6. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).



HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.

7. INSPECT FOR SUSPENSION FLUID LEAK

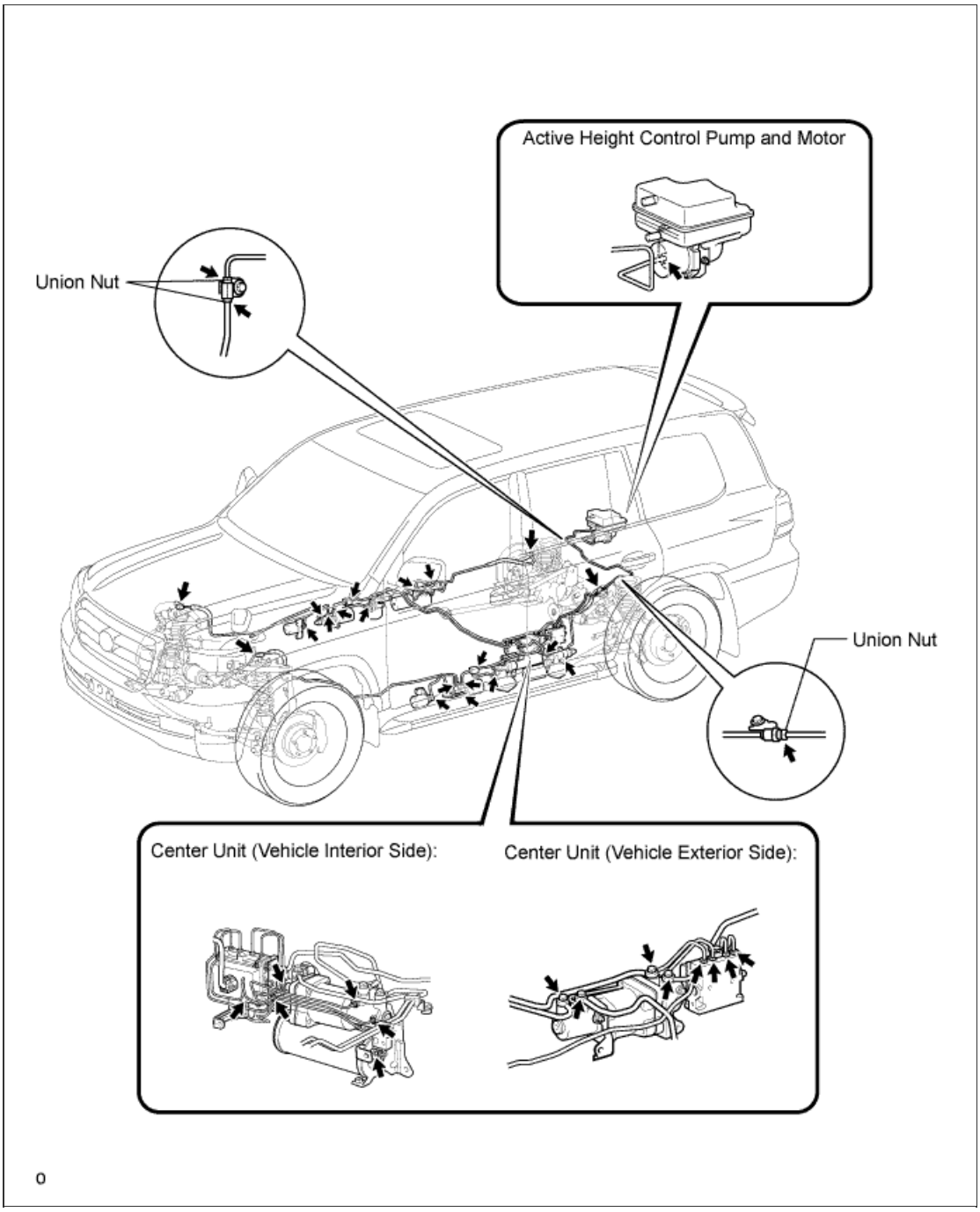
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



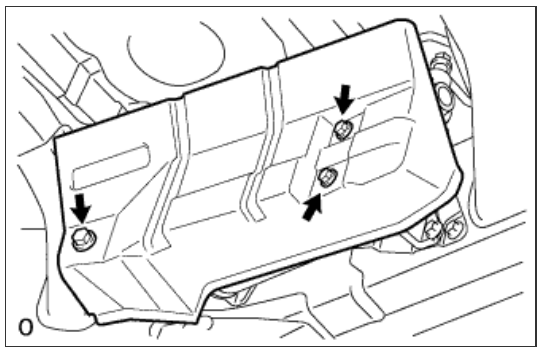
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

8. INSTALL HEIGHT CONTROL UNIT INSULATOR

a. Install the insulator to the height control unit with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



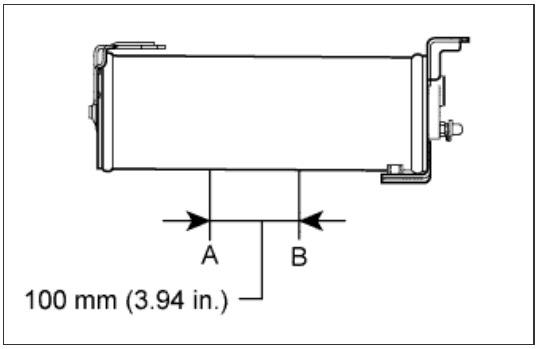
9. CHECK FOR EXHAUST GAS LEAK

If gas is leaking, tighten the areas necessary to stop the leak. Replace damaged parts as necessary.

for Preparation Click here

1. DISPOSE OF SUSPENSION CONTROL PUMP ACCUMULATOR ASSEMBLY

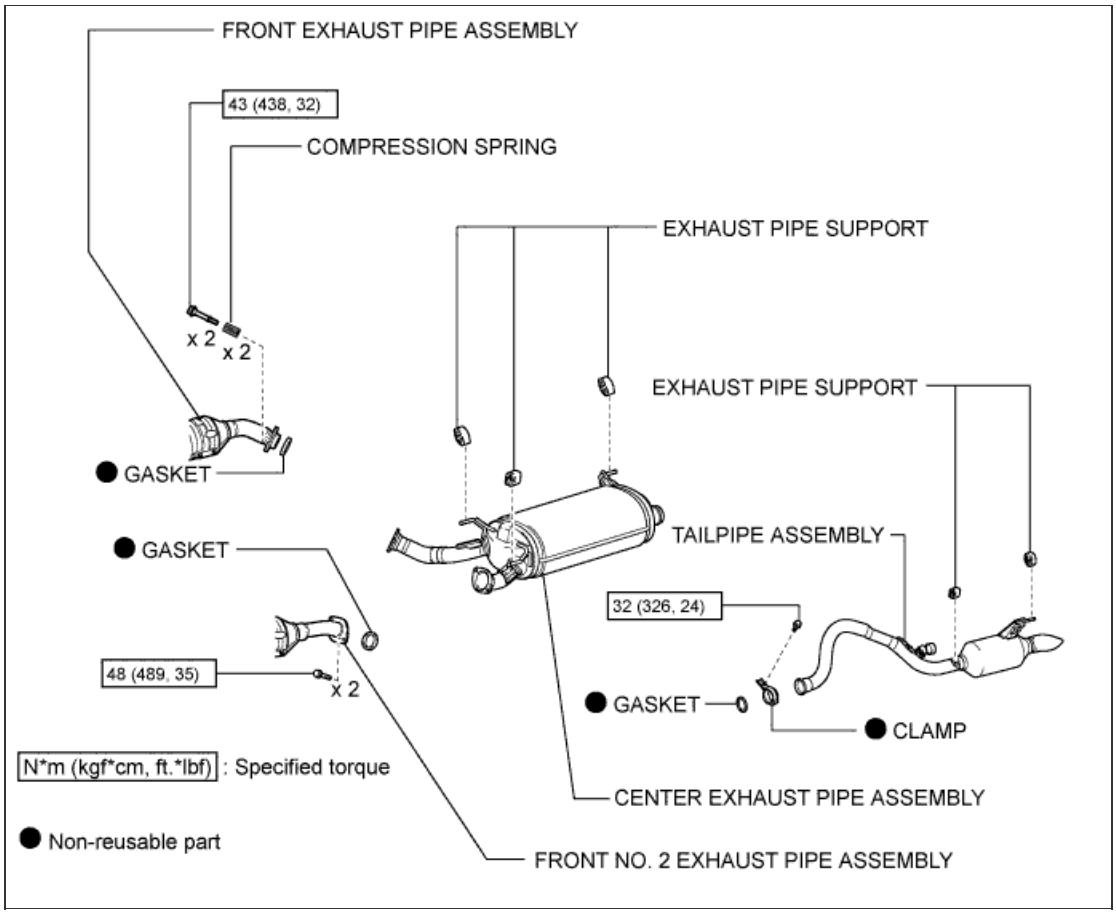
a. Place the accumulator in a vise and saw a hole between A and B shown in the illustration using a saw to discharge the gas inside.

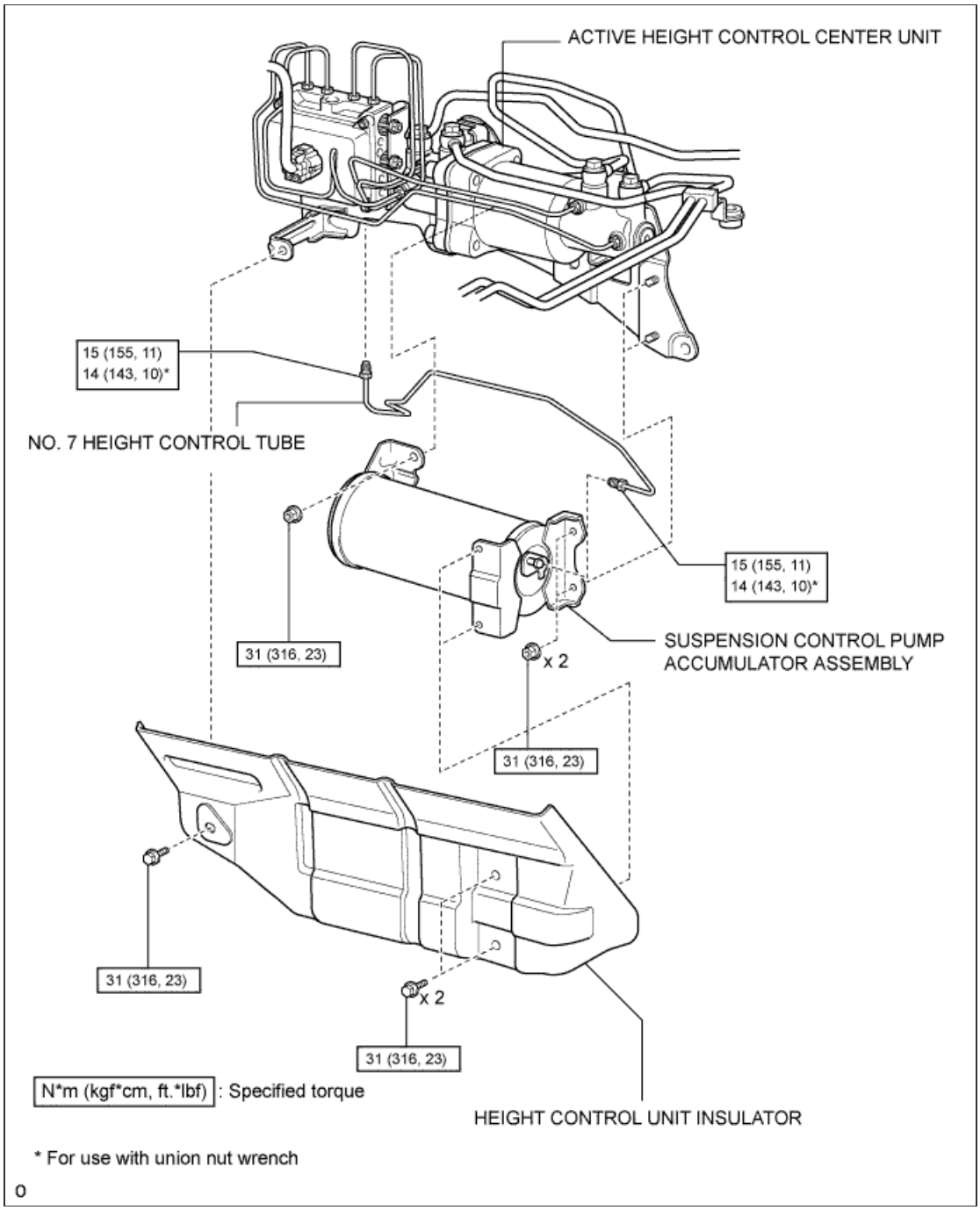


CAUTION:

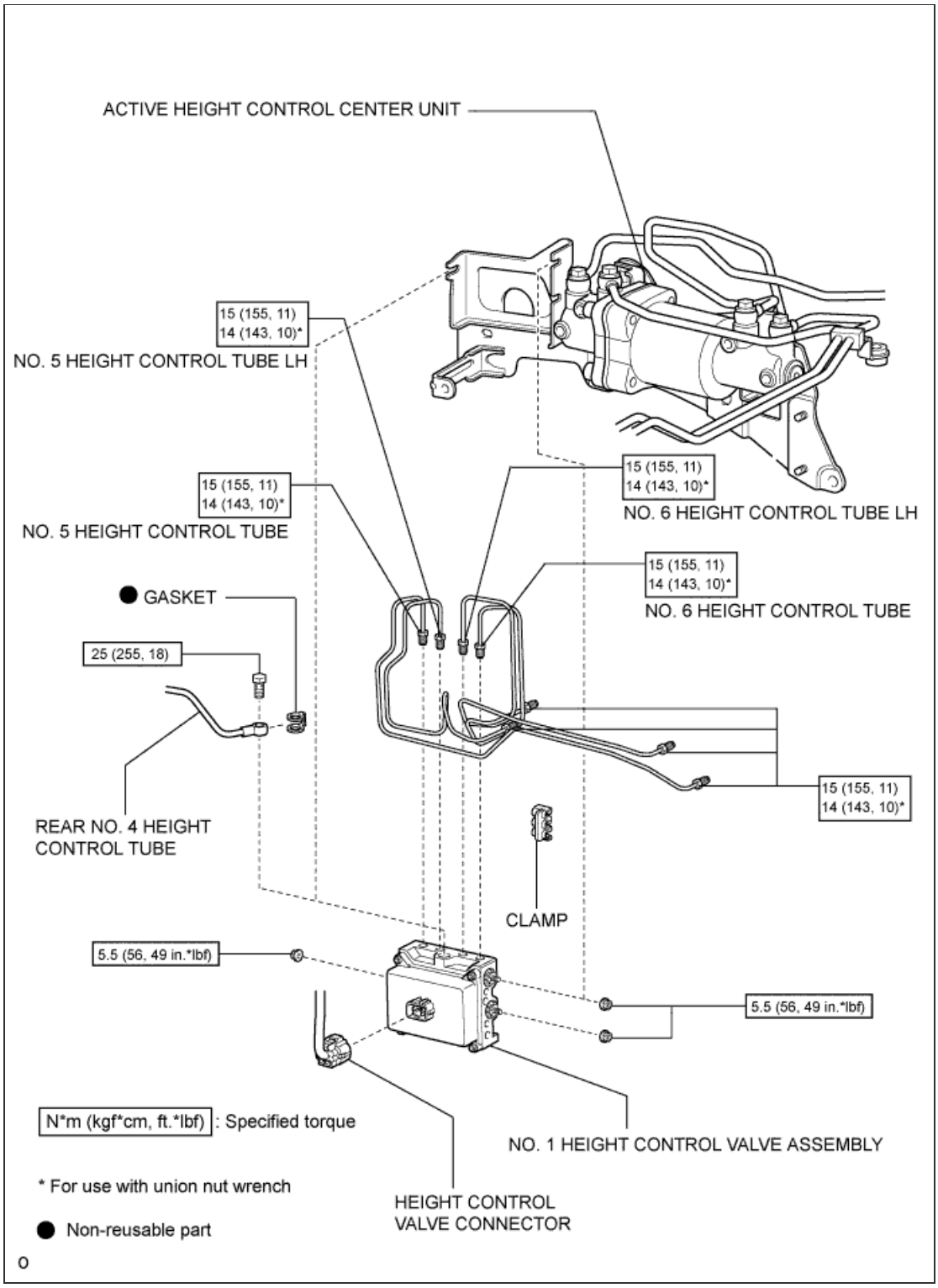
- **Before discharging the gas, loosen the bleeder plug to bleed high pressure oil.**
- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**

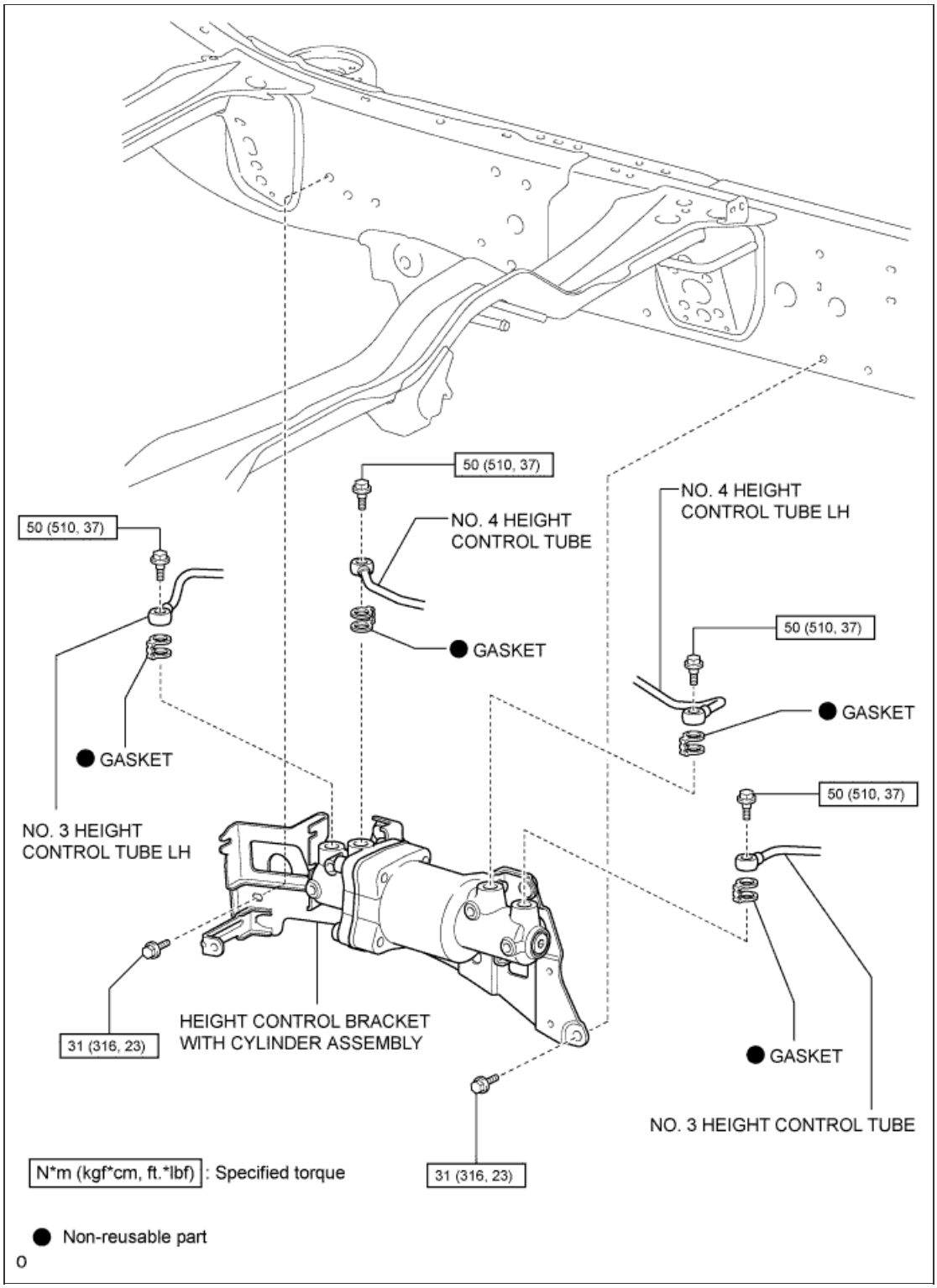
for Preparation Click here



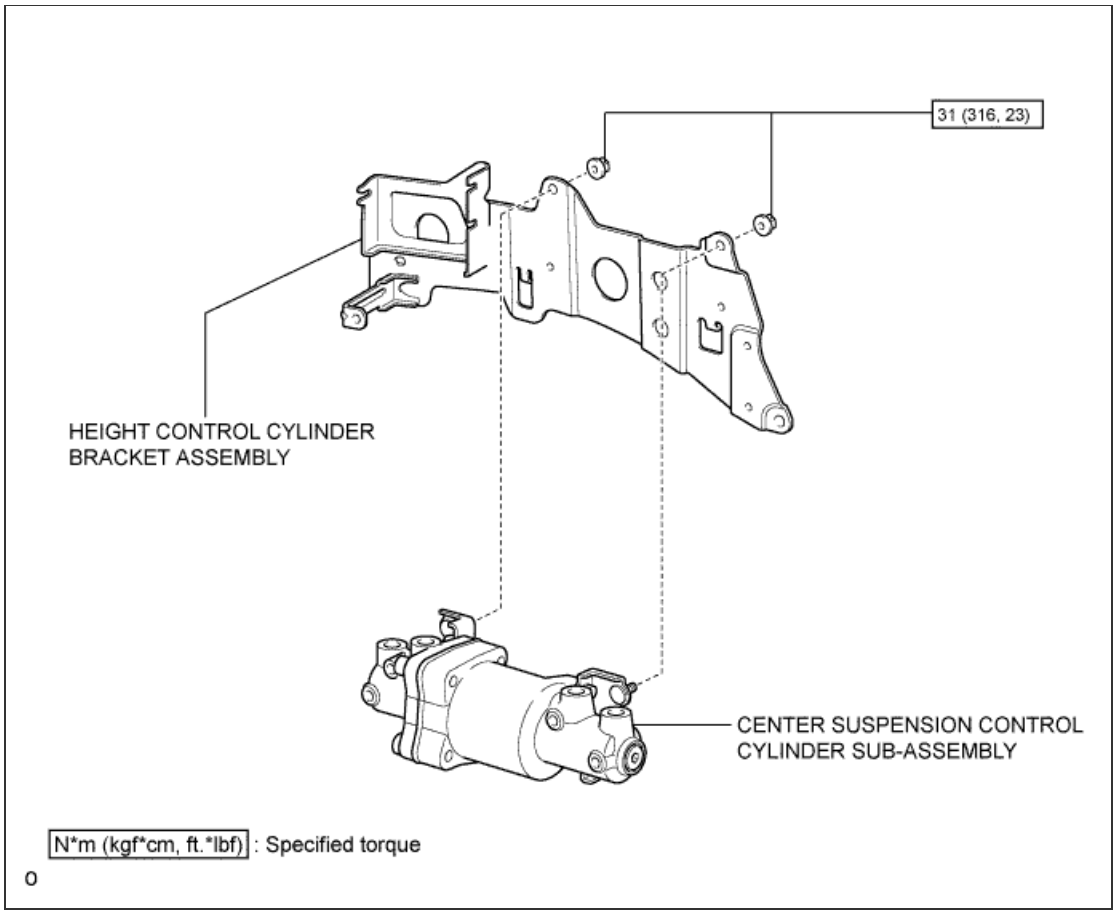

ACTIVE HEIGHT CONTROL CENTER UNIT
15 (155, 11)
14 (143, 10)*
NO. 7 HEIGHT CONTROL TUBE
15 (155, 11)
14 (143, 10)*
31 (316, 23)
x 2
SUSPENSION CONTROL PUMP
ACCUMULATOR ASSEMBLY
31 (316, 23)
31 (316, 23)
x 2
31 (316, 23)
N*m (kgf*cm, ft.*lbf) : Specified torque
HEIGHT CONTROL UNIT INSULATOR
* For use with union nut wrench

o


ACTIVE HEIGHT CONTROL CENTER UNIT
15 (155, 11)
14 (143, 10)*
NO. 5 HEIGHT CONTROL TUBE LH
15 (155, 11)
14 (143, 10)*
NO. 5 HEIGHT CONTROL TUBE
15 (155, 11)
14 (143, 10)*
NO. 6 HEIGHT CONTROL TUBE LH
15 (155, 11)
14 (143, 10)*
NO. 6 HEIGHT CONTROL TUBE
GASKET
25 (255, 18)
REAR NO. 4 HEIGHT
CONTROL TUBE
15 (155, 11)
14 (143, 10)*
CLAMP
5.5 (56, 49 in.*lbf)
5.5 (56, 49 in.*lbf)
N*m (kgf*cm, ft.*lbf) : Specified torque
* For use with union nut wrench
Non-reusable part
NO. 1 HEIGHT CONTROL VALVE ASSEMBLY
HEIGHT CONTROL
VALVE CONNECTOR


50 (510, 37)
NO. 4 HEIGHT CONTROL TUBE
NO. 4 HEIGHT CONTROL TUBE LH
50 (510, 37)
GASKET
50 (510, 37)
GASKET
50 (510, 37)
GASKET
NO. 3 HEIGHT CONTROL TUBE LH
HEIGHT CONTROL BRACKET WITH CYLINDER ASSEMBLY
31 (316, 23)
GASKET
NO. 3 HEIGHT CONTROL TUBE
31 (316, 23)
N*m (kgf*cm, ft.*lbf) : Specified torque
Non-reusable part

0


31 (316, 23)
HEIGHT CONTROL CYLINDER
BRACKET ASSEMBLY
CENTER SUSPENSION CONTROL
CYLINDER SUB-ASSEMBLY
N*m (kgf*cm, ft.*lbf) : Specified torque

o

for Preparation Click here

1. REMOVE TAILPIPE ASSEMBLY

a. Remove the bolt, clamp and gasket.

b. Remove the tailpipe from the 2 exhaust pipe supports.

c. Remove the bolt and clamp, and then disconnect the tailpipe from the center exhaust pipe.

2. REMOVE CENTER EXHAUST PIPE ASSEMBLY

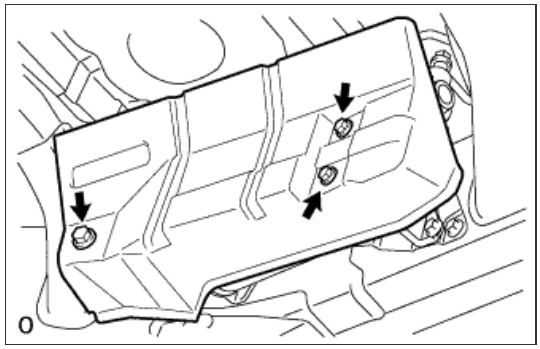
a. Remove the 4 bolts.

b. Remove the center exhaust pipe from the 3 exhaust pipe supports.

c. Remove the 2 gaskets from the front exhaust pipe and front No. 2 exhaust pipe.

3. REMOVE HEIGHT CONTROL UNIT INSULATOR

a. Remove the 3 bolts and insulator from the control unit.



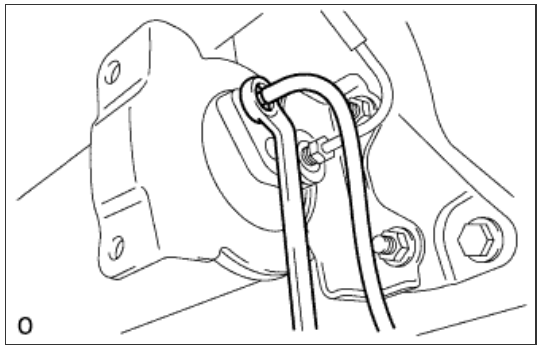
4. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

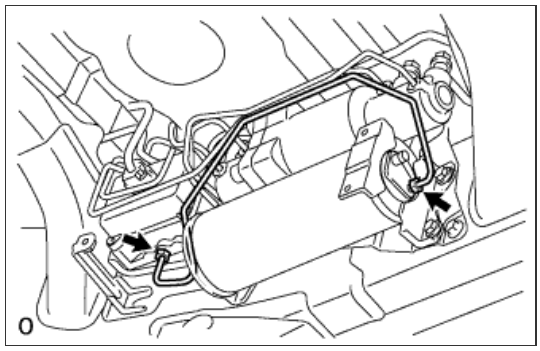
c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



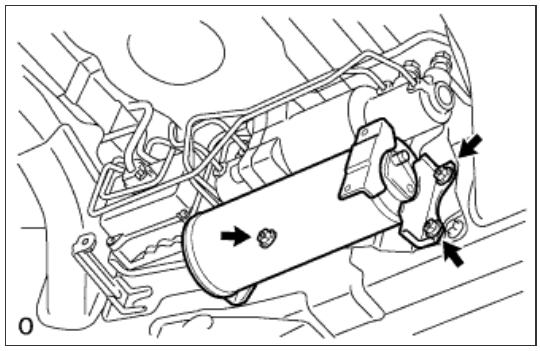
5. REMOVE NO. 7 HEIGHT CONTROL TUBE

a. Using a union nut wrench, remove the control tube from the control valve and pump accumulator.



6. REMOVE SUSPENSION CONTROL PUMP ACCUMULATOR ASSEMBLY

a. Remove the 3 nuts and pump accumulator.

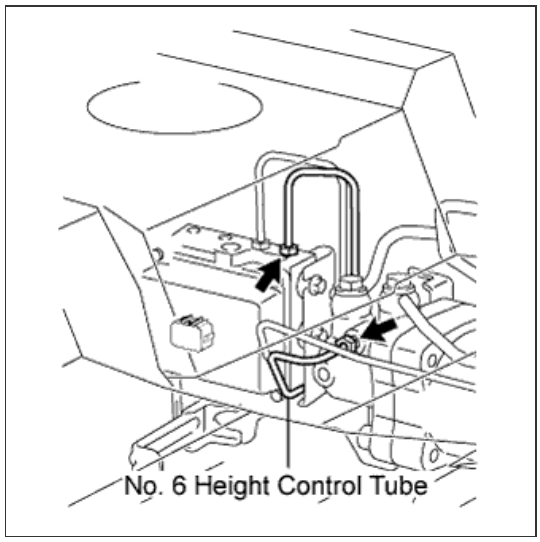


7. REMOVE CLAMP

a. Remove the clamp from the 3 height control tubes.

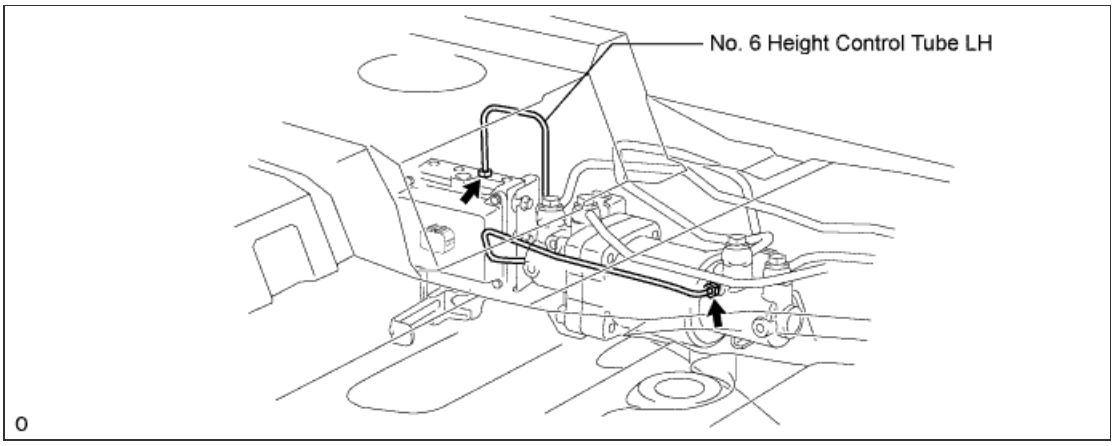
8. REMOVE NO. 6 HEIGHT CONTROL TUBE

a. Using a union nut wrench, remove the No. 6 height control tube from the control valve and center cylinder.



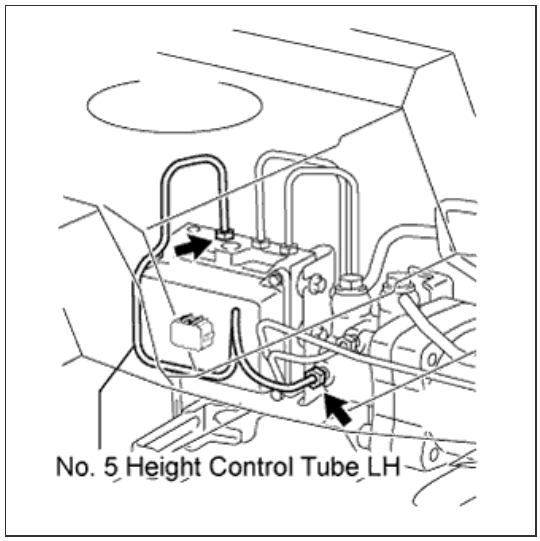
9. REMOVE NO. 6 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, remove the No. 6 height control tube LH from the control valve and center cylinder.



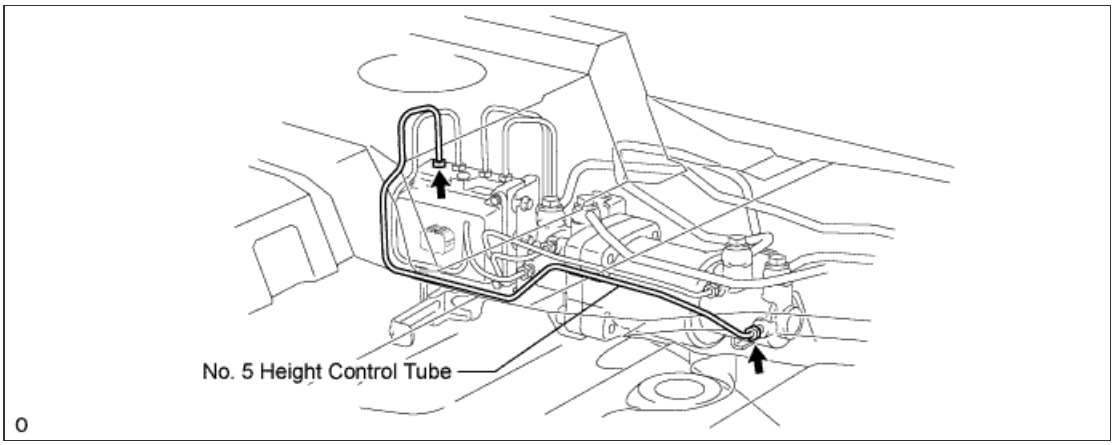
10. REMOVE NO. 5 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, remove the No. 5 height control tube LH from the control valve and center cylinder.



11. REMOVE NO. 5 HEIGHT CONTROL TUBE

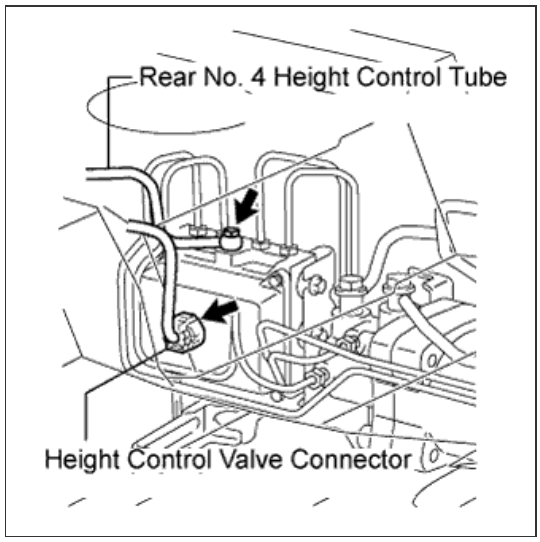
a. Using a union nut wrench, remove the No. 5 height control tube from the control valve and center cylinder.



12. DISCONNECT REAR NO. 4 HEIGHT CONTROL TUBE

a. Disconnect the connector.

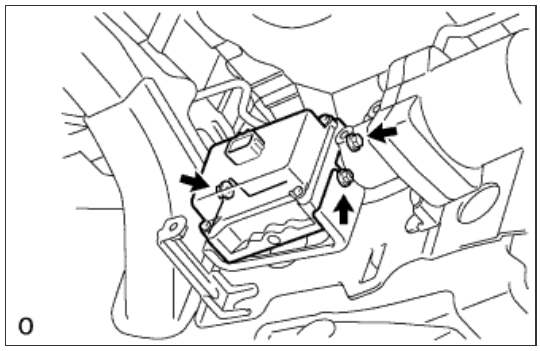
b. Remove the union bolt and gasket, then disconnect the rear No. 4 height control tube from the control valve.



13. REMOVE NO. 1 HEIGHT CONTROL VALVE ASSEMBLY

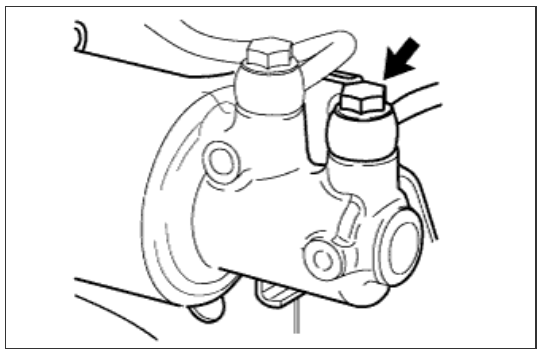
a. Remove the 3 nuts and control valve.

b. Remove the 3 bolt holders and 3 bolt cushions from the control valve.



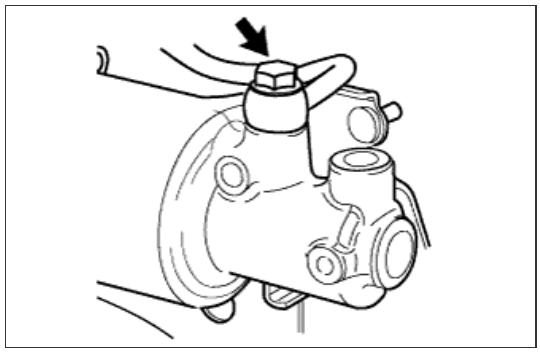
14. DISCONNECT NO. 3 HEIGHT CONTROL TUBE

a. Remove the union bolt and gasket, then disconnect the No. 3 height control tube from the control cylinder.



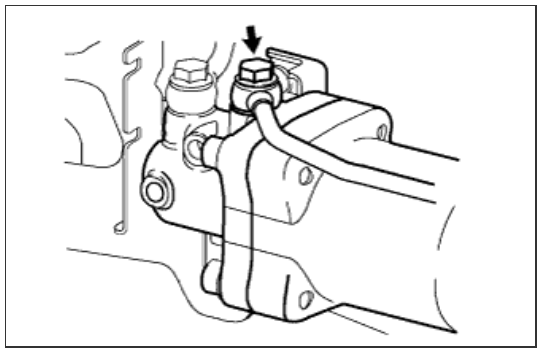
15. DISCONNECT NO. 4 HEIGHT CONTROL TUBE LH

a. Remove the union bolt and gasket, then disconnect the No. 4 height control tube from the control cylinder.



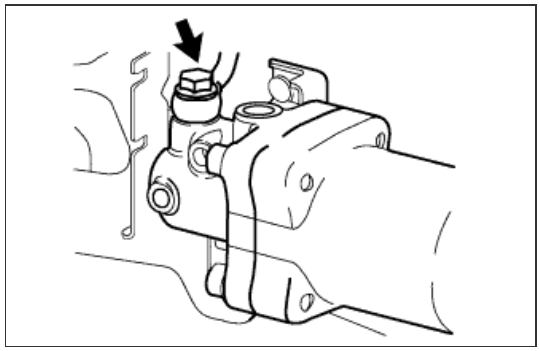
16. DISCONNECT NO. 4 HEIGHT CONTROL TUBE

a. Remove the union bolt and gasket, then disconnect the No. 4 height control tube from the control cylinder.



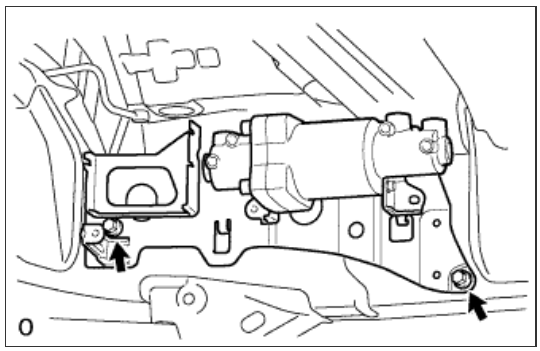
17. DISCONNECT NO. 3 HEIGHT CONTROL TUBE LH

a. Remove the union bolt and gasket, then disconnect the No. 3 height control tube from the control cylinder.



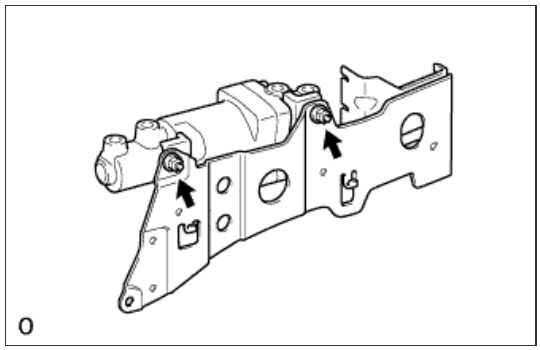
18. REMOVE HEIGHT CONTROL BRACKET WITH CYLINDER ASSEMBLY

a. Remove the 2 bolts and bracket with cylinder.



19. REMOVE CENTER SUSPENSION CONTROL CYLINDER SUB-ASSEMBLY

a. Remove the 2 nuts and cylinder from the bracket.

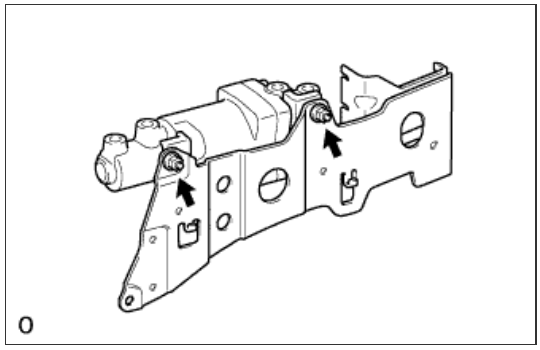


for Preparation Click here

1. INSTALL CENTER SUSPENSION CONTROL CYLINDER SUB-ASSEMBLY

a. Install the cylinder to the bracket with the 2 nuts.

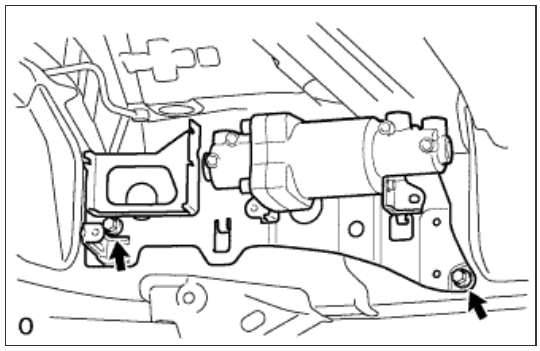
Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



2. INSTALL HEIGHT CONTROL BRACKET WITH CYLINDER ASSEMBLY

a. Install the bracket with cylinder with the 2 bolts.

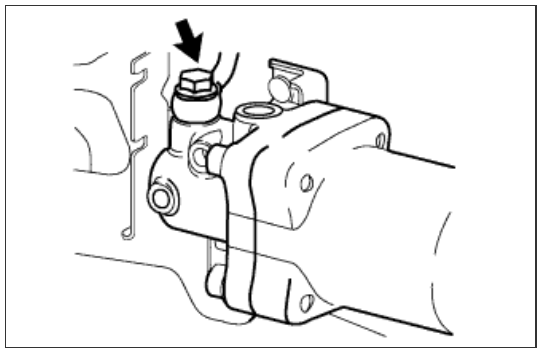
Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



3. CONNECT NO. 3 HEIGHT CONTROL TUBE LH

a. Install a new gasket to the No. 3 height control tube, and then connect the height control tube to the control cylinder with the union bolt.

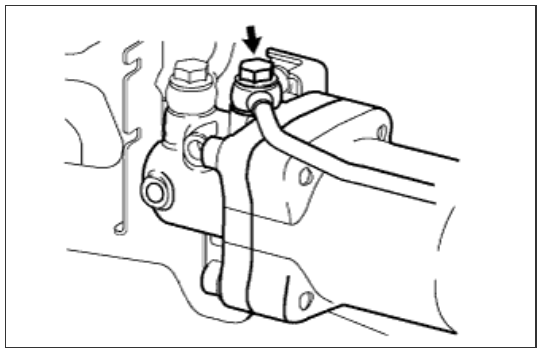
Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }



4. CONNECT NO. 4 HEIGHT CONTROL TUBE

a. Install a new gasket to the No. 4 height control tube, and then connect the height control tube to the control cylinder with the union bolt.

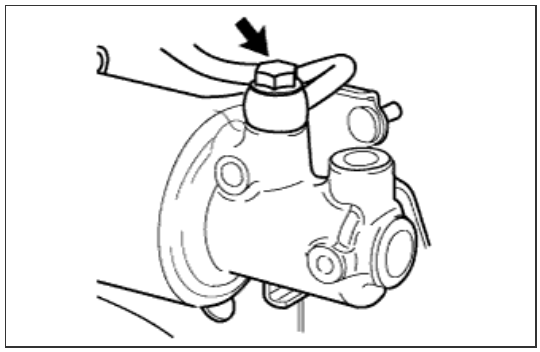
Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }



5. CONNECT NO. 4 HEIGHT CONTROL TUBE LH

a. Install a new gasket to the No. 4 height control tube, and then connect the height control tube to the control cylinder with the union bolt.

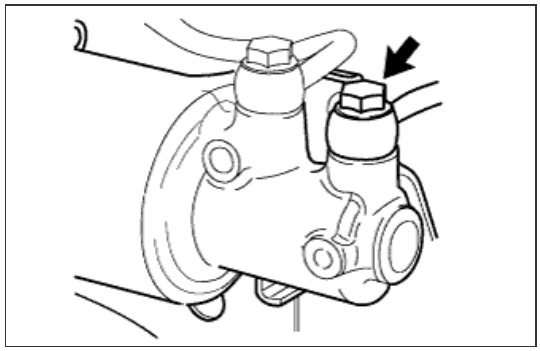
Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }



6. CONNECT NO. 3 HEIGHT CONTROL TUBE

a. Install a new gasket to the No. 3 height control tube, and then connect the height control tube to the control cylinder with the union bolt.

Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }

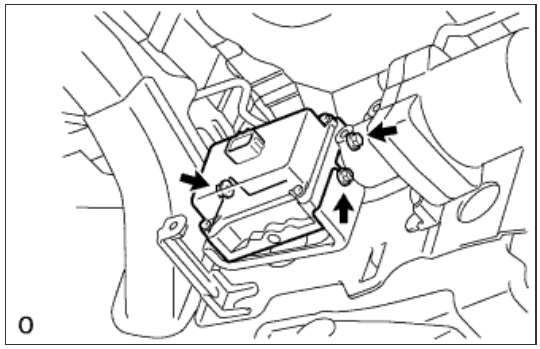


7. INSTALL NO. 1 HEIGHT CONTROL VALVE ASSEMBLY

a. Install the 3 bolt cushions and 3 bolt holders to the control valve.

b. Install the control valve with the 3 nuts.

Torque:
5.5 N*m{ 56 kgf*cm , 49 in.*lbf }

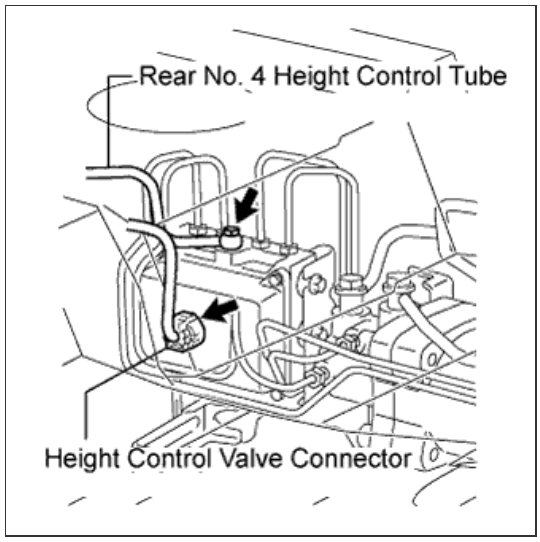


8. CONNECT REAR NO. 4 HEIGHT CONTROL TUBE

a. Install a new gasket to the control tube, and connect the control tube with the union bolt.

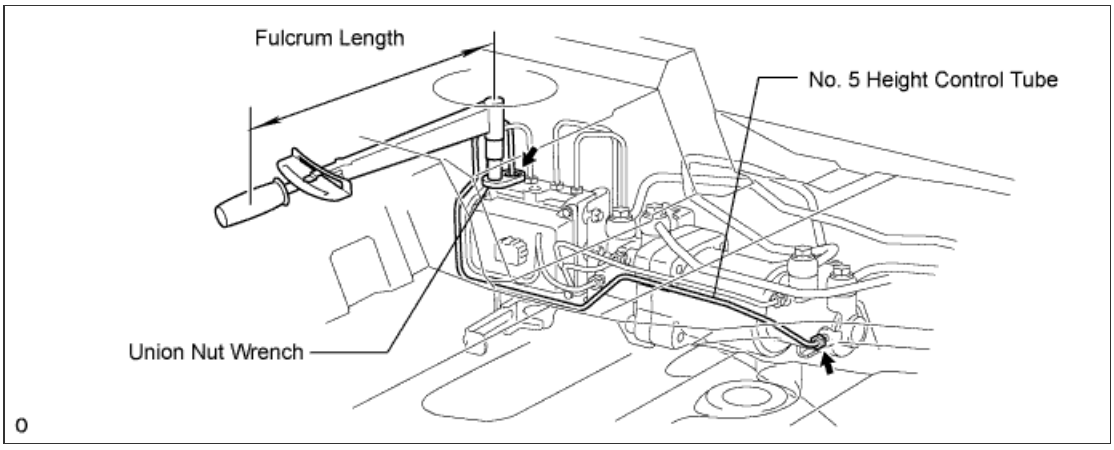
Torque:
25 N*m{ 255 kgf*cm , 18 ft.*lbf }

b. Connect the height control valve connector.



9. INSTALL NO. 5 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 5 height control tube to the control valve and center cylinder.



Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

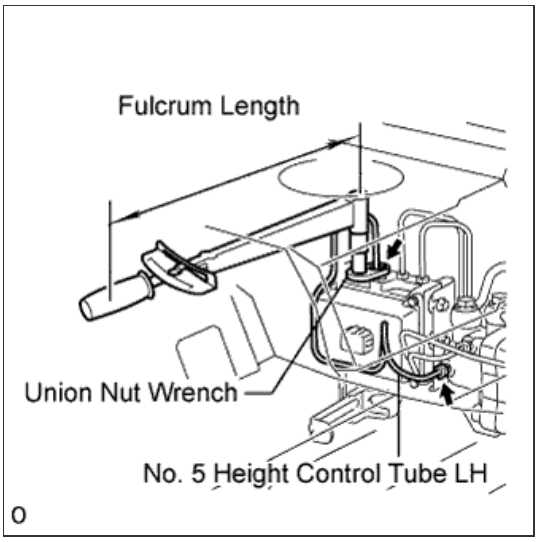
10. INSTALL NO. 5 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, install the No. 5 height control tube to the control valve and center cylinder.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

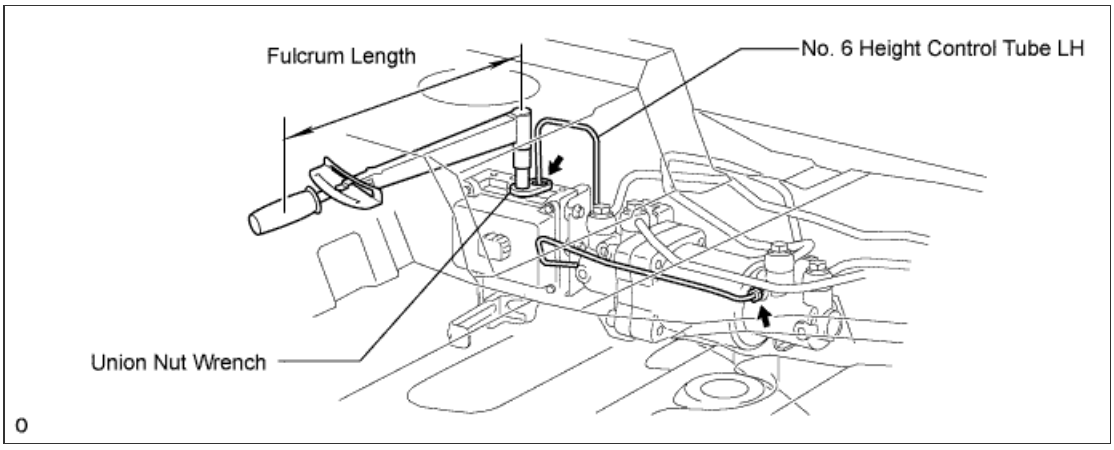
HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



11. INSTALL NO. 6 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, install the No. 6 height control tube to the control valve and center cylinder.



Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

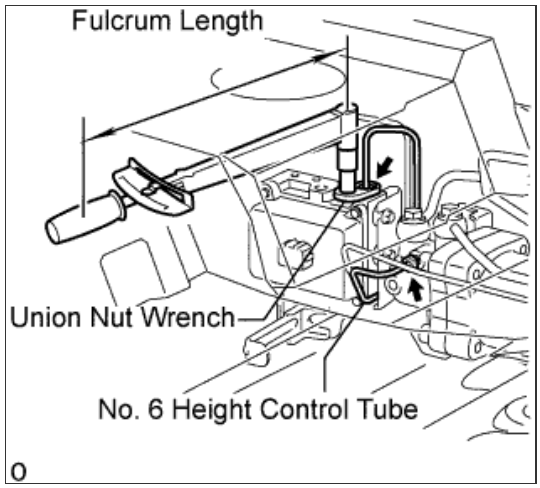
12. INSTALL NO. 6 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 6 height control tube to the control valve and center cylinder.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



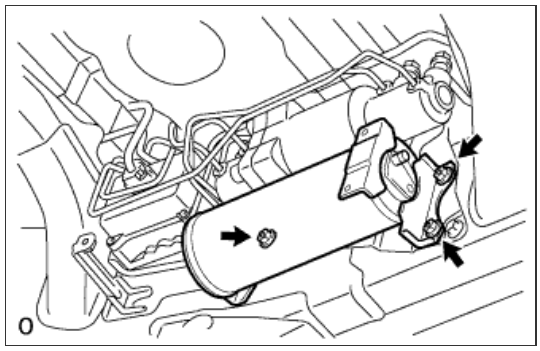
13. INSTALL CLAMP

a. Install the clamp to the 3 height control tubes.

14. INSTALL SUSPENSION CONTROL PUMP ACCUMULATOR ASSEMBLY

a. Install the accumulator with the 3 nuts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



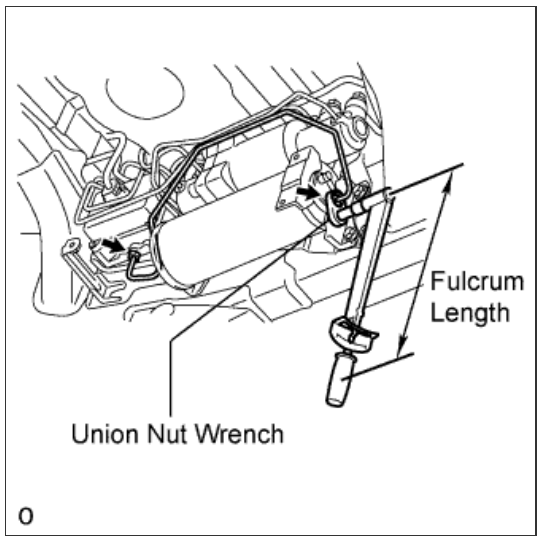
15. INSTALL NO. 7 HEIGHT CONTROL TUBE

a. Using a union nut wrench, install the No. 7 control tube to the control valve and accumulator.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

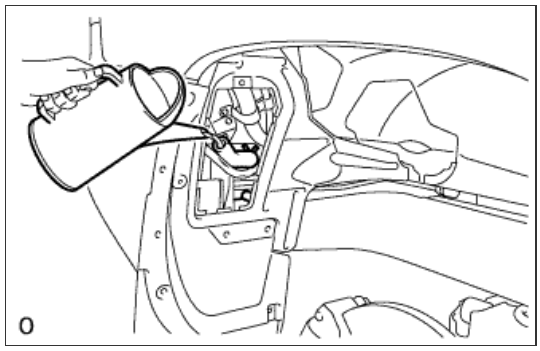
- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



16. BLEED AIR FROM SUSPENSION FLUID

a. With the engine stopped, fill the reservoir tank with fluid.

a. With the engine stopped, fill the reservoir tank with fluid.



NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

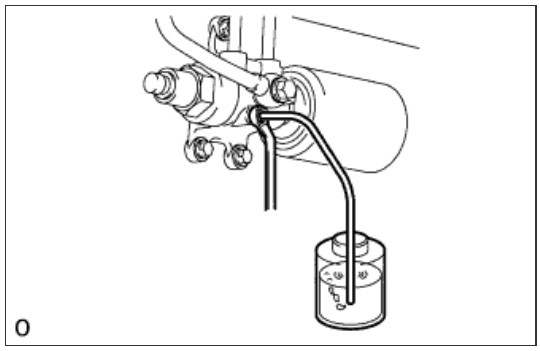
HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.

b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

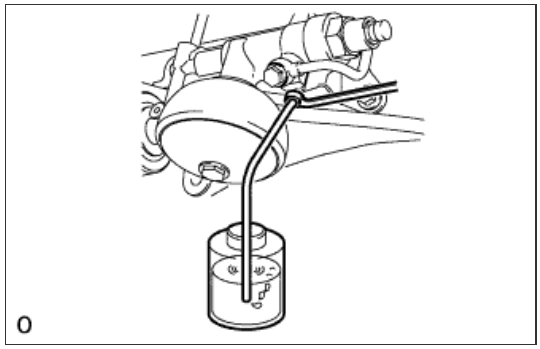
e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

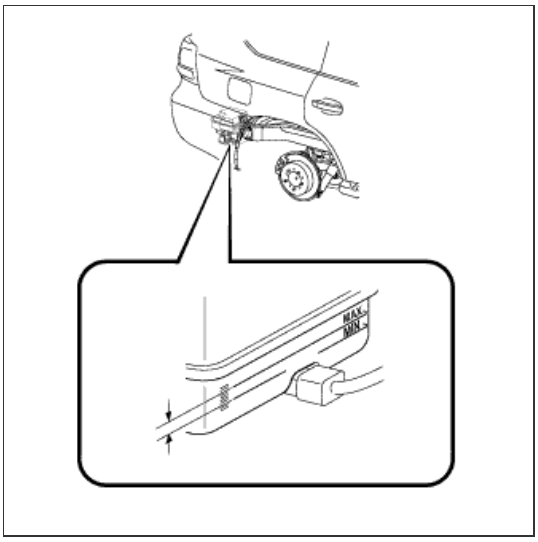
h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

17. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.



18. INSPECT FOR SUSPENSION FLUID LEAK

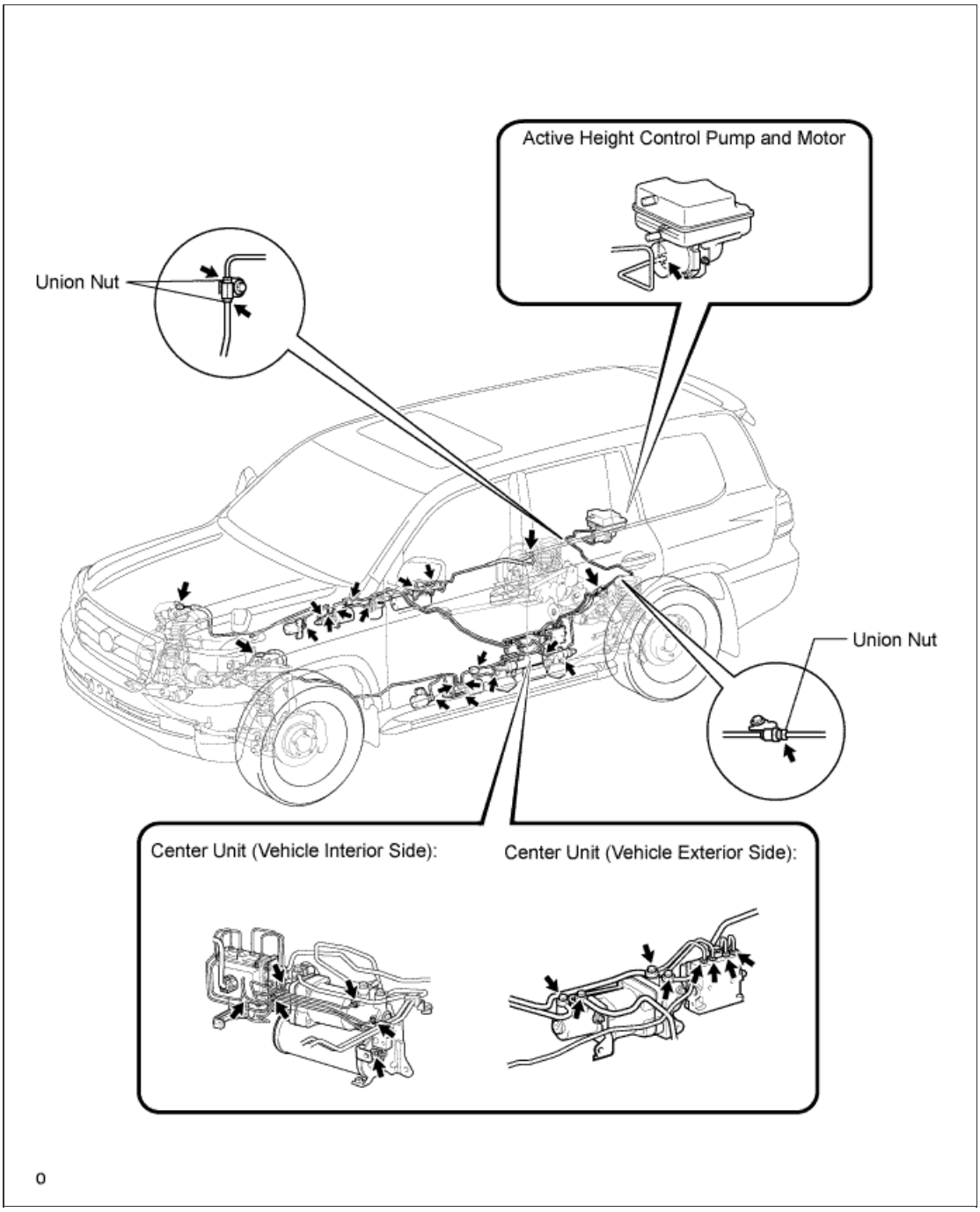
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



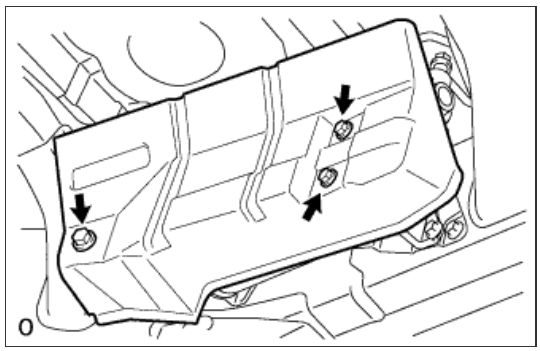
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

19. INSTALL HEIGHT CONTROL UNIT INSULATOR

a. Install the insulator to the height control unit with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



20. INSTALL CENTER EXHAUST PIPE ASSEMBLY

a. Install 2 new gaskets to the front exhaust pipe and front No. 2 exhaust pipe.

b. Install the center exhaust pipe to the 3 exhaust pipe supports, and then install the 4 bolts.

Torque:
48 N*m{ 489 kgf*cm , 35 ft.*lbf }

21. INSTALL TAILPIPE ASSEMBLY

a. Install the tailpipe to the 2 exhaust pipe supports.

b. Install a new gasket to the center exhaust pipe.

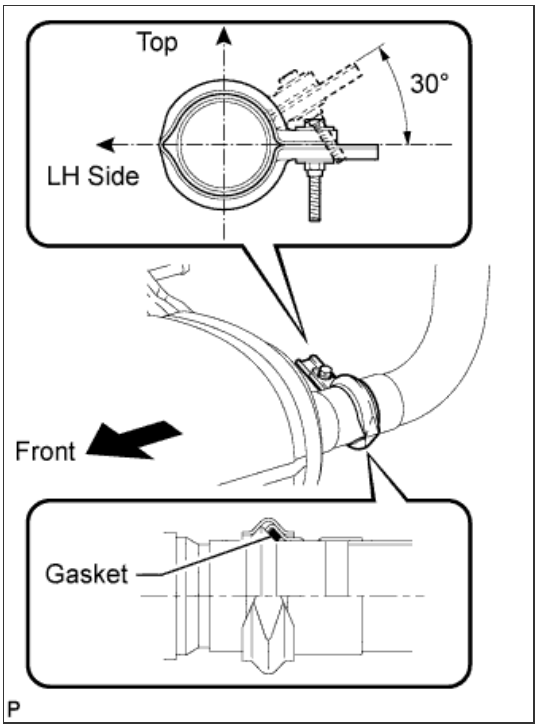
c. Connect the tailpipe to the center exhaust pipe.

d. Attach a new clamp to the tailpipe and center exhaust pipe. Then install the bolt to the clamp.

Torque:
32 N*m{ 326 kgf*cm , 24 ft.*lbf }

HINT:

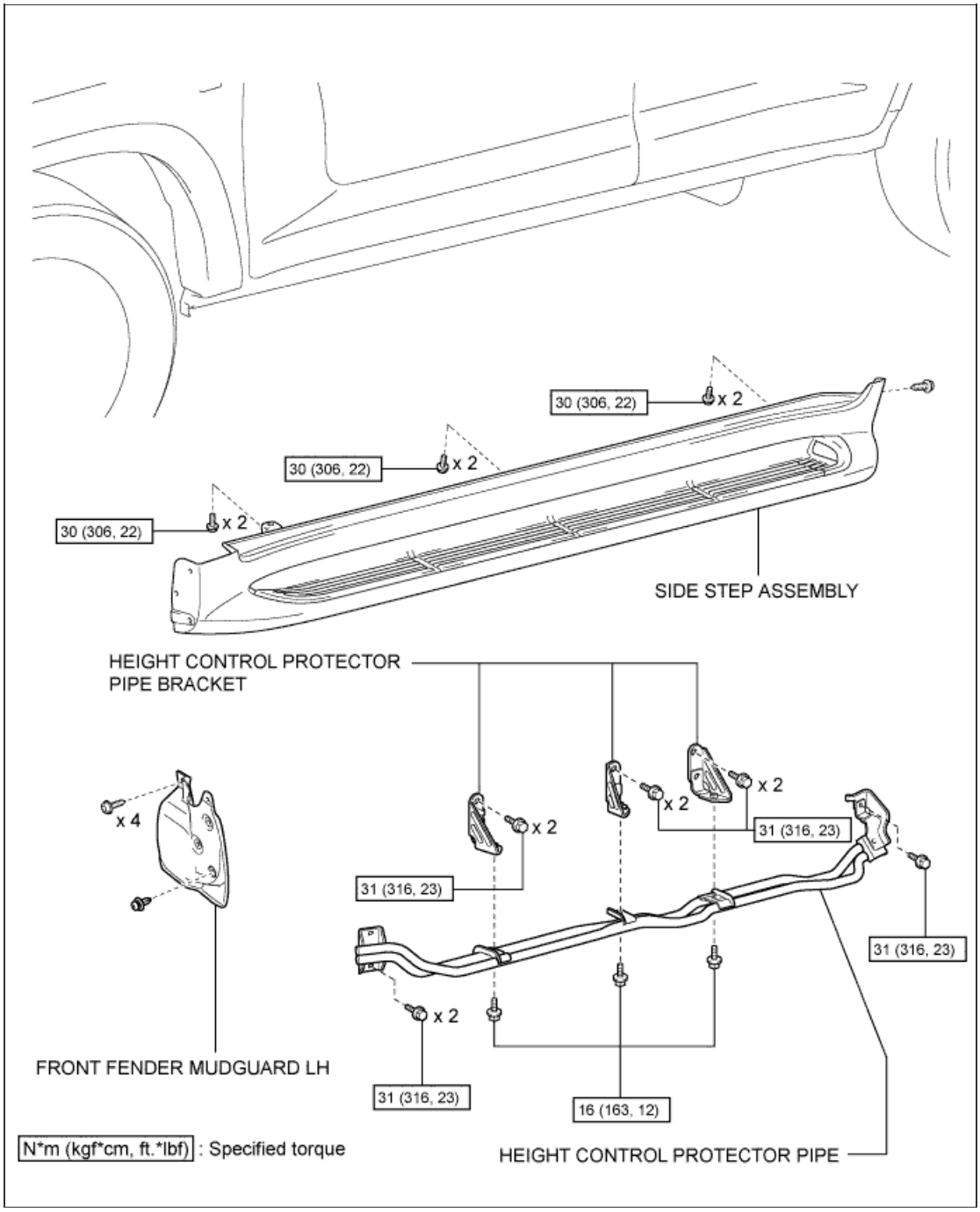
Install the clamp within the angle range shown in the illustration.

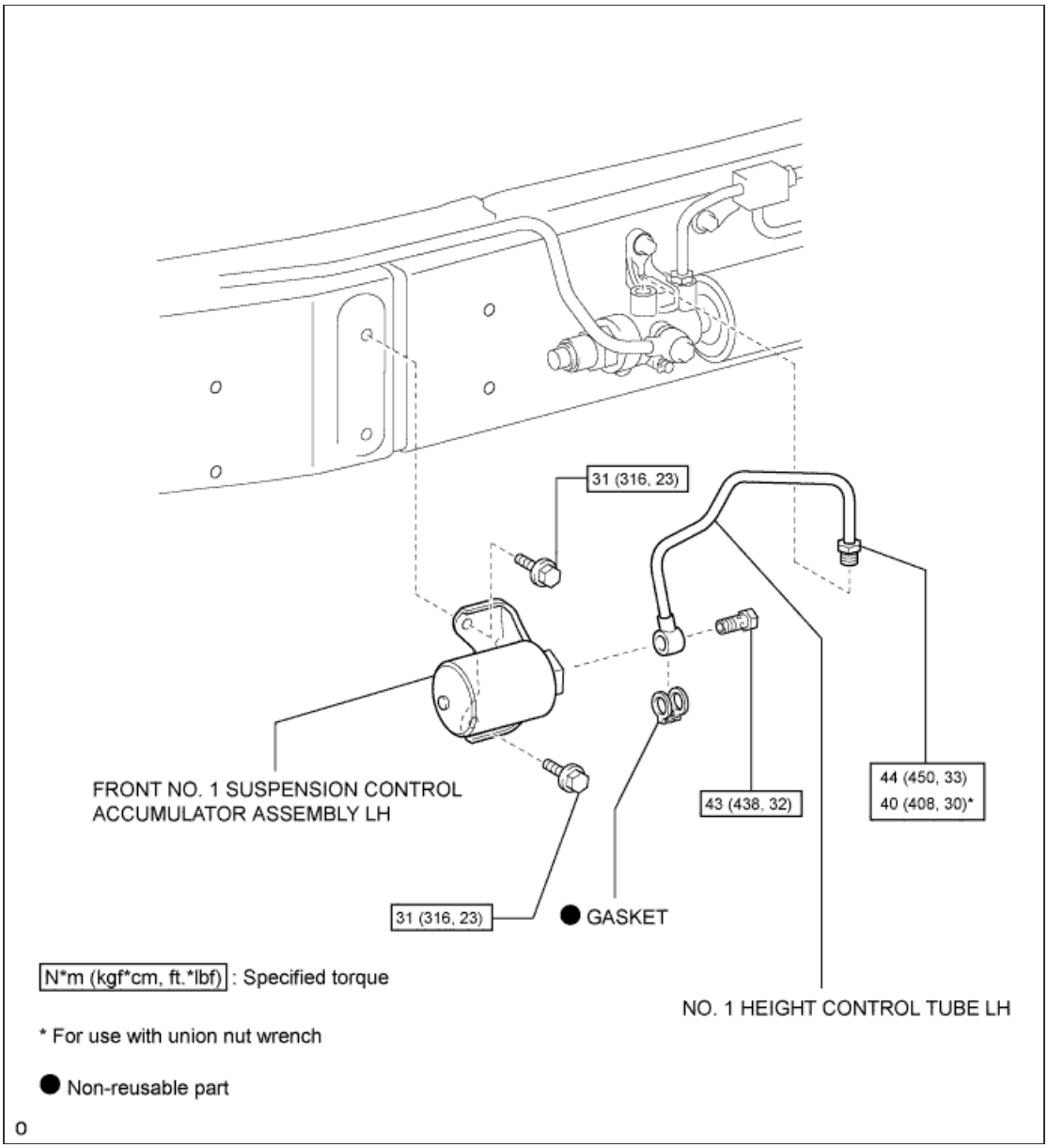


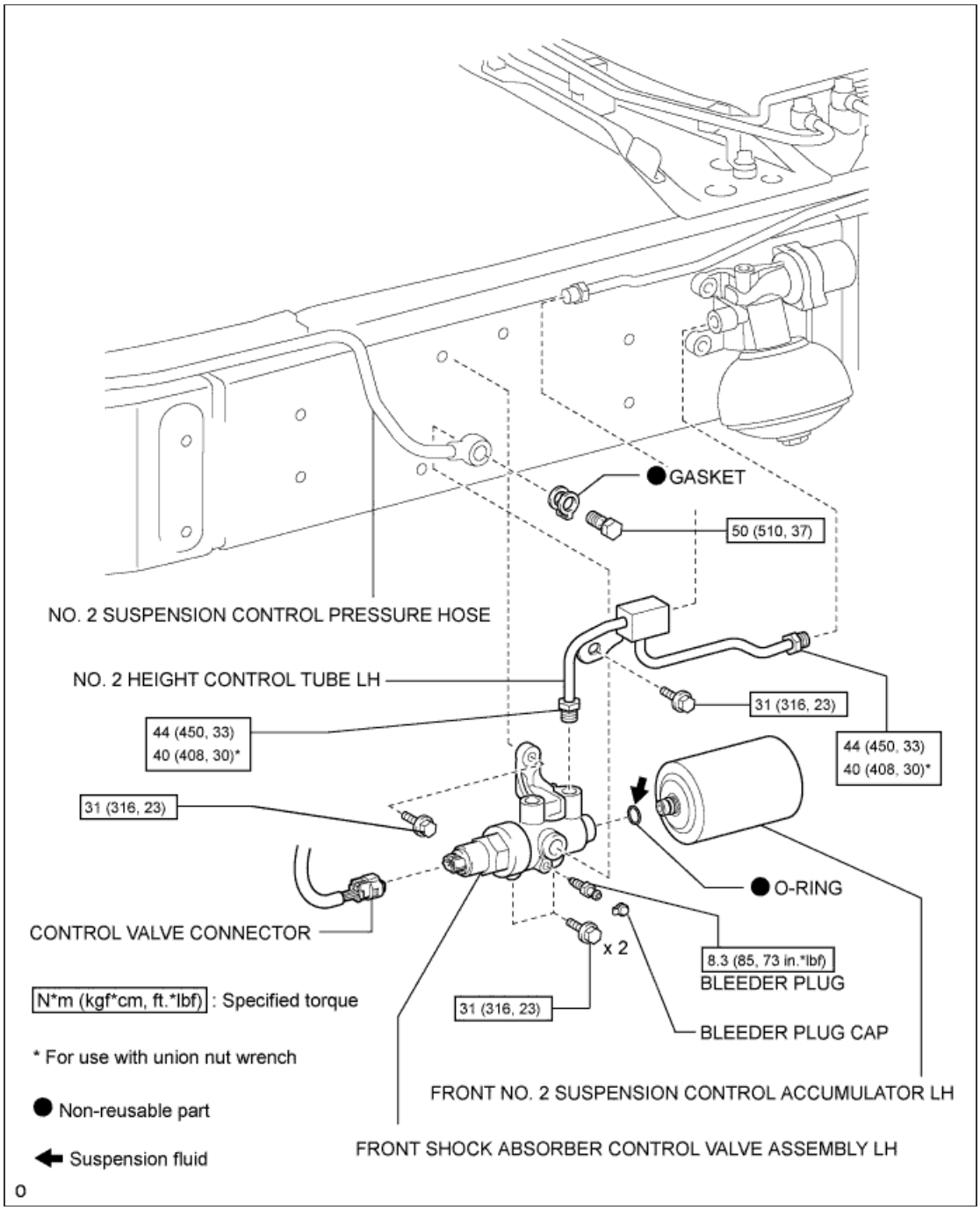
22. INSPECT FOR EXHAUST GAS LEAK

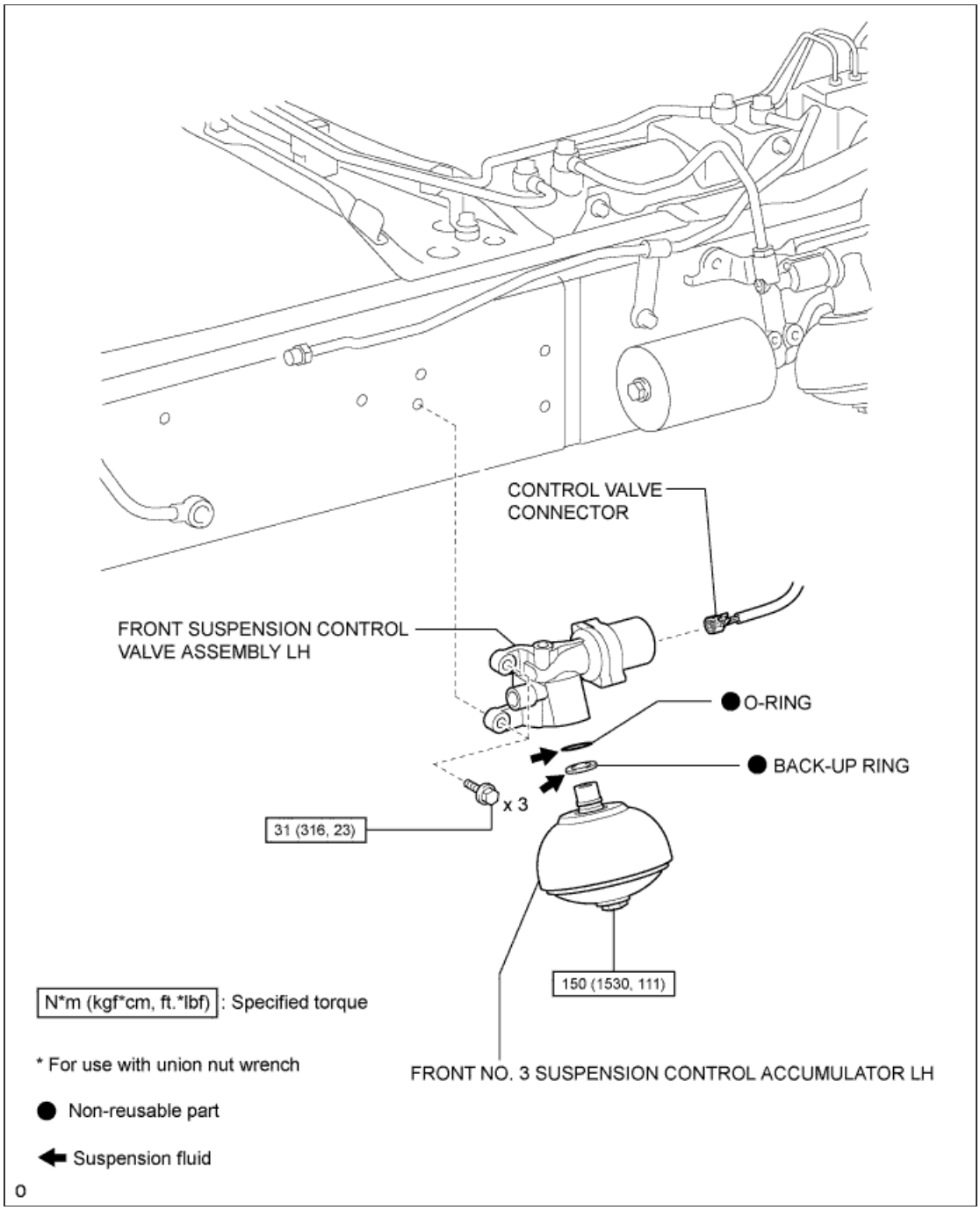
If gas is leaking, tighten the areas necessary to stop the leak. Replace damaged parts as necessary.

for Preparation Click here




31 (316, 23)
FRONT NO. 1 SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH
43 (438, 32)
44 (450, 33)
40 (408, 30)*
31 (316, 23)
GASKET
N*m (kgf*cm, ft.*lbf) : Specified torque
NO. 1 HEIGHT CONTROL TUBE LH
* For use with union nut wrench
Non-reusable part


GASKET
50 (510, 37)
NO. 2 SUSPENSION CONTROL PRESSURE HOSE
NO. 2 HEIGHT CONTROL TUBE LH
31 (316, 23)
44 (450, 33)
40 (408, 30)*
44 (450, 33)
40 (408, 30)*
31 (316, 23)
O-RING
CONTROL VALVE CONNECTOR
x 2
8.3 (85, 73 in.*lbf)
BLEEDER PLUG
31 (316, 23)
BLEEDER PLUG CAP
N*m (kgf*cm, ft.*lbf) : Specified torque
* For use with union nut wrench
Non-reusable part
Suspension fluid
FRONT NO. 2 SUSPENSION CONTROL ACCUMULATOR LH
FRONT SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH

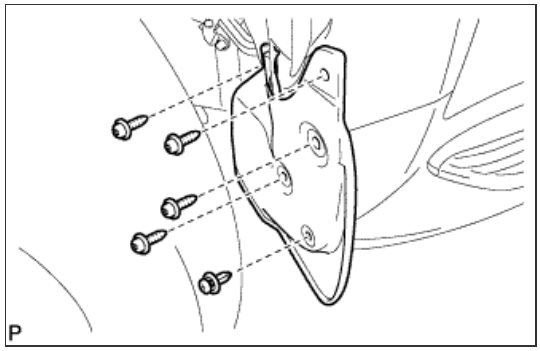

CONTROL VALVE CONNECTOR
FRONT SUSPENSION CONTROL VALVE ASSEMBLY LH
O-RING
BACK-UP RING
x 3
31 (316, 23)
150 (1530, 111)
N*m (kgf*cm, ft.*lbf) : Specified torque
* For use with union nut wrench
Non-reusable part
Suspension fluid
FRONT NO. 3 SUSPENSION CONTROL ACCUMULATOR LH

for Preparation Click here

1. REMOVE REAR QUARTER PANEL MUDGUARD RH

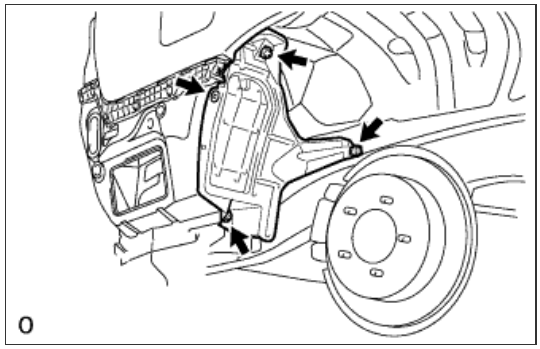
a. Remove the clip.

b. Using a T30 "TORX" socket, remove the 4 screws and mudguard.



2. REMOVE FUEL TANK FILLER PIPE PROTECTOR

a. Using a T30 "TORX" socket wrench, remove the 3 screws, 2 grommets and pipe protector.



3. INSPECT FRONT SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

NOTICE:

Perform the following after inspecting and adjusting the vehicle height.

a. With the vehicle empty, start the engine and set the vehicle height to LOW.

b. Record the reservoir tank fluid level (A).

c. Set the vehicle height to HIGH.

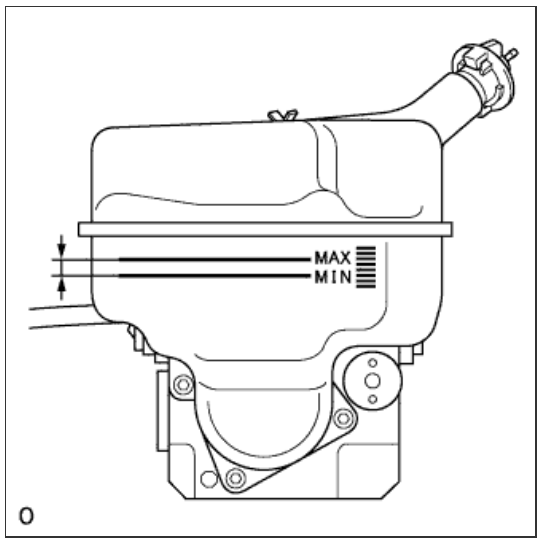
HINT:

Make sure to check the fluid level approximately 30 seconds after the vehicle height changes to HIGH.

d. Record the reservoir tank fluid level (B), and check that A minus B is within the specified value.

Specified Value:
A - B = 5 marks or more

If the result is not as specified, replace all suspension control accumulators.



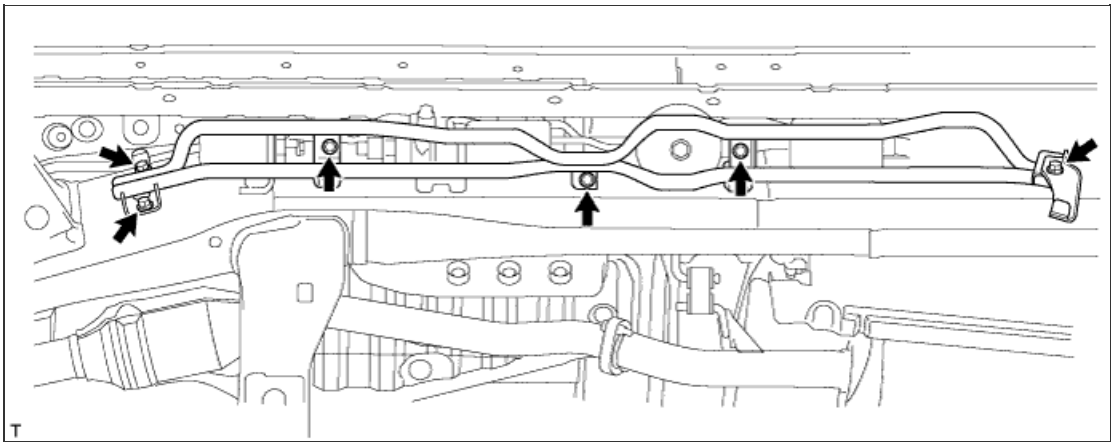
for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE HEIGHT CONTROL PROTECTOR PIPE

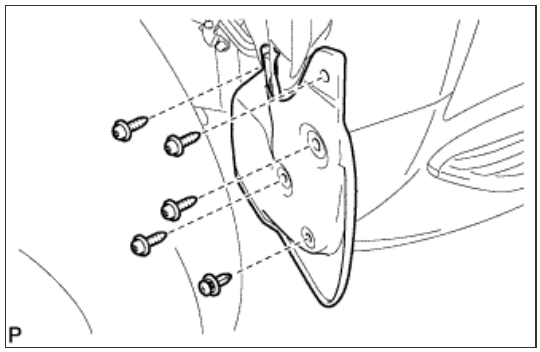
a. Remove the 6 bolts and protector pipe.



2. REMOVE FRONT FENDER MUDGUARD LH

a. Remove the clip.

b. Using a T30 "TORX" socket, remove the 4 screws and mudguard.

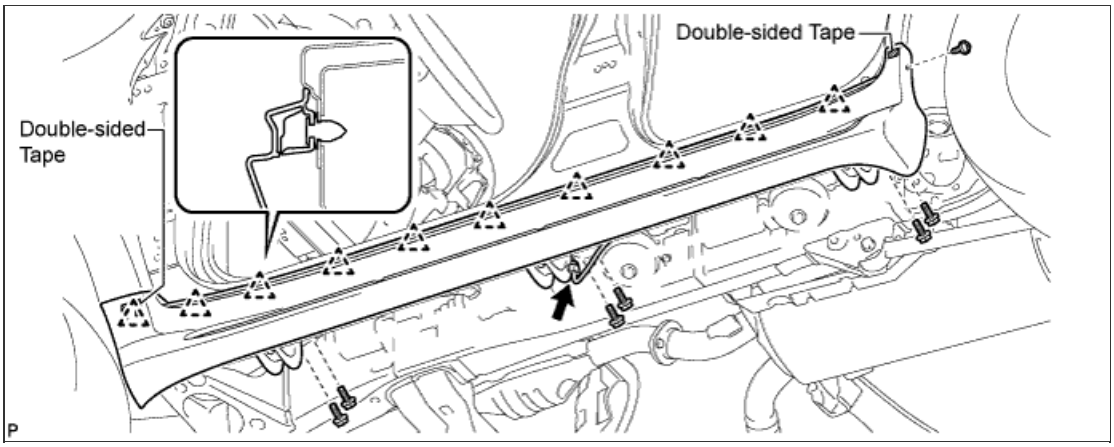


3. REMOVE SIDE STEP ASSEMBLY

a. Remove the screw and 6 bolts.

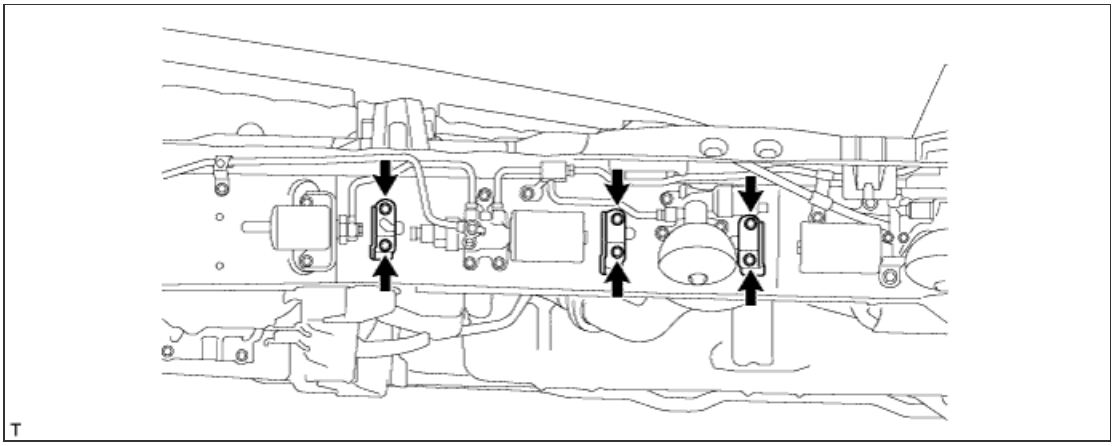
b. Disconnect the connector.

c. Detach the 10 clips and remove the double-sided tape to remove the side step.



4. REMOVE HEIGHT CONTROL PROTECTOR PIPE BRACKET

a. Remove the 6 bolts and 3 brackets from the frame.



5. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the shock absorber control valve and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

HINT:

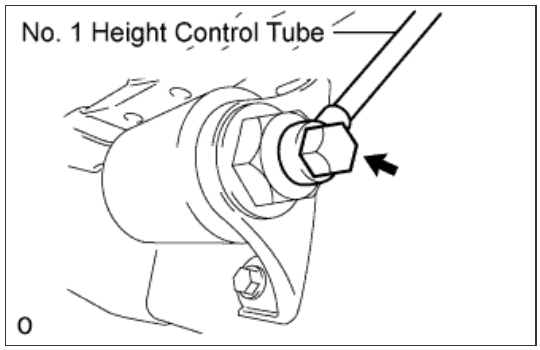
Make sure to discharge the suspension fluid pressure from the front and rear damping force control actuators on the left and right sides.

c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

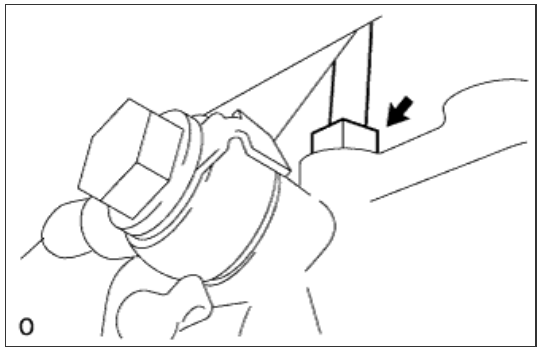
Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

6. REMOVE NO. 1 HEIGHT CONTROL TUBE LH

a. Remove the union bolt and gasket from the front No. 1 suspension control accumulator.

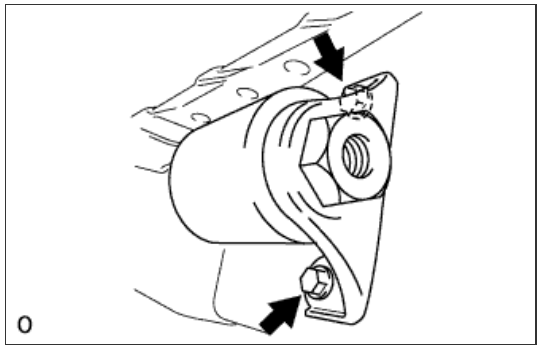


b. Using a union nut wrench, remove the No. 1 control tube from the shock absorber control valve.



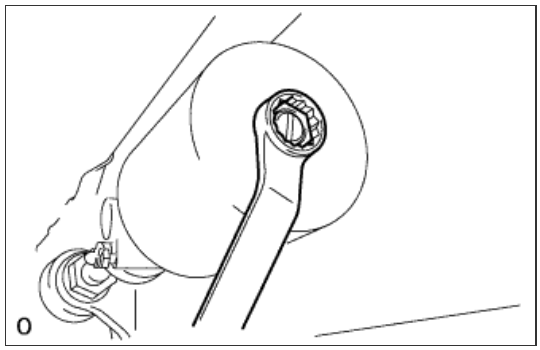
7. REMOVE FRONT NO. 1 SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

a. Remove the 2 bolts and No. 1 suspension control accumulator from the vehicle.



8. REMOVE FRONT NO. 2 SUSPENSION CONTROL ACCUMULATOR LH

a. Remove the No. 2 suspension control accumulator and O-ring from the front shock absorber control valve.

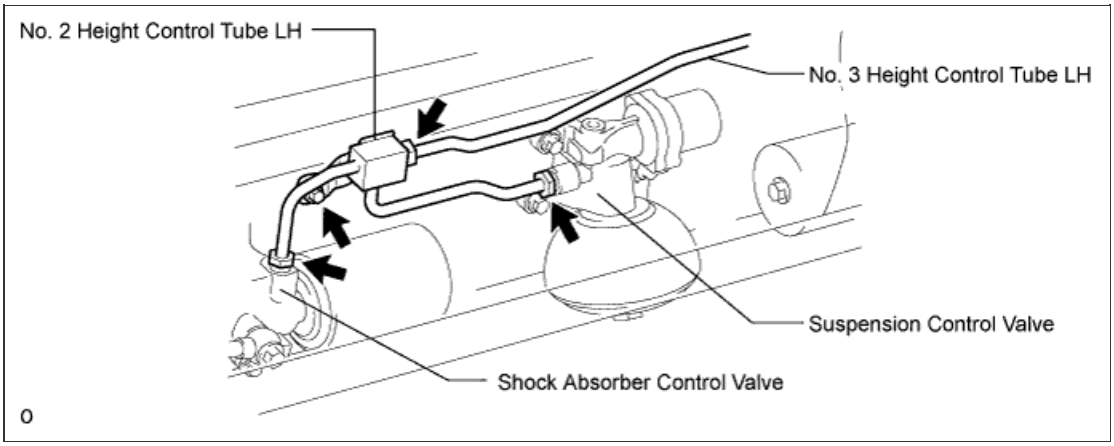


9. REMOVE NO. 2 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, disconnect the No. 2 height control tube from the No. 3 height control tube, shock absorber control valve and control valve.

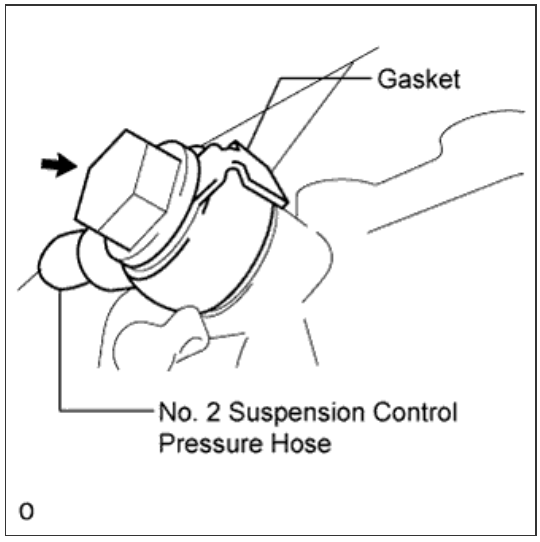
b. Remove the bolt and No. 2 height control tube

b. Remove the bolt and No. 2 height control tube.



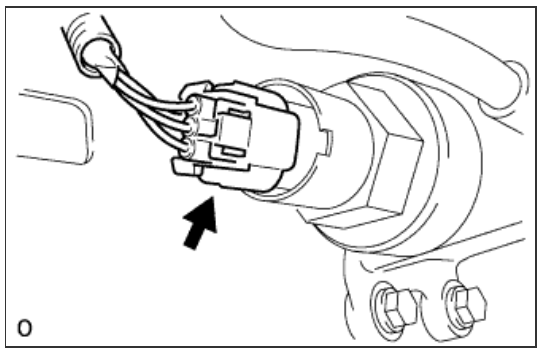
10. DISCONNECT NO. 2 SUSPENSION CONTROL PRESSURE HOSE

a. Remove the union bolt and gasket, then disconnect the No. 2 suspension control pressure hose from the shock absorber control valve.



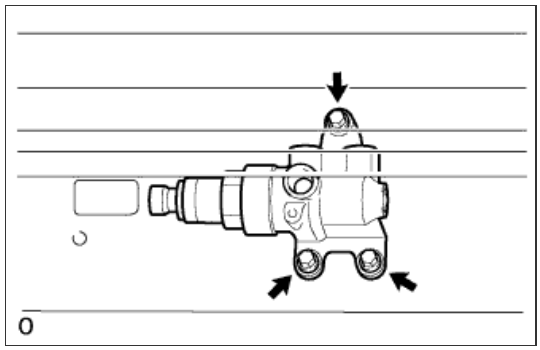
11. REMOVE FRONT SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH

a. Disconnect the connector.



b. Remove the 3 bolts and control valve.

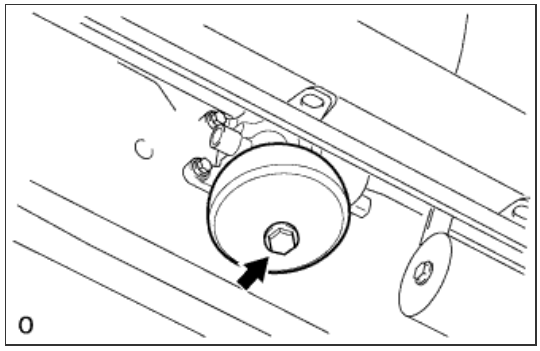
c. Remove the cap and bleeder plug.



12. REMOVE FRONT NO. 3 SUSPENSION CONTROL ACCUMULATOR LH

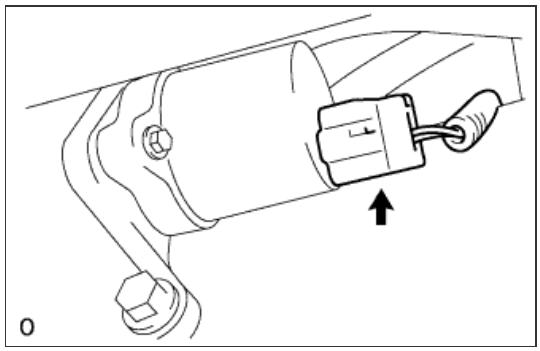
a. Remove the control accumulator from the control valve.

b. Remove the O-ring and back-up ring from the accumulator.

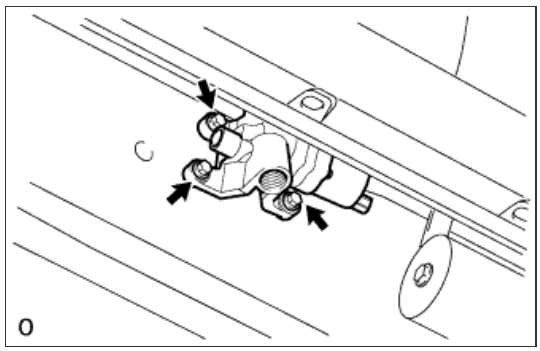


13. REMOVE FRONT SUSPENSION CONTROL VALVE ASSEMBLY LH

a. Disconnect the control valve connector.



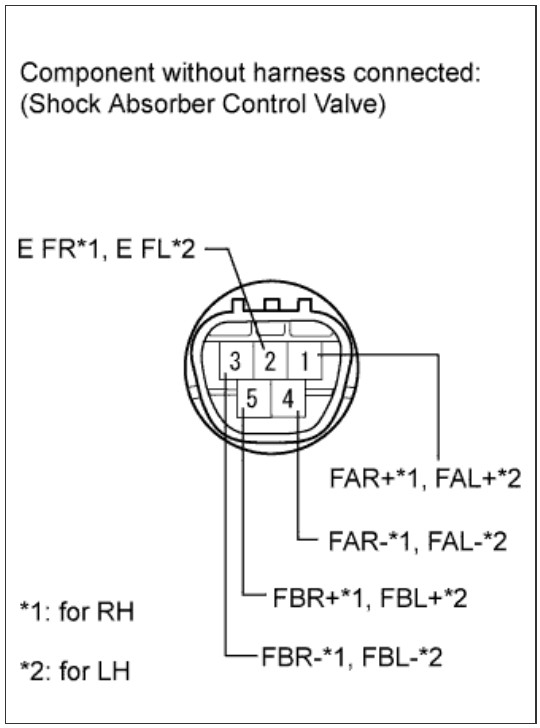
b. Remove the 3 bolts and control valve.



for Preparation Click here

1. INSPECT FRONT SHOCK ABSORBER CONTROL VALVE ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH

Tester Connection	Condition	Specified Condition
1 (FAR+) - 2 (E FR)	Always	12.0 to 13.6 Ω
3 (FBR-) - 2 (E FR)		
4 (FAR-) - 2 (E FR)		
5 (FBR+) - 2 (E FR)		

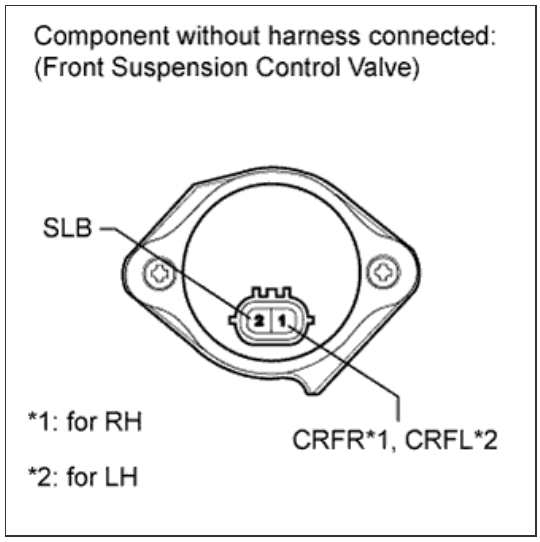
for LH

Tester Connection	Condition	Specified Condition
1 (FAL+) - 2 (E FL)	Always	12.0 to 13.6 Ω
3 (FBL-) - 2 (E FL)		
4 (FAL-) - 2 (E FL)		
5 (FBL+) - 2 (E FL)		

If the result is not as specified, replace the shock absorber control valve.

2. INSPECT FRONT SUSPENSION CONTROL VALVE ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH

Tester Connection	Condition	Specified Condition
1 (CRFR) - 2 (SLB)	20°C (68°F)	4.58 to 5.02 Ω

for LH

Tester Connection	Condition	Specified Condition
1 (CRFL) - 2 (SLB)	20°C (68°F)	4.58 to 5.02 Ω

If the result is not as specified, replace the shock absorber control valve.

for Preparation Click here

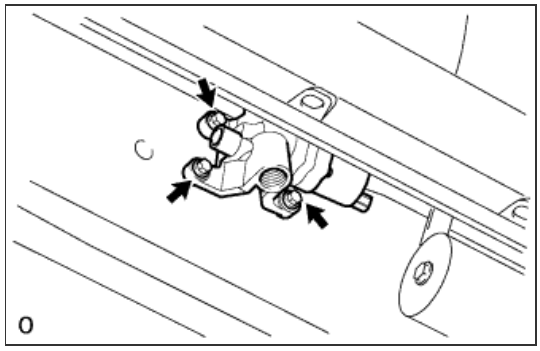
HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

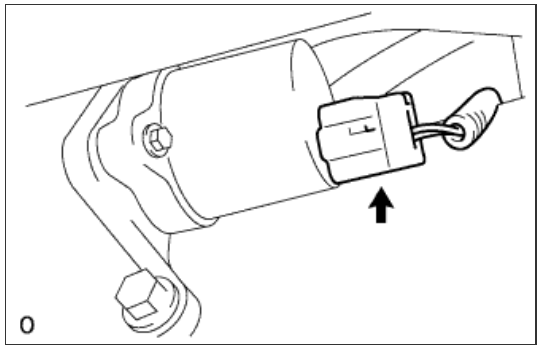
1. INSTALL FRONT SUSPENSION CONTROL VALVE ASSEMBLY LH

a. Install the control valve with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



b. Connect the control valve connector.

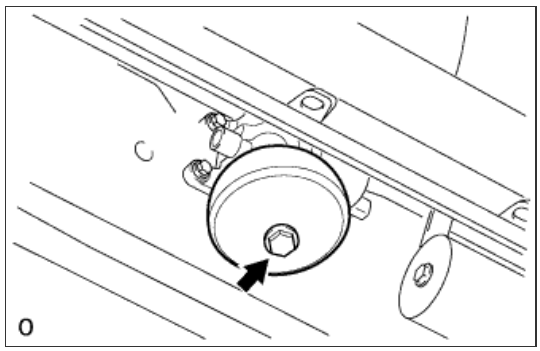


2. INSTALL FRONT NO. 3 SUSPENSION CONTROL ACCUMULATOR LH

a. Apply a small amount of suspension fluid to a new O-ring and new back-up ring and install them to the accumulator.

b. Install the accumulator to the control valve.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }



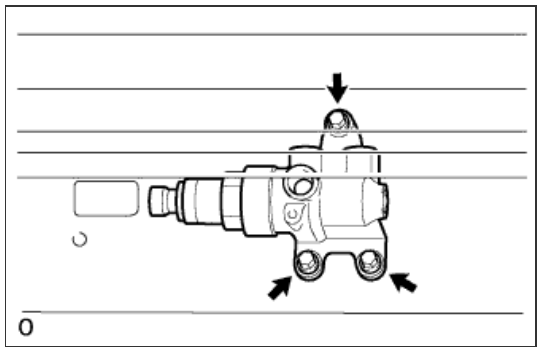
3. INSTALL FRONT SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH

a. Install the bleeder plug and bleeder plug cap to the control accumulator.

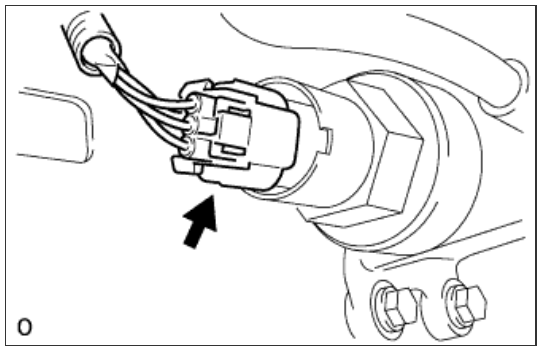
Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

b. Install the control valve to the vehicle with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



c. Connect the connector.

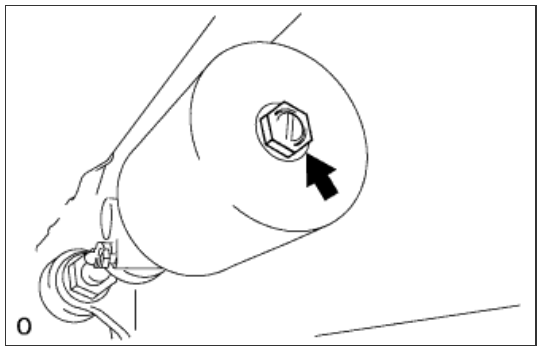


4. INSTALL FRONT NO. 2 SUSPENSION CONTROL ACCUMULATOR LH

a. Apply a small amount of suspension fluid to a new O-ring and install it to the accumulator.

b. Install the accumulator to the shock absorber control valve.

Torque:
57 N*m{ 581 kgf*cm , 42 ft.*lbf }



5. CONNECT NO. 2 SUSPENSION CONTROL PRESSURE HOSE

a. Install a new gasket to the No. 2 suspension control pressure hose, then connect the pressure hose to the control valve with the union bolt.

Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }

6. INSTALL NO. 2 HEIGHT CONTROL TUBE LH

a. Using a union nut wrench, connect the No. 2 height control tube to the No. 3 height control tube, shock absorber control valve and control valve.

Torque:
without union nut wrench:
44 N*m{ 450 kgf*cm , 33 ft.*lbf }
with union nut wrench:
40 N*m{ 408 kgf*cm , 30 ft.*lbf }

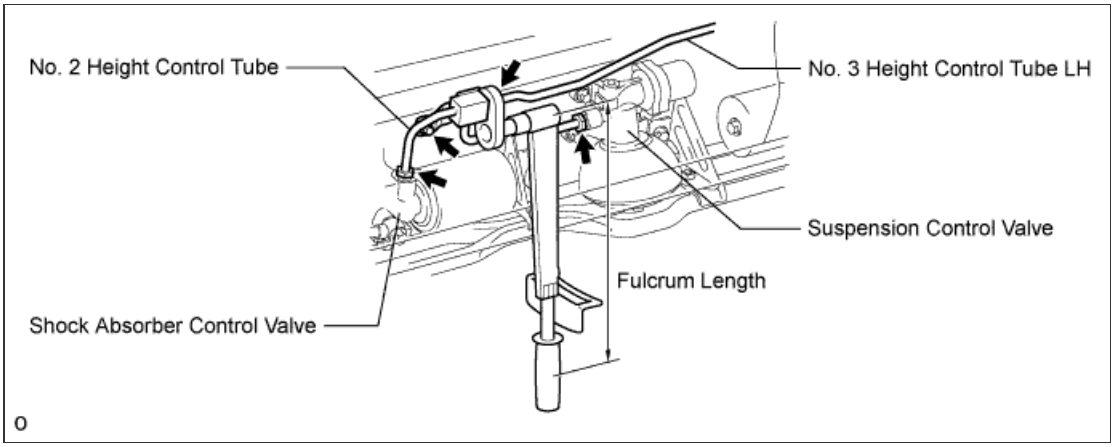
HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**

- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Install the No. 2 height control tube with the bolt.

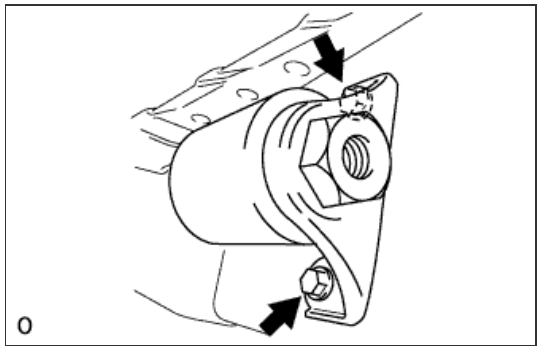
Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



7. INSTALL FRONT NO. 1 SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

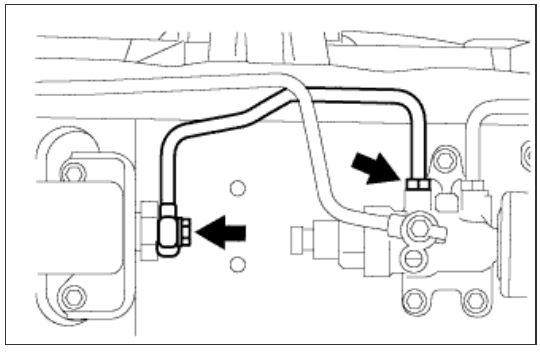
a. Install the No. 1 suspension control accumulator to the frame with the 2 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



8. INSTALL NO. 1 HEIGHT CONTROL TUBE LH

a. Install a new gasket to the No. 1 height control tube, then temporarily install the No. 1 height control tube to the control valve and control accumulator with the union bolt and union nut.



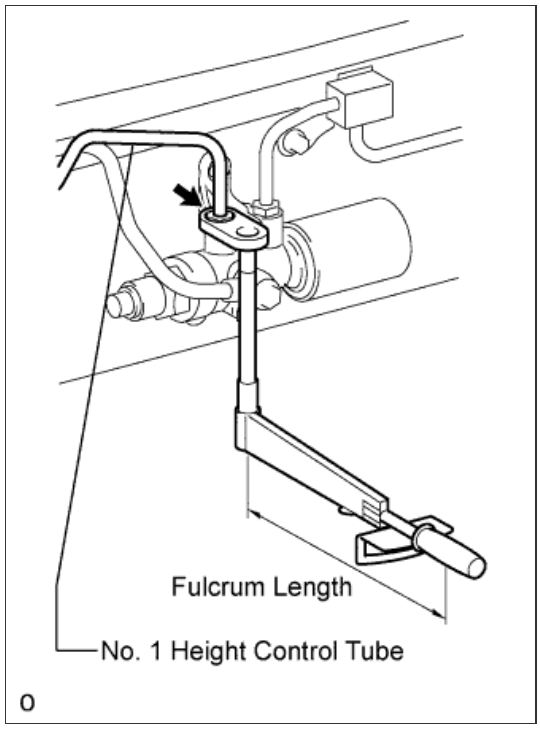
b. Using a union nut wrench, install the No. 1 height control tube.

Torque:
without union nut wrench:

44 N*m{ 450 kgf*cm , 33 ft.*lbf }
with union nut wrench:
40 N*m{ 408 kgf*cm , 30 ft.*lbf }

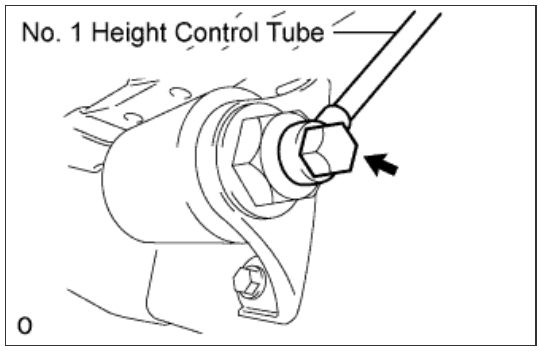
HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**



c. Tighten the union bolt.

Torque:
43 N*m{ 438 kgf*cm , 32 ft.*lbf }



9. BLEED AIR FROM SUSPENSION FLUID

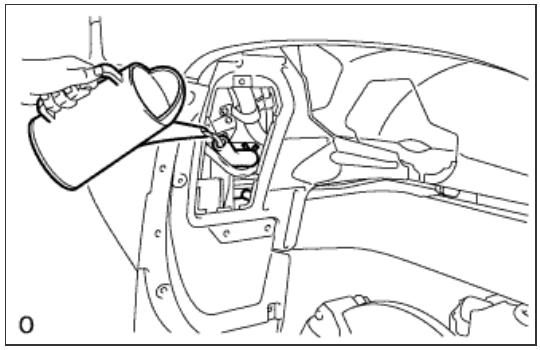
a. With the engine stopped, fill the reservoir tank with fluid.

NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.



b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

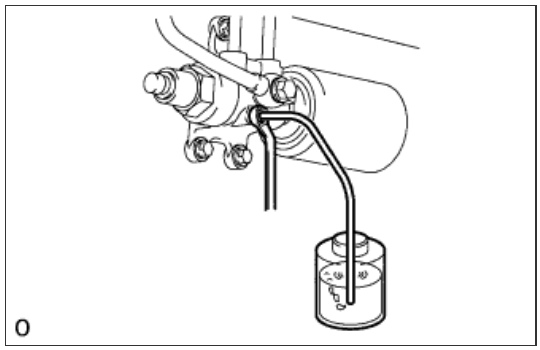
Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.

CAUTION:

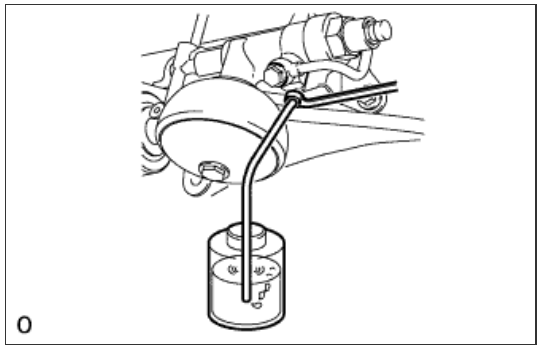
Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



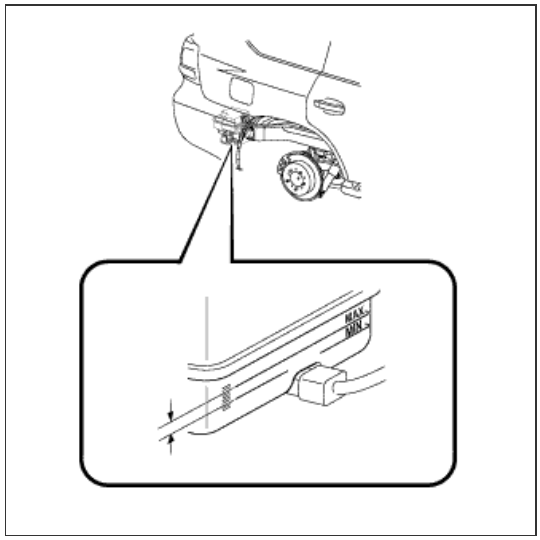
h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

10. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.



11. INSPECT FOR SUSPENSION FLUID LEAK

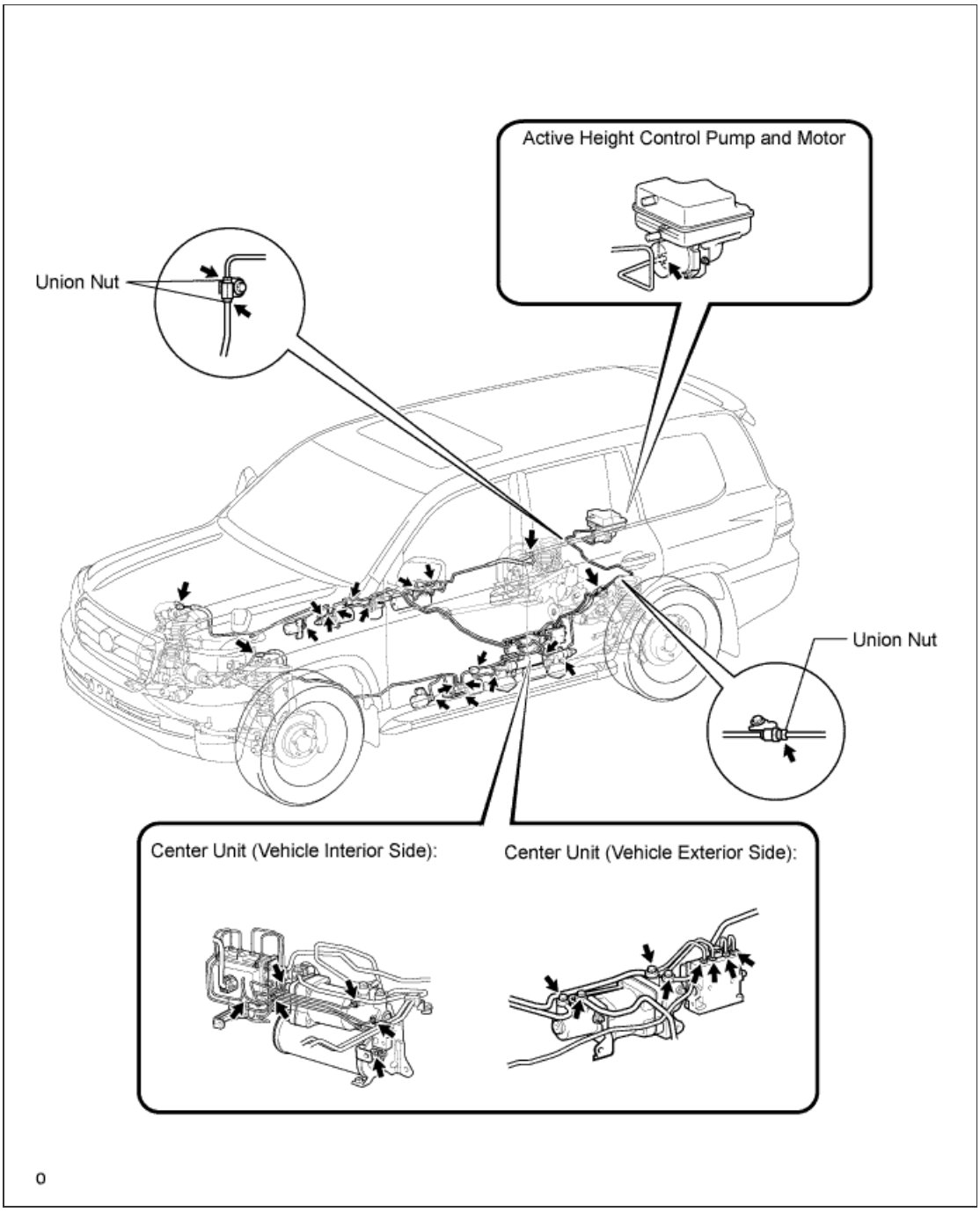
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



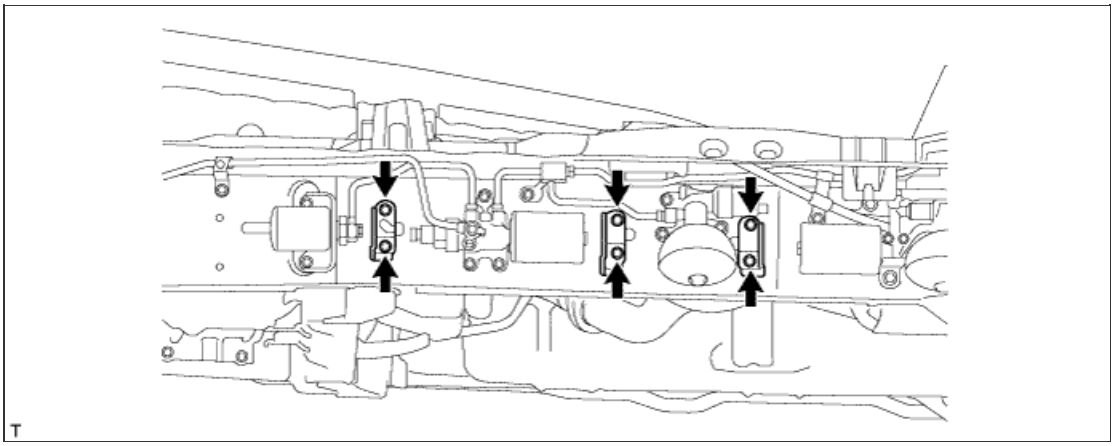
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

12. INSTALL HEIGHT CONTROL PROTECTOR PIPE BRACKET

a. Install the 3 brackets with the 6 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



13. INSTALL SIDE STEP ASSEMBLY

a. Clean the vehicle body surface.

i. Using a heat light, heat the vehicle body surface.

ii. Remove the double-sided tape from the vehicle body.

iii. Wipe off any tape adhesive residue with cleaner.

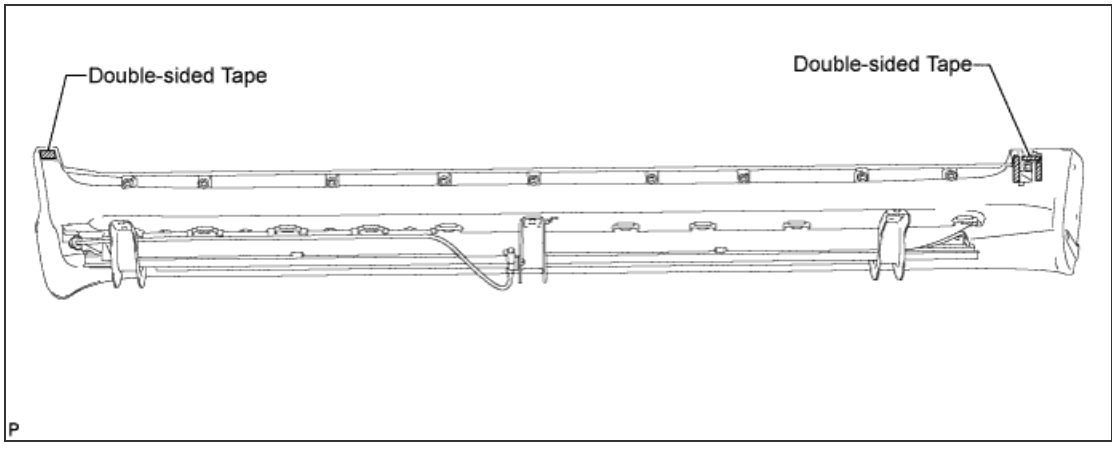
b. If reusing the side step:
Clean the side step.

i. Using a heat light, heat the side step.

ii. Remove the double-sided tape from the side step.

iii. Wipe off any tape adhesive residue with cleaner.

iv. Apply new double-sided tape to the side step, as shown in the illustration.



c. Install the side step.

i. Using a heat light, heat the vehicle body and side step.

ii. Remove the peeling paper from the face of the side step.

HINT:

After removing the peeling paper, keep the exposed adhesive free from foreign matter.

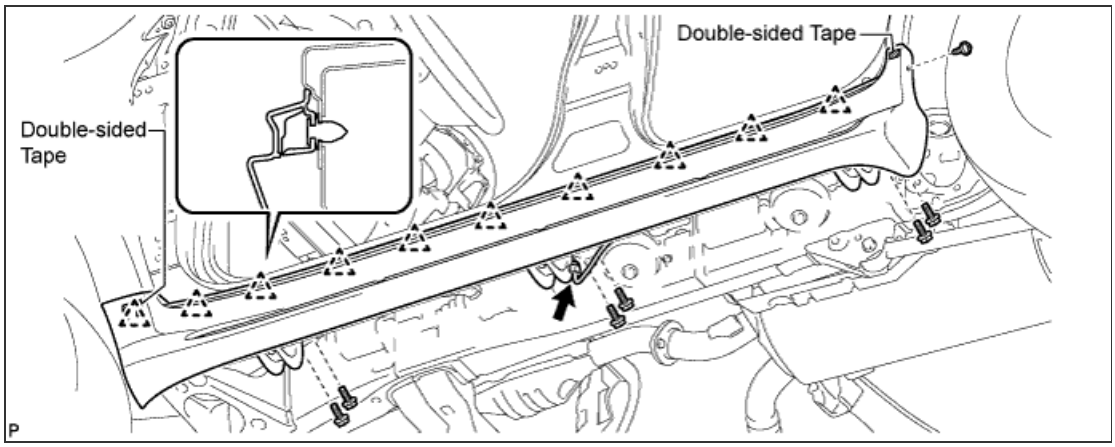
iii. Attach the 10 clips to install the side step.

iv. Install the 6 bolts.

Torque:
30 N*m{ 306 kgf*cm , 22 ft.*lbf }

v. Install the screw.

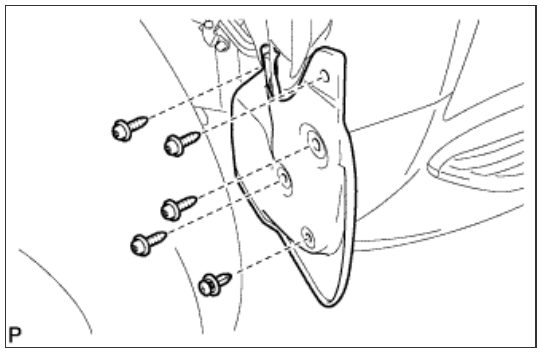
vi. Connect the connector.



14. INSTALL FRONT FENDER MUDGUARD LH

a. Install the mudguard with the clip.

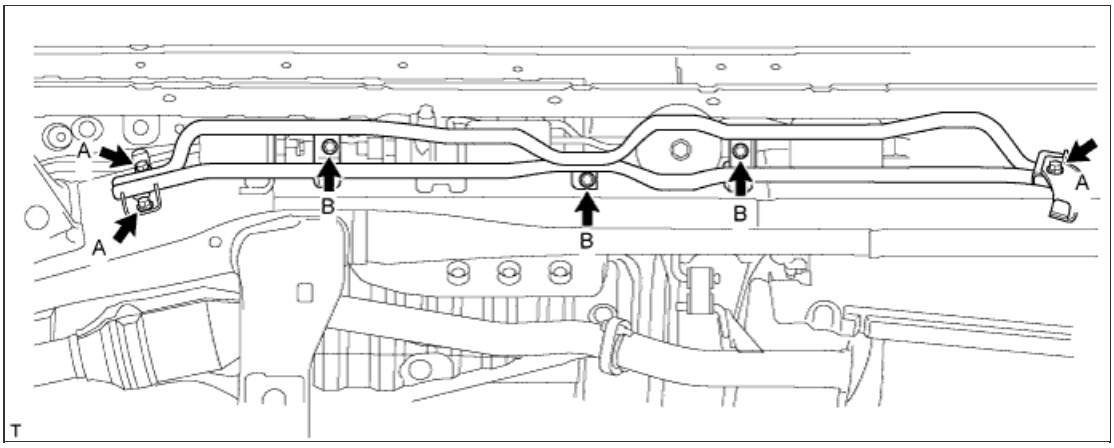
b. Using a T30 "TORX" socket, install the 4 screws.



15. INSTALL HEIGHT CONTROL PROTECTOR PIPE

a. Install the protector pipe with the 6 bolts.

Torque:
for bolt A:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }
for bolt B:
16 N*m{ 163 kgf*cm , 12 ft.*lbf }


A
A
B
B
B
A
T

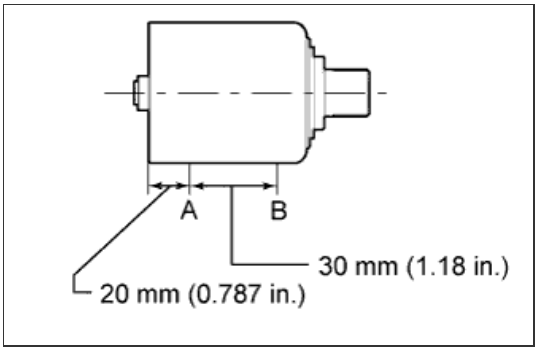
for Preparation Click here

1. DISPOSE OF FRONT NO. 1 SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

a. Place the accumulator in a vise and saw a hole between A and B shown in the illustration using a saw to discharge the gas inside.

CAUTION:

- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**

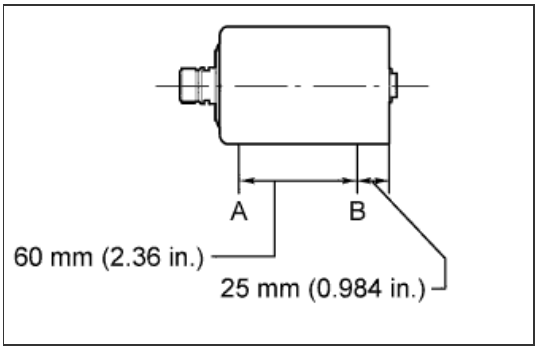


2. DISPOSE OF FRONT NO. 2 SUSPENSION CONTROL ACCUMULATOR

a. Place the accumulator in a vise and saw a hole between A and B shown in the illustration using a saw to discharge the gas inside.

CAUTION:

- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**

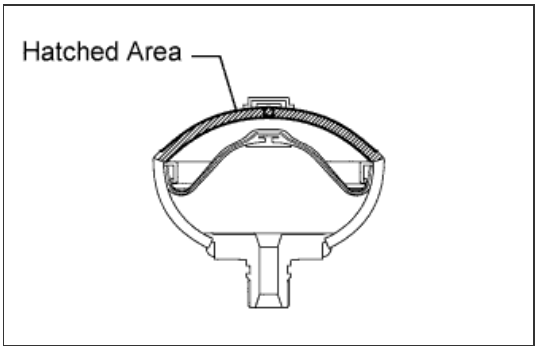


3. DISPOSE OF FRONT NO. 3 SUSPENSION CONTROL ACCUMULATOR

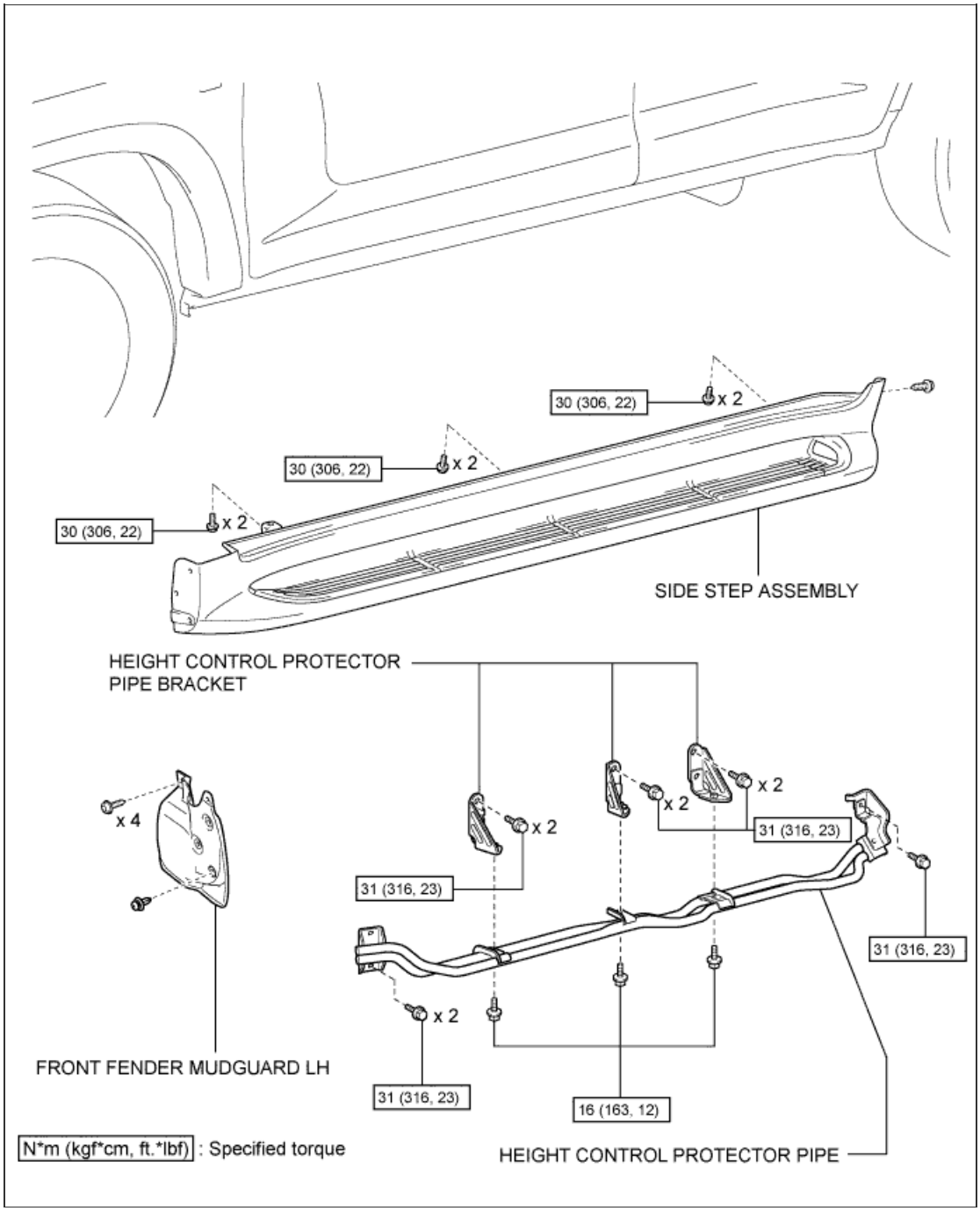
a. Place the gas chamber in a vise and saw a hole in the hatched area shown in the illustration using a saw to discharge the gas inside.

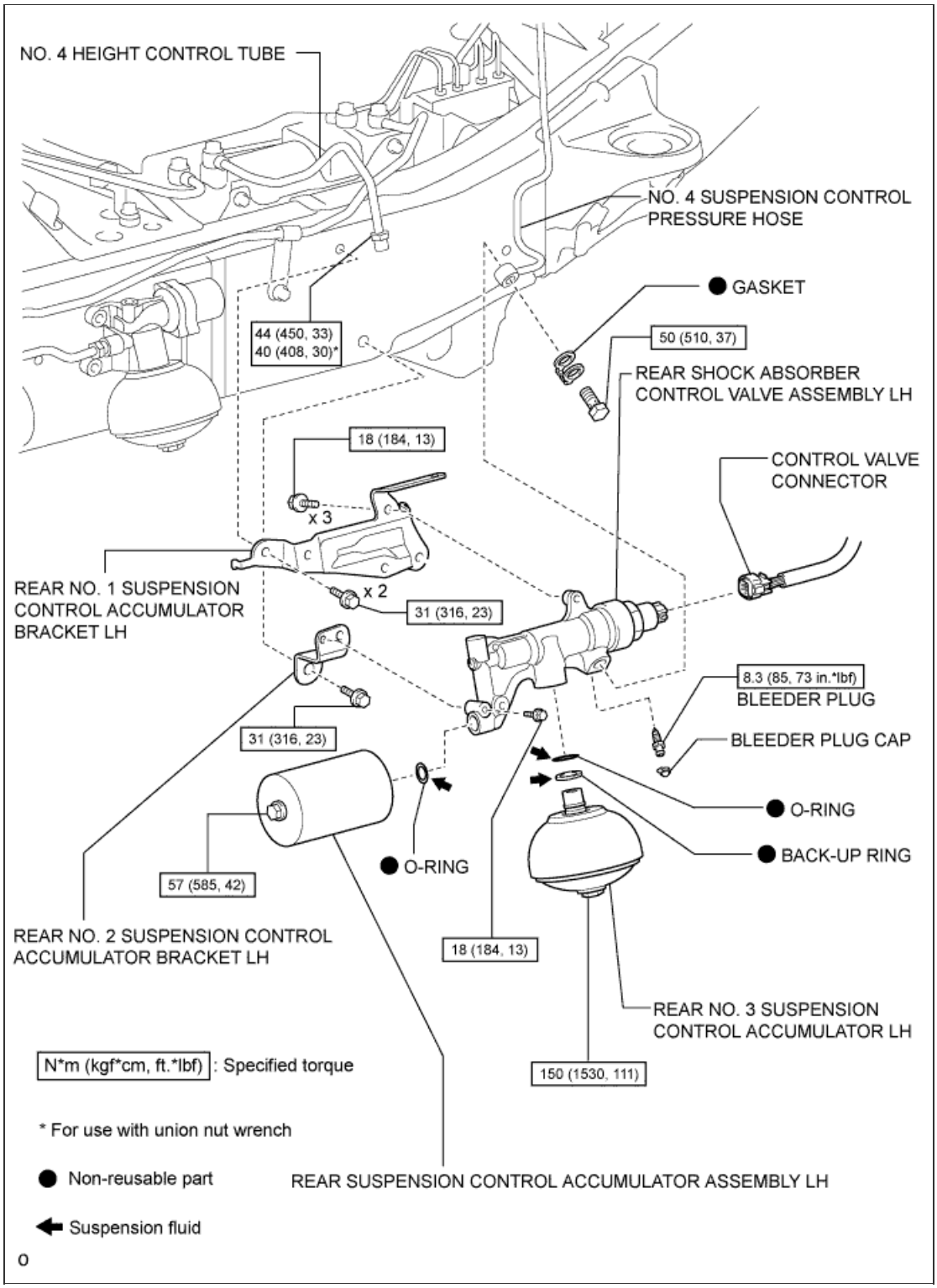
CAUTION:

- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**



for Preparation Click here



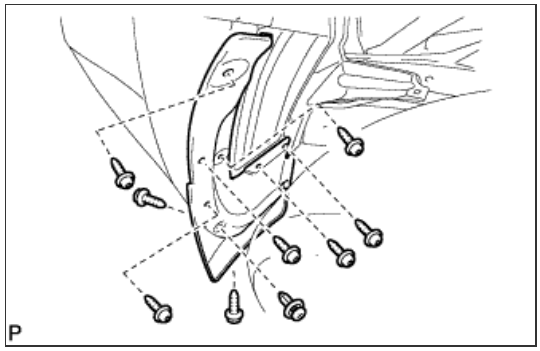

NO. 4 HEIGHT CONTROL TUBE
NO. 4 SUSPENSION CONTROL PRESSURE HOSE
GASKET
44 (450, 33)
40 (408, 30)*
50 (510, 37)
REAR SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH
18 (184, 13)
x 3
CONTROL VALVE CONNECTOR
REAR NO. 1 SUSPENSION CONTROL ACCUMULATOR BRACKET LH
x 2
31 (316, 23)
8.3 (85, 73 in.*lbf)
BLEEDER PLUG
31 (316, 23)
BLEEDER PLUG CAP
O-RING
BACK-UP RING
O-RING
57 (585, 42)
REAR NO. 2 SUSPENSION CONTROL ACCUMULATOR BRACKET LH
18 (184, 13)
REAR NO. 3 SUSPENSION CONTROL ACCUMULATOR LH
150 (1530, 111)
N*m (kgf*cm, ft.*lbf) : Specified torque
* For use with union nut wrench
Non-reusable part
Suspension fluid
REAR SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH
o

for Preparation Click here

1. REMOVE REAR QUARTER PANEL MUDGUARD RH

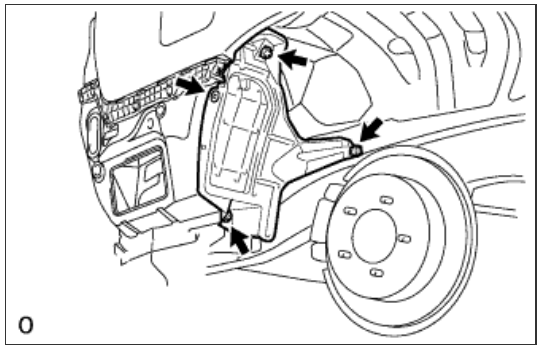
a. Remove the clip.

b. Using a T30 "TORX" socket, remove the 8 screws and mudguard.



2. REMOVE FUEL TANK FILLER PIPE PROTECTOR

a. Using a T30 "TORX" socket wrench, remove the 3 screws, 2 grommets and pipe protector.



3. INSPECT REAR SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

NOTICE:

Perform the following after inspecting and adjusting the vehicle height.

a. With the vehicle empty, start the engine and set the vehicle height to LOW.

b. Record the reservoir tank fluid level (A).

c. Set the vehicle height to HIGH.

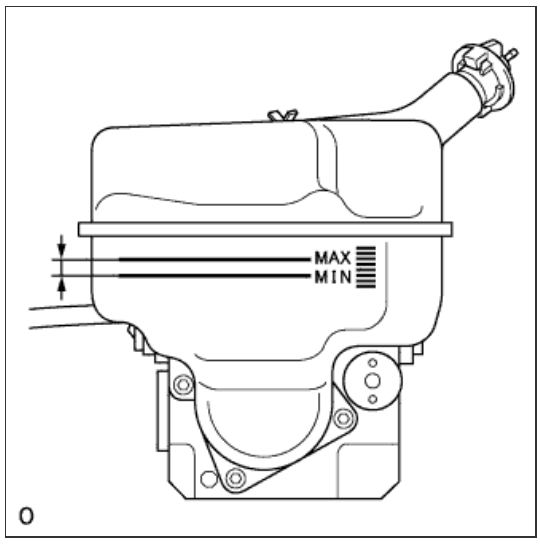
HINT:

Make sure to check the fluid level approximately 30 seconds after the vehicle height changes to HIGH.

d. Record the reservoir tank fluid level (B), and check that A minus B is within the specified value.

Specified Value:
A - B = 5 marks or more

If the result is not as specified, replace all suspension control accumulators.



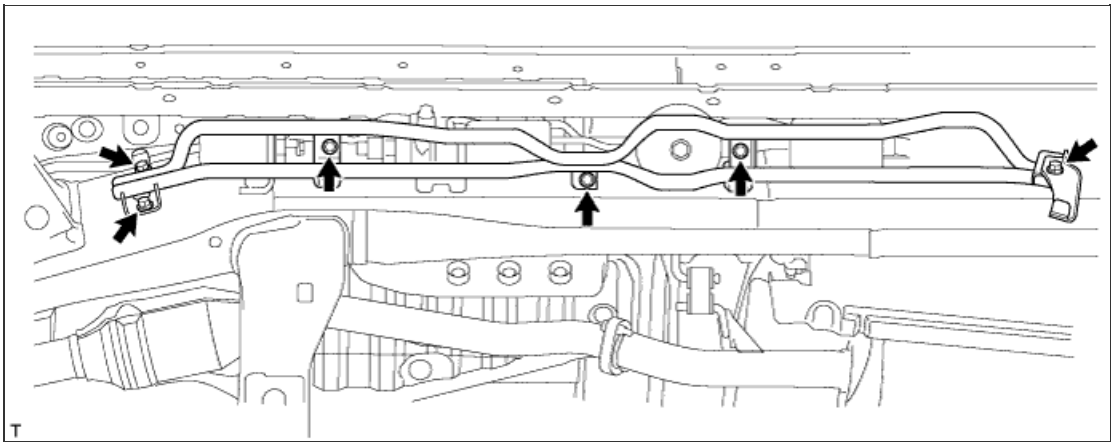
for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE HEIGHT CONTROL PROTECTOR PIPE

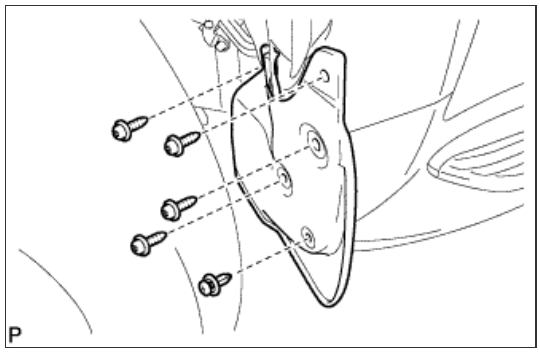
a. Remove the 6 bolts and protector pipe.



2. REMOVE FRONT FENDER MUDGUARD LH

a. Remove the clip.

b. Using a T30 "TORX" socket, remove the 4 screws and mudguard.

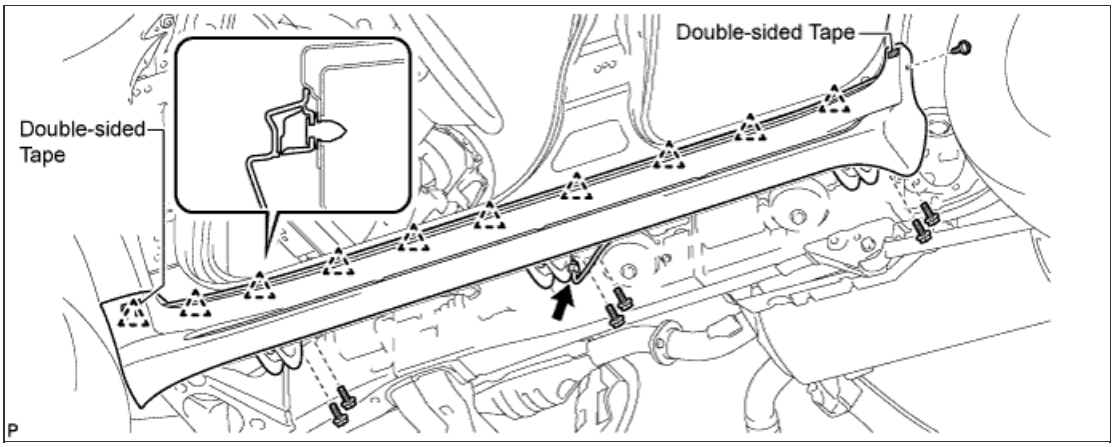


3. REMOVE SIDE STEP ASSEMBLY

a. Remove the screw and 6 bolts.

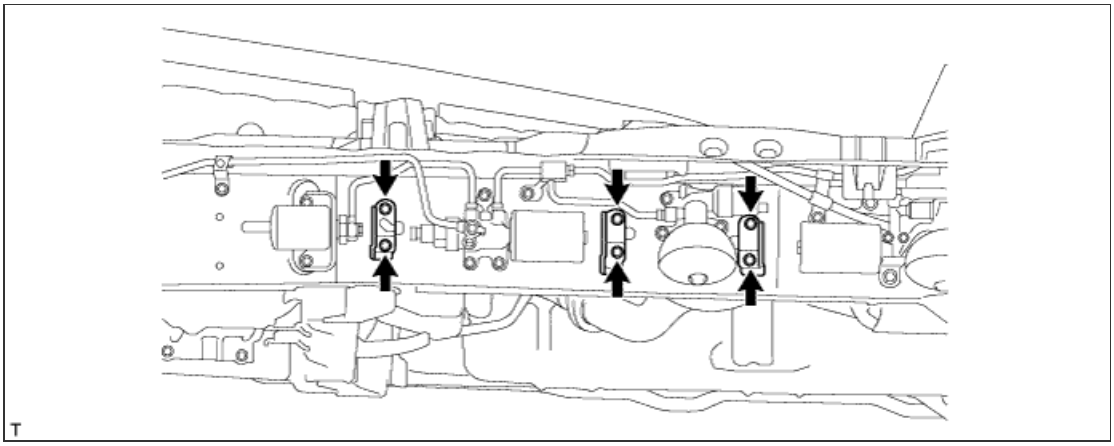
b. Disconnect the connector.

c. Detach the 10 clips and remove the double-sided tape to remove the side step.



4. REMOVE HEIGHT CONTROL PROTECTOR PIPE BRACKET

a. Remove the 6 bolts and 3 brackets from the frame.



5. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the shock absorber control valve and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

HINT:

Make sure to discharge the suspension fluid pressure from the front and rear damping force control actuators on the left and right sides.

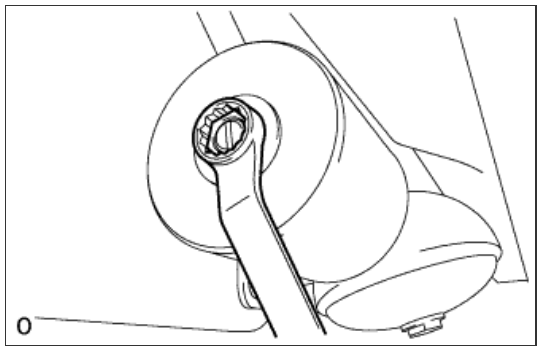
c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

6. REMOVE REAR SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

a. Remove the control accumulator from the control valve.

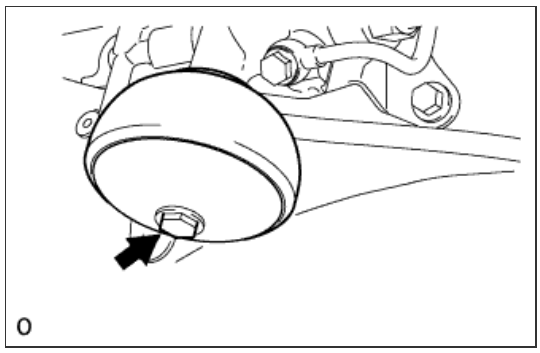
b. Remove the O-ring from the accumulator.



7. REMOVE REAR NO. 3 SUSPENSION CONTROL ACCUMULATOR LH

a. Remove the No. 3 suspension control accumulator from the control valve.

b. Remove the O-ring and back-up ring from the control accumulator.

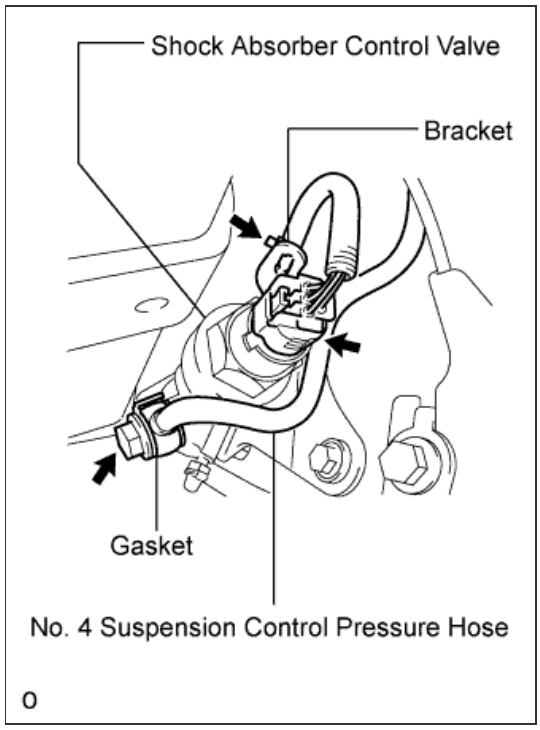


8. REMOVE REAR SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH

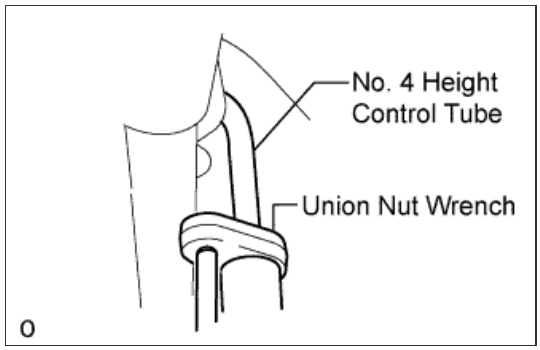
a. Disconnect the control valve connector.

b. Remove the union bolt and gasket from the No. 4 suspension control pressure hose.

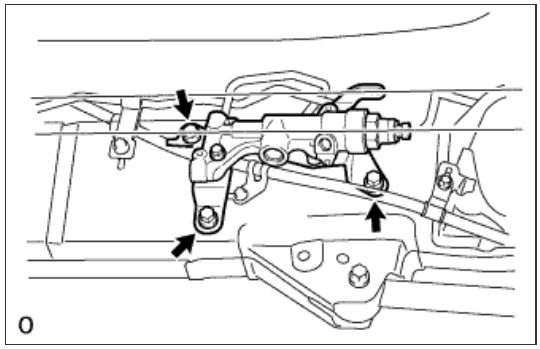
c. Disconnect the wire harness clamp from the control valve bracket.



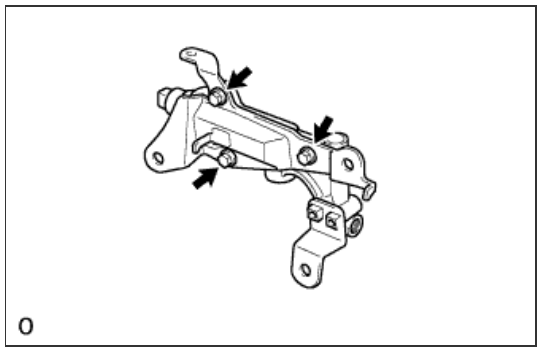
d. Using a union nut wrench, disconnect the No. 4 height control tube from the control valve.



e. Remove the 3 bolts and control valve with the bracket from the vehicle.



f. Remove the 3 bolts and bracket from the control valve.



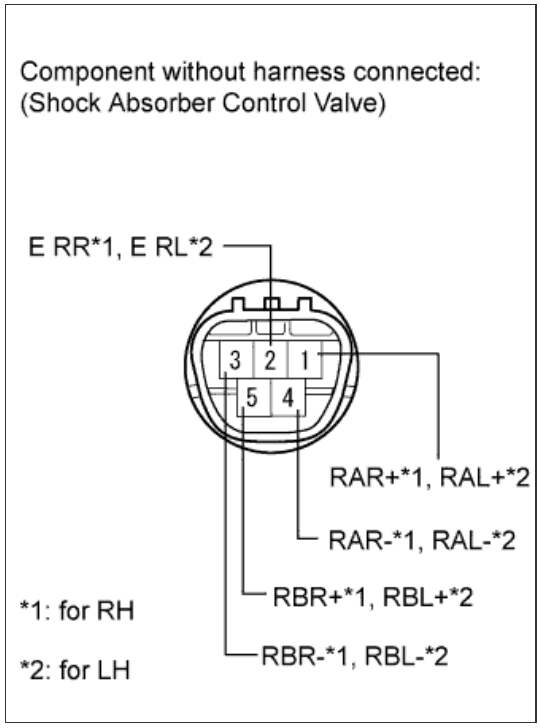
9. REMOVE REAR NO. 2 SUSPENSION CONTROL ACCUMULATOR BRACKET LH

a. Remove the bolt and bracket from the shock absorber control valve.

for Preparation Click here

1. INSPECT REAR SHOCK ABSORBER CONTROL VALVE ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

for RH

Tester Connection	Condition	Specified Condition
1 (RAR+) - 2 (E RR)	Always	12.0 to 13.6 Ω
3 (RBR-) - 2 (E RR)		
4 (RAR-) - 2 (E RR)		
5 (RBR+) - 2 (E RR)		

for LH

Tester Connection	Condition	Specified Condition
1 (RAL+) - 2 (E RL)	Always	12.0 to 13.6 Ω
3 (RBL-) - 2 (E RL)		
4 (RAL-) - 2 (E RL)		
5 (RBL+) - 2 (E RL)		

If the result is not as specified, replace the shock absorber control valve.

for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL REAR NO. 2 SUSPENSION CONTROL ACCUMULATOR BRACKET LH

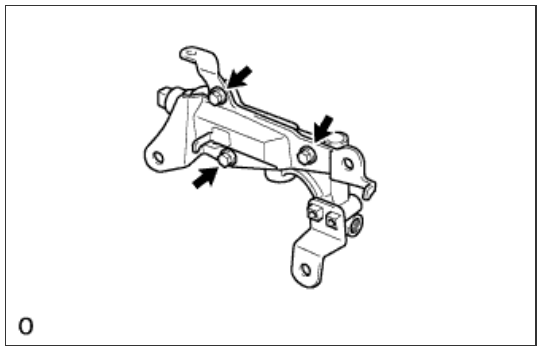
a. Install the bracket to the shock absorber control valve with the bolt.

Torque:
18 N*m{ 184 kgf*cm , 13 ft.*lbf }

2. INSTALL REAR SHOCK ABSORBER CONTROL VALVE ASSEMBLY LH

a. Install the bracket to the control valve with the 3 bolts.

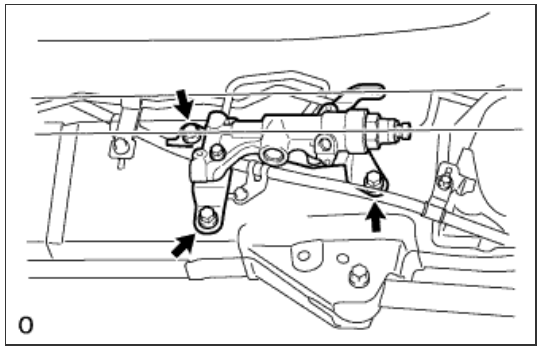
Torque:
18 N*m{ 184 kgf*cm , 13 ft.*lbf }



b. Install the control valve together with the bracket to the vehicle with the 3 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }

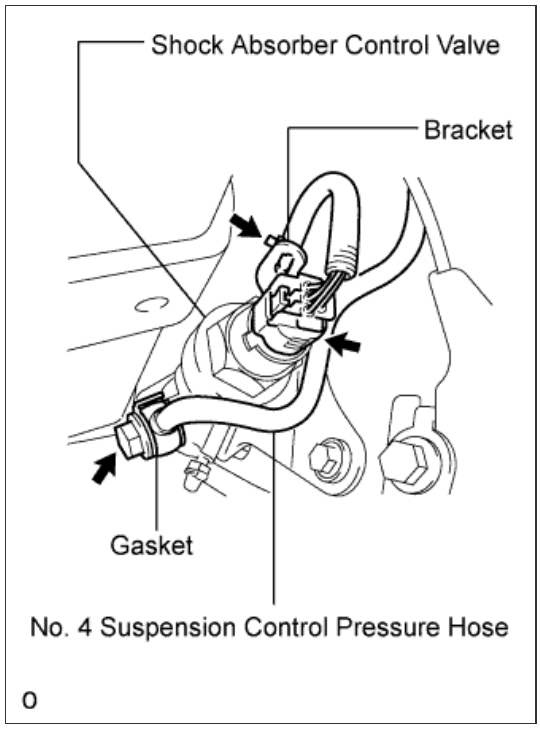
c. Connect the control valve connector.



d. Connect the wire harness clamp to the control valve bracket.

e. Install a new gasket to the No. 4 suspension control pressure hose, and connect the hose to the control valve with the union bolt.

Torque:
50 N*m{ 510 kgf*cm , 37 ft.*lbf }

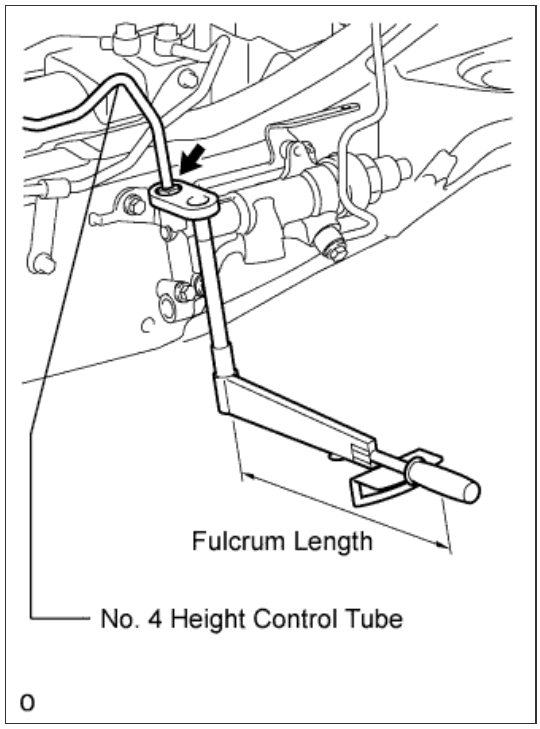


f. Using a union nut wrench, connect the No. 4 height control tube to the control valve.

Torque:
without union nut wrench:
44 N*m{ 450 kgf*cm , 33 ft.*lbf }
with union nut wrench:
40 N*m{ 408 kgf*cm , 30 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

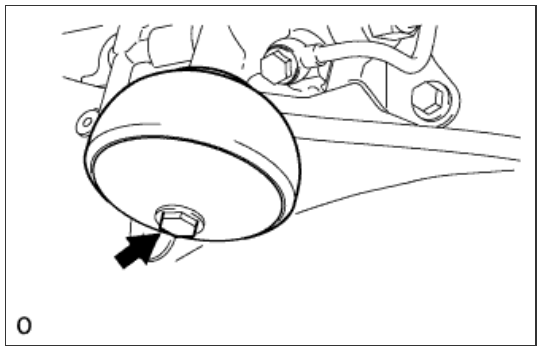


3. INSTALL REAR NO. 3 SUSPENSION CONTROL ACCUMULATOR LH

a. Apply a small amount of suspension fluid to a new O-ring and new back-up ring and install them to the accumulator.

b. Install the No. 3 suspension control accumulator to the control valve.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

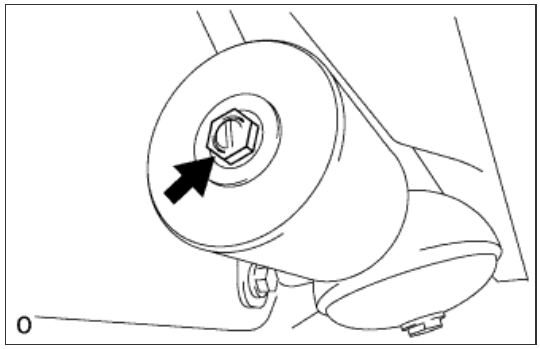


4. INSTALL REAR SUSPENSION CONTROL ACCUMULATOR ASSEMBLY LH

a. Apply a small amount of suspension fluid to a new O-ring and install it to the accumulator.

b. Install the control accumulator to the control valve.

Torque:
57 N*m{ 585 kgf*cm , 42 ft.*lbf }



5. BLEED AIR FROM SUSPENSION FLUID

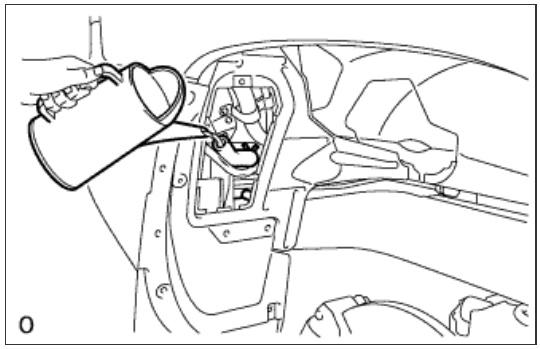
a. With the engine stopped, fill the reservoir tank with fluid.

NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.



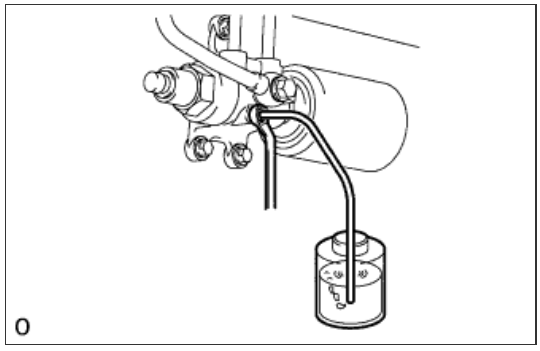
b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.



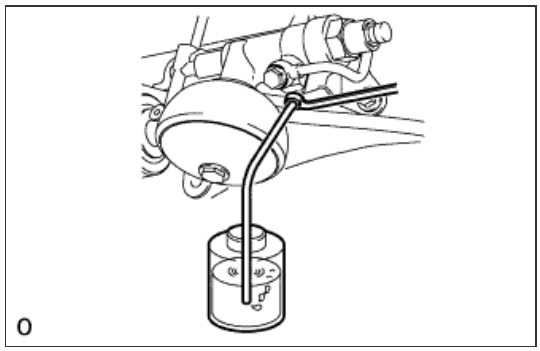
e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

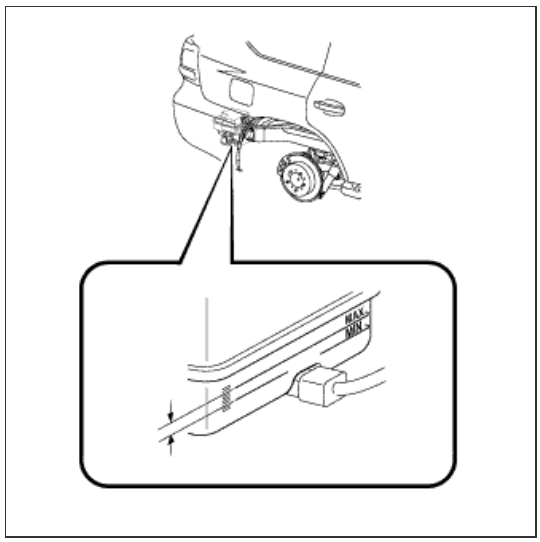
HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

6. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).



HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.

7. INSPECT FOR SUSPENSION FLUID LEAK

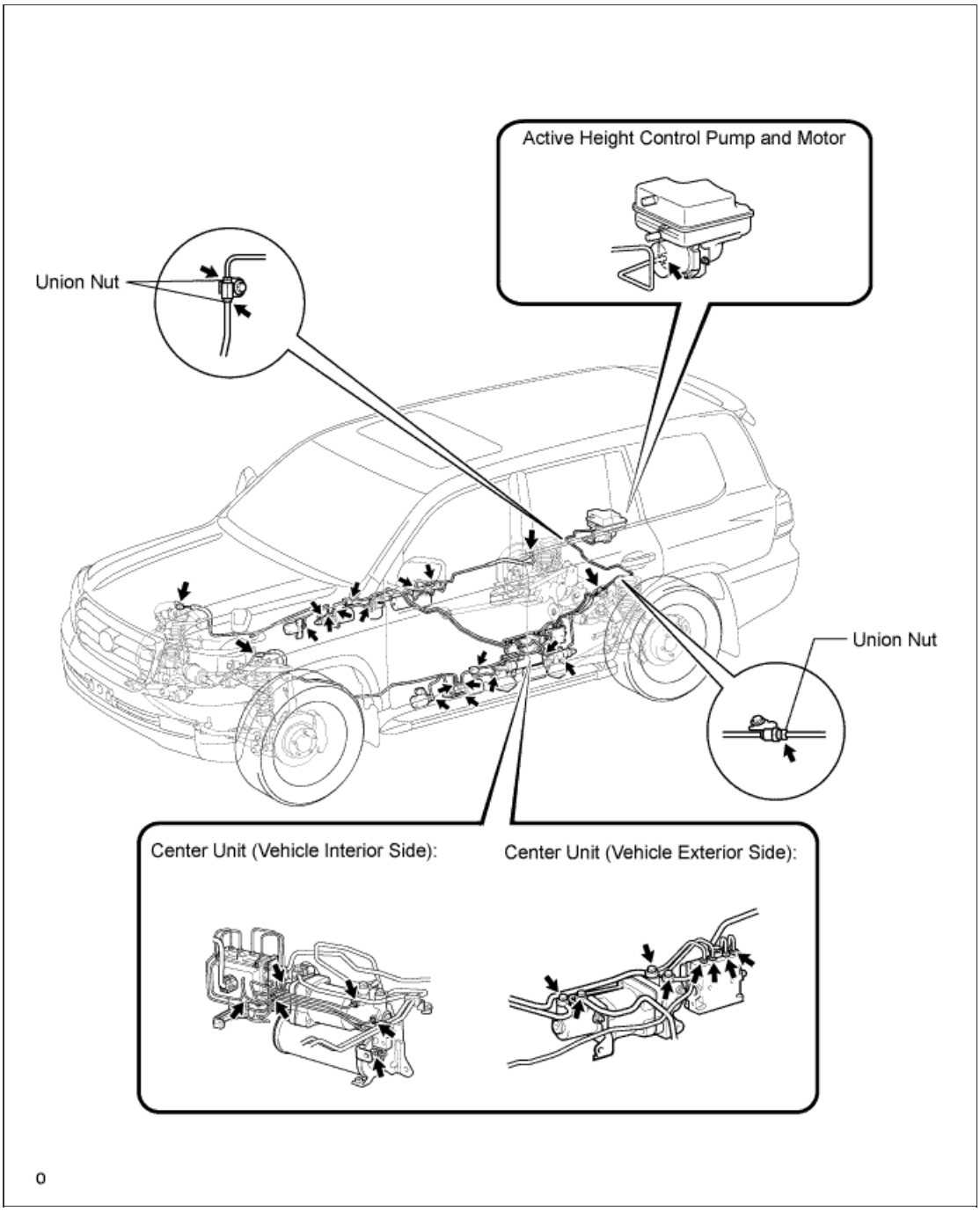
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



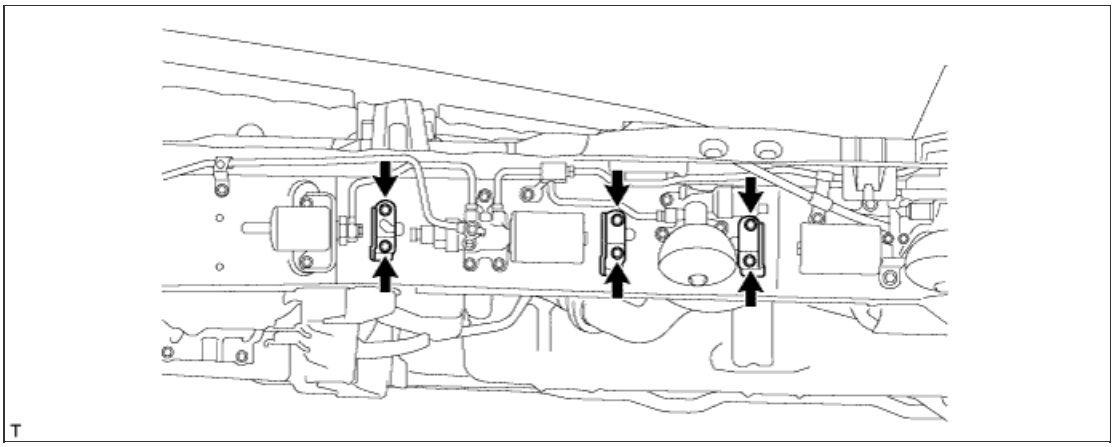
HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

8. INSTALL HEIGHT CONTROL PROTECTOR PIPE BRACKET

a. Install the 3 brackets with the 6 bolts.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }



9. INSTALL SIDE STEP ASSEMBLY

a. Clean the vehicle body surface.

i. Using a heat light, heat the vehicle body surface.

ii. Remove the double-sided tape from the vehicle body.

iii. Wipe off any tape adhesive residue with cleaner.

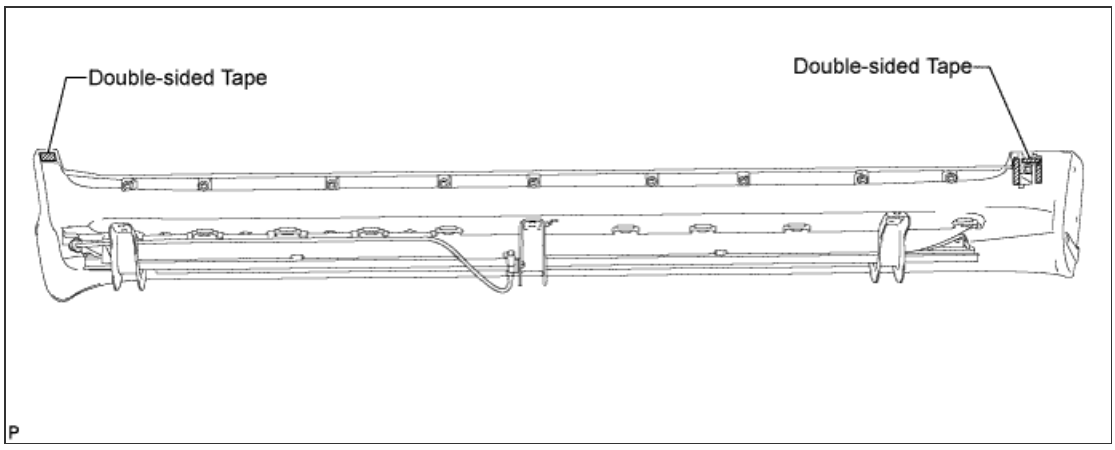
b. If reusing the side step:
Clean the side step.

i. Using a heat light, heat the side step.

ii. Remove the double-sided tape from the side step.

iii. Wipe off any tape adhesive residue with cleaner.

iv. Apply new double-sided tape to the side step, as shown in the illustration.



c. Install the side step.

i. Using a heat light, heat the vehicle body and side step.

ii. Remove the peeling paper from the face of the side step.

HINT:

After removing the peeling paper, keep the exposed adhesive free from foreign matter.

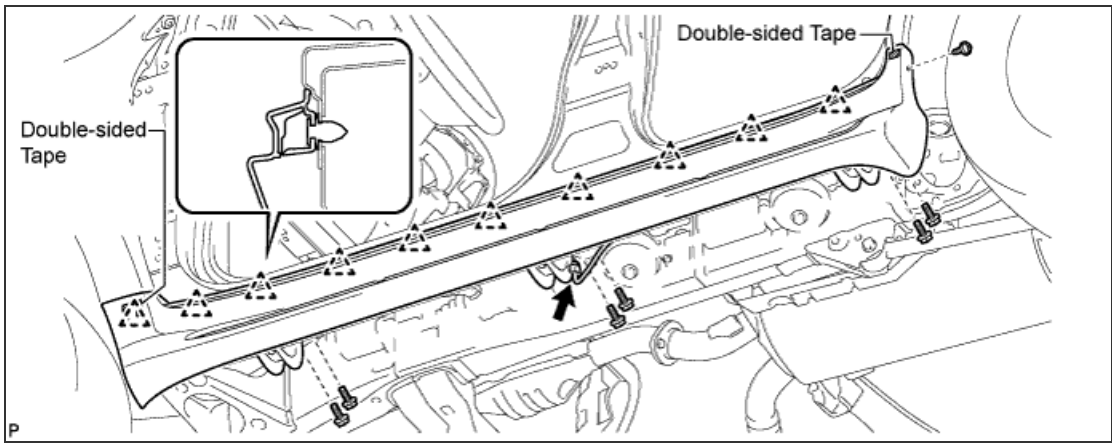
iii. Attach the 10 clips to install the side step.

iv. Install the 6 bolts.

Torque:
30 N*m{ 306 kgf*cm , 22 ft.*lbf }

v. Install the screw.

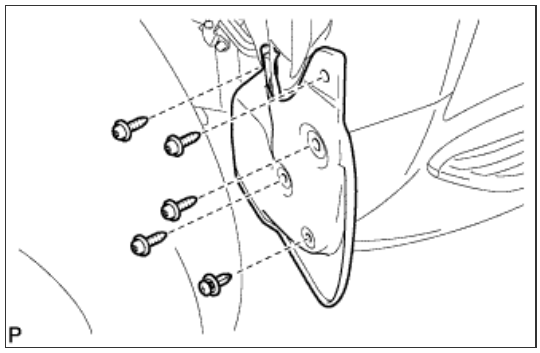
vi. Connect the connector.



10. INSTALL FRONT FENDER MUDGUARD LH

a. Install the mudguard with the clip.

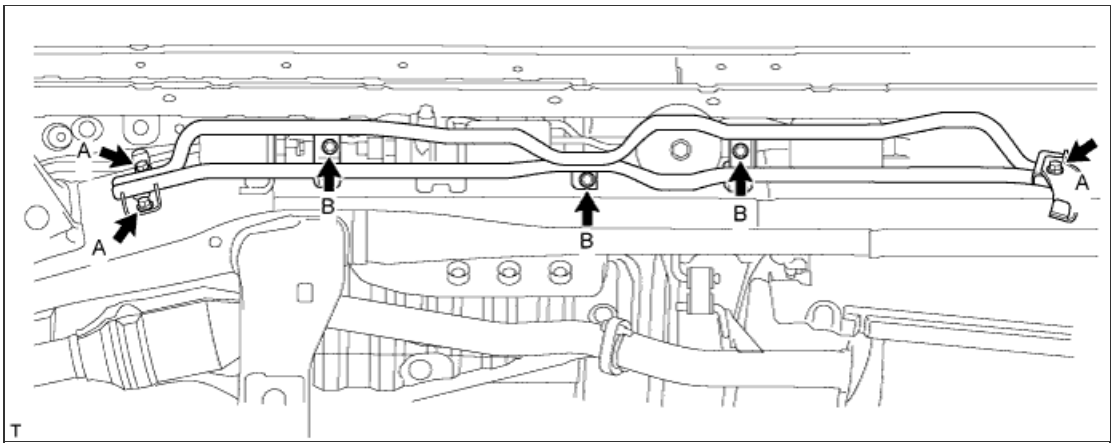
b. Using a T30 "TORX" socket, install the 4 screws.



11. INSTALL HEIGHT CONTROL UNIT PROTECTOR ASSEMBLY LH

a. Install the protector pipe with the 6 bolts.

Torque:
for bolt A:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }
for bolt B:
16 N*m{ 163 kgf*cm , 12 ft.*lbf }


A
A
B
B
B
A
T

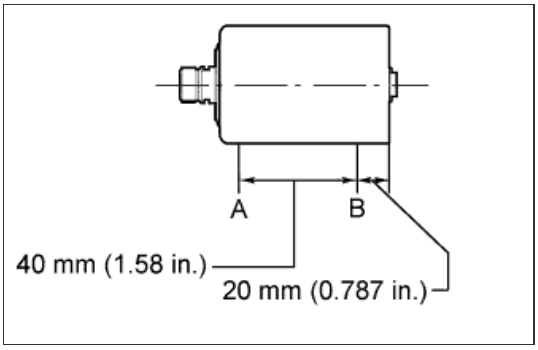
for Preparation Click here

1. DISPOSE OF REAR SUSPENSION CONTROL ACCUMULATOR

a. Place the accumulator in a vise and saw a hole between A and B shown in the illustration using a saw to discharge the gas inside.

CAUTION:

- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**

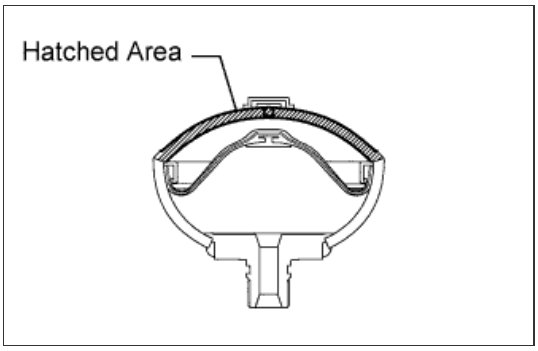


2. DISPOSE OF REAR NO. 3 SUSPENSION CONTROL ACCUMULATOR

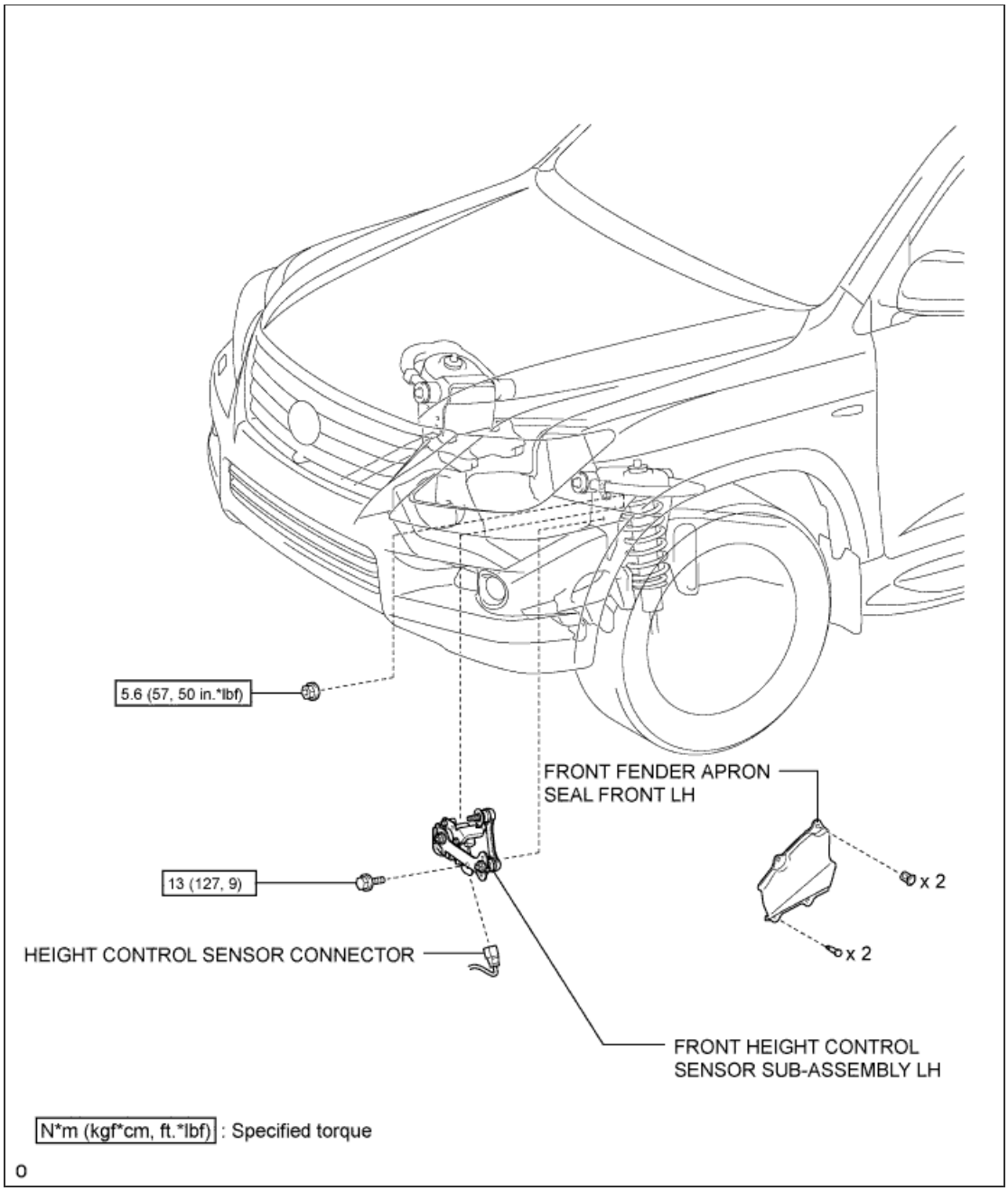
a. Place the gas chamber in a vise and saw a hole in the hatched area shown in the illustration using a saw to discharge the gas inside.

CAUTION:

- **The gas is colorless, odorless and harmless.**
- **Saw a hole while covering the saw with a cloth because chips may fly up.**



for Preparation Click here



for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

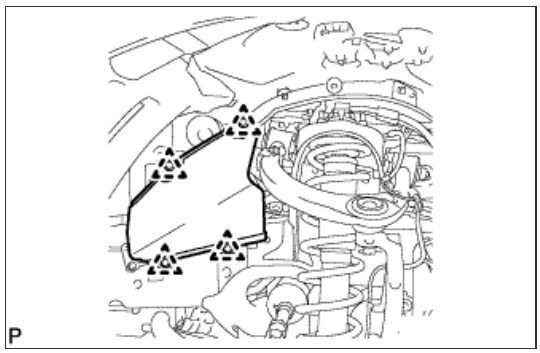
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT WHEEL

4. REMOVE FRONT FENDER APRON SEAL FRONT LH

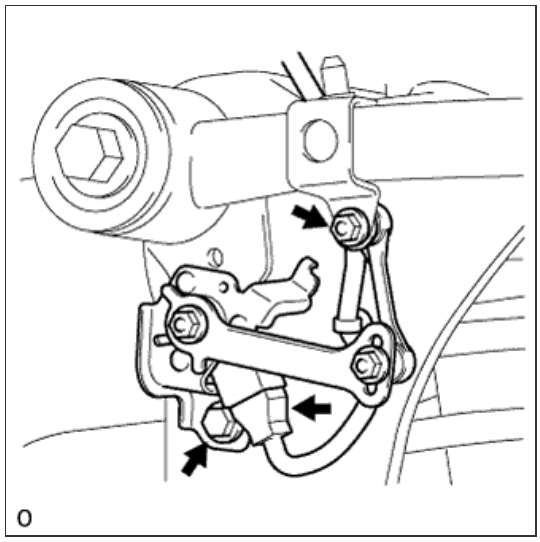
a. Using a clip remover, remove the 4 clips and fender apron seal.



5. REMOVE FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector.

b. Remove the nut, bolt and sensor.



for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

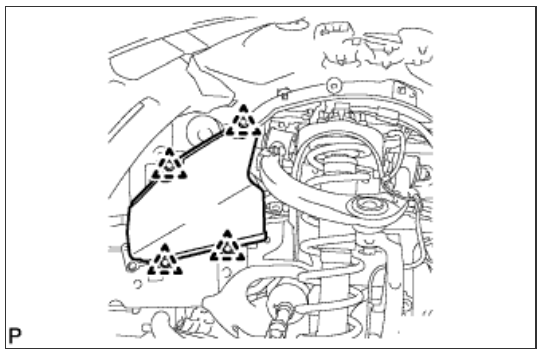
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT WHEEL

4. REMOVE FRONT FENDER APRON SEAL FRONT LH

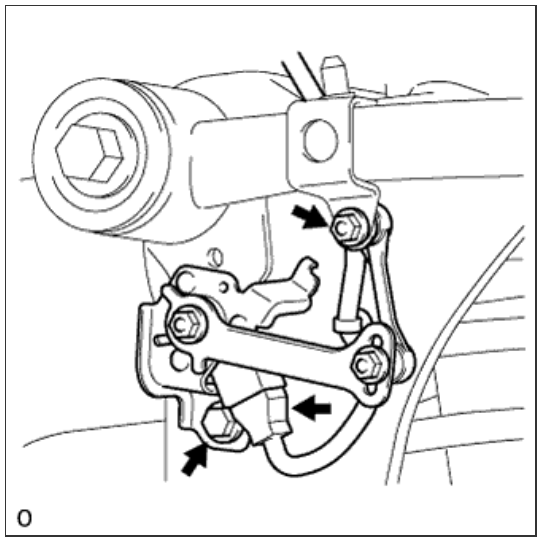
a. Using a clip remover, remove the 4 clips and fender apron seal.



5. REMOVE FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector.

b. Remove the nut, bolt and sensor.



for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

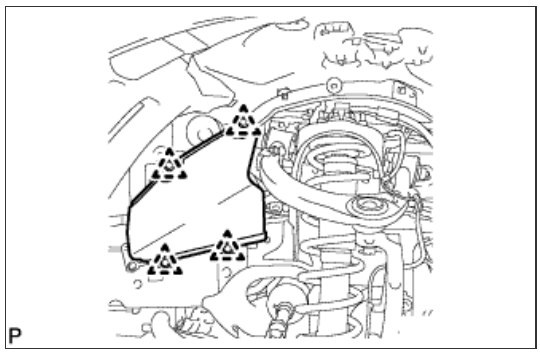
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT WHEEL

4. REMOVE FRONT FENDER APRON SEAL FRONT LH

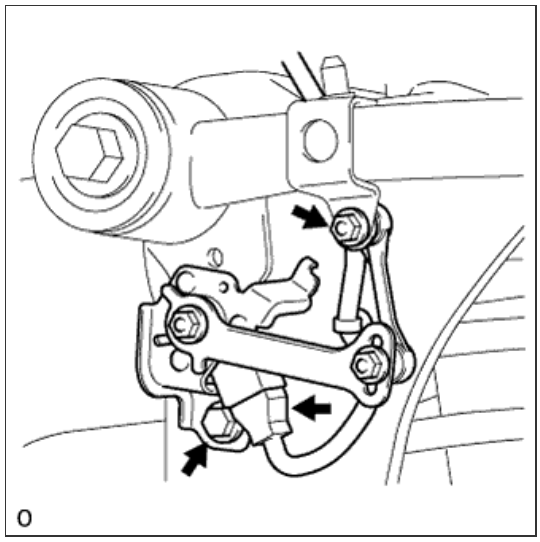
a. Using a clip remover, remove the 4 clips and fender apron seal.



5. REMOVE FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

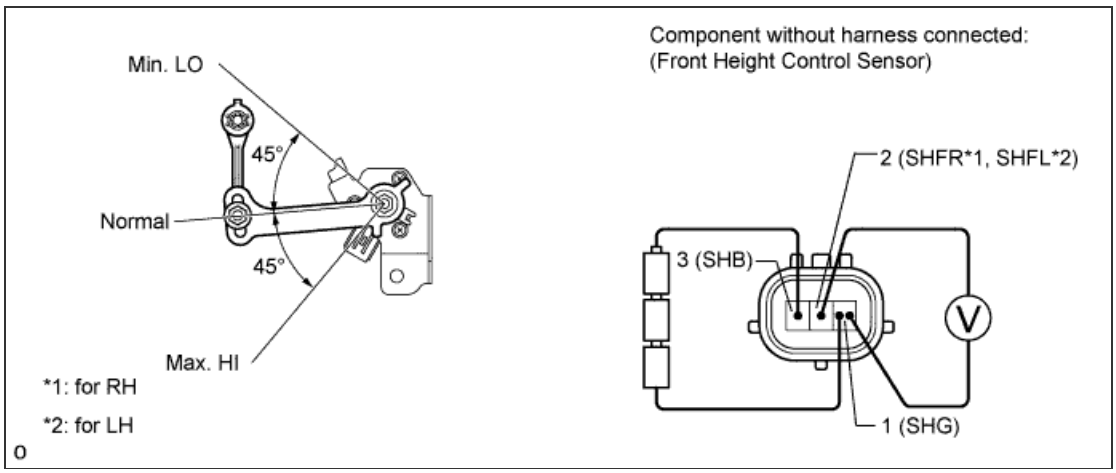
a. Disconnect the connector.

b. Remove the nut, bolt and sensor.



for Preparation Click here

1. INSPECT FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH



NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.

a. Connect 3 dry batteries of 1.5 V in series.

b. Connect the positive (+) end of the batteries to terminal 3 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 1 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHFR*1, SHFL*2) and terminal 1 (SHG).

HINT:

*1: for RH

*2: for LH

i. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHFR) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHFL) - 1 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

NOTICE:

Do not apply a voltage of higher than 6 V.

If the result is not as specified, replace the front height control sensor.

for Preparation Click here

1. ADJUST FRONT HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

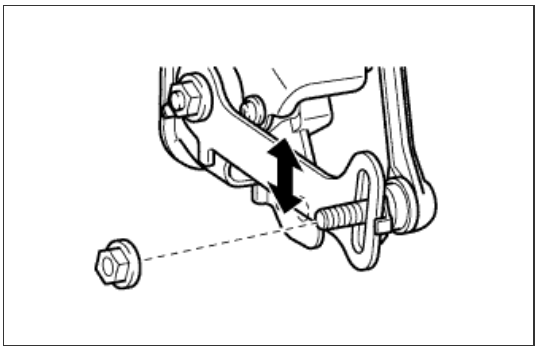
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



2. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

3. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

4. ADJUST FRONT WHEEL ALIGNMENT

a. Adjust the front wheel alignment (Click here).

5. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

for Preparation Click here

HINT:

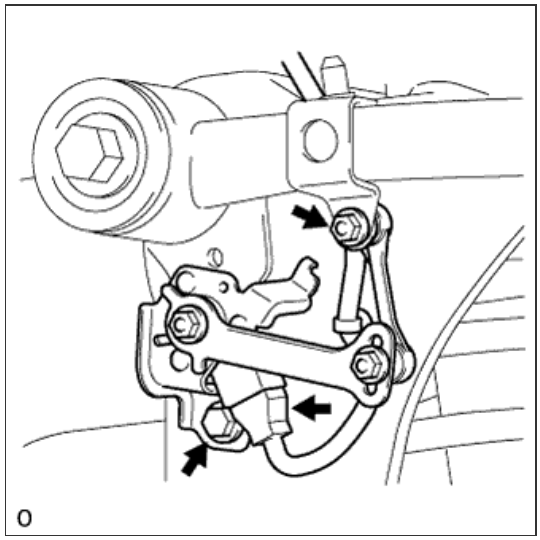
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the bolt and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector.



2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

5. ADJUST FRONT HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

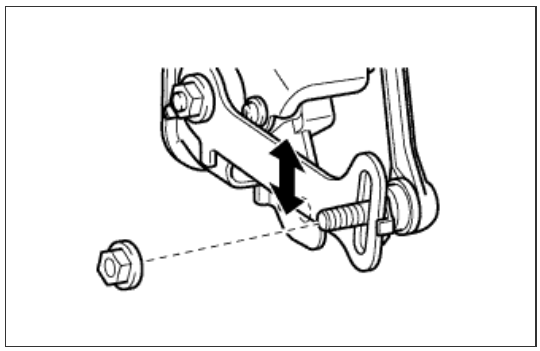
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

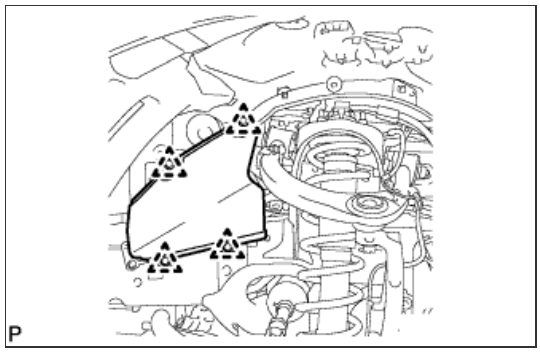
b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



6. INSTALL FRONT FENDER APRON SEAL FRONT LH

a. Install the fender apron seal with the 4 clips.



7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

for Preparation Click here

HINT:

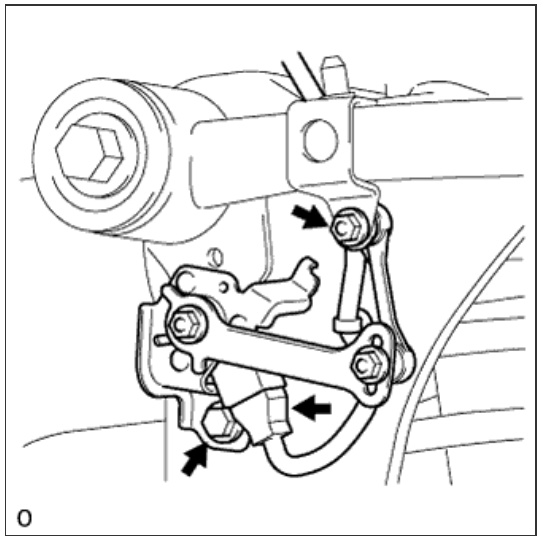
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the bolt and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector.



2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

5. ADJUST FRONT HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

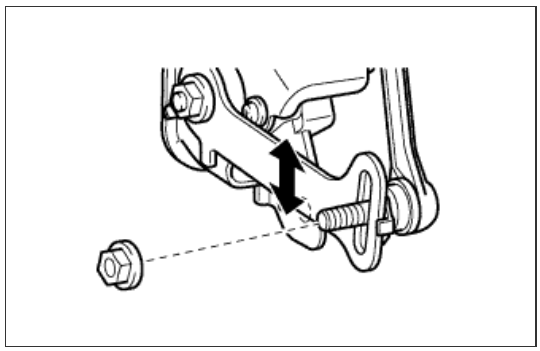
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

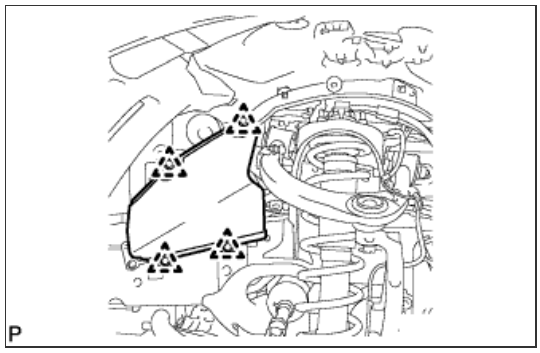
b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



6. INSTALL FRONT FENDER APRON SEAL FRONT LH

a. Install the fender apron seal with the 4 clips.



7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

for Preparation Click here

HINT:

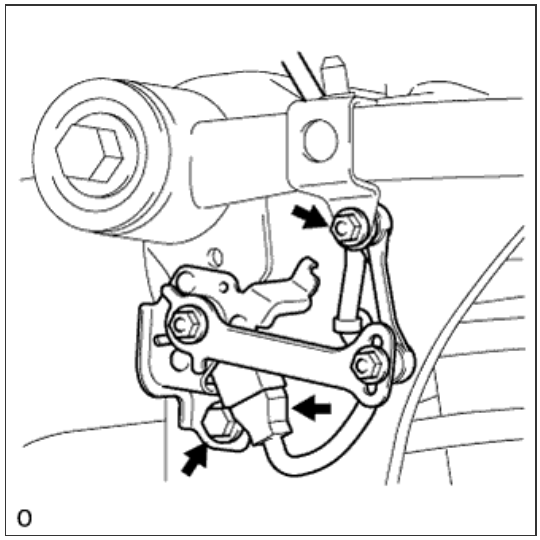
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the bolt and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector.



2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

5. ADJUST FRONT HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

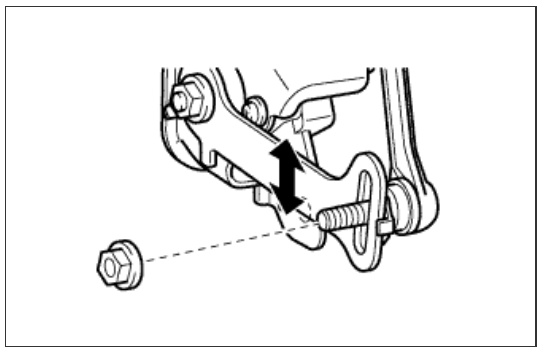
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

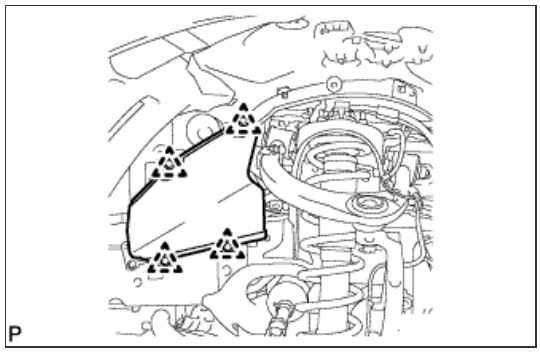
b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



6. INSTALL FRONT FENDER APRON SEAL FRONT LH

a. Install the fender apron seal with the 4 clips.



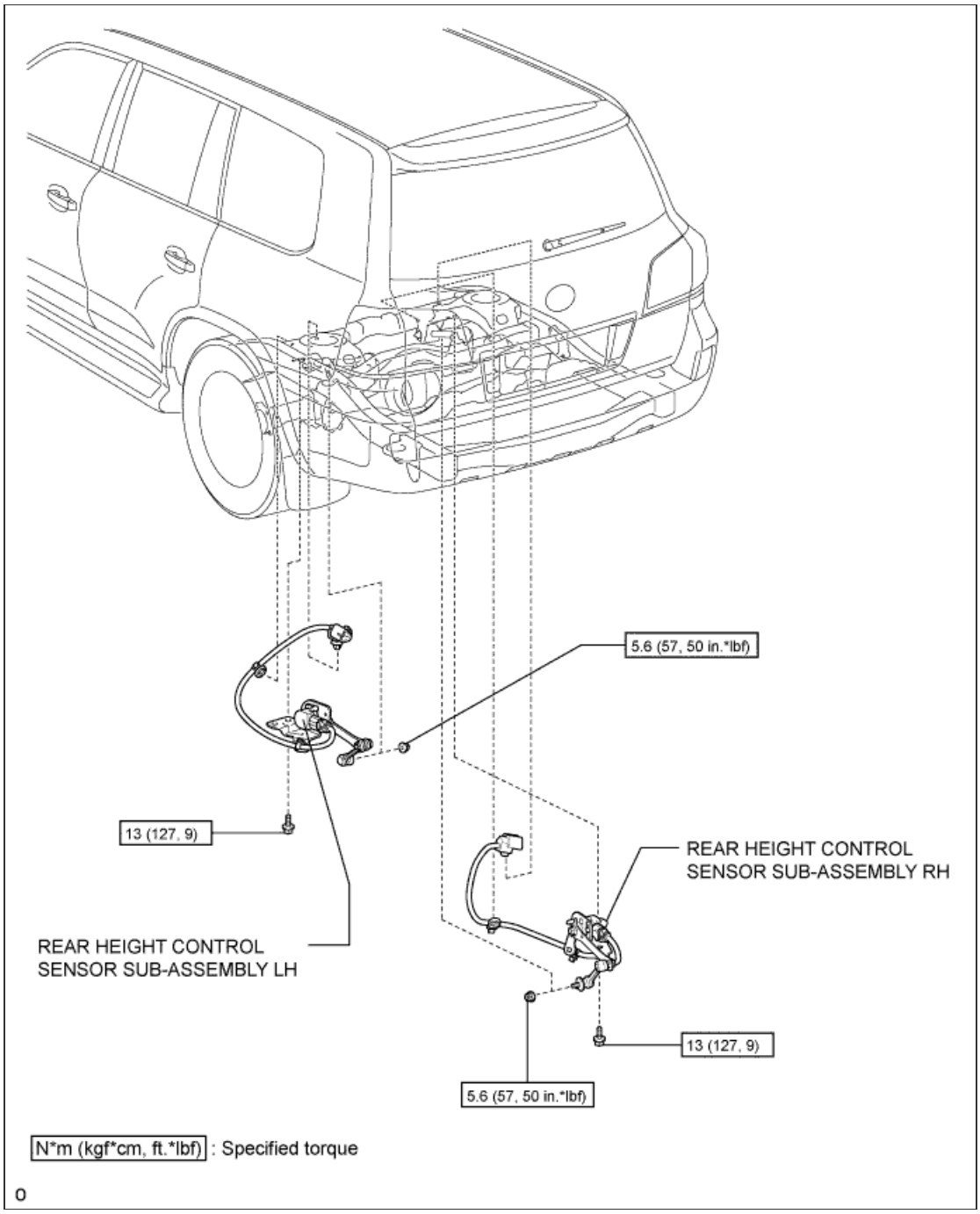
7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

for Preparation Click here



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

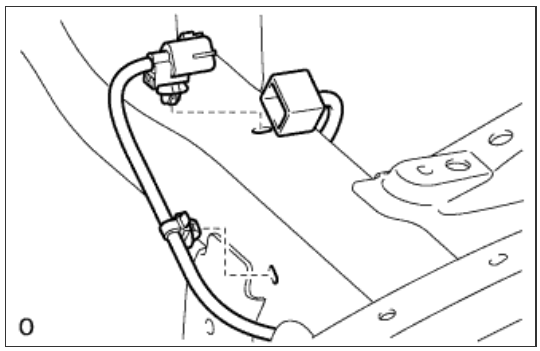
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

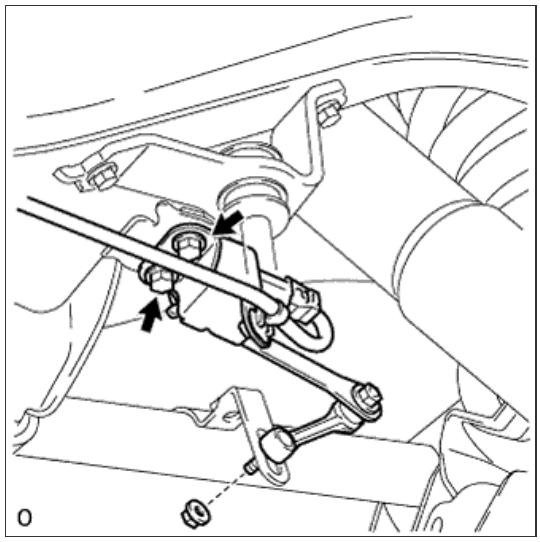
3. REMOVE REAR WHEEL

4. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector and 2 clamps.

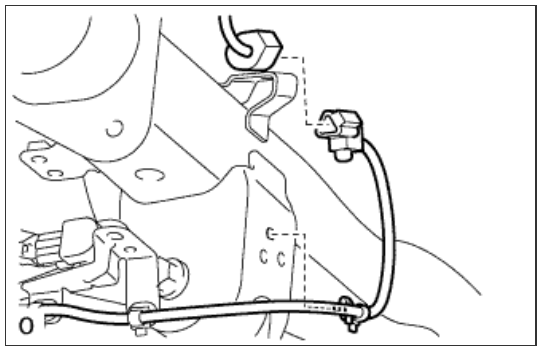


b. Remove the 2 bolts, nut and sensor.

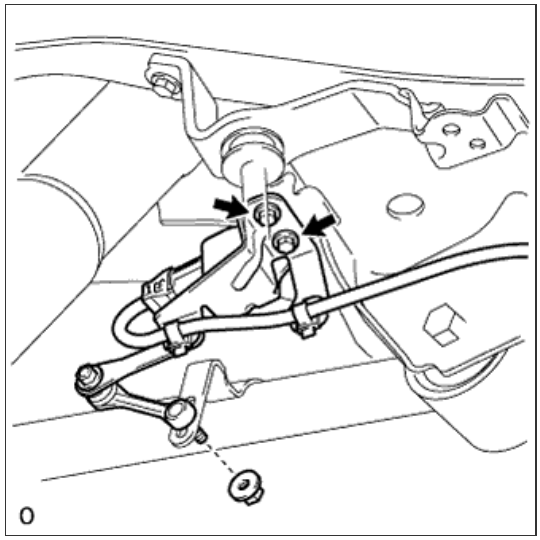


5. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Disconnect the connector and 2 clamps.



b. Remove the 2 bolts, nut and sensor.



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

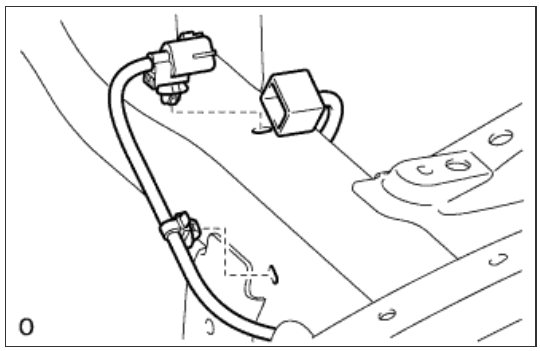
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

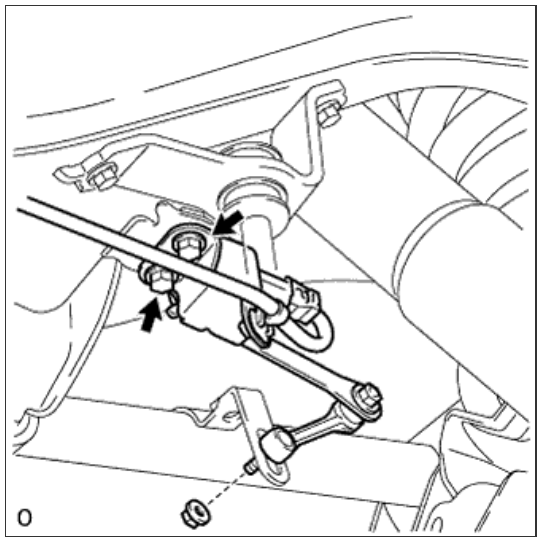
3. REMOVE REAR WHEEL

4. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector and 2 clamps.

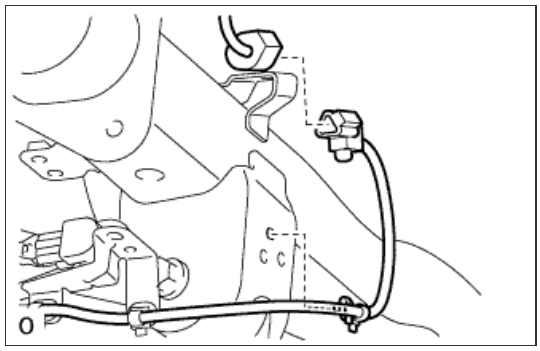


b. Remove the 2 bolts, nut and sensor.

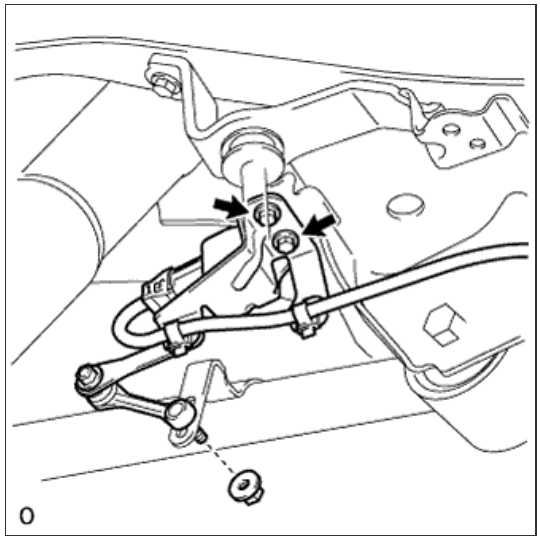


5. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Disconnect the connector and 2 clamps.



b. Remove the 2 bolts, nut and sensor.



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

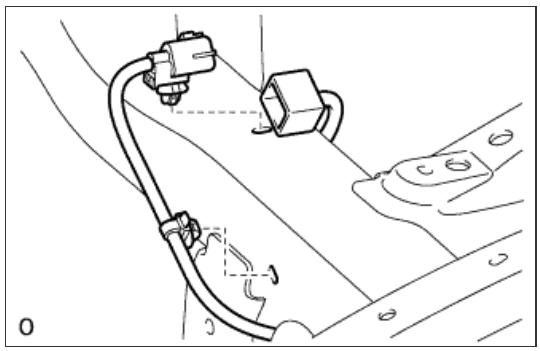
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

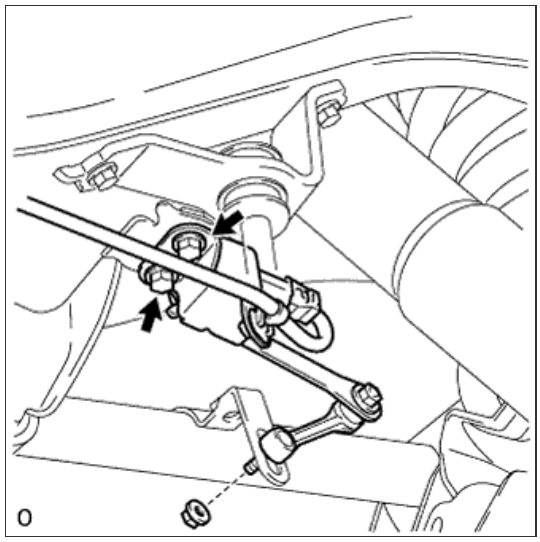
3. REMOVE REAR WHEEL

4. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector and 2 clamps.

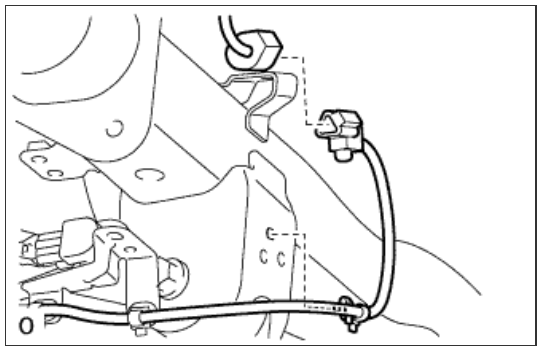


b. Remove the 2 bolts, nut and sensor.

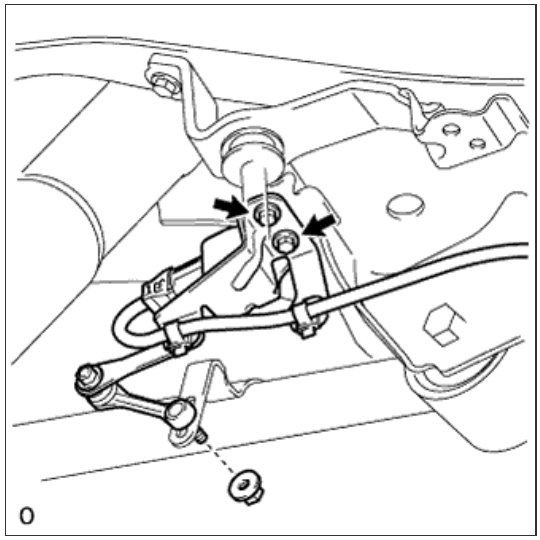


5. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Disconnect the connector and 2 clamps.

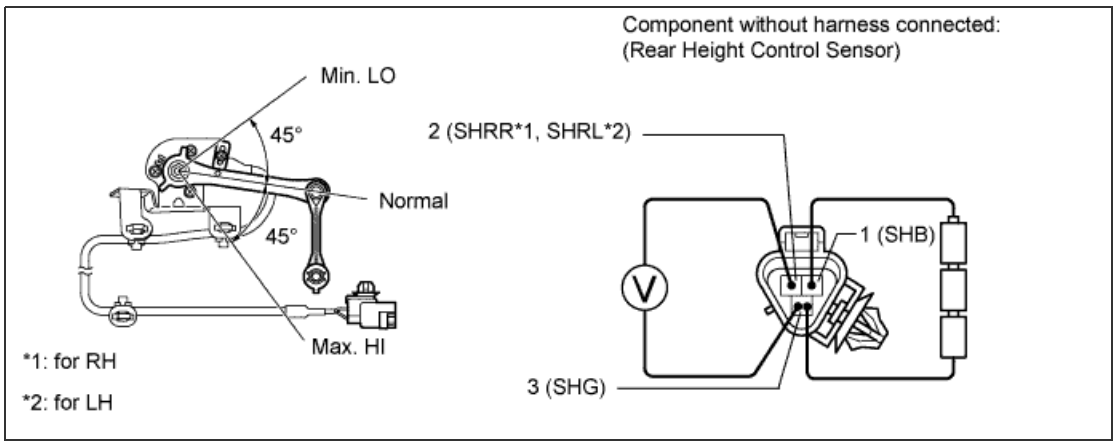


b. Remove the 2 bolts, nut and sensor.



for Preparation Click here

1. INSPECT REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH



NOTICE:

Do not drop the height control sensor. If it is dropped, replace it with a new one.

a. Connect 3 dry batteries of 1.5 V in series.

b. Connect the positive (+) end of the batteries to terminal 1 (SHB) of the height control sensor and the negative (-) end of the batteries to terminal 3 (SHG). While slowly moving the sensor link up and down, measure the voltage between terminal 2 (SHRR*1, SHRL*2) and terminal 3 (SHG).

HINT:

*1: for RH

*2: for LH

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
2 (SHRR) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

for LH

Tester Connection	Condition	Specified Condition
2 (SHRL) - 3 (SHG)	Max. HI	Approx. 4.1 V
	Normal	Approx. 2.25 V
	Min. LO	Approx. 0.45 V

NOTICE:

Do not apply a voltage of higher than 6 V.

If the result is not as specified, replace the rear height control sensor.

for Preparation Click here

1. ADJUST REAR HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

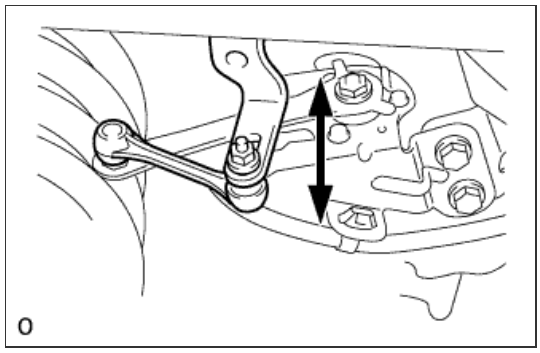
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



2. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

3. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

4. ADJUST FRONT WHEEL ALIGNMENT

a. Adjust the front wheel alignment (Click here).

5. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

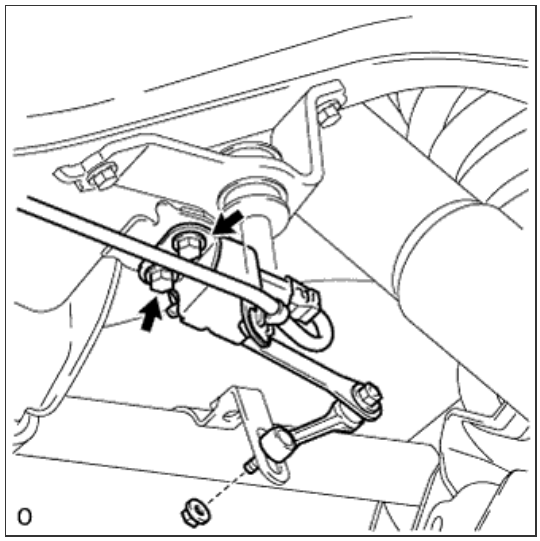
for Preparation Click here

1. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.

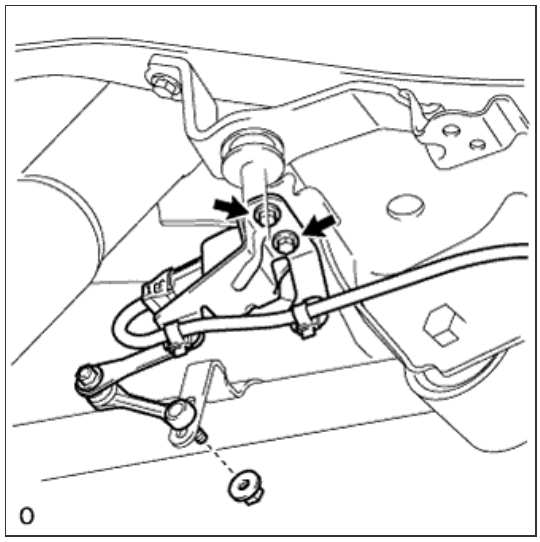


2. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.



3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

5. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

6. ADJUST REAR HEIGHT SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

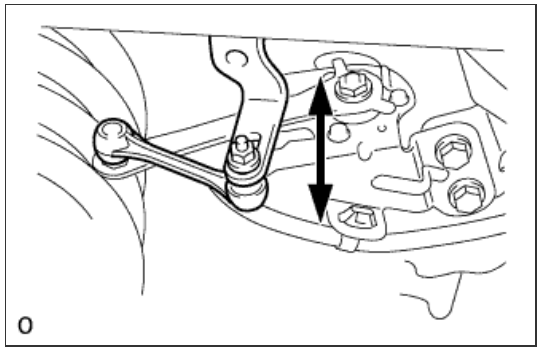
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

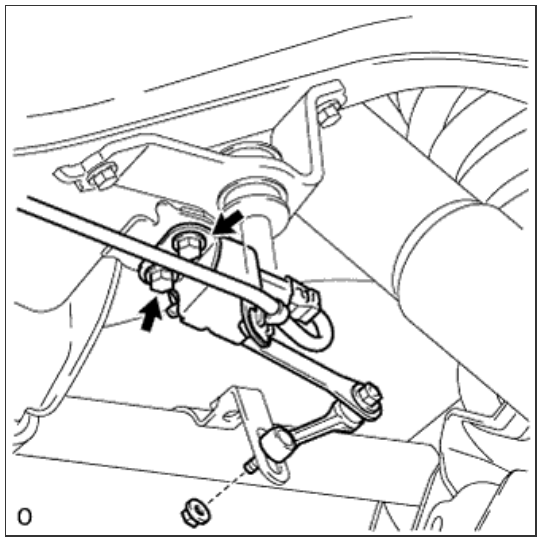
for Preparation Click here

1. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.

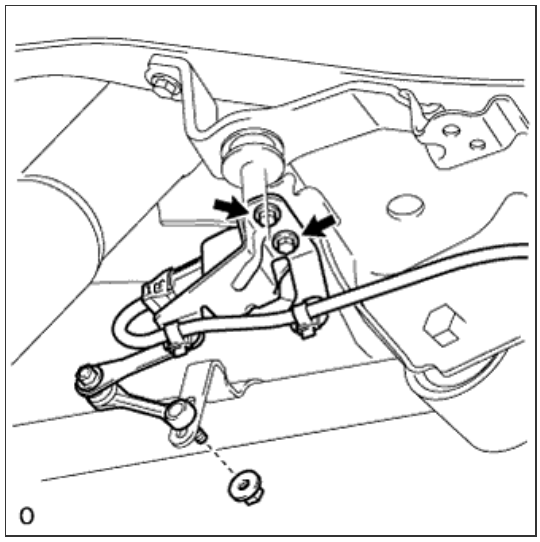


2. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.



3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

5. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

6. ADJUST REAR HEIGHT SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

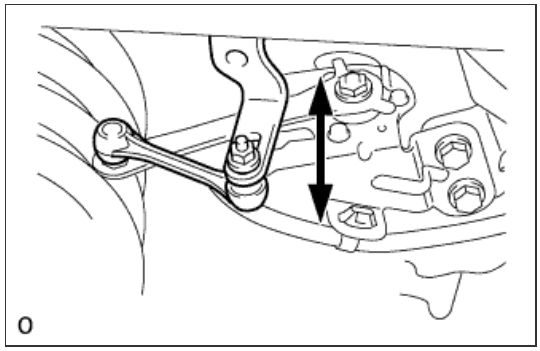
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

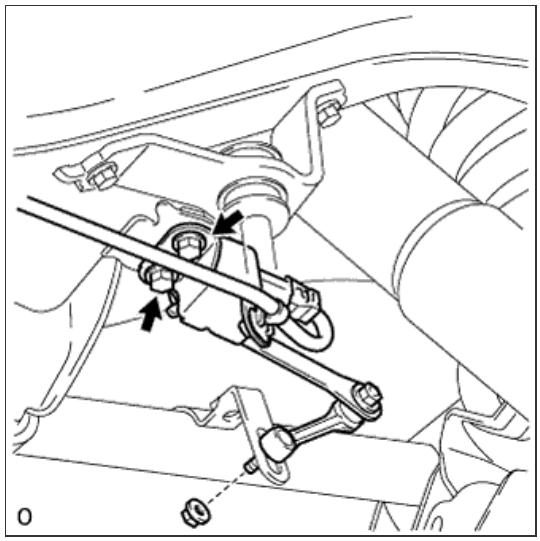
for Preparation Click here

1. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.

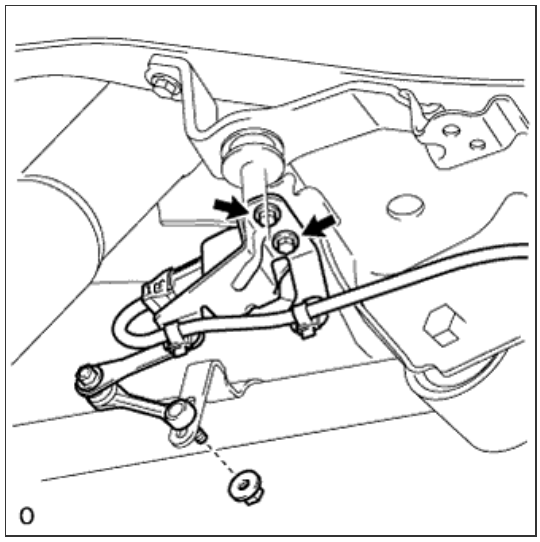


2. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY RH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.



3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

5. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

6. ADJUST REAR HEIGHT SENSOR LINK SUB-ASSEMBLY

NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

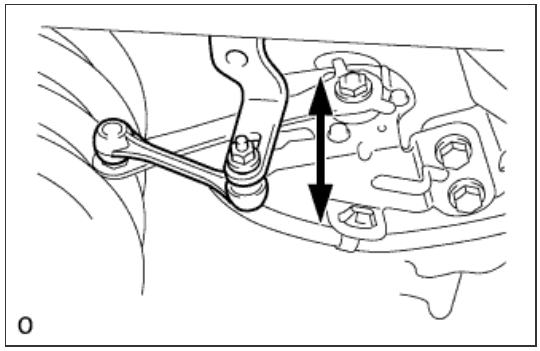
a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).

b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }



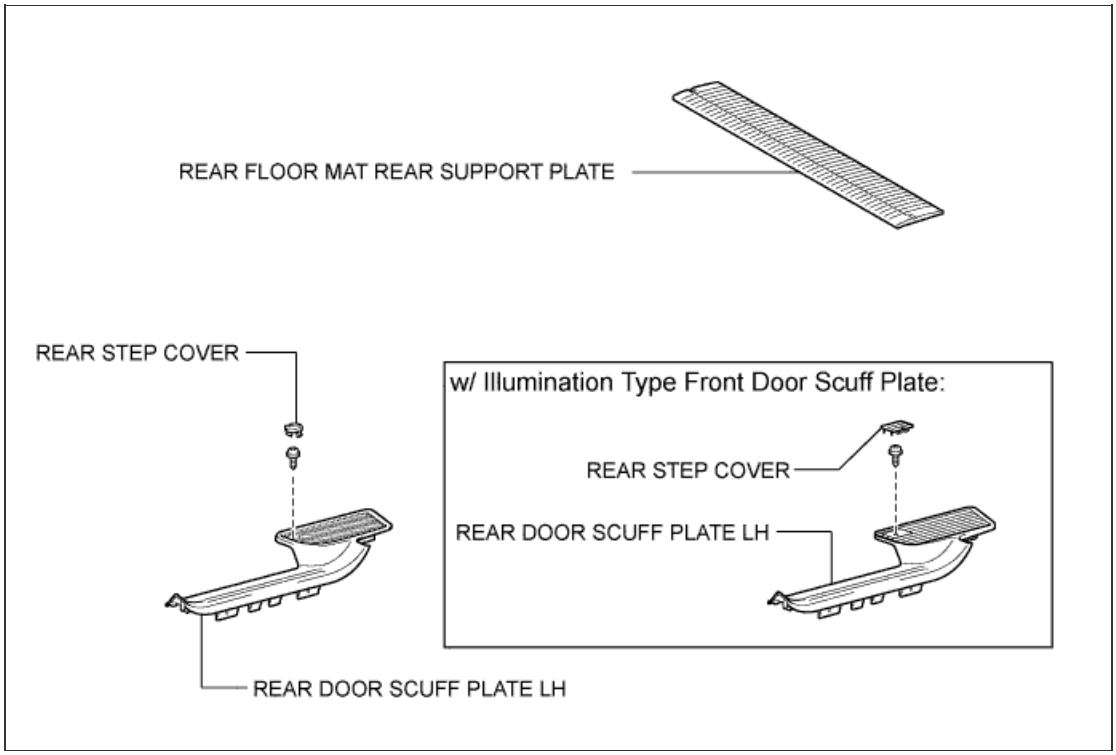
7. PERFORM ZERO POINT CALIBRATION OF G SENSOR

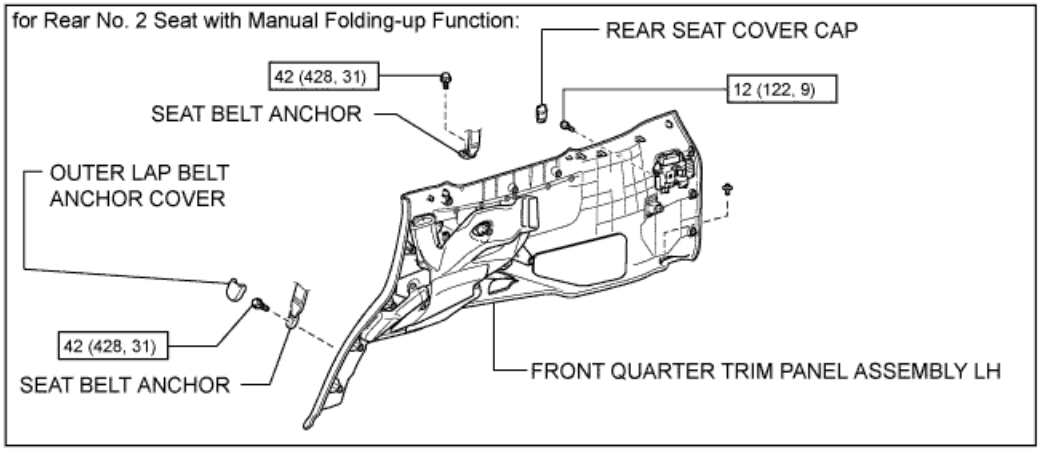
a. Perform the zero point calibration of the G sensor (Click here).

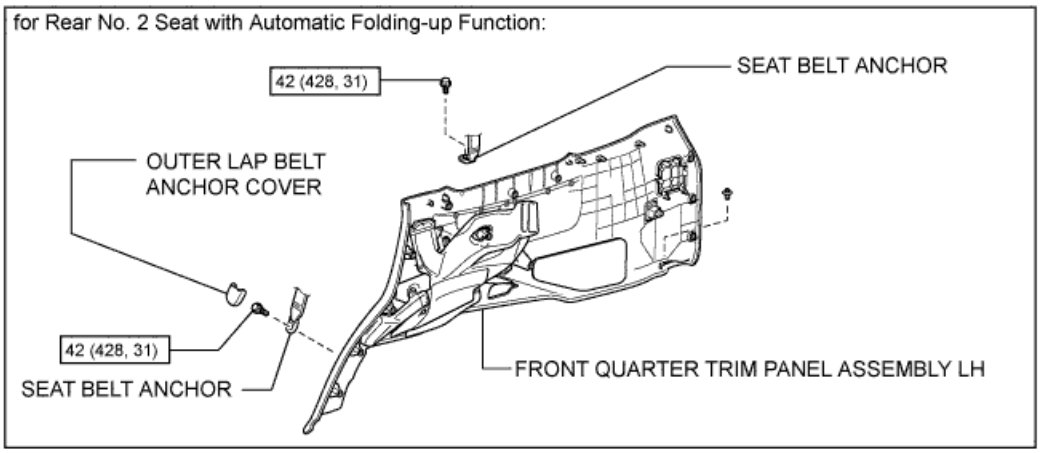
8. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

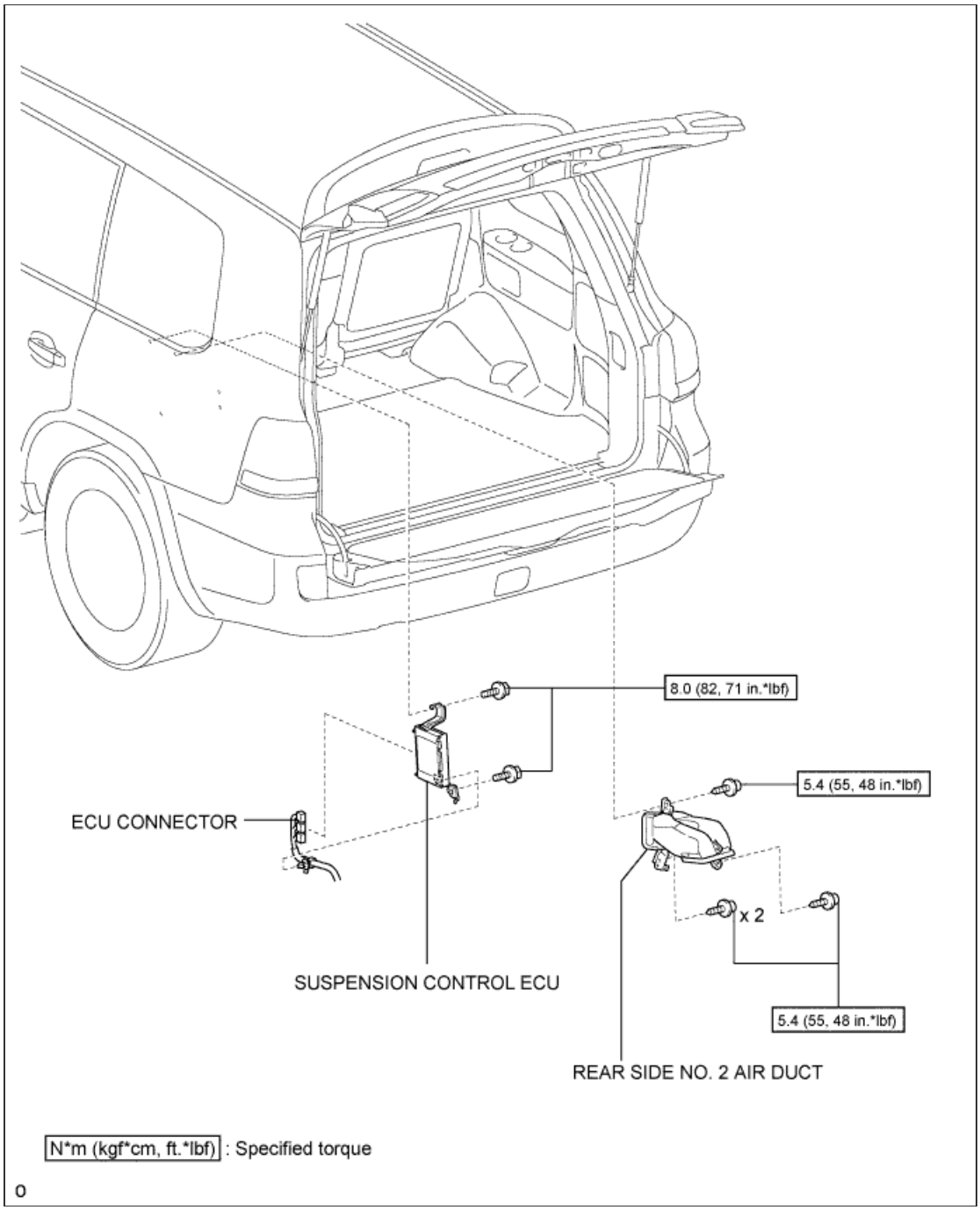
for Preparation Click here







N*m (kgf*cm, ft.*lbf) : Specified torque


8.0 (82, 71 in.*lbf)
5.4 (55, 48 in.*lbf)
ECU CONNECTOR
x 2
SUSPENSION CONTROL ECU
5.4 (55, 48 in.*lbf)
REAR SIDE NO. 2 AIR DUCT
N*m (kgf*cm, ft.*lbf) : Specified torque

o

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE REAR NO. 2 SEAT ASSEMBLY LH

a. Remove the rear No. 2 seat assembly LH (Click here).

4. REMOVE REAR NO. 2 SEAT ASSEMBLY RH

HINT:

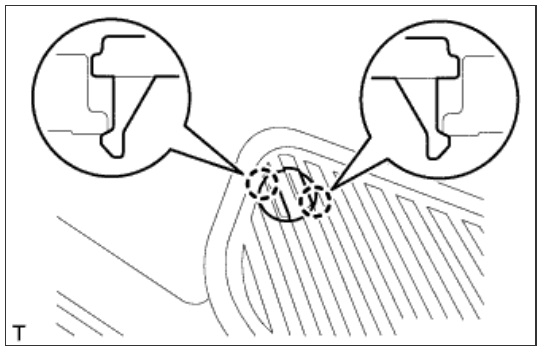
Use the same procedures described for the LH side.

5. REMOVE REAR STEP COVER

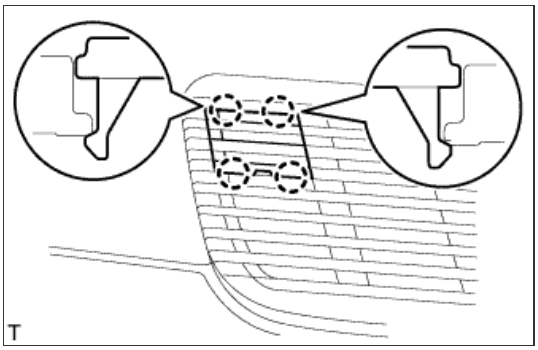
HINT:

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

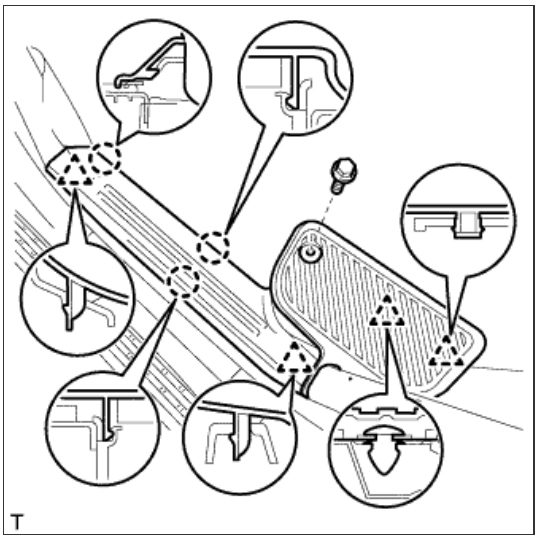


6. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

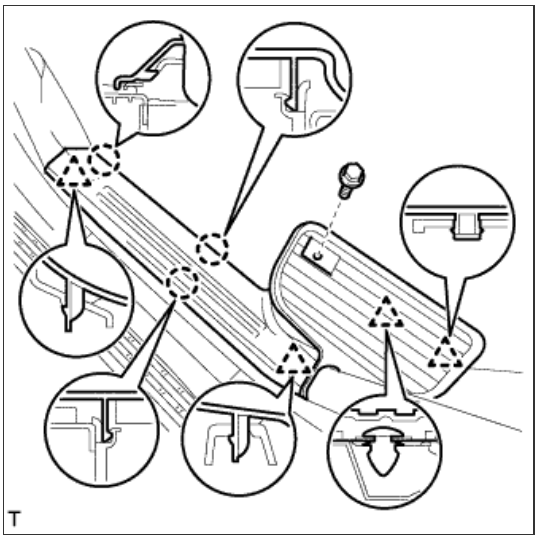
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

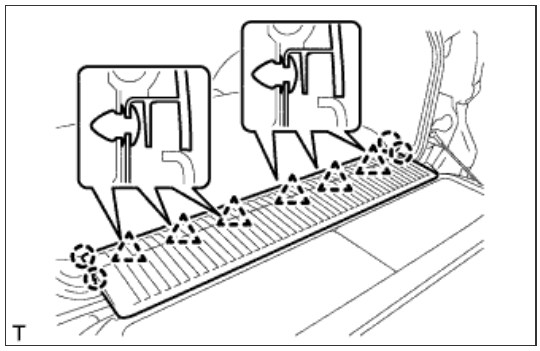
i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



7. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

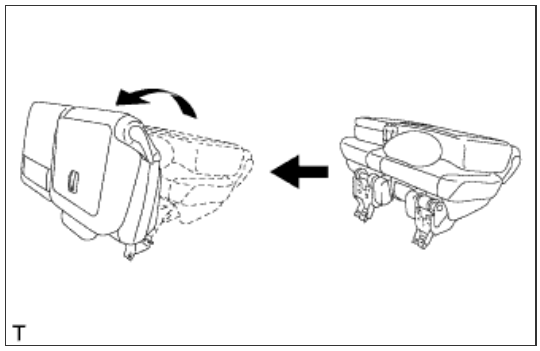
a. Detach the 6 clips and 4 claws, and remove the support plate.



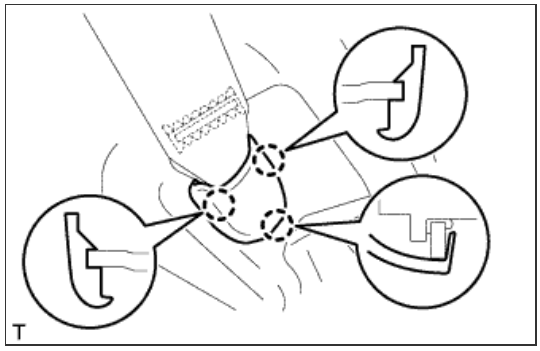
8. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

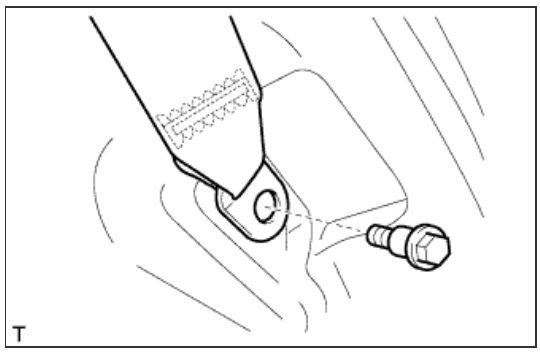
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



a. Detach the 3 claws and remove the cover.



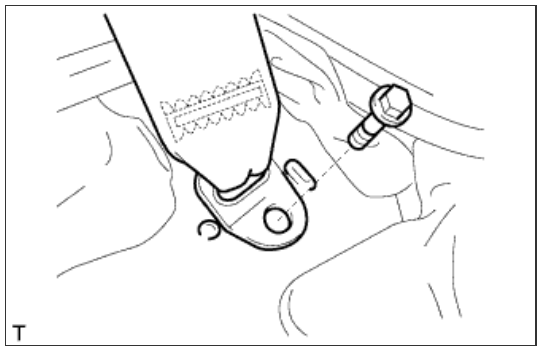
b. Remove the bolt and rear No. 1 seat belt anchor.



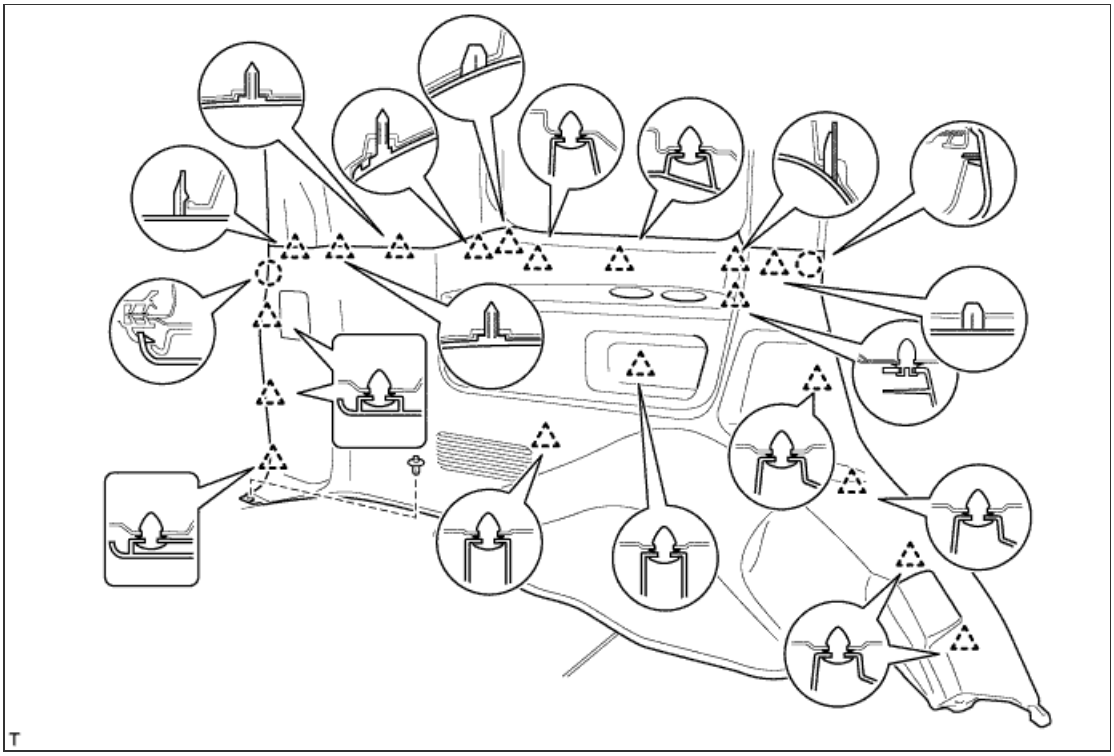
c. Remove the bolt and rear No. 2 seat belt anchor.

d. Remove the clip.

e. Detach the 19 clips and 2 claws.

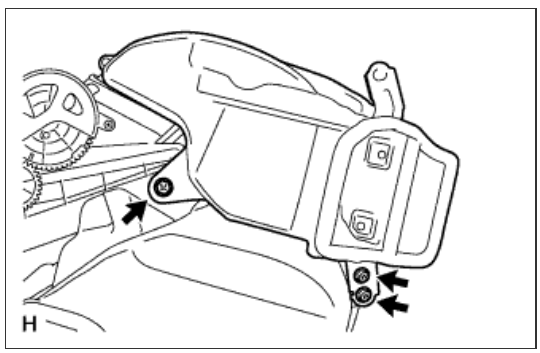


f. Disconnect the thermistor connector and then remove the quarter trim panel.



9. REMOVE REAR SIDE NO. 2 AIR DUCT (w/ Heater)

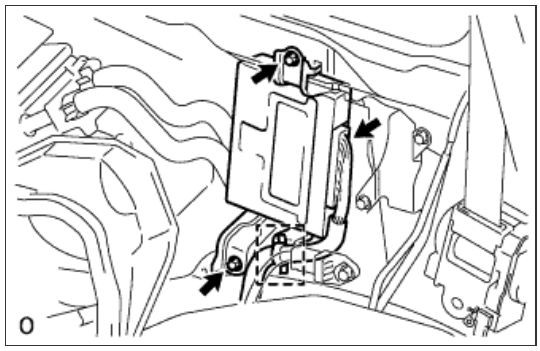
a. Remove the 3 screws and duct.



10. REMOVE SUSPENSION CONTROL ECU

a. Remove the 2 bolts and ECU.

b. Detach the wire harness clamp and disconnect the connector.



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE REAR NO. 2 SEAT ASSEMBLY LH

a. Remove the rear No. 2 seat assembly LH (Click here).

4. REMOVE REAR NO. 2 SEAT ASSEMBLY RH

HINT:

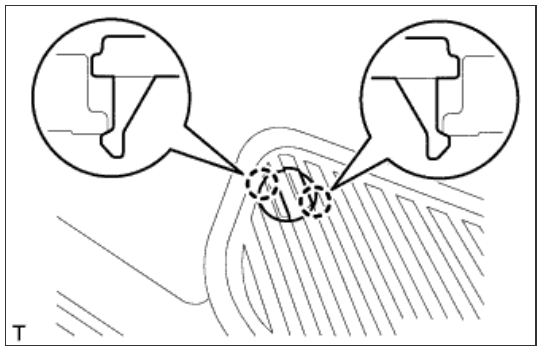
Use the same procedures described for the LH side.

5. REMOVE REAR STEP COVER

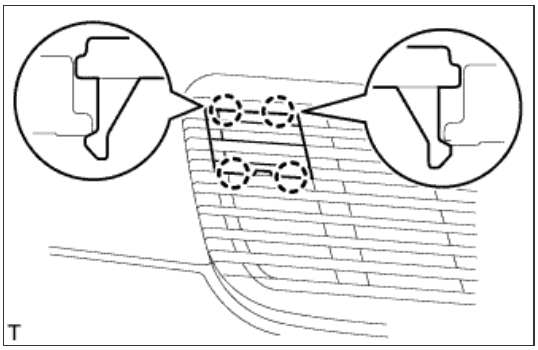
HINT:

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

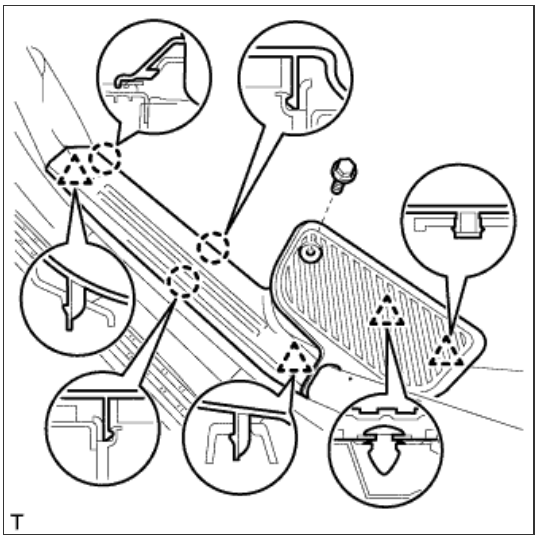


6. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

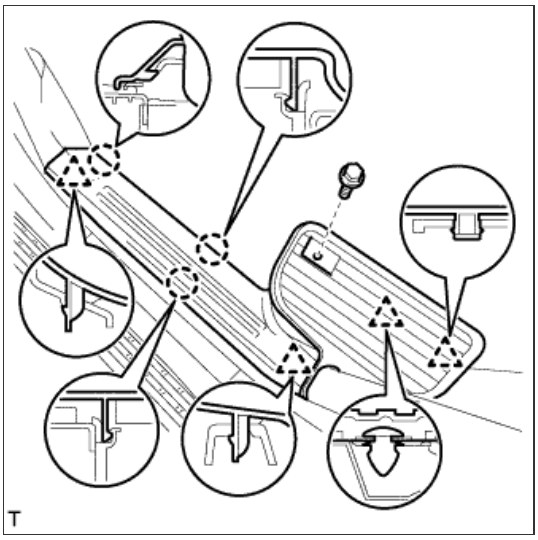
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

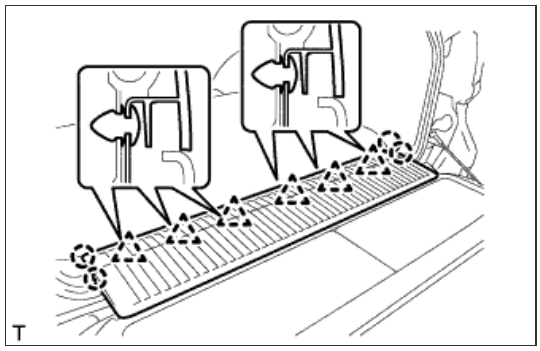
i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



7. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

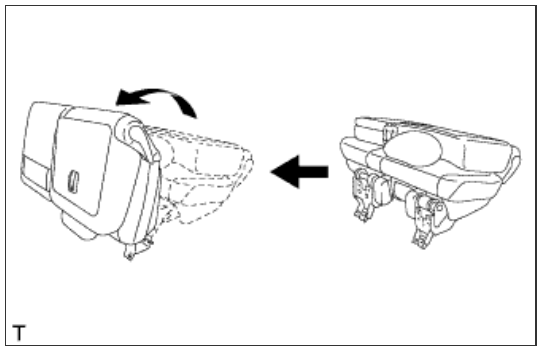
a. Detach the 6 clips and 4 claws, and remove the support plate.



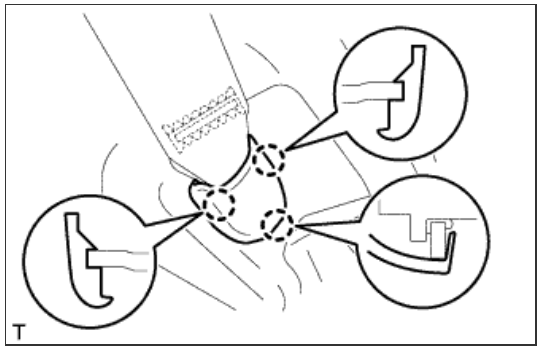
8. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

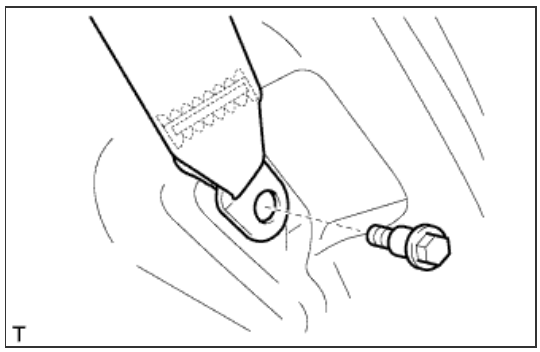
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



a. Detach the 3 claws and remove the cover.



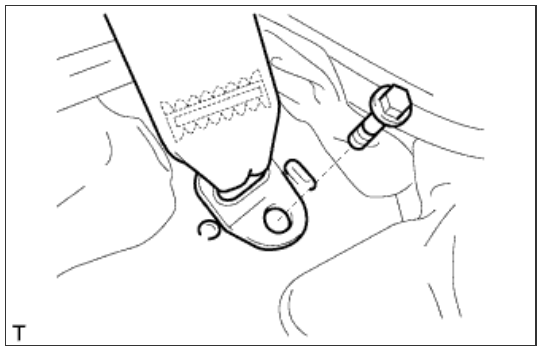
b. Remove the bolt and rear No. 1 seat belt anchor.



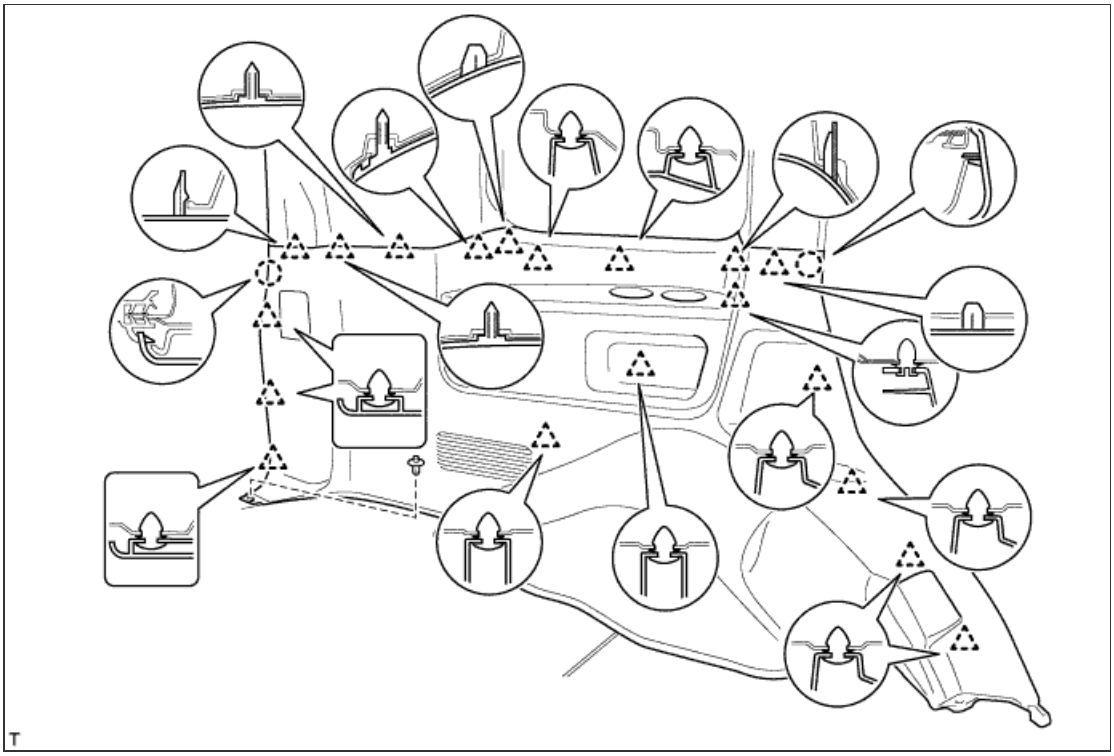
c. Remove the bolt and rear No. 2 seat belt anchor.

d. Remove the clip.

e. Detach the 19 clips and 2 claws.

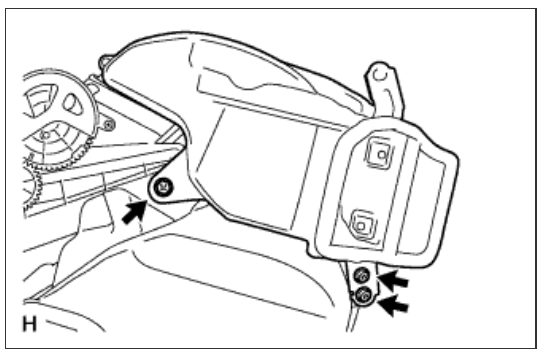


f. Disconnect the thermistor connector and then remove the quarter trim panel.



9. REMOVE REAR SIDE NO. 2 AIR DUCT (w/ Heater)

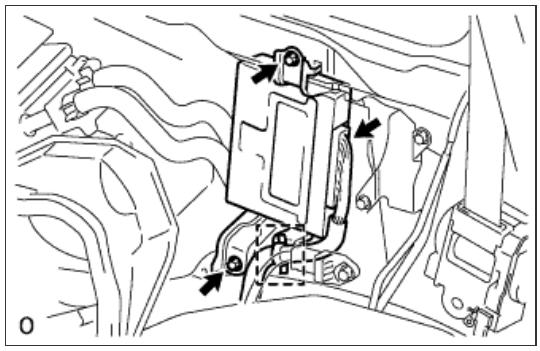
a. Remove the 3 screws and duct.



10. REMOVE SUSPENSION CONTROL ECU

a. Remove the 2 bolts and ECU.

b. Detach the wire harness clamp and disconnect the connector.



for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE REAR NO. 2 SEAT ASSEMBLY LH

a. Remove the rear No. 2 seat assembly LH (Click here).

4. REMOVE REAR NO. 2 SEAT ASSEMBLY RH

HINT:

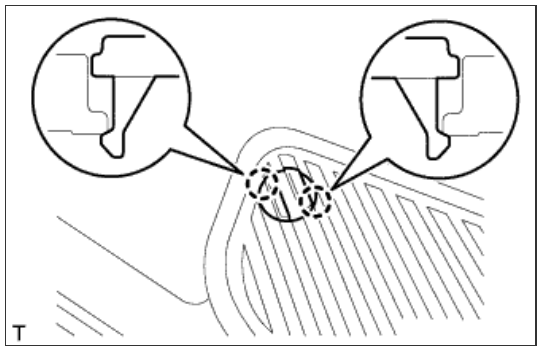
Use the same procedures described for the LH side.

5. REMOVE REAR STEP COVER

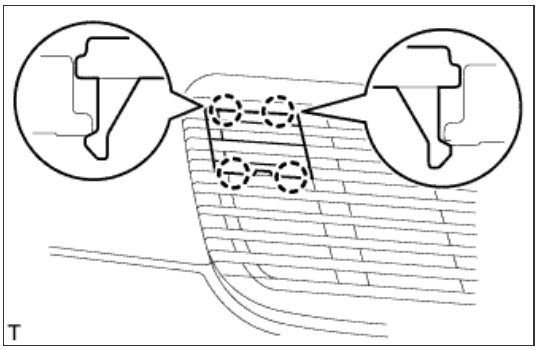
HINT:

Use the same procedure to remove the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:
Detach the 2 claws and remove the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Detach the 4 claws and remove the step cover.

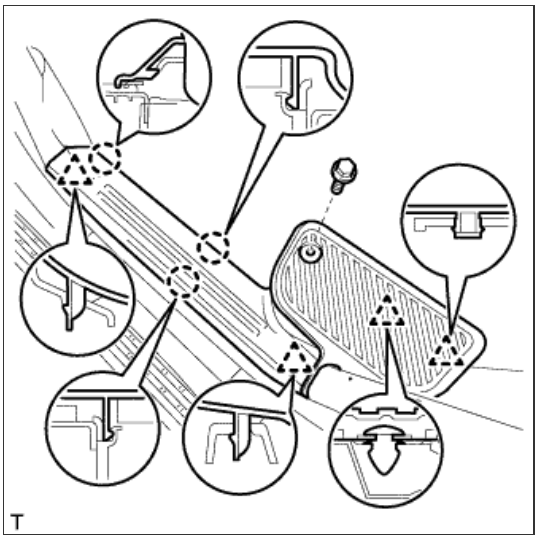


6. REMOVE REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

i. Remove the screw.

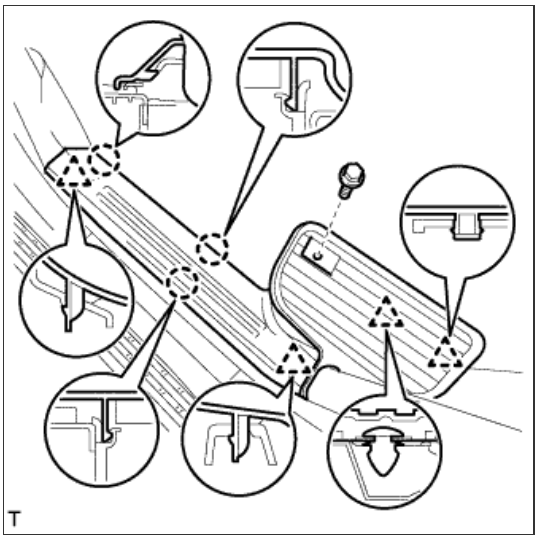
ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination Type Front Door Scuff Plate:
Remove the rear door scuff plate.

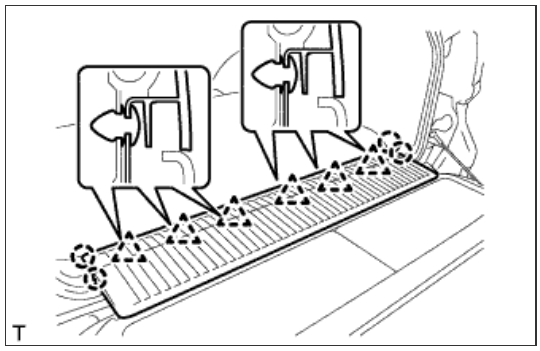
i. Remove the screw.

ii. Detach the 3 claws and 4 clips, and remove the scuff plate.



7. REMOVE REAR FLOOR MAT REAR SUPPORT PLATE

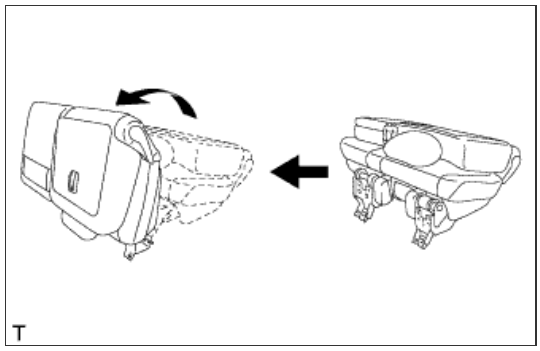
a. Detach the 6 clips and 4 claws, and remove the support plate.



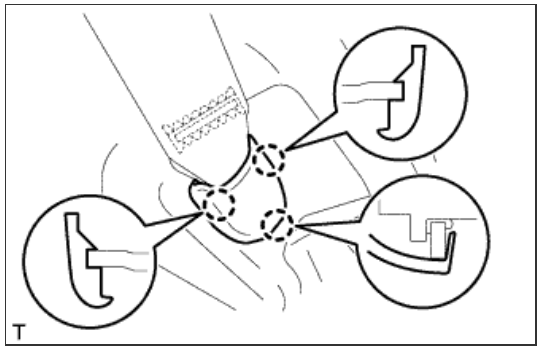
8. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

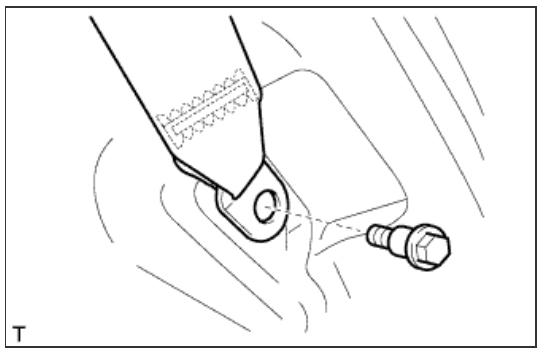
When removing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.



a. Detach the 3 claws and remove the cover.



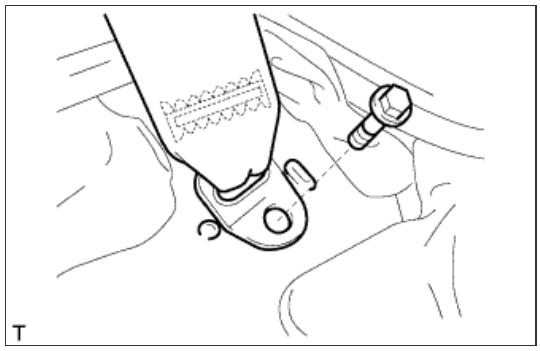
b. Remove the bolt and rear No. 1 seat belt anchor.



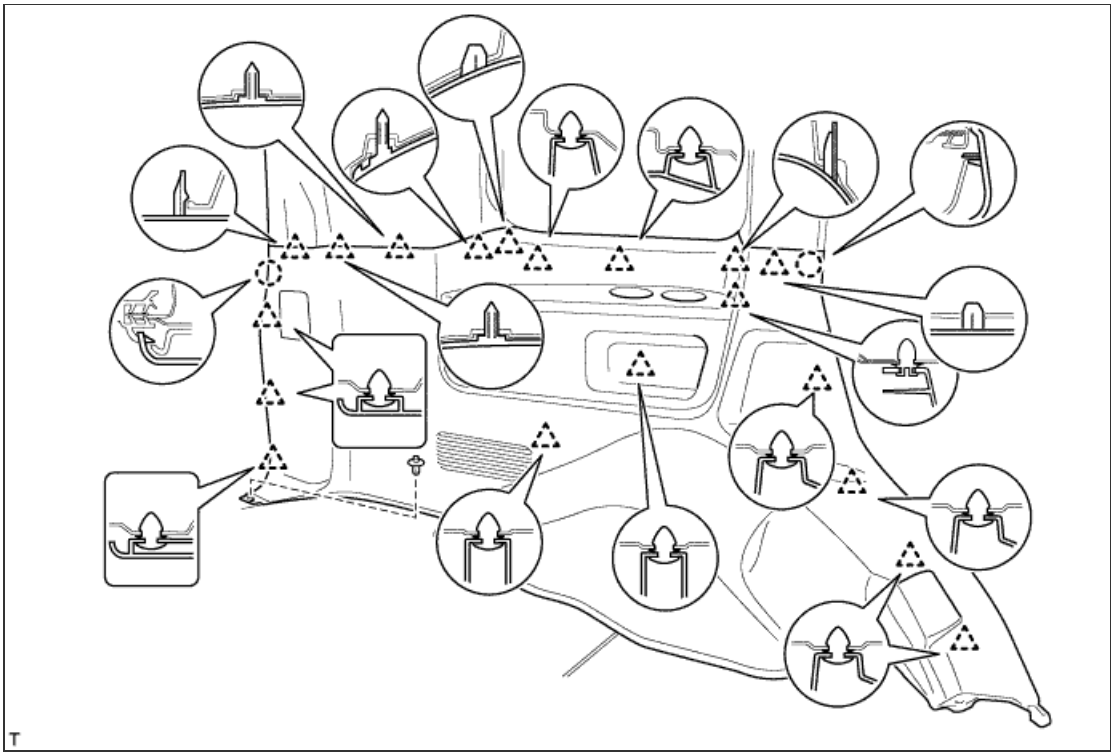
c. Remove the bolt and rear No. 2 seat belt anchor.

d. Remove the clip.

e. Detach the 19 clips and 2 claws.

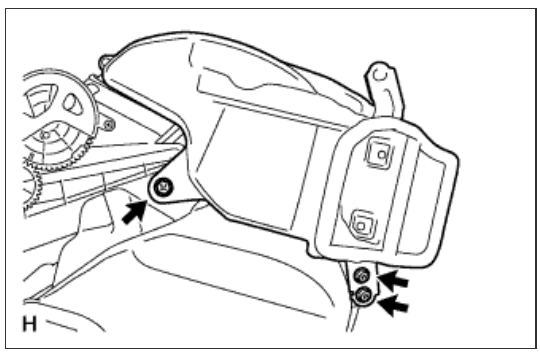


f. Disconnect the thermistor connector and then remove the quarter trim panel.



9. REMOVE REAR SIDE NO. 2 AIR DUCT (w/ Heater)

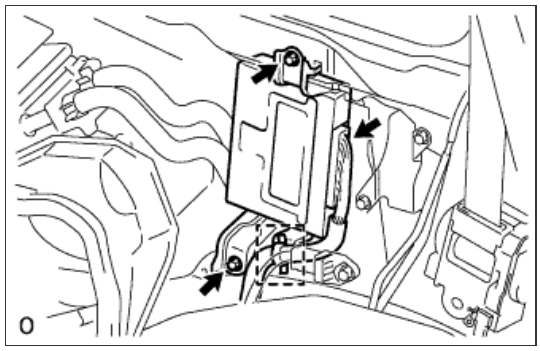
a. Remove the 3 screws and duct.



10. REMOVE SUSPENSION CONTROL ECU

a. Remove the 2 bolts and ECU.

b. Detach the wire harness clamp and disconnect the connector.



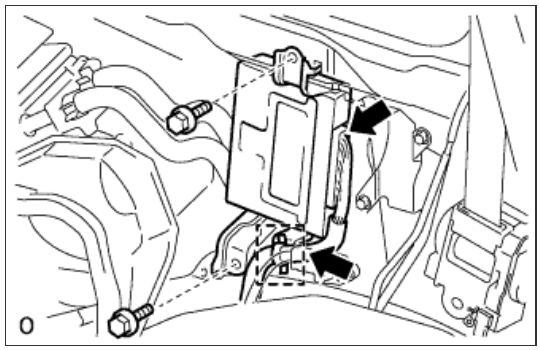
for Preparation Click here

1. INSTALL SUSPENSION CONTROL ECU

a. Attach the wire harness clamp and connect the connector.

b. Install the ECU with the 2 bolts.

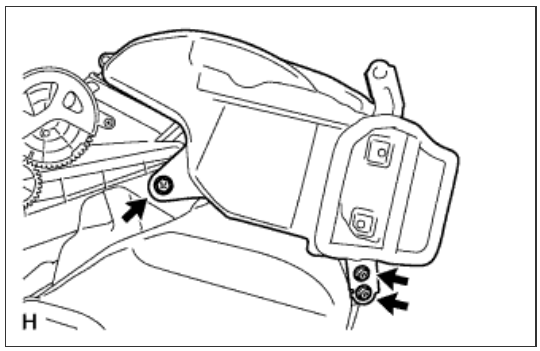
Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }



2. INSTALL REAR SIDE NO. 2 AIR DUCT (w/ Heater)

a. Install the duct with the 3 screws.

Torque:
5.4 N*m{ 55 kgf*cm , 48 in.*lbf }



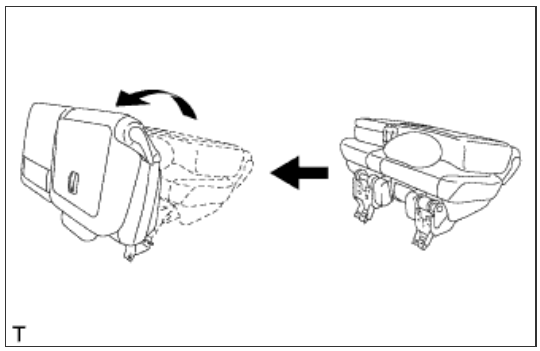
3. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

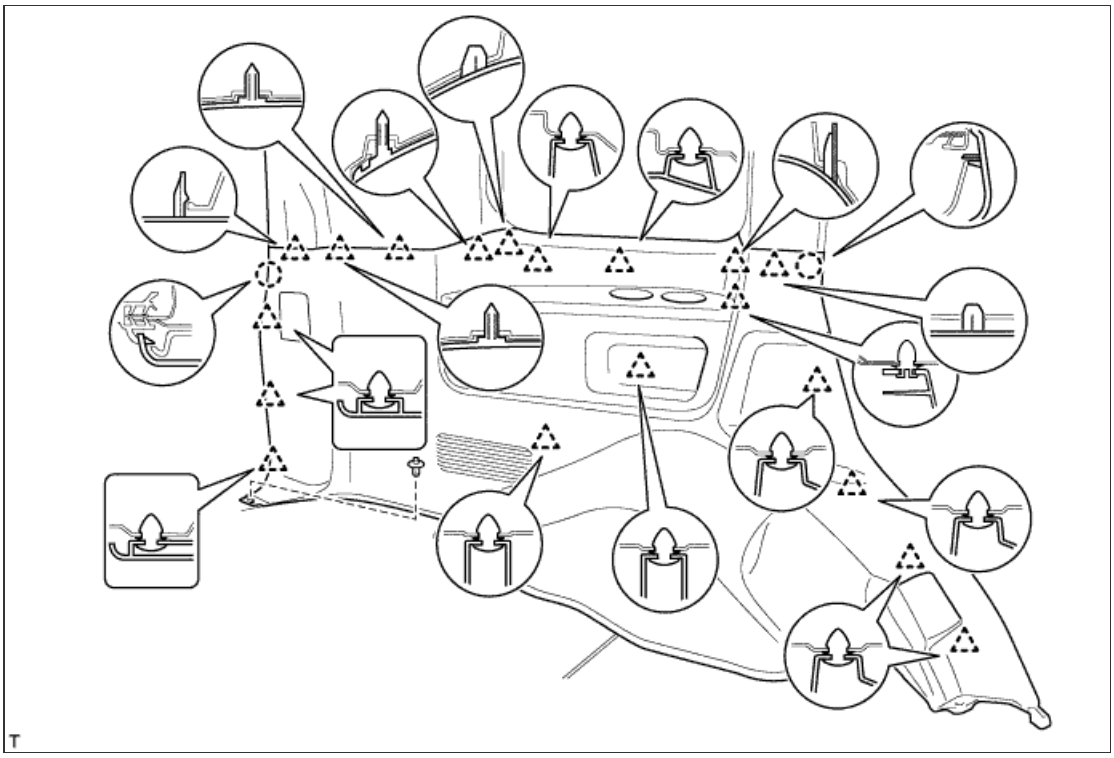
When installing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.

a. Connect the thermistor connector.

b. Attach the 19 clips and 2 claws to install the quarter trim panel.



c. Install the clip.

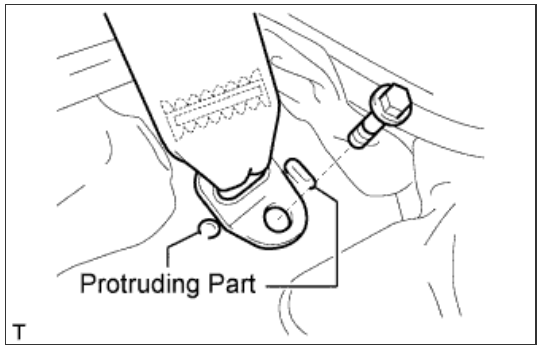


d. Install the rear No. 2 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

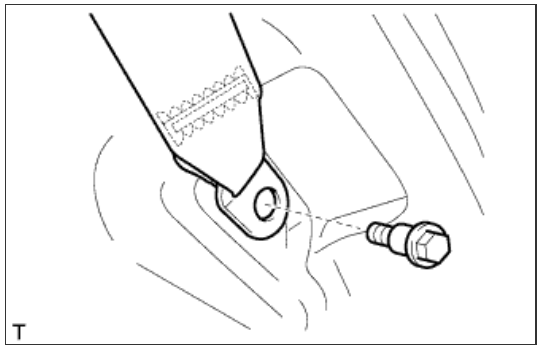
NOTICE:

Do not overlap the anchor part of the seat belt and protruding parts of the vehicle body.

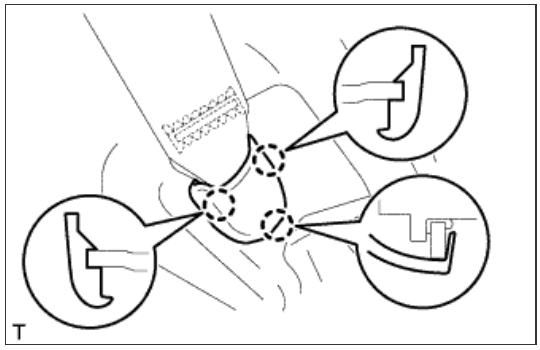


e. Install the rear No. 1 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

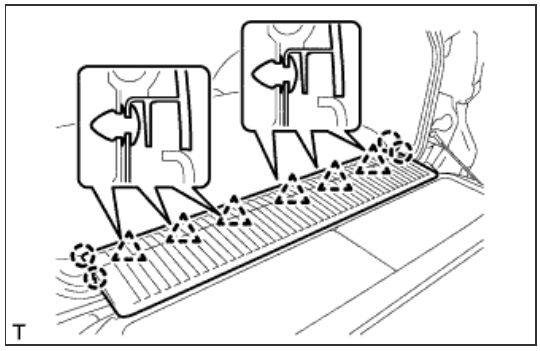


f. Attach the 3 claws to install the cover.



4. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips and 4 claws to install the support plate.

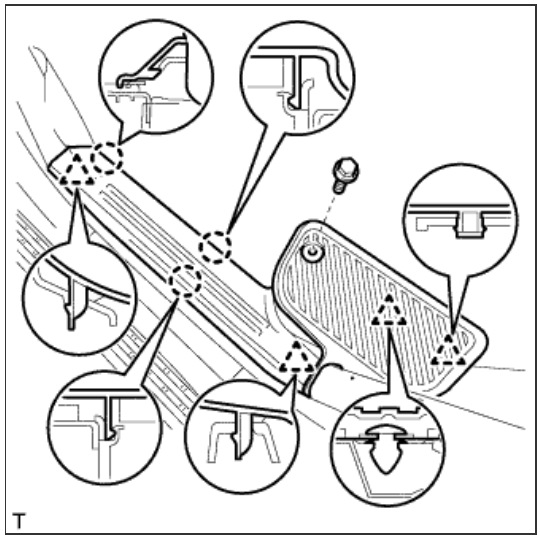


5. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

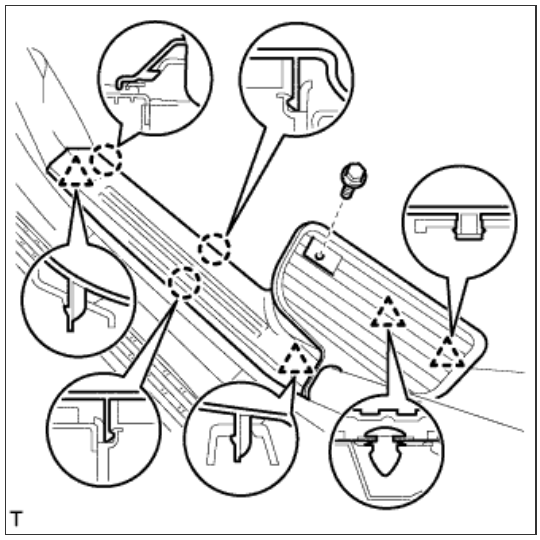
ii. Install the screw.



b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.



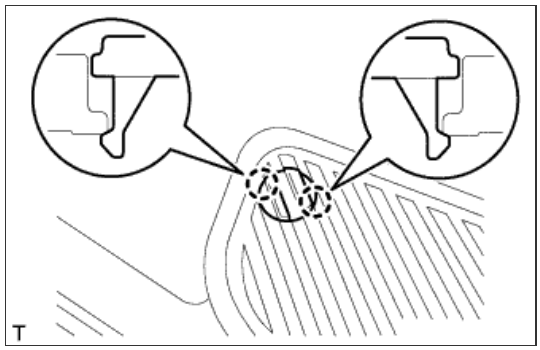
6. INSTALL REAR STEP COVER

HINT:

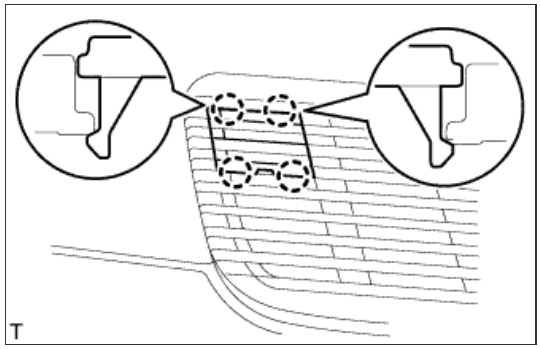
Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:

Attach the 2 claws to install the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.



7. INSTALL REAR NO. 2 SEAT ASSEMBLY LH

a. Install the rear No. 2 seat assembly LH (Click here).

8. INSTALL REAR NO. 2 SEAT ASSEMBLY RH

HINT:

Use the same procedures described for the LH side.

9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

10. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

11. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

12. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

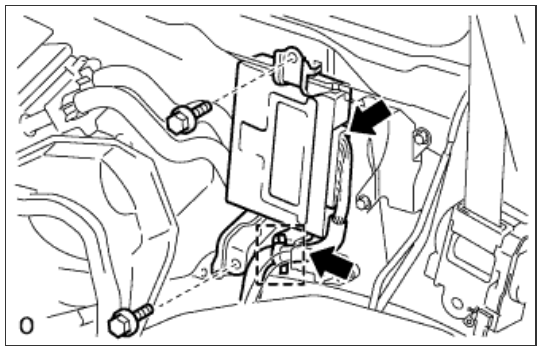
for Preparation Click here

1. INSTALL SUSPENSION CONTROL ECU

a. Attach the wire harness clamp and connect the connector.

b. Install the ECU with the 2 bolts.

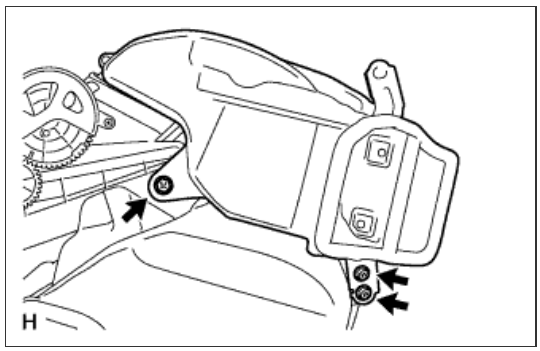
Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }



2. INSTALL REAR SIDE NO. 2 AIR DUCT (w/ Heater)

a. Install the duct with the 3 screws.

Torque:
5.4 N*m{ 55 kgf*cm , 48 in.*lbf }



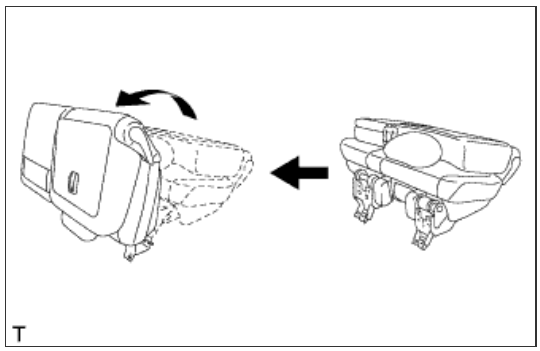
3. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

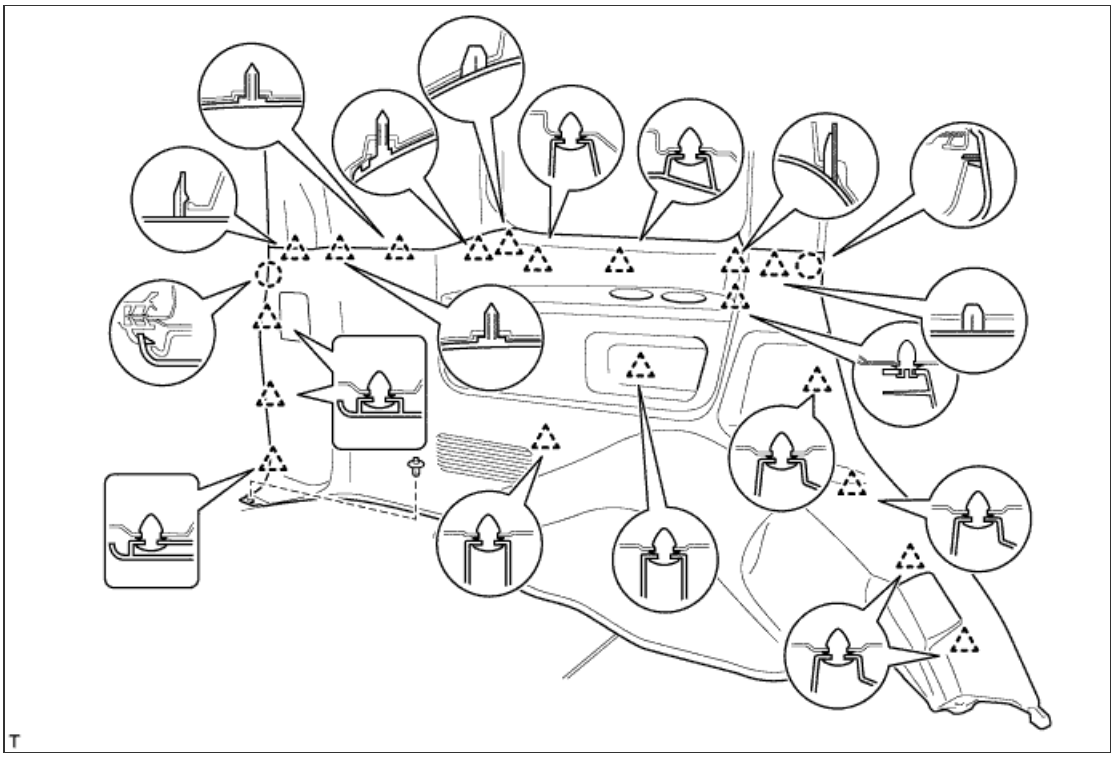
When installing the front quarter trim panel, operate the reclining adjuster release handle and move the No. 1 rear seat to the position shown in the illustration.

a. Connect the thermistor connector.

b. Attach the 19 clips and 2 claws to install the quarter trim panel.



c. Install the clip.

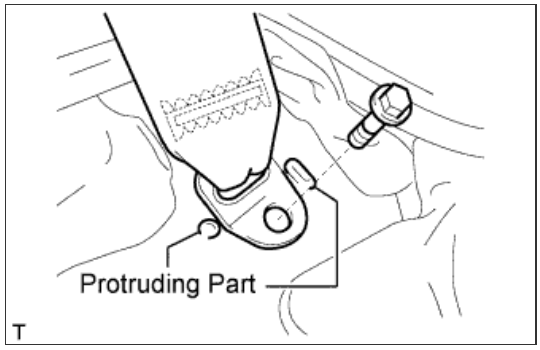


d. Install the rear No. 2 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

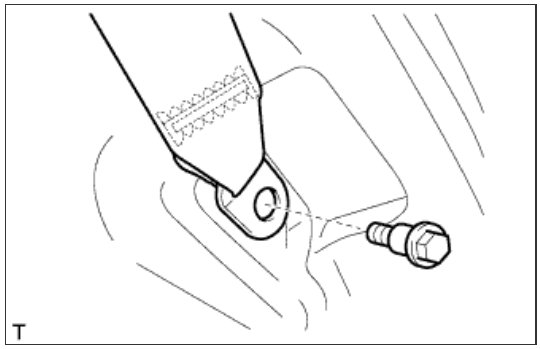
NOTICE:

Do not overlap the anchor part of the seat belt and protruding parts of the vehicle body.

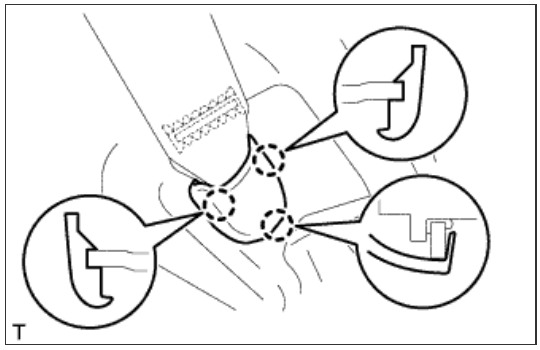


e. Install the rear No. 1 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

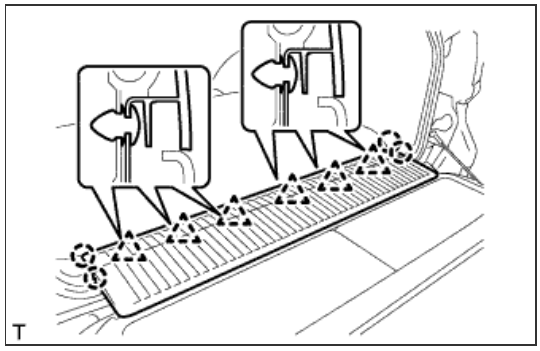


f. Attach the 3 claws to install the cover.



4. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips and 4 claws to install the support plate.

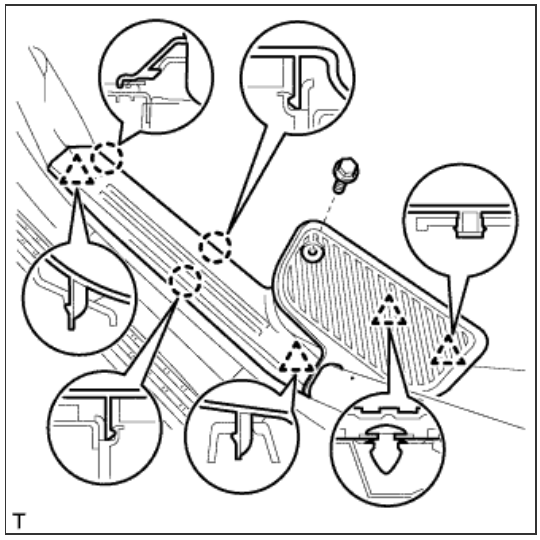


5. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

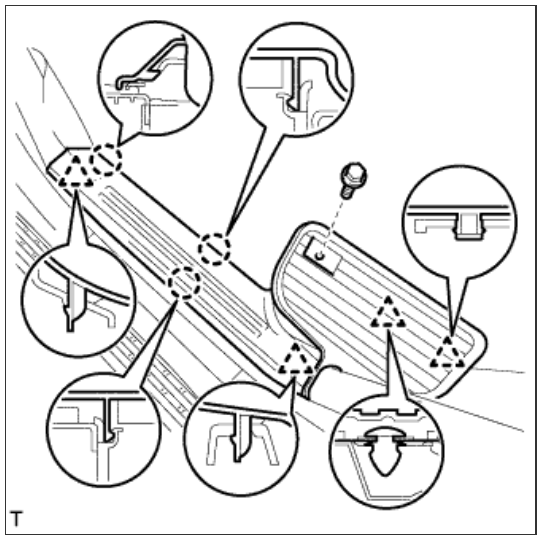
ii. Install the screw.



b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.



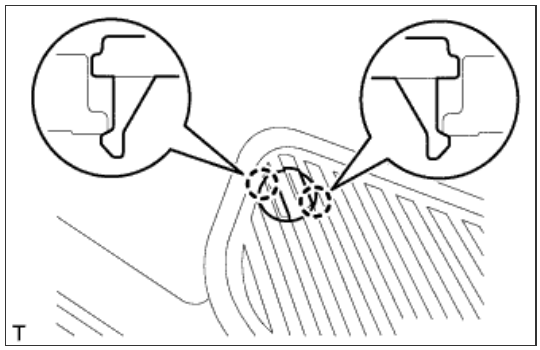
6. INSTALL REAR STEP COVER

HINT:

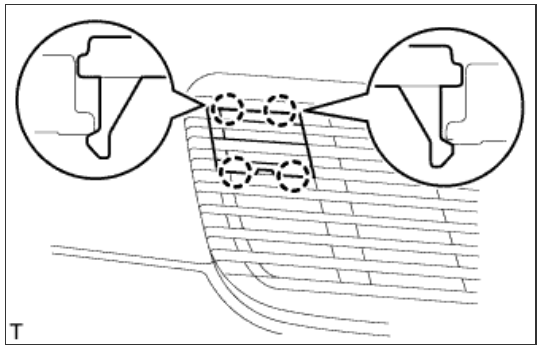
Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:

Attach the 2 claws to install the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.



7. INSTALL REAR NO. 2 SEAT ASSEMBLY LH

a. Install the rear No. 2 seat assembly LH (Click here).

8. INSTALL REAR NO. 2 SEAT ASSEMBLY RH

HINT:

Use the same procedures described for the LH side.

9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

10. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

11. PERFORM ZERO POINT CALIBRATION OF G SENSOR

a. Perform the zero point calibration of the G sensor (Click here).

12. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

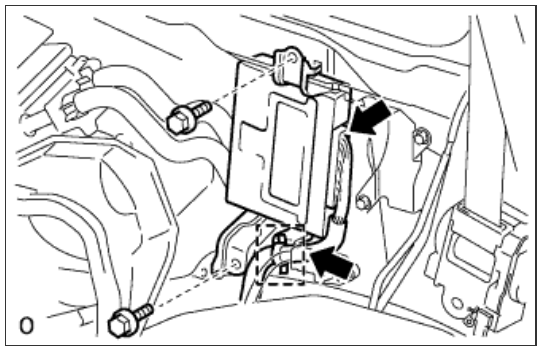
for Preparation Click here

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a. Attach the wire harness clamp and connect the connector.

b. Install the ECU with the 2 bolts.

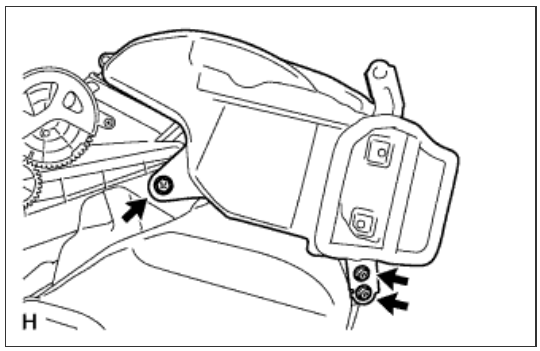
Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }



2. INSTALL REAR SIDE NO. 2 AIR DUCT (w/ Heater)

a. Install the duct with the 3 screws.

Torque:
5.4 N*m{ 55 kgf*cm , 48 in.*lbf }



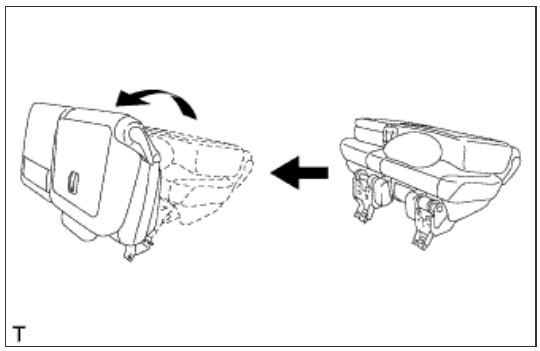
3. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY LH

HINT:

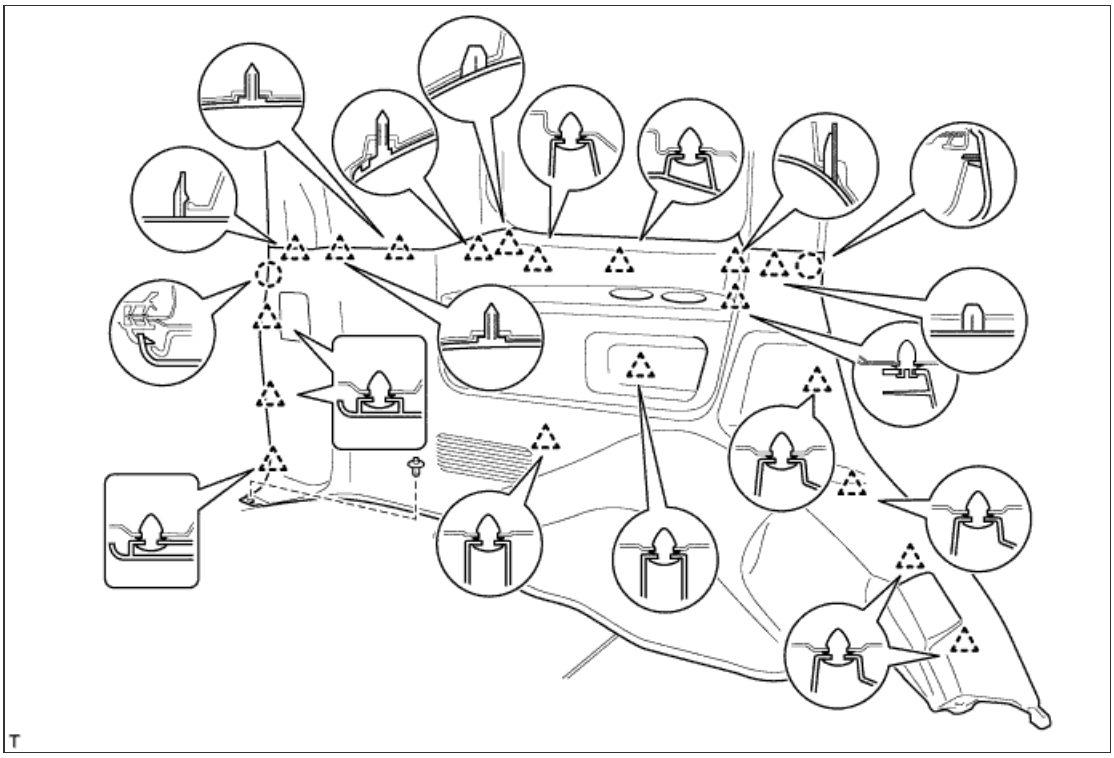
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a. Connect the thermistor connector.

b. Attach the 19 clips and 2 claws to install the quarter trim panel.



c. Install the clip.

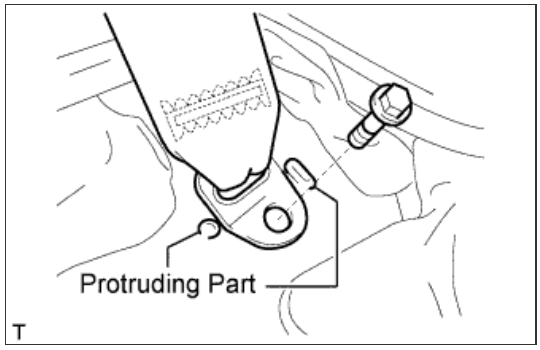


d. Install the rear No. 2 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

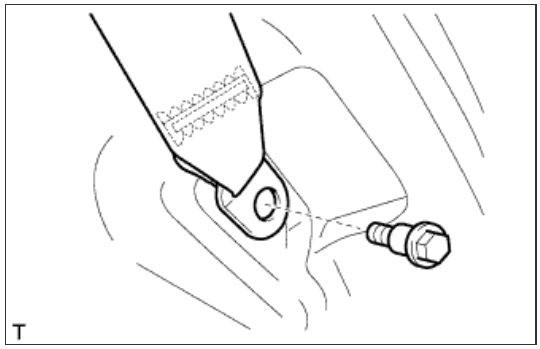
NOTICE:

Do not overlap the anchor part of the seat belt and protruding parts of the vehicle body.

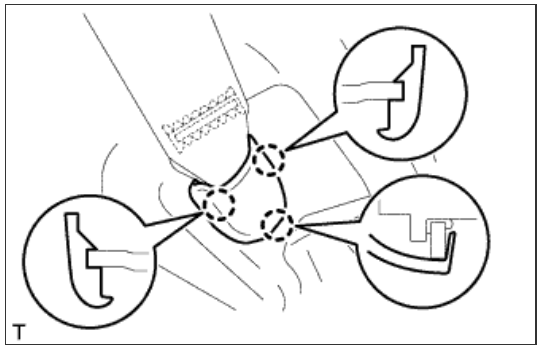


e. Install the rear No. 1 seat belt anchor with the bolt.

Torque:
42 N*m{ 428 kgf*cm , 31 ft.*lbf }

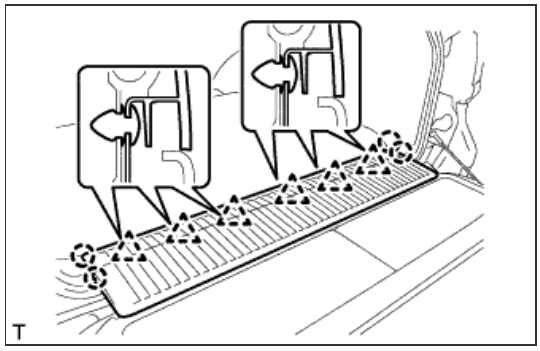


f. Attach the 3 claws to install the cover.



4. INSTALL REAR FLOOR MAT REAR SUPPORT PLATE

a. Attach the 6 clips and 4 claws to install the support plate.

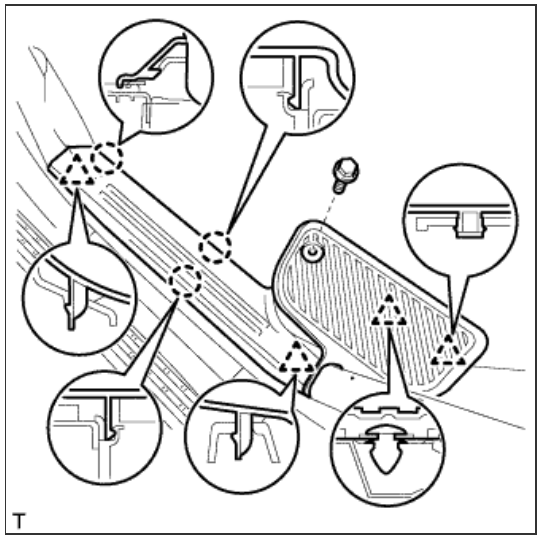


5. INSTALL REAR DOOR SCUFF PLATE LH

a. w/o Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

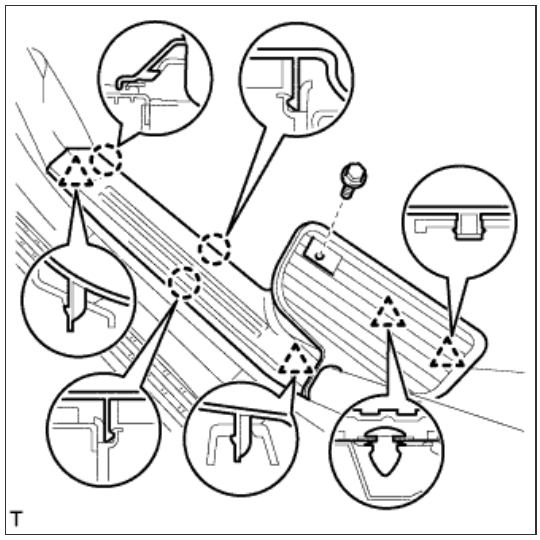
ii. Install the screw.



b. w/ Illumination Type Front Door Scuff Plate:

i. Attach the 3 claws and 4 clips to install the scuff plate.

ii. Install the screw.



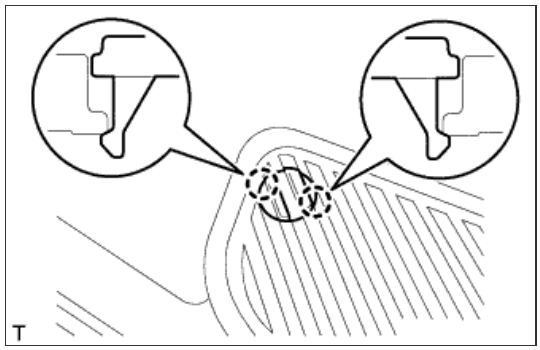
6. INSTALL REAR STEP COVER

HINT:

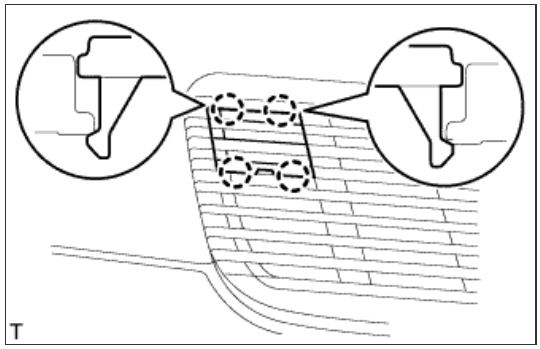
Use the same procedure to install the step cover on the other side.

a. w/o Illumination Type Front Door Scuff Plate:

Attach the 2 claws to install the step cover.



b. w/ Illumination Type Front Door Scuff Plate:
Attach the 4 claws to install the step cover.



7. CLEAN REAR NO. 2 SEAT ASSEMBLY LH

a. Install the rear No. 2 seat assembly LH (Click here).

8. INSTALL REAR NO. 2 SEAT ASSEMBLY RH

HINT:

Use the same procedures described for the LH side.

9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

10. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

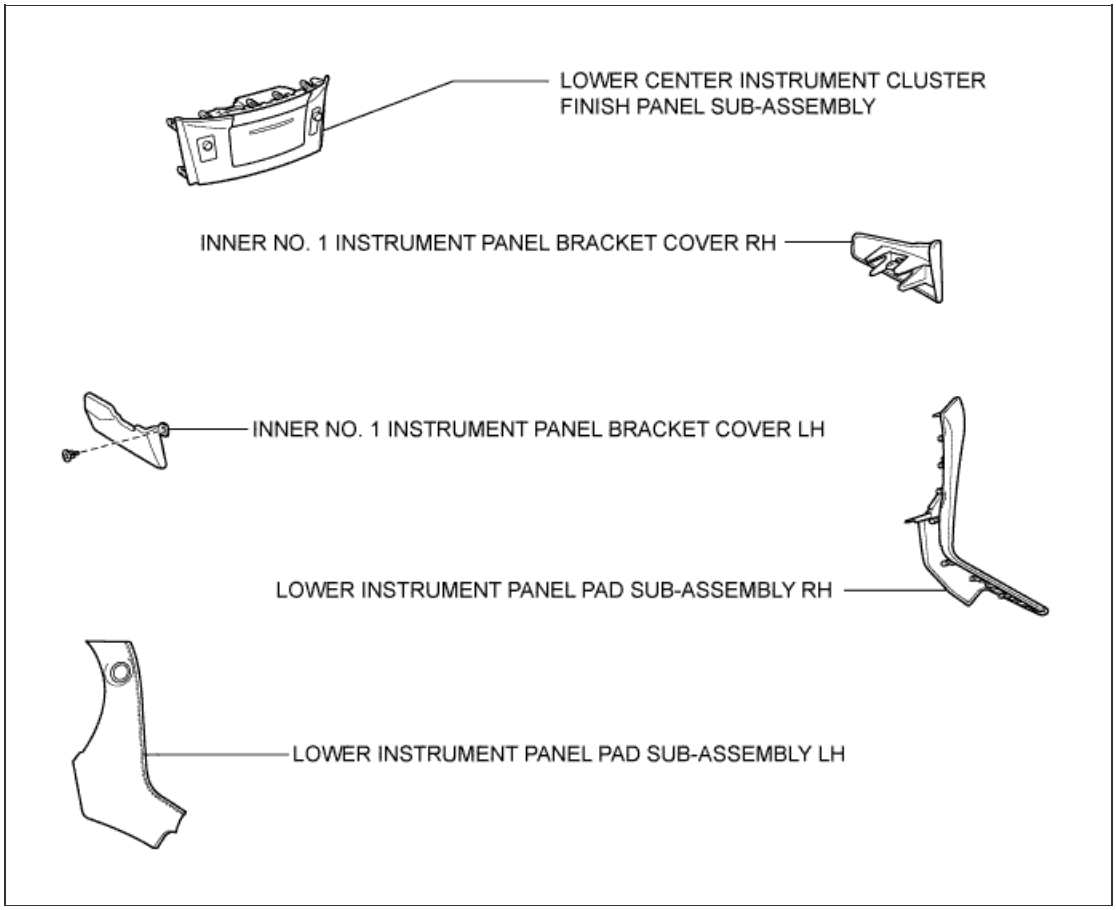
11. PERFORM ZERO POINT CALIBRATION OF G SENSOR

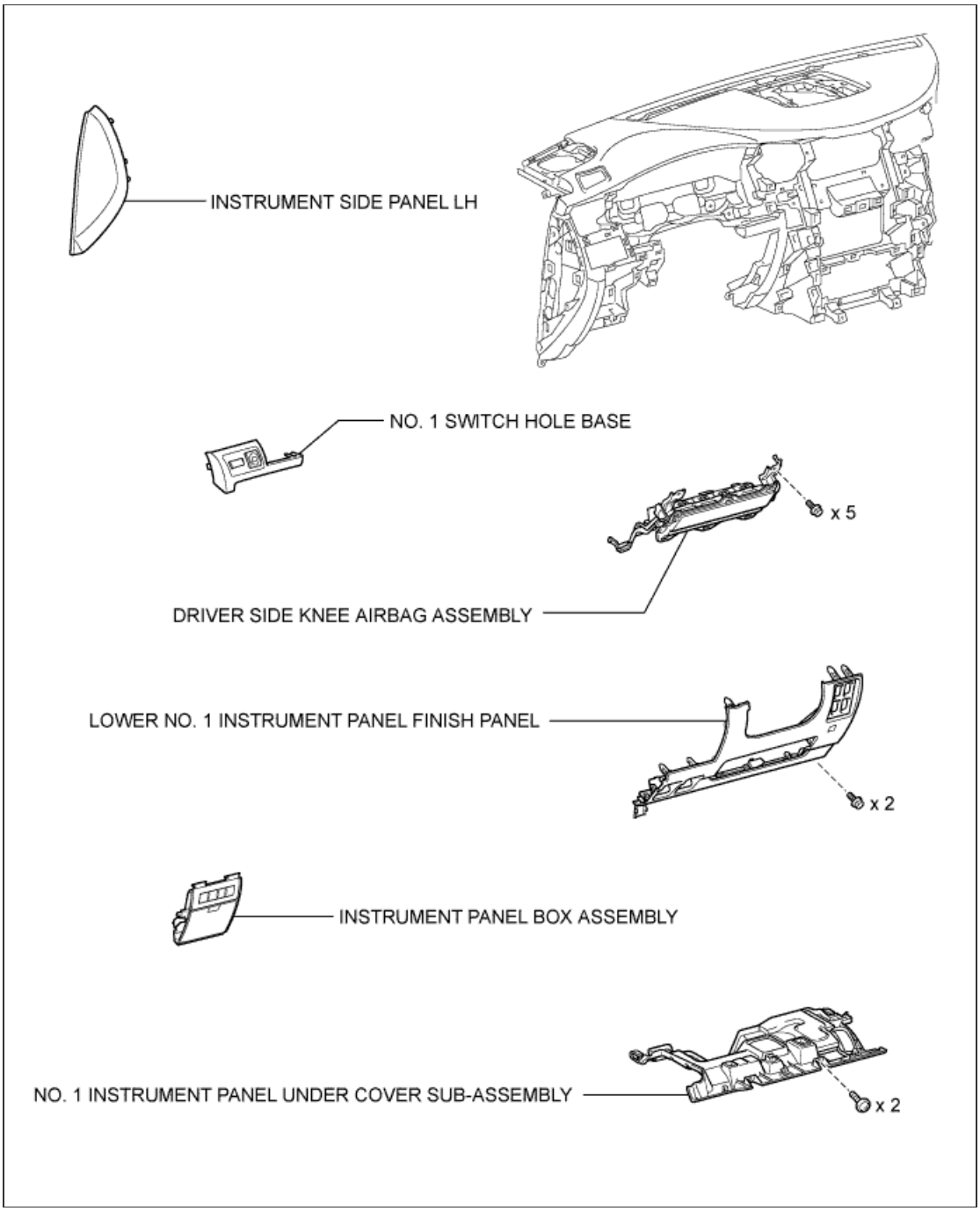
a. Perform the zero point calibration of the G sensor (Click here).

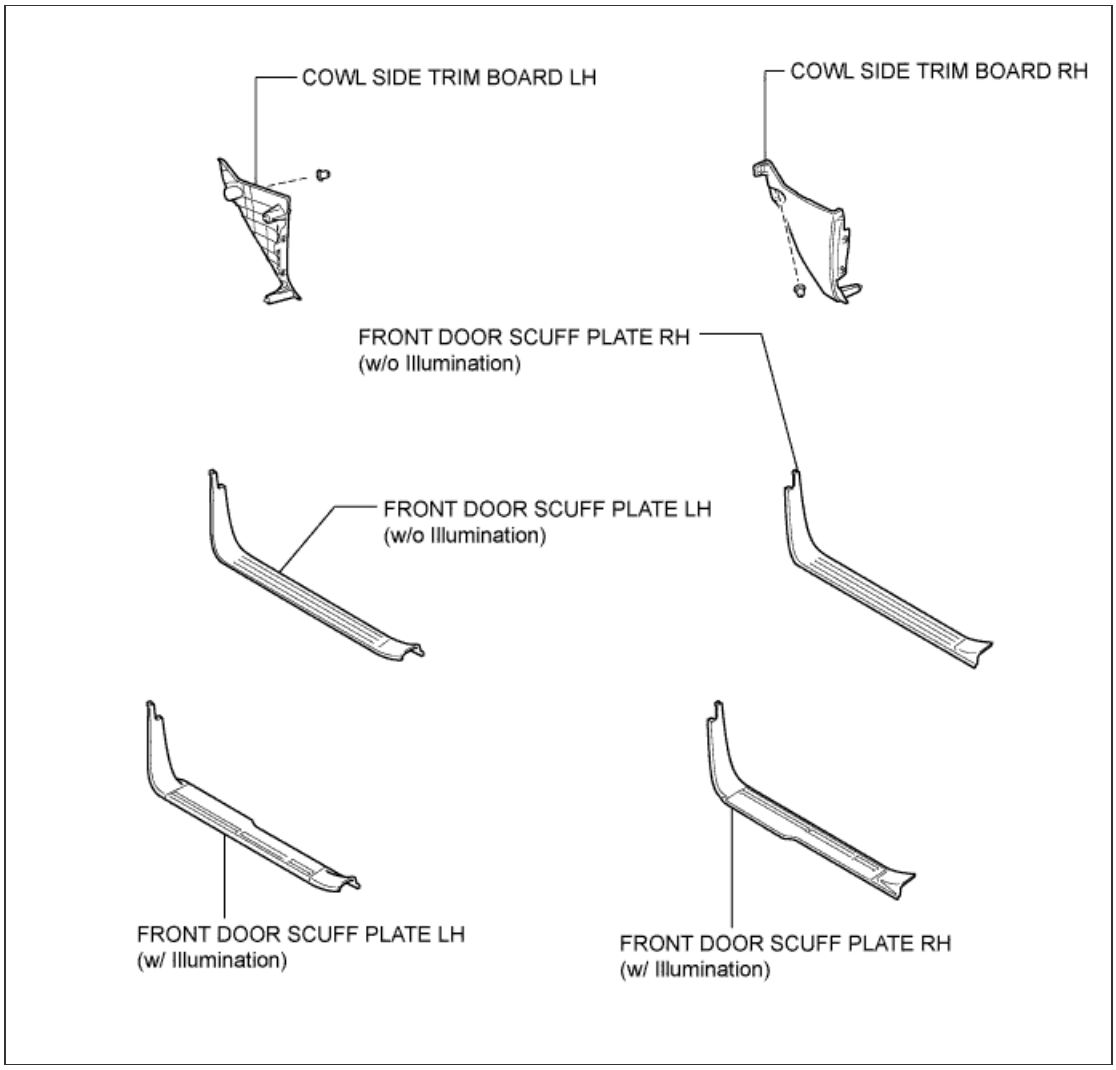
12. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight (Click here).

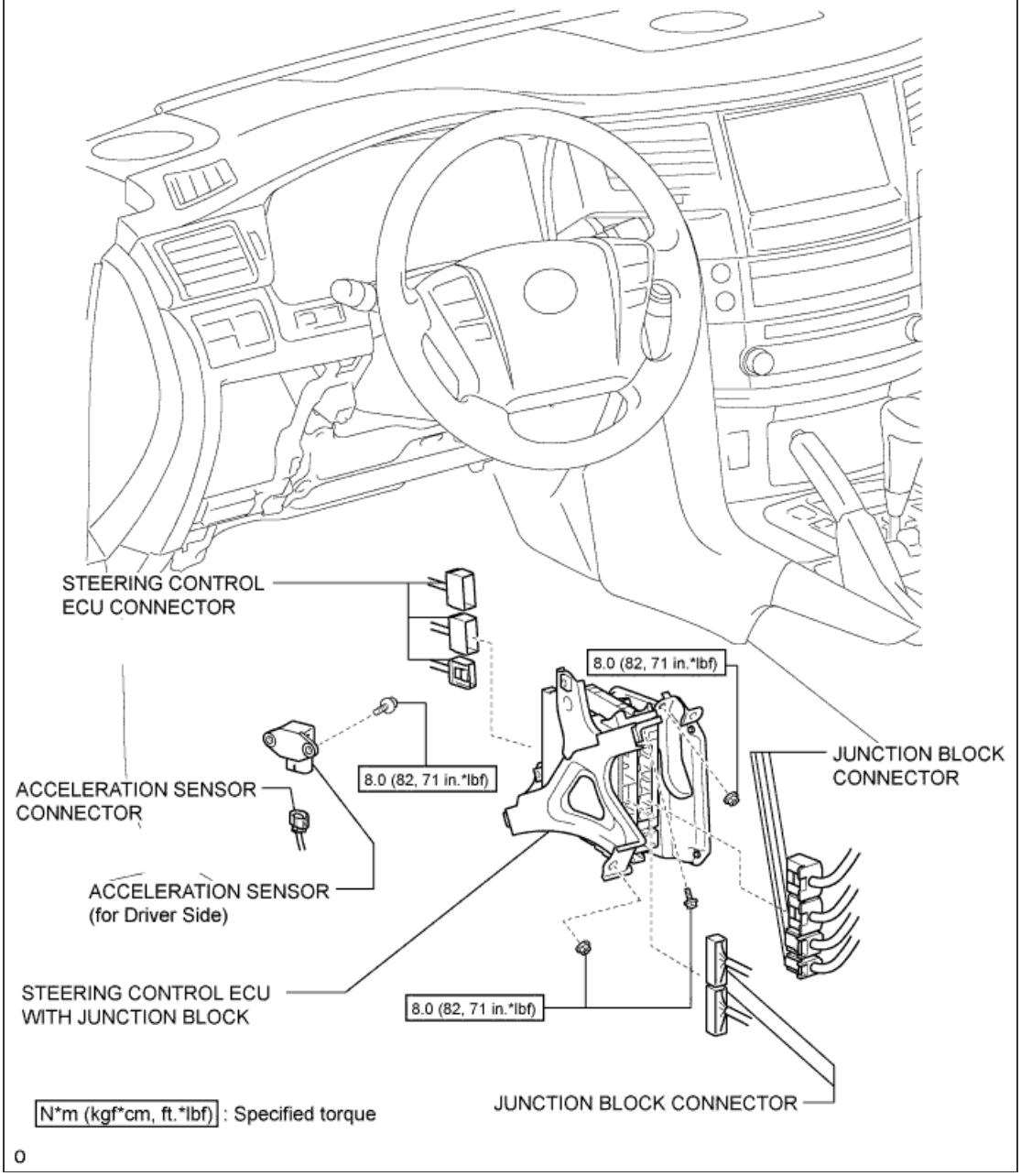
for Preparation Click here




INSTRUMENT SIDE PANEL LH
NO. 1 SWITCH HOLE BASE
x 5
DRIVER SIDE KNEE AIRBAG ASSEMBLY
LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL
x 2
INSTRUMENT PANEL BOX ASSEMBLY
NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
x 2

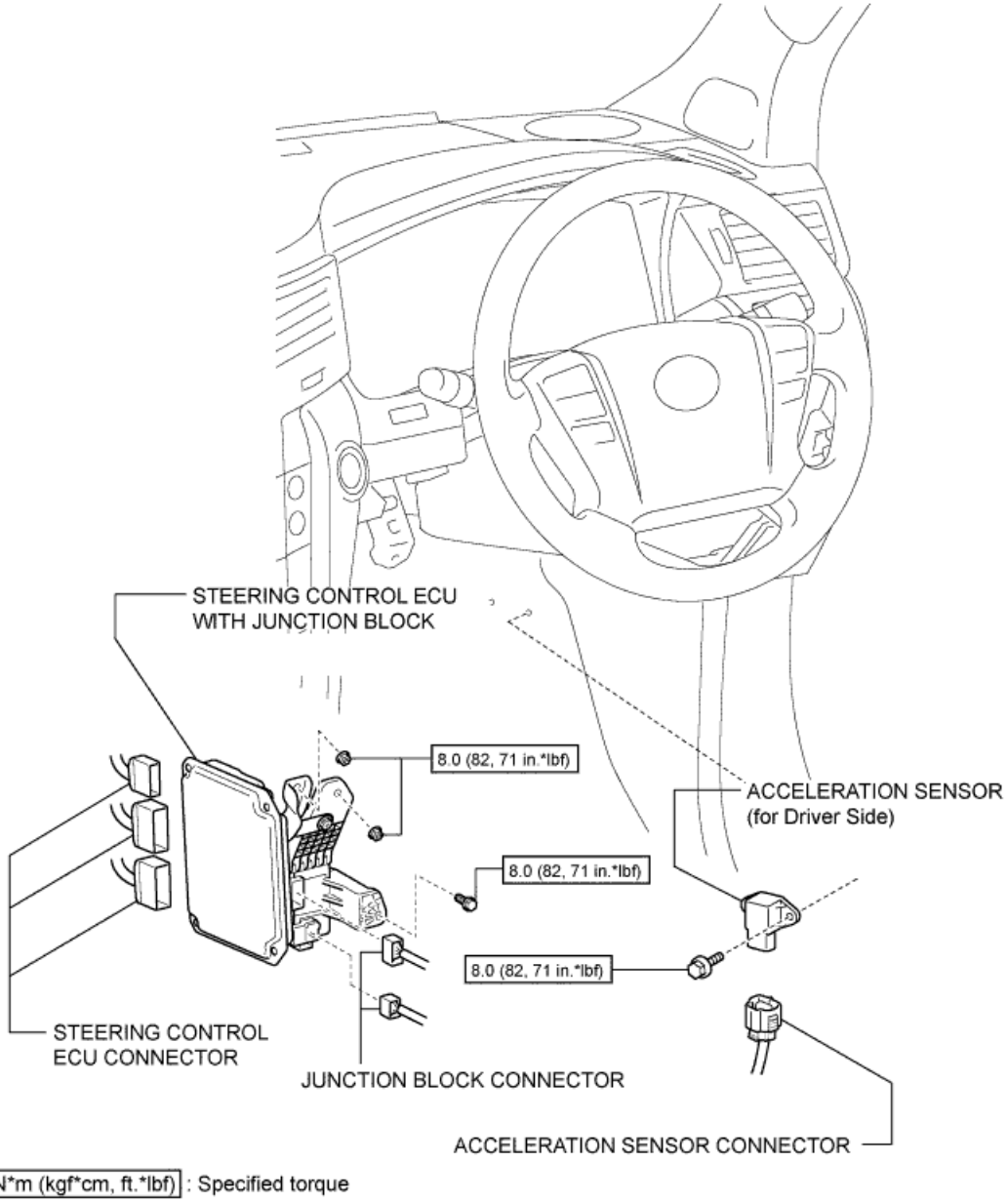

COWL SIDE TRIM BOARD LH
COWL SIDE TRIM BOARD RH
FRONT DOOR SCUFF PLATE RH
(w/o Illumination)
FRONT DOOR SCUFF PLATE LH
(w/o Illumination)
FRONT DOOR SCUFF PLATE LH
(w/ Illumination)
FRONT DOOR SCUFF PLATE RH
(w/ Illumination)

for LHD:


STEERING CONTROL
ECU CONNECTOR
8.0 (82, 71 in.*lbf)
JUNCTION BLOCK
CONNECTOR
ACCELERATION SENSOR
CONNECTOR
8.0 (82, 71 in.*lbf)
ACCELERATION SENSOR
(for Driver Side)
STEERING CONTROL ECU
WITH JUNCTION BLOCK
8.0 (82, 71 in.*lbf)
JUNCTION BLOCK CONNECTOR
N*m (kgf*cm, ft.*lbf) : Specified torque

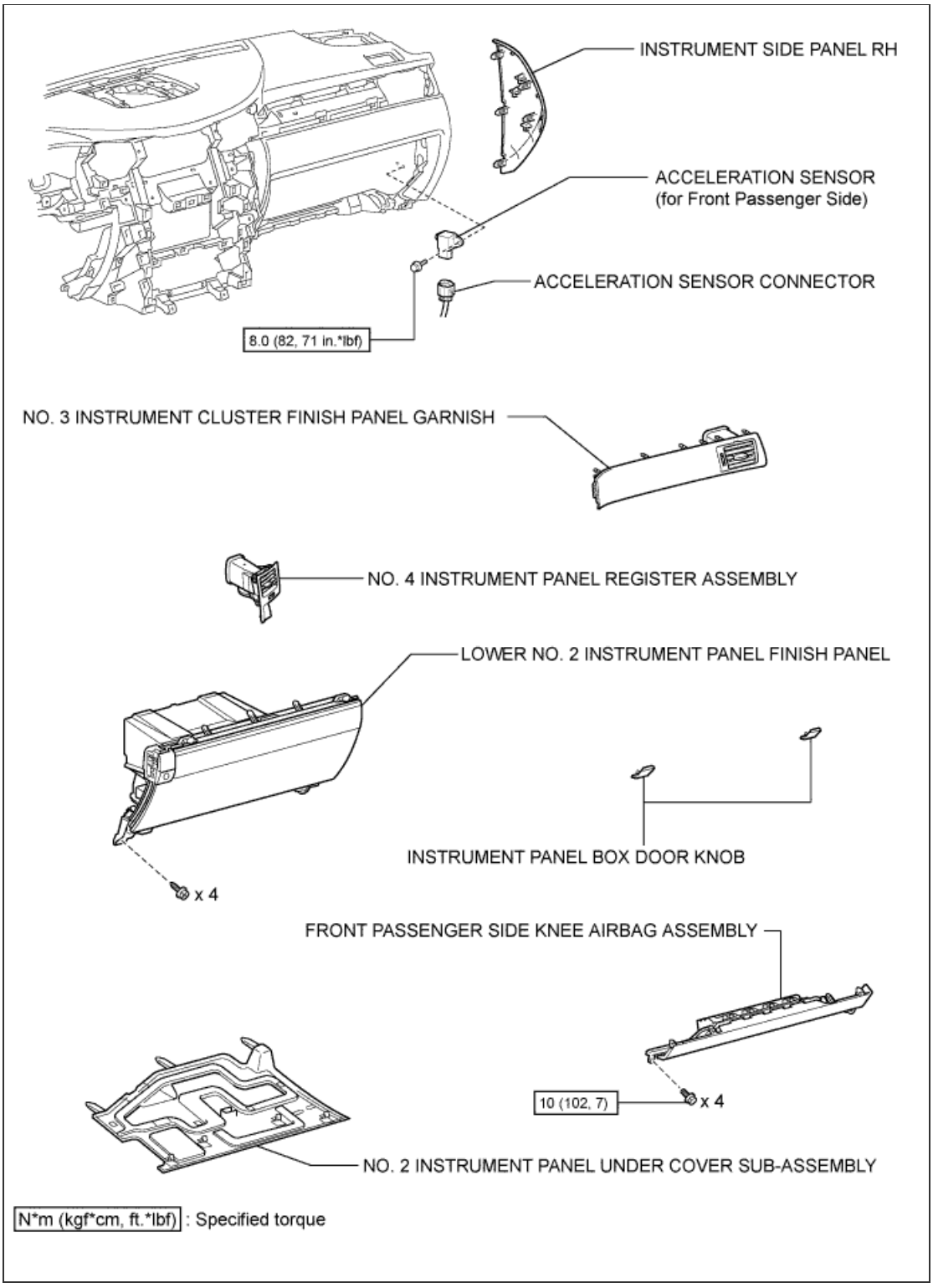
o

for RHD:



N*m (kgf*cm, ft.*lbf) : Specified torque

o


INSTRUMENT SIDE PANEL RH
ACCELERATION SENSOR
(for Front Passenger Side)
ACCELERATION SENSOR CONNECTOR
8.0 (82, 71 in.*lbf)
NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY
LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL
x 4
INSTRUMENT PANEL BOX DOOR KNOB
FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY
10 (102, 7)
x 4
NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY
N*m (kgf*cm, ft.*lbf) : Specified torque

FRONT ACCELERATION SENSOR > REMOVAL

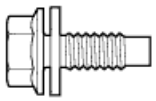
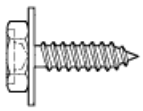
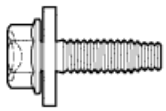
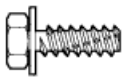
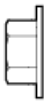
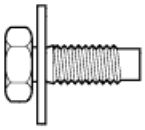
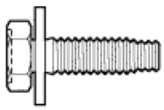
for Preparation Click here

1. TABLE OF BOLT, SCREW AND NUT

HINT:

All bolts, screws and nuts relevant to installing and removing the instrument panel are shown along with their alphabet code in the table below.

mm (in.) (L = Length)

Code	Shape	Code	Shape	Code	Shape
<A>	 φ 6 (0.236) L=16 (0.630)	<B>	 φ 5 (0.197) L=18 (0.709)	<C>	 φ 6 (0.236) L=22 (0.866)
<D>	 φ 5 (0.197) L=15 (0.59)	<E>	 φ 6 (0.236)	<F>	 φ 8 (0.315) L=20 (0.787)
<G>	 φ 6 (0.236) L=21 (0.826)				

P

2. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

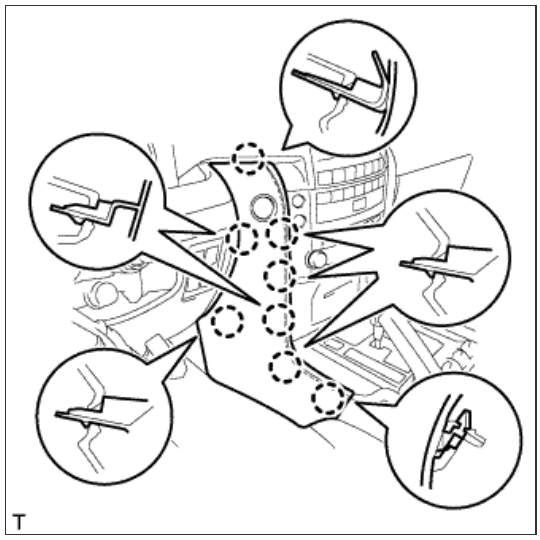
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

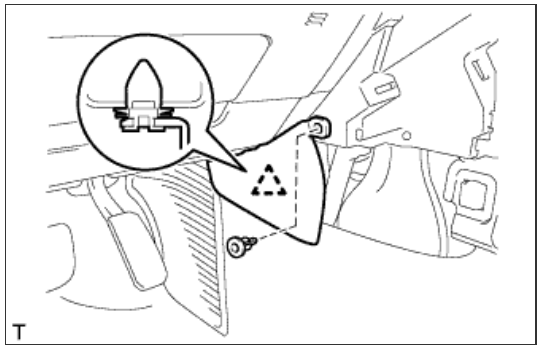
b. Disconnect the connector and remove the panel pad.



5. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

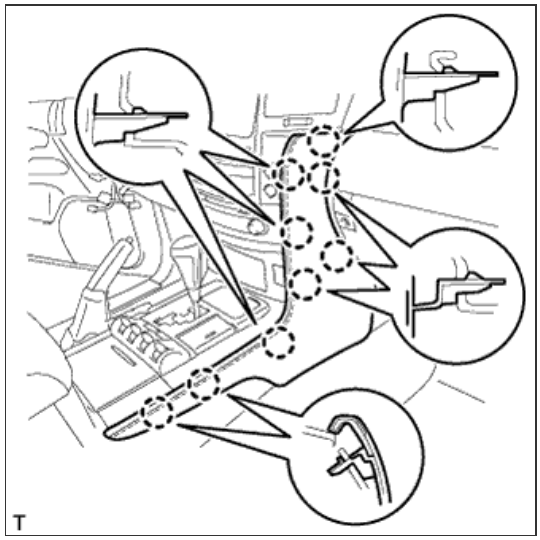
a. Remove the clip.

b. Detach the clip and remove the cover.



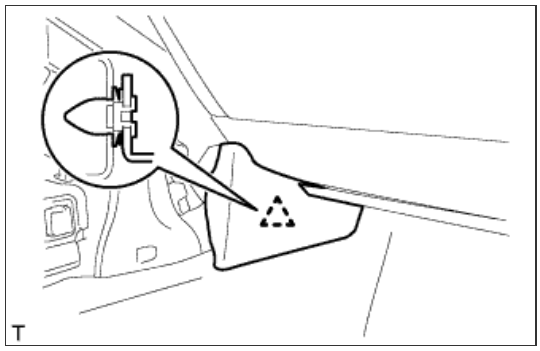
6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Detach the 9 claws and remove the panel pad.



7. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

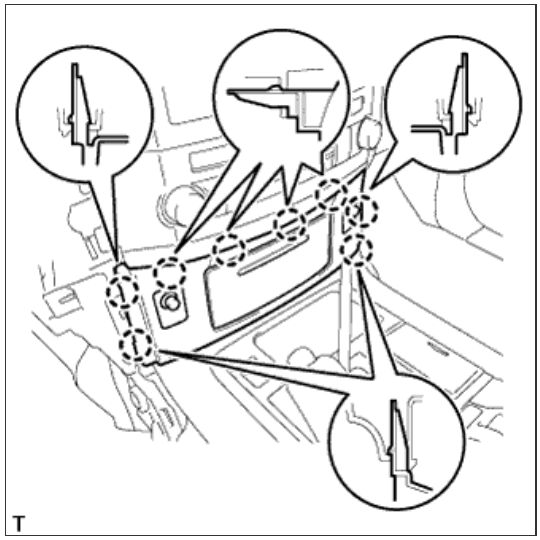
a. Detach the clip and remove the cover.



8. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Detach the 8 claws.

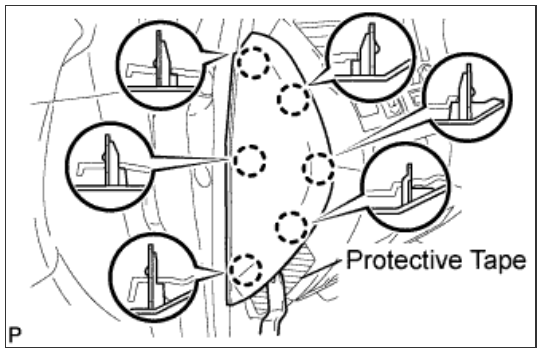
b. Disconnect the connectors and remove the panel.



9. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

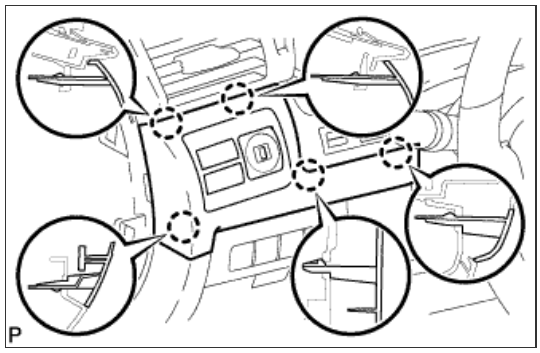
b. Using a moulding remover, detach the 6 claws and remove the side panel.



10. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

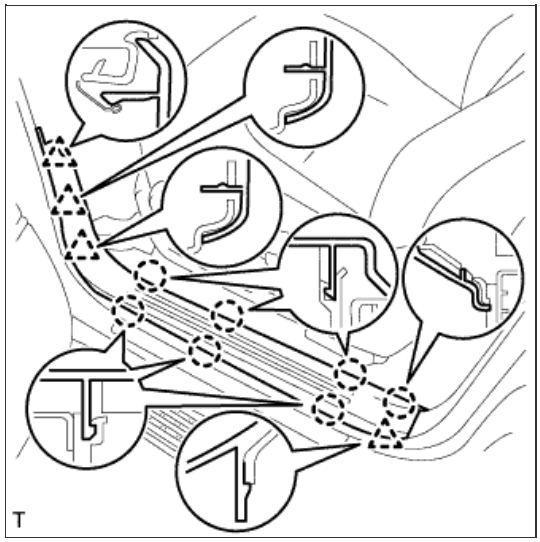
b. Disconnect the connectors and remove the switch hole base.



11. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

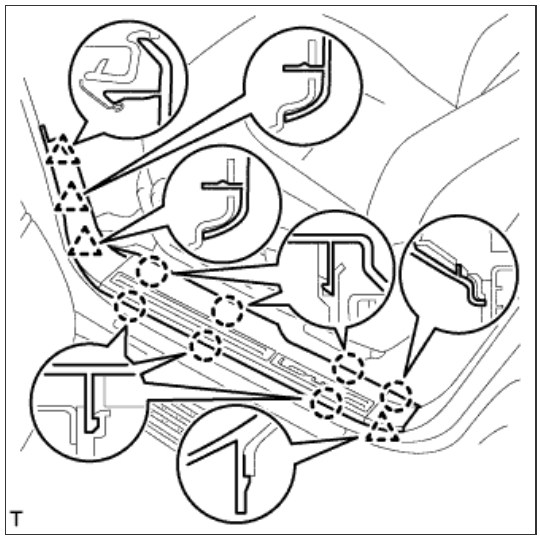
i. Detach the 7 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.

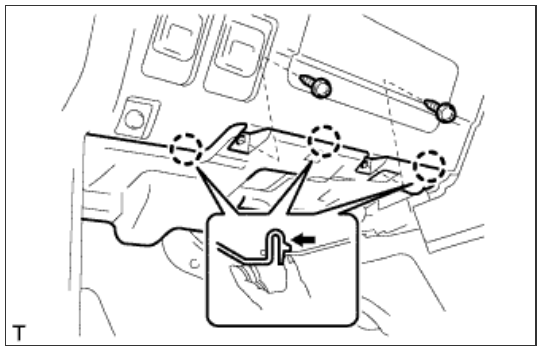


12. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

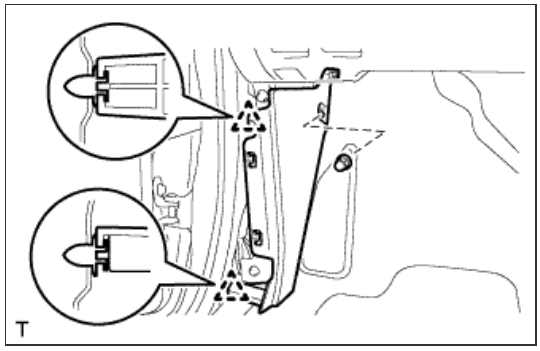
c. Remove the under cover and disconnect the connectors.



13. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

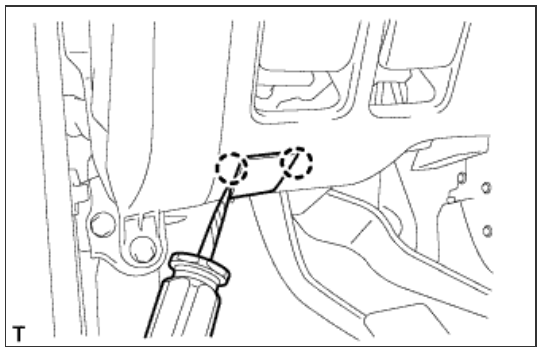


14. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

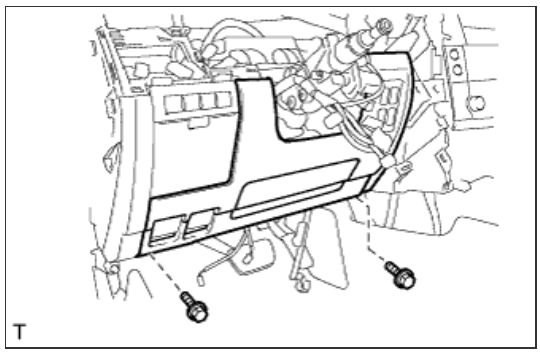
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

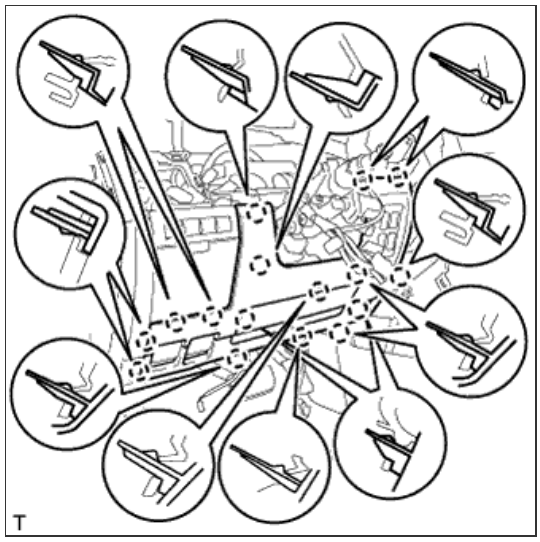
Tape the screwdriver tip before use.



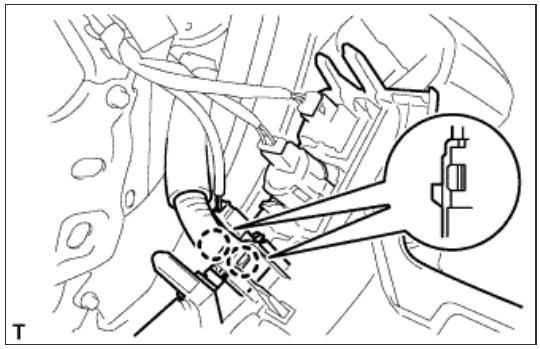
b. Remove the 2 bolts.



c. Detach the 16 claws.

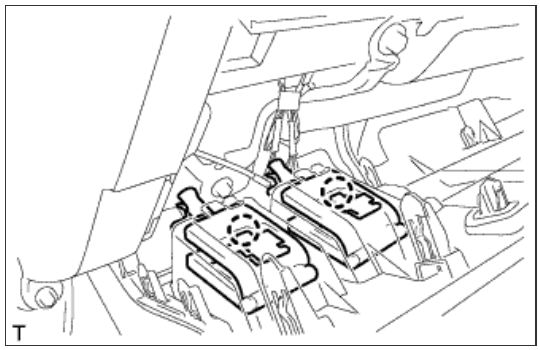


d. Detach the 2 claws and remove the sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

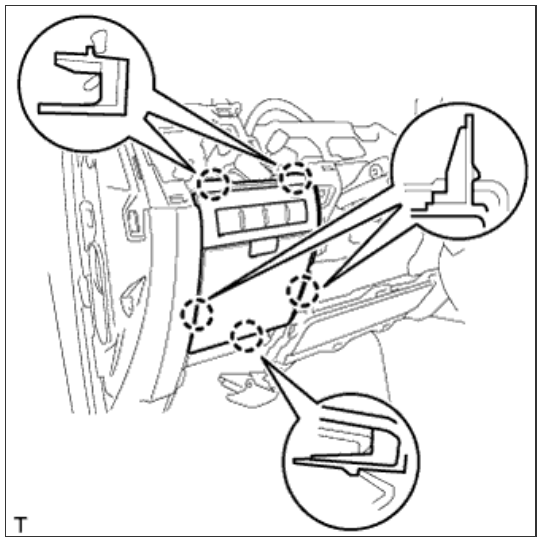
f. Remove the finish panel and then disconnect the connectors.



15. REMOVE INSTRUMENT PANEL BOX ASSEMBLY

a. Detach the 5 claws.

b. Remove the box and then disconnect the connectors.



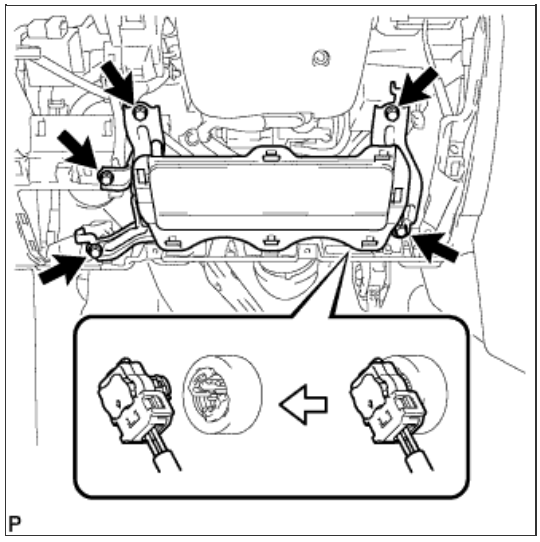
16. REMOVE DRIVER SIDE KNEE AIRBAG ASSEMBLY

a. Remove the 5 bolts and driver side knee airbag.

b. Disconnect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



17. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

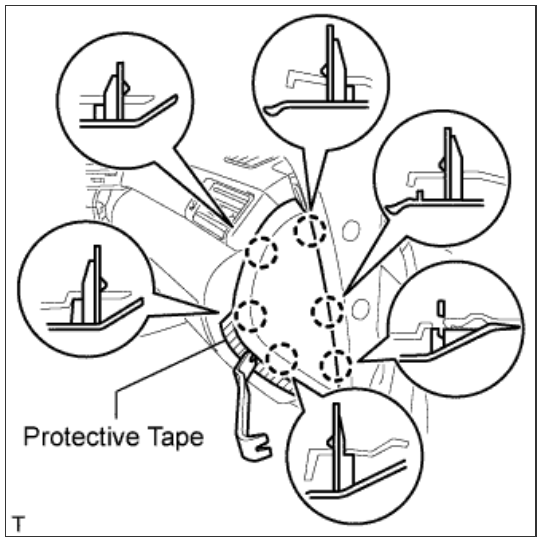
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

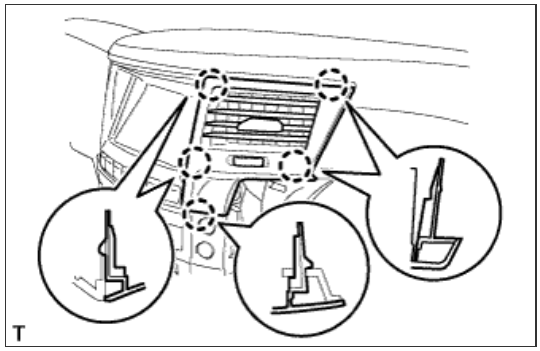
ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.



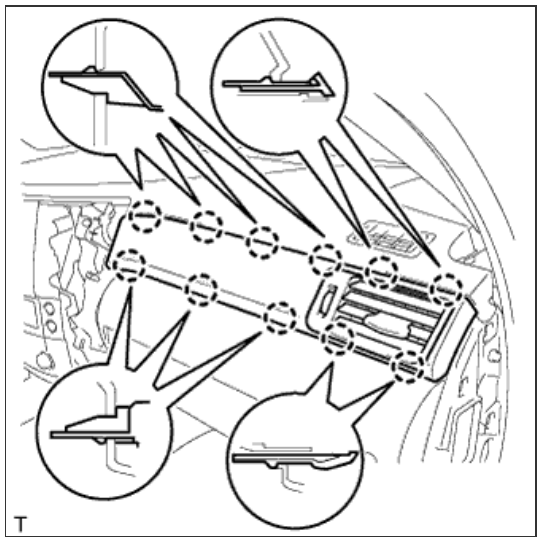
18. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.

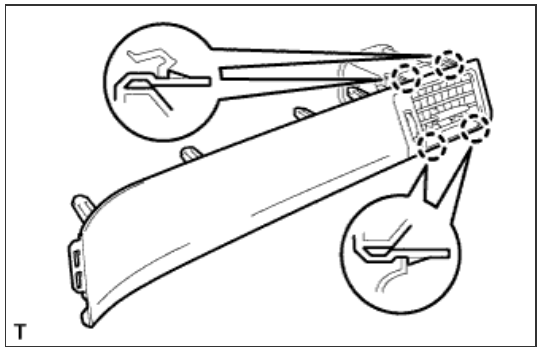


19. REMOVE NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Detach the 11 claws and remove the register assembly.



b. Detach the 4 claws and remove the panel garnish.



20. REMOVE FRONT DOOR SCUFF PLATE RH

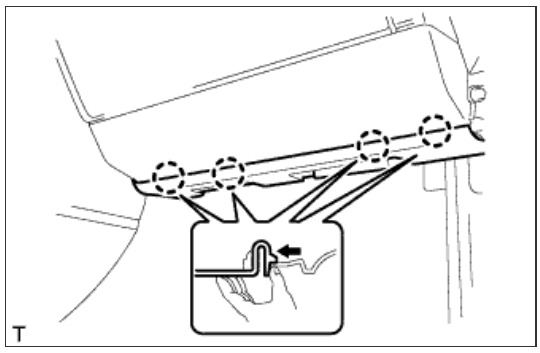
HINT:

Use the same procedures described for the LH side.

21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

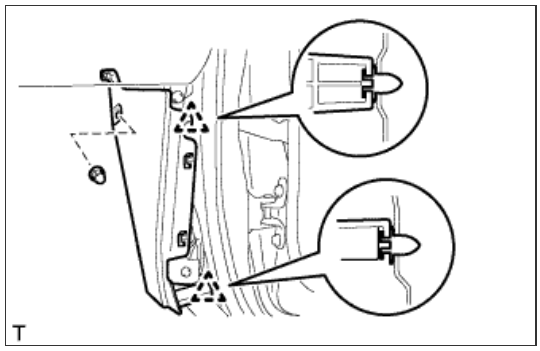
b. Remove the under cover and disconnect the connector.



22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



23. REMOVE FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

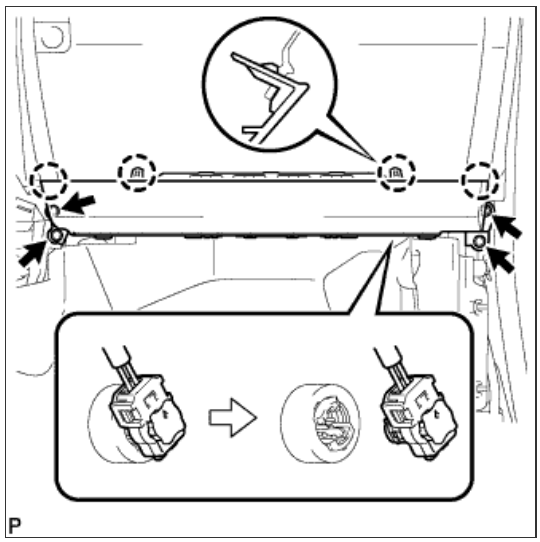
a. Remove the 4 bolts.

b. Detach the 4 claws and remove the front passenger side knee airbag.

c. Disconnect the connector.

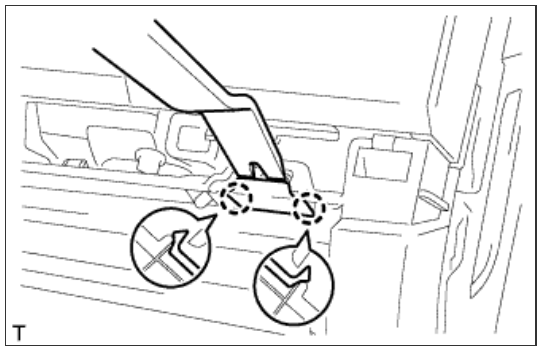
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



24. REMOVE INSTRUMENT PANEL BOX DOOR KNOB

a. Using a moulding remover, detach the 2 claws and remove the knob.

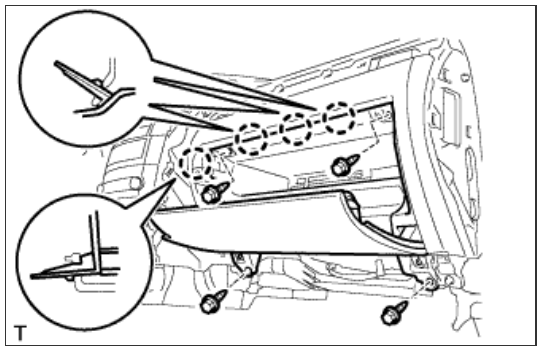


25. REMOVE LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Remove the 4 bolts.

b. Detach the 4 claws.

c. Remove the finish panel and then disconnect the connector.



26. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Rear Side:

i. Disconnect the 7 connectors.

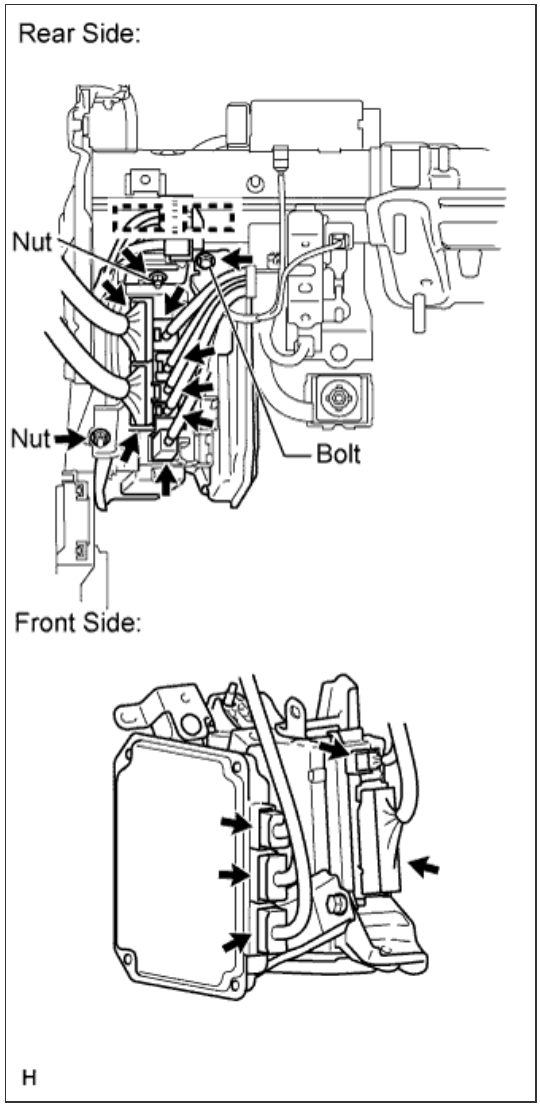
ii. Detach the 2 clamps.

iii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 5 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



27. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Rear Side:

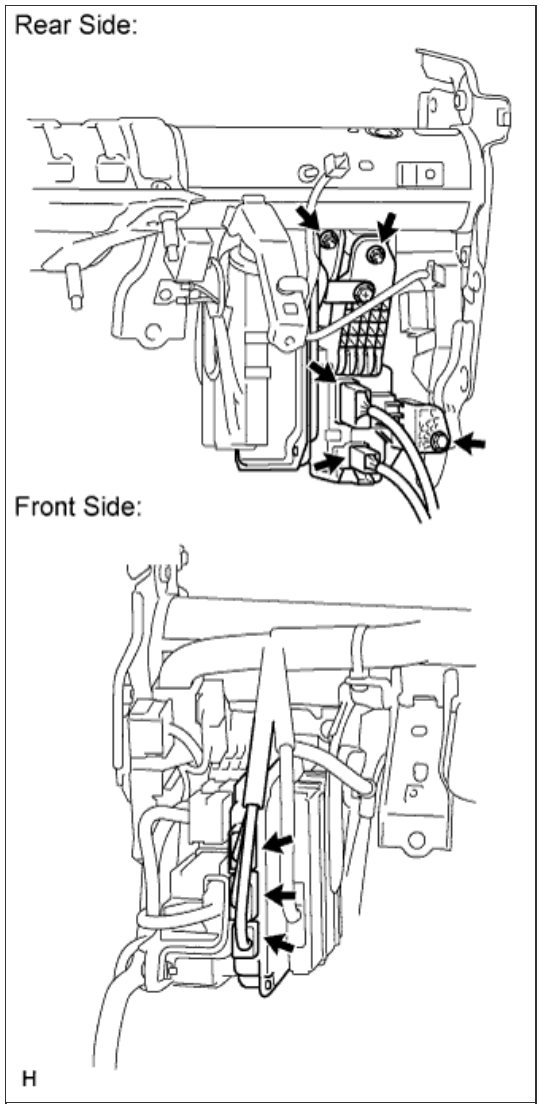
i. Disconnect the 2 connectors.

ii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 3 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



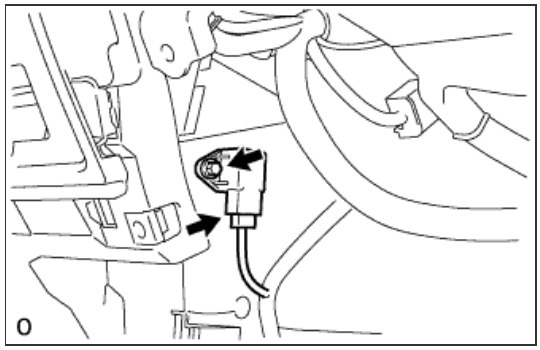
28. REMOVE ACCELERATION SENSOR (for Driver Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

HINT:

Use the same procedures for LHD and RHD vehicles.



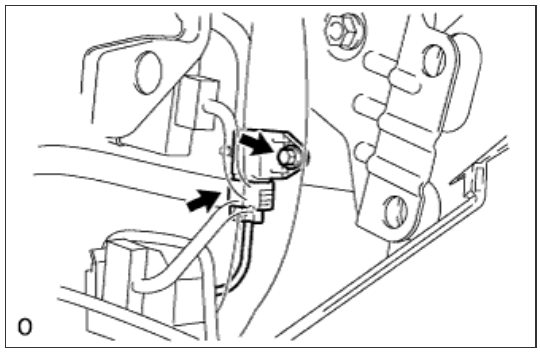
29. REMOVE ACCELERATION SENSOR (for Front Passenger Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

HINT:

Use the same procedures for LHD and RHD vehicles.



FRONT ACCELERATION SENSOR > REMOVAL

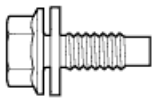
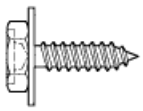
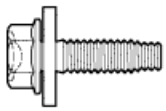
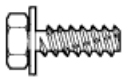
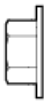
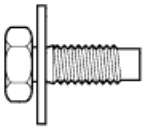
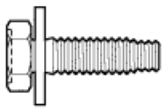
for Preparation Click here

1. TABLE OF BOLT, SCREW AND NUT

HINT:

All bolts, screws and nuts relevant to installing and removing the instrument panel are shown along with their alphabet code in the table below.

mm (in.) (L = Length)

Code	Shape	Code	Shape	Code	Shape
<A>	 φ 6 (0.236) L=16 (0.630)	<B>	 φ 5 (0.197) L=18 (0.709)	<C>	 φ 6 (0.236) L=22 (0.866)
<D>	 φ 5 (0.197) L=15 (0.59)	<E>	 φ 6 (0.236)	<F>	 φ 8 (0.315) L=20 (0.787)
<G>	 φ 6 (0.236) L=21 (0.826)				

P

2. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

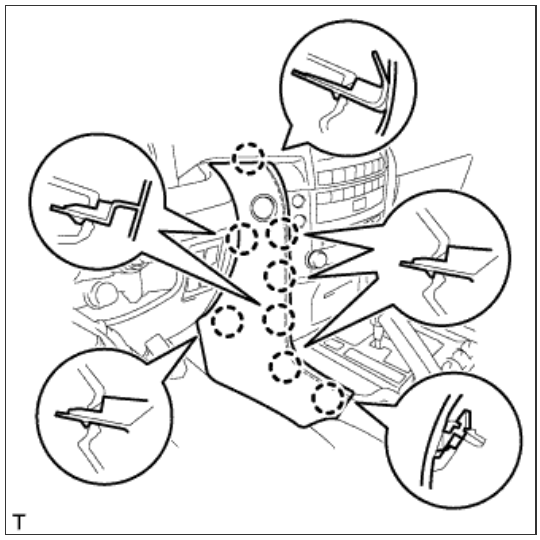
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

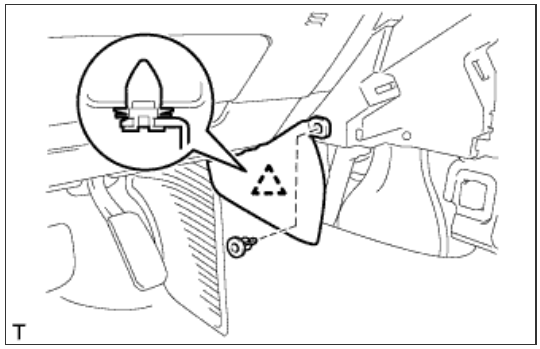
b. Disconnect the connector and remove the panel pad.



5. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

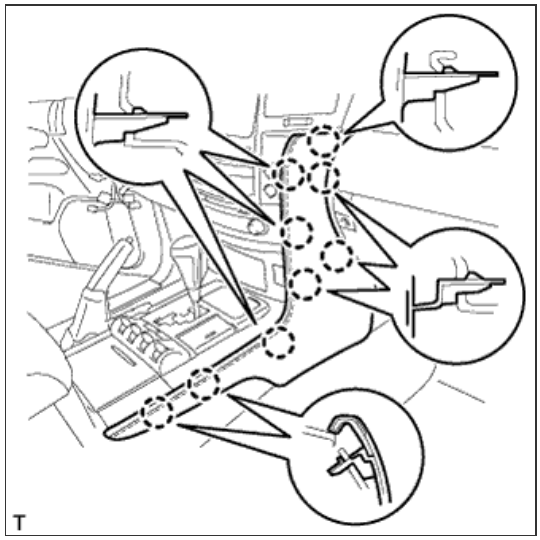
a. Remove the clip.

b. Detach the clip and remove the cover.



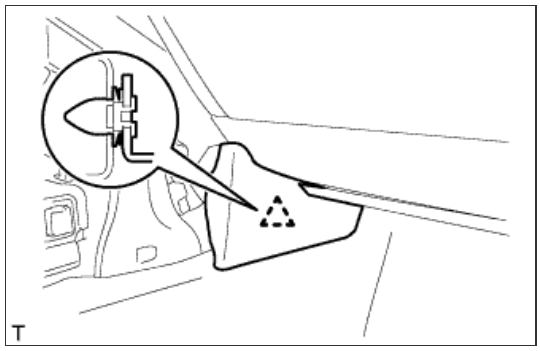
6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Detach the 9 claws and remove the panel pad.



7. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

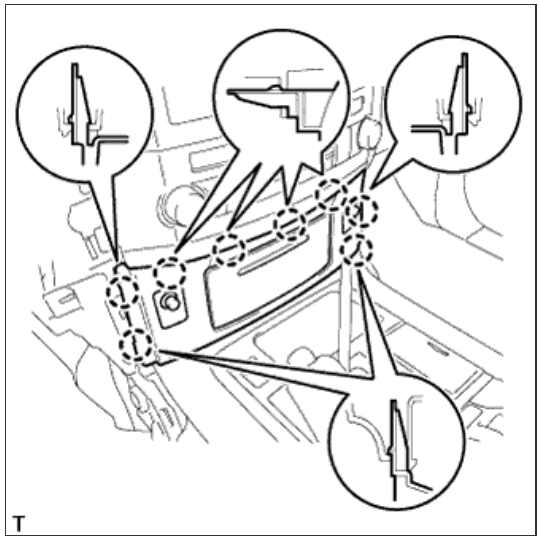
a. Detach the clip and remove the cover.



8. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Detach the 8 claws.

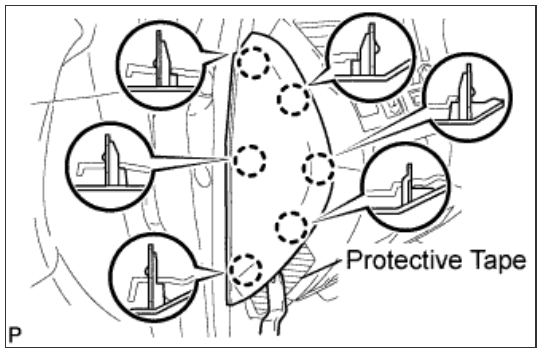
b. Disconnect the connectors and remove the panel.



9. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

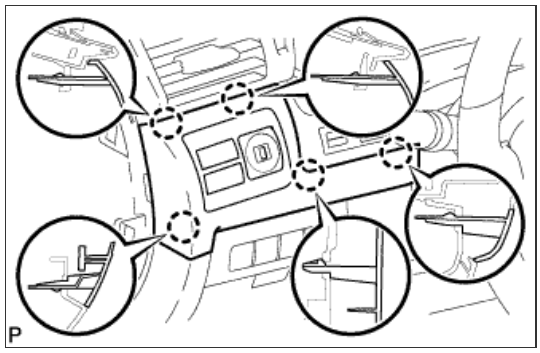
b. Using a moulding remover, detach the 6 claws and remove the side panel.



10. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

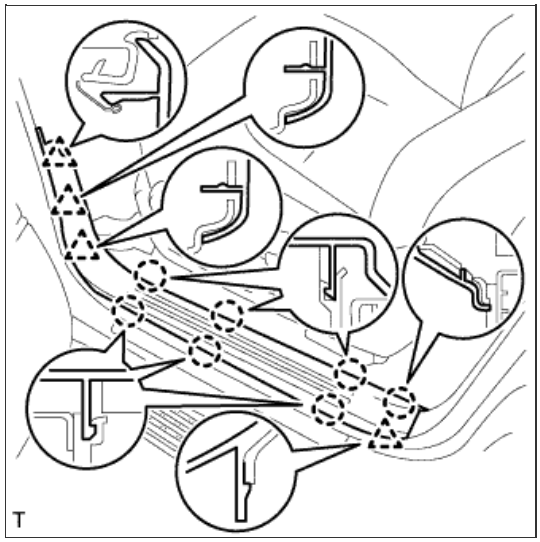
b. Disconnect the connectors and remove the switch hole base.



11. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

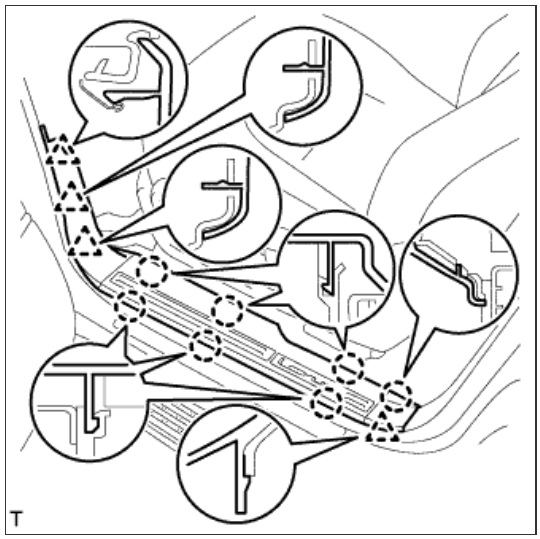
i. Detach the 7 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.

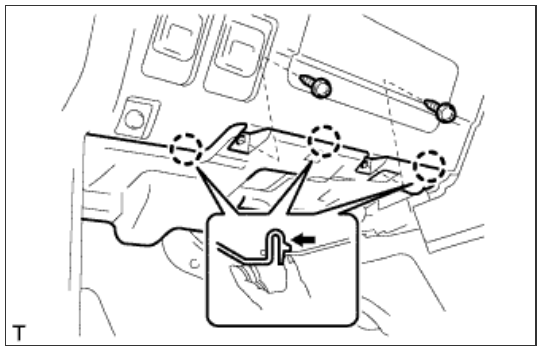


12. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

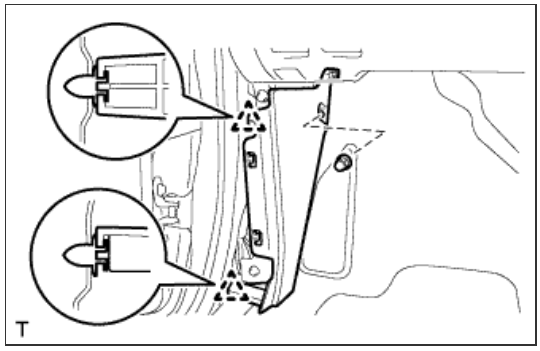
c. Remove the under cover and disconnect the connectors.



13. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

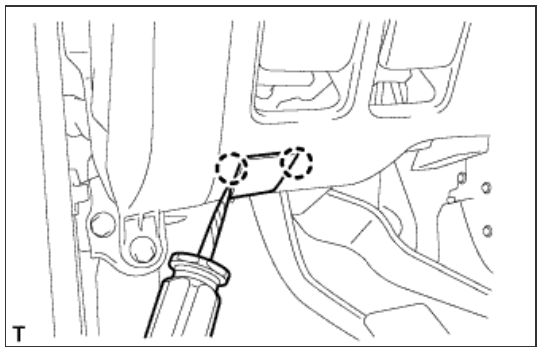


14. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

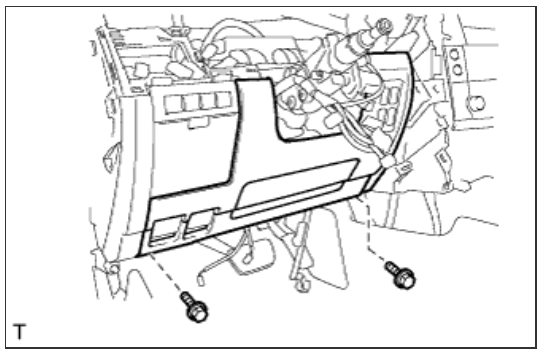
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

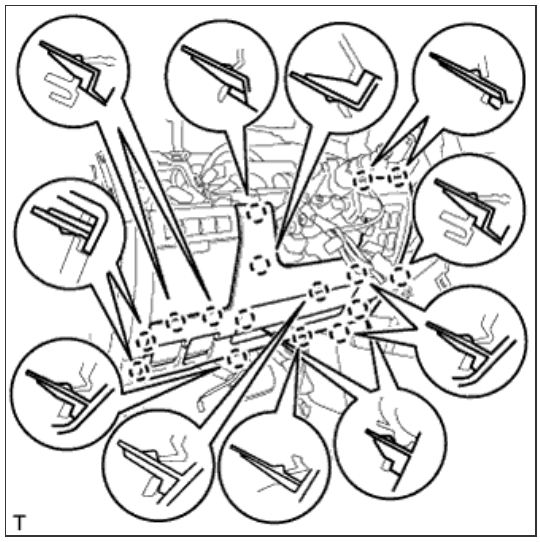
Tape the screwdriver tip before use.



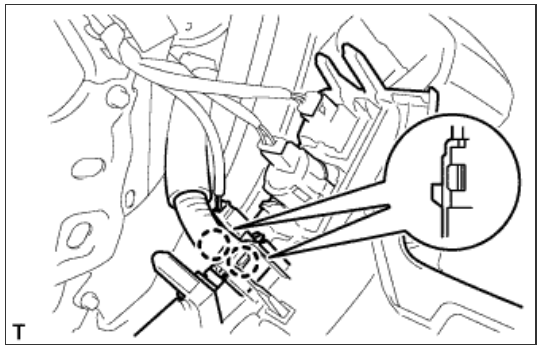
b. Remove the 2 bolts.



c. Detach the 16 claws.

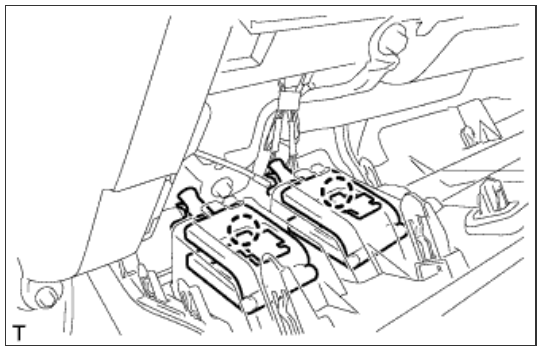


d. Detach the 2 claws and remove the sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

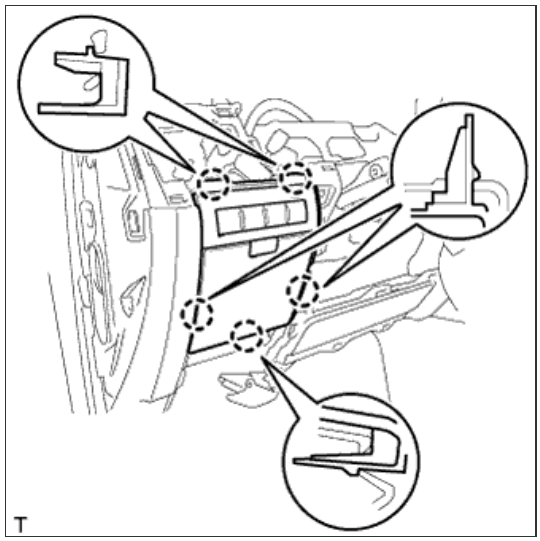
f. Remove the finish panel and then disconnect the connectors.



15. REMOVE INSTRUMENT PANEL BOX ASSEMBLY

a. Detach the 5 claws.

b. Remove the box and then disconnect the connectors.



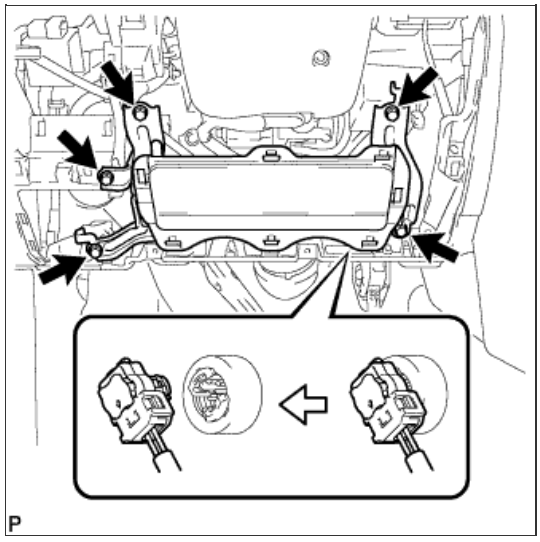
16. REMOVE DRIVER SIDE KNEE AIRBAG ASSEMBLY

a. Remove the 5 bolts and driver side knee airbag.

b. Disconnect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



17. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

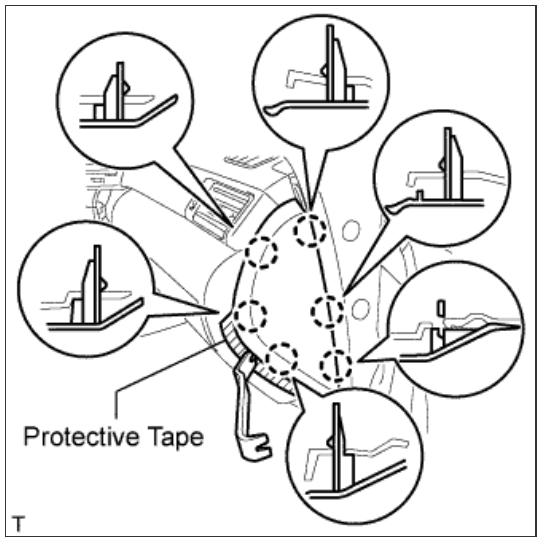
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

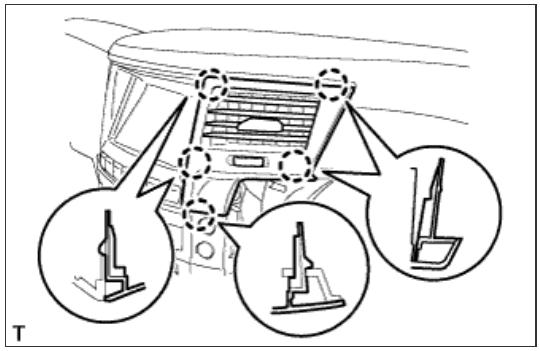
ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.



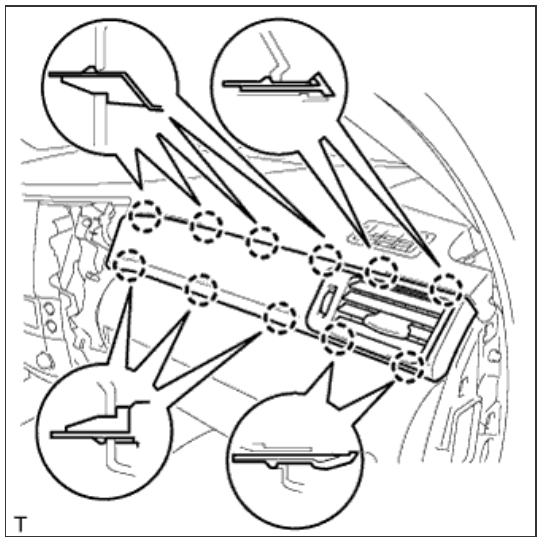
18. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.

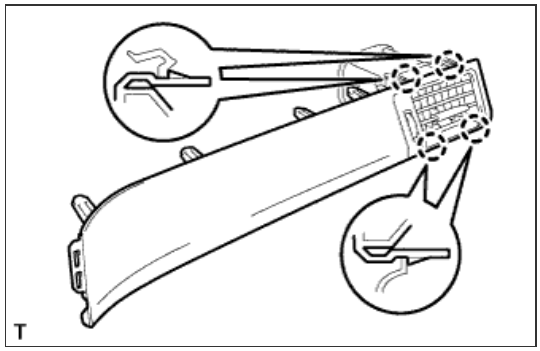


19. REMOVE NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Detach the 11 claws and remove the register assembly.



b. Detach the 4 claws and remove the panel garnish.



20. REMOVE FRONT DOOR SCUFF PLATE RH

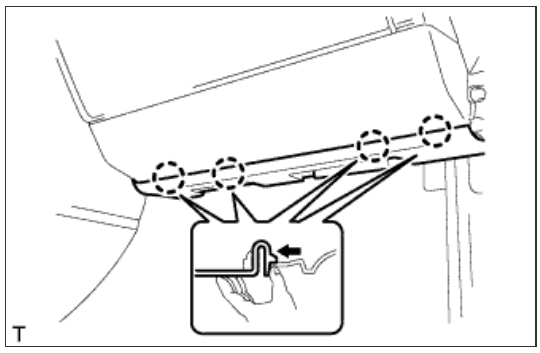
HINT:

Use the same procedures described for the LH side.

21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

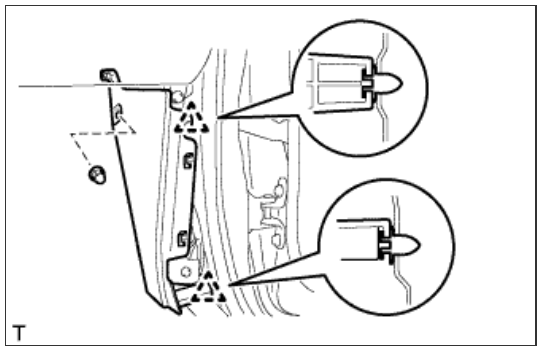
b. Remove the under cover and disconnect the connector.



22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



23. REMOVE FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

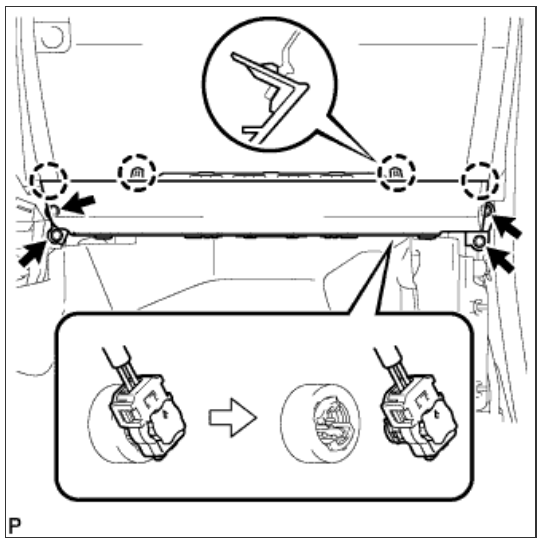
a. Remove the 4 bolts.

b. Detach the 4 claws and remove the front passenger side knee airbag.

c. Disconnect the connector.

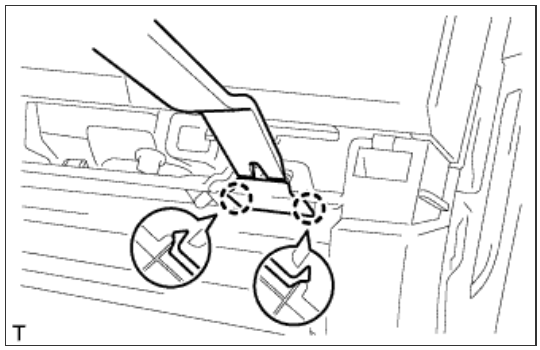
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



24. REMOVE INSTRUMENT PANEL BOX DOOR KNOB

a. Using a moulding remover, detach the 2 claws and remove the knob.

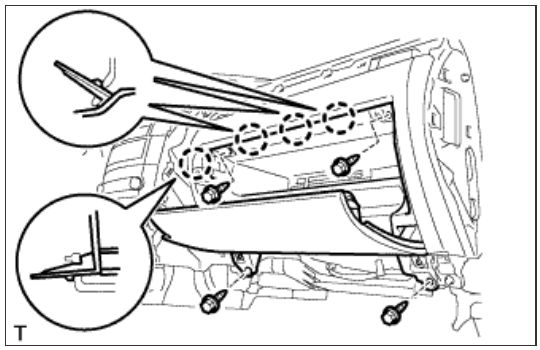


25. REMOVE LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Remove the 4 bolts.

b. Detach the 4 claws.

c. Remove the finish panel and then disconnect the connector.



26. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Rear Side:

i. Disconnect the 7 connectors.

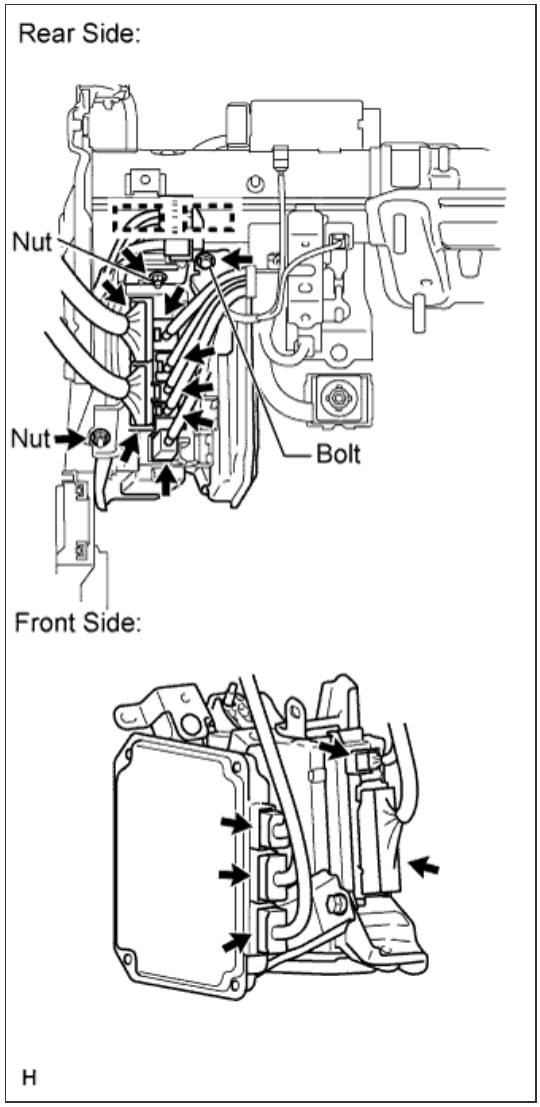
ii. Detach the 2 clamps.

iii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 5 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



27. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Rear Side:

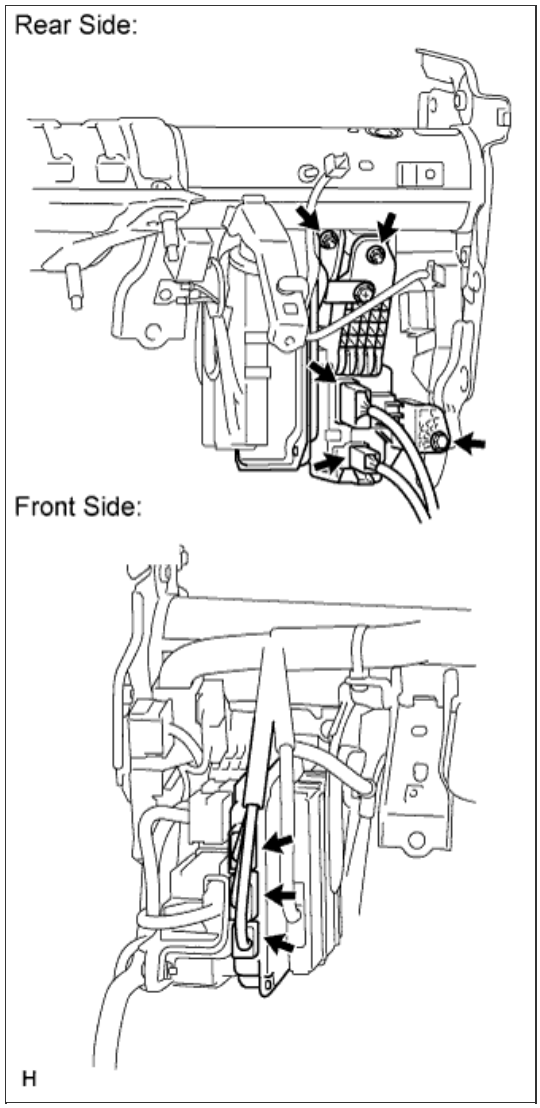
i. Disconnect the 2 connectors.

ii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 3 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



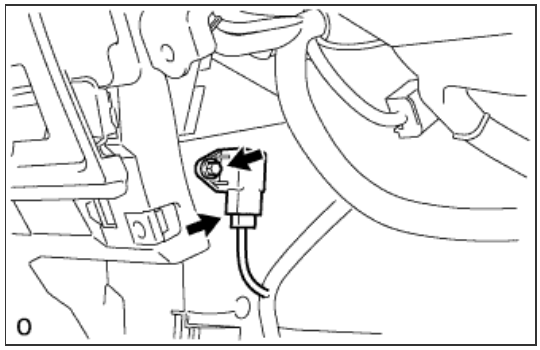
28. REMOVE ACCELERATION SENSOR (for Driver Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

HINT:

Use the same procedures for LHD and RHD vehicles.



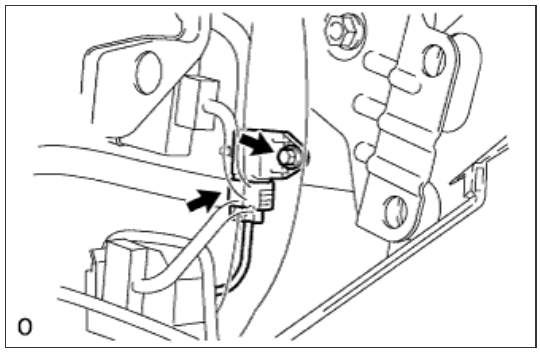
29. REMOVE ACCELERATION SENSOR (for Front Passenger Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

HINT:

Use the same procedures for LHD and RHD vehicles.



FRONT ACCELERATION SENSOR > REMOVAL

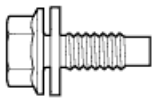
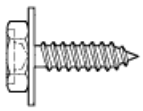
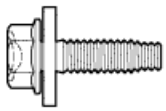
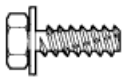
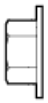
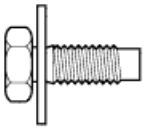
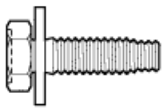
for Preparation Click here

1. TABLE OF BOLT, SCREW AND NUT

HINT:

All bolts, screws and nuts relevant to installing and removing the instrument panel are shown along with their alphabet code in the table below.

mm (in.) (L = Length)

Code	Shape	Code	Shape	Code	Shape
<A>	 φ 6 (0.236) L=16 (0.630)	<B>	 φ 5 (0.197) L=18 (0.709)	<C>	 φ 6 (0.236) L=22 (0.866)
<D>	 φ 5 (0.197) L=15 (0.59)	<E>	 φ 6 (0.236)	<F>	 φ 8 (0.315) L=20 (0.787)
<G>	 φ 6 (0.236) L=21 (0.826)				

P

2. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

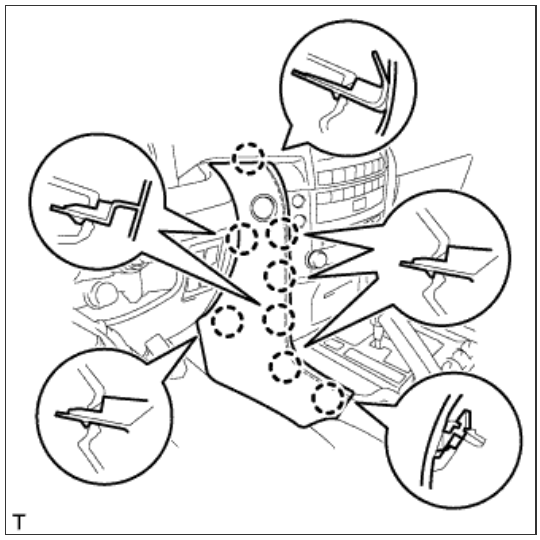
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Detach the 8 claws.

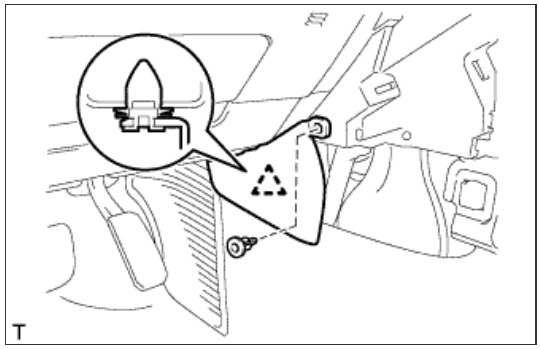
b. Disconnect the connector and remove the panel pad.



5. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

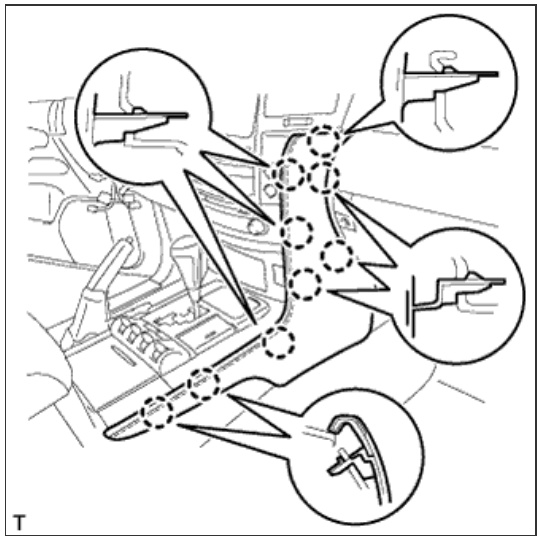
a. Remove the clip.

b. Detach the clip and remove the cover.



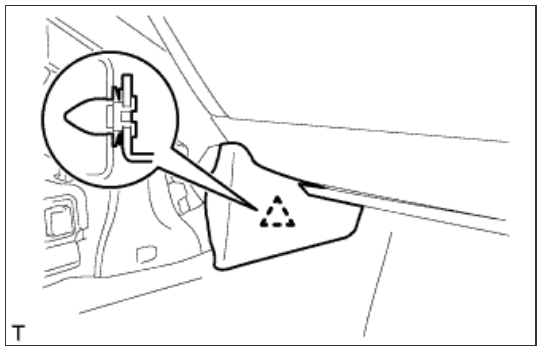
6. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

a. Detach the 9 claws and remove the panel pad.



7. REMOVE INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

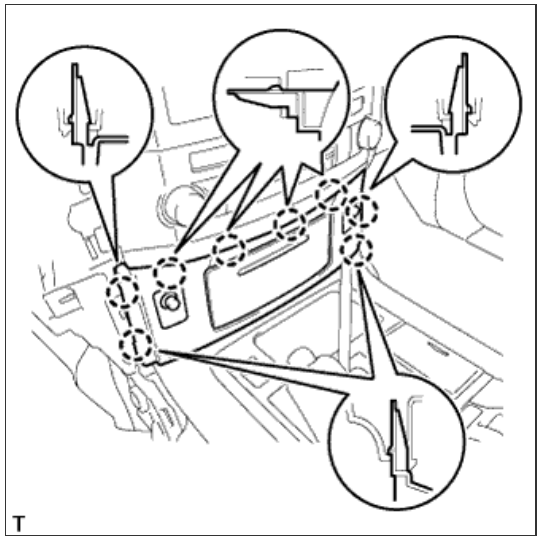
a. Detach the clip and remove the cover.



8. REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

a. Detach the 8 claws.

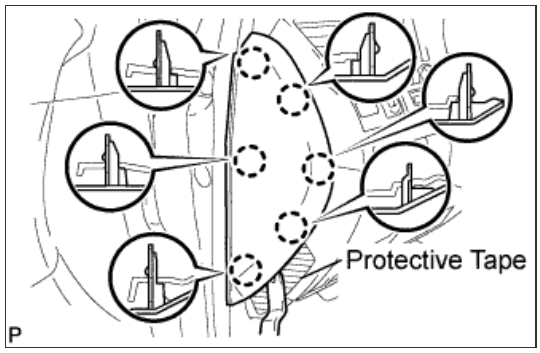
b. Disconnect the connectors and remove the panel.



9. REMOVE INSTRUMENT SIDE PANEL LH

a. Place protective tape as shown in the illustration.

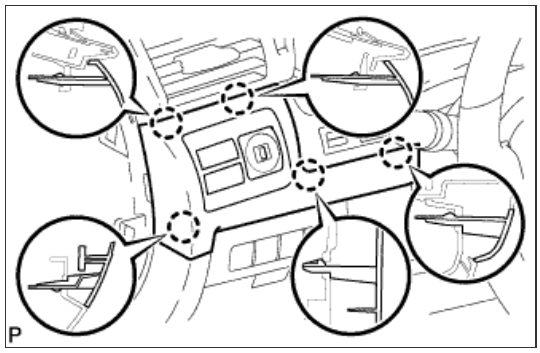
b. Using a moulding remover, detach the 6 claws and remove the side panel.



10. REMOVE NO. 1 SWITCH HOLE BASE

a. Detach the 5 claws.

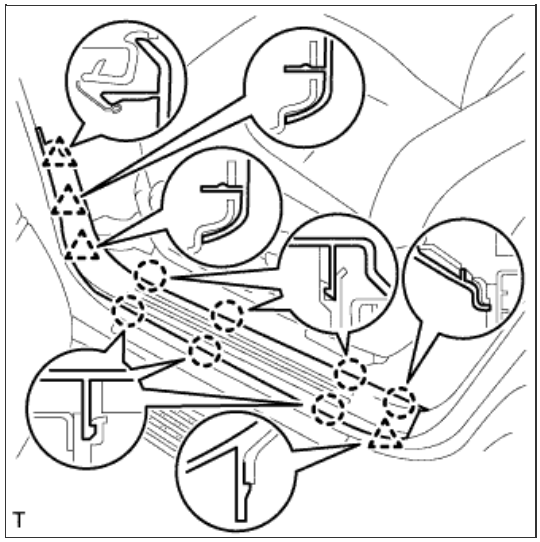
b. Disconnect the connectors and remove the switch hole base.



11. REMOVE FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

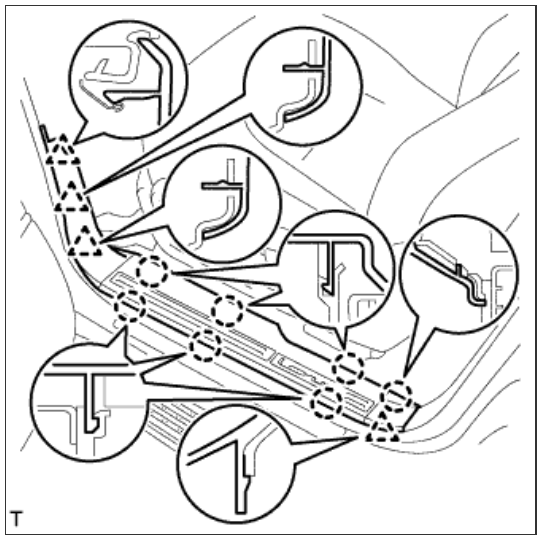
i. Detach the 7 claws and 4 clips, and remove the scuff plate.



b. w/ Illumination:

i. Detach the 7 claws and 4 clips.

ii. Disconnect the connector and remove the scuff plate.

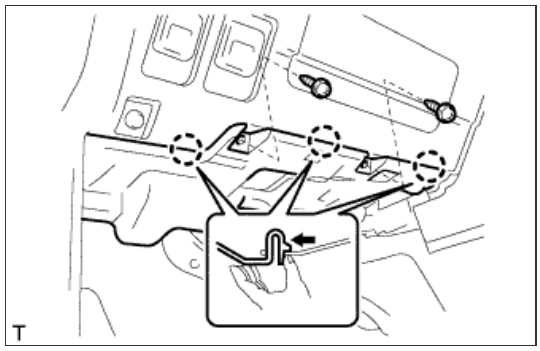


12. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

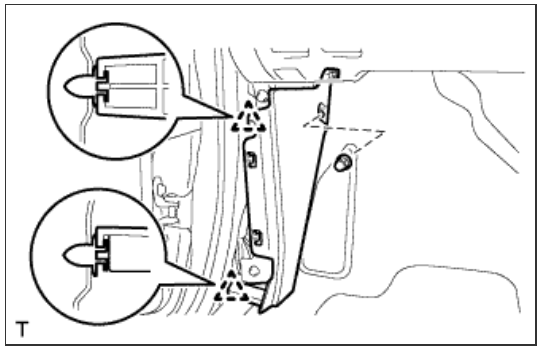
c. Remove the under cover and disconnect the connectors.



13. REMOVE COWL SIDE TRIM BOARD LH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.

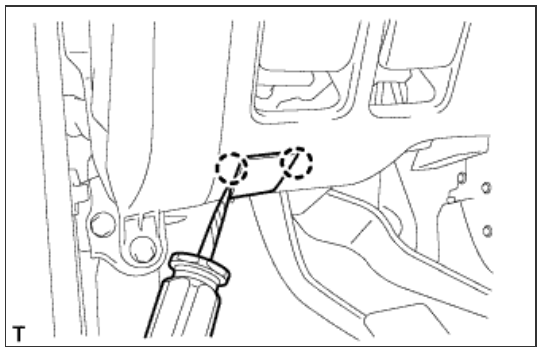


14. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

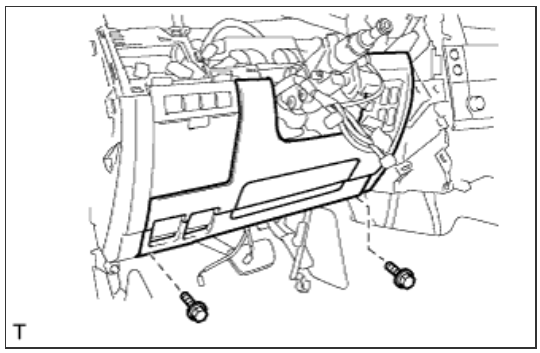
a. Using a screwdriver, detach the 2 claws and open the hole cover.

HINT:

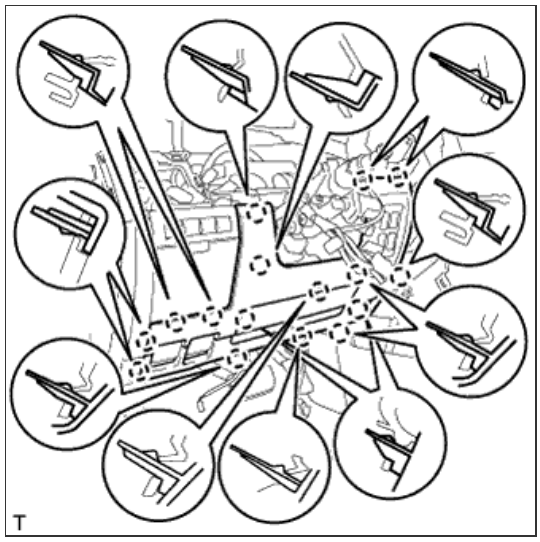
Tape the screwdriver tip before use.



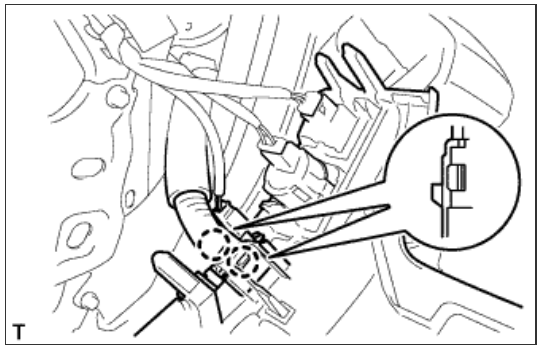
b. Remove the 2 bolts.



c. Detach the 16 claws.

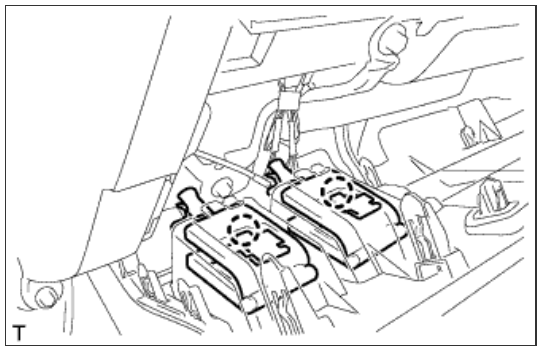


d. Detach the 2 claws and remove the sensor.



e. Detach the 2 claws and disconnect the 2 control cables.

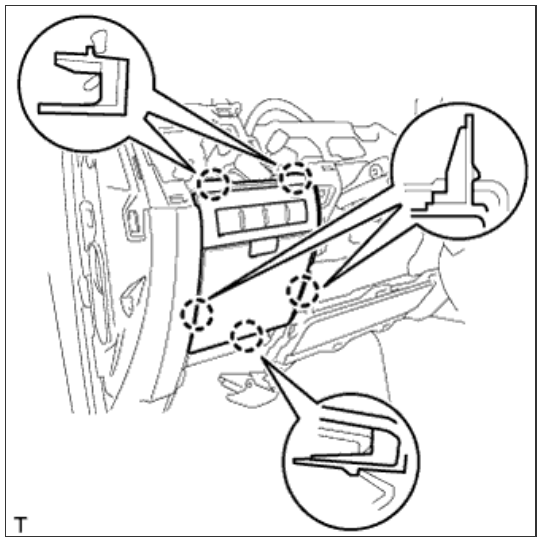
f. Remove the finish panel and then disconnect the connectors.



15. REMOVE INSTRUMENT PANEL BOX ASSEMBLY

a. Detach the 5 claws.

b. Remove the box and then disconnect the connectors.



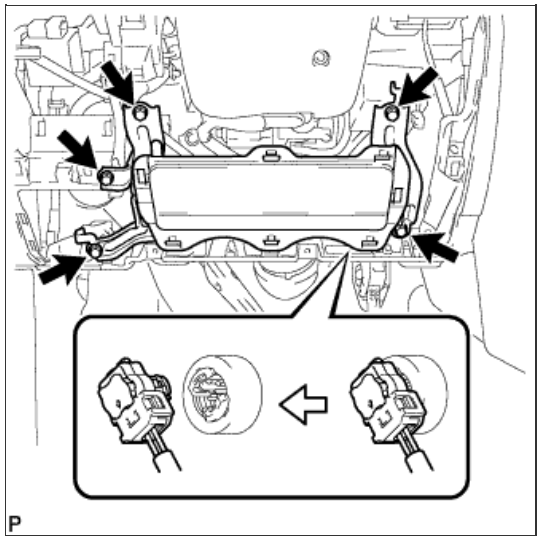
16. REMOVE DRIVER SIDE KNEE AIRBAG ASSEMBLY

a. Remove the 5 bolts and driver side knee airbag.

b. Disconnect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



17. REMOVE INSTRUMENT SIDE PANEL RH

a. w/o Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

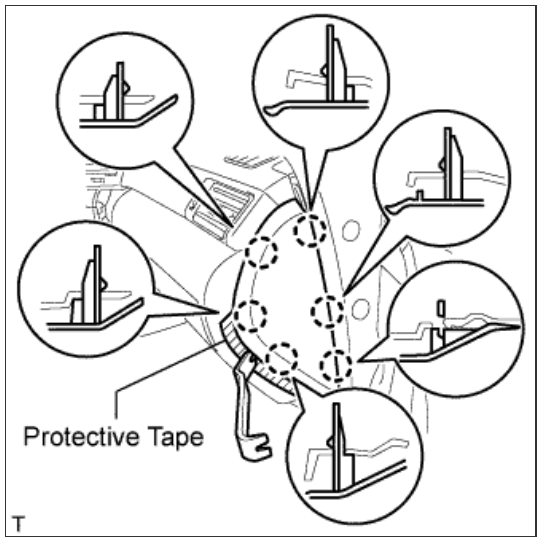
ii. Using a moulding remover, detach the 6 claws and remove the side panel.

b. w/ Airbag Cut Off Switch:

i. Place protective tape as shown in the illustration.

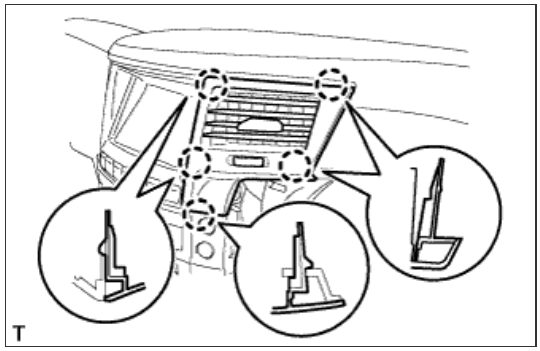
ii. Using a moulding remover, detach the 6 claws.

iii. Remove the side panel and disconnect the connector.



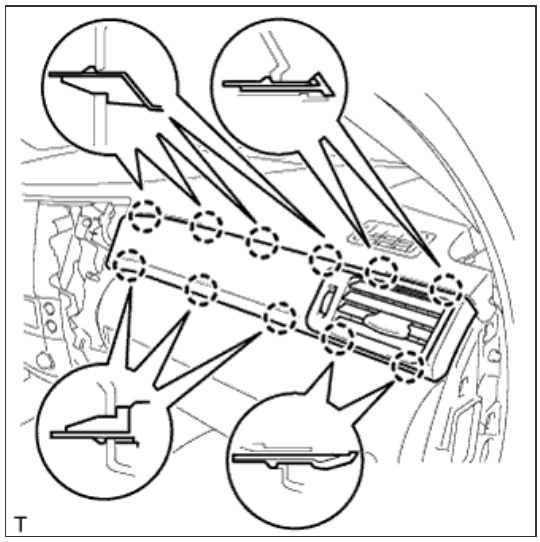
18. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Detach the 5 claws and remove the register.

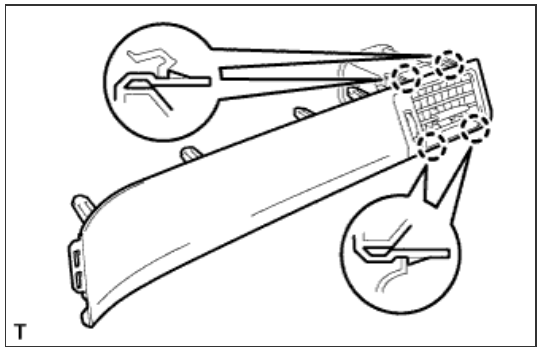


19. REMOVE NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Detach the 11 claws and remove the register assembly.



b. Detach the 4 claws and remove the panel garnish.



20. REMOVE FRONT DOOR SCUFF PLATE RH

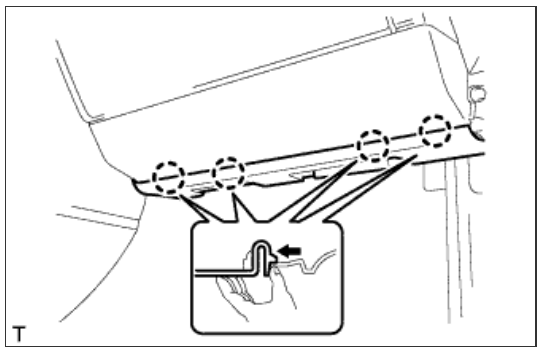
HINT:

Use the same procedures described for the LH side.

21. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Detach the 4 claws.

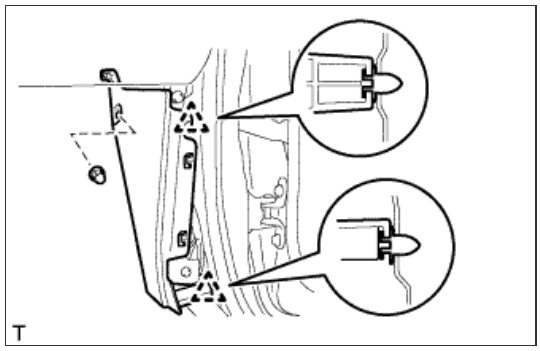
b. Remove the under cover and disconnect the connector.



22. REMOVE COWL SIDE TRIM BOARD RH

a. Remove the cap nut.

b. Detach the 2 clips and remove the trim board.



23. REMOVE FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

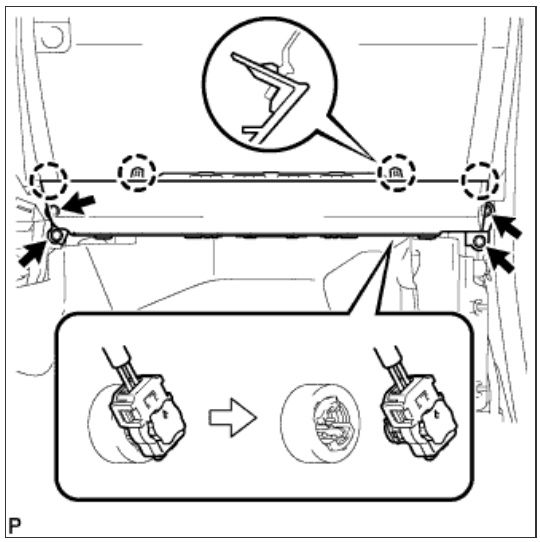
a. Remove the 4 bolts.

b. Detach the 4 claws and remove the front passenger side knee airbag.

c. Disconnect the connector.

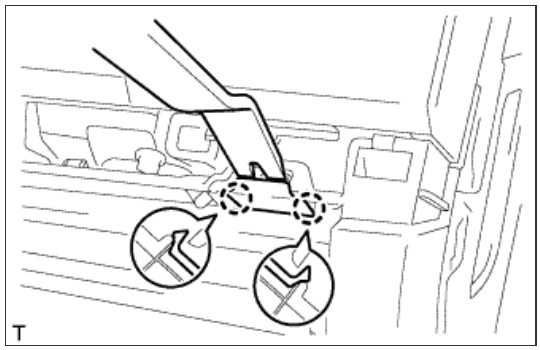
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.



24. REMOVE INSTRUMENT PANEL BOX DOOR KNOB

a. Using a moulding remover, detach the 2 claws and remove the knob.

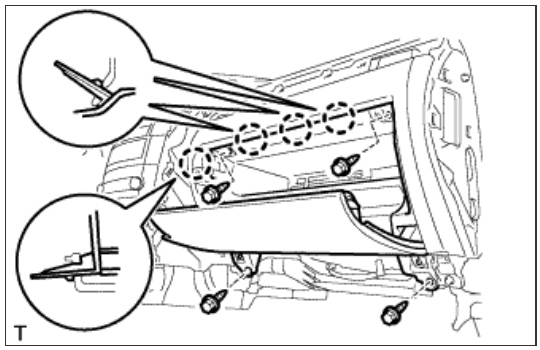


25. REMOVE LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Remove the 4 bolts.

b. Detach the 4 claws.

c. Remove the finish panel and then disconnect the connector.



26. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Rear Side:

i. Disconnect the 7 connectors.

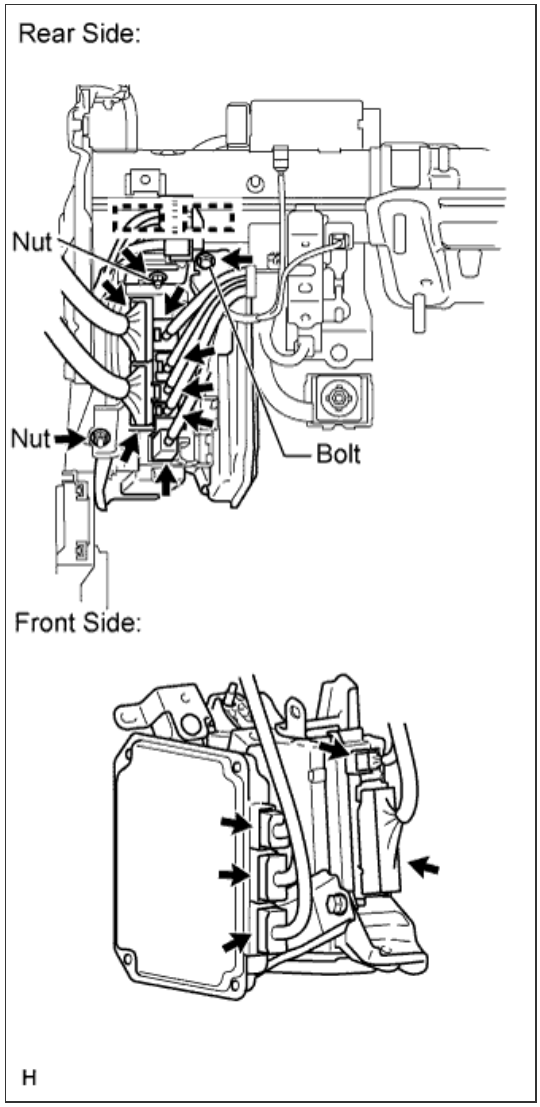
ii. Detach the 2 clamps.

iii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 5 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



27. REMOVE STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Rear Side:

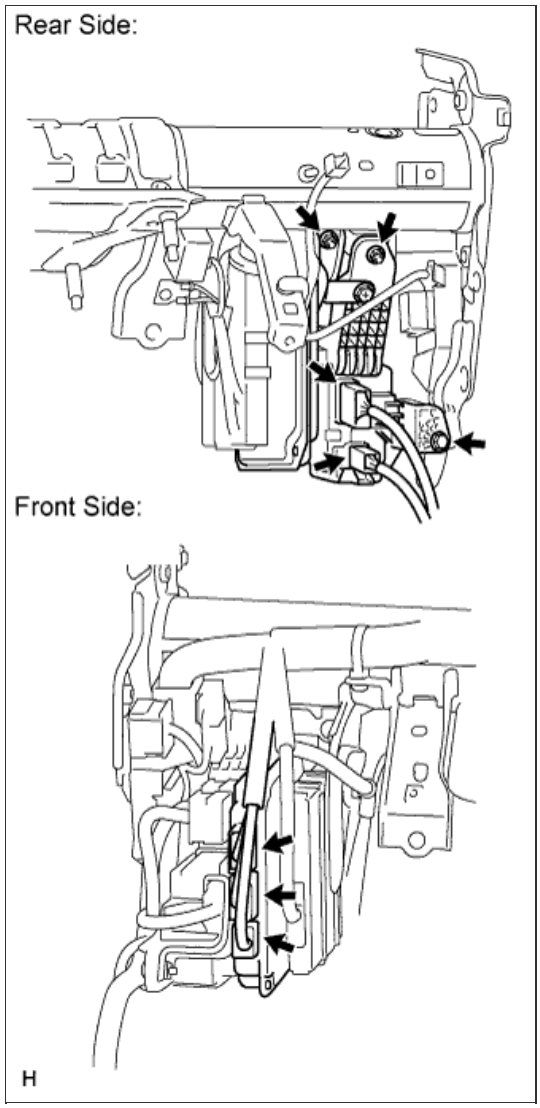
i. Disconnect the 2 connectors.

ii. Remove the bolt and 2 nuts.

b. Front Side:

i. Disconnect the 3 connectors.

c. Remove the steering control ECU with junction block from the vehicle.



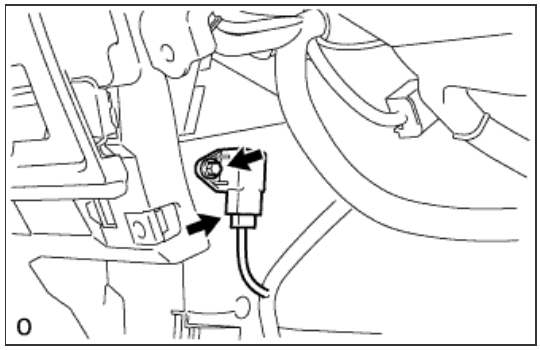
28. REMOVE ACCELERATION SENSOR (for Driver Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

HINT:

Use the same procedures for LHD and RHD vehicles.



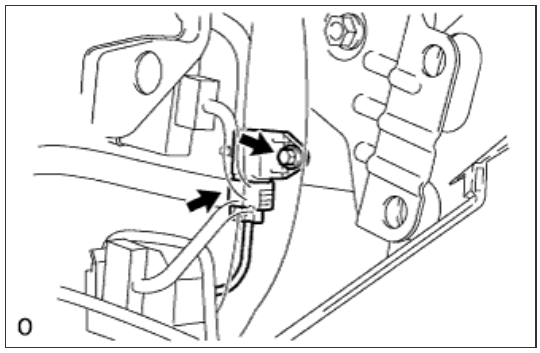
29. REMOVE ACCELERATION SENSOR (for Front Passenger Side)

a. Disconnect the connector.

b. Remove the bolt and sensor.

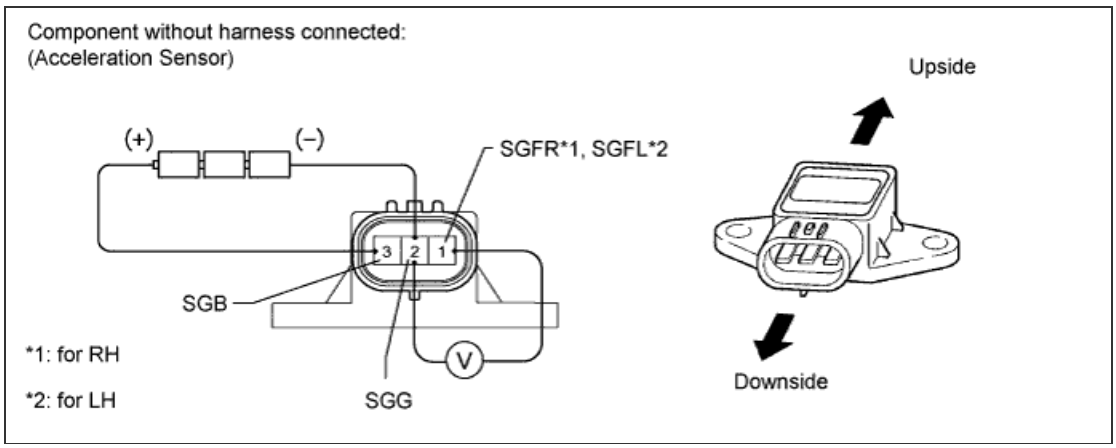
HINT:

Use the same procedures for LHD and RHD vehicles.



for Preparation Click here

1. INSPECT ACCELERATION SENSOR



NOTICE:

Do not drop the acceleration sensor. If it is dropped, replace it with a new one.

a. Connect 3 dry batteries of 1.5 V in series.

b. Connect the positive (+) end of the battery to terminal 3 (SGB) of the acceleration sensor and the negative (-) end of the battery to terminal 2 (SGG). Then measure the voltage between terminal 1 (SGFR*1, SGFL*2) and terminal 2 (SGG).

HINT:

*1: for RH

*2: for LH

c. Measure the voltage according to the value(s) in the table below.

Standard Voltage:

for RH

Tester Connection	Condition	Specified Condition
1 (SGFR) - 2 (SGG)	Sensor is stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

for LH

Tester Connection	Condition	Specified Condition
1 (SGFL) - 2 (SGG)	Sensor is stationary	Approx. 2.0 to 2.5 V
	Sensor is tilted	Change between approx. 0.9 to 2.3 V

NOTICE:

Do not apply a voltage of higher than 6 V.

HINT:

The voltage may differ according to the amount that the sensor is tilted.

If the result is not as specified, replace the acceleration sensor.

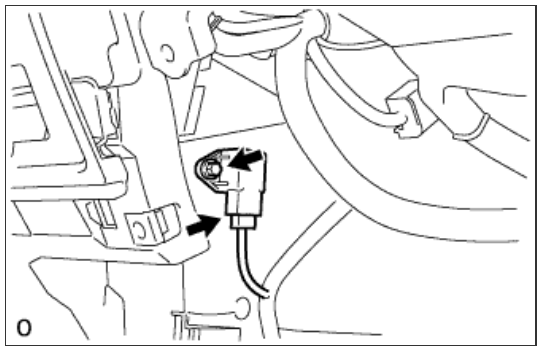
for Preparation Click here

1. INSTALL ACCELERATION SENSOR (for Driver Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.

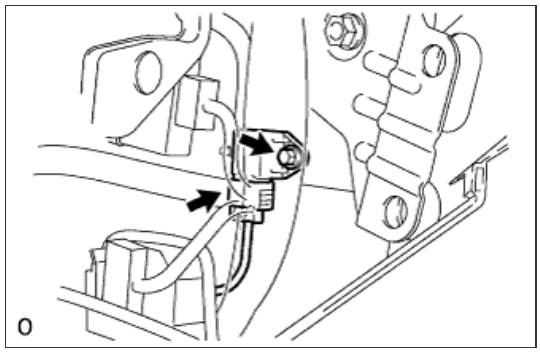


2. INSTALL ACCELERATION SENSOR (for Front Passenger Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.



3. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Front Side:

i. Connect the 5 connectors.

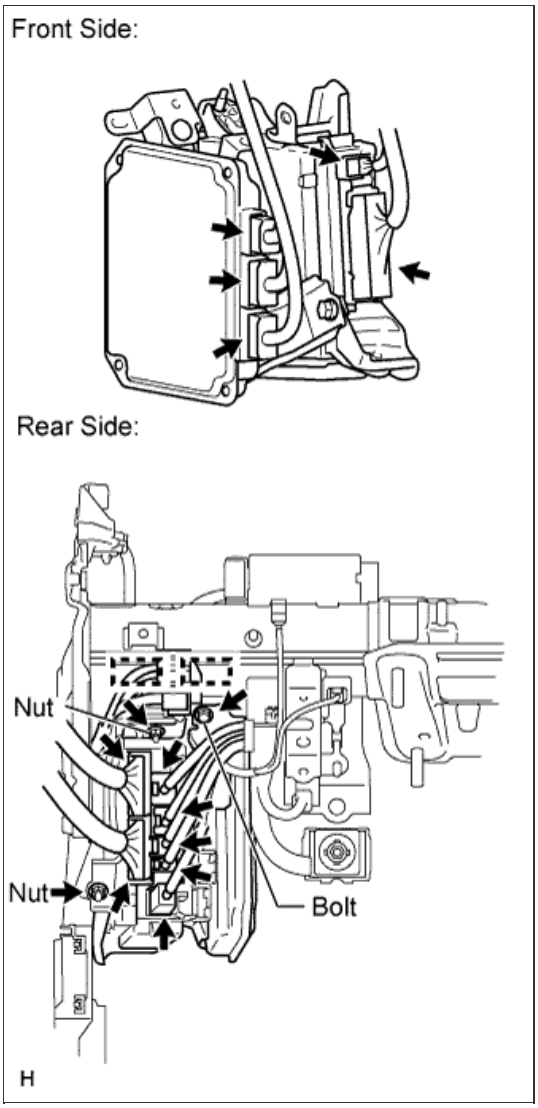
b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the 2 bolts and nut.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Attach the 2 clamps.

iii. Connect the 7 connectors.



4. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Front Side:

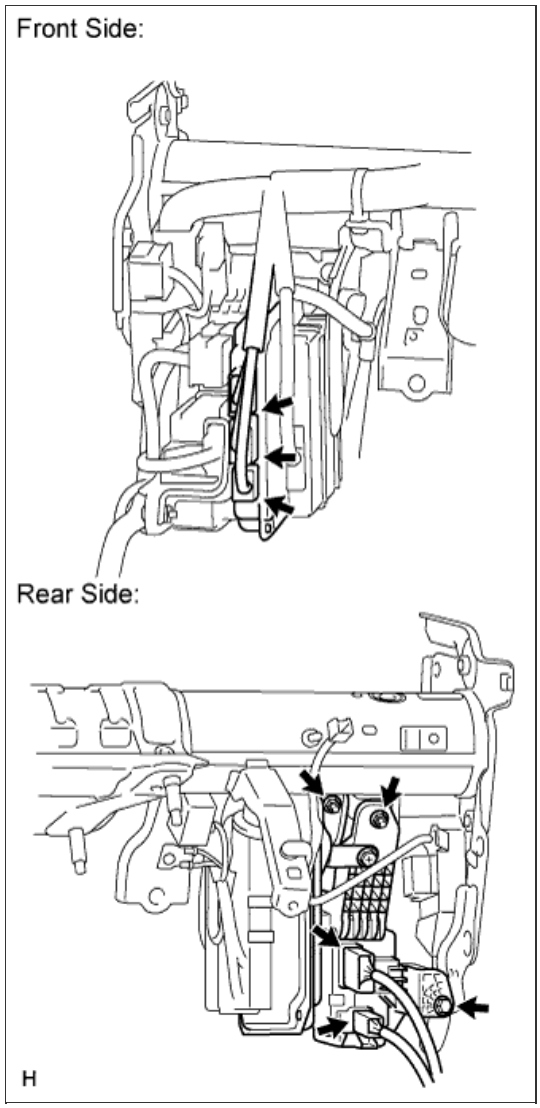
i. Connect the 3 connectors.

b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the bolt and 2 nuts.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Connect the 2 connectors.

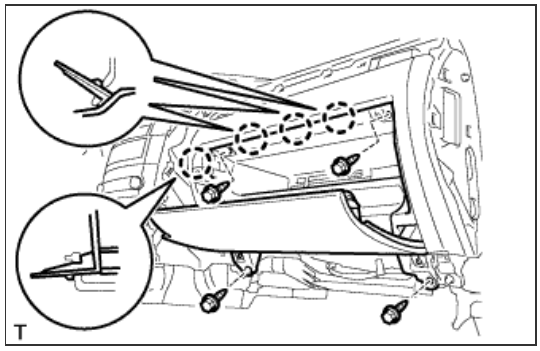


5. INSTALL LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Connect the connector.

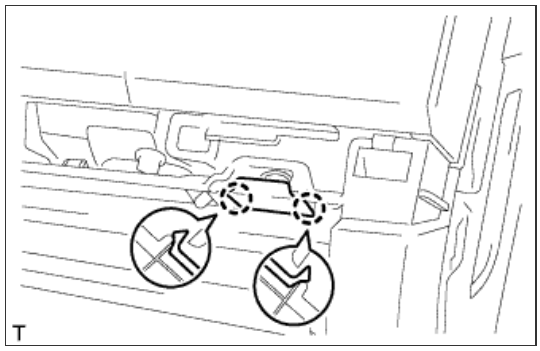
b. Attach the 4 claws to install the finish panel.

c. Install the 4 bolts.



6. INSTALL INSTRUMENT PANEL BOX DOOR KNOB

a. Attach the 2 claws to install the knob.



7. INSTALL FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

a. Connect the connector.

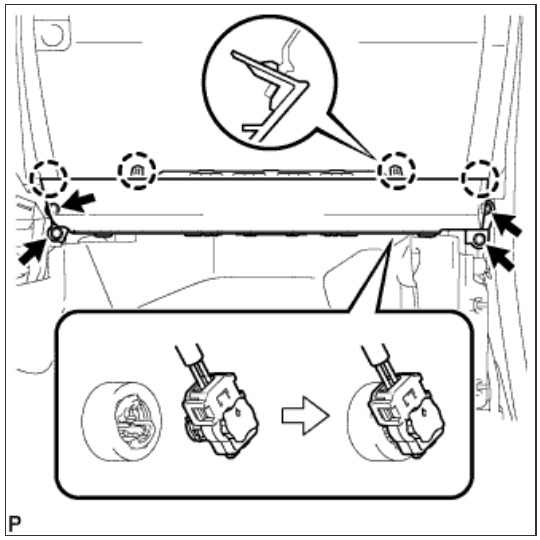
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Attach the 4 claws to install the front passenger side knee airbag.

c. Install the 4 bolts.

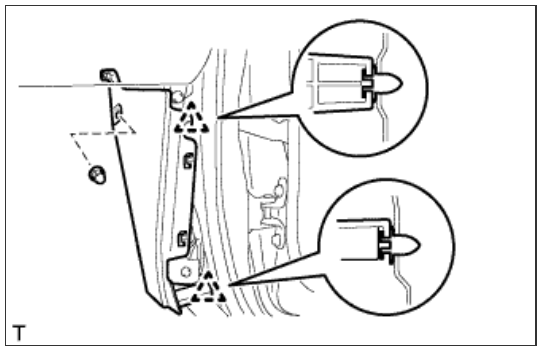
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



8. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

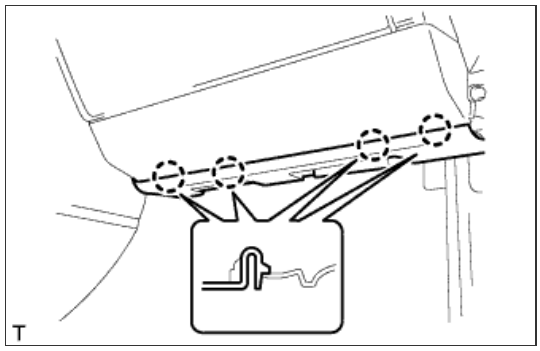
b. Install the cap nut.



9. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws to install the under cover.



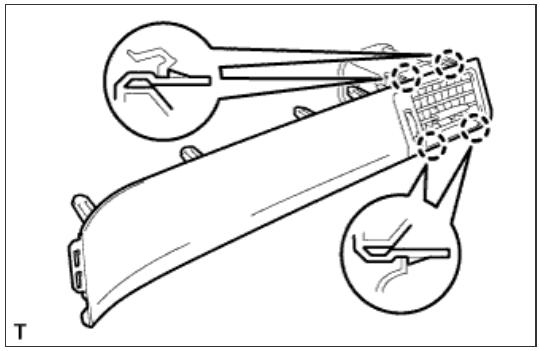
10. INSTALL FRONT DOOR SCUFF PLATE RH

HINT:

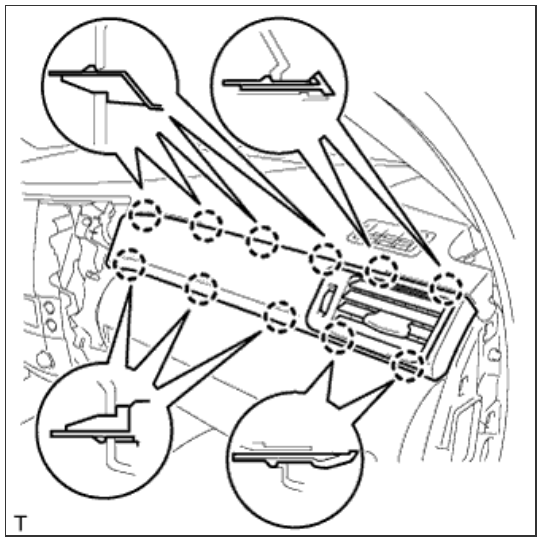
Use the same procedures described for the LH side.

11. INSTALL NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 4 claws to install the panel garnish.

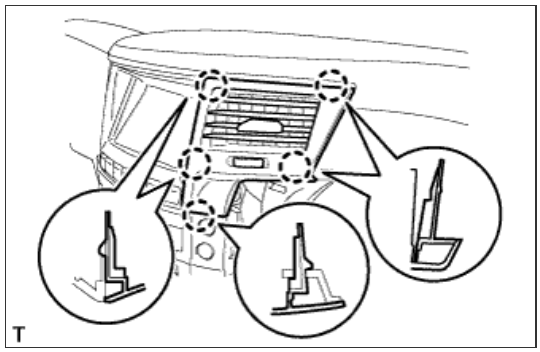


b. Attach the 11 claws to install the register assembly.



12. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.



13. INSTALL INSTRUMENT SIDE PANEL RH

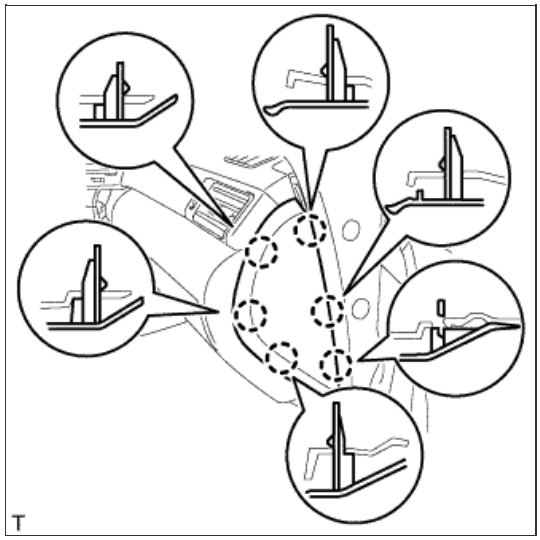
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.



14. INSTALL DRIVER SIDE KNEE AIRBAG ASSEMBLY

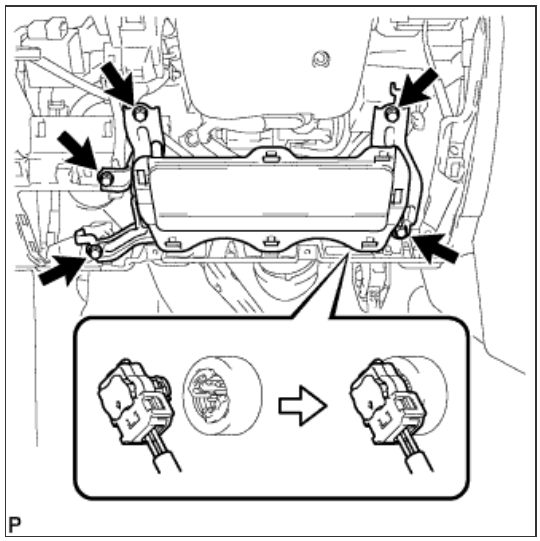
a. Connect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Install the driver side knee airbag with the 5 bolts.

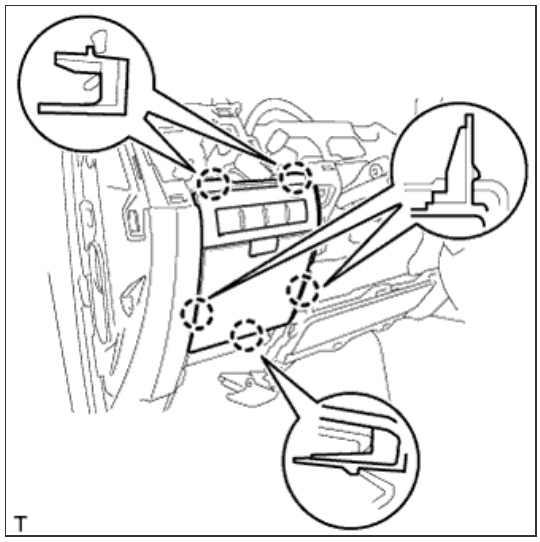
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



15. INSTALL INSTRUMENT PANEL BOX ASSEMBLY

a. Connect the connectors.

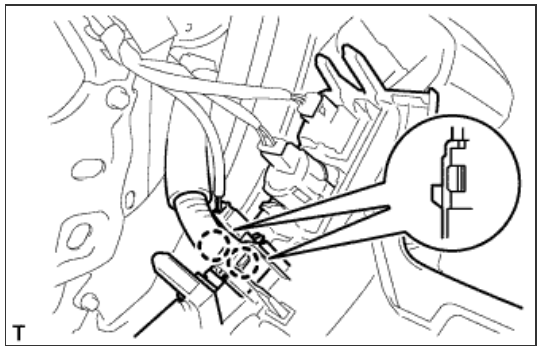
b. Attach the 5 claws to install the box.



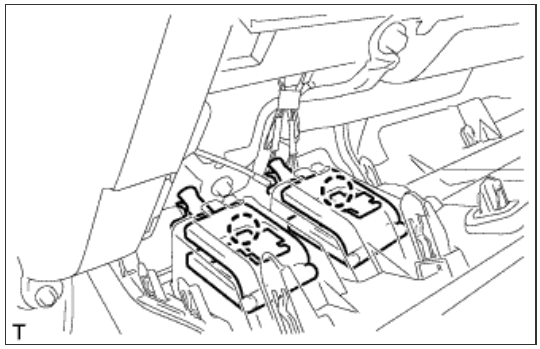
16. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

a. Connect the connectors.

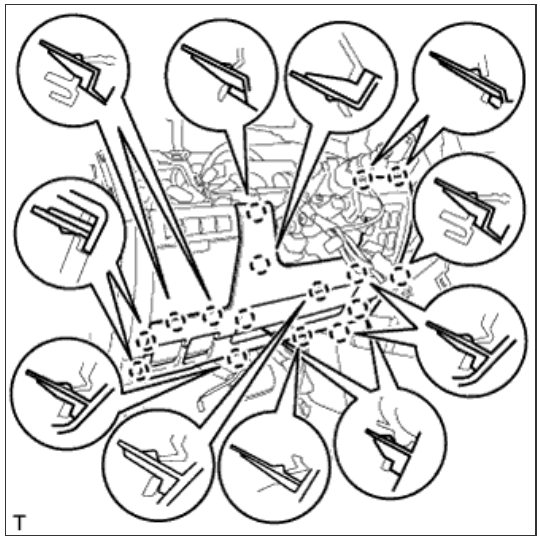
b. Attach the 2 claws to install the sensor.



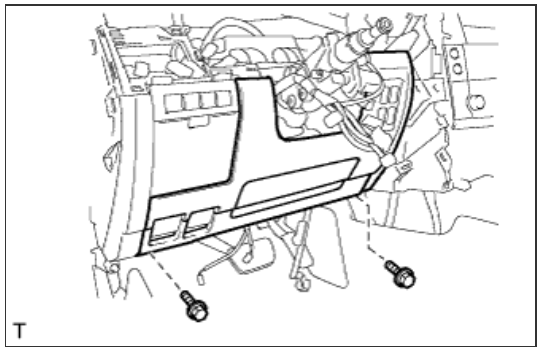
c. Attach the 2 claws to connect the 2 control cables.



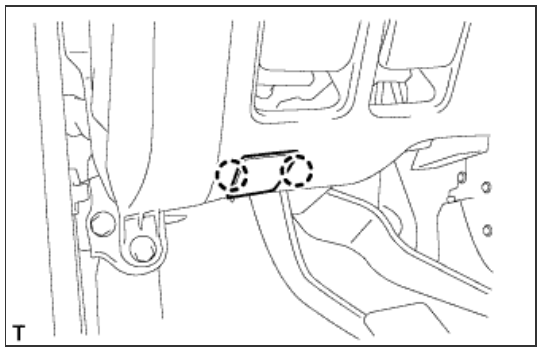
d. Attach the 16 claws to install the finish panel.



e. Install the 2 bolts.



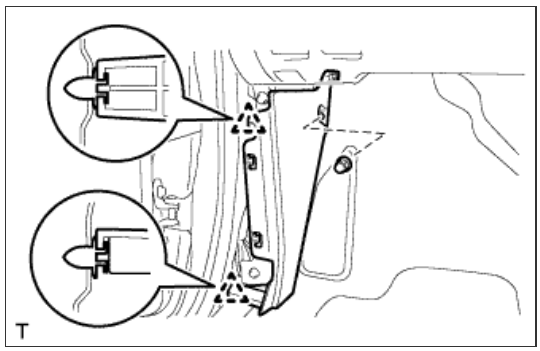
f. Attach the 2 claws to close the hole cover.



17. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

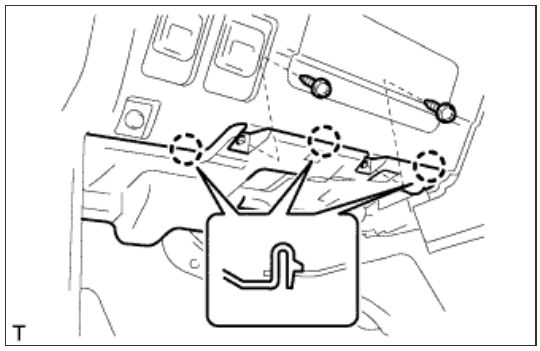


18. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

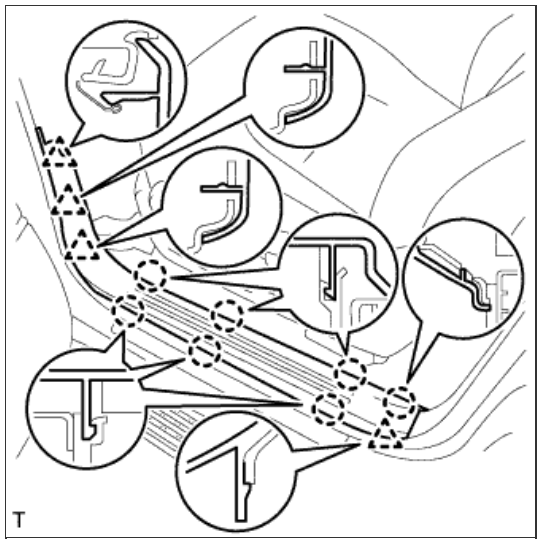
c. Install the 2 screws.



19. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

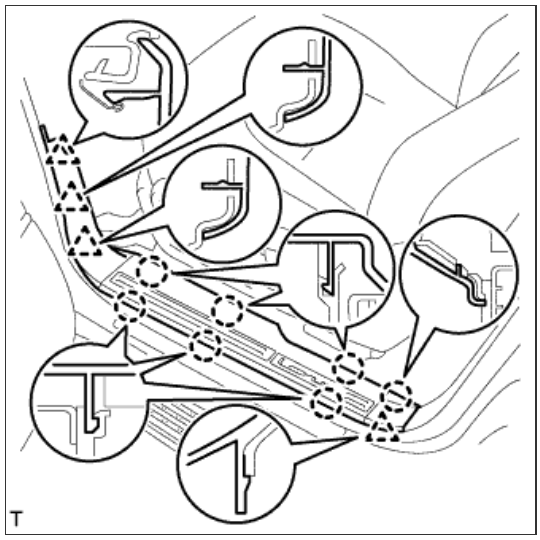
i. Attach the 7 claws and 4 clips to install the scuff plate.



b. w/ Illumination:

i. Connect the connector.

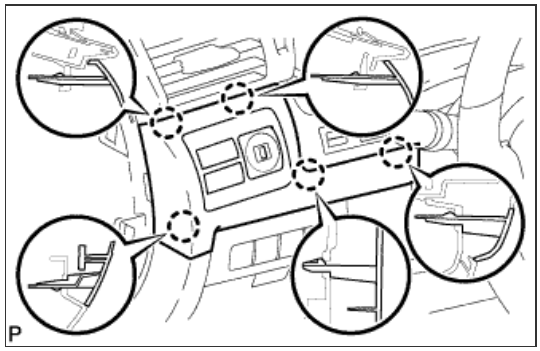
ii. Attach the 7 claws and 4 clips to install the scuff plate.



20. INSTALL NO. 1 SWITCH HOLE BASE

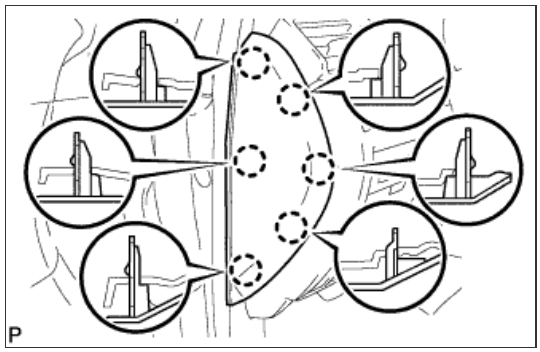
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.



21. INSTALL INSTRUMENT SIDE PANEL LH

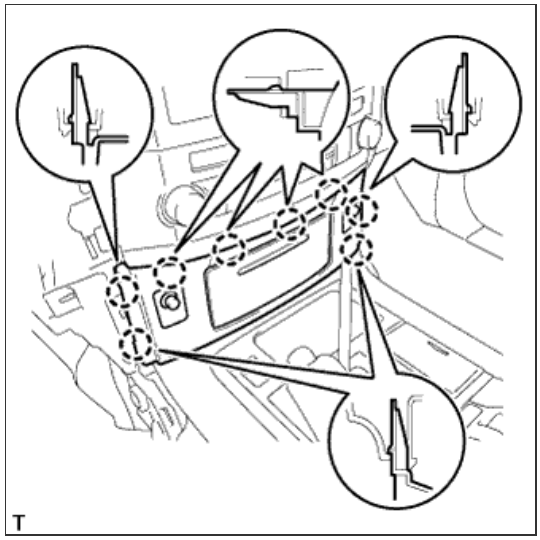
a. Attach the 6 claws to install the side panel.



22. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

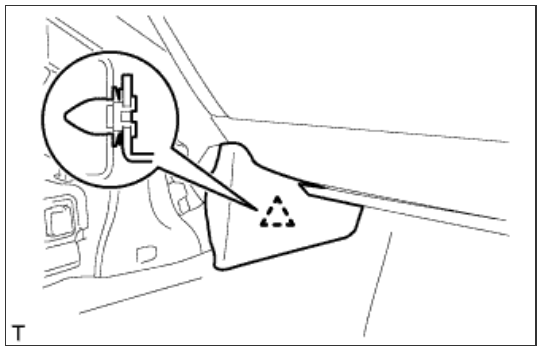
a. Connect the connectors.

b. Attach the 8 claws to install the panel.



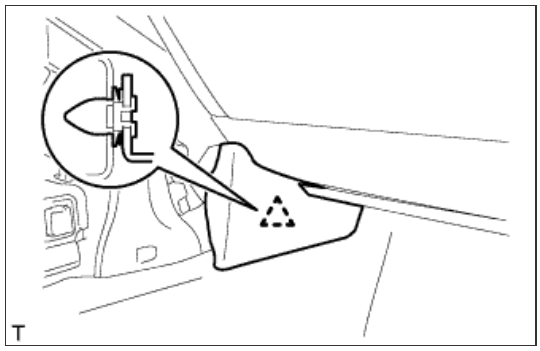
23. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

a. Attach the clip to install the cover.



24. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

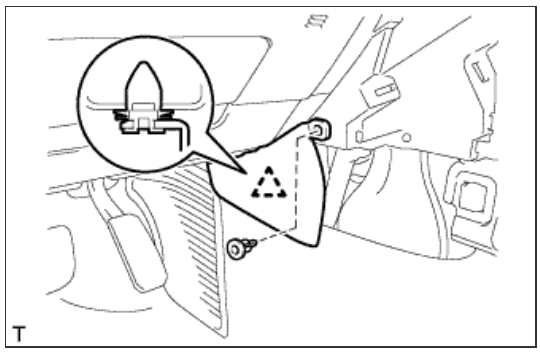
a. Attach the clip to install the cover.



25. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

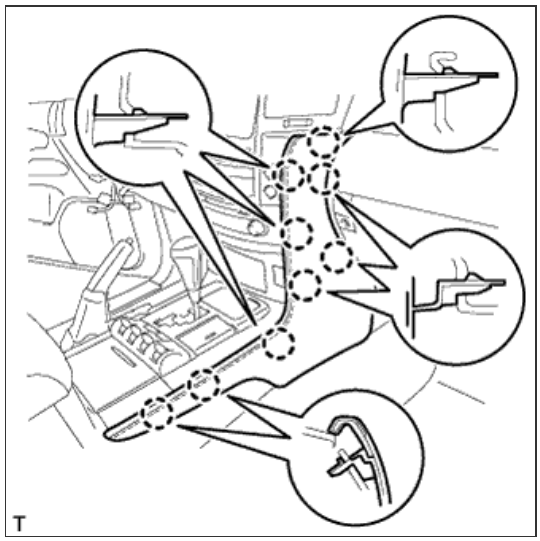
a. Attach the clip to install the cover.

b. Install the clip.



26. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Attach the 9 claws to install the panel pad.



27. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

28. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

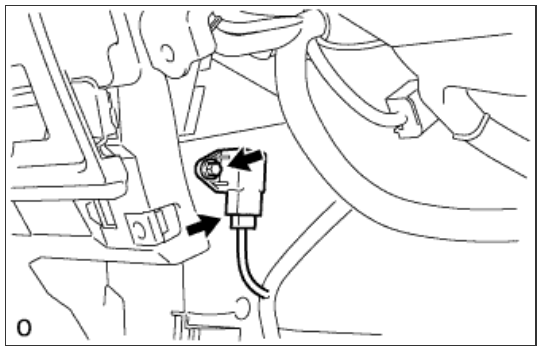
for Preparation Click here

1. INSTALL ACCELERATION SENSOR (for Driver Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.

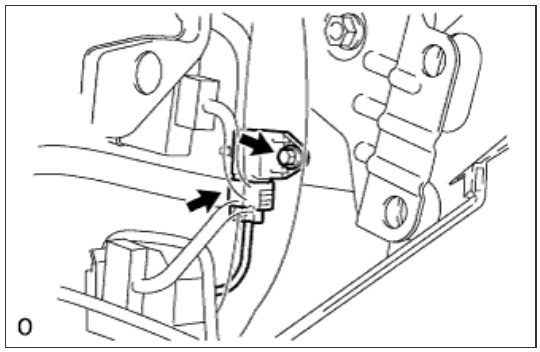


2. INSTALL ACCELERATION SENSOR (for Front Passenger Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.



3. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Front Side:

i. Connect the 5 connectors.

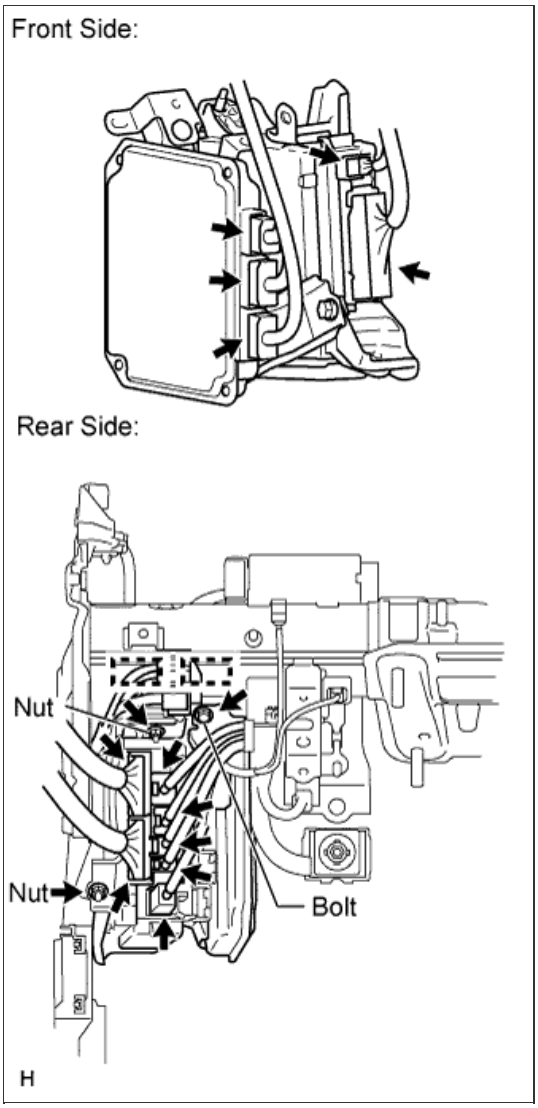
b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the 2 bolts and nut.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Attach the 2 clamps.

iii. Connect the 7 connectors.



4. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Front Side:

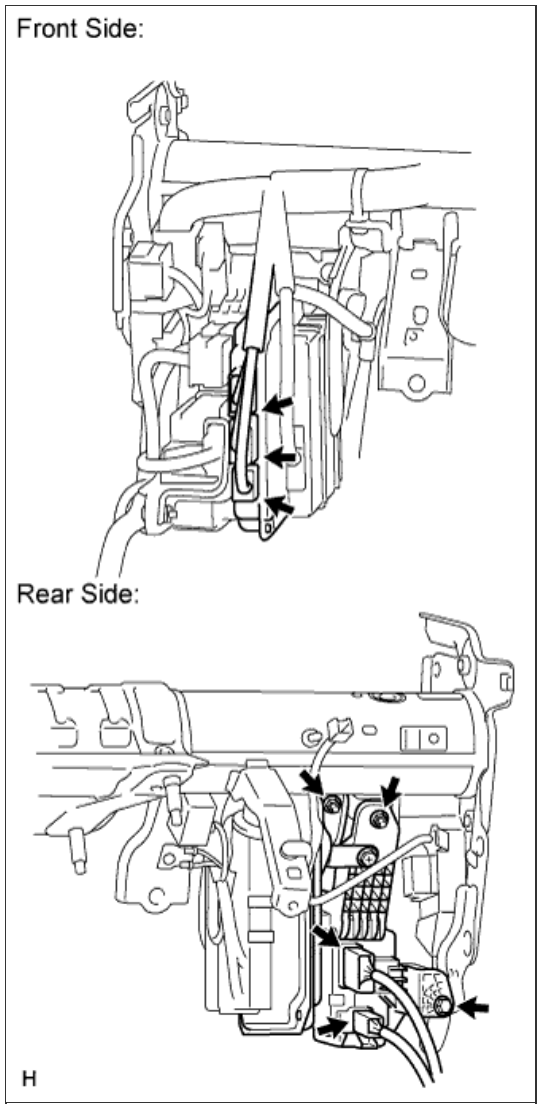
i. Connect the 3 connectors.

b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the bolt and 2 nuts.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Connect the 2 connectors.

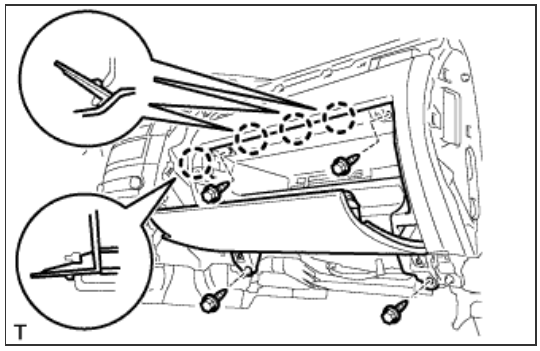


5. INSTALL LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Connect the connector.

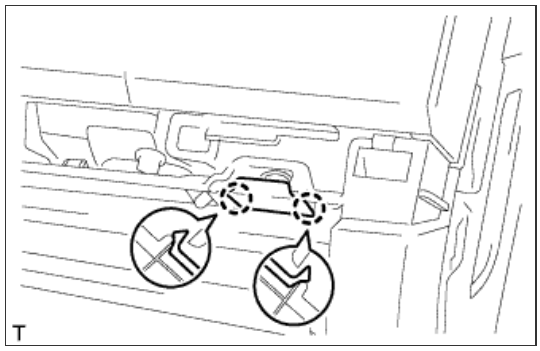
b. Attach the 4 claws to install the finish panel.

c. Install the 4 bolts.



6. INSTALL INSTRUMENT PANEL BOX DOOR KNOB

a. Attach the 2 claws to install the knob.



7. INSTALL FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

a. Connect the connector.

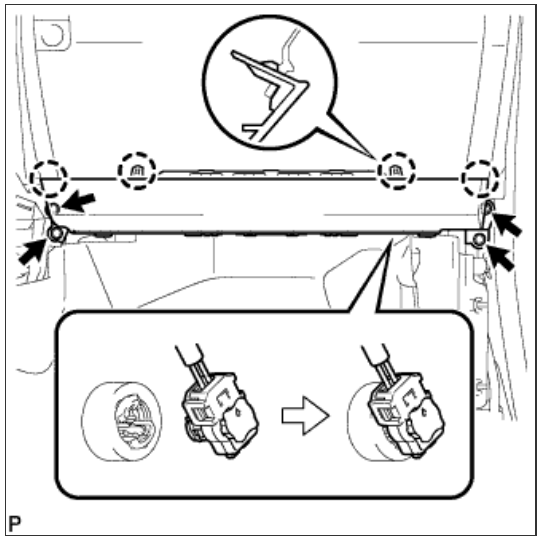
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Attach the 4 claws to install the front passenger side knee airbag.

c. Install the 4 bolts.

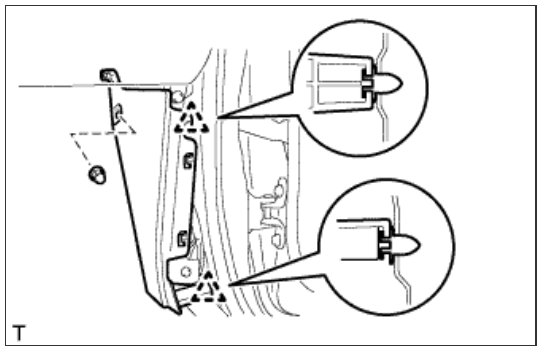
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



8. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

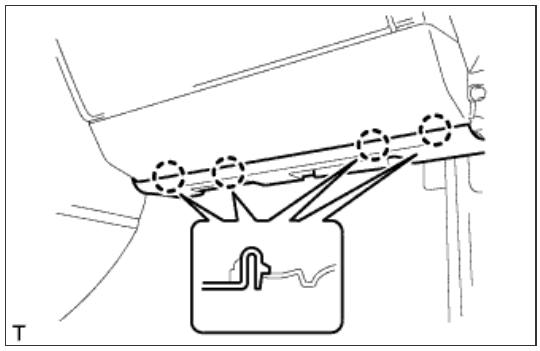
b. Install the cap nut.



9. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws to install the under cover.



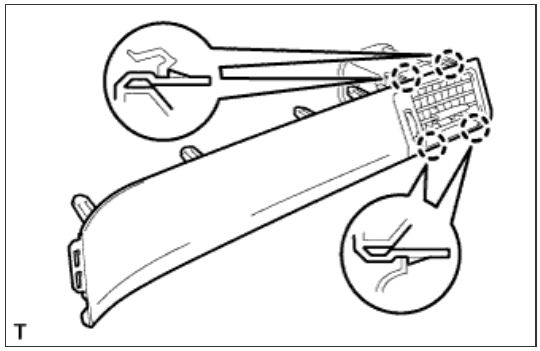
10. INSTALL FRONT DOOR SCUFF PLATE RH

HINT:

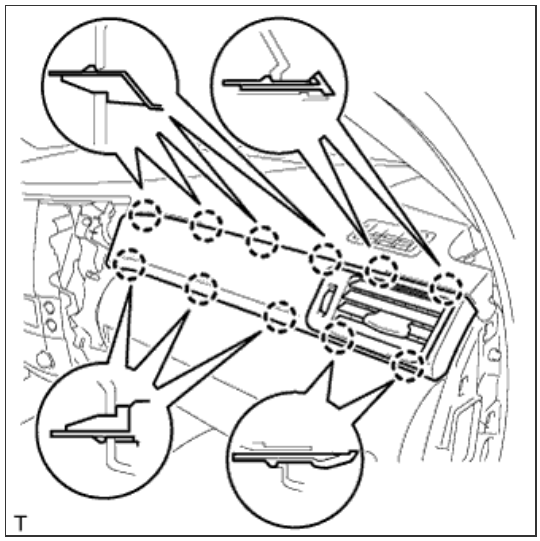
Use the same procedures described for the LH side.

11. INSTALL NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 4 claws to install the panel garnish.

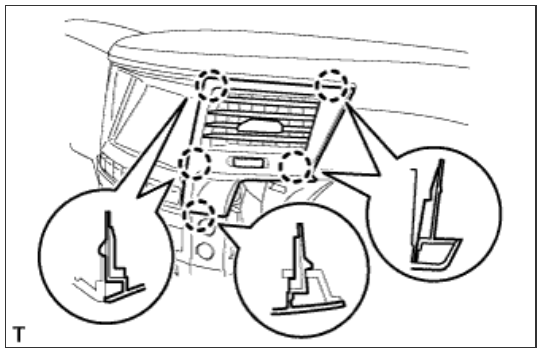


b. Attach the 11 claws to install the register assembly.



12. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.



13. INSTALL INSTRUMENT SIDE PANEL RH

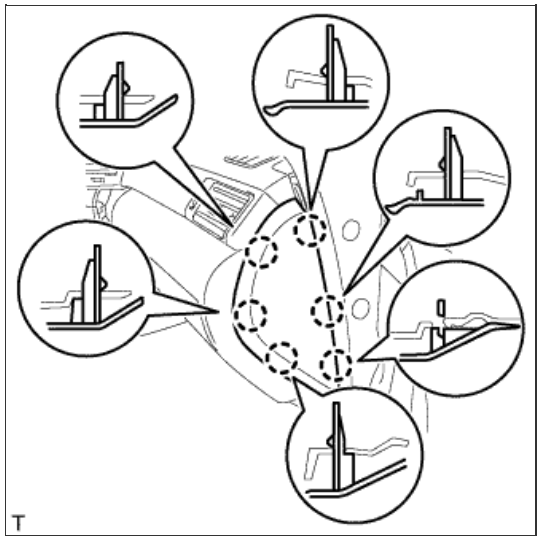
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.



14. INSTALL DRIVER SIDE KNEE AIRBAG ASSEMBLY

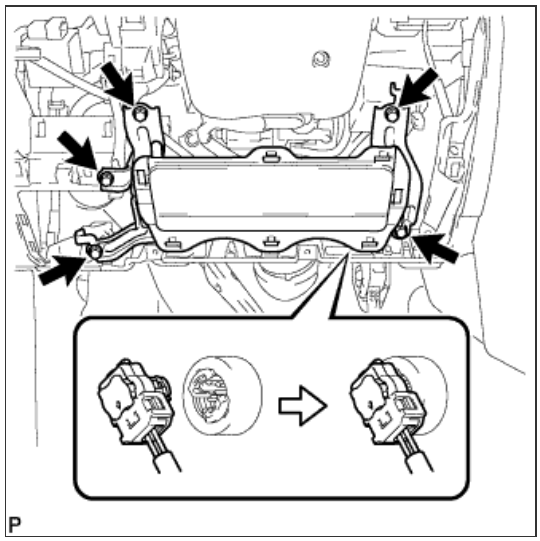
a. Connect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Install the driver side knee airbag with the 5 bolts.

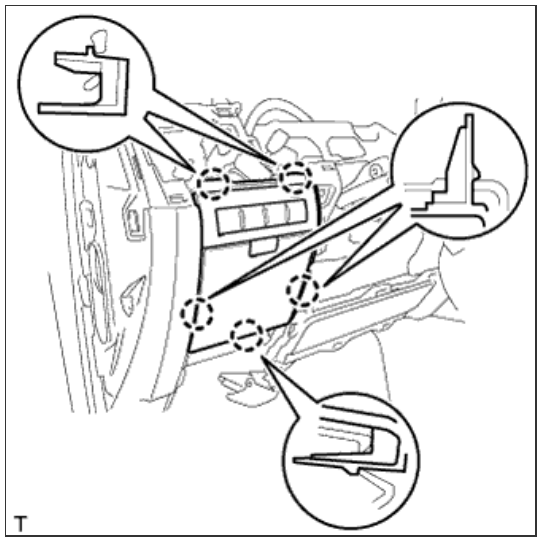
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



15. INSTALL INSTRUMENT PANEL BOX ASSEMBLY

a. Connect the connectors.

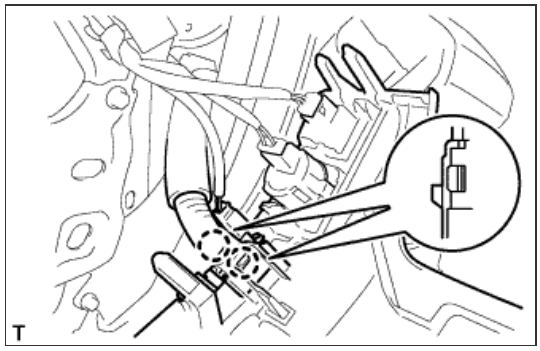
b. Attach the 5 claws to install the box.



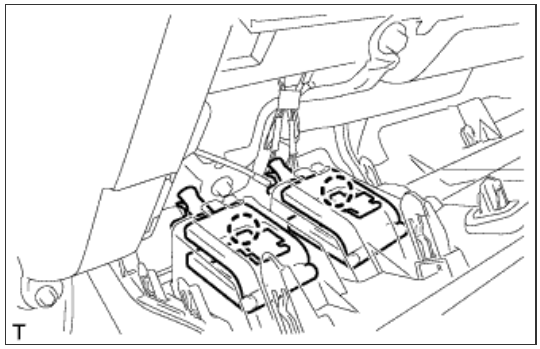
16. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

a. Connect the connectors.

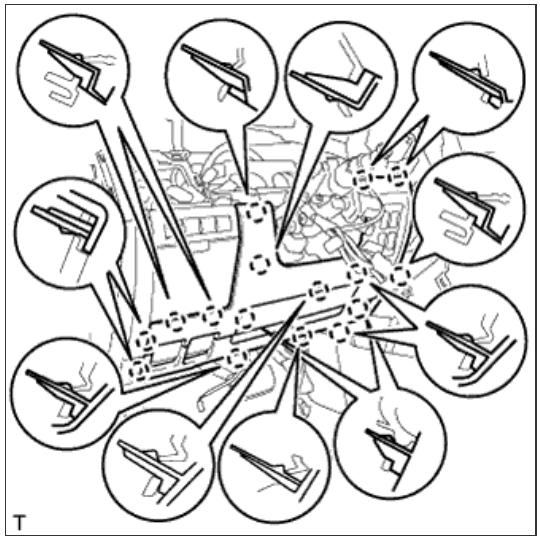
b. Attach the 2 claws to install the sensor.



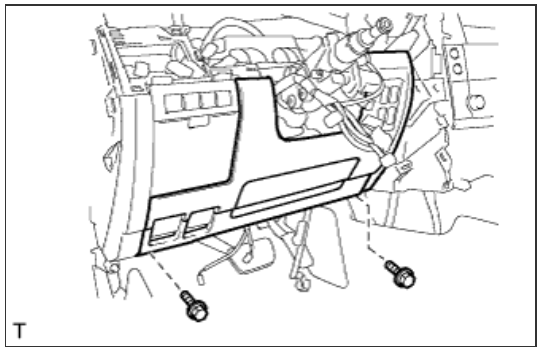
c. Attach the 2 claws to connect the 2 control cables.



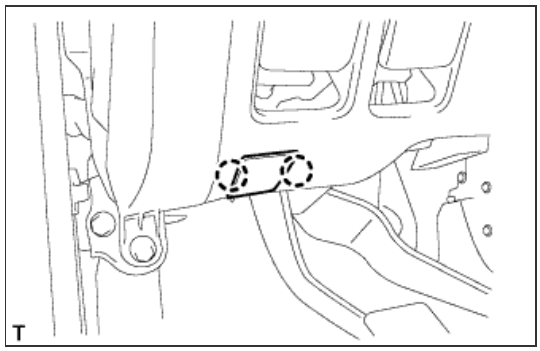
d. Attach the 16 claws to install the finish panel.



e. Install the 2 bolts.



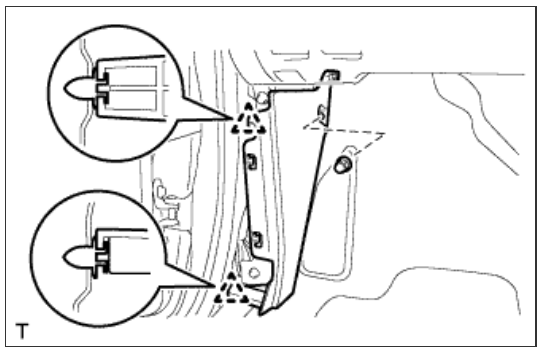
f. Attach the 2 claws to close the hole cover.



17. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

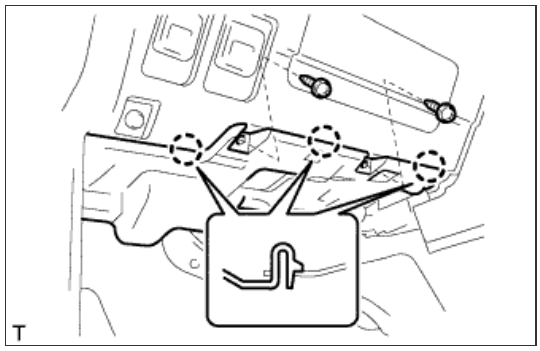


18. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

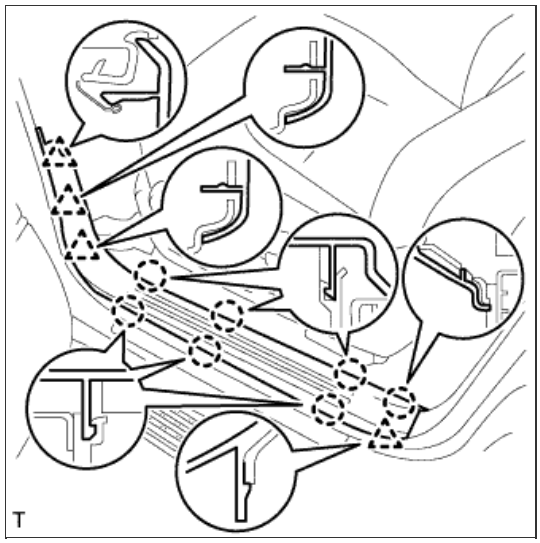
c. Install the 2 screws.



19. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

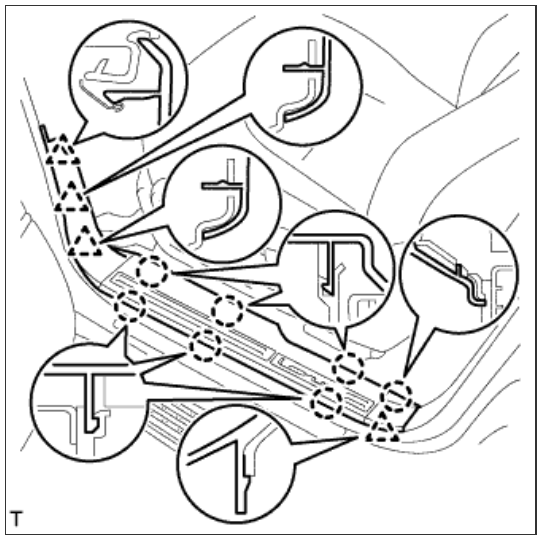
i. Attach the 7 claws and 4 clips to install the scuff plate.



b. w/ Illumination:

i. Connect the connector.

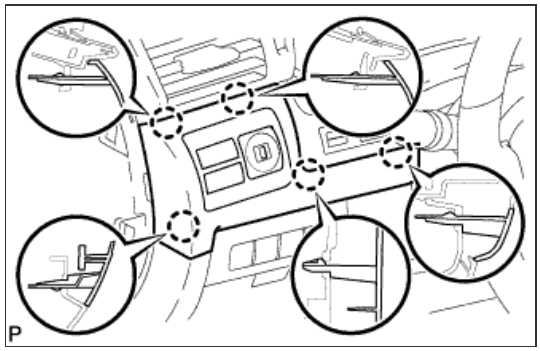
ii. Attach the 7 claws and 4 clips to install the scuff plate.



20. INSTALL NO. 1 SWITCH HOLE BASE

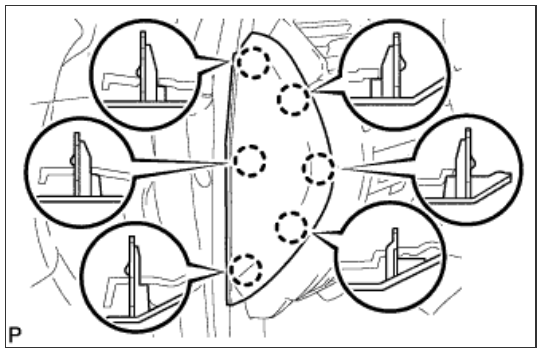
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.



21. INSTALL INSTRUMENT SIDE PANEL LH

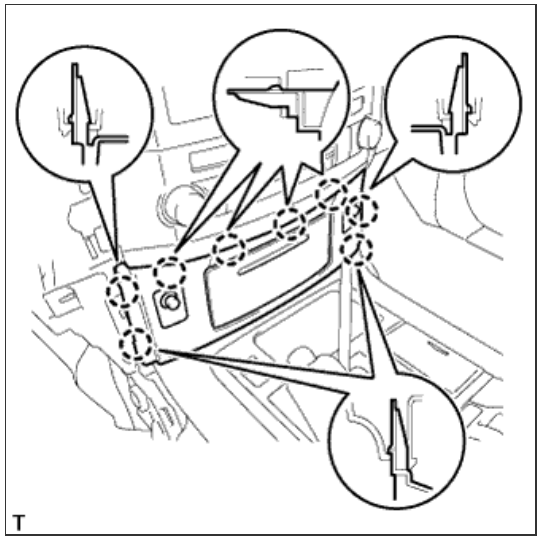
a. Attach the 6 claws to install the side panel.



22. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

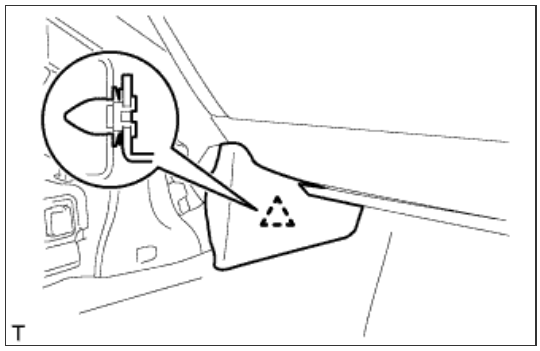
a. Connect the connectors.

b. Attach the 8 claws to install the panel.



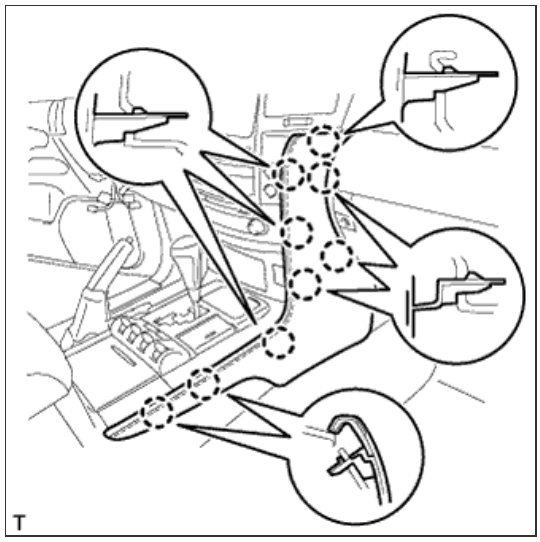
23. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

a. Attach the clip to install the cover.



24. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

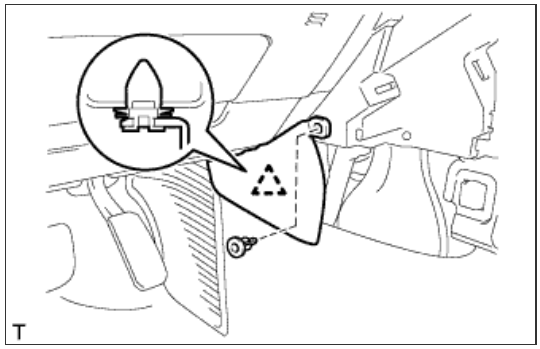
a. Attach the 9 claws to install the panel pad.



25. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

a. Attach the clip to install the cover.

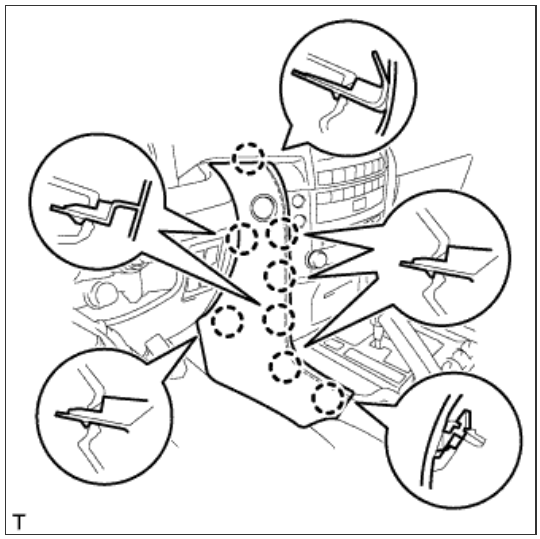
b. Install the clip.



26. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

b. Attach the 8 claws to install the panel pad.



27. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

28. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

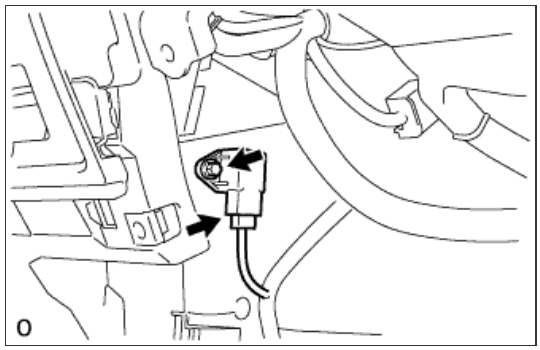
for Preparation Click here

1. INSTALL ACCELERATION SENSOR (for Driver Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.

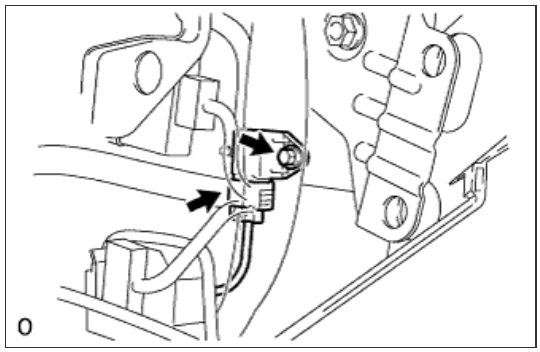


2. INSTALL ACCELERATION SENSOR (for Front Passenger Side)

a. Install the sensor with the bolt.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.



3. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for LHD)

a. Front Side:

i. Connect the 5 connectors.

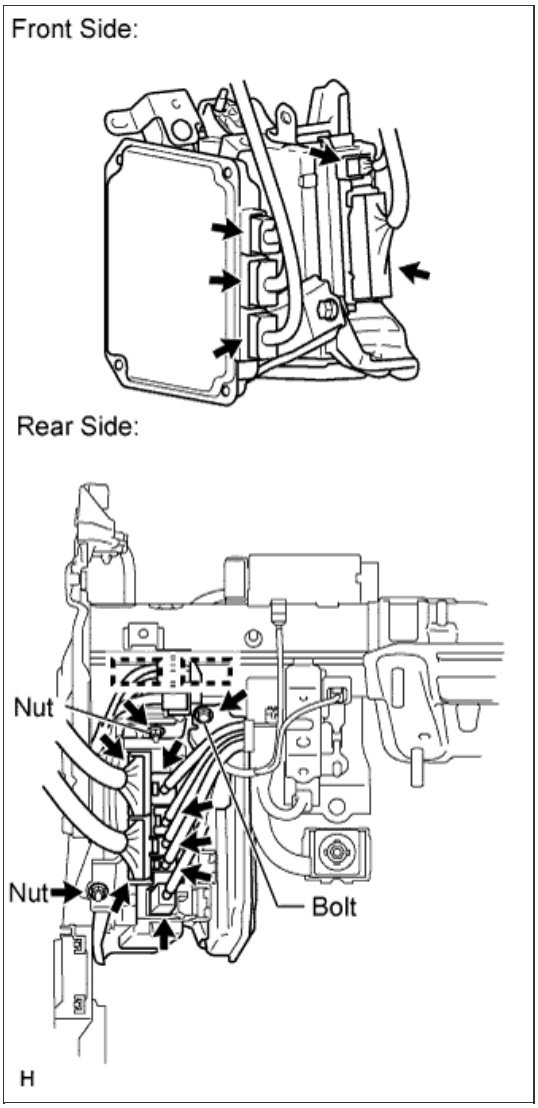
b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the 2 bolts and nut.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Attach the 2 clamps.

iii. Connect the 7 connectors.



4. INSTALL STEERING CONTROL ECU WITH JUNCTION BLOCK (for RHD)

a. Front Side:

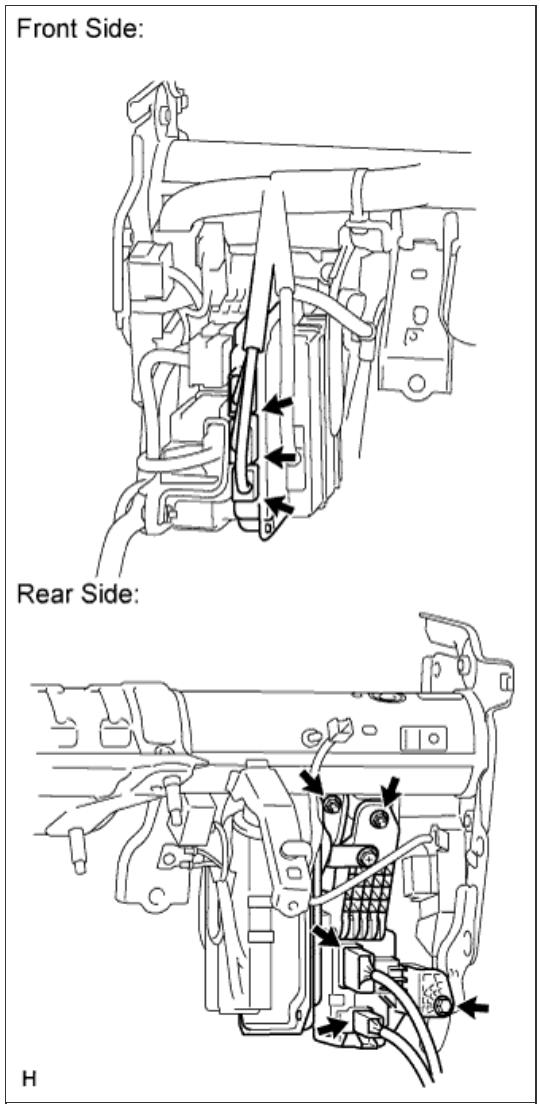
i. Connect the 3 connectors.

b. Rear Side:

i. Install the steering control ECU with junction block to the vehicle with the bolt and 2 nuts.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

ii. Connect the 2 connectors.

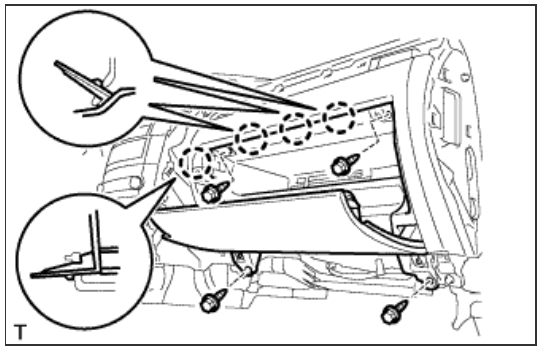


5. INSTALL LOWER NO. 2 INSTRUMENT PANEL FINISH PANEL

a. Connect the connector.

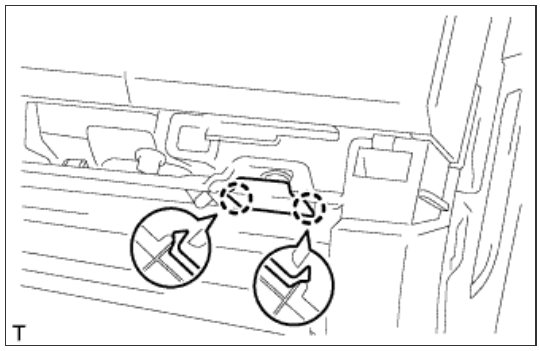
b. Attach the 4 claws to install the finish panel.

c. Install the 4 bolts.



6. INSTALL INSTRUMENT PANEL BOX DOOR KNOB

a. Attach the 2 claws to install the knob.



7. INSTALL FRONT PASSENGER SIDE KNEE AIRBAG ASSEMBLY

a. Connect the connector.

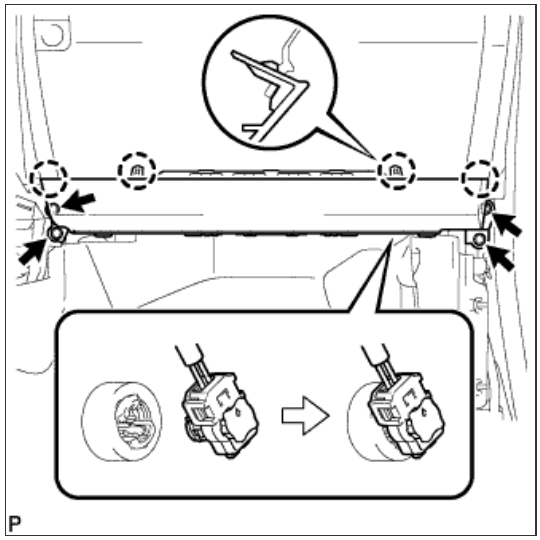
NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Attach the 4 claws to install the front passenger side knee airbag.

c. Install the 4 bolts.

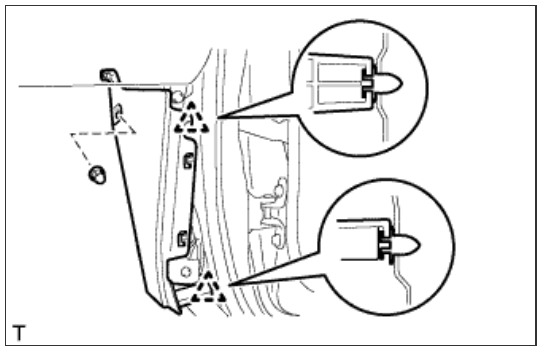
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



8. INSTALL COWL SIDE TRIM BOARD RH

a. Attach the 2 clips to install the trim board.

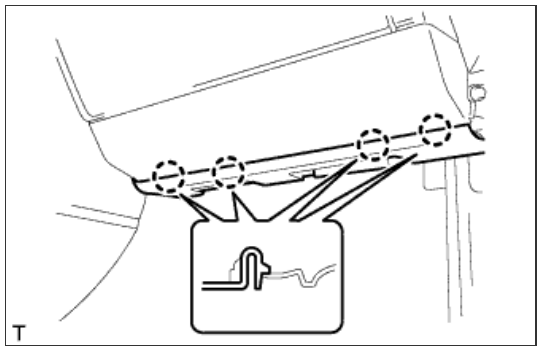
b. Install the cap nut.



9. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connector.

b. Attach the 4 claws to install the under cover.



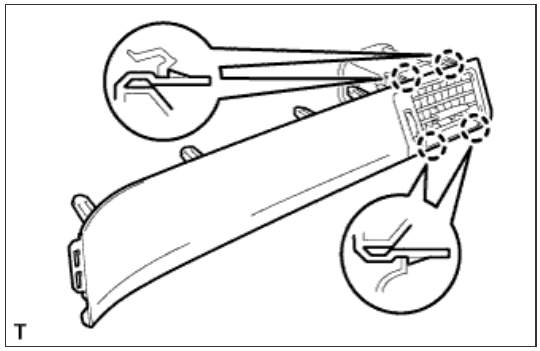
10. INSTALL FRONT DOOR SCUFF PLATE RH

HINT:

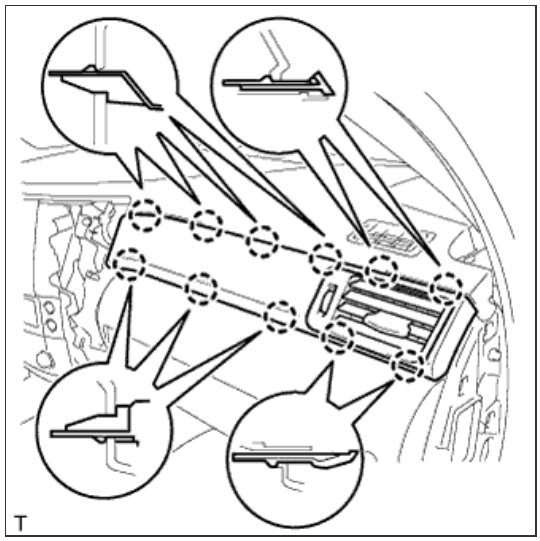
Use the same procedures described for the LH side.

11. INSTALL NO. 3 INSTRUMENT CLUSTER FINISH PANEL GARNISH

a. Attach the 4 claws to install the panel garnish.

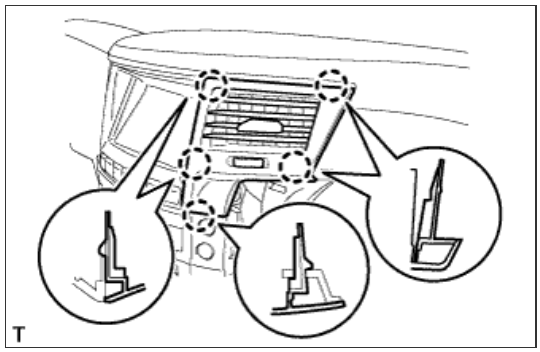


b. Attach the 11 claws to install the register assembly.



12. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY

a. Attach the 5 claws to install the register.



13. INSTALL INSTRUMENT SIDE PANEL RH

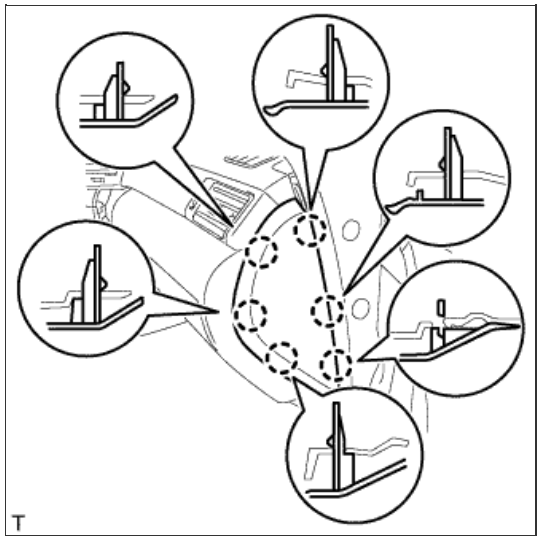
a. w/o Airbag Cut Off Switch:

i. Attach the 6 claws to install the side panel.

b. w/ Airbag Cut Off Switch:

i. Connect the connector.

ii. Attach the 6 claws to install the side panel.



14. INSTALL DRIVER SIDE KNEE AIRBAG ASSEMBLY

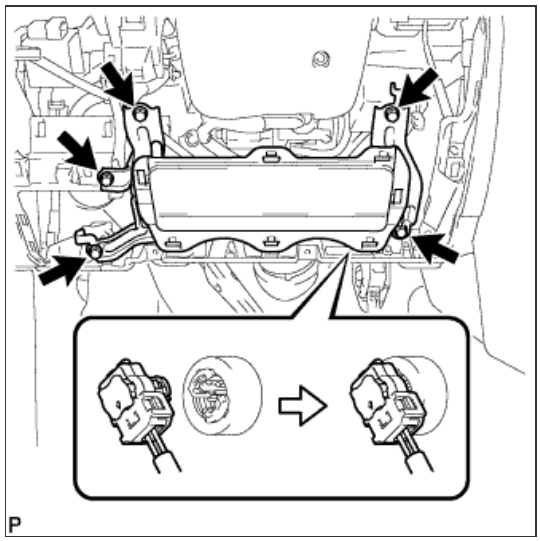
a. Connect the connector.

NOTICE:

When handling the airbag connector, take care not to damage the airbag wire harness.

b. Install the driver side knee airbag with the 5 bolts.

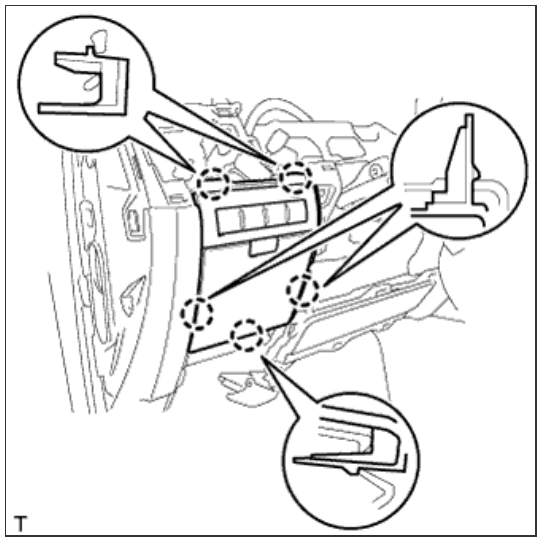
Torque:
10 N*m{ 102 kgf*cm , 7 ft.*lbf }



15. INSTALL INSTRUMENT PANEL BOX ASSEMBLY

a. Connect the connectors.

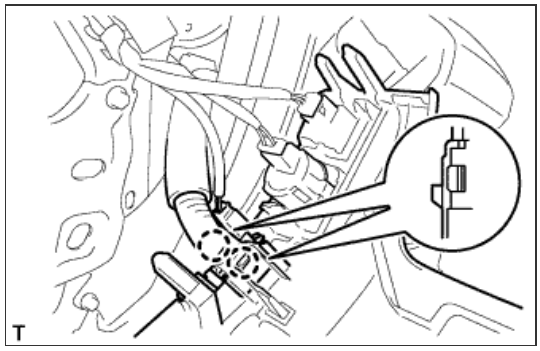
b. Attach the 5 claws to install the box.



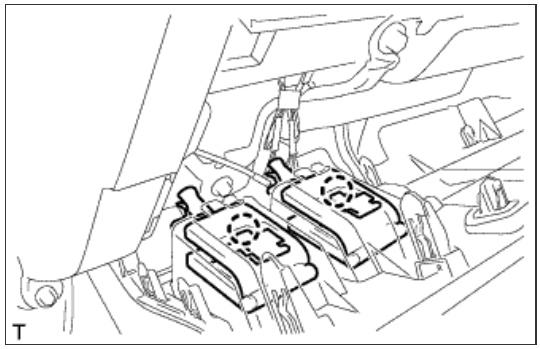
16. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

a. Connect the connectors.

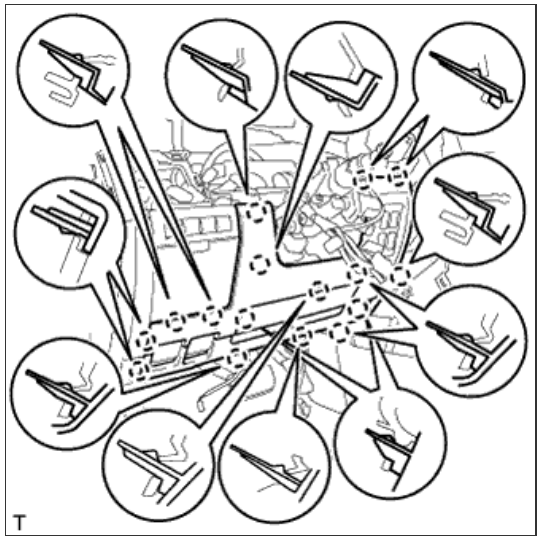
b. Attach the 2 claws to install the sensor.



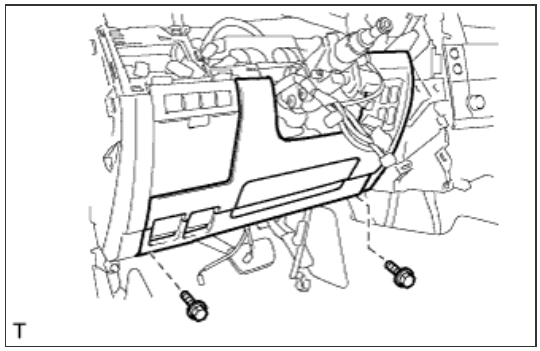
c. Attach the 2 claws to connect the 2 control cables.



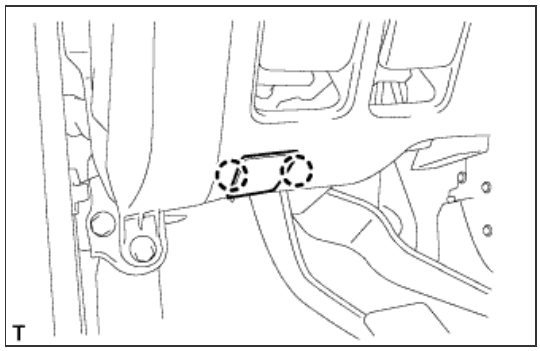
d. Attach the 16 claws to install the finish panel.



e. Install the 2 bolts.



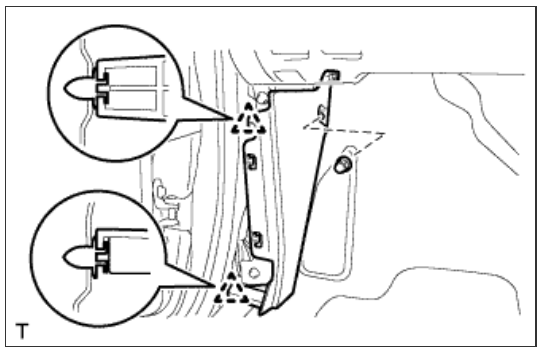
f. Attach the 2 claws to close the hole cover.



17. INSTALL COWL SIDE TRIM BOARD LH

a. Attach the 2 clips to install the trim board.

b. Install the cap nut.

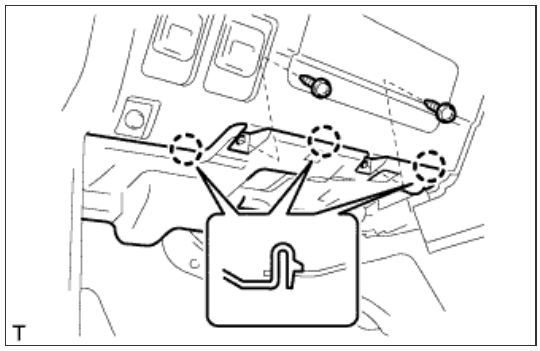


18. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

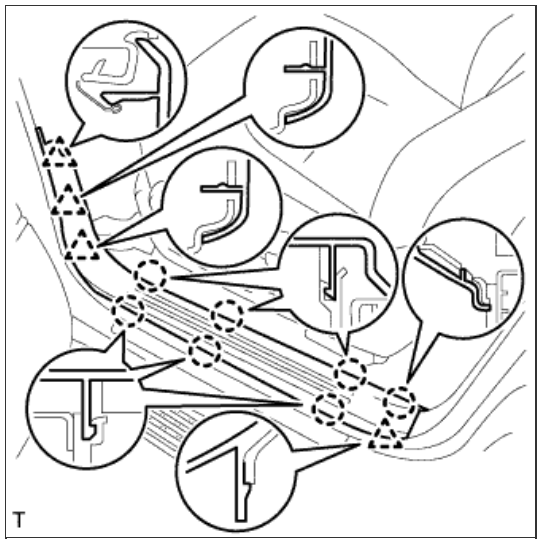
c. Install the 2 screws.



19. INSTALL FRONT DOOR SCUFF PLATE LH

a. w/o Illumination:

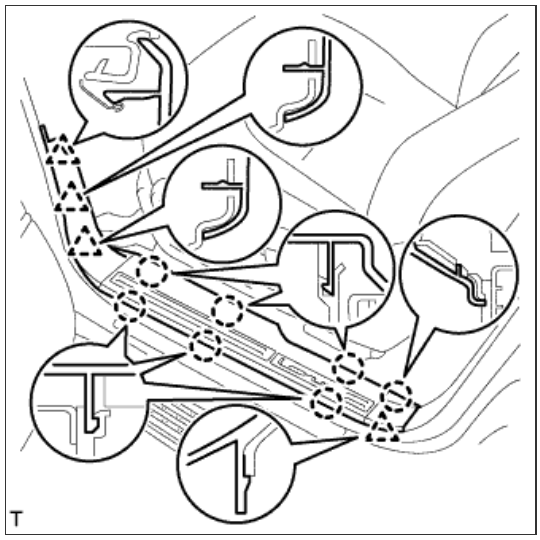
i. Attach the 7 claws and 4 clips to install the scuff plate.



b. w/ Illumination:

i. Connect the connector.

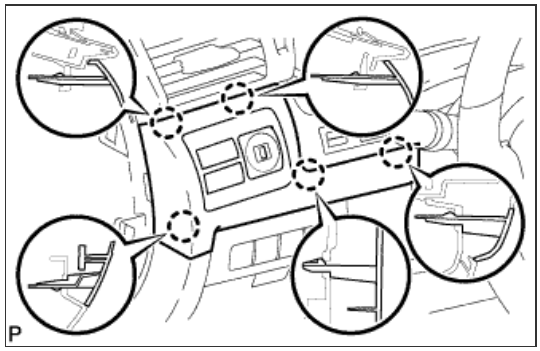
ii. Attach the 7 claws and 4 clips to install the scuff plate.



20. INSTALL NO. 1 SWITCH HOLE BASE

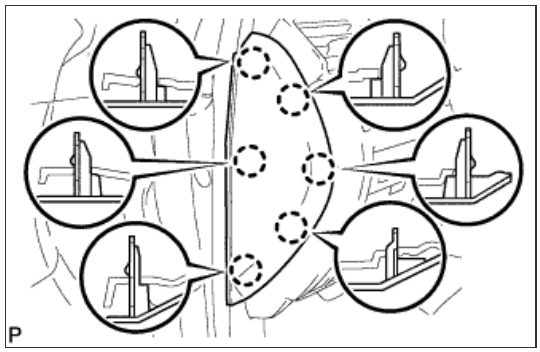
a. Connect the connectors.

b. Attach the 5 claws to install the switch hole base.



21. INSTALL INSTRUMENT SIDE PANEL LH

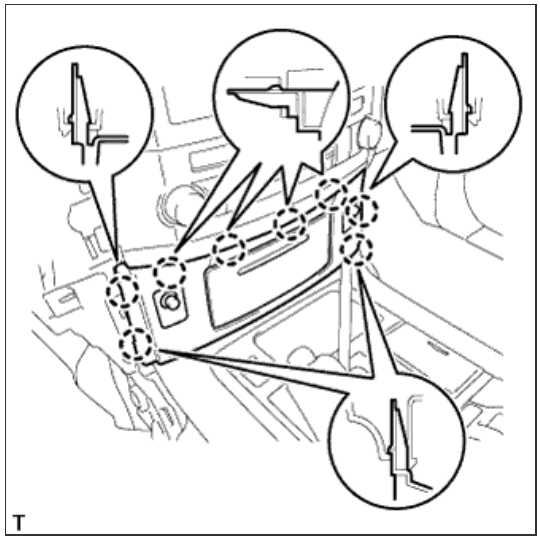
a. Attach the 6 claws to install the side panel.



22. INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY

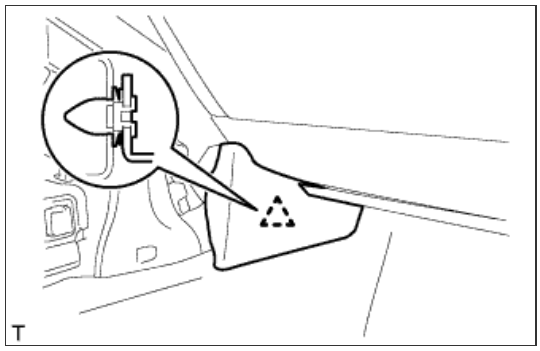
a. Connect the connectors.

b. Attach the 8 claws to install the panel.



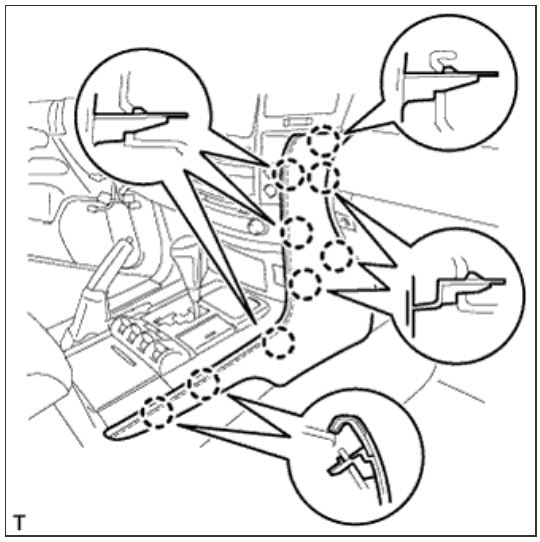
23. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER RH

a. Attach the clip to install the cover.



24. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY RH

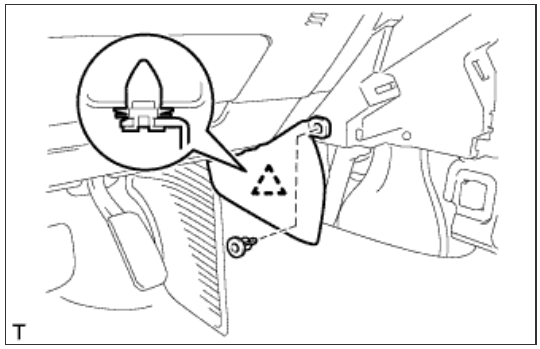
a. Attach the 9 claws to install the panel pad.



25. INSTALL INNER NO. 1 INSTRUMENT PANEL BRACKET COVER LH

a. Attach the clip to install the cover.

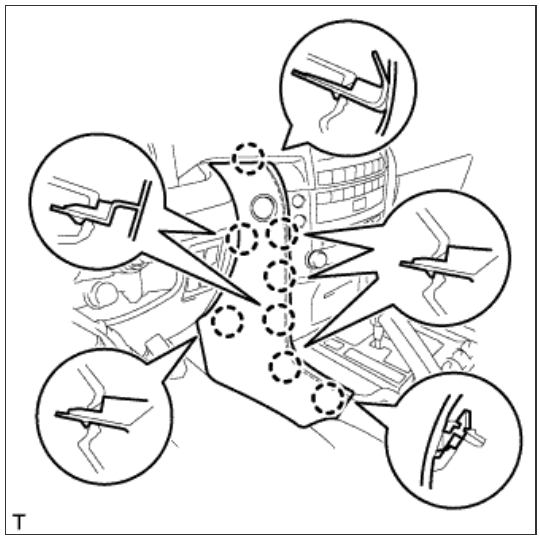
b. Install the clip.



26. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

b. Attach the 8 claws to install the panel pad.



27. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

28. CHECK SRS WARNING LIGHT

a. Check the SRS warning light (Click here).

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE SUSPENSION CONTROL RELAY (AHC)

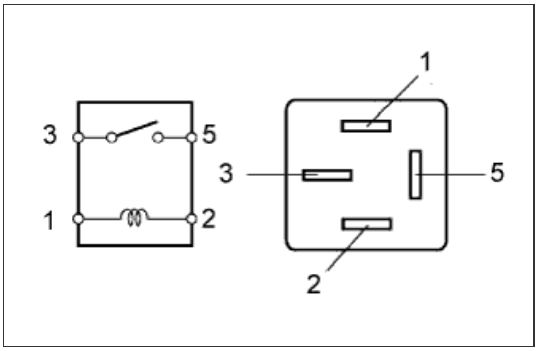
a. Remove the suspension control relay from the engine room relay block.

4. INSPECT SUSPENSION CONTROL RELAY

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminals 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminals 1 and 2	Below 1 Ω



If the result is not as specified, replace the suspension control relay.

5. INSTALL SUSPENSION CONTROL RELAY

a. Install the relay to the engine room relay block.

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE SUSPENSION CONTROL RELAY (AHC)

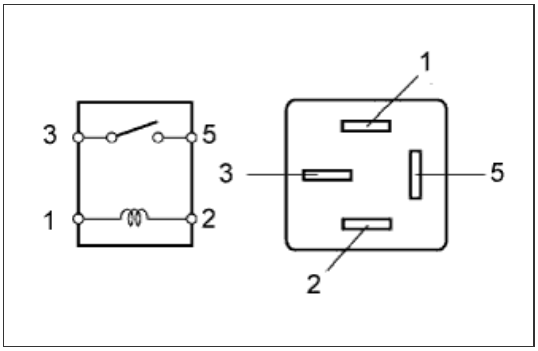
a. Remove the suspension control relay from the engine room relay block.

4. INSPECT SUSPENSION CONTROL RELAY

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminals 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminals 1 and 2	Below 1 Ω



If the result is not as specified, replace the suspension control relay.

5. INSTALL SUSPENSION CONTROL RELAY

a. Install the relay to the engine room relay block.

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE SUSPENSION CONTROL RELAY (AHC)

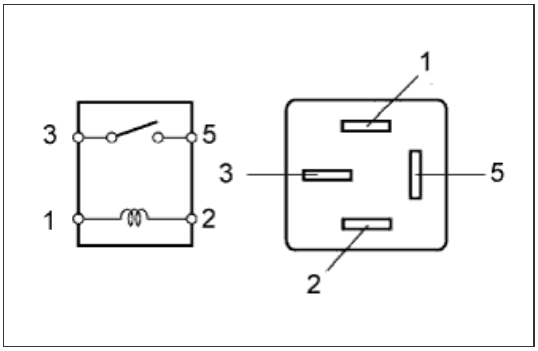
a. Remove the suspension control relay from the engine room relay block.

4. INSPECT SUSPENSION CONTROL RELAY

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage is not applied to terminals 1 and 2	10 kΩ or higher
	Battery voltage is applied to terminals 1 and 2	Below 1 Ω



If the result is not as specified, replace the suspension control relay.

5. INSTALL SUSPENSION CONTROL RELAY

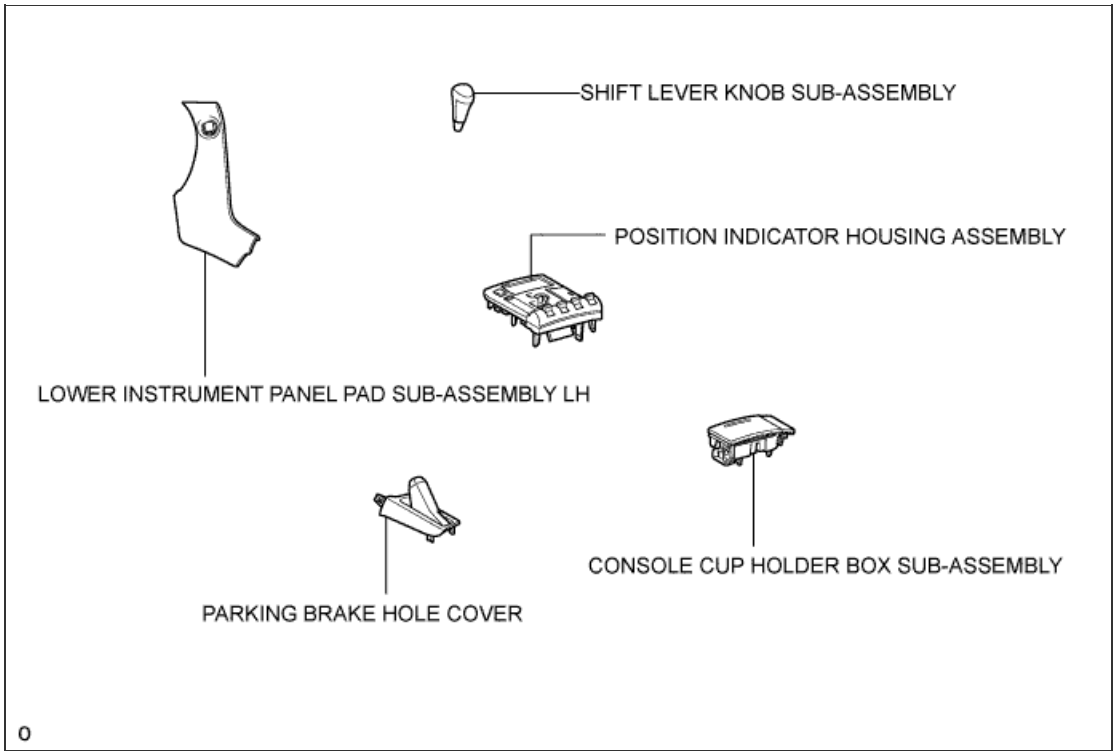
a. Install the relay to the engine room relay block.

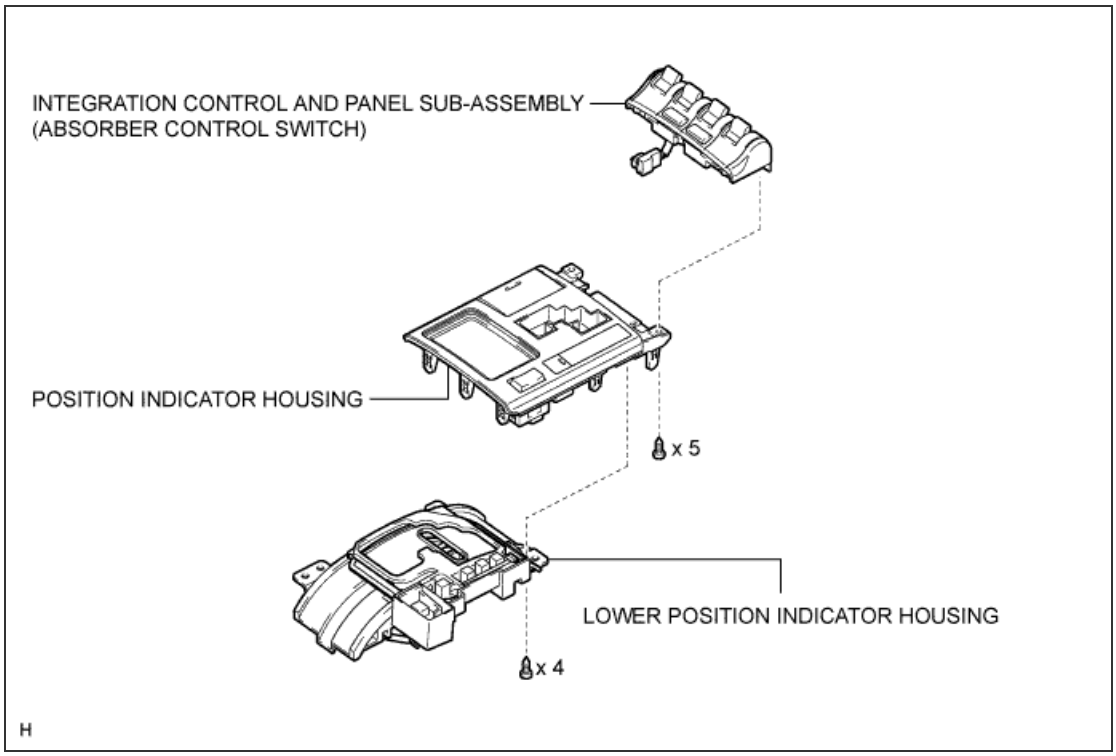
6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

for Preparation Click here



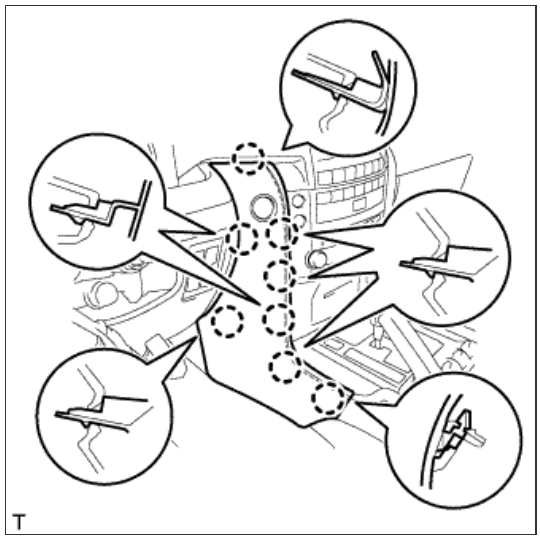


for Preparation Click here

1. REMOVE LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

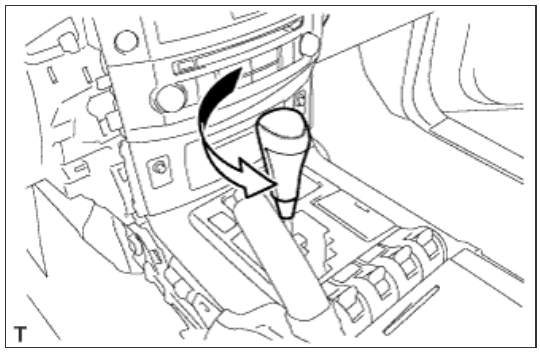
a. Detach the 8 claws.

b. Disconnect the connector and remove the panel pad.



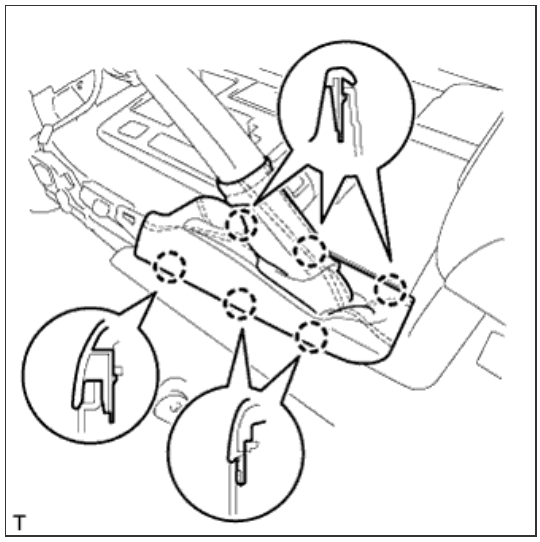
2. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY

a. Twist the shift lever knob in the direction indicated by the arrow and remove it.



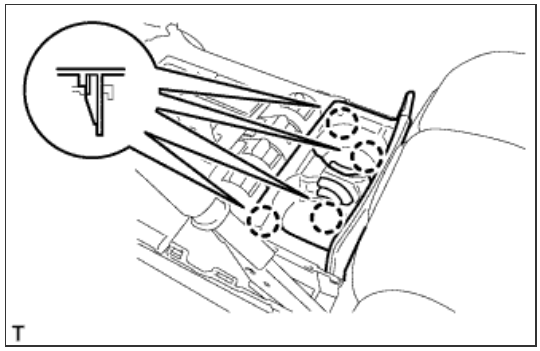
3. REMOVE PARKING BRAKE HOLE COVER

a. Detach the 6 claws and remove the cover.



4. REMOVE CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

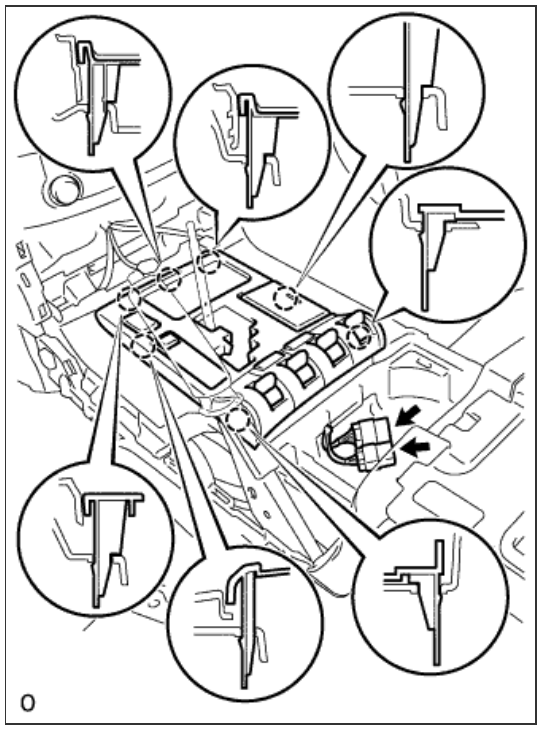
a. Detach the 4 claws and remove the box.



5. REMOVE POSITION INDICATOR HOUSING

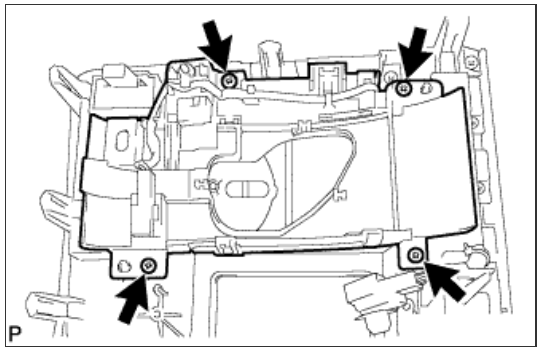
a. Disconnect the 2 connectors.

b. Detach the 7 claws and remove the position indicator housing.



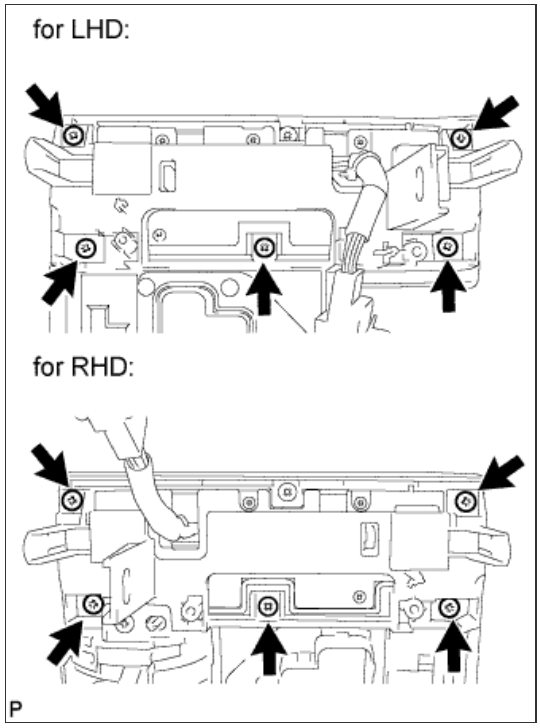
6. REMOVE LOWER POSITION INDICATOR HOUSING

a. Remove the 4 screws and lower position indicator housing from the position indicator housing.



7. REMOVE INTEGRATION CONTROL AND PANEL SUB-ASSEMBLY (ABSORBER CONTROL SWITCH)

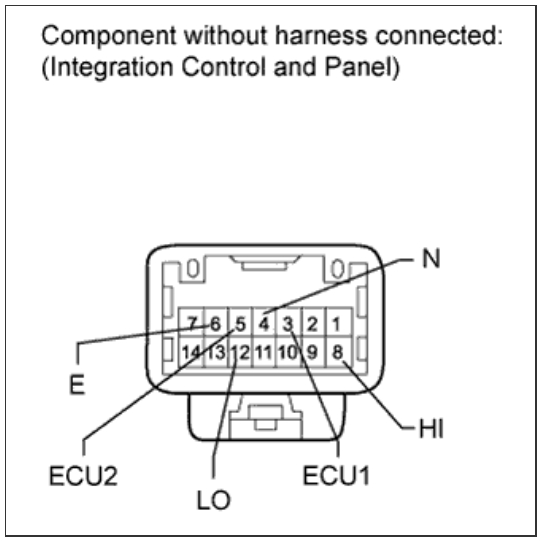
a. Remove the 5 screws and then remove the integration control and panel from the position indicator housing.



for Preparation Click here

1. INSPECT INTEGRATION CONTROL AND PANEL ASSEMBLY

a. Measure the resistance according to the value(s) in the table below.



Standard Resistance:

Damping Mode Select Switch

Tester Connection	Switch Condition	Specified Condition
3 (ECU1) - 6 (E)	SPORT	Below 1 Ω
	Except SPORT	10 kΩ or higher
5 (ECU2) - 6 (E)	COMF	Below 1 Ω
	Except COMF	10 kΩ or higher

Height Control Switch

Tester Connection	Switch Condition	Specified Condition
12 (LO) - 6 (E)	Down button of height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or up button is pushed.	10 kΩ or higher
8 (HI) - 6 (E)	Up button of height control switch is pushed.	Below 1 Ω
	Height control switch is not pushed or down button is pushed.	10 kΩ or higher

Height Control OFF Switch

Tester Connection	Switch Condition	Specified Condition
4 (N) - 6 (E)	Height control OFF switch is pushed.	Below 1 Ω
	Height control OFF switch is not pushed.	10 kΩ or higher

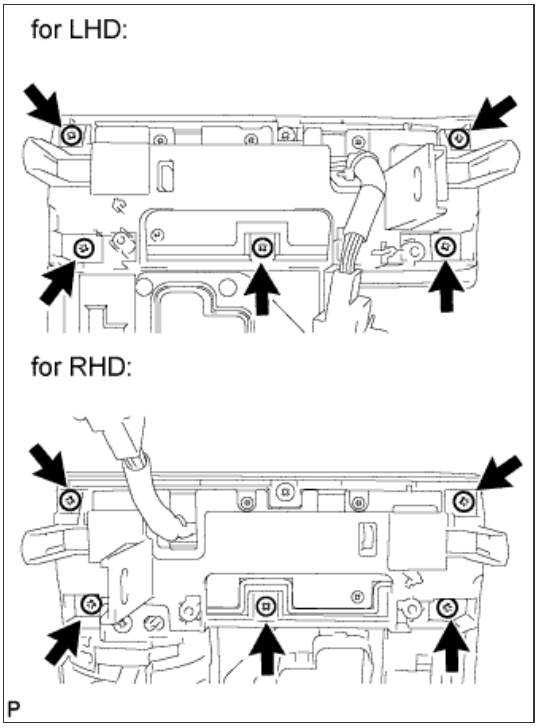
If the result is not as specified, replace the integration control and panel assembly.

for Preparation Click here

1. INSTALL INTEGRATION CONTROL AND PANEL SUB-ASSEMBLY (ABSORBER CONTROL SWITCH)

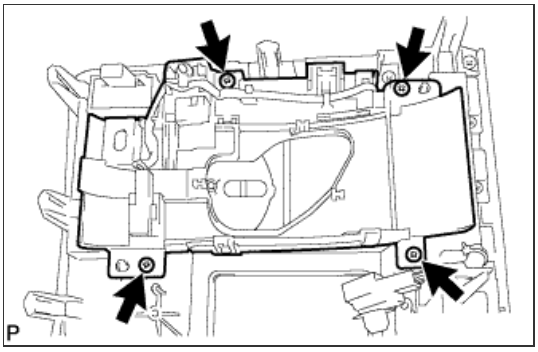
a. Install the integration control and panel to the position indicator housing with the 5 screws.

b. Connect the connector.



2. INSTALL LOWER POSITION INDICATOR HOUSING

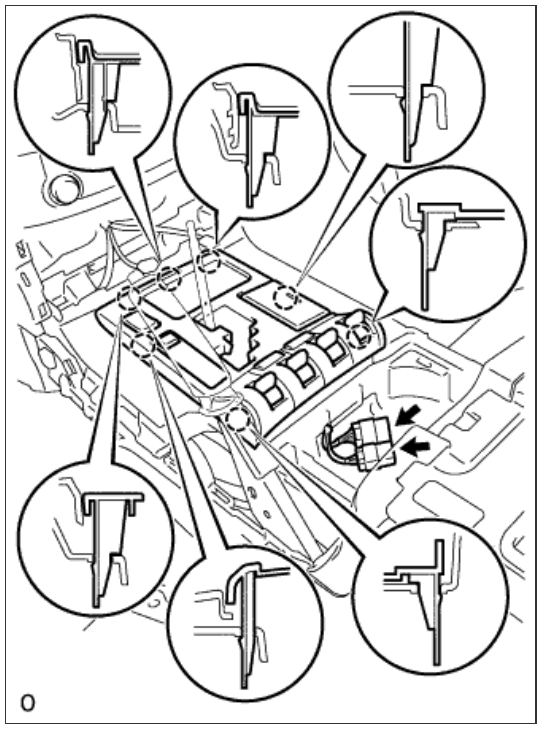
a. Install the lower position indicator housing to the position indicator housing with the 4 screws.



3. INSTALL POSITION INDICATOR HOUSING ASSEMBLY

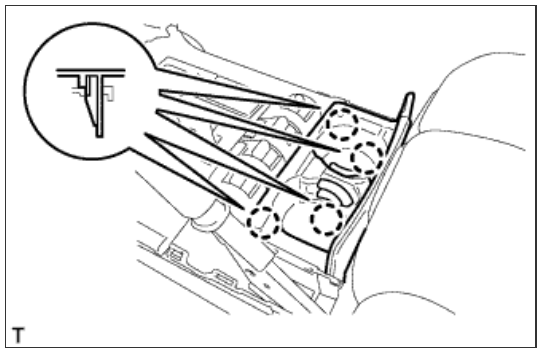
a. Attach the 7 claws to install the position indicator housing.

b. Connect the 2 connectors.



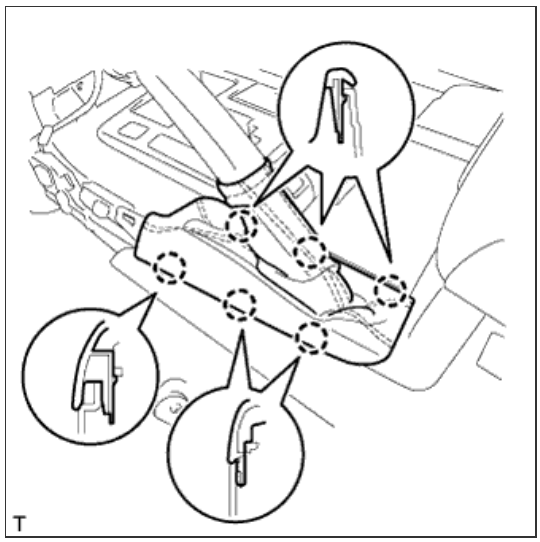
4. INSTALL CONSOLE CUP HOLDER BOX SUB-ASSEMBLY

a. Attach the 4 claws to install the box.



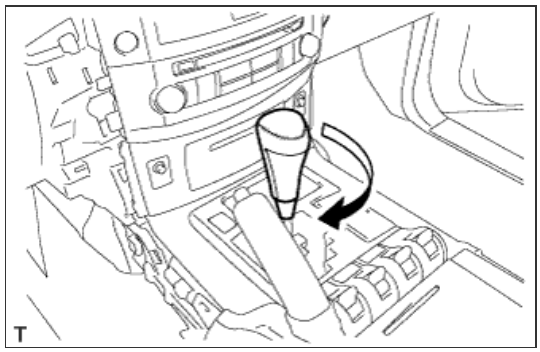
5. INSTALL PARKING BRAKE HOLE COVER

a. Attach the 6 claws to install the cover.



6. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY

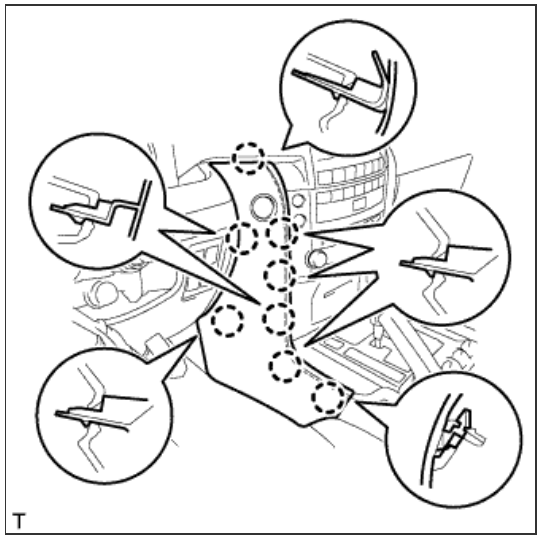
a. Install the shift lever knob and twist it in the direction indicated by the arrow.



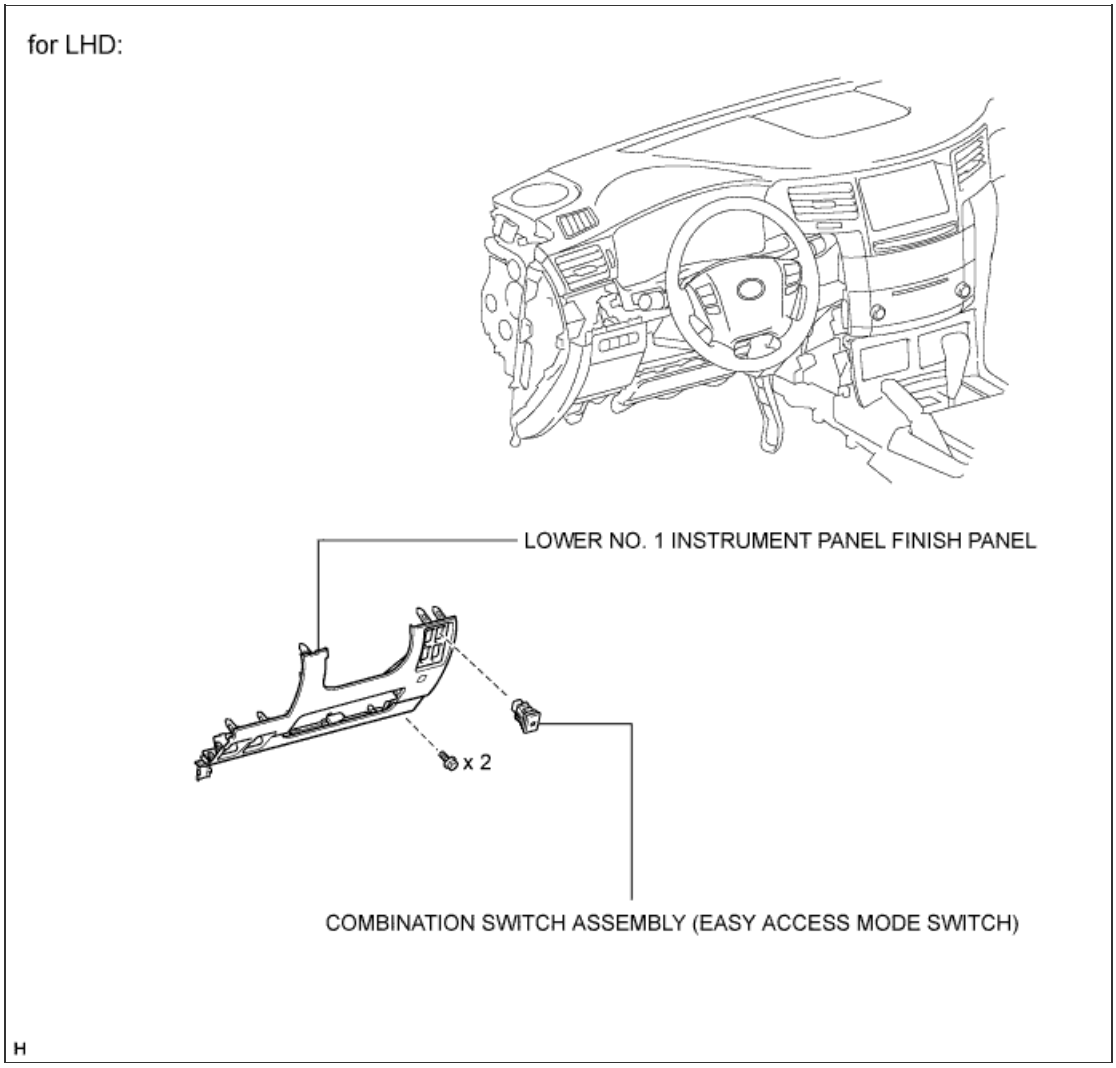
7. INSTALL LOWER INSTRUMENT PANEL PAD SUB-ASSEMBLY LH

a. Connect the connector.

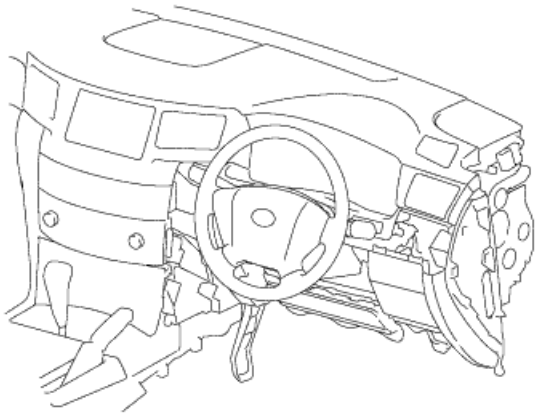
b. Attach the 8 claws to install the panel pad.

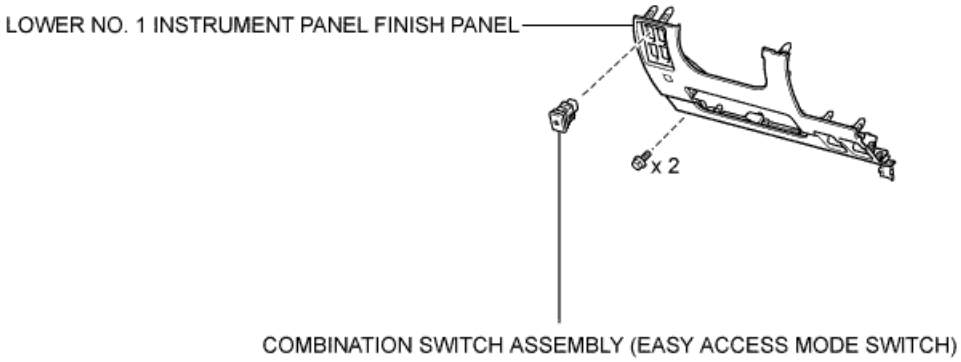


for Preparation Click here



for RHD:




LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL
x 2
COMBINATION SWITCH ASSEMBLY (EASY ACCESS MODE SWITCH)

H

for Preparation Click here

HINT:

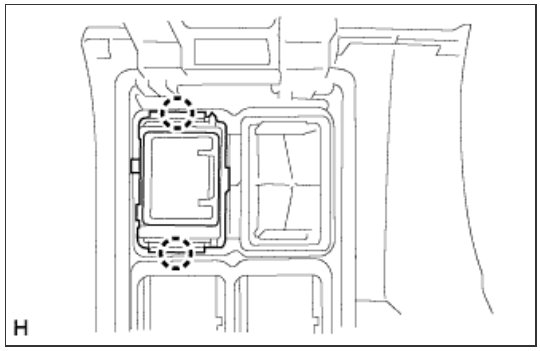
- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

(Click here)

2. REMOVE COMBINATION SWITCH ASSEMBLY (ACCESS MODE SWITCH)

a. Detach the 4 claws and remove the switch.



for Preparation Click here

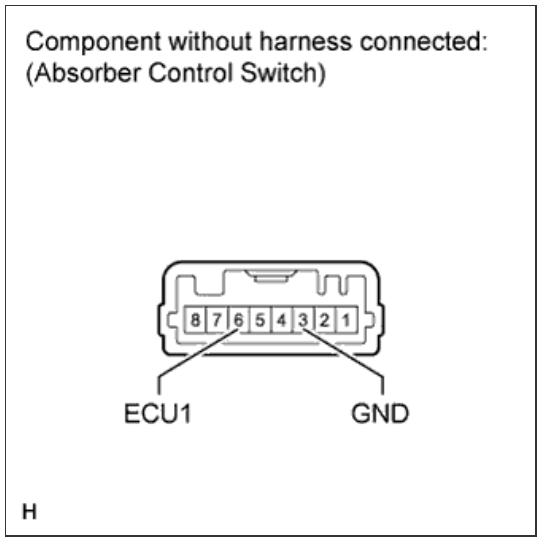
1. INSPECT COMBINATION SWITCH ASSEMBLY (EASY ACCESS MODE SWITCH)

a. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
6 (ECU1) - 3 (GND)	Pushed and held	Below 1 Ω
	Not pushed	10 kΩ or higher

If the result is not as specified, replace the combination switch assembly.



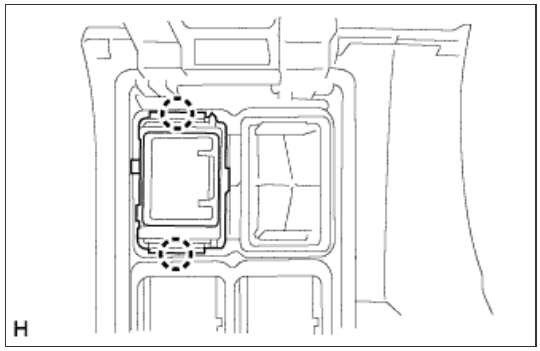
for Preparation Click here

HINT:

- **Use the same procedures for the LH side and RH side.**
- **The procedures listed below are for the LH side.**

1. INSTALL COMBINATION SWITCH ASSEMBLY (ACCESS MODE SWITCH)

a. Attach the 4 claws to install the switch.



2. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL

(Click here)

for Preparation Click here

NOTICE:

For vehicles equipped with VSC, if wheel alignment has been adjusted, and if suspension or underbody components have been removed/installed or replaced, be sure to perform the following initialization procedure in order for the system to function normally:

1. **Check that the steering wheel is in the centered position.**
2. **Disconnect the negative battery terminal for more than 2 seconds.**
3. **Reconnect the negative battery terminal.**
4. **Perform zero point calibration of the yaw rate and deceleration sensor and test mode inspection (Click here).**

1. INSPECT TIRE

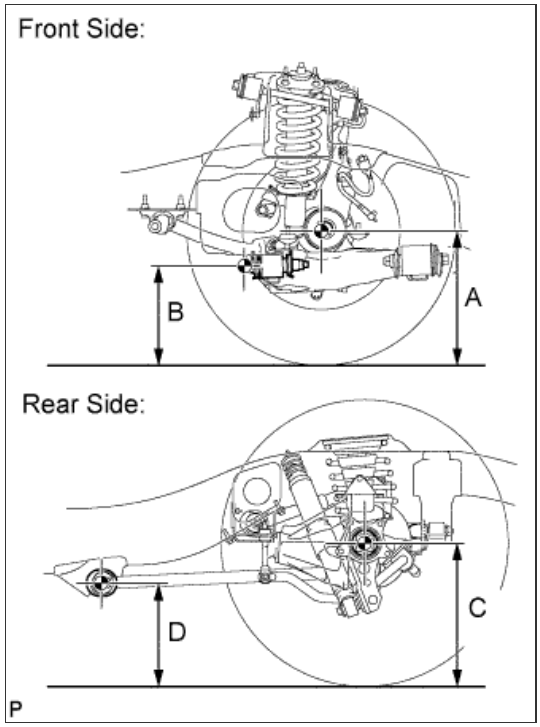
a. Inspect the tires (Click here).

2. INSPECT VEHICLE HEIGHT

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specification.

a. Press down on the vehicle several times to stabilize the suspension, and then measure the vehicle height.



Standard Vehicle Height (Unloaded Vehicle):

Vehicle Model	Suspension Package Option	Front A - B	Rear C - D
URJ201L-GNTGKV	Active Height Control STD (Option Less)	101.3 mm (3.99 in.)	93.4 mm (3.68 in.)
	Active Height Control STD (Full Option)	101.3 mm (3.99 in.)	93.2 mm (3.67 in.)
URJ201R-GNTGKQ	Active Height Control STD (Option Less)	101.3 mm (3.99 in.)	93.3 mm (3.67 in.)

	Active Height Control STD (Full Option)	101.3 mm (3.99 in.)	93.3 mm (3.67 in.)
URJ202R-GNTGKQ	Active Height Control STD (Option Less)	101.3 mm (3.99 in.)	93.3 mm (3.67 in.)
	Active Height Control STD (Full Option)	101.3 mm (3.99 in.)	93.3 mm (3.67 in.)
URJ201L-GNTGKW	Active Height Control STD (Option Less)	101.4 mm (3.99 in.)	93.7 mm (3.69 in.)
	Active Height Control STD (Full Option)	101.4 mm (3.99 in.)	93.5 mm (3.68 in.)
URJ201L-GNTGKC	Active Height Control STD	101.3 mm (3.99 in.)	93.2 mm (3.67 in.)

Measuring point:

A:
Ground clearance of the front drive shaft center
B:
Ground clearance of the front adjusting cam bolt center
C:
Ground clearance of the rear axle shaft center
D:
Ground clearance of the rear lower control arm front side center

If the vehicle height is not as specified, adjust the height by pressing down on the vehicle several times to stabilize the suspension.

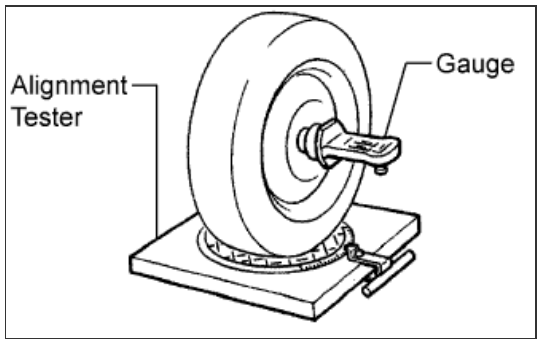
NOTICE:

The standard value shown here is a value that is used for adjusting the wheel alignment and does not indicate the height of an actual vehicle.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

a. Install the camber-caster-kingpin gauge or place the front wheels on the center of the wheel alignment tester.

b. Inspect the camber, caster and steering axis inclination.



Standard Camber Inclination (Unloaded):

Suspension Package Option	Camber Inclination	
Active Height Control STD	Camber Left - right error	0°00' +/-45' (0.00° +/-0.75°) 45' (0.75°) or less

Standard Caster Inclination (Unloaded):

Vehicle Model	Suspension Package Option	Caster Inclination	
URJ201L-GNTGKV	Active Height Control STD (Option Less)	Caster Left - right error	3°23' +/-45' (3.39° +/-0.75°) 45' (0.75°) or less
	Active Height Control STD (Full Option)	Caster Left - right error	3°25' +/-45' (3.41° +/-0.75°) 45' (0.75°) or less
	Active Height Control	Caster	3°23' +/-45' (3.39° +/-0.75°)

URJ201R-GNTGKQ	STD (Option Less)	Left - right error	45' (0.75°) or less
	Active Height Control STD (Full Option)	Caster Left - right error	3°24' +/-45' (3.40° +/-0.75°) 45' (0.75°) or less
URJ202R-GNTGKQ	Active Height Control STD (Option Less)	Caster Left - right error	3°23' +/-45' (3.39° +/-0.75°) 45' (0.75°) or less
	Active Height Control STD (Full Option)	Caster Left - right error	3°24' +/-45' (3.40° +/-0.75°) 45' (0.75°) or less
URJ201L-GNTGKW	Active Height Control STD (Option Less)	Caster Left - right error	3°22' +/-45' (3.37° +/-0.75°) 45' (0.75°) or less
	Active Height Control STD (Full Option)	Caster Left - right error	3°23' +/-45' (3.38° +/-0.75°) 45' (0.75°) or less
URJ201L-GNTGKC	Active Height Control STD	Caster Left - right error	3°24' +/-45' (3.40° +/-0.75°) 45' (0.75°) or less

Standard Steering Axis Inclination (Unloaded):

Suspension Package Option	Steering Axis Inclination : Reference	
Active Height Control STD	Steering Axis	13°00' (13.00°)

HINT:

The steering axis inclination is a reference value.

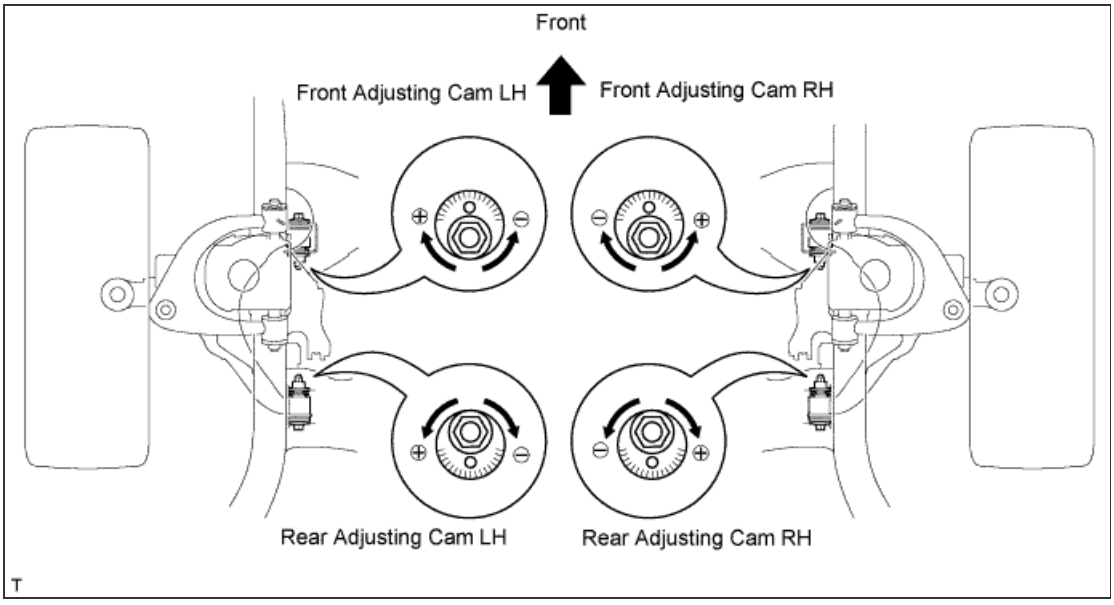
4. ADJUST CAMBER AND CASTER

HINT:

After the camber has been adjusted, inspect the toe-in.

a. Loosen the front adjusting cam bolt and rear adjusting cam nut.

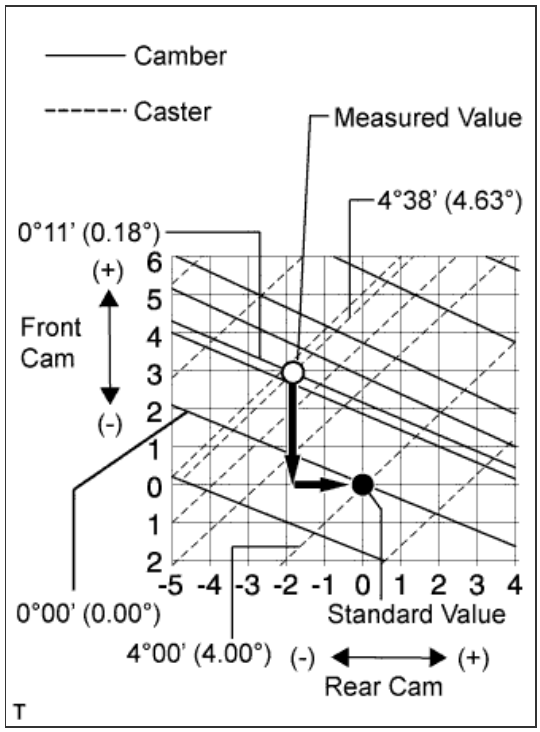
b. Turn the front adjusting cam and rear adjusting cam in both directions, and adjust the camber and caster to the center value.



HINT:

- **The camber and caster should be as close as possible to the center value.**
- **Make sure the difference between the left and right camber and caster is within +/-30' (0.5°).**

c. Read the adjustment chart (example).



i. Find the wheel alignment standard value applicable for the particular model.

ii. Mark the selected standard value on the adjustment chart.

Standard Value (Reference):

Camber	Caster
0°00' (0.00°)	4°00' (4.00°)

iii. Mark the alignment value measured when the vehicle is unloaded on the adjustment chart.

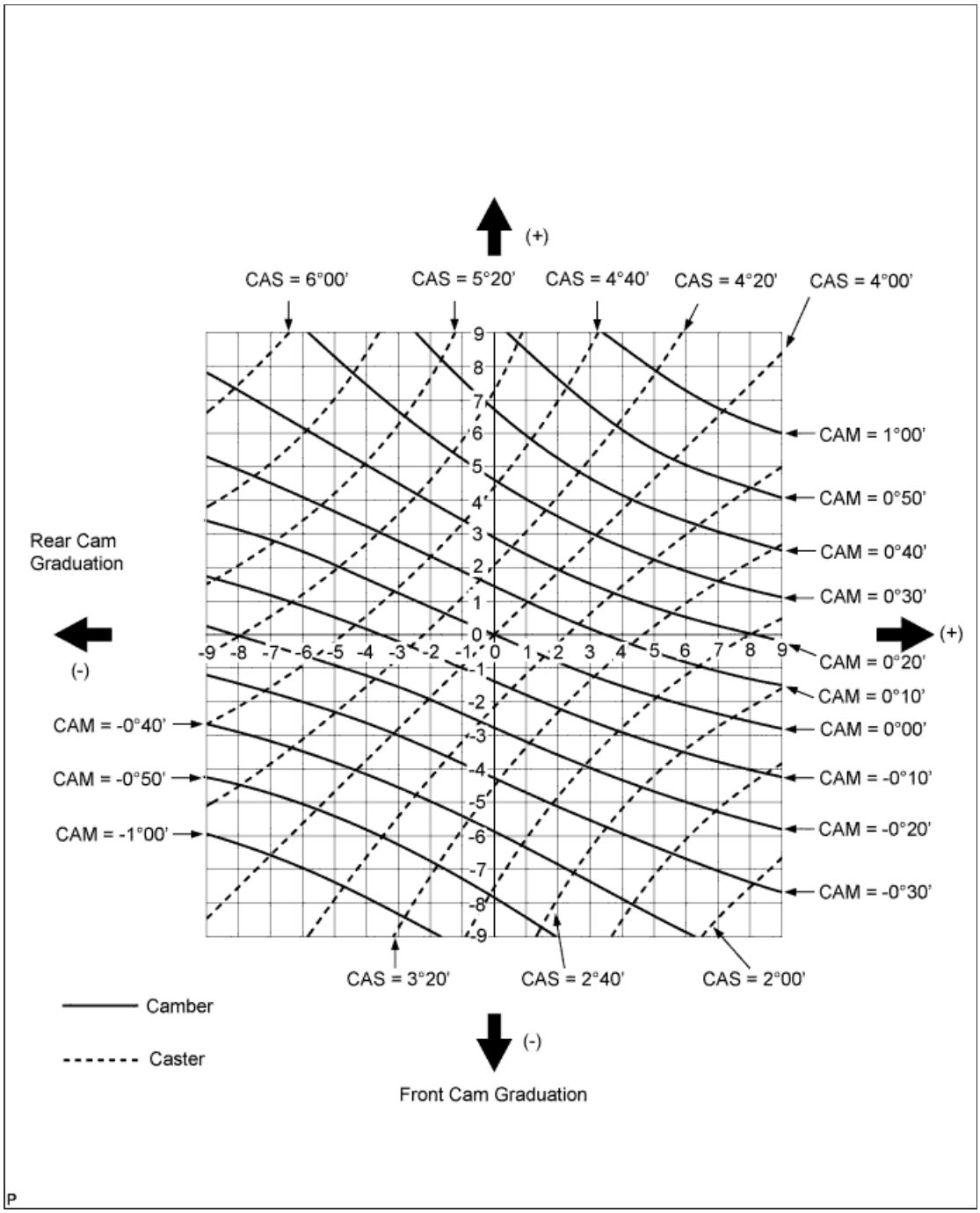
Measured Value (Reference):

Camber	Caster
0°11' (0.18°)	4°38' (4.63°)

iv. As shown in the chart, read the distance from the marked point to 0, and adjust the front and/ or rear adjusting cams accordingly.

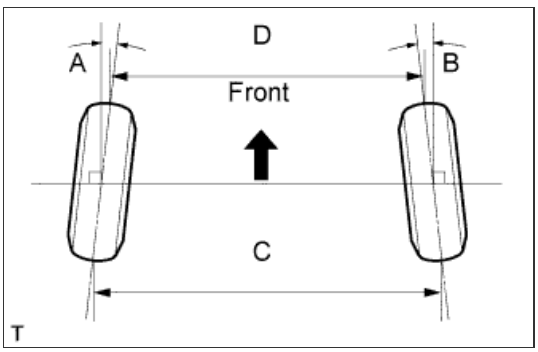
Amount to Turn Adjusting Cams (by Gradation):

Front Adjusting Cam	Rear Adjusting Cam
+3.0	-2.0



5. INSPECT TOE-IN

a. Bounce the vehicle up and down at the corners to stabilize the suspension and inspect the toe-in.



Standard Toe-in (Unloaded Vehicle):

Suspension Package Option	Item	A + B C - D

Active Height Control STD	Toe-in (total)	A + B: 0°00' +/-10' (0.00° +/-0.17°) C - D: 0 +/-2 mm (0 +/-0.0787 in.)

If the toe-in is not as specified, adjust it at the rack ends.

HINT:

The toe-in can be measured using either A + B or C - D.

6. ADJUST TOE-IN

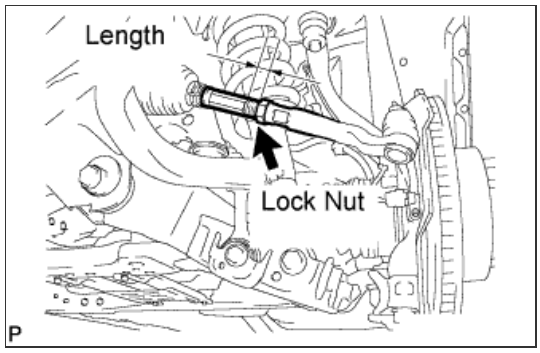
a. Release the rack boot set clips.

b. Loosen the tie rod end lock nuts.

c. Turn the right and left rack ends by an equal amount to adjust the toe-in to the center value.

d. Check that the length of the right and left rack ends are approximately the same.

Standard difference:
0 +/-1 mm (0 +/-0.0394 in.) or less



e. Tighten the tie rod end lock nuts.

Torque:
82 N*m{ 836 kgf*cm , 60 ft.*lbf }

f. Place the boots on the seats and install the clips.

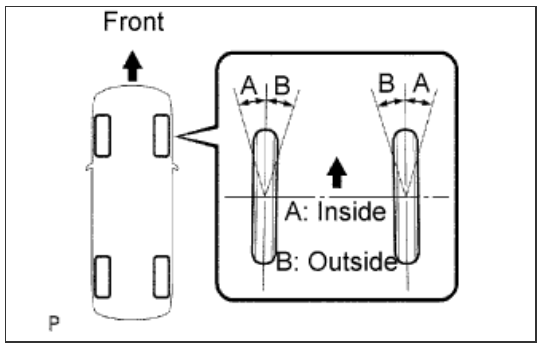
HINT:

Make sure that the boots are not twisted.

g. Perform the VGRS system calibration (Click here).

7. INSPECT WHEEL ANGLE

a. Turn the steering wheel to the left and right full lock positions, and measure the turning angle.



Standard Wheel Turning Angle (Unloaded Vehicle):

Suspension Package Option	Inside Wheel Angle	Outside Wheel Angle : Reference
Active Height Control STD	33°28' to 36°28' (33.46° to 36.46°)	32°02' (32.03°)

If the right and left inside wheel angles differ from the specified range, check the right and left rack end lengths.

8. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

9. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

Disconnect the cable from the negative battery terminal for 2 seconds or more.

10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

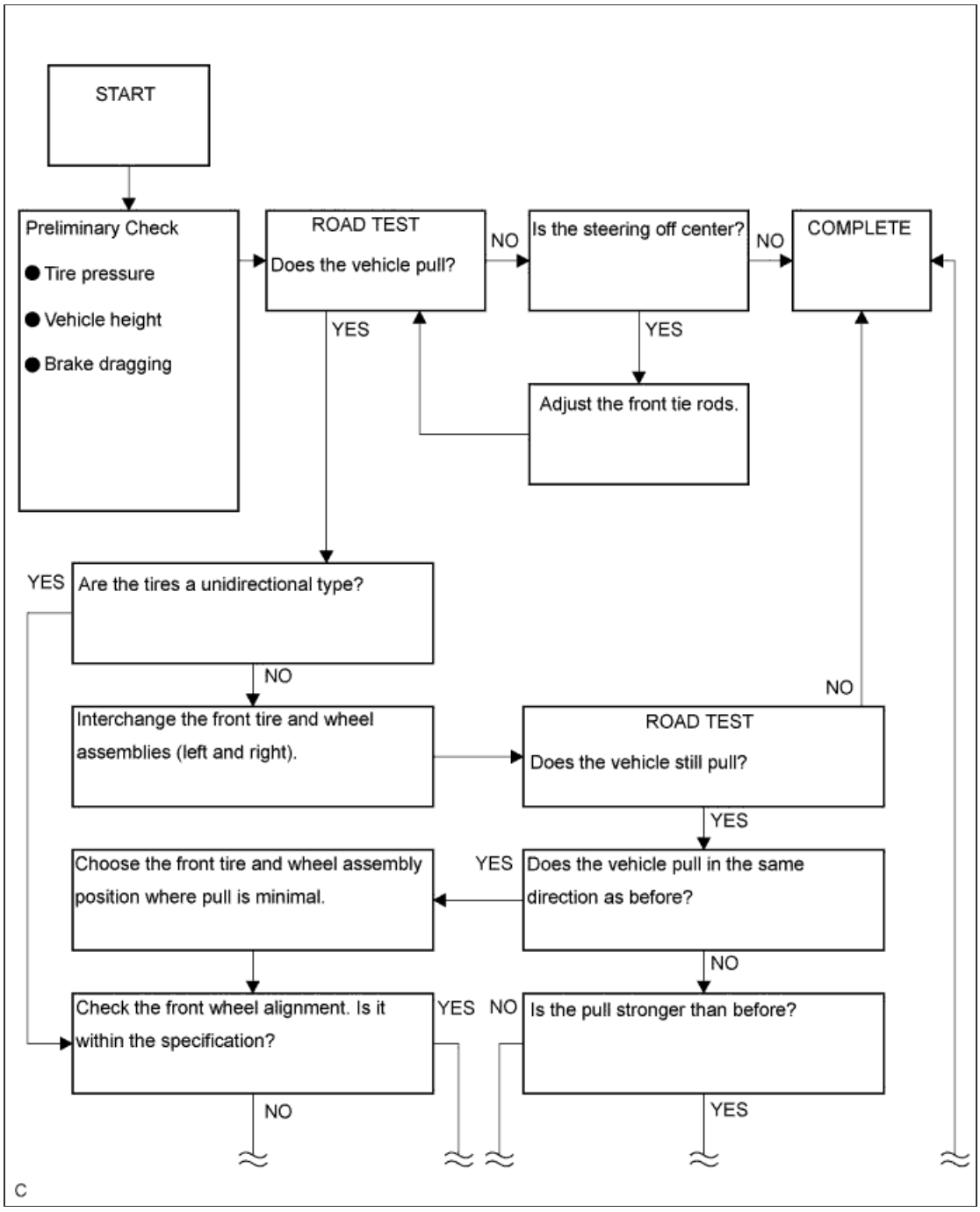
11. PERFORM YAW RATE AND DECELERATION SENSOR ZERO POINT CALIBRATION

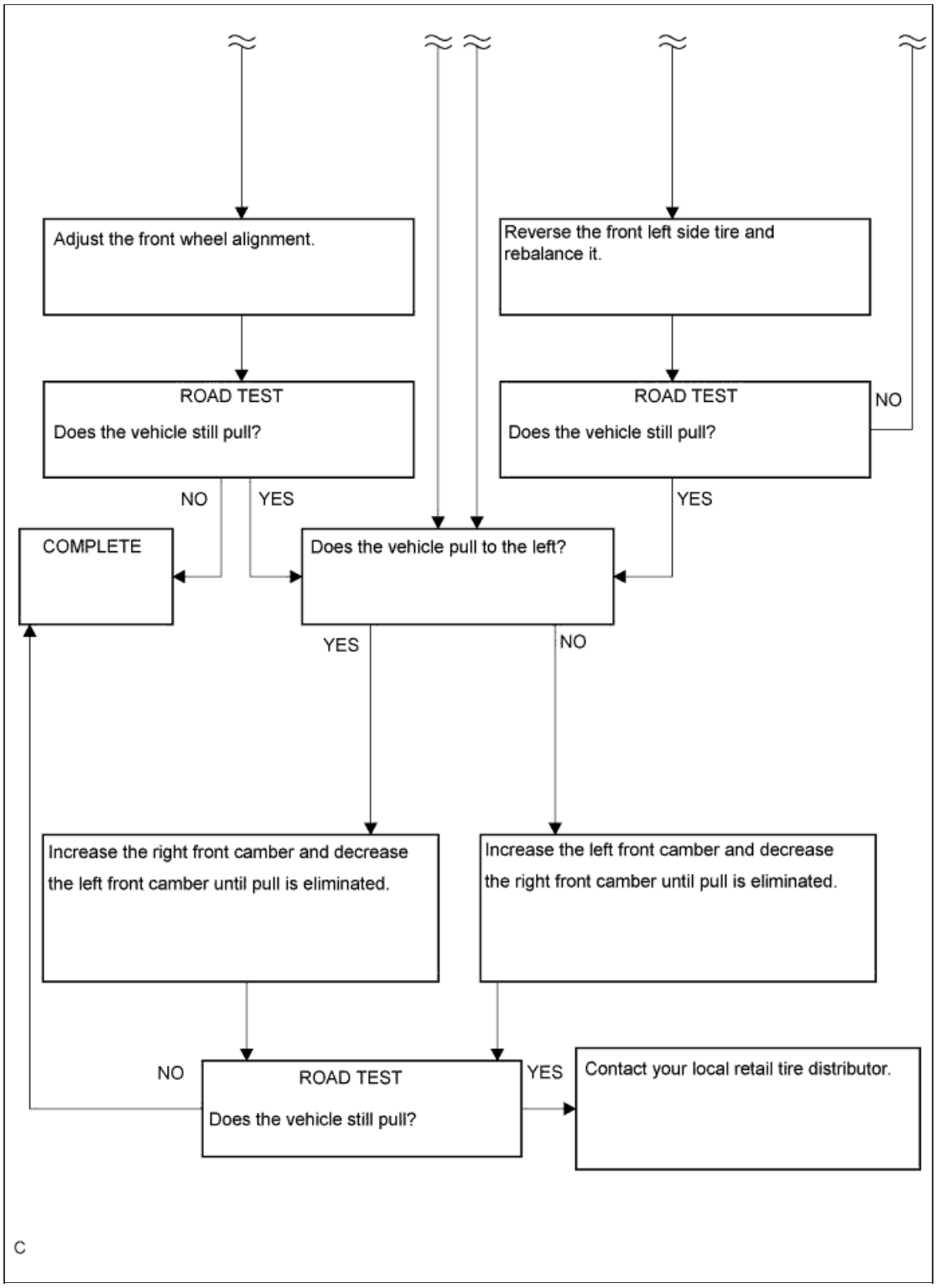
a. Perform the yaw rate and deceleration sensor zero point calibration (Click here).

for Preparation Click here

HINT:

This is a flowchart for vehicle pull.




Adjust the front wheel alignment.
Reverse the front left side tire and rebalance it.
ROAD TEST
Does the vehicle still pull?
ROAD TEST
Does the vehicle still pull?
NO
NO
YES
YES
COMPLETE
Does the vehicle pull to the left?
YES
NO
Increase the right front camber and decrease the left front camber until pull is eliminated.
Increase the left front camber and decrease the right front camber until pull is eliminated.
NO
ROAD TEST
Does the vehicle still pull?
YES
Contact your local retail tire distributor.
C

for Preparation Click here

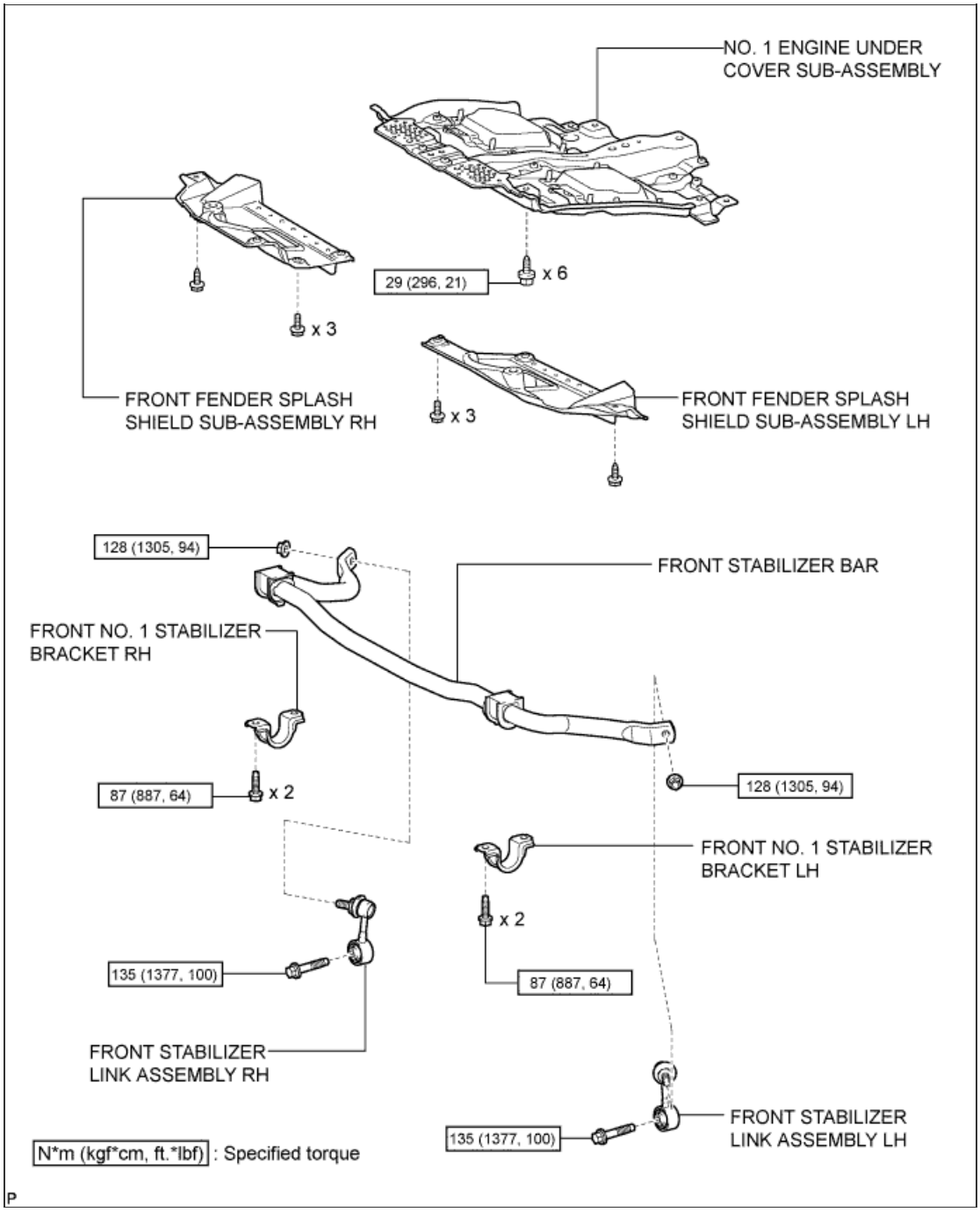
HINT:

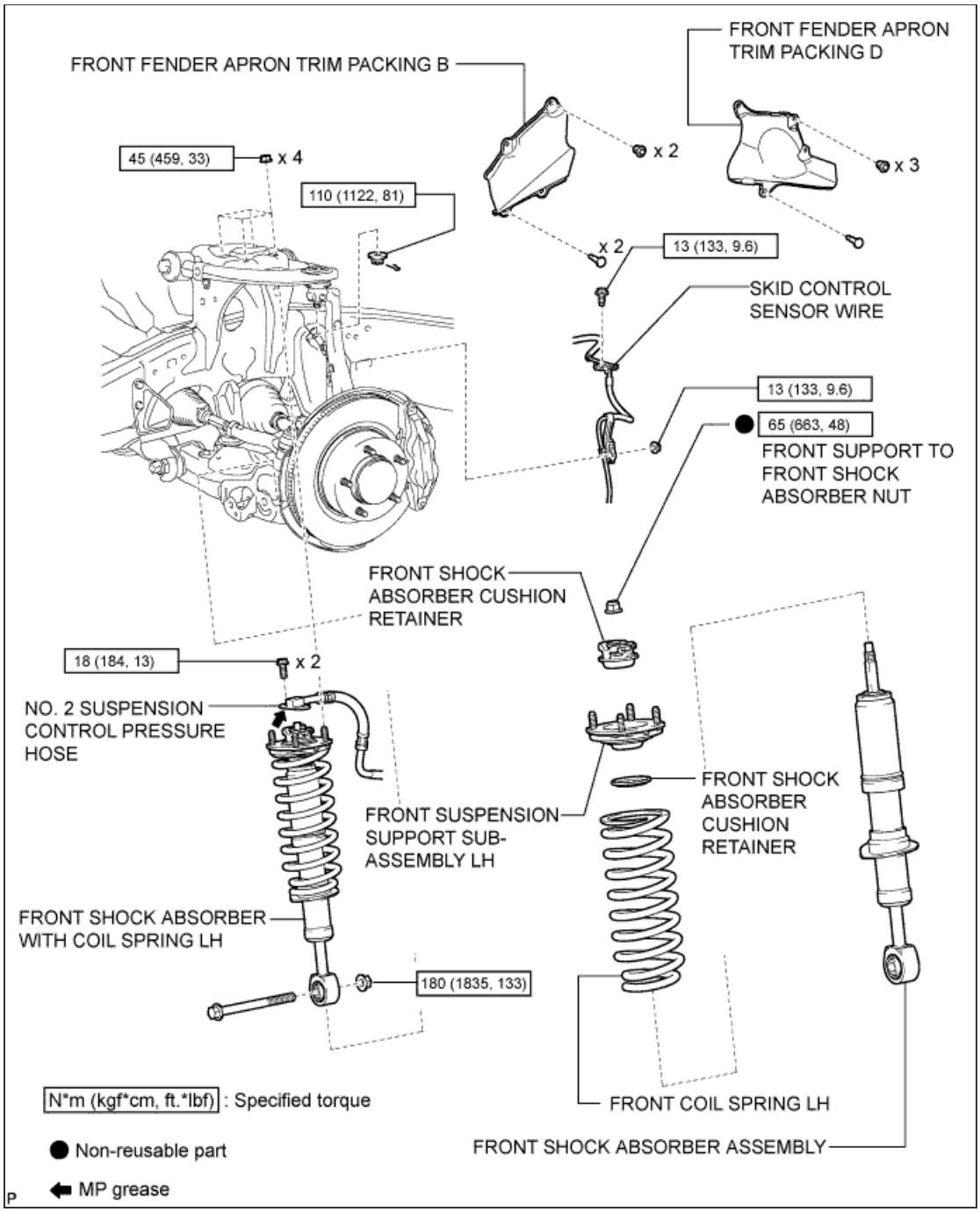
Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Front Suspension System

Symptom	Suspected Area	See page
Bottoming	Vehicle (overloaded)	-
	Front coil spring (weak)	Click here
	Front shock absorber (worn)	Click here
Sways/pitches	Tire (worn or improperly inflated)	Click here
	Stabilizer bar (bent or broken)	Click here
	Front shock absorber (worn)	Click here
Wheel shimmy	Tire (worn or improperly inflated)	Click here
	Wheel (out of balance)	Click here
	Front shock absorber (worn)	Click here
	Wheel alignment (incorrect)	Click here
	Front upper arm ball joint (worn)	Click here
	Front lower arm ball joint (worn)	Click here
	Front hub bearing (loose or worn)	Click here
	Steering linkage (loose or worn)	-
	Steering gear (out of adjustment or broken)	-
Abnormal tire wear	Tire (improperly inflated)	Click here
	Wheel alignment (incorrect)	Click here
	Front shock absorber (worn)	Click here
	Suspension parts (worn)	-

for Preparation Click here




FRONT FENDER APRON TRIM PACKING B
FRONT FENDER APRON TRIM PACKING D
45 (459, 33)
x 4
x 2
x 3
110 (1122, 81)
x 2
13 (133, 9.6)
SKID CONTROL SENSOR WIRE
13 (133, 9.6)
65 (663, 48)
FRONT SUPPORT TO FRONT SHOCK ABSORBER NUT
FRONT SHOCK ABSORBER CUSHION RETAINER
18 (184, 13)
x 2
NO. 2 SUSPENSION CONTROL PRESSURE HOSE
FRONT SUSPENSION SUPPORT SUB-ASSEMBLY LH
FRONT SHOCK ABSORBER CUSHION RETAINER
FRONT SHOCK ABSORBER WITH COIL SPRING LH
180 (1835, 133)
N*m (kgf*cm, ft.*lbf) : Specified torque
Non-reusable part
MP grease
FRONT COIL SPRING LH
FRONT SHOCK ABSORBER ASSEMBLY
P

for Preparation Click here

HINT:

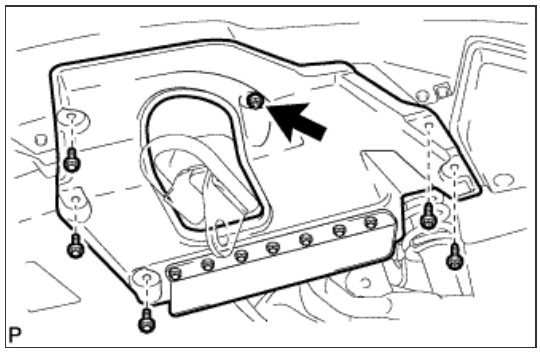
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE FRONT WHEEL

2. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Remove the 3 bolts and 2 screws.

b. Turn the clip indicated by the arrow in the illustration to remove the front fender splash shield sub-assembly LH.



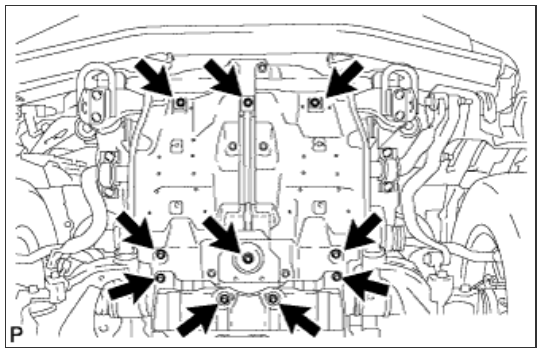
3. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

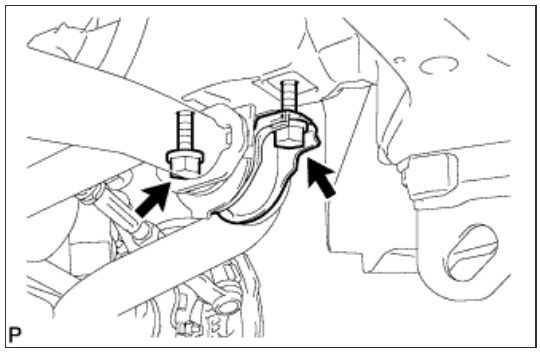
4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Remove the 10 bolts and No. 1 engine under cover sub-assembly.



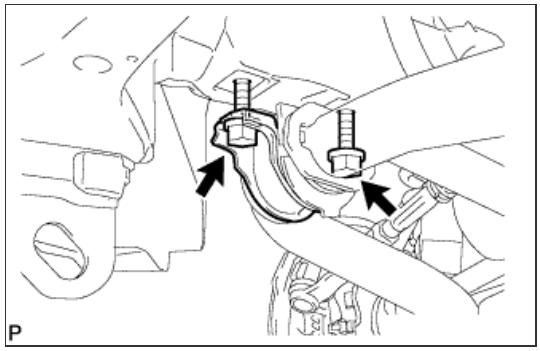
5. LOOSEN FRONT NO. 1 STABILIZER BRACKET LH

a. Loosen the 2 bolts of the front stabilizer brackets.



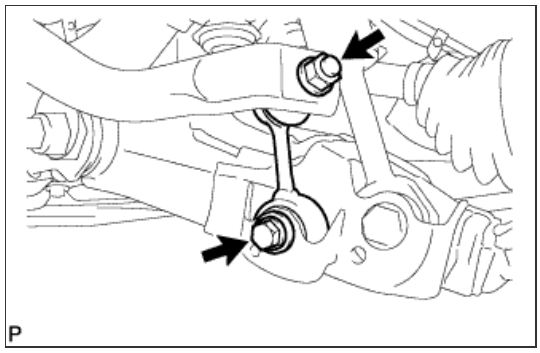
6. LOOSEN FRONT NO. 1 STABILIZER BRACKET RH

a. Loosen the 2 bolts of the front stabilizer brackets.



7. REMOVE FRONT STABILIZER LINK ASSEMBLY LH

a. Remove the bolt, nut and stabilizer link.

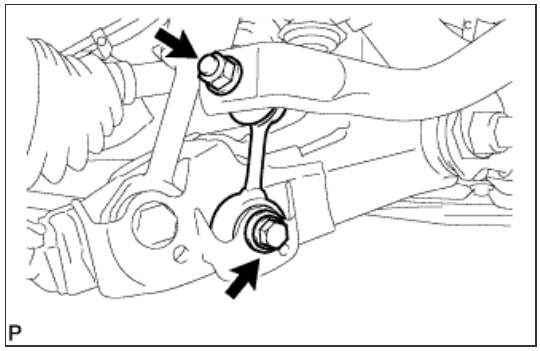


8. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

a. Remove the bolt, nut and stabilizer link.

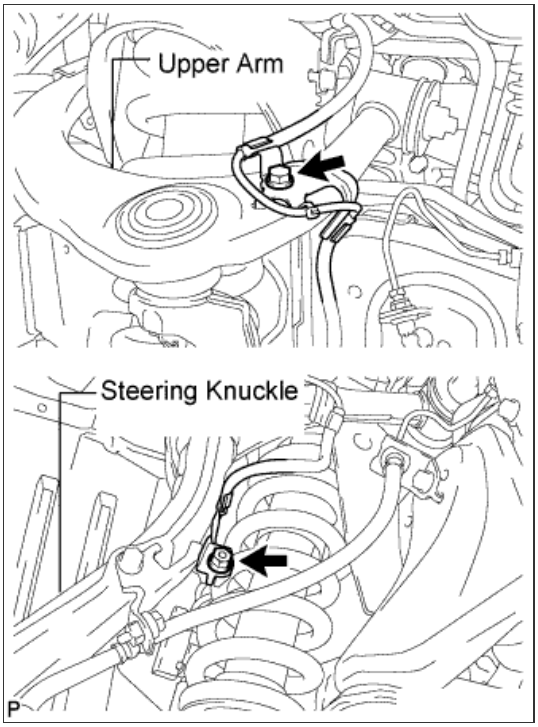
HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud.



9. DISCONNECT SKID CONTROL SENSOR WIRE

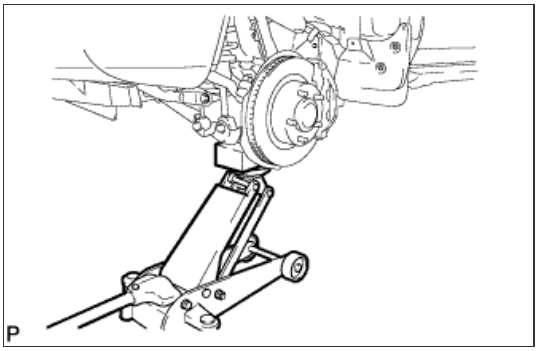
a. Remove the bolt and nut, and disconnect the sensor wire from the steering knuckle and suspension upper arm.



10. DISCONNECT STEERING KNUCKLE LH

a. Support the front suspension lower arm LH with a jack.

b. Remove the clip and the nut.

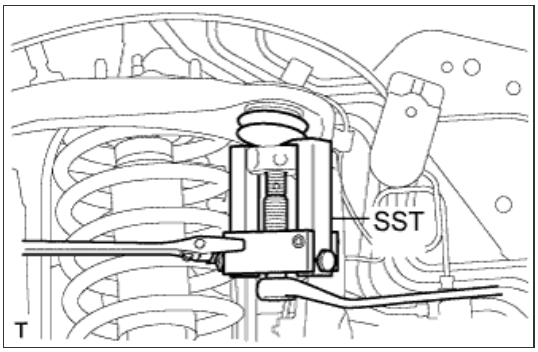


c. Using SST, disconnect the upper ball joint from the steering knuckle.

SST
09628-62011

NOTICE:

Do not damage the ball joint dust cover.



11. DISCHARGE SUSPENSION FLUID PRESSURE

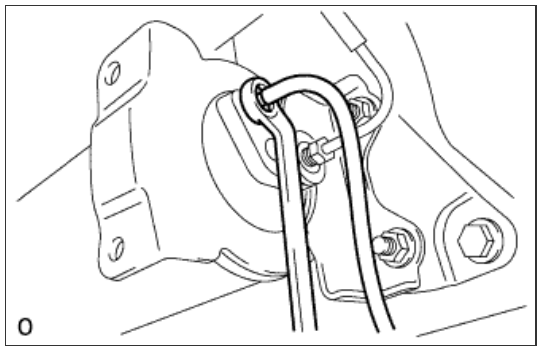
a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder

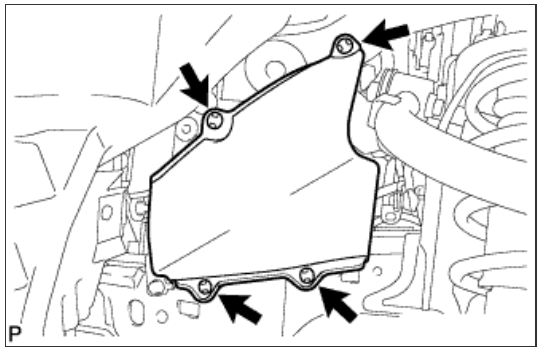
plug and remove the hose.

Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



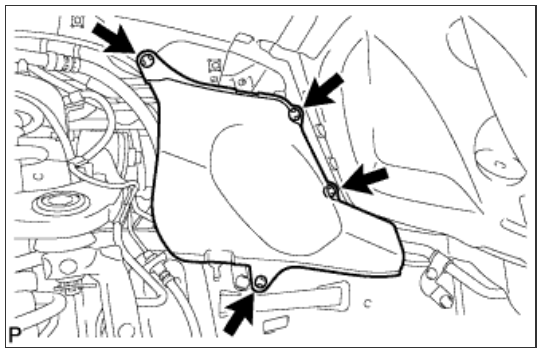
12. REMOVE FRONT FENDER APRON TRIM PACKING B

a. Using a clip remover, remove the 4 clips and apron trim packing.



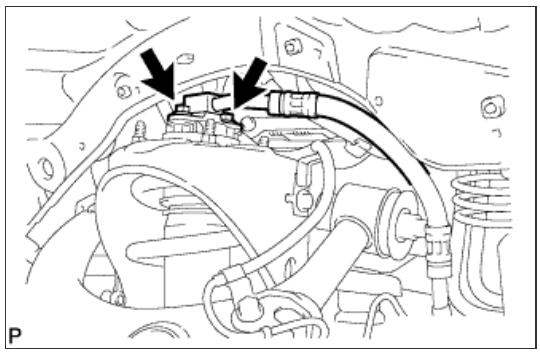
13. REMOVE FRONT FENDER APRON TRIM PACKING D

a. Using a clip remover, remove the 4 clips and apron trim packing.



14. DISCONNECT NO. 2 SUSPENSION CONTROL PRESSURE HOSE

a. Remove the 2 bolts and disconnect the pressure hose from the shock absorber.

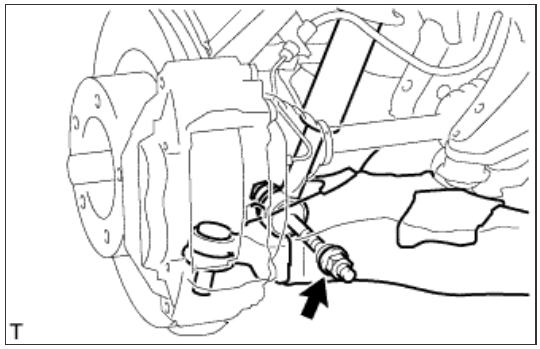


15. REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING LH

a. Remove the nut from the shock absorber lower side.

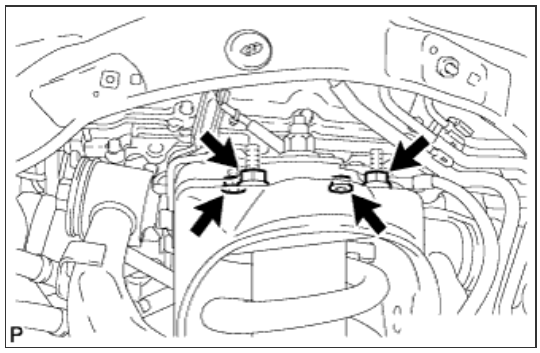
NOTICE:

To prevent the shock absorber with coil spring from falling, leave the bolt inserted.



b. Remove the 4 nuts.

c. Remove the bolt (lower side) and shock absorber with coil spring.

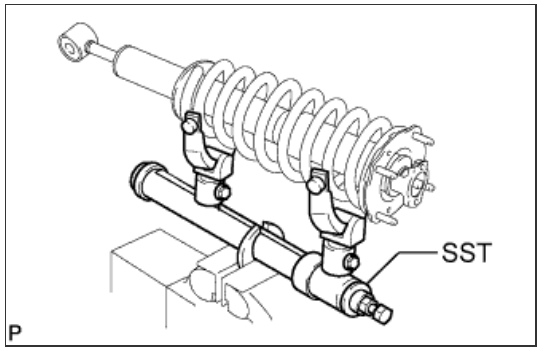


for Preparation Click here

1. REMOVE FRONT SUPPORT TO FRONT SHOCK ABSORBER NUT

a. Secure SST in a vise.

SST
09727-30021 (09727-00010, 09727-00021, 09727-00031)



b. Attach the arm of SST to the diameter of the coil spring.

Text in Illustration

*a	Correct
*b	Incorrect

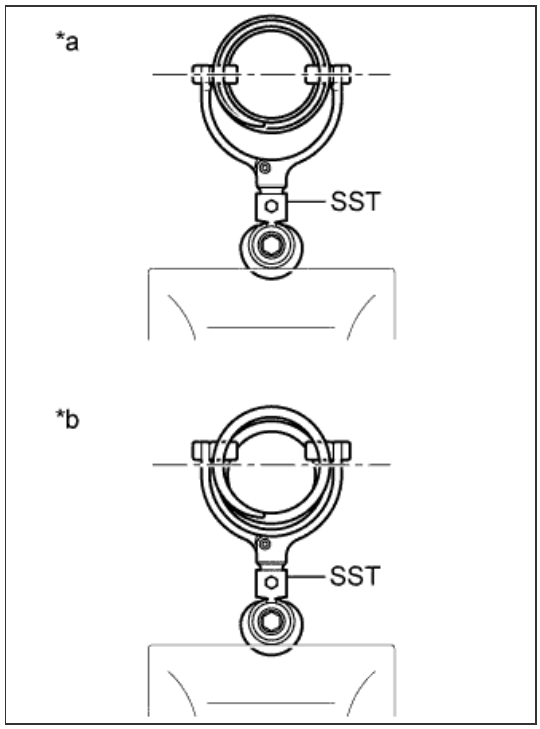
CAUTION:

- **Make sure that the coil spring is installed so that the distance between the upper and lower hooks of SST is at the maximum.**
- **Make sure that the claws of the hooks are securely attached.**

c. Using SST, compress the coil spring.

CAUTION:

- **If the coil spring bends during the compression, immediately stop the compression and reinstall SST.**
- **Do not compress the spring until the coil springs contact each other.**
- **Do not use an impact wrench.**

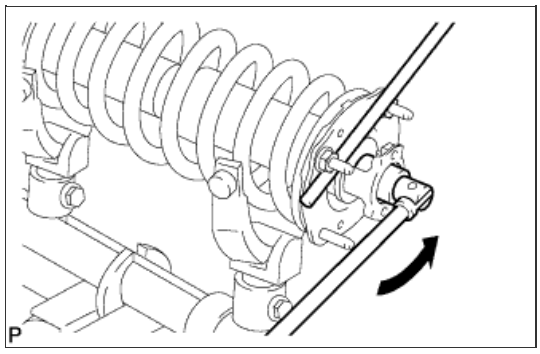


d. Temporarily install 2 nuts to the suspension support as shown in the illustration.

e. Using a brass bar or equivalent to hold the suspension support, remove the front support to front shock absorber nut.

CAUTION:

Do not remove the front support to front shock absorber nut when the coil spring is not free.



2. REMOVE FRONT SUSPENSION SUPPORT SUB-ASSEMBLY LH

a. Remove the suspension support, 2 retainers and 2 cushions from the shock absorber rod.

3. REMOVE FRONT COIL SPRING LH

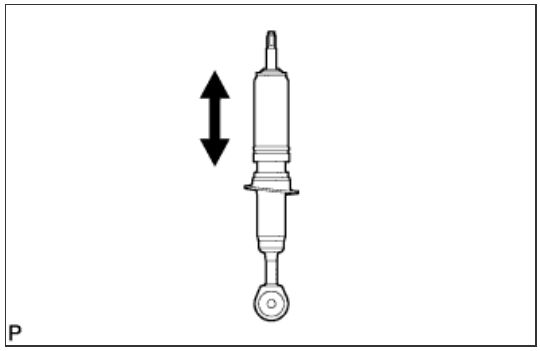
a. Remove the coil spring from the shock absorber.

for Preparation Click here

1. INSPECT FRONT SHOCK ABSORBER ASSEMBLY LH

a. Compress and extend the shock absorber rod 4 times or more. Check that there is no abnormal resistance or unusual sound during the operation.

If there is any abnormality, replace the shock absorber assembly with a new one.



NOTICE:

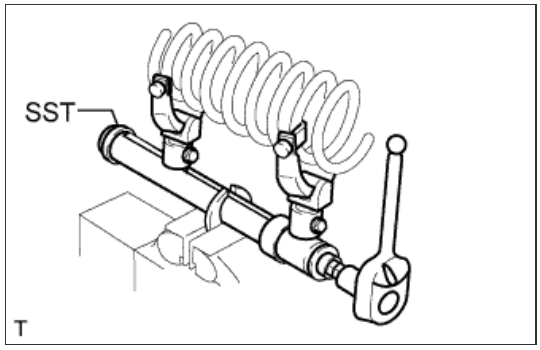
- **When disposing of the shock absorber, see Disposal (Click here).**
- **Drain the oil inside the absorber before performing the inspection.**
- **Be careful as oil may come out from the end of the rod.**

for Preparation Click here

1. INSTALL FRONT COIL SPRING LH

a. Secure SST in a vise.

SST
09727-30021 (09727-00010, 09727-00021, 09727-00031)



b. Attach the arm of SST to the diameter of the coil spring.

Text in Illustration

*a	Correct
*b	Incorrect

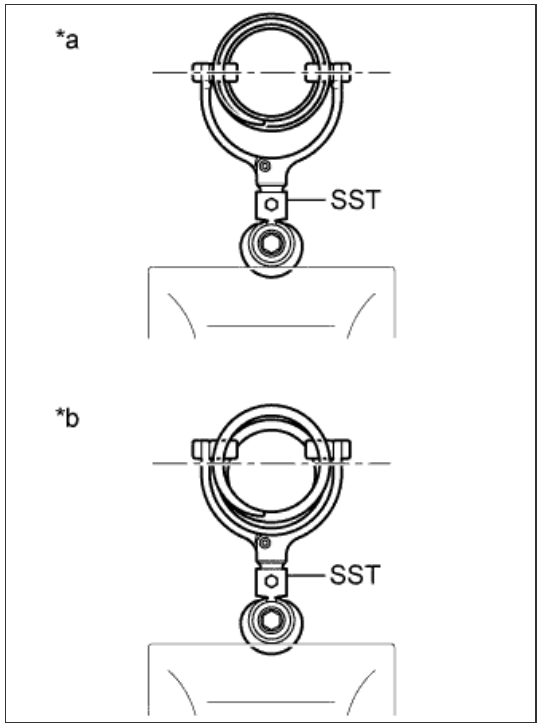
CAUTION:

- **Make sure that the coil spring is installed so that the distance between the upper and lower hooks of SST is at the maximum.**
- **Make sure that the claws of the hooks are securely attached.**

c. Using SST, compress the coil spring.

CAUTION:

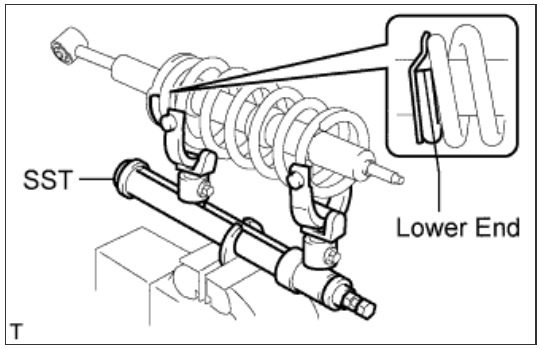
- **If the coil spring bends during the compression, immediately stop the compression and reinstall SST.**
- **Do not compress the spring until the coil springs contact each other.**
- **Do not use an impact wrench.**



d. Install the coil spring to the shock absorber.

HINT:

Fit the lower end of the coil spring into the recess of the spring seat of the shock absorber.

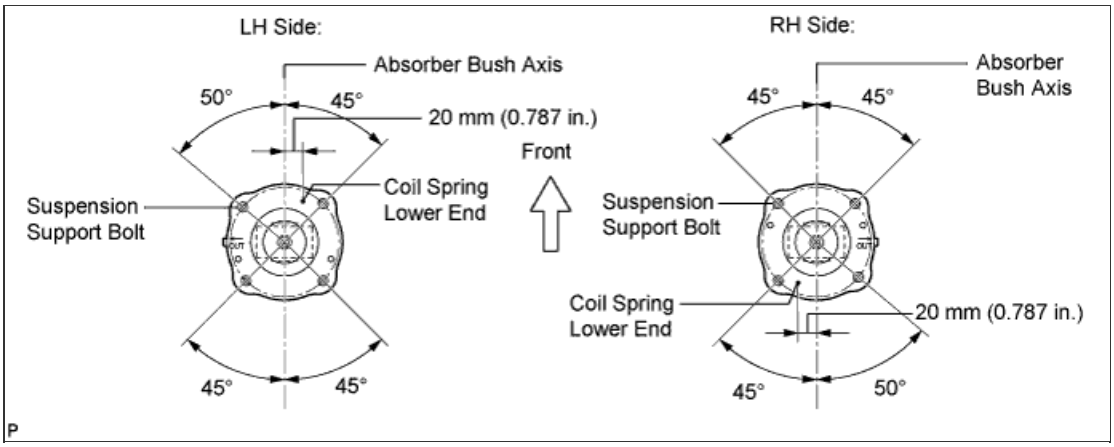


2. INSTALL FRONT SUSPENSION SUPPORT SUB-ASSEMBLY LH

a. Install the 2 cushions, 2 retainers and suspension support to the piston rod.

b. Temporarily install a new front shock absorber nut to the suspension support.

c. Position the suspension support as shown in the illustration.



d. Remove SST.

NOTICE:

Do not use an impact wrench. It will damage the shock absorber rod.

HINT:

Release the coil spring while checking the position of the suspension support.

3. TIGHTEN FRONT SUPPORT TO FRONT SHOCK ABSORBER NUT

a. Tighten the nut.

Torque:
65 N*m{ 575 kgf*cm , 48 ft.*lbf }

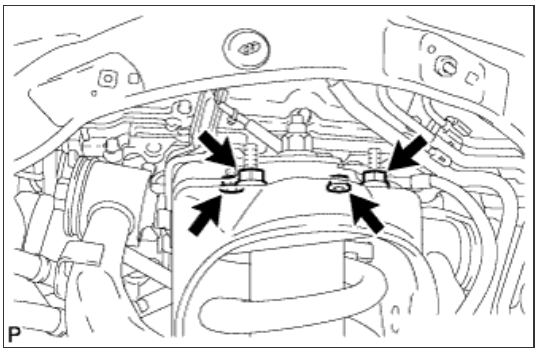
for Preparation Click here

HINT:

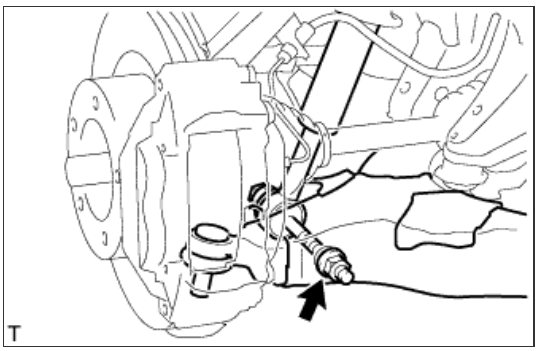
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. TEMPORARILY INSTALL FRONT SHOCK ABSORBER WITH COIL SPRING

a. Temporarily install the upper side of the shock absorber to the chassis frame with the 4 nuts.



b. Temporarily install the lower side of the shock absorber to the lower suspension arm with the bolt and nut.



2. CONNECT NO. 2 SUSPENSION CONTROL PRESSURE HOSE

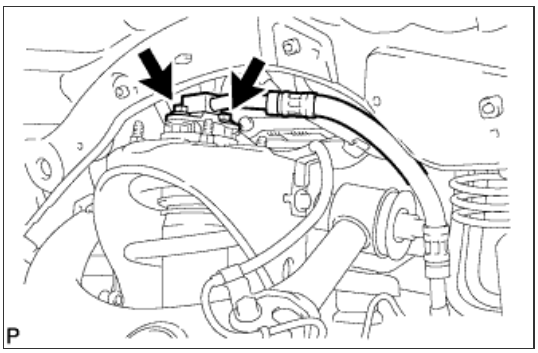
a. Apply MP grease to the O-ring and back -up ring of the suspension control pressure hose.

b. Connect the suspension control pressure hose to the shock absorber with the 2 bolts.

Torque:
18 N*m{ 184 kgf*cm , 13 ft.*lbf }

NOTICE:

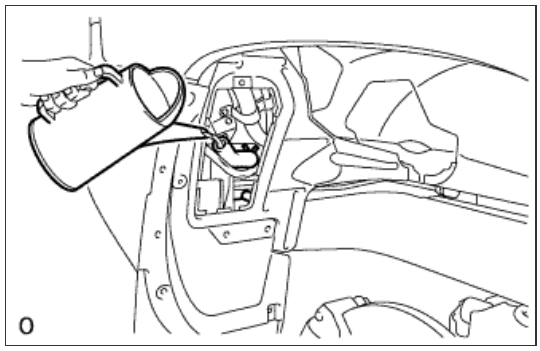
Do not allow any foreign matter such as dirt and dust to enter the suspension control pressure hose from the connecting point.



3. BLEED AIR FROM SUSPENSION FLUID

a. With the engine stopped, fill the reservoir tank with fluid.

a. With the engine stopped, fill the reservoir tank with fluid.



NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

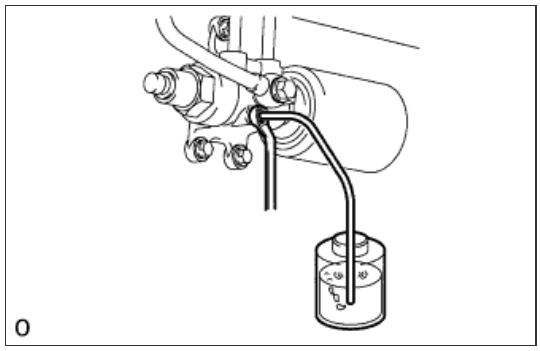
HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.

b. With the vehicle on a level surface, start the engine and set the vehicle height to NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

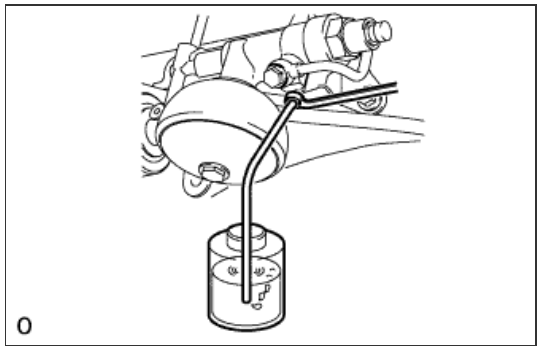
e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.



CAUTION:

Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.

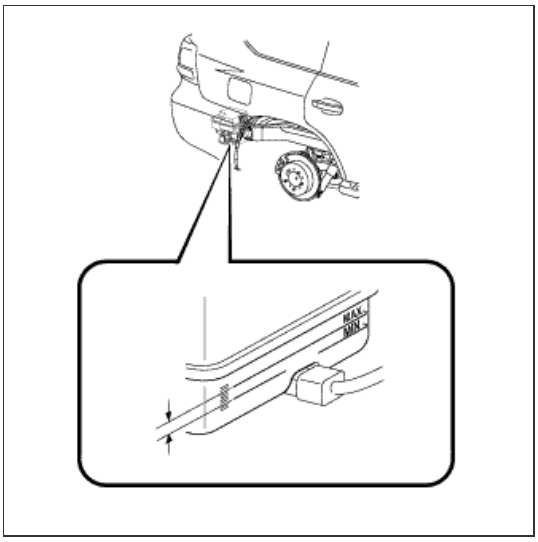
h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

4. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.



5. INSPECT FOR SUSPENSION FLUID LEAK

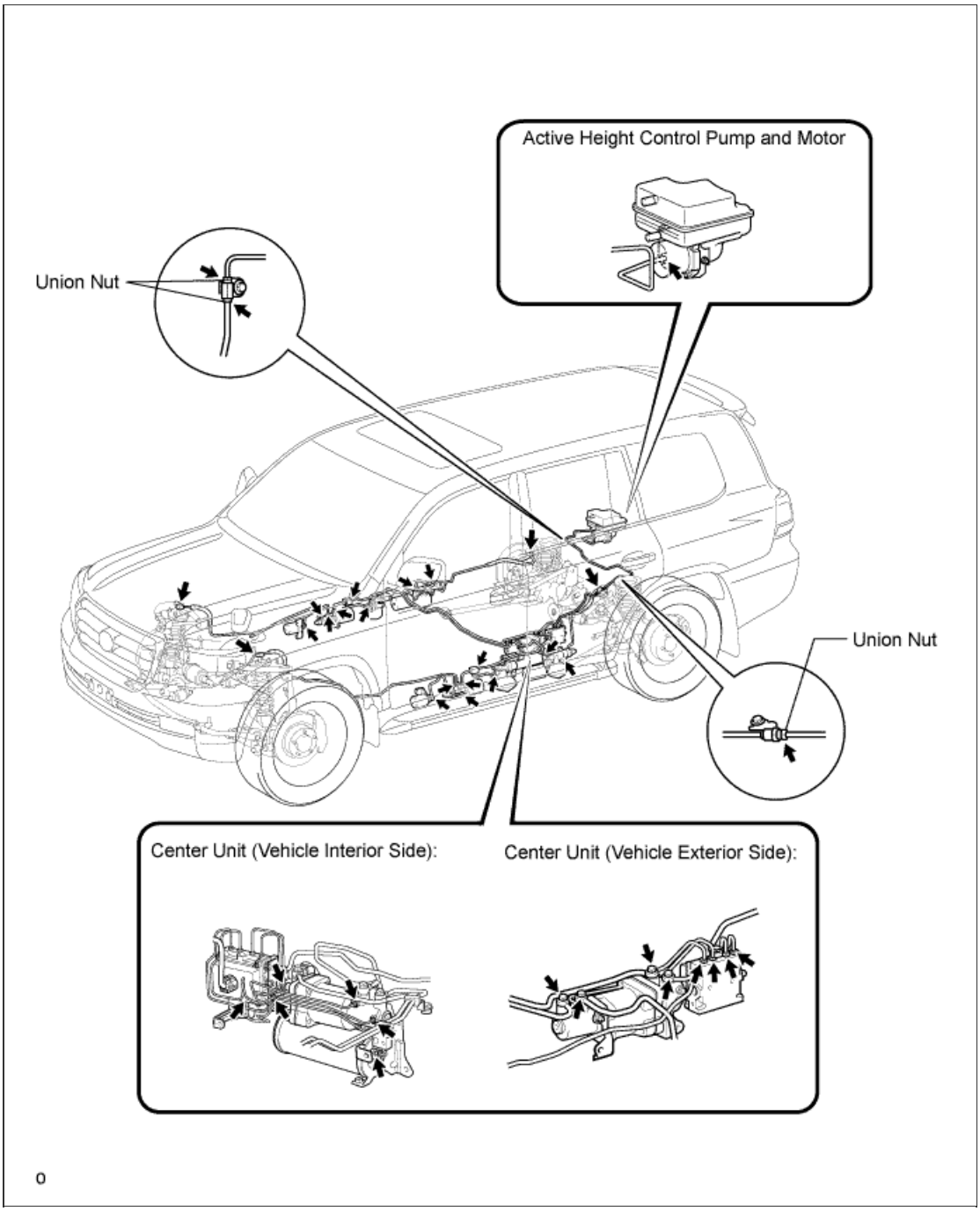
a. Check the torque value of the rear No. 5 height control tube union nuts.

Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



o

HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

6. CONNECT STEERING KNUCKLE LH

a. Connect the steering knuckle to the suspension upper arm.

b. Install the nut and a new cotter pin.

Torque:
110 N*m{ 1122 kgf*cm , 81 ft.*lbf }

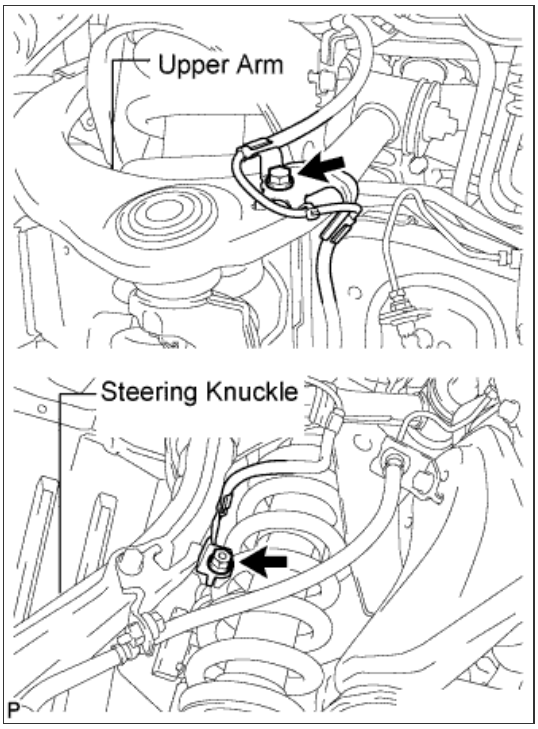
NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

7. CONNECT SKID CONTROL SENSOR WIRE

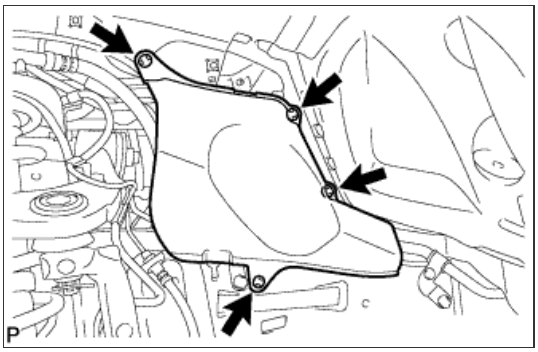
a. Connect the sensor wire to the steering knuckle and upper arm with the bolt and nut.

Torque:
13 N*m{ 133 kgf*cm , 9.6 ft.*lbf }



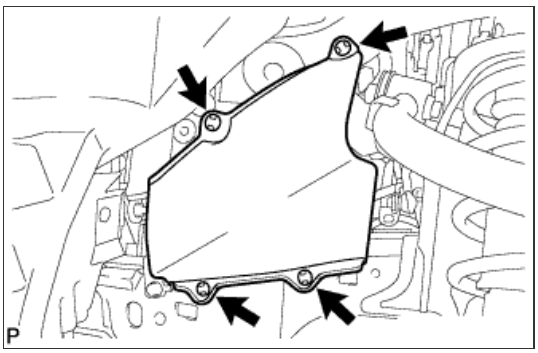
8. INSTALL FRONT FENDER APRON TRIM PACKING D

a. Install the apron trim packing with the 4 clips.



9. INSTALL FRONT FENDER APRON TRIM PACKING B

a. Install the apron trim packing with the 4 clips.

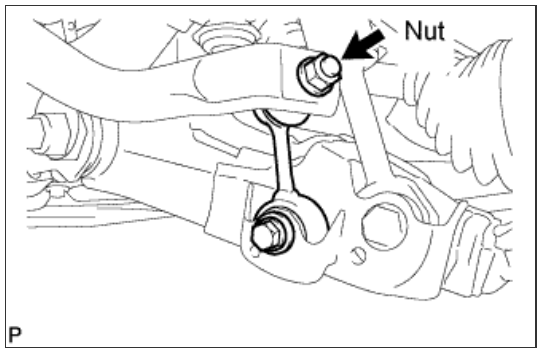


10. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY LH

a. Temporarily install the stabilizer link with the nut and bolt.

b. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }



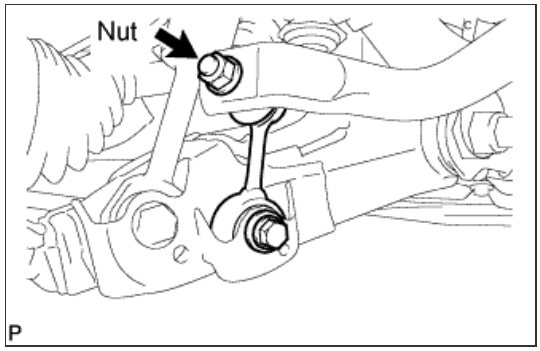
11. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY RH

a. Temporarily install the stabilizer link with the bolt.

b. Temporarily install the stabilizer link with the nut.

c. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }



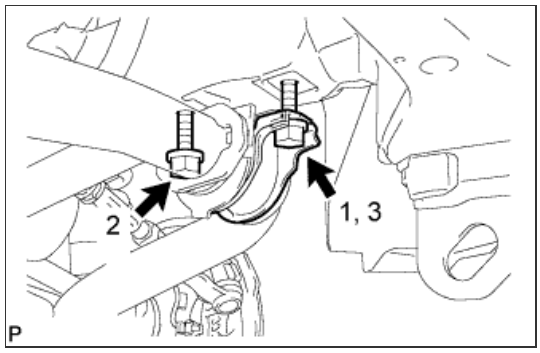
12. TIGHTEN FRONT NO. 1 STABILIZER BRACKET LH

a. Tighten the 2 bolts of the front stabilizer brackets.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

Tighten the bolts in 3 steps, in the order shown in the illustration.



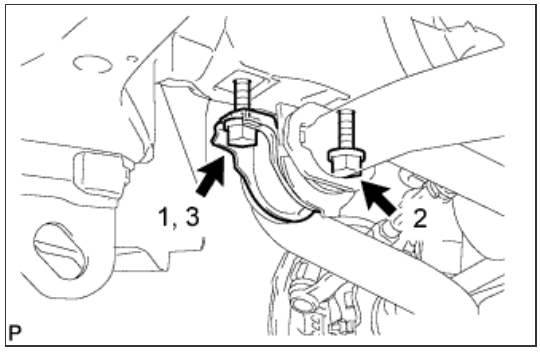
13. TIGHTEN FRONT NO. 1 STABILIZER BRACKET RH

a. Tighten the 2 bolts of the front stabilizer brackets.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

Tighten the bolts in 3 steps, in the order shown in the illustration.



14. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Install the No. 1 engine under cover sub-assembly with the 10 bolts.

Torque:
29 N*m{ 296 kgf*cm , 21 ft.*lbf }

15. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Push in the clip to install the front fender splash shield sub-assembly LH.

b. Install the 3 bolts and 2 screws.

16. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

17. STABILIZE SUSPENSION

a. Install the front wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

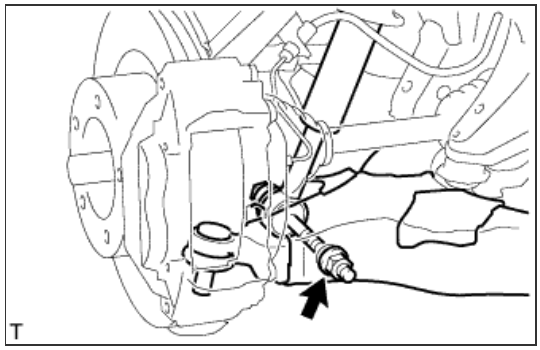
18. TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING

a. Tighten the nut.

Torque:
180 N*m{ 1835 kgf*cm , 133 ft.*lbf }

NOTICE:

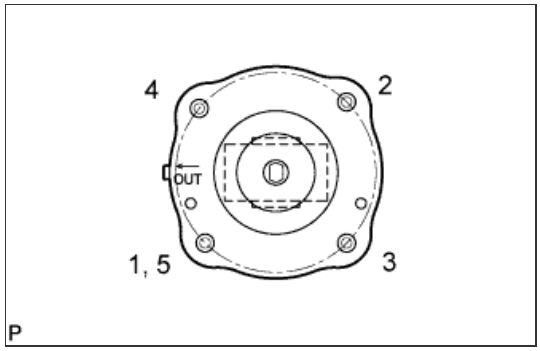
Perform this procedure with all 4 wheels on the ground.



b. Tighten the 4 upper nuts in diametrically opposite pairs.

Torque:
45 N*m{ 459 kgf*cm , 33 ft.*lbf }

c. Check that the first nut that was tightened is at the torque specification.



19. TIGHTEN FRONT STABILIZER LINK ASSEMBLY LH

a. Tighten the bolt.

Torque:

135 N*m{ 1377 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

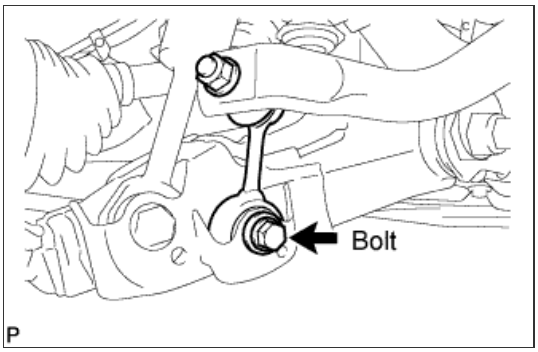
20. TIGHTEN FRONT STABILIZER LINK ASSEMBLY RH

a. Tighten the bolt.

Torque:
135 N*m{ 1377 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



21. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

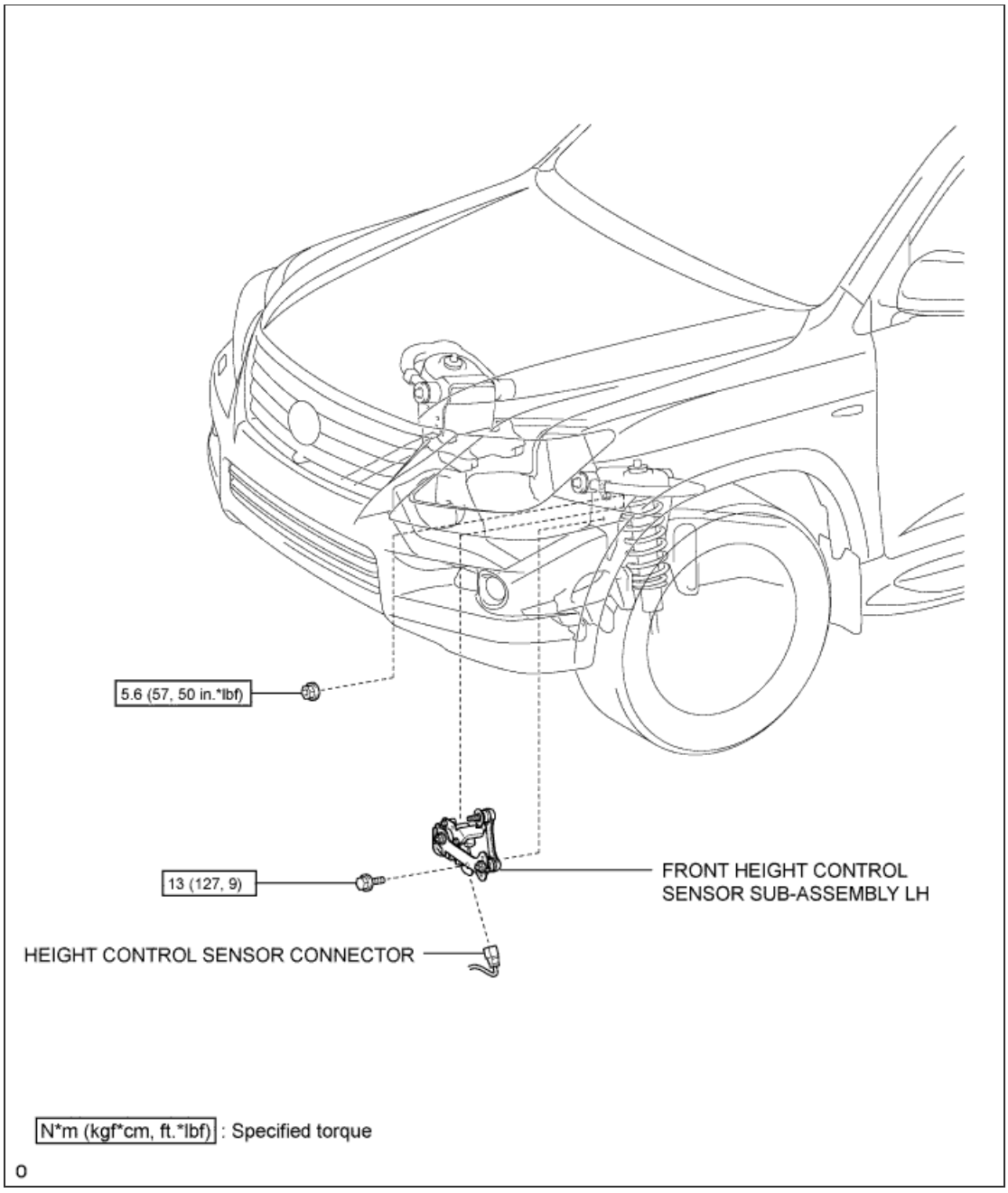
a. Perform the vehicle height offset calibration (Click here).

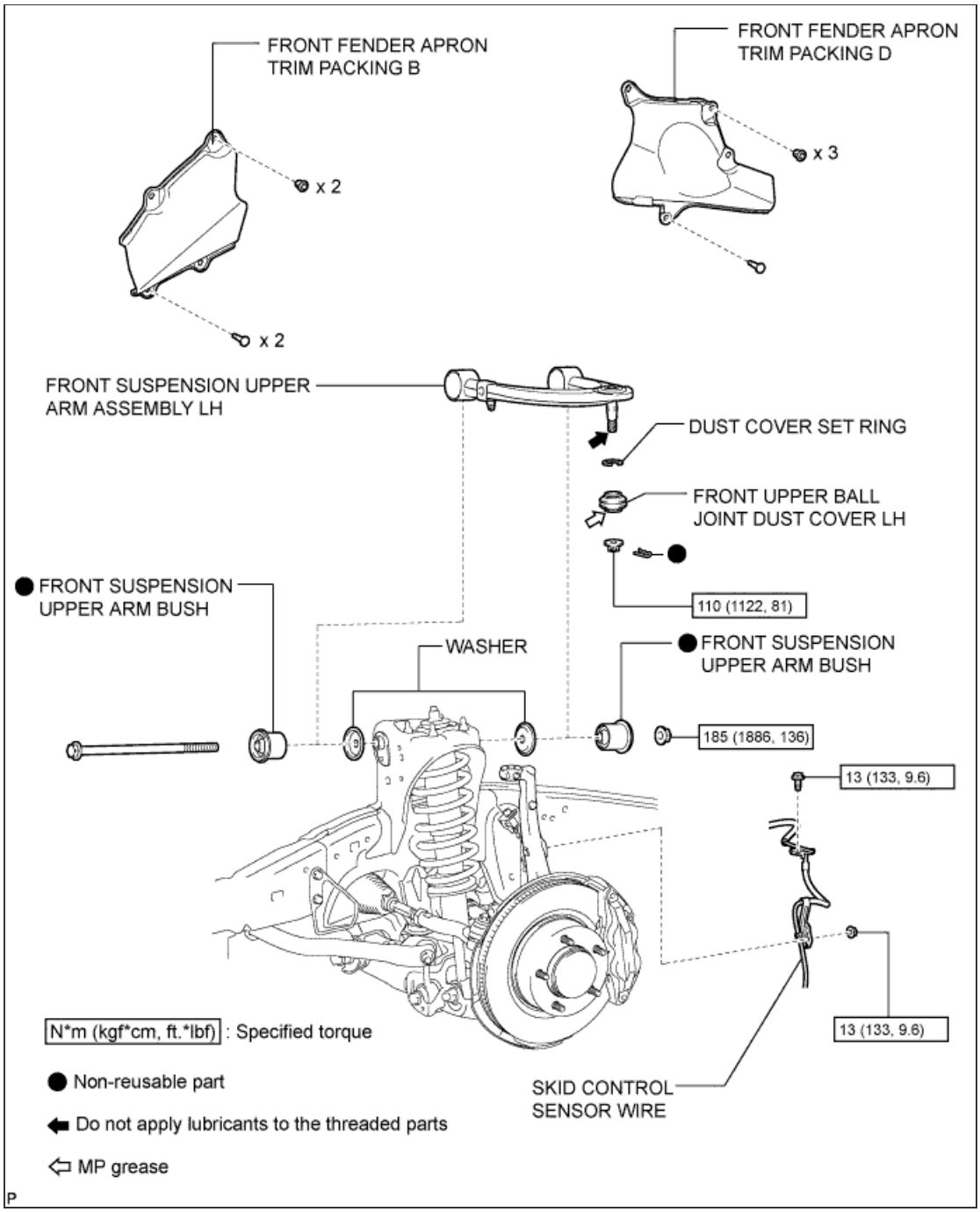
for Preparation Click here

1. DISPOSE OF FRONT SHOCK ABSORBER ASSEMBLY LH

a. Drain the oil inside the absorber and dispose of it.

for Preparation Click here




FRONT FENDER APRON TRIM PACKING B
x 2
x 2
FRONT FENDER APRON TRIM PACKING D
x 3
FRONT SUSPENSION UPPER ARM ASSEMBLY LH
DUST COVER SET RING
FRONT UPPER BALL JOINT DUST COVER LH
110 (1122, 81)
FRONT SUSPENSION UPPER ARM BUSH
WASHER
FRONT SUSPENSION UPPER ARM BUSH
185 (1886, 136)
13 (133, 9.6)
13 (133, 9.6)
N*m (kgf*cm, ft.*lbf) : Specified torque
Non-reusable part
Do not apply lubricants to the threaded parts
MP grease
SKID CONTROL SENSOR WIRE
P

for Preparation Click here

HINT:

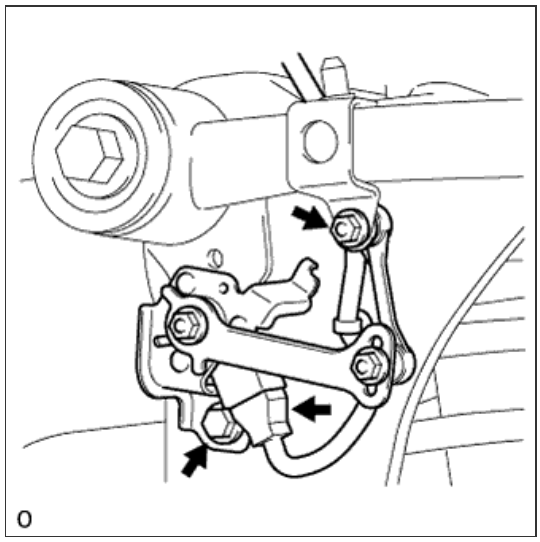
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE FRONT WHEEL

2. REMOVE FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

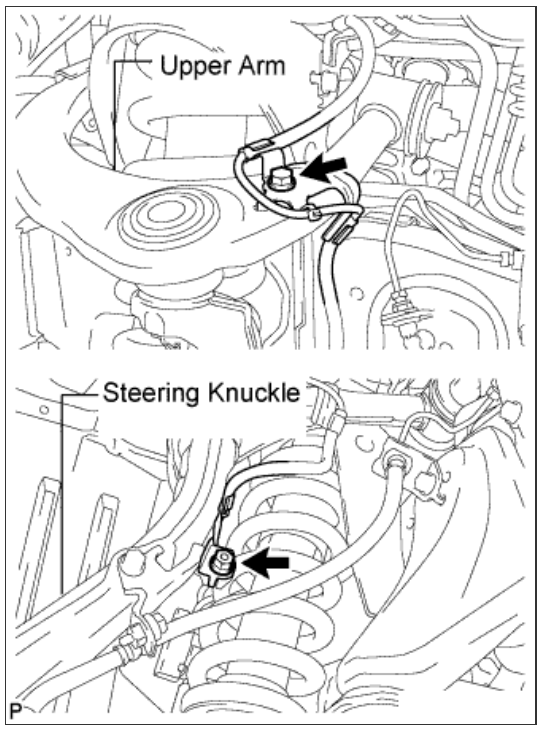
a. Disconnect the connector.

b. Remove the nut, bolt and sensor.



3. DISCONNECT SKID CONTROL SENSOR WIRE

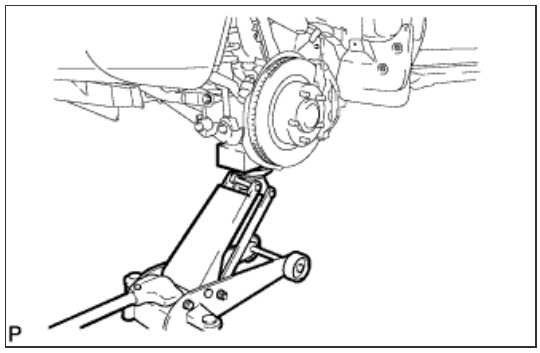
a. Remove the bolt and nut, and disconnect the sensor wire from the steering knuckle and suspension upper arm.



4. DISCONNECT STEERING KNUCKLE LH

a. Support the front suspension lower arm LH with a jack.

b. Remove the clip and the nut.

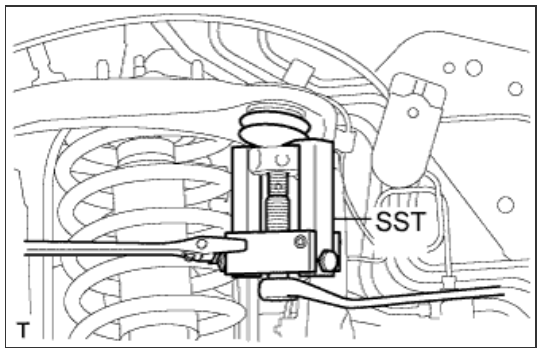


c. Using SST, disconnect the upper ball joint from the steering knuckle.

SST
09628-62011

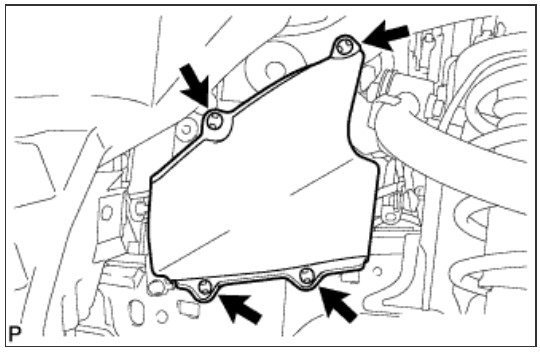
NOTICE:

Do not damage the ball joint dust cover.



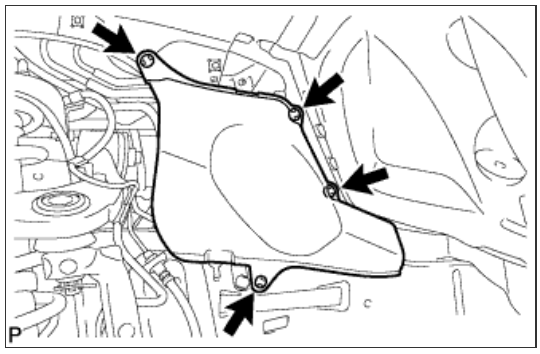
5. REMOVE FRONT FENDER APRON TRIM PACKING B

a. Using a clip remover, remove the 4 clips and apron trim packing.



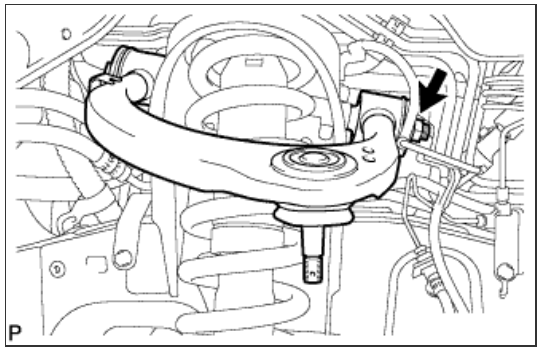
6. REMOVE FRONT FENDER APRON TRIM PACKING D

a. Using a clip remover, remove the 4 clips and apron trim packing.



7. REMOVE FRONT SUSPENSION UPPER ARM ASSEMBLY

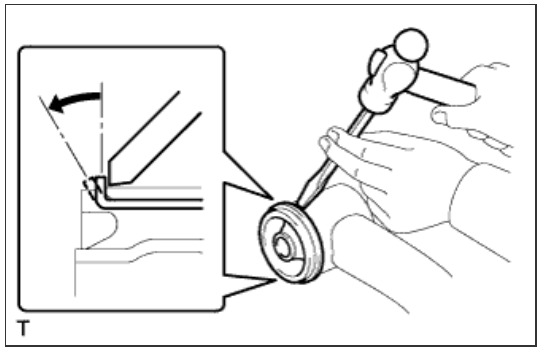
a. Remove the nut, bolt, 2 washers and suspension upper arm.



for Preparation Click here

1. REMOVE FRONT SUSPENSION UPPER ARM BUSH

a. Using a hammer and chisel, strike and bend the entire flange of the upper arm bush as shown in the illustration.

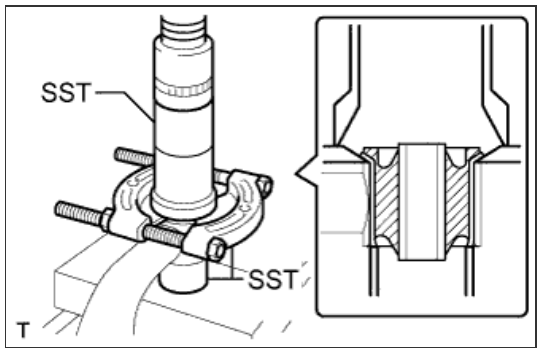


b. Using SST and a press, press out the bush.

SST
09613-26010
09710-22021 (09710-01031)
09950-00020

HINT:

Remove the rear side bush using the same procedure as for the front side.

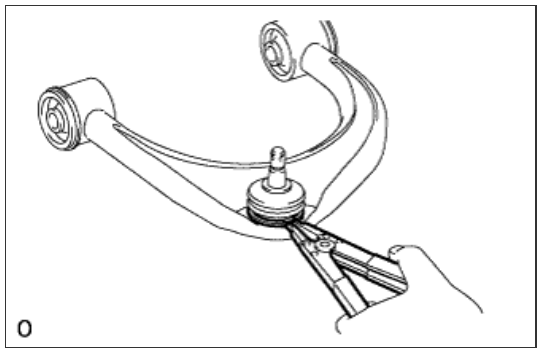


2. REMOVE FRONT UPPER BALL JOINT DUST COVER LH

a. Using a snap ring expander, remove the dust cover set ring and dust cover from the upper arm.

NOTICE:

- **Do not damage the ball joint dust cover.**
- **If the ball joint dust cover is damaged, replace it.**



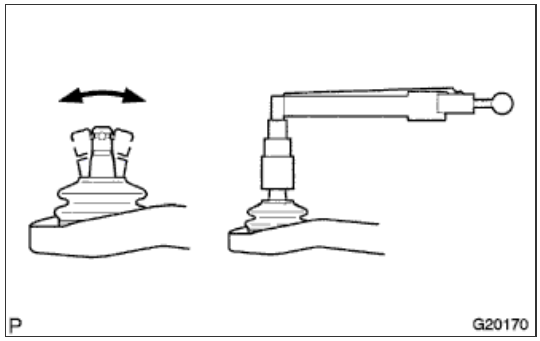
for Preparation Click here

1. INSPECT FRONT SUSPENSION UPPER ARM ASSEMBLY LH

a. As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.

b. Using a torque wrench, turn the nut continuously at a rate of 3 to 5 seconds per 1 turn and take the torque reading on the fifth turn.

Standard turning torque:
0.98 to 4.41 N*m (1.0 to 45 kgf*cm, 9 to 39 in.*lbf)



for Preparation Click here

1. INSTALL FRONT UPPER BALL JOINT DUST COVER LH

a. Pack the upper arm ball joint with MP grease.

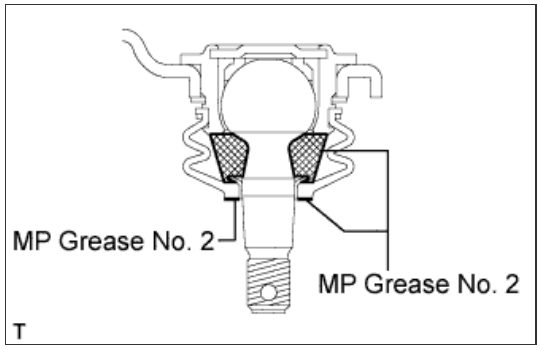
Grease capacity:
8.0 g (0.282 oz.)

b. Apply MP grease to the locations shown in the illustration.

NOTICE:

Do not apply MP grease to the tapered or threaded parts of the ball joint.

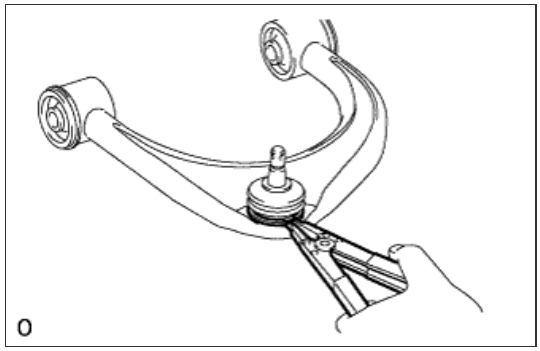
c. Install the dust cover to the upper arm.



d. Using a snap ring expander, install the dust cover set ring.

NOTICE:

Make sure the set ring is securely installed in the groove.



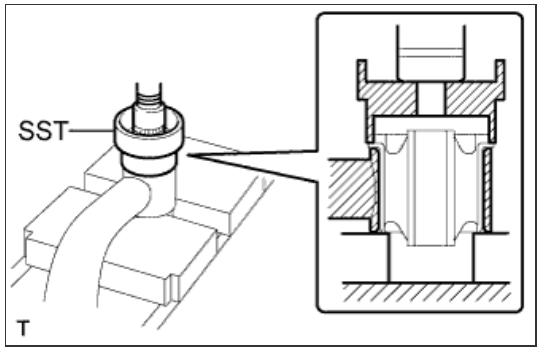
2. INSTALL FRONT SUSPENSION UPPER ARM BUSH

a. Using SST and a press, press in a new bush.

SST
09710-26011 (09710-05061)

HINT:

Press in the rear side bush using the same procedure as for the front side.



for Preparation Click here

HINT:

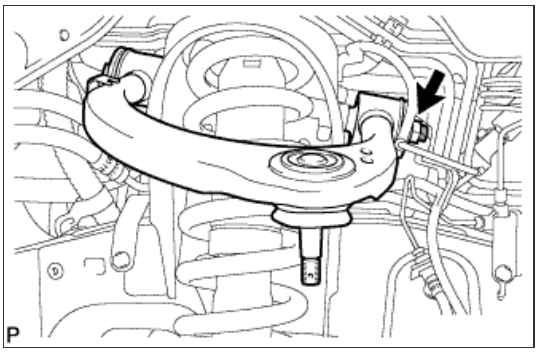
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. TEMPORARILY INSTALL FRONT SUSPENSION UPPER ARM ASSEMBLY LH

a. Temporarily install the suspension upper arm with the 2 washers, bolt and nut.

HINT:

After stabilizing the suspension, tighten the nut.



2. CONNECT STEERING KNUCKLE LH

a. Connect the steering knuckle to the suspension upper arm.

b. Install the nut and a new cotter pin.

Torque:
110 N*m{ 1122 kgf*cm , 81 ft.*lbf }

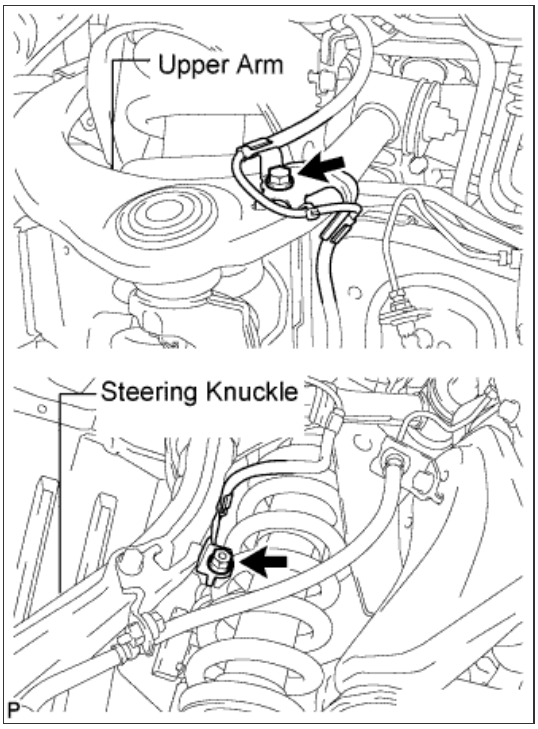
NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

3. CONNECT SKID CONTROL SENSOR WIRE

a. Connect the sensor wire to the steering knuckle and upper arm with the bolt and nut.

Torque:
13 N*m{ 133 kgf*cm , 9.6 ft.*lbf }



4. STABILIZE SUSPENSION

a. Install the front wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

5. TIGHTEN FRONT SUSPENSION UPPER ARM ASSEMBLY LH

a. Tighten the nut.

Torque:
185 N*m{ 1886 kgf*cm , 136 ft.*lbf }

NOTICE:

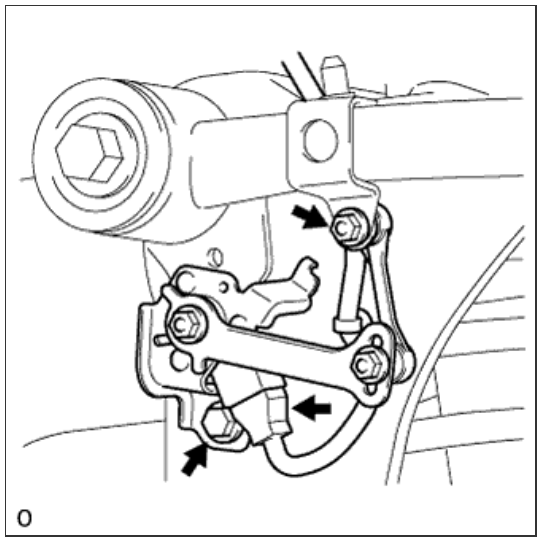
Perform this procedure with all 4 wheels on the ground.

6. INSTALL FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the bolt and nut.

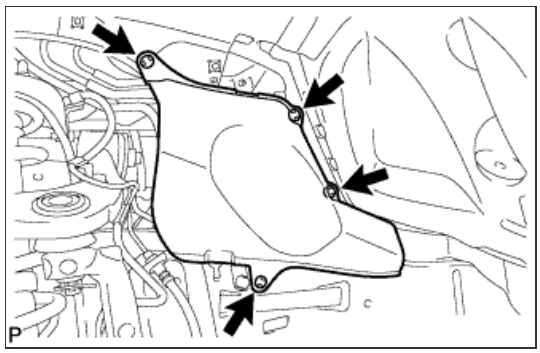
Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector.



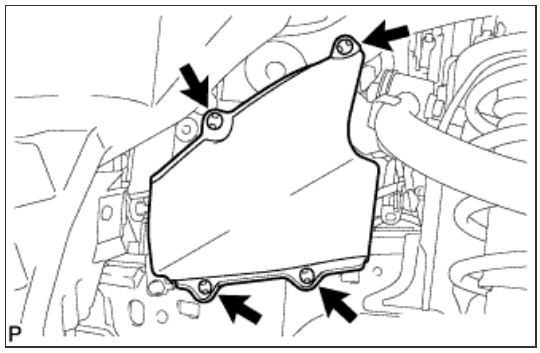
7. INSTALL FRONT FENDER APRON TRIM PACKING D

a. Install the apron trim packing with the 4 clips.



8. INSTALL FRONT FENDER APRON TRIM PACKING B

a. Install the apron trim packing with the 4 clips.



9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

10. PERFORM VEHICLE HEIGHT OFFSET CALIBRATION

a. Perform the vehicle height offset calibration (Click here).

11. ADJUST FRONT HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

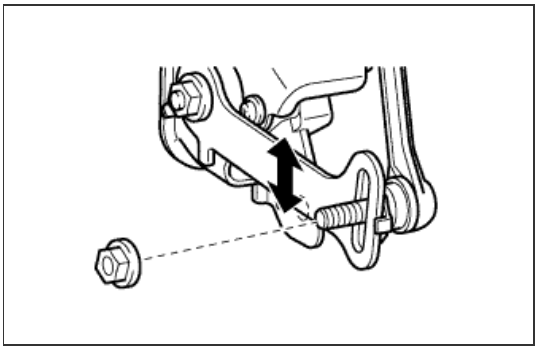
NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).



b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

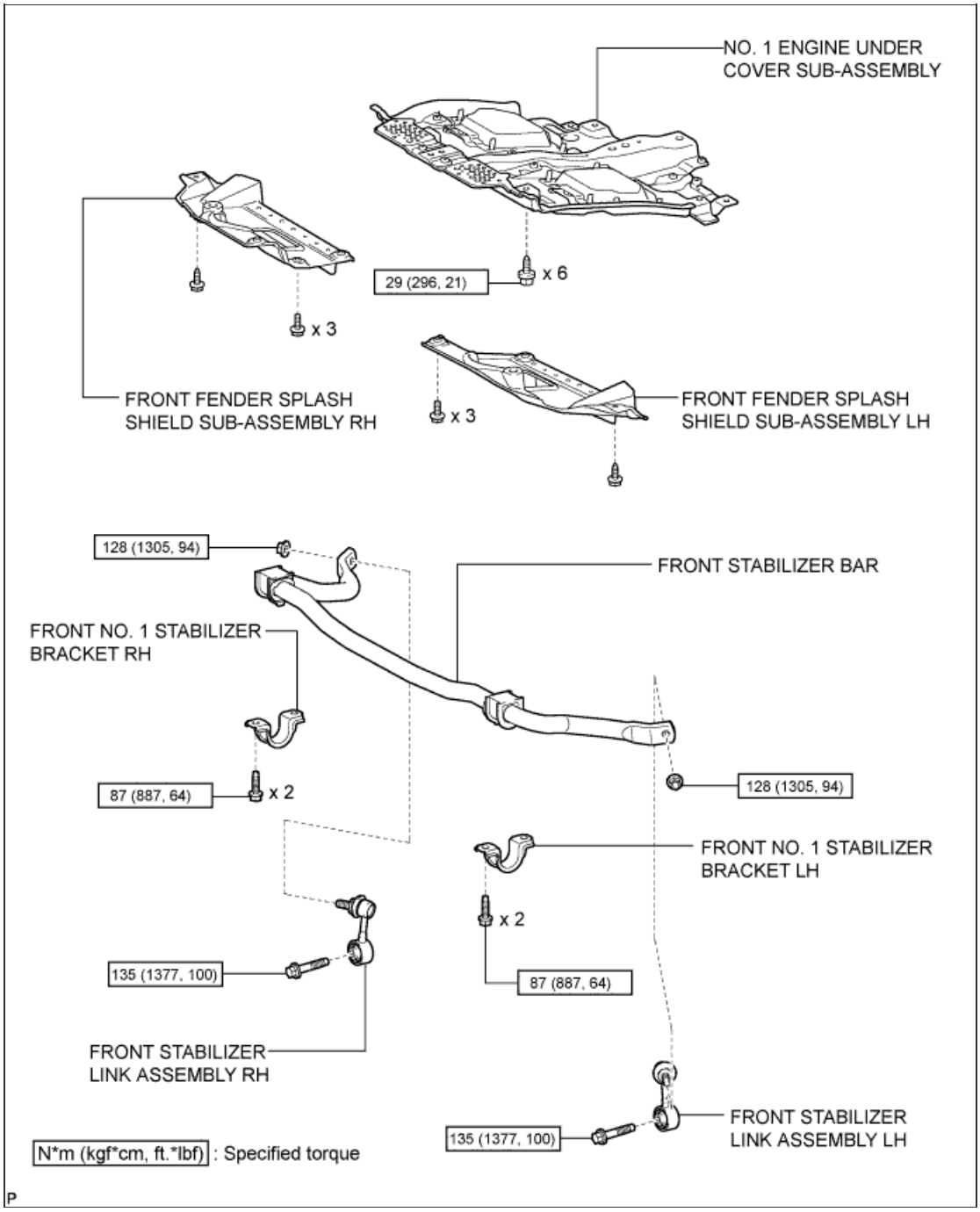
12. PERFORM ZERO POINT CALIBRATION OF G SENSOR

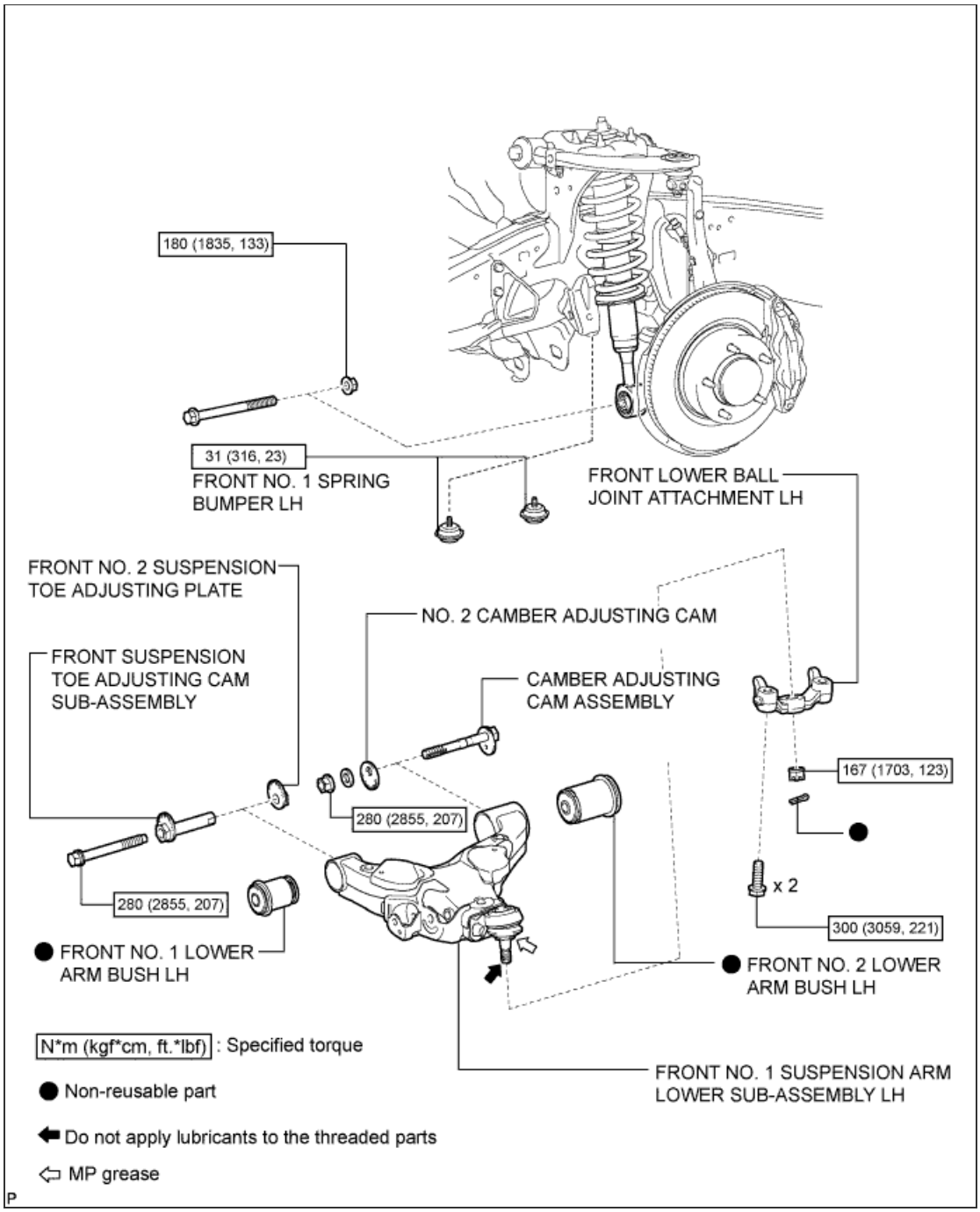
a. Perform the zero point calibration of G sensor (Click here).

13. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight assembly (Click here).

for Preparation Click here




180 (1835, 133)
31 (316, 23)
FRONT NO. 1 SPRING BUMPER LH
FRONT LOWER BALL JOINT ATTACHMENT LH
FRONT NO. 2 SUSPENSION TOE ADJUSTING PLATE
NO. 2 CAMBER ADJUSTING CAM
FRONT SUSPENSION TOE ADJUSTING CAM SUB-ASSEMBLY
CAMBER ADJUSTING CAM ASSEMBLY
167 (1703, 123)
280 (2855, 207)
x 2
280 (2855, 207)
300 (3059, 221)
● FRONT NO. 1 LOWER ARM BUSH LH
● FRONT NO. 2 LOWER ARM BUSH LH
N*m (kgf*cm, ft.*lbf) : Specified torque
● Non-reusable part
Do not apply lubricants to the threaded parts
MP grease
FRONT NO. 1 SUSPENSION ARM LOWER SUB-ASSEMBLY LH
P

for Preparation Click here

HINT:

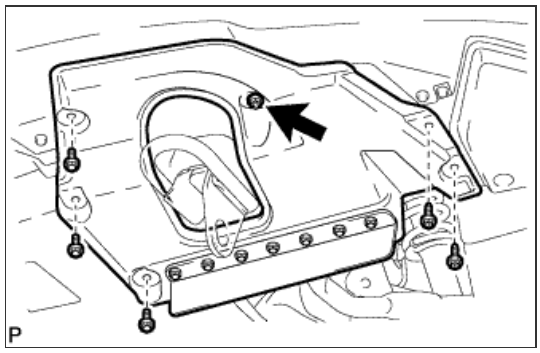
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE FRONT WHEEL

2. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Remove the 3 bolts and 2 screws.

b. Turn the clip indicated by the arrow in the illustration to remove the front fender splash shield sub-assembly LH.



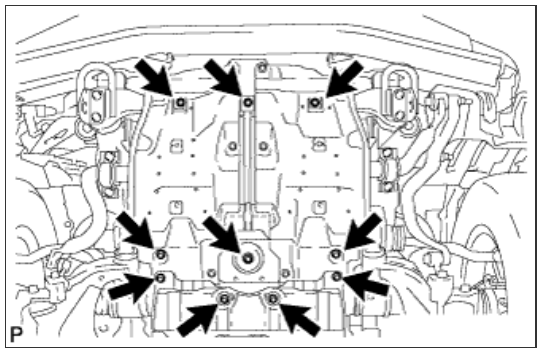
3. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

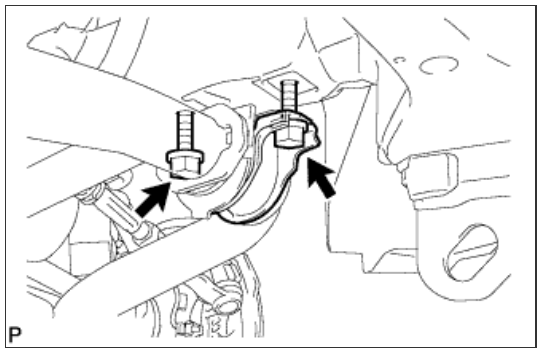
4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Remove the 10 bolts and No. 1 engine under cover.



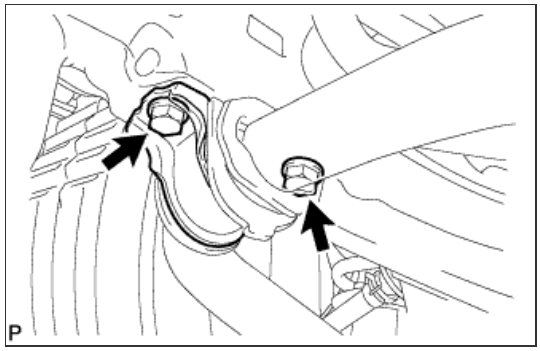
5. LOOSEN FRONT NO. 1 STABILIZER BRACKET LH

a. Loosen the 2 bolts of the front stabilizer brackets.



6. LOOSEN FRONT NO. 1 STABILIZER BRACKET RH

a. Remove the 2 bolts and stabilizer bracket from the front frame assembly.

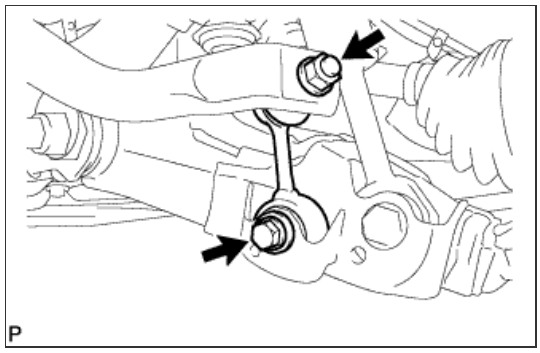


7. REMOVE FRONT STABILIZER LINK ASSEMBLY LH

a. Remove the bolt, nut and stabilizer link.

HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud.

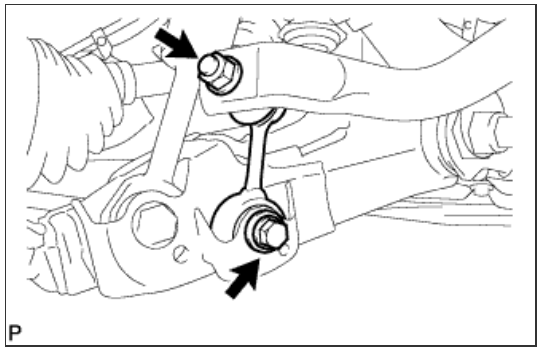


8. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

a. Remove the bolt, nut and stabilizer link.

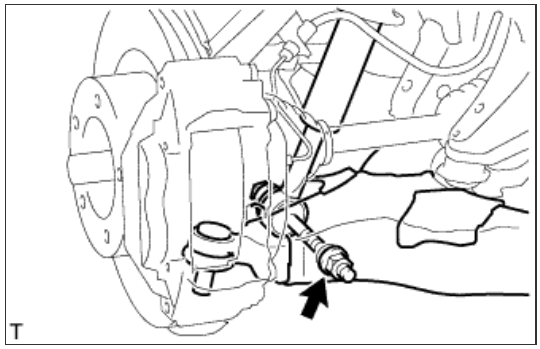
HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud.



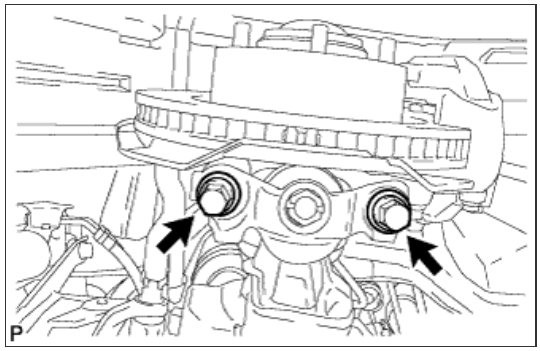
9. DISCONNECT FRONT SHOCK ABSORBER WITH COIL SPRING LH

a. Remove the nut and bolt, and disconnect the shock absorber from the lower side.



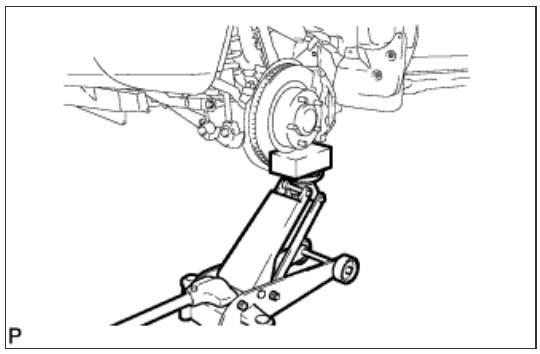
10. DISCONNECT FRONT LOWER BALL JOINT ATTACHMENT LH

a. Remove the 2 bolts and disconnect the attachment from the steering knuckle.



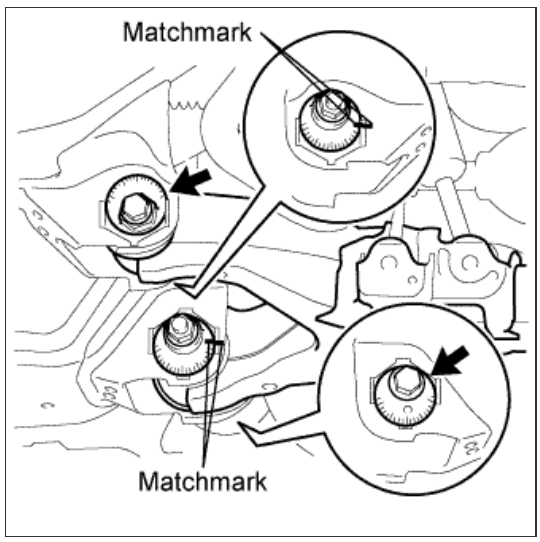
11. REMOVE FRONT NO. 1 SUSPENSION ARM LOWER SUB-ASSEMBLY LH

a. Support the front suspension LH with a jack.



b. Place matchmarks on the No. 2 camber adjusting cam and No. 2 suspension toe adjusting plate.

c. Remove the nut, washer, No. 2 camber adjusting cam, camber adjusting cam assembly, bolt, toe adjusting cam, No. 2 suspension toe adjusting plate and front No. 1 suspension arm lower LH.



12. REMOVE FRONT LOWER BALL JOINT ATTACHMENT LH

a. Remove the cotter pin and nut.

b. Using SST, remove the lower ball joint attachment.

SST

09950-40011 (09951-04010, 09953-04020, 09954-04010, 09955-04031, 09958-04011, 09952-04010)
09955-04090

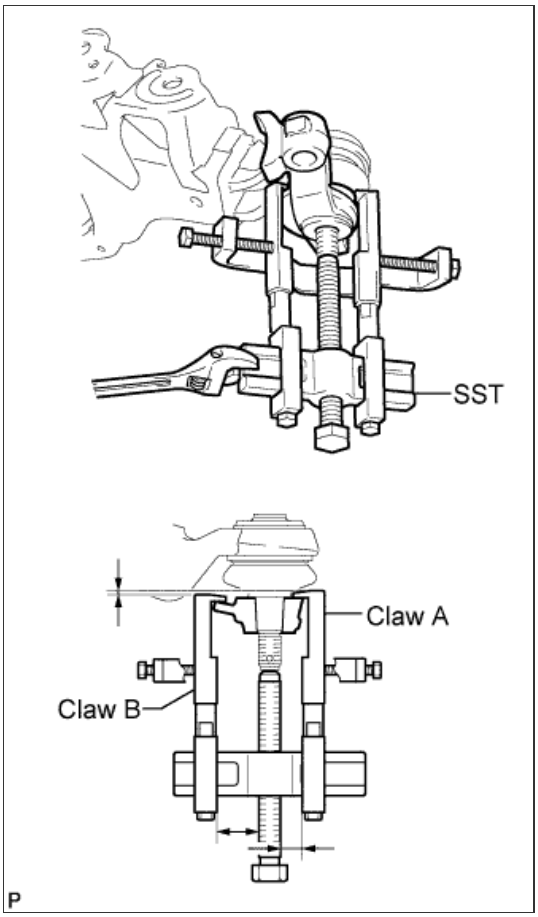
NOTICE:

Do not damage the ball joint dust cover.

HINT:

Claw A 09955-04090

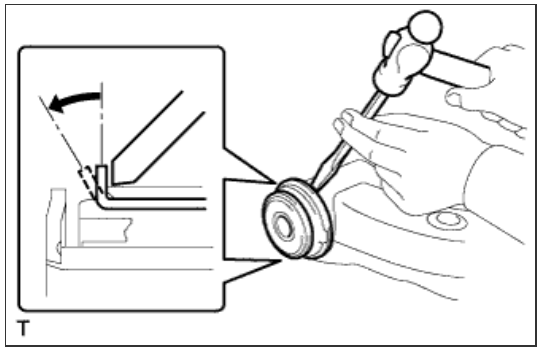
Claw B 09955-04031



for Preparation Click here

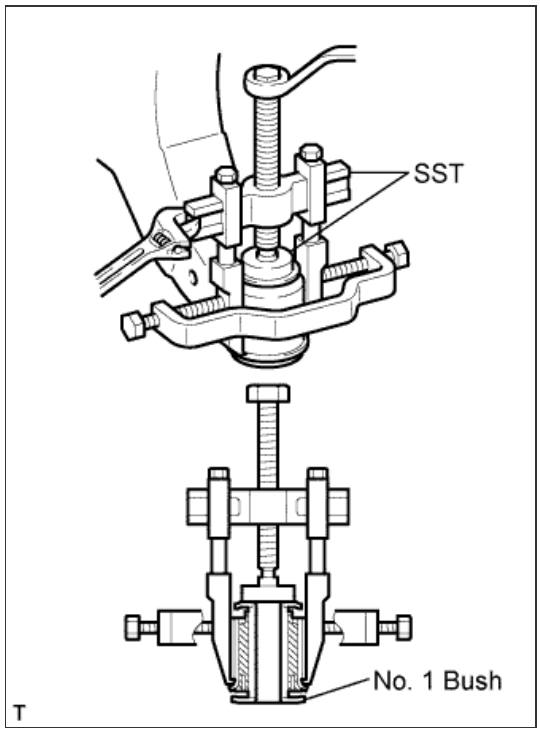
1. REMOVE FRONT NO. 1 LOWER ARM BUSH LH

a. Using a chisel and hammer, pry the flange of the bush outward.



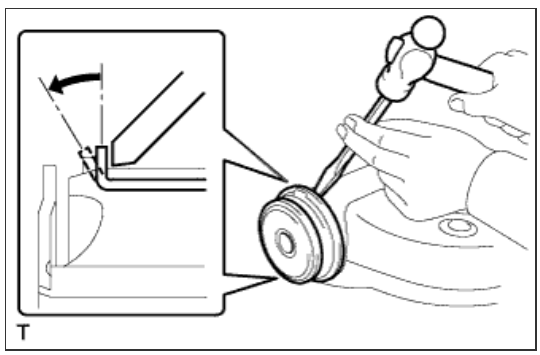
b. Using SST, remove the bush.

SST
09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04011, 09957-04010, 09958-04011)
09950-60010 (09951-00540)



2. REMOVE FRONT NO. 2 LOWER ARM BUSH LH

a. Using a chisel and hammer, pry the flange of the bush outward.

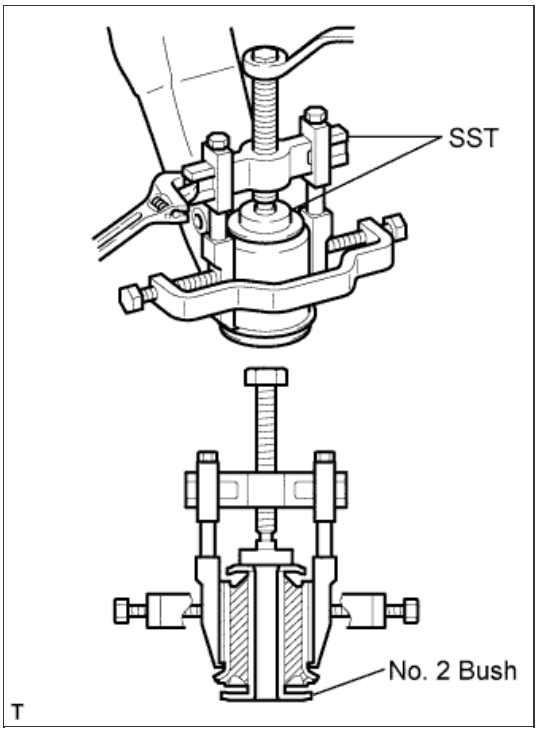


b. Using SST, remove the bush.

SST

09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04020, 09955-04011, 09957-04010, 09958-04011)

09950-60010 (09951-00650)



3. REMOVE FRONT NO. 1 SPRING BUMPER LH

a. Remove the 2 No. 1 spring bumpers from the vehicle.

for Preparation Click here

1. INSPECT FRONT NO. 1 SUSPENSION ARM LOWER SUB-ASSEMBLY LH

a. Inspect the ball joint rotation condition.

i. Install the nut to the lower arm stud.

ii. Rotate the stud.

OK:
The stud rotates smoothly.

b. Check for any cracks and grease leaks on the ball joint dust cover.

for Preparation Click here

1. INSTALL FRONT NO. 1 SPRING BUMPER LH

a. Install the 2 No. 1 spring bumpers.

Torque:
31 N*m{ 316 kgf*cm , 23 ft.*lbf }

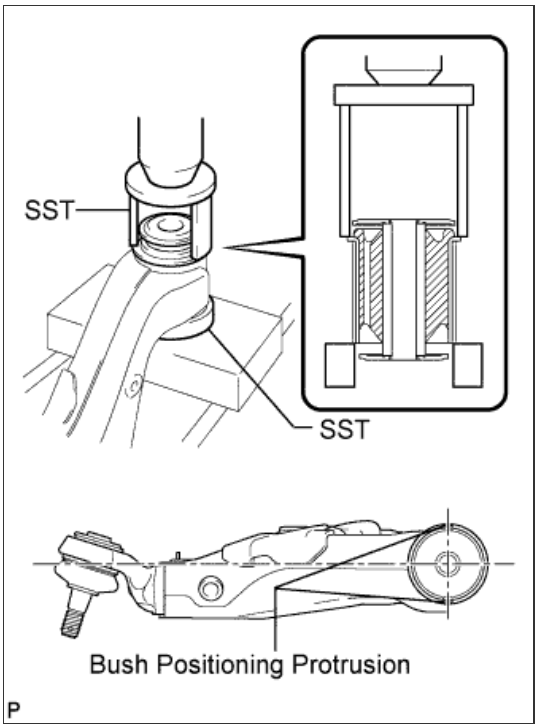
2. INSTALL FRONT NO. 2 LOWER ARM BUSH LH

a. Using SST and a press, press in a new bush.

SST
09710-26011 (09710-05081)

NOTICE:

Press the bush while making sure the bush positioning protrusions are perpendicular to the lower arm, as shown in the illustration.



3. INSTALL FRONT NO. 1 LOWER ARM BUSH LH

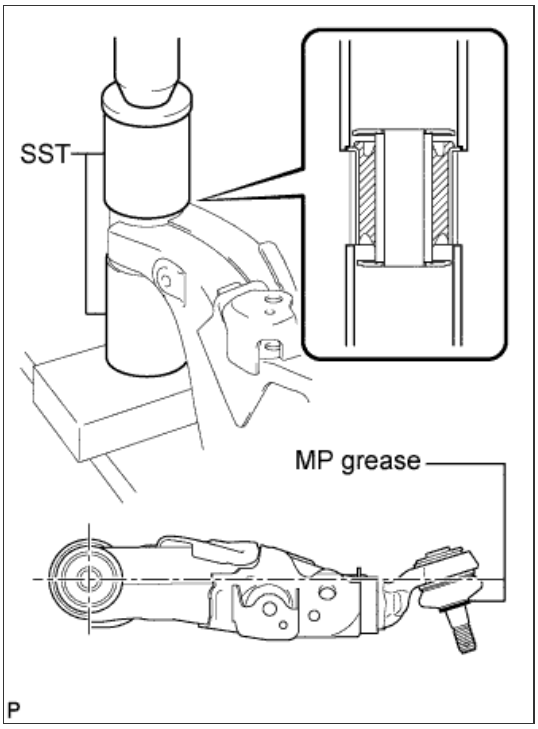
a. Using SST and a press, press in a new bush.

SST
09223-00010
09612-30012

b. Apply MP grease to the locations shown in the illustration.

NOTICE:

Do not apply MP grease to the tapered or threaded parts of the ball joint.



4. INSTALL FRONT LOWER BALL JOINT ATTACHMENT LH

a. Install the attachment with the nut and a new cotter pin.

Torque:
167 N*m{ 1703 kgf*cm , 123 ft.*lbf }

NOTICE:

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

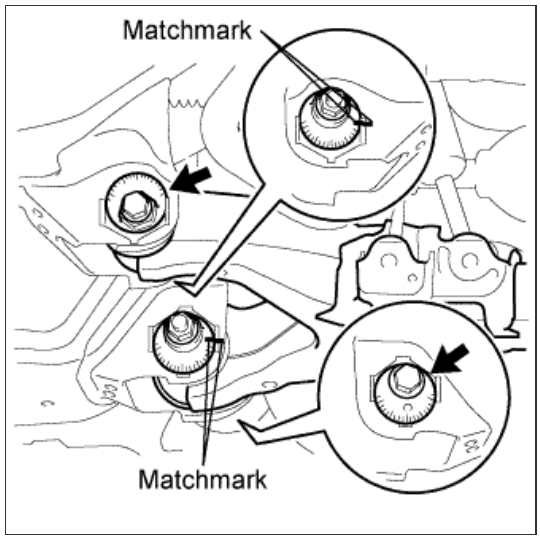
1. TEMPORARILY INSTALL FRONT NO. 1 SUSPENSION ARM LOWER SUB-ASSEMBLY LH

a. Temporarily install the lower suspension arm, camber adjusting cam, No. 2 camber adjusting cam, No. 2 suspension toe adjusting plate, toe adjusting cam and washer with the bolt and nut.

b. Align the matchmarks on the No. 2 camber adjusting cam and No. 2 suspension toe adjusting plate with the matchmarks on the vehicle body. Tighten the bolt and nut.

HINT:

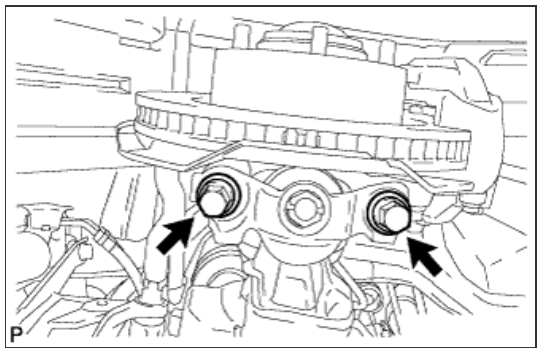
The bolt and nut will be tightened to the torque specification in the "Tighten Front No. 1 Suspension Arm Lower Sub-assembly LH" procedure.



2. CONNECT FRONT LOWER BALL JOINT ATTACHMENT LH

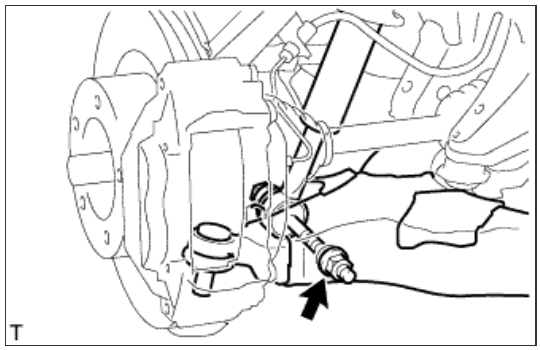
a. Connect the attachment to the steering knuckle with the 2 bolts.

Torque:
300 N*m{ 3059 kgf*cm , 221 ft.*lbf }



3. CONNECT FRONT SHOCK ABSORBER WITH COIL SPRING LH

a. Connect the shock absorber with the bolt and nut.

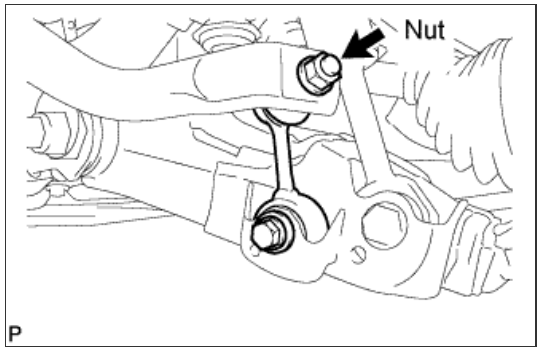


4. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY LH

a. Temporarily install the stabilizer link with the nut and bolt.

b. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }



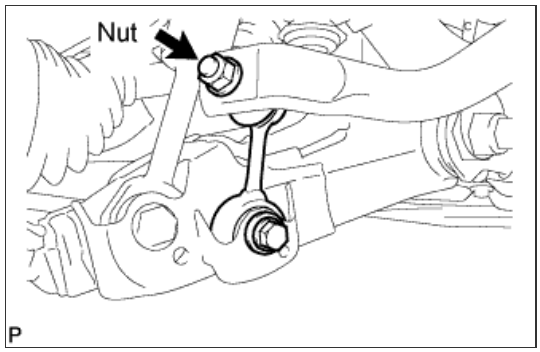
5. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY RH

a. Temporarily install the stabilizer link with the bolt.

b. Temporarily install the stabilizer link with the nut.

c. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }



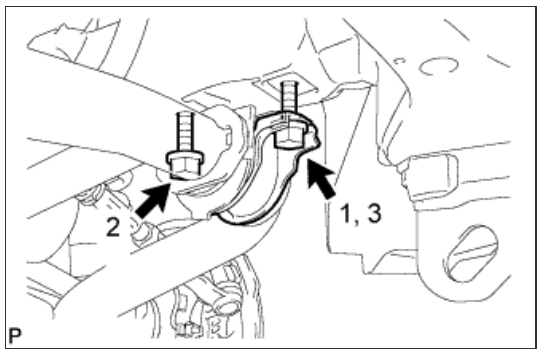
6. TIGHTEN FRONT NO. 1 STABILIZER BRACKET LH

a. Tighten the 2 bolts of the front stabilizer brackets.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

Tighten the bolts in 3 steps, in the order shown in the illustration.



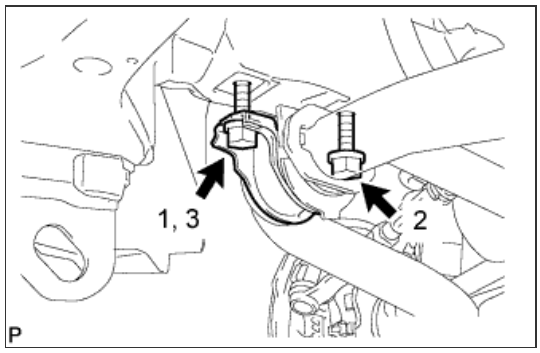
7. TIGHTEN FRONT NO. 1 STABILIZER BRACKET RH

a. Tighten the 2 bolts of the front stabilizer brackets.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

Tighten the bolts in 3 steps, in the order shown in the illustration.



8. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Install the No. 1 engine under cover sub-assembly with the 10 bolts.

Torque:
29 N*m{ 296 kgf*cm , 21 ft.*lbf }

9. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Push in the clip to install the front fender splash shield sub-assembly LH.

b. Install the 3 bolts and 2 screws.

10. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

11. STABILIZE SUSPENSION

a. Install the front wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

12. TIGHTEN FRONT NO. 1 SUSPENSION ARM LOWER SUB-ASSEMBLY LH

a. Tighten the bolt and nut.

Torque:
280 N*m{ 2855 kgf*cm , 207 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

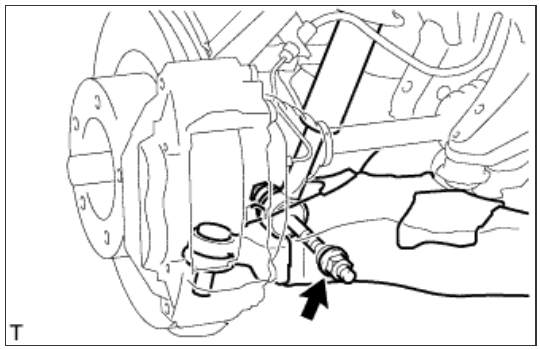
13. TIGHTEN FRONT SHOCK ABSORBER WITH COIL SPRING

a. Tighten the nut.

Torque:
180 N*m{ 1835 kgf*cm , 133 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



14. TIGHTEN FRONT STABILIZER LINK ASSEMBLY LH

a. Tighten the bolt.

Torque:
135 N*m{ 1377 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

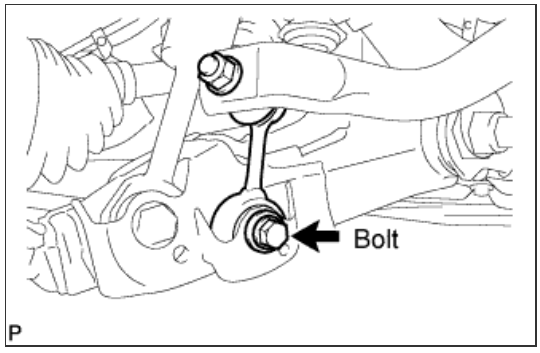
15. TIGHTEN FRONT STABILIZER LINK ASSEMBLY RH

a. Tighten the bolt.

Torque:
135 N*m{ 1377 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



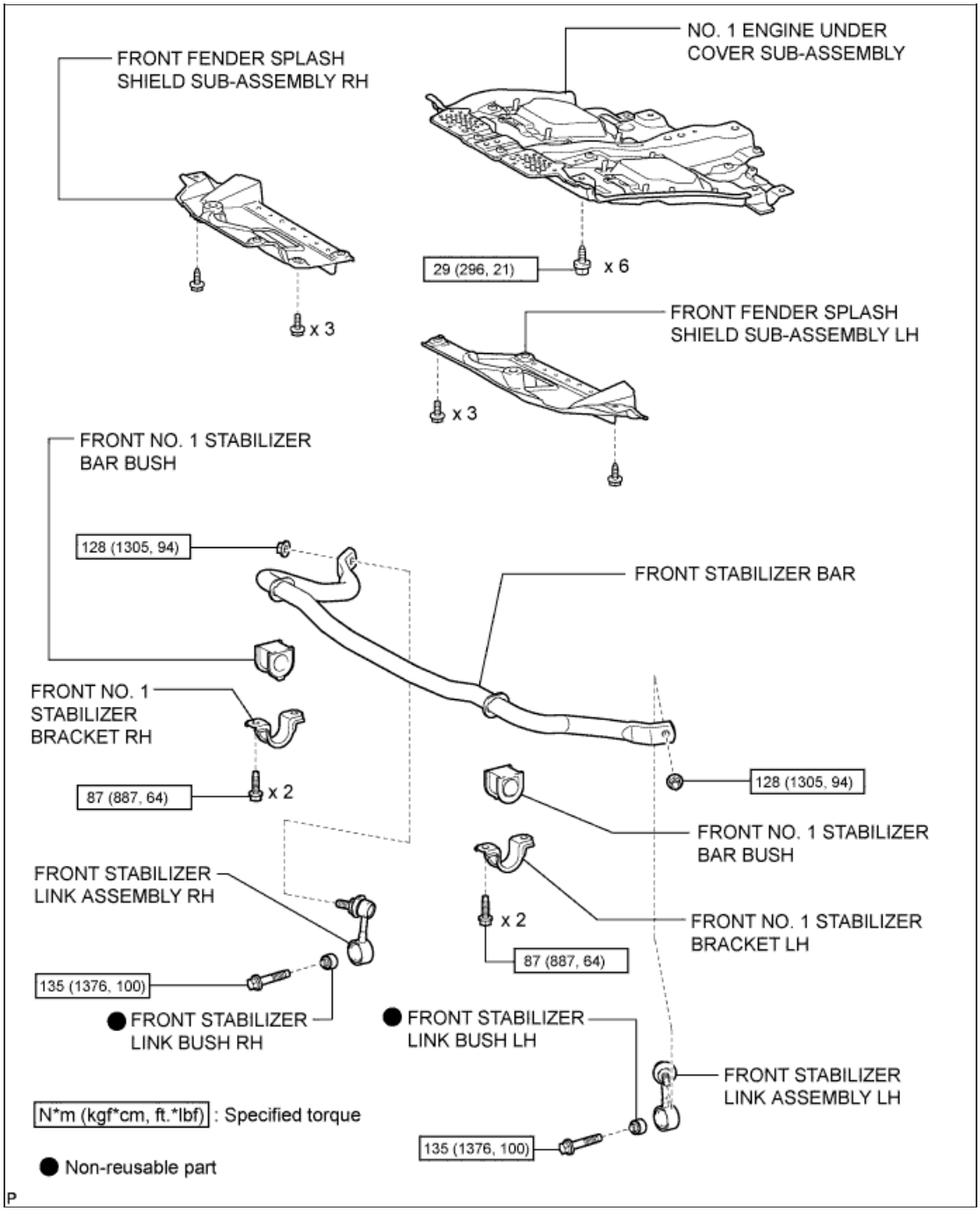
16. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

a. Inspect and adjust the front wheel alignment (Click here).

17. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight assembly (Click here).

for Preparation Click here



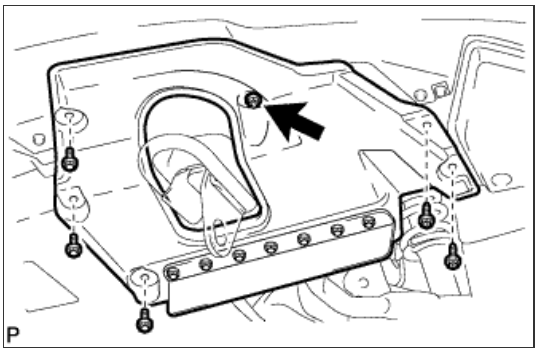
for Preparation Click here

1. REMOVE FRONT WHEEL

2. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Remove the 3 bolts and 2 screws.

b. Turn the clip indicated by the arrow in the illustration to remove the front fender splash shield sub-assembly LH.



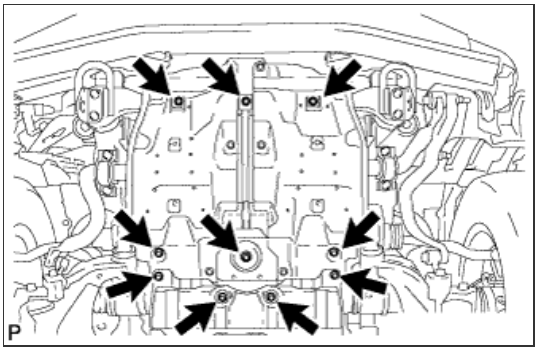
3. REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

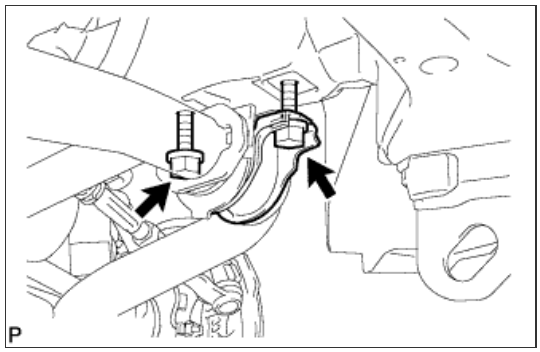
4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Remove the 10 bolts and No. 1 engine under cover.



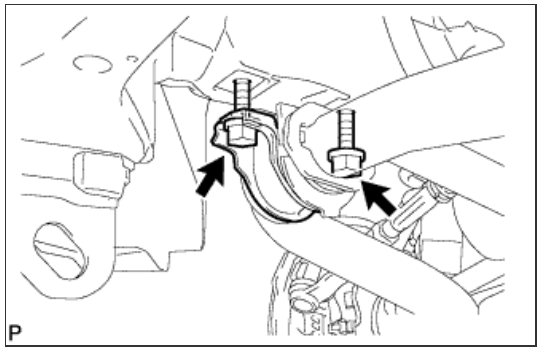
5. LOOSEN NO. 1 FRONT STABILIZER BRACKET LH

a. Loosen the 2 bolts of the front stabilizer brackets.



6. LOOSEN NO. 1 FRONT STABILIZER BRACKET RH

a. Loosen the 2 bolts of the front stabilizer brackets.

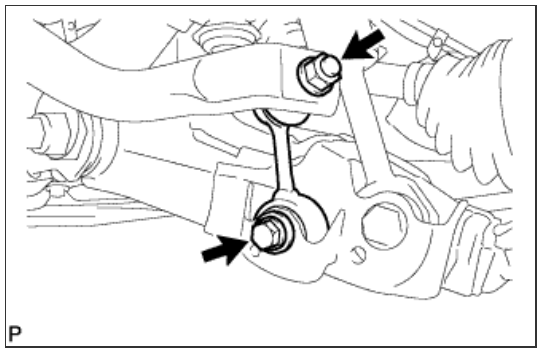


7. REMOVE FRONT STABILIZER LINK ASSEMBLY LH

a. Remove the bolt, nut and stabilizer link.

HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud.

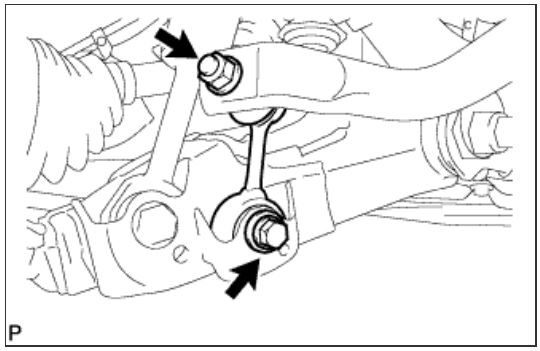


8. REMOVE FRONT STABILIZER LINK ASSEMBLY RH

a. Remove the bolt, nut and stabilizer link.

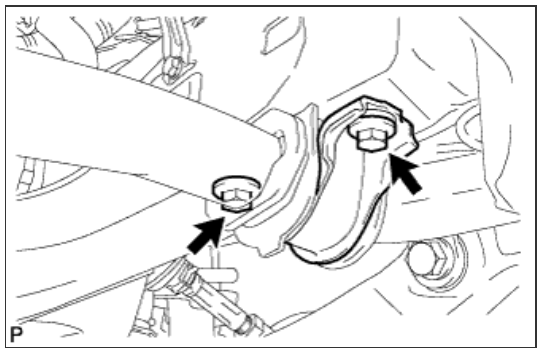
HINT:

If the ball joint turns together with the nut, use a 6 mm hexagon wrench to hold the stud.



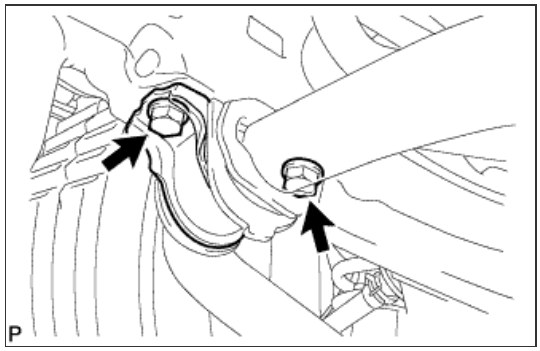
9. REMOVE NO. 1 FRONT STABILIZER BRACKET LH

a. Remove the 2 bolts and stabilizer bracket from the front frame assembly.



10. REMOVE NO. 1 FRONT STABILIZER BRACKET RH

a. Remove the 2 bolts and stabilizer bracket from the front frame assembly.



11. REMOVE FRONT STABILIZER BAR

a. Remove the front stabilizer bar from the frame assembly.

12. REMOVE NO. 1 FRONT STABILIZER BAR BUSH

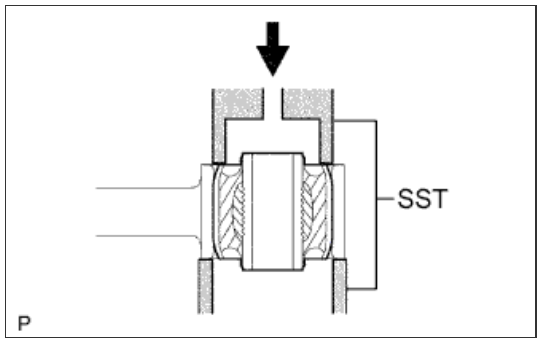
a. Remove the front stabilizer bar bush from the front stabilizer bar.

for Preparation Click here

1. REMOVE FRONT STABILIZER LINK BUSH LH

a. Using SST and a press, press out the bush.

SST
09710-30012 (09710-04071, 09710-04081)



for Preparation Click here

1. INSPECT FRONT STABILIZER LINK ASSEMBLY LH

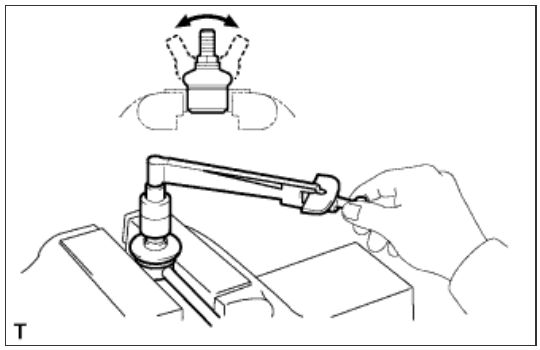
a. Temporarily install the nut, and flip the ball joint stud back and forth 5 times as shown in the illustration.

b. Use a torque wrench to turn the nut continuously at a rate of 2 to 3 seconds per turn. Take the torque reading on the fifth turn.

Torque:
Standard turning torque:
0.5 to 3.4 N*m{ 5.1 to 36 kgf*cm , 4.4 to 30 in.*lbf }

If the value is not within the specified range, replace the front suspension toe control link with a new one.

c. Check the dust boot for cracks or grease leakage.

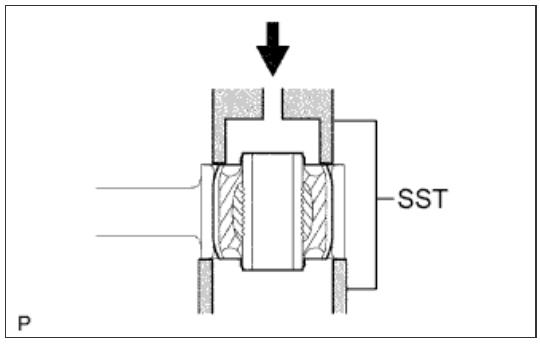


for Preparation Click here

1. INSTALL FRONT STABILIZER LINK BUSH LH

a. Using SST and a press, press in a new bush.

SST
09710-30012 (09710-04071, 09710-04081)



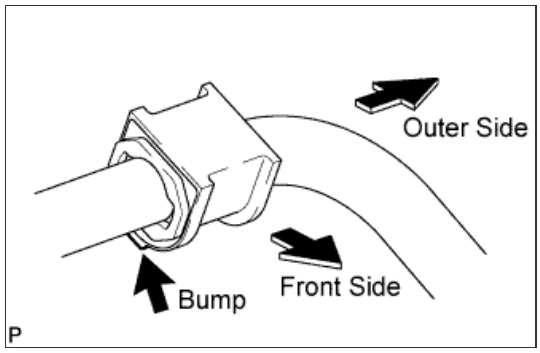
for Preparation Click here

1. INSTALL NO. 1 FRONT STABILIZER BAR BUSH

a. Install the 2 bushes to the outer side of the bush stoppers on the front stabilizer bar as shown in the illustration.

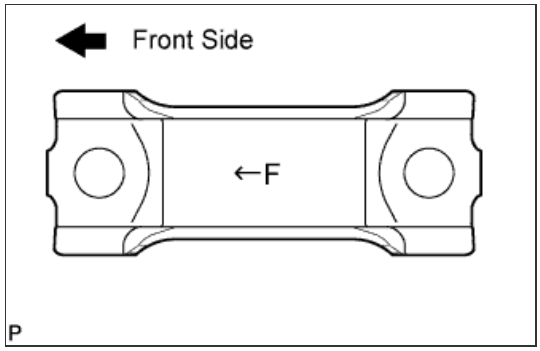
NOTICE:

Be sure to install the front No. 1 stabilizer bar bushes so that the cut and bump of each bush faces the under of the vehicle.

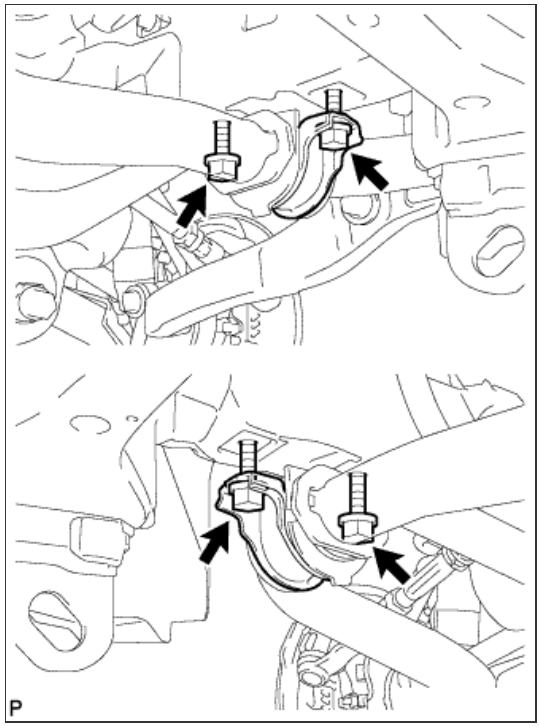


2. INSTALL FRONT STABILIZER BAR

a. Set the stabilizer bracket so that the arrow mark is facing the front side of the vehicle.



b. Temporarily install the 2 stabilizer brackets and front stabilizer bar with the 4 bolts.

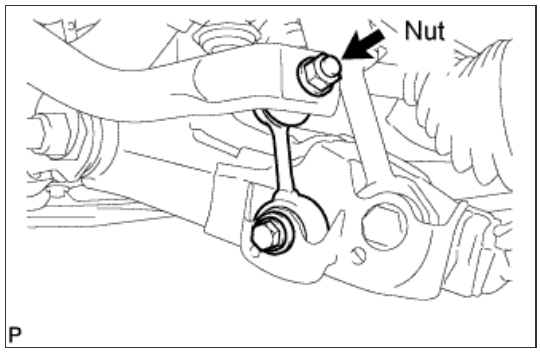


3. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY LH

a. Temporarily install the stabilizer link with the nut and bolt.

b. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }

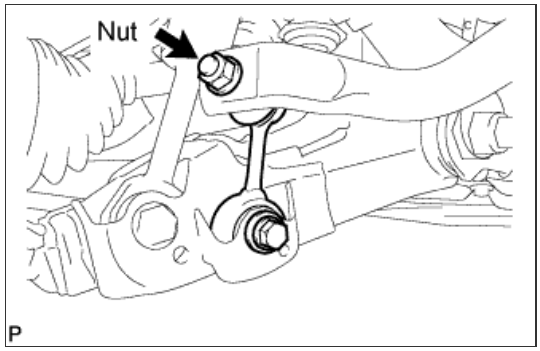


4. TEMPORARILY INSTALL FRONT STABILIZER LINK ASSEMBLY RH

a. Temporarily install the stabilizer link with the nut and bolt.

b. Tighten the nut.

Torque:
128 N*m{ 1305 kgf*cm , 94 ft.*lbf }



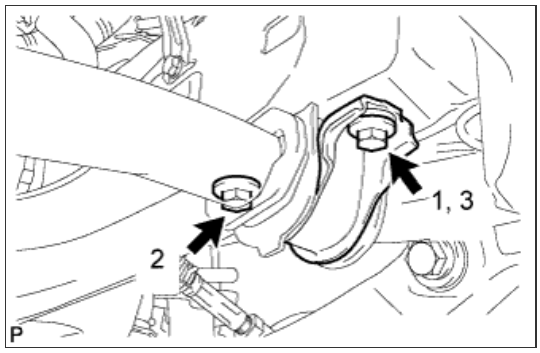
5. TIGHTEN NO. 1 FRONT STABILIZER BRACKET LH

a. Tighten the 2 bolts.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

Tighten the bolts in 3 steps, in the order shown in the illustration.



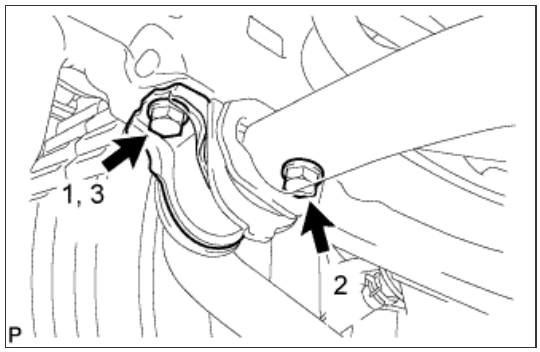
6. TIGHTEN NO. 1 FRONT STABILIZER BRACKET RH

a. Tighten the 2 bolts.

Torque:
87 N*m{ 887 kgf*cm , 64 ft.*lbf }

NOTICE:

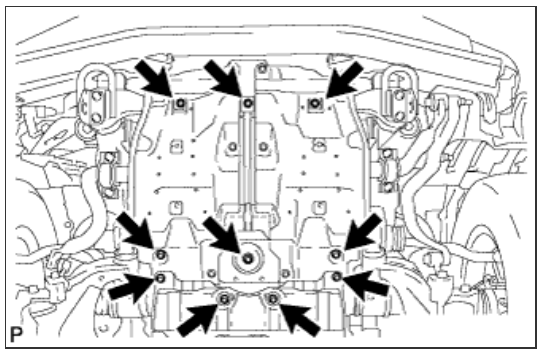
Tighten the bolts in 3 steps, in the order shown in the illustration.



7. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

a. Install the No. 1 engine under cover with the 10 bolts.

Torque:
29 N*m{ 296 kgf*cm , 21 ft.*lbf }



8. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH

a. Push in the clip to install the front fender splash shield sub-assembly LH.

b. Install the 3 bolts and 2 screws.

9. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

10. STABILIZE SUSPENSION

a. Install the front wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

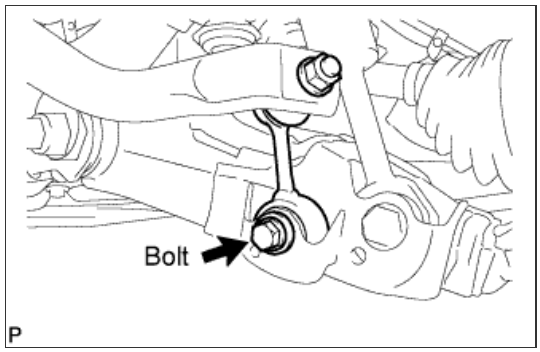
11. TIGHTEN FRONT STABILIZER LINK ASSEMBLY LH

a. Tighten the bolt.

Torque:
135 N*m{ 1376 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



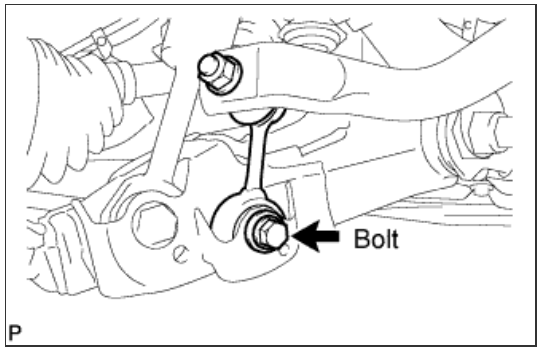
12. TIGHTEN FRONT STABILIZER LINK ASSEMBLY RH

a. Tighten the bolt.

Torque:
135 N*m{ 1376 kgf*cm , 100 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



for Preparation Click here

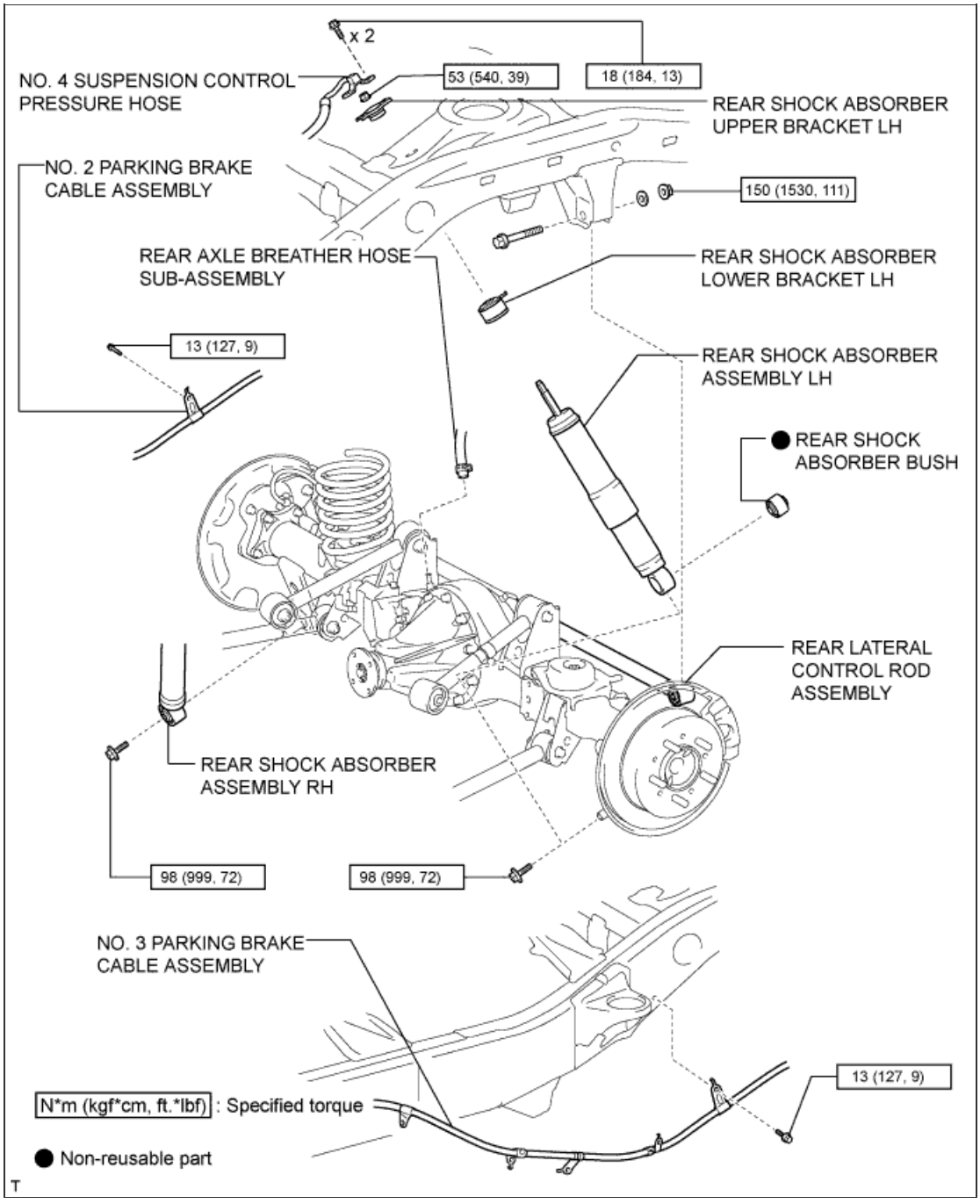
HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Rear Suspension System

Symptom	Suspected Area	See page
Wander/pulls	Tire (worn or improperly inflated)	Click here
	Wheel alignment (incorrect)	Click here
	Rear axle shaft (worn)	Click here
	Suspension parts (worn)	-
Bottoming	Vehicle (overloaded)	-
	Rear coil spring (weak)	Click here
	Rear shock absorber (worn)	Click here
Sways/pitches	Tire (worn or improperly inflated)	Click here
	Stabilizer bar (bent or broken)	-
	Rear shock absorber (worn)	Click here
Wheel shimmy	Tire (worn or improperly inflated)	Click here
	Wheel (out of balance)	Click here
	Rear shock absorber (worn)	Click here
	Rear axle shaft (loose or worn)	Click here
Abnormal tire wear	Tire (improperly inflated)	Click here
	Rear shock absorber (worn)	Click here
	Suspension parts (worn)	-

for Preparation Click here



for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE REAR WHEEL

2. DISCONNECT NO. 3 PARKING BRAKE CABLE ASSEMBLY

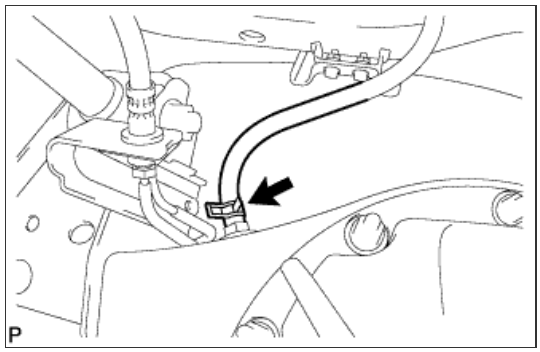
a. Remove the bolt and disconnect the No. 3 parking brake cable.

3. DISCONNECT NO. 2 PARKING BRAKE CABLE ASSEMBLY

a. Remove the bolt and disconnect the No. 2 parking brake cable.

4. DISCONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY

a. Disconnect the rear axle breather hose from the rear axle housing assembly.



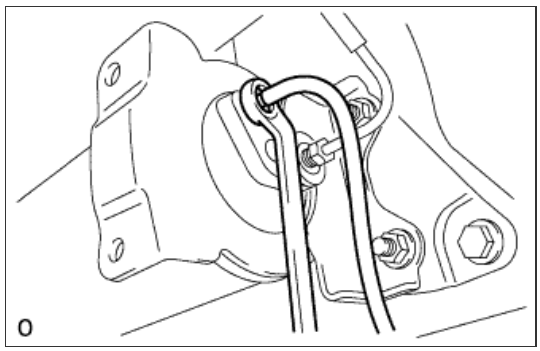
5. DISCHARGE SUSPENSION FLUID PRESSURE

a. Connect a hose to the bleeder plug for the height control accumulator and loosen the bleeder plug.

b. Discharge the suspension fluid pressure.

c. After the fluid pressure has dropped and oil has drained out, tighten the bleeder plug and remove the hose.

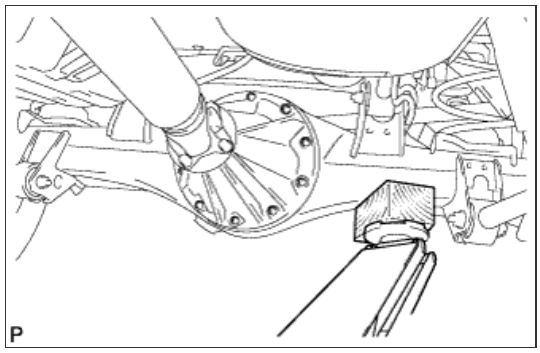
Torque:
6.9 N*m{ 70 kgf*cm , 61 in.*lbf }



6. SUPPORT REAR AXLE HOUSING ASSEMBLY

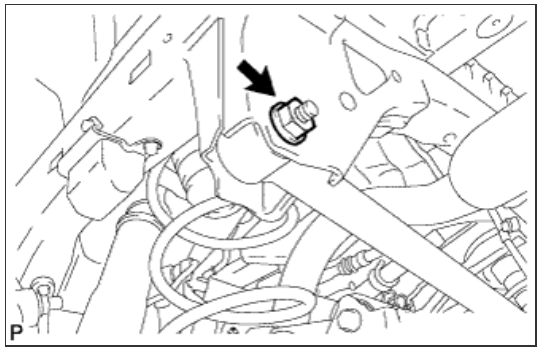
a. Support the rear axle housing with a jack using a wooden block to avoid

a. Support the rear axle housing with a jack using a wooden block to avoid damage.



7. DISCONNECT REAR LATERAL CONTROL ROD ASSEMBLY

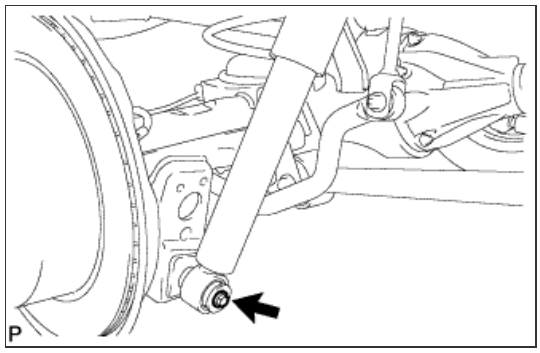
a. Remove the bolt and nut, and disconnect the rear lateral control rod from the frame.



8. DISCONNECT REAR SHOCK ABSORBER ASSEMBLY RH

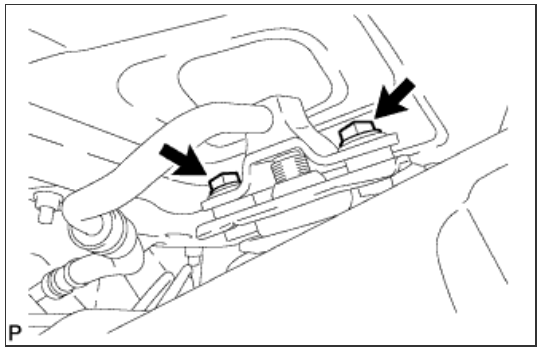
a. Remove the bolt on the lower side of the shock absorber.

b. Disconnect the shock absorber from the axle housing.



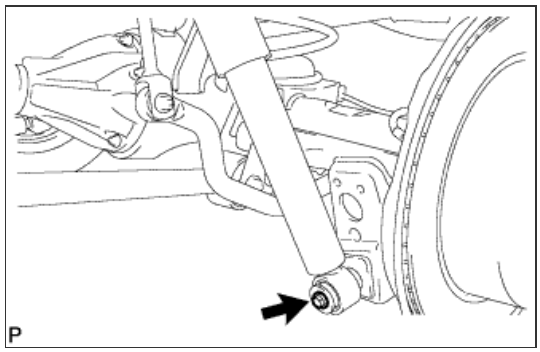
9. DISCONNECT NO. 4 SUSPENSION CONTROL PRESSURE HOSE

a. Remove the 2 bolts and disconnect the pressure hose from the shock absorber.



10. REMOVE REAR SHOCK ABSORBER ASSEMBLY LH

a. Remove the bolt on the lower side of the shock absorber.

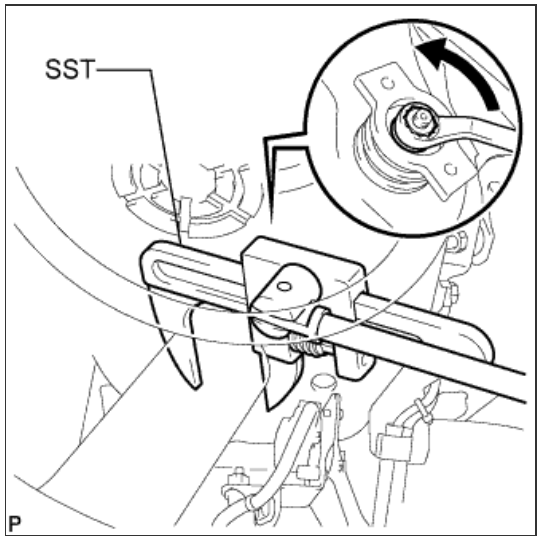


b. Using SST, hold the rear shock absorber in place.

SST
09922-10010

c. Remove the nut, upper bracket and shock absorber assembly.

d. Remove the lower bracket from the shock absorber.

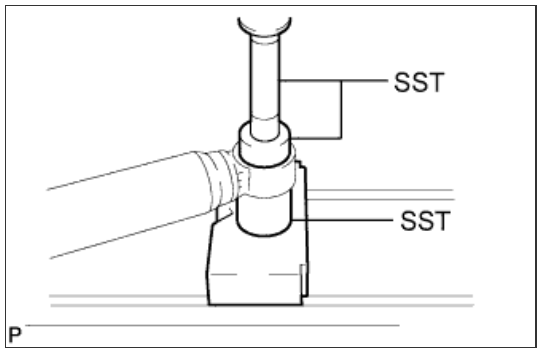


for Preparation Click here

1. REMOVE REAR SHOCK ABSORBER BUSH

a. Using SST and a press, press out the bush.

SST
09710-14013 (09710-00061)
09710-28012 (09710-07031)
09950-70010 (09951-07100)



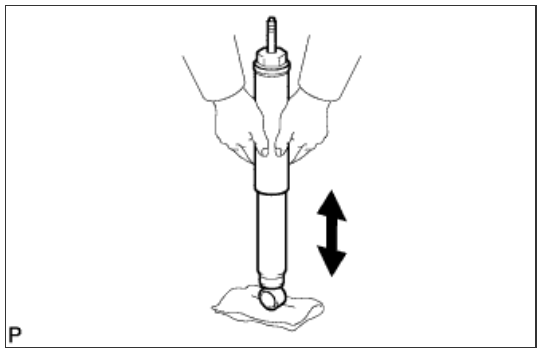
for Preparation Click here

1. INSPECT REAR SHOCK ABSORBER ASSEMBLY LH

a. Compress and extend the shock absorber rod 4 times or more. Check that there is no abnormal resistance or unusual sound during the operation.
If there is any abnormality, replace the shock absorber assembly with a new one.

NOTICE:

- **When disposing of the shock absorber, see Disposal (Click here).**
- **Drain the oil inside the absorber before performing the inspection.**
- **Be careful as oil may come out from the end of the rod.**

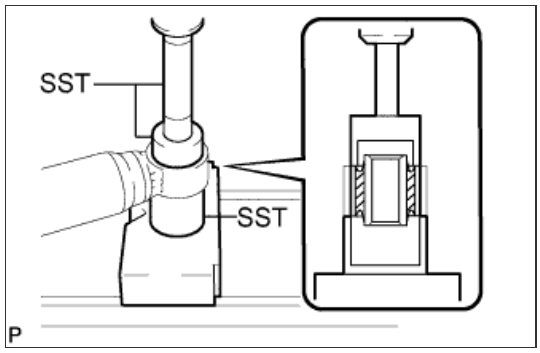


for Preparation Click here

1. INSTALL REAR SHOCK ABSORBER BUSH

a. Using SST and a press, press in a new bush.

SST
09710-14013 (09710-00061)
09710-28012 (09710-07031)
09950-70010 (09951-07100)



for Preparation Click here

HINT:

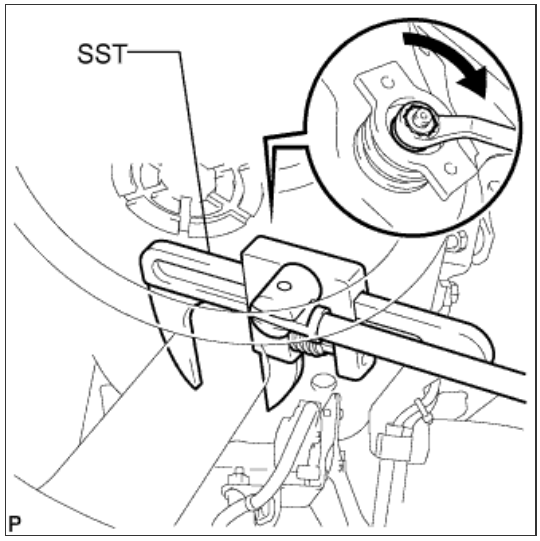
- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. TEMPORARILY INSTALL REAR SHOCK ABSORBER ASSEMBLY LH

a. Install the lower bracket to the shock absorber.

b. Using SST, hold the rear shock absorber in place.

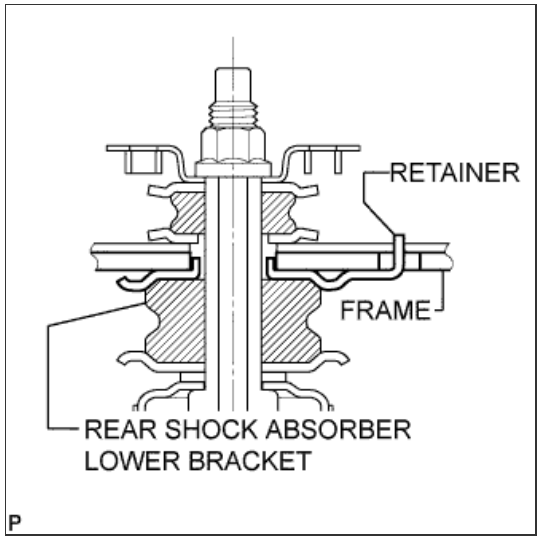
SST
09922-10010



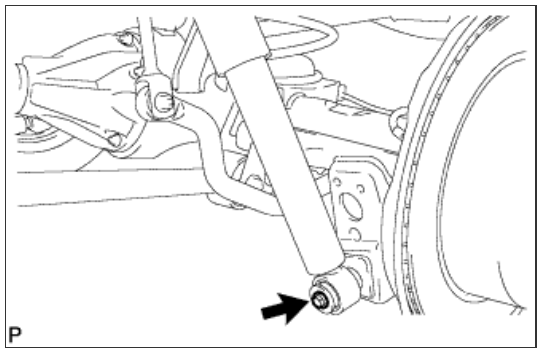
c. Temporarily install the rear shock absorber and upper bracket with the nut.

NOTICE:

Make sure the absorber retainer claw is securely inserted into the frame hole.

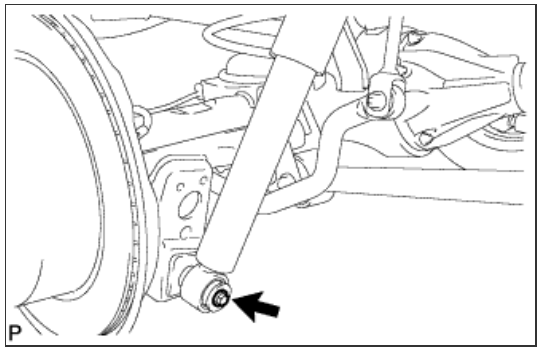


d. Temporarily install the lower side of the shock absorber with the bolt.



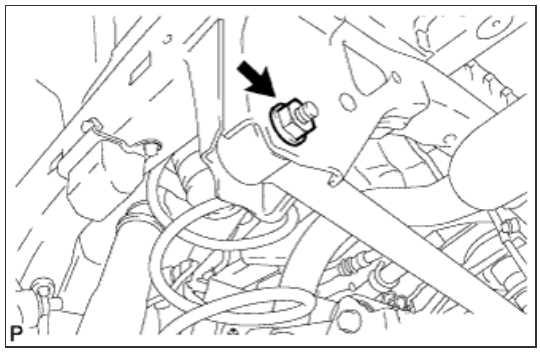
2. TEMPORARILY INSTALL REAR SHOCK ABSORBER ASSEMBLY RH

a. Temporarily install the lower side of the shock absorber with the bolt.



3. TEMPORARILY INSTALL REAR LATERAL CONTROL ROD ASSEMBLY

a. Temporarily install the lateral control rod with the nut and bolt.



4. STABILIZE SUSPENSION

a. Install the rear wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

5. TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH

a. Tighten the bolt and nut.

Torque:
for Nut:
53 N*m{ 540 kgf*cm , 39 ft.*lbf }
for Bolt:
98 N*m{ 999 kgf*cm , 72 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

6. TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH

a. Tighten the bolt and nut.

Torque:
98 N*m{ 999 kgf*cm , 72 ft.*lbf }

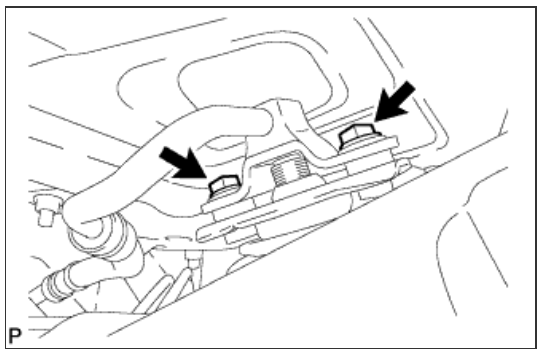
NOTICE:

Perform this procedure with all 4 wheels on the ground.

7. CONNECT NO. 4 SUSPENSION CONTROL PRESSURE HOSE

a. Install the pressure hose with the 2 bolts.

Torque:
18 N*m{ 184 kgf*cm , 13 ft.*lbf }



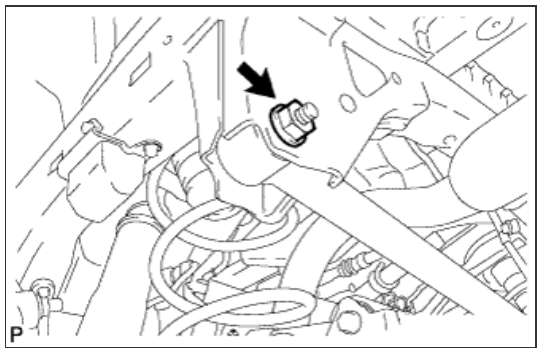
8. TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY

a. Tighten the nut.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.



9. BLEED AIR FROM SUSPENSION FLUID

a. With the engine stopped, fill the reservoir tank with fluid.

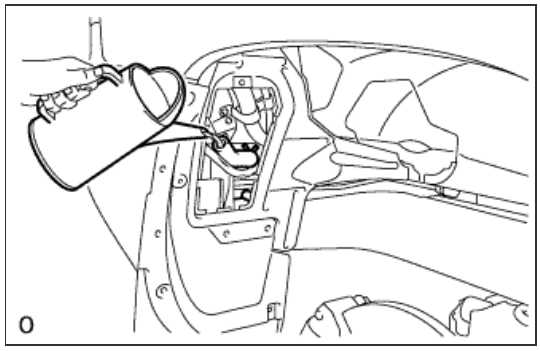
NOTICE:

When the engine starts, the pump operates and fluid is supplied to each cylinder from the reservoir tank. Therefore, add the necessary amount of fluid so that the reservoir tank does not become empty.

HINT:

At this point, the vehicle height is low because the pressure of the cylinders is low.

b. With the vehicle on a level surface, start the engine and set the vehicle height to



NORMAL with the suspension control switch.

c. When the vehicle height becomes NORMAL and the pump stops, stop the engine.

d. Connect a hose to the bleeder plug of the front left side or right side control valve, then loosen the bleeder plug.

CAUTION:

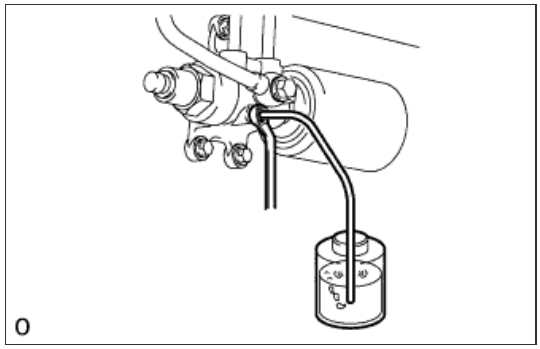
Be careful when loosening the control valve bleeder plug because the front vehicle height drops rapidly.

e. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



f. Connect a hose to the bleeder plug of the rear left side or right side control valve, then loosen the bleeder plug.

CAUTION:

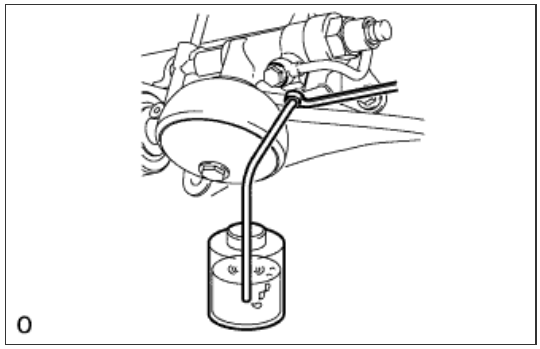
Be careful when loosening the control valve bleeder plug because the rear vehicle height drops rapidly.

g. After the fluid containing air stops coming out, retighten the bleeder plug.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

HINT:

If the procedures are performed for the first time on the left side, perform the procedures on the right side for the second time.



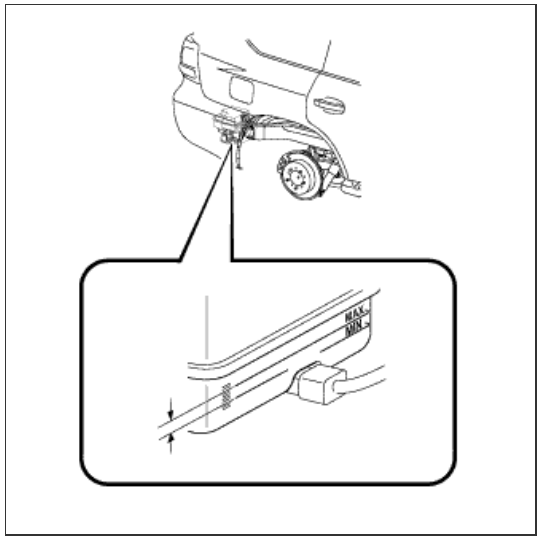
h. Repeat the previous 4 procedures until the fluid containing air stops coming out.

10. CHECK FLUID LEVEL IN RESERVOIR

a. With the vehicle empty, after setting the vehicle height to NORMAL from LO, check the indicator to make sure the vehicle height is NORMAL and check that the fluid level in the reservoir tank is within the specified range (MAX, MIN).

HINT:

After changing the vehicle height from LO to NORMAL, do not stop the engine for 25 seconds because the pressure control for the main accumulator is operating. After that, check the fluid level.



11. INSPECT FOR SUSPENSION FLUID LEAK

a. Check the torque value of the rear No. 5 height control tube union nuts.

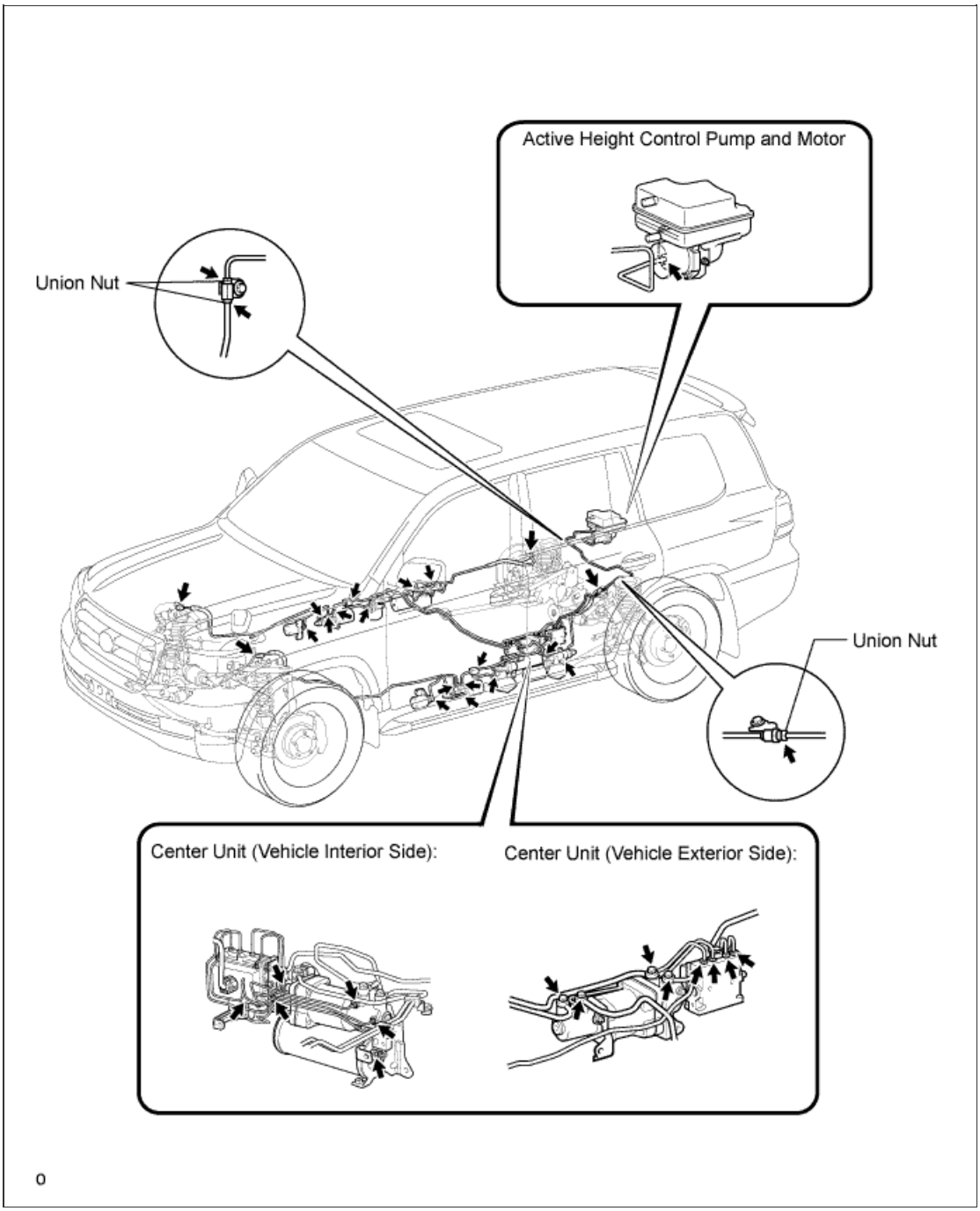
Torque:

without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 143 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

b. Check for fluid leakage from the parts and connections.



HINT:

For union nuts and union bolts not shown in the illustration, refer to the installation procedures for each title.

12. CONNECT NO. 3 PARKING BRAKE CABLE ASSEMBLY

a. Connect the No. 3 parking brake cable with the bolt.

Torque:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }

13. CONNECT NO. 2 PARKING BRAKE CABLE ASSEMBLY

a. Connect the No. 2 parking brake cable with the bolt.

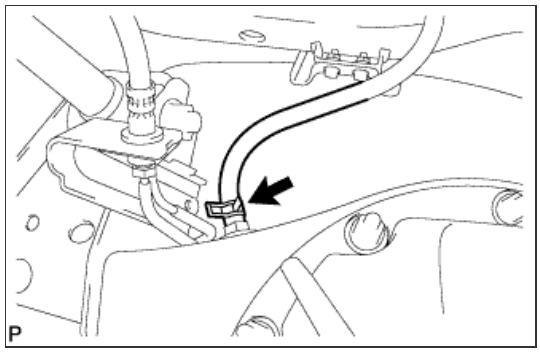
Torque:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }

14. CONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY

a. Connect the breather hose to the rear axle housing.

NOTICE:

Make sure the breather hose paint mark and claw of the clip are facing towards the front of the vehicle.

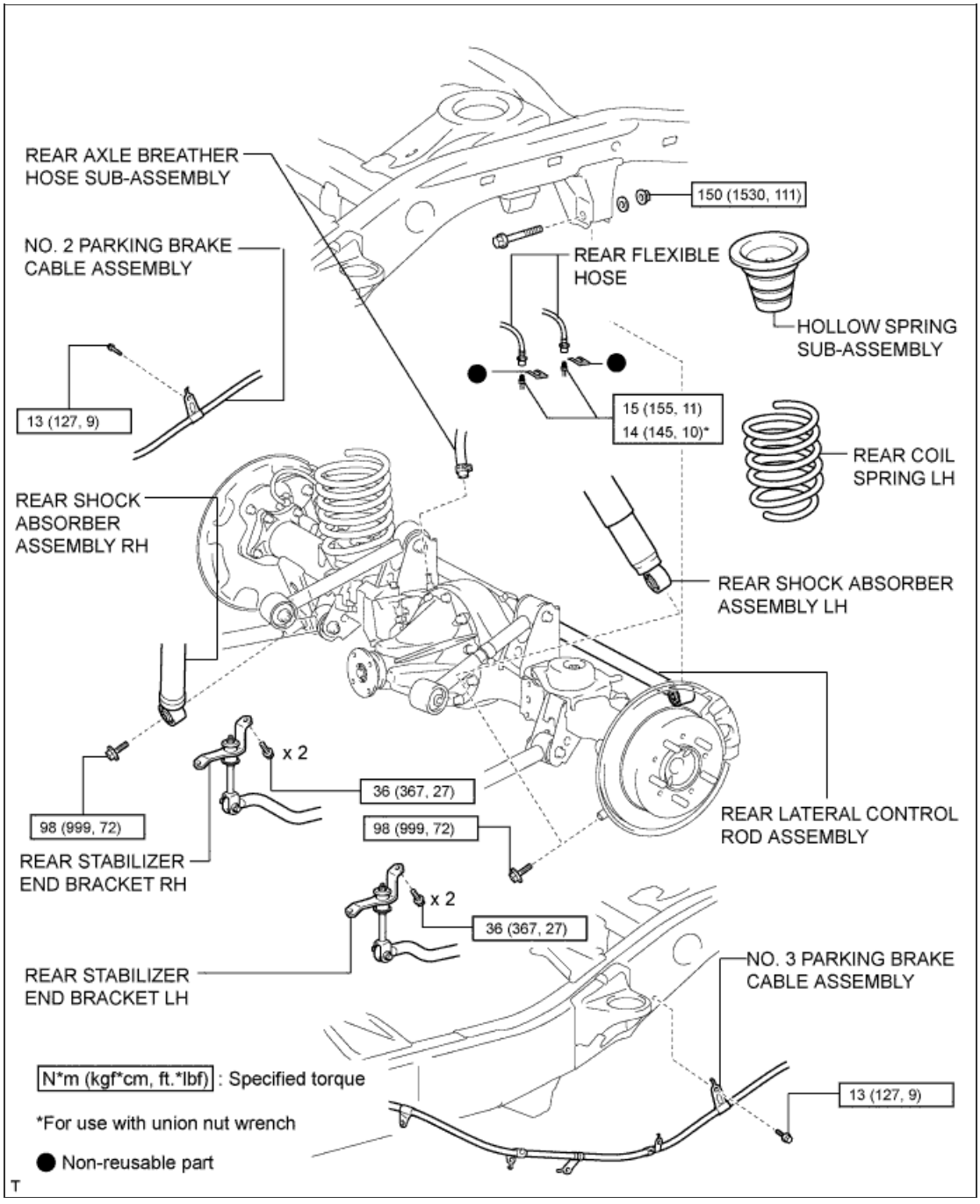


for Preparation Click here

1. DISPOSE OF REAR SHOCK ABSORBER ASSEMBLY LH

a. Drain the oil inside the absorber and dispose of it.

for Preparation Click here



for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE REAR WHEEL

2. DRAIN BRAKE FLUID

NOTICE:

Wash off brake fluid immediately if it comes in contact with any painted surface.

3. DISCONNECT NO. 3 PARKING BRAKE CABLE ASSEMBLY

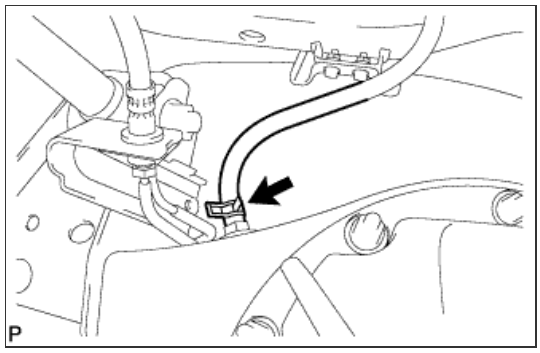
a. Remove the bolt and disconnect the No. 3 parking brake cable.

4. DISCONNECT NO. 2 PARKING BRAKE CABLE ASSEMBLY

a. Remove the bolt and disconnect the No. 2 parking brake cable.

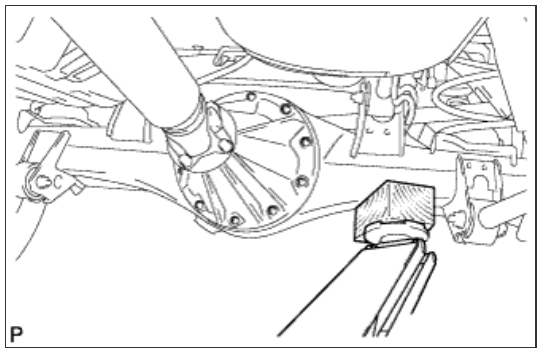
5. DISCONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY

a. Disconnect the rear axle breather hose from the rear axle housing assembly.



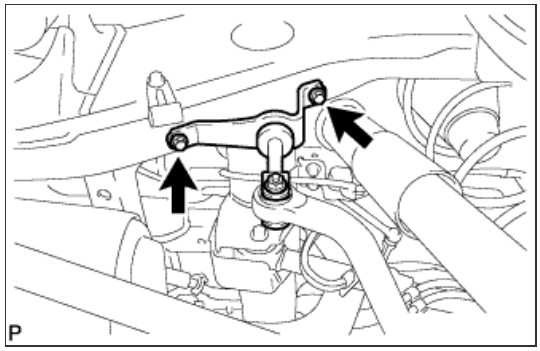
6. SUPPORT REAR AXLE HOUSING ASSEMBLY

a. Support the rear axle housing with a jack using a wooden block to avoid damage.



7. DISCONNECT REAR STABILIZER END BRACKET LH

a. Remove the 2 bolts and disconnect the stabilizer end bracket.

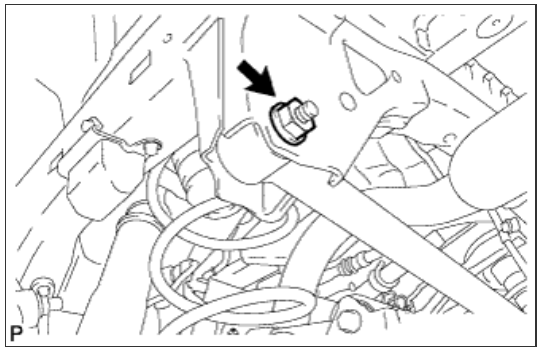


8. DISCONNECT REAR STABILIZER END BRACKET RH

a. Remove the 2 bolts and disconnect the stabilizer end bracket.

9. DISCONNECT REAR LATERAL CONTROL ROD ASSEMBLY

a. Remove the bolt and nut, and disconnect the rear lateral control rod from the frame.

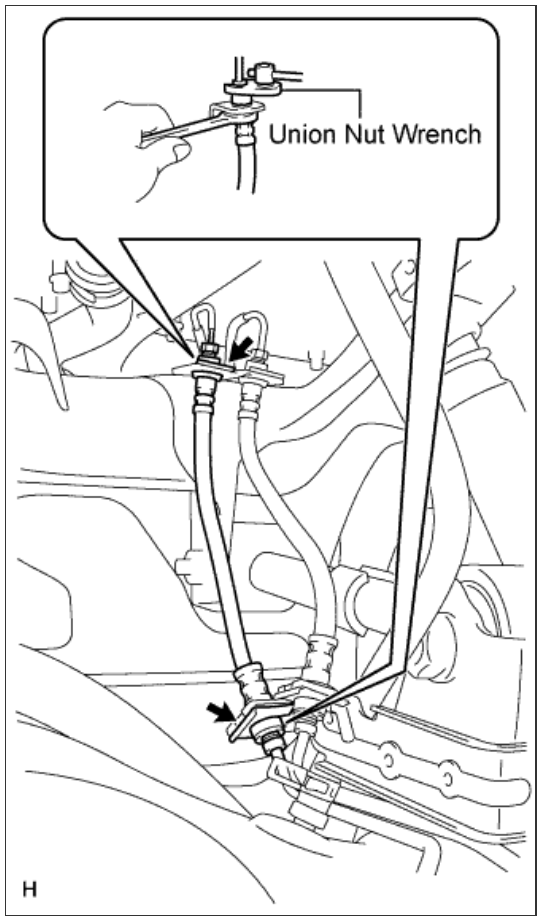


10. DISCONNECT REAR FLEXIBLE HOSE

a. Disconnect each brake tube from the flexible hose with a union nut wrench while holding the flexible hose with a wrench.

b. Remove the 2 clips.

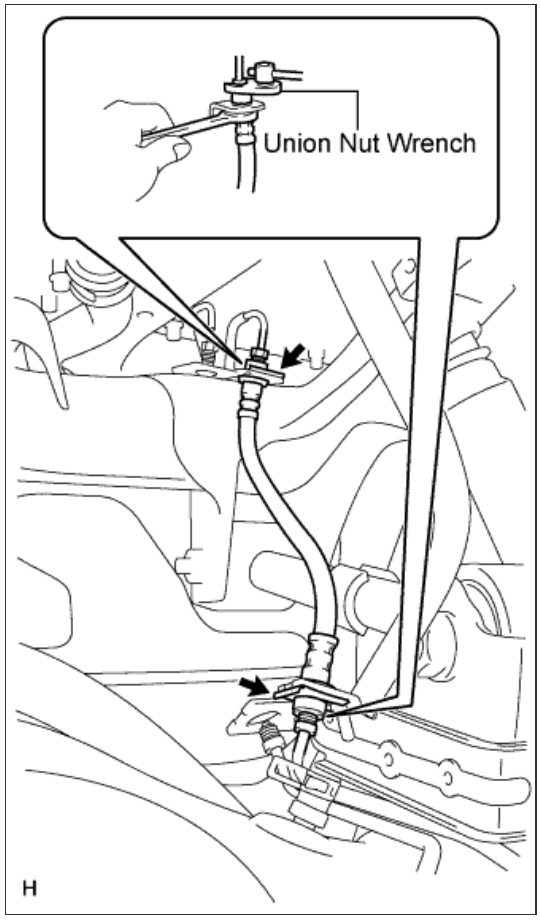
c. Remove the flexible hose.



d. Disconnect each brake tube from the flexible hose with a union nut wrench while holding the flexible hose with a wrench.

e. Remove the 2 clips.

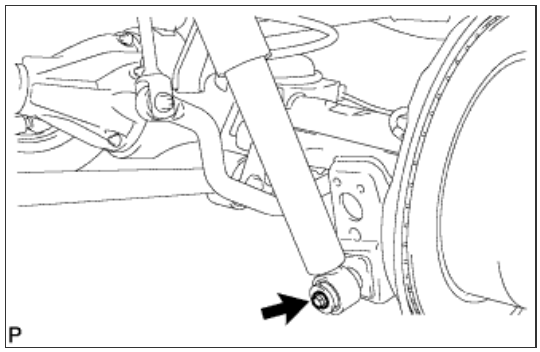
f. Remove the flexible hose.



11. DISCONNECT REAR SHOCK ABSORBER ASSEMBLY LH

a. Remove the bolt on the lower side of the shock absorber.

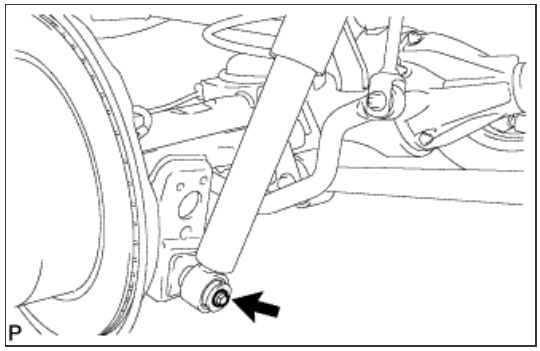
b. Disconnect the shock absorber from the axle housing.



12. DISCONNECT REAR SHOCK ABSORBER ASSEMBLY RH

a. Remove the bolt on the lower side of the shock absorber.

b. Disconnect the shock absorber from the axle housing.



13. REMOVE REAR COIL SPRING LH

a. While lowering the axle housing, remove the coil spring.

14. REMOVE HOLLOW SPRING SUB-ASSEMBLY

a. Remove the hollow spring from the frame.

for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. INSTALL HOLLOW SPRING SUB-ASSEMBLY

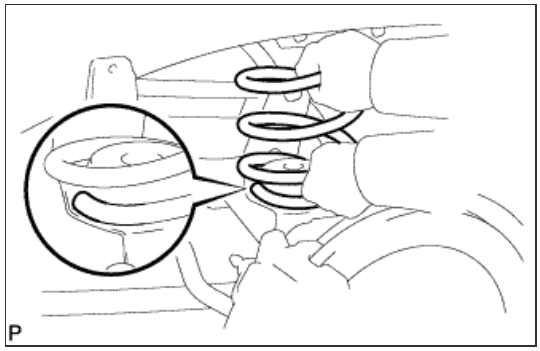
a. Install the hollow spring to the frame.

2. INSTALL REAR COIL SPRING LH

a. Install the coil spring.

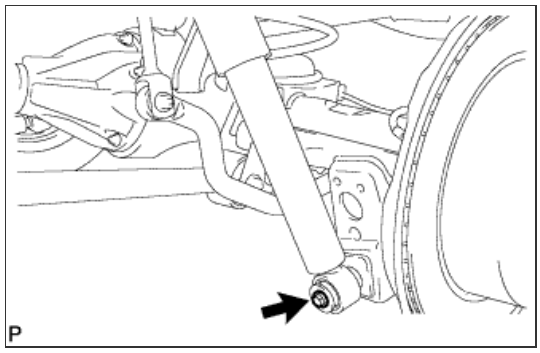
HINT:

Before installing the coil spring, check that the coil spring end is in the correct position. If not, reinstall it.



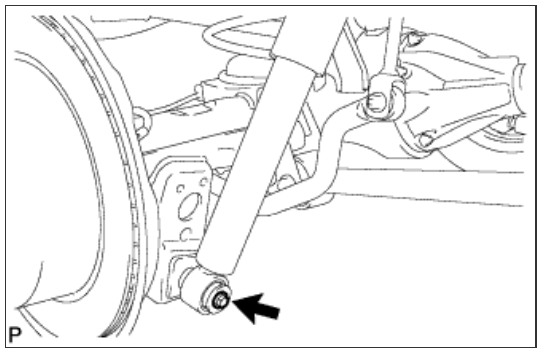
3. TEMPORARILY INSTALL REAR SHOCK ABSORBER ASSEMBLY LH

a. Temporarily install the lower side of the shock absorber with the bolt.



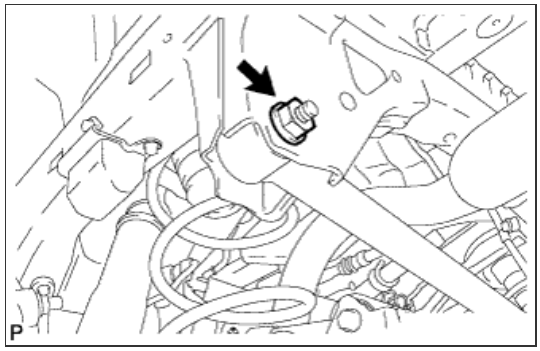
4. TEMPORARILY INSTALL REAR SHOCK ABSORBER ASSEMBLY RH

a. Temporarily install the lower side of the shock absorber with the bolt.



5. TEMPORARILY INSTALL REAR LATERAL CONTROL ROD ASSEMBLY

a. Temporarily install the lateral control rod with the nut and bolt.



6. CONNECT REAR FLEXIBLE HOSE

a. Connect the flexible hose to the connecting point with each brake tube, and then install 2 new clips.

b. Using a union nut wrench, connect each brake tube to the flexible hose while holding the flexible hose with a wrench.

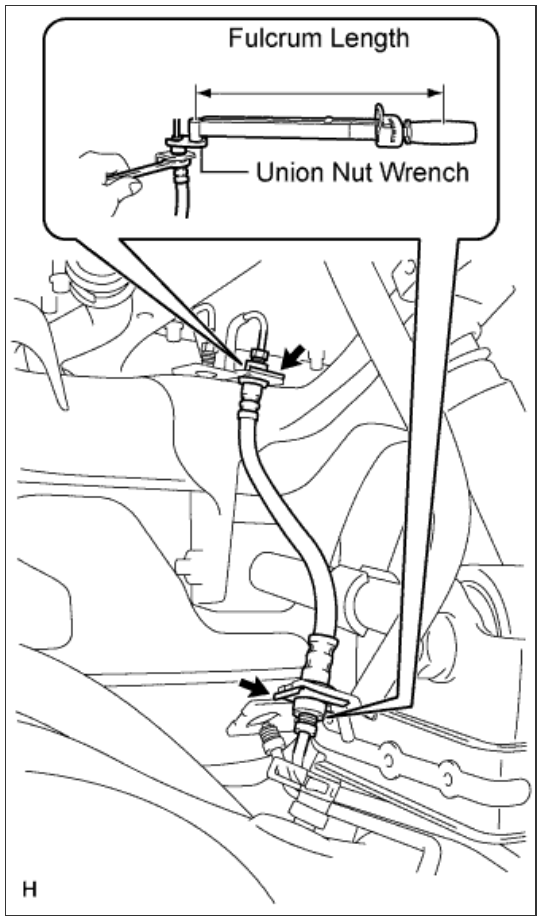
Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 145 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

NOTICE:

- **Do not bend or damage the brake tube.**
- **Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.**



c. Connect the flexible hose to the connecting point with each brake tube, and then

install 2 new clips.

d. Using a union nut wrench, connect each brake tube to the flexible hose while holding the flexible hose with a wrench.

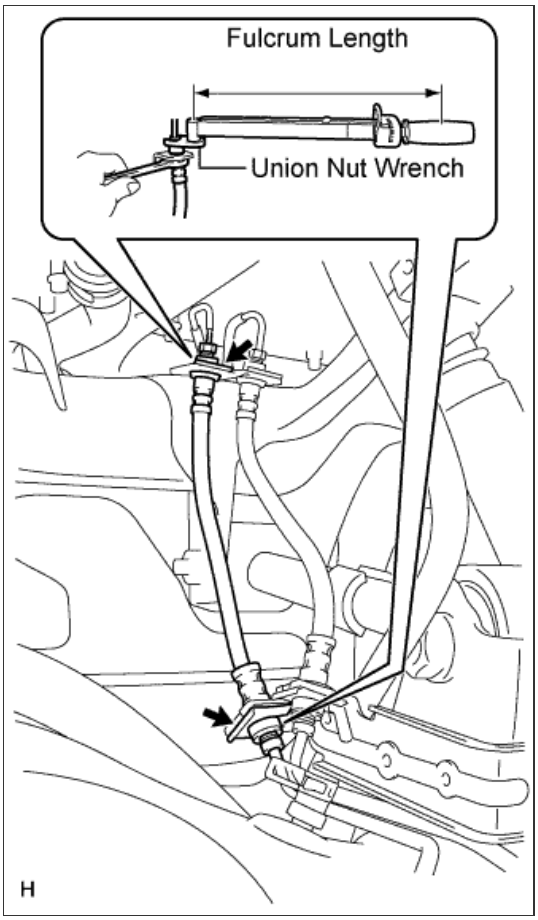
Torque:
without union nut wrench:
15 N*m{ 155 kgf*cm , 11 ft.*lbf }
with union nut wrench:
14 N*m{ 145 kgf*cm , 10 ft.*lbf }

HINT:

- **Use a torque wrench with a fulcrum length of 300 mm (11.8 in.).**
- **The torque value for use with a union nut wrench is effective when the union nut wrench is parallel to the torque wrench.**

NOTICE:

- **Do not bend or damage the brake tube.**
- **Do not allow any foreign matter such as dirt and dust to enter the brake tube from the connecting point.**



7. STABILIZE SUSPENSION

a. Install the rear wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

8. TIGHTEN REAR SHOCK ABSORBER ASSEMBLY LH

a. Tighten the bolt.

Torque:
98 N*m{ 999 kgf*cm , 72 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

9. TIGHTEN REAR SHOCK ABSORBER ASSEMBLY RH

a. Tighten the bolt.

Torque:
98 N*m{ 999 kgf*cm , 72 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

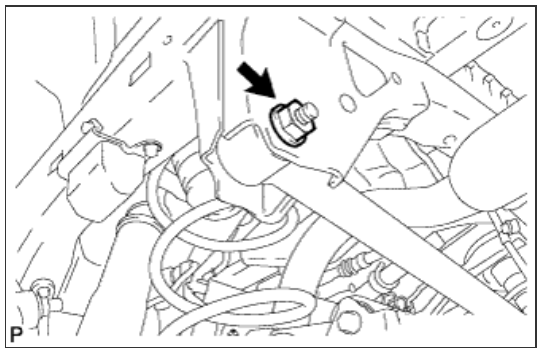
10. TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY

a. Tighten the nut.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

NOTICE:

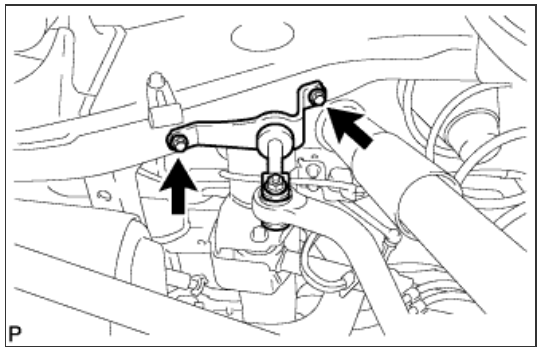
Perform this procedure with all 4 wheels on the ground.



11. INSTALL REAR STABILIZER END BRACKET LH

a. Connect the stabilizer end bracket with the 2 bolts.

Torque:
36 N*m{ 367 kgf*cm , 27 ft.*lbf }



12. INSTALL REAR STABILIZER END BRACKET RH

a. Connect the stabilizer end bracket with the 2 bolts.

Torque:
36 N*m{ 367 kgf*cm , 27 ft.*lbf }

13. CONNECT NO. 3 PARKING BRAKE CABLE ASSEMBLY

a. Connect the No. 3 parking brake cable with the bolt.

Torque:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }

14. CONNECT NO. 2 PARKING BRAKE CABLE ASSEMBLY

a. Connect the No. 2 parking brake cable with the bolt.

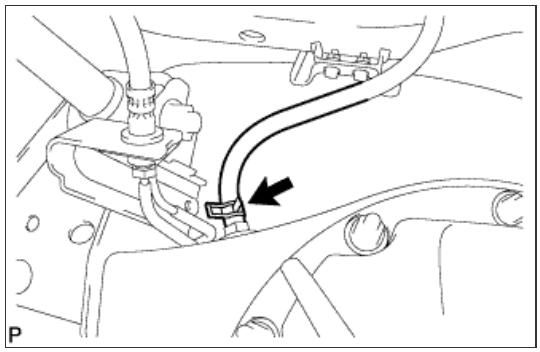
Torque:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }

15. CONNECT REAR AXLE BREATHER HOSE SUB-ASSEMBLY

a. Connect the breather hose to the rear axle housing.

NOTICE:

Make sure the breather hose paint mark and claw of the clip are facing towards the front of the vehicle.



16. BLEED BRAKE LINE

a. Turn the ignition switch to ON.

b. Remove the brake master cylinder reservoir filler cap assembly.

c. Add brake fluid until the fluid level is between the MIN and MAX lines of the reservoir.

d. Repeatedly depress the brake pedal and bleed air from the bleeder plug of the front disc brake cylinder RH.

e. Repeat the step above until the air is completely bled, and then tighten the bleeder plug while depressing the brake pedal.

Torque:
11 N*m{ 110 kgf*cm , 8 ft.*lbf }

f. Bleed the air from the bleeder plug of the front disc brake cylinder LH using the same procedure as for the RH side.

g. With the brake pedal depressed, loosen the bleeder plug of the rear disc brake cylinder RH, continue to hold the brake pedal and allow brake fluid to be drained from the bleeder plug while the pump motor operates.

HINT:

- **Air is bled as the pump motor operates while the brake pedal is being depressed.**
- **Be sure to release the brake pedal to stop the motor after approximately 100 seconds of continuous operation.**
- **As brake fluid is continuously drained while the pump operates, it is not necessary to repeatedly depress the brake pedal.**

h. When there is no more air in the brake fluid, tighten the bleeder plug, and then release the brake pedal.

Torque:
11 N*m{ 110 kgf*cm , 8 ft.*lbf }

i. Bleed the air from the bleeder plug of the rear disc brake cylinder LH using the same procedure as for the RH side.

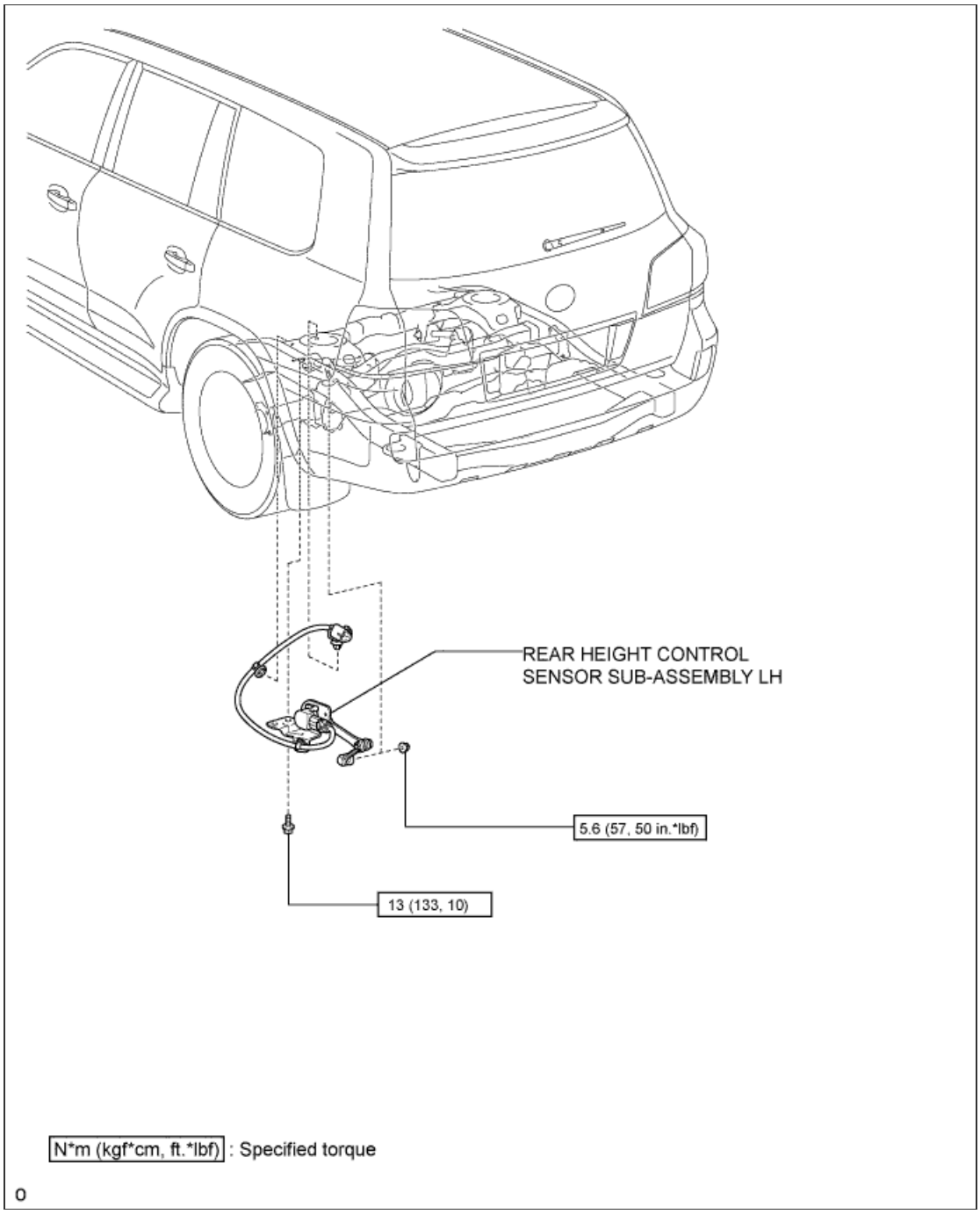
j. Turn the ignition switch off.

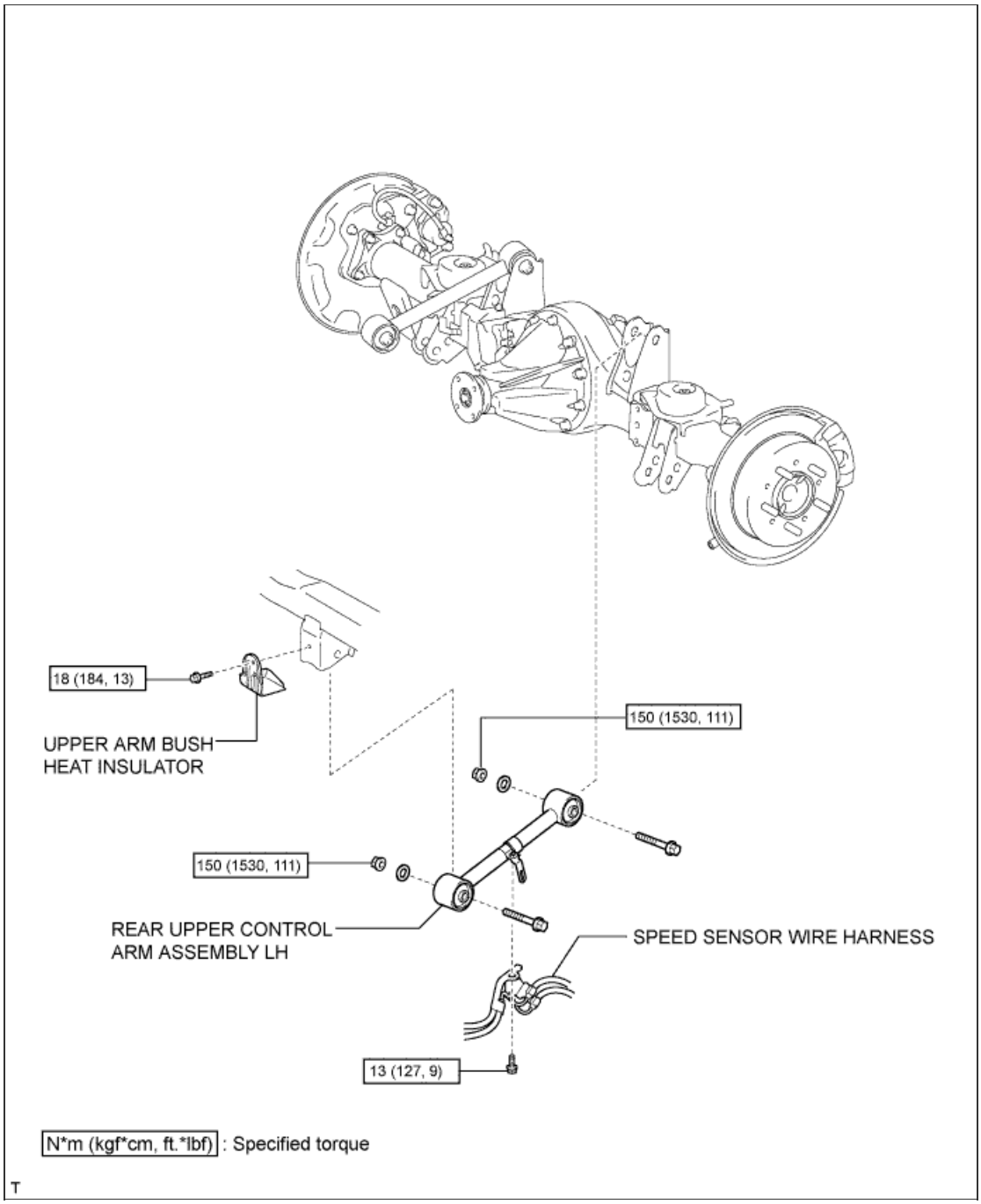
k. Inspect for brake fluid leaks.

l. Check and adjust the brake fluid level (Click here).

m. Clear the DTCs (Click here).

for Preparation Click here




18 (184, 13)
UPPER ARM BUSH
HEAT INSULATOR
150 (1530, 111)
150 (1530, 111)
REAR UPPER CONTROL
ARM ASSEMBLY LH
SPEED SENSOR WIRE HARNESS
13 (127, 9)
N*m (kgf*cm, ft.*lbf) : Specified torque
T

for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE REAR WHEEL

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

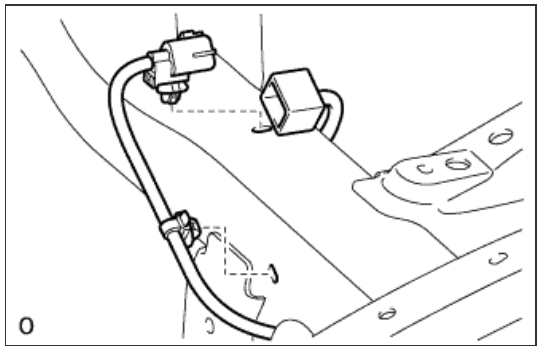
When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

NOTICE:
w/ Navigation System:

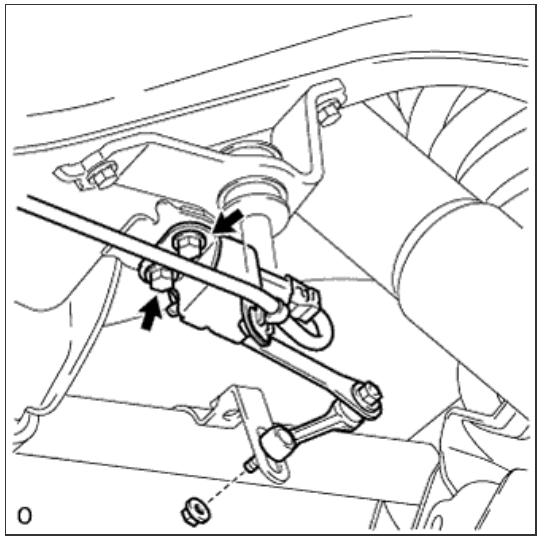
After the engine switch is turned off, the HDD navigation system requires approximately 6 minutes to record various types of memory and settings. As a result, after turning the engine switch off, wait 6 minutes or more before disconnecting the cable from the negative (-) battery terminal.

3. REMOVE REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Disconnect the connector and 2 clamps.

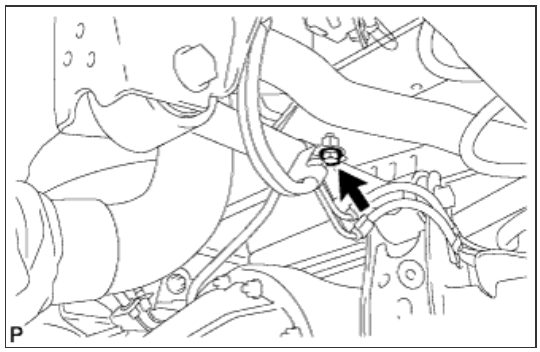


b. Remove the 2 bolts, nut and sensor.



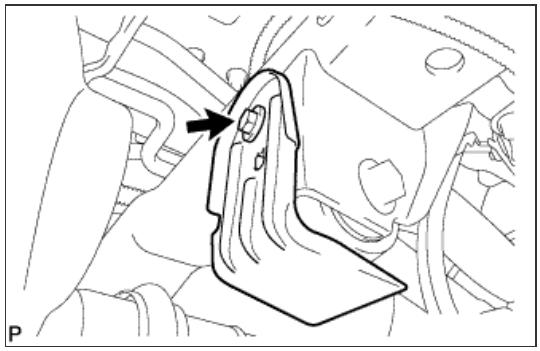
4. DISCONNECT SPEED SENSOR WIRE HARNESS

a. Remove the bolt and disconnect the speed sensor wire harness from the upper control arm.



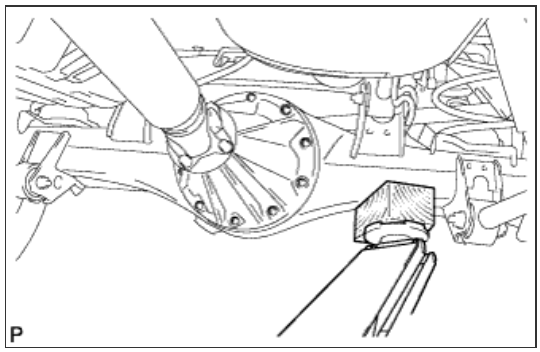
5. REMOVE UPPER ARM BUSH HEAT INSULATOR

a. Remove the bolt and upper arm bush heat insulator.



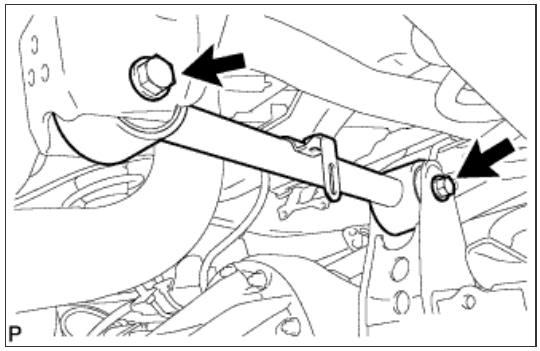
6. SUPPORT REAR AXLE HOUSING ASSEMBLY

a. Support the rear axle housing with a jack using a wooden block to avoid damage.



7. REMOVE REAR UPPER CONTROL ARM ASSEMBLY LH

a. Remove the 2 nuts, 2 washers, 2 bolts and upper control arm.



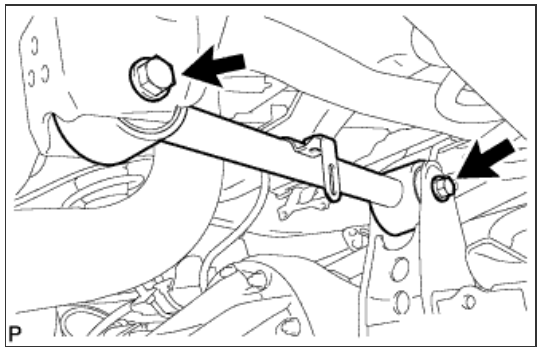
for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. TEMPORARILY INSTALL REAR UPPER CONTROL ARM ASSEMBLY LH

a. Temporarily install the rear upper control arm and 2 washers with the 2 bolts and 2 nuts.



2. STABILIZE SUSPENSION

a. Install the rear wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

3. TIGHTEN REAR UPPER CONTROL ARM ASSEMBLY LH

a. Tighten the 2 nuts.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

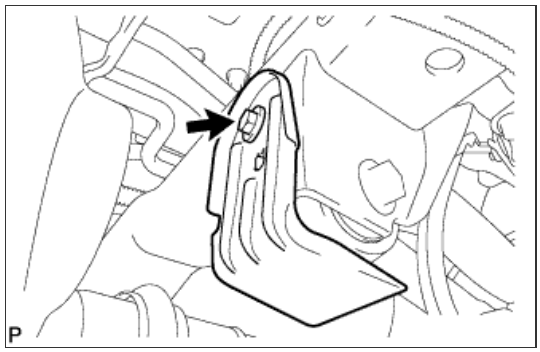
NOTICE:

Perform this procedure with all 4 wheels on the ground.

4. INSTALL UPPER ARM BUSH HEAT INSULATOR

a. Install the upper arm bush heat insulator with the bolt.

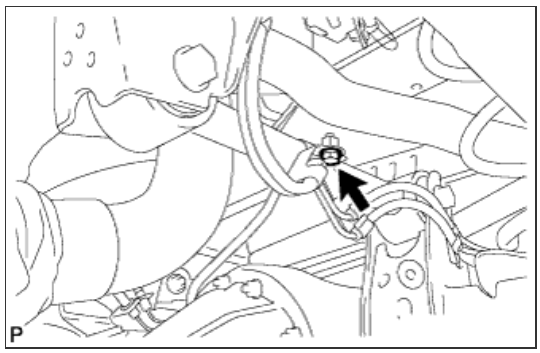
Torque:
18 N*m{ 184 kgf*cm , 13 ft.*lbf }



5. CONNECT SPEED SENSOR WIRE HARNESS

a. Connect the speed sensor wire harness with the bolt.

Torque:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }

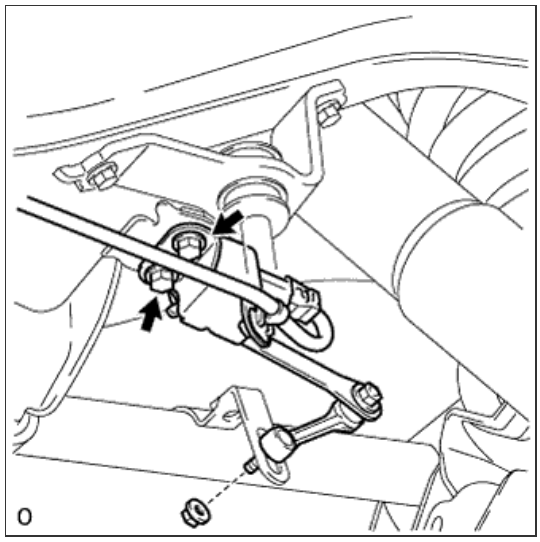


6. INSTALL REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

a. Install the sensor with the 2 bolts and nut.

Torque:
for bolt:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
for nut:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

b. Connect the connector and 2 clamps.



7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

8. PERFORM VEHICLE OFF SET CALIBRATION

a. Perform the vehicle off set calibration (Click here).

9. ADJUST REAR HEIGHT CONTROL SENSOR SUB-ASSEMBLY LH

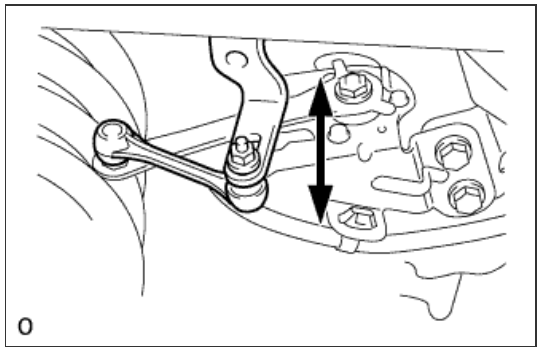
NOTICE:

- **Make adjustments from the link that deviates the most from the specified vehicle height value.**
- **When the front and rear are at the same level, make adjustments from the front first.**
- **If adjustment cannot be completed through the vehicle height offset calibration, adjust the sensor link using the following procedure.**

a. Loosen the nut and adjust the link installation position by moving the height control sensor link up or down in the long hole of the bracket.

HINT:

When the link is moved 1 mm (0.0394 in.), the vehicle height changes by approximately 2 mm (0.0787 in.).



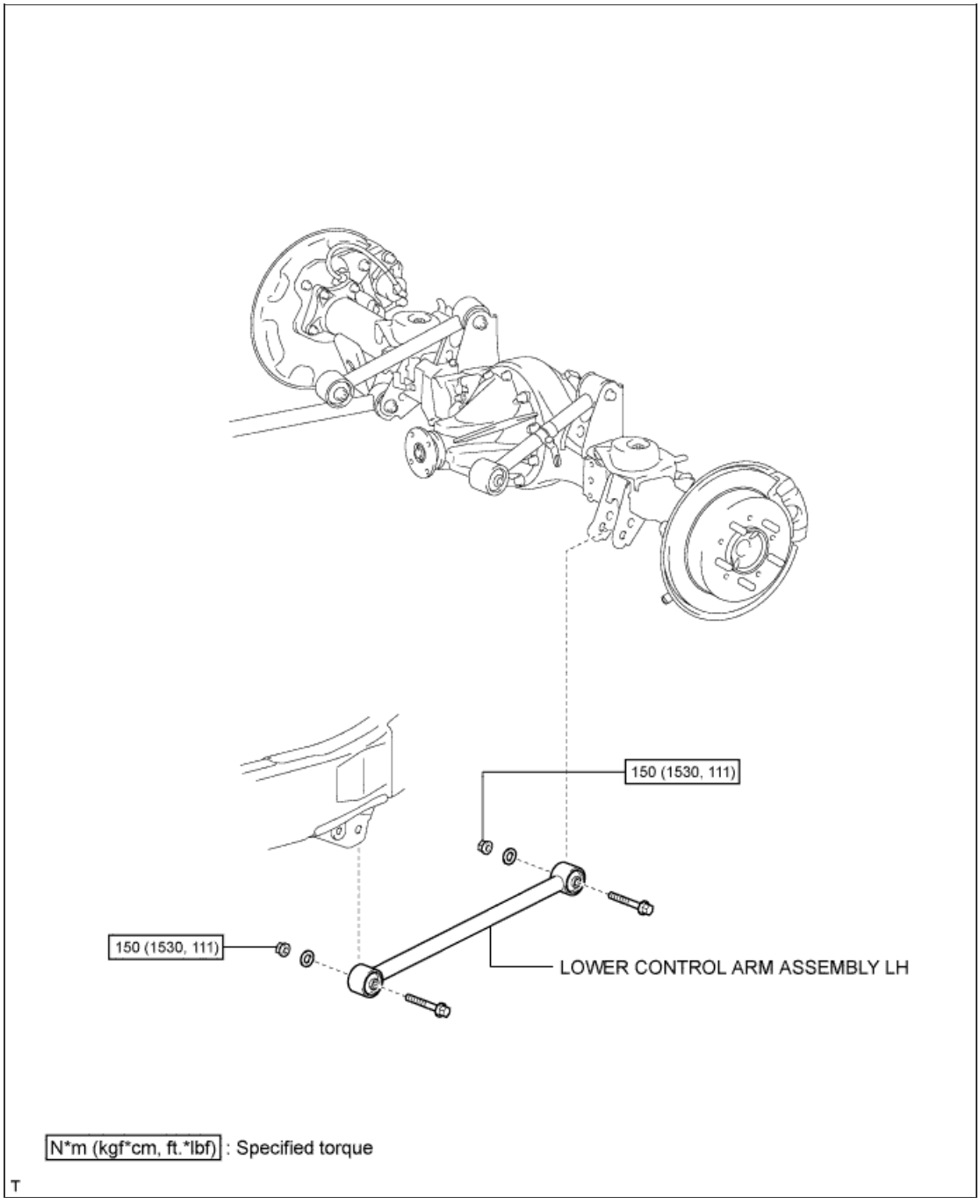
b. Tighten the nut of the height control sensor link.

Torque:
5.6 N*m{ 57 kgf*cm , 50 in.*lbf }

10. ADJUST HEADLIGHT ASSEMBLY

a. Adjust the headlight assembly (Click here).

for Preparation Click here



for Preparation Click here

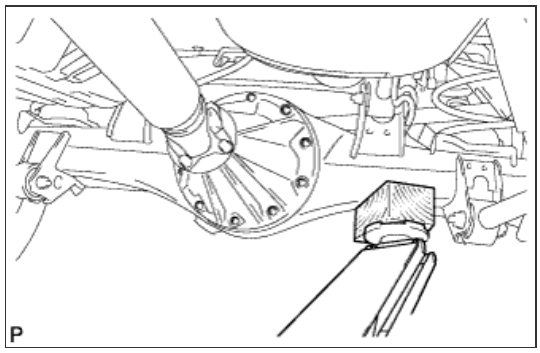
HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**

1. REMOVE REAR WHEEL

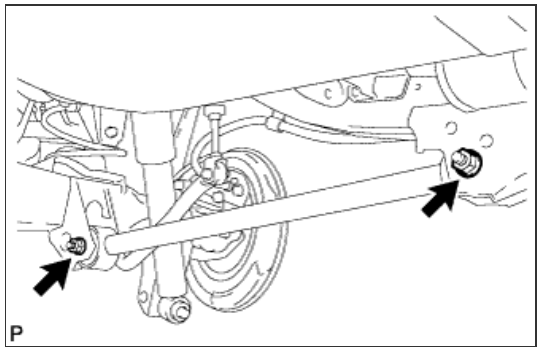
2. SUPPORT REAR AXLE HOUSING ASSEMBLY

a. Support the rear axle housing with a jack using a wooden block to avoid damage.



3. REMOVE LOWER CONTROL ARM ASSEMBLY LH

a. Remove the 2 nuts, 2 washers, 2 bolts and lower control arm.



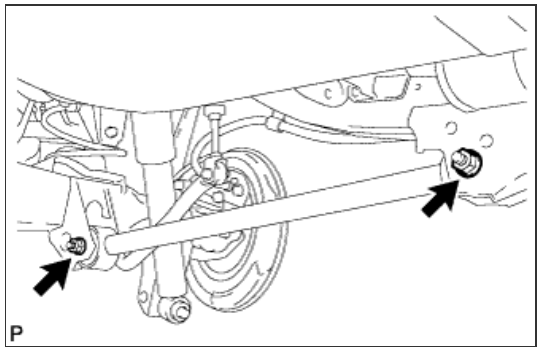
for Preparation Click here

HINT:

- **Use the same procedures for the RH side and LH side.**
- **The procedures listed below are for the LH side.**
- **A bolt without a torque specification is shown in the standard bolt chart (Click here).**

1. TEMPORARILY INSTALL LOWER CONTROL ARM ASSEMBLY LH

a. Temporarily install the lower control arm and 2 washers with the 2 bolts and 2 nuts.



2. STABILIZE SUSPENSION

a. Install the rear wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

3. TIGHTEN LOWER CONTROL ARM ASSEMBLY LH

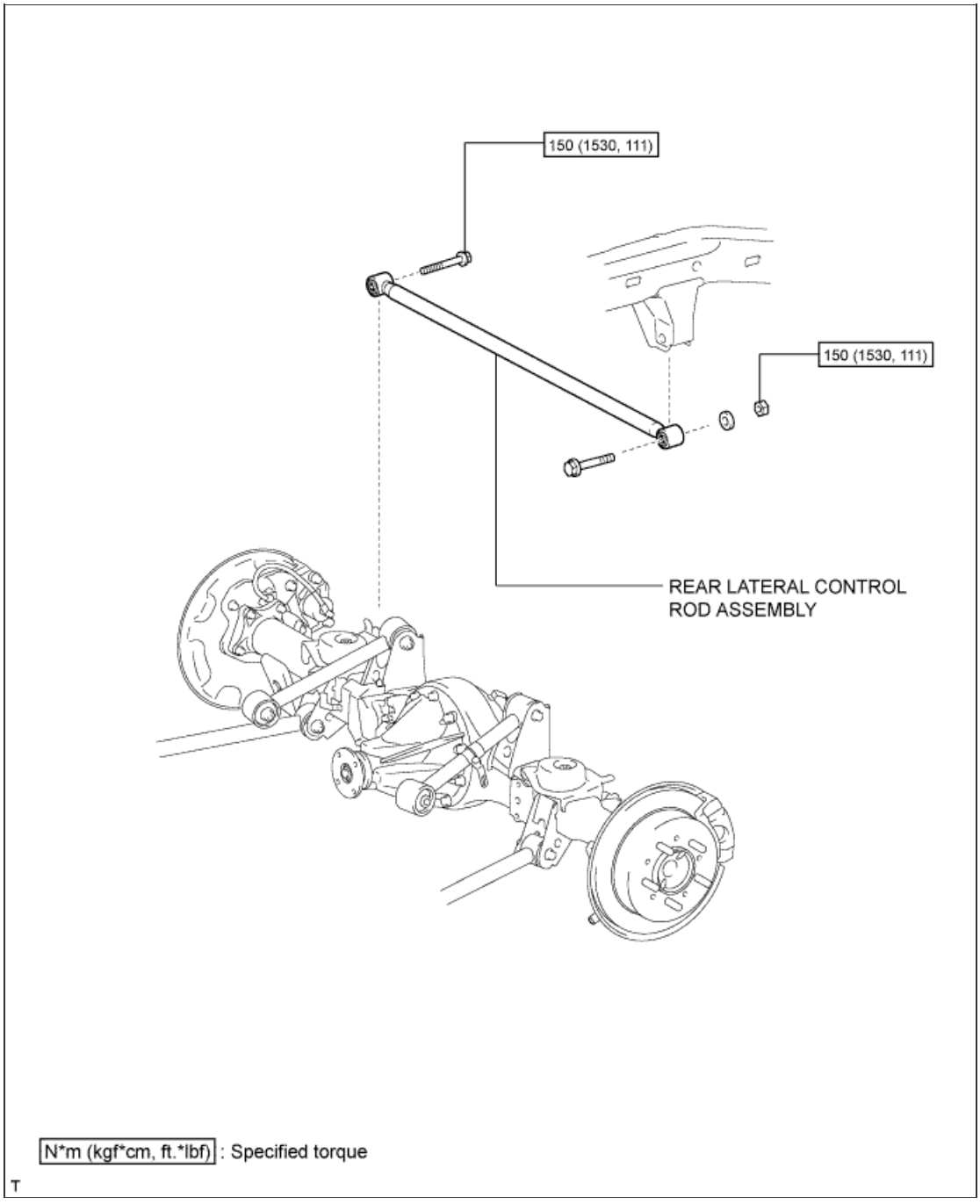
a. Tighten the 2 nuts.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

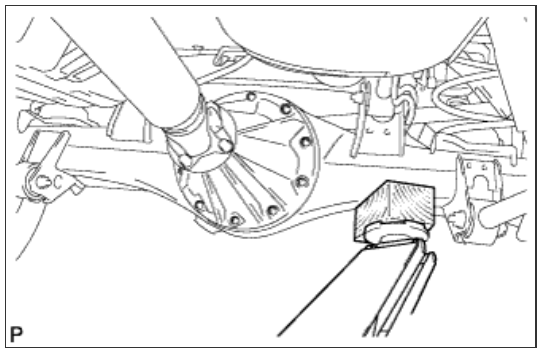
for Preparation Click here



for Preparation Click here

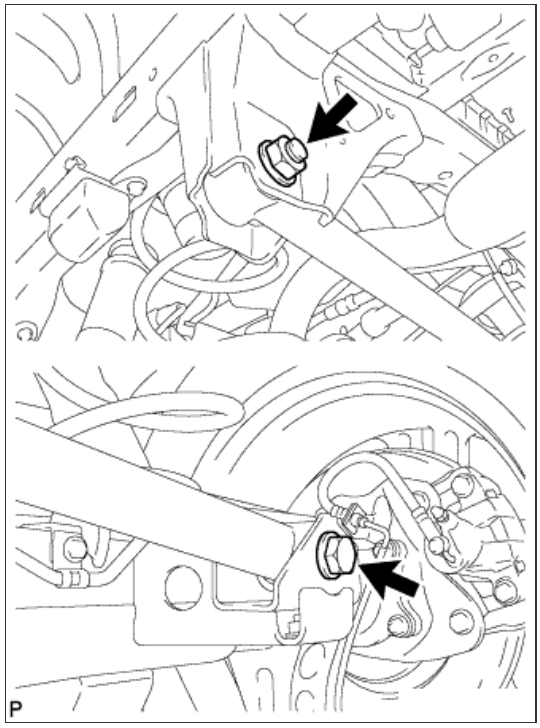
1. SUPPORT REAR AXLE HOUSING ASSEMBLY

a. Support the rear axle housing with a jack using a wooden block to avoid damage.



2. REMOVE REAR LATERAL CONTROL ROD ASSEMBLY

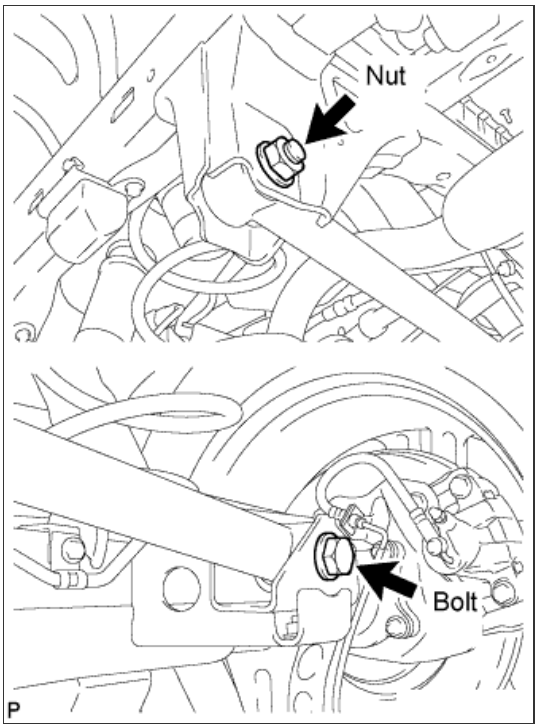
a. Remove the 2 bolts, nut, washer and lateral control rod.



for Preparation Click here

1. TEMPORARILY INSTALL REAR LATERAL CONTROL ROD ASSEMBLY

a. Temporarily install the lateral control rod and washer with the 2 bolts and nut.



2. STABILIZE SUSPENSION

a. Install the rear wheels.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

b. Lower the vehicle.

c. Press down on the vehicle several times to stabilize the suspension.

3. TIGHTEN REAR LATERAL CONTROL ROD ASSEMBLY

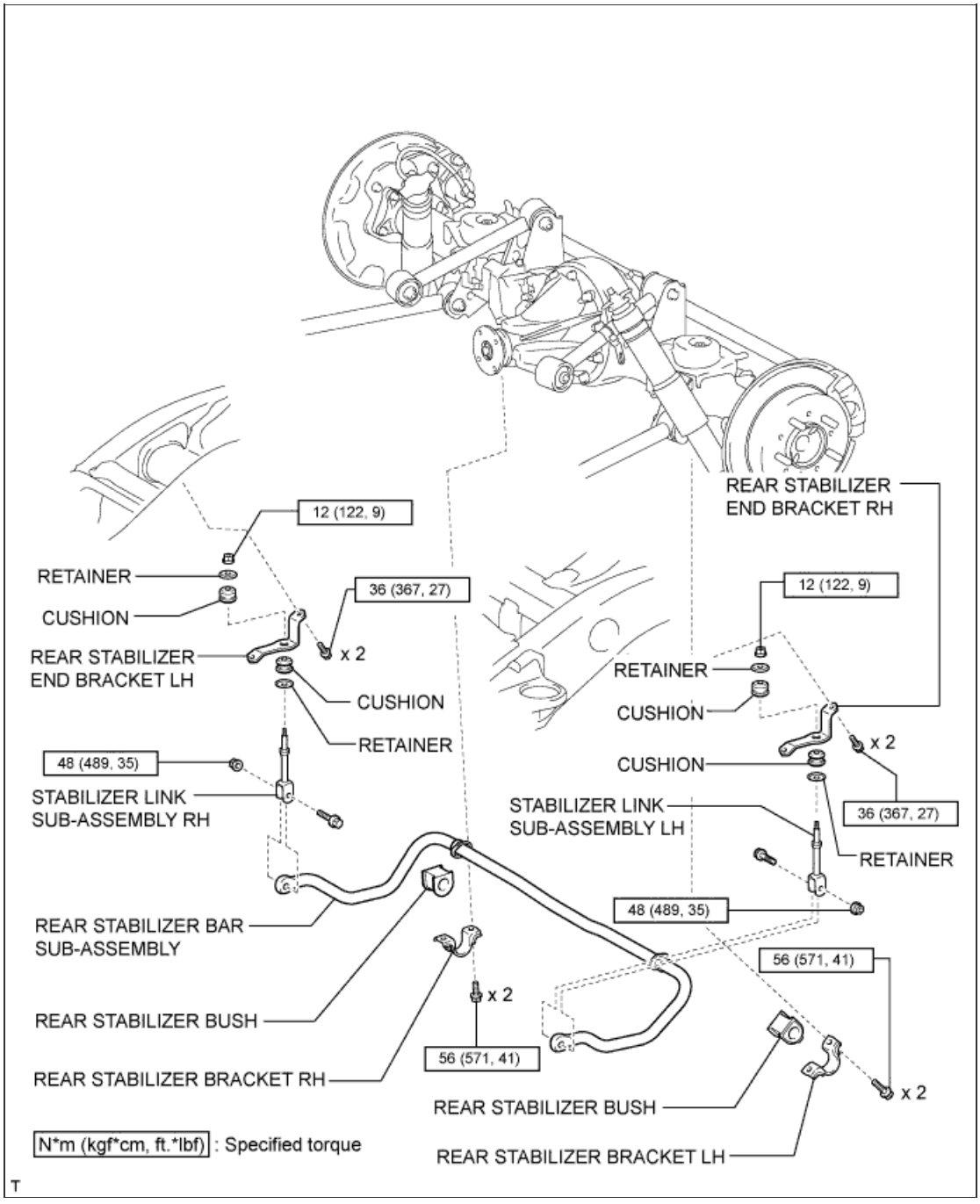
a. Tighten the bolt and nut.

Torque:
150 N*m{ 1530 kgf*cm , 111 ft.*lbf }

NOTICE:

Perform this procedure with all 4 wheels on the ground.

for Preparation Click here

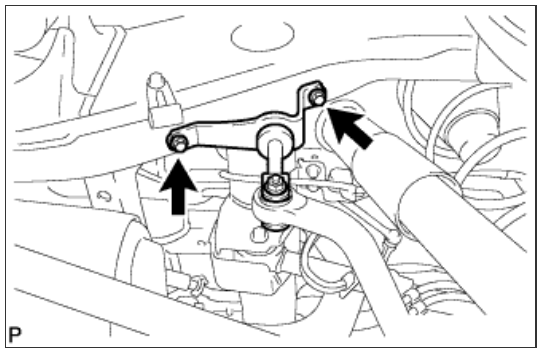


for Preparation Click here

1. REMOVE REAR WHEEL

2. DISCONNECT REAR STABILIZER END BRACKET LH

a. Remove the 2 bolts and disconnect the stabilizer end bracket.



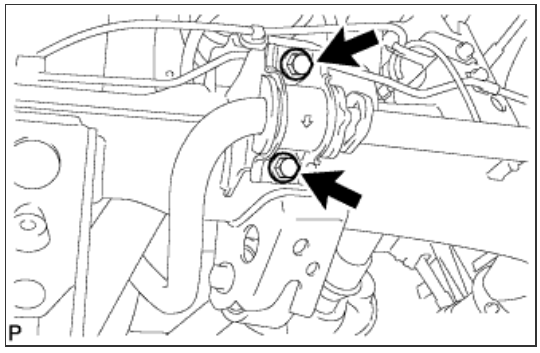
3. DISCONNECT REAR STABILIZER END BRACKET RH

HINT:

Use the same procedures described for the LH side.

4. REMOVE REAR STABILIZER BRACKET LH

a. Remove the 2 bolts and bracket.



5. REMOVE REAR STABILIZER BRACKET RH

HINT:

Use the same procedures described for the LH side.

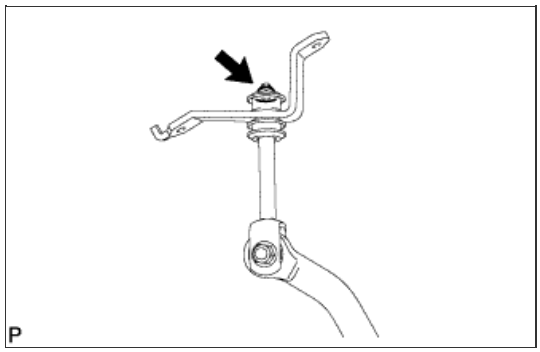
6. REMOVE REAR STABILIZER BAR SUB-ASSEMBLY

a. Remove the rear stabilizer bar from the vehicle.

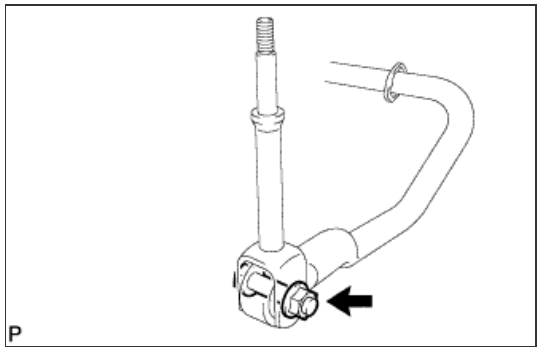
b. Remove the 2 rear stabilizer bushes from the rear stabilizer bar.

7. REMOVE STABILIZER LINK SUB-ASSEMBLY LH

a. Remove the nut, 2 retainers and 2 cushions, and bracket from the stabilizer link.



b. Remove the nut, bolt and stabilizer link.



8. REMOVE STABILIZER LINK SUB-ASSEMBLY RH

HINT:

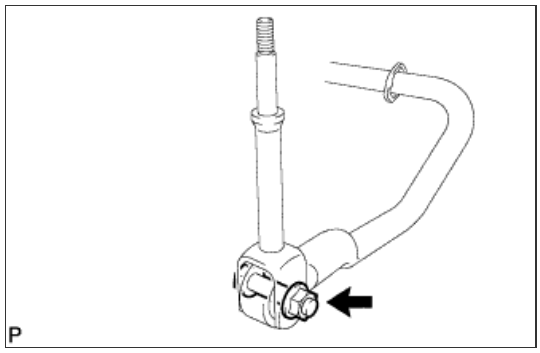
Use the same procedures described for the LH side.

for Preparation Click here

1. INSTALL STABILIZER LINK SUB-ASSEMBLY LH

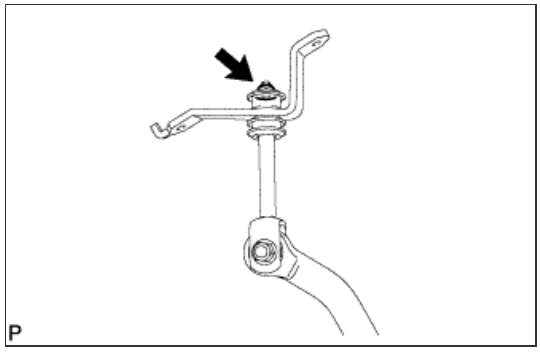
a. Install the stabilizer link to the stabilizer bar with the bolt and nut.

Torque:
48 N*m{ 489 kgf*cm , 35 ft.*lbf }



b. Install the 2 retainers, 2 cushions and bracket with the nut.

Torque:
12 N*m{ 122 kgf*cm , 9 ft.*lbf }



2. INSTALL STABILIZER LINK SUB-ASSEMBLY RH

HINT:

Use the same procedures described for the LH side.

3. INSTALL REAR STABILIZER BAR SUB-ASSEMBLY

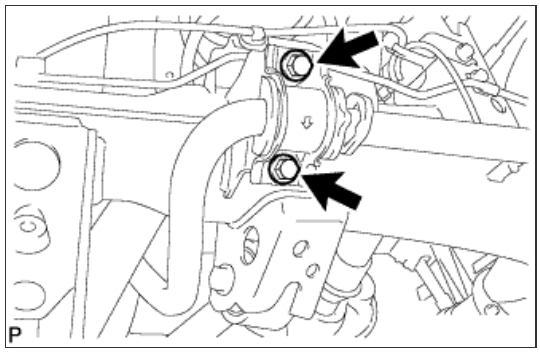
a. Install the 2 rear stabilizer bushes to the rear stabilizer bar.

b. Install the rear stabilizer bar.

4. INSTALL REAR STABILIZER BRACKET LH

a. Install the stabilizer bar bracket with the 2 bolts.

Torque:
56 N*m{ 571 kgf*cm , 41 ft.*lbf }



5. INSTALL REAR STABILIZER BRACKET RH

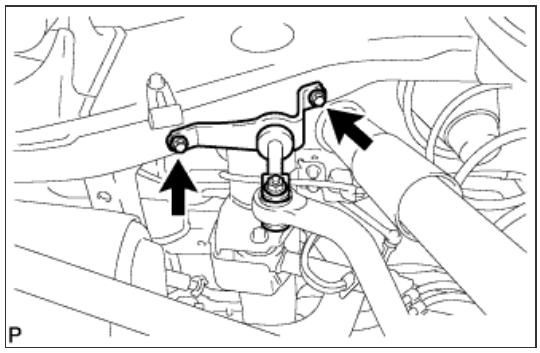
HINT:

Use the same procedures described for the LH side.

6. CONNECT REAR STABILIZER END BRACKET LH

a. Connect the stabilizer end bracket with the 2 bolts.

Torque:
36 N*m{ 367 kgf*cm , 27 ft.*lbf }



7. CONNECT REAR STABILIZER END BRACKET RH

HINT:

Use the same procedures described for the LH side.

8. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

for Preparation Click here

1.TIRE PRESSURE WARNING SYSTEM PRECAUTION

a. It is necessary for the tire pressures to be adjusted periodically because tire pressure decreases naturally over time.

b. In winter, tire pressure may decrease due to low ambient temperatures (tire pressure decreases by approximately 10 kPa (0.1 kgf/cm ^{2}, 1.5 psi) for every 10°C (50°F) drop in the ambient temperature). Therefore, the tire pressure warning system is more likely to indicate a warning if the tire pressures are not adjusted appropriately. If the daily temperature variation is large, add enough so that the tire pressures are suitable under cold conditions. As a result, unnecessary tire pressure warning operation should decrease.

c. Depending on the tire type, the system may not function properly even if the specified wheels are used.

d. To prevent damage to the tire pressure warning valve and transmitter, make sure that the tire pressure warning valve and transmitter does not interfere with the tire bead when installing or removing a tire.

e. To prevent damage to the tire pressure warning valve and transmitter, before disengaging the tire bead or removing the tire from the wheel, drop the tire pressure warning valve and transmitter into the wheel.

f. Always use a new grommet, washer and nut when installing a tire pressure warning valve and transmitter to ensure the sealing performance.

g. When one or more tire pressure warning valve and transmitters or the tire pressure warning ECU and receiver is replaced, the transmitter IDs for all of the tire pressure warning valve and transmitters must be re-registered. Before registering the transmitter ID of the new tire pressure warning valve and transmitter, check the Data List and record all of the transmitter IDs that are already registered.

h. Use only a specified cap. If an unspecified cap is used, it may seize to the tire pressure warning valve and transmitter.

i. The system is disabled in the following conditions (when the condition becomes normal, the system will work properly).

   i. When all of the tires and wheels that have the tire pressure warning valve and transmitters registered with the tire pressure warning ECU and receiver have not been installed.

   ii. When all of the transmitter ID codes are not registered with the tire pressure warning ECU and receiver.

   iii. When the tire pressure is abnormally high (absolute pressure: 480 kPa (4.9 kgf/cm ^{2}, 70 psi) or more; relative pressure: 380 kPa (3.9 kgf/cm^2, 55 psi) or more).

   iv. When the tire pressure warning valve and transmitter battery is depleted.

j. The system may become disabled in the following conditions (when the condition becomes normal, the system will work properly).

   i. When electric devices or facilities using similar radio frequencies are nearby.

   ii. When a wireless device or other equipment operating at a similar frequency is in use in the vehicle.

   iii. When a window tint that affects radio wave signals is installed.

   iv. When there is a lot of snow or ice on the vehicle, in particular, around the wheels or wheel housing.

   v. When non-genuine wheels are used.

   vi. When tire chains are used.

   vii. When aftermarket tire repair sealant is used.

   CAUTION:

   After use of tire repair sealant, replacement of the tire pressure warning valve and transmitter is required to ensure normal system operation. (Normal system operation cannot be ensured by only repairing or replacing the tire.)

for Preparation Click here

1.TIRE PRESSURE WARNING SYSTEM PRECAUTION

a. It is necessary for the tire pressures to be adjusted periodically because tire pressure decreases naturally over time.

b. In winter, tire pressure may decrease due to low ambient temperatures (tire pressure decreases by approximately 10 kPa (0.1 kgf/cm ^{2}, 1.5 psi) for every 10°C (50°F) drop in the ambient temperature). Therefore, the tire pressure warning system is more likely to indicate a warning if the tire pressures are not adjusted appropriately. If the daily temperature variation is large, add enough so that the tire pressures are suitable under cold conditions. As a result, unnecessary tire pressure warning operation should decrease.

c. Depending on the tire type, the system may not function properly even if the specified wheels are used.

d. To prevent damage to the tire pressure warning valve and transmitter, make sure that the tire pressure warning valve and transmitter does not interfere with the tire bead when installing or removing a tire.

e. To prevent damage to the tire pressure warning valve and transmitter, before disengaging the tire bead or removing the tire from the wheel, drop the tire pressure warning valve and transmitter into the wheel.

f. Always use a new grommet, washer and nut when installing a tire pressure warning valve and transmitter to ensure the sealing performance.

g. When one or more tire pressure warning valve and transmitters or the tire pressure warning ECU and receiver is replaced, the transmitter IDs for all of the tire pressure warning valve and transmitters must be re-registered. Before registering the transmitter ID of a new tire pressure warning valve and transmitter, check the Data List and record all of the transmitter IDs that are already registered.

h. Use only a specified cap. If an unspecified cap is used, it may seize to the tire pressure warning valve and transmitter.

i. The system is disabled in the following conditions (when the condition becomes normal, the system will work properly).

   i. When all of the tires and wheels that have the tire pressure warning valve and transmitters registered with the tire pressure warning ECU and receiver have not been installed.

   ii. When all of the transmitter ID codes are not registered with the tire pressure warning ECU and receiver.

   iii. When the tire pressure is abnormally high (absolute pressure: 480 kPa (4.9 kgf/cm ^{2}, 70 psi) or more; relative pressure: 380 kPa (3.9 kgf/cm^2, 55 psi) or more).

   iv. When the tire pressure warning valve and transmitter battery is depleted.

j. The system may become disabled in the following conditions (when the condition becomes normal, the system will work properly).

   i. When electric devices or facilities using similar radio frequencies are nearby.

   ii. When a wireless device or other equipment operating at a similar frequency is in use in the vehicle.

   iii. When a window tint that affects radio wave signals is installed.

   iv. When there is a lot of snow or ice on the vehicle, in particular, around the wheels or wheel housing.

   v. When non-genuine wheels are used.

   vi. When tire chains are used.

   vii. When aftermarket tire repair sealant is used.

   CAUTION:

   After use of tire repair sealant, replacement of the tire pressure warning valve and transmitter is required to ensure normal system operation. (Normal system operation cannot be ensured by only repairing or replacing the tire.)

k. w/ ID Switching Function:

   i. If ID switching (Main ←→ 2nd) is performed, the data stored inside the tire pressure warning ECU and receiver is reset.

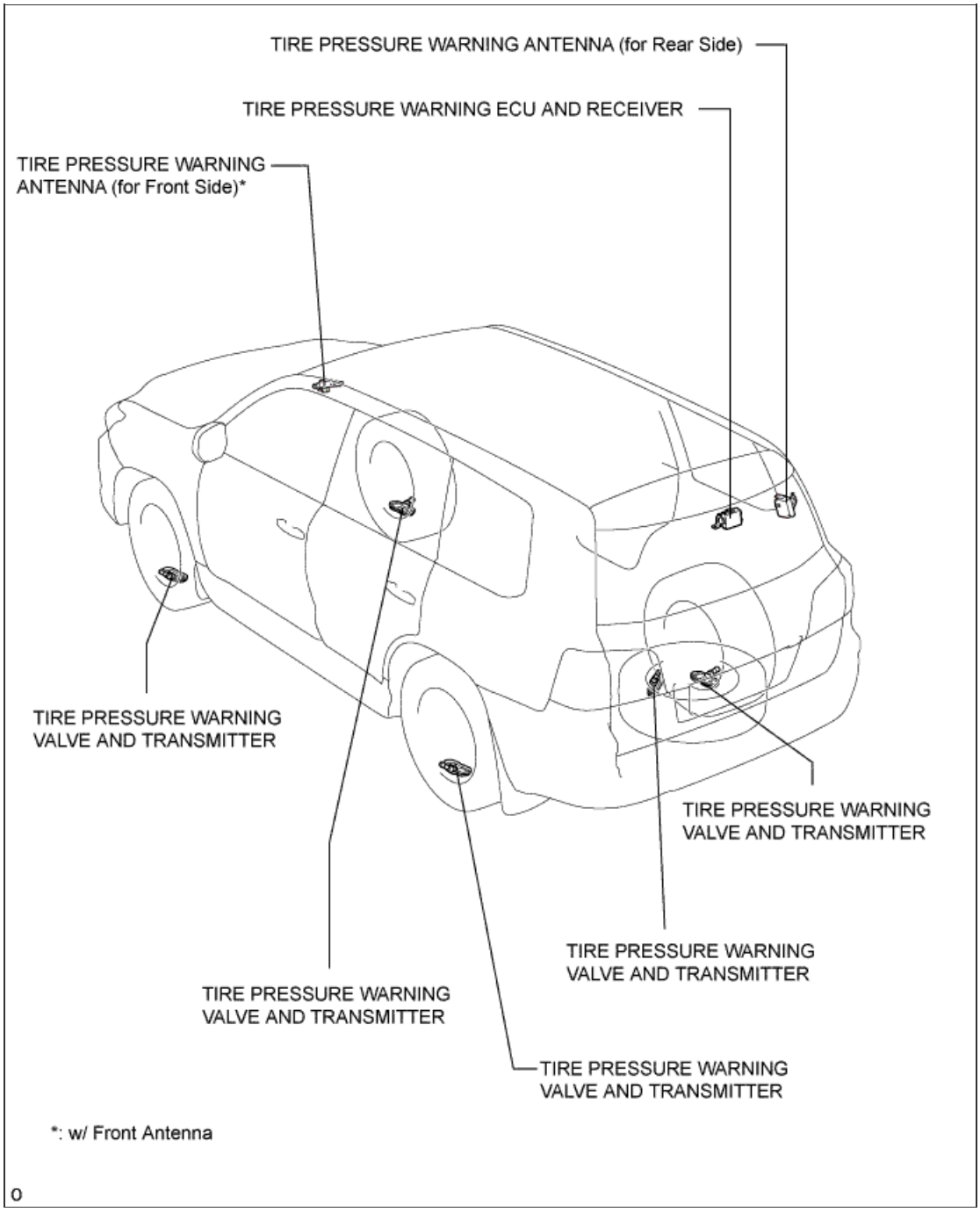
   NOTICE:

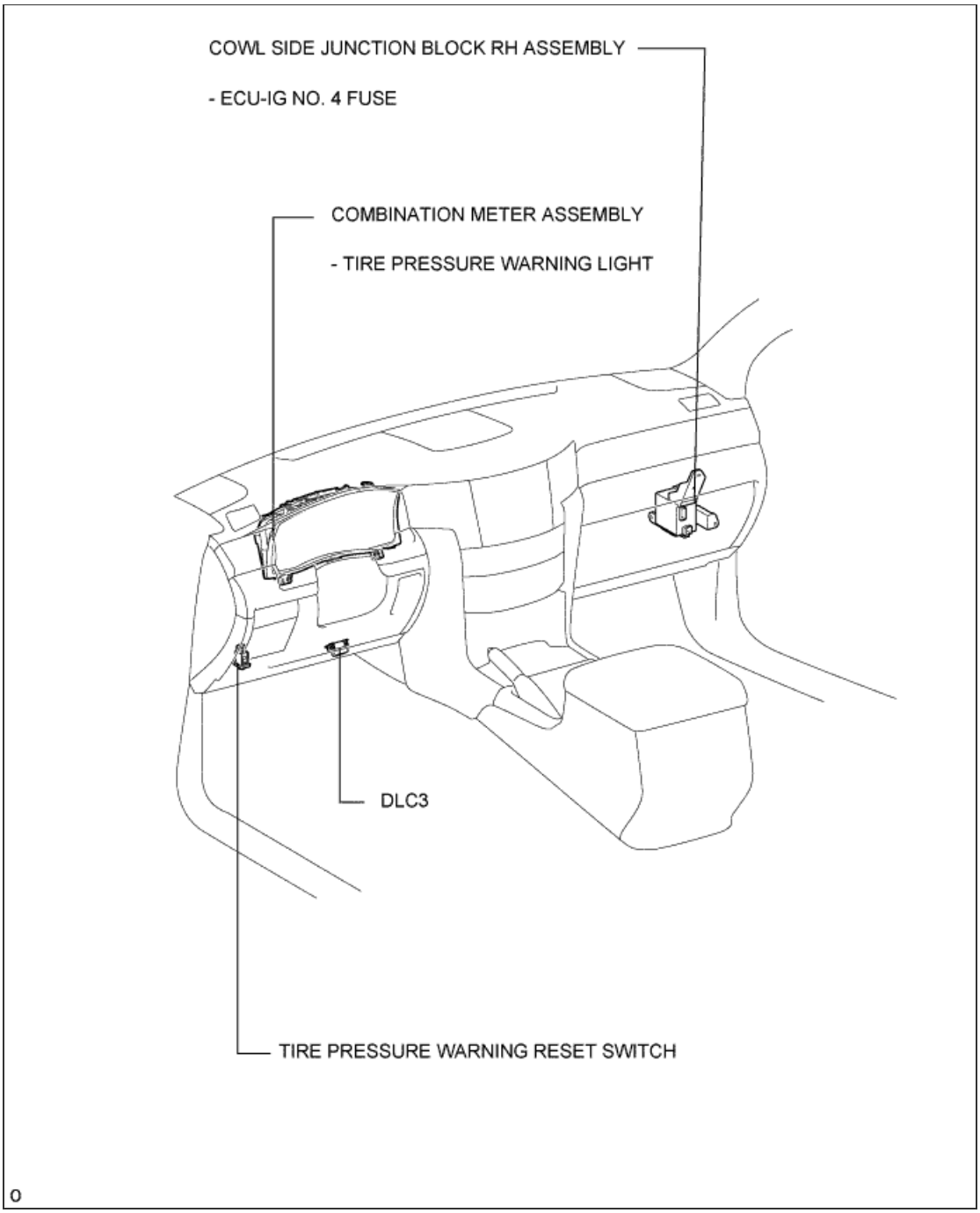
   If the tire pressure warning system is malfunctioning, make sure to perform troubleshooting for the system before performing ID switching (Main ←→ 2nd). (Make sure to perform ID switching after the malfunction has been resolved.)

   ii. It is not possible to perform ID switching if only the main set of tires is registered.

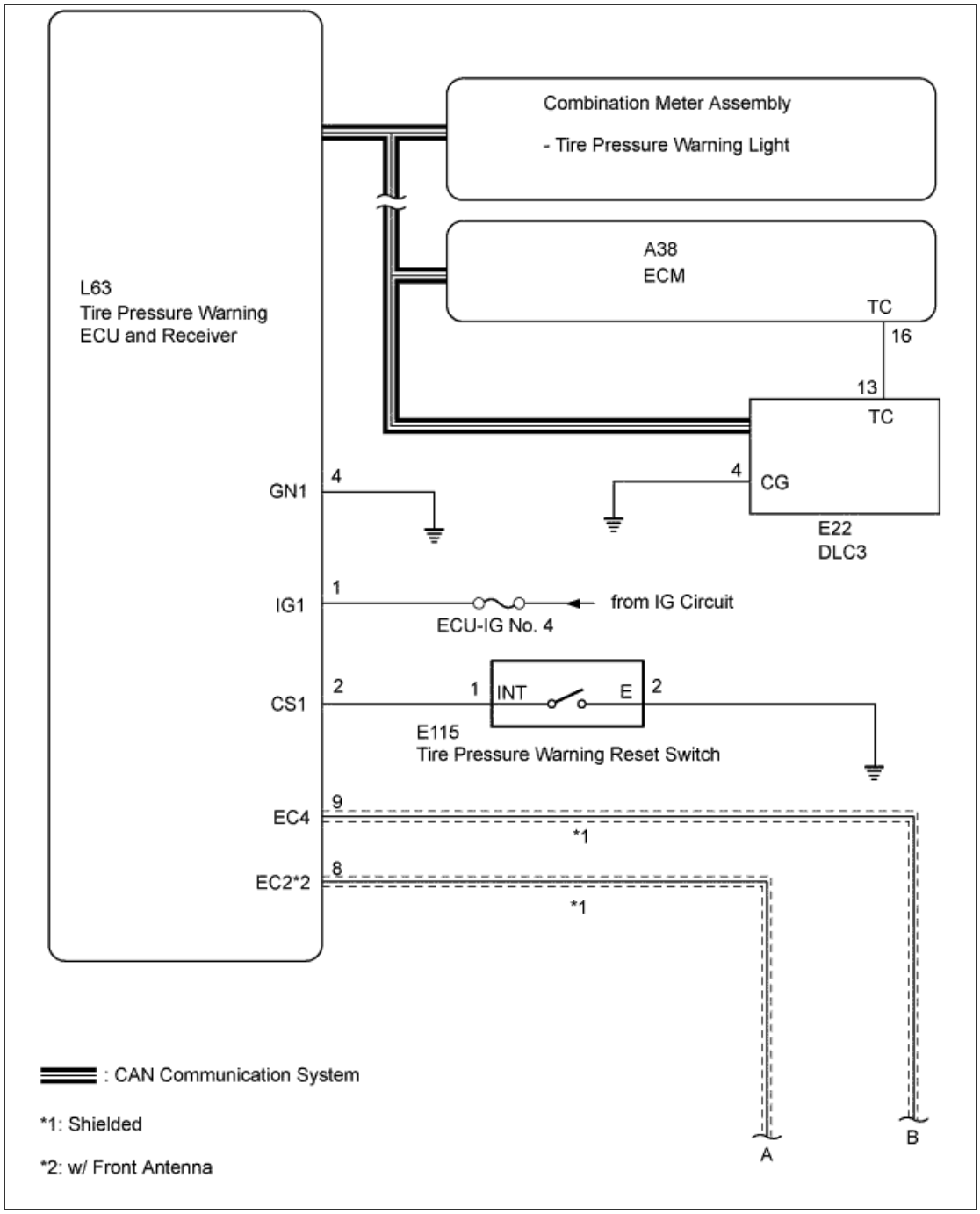
   iii. Whether the vehicle is equipped with an ID switching function or not can be determined by reading the Data List (Click here).

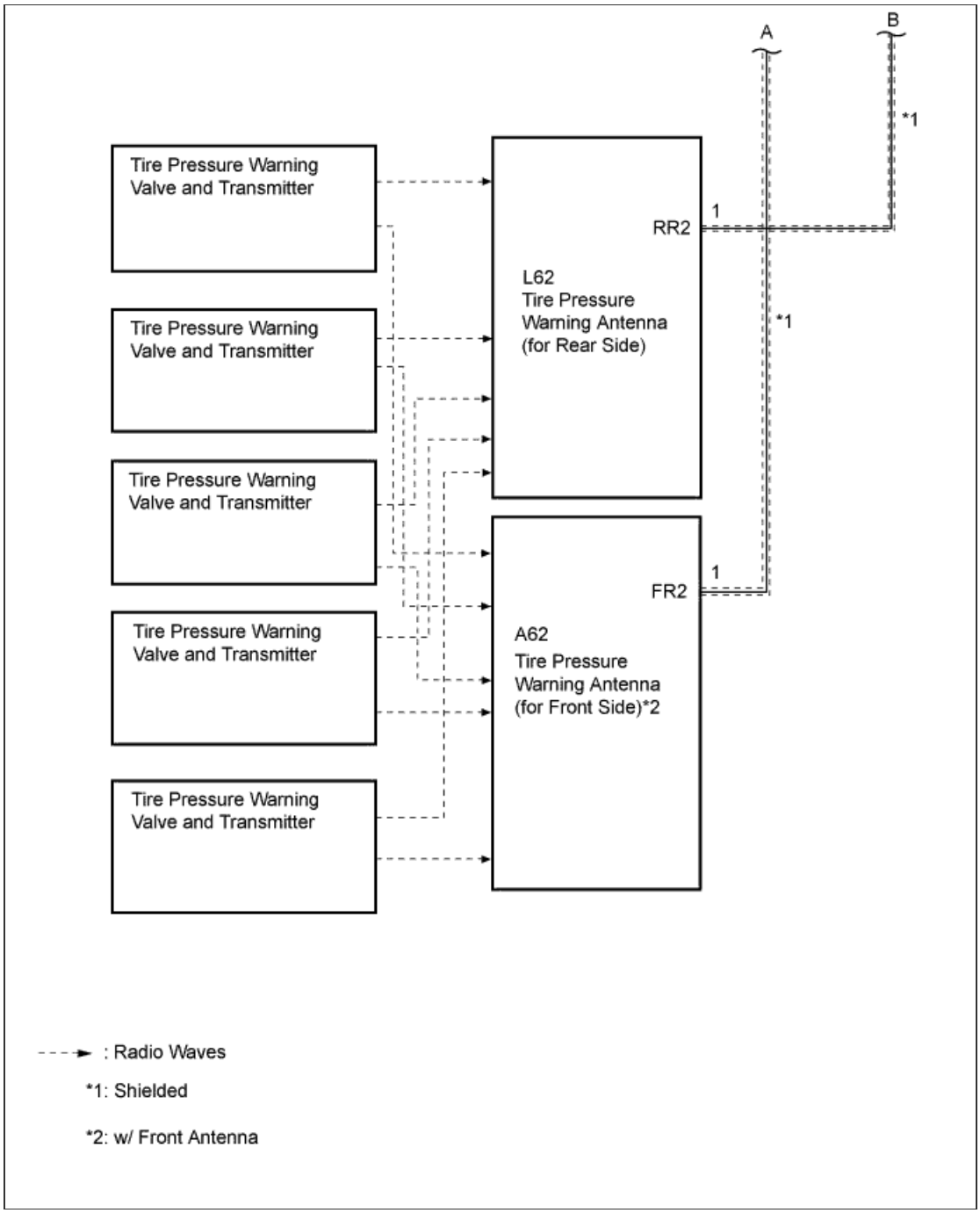
for Preparation Click here




COWL SIDE JUNCTION BLOCK RH ASSEMBLY
- ECU-IG NO. 4 FUSE
COMBINATION METER ASSEMBLY
- TIRE PRESSURE WARNING LIGHT
DLC3
TIRE PRESSURE WARNING RESET SWITCH

for Preparation Click here





HINT:

Each tire pressure warning valve and transmitter sends its transmitter ID, temperature and tire pressure information to the tire pressure warning ECU and receiver.

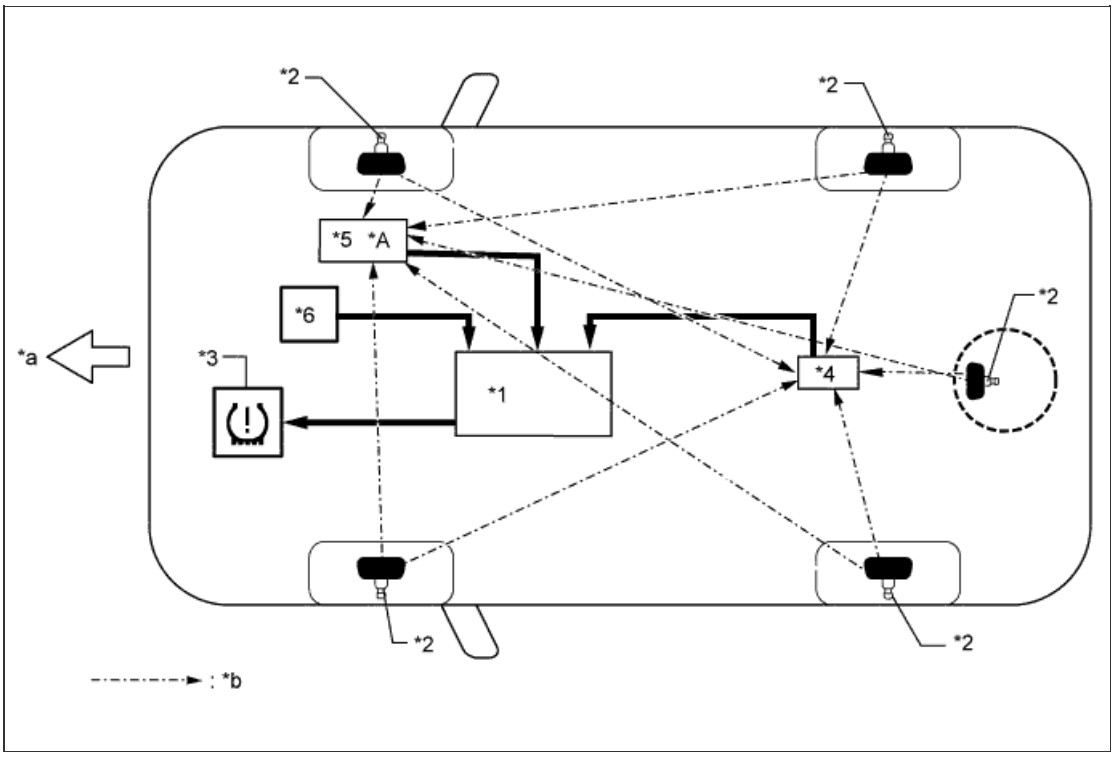
Transmitting ECU (Transmitter)	Receiving ECU	Signal	Communication Method
Combination Meter Assembly	Tire Pressure Warning ECU and Receiver	Vehicle speed signal	CAN communication line

for Preparation Click here

DESCRIPTION OF SYSTEM

a. When the tire pressure warning system detects that the tire pressure of a tire becomes lower than the threshold, it will inform the driver using a warning light.

b. The tire pressure warning antenna receives the transmitter ID, temperature and tire pressure information from the tire pressure warning valve and transmitters shown in the following illustration. The tire pressure warning ECU and receiver uses this information to determine when the pressure in one of the tires has dropped.



Text in Illustration

*A	w/ Front Antenna	-	-
*1	Tire Pressure Warning ECU and Receiver	*2	Tire Pressure Warning Valve and Transmitter
*3	Combination Meter Assembly - Tire Pressure Warning Light	*4	Tire Pressure Warning Antenna (for Rear Side)
*5	Tire Pressure Warning Antenna (for Front Side)	*6	Tire Pressure Warning Reset Switch
*a	Front	*b	Radio Waves

DESCRIPTION OF REGISTRATION

a. When tires and wheels are replaced, always ensure that each transmitter ID is correctly registered.

b. When one or more tire pressure warning valve and transmitters or the tire pressure warning ECU and receiver is replaced, the transmitter IDs for all of the tire pressure warning valve and transmitters must be re-registered. Before registering the transmitter ID of the new tire pressure warning valve and transmitter, check the Data List and record all of the transmitter IDs that are already registered.

TIRE PRESSURE WARNING RESET SWITCH

a. By operating the tire pressure warning reset switch, the tire pressure warning ECU and receiver can be set to issue a warning at an inflation pressure that corresponds to the type of tires fitted to the vehicle. Therefore, the warning threshold must be set to the proper value in order to comply with local regulations.

b. Operate the tire pressure warning reset switch only after the inflation pressures of all tires have been adjusted on the vehicle.

DESCRIPTION OF INITIALIZATION

a. During initialization, the tire pressure warning valve and transmitters measure the inflation pressure of the tires, and register the signals that are transmitted into the tire pressure warning ECU and receiver at a frequency of about once per minute. The initialization process is completed when signals from all tires have been received.

b. Perform initialization in the following cases:

i. Before delivery of a new vehicle.

ii. After replacement of the tire pressure warning ECU and receiver*.

iii. After replacement of a tire pressure warning valve and transmitter*.

iv. When the specified tire pressure changes due to the use of a different size or type of tire.

v. When the specified tire pressure changes due to a change in the vehicle load, the speed range that the vehicle will be used in, etc.

vi. When a tire rotation is performed and the specified tire pressures are different for the front and rear of the vehicle.

HINT:

*: Perform initialization after the transmitter ID registration is completed.

FUNCTION OF MAIN COMPONENTS

Component	Function
Tire Pressure Warning ECU and Receiver	• Receives the data from the tire pressure warning antenna and monitors the tire pressure. • When the tire pressure warning ECU and receiver detects a drop in the tire pressure, a system malfunction, or initialization mode, it outputs the respective signal to the combination meter. • When the tire pressure warning ECU and receiver detects that the vehicle speed signal is lost, it determines that the vehicle is being driven.
Tire Pressure Warning Valve and Transmitter	Detects the pressure and internal temperature of the tire and transmits the measured values and the ID code to the tire pressure warning antenna.
• Tire Pressure Warning Antenna (for Rear Side) • Tire Pressure Warning Antenna (for Front Side)*	Receives the tire pressure warning valve and transmitter signal and transmits this data to the tire pressure warning ECU and receiver.
Tire Pressure Warning Reset Switch	The appropriate air pressures of the tires currently mounted on the vehicle are stored in the tire pressure warning ECU and receiver by operating the tire pressure warning reset switch.
Combination Meter Assembly	Transmits the vehicle speed signal to the tire pressure warning ECU and receiver.
Tire Pressure Warning Light	• Illuminates after blinking for 1 minute to warn the driver in accordance with the signal from the tire pressure warning ECU and receiver. • Displays 2-digit Diagnostic Trouble Codes (DTC).

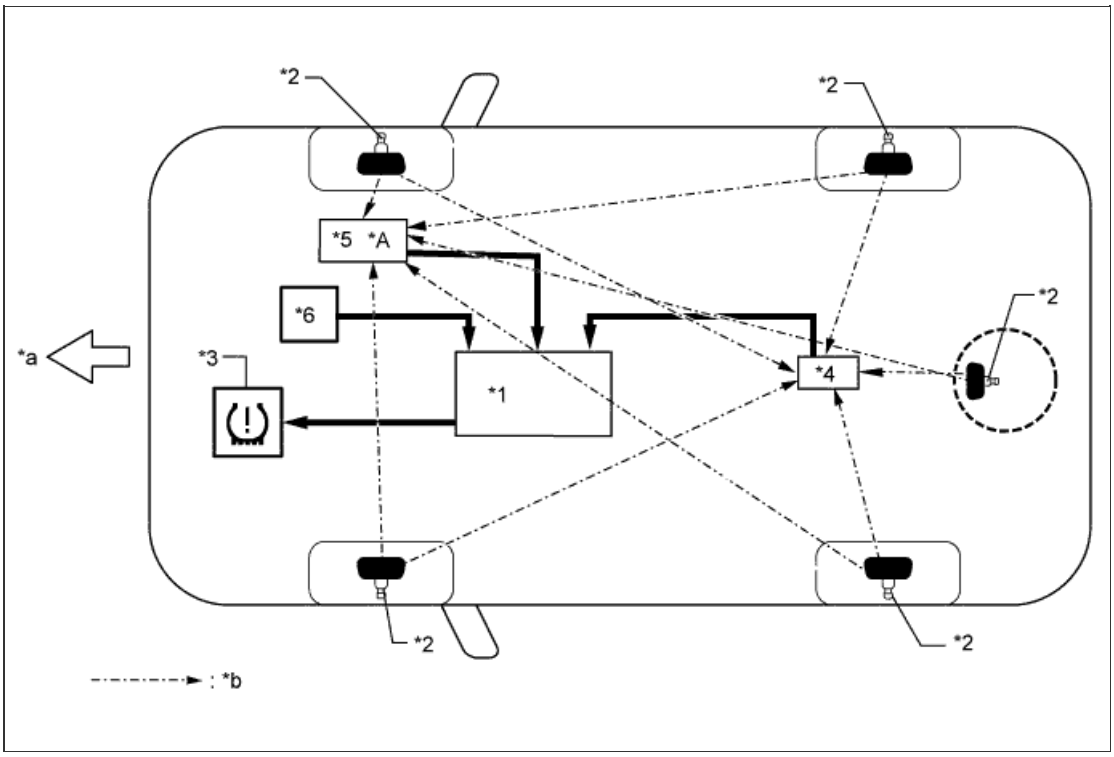
*: w/ Front Antenna

for Preparation Click here

DESCRIPTION OF SYSTEM

a. When the tire pressure warning system detects that the tire pressure of a tire becomes lower than the threshold, it will inform the driver using a warning light.

b. The tire pressure warning antenna receives the transmitter ID, temperature and tire pressure information from the tire pressure warning valve and transmitters shown in the following illustration. The tire pressure warning ECU and receiver uses this information to determine when the pressure in one of the tires has dropped.



Text in Illustration

*A	w/ Front Antenna	-	-
*1	Tire Pressure Warning ECU and Receiver	*2	Tire Pressure Warning Valve and Transmitter
*3	Combination Meter Assembly - Tire Pressure Warning Light	*4	Tire Pressure Warning Antenna (for Rear Side)
*5	Tire Pressure Warning Antenna (for Front Side)	*6	Tire Pressure Warning Reset Switch
*a	Front	*b	Radio Waves

DESCRIPTION OF REGISTRATION

a. When tires and wheels are replaced, always ensure that each transmitter ID is correctly registered.

b. When one or more tire pressure warning valve and transmitters or the tire pressure warning ECU and receiver is replaced, the transmitter IDs for all of the tire pressure warning valve and transmitters must be re-registered. Before registering the transmitter ID of a new tire pressure warning valve and transmitter, check the Data List and record all of the transmitter IDs that are already registered.

TIRE PRESSURE WARNING RESET SWITCH

a. By operating the tire pressure warning reset switch, the tire pressure warning ECU and receiver can be set to issue a warning at an inflation pressure that corresponds to the type of tires fitted to the vehicle. Therefore, the warning threshold must be set to the proper value in order to comply with local regulations.

b. Operate the tire pressure warning reset switch only after the inflation pressures of all tires have been adjusted on the vehicle.

DESCRIPTION OF INITIALIZATION

a. During initialization, the tire pressure warning valve and transmitters measure the inflation pressure of the tires, and register the signals that are transmitted into the tire pressure warning ECU and receiver at a frequency of about once per minute. The initialization process is completed when signals from all tires have been received.

b. Perform initialization in the following cases:

i. Before delivery of a new vehicle.

ii. After replacement of the tire pressure warning ECU and receiver*.

iii. After replacement of a tire pressure warning valve and transmitter*.

iv. When the specified tire pressure changes due to the use of a different size or type of tire.

v. When the specified tire pressure changes due to a change in the vehicle load, the speed range that the vehicle will be used in, etc.

vi. When a tire rotation is performed and the specified tire pressures are different for the front and rear of the vehicle.

HINT:

*: Perform initialization after the transmitter ID registration is completed.

DESCRIPTION OF ID SWITCHING FUNCTION (w/ ID Switching Function)

a. By designating the ID registration location, it is possible to register transmitter IDs for both the main and 2nd sets of tires.

b. If IDs are registered for both the main and 2nd tire sets, it is possible to switch between the two sets of tires by pressing the tire pressure warning reset switch (Click here).

NOTICE:

Be careful as the method to perform ID switching differs from the method to perform initialization.

c. When reading the status for a registered ID, it is only possible to read the ID information for the selected set of tires.

HINT:

In order to read the IDs registered for the main tire set, it is necessary to set the ID selection setting to "Main". Likewise, it is necessary to set the ID selection setting to "2nd" in order to read IDs registered for the 2nd set of tires.

FUNCTION OF MAIN COMPONENTS

Component	Function
Tire Pressure Warning ECU and Receiver	• Receives the data from the tire pressure warning antenna and monitors the tire pressure. • When the tire pressure warning ECU and receiver detects a drop in the tire pressure, a system malfunction, or initialization mode, it outputs the respective signal to the combination meter. • When the tire pressure warning ECU and receiver detects that the vehicle speed signal is lost, it determines that the vehicle is being driven.
Tire Pressure Warning Valve and Transmitter	Detects the pressure and internal temperature of the tire and transmits the measured values and the ID code to the tire pressure warning antenna.
• Tire Pressure Warning Antenna (for Rear Side) • Tire Pressure Warning Antenna (for Front Side)*1	Receives the tire pressure warning valve and transmitter signal and transmits this data to the tire pressure warning ECU and receiver.
Tire Pressure Warning Reset Switch	• Stores the warning threshold determined by the current tire pressure as the set pressure in the tire pressure warning ECU and receiver when operated. • Pressing this switch performs ID switching*2.
Combination Meter Assembly	Transmits the vehicle speed signal to the tire pressure warning ECU and receiver.
Tire Pressure Warning Light	• Illuminates after blinking for 1 minute to warn the driver in accordance with the signal from the tire pressure warning ECU and receiver. • Displays 2-digit Diagnostic Trouble Codes (DTC).

*1: w/ Front Antenna

*2: w/ ID Switching Function

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the tire pressure warning system.**
- ***: Use the GTS.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.ADJUST TIRE PRESSURE*

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Set the pressure of each tire to the specified value (Click here).

NOTICE:

Make sure the tires are cooled down when adjusting the tire pressure.

f. Display "ID Tire Inflation Pressure" in the Data List and check that tire pressure data matches the adjusted tire pressure.

HINT:

It takes a few minutes to display the updated tire pressure data.

g. Perform initialization (Click here).

HINT:

for ECE-R64 Type:

The warning threshold value changes depending on the driving conditions during initialization. As a result, the tire pressure warning light may not turn off even if the tire pressure is adjusted to the specified pressure.

Result:

Condition	Proceed to
Tire pressure warning light remains on	A
Tire pressure warning light goes off	B

B. GO TO STEP 9

A

3.CHECK ECU CONNECTED TO CAN BUS*

a. Check the ECUs connected to the CAN bus (Click here).

Result:

Result	Proceed to
No malfunction appears	A
Malfunction appears	B

B. GO TO CAN COMMUNICATION SYSTEM (**Click here**)

A

4.CHECK FOR DTC*

a. Check for DTCs (Click here).

Result:

Result	Proceed to
DTC is output	A
DTC is not output	B

B. GO TO STEP 6

A

5.DTC CHART

a. Refer to Diagnostic Trouble Code Chart (Click here).

NEXT

GO TO STEP 8

6.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

NEXT

7.CIRCUIT INSPECTION*

a. Refer to Electronic Circuit Inspection Procedure (Click here).

NEXT

8.REPAIR OR REPLACE

a. Repair or replace parts based on the diagnosis result.

NEXT

9.CONFIRMATION TEST*

a. Check the Data List to confirm that the tire inflation pressure has been received (Click here).

b. Perform initialization (Click here).

c. Confirm that the initialization has been completed.

NEXT

END

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the tire pressure warning system.**
- ***: Use the GTS.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.ADJUST TIRE PRESSURE*

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Set the pressure of each tire to the specified value (Click here).

NOTICE:

Make sure the tires are cooled down when adjusting the tire pressure.

f. Display "ID Tire Inflation Pressure" in the Data List and check that tire pressure data matches the adjusted tire pressure.

HINT:

It takes a few minutes to display the updated tire pressure data.

g. Perform initialization (Click here).

HINT:

for ECE-R64 Type:

The warning threshold value changes depending on the driving conditions during initialization. As a result, the tire pressure warning light may not turn off even if the tire pressure is adjusted to the specified pressure.

Result:

Condition	Proceed to
Tire pressure warning light remains on	A
Tire pressure warning light goes off	B

B. GO TO STEP 9

A

3.CHECK ECU CONNECTED TO CAN BUS*

a. Check the ECUs connected to the CAN bus (Click here).

Result:

Result	Proceed to
No malfunction appears	A
Malfunction appears	B

B. GO TO CAN COMMUNICATION SYSTEM (**Click here**)

A

4.CHECK FOR DTC*

a. Check for DTCs (Click here).

Result:

Result	Proceed to
DTC is output	A
DTC is not output	B

B. GO TO STEP 6

A

5.DTC CHART

a. Refer to Diagnostic Trouble Code Chart (Click here).

NEXT

GO TO STEP 8

6.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

NEXT

7.CIRCUIT INSPECTION*

a. Refer to Electronic Circuit Inspection Procedure (Click here).

NEXT

8.REPAIR OR REPLACE

a. Repair or replace parts based on the diagnosis result.

NEXT

9.CONFIRMATION TEST*

a. Check the Data List to confirm that the tire inflation pressure has been received (Click here).

b. Perform initialization (Click here).

c. Confirm that the initialization has been completed.

NEXT

END

for Preparation Click here

HINT:

- **Use the following procedure to troubleshoot the tire pressure warning system.**
- ***: Use the GTS.**

1.VEHICLE BROUGHT TO WORKSHOP

NEXT

2.ADJUST TIRE PRESSURE*

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Set the pressure of each tire to the specified value (Click here).

NOTICE:

Make sure the tires are cooled down when adjusting the tire pressure.

f. Display "ID Tire Inflation Pressure" in the Data List and check that tire pressure data matches the adjusted tire pressure.

HINT:

It takes a few minutes to display the updated tire pressure data.

g. Perform initialization (Click here).

HINT:

for ECE-R64 Type:

The warning threshold value changes depending on the driving conditions during initialization. As a result, the tire pressure warning light may not turn off even if the tire pressure is adjusted to the specified pressure.

Result:

Condition	Proceed to
Tire pressure warning light remains on	A
Tire pressure warning light goes off	B

B. GO TO STEP 9

A

3.CHECK ECU CONNECTED TO CAN BUS*

a. Check the ECUs connected to the CAN bus (Click here).

Result:

Result	Proceed to
No malfunction appears	A
Malfunction appears	B

B. GO TO CAN COMMUNICATION SYSTEM (**Click here**)

A

4.CHECK FOR DTC*

a. Check for DTCs (Click here).

Result:

Result	Proceed to
DTC is output	A
DTC is not output	B

B. GO TO STEP 6

A

5.DTC CHART

a. Refer to Diagnostic Trouble Code Chart (Click here).

NEXT

GO TO STEP 8

6.PROBLEM SYMPTOMS TABLE

a. Refer to Problem Symptoms Table (Click here).

NEXT

7.CIRCUIT INSPECTION*

a. Refer to Electronic Circuit Inspection Procedure (Click here).

NEXT

8.REPAIR OR REPLACE

a. Repair or replace parts based on the diagnosis result.

NEXT

9.CONFIRMATION TEST*

a. Check the Data List to confirm that the tire inflation pressure has been received (Click here).

b. Perform initialization (Click here).

c. Confirm that the initialization has been completed.

NEXT

END

for Preparation Click here

1. BEFORE REGISTRATION

NOTICE:

The transmitter ID is written on the tire pressure warning valve and transmitter. It is not possible to read the transmitter ID after installing the tire to the wheel. Therefore, make a note of the transmitter ID before installing the tire.

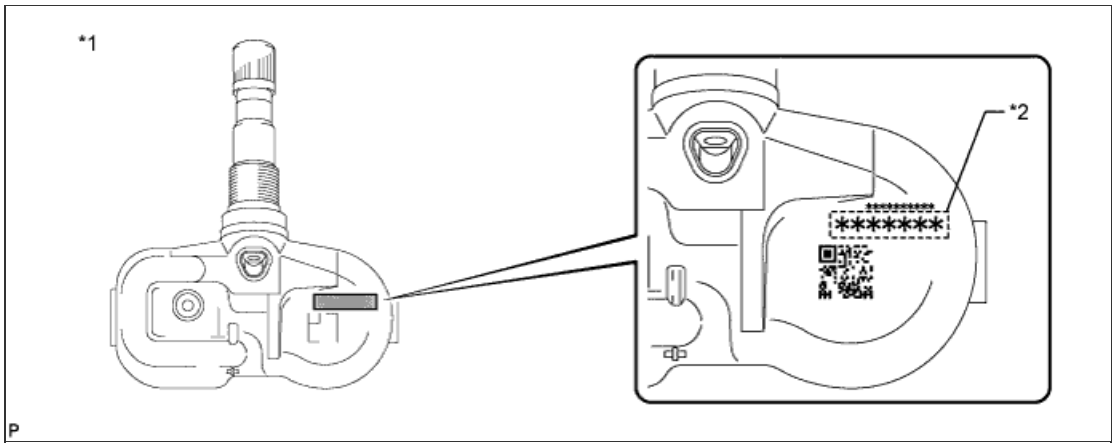
a. In case of tire pressure warning ECU and receiver replacement:

i. Read the registered transmitter IDs that are stored in the old ECU using the GTS and note them down.

ii. If reading the stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning ECU and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valve and transmitters.

b. In case of tire pressure warning valve and transmitter replacement:

i. Take a note of the 7 digit number (transmitter ID) written on the tire pressure warning valve and transmitter.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7 Digit Number)

2. REGISTER TRANSMITTER ID

HINT:

- **The previously registered IDs will be cleared from memory when the registration is completed.**
- **If the ID registration step is not completed within 300 seconds, ID registration will be canceled.**

a. Set the air pressure of all tires to the specified value(s) (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG) and the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / ID Registration.

f. Perform the procedure displayed on the GTS.

3. CONFIRMATION OF TRANSMITTER ID REGISTRATION

NOTICE:

- **It may take up to a few minutes to update the tire pressure data. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If the IDs have not been registered, DTC C2171/71 is stored in the tire pressure warning ECU and receiver after 3 minutes or more.**
- **If normal pressure values are displayed, the IDs have been registered correctly.**
- **If the tire pressure values are not displayed after a few minutes, the IDs may be incorrect or the system may have a malfunction.**
- **After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates. When the tire pressure warning ECU and receiver successfully receives signals from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.**

a. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

b. Read the "ID Tire Inflation Pressure" values.

c. Confirm that the tire pressure data of all tires is displayed on the GTS screen.

for Preparation Click here

1. BEFORE REGISTRATION

NOTICE:

The transmitter ID is written on the tire pressure warning valve and transmitter. It is not possible to read the transmitter ID after installing the tire to the wheel. Therefore, make a note of the transmitter ID before installing the tire.

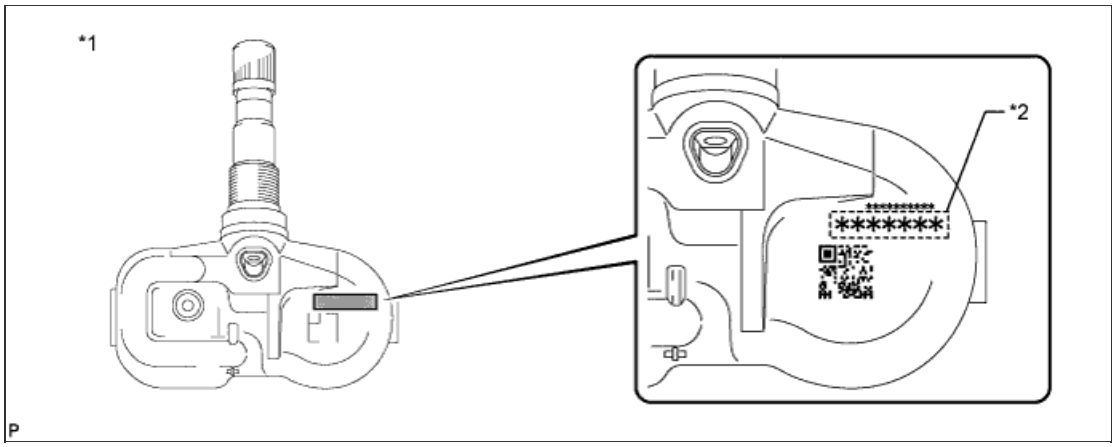
a. In case of tire pressure warning ECU and receiver replacement:

i. Read the registered transmitter IDs that are stored in the old ECU using the GTS and note them down.

ii. If reading the stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning ECU and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valve and transmitters.

b. In case of tire pressure warning valve and transmitter replacement:

i. Take a note of the 7 digit number (transmitter ID) written on the tire pressure warning valve and transmitter.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7 Digit Number)

2. REGISTER TRANSMITTER ID

HINT:

- **The previously registered IDs will be cleared from memory when the registration is completed.**
- **If the ID registration step is not completed within 300 seconds, ID registration will be canceled.**

a. Set the air pressure of all tires to the specified value(s) (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG) and the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / ID Registration.

f. Perform the procedure displayed on the GTS.

3. CONFIRMATION OF TRANSMITTER ID REGISTRATION

NOTICE:

- **It may take up to a few minutes to update the tire pressure data. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If the IDs have not been registered, DTC C2171/71 is stored in the tire pressure warning ECU and receiver after 3 minutes or more.**
- **If normal pressure values are displayed, the IDs have been registered correctly.**
- **If the tire pressure values are not displayed after a few minutes, the IDs may be incorrect or the system may have a malfunction.**
- **After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates. When the tire pressure warning ECU and receiver successfully receives signals from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.**

a. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

b. Read the "ID Tire Inflation Pressure" values.

c. Confirm that the tire pressure data of all tires is displayed on the GTS screen.

for Preparation Click here

1. BEFORE REGISTRATION

NOTICE:

The transmitter ID is written on the tire pressure warning valve and transmitter. It is not possible to read the transmitter ID after installing the tire to the wheel. Therefore, make a note of the transmitter ID before installing the tire.

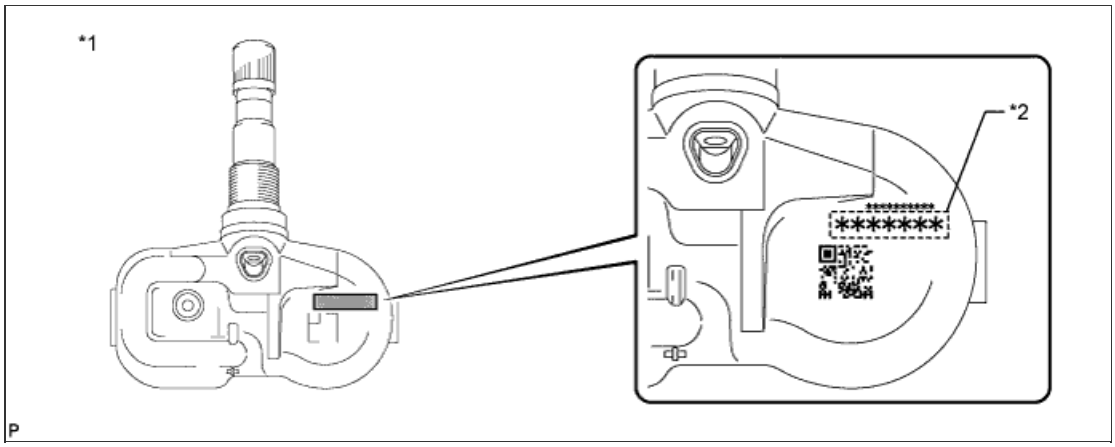
a. In case of tire pressure warning ECU and receiver replacement:

i. Read the registered transmitter IDs that are stored in the old ECU using the GTS and note them down.

ii. If reading the stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning ECU and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valve and transmitters.

b. In case of tire pressure warning valve and transmitter replacement:

i. Take a note of the 7 digit number (transmitter ID) written on the tire pressure warning valve and transmitter.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7 Digit Number)

2. REGISTER TRANSMITTER ID

NOTICE:

w/ ID Switching Function:

- **When performing ID registration for the 2nd tire set, make sure that ID registration has been completed for the main tire set.**
- **If ID registration for the main tire set has not been completed, it is not possible to perform ID registration for the 2nd tire set.**
- **When performing ID registration for the 2nd tire set, place the tires and wheels of the 2nd tire set and main tire set close to the vehicle (less than 10 m (32.8 ft.) away from the vehicle).**

HINT:

When registering an ID on the 2nd tire set, a tire and wheel which have an ID from the main tire set are necessary to also perform ID certification for the main tire set. If ID certification is not performed on the main tire set, DTC C2126/26 is stored by the tire pressure warning ECU and receiver.

- **When using the 2nd tire set or switching from the 2nd tire set to the main tire set after registration for the 2nd tire set is completed, switch to the appropriate set of IDs after installing the tires and wheels.**

HINT:

- **The previously registered IDs will be cleared from memory when the registration is completed.**
- **If the ID registration step is not completed within 300 seconds, ID registration will be canceled.**
- **w/ ID Switching Function:**
  In order to perform ID registration for the 2nd set of tires, select "2nd Set" on the display screen.

a. Set the air pressure of all tires to the specified value(s) (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG) and the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / ID Registration.

f. Perform the procedure displayed on the GTS.

3. CONFIRMATION OF TRANSMITTER ID REGISTRATION

NOTICE:

- **It may take up to a few minutes to update the tire pressure data. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If the IDs have not been registered, DTC C2171/71 is stored in the tire pressure warning ECU and receiver after 3 minutes or more.**
- **If normal pressure values are displayed, the IDs have been registered correctly.**
- **If the tire pressure values are not displayed after a few minutes, the IDs may be incorrect or the system may have a malfunction.**
- **After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates. When the tire pressure warning ECU and receiver successfully receives signals from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.**

a. When checking the ID registration for the 2nd tire set (w/ ID Switching Function):
Operate the tire pressure warning reset switch and switch the IDs to the 2nd set of tires.

b. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

c. Read the "ID Tire Inflation Pressure" values.

d. Confirm that the tire pressure data of all tires is displayed on the GTS screen.

e. Reduce the tire inflation pressure of each tire 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) or more, and check that the "ID Tire Inflation Pressure" data is updated and that the actual tire inflation pressures are displayed.

f. After confirming that all of the tire inflation pressure values have been updated, adjust the tire inflation pressure to the specified value, press the tire pressure warning reset switch and perform initialization.

4. METHOD TO SWITCH ID (w/ ID Switching Function)

a. Method to switch IDs:

NOTICE:

- **When the tire pressure warning system is malfunctioning, be sure to perform troubleshooting for the system before performing ID switching.**
- **It is not possible to perform the ID switching function while the system is being checked or during Test Mode.**

i. Install the tires and wheels that use the correct IDs to the vehicle.

ii. Turn the engine switch on (IG).

iii. Turn the tire pressure warning reset switch on and off 3 times within 3 seconds (Press/release → press/release → press/release).

iv. Check the answer-back function of the tire pressure warning light.

HINT:

Make sure that the tire pressure warning light illuminates for 3 seconds and turns off for 0.5 seconds 3 times.

b. ID switching function check:

NOTICE:

- **It may take up to 2 to 3 minutes in order to update the tire pressure data.**

- **If all of the tire pressure data values are updated, ID switching has been completed.**
- **After switching the IDs, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates. If data from all of the tire pressure warning valve and transmitters registered in the tire pressure warning ECU and receiver is sent to the tire pressure warning ECU and receiver, DTC C2126/26 is cleared and the tire pressure warning light turns off.**

i. Connect the GTS to the DLC3.

ii. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

iii. Reduce the tire inflation pressure of each tire 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) or more, and check that the "ID Tire Inflation Pressure" data is updated and that the actual tire inflation pressures are displayed.

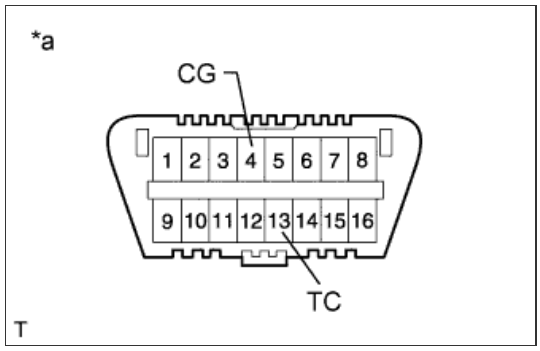
iv. After confirming that all of the tire inflation pressure values have been updated, adjust the tire inflation pressure to the specified value, press the tire pressure warning reset switch and perform initialization.

for Preparation Click here

NOTICE:

- **Initialization can be confirmed through the tire pressure warning light.**
- **The order in which the data is received is random.**
- **If the signals from all the wheels are received, initialization is completed.**
- **Initialization is completed when the Data List "ID Tire Inflation Pressure" display shows the correct pressures (Click here).**
- **Initialization is normally completed within a few minutes.**
- **It may take up to a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If initialization has not been completed successfully, DTC C2177/77 is stored after the vehicle is driven at a speed of 37 km/h (23 mph) or more for 20 minutes or more.**
- **During test mode (sensor check mode), the system will not change to initialization mode even if the tire pressure warning reset switch is pushed.**

- **Initialization can be terminated by connecting terminals 13 (TC) and 4 (CG) of the DLC3.**



Text in Illustration

*a	Front view of DLC3

BEFORE INITIALIZATION

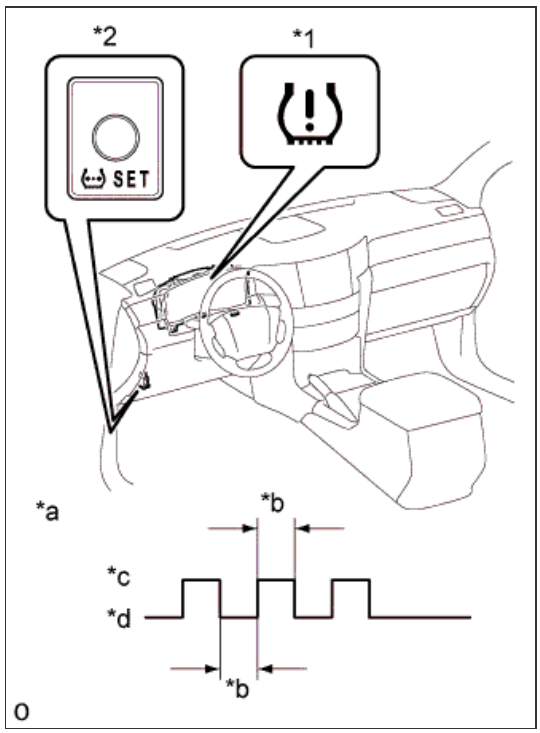
a. Make sure that the tires are cold.

b. Set the air pressure of all tires to the specified value(s) (Click here).

INITIALIZATION PROCEDURE

a. Turn the engine switch on (IG).

b. Press and hold the tire pressure warning reset switch for 3 seconds or more so that the tire pressure warning light blinks 3 times.



Text in Illustration

*1	Tire Pressure Warning Light
*2	Tire Pressure Warning Reset Switch
*a	Tire Pressure Warning Light Output Pattern
*b	1 sec.
*c	ON
*d	OFF

c. Turn the engine switch off.

d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG) and turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check that initialization has been completed.

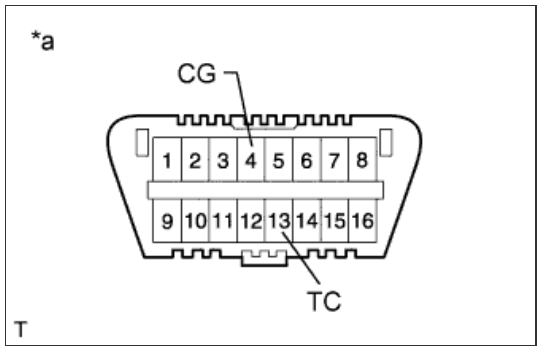
h. Confirm that the tire pressure data of all tires is displayed on the GTS screen.

for Preparation Click here

NOTICE:

- **Initialization can be confirmed through the tire pressure warning light.**
- **The order in which the data is received is random.**
- **If the signals from all the wheels are received, initialization is completed.**
- **Initialization is completed when the Data List "ID Tire Inflation Pressure" display shows the correct pressures (Click here).**
- **Initialization is normally completed within a few minutes.**
- **It may take up to a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If initialization has not been completed successfully, DTC C2177/77 is stored after the vehicle is driven at a speed of 37 km/h (23 mph) or more for 20 minutes or more.**
- **During test mode (sensor check mode), the system will not change to initialization mode even if the tire pressure warning reset switch is pushed.**

- **Initialization can be terminated by connecting terminals 13 (TC) and 4 (CG) of the DLC3.**



Text in Illustration

*a	Front view of DLC3

BEFORE INITIALIZATION

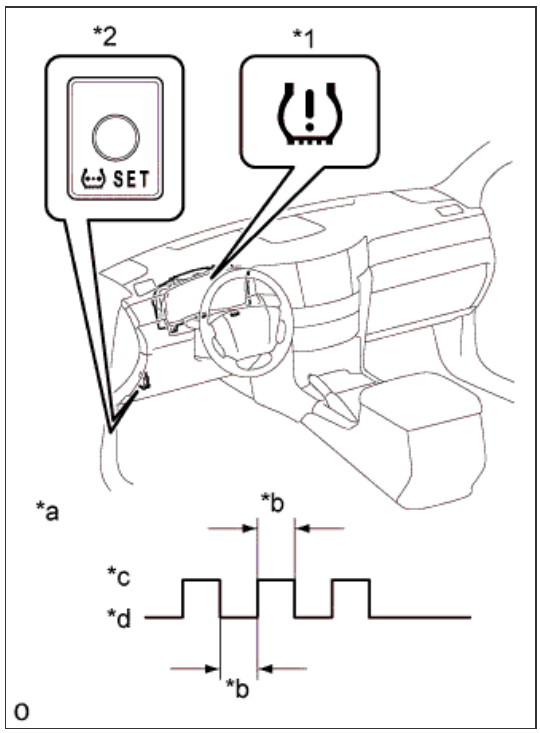
a. Make sure that the tires are cold.

b. Set the air pressure of all tires to the specified value(s) (Click here).

INITIALIZATION PROCEDURE

a. Turn the engine switch on (IG).

b. Press and hold the tire pressure warning reset switch for 3 seconds or more so that the tire pressure warning light blinks 3 times.



Text in Illustration

*1	Tire Pressure Warning Light
*2	Tire Pressure Warning Reset Switch
*a	Tire Pressure Warning Light Output Pattern
*b	1 sec.
*c	ON
*d	OFF

c. Turn the engine switch off.

d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG) and turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

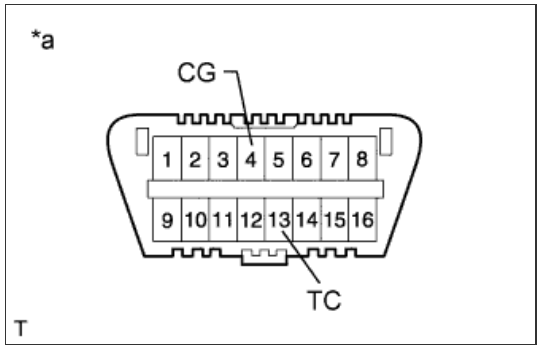
g. Check that initialization has been completed.

h. Confirm that the tire pressure data of all tires is displayed on the GTS screen.

for Preparation Click here

NOTICE:

- **Initialization can be confirmed through the tire pressure warning light.**
- **The order in which the data is received is random.**
- **If the signals from all the wheels are received, initialization is completed.**
- **Initialization is completed when the Data List "ID Tire Inflation Pressure" display shows the correct pressures (Click here).**
- **Initialization is normally completed within a few minutes.**
- **It may take up to a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).**
- **If initialization has not been completed successfully, DTC C2177/77 is stored after the vehicle is driven at a speed of 37 km/h (23 mph) or more for 20 minutes*1 (10 minutes*2) or more.**
  ***1: for FMVSS138 Type**
  ***2: for ECE-R64 Type**
- **During test mode (sensor check mode), the system will not change to initialization mode even if the tire pressure warning reset switch is pushed.**
- **w/ ID Switching Function:**
  While the answer-back function for the ID switching function is operating, the system will not change to initialization mode even if the tire pressure warning reset switch is pressed.
- **Initialization can be terminated by connecting terminals 13 (TC) and 4 (CG) of the DLC3.**



Text in Illustration

*a	Front view of DLC3

BEFORE INITIALIZATION

a. Make sure that the tires are cold.

b. Set the air pressure of all tires to the specified value(s) (Click here).

INITIALIZATION PROCEDURE

a. Turn the engine switch on (IG).

b. Press and hold the tire pressure warning reset switch for 3 seconds or more so that the tire pressure warning light blinks 3 times.

Text in Illustration

*1	Tire Pressure Warning Light
*2	Tire Pressure Warning Reset Switch
*a	Tire Pressure Warning Light Output Pattern
*b	1 sec.
*c	ON
*d	OFF

c. Turn the engine switch off.

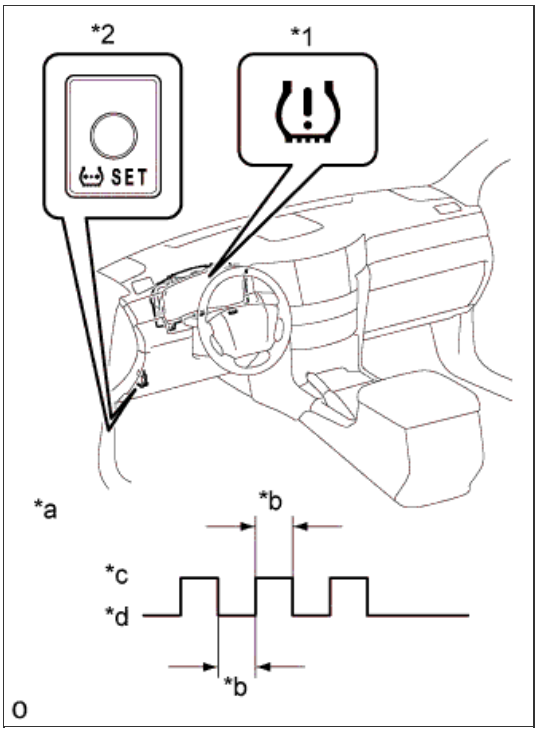
d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG) and turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check that initialization has been completed.

h. Confirm that the tire pressure data of all tires is displayed on the GTS screen.


*2
*1
SET
*a
*b
*c
*d
*b
o

for Preparation Click here

TEST MODE (SIGNAL CHECK MODE) PROCEDURE

HINT:

- **When entering test mode (signal check mode), the tire pressure warning ECU and receiver sets all the test mode (signal check mode) DTCs first.**
  After the tire pressure warning ECU and receiver completes the signal check for each inspection item, the DTCs for systems that are determined to be normal will be cleared.
  The DTCs for other inspection items may not be cleared when only a certain signal is inspected.
- **When test mode (signal check mode) returns to normal mode, all the test mode (signal check mode) DTCs will be cleared.**
- **Operation of the tire pressure warning reset switch can be checked in test mode (signal check mode).**
- **During test mode (signal check mode), the system is not initialized by pushing the tire pressure warning reset switch. The circuit of the tire pressure warning reset switch can be inspected during this mode.**

a. Turn the engine switch off.

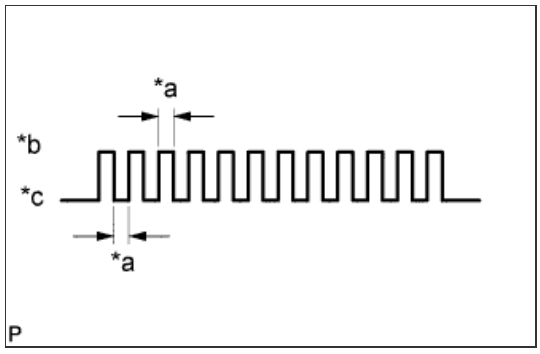
b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

HINT:

Every time the test mode (signal check mode) DTC clear conditions are satisfied, the tire pressure warning light illuminates for 1 second. Following this, the tire pressure warning light blinks at 0.125 second intervals.



Text in Illustration

*a	0.125 sec.
*b	ON
*c	OFF

e. Press the tire pressure warning reset switch (C2198).

f. Wait for 1.5 minutes with the vehicle stopped, or drive the vehicle at a speed of 50 km/h (31 mph) or more for 1 minute (C2181 to C2185).

HINT:

The tire pressure warning valve and transmitters send signals to the tire pressure warning ECU and receiver once every 1.5 minutes while the vehicle is stopped and once every minute while driving.

g. Drive the vehicle at a speed of 20 km/h (12 mph) or more for 3 seconds or more to check the vehicle speed signal (C2191).

h. Perform the tire pressure warning antenna check (C2195).

HINT:

The conformity of the antenna connection and radio frequency is automatically detected.

i. During test mode (signal check mode), set the number of times required to turn the engine switch from off to on (IG) in order to return to normal mode to 2 times.

ii. After entering test mode, turn the engine switch off and then on (IG) again.

i. Check that the tire pressure warning system test mode (signal check mode) DTCs are cleared.

Test Mode (Signal Check Mode) DTC	Test Signal	Test Mode (Signal Check Mode) DTC Clear Condition
C2181 to C2185	Transmitter Data	Data is received from the relevant transmitter which has a registered ID in the tire pressure warning ECU and receiver.

C2191	Vehicle Speed Signal	Vehicle speed of 20 km/h (12 mph) or more is detected for 3 seconds or more.
C2195	• Open in tire pressure warning antenna • Radio frequency mismatch	Continuity of the antenna terminal and conformity of the radio wave frequency are detected.
C2198	Tire Pressure Warning Reset Switch Signal	A signal is received indicating that the tire pressure warning reset switch is pressed.

j. Result

HINT:

After the signal check is completed, check for test mode (signal check mode) DTCs to confirm the system status.

Condition	Procedure
Test mode (signal check mode) DTC is output	Repair the faulty part and enter Signal Check again
Test mode (signal check mode) DTCs are cleared	No problem

k. End of test mode (signal check mode)

i. After completing the test mode (signal check mode), turn the engine switch off and disconnect the GTS.

l. Test mode (signal check mode) DTCs

i. If a trouble code is displayed during the test mode (signal check mode) DTC check, check the diagnosis procedure listed for that code. For details of each code, refer to See page below.

DTC No.	Detection Item	See page
C2181	Transmitter ID1 not Received	Click here
C2182	Transmitter ID2 not Received	Click here
C2183	Transmitter ID3 not Received	Click here
C2184	Transmitter ID4 not Received	Click here
C2185	Transmitter ID5 not Received	Click here
C2191	Vehicle Speed Signal Error	Click here
C2195	Multi-receiver Antenna Circuit	Click here
C2198	Initialization Switch	Click here

for Preparation Click here

TEST MODE (SIGNAL CHECK MODE) PROCEDURE

HINT:

- **When entering test mode (signal check mode), the tire pressure warning ECU and receiver sets all the test mode (signal check mode) DTCs first.**
  After the tire pressure warning ECU and receiver completes the signal check for each inspection item, the DTCs for systems that are determined to be normal will be cleared.
  The DTCs for other inspection items may not be cleared when only a certain signal is inspected.
- **When test mode (signal check mode) returns to normal mode, all the test mode (signal check mode) DTCs will be cleared.**
- **Operation of the tire pressure warning reset switch can be checked in test mode (signal check mode).**
- **During test mode (signal check mode), the system is not initialized by pushing the tire pressure warning reset switch. The circuit of the tire pressure warning reset switch can be inspected during this mode.**

a. Turn the engine switch off.

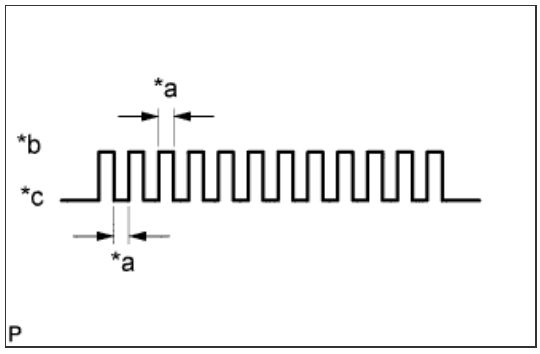
b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

HINT:

Every time the test mode (signal check mode) DTC clear conditions are satisfied, the tire pressure warning light illuminates for 1 second. Following this, the tire pressure warning light blinks at 0.125 second intervals.



Text in Illustration

*a	0.125 sec.
*b	ON
*c	OFF

e. Press the tire pressure warning reset switch (C2198).

f. Wait for 1.5 minutes with the vehicle stopped, or drive the vehicle at a speed of 50 km/h (31 mph) or more for 1 minute (C2181 to C2185).

HINT:

The tire pressure warning valve and transmitters send signals to the tire pressure warning ECU and receiver once every 1.5 minutes while the vehicle is stopped and once every minute while driving.

g. Drive the vehicle at a speed of 20 km/h (12 mph) or more for 3 seconds or more to check the vehicle speed signal (C2191).

h. Perform the tire pressure warning antenna check (C2195).

HINT:

The conformity of the antenna connection and radio frequency is automatically detected.

i. During test mode (signal check mode), set the number of times required to turn the engine switch from off to on (IG) in order to return to normal mode to 2 times.

ii. After entering test mode, turn the engine switch off and then on (IG) again.

i. Check that the tire pressure warning system test mode (signal check mode) DTCs are cleared.

Test Mode (Signal Check Mode) DTC	Test Signal	Test Mode (Signal Check Mode) DTC Clear Condition
C2181 to C2185	Transmitter Data	Data is received from the relevant transmitter which has a registered ID in the tire pressure warning ECU and receiver.

C2191	Vehicle Speed Signal	Vehicle speed of 20 km/h (12 mph) or more is detected for 3 seconds or more.
C2195	• Open in tire pressure warning antenna • Radio frequency mismatch	Continuity of the antenna terminal and conformity of the radio wave frequency are detected.
C2198	Tire Pressure Warning Reset Switch Signal	A signal is received indicating that the tire pressure warning reset switch is pressed.

j. Result

HINT:

After the signal check is completed, check for test mode (signal check mode) DTCs to confirm the system status.

Condition	Procedure
Test mode (signal check mode) DTC is output	Repair the faulty part and enter Signal Check again
Test mode (signal check mode) DTCs are cleared	No problem

k. End of test mode (signal check mode)

i. After completing the test mode (signal check mode), turn the engine switch off and disconnect the GTS.

l. Test mode (signal check mode) DTCs

i. If a trouble code is displayed during the test mode (signal check mode) DTC check, check the diagnosis procedure listed for that code. For details of each code, refer to See page below.

DTC No.	Detection Item	See page
C2181	Transmitter ID1 not Received	Click here
C2182	Transmitter ID2 not Received	Click here
C2183	Transmitter ID3 not Received	Click here
C2184	Transmitter ID4 not Received	Click here
C2185	Transmitter ID5 not Received	Click here
C2191	Vehicle Speed Signal Error	Click here
C2195	Multi-receiver Antenna Circuit	Click here
C2198	Initialization Switch	Click here

for Preparation Click here

TEST MODE (SIGNAL CHECK MODE) PROCEDURE

HINT:

- **When entering test mode (signal check mode), the tire pressure warning ECU and receiver sets all the test mode (signal check mode) DTCs first.**
  After the tire pressure warning ECU and receiver completes the signal check for each inspection item, the DTCs for systems that are determined to be normal will be cleared.
  The DTCs for other inspection items may not be cleared when only a certain signal is inspected.
- **When test mode (signal check mode) returns to normal mode, all the test mode (signal check mode) DTCs will be cleared.**
- **Operation of the tire pressure warning reset switch can be checked in test mode (signal check mode).**
- **During test mode (signal check mode), the system is not initialized by pushing the tire pressure warning reset switch. The circuit of the tire pressure warning reset switch can be inspected during this mode.**

a. Turn the engine switch off.

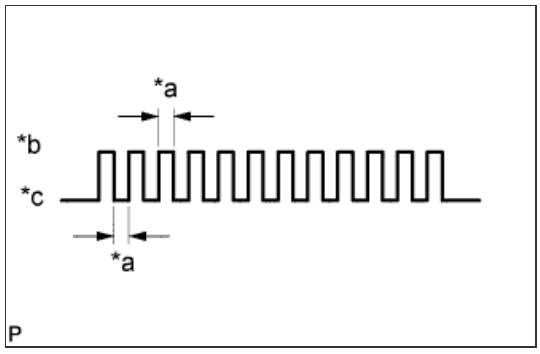
b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

HINT:

Every time the test mode (signal check mode) DTC clear conditions are satisfied, the tire pressure warning light illuminates for 1 second. Following this, the tire pressure warning light blinks at 0.125 second intervals.



Text in Illustration

*a	0.125 sec.
*b	ON
*c	OFF

e. Press the tire pressure warning reset switch (C2198).

f. Wait for 1.5 minutes with the vehicle stopped, or drive the vehicle at a speed of 50 km/h (31 mph) or more for 1 minute (C2181 to C2185).

HINT:

The tire pressure warning valve and transmitters send signals to the tire pressure warning ECU and receiver once every 1.5 minutes while the vehicle is stopped and once every minute while driving.

g. Drive the vehicle at a speed of 20 km/h (12 mph) or more for 3 seconds or more to check the vehicle speed signal (C2191).

h. Perform the tire pressure warning antenna check (C2195).

HINT:

The conformity of the antenna connection and radio frequency is automatically detected.

i. During test mode (signal check mode), set the number of times required to turn the engine switch from off to on (IG) in order to return to normal mode to 2 times.

ii. After entering test mode, turn the engine switch off and then on (IG) again.

i. Check that the tire pressure warning system test mode (signal check mode) DTCs are cleared.

Test Mode (Signal Check Mode) DTC	Test Signal	Test Mode (Signal Check Mode) DTC Clear Condition
C2181 to C2185	Transmitter Data	Data is received from the relevant transmitter which has a registered ID in the tire pressure warning ECU and receiver.

C2191	Vehicle Speed Signal	Vehicle speed of 20 km/h (12 mph) or more is detected for 3 seconds or more.
C2195	• Open in tire pressure warning antenna • Radio frequency mismatch	Continuity of the antenna terminal and conformity of the radio wave frequency are detected.
C2198	Tire Pressure Warning Reset Switch Signal	A signal is received indicating that the tire pressure warning reset switch is pressed.

j. Result

HINT:

After the signal check is completed, check for test mode (signal check mode) DTCs to confirm the system status.

Condition	Procedure
Test mode (signal check mode) DTC is output	Repair the faulty part and enter Signal Check again
Test mode (signal check mode) DTCs are cleared	No problem

k. End of test mode (signal check mode)

i. After completing the test mode (signal check mode), turn the engine switch off and disconnect the GTS.

l. Test mode (signal check mode) DTCs

i. If a trouble code is displayed during the test mode (signal check mode) DTC check, check the diagnosis procedure listed for that code. For details of each code, refer to See page below.

DTC No.	Detection Item	See page
C2181	Transmitter ID1 not Received	Click here
C2182	Transmitter ID2 not Received	Click here
C2183	Transmitter ID3 not Received	Click here
C2184	Transmitter ID4 not Received	Click here
C2185	Transmitter ID5 not Received	Click here
C2191	Vehicle Speed Signal Error	Click here
C2195	Multi-receiver Antenna Circuit	Click here
C2198	Initialization Switch	Click here

for Preparation Click here

HINT:

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

Tire Pressure Warning System

Symptom	Suspected Area	See page
Tire pressure warning light does not illuminate despite tire pressure decreasing	Initialization	Click here
	Check Data List (ID Tire Inflation Pressure)	Click here
	ID code check (Registration)	Click here
	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Goes off during initial check)	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Illuminates during initial check)	Check Data List (ID Tire Inflation Pressure)	Click here
	Tire pressure adjustment	Click here
	ID code check (Registration)	Click here
	Initialization	Click here
Initialization cannot be done	Tire pressure warning reset switch	Click here
DTC check cannot be done using SST check wire	TC and CG terminal circuit	Click here
	ECU power source circuit	Click here

for Preparation Click here

HINT:

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

Tire Pressure Warning System

Symptom	Suspected Area	See page
Tire pressure warning light does not illuminate despite tire pressure decreasing	Initialization	Click here
	Check Data List (ID Tire Inflation Pressure)	Click here
	ID code check (Registration)	Click here
	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Goes off during initial check)	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Illuminates during initial check)	Check Data List (ID Tire Inflation Pressure)	Click here
	Tire pressure adjustment	Click here
	ID code check (Registration)	Click here
	Initialization	Click here
Initialization cannot be done	Tire pressure warning reset switch	Click here
DTC check cannot be done using SST check wire	TC and CG terminal circuit	Click here
	ECU power source circuit	Click here

for Preparation Click here

HINT:

- **Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.**
- **Inspect the fuses and relays related to this system before inspecting the suspected areas below.**

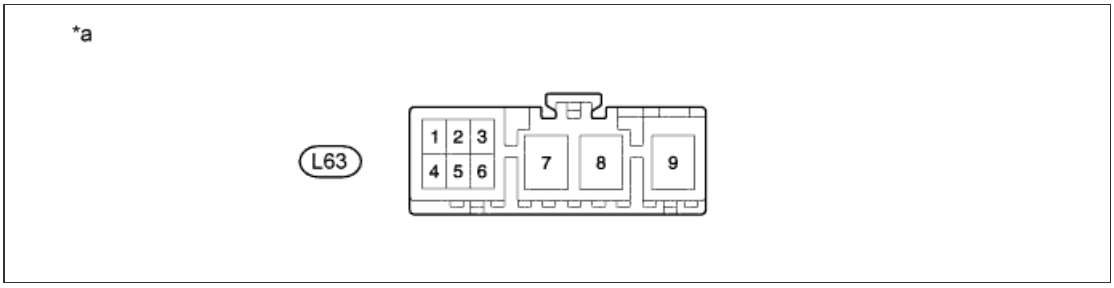
Tire Pressure Warning System

Symptom	Suspected Area	See page
Tire pressure warning light does not illuminate despite tire pressure decreasing	Initialization	Click here
	Check Data List (ID Tire Inflation Pressure)	Click here
	ID code check (Registration)	Click here
	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Goes off during initial check)	Tire pressure warning light circuit	Click here
Tire pressure warning light remains illuminated (Illuminates during initial check)	Check Data List (ID Tire Inflation Pressure)	Click here
	Tire pressure adjustment	Click here
	ID code check (Registration)	Click here
	Initialization	Click here
Initialization cannot be done	Tire pressure warning reset switch	Click here
DTC check cannot be done using SST check wire	TC and CG terminal circuit	Click here
	ECU power source circuit	Click here

for Preparation Click here

CHECK TIRE PRESSURE WARNING ECU AND RECEIVER

a. Disconnect the tire pressure warning ECU and receiver L63 connector and measure the voltage and resistance on the wire harness side.



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)	-	-

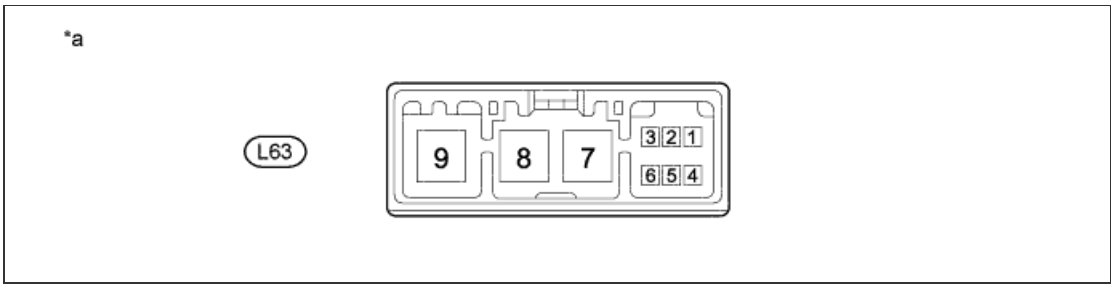
Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L63-1 (IG1) - L63-4 (GN1)	B - G	IG power source	Engine switch on (IG)	10 to 16 V
L63-4 (GN1) - Body ground	G - Body ground	Ground	Always	Below 1 Ω

b. Connect the tire pressure warning ECU and receiver L63 connector.

c. Measure the voltage according to the value(s) in the table below. If the result is not as specified, the ECU may have a malfunction.

HINT:

Inspect the connectors from the back side while the connectors are connected.



Text in Illustration

*a	Component with harness connected (Tire Pressure Warning ECU and Receiver)	-	-

Terminal No. (Symbol)	Wiring Color	Terminal Description	Condition	Specified Condition
L63-2 (CS1) - L63-4 (GN1)	R - G	Tire pressure warning reset switch	• Engine switch on (IG) • Tire pressure warning reset switch ON	Below 2.4 V
			• Engine	

			switch on (IG) • Tire pressure warning reset switch OFF	8 to 15 V

for Preparation Click here

CHECK WARNING LIGHT

NOTICE:

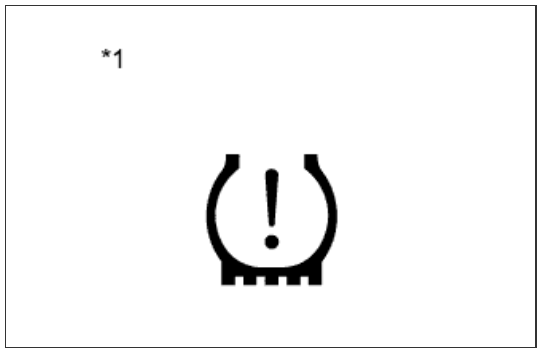
- **When there is a problem with the tire pressure warning system, the tire pressure warning light blinks at 0.5 second intervals, and illuminates after 1 minute.**
- **When the malfunction has been corrected, the tire pressure warning light does not illuminate.**
- **When the tire pressure warning light illuminates, immediately check the tire pressure of the tire and adjust it to the specified value(s).**
- **After the engine switch is turned on (IG), the tire pressure warning light illuminates for 3 seconds and then goes off. If the warning light does not illuminate for 3 seconds, proceed to the troubleshooting for the tire pressure warning light circuit (Click here).**

a. Turn the engine switch on (IG).

Text in Illustration

*1	Tire Pressure Warning Light

b. Check that the tire pressure warning light illuminates for 3 seconds.



WHAT TO CONSIDER WHEN TIRE PRESSURE WARNING LIGHT ILLUMINATES

a. When the tire pressure warning light does not go off, or when it illuminates during driving, check the tire pressure. If the tire pressure warning light illuminates within several hours after adjusting the tire pressure, the tire may have a slow air leak.

b. The system is disabled in the following conditions (when the condition becomes normal, the system will work properly).

i. When all of the tires and wheels that have the tire pressure warning valve and transmitters registered with the tire pressure warning ECU and receiver have not been installed.

ii. When all of the transmitter ID codes are not registered with the tire pressure warning ECU and receiver.

iii. When the tire pressure is abnormally high (absolute pressure: 480 kPa (4.9 kgf/cm ^{2}, 70 psi) or more; relative pressure: 380 kPa (3.9 kgf/cm^2, 55 psi) or more).

iv. When the tire pressure warning valve and transmitter battery is depleted.

c. The system may become disabled in the following conditions (when the condition becomes normal, the system will work properly).

i. When electric devices or facilities using similar radio frequencies are nearby.

ii. When a wireless device or other equipment operating at a similar frequency is in use in the vehicle.

iii. When a window tint that affects radio wave signals is installed.

iv. When there is a lot of snow or ice on the vehicle, in particular, around the wheels or wheel housing.

v. When non-genuine wheels are used.

vi. When tire chains are used.

vii. When aftermarket tire repair sealant is used.

CAUTION:

After use of tire repair sealant, replacement of the tire pressure warning valve and transmitter is required to ensure normal system operation. (Normal system operation cannot be ensured by only repairing or replacing the tire.)

TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART

HINT:

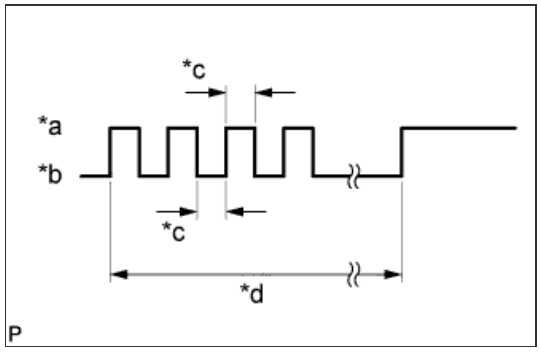
The table below indicates the state of the tire pressure warning light after the engine switch is turned on (IG).

	Immediately after turning the engine switch on (IG)	Always						
		Warning light output pattern						
	Illuminates for 3 sec.	Goes off	Illuminates	Blinks*1	Blinks*2	Blinks*3	Blinks*4	Outputs DTC
Normal	○	○	-	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-	-
System failure	○	-	-	○	-	-	-	-
Test mode (signal check mode)	○	-	-	-	○	-	-	-
Initialization	○	-	-	-	-	○	-	-
ECU connector poorly connected	-	-	-	○	-	-	-	-
TC grounded (DTC is output)	○	-	-	-	-	-	-	○
TC grounded (DTC is not output)	○	-	-	-	-	-	○	-
ID code being verified	○	-	-	○	-	-	-	-

*1: Illuminates and goes off repeatedly at 0.5 second intervals, and illuminates after 1 minute.

Text in Illustration

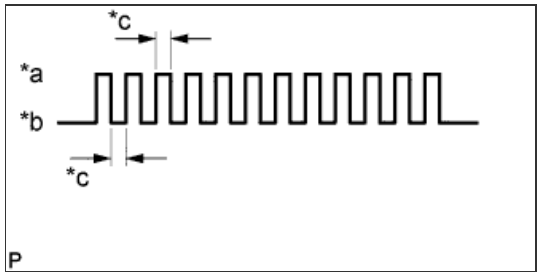
*a	ON
*b	OFF
*c	0.5 sec.
*d	1 minute



*2: Illuminates and goes off repeatedly at 0.125 second intervals.

Text in Illustration

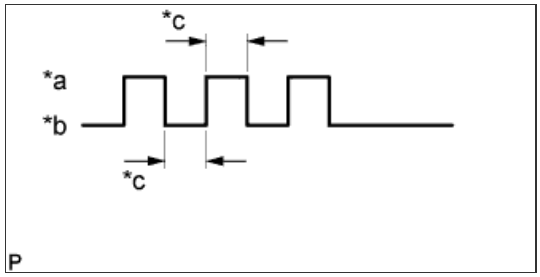
*a	ON
*b	OFF
*c	0.125 sec.



*3: Blinks 3 times (1 second on, 1 second off).

Text in Illustration

*a	ON
*b	OFF
*c	1 sec.

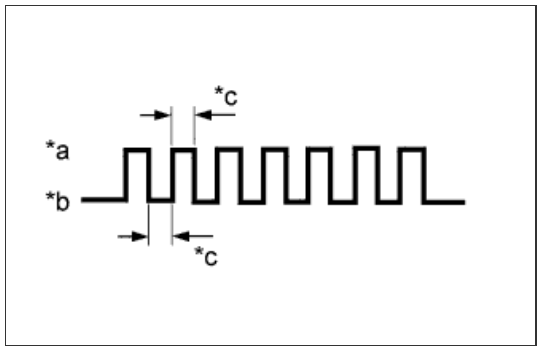


*4: Illuminates and goes off repeatedly at 0.25 second intervals.

Text in Illustration

*a	ON

*b	OFF
*c	0.25 sec.



Normal mode DTCs

a. DTCs are stored in the tire pressure warning ECU and receiver and output by the blinking of the tire pressure warning light or by using the GTS (Click here).

Test mode (signal check mode) DTCs

a. By switching from normal mode into test mode (input signal check), you can inspect the tire pressure warning ECU and receiver, each tire pressure warning valve and transmitter, tire pressure warning reset switch and vehicle speed signal (Click here).

FAIL-SAFE FUNCTION

a. When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light illuminates after blinking for 1 minute to inform the driver of the system failure.

b. The result of this diagnosis code is stored in the tire pressure warning ECU and receiver.

for Preparation Click here

CHECK WARNING LIGHT

NOTICE:

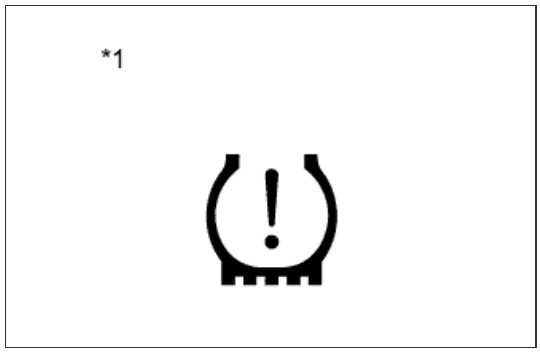
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- **When the malfunction has been corrected, the tire pressure warning light does not illuminate.**
- **When the tire pressure warning light illuminates, immediately check the tire pressure of the tire and adjust it to the specified value(s).**
- **After the engine switch is turned on (IG), the tire pressure warning light illuminates for 3 seconds and then goes off. If the warning light does not illuminate for 3 seconds, proceed to the troubleshooting for the tire pressure warning light circuit (Click here).**

a. Turn the engine switch on (IG).

Text in Illustration

*1	Tire Pressure Warning Light

b. Check that the tire pressure warning light illuminates for 3 seconds.



WHAT TO CONSIDER WHEN TIRE PRESSURE WARNING LIGHT ILLUMINATES

a. When the tire pressure warning light does not go off, or when it illuminates during driving, check the tire pressure. If the tire pressure warning light illuminates within several hours after adjusting the tire pressure, the tire may have a slow air leak.

b. The system is disabled in the following conditions (when the condition becomes normal, the system will work properly).

i. When all of the tires and wheels that have the tire pressure warning valve and transmitters registered with the tire pressure warning ECU and receiver have not been installed.

ii. When all of the transmitter ID codes are not registered with the tire pressure warning ECU and receiver.

iii. When the tire pressure is abnormally high (absolute pressure: 480 kPa (4.9 kgf/cm ^{2}, 70 psi) or more; relative pressure: 380 kPa (3.9 kgf/cm^2, 55 psi) or more).

iv. When the tire pressure warning valve and transmitter battery is depleted.

c. The system may become disabled in the following conditions (when the condition becomes normal, the system will work properly).

i. When electric devices or facilities using similar radio frequencies are nearby.

ii. When a wireless device or other equipment operating at a similar frequency is in use in the vehicle.

iii. When a window tint that affects radio wave signals is installed.

iv. When there is a lot of snow or ice on the vehicle, in particular, around the wheels or wheel housing.

v. When non-genuine wheels are used.

vi. When tire chains are used.

vii. When aftermarket tire repair sealant is used.

CAUTION:

After use of tire repair sealant, replacement of the tire pressure warning valve and transmitter is required to ensure normal system operation. (Normal system operation cannot be ensured by only repairing or replacing the tire.)

TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART

HINT:

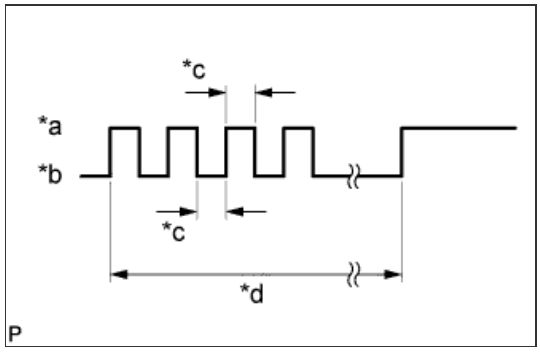
The table below indicates the state of the tire pressure warning light after the engine switch is turned on (IG).

	Immediately after turning the engine switch on (IG)	Always						
		Warning light output pattern						
	Illuminates for 3 sec.	Goes off	Illuminates	Blinks*1	Blinks*2	Blinks*3	Blinks*4	Outputs DTC
Normal	○	○	-	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-	-
System failure	○	-	-	○	-	-	-	-
Test mode (signal check mode)	○	-	-	-	○	-	-	-
Initialization	○	-	-	-	-	○	-	-
ECU connector poorly connected	-	-	-	○	-	-	-	-
TC grounded (DTC is output)	○	-	-	-	-	-	-	○
TC grounded (DTC is not output)	○	-	-	-	-	-	○	-
ID code being verified	○	-	-	○	-	-	-	-

*1: Illuminates and goes off repeatedly at 0.5 second intervals, and illuminates after 1 minute.

Text in Illustration

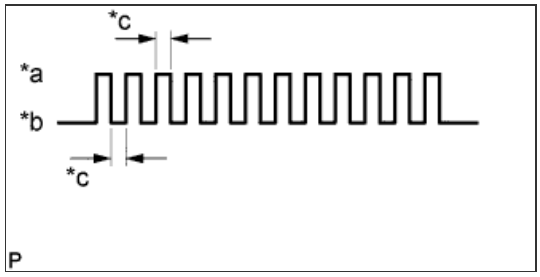
*a	ON
*b	OFF
*c	0.5 sec.
*d	1 minute



*2: Illuminates and goes off repeatedly at 0.125 second intervals.

Text in Illustration

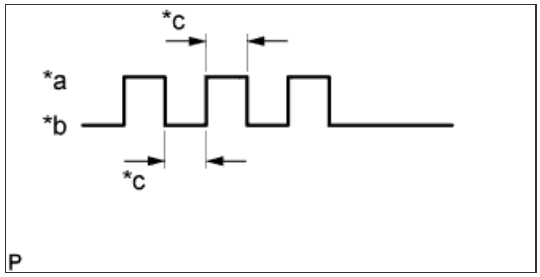
*a	ON
*b	OFF
*c	0.125 sec.



*3: Blinks 3 times (1 second on, 1 second off).

Text in Illustration

*a	ON
*b	OFF
*c	1 sec.

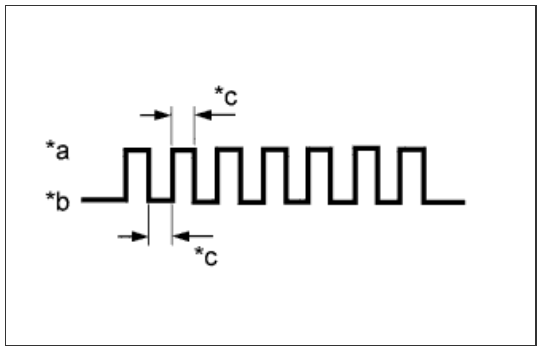


*4: Illuminates and goes off repeatedly at 0.25 second intervals.

Text in Illustration

*a	ON

*b	OFF
*c	0.25 sec.



Normal mode DTCs

a. DTCs are stored in the tire pressure warning ECU and receiver and output by the blinking of the tire pressure warning light or by using the GTS (Click here).

Test mode (signal check mode) DTCs

a. By switching from normal mode into test mode (input signal check), you can inspect the tire pressure warning ECU and receiver, each tire pressure warning valve and transmitter, tire pressure warning reset switch and vehicle speed signal (Click here).

FAIL-SAFE FUNCTION

a. When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light illuminates after blinking for 1 minute to inform the driver of the system failure.

b. The result of this diagnosis code is stored in the tire pressure warning ECU and receiver.

for Preparation Click here

CHECK WARNING LIGHT

NOTICE:

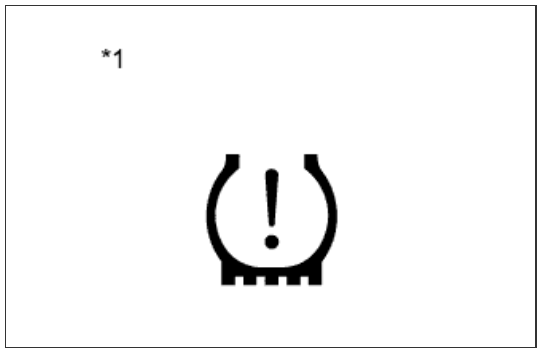
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- **After the engine switch is turned on (IG), the tire pressure warning light illuminates for 3 seconds and then goes off. If the warning light does not illuminate for 3 seconds, proceed to the troubleshooting for the tire pressure warning light circuit (Click here).**

a. Turn the engine switch on (IG).

Text in Illustration

*1	Tire Pressure Warning Light

b. Check that the tire pressure warning light illuminates for 3 seconds.



WHAT TO CONSIDER WHEN TIRE PRESSURE WARNING LIGHT ILLUMINATES

a. When the tire pressure warning light does not go off, or when it illuminates during driving, check the tire pressure. If the tire pressure warning light illuminates within several hours after adjusting the tire pressure, the tire may have a slow air leak.

b. The system is disabled in the following conditions (when the condition becomes normal, the system will work properly).

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ii. When all of the transmitter ID codes are not registered with the tire pressure warning ECU and receiver.

iii. When the tire pressure is abnormally high (absolute pressure: 480 kPa (4.9 kgf/cm ^{2}, 70 psi) or more; relative pressure: 380 kPa (3.9 kgf/cm^2, 55 psi) or more).

iv. When the tire pressure warning valve and transmitter battery is depleted.

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ii. When a wireless device or other equipment operating at a similar frequency is in use in the vehicle.

iii. When a window tint that affects radio wave signals is installed.

iv. When there is a lot of snow or ice on the vehicle, in particular, around the wheels or wheel housing.

v. When non-genuine wheels are used.

vi. When tire chains are used.

vii. When aftermarket tire repair sealant is used.

CAUTION:

After use of tire repair sealant, replacement of the tire pressure warning valve and transmitter is required to ensure normal system operation. (Normal system operation cannot be ensured by only repairing or replacing the tire.)

TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART

HINT:

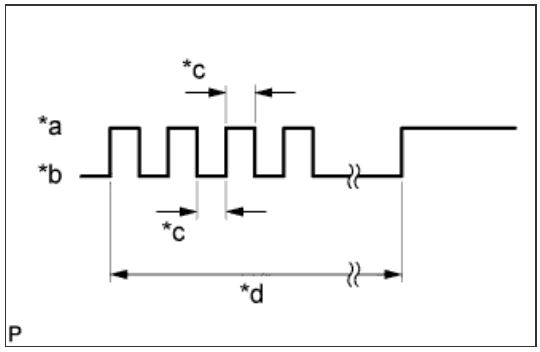
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	Immediately after turning the engine switch on (IG)	Always						
		Warning light output pattern						
	Illuminates for 3 sec.	Goes off	Illuminates	Blinks*1	Blinks*2	Blinks*3	Blinks*4	Outputs DTC
Normal	○	○	-	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-	-
System failure	○	-	-	○	-	-	-	-
Test mode (signal check mode)	○	-	-	-	○	-	-	-
Initialization	○	-	-	-	-	○	-	-
ECU connector poorly connected	-	-	-	○	-	-	-	-
TC grounded (DTC is output)	○	-	-	-	-	-	-	○
TC grounded (DTC is not output)	○	-	-	-	-	-	○	-
ID code being verified	○	-	-	○	-	-	-	-

*1: Illuminates and goes off repeatedly at 0.5 second intervals, and illuminates after 1 minute.

Text in Illustration

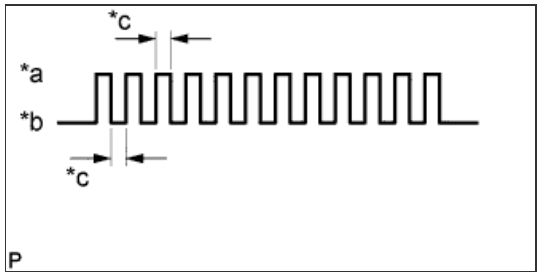
*a	ON
*b	OFF
*c	0.5 sec.
*d	1 minute



*2: Illuminates and goes off repeatedly at 0.125 second intervals.

Text in Illustration

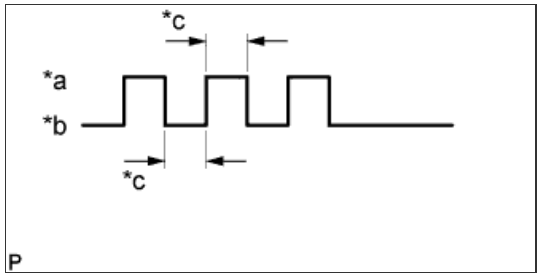
*a	ON
*b	OFF
*c	0.125 sec.



*3: Blinks 3 times (1 second on, 1 second off).

Text in Illustration

*a	ON
*b	OFF
*c	1 sec.

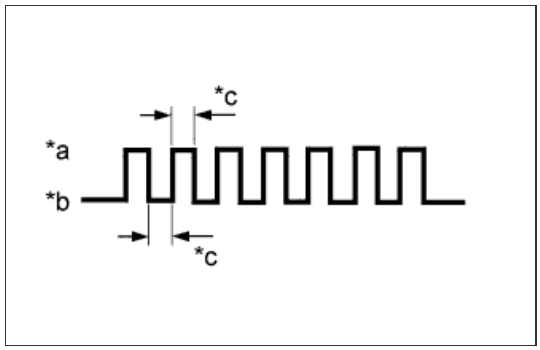


*4: Illuminates and goes off repeatedly at 0.25 second intervals.

Text in Illustration

*a	ON

*b	OFF
*c	0.25 sec.



Normal mode DTCs

a. DTCs are stored in the tire pressure warning ECU and receiver and output by the blinking of the tire pressure warning light or by using the GTS (Click here).

Test mode (signal check mode) DTCs

a. By switching from normal mode into test mode (input signal check), you can inspect the tire pressure warning ECU and receiver, each tire pressure warning valve and transmitter, tire pressure warning reset switch and vehicle speed signal (Click here).

FAIL-SAFE FUNCTION

a. When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light illuminates after blinking for 1 minute to inform the driver of the system failure.

b. The result of this diagnosis code is stored in the tire pressure warning ECU and receiver.

for Preparation Click here

CHECK DTC (USING THE GTS)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Read the DTCs.

CHECK DTC (USING SST CHECK WIRE)

a. Turn the engine switch off.

b. Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

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c. Turn the engine switch on (IG).

d. Read and record any DTCs from the tire pressure warning light on the combination meter. Refer to the illustration for examples of a normal system code and codes 13 and 33.

HINT:

- **If the tire pressure warning light does not indicate any DTCs or the normal system code, inspect the tire pressure warning light circuit or TC and CG terminal circuit.**

Trouble Area	See page
Tire pressure warning light circuit	Click here
TC and CG terminal circuit	Click here

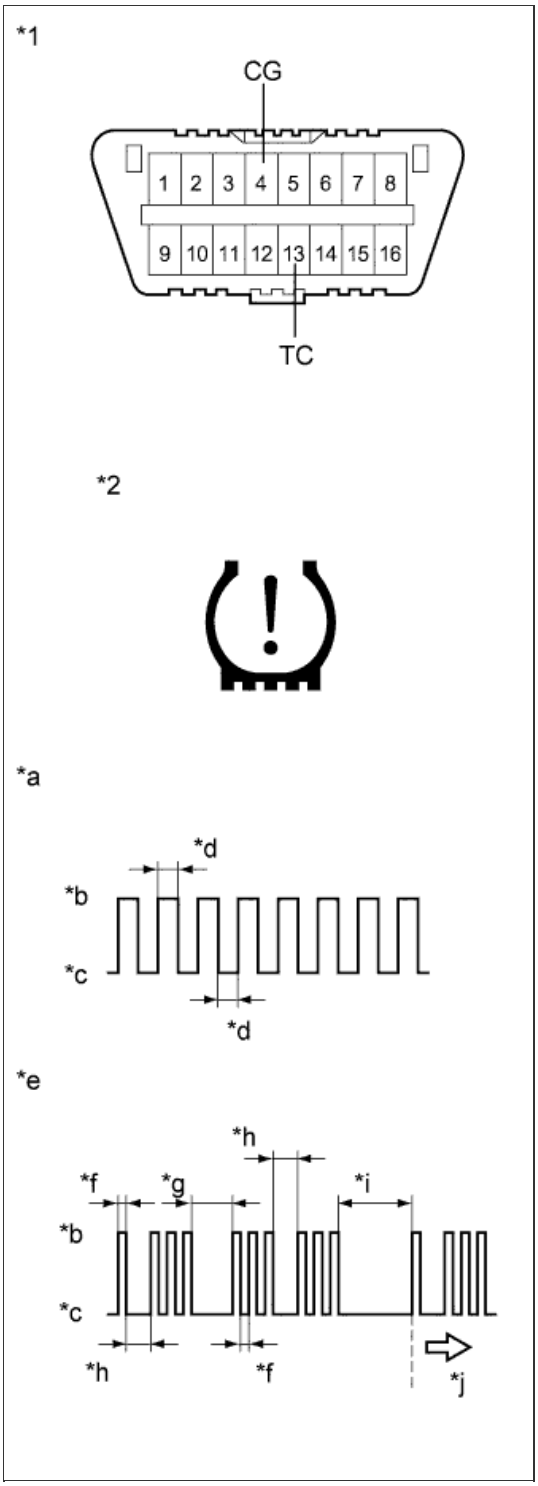
- **If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.**

Text in Illustration

*1	DLC3
*2	Tire Pressure Warning Light
*a	Normal System Code
*b	ON
*c	OFF
*d	0.25 sec.
*e	Code 13 and 33
*f	0.5 sec.
*g	2.5 sec.
*h	1.5 sec.
*i	4.5 sec.
*j	Repeat

e. Refer to the Diagnostic Trouble Code Chart (Click here) for DTC information.

f. After completing the check, turn the engine switch off and remove SST from the DLC3.



CLEAR DTC

HINT:

After repairing the malfunctions, clear the DTCs.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Clear DTCs following the prompts on the GTS screen.

HINT:

Refer to the GTS operator's manual for further details.

for Preparation Click here

CHECK DTC (USING THE GTS)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Read the DTCs.

CHECK DTC (USING SST CHECK WIRE)

a. Turn the engine switch off.

b. Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

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c. Turn the engine switch on (IG).

d. Read and record any DTCs from the tire pressure warning light on the combination meter. Refer to the illustration for examples of a normal system code and codes 13 and 33.

HINT:

- **If the tire pressure warning light does not indicate any DTCs or the normal system code, inspect the tire pressure warning light circuit or TC and CG terminal circuit.**

Trouble Area	See page
Tire pressure warning light circuit	Click here
TC and CG terminal circuit	Click here

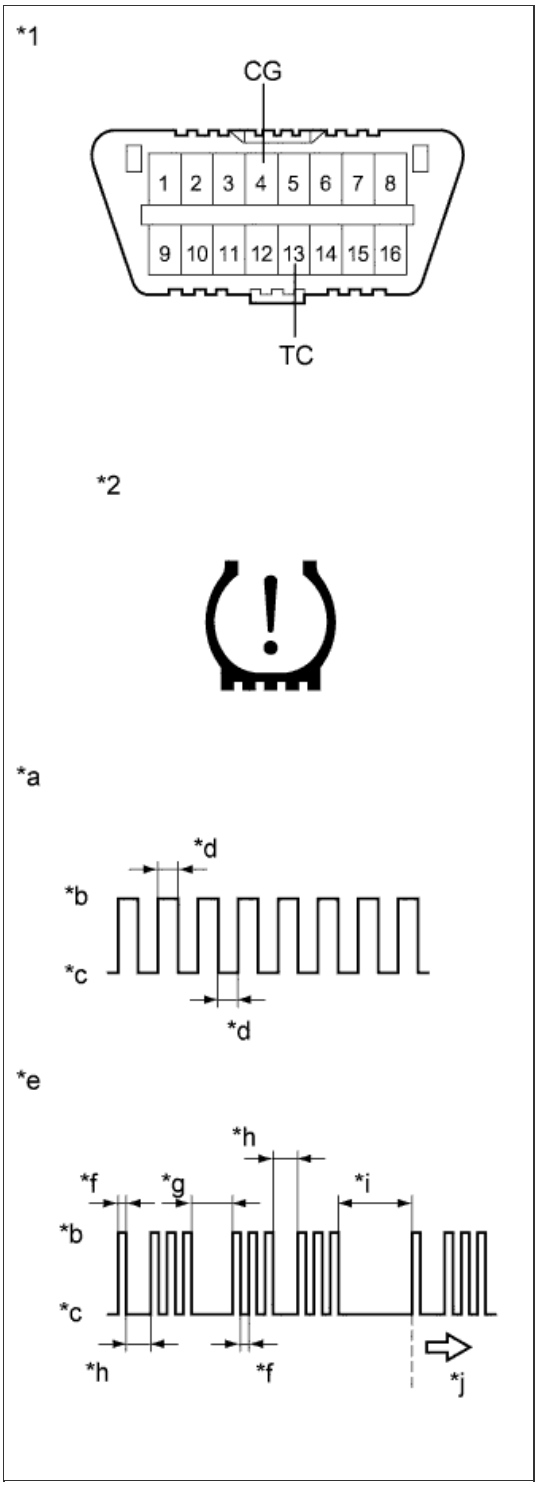
- **If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.**

Text in Illustration

*1	DLC3
*2	Tire Pressure Warning Light
*a	Normal System Code
*b	ON
*c	OFF
*d	0.25 sec.
*e	Code 13 and 33
*f	0.5 sec.
*g	2.5 sec.
*h	1.5 sec.
*i	4.5 sec.
*j	Repeat

e. Refer to the Diagnostic Trouble Code Chart (Click here) for DTC information.

f. After completing the check, turn the engine switch off and remove SST from the DLC3.



CLEAR DTC

HINT:

After repairing the malfunctions, clear the DTCs.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Clear DTCs following the prompts on the GTS screen.

HINT:

Refer to the GTS operator's manual for further details.

for Preparation Click here

CHECK DTC (USING THE GTS)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Read the DTCs.

CHECK DTC (USING SST CHECK WIRE)

a. Turn the engine switch off.

b. Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3.

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c. Turn the engine switch on (IG).

d. Read and record any DTCs from the tire pressure warning light on the combination meter. Refer to the illustration for examples of a normal system code and codes 13 and 33.

HINT:

- **If the tire pressure warning light does not indicate any DTCs or the normal system code, inspect the tire pressure warning light circuit or TC and CG terminal circuit.**

Trouble Area	See page
Tire pressure warning light circuit	Click here
TC and CG terminal circuit	Click here

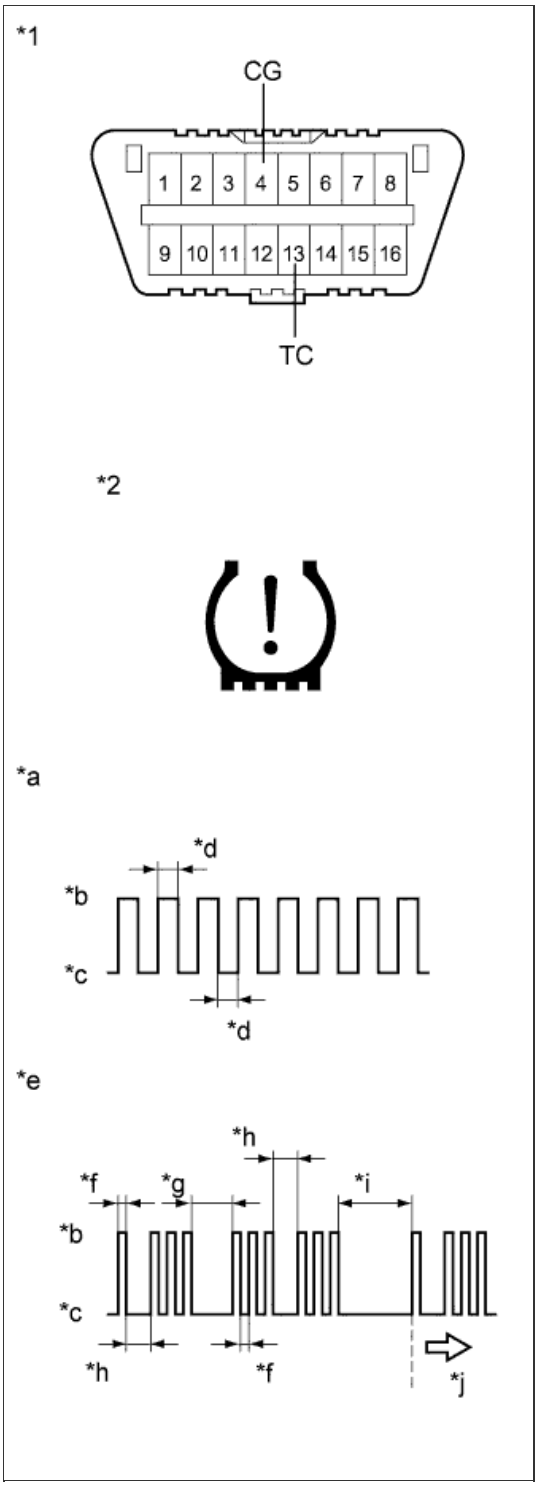
- **If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.**

Text in Illustration

*1	DLC3
*2	Tire Pressure Warning Light
*a	Normal System Code
*b	ON
*c	OFF
*d	0.25 sec.
*e	Code 13 and 33
*f	0.5 sec.
*g	2.5 sec.
*h	1.5 sec.
*i	4.5 sec.
*j	Repeat

e. Refer to the Diagnostic Trouble Code Chart (Click here) for DTC information.

f. After completing the check, turn the engine switch off and remove SST from the DLC3.



CLEAR DTC

HINT:

After repairing the malfunctions, clear the DTCs.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Trouble Codes.

f. Clear DTCs following the prompts on the GTS screen.

HINT:

Refer to the GTS operator's manual for further details.

for Preparation Click here

READ DATA LIST

HINT:

Using the GTS to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. According to the display on the GTS, read the Data List.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Mode Status	Tire pressure warning system mode/ NORMAL or TEST	NORMAL: Normal mode TEST: Test mode	-
Main Tire	Number of main tire ID to be registered/ 4 or 5	5 displayed	-
2nd Tire*3	-	-	-
Select Switch*3	-	-	-
Initialization Switch	Tire pressure warning reset switch/ ON or OFF	ON: Switch on OFF: Switch off	-
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter
Registered ID 1 Code	Registered ID1 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 Code	Registered ID2 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 Code	Registered ID3 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 Code	Registered ID4 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 Code	Registered ID5 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID5 displayed	-
ID 1 Temperature in Tire	ID1 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 2 Temperature in Tire	ID2 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 3 Temperature in Tire	ID3 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 4 Temperature in	ID4 temperature in tire/	Actual tire	If -40°C (-40°F) is displayed, data has not

Tire	min.: -40°C (-40°F), max.: 120°C (248°F)	temperature	been received.
ID 5 Temperature in Tire	ID5 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
Select Switch Info*3	-	-	-
Initialization Switch Info	Tire pressure warning reset switch setting information/ WITH or WITHOUT	WITH	-
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 1 Initial Threshold of Low-pressure	ID1 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 2 Initial Threshold of Low-pressure	ID2 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 3 Initial Threshold of Low-pressure	ID3 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 4 Initial Threshold of Low-pressure	ID4 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 5 Initial Threshold of	ID5 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Tire pressure after	-

Low-pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	initialization	
Number of Trouble Code	Number of DTCs recorded/ min.: 0, max.: 255	0	-

HINT:

*1: Displayed only when the ID No. is not registered.

*2: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

*3: This item is displayed on the GTS, however, it is not used for this vehicle.

PERFORM ACTIVE TEST

Using the GTS to perform Active Tests allows the relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Body Electrical / Combination Meter / Active Test.

f. Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire pressure warning light	OFF or ON

for Preparation Click here

READ DATA LIST

HINT:

Using the GTS to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. According to the display on the GTS, read the Data List.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Mode Status	Tire pressure warning system mode/ NORMAL or TEST	NORMAL: Normal mode TEST: Test mode	-
Main Tire	Number of main tire ID to be registered/ 4 or 5	5 displayed	-
2nd Tire*3	-	-	-
Select Switch*3	-	-	-
Initialization Switch	Tire pressure warning reset switch/ ON or OFF	ON: Switch on OFF: Switch off	-
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter
Registered ID 1 Code	Registered ID1 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 Code	Registered ID2 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 Code	Registered ID3 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 Code	Registered ID4 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 Code	Registered ID5 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID5 displayed	-
ID 1 Temperature in Tire	ID1 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 2 Temperature in Tire	ID2 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 3 Temperature in Tire	ID3 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 4 Temperature in	ID4 temperature in tire/	Actual tire	If -40°C (-40°F) is displayed, data has not

Tire	min.: -40°C (-40°F), max.: 120°C (248°F)	temperature	been received.
ID 5 Temperature in Tire	ID5 temperature in tire/ min.: -40°C (-40°F), max.: 120°C (248°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
Select Switch Info*3	-	-	-
Initialization Switch Info	Tire pressure warning reset switch setting information/ WITH or WITHOUT	WITH	-
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 1 Initial Threshold of Low-pressure	ID1 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 2 Initial Threshold of Low-pressure	ID2 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 3 Initial Threshold of Low-pressure	ID3 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 4 Initial Threshold of Low-pressure	ID4 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Tire pressure after initialization	-
ID 5 Initial Threshold of	ID5 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Tire pressure after	-

Low-pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	initialization	
Number of Trouble Code	Number of DTCs recorded/ min.: 0, max.: 255	0	-

HINT:

*1: Displayed only when the ID No. is not registered.

*2: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

*3: This item is displayed on the GTS, however, it is not used for this vehicle.

PERFORM ACTIVE TEST

Using the GTS to perform Active Tests allows the relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Body Electrical / Combination Meter / Active Test.

f. Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire pressure warning light	OFF or ON

for Preparation Click here

READ DATA LIST

HINT:

Using the GTS to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. According to the display on the GTS, read the Data List.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Mode Status	Tire pressure warning system mode/ NORMAL or TEST	NORMAL: Normal mode TEST: Test mode	-
Main Tire	Number of main tire ID to be registered/ 4 or 5	5 displayed	-
2nd Tire	Number of 2nd tire ID to be registered/ 4 or 5	5 displayed	-
Initialization Switch	Tire pressure warning reset switch/ ON or OFF	ON: Switch on OFF: Switch off	-
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter assembly
Registered ID 1 Code	Registered ID1 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 Code	Registered ID2 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 Code	Registered ID3 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 Code	Registered ID4 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 Code	Registered ID5 code/ min.: 0, max.: FFFFFFF*1	ID No. registered for transmitter ID5 displayed	-
ID 1 Temperature in Tire	ID1 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 2 Temperature in Tire	ID2 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 3 Temperature in Tire	ID3 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 4 Temperature in Tire	ID4 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
ID 5 Temperature in Tire	ID5 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, data has not been received.
Initialization	Tire pressure warning reset switch setting information/		

Switch Info	WITH or WITHOUT	WITH	-
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*2
Threshold of Low-pressure (Lower Limit)	min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Specified tire pressure warning threshold lower limit displayed	-
ID 1 Initial Threshold of Low-pressure	ID1 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Tire pressure after initialization	-
ID 2 Initial Threshold of Low-pressure	ID2 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Tire pressure after initialization	-
ID 3 Initial Threshold of Low-pressure	ID3 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Tire pressure after initialization	-
ID 4 Initial	ID4 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0	Tire pressure after	

Threshold of Low-pressure	psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	initialization	-
ID 5 Initial Threshold of Low-pressure	ID5 initial threshold of low-pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 480 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 380 kPa (3.9 kgf/cm^2, 55 psi)	Tire pressure after initialization	-
Sensor ID Status	Status of ID selection/ Main or 2nd	Status of ID selection	-
Sensor ID Switch Function	Information on whether there is ID switching function or not/ Without or With	Without: ID switching function is not equipped With: ID switching function is equipped	-
Number of Trouble Code	Number of DTCs recorded/ min.: 0, max.: 255	0	-

HINT:

*1: Displayed only when the ID No. is not registered.

*2: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

PERFORM ACTIVE TEST

Using the GTS to perform Active Tests allows the relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Body Electrical / Combination Meter / Active Test.

f. Check the operation by referring to the table below.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire pressure warning light	OFF or ON

for Preparation Click here

HINT:

If a trouble code is displayed during the DTC check, inspect the circuit listed for that code. For details of each code, refer to the respective "See page" for the "DTC Code" in the DTC chart.

Tire Pressure Warning System

DTC Code	Detection Item	See page
C2111/11	Transmitter ID1 Operation Stop	Click here
C2112/12	Transmitter ID2 Operation Stop	Click here
C2113/13	Transmitter ID3 Operation Stop	Click here
C2114/14	Transmitter ID4 Operation Stop	Click here
C2115/15	Transmitter ID5 Operation Stop	Click here
C2121/21	No Signal from Transmitter ID1	Click here
C2122/22	No Signal from Transmitter ID2	Click here
C2123/23	No Signal from Transmitter ID3	Click here
C2124/24	No Signal from Transmitter ID4	Click here
C2125/25	No Signal from Transmitter ID5	Click here
C2126/26	Transmitter ID not Received in Main Mode	Click here
C2141/41	Transmitter ID1 Error	Click here
C2142/42	Transmitter ID2 Error	Click here
C2143/43	Transmitter ID3 Error	Click here
C2144/44	Transmitter ID4 Error	Click here
C2145/45	Transmitter ID5 Error	Click here
C2171/71	Transmitter ID not Registered	Click here
C2176/76	Receiver Error	Click here
C2177/77	Initialization not Completed	Click here
C2179/79	Tire Pressure Monitor ECU Communication Stop	Click here
C2181/81	Transmitter ID1 not Received (Test Mode DTC)	Click here
C2182/82	Transmitter ID2 not Received (Test Mode DTC)	Click here
C2183/83	Transmitter ID3 not Received (Test Mode DTC)	Click here
C2184/84	Transmitter ID4 not Received (Test Mode DTC)	Click here
C2185/85	Transmitter ID5 not Received (Test Mode DTC)	Click here
C2191/91	Vehicle Speed Signal Error (Test Mode DTC)	Click here
C2195/95	Multi-receiver Antenna Circuit (Test Mode DTC)	Click here
C2198/98	Initialization Switch (for Test Mode DTC)	Click here

for Preparation Click here

HINT:

If a trouble code is displayed during the DTC check, inspect the circuit listed for that code. For details of each code, refer to the respective "See page" for the "DTC Code" in the DTC chart.

Tire Pressure Warning System

DTC Code	Detection Item	See page
C2111/11	Transmitter ID1 Operation Stop	Click here
C2112/12	Transmitter ID2 Operation Stop	Click here
C2113/13	Transmitter ID3 Operation Stop	Click here
C2114/14	Transmitter ID4 Operation Stop	Click here
C2115/15	Transmitter ID5 Operation Stop	Click here
C2121/21	No Signal from Transmitter ID1	Click here
C2122/22	No Signal from Transmitter ID2	Click here
C2123/23	No Signal from Transmitter ID3	Click here
C2124/24	No Signal from Transmitter ID4	Click here
C2125/25	No Signal from Transmitter ID5	Click here
C2126/26	Transmitter ID not Received in Main Mode	Click here
C2141/41	Transmitter ID1 Error	Click here
C2142/42	Transmitter ID2 Error	Click here
C2143/43	Transmitter ID3 Error	Click here
C2144/44	Transmitter ID4 Error	Click here
C2145/45	Transmitter ID5 Error	Click here
C2171/71	Transmitter ID not Registered	Click here
C2176/76	Receiver Error	Click here
C2177/77	Initialization not Completed	Click here
C2179/79	Tire Pressure Monitor ECU Communication Stop	Click here
C2181/81	Transmitter ID1 not Received (Test Mode DTC)	Click here
C2182/82	Transmitter ID2 not Received (Test Mode DTC)	Click here
C2183/83	Transmitter ID3 not Received (Test Mode DTC)	Click here
C2184/84	Transmitter ID4 not Received (Test Mode DTC)	Click here
C2185/85	Transmitter ID5 not Received (Test Mode DTC)	Click here
C2191/91	Vehicle Speed Signal Error (Test Mode DTC)	Click here
C2195/95	Multi-receiver Antenna Circuit (Test Mode DTC)	Click here
C2198/98	Initialization Switch (for Test Mode DTC)	Click here

for Preparation Click here

HINT:

If a trouble code is displayed during the DTC check, inspect the circuit listed for that code. For details of each code, refer to the respective "See page" for the "DTC Code" in the DTC chart.

Tire Pressure Warning System

DTC Code	Detection Item	See page
C2111/11	Transmitter ID1 Operation Stop	Click here
C2112/12	Transmitter ID2 Operation Stop	Click here
C2113/13	Transmitter ID3 Operation Stop	Click here
C2114/14	Transmitter ID4 Operation Stop	Click here
C2115/15	Transmitter ID5 Operation Stop	Click here
C2121/21	No Signal from Transmitter ID1	Click here
C2122/22	No Signal from Transmitter ID2	Click here
C2123/23	No Signal from Transmitter ID3	Click here
C2124/24	No Signal from Transmitter ID4	Click here
C2125/25	No Signal from Transmitter ID5	Click here
C2126/26	Transmitter ID not Received in Main Mode	Click here
C2141/41	Transmitter ID1 Error	Click here
C2142/42	Transmitter ID2 Error	Click here
C2143/43	Transmitter ID3 Error	Click here
C2144/44	Transmitter ID4 Error	Click here
C2145/45	Transmitter ID5 Error	Click here
C2171/71	Transmitter ID not Registered	Click here
C2176/76	Receiver Error	Click here
C2177/77	Initialization not Completed	Click here
C2179/79	Tire Pressure Monitor ECU Communication Stop	Click here
C2181/81	Transmitter ID1 not Received (Test Mode DTC)	Click here
C2182/82	Transmitter ID2 not Received (Test Mode DTC)	Click here
C2183/83	Transmitter ID3 not Received (Test Mode DTC)	Click here
C2184/84	Transmitter ID4 not Received (Test Mode DTC)	Click here
C2185/85	Transmitter ID5 not Received (Test Mode DTC)	Click here
C2191/91	Vehicle Speed Signal Error (Test Mode DTC)	Click here
C2195/95	Multi-receiver Antenna Circuit (Test Mode DTC)	Click here
C2198/98	Initialization Switch (for Test Mode DTC)	Click here

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

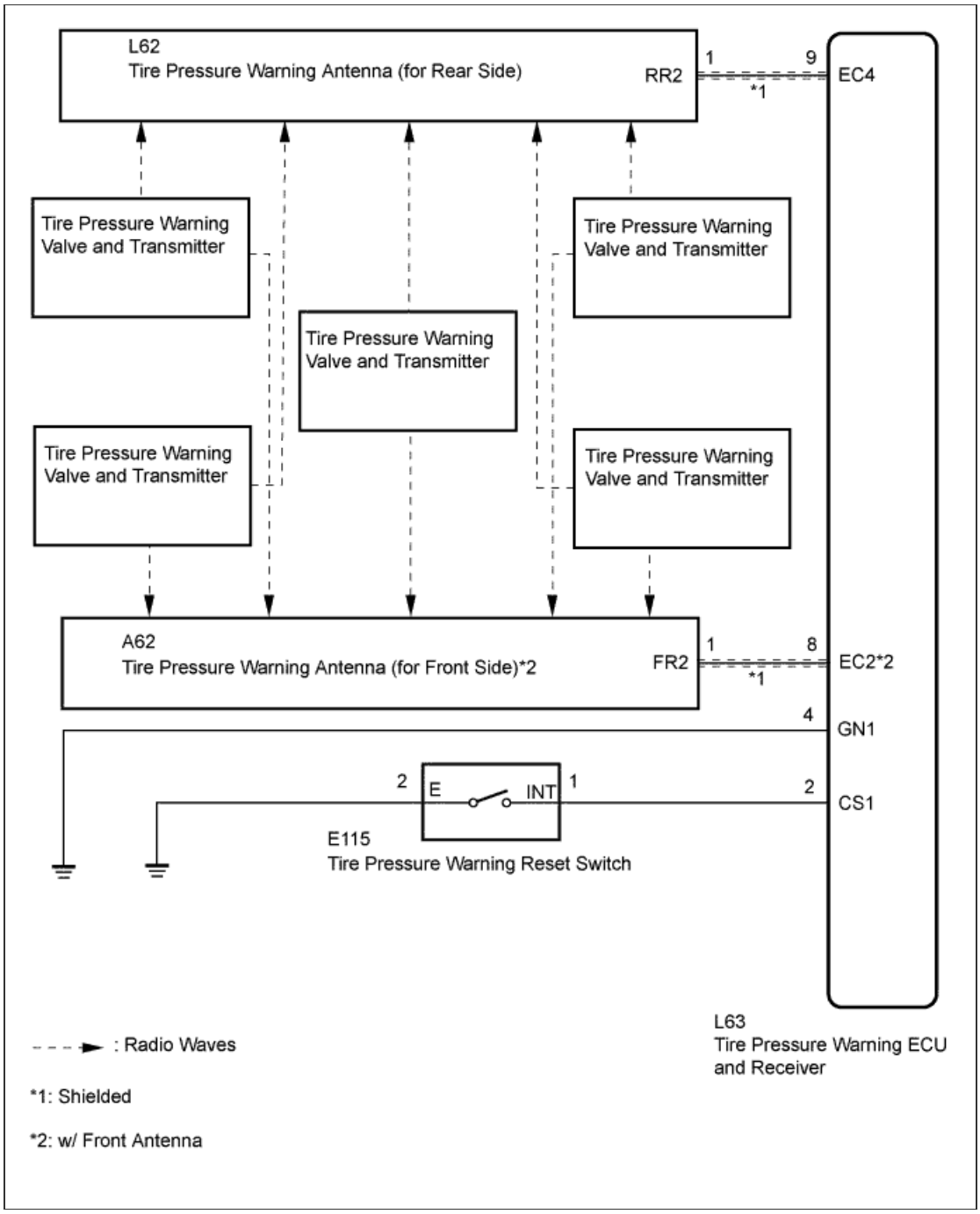
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

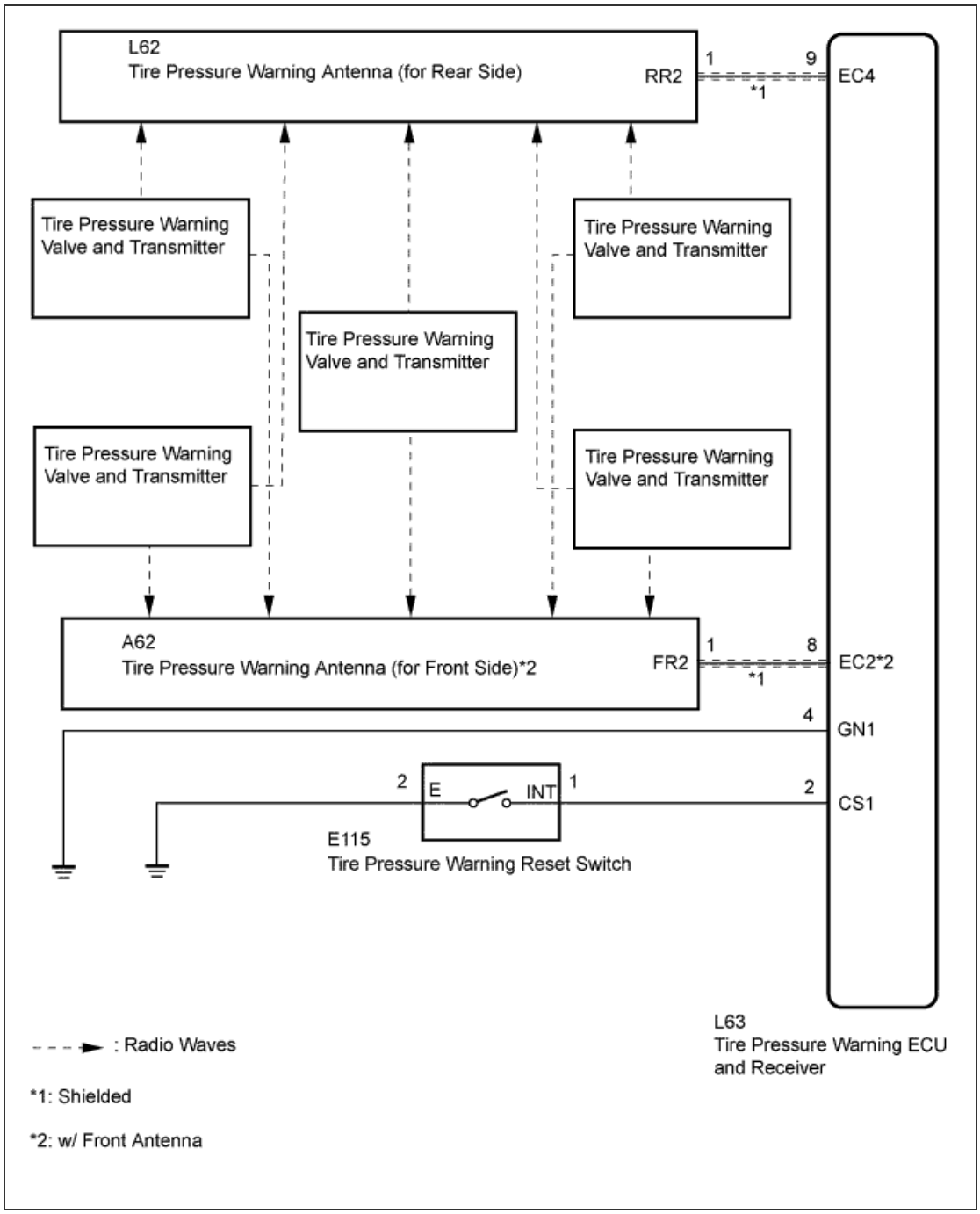
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

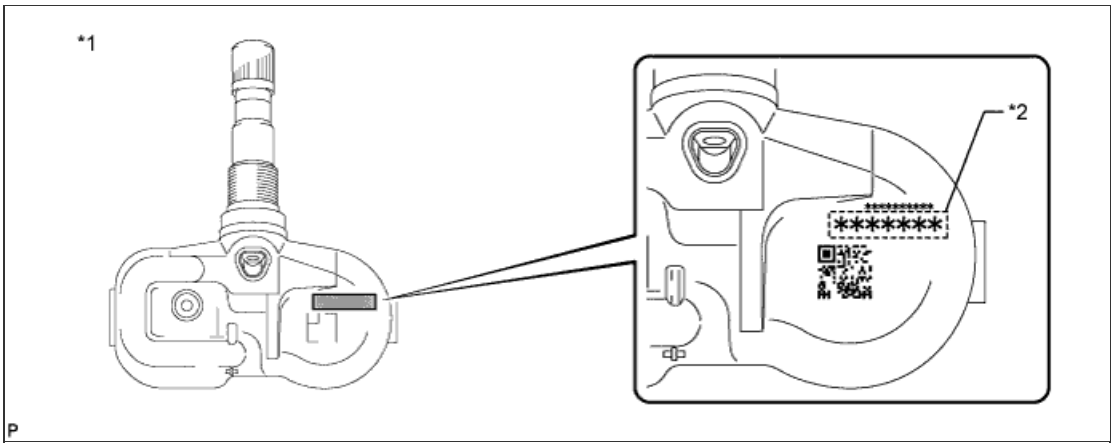
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

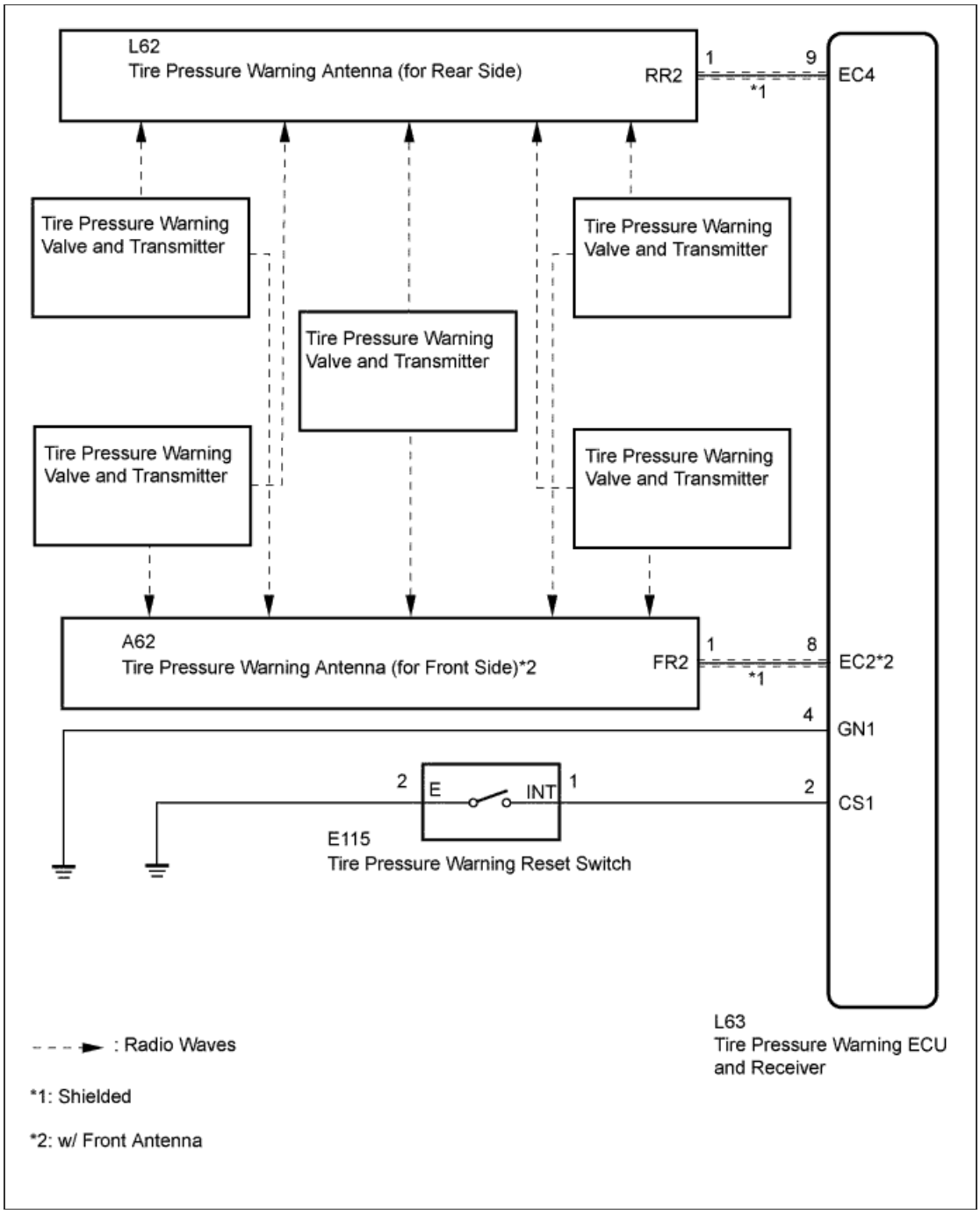
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

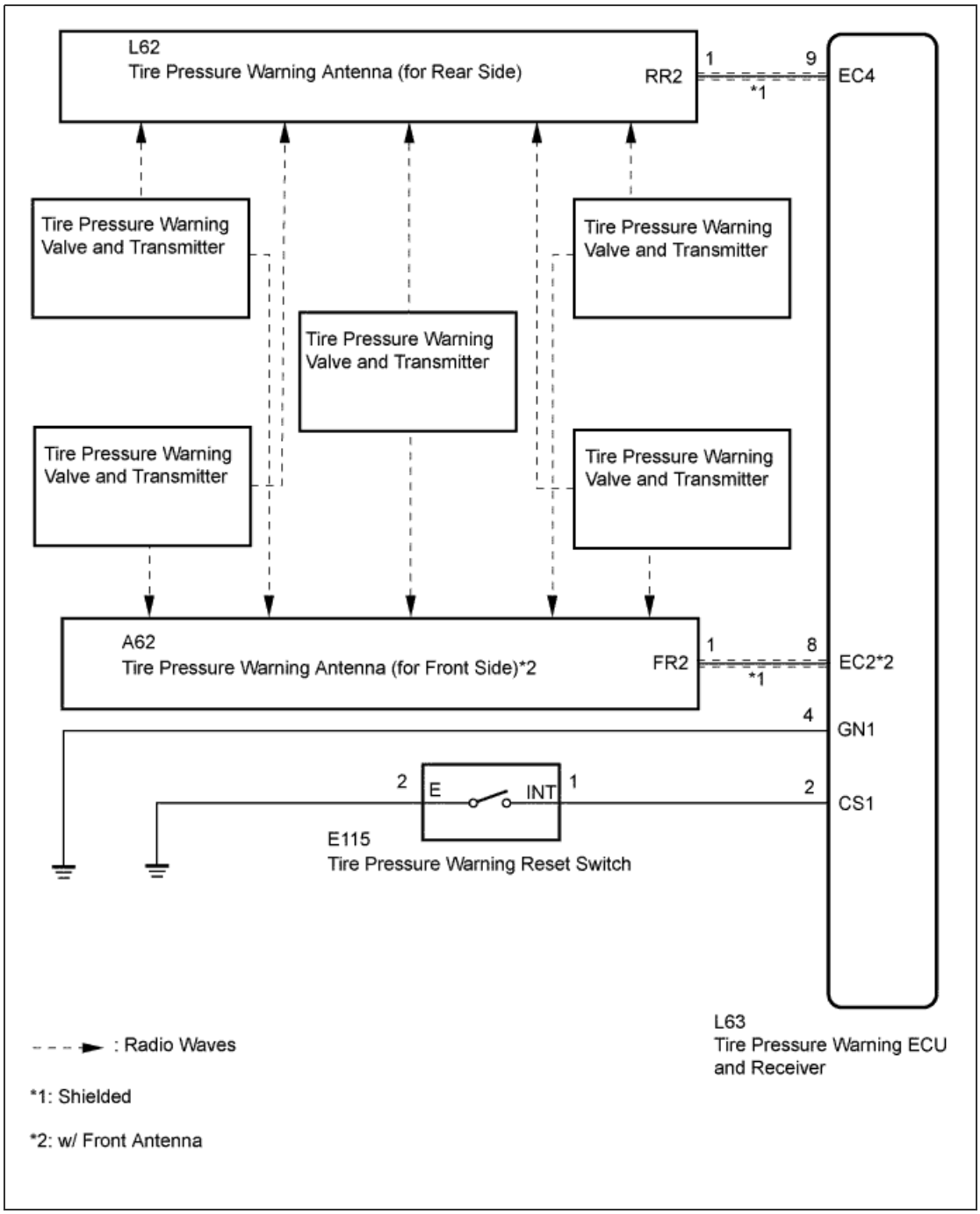
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

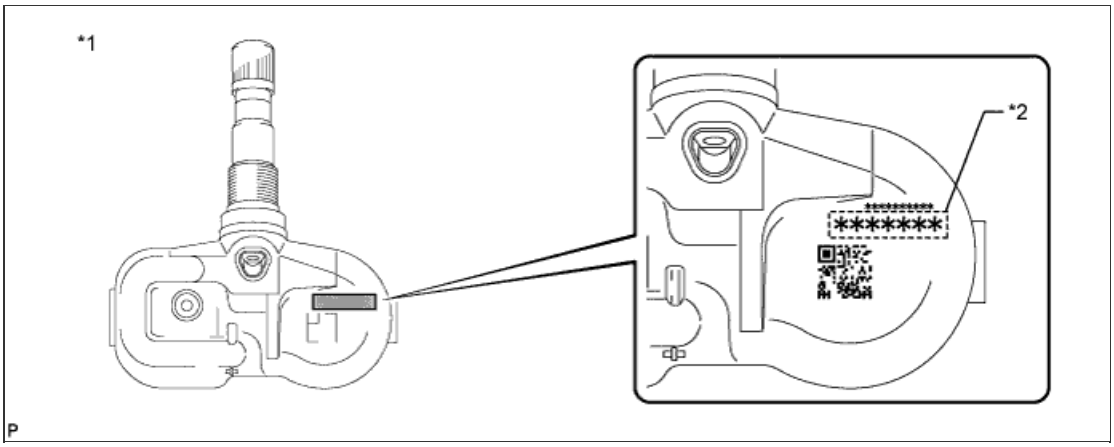
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

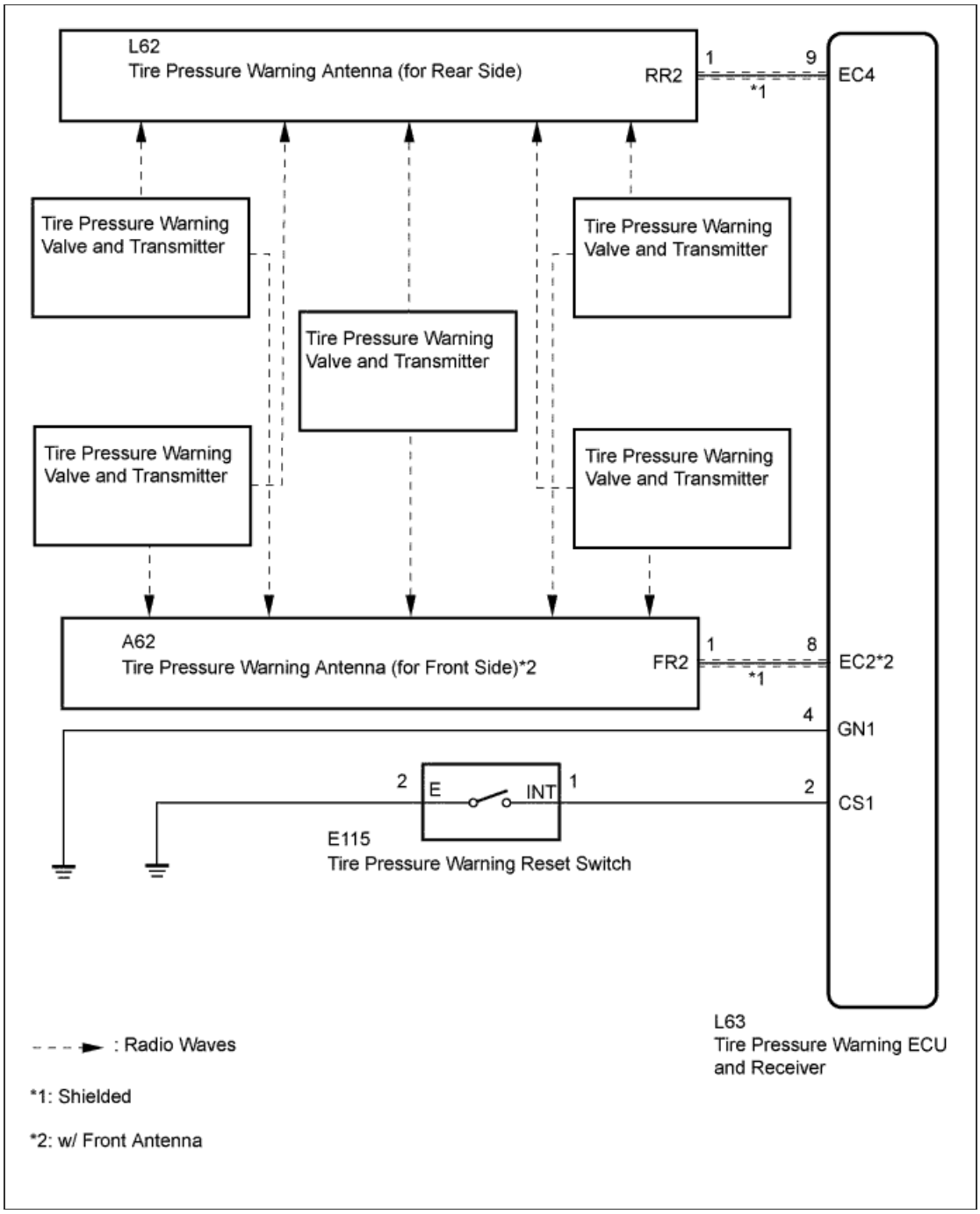
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

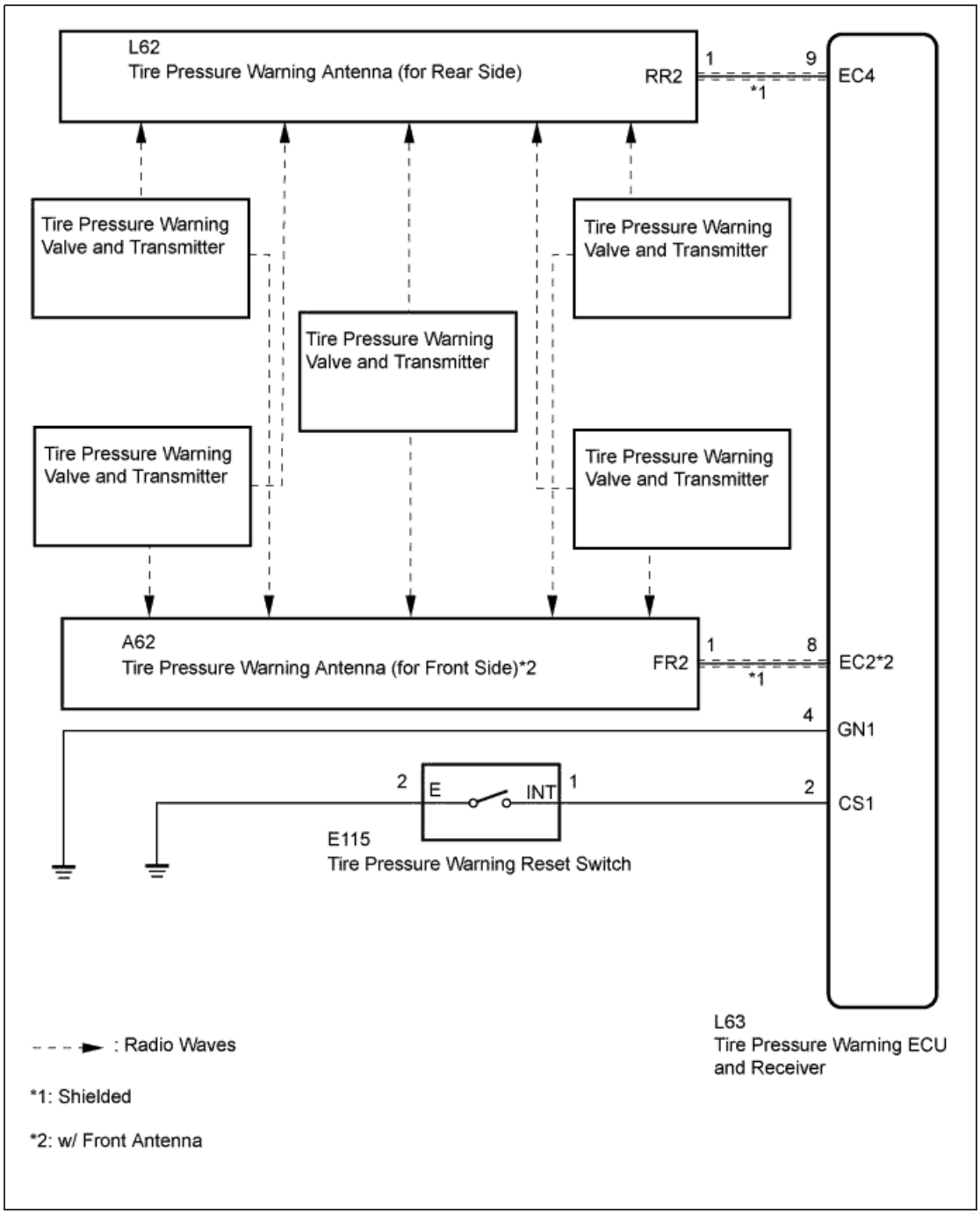
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

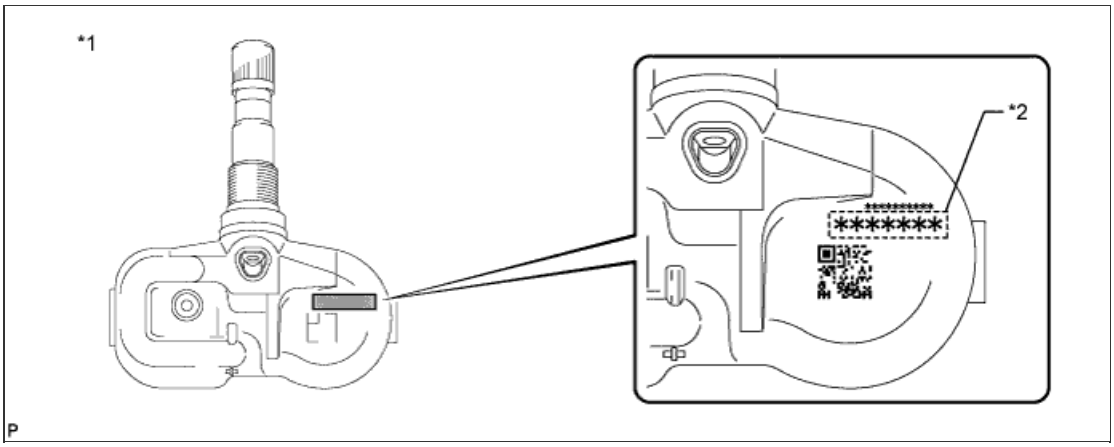
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

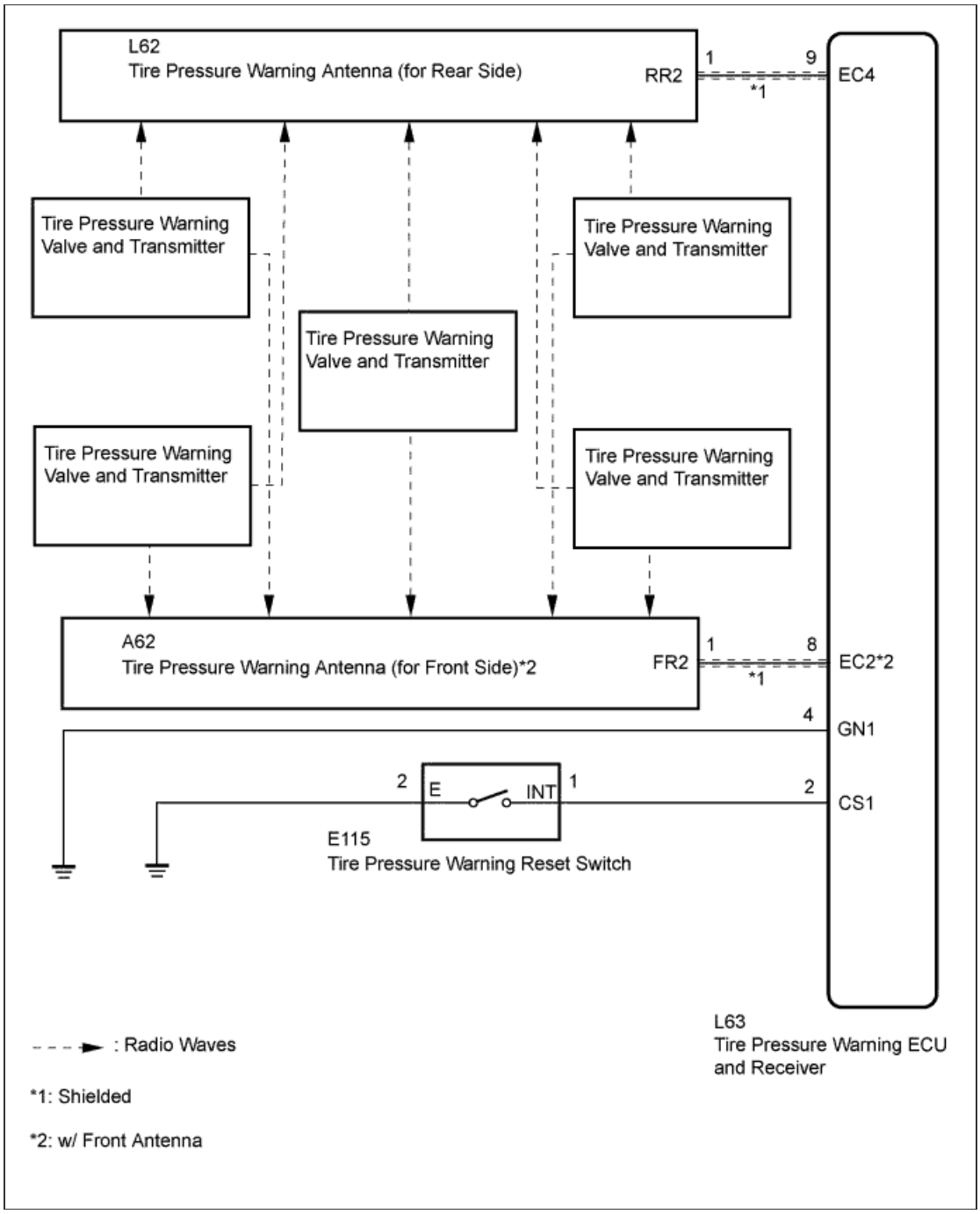
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2126/26 Transmitter ID not Received in Main Mode

for Preparation Click here

DESCRIPTION

After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates.
When the tire pressure warning ECU and receiver successfully receives radio waves from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.

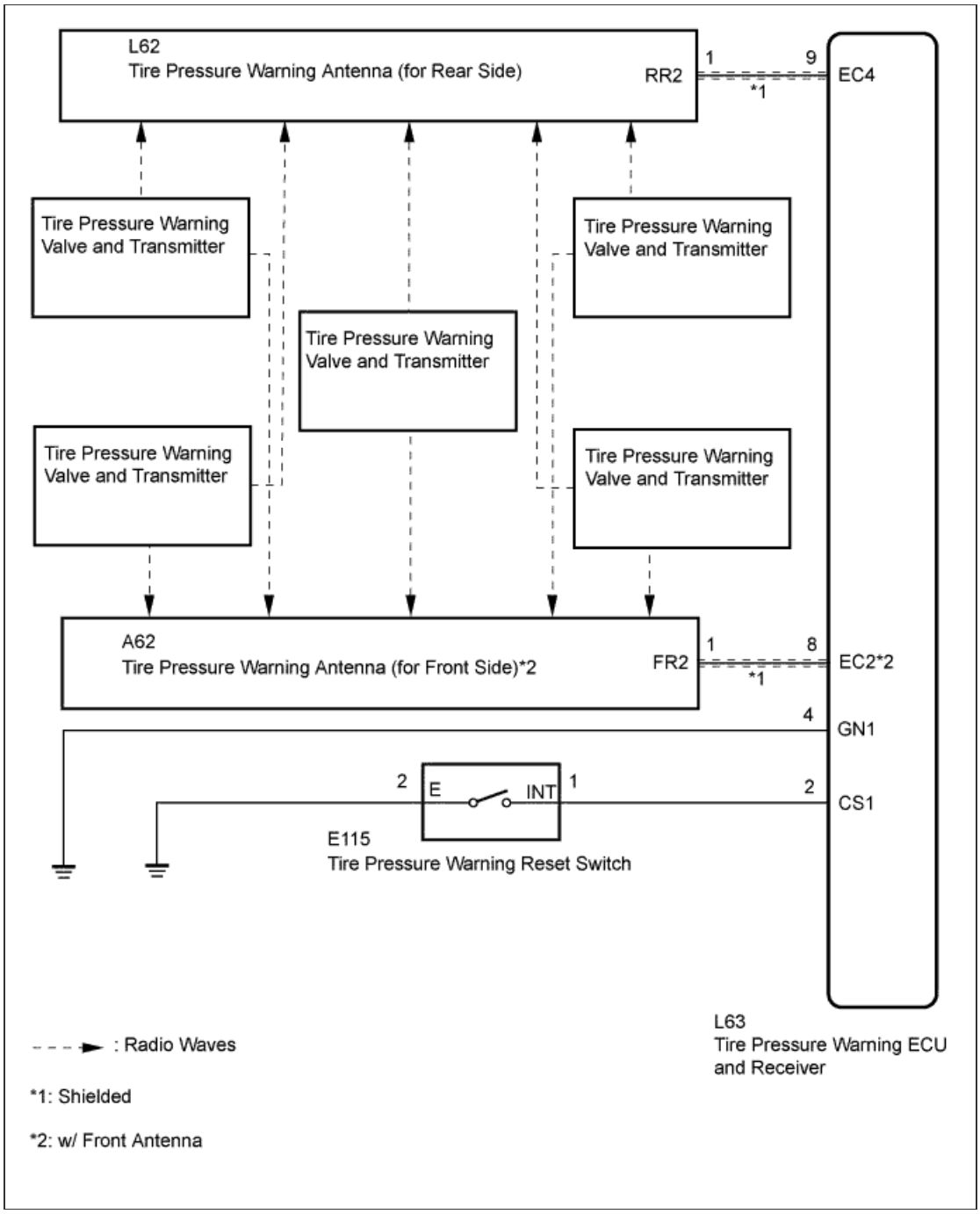
DTC No.	DTC Detection Condition	Trouble Area
C2126/26	After ID registration is completed, ECU does not receive radio waves from transmitters whose IDs are stored in ECU.	• ID registration failure • Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

HINT:

The purpose of this DTC is to help prevent delivering a vehicle that has incorrectly registered IDs. After all IDs are registered, DTC C2126/26 is detected and the tire pressure warning light blinks for 1 minute and then illuminates. If the tire pressure warning light does not turn off after a little while, IDs may be incorrectly registered.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to

DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (Click here)

A

2.IDENTIFY TRANSMITTER NOT RECEIVED

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the "ID Tire Inflation Pressure" data transmitter ID that corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter not received.

Result:

Condition	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → Go to step 6

A

3.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

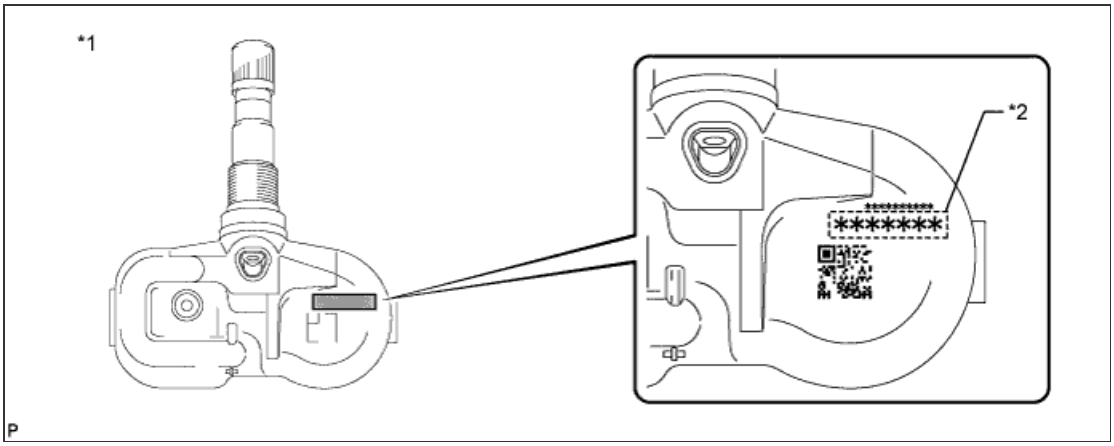
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to

Match	A
Do not match	B

B → Go to step 5

A

4.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

5.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

6.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

7.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

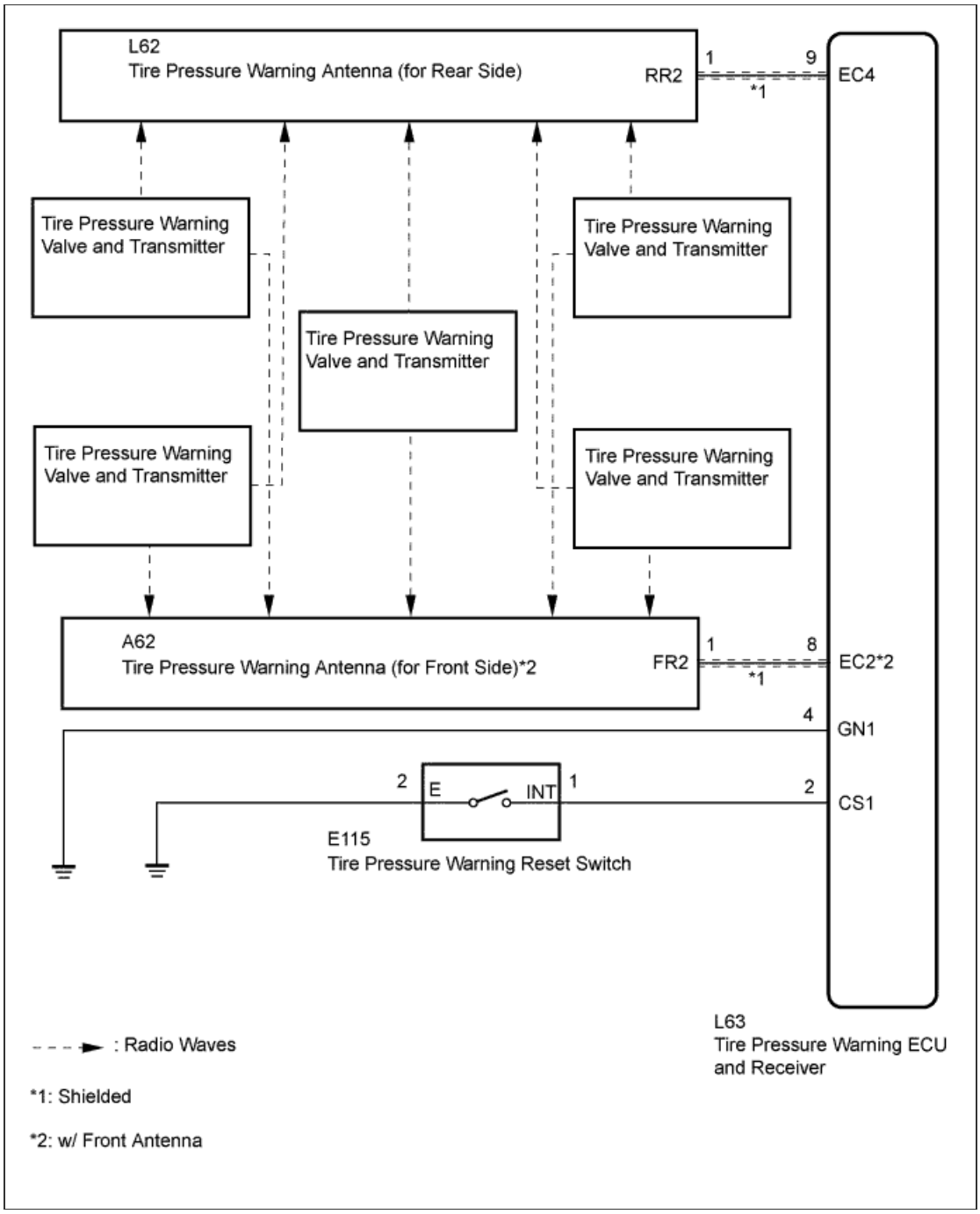
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2126/26 Transmitter ID not Received in Main Mode

for Preparation Click here

DESCRIPTION

After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates.
When the tire pressure warning ECU and receiver successfully receives radio waves from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.

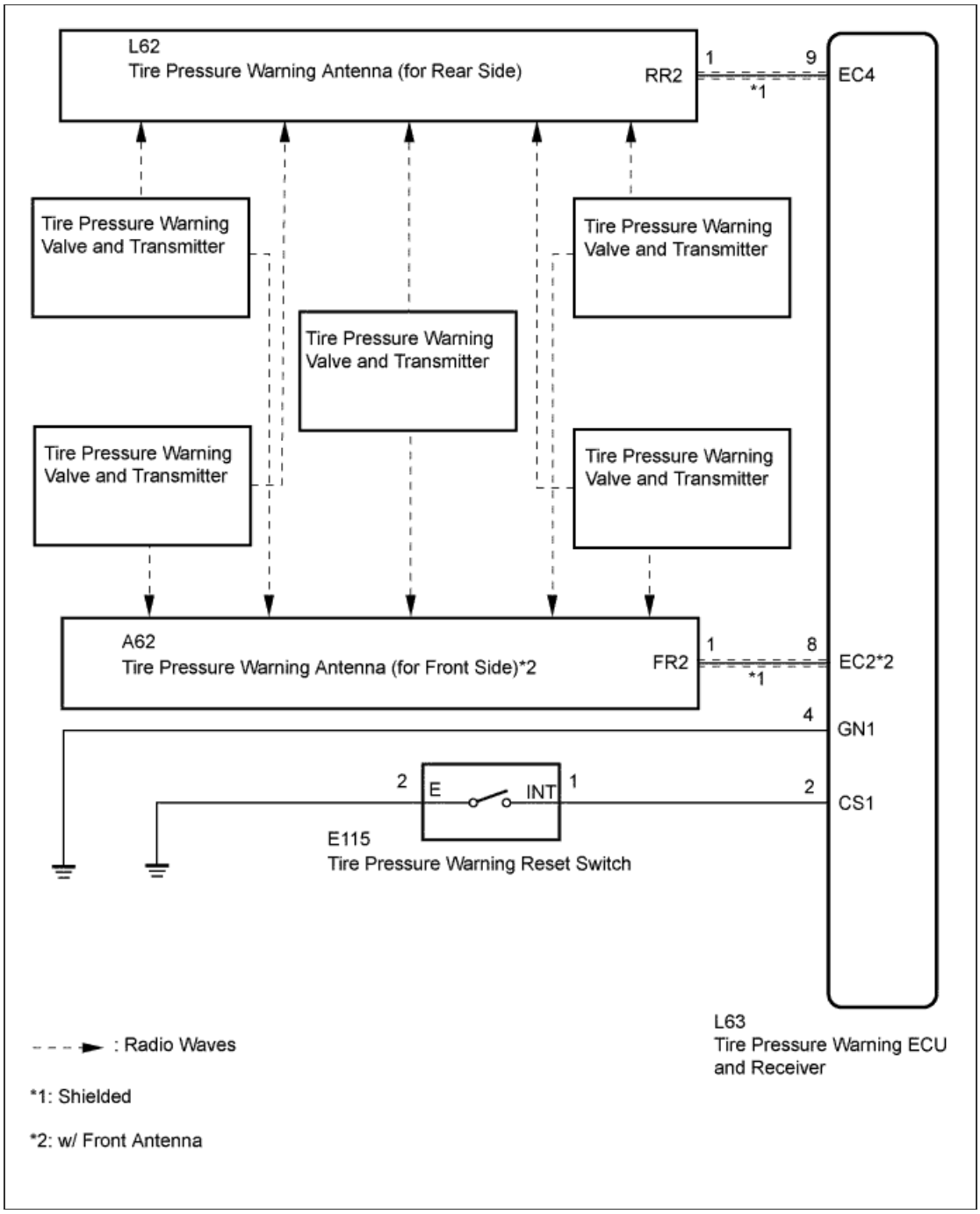
DTC No.	DTC Detection Condition	Trouble Area
C2126/26	After ID registration is completed, ECU does not receive radio waves from transmitters whose IDs are stored in ECU.	• ID registration failure • Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

HINT:

The purpose of this DTC is to help prevent delivering a vehicle that has incorrectly registered IDs. After all IDs are registered, DTC C2126/26 is detected and the tire pressure warning light blinks for 1 minute and then illuminates. If the tire pressure warning light does not turn off after a little while, IDs may be incorrectly registered.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to

DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (Click here)

A

2.IDENTIFY TRANSMITTER NOT RECEIVED

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the "ID Tire Inflation Pressure" data transmitter ID that corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter not received.

Result:

Condition	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → Go to step 6

A

3.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

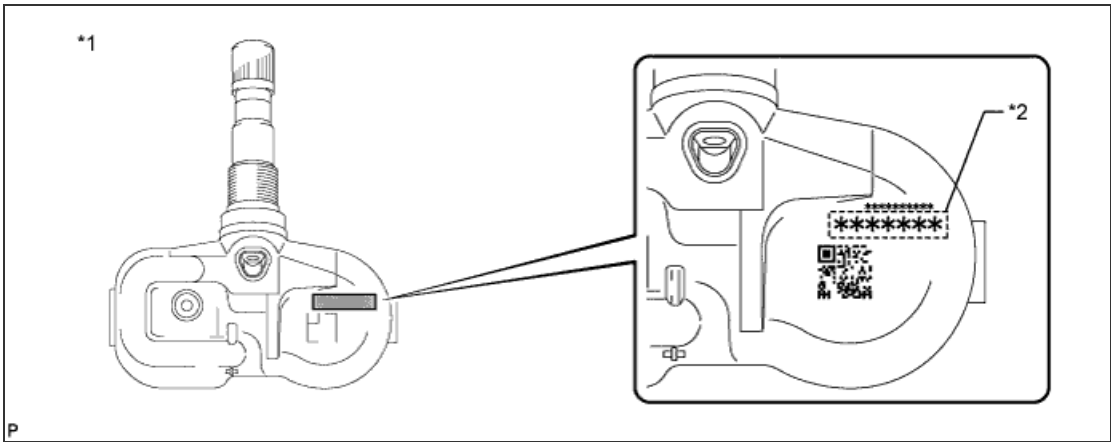
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to

Match	A
Do not match	B

B → Go to step 5

A

4.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

5.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

6.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

7.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

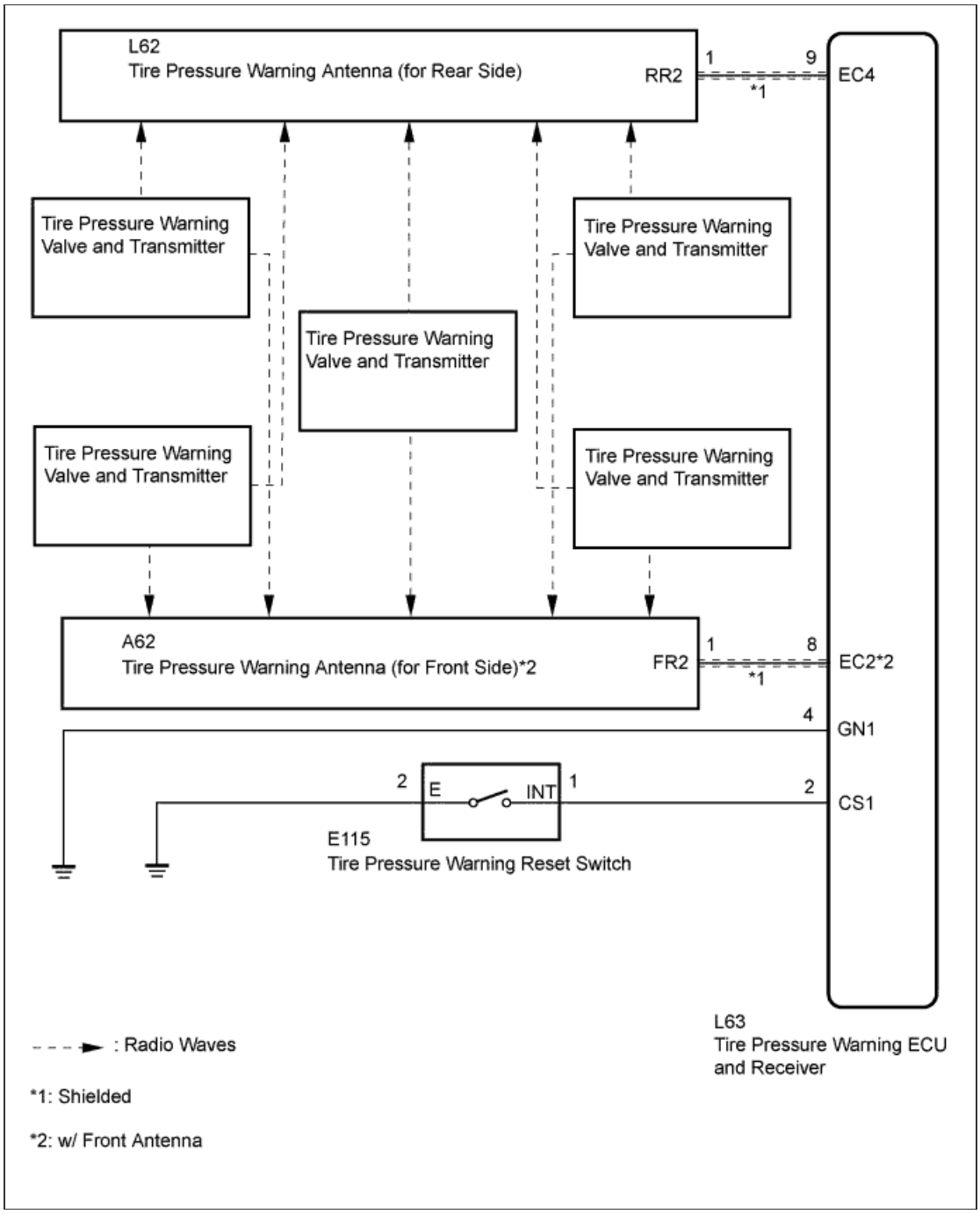
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2126/26 Transmitter ID not Received in Main Mode

for Preparation Click here

DESCRIPTION

After all IDs are registered, DTC C2126/26 is stored in the tire pressure warning ECU and receiver and the tire pressure warning light blinks for 1 minute and then illuminates.
When the tire pressure warning ECU and receiver successfully receives radio waves from all the transmitters whose IDs are stored in the ECU, DTC C2126/26 is cleared and the tire pressure warning light goes off.

DTC No.	DTC Detection Condition	Trouble Area
C2126/26	After ID registration is completed, ECU does not receive radio waves from transmitters whose IDs are stored in ECU.	• ID registration failure • Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

NOTICE:

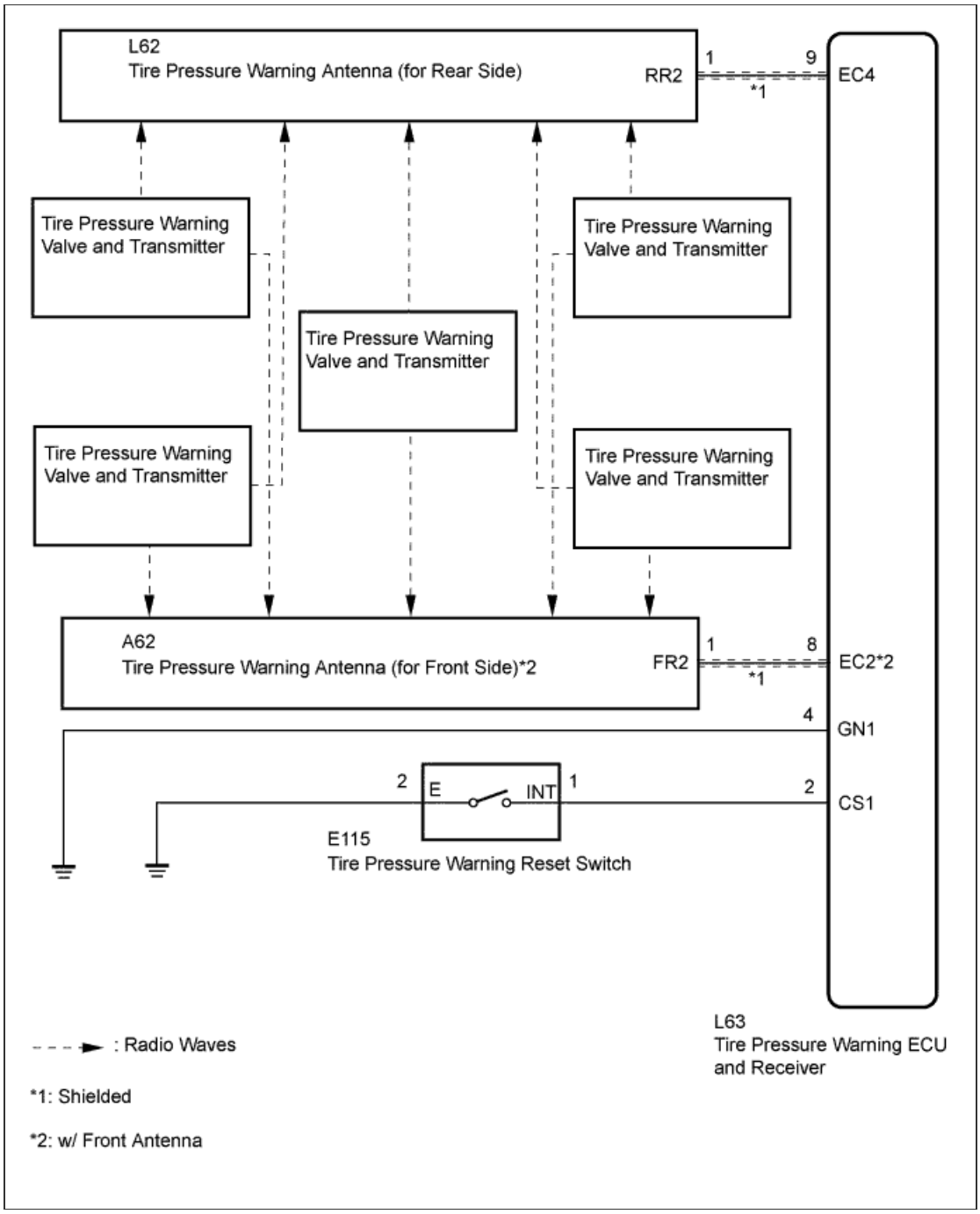
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

The purpose of this DTC is to help prevent delivering a vehicle that has incorrectly registered IDs. After all IDs are registered, DTC C2126/26 is detected and the tire pressure warning light blinks for 1 minute and then illuminates. If the tire pressure warning light does not turn off after a little while, IDs may be incorrectly registered.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to

DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (Click here)

A

2.IDENTIFY TRANSMITTER NOT RECEIVED

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the "ID Tire Inflation Pressure" data transmitter ID that corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter not received.

Result:

Condition	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → Go to step 6

A

3.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

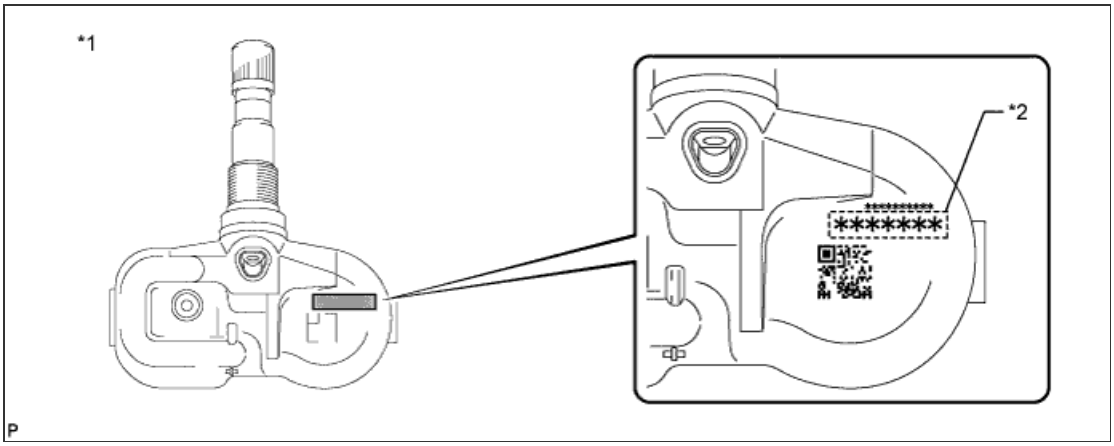
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to

Match	A
Do not match	B

B → Go to step 5

A

4.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

5.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

6.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

7.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

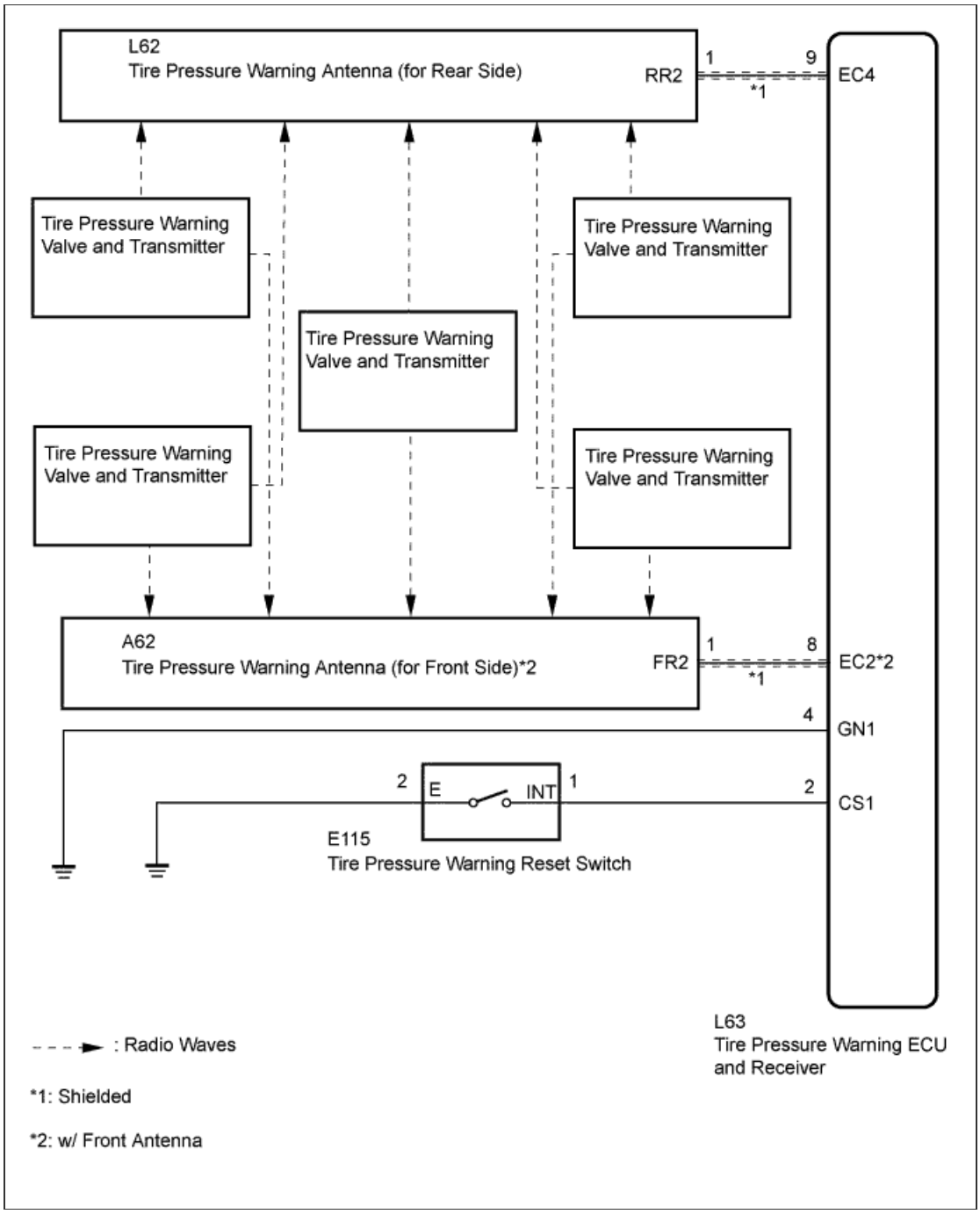
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

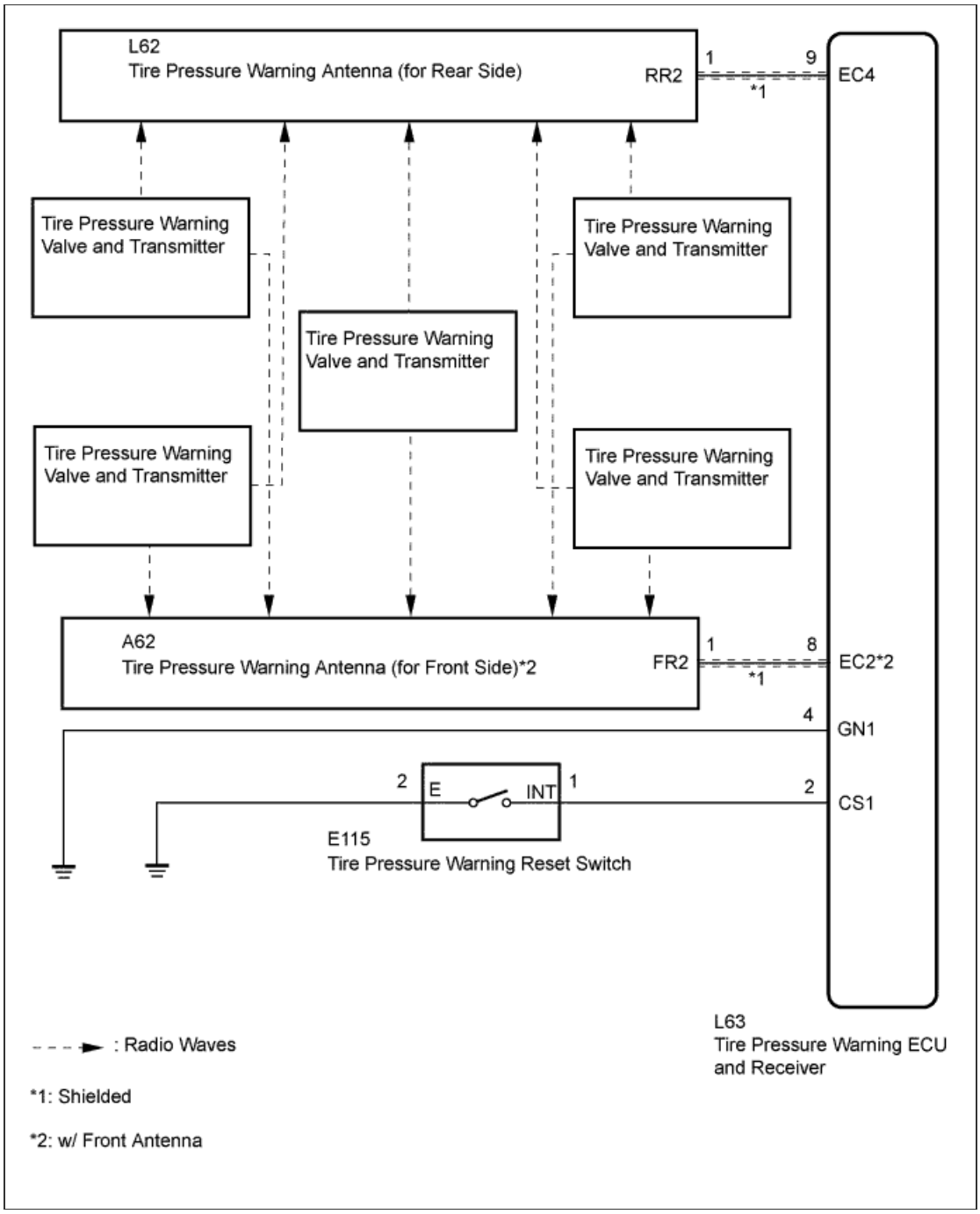
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

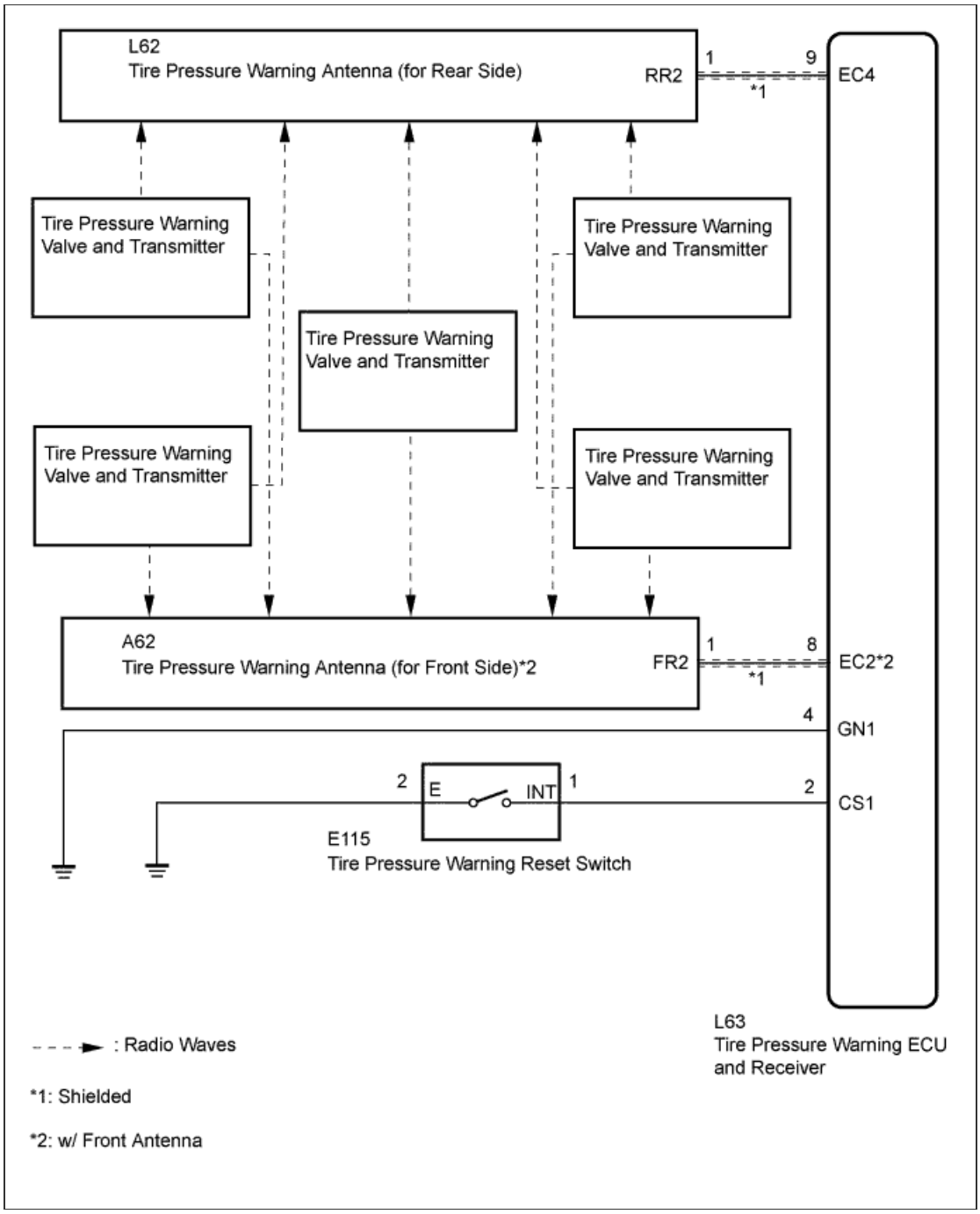
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

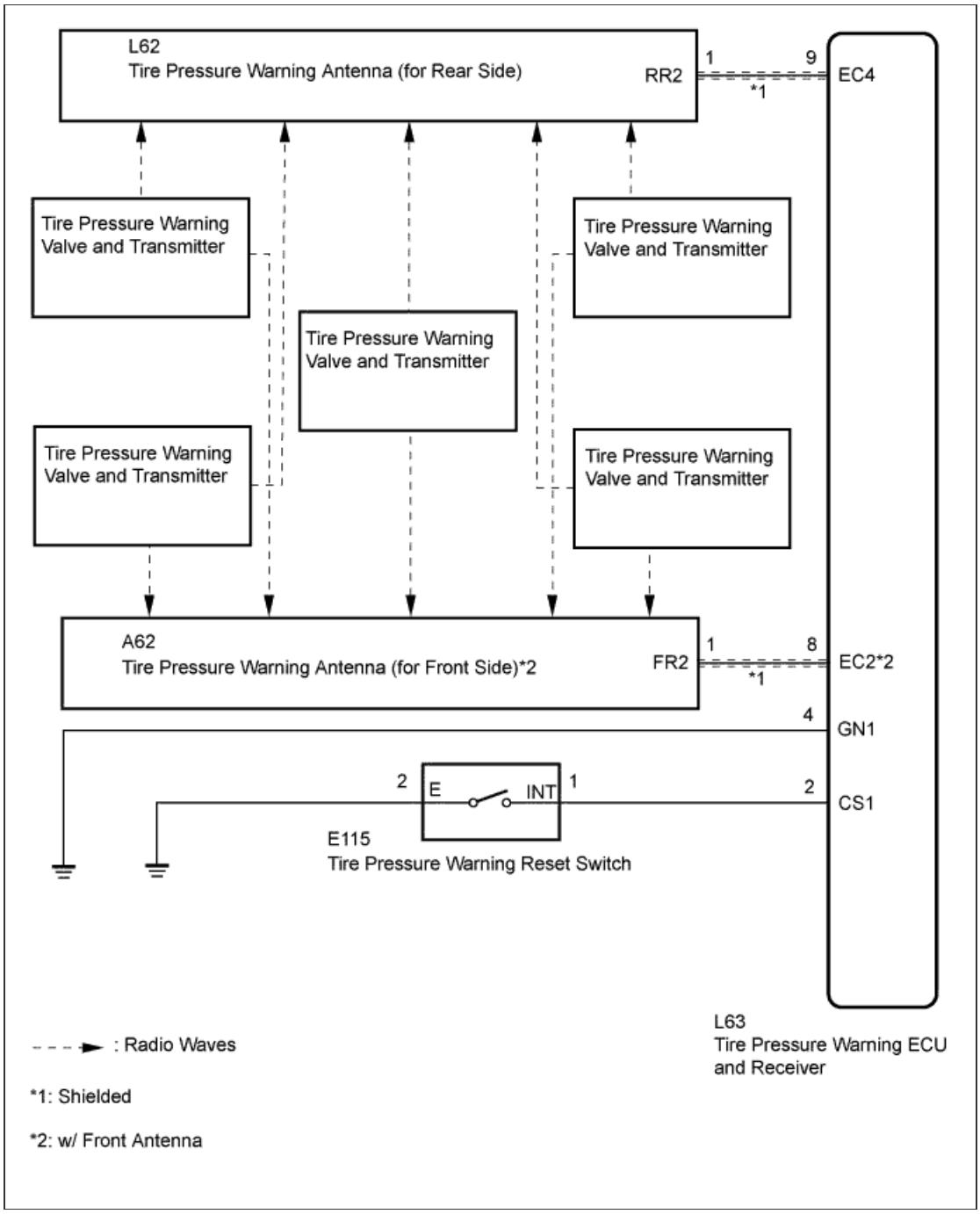
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

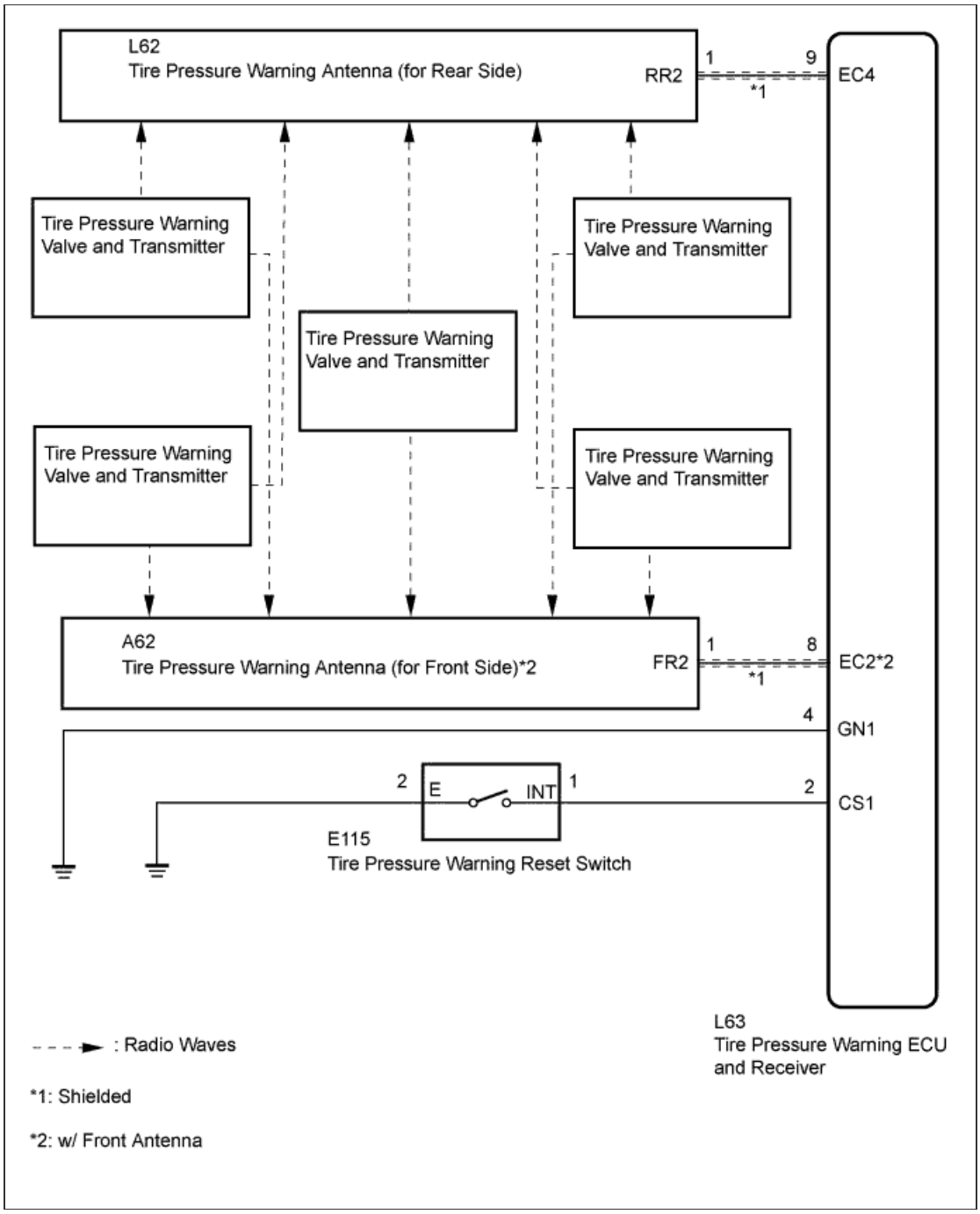
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

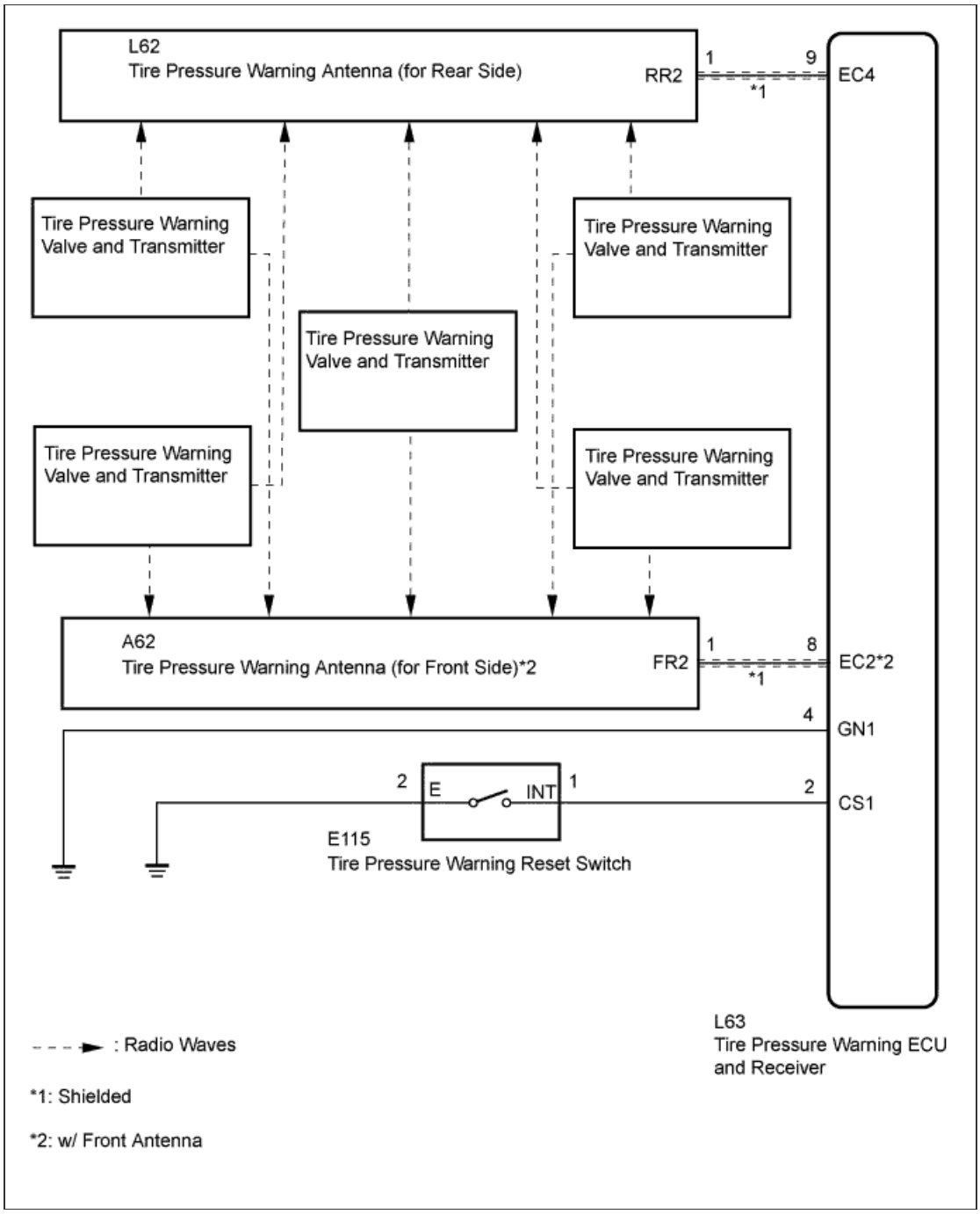
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

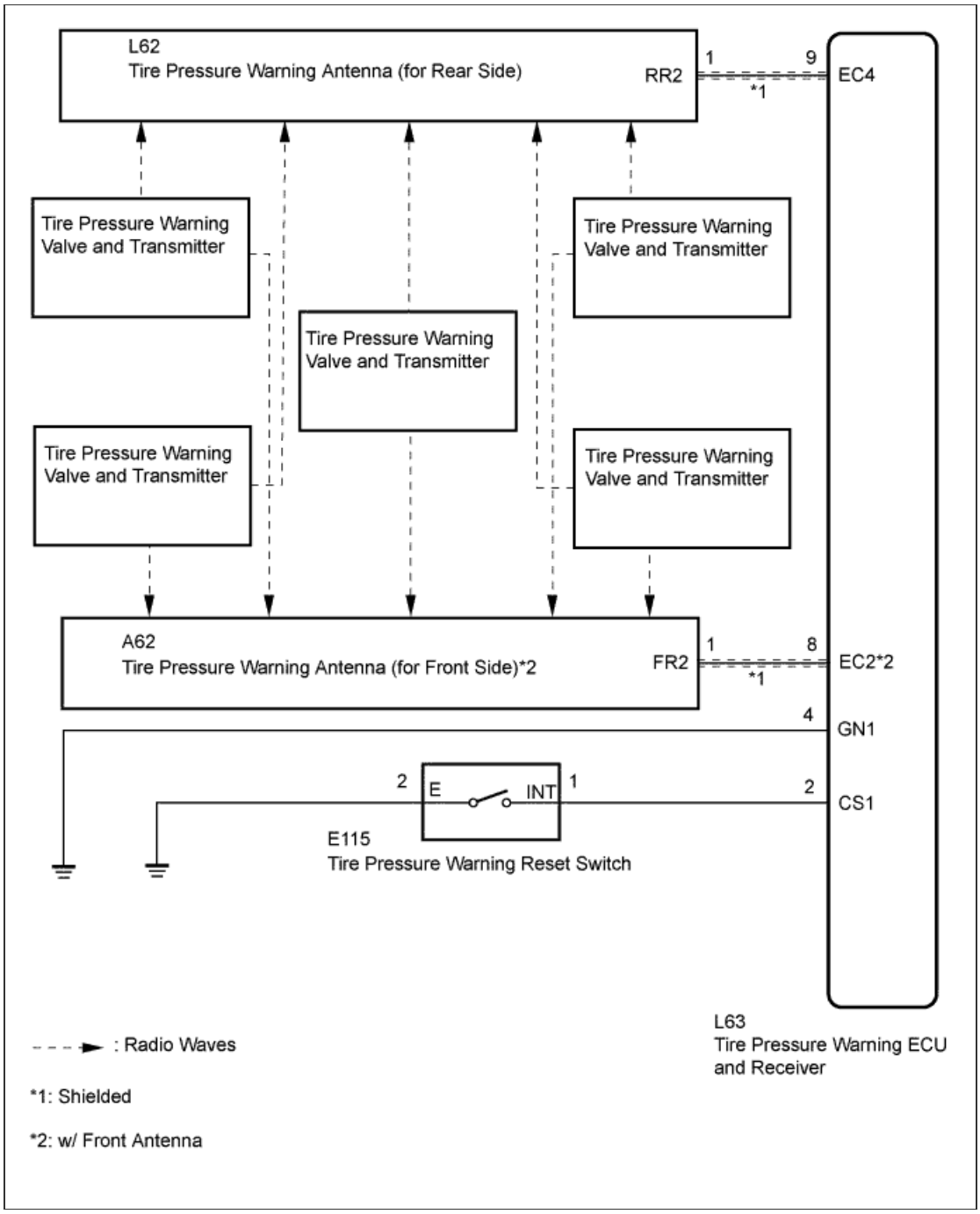
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

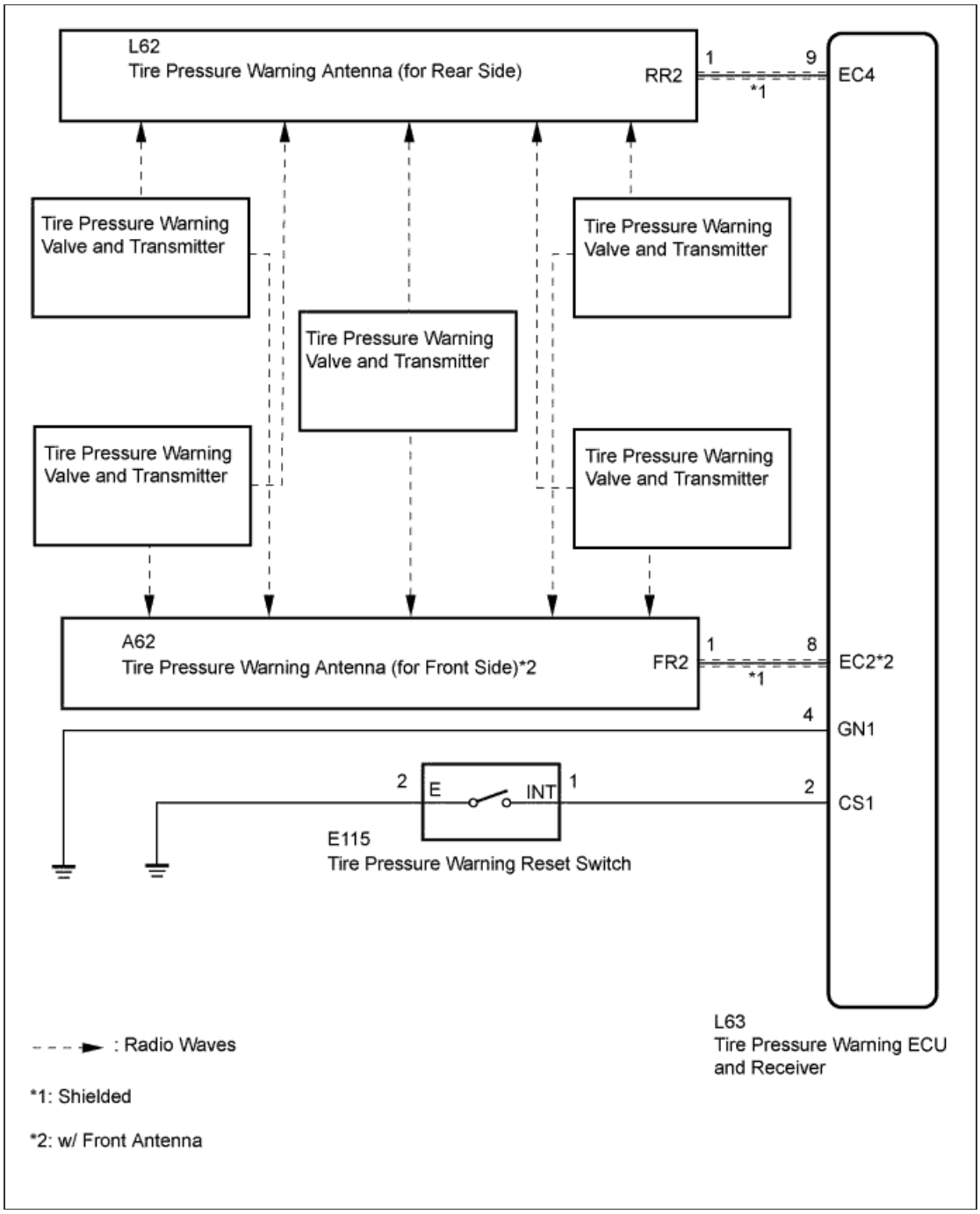
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2111/11 Transmitter ID1 Operation Stop

DTC C2112/12 Transmitter ID2 Operation Stop

DTC C2113/13 Transmitter ID3 Operation Stop

DTC C2114/14 Transmitter ID4 Operation Stop

DTC C2115/15 Transmitter ID5 Operation Stop

for Preparation Click here

DESCRIPTION

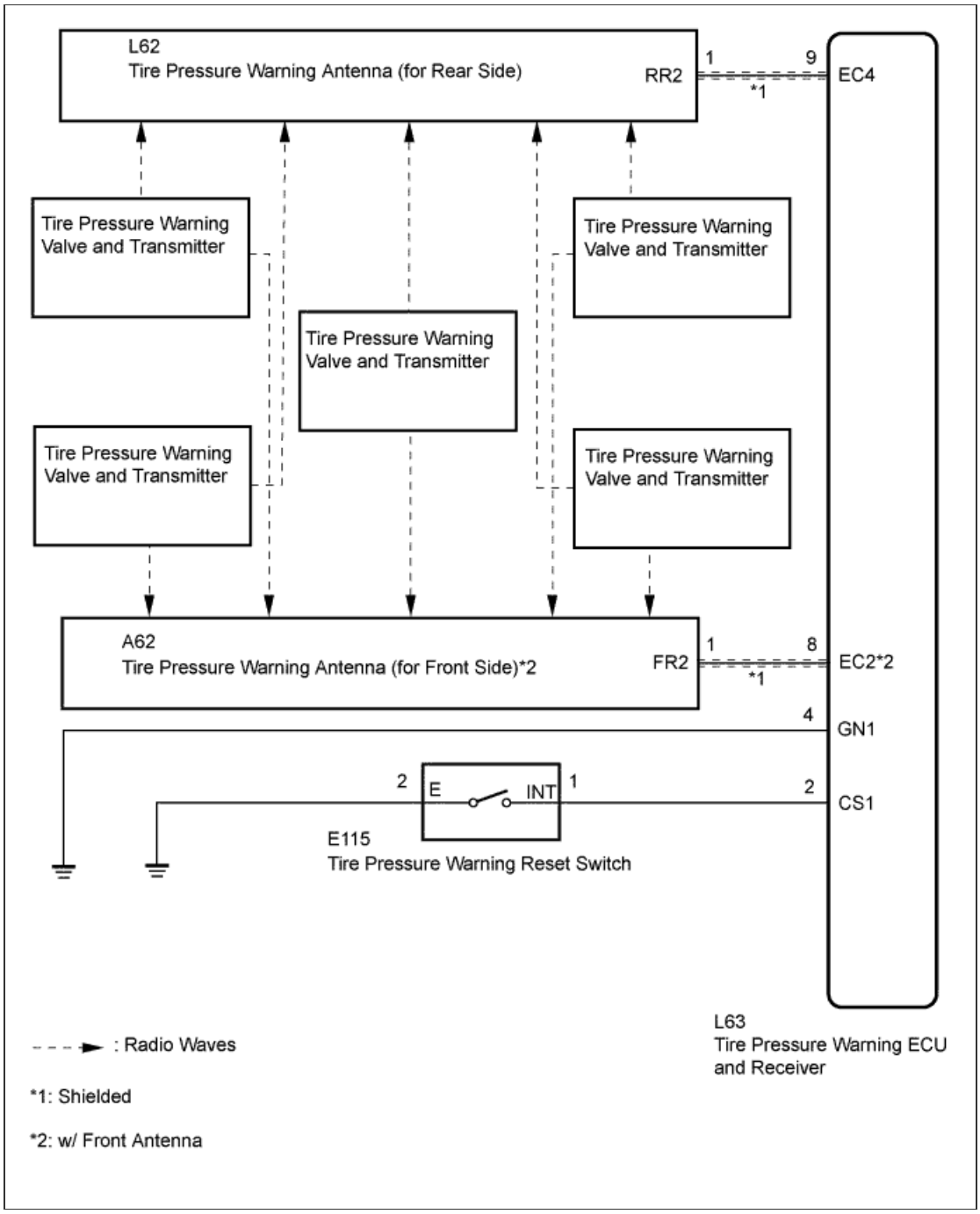
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates. The tire pressure warning ECU and receiver stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. The signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when signal transmission resumes.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	Tire pressure warning valve and transmitters stop transmitting signals	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

1.PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

OK:

Each tire pressure data displayed on the GTS will change to the value of the tire pressure.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

ii. After confirming that all of the tire pressure data displayed on the GTS has changed, set the tire pressure to the appropriate specified value.

HINT:

If the tire pressure data displayed on the GTS has not changed after rechecking, inspect for another problem (Click here).

NG → GO TO TRANSMITTER AND RECEIVER INSPECTION PROCEDURE (**Click here**)

OK

END

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

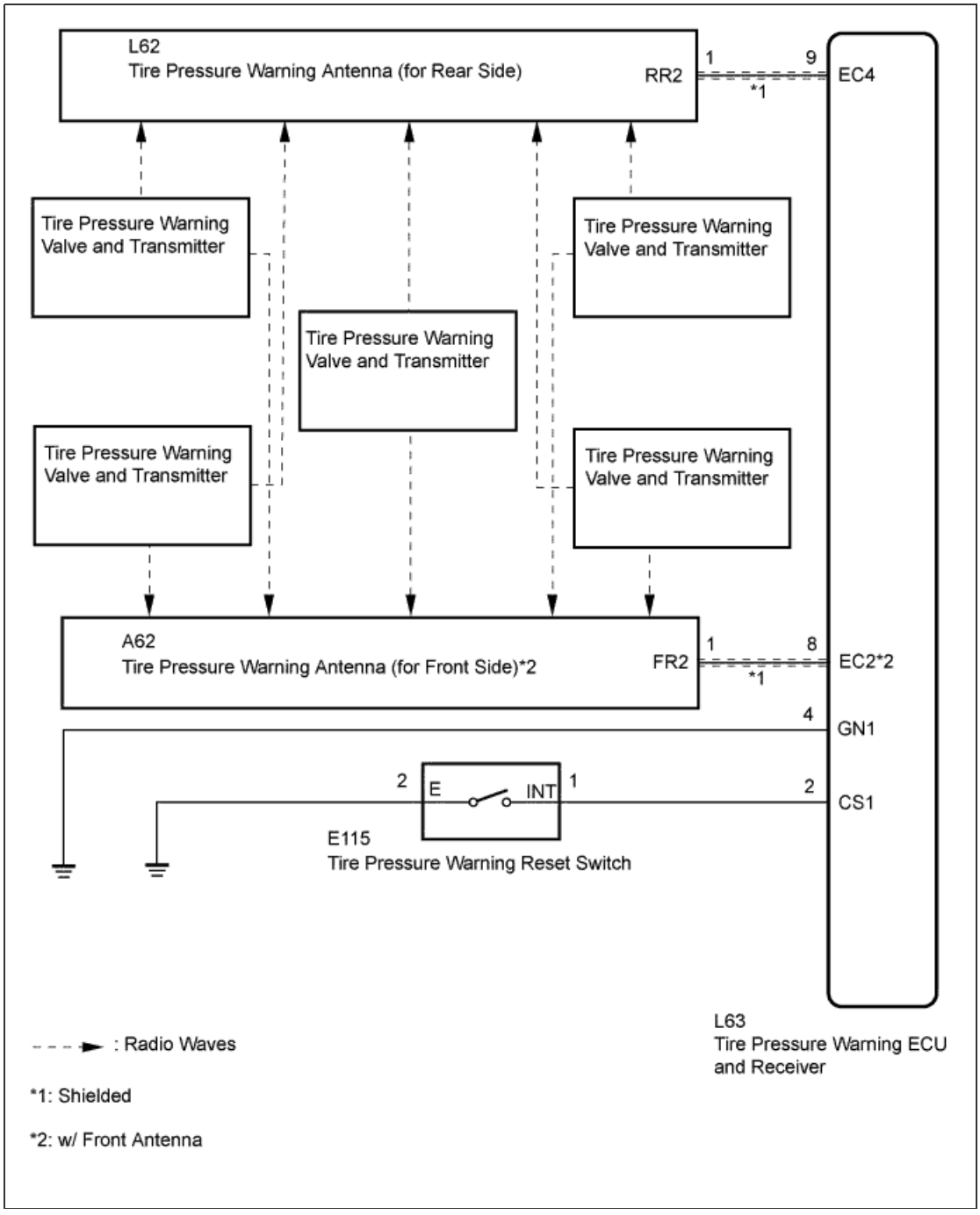
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

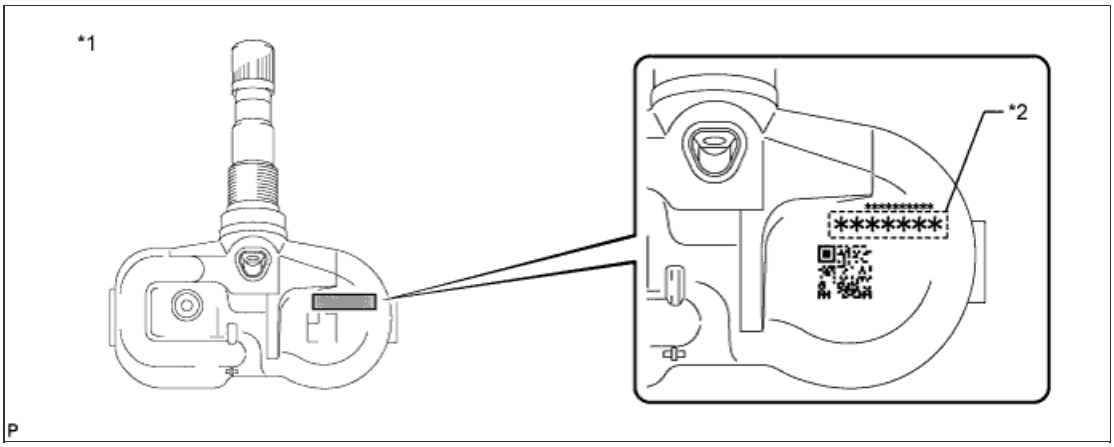
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

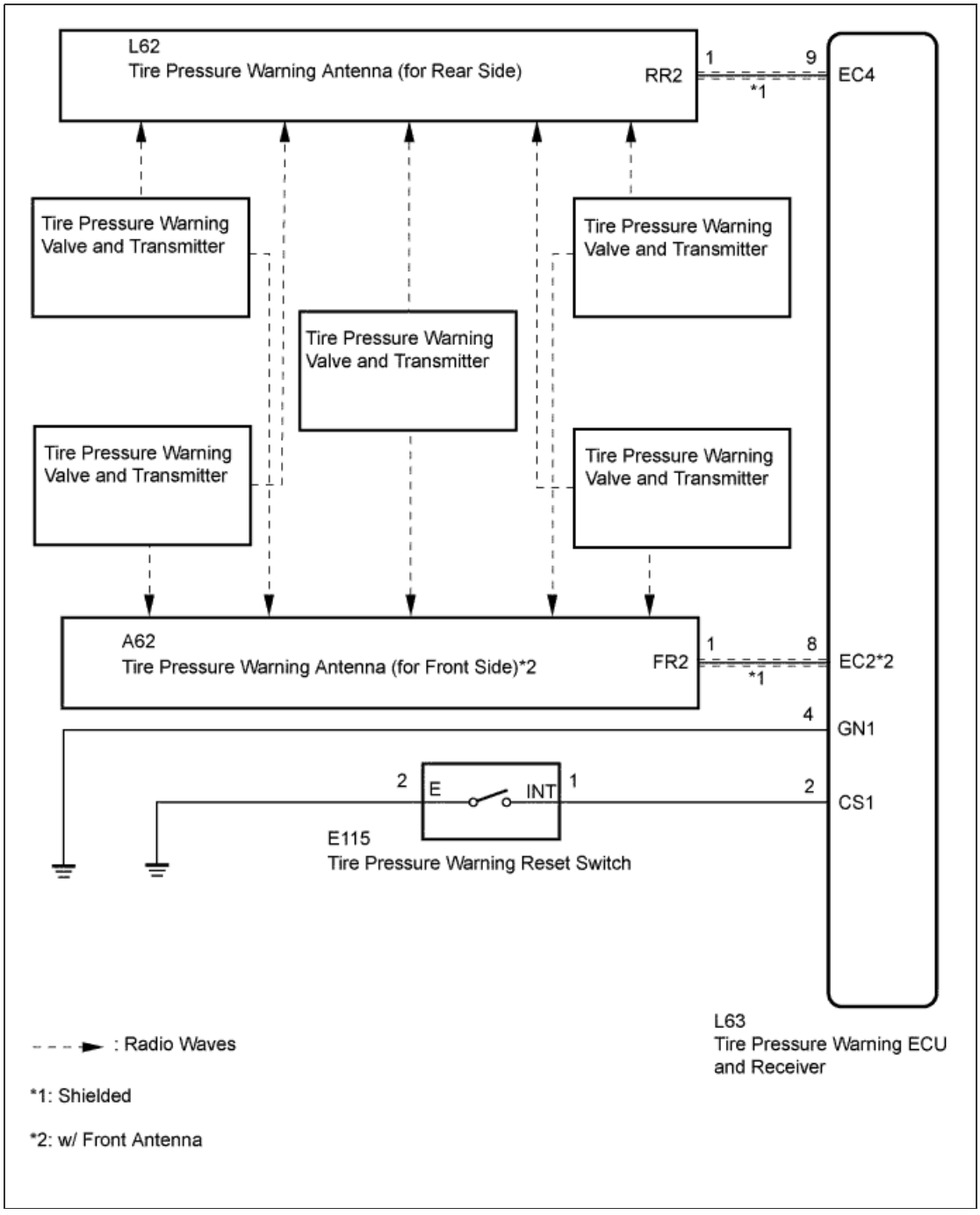
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

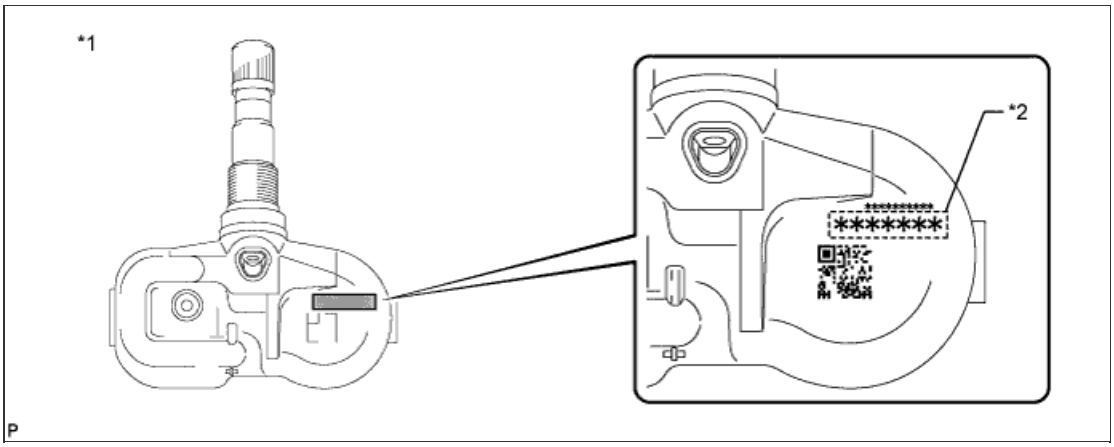
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 215°C (-40 to 419°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

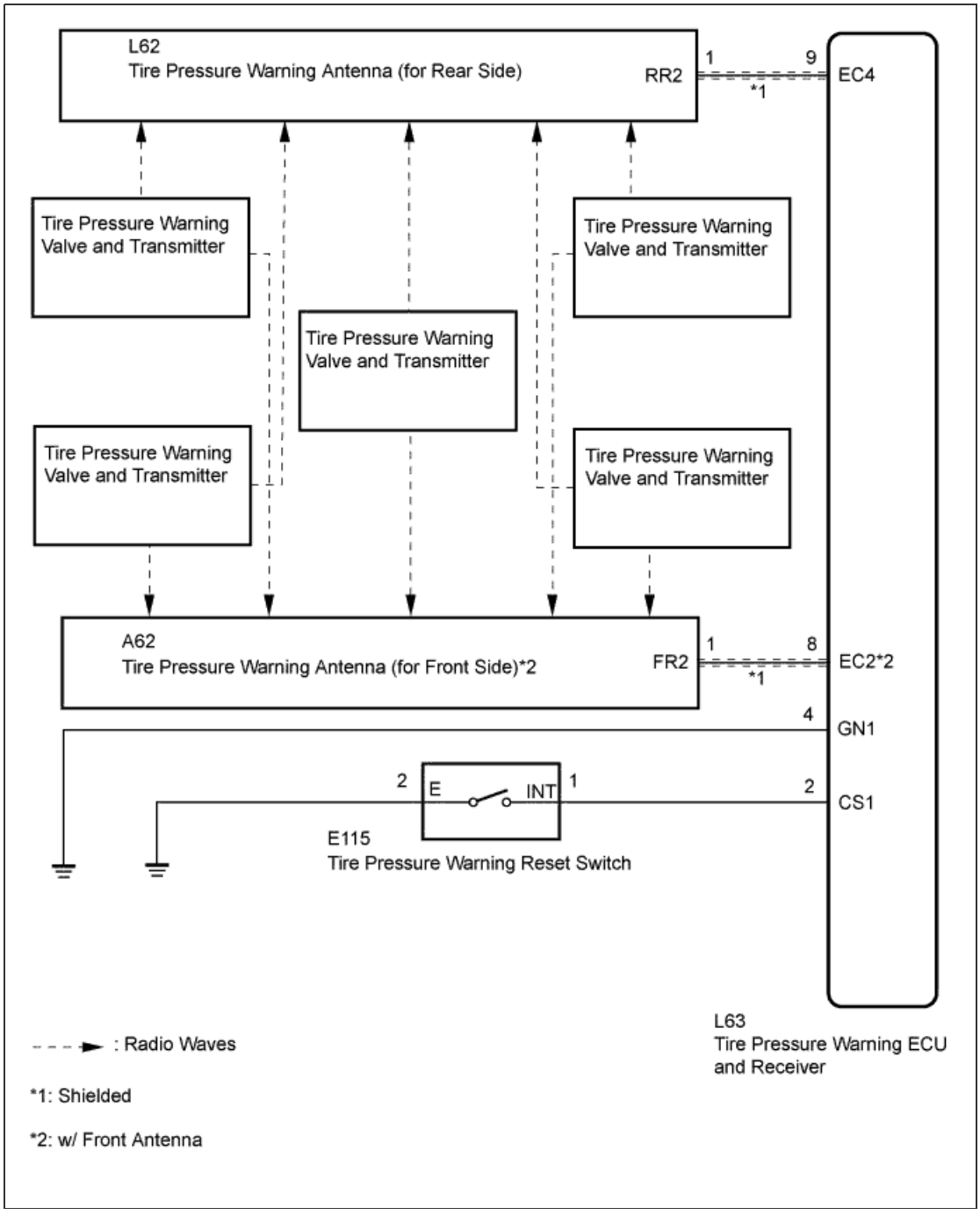
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

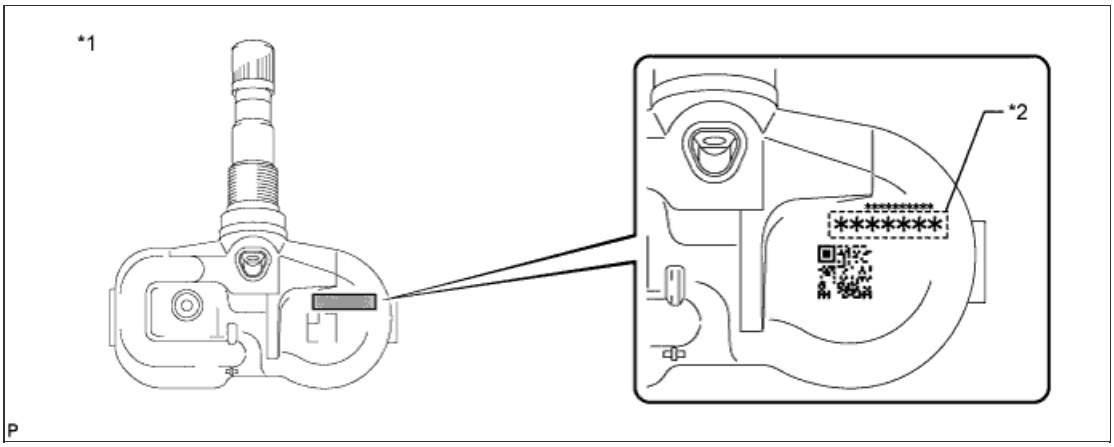
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 215°C (-40 to 419°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

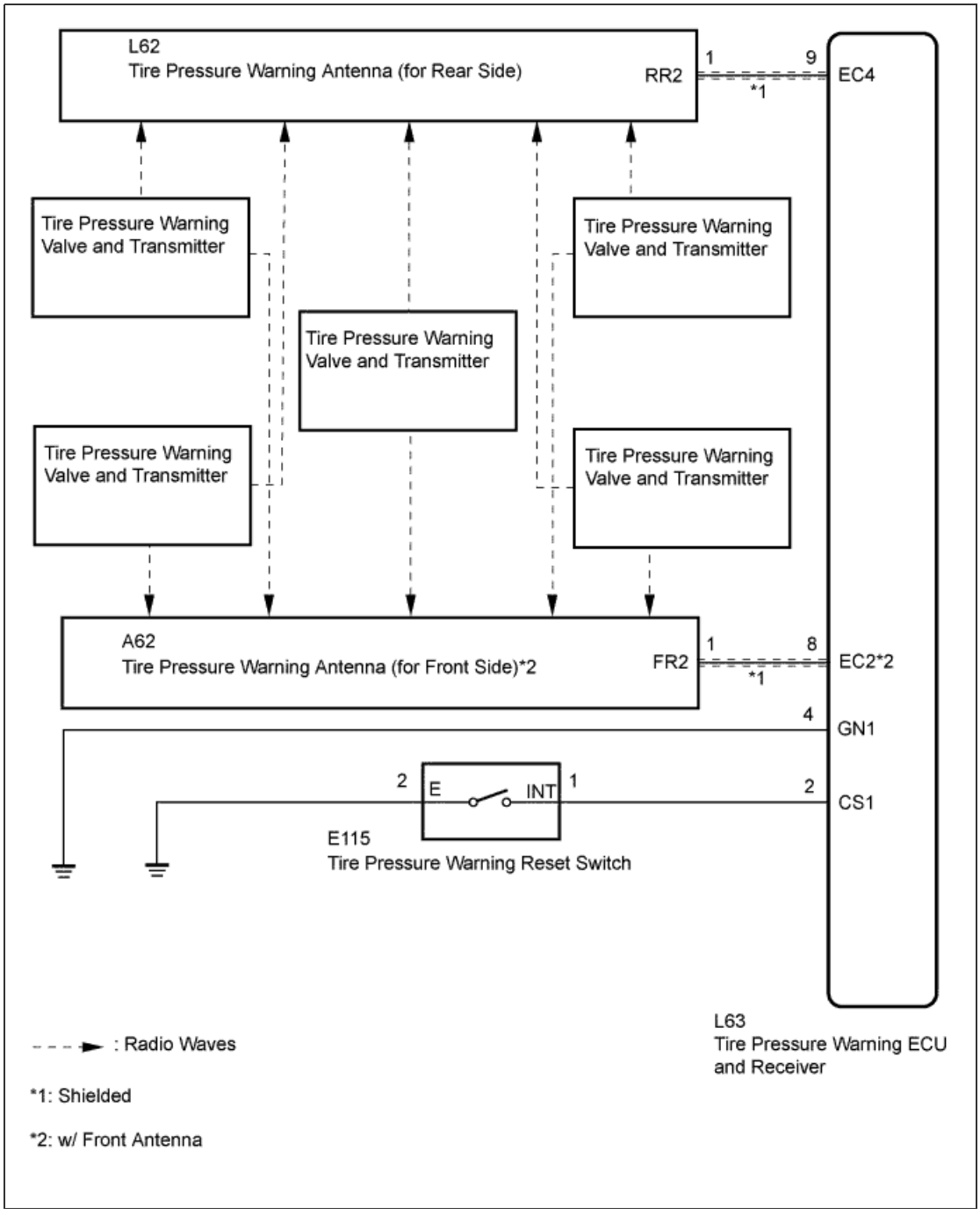
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

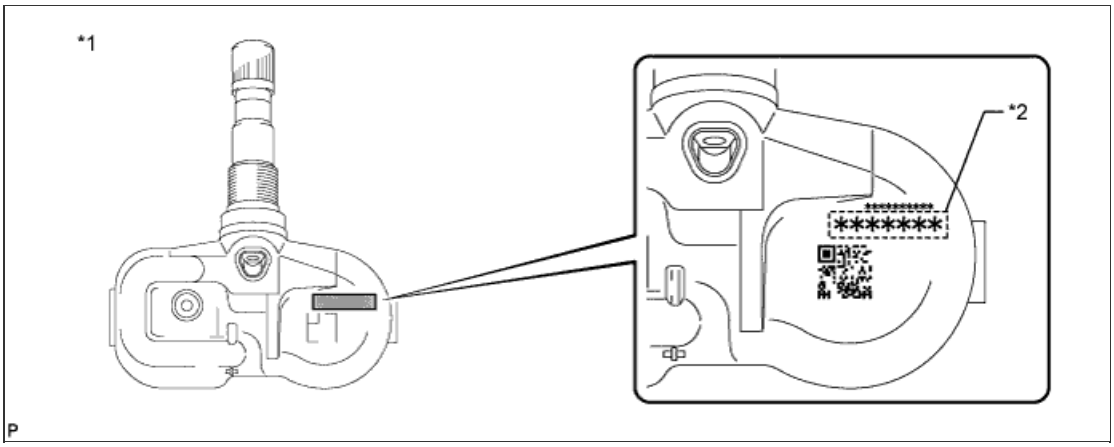
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 215°C (-40 to 419°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

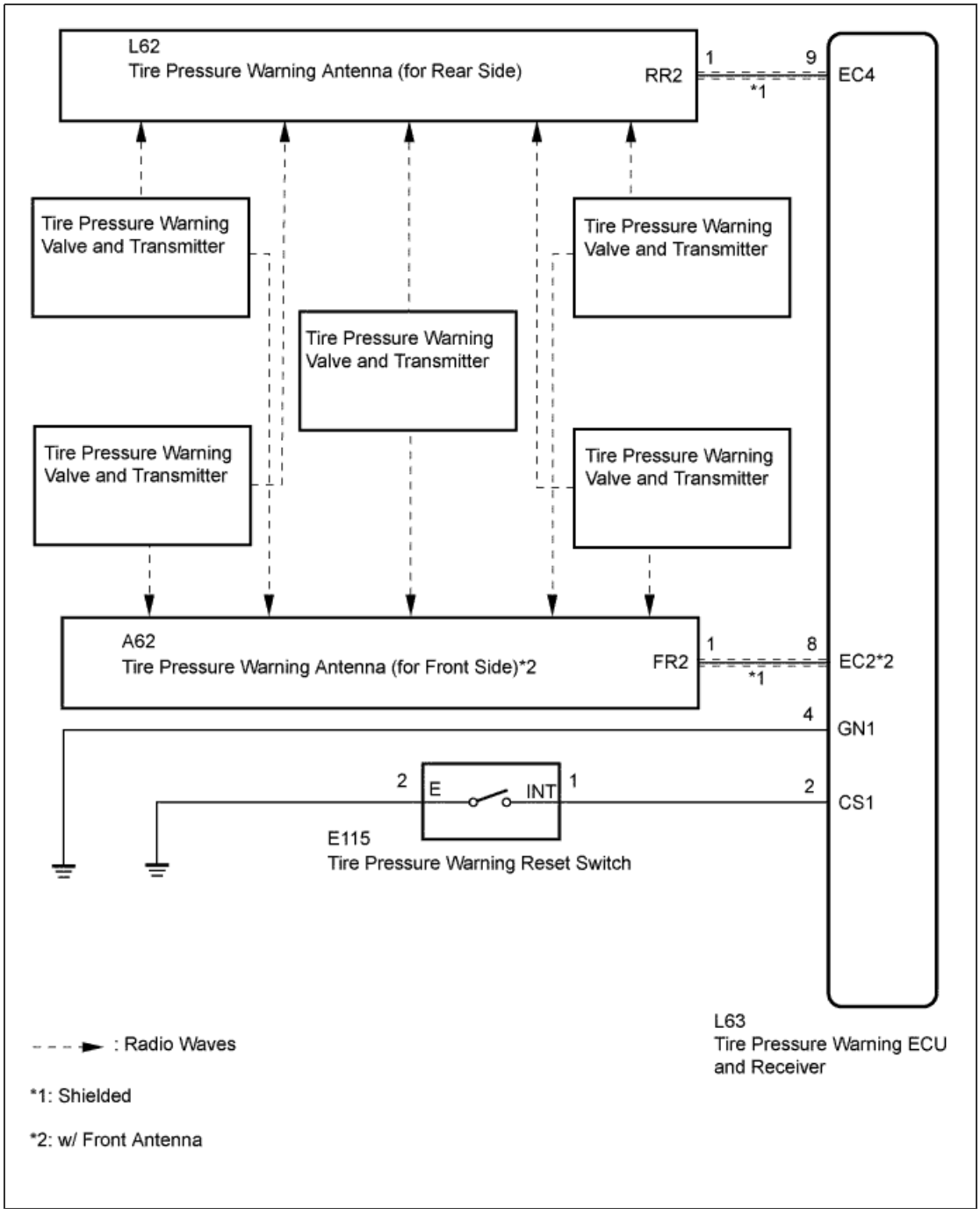
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

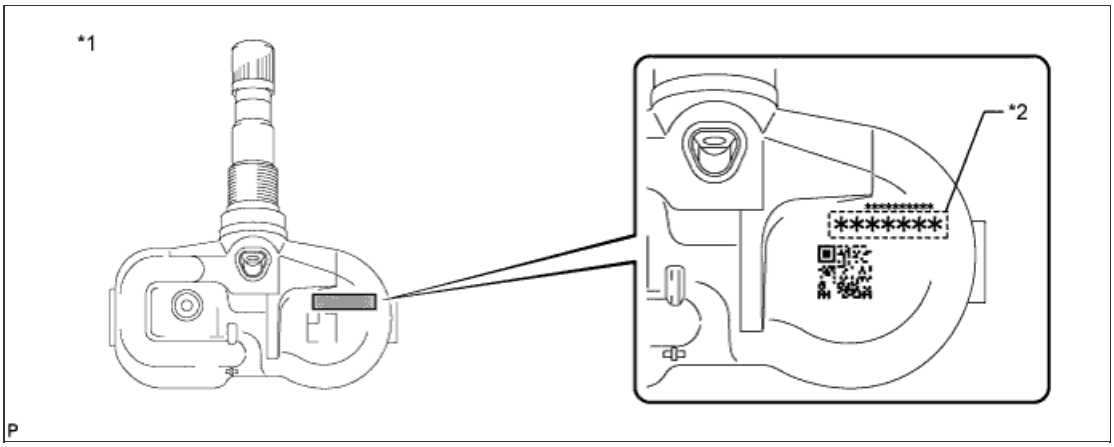
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 215°C (-40 to 419°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

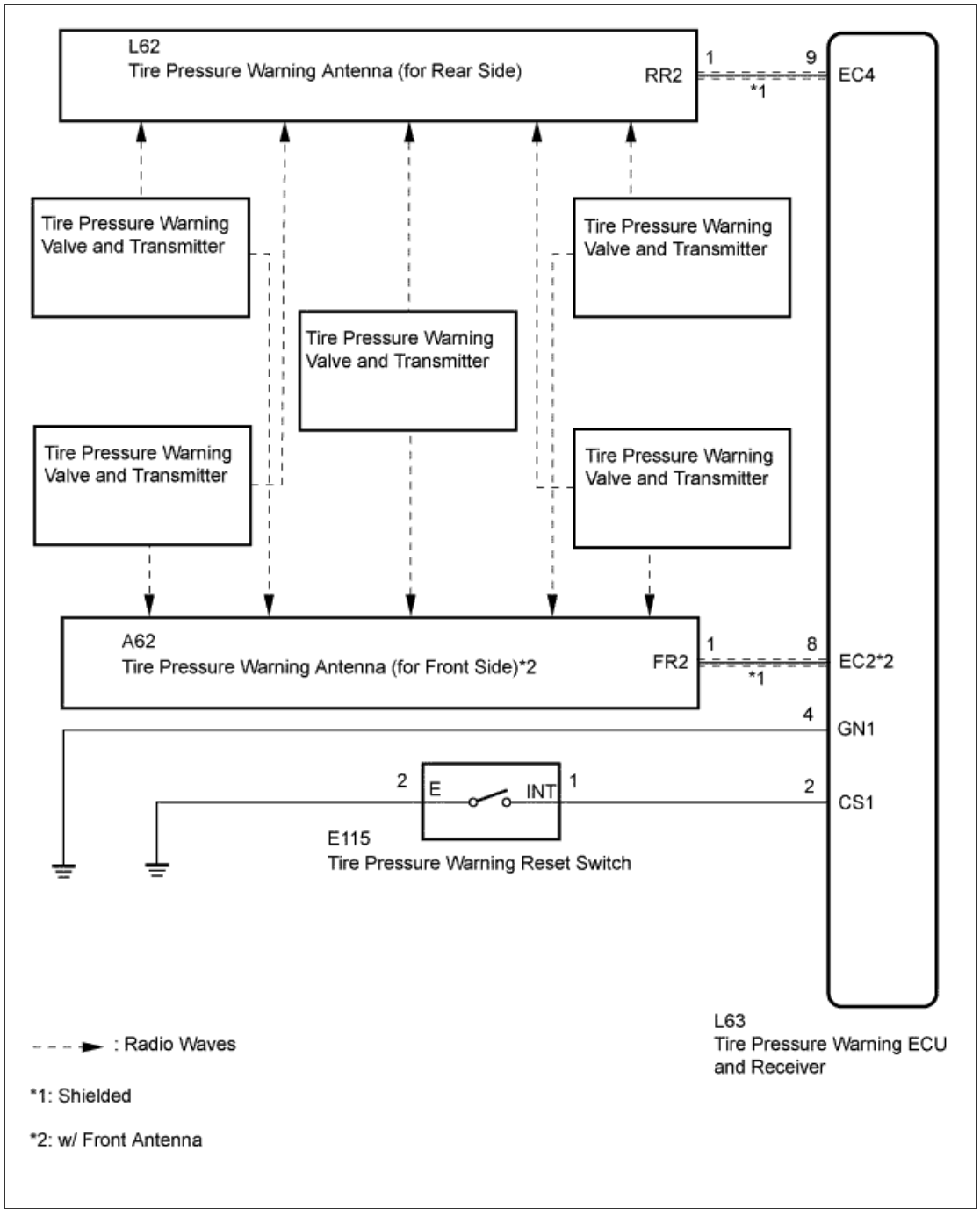
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

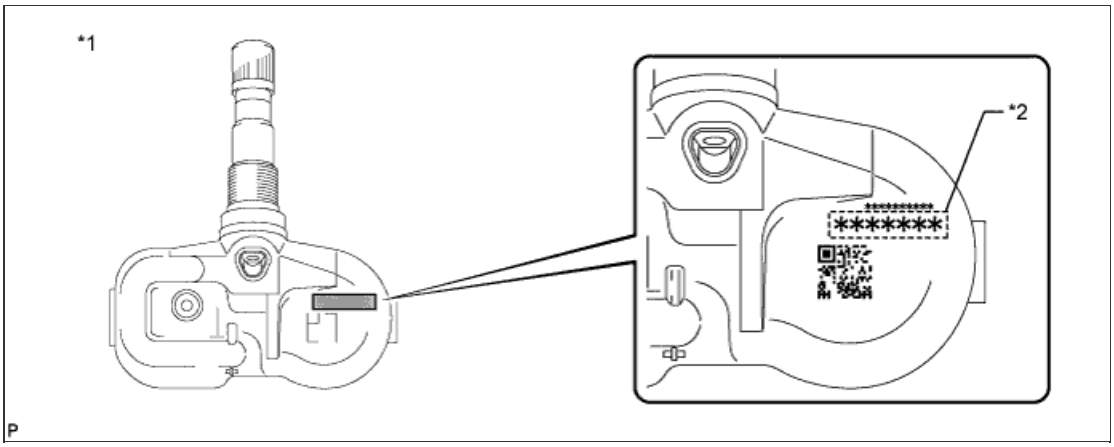
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2141/41 Transmitter ID1 Error

DTC C2142/42 Transmitter ID2 Error

DTC C2143/43 Transmitter ID3 Error

DTC C2144/44 Transmitter ID4 Error

DTC C2145/45 Transmitter ID5 Error

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
When the internal circuit of a tire pressure warning valve and transmitter is malfunctioning, one of these DTCs is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 380 kPa (0 to 3.9 kgf/cm^2, 0 to 55 psi), the temperature inside the tire is outside the specified range -40 to 215°C (-40 to 419°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Display the "ID Tire Inflation Pressure" data for each wheel using the GTS.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds. If "ID Tire Inflation Pressure" displayed on the GTS does not change, the tire pressure warning valve and transmitter corresponding to the unchanged "ID Tire Inflation Pressure" data was the cause of the output DTC.

HINT:

- **Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.**
- **Record which "ID Tire Inflation Pressure" data corresponds to each tire.**

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2125/25 (Click here).

i. Check the Data List.

Result:

Result	Detection Condition	Proceed to
"ID Tire Inflation Pressure" data did not change.	Transmitter corresponding to DTC	A
One of "ID Tire Inflation Pressure" data changed.	Normal	B

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter IDs and positions of transmitters that are normal.**

j. When the "ID Tire inflation Pressure" data has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to the DTC.

k. When all of the "ID Tire Inflation Pressure" data has changed, identify the malfunctioning tire pressure warning valve and transmitter using the recorded ID numbers and output DTCs.

B → CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

2.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the identified tire pressure warning valve and transmitter with a new one (Click here).

HINT:

- **Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.**

- **The IDs for the tire pressure warning valve and transmitters which are not replaced should be checked using the GTS and recorded.**

NEXT

3.REGISTRATION OF TRANSMITTER ID

a. Register the transmitter ID for all wheels (Click here).

NEXT

4.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

5.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and**

rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → **END**

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

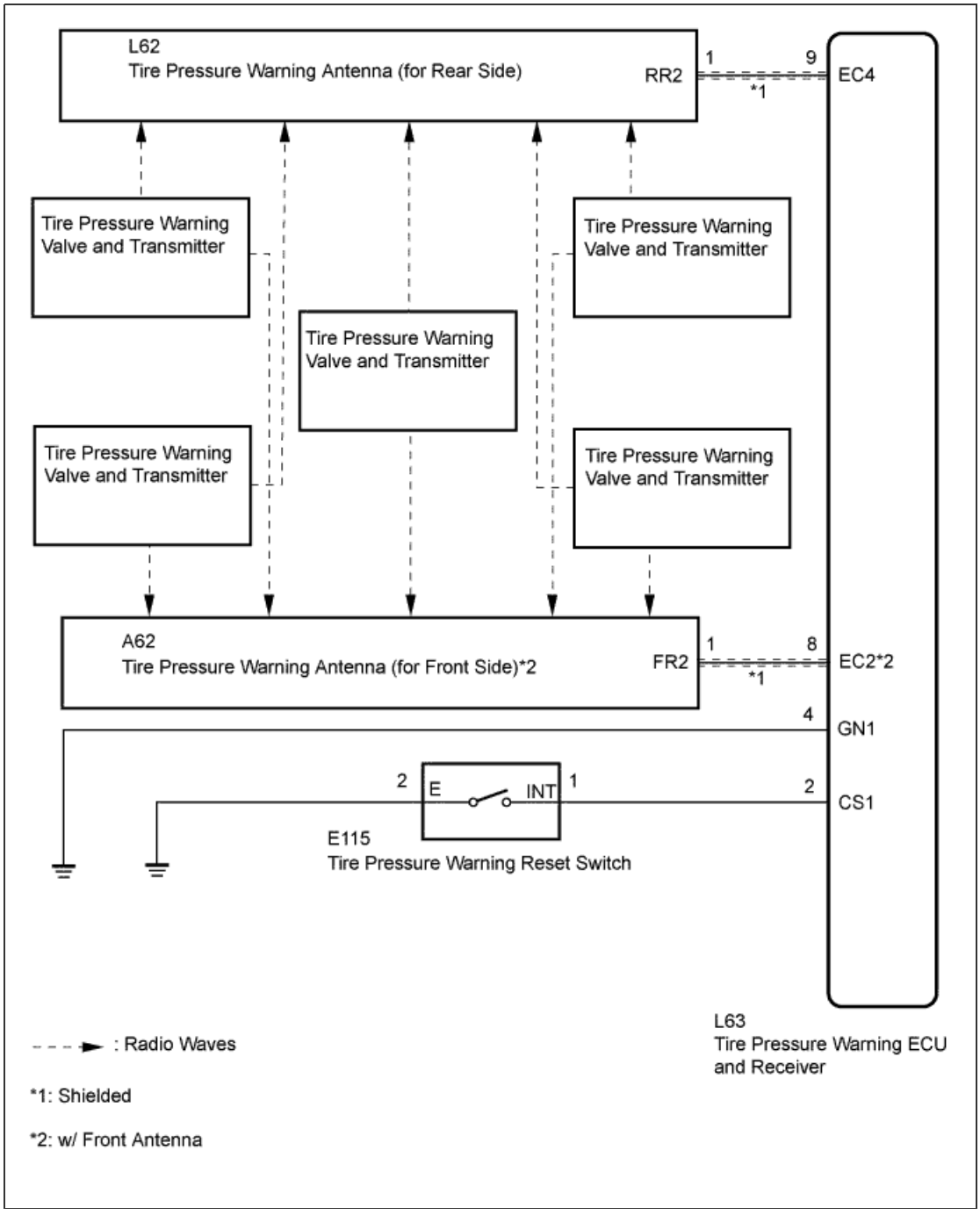
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

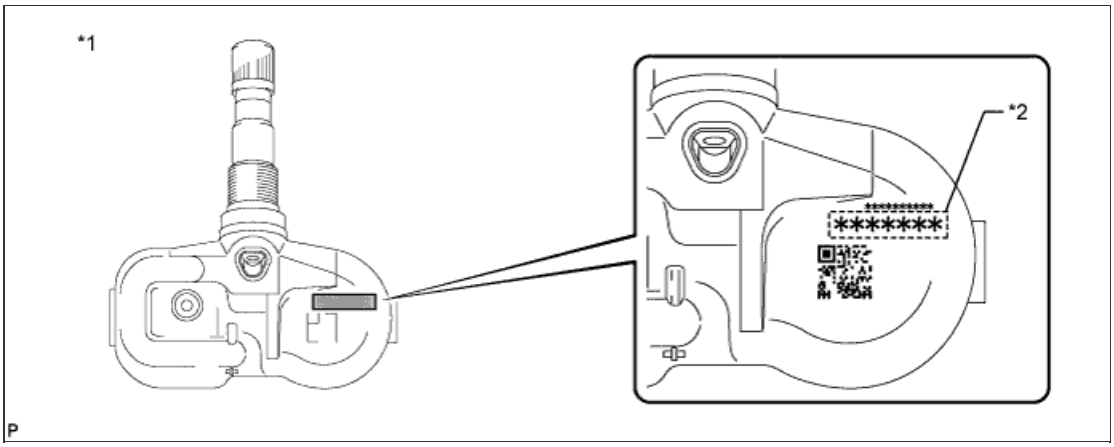
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2171/71 Transmitter ID not Registered

for Preparation Click here

DESCRIPTION

The IDs of each tire pressure warning valve and transmitter are registered to the tire pressure warning ECU and receiver.
When the ECU detects that a transmitter ID code is not registered in the ECU, this DTC is stored.

DTC No.	DTC Detection Condition	Trouble Area
C2171/71	Transmitter ID code is not registered. (When an ID code is unregistered for 3 minutes or more.)	Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CONFIRM REGISTRATION CONDITION (REGISTERED ID CODES)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

OK:

The registered transmitter ID codes are displayed on the GTS.

NG → **Go to step 2**

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

2.PERFORM REGISTRATION (TRANSMITTER ID)

a. Register the transmitter IDs for all the wheels (Click here).

NEXT

3.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

4.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)


A
END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

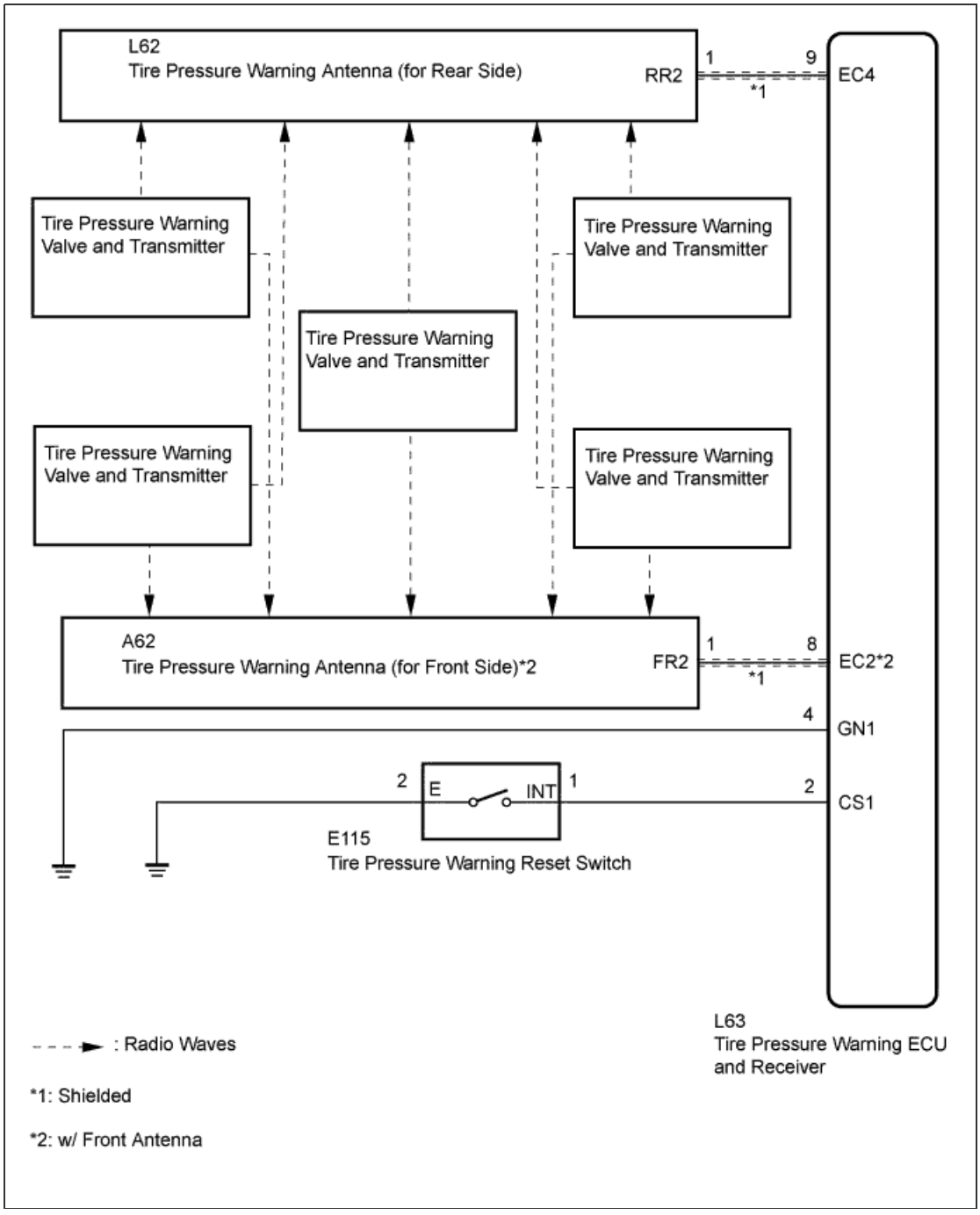
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

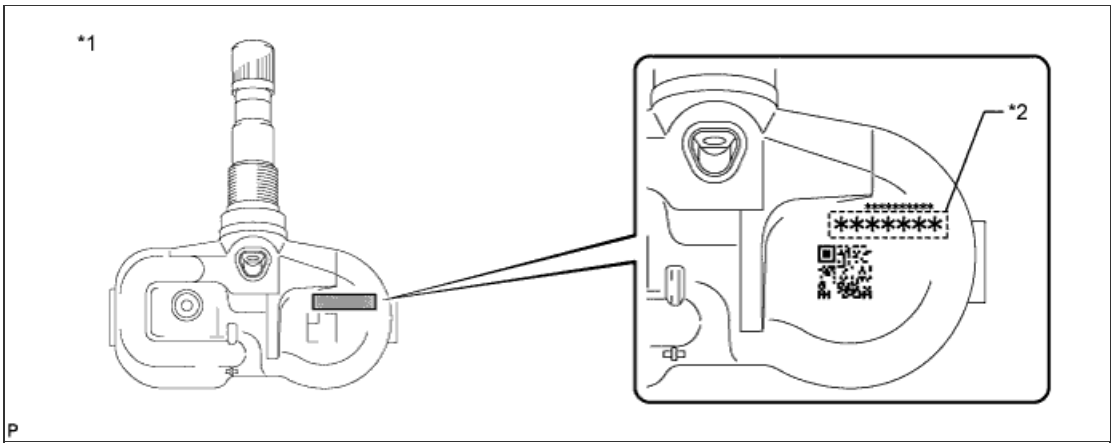
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2171/71 Transmitter ID not Registered

for Preparation Click here

DESCRIPTION

The IDs of each tire pressure warning valve and transmitter are registered to the tire pressure warning ECU and receiver.
When the ECU detects that a transmitter ID code is not registered in the ECU, this DTC is stored.

DTC No.	DTC Detection Condition	Trouble Area
C2171/71	Transmitter ID code is not registered. (When an ID code is unregistered for 3 minutes or more.)	Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CONFIRM REGISTRATION CONDITION (REGISTERED ID CODES)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

OK:

The registered transmitter ID codes are displayed on the GTS.

NG → **Go to step 2**

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

2.PERFORM REGISTRATION (TRANSMITTER ID)

a. Register the transmitter IDs for all the wheels (Click here).

NEXT

3.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

4.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)


A
END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

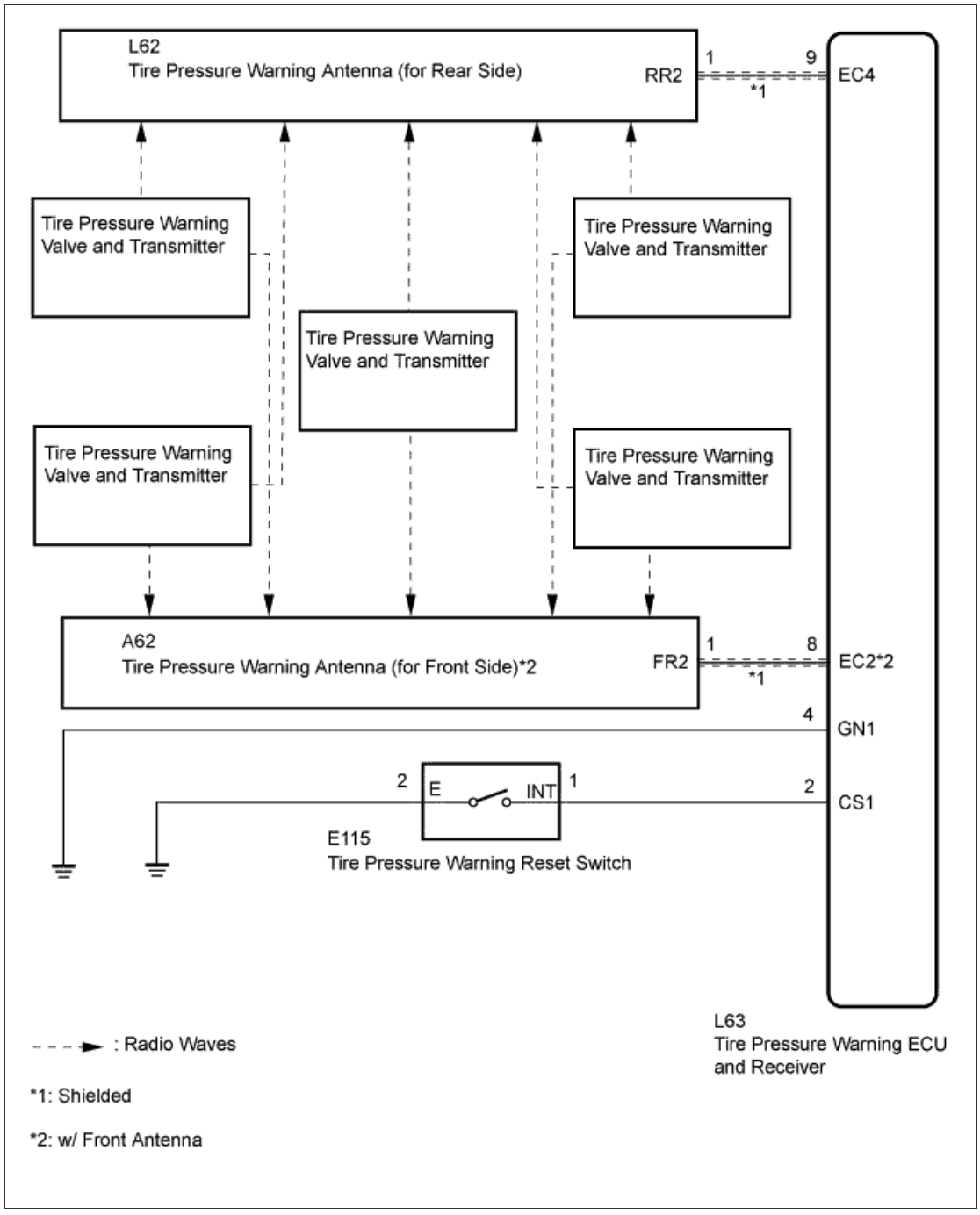
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

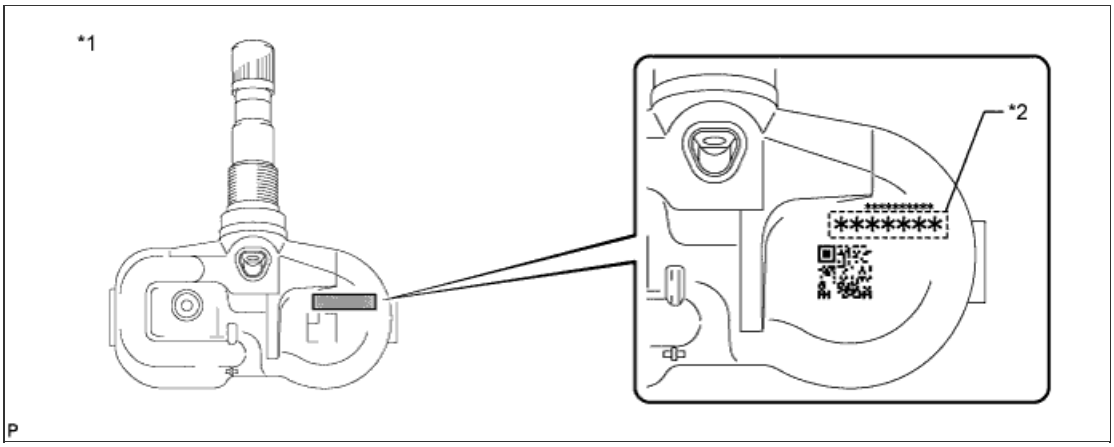
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2171/71 Transmitter ID not Registered

for Preparation Click here

DESCRIPTION

The IDs of each tire pressure warning valve and transmitter are registered to the tire pressure warning ECU and receiver.
When the ECU detects that a transmitter ID code is not registered in the ECU, this DTC is stored.

DTC No.	DTC Detection Condition	Trouble Area
C2171/71	Transmitter ID code is not registered. (When an ID code is unregistered for 3 minutes or more.)	Tire pressure warning ECU and receiver

NOTICE:

w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CONFIRM REGISTRATION CONDITION (REGISTERED ID CODES)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

OK:

The registered transmitter ID codes are displayed on the GTS.

NG → **Go to step 2**

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

2.PERFORM REGISTRATION (TRANSMITTER ID)

a. Register the transmitter IDs for all the wheels (Click here).

NEXT

3.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

4.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

A

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

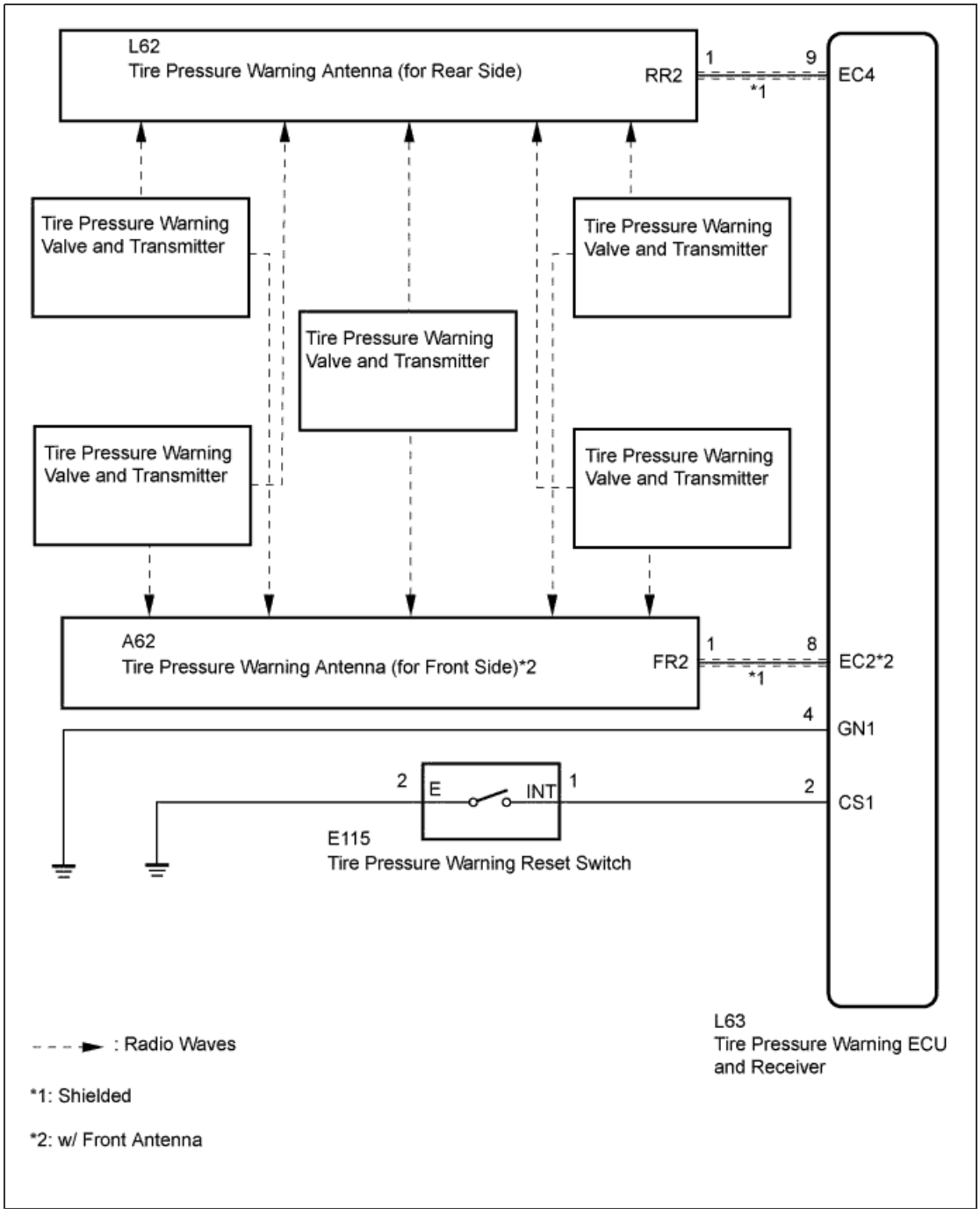
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

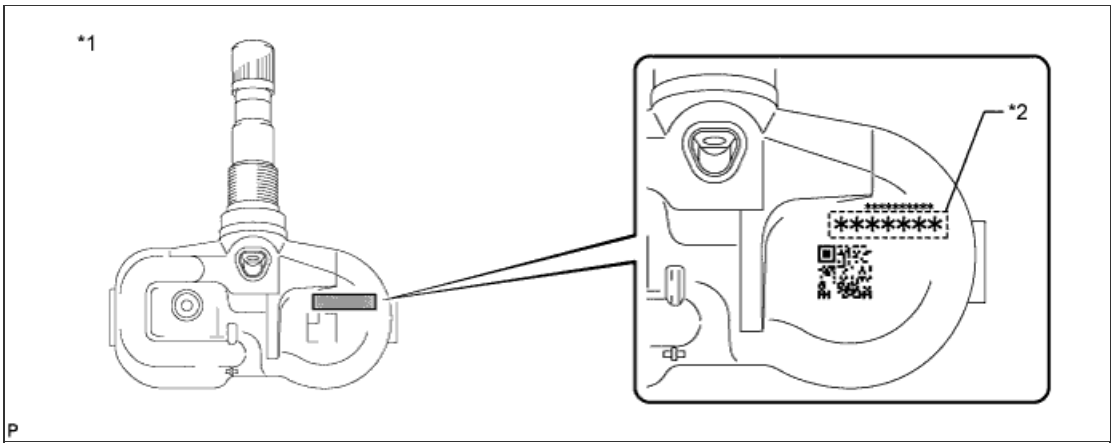
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2176/76 Receiver Error

for Preparation Click here

DESCRIPTION

The signals are transmitted to the tire pressure warning ECU and receiver in the vehicle as radio waves.

DTC No.	DTC Detection Condition	Trouble Area
C2176/76	Malfunction in the tire pressure warning ECU and receiver internal circuit	Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK DTC OUTPUT (C2176/76)

a. Clear the DTCs (Click here).

b. Turn the engine switch off.

c. Turn the engine switch on (IG) and check for DTCs (Click here).

OK:
DTC C2176/76 is not output.

NG → **REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)**

OK

CHECK FOR INTERMITTENT PROBLEMS (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

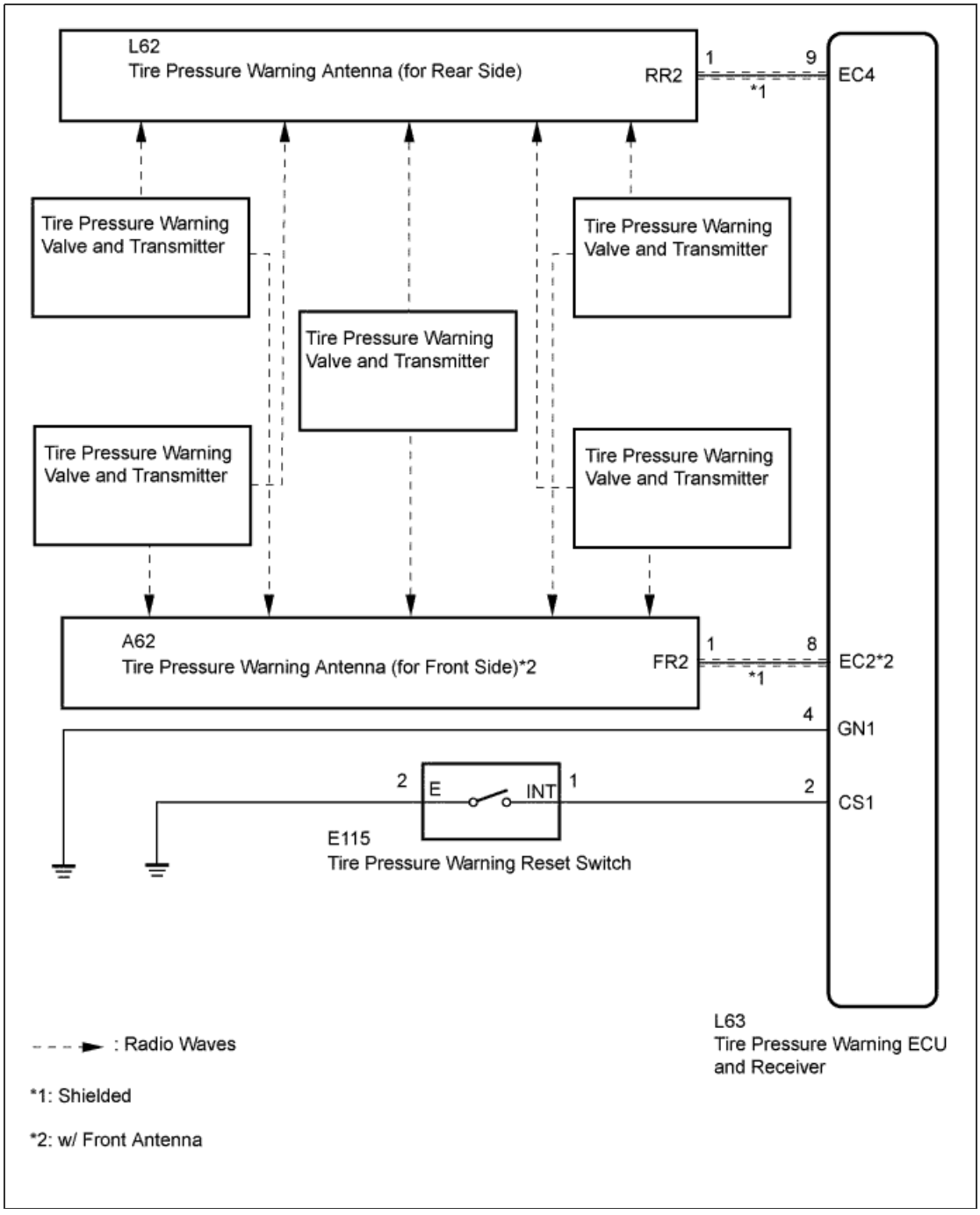
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

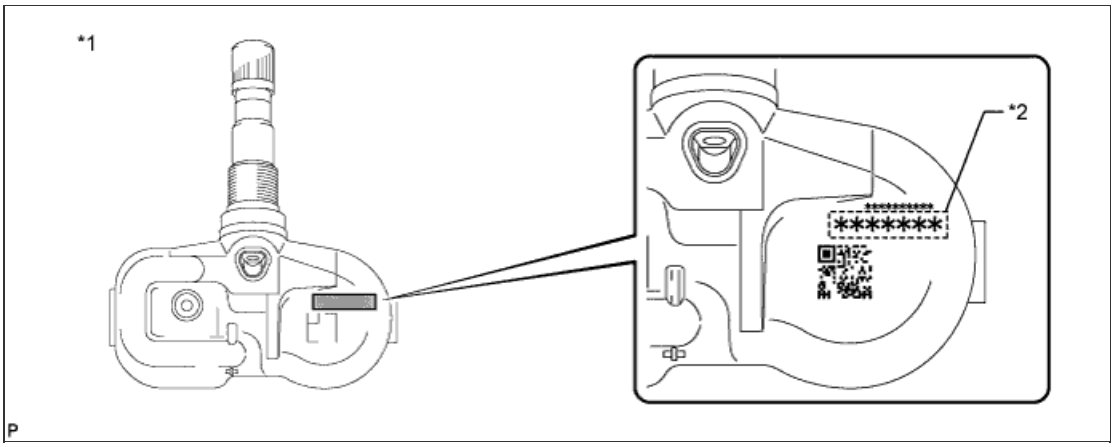
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2176/76 Receiver Error

for Preparation Click here

DESCRIPTION

The signals are transmitted to the tire pressure warning ECU and receiver in the vehicle as radio waves.

DTC No.	DTC Detection Condition	Trouble Area
C2176/76	Malfunction in the tire pressure warning ECU and receiver internal circuit	Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK DTC OUTPUT (C2176/76)

a. Clear the DTCs (Click here).

b. Turn the engine switch off.

c. Turn the engine switch on (IG) and check for DTCs (Click here).

OK:
DTC C2176/76 is not output.

NG → **REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)**

OK

CHECK FOR INTERMITTENT PROBLEMS (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

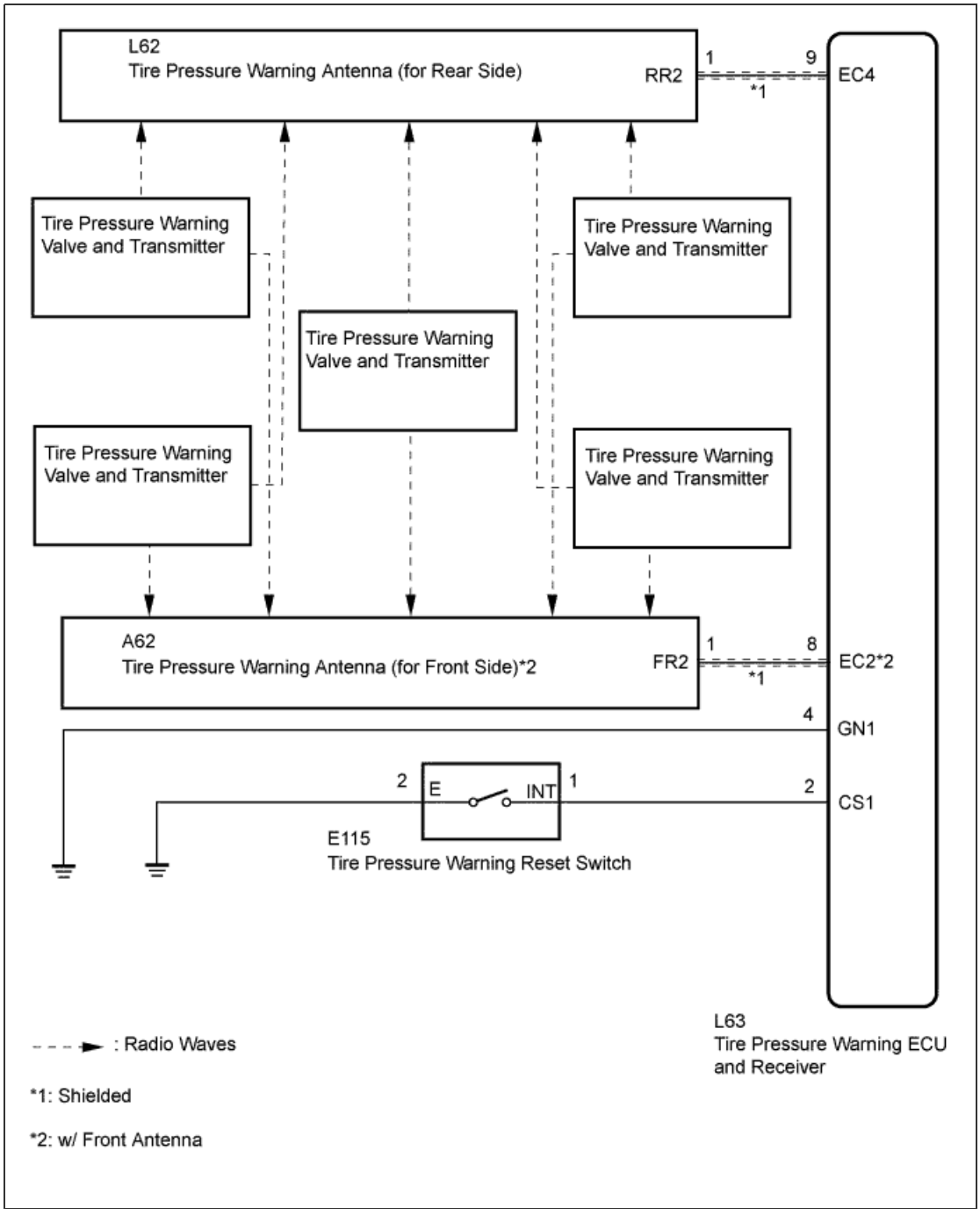
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

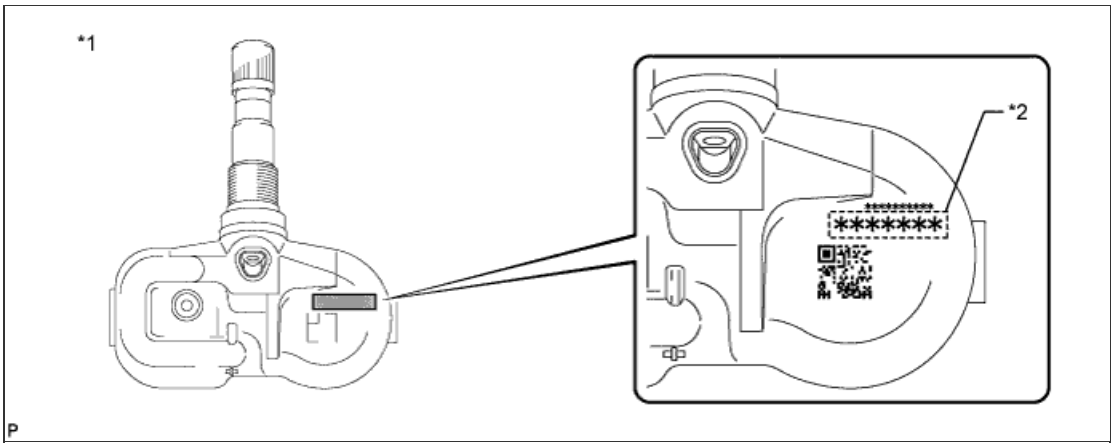
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2176/76 Receiver Error

for Preparation Click here

DESCRIPTION

The signals are transmitted to the tire pressure warning ECU and receiver in the vehicle as radio waves.

DTC No.	DTC Detection Condition	Trouble Area
C2176/76	Malfunction in the tire pressure warning ECU and receiver internal circuit	Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK DTC OUTPUT (C2176/76)

a. Clear the DTCs (Click here).

b. Turn the engine switch off.

c. Turn the engine switch on (IG) and check for DTCs (Click here).

OK:
DTC C2176/76 is not output.

NG → **REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)**

OK

CHECK FOR INTERMITTENT PROBLEMS (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

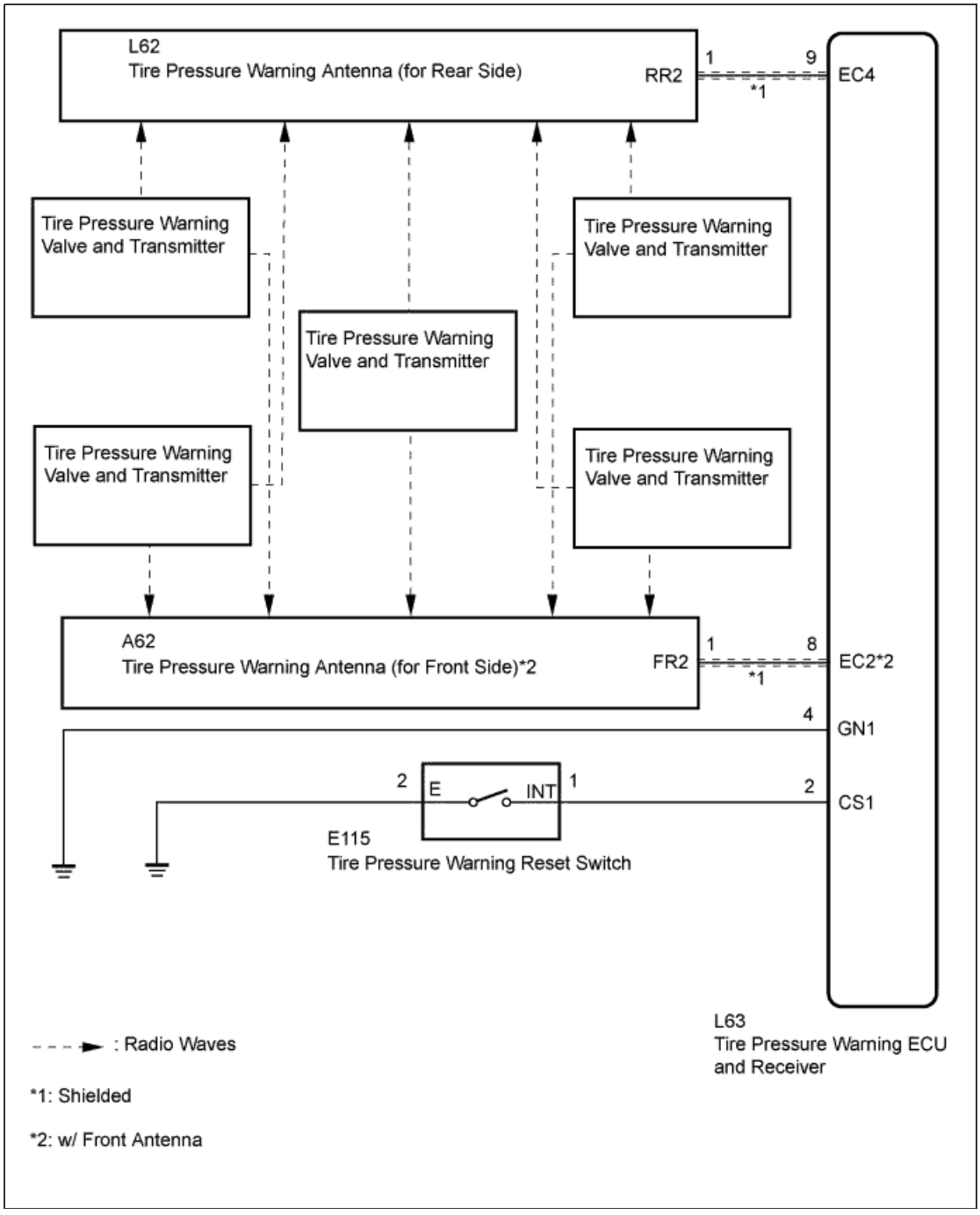
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

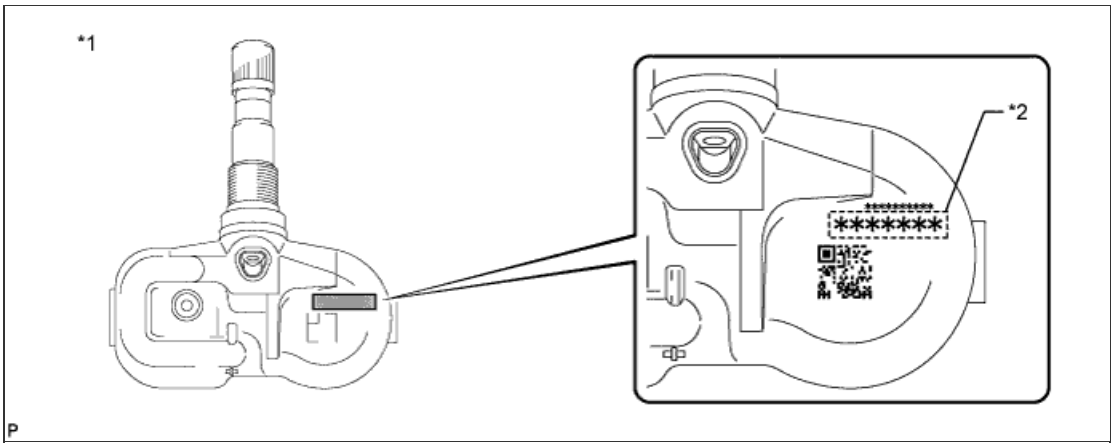
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2177/77 Initialization not Completed

for Preparation Click here

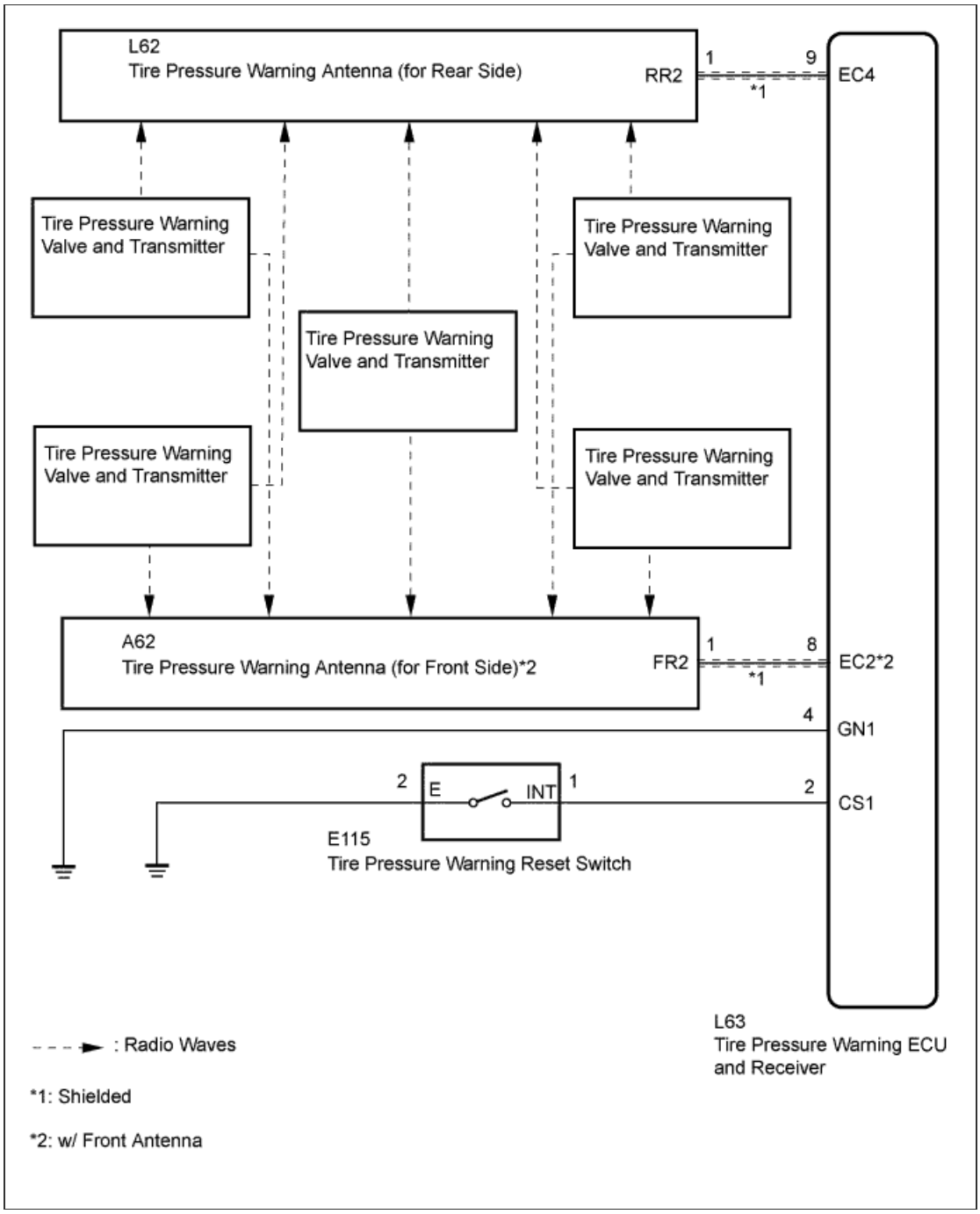
DESCRIPTION

Initialization is necessary if one of the following occurs:

- The tire pressure warning ECU and receiver is replaced.
- A tire pressure warning valve and transmitter is replaced.
- Tires with a different tire standard pressure are installed.
- The tires are rotated.
- A new vehicle is delivered.

DTC No.	DTC Detection Condition	Trouble Area
C2177/77	All conditions below are met: • During initialization • Tire pressure warning valve and transmitter is not in stop mode. • Signal is not received from tire pressure warning valve and transmitter for 20 minutes or more. • Vehicle speed is more than 37 km/h (23 mph) for a total of 20 minutes.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on after blinking 1 minute only in a particular area due to interfering radio frequencies.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:

Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings, or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

3.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to

All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

GO TO DTC C2121/21 TO C2125/25 (Click here)

A

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

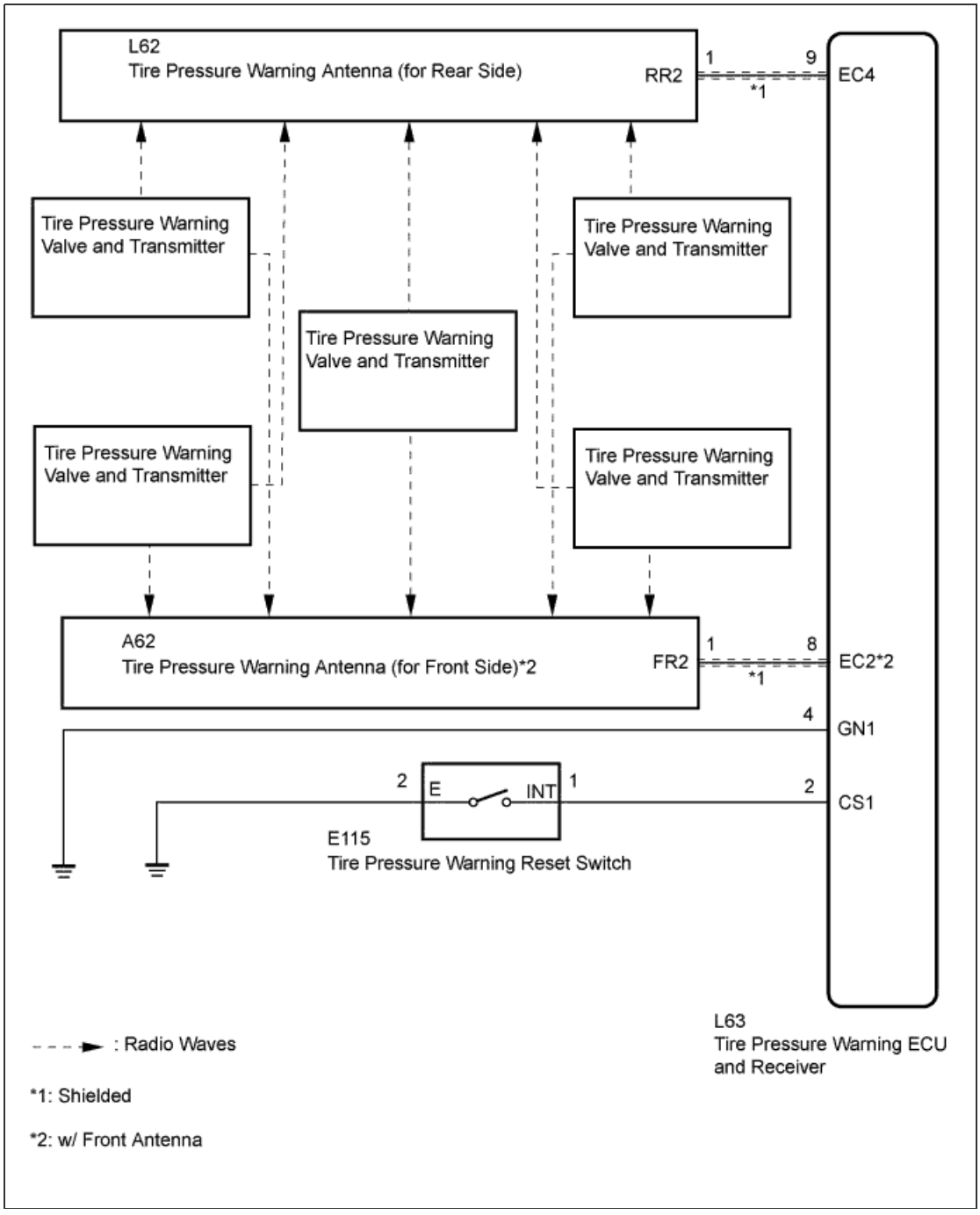
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

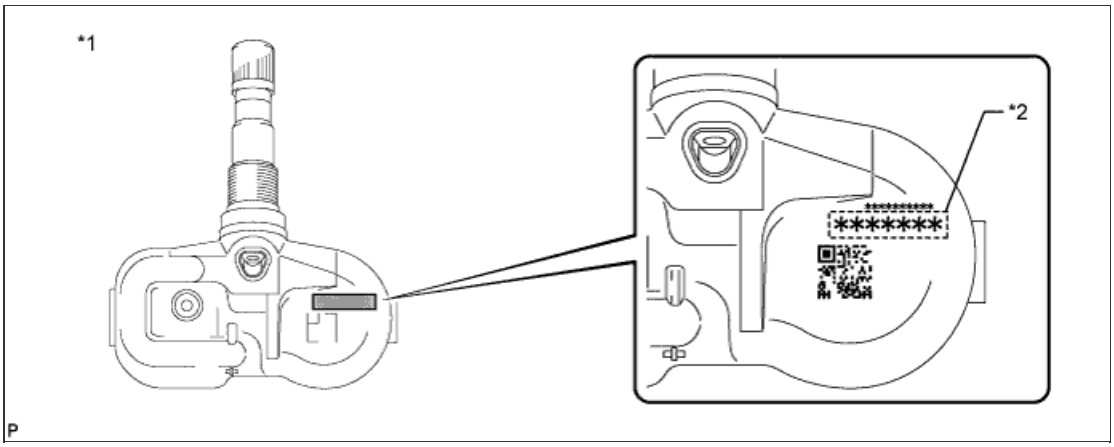
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2177/77 Initialization not Completed

for Preparation Click here

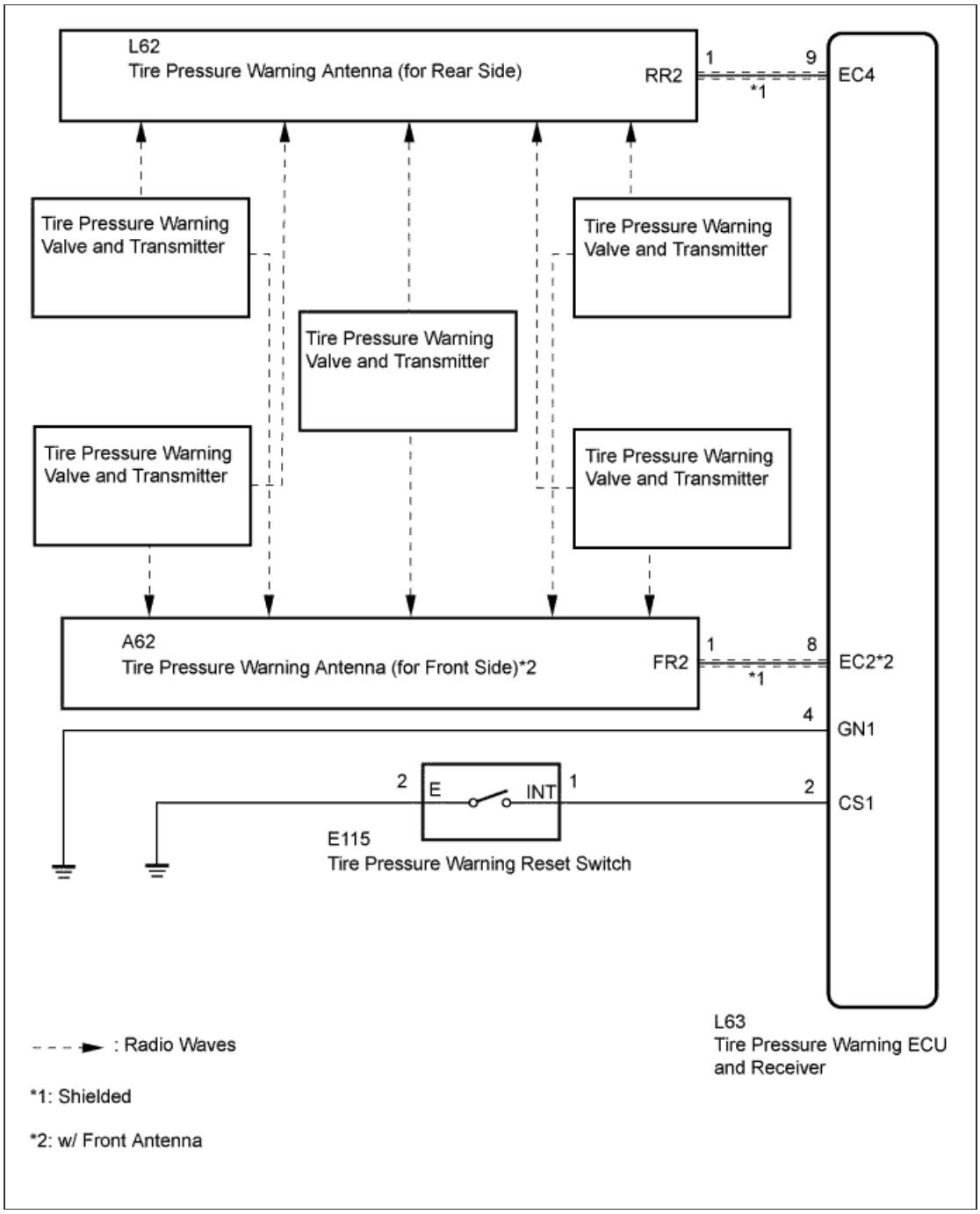
DESCRIPTION

Initialization is necessary if one of the following occurs:

- The tire pressure warning ECU and receiver is replaced.
- A tire pressure warning valve and transmitter is replaced.
- Tires with a different tire standard pressure are installed.
- The tires are rotated.
- A new vehicle is delivered.

DTC No.	DTC Detection Condition	Trouble Area
C2177/77	All conditions below are met: • During initialization • Tire pressure warning valve and transmitter is not in stop mode. • Signal is not received from tire pressure warning valve and transmitter for 20 minutes or more. • Vehicle speed is more than 37 km/h (23 mph) for a total of 20 minutes.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on after blinking 1 minute only in a particular area due to interfering radio frequencies.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:

Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings, or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

3.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to

All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

GO TO DTC C2121/21 TO C2125/25 (Click here)

A

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

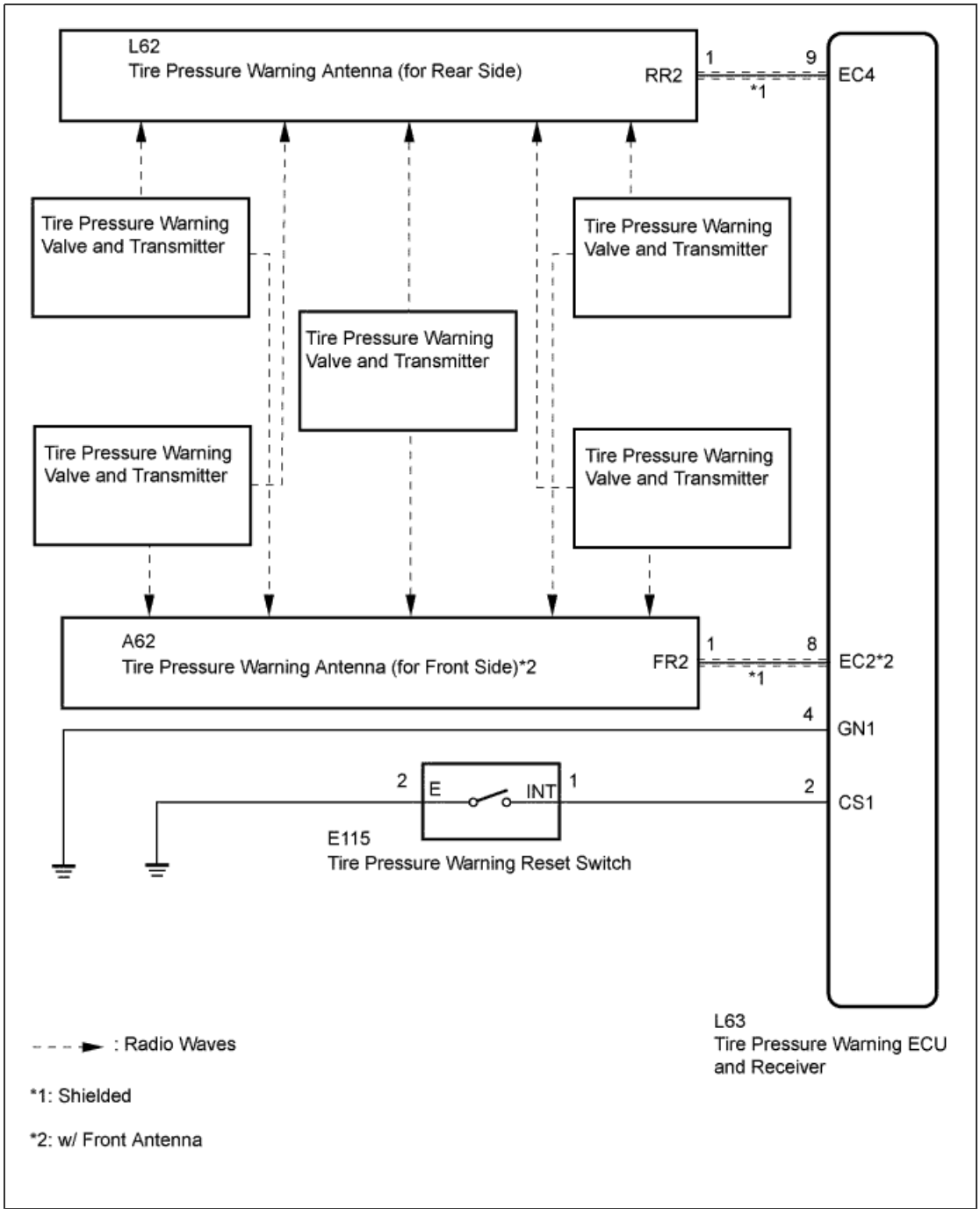
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

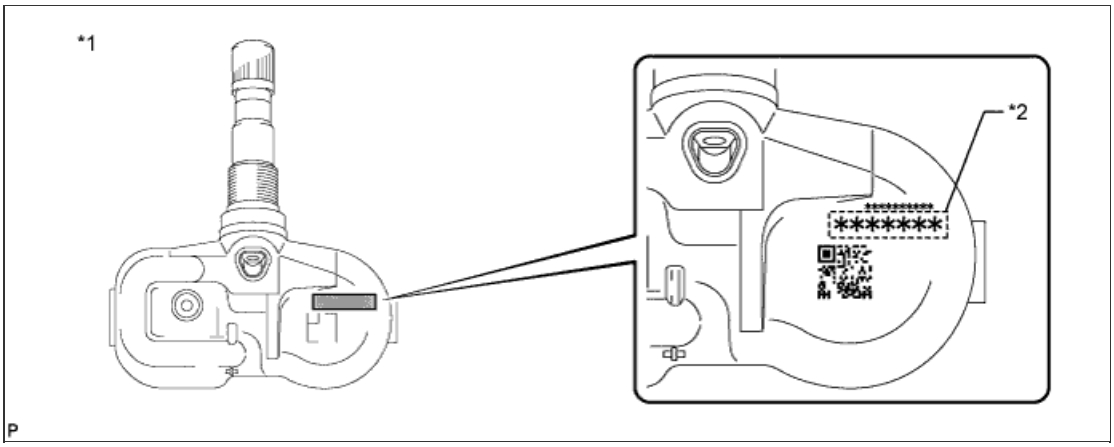
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2177/77 Initialization not Completed

for Preparation Click here

DESCRIPTION

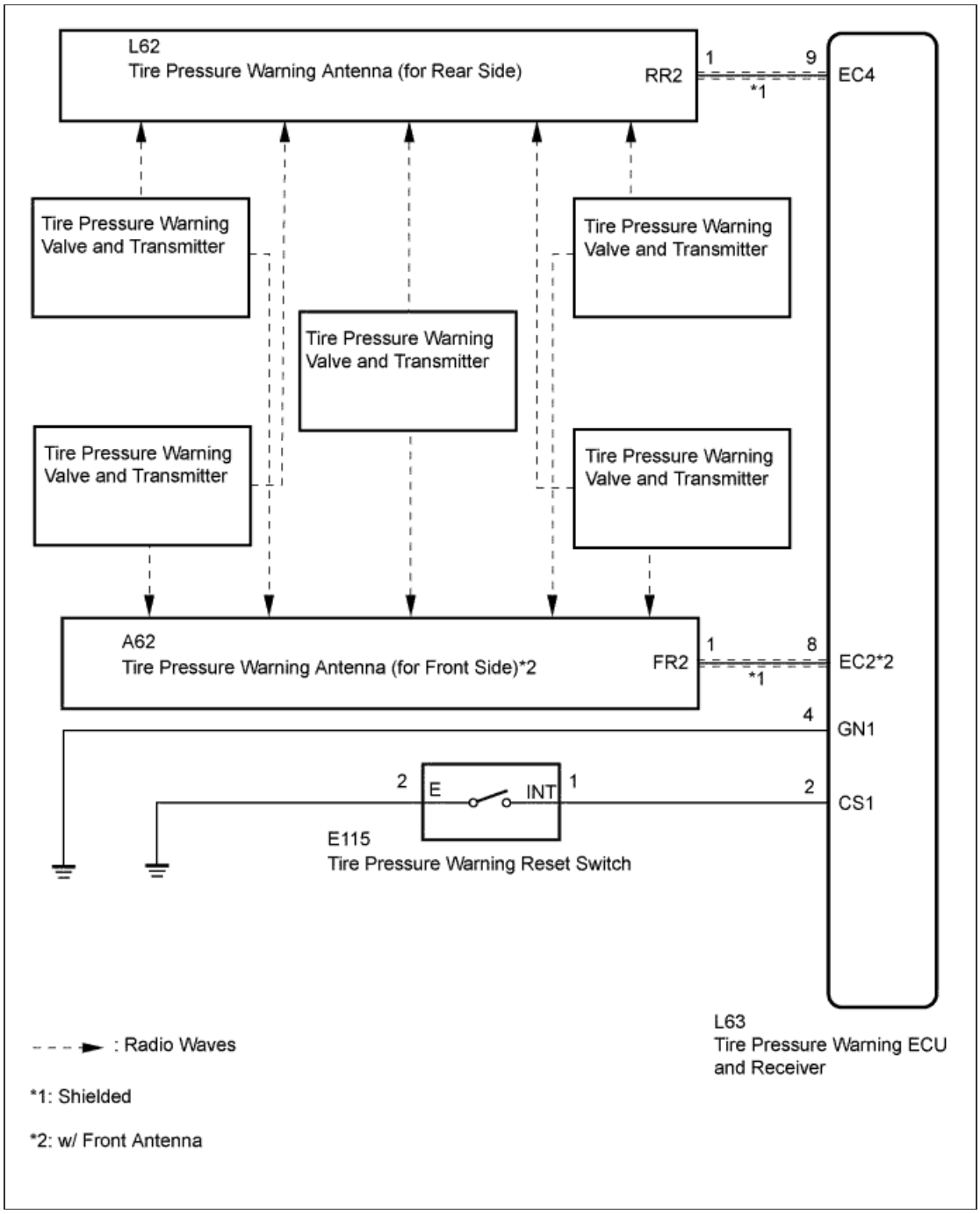
Initialization is necessary if one of the following occurs:

- The tire pressure warning ECU and receiver is replaced.
- A tire pressure warning valve and transmitter is replaced.
- Tires with a different tire standard pressure are installed.
- The tires are rotated.
- A new vehicle is delivered.

DTC No.	DTC Detection Condition	Trouble Area
C2177/77	All conditions below are met: • During initialization • Tire pressure warning valve and transmitter is not in stop mode. • Signal is not received from tire pressure warning valve and transmitter for 20 minutes*1 (10 minutes*2) or more. • Vehicle speed is more than 37 km/h (23 mph) for a total of 20 minutes*1 (10 minutes*2).	• Tire pressure warning valve and transmitter • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on after blinking 1 minute only in a particular area due to interfering radio frequencies.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:

Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings, or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

3.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to

All tire pressure readings are equal to specified values.	A
Tire pressure values are not displayed.	B

B

GO TO DTC C2121/21 TO C2125/25 (Click here)

A

END

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

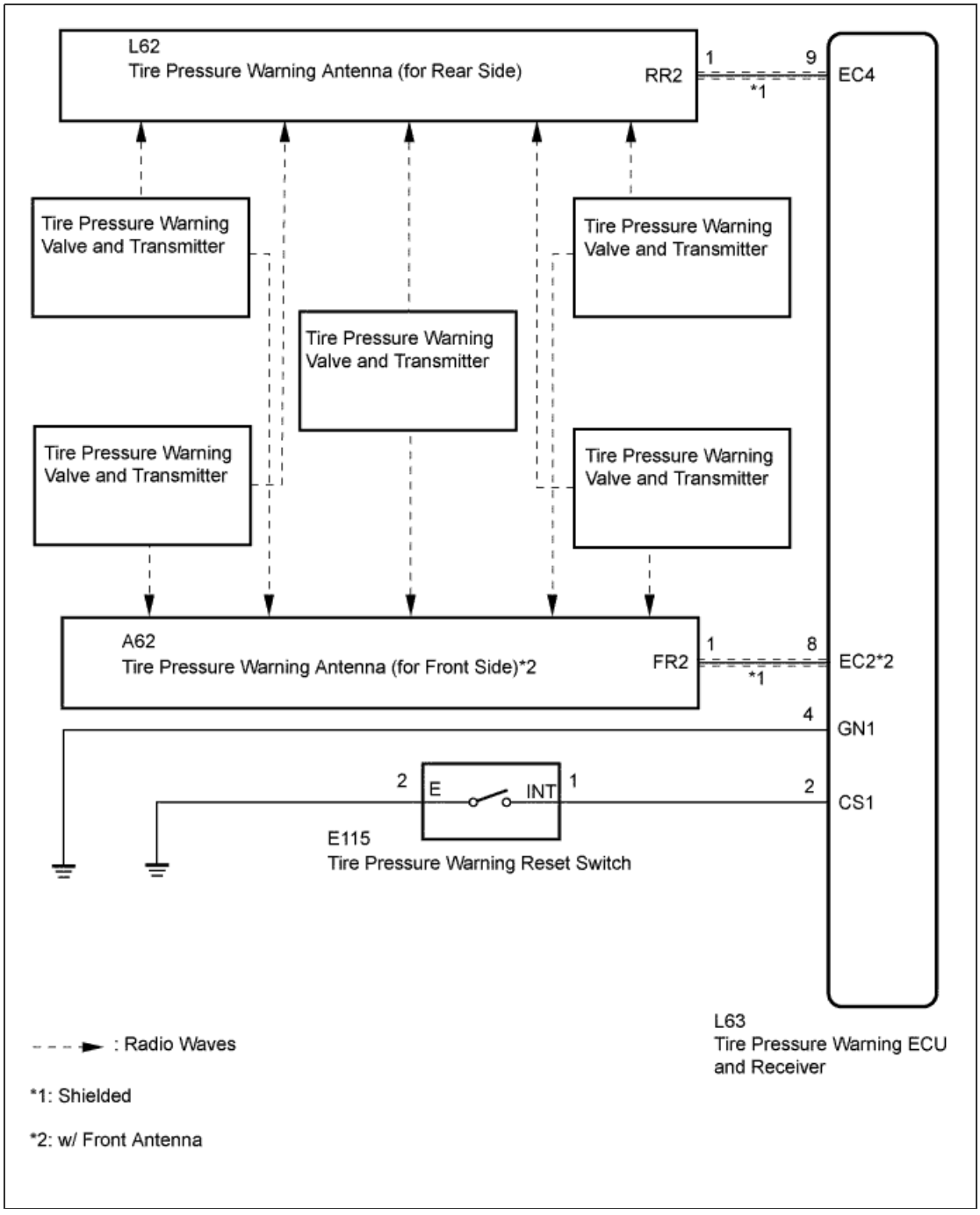
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

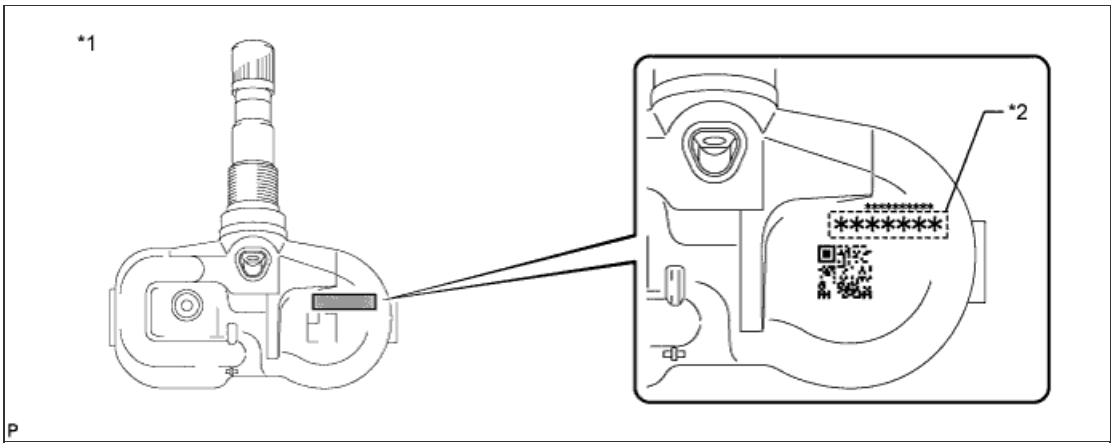
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2179/79 Tire Pressure Monitor ECU Communication Stop

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
C2179/79	Tire pressure warning ECU and receiver communication disruption	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTCs C2191/91 is cleared	A
DTC C2191/91 is not cleared	B

B → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

A → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

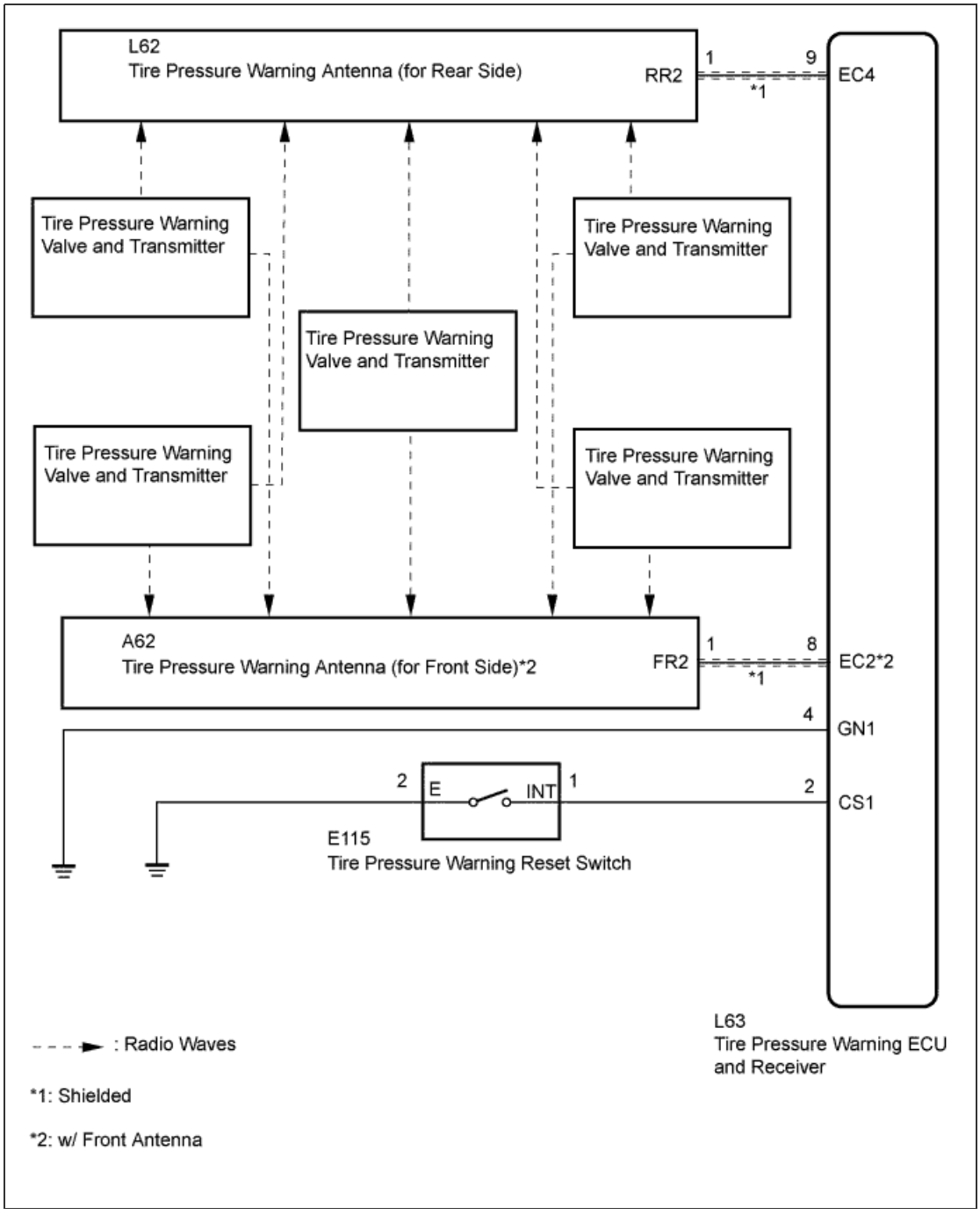
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

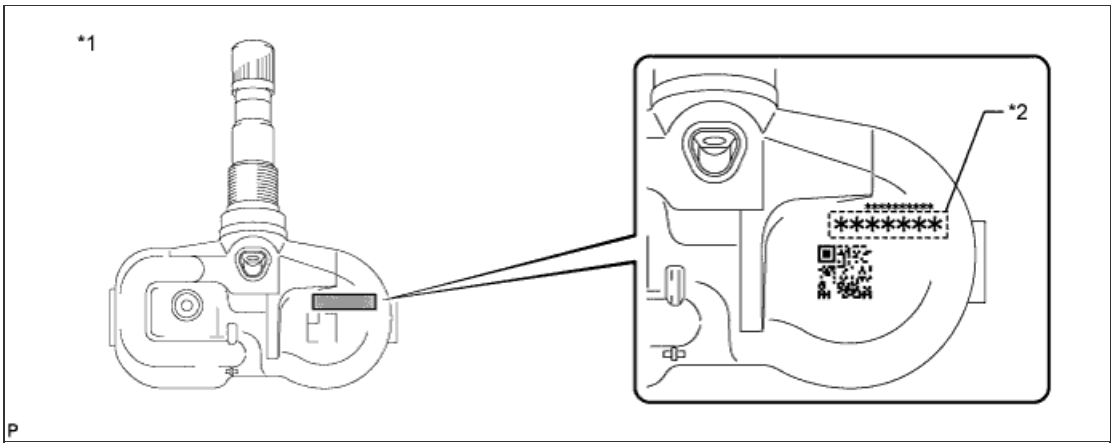
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2179/79 Tire Pressure Monitor ECU Communication Stop

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
C2179/79	Tire pressure warning ECU and receiver communication disruption	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTCs C2191/91 is cleared	A
DTC C2191/91 is not cleared	B

B → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

A → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

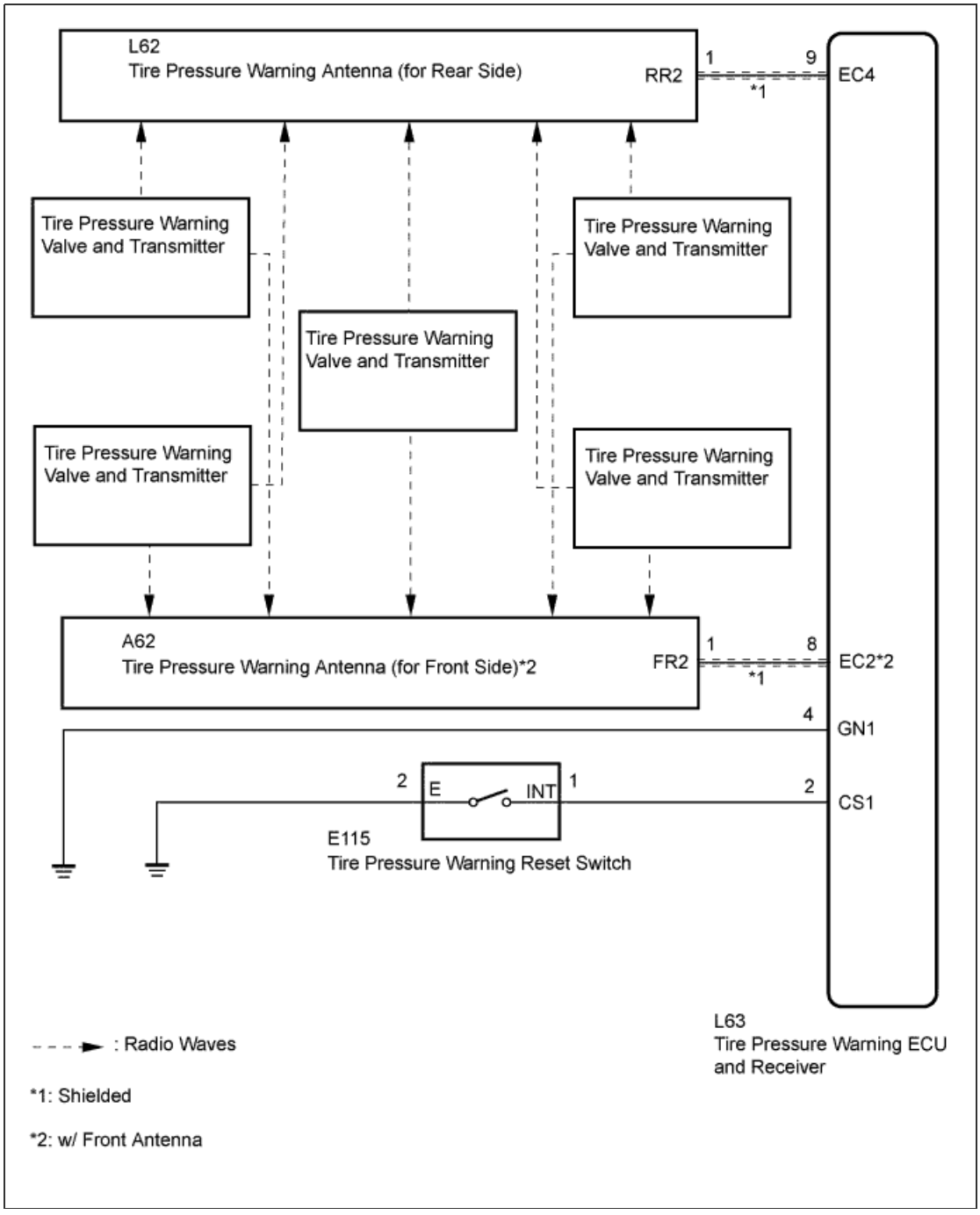
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

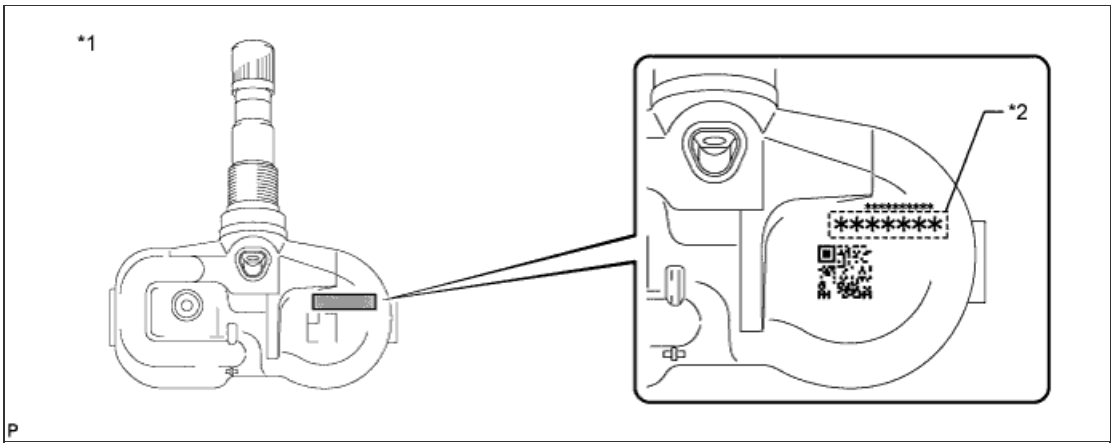
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2179/79 Tire Pressure Monitor ECU Communication Stop

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
C2179/79	Tire pressure warning ECU and receiver communication disruption	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTCs C2191/91 is cleared	A
DTC C2191/91 is not cleared	B

B → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

A → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

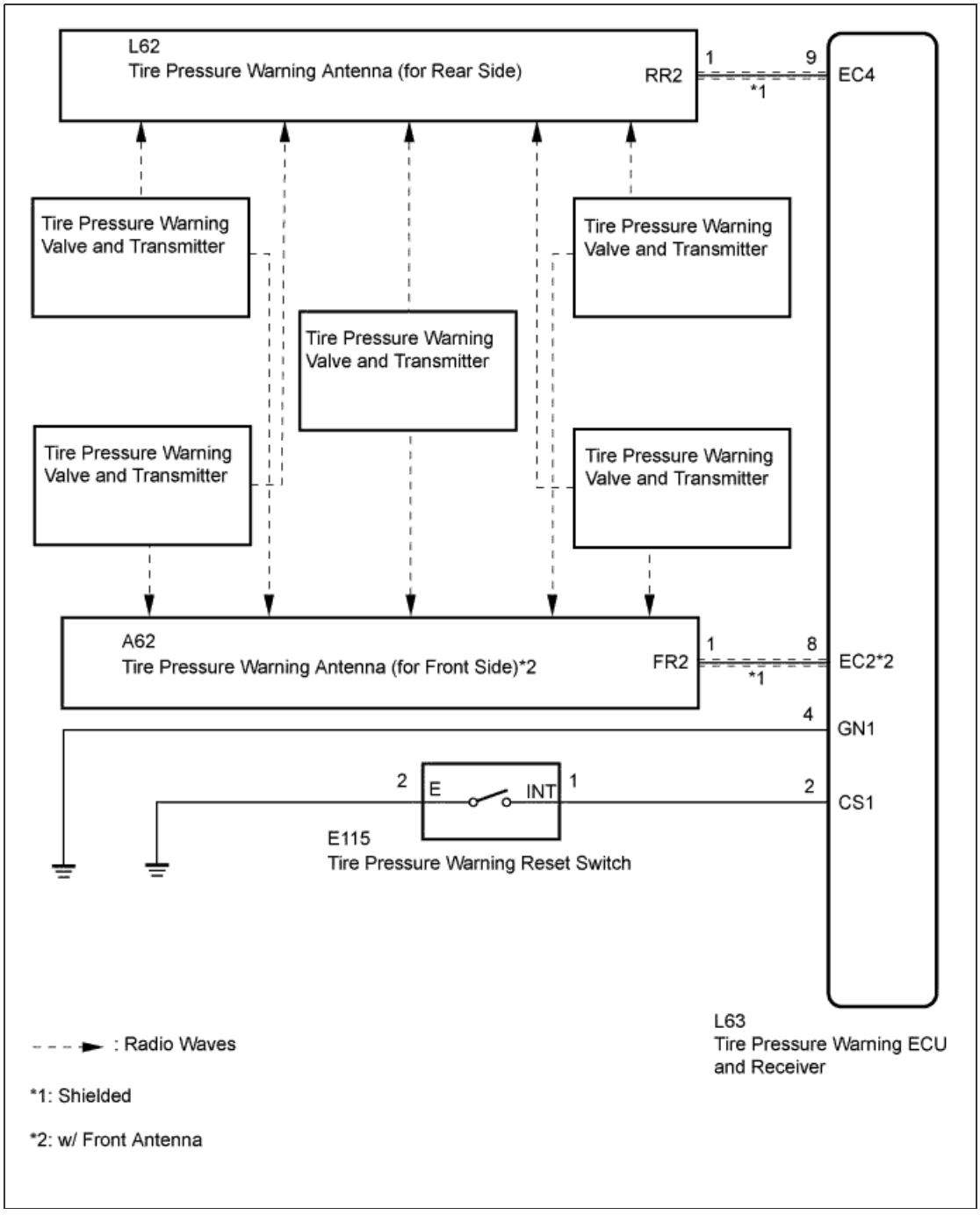
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

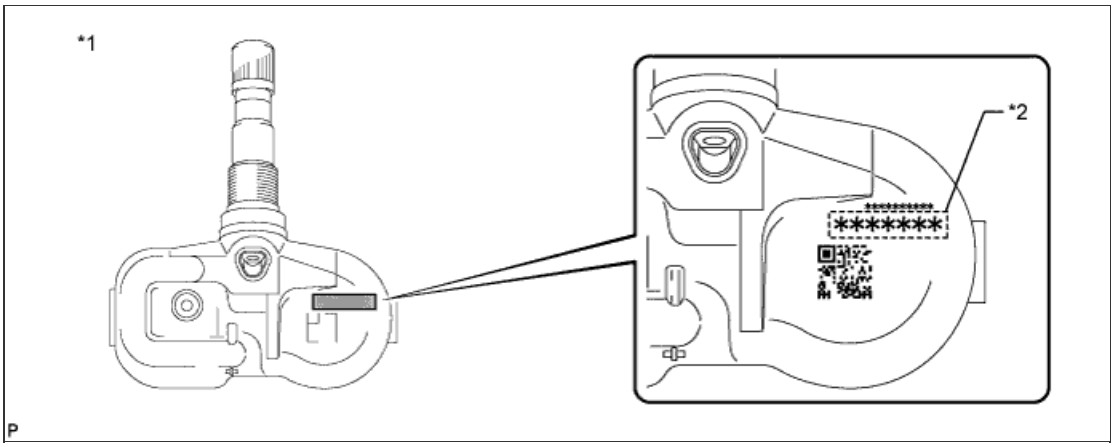
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2191/91 Vehicle Speed Signal Error (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication. This DTC is stored upon entering test mode (signal check mode), and cleared when a vehicle speed signal of 20 km/h (12 mph) is detected for 3 seconds or more. This DTC is output only in test mode (signal check mode).

DTC No.	DTC Detection Condition	Trouble Area
C2191/91	Speed sensor circuit malfunction	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK ↓

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK ↓

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2191/91 is not cleared	A
DTC C2191/91 is cleared	B

B → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

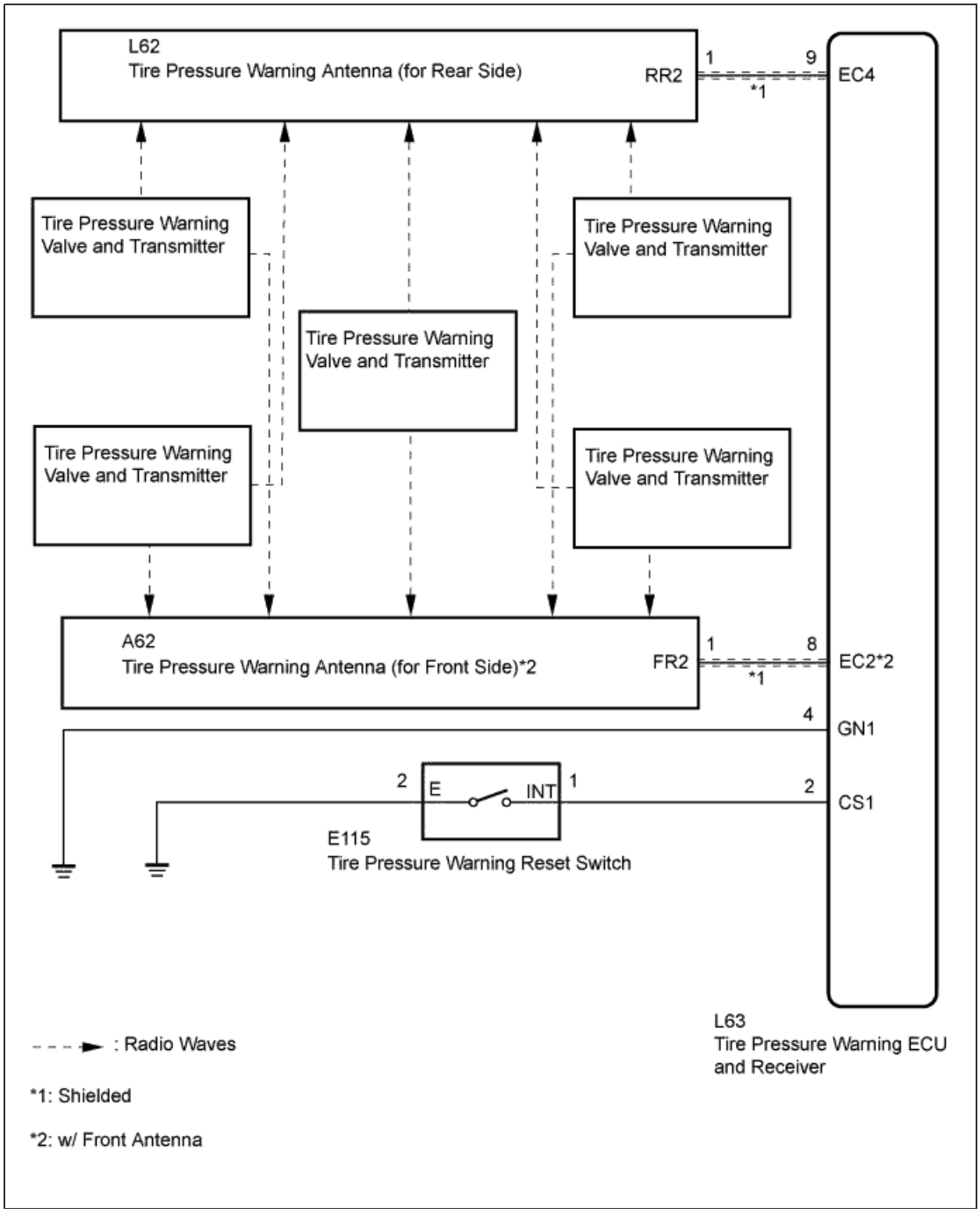
C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure**

warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi)	Actual tire inflation	If N/A is displayed, data has not been received.*

Pressure	max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	pressure	
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

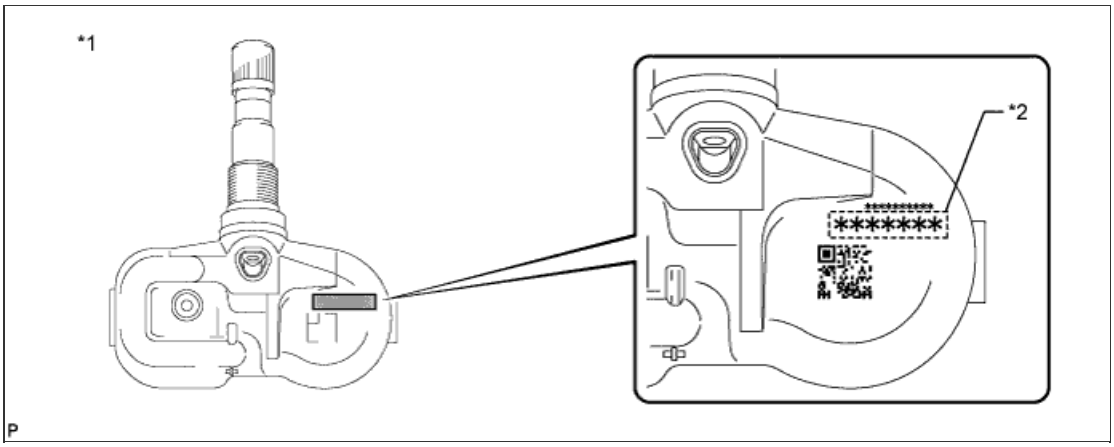
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
	Registered ID2 code/		

Registered ID 2 code	min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2191/91 Vehicle Speed Signal Error (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication. This DTC is stored upon entering test mode (signal check mode), and cleared when a vehicle speed signal of 20 km/h (12 mph) is detected for 3 seconds or more. This DTC is output only in test mode (signal check mode).

DTC No.	DTC Detection Condition	Trouble Area
C2191/91	Speed sensor circuit malfunction	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK ↓

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK ↓

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2191/91 is not cleared	A
DTC C2191/91 is cleared	B

B → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

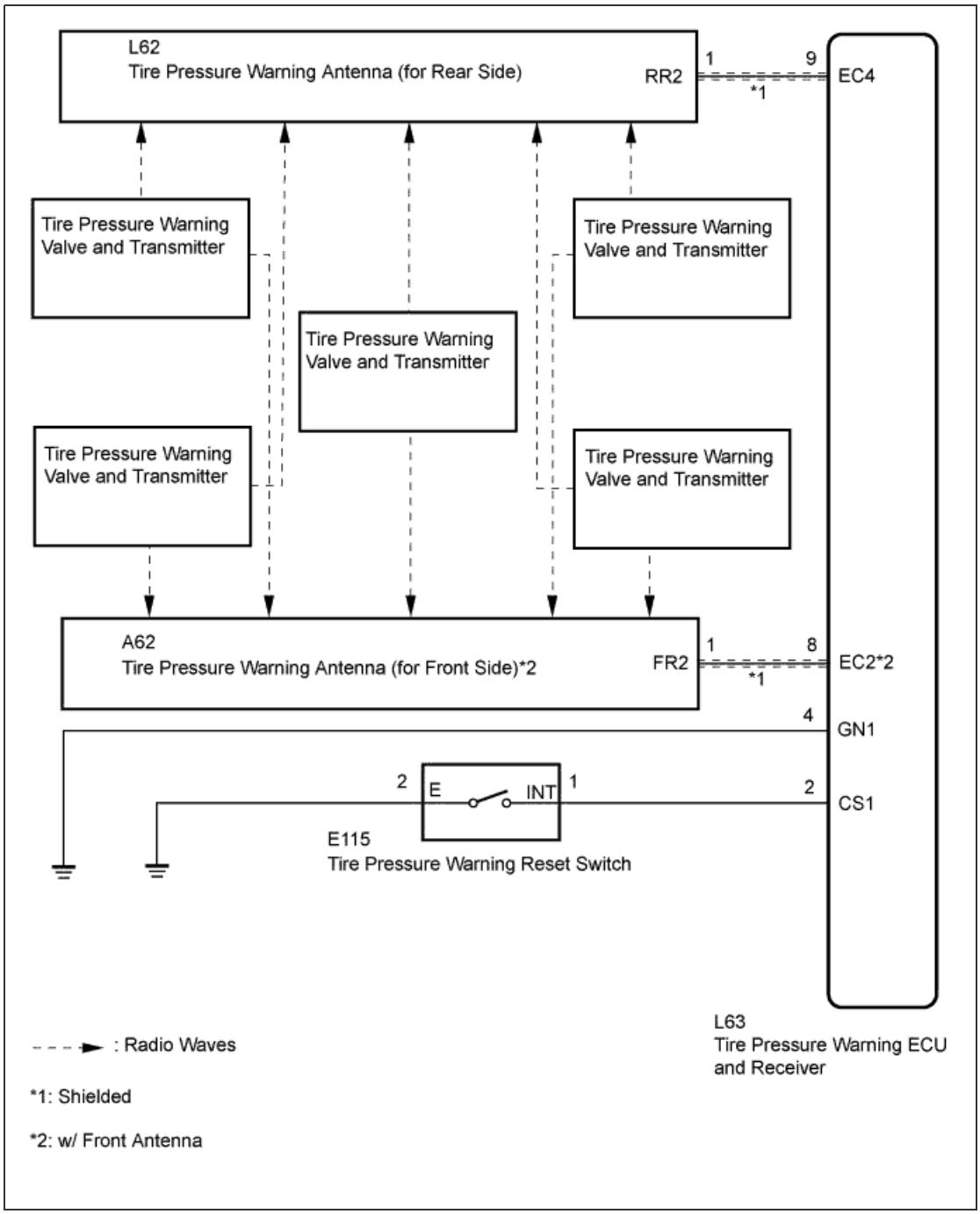
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

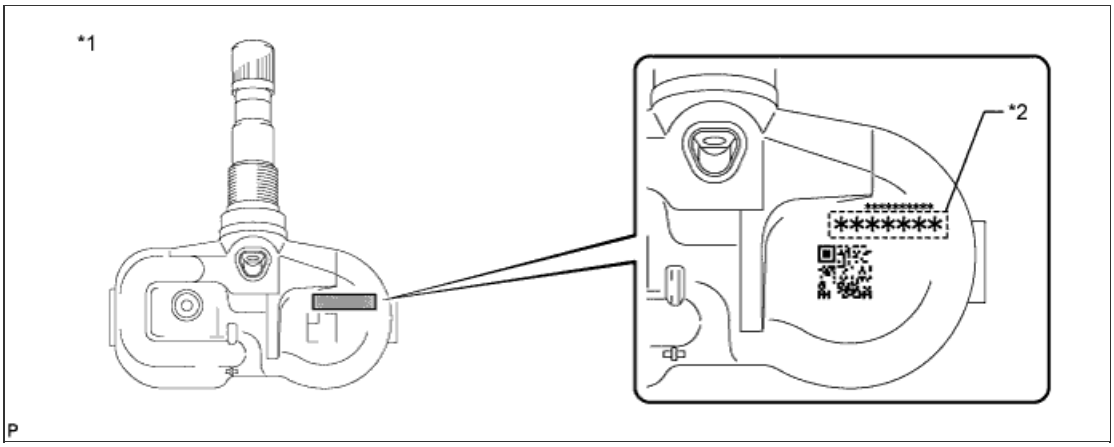
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2191/91 Vehicle Speed Signal Error (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning ECU and receiver receives speed signals from the combination meter via CAN communication. This DTC is stored upon entering test mode (signal check mode), and cleared when a vehicle speed signal of 20 km/h (12 mph) is detected for 3 seconds or more. This DTC is output only in test mode (signal check mode).

DTC No.	DTC Detection Condition	Trouble Area
C2191/91	Speed sensor circuit malfunction	• CAN communication system • Vehicle speed signal circuit • Combination meter • Tire pressure warning ECU and receiver

INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION SYSTEM

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK ↓

2.CHECK VEHICLE SPEED SIGNAL (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

e. Check that the values indicated on the GTS and on the combination meter are the same.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Vehicle Speed	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter

OK:
The vehicle speed displayed on the GTS changes depending on the actual vehicle speed.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK ↓

3.CHECK TEST MODE DTC (C2191/91)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2191/91 is not cleared	A
DTC C2191/91 is cleared	B

B → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A → REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (**Click here**)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

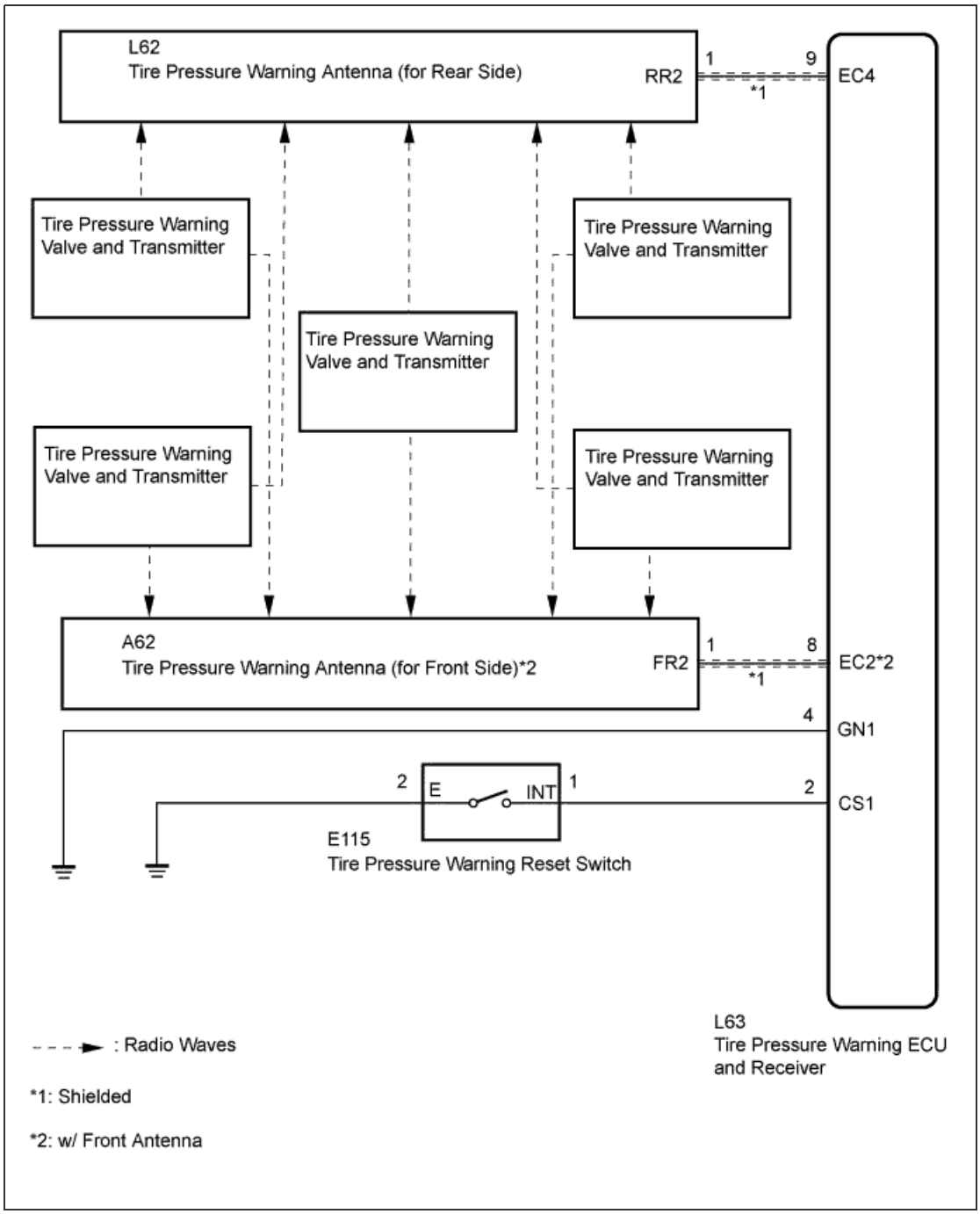
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

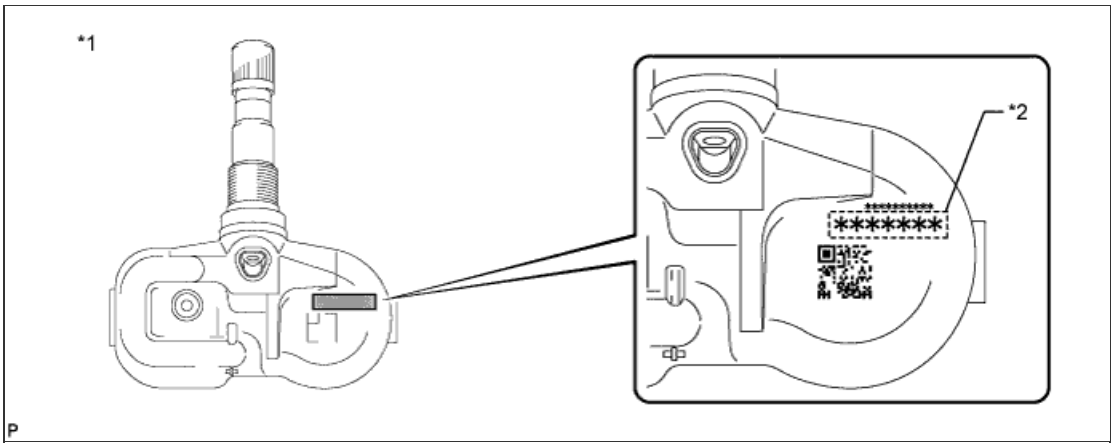
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2195/95 Multi-receiver Antenna Circuit (Test Mode DTC)

for Preparation Click here

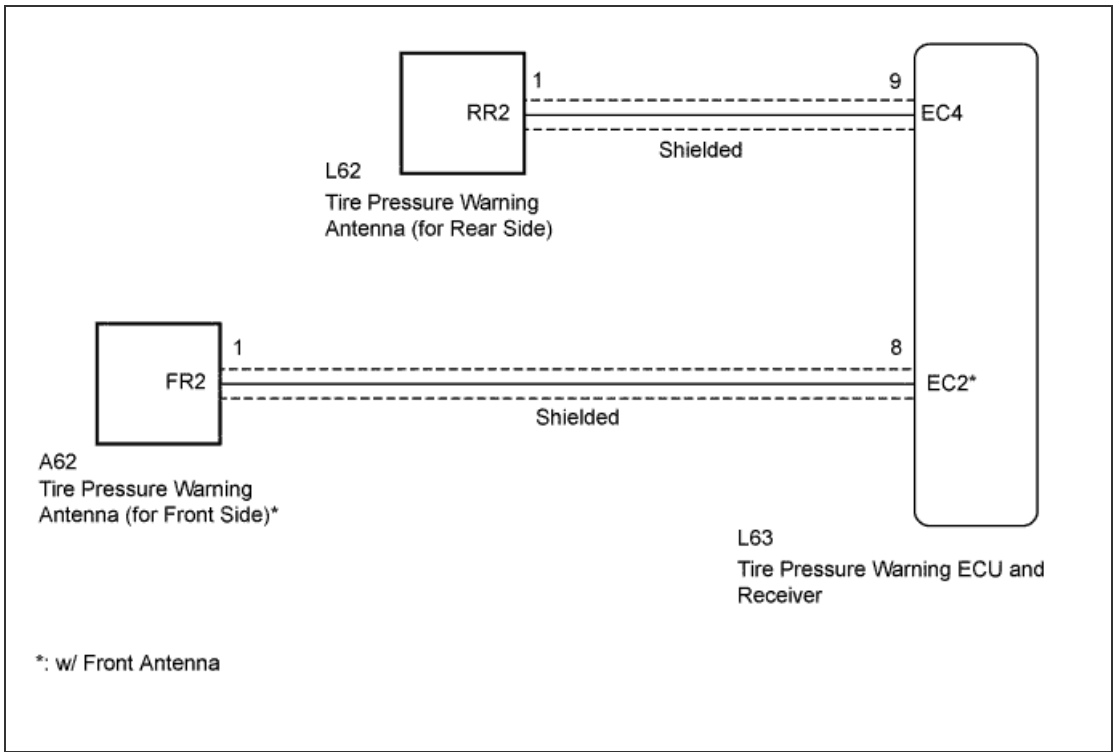
DESCRIPTION

This DTC is used for detecting open circuits and radio wave frequency mismatches in the tire pressure warning antenna.

DTC No.	DTC Detection Condition	Trouble Area
C2195/95	Test mode procedure is performed.	• Tire pressure warning antenna (for Rear side) • Tire pressure warning antenna (for Front side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - TIRE PRESSURE WARNING ANTENNA)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

c. w/ Front Antenna:
Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

d. Measure the resistance according to the value(s) in the table below.

HINT:

Because the coaxial cable that is used for the tire pressure warning antenna consists of a center conductor and an outer shielding layer (-), this measurement should be performed to ensure that there is no malfunction in the coaxial cable.

Standard Resistance:

w/o Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher

w/ Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-8 (EC2) - A62-1 (FR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-8 (shielded wire) - A62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-8 (EC2) - A62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher
L63-8 (shielded wire) - A62-1 (FR2)	Always	10 kΩ or higher

Result:

Result	Proceed to
OK (w/o Front Antenna)	A
OK (w/ Front Antenna)	B
NG	C

B → Go to step 5

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

2.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 4

A

3.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

4.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC C2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side))	B
DTC C2195/95 is cleared (When performing the test mode inspection after the tire pressure has changed as a result of the tire pressure warning antenna reception (for Rear Side) check)	C

B	END
C	CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG).

f. Turn the GTS on.

g. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

h. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

i. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 7

A

6.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

7.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Front Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the tire pressure warning antenna (for Front Side) A62 connector.

d. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

e. Connect the GTS to the DLC3.

f. Turn the engine switch on (IG).

g. Turn the GTS on.

h. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

i. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

j. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 9

A

8.REPLACE TIRE PRESSURE WARNING ANTENNA (for Front side)

a. Replace the tire pressure warning antenna (for Front Side) (Click here).

NEXT

9.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC 2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side) or tire pressure warning antenna (for Front Side))	B
DTC 2195/95 is cleared (When performing the test mode inspection after the tire pressures have changed as a result of the tire pressure warning antenna reception (for Front Side and Rear Side) check)	C

B → END

C → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

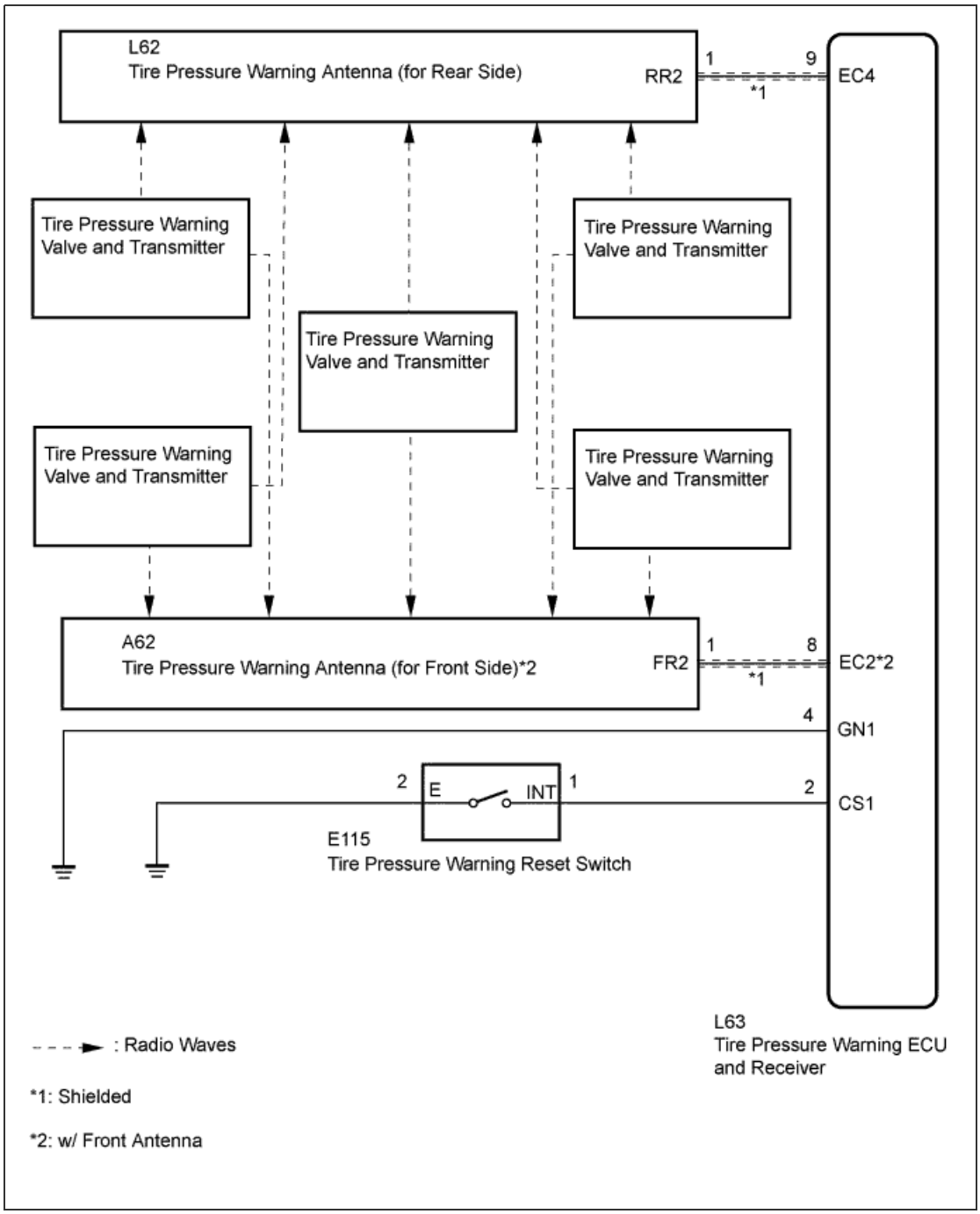
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

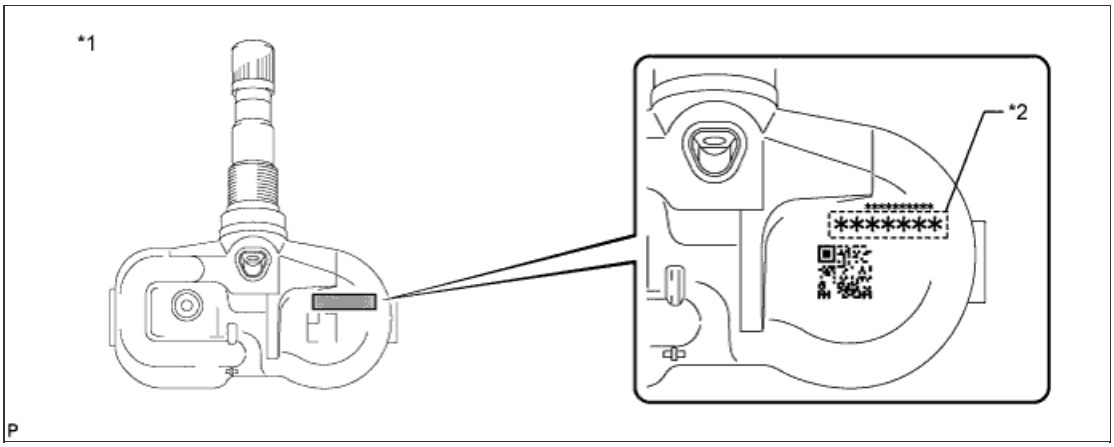
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2195/95 Multi-receiver Antenna Circuit (Test Mode DTC)

for Preparation Click here

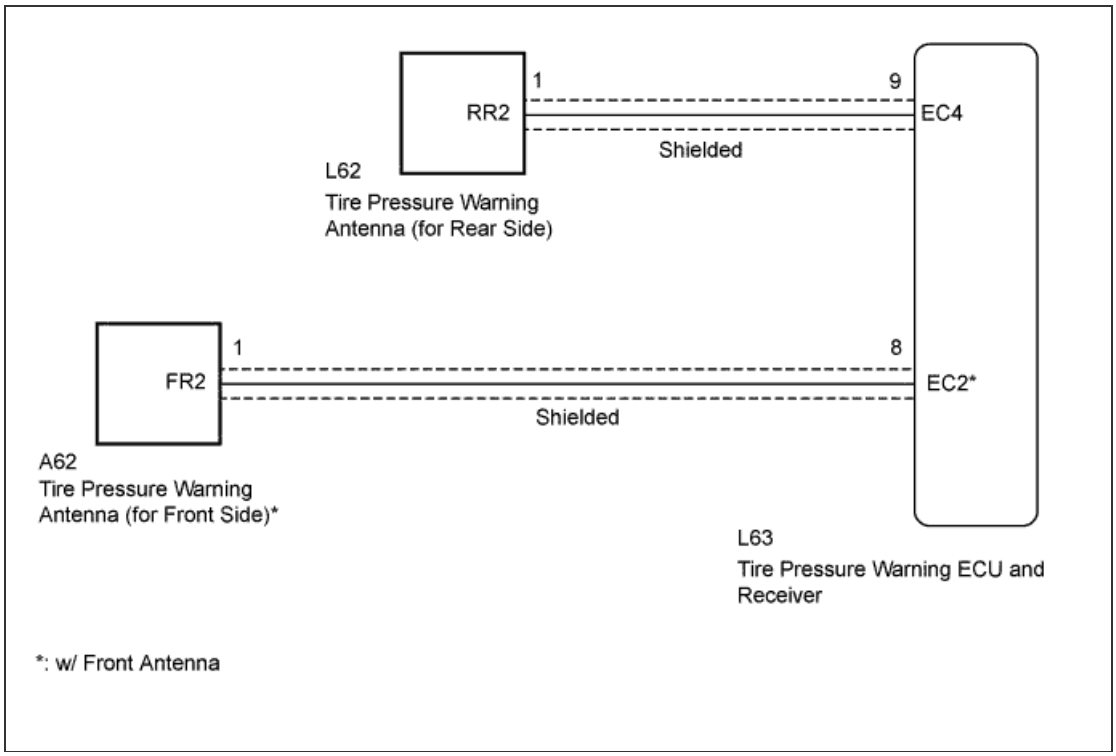
DESCRIPTION

This DTC is used for detecting open circuits and radio wave frequency mismatches in the tire pressure warning antenna.

DTC No.	DTC Detection Condition	Trouble Area
C2195/95	Test mode procedure is performed.	• Tire pressure warning antenna (for Rear side) • Tire pressure warning antenna (for Front side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - TIRE PRESSURE WARNING ANTENNA)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

c. w/ Front Antenna:
Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

d. Measure the resistance according to the value(s) in the table below.

HINT:

Because the coaxial cable that is used for the tire pressure warning antenna consists of a center conductor and an outer shielding layer (-), this measurement should be performed to ensure that there is no malfunction in the coaxial cable.

Standard Resistance:

w/o Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher

w/ Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-8 (EC2) - A62-1 (FR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-8 (shielded wire) - A62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-8 (EC2) - A62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher
L63-8 (shielded wire) - A62-1 (FR2)	Always	10 kΩ or higher

Result:

Result	Proceed to
OK (w/o Front Antenna)	A
OK (w/ Front Antenna)	B
NG	C

B → Go to step 5

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

2.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 4

A

3.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

4.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC C2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side))	B
DTC C2195/95 is cleared (When performing the test mode inspection after the tire pressure has changed as a result of the tire pressure warning antenna reception (for Rear Side) check)	C

B	END
C	CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG).

f. Turn the GTS on.

g. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

h. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

i. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 7

A

6.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

7.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Front Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the tire pressure warning antenna (for Front Side) A62 connector.

d. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

e. Connect the GTS to the DLC3.

f. Turn the engine switch on (IG).

g. Turn the GTS on.

h. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

i. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

j. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 9

A

8.REPLACE TIRE PRESSURE WARNING ANTENNA (for Front side)

a. Replace the tire pressure warning antenna (for Front Side) (Click here).

NEXT

9.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC 2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side) or tire pressure warning antenna (for Front Side))	B
DTC 2195/95 is cleared (When performing the test mode inspection after the tire pressures have changed as a result of the tire pressure warning antenna reception (for Front Side and Rear Side) check)	C

B → END

C → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

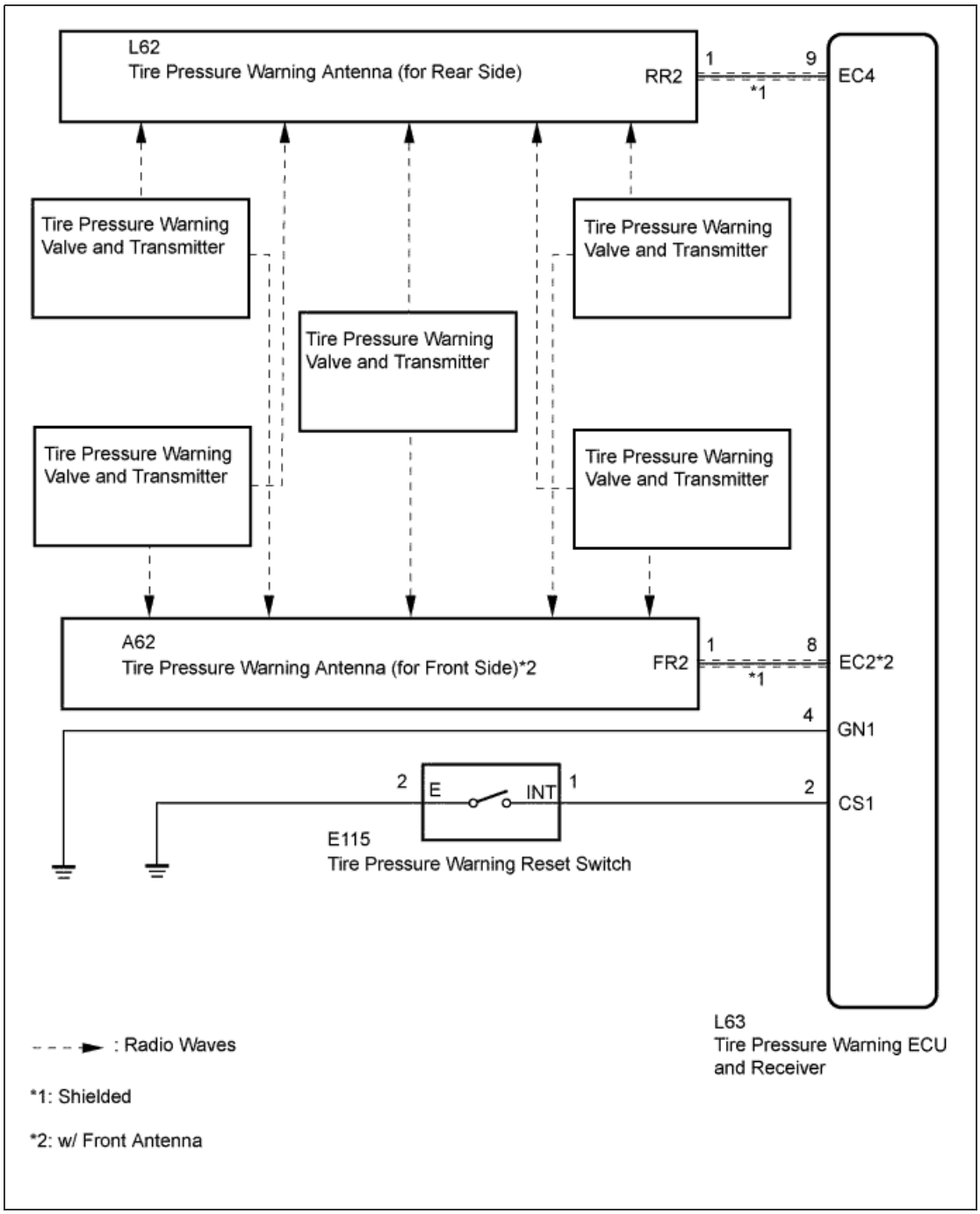
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

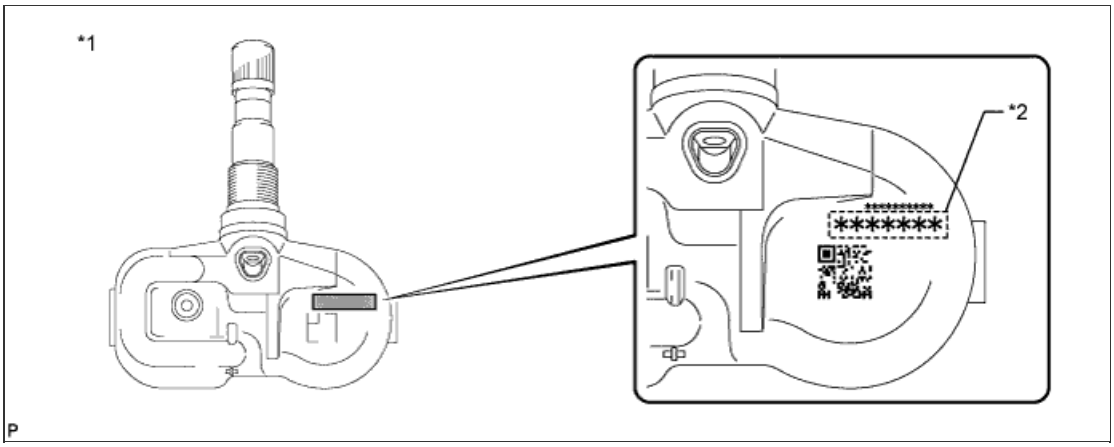
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2195/95 Multi-receiver Antenna Circuit (Test Mode DTC)

for Preparation Click here

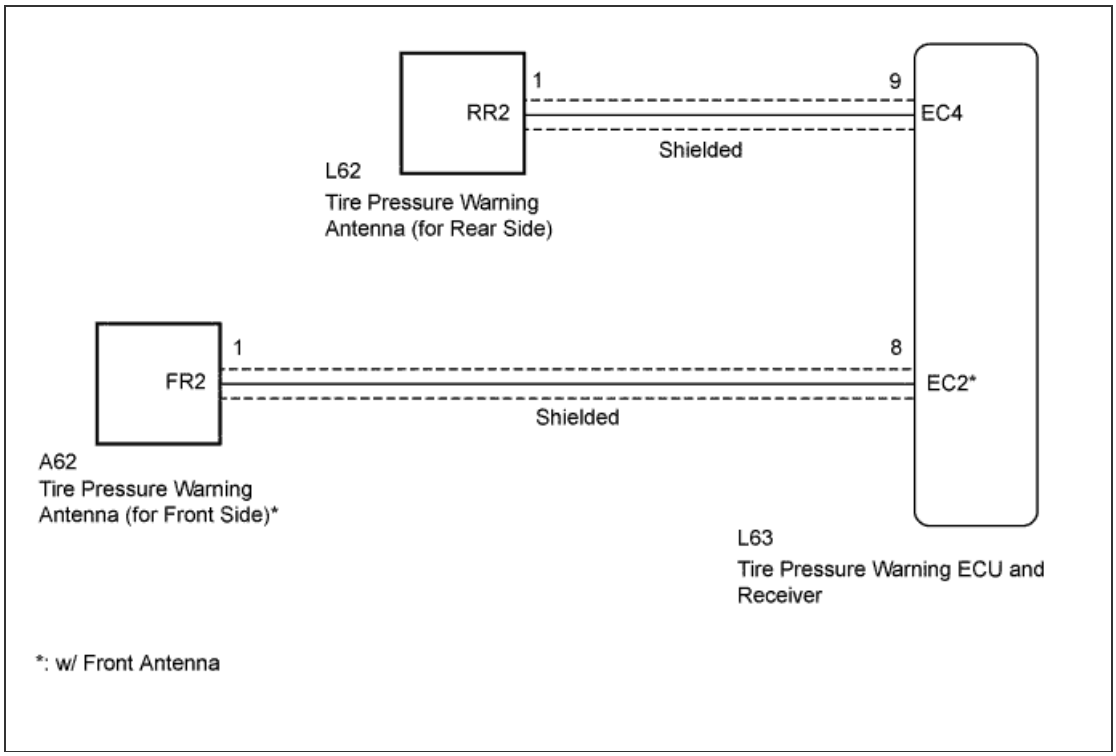
DESCRIPTION

This DTC is used for detecting open circuits and radio wave frequency mismatches in the tire pressure warning antenna.

DTC No.	DTC Detection Condition	Trouble Area
C2195/95	Test mode procedure is performed.	• Tire pressure warning antenna (for Rear side) • Tire pressure warning antenna (for Front side)* • Harness or connector • Tire pressure warning ECU and receiver

*: w/ Front Antenna

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - TIRE PRESSURE WARNING ANTENNA)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

c. w/ Front Antenna:
Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

d. Measure the resistance according to the value(s) in the table below.

HINT:

Because the coaxial cable that is used for the tire pressure warning antenna consists of a center conductor and an outer shielding layer (-), this measurement should be performed to ensure that there is no malfunction in the coaxial cable.

Standard Resistance:

w/o Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher

w/ Front Antenna:

Tester Connection	Condition	Specified Condition
L63-9 (EC4) - L62-1 (RR2)	Always	Below 1 Ω
L63-8 (EC2) - A62-1 (FR2)	Always	Below 1 Ω
L63-9 (shielded wire) - L62-1 (shielded wire)	Always	Below 1 Ω
L63-8 (shielded wire) - A62-1 (shielded wire)	Always	Below 1 Ω
L63-9 (EC4) - L62-1 (shielded wire)	Always	10 kΩ or higher
L63-8 (EC2) - A62-1 (shielded wire)	Always	10 kΩ or higher
L63-9 (shielded wire) - L62-1 (RR2)	Always	10 kΩ or higher
L63-8 (shielded wire) - A62-1 (FR2)	Always	10 kΩ or higher

Result:

Result	Proceed to
OK (w/o Front Antenna)	A
OK (w/ Front Antenna)	B
NG	C

B → Go to step 5

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

2.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi),	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

	Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)		
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 4

A

3.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

4.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC C2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side))	B
DTC C2195/95 is cleared (When performing the test mode inspection after the tire pressure has changed as a result of the tire pressure warning antenna reception (for Rear Side) check)	C

B	END
C	CHECK FOR INTERMITTENT PROBLEMS (Click here)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Rear Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Disconnect the tire pressure warning antenna (for Front Side) A62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

d. Connect the GTS to the DLC3.

e. Turn the engine switch on (IG).

f. Turn the GTS on.

g. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

h. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

i. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 7

A

6.REPLACE TIRE PRESSURE WARNING ANTENNA (for Rear Side)

a. Replace the tire pressure warning antenna (for Rear Side) (Click here).

NEXT

7.CHECK TIRE PRESSURE WARNING ANTENNA RECEPTION (for Front Side)

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the tire pressure warning antenna (for Front Side) A62 connector.

d. Disconnect the tire pressure warning antenna (for Rear Side) L62 connector.

NOTICE:

Be sure to disconnect the connector on the tire pressure warning antenna.

e. Connect the GTS to the DLC3.

f. Turn the engine switch on (IG).

g. Turn the GTS on.

h. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

i. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

j. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kgf/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check that each tire pressure data displayed on the GTS has changed.

Result:

Result	Proceed to
Tire pressure data does not change	A
Tire pressure of at least 1 wheel changes	B

B → Go to step 9

A

8.REPLACE TIRE PRESSURE WARNING ANTENNA (for Front side)

a. Replace the tire pressure warning antenna (for Front Side) (Click here).

NEXT

9.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is not cleared	A
DTC 2195/95 is cleared (When performing the test mode inspection after replacing the tire pressure warning antenna (for Rear Side) or tire pressure warning antenna (for Front Side))	B
DTC 2195/95 is cleared (When performing the test mode inspection after the tire pressures have changed as a result of the tire pressure warning antenna reception (for Front Side and Rear Side) check)	C

B → END

C → CHECK FOR INTERMITTENT PROBLEMS (**Click here**)

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

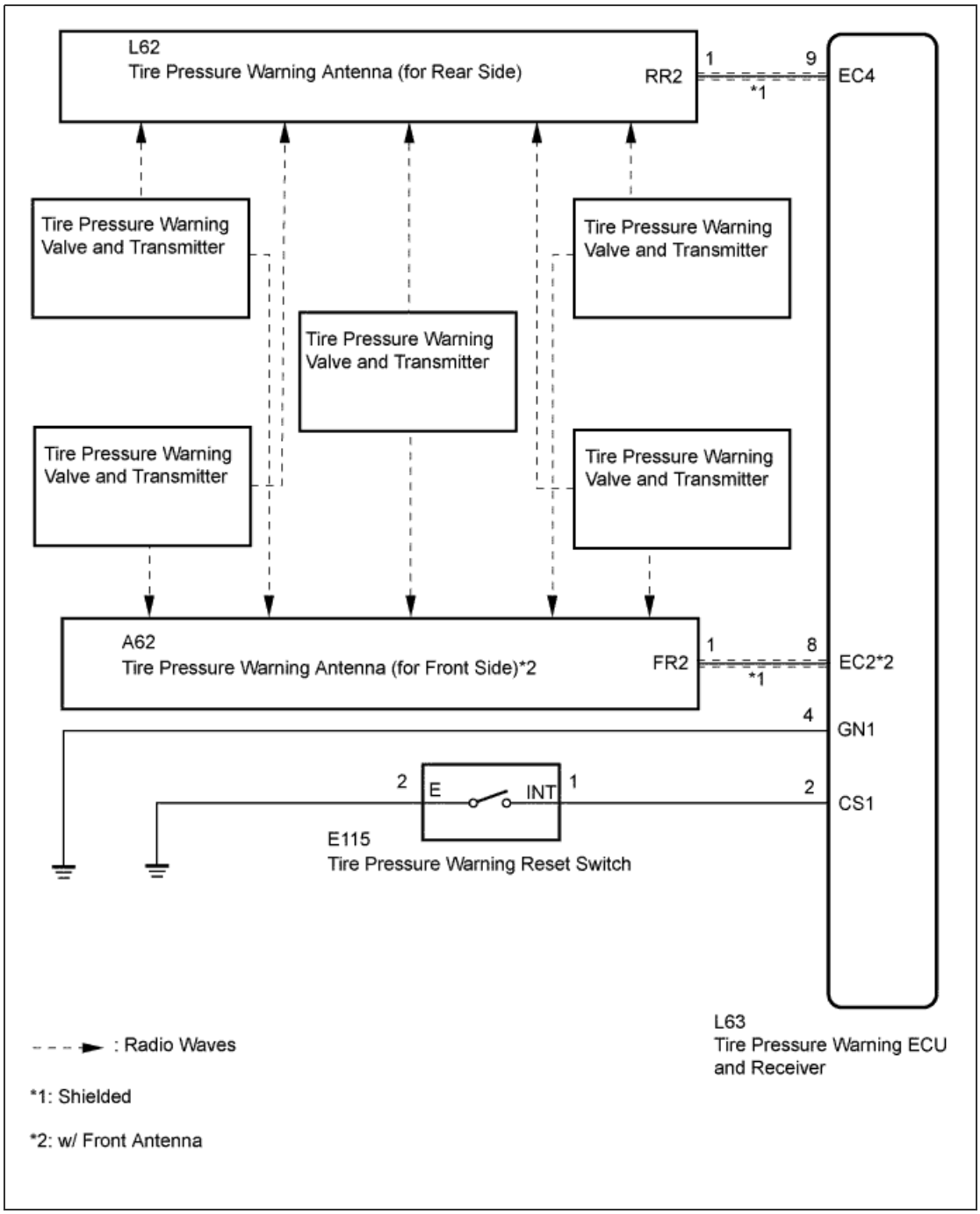
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

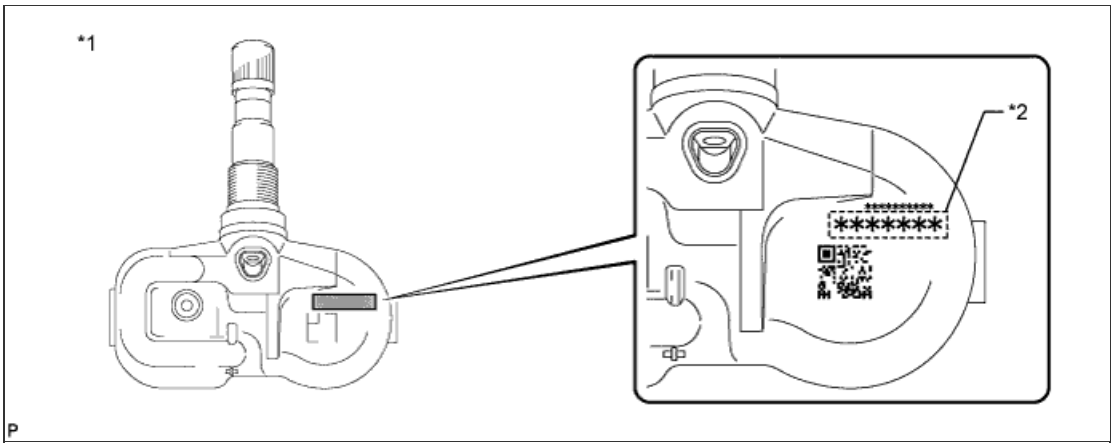
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2198/98 Initialization Switch (for Test Mode DTC)

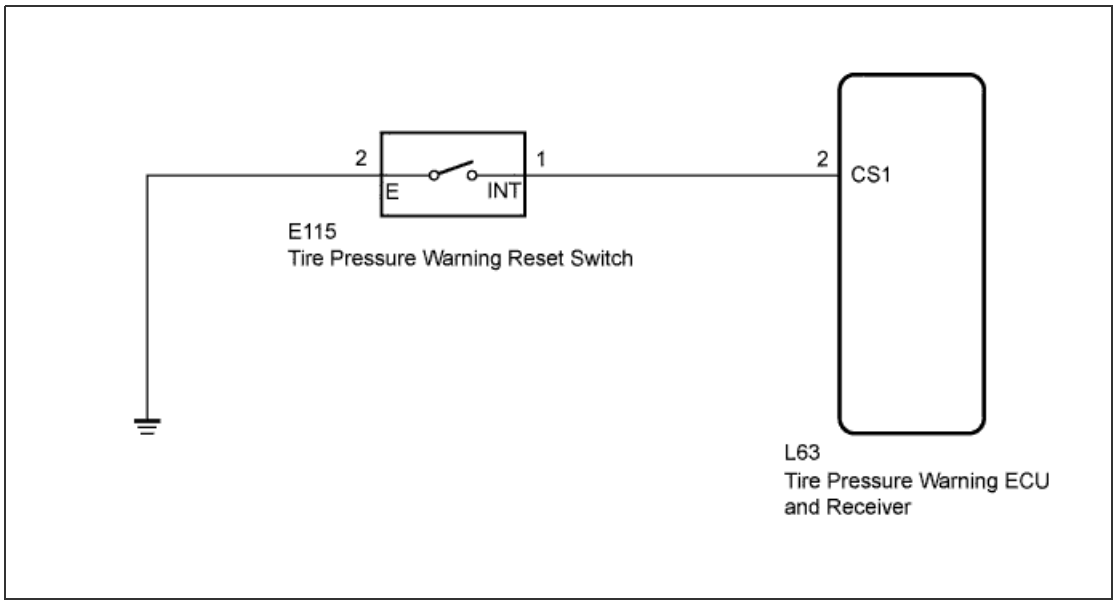
for Preparation Click here

DESCRIPTION

During test mode, when the tire pressure warning reset switch is on, the tire pressure warning light comes on and when the tire pressure warning reset switch is off, the tire pressure warning light blinks at 0.125 second intervals.

DTC No.	DTC Detection Condition	Trouble Area
C2198/98	Test mode procedure is performed.	• Tire pressure warning reset switch • Harness or connector • Tire pressure warning ECU and receiver

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.INSPECT TIRE PRESSURE WARNING RESET SWITCH

a. Remove the tire pressure warning reset switch (Click here).

b. Inspect the tire pressure warning reset switch (Click here).

NG → REPLACE TIRE PRESSURE WARNING RESET SWITCH (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RESET SWITCH - TIRE PRESSURE WARNING ECU AND RECEIVER)

a. Disconnect the tire pressure warning reset switch E115 connector and the tire pressure warning ECU and receiver L63 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-2 (CS1) - E115-1 (INT)	Always	Below 1 Ω
L63-2 (CS1) or E115-1 (INT) - Body ground	Always	10 kΩ or higher
E115-2 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

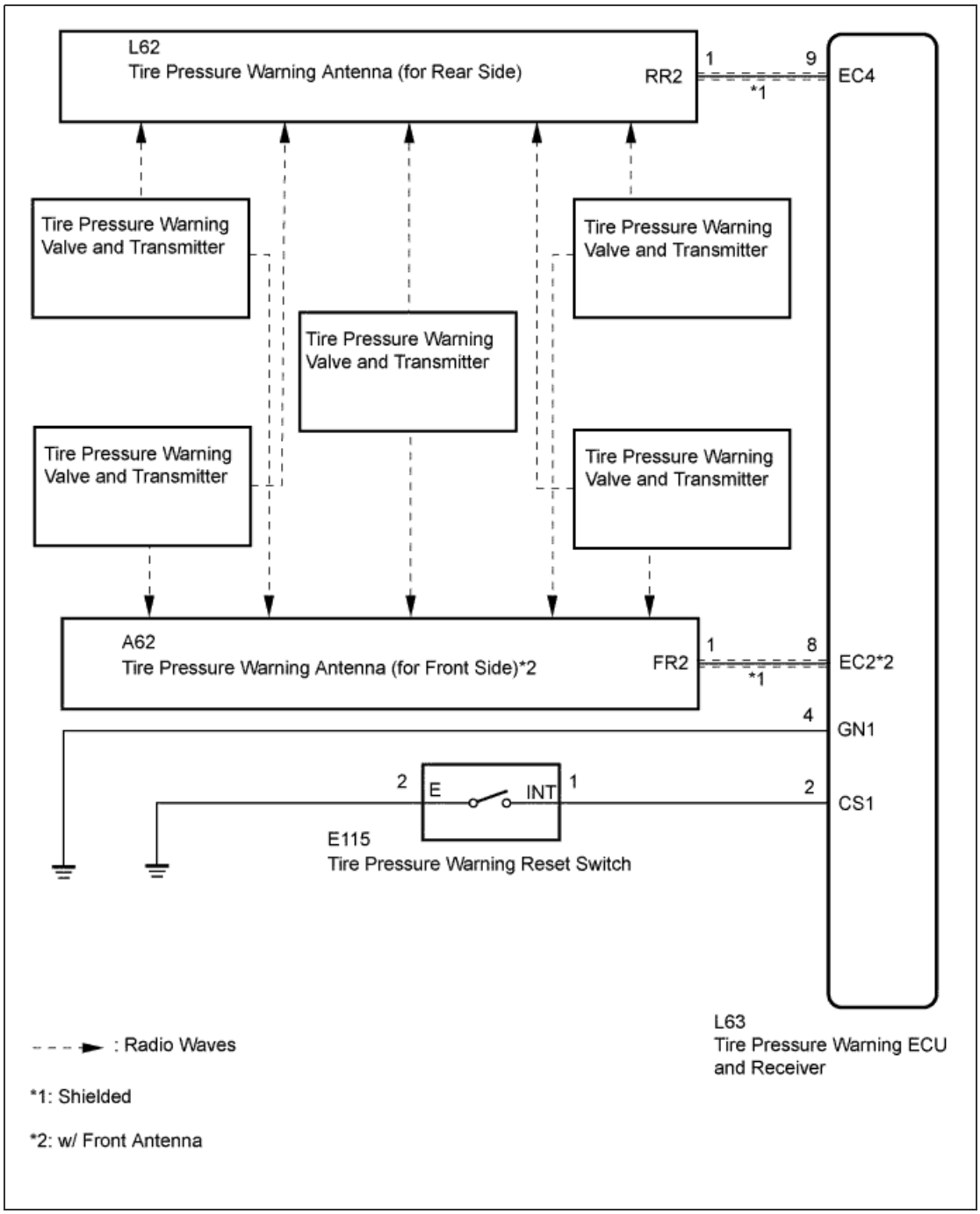
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

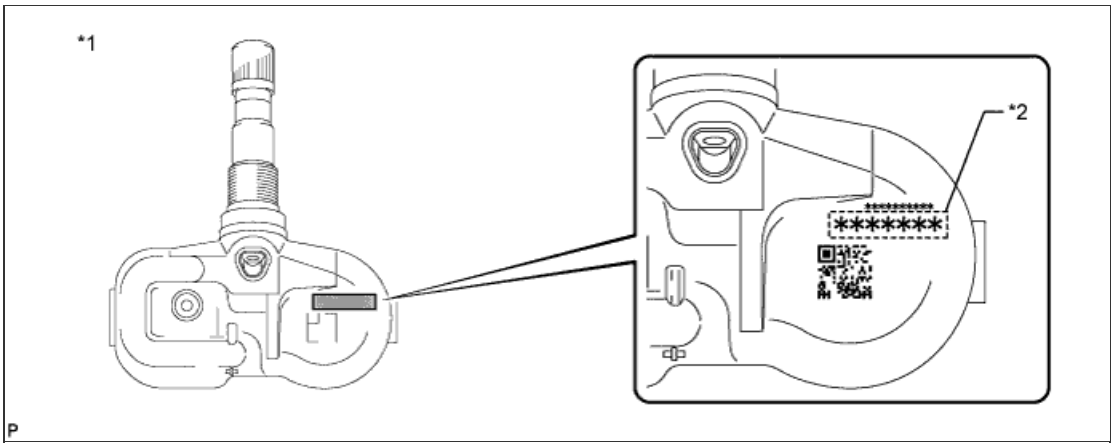
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2198/98 Initialization Switch (for Test Mode DTC)

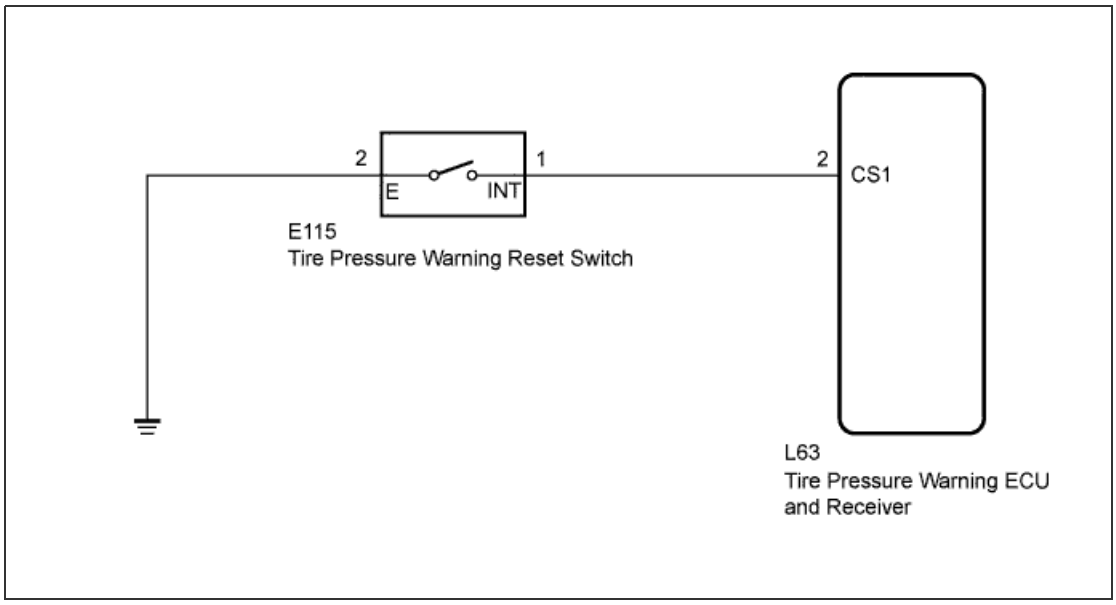
for Preparation Click here

DESCRIPTION

During test mode, when the tire pressure warning reset switch is on, the tire pressure warning light comes on and when the tire pressure warning reset switch is off, the tire pressure warning light blinks at 0.125 second intervals.

DTC No.	DTC Detection Condition	Trouble Area
C2198/98	Test mode procedure is performed.	• Tire pressure warning reset switch • Harness or connector • Tire pressure warning ECU and receiver

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.INSPECT TIRE PRESSURE WARNING RESET SWITCH

a. Remove the tire pressure warning reset switch (Click here).

b. Inspect the tire pressure warning reset switch (Click here).

NG → REPLACE TIRE PRESSURE WARNING RESET SWITCH (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RESET SWITCH - TIRE PRESSURE WARNING ECU AND RECEIVER)

a. Disconnect the tire pressure warning reset switch E115 connector and the tire pressure warning ECU and receiver L63 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-2 (CS1) - E115-1 (INT)	Always	Below 1 Ω
L63-2 (CS1) or E115-1 (INT) - Body ground	Always	10 kΩ or higher
E115-2 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2121/21 No Signal from Transmitter ID1

DTC C2122/22 No Signal from Transmitter ID2

DTC C2123/23 No Signal from Transmitter ID3

DTC C2124/24 No Signal from Transmitter ID4

DTC C2125/25 No Signal from Transmitter ID5

DTC C2181/81 Transmitter ID1 not Received (Test Mode DTC)

DTC C2182/82 Transmitter ID2 not Received (Test Mode DTC)

DTC C2183/83 Transmitter ID3 not Received (Test Mode DTC)

DTC C2184/84 Transmitter ID4 not Received (Test Mode DTC)

DTC C2185/85 Transmitter ID5 not Received (Test Mode DTC)

for Preparation Click here

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the tire pressures. The measured values are transmitted as radio waves to the tire pressure warning antenna and then set to the tire pressure warning ECU and receiver. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the warning light in the combination meter illuminates.
The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna.
Under the conditions below, the tire pressure warning ECU and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is stored.

- Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.
- The ID of a tire pressure warning valve and transmitter is mistyped during registration.
- A tire, wheel and/or transmitter from a different vehicle is installed.

HINT:

When no transmitter ID is received from a tire pressure warning valve and transmitter for a total of 20 minutes*1 (10 minutes*2) while the vehicle speed is more than 37 km/h (23 mph), or no transmitter ID is received from all the tire pressure warning valve and transmitters for a total of 20 minutes*1 (10 minutes*2), these DTCs are stored.

***1: for FMVSS138 Type**
***2: for ECE-R64 Type**

DTCs from C2121/21 to C2125/25 can only be cleared by using the GTS. DTCs from C2181/81 to C2185/85 can be cleared when the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2185/85 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	Following condition (a) or (b) is met: (a) When all conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • Any transmitter ID is not received from tire pressure warning valve and transmitters. • For 20 minutes*1 (10 minutes*2) or more, vehicle speed is more than 37 km/h (23 mph) or no vehicle speed signal is received. (b) When both conditions below are met: • Tire pressure warning valve and transmitter is not in stop mode. • No transmitter ID is received from tire pressure warning valve and transmitters for 20 minutes*1 (10 minutes*2) or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front Side)*3 • Harness or connector • Tire pressure warning ECU and receiver
C2181/81 C2182/82		• Tire pressure warning valve and transmitter • Tire pressure warning antenna (for Roof Side) • Tire pressure warning antenna (for Front

C2183/83 C2184/84 C2185/85	Test mode procedure is performed.	Side)*3 • Harness or connector • Tire pressure warning ECU and receiver

*1: for FMVSS138 Type
*2: for ECE-R64 Type
*3: w/ Front Antenna

NOTICE:

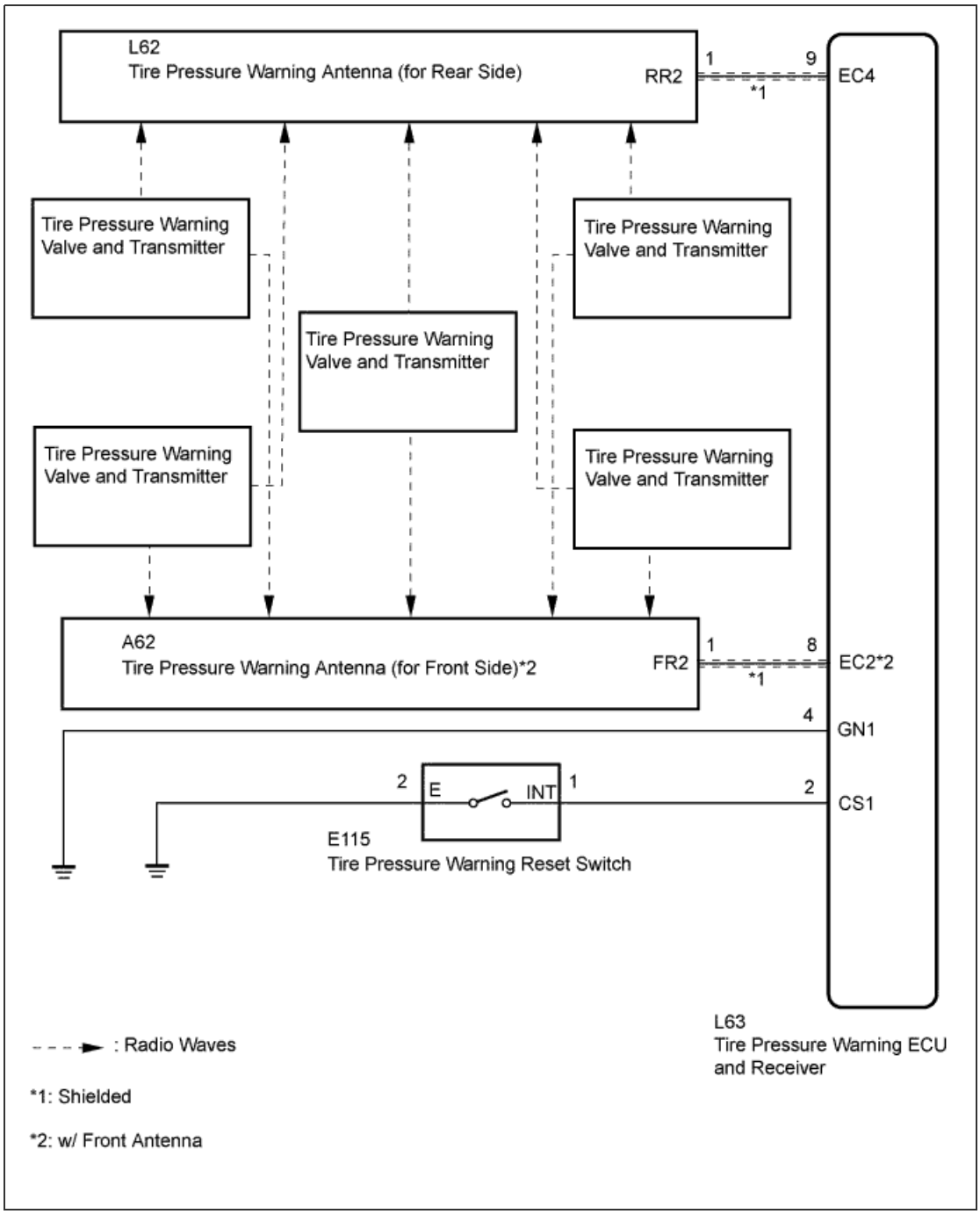
w/ ID Switching Function:

(Main) is displayed on the DTC screen for the DTCs even when the 2nd set of tires is selected.

HINT:

It is necessary to perform the following procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU and/or one of the valve and transmitters has been replaced.**

1.CHECK FREQUENCY RECEIVING CONDITION

a. Check that the vehicle is not located in an area such as described below:

i. Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.

HINT:

If the vehicle is located in an area such as the one described above, the tire pressure warning light may come on only in a particular area.

ii. Devices using similar radio frequencies are used in the vehicle.

OK:
Facilities or devices that use similar radio frequencies are not located in the vicinity of the vehicle.

HINT:

Radio transmissions may be interrupted due to the surroundings or devices installed by the user.

NG → CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2.CHECK TEST MODE DTC (C2195/95)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Utility / Signal Check.

f. Perform the test mode inspection (Click here).

Result:

Result	Proceed to
DTC C2195/95 is cleared	A
DTC C2195/95 is not cleared	B

B → GO TO DTC C2195/95 (**Click here**)

A

3.IDENTIFY TRANSMITTER CORRESPONDING TO DTC

a. Set the tire pressure to the specified value (Click here).

b. Turn the engine switch off.

c. Connect the GTS to the DLC3.

d. Turn the engine switch on (IG).

e. Turn the GTS on.

f. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

g. Check the values by referring to the table below.

Tire Pressure Monitor

		Normal	

Tester Display	Measurement Item/Range	Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

*: It may take a few minutes until the values are displayed.

h. Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.4 kg/cm ^{2}, 5.8 psi) within 30 seconds.

i. Check the Data List.

NOTICE:

- **It may take a few minutes to display the updated tire pressure data.**
- **When the "ID Tire Inflation Pressure" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**
- **Record the transmitter ID of which "ID Tire Inflation Pressure" data corresponds to each tire.**

j. After confirming that the "ID Tire Inflation Pressure" data for one tire has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result:

Result	Proceed to
One or more of transmitters abnormal	A
All normal	B

B → END

A

4.CHECK TRANSMITTER ID

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

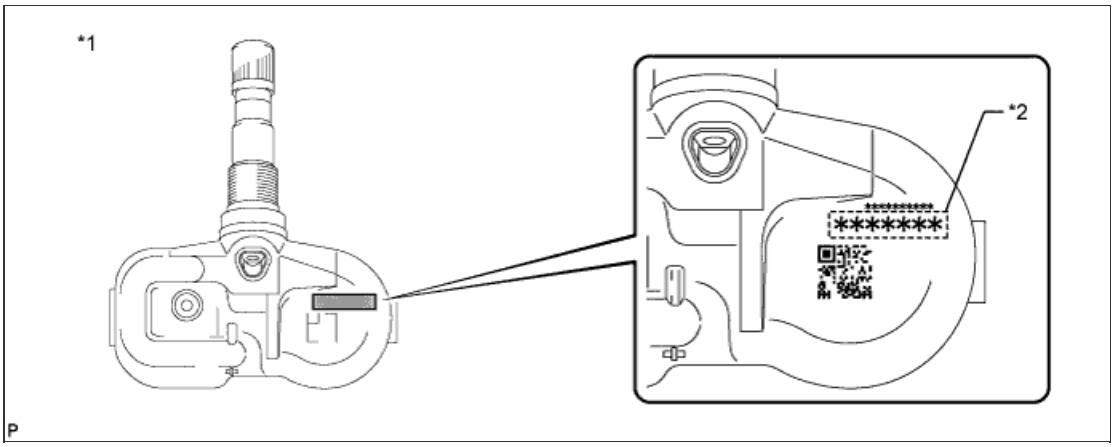
Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Registered ID 1 code	Registered ID1 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID1 displayed	-
Registered ID 2 code	Registered ID2 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID2 displayed	-
Registered ID 3 code	Registered ID3 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID3 displayed	-
Registered ID 4 code	Registered ID4 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID4 displayed	-
Registered ID 5 code	Registered ID5 code/ min.: 0, max.: FFFFFFF*	ID No. registered for transmitter ID5 displayed	-

HINT:

*: Displayed only when the ID No. is not registered.

g. Check the ID number on the identified transmitter by removing it from the tire and wheel.



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter	*2	Transmitter ID (7-digit number)

h. Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result:

Result	Proceed to
Match	A
Do not match	B

B → Go to step 6

A

5.REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Replace the tire pressure warning valve and transmitter (Click here).

NEXT

6.REGISTRATION OF TRANSMITTER ID

a. Perform registration (Click here).

NEXT

7.PERFORM INITIALIZATION

a. Perform initialization (Click here).

NEXT

8.CONFIRM TIRE INFLATION PRESSURE (DATA LIST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG).

d. Turn the GTS on.

e. Enter the following menus: Chassis / Tire Pressure Monitor / Data List.

f. Check the values by referring to the table below.

Tire Pressure Monitor

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ID 1 Tire Inflation Pressure	ID1 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 2 Tire Inflation Pressure	ID2 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 3 Tire Inflation Pressure	ID3 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 4 Tire Inflation Pressure	ID4 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*
ID 5 Tire Inflation Pressure	ID5 tire inflation pressure/ min.: Absolute pressure (abs)/ 0 kPa (0 kgf/cm ^{2}, 0 psi), Relative pressure (gauge)/ 0 kPa (0 kgf/cm^2, 0 psi) max.: Absolute pressure (abs)/ 488.72 kPa (4.9 kgf/cm ^{2}, 70 psi), Relative pressure (gauge)/ 388.72 kPa (3.9 kgf/cm^2, 56 psi)	Actual tire inflation pressure	If N/A is displayed, data has not been received.*

HINT:

- ***: It may take a few minutes until the values are displayed.**
- **When no "ID Tire Inflation Pressure" data has changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck the data.**

Result:

Result	Proceed to
Tire pressure values are not displayed.	A
All tire pressure readings are equal to specified values.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

DTC C2198/98 Initialization Switch (for Test Mode DTC)

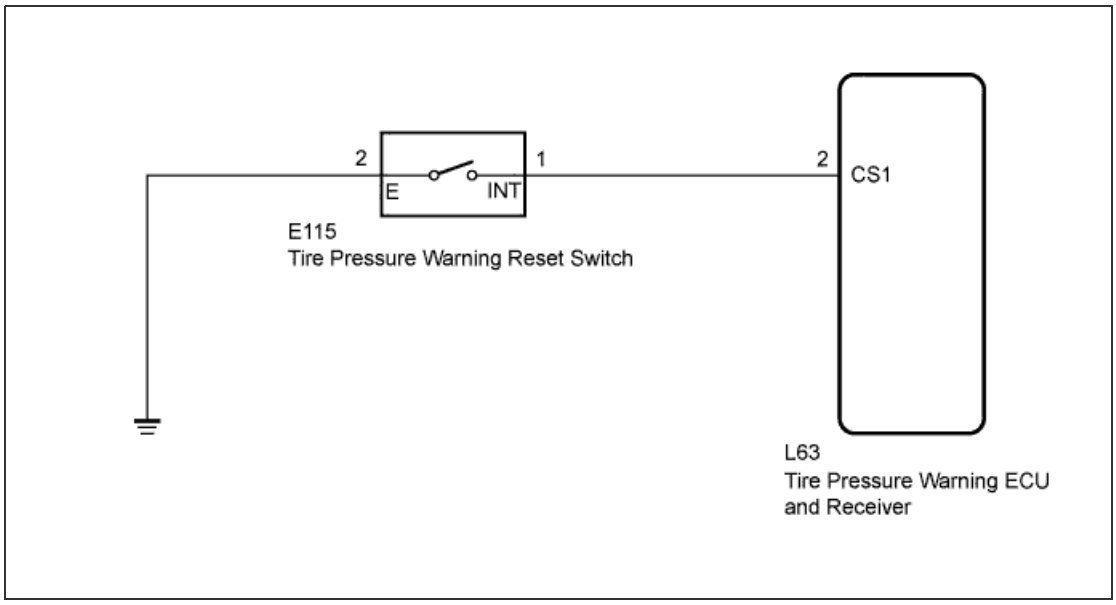
for Preparation Click here

DESCRIPTION

During test mode, when the tire pressure warning reset switch is on, the tire pressure warning light comes on and when the tire pressure warning reset switch is off, the tire pressure warning light blinks at 0.125 second intervals.

DTC No.	DTC Detection Condition	Trouble Area
C2198/98	Test mode procedure is performed.	• Tire pressure warning reset switch • Harness or connector • Tire pressure warning ECU and receiver

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.INSPECT TIRE PRESSURE WARNING RESET SWITCH

a. Remove the tire pressure warning reset switch (Click here).

b. Inspect the tire pressure warning reset switch (Click here).

NG → REPLACE TIRE PRESSURE WARNING RESET SWITCH (Click here)

OK

2.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RESET SWITCH - TIRE PRESSURE WARNING ECU AND RECEIVER)

a. Disconnect the tire pressure warning reset switch E115 connector and the tire pressure warning ECU and receiver L63 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-2 (CS1) - E115-1 (INT)	Always	Below 1 Ω
L63-2 (CS1) or E115-1 (INT) - Body ground	Always	10 kΩ or higher
E115-2 (E) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

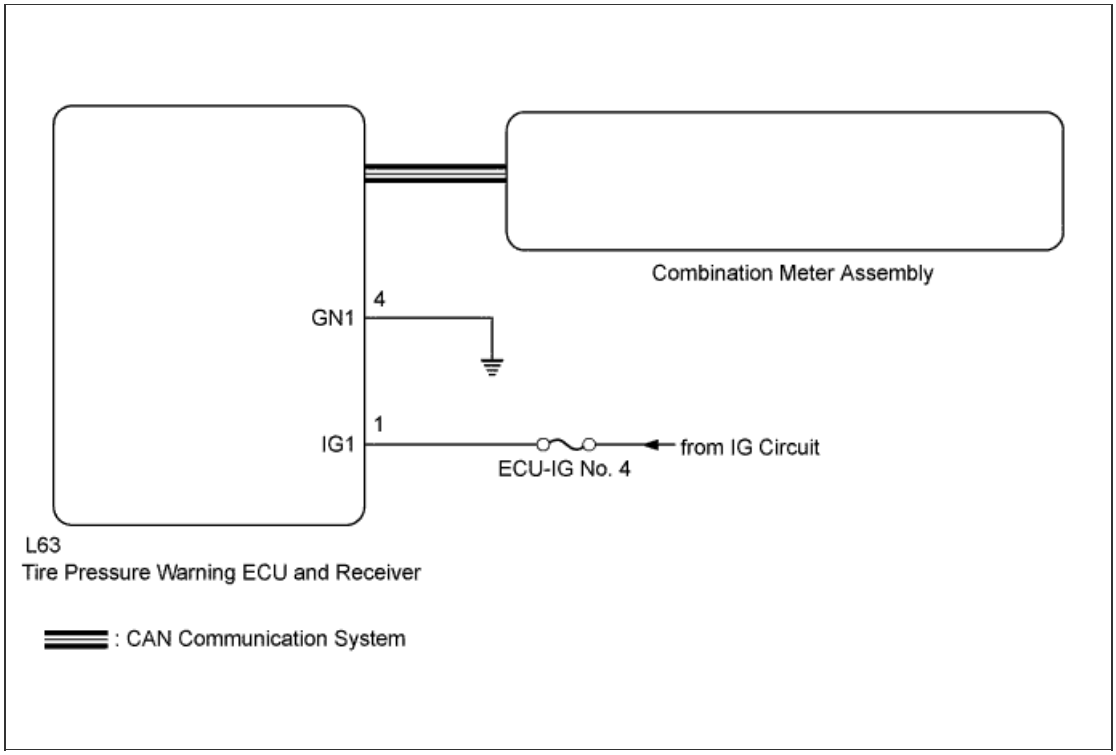
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

If the ECU detects trouble, the tire pressure warning light blinks (illuminates after blinking for 1 minute) and tire pressure monitoring is canceled at the same time. At this time, the ECU stores a DTC in the memory.
Connect terminals TC and CG of the DLC3 to make the tire pressure warning light blink and output the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK TIRE PRESSURE WARNING LIGHT CONDITION

a. Check for tire pressure warning light condition.

Result:

Result	Proceed to
Tire pressure warning light does not illuminate despite tire pressure decreasing	A
Tire pressure warning light remains illuminated (goes off during initial check)	B
Tire pressure warning light remains illuminated (illuminates during initial check)	C

B → Go to step 5

C → GO TO PROBLEM SYMPTOMS TABLE (Click here)

A

3.PERFORM INSPECTION CHECK NECESSARY FOR SYMPTOM

NOTICE:

If the following checks in the Suspected Area column of the Problem Symptoms Table have not been performed, make sure to perform the following checks before proceeding (Click here).

If the items below are normal, proceed to the next step.

- **Initialization**
- **Check Data List (ID Tire Inflation Pressure)**
- **ID code check (Registration)**

NEXT

4.CHECK OPERATION OF TIRE PRESSURE WARNING LIGHT (ACTIVE TEST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Body Electrical / Combination Meter / Active Test.

e. Check the condition of the tire pressure warning light by operating the GTS.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire Pressure Warning Light	OFF or ON

OK:
The warning light turns on when operating the GTS.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK IF TIRE PRESSURE WARNING ECU AND RECEIVER CONNECTOR IS SECURELY CONNECTED

a. Check if the tire pressure warning ECU and receiver connector is securely connected.

OK:
The connector is securely connected.

NG → CONNECT CONNECTOR TO TIRE PRESSURE WARNING ECU AND RECEIVER CORRECTLY

OK

6.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

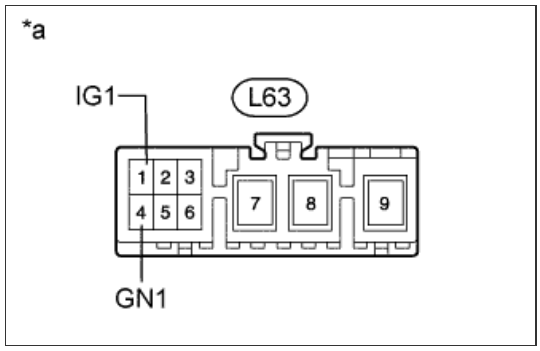
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

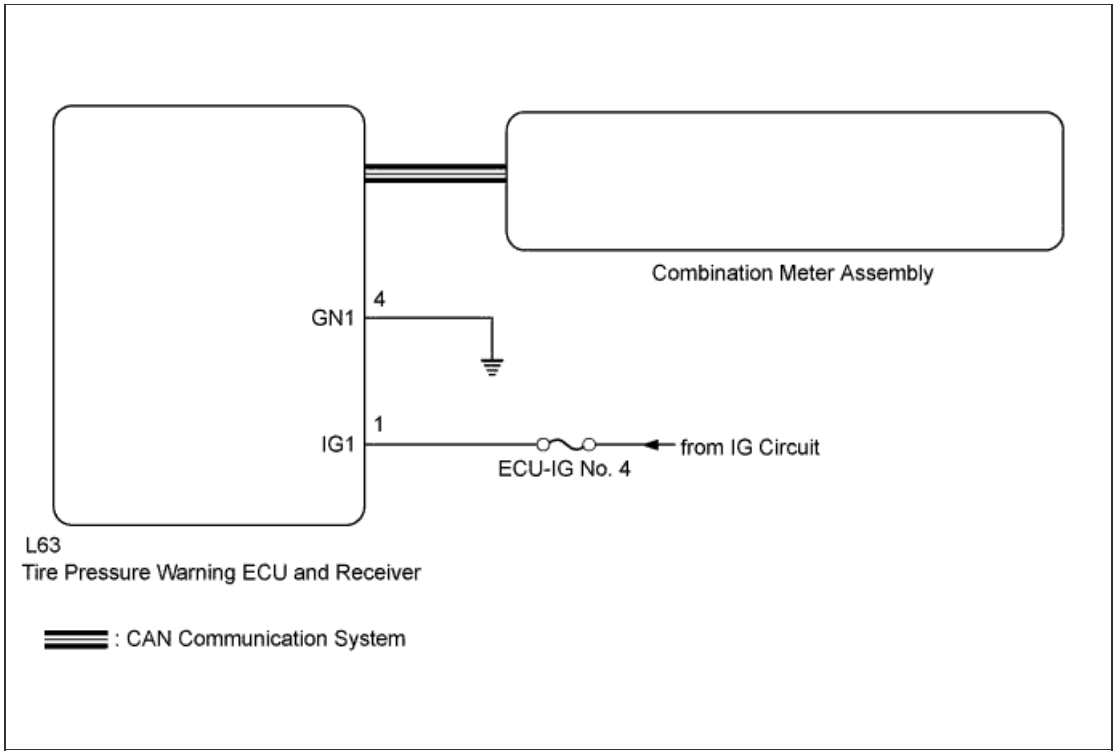
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

If the ECU detects trouble, the tire pressure warning light blinks (illuminates after blinking for 1 minute) and tire pressure monitoring is canceled at the same time. At this time, the ECU stores a DTC in the memory.
Connect terminals TC and CG of the DLC3 to make the tire pressure warning light blink and output the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK TIRE PRESSURE WARNING LIGHT CONDITION

a. Check for tire pressure warning light condition.

Result:

Result	Proceed to
Tire pressure warning light does not illuminate despite tire pressure decreasing	A
Tire pressure warning light remains illuminated (goes off during initial check)	B
Tire pressure warning light remains illuminated (illuminates during initial check)	C

B → Go to step 5

C → GO TO PROBLEM SYMPTOMS TABLE (Click here)

A

3.PERFORM INSPECTION CHECK NECESSARY FOR SYMPTOM

NOTICE:

If the following checks in the Suspected Area column of the Problem Symptoms Table have not been performed, make sure to perform the following checks before proceeding (Click here).

If the items below are normal, proceed to the next step.

- **Initialization**
- **Check Data List (ID Tire Inflation Pressure)**
- **ID code check (Registration)**

NEXT

4.CHECK OPERATION OF TIRE PRESSURE WARNING LIGHT (ACTIVE TEST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Body Electrical / Combination Meter / Active Test.

e. Check the condition of the tire pressure warning light by operating the GTS.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire Pressure Warning Light	OFF or ON

OK:
The warning light turns on when operating the GTS.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK IF TIRE PRESSURE WARNING ECU AND RECEIVER CONNECTOR IS SECURELY CONNECTED

a. Check if the tire pressure warning ECU and receiver connector is securely connected.

OK:
The connector is securely connected.

NG → CONNECT CONNECTOR TO TIRE PRESSURE WARNING ECU AND RECEIVER CORRECTLY

OK

6.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

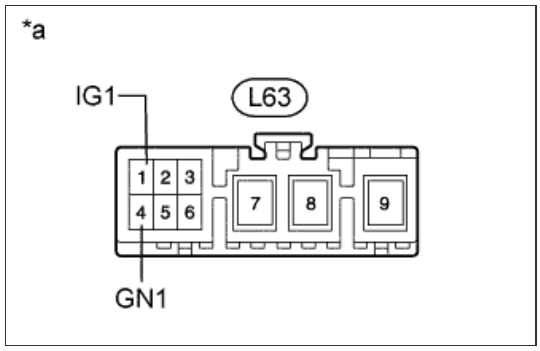
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

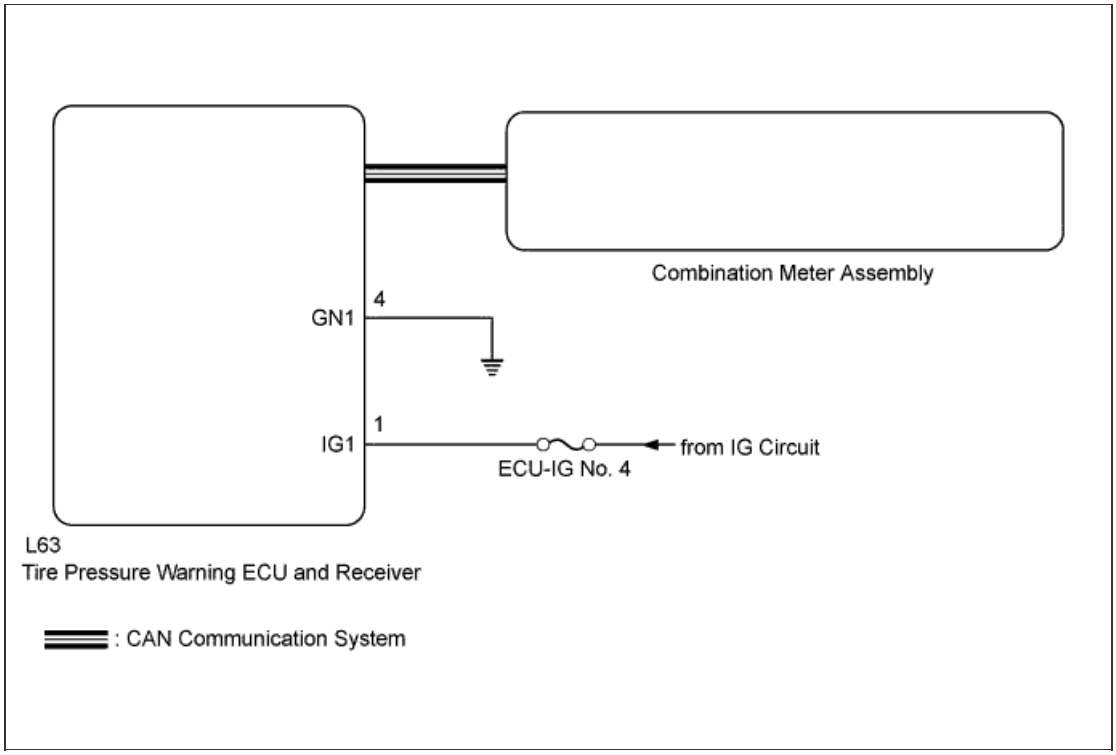
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

If the ECU detects trouble, the tire pressure warning light blinks (illuminates after blinking for 1 minute) and tire pressure monitoring is canceled at the same time. At this time, the ECU stores a DTC in the memory.
Connect terminals TC and CG of the DLC3 to make the tire pressure warning light blink and output the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (Click here)

OK

2.CHECK TIRE PRESSURE WARNING LIGHT CONDITION

a. Check for tire pressure warning light condition.

Result:

Result	Proceed to
Tire pressure warning light does not illuminate despite tire pressure decreasing	A
Tire pressure warning light remains illuminated (goes off during initial check)	B
Tire pressure warning light remains illuminated (illuminates during initial check)	C

B → Go to step 5

C → GO TO PROBLEM SYMPTOMS TABLE (Click here)

A

3.PERFORM INSPECTION CHECK NECESSARY FOR SYMPTOM

NOTICE:

If the following checks in the Suspected Area column of the Problem Symptoms Table have not been performed, make sure to perform the following checks before proceeding (Click here).

If the items below are normal, proceed to the next step.

- **Initialization**
- **Check Data List (ID Tire Inflation Pressure)**
- **ID code check (Registration)**

NEXT

4.CHECK OPERATION OF TIRE PRESSURE WARNING LIGHT (ACTIVE TEST)

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: Body Electrical / Combination Meter / Active Test.

e. Check the condition of the tire pressure warning light by operating the GTS.

Combination Meter

Tester Display	Test Part	Control Range
Indicat. Tire Pressure Warning System	Tire Pressure Warning Light	OFF or ON

OK:
The warning light turns on when operating the GTS.

NG → GO TO METER / GAUGE SYSTEM (Click here)

OK

REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

5.CHECK IF TIRE PRESSURE WARNING ECU AND RECEIVER CONNECTOR IS SECURELY CONNECTED

a. Check if the tire pressure warning ECU and receiver connector is securely connected.

OK:
The connector is securely connected.

NG → CONNECT CONNECTOR TO TIRE PRESSURE WARNING ECU AND RECEIVER CORRECTLY

OK

6.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

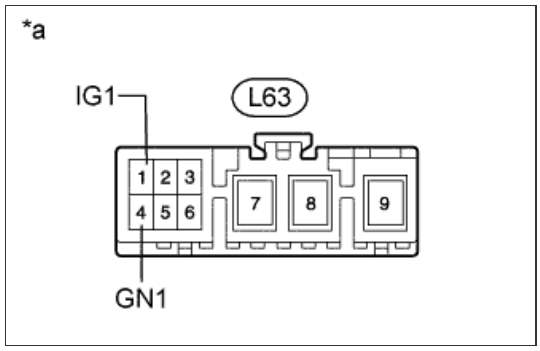
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

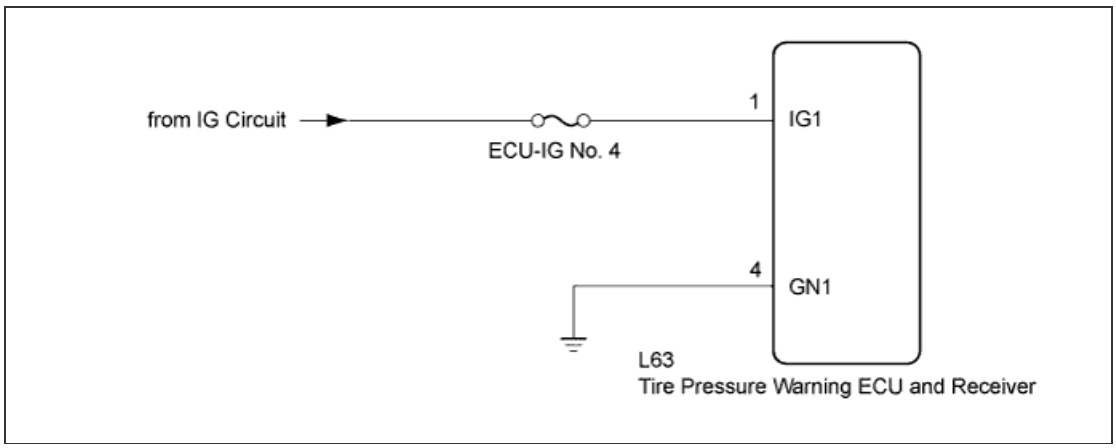
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

This is the power source for the tire pressure warning ECU and receiver.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

HINT:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

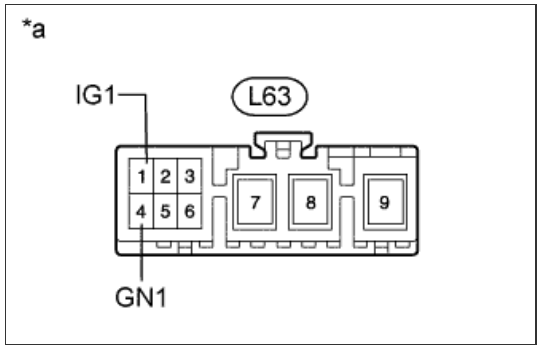
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

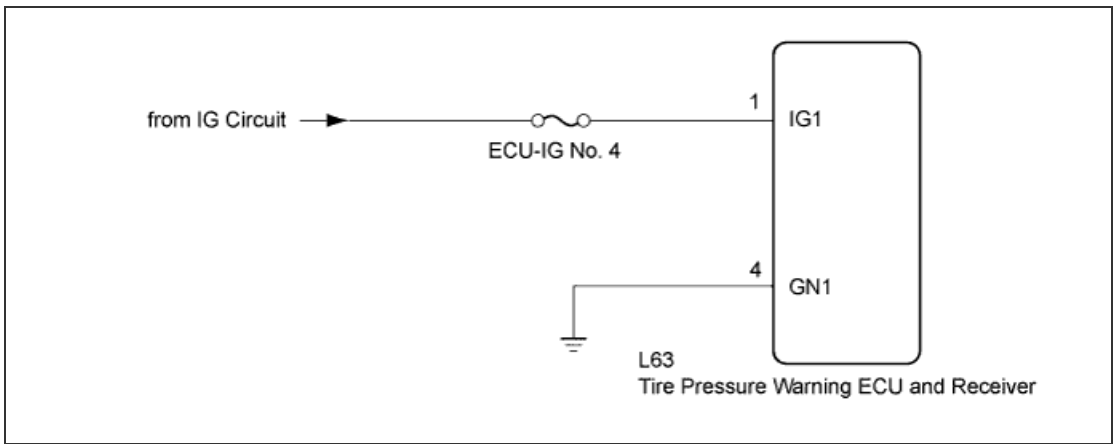
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

This is the power source for the tire pressure warning ECU and receiver.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

HINT:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

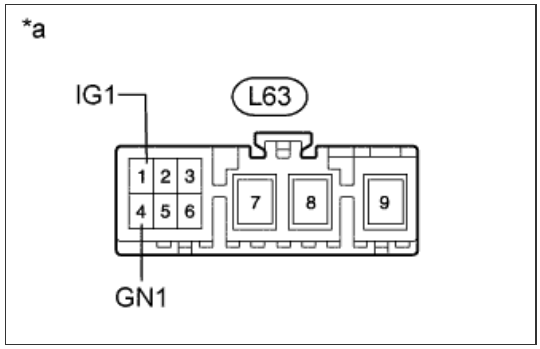
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

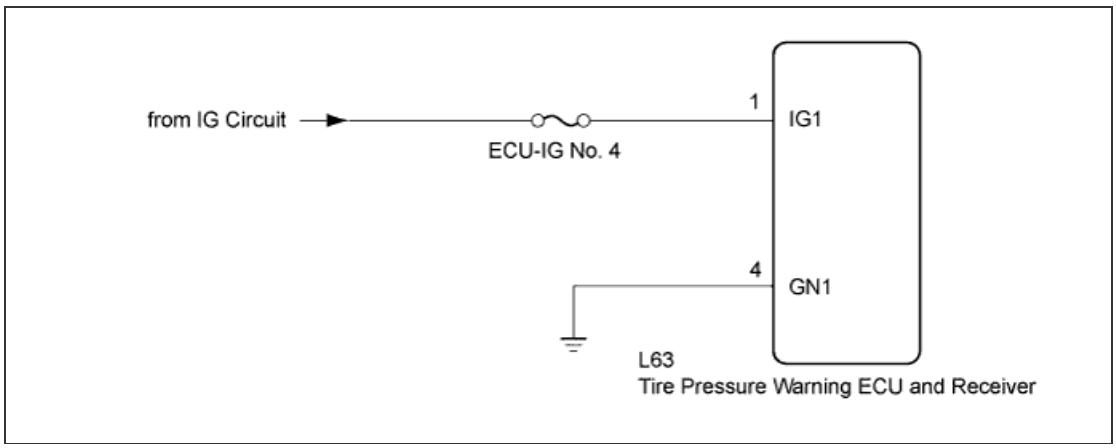
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

This is the power source for the tire pressure warning ECU and receiver.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- **When replacing the tire pressure warning ECU and receiver, read the transmitter IDs stored in the old ECU using the GTS and write them down before removal.**
- **It is necessary to perform initialization (Click here) after registration (Click here) of the transmitter IDs into the tire pressure warning ECU and receiver if the ECU has been replaced.**

HINT:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

1.CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU AND RECEIVER - BATTERY AND BODY GROUND)

a. Disconnect the tire pressure warning ECU and receiver L63 connector.

b. Measure the voltage according to the value(s) in the table below.

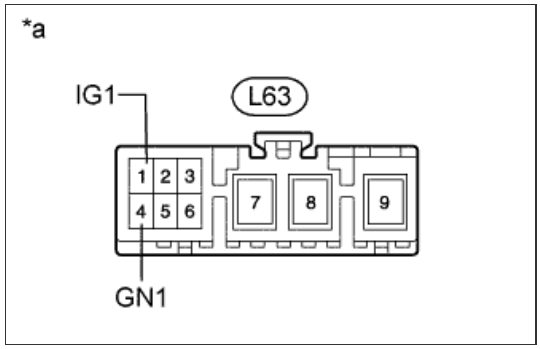
Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
L63-1 (IG1) - Body ground	Engine switch on (IG)	10 to 16 V
	Engine switch off	Below 1 V

c. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
L63-4 (GN1) - Body ground	Always	Below 1 Ω



Text in Illustration

*a	Front view of wire harness connector (to Tire Pressure Warning ECU and Receiver)

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

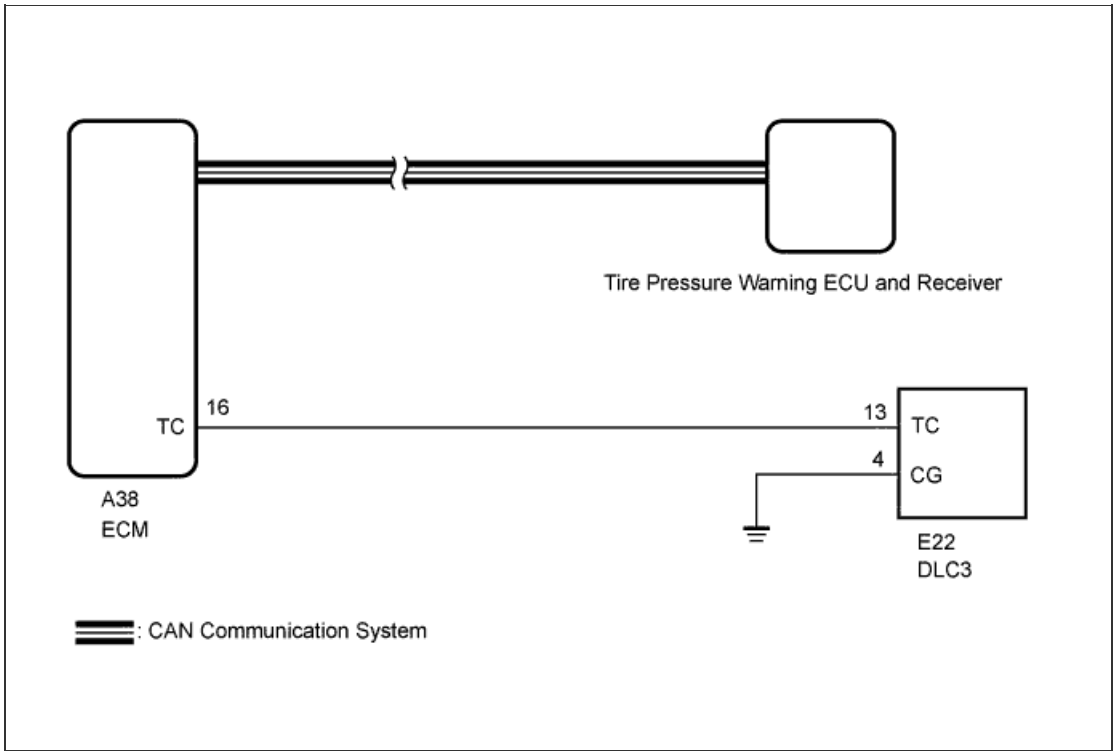
REPLACE TIRE PRESSURE WARNING ECU AND RECEIVER (Click here)

for Preparation Click here

DESCRIPTION

DTC output mode is set by connecting terminals 13 (TC) and 4 (CG) of the DLC3. The DTCs are indicated by the tire pressure warning light blinking pattern.

WIRING DIAGRAM



HINT:

If the tire pressure warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in each ECU is suspected.

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

2.CHECK HARNESS AND CONNECTOR (DLC3 - ECM)

a. Disconnect the ECM A38 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E22-13 (TC) - A38-16 (TC)	Always	Below 1 Ω
E22-13 (TC) or A38-16 (TC) - Body ground	Always	10 kΩ or higher
E22-4 (CG) - Body ground	Always	Below 1 Ω

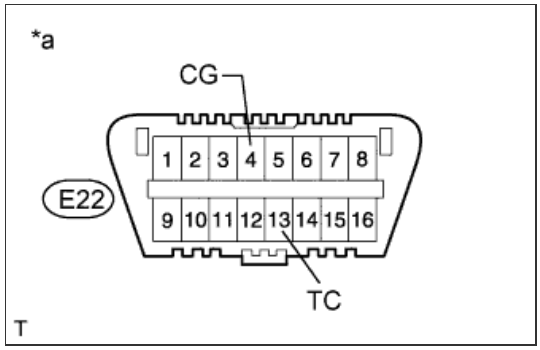
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT DLC3 (TC VOLTAGE)

a. Connect the ECM A38 connector.

b. Measure the voltage according to the value(s) in the table below.



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
E22-13 (TC) - E22-4 (CG)	Engine switch on (IG)	11 to 14 V

Text in Illustration

*a	Front view of DLC3

NG → REPLACE ECM (Click here)

OK

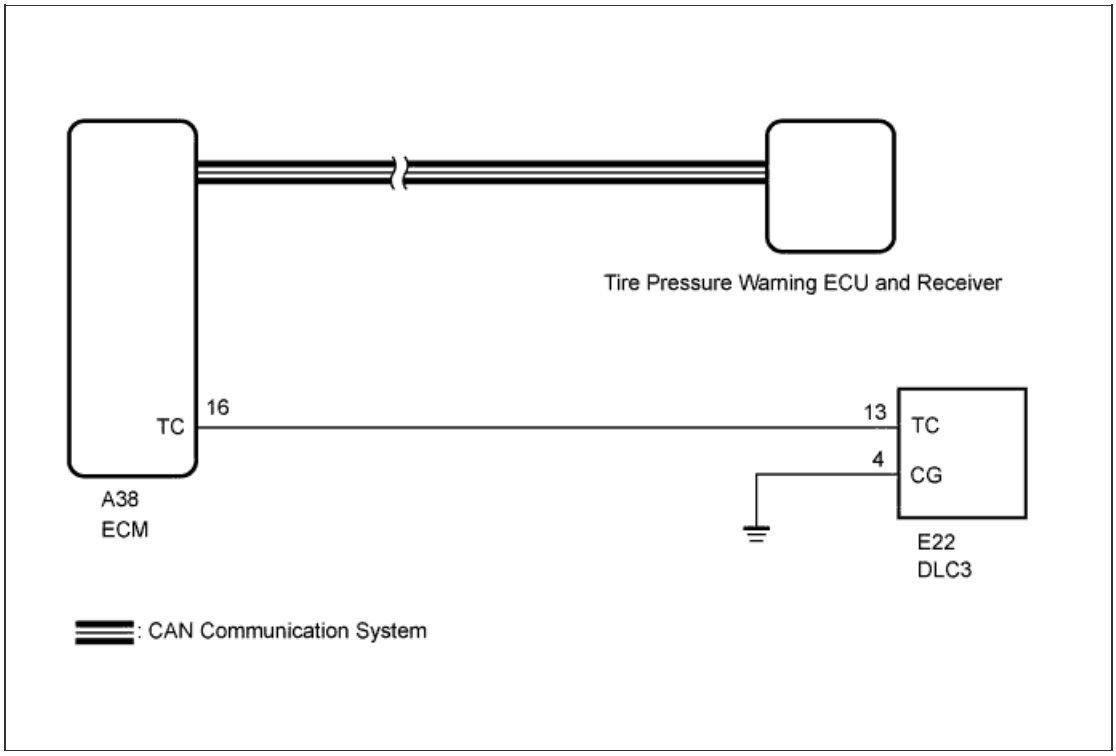
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

DTC output mode is set by connecting terminals 13 (TC) and 4 (CG) of the DLC3. The DTCs are indicated by the tire pressure warning light blinking pattern.

WIRING DIAGRAM



HINT:

If the tire pressure warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in each ECU is suspected.

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

2.CHECK HARNESS AND CONNECTOR (DLC3 - ECM)

a. Disconnect the ECM A38 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E22-13 (TC) - A38-16 (TC)	Always	Below 1 Ω
E22-13 (TC) or A38-16 (TC) - Body ground	Always	10 kΩ or higher
E22-4 (CG) - Body ground	Always	Below 1 Ω

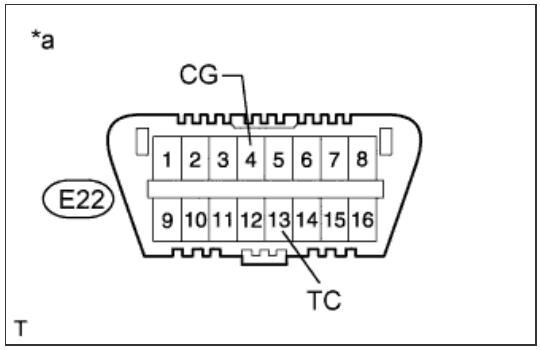
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT DLC3 (TC VOLTAGE)

a. Connect the ECM A38 connector.

b. Measure the voltage according to the value(s) in the table below.



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
E22-13 (TC) - E22-4 (CG)	Engine switch on (IG)	11 to 14 V

Text in Illustration

*a	Front view of DLC3

NG → REPLACE ECM (Click here)

OK

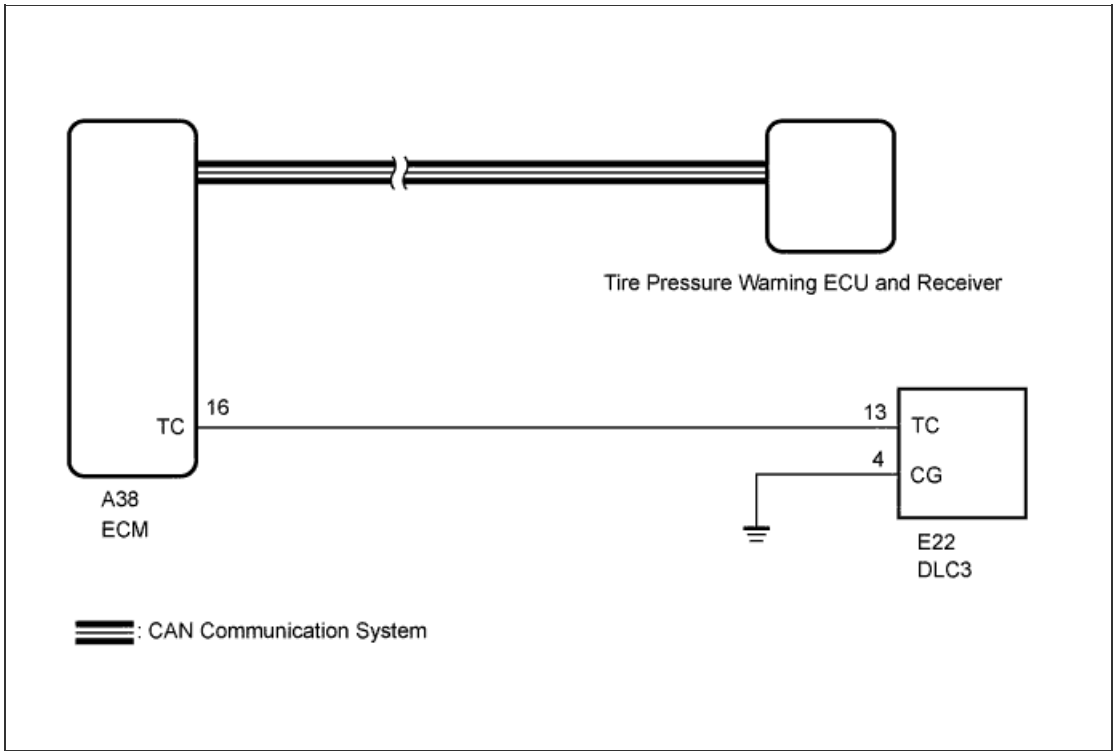
PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation Click here

DESCRIPTION

DTC output mode is set by connecting terminals 13 (TC) and 4 (CG) of the DLC3. The DTCs are indicated by the tire pressure warning light blinking pattern.

WIRING DIAGRAM



HINT:

If the tire pressure warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in each ECU is suspected.

INSPECTION PROCEDURE

1.CHECK CAN COMMUNICATION LINE

a. Turn the engine switch off.

b. Connect the GTS to the DLC3.

c. Turn the engine switch on (IG) and turn the GTS on.

d. Enter the following menus: "CAN Bus Check" from the "System Select" screen.

e. Check the CAN communication system (Click here).

OK:
The CAN communication system is normal.

NG → GO TO CAN COMMUNICATION SYSTEM (**Click here**)

OK

2.CHECK HARNESS AND CONNECTOR (DLC3 - ECM)

a. Disconnect the ECM A38 connector.

b. Measure the resistance according to the value(s) in the table below.

Standard Resistance:

Tester Connection	Condition	Specified Condition
E22-13 (TC) - A38-16 (TC)	Always	Below 1 Ω
E22-13 (TC) or A38-16 (TC) - Body ground	Always	10 kΩ or higher
E22-4 (CG) - Body ground	Always	Below 1 Ω

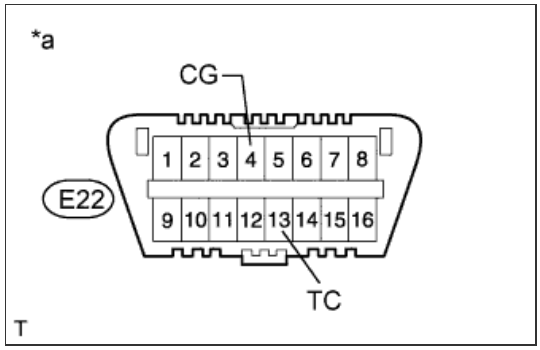
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

3.INSPECT DLC3 (TC VOLTAGE)

a. Connect the ECM A38 connector.

b. Measure the voltage according to the value(s) in the table below.



Standard Voltage:

Tester Connection	Switch Condition	Specified Condition
E22-13 (TC) - E22-4 (CG)	Engine switch on (IG)	11 to 14 V

Text in Illustration

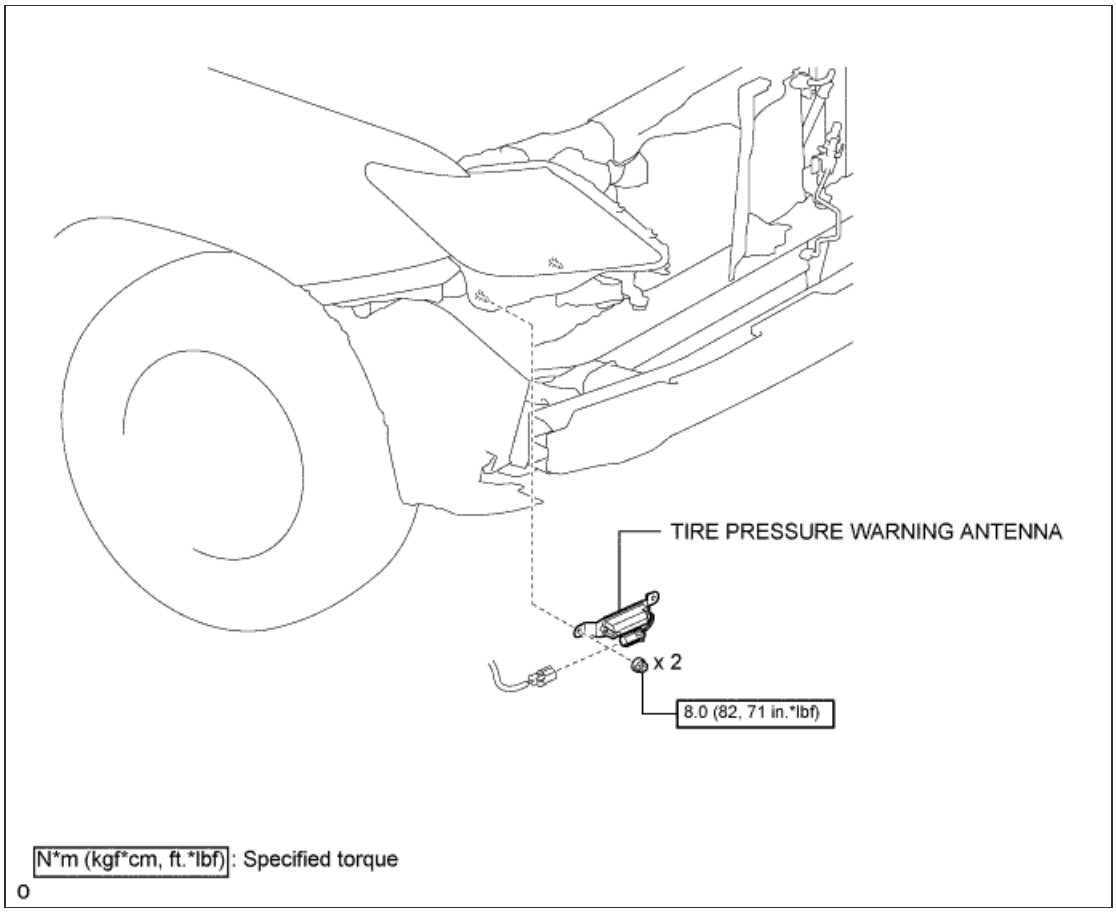
*a	Front view of DLC3

NG → REPLACE ECM (Click here)

OK

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE (Click here)

for Preparation [Click here]



o

for Preparation Click here

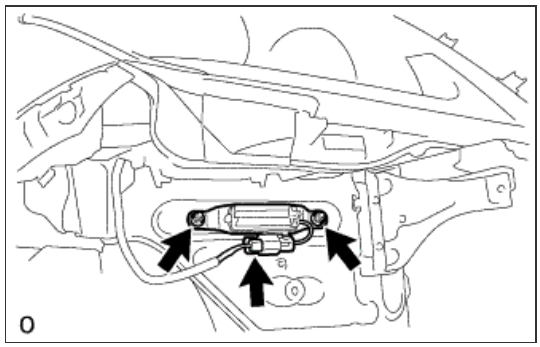
1. REMOVE FRONT BUMPER COVER

(Click here)

2. REMOVE TIRE PRESSURE WARNING ANTENNA

a. Disconnect the connector.

b. Remove the 2 nuts and tire pressure warning antenna.



for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ANTENNA

a. Install the tire pressure warning antenna with the 2 nuts.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.

2. INSTALL FRONT BUMPER COVER

(Click here)

3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ANTENNA

a. Install the tire pressure warning antenna with the 2 nuts.

Torque:
8.0 N*m{ 82 kgf*cm , 71 in.*lbf }

b. Connect the connector.

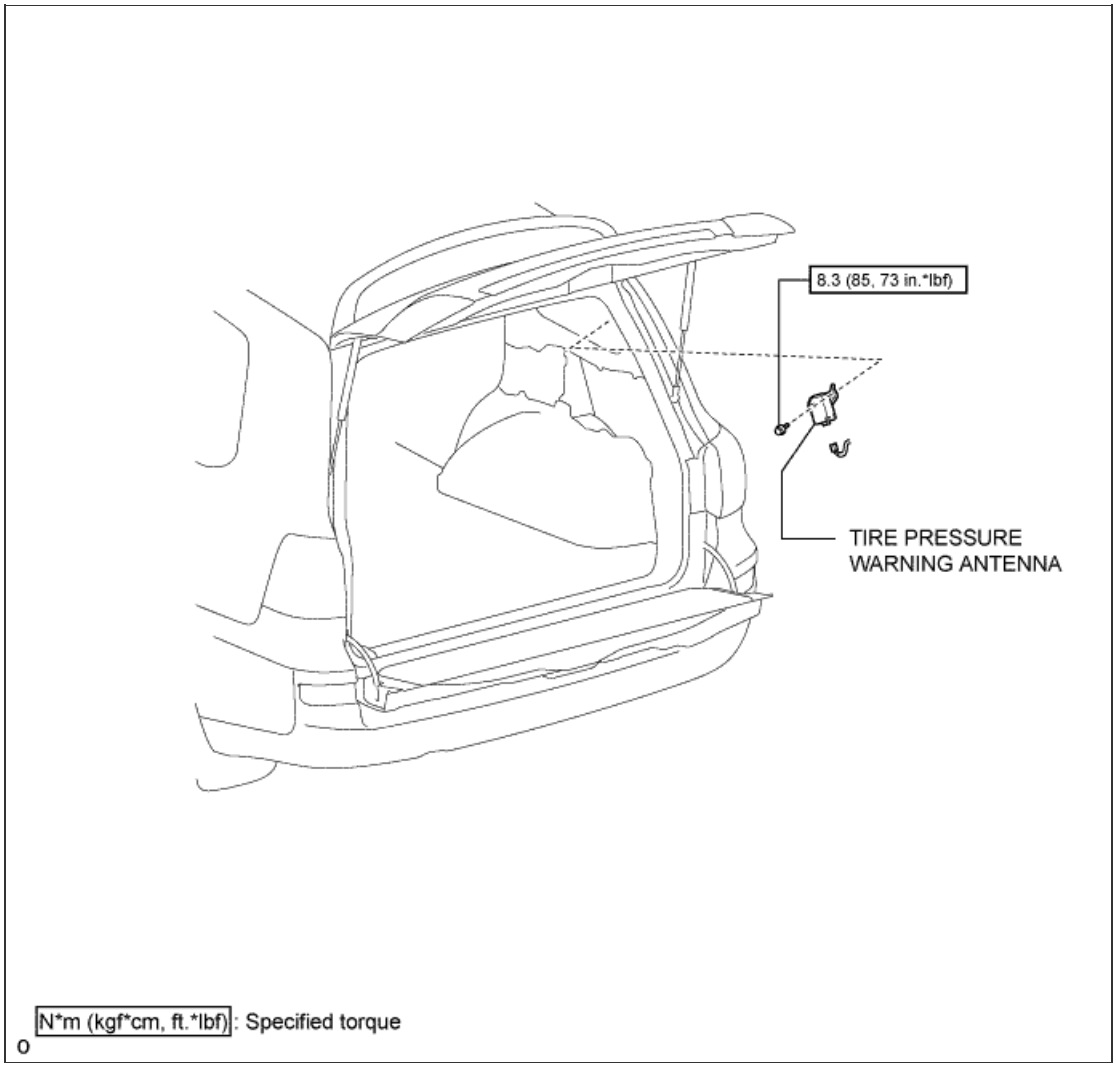
2. INSTALL FRONT BUMPER COVER

(Click here)

3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here



for Preparation Click here

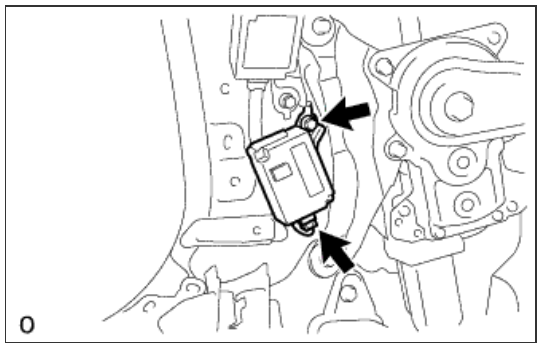
1. REMOVE REAR UPPER PILLAR GARNISH RH

(Click here)

2. REMOVE TIRE PRESSURE WARNING ANTENNA

a. Disconnect the connector.

b. Remove the bolt and tire pressure warning antenna.



for Preparation Click here

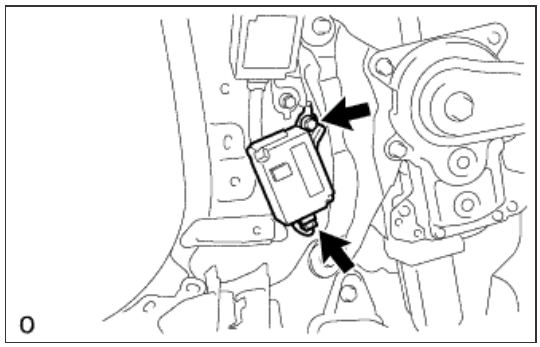
1. REMOVE REAR UPPER PILLAR GARNISH RH

(Click here)

2. REMOVE TIRE PRESSURE WARNING ANTENNA

a. Disconnect the connector.

b. Remove the bolt and tire pressure warning antenna.



for Preparation Click here

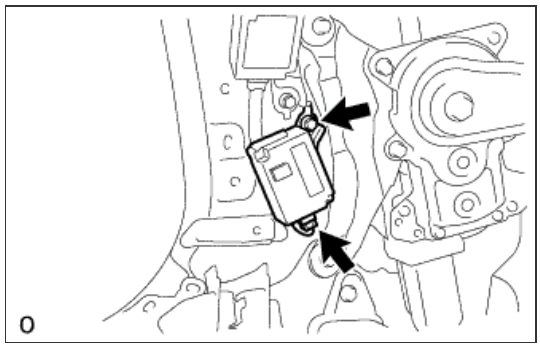
1. REMOVE REAR UPPER PILLAR GARNISH RH

(Click here)

2. REMOVE TIRE PRESSURE WARNING ANTENNA

a. Disconnect the connector.

b. Remove the bolt and tire pressure warning antenna.



for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ANTENNA

a. Install the tire pressure warning antenna with the bolt.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

b. Connect the connector.

2. INSTALL REAR UPPER PILLAR GARNISH RH

(Click here)

3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ANTENNA

a. Install the tire pressure warning antenna with the bolt.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

b. Connect the connector.

2. INSTALL REAR UPPER PILLAR GARNISH RH

(Click here)

3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ANTENNA

a. Install the tire pressure warning antenna with the bolt.

Torque:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

b. Connect the connector.

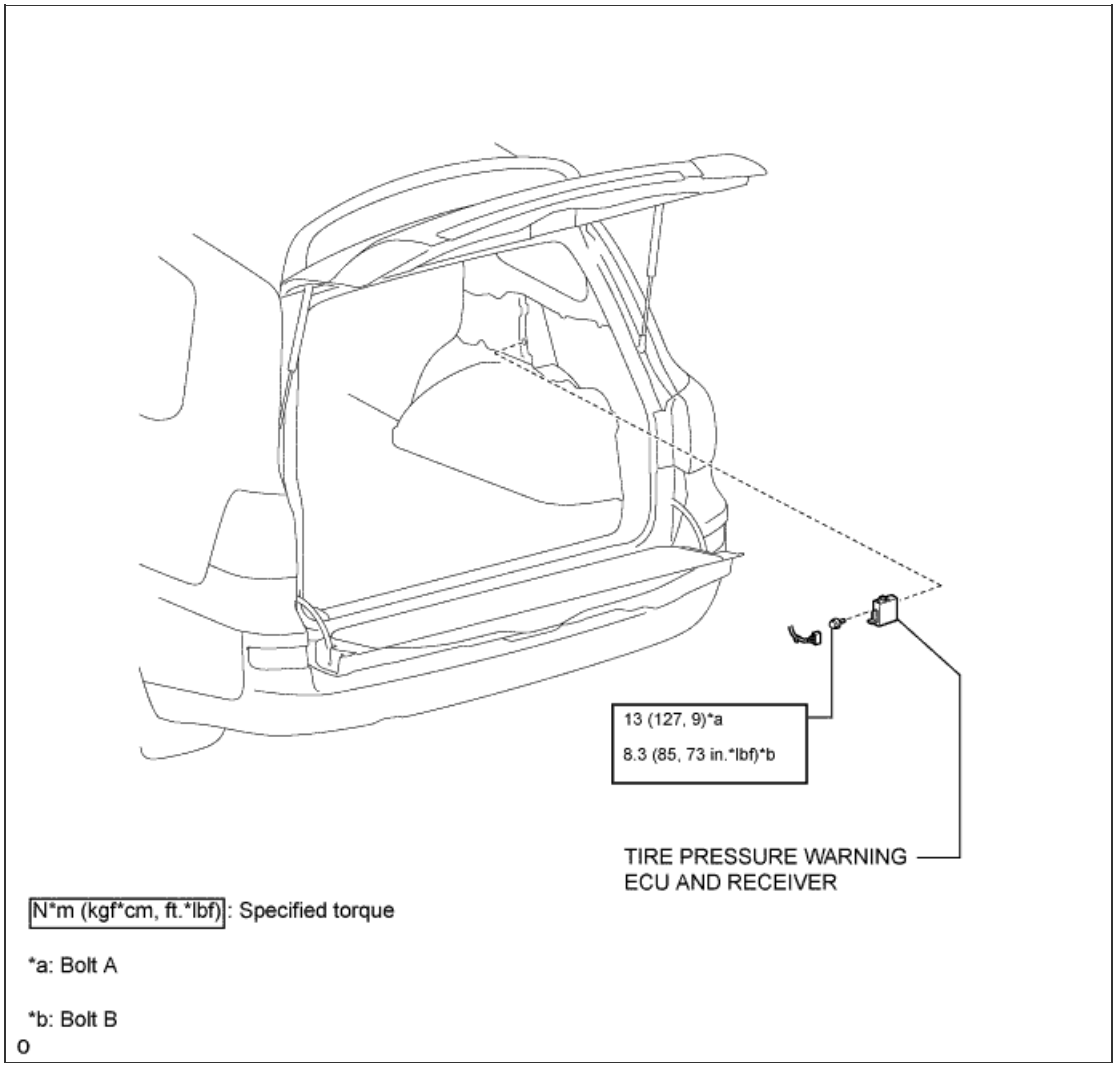
2. INSTALL REAR UPPER PILLAR GARNISH RH

(Click here)

3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here



TIRE PRESSURE WARNING RECEIVER > REMOVAL

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

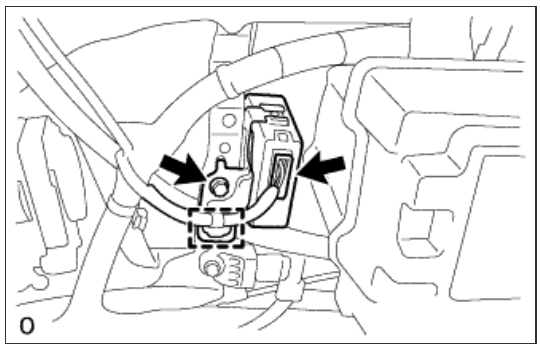
(Click here)

4. REMOVE TIRE PRESSURE WARNING ECU AND RECEIVER

a. Detach the clamp.

b. Disconnect the connector.

c. Remove the bolt and tire pressure warning ECU and receiver.



TIRE PRESSURE WARNING RECEIVER > REMOVAL

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

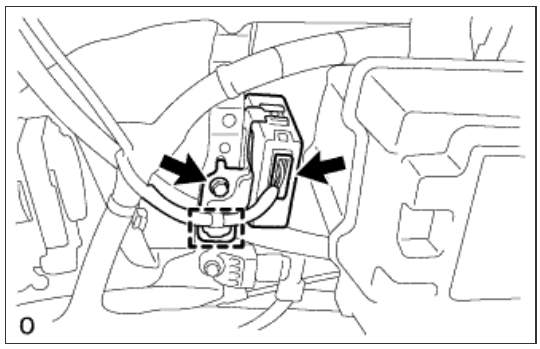
(Click here)

4. REMOVE TIRE PRESSURE WARNING ECU AND RECEIVER

a. Detach the clamp.

b. Disconnect the connector.

c. Remove the bolt and tire pressure warning ECU and receiver.



TIRE PRESSURE WARNING RECEIVER > REMOVAL

for Preparation Click here

1. PRECAUTION

NOTICE:

After turning the engine switch off, waiting time may be required before disconnecting the cable from the negative (-) battery terminal. Therefore, make sure to read the disconnecting the cable from the negative (-) battery terminal notice before proceeding with work (Click here).

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

3. REMOVE FRONT QUARTER TRIM PANEL ASSEMBLY RH

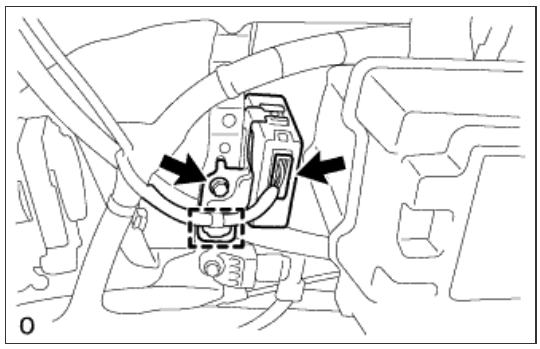
(Click here)

4. REMOVE TIRE PRESSURE WARNING ECU AND RECEIVER

a. Detach the clamp.

b. Disconnect the connector.

c. Remove the bolt and tire pressure warning ECU and receiver.



for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ECU AND RECEIVER

a. Install the tire pressure warning ECU and receiver with the bolt.

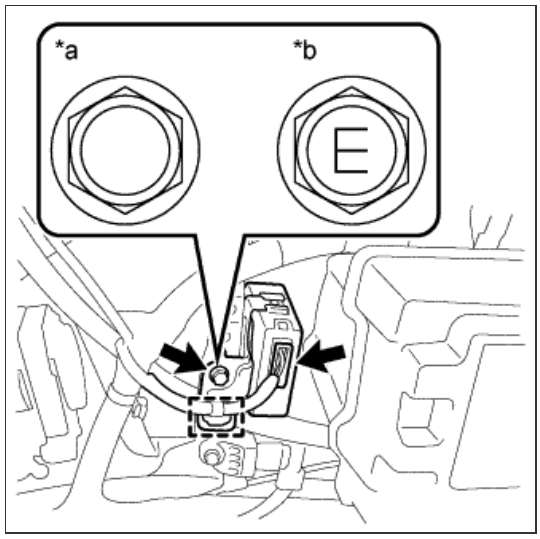
Torque:
Bolt A:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
Bolt B:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

Text in Illustration

*a	Bolt A
*b	Bolt B

NOTICE:

The different marks on the heads of the bolts are shown in the illustration. Check whether the bolt being used is bolt A or bolt B, and then tighten the bolt using the appropriate torque.



b. Connect the connector.

c. Attach the clamp.

2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

(Click here)

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REGISTRATION OF TRANSMITTER ID

(Click here)

5. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

6. PERFORM INITIALIZATION

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ECU AND RECEIVER

a. Install the tire pressure warning ECU and receiver with the bolt.

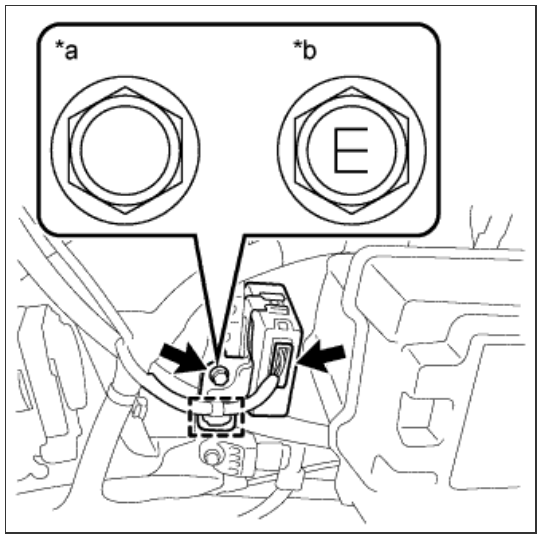
Torque:
Bolt A:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
Bolt B:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

Text in Illustration

*a	Bolt A
*b	Bolt B

NOTICE:

The different marks on the heads of the bolts are shown in the illustration. Check whether the bolt being used is bolt A or bolt B, and then tighten the bolt using the appropriate torque.



b. Connect the connector.

c. Attach the clamp.

2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

(Click here)

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REGISTRATION OF TRANSMITTER ID

(Click here)

5. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

6. PERFORM INITIALIZATION

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING ECU AND RECEIVER

a. Install the tire pressure warning ECU and receiver with the bolt.

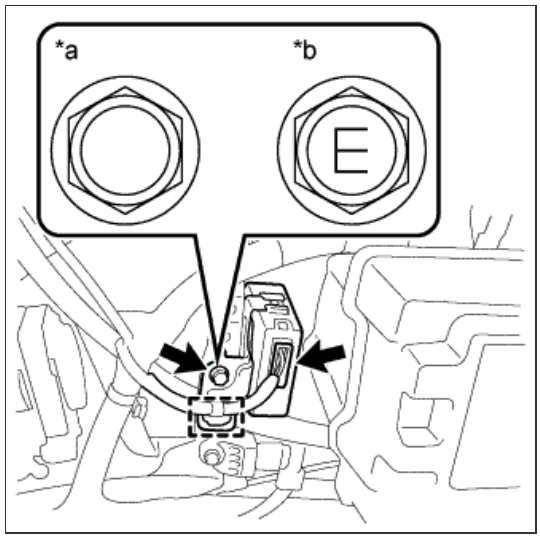
Torque:
Bolt A:
13 N*m{ 127 kgf*cm , 9 ft.*lbf }
Bolt B:
8.3 N*m{ 85 kgf*cm , 73 in.*lbf }

Text in Illustration

*a	Bolt A
*b	Bolt B

NOTICE:

The different marks on the heads of the bolts are shown in the illustration. Check whether the bolt being used is bolt A or bolt B, and then tighten the bolt using the appropriate torque.



b. Connect the connector.

c. Attach the clamp.

2. INSTALL FRONT QUARTER TRIM PANEL ASSEMBLY RH

(Click here)

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected (Click here).

4. REGISTRATION OF TRANSMITTER ID

(Click here)

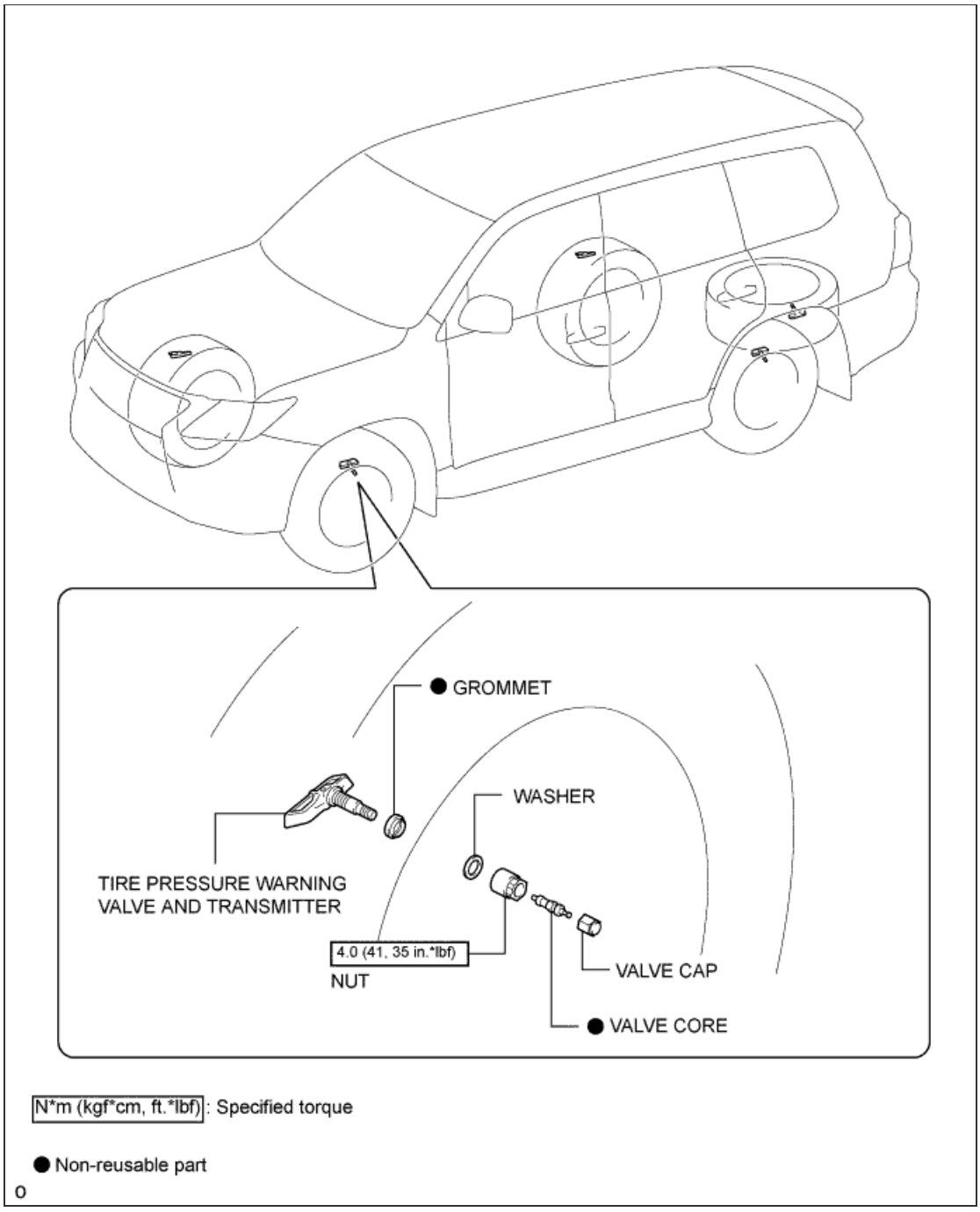
5. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

6. PERFORM INITIALIZATION

(Click here)

for Preparation Click here



for Preparation Click here

1. REMOVE FRONT WHEEL

2. REMOVE REAR WHEEL

3. REMOVE SPARE TIRE

4. REMOVE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Remove the cap and valve core to release the air from the tire.

NOTICE:

Keep the removed cap.

b. After ensuring that a sufficient amount of air has been released, remove the nut and washer used to secure the tire pressure warning valve and transmitter. Then drop the tire pressure warning valve and transmitter with the grommet into the tire.

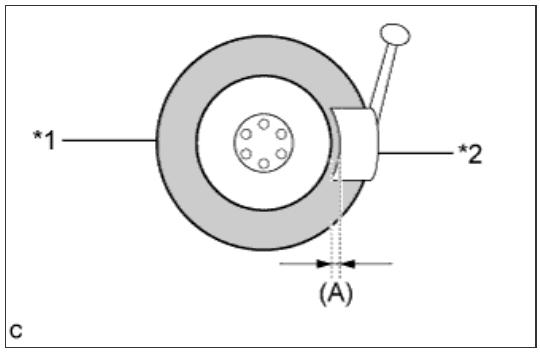
HINT:

The grommet may remain attached to the rim.

c. After dropping the tire pressure warning valve and transmitter into the tire, disengage the bead using the shoe of a tire remover.

Text in Illustration

*1	Tire
*2	Shoe



NOTICE:

- **Be careful as the tire pressure warning valve and transmitter may become damaged due to interference between the sensor and tire bead.**
- **Set the tire remover shoe as shown in the illustration.**

Width (A):
10 to 20 mm (0.394 to 0.787 in.)

d. Separate the upper bead.

e. Take out the tire pressure warning valve and transmitter with the grommet from the tire and separate the lower bead.

f. Remove the grommet from the tire pressure warning valve and transmitter.

for Preparation Click here

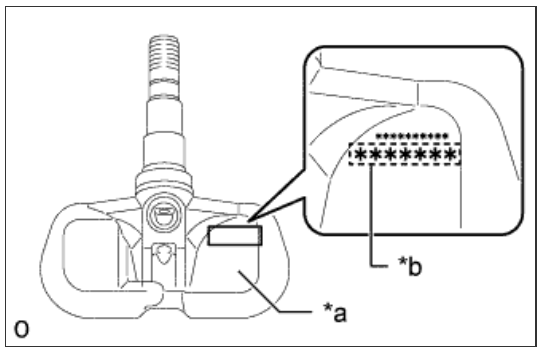
NOTICE:

- **Always use a new grommet and valve core when installing the tire pressure warning valve and transmitter.**
- **Check that the washer and nut are not damaged, and replace them if necessary.**
- **Make sure not to damage the urethane covered backside of the tire pressure warning valve and transmitter (the surface opposite to the side with the ID code) with anything sharp.**
- **If installing a new tire pressure warning valve and transmitter, write down the ID number before installation.**
- **Check that there is no oil, water or lubricant around the rim hole, tire pressure warning valve and transmitter, washer and nut. Failing to do so may result in improper installation.**
- **Use only a specified cap. If an unspecified cap is used, it may seize to the tire pressure warning valve and transmitter.**

1. INSTALL TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Install a new grommet to the tire pressure warning valve and transmitter.

b. Insert the tire pressure warning valve and transmitter into the valve installation hole from the inside of the rim so that the printed surface can be seen.



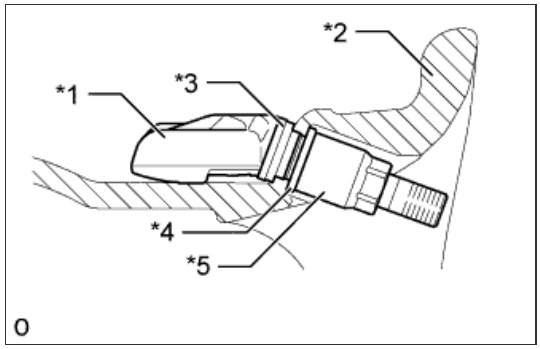
Text in Illustration

*a	Printed Surface
*b	7-digit Number Transmitter ID

NOTICE:

- **Check that there is no visible deformation, damage, or other abnormalities on the tire pressure warning valve and transmitter.**
- **Check that there is no foreign matter on the grommet and around the rim hole.**
- **If the tire pressure warning valve and transmitter is installed upside down, it may be damaged or fail to transmit signals when driving at high speeds.**

c. From the outside of the rim, install the washer to the tire pressure warning valve and transmitter, and install the nut.



Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }

Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter
*2	Rim
*3	Grommet
*4	Washer
*5	Nut

NOTICE:

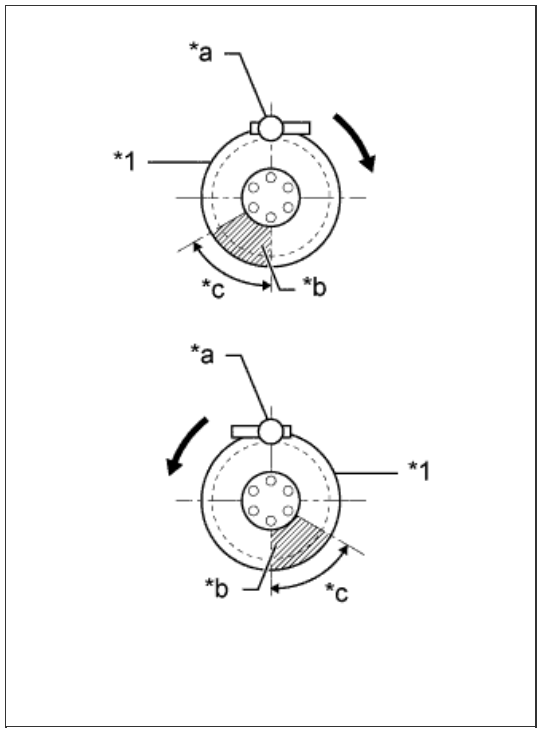
- **No further tightening is required once the nut is tightened to the specified torque.**
- **Check that there is no foreign matter on the washer and nut.**

d. Set the wheel onto a mounting machine and install the lower bead. Position the main body of the tire pressure warning valve and transmitter in the shaded area shown in the illustration.

Text in Illustration

*1	Rim
*a	Mount Tool of Mounting Machine

*b	Area for Tire Pressure Warning Valve and Transmitter
*c	60°
➡	Rim Rotation Direction



NOTICE:

- **If the tire pressure warning valve and transmitter is positioned outside this area, it will interfere with the tire bead and may be damaged.**
- **If the use of lubricant is required when installing the bead, do not apply lubricant directly to the tire pressure warning valve and transmitter.**

e. Install the upper bead.

NOTICE:

Make sure that the tire bead and tool do not interfere with the main body of the tire pressure warning valve and transmitter and that it is not clamped by the bead.

f. Install a new valve core.

g. After the tire is inflated, the valve nut may be loose. Retighten the nut to the specified torque.

Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }

NOTICE:

No further tightening is required once the nut is tightened to the specified torque.

h. Check for air leaks with soapy water.
If there is air leakage, push the valve core 2 or 3 times to remove any dirt attached to the valve core. If air continues to leak, replace the grommet, washer and nut.

i. Install the cap.

2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. INSTALL SPARE TIRE

5. INSPECT TIRES

(Click here)

6. REGISTER TRANSMITTER ID

(Click here)

7. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

8. PERFORM INITIALIZATION

(Click here)

for Preparation Click here

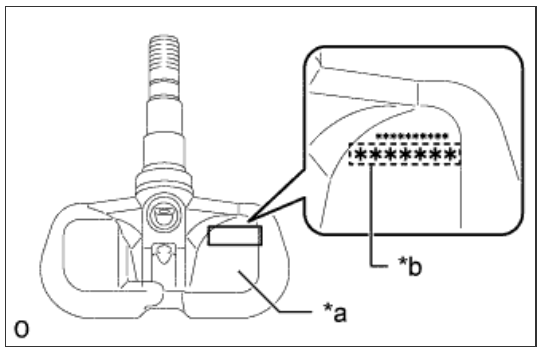
NOTICE:

- **Always use a new grommet and valve core when installing the tire pressure warning valve and transmitter.**
- **Check that the washer and nut are not damaged, and replace them if necessary.**
- **Make sure not to damage the urethane covered backside of the tire pressure warning valve and transmitter (the surface opposite to the side with the ID code) with anything sharp.**
- **If installing a new tire pressure warning valve and transmitter, write down the ID number before installation.**
- **Check that there is no oil, water or lubricant around the rim hole, tire pressure warning valve and transmitter, washer and nut. Failing to do so may result in improper installation.**
- **Use only a specified cap. If an unspecified cap is used, it may seize to the tire pressure warning valve and transmitter.**

1. INSTALL TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Install a new grommet to the tire pressure warning valve and transmitter.

b. Insert the tire pressure warning valve and transmitter into the valve installation hole from the inside of the rim so that the printed surface can be seen.



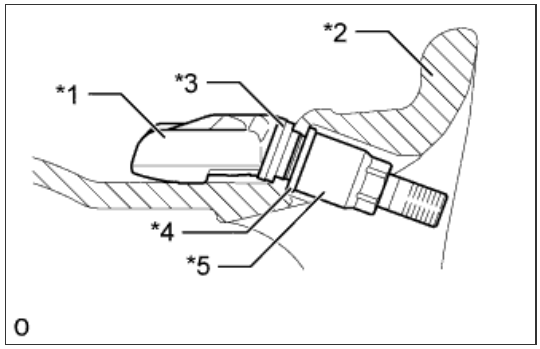
Text in Illustration

*a	Printed Surface
*b	7-digit Number Transmitter ID

NOTICE:

- **Check that there is no visible deformation, damage, or other abnormalities on the tire pressure warning valve and transmitter.**
- **Check that there is no foreign matter on the grommet and around the rim hole.**
- **If the tire pressure warning valve and transmitter is installed upside down, it may be damaged or fail to transmit signals when driving at high speeds.**

c. From the outside of the rim, install the washer to the tire pressure warning valve and transmitter, and install the nut.



Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }

Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter
*2	Rim
*3	Grommet
*4	Washer
*5	Nut

NOTICE:

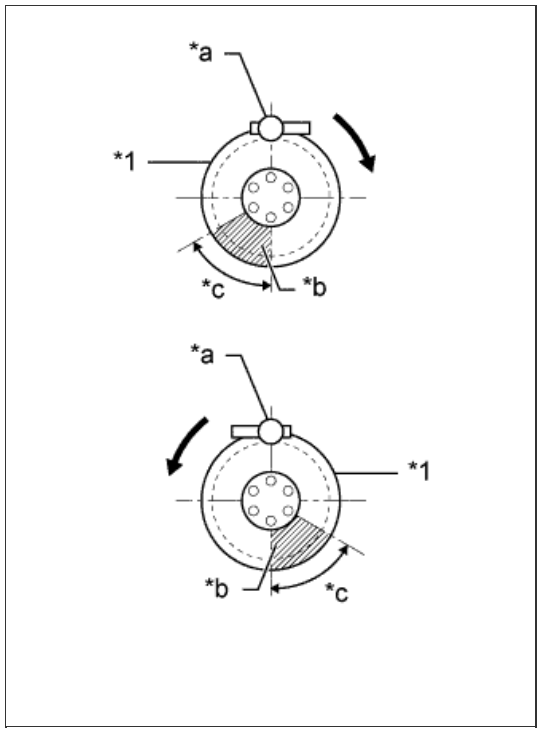
- **No further tightening is required once the nut is tightened to the specified torque.**
- **Check that there is no foreign matter on the washer and nut.**

d. Set the wheel onto a mounting machine and install the lower bead. Position the main body of the tire pressure warning valve and transmitter in the shaded area shown in the illustration.

Text in Illustration

*1	Rim
*a	Mount Tool of Mounting Machine

*b	Area for Tire Pressure Warning Valve and Transmitter
*c	60°
➡	Rim Rotation Direction



NOTICE:

- **If the tire pressure warning valve and transmitter is positioned outside this area, it will interfere with the tire bead and may be damaged.**
- **If the use of lubricant is required when installing the bead, do not apply lubricant directly to the tire pressure warning valve and transmitter.**

e. Install the upper bead.

NOTICE:

Make sure that the tire bead and tool do not interfere with the main body of the tire pressure warning valve and transmitter and that it is not clamped by the bead.

f. Install a new valve core.

g. After the tire is inflated, the valve nut may be loose. Retighten the nut to the specified torque.

Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }

NOTICE:

No further tightening is required once the nut is tightened to the specified torque.

h. Check for air leaks with soapy water.
If there is air leakage, push the valve core 2 or 3 times to remove any dirt attached to the valve core. If air continues to leak, replace the grommet, washer and nut.

i. Install the cap.

2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. INSTALL SPARE TIRE

5. INSPECT TIRES

(Click here)

6. REGISTER TRANSMITTER ID

(Click here)

7. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

8. PERFORM INITIALIZATION

(Click here)

for Preparation Click here

NOTICE:

- **Always use a new grommet and valve core when installing the tire pressure warning valve and transmitter.**
- **Check that the washer and nut are not damaged, and replace them if necessary.**
- **Make sure not to damage the urethane covered backside of the tire pressure warning valve and transmitter (the surface opposite to the side with the ID code) with anything sharp.**
- **If installing a new tire pressure warning valve and transmitter, write down the ID number before installation.**
- **Check that there is no oil, water or lubricant around the rim hole, tire pressure warning valve and transmitter, washer and nut. Failing to do so may result in improper installation.**
- **Use only a specified valve cap. If an unspecified valve cap is used, it may seize to the tire pressure warning valve and transmitter.**

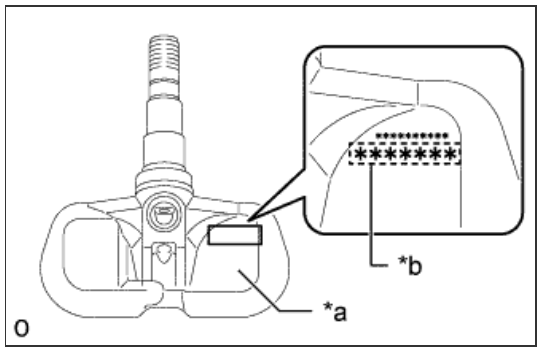
1. INSTALL TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Install a new grommet to the tire pressure warning valve and transmitter.

NOTICE:

Do not install a grommet to a new tire pressure warning valve and transmitter, as a new tire pressure warning valve and transmitter has a grommet already installed.

b. Record the 7-digit number transmitter ID printed on the tire pressure warning valve and transmitter at the position shown in the illustration.



Text in Illustration

*a	Printed Surface
*b	7-digit Number Transmitter ID

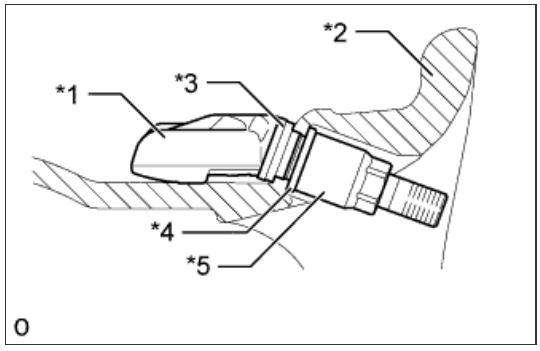
c. Insert the tire pressure warning valve and transmitter into the valve installation hole from the inside of the rim so that the printed surface can be seen.

NOTICE:

- **Check that there is no visible deformation, damage, or other abnormalities on the tire pressure warning valve and transmitter.**
- **Check that there is no foreign matter on the grommet and around the rim hole.**
- **If the tire pressure warning valve and transmitter is installed upside down, it may be damaged or fail to transmit signals when driving at high speeds.**

d. From the outside of the rim, install the washer to the tire pressure warning valve and transmitter, which has the grommet installed. Afterward, using an 11 mm deep socket wrench, tighten the nut.

Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }



Text in Illustration

*1	Tire Pressure Warning Valve and Transmitter
*2	Rim
*3	Grommet
*4	Washer
*5	Nut

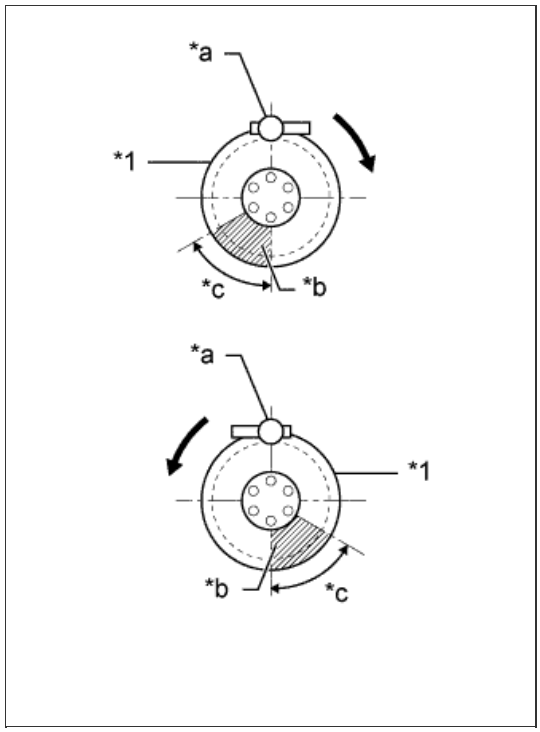
NOTICE:

- **No further tightening is required once the nut is tightened to the specified torque.**
- **Check that there is no foreign matter on the washer and nut.**

e. Set the tire and disc wheel onto the mounting machine.

Text in Illustration

*1	Rim
*a	Mount Tool of Mounting Machine
*b	Area for Tire Pressure Warning Valve and Transmitter
*c	60°
➡	Rim Rotation Direction



NOTICE:

- **Make sure the tire pressure warning valve and transmitter is positioned in the area shown in the illustration when set to the mounting machine. Otherwise, the tire pressure warning valve and transmitter may interfere with the tire bead and become damaged.**
- **Position the main body of the tire pressure warning valve and transmitter in the area shown in the illustration.**

f. Apply a sufficient coat of soapy water or equivalent to the tire bead and rim.

NOTICE:

Do not apply soapy water or equivalent directly to the tire pressure warning valve and transmitter.

g. Using a mounting machine, install the tire to the disc wheel.

NOTICE:

- **Make sure that the tire bead and mount tool do not interfere with the tire pressure warning valve and transmitter.**
- **Make sure that the tire pressure warning valve and transmitter is not clamped by the bead and rim.**

h. Install a new valve core.

i. Adjust the tire pressure to the standard tire pressure.

j. After the tire is inflated, the valve nut may be loose. Using an 11 mm deep socket wrench, retighten the nut to the specified torque.

Torque:
4.0 N*m{ 41 kgf*cm , 35 in.*lbf }

NOTICE:

No further tightening is required once the nut is tightened to the specified torque.

k. Check for air leaks with soapy water.
If there is air leakage, push the valve core 2 or 3 times to remove any dirt attached to the valve core. If air continues to leak, replace the grommet, washer and nut.

l. Install the cap.

2. INSTALL FRONT WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

3. INSTALL REAR WHEEL

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

4. INSTALL SPARE TIRE

5. INSPECT TIRES

(Click here)

6. REGISTER TRANSMITTER ID

(Click here)

7. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

8. PERFORM INITIALIZATION

(Click here)

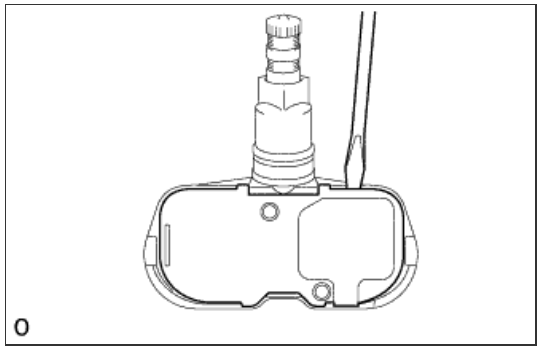
for Preparation Click here

HINT:

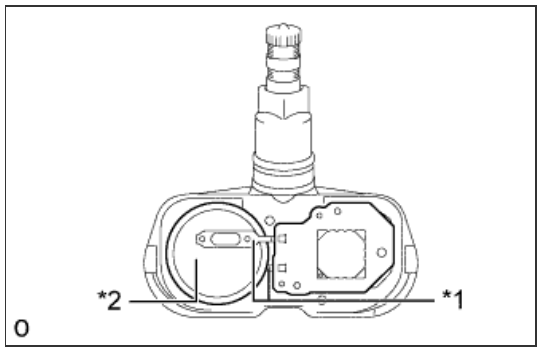
The tire pressure warning valve and transmitter is powered by a lithium battery. When disposing of the tire pressure warning valve and transmitter, remove the battery and dispose of it correctly.

1. DISPOSE OF TIRE PRESSURE WARNING VALVE AND TRANSMITTER

a. Using the tip of a screwdriver, pry off the back cover.



b. Cut the 2 terminals that connect the battery to the base board and remove the battery.



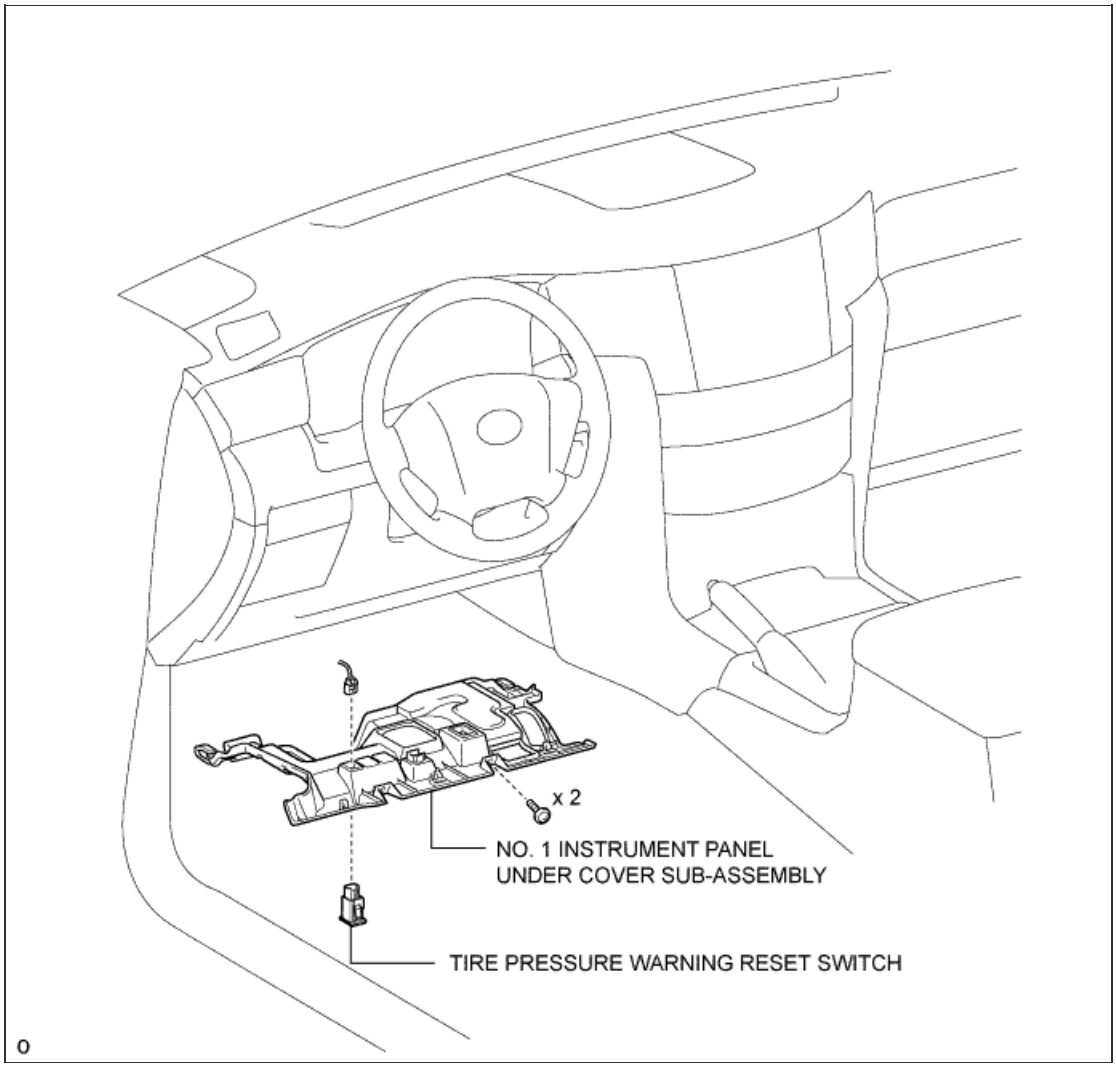
Text in Illustration

*1	Terminal
*2	Lithium Battery

HINT:

The battery and base board are covered with urethane.

for Preparation Click here



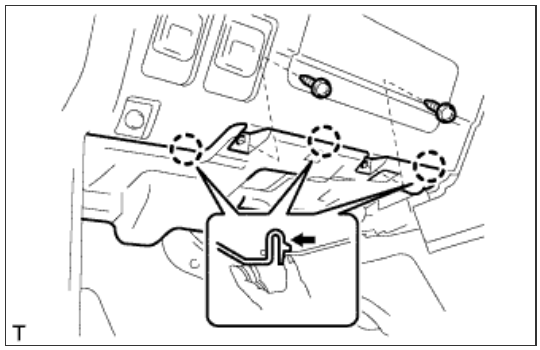
for Preparation Click here

1. REMOVE NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Remove the 2 screws.

b. Detach the 3 claws.

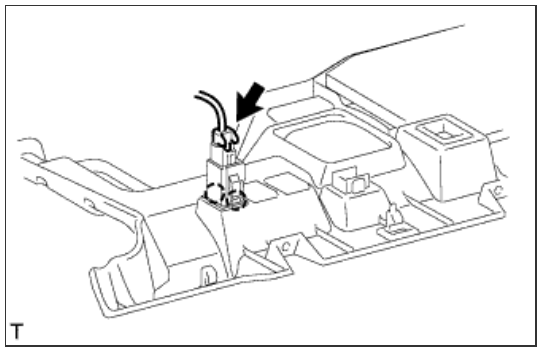
c. Remove the under cover and disconnect the connectors.



2. REMOVE TIRE PRESSURE WARNING RESET SWITCH

a. Disconnect the connector.

b. Detach the 2 claws and remove the tire pressure warning reset switch from the No. 1 instrument panel under cover sub-assembly.



for Preparation Click here

1. CHECK TIRE PRESSURE WARNING RESET SWITCH

a. Measure the resistance according to the value(s) in the table below.

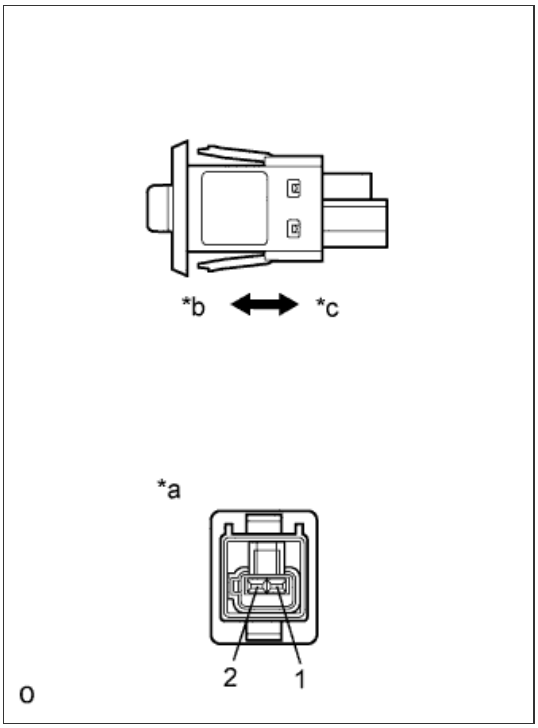
Standard Resistance:

Tester Connection	Switch Condition	Specified Condition
1 - 2	Released	10 kΩ or higher
1 - 2	Pushed in	Below 1 Ω

Text in Illustration

*a	Component without harness connected (Tire Pressure Warning Reset Switch)
*b	Released
*c	Pushed in

If the result is not as specified, replace the tire pressure warning reset switch.



for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING RESET SWITCH

a. Attach the 2 claws to install the tire pressure warning reset switch to the No. 1 instrument panel under cover sub-assembly.

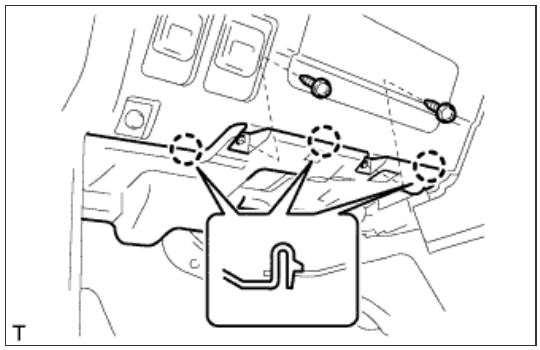
b. Connect the connector.

2. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

c. Install the 2 screws.



3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here

1. INSTALL TIRE PRESSURE WARNING RESET SWITCH

a. Attach the 2 claws to install the tire pressure warning reset switch to the No. 1 instrument panel under cover sub-assembly.

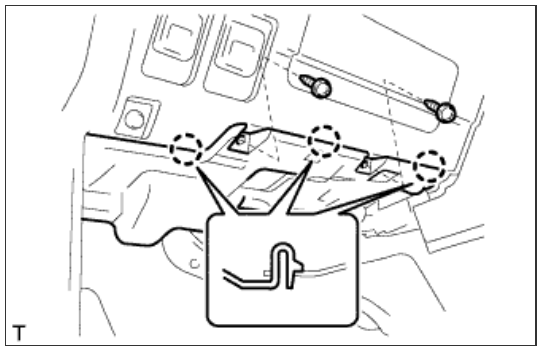
b. Connect the connector.

2. INSTALL NO. 1 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY

a. Connect the connectors.

b. Attach the 3 claws to install the under cover.

c. Install the 2 screws.



3. INSPECT TIRE PRESSURE WARNING SYSTEM

(Click here)

for Preparation Click here

DIAGNOSIS OF TIRE VIBRATION

1.TIGHTEN WHEEL NUTS

NEXT

2.INSPECT TIRES (Click here)

NG.	Go to step 3
OK.	Go to step 4

3.REPAIR OR REPLACE TIRE(S)

NEXT

4.INSPECT AND/OR ADJUST WHEEL BALANCE (Click here)

NEXT

5.INSPECT FRONT AXLE HUB BEARING LOOSENESS AND AXLE HUB RUNOUT (Click here)

NG.	Go to step 6
OK.	Go to step 7

6.REPAIR FRONT AXLE HUB BEARING LOOSENESS AND AXLE HUB RUNOUT (Click here)

NEXT

7.PERFORM ROAD TEST

NEXT

RETURN VEHICLE TO CUSTOMER

DIAGNOSIS OF IRREGULAR TIRE WEAR

1.INSPECT TIRES (Click here)

NEXT

2.REPAIR OR REPLACE TIRE(S)

NEXT

3.INSPECT AND/OR ADJUST FRONT WHEEL ALIGNMENT (Click here)

NEXT

4.PERFORM ROAD TEST

NEXT

RETURN VEHICLE TO CUSTOMER

for Preparation Click here

1. INSPECT TIRES

a. Check the tires for wear and proper inflation pressure.

Cold Tire Inflation Pressure (for Europe):

Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
285/60R18 116V	240 (2.4, 35) 230 (2.3, 33)*1	240 (2.4, 35) 230 (2.3, 33)*1
285/50R20 112V	240 (2.4, 35) 230 (2.3, 33)*1	240 (2.4, 35) 230 (2.3, 33)*1 260 (2.6, 38)*2

*1: For Russia, Ukraine, Kazakhstan, Taiwan, Chile, Azerbaijan, Georgia, Armenia and Belarus
*2: For driving at over 160 km/h (100 mph)

Cold Tire Inflation Pressure (for China):

Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
285/60R18 116V	240 (2.4, 35)	240 (2.4, 35)

Cold Tire Inflation Pressure (for Middle East and Australia):

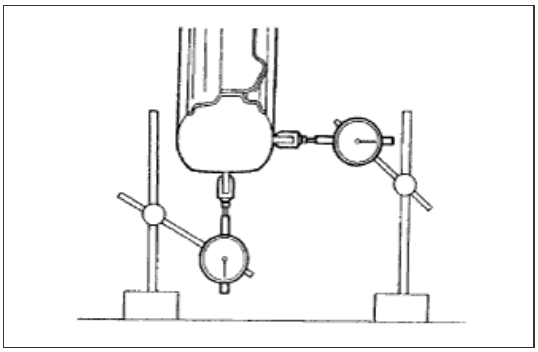
Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
285/60R18 116V	230 (2.3, 33)	230 (2.3, 33)
285/50R20 112V	230 (2.3, 33)	230 (2.3, 33) 260 (2.6, 38)*

*: For driving at over 160 km/h (100 mph)

b. Using a dial indicator, check the tire runout.

Tire runout:

Vertical	3.0 mm (0.118 in.) or less
Lateral	3.0 mm (0.118 in.) or less



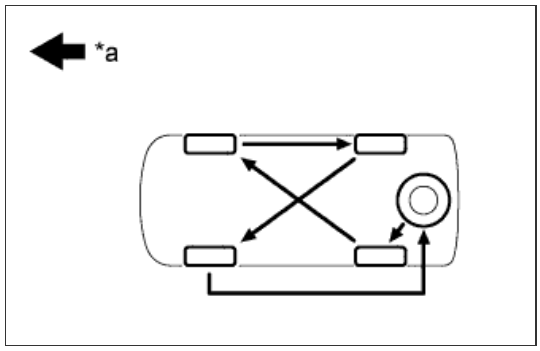
2. ROTATE TIRES

a. Rotate the tires as shown in the illustration.

Torque:
131 N*m{ 1336 kgf*cm , 97 ft.*lbf }

Text in Illustration

*a	Front of the Vehicle



3. INSPECT WHEEL BALANCE

a. Check and adjust the off-the-car balance.

Tire Size	Standard Imbalance After Adjustment
285/60R18	7.0 g (0.0154 lb) or less
285/50R20	6.5 g (0.0143 lb) or less

NOTICE:

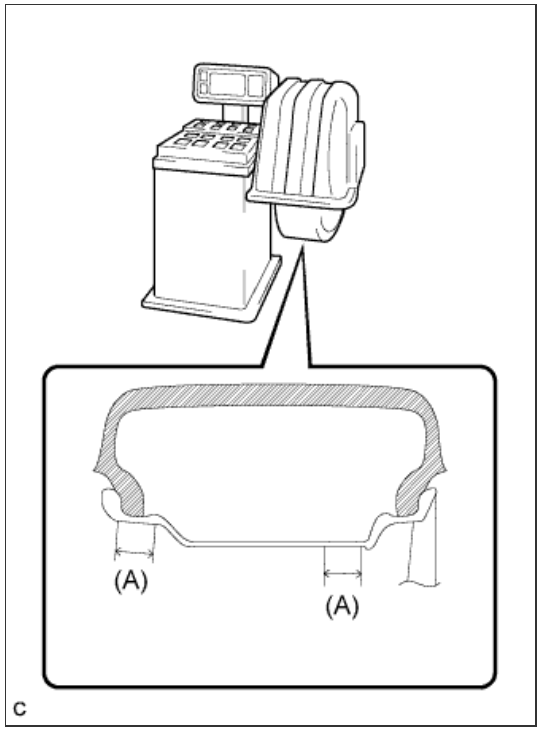
- **Use a cleaning detergent to remove dirt, oil and water from the surface where the balance weight is to be attached.**
- **Do not touch the adhesive surface of the tape.**
- **Attach a sticking-type balance weight to the flat surface (A) shown in the illustration.**

  Width (A):
  20 mm (0.787 in.)

- **Push the balance weight firmly so that it securely adheres to the position.**
- **Do not reuse the balance weight.**
- **Please use the LEXUS genuine sticking type balance weight.**

HINT:

If necessary, check and adjust the on-the-car balance.



4. INSPECT FRONT AXLE HUB

(Click here)

5. INSPECT REAR AXLE SHAFT

(Click here)