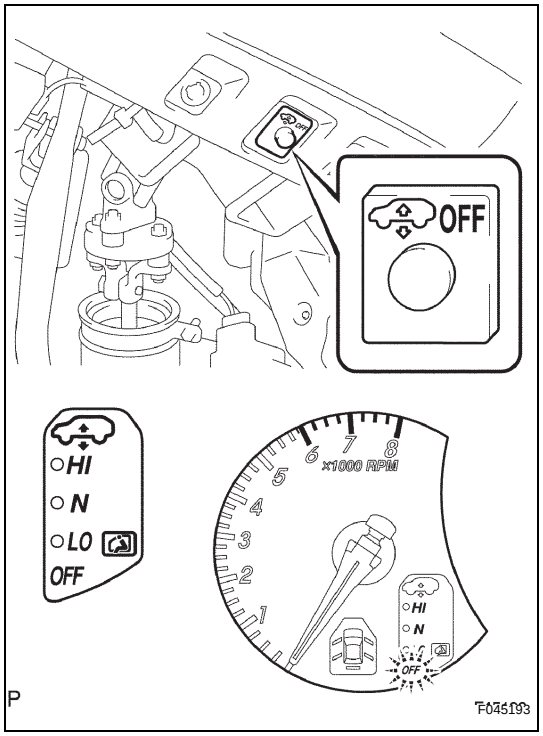
SUSPENSION CONTROL SYSTEM

PRECAUTION

NOTICE:
When disconnecting the negative (-) battery terminal, initialize the following systems after the terminal is reconnected.

System Name	See procedure
Lighting System (Adaptive Front Lighting System)	LI-17
Power Window Control System	WS-12
Power Back Door System	DL-8
Sliding Roof System	RF-4



1. JACK OR LIFT UP AND DOWN

(a) Follow the procedure below when raising the vehicle with a jack or lift.
  (1) Turn the ignition switch to the ON position.
  (2) Press the height control OFF switch button and check that the height control "OFF" indicator light comes on.
  (3) Turn the ignition switch off.
  (4) Raise the vehicle.

(b) Follow the procedure below when lowering the vehicle.
  (1) Lower the vehicle slowly to the ground.
  (2) Turn the ignition switch to the ON position.
  (3) Press that the OFF indicator goes out and that the height control operates.

2. REMOVE FRONT SUSPENSION OR FRONT AXLE

(a) Do not turn the lower part of the pneumatic cylinder assembly without air in it, otherwise the diaphragm might be twisted or damaged.

(b) To avoid damage, follow the procedure below when using a compressor to fill the cylinders with air.
  (1) Stop the compressor as well as the engine in 1 minute after the engine starts.
  (2) Restart the engine, and stop the engine in 1 minute.
  HINT:
  - It takes about 2 to 3 minutes to fill the pneumatic cylinders with air when replacing all of them.
  - Inject the air in a location where the ambient temperature is below 35°C (95°F).

3. REMOVE HEIGHT CONTROL VALVE NO.1 AND NO.2

(a) Be careful that the vehicle body lowers because the air in the pneumatic cylinder is discharged by disconnecting the pneumatic cylinder side air tube of the height control valve.

SC

4. DISCONNECT AND CONNECT HEIGHT CONTROL TUBE (Type 1)

NOTICE:

- **Disconnecting and connecting the height control tube should be performed by hand to prevent dust or foreign objects from entering.**
- **Be careful not to damage the height control tube.**

(a) Disconnect the height control tube.

(1) Loosen the locknut.

NOTICE:
Stabilize the chamber of the pneumatic cylinder assembly with your hands to avoid movement.

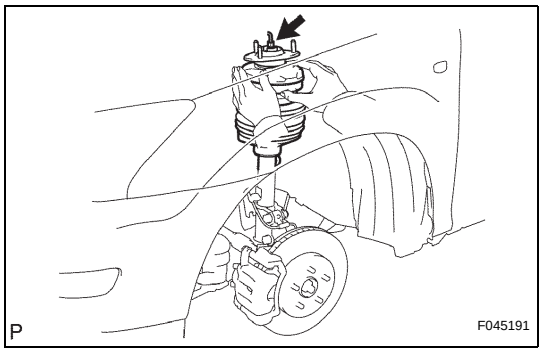
(2) Disconnect the tube from the pneumatic cylinder.

(3) Remove the 2 O-rings.

(b) Install the height control tube.

(1) Install the 2 new O-rings to the height control tube and coat them with MP grease No. 2.

NOTICE:
Air leaks may occurs if dust or foreign objects come into contact with the O-rings.



(2) Insert the tube into the pneumatic cylinder assembly and connect the tube with a lockout.

Torque: 17 N*m (175 kgf*cm, 13 ft.*lbf)

NOTICE:
Stabilize the chamber of the pneumatic cylinder assembly with your hands to avoid movement.

5. DISCONNECT AND CONNECT HEIGHT CONTROL TUBE (Type 2)

NOTICE:

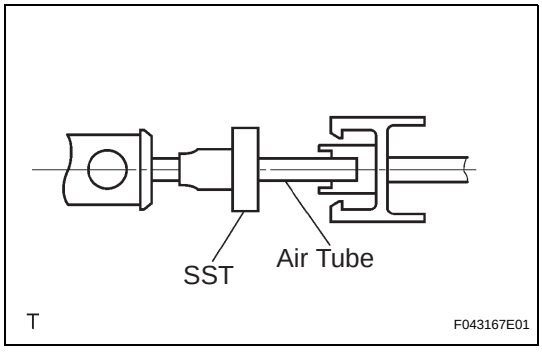
- **Disconnecting and connecting the height control tube should be performed by hand to prevent dust or foreign objects from entering.**
- **Be careful not to damage the height control tube.**

(a) Disconnect the height control tube.

(1) Pinch "A" to release connector No. 1 and pull it out from the housing.

(2) Set SST to the tube.

SST 09730-00010



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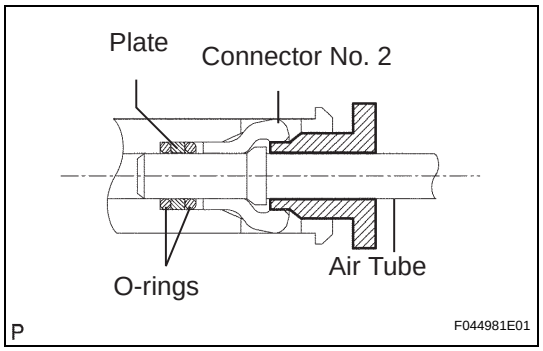
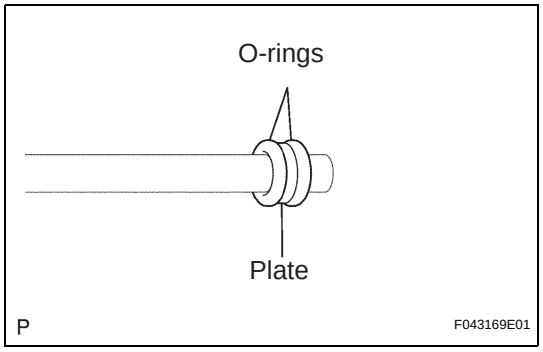
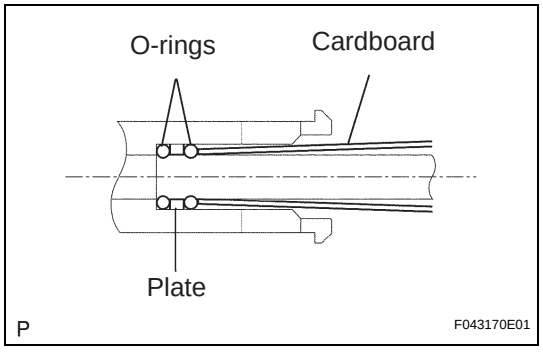


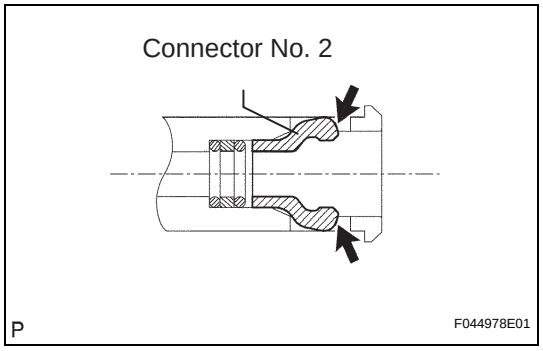
(3) Insert SST into the housing to expand the claw of plug or tube connector in the housing.
(4) Pull out the tube with SST inserted.
NOTICE:
Do not force the tube.
(5) Insert a flat-head thin-blade screwdriver into the circular hole on the housing, and remove connector circular hole on the housing, and remove connector No. 2, the 2 O-rings and the plate from the housing.
HINT:
The O-ring, the plate and connector No. 2 are non-reusable parts.



(b) Install the 2 O-rings and the plate.
NOTICE:
When replacing the parts on which the tube to be installed with new ones, it is not necessary to perform the procedure for installation.
(1) Apply MP grease to the 2 new O-rings and plate, and then install them to the straight tube or an equivalent.
NOTICE:
- **Install the plate between the O-rings.**
- **Air leaks may occur if dust or foreign objects come into contact with the O-rings.**

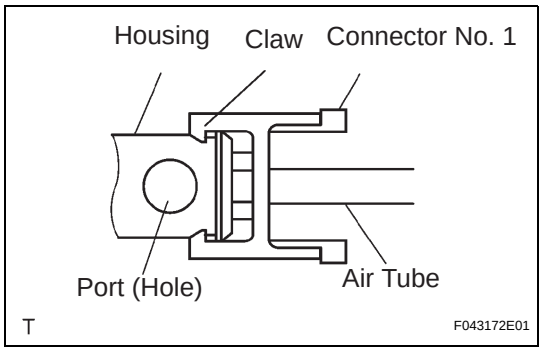


(2) Insert the tube onto which the 2 O-rings and plate are installed into the housing, and then push them in lightly with rolled up cardboard.



(3) Push connector No. 2 into the housing until a clicking sound is heard.

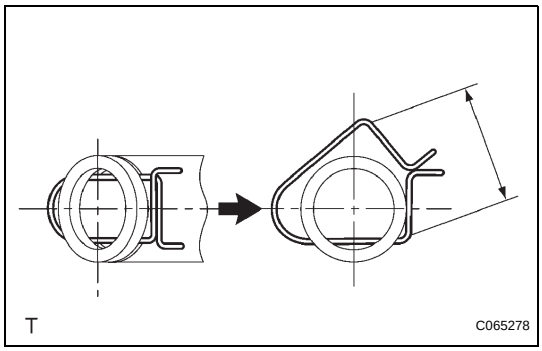
SC



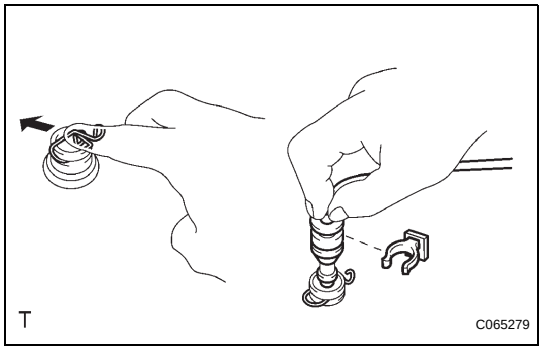
(c) Install the height control tube.
(1) Push the tube and connector No. 1 to the housing until a clicking sound is heard.
NOTICE:
- **Turn the phase of the housing port from that of the connector No. 1 claw by 90°C when installing.**
- **Lightly pull on the tube to make sure that it is securely connected.**

6. DISCONNECT AND CONNECT HEIGHT CONTROL TUBE (Type 3)
NOTICE:
- **Disconnecting and connecting the height control tube should be performed by hand to prevent dust or foreign objects from entering.**
- **Be careful not to damage the height control tube.**

(a) Disconnect the height control tube.
(1) Remove the holder.



(2) Spread the clip and slowly pull the height control tube No. 2 straight out.
NOTICE:
Do not completely remove the clip except when replacing it.
(3) Remove the 2 O-rings.
HINT:
Some tubes are equipped with only one O-ring.



(b) Install the height control tube.
(1) Hook one side of the new clip around the union groove, and slide the other side into the opposite side of the union groove.
(2) Install 2 new O-rings to the height control tube and coat them with MP grease No. 2.
NOTICE:
Air leaks may occur if dust or foreign objects come into contact with the O-rings.
(3) Connect the height control tube to the connector on the straight and securely until a click sound can be heard.
HINT:
Some tubes are equipped with only one O-ring.
NOTICE:
Connect the height control tube straight in order to prevent air leaks.
(4) Install the height control tube to the holder being careful not to apply excessive force to the clip.

ON-VEHICLE INSPECTION

1. ADJUST STANDARD VEHICLE HEIGHT

(a) Release the parking brake and stabilize the suspensions by pushing up and down on the corners of the vehicle.

(b) Adjust the shift lever to the N position and settle the tires by shifting the vehicle back and forth by hand.

(c) Start the engine.

(d) On the height control switch, first press "HI" to raise the vehicle's height, and next press "LO" to lower it, and then press the switch to change it to the "N" position.

NOTICE:

Make sure to release the parking brake and adjust the shift lever to the N position.

2. INSPECT TIRE

3. ADJUST VEHICLE HEIGHT

4. ADJUST VEHICLE HEIGHT

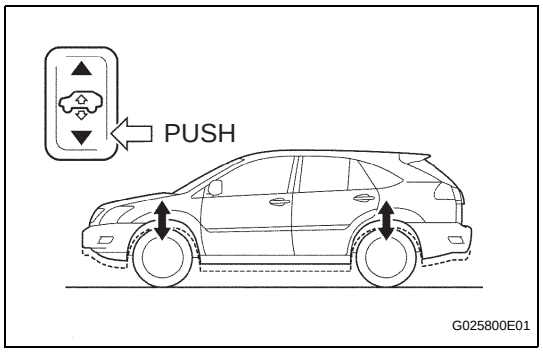
5. INSPECT VEHICLE HEIGHT SWITCH FUNCTION

NOTICE:

Perform the procedure with the vehicle vacant and unloaded.

(a) Change the height control switch from the "N" position to the "HI" position and back to the "N" position again. Check the time it took and the degree of change in the vehicle's height to reach the target height.

"N" → "HI" position:
approx. 40 to 60 seconds
"HI" → "N" position:
approx. 20 to 40 seconds
Change in vehicle height:
approx. 30 mm (1.18 in.)
NOTICE:
Shut off the engine to check the vehicle height.



(b) Change the vehicle height control switch from the "N" position to the "LO" position and back to the "N" position again. Check the time it took and the degree of change in the vehicle's height to reach the height target height.

"N" → "LO" position:
approx. 10 to 30 seconds
"LO" → "N" position:
approx. 20 to 40 seconds
Change in vehicle height:
approx. 15 mm (0.59 in.)
NOTICE:
Shut off the engine to check the vehicle height.

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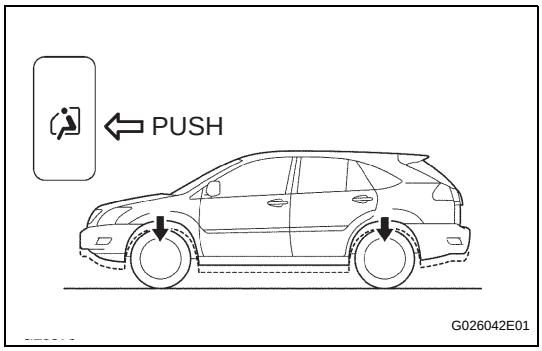


6. INSPECT GET ON AND OFF MODE FUNCTION

(a) Turn the access mode switch ON and check the change in the vehicle's height with the engine stopped.

Change in the vehicle height, Down from "N" position:

approx. 30 mm (1.18 in.)

NOTICE:

When the function inspections are performed in succession, the vehicle height control is interrupted.

7. INSPECT AUTOMATIC LEVELING FUNCTION

NOTICE:

Make sure the height control switch is in the "NORM" position and the access mode switch is OFF.

(a) Turn the ignition switch OFF and have four people (two in the front, two in the rear) ride in the vehicle.

HINT:

Each person should weigh approx. 68 kg.

(b) Start the engine and check the time it takes to complete vehicle height control.

Time to target height:

approx. 40 to 60 seconds

(c) Turn the ignition switch OFF and than have the four people get out of the vehicle.

(d) Start the engine and check the time it takes to complete vehicle height control.

Time to target height:

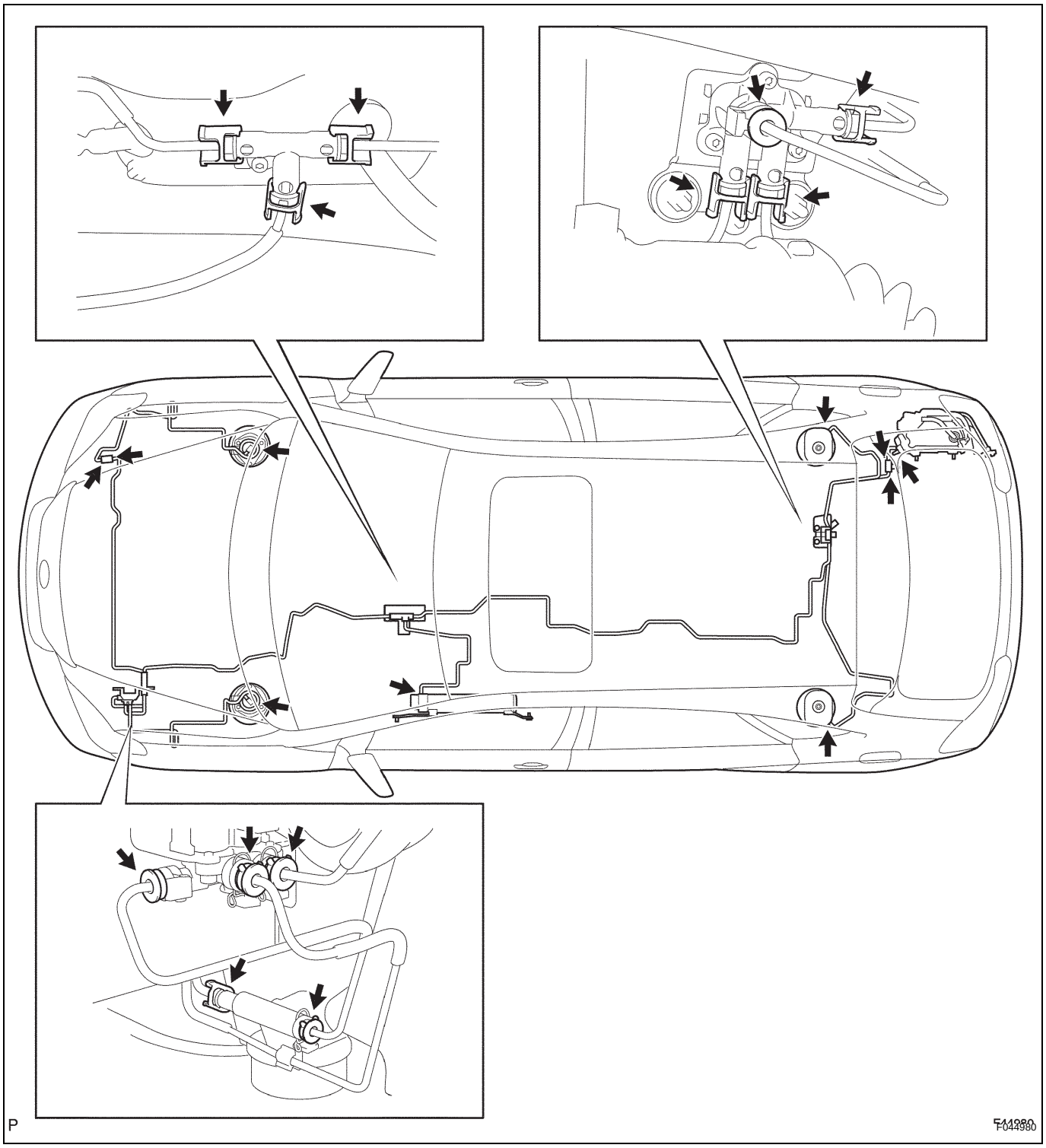
approx. 10 to 30 seconds

8. CHECK CONNECTIONS OF TIRES FOR AIR LEAKAGE

(a) Set the height control switch to the "HI" position and raise the vehicle's height.

(b) Stop the engine.

(c) Apply soapy water to the connections of the tubes and check if there is any air leakage.



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AIR SUSPENSION SYSTEM

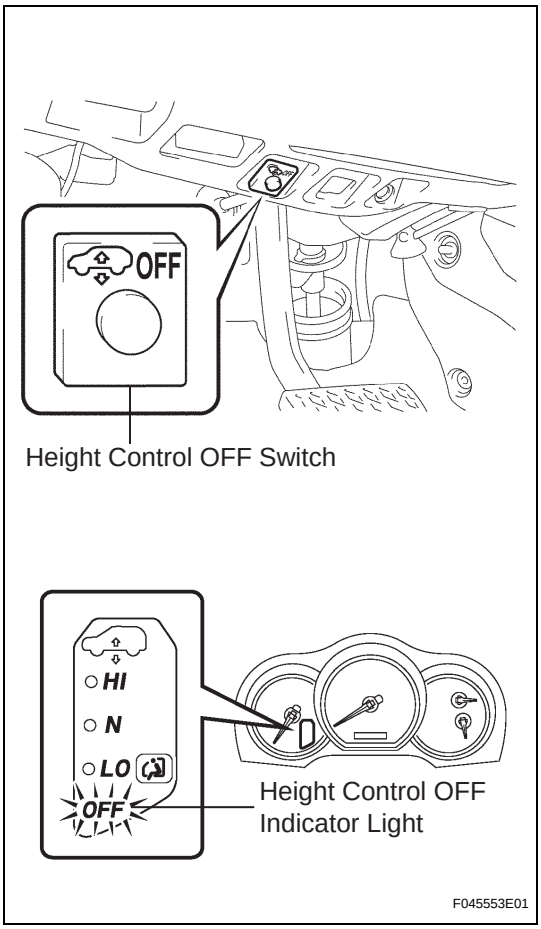
PRECAUTION

1. PRECAUTION

NOTICE:

When disconnecting the negative (-) terminal cable of the battery, initialize the following systems after the completion of the operation.

System Name	See procedure
Lighting System (Adapting Front Lighting System)	LI-17
Power Window System	WS-12
Power Back Door System	ED-6
Sliding Roof System	RF-4



2. AIR SUSPENSION SYSTEM PRECAUTION

(a) Note for operation

(1) When you work under or when jacking it up, make sure the height control OFF switch to prohibit controlling the height of the vehicle is on.
HINT:
- When the height control OFF switch is operated to prohibit controlling the vehicles height, the height control OFF indicator light on the combination meter comes on.
- The auto leveling control and access mode control continue to control for max. 60 seconds after turning the ignition switch OFF.
- Disallowance of the height control OFF switch is recorded even when the negative terminal of the battery is disconnected.
- Disallowance of the vehicle height control by the height control OFF switch is released at the vehicle speed of 30 km/h (19 mph) or more.

(2) Do not operate the steering wheel, if there is no air in the pneumatic cylinder.
HINT:
The pneumatic cylinder could be damaged if it is twisted without air in the cylinder.

(3) In the case of letling down the vehicle without air in the cylinder, make sure all the pipes are securely connected.
HINT:
The pneumatic cylinder could be damaged if there is any pipe disconnected while letling down the vehicle.

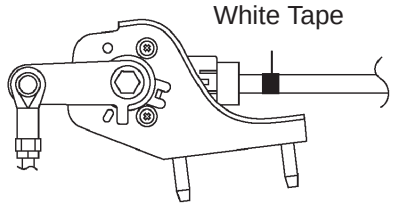
SC

(4) Do not apply battery voltage to the compressor motor for more than 60 seconds to prevent damage to the motor.
HINT:
In the case where it is necessary to perform the operation by charging the battery for more than 60 seconds, for example height recovery without air in the cylinder, proceed the operation as follow: after 60 seconds have passed, turn the ignition switch OFF once, and then turn the ignition switch ON again for commencement of operation.

(b) Note for connector operation.
(1) In the case where disconnecting the connectors for height control sensor rear RH and height control valve sub-assembly No. 2, it possible causes incorrect connection. Since these 2 connectors have the same shape, they may be connected incorrectly unless the clamp of wire harness is properly connected. When you connecting the connectors, confirm a mark (white tape) on the wire harness of height control sensor rear RH and the clamp position of wire harness.

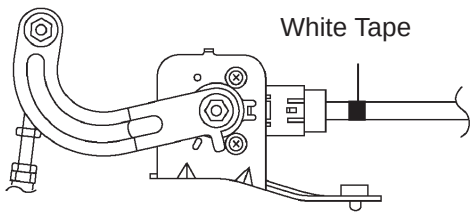
2WD:

Height Control Sensor Rear RH



4WD:

Height Control Sensor Rear RH



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3. FAIL-SAFE FUNCTION

(a) When a Air Suspension System malfunction is detected under the normal control operation, the suspension control ECU will suspected the switch control of the height control operation.

DTC No.	Malfunction Item	Fail-Safe Operation			Fail-Safe Deactivation Conditions
C1711/11 C1712/12 C1713/13 C1714/14	Malfunction on height control sensor	Malfunction on one sensor	High speed range	To continue the control with the 3 normal sensors.	Return to normal condition.
			Low speed range	To interrupt the height control.	
		Malfunction on two or more sensors	To interrupt the height control.		
C1735/35	Open or short on exhaust solenoid valve circuit	Normal on pneumatic tank solenoid valve	To implement the height down control for maximum 30 seconds, then interrupt the height down control for all the wheels.		Return to normal condition.
		Malfunction on pneumatic tank solenoid valve	To interrupt the height down control.		
C1737/31 C1738/32 C1739/33 C1740/34	Open or short on height control solenoid valve circuit	Open or short on one solenoid valve circuit	High speed range	To continue the control with only 3 normal solenoid valves.	Return to normal condition.
			Low speed range	To interrupt the height control.	
		Malfunction on two or more solenoid valve circuits	To interrupt the height control.		

SC

DTC No.	Malfunction Item	Fail-Safe Operation		Fail-Safe Deactivation Conditions
C1741/41	Open or short on AIR SUS relay circuit	To interrupt the height up control.		Return to normal condition.
C1742/42 C1751/51	Lock, Powered continuously or powered excessively on height control compressor motor	After the DTC detection, to interrupt the height up control for 70 minutes.		After interrupting for 70 minutes, restart the control.
C1744/44 (*1)	Open or short on tank solenoid valve circuit	To prohibit the pneumatic tank solenoid valve exhaust control.		Return to normal condition.
C1761/61	Malfunction on suspension control ECU	To interrupt the height control.		Return to normal condition.
P1774/74	Power voltage dropped	To interrupt the height control.		Return to normal condition.
C1776/76	Malfunction on vehicle speed sensor circuit	Malfunction on one sensor	Height control is effected only with normal sensor.	Return to normal condition.
		Malfunction on two sensors	Target vehicle height is fixed on the normal.	
C1779/79	Malfunction on engine speed signal circuit	Low speed range	To interrupt the height control.	Return to normal condition.
		High speed range	To continue the usual control.	

HINT:
(*1): The height control continues but the vehicle height lowering speed may be slower than usual.

HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester can be used at step 3, 6, 9 and 12.

1	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2	**CUSTOMER PROBLEM ANALYSIS**

NEXT

3	**PROBLEM SYMPTOM CONFIRMATION**

- **SYMPTOM DOES NOT OCCUR (Go to step 4)**
- **SYMPTOM OCCURS (Go to step 5)**

4	**SYMPTOM SIMULATION**

NEXT

5	**DTC CHECK**

- **NORMAL CODE (Go to step 6)**
- **MALFUNCTION CODE (Go to step 7)**

6	**PROBLEM SYMPTOMS TABLE**

NEXT

7	**DTC CHECK**

NEXT

8	**CIRCUIT INSPECTION**

NEXT

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9	**IDENTIFICATION OF PROBLEM**

NEXT

10	**REPAIR**

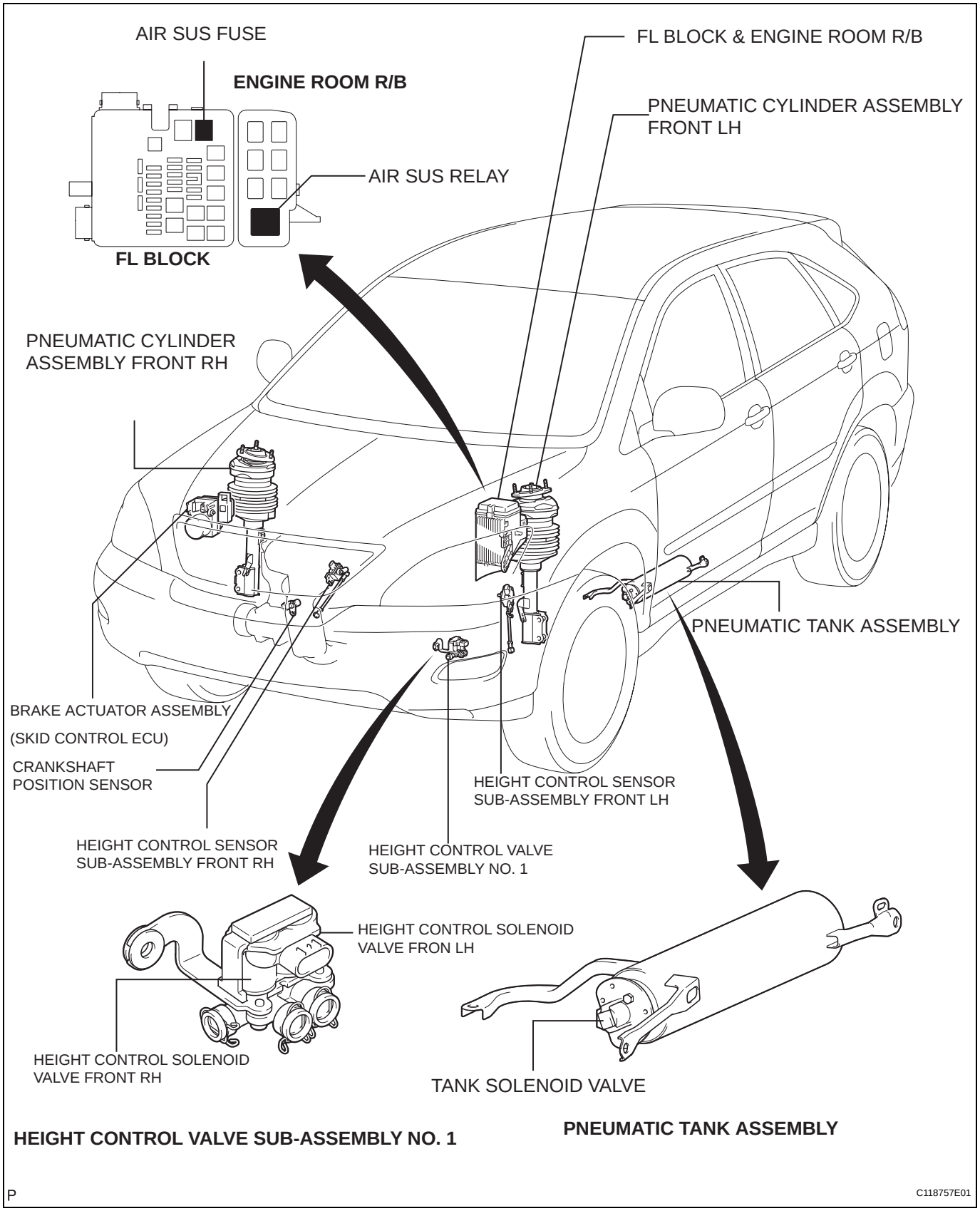
NEXT

11	**CONFIRMATION TEST**

NEST

END

PARTS LOCATION



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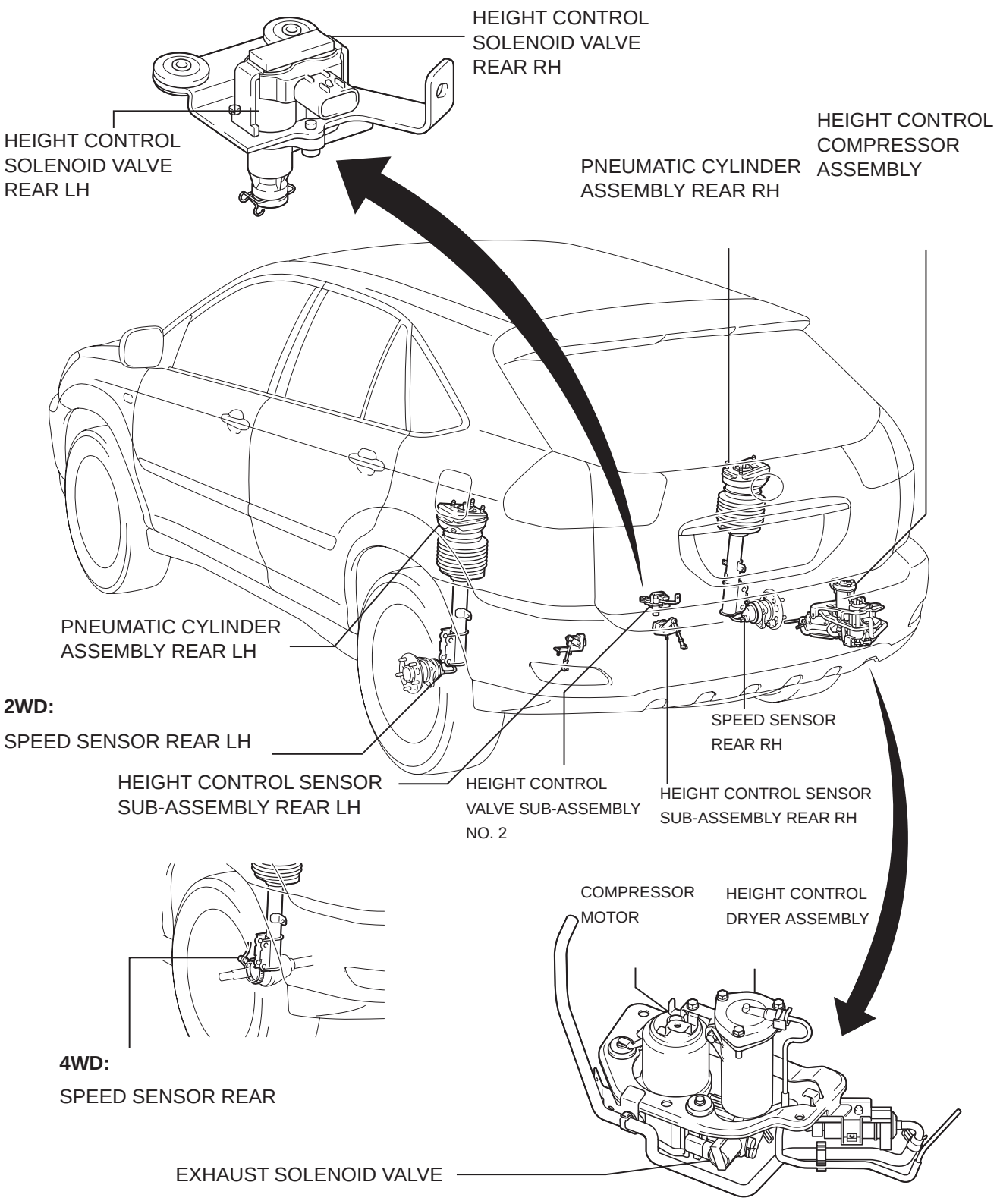
HEIGHT CONTROL VALVE SUB-ASSEMBLY NO. 2



HEIGHT CONTROL COMPRESSOR ASSEMBLY

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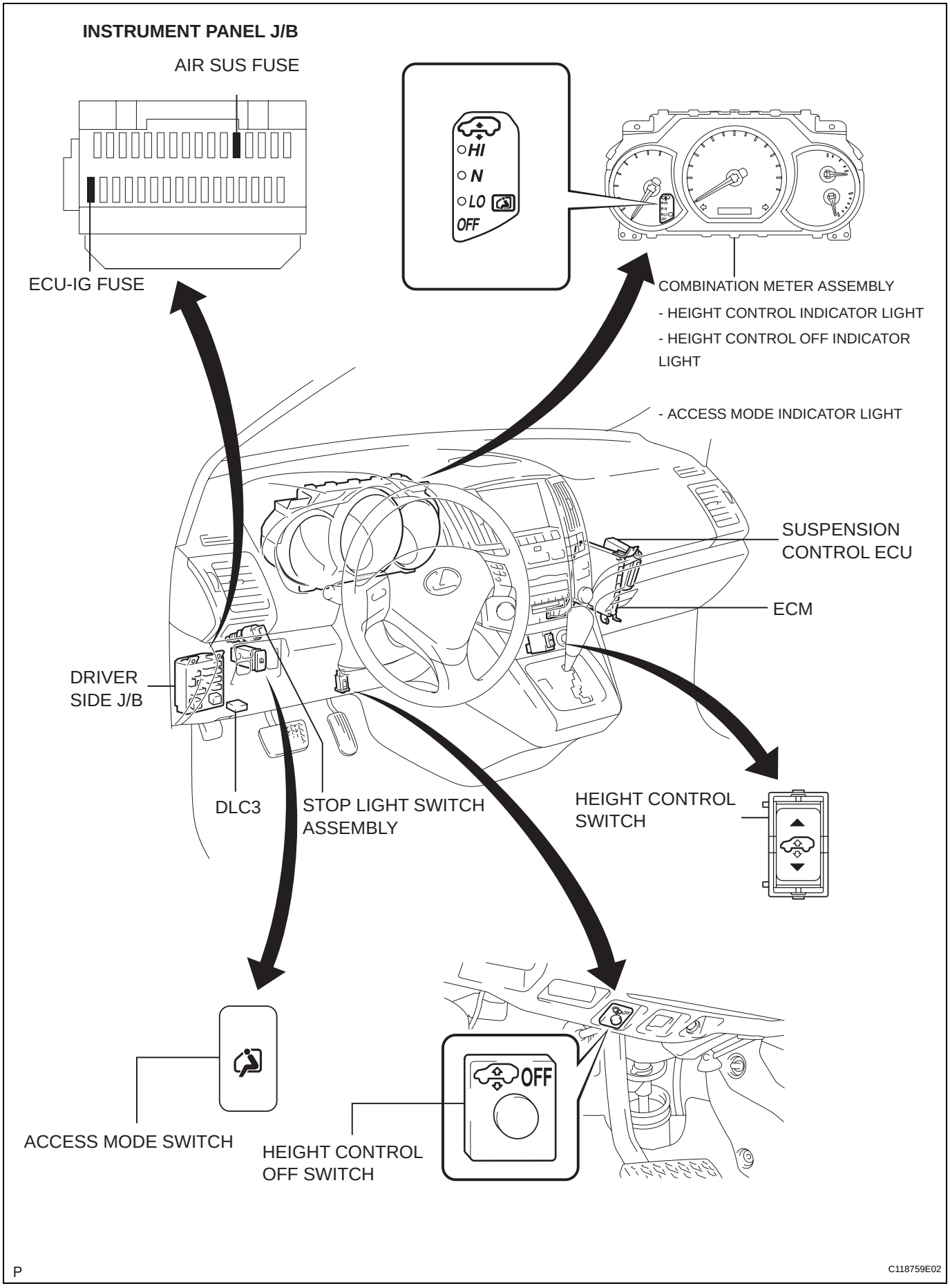
INSTRUMENT PANEL J/B
AIR SUS FUSE
ECU-IG FUSE
HI
N
LO
OFF
COMBINATION METER ASSEMBLY
- HEIGHT CONTROL INDICATOR LIGHT
- HEIGHT CONTROL OFF INDICATOR LIGHT
- ACCESS MODE INDICATOR LIGHT
SUSPENSION CONTROL ECU
ECM
DRIVER SIDE J/B
DLC3
STOP LIGHT SWITCH ASSEMBLY
HEIGHT CONTROL SWITCH
ACCESS MODE SWITCH
HEIGHT CONTROL OFF SWITCH
OFF
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SYSTEM DESCRIPTION

1. AIR SUSPENSION SYSTEM DESCRIPTION

(a) The suspension control ECU operates the compressor & motor with the dryer and uses the solenoid valves to control the vehicle height by analyzing the information based on the switches, sensors and input signals.

(b) Through the 4 height control sensors, the suspension control ECU detects the changes in the vehicle height that results from the number of occupants or the amount of the load. Then, the suspension control ECU controls the height control solenoid valves and the compressor & motor with the dryer in order to automatically adjust the vehicle height to a constant (normal) vehicle height.

(c) Furthermore, three vehicle heights can be selected by operating the height control switch: HI, Normal and LO.

(d) When the engine is shut-off, the vehicle height can be lower than the LO vehicle height by operating the access mode switch.

(e) In the case such as when the vehicle is jacked up, the auto leveling function is prohibited by operating the height control OFF switch.

TEST MODE PROCEDURE

1. TEST MODE PROCEDURE (USING SST CHECK WIRE)

HINT:

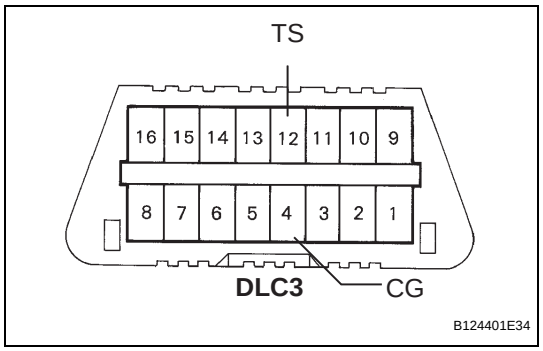
- When entering the test mode, the suspension control ECU sets all the test DTCs first.
  After completing the input signal operation for each inspection item, the DTCs that are judged normal by the suspension control ECU will be erased.
  The DTCs for other inspection items may not be erased when only a certain signal is inspected.
- When the test mode returns back to the normal mode, all the test DTCs will be erased.

(a) Procedure for Test Mode.

(1) Make sure that the ignition switch is off.

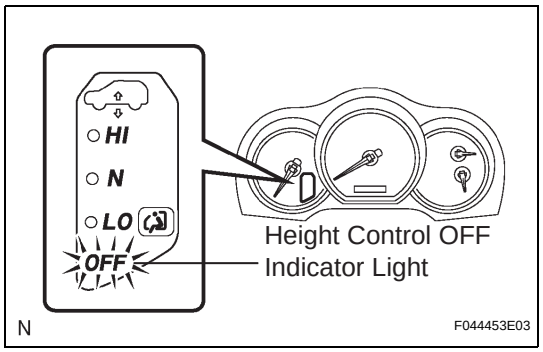
(2) Set each of the check items in the table below to the condition in Operation (A).

(3) Using SST(s), connect the terminals TS and CG of DLC3.
SST 09843-18040



(4) Turn the ignition switch to the ON position.

(5) Check that the height control OFF indicator light comes on and goes off at 0.125 second intervals. (4 Hz)
HINT:
If the height control OFF indicator light does not blink, inspect the height control OFF indicator light circuit or the TS terminal circuit.



Trouble Area	See procedure
Height control OFF indicator light circuit	SC-104
TS terminal circuit	SC-109

(6) Set checking each items to the condition in Operation (B).
HINT:

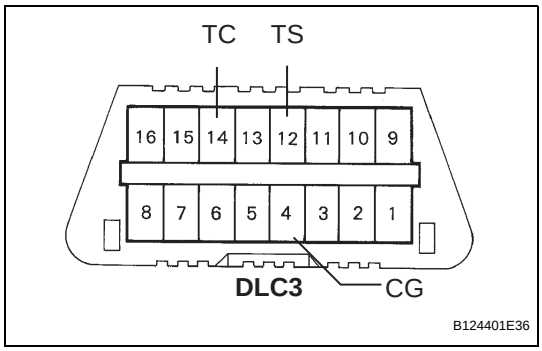
- When checking each item, the height control OFF indicator light should come on for 1 sec. then continue blinking.
- There is no input signal order.

Test mode table:

Check Item	Operation (A)	Operation (B)
Stop light switch signal	OFF (Brake pedal not depressed)	ON (Brake pedal depressed)
Right rear speed sensor signal	Vehicle speed below 20 km/h (12 mph)	Vehicle speed 20 km/h (12 mph) or higher
Left rear speed sensor signal	Vehicle speed below 20 km/h (12 mph)	Vehicle speed 20 km/h (12 mph) or higher
Height control switch signal	Neutral position	Press the height control switch "UP" first and then press "DOWN"

SC

Check Item	Operation (A)	Operation (B)
Height control OFF switch signal	OFF (Height control OFF indicator light is OFF)	ON to OFF (Height control OFF switch pushed in 2 times.)
Crankshaft position sensor signal	Engine speed below 2,000 rpm	Engine speed 2,000 rpm or higher
Access mode switch signal	OFF (Access mode switch not pushed in)	ON to OFF (Access mode switch pushed in and released)



(7) Using the SST(s), connect the 3rd terminal of the SST to terminal TC in the DLC3.
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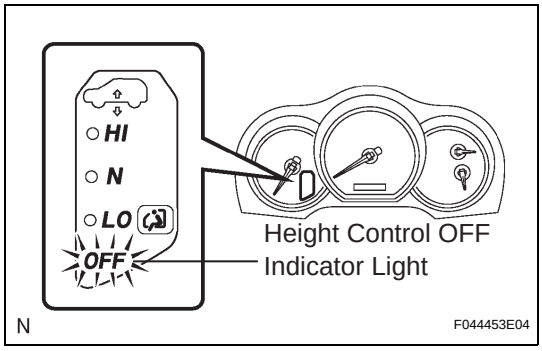
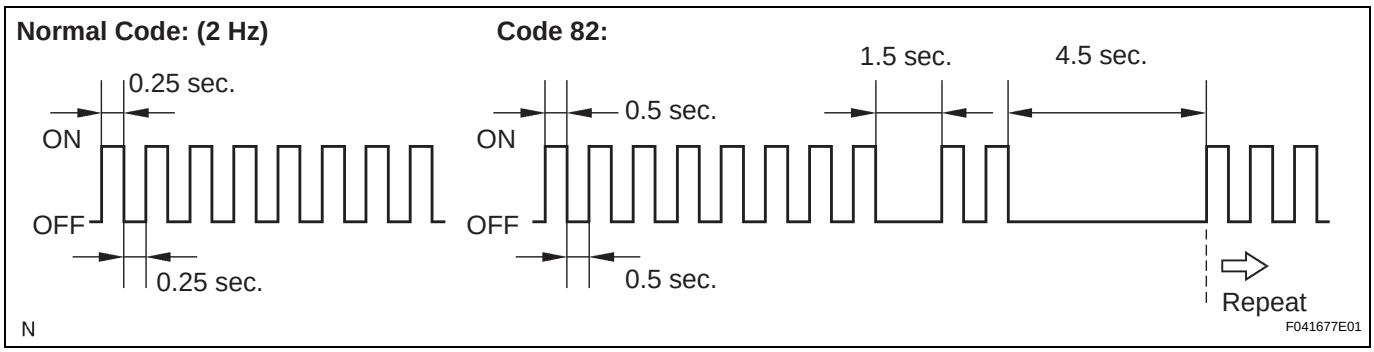


(8) Read the number of blinks of the height control OFF indicator light.
HINT:
- As an example, the blinking patterns of a normal code and code 82 are shown in the illustration.
- If 2 or more malfunctions are indicated at the same time, the lowest numbered code is displayed first.
- When a DTC or normal code is not output, check the TC terminal circuit (See page SC-106).

(9) Check the malfunction using the code table below.



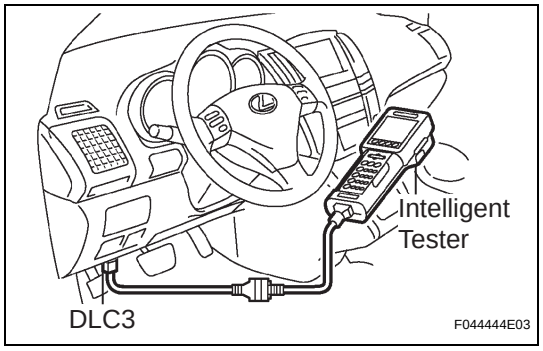
(b) Clear the test DTCs and return to normal mode.
HINT:
After repairing the malfunctions, clear the test DTC.
(1) Turn the ignition switch off.
(2) Disconnect the SST(s) from the terminals of DLC3.
SST 09843-18040
(3) Turn the ignition switch to the ON position.

SC

2. TEST MODE PROCEDURE (INTELLIGENT TESTER)

HINT:

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



(a) Procedure for Test Mode.
  (1) Make sure that the ignition switch is OFF.
  (2) Set each of the check items to the condition in Operation (A) in the test mode table.
  (3) Connect the intelligent tester to DLC3.
  (4) Turn the ignition switch to the ON position.
  (5) Select the SIGNAL CHECK mode on the intelligent tester.
  (6) Set each of the check items to the condition in Operation (B) in the test mode table.
  HINT:
  In step (6), all signals can be checked together.
  (7) Read the DTCs by following the prompts on the tester screen.
  HINT:
  Refer to the intelligent tester operator's manual for further details.
  (8) After completing the input signal check, disconnect the tester and turn the ignition switch off.

DTC of Air Suspension System test mode function:

If a malfunction code is displayed during the test mode DTC check, check the circuit listed for that code. For details of each code, refer to the "See procedure" under respective "DTC No." in the chart.

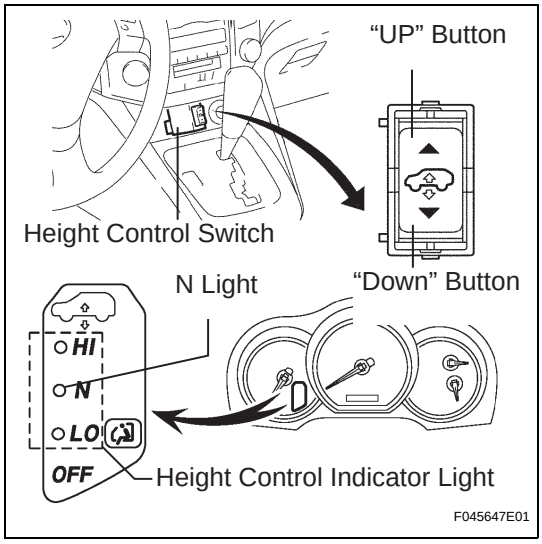
DTC No. (See procedure)	Detection Item	Trouble Area
C1782/82 (SC-90)	Stop light switch circuit malfunction	• Stop light switch assembly • Stop light switch circuit • Suspension control ECU
C1784/84 (SC-84)	Right rear speed sensor circuit malfunction	• Right rear speed sensor • Right rear speed sensor circuit • Skid control ECU (Brake actuator assembly) • Suspension control ECU
C1785/85 (SC-84)	Left rear speed sensor circuit malfunction	• Left rear speed sensor • Left rear speed sensor circuit • Skid control ECU (Brake actuator assembly) • Suspension control ECU
C1786/86 (SC-93)	Height control switch circuit malfunction	• Height control switch • Height control switch circuit • Suspension control ECU
C1788/88 (SC-96)	Height control OFF switch circuit malfunction	• Height control OFF switch • Height control OFF switch circuit • Suspension control ECU

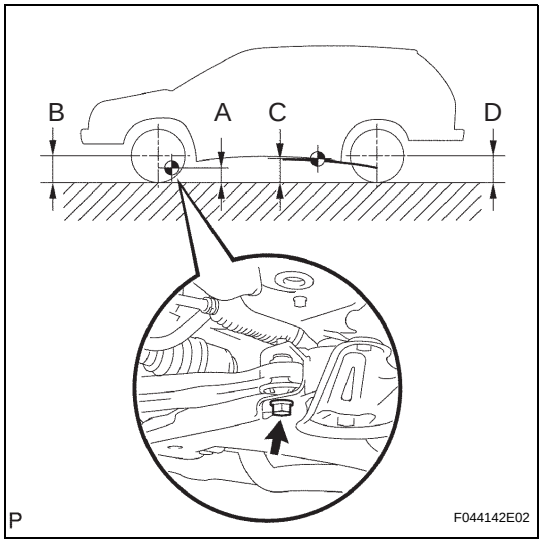
DTC No. (See procedure)	Detection Item	Trouble Area
C1797/97 (SC-87)	Crankshaft position sensor circuit malfunction	• Crankshaft position sensor • Crankshaft position sensor circuit • ECM • Suspension control ECU

3. ADJUST VEHICLE HEIGHT (WHEN USING INTELLIGENT TESTER)

HINT:
Leave the driver's seat window open to make height control operation easier.

(a) Start the engine.
(b) Change the height control switch to the "N" position.
(c) Check that the blinking for the "N" light in the combination meter is on.
(d) Push the access mode switch to the off position.
(e) Stop the engine and turn the ignition switch OFF.





(f) HINT:
Refer to the illustration.

Front	Measured height B minus A
Rear	Measured height D minus C

A: Ground clearance of lower front suspension arm No. 2 bush set bolt center.
B: Ground clearance of front wheel center.
C: Ground clearance of strut rod set bolt center.
D: Ground clearance of rear wheel center.

(g) If the value of the vehicle height is not within the range of the standard value, note the value measured and proceed to the following step.

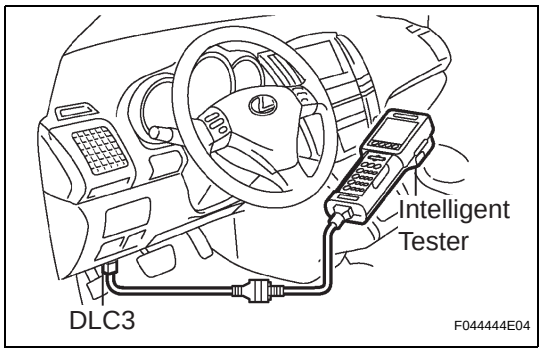
Standard value table

4WD	2WD
112 +- 10 mm (4.406 +- 0.393 in.)	**117 +- 10 mm (4.602 +- 0.393 in.)**
36 +- 10 mm (1.421 +- 0.393 in.)	**41 +- 10 mm (1.618 +- 0.393 in.)**

HINT:
The difference between the right and the left sides should be less than 10 mm (0.39 in.).

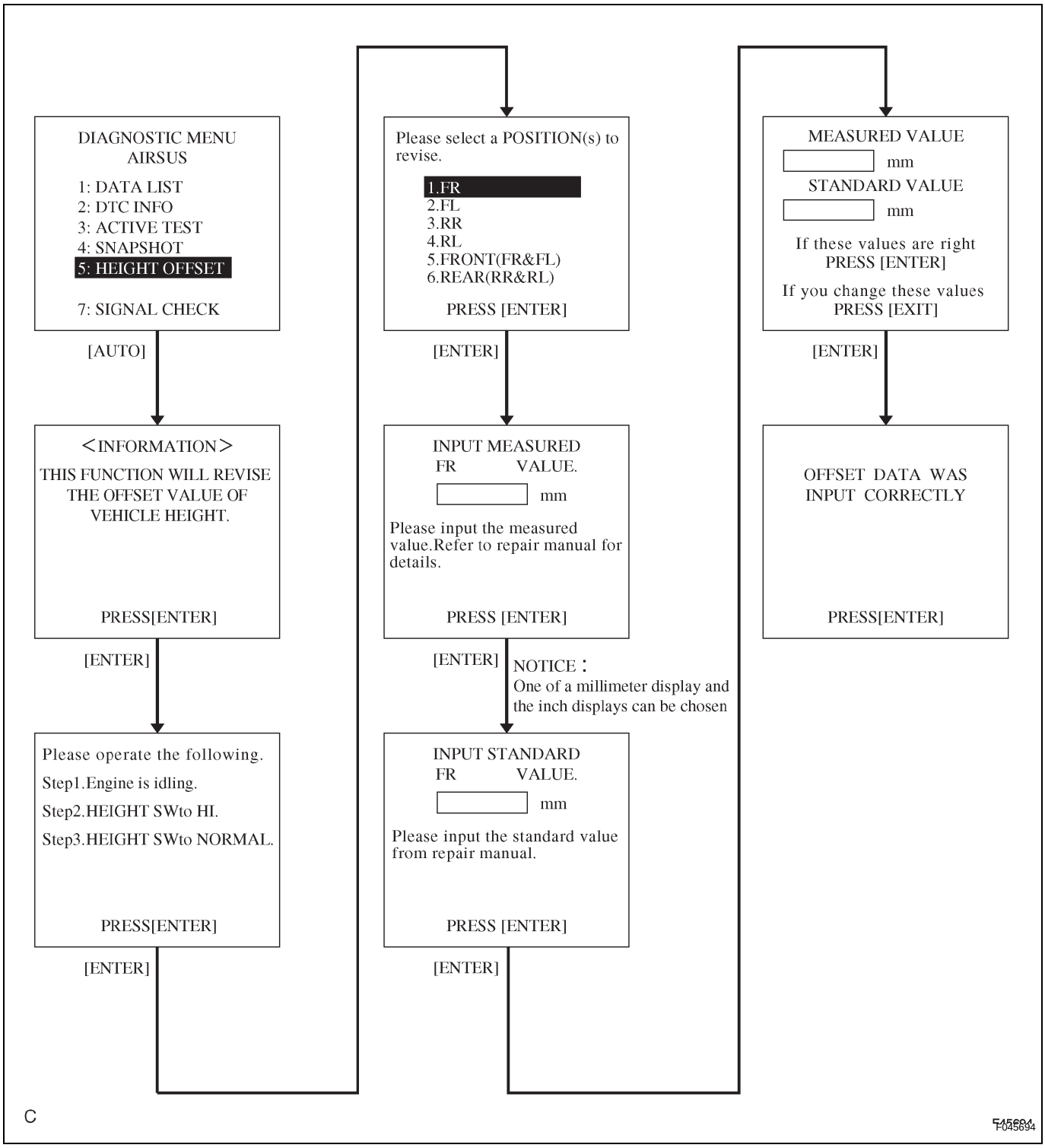
SC

NOTICE:
In the case where the difference between the value of the vehicle height and standard value exceeds 80 mm (3.15 in.), this check cannot be performed by using the intelligent tester.
In order to perform the check with the intelligent tester, adjust the difference below 80 mm (3.15 in.) without using the intelligent tester. Check the height control sensor sub-assembly (See page SC-36).



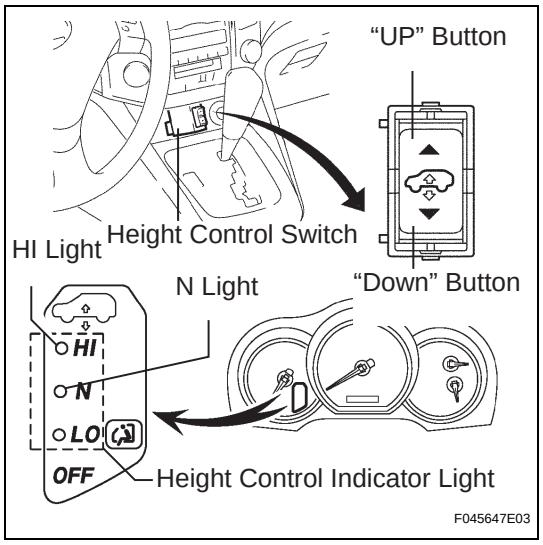
(h) Connect the intelligent tester to DLC3.
(i) Turn the ignition switch to the ON position.

(j) Perform the height offset procedure from the AIRSUS menu.



(k) Start the engine.

SC



(l) Change the height control switch to the "HI" position and check that the blinking for the "HI" light on the meter has been changed to the illuminating.

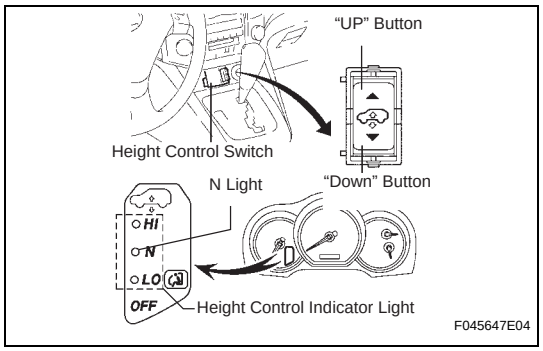
(m) Change the height control switch to the "N" position again and get out of the vehicle immediately while the "N" light is blinking.
NOTICE:
Be sure to get out of the vehicle while the light is blinking as the height will be changed and the value will not be measured properly if you fail to do so.

(n) Turn the ignition switch to the OFF position from outside of the vehicle after the "N" light comes on.
NOTICE:
Do not touch the vehicle as its height may be changed.

(o) Check the vehicle height again to confirm the value of the vehicle height is within the range of the standard values.

4. ADJUST VEHICLE HEIGHT (WHEN NOT USING INTELLIGENT TESTER)

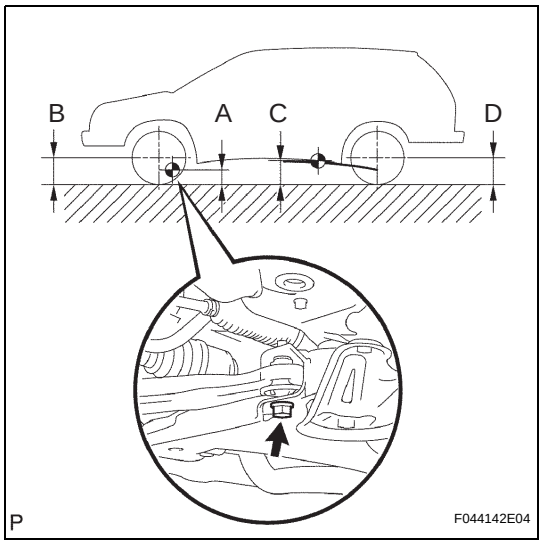
(a) Start the engine.



(b) Change the height control switch to the "N" position.

(c) Check that the blinking for the "N" light on the meter has been changed to the illuminating.

(d) Stop the engine and turn the ignition switch OFF.



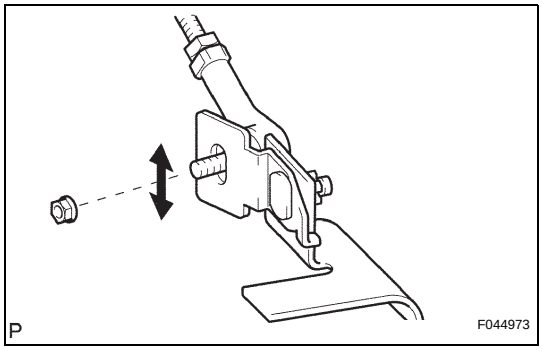
(e) Check the vehicle height (calculated value).
HINT:
Leave the driver's seat window open to make height control operation easier.
A: Ground clearance of lower suspension arm No. 2 bush set bolt center.
B: Ground clearance of front wheel center.
C: Ground clearance of strut rod set bolt center.
D: Ground clearance of rear wheel center.

(f) If the value of the vehicle height is not within the range of the standard value, note the value measured and proceed to the following step.
Standard value table

4WD	2WD
112 +- 10 mm (4.406 +- 0.393 in.)	117 +- 10 mm (4.602 +- 0.393 in.)
36 +- 10 mm (1.421 +- 0.393 in.)	41 +- 10 mm (1.618 +- 0.393 in.)

SC

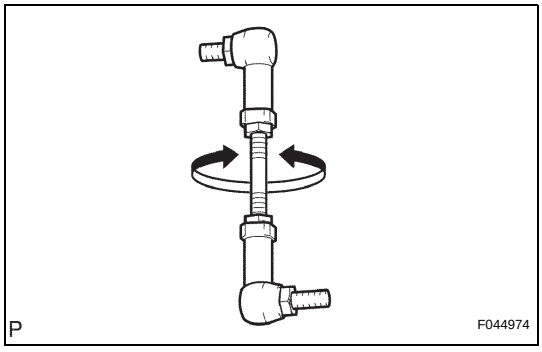
HINT:
Difference between the right and the left sides should be less than 10 mm (0.39 in.).



(g) Adjust the front vehicle height control sensor links.
NOTICE:
- **Adjust the link of which the value for the vehicle height control is most beyond the range of the standard value first.**
- **If the values of the front vehicle height and the rear vehicle height are the same, adjust the front vehicle height control sensor link first.**

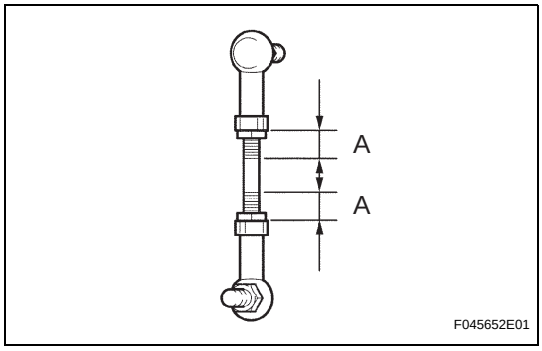
(1) Loosen the nut and adjust the link position by moving it up and down along the bracket's hole on the vehicle.
HINT:
The vehicle height will be changed by approx. 5 mm (0.19 in.) when changing the link by approx. 1 mm (0.04 in.)

(2) Tighten the nut on the vehicle height control sensor link.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)



(h) Adjust the rear vehicle height control sensor links.

(1) Loosen the 2 lock-nuts on the vehicle height control sensor link and turn the link to adjust its length.
HINT:
- Lengthen the link to raise the vehicle height.
- Shorten the link to lower the vehicle height.
- 2WD:
  The vehicle height will be changed be approx. 8 mm (0.31 in.) when turning the rear vehicle height control sensor link around once.
- 4WD:
  The vehicle height will be changed by approx. 3 mm (0.12 in.) when turning the rear vehicle height control sensor link around once.



(2) Check if the vehicle height control sensor link dimension (A) shown in the illustration is shorter than the standard value.
Standard length:
18.0 mm (0.708 in.) or less

(3) Tighten the 2 lock-nuts on the vehicle height control sensor link.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

(i) Check the vehicle height again to confirm the value of the vehicle height is within the range of the standard value.

(j) Adjust the headlight aim only (See page LI-196).

SC

PROBLEM SYMPTOMS TABLE

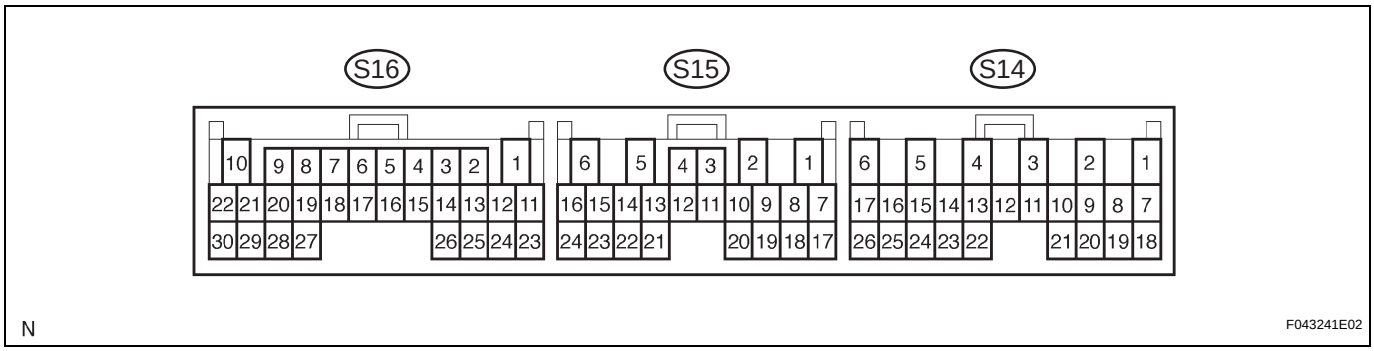
AIR SUSPENSION SYSTEM

Symptom	Suspected area	See page
Vehicle height control function does not operate	1. Freezing of the air tube	-
	2. Power source circuit	SC-79
	3. Crankshaft position sensor circuit	SC-87
	4. Height control OFF switch circuit	SC-96
	5. Height control switch circuit	SC-93
	6. Height control sensor circuit	SC-36
	7. Height control solenoid valve circuit	SC-48
	8. Exhaust solenoid valve circuit	SC-45
	9. AIR SUS relay circuit	SC-54
	10.Height control compressor circuit	SC-59
	11.Suspension control ECU	SC-76
Height control indicator light does not switch to the correct position in accordance to height control switch operation	1. Power source circuit	SC-79
	2. Crankshaft position sensor sirsuit	SC-87
	3. Height control OFF switch circuit	SC-96
	4. Height control switch circuit	SC-93
	5. Height control sensor circuit	SC-36
	6. Height control solenoid valve circuit	SC-48
	7. Exhaust solenoid valve circuit	SC-45
	8. AIR SUS relay circuit	SC-54
	9. Height control compressor circuit	SC-59
	10.Speed sensor circuit	SC-84
	11.Suspension control ECU	SC-76
Hunting of vehicle height occurs	1. Air leakage	-
	2. Height control sensor circuit	SC-36
	3. Suspension control ECU	SC-76
Vehicle height control operates, but vahicle height is uneven	1. Air leakage	-
	2. Clogging of the Air tube	-
	3. Height control sensor link sub-assembly	SC-124
	4. Height control sensor circuit	SC-36
	5. Height control soelnoid valve circuit	SC-48
	6. Suspension control ECU	SC-76
Vehicle height control operates, but vehicle height is high or low. (Vehicle height in NORMAL mode differs from the standard value)	1. Height control sensor link sub-assembly	SC-124
	2. Height control sensor circuit	SC-36
	3. Suspension control ECU	SC-76
When vehicle height control is adjusted, but it stops at extremely high or extremely low position	1. Height control sensor circuit	SC-36
	2. Height control sensor link sub-assembly	SC-124
	3. Suspension control ECU	SC-76
Height control OFF indicator light condition is abnormal	1. Power source circuit	SC-79
	2. Height control OFF switch circuit	SC-96
	3. Height control OFF indicator light circuit	SC-104
	4. Suspension control ECU	SC-76
Height control indicator light condition is abnormal	1. Power source circuit	SC-79
	2. Height control indicator light circuit	SC-102
	3. Suspension control ECU	SC-76
Access mode indicator light condition is abnormal	1. Power source circuit	SC-79
	2. Suspension control ECU	SC-76

Symptom	Suspected area	See page
DTC check cannot be completed	1. Power source circuit	SC-79
	2. TC terminal circuit	SC-106
	3. Height control OFF indicator light circuit	SC-104
	4. Suspension control ECU	SC-76
Test mode cannot be completed	1. Power source circuit	SC-79
	2. TC terminal circuit	SC-106
	3. Suspension control ECU	SC-76
Vehicle height is extremely low when vehicle is parked	1. Air leakage	-
	2. Height control cylinder assembly rear	-
	3. Height control sensor link sub-assembly	SC-124
	4. Height control solenoid valve circuit	SC-48
	5. Exhaust solenoid valve circuit	SC-45
Compressor motor continues to operate	1. Air leakage	-
	2. Air tube clogged	-
	3. Pneumaitc cylinder assembly	-
	4. Height control snesor link sub-assembly	SC-124
	5. Height control solenoid valve circuit	SC-48
	6. Exhaust solenoid valve circuit	SC-45
	7. Tank solenoid valve circuit	SC-67
	8. AIR SUS relay circuit	SC-54
	9. Height control compressor circuit	SC-59
	10.Suspension control ECU	SC-76

TERMINALS OF ECU

1. SUSPENSION CONTROL ECU:



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND2 (S15-5) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
B (S15-6) - GND (S16-1)	Y - W-B	Battery	Always	10 to 14 V
STP (S15-12) - GND (S16-1)	B - W-B	Stop light switch assembly input signal	Brake pedal depressed	10 to 14 V
			Brake pedal released	Below 1.5 V
TACH (S15-13) - GND (S16-1)	W - W-B	Engine speed input signal	Engine idling	Pulse generation
DNSW (S15-15) - GND (S16-1)	SB - W-B	Height down switch input signal	IG switch ON, "DOWN" button of height control switch pushed in	Below 1.5 V
			IG switch ON, "DOWN" button of height control switch free	10 to 14 V
UPSW (15-16) - GND (S16-1)	O - W-B	Height up switch input signal	IG switch ON, "UP" button of height control switch pushed in	Below 1.5 V
			IG switch ON, "DOWN" button of height control switch free	10 to 14 V
SBR1 (S15-18) - GND (S16-1)	G - W-B	Height control sensor power source (FR)	Ignition switch ON	4.75 to 5.25 V
SBL3 (S15-19) - GND (S16-1)	LG - W-B	Height control sensor power source (HID)	Ignition switch ON	4.75 to 5.25 V
SGL3 (S15-20) - GND (S16-1)	V - W-B	Height control sensor ground (HID)	Always	Below 1 Ω
SBL1 (S15-21) - GND (S16-1)	BR - W-B	Height control sensor power source (FL)	Ignition switch ON	4.75 to 5.25 V
SGR1 (S15-22) - GND (S16-1)	P - W-B	Height control sensor ground (FR)	Always	Below 1 Ω
TD (S15-24) - GND (S16-1)	R - W-B	Height control OFF switch input signal	IG switch ON, height control OFF switch pushed in	Below 1.5 V
			IG switch ON, height control OFF switch released	10 to 14 V
GND (S16-1) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
LMSW (S16-3) - GND (S16-1)	L - W-B	Access mode switch input signal	IG switch ON, access mode switch pushed in	Below 1.5 V
			IG switch ON, access mode switch released	10 to 14 V
TS (S16-5) - GND (S16-1)	O - W-B	Test mode input signal	IG switch ON, terminals TS - CG connected	Below 1 V
			IG switch ON, terminals TS - CG not connected	10 to 14 V
TC (S16-6) - GND (S16-1)	BR - W-B	Diagnosis input signal	IG switch ON, terminals TC - CG connected	Below 1 V
			IG switch ON, terminals TC - CG not connected	10 to 14 V

SC

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
FLO (S16-8) - GND (S16-1)	R - W-B	Speed sensor input signal (RL)	Vehicle speed 12 mph (20 km/h) or higher	Pulse generation
FRO (S16-9) - GND (S16-1)	SB - W-B	Speed sensor input signal (RR)	Vehicle speed 12 mph (20 km/h) or higher	Pulse generation
IG (S16-10) - GND (S16-1)	Y - W-B	IG power source	IG switch ON	10 to 14 V
4WD: MOD2 (S16-11) - GND (S16-1)	W-B - W-B	Mode switch 2 input signal	Always	8 V or more
MOD1 (S16-12) - GND (S16-1)	W-B - W-B	Mode switch 1 input signal	Always	8 V or more
OFID (S16-15) - GND (S16-1)	G - W-B	Height control OFF indicator light output signal	IG switch ON, height control OFF indicator light ON	8 V or more
			IG switch ON, height control OFF indicator light OFF	Below 1.5 V
HI (S16-16) - GND (S16-1)	V - W-B	Height control indicator light output signal (HI)	IG switch ON, height control "HI" indicator light ON	8 V or more
			IG switch ON, height control "N" or "LO" indicator light ON	Below 1.5 V
NR (S16-17) - GND (S16-1)	LG - W-B	Height control indicator light output signal (N)	IG switch ON, height control "N" indicator light ON	8 V or more
			IG switch ON, height control "LO" or "HI" indicator light ON	Below 1.5 V
LO (S16-18) - GND (S16-1)	P - W-B	Height control indicator light output signal (LO)	IG switch ON, height control "LO" indicator light ON	8 V or more
			IG switch ON, height control "HI" or "N" indicator light ON	Below 1.5 V
LMID (S16-19) - GND (S16-1)	O - W-B	Access mode indicator light output signal	IG switch ON, access mode indicator light comes on	8 V or more
			IG switch ON, access mode indicator light goes off	Below 1.5 V
SIL (S16-20) - GND (S16-1)	GR - W-B	Diagnosis tester communication line	IG switch ON	8 V or more
SHR2 (S16-24) - GND (S16-1)	B - W-B	Height control sensor (HID rear)	IG switch ON	0.5 to 4.5 V
SGL1 (S16-25) - GND (S16-1)	W - W-B	Height control sensor ground (FR)	Always	Below 1 Ω
SHF2 (S16-26) - GND (S16-1)	Y - W-B	Height control sensor (HID front)	IG switch ON	0.5 to 4.5 V
SHFR (S16-27) - GND (S16-1)	L - W-B	Height control sensor (FR)	IG switch ON	0.5 to 4.5 V
			Engine idling, vehicle height is changed from "HIGH" to "NORMAL" be pressing the height control switch	Approx. 2.5 V
SHFL (S16-28) - GND (S16-1)	B - W-B	Height control sensor (FL)	IG switch ON	0.5 to 4.5 V
			Engine idling, vehicle height is changed from "HIGH" to "NORMAL" be pressing the height control switch	Approx. 2.5 V
SLRL (S14-1) - GND (S16-1)	B - W-B	Height control solenoid valve (RL)	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "N" to "UP" or "DOWN"	8 V or more
SLRR (S14-2) - GND (S16-1)	G - W-B	Height control solenoid valve (RR)	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "N" to "UP" or "DOWN"	8 V or more

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
SLLO (S14-7) - GND (S16-1)	W - W-B	Tank solenoid valve	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "UP" to "DOWN"	8 V or more
SLEX (S14-8) - GND (S16-1)	Y - W-B	Exhaust solenoid valve	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "UP" to "DOWN"	8 V or more
SLFR (S14-9) - GND (S16-1)	P - W-B	Height control solenoid valve (FR)	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "N" to "UP" or "DOWN"	8 V or more
SLFL (S14-10) - GND (S16-1)	O - W-B	Height control solenoid valve (FL)	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "N" to "UP" or "DOWN"	8 V or more
RC (S14-18) - GND (S16-1)	SB - W-B	AIR SUS relay	IG switch ON	Below 1 V
			Engine idling, button of height control switch is pushed from "N" to "UP" or "DOWN"	8 V or more
SGR2 (S14-19) - GND (S16-1)	R - W-B	Height control sensor ground (RR)	Always	Below 1 V
SBR2 (S14-20) - GND (S16-1)	BR - W-B	Height control sensor power source (RR)	IG switch ON	4.75 to 5.25 V
SGL2 (S14-21) - GND (S16-1)	GR - W-B	Height control sensor ground (RL)	Always	Below 1 Ω
SBL2 (S14-22) - GND (S16-1)	V - W-B	Height control sensor power source (RL)	IG switch ON	4.75 to 5.25 V
SHRL (S14-23) - GND (S16-1)	R - W-B	Height control sensor (RL)	IG switch ON	0.5 to 4.5 V
			Engine idling, vehicle height is changed from "HIGH" to "NORMAL" be pushing the height control switch	Approx. 2.5 V
SHRR (S14-24) - GND (S16-1)	LG - W-B	Height control sensor (RR)	IG switch ON	0.5 to 4.5 V
			Engine idling, vehicle height is changed from "HIGH" to "NORMAL" be pushing the height control switch	Approx. 2.5 V
RM+ (S14-25) - GND (S16-1)	B - W-B	Motor lock (+)	Engine idling, vehicle height is changed from "NORMAL" to "HIGH" by pushing the height control switch (While height control compressor assembly is working).	Below 1 V
RM- (S14-26) - GND (S16-1)	W - W-B	Motor lock (-)	Always	Below 1 Ω

DIAGNOSIS SYSTEM

1. INSPECT THE BATTERY VOLTAGE

Battery voltage:

11 to 14 V

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

2. CHECK DLC3

The vehicle's suspension control ECU uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

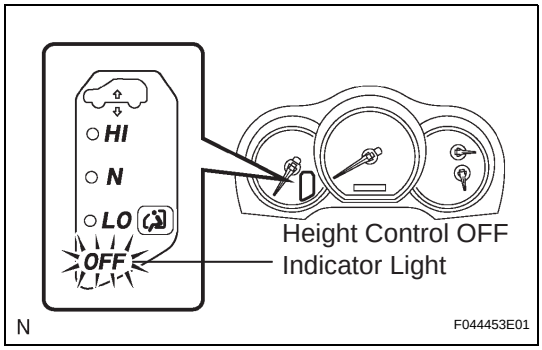
Verify the conditions listed in the table below:

Terminal No.	Disc.	Connection / Voltage or Resistance	Condition
7	SIL	Bus + Line / Pulse generation	During transmission
4	CG	Chassis Ground to Body Ground / 1 Ω or less	Always
16	BAT	Battery Positive to Body Ground / 10 to 14 V	Always

HINT:

If the intelligent tester display shows UNABLE TO CONNECT TO VEHICLE when the cable of the intelligent tester is connected to DLC3, the ignition switch is turned to the ON position and the tester is operated, there is a problem on the vehicle side or tester side.

- If communication is normal when the tester is connected to another vehicle, inspect DLC3 on the original vehicle.
- If communication is still not possible when the tool is connected to another vehicle, the problem is probably in the tester itself, so consult the Service Department listed in the tester's instruction manual.



3. INDICATOR LIGHT

(a) During the vehicle height control operation, the height control OFF indicator light blinks when there is any malfunction in the Air Suspension System.

NOTICE:

- **When the malfunction has been corrected, the height control OFF indicator light does not come on.**
- **The height control OFF indicator light does not illuminate when all problems occur (See page SC-23) for the items that make the height control OFF indicator light comes on.**

4. DTCs (NORMAL MODE)

(a) DTCs are memorized in the suspension control ECU and read by the blinks of the height control OFF indicator light or using the intelligent tester (See page SC-28) for the procedure of DTCs check.

SC

5. TEST MODE

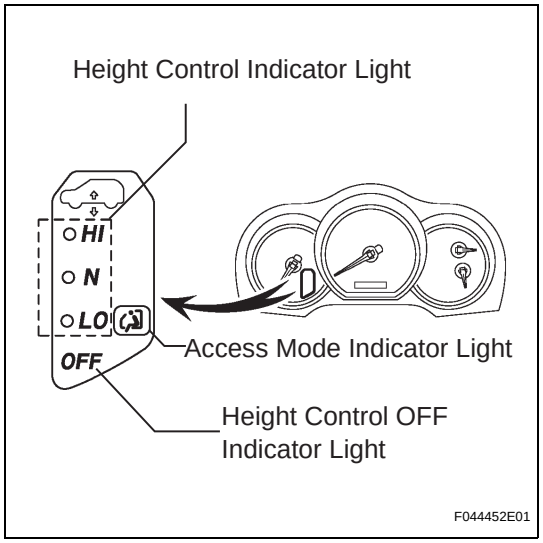
(a) By switching from normal mode into test mode (input signal check), you can inspect the stop light switch assembly, rear speed sensor, height control switch, height control OFF switch, engine speed signal, access mode switch.

6. CHECK INDICATOR LIGHT

(a) Turn the ignition switch to the ON position.

(b) Check that the height control OFF indicator light, height control indicator light and the access mode indicator light come on for 2 sec.
If the indicator check result is not normal, proceed to the troubleshooting for the indicator light circuit.

Trouble Area	See procedure
Height control indicator light circuit	SC-102
Height control OFF indicator light circuit	SC-104



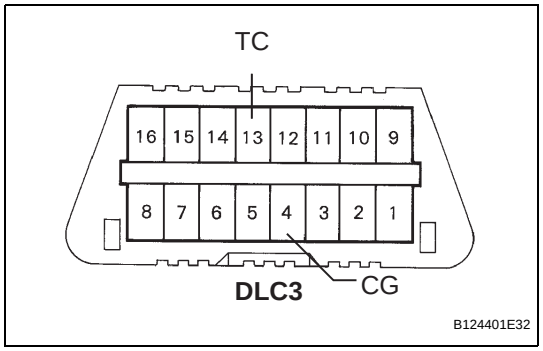
DTC CHECK / CLEAR

1. DTC CHECK (USING SST CHECK WIRE)

(a) Check DTCs.

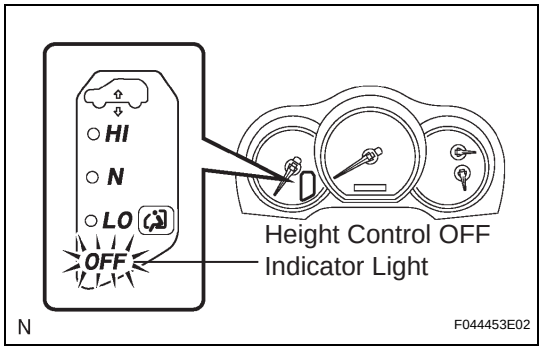
(1) Using the SST(s), connect terminals TC and CG of DLC3.
SST 09843-18040

(2) Turn the ignition switch to the ON position.



(3) Read and record nay DTCs from the height control OFF indicator light on the combination meter. Refer to the illustration on the left for examples of a normal code and codes 13 and 33.
HINT:

- If the height control OFF indicator light does not blink any DTC codes or the normal code, inspect the height control OFF indicator light circuit or TC terminal circuit.



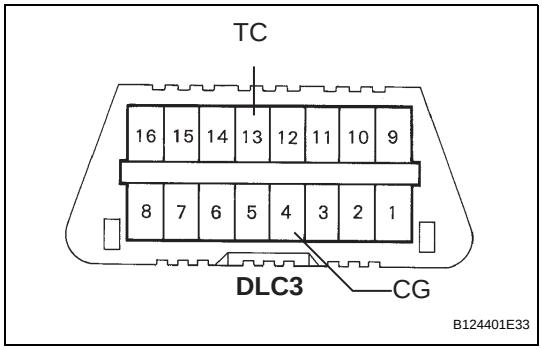
Trouble Area	See procedure
Height control OFF indicator light circuit	SC-104
TC terminal circuit	SC-106

- If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.

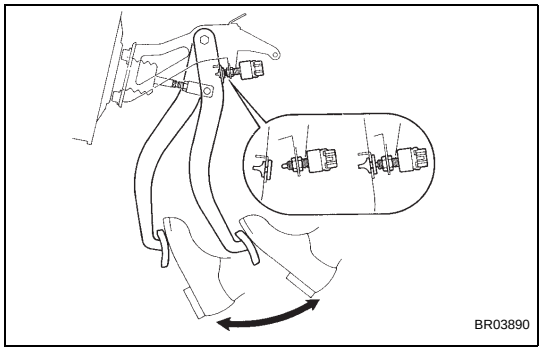
(4) Refer to the Diagnostic Trouble Code Chart (See page SC-32) for DTC information.

SC

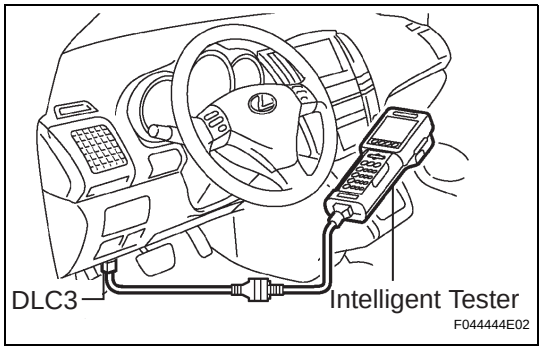
(5) After completing the check, remove the SST(s) from DLC3.
SST 09843-18040



(b) Clear the DTCs.
(1) Make sure the ignition switch is OFF.
(2) Using the SST(s), connect terminals TC and CG of DLC3.
SST 09843-18040
(3) Turn the ignition switch to the ON position.



(4) Clear the DTCs stored in the ECU by depressing the brake pedal 8 times or more within 5 sec.
(5) Check that the height control OFF indicator light blinks a normal code.
HINT:
If the fault has not been repaired, the DTC code may still be displayed.
(6) Turn the ignition switch to the OFF position.
(7) Remove SST(s) from DLC3.
SST 09843-18040
HINT:
Disconnecting the battery cable during the operation will not erase DTCs in the ECU.



2. DTC CHECK (USING INTELLIGENT TESTER)
(a) Check DTCs.
(1) Connect the intelligent tester to DLC3.
(2) Turn the ignition switch to the ON position.
(3) Read the DTCs by following the prompts on the tester screen.
HINT:
Refer to the intelligent tester operator's manual for further details.
(b) Clear the DTCs using the intelligent tester.
HINT:
After repairing the malfunctions, clear the DTC.
(1) Connect the intelligent tester to DLC3.
(2) Turn the ignition switch to the ON position.
(3) Erase the DTCs following the prompts on the tester screen.
HINT:
Refer to the intelligent tester operator's manual for further details.

DATA LIST / ACTIVE TEST

1. DATA LIST

(a) Connect the intelligent tester to DLC3.
(b) Turn the ignition switch to the ON position.
(c) Following the display on the intelligent tester, read the "DATA LIST".

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed reading / min.: 0 km/ (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter
IG VOLTAGE	ECU power supply voltage / min.: 0 V, max.: 255 km/h (158 mph)	Actual ECU power supply voltage: 10 to 14 V	-
POWER VOLTAGE	+B power source voltage / min.: 0 V, max.: 25.5 V	Actual ECU power supply voltage: 10 to 14 V	-
ENGINE SPD	Cam position sensor reading / min.: 0 rpm, max.: 25,500 rpm	Actual engine speed	Speed indicated on the combination meter
HEIGHT SW DOWN	Height control switch (DOWN) / ON or OFF	ON: Height control switch while pressing "DOWN" button OFF: -	-
HEIGHT SW UP	Height control switch (UP) / ON or OFF	ON: Height control switch while pressing "UP" button OFF: -	-
HEIGHT SW HOLD	Height control OFF switch / ON or OFF	ON: Height control OFF switch pressing OFF: -	-
STOP LIGHT SW	Stop light switch / ON or OFF	ON: Brake pedal depressed OFF: Brake pedal released	-
ACCESS MODE SW	Access mode switch / ON or OFF	ON: Access mode switch pressing OFF: -	-
FR HEIGHT	Right front height control sensor reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -80 mm (-3.15 in.) Max.:80 mm (3.15 in.)	-
FL HEIGHT	Left front height control sensor reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -80 mm (-3.15 in.) Max.:80 mm (3.15 in.)	-
RR HEIGHT	Right rear height control sensor reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -80 mm (-3.15 in.) Max.:80 mm (3.15 in.)	-
RL HEIGHT	Left rear height control sensor reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -80 mm (-3.15 in.) Max.:80 mm (3.15 in.)	-
FR ADJUST	Right front height control adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Actual height control adjust valve	-
FL ADJUST	Left front height control adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Actual height control adjust valve	-
RR ADJUST	Right rear height control adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Actual height control adjust valve	-

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
RL ADJUST	Left rear height control adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Actual height control adjust valve	-
FR AFTER ADJUST	Right front height control after adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -10 mm (-0.39 in.) Max.:10 mm (0.39 in.)	-
FL AFTER ADJUST	Left front height control after adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -10 mm (-0.39 in.) Max.:10 mm (0.39 in.)	-
RR AFTER ADJUST	Right rear height control after adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -10 mm (-0.39 in.) Max.:10 mm (0.39 in.)	-
RL AFTER ADJUST	Left rear height control after adjust reading / min.: -3276.7 mm (-129.004 in.), max.: 3276.8 (129.007 in.)	Min.: -10 mm (-0.39 in.) Max.:10 mm (0.39 in.)	-
RL SOL	Left rear solenoid valve / ON or OFF	ON or OFF	-
RR SOL	Right rear solenoid valve / ON or OFF	ON or OFF	-
FL SOL	Left front solenoid valve / ON or OFF	ON or OFF	-
FR SOL	Right front solenoid valve / ON or OFF	ON or OFF	-
EXHAUST SOL	Exhaust solenoid valve / ON or OFF	ON or OFF	-
MOD2	Mode 2 / ON or OFF	2WD: ON or OFF 4WD: ON	-
MOTOR RELAY	AIR SUS relay / ON or OFF	ON: Compressor operated OFF: Compressor not operated	-
MAIN RELAY	Main relay expectation / ON or OFF	ON	-
RR WHEEL SPD	Right rear wheel speed reading / min.: 0 km/h (o mph), max.: 255 km/h (158 mph)	Actual right rear wheel speed	Speed indicated on the combination meter
RL WHEEL SPD	Left rear wheel speed reading / min.: 0 km/h (o mph), max.: 255 km/h (158 mph)	Actual left wheel speed	Speed indicated on the combination meter
LOW PRS TNK SOL	Tank solenoid valve / ON or OFF	ON or OFF	-
#CODES	Number of DTC recorded / min.: 0, max.: 255	Min.: 0, Max.: -	-

2. ACTIVE TEST

(a) Connect the intelligent tester to DLC3.
(b) Turn the ignition switch to the ON position.
(c) Following the display on intelligent tester, perform the "ACTIVE TEST".

SC

Item	Vehicle Condition / Test Details	Diagnostic Note
FR UP & DOWN	Right front / UP or DOWN	-
FL UP & DOWN	Left front / UP or DOWN	-
RR UP & DOWN	Right rear / UP or DOWN	-
RL UP & DOWN	Left rear / UP or DOWN	-
FR SOL	Turn OFF right front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

Item	Vehicle Condition / Test Details	Diagnostic Note
FL SOL	Turn OFF left front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RR SOL	Turn OFF right rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RL SOL	Turn OFF left rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
MOTOR RELAY	AIR SUS relay / ON or OFF	Operation of solenoid (clicking sound) can be heard
LOW PRS TNK SOL	Turn tank solenoid valve / ON or OFF	Operation of solenoid (clicking sound) can be heard

DIAGNOSTIC TROUBLE CODE CHART

HINT:

- If no abnormality is found when the parts are inspected, inspect the suspension control ECU.
- If a malfunction code is displayed during the DTC check, check the circuit listed for that code. For details of each code, refer to the "See page" under respective "DTC No." in the DTC chart.

DTC chart of Air Suspension System:

DTC No.	Detection Item	Trouble Area	OFF Indicator Light	See page
C1711/11	Front Height Control Sensor RH Circuit Malfunction	1. Height control sensor sub-assembly front RH 2. Right front height control sensor circuit 3. Suspension control ECU	Comes on	SC-36
C1712/12	Front Height Control Sensor LH Circuit Malfunction	1. Height control sensor sub-assembly front LH 2. Left front height control sensor circuit 3. Suspension control ECU	Comes on	SC-36
C1713/13	Right Rear Height Control Sensor Circuit	1. Height control sensor sub-assembly rear RH 2. Right rear height control sensor circuit 3. Suspension control ECU	Comes on	SC-36
C1714/14	Left Rear Height Control Sensor Circuit	1. Height control sensor sub-assembly rear LH 2. Left rear height control sensor circuit 3. Suspension control ECU	Comes on	SC-36
C1735/35	Exhaust Solenoid Valve Circuit	1. Exhaust solenoid valve 2. Exhaust solenoid valve circuit 3. Suspension control ECU	Comes on	SC-45
C1737/31	Right Front Height Control Solenoid Valve Circuit	1. Height control solenoid valve front RH 2. Right front height control solenoid valve circuit 3. Suspension control ECU	Comes on	SC-48
C1738/32	Left Front Height Control Solenoid Valve Circuit	1. Height control solenoid valve front LH 2. Left front height control solenoid valve circuit 3. Suspension control ECU	Comes on	SC-48
C1739/33	Right Rear Height Control Solenoid Valve Circuit	1. Height control solenoid valve rear RH 2. Right rear height control solenoid valve circuit 3. Suspension control ECU	Comes on	SC-48

DTC No.	Detection Item	Trouble Area	OFF Indicator Light	See page
C1740/34	Left Rear Height Control Solenoid Valve Circuit	1. Height control solenoid valve rear LH 2. Left rear height control solenoid valve circuit 3. Suspension control ECU	Comes on	SC-48
C1741/41	Air Suspension Relay Circuit	1. AIR SUS relay 2. AIR SUS relay circuit 3. Suspension control ECU	Comes on	SC-54
C1742/42	Height Control Compressor Circuit	1. Height control compressor motor 2. Height control compressor circuit	Comes on	SC-59
C1744/44	Tank Solenoid Valve Circuit	1. Tank solenoid valve 2. Tank solenoid valve circuit 3. Suspension control ECU	Goes off	SC-67
C1751/51 (*1)	Continuous Electric Current to Height Control Compressor	1. Height control compressor motor 2. Height control compressor circuit 3. Each height control sensor link sub-assembly 4. Each height control sensor sub-assembly 5. Relief valve 6. AIR SUS relay comes off 7. Air leakage from the air tube or each valve 8. Clogging in the air tube or each valve 9. Suspension control ECU	Goes off	SC-71
C1761/61	ECU Malfunction	1. Height control sensor sub-assembly power source 2. Suspension control ECU	Comes on	SC-76
C1774/74 (*2)	Power Source Circuit	1. Battery 2. Power source circuit 3. Suspension control ECU	Goes off	SC-79
C1776/76	Speed Sensor Circuit	1. Speed sensor 2. Speed sensor circuit 3. Brake actuator assembly (Skid control ECU) 4. Suspension control ECU	Goes off	SC-84
C1779/79	Crankshaft Position Sensor Circuit	1. Crankshaft position sensor 2. Crankshaft position sensor circuit 3. ECM 4. Suspension control ECU	Goes off	SC-87
C1782/82	Stop Light Switch Circuit	1. Stop light switch assembly 2. Stop light switch circuit 3. Suspension control ECU	-	SC-90

DTC No.	Detection Item	Trouble Area	OFF Indicator Light	See page
C1784/84	Right Rear Speed Sensor Circuit	1. Speed sensor 2. Speed sensor circuit 3. Brake actuator assembly (Skid control ECU)	-	SC-84
C1785/85	Left Rear Speed Sensor Circuit	1. Speed sensor 2. Speed sensor circuit 3. Brake actuator assembly (Skid control ECU)	-	SC-84
C1786/86	Height Control Switch Circuit	1. Height control switch 2. Height control switch circuit 3. Suspension control ECU	-	SC-93
C1788/88	Height Control OFF Switch Circuit	1. Height control OFF switch 2. Height control OFF switch circuit 3. Suspension control ECU	-	SC-96
C1797/97	Crankshaft Position Sensor Circuit	1. Crankshaft position sensor 2. Crankshaft position sensor circuit 3. ECM 4. Suspension control ECU	-	SC-87
C1799/99	Access Mode Switch Circuit	1. Access mode switch 2. Access mode switch circuit 3. Suspension control ECU	-	SC-99

(*1): Code C1751/51 may be output, even through there is no trouble in the system, when the vehicle is fully loaded with passengers and luggage on a bumpy road or stopped, and the air tube freezes over.
(*2): The codes are not memorized after turning the ignition switch off.

DTC	C1711/11	Front Height Control Sensor RH Circuit Malfunction

DTC	C1712/12	Front Height Control Sensor LH Circuit Malfunction

DTC	C1713/13	Right Rear Height Control Sensor Circuit

DTC	C1714/14	Left Rear Height Control Sensor Circuit

DESCRIPTION

The height control sensor sub-assembly controls the resistance value by following changes in vehicle height. The suspension control ECU detects the change in vehicle height from the transformed voltage. The suspension control ECU outputs a constant voltage of 5 V to the SHB terminal of the height control sensor sub-assembly.

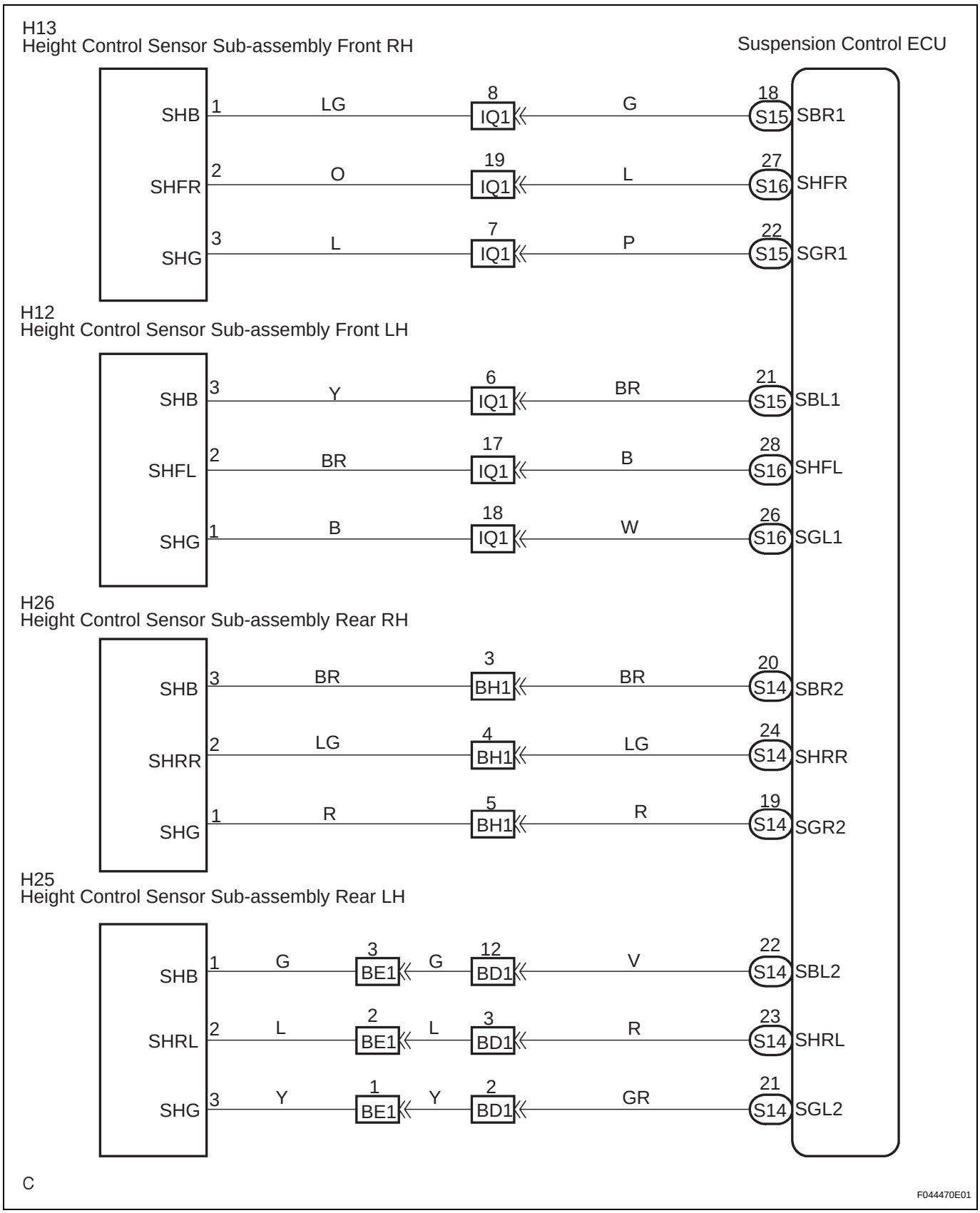
In the height control sensor the voltage is changed due to the resistance. The changed voltage is output from the SHFR terminal of the height control sensor sub-assembly to suspension control ECU, thus the vehicle height is detected.

HINT:

- If DTC C1711/11, C1712/12, C1713/13 or C1714/14 is output, the vehicle height control is suspended. Height control OFF switch on the combination meter assembly comes on and the vehicle height indicator "N" comes on or blink.
- If the normal signal is output from the height control sensor sub-assembly while suspending the vehicle height control, the vehicle height control is resumed. The operation is also resumed when the ignition switch is turned off once, then turned on again.

DTC No.	DTC Detecting Condition	Trouble Area
C1711/11	With the ignition switch ON, a voltage of 4.7 V or more or 0 3 V or less at each height control sensor sub assembly is 0.3 sub-assembly is detected for 1 sec.	1. Height control sensor sub-assembly front RH 2. Right front height control sensor circuit 3. Suspension control ECU
C1712/12		1. Height control sensor sub-assembly front LH 2. Left front height control sensor circuit 3. Suspension control ECU
C1713/13		1. Height control sensor sub-assembly rear RH 2. Right rear height control sensor circuit 3. Suspension control ECU
C1714/14		1. Height control sensor sub-assembly rear LH 2. Left rear height control sensor circuit 3. Suspension control ECU

WIRING DIAGRAM



HINT:
Proceed to troubleshooting following the flow chart, regardless of whether or not DTCs C1711/11, C1712/12, C1713/13 or C1714/14 are displayed.

SC

1	RECONFIRM DTC

(a) Check DTCs (See page SC-28).
(1) Confirm if DTC C1761/61 and/or C1774/74 is recorded.
OK:
DTC C1761/61 and/or C1774/74 is not output.
HINT:
If either DTCC1761/61 (ECU malfunction) or C1774/74 (power source circuit) is displayed, carry out the necessary inspection. If they are output at the same time, carry out the necessary inspection for DTC C1774/74 first.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2	READ VALUE OF INTELLIGENT TESTER

HINT:
When not using the intelligent tester, go to step 3.
(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch ON.
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal condition
FR HEIGHT	Min.: -80 mm (-3.15 in.) Max.: 80 mm (3.15 in.)
FL HEIGHT	Min.: -80 mm (-3.15 in.) Max.: 80 mm (3.15 in.)
RR HEIGHT	Min.: -80 mm (-3.15 in.) Max.: 80 mm (3.15 in.)
RL HEIGHT	Min.: -80 mm (-3.15 in.) Max.: 80 mm (3.15 in.)

(d) Check the vehicle height value of each sensor while pressing the height control switch "UP" and "DOWN".
OK:
Vehicle height value changes

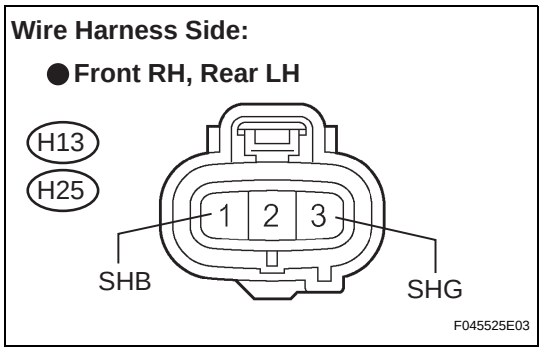
NG → **Go to step 3**

OK

REPLACE SUSPENSION CONTROL ECU

SC

3	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR SUB-ASSEMBLY POWER SOURCE)



(a) Disconnect the height control sensor sub-assembly connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage according to the values in the table below.

Voltage (Front RH): (C1711/11)

Tester Connection	Specified Condition
H13-1 (SHB) - H13-3 (SHG)	4.75 to 5.25 V

Voltage: (Front LH): (C1712/12)

Tester Connection	Specified Condition
H12-1 (SHG) - H12-3 (SHB)	4.75 to 5.25 V

Voltage: (Rear RH): (C1713/13)

Tester Connection	Specified Condition
H26-1 (SHG) - H26-3 (SHB)	4.75 to 5.25 V

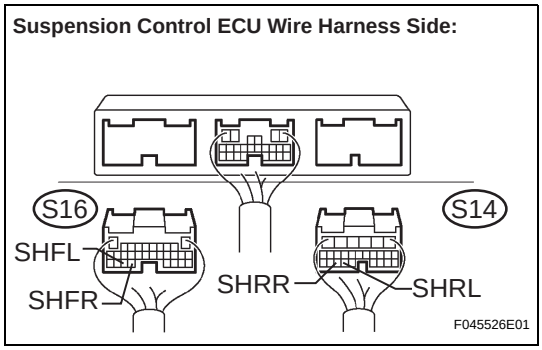
Voltage: (Rear LH): (C1714/14)

Tester Connection	Specified Condition
H25-1 (SHB) - H25-3 (SHG)	4.75 to 5.25 V

NG → **Go to step 6**

OK

4	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL SENSOR SUB-ASSEMBLY)



(a) Disconnect the suspension control ECU S16 or S14 connector.
(b) Measure the resistance according to the values in the table below.

Resistance (Front RH): (C1711/11)

Tester Connection	Specified Condition
S16-27 (SHFR) - H13-2 (SHFR)	Below 1 Ω
S16-27 (SHFR) - Body ground	10 kΩ or higher

Resistance: (Front LH): (C1712/12)

Tester Connection	Specified Condition
S16-28 (SHFL) - H12-2 (SHFL)	Below 1 Ω
S16-28 (SHFL) - Body ground	10 kΩ or higher

Resistance: (Rear RH): (C1713/13)

Tester Connection	Specified Condition
S14-24 (SHRR) - H26-2 (SHRR)	Below 1 Ω
S14-24 (SHRR) - Body ground	10 kΩ or higher

SC

Resistance: (Rear LH): (C1714/14)

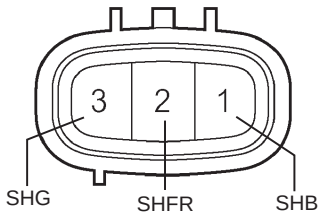
Tester Connection	Specified Condition
S14-23 (SHRL) - H25-2 (SHRL)	Below 1 Ω
S14-23 (SHRL) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5 INSPECT HEIGHT CONTROL SENSOR SUB-ASSEMBLY

Height Control Sensor Sub-assembly Front RH:



(a) HEIGHT CONTROL SENSOR FRONT RH: (C1711/11)

(1) Measure the resistance according to the values in the table below.

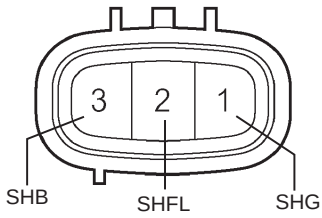
Resistance

Tester Connection	Specified Condition
1 (SHB) - 3 (SHG)	4.3 +- 1.3 kΩ
1 (SHB) - 2 (SHFR)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	B

Height Control Sensor Sub-assembly Front LH:



(b) HEIGHT CONTROL SENSOR FRONT LH: (C1712/12)

(1) Measure the resistance according to the values in the table below.

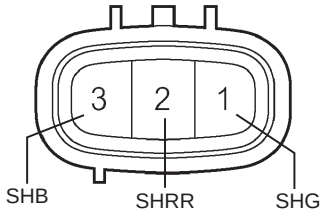
Resistance

Tester Connection	Specified Condition
1 (SHG) - 3 (SHB)	4.3 +- 1.3 kΩ
2 (SHFL) - 3 (SHB)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	C

Height Control Sensor Sub-assembly Rear RH:



(c) HEIGHT CONTROL SENSOR REAR RH: (C1713/13)

(1) Measure the resistance according to the values in the table below.

Resistance

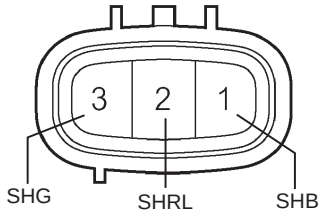
Tester Connection	Specified Condition
1 (SHG) - 3 (SHB)	4.3 +- 1.3 kΩ
2 (SHRR) - 3 (SHB)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	D

SC

Height Control Sensor Sub-assembly Rear LH:



(d) HEIGHT CONTROL SENSOR REAR LH: (C1714/14)

(1) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
1 (SHB) - 3 (SHG)	4.3 +- 1.3 kΩ
1 (SHB) - 2 (SHRL)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	E

B → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT RH**

C → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT LH**

D → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR RH**

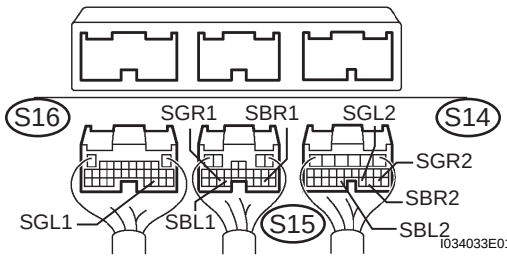
E → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH**

A

REPLACE SUSPENSION CONTROL ECU

6 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU- HEIGHT CONTROL SENSOR SUB-ASSEMBLY)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU connectors.

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

Resistance (Front RH): (C1711/11)

Tester Connection	Specified Condition
S15-18 (SBR1) - H13-1 (SHB)	Below 1 Ω
S15-22 (SGR1) - H13-3 (SHG)	Below 1 Ω
S15-18 (SBR1) - Body ground	10 kΩ or higher
S15-22 (SGR1) - Body ground	10 kΩ or higher

Resistance: (Front LH): (C1712/12)

Tester Connection	Specified Condition
S15-21 (SBL1) - H12-3 (SHB)	Below 1 Ω
S16-25 (SGL1) - H12-1 (SHG)	Below 1 Ω
S15-21 (SBL1) - Body ground	10 kΩ or higher
S16-25 (SGL1) - Body ground	10 kΩ or higher

SC

Resistance: (Rear RH): (C1713/13)

Tester Connection	Specified Condition
S14-19 (SGR2) - H26-1 (SHG)	Below 1 Ω
S14-20 (SBR2) - H26-3 (SHB)	Below 1 Ω
S14-19 (SGR2) - Body ground	10 kΩ or higher
S14-20 (SBR2) - Body ground	10 kΩ or higher

Resistance: (Rear LH): (C1714/14)

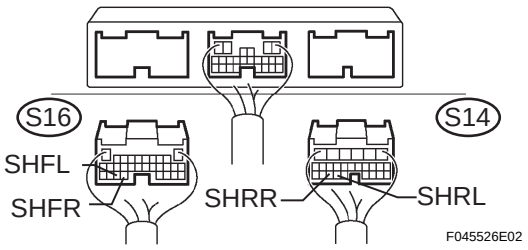
Tester Connection	Specified Condition
S14-21 (SGL2) - H25-3 (SHG)	Below 1 Ω
S14-22 (SBL2) - H25-1 (SHB)	Below 1 Ω
S14-21 (SGL2) - Body ground	10 kΩ or higher
S14-22 (SBL2) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

7 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL SENSOR SUB-ASSEMBLY)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 or S14 connector.

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

Resistance (Front RH): (C1711/11)

Tester Connection	Specified Condition
S16-27 (SHFR) - H13-2 (SHFR)	Below 1 Ω
S16-27 (SHFR) - Body ground	10 kΩ or higher

Resistance: (Front LH): (C1712/12)

Tester Connection	Specified Condition
S16-28 (SHFL) - H12-2 (SHFL)	Below 1 Ω
S16-28 (SHFL) - Body ground	10 kΩ or higher

Resistance: (Rear RH): (C1713/13)

Tester Connection	Specified Condition
S14-24 (SHRR) - H26-2 (SHRR)	Below 1 Ω
S14-24 (SHRR) - Body ground	10 kΩ or higher

Resistance: (Rear LH): (C1714/14)

Tester Connection	Specified Condition
S14-23 (SHRL) - H25-2 (SHRL)	Below 1 Ω
S14-23 (SHRL) - Body ground	10 kΩ or higher

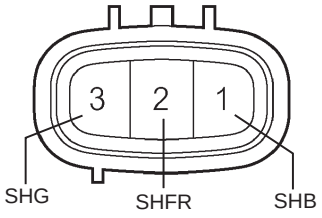
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

SC

8 CHECK HEIGHT CONTROL SENSOR SUB-ASSEMBLY

Height Control Sensor Sub-assembly Front RH:



(a) HEIGHT CONTROL SENSOR FRONT RH: (C1711/11)

(1) Measure the resistance according to the values in the table below.

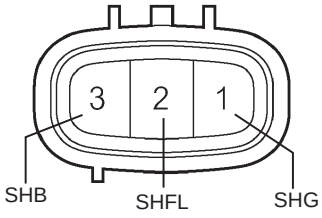
Resistance

Tester Connection	Specified Condition
1 (SHB) - 3 (SHG)	4.3 +- 1.3 kΩ
1 (SHB) - 2 (SHFR)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	B

Height Control Sensor Sub-assembly Front LH:



(b) HEIGHT CONTROL SENSOR FRONT LH: (C1712/12)

(1) Measure the resistance according to the values in the table below.

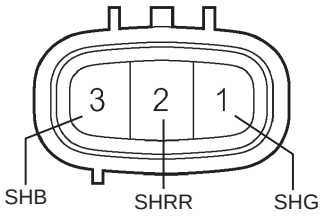
Resistance

Tester Connection	Specified Condition
1 (SHG) - 3 (SHB)	4.3 +- 1.3 kΩ
2 (SHFL) - 3 (SHB)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	C

Height Control Sensor Sub-assembly Rear RH:



(c) HEIGHT CONTROL SENSOR REAR RH: (C1713/13)

(1) Measure the resistance according to the values in the table below.

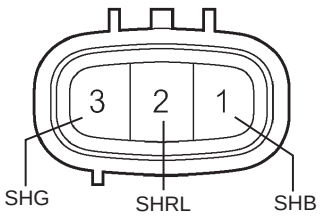
Resistance

Tester Connection	Specified Condition
1 (SHG) - 3 (SHB)	4.3 +- 1.3 kΩ
2 (SHRR) - 3 (SHB)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A
NG	D

Height Control Sensor Sub-assembly Rear LH:



(d) HEIGHT CONTROL SENSOR REAR LH: (C1714/14)

(1) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
1 (SHB) - 3 (SHG)	4.3 +- 1.3 kΩ
1 (SHB) - 2 (SHRL)	Repeat about 0.4 to 3.9 kΩ

Result

Result	Proceed to
OK	A

SC

Result	Proceed to
NG	E

B → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT RH**

C → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT LH**

D → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR RH**

E → **REPLACE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH**

A

REPLACE SUSPENSION CONTROL ECU

DTC	C1735/35	Exhaust Solenoid Valve Circuit

DESCRIPTION

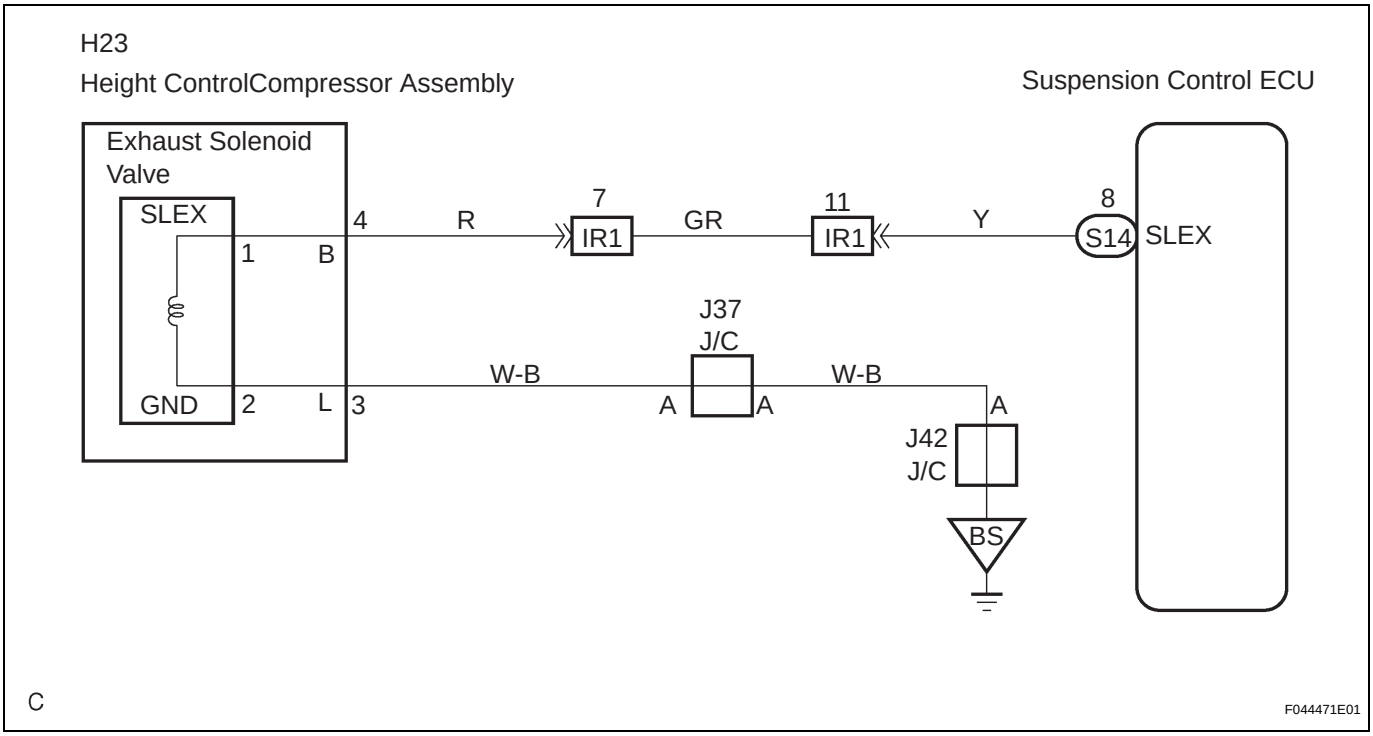
The exhaust solenoid is installed in the height control compressor assembly. It discharges high pressure air from the system by opening the solenoid valve according to the signal from the suspension control ECU. The exhaust solenoid continues its operation for max. 60 seconds after the ignition switch is turned off. This takes place in order to discharge the high pressure air which is produced when the vehicle's height is descended by the auto leveling function and access mode or exhausting high pressure air in the pneumatic tank assembly.

HINT:

Since high pressure air, which is discharged from the exhaust solenoid is reused for removing moisture by a dryer, discharge speed of the high pressure air is limited. In order to increase the speed of descent of the vehicle's height, some amount of high pressure air is discharged to the pneumatic tank assembly. Then, the stored air in the pneumatic tank assembly is discharged from the exhaust solenoid while the vehicle height control is not in operation.

DTC No.	DTC Detecting Condition	Trouble Area
C1735/35	1. With the exhaust solenoid valve inactivated, an open signal of the exhaust solenoid valve is detected for 1 sec. or more. 2. With the exhaust solenoid valve activated, a short signal of the valve is detected 8 times successively.	• Exhaust solenoid valve • Exhaust solenoid valve circuit • Suspension control ECU

WIRING DIAGRAM



SC

1	RECONFIRM DTC

(a) Check DTCs (See page SC-28).
(1) Confirm if the DTC C1761/61 and/or C1774/74 is recorded.

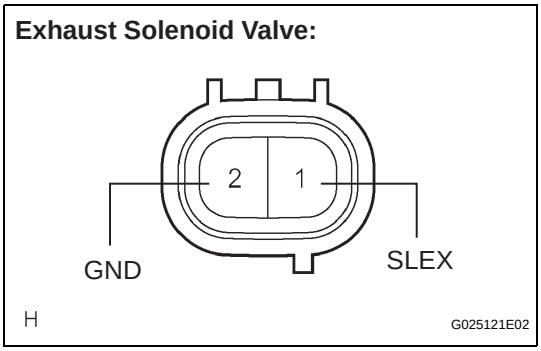
OK:
DTC C1761/61 and/or C1774/74 is not output.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2 INSPECT EXHAUST SOLENOID VALVE

Exhaust Solenoid Valve:



(a) Disconnect the exhaust solenoid valve connector.
(b) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
1 (SLEX) - 2 (GND)	12 +- 2 Ω

(c) Check the operating sound of the exhaust solenoid valve when the battery positive voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLEX)	2 (GND)

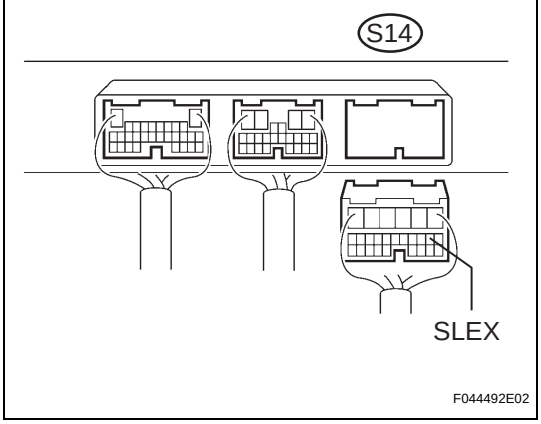
OK:
It should make an operating sound (click).
HINT:
When a malfunction is found in the exhaust solenoid valve, replace the height control compressor assembly.

NG → **REPLACE HEIGHT CONTROL COMPRESSOR ASSEMBLY**

OK

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - EXHAUST SOLENOID VALVE)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S14 connector.
(b) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
S14-8 (SLEX) - 1 (SLEX)	Below 1 Ω
S14-8 (SLEX) - Body ground	10 kΩ or higher

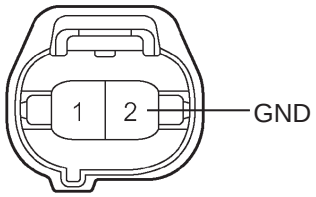
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

SC

OK

4	CHECK HARNESS AND CONNECTOR (EXHAUST SOLENOID VALVE - BODY GROUND)

Exhaust Solenoid Valve Wire Harness Side:



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(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
(GND) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

DTC	C1737/31	Right Front Height Control Solenoid Valve Circuit

DTC	C1738/32	Left Front Height Control Solenoid Valve Circuit

DTC	C1739/33	Right Rear Height Control Solenoid Valve Circuit

DTC	C1740/34	Left Rear Height Control Solenoid Valve Circuit

DESCRIPTION

FRONT HEIGHT CONTROL SOLENOID VALVE:

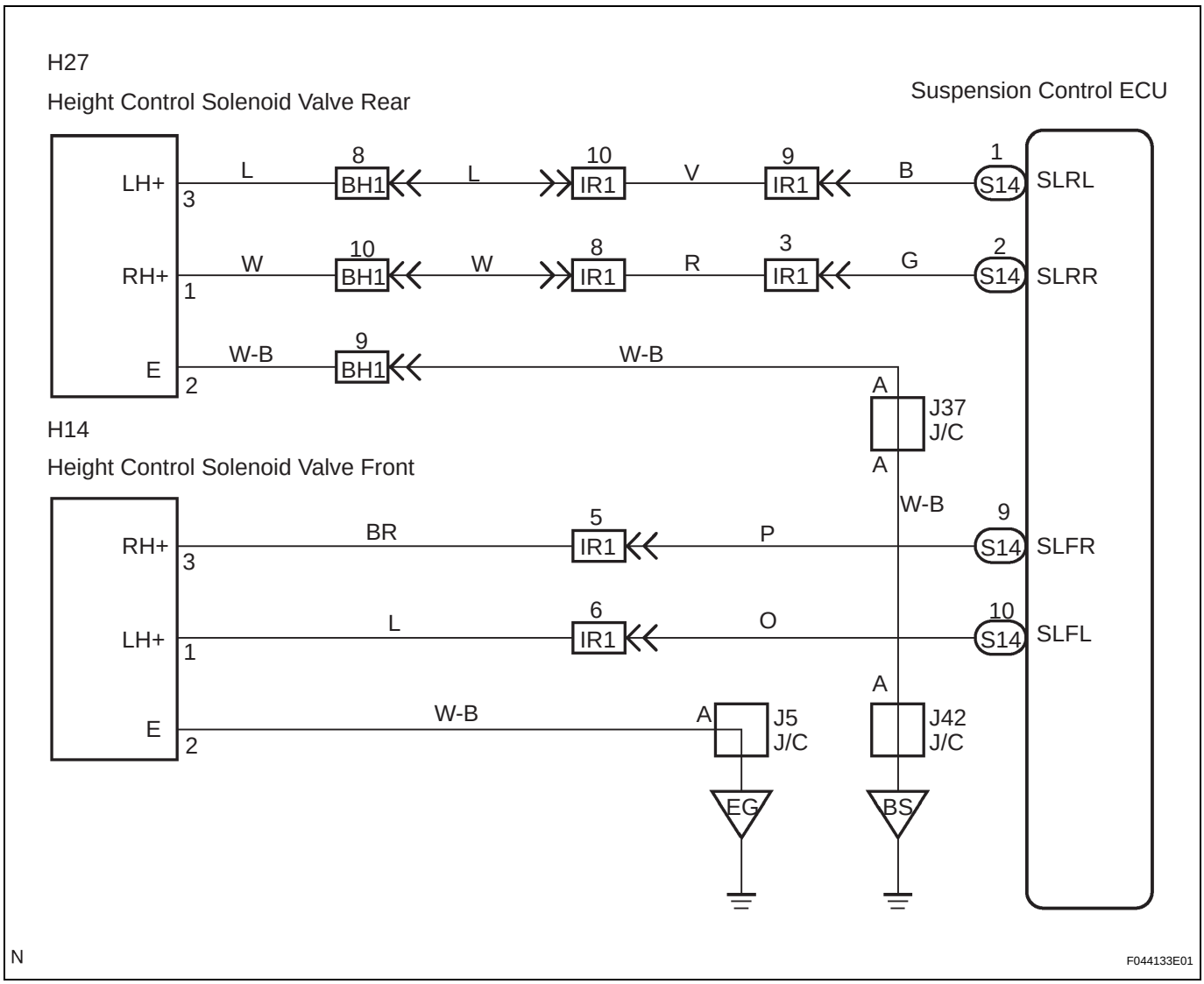
The height control valve sub-assembly No. 1 independently opens and closes paths to the pneumatic cylinder for the front wheel side by receiving the signal from the suspension control ECU. The height control valve sub-assembly No. 1 continues its operation for max. 60 seconds after the ignition switch is turned off. This takes place in order to discharge the high pressure air which is produced when the vehicle's height is lowered by the auto leveling function and in the access mode.

REAR HEIGHT CONTROL SOLENOID VALVE:

The height control valve sub-assembly No. 2 independently opens and closes paths to the pneumatic cylinder for the rear wheel side by receiving the signal from suspension control ECU. The height control valve sub-assembly No. 2 continues its operation for max. 60 seconds after the ignition switch is turned off. This takes place in order to discharge the high pressure air which is produced when the vehicle's height is lowered by the auto leveling function and in the access mode.

DTC No.	DTC Detecting Condition	Trouble Area
C1737/31	Either the condition 1 or 2 is detected: 1. With the height control solenoid valve inactivated, an open signal of the height control solenoid valve is detected for 1 sec. or more. 2. With the height control solenoid valve activated, a short signal of the height control solenoid valve is detected 8 times successively.	• Height control solenoid valve front RH • Right front height control solenoid valve circuit • Suspension control ECU
C1738/32		• Height control solenoid valve front LH • Left front height control solenoid valve circuit • Suspension control ECU
C1739/33		• Height control solenoid valve rear RH • Right rear height control solenoid valve circuit • Suspension control ECU
C1740/34		• Height control solenoid valve rear LH • Left rear height control solenoid valve circuit • Suspension control ECU

WIRING DIAGRAM



HINT:
Proceed to troubleshooting following the flow chart, regardless of whether or not DTC C1737/31, C1738/32, C1739/33 or C1740/34 is displayed.

1	RECONFIRM DTC

(a) Check DTCs (See page SC-28).
(1) Confirm if the DTC C1761/61 and/or C1774/74 is recorded.
OK:
DTC C1761/61 and/or C1774/74 is output.
HINT:
If either DTCC1761/61 (ECU malfunction) (See page SC-76) or C1774/74 (power source circuit) (See page SC-79) is displayed, carry out the necessary inspection. If they are output at the same time, carry out the necessary inspection for DTC C1774/74 first.

SC

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

HINT:
When not using intelligent tester, go to step 3.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
FR SOL	Turn OFF right front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
FL SOL	Turn OFF left front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RR SOL	Turn OFF right rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RL SOL	Turn OFF left rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

(d) Check whether the height control solenoid valve has continuity (will vibrate).
OK:
The solenoid makes sound, and the height control solenoid valve has continuity (will vibrate).

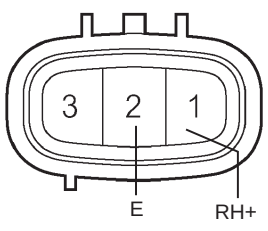
NG → **Go to step 3**

OK

REPLACE SUSPENSION CONTROL ECU

3 INSPECT HEIGHT CONTROL SOLENOID VALVE

Height Control Solenoid Valve Rear RH:



(a) HEIGHT CONTROL SOLENOID VALVE FRONT:
(1) Disconnect the height control solenoid valve connector.
(2) Measure the resistance according to the values in the table below.
Resistance (RH): (C1737/31)

Tester Connection	Specified Condition
2 (E) - 3 (RH+)	12 +- 2 Ω

Resistance (LH): (C1738/32)

Tester Connection	Specified Condition
1 (LH+) 2 - (E)	12 +- 2 Ω

SC

(3) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

RH: (C1737/31)

Battery Positive	Battery Negative
3 (RH+)	2 (E)

LH: (C1738/32)

Battery Positive	Battery Negative
1 (LH+)	2 (E)

OK:

It should make an operating sound (click).

Result

Result	Proceed to
OK	A
NG	B

HINT:

When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 1.

(b) HEIGHT CONTROL SOLENOID VALVE REAR:

(1) Disconnect the height control solenoid valve connector.

(2) Measure the resistance according to the values in the table below.

Resistance (RH): (C1739/33)

Tester Connection	Specified Condition
1 (RH+) - 2 (E)	12 +- 2 Ω

Resistance (LH): (C1740/34)

Tester Connection	Specified Condition
2 (E) - 3 (LH+)	12 +- 2 Ω

Resistance:

12 +- 2 Ω

(3) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

RH: (C1739/39)

Battery Positive	Battery Negative
1 (RH+)	2 (E)

LH: (C1740/34)

Battery Positive	Battery Negative
3 (LH+)	2 (E)

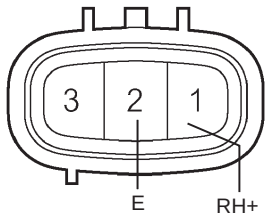
OK:

It should make an operating sound (click).

Result

Result	Proceed to
OK	A
NG	C

Height Control Solenoid Valve Rear RH:



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SC

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 2.

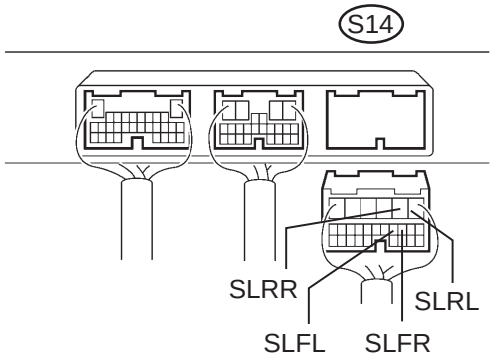
B → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.1**

C → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2**

A

4 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL SOLENOID VALVE)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S14 connector.
(b) Measure the resistance according to the values in the table below.

Resistance (Front RH): (C1737/31)

Tester Connection	Specified Condition
S14-9 (SLFR) - H14-3 (RH+)	Below 1 Ω
S14-9 (SLFR) - Body ground	10 kΩ or higher

Resistance (Front LH): (C1738/32)

Tester Connection	Specified Condition
S14-10 (SLFL) - H14-1 (LH+)	Below 1 Ω
S14-10 (SLFL) - Body ground	10 kΩ or higher

Resistance (Rear RH): (C1739/33)

Tester Connection	Specified Condition
S14-2 (SLRR) - H27-1 (RH+)	Below 1 Ω
S14-2 (SLRR) - Body ground	10 kΩ or higher

Resistance (Rear LH): (C1740/34)

Tester Connection	Specified Condition
S14-1 (SLRL) - H27-3 (LH+)	Below 1 Ω
S14-1 (SLRL) - Body ground	10 kΩ or higher

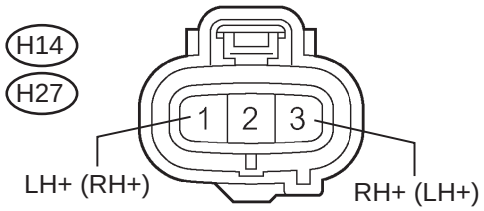
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

SC

5	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SOLENOID VALVE - BODY GROUND)

Height Control Solenoid Valve Wire Harness Side:



(a) Measure the resistance according to the values in the table below.

Resistance (Front RH): (C1737/31)

Tester Connection	Specified Condition
H14-3 (RH+) - Body ground	Below 1 Ω

Resistance (Front LH): (C1738/32)

Tester Connection	Specified Condition
H14-1 (LH+) - Body ground	Below 1 Ω

Resistance (Rear RH): (C1739/33)

Tester Connection	Specified Condition
H27-1 (RH+) - Body ground	Below 1 Ω

Resistance (Rear LH): (C1740/34)

Tester Connection	Specified Condition
H27-3 (LH+) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

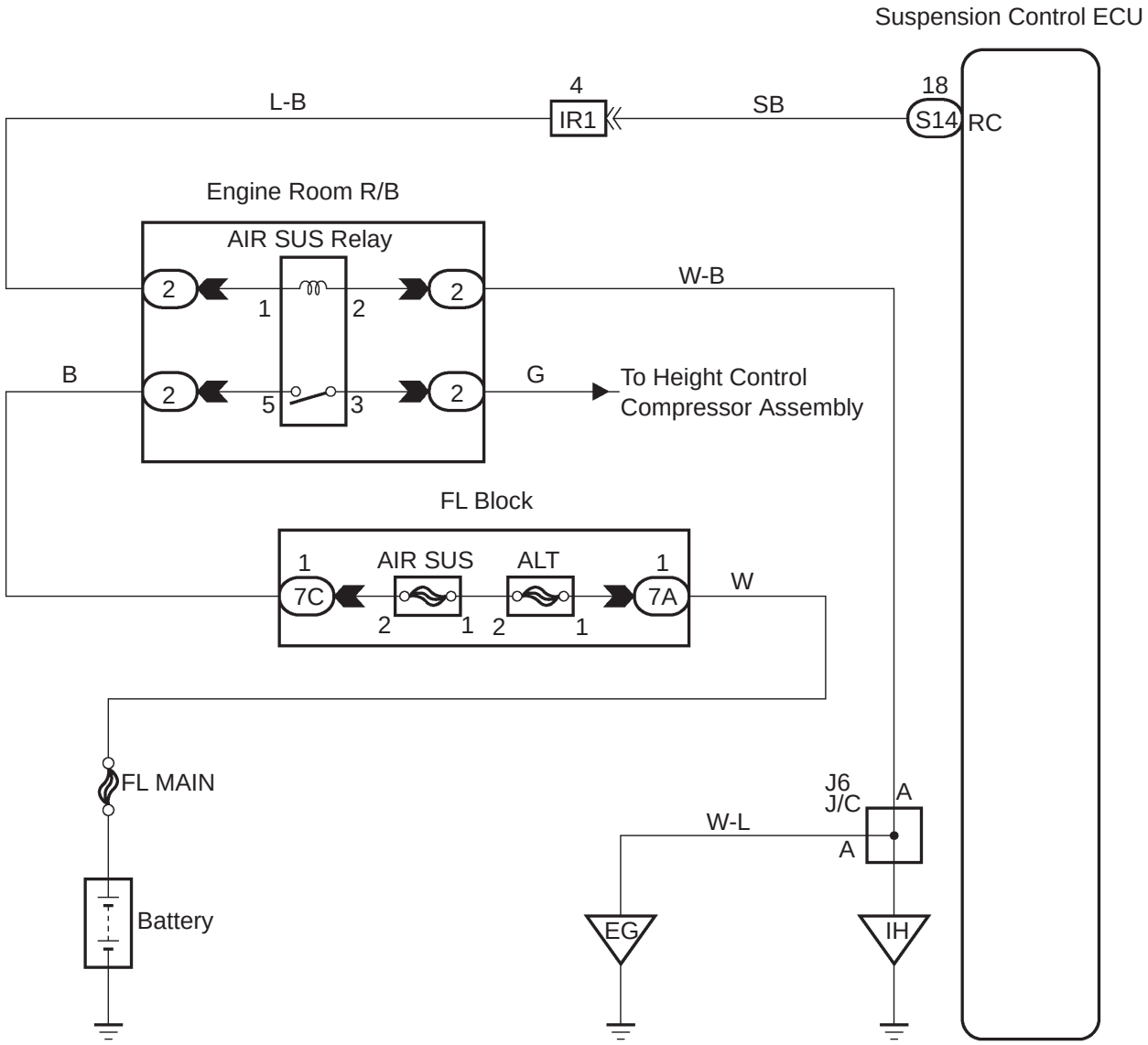
DTC	C1741/41	Air Suspension Relay Circuit

DESCRIPTION

The signal from the suspension control ECU switches ON the AIR SUS relay, and then the height control compressor motor starts.

DTC No.	DTC Detecting Condition	Trouble Area
C1741/41	Either the condition 1. or 2. is detected: 1. With the AIR SUS relay not activated, an open signal of the AIR SUS relay is detected for 1 sec. or more. 2. With the AIR SUS relay activated, a short signal of the AIR SUS relay is detected 8 times successively.	• AIR SUS relay • AIR SUS relay circuit • Suspension control ECU

WIRING DIAGRAM



SC

C

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1	RECONFIRM DTC

(a) Check DTCs (See page SC-28).
(1) Confirm if the DTC C1761/61 and/or C1774/74 is recorded.
OK:
DTC C1761/61 and/or C1774/74 is not output.
HINT:
If either DTCC1761/61 (ECU malfunction) (See page SC-76) or C1774/74 (power source circuit) (See page SC-79) is displayed, carry out the necessary inspection. If they are output at the same time, carry out the necessary inspection for DTC C1774/74 first.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

HINT:
When not using intelligent tester, go to step 3.
(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch ON.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
MOTOR RELAY	AIR SUS relay / ON or OFF	-

(d) Check the operation sound of the AIR SUS relay when operating it with the intelligent tester.
OK:
The operation sound of the AIR SUS relay can be head.

NG → **Go to step 3**

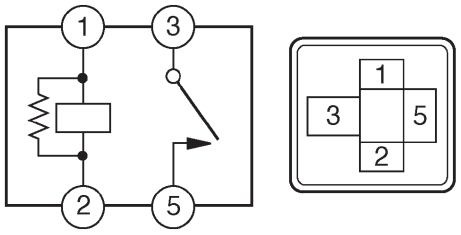
OK

REPLACE SUSPENSION CONTROL ECU

SC

3 INSPECT AIR SUS RELAY

AIR SUS Relay:



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(a) Remove the AIR SUS relay from the engine room R/B.
(b) Remove the AIR SUS relay from the engine room R/B.
Resistance

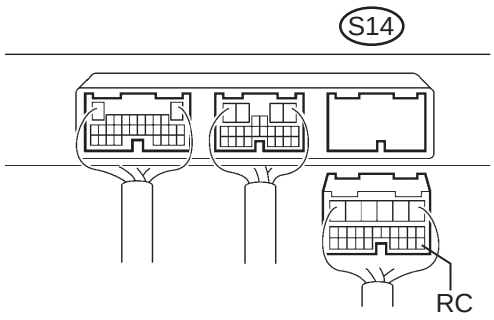
Tester Connection	Specified Condition
3 - 5	10 kΩ higher
	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

NG → **REPLACE AIR SUS RELAY**

OK

4 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - AIR SUS RELAY)

Suspension Control ECU Wire Harness Side:



F044492E06

(a) Disconnect the suspension control ECU S14 connector.
(b) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
S14-18 (RC) - 1 (for AIR SUS relay)	Below 1 Ω
S14-18 (RC) - Body ground	10 kΩ or higher

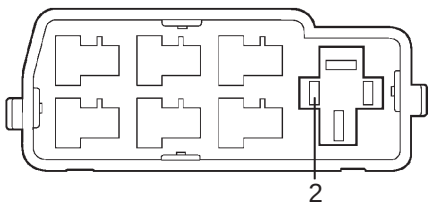
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5 CHECK HARNESS AND CONNECTOR (AIR SUS RELAY - BODY GROUND)

Engine Room R/B Side:

(for AIR SUS Relay)



F045531E01

(a) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
2 (for AIR SUS relay) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

SC

OK

REPLACE SUSPENSION CONTROL ECU

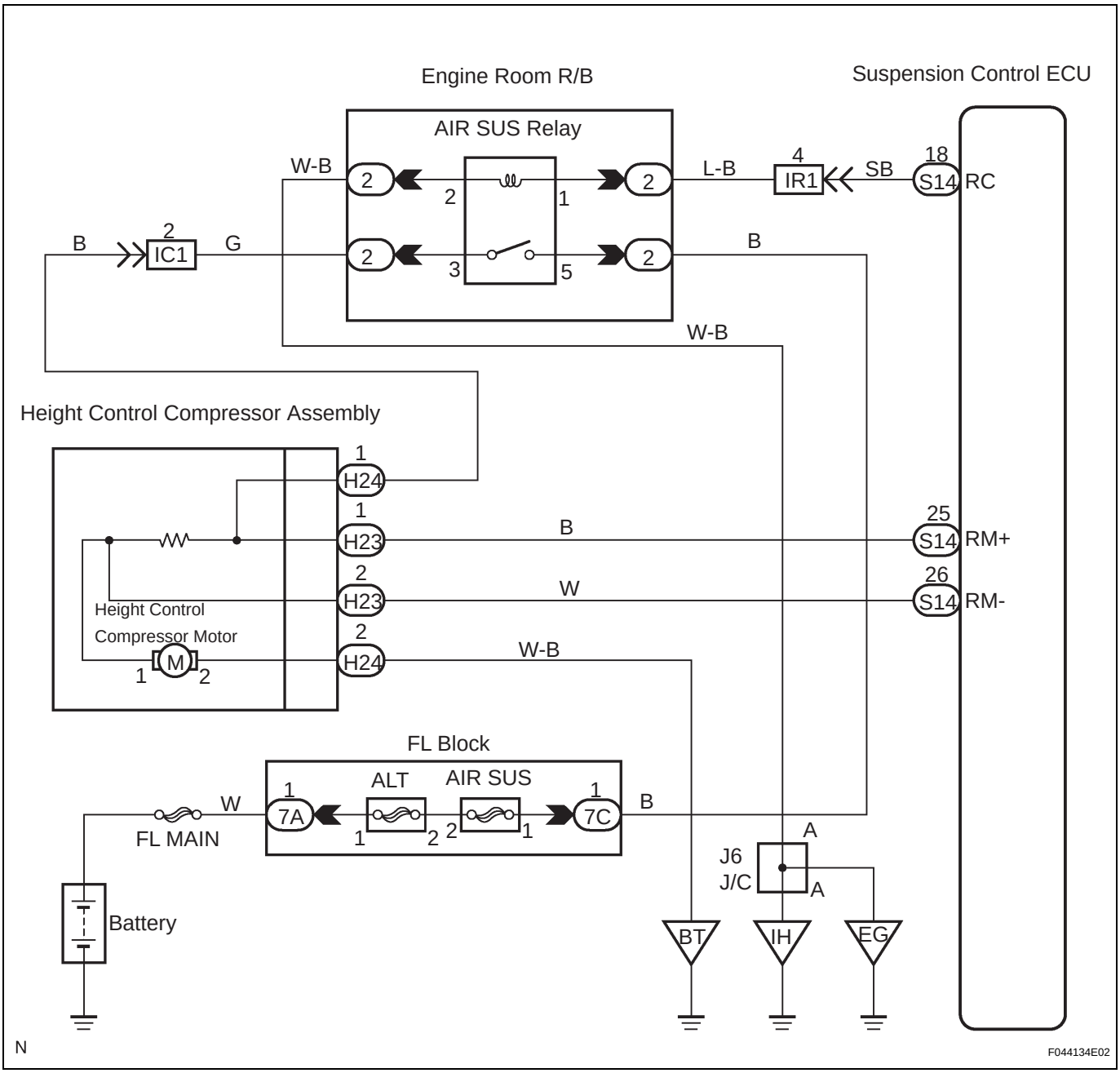
DTC	C1742/42	Height Control Compressor Circuit

DESCRIPTION

The signal from suspension control ECU turns on the AIR SUS relay. At the time, battery voltage is input to height control compressor motor through the AIR SUS relay. The height control compressor motor starts.

DTC No.	DTC Detecting Condition	Trouble Area
C1742/42	42 With the AIR SUS relay activated, a lock signal of the height control compressor motor is detected for 4 sec. or more.	• Height control compressor motor • Height control compressor circuit • Suspension control ECU

WIRING DIAGRAM



Refer to DTC C1735/35 (See page SC-45), C1737/31 (See page SC-48), C1744/44 (See page SC-67).

SC

1	RECONFIRM DTC

(a) Check if DTC C1741/41 is output (See page SC-28).
OK:
DTC C1741/41 is output.

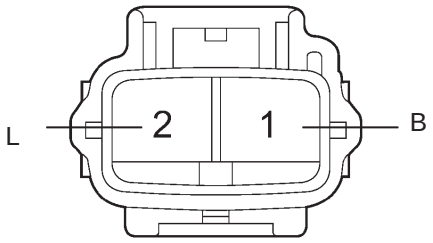
DTC C1741/41 is output.	A
Other DTC is output	B

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2	INSPECT HEIGHT CONTROL COMPRESSOR

Height Control Compressor Motor:



F044491E01

(a) Disconnect the height control compressor motor connector.
(b) Check the operating sound of the compressor motor when battery positive voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (B)	2 (L)

OK:
Compressor motor operates.
NOTICE:
- **Do not operate the height control compressor assembly 60 seconds. or more.**
- **Since a short and a lock-up inside the height control compressor assembly causes enormous current to flow, stop operation immediately when it does not rotate.**

HINT:
When a malfunction is found in the height control compressor motor, replace the height control compressor assembly.

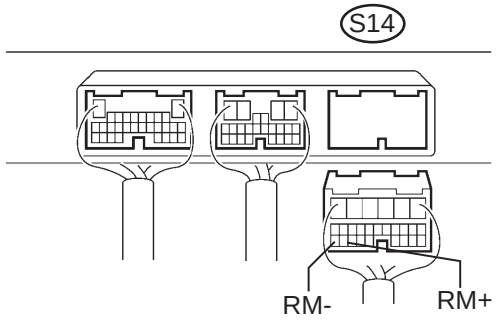
NG → **REPLACE CONTROL COMPRESSOR ASSEMBLY**

OK

SC

3	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL COMPRESSOR MOTOR)

Suspension Control ECU Wire Harness Side:



F044492E08

(a) Connect the height control compressor motor connector.
(b) Disconnect the suspension control ECU S14 connector.
(c) Measure the resistance according to the values in the table below.

Resistance

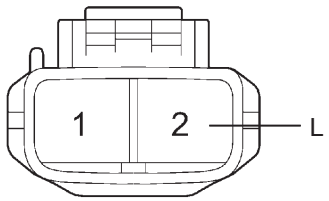
Tester Connection	Specified Condition
S14-25 (RM+) - S14-26 (RM-)	6.4 to 7.4 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL COMPRESSOR MOTOR - BODY GROUND)

Height Control Compressor Motor Wire Harness Side:



F045529E01

(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
2 (L) - Body ground	Below 1 Ω

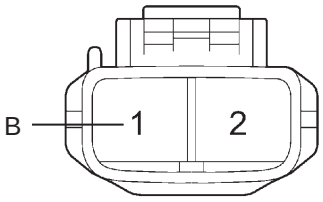
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL COMPRESSOR MOTOR - AIR SUS RELAY)

SC

Height Control Compressor Motor Wire Harness Side:



F045529E03

(a) Disconnect the AIR SUS relay from the engine room R/B.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
1 (B) - 3 (for AIR SUS relay)	Below 1 Ω
1 (B) - Body ground	10 kΩ or higher

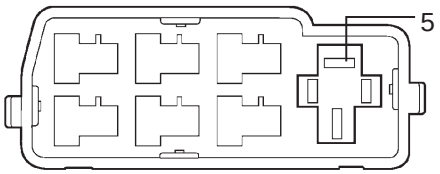
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

6 CHECK HARNESS AND CONNECTOR (AIR SUS RELAY - AIR SUS FUSE)

Engine Room R/B Side:

(for AIR SUS Relay)



F045531E02

(a) Measure the voltage according to the values in the table below.

Voltage

Tester Connection	Specified Condition
5 (for AIR SUS relay) - Body ground	11 to 14 V

Result

Result	Proceed to
OK	A (When using intelligent tester)
	(Referece) B (When not using intelligent tester)
NG	C

B → Go to step 8

C → REPAIR OR REPLACE HARNESS OR CONNECTOR

A

7 INSPECT HEIGHT CONTROL SOLENOID VALVE

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
FR SOL	Turn OFF right front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
FL SOL	Turn OFF left front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RR SOL	Turn OFF right rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RL SOL	Turn OFF left rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

(d) Check whether the height control solenoid valve has a continuity (will vibrate).

OK:

The solenoid makes sound, and the height control solenoid valve has continuity (will vibrate).

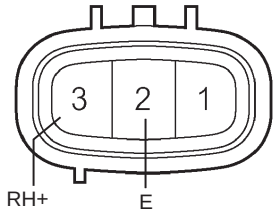
OK → Go to step 9

NG

SC

8 INSPECT HEIGHT CONTROL SOLENOID VALVE

Height Control Solenoid Valve Front RH:



(a) HEIGHT CONTROL SOLENOID VALVE FRONT RH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

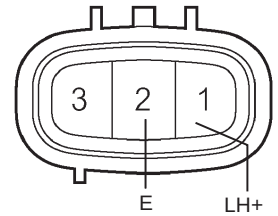
Tester Connection	
Battery Positive	**Battery Negative**
3 (RH+)	2 (E)

OK:
It should make an operating sound (click).
Result

Result	Proceed to
OK	**A**
NG	**B**

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 1.

Height Control Solenoid Valve Front LH:



(b) HEIGHT CONTROL SOLENOID VALVE FRONT LH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

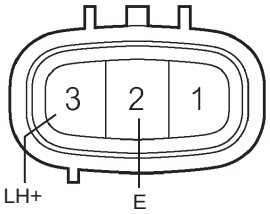
Battery Positive	Battery Negative
1 (LH+)	2 (E)

OK:
It should make an operating sound (click).
Result

Result	Proceed to
OK	**A**
NG	**B**

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 1.

Height Control Solenoid Valve Rear LH:



(c) HEIGHT CONTROL SOLENOID VALVE REAR RH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

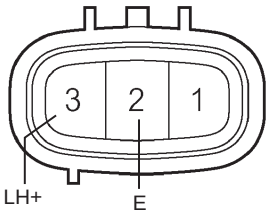
Battery Positive	Battery Negative
1 (RH+)	2 (E)

OK:
It should make an operating sound (click).
Result

Result	Proceed to
OK	A
NG	C

HINT:
When a malfunction is found in the rear solenoid valve, replace the height control valve sub-assembly No. 2.

Height Control Solenoid Valve Rear LH:



(d) HEIGHT CONTROL SOLENOID VALVE REAR LH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
3 (LH+)	2 (E)

OK:
It should make an operating sound (click).
Result

Result	Proceed to
OK	A
NG	C

HINT:
When a malfunction is found in the rear solenoid valve, replace the height control valve sub-assembly No. 2.

B → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.1**

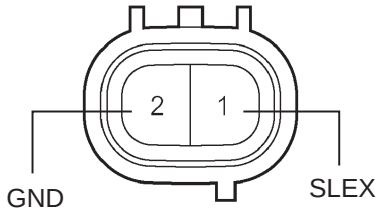
C → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2**

A

SC

9	INSPECT EXHAUST SOLENOID VALVE

Exhaust Solenoid Valve:



H G025121E04

(a) Disconnect the exhaust solenoid valve connector.
(b) Check the operating sound of the exhaust solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLEX)	2 (GND)

OK:

It should make an operating sound (click).

HINT:

When a malfunction is found in the exhaust solenoid valve, replace the height control compressor assembly.

Result

Result	Proceed to
OK	A (When using intelligent tester)
	(Referece) B (When not using intelligent tester)
NG	C

B → **Go to step 11**

C → **REPLACE HEIGHT CONTROL COMPRESSOR ASSEMBLY**

A

10	INSPECT TANK SOLENOID VALVE

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
LOW PRS TNK SOL	Turn tank solenoid valve / ON or OFF	Operation of solenoid (clicking sound) can be heard

(d) Check whether the tank solenoid valve has a continuity (will vibrate).

OK:

The solenoid makes sound, and the tank solenoid valve has a continuity (will vibrate).

OK → **Go to step 12**

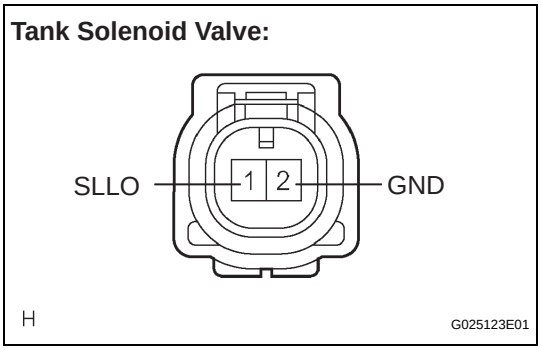
NG

REPLACE PNEUMATIC W/TUBE TANK ASSEMBLY

SC

11	INSPECT TANK SOLENOID VALVE

Tank Solenoid Valve:



(a) Disconnect the exhaust solenoid valve connector.
(b) Check the operating sound of the tank solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLLO)	2 (GND)

OK:

The solenoid makes sound, and the tank solenoid valve has a continuity (will vibrate).

HINT:

When a malfunction is found in the tank solenoid valve, replace the pneumatic tank assembly.

NG → **REPLACE PNEUMATIC W/TUBE TANK ASSEMBLY**

OK

12	INSPECT FOR CLOGGED AIR TUBE

(a) Check visually for a clog, damage or breakage on the air tube (See page SC-5).

NG → **REPAIR OR REPLACE AIR TUBE**

OK

REPLACE SUSPENSION CONTROL ECU

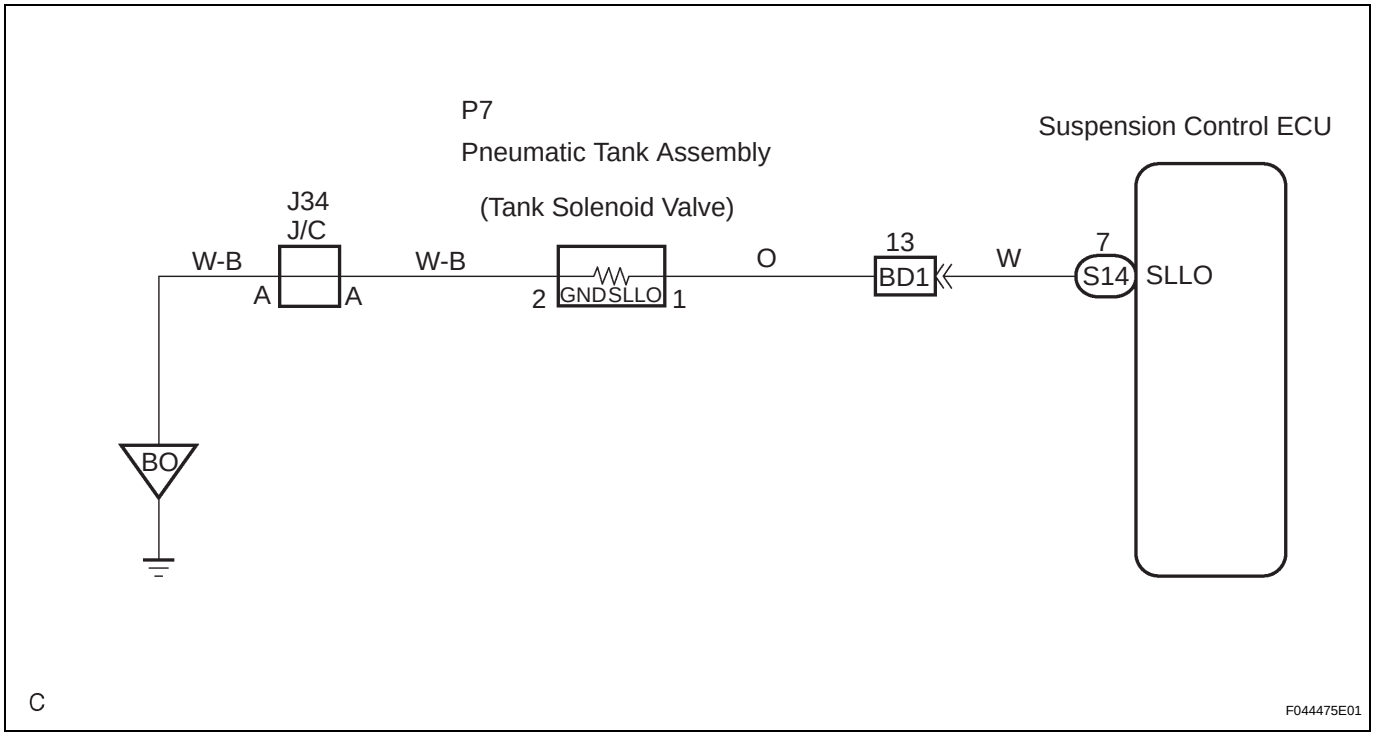
DTC	C1744/44	Tank Solenoid Valve Circuit

DESCRIPTION

The tank solenoid which is installed in the pneumatic tank assembly operates the solenoid valve according to the signal from suspension control ECU. When lowering the vehicle height, high pressure air in the system is discharged to the pneumatic tank assembly. When the vehicle height control is suspended, the high pressure air in the pneumatic tank assembly is discharged. The tank solenoid continues its operation for max. 60 seconds after the ignition switch is turned off. This takes place in order to discharge the high pressure air which is produced when the vehicle height is lowered by the auto leveling function and access mode or exhausting high pressure air in the pneumatic tank assembly.
HINT:
Since high pressure air which is discharged from the exhaust solenoid is reused for removing moisture in the dryer, discharge speed of the high pressure air is limited. In order to increase the speed of lowering the vehicle height, some amount of high pressure air is discharged to the pneumatic tank assembly. Then, the stored air in the pneumatic tank assembly is discharged from the exhaust solenoid while the vehicle height control is not in operation.

DTC No.	DTC Detecting Condition	Trouble Area
C1744/44	Either the condition 1. or 2. is detected: 1. With the tank solenoid valve inactivated, an open signal of the tank solenoid valve is detected for 1 sec. or more. 2. With the tank solenoid valve activated, a short signal of the valve is detected 8 times successively.	• Tank solenoid valve • Tank solenoid valve circuit • Suspension control ECU

WIRING DIAGRAM



SC

1	CHECK DTC OUTPUT

(a) Check DTCs (See page SC-28).
(1) Confirm if the DTC C1761/61 and/or C1774/74 is recorded.

OK:

DTC C1761/61 and/or C1774/74 is not output.

HINT:

If either DTCC1761/61 (ECU malfunction) (See page SC-76) or C1774/74 (power source circuit) (See page SC-79) is displayed, carry out the necessary inspection. If they are output at the same time, carry out the necessary inspection for DTC C1774/74 first.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

HINT:

When not using intelligent tester, go to step 3.

(a) Connect the intelligent tester to the DLC3.

(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.

(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
LOW PRS TNK SOL	Turn OFF tank solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

(d) Check whether the tank solenoid valve has a continuity (will vibrate).

OK:

The solenoid makes sound, and the tank solenoid valve has a continuity (will vibrate).

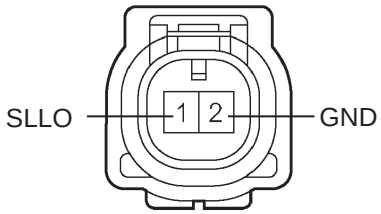
NG → **Go to step 3**

OK

REPLACE SUSPENSION CONTROL ECU

3 INSPECT TANK SOLENOID VALVE

Tank Solenoid Valve:



H

G025123E02

(a) Disconnect the tank solenoid valve connector.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
1 (SLLO) - 2 (GND)	12 +- 2 Ω

(c) Check the operating sound of the tank solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLLO)	2 (GND)

OK:

It should make an operating sound (click).

HINT:

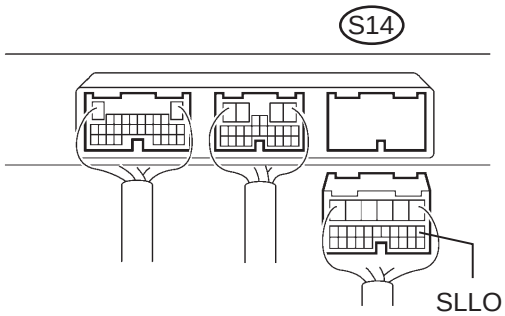
When a malfunction is found in the tank solenoid valve, replace the pneumatic tank assembly.

NG → **REPLACE PNEUMATIC W/TUBE TANK ASSEMBLY**

OK

4 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - TANK SOLENOID VALVE)

Suspension Control ECU Wire Harness Side:



F044492E11

(a) Disconnect the suspension control ECU S14 connector.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S14-7 (SLLO) - P7-1 (SLLO)	Below 1 Ω
S14-7 (SLLO) - Body ground	10 kΩ or higher

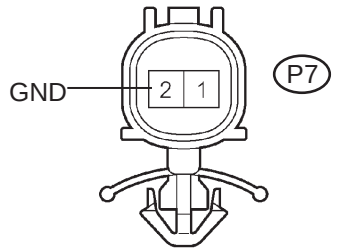
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

SC

5	CHECK HARNESS AND CONNECTOR (TANK SOLENOID VALVE - BODY GROUND)

Tank Solenoid Valve Wire Harness Side:



F045543E01

(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
P7-2 (GND) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

DTC	C1751/51	Continuous Electric Current to Height Control Compressor

DESCRIPTION

The signal from the suspension control ECU operates the air suspension relay, and the height control compressor motor starts.
The height control compressor assembly operates until the targeted vehicle height is reached. Then the height control sensor sub-assembly sends the signal to the suspension control ECU, and stops the height control compressor.

DTC No.	DTC Detecting Condition	Trouble Area
C1751/51	When the ECU detects (a) or (b) for 1 trip, it outputs DTCs. (a) Continuity exists for 2 minutes in total within past 4 minutes. (b) Continuity has existed for more than 100 seconds in succession.	• Height control compressor motor • Height control compressor circuit • Height control sensor link sub-assembly • Height control sensor sub-assembly • Relief valve • AIR SUS relay comes off • Air leakage from the air tube or each valve • Clogging in the air tube or each valve • Suspension control ECU

1	CHECK VEHICLE HEIGHT

HINT:
Make the vehicle vacant and unloaded.

NEXT

2	CHECK HEIGHT CONTROL COMPRESSOR CIRCUIT

NEXT

3	CHECK AIR LEAKAGE

OK:
No leaks

Result

Result	Proceed to
OK	A (When using intelligent tester)
	(Reference) B (When not using intelligent tester)
NG	C

B → Go to step 5

C → REPAIR OR REPLACE AIR TUBE

A

SC

4	INSPECT HEIGHT CONTROL SOLENOID VALVE

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
FR SOL	Turn OFF right front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
FR SOL	Turn OFF left front solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RR SOL	Turn OFF right rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard
RL SOL	Turn OFF left rear solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

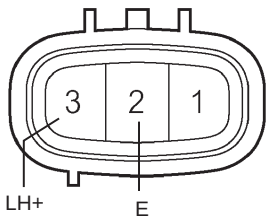
(d) Check whether the height control solenoid valve has a continuity (will vibrate).
OK:
The solenoid makes sound, and the height control solenoid valve has continuity (will vibrate).

OK → **Go to step 6**

NG

5	INSPECT HEIGHT CONTROL SOLENOID VALVE

Height Control Solenoid Valve Rear LH:



(a) HEIGHT CONTROL SOLENOID VALVE FRONT RH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
3 (RH+)	2 (E)

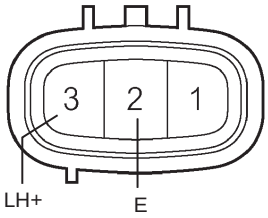
OK:
It should make an operating sound (click).
Result

OK	A
NG	B

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub?assembly No. 1.

SC

Height Control Solenoid Valve Rear LH:



(b) HEIGHT CONTROL SOLENOID VALVE FRONT LH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

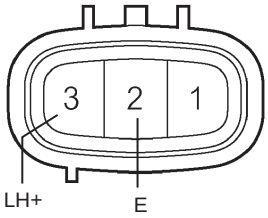
Battery Positive	Battery Negative
1 (LH+)	2 (E)

OK:
It should make an operating sound (click).
Result

OK	A
NG	B

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 1.

Height Control Solenoid Valve Rear LH:



(c) HEIGHT CONTROL SOLENOID VALVE REAR RH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

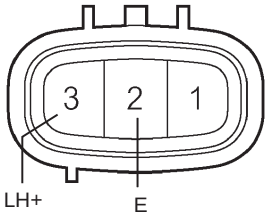
Battery Positive	Battery Negative
1 (RH+)	2 (E)

OK:
It should make an operating sound (click).
Result

OK	A
NG	C

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 2.

Height Control Solenoid Valve Rear LH:



(d) HEIGHT CONTROL SOLENOID VALVE REAR LH:
(1) Disconnect the height control solenoid valve connector.
(2) Check the operating sound of the height control solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
3 (LH+)	2 (E)

OK:
It should make an operating sound (click).
Result

OK	A
NG	C

SC

HINT:
When a malfunction is found in the front solenoid valve, replace the height control valve sub-assembly No. 2.

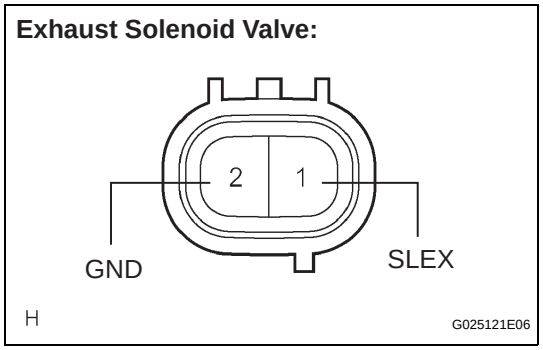
B → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.1**

C → **REPLACE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2**

A

6 INSPECT EXHAUST SOLENOID VALVE

Exhaust Solenoid Valve:



(a) Disconnect the exhaust solenoid valve connector.
(b) Check the operating sound of the exhaust solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLEX)	2 (GND)

OK:
It should make an operating sound (click).

Result

Result	Proceed to
OK	A (When using intelligent tester)
	(Reference) B (When not using intelligent tester)
NG	C

B → **Go to step 8**

C → **REPLACE EIGHT CONTROL COMPRESSOR ASSEMBLY**

A

7 INSPECT TANK SOLENOID VALVE

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Vehicle Condition / Test Details	Diagnostic Note
LOW PRS TNK SOL	Turn OFF tank solenoid valve one second after turning it ON	Operation of solenoid (clicking sound) can be heard

SC

(d) Check whether the tank solenoid valve has a continuity (will vibrate).

OK:

The solenoid makes sound, and the tank solenoid valve has a continuity (will vibrate).

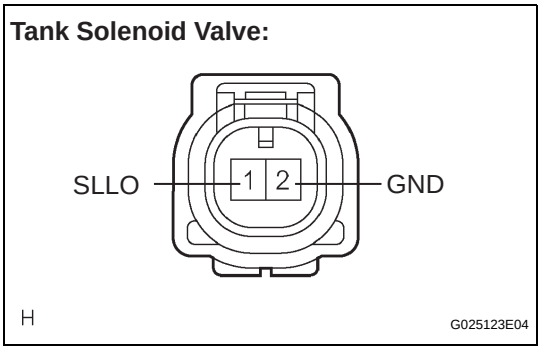
OK	**Go to step 9**

NG

REPLACE PNEUMATIC W/TUBE TANK ASSEMBLY

8 INSPECT TANK SOLENOID VALVE

Tank Solenoid Valve:



(a) Disconnect the tank solenoid valve connector.

(b) Check the operating sound of the tank solenoid valve when positive battery voltage is applied to the terminals.

Battery Positive	Battery Negative
1 (SLEX)	2 (GND)

OK:

It should make an operating sound (click).

HINT:

When a malfunction is found in the tank solenoid valve, replace the pneumatic tank assembly.

NG	**REPLACE PNEUMATIC W/TUBE TANK ASSEMBLY**

OK

9 INSPECT HEIGHT CONTROL SENSOR LINK SUB-ASSEMBLY

(a) Inspect and adjust the height control sensor link sub-assembly (See page SC-124).

NEXT

10 SYSTEM CHECK

(a) Change the height control switch to the "N" position.

(b) Change the height control switch to the "H" position.

(c) Check that the vehicle height changes from the "N" to the "H" position.

HINT:

When the vehicle height does not change, proceed to the next step.

NEXT

CHECK AIR SUSPENSION SYSTEM

DTC	C1761/61	ECU Malfunction

DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
C1761/61	When trouble occurs in the 5 V reference to each height control sensor, or trouble occurs inside the suspension control ECU, the DTC is output.	• Height control sensor sub-assembly power source • Suspension control ECU

1	CONFIRM DTC

(a) Check DTCs (See page SC-28).
(1) Confirm if the DTC C1774/74 is recorded.
OK:
DTC C1774/74 is not output.
HINT:
- If DTC C1774/74 (power source circuit) is displayed, carry out the inspection necessary. (See page SC-79).
- If DTC C1711/11 (right front height control sensor circuit), C1712/12 (left front height control sensor circuit), C1713/13 (right rear height control sensor circuit), C1714/14 (left rear height control sensor circuit) and C1761/61 (ECU malfunction) is output at the same time, carry out the inspection necessary for DTC C1761/61 first.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK

2	CHECK HEIGHT CONTROL OFF INDICATOR LIGHT

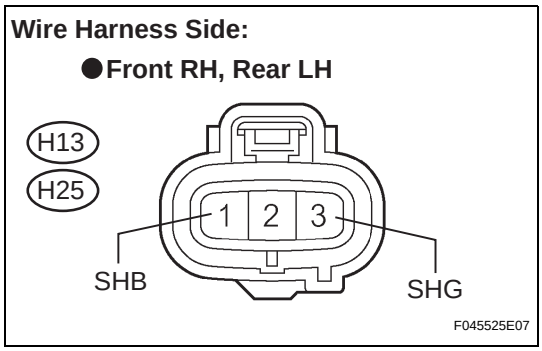
(a) Turn the ignition switch to the ON position.
(b) Check the height control OFF indicator light.
OK:
Height control OFF indicator light comes on.

NG → **REPLACE SUSPENSION CONTROL ECU**

OK

SC

3	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SENSOR SUB-ASSEMBLY POWER SOURCE))



(a) Disconnect the height control sensor sub-assembly connector.
(b) Turn the ignition switch ON.
(c) Measure the voltage according to the values in the table below.

Resistance (Front RH):

Tester Connection	Specified Condition
H13-1 (SHB) - H13-3 (SHG)	4.75 to 5.25 V

Resistance: (Front LH):

Tester Connection	Specified Condition
H12-1 (SHG) - H12-3 (SHB)	4.75 to 5.25 V

Resistance: (Rear RH):

Tester Connection	Specified Condition
H26-1 (SHG) - H26-?3 (SHB)	4.75 to 5.25 V

Resistance: (Rear LH):

Tester Connection	Specified Condition
H25-1 (SHB) - H25-3 (SHG)	4.75 to 5.25 V

NG → CHECK HEIGHT CONTROL SENSOR SUB-ASSEMBLY CIRCUIT

OK

4	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - AFS ECU)

(a) Turn the ignition switch to the OFF position.
(b) Disconnect the suspension control ECU S15 connector.
(c) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S15-19 (SBL3) - Body ground	10 kΩ or higher

NG → REPLACE HARNESS OR CONNECTOR

SC

OK

5	INSPECT SUSPENSION CONTROL ECU

(a) Turn the ignition switch to the OFF position.
(b) Measure the voltage according to the values in the table below.

Voltage

Tester Connection	Specified Condition
S15-6 (B) - S16-1 (GND)	10 to 14 V
S15-6 (B) - S15-5 (GND2)	10 to 14 V

NG → **CHECK POWER SOURCE CIRCUIT**

OK

REPLACE SUSPENSION CONTROL ECU

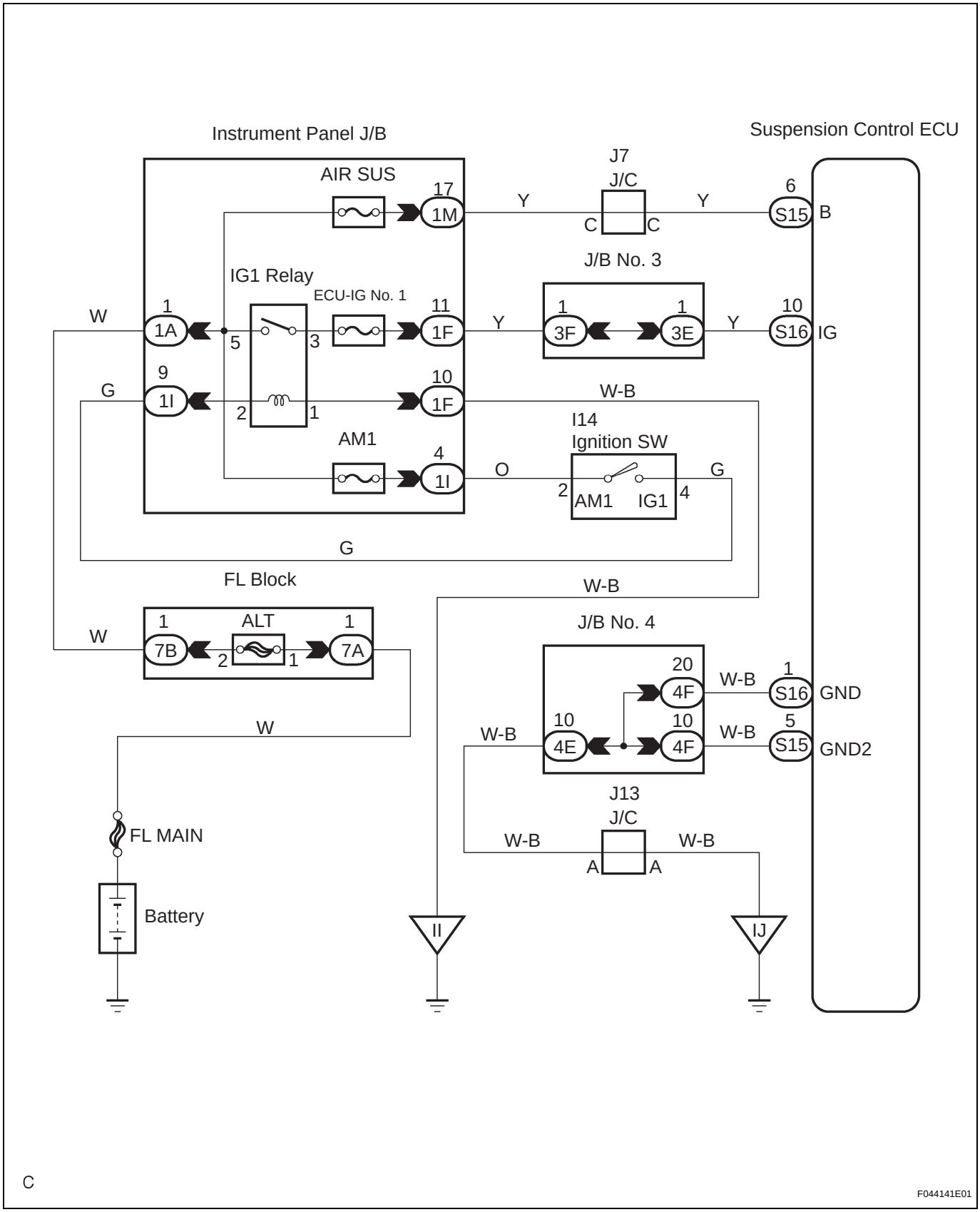
DTC	C1774/74	Power Source Circuit

DESCRIPTION

Battery voltage is constantly applied to the +B terminal of the suspension control ECU. It is applied to the IG terminal when the ignition switch is on.

DTC No.	DTC Detecting Condition	Trouble Area
C1774/74	The terminal B or IG voltage is detected being below or above a constant voltage for 0.5 seconds. S Battery	• Battery • Power source circuit • Suspension control ECU 05CI4?01

WIRING DIAGRAM



SC

1	CHECK SOURCE VOLTAGE

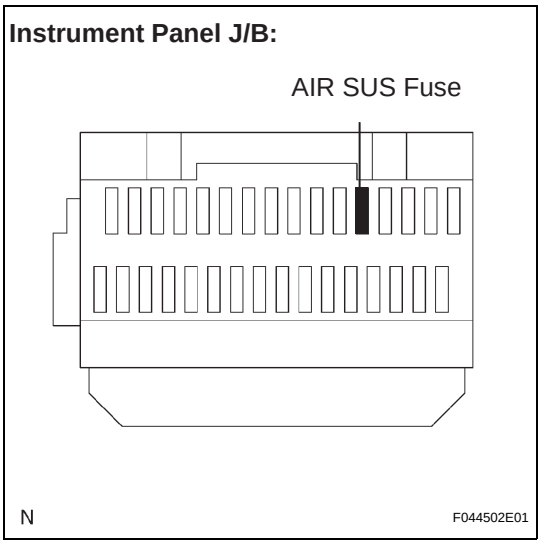
(a) Check the positive battery voltage.
Voltage:
10 to 14 V

NG → **REPLACE BATTERY**

OK

2	INSPECT FUSE (AIR SUS NO.2)

Instrument Panel J/B:



(a) Remove the AIR SUS No. 2 fuse and ECU-IG fuse from the instrument panel J/B.
(b) Check fuse.
(1) Check continuity of the AIR SUS No. 2 fuse.
Standard:
Continuity

NG → **REPLACE FUSE**

OK

3	INSPECT FUSE (ECU-IG)

(a) Remove the ECU-IG fuse from the instrument panel J/B.
(b) Check fuse.
(1) Check continuity of the ECU-IG fuse.
Standard:
Continuity
Result

Result	Proceed to
OK	A (When using intelligent tester)
	(Reference) B (When not using intelligent tester)
NG	C

B → **Go to step 5**

C → **REPLACE FUSE**

SC

A

4 INSPECT SUSPENSION CONTROL ECU

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST, and operate it with the intelligent tester.

AIRSUS

Item	Normal Condition
IG VOLTAGE	Actual ECU power supply voltage: 10 to 14 V
POWER VOLTAGE	Actual ECU power supply voltage: 10 to 14 V

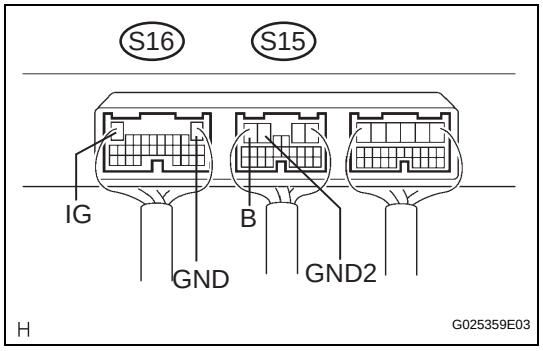
(d) Check the voltage.
Voltage:
10 to 14 V

NG → **Go to step 6**

OK

REPLACE SUSPENSION CONTROL ECU

5 INSPECT SUSPENSION CONTROL ECU



(a) Remove the suspension control ECU with connectors being connected.
(b) Turn the ignition switch to the ON position.
(c) Measure the voltage according to the values in the table below.
Voltage

Tester Connection	Specified Condition
S15-6 (B) - S16-1 (GND)	10 to 14 V
S15-6 (B) - S15-5 (GND2)	10 to 14 V
S16-10 (IG) - S16-1 (GND)	10 to 14 V
S16-10 (IG) - S15-5 (GND2)	10 to 14 V

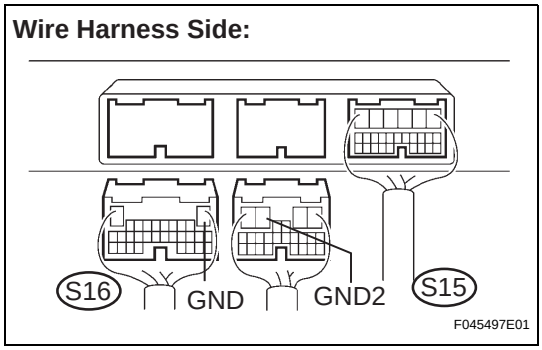
NG → **Go to step 6**

OK

REPLACE SUSPENSION CONTROL ECU

SC

6	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - BODY GROUND)



(a) Disconnect the suspension control ECU S15 and S16 connectors.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S16-1 (GND) - Body ground	Below 1 Ω
S15-5 (GND2) - Body ground	Below 1 Ω

Result

Result	Proceed to
NG	Repair or replace the harness or the connector between the suspension control ECU and body ground.
OK	When B terminal malfunctions: Repair or replace the harness or the connector between the AIR SUS No. 2 fuse and the suspension control ECU.
	When IG terminal malfunctions: Repair or replace the harness or the connector between the ECU-IG fuse and the suspension control ECU.

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

DTC	C1776/76	Speed Sensor Circuit

DTC	C1784/84	Right Rear Speed Sensor Circuit

DTC	C1785/85	Left Rear Speed Sensor Circuit

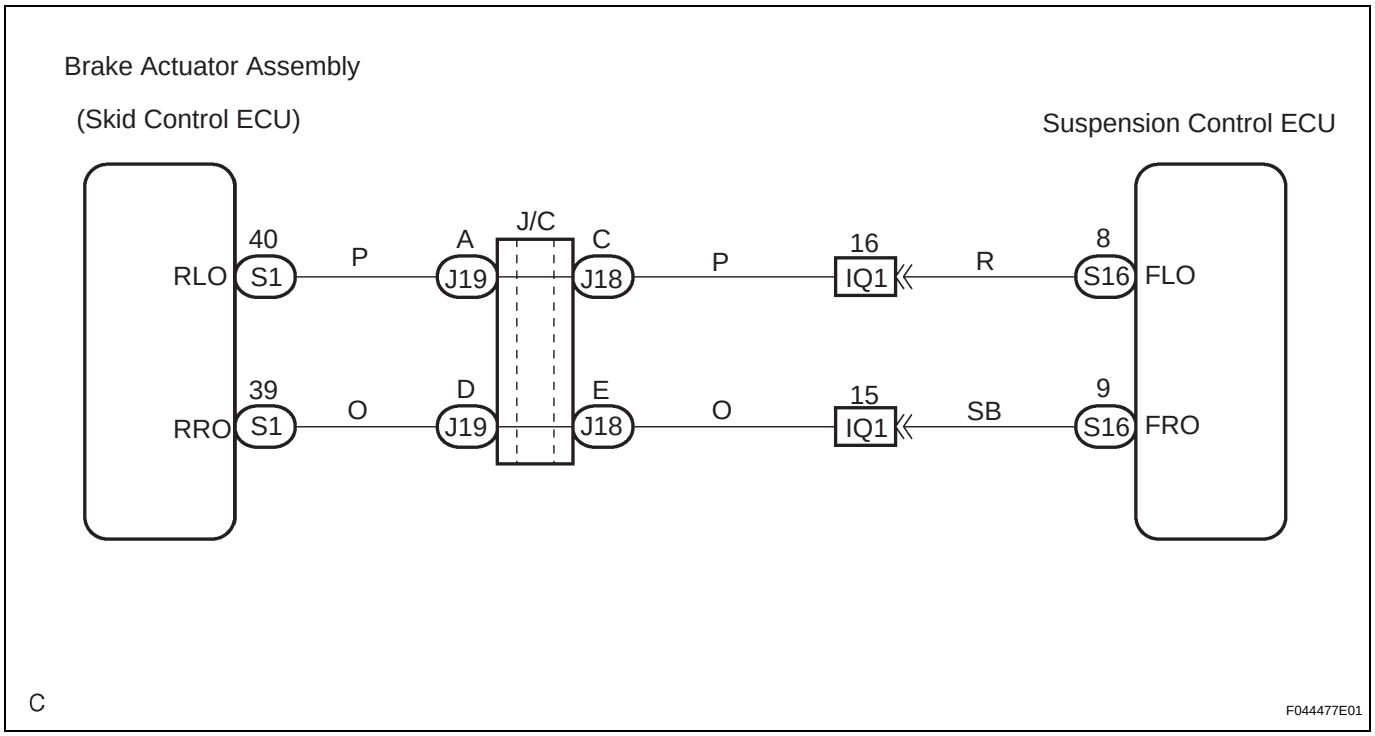
DESCRIPTION

The speed sensor monitors the speed of a wheel, and sends an appropriate speed signal to the suspension control ECU through the brake actuator assembly (skid control ECU).
If trouble occurs in the either right rear speed sensor or left rear speed sensor, the DTC (C1776/76) is output. When inspecting by test mode, the suspension control ECU scans changes of the signals. If there is no change, it outputs the test DTC (C1784/84, C1785/85).

DTC No.	DTC Detecting Condition	Trouble Area
C1776/76	Speed sensor circuit malfunction.	• Speed sensor • Speed sensor circuit • Brake actuator assembly (Skid control ECU) • Suspension control ECU

HINT:
When DTC C1784/84 and C1785/85 are output, follow the same procedure as DTC 1776/76.

WIRING DIAGRAM



HINT:
Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.

SC

(b) Turn the ignition switch to the ON position, and push the intelligent d tester main switch on.
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal Condition
RR WHEEL SPD	Actual right rear wheel speed
RL WHEEL SPD	Actual left rear wheel speed

(d) Check that there is no difference between the speed value output from the speed sensor displayed on the intelligent tester and the speed value displayed on the speedometer when driving the vehicle.
OK:
There is almost no difference in the displayed speed values.
HINT:
There is tolerance of +- 10 % in the speedometer indication.

NG → **Go to step 2**

OK →

REPLACE SUSPENSION CONTROL ECU

2 CHECK CIRCUIT INDICATED BY OUTPUT CODE

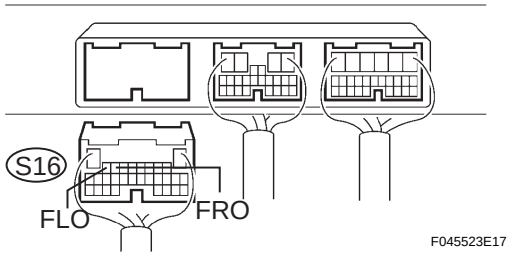
(a) Check if the normal code is output by VSC system (See page BC-3).
OK:
No DTC output from VSC system.

NG → **REPAIR DTC OUTPUT**

OK →

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - BRAKE ACTUATOR ASSEMBLY)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Disconnect the brake actuator assembly S1 connector.
(c) Measure the resistance according to the values in the table below.
Resistance

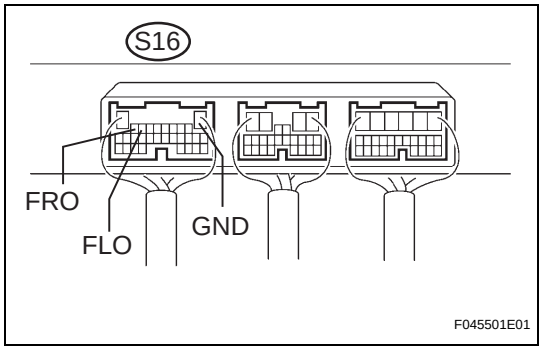
Tester Connection	Specified Condition
S16-8 (FLO) - S1-40 (RLO)	Below 1 Ω
S16-?9 (FRO) - S1-39 (RRO)	Below 1 Ω
S16-8 (FLO) - Body ground	10 kΩ or higher
S16-9 (FRO) - Body ground	10 kΩ or higher

SC

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

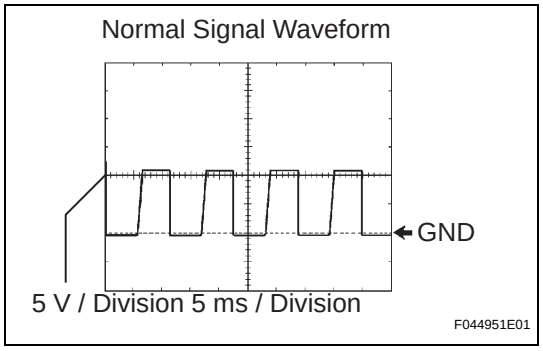
OK

4 INSPECT SUSPENSION CONTROL ECU



(a) Connect the suspension control ECU S16 connector.
(b) Remove the suspension control ECU with connector being connected.
(c) Connect the brake actuator assembly S1 connector.
(d) Turn the ignition switch to the ON position.
(e) Check output waveform.
(1) Using an oscilloscope, connect the terminals, as shown in the chart.

Measure Point	Tester Connection
Rear RH	S16-9 (FRO) - S16-1 (GND)
Rear LH	S16-8 (FLO) - S16-1 (GND)



(2) Drive the vehicle at about 20 km/h (12 mph), and check the output waveform.
OK:
The output waveform appears as shown in the illustration.

Item	Contents
Tool setting	5 V / DIV, 5 ms / DIV
Vehicle condition	When drive the vehicle at about 20 km/h 12 (mph)

HINT:
As the vehicle speed becomes higher, the waveform cycle gets shorter.

NG → **REPLACE BRAKE ACTUATOR ASSEMBLY**

OK

REPLACE SUSPENSION CONTROL ECU

DTC	C1779/79	Crankshaft Position Sensor Circuit

DTC	C1797/97	Crankshaft Position Sensor Circuit

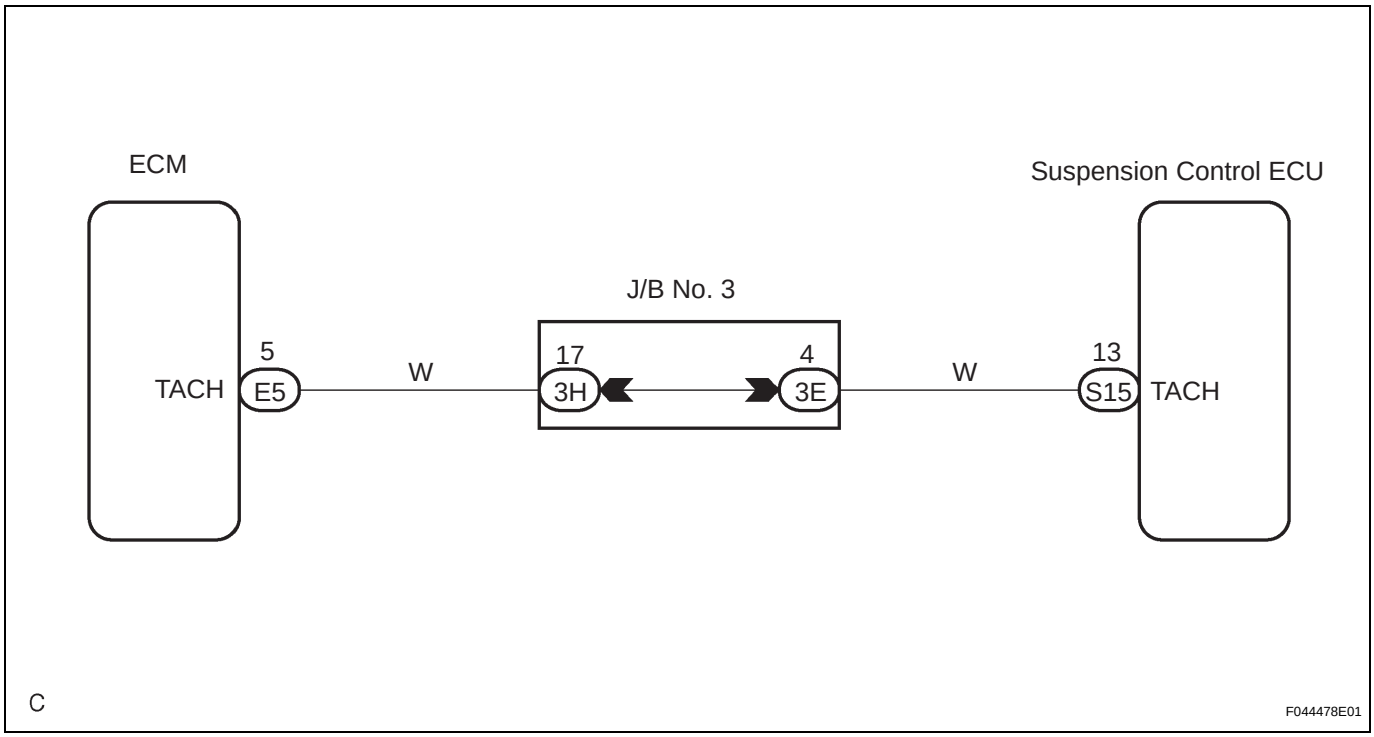
DESCRIPTION

The suspension control ECU receives the engine speed signal from the ECM.
When inspecting by test mode, the suspension control ECU scans changes in the signals. If there is no change, it outputs the test DTC (C1797/97).

DTC No.	DTC Detecting Condition	Trouble Area
C1779/79	TACH signal is not sent to suspension control ECU, and the vehicle is driven for 10 sec. or more at the speed of 30 km/h (19 mph) or higher.	• Crankshaft position sensor • Crankshaft position sensor circuit • ECM • Suspension control ECU

HINT:
When DTC C1797/97 is output, follow the same procedure as that of DTC1779/79.

WIRING DIAGRAM



HINT:
Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

SC

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal Condition
ENGINE SPD	Actual engine speed

(d) Check that there is no difference between the engine speed value output from the crankshaft position sensor displayed on the intelligent tester and the engine speed value displayed on the tachometer when driving the vehicle.

OK:

There is almost no difference in the displayed engine speed values.

HINT:

There is tolerance of +- 10 % in the tachometer indication.

NG → **Go to step 2**

OK ↓

REPLACE SUSPENSION CONTROL ECU

2 CHECK DTC OUTPUT

(a) Check if the normal code is output by SFI system (See page ES-4).

OK:

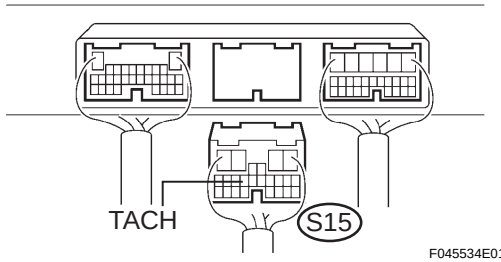
No DTC output from SFI system.

NG → **REPAIR CIRCUIT INDICATED BY OUTPUT CODE**

OK ↓

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - ECM)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S15 connector.

(b) Disconnect the ECM E5 connector.

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

Resistance

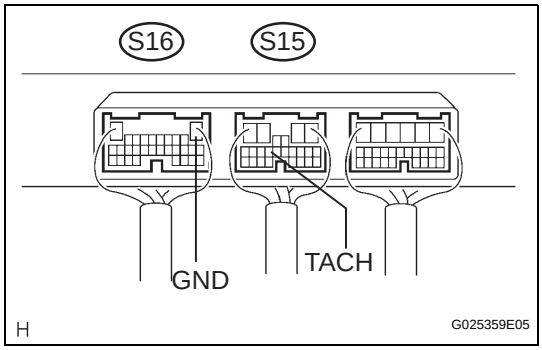
Tester Connection	Specified Condition
S15-13 (TACH) - E5-5 (TACH)	Below 1 Ω
S15-13 (TACH) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ↓

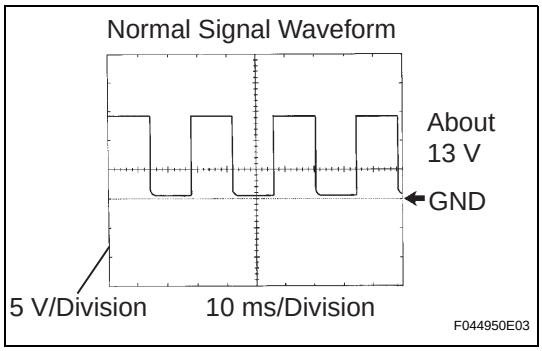
SC

4	**INSPECT SUSPENSION CONTROL ECU (TACH)**



(a) Connect the suspension control ECU S15 connector.
(b) Connect the ECM E5 connector.
(c) Remove the ECM with connector being connected.
(d) Turn the ignition switch to the ON position.
(e) Check output waveform.
(1) Using an oscilloscope, connect the terminals, as shown in the chart below.

Tester Connection
S15-13 (TACH) - S16-1 (GND)



(2) With the engine idling, check the output waveform.
OK:
The output waveform appears as shown in the illustration.

Item	Contents
Tool setting	5V / DIV, 10 ms / DIV
Vehicle condition	When engine idling

HINT:
As the engine speed becomes higher, the waveform cycle gets shorter.

NG → **REPLACE ECM**

OK

REPLACE SUSPENSION CONTROL ECU

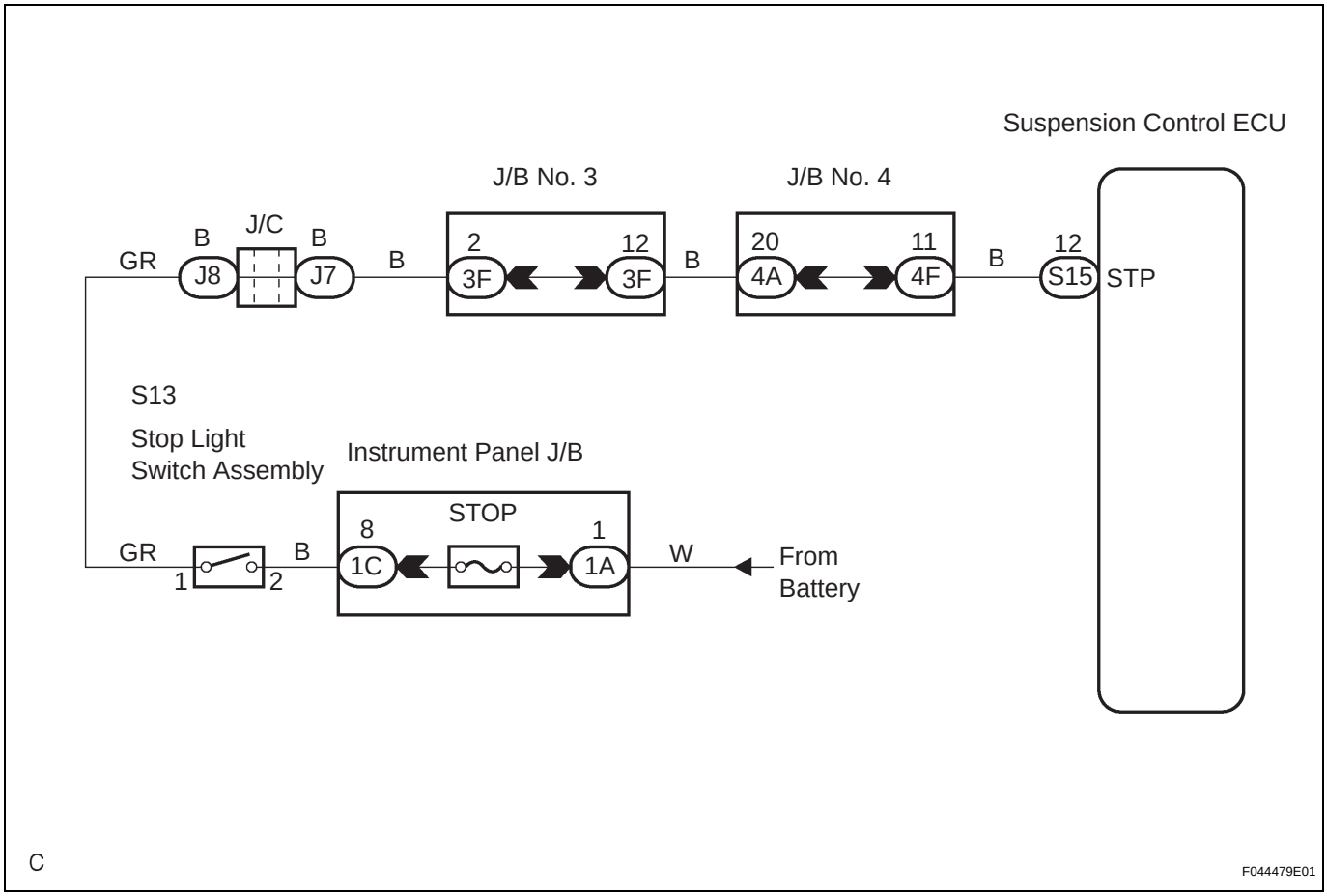
DTC	C1782/82	Stop Light Switch Circuit

DESCRIPTION

When the brake pedal is depressed, the stop lights come on and the signal is sent to the STP terminal of suspension control ECU.
When inspecting by test mode, the suspension control ECU scans changes to the signals. If there is no change, it outputs the test DTC (C1782/82).

DTC No.	DTC Detecting Condition	Trouble Area
C1782/82	The signal from the stop light switch assembly does not change.	• Stop light switch assembly • Stop light switch circuit • Suspension control ECU

WIRING DIAGRAM



1	CHECK STOP LIGHT SWITCH OPERATION

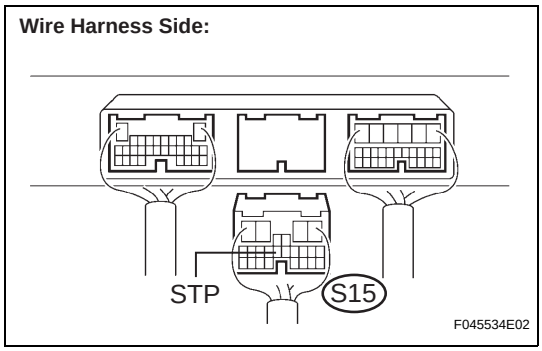
(a) Check that the stop light comes on when the brake pedal is depressed and goes off when the brake pedal is released.
OK:
Stop light switch functions normally.

NG	Go to step 3

SC

OK

2	INSPECT SUSPENSION CONTROL ECU



(a) Disconnect the suspension control ECU S15 connector.
(b) Measure the voltage according to the values in the table below.

Voltage

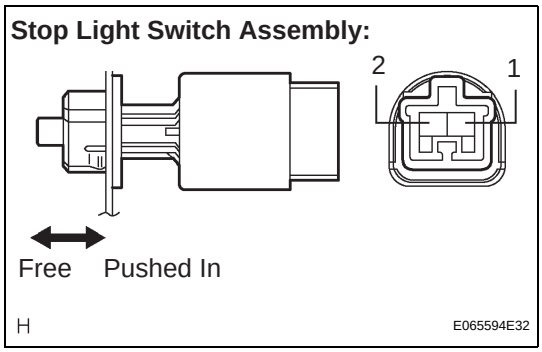
Switch Condition	Tester Connection	Specified Condition
Brake pedal depressed	S15-12 (STP) - Body ground	10 to 14 V
Brake pedal released	S15-12 (STP) - Body ground	Below 1.5 V

NG → Go to step ****

OK

REPLACE SUSPENSION CONTROL ECU

3	INSPECT STOP LIGHT SWITCH ASSEMBLY



(a) Disconnect the stop light switch assembly connector.
(b) Measure the voltage according to the values in the table below.

Resistance

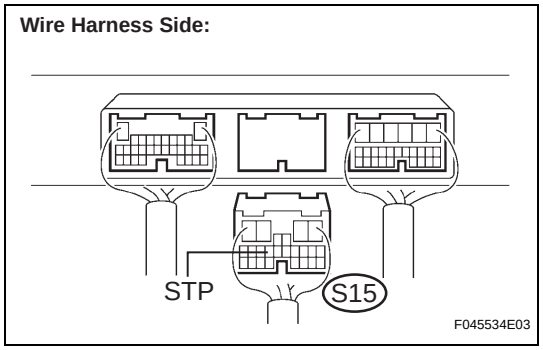
Switch Condition	Tester Connection	Specified Condition
Switch pin free	1 - 2	Below 1 Ω
Switch pin pushed in	1 - 2	10 kΩ or higher

NG → REPLACE STOP LIGHT SWITCH ASSEMBLY

OK

SC

4	INSPECT SUSPENSION CONTROL ECU



(a) Disconnect the suspension control ECU S15 connector.
(b) Measure the voltage according to the values in the table below.

Voltage

Switch Condition	Tester Connection	Specified Condition
Brake pedal depressed	S15-12 (STP) - Body ground	10 to 14 V
Brake pedal released	S15-12 (STP) - Body ground	Below 1.5 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE SUSPENSION CONTROL ECU

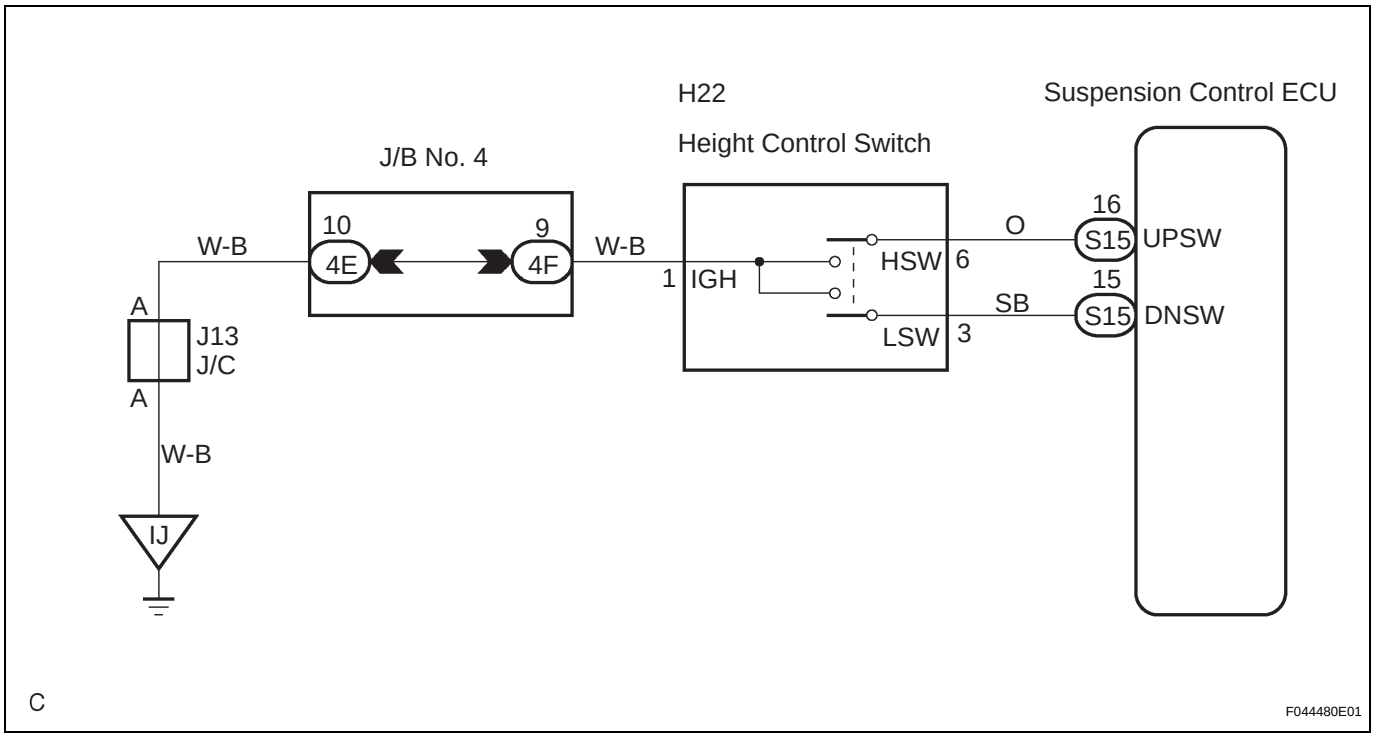
DTC C1786/86 Height Control Switch Circuit

DESCRIPTION

By controlling the height control switch, the vehicle height can be set 30 mm (1.18 in.) higher in "HI mode" and 15 mm (0.59 in.) lower in "LO mode" than normal vehicle height.
Even though the vehicle is operated in normal mode, the vehicle height is set approx. 7.5 mm (0.295 in.) lower than normal vehicle height while driving at high speed.
HINT:
Driving in the "HI mode" is only possible when the vehicle's speed is less than 30 km/h (19 mph).

DTC No.	Detecting Condition	Trouble Area
C1786/86	Height control switch signal does not change.	• Height control switch • Height control switch circuit • Suspension control ECU

WIRING DIAGRAM



HINT:
Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

SC

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on,
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal Condition
HEIGHT SW DOWN	ON: Height control switch while pressing "DOWN" button OFF: Neutral position
HEIGHT SW UP	ON: Height control switch while pressing "UP" button OFF: Neutral position

(d) Check that the value displayed on the intelligent tester changes by pressing the height control switch "UP" or "DOWN".

OK:

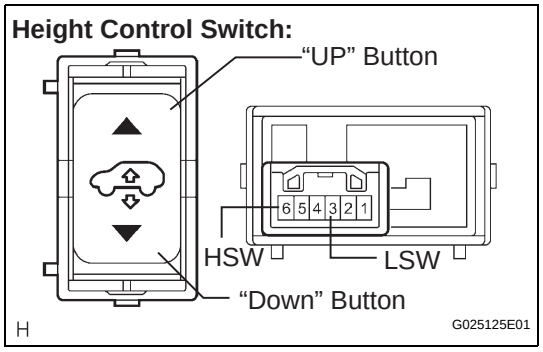
Height control switch value changes.

NG → **Go to step 2**

OK

REPLACE SUSPENSION CONTROL ECU

2 INSPECT HEIGHT CONTROL SWITCH



(a) Disconnect the height control switch connector.

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

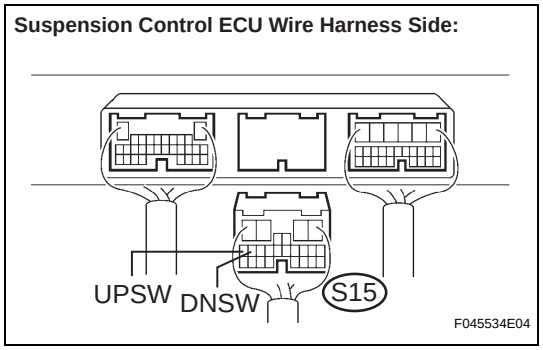
Resistance

Switch Condition	Tester Connection	Specified Condition
"Down" button	1 (IGH) - 3 (LSW)	Below 1 Ω
OFF	1 (IGH) - 3 (LSW) 1 (IGH) - 6 (HSW)	10 kΩ or higher
"UP" button	1 (IGH) - 6 (HSW)	Below 1 Ω

NG → **REPLACE HEIGHT CONTROL SWITCH**

OK

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL SWITCH)



(a) Disconnect the suspension control ECU S15 connector.

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

Resistance

Tester Connection	Specified Condition
S15-15 (DNSW) - H22-3 (LSW)	Below 1 Ω
S15-16 (UPSW) - H22-6 (HSW)	Below 1 Ω
S15-15 (DNSW) - Body ground	10 kΩ or higher
S15-16 (UPSW) - Body ground	10 kΩ or higher

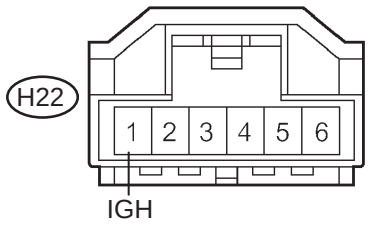
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

SC

OK

4	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL SWITCH - BODY GROUND)

Height Control Switch Wire Harness Side:



(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
H22-1 (IGH) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

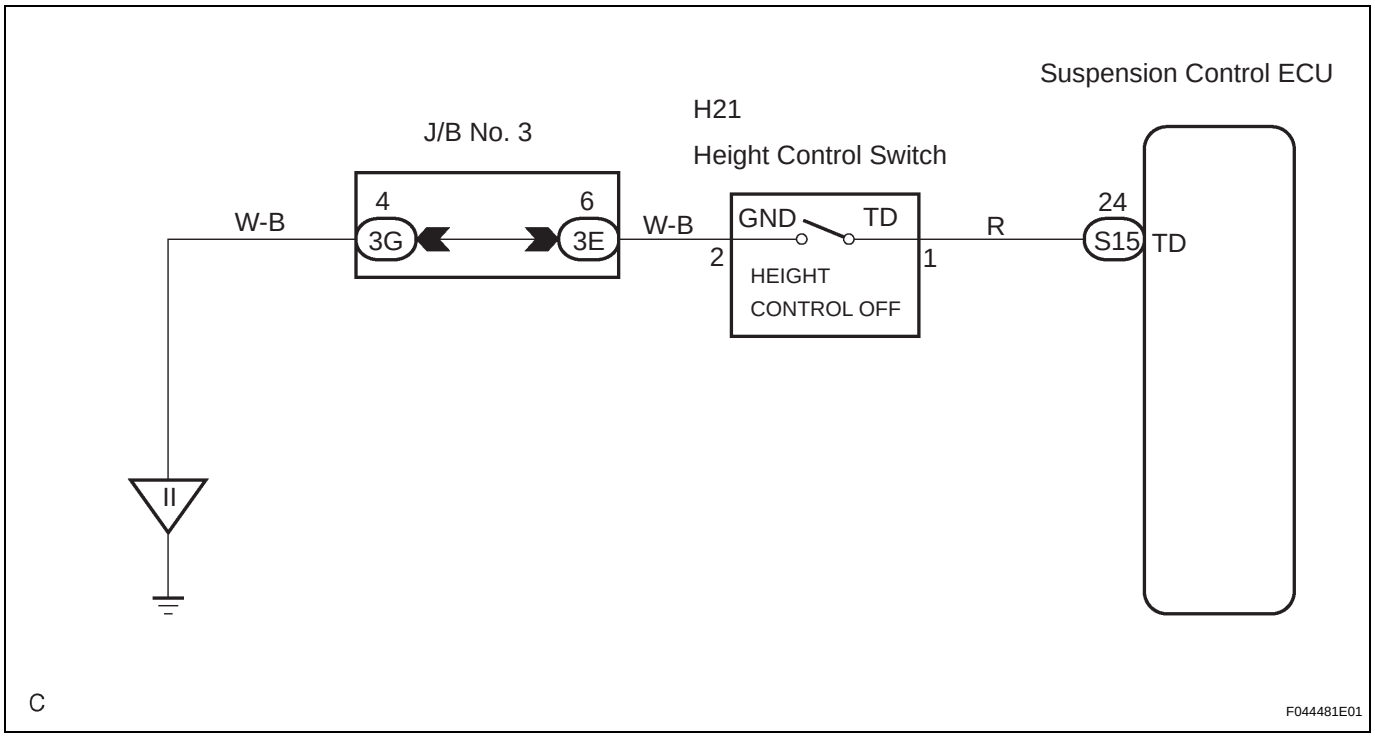
DTC	C1788/88	Height Control OFF Switch Circuit

DESCRIPTION

When selecting the height control OFF switch, all the vehicle height controls are suspended. Do not work under the vehicle, when the height control OFF switch does not operate properly. Disallowance of the vehicle height control is recorded even when the minus terminal of the battery is disconnected.

DTC No.	DTC Detecting Condition	Trouble Area
C1788/88	Height control OFF switch signal does not change.	• Height control OFF switch • Height control OFF switch circuit • Suspension control ECU

WIRING DIAGRAM



HINT:
Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent d tester.

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal Condition
HEIGHT SW HOLD	**ON: Height control OFF switch pressing** **OFF: -**

(d) Check that the value displayed on the intelligent tester changes by pressing the height control OFF switch.

SC

OK:
Height control OFF switch value changes.

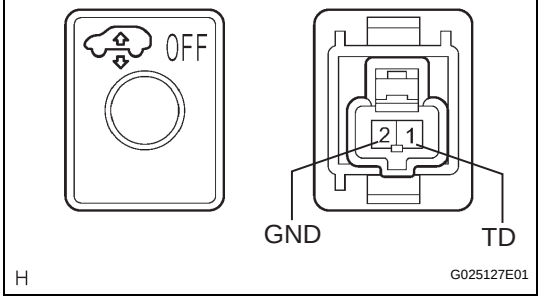
NG → **Go to step 2**

OK

REPLACE SUSPENSION CONTROL ECU

2 INSPECT HEIGHT CONTROL OFF SWITCH

Height Control OFF Switch:



(a) Disconnect the height control OFF switch connector.
(b) Measure the resistance according to the values in the table below.
Resistance

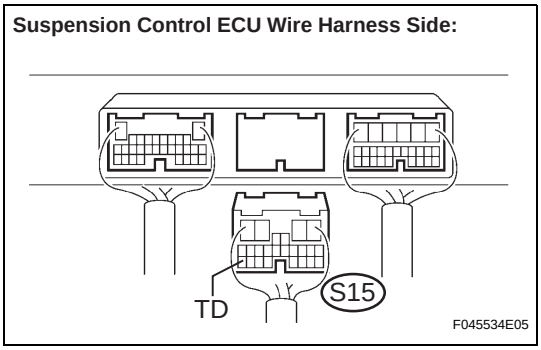
Switch Condition	Tester Connection	Specified Condition
Pushed in	1 (TD) - 2 (GND)	Below 1 Ω
Free	1 (TD) - 2 (GND)	10 kΩ or higher

NG → **REPLACE HEIGHT CONTROL OFF SWITCH**

OK

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - HEIGHT CONTROL OFF SWITCH)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S15 connector.
(b) Measure the resistance according to the values in the table below.
Resistance

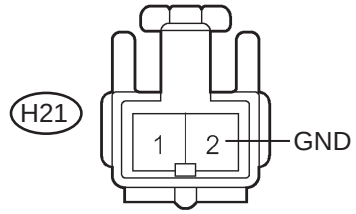
Tester Connection	Specified Condition
S15-24 (TD) - H21-1 (TD)	Below 1 Ω
S15-24 (TD) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4	CHECK HARNESS AND CONNECTOR (HEIGHT CONTROL OFF SWITCH - BODY GROUND)

Height Control OFF Switch Wire Harness Side:



F045507E01

(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
H21-2 (GND) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

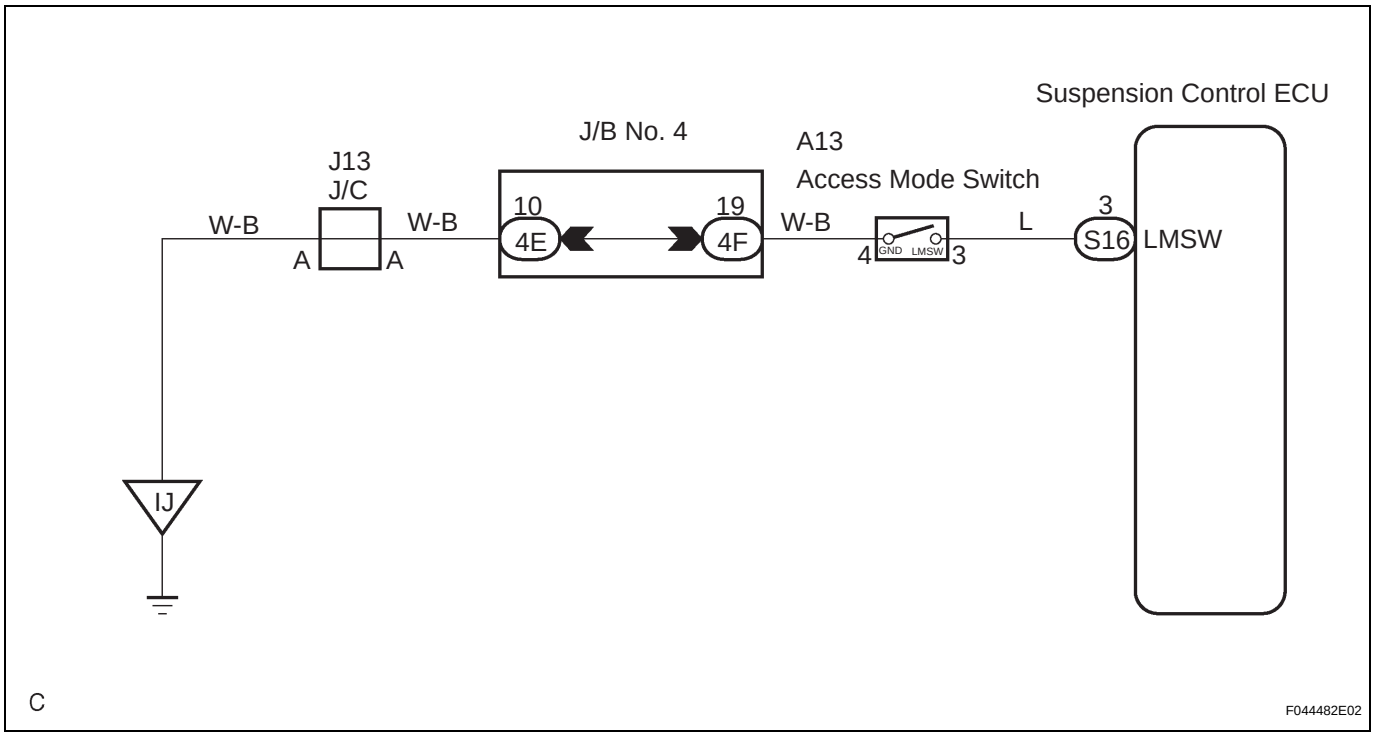
DTC	C1799/99	Access Mode Switch Circuit

DESCRIPTION

By selecting the access mode switch, the vehicle's height is set approx. 25 mm (0.98 in.) (approx. 30 mm (1.18 in.) for 4WD) lower than normal vehicle height.
While driving, vehicle height returns to the previously selected position.
HINT:
If the vehicle height mode is set in "HI mode", the access mode can not be operated.

DTC No.	DTC Detecting Condition	Trouble Area
C1799/99	Access mode switch signal does not change.	• Access mode switch • Access switch circuit • Suspension control ECU

WIRING DIAGRAM



HINT:
Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

SC

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position, and push the intelligent tester main switch on.
(c) Select the item below in the DATA LIST, and read its value displayed on the intelligent tester.

AIRSUS

Item	Normal Condition
ACCESS MODE SW	**ON: Access mode switch pressing** **OFF: -**

(d) Check that the value displayed on the intelligent tester changes by pressing the access mode switch.
OK:
Access mode switch value changes.

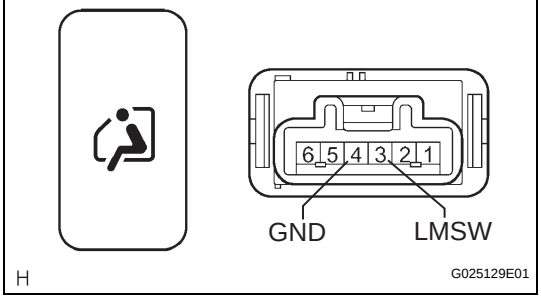
NG → **Go to step 2**

OK

REPLACE SUSPENSION CONTROL ECU

2 INSPECT ACCESS MODE SWITCH

Access Mode Switch:



(a) Disconnect the access mode switch connector.
(b) Measure the resistance according to the values in the table below.
Resistance

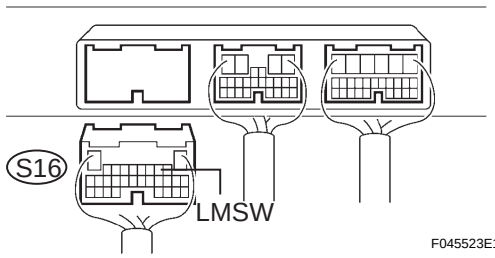
Switch Condition	Tester Connection	Specified Condition
Pushed in	3 (LMSW) - 4 (GND)	Below 1 Ω
Free	3 (LMSW) - 4 (GND)	10 kΩ or higher

NG → **REPLACE ACCESS MODE SWITCH**

OK

3 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - ACCESS MODE SWITCH)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
S16-3 (LMSW) - A13-3 (LMSW)	Below 1 Ω
S16-3 (LMSW) - Body ground	10 kΩ or higher

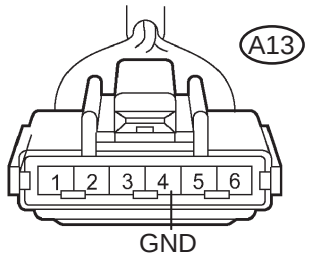
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

SC

4	CHECK HARNESS AND CONNECTOR (ACCESS MODE SWITCH - BODY GROUND)

Access Mode Switch Wire Harness Side:



(a) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
A13-4 (GND) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

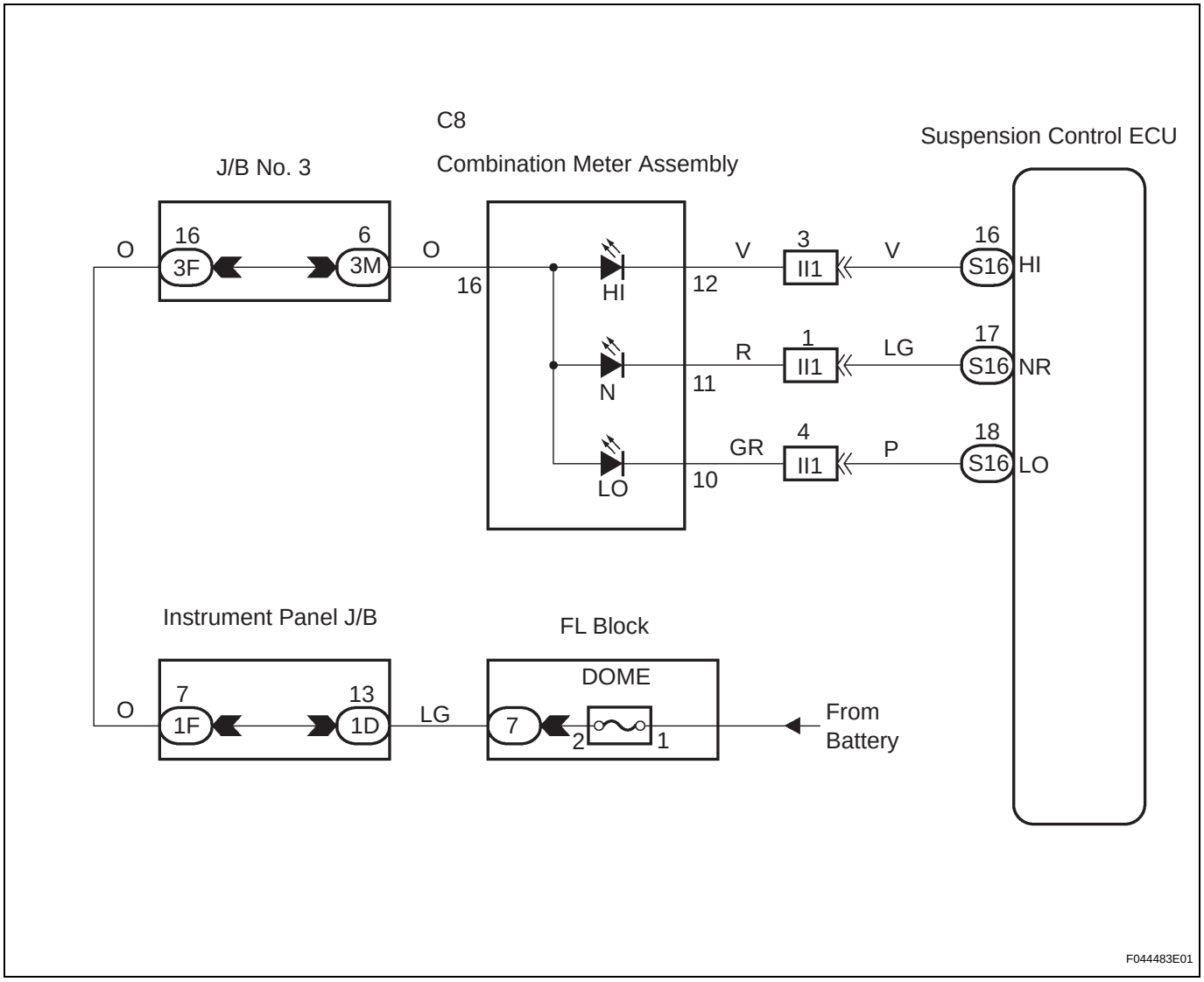
REPLACE SUSPENSION CONTROL ECU

Height Control Indicator Light Circuit

DESCRIPTION

The height control indicator light indicates the target height, not the actual height. It blinks when the height control is operated by pressing the height control switch and stays on when the operation is completed.
05CI9?01

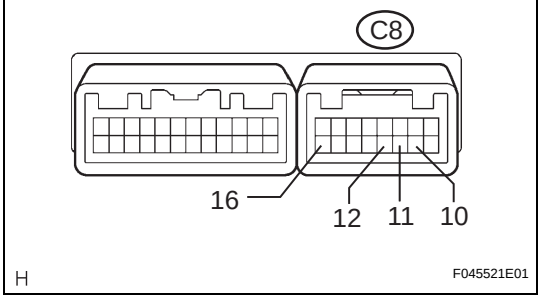
WIRING DIAGRAM



SC

1	INSPECT COMBINATION METER ASSEMBLY (HEIGHT CONTROL INDICATOR LIGHT)

Combination Meter Assembly:



(a) Remove the combination meter assembly.
(b) Check indicator light on the combination meter assembly.
  (1) Check that the height control indicator light (HI, N, LO) comes on of the combination meter assembly when positive battery voltage is applied to the terminals as shown in the chart below.

Indicator Light	Battery Positive	Battery Negative
HI	C8-16	C8-12
N	C8-16	C8-11
LO	C8-16	C8-10

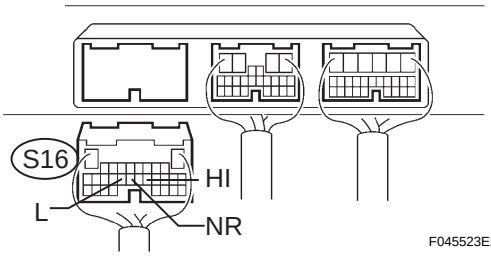
OK:
Height control indicator light (HI, N, LO) comes on.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

2	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - COMBINATION METER ASSEMBLY)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.
Resistance

Tester Connection	Specified Condition
S16-16 (HI) - C8-12	Below 1 Ω
S16-17 (NR) - C8-11	Below 1 Ω
S16-18 (LO) - C8-10	Below 1 Ω
S16-16 (HI) - Body ground	10 kΩ or higher
S16-17 (NR) - Body ground	10 kΩ or higher
S16-18 (LO) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

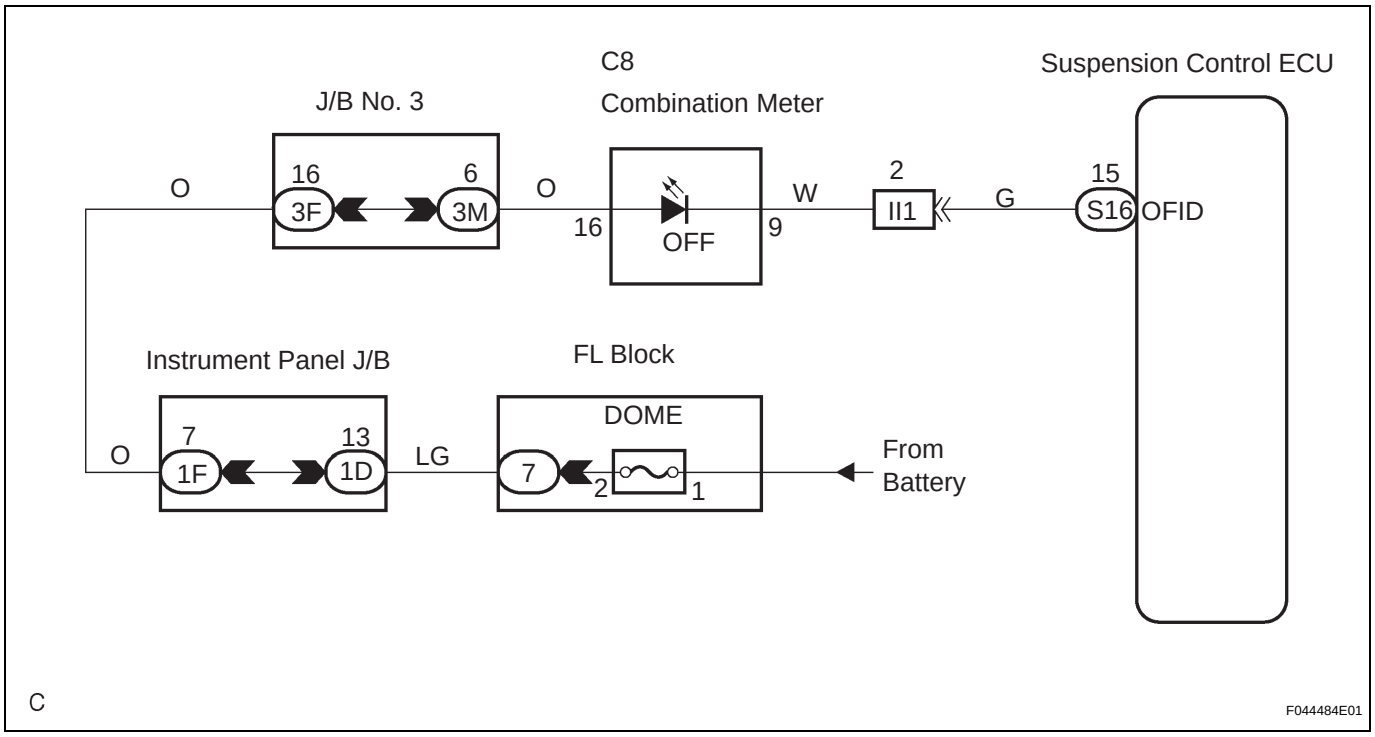
SC

Height Control OFF Indicator Light Circuit

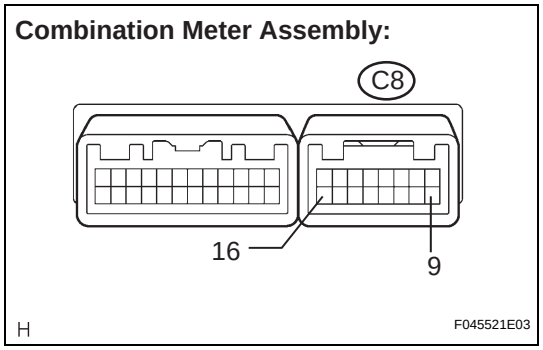
DESCRIPTION

If the suspension control ECU detects a problem, the height control OFF indicator light comes on while suspending the height control function at the same time. At this time, the suspension control ECU records a DTC. Connect terminal TC and CG of the DLC3 to make the height control OFF indicator light flash and output DTC.

WIRING DIAGRAM



1	INSPECT COMBINATION METER ASSEMBLY (HEIGHT CONTROL OFF INDICATOR LIGHT)



(a) Remove the combination meter.
(b) Check indicator light on the combination meter assembly.
  (1) Check that the height control OFF indicator light comes on when battery positive voltage is applied to the terminals as shown in the chart below.

Indicator Light	Battery Positive	Battery Negative
OFF	C8-16	C8-9

OK:
Height control OFF indicator light comes on.

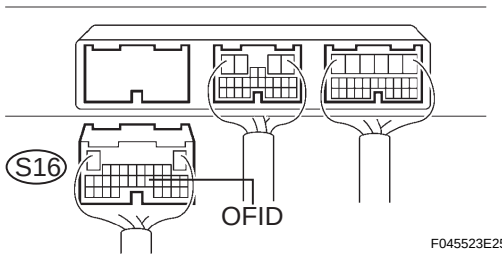
NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

SC

2	CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - COMBINATION METER ASSEMBLY)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S16-15 (OFID) - C8-9	Below 1 Ω
S16-15 (OFID) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

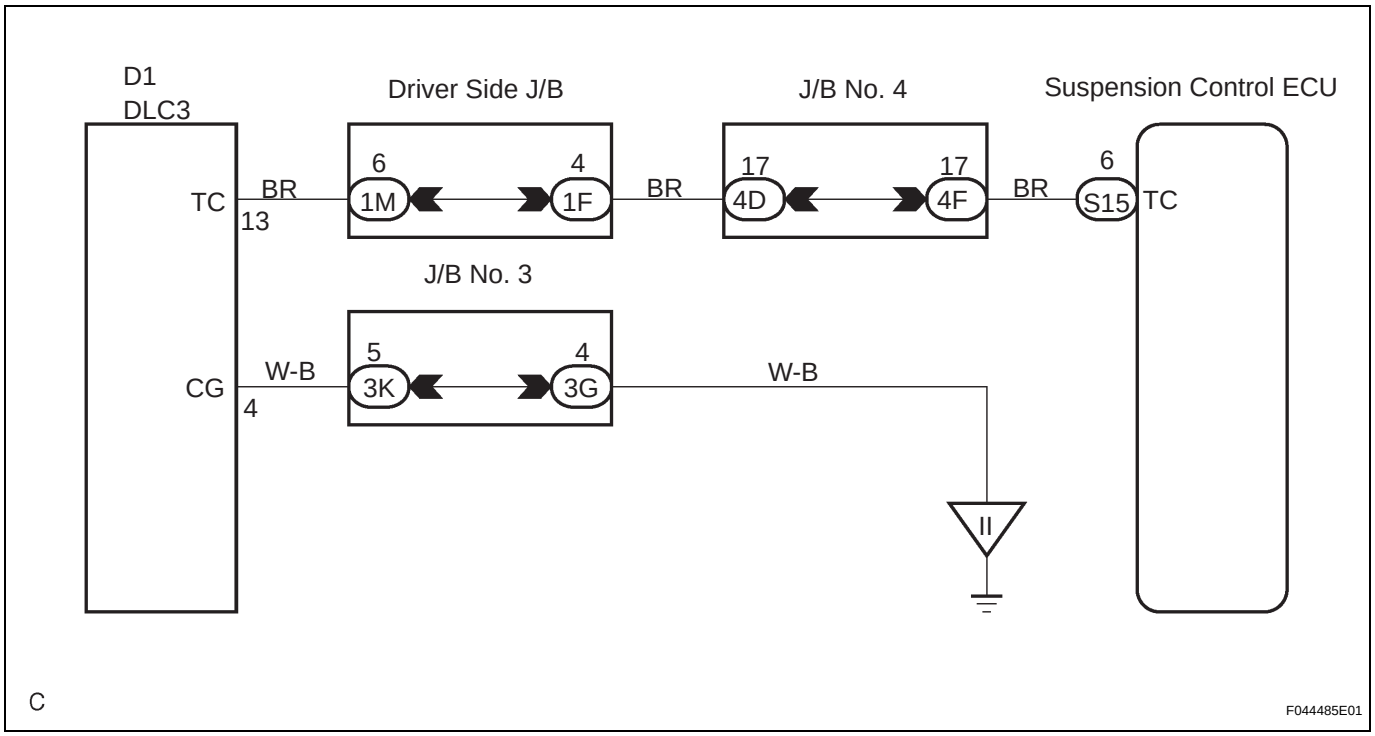
REPLACE PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

TC and CG Terminal Circuit

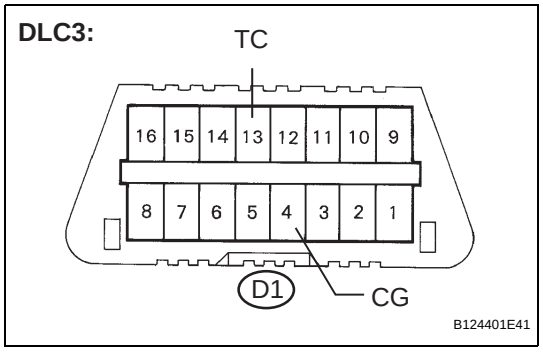
DESCRIPTION

DTC is output when there is a short circuit between terminal TC and CG of the DLC3.

WIRING DIAGRAM



1 INSPECT DLC3 TERMINAL VOLTAGE (TC TERMINAL)



(a) Turn the ignition switch to the ON position.
(b) Measure the voltage according to the value in the table below.

Voltage

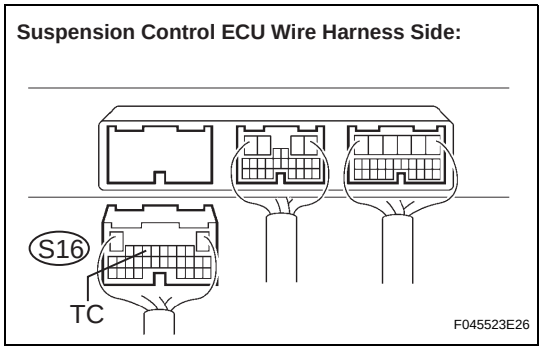
Tester Connection	Specified Condition
D1-13 (TC) - D1-4 (CG)	10 to 14 V

NG → **Go to step 3**

OK

SC

2 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - DLC3)



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.

Resistance

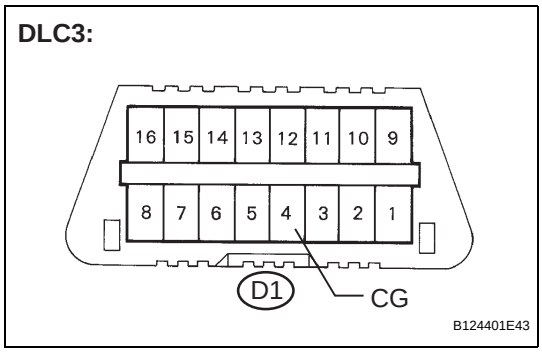
Tester Connection	Specified Condition
S16-6 (TC) - D1-13 (TC)	Below 1 Ω
S16-6 (TC) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

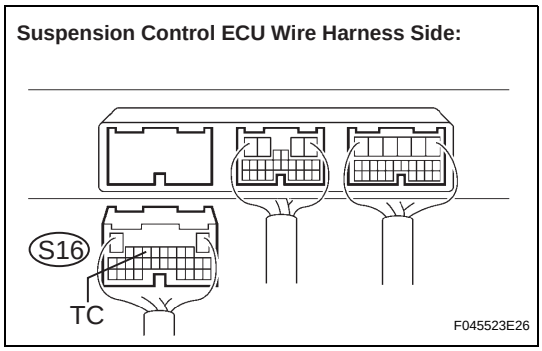
3 CHECK HARNESS AND CONNECTOR (DLC3 - BODY GROUND)



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

Resistance

Tester Connection	Specified Condition
D1-4 (CG) - Body ground	Below 1 Ω



(b) Disconnect the suspension control ECU S16 connector.
(c) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S16-6 (TC) - D1-13 (TC)	Below 1 Ω
S16-6 (TC) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - DLC3)

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

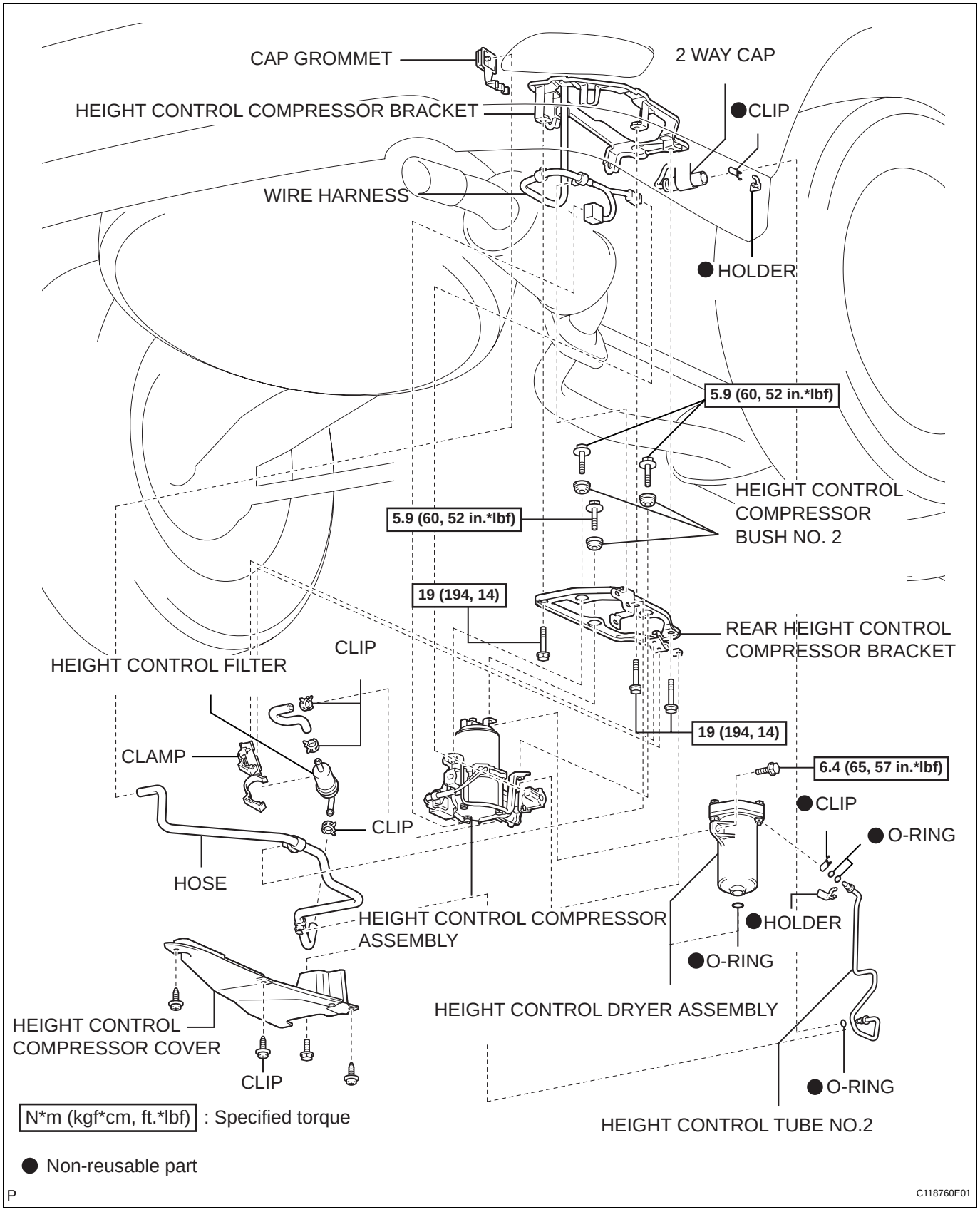
SC

OK

REPLACE SUSPENSION CONTROL ECU

HEIGHT CONTROL COMPRESSOR

COMPONENTS



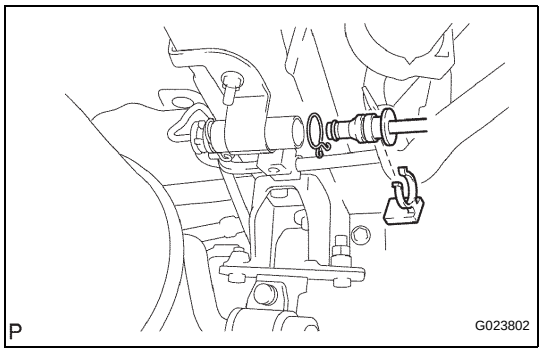
SC

REMOVAL

NOTICE:
Before disconnecting the air tube, press the height control OFF switch to stop the vehicle height control operation.

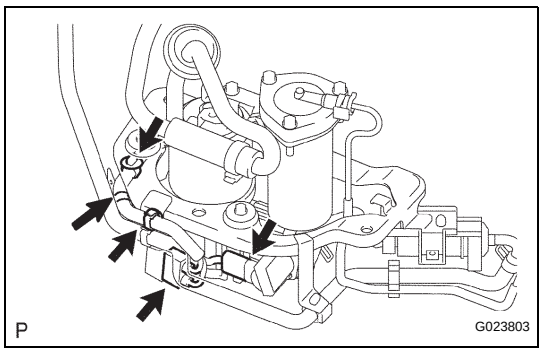
1. REMOVE HEIGHT CONTROL COMPRESSOR COVER

(a) Remove the 2 screws, the bolt, the clip and the height control compressor cover.



2. DISCONNECT HEIGHT CONTROL TUBE NO.2

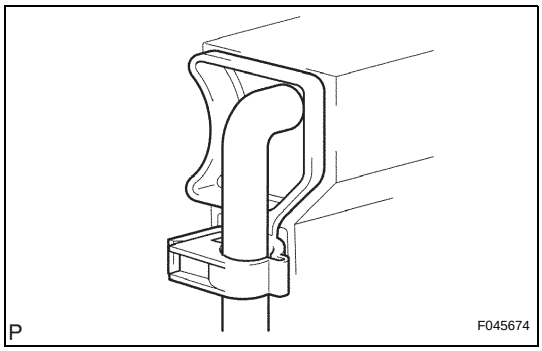
(a) Remove the clip and holder.
(b) Disconnect the height control tube No. 2 from the 2 way cap.
HINT:
For the disconnecting procedure of the (type 3) tube, refer to PRECAUTION of SUSPENSION CONTROL SYSTEM (See page SC-1).



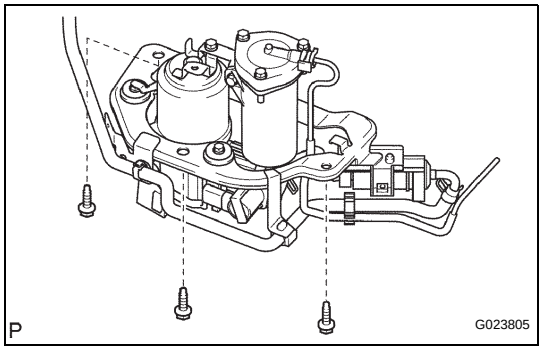
3. REMOVE REAR HEIGHT CONTROL COMPRESSOR BRACKET

(a) Remove the 3 clamps and disconnect the 2 connectors and wire harness.

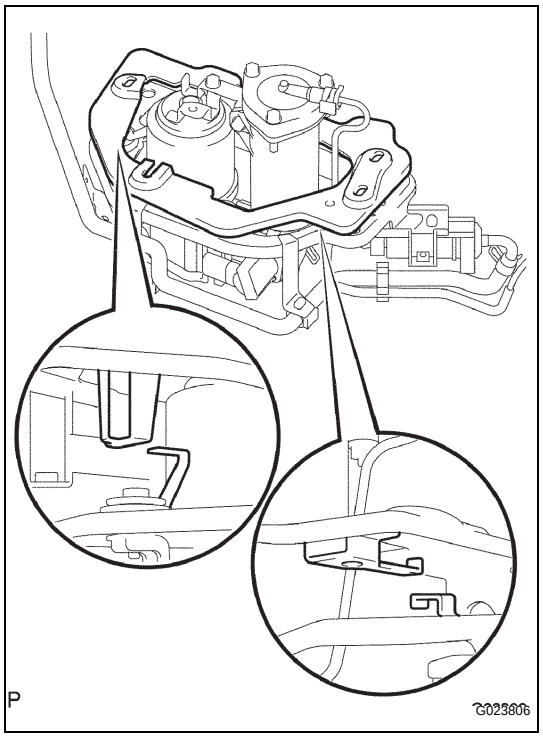
(b) Remove the clamp.
(c) Disconnect the hose from the cap grommet.



(d) Remove the 3 bolts.



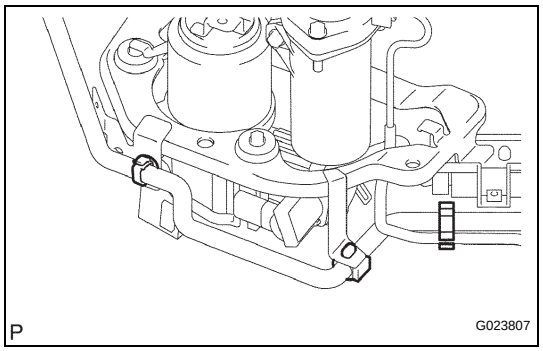
SC



(e) Slide the rear height control compressor bracket to the front of the vehicle, and release the claws A and B from the height control compressor bracket.
(f) Remove the rear height control compressor w/ bracket assembly.

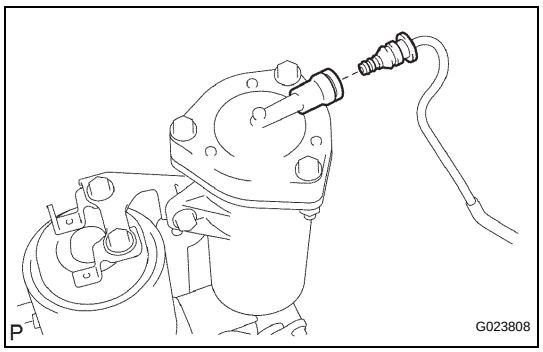
4. REMOVE HEIGHT CONTROL FILTER

(a) Remove the clamp, 2 clips and 2 hoses.
(b) Remove the height control filter.



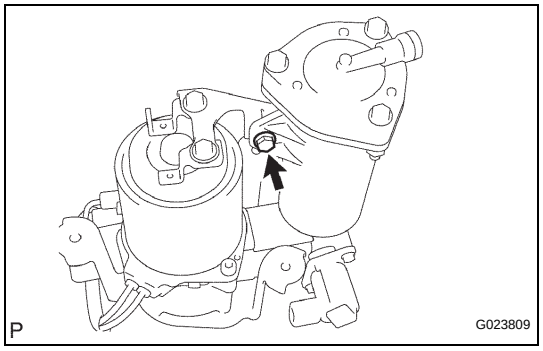
5. REMOVE REAR HEIGHT CONTROL COMPRESSOR BRACKET

(a) Remove the 3 clamps.
(b) Remove the 3 bolts and the 3 height control compressor bush No. 2 from the rear height control compressor bracket.



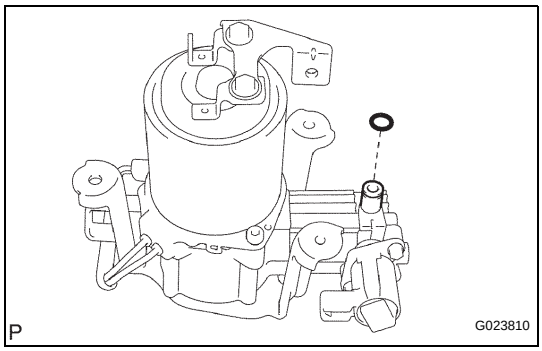
6. REMOVE HEIGHT CONTROL DRYER ASSEMBLY

(a) Remove the clip and holder.
(b) Remove the height control tube No. 2 from the height control dryer assembly.



(c) Remove the bolt and the height control dryer assembly from the height control compressor assembly.

SC



7. REMOVE HEIGHT CONTROL COMPRESSOR ASSEMBLY

(a) Remove the O-ring.

HINT:

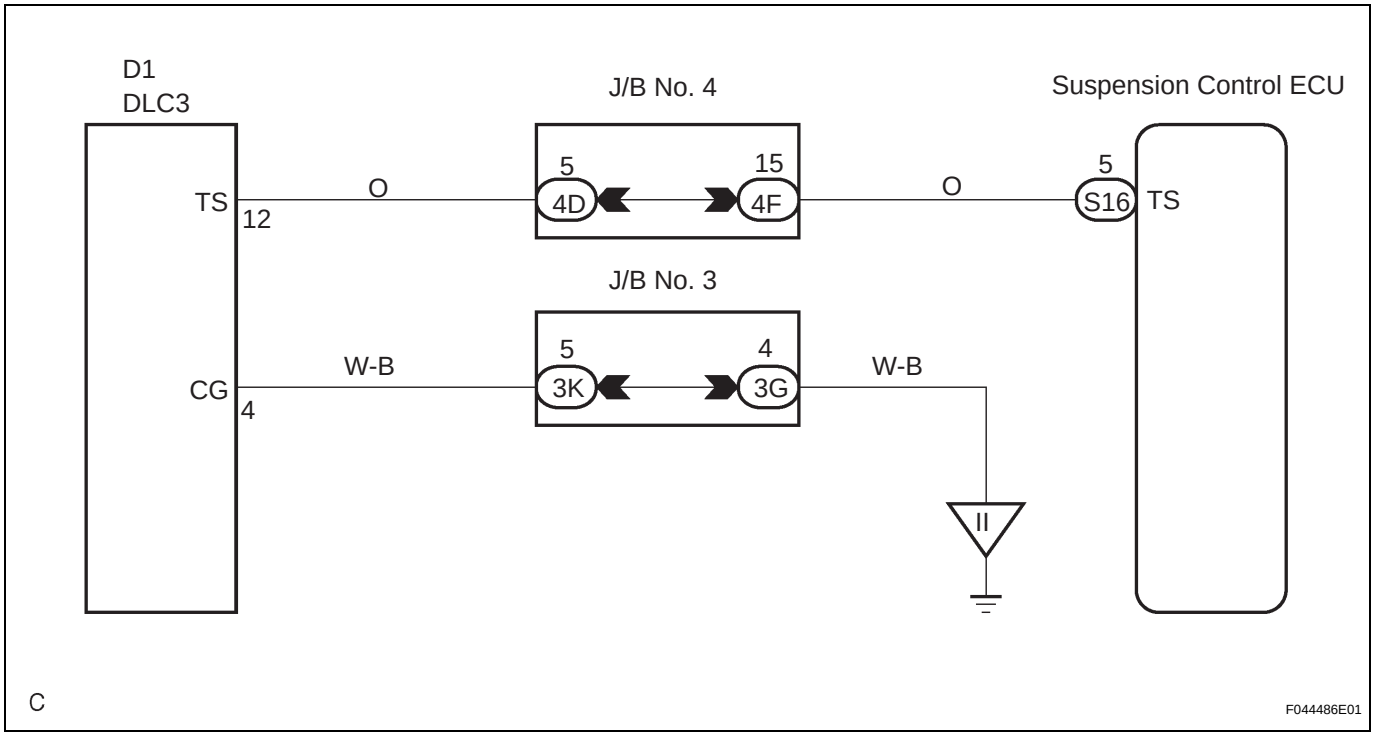
When the height control compressor assembly is replaced with a new one, it doesn't require a new O-ring.

TS and CG Terminal Circuit

DESCRIPTION

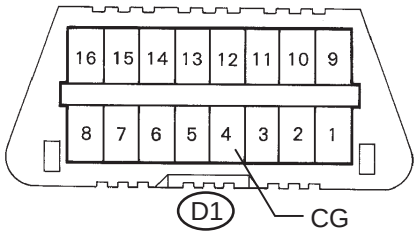
Connect terminals TS and CG of the DLC3 with the ignition switch OFF.
When the ignition switch is turned to the ON position, test mode will started and then the DTCs will be output.

WIRING DIAGRAM



1	INSPECT DLC3 TERMINAL VOLTAGE (TS TERMINAL)

DLC3:



(a) Turn the ignition switch to the ON position.
(b) Measure the voltage according to the value in the table below.

Voltage

Tester Connection	Specified Condition
D1-12 (TS) - D1-4 (CG)	10 to 14 V

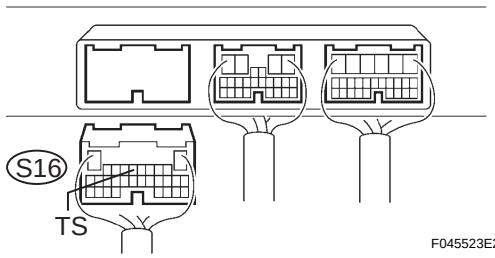
NG → **Go to step 3**

OK

SC

2 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - DLC3)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S16-5 (TS) - D1-12 (TS)	Below 1 Ω
S16-5 (TS) - Body ground	10 kΩ or higher

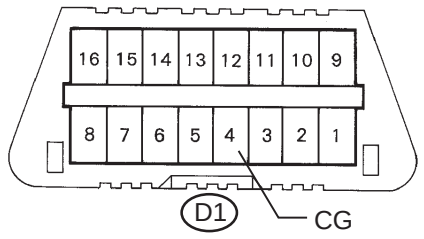
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

3 CHECK HARNESS AND CONNECTOR (DLC3 - BODY GROUND)

DLC3:



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

Resistance

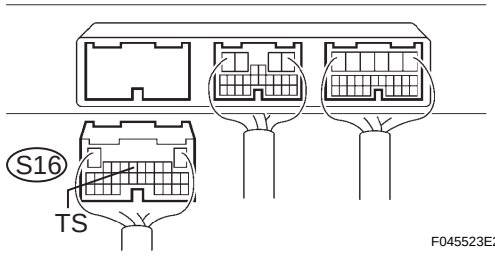
Tester Connection	Specified Condition
D1-4 (CG) - Body ground	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4 CHECK HARNESS AND CONNECTOR (SUSPENSION CONTROL ECU - DLC3)

Suspension Control ECU Wire Harness Side:



(a) Disconnect the suspension control ECU S16 connector.
(b) Measure the resistance according to the values in the table below.

Resistance

Tester Connection	Specified Condition
S16-5 (TS) - D1-12 (TS)	Below 1 Ω
S16-5 (TS) - Body ground	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE SUSPENSION CONTROL ECU

SC

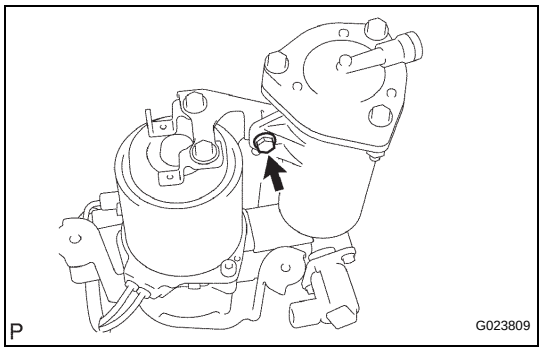
INSTALLATION

1. INSTALL HEIGHT CONTROL COMPRESSOR ASSEMBLY

(a) Coat the O-ring with MP grease, install the height control compressor assembly.
HINT:
When the height control compressor assembly is replaced with new one, it doesn't require a new O-ring.

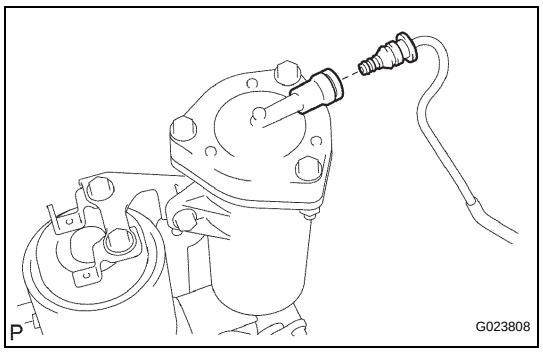
2. INSTALL HEIGHT CONTROL DRYER ASSEMBLY

(a) Install the height control dryer assembly with a bolt onto the height control compressor assembly.
Torque: 6.4 N*m (65 kgf*cm, 57 in.*lbf)



(b) Connect the height control tube No. 2 to the height control dryer assembly.

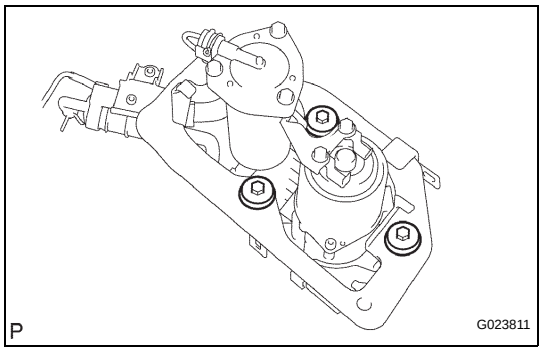
(c) Lock the clip and holder.
HINT:
For the installation procedure of the (type 3) tube, refer to PRECAUTION of SUSPENSION CONTROL SYSTEM (See page SC-1).



3. INSTALL REAR HEIGHT CONTROL COMPRESSOR BRACKET

(a) Install the 3 height control compressor bush No. 2 onto the rear height control compressor bracket.

(b) Install the rear height control compressor bracket with the 3 bolts onto the height control compressor assembly.
Torque: 5.9 N*m (60 kgf*cm, 52 in.*lbf)



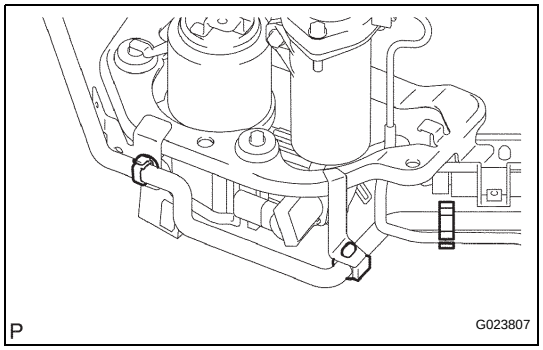
(c) Install the 3 clamps.

4. INSTALL HEIGHT CONTROL FILTER

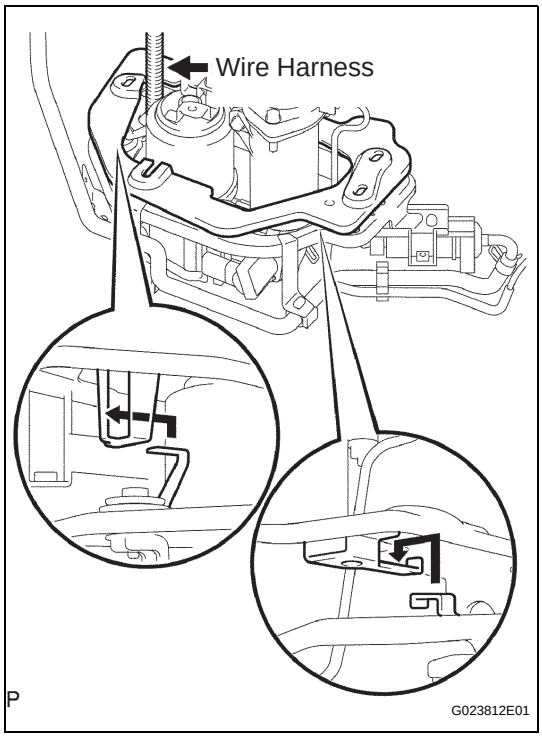
(a) Install the 2 hoses and 2 clips to the height control filter.

(b) Install a clamp onto the height control filter.

(c) Connect the height control filter onto the rear height control compressor bracket.

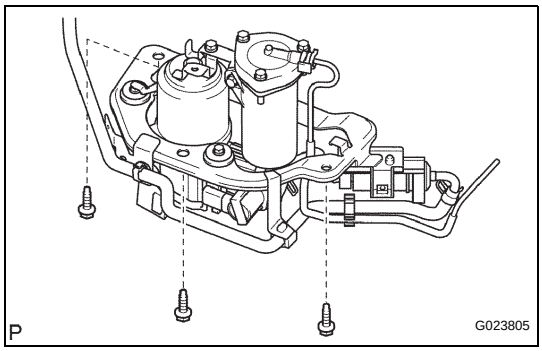


SC

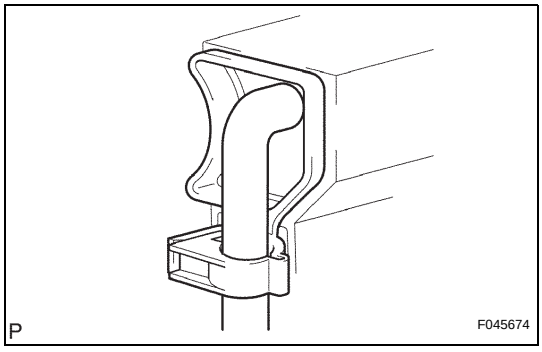


5. INSTALL REAR HEIGHT CONTROL COMPRESSOR BRACKET

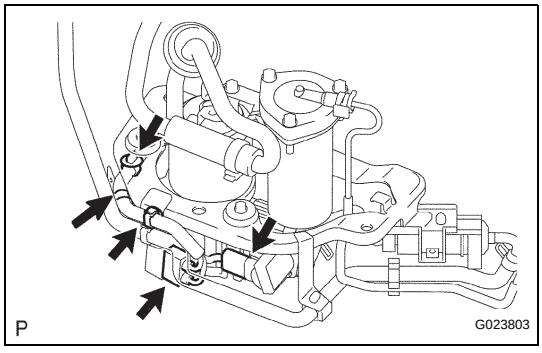
(a) Passing the wire harness sub-assembly between the bracket and compressor, temporarily place the bracket as shown in the illustration.



(b) Install the rear height control compressor bracket with the 3 bolts onto the height control compressor bracket.
Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)

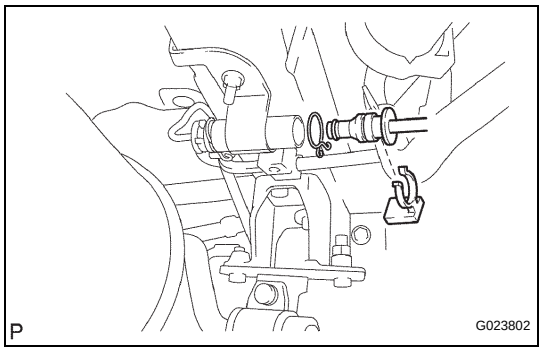


(c) Connect the hose to the cap grommet and clamp it.



(d) Install the 3 clamps and the 2 connectors.

SC



6. CONNECT HEIGHT CONTROL TUBE NO.2

(a) Install a new O-ring onto the height control tube No. 2.

(b) Coat the O-ring with MP grease.

(c) Connect the height control tube No. 2 to the 2 way cap.

(d) Lock the tube with a new clip and a new holder.
HINT:
For the installation procedure of the (type 3) tube, refer to PRECAUTION of SUSPENSION CONTROL SYSTEM (See page SC-1).

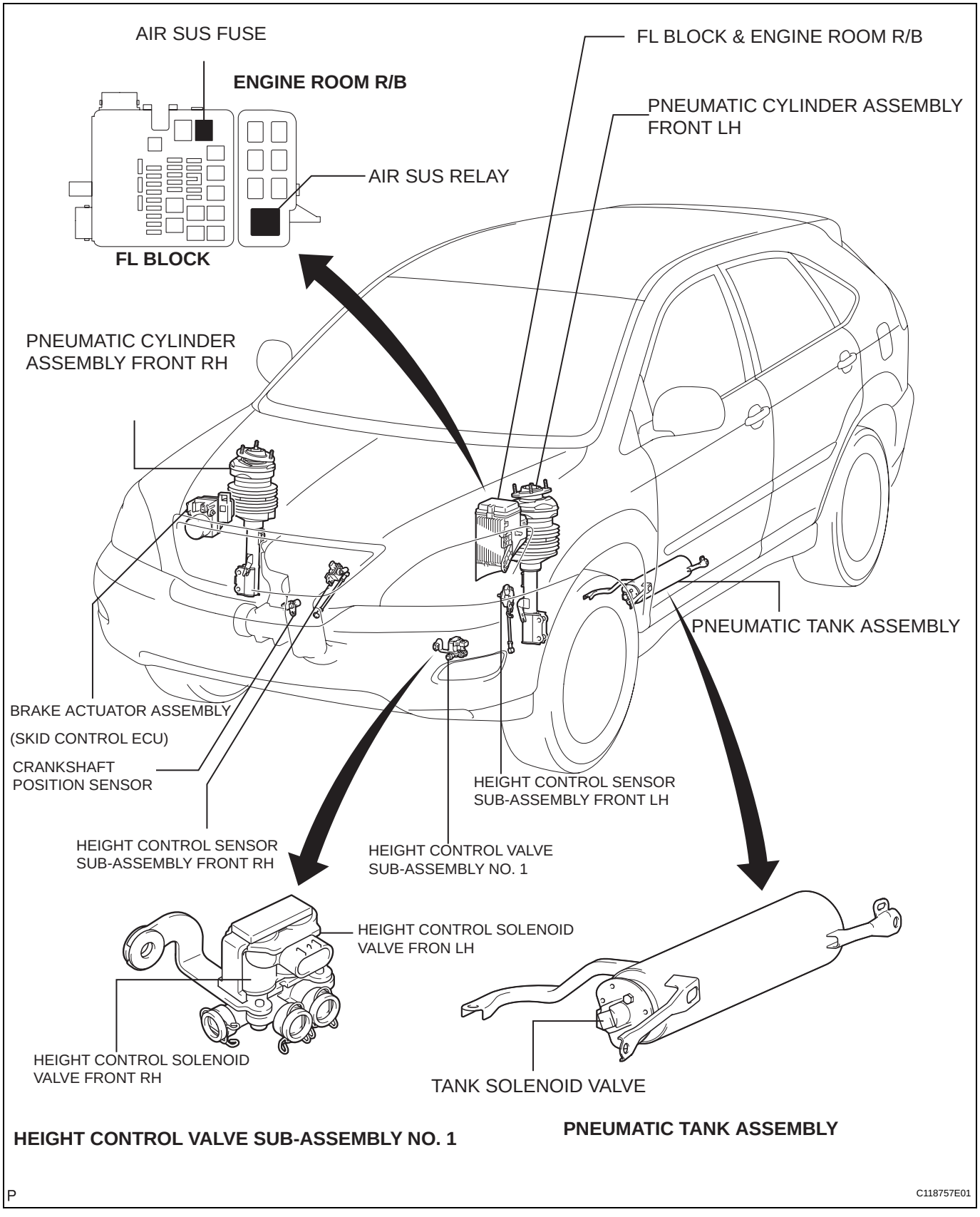
7. INSPECT AIR LEAK

8. INSTALL HEIGHT CONTROL COMPRESSOR COVER

(a) Install the height control compressor cover with the 2 screws, the clip and the bolt.

PNEUMATIC TANK WITH TUBE

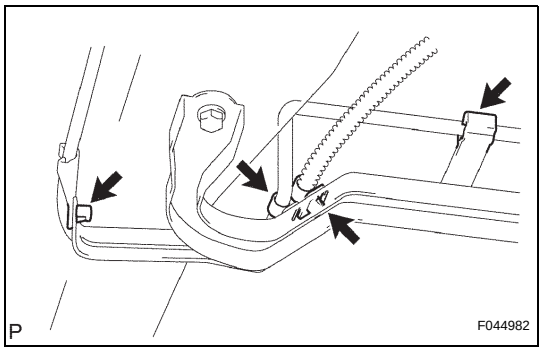
COMPONENTS



SC

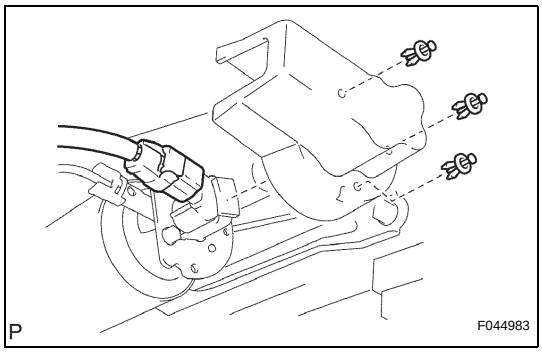
REMOVAL

HINT:
Before replacement, press the height control OFF switch to stop the vehicle height control operation.

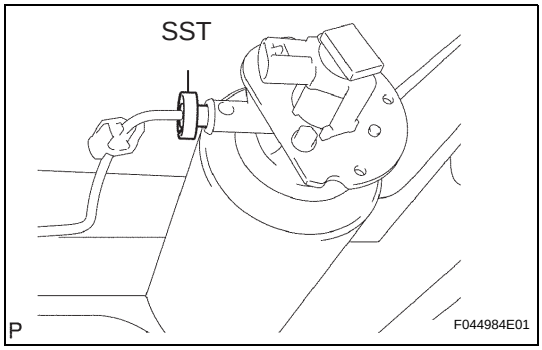


1. REMOVE PNEUMATIC W/TUBE TANK ASSEMBLY

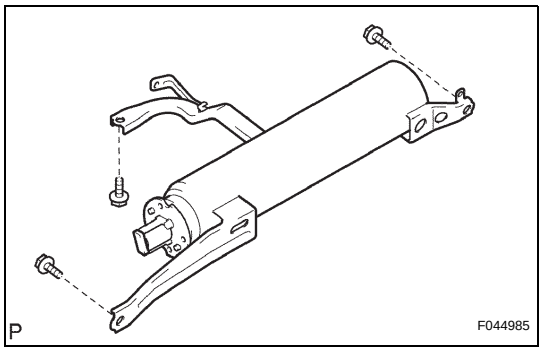
(a) Jack or lift the vehicle up.
(b) Remove the 4 clamps.
(c) Disconnect the height control tube No.1 and the wire harness from the pneumatic w/ tube tank assembly.
(d) Remove the 3 clips and height control tank cover.



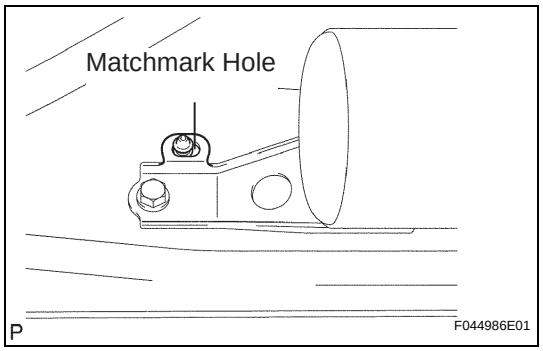
(e) Disconnect the connector.



(f) Using SST, disconnect the tube from the pneumatic w/ tube tank assembly.
SST 09730-00010
HINT:
For the removal procedure of the (type 2) tube, refer to PRECAUTION of SUSPENSION CONTROL SYSTEM (See page SC-1).



(g) Remove the 3 bolts and the pneumatic w/ tube tank assembly.



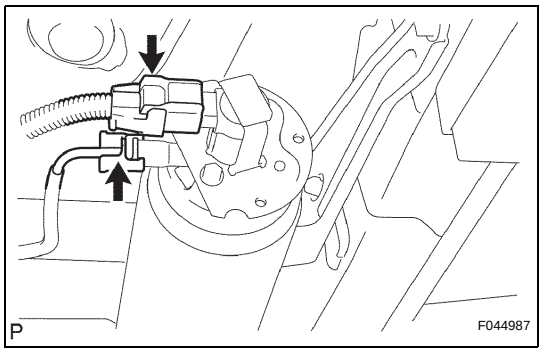
INSTALLATION

1. INSTALL PNEUMATIC W/TUBE TANK ASSEMBLY

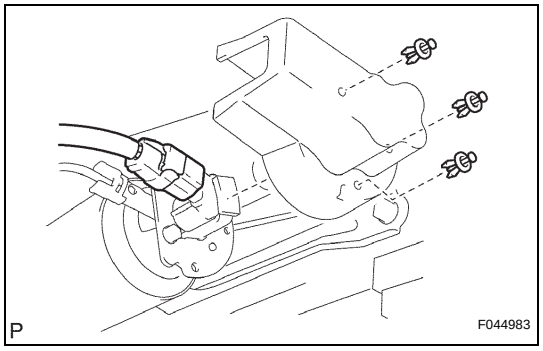
(a) Align the matchmark holes on the pneumatic w/ tube tank assembly with the proper positions, and install it to the body with 3 bolts.
Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

(b) Coat 2 new O-rings and a new plate with MP grease.

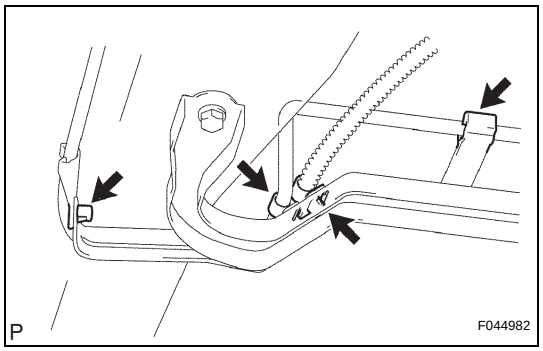
(c) Install the 2 O-rings and the plate onto the height control tube No. 2.
HINT:
- For the removal procedure of the (type 2) tube, refer to PRECAUTION of SUSPENSION CONTROL SYSTEM (See page SC-1).
- When the pneumatic w/ tube tank assembly is replaced with a new one, it does not require a new O-ring.



(d) Connect the tube and the connector to the pneumatic w/ tube tank assembly.



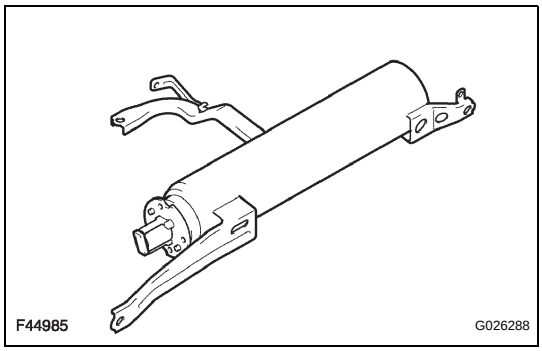
(e) Install the height control tank cover with the 3 clips.



(f) Install the 4 clamps.

2. INSPECT AIR LEAK

SC



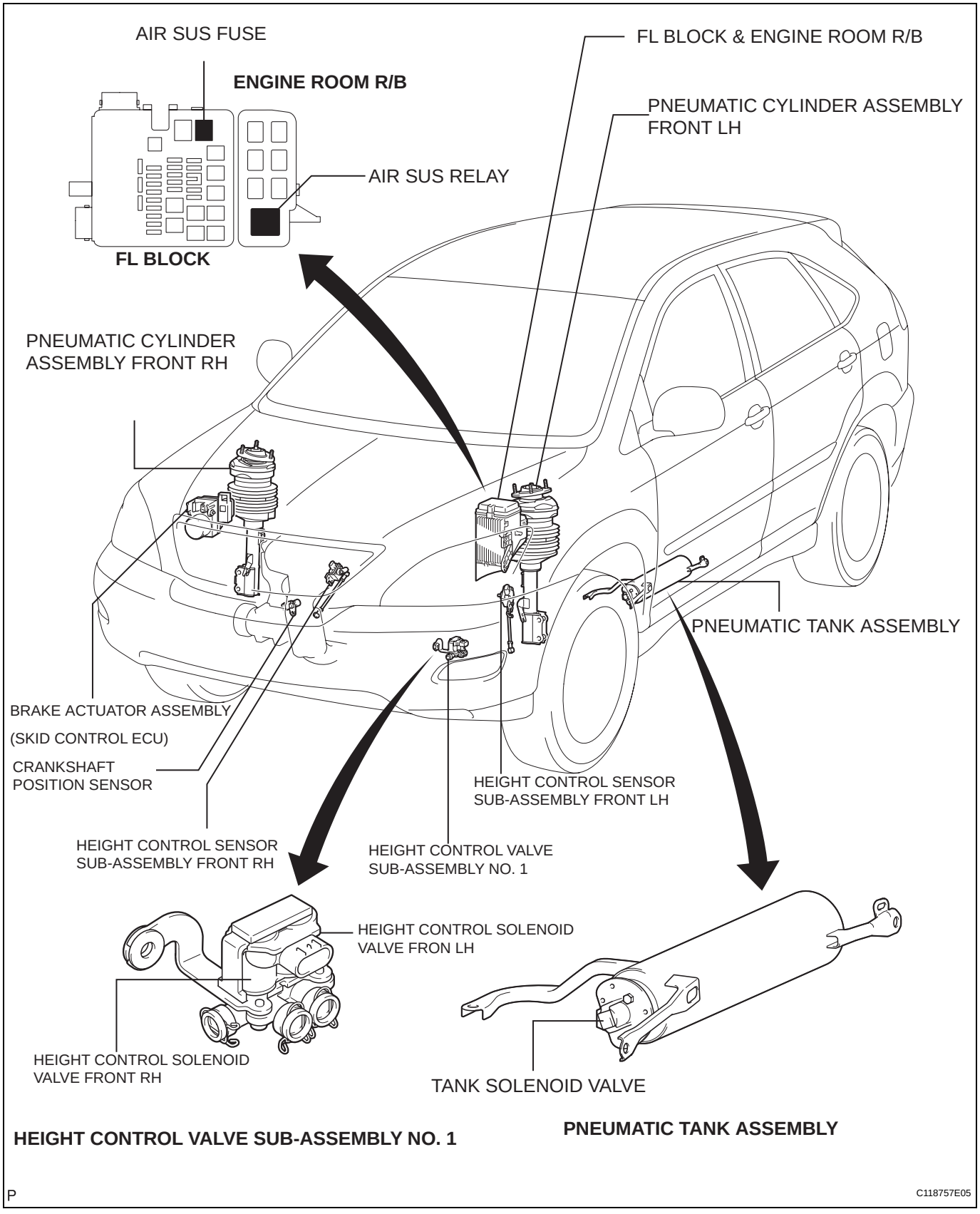
DISPOSAL

1. DISPOSE OF PNEUMATIC W/TUBE TANK ASSEMBLY

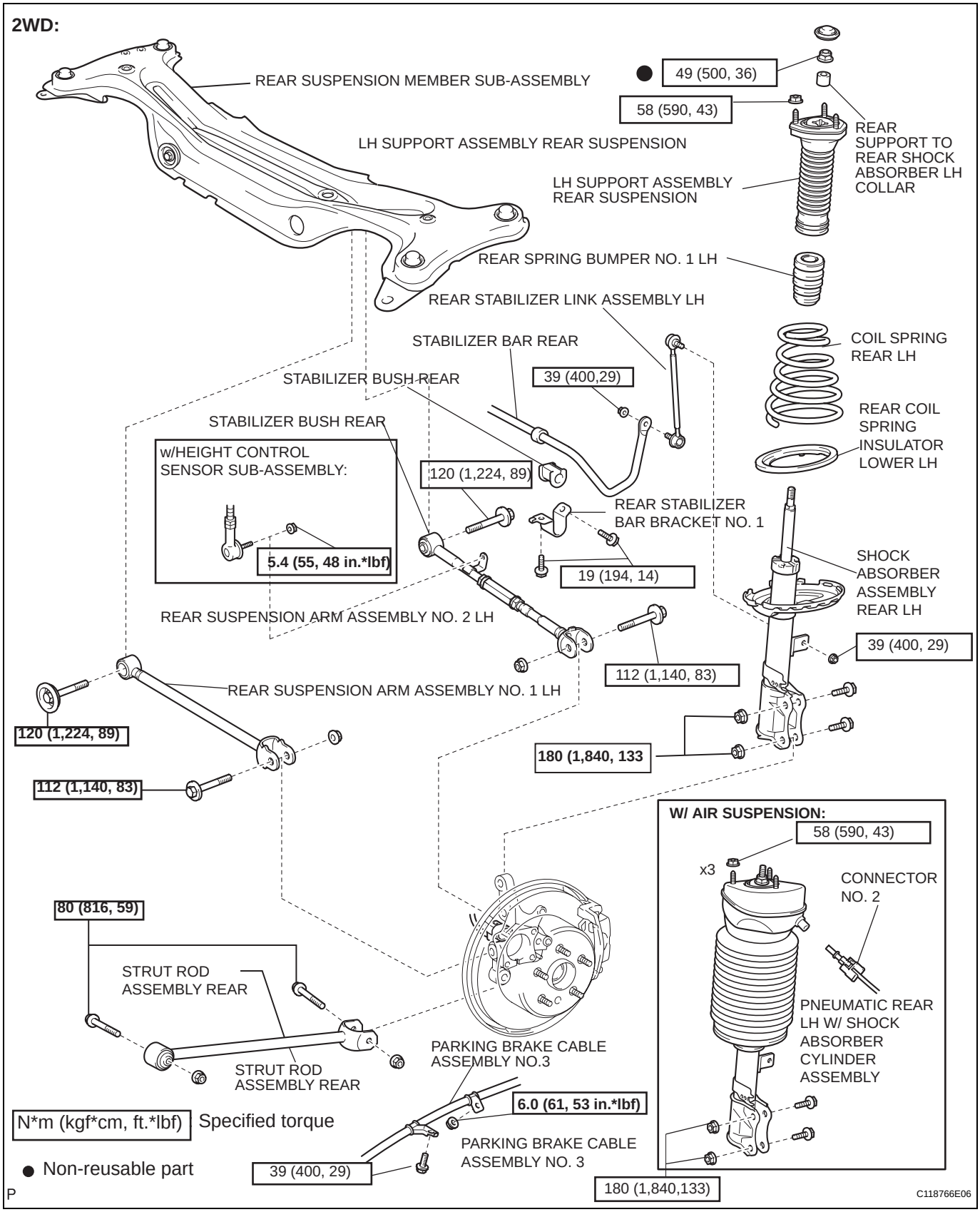
(a) Using a drill, make a hole in the cylinder as shown in the illustration to discharge the air inside.
CAUTION:
When drilling, chips may fly out, work carefully.

HEIGHT CONTROL SENSOR

COMPONENTS

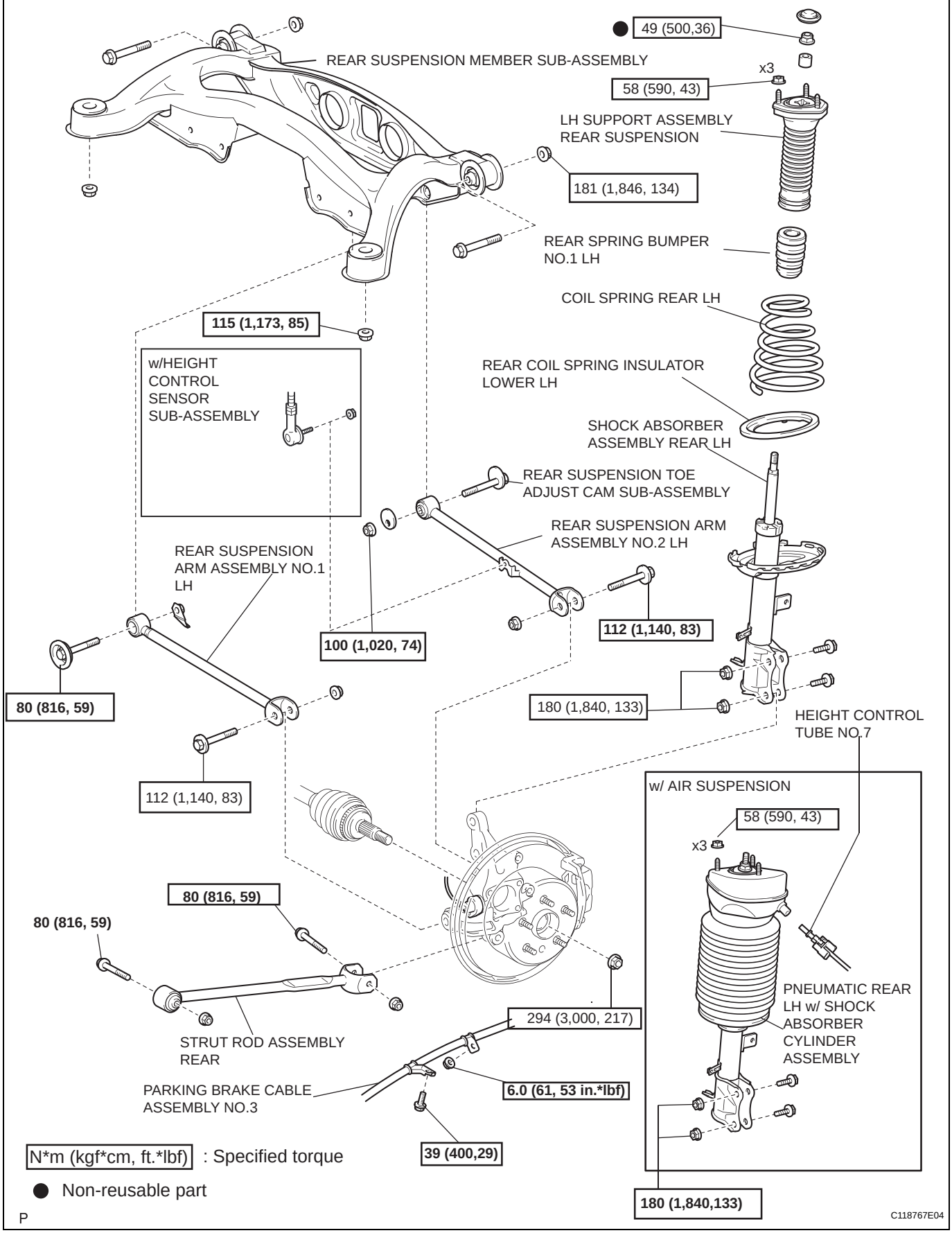


SC


2WD:
REAR SUSPENSION MEMBER SUB-ASSEMBLY
49 (500, 36)
58 (590, 43)
REAR SUPPORT TO REAR SHOCK ABSORBER LH COLLAR
LH SUPPORT ASSEMBLY REAR SUSPENSION
LH SUPPORT ASSEMBLY REAR SUSPENSION COLLAR
REAR SPRING BUMPER NO. 1 LH
REAR STABILIZER LINK ASSEMBLY LH
STABILIZER BAR REAR
COIL SPRING REAR LH
STABILIZER BUSH REAR
39 (400,29)
REAR COIL SPRING INSULATOR LOWER LH
STABILIZER BUSH REAR
w/HEIGHT CONTROL SENSOR SUB-ASSEMBLY:
120 (1,224, 89)
5.4 (55, 48 in.*lbf)
REAR STABILIZER BAR BRACKET NO. 1
19 (194, 14)
SHOCK ABSORBER ASSEMBLY REAR LH
REAR SUSPENSION ARM ASSEMBLY NO. 2 LH
39 (400, 29)
112 (1,140, 83)
REAR SUSPENSION ARM ASSEMBLY NO. 1 LH
120 (1,224, 89)
180 (1,840, 133
112 (1,140, 83)
W/ AIR SUSPENSION:
58 (590, 43)
x3
CONNECTOR NO. 2
80 (816, 59)
STRUT ROD ASSEMBLY REAR
PNEUMATIC REAR LH W/ SHOCK ABSORBER CYLINDER ASSEMBLY
PARKING BRAKE CABLE ASSEMBLY NO.3
STRUT ROD ASSEMBLY REAR
6.0 (61, 53 in.*lbf)
N*m (kgf*cm, ft.*lbf) Specified torque
PARKING BRAKE CABLE ASSEMBLY NO. 3
● Non-reusable part
39 (400, 29)
180 (1,840,133)
P
C118766E06

SC

4WD:


● 49 (500,36)
REAR SUSPENSION MEMBER SUB-ASSEMBLY
x3
58 (590, 43)
LH SUPPORT ASSEMBLY REAR SUSPENSION
181 (1,846, 134)
REAR SPRING BUMPER NO.1 LH
COIL SPRING REAR LH
115 (1,173, 85)
w/HEIGHT CONTROL SENSOR SUB-ASSEMBLY
REAR COIL SPRING INSULATOR LOWER LH
SHOCK ABSORBER ASSEMBLY REAR LH
REAR SUSPENSION TOE ADJUST CAM SUB-ASSEMBLY
REAR SUSPENSION ARM ASSEMBLY NO.2 LH
REAR SUSPENSION ARM ASSEMBLY NO.1 LH
100 (1,020, 74)
112 (1,140, 83)
80 (816, 59)
180 (1,840, 133)
HEIGHT CONTROL TUBE NO.7
112 (1,140, 83)
w/ AIR SUSPENSION
58 (590, 43)
x3
80 (816, 59)
80 (816, 59)
294 (3,000, 217)
STRUT ROD ASSEMBLY REAR
PNEUMATIC REAR LH w/ SHOCK ABSORBER CYLINDER ASSEMBLY
PARKING BRAKE CABLE ASSEMBLY NO.3
6.0 (61, 53 in.*lbf)
39 (400,29)
N*m (kgf*cm, ft.*lbf) : Specified torque
● Non-reusable part
180 (1,840,133)
P
C118767E04

SC

REMOVAL

HINT:
Before replacement, press the height control OFF switch to stop the vehicle height control operation.

NOTICE:

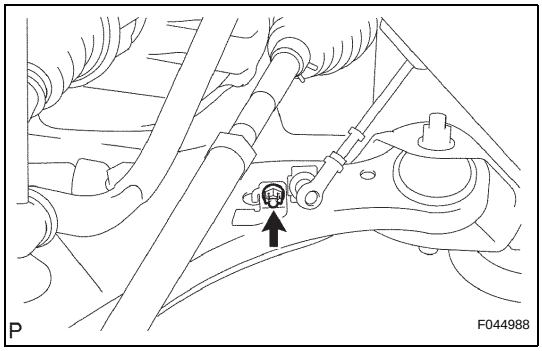
- **Before replacement, press the height control OFF switch to stop the vehicle height control operation.**
- **The height control sensor RR RH and height control valve No.2 have the same shape connectors, therefore they might be wrongly connected. When installing them, connect the connector with the distinction mark (white tape) on the wire harness to the height control sensor RR RH.**

1. REMOVE FRONT WHEELS

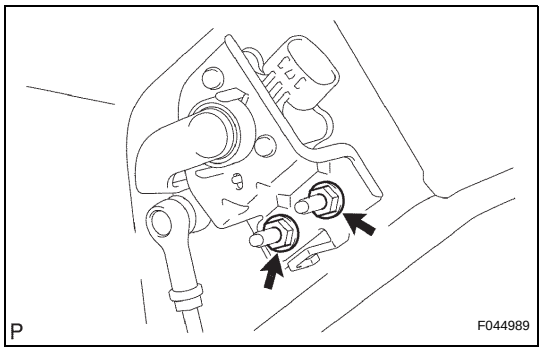
2. REMOVE HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT LH

(a) Disconnect the connector.

(b) Remove the torx nut and the height control sensor from the lower arm.



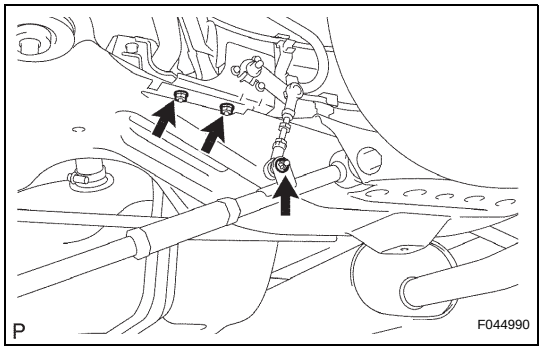
(c) Remove the 2 nuts and the height control sensor FR LH.



3. REMOVE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH (2WD DRIVE TYPE)

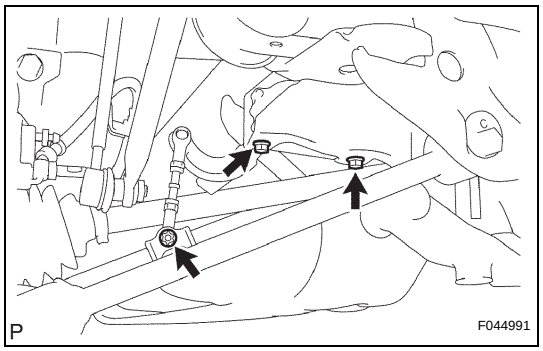
(a) Disconnect the connector.

(b) Remove the torx nut, the 2 nuts and the height control sensor RR LH from the vehicle.



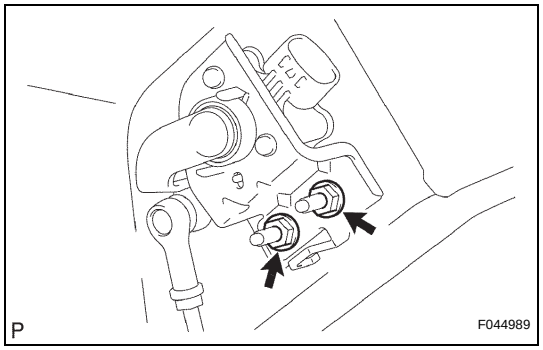
4. REMOVE HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH (4WD DRIVE TYPE)

(a) Disconnect the connector.



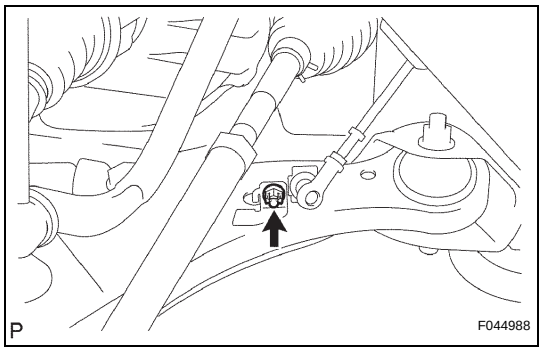
(b) Remove the torx nut, the 2 nuts and the height control sensor RR LH from the vehicle.

INSTALLATION



1. INSTALL HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT LH

(a) Install the height control sensor FR LH with the 2 nuts.
Torque: 7.8 N*m (80 kgf*cm, 69 in.*lbf)

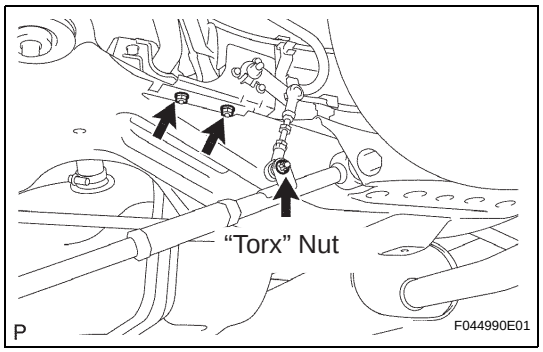


(b) Install the height control sensor onto the lower arm with the torx nut.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

(c) Connect the connector.

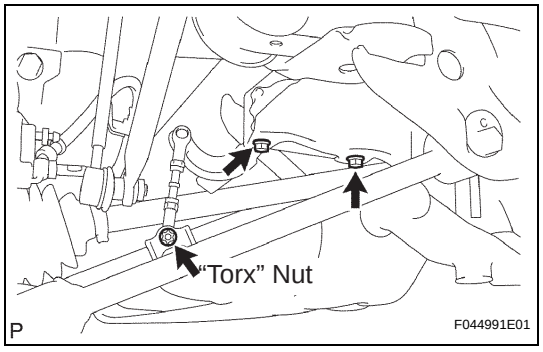
2. INSTALL FRONT WHEELS
Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

3. ADJUST VEHICLE HEIGHT



4. INSTALL HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH (2WD DRIVE TYPE)

(a) Install the height control sensor RR LH with the "torx" nut and the 2 nuts.
Torque: 7.8 N*m (80 kgf*cm, 69 in.*lbf) (Nut)
5.4 N*m (55 kgf*cm, 48 in.*lbf) ("Torx ")



5. INSTALL HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH (4WD DRIVE TYPE)

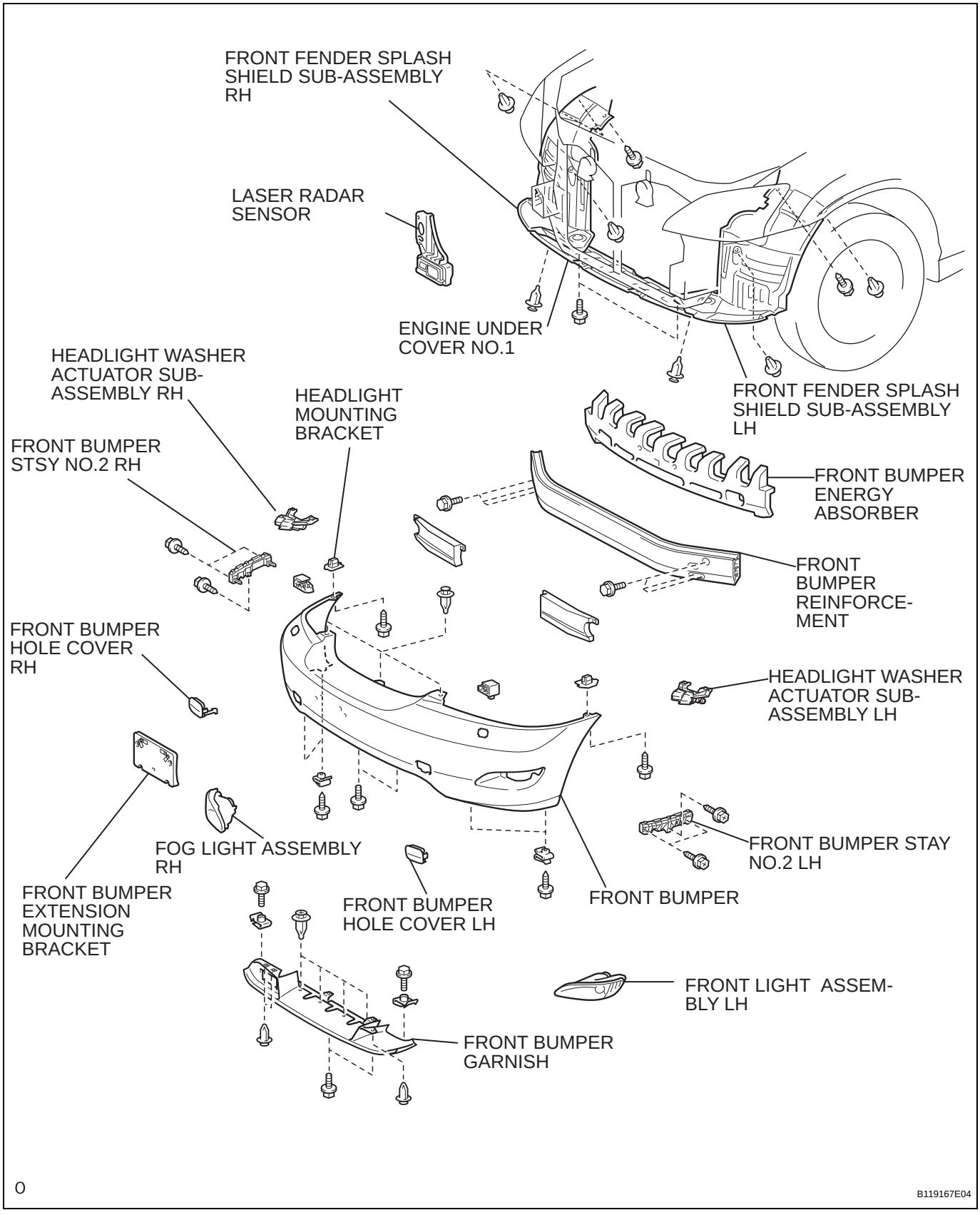
(a) Install the height control sensor RR LH with the "torx" nut and the 2 bolts.
Torque: 7.8 N*m (80 kgf*cm, 69 in.*lbf) (Bolt)
5.4 N*m (55 kgf*cm, 48 in.*lbf) ("Torx" nut)

6. ADJUST VEHICLE HEIGHT

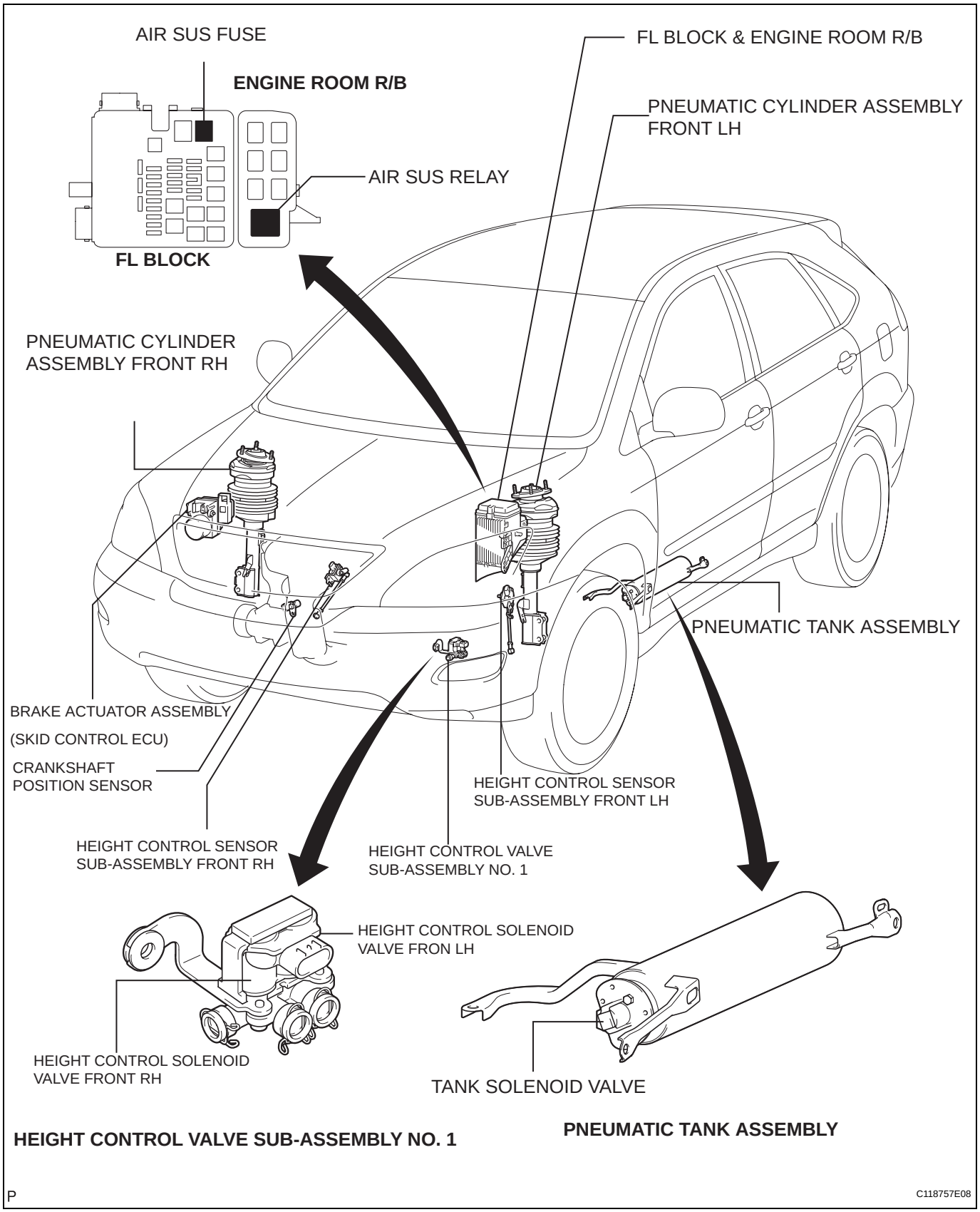
SC

HEIGHT CONTROL VALVE

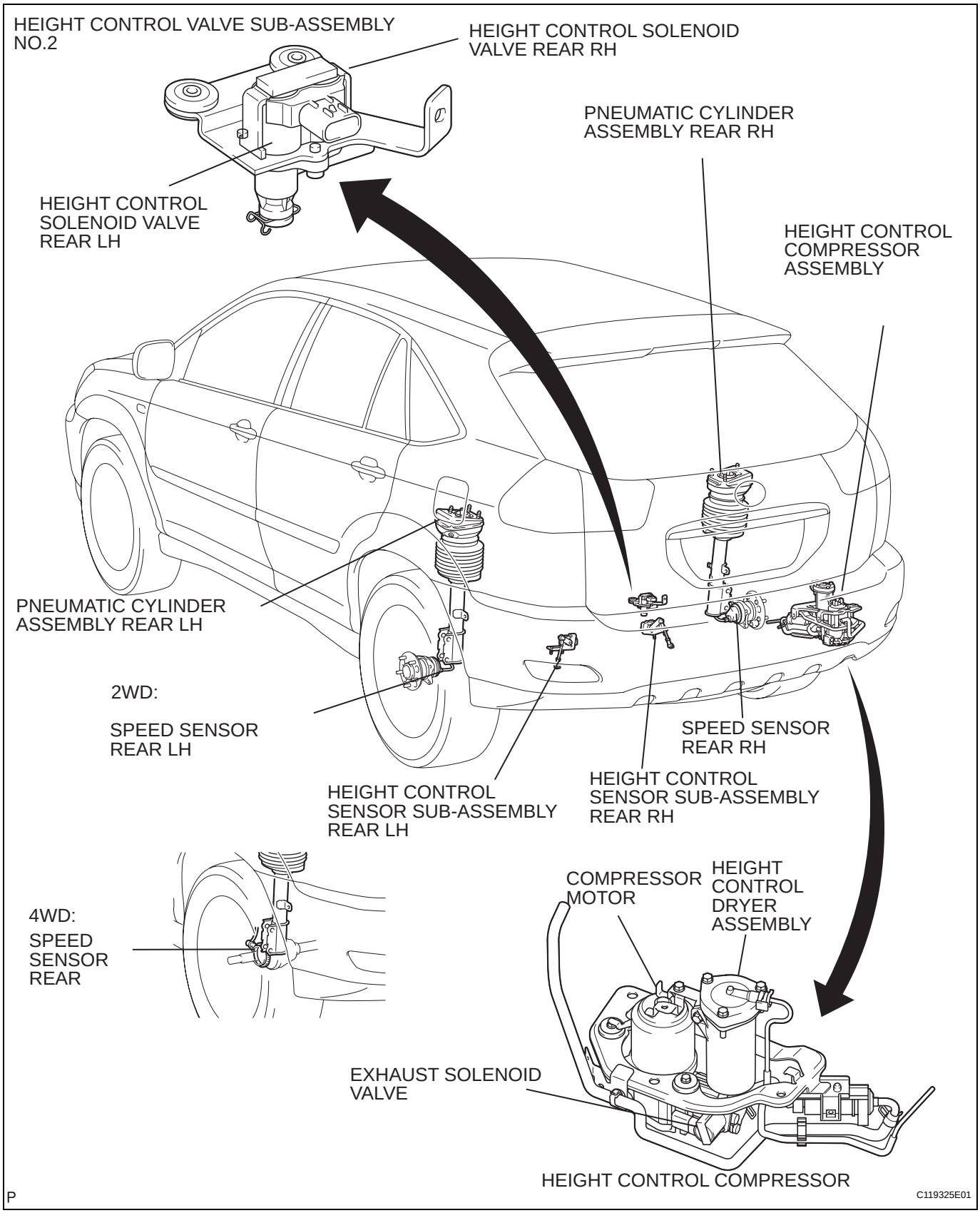
COMPONENTS



SC


AIR SUS FUSE
ENGINE ROOM R/B
AIR SUS RELAY
FL BLOCK
FL BLOCK & ENGINE ROOM R/B
PNEUMATIC CYLINDER ASSEMBLY FRONT LH
PNEUMATIC CYLINDER ASSEMBLY FRONT RH
PNEUMATIC TANK ASSEMBLY
BRAKE ACTUATOR ASSEMBLY
(SKID CONTROL ECU)
CRANKSHAFT POSITION SENSOR
HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT LH
HEIGHT CONTROL SENSOR SUB-ASSEMBLY FRONT RH
HEIGHT CONTROL VALVE SUB-ASSEMBLY NO. 1
HEIGHT CONTROL SOLENOID VALVE FRON LH
HEIGHT CONTROL SOLENOID VALVE FRONT RH
TANK SOLENOID VALVE
HEIGHT CONTROL VALVE SUB-ASSEMBLY NO. 1
PNEUMATIC TANK ASSEMBLY
P
C118757E08

SC


HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2
HEIGHT CONTROL SOLENOID VALVE REAR RH
PNEUMATIC CYLINDER ASSEMBLY REAR RH
HEIGHT CONTROL SOLENOID VALVE REAR LH
HEIGHT CONTROL COMPRESSOR ASSEMBLY
PNEUMATIC CYLINDER ASSEMBLY REAR LH
2WD:
SPEED SENSOR REAR LH
SPEED SENSOR REAR RH
HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR LH
HEIGHT CONTROL SENSOR SUB-ASSEMBLY REAR RH
4WD:
SPEED SENSOR REAR
COMPRESSOR MOTOR
HEIGHT CONTROL DRYER ASSEMBLY
EXHAUST SOLENOID VALVE
HEIGHT CONTROL COMPRESSOR
P
C119325E01

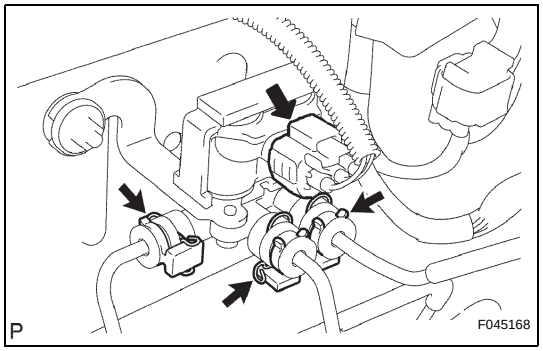
SC

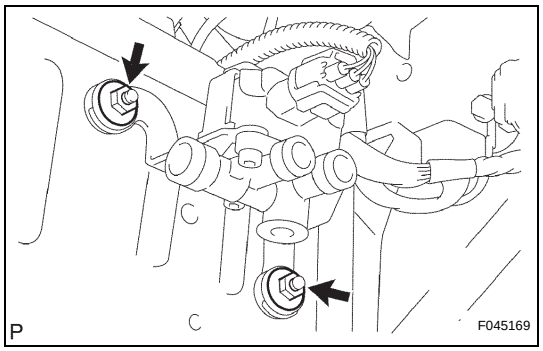
REMOVAL

NOTICE:

- **Before replacement, press the height control OFF switch to stop the vehicle height control operation.**
- **Be careful that the vehicle body lowers because the air in the pneumatic cylinder is discharged by disconnecting the pneumatic cylinder side air tube of the height control valve.**
- **This operation takes out the air from the front shock absorber, therefore never rotate the lower part of the absorber by turning the steering wheel etc..**

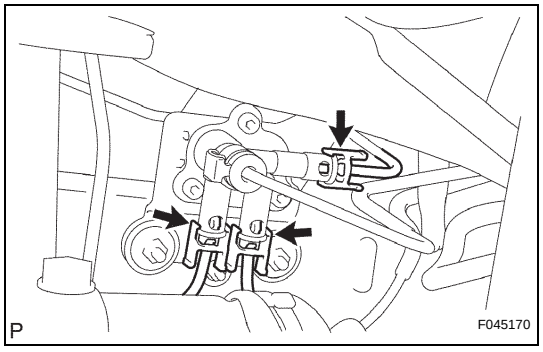
1. **REMOVE ENGINE UNDER COVER NO.1**
2. **SEPARATE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH**
3. **SEPARATE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH**
4. **REMOVE FRONT BUMPER COVER**
5. **REMOVE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.1**
   (a) Disconnect the connector.





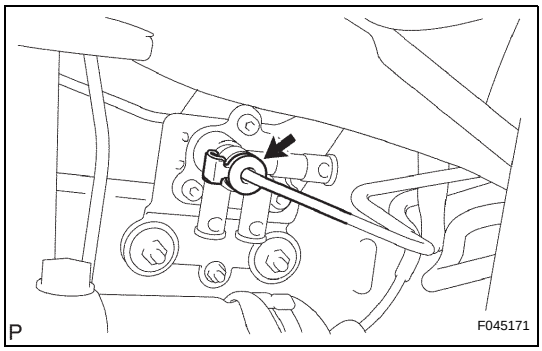
   (b) Disconnect the 3 height control tubes.
   HINT:
   For the removal procedure of the (type 3) tube, refer to PRECAUTION OF SUSPENSION CONTROL SYSTEM (See page SC-1).
   (c) Remove the 2 nuts and the height control valve sub-assembly No.1.

6. **REMOVE HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2**
   (a) Disconnect the connector.

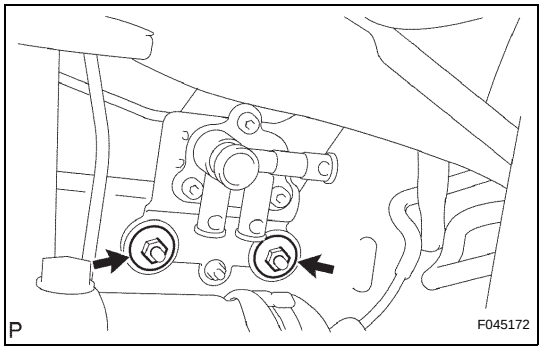


   (b) Using SST, disconnect the 3 height control tubes.
   SST 09730-00010
   HINT:
   For the disconnecting procedure of the (type 2) tube, refer to PRECAUTION OF SUSPENSION CONTROL SYSTEM (See page SC-1)

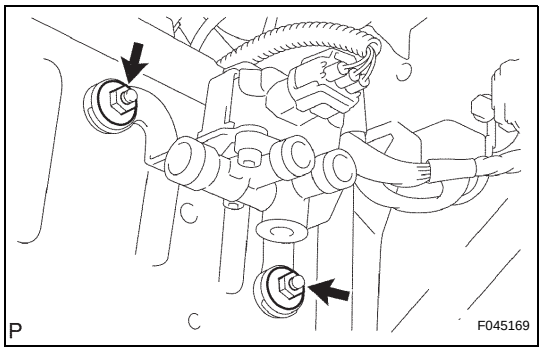
SC



(c) Disconnect the height control tube.
HINT:
For the disconnecting procedure of the (type 3) tube, refer to PRECAUTION OF SUSPENSION CONTROL SYSTEM (See page SC-1).



(d) Remove the 2 nuts and the height control valve sub-assembly No.2.

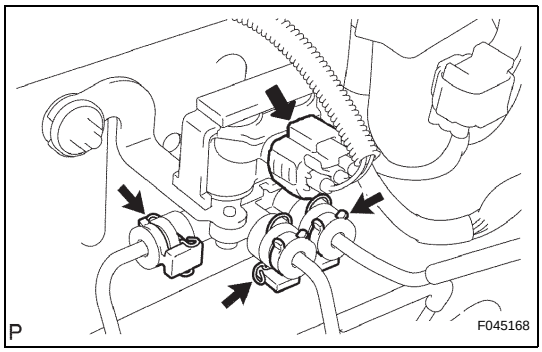


INSTALLATION

1. INSTALL HEIGHT CONTROL VALVE SUB-ASSY NO.1

(a) Install the height control valve sub-assembly No.1 with the 2 nuts.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

(b) Coat 2 new O-rings with MP grease No.2 and install them on each height control tube.



(c) Connect the 3 height control tubes onto the height control valve sub-assembly No.1.
HINT:
For the removal procedure of the (type 3) tube, refer to PRECAUTION OF SUSPENSION CONTROL SYSTEM (See page SC-1).

(d) Connect the connector.

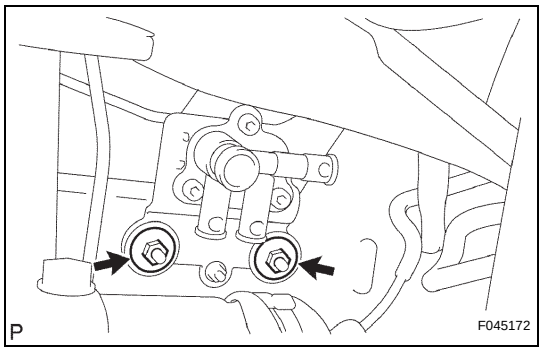
2. INSPECT AIR LEAK

3. INSTALL FRONT BUMPER COVER

4. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSY LH

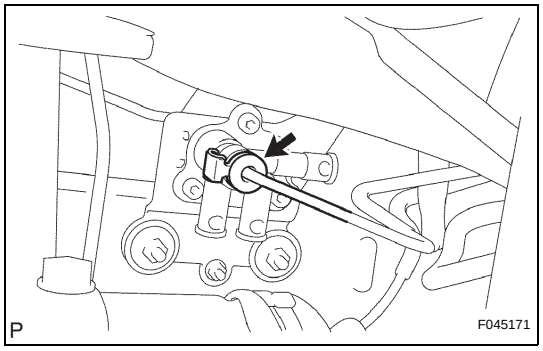
5. INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSY RH

6. INSTALL ENGINE UNDER COVER NO.1

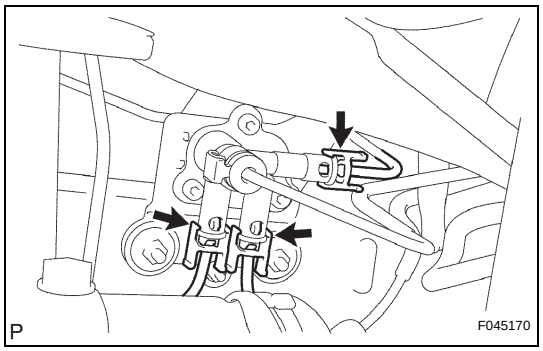


7. INSTALL HEIGHT CONTROL VALVE SUB-ASSEMBLY NO.2

(a) Install the height control valve sub-assembly No.2 with the 2 nuts.
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)



(b) Coat the O-ring with MP grease.
(c) Install the O-ring onto the height control tube.
(d) Connect the height control tube.
HINT:
For the removal procedure of the (type 3) tube, refer to PRECAUTION OF SUSPENSION SYSTEM.
(e) Install 6 new O-ring and 3 new plates to each installed part of the height control valve No.2 tube.
HINT:
When the height control valve No.2 is replaced with a new one, it does not require a new O-ring.

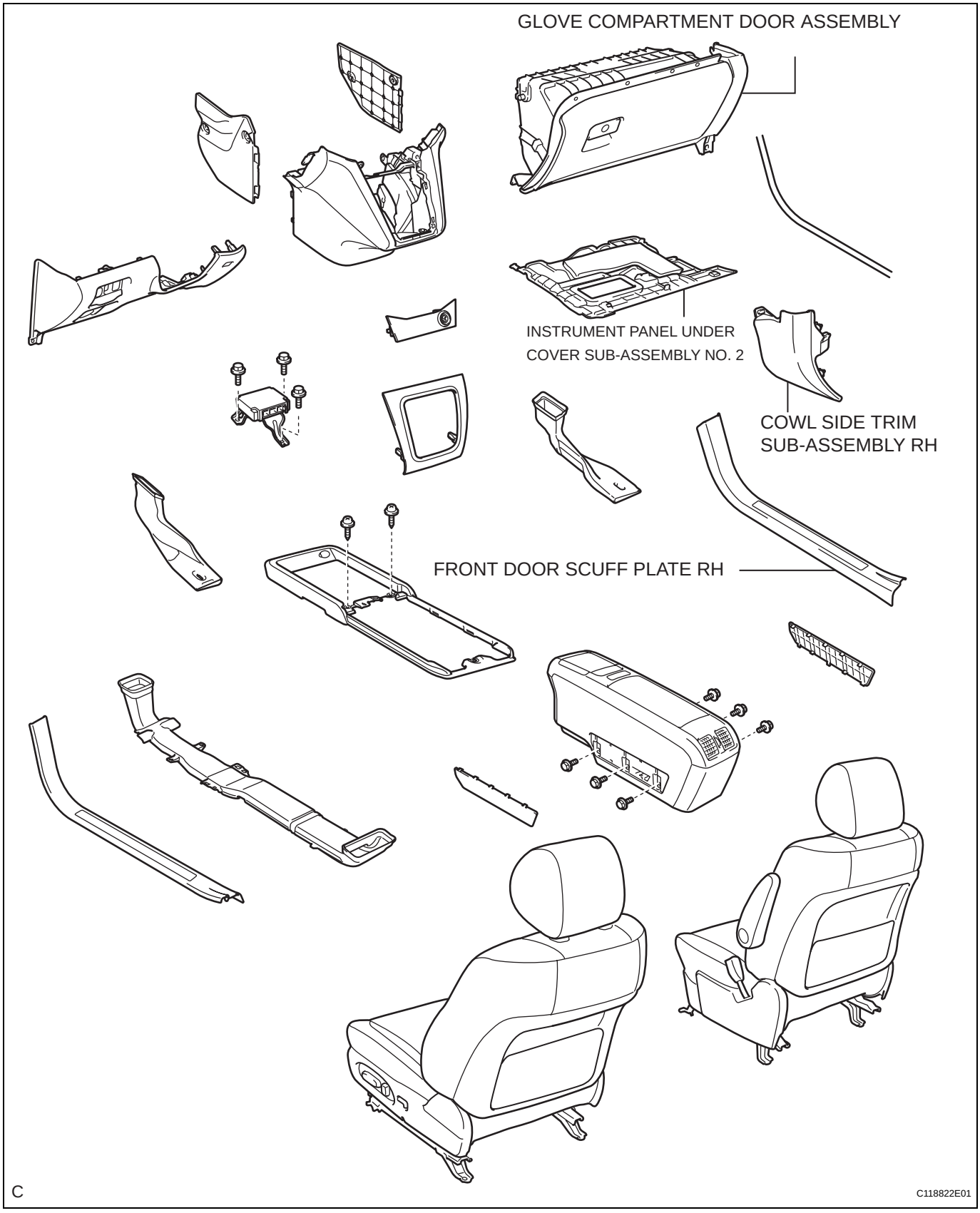


(f) Install the 3 height control tubes.
HINT:
For the removal procedure of the (type 2) tube, refer to PRECAUTION OF SUSPENSION CONTROL SYSTEM (See page SC-1)
(g) Connect the connector.

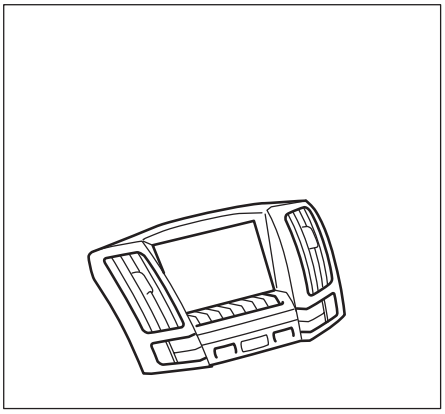
8. INSPECT AIR LEAK

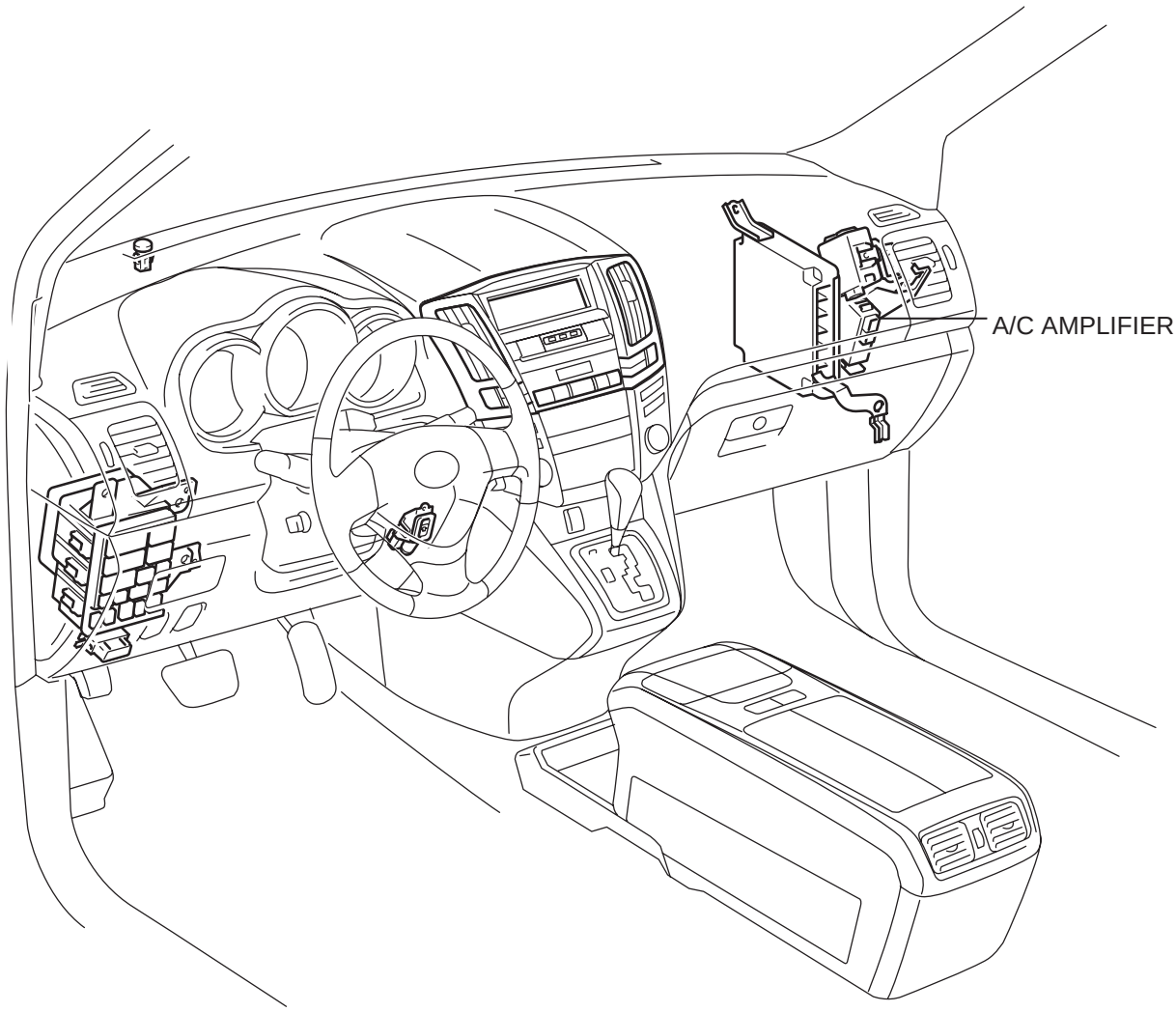
SUSPENSION CONTROL ECU

COMPONENTS



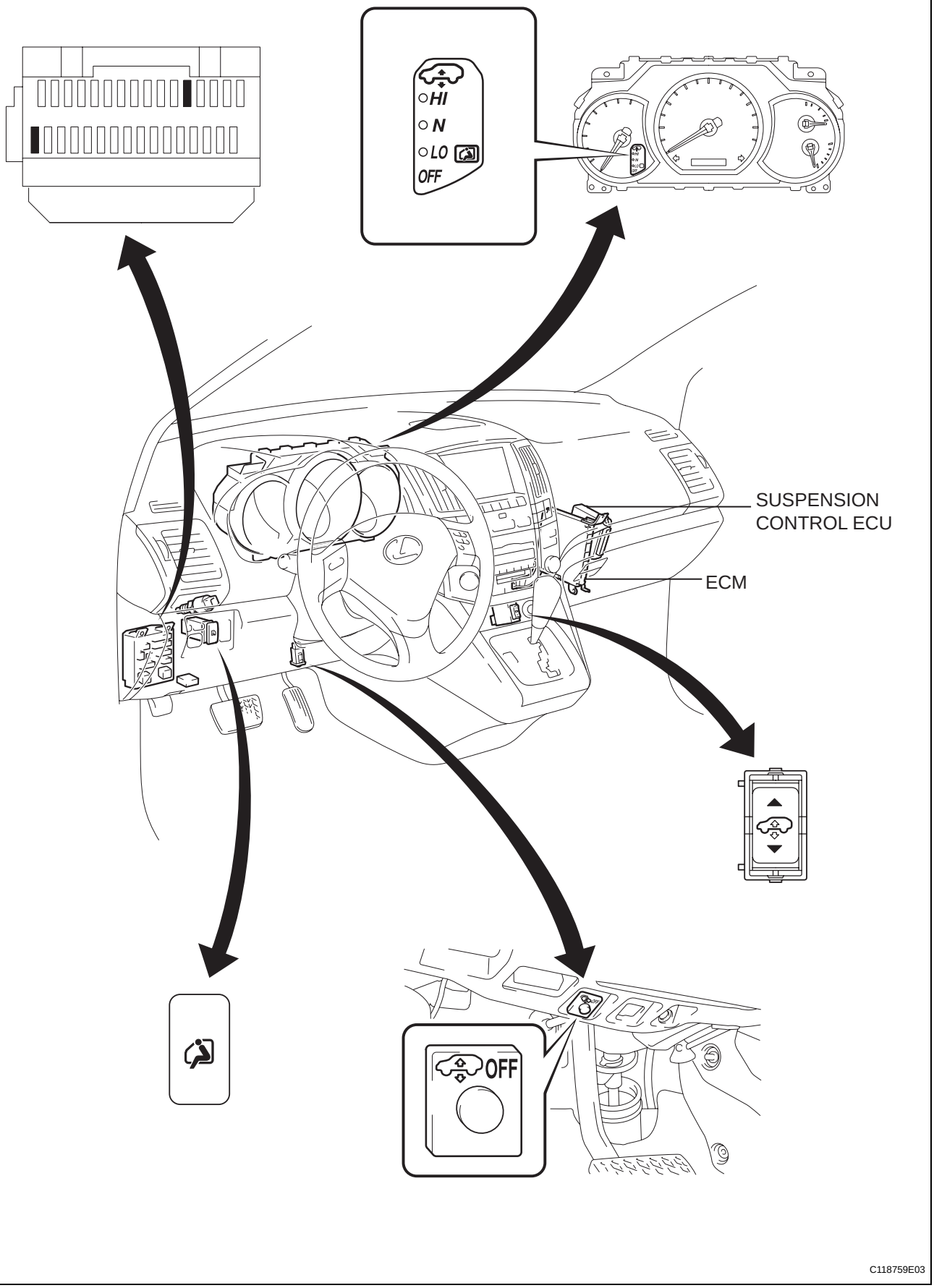
SC





H

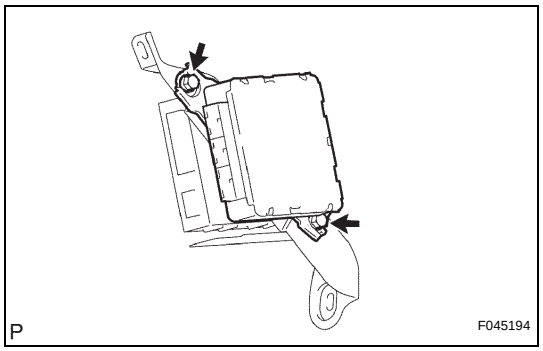
C118811E03

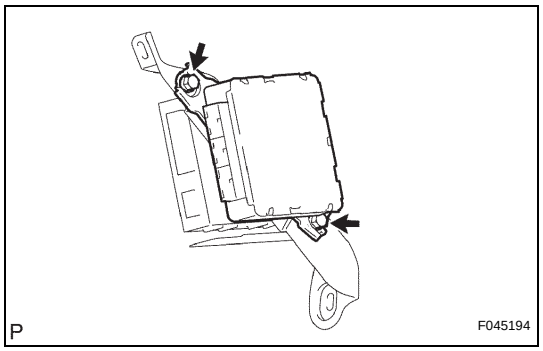


SC

REMOVAL

1. **REMOVE FRONT DOOR SCUFF PLATE RH**
2. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH**
3. **REMOVE INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY NO.2**
4. **REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY**
5. **REMOVE ECM**
6. **REMOVE AIRCONDITIONER AMPLIFIER ASSEMBLY**
7. **REMOVE SUSPENSION CONTROL ECU**
   (a) Disconnect the suspension control ECU connector.
   (b) Remove the 2 bolts and the suspension control ECU from the bracket.





INSTALLATION

1. **INSTALL SUSPENSION CONTROL ECU**
   (a) Install the suspension control ECU with the 2 bolts onto the bracket.
   Torque: 7.8 N*m (80 kgf*cm, 69 in.*lbf)
   (b) Connect the suspension control ECU connector.
2. **INSTALL AIRCONDITIONER AMPLIFIER ASSEMBLY**
3. **INSTALL ECM**
4. **INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY**
5. **INSTALL INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY NO.2**
6. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH**
7. **INSTALL FRONT DOOR SCUFF PLATE RH**