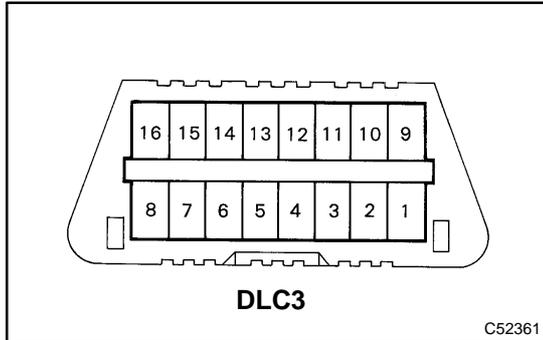


# PRE-CHECK



## 1. DIAGNOSIS SYSTEM

(a) Inspect the battery voltage.

**Battery voltage: 11 to 14 V**

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

(b) 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.

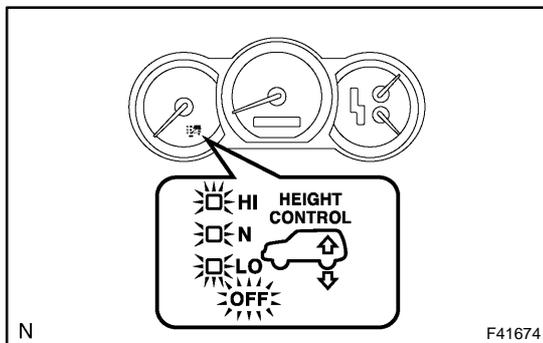
Verify conditions listed in table below:

Terminal No.	Connection / Voltage or Resistance	Condition
7	Bus + Line / Pulse generation	During transmission
4	Chassis Ground to Body Ground / 1 Ω or less	Always
16	Battery Positive to Body Ground / 9 to 14 V	Always

### HINT:

If the hand-held tester display shows **UNABLE TO CONNECT TO VEHICLE** when the cable of the hand-held tester is connected to DLC3, the ignition switch is turned to ON 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.

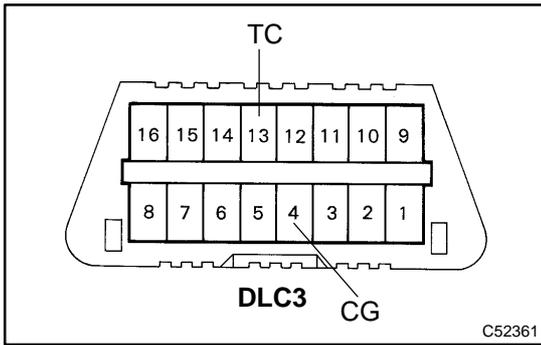


(c) Check the indicator lamp.

(1) Turn the ignition switch ON.

(2) Check that the height control OFF indicator lamp and the height control indicator lamp come on for 2 sec.

If the indicator check result is not normal, proceed to troubleshooting for the height control indicator lamp circuit (See page [05-292](#) ) and the height control OFF indicator lamp circuit (See page [05-295](#) ).

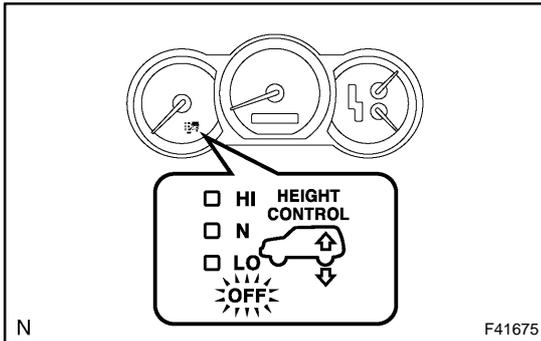


**2. DTC CHECK (USING SST CHECK WIRE)**

(a) Checking DTCs using a SST check wire.

SST 09843-18040

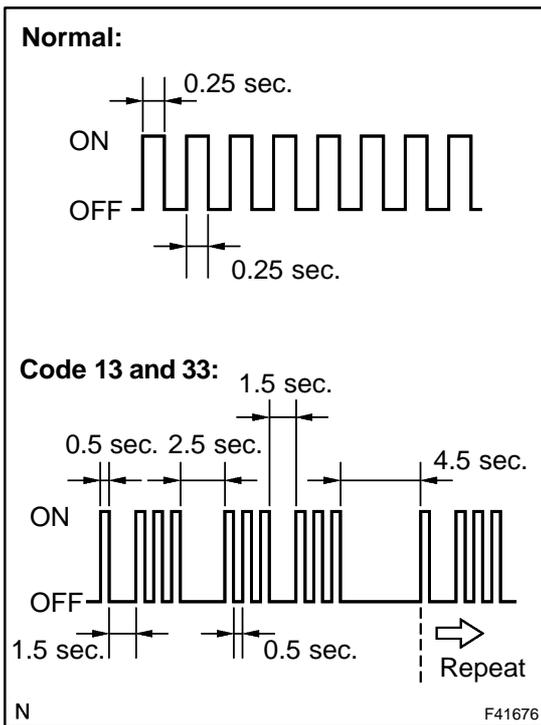
- (1) Using the SST, connect terminals TC and CG of DLC3.
- (2) Turn the ignition switch ON.



- (3) Read and record any DTCs from the height control OFF indicator lamp on the combination meter. Refer to the chart on the left for examples of a normal code and codes 13 and 33.

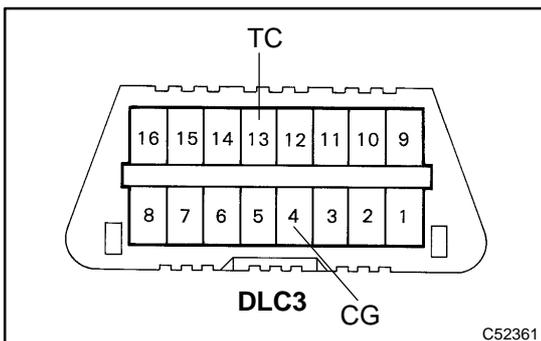
**HINT:**

- If the height control OFF indicator lamp does not blink any DTC codes or the normal code, inspect the height control OFF indicator lamp circuit (See page 05-295 ) and the TC terminal circuit (See page 05-299 ).
- 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 05-240 ) for DTC information.
- (5) After completing the check, remove SST check wire from DLC3.

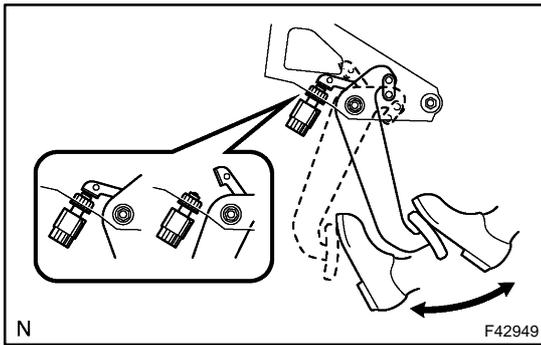
SST 09843-18040



(b) Clearing the DTCs using the SST check wire.

SST 09843-18040

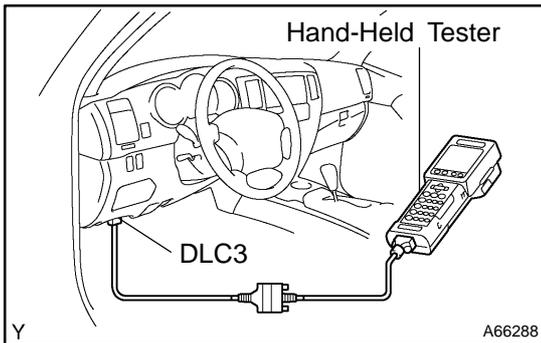
- (1) Using SST, connect terminals TC and CG of DLC3.
- (2) Turn the ignition switch ON.



- (3) Clear DTC stored in ECU by depressing the brake pedal 8 times or more within 5 sec.
  - (4) Check that the height control OFF indicator lamp shows the normal code.
  - (5) Remove SST check wire from DLC3.
- SST 09843-18040

**HINT:**

Disconnect the battery cable during the operation will not erase DTC in ECU.

**3. DTC CHECK (USING HAND-HELD TESTER)**

- (a) Checking DTCs using the Hand-held tester.
  - (1) Connect the hand-held tester to DLC3.
  - (2) Turn the ignition switch ON.
  - (3) Read DTCs by following the prompts on the tester screen.

**HINT:**

Refer to the hand-held tester operator's manual for further details.

- (b) Clearing the DTCs using the Hand-held tester.
  - (1) Connect the hand-held tester to DLC3
  - (2) Turn the ignition switch ON.
  - (3) Erase the DTCs following the prompts on the tester screen.

**HINT:**

Refer to the hand-held tester operator's manual for further details.

#### 4. DATA LIST

##### HINT:

By accessing the DATA LIST displayed by the hand-held tester, you can read the value of the switches and sensors and so on without removing any parts. Reading the DATA LIST is the first step of troubleshooting and is one method to shorten labor time.

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

Item	Measurement Item / Range (Display)	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed reading / min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Vehicle speed: 0 km/h (0 mph)	-
IG VOLTAGE	ECU power supply 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	-
DOOR SW	Door switch / ON or OFF	ON: Open each door OFF: Close all doors	-
DAMPER SW1	Damping force switch 1 / ON or OFF	The same as height control switch position	Operate the height control switch
TS	TS terminal / ON or OFF	ON: During test mode OFF: Normal mode	-
TC	TC terminal / ON or OFF	ON: DTC recorded OFF: No DTC recorded	-
SOL SLRL	Height control valve solenoid (SLRL) / ON or OFF	ON or OFF	-
SOL SLRG	Height control valve solenoid (SLRG) / ON or OFF	ON or OFF	-
LOW PRS TNK SOL	Tank solenoid valve (SLLO) / ON or OFF	ON or OFF	-
MOTOR RELAY	AIR SUS relay / ON or OFF	ON: Compressor operated OFF: Compressor not operated	-
EXHAUST SOL	Exhaust solenoid valve (SLEX) / ON or OFF	ON or OFF	-
RR HEIGHT	Right rear height control sensor reading / min.: -3276.7 mm (-129.004 in.), max.: 3276 mm (129.008 in.)	Min.: -20 mm (-0.79 in.) Max.: 40 mm (1.57 in.)	-
RL HEIGHT	Left rear height control sensor reading / min.: -32776.7 mm (-129.004 in.), max.: 3276 mm (129.008 in.)	Min.: -20 mm (-0.79 in.) Max.: 40 mm (1.57 in.)	-
#CODES	Number of DTC recorded / min.: 0, max.: 255	Min.: 0, Max.: XX	-

**5. ACTIVE TEST LIST**

HINT:

Perform the ACTIVE TEST using the hand-held tester to operate the sensors, relays and solenoids without removing any parts. Performing the ACTIVE TEST is the first step of troubleshooting is one of the methods to shorten labor time. It is possible to display the DATA LIST during the ACTIVE TEST.

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

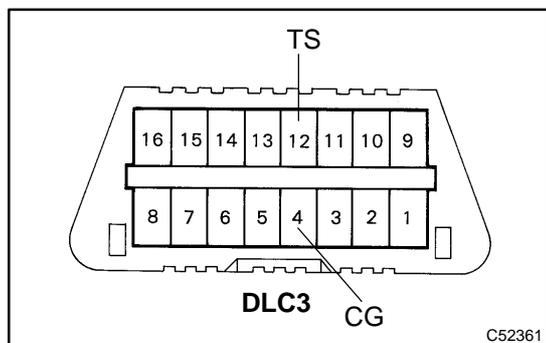
Item	Vehicle Condition / Test Details	Diagnostic Note
RR HEIGHT	Turn height control switch / UP or DOWN	-
MOTOR RELAY	Turn AIR SUS relay / ON or OFF	Operation of motor can be heard
EXHAUST SOL	Turn exhaust solenoid valve / ON or OFF	Operation of solenoid (clicking sound) can be heard
LEVEL SOL REAR	Turn leveling solenoid valve / ON or OFF	Operation of solenoid (clicking sound) can be heard
GATE SOL REAR	Turn gate solenoid valve / 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

**6. INPUT SIGNAL CHECK (TEST MODE CHECK)**

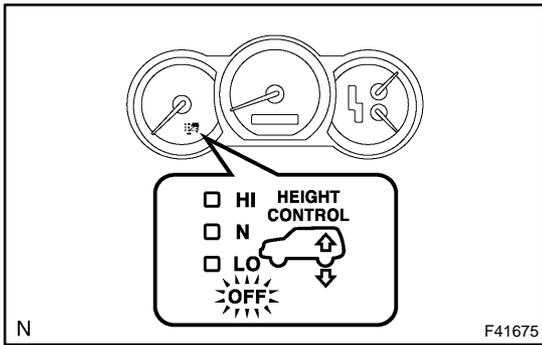
HINT:

This function checks that whether signals from the stop lamp switch assy and the door courtesy switch, etc. are being input normally to the ECU.

- (a) Procedure for Input Signal Check Mode (Test Mode) using SST check wire.  
SST 09843-18040
  - (1) Make sure 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, connect the terminals TS and CG of DLC3.
- (4) Turn the ignition switch ON.



(5) Check that the height control OFF indicator lamp is blinking.

HINT:

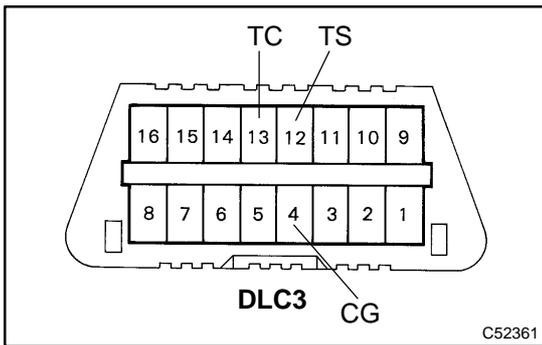
- At this time, the height control OFF indicator lamp should come on for 2 sec. After that, this lamp blinks at 0.25 sec. intervals.
- If the height control OFF indicator light does not blink, inspect the height control OFF indicator lamp circuit (See page 05-295 ) and the TS terminal circuit (See page 05-301 ).

(6) Set each of the check items to the condition in Operation (B).

HINT:

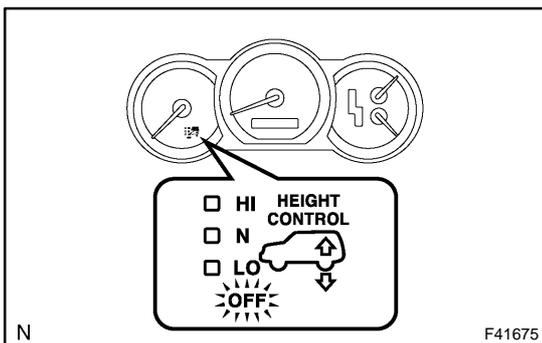
When checking each item, the height control OFF indicator lamp should come on for 1 sec.

Check Item	Operation (A)	Operation (B)
Stop lamp switch signal	OFF (Brake pedal not depressed)	ON (Brake pedal depressed)
Door courtesy switch signal	ON (Each door opened)	OFF (All doors closed)
Height control switch signal	-	Press the height control switch "UP" first and then press "DOWN"
Height control OFF switch signal	OFF (Height control OFF switch not pushed in)	ON to OFF (Height control OFF switch pushed in and released)
Right front speed sensor signal	Vehicle speed below 20 km/h (12 mph)	Vehicle speed 20 km/h (12 mph) or higher
Left front speed sensor signal	Vehicle speed below 20 km/h (12 mph)	Vehicle speed 20 km/h (12 mph) or higher
Crankshaft position sensor signal	Engine speed below 2,000 rpm	Engine speed 2,000 rpm or higher



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

SST 09843-18040

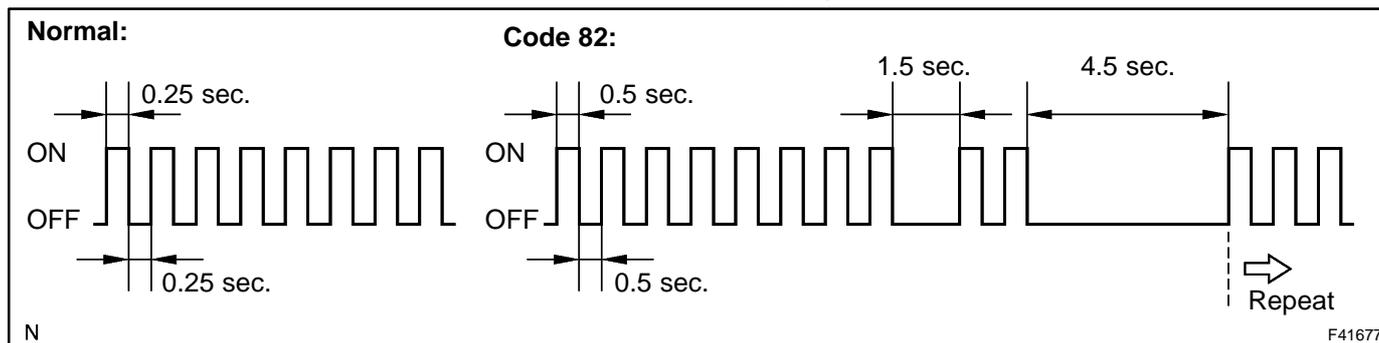


(8) Read the number of blinks of the height control OFF indicator lamp.

HINT:

- As an example, the blinking patterns of 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 DTC is not output, check the TC terminal circuit on page 05-299 .

- (9) Check the malfunction using the code table on the this page.



- (b) Ending the Input Signal Check Mode (Test Mode) using SST check wire.  
SST 09843-18040
  - (1) With the ignition switch to OFF, disconnect the SST check wire from the terminals of DLC3 and then turn the ignition switch ON.
- (c) Procedure for Sensor Test Mode (Test Mode) using the hand-held tester.
  - (1) Make sure the ignition switch OFF.
  - (2) Set each of the check items to the condition in Operation (A) on the previous page.
  - (3) Connect the hand-held tester to DLC3.
  - (4) Turn the ignition switch ON.
  - (5) Select the SIGNAL CHECK mode on the hand-held tester.
  - (6) Set each of the check items to the condition in Operation (B) on the previous page.

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 hand-held tester operator's manual for further details.

**DTC from input signal check**

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 page" under respective "DTC No." in the chart.

DTC No. (See Page)	Detection Item	Trouble Area
C1782/82 (05-281)	Stop light switch circuit malfunction	<ul style="list-style-type: none"> <li>• Stop lamp switch assy</li> <li>• Stop light switch circuit</li> <li>• Suspension control ECU</li> </ul>
C1783/83 (05-284)	Door courtesy switch circuit malfunction	<ul style="list-style-type: none"> <li>• Door courtesy switch assy</li> <li>• w/ Motor back door assy</li> <li>• Door courtesy switch circuit</li> <li>• Body ECU</li> <li>• Back door ECU</li> <li>• Suspension control ECU</li> </ul>

## DIAGNOSTICS - REAR AIR SUSPENSION SYSTEM

C1786/86 (05-286)	Height control switch circuit malfunction	<ul style="list-style-type: none"> <li>• Height control switch (Suspension control switch)</li> <li>• Height control switch circuit</li> <li>• Suspension control ECU</li> </ul>
C1788/88 (05-289)	Height control OFF switch circuit malfunction	<ul style="list-style-type: none"> <li>• Height control OFF switch (Suspension control switch)</li> <li>• Height control OFF switch circuit</li> <li>• Suspension control ECU</li> </ul>
C1794/94 (05-277)	Right front speed sensor circuit malfunction	<ul style="list-style-type: none"> <li>• Right front speed sensor</li> <li>• Right front speed sensor circuit</li> <li>• Skid control ECU assy</li> <li>• Suspension control ECU</li> </ul>
C1795/95 (05-277)	Left front speed sensor circuit malfunction	<ul style="list-style-type: none"> <li>• Left front speed sensor</li> <li>• Left front speed sensor circuit</li> <li>• Skid control ECU assy</li> <li>• Suspension control ECU</li> </ul>
C1797/97 (05-279)	Crankshaft position sensor circuit malfunction	<ul style="list-style-type: none"> <li>• Crankshaft position sensor</li> <li>• Crankshaft position sensor circuit</li> <li>• ECM</li> <li>• Suspension control ECU</li> </ul>

**7. FAIL-SAFE FUNCTION**

- (a) In the normal control operation, if there is short or open in the sensors etc., the suspension control ECU suspend the vehicle height control operation.