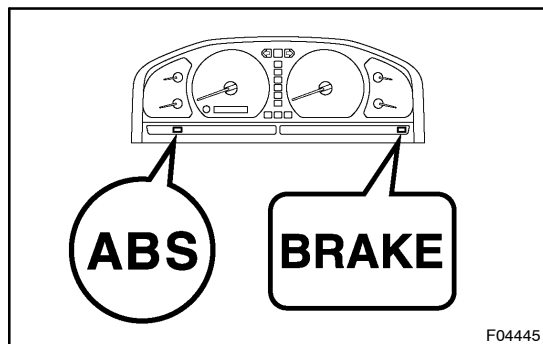




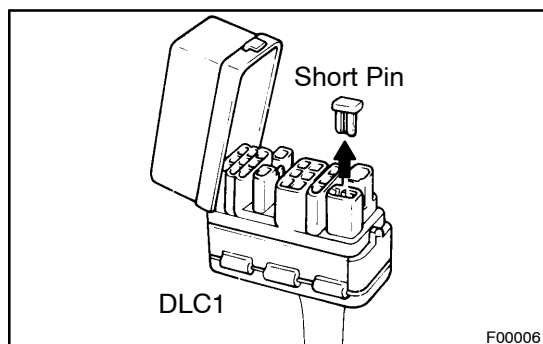
PRE-CHECK

1. DIAGNOSIS SYSTEM

- (a) Check the warning lights and buzzer.
 - (1) Release parking brake lever.
 - (2) When the ignition switch is turned ON, check that the ABS warning lights go on for 3 seconds.
 - (3) Check the BRAKE warning light lights up when the ignition switch is turned ON and the light goes off when the engine starts.
 - (4) When 120 seconds have elapsed after the ignition switch was turned ON, depressing and releasing the brake pedal continuously with full stroke 15 – 20 times within 10 sec. Warning light lights up and buzzer sounds.

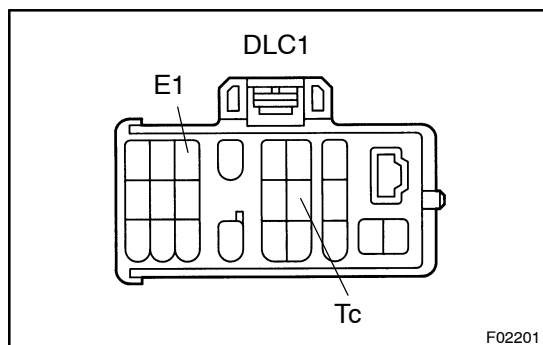
HINT:

If the indicator check result is not normal, proceed to troubleshooting for the ABS warning light circuit (See page [DI-283](#)).



- (b) In case of not using TOYOTA hand-held tester:
Check the DTC.

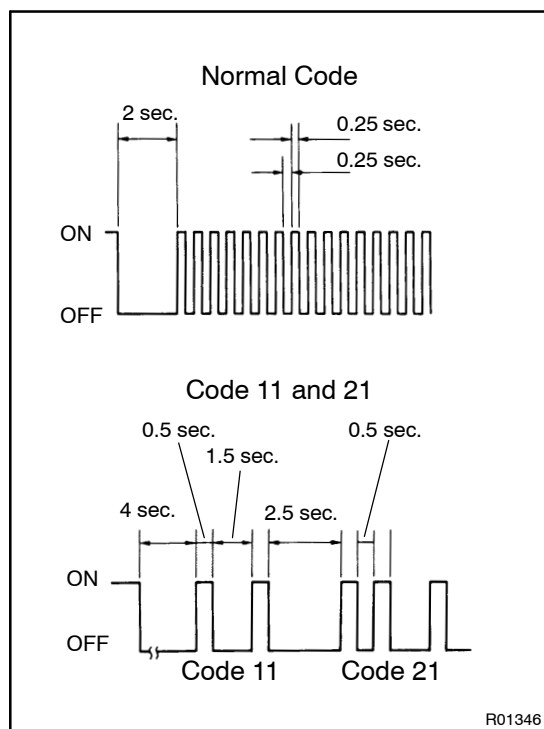
- (1) Disconnect the short pin from DLC1.



- (2) Using SST, connect terminals Tc and E₁ of DLC1.
SST 09843-18020
- (3) Turn the ignition switch ON.
- (4) Read the DTC from the ABS warning light on the combination meter.

HINT:

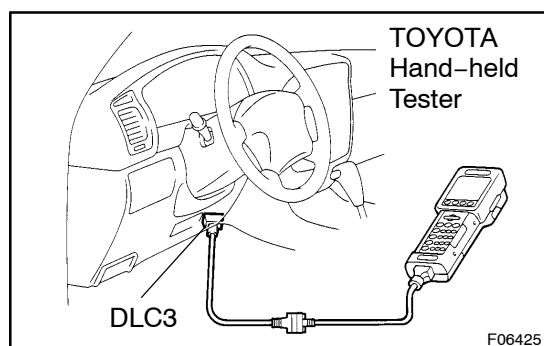
- If no code appears, inspect the diagnostic circuit or ABS warning light circuit (See page [DI-283](#) or [DI-292](#)).



- As an example, the blinking patterns for normal code and codes 11 and 21 are shown on the left.

- Codes are explained in the code table on page [DI-218](#).
- After completing the check, disconnect terminals Tc and E₁, and turn off the display.

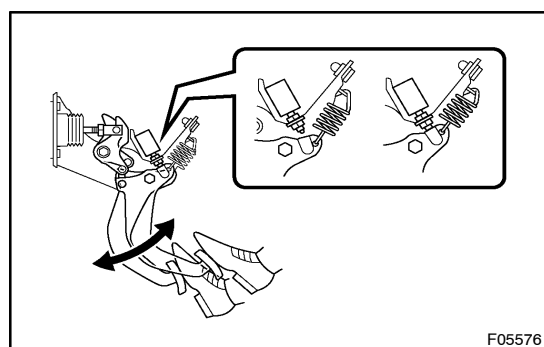
If 2 or more malfunctions are indicated at the same time the lowest numbered DTC will be displayed 1st.



- In case of using TOYOTA hand-held tester:
Check the DTC.
 - Hook up the TOYOTA hand-held tester to the DLC3.
 - Read the DTC by following the prompts on the tester screen.

HINT:

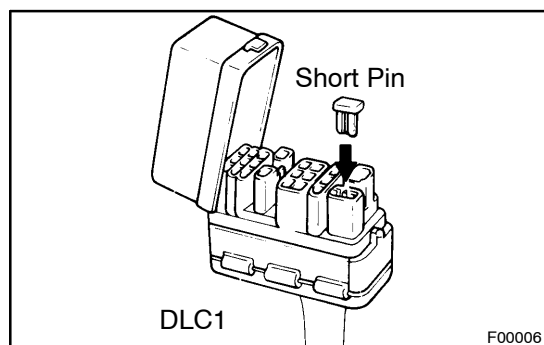
Please refer to the TOYOTA hand-held tester operator's manual for further details.

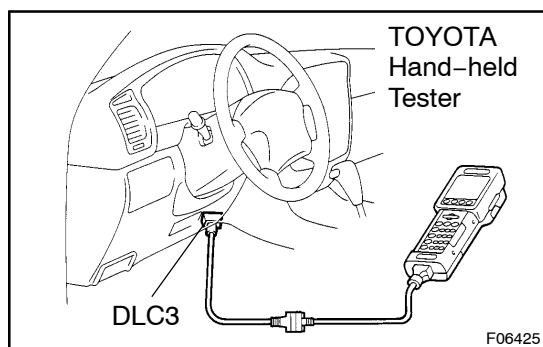


- In case of not using TOYOTA hand-held tester:
Clear the DTC.
 - Using SST, connect terminals Tc and E₁ of DLC1 and remove the short pin from DLC1.
SST 09843-18020
 - Turn the ignition switch ON.
 - Clear the DTC stored in ECU by depressing the brake pedal 8 or more times within 5 seconds.
 - Check that the warning light shows the normal code.
 - Remove the SST from the terminals of DLC1.
SST 09843-18020
 - Connect the short pin to DLC1.

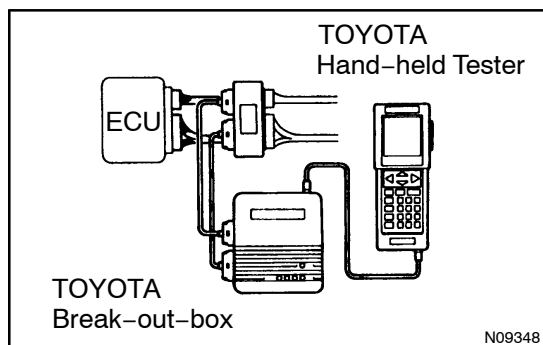
HINT:

Disconnecting the battery cable during repairs will not erase the DTC in the ECU.





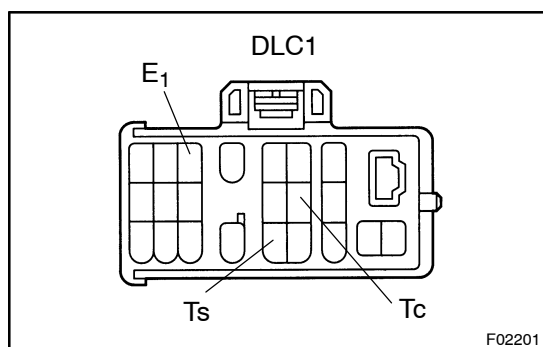
- (e) In case of using TOYOTA hand-held tester:
Clear the DTC.
- (1) Hook up the TOYOTA hand-held tester to the DLC3.
 - (2) Turn the ignition switch ON.
 - (3) Operate the TOYOTA hand-held tester to erase the codes.
(See TOYOTA hand-held tester operator's manual.)



- (f) (Reference):
Using TOYOTA break-out-box and TOYOTA hand-held tester, measure the ECU terminal values.
- (1) Turn the ignition switch OFF.
 - (2) Hook up the TOYOTA break-out-box and TOYOTA hand-held tester to the vehicle.
 - (3) Turn the ignition switch ON.
 - (4) Read the ECU input/output values by following the prompts on the tester screen.

HINT:

- TOYOTA hand-held tester has a "Snapshot" function. This records the measured values and is effective in the diagnosis of intermittent problems.
- Please refer to the TOYOTA hand-held tester/TOYOTA break-out-box operator's manual for further details.

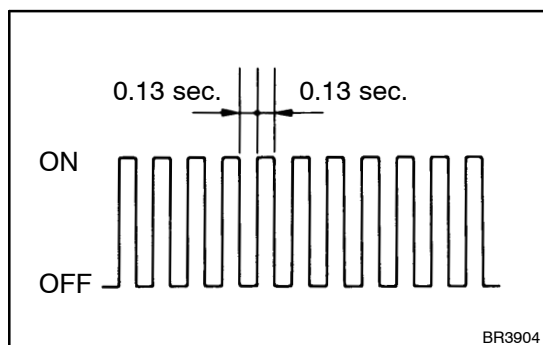
**2. SENSOR SIGNAL CHECK (TEST MODE)****HINT:**

If the ignition switch is turned from ON to ACC or LOCK during test mode, DTC will be erased.

- (a) In case of not using TOYOTA hand-held tester:
Check the sensor signal.
- (1) Turn the ignition switch OFF.
 - (2) Using SST, connect terminals Ts and E₁ of DLC1.
SST 09843-18020
 - (3) Start the engine.
 - (4) Check that the ABS warning light blinks.

HINT:

If the ABS warning light does not blink, inspect the ABS warning light circuit and Ts circuit (See page [DI-283](#), [DI-294](#)).



- (5) Keep the vehicle in the stationary condition on the flat place for 6 sec. or more.
- (6) Shift the transfer lever in L4 position and turn the Center diff. lock switch ON.

- (7) Drive vehicle straight forward.
When driving the vehicle with the speed faster than 45 km/h (28 mph) for several seconds, check that the ABS warning light comes off.

HINT:

There is a case that the sensor check is not completed if the vehicle has its rear wheels spun or its steering wheel steered during this check.

- (8) Stop the vehicle.
(9) Check ABS warning light goes off when the rear diff. lock indicator light lights up or flashes.

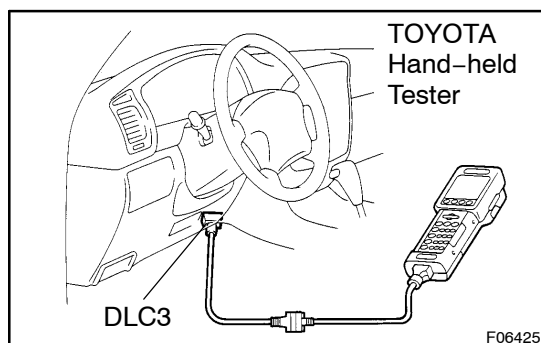
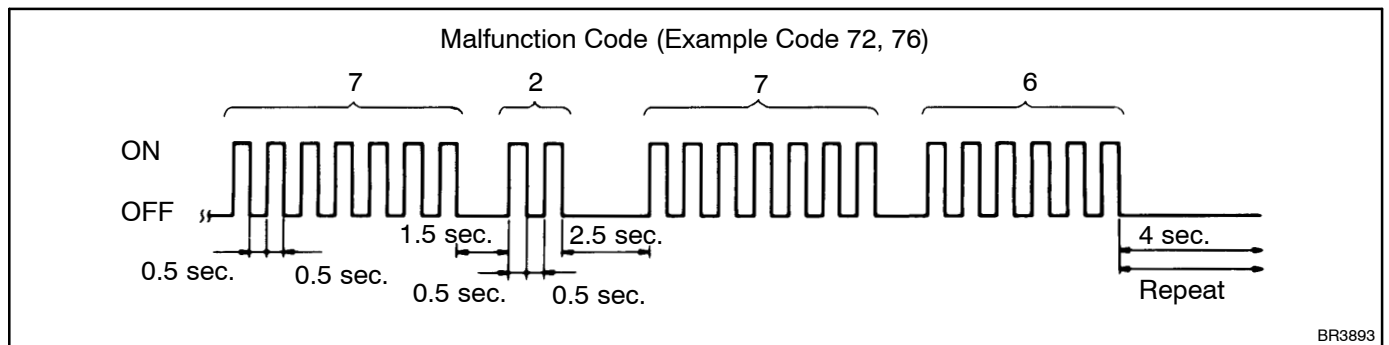
HINT:

While the rear diff. is being locked, ECU records DTC 48.

- (10) Using SST, connect terminals Tc and E₁ of DLC1.
SST 09843-18020
(11) Read the number of blinks of the ABS warning light.

HINT:

- See the list of DTC on the next page.
 - If every sensor is normal, a normal code is output (A cycle of 0.25 sec. ON and 0.25 sec. OFF is repeated).
 - If 2 or more malfunctions are indicated at the same time, the lowest numbered code will be displayed 1st.
- (12) After doing the check, disconnect terminals Ts and E₁, Tc and E₁ of DLC1, and turn the ignition switch OFF.



- (b) In case of using TOYOTA hand-held tester:
Check the sensor signal.
- (1) Hook up the TOYOTA hand-held tester to the DLC3.
 - (2) Do step (3) to (9) on the previous and this page.
 - (3) Read the DTC by following the prompts on the tester screen.

HINT:

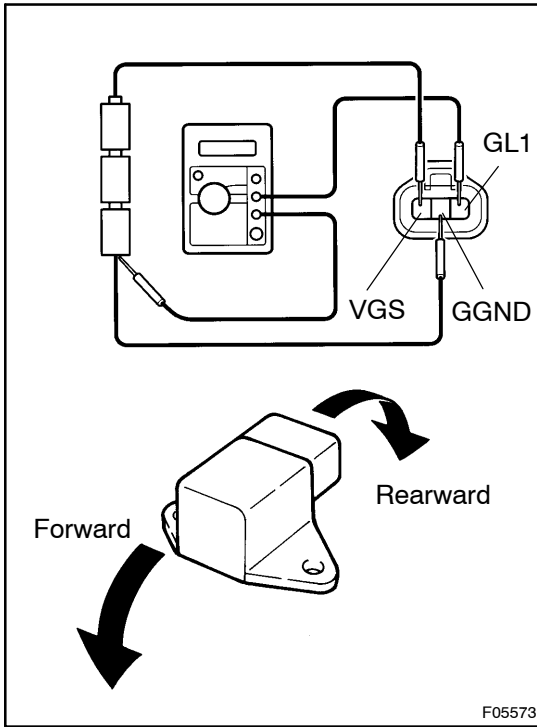
Please refer to the TOYOTA hand-held tester operator's manual for further details.

DTC of sensor check function:

Code No.	Diagnosis	Trouble Area
C1271 / 71	Low output voltage of right front speed sensor	• Right front speed sensor • Sensor installation • Sensor rotor
C1272 / 72	Low output voltage of left front speed sensor	• Left front speed sensor • Sensor installation • Sensor rotor
C1273 / 73	Low output voltage of right rear speed sensor	• Right rear speed sensor • Sensor installation • Sensor rotor
C1274 / 74	Low output voltage of left rear speed sensor	• Left rear speed sensor • Sensor installation • Sensor rotor
C1275 / 75	Abnormal change in output voltage of right front speed sensor	• Right front speed sensor rotor
C1276 / 76	Abnormal change in output voltage of left front speed sensor	• Left front speed sensor rotor
C1277 / 77	Abnormal change in output voltage of right rear speed sensor	• Right rear speed sensor rotor
C1278 / 78	Abnormal change in output voltage of left rear speed sensor	• Left rear speed sensor rotor
C1279 / 79	Deceleration sensor is faulty	• Deceleration sensor • Sensor installation
C1282 / 82	Center differential lock position switch malfunction	• Center differential lock position switch
C1282 / 83	L4 position switch malfunction	• L4 position switch

3. DECELERATION SENSOR OPERATION DIAGNOSIS SYSTEM**CAUTION:**

While checking the deceleration sensor operating diagnosis system, ABS does not work and brake system works as a conventional brake system.



4. DECELERATION SENSOR CHECK

- (a) Connect 3 dry batteries of 1.5 V in series.
- (b) Connect VGS terminal to the batteries' positive (+) terminal, and GGND terminal to the batteries' negative (-) terminal, apply about 4.5 V between VGS and GGND terminals.

NOTICE:

Do not apply voltage of 6 V or more to terminals VGS and GGND.

- (c) Check the output voltage of GL1 terminals.

Symbols	Condition	Standard Value
GL1	Horizontal	About 2.3 V
GL1	Lean forward	0.4 V – about 2.3 V
GL1	Lean rearward	About 2.3 V – 4.1 V

HINT:

- If the sensor is tilted too much it may show the wrong value.
- If dropped, the sensor should be replaced with a new one.
- The sensor removed from the vehicle should not be placed upside down.