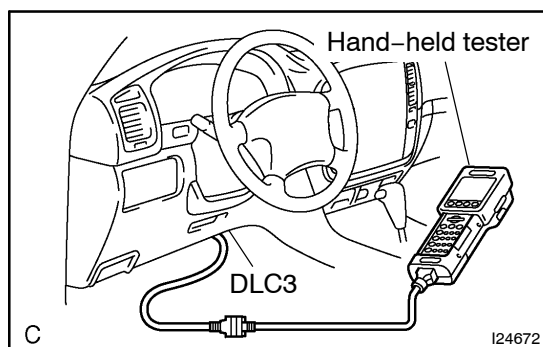


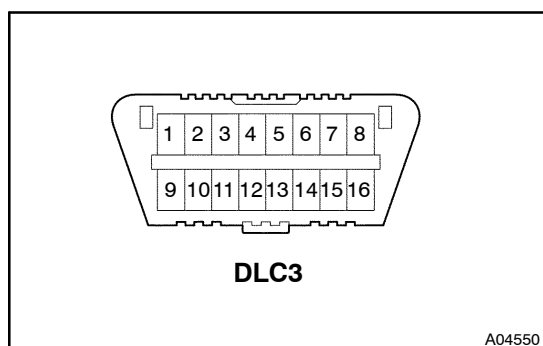


PRE-CHECK

1. DIAGNOSIS SYSTEM

(a) Description

ECM controls the function of immobiliser on the vehicle. Data of the immobiliser or DTC can be read from DLC3 of the vehicle. When a trouble occurs on immobiliser, MIL does not come on but DTC inspection is performed. Therefore when there seems to be a trouble on immobiliser, use hand-held tester or SST to check and trouble-shoot it.



(b) Inspect the DLC3.

The vehicle's ECM uses ISO 9141-2 for communication. The terminal arrangement of DLC3 complies with SAEJ1962 and matches the ISO 9141-2 format.

Tester connection	condition	Specified condition
7 (Bus ⊕ Line) – 5 (Signal ground)	During communication	Pulse generation
4 (Chassis Ground) – Body	Always	1 Ω or less
5 (Signal Ground) – Body	Always	1 Ω or less
16 (B+) – Body	Always	9 – 14 V

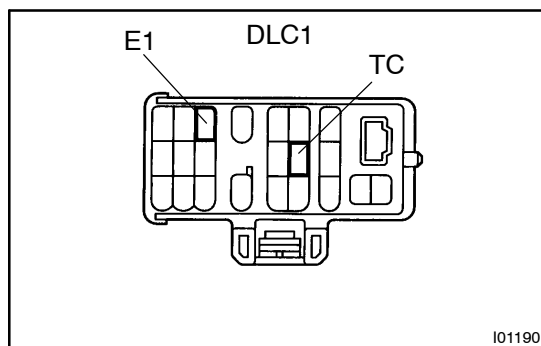
HINT:

If the display shows "UNABLE TO CONNECT TO VEHICLE" when the cable of hand-held tester is connected to DLC3, the ignition switch is turned ON and the scan tool is operated, there is a problem either on the vehicle side or the tool side.

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

2. INSPECT DIAGNOSIS

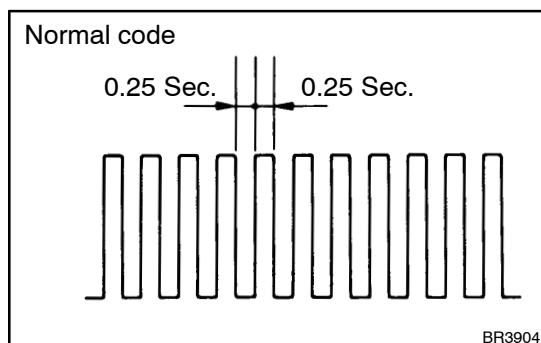
- (a) Check DTC (Using hand-held tester).
- (1) Prepare hand-held tester.
 - (2) Connect hand-held tester to DLC3 under the instrument panel lower pad.
 - (3) Turn the ignition switch ON and turn hand-held tester switch ON.
 - (4) Use hand-held tester to check the DTC. and "Snap-shot function" which records the monitor data (For operating instructions, see the hand-held tester instruction book.).
 - (5) See page [DI-1225](#) to confirm the details of the DTCs.



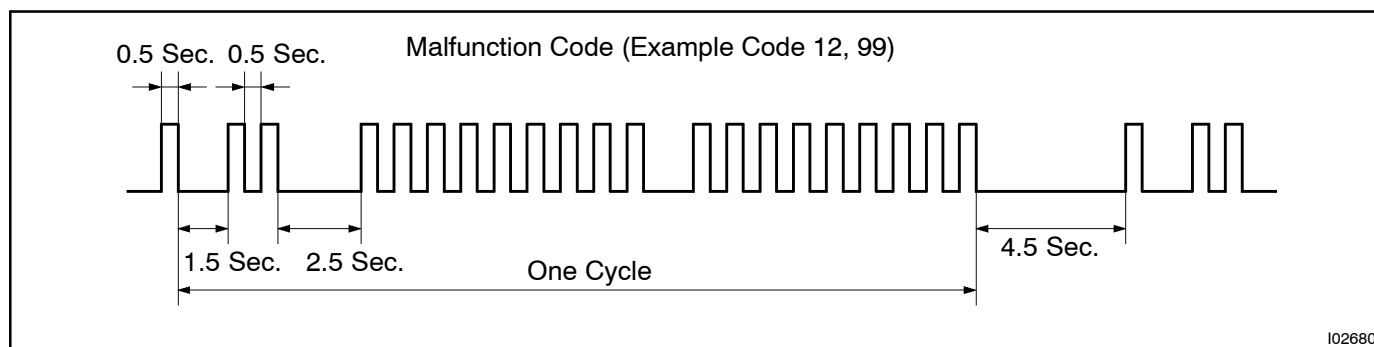
- (b) Check DTC (Using diagnosis check wire).
- (1) Turn ignition switch ON.
 - (2) Using SST, connect between terminal 11 (TC) and 3 (E1) of DLC1.
- SST 09843-18020
- (3) Read the diagnostic trouble code from malfunction indicator lamp.

HINT:

- If a diagnostic trouble code is not output, check the TC terminal circuit.
- ECM controls the immobiliser function on this vehicle, DTC is output with engine data.



- As an example, the blinking patterns for codes of normal, 12 and 99 are shown in the charts.



- (4) When DTC "99" is output, there is a trouble of immobiliser. Start troubleshooting referring to PROBLEM SYMPTOMS TABLE.
- (5) After completing the check, disconnect terminal 11 (TC) and 3 (E1) and turn off the display.

HINT:

In the event of 2 or more malfunction codes are output, indication will begin from the smaller numbered code and continue in order to the larger.

- (c) Clear the DTC.

The following operations will erase the DTCs and freeze frame data.

- (1) Operating the hand-held tester to erase the codes (See the OBD II scan tool's instruction book for operating instructions.).
- (2) Disconnecting the battery terminals or EFI No. 1 fuse.

3. DATA LIST**HINT:**

By the DATA LIST displayed on the Hand-held tester, you can read the value of the switch, sensor, actuator and so on without removing any parts. Reading the DATA LIST as a first step of troubleshooting is one of the method to shorten the labor time.

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

TRANSPONDER KEY ECU

Item	Condition	Specified Condition
KEY SW	Ignition switch ON → Without key	ON/OFF
IG SW	Ignition switch ON → OFF	ON/OFF
IMMOBILISER	Ignition switch ON → When key is not inserted in the ignition switch cylinder	UNSET/SET
RESPONSE	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG
FRAME	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG
SERIAL NUMBER	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG
ENCRYPT CODE	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG

STATUS	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG
BCC	Ignition switch ON → When key is not inserted in the ignition switch cylinder	OK/NG
SUB KEY	Ignition switch ON with sub-key → Pull out key from ignition switch cylinder	NOMATCH/MATCH
MASTER KEY	Ignition switch ON with master key → Pull out key from ignition switch cylinder	NOMATCH/MATCH
REG CODE SPACE	–	NOT FUL/FUL
+B	–	NORMAL/BREAK
ANTENNA COIL	Ignition switch ON → When key is not inserted in the ignition switch cylinder	NORMAL/FAIL
G-CODE SUPPORT	–	NOT SUP/SUPPORT
REGIST SUB CODE	–	0 – 1
REGIST MAS CODE	–	0 – 3

4. ACTIVE TEST

HINT:

Performing ACTIVE TEST using the Hand-held tester allows the relay, and so on to operate without removing any parts. Performing ACTIVE TEST as a first step of troubleshooting is one of the method to shorten the labor time.

DATA LIST can be displayed during ACTIVE TEST.

- Turn the ignition switch OFF.
- Connect the Hand-held tester to DLC3.
- Turn the ignition switch ON.
- According to the display on tester, perform the "ACTIVE TEST".

TRANSPONDER KEY ECU

Item	Operation
SECURITY INDIC	ON / OFF