

PRE-CHECK

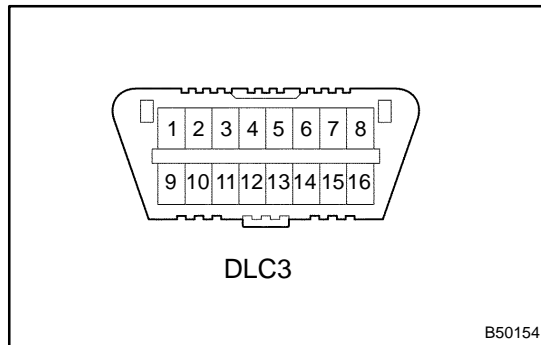
1. DIAGNOSIS SYSTEM

(a) Description

- (1) The ECM controls the function of the immobilizer system on this vehicle.

Data of the immobilizer system and the Diagnostic Trouble Code (DTC) can be read in the Data Link Connector 3 (DLC3) of the vehicle. When trouble occurs in the immobilizer system, even though the security indicator lamp does not turn on, DTCs can be checked.

Therefore, when there seems to be trouble with the immobilizer system, use the hand-held tester to check for trouble and troubleshoot it.



- (b) Inspect the DLC3.

The vehicle's ECM uses the ISO 9141-2 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.

Standard:

Terminal No.	Condition	Specified Condition
7 (Bus + Line) - 5 (Signal ground)	During communication	Pulse generation
4 (Chassis Ground) - Body ground	Constant	Below 1 Ω
5 (Signal Ground) - Body ground	Constant	Below 1 Ω
16 (B+) - Body ground	Constant	10 to 14 V

HINT:

Connect the cable of the hand-held tester to the DLC3, turn the ignition switch ON and attempt to use the hand-held tester. If the screen displays UNABLE TO CONNEC TO TO VEHICLE, a problem exists in the vehicle side or the tester side.

- If communication is normal when the tester is connected to other vehicle, inspect the DLC3 of the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

2. CHECK DIAGNOSIS

- (a) Using the hand-held tester, check for DTC.

NOTICE:

Hand-held tester only:

When the diagnosis system is changed from normal mode to check mode, all DTCs and freeze frame data recorded in normal mode will be erased. Before changing modes, always check the DTCs and freeze frame data, and make a note of them.

- (1) Prepare the hand-held tester.
- (2) Connect the hand-held tester to the DLC3 under the instrument panel lower pad.
- (3) Turn the ignition switch ON and push the hand-held tester switch ON.
- (4) Use the hand-held tester to check for DTCs and freeze frame data, and make a note of them (for operating instructions, see the hand-held tester instruction book).
- (5) Confirm the details of the DTCs.

- (b) Either of the following procedures will erase the DTCs and freeze frame data.
- (1) Operating the hand-held tester to erase the codes (see the instruction manual for the hand-held tester).
 - (2) Disconnecting the battery terminals or ECU-B fuse.

3. DATA LIST

HINT:

Using the hand-held tester DATA LIST allows switch, sensor, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to shorten labor time.

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Read the DATA LIST according to the display on the tester.

Transponder key ECU assy:

Item	Measurement Item/ Display (Range)	Normal Condition
KEY SW	Unlock warning switch signal/ ON or OFF	OFF: Key is in ignition key cylinder ON: No key is in ignition key cylinder
IG SW	Ignition switch signal/ ON or OFF	OFF: Ignition switch is in OFF or ACC position ON: Ignition switch is in ON position
IMMOBILISER	Immobilizer system status/ SET or UNSET	UNSET: Without key SET: Ignition switch ON
RESPONSE	Transponder chip data/ NG or OK	NG: Data error OK: Data OK
FRAME	Transponder chip data/ NG or OK	NG: Data error OK: Data OK
SERIAL NUMBER	Transponder chip data/ NG or OK	NG: Data error OK: Data OK
ENCRYPT CODE	Transponder chip data/ NG or OK	NG: Data error OK: Data OK
STATUS	Transponder chip data/ NG or OK	NG: Data error OK: Data OK
BCC	Transponder chip signal/ NG or OK	NG: Incorrect data sending OK: Correct data sending
SUB KEY	Sub-key code signal/ NOMATCH or MATCH	NOMATCH: Unmatched sub-key code is sent MATCH: Sub-key code is sent
MASTER KEY	Master key code signal/ NOMATCH or MATCH	NOMATCH: Unmatched master key code is sent MATCH: Master key code is sent
REGIST SUB CODE	Number of registered sub-key/ min. 0, max. 15	Number of registered sub-key
REGIST MAS CODE	Number of registered master key/ min. 0, max. 15	Number of registered master key
REG CODE SPACE	Memory space for key codes registration/ NOT FUL or FULL	NOT FUL: Possible to register more key codes FULL: Cannot register any more key codes
ANTENNA COIL	Antenna coil condition/ NORMAL or FAIL	NORMAL: Antenna coil is normal FAIL: Antenna coil is malfunctioning

4. ACTIVE TEST

HINT:

Performing the hand-held tester ACTIVE TEST allows relay, VSV, actuator and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to shorten labor time. The DATA LIST can be displayed during the ACTIVE TEST.

- (a) Connect the hand-held tester to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Perform the ACTIVE TEST according to the display on the tester.

Transponder key ECU assy:

Item	Test Details
SECURITY INDIC	Turn security indicator ON/OFF