

## DIAGNOSIS SYSTEM

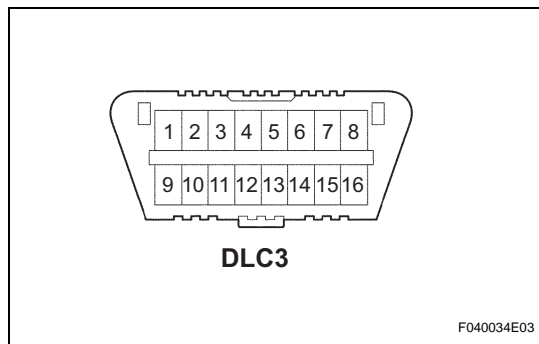
### 1. DESCRIPTION

Power door lock control system data can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the intelligent tester to check for malfunctions and perform repairs.

### 2. CHECK DLC3

- (a) The vehicle's ECU uses ISO 9141-2 for communication.

The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 9141-2 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 $\Omega$
SG (5) - Body ground	Signal ground	Always	Below 1 $\Omega$
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	HIGH-level CAN bus line	Ignition switch OFF	54 to 67 $\Omega$
CANH (6) - Battery positive	HIGH-level CAN bus line	Ignition switch OFF	1 M $\Omega$ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF	3 k $\Omega$ or higher
CANL (14) - Battery positive	LOW-level CAN bus line	Ignition switch OFF	1 M $\Omega$ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF	3 k $\Omega$ or higher

#### HINT:

If the display shows a communication error message after connecting the intelligent tester to the DLC3 and turning the ignition switch to the ON position, there is a problem with either the vehicle or the intelligent tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably in the tester itself. Consult the Service Department listed in the tester's operator's manual.

## DATA LIST / ACTIVE TEST

### 1. READ DATA LIST

#### HINT:

Using the intelligent tester's DATA LIST allows switch, actuator and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

- (a) Connect the intelligent tester with CAN VIM to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Read the DATA LIST.

#### MASTER SW:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
DOOR LOCK SW	Door control switch lock signal /ON or OFF	ON: Door control switch is in the LOCK position OFF: Door control switch is not in the LOCK position	-
DOOR UNLOCK SW	Door control switch unlock signal /ON or OFF	ON: Door control switch is in the UNLOCK position OFF: Door control switch is not in the UNLOCK position	-
LOCK POS SW	Door unlock detection switch signal /ON or OFF	ON: Any door is unlocked OFF: All door is locked	-
DOOR KEY LOCK*	Driver door lock/unlock switch lock signal (key-linked-lock switch) /ON or OFF	ON: Driver side door key cylinder is turned to LOCK OFF: Driver side door key cylinder is not turned to LOCK	-
DOOR KEY UNLOCK*	Driver door lock/unlock switch unlock signal (key-linked-unlock switch) /ON or OFF	ON: Driver side door key cylinder is turned to UNLOCK OFF: Driver side door key cylinder is not turned to UNLOCK	-

#### HINT:

\*: Driver door only

#### BODY:

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
KEY UNLK WRN SW	Unlock warning switch signal /ON or OFF	ON: Key is in ignition key cylinder OFF: No key is in ignition key cylinder	-
IG SW	Ignition switch signal/ON or OFF	ON: Key is in ON or START position OFF: Key is in OFF or ACC position	-
BACK DOR OPEN	Back door open judgment/PROHIBIT or PERMIT	PROHIBIT: Back door is in LOCK position (prohibited from being unlatched) PERMIT: Back door is in UNLOCK position (permitted to be unlatched)	-
D DOR CTY SW	Driver side door courtesy switch signal /ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
P DOR CYT SW	Passenger side door courtesy switch signal /ON or OFF	ON: Passenger side door is open OFF: Passenger side door is closed	-
Rr DOR CTY SW	Rear door courtesy switch signal /ON or OFF	ON: Right or left rear door is open OFF: Right and left rear doors are closed	-
P LOCK POS SW	Passenger side door lock position switch signal /ON or OFF	ON: Passenger side door lock is in UNLOCK position OFF: Passenger side door lock is in LOCK position	-

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
Rr LOCK POS SW	Rear door lock position switch signal /ON or OFF	ON: Rear door lock is in UNLOCK position OFF: Rear door lock is in LOCK position	-
B DOR OPEN SW <sup>*1</sup>	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-
B DOR OPER SW	Power back door opener/closer switch signal /ON or OFF	ON: Power back door opener/closer switch is pushed OFF: Power back door opener/closer switch is not pushed	-
D/L SW-LOCK	Door lock switch <sup>*2</sup> signal/ON or OFF	ON: Door lock switch is pushed/turned to LOCK position OFF: Door lock switch is not pushed/not turned to LOCK position	-
D/L SW-UNLOCK	Door unlock switch <sup>*2</sup> signal/ON or OFF	ON: Door lock switch is pushed/turned to UNLOCK position OFF: Door lock switch is not pushed/not turned to UNLOCK position	-
AUTO LOCK DELAY	Door courtesy switch signal/30s or 60s	30s: Door auto locking time is 30 sec. 60s: Door auto locking time is 60 sec.	-
UNLOCK/2 OPER	2 times operation wireless unlock signal/ ON or OFF	ON: All doors unlock when wireless UNLOCK switch pressed twice OFF: All doors unlock when wireless UNLOCK switch pressed once	-
AUTO LOCK	Vehicle speed signal (approx. 20 km/h (13 mph))/ON or OFF	ON: Doors lock at a vehicle speed of 20 km/h (13 mph) OFF: Doors do not lock at a vehicle speed of 20 km/h (13 mph)	-
UNLK/KEY TWICE	Key operation driver door 2-step unlock switch signal/ON or OFF	ON: All doors are unlocked when driver side door key cylinder is turned to unlock twice (2-step unlocking function) OFF: Only driver side door is unlocked when driver side door key cylinder is turned to unlock once	-
ALL UNLK/OPN-CL	Driver side door courtesy switch signal/ ON or OFF	ON: All doors unlock when driver side door is opened OFF: Other doors do not unlock when driver side door is opened	-
UNLOCK/PARK	Ignition switch ON, shift lever P position, vehicle speed 0 km/h signal/ON or OFF	ON: All doors unlock when shift lever is shifted to P position from any position other than P while the ignition switch is ON OFF: No door unlocks even when shift lever is shifted to P position from any position other than P while ignition switch is ON	-
AUTO LOCK/SHIFT	Shift lever in any position other than P position signal/ON or OFF	ON: All doors lock when shift lever is shifted to any position other than P from P position OFF: No door locks when shift lever is shifted to any position other than P from P position	-

**HINT:**

- \*1: w/o Power back door system
- \*2: Master switch, door control switch, transmitter switch or key-linked switch.

**BACK DOOR:**

Item	Measurement Item / Display (Range)	Normal Condition	Diagnostic Note
COURTESY SW	Back door courtesy switch signal (built in power back door lock) /ON or OFF	ON: Driver side door is open OFF: Driver side door is closed	-
HALF RATCHET* SW	Back door lock half-latch* switch signal /ON or OFF	OFF: Back door is closed ON: Back door is not completely closed	-
DOOR HANDLE SW	Back door opener switch signal (Outside handle switch) /ON or OFF	ON: Back door opener switch is pushed OFF: Back door opener switch is not pushed	-

**HINT:**

\*: "RATCHET" appears on the display of the intelligent tester, however, the name of the part corresponding to the display of the tester is "half-latch".

**2. PERFORM ACTIVE TEST****HINT:**

Performing the intelligent tester's 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 save time. The DATA LIST can be displayed during the ACTIVE TEST.

- (a) Connect the intelligent tester with CAN VIM to the DLC3.
- (b) Turn the ignition switch ON.
- (c) Perform the ACTIVE TEST.

**BODY:**

Item	Test Details	Diagnostic Note
TRUNK/BDOR OPEN	Operate back door open OFF/ON	-
DOOR LOCK	Operate door lock motor for all doors OFF/LOCK/UNLOCK	All doors are closed