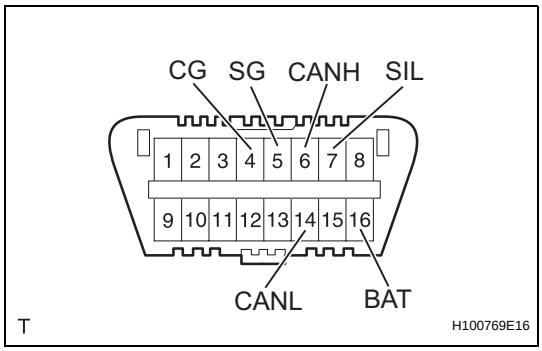


DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) The ECU uses the ISO 15765-4 for communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.

Terminal No. (Symbols)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch OFF*	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch OFF*	200 Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch OFF*	200 Ω or higher
CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch OFF*	6 kΩ or higher
CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch OFF*	6 kΩ or higher

NOTICE:

***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, any other switches, or the doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

If the display shows an error message after having connected the cable of the intelligent tester to the DLC3, turned the ignition switch to the ON position, and operated the tester, there is a problem on either the vehicle side or the tool side.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible 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.

ME

DATA LIST / ACTIVE TEST

1. DATA LIST

Using the intelligent tester to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

(a) Warm up the engine.
(b) Turn the ignition switch off.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch to the ON position.
(e) Turn the tester ON.
(f) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / DATA LIST.

METER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPEED METER	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (When driving)	-
TACHO METER	Engine speed/Min.: 0 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	-
FUEL GAUGE	Fuel input signal/Min.: 0, Max. 255	Fuel gauge indicates (F): 35	-
		Fuel gauge indicates (3/4): 85	-
		Fuel gauge indicates (1/2): 145	-
		Fuel gauge indicates (1/4): 186	-
		Fuel gauge indicates (E): 205	-
LIGHT RHEOSTAT	Light Control Rheostat/Min.: 0, Max.: 255	Light control rheostat switch is Dark (0) → Bright (255)	-
ODO/TRIP SW	ODO/TRIP switch is ON/OFF	ON: Switch is pushed OFF: Switch is released	-
TAIL CANCEL SW	TAIL CANCEL switch is ON/OFF	ON: Switch is pushed OFF: Switch is released	-

ABS/TRAC/VSC:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
FR/FL/RR/RL WHEEL SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual vehicle speed (When driving)	-
VEHICLE SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual vehicle speed (When driving)	-

ENGINE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed/Min.: 0 rpm, Max.: 12,750 rpm	Almost same as actual vehicle speed (When driving)	-
COOLANT TEMP	Coolant temperature/Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140°C (284°F)", sensor circuitis open or shorted.

2. ACTIVE TEST

Using the intelligent tester to perform Active Tests allows relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch to the ON position.
(c) Turn the tester ON.
(d) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST

METER:

Tester Display	Test Part	Control Range	Diagnostic Note
SPEED METER	Speedometer	0, 40, 80, 120 (mph) (*1)	-
		0, 40, 80, 120, 160 (km/h) (*2)	-
TACHO METER	Tachometer	0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000 (rpm)	-
FUEL GAUGE	Fuel receiver gauge	OFF, EMPTY, 1/2, FULL	-
COOLANT TEMP	Engine coolant temperature receiver gauge	OFF, LOW, NORMAL, HIGH	-
SHIFT INDIC	A/T shift indicator light	A/T shift L, 2, 3, 4, D, N, R, P indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
LOW FUEL WARN	FUEL warning light (Fuel level warning light)	FUEL warning light OFF/ON	Confirm that the vehicle is stopped with the engine idling
DOOR	DOOR warning light	DOOR warning light OFF/ON	Confirm that the vehicle is stopped with the engine idling
D-BELT REMIND	SEAT BELT warning light	SEAT BELT indicator light OFF/ ON	Confirm that the vehicle is stopped with the engine idling-
OIL PRESS WARN	OIL PRESSURE warning light	OIL PRESSURE warning light OFF/ON	Confirm that the vehicle is stopped with the engine idling
DISCHARGE WARN	CHARGE warning light	CHARGE warning light OFF/ON	Confirm that the vehicle is stopped with the engine idling
HEAD INDIC (*1)	HEAD indicator light	HEAD indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
TAILLIGHT INDIC (*2)	TAIL indicator light	TAIL indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
CRUISE INDIC	CRUISE indicator light	CRUISE indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
SRS WARN	SRS warning light	SRS indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
HIGH BEAM INDIC	BEAM indicator light	BEAM indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
TRAC OFF INDIC	TRAC OFF indicator light	TRAC OFF indicator light OFF/ ON	Confirm that the vehicle is stopped with the engine idling
SLIP INDIC (*3)	SLIP indicator light	SLIP indicator light OFF/ON	Confirm that the vehicle is stopped with the engine idling
ODO/TRIP DISP	ODO/TRIP display	ODO/TRIP display OFF/ON	Confirm that the vehicle is stopped with the engine idling
L-CRUISE DISP (*4)	L-Cruise display	L-cruise display OFF/ON	Confirm that the vehicle is stopped with the engine idling
L-CRS CHECK IND (*4)	L-Cruise indicator light	L-cruise indicator light is OFF/ON	Confirm that the vehicle is stopped with the engine idling

ME

Tester Display	Test Part	Control Range	Diagnostic Note
L-READY IND (*4)	L-Cruise READY indicator light	READY indicator light is OFF/ON	Confirm that the vehicle is stopped with the engine idling
KEY REMIND BUZZR	Key reminder buzzer	Key reminder buzzer OFF/ON	Confirm that the vehicle is stopped with the engine idling
SEAT BELT BUZZR	Seat belt buzzer	Seat belt buzzer OFF/ON	Confirm that the vehicle is stopped with the engine idling

MAIN BODY:

Tester Display	Test Part	Control Range	Diagnostic Note
DIMMER SIG (*5)	Auto dimmer signal	Auto dimmer signal is OFF/ON	OFF: Auto dimmer is OFF ON: Auto dimmer is ON

*1: for U.S.A.
*2: Except for U.S.A.
*3: with VSC
*4: with Dynamic Laser Cruise Control System
*5: for Optitron Meter