Last Modified: 7-13-2007		1.6 D
Service Category: Suspension	**Section:** Tire Pressure Monitoring	
Model Year: 2008	**Model:** ES350	**Doc ID:** RM000000XMW01EX
Title: TIRE AND WHEEL: TIRE PRESSURE WARNING SYSTEM: DIAGNOSIS SYSTEM (2008 ES350)		

DIAGNOSIS SYSTEM

1. CHECK BATTERY VOLTAGE

(a) Measure the voltage of the battery.

Standard voltage:
11 to 14 V

If the voltage is below 11 V, recharge the battery before proceeding.

2. DESCRIPTION

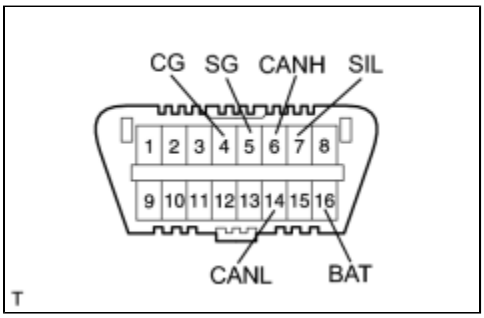
(a) Each system data and the Diagnostic Trouble Codes (DTCs) can be read from the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use Techstream* to check for malfunctions and perform repairs.

HINT:

***: Techstream is the name for the diagnostic tester in North America, but other countries will be using the intelligent tester.**

3. DATA LINK CONNECTOR (DLC3)

(a) The ECU uses ISO 15765-4 for communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 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 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	Engine switch off *	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Engine switch off *	200 Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Engine switch off *	200 Ω or higher
CANH (6) - BAT	HIGH-level CAN	Engine switch	6 kΩ or higher

(16)	bus line	off *	
CANL (14) - BAT (16)	LOW-level CAN bus line	Engine 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 engine switch. or any other switches or the doors.**

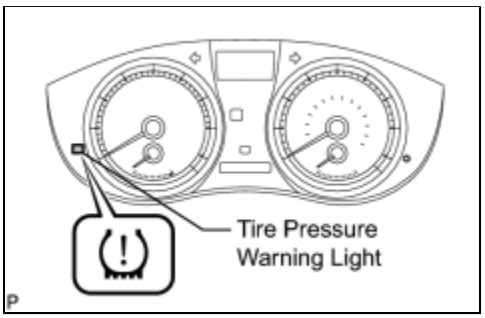
(b) If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

Connect the cable of Techstream to the DLC3, turn the engine switch on (IG) and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- 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.

4. DIAGNOSIS SYSTEM



(a) Warning light

(1) When there is a problem in the tire pressure warning system, the tire pressure warning light blinks at 0.5 second intervals, and turns on after 1 minute.

NOTICE:

When the malfunction has been corrected, the tire pressure warning light does not come on.

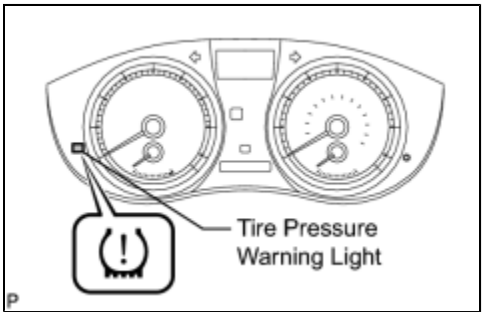
(b) DTCs (Normal mode)

(1) DTCs are memorized in the tire pressure warning ECU and read by the blinks of the tire pressure warning light or by using Techstream INFO .

(c) Test mode

(1) By switching from normal mode into test mode (input signal check), you can inspect the tire pressure warning antenna and receiver, each tire pressure warning valve and transmitter, tire pressure warning select switch, engine revolution signal and vehicle speed sensor INFO .

5. CHECK WARNING LIGHT



(a) Turn the engine switch on (IG).

(b) Check that the tire pressure warning light comes on for 3 seconds.

If the warning check result is not normal, proceed to the troubleshooting for the tire pressure warning light circuit.

TROUBLE AREA	SEE PROCEDURE
Tire pressure warning light circuit	INFO

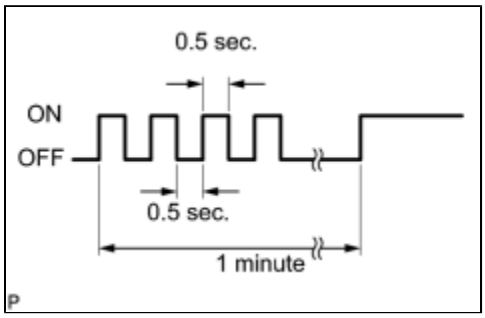
6. TIRE PRESSURE WARNING LIGHT

HINT:

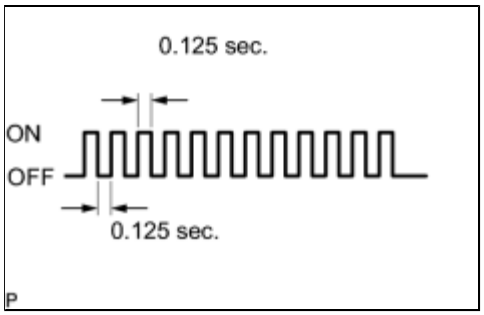
The table below indicates the state of the tire pressure warning light after the engine switch is turned on (IG).

	IMMEDIATELY AFTER TURNING THE ENGINE SWITCH ON (IG)	ALWAYS						
		WARNING LIGHT OUTPUT PATTERN						
	COMES ON FOR 3 SEC.	GOES OFF	COMES ON	BLINKS (*1)	BLINKS (*2)	BLINKS (*3)	BLINKS (*4)	OUTPUTS DTC
Normal	○	○	-	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-	-
System fail	○	-	-	○	-	-	-	-
Test mode	○	-	-	-	○	-	-	-
Initialization	○	-	-	-	-	○	-	-
ECU connector poorly connected	-	-	-	○ (*5)	-	-	-	-
TC ground (DTC is output)	○	-	-	-	-	-	-	○
TC ground (DTC is not output)	○	-	-	-	-	-	○	-

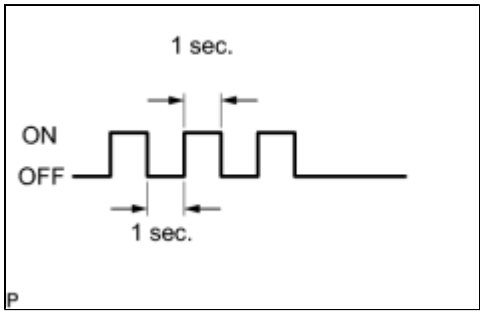
*1: Comes on and goes off repeatedly at 0.5 second intervals, and comes on after 1 minute.



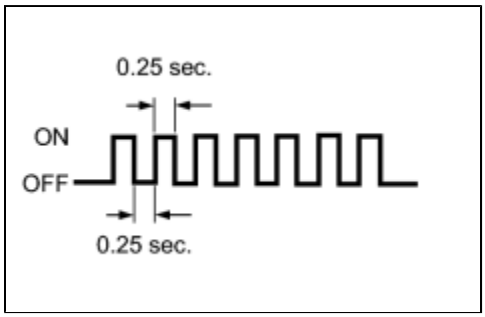
*2: Comes on and goes off repeatedly at 0.125 second intervals.



*3: Blinks 3 times (1 second on, 1 second off).



*4: Comes on and goes off repeatedly at 0.25 second intervals.



*5: When determining if there is a short circuit (10 seconds), the light is off. Then it blinks at 0.5 second intervals, and comes on after 1 minute.