

<b>DTC</b>	<b>P0705</b>	<b>Transmission Range Sensor Circuit Malfunction (PRNDL Input)</b>
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## DESCRIPTION

When the shift lever is in the N or P position: 1) the Park/Neutral Position (PNP) switch turns ON, and 2) ECM terminal NSW is grounded to the body ground via the starter relay and voltage becomes 0V. When the shift lever is in the D, 2, L or R position: 1) the PNP switch turns OFF, and 2) ECM terminal NSW receives current and becomes the voltage of the ECM internal power source.

If the shift lever is moved from the N position to the D position, this signal is used for air-fuel ratio correction and for idle speed control (estimated control).

DTC No.	DTC Detection Condition	Trouble Area
P0705	2 or more switches are ON simultaneously at P, R, N, D, 2 and L positions (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Short in PNP switch circuit</li> <li>• PNP switch</li> <li>• ECM</li> </ul>

### HINT:

After confirming DTC P0705, use the intelligent tester to confirm the PNP switch signal in the ALL menu (to reach the ALL menu: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL).

## WIRING DIAGRAM

Refer to DTC P0705 (See page [AX-44](#)).

Refer to DTC P0705 (See page [AX-46](#)).

### HINT:

Read freeze frame data using the intelligent tester or the OBD II scan tool. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air-fuel ratio was lean or rich, and other data from the time the malfunction occurred.

<b>DTC</b>	<b>P1645</b>	<b>Gateway ECU Malfunction</b>
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**DESCRIPTION**

The ECM receives the operating condition signal (ON/OFF) of the A/C from A/C ECU, and it also receives the electrical load information from the gateway ECU.

The ECM uses these information to control the engine (idle up, etc.).

DTC No.	DTC Detection Condition	Trouble Area
P1645	Condition (a) or (b) continues for 10 seconds or more: (a) No communication from body ECU (b) No communication from A/C ECU	<ul style="list-style-type: none"><li>• Gateway ECU</li><li>• A/C ECU</li><li>• Communication bus</li></ul>

Troubleshoot the Multiplex Communication System (See page [MP-20](#)).

**HINT:**

Read freeze frame data using the intelligent tester or the OBD II scan tool. The ECM records vehicle and driving condition information as freeze frame data the moment a DTC is stored. When troubleshooting, it is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

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