P1825, P182E, or P1915 Internal Mode Switch

Diagnostic Instructions

- Perform the Diagnostic System Check – Vehicle on page 6-60 prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis on page 6-57 for an overview of the diagnostic approach.
- Diagnostic Procedure Instructions on page 6-58 provides an overview of each diagnostic category.

DTC Descriptors

DTC P1825: Internal Mode Switch – Invalid Range
DTC P182E: Internal Mode Switch – Invalid Range
DTC P1915: Internal Mode Switch Start/Wrong Range

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Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Transmission Range Signal A	P1825, P182E	P1915	P1915	P1825, P182E, P1915
Transmission Range Signal B	P1915	P1825, P182E	P1825, P182E	P1825, P182E, P1915
Transmission Range Signal C	P1915	P1825, P182E	P1825, P182E	P1825, P182E, P1915
Transmission Range Signal P	P1825, P182E	P1915	P1915	P1825, P182E, P1915
Ground	—	P1825, P182E	P1825, P182E	P1825, P182E, P1915

IMS A/B/C/P

Circuit	Short to Ground	Open	Short to Voltage
Operating Conditions: Ignition ON, range selector in Park			
Transmission Range Switch Signal A	LOW	HI	HI
Transmission Range Switch Signal B	LOW	HI	HI
Transmission Range Switch Signal C	LOW	HI	HI
Transmission Range Switch Signal P	LOW	HI	HI

Circuit/System Description

The manual shift detent lever with shaft position switch assembly, or internal mode switch (IMS) assembly is a sliding contact switch attached to the control valve body within the transmission. The 4 inputs to the transmission control module (TCM) from the switch indicate which position is selected by the transmission manual shaft. The input voltage at the TCM is high when the switch is open and low when the switch is closed to ground. The state of each input is displayed on the scan tool as IMS. The IMS input parameters represented are transmission range signal A, Signal B, signal C, and signal P.

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Conditions for Running the DTC

P1825 or P182E

- The engine speed is greater than 500 RPM for 5 seconds.
- The ignition voltage is between 8.6–19.0 volts.

P1915

- No OSS DTCs P0722 or P0723.
- The transmission output shaft speed is 90 RPM or less.
- The ignition voltage is between 8.6–19.0 volts.

Conditions for Setting the DTC

P1825 or P182E – Fail Case 1

The TFP Switch 3 or TFP Switch 4 is pressurized with the commanded gear 1st locked and the IMS indicates a Drive 6/Drive 4 transitional state for 8 seconds or more.

P1825 or P182E – Fail Case 2

The TFP Switch 3 or TFP Switch 4 is pressurized and the IMS indicates a

Drive 3/Drive 2 transitional state for 8 seconds or more.

P1825 or P182E – Fail Case 3
The TFP Switch 3 or TFP Switch 4 is pressurized and the IMS indicates a Neutral/Drive 6 transitional state for 1.25 seconds or more 6 times during the same ignition cycle.

P1825 or P182E – Fail Case 4
The IMS indicates an invalid range or the IMS state and the ECM Park/Neutral Signal do not match for 4 seconds or greater.

P1825 or P182E – Fail Case 5
The TFP Switch 3 or TFP Switch 4 is pressurized, the vehicle speed is 16 km/h (10 mph) or greater, and the IMS indicates a Reverse/Neutral transitional state for 3 seconds or greater.

P1825, P182E, or P1915
The manual shift shaft switch assembly does not indicate Park or Neutral during the following sequence:

- The engine speed is less than 50 RPM for more than 0.25 second.
- The engine speed is 50–480 RPM for more than 0.07 second.
- The engine speed is greater than 525 RPM for more than 3.25 seconds.
- The transmission input shaft speed is 200 RPM or greater.

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Action Taken When the DTC Sets

- DTCs P1825, P182E, and P1915 are Type A DTCs.
- The TCM commands maximum line pressure.
- The TCM turns OFF all solenoids.
- The TCM freezes transmission adaptive functions.
- The TCM defaults the transmission to third gear

if the current gear is 1st, 2nd, or 3rd; or fifth gear
if the current gear is 4th, 5th, or 6th gear.

Conditions for Clearing the DTC

DTCs P1825, P182E, and P1915 are Type A DTCs.

Reference Information

Schematic Reference
Automatic Transmission Controls Schematics on page 17-8

Connector End View Reference
Component Connector End Views on page 11-211

Description and Operation
- Transmission General Description on page 17-278
- Electronic Component Description on page 17-279 for manual shift detent lever with shaft position switch assembly

Electrical Information Reference
- Circuit Testing on page 11-456
- Connector Repairs on page 11-478
- Testing for Intermittent Conditions and Poor Connections on page 11-460
- Wiring Repairs on page 11-465

DTC Type Reference
Power train Diagnostic Trouble Code (DTC) Type Definitions on page 6-61

Scan Tool Reference
Control Module References on page 6-1 for scan tool information

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Circuit/System Verification

1). Ignition ON, engine OFF, observe the scan tool IMS parameter while moving the gear shift lever from Park, to Reverse and through all the ranges. The parameter should match each gear range that is selected.
2). Operate the vehicle within the Conditions for Running the DTC to verify the DTC does not reset. You may also operate the vehicle within the that you observed from the Freeze /Failure Records data.

Circuit/System Testing

Important: Do not connect an external voltage to any ontrol solenoid (w/body and TCM) valve assembly terminal, and avoid the inadvertent shorting of terminals.

1). Ignition OFF, remove the control valve body over. Refer to Control Valve Body Cover on page 17-160.
2). Connect the TCM harness connector.
3). Disconnect the IMS connector at the control rolenoid (w/body and TCM) valve assembly.

4). Ignition ON, verify the scan tool IMS A/B/C/P displays HI for all four signal circuits.

If not the specified value, replace the control solenoid (w/body and TCM) valve assembly.

5). Connect a 3-amp fused jumper wire between ach transmission range signal circuit terminal listed below and the IMS ground circuit, terminal A. The appropriate scan tool IMS A/B/C/P should display LOW when the terminal is connected to the IMS ground.
- Switch Signal A terminal E
- Switch Signal B terminal D
- Switch Signal C terminal C
- Switch Signal P terminal B

If not the specified value, replace the control rolenoid (w/body and TCM) valve assembly.

6). If all circuits test normal, test or replace the IMS.

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Repair Instructions

Important:
- Perform the Service Fast Learn Adapts on age 17-102 following all transmission related repairs.
- Perform the Control Solenoid Valve and transmission Control Module Assembly Inspection n page 17-98 before replacing the TCM. the Diagnostic Repair Verification on age 6-86 after completing the diagnostic procedure.
- Manual Shift Detent Lever with Shaft Position witch Assembly and Park Pawl Actuator Removal
- Manual Shift Detent Lever with Shaft Position witch Assembly and Park Pawl Actuator on page 17-203
- Control Module References on page 6-1 for control solenoid (w/body and TCM) valve assembly replacement, setup, and programming