

|            |              |  |
|------------|--------------|--|
| <b>DTC</b> | <b>P1455</b> | <b>VAPOR REDUCING FUEL TANK SYSTEM MALFUNCTION</b> |
|------------|--------------|--|

## CIRCUIT DESCRIPTION

Using the heated oxygen sensor and VSV for purge flow switching valve (bypass VSV), the ECM detects fuel leaks from inside a bladder tank the fuel tank.

Based on signals from the heated oxygen sensor while the VSV for purge flow switching valve is ON, the ECM judges if fuel is leaked from the bladder tank or not.

| DTC No. | DTC Detection Condition  | Trouble Area  |
|---------|--|---|
| P1455   | When VSV for purge flow switching valve is ON, vapor density of air which flows from EVAP VSV into intake manifold is high | <ul style="list-style-type: none"> <li>• Hose and pipe for EVAP system</li> <li>• Fuel system</li> <li>• ECM</li> </ul> |

## MONITOR DESCRIPTION

The ECM detects leakage of evaporative emissions from the bladder membrane by using the heated oxygen sensor and VSV for the purge switching valve. By opening the EVAP VSV and then closing the VSV for purge flow switching valve, air in the outer tank is drawn into the intake manifold.

The ECM checks concentration of hydrocarbon (HC) molecules in the air drawn from the bladder membrane area. Also, the ECM checks the sensor output before and after closing the VSV for purge switching valve. If there is change in the HC concentration when the VSV is opened or closed, the ECM will conclude that the bladder membrane is leaking. The ECM will illuminate the MIL and a DTC is set.

## MONITOR STRATEGY

|                             |   |
|-----------------------------|---|
| Related DTCs                | P1455: Vapor reducing fuel tank system leak detected (small leak) monitor |
| Required sensors/components | Fuel tank, heated oxygen sensor, VSV for purge flow switching valve       |
| Frequency of operation      | Once per driving cycle  |
| Duration                    | None  |
| MIL operation               | 2 driving cycles  |
| Sequence of operation       | None  |

## TYPICAL ENABLING CONDITIONS

|   |                                      |
|---|--------------------------------------|
| The monitor will run whenever the following DTCs are not present                | See page <a href="#">05-20</a>       |
| Engine coolant temperature at engine start compared with intake air temperature | -7°C (19°F) or more, and 11°C (52°F) |
| Engine coolant temperature at engine start                                      | 10°C (50°F) or more, and 35°C (95°F) |
| Intake air temperature at engine start  | 10°C (50°F) or more, and 35°C (95°F) |
| Intake air temperature  | 10°C (50°F) or more                  |

## TYPICAL MALFUNCTION THRESHOLDS

|  |  |
|--|--|
| Vapor concentration in purge air                             | Less than -7 to -4 %/% (depending on intake air temperature) |
| FAF smoothing value  | Less than 5 %  |
| VSV for purge flow switching valve                           | No malfunction   |
| Purge air volume after purge flow switching valve monitoring | 2 g  |

**MONITOR RESULT (MODE 06 DATA)**

| Test ID/Comp ID | Description of Test Data               | Description of Test Limit                                   | Conversion Factor (Unit) |
|-----------------|--|---|--------------------------|
| \$02/\$86       | Fuel vapor concentration in outer-tank | Malfunction criteria for the fuel leakage from bladder tank | Multiply by 0.01 (mmHg)  |

Refer to page [05-26](#) for detailed information on Checking Monitor Status.

**INSPECTION PROCEDURE****HINT:**

Read freeze frame data using the hand-held tester or the OBD II scan tool. Freeze frame data records the engine condition when malfunction is detected. 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.

**1 CHECK OTHER DTC OUTPUT(IN ADDITION TO DTC P1455)**

- (a) Connect the hand-held tester or the OBD II scan tool to the DLC3.
- (b) Turn the power switch ON (IG).
- (c) Turn the hand-held tester or the OBD II scan tool ON.
- (d) On the hand-held tester, select the item: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- (e) Read DTCs using hand-held tester or OBD II scan tool.

**Result:**

| Display (DTC Output) | Proceed to |
|----------------------|------------|
| P1455                | A          |
| P1455 and other DTCs | B          |

**HINT:**

If any other codes besides P1455 are output, perform troubleshooting for those DTCs first.

**B**

**GO TO RELEVANT DTC CHART**  
(See page [05-55](#))

**A****2 INSPECT FUEL TANK ASSY**

- (a) Remove the fuel tank (see page [11-21](#)).
- (b) Drain fuel from the tank and turn it upside down.

**OK:**

**Fuel does not come out from anywhere except the main fuel hose.**

**OK**

**REPLACE ECM (See page [10-24](#))**

**NG**

**REPLACE FUEL TANK ASSY**