

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

The detailed information is described in "CHECKING MONITOR STATUS" (see page 05-26 ).

- MID (Monitor Identification) is assigned to each component/system.
- TID (Test Identification) is assigned to each test component.
- Scaling is used to calculate the test value indicated on generic OBD scan tools.

### EVAP - Bladder Tank System

MID	TID	Scaling	Description of Test Value
\$3D	\$D6	Multiply by 0.01 (%/%)	Test value of bladder tank leak: Determined by fuel vapor concentration in outer fuel tank

## 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)

- Connect the hand-held tester or the OBD II scan tool to the DLC3.
- Turn the power switch ON (IG).
- Turn the hand-held tester or the OBD II scan tool ON.
- On the hand-held tester, select the item: DIAGNOSIS / ENHANCED OBD II / DTC INFO / CURRENT CODES.
- 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 05-54 )

**A**

### 2 INSPECT FUEL TANK ASSY

- Remove the fuel tank (see page 11-21 ).
- 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**