

<b>DTC</b>	<b>P0441</b>	<b>Evaporative Emission Control System Incorrect Purge Flow (Only for A/T)</b>
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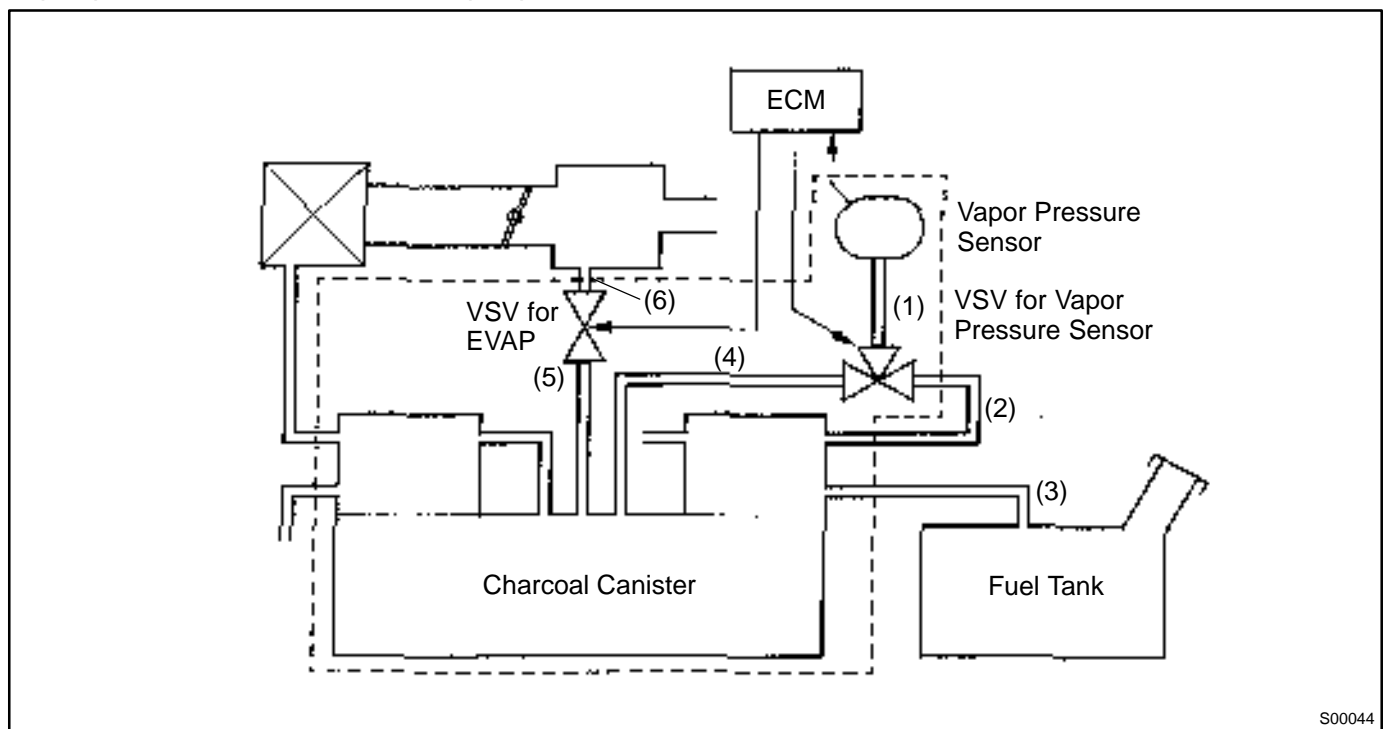
<b>DTC</b>	<b>P0446</b>	<b>Evaporative Emission Control System Vent Control Malfunction (Only for A/T)</b>
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## CIRCUIT DESCRIPTION

The vapor pressure sensor and VSV for vapor pressure sensor are used to detect abnormalities in the evaporative emission control system.

The ECM decides whether there is an abnormality in the evaporative emission control system based on the vapor pressure sensor signal.

DTC P0441 and P0446 are recorded by the ECM when evaporative emissions leak from the components within the dotted line in fig. 1 below, or when there is a malfunction in either the VSV for EVAP, the VSV for vapor pressure sensor, or in the vapor pressure sensor itself.



DTC No.	DTC Detecting Condition	Trouble Area
P0441	The pressure in the charcoal canister does not drop during purge control (2 trip detection logic)	<ul style="list-style-type: none"> <li>• Open or short in VSV circuit for vapor pressure sensor</li> <li>• VSV for vapor pressure sensor</li> <li>• Open or short in vapor pressure sensor circuit</li> <li>• Vapor pressure sensor</li> <li>• Open or short in VSV circuit for EVAP</li> <li>• VSV for EVAP</li> <li>• Vacuum hose cracks, hole, blocked, damaged or disconnected ((1), (4), (5) and (6) in fig. 1)</li> <li>• Charcoal canister cracks, hole or damaged</li> </ul>
	During purge cut-off, the pressure in the charcoal canister is very low compared with atmospheric pressure (2 trip detection logic)	
P0446	When VSV for vapor pressure sensor is OFF, ECM judges that there is no continuity between vapor pressure sensor and charcoal canister (2 trip detection logic)	
	When VSV for vapor pressure sensor is ON, ECM judges that there is no continuity between vapor pressure sensor and fuel tank (2 trip detection logic)	
	After the purge cut off operates, the pressure in the charcoal canister is maintained at atmospheric pressure (2 trip detection logic)	

## WIRING DIAGRAM

Refer to Evaporative Emission Control System Malfunction on page [DI-70](#).

## INSPECTION PROCEDURE

HINT:

If DTC P0441, P0446 or P0450 is output after DTC P0440, first troubleshoot DTC P0441, P0446 or P0450. If no malfunction is detected, troubleshoot DTC P0440 next.

### TOYOTA hand-held tester

1	<b>Check the VSV connector for EVAP, VSV connector for vapor pressure sensor and vapor pressure sensor connector for looseness and disconnection.</b>
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NG

**Repair or connect VSV or sensor connector.**

OK

2	<b>Check vacuum hose between intake manifold and VSV for EVAP, VSV for EVAP and charcoal canister, charcoal canister and VSV for vapor pressure sensor, and VSV for vapor pressure sensor and vapor pressure sensor.</b>
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### CHECK:

- Check that the vacuum hose is connected correctly.
- Check the vacuum hose for looseness and disconnection.
- Check the vacuum hose for cracks, hole, damage, and blockage.

NG

**Repair or replace.**

OK

3	Check voltage between terminals VC and E2 of ECM connector (See page <a href="#">DI-70</a> , step 9).
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NG

Check and replace ECM (See page [IN-27](#)).

OK

4	Check voltage between terminals PTNK and E2 of ECM connector (See page <a href="#">DI-70</a> , step 10).
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OK

Go to step 6.

NG

5	Check for open and short in harness and connector between vapor pressure sensor and ECM (See page <a href="#">IN-27</a> ).
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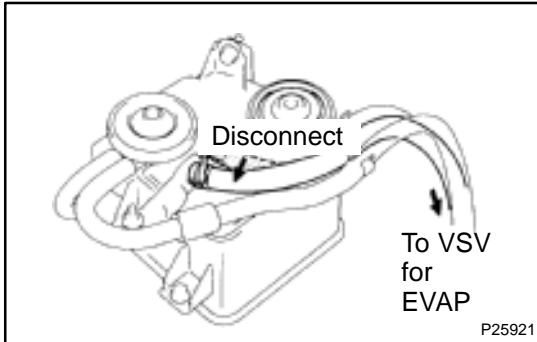
NG

Repair or replace harness or connector.

OK

Replace vapor pressure sensor.

## 6 Check the purge flow.



### PREPARATION:

- Remove the fuse cover on the instrument panel.
- Connect the TOYOTA hand-held tester to the DLC3.
- Select the ACTIVE TEST mode on the TOYOTA hand-held tester.
- Disconnect from the charcoal canister the vacuum hose to the VSV for EVAP.
- Start the engine.

### CHECK:

When the VSV for EVAP is operated by the TOYOTA hand-held tester, check whether the disconnected hose applies suction to your finger.

### OK:

**VSV is ON:**

**Disconnected hose applies suction to your finger.**

**VSV is OFF:**

**Disconnected hose applies no suction to your finger.**

OK

Go to step 10.

NG

## 7 Check vacuum hose between intake manifold and VSV for EVAP, and VSV for EVAP and charcoal canister.

### CHECK:

- Check that the vacuum hose is connected correctly.
- Check the vacuum hose for looseness and disconnection.
- Check the vacuum hose for cracks, hole, damage and blockage.

NG

Repair or replace.

OK

## 8 Check operation of the VSV for EVAP (See page [SF-40](#)).

NG

Replace VSV.

OK

- 9** Check for open and short in harness connector between EFI main relay (Marking: EFI) and VSV for EVAP and ECM (See page [IN-27](#)).

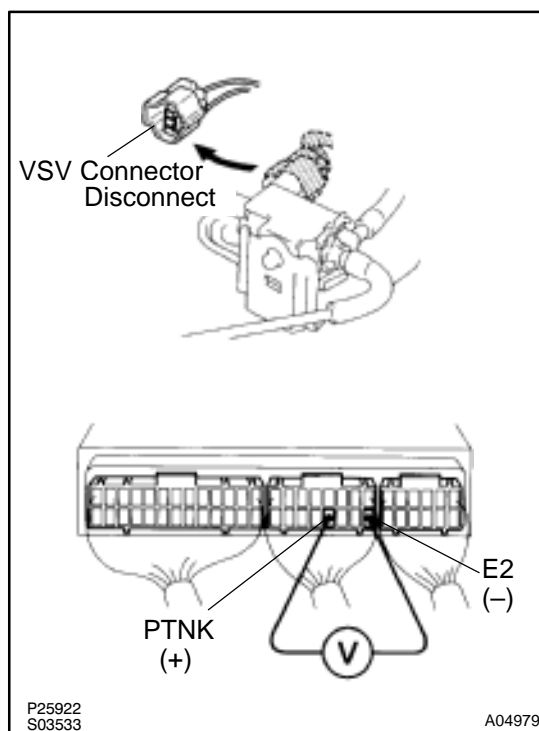
**NG**

Repair or replace harness or connector.

**OK**

Check and replace ECM (See page [IN-27](#)).

- 10** Connect TOYOTA hand-held tester, when VSV connector for vapor pressure sensor is disconnected and VSV for EVAP is ON, measure voltage between terminals PTNK and E2 of ECM connector.



**PREPARATION:**

- (a) Remove the fuse cover on the instrument panel.
- (b) Connect the TOYOTA hand-held tester to the DLC3.
- (c) Disconnect the VSV connector for vapor pressure sensor.
- (d) Select the ACTIVE TEST mode on the TOYOTA hand-held tester.
- (e) Remove the lower finish panel.
- (f) Start the engine.

**CHECK:**

Measure voltage between terminals PTNK and E2 of ECM connector, when VSV for EVAP is ON, using the TOYOTA hand-held tester.

**OK:**

**Voltage: 2.0 or less**

**OK**

Go to step 12.

**NG**

- |    |                                                                                                                                      |
|----|--------------------------------------------------------------------------------------------------------------------------------------|
| 11 | Check vacuum hose between charcoal canister and VSV for vapor pressure sensor, and vapor pressure and VSV for vapor pressure sensor. |
|----|--------------------------------------------------------------------------------------------------------------------------------------|

**CHECK:**

- (a) Check that the vacuum hose is connected correctly.
- (b) Check the vacuum hose for looseness and disconnection.
- (c) Check the vacuum hose cracks, hole damage and blockage.

**NG****Repair or replace.****OK**

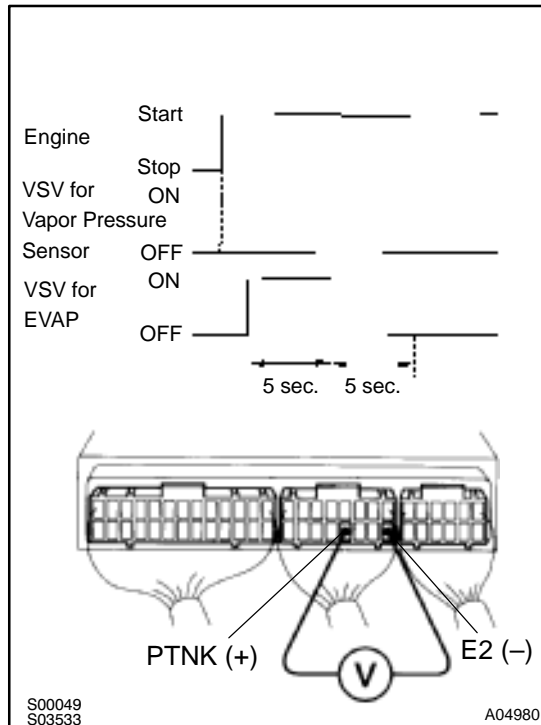
- |    |                                                                                     |
|----|-------------------------------------------------------------------------------------|
| 12 | Check operation of VSV for vapor pressure sensor (See page <a href="#">SF-42</a> ). |
|----|-------------------------------------------------------------------------------------|

**NG****Replace VSV.****OK**

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|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13 | Check for open and short in harness and connector between EFI main relay (Marking: EFI) and VSV for vapor pressure sensor and ECM (See page <a href="#">IN-27</a> ). |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**NG****Replace or replace harness or connector.****OK**

# 14 Check the charcoal canister.



## **PREPARATION:**

- Remove the fuse cover on the instrument panel.
- Connect the TOYOTA hand-held tester to the DLC3.
- Remove the fuel tank cap.
- Disconnect the VSV connector for vapor pressure sensor.
- Select the ACTIVE TEST mode on the TOYOTA hand-held tester.
- Start the engine.
- VSV for EVAP is ON by TOYOTA hand-held tester and remains on for 5 sec.

## **CHECK:**

Measure voltage between terminals PTNK and E2 of ECM connector 5 sec. after switching VSV for EVAP from ON to OFF.

## **OK:**

**Voltage: 2.5 V or less**

**NG**

**Replace charcoal canister.**

**OK**

**Check and replace ECM (See page [IN-27](#)).**

## **OBD II scan tool (excluding TOYOTA hand-held tester)**

- Check the VSV connector for EVAP, VSV connector for vapor pressure sensor and vapor pressure sensor connector for looseness and disconnection.

**NG**

**Repair or connect VSV or sensor connector.**

**OK**

2	Check vacuum hose between intake manifold and VSV for EVAP, VSV for EVAP and charcoal canister, charcoal canister and VSV for vapor pressure sensor, and VSV for vapor pressure sensor and vapor pressure sensor.
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**CHECK:**

- (a) Check that the vacuum hose is connected correctly.
- (b) Check the vacuum hose for looseness and disconnection.
- (c) Check the vacuum hose for cracks, hole, damage, and blockage.

**NG****Repair or replace.****OK**

3	Check voltage between terminals VC and E2 of ECM connector (See page <a href="#">DI-70</a> , step 9).
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**NG****Check and replace ECM (See page [IN-27](#)).****OK**

4	Check voltage between terminals PTNK and E2 of ECM connector (See page <a href="#">DI-70</a> , step 10).
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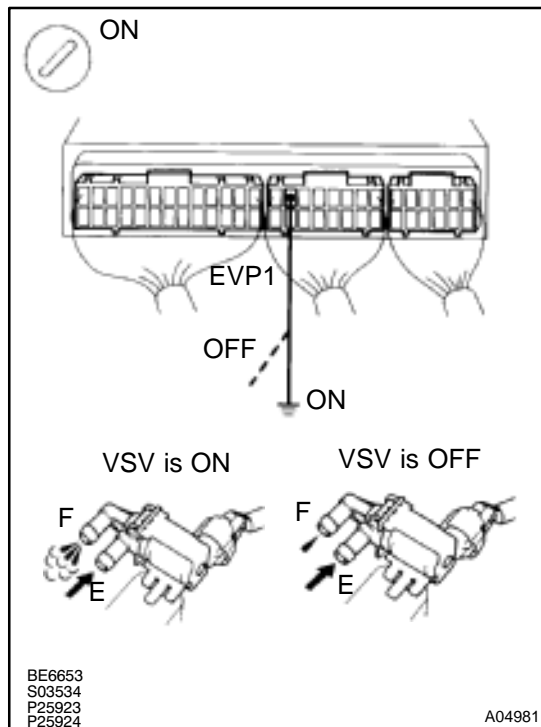
**OK****Go to step 6.****NG**

5	Check for open and short in harness and connector between vapor pressure sensor and ECM (See page <a href="#">IN-27</a> ).
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**NG****Repair or replace harness or connector.****OK****Replace vapor pressure sensor.**



## 6 Check the VSV for EVAP.



### PREPARATION:

- Remove the lower finish panel.
- Turn ignition switch ON.

### CHECK:

Check VSV function.

- Connect between terminal EVP1 of ECM and body ground.
- Disconnect between terminal EVP1 of ECM and body ground.

### OK:

#### (1) VSV is ON:

Air from pipe E is flowing out through pipe F.

#### (2) VSV is OFF:

Air does not flow from pipe E to pipe F.

OK

Go to step 9.

NG

## 7 Check operator of the VSV for EVAP (See page [SF-40](#)).

NG

Replace VSV.

OK

- 8** Check for open and short in harness and connector between EFI main relay (Marking: EFI) and VSV for EVAP and ECM (See page [IN-27](#)).

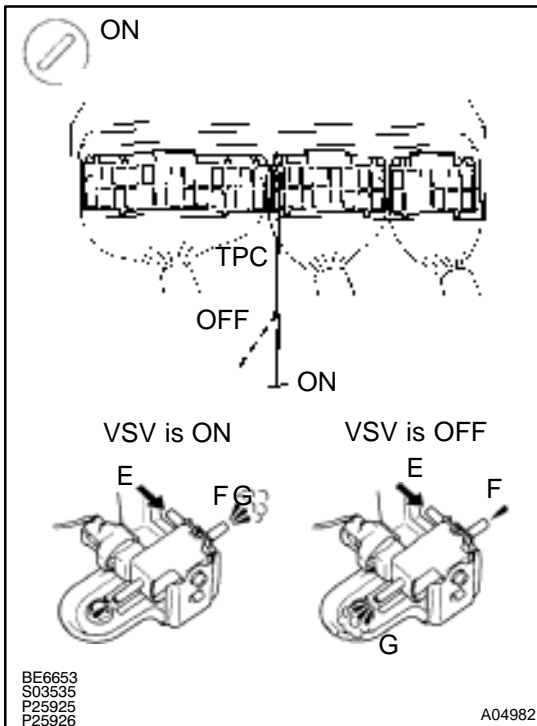
**NG**

Repair or replace harness or connector.

**OK**

Check and replace ECM (See page [IN-27](#)).

- 9** Check VSV for vapor pressure sensor.



**PREPARATION:**

- Remove the lower finish panel.
- Turn ignition switch ON.

**CHECK:**

Check VSV function.

- Connect between terminal TPC of ECM and body ground.
- Disconnect between terminal TPC of ECM and body ground.

**OK:**

**(1) VSV is ON:**

Air from pipe E is flowing out through pipe F.

**(2) VSV is OFF:**

Air from pipe E is flowing out through pipe G.

**OK**

Check and replace charcoal canister (See page [EC-5](#)).

**NG**

10	Check operation of the VSV for vapor pressure sensor (See page <a href="#">SF-42</a> ).
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NG

Replace VSV.

OK

11	Check for open and short in harness and connector between EFI main relay (Marking: EFI) and VSV for vapor pressure sensor and ECM (See page <a href="#">IN-27</a> ).
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NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-27](#)).