

DTC	P0441	Evaporative Emission Control System Incorrect Purge Flow
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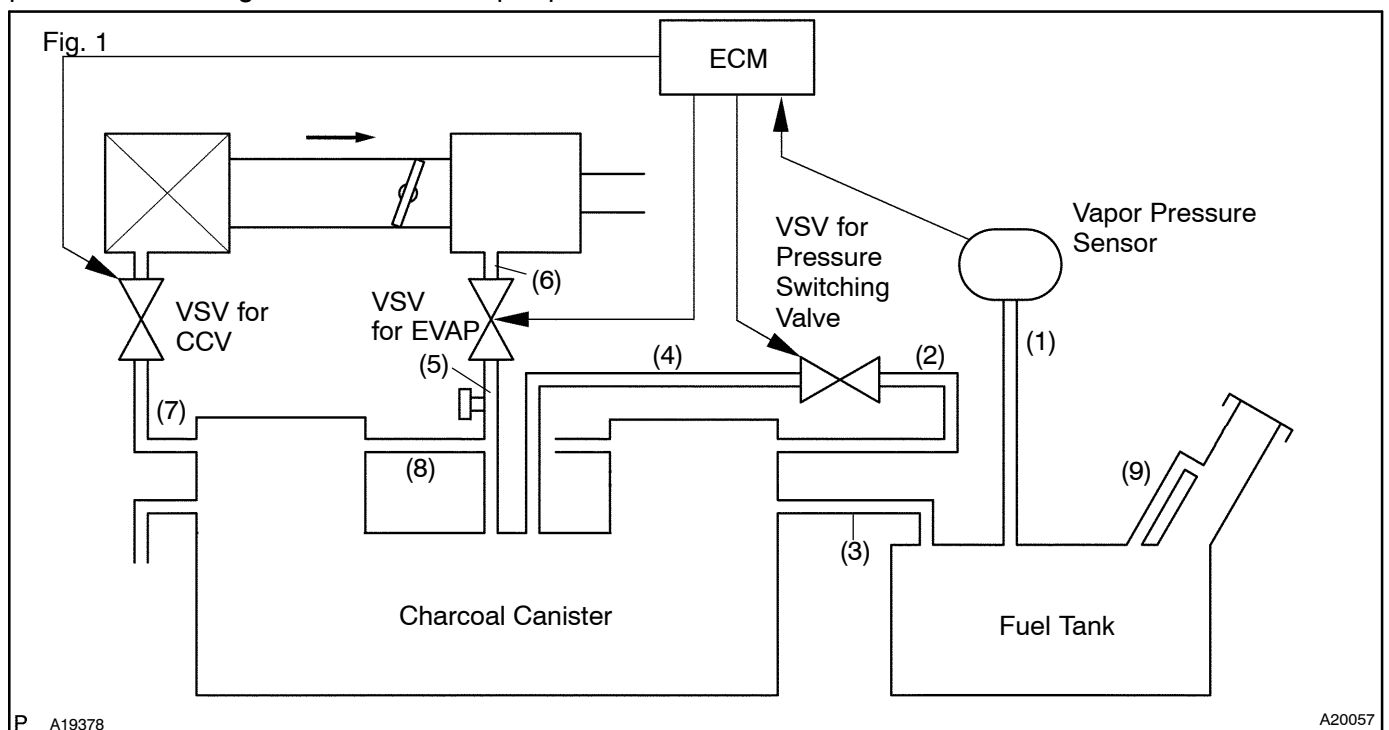
DTC	P0446	Evaporative Emission Control System Vent Control Circuit
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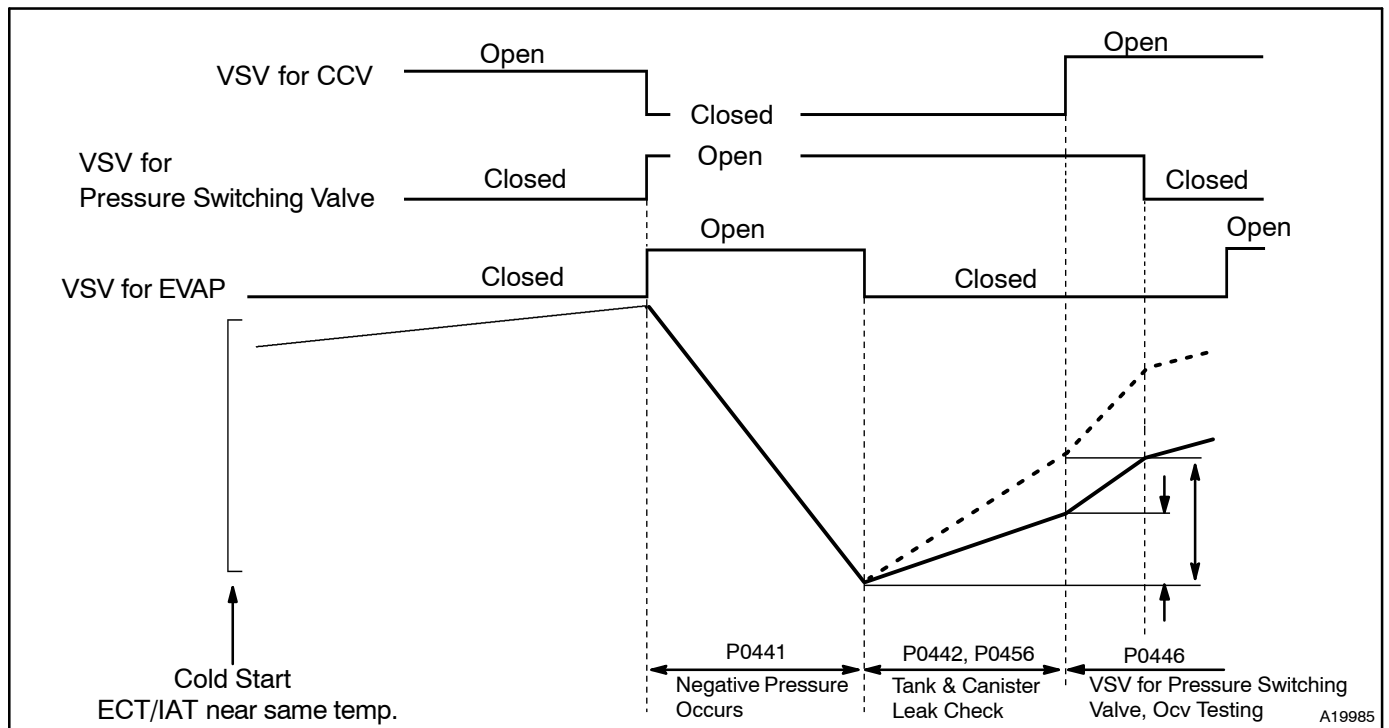
CIRCUIT DESCRIPTION

The vapor pressure sensor, VSV for canister closed valve (CCV), and VSV for pressure switching valve 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.

DTCs 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 pressure switching valve, or in the vapor pressure sensor itself.





P0441

The ECM closes the CCV and opens the VSV for pressure switching valve, causing vacuum to increase in the entire EVAP system.

The ECM continues to operate the VSV for EVAP until the vacuum is increased to a specified point at which time the ECM closes the VSV for EVAP.

If the vacuum did not increase, or if the vacuum increased beyond the specified limit, the ECM judges the VSV for EVAP and related components to be faulty.

P0446

When the vapor pressure rises to a specified point, the ECM opens the VSV for CCV. Pressure will increase rapidly because of the air allowed into the system. No increase or an increase below specified rate of pressure increase indicates a restriction on the air inlet side.

The ECM closes the VSV for pressure switching valve. This action blocks air entering the fuel tank side of system. The pressure rise on the fuel tank side is no longer as great.

If there is no change in pressure, the ECM will conclude the VSV for pressure switching valve did not close.

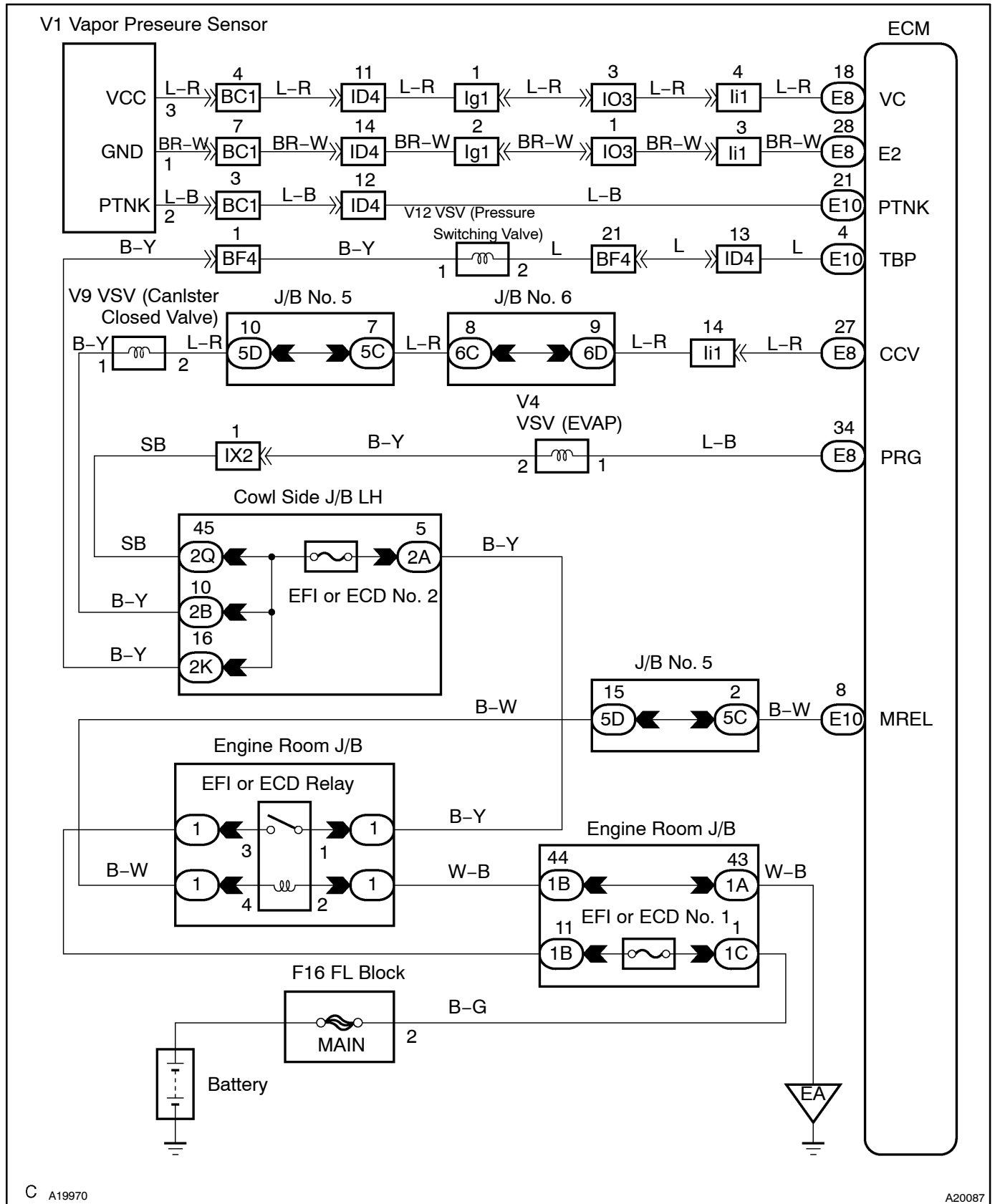
DTC No.	DTC Detecting Condition	Trouble Area
P0441	Pressure in charcoal canister and fuel tank does not drop during purge control (2 trip detection logic)	• Vacuum hose cracks, holed, blocked, damaged or disconnected ((1), (2), (3), (4), (5), (6), (7), (8) and (9) in Fig. 1) • Fuel tank cap incorrectly installed • Fuel tank cap cracked or damaged • Open or short in vapor pressure sensor circuit
	During purge cut-off, negative pressure incoming in the charcoal canister and fuel tank will not stop (2 trip detection logic)	
P0446	When VSV for pressure switching valve is ON, ECM judges that there is no continuity between vapor pressure sensor, fuel tank and charcoal canister (2 trip detection logic)	• Vapor pressure sensor • Open or short in VSV circuit for EVAP • VSV for EVAP • Open or short in VSV circuit for CCV • VSV for CCV • Open or short in VSV circuit for pressure switching valve • VSV for pressure switching valve • Fuel tank cracked, holed or damaged • Charcoal canister cracked, holed or damaged • ECM
	When VSV for pressure switching valve is turned OFF, pressure in fuel tank is maintained at atmospheric pressure (2 trip detection logic)	
	When VSV for CCV is ON, pressure in charcoal canister and fuel tank is maintained at atmospheric pressure (2 trip detection logic)	

HINT:**Typical DTC output of each trouble part**

Trouble part		Typical DTC output (*1)
Small Leak		P0442 and/or P0456
Medium Leak (ex: Vacuum hose loose)		P0442
Large Leak (ex: Fuel tank cap loose)		P0441, P0442 and P0446
VSV for EVAP	Open Malfunction	P0441
	Close Malfunction	P0441, P0442 and P0446
VSV for CCV	Open Malfunction	P0441, P0442 and P0446
	Close Malfunction	P0446
VSV for Pressure Switching	Open Malfunction	P0446
	Close Malfunction	P0441, P0442 and P0446

*1: ECM may output some other DTC combination.

WIRING DIAGRAM



C A19970

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INSPECTION PROCEDURE

HINT:

- If DTC P0441 (Purge Flow), P0446 (VSV for CCV or VSV for Pressure switching valve) or P0451 (Evaporative Pressure Sensor) is output with DTC P0442 or P0456, first troubleshoot DTC P0441, P0446 or P0451. If no malfunction is detected, troubleshoot DTC P0442 or P0456 next.
- Read freeze frame data using hand-held tester or the OBD II scan tool, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, this 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.
- When the ENGINE RUN TIME in the freeze frame data is less than 200 seconds, carefully check the vapor pressure sensor.

Hand-held tester:

1	Perform EVAP leak test
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PREPARATION:

- Connect the hand-held tester to the DLC3.
- Select the "ENHANCED OBD2/SYSTEM CHECK/EVAP SYS CHECK (or EVAP LEAK TEST)" mode on the hand-held tester.
- Perform "EVAP SYS CHECK (or EVAP LEAK TEST)".

CHECK:

Display on the Hand-held tester	CHECK
Scan tool detects a leak on the fuel tank side.	to A
Scan tool detects a leak on the canister side.	to B
Scan tool detects a leak on the EVAP system.	to C

B

Go to step 23.

C

Go to step 41.

A

2	Check that fuel tank cap is LEXUS genuine parts.
----------	---

NG

Replace to LEXUS genuine parts.

OK

3	Check that fuel tank cap is correctly installed.
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NG	Correctly install fuel tank cap.
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OK

4	Check fuel tank cap (See page EC-5).
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NG	Replace fuel tank cap.
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OK

5	Check filler neck for damage.
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PREPARATION:

Remove the fuel tank cap.

CHECK:

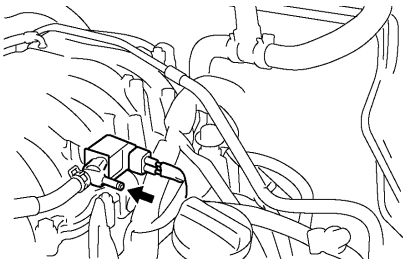
Visually inspect the filler neck for damage.

NG	Replace filler pipe.
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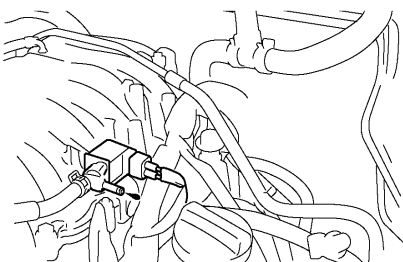
OK

6 Check purge flow.

VSV is ON



VSV is OFF



Y

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PREPARATION:

- Connect the hand-held tester to the DLC3.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Disconnect the vacuum hose for the VSV for the EVAP from the charcoal canister.
- Start the engine.
- Select the item "EVAP (ALON)/ALL" in the ACTIVE TEST and operate VSV for EVAP.

CHECK:

When the VSV for the EVAP is operated by the 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 VSV for EVAP (See page SF-44).
---	--

OK

Go to step 9.

NG

Replace VSV for EVAP.

9	Check for open and short in harness and connector between EFI or ECD relay and VSV for EVAP, and VSV for EVAP and ECM (See page IN-36).
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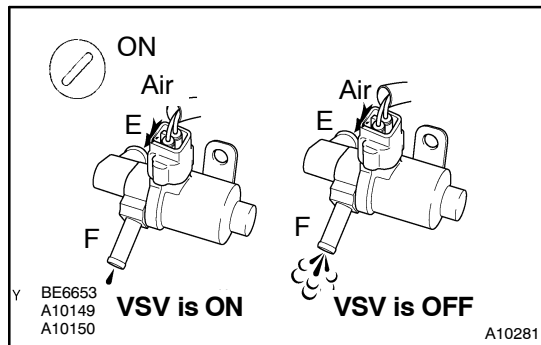
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

10 Check VSV for CCV.



PREPARATION:

- Disconnect the vacuum hose for the VSV for the CCV from the charcoal canister.
- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "CAN CTRL VSV/ALL" in the ACTIVE TEST and operate VSV for CCV.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air does not flow from port E to port F.

VSV is OFF:

Air from port E flows out through port F.

OK

Go to step 14.

NG

11 Check vacuum hose between VSV for CCV 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

12 Check operation of VSV for CCV (See page [SF-48](#)).

OK

Go to step 13.

NG

Replace VSV for CCV.

- 13 Check for open and short in harness and connector between EFI or ECD relay and VSV for CCV, and VSV for CCV and ECM (See page [IN-36](#)).

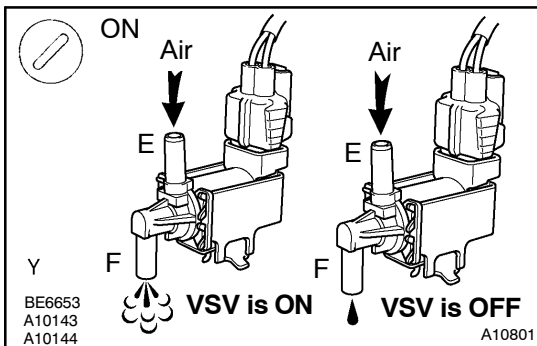
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

- 14 Check VSV for pressure switching valve.



PREPARATION:

- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "TANK BYPASS VSV/ALL" in the ACTIVE TEST and operate VSV for pressure switching valve.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air from port E flows out through port F.

VSV is OFF:

Air does not flow from port E to port F.

OK

Go to step 17.

NG

15 Check operation of VSV for pressure switching valve (See page [SF-46](#)).

OK

Go to step 16.

NG

Replace VSV for pressure switching valve.

16 Check for open and short in harness and connector between EFI or ECD relay and VSV for pressure switching valve, and VSV for pressure switching valve and ECM (See page [IN-36](#)).

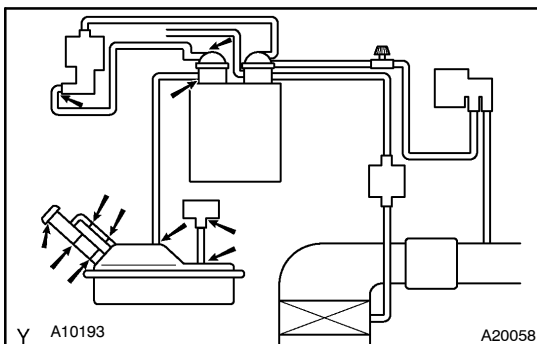
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

17 Check whether hose close to fuel tank has been modified, and check whether there are signs of any accident near fuel tank.



CHECK:

Check for cracks, deformation and loose connection of the following parts:

- Fuel tank
- Fuel tank filler pipe
- Hoses and tubes around fuel tank

NG

Repair or replace.

OK

- 18 Check vacuum hoses between vapor pressure sensor and fuel tank, and charcoal canister and VSV for pressure switching valve.**

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 and damage.

NG

Repair or replace.

OK

- 19 Check hose and tube between fuel tank and charcoal canister.**

CHECK:

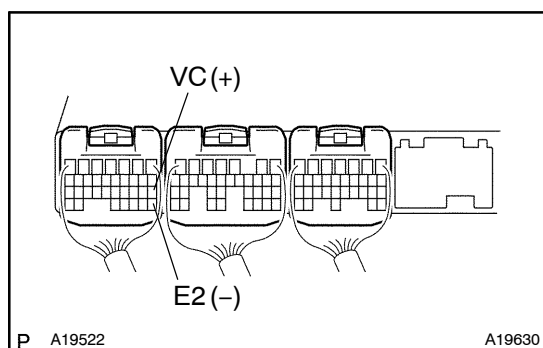
- (a) Check for proper connection of the fuel tank and fuel evap pipe (See page [EC-5](#)), fuel evap pipe and fuel tube under the floor, fuel tube under the floor and charcoal canister.
- (b) Check the hose and tube for cracks, hole and damage.

NG

Repair or replace.

OK

- 20 Check voltage between terminals VC and E2 of ECM connector.**

**CHECK:**

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals VC and E2 of the ECM connector.

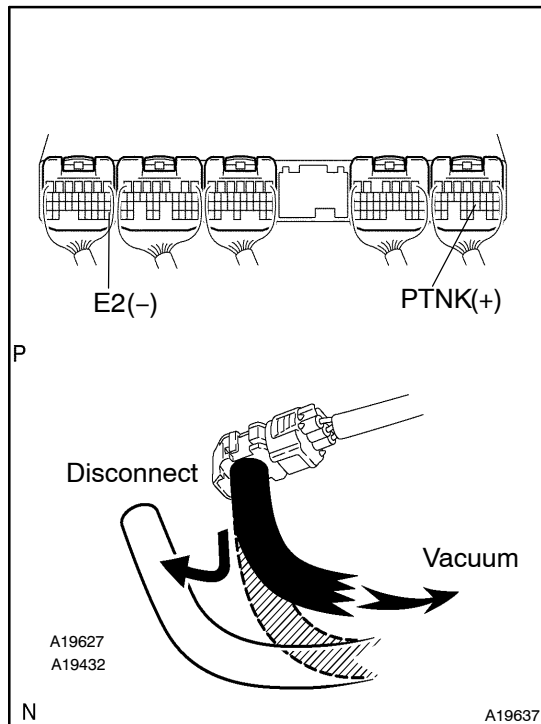
OK:

Voltage: 4.5 – 5.5 V

NG

Check and replace ECM (See page [IN-36](#)).

OK

21 Check voltage between terminals PTNK and E2 of ECM connectors.

PREPARATION:

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals PTNK and E2 of the ECM connectors.

- (1) Disconnect the vacuum hose from the vapor pressure sensor.
- (2) Using the MITYVAC (Hand-Held Vacuum Pump), apply a vacuum of 4.0 kPa (30 mmHg, 1.18 in.Hg) to the vapor pressure sensor.

NOTICE:

The vacuum applied to the vapor pressure sensor must be less than 66.7 kPa (500 mmHg, 19.7 in.Hg).

OK:

- (1) Voltage: 2.9 – 3.7 V
- (2) Voltage: 0.5 V or less

OK

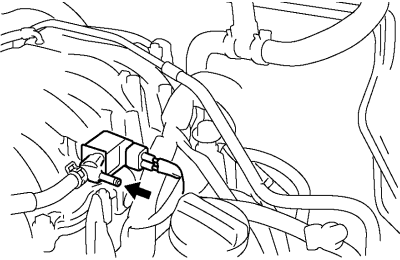
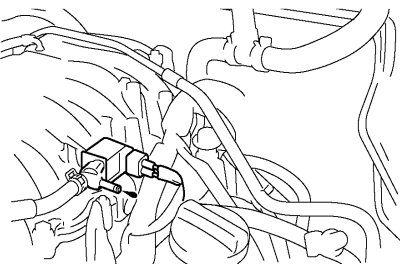
It is likely that vehicle user did not properly close fuel tank cap. Please explain to customer how to properly install fuel tank cap.

NG
22 Check for open and short in harness and connector between vapor pressure sensor and ECM (See page [IN-36](#)).
NG

Repair or replace harness or connector.

OK

Replace vapor pressure sensor.

23 Check purge flow.
VSV is ON

VSV is OFF


Y

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PREPARATION:

- Connect the hand-held tester to the DLC3.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Disconnect the vacuum hose for the VSV for the EVAP from the charcoal canister.
- Start the engine.
- Select the item "EVAP (ALON)/ALL" in the ACTIVE TEST and operate VSV for EVAP.

CHECK:

When the VSV for the EVAP is operated by the 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 27.
NG
24 Check vacuum hose between intake manifold and VSV for EVAP, and VSV for EVAP and charcoal canister.
CHECK:

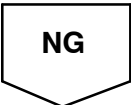
- Check that the vacuum hose is connected correctly.
- Check the vacuum hose for looseness and disconnection.
- Check the vacuum hose for cracks, hole, damage and blockage.

NG
Repair or replace.
OK

25	Check operation of VSV for EVAP (See page SF-44).
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OK

Go to step 26.

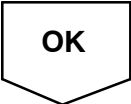
NG

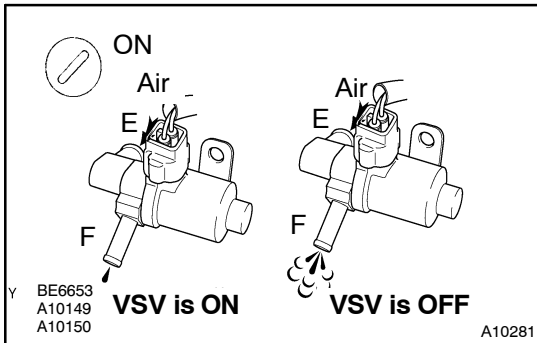
Replace VSV for EVAP.

26	Check for open and short in harness and connector between EFI or ECD relay and VSV for EVAP, and VSV for EVAP and ECM (See page IN-36).
----	--

NG

Repair or replace harness or connector.

OKCheck and replace ECM (See page [IN-36](#)).

27 Check VSV for CCV.

PREPARATION:

- Disconnect the vacuum hose for the VSV for the CCV from the charcoal canister.
- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "CAN CTRL VSV/ALL" in the ACTIVE TEST and operate VSV for CCV.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air does not flow from port E to port F.

VSV is OFF:

Air from port E flows out through port F.

OK

Go to step 31.

NG

28 Check vacuum hose between VSV for CCV 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

29	Check operation of VSV for CCV (See page SF-48).
----	---

OK

Go to step 30.

NG

Replace VSV for CCV.

30	Check for open and short in harness and connector between EFI or ECD relay and VSV for CCV, and VSV for CCV and ECM (See page IN-36).
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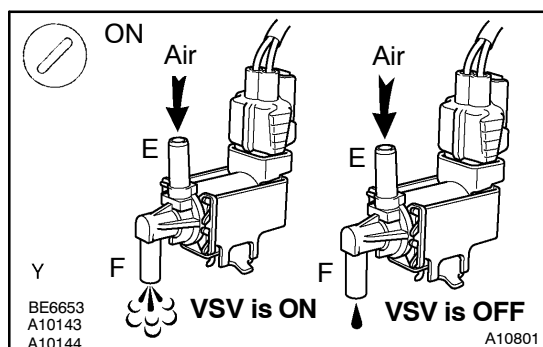
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

31	Check VSV for pressure switching valve.
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**PREPARATION:**

- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "TANK BYPASS VSV/ALL" in the ACTIVE TEST and operate VSV for pressure switching valve.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air from port E flows out through port F.

VSV is OFF:

Air does not flow from port E to port F.

OK

Go to step 34.

NG

32 Check operation of VSV for pressure switching valve (See page [SF-46](#)).

OK

Go to step 33.

NG

Replace VSV for pressure switching valve.

33 Check for open and short in harness and connector between EFI or ECD relay and VSV for pressure switching valve, and VSV for pressure switching valve and ECM (See page [IN-36](#)).

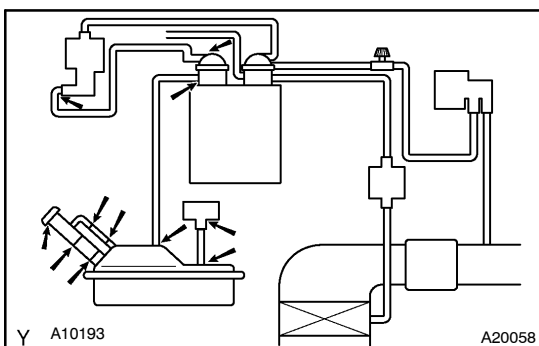
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

34 Check whether there are signs of any accident near charcoal canister.



CHECK:

Check for cracks, deformation and loose connection of the following parts:

- Charcoal canister
- Hoses and tubes around charcoal canister

NG

Repair or replace.

OK

35	Check vacuum hoses ((4), (5), (7) and (8) in Fig. 1 in description).
----	--

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 and damage.

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

36	Check hose and tube between fuel tank and charcoal canister.
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CHECK:

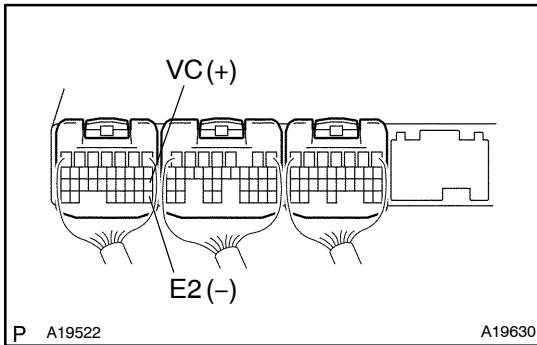
- (a) Check for proper connection of the fuel tank and fuel evap pipe (See page [EC-5](#)), fuel evap pipe and fuel tube under the floor, fuel tube under the floor and charcoal canister.
- (b) Check the hose and tube for cracks, hole and damage.

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

37	Check charcoal canister for cracks, hole and damage (See page EC-5).
----	---

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

38 Check voltage between terminals VC and E2 of ECM connector.



CHECK:

- Remove the glove compartment door (See page [SF-60](#)).
- Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals VC and E2 of the ECM connector.

OK:

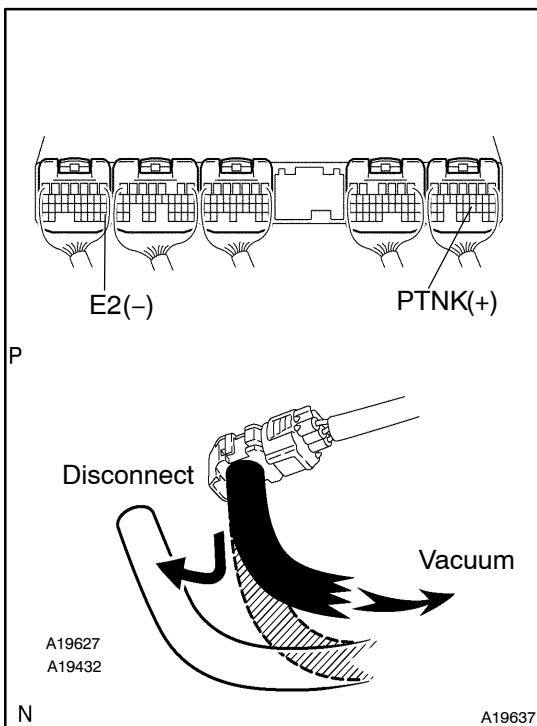
Voltage: 4.5 – 5.5 V

NG

Check and replace ECM (See page [IN-36](#)).

OK

39 Check voltage between terminals PTNK and E2 of ECM connectors.



PREPARATION:

- Remove the glove compartment door (See page [SF-60](#)).
- Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals PTNK and E2 of the ECM connectors.

- Disconnect the vacuum hose from the vapor pressure sensor.
- Using the MITYVAC (Hand-Held Vacuum Pump), apply a vacuum of 4.0 kPa (30 mmHg, 1.18 in.Hg) to the vapor pressure sensor.

NOTICE:

The vacuum applied to the vapor pressure sensor must be less than 66.7 kPa (500 mmHg, 19.7 in.Hg).

OK:

- Voltage: 2.9 – 3.7 V**
- Voltage: 0.5 V or less**

OK

Check and replace ECM (See page [IN-36](#)).

NG

- | | |
|----|--|
| 40 | Check for open and short in harness and connector between vapor pressure sensor and ECM (See page IN-36). |
|----|--|

NG

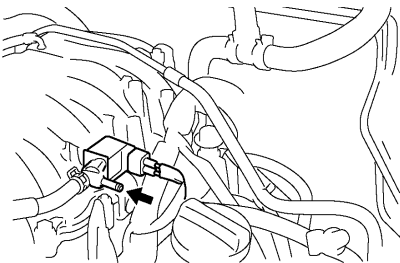
Repair or replace harness or connector.

OK

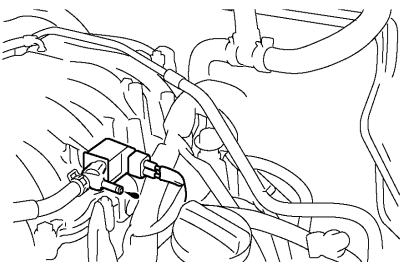
Replace vapor pressure sensor.

- | | |
|----|-------------------|
| 41 | Check purge flow. |
|----|-------------------|

VSV is ON



VSV is OFF



Y

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PREPARATION:

- (a) Connect the hand-held tester to the DLC3.
- (b) Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- (c) Disconnect the vacuum hose for the VSV for the EVAP from the charcoal canister.
- (d) Start the engine.
- (e) Select the item "EVAP (ALON)/ALL" in the ACTIVE TEST and operate VSV for EVAP.

CHECK:

When the VSV for the EVAP is operated by the 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 45.

NG

- | | |
|-----------|--|
| 42 | Check vacuum hose between intake manifold and VSV for EVAP, and VSV for EVAP and charcoal canister. |
|-----------|--|

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.

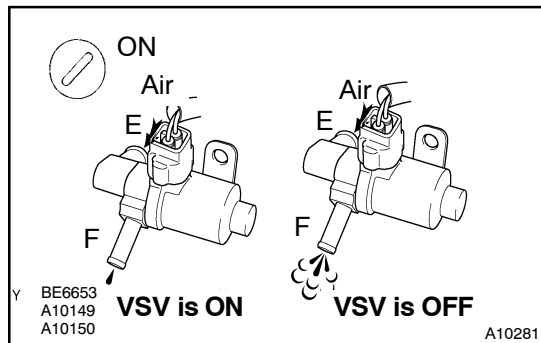
NG**Repair or replace.****OK**

- | | |
|-----------|--|
| 43 | Check operation of VSV for EVAP (See page SF-44). |
|-----------|--|

OK**Go to step 44.****NG****Replace VSV for EVAP.**

- | | |
|-----------|--|
| 44 | Check for open and short in harness and connector between EFI or ECD relay and VSV for EVAP, and VSV for EVAP and ECM (See page IN-36). |
|-----------|--|

NG**Repair or replace harness or connector.****OK****Check and replace ECM (See page [IN-36](#)).**

45 Check VSV for CCV.

PREPARATION:

- Disconnect the vacuum hose for the VSV for the CCV from the charcoal canister.
- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "CAN CTRL VSV/ALL" in the ACTIVE TEST and operate VSV for CCV.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air does not flow from port E to port F.

VSV is OFF:

Air from port E flows out through port F.

OK

Go to step 49.

NG

46 Check vacuum hose between VSV for CCV 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

47 Check operation of VSV for CCV (See page [SF-48](#)).

OK

Go to step 48.

NG

Replace VSV for CCV.

- 48 Check for open and short in harness and connector between EFI or ECD relay and VSV for CCV, and VSV for CCV and ECM (See page [IN-36](#)).

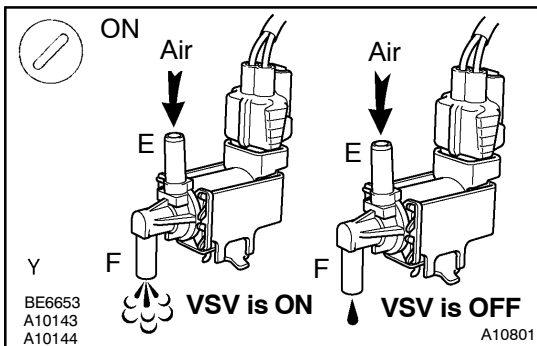
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

- 49 Check VSV for pressure switching valve.



PREPARATION:

- Turn the ignition switch ON and push the hand-held tester main switch ON.
- Select the "ENHANCED OBD2/ACTIVE TEST" mode on the hand-held tester.
- Select the item "TANK BYPASS VSV/ALL" in the ACTIVE TEST and operate VSV for pressure switching valve.

CHECK:

Check the VSV operation when it is operated by the hand-held tester.

OK:

VSV is ON:

Air from port E flows out through port F.

VSV is OFF:

Air does not flow from port E to port F.

OK

Go to step 52.

NG

50 Check operation of VSV for pressure switching valve (See page [SF-46](#)).

OK

Go to step 51.

NG

Replace VSV for pressure switching valve.

51 Check for open and short in harness and connector between EFI or ECD relay and VSV for pressure switching valve, and VSV for pressure switching valve and ECM (See page [IN-36](#)).

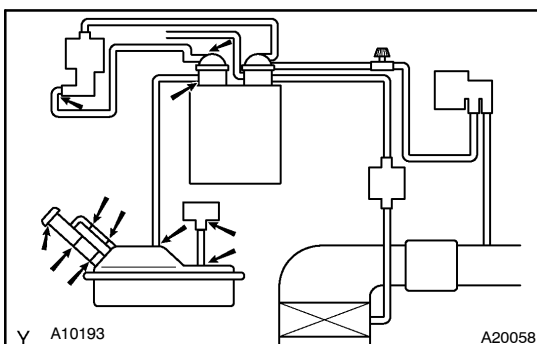
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

52 Check whether hose close to fuel tank has been modified, and check whether there are signs of any accident near fuel tank or charcoal canister.



CHECK:

Check for cracks, deformation and loose connection of the following parts:

- Fuel tank
- Charcoal canister
- Fuel tank filler pipe
- Hoses and tubes around fuel tank and charcoal canister

NG

Repair or replace.

OK

- 53 Check vacuum hoses between vapor pressure sensor and fuel tank, and charcoal canister and VSV for pressure switching valve.**

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 and damage.

NG

Repair or replace.

OK

- 54 Check vacuum hoses ((4), (5), (7) and (8) in Fig. 1 in description).**

CHECK:

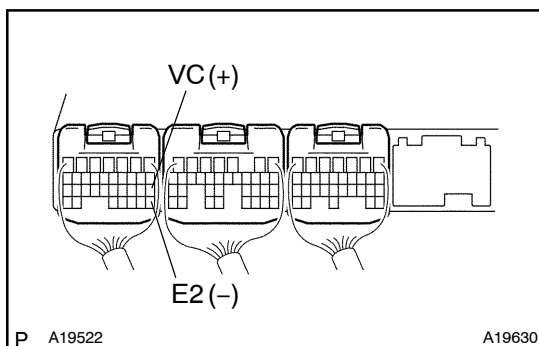
- (a) Check that the vacuum hose is connected correctly.
- (b) Check the vacuum hose for looseness and disconnection.
- (c) Check the vacuum hose for cracks, hole and damage.

NG

Repair or replace.

OK

- 55 Check voltage between terminals VC and E2 of ECM connector.**

**CHECK:**

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals VC and E2 of the ECM connector.

OK:

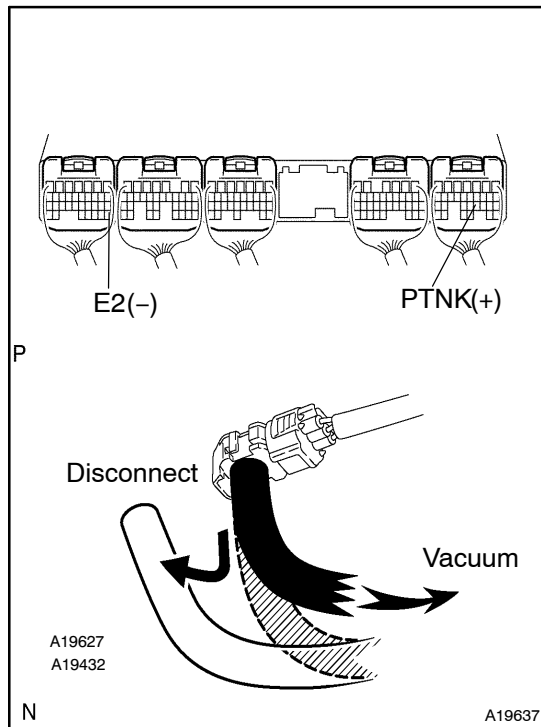
Voltage: 4.5 – 5.5 V

NG

Check and replace ECM (See page [IN-36](#)).

OK

56

Check voltage between terminals PTNK and E2 of ECM connectors.**PREPARATION:**

- (a) Remove the glove compartment door(See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals PTNK and E2 of the ECM connectors.

- (1) Disconnect the vacuum hose from the vapor pressure sensor.
- (2) Using the MITYVAC (Hand-Held Vacuum Pump), apply a vacuum of 4.0 kPa (30 mmHg, 1.18 in.Hg) to the vapor pressure sensor.

NOTICE:

The vacuum applied to the vapor pressure sensor must be less than 66.7 kPa (500 mmHg, 19.7 in.Hg).

OK:

- (1) Voltage: 2.9 – 3.7 V
- (2) Voltage: 0.5 V or less

NG

Check and replace ECM (See page [IN-36](#)).

NG

57

Check for open and short in harness and connector between vapor pressure sensor and ECM (See page [IN-36](#)).

NG

Repair or replace harness or connector.

OK

Replace vapor pressure sensor.

OBD II scan tool (excluding hand-held tester):

1 Check that fuel tank cap is LEXUS genuine parts.

NG

Replace to LEXUS genuine parts.

OK

2 Check that fuel tank cap is correctly installed.

NG

Correctly install fuel tank cap.

OK

3 Check fuel tank cap (See page [EC-5](#)).

NG

Replace fuel tank cap.

OK

4 Check filler neck for damage.

PREPARATION:

Remove the fuel tank cap.

CHECK:

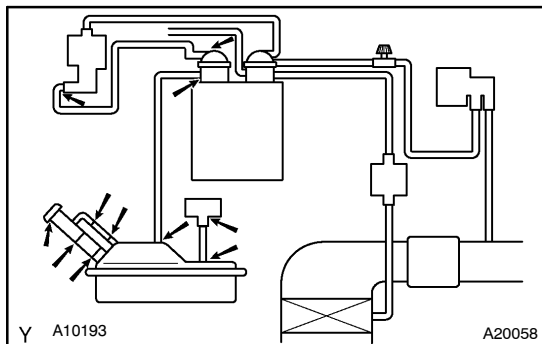
Visually inspect the filler neck for damage.

NG

Replace filler pipe.

OK

- 5 Check whether hose close to fuel tank has been modified, and check whether there are signs of any accident near fuel tank or charcoal canister.**

**CHECK:**

Check for cracks, deformation and loose connection of the following parts:

- Fuel tank
- Charcoal canister
- Fuel tank filler pipe
- Hoses and tubes around fuel tank and charcoal canister

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

- 6 Check vacuum hoses between vapor pressure sensor and fuel tank, charcoal canister and VSV for pressure switching valve, and VSV for pressure switching valve and charcoal canister.**

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 and damage.

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

- 7 Check hose and tube between fuel tank and charcoal canister.**

CHECK:

- (a) Check for proper connection of the fuel tank and fuel evap pipe (See page [EC-5](#)), fuel evap pipe and fuel tube under the floor, fuel tube under the floor and charcoal canister.
- (b) Check the hose and tube for cracks, hole and damage.

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

- 8 Check VSV connector for EVAP, VSV connector for CCV, VSV connector for pressure switching valve and vapor pressure sensor connector for looseness and disconnection.**

NG

Repair or connect VSV or sensor connector.

OK

- 9 Check vacuum hoses ((8) and (9) in Fig. 1 in circuit description).**

CHECK:

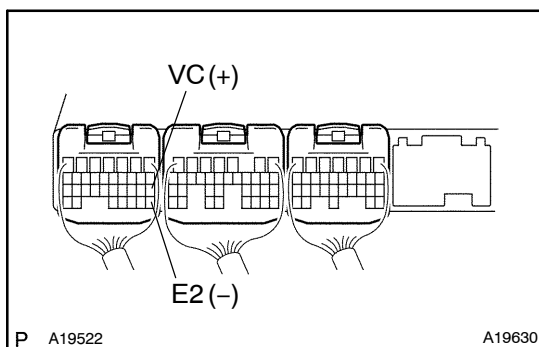
- (a) Check that the vacuum hose is connected correctly.
- (b) Check the vacuum hose for looseness and disconnection.
- (c) Check the vacuum hose for cracks, hole damage, and blockage.

NG

Repair or replace.

OK

- 10 Check voltage between terminals VC and E2 of ECM connector.**

**CHECK:**

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals VC and E2 of the ECM connector.

OK:

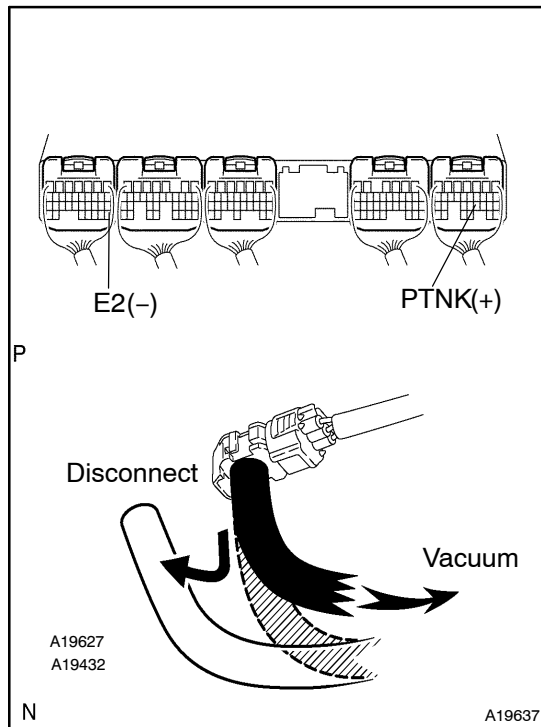
Voltage: 4.5 – 5.5 V

NG

Check and replace ECM (See page [IN-36](#)).

OK

11 Check voltage between terminals PTNK and E2 of ECM connectors.



PREPARATION:

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals PTNK and E2 of the ECM connectors.

- (1) Disconnect the vacuum hose from the vapor pressure sensor.
- (2) Using the MITYVAC (Hand-Held Vacuum Pump), apply a vacuum of 4.0 kPa (30 mmHg, 1.18 in.Hg) to the vapor pressure sensor.

NOTICE:

The vacuum applied to the vapor pressure sensor must be less than 66.7 kPa (500 mmHg, 19.7 in.Hg).

OK:

- (1) Voltage: 2.9 – 3.7 V
- (2) Voltage: 0.5 V or less

OK

Go to step 13.

NG

12 Check for open and short in harness and connector between vapor pressure sensor and ECM (See page [IN-36](#)).

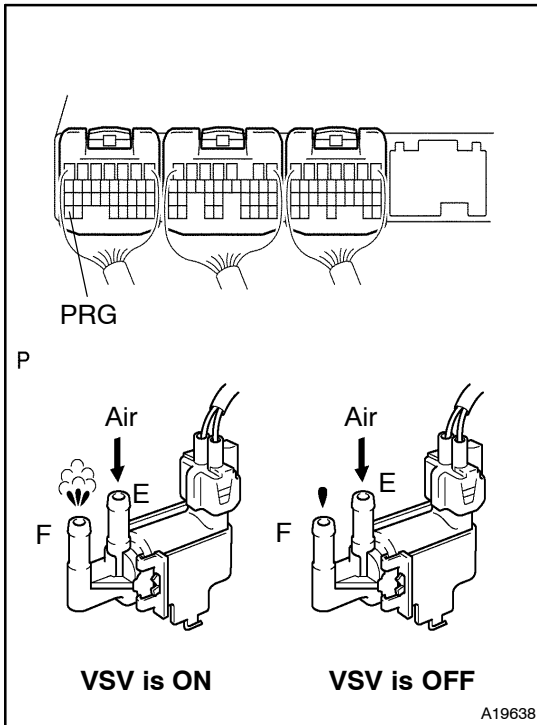
NG

Repair or replace harness or connector.

OK

Replace vapor pressure sensor.

13 Check VSV for EVAP.



PREPARATION:

- Remove the glove compartment door (See page [SF-60](#)).
- Turn the ignition switch ON.

CHECK:

Check the VSV function.

- Connect between terminal PRG of the ECM connector and body ground (ON).
- Disconnect between terminal PRG of the ECM connector and body ground (OFF).

OK:

- VSV is ON:**
Air from port E flows out through port F.
- VSV is OFF:**
Air does not flow from port E to port F.

OK

Go to step 16.

NG

14 Check operation of VSV for EVAP (See page [SF-44](#)).

OK

Go to step 15.

NG

Replace VSV and clean vacuum hoses between throttle body and VSV for EVAP, and VSV for EVAP and charcoal canister, and then check charcoal canister.

- 15** Check for open and short in harness and connector between EFI or ECD relay and VSV for EVAP, and VSV for EVAP and ECM (See page [IN-36](#)).

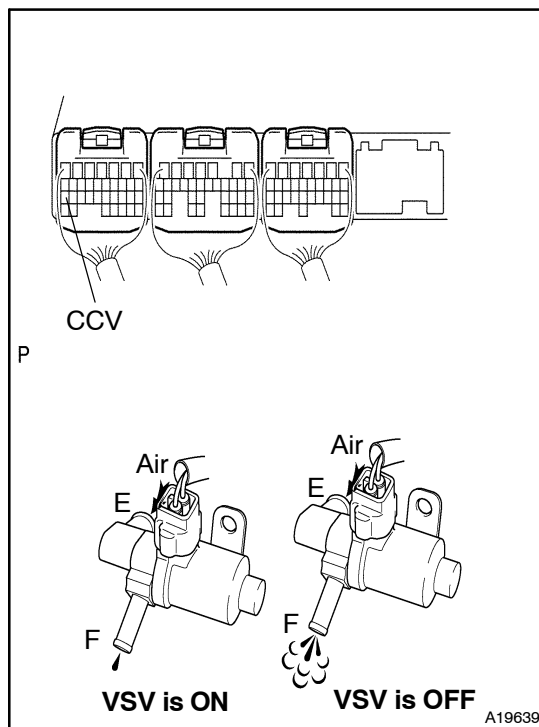
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

- 16** Check VSV for CCV.

**PREPARATION:**

- Remove the glove compartment door (See page [SF-60](#)).
- Turn the ignition switch ON.

CHECK:

Check the VSV function.

- Connect between terminal CCV of the ECM connector and body ground (ON).
- Disconnect between terminal CCV of the ECM connector and body ground (OFF).

OK:**VSV is ON:**

Air does not flow from port E to port F.

VSV is OFF:

Air from port E flows out through port F.

OK

Go to step 19.

NG

- 17** Check operation of VSV for CCV (See page [SF-48](#)).

OK

Go to step 18.

NG

Replace VSV and charcoal canister, and then clean vacuum hose between charcoal canister and VSV for CCV.

- 18 Check for open and short in harness and connector between EFI or ECD relay and VSV for CCV, and VSV for CCV and ECM (See page [IN-36](#)).

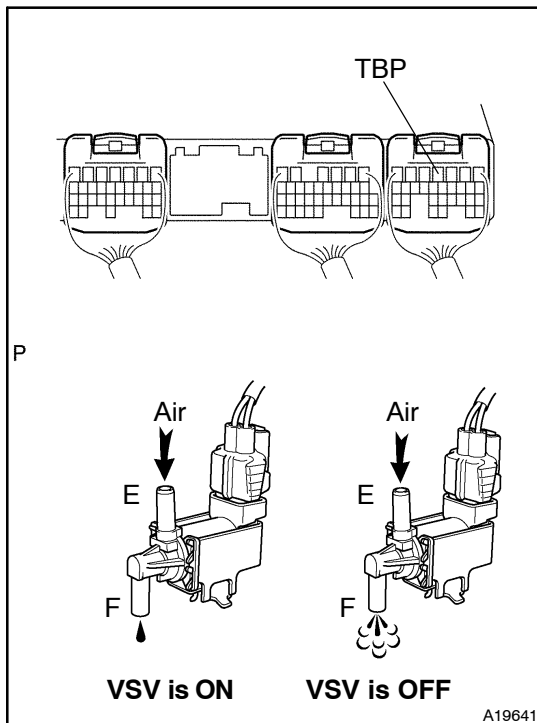
NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).

- 19 Check VSV for pressure switching valve.



PREPARATION:

- Remove the glove compartment door (See page [SF-60](#)).
- Turn the ignition switch ON.

CHECK:

Check the VSV function.

- Connect between terminal TBP of the ECM connector and body ground (ON).
- Disconnect between terminal TBP of the ECM connector and body ground (OFF).

OK:

- VSV is ON:**
Air from port E flows out through port F.
- VSV is OFF:**
Air does not flow from port E to port F.

OK

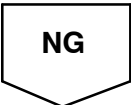
Check and replace charcoal canister (See page [EC-5](#)).

NG

20	Check operation of VSV for pressure switching valve (See page SF-46).
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OK

Go to step 21.

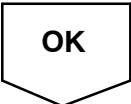
NG

Replace VSV and charcoal canister, and then clean vacuum hoses between charcoal canister and VSV for pressure switching valve, and VSV for pressure switching valve and fuel tank.

21	Check for open and short in harness and connector between EFI or ECD relay and VSV for pressure switching valve, and VSV for pressure switching valve and ECM (See page IN-36).
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NG

Repair or replace harness or connector.

OK

Check and replace ECM (See page [IN-36](#)).