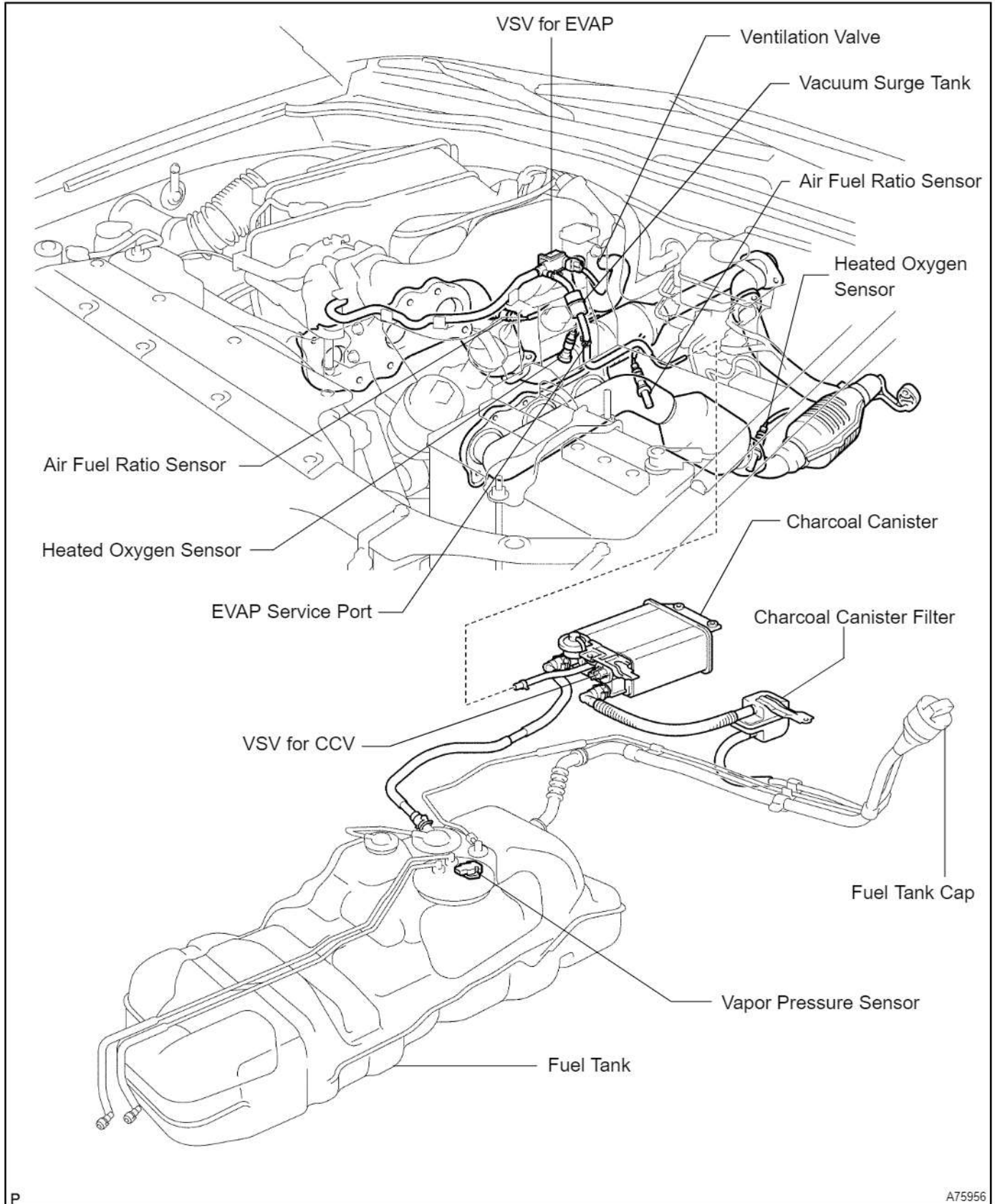


EMISSION CONTROL SYSTEM (1GR-FE)

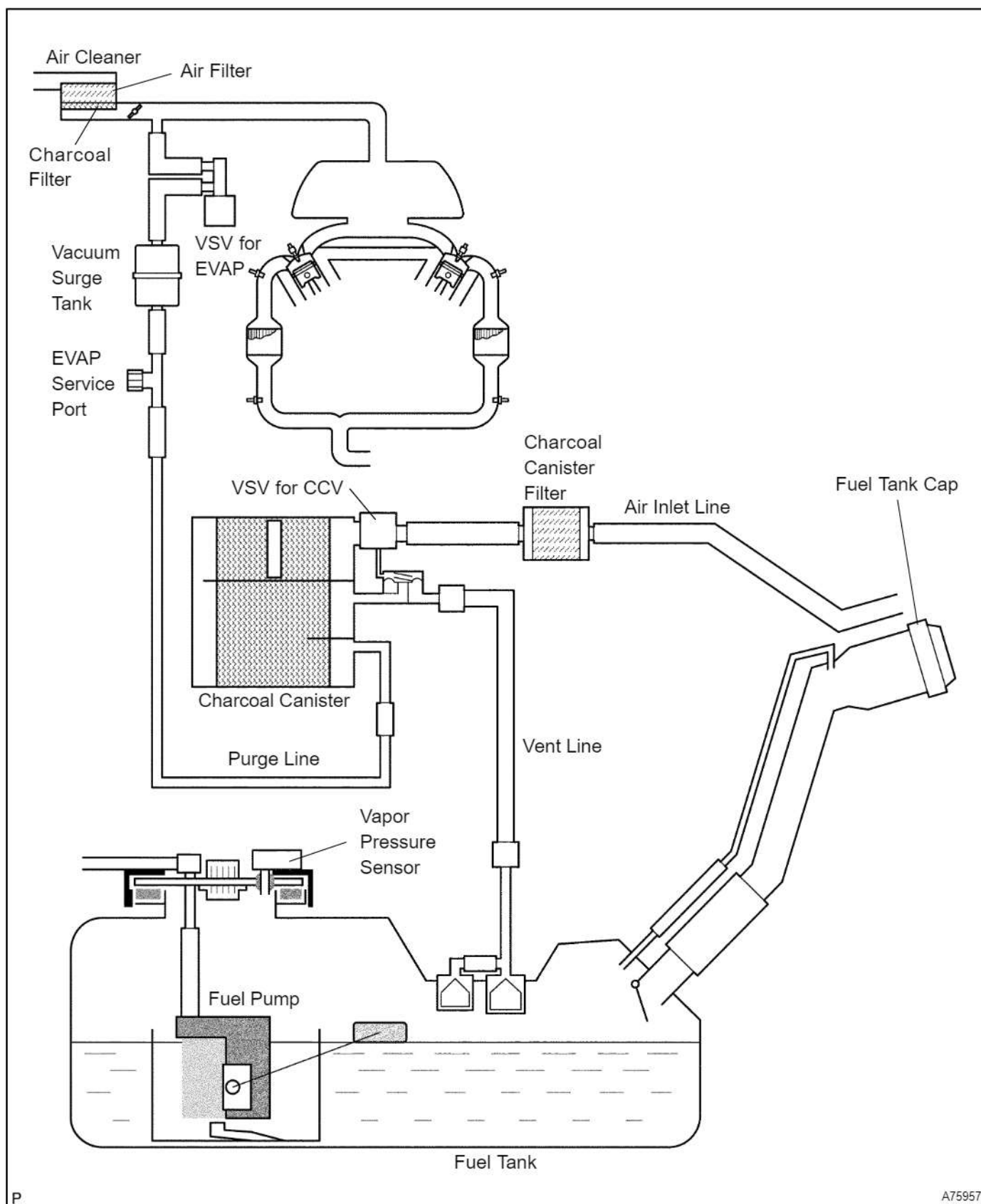
LOCATION

1208G-02

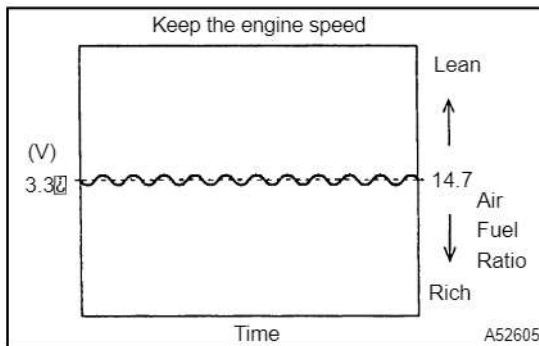
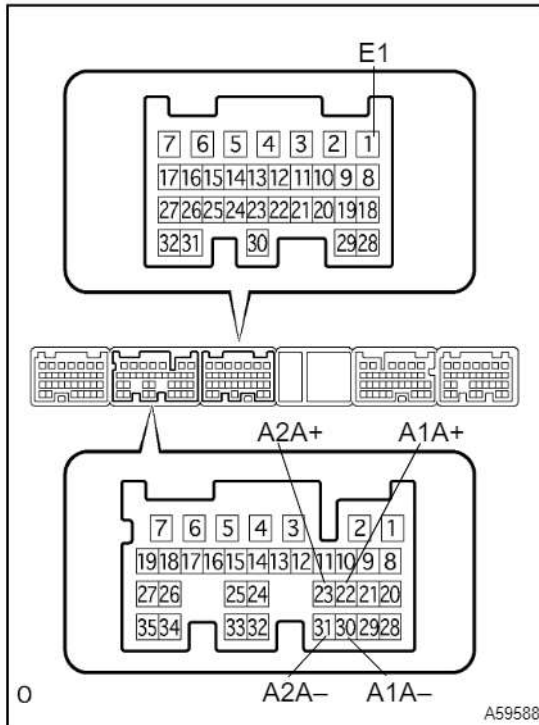


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A75956



ON-VEHICLE INSPECTION



1. INSPECT AIR-FUEL RATIO COMPENSATION SYSTEM

- (a) Measure voltage between terminals of the ECM.

Standard voltage:

Terminal	Condition	Voltage
A1A+ ⇌ E1	IG switch ON	3.3V
A1A- ⇌ E1	IG switch ON	3.0V
A2A+ ⇌ E1	IG switch ON	3.3V
A2A- ⇌ E1	IG switch ON	3.0V

CAUTION:

Connect test leads from the back side of the ECM connector.

HINT:

Voltage between terminals of the ECM is kept constant regardless of the voltage of A/F sensor.

- (b) Connect the hand-held tester to the DLC3.
 (c) Select "DATA MONITOR" – "A/FS B1 S1", "A/FS B2 S1" and "O2S B1 S2" to display the monitor.
 (d) Warm up the A/F sensor with the engine speed at 2,500 rpm for approx. 2 minutes.
 (e) Keep the engine speed at 2,500 rpm and confirm that the displays of "A/FS B1 S1" and "A/FS B2 S1" are similar to the illustration on the left.

CAUTION:

The illustration differs from the real display.

HINT:

Only hand-held tester displays the waveform of A/F sensor.

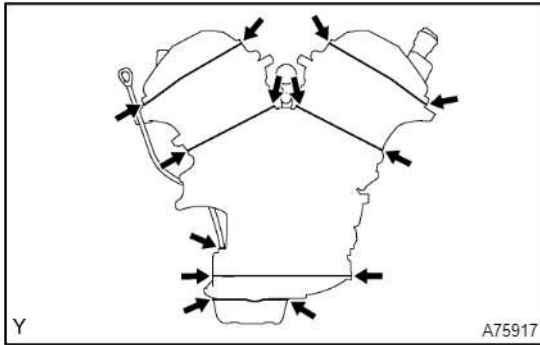
- (f) Confirm that the display of "O2S B1 S2" changes between 0V to 1V with the engine speed at 2,500 rpm.

2. INSPECT FUEL CUT OFF RPM

- (a) Increase the engine speed to at least 3,500 rpm.
 (b) Use a sound scope to check for injector operating noise.
 (c) Check that when the throttle lever is released, injector operation noise stops momentarily and then resumes.

Fuel cut off rpm: 2,500 rpm

Fuel return rpm: 1,200rpm

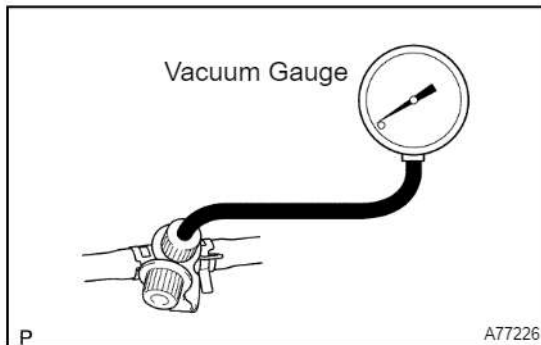


3. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

- (a) Check for cracks, leaks or damage.

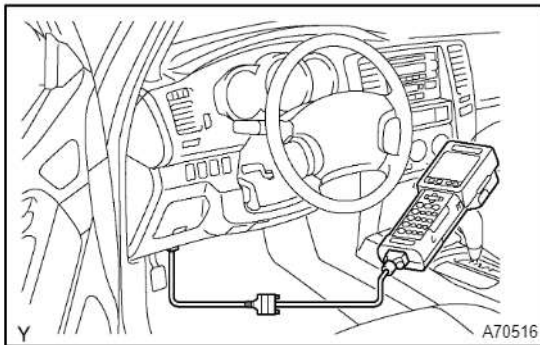
HINT:

Separation of the engine oil dipstick, oil filler cap, PCV hose, etc. may causes an engine failure or engine malfunctions. Disconnection, looseness or cracks in the parts of the air induction system between the throttle body and cylinder head will allow air suction and cause an engine failure or engine malfunctions.

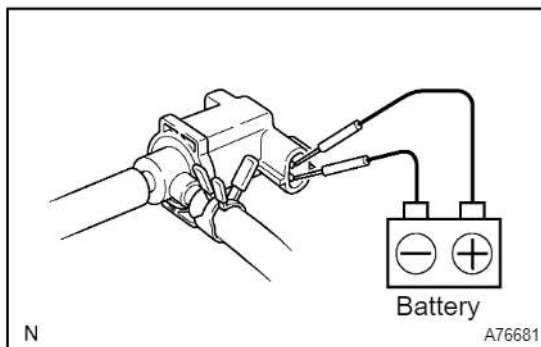


4. INSPECT EVAP SYSTEM LINE

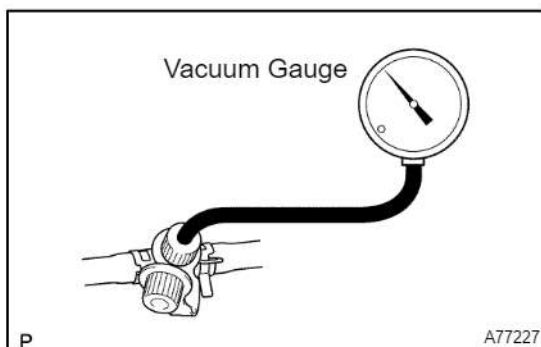
- (a) Warm up the engine to the normal operating temperature. After the warm-up, stop the engine.
- (b) Connect a vacuum gauge (EVAP control system test equipment vacuum gauge) to the EVAP service port on the purge line.



- (c) Hand-held tester:
Force to operate of the VSV for the EVAP.
- (1) Connect a hand-held tester to the DLC3.
 - (2) Start the engine.
 - (3) Push the hand-held tester main switch ON.
 - (4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for the EVAP.



- (d) If you do not have the hand-held tester:
Force to operate of the VSV for the EVAP.
- (1) Disconnect the VSV connector for the EVAP.
 - (2) Connect the positive (+) and negative (–) leads from the battery to the VSV terminals for the EVAP.
 - (3) Start the engine.



- (e) Check a vacuum at idle.

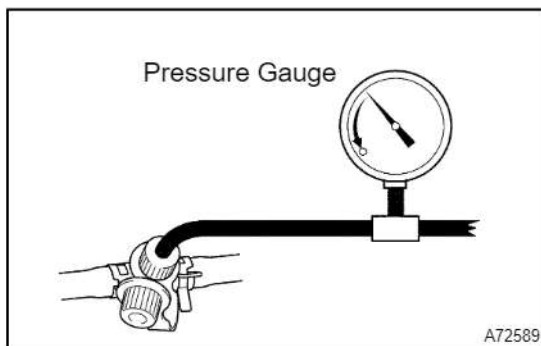
Vacuum:

Maintain at 0.368 – 19.713 in.Hg (5 – 268 in.Aq) for over 5 seconds

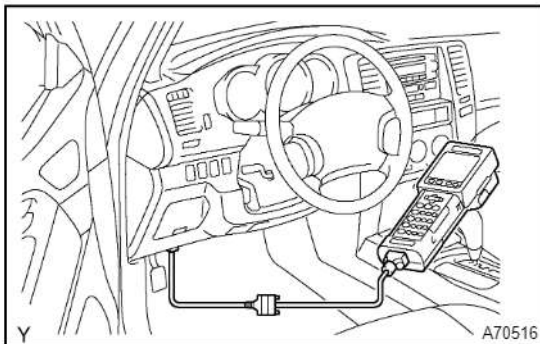
HINT:

If the vacuum does not change, the VSV service port connection has been loose or blocked or the VSV is malfunctioning.

- (f) If you have the hand-held tester:
Conclude the forced operation of the VSV for the EVAP.
 - (1) Stop the engine.
 - (2) Disconnect the hand-held tester from the DLC3.
- (g) If you do not have the hand-held tester:
Conclude the forced operation of the VSV for the EVAP.
 - (1) Stop the engine.
 - (2) Disconnect the positive (+) and negative (–) leads from the battery and from the VSV terminals for the EVAP.
 - (3) Connect the VSV connector for the EVAP.
- (h) Disconnect the vacuum gauge from the EVAP service port on the purge line.



- (i) Connect a pressure gauge to the EVAP service port on the purge line.



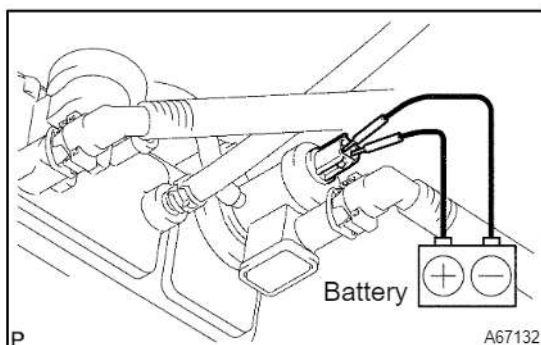
- (j) If you have hand-held tester:
Force to operate the VSV for CCV.
 - (1) Connect the hand-held tester to the DLC3.
 - (2) Turn the ignition switch ON.
 - (3) Push the hand-held tester main switch ON.
 - (4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for CCV.

NOTICE:

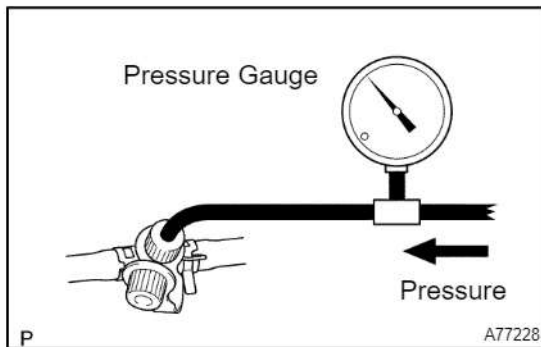
Do not start the engine.

HINT:

If the check is not completed within 10 minutes, the forced close of VSV for CCV will be reset.



- (k) If you do not have the hand-held tester:
Force to operate the VSV for the CCV.
 - (1) Disconnect the VSV connector for the CCV.
 - (2) Connect the positive (+) and negative (–) leads from the battery to the VSV terminals for the CCV.



- (l) Check pressure.
- (1) Apply the pressure (13.5 – 15.5 in.Aq) from the EVAP service port.

Pressure:

2 minutes after applying the pressure, the gauge indication should be over 7.7 – 8.8 in.Aq.

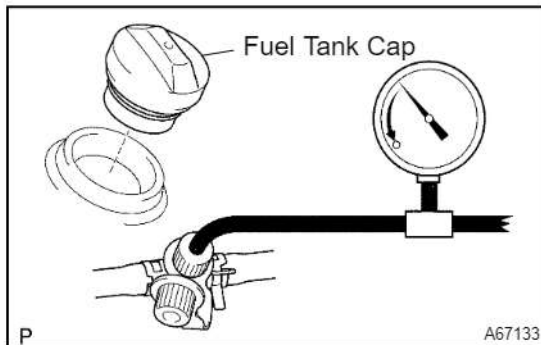
HINT:

If you are not able to apply the pressure, the VSV hose for the EVAP–canister–fuel tank has been disconnected or the VSV is open.

- (2) Check if the pressure decreases when the fuel tank cap is removed while applying the pressure.

HINT:

If the pressure does not decrease when the filler cap is removed, the hose between the service port and the fuel tank has been blocked inside or other factors have caused problems.



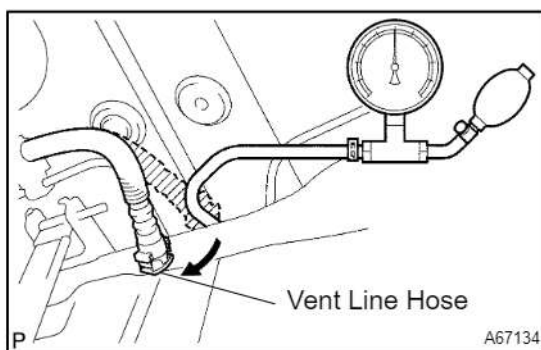
- (m) If you have the hand-held tester:

Conclude force operation of the VSV for the CCV.

 - (1) Turn the ignition switch OFF.
 - (2) Disconnect the hand-held tester from the DLC3.
- (n) If you do not have the hand-held tester:

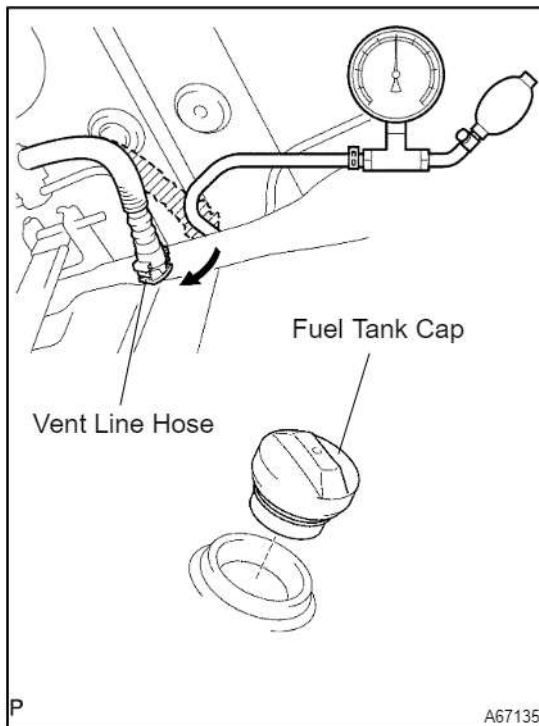
Conclude force operation of the VSV for the CCV.

 - (1) Disconnect the positive (+) and negative (–) leads from the battery and from the VSV terminals for the CCV.
 - (2) Connect the VSV–connector–for–the–CCV.
- (o) Disconnect the pressure gauge from the EVAP service port on the purge line.



5. CHECK AIR TIGHTNESS IN FUEL TANK AND FILLER PIPE

- (a) Disconnect the vent line hose from the fuel tank (See page 11-20).
- (b) Apply pressure to the fuel tank and make the internal pressure of the air pressure 4 kPa (41 gf/cm², 0.58 psi).
- (c) Check that the internal pressure in the fuel tank is maintained for 1 minute.
- (d) Check the connections for each hose and pipe.
- (e) Check the installed parts on the fuel tank. If there is no abnormality, replace the fuel tank and filler pipe.
- (f) Reconnect the vent line hose to the fuel tank.

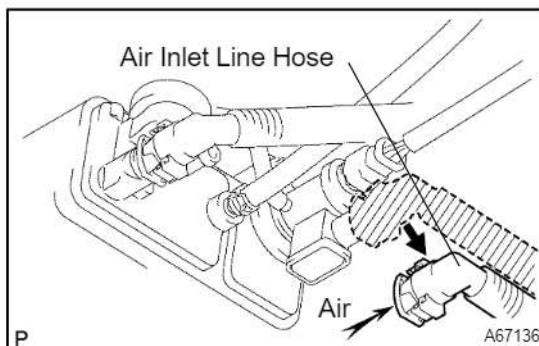


6. INSPECT FUEL CUTOFF VALVE AND FILL CHECK VALVE

- Fill the fuel tank with fuel enough.
- Disconnect the vent line hose from the fuel tank (See page 11-20).
- Apply 4 kPa (41 gf/cm², 0.58 psi) to the vent port of the fuel tank.
- Remove the fuel tank cap, and check that the pressure inside the tank drops.

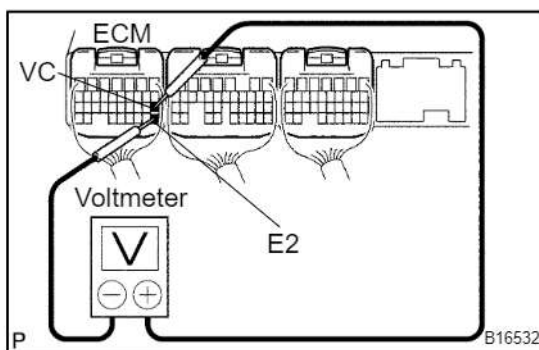
If pressure does not drop, replace the fuel tank assembly.

- Reconnect the vent line hose to the fuel tank.



7. CHECK AIR INLET LINE

- Disconnect the air inlet line hose from the charcoal canister (See page 12-13).
- Check that there is ventilation in the air inlet line.
- Reconnect the air inlet line hose to the charcoal canister.

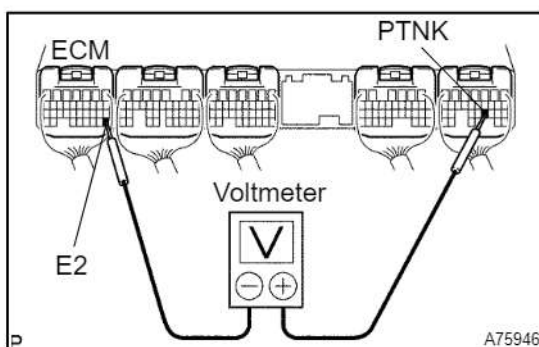


8. INSPECT VAPOR PRESSURE SENSOR

- Inspect the power source voltage of the vapor pressure sensor.
 - Turn the ignition switch ON.
 - Using a voltmeter, measure the voltage between connector terminals VC and E2 on the wiring harness side of the ECM.

Voltage: 4.5 – 5.5 V

- Turn the ignition switch OFF.

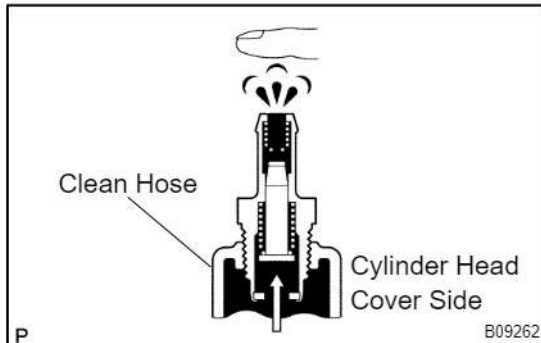


- Inspect the power output of the vapor pressure sensor.
 - Turn the ignition switch ON.
 - Remove the fuel tank cap.
 - Using a voltmeter, measure the voltage between connector terminals PTNK and E2 on the wiring harness side of the ECM.

Voltage: 3.0 – 3.6 V

- Reinstall the fuel tank cap.

INSPECTION

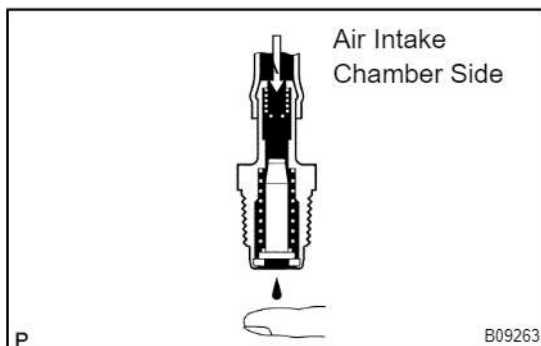


1. INSPECT VENTILATION VALVE SUB-ASSY

- (a) Install a clean hose to the ventilation valve.
- (b) Inspect the ventilation valve operation.
 - (1) Blow air into the cylinder head side, and check that air passes through smoothly.

CAUTION:

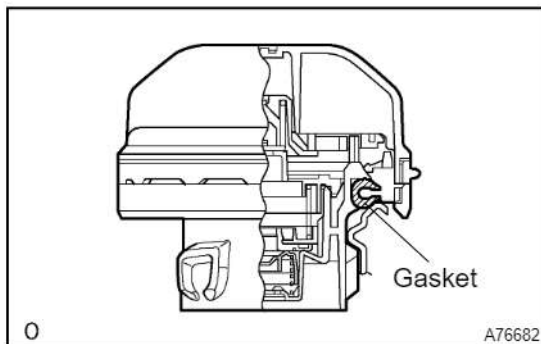
Do not suck air through the valve. Petroleum substances inside the valve are harmful.



- (2) Blow air into the intake manifold side, and check that air does not pass through smoothly.

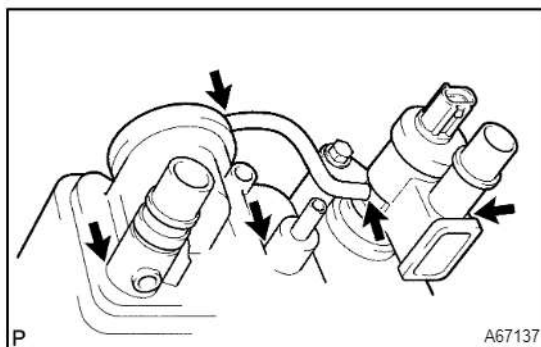
If operation is not as specified, replace the ventilation valve.

- (c) Remove the clean hose from the ventilation valve.



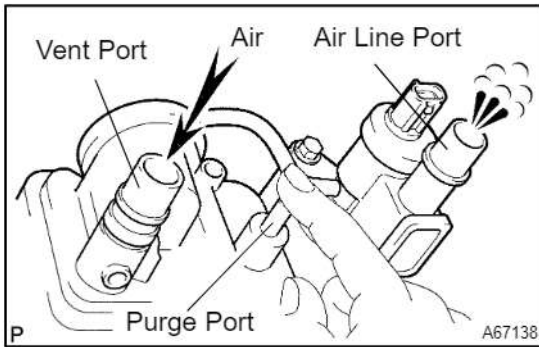
2. INSPECT FUEL TANK CAP ASSY

- (a) Visually check if the cap and/or gasket are deformed or damaged.

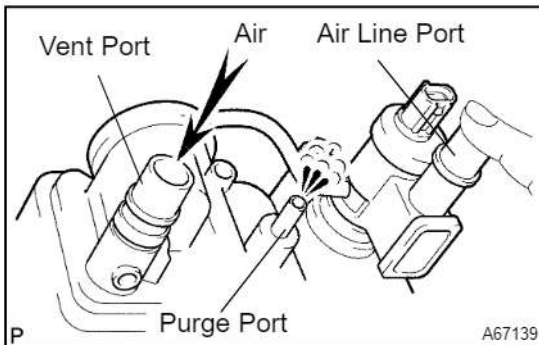


3. INSPECT CHARCOAL CANISTER ASSY

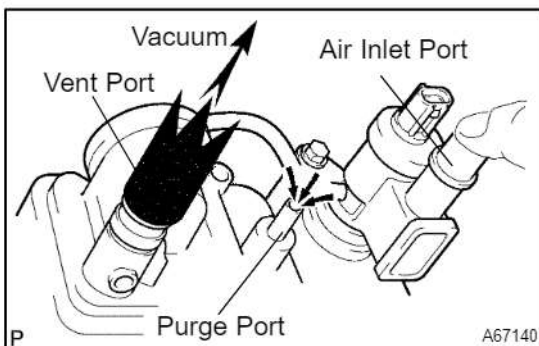
- (a) Visually check the charcoal canister for cracks or damage.



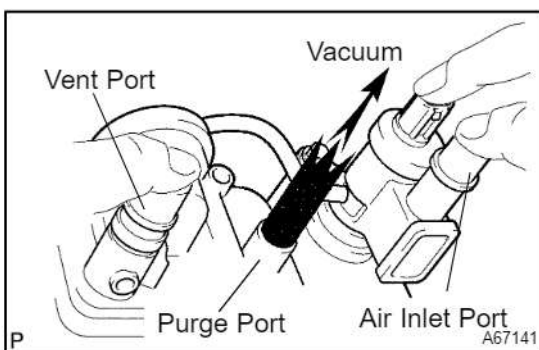
- (b) Inspect the charcoal canister operation.
- (1) Blow air (0.39 kPa, 4.0 gf/cm², 0.06 psi) into the vent port with the purge port closing, and check that the air flows from the air inlet port.



- (2) Blow air (0.39 kPa, 4.0 gf/cm², 0.06 psi) into the vent port with the air inlet port is closing, and check that air flows from the purge port.



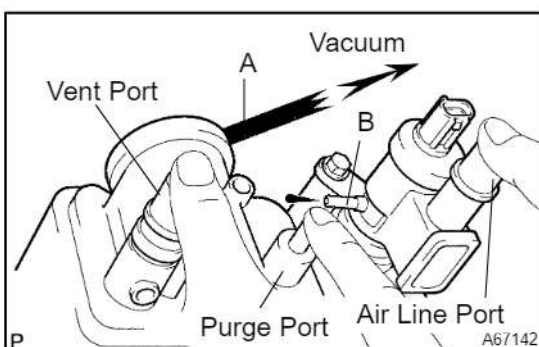
- (3) Apply vacuum (3.43 kPa, 25.7 mmHg, 1.01 in.Hg) to the vent port with the air inlet port is closing, and check that air is sucked in from the purge port. If operation is not as specified, replace the charcoal canister.



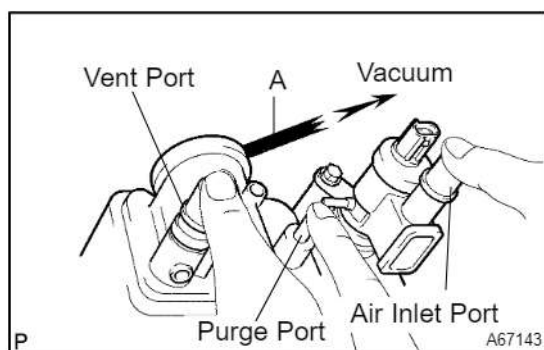
- (c) Inspect the air tightness.
- (1) Apply vacuum (3.43 kPa, 25.7 mmHg, 1.01 in.Hg) to the purge port with the vent and air inlet ports is closing, and check that the vacuum is sustained for 1 minute.

HINT:

In order to maintain air tightness, the check should be performed with the CCV terminal port has been closed by hand. If operation is not as specified, replace the charcoal canister.



- (d) Inspect the diaphragm.
- (1) Remove the air hose between ports A and B.
 - (2) While holding the vent, purge and air inlet ports closed, apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A. Check that air is sucked in from port B.

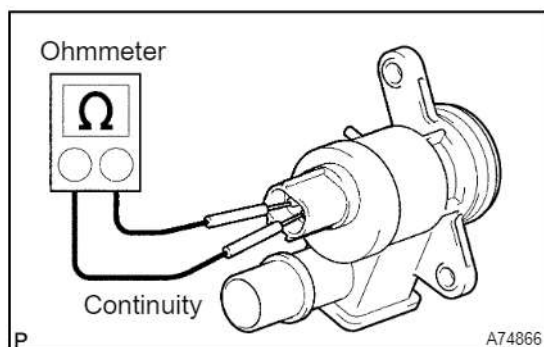


- (3) Apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A with the vent, purge and air inlet ports closing, and measure how long it takes for the vacuum to drop.

Vacuum drop time: 10 sec. or more

If operation is not as specified, replace the charcoal canister.

- (4) Reinstall the air hose between ports A and B.

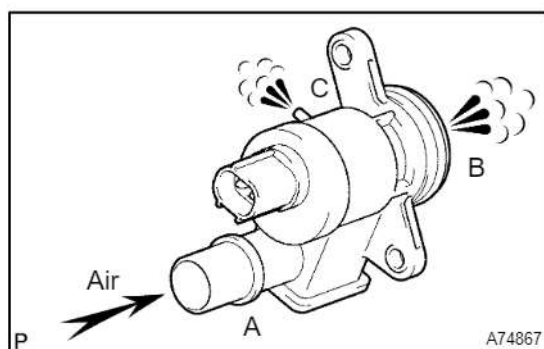


- (e) Inspect VSV for open circuit.
(1) Using an ohmmeter, check that there is continuity between the terminals.

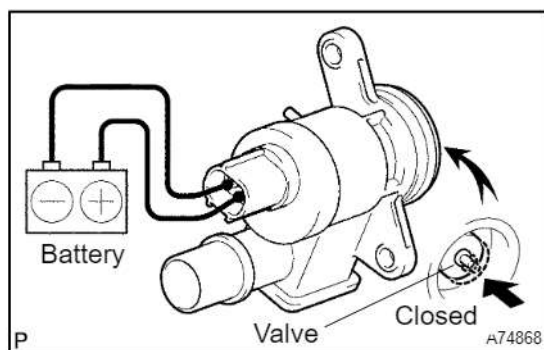
Resistance:

20 °C (68 °F)	25 – 30 Ω
100 °C (212 °F)	32 – 42 Ω

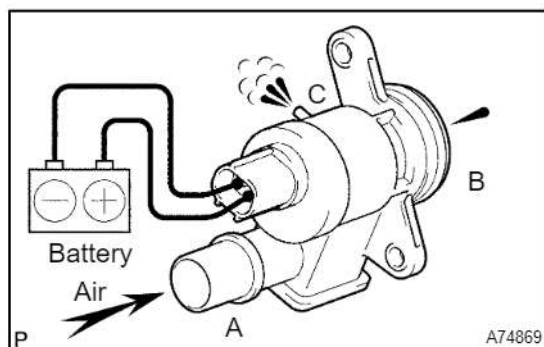
If there is no continuity, replace the charcoal canister.



- (f) Inspect VSV operation.
(1) Check that air flows from ports A to B and C.

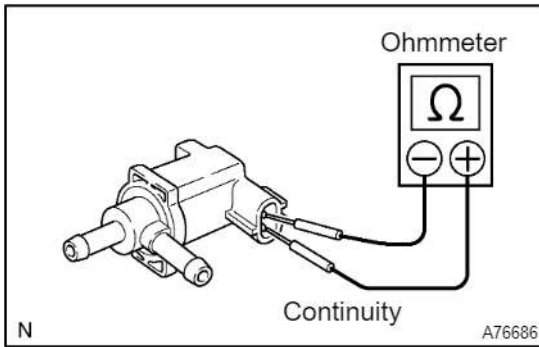


- (2) Apply battery positive voltage across the terminals.
(3) Check that the valve is closed.



- (4) Check that air does not flow from ports A to B.
(5) Check that air flows from ports A to C.

If the operation is not as specified, replace the charcoal canister.



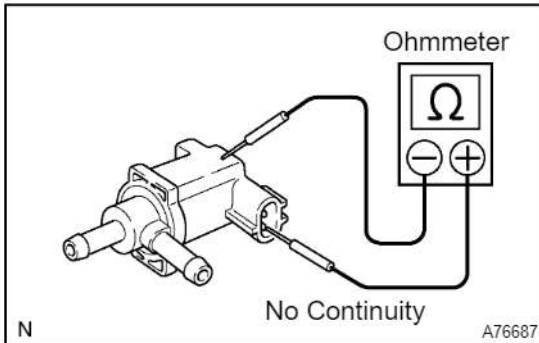
4. INSPECT VACUUM SWITCHING VALVE ASSY NO.1

(a) Inspect the VSV for open circuit.

- (1) Using an ohmmeter, check resistance between the terminals.

Resistance: 26 – 30 Ω at 20 °C (68 °F)

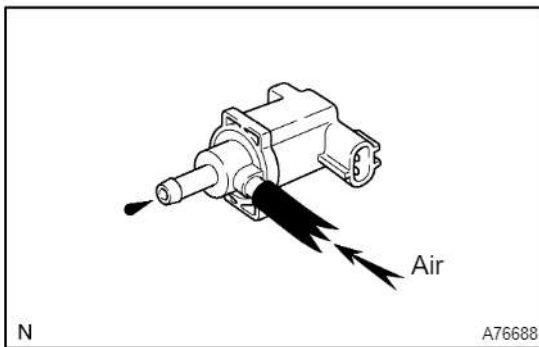
If the resistance is not as specified, replace the VSV.



(b) Inspect the VSV for ground.

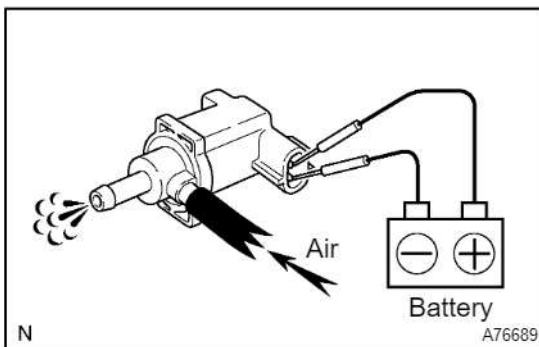
- (1) Using an ohmmeter, check that there is no continuity between each terminal and the body.

If there is continuity, replace the VSV.



(c) Inspect the VSV operation.

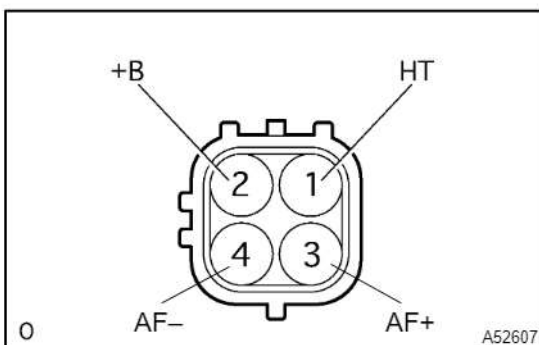
- (1) Check that air does not flow from parts.



- (2) Apply battery positive voltage across the terminals.

- (3) Check that air flows from ports.

If operation is not as specified, replace the VSV.



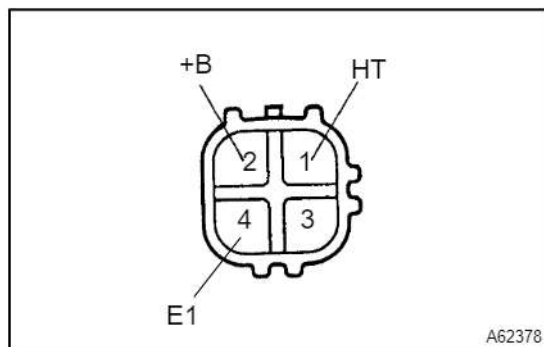
5. INSPECT AIR FUEL RATIO SENSOR (BANK1,BANK2 AIR FUEL RATIO SENSOR)

(a) Using an ohmmeter, measure resistance between the terminals.

Resistance:

Terminal No.	Resistance
1 (HT) $\Rightarrow$ 2 (+B)	1.8 – 3.4 Ω at 20 °C (68 °F)
1 (HT) $\Rightarrow$ 2 (+B)	5.0 – 7.5 Ω at 500 °C (932 °F)
1 (HT) $\Rightarrow$ 4 (AF-)	No Continuity

If the resistance is not as specified, replace the sensor.



6. INSPECT HEATED OXYGEN SENSOR (BANK1,BANK2 OXYGEN SENSOR)

- (a) Using an ohmmeter, measure resistance between the terminals.

Resistance:

Terminal No.	Resistance
1 (HT) $\Leftrightarrow$ 2 (+B)	5 – 10 Ω at 20 °C (68 °F)
1 (HT) $\Leftrightarrow$ 4 (E1)	No Continuity

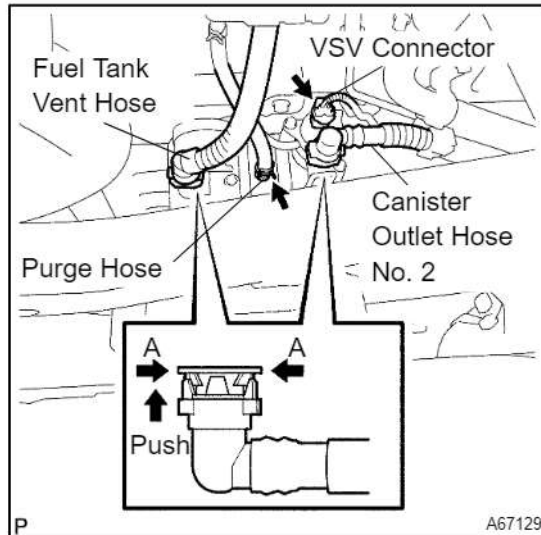
If the resistance is not as specified, replace the sensor.

CHARCOAL CANISTER ASSY (1GR-FE)

REPLACEMENT

1208K-02

1. REMOVE SPARE TIRE



2. REMOVE CHARCOAL CANISTER ASSY

- (a) Disconnect the fuel tank vent hose from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (b) Disconnect the canister outlet hose No. 2 from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (c) Disconnect the VSV connector from the CCV.
- (d) Disconnect the purge line hose from the charcoal canister.
- (e) Remove the 3 bolts and the charcoal canister from the body.

3. INSTALL CHARCOAL CANISTER ASSY

- (a) Install the charcoal canister with the 3 bolts.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)
- (b) Connect the purge line hose to the charcoal canister.
- (c) Connect the VSV connector to the CCV.
- (d) Connect the canister outlet hose No. 2 to the charcoal canister.
- (e) Connect the fuel tank hose to the charcoal canister.

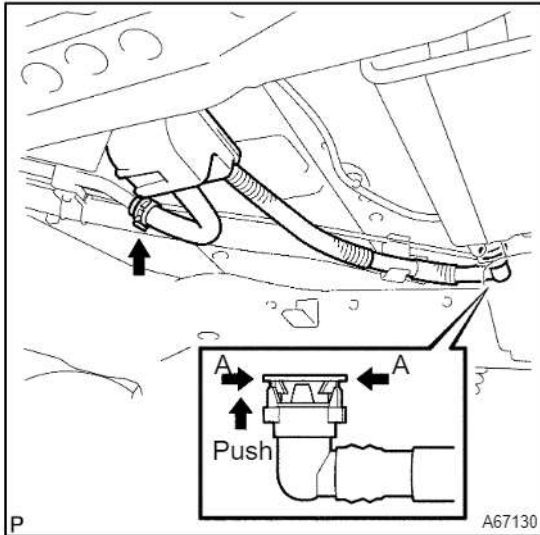
cardiagn.com

CHARCOAL CANISTER FILTER NO.2 (1GR-FE)

REPLACEMENT

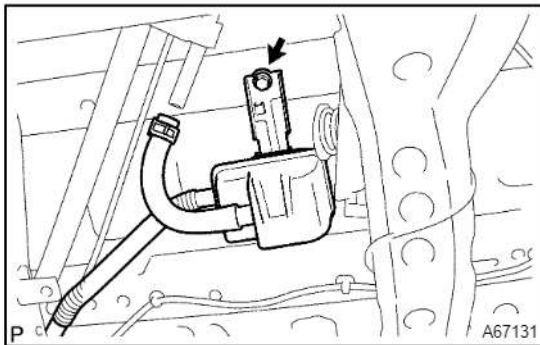
1208J-02

1. REMOVE SPARE TIRE



2. REMOVE CHARCOAL CANISTER FILTER NO.2

- (a) Disconnect the canister outlet hose No. 2 from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (b) Disconnect the canister outlet hose from the fuel tank filler pipe.



- (c) Remove a bolt and the charcoal canister filter.

3. INSTALL CHARCOAL CANISTER FILTER NO.2

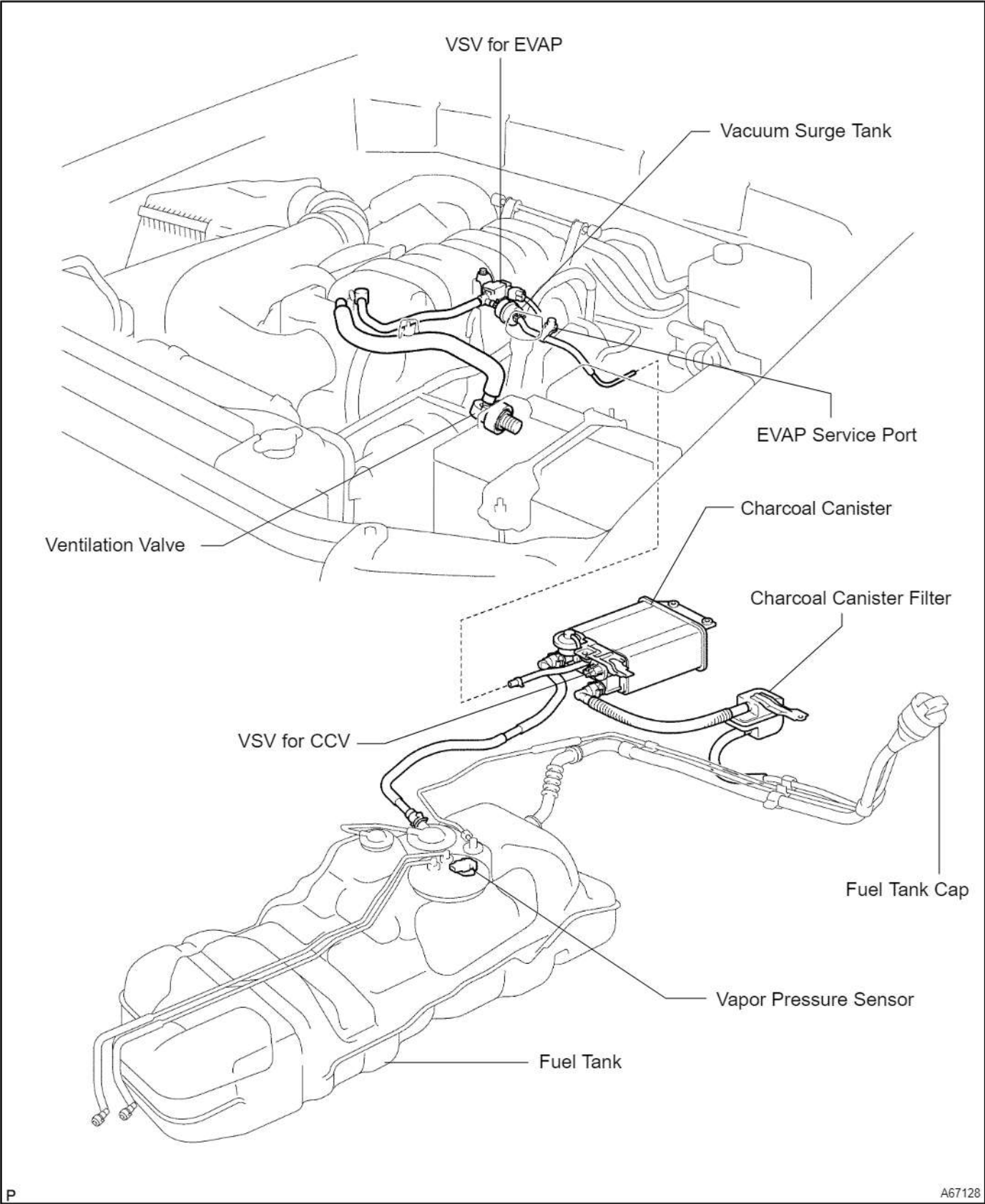
- (a) Install the charcoal canister with a bolt.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)
- (b) Connect the canister outlet hose to the fuel tank filler pipe.
- (c) Connect the canister outlet hose No. 2 to the charcoal canister.

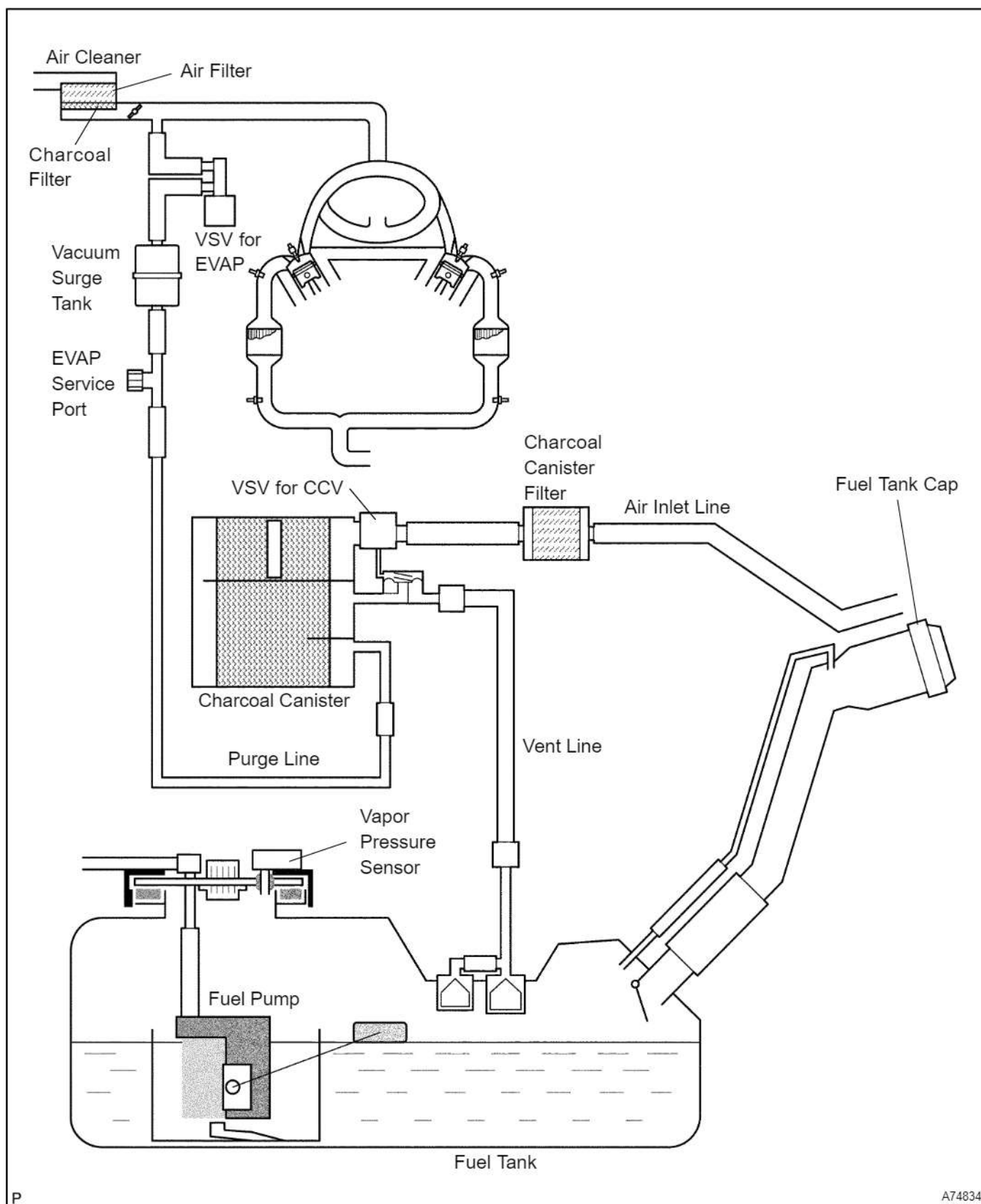
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EMISSION CONTROL SYSTEM (2UZ-FE)

LOCATION

1205X-03

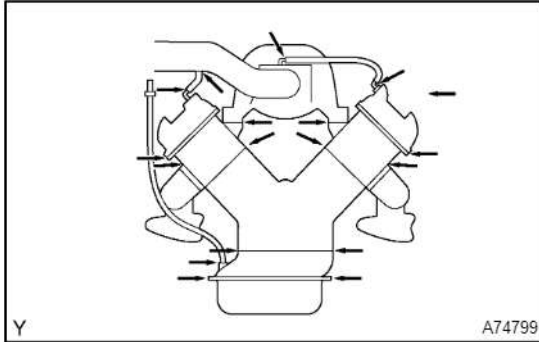




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ON-VEHICLE INSPECTION

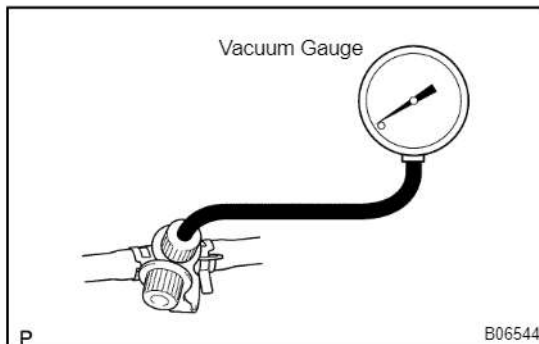


1. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

- (a) Check for cracks, leaks or damage.

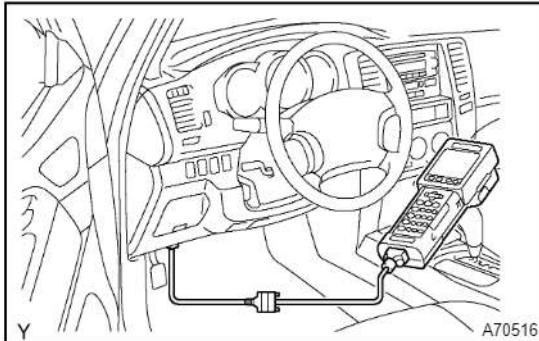
HINT:

Separation of the engine oil dipstick, oil filler cap, PCV hose, etc. may causes the engine to run out of turn. Disconnection, looseness or cracks in the parts of the air induction system between the throttle body and cylinder head will allow air suction and cause the engine to run out of turn.

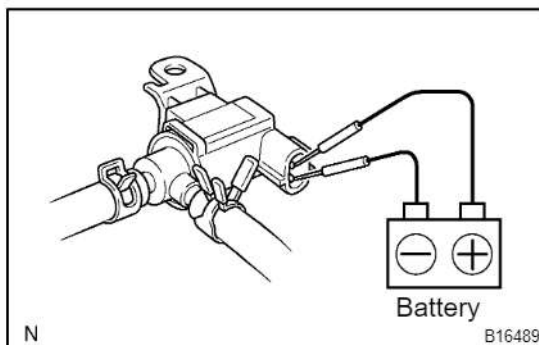


2. INSPECT EVAP SYSTEM LINE

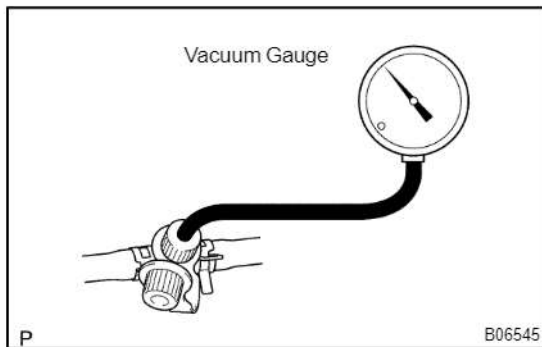
- (a) Warm up the engine and stop the engine.
Allow the engine to warm up to normal operating temperature.
- (b) Connect a vacuum gauge (EVAP control system test equipment vacuum gauge) to the EVAP service port on the purge line.



- (c) Hand-held tester:
Forced driving of the VSV for the EVAP.
- (1) Connect a hand-held tester to the DLC3.
 - (2) Start the engine.
 - (3) Push the hand-held tester main switch ON.
 - (4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for the EVAP.



- (d) If you have no hand-held tester:
Forced driving of the VSV for the EVAP.
- (1) Disconnect the VSV connector for the EVAP.
 - (2) Connect the positive (+) and negative (–) leads from the battery to the VSV terminals for the EVAP.
 - (3) Start the engine.



- (e) Check the vacuum at idle.

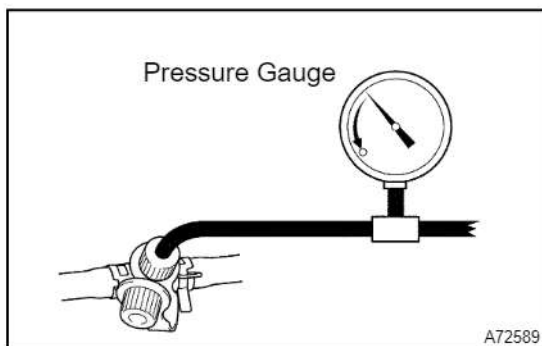
Vacuum:

Maintain at 0.368 – 19.713 in.Hg (5 – 268 in.Aq) for over 5 seconds

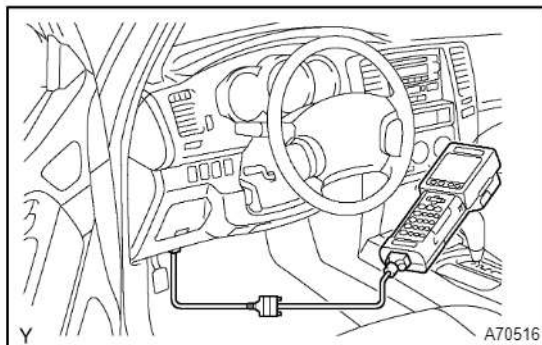
HINT:

If the vacuum does not change, you can conclude that the hose connecting the VSV to the service port has come loose or is blocked, or the VSV is malfunctioning.

- (f) If you have hand-held tester:
Conclude forced driving of the VSV for the EVAP.
- (1) Stop the engine.
 - (2) Disconnect the hand-held tester from the DLC3.
- (g) If you have no hand-held tester:
Conclude forced driving of the VSV for the EVAP.
- (1) Stop the engine.
 - (2) Disconnect the positive (+) and negative (–) leads from the battery, and from the VSV terminals for the EVAP.
 - (3) Connect the VSV connector for the EVAP.
- (h) Disconnect the vacuum gauge from the EVAP service port on the purge line.



- (i) Connect a pressure gauge to the EVAP service port on the purge line.



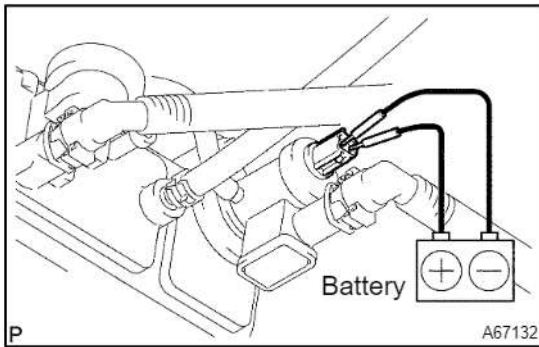
- (j) If you have hand-held tester:
Force driving of the VSV for CCV.
- (1) Connect a hand-held tester to the DLC3.
 - (2) Turn the ignition switch ON.
 - (3) Push the hand-held tester main switch ON.
 - (4) Use the ACTIVE TEST mode on the hand-held tester to operate the VSV for CCV.

NOTICE:

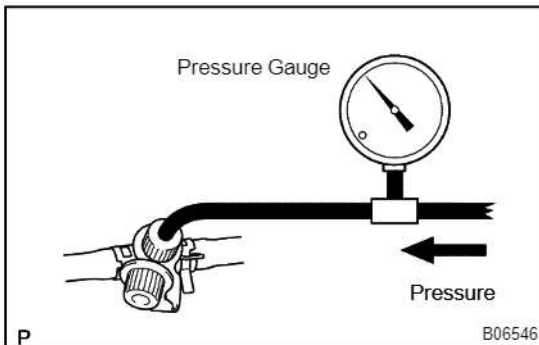
Do not start the engine.

HINT:

If the check is not completed within 10 minutes, the forced close of VSV for CCV will be reset.



- (k) If you have no hand-held tester:
Forced driving of the VSV for the CCV.
- (1) Disconnect the VSV connector for the CCV.
 - (2) Connect the positive (+) and negative (-) leads from the battery to the VSV terminals for the CCV.



- (l) Check the pressure.
- (1) Add the pressure (13.5 – 15.5 in.Aq) from the EVAP service port.

Pressure:

2 minutes after the pressure is added, the gauge should be over 7.7 – 8.8 in.Aq.

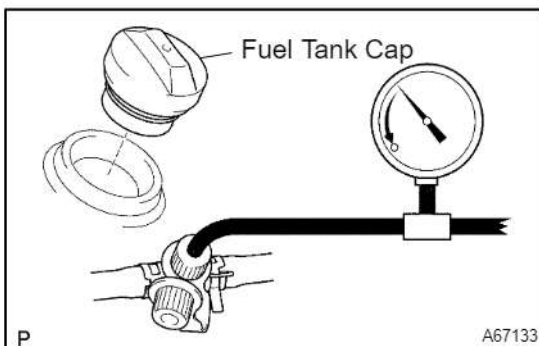
HINT:

If you can't add pressure, you can conclude that the hose connecting the VSV for EVAP-canister-fuel tank has slipped off or the VSV is open.

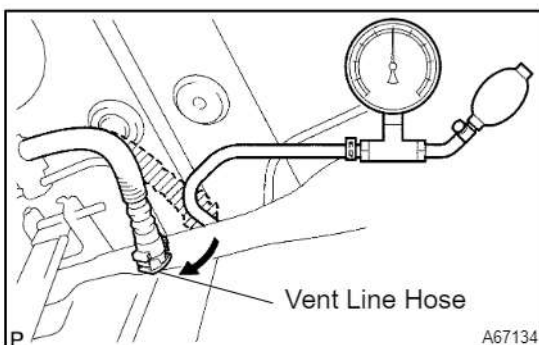
- (2) Check if the pressure decreases when the fuel tank cap is removed while adding pressure.

HINT:

If the pressure does not decrease when the filler cap is removed, then you can conclude that the hose connecting the service port to the fuel tank is blocked, etc.



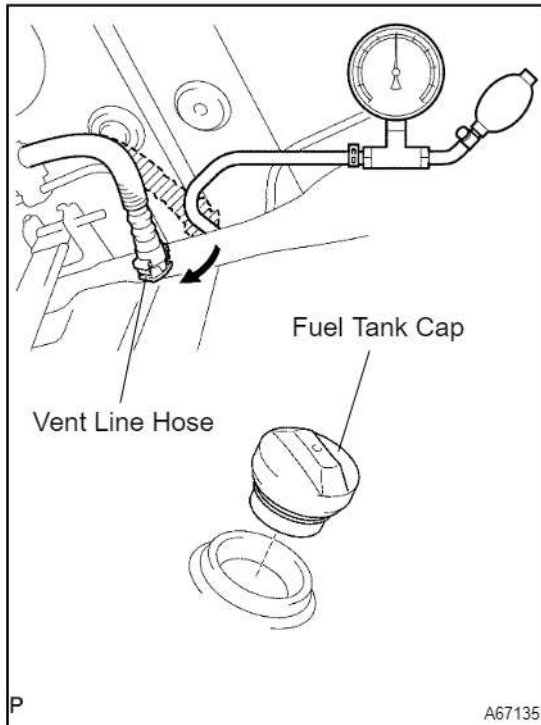
- (m) If you have hand-held tester:
Conclude forced driving of the VSV for the CCV.
- (1) Turn ignition switch OFF.
 - (2) Disconnect the hand-held tester from the DLC3.
- (n) If you have no hand-held tester:
Conclude forced driving of the VSV for the CCV.
- (1) Disconnect the positive (+) and negative (-) leads from the battery, and from the VSV terminals for the CCV.
 - (2) Connect the VSV connector for the CCV.
- (o) Disconnect the pressure gauge from the EVAP service port on the purge line.



3. CHECK AIR TIGHTNESS IN FUEL TANK AND FILLER PIPE

- (a) Disconnect the vent line hose from the fuel tank (See page 11-44).
- (b) Apply pressure to fuel tank and make the internal pressure of the fuel tank 4 kPa (41 gf/cm², 0.58 psi).
- (c) Check that the internal pressure of the fuel tank is maintained for 1 minute.
- (d) Check the connected portions of each hose and pipe.

- (e) Check the installed parts on the fuel tank.
- If there is no abnormality, replace the fuel tank and filler pipe.
- (f) Reconnect the vent line hose to the fuel tank.



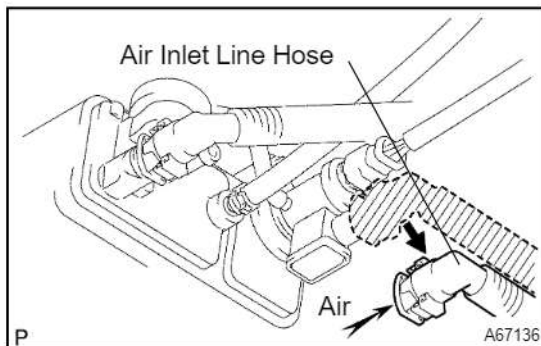
4. INSPECT FUEL CUTOFF VALVE AND FILL CHECK VALVE

- (a) Disconnect the vent line hose from the fuel tank (See page 11-44).
- (b) Apply 4 kPa (41 gf/cm², 0.58 psi) to the vent port of the fuel tank.

HINT:

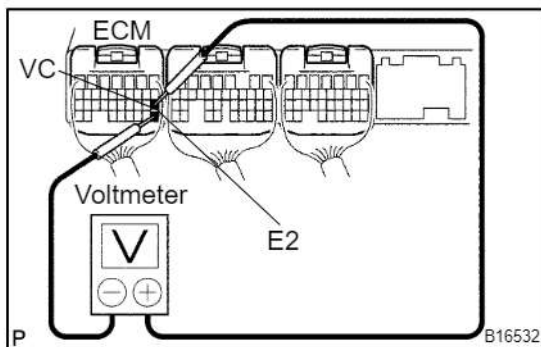
In the condition that the fuel is full, as the float value of the fill check valve is closed and has no ventilation, it is necessary to check the fuel amount (volume).

- (c) Remove the fuel tank cap, and check that pressure drops.
- If pressure does not drop, replace the fuel tank assembly.
- (d) Reconnect the vent line hose to the fuel tank.



5. CHECK AIR INLET LINE

- (a) Disconnect the air inlet line hose from the charcoal canister (See page 12-27).
- (b) Check that there is ventilation in the air inlet line.
- (c) Reconnect the air inlet line hose to the charcoal canister.

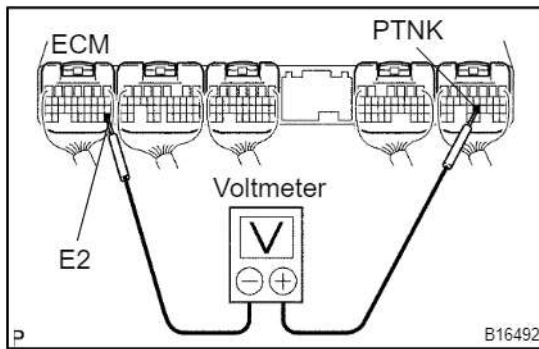


6. INSPECT VAPOR PRESSURE SENSOR

- (a) Inspect power source voltage of vapor pressure sensor.
 - (1) Turn the ignition switch ON.
 - (2) Using a voltmeter, measure the voltage between connector terminals VC and E2 of the wiring harness side.

Voltage: 4.5 – 5.5 V

- (3) Turn the ignition switch OFF.

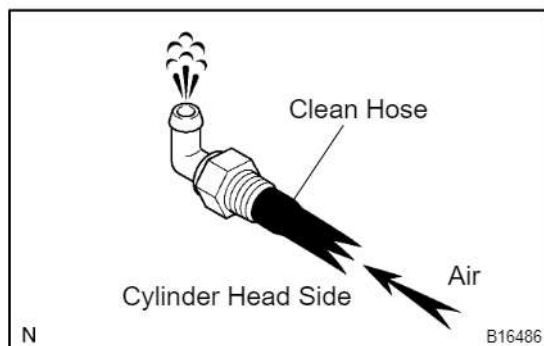


- (b) Inspect power output of vapor pressure sensor.
- (1) Turn the ignition switch ON.
 - (2) Remove the fuel tank cap.
 - (3) Using a voltmeter, measure the voltage between connector terminals PTNK and E2 of the wiring harness side.

Voltage: 3.0 – 3.6 V

- (4) Reinstall the fuel tank cap.

INSPECTION

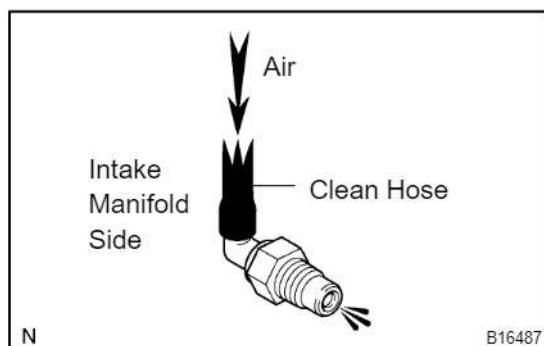


1. VENTILATION VALVE SUB-ASSY

- (a) Install a clean hose to the ventilation valve.
- (b) Inspect the ventilation valve operation.
 - (1) Blow air into the cylinder head side, and check that air passes through easily.

CAUTION:

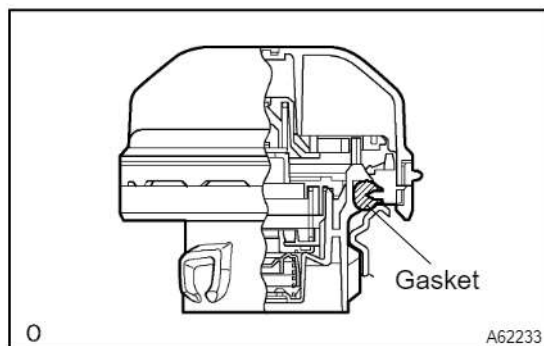
Do not suck air through the valve. Petroleum substances inside the valve are harmful.



- (2) Blow air into the intake manifold side, and check that air passes through with difficulty.

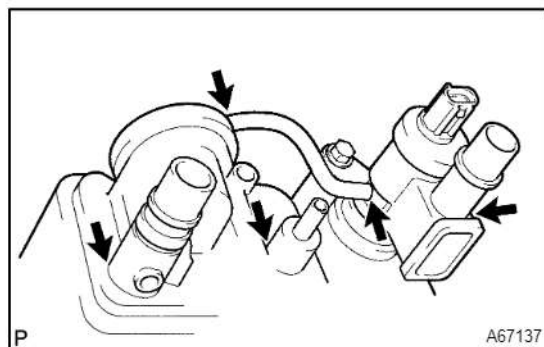
If operation is not as specified, replace the ventilation valve.

- (c) Remove the clean hose from the ventilation valve.



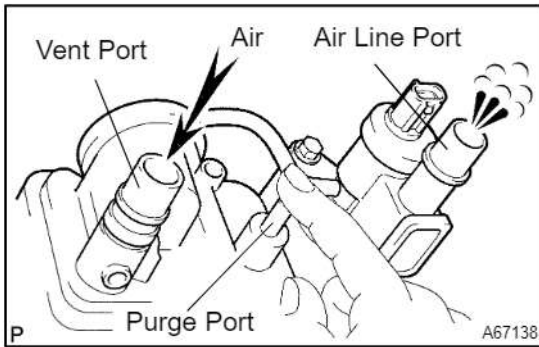
2. FUEL TANK CAP ASSY

- (a) Visually check if the cap and/or gasket are deformed or damaged.

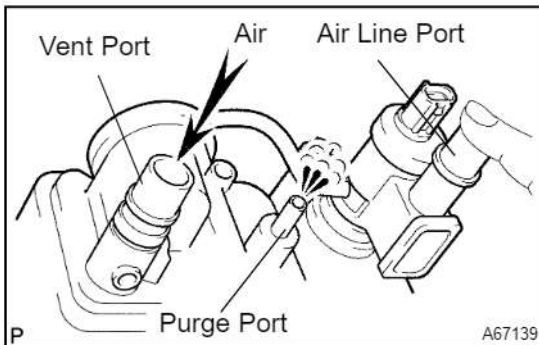


3. CHARCOAL CANISTER ASSY

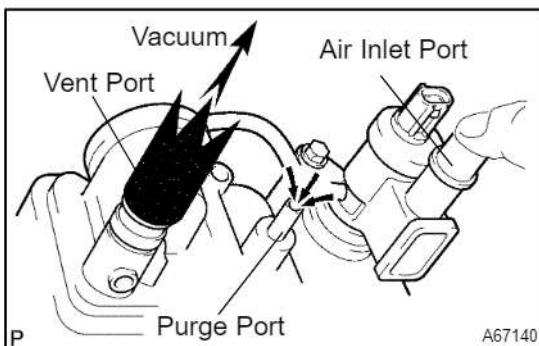
- (a) Visually check the charcoal canister for cracks or damage.



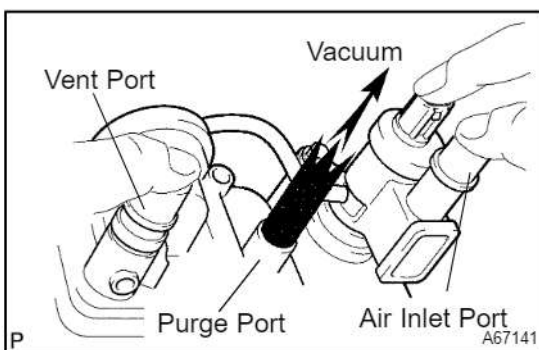
- (b) Inspect the charcoal canister operation.
- (1) While holding the purge port closed, blow air (0.39 kPa, 4.0 gf/cm², 0.06 psi) into the vent port, and check that air flows from the air inlet port.



- (2) While holding the air inlet port closed, blow air (0.39 kPa, 4.0 gf/cm², 0.06 psi) into the vent port, and check that air flows from the purge port.



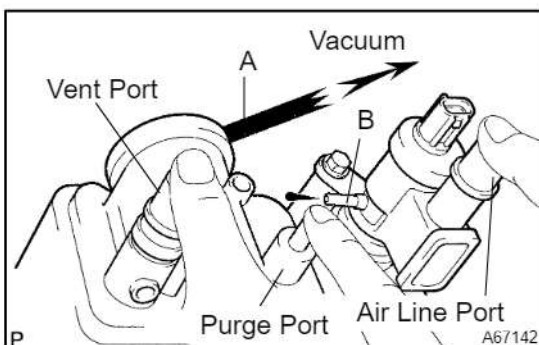
- (3) While holding the air inlet port closed, apply vacuum (3.43 kPa, 25.7 gf/cm², 1.01 psi) to the vent port, and check that air is sucked in from the purge port. If operation is not as specified, replace the charcoal canister.



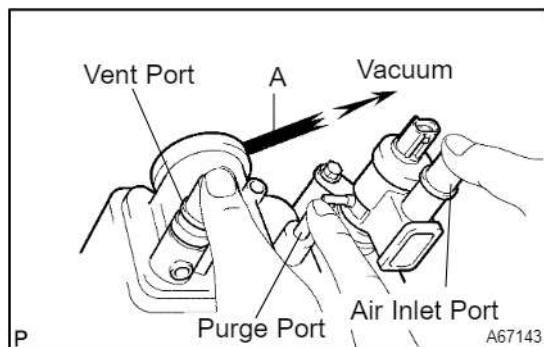
- (c) Inspect the air tightness.
- (1) While holding the vent and air inlet ports closed, apply vacuum (3.43 kPa, 25.7 gf/cm², 1.01 psi) to the purge port, and check that the vacuum is maintained for 1 minute.

HINT:

In order to maintain air tightness, the checked should be performed with the CCV terminal port held closed by hand. If operation is not as specified, replace the charcoal canister.



- (d) Inspect the diaphragm.
- (1) Remove the air hose between ports A and B.
 - (2) While holding the vent, purge and air inlet ports closed, apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A, and check that air is sucked in from port B.

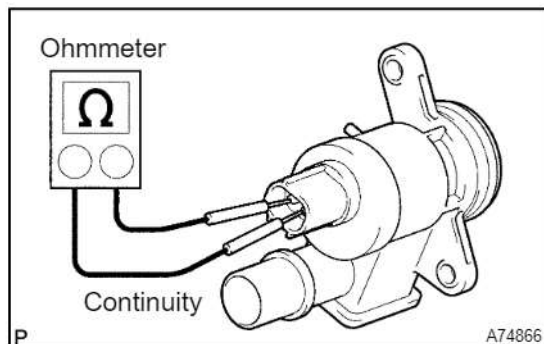


- (3) While holding the vent, purge and air inlet ports closed, apply vacuum (1.42 kPa, 11 mmHg, 0.42 in.Hg) into port A, and measure how long it takes for vacuum to drop.

Vacuum drop time: 10 sec. or more

If operation is not as specified, replace the charcoal canister.

- (4) Reinstall the air hose between ports A and B.



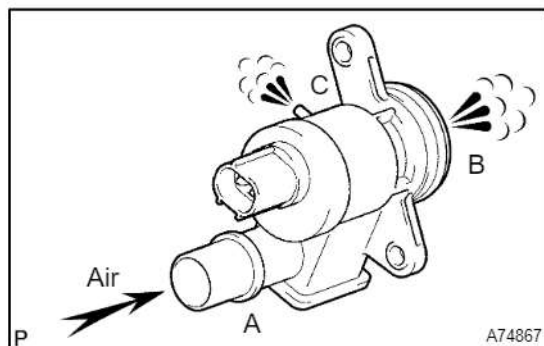
- (e) Inspect VSV for open circuit.

- (1) Using an ohmmeter, check that there is continuity between the terminals.

Resistance:

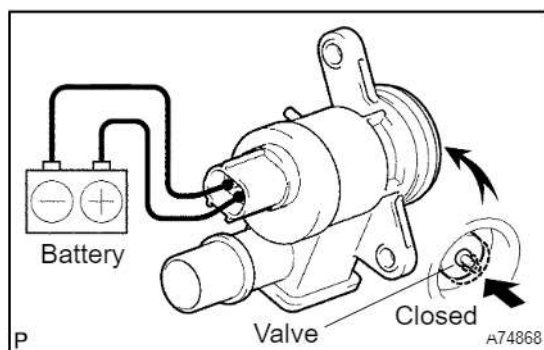
20 °C (68 °F)	25 – 30 Ω
100 °C (212 °F)	32 – 42 Ω

If there is no continuity, replace the charcoal canister.

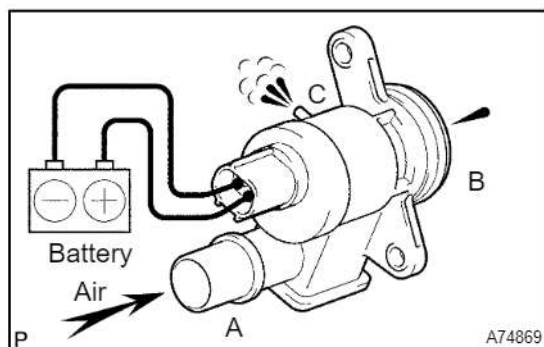


- (f) Inspect VSV operation.

- (1) Check that air flows from ports A to B and C.



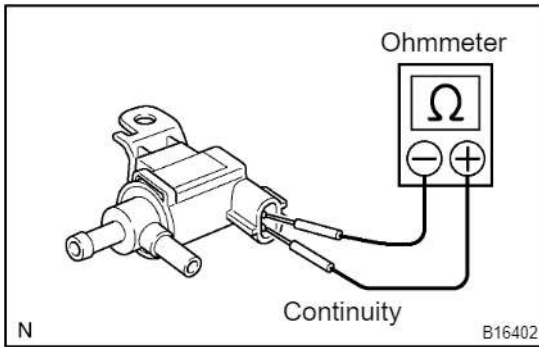
- (2) Apply battery positive voltage across the terminals.
(3) Check that the valve is closed.



- (4) Check that air does not flow from ports A to B.

- (5) Check that air flows from ports A to C.

If operation is not as specified, replace the charcoal canister.



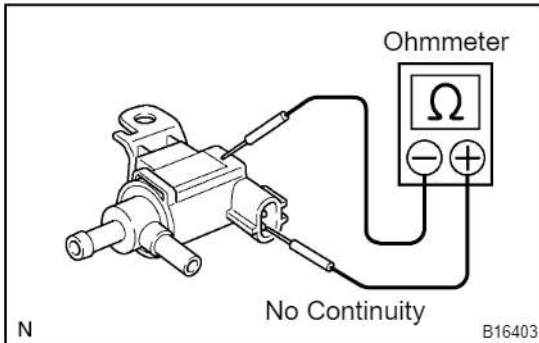
4. VACUUM SWITCHING VALVE ASSY NO.1

(a) Inspect the VSV for open circuit.

- (1) Using an ohmmeter, check that there is continuity between the terminals.

Resistance: 26 – 30 Ω at 20 °C (68 °F)

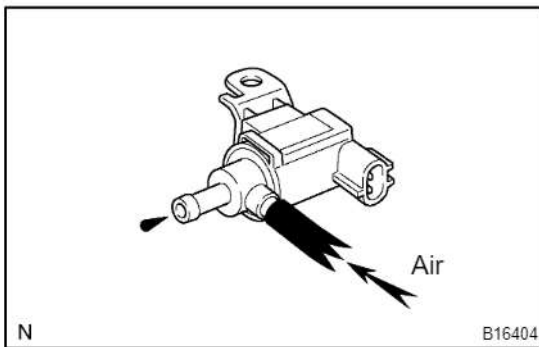
If there is no continuity, replace the VSV.



(b) Inspect the VSV for ground.

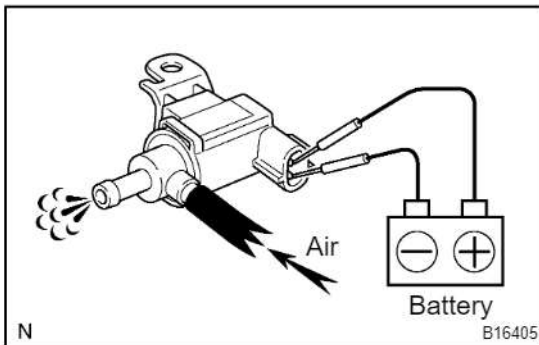
- (1) Using an ohmmeter, check that there is no continuity between each terminal and the body.

If there is continuity, replace the VSV.



(c) Inspect the VSV operation.

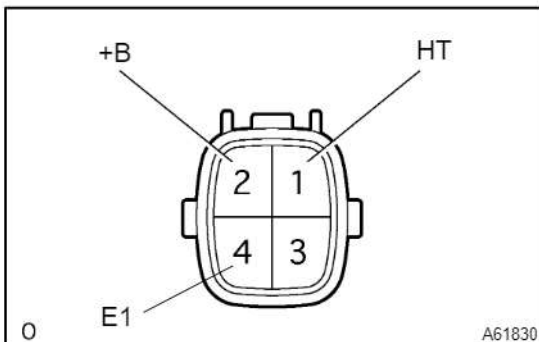
- (1) Check that air does not flow from parts.



- (2) Apply battery positive voltage across the terminals.

- (3) Check that air flows from ports.

If operation is not as specified, replace the VSV.



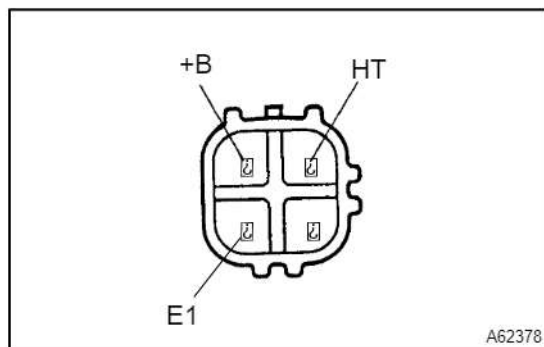
5. HEATED OXYGEN SENSOR

(a) Using an ohmmeter, measure the resistance between the terminals.

Resistance:

Terminal No.	Resistance
1 (HT) ⇔ 2 (+B)	11 – 16 Ω at 20 °C (68 °F)
1 (HT) ⇔ 4 (E1)	No Continuity

If the resistance is not as specified, replace the sensor.



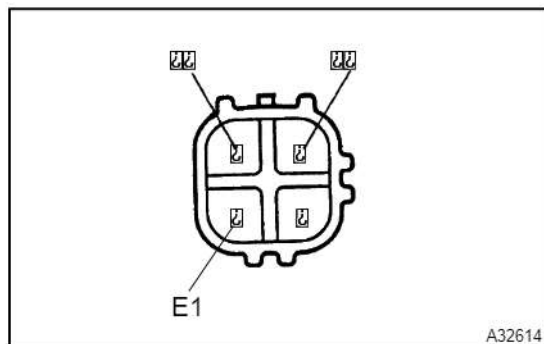
6. HEATED OXYGEN SENSOR (BANK1 OXYGEN SENSOR NO.2)

- (a) Using an ohmmeter, measure the resistance between the terminals.

Resistance:

Terminal No.	Resistance
1 (HT) $\Rightarrow$ 2 (+B)	11 – 16 Ω at 20 °C (68 °F)
1 (HT) $\Rightarrow$ 4 (E1)	No Continuity

If the resistance is not as specified, replace the sensor.



7. HEATED OXYGEN SENSOR (BANK2 OXYGEN SENSOR NO.2)

- (a) Using an ohmmeter, measure the resistance between the terminals.

Resistance:

Terminal No.	Resistance
1 (HT) $\Rightarrow$ 2 (+B)	11 – 16 Ω at 20 °C (68 °F)
1 (HT) $\Rightarrow$ 4 (E1)	No Continuity

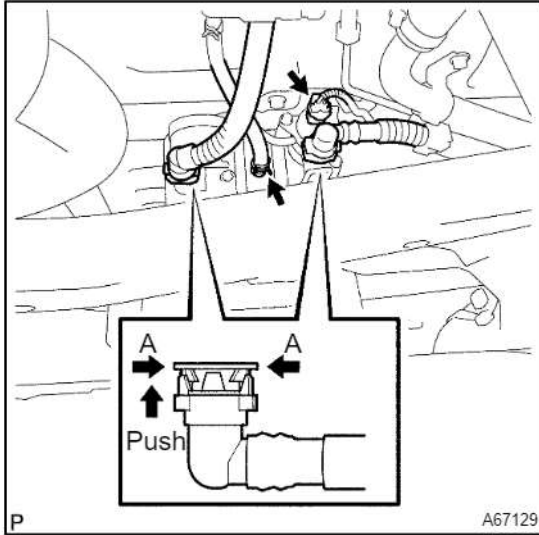
If the resistance is not as specified, replace the sensor.

CHARCOAL CANISTER ASSY (2UZ-FE)

REPLACEMENT

12060-03

1. REMOVE SPARE TIRE



2. REMOVE CHARCOAL CANISTER ASSY

- (a) Disconnect the fuel tank vent hose from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (b) Disconnect the canister outlet hose No. 2 from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (c) Disconnect the VSV connector from the CCV.
- (d) Disconnect the purge line hose from the charcoal canister.
- (e) Remove the 3 bolts, and the charcoal canister from the body.

3. INSTALL CHARCOAL CANISTER ASSY

- (a) Install the charcoal canister with the 3 bolts.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)
- (b) Connect the purge line hose to the charcoal canister.
- (c) Connect the VSV connector to the CCV.
- (d) Connect the canister outlet hose No. 2 to the charcoal canister.
- (e) Connect the fuel tank hose to the charcoal canister.

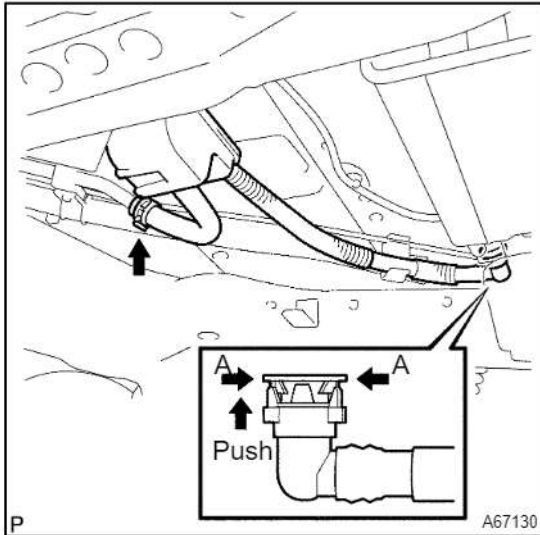
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CHARCOAL CANISTER FILTER NO.2 (2UZ-FE)

REPLACEMENT

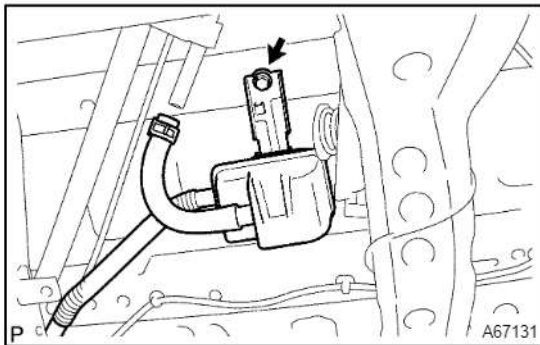
12061-03

1. REMOVE SPARE TIRE



2. REMOVE CHARCOAL CANISTER FILTER NO.2

- (a) Disconnect the canister outlet hose No. 2 from the charcoal canister.
 - (1) Deeply push the connector inside.
 - (2) Pinch portion A.
 - (3) Pull out the connector.
- (b) Disconnect the canister outlet hose from the fuel tank filler pipe.



- (c) Remove a bolt and the charcoal canister filter.

3. INSTALL CHARCOAL CANISTER FILTER NO.2

- (a) Install the charcoal canister with a bolt.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)
- (b) Connect the canister outlet hose to the fuel tank filler pipe.
- (c) Connect the canister outlet hose No. 2 to the charcoal canister.

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