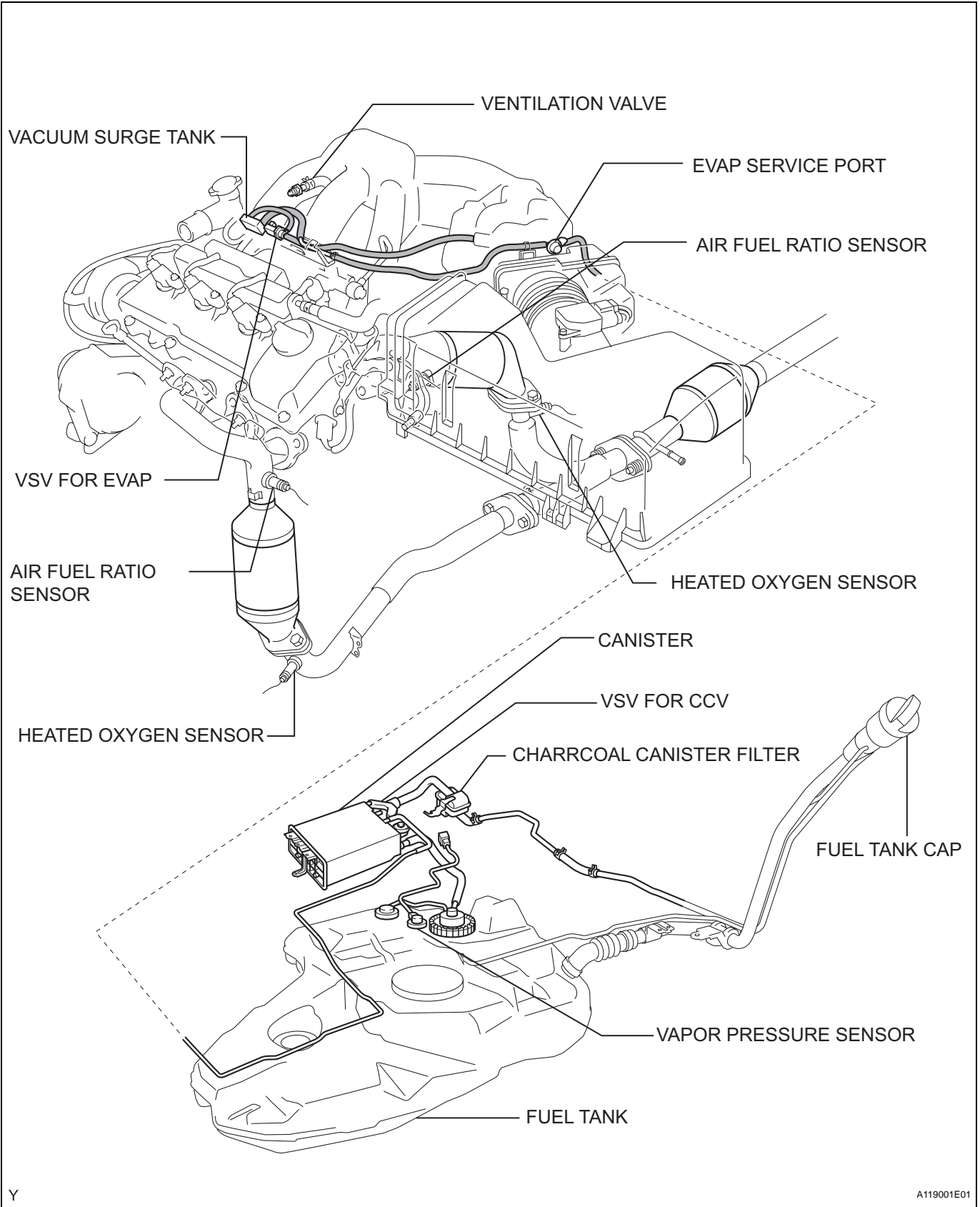
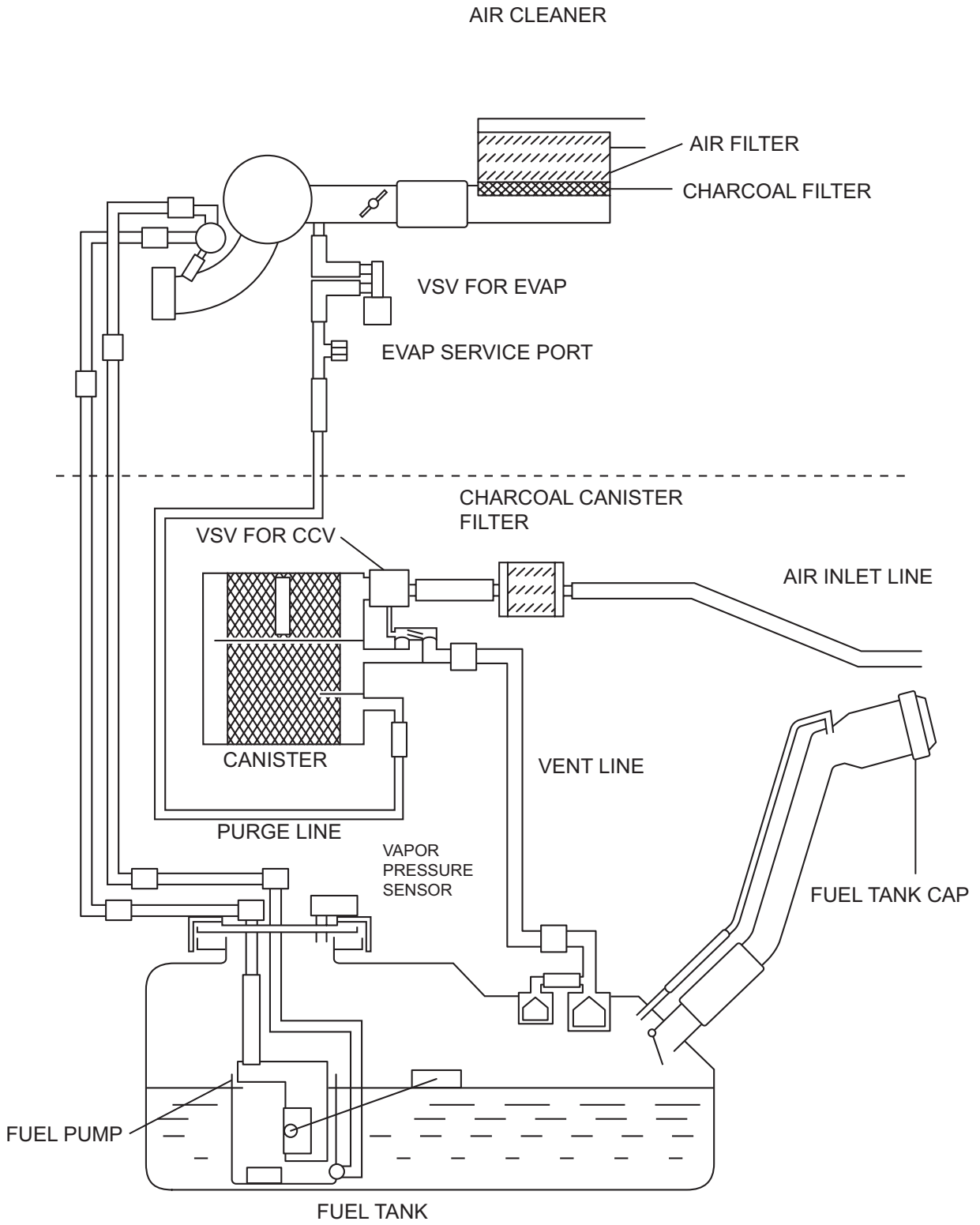


EMISSION CONTROL SYSTEM

PARTS LOCATION





EC



ON-VEHICLE INSPECTION

1. INSPECT AIR FUEL RATIO COMPENSATION SYSTEM

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

Standard voltage

Symbols (Terminal No.)	Condition	Specified Condition
A1A+ - E1	Ignition switch ON	3.3 V
A1A- - E1	Ignition switch ON	3.0 V
A2A+ - E1	Ignition switch ON	3.3 V
A2A- - E1	Ignition switch ON	3.0 V

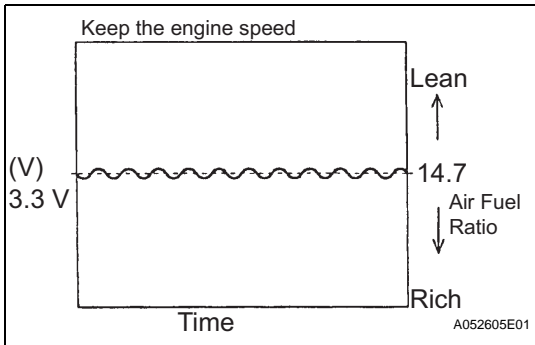
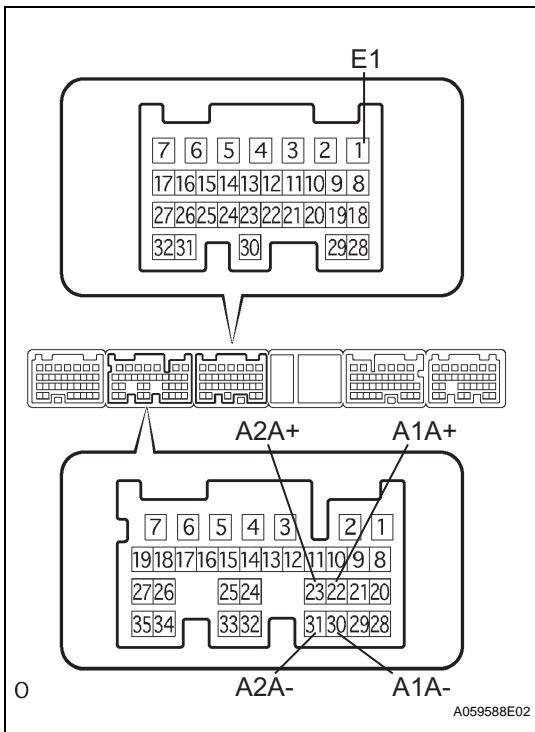
CAUTION:

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

HINT:

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

- (b) Connect the intelligent tester or OBD II scan tool to the DLC3.
- (c) Enter "DIAGNOSIS / ENHANCED OBD II / DATA LIST" and select "AFS B1 S1" and "AFS B2 S1" to display the monitor.
- (d) Warm up the A/F sensor with the engine speed at 2,500 rpm for approximately 2 minutes.
- (e) Keep the engine speed at 2,500 rpm and confirm that the waveform of "AFS B1 S1" and "AFS B2 S1" are similar to the illustration on the left.
- HINT:**
- The waveform in the illustration is a sample.
 - Only intelligent tester displays the waveform of A/F sensor.
- (f) Confirm that the display of "DATA LIST" - "O2S B1 S2" and "O2S B2 S2", fluctuates ups and downs between 0 V and 1 V with the engine speed at 2,500 rpm.



2. INSPECT FUEL CUT-OFF RPM

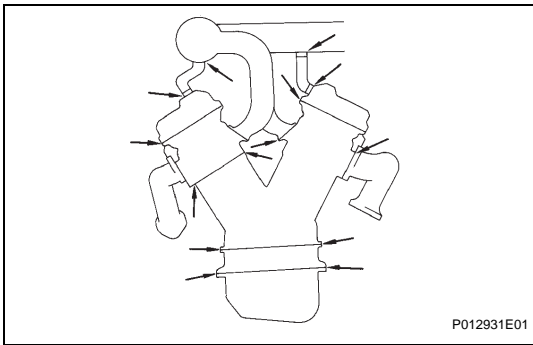
- (a) Increase the engine speed to at least 3,500 rpm.
- (b) Use a sound scope to check for injector operating sounds.
- (c) Check that when the throttle lever is released, injector operation sounds stops momentarily (at 2,500 rpm) and then resumes (at 1,200 rpm).

2,500 rpm:

Fuel cut off rpm

1,200 rpm:

Fuel return rpm

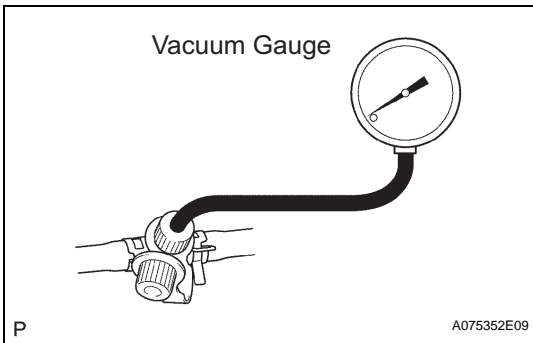


3. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

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

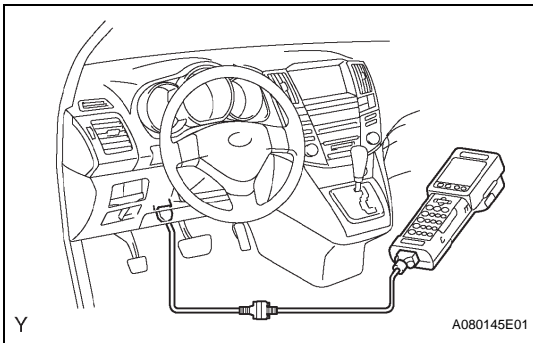
HINT:

Separation of the engine oil dipstick, oil filler cap, PCV hose, etc. may causes the engine to run improperly. 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 improperly.

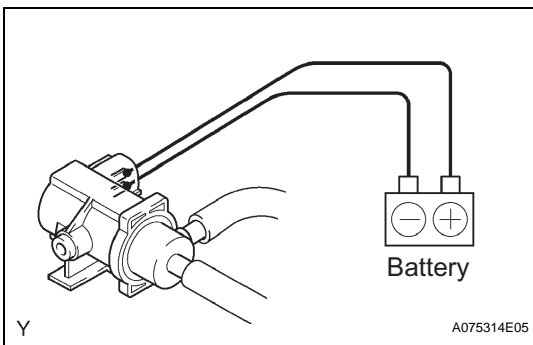


4. INSPECT EVAP SYSTEM LINE

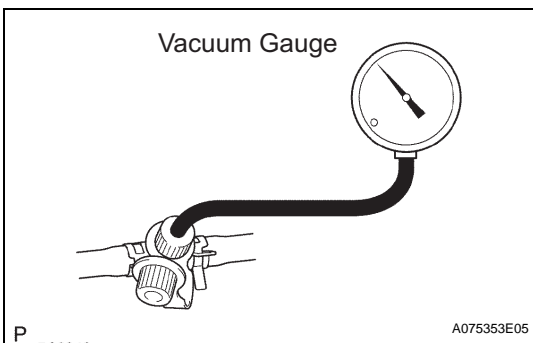
- (a) Warm up the engine to normal operating temperature.
- (b) Connect the vacuum gauge (EVAP control system test equipment vacuum gauge) to the EVAP service port on the purge line. stop the engine.



- (c) Intelligent tester:
Force the VSV for EVAP to operate.
- (1) Connect the intelligent tester to the DLC3.
 - (2) Start the engine.
 - (3) Push the intelligent tester main switch on.
 - (4) Use the ACTIVE TEST mode on the intelligent tester to operate the VSV for the EVAP.



- (d) If you have no intelligent tester:
Force the VSV for EVAP to operate.
- (1) Disconnect the VSV for EVAP connector.
 - (2) Connect the positive (+) and negative (-) leads from the battery to the VSV for EVAP terminals.
 - (3) Start the engine.



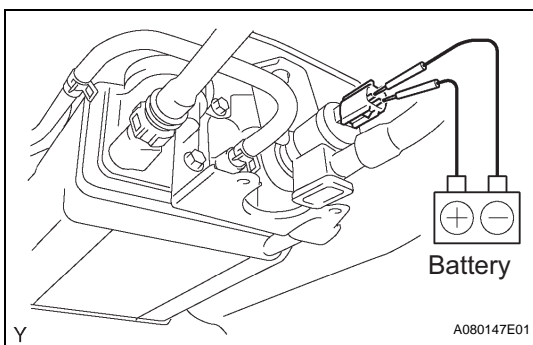
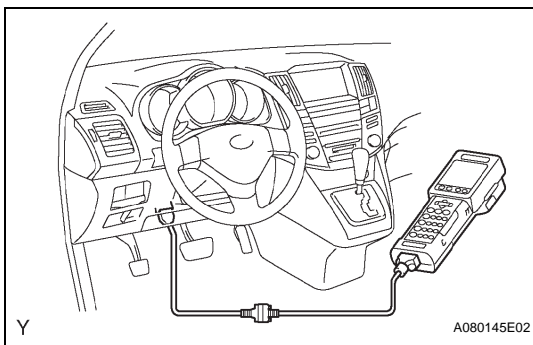
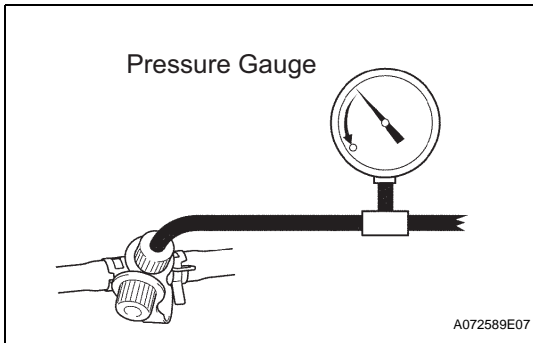
- (e) Check the vacuum at idle.
Vacuum:
Maintain at 0.368 to 19.713 in.Hg (5 to 268 in.Aq) for over 5 seconds

HINT:

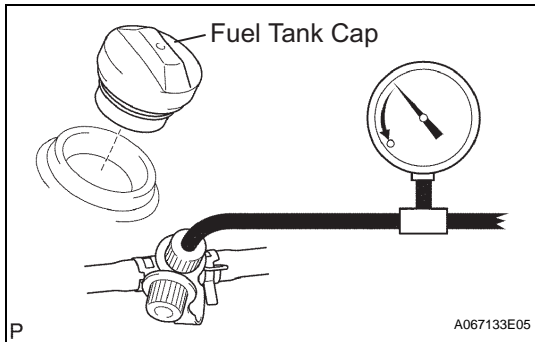
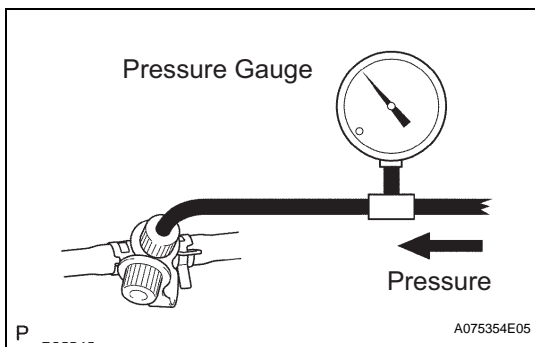
If the vacuum does not change, you can conclude that the hose connecting the VSV to the service port has come loose or is blocked, or the VSV is malfunctioning.

- (f) If you have intelligent tester:
Return to normal VSV for EVAP operation.

- (1) Stop the engine.
 - (2) Disconnect the Intelligent tester from the DLC3.
- (g) If you have no intelligent tester:
- Return to normal VSV for EVAP operation.
 - (1) Stop the engine.
 - (2) Disconnect the positive (+) and negative (-) leads from the VSV for EVAP terminals.
 - (3) Reconnect the VSV for EVAP connector.
- (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.

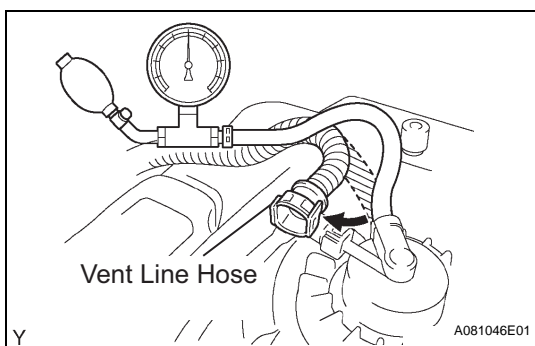


- (j) If you have intelligent tester:
- Force the VSV for CCV to operate.
 - (1) Connect the intelligent tester to the DLC3.
 - (2) Turn the ignition switch ON.
 - (3) Push the intelligent tester main switch ON.
 - (4) Use the ACTIVE TEST mode on the intelligent tester to operate the VSV for CCV.
- NOTICE:**
Do not start the engine in this operation.
- 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 intelligent tester:
- Force the VSV for CCV to operate.
 - (1) Disconnect the VSV for the CCV.
 - (2) Connect the positive (+) and negative (-) leads from the battery to the VSV for the CCV terminals.

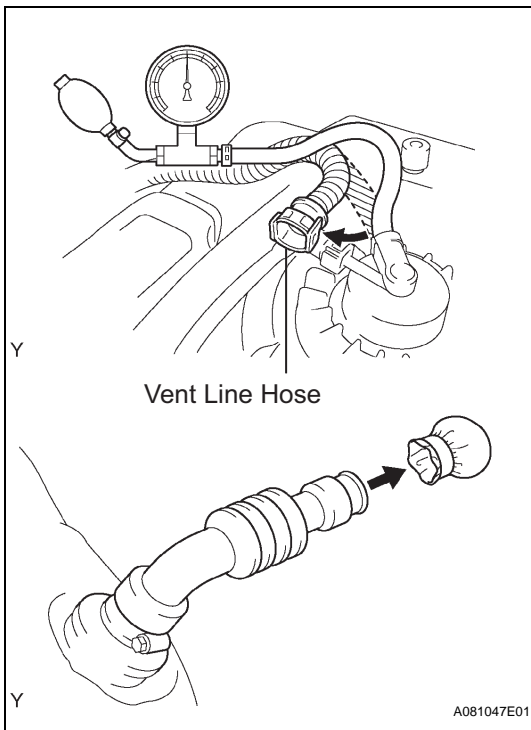


- (l) Check the pressure.
- (1) Add the pressure (13.5 to 15.5 in.Aq) from the EVAP service port.
Pressure:
2 minutes after the pressure is added, the gauge should be over 7.7 to 8.8 in.Aq.
HINT:
If you can not add pressure, you can conclude that the hose connecting the VSV for EVAP canister fuel tank 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 fuel tank 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 intelligent tester:
Return to normal VSV for CCV operation.
- (1) Turn the ignition switch OFF.
 - (2) Disconnect the intelligent tester from the DLC3.
- (n) If you have no intelligent tester:
Return to normal VSV for CCV operation.
- (1) Disconnect the positive (+) and negative (-) leads from the VSV for CCV terminals.
 - (2) Reconnect the VSV for CCV connector.
- (o) Disconnect the pressure gauge from the EVAP service port on the purge line.

5. CHECK AIR TIGHTNESS IN FUEL TANK AND FILLER PIPE

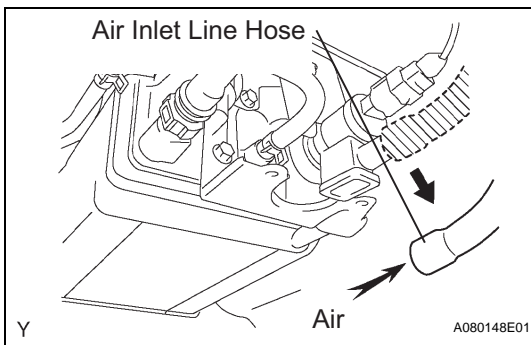


- (a) Remove the fuel tank assembly. (See page [FU-31](#))
- (b) Disconnect the vent line hose from the fuel tank, then connect the pressure gauge to the fuel tank.
- (c) Securely cover the fuel pump tube, the breather tube and the fuel tank to filler pipe hose with vinyl or plastic bags to perform accurate pressure test.
- (d) Apply pressure to the fuel tank and make the internal pressure of the fuel tank 4 kPa (41 gf/cm², 0.58 psi).
- (e) Check that the internal fuel tank pressure is maintained for 1 minute.
- (f) Check the connected portions of each hose and pipe.
- (g) Check the installed parts on the fuel tank.
If there is no abnormality, replace the fuel tank and filler pipe.
- (h) Reinstall the fuel tank assembly. (See page [FU-37](#))



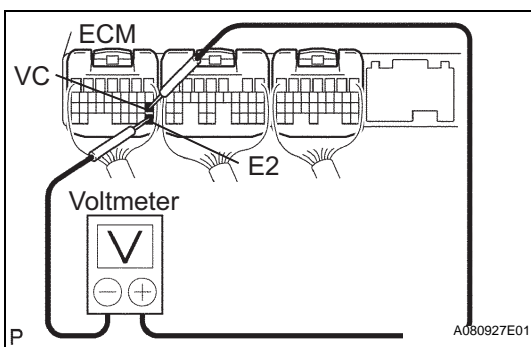
6. INSPECT FUEL CUT OFF VALVE AND FILL CHECK VALVE

- Remove the fuel tank assembly. (See page [FU-31](#))
- Disconnect the vent line hose from the fuel tank, then connect the pressure gauge to the fuel tank.
- Fill the fuel tank with fuel full.
HINT:
In the condition that the fuel is full, as the float valve of the fill check valve is closed and no ventilation.
- Securely cover the fuel pump tube, the breather tube and the fuel tank to filler pipe hose with vinyl or plastic bags to perform accurate pressure test.
- Apply 4 kPa (41 gf/cm², 0.58 psi) to the vent port of the fuel tank.
- Remove the vinyl or the plastic bag from the fuel tank to filler pipe hose, and check that pressure drops.
If pressure does not drop, replace the fuel tank assembly.
- Drain fuel from the fuel tank.
- Reinstall the fuel tank assembly. (See page [FU-37](#))



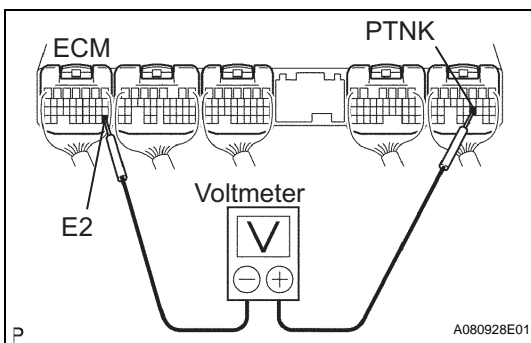
7. CHECK AIR INLET LINE

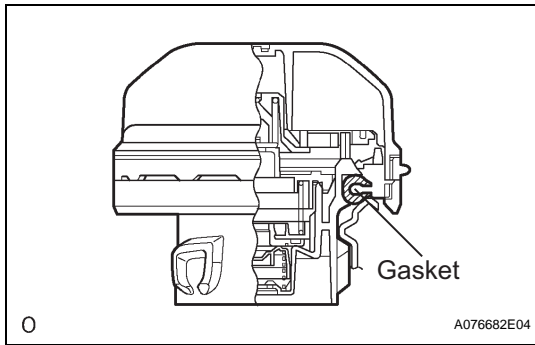
- Disconnect the air inlet line hose from the charcoal canister (See page [EC-11](#)).
- Check that there is ventilation in the air inlet line.
- Reconnect the air inlet line hose to the charcoal canister.



8. INSPECT VAPOR PRESSURE SENSOR ASSEMBLY

- Inspect 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 of the wiring harness side.
Voltage:
4.5 to 5.5 V
 - Turn the ignition switch OFF.
- Inspect 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 of the wiring harness side.
Voltage:
3.0 to 3.6 V
 - Reinstall the fuel tank cap.

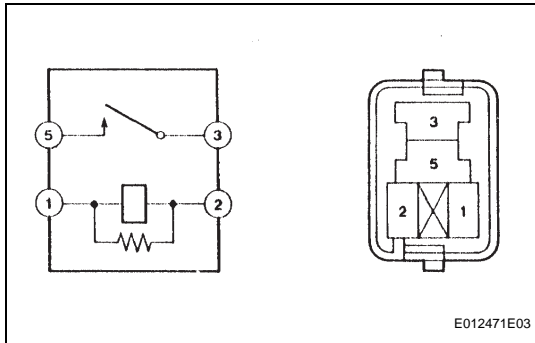




INSPECTION

1. INSPECT FUEL TANK CAP ASSEMBLY

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



2. INSPECT HEATER RELAY

- (a) Continuity inspection.
 - (1) Using an ohmmeter, check for resistance between the terminals.

Resistance

Terminals	Specified Condition
3 - 5	10 k Ω or higher
	Below 1 Ω (Apply battery voltage terminals 1 and 2)