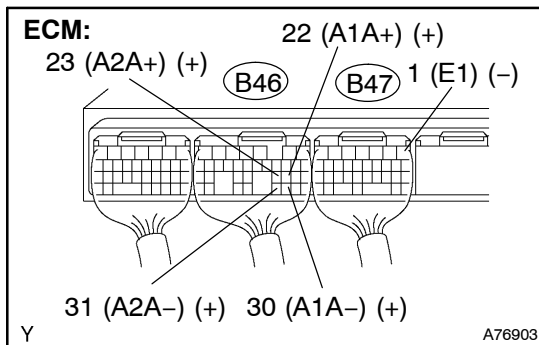


ON-VEHICLE INSPECTION



1. INSPECT AIR-FUEL RATIO COMPENSATION SYSTEM

- (a) Measure the voltage of the ECM connectors. (See Page 05-42)

Standard:

Tester Connection	Condition	Specified Condition
B46-22 (A1A+) - B47-1 (E1)	Ignition switch on (IG)	3.3 V
B46-30 (A1A-) - B47-1 (E1)	Ignition switch on (IG)	3.0 V
B46-23 (A2A+) - B47-1 (E1)	Ignition switch on (IG)	3.3 V
B46-31 (A2A-) - B47-1 (E1)	Ignition switch on (IG)	3.0 V

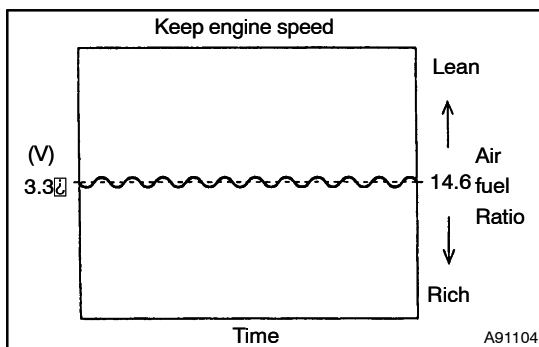
HINT:

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

NOTICE:

Connect test leads to the connector's backside. The connectors should not be disconnected from the ECM.

- (b) Connect the hand-held tester to the DLC3.
(c) Select "DATA MONITOR". Then select "A/FS B1 S1", "A/FS B2 S1" and "O2S B1 S2" to display the monitors.
(d) Warm up the A/F sensor with the engine speed at 2,500 rpm for approximately 2 minutes.



- (e) Maintain engine speed at 2,500 rpm and confirm that the displays of "A/FS B1 S1" and "A/FS B2 S1" are as shown in the illustration.

HINT:

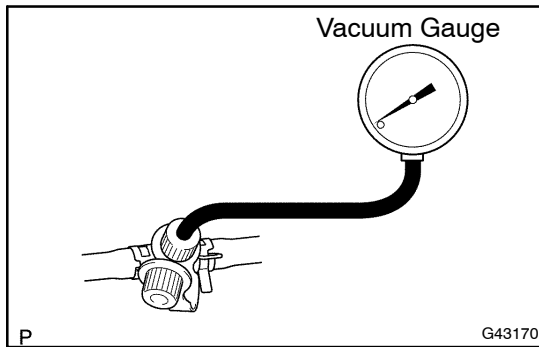
- The illustration may differ slightly from the display on the hand-held tester.
 - Only the hand-held tester displays the waveform of A/F sensor.
- (f) Confirm that the display of "O2S B1 S2" changes between 0 to 1 V with the engine speed at 2,500 rpm.

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 stop momentarily (at 2,500 rpm) and then resume (at 1,400 rpm).

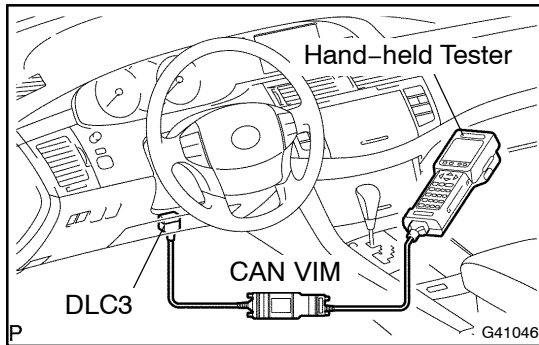
Standard:

Item	Specified Condition
Fuel cut off rpm	2,500 rpm
Fuel return rpm	1,400 rpm

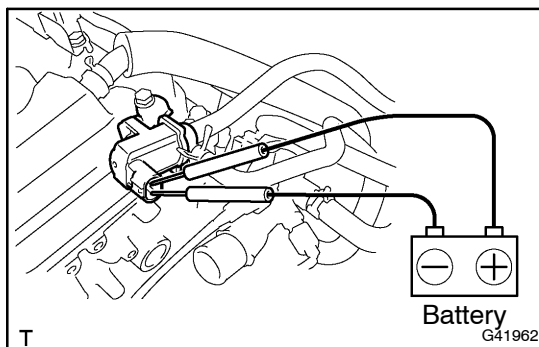


3. INSPECT EVAP SYSTEM LINE

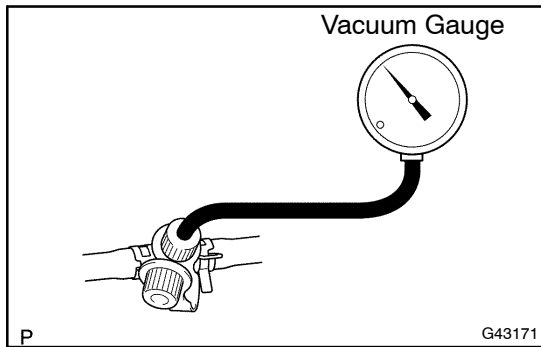
- (a) Warm up the engine to normal operating temperature and stop the engine.
- (b) Install a vacuum gauge (EVAP control system test equipment vacuum gauge) into the EVAP service port on the purge line.



- (c) When using a hand-held tester:
Operation of the VSV for EVAP.
 - (1) Connect a hand-held tester to the Controller Area Network Vehicle Interface Module (CAN VIM). Then connect the CAN VIM to the Data Link Connector 3 (DLC3).
 - (2) Start the engine.
 - (3) Turn the hand-held tester on.
 - (4) Enter the following menus: DIAGNOSIS / ENHANCED OBDII/ ACTIVE TEST / EVAP VAV (ALONE)



- (d) When not using a hand-held tester:
Operation of the VSV for EVAP.
 - (1) Disconnect the VSV for EVAP connector.
 - (2) Connect leads from the positive (+) and negative (-) battery terminals to the VSV for EVAP terminals.
 - (3) Start the engine.

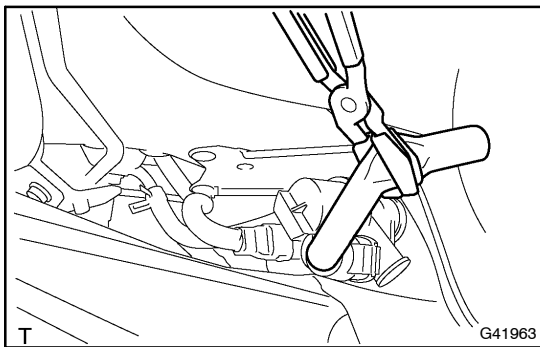


- (e) Check the vacuum when the engine idles.
Vacuum:
Maintain between 0.368 and 19.713 in.Hg (5 to 268 in.Aq) for over 5 seconds.

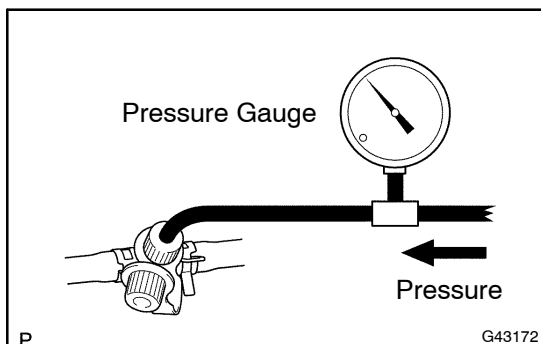
HINT:

If the vacuum does not change, the hose connecting the VSV and the service port is loose or blocked, or the VSV is malfunctioning.

- (f) When using a hand-held tester:
 Conclude operation of the VSV for EVAP.
 (1) Stop the engine.
 (2) Disconnect the hand-held tester from the DLC3.
- (g) When not using a hand-held tester:
 Conclude operation of the VSV for EVAP.
 (1) Stop the engine.
 (2) Disconnect the positive (+) and negative (-) leads of the battery from the VSV for EVAP terminals.
 (3) Connect 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) Check the pressure.
 (1) Prepare a rubber hose that has an inside diameter of 15 to 18.5 mm.
 (2) Disconnect the atmospheric side hose of the pump module.
 (3) Connect the prepared rubber hose to the pump module, and pinch the rubber hose with the clip to prevent air from entering into the canister passage.



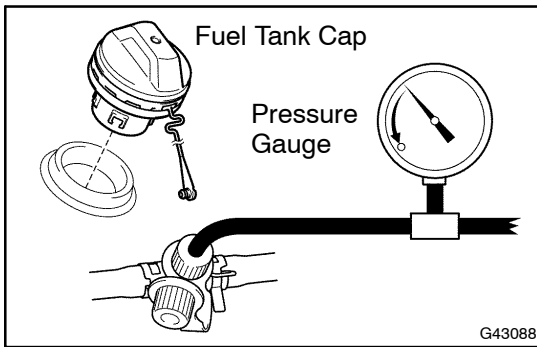
- (4) Apply pressure (13.5 to 15.5 in.Aq, 0.99 to 1.14 in.Hq) from the EVAP service port.

Pressure:

The gauge should still read over 7.7 to 8.8 in.Aq (0.57 to 0.65 in.Hq) for 2 minutes after the pressure is applied.

HINT:

If the pressure cannot be applied, the hose connecting the VSV, charcoal canister and fuel tank has slipped off or the VSV is open.

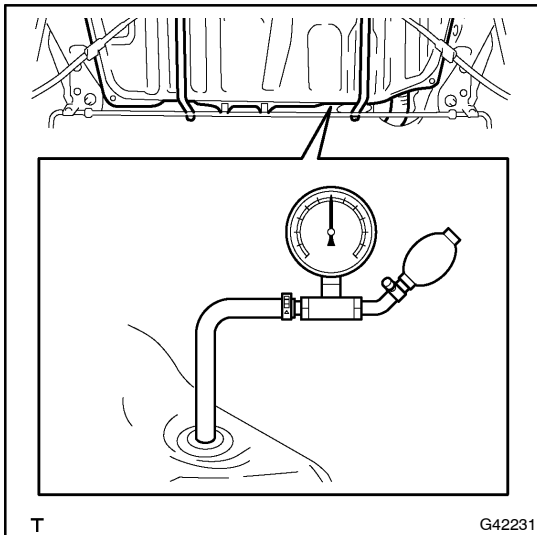


- (5) Check if the pressure decreases when the fuel tank cap is removed while applying pressure.

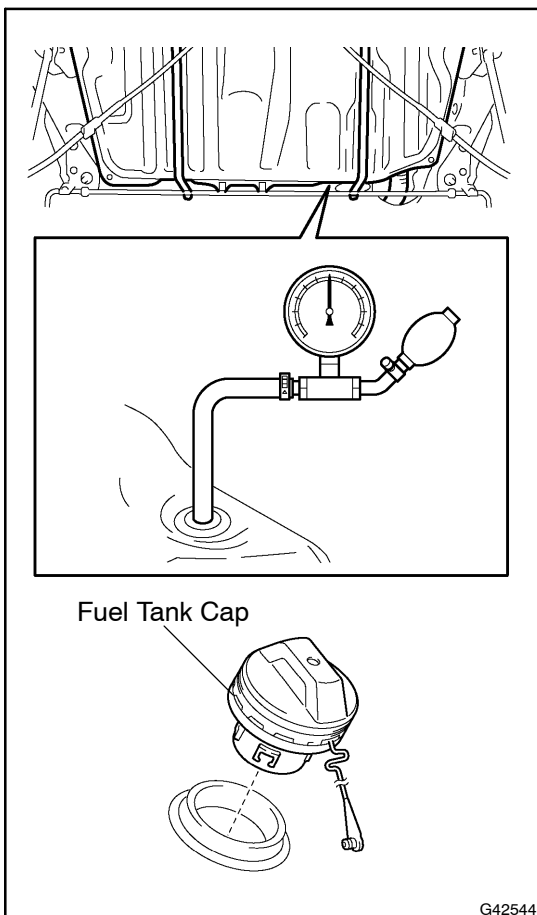
HINT:

If the pressure does not decrease when the filler cap is removed, the hose connecting the service port and the fuel tank may be blocked.

- (k) Disconnect the pressure gauge from the EVAP service port on the purge line.

**4. CHECK AIR TIGHTNESS IN FUEL TANK AND FILLER PIPE**

- Disconnect the vent line hose from the fuel tank.
 - Connect the pressure gauge to the fuel tank.
 - Apply pressure to the fuel tank to create an internal pressure of 4 kPa (41 gf/cm², 0.58 psi).
 - Check that the internal pressure of the fuel tank is maintained for 1 minute.
 - Check the connected portions of each hose and pipe.
 - Check the installed parts on the fuel tank.
- If any malfunctions, damage or other problems are found, replace the fuel tank and filler pipe.
- Reconnect the vent line hose to the fuel tank.

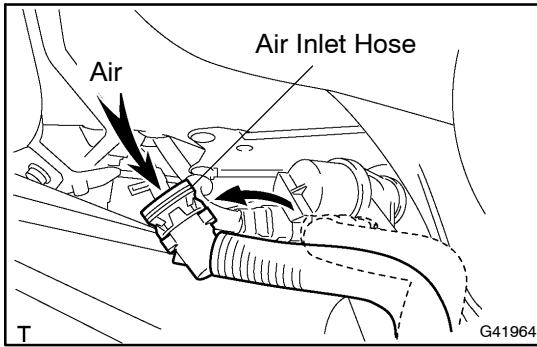
**5. INSPECT FUEL CUT OFF VALVE AND FILL CHECK VALVE**

- Disconnect the vent line hose from the fuel tank.
- Connect the pressure gauge to the fuel tank.
- Fill the fuel tank with fuel.
- Apply pressure of 4 kPa (41 gf/cm², 0.58 psi) to the vent port of the fuel tank.

HINT:

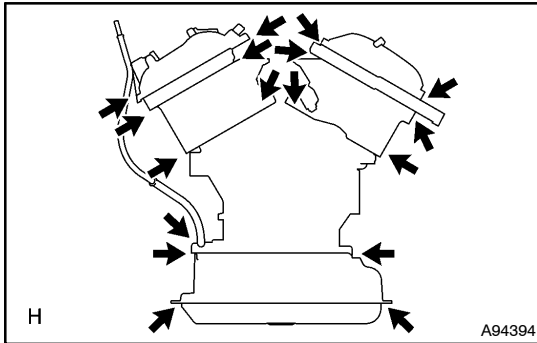
Check the amount of fuel in the fuel tank. When the fuel tank is full, the float valve of the fill check valve is closed and no air can pass through.

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



6. CHECK AIR INLET LINE

- (a) Disconnect the air inlet line hose from the charcoal canister.
- (b) Check that air can flow freely into the air inlet line.
If air cannot flow freely into the air inlet line, repair or replace it.
- (c) Reconnect the air inlet line hose to the charcoal canister.



7. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS

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

HINT:

Removal or problems with the engine oil dipstick, oil filler cap, PCV hose and other components may cause 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.

If necessary, replace any damaged parts.