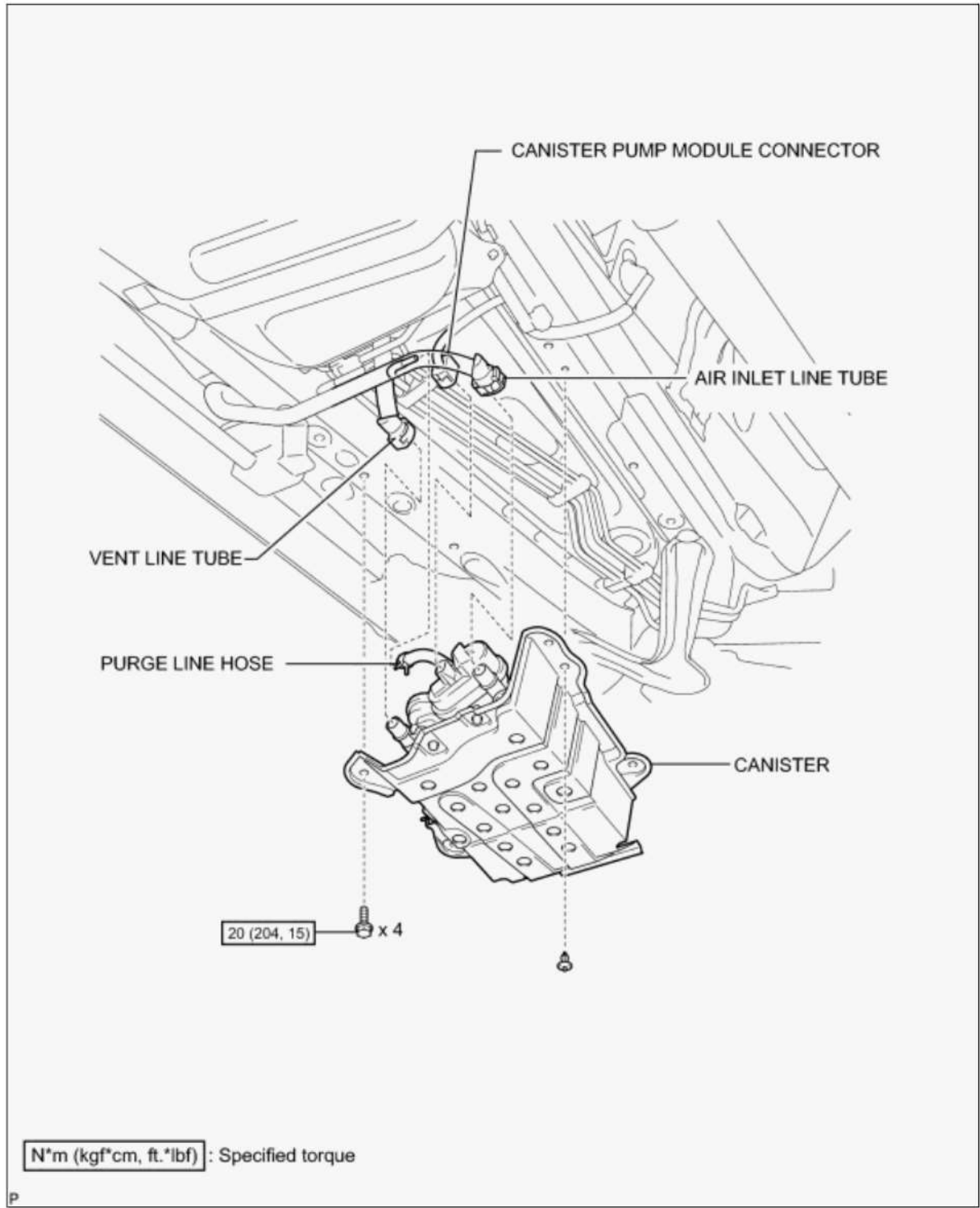


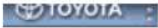
Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000000Q7B02DX
Title: 2AR-FE EMISSION CONTROL: CANISTER: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION



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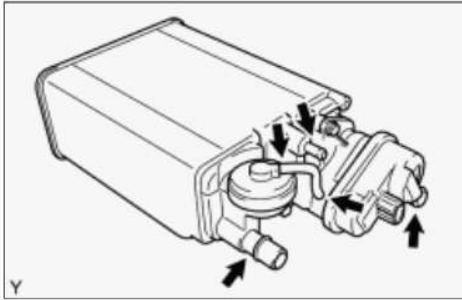


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Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000000X1E02NX
Title: 2AR-FE EMISSION CONTROL: CANISTER: INSPECTION (2011 RAV4)		

INSPECTION

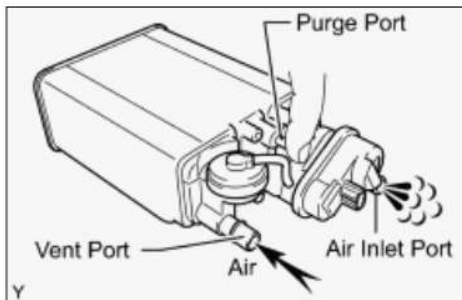
1. INSPECT CANISTER



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

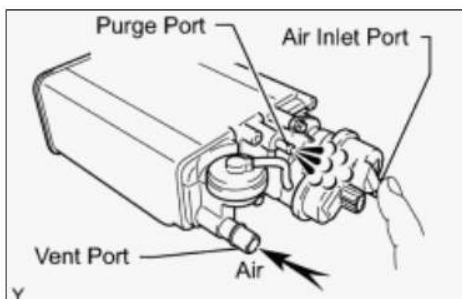
If cracks or damage is found, replace the canister.

(b) Check the canister operation.



(1) While holding the purge port closed, blow air at 0.39 kPa (4.0 kgf/cm², 3 mmHg) into the vent port and check that air flows from the air inlet port.

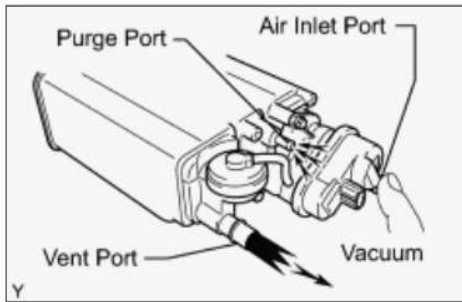
If the result is not as specified, replace the canister.



(2) While holding the air inlet port closed, blow air at 0.39 kPa (4.0 kgf/cm², 3 mmHg) into the vent port and check that air flows from the purge port.

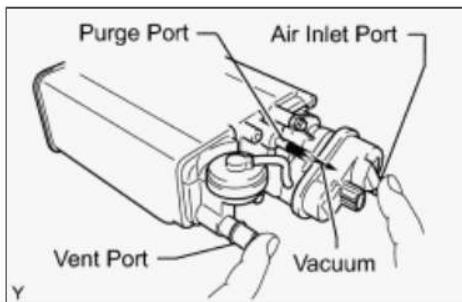
If the result is not as specified, replace the canister.

(3) While holding the air inlet port closed, apply a vacuum of 3.43 kPa (35.0 kgf/cm², 25.7 mmHg) to the vent port and



check that air is sucked into the purge port.

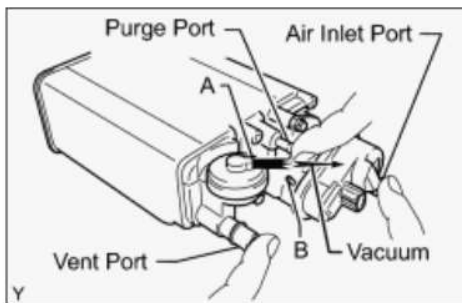
If the result is not as specified, replace the canister.



(c) Check the airtightness.

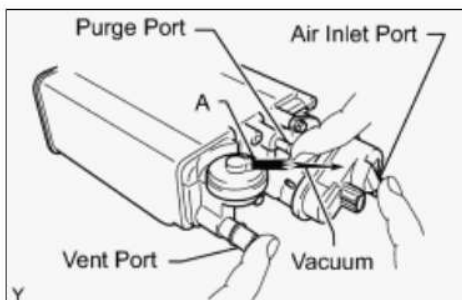
- (1) While holding the vent and air inlet ports closed, apply a vacuum of 3.43 kPa (35.0 kgf/cm², 25.7 mmHg) to the purge port and check that the vacuum is maintained for 1 minute.

If the result is not as specified, replace the canister.



(d) Check the diaphragm.

- (1) Remove the air hose between ports A and B.
- (2) While holding the vent, purge and air inlet ports closed, apply a vacuum of 1.42 kPa (14.5 kgf/cm², 10.6 mmHg) to port A and check that air is not sucked into port B.



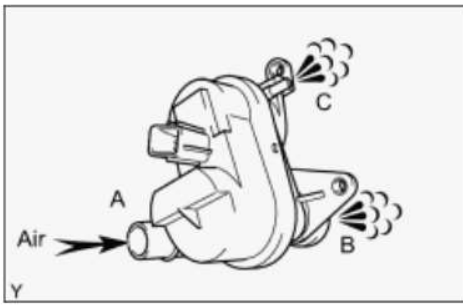
- (3) While holding the vent, purge and air inlet ports closed, apply a vacuum of 1.42 kPa (14.5 kgf/cm², 10.6 mmHg) to port A and measure how long it takes for the vacuum to drop.

Vacuum drop time:

10 seconds or more

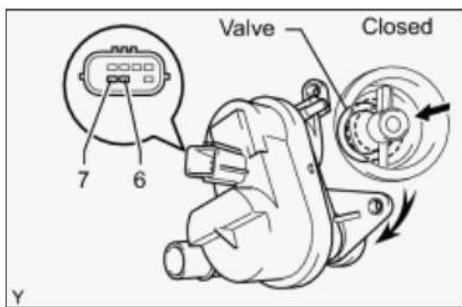
If the result is not as specified, replace the canister.

(e) Check the leak detection pump.



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

If the result is not as specified, replace the canister.

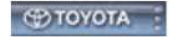


(2) Connect the positive (+) lead of the battery to terminal 7 and the negative (-) lead to terminal 6.

(3) Check that the valve is closed.

If the result is not as specified, replace the canister.

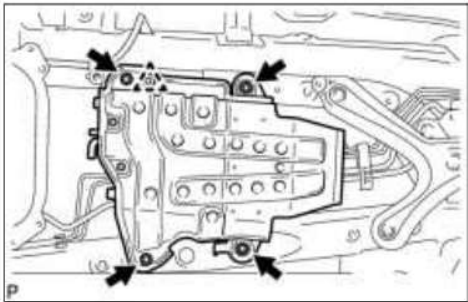
(4) Install the canister pump module.



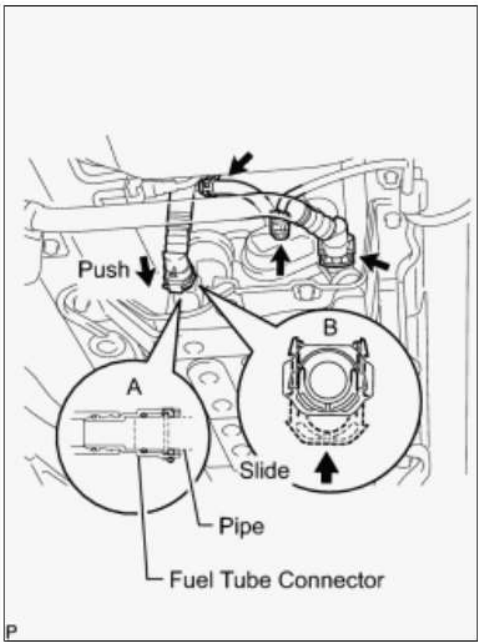
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000000Q7A02LX
Title: 2AR-FE EMISSION CONTROL: CANISTER: INSTALLATION (2011 RAV4)		

INSTALLATION

1. INSTALL CANISTER



(a) Install the canister with the 4 bolts and clip.
Torque: 20 N·m (204 kgf·cm, 15ft·lbf)



(b) Connect the air inlet line tube to the canister (leak detection pump).

- (c) Connect the vent line tube.
- (1) Connect the pipe to the fuel tube connector, as shown in A in the illustration. Then push up the retainer to lock the claws, as shown in B in the illustration.

NOTICE:

- Check that there are no scratches or foreign matter around the connected part of the fuel tube connector and pipe before performing this work.
- After connecting the vent line tube, check that the vent line tube is securely connected by pulling the fuel tube connector and pipe.

- (d) Connect the purge line hose.
- (e) Connect the connector to the canister (leak detection pump).

2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL



Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000000Q7C02KX
Title: 2AR-FE EMISSION CONTROL: CANISTER: REMOVAL (2011 RAV4)		

REMOVAL

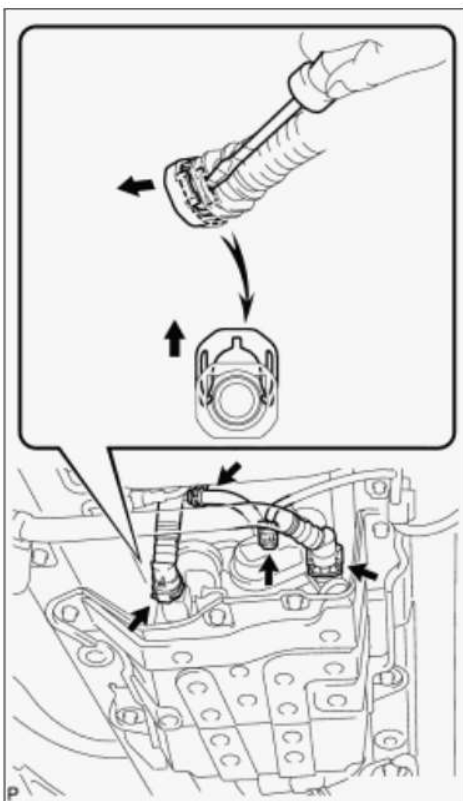
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

2. REMOVE CANISTER

- (a) Disconnect the 2 tubes, hose and connector.



- (1) Using a screwdriver, pry up the retainer.

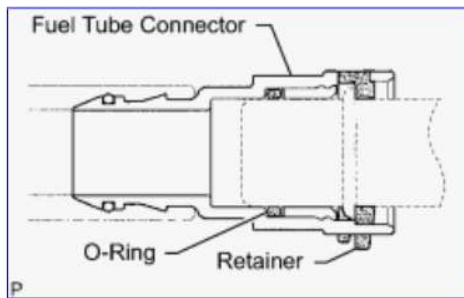
HINT:

Do not remove the retainer.

- (2) Disconnect the purge line hose.
- (3) Disconnect the air inlet line tube from the canister (leak detection pump).
- (4) Disconnect the connector from the canister (leak detection pump).
- (5) Disconnect the vent line tube from the canister.

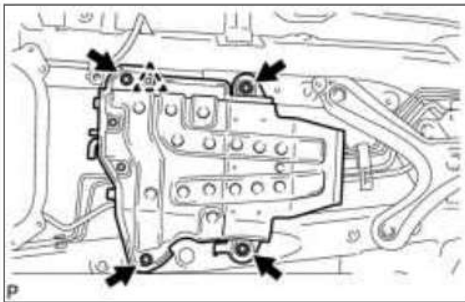
NOTICE:

- Remove any dirt or foreign matter on the fuel tube connector before performing this work.



Do not allow any scratches or foreign matter on the parts when disconnecting them as the fuel tube connector has an O-ring that seals the pipe.

- Perform this work by hand. Do not use any tools.
- Do not forcibly bend, twist or turn the nylon tube.
- Protect the disconnected part by covering it with a plastic bag after disconnecting the vent line tube.
- If the fuel tube connector and pipe are stuck, push and pull to release them.



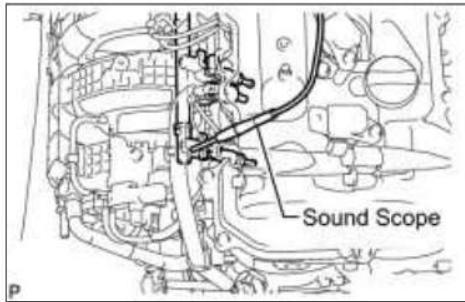
(b) Remove the 4 bolts, clip and canister.



Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000000PE602MX
Title: 2AR-FE EMISSION CONTROL: EMISSION CONTROL SYSTEM: ON-VEHICLE INSPECTION (2011 RAV4)		

ON-VEHICLE INSPECTION

1. CHECK FUEL CUT-OFF RPM



(a) Increase the engine speed to at least 3500 rpm.

(b) Use a sound scope to check for injector operating noise.

(c) Check that the operating sounds stop momentarily and then resume when the accelerator pedal is released.

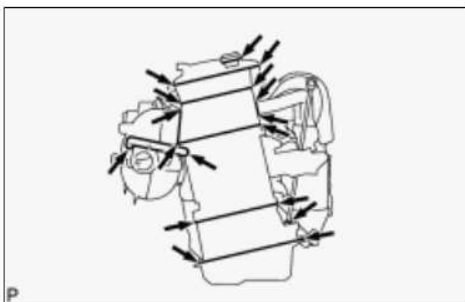
HINT:

Measure with the A/C off.

Fuel return rpm:

1400 rpm

2. CHECK FOR LEAK



(a) Visually check that the hoses, connections and gaskets have no cracks, leaks or damage.

NOTICE:

- Detachment or other problems with the engine oil dipstick, 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 an engine failure or engine malfunctions.

If the result is not as specified, replace parts as necessary.

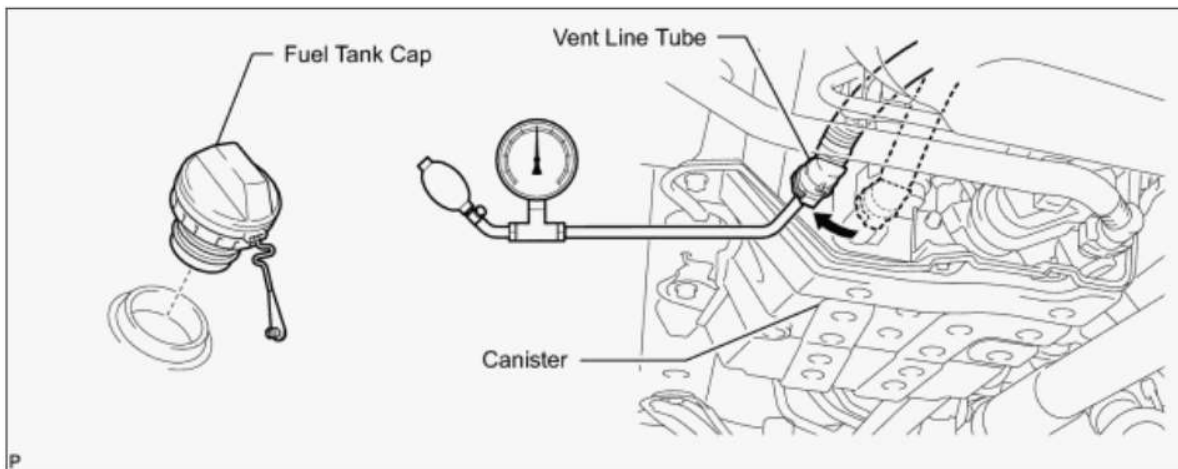
3. CHECK LINE AND CONNECTORS

(a) Visually check for loose connections, sharp bends or damage.

4. CHECK FUEL TANK ASSEMBLY

- (a) Visually check for deformation, cracks or fuel leakage.

5. CHECK FUEL TANK AND VENT LINE



- (a) Disconnect the vent line tube from the canister.
 (b) Connect a pressure gauge to the vent line tube.
 (c) Apply 4 kPa (0.04 kgf/cm², 0.6 psi) of pressure to the vent line of the fuel tank.

HINT:

Perform this inspection with the fuel tank less than 90% full. When the fuel tank is full, the fuel cutoff valve closes and pressure is released through the 1.5 mm orifice. As a result, when the fuel tank cap is removed, the pressure does not decrease smoothly.

- (d) Check that the fuel tank pressure is maintained for some time, and does not decrease immediately.

HINT:

If the pressure decreases immediately, one of the following may be the cause:

- The fuel tank cap is not completely tightened.
- The fuel tank cap is damaged.
- Air is leaking from the vent line.
- The fuel tank is damaged.

- (e) When the fuel tank cap is removed, check that pressure is released smoothly.

HINT:

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

- (f) Reconnect the vent line tube to the canister.

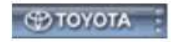
6. CHECK AIR INLET LINE

- (a) Disconnect the air inlet line hose from the charcoal canister.
 (b) Check that air flows freely into the air inlet line.

HINT:

If air does not flow freely into the air inlet line, repair or replace it.

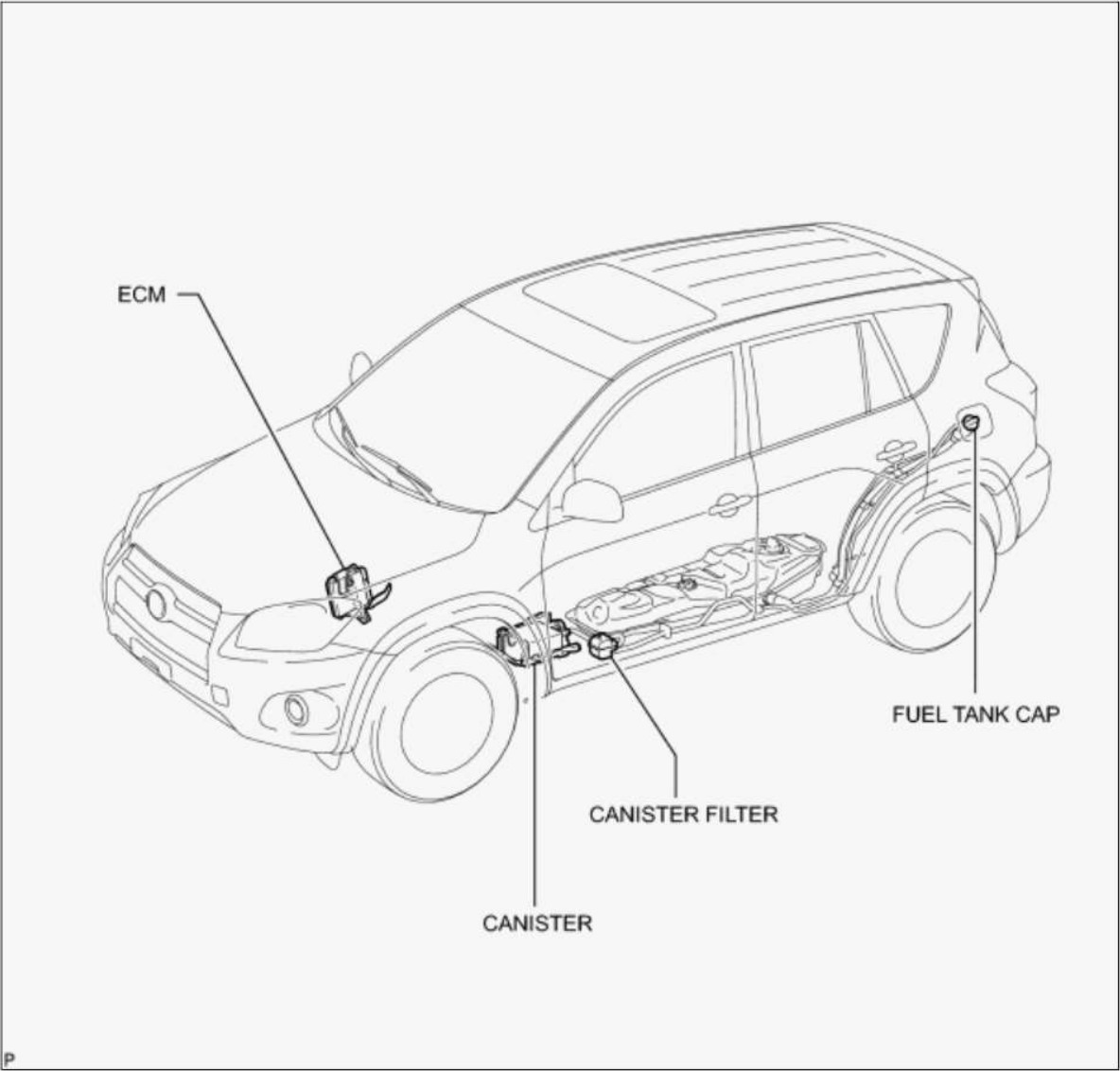
(c) Reconnect the air inlet line hose to the charcoal canister.



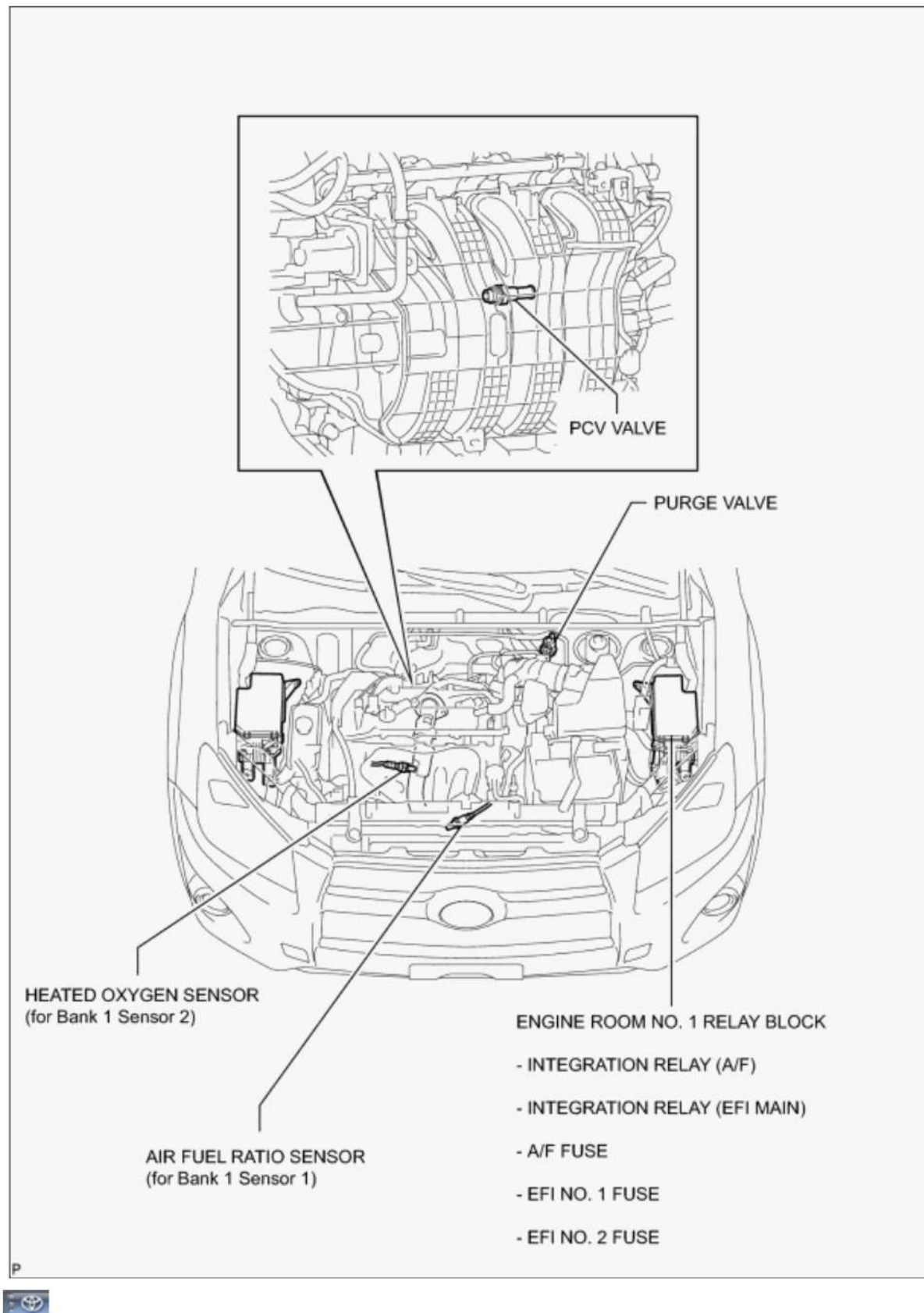
Last Modified: 9-7-2011	6.4 R	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RLQ02EX
Title: 2AR-FE EMISSION CONTROL: EMISSION CONTROL SYSTEM: PARTS LOCATION (2011 RAV4)		

PARTS LOCATION

ILLUSTRATION

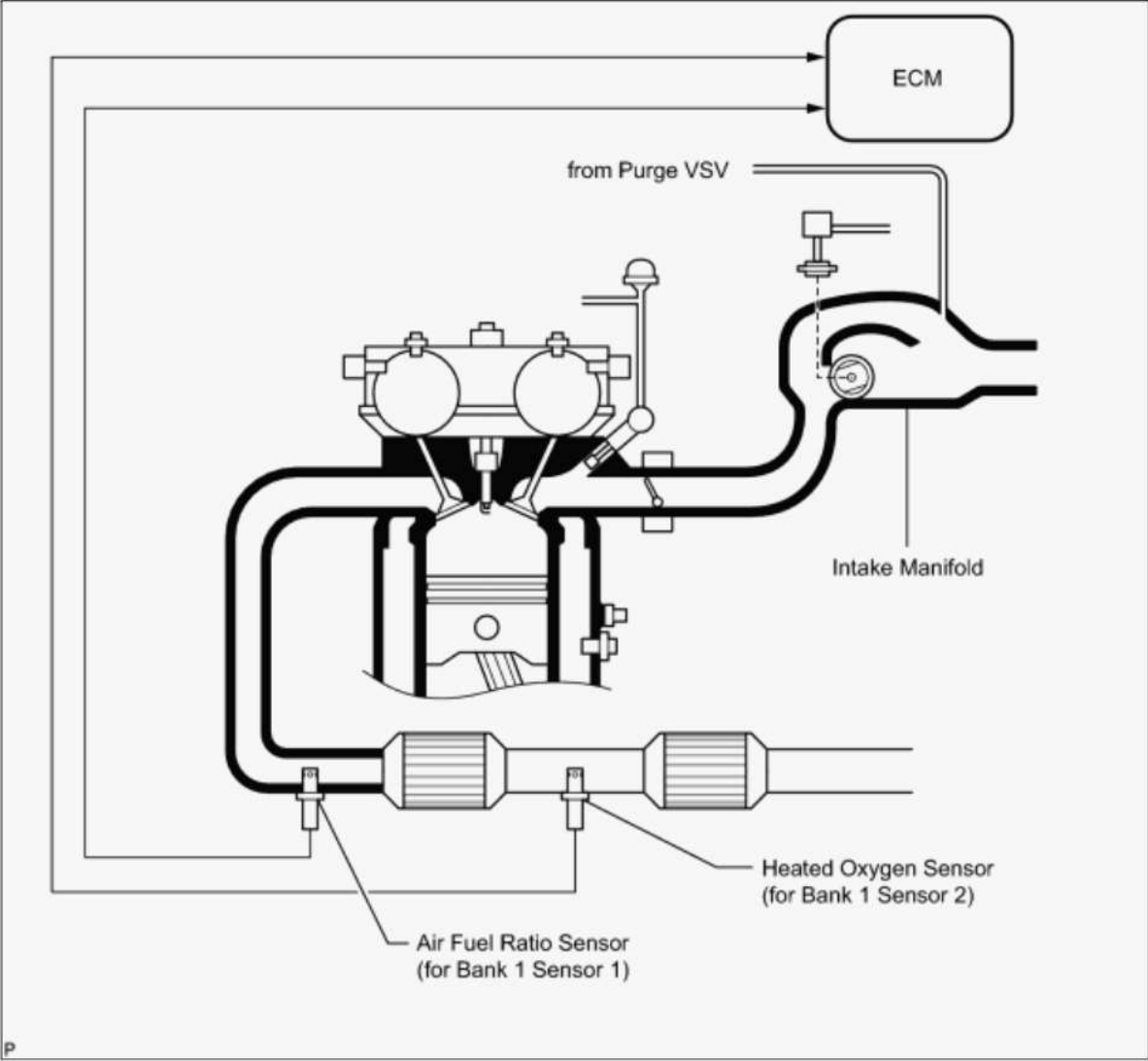


ILLUSTRATION

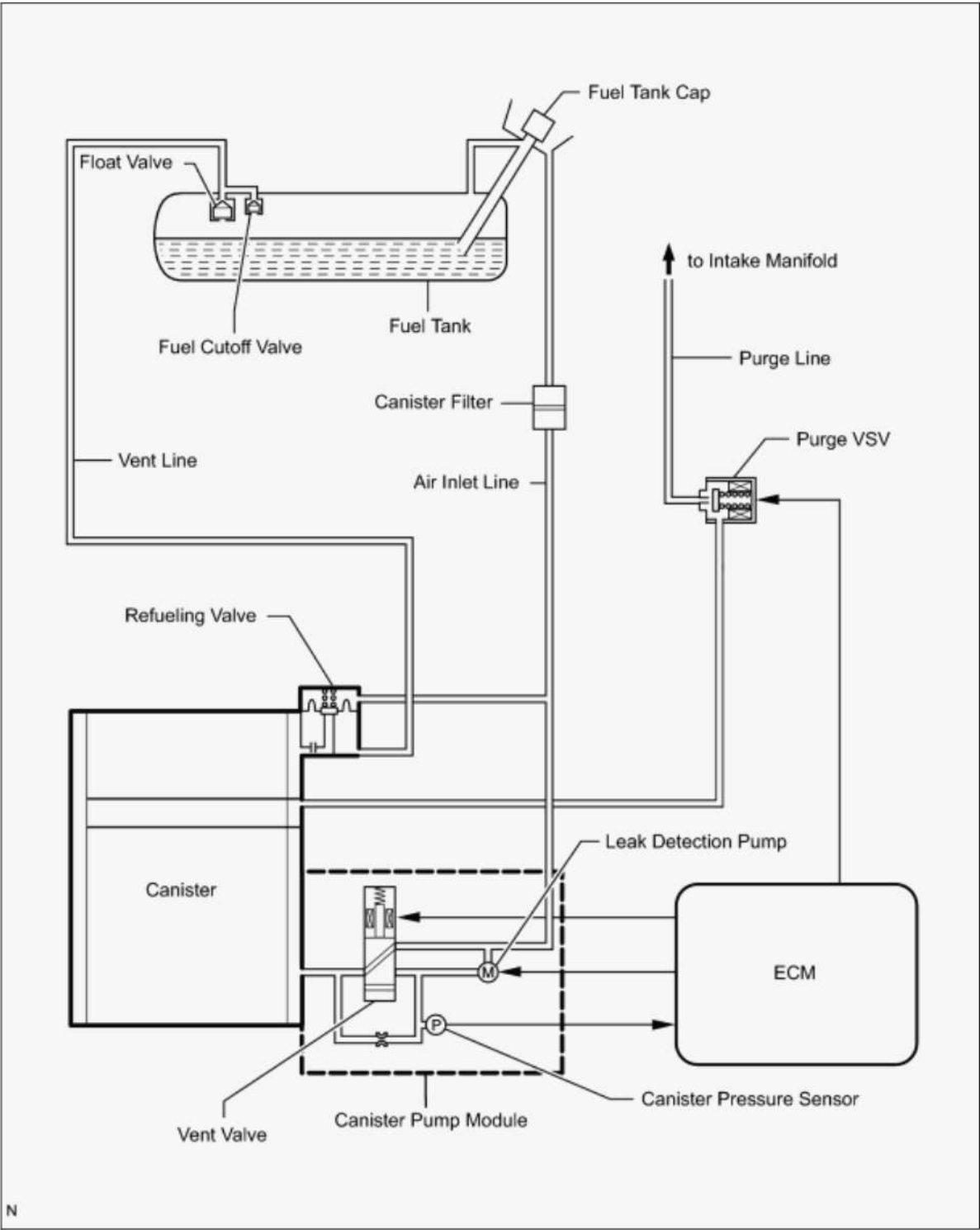


Last Modified: 9-7-2011	6.4 U	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RLR02FX
Title: 2AR-FE EMISSION CONTROL: EMISSION CONTROL SYSTEM: SYSTEM DIAGRAM (2011 RAV4)		

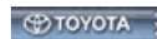
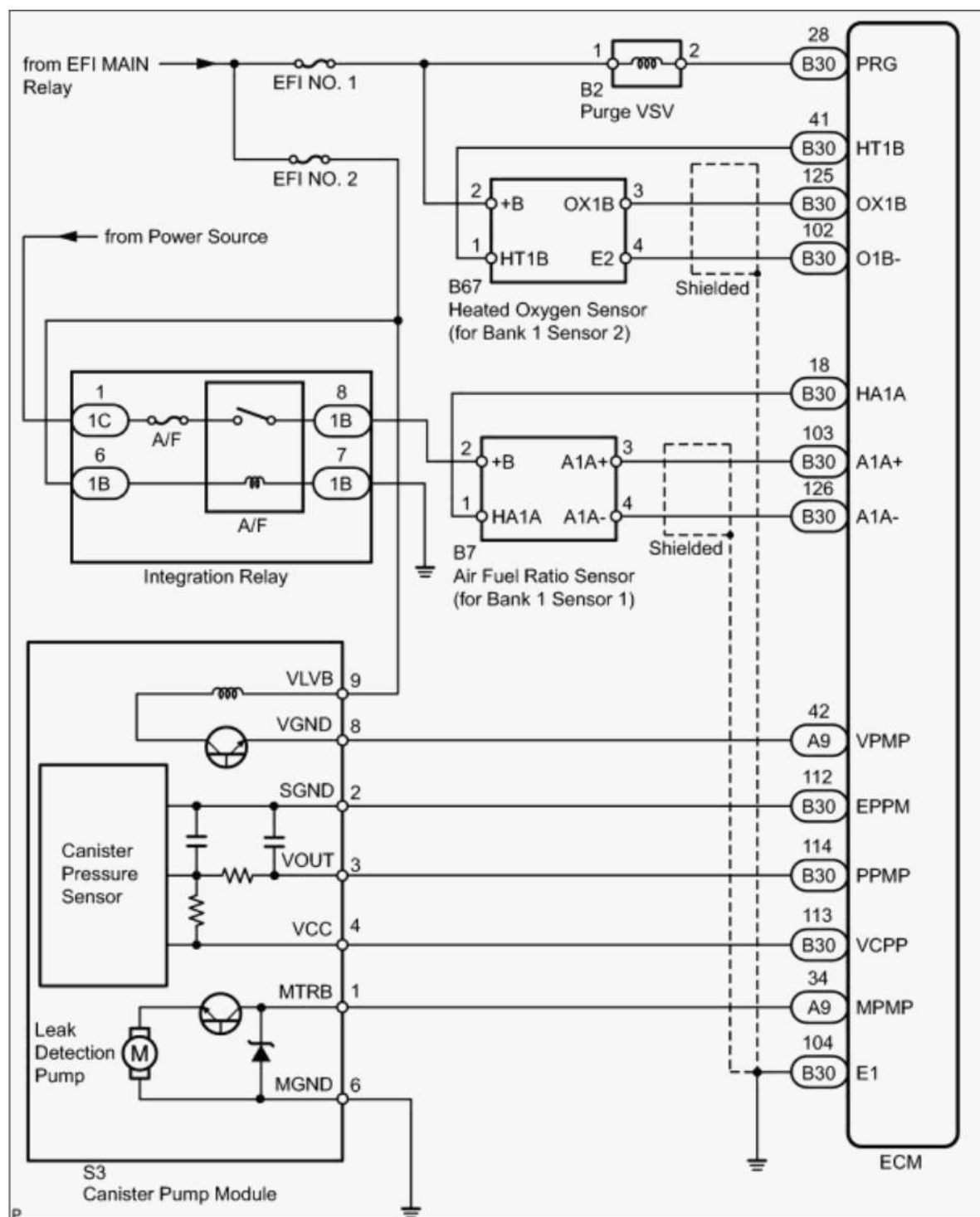
SYSTEM DIAGRAM



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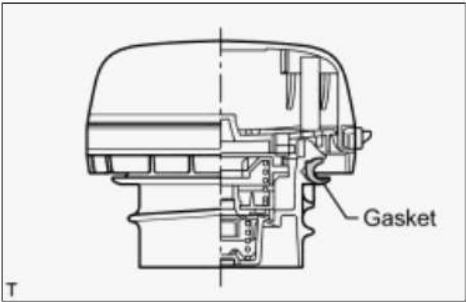


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Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001ROS02AX
Title: 2AR-FE EMISSION CONTROL: FUEL TANK CAP: INSPECTION (2011 RAV4)		

INSPECTION



1. INSPECT FUEL TANK CAP ASSEMBLY

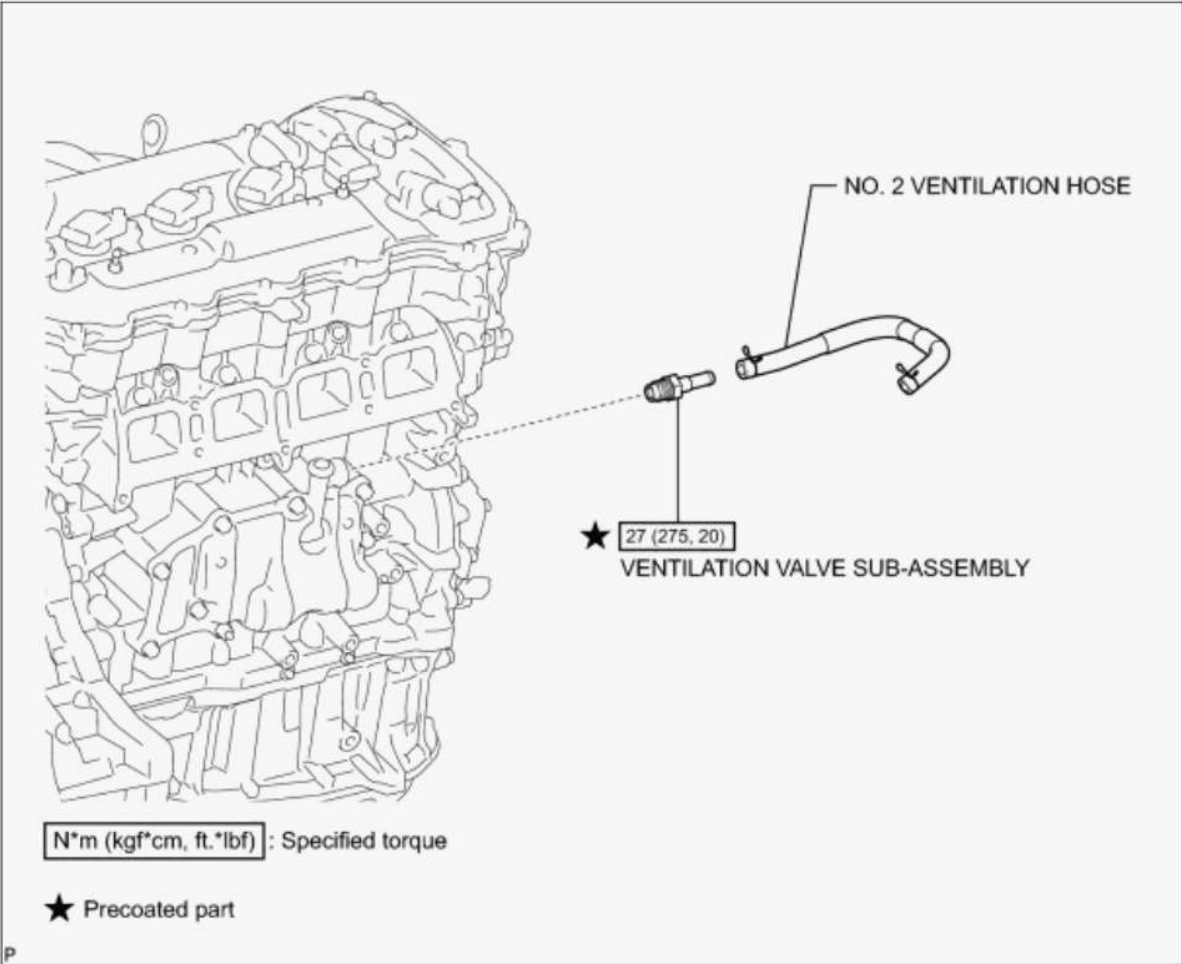
- (a) Visually check that the cap and gasket are not deformed or damaged.
- If the result is not as specified, replace the fuel tank cap assembly.



Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RN102FX
Title: 2AR-FE EMISSION CONTROL: PCV VALVE: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION

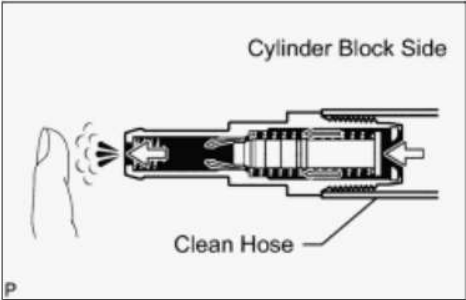


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Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RN002GX
Title: 2AR-FE EMISSION CONTROL: PCV VALVE: INSPECTION (2011 RAV4)		

INSPECTION

1. INSPECT VENTILATION VALVE SUB-ASSEMBLY



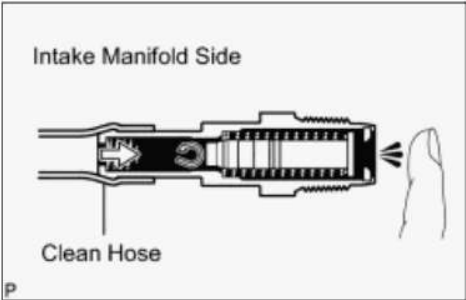
(a) Install a clean hose to the ventilation valve.

- (b) Check the ventilation valve operation.
- (1) Blow air into the cylinder block side and check that air passes through easily.
- If the result is not as specified, replace the ventilation valve sub-assembly.

CAUTION:

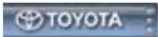
Do not suck air through the valve.

Petroleum substances inside the valve are hazardous to your health.



- (2) Blow air into the intake manifold side and check that air passes through with difficulty.
- If the result is not as specified, replace the ventilation valve sub-assembly.

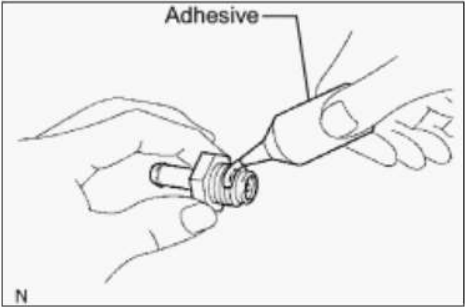
(c) Remove the clean hose from the ventilation valve.



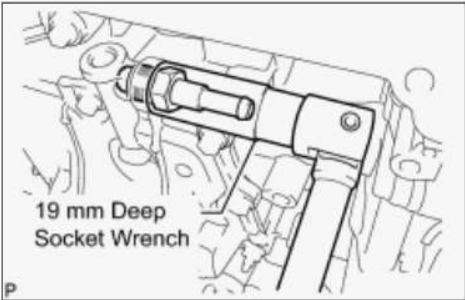
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RMZ02SX
Title: 2AR-FE EMISSION CONTROL: PCV VALVE: INSTALLATION (2011 RAV4)		

INSTALLATION

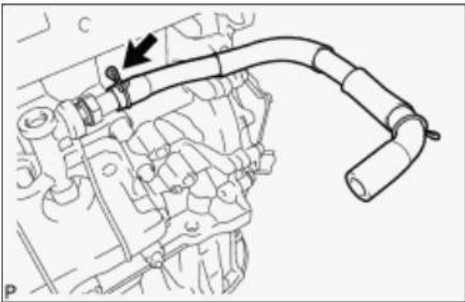
1. INSTALL VENTILATION VALVE SUB-ASSEMBLY



- (a) Apply adhesive to 2 or 3 threads of the ventilation valve.
- Adhesive:
Toyota genuine adhesive 1324, three bond 1324 or equivalent



- (b) Using a 19 mm deep socket wrench, install the ventilation valve.
- Torque: 27 N·m (275 kgf·cm, 20ft·lbf)**

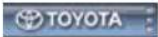


- (c) Connect the No. 2 ventilation hose to the ventilation valve.

2. INSTALL INTAKE MANIFOLD

- (a) Install the intake manifold [INFO](#) .

3. INSPECT FOR OIL LEAK [INFO](#)



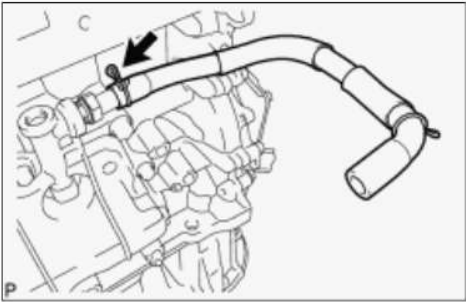
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RN202QX
Title: 2AR-FE EMISSION CONTROL: PCV VALVE: REMOVAL (2011 RAV4)		

REMOVAL

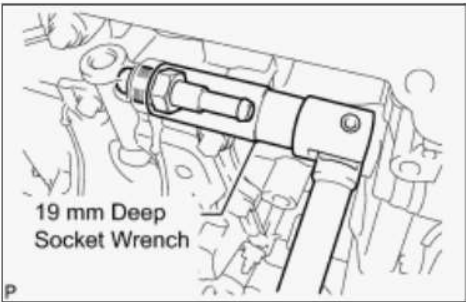
1. REMOVE INTAKE MANIFOLD

(a) Remove the intake manifold  .

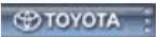
2. REMOVE VENTILATION VALVE SUB-ASSEMBLY



(a) Disconnect the No. 2 ventilation hose from the ventilation valve.



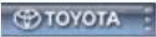
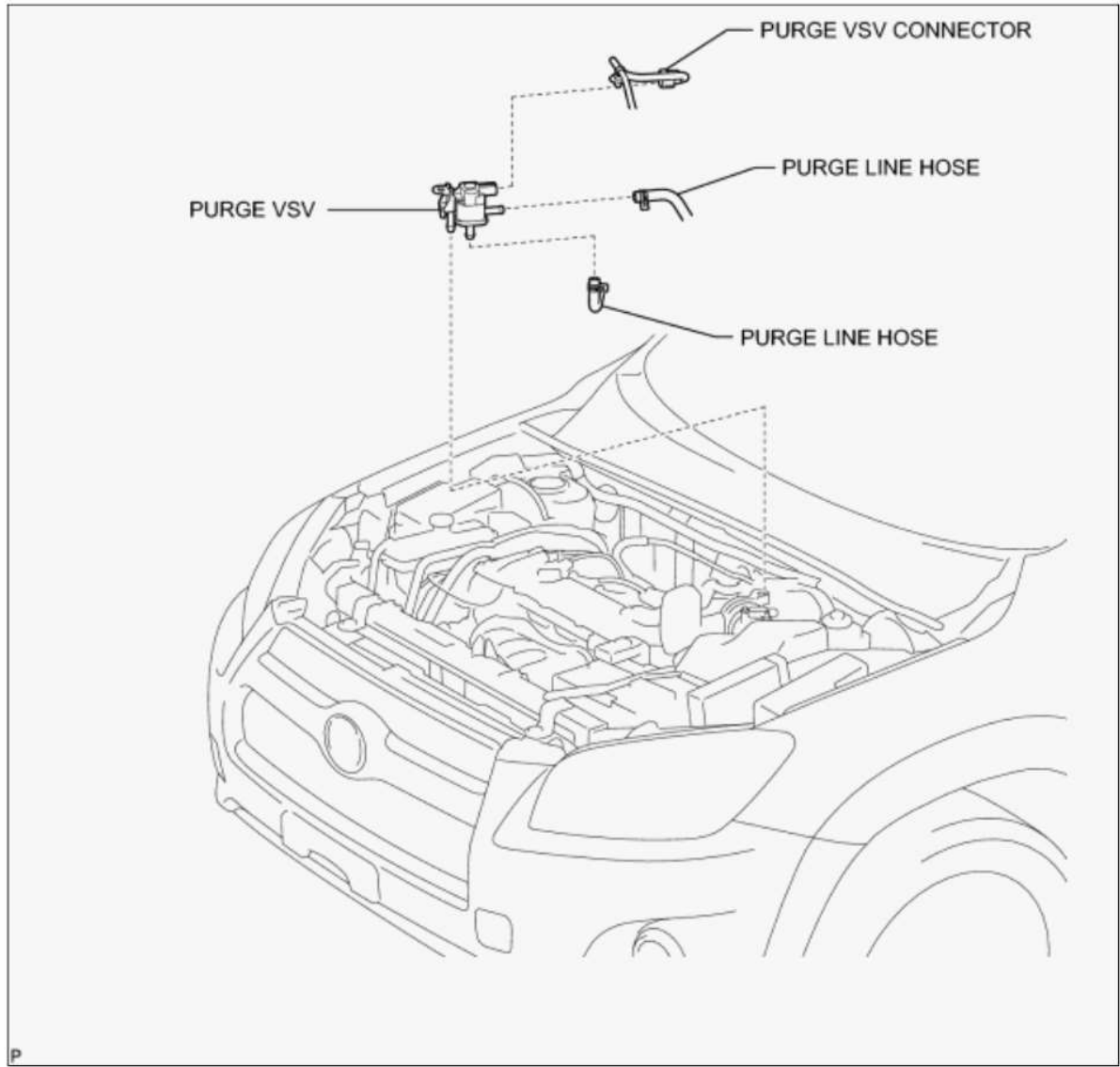
(b) Using a 19 mm deep socket wrench, remove the ventilation valve.



Last Modified: 9-7-2011	6.4 K	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RMX02KX
Title: 2AR-FE EMISSION CONTROL: PURGE VALVE: COMPONENTS (2011 RAV4)		

COMPONENTS

ILLUSTRATION

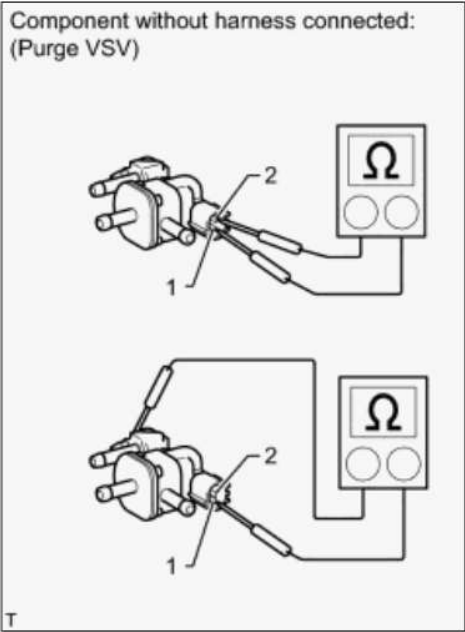


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Last Modified: 9-7-2011	6.4 G	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RMW02GX
Title: 2AR-FE EMISSION CONTROL: PURGE VALVE: INSPECTION (2011 RAV4)		

INSPECTION

1. INSPECT PURGE VSV



(a) Measure the resistance according to the value(s) in the table below.

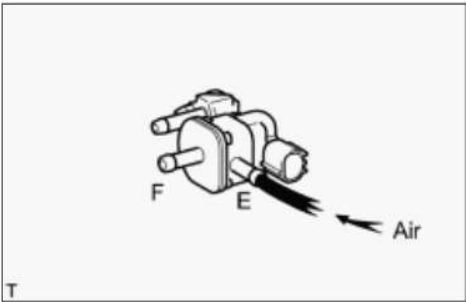
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	20°C (68°F)	23 to 26 Ω
1 - VSV body ground	Always	10 MΩ or higher
2 - VSV body ground		10 MΩ or higher

If the result is not as specified, replace the purge VSV.

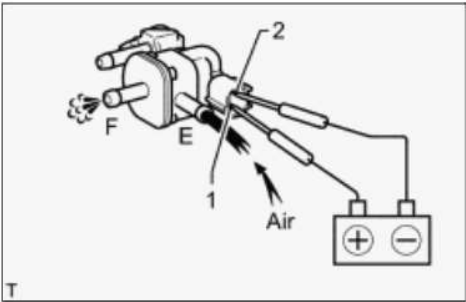
(b) Check the operation of the purge VSV.

(1) Check that air does not flow from port F when air is applied to port E.



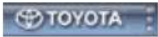
(2) Apply battery voltage to the connector, and check the VSV operation.

OK:



MEASUREMENT CONDITION	SPECIFIED CONDITION
Battery positive (+) → Terminal 1 Battery negative (-) → Terminal 2	Air flows from port E to port F

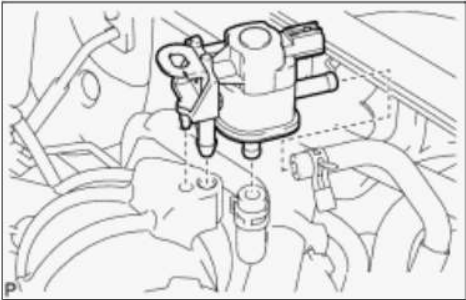
If the result is not as specified, replace the purge VSV.



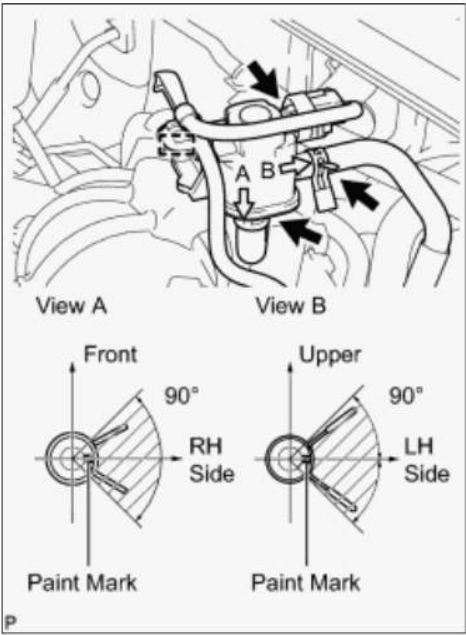
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RMV02ZX
Title: 2AR-FE EMISSION CONTROL: PURGE VALVE: INSTALLATION (2011 RAV4)		

INSTALLATION

1. INSTALL PURGE VSV



(a) Install the purge VSV to the air cleaner hose.

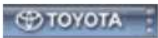


(b) Connect the 2 purge line hoses to the purge VSV.

HINT:
The direction of the hose clamp is indicated in the illustration.

- (c) Connect the wire harness clamp.
- (d) Connect the purge VSV connector.

2. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL



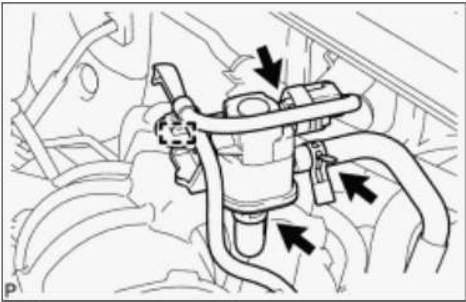
Last Modified: 9-7-2011	6.4 A	From: 201008
Model Year: 2011	Model: RAV4	Doc ID: RM000001RMY02YX
Title: 2AR-FE EMISSION CONTROL: PURGE VALVE: REMOVAL (2011 RAV4)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

2. REMOVE PURGE VSV



(a) Disconnect the purge VSV connector.

- (b) Disconnect the wire harness clamp.
- (c) Disconnect the 2 purge line hoses from the purge VSV.
- (d) Remove the purge VSV from the air cleaner hose.

