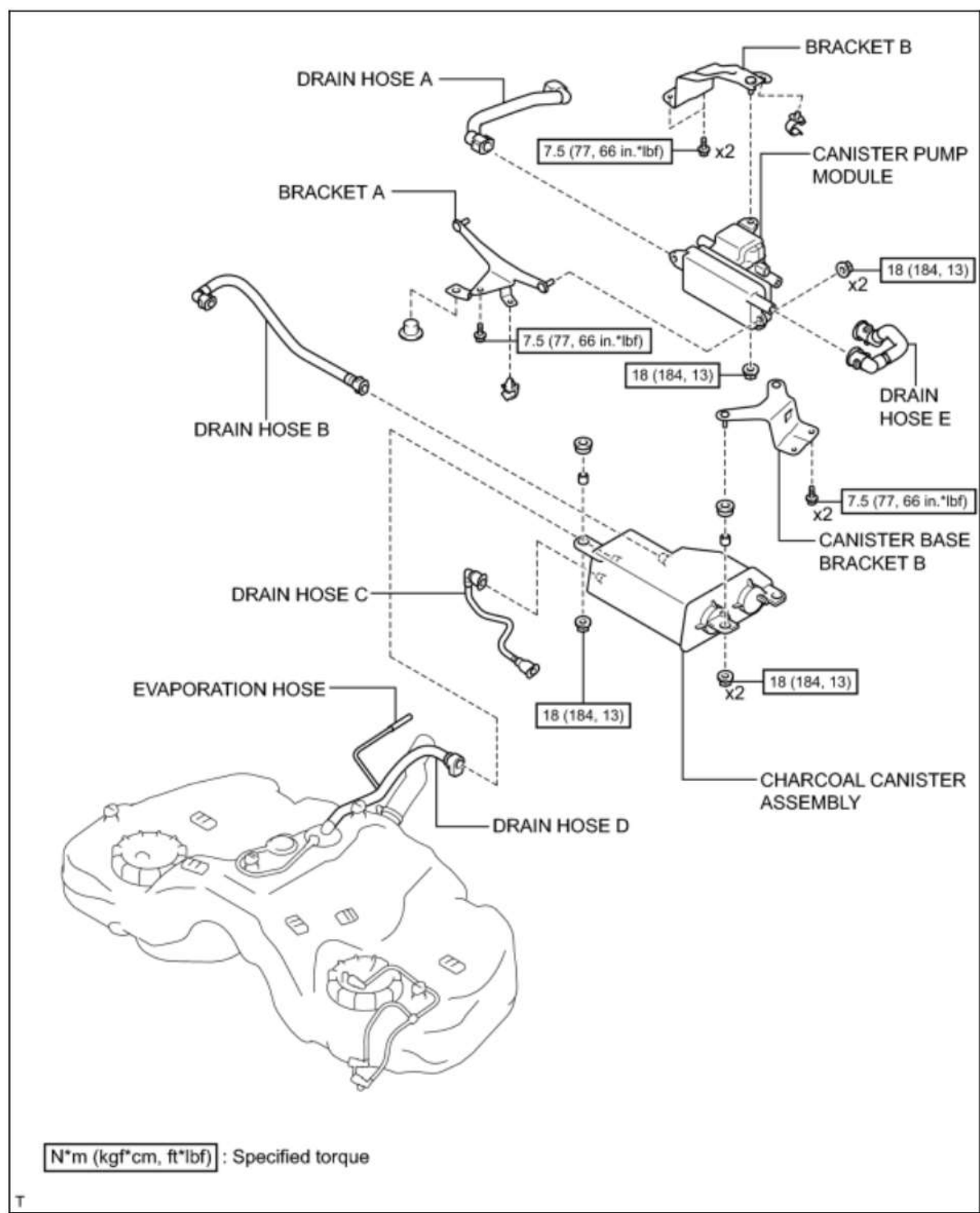


Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0P009X
Title: FA20 EMISSION CONTROL: CANISTER: COMPONENTS (2013 FR-S)		

COMPONENTS

ILLUSTRATION



Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0O00CX
Title: FA20 EMISSION CONTROL: CANISTER: INSPECTION (2013 FR-S)		

INSPECTION

1. INSPECT CHARCOAL CANISTER ASSEMBLY

NOTICE:

When applying vacuum, the needle may waver but, as long as the needle returns to its initial position immediately, it is not a malfunction.

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

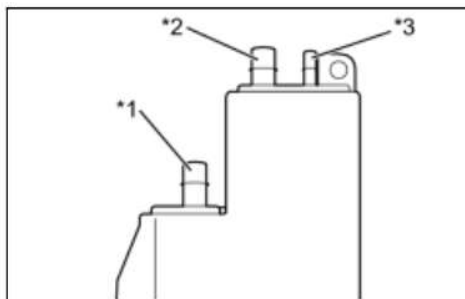
If cracks or damage is found, replace the charcoal canister assembly.

(b) Check the air flow.

(1) Using a vacuum pump, check the air flow according to the procedures below.

Text in Illustration

*1	Port A
*2	Port B
*3	Port C



OK:

MEASUREMENT CONDITION	SPECIFIED CONDITION
Ports B and C closed, and vacuum applied to port A (2 kPa (15 mmHg, 0.590 in.Hg))	No air leaks
Port C closed, and vacuum applied to port A (2 kPa (15 mmHg, 0.590 in.Hg))	Air flows from port B
Port C closed and air blown into port A (5 kPa (0.1 kgf/cm ² , 0.725 psi))	Air flows from port B
Air blown into port A (5 kPa (0.1 kgf/cm ² , 0.725 psi))	Air flows from ports B and C

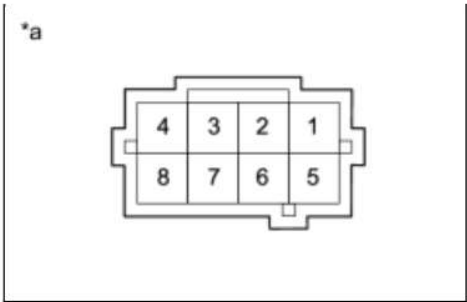
If the result is not as specified, replace the charcoal canister assembly.

2. INSPECT CANISTER PUMP MODULE

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

Standard Resistance:

--	--	--

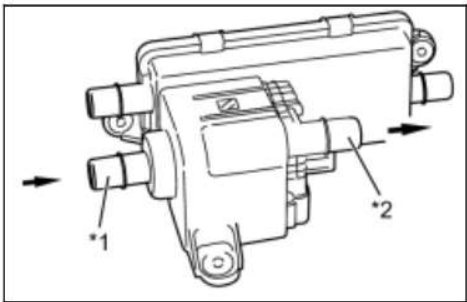


TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 5	20°C (68°F)	25 to 30 Ω
1 - 5	60°C (140°F)	27 to 35 Ω

Text in Illustration

*a	Component without harness connected (Canister Pump Module)
----	---

(b) Check the operation of the check valve.

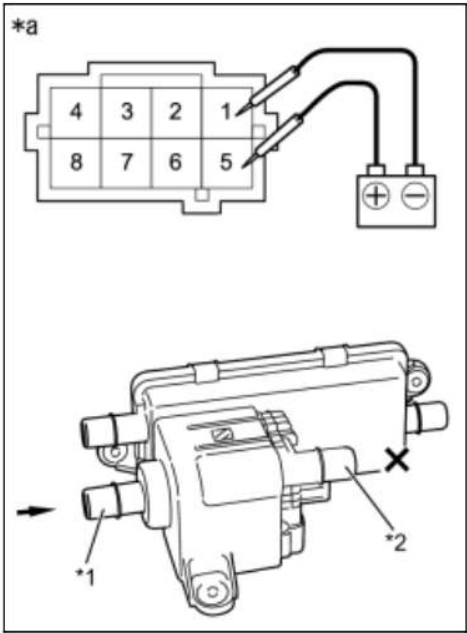


(1) Install a clean hose to the purge valve.

(2) Check that air flows from port A to port B.

Text in Illustration

*1	Port A
*2	Port B

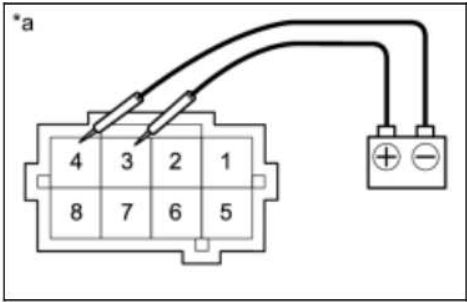


(3) Connect the positive (+) lead of the battery to terminal 1 and the negative (-) lead to terminal 5.

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

Text in Illustration

*1	Port A
*2	Port B
*a	Component without harness connected (Canister Pump Module)



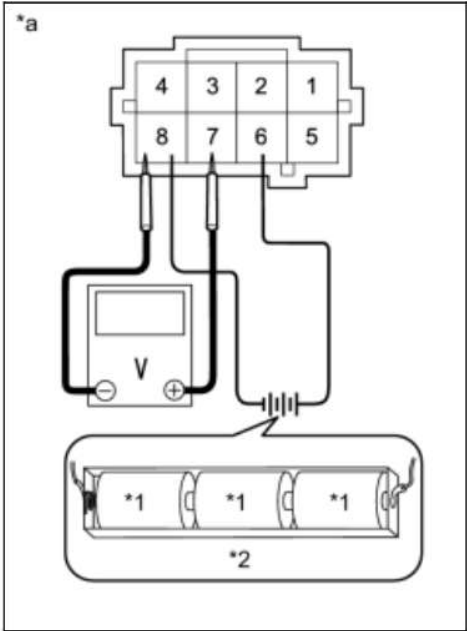
(5) Connect the positive (+) lead of the battery to terminal 3 and the negative (-) lead to terminal 4.

Text in Illustration

*a	Component without harness connected (Canister Pump Module)
----	---

(6) Check that the vacuum pump operates.

NOTICE:
Do not operate vacuum pump for 5 minutes or more.



(7) Connect the positive (+) lead of the battery to terminal 6 and the negative (-) lead to terminal 8.

Text in Illustration

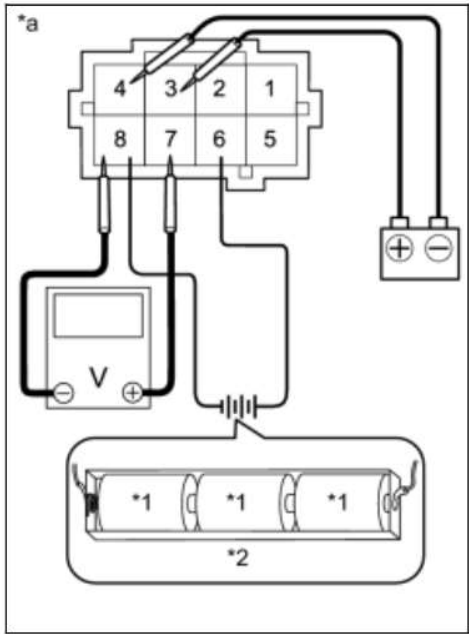
*1	1.5 V
*2	4.8 to 5.2 V
*a	Component without harness connected (Canister Pump Module)

(8) Measure the voltage according to the value in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

7 - 8	25°C (77°F)	3.5 V
-------	-------------	-------



(9) Connect the positive (+) lead of the battery to terminal 6 and the negative (-) lead to terminal 8.

Text in Illustration

*1	1.5 V
*2	4.8 to 5.2 V
*a	Component without harness connected (Canister Pump Module)

(10) Connect the positive (+) lead of the battery to terminal 3 and the negative (-) lead to terminal 4. Check that the voltage drops slightly from 3.5 volts.

Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0N00CX
Title: FA20 EMISSION CONTROL: CANISTER: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL CHARCOAL CANISTER ASSEMBLY

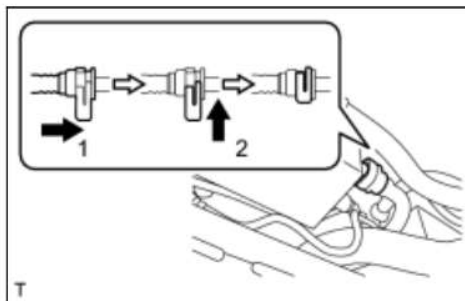
- (a) Install the canister base bracket to the charcoal canister assembly with 2 nuts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

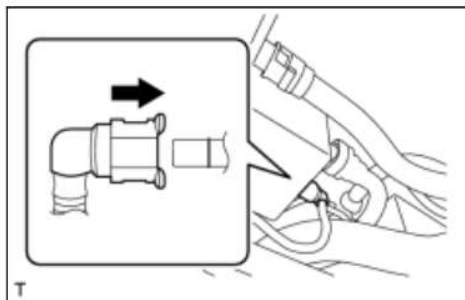
- (b) Install the charcoal canister assembly with canister base bracket with the 2 bolts and the nut.

Bolt - Torque: 7.5 N·m (77 kgf·cm, 66in·lbf)

Nut - Torque: 18 N·m (184 kgf·cm, 13ft·lbf)



- (c) Connect the drain hose D as indicated by the arrows, in the order shown in the illustration.



- (d) Connect the drain hose C as shown in the illustration.

2. INSTALL CANISTER PUMP MODULE

- (a) Install the drain hose E.
 (b) Connect the drain hose A and the drain hose B.
 (c) Engage the clamp.
 (d) Install the nuts and bracket B.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

- (e) Install the 2 nuts and bracket A.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

- (f) Engage the clip.
 (g) Install the check valve with 3 bolts.

Torque: 7.5 N·m (77 kgf·cm, 66in·lbf)

- (h) Connect the evaporation hose to the fuel pipe assembly.
- (i) Engage the clip.
- (j) Connect the drain hose A to the fuel filler pipe.
- (k) Connect the drain hose B to the charcoal canister assembly.

3. INSTALL REAR SUSPENSION MEMBER SUB-ASSEMBLY

INFO

4. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

INFO



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0Q00CX
Title: FA20 EMISSION CONTROL: CANISTER: REMOVAL (2013 FR-S)		

REMOVAL

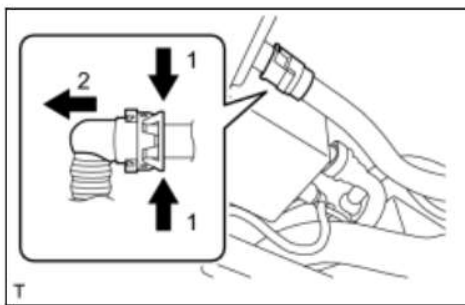
1. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

INFO

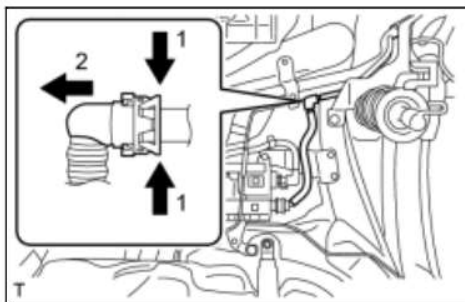
2. REMOVE REAR SUSPENSION MEMBER SUB-ASSEMBLY

INFO

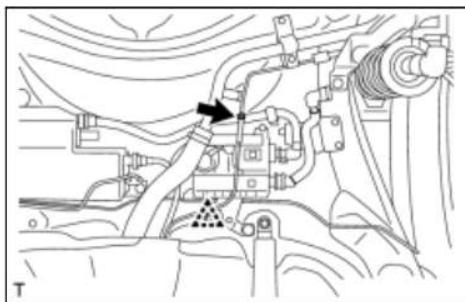
3. REMOVE CANISTER PUMP MODULE



(a) Disconnect the drain hose B as indicated by the arrows, in the order shown in the illustration.

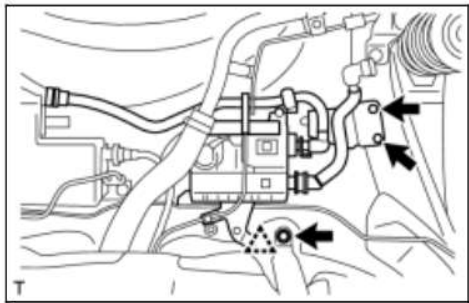


(b) Disconnect the drain hose A as indicated by the arrows, in the order shown in the illustration.



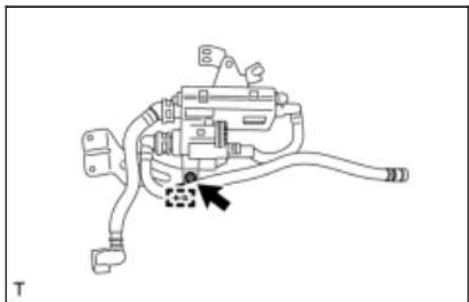
(c) Disconnect the evaporation hose from the fuel filler pipe assembly.

(d) Disengage the clip.



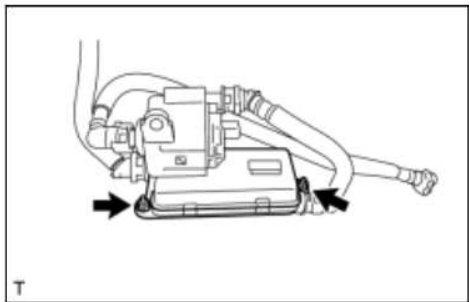
(e) Remove the 3 bolts and check valve.

(f) Disengage the clip.

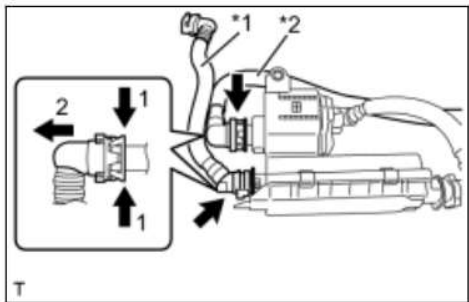


(g) Disengage the clamp.

(h) Remove the nut and bracket B.



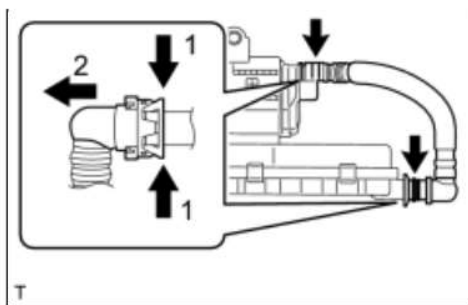
(i) Remove the 2 nuts and bracket A.



(j) Disconnect the drain hose A and drain hose B as indicated by the arrows, in the order shown in the illustration.

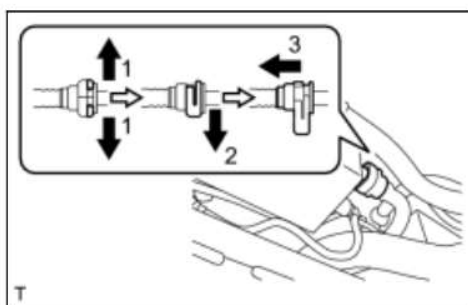
Text in Illustration

*1	Drain hose A
*2	Drain hose B

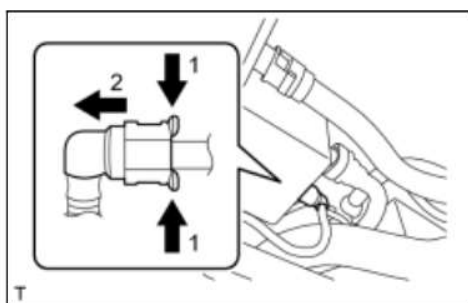


- (k) Disconnect the 2 quick connector as indicated by the arrows, in the order shown in the illustration, and remove the drain hose E.

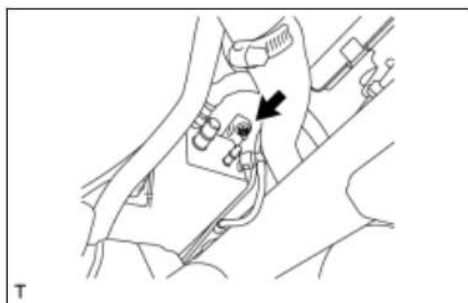
4. REMOVE CHARCOAL CANISTER ASSEMBLY



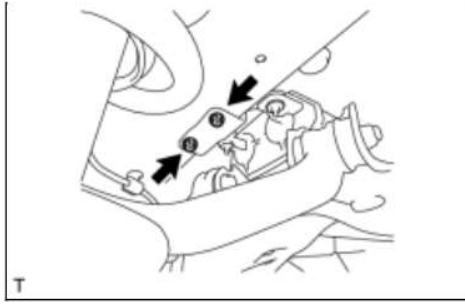
- (a) Disconnect the drain hose D as indicated by the arrows, in the order shown in the illustration.



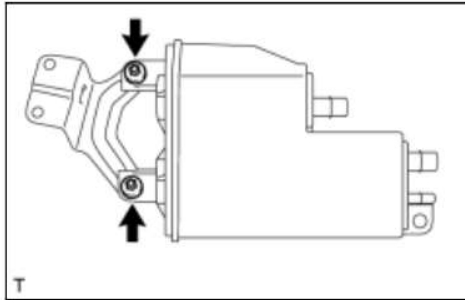
- (b) Disconnect the drain hose C as indicated by the arrows, in the order shown in the illustration.



- (c) Remove the nut.



(d) Remove the 2 bolts and charcoal canister assembly along with the canister base bracket B.



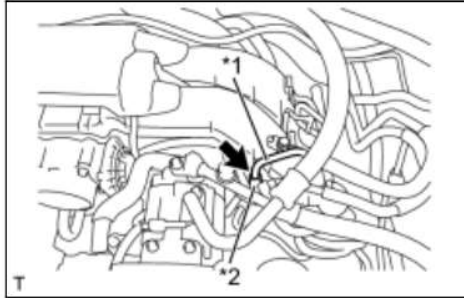
(e) Remove the 2 nuts and canister base bracket.



Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003IOJ009X
Title: FA20 EMISSION CONTROL: EMISSION CONTROL SYSTEM: ON-VEHICLE INSPECTION (2013 FR-S)		

ON-VEHICLE INSPECTION

1. CHECK PURGE VALVE



- (a) Disconnect the No. 2 fuel vapor feed hose (on the canister side) of the fuel pipe.

Text in Illustration

*1	Fuel pipe
*2	No.2 fuel vapor feed hose

- (b) Connect the Techstream to the DLC3.
 (c) Start the engine.
 (d) Turn the Techstream on.
 (e) Enter the following menus: Engine / Active Test / Activate the VSV for Evap Control.
 (f) When the purge valve is operated using the tester, check whether the port of the purge valve applies suction to your finger.

OK:

TESTER OPERATION	SPECIFIED CONDITION
Check valve: OFF	Purge valve has no suction
Check valve: ON	Purge valve has suction

If the result is not as specified, check the valve [INFO](#) , wire harness and ECM.

- (g) Connect the No. 2 fuel vapor feed hose (on the canister side) of the purge valve.

2. INSPECT FUEL CUT-OFF RPM

- (a) Start and warm up the engine.
 (b) Use a sound scope to check for injector operation noise.
 (c) Increase the engine speed to at least 3000 rpm.
 (d) Check that when the accelerator pedal is released, the injector operation noise stops momentarily and then resumes.

Standard:

ITEM	SPECIFIED CONDITION
Fuel cut off rpm	2500 rpm or more

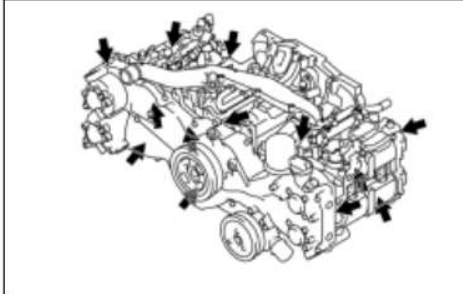
Fuel injection restart rpm

1400 rpm

If the result is not as specified, check the injector **INFO** , wire harness and ECM.

3. VISUALLY INSPECT HOSES, CONNECTIONS AND GASKETS EMISSION HOSE

(a) Check that there are no cracks, leaks or damage.



NOTICE:

- Detachment or other problems with the engine oil dipstick, filler cap, ventilation hose and other components may cause the engine to run improperly.
- Air suction caused by disconnections, looseness or cracks in the parts of the air induction system between the throttle with motor body assembly and cylinder head will cause engine failure or engine malfunctions.

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

4. CHECK HOSES AND CONNECTORS

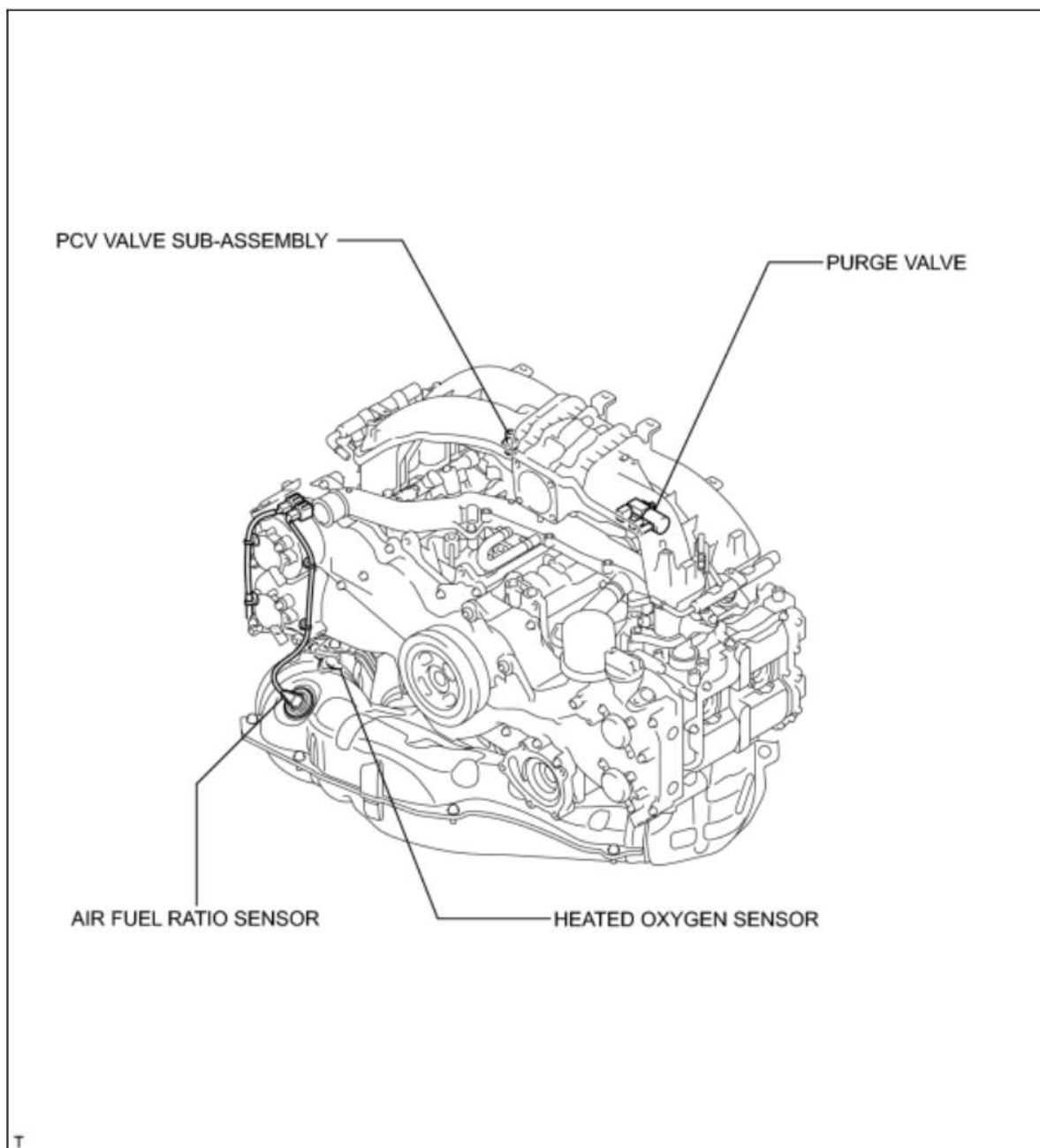
(a) Visually check for loose connections, sharp bends or damage.



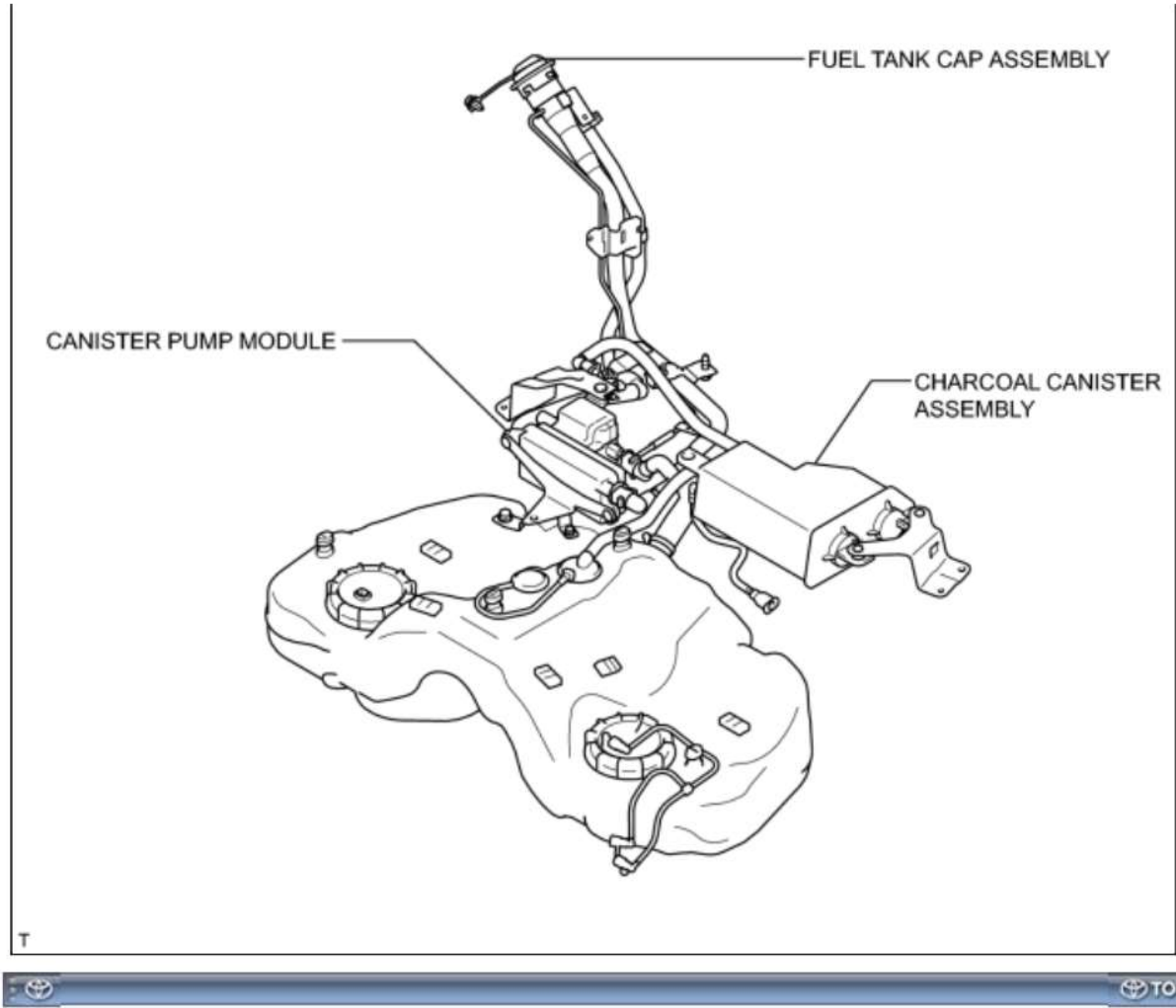
Last Modified: 3-27-2012	6.4 R	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0H009X
Title: FA20 EMISSION CONTROL: EMISSION CONTROL SYSTEM: PARTS LOCATION (2013 FR-S)		

PARTS LOCATION

ILLUSTRATION

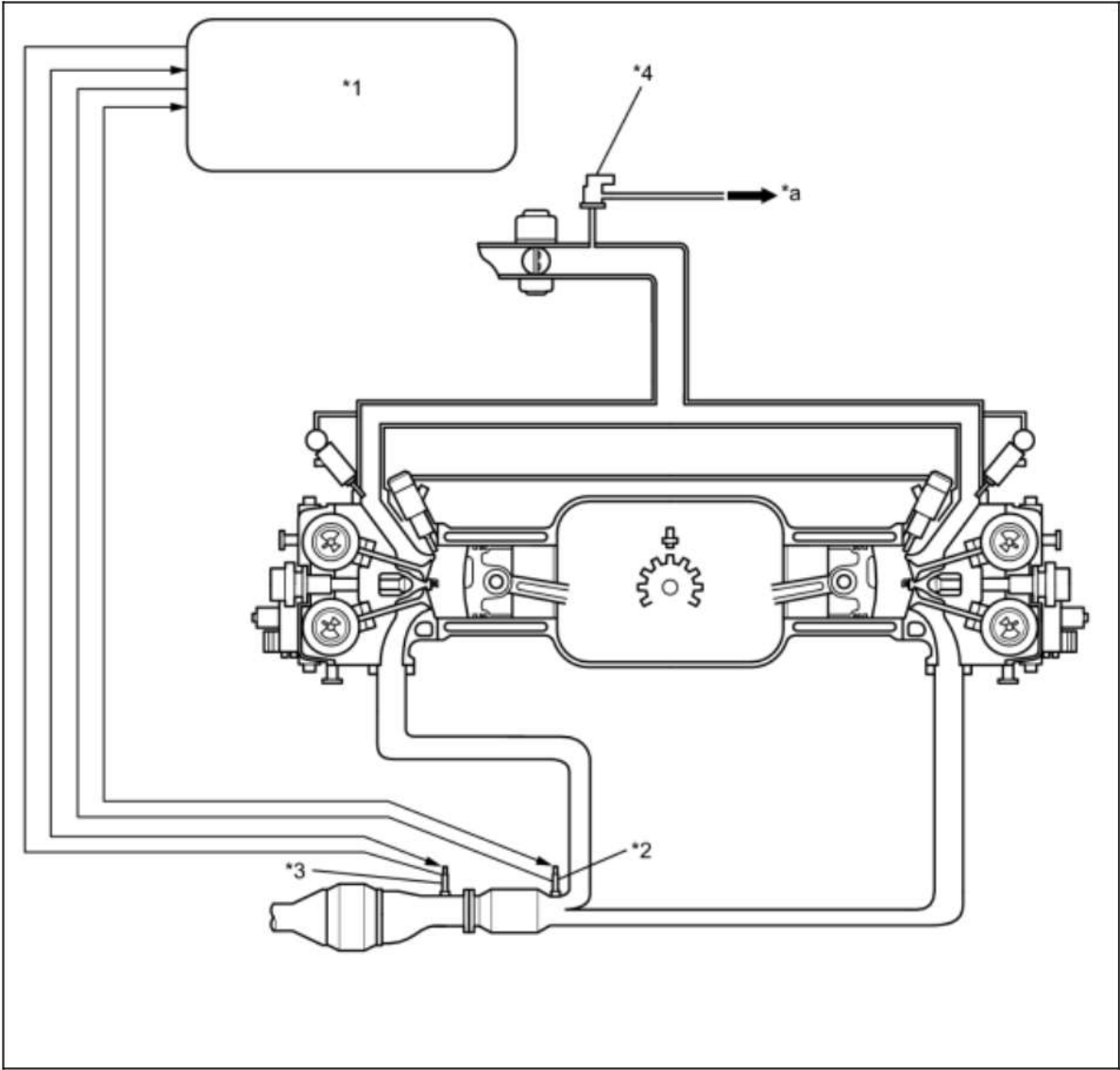


ILLUSTRATION



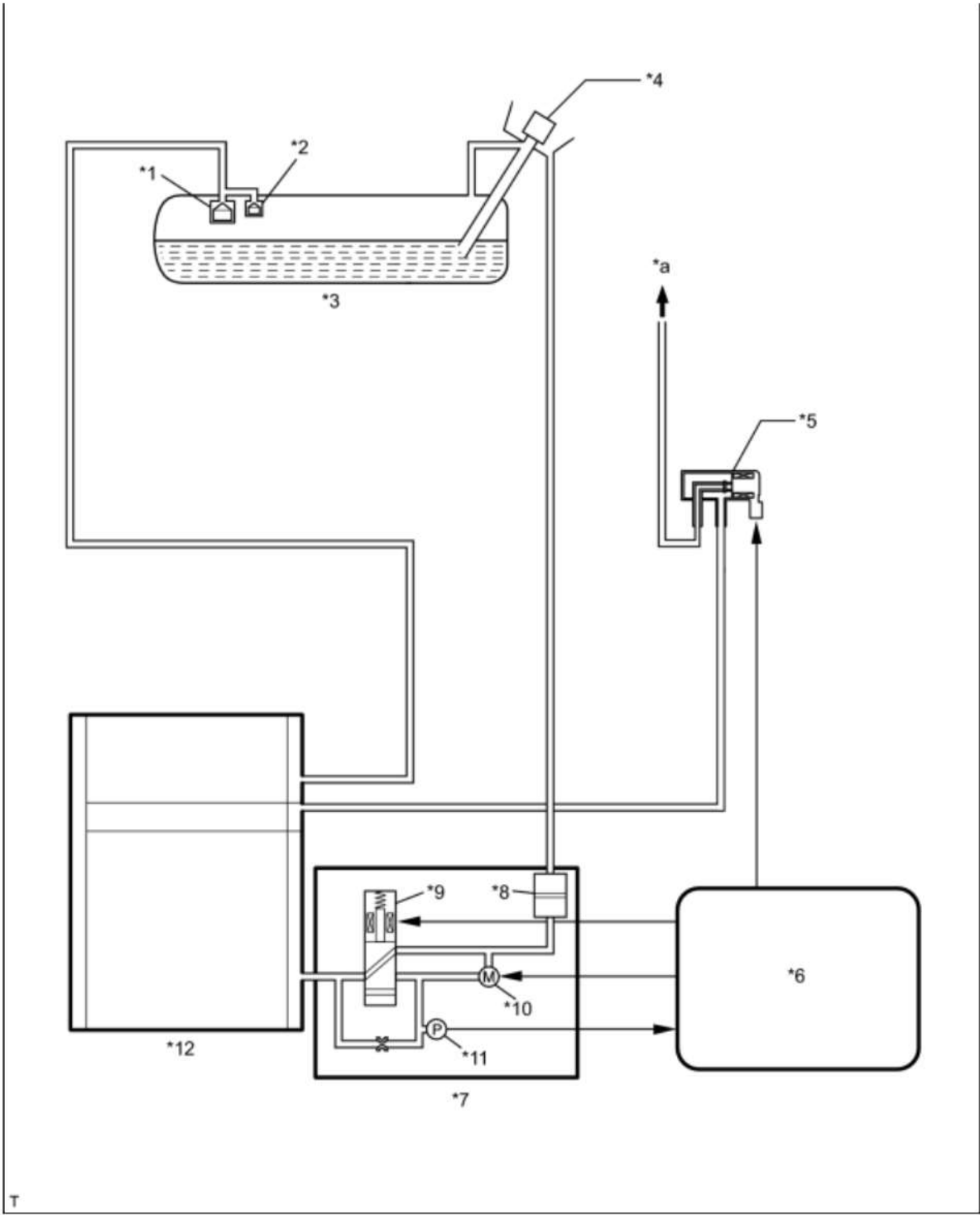
Last Modified: 3-27-2012	6.4 U	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0I009X
Title: FA20 EMISSION CONTROL: EMISSION CONTROL SYSTEM: SYSTEM DIAGRAM (2013 FR-S)		

SYSTEM DIAGRAM



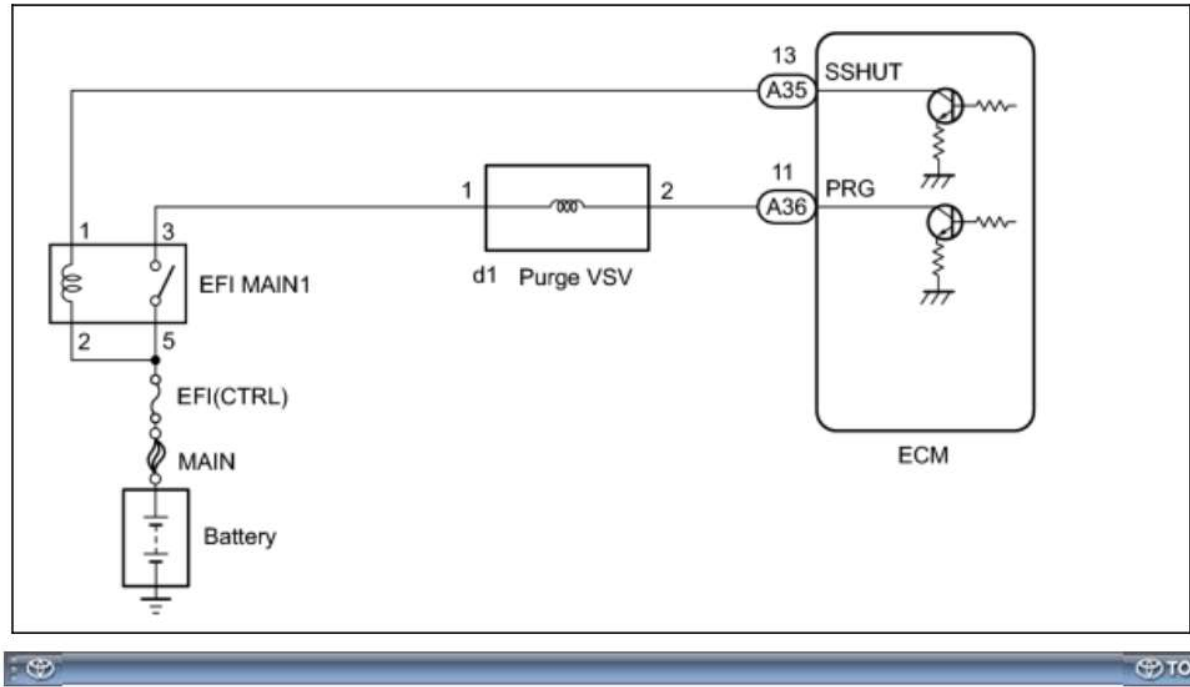
Text in illustration

*1	ECM	*2	Air Fuel Ratio Sensor
*3	Heated Oxygen Sensor	*4	Purge Valve
*a	to Charcoal Canister Assembly	-	-



Text in illustration

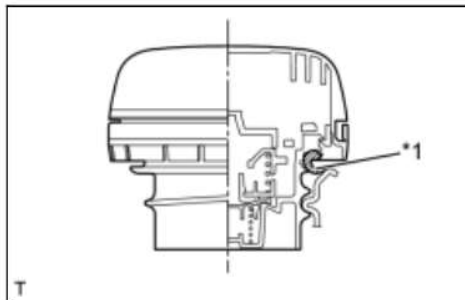
*1	Roll Over Valve	*2	Cut-off Valve
*3	Fuel Tank Assembly	*4	Fuel Tank Cap Assembly
*5	Purge Valve	*6	ECM
*7	Canister Pump Module	*8	Air Filter
*9	Vent Valve	*10	Pump Motor
*11	Canister Pressure Sensor	*12	Charcoal Canister Assembly
*a	to Intake Manifold	-	-



Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I3E009X
Title: FA20 EMISSION CONTROL: FUEL TANK CAP: INSPECTION (2013 FR-S)		

INSPECTION

1. INSPECT FUEL TANK CAP ASSEMBLY



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

Text in Illustration

*1	Gasket
----	--------

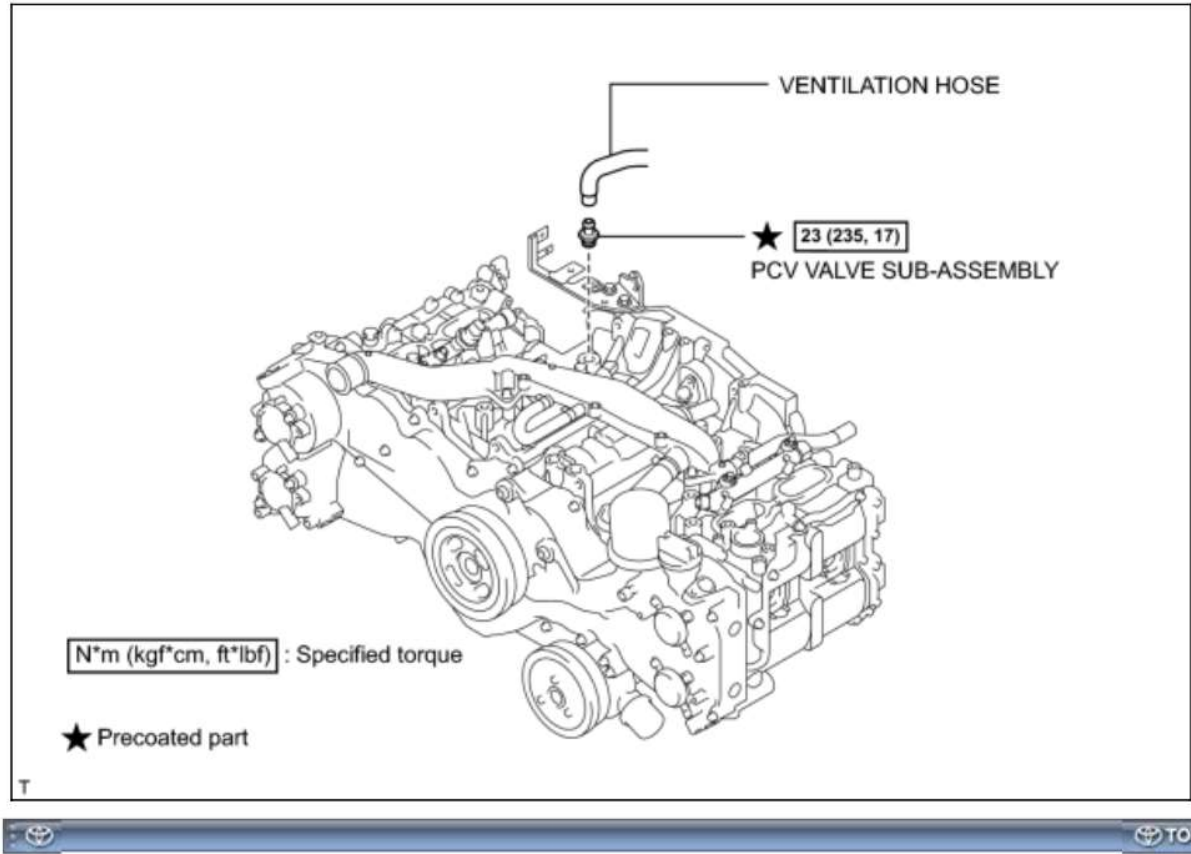
If necessary, replace the fuel tank cap assembly or gasket.



Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I3I00CX
Title: FA20 EMISSION CONTROL: PCV VALVE: COMPONENTS (2013 FR-S)		

COMPONENTS

ILLUSTRATION

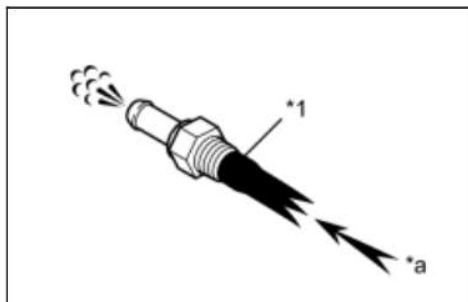


Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I3H00HX
Title: FA20 EMISSION CONTROL: PCV VALVE: INSPECTION (2013 FR-S)		

INSPECTION

1. INSPECT PCV VALVE SUB-ASSEMBLY

- (a) Install a clean hose to the PCV valve sub-assembly.
- (b) Check the PCV valve sub-assembly operation.



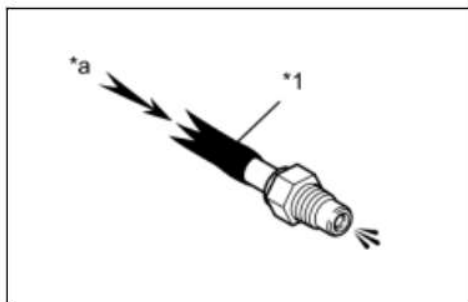
- (1) Blow air into the cylinder head side and check that air passes through easily.

Text in Illustration

*1	Clean Hose
*a	Air

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.

Text in Illustration

*1	Clean Hose
*a	Air

If the result is not as specified, replace the PCV valve sub-assembly.

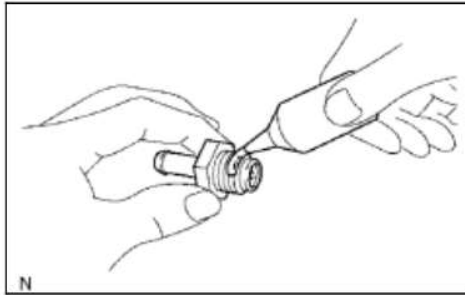
- (c) Remove the clean hose from the PCV valve sub-assembly.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I3G00CX
Title: FA20 EMISSION CONTROL: PCV VALVE: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL PCV VALVE SUB-ASSEMBLY



- (a) Apply adhesive to 2 or 3 threads of the PCV valve sub-assembly.

Adhesive:

Three Bond 1141G or equivalent

- (b) Using a 19 mm deep socket wrench, install the PCV valve sub-assembly.

Torque: 23 N·m (235 kgf·cm, 17ft·lbf)

- (c) Connect the ventilation hose.

2. INSTALL INTAKE MANIFOLD

INFO



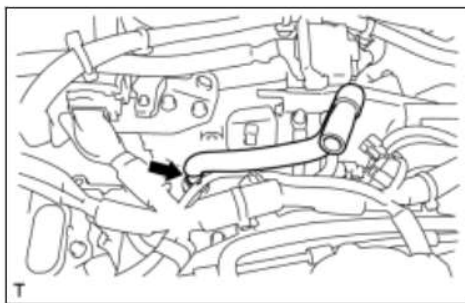
Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I3J00CX
Title: FA20 EMISSION CONTROL: PCV VALVE: REMOVAL (2013 FR-S)		

REMOVAL

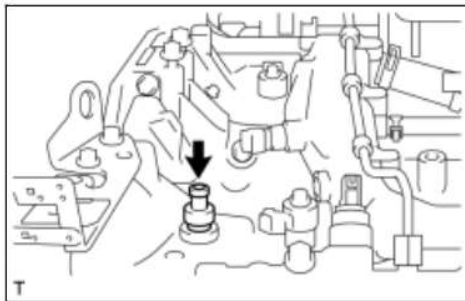
1. REMOVE INTAKE MANIFOLD

INFO

2. REMOVE PCV VALVE SUB-ASSEMBLY



(a) Disconnect the ventilation hose from the PCV valve sub-assembly.



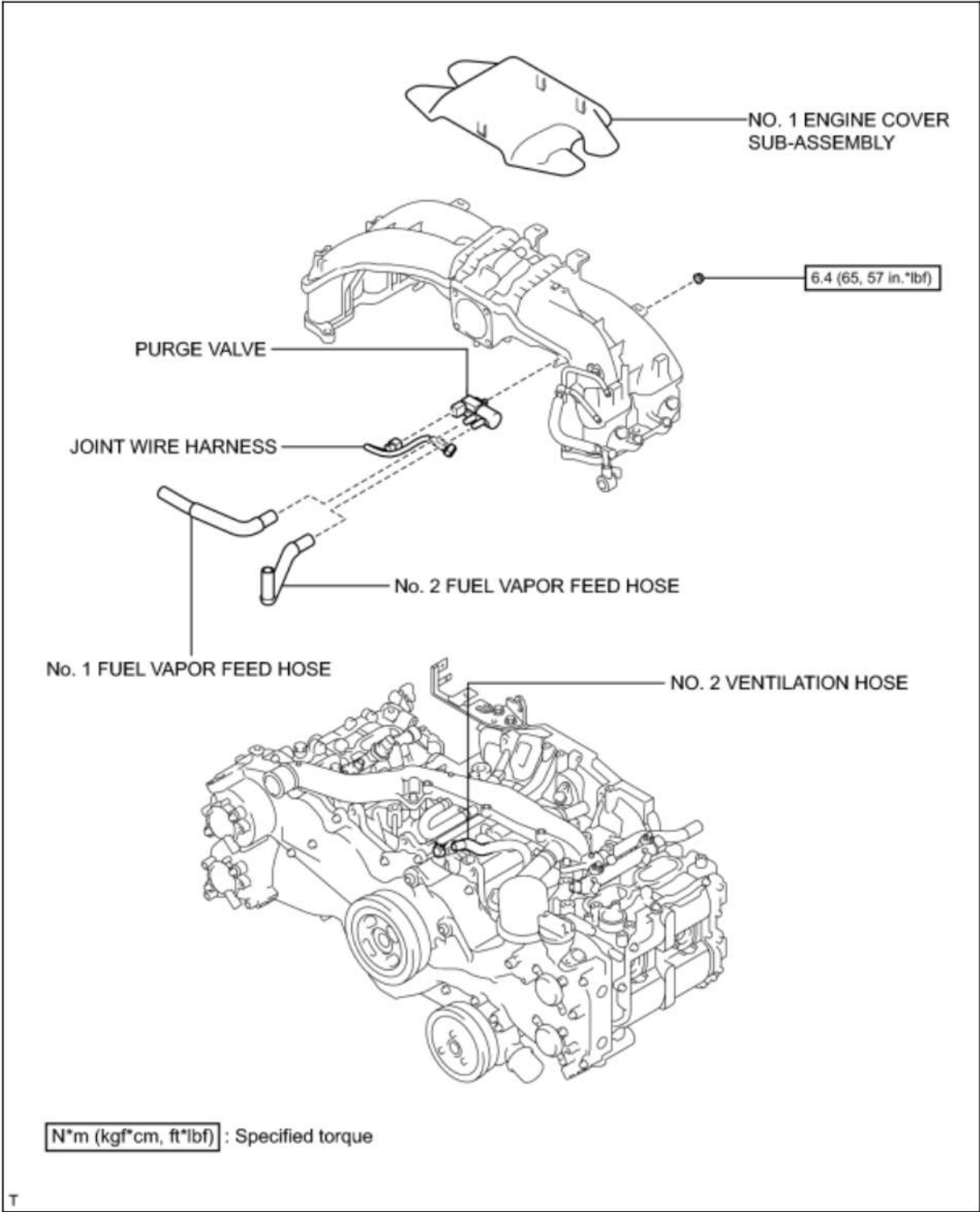
(b) Using a 19 mm deep socket wrench, remove the PCV valve sub-assembly.



Last Modified: 3-27-2012	6.4 K	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0X00CX
Title: FA20 EMISSION CONTROL: PURGE VALVE: COMPONENTS (2013 FR-S)		

COMPONENTS

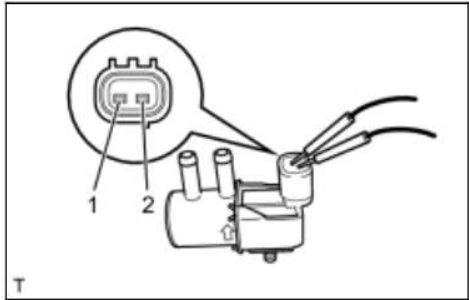
ILLUSTRATION



Last Modified: 3-27-2012	6.4 G	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0W00CX
Title: FA20 EMISSION CONTROL: PURGE VALVE: INSPECTION (2013 FR-S)		

INSPECTION

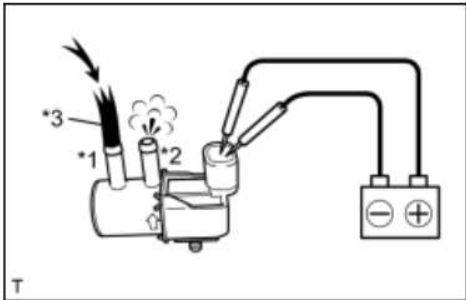
1. INSPECT PURGE VALVE



- (a) Measure the resistance according to the value in the table below.
- Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	20°C (68°F)	21 to 27 Ω

- (b) Check the operation of the purge valve.



- (1) Install a clean hose to the purge valve.
- (2) Check that air does not flow from port E to port F.
- (3) Check that air flows from port E to port F.

Text in Illustration

*1	Port E
*2	Port F
*3	Clean Hose
	Air

OK:

MEASUREMENT CONDITION	SPECIFIED CONDITION
Battery does not connect	Air does not flow from port E to port F

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 valve.

(4) Remove the clean hose from the purge valve.



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0V00CX
Title: FA20 EMISSION CONTROL: PURGE VALVE: INSTALLATION (2013 FR-S)		

INSTALLATION

1. INSTALL PURGE VALVE

- (a) Connect the joint wire harness to the purge valve.
- (b) Connect the No. 1 fuel vapor feed hose and No. 2 fuel vapor feed hose, and install the purge valve with the joint wire harness.
- (c) Connect the manifold absolute pressure sensor connector.
- (d) Connect the purge valve connector.
- (e) Install the nut and purge valve.

Torque: 6.4 N·m (65 kgf·cm, 57in·lbf)

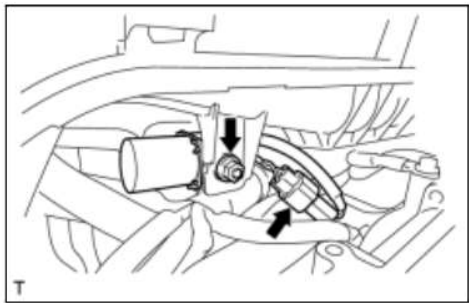
2. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY INFO



Last Modified: 3-27-2012	6.4 A	From: 201203
Model Year: 2013	Model: FR-S	Doc ID: RM000003I0Y00CX
Title: FA20 EMISSION CONTROL: PURGE VALVE: REMOVAL (2013 FR-S)		

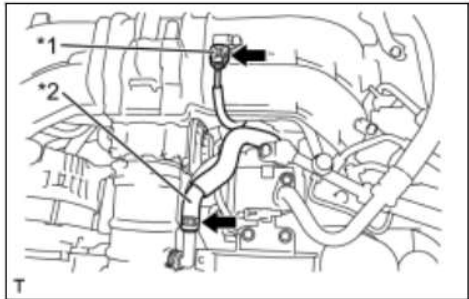
REMOVAL

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY
2. REMOVE PURGE VALVE



(a) Remove the nut which holds the purge valve onto the intake manifold.

(b) Disconnect the purge valve connector.



(c) Disconnect the manifold absolute pressure sensor connector.

(d) Disconnect the No. 2 ventilation hose.

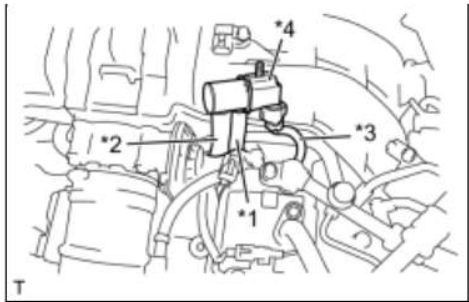
Text in Illustration

*1	air pressure sensor assembly connector
*2	No. 2 ventilation hose

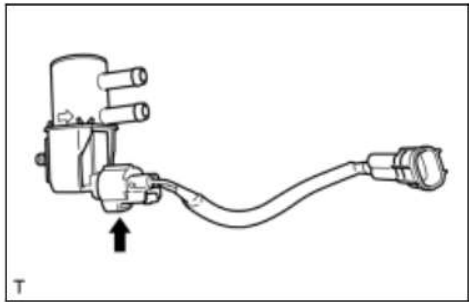
(e) Disconnect the No. 1 fuel vapor feed hose and No. 2 fuel vapor feed hose, and remove the purge valve with the joint wire harness.

Text in Illustration

*1	No. 1 fuel vapor feed hose
----	----------------------------



*2	No. 2 fuel vapor feed hose
*3	Joint wire harness
*4	purge valve



(f) Remove the joint wire harness from the purge valve assembly.