

Thermostat

COOLING

6. Thermostat

A: REMOVAL

1. ENGINE SIDE

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:

For the 12 volt engine restart battery of HEV model, disconnect the ground terminal from 12V engine restart battery sensor.

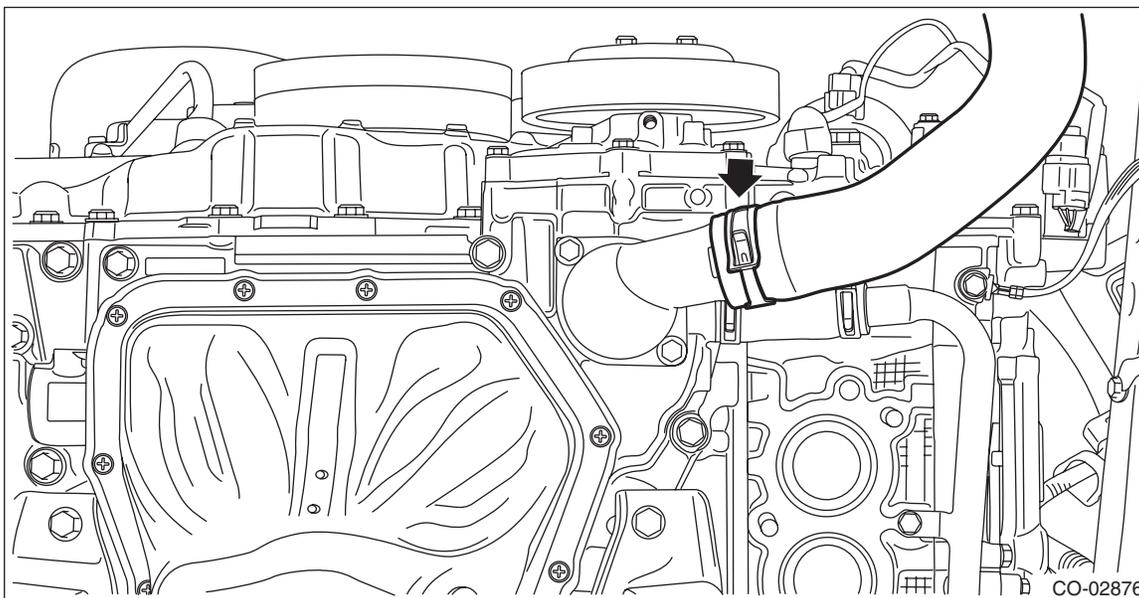
2) Lift up the vehicle.

3) Remove the under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>

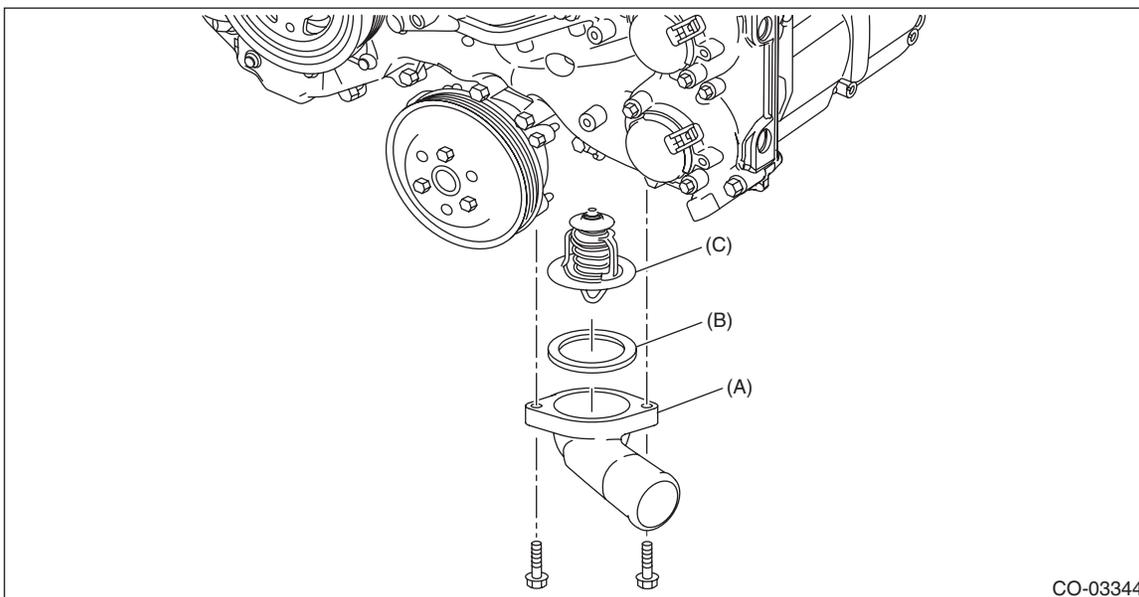
4) Drain engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

5) Remove the front exhaust pipe. <Ref. to EX(H4DO(w/o HEV))-6, REMOVAL, Front Exhaust Pipe.>

6) Disconnect the radiator outlet hose from thermostat cover.



7) Remove the thermostat cover, and then remove the thermostat.



(A) Thermostat cover

(B) Gasket

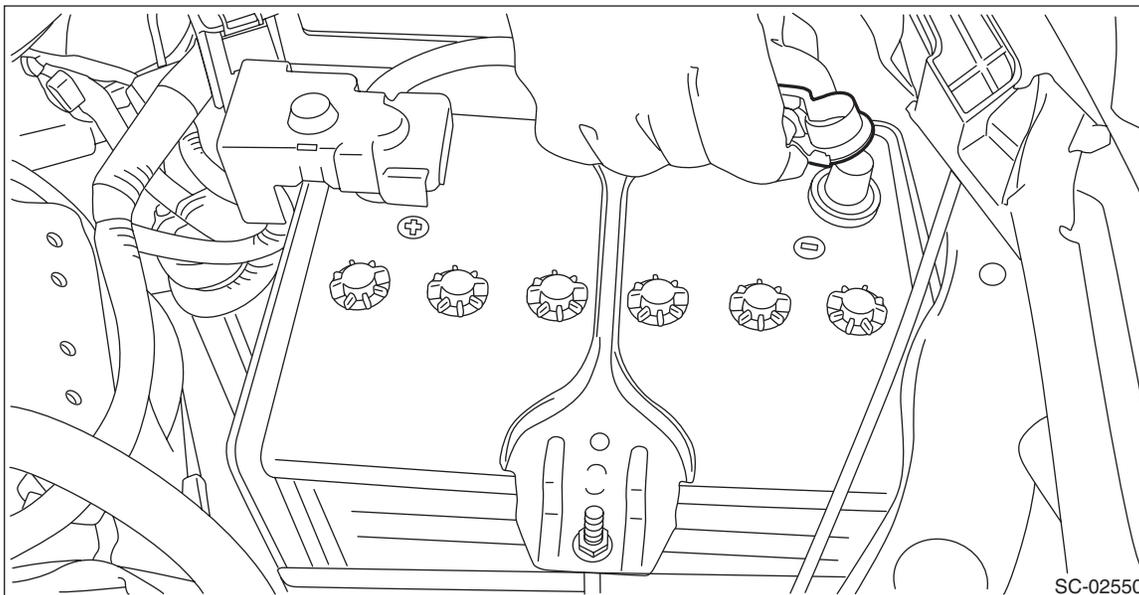
(C) Thermostat

8) Remove the gasket from thermostat.

2. CVTF COOLER (WITH WARMER FEATURE) SIDE

• Gasoline engine model

1) Disconnect the ground cable from battery.



2) Lift up the vehicle.

3) Remove the under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>

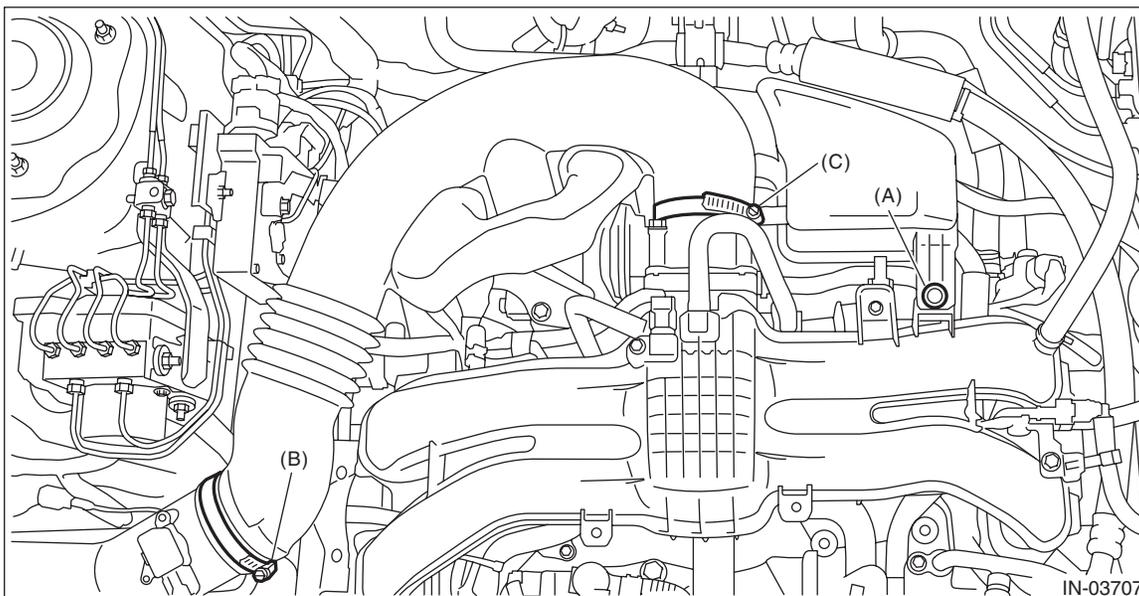
4) Drain engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

5) Lower the vehicle.

6) Remove the clip (A) from the air intake boot.

7) Loosen the clamp (B) securing the air cleaner case (rear) to the air intake boot.

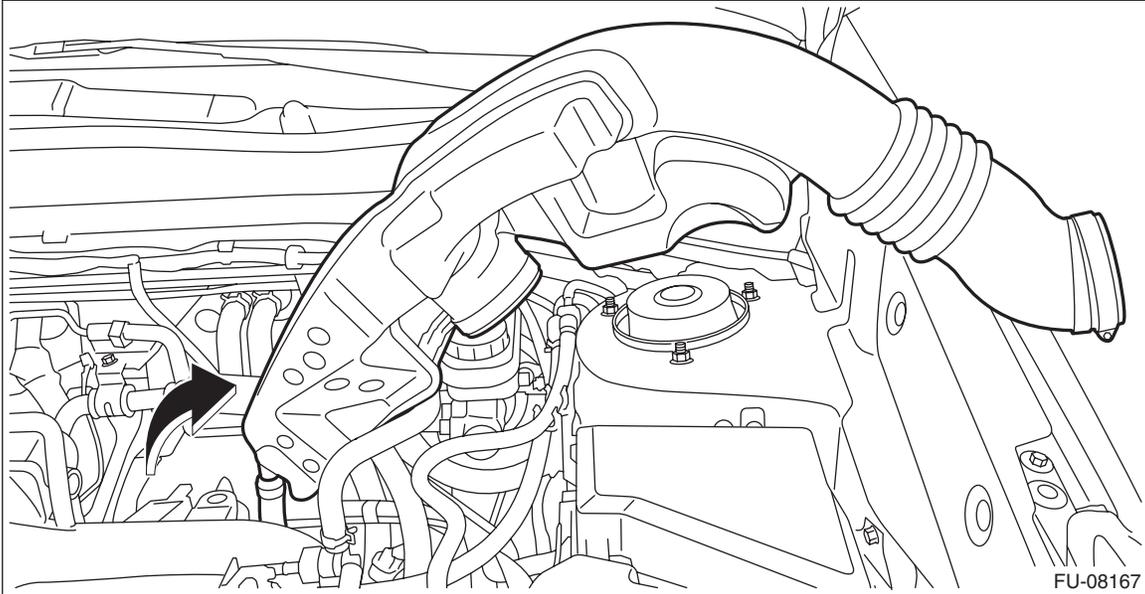
8) Loosen the clamp (C) which secures the throttle body to the air intake boot.



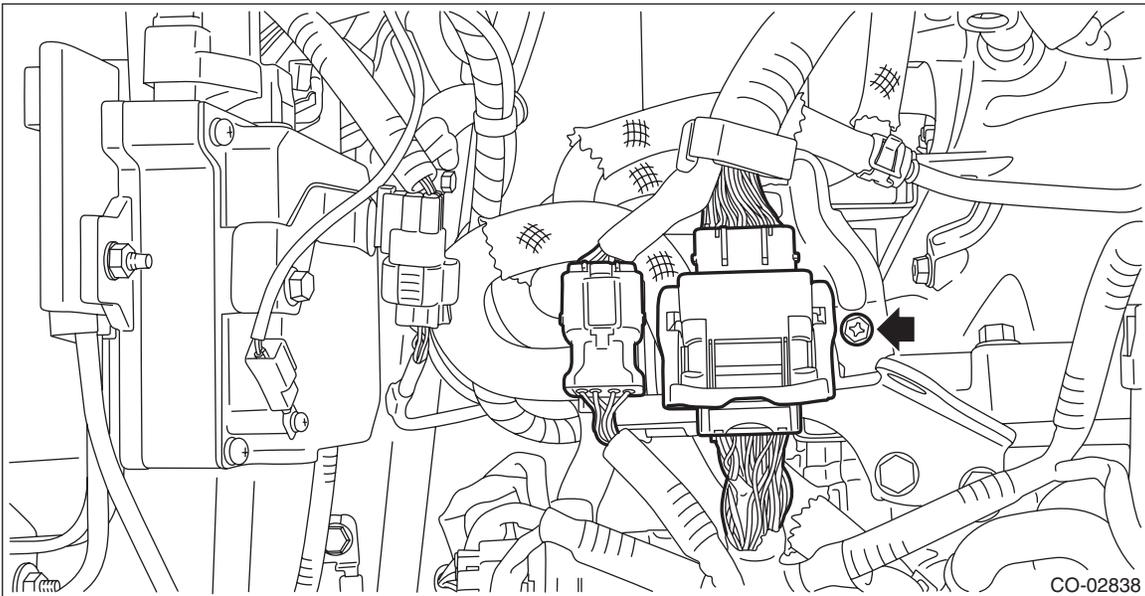
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- 9) Remove the air intake boot from the throttle body, and move it to the left side wheel apron.



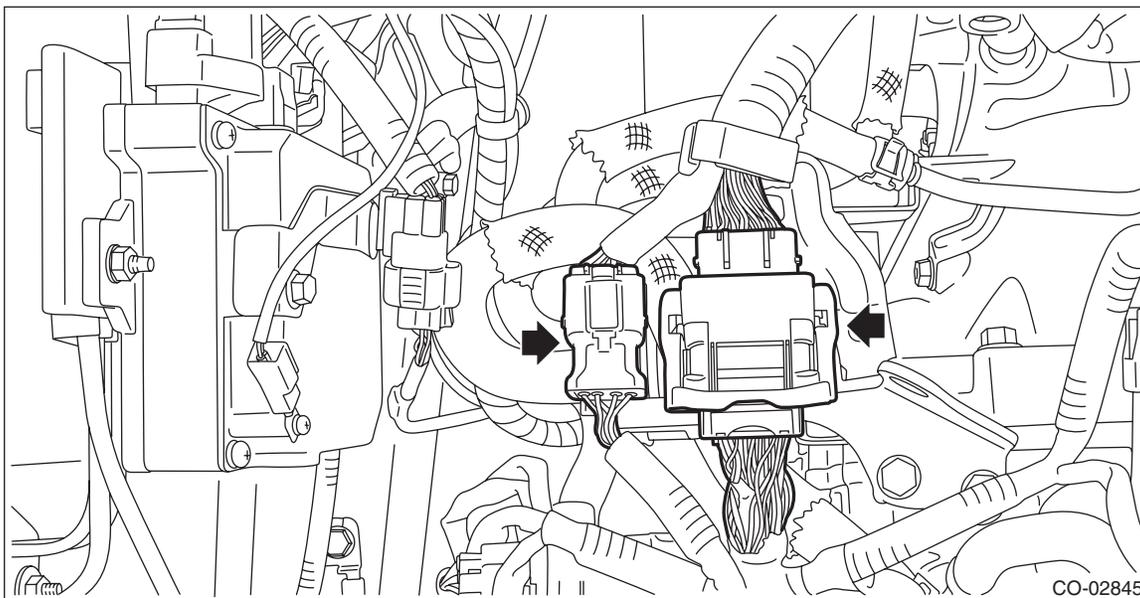
- 10) Disconnect the engine harness connector.
(1) Remove the bolt securing the bulkhead harness connector bracket.



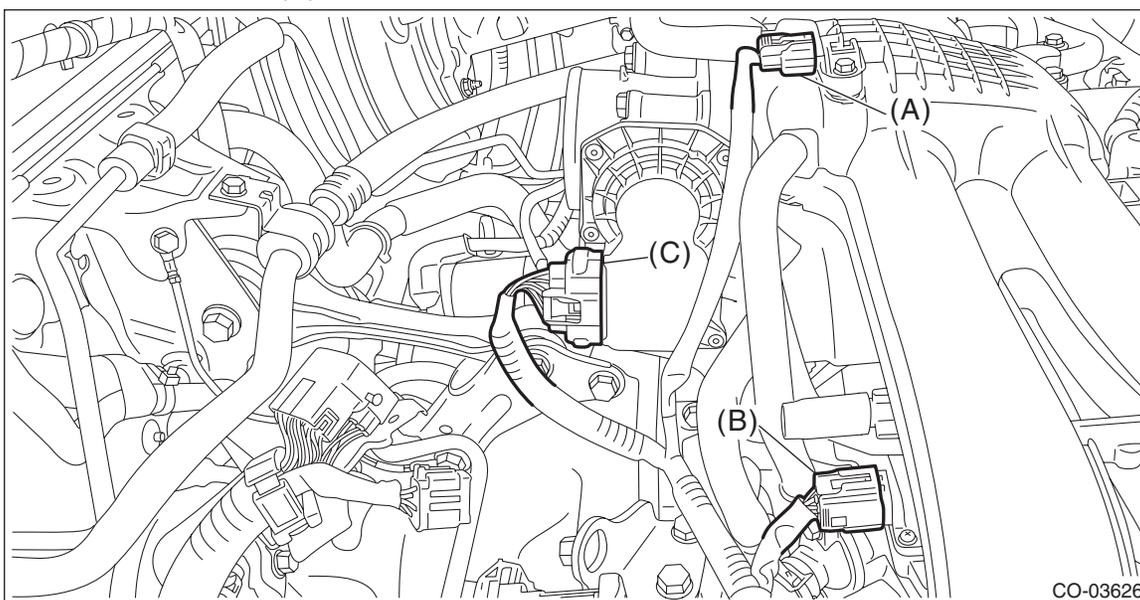
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(2) Disconnect the bulkhead harness connector from the engine harness connector (black) and engine harness connector (brown).



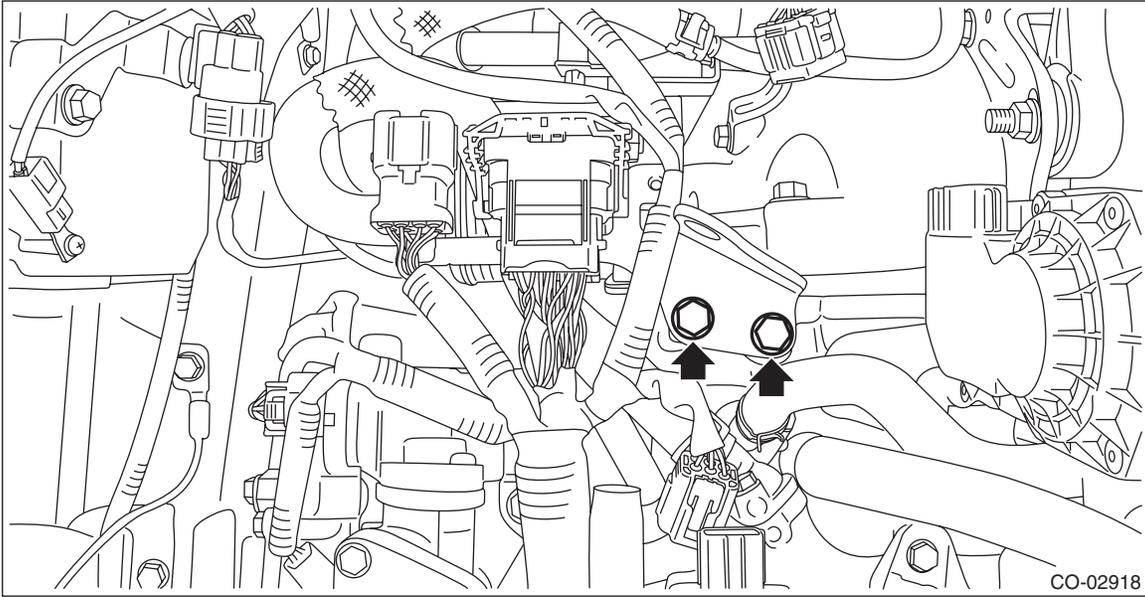
- 11) Disconnect the connector (A) from manifold absolute pressure sensor.
- 12) Disconnect the connector (B) from the throttle position sensor.
- 13) Disconnect the connector (C) from the EGR control valve.



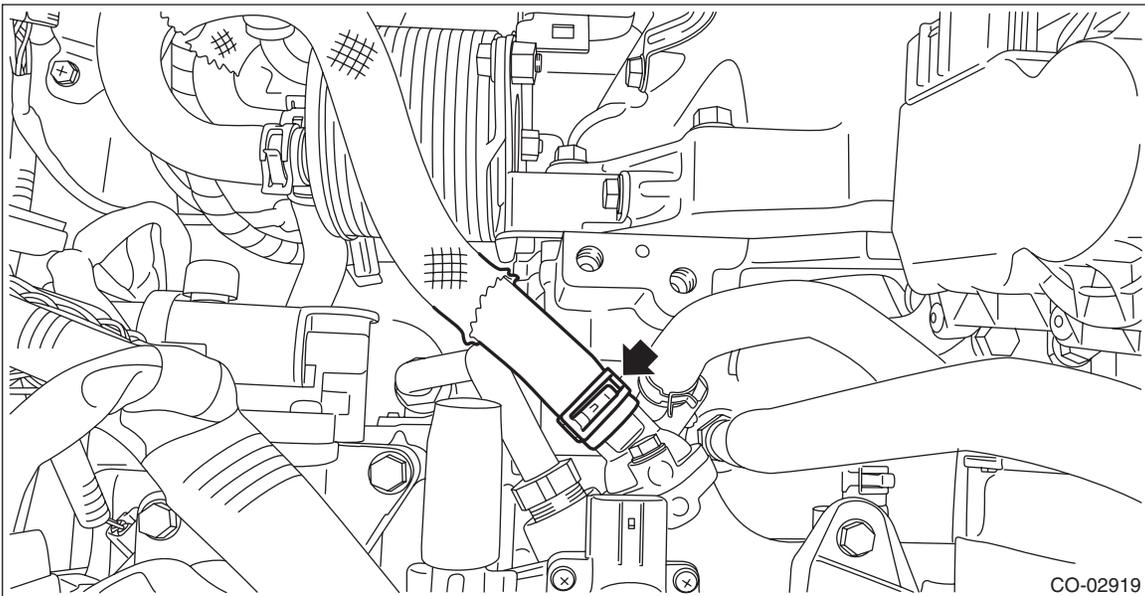
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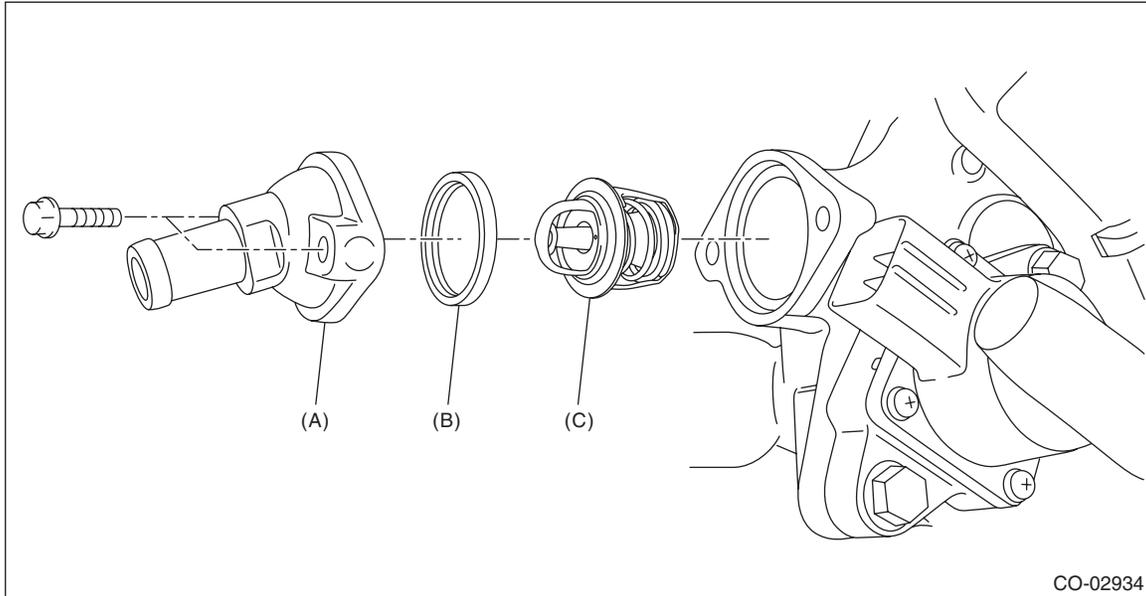
- 14) Remove the bolt securing the engine hanger from the cylinder block RH, and move the hanger to the right side wheel apron.



- 15) Disconnect the engine coolant hose from the thermostat cover.



16) Remove the thermostat cover, and then remove the thermostat.



(A) Thermostat cover

(B) Gasket

(C) Thermostat

17) Remove the gasket from thermostat.

• **HEV model**

1) Disconnect the ground cable from battery. <Ref. to NT-5, BATTERY, NOTE, Note.>

NOTE:

For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.

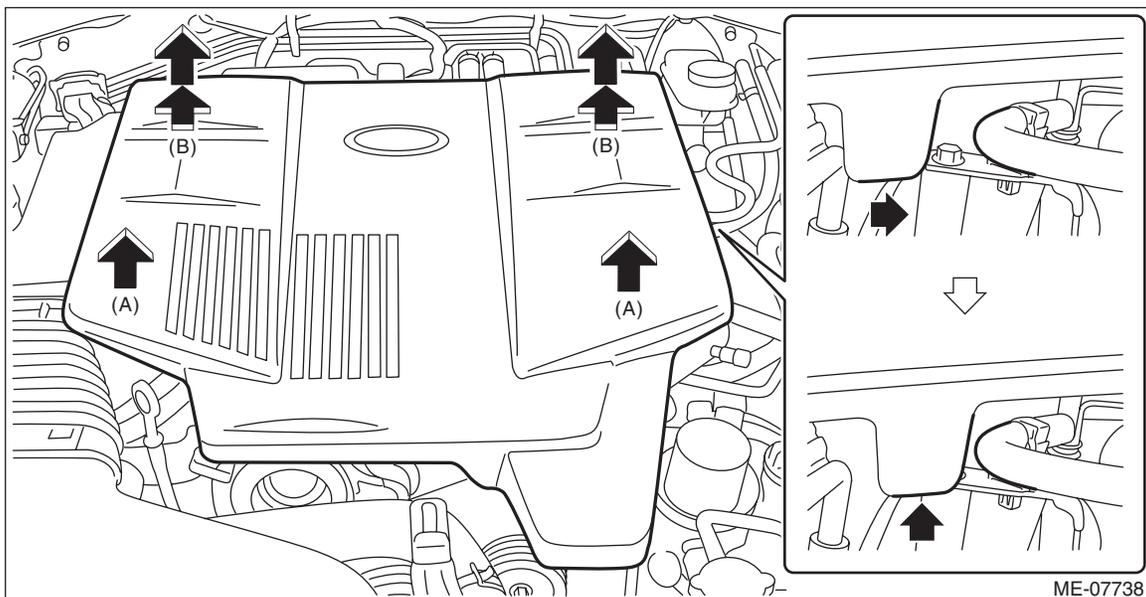
2) Remove the collector cover.

(1) Carefully pull up the front of collector cover at two positions (A).

(2) Carefully pull up the rear of collector cover at two positions (B) while moving it backward.

NOTE:

Be careful not to contact the fuel delivery tube when moving the collector cover rearward.



3) Lift up the vehicle.

4) Remove the under cover. <Ref. to EI-32, REMOVAL, Front Under Cover.>

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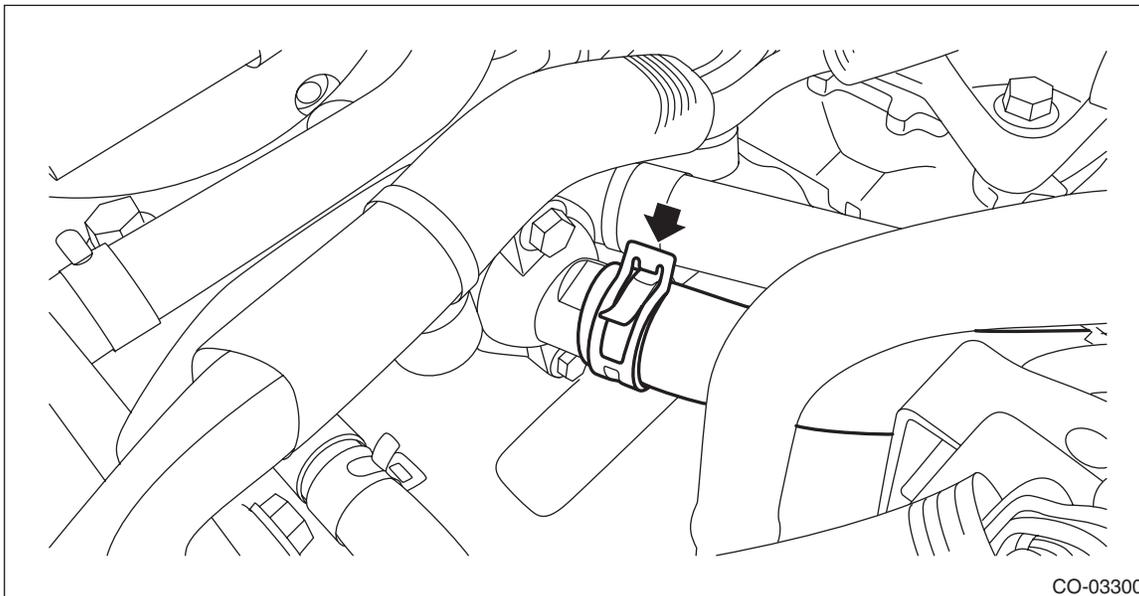
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5) Drain engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

6) Lower the vehicle.

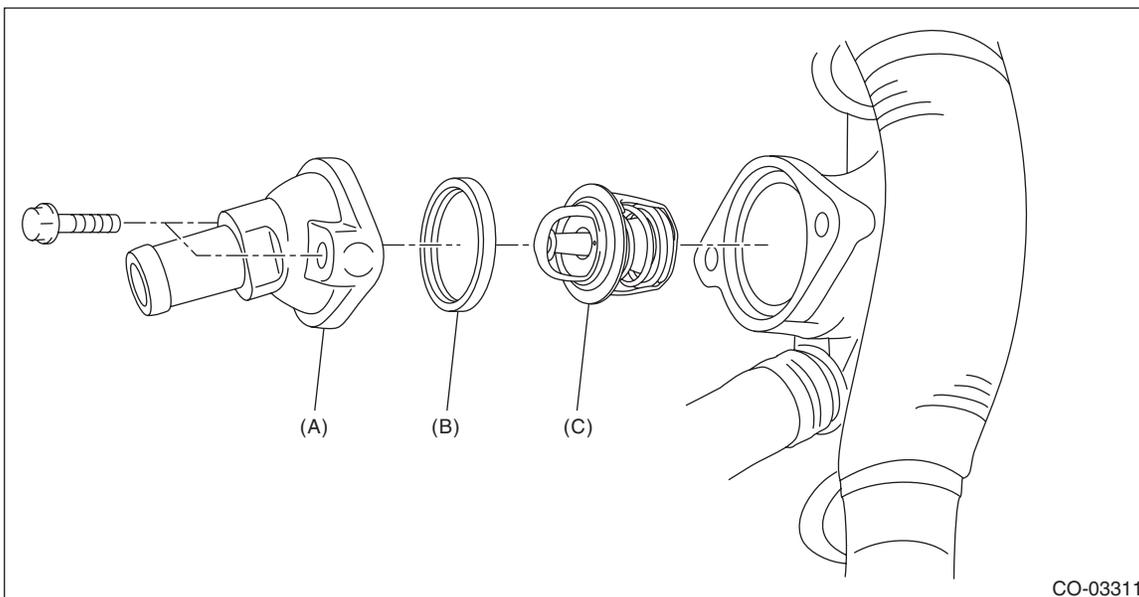
7) Remove the intake manifold. <Ref. to FU(H4DO(HEV))-19, REMOVAL, Intake Manifold.>

8) Disconnect the engine coolant hose from the thermostat cover.



CO-03300

9) Remove the thermostat cover, and then remove the thermostat.



CO-03311

(A) Thermostat cover

(B) Gasket

(C) Thermostat

10) Remove the gasket from thermostat.

B: INSTALLATION

1. ENGINE SIDE

1) Install a gasket to thermostat.

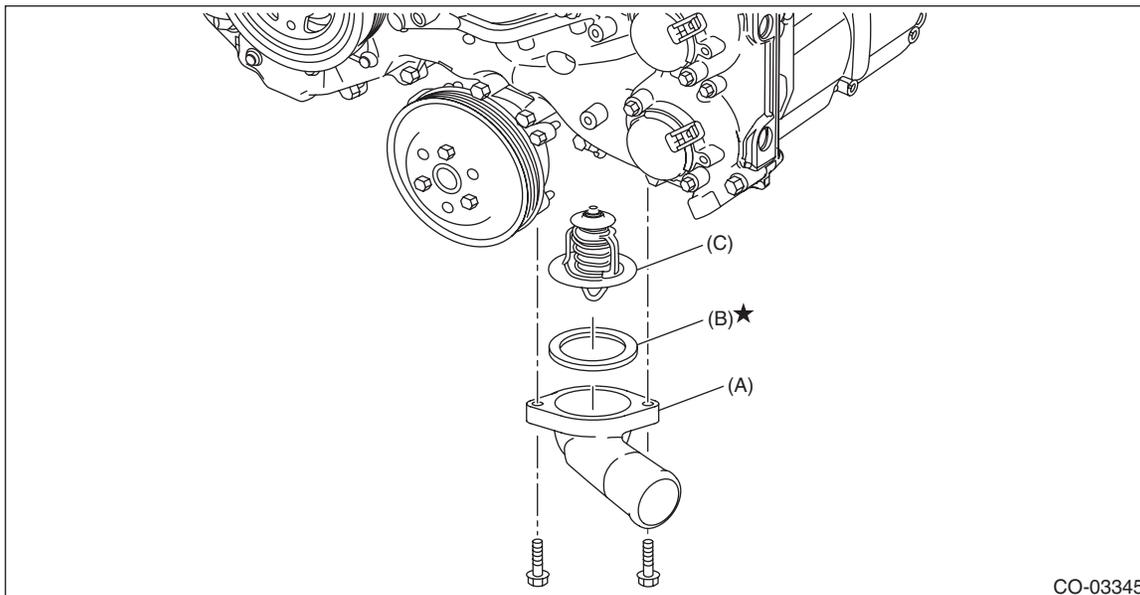
NOTE:

Use a new gasket.

2) Install the thermostat and thermostat cover.

Tightening torque:

6.4 N·m (0.7 kgf·m, 4.7 ft·lb)

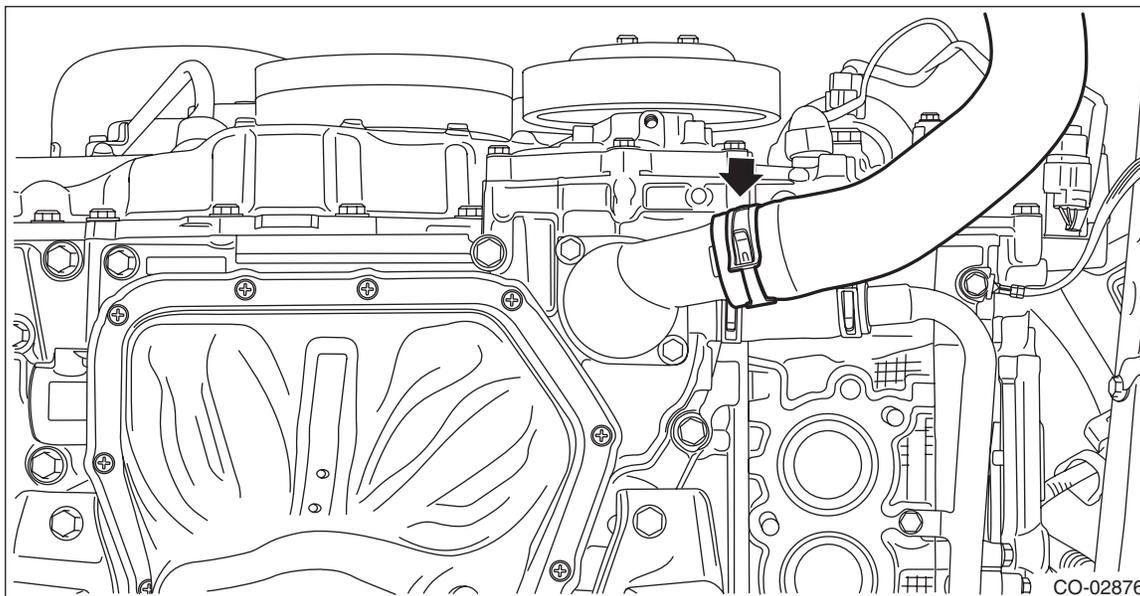


(A) Thermostat cover

(B) Gasket

(C) Thermostat

3) Connect the radiator outlet hose to thermostat cover.



4) Install the front exhaust pipe. <Ref. to EX(H4DO(w/o HEV))-8, INSTALLATION, Front Exhaust Pipe.>

5) Install the under cover. <Ref. to EI-32, INSTALLATION, Front Under Cover.>

6) Lower the vehicle.

7) Connect the battery ground terminal. <Ref. to NT-5, BATTERY, NOTE, Note.>

8) Fill engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

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2. CVTF COOLER (WITH WARMER FEATURE) SIDE

• Gasoline engine model

1) Install a gasket to thermostat.

NOTE:

Use a new gasket.

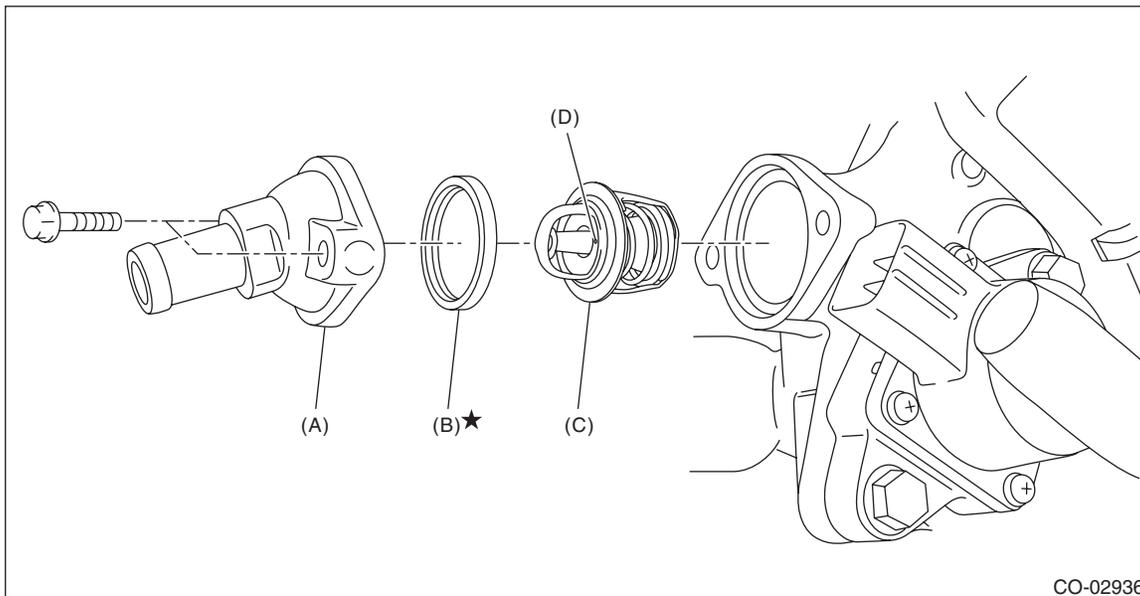
2) Install the thermostat and thermostat cover.

NOTE:

Install the parts with the air vent hole facing upward.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)



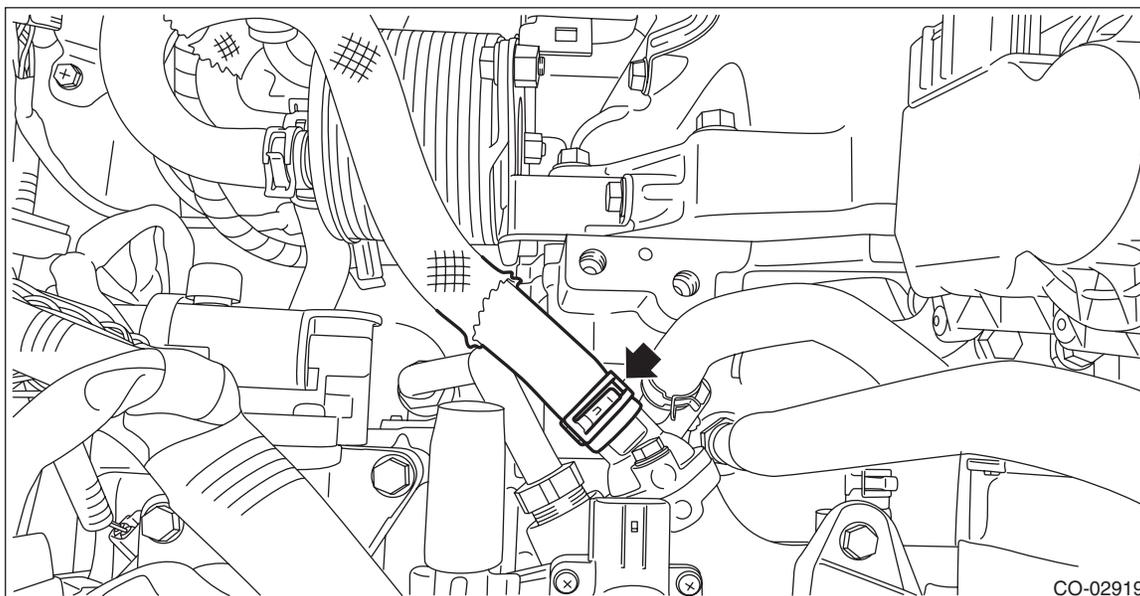
(A) Thermostat cover

(B) Gasket

(C) Thermostat

(D) Air vent hole

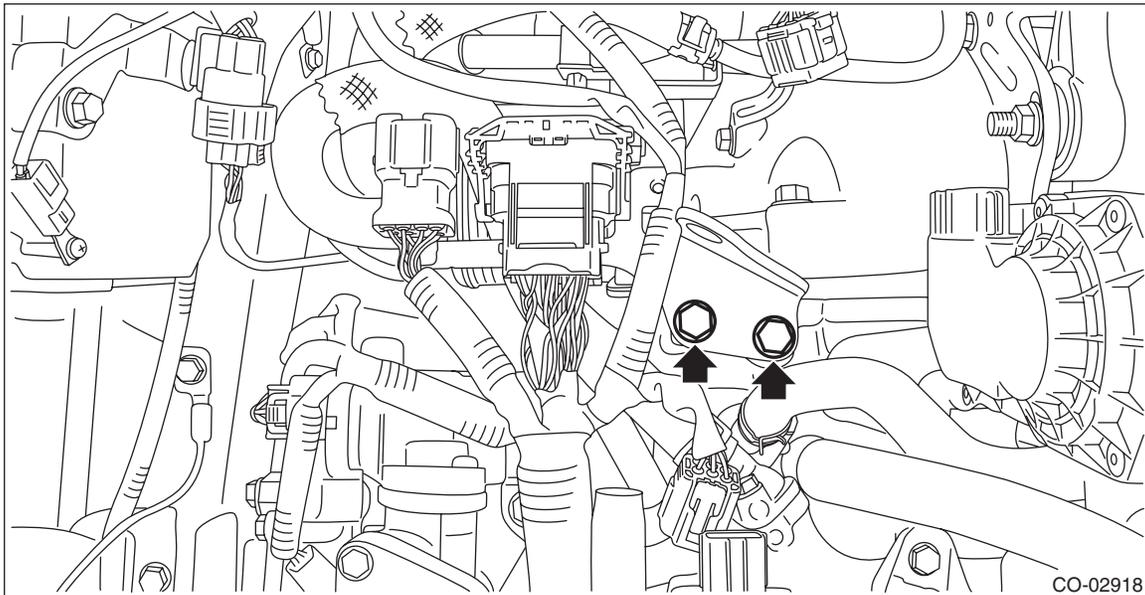
3) Connect the engine coolant hose to the thermostat cover.



4) Install the engine hanger to the cylinder block RH.

Tightening torque:

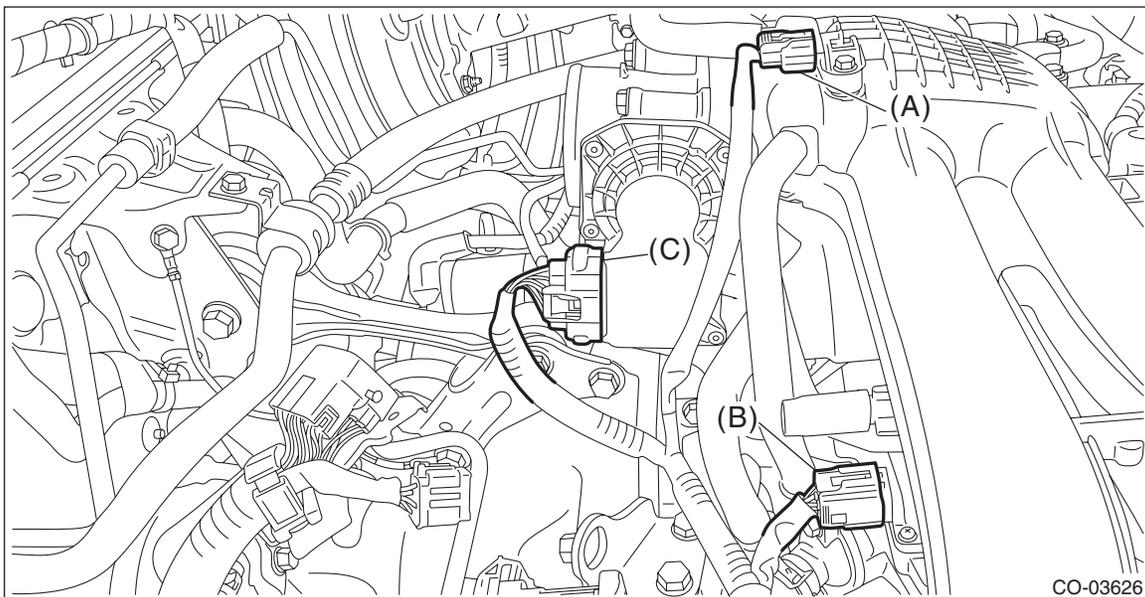
21 N·m (2.1 kgf-m, 15.5 ft-lb)



5) Connect the connector (A) to the manifold absolute pressure sensor.

6) Connect the connector (B) to the throttle position sensor.

7) Connect the connector (C) to the EGR control valve.

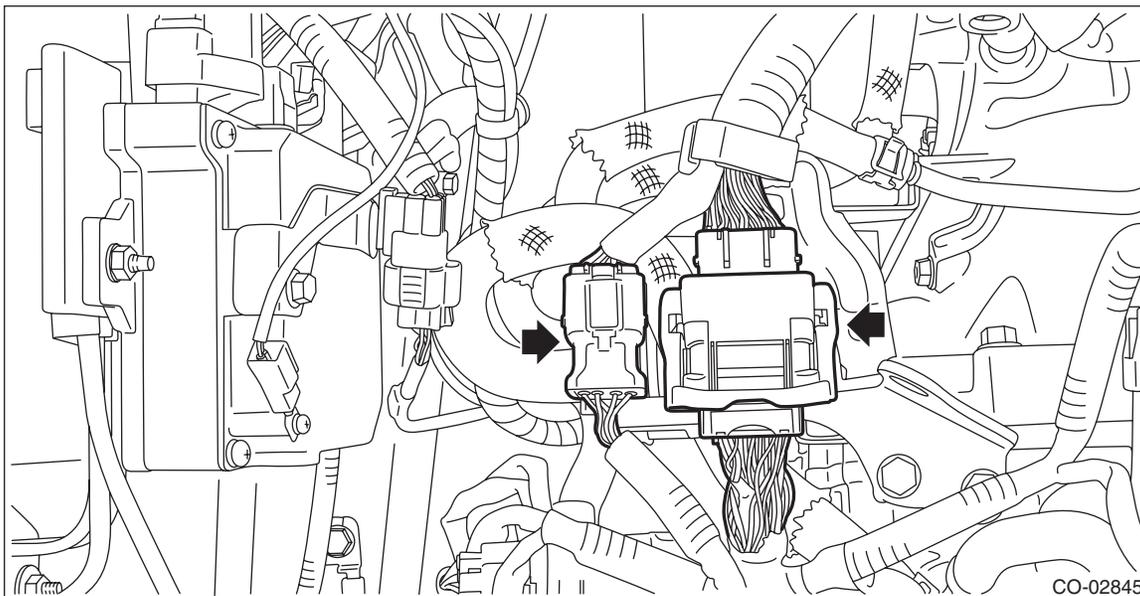


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8) Connect the engine harness connector.

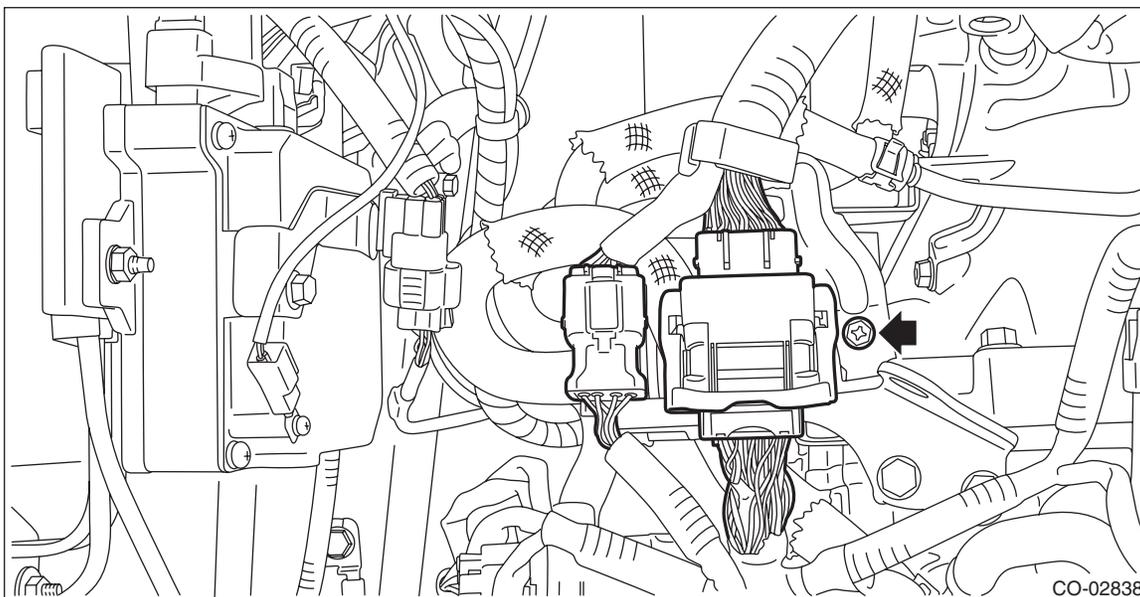
(1) Connect the bulkhead harness connector to the engine harness connector (black) and engine harness connector (brown).



(2) Install the bolt which secures the bulkhead harness connector bracket.

Tightening torque:

7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



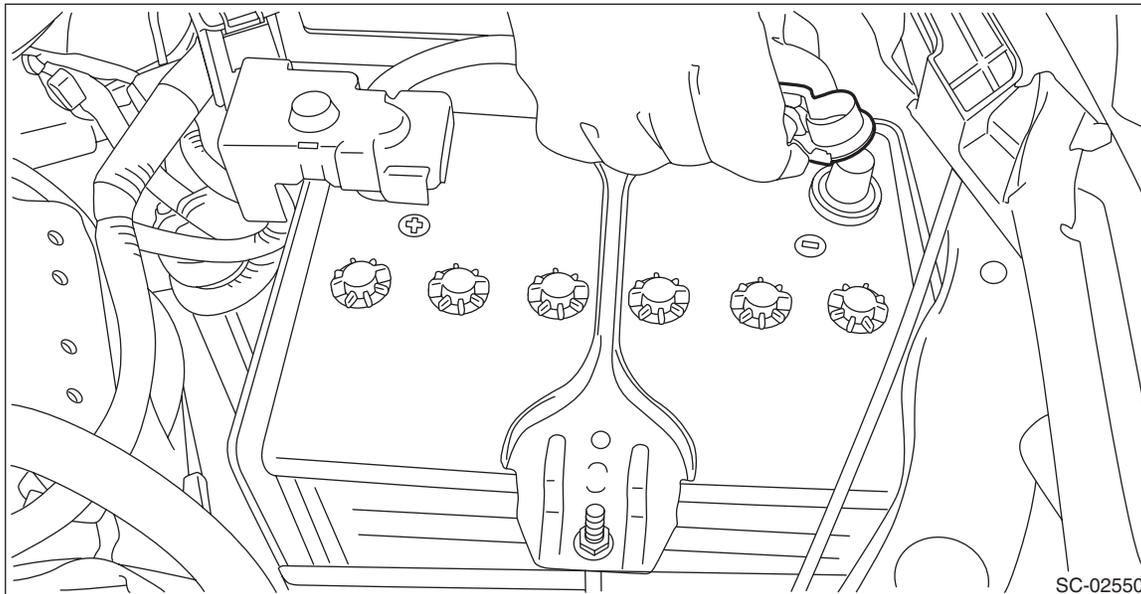
9) Install the air intake boot. <Ref. to IN(H4DO(w/o HEV))-12, INSTALLATION, Air Intake Boot.>

10) Lift up the vehicle.

11) Install the under cover. <Ref. to EI-32, INSTALLATION, Front Under Cover.>

12) Lower the vehicle.

13) Connect the battery ground terminal.



14) Fill engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

• **HEV model**

1) Install a gasket to thermostat.

NOTE:

Use a new gasket.

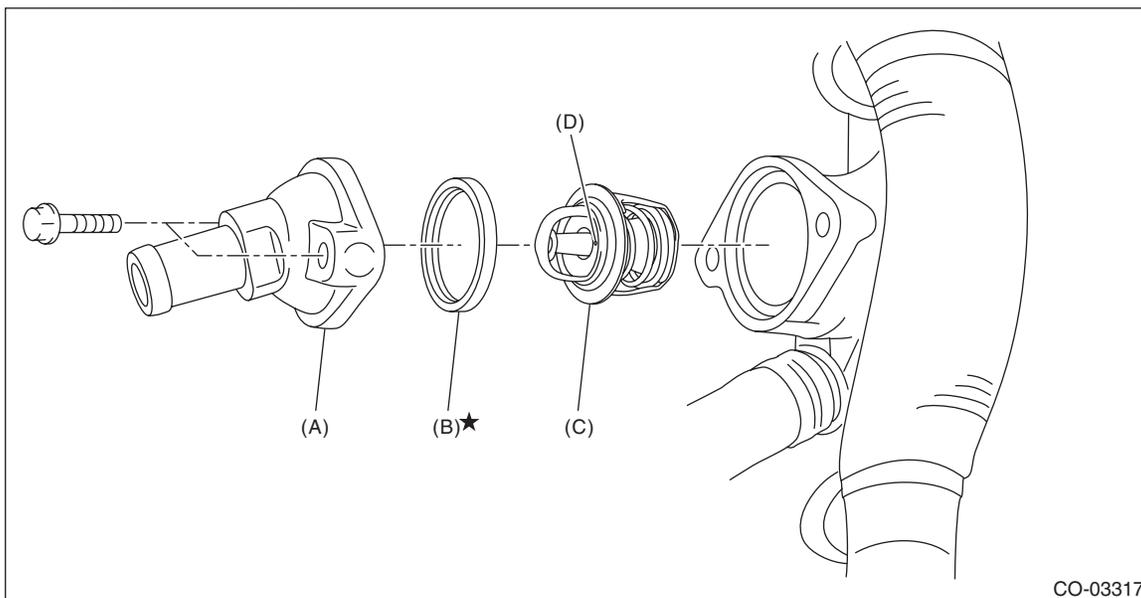
2) Install the thermostat and thermostat cover.

NOTE:

Install the parts with the air vent hole facing upward.

Tightening torque:

6.4 N·m (0.7 kgf·m, 4.7 ft·lb)



(A) Thermostat cover

(B) Gasket

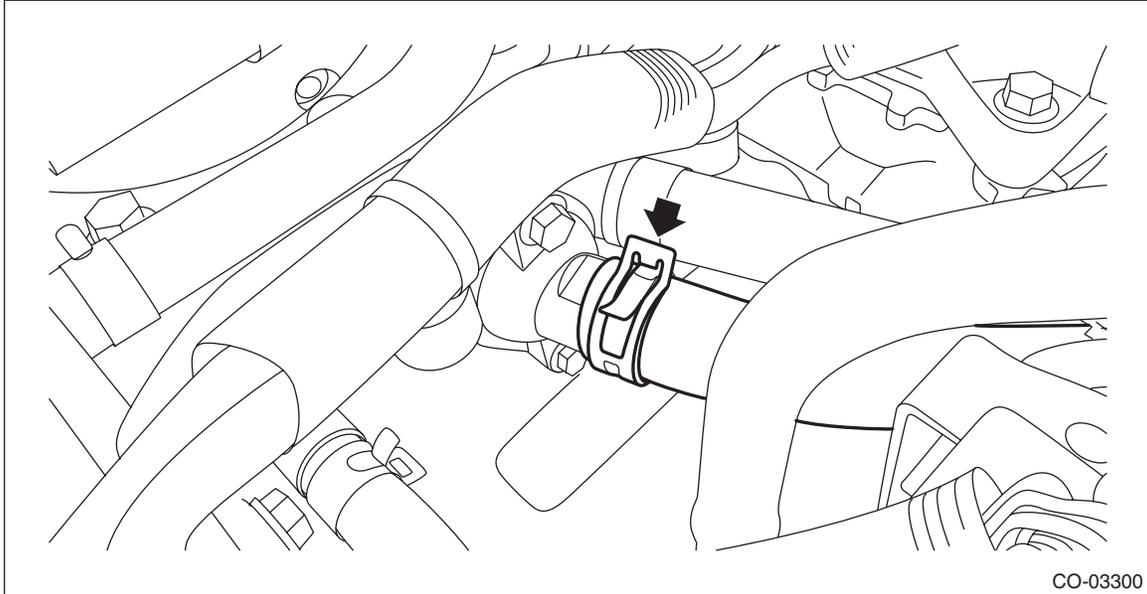
(C) Thermostat

(D) Air vent hole

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- 3) Connect the engine coolant hose to the thermostat cover.



- 4) Install the intake manifold. <Ref. to FU(H4DO(HEV))-25, INSTALLATION, Intake Manifold.>
- 5) Install the collector cover.
- 6) Lift up the vehicle.
- 7) Install the under cover. <Ref. to EI-32, INSTALLATION, Front Under Cover.>
- 8) Lower the vehicle.
- 9) Connect the battery ground terminal. <Ref. to NT-5, BATTERY, NOTE, Note.>
- 10) Fill engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

C: INSPECTION

- 1) Check that the thermostat does not have deformation, cracks or damage.
- 2) Check that the thermostat valve closes completely at an ambient temperature.
- 3) Immerse the thermostat and a thermometer in water. Raise water temperature gradually, and check the temperature and valve lift when the valve begins to open and when the valve is fully opened. Replace the thermostat if faulty.

NOTE:

- During the test, agitate the water for even temperature distribution.
- Leave the thermostat in the boiling water for five minutes or more before measuring the valve lift.
- Hold the thermostat with a wire or the like to avoid contacting with container bottom.

Starting temperature to open:

Engine side

Gasoline engine model

90 — 94°C (194 — 201°F)

HEV model

87 — 91°C (189 — 196°F)

CVTF cooler (with warmer feature) side

48 — 52°C (118 — 126°F)

Full open temperature:

Engine side

Gasoline engine model

100°C (212°F)

HEV model

98°C (208°F)

CVTF cooler (with warmer feature) side

63°C (145°F)

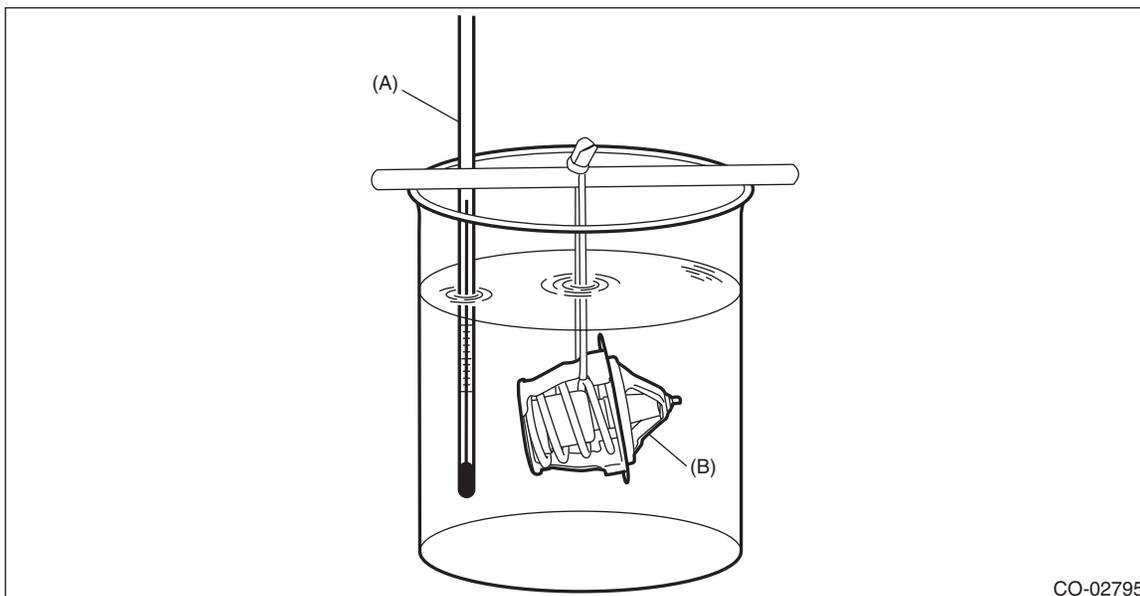
Total valve lift:

Engine side

8.0 mm (0.315 in) or more

CVTF cooler (with warmer feature) side

6.0 mm (0.236 in) or more



CO-02795

(A) Thermometer

(B) Thermostat