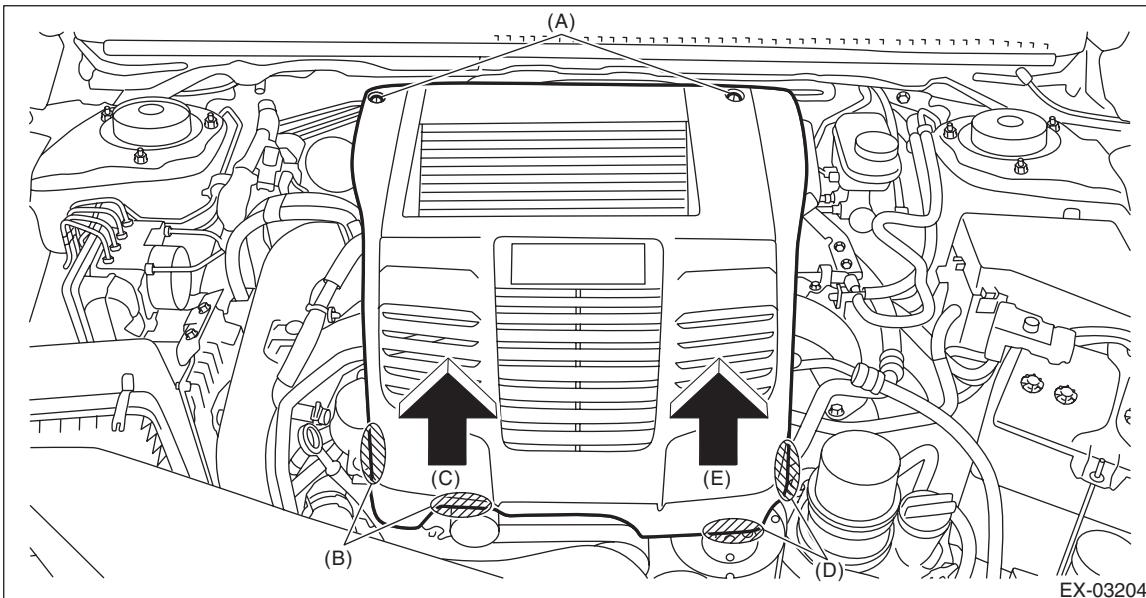


9. Engine Assembly

A: REMOVAL

- 1) Remove the striker - front hood. <Ref. to EB-11, DISASSEMBLY, Front Hood.>
- 2) Fully open the front hood. <Ref. to NT-20, FRONT HOOD DAMPER STAY, NOTE, Note.>
- 3) Remove the collector cover.
 - (1) Remove the clips (A).
 - (2) Hold the shaded area (B) by hand and carefully pull the RH side (C) upward.
 - (3) Hold the shaded area (D) by hand and carefully pull the LH side (E) upward.



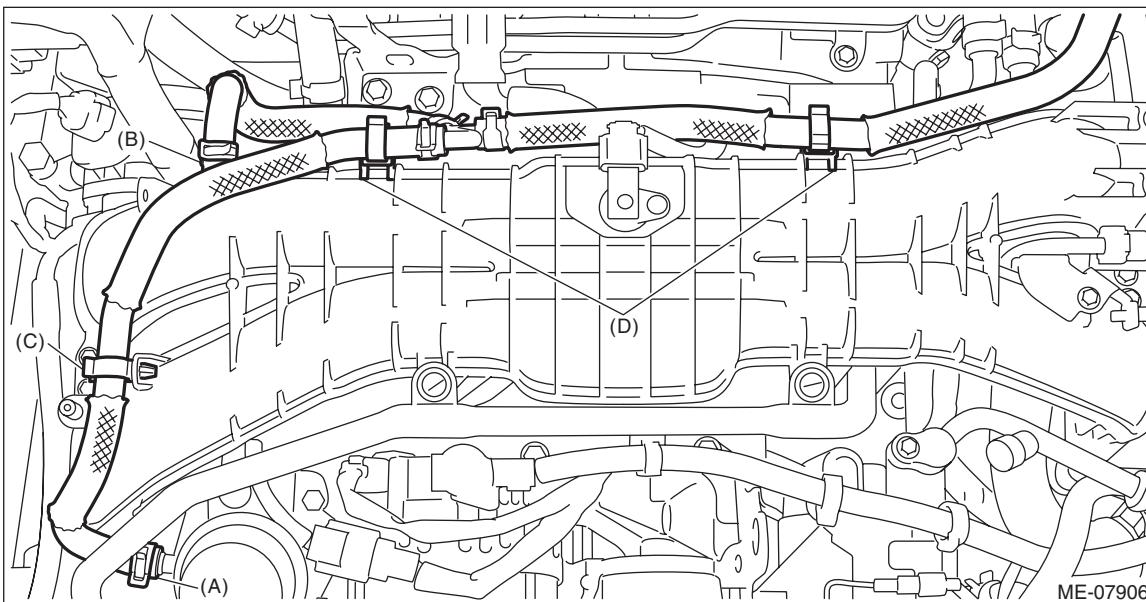
- 4) Collect the refrigerant from A/C system. <Ref. to AC-26, Refrigerant Recovery Procedure.>
- 5) Release the fuel pressure. <Ref. to FU(w/o STI)-146, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>
- 6) Open the fuel filler lid and remove the fuel filler cap.

NOTE:

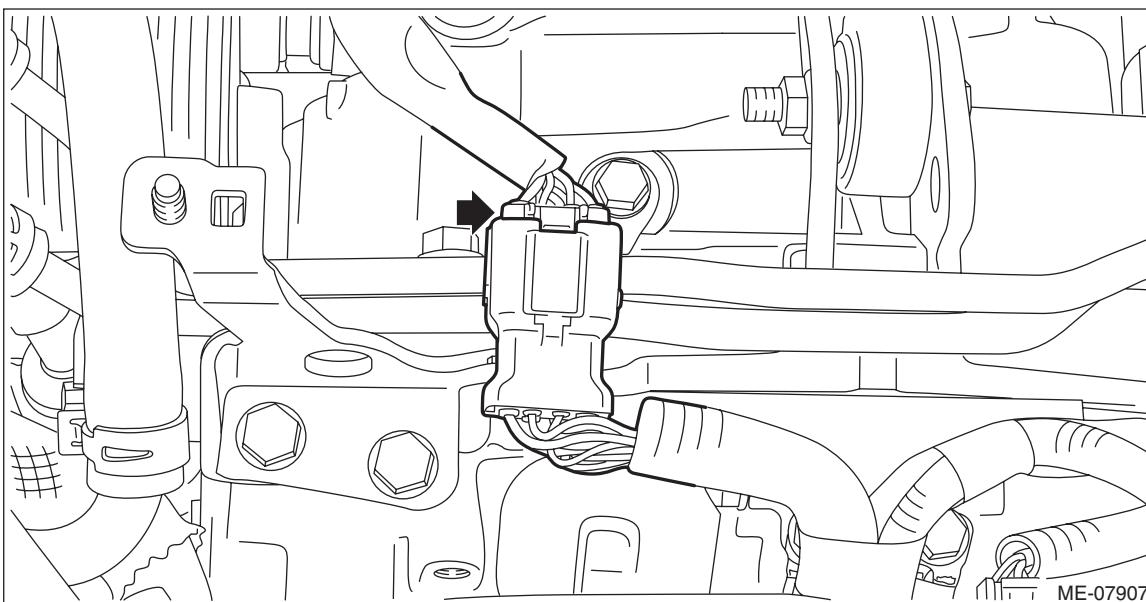
This operation is required to release the inner pressure of the fuel tank.

- 7) Disconnect the ground terminal from battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>
- 8) Remove the air intake duct. <Ref. to IN(w/o STI)-22, REMOVAL, Air Intake Duct.>
- 9) Remove the intercooler. <Ref. to IN(w/o STI)-38, REMOVAL, Intercooler.>
- 10) Remove the ECM. <Ref. to FU(w/o STI)-132, REMOVAL, Engine Control Module (ECM).>
- 11) Remove the intake duct No. 1 and intake duct No. 2. <Ref. to IN(w/o STI)-23, INTAKE DUCT NO. 1, REMOVAL, Intake Duct.> <Ref. to IN(w/o STI)-25, INTAKE DUCT NO. 2, REMOVAL, Intake Duct.>
- 12) Remove the radiator. <Ref. to CO(w/o STI)-37, REMOVAL, Radiator.>
- 13) Disconnect sections (A) and (B) of the brake booster vacuum hose from the brake vacuum pump and intake manifold, and remove the brake booster vacuum hose from the clip (C).

- 14) Remove the clip (D) securing the brake booster vacuum hose to the intake manifold, and move the brake booster vacuum hose at the locations that do not interfere operation.



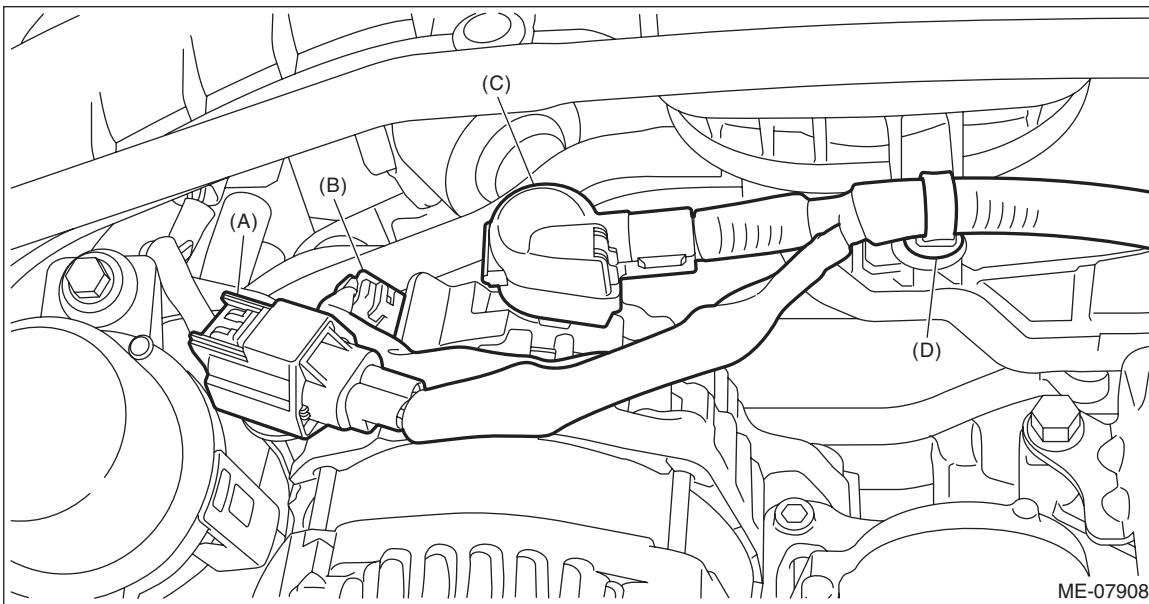
- 15) Disconnect the bulkhead harness connectors from the engine harness connectors.



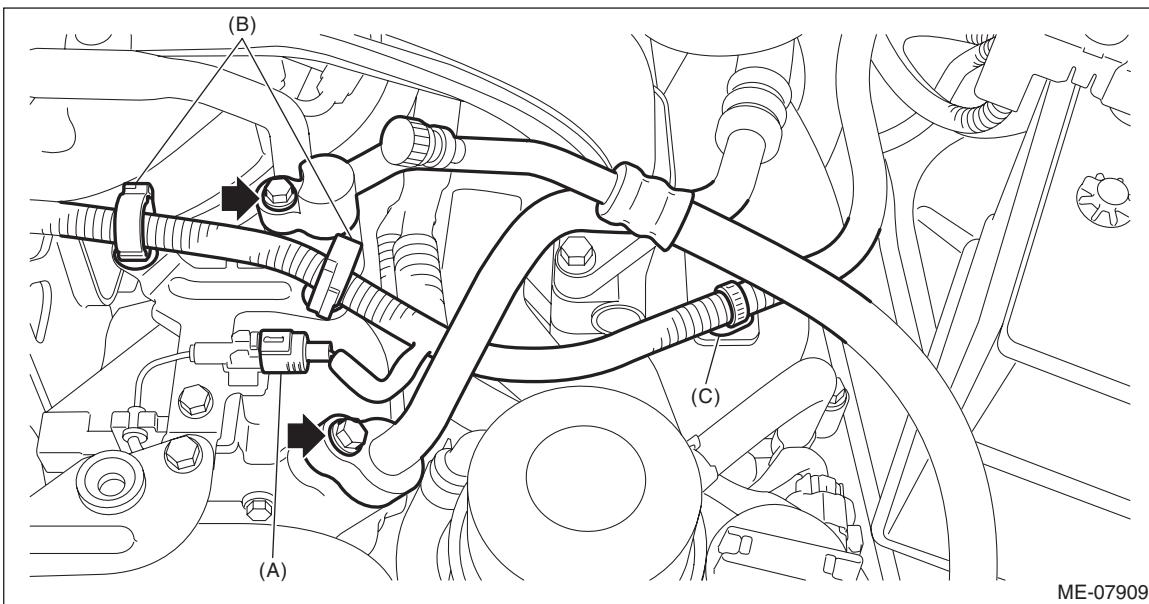
Engine Assembly

MECHANICAL

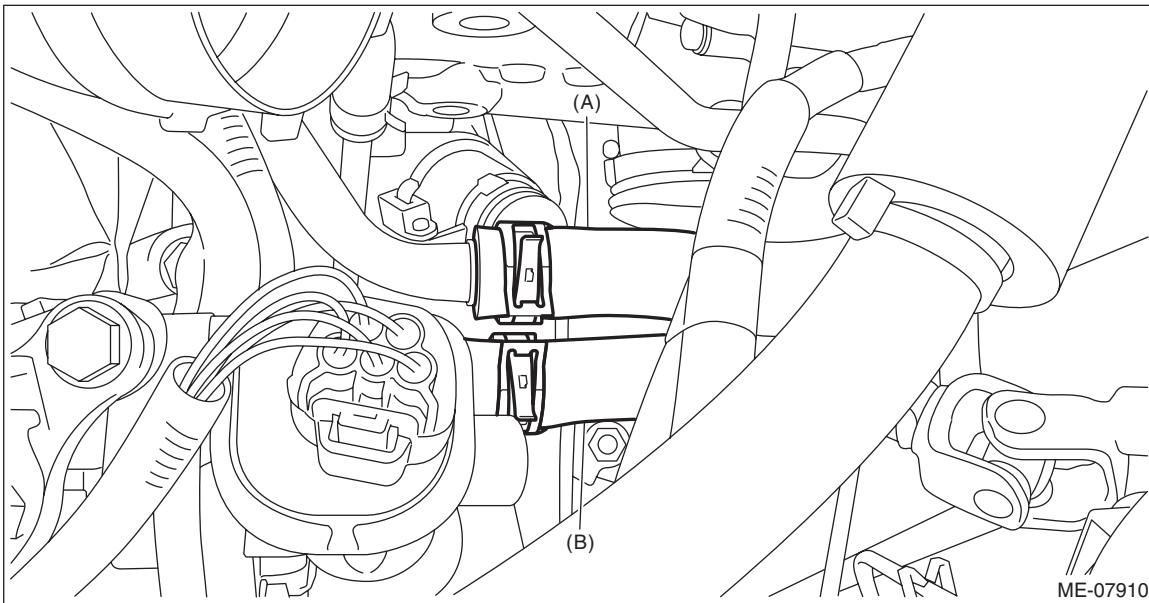
- 16) Disconnect the connector (A) from the brake vacuum pump.
- 17) Disconnect connector (B) and terminal (C) from the generator, and remove the clip (D) securing the generator cord to the intake manifold.



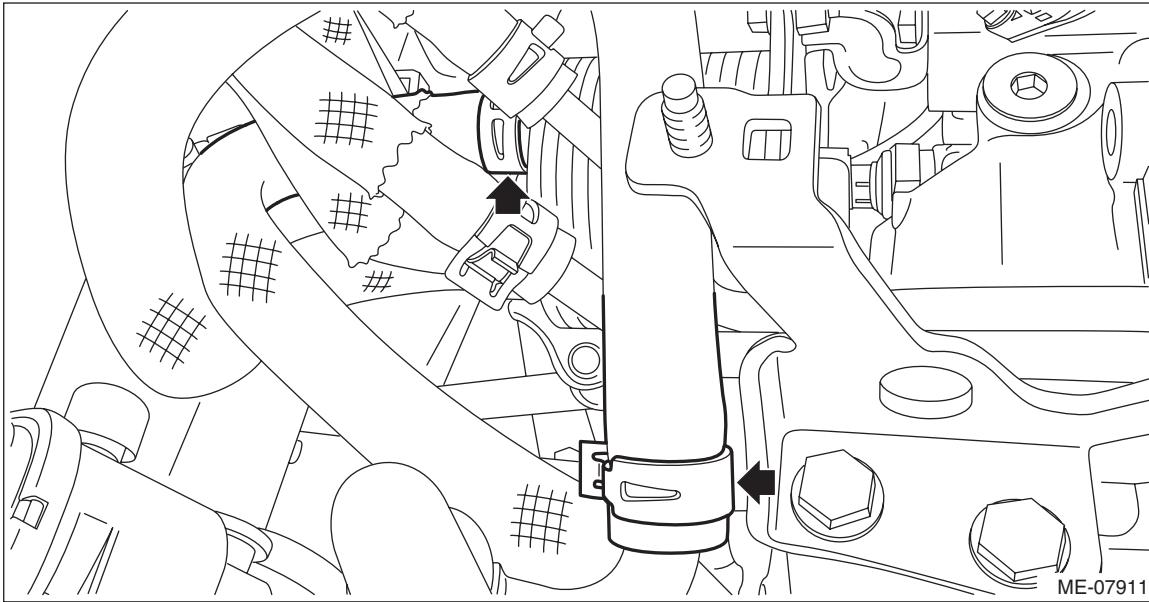
- 18) Disconnect connector (A) from A/C compressor, and remove the generator cord from clip (B).
- 19) Remove the clip (C) securing the generator cord to the fuel pipe protector, and move the generator cord to the left side wheel apron.
- 20) Remove the bolts securing the A/C pressure hoses to A/C compressor, and disconnect the A/C pressure hoses from A/C compressor. <Ref. to AC-63, REMOVAL, Hose and Pipe.>



- 21) Disconnect the heater inlet hose (A) from the water pipe assembly, and disconnect the heater outlet hose (B) from the water pipe LH.



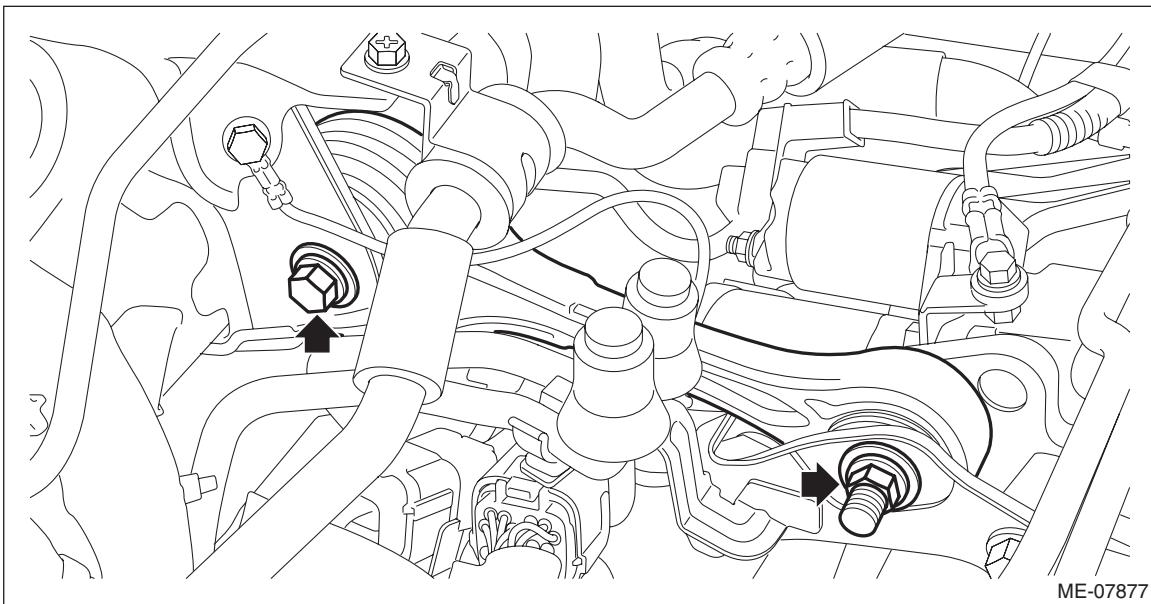
- 22) Disconnect the engine coolant inlet hose and engine coolant outlet hose from the CVTF cooler (with warmer feature) and EGR cooler. (CVT model)



Engine Assembly

MECHANICAL

23) Remove the pitching stopper.



24) Remove the oil catch tank. <Ref. to IN(w/o STI)-52, REMOVAL, Oil Catch Tank.>

25) Lower the vehicle.

26) Remove the front exhaust pipe. <Ref. to EX(w/o STI)-9, REMOVAL, Front Exhaust Pipe.>

27) Set the transmission jack to the transmission. (CVT model)

NOTE:

Be careful that the support plate of transmission jack does not touch the transmission oil pan.

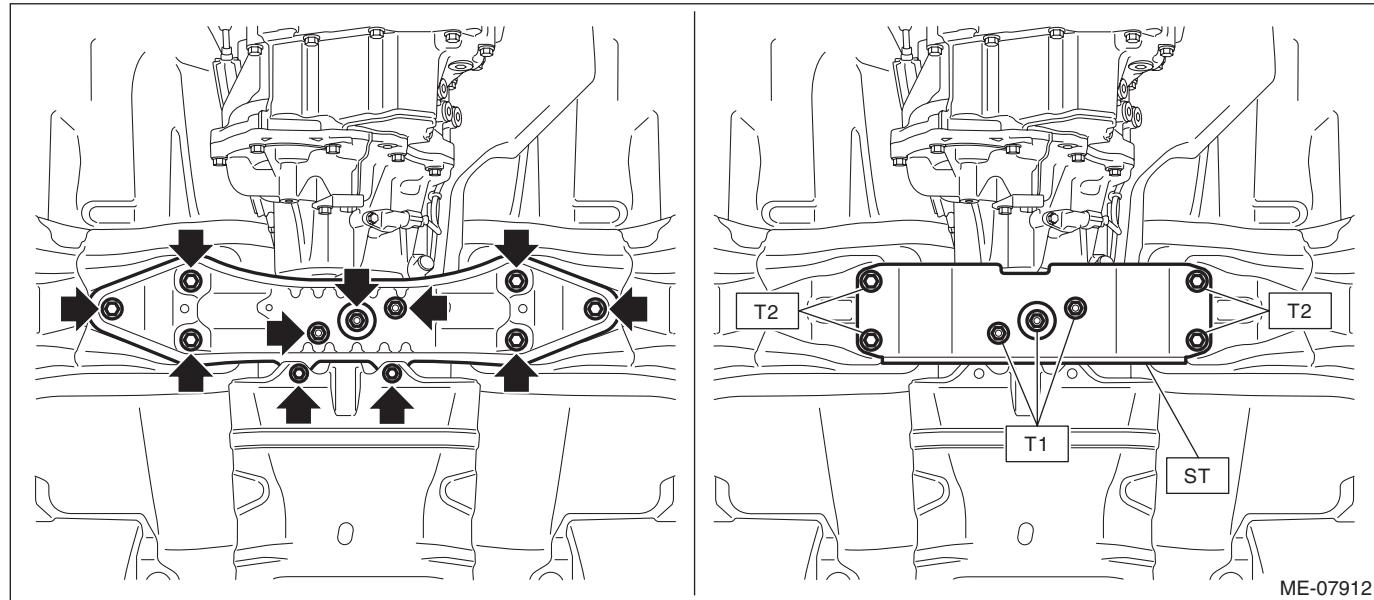
28) Remove the rear crossmember and attach the ST. (CVT model)

ST 41099YC001 ST REAR MOUNT

Tightening torque:

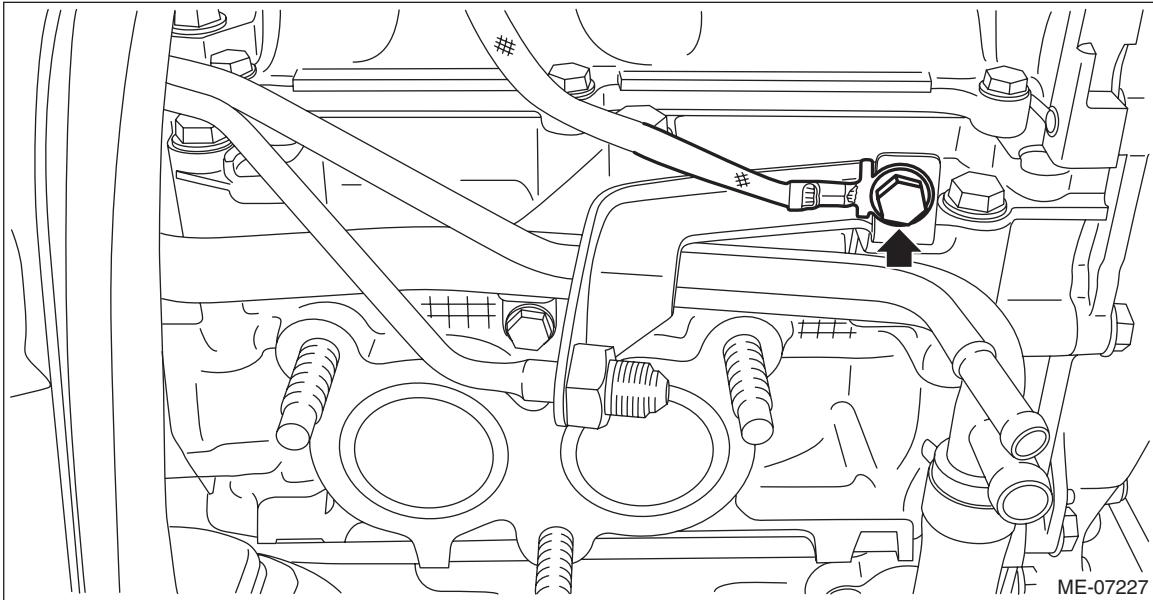
T1: 35 N·m (3.6 kgf-m, 25.8 ft-lb)

T2: 70 N·m (7.1 kgf-m, 51.6 ft-lb)

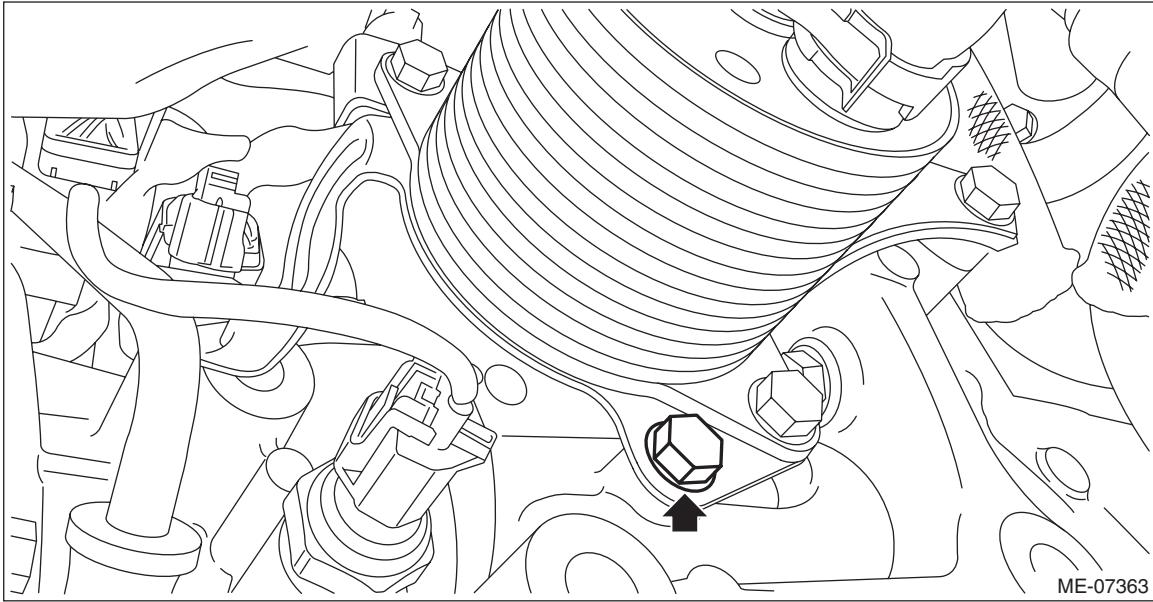


29) Remove the transmission jack. (CVT model)

30) Disconnect the ground cable from the oil pipe assembly.



31) Remove the lower bolt securing the CVTF cooler (with warmer feature) to the CVT. (CVT model)

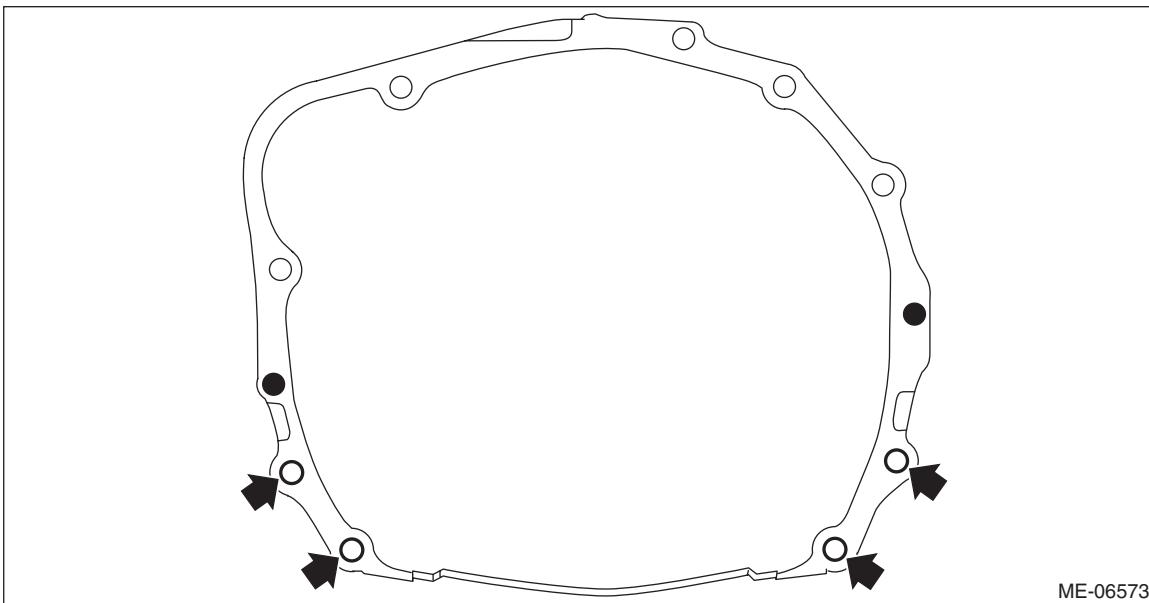


Engine Assembly

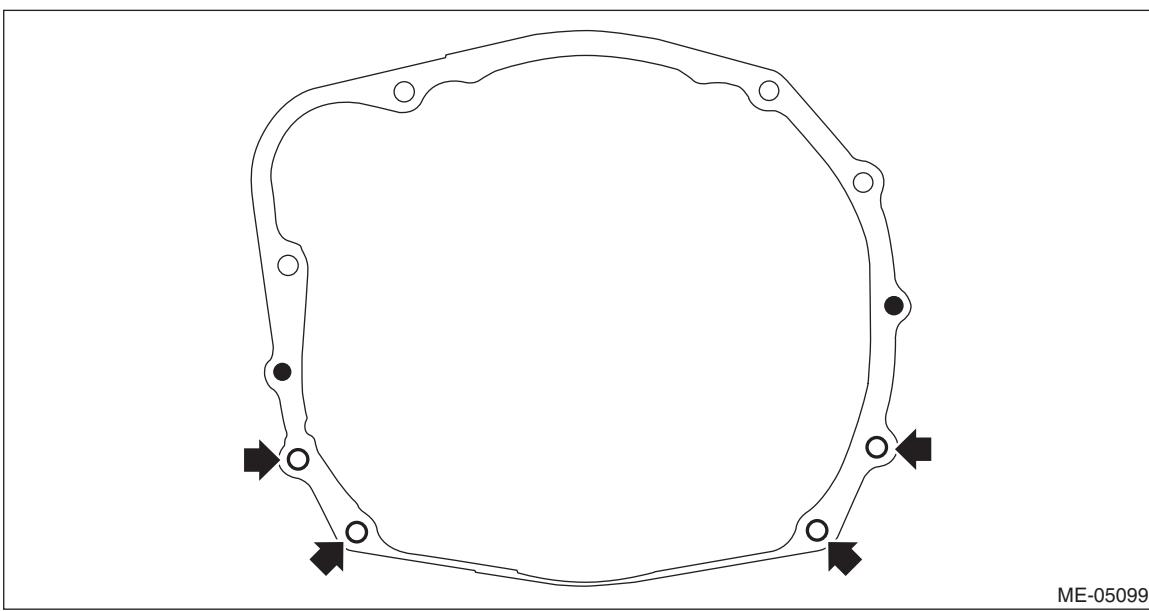
MECHANICAL

32) Remove the bolts and nuts which hold the lower side of transmission to the engine.

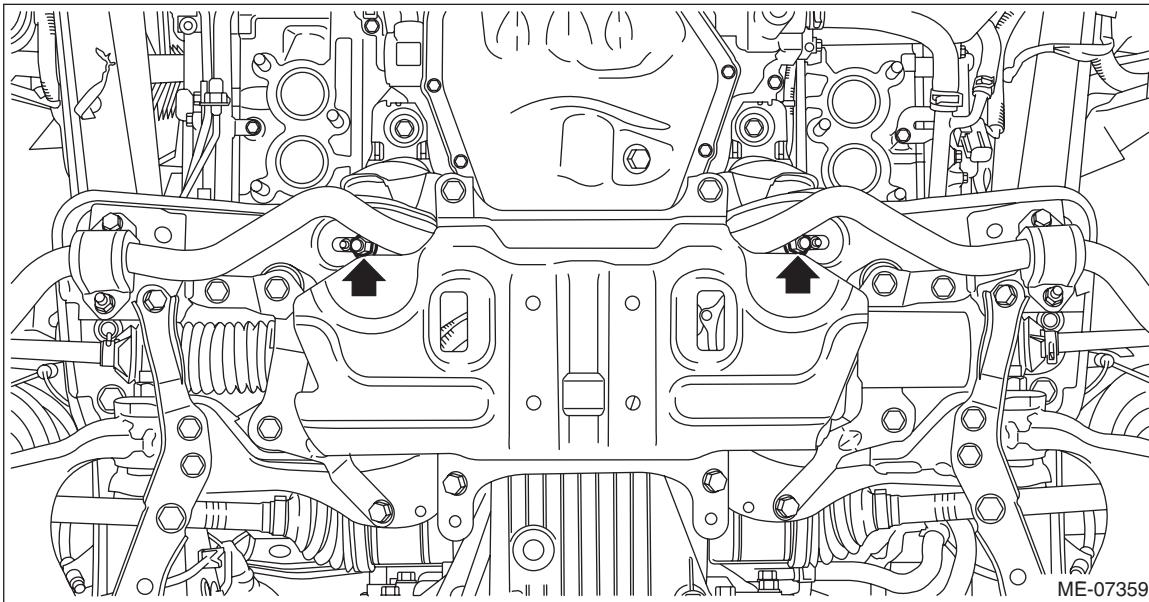
- CVT model



- MT model



- 33) Remove the nuts which secure the engine mounting to the front crossmember.

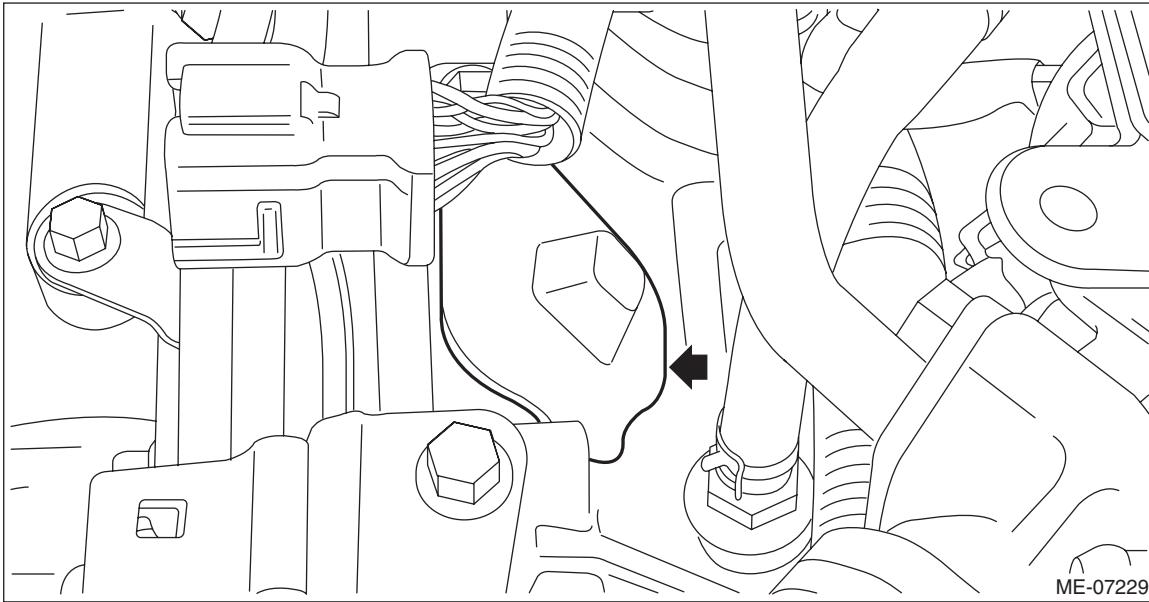


- 34) Lower the vehicle.

- 35) Remove the starter. <Ref. to SC(w/o STI)-7, REMOVAL, Starter.>

- 36) Separate the torque converter clutch from the drive plate. (CVT model)

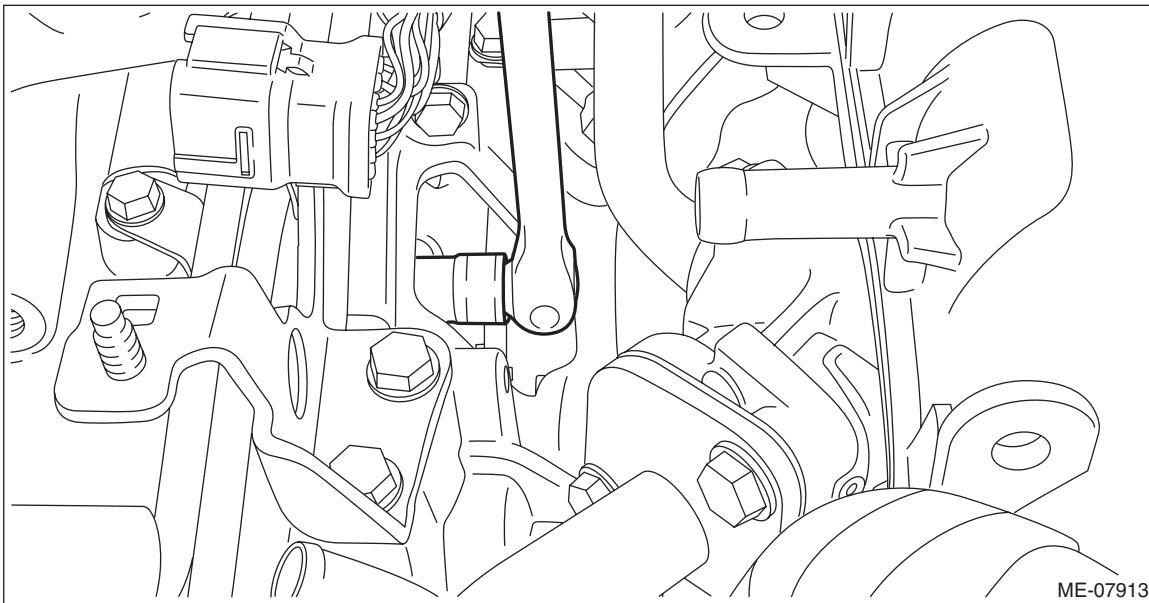
- (1) Remove the service hole plug.



Engine Assembly

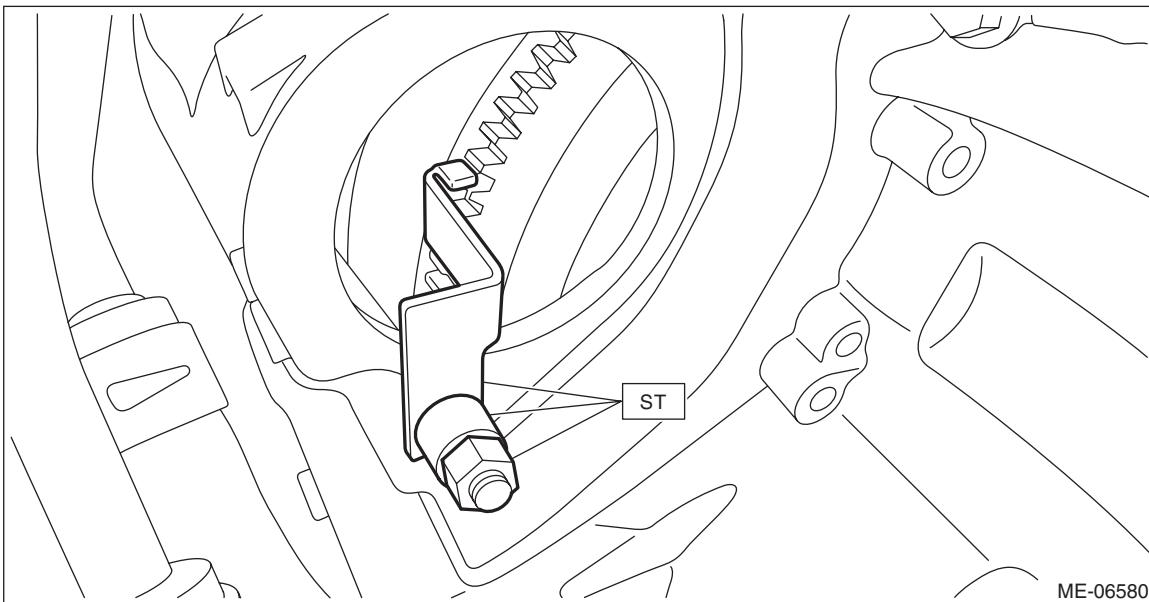
MECHANICAL

(2) Insert the wrench into the crank pulley bolt and rotate the crank pulley to remove the bolts which hold torque converter clutch to drive plate.



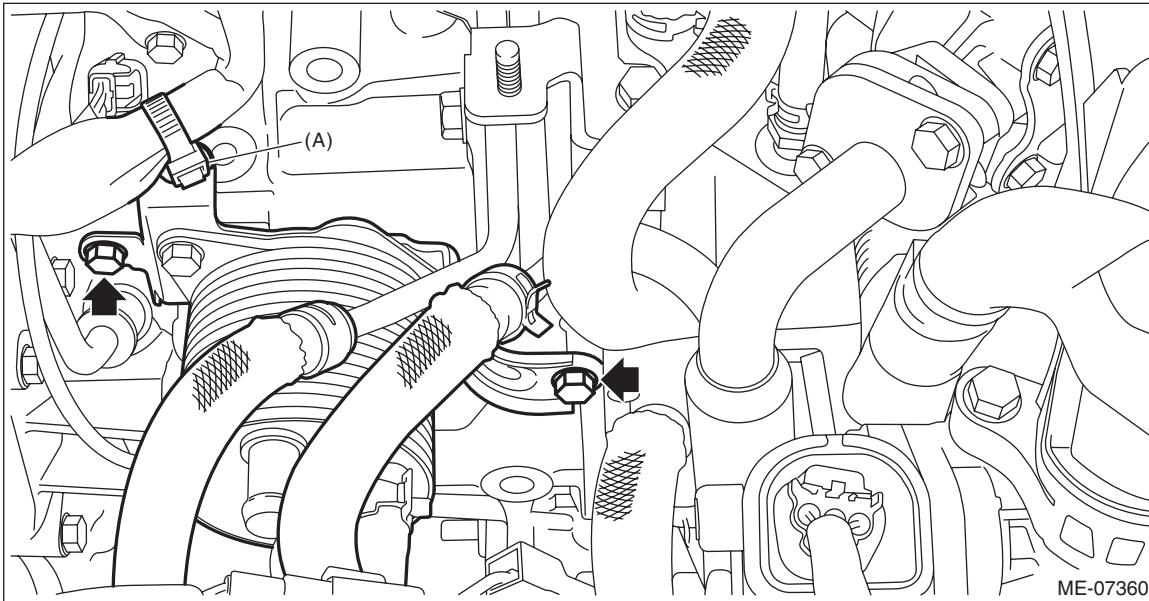
(3) Attach the ST to the torque converter clutch case.

ST 498277200 STOPPER SET



37) Remove the clip (A) securing the bulkhead harness to the CVTF cooler (with warmer feature). (CVT model)

- 38) Remove the upper bolt securing the CVTF cooler (with warmer feature) to the CVT, and move the CVTF cooler (with warmer feature) at the locations that do not interfere operation. (CVT model)



- 39) Remove the bolt (A) securing the transmission harness stay to the CVT. (CVT model)

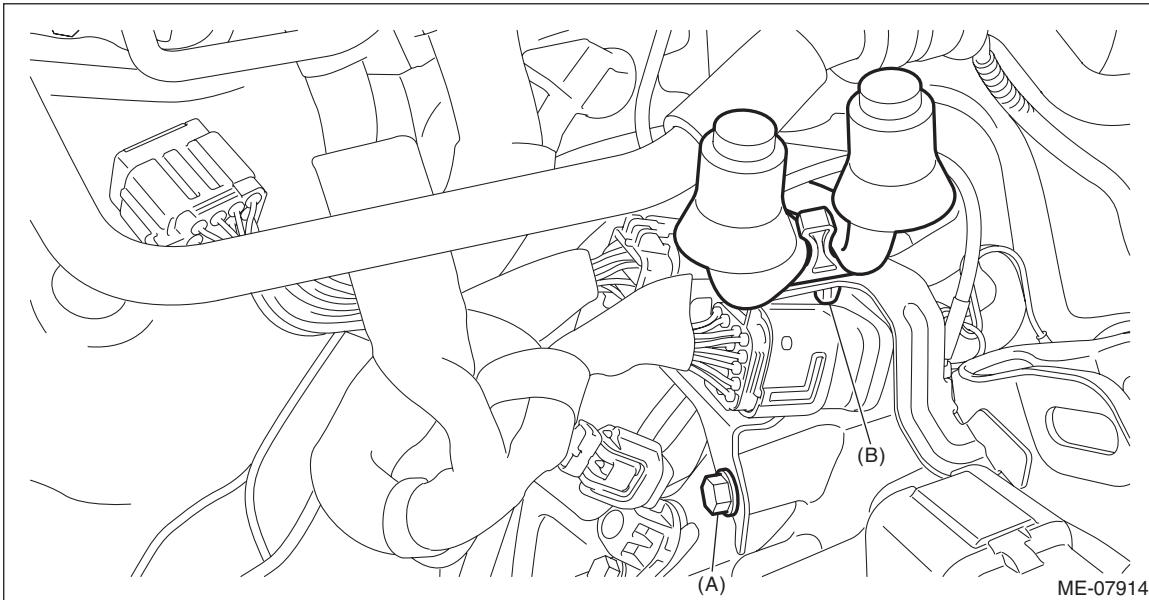
NOTE:

This procedure is required to prevent the transmission connector from touching the A/C pressure hose during engine removal/installation.

- 40) Remove the air breather hose from the clip (B), and then remove the clip (B) from the pitching stopper bracket. (CVT model)

NOTE:

This procedure is required to prevent the clip from touching the A/C pressure hose during engine removal/installation.



Engine Assembly

MECHANICAL

41) Disconnect the fuel delivery tube and evaporation hose.

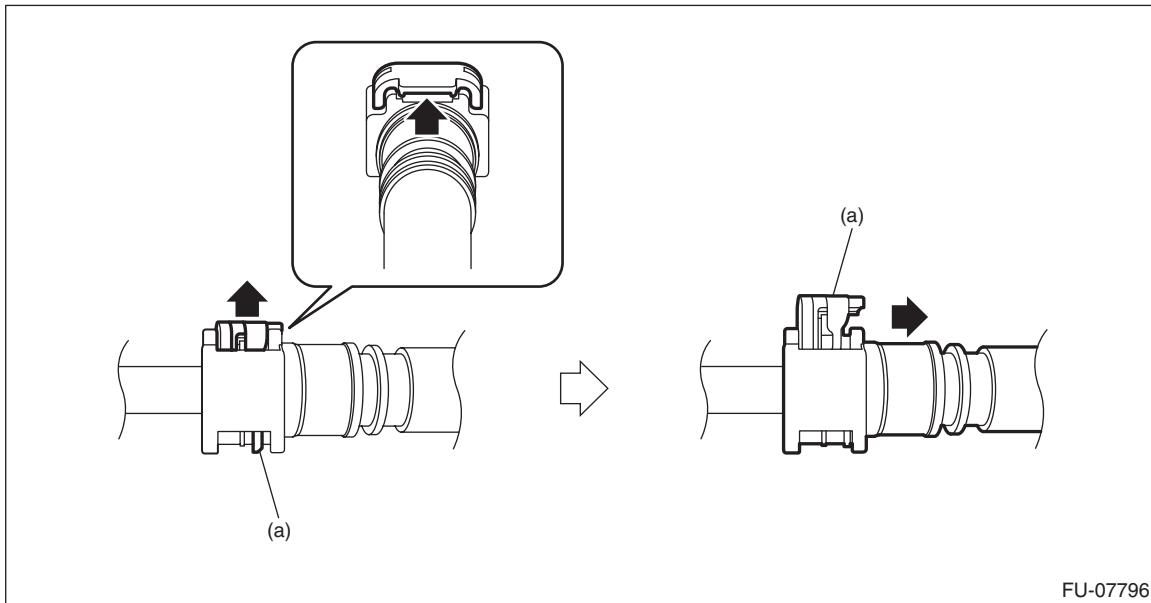
CAUTION:

- Be careful not to spill fuel.
- Catch the fuel from the tubes using a container or cloth.

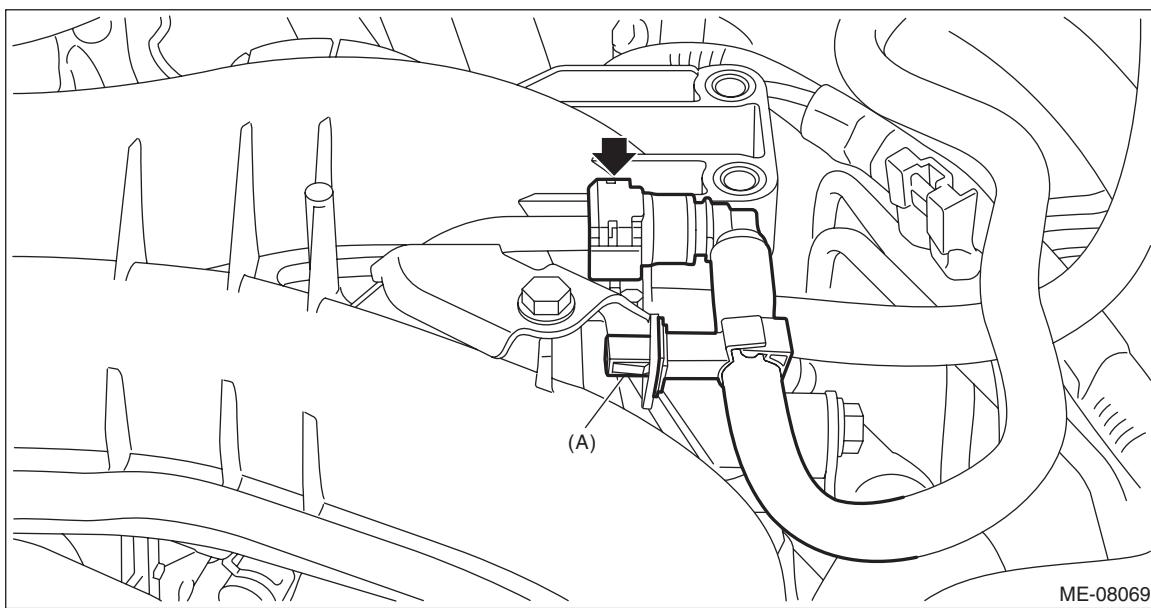
(1) Disconnect the quick connector on the fuel delivery tube from the fuel pipe assembly, and remove the clip (A) securing the fuel delivery tube.

NOTE:

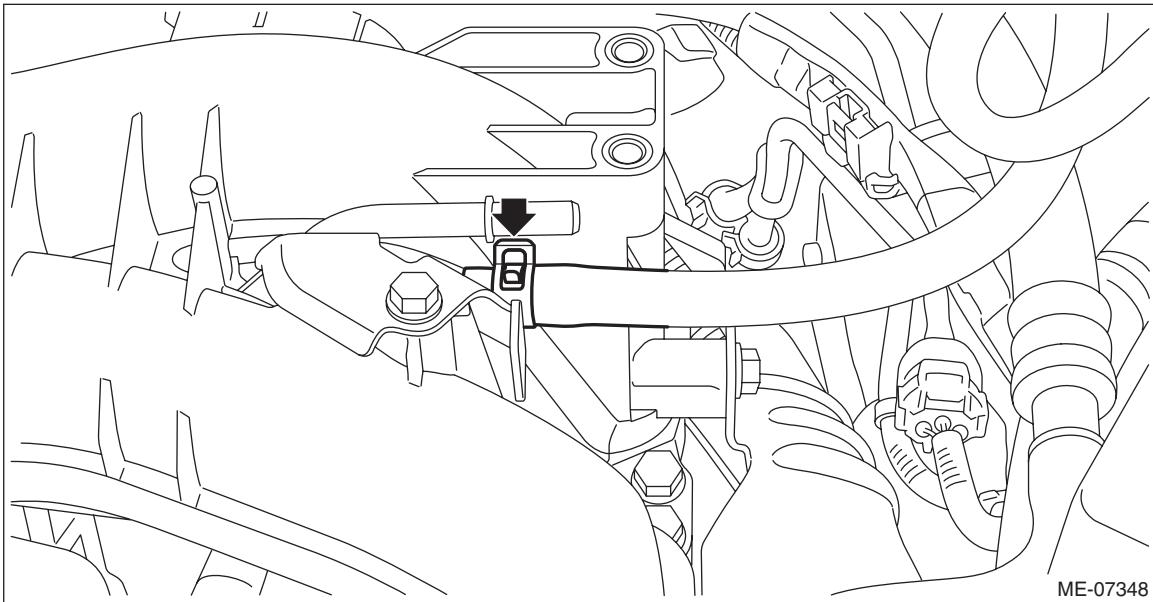
Disconnect the quick connector as shown in the figure.



(a) Slider



(2) Disconnect the evaporation hose from the fuel pipe assembly.

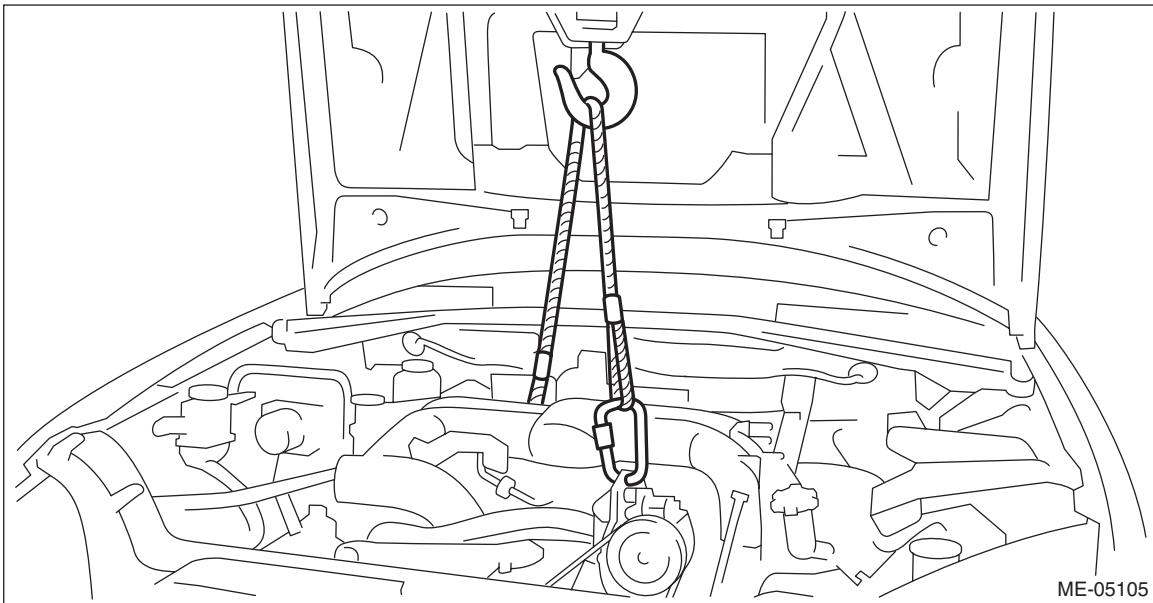


42) Separate the engine and transmission.

CAUTION:

Before removing the engine away from transmission, check to be sure no work has been overlooked.

(1) Support the engine with a lifting device and wire ropes.



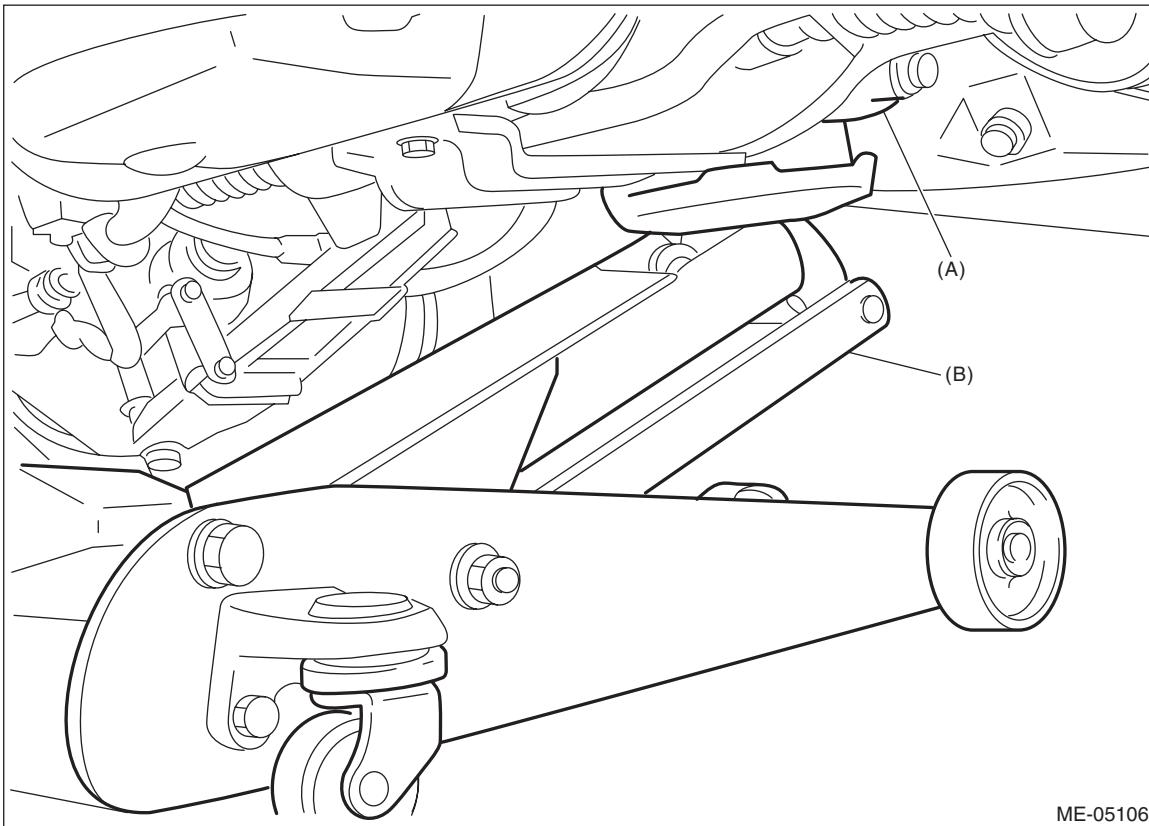
Engine Assembly

MECHANICAL

(2) Support the transmission with a garage jack.

CAUTION:

Be sure to perform this procedure to prevent the transmission from lowering by its own weight.

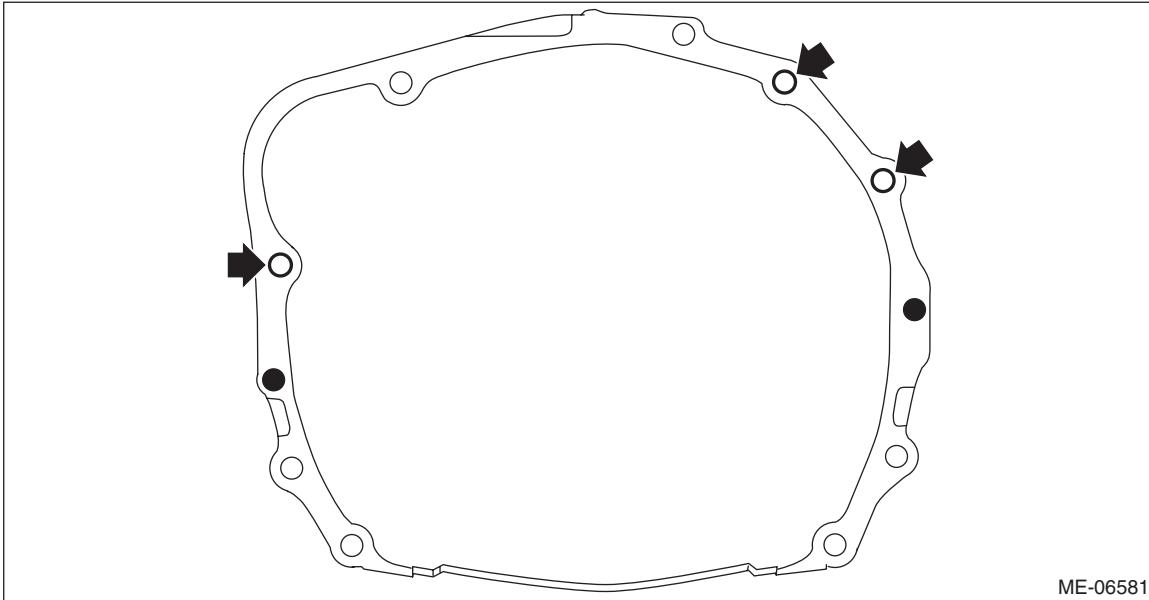


(A) Transmission

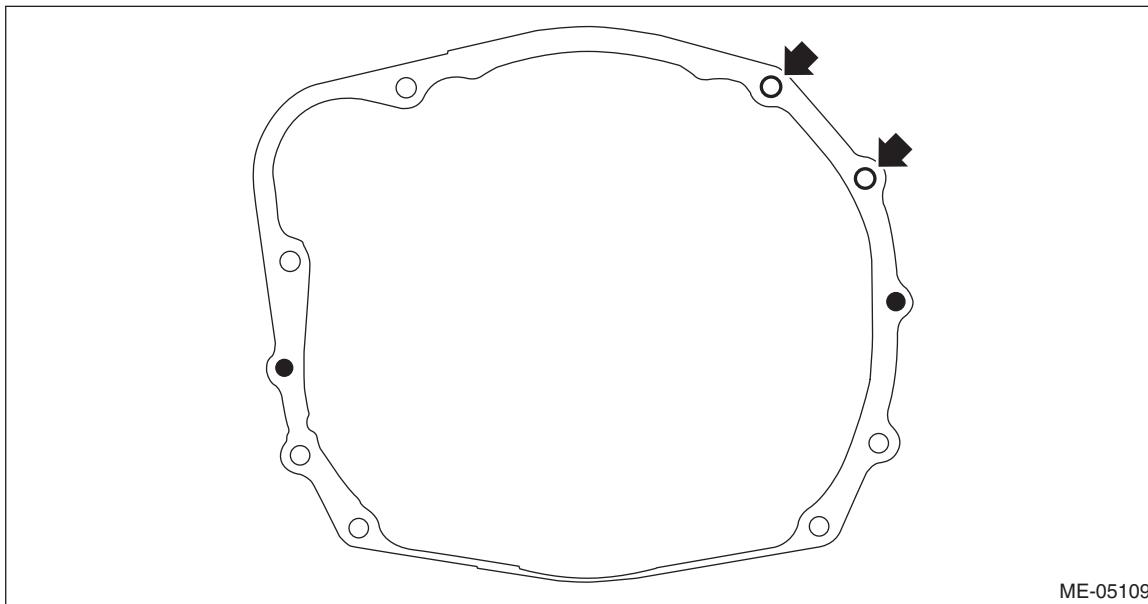
(B) Garage jack

(3) Remove the bolts which hold the upper side of the transmission to the engine.

- CVT model



- MT model



43) Remove the engine from the vehicle.

NOTE:

Be careful not to damage adjacent parts or body panels with crank pulley, oil level gauge, etc.

- (1) Slightly raise the engine.
- (2) Raise the transmission with garage jack.
- (3) Move the engine horizontally until engine is withdrawn from transmission. (CVT model)
- (4) Move the engine horizontally until main shaft is withdrawn from clutch cover. (MT model)
- (5) Slowly move the engine away from engine compartment.

44) Remove the engine mounting from the engine.

B: INSTALLATION

1) Install the engine mounting onto the engine.

Tightening torque:

35 N·m (3.6 kgf·m, 25.8 ft-lb)

2) Apply a small amount of grease to splines of main shaft. (MT model)

Grease:

NICHIMOLY N-130 or equivalent

3) Position the engine in engine compartment and align it with transmission.

NOTE:

Be careful not to damage adjacent parts or body panels with crank pulley, oil level gauge, etc.

Engine Assembly

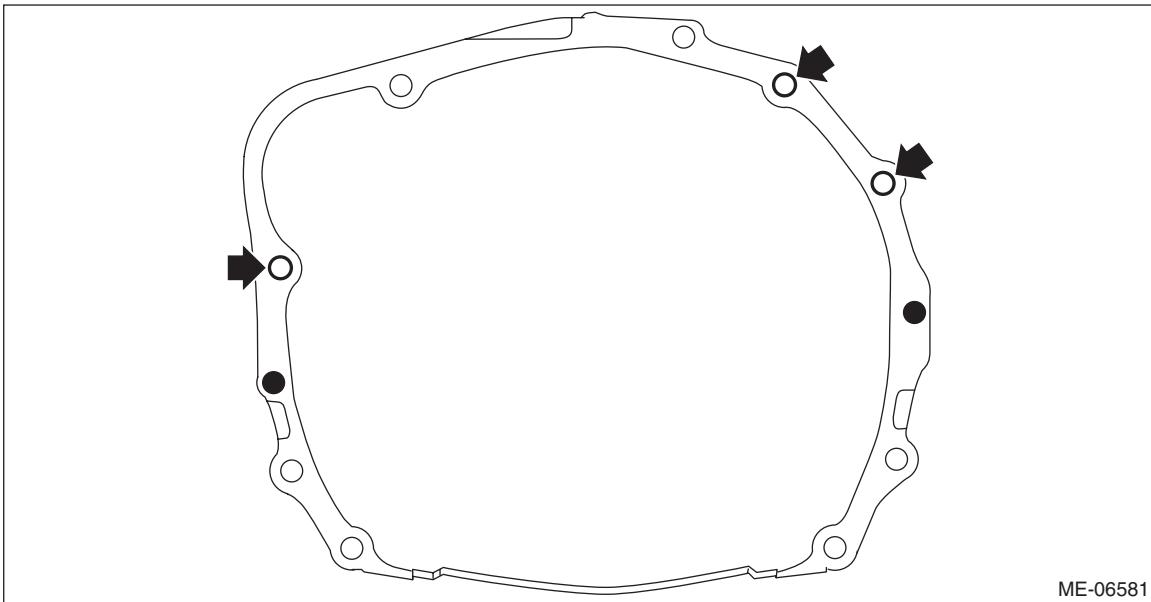
MECHANICAL

- 4) Install the bolts which hold upper side of transmission to engine.

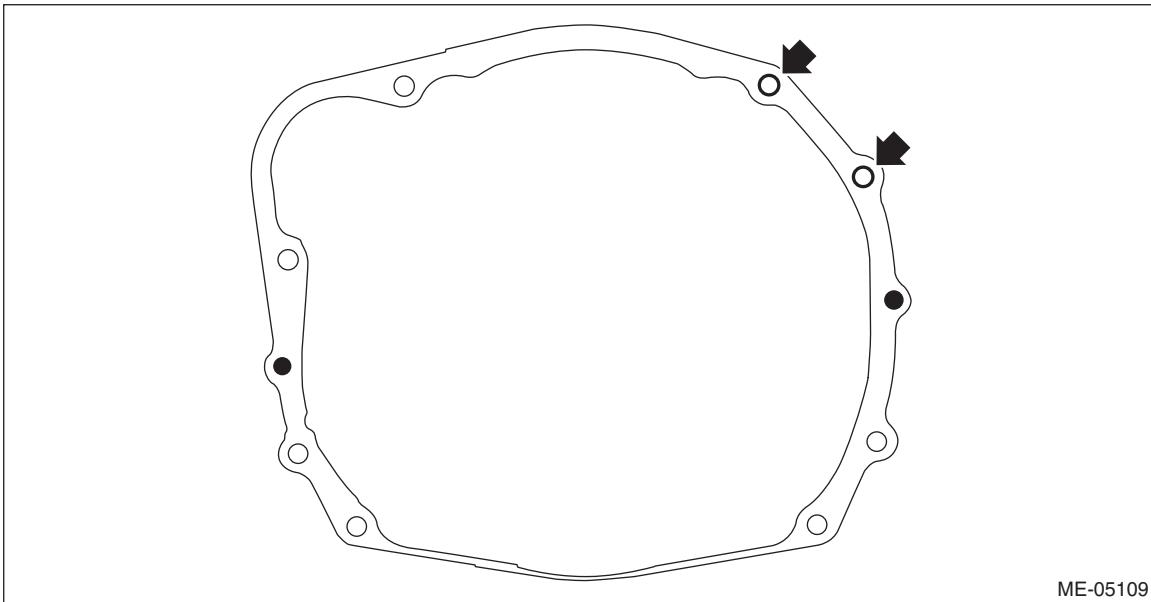
Tightening torque:

50 N·m (5.1 kgf-m, 36.9 ft-lb)

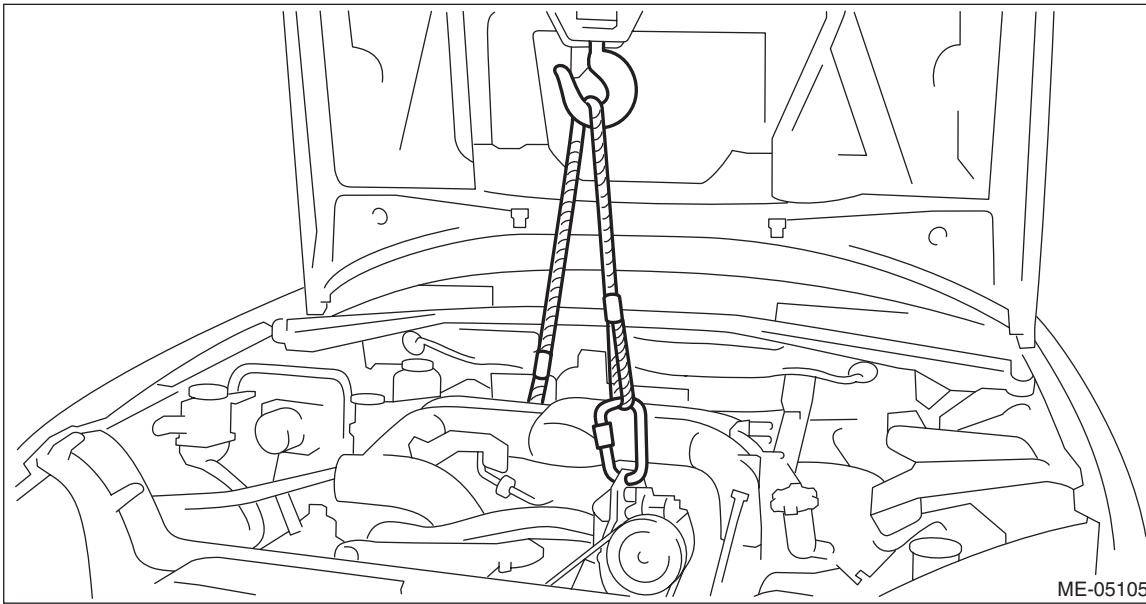
- CVT model



- MT model



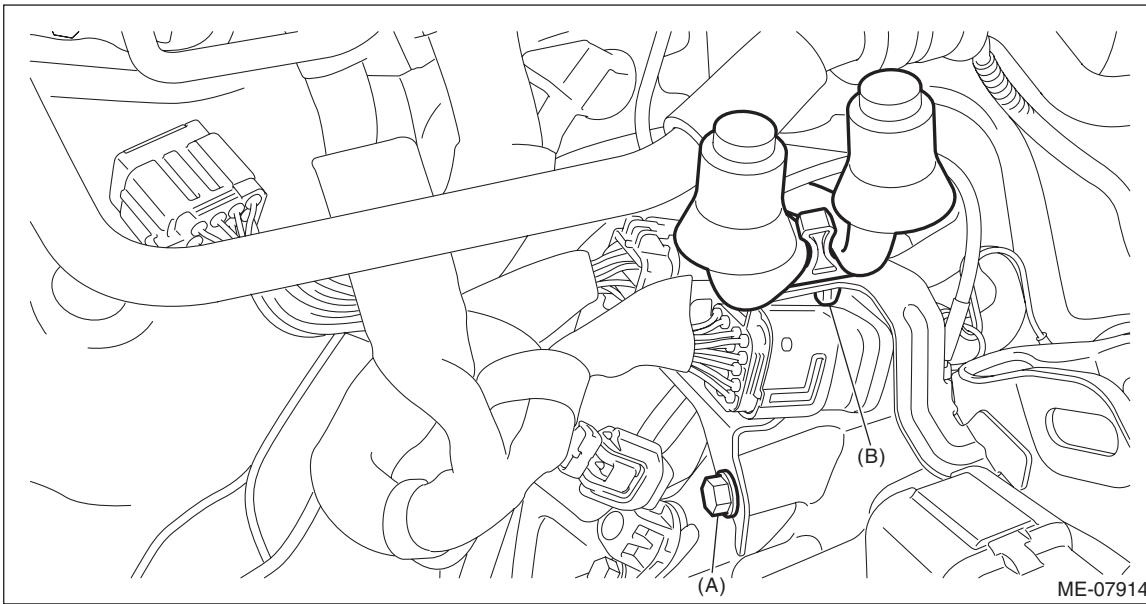
- 5) Remove the lifting device and wire ropes.



- 6) Remove the garage jack.
7) Install the clip (B) to the pitching stopper bracket, and then install the air breather hose to the clip (B). (CVT model)
8) Install the bolt (A) which secures the transmission harness stay to the CVT. (CVT model)

Tightening torque:

15 N·m (1.6 kgf·m, 11.8 ft-lb)

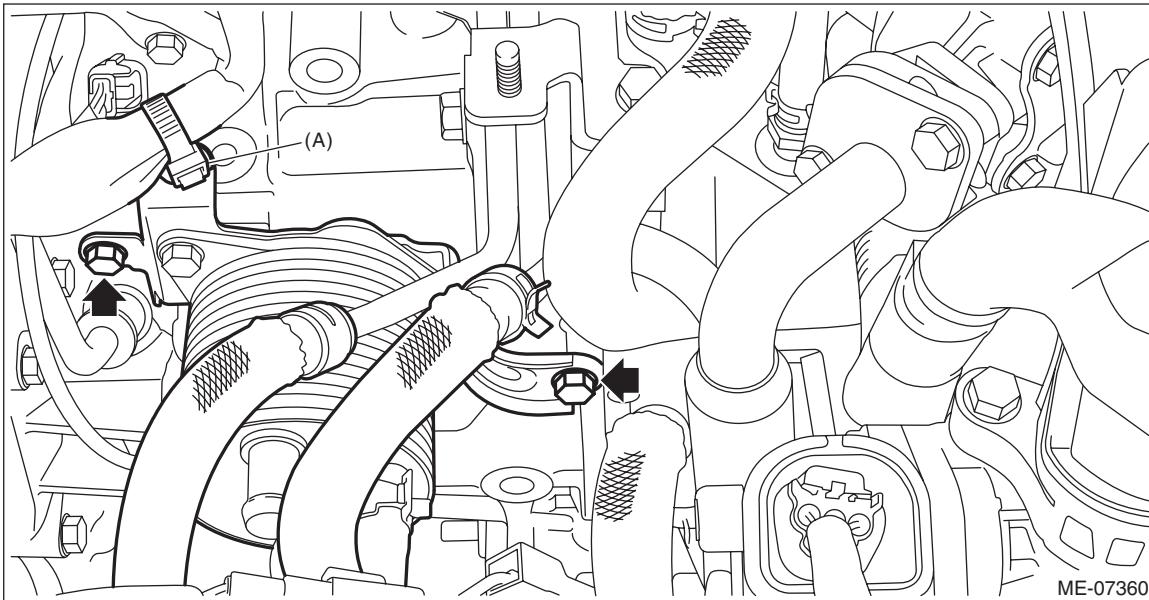


Engine Assembly

MECHANICAL

9) Install the CVTF cooler (with warmer feature) to the CVT. (CVT model)

- (1) Temporarily tighten the upper bolt which secures the CVTF cooler (with warmer feature) to the CVT.
- (2) Using clip (A), fix the bulkhead harness to the CVTF cooler (with warmer feature).

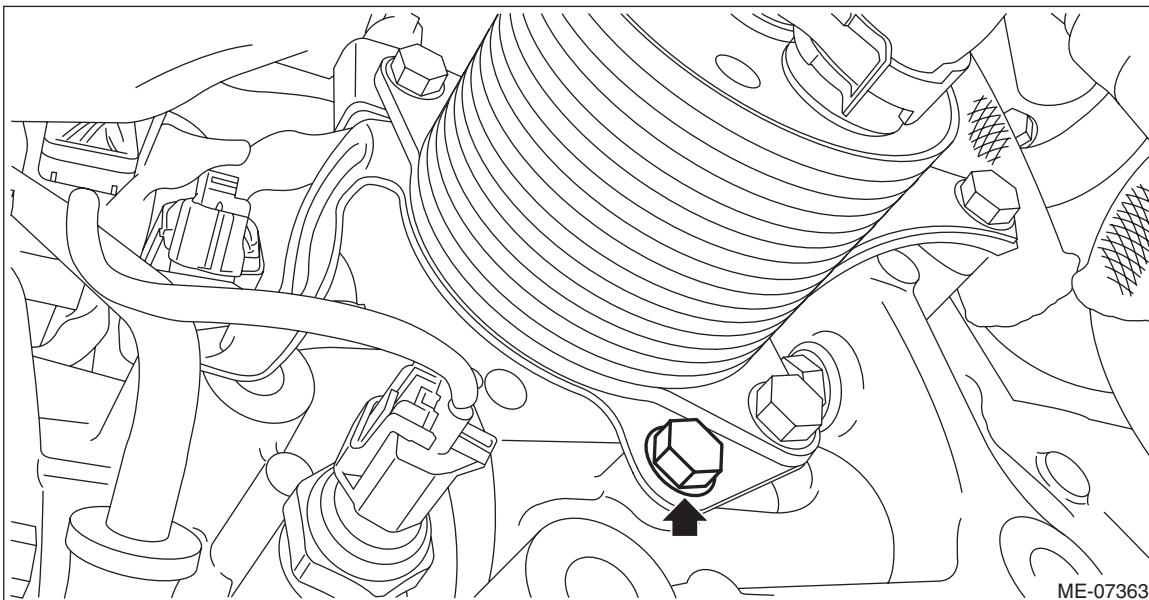


(3) Lift up the vehicle.

(4) Install the lower bolt which secures CVTF cooler (with warmer feature) to the CVT.

Tightening torque:

23 N·m (2.3 kgf·m, 17.0 ft-lb)

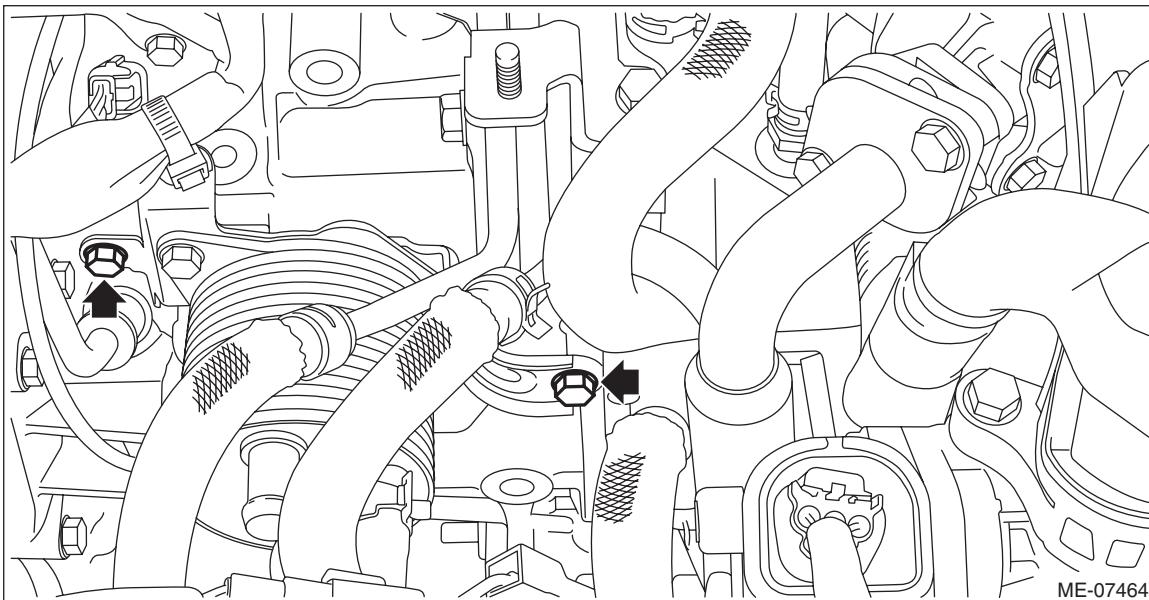


(5) Lower the vehicle.

(6) Tighten the upper bolt which secures the CVTF cooler (with warmer feature) to the CVT.

Tightening torque:

23 N·m (2.3 kgf·m, 17.0 ft-lb)



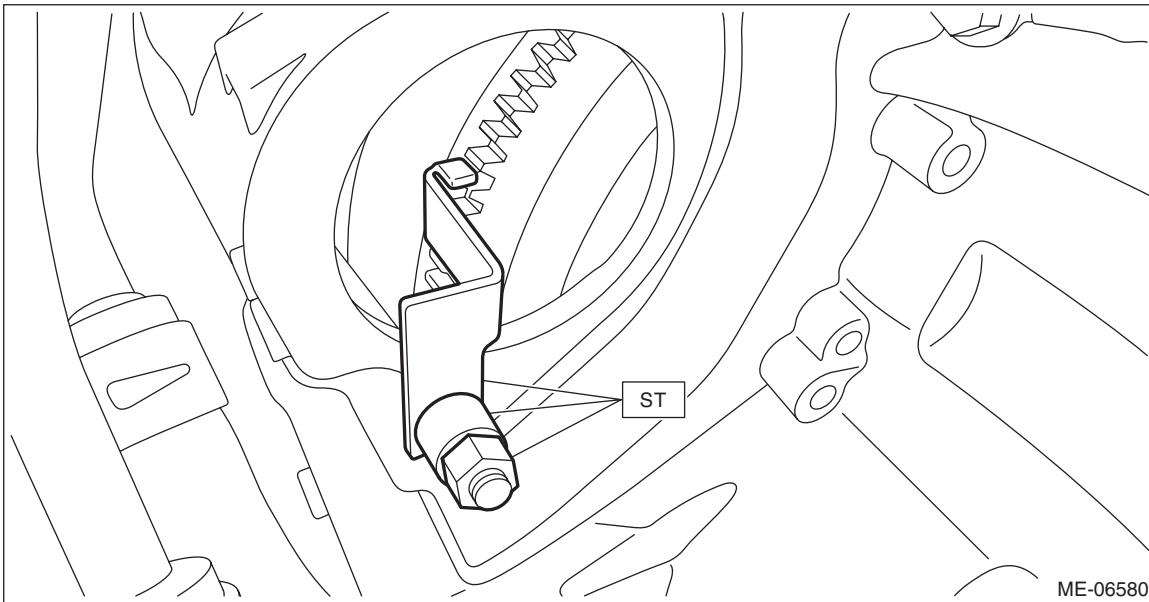
10) Install the torque converter clutch to drive plate. (CVT model)

(1) Remove the ST from torque converter clutch case.

NOTE:

Be careful not to drop the ST into the torque converter clutch case when removing the ST.

ST 498277200 STOPPER SET



Engine Assembly

MECHANICAL

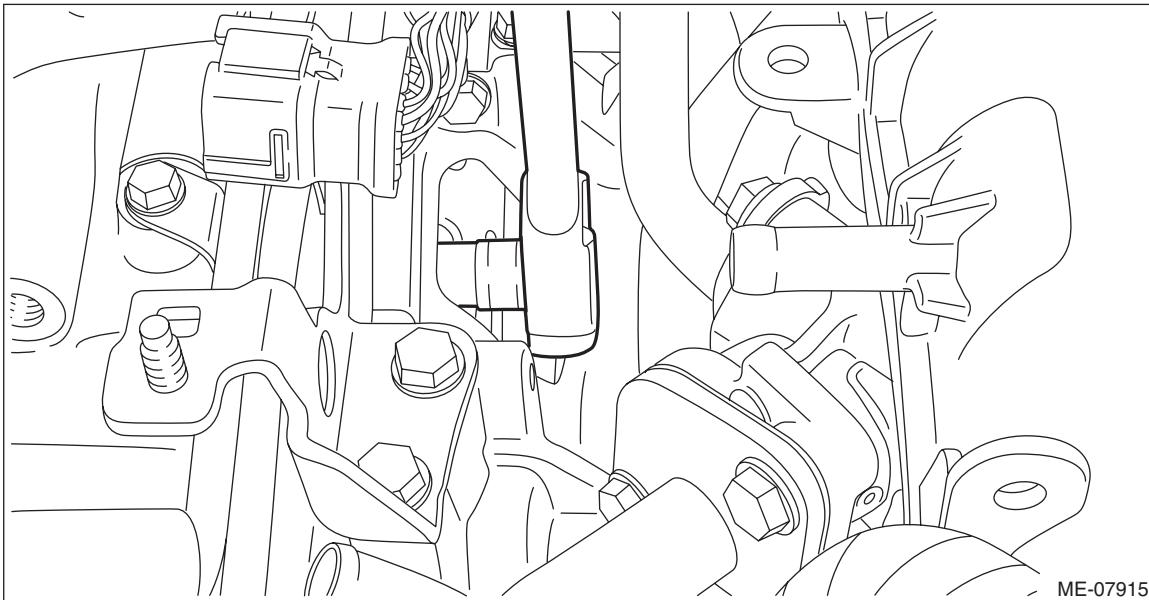
(2) Insert the wrench into the crank pulley bolt and rotate the crank pulley to install the bolts which hold torque converter clutch to drive plate.

NOTE:

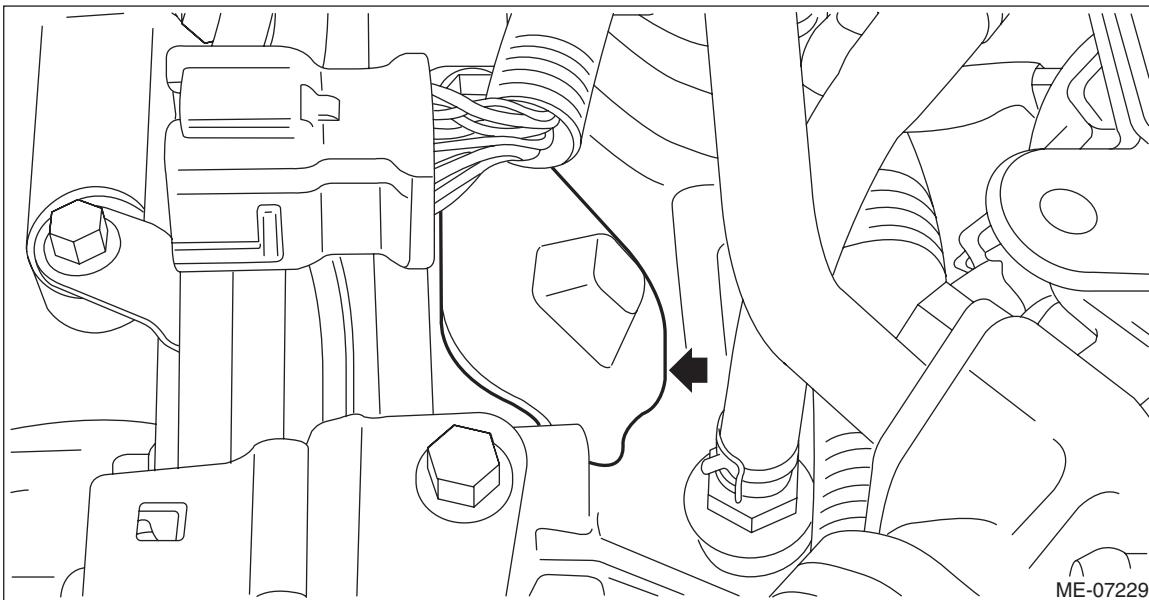
Be careful not to drop bolts into the torque converter clutch case.

Tightening torque:

25 N·m (2.5 kgf·m, 18.4 ft-lb)



(3) Fit the plug to service hole.



11) Install the starter. <Ref. to SC(w/o STI)-9, INSTALLATION, Starter.>

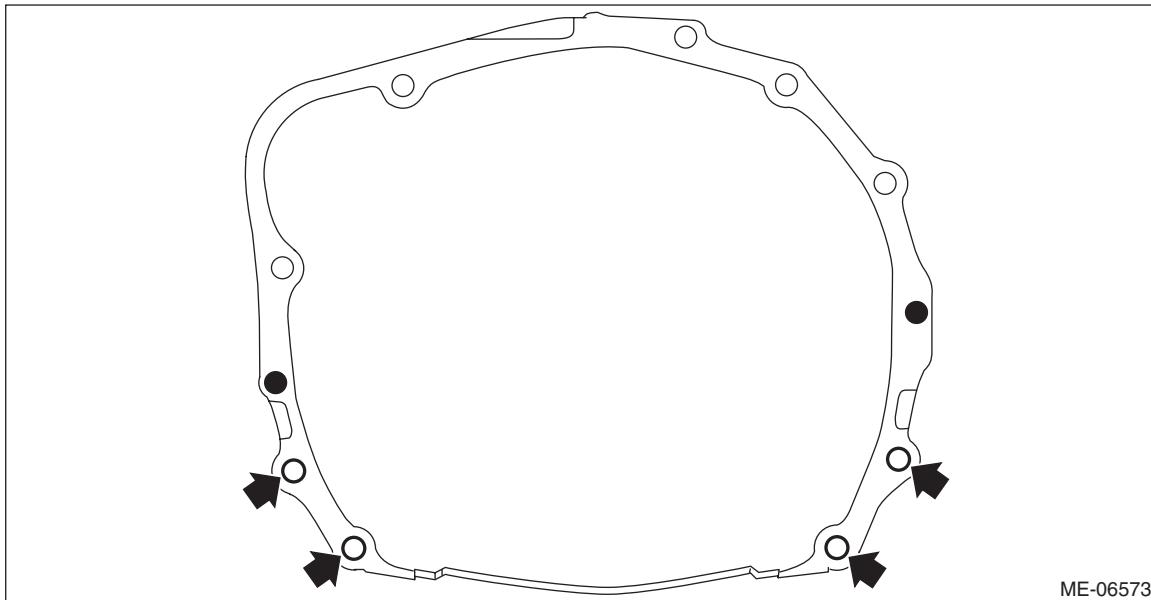
12) Lift up the vehicle.

- 13) Install the bolts and nuts which hold lower side of the transmission to engine.

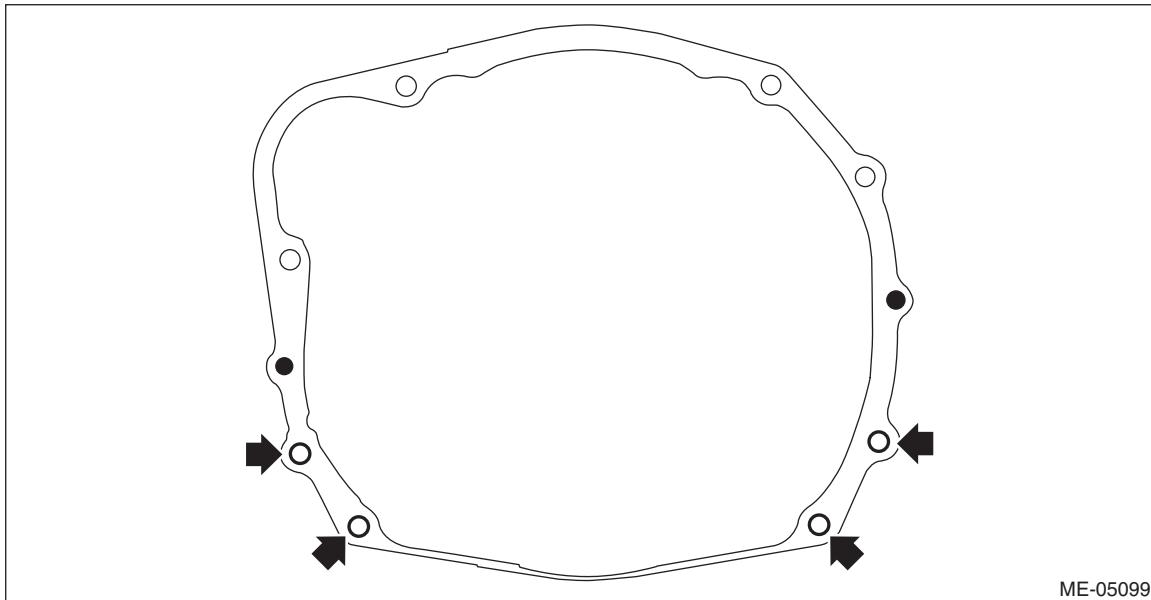
Tightening torque:

50 N·m (5.1 kgf-m, 36.9 ft-lb)

- CVT model



- MT model



Engine Assembly

MECHANICAL

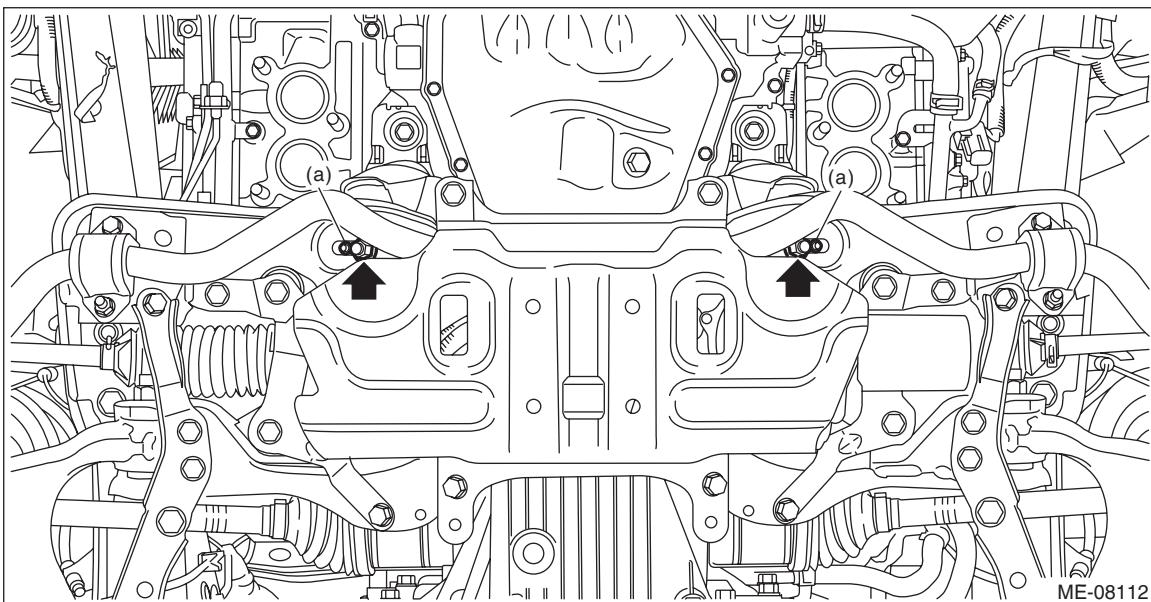
14) Install the nuts which hold the engine mounting to the crossmember.

NOTE:

- Make sure that locators (a) of the engine mounting are securely inserted.
- Use a new nut.

Tightening torque:

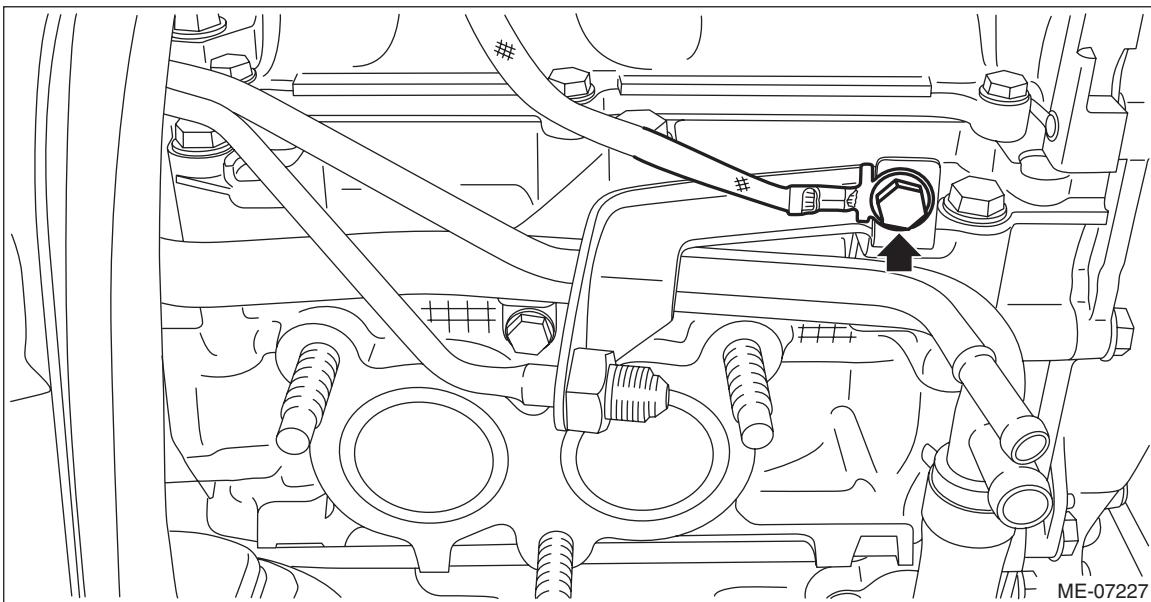
60 N·m (6.1 kgf·m, 44.3 ft-lb)



15) Connect the ground cable to the oil pipe assembly.

Tightening torque:

7 N·m (0.7 kgf·m, 5.2 ft-lb)



16) Set the transmission jack to the transmission. (CVT model)

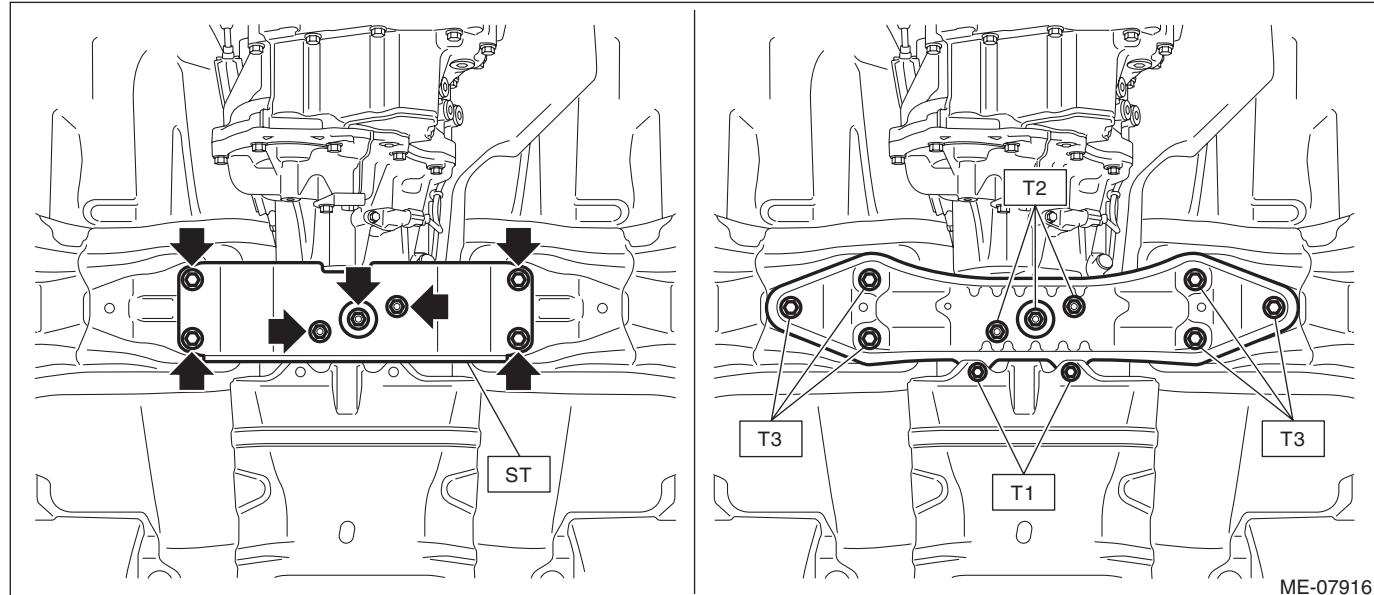
NOTE:

Be careful that the support plate of transmission jack does not touch the transmission oil pan.

- 17) Remove the ST and install the rear crossmember. (CVT model)
 ST 41099YC001 ST REAR MOUNT

Tightening torque:

- T1: 18 N·m (1.8 kgf-m, 13.3 ft-lb)
 T2: 35 N·m (3.6 kgf-m, 25.8 ft-lb)
 T3: 70 N·m (7.1 kgf-m, 51.6 ft-lb)

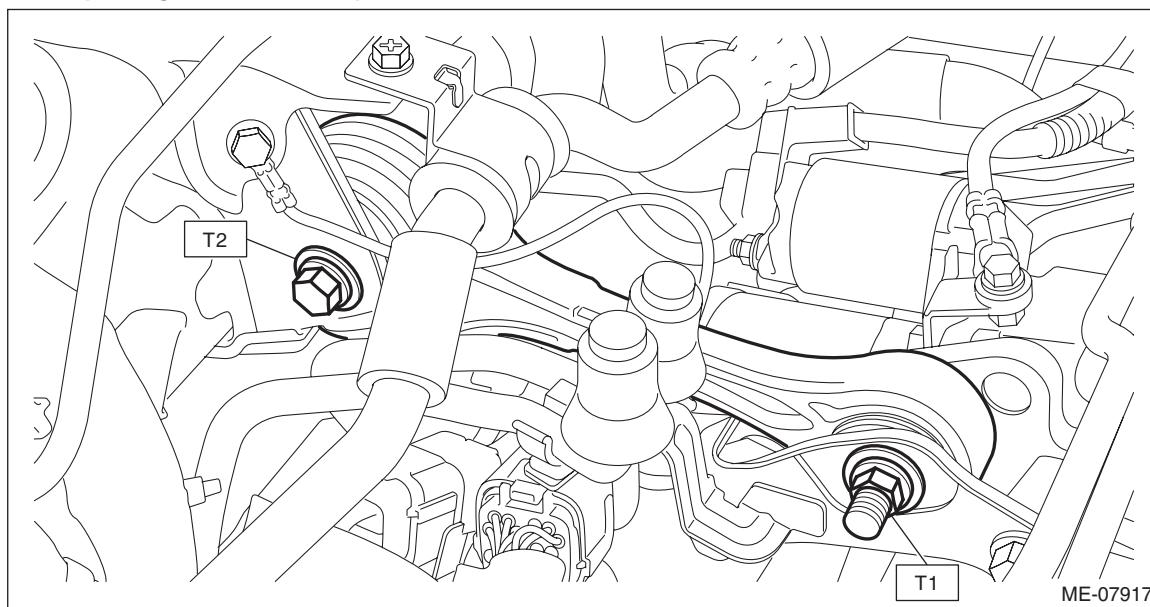


ME-07916

- 18) Remove the transmission jack. (CVT model)
 19) Install the front exhaust pipe. <Ref. to EX(w/o STI)-19, INSTALLATION, Front Exhaust Pipe.>
 20) Lift up the vehicle.
 21) Install the oil catch tank. <Ref. to IN(w/o STI)-53, INSTALLATION, Oil Catch Tank.>
 22) Install the pitching stopper.

Tightening torque:

- T1: 50 N·m (5.1 kgf-m, 36.9 ft-lb)
 T2: 58 N·m (5.9 kgf-m, 42.8 ft-lb)



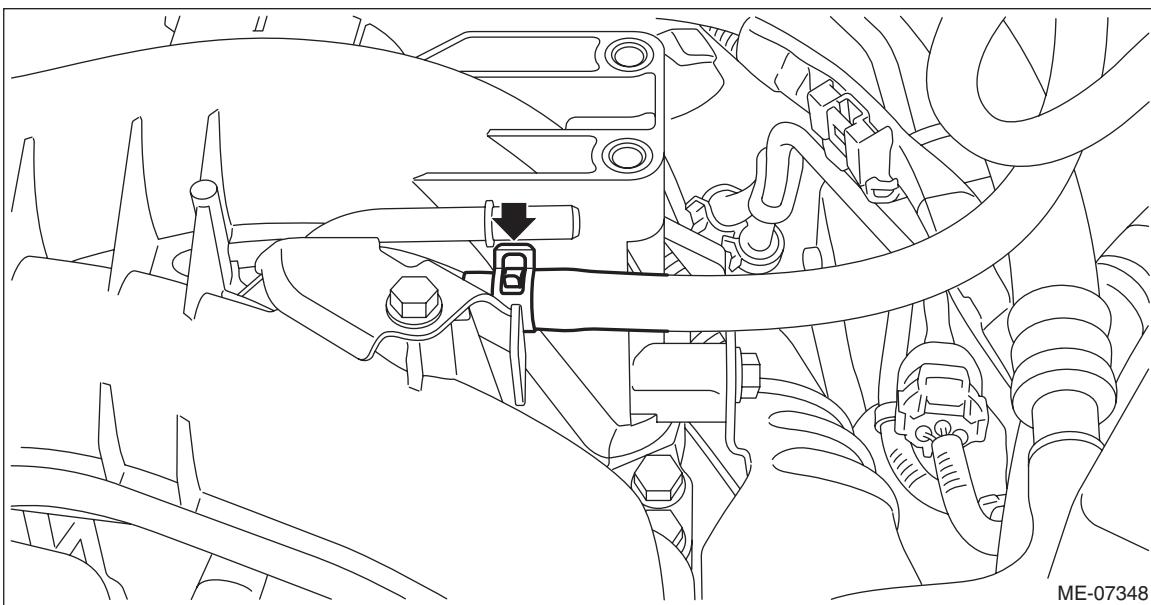
ME-07917

Engine Assembly

MECHANICAL

23) Connect the fuel delivery tube and evaporation hose.

(1) Connect the evaporation hose to fuel pipe assembly.



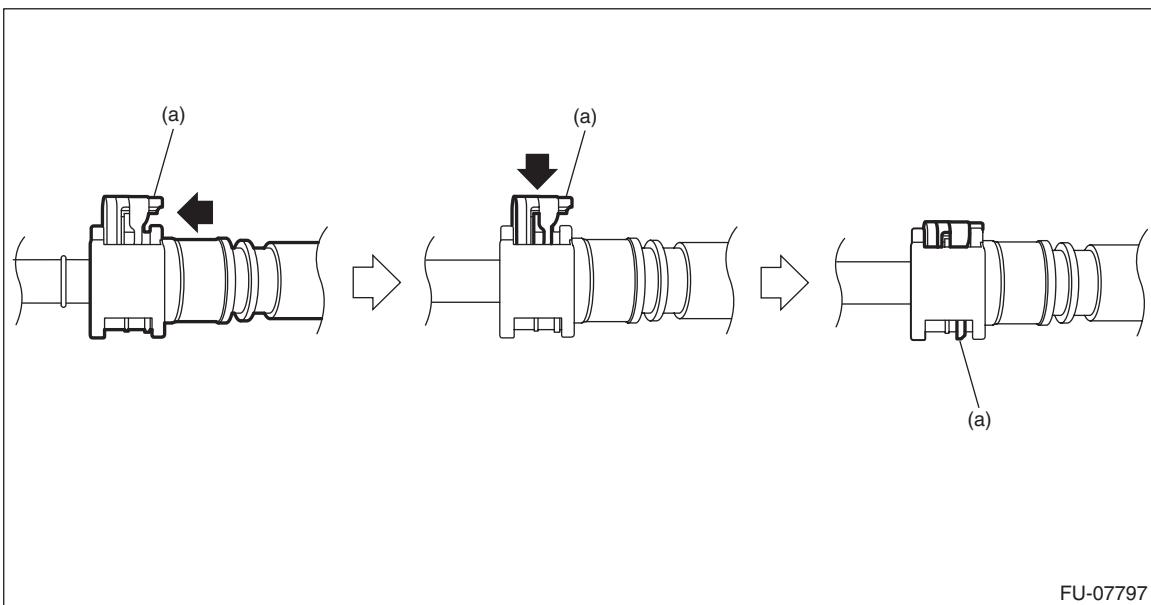
(2) Connect the quick connector on the fuel delivery tube to the fuel pipe assembly, and fix the fuel delivery tube using clip (A).

CAUTION:

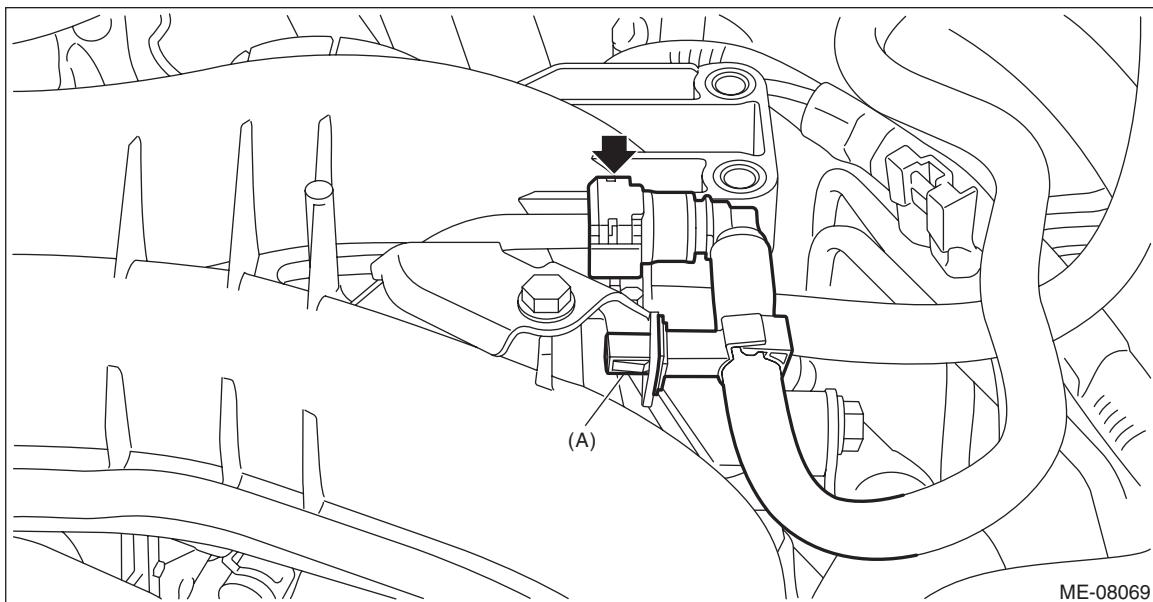
- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert it all the way in before locking the slider.
- When it is difficult to lock the slider, check that the connector is fully inserted.
- After locking the slider, check again that the quick connector is securely connected.

NOTE:

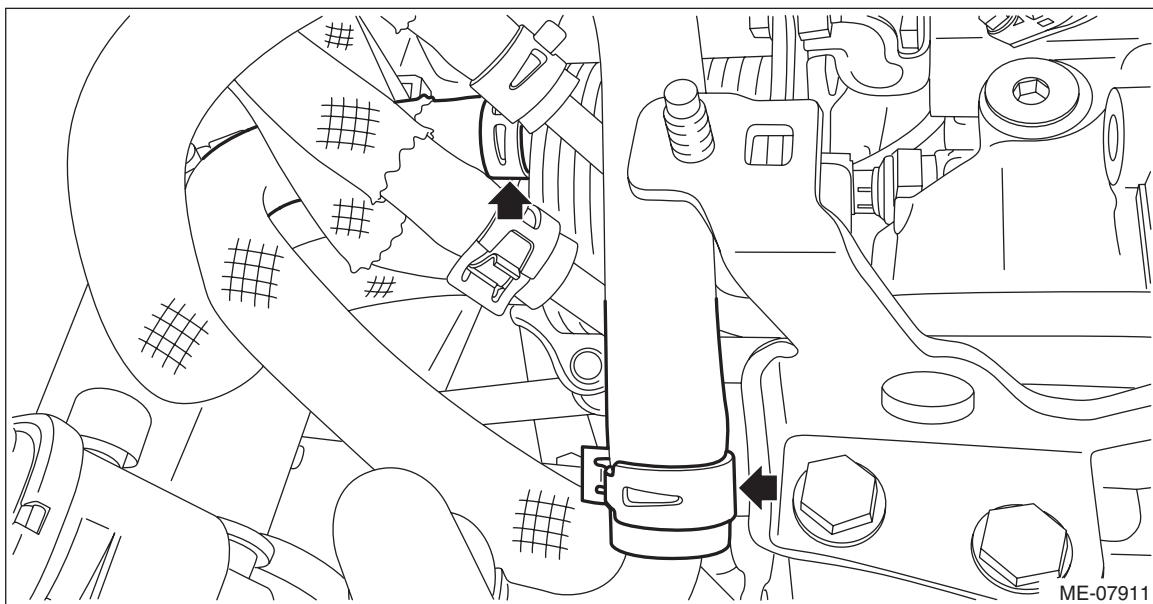
Connect the quick connector as shown in the figure.



(a) Slider



- 24) Connect the engine coolant inlet hose and engine coolant outlet hose to the CVTF cooler (with warmer feature) and EGR cooler. (CVT model)



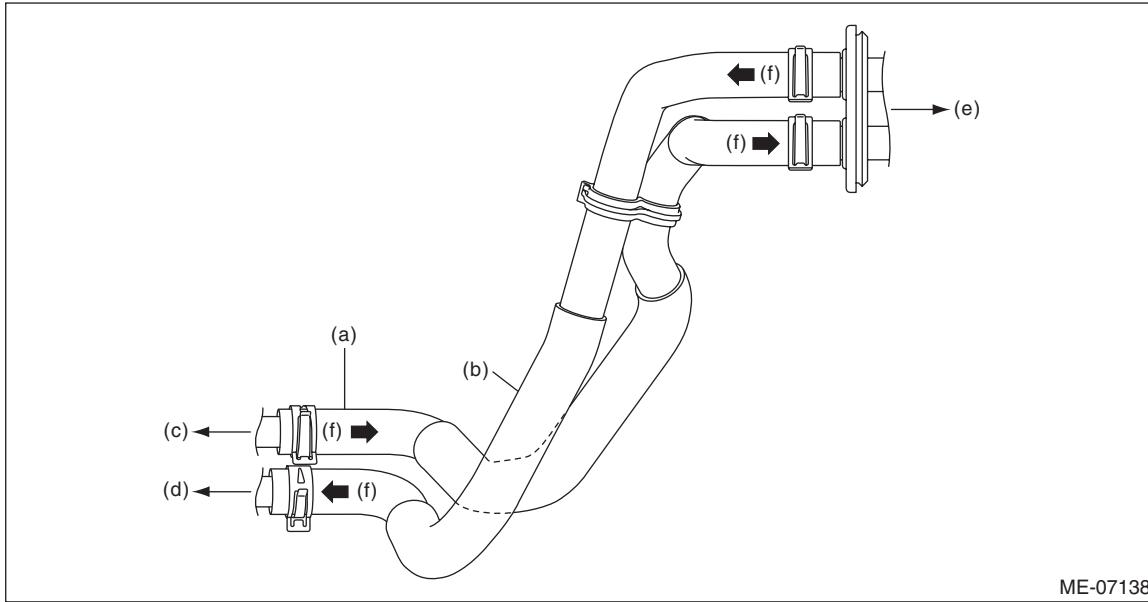
Engine Assembly

MECHANICAL

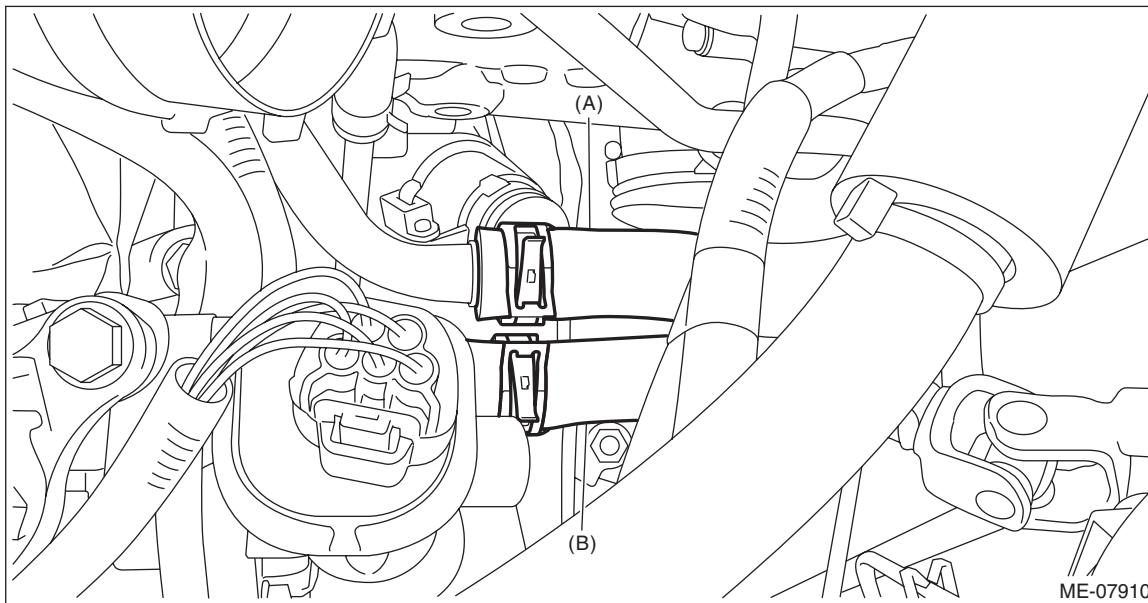
25) Connect the heater inlet hose (A) to the water pipe assembly, and connect the heater outlet hose (B) to the water pipe LH.

NOTE:

Be careful not to mix up the heater inlet hose and the heater outlet hose when connecting them.



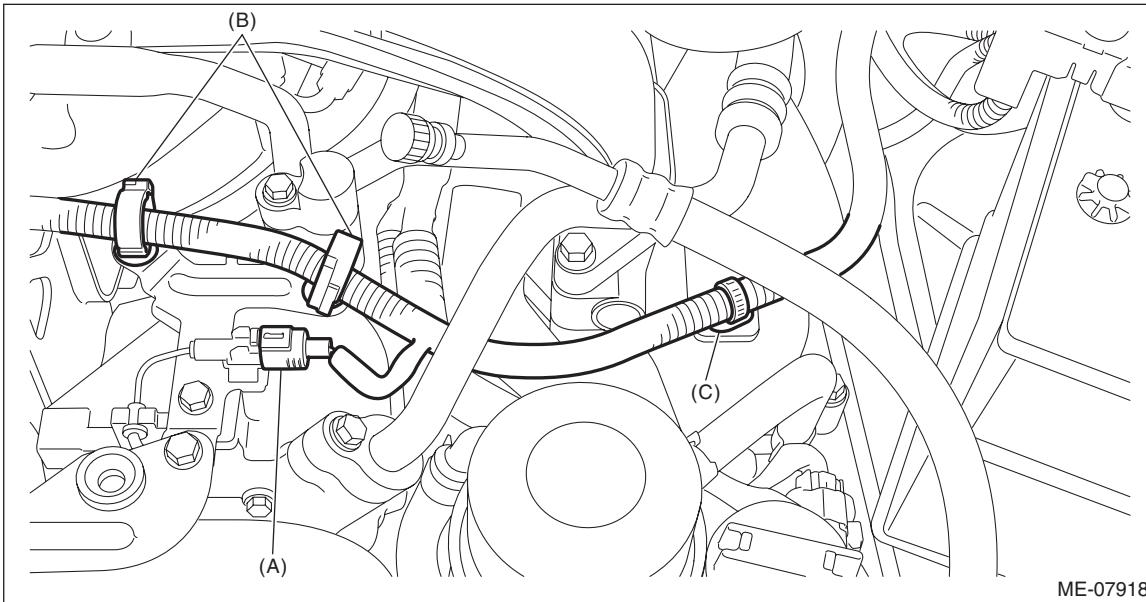
- | | | |
|------------------------|------------------------|-------------------------|
| (a) Heater inlet hose | (c) To water pipe ASSY | (e) To heater core ASSY |
| (b) Heater outlet hose | (d) To water pipe LH | (f) Engine coolant flow |



26) Connect the A/C pressure hose to A/C compressor. <Ref. to AC-67, INSTALLATION, Hose and Pipe.>

27) Set the generator cord, and fix the generator cord to the fuel pipe protector using clip (C).

- 28) Install the generator cord to clip (B), and connect the connector (A) to A/C compressor.

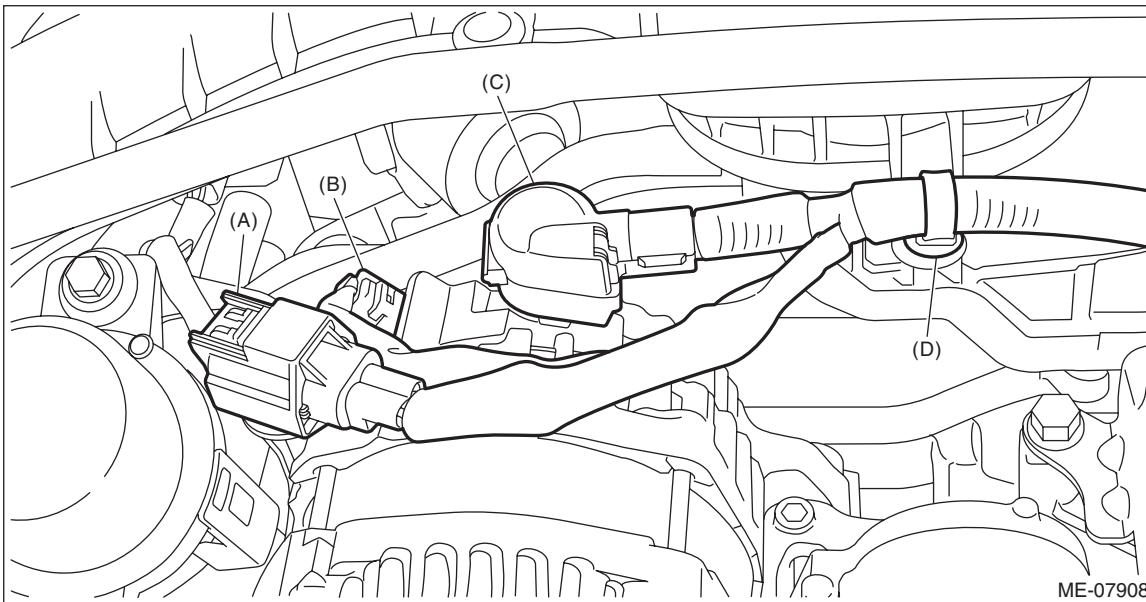


- 29) Using clip (D), fix the generator cord to the generator cord stay, and connect the connector (B) and the terminal (C) to the generator.

Tightening torque:

15 N·m (1.5 kgf·m, 11.1 ft-lb)

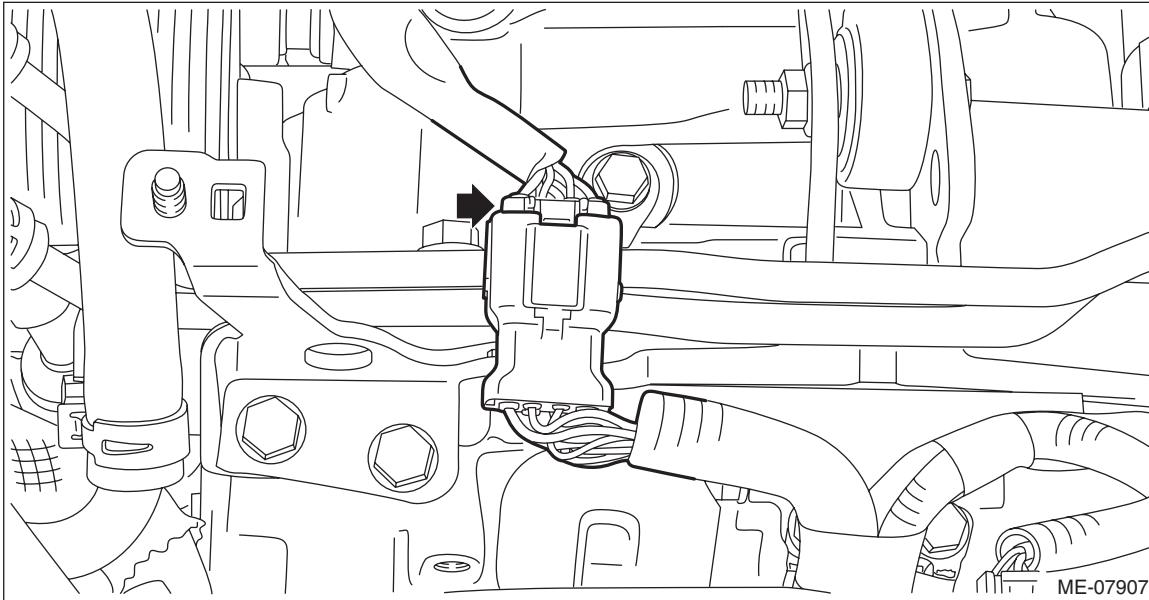
- 30) Connect the connector (A) to the brake vacuum pump.



Engine Assembly

MECHANICAL

- 31) Connect the bulkhead harness connector to the engine harness connector.

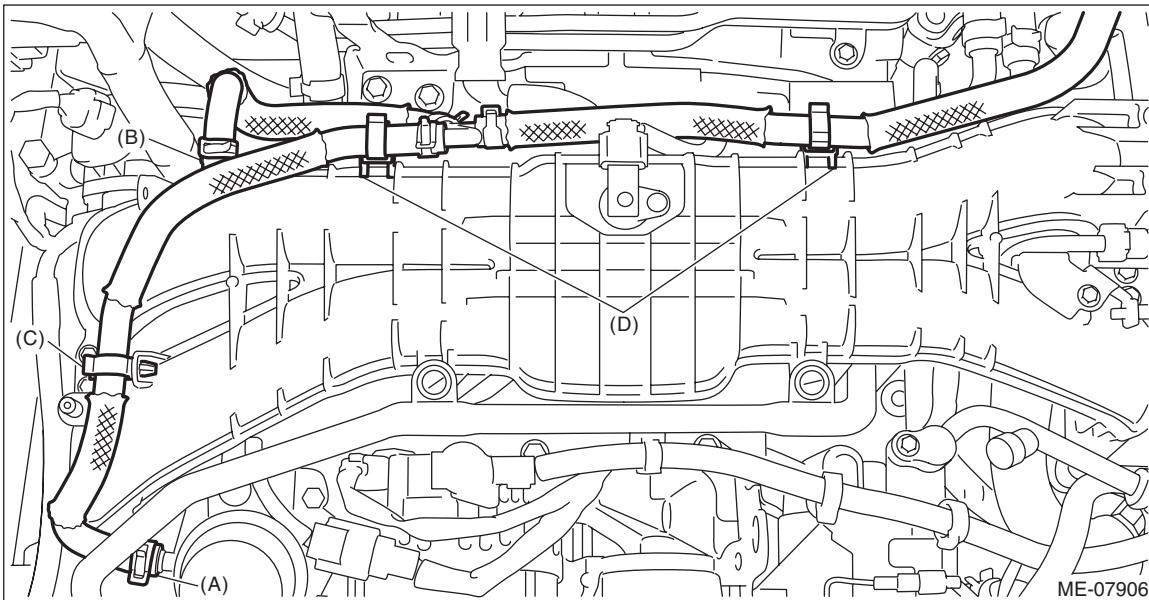


- 32) Using clip (D), fix the brake booster vacuum hose to the intake manifold.

NOTE:

Install the clip to the position of alignment mark ▼ of intake manifold.

- 33) Connect sections (A) and (B) of the brake booster vacuum hose to the brake vacuum pump and intake manifold, and install the brake booster vacuum hose to the clip (C).



- 34) Install the radiator. <Ref. to CO(w/o STI)-40, INSTALLATION, Radiator.>
35) Install the intake duct No. 1 and intake duct No. 2. <Ref. to IN(w/o STI)-29, INTAKE DUCT NO. 1, INSTALLATION, Intake Duct.> <Ref. to IN(w/o STI)-32, INTAKE DUCT NO. 2, INSTALLATION, Intake Duct.>
36) Install the ECM. <Ref. to FU(w/o STI)-134, INSTALLATION, Engine Control Module (ECM).>
37) Install the intercooler. <Ref. to IN(w/o STI)-41, INSTALLATION, Intercooler.>
38) Install the air intake duct. <Ref. to IN(w/o STI)-22, INSTALLATION, Air Intake Duct.>
39) Connect the ground terminal to battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>
40) Fill engine coolant. <Ref. to CO(w/o STI)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
41) Check the CVTF level and replenish it if necessary. (CVT model) <Ref. to CVT(TR690)-36, ADJUSTMENT, CVTF.>

- 42) Charge the A/C system with refrigerant. <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>
- 43) Install the collector cover.
- 44) Set the front hood to the normal position. <Ref. to NT-20, FRONT HOOD DAMPER STAY, NOTE, Note.>
- 45) Install the striker - front hood. <Ref. to EB-15, ASSEMBLY, Front Hood.>
- 46) Close the front hood.

C: INSPECTION

- 1) Check that pipes, hoses, connectors and clamps are installed firmly.
- 2) Check the engine coolant is at specified level.
- 3) Check CVTF is at the specified level. (CVT model)
- 4) Start the engine and check for exhaust gas, engine coolant, leaks of fuel, etc. Also check for noise and vibrations.