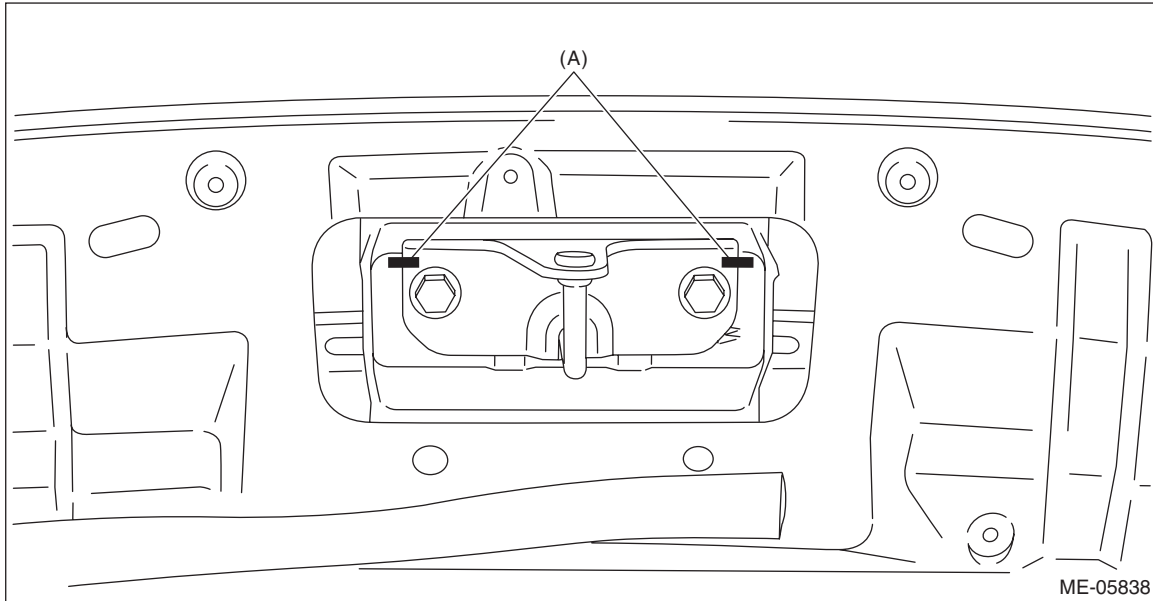


## 9. Engine Assembly

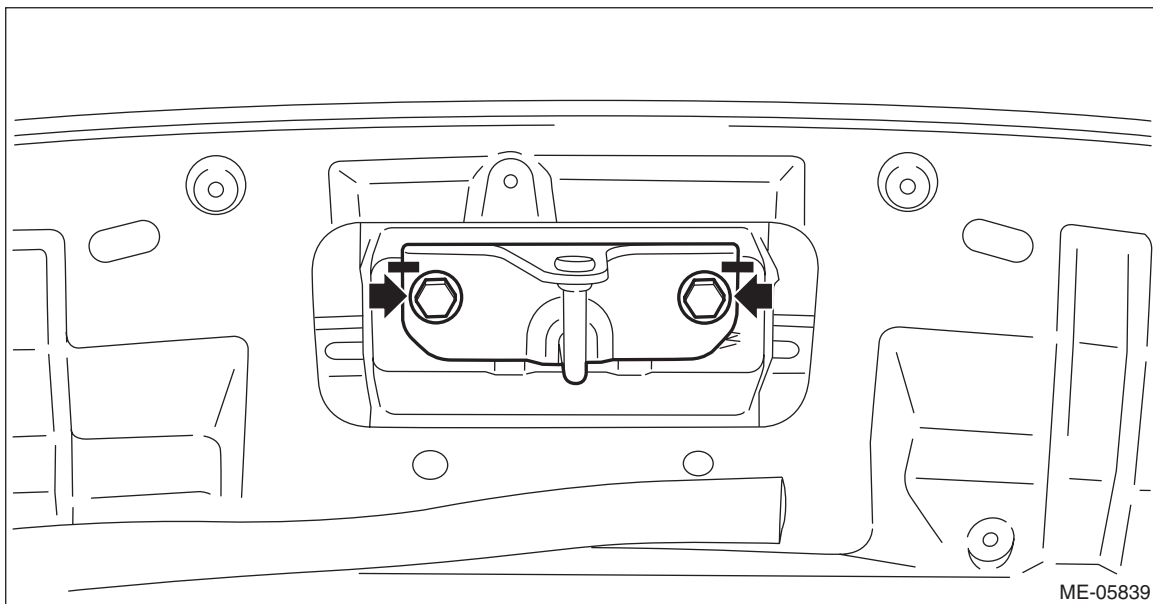
### A: REMOVAL

#### 1. GASOLINE ENGINE MODEL

1) Open the front hood, and make alignment marks (A) on both the front hood and the front hood striker by using a marker pen.



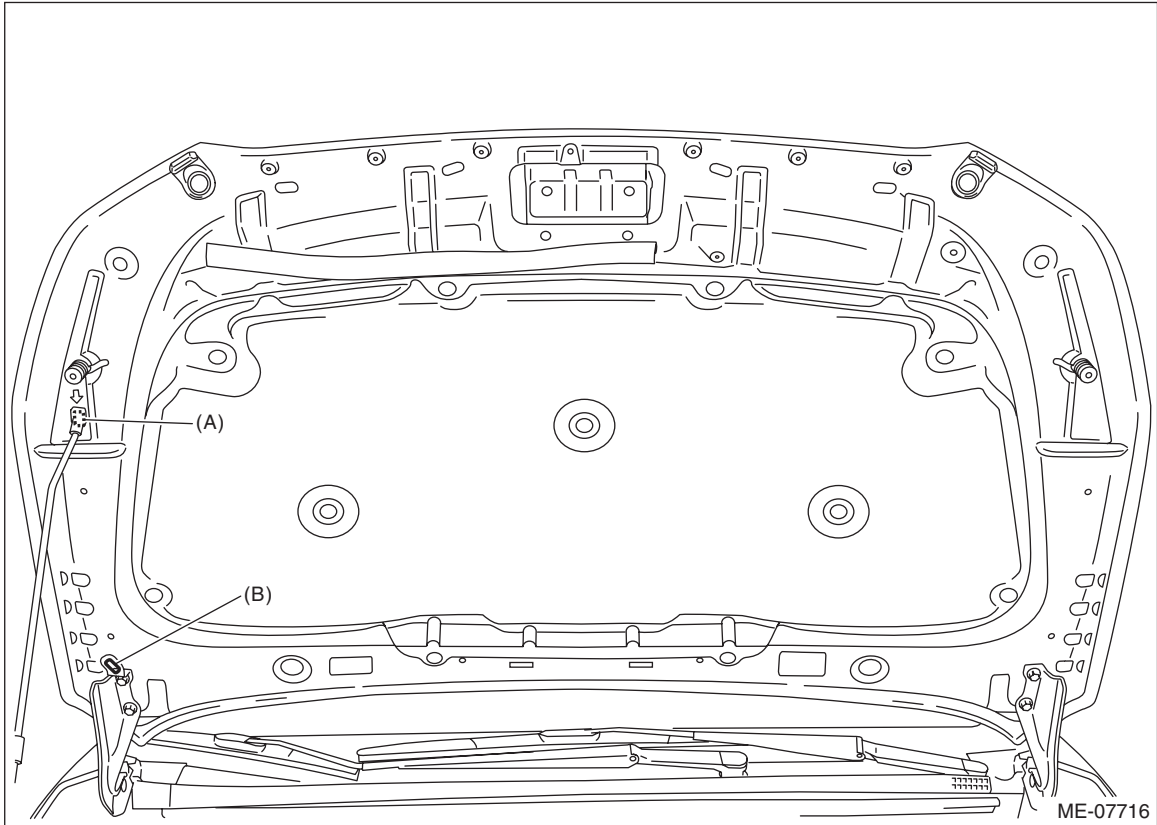
2) Remove the front hood striker from the front hood.



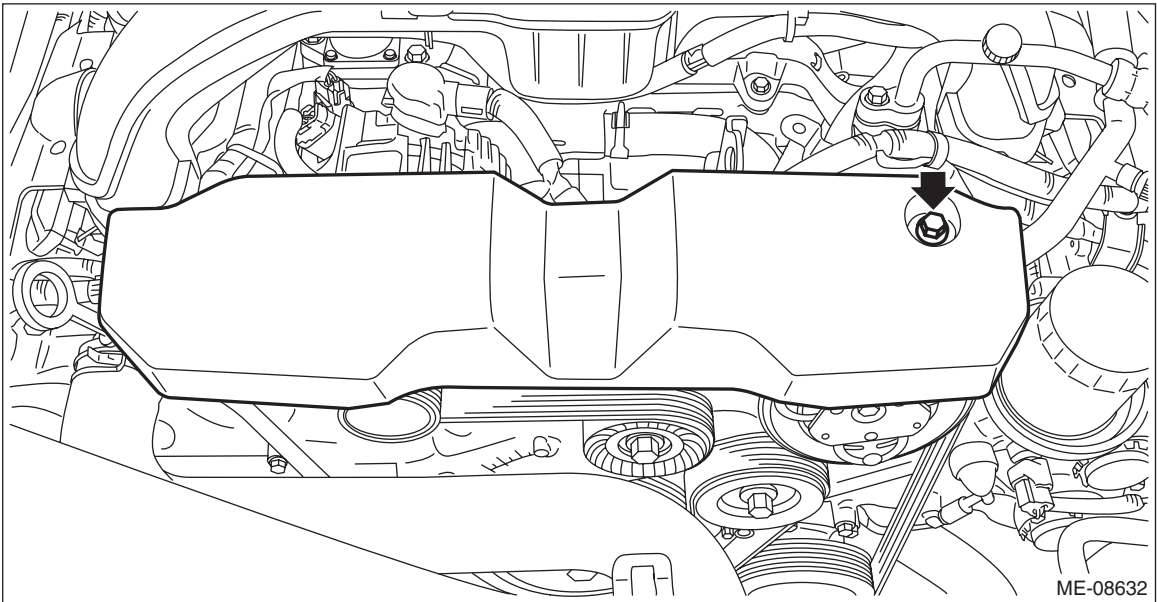
# Engine Assembly

## MECHANICAL

- 3) Change the front hood stay position from (A) to (B), and completely open the front hood.

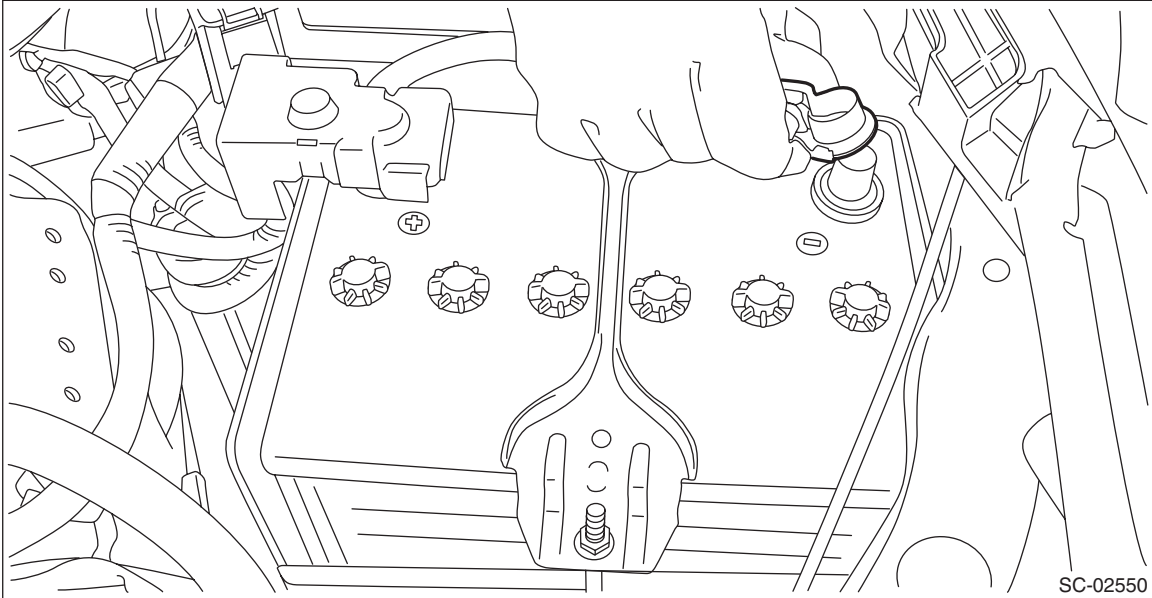


- 4) Remove the V-belt covers.



- 5) Collect the refrigerant from A/C system. <Ref. to AC-28, Refrigerant Recovery Procedure.>  
6) Release the fuel pressure. <Ref. to FU(H4DO(w/o HEV))-109, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

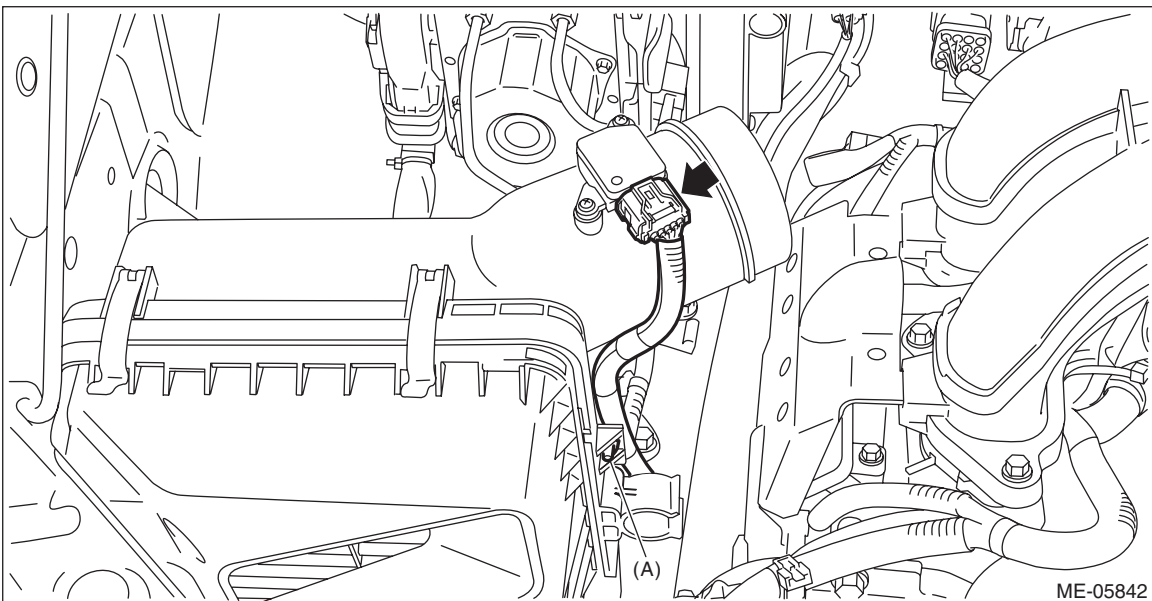
7) Disconnect the ground cable from battery.



8) Remove the air intake duct. <Ref. to IN(H4DO(w/o HEV))-13, REMOVAL, Air Intake Duct.>

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

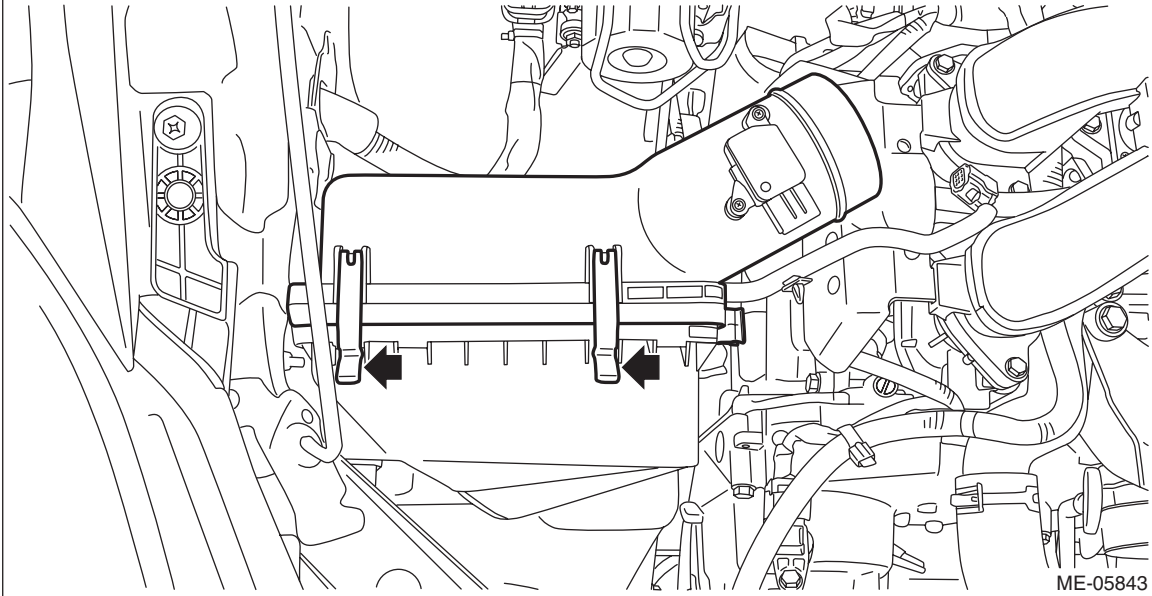
10) Disconnect the connector from the mass air flow and intake air temperature sensor, and remove the clip (A) which holds the mass air flow and intake air temperature sensor harness.



# Engine Assembly

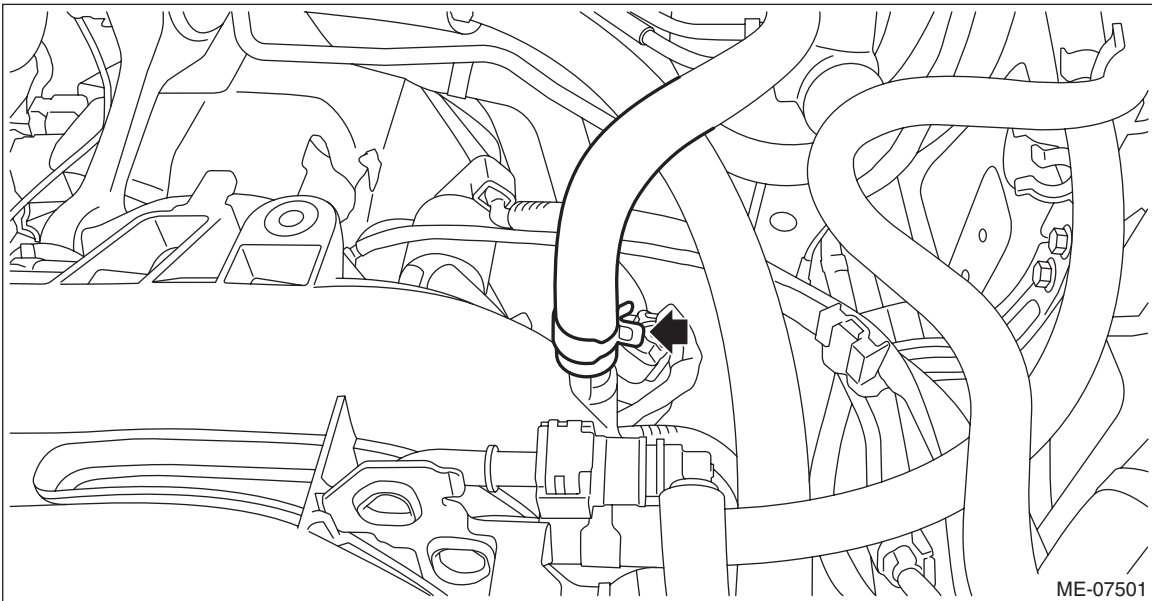
## MECHANICAL

11) Remove the air cleaner case (rear).

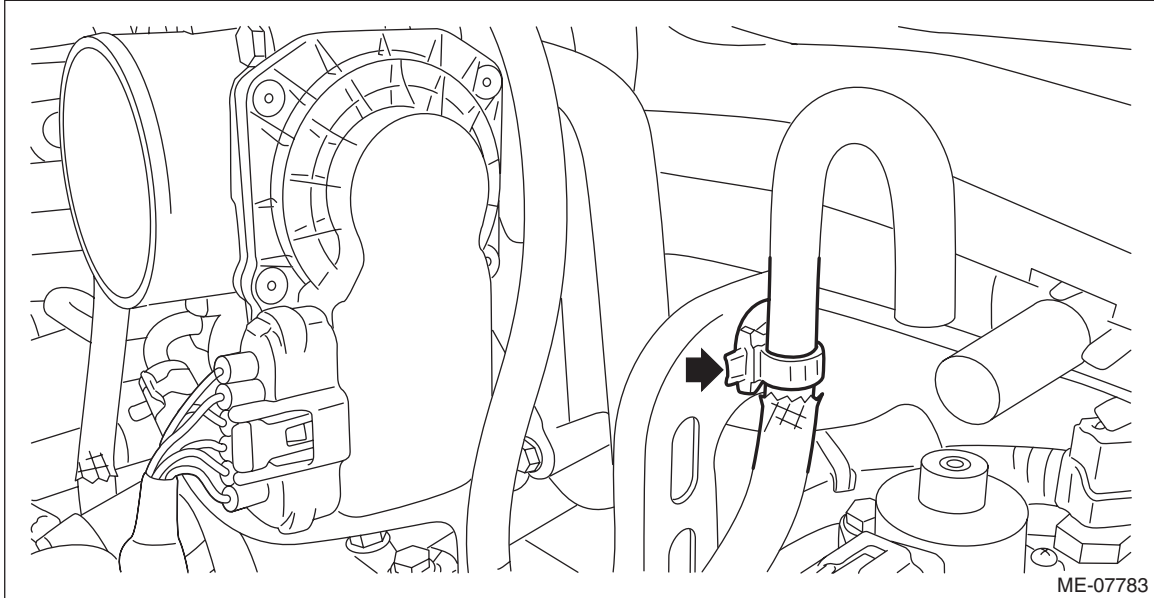


12) Remove the radiator. <Ref. to CO(H4DO(w/o HEV))-78, REMOVAL, Radiator.>

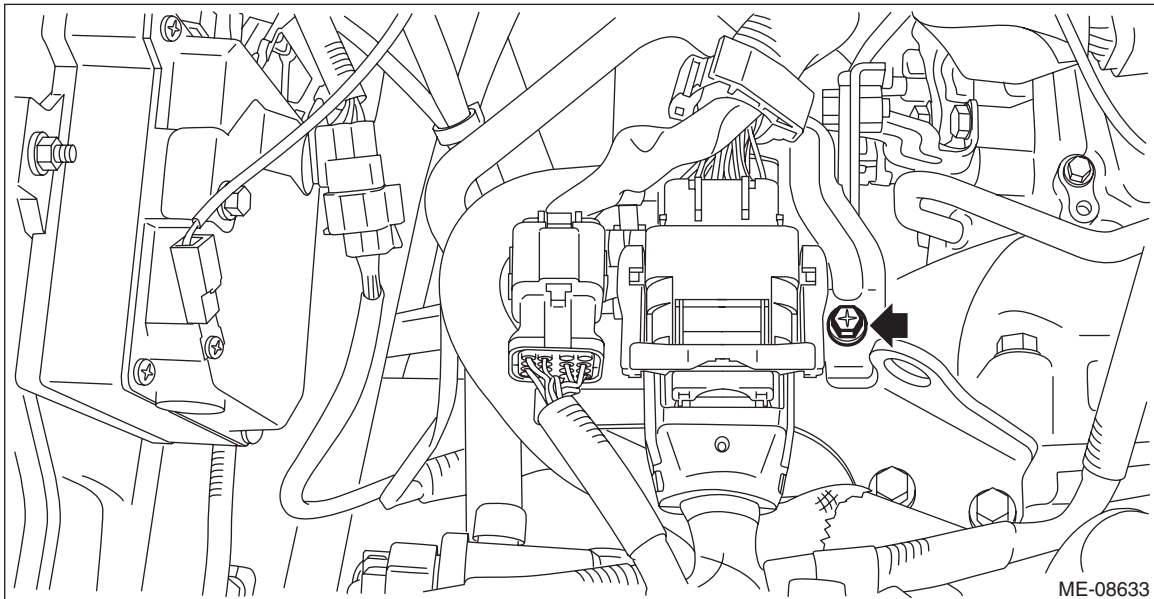
13) Disconnect the brake booster vacuum hose from the intake manifold.



- 14) Remove the clip holding the air breather hose to the engine rear hanger. (MT model)



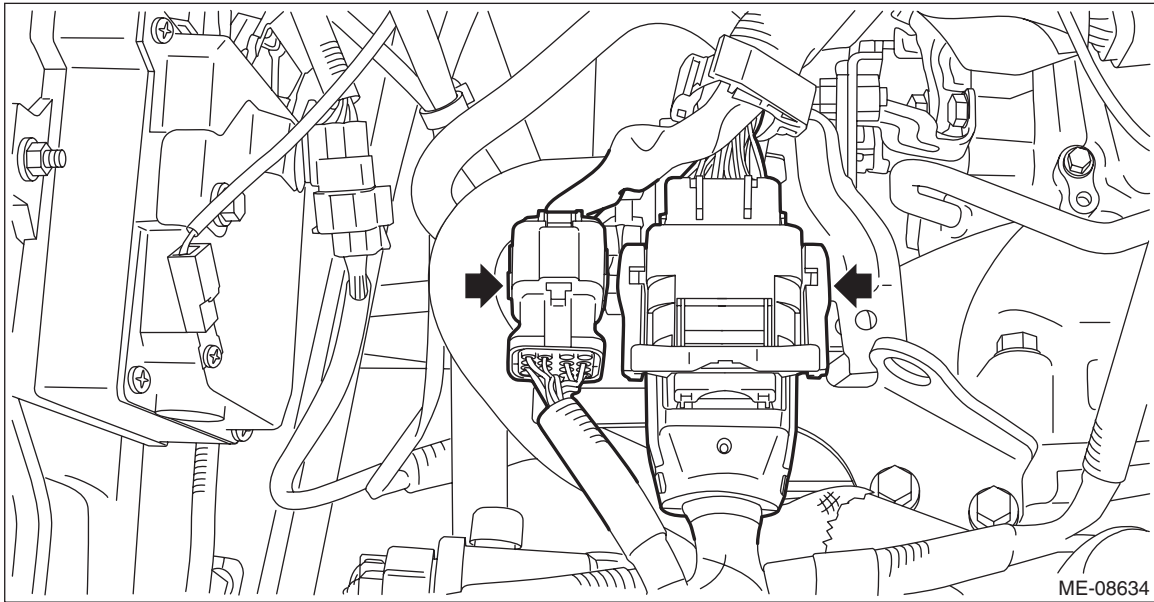
- 15) Disconnect the engine harness connector.  
(1) Remove the bolt securing the bulkhead harness connector bracket.



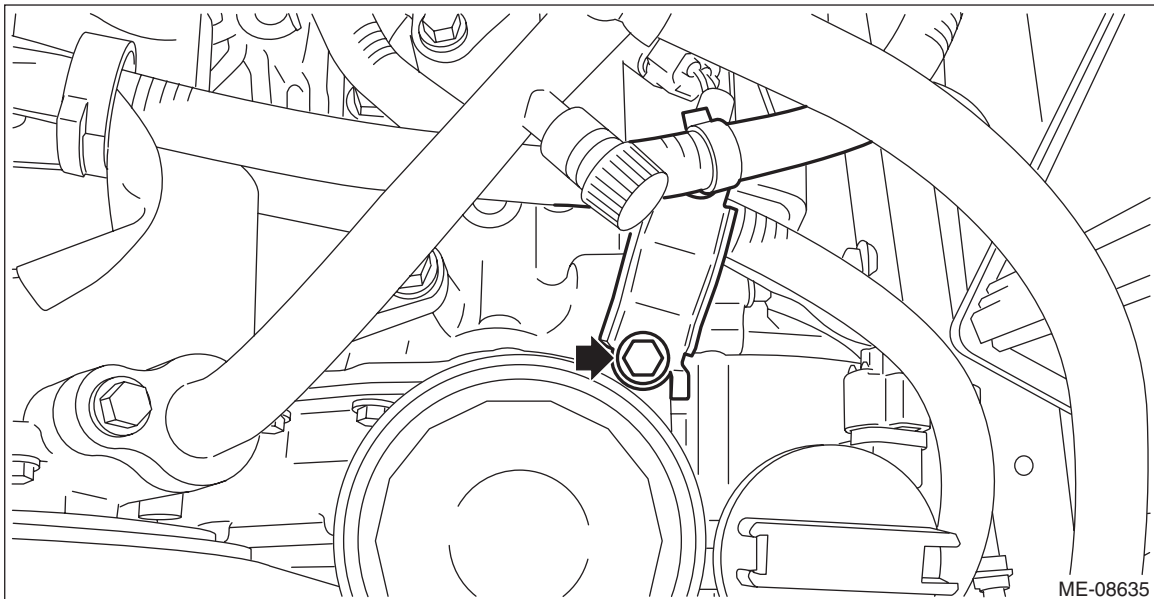
# Engine Assembly

## MECHANICAL

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



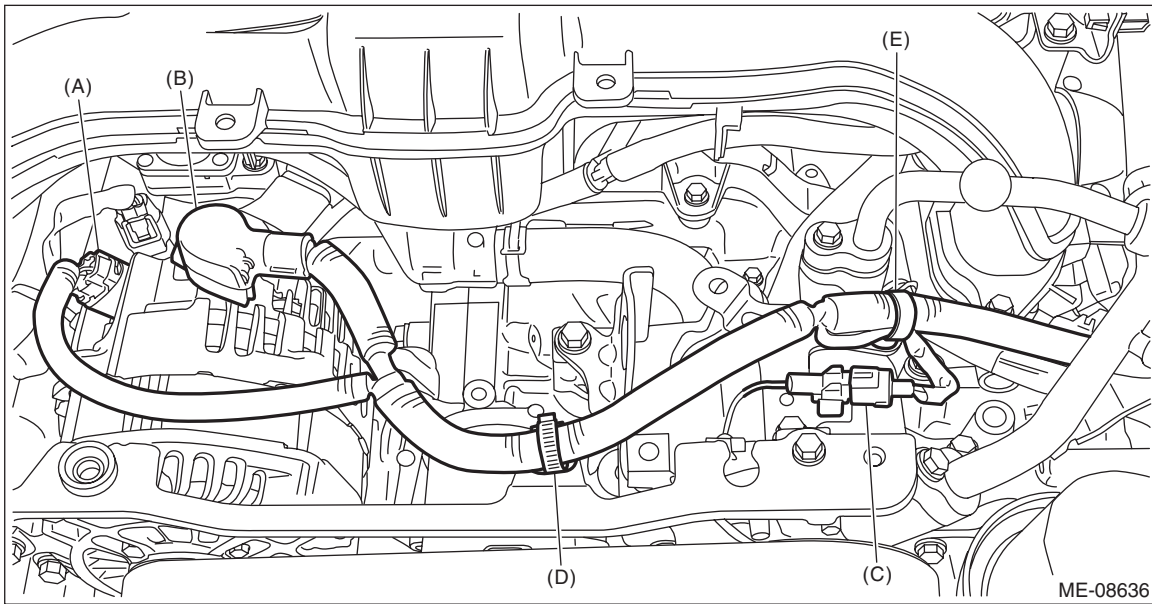
- 16) Remove the bolts which secure the generator cord stay to the chain cover.



- 17) Disconnect connector (A) and terminal (B) from the generator, and disconnect connector (C) from A/C compressor.

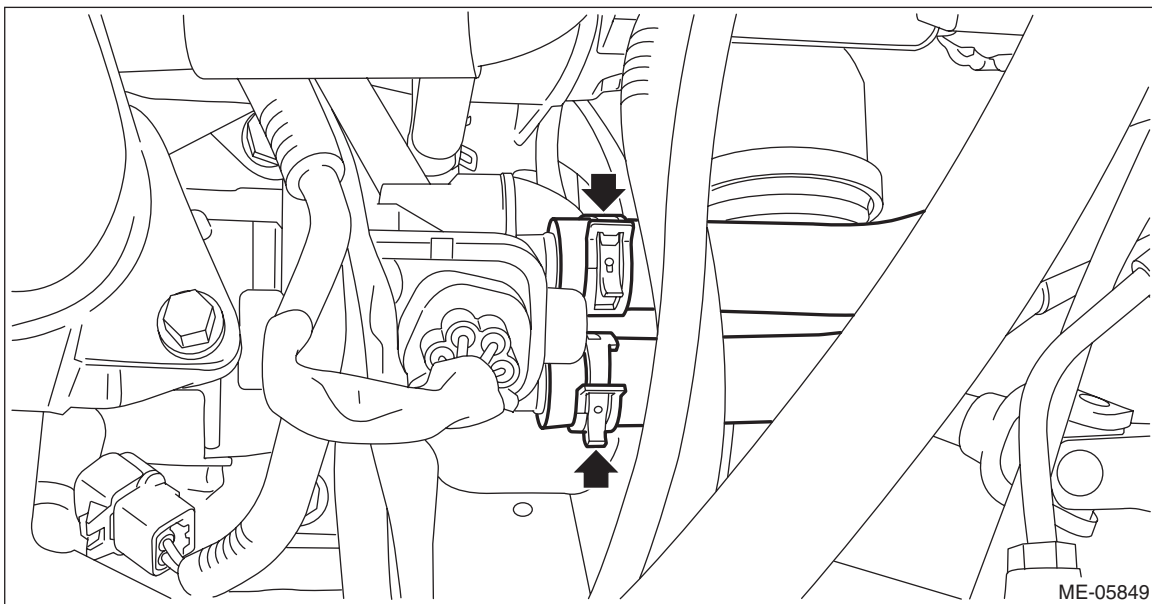


18) Remove the generator cord from the clip (D) and clip (E) and move the generator cord to the left side wheel apron.



19) Disconnect the A/C pressure hoses from A/C compressor. <Ref. to AC-71, REMOVAL, Hose and Pipe.>

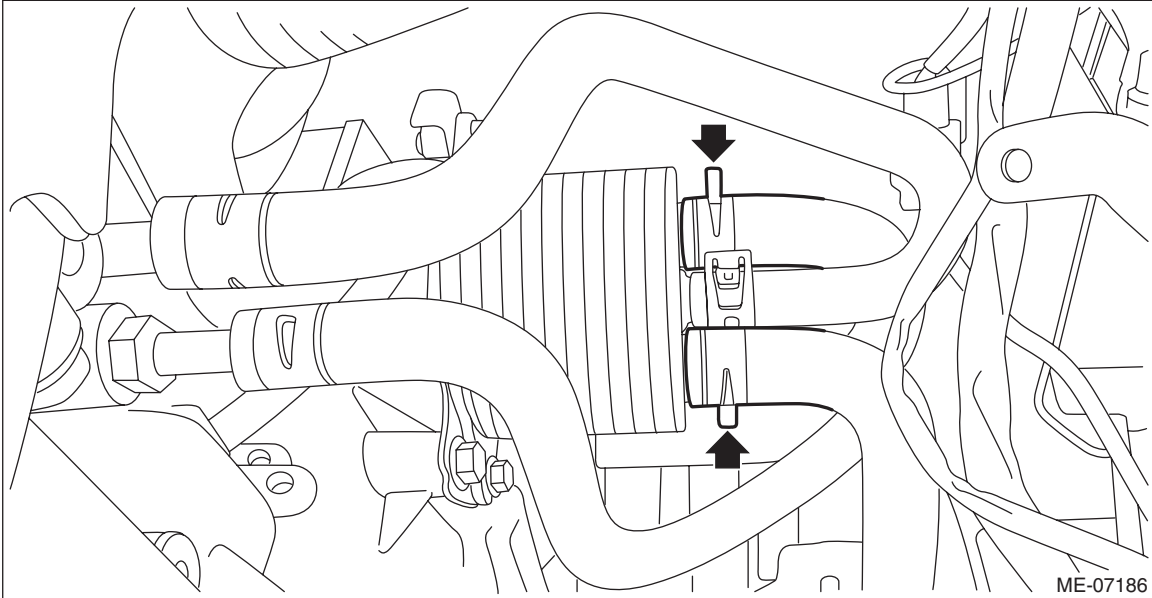
20) Disconnect the heater inlet hose and heater outlet hose.



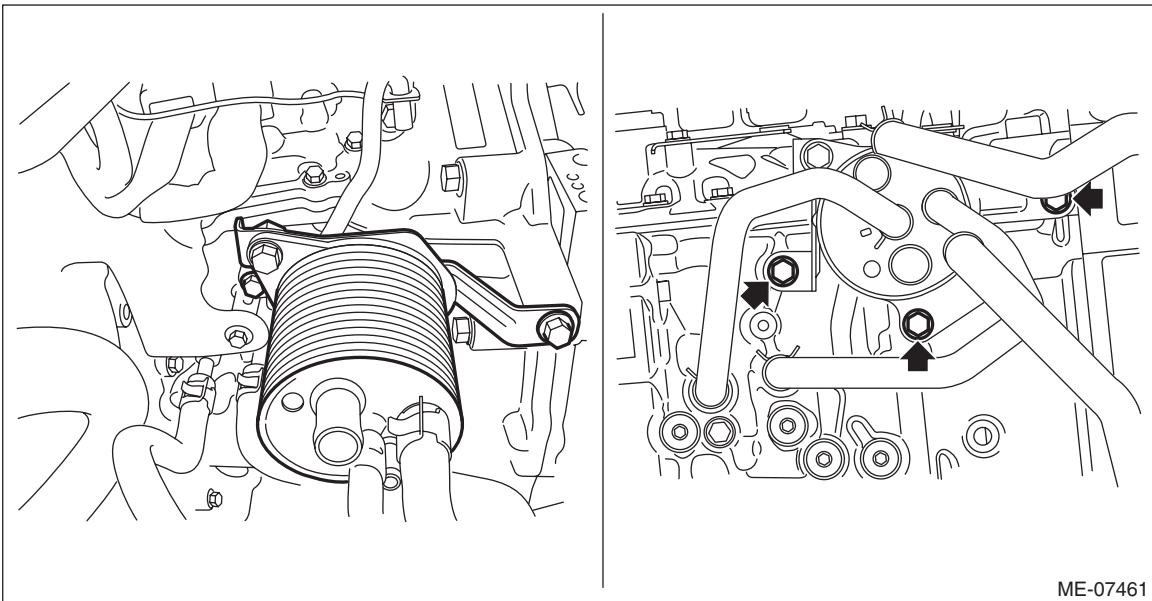
# Engine Assembly

## MECHANICAL

21) Disconnect the water hose from CVTF cooler (with warmer feature). (CVT model)



22) Remove the bolt which secures the CVTF cooler (with warmer feature) to the transmission, and move the CVTF cooler (with warmer feature) to the right side of the transmission. (CVT model)

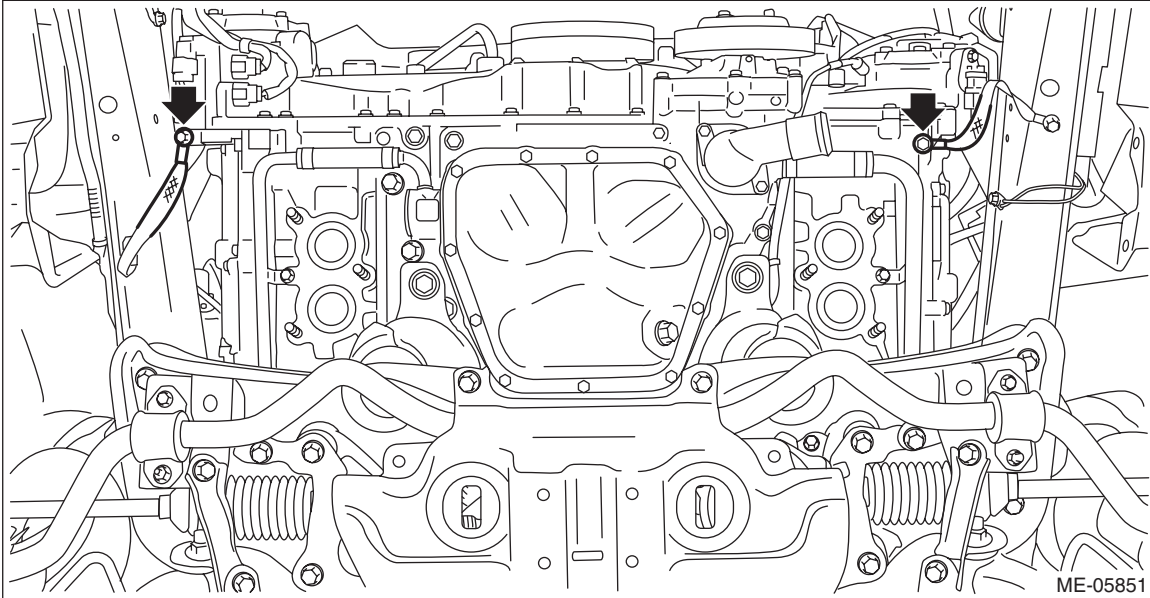


23) Lift up the vehicle.

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

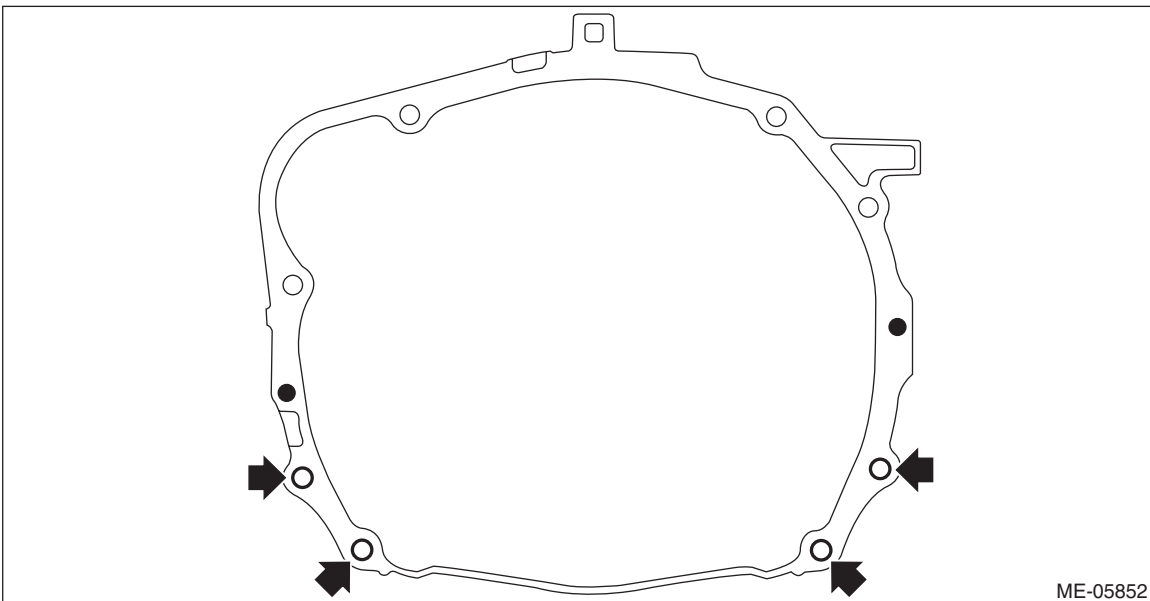


25) Disconnect the ground cable on the engine side.



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

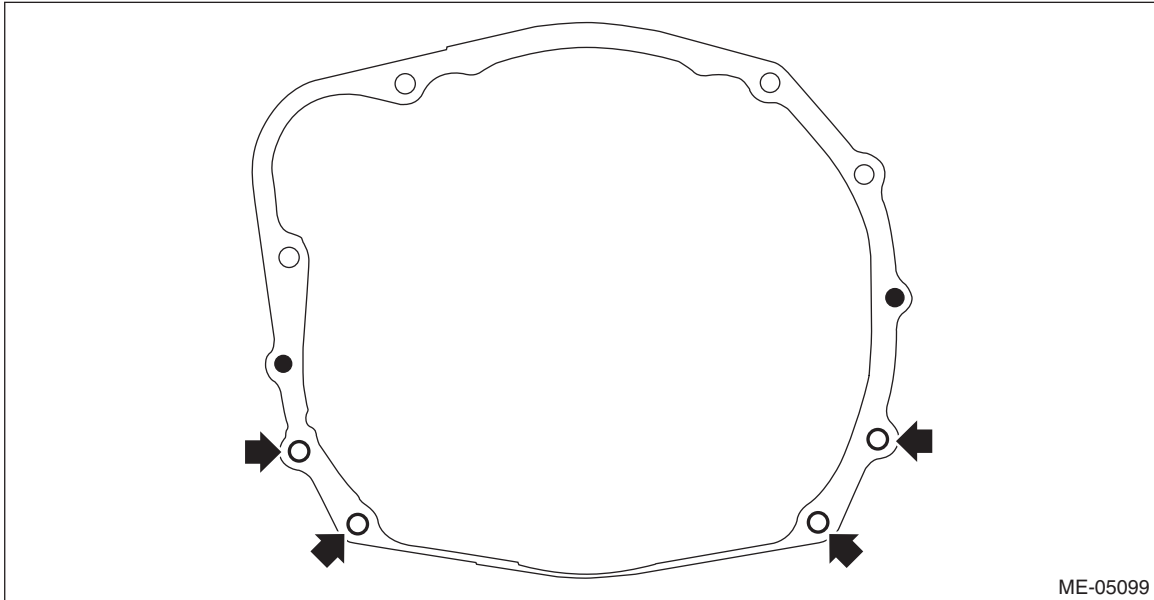
- CVT model



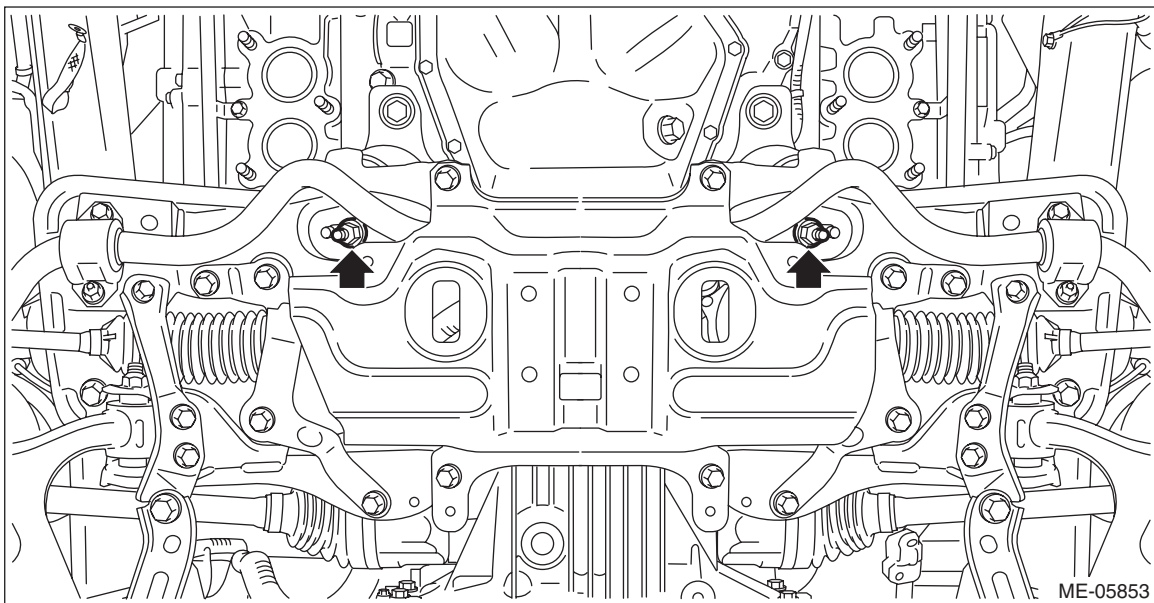
# Engine Assembly

## MECHANICAL

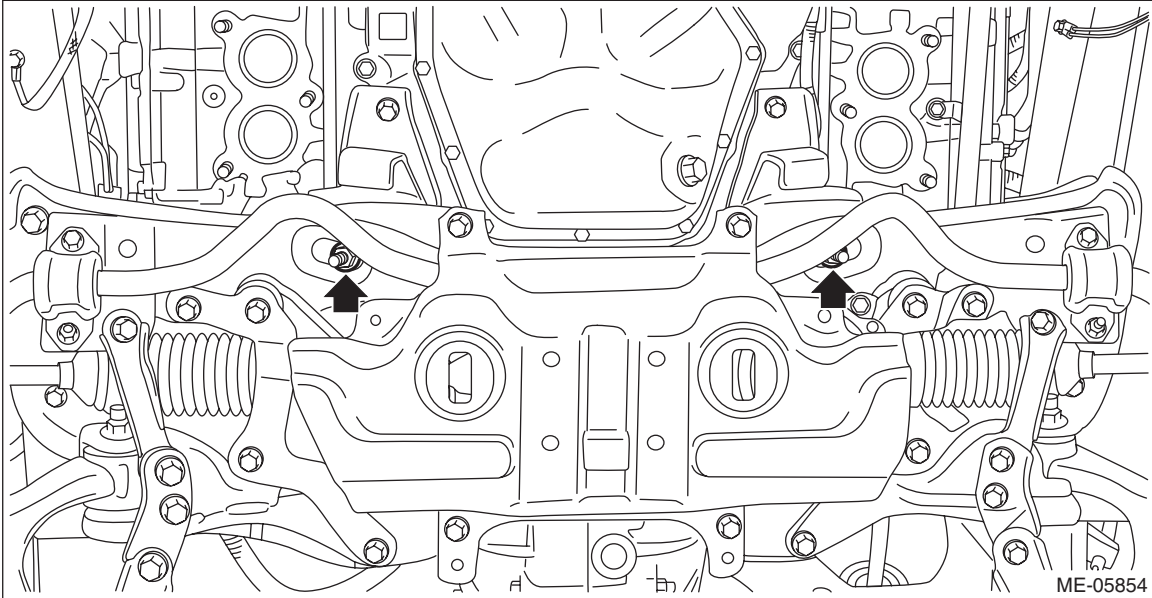
- MT model



27) Remove the nuts which secure the engine mounting to the front crossmember. (CVT model)

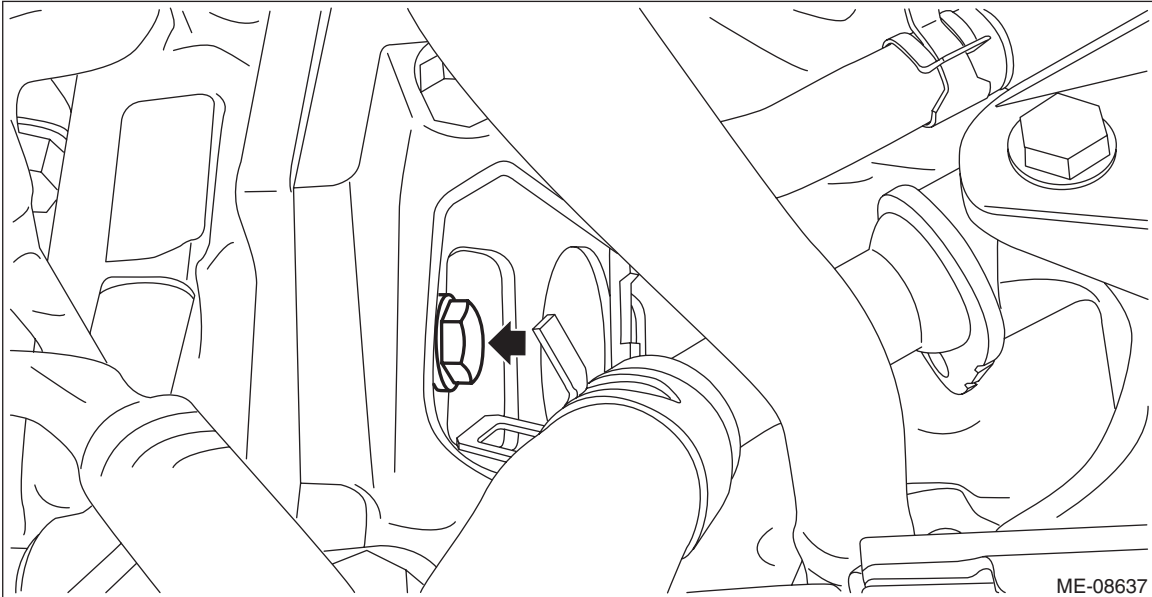


28) Remove the nuts which secure the engine mounting to the front crossmember. (MT model)



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

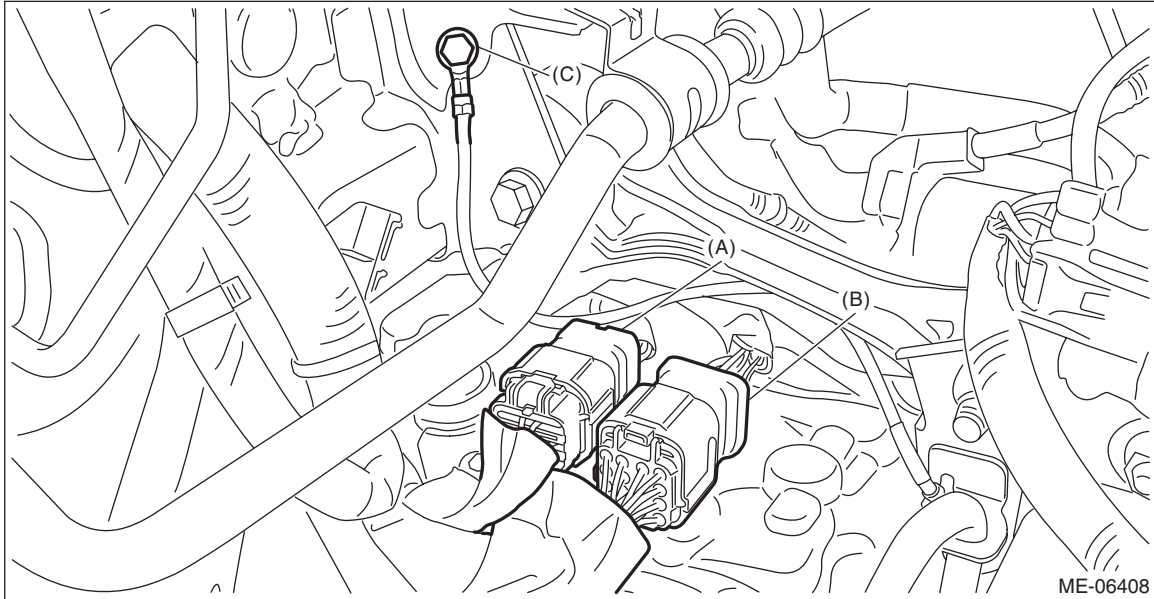
- (1) Lower the vehicle.
- (2) Remove the throttle body. <Ref. to FU(H4DO(w/o HEV))-14, REMOVAL, Throttle Body.>
- (3) Remove the service hole plug.
- (4) Insert the wrench into the crank pulley bolt, and rotate the crank pulley to remove the four bolts securing the torque converter clutch to the drive plate.



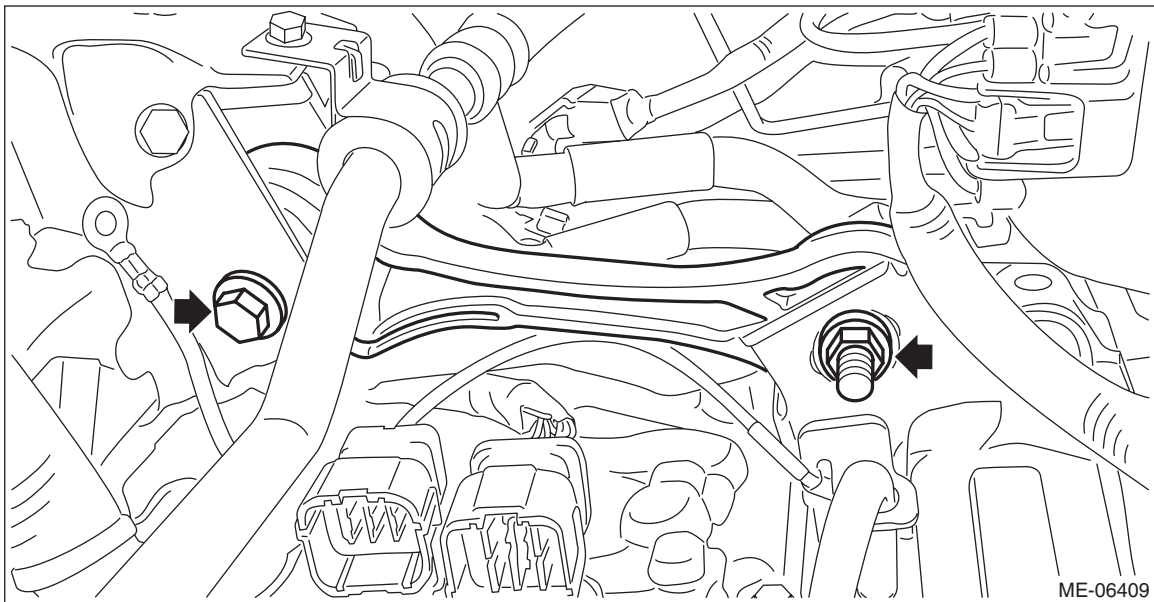
## Engine Assembly

### MECHANICAL

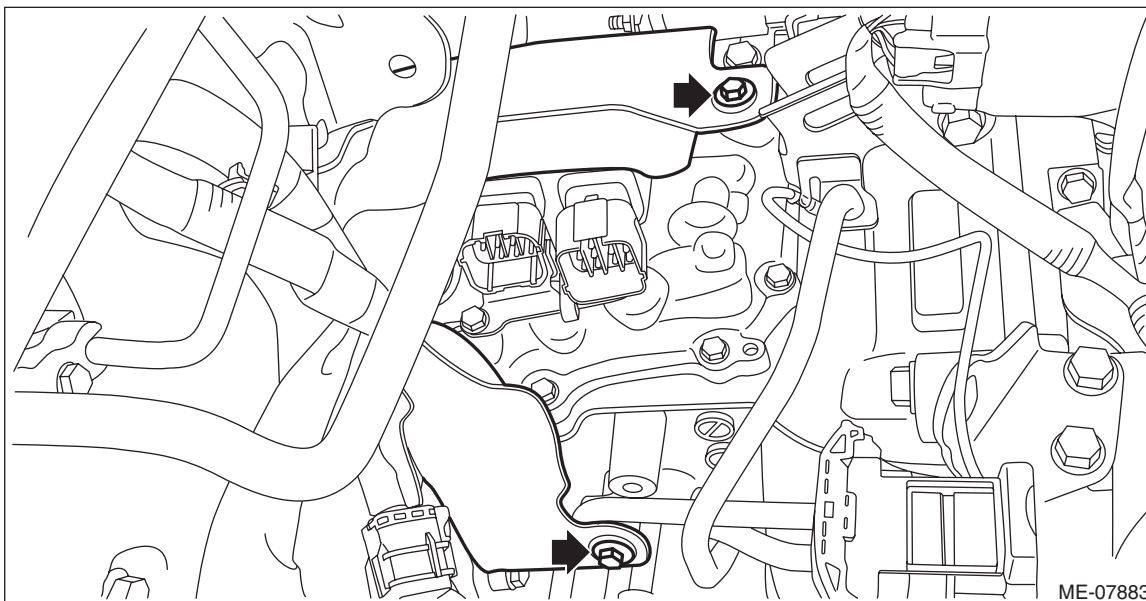
30) Disconnect the bulkhead harness connector from the transmission harness connector (A) and the inhibitor harness connector (B), and disconnect the transmission radio ground terminal (C) from the vehicle body. (CVT model)



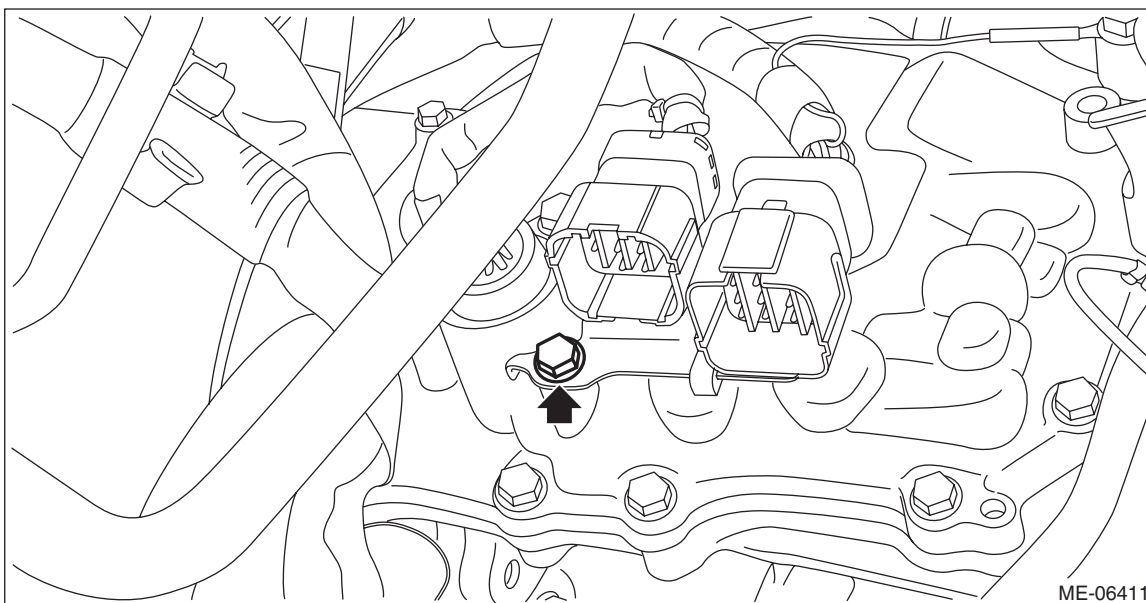
31) Remove the pitching stopper.



32) Remove the transmission case cover. (CVT model)



33) Remove the bolt which holds the transmission harness stay. (CVT model)



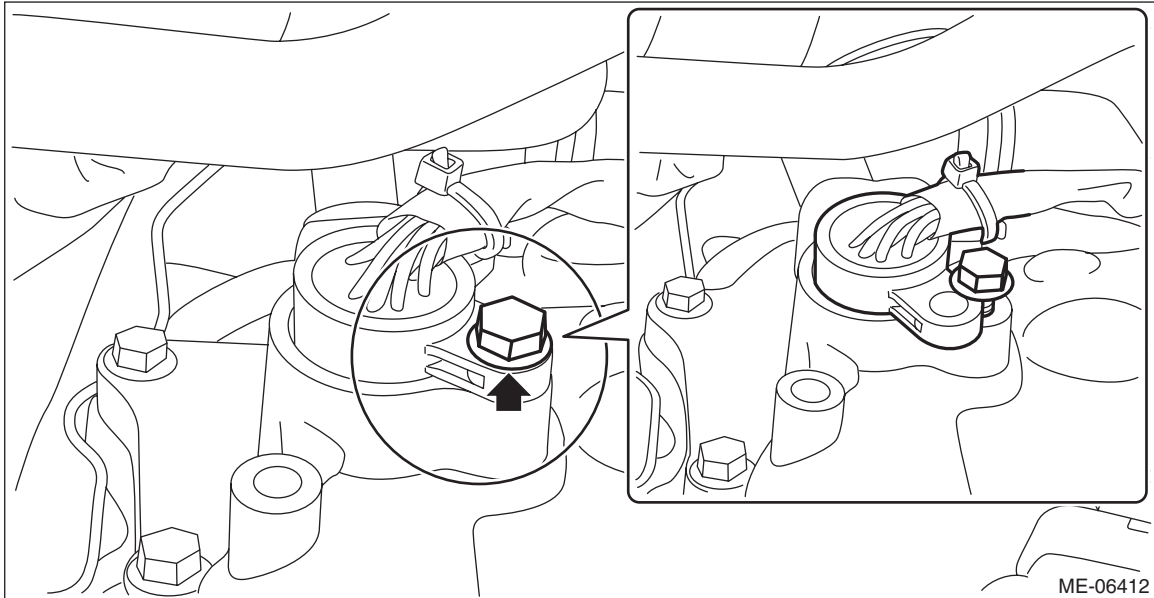
# Engine Assembly

## MECHANICAL

34) Remove the bolt which holds the transmission harness to the control valve body, and turn the transmission harness clockwise till the bolt hole can be seen as shown in the figure, and tighten the bolt to temporary lock the harness. (CVT model)

### NOTE:

This procedure is required to prevent the transmission harness from touching the vehicle body during engine removal/installation.





35) Disconnect the fuel delivery tube and evaporation hose.

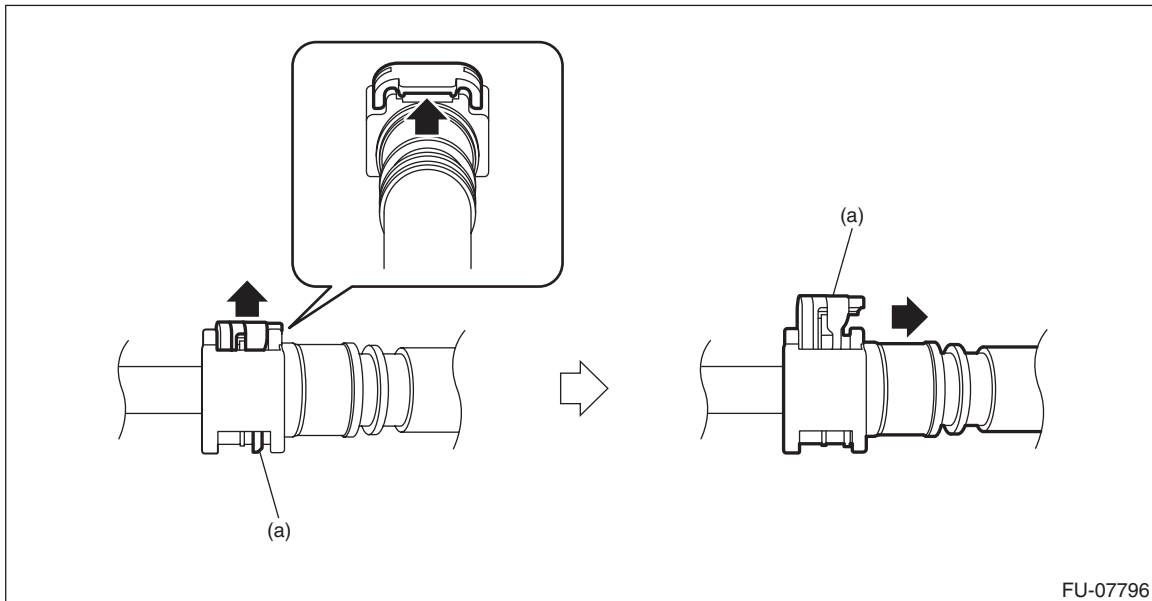
**CAUTION:**

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

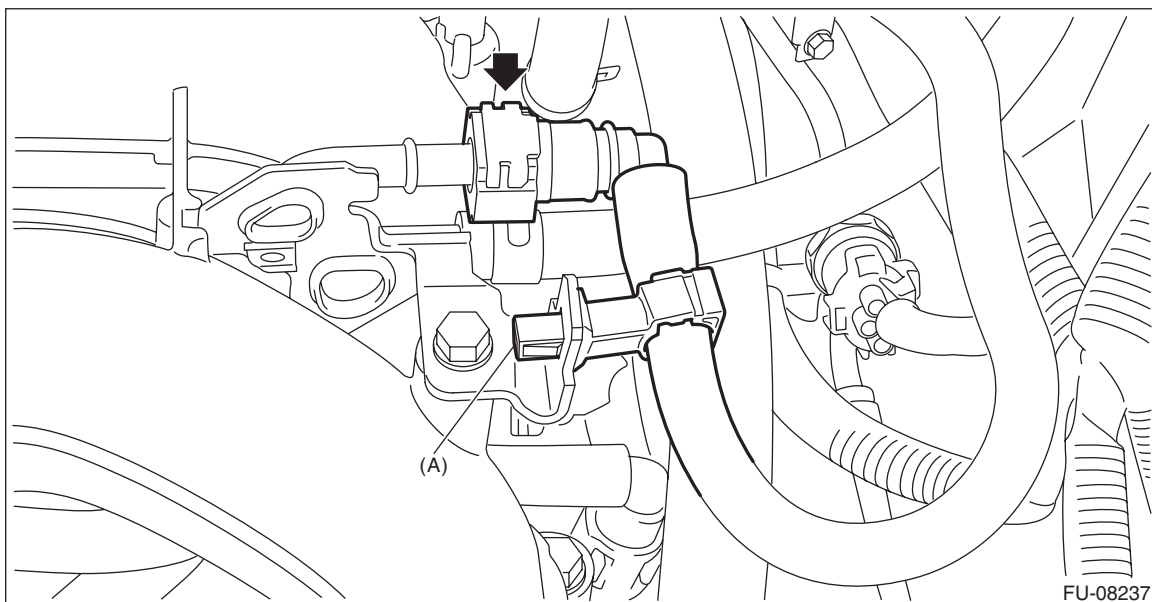
(1) Disconnect the quick connector on the fuel delivery tube from the fuel pipe assembly, and remove the clip (A) securing the fuel delivery tube.

**NOTE:**

Disconnect the quick connector as shown in the figure.



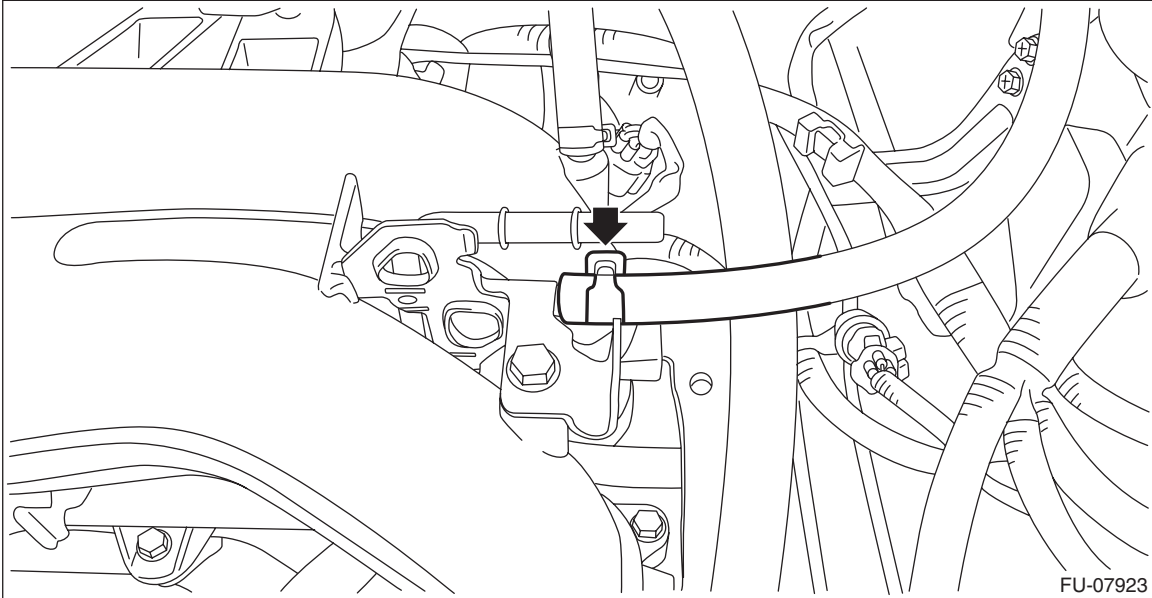
(a) Slider



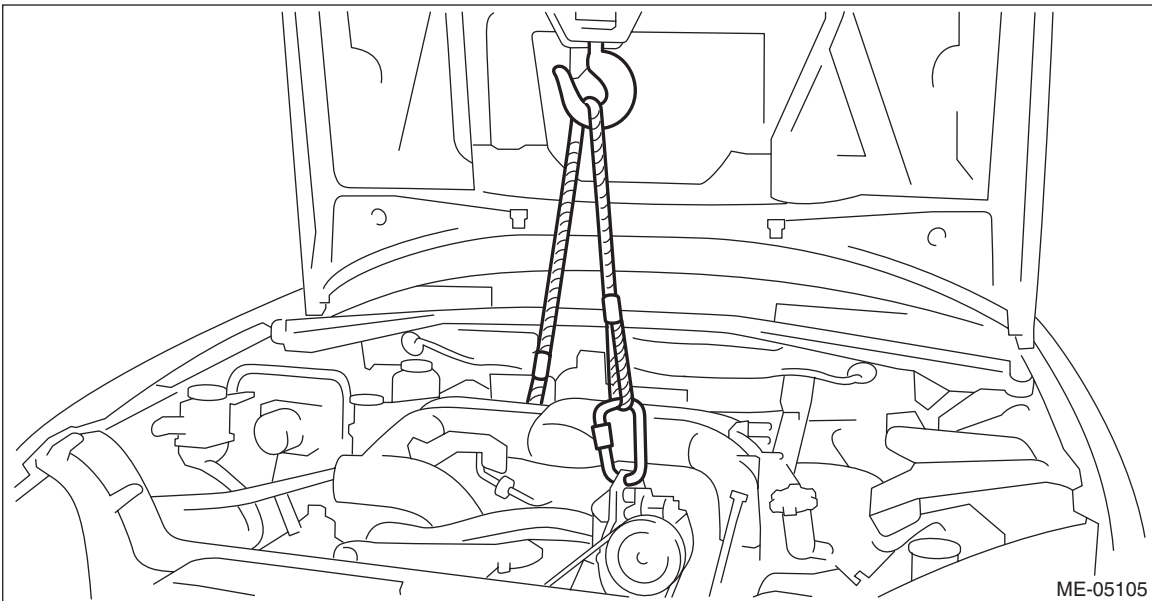
# Engine Assembly

## MECHANICAL

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



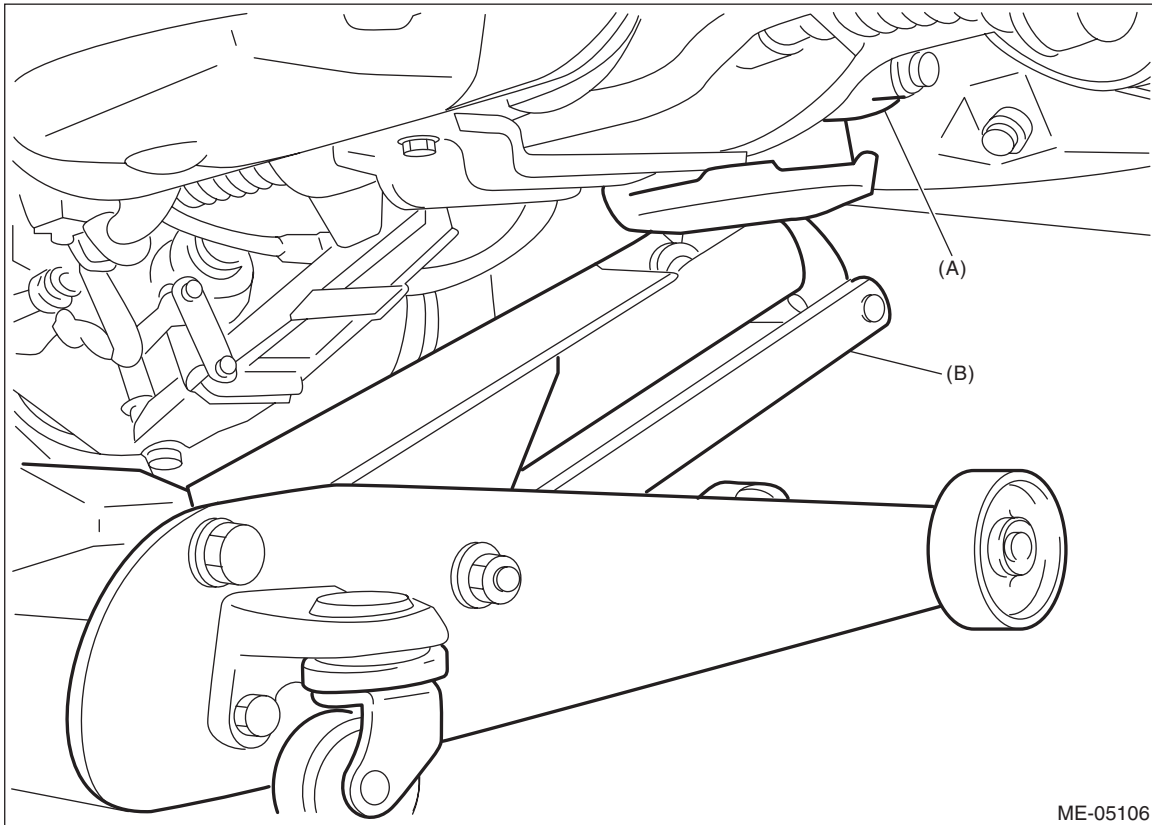
- 36) Support the engine with a lifting device and wire ropes.



37) Support the transmission with a garage jack.

**CAUTION:**

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



ME-05106

(A) Transmission

(B) Garage jack

# Engine Assembly

## MECHANICAL

38) Separate the engine and transmission.

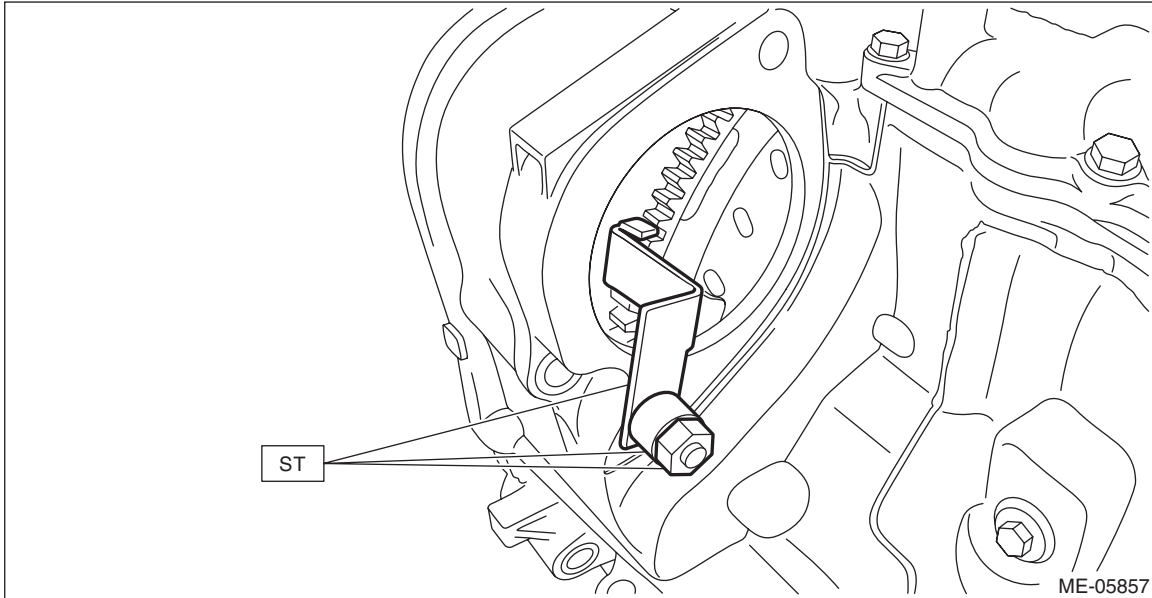
### CAUTION:

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

(1) Remove the starter. <Ref. to SC(H4DO(w/o HEV))-8, REMOVAL, Starter.>

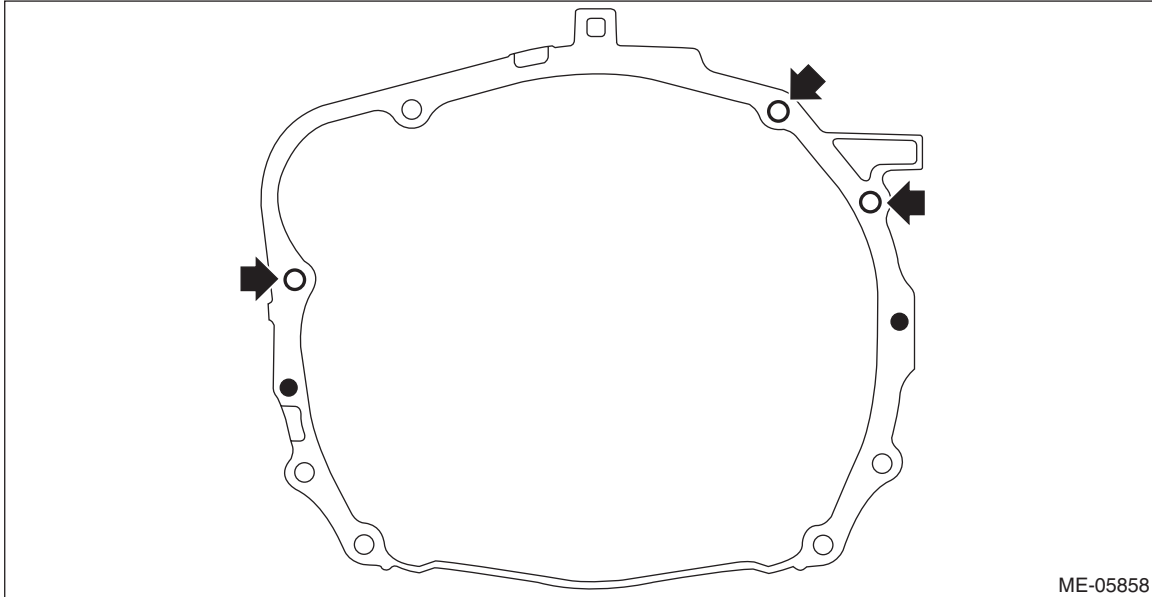
(2) Attach the ST to the torque converter clutch case. (CVT model)

ST 498277200 STOPPER SET

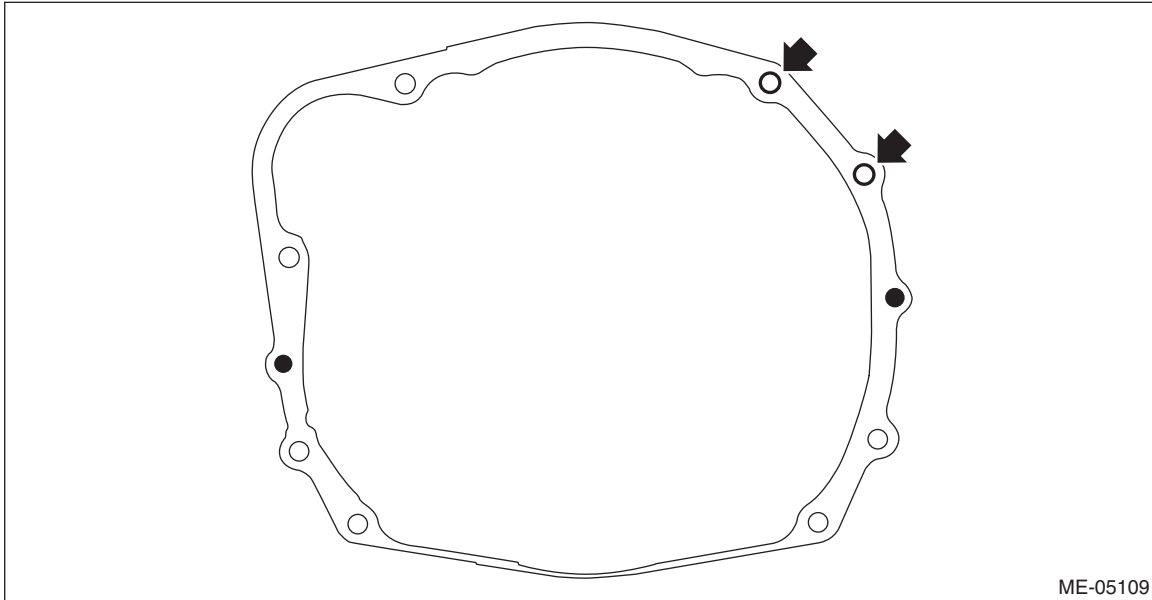


(3) Remove the bolts which hold the upper side of the transmission to the engine.

- CVT model



- MT model



39) Remove the engine from the vehicle.

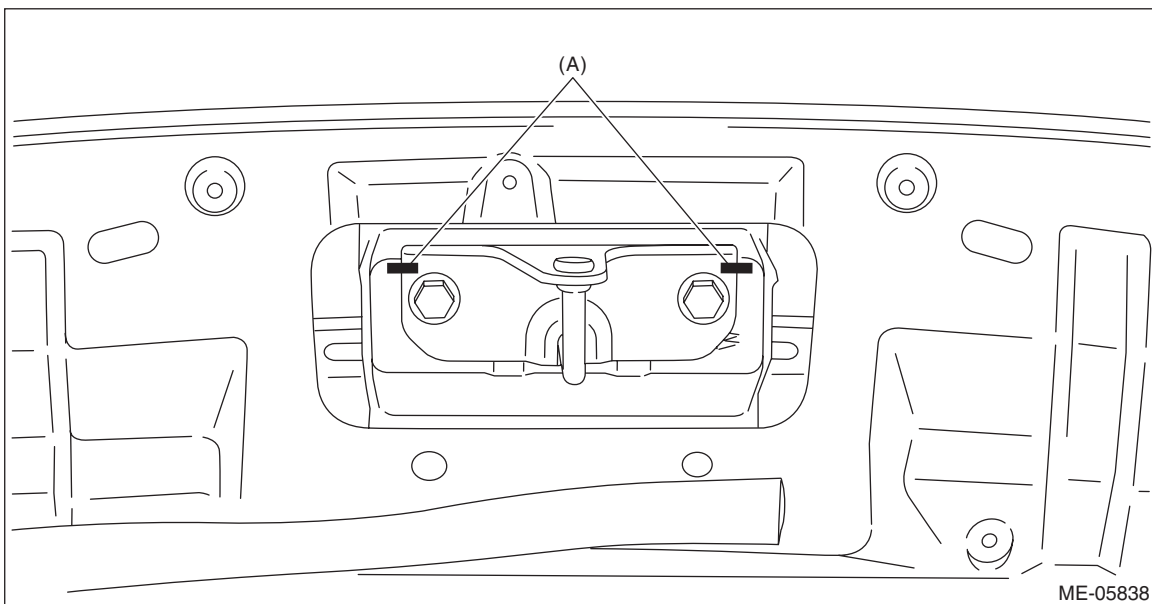
**NOTE:**

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 main shaft is withdrawn from clutch cover. (MT model)
  - (4) Slowly move the engine away from engine compartment.
- 40) Remove the engine mounting from the engine.

## 2. HEV MODEL

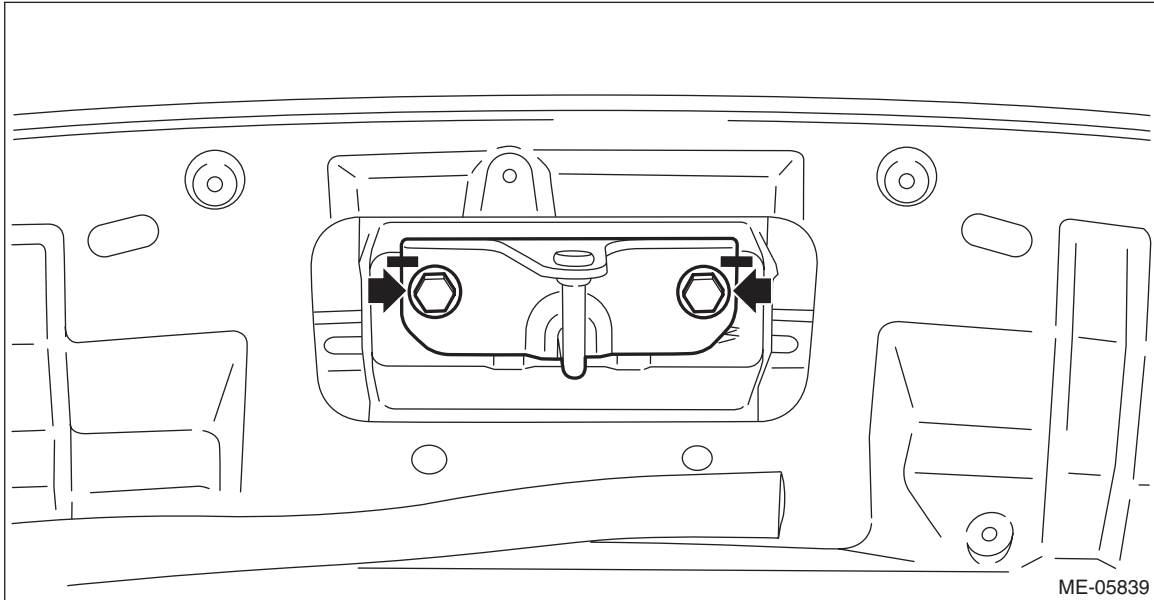
- 1) Turn the ignition switch to OFF.
- 2) Open the front hood, and make alignment marks (A) on both the front hood and the front hood striker by using a marker pen.



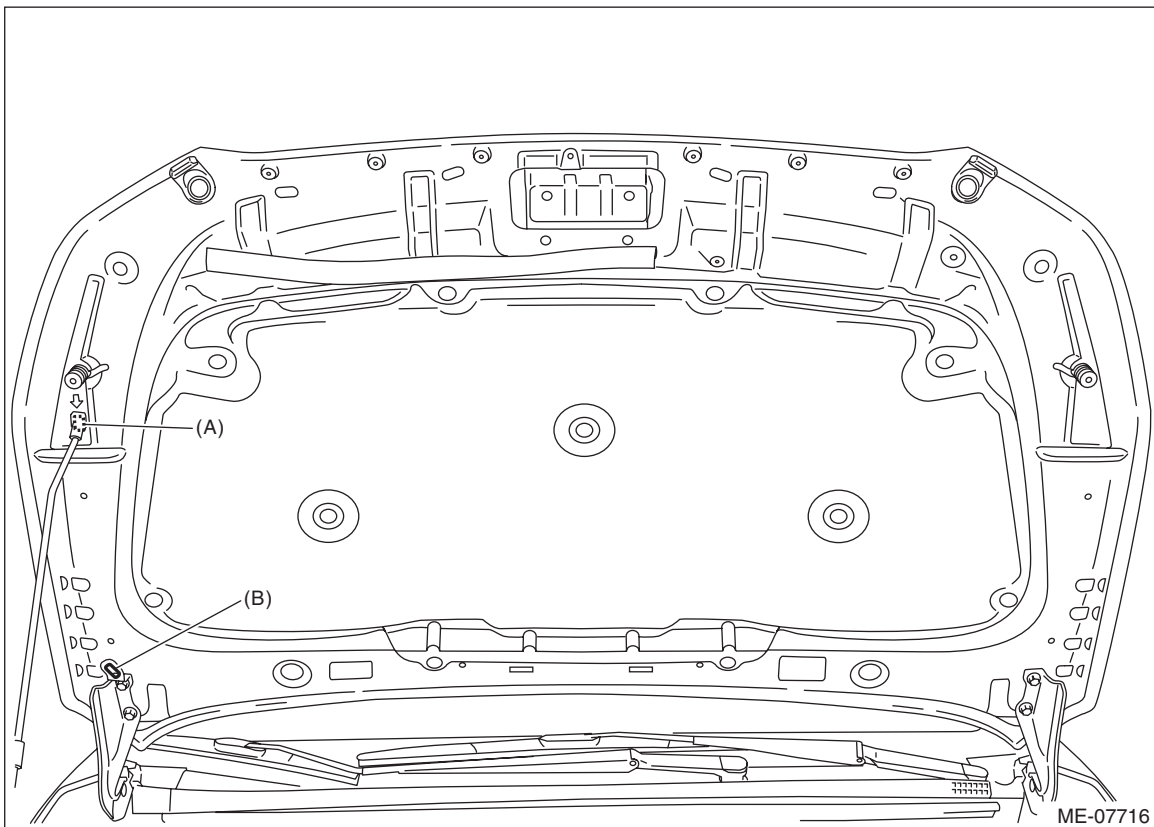
# Engine Assembly

## MECHANICAL

3) Remove the front hood striker from the front hood.



4) Change the front hood stay position from (A) to (B), and completely open the front hood.



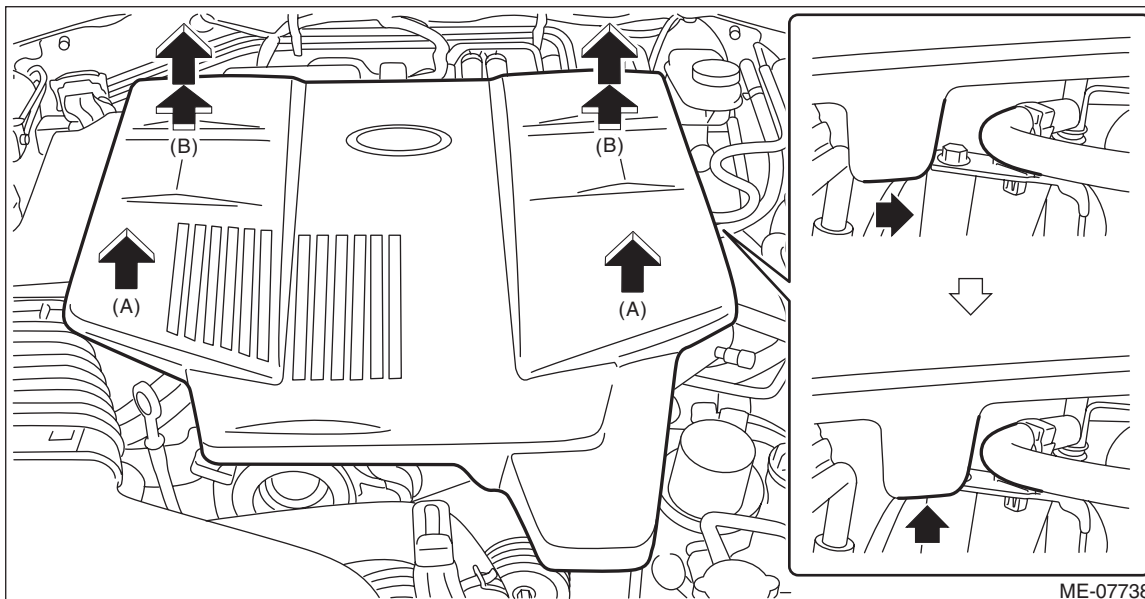


5) Remove the collector cover.

- (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.



ME-07738

6) Collect the refrigerant from A/C system. <Ref. to AC-28, Refrigerant Recovery Procedure.>

7) Release the fuel pressure. <Ref. to FU(H4DO(HEV))-98, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

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

**NOTE:**

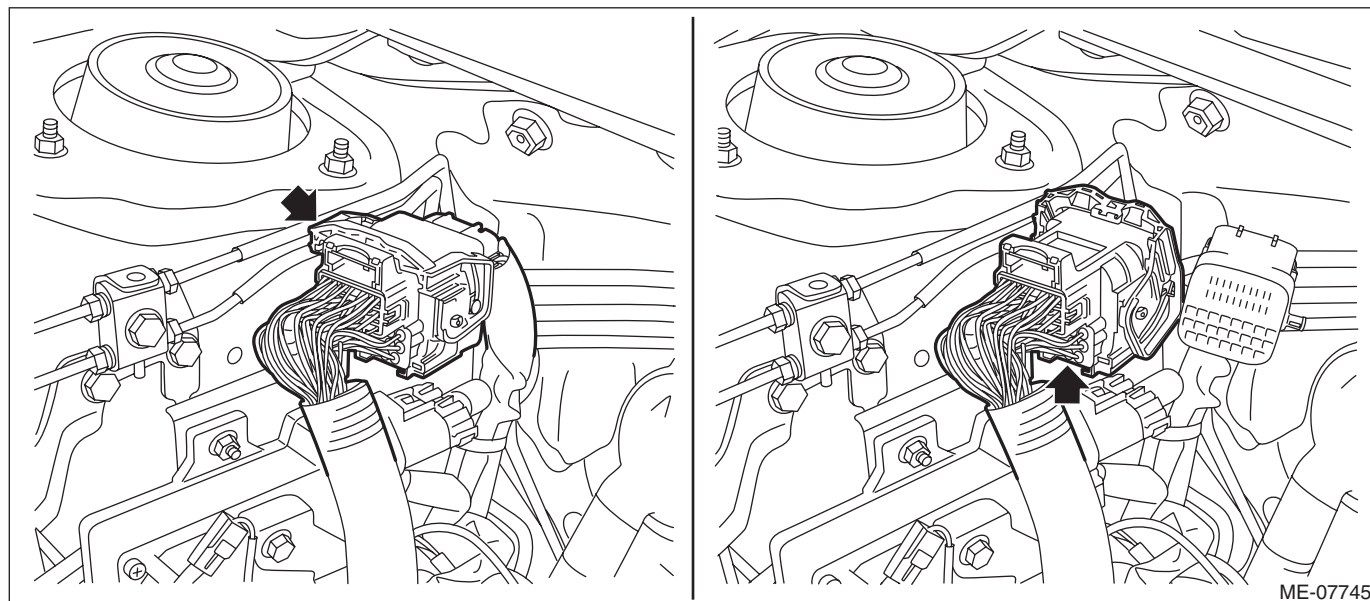
For the 12 volt engine restart battery, disconnect the ground terminal from 12V engine restart battery sensor.

9) Remove the air intake duct. <Ref. to IN(H4DO(HEV))-15, REMOVAL, Air Intake Duct.>

10) Remove the air cleaner case. <Ref. to IN(H4DO(HEV))-6, REMOVAL, Air Cleaner Case.>

11) Remove the radiator. <Ref. to CO(H4DO(w/o HEV))-78, REMOVAL, Radiator.>

12) Disconnect the bulkhead harness connector from the engine harness connector (black), then remove the engine harness connector (black) from the bracket.



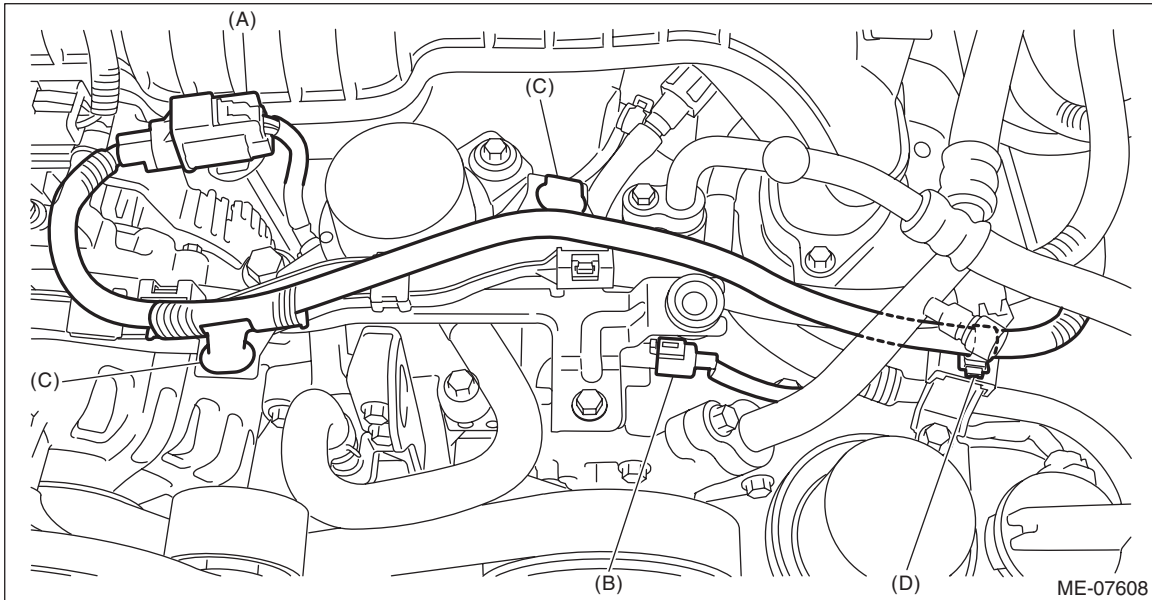
ME-07745

## Engine Assembly

### MECHANICAL

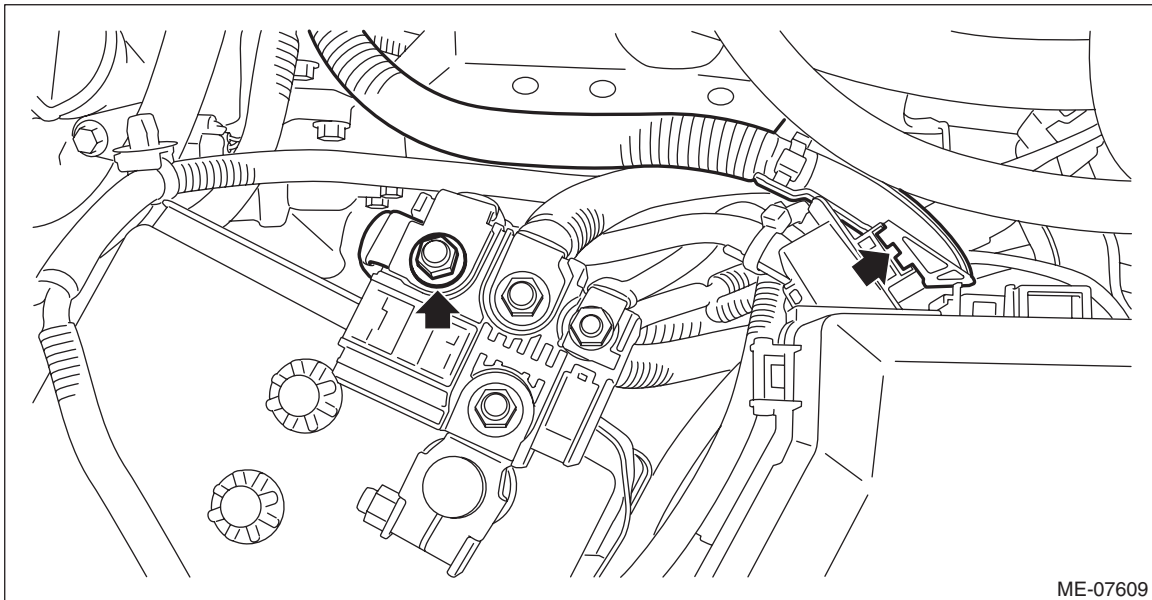
13) Disconnect the connector (A) from the brake vacuum pump, and disconnect the connector (B) from the A/C compressor.

14) Remove the clip (C) and the clip (D) securing the harness to the battery cable assembly, and move the harness to the left side wheel apron.

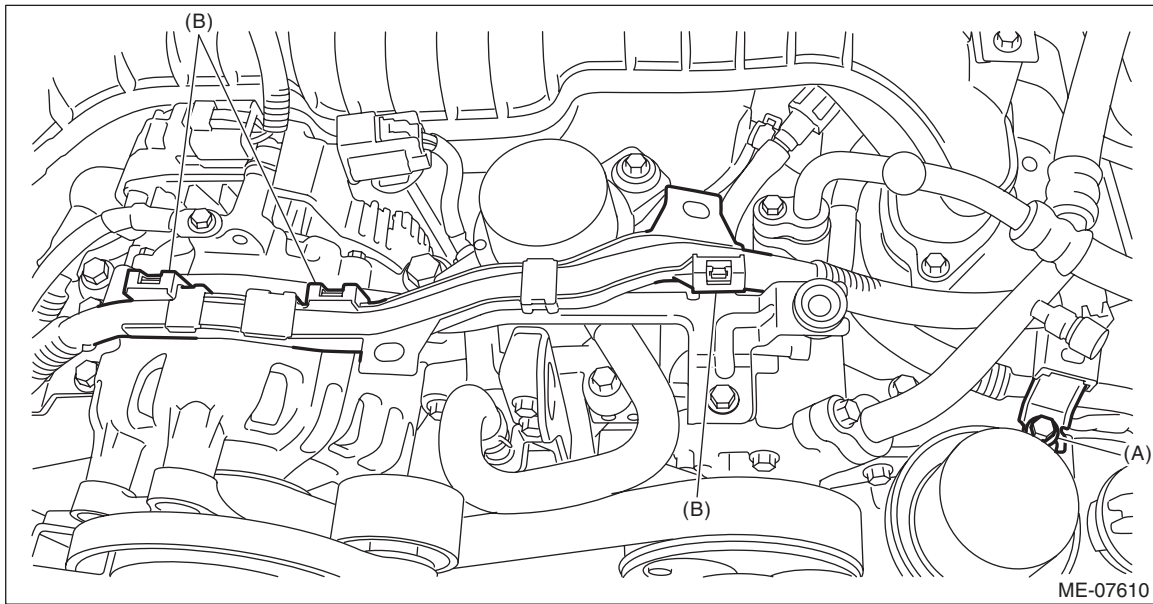


15) Remove the terminal boot from the positive terminal of the 12 volt auxiliary battery.

16) Remove the nuts fastening the battery cable assembly to the slow blow fuse (12 volt auxiliary battery), and remove the battery cable assembly from the main fuse box.

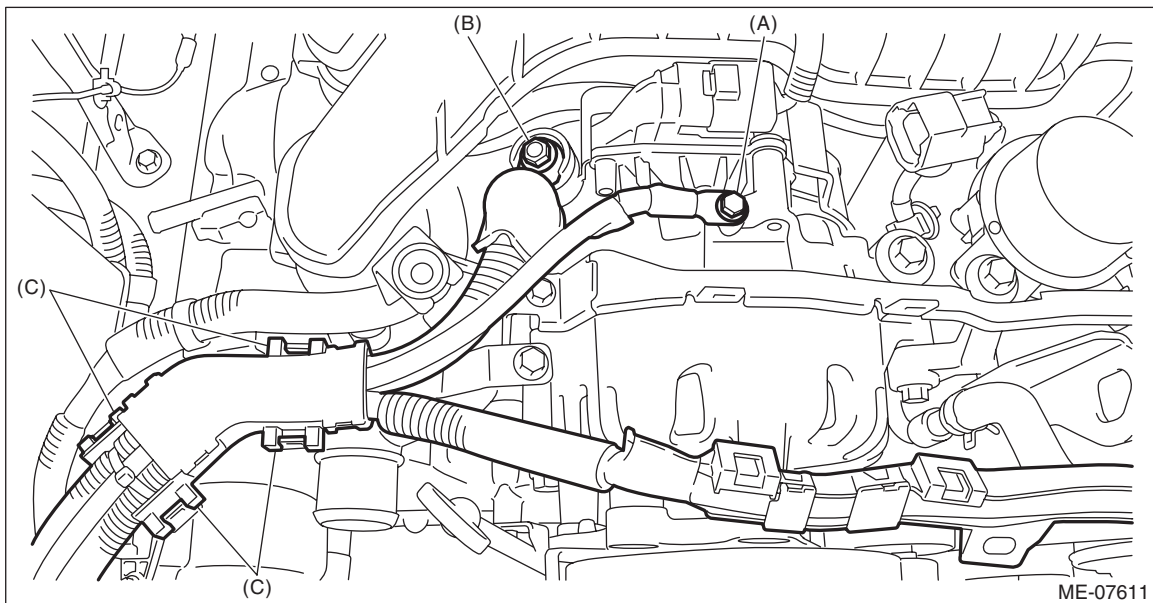


17) Remove the bolt (A) securing the battery cable stay to the chain cover, and remove the clip (B) securing the battery cable assembly to the collector cover bracket.



18) Disconnect the terminal (A) and the terminal (B) from ISG.

19) Remove the clip (C) securing the battery cable assembly to the battery cable bracket No. 1, and move the battery cable assembly to the right side wheel apron.



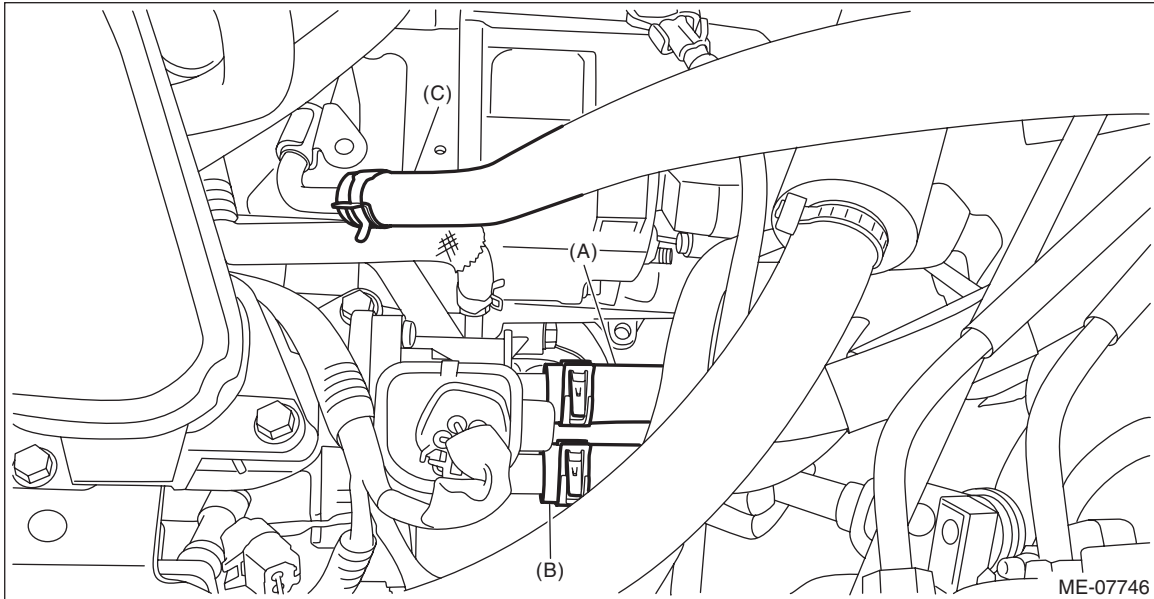
20) Disconnect the A/C pressure hoses from A/C compressor. <Ref. to AC-71, REMOVAL, Hose and Pipe.>

# Engine Assembly

## MECHANICAL

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

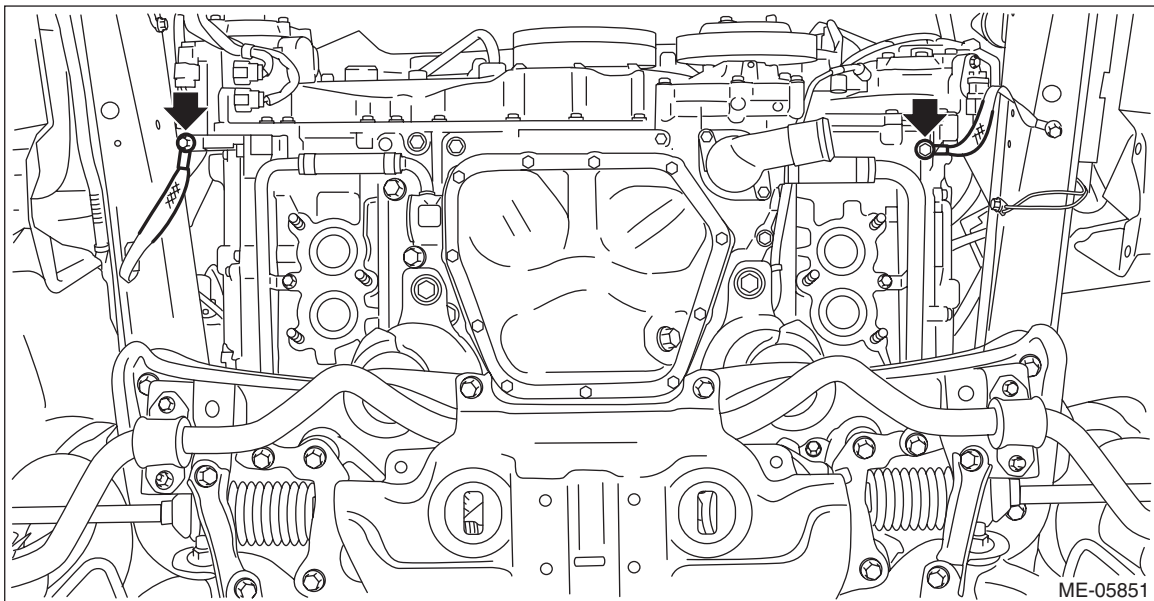
22) Disconnect the brake booster vacuum hose (C) from the brake vacuum pipe.



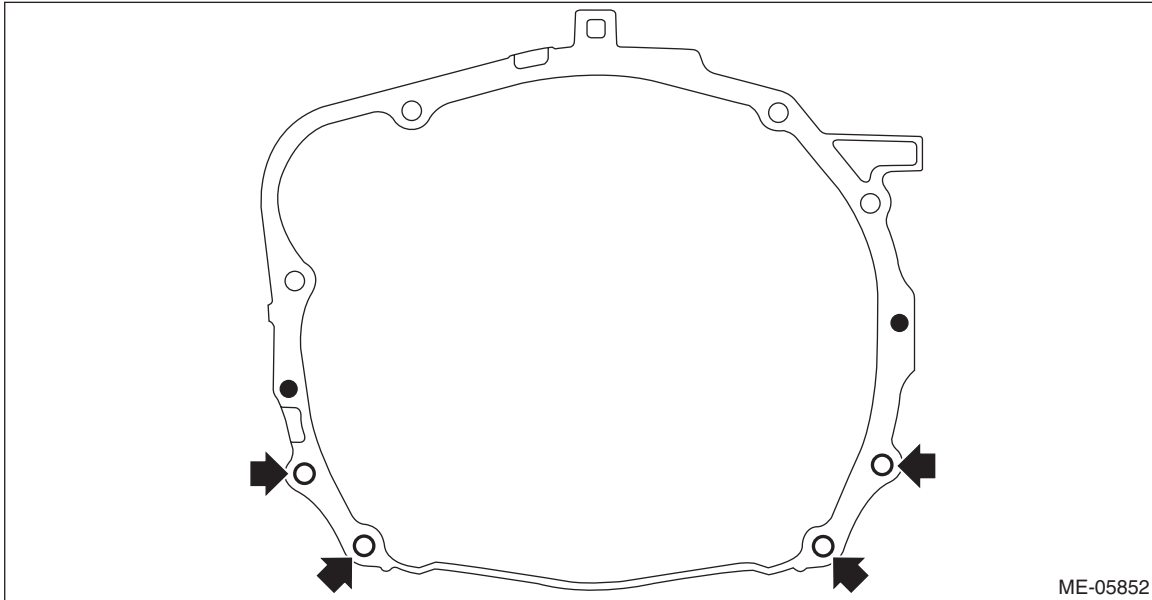
23) Lift up the vehicle.

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

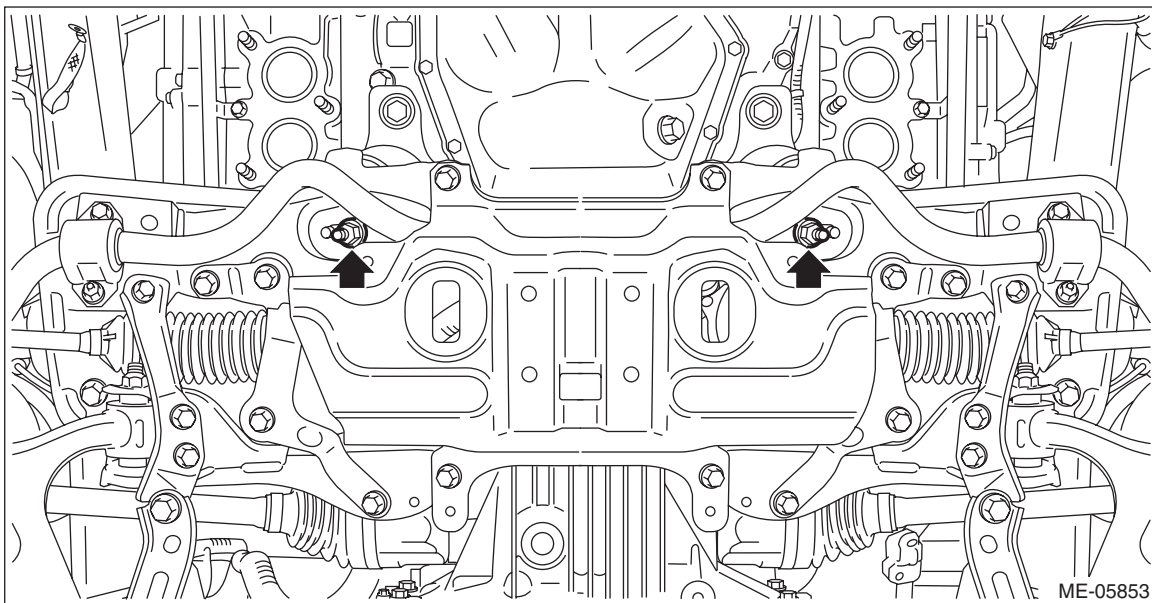
25) Disconnect the ground cable on the engine side.



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



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



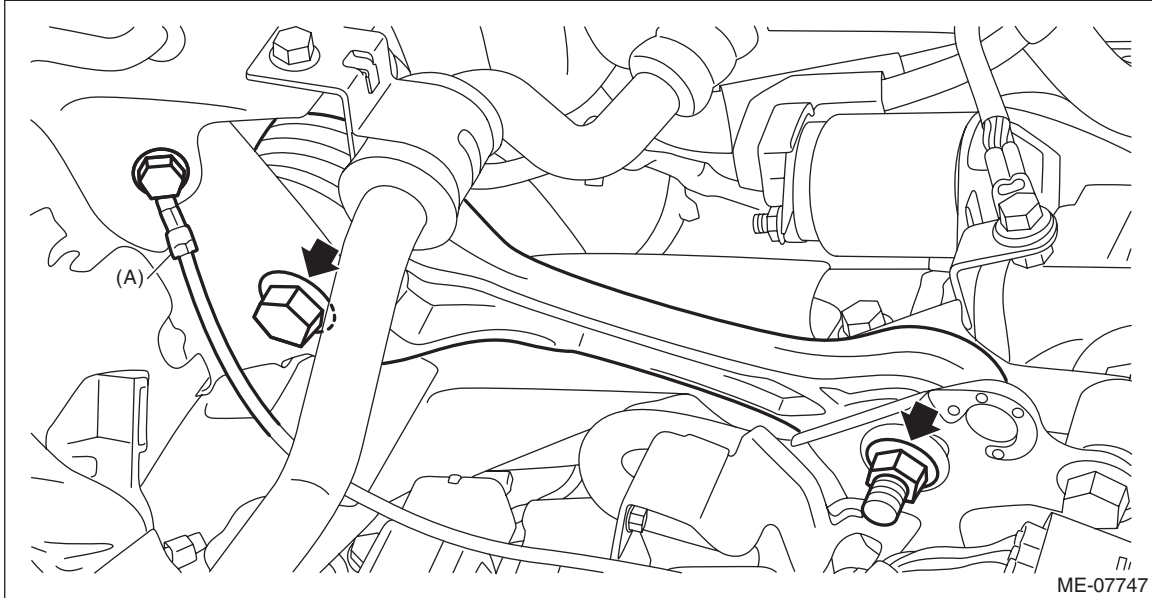
28) Lower the vehicle.



## Engine Assembly

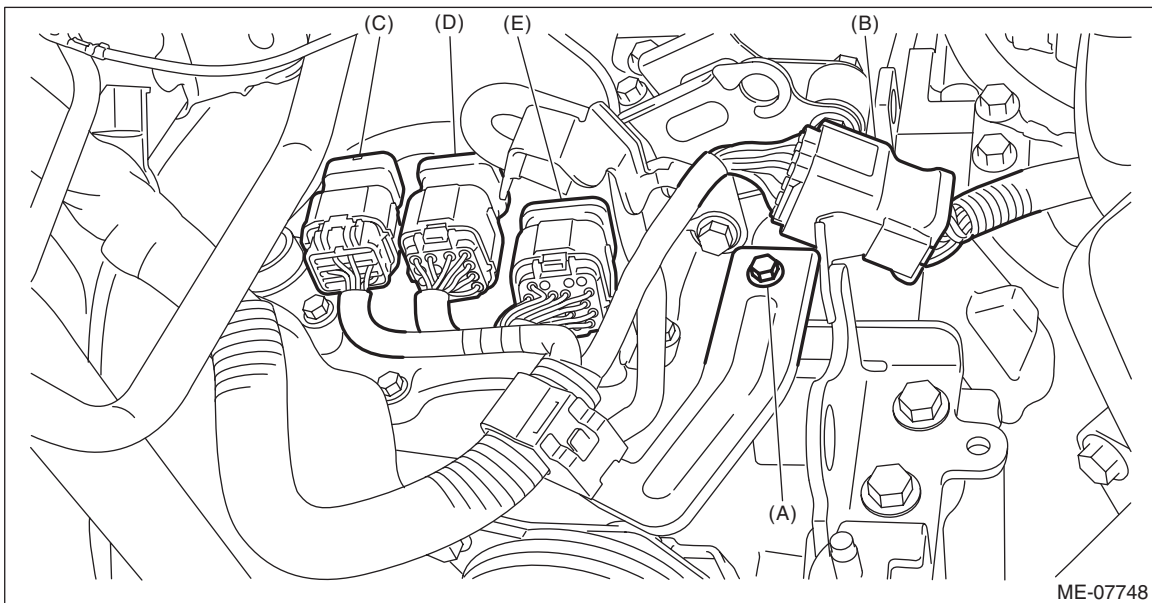
### MECHANICAL

29) Disconnect the transmission radio ground terminal (A) from the vehicle, and remove the pitching stopper.



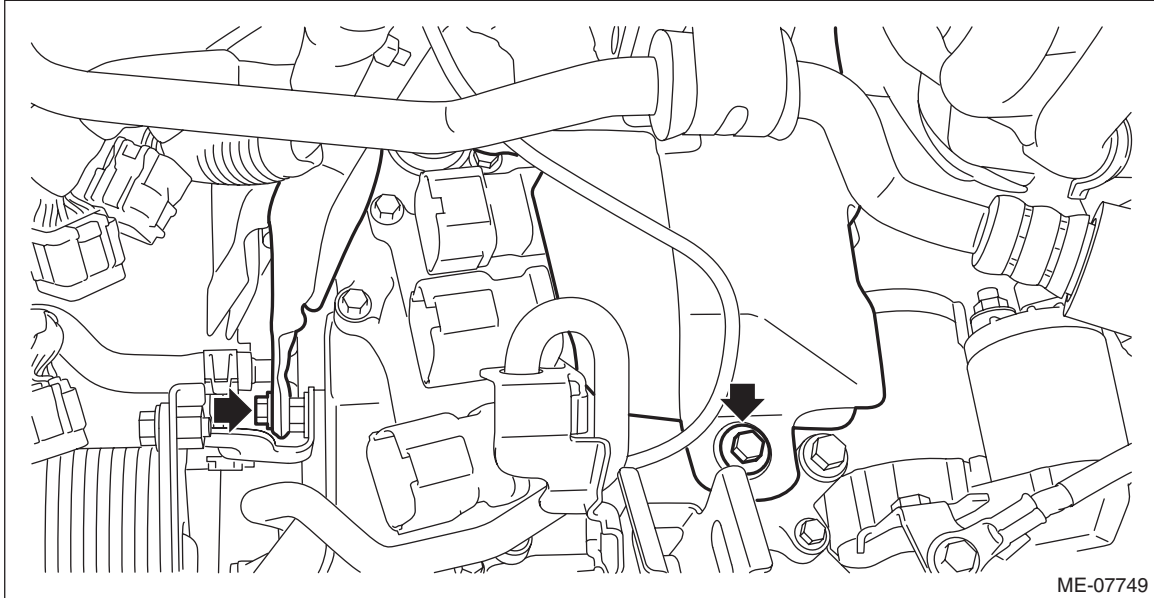
30) Remove the bolt (A) securing the bulkhead harness connector bracket, and disconnect the bulkhead harness connector from the engine harness connector (brown) (B).

31) Disconnect the bulkhead harness connector from the transmission harness connector (C), inhibitor harness connector (D) and drive motor harness connector (E).

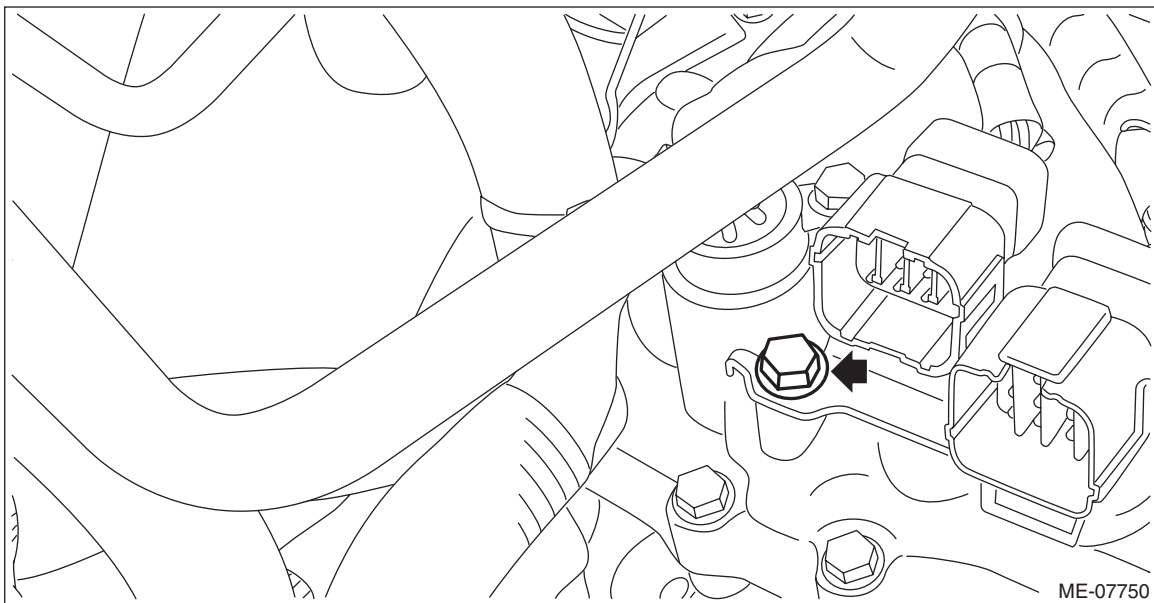




32) Remove the transmission case cover.



33) Remove the bolt which holds the transmission harness stay.



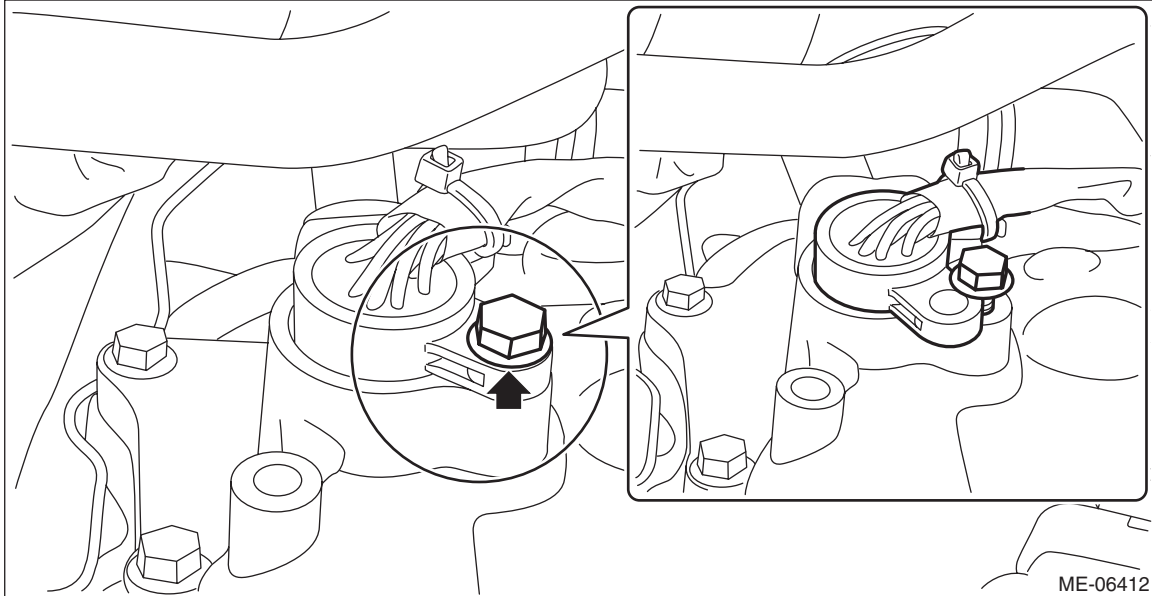
# Engine Assembly

## MECHANICAL

34) Remove the bolt which holds the transmission harness to the control valve body, and turn the transmission harness clockwise till the bolt hole can be seen as shown in the figure, and tighten the bolt to temporary lock the harness.

### NOTE:

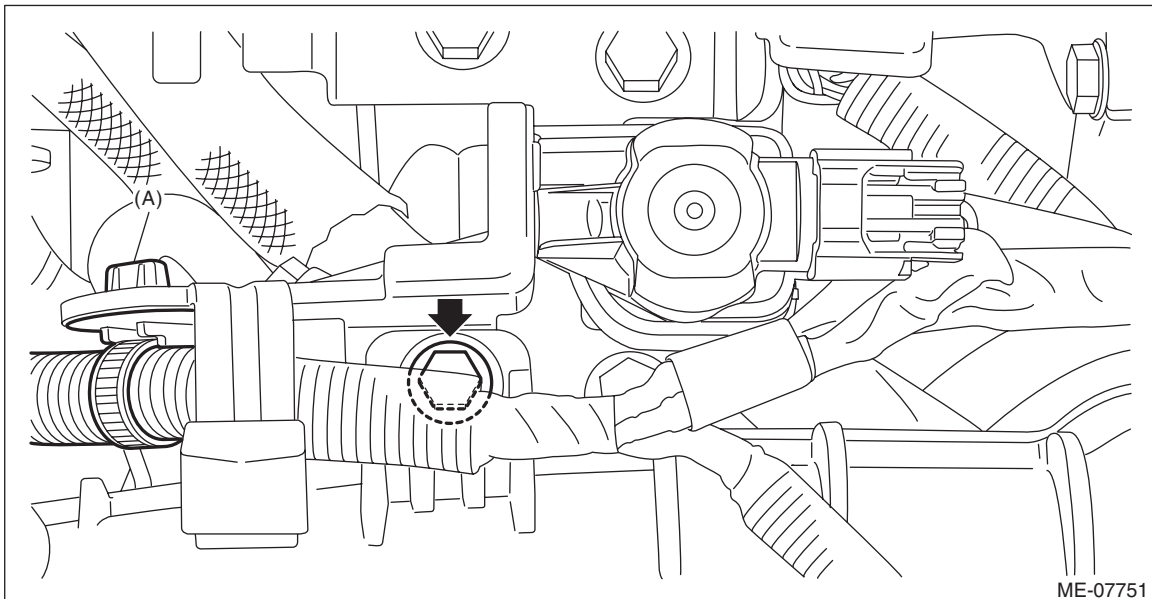
This procedure is required to prevent the transmission harness from touching the vehicle body during engine removal/installation.



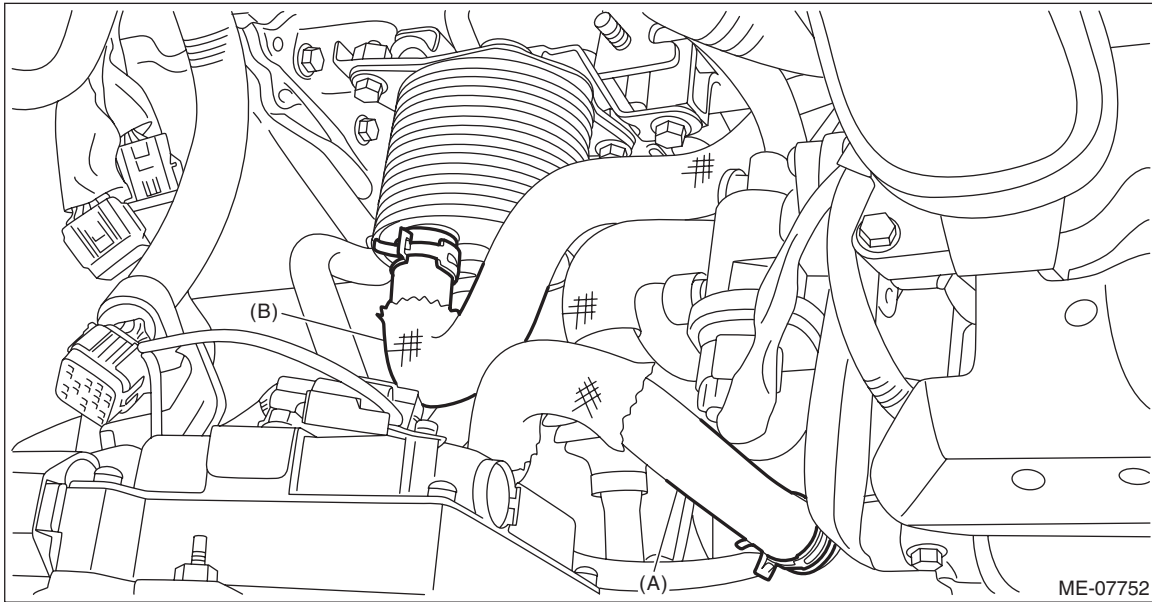
35) Remove the clip (A) securing the engine harness to the purge control solenoid valve bracket, and disconnect the bolt securing the purge control solenoid valve bracket to the intake manifold.

### NOTE:

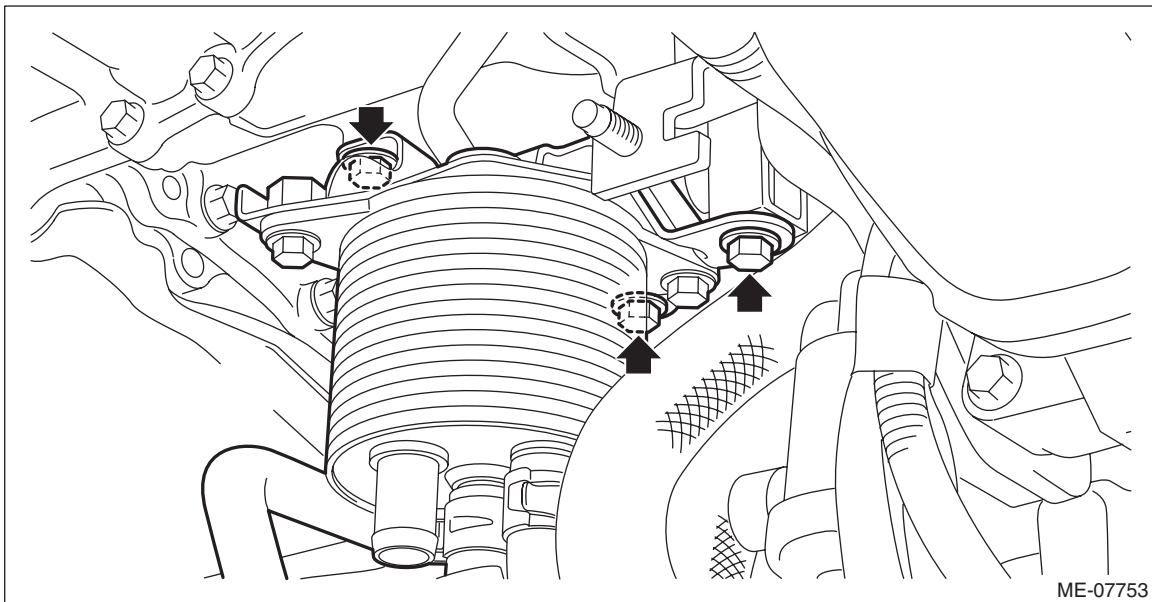
This procedure is required to prevent the wire rope from contacting the purge control solenoid valve during engine removal/installation.



36) Disconnect the engine coolant inlet hose (A) from the EGR cooler, and disconnect the engine coolant outlet hose (B) from the CVTF cooler (with warmer feature).



37) Remove the bolt which secures the CVTF cooler (with warmer feature) to the transmission, and move it at the locations that do not interfere operation.

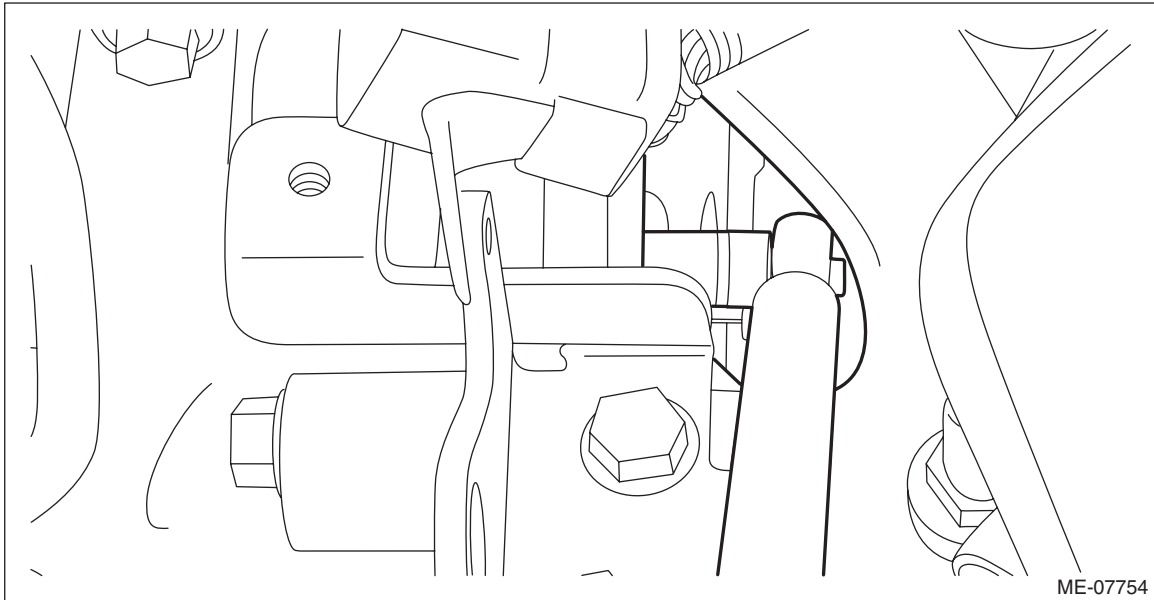


# Engine Assembly

## MECHANICAL

38) Separate the torque converter clutch from the drive plate.

- (1) Remove the service hole plug.
- (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.



39) Disconnect the fuel delivery tube and evaporation hose.

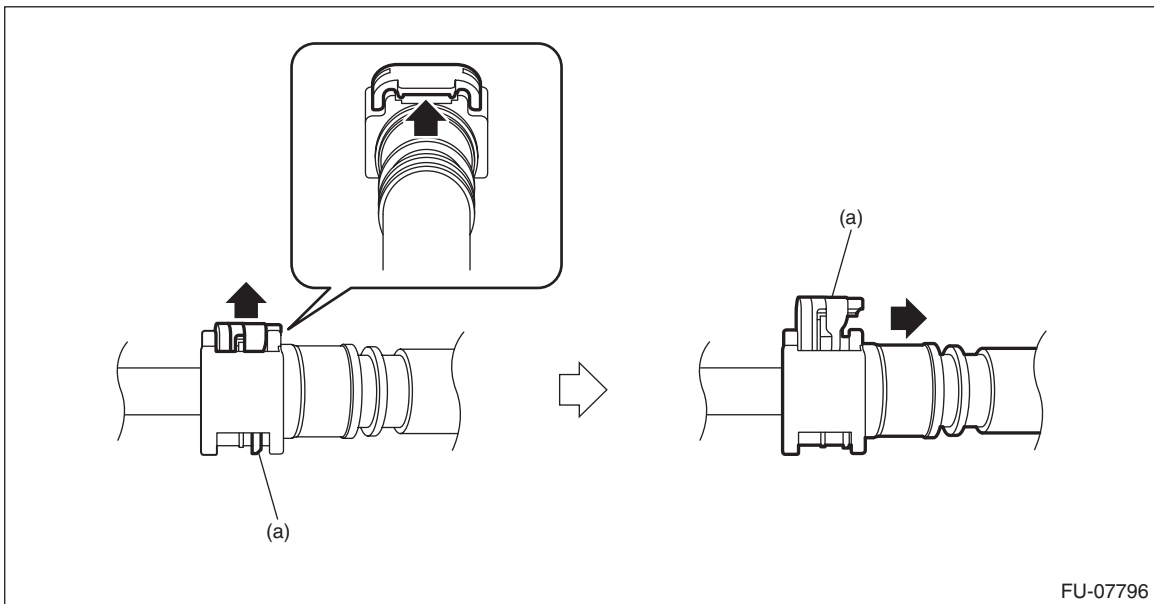
### CAUTION:

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

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

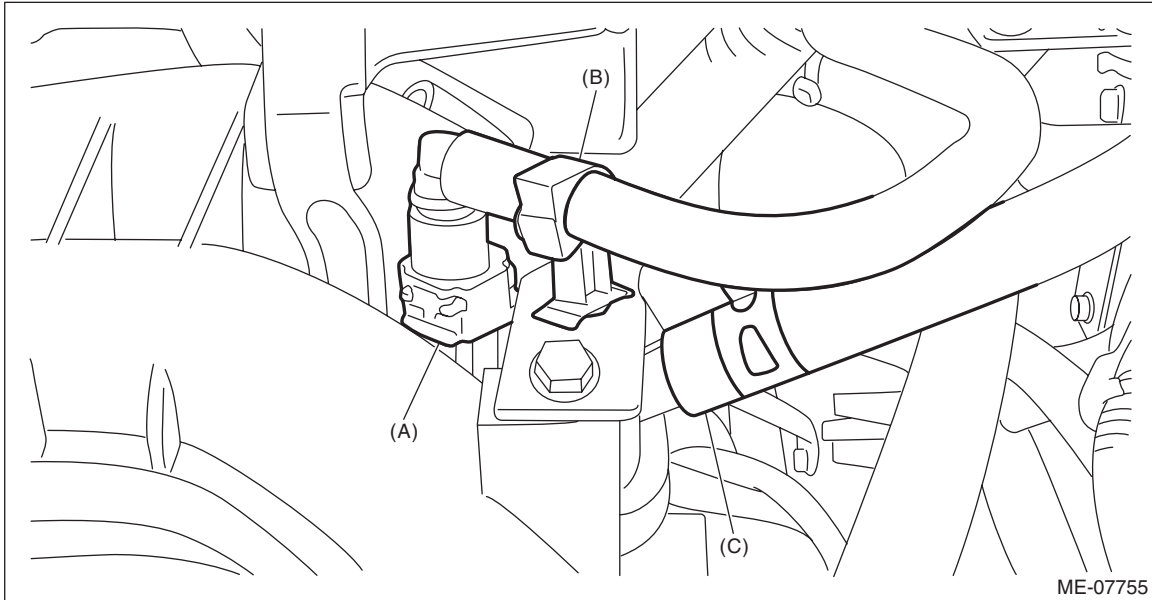
### NOTE:

Disconnect the quick connector as shown in the figure.

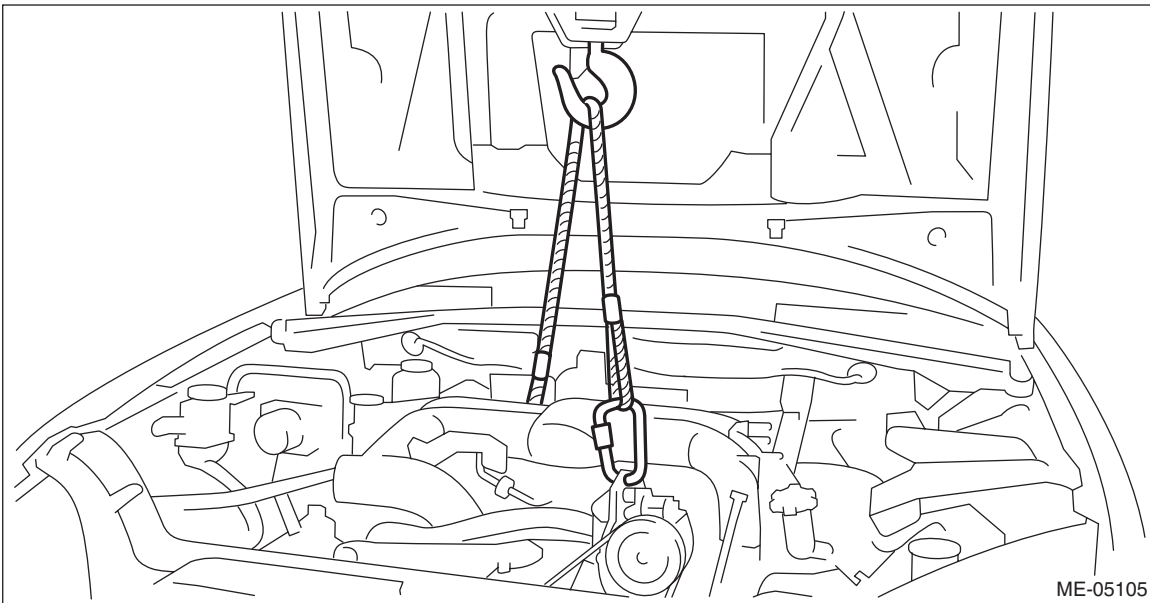


(a) Slider

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



- 40) Support the engine with a lifting device and wire ropes.



## Engine Assembly

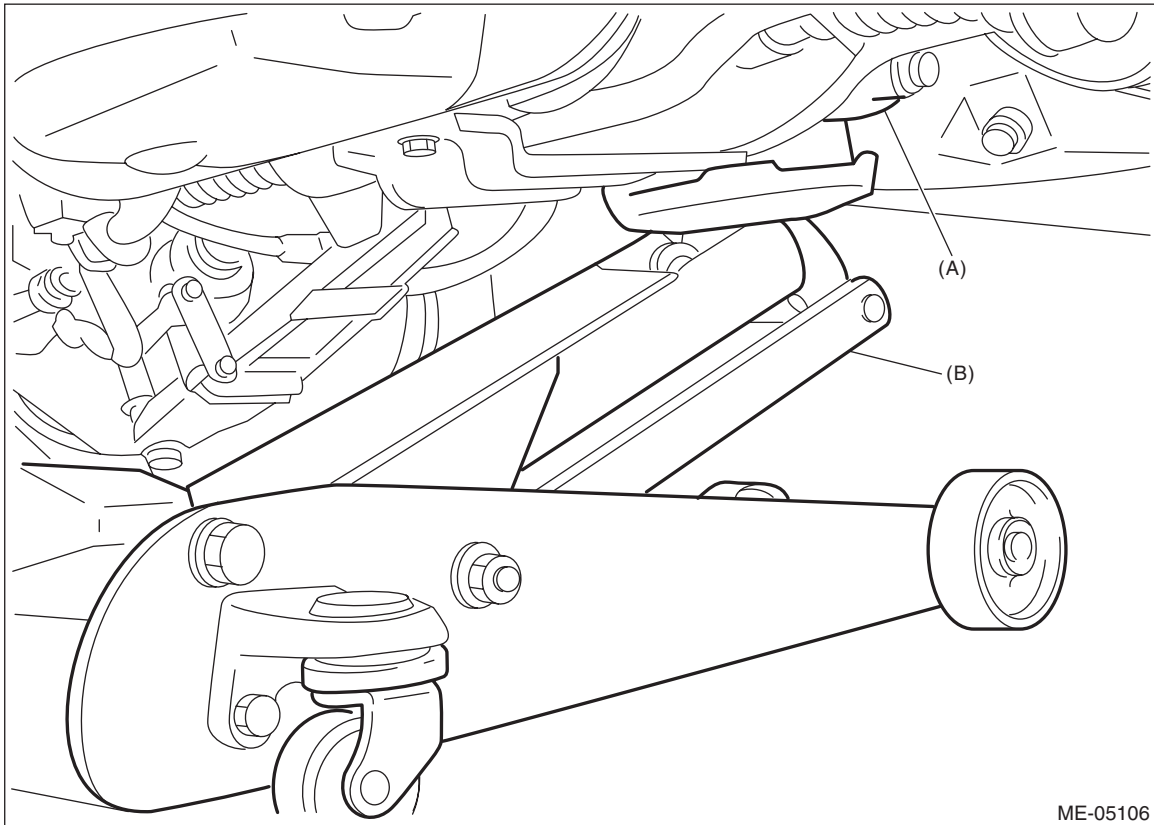
### MECHANICAL

---

41) 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

ME-05106



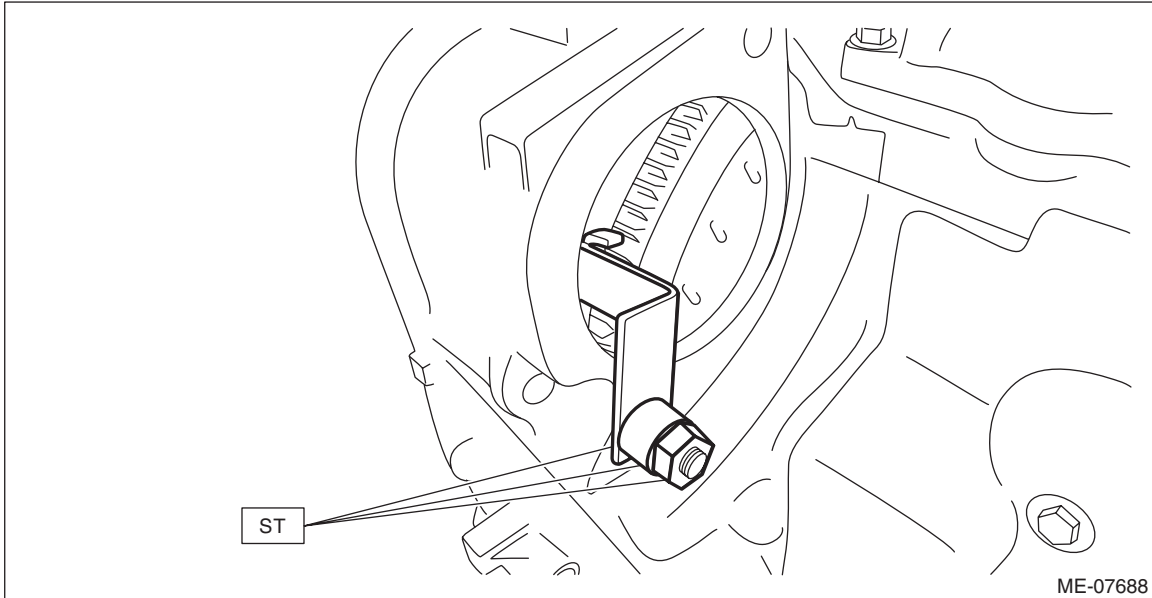
42) Separate the engine and transmission.

**CAUTION:**

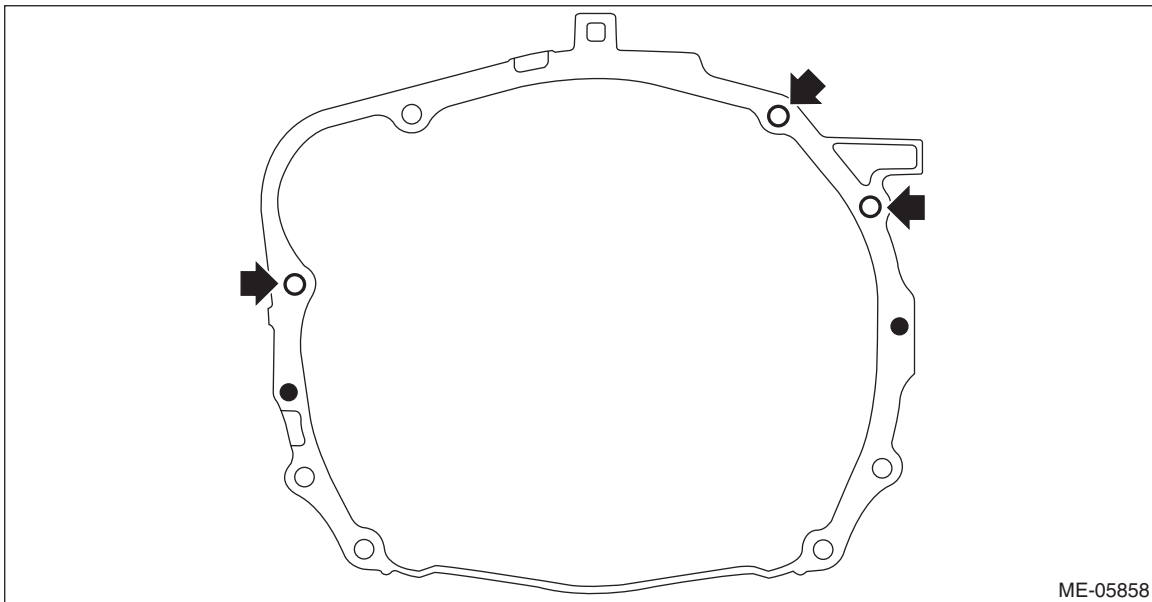
**Before removing the engine away from transmission, check to be sure no work has been overlooked.**

- (1) Remove the starter. <Ref. to SC(H4DO(HEV))-10, REMOVAL, Starter.>
- (2) Attach the ST to the torque converter clutch case.

ST 498277200 STOPPER SET



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



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) Slowly move the engine away from engine compartment.

44) Remove the engine mounting from the engine.

## B: INSTALLATION

### 1. GASOLINE ENGINE MODEL

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:

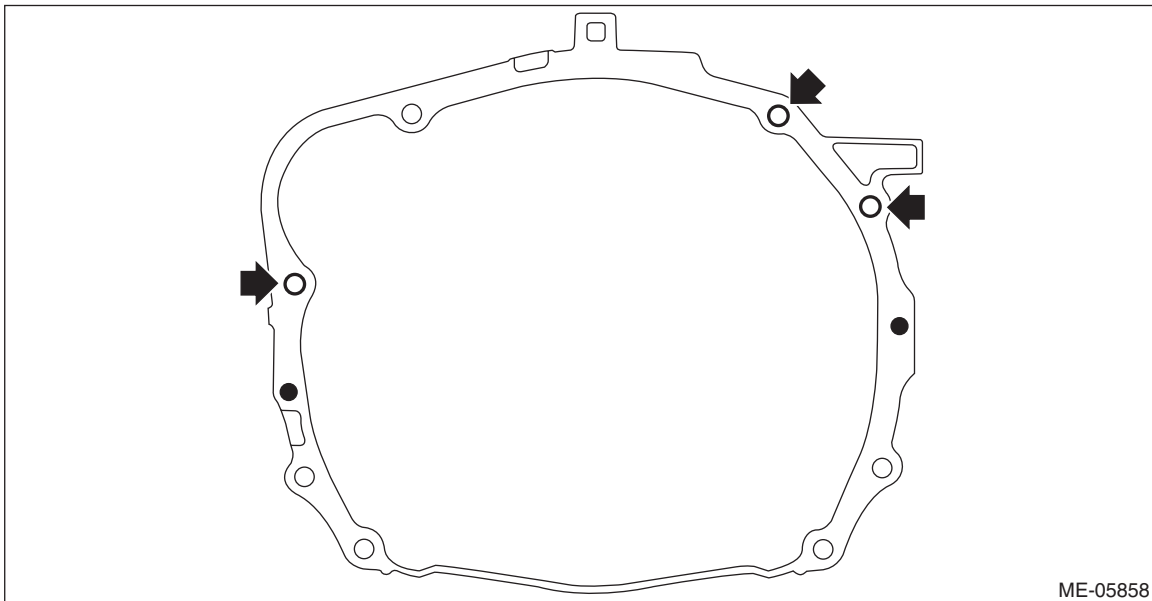
Be careful not to damage adjacent parts or body panels with crank pulley, oil level gauge, etc.

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

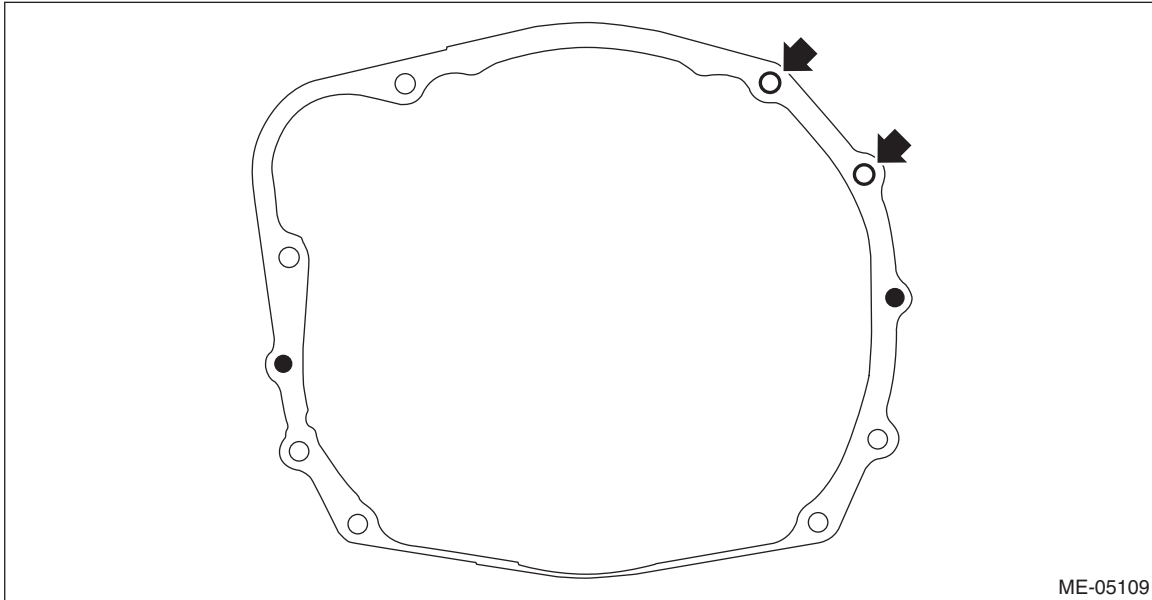
**Tightening torque:**

**50 N·m (5.1 kgf-m, 36.9 ft-lb)**

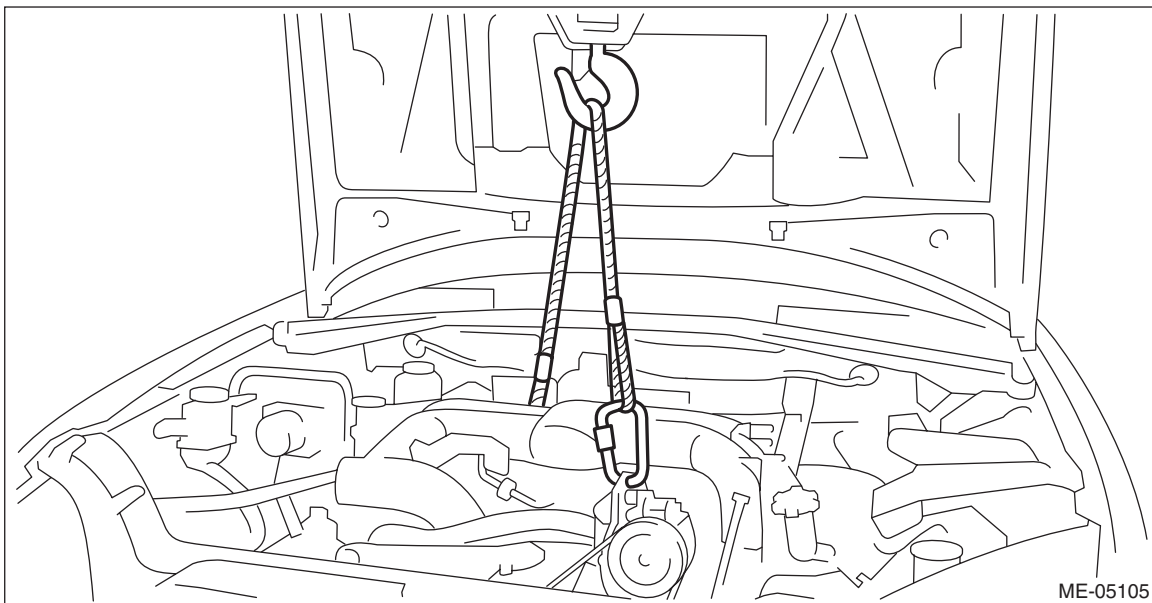
- CVT model



- MT model



- 5) Remove the lifting device and wire ropes.



- 6) Remove the garage jack.

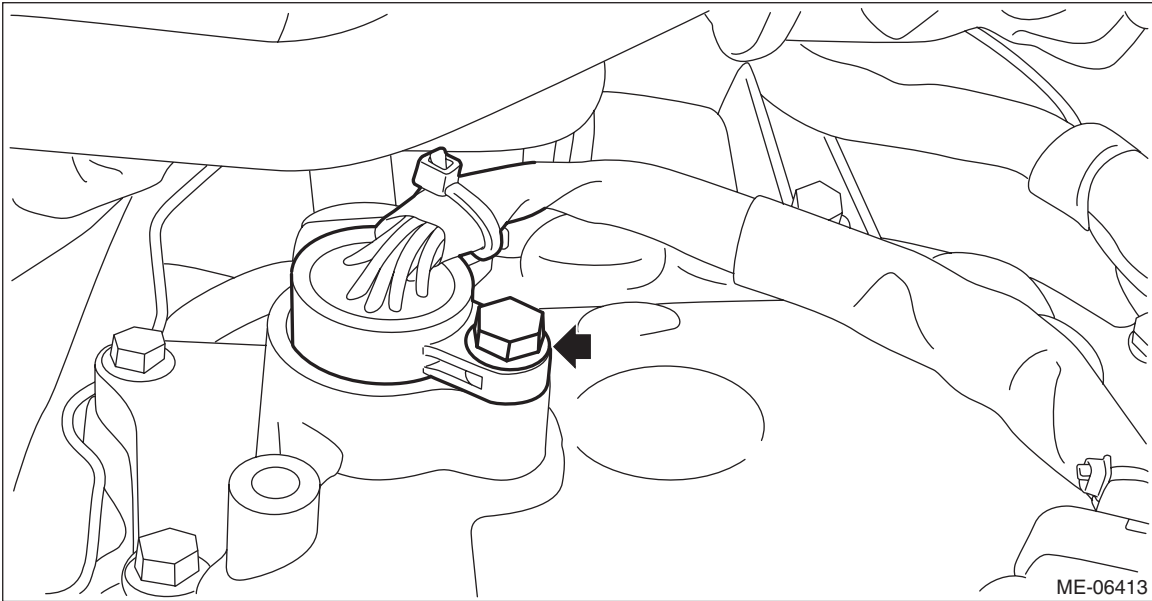
# Engine Assembly

## MECHANICAL

7) Remove the bolt and turn the transmission harness counterclockwise to install the transmission harness to the control valve body. (CVT model)

**Tightening torque:**

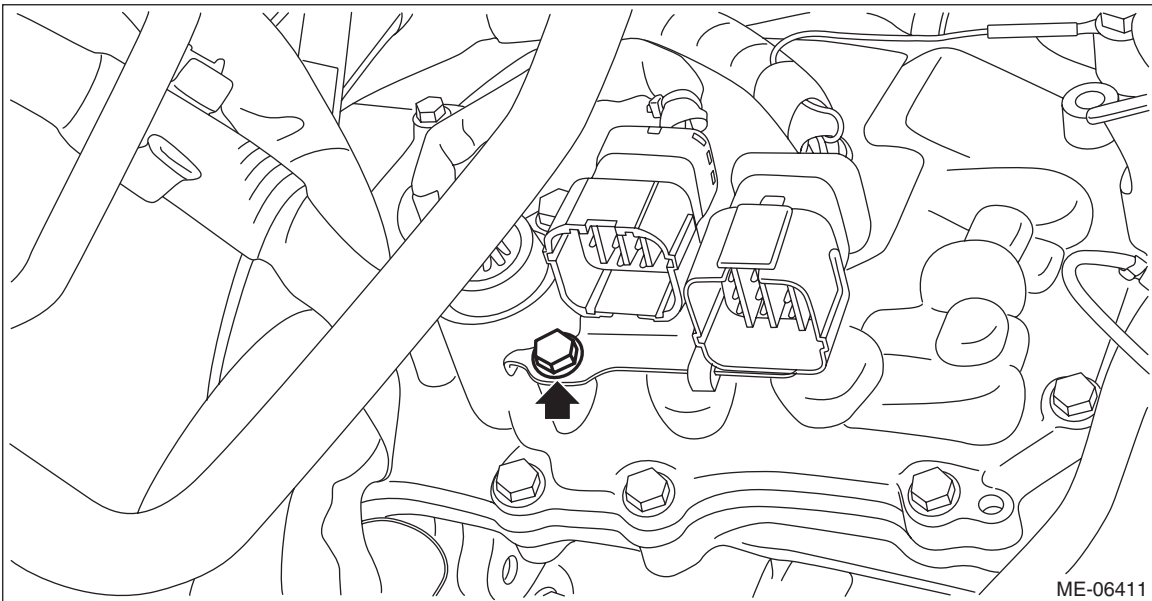
**7 N·m (0.7 kgf-m, 5.2 ft-lb)**



8) Install the bolt which holds the transmission harness stay. (CVT model)

**Tightening torque:**

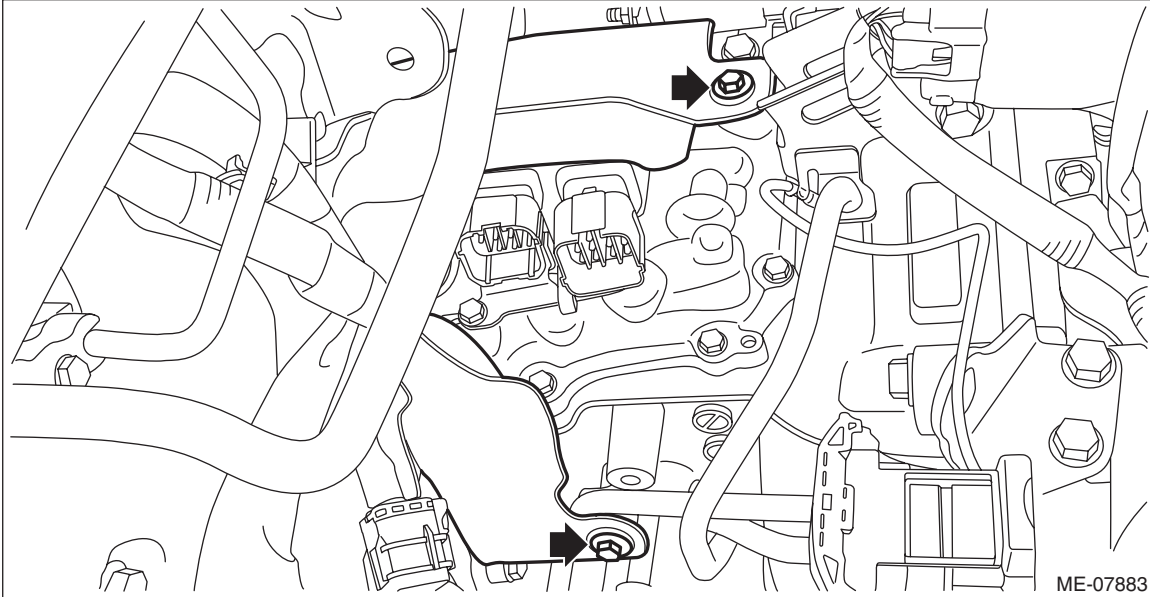
**7 N·m (0.7 kgf-m, 5.2 ft-lb)**



9) Install the transmission case cover. (CVT model)

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.9 ft-lb)**

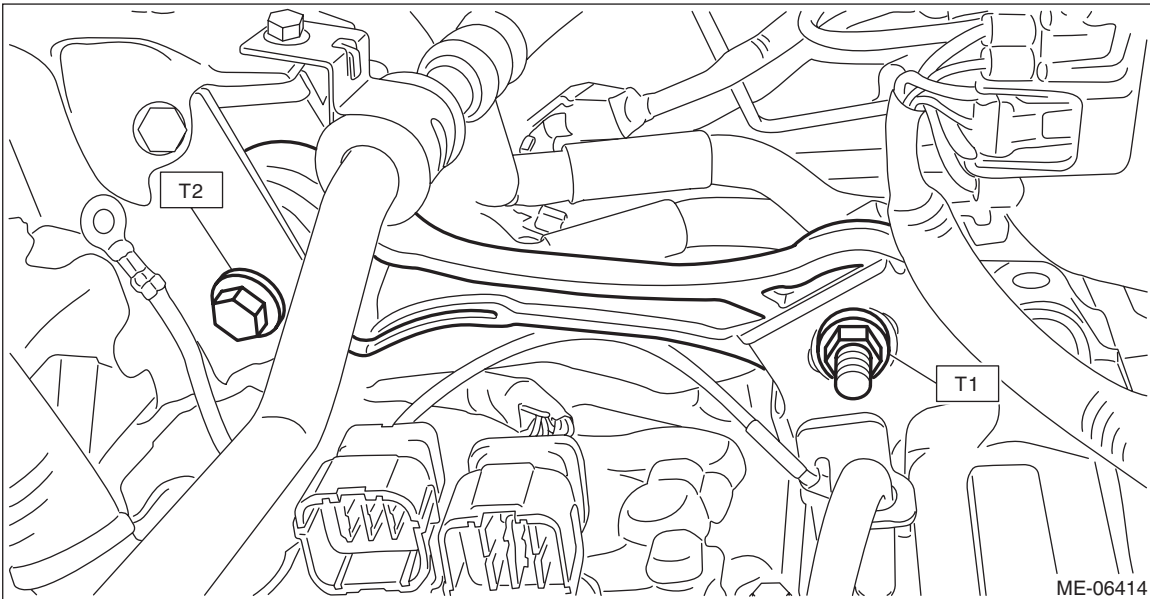


10) Install the pitching stopper.

**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)**



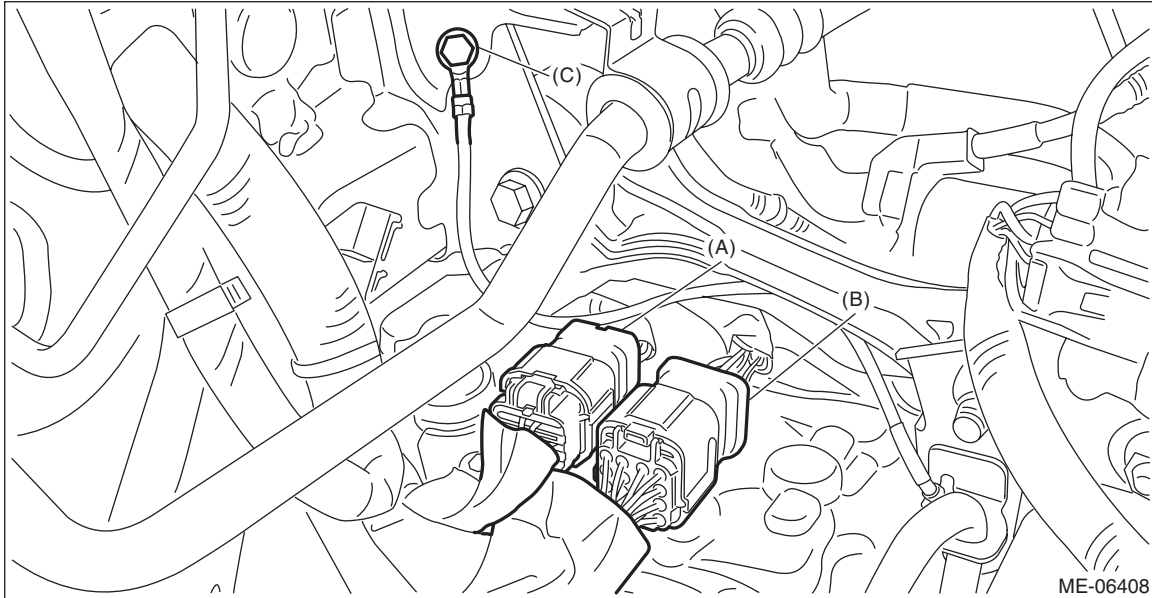
# Engine Assembly

## MECHANICAL

11) Connect the transmission radio ground terminal (C) to the vehicle body, and connect the bulkhead harness connector (A) and the inhibitor harness connector (B). (CVT model)

**Tightening torque:**

**13 N·m (1.3 kgf-m, 9.6 ft-lb)**

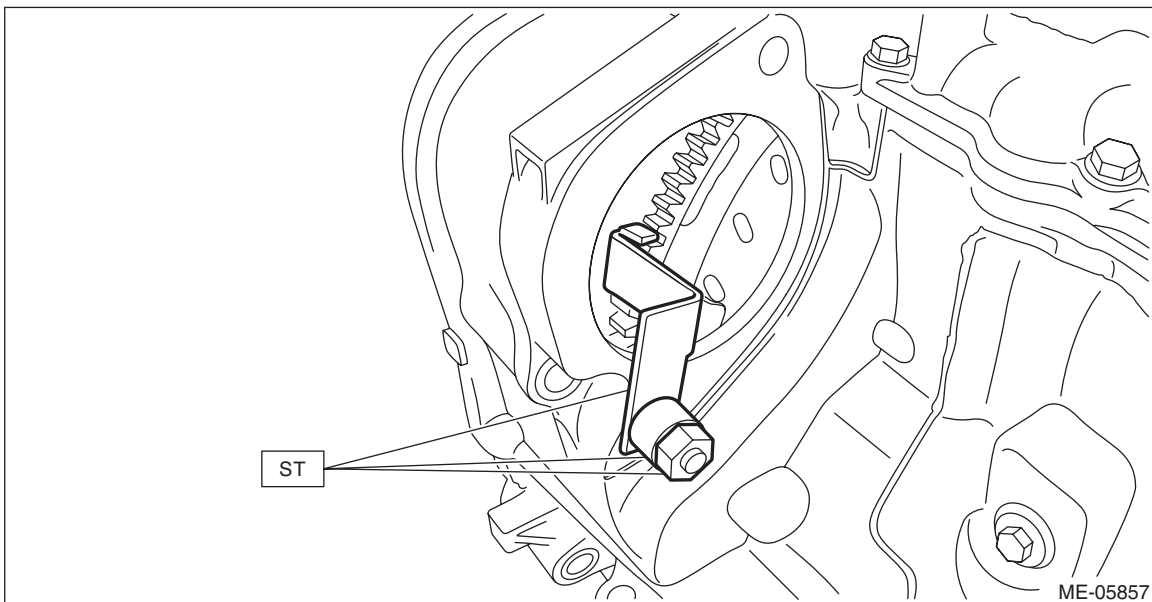


12) Remove the ST from torque converter clutch case. (CVT model)

**NOTE:**

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

ST 498277200 STOPPER SET



13) Install the starter. <Ref. to SC(H4DO(w/o HEV))-10, INSTALLATION, Starter.>



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

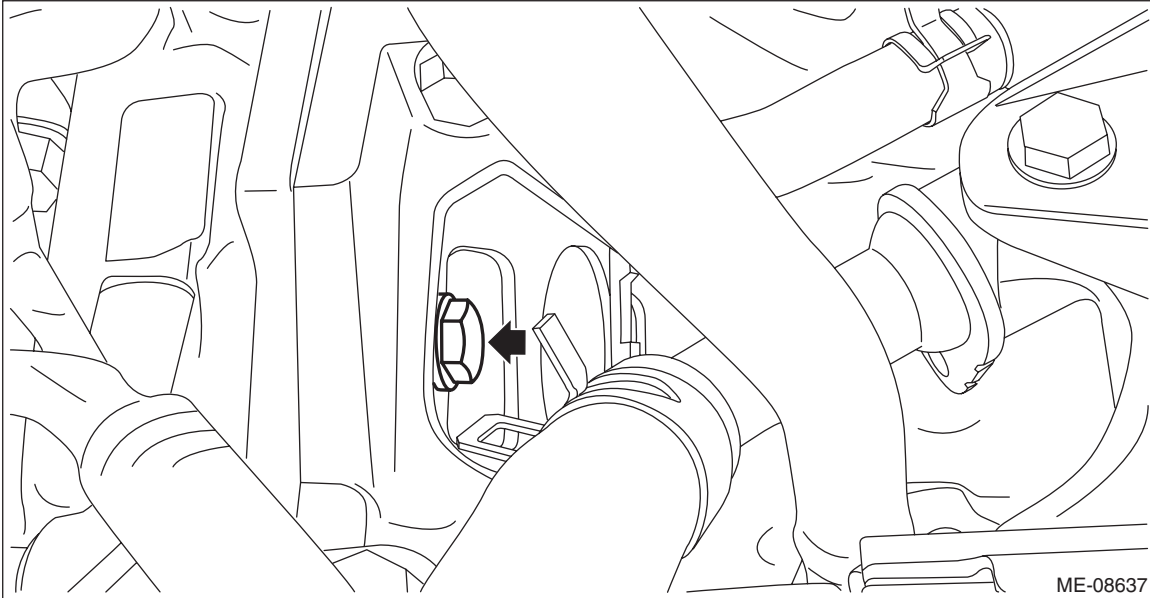
(1) Insert the wrench into the crank pulley bolt, and rotate the crank pulley to attach the four bolts securing the torque converter clutch to the drive plate.

**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)**



(2) Fit the plug to service hole.

(3) Install the throttle body. <Ref. to FU(H4DO(w/o HEV))-16, INSTALLATION, Throttle Body.>

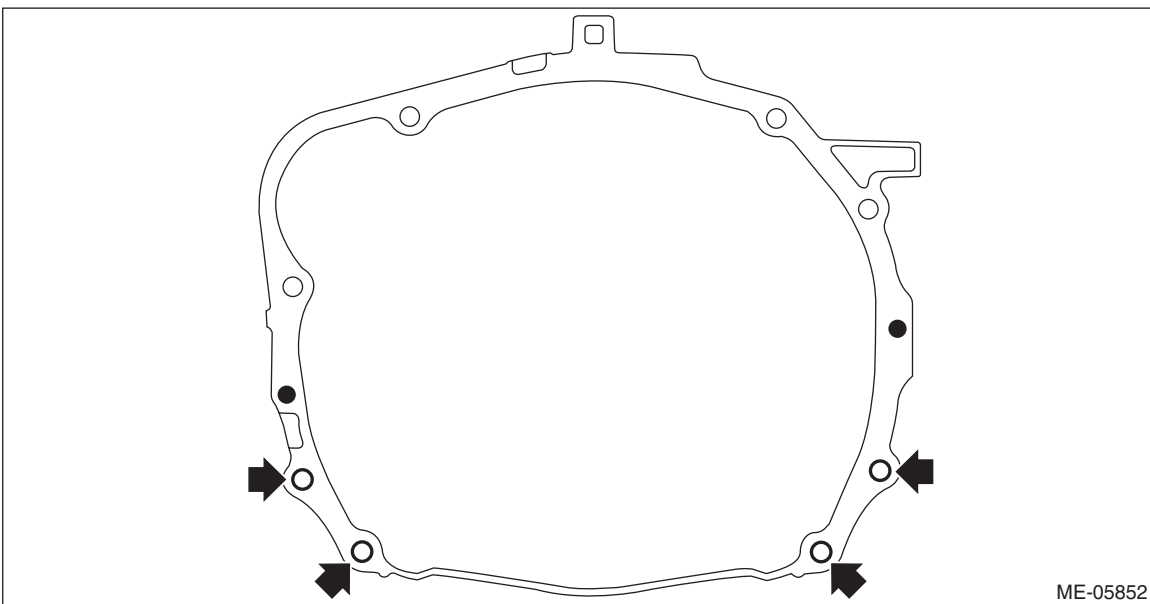
15) Lift up the vehicle.

16) 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)**

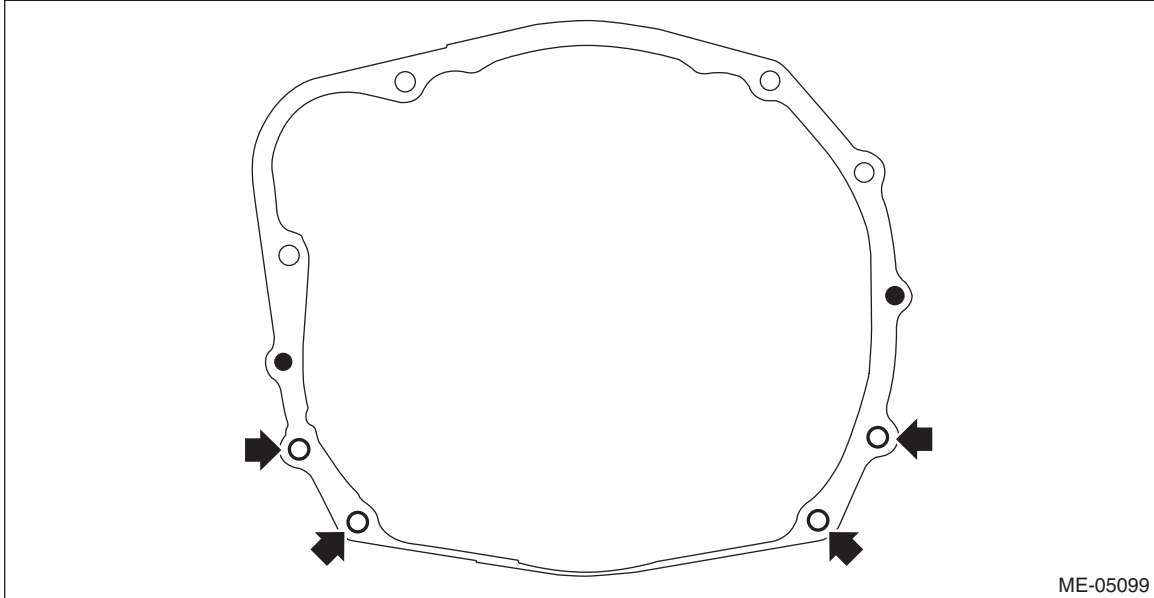
- CVT model



# Engine Assembly

## MECHANICAL

- MT model



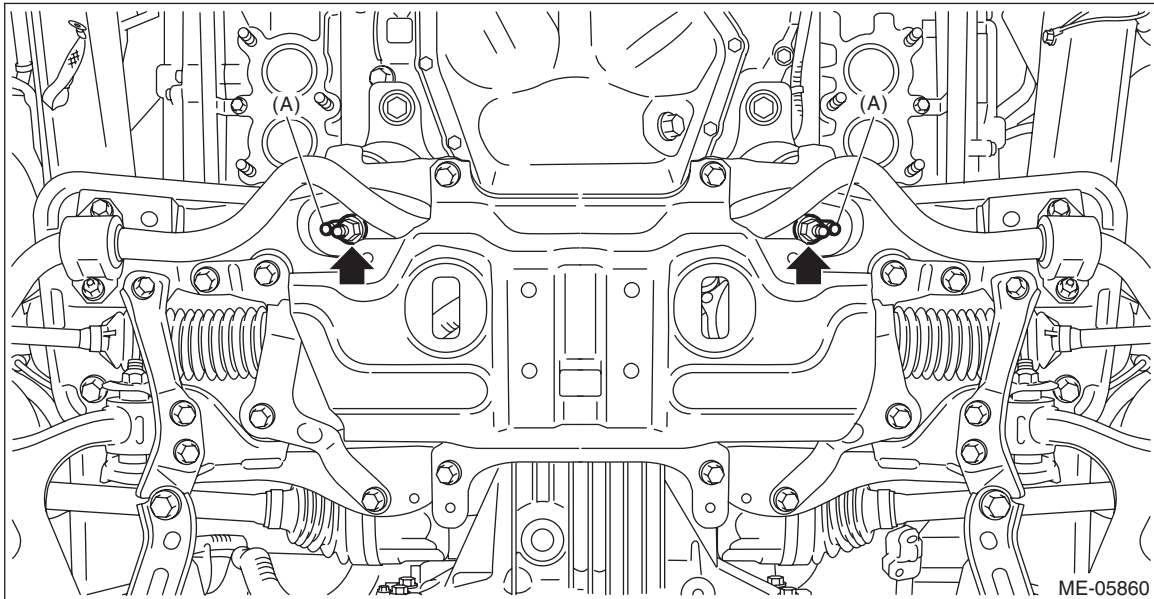
17) Install the nuts which hold the engine mounting to the crossmember. (CVT model)

### 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)***



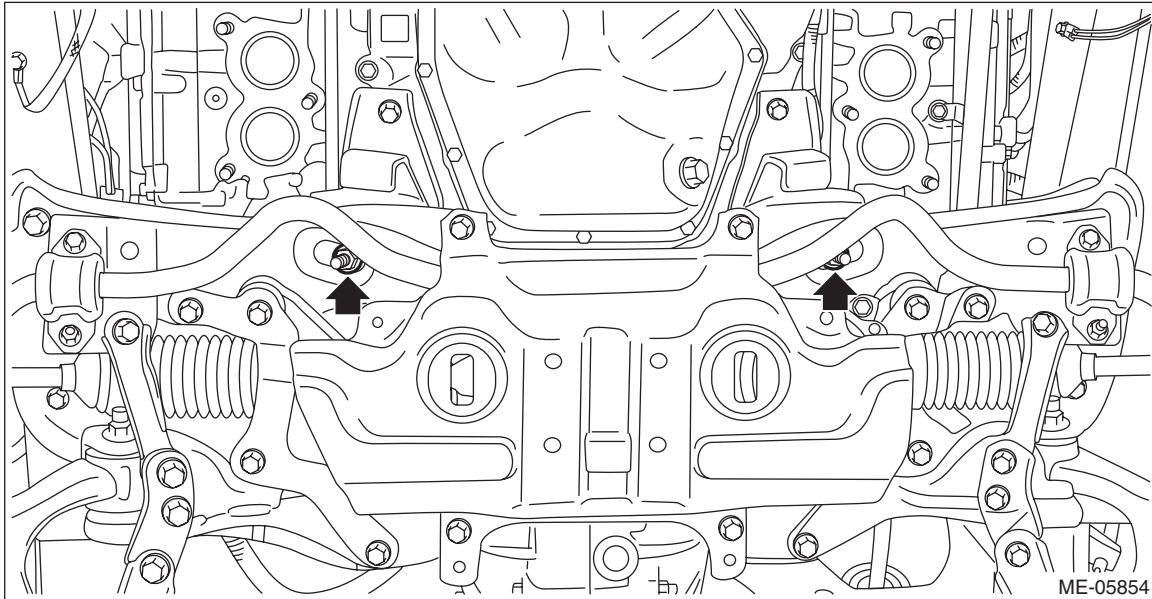
18) Install the nuts which hold the engine mounting to the crossmember. (MT model)

NOTE:

Use a new nut.

**Tightening torque:**

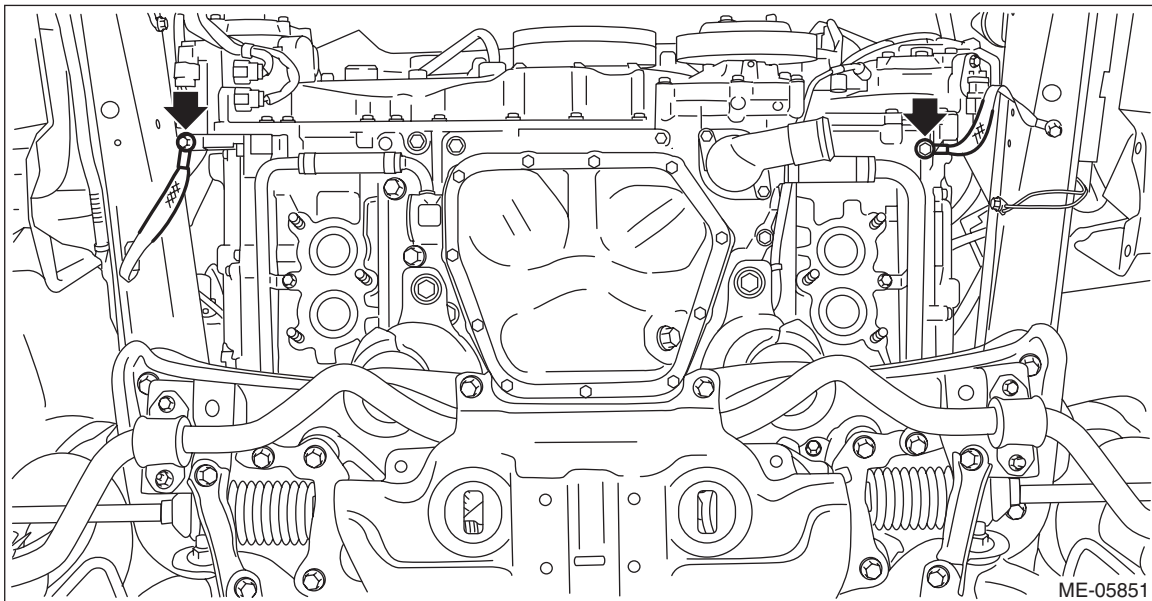
**60 N·m (6.1 kgf-m, 44.3 ft-lb)**



19) Connect the ground cable.

**Tightening torque:**

**7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**



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

21) Lower the vehicle.

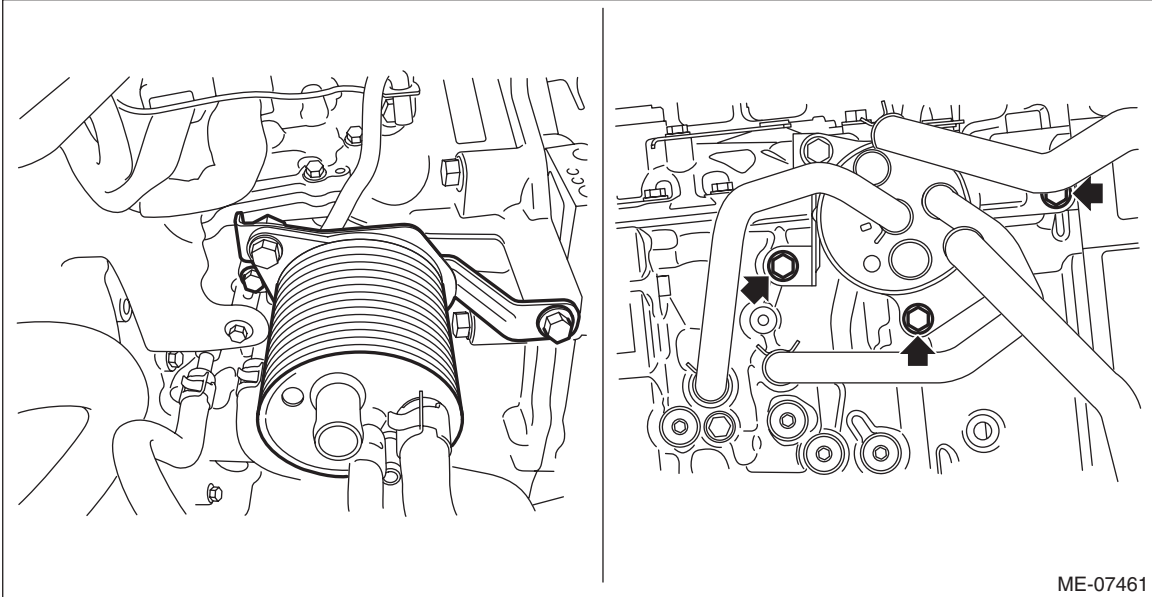
# Engine Assembly

## MECHANICAL

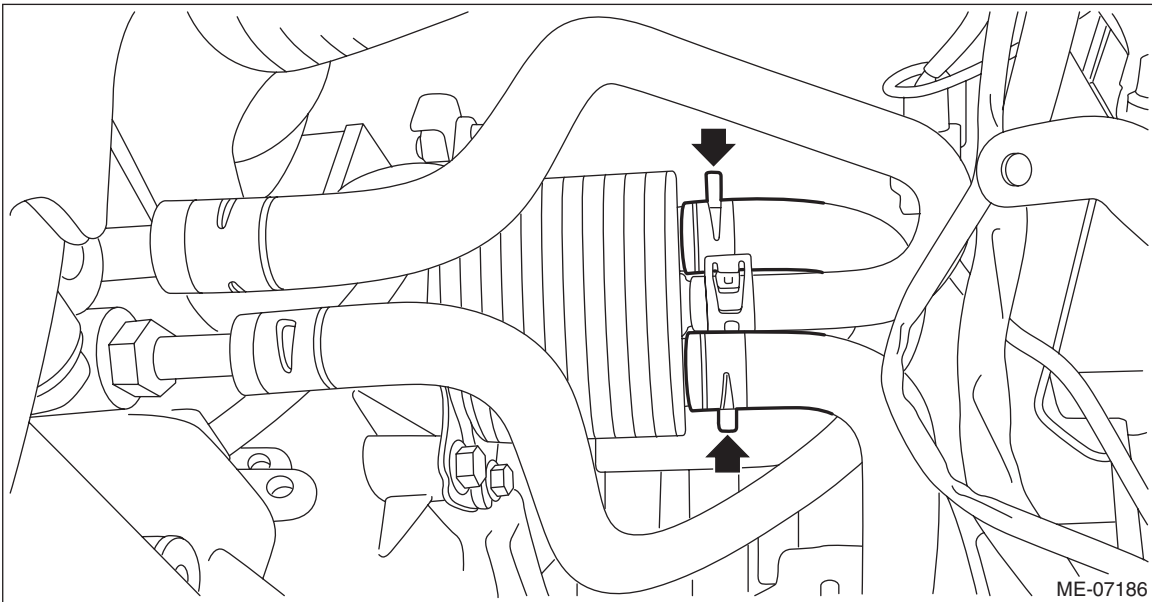
22) Install the CVTF cooler (with warmer feature) to the transmission. (CVT model)

**Tightening torque:**

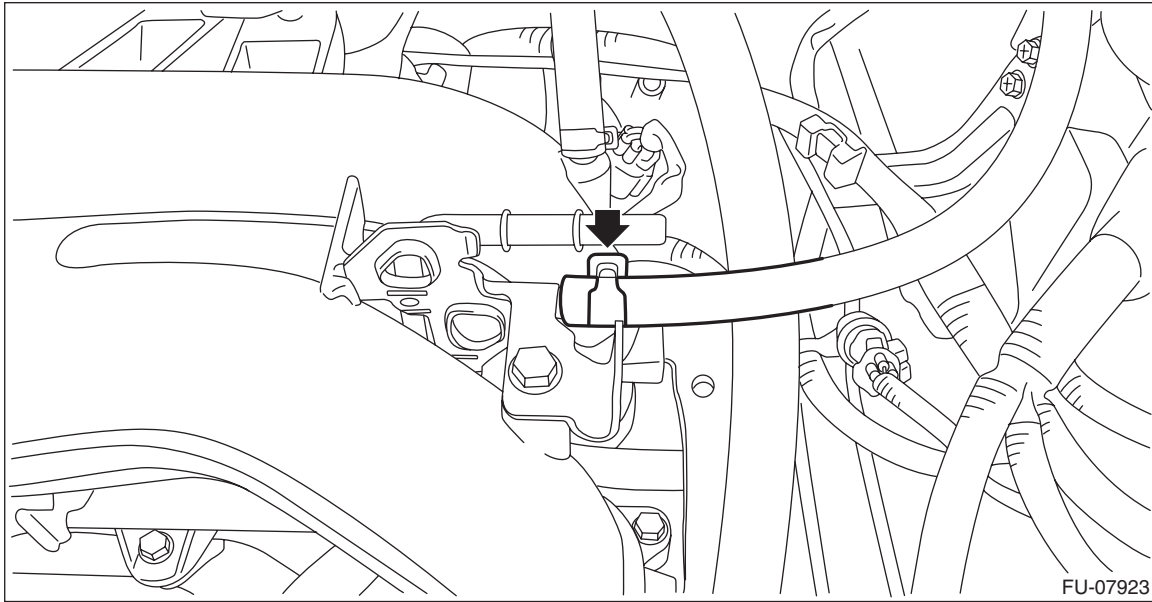
**23 N·m (2.3 kgf-m, 17.0 ft-lb)**



23) Connect the water hose to the CVTF cooler (with warmer feature). (CVT model)



- 24) Connect the fuel delivery tube and evaporation hose.  
(1) Connect the evaporation hose to fuel pipe assembly.



# Engine Assembly

## MECHANICAL

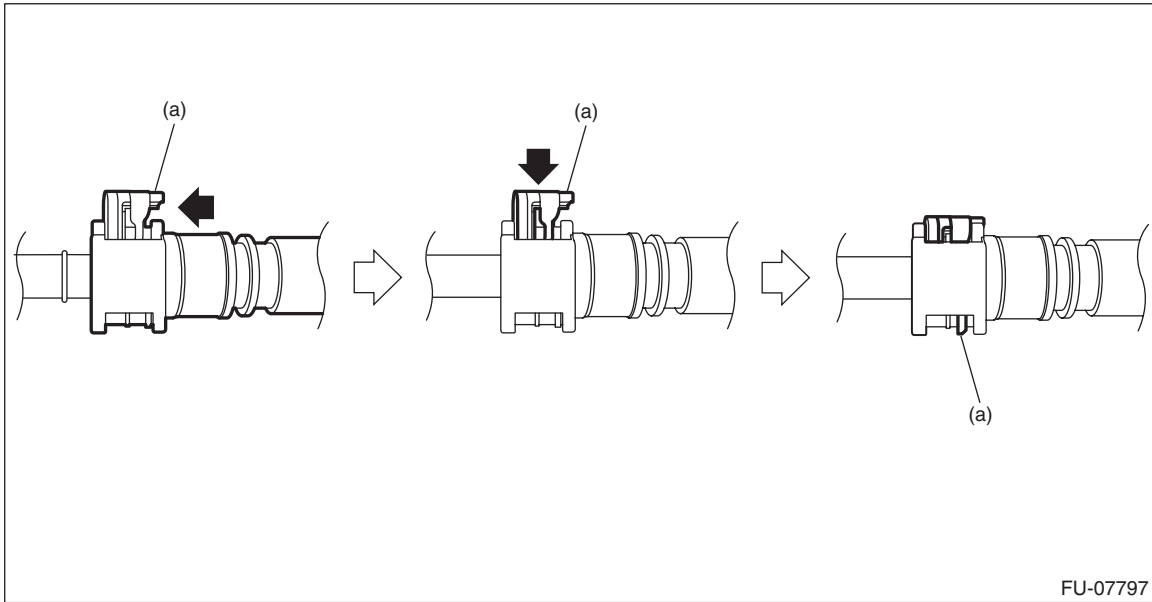
(2) Connect the quick connector on the fuel delivery tube to the fuel pipe assembly, and fix the fuel delivery tube using clip (A).

### CAUTION:

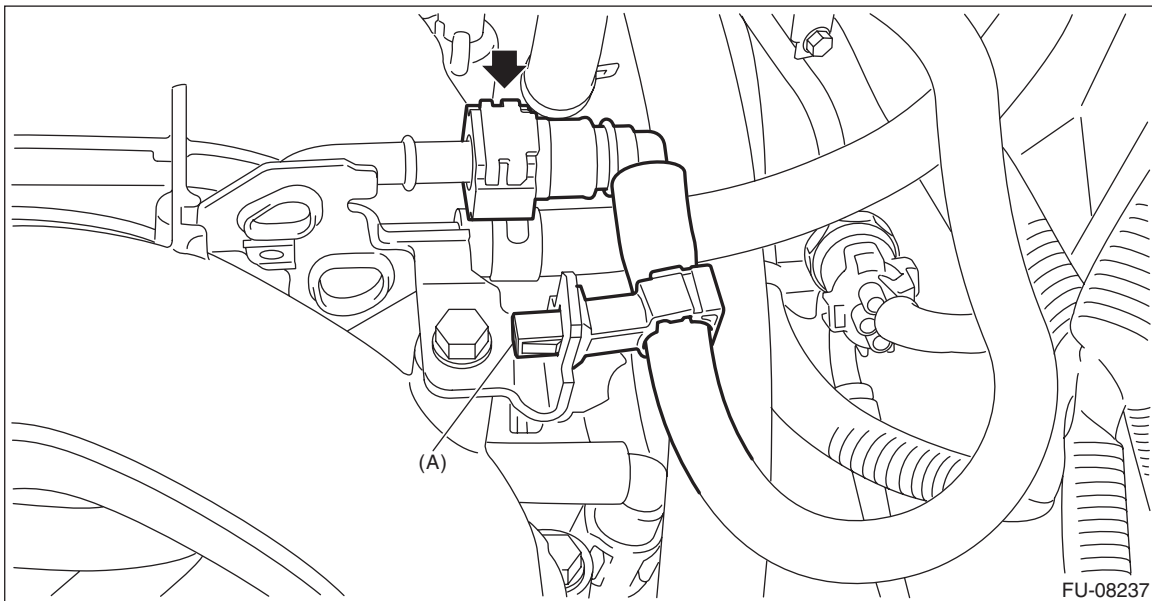
- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert the pipe all the way in before locking the slider.
- When it is difficult to lock the slider, check that the pipe is fully inserted.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

### NOTE:

Connect the quick connector as shown in the figure.



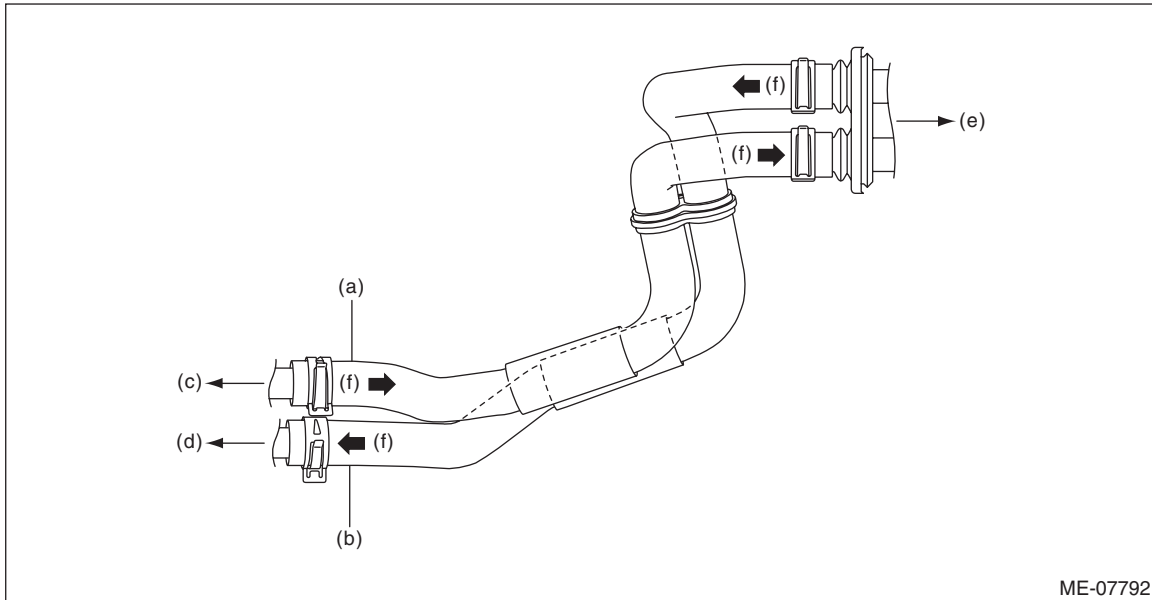
(a) Slider



25) Connect the heater inlet hose and heater outlet hose.

**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 |

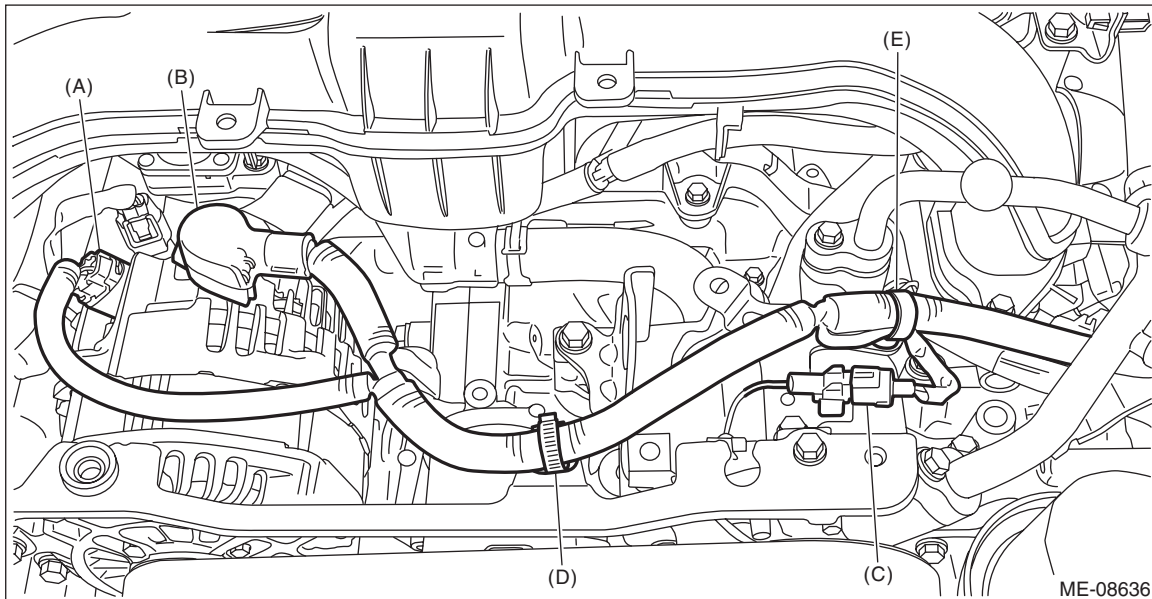
26) Connect the A/C pressure hose to A/C compressor. <Ref. to AC-74, INSTALLATION, Hose and Pipe.>

27) Place the generator code and install the generator cord to the clip (D) and clip (E).

28) Connect connector (A) and terminal (B) to the generator, and connect connector (C) to A/C compressor.

**Tightening torque:**

**15 N·m (1.5 kgf-m, 11.1 ft-lb)**





# Engine Assembly

## MECHANICAL

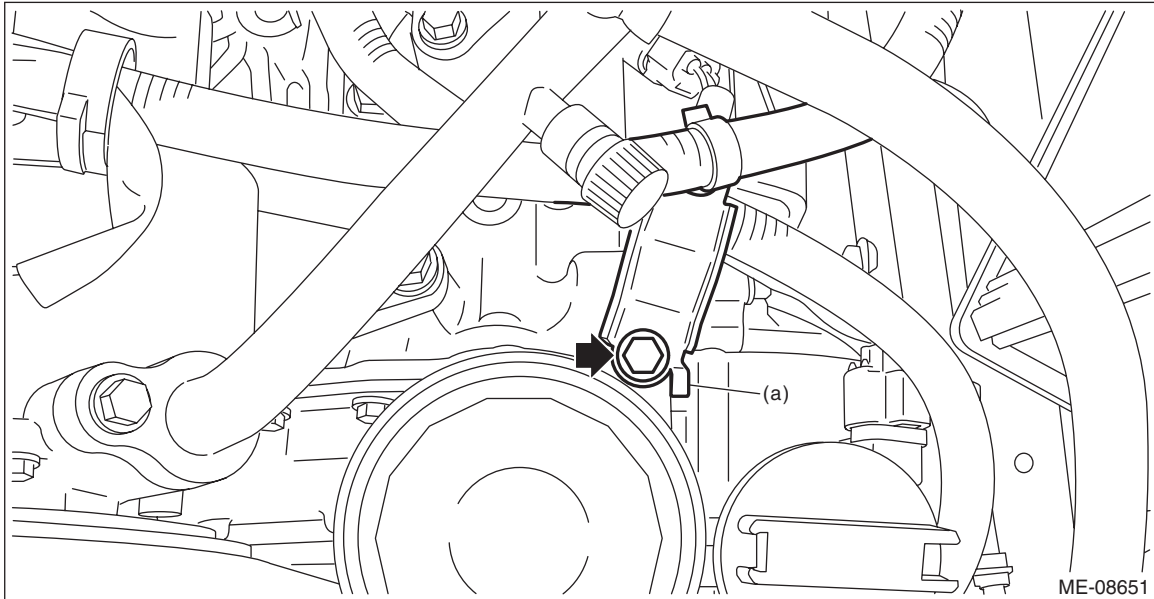
29) Install the generator cord stay to the chain cover.

### NOTE:

Install the generator cord stay so that the folded end (a) touches the chain cover boss.

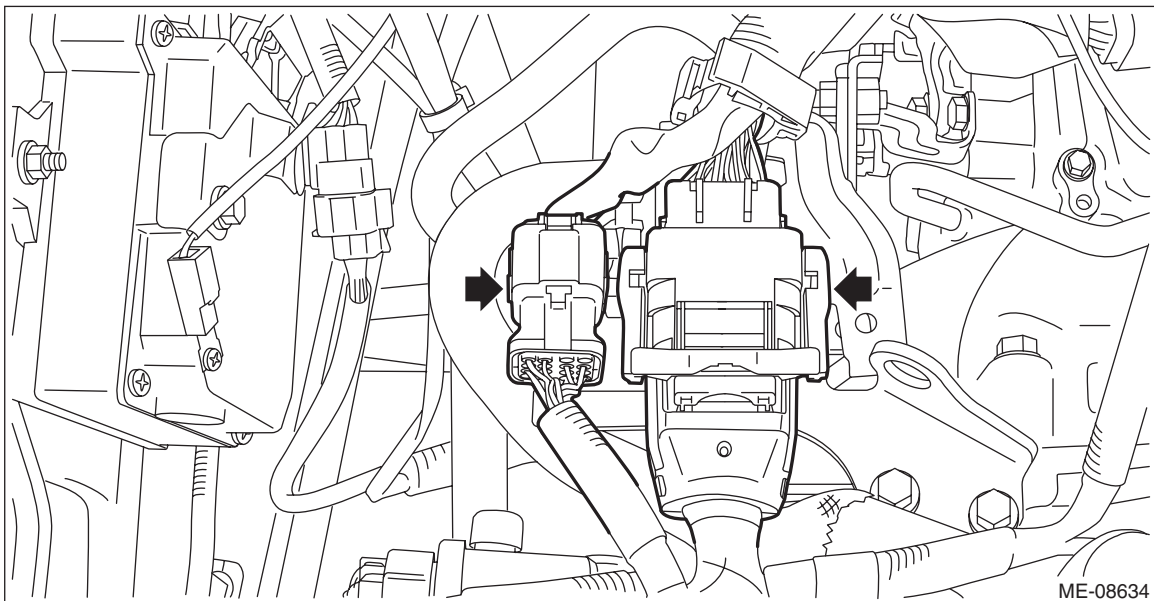
### Tightening torque:

**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



30) Connect the engine harness connector.

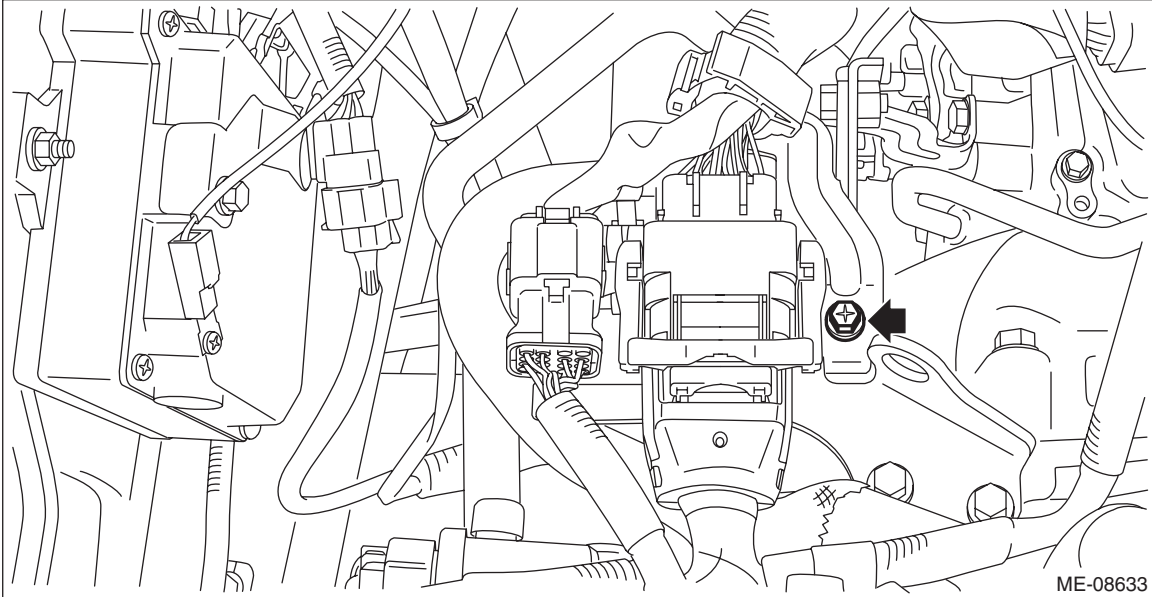
(1) Connect the bulkhead harness connector to the engine harness connector (black) and engine harness connector (brown).



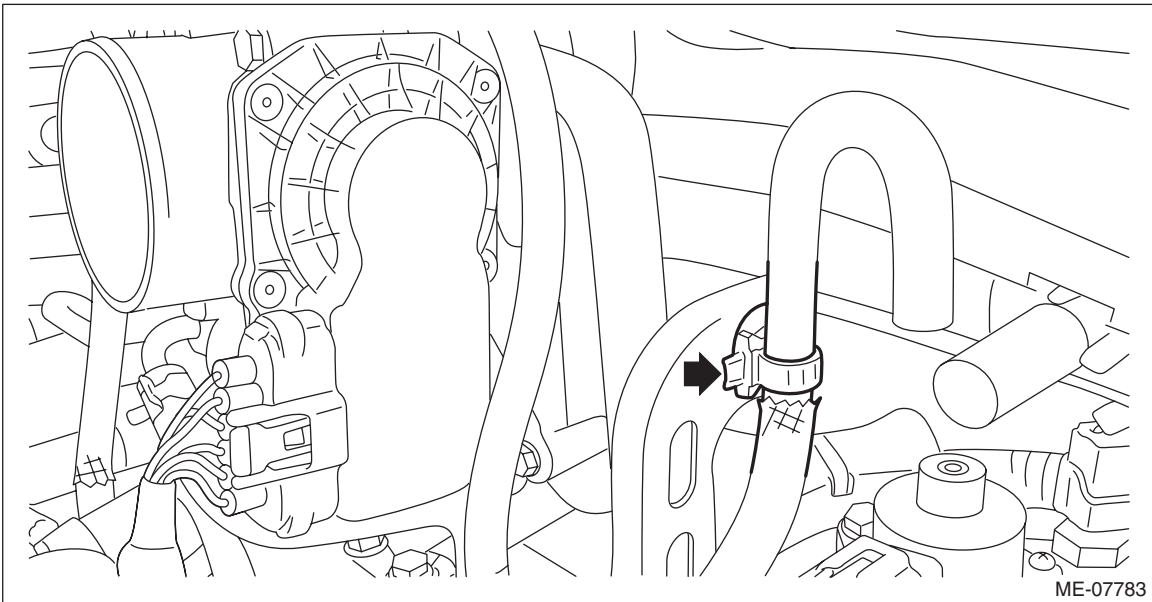
- (2) Install the bolt which secures the bulkhead harness connector bracket.

**Tightening torque:**

**7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**



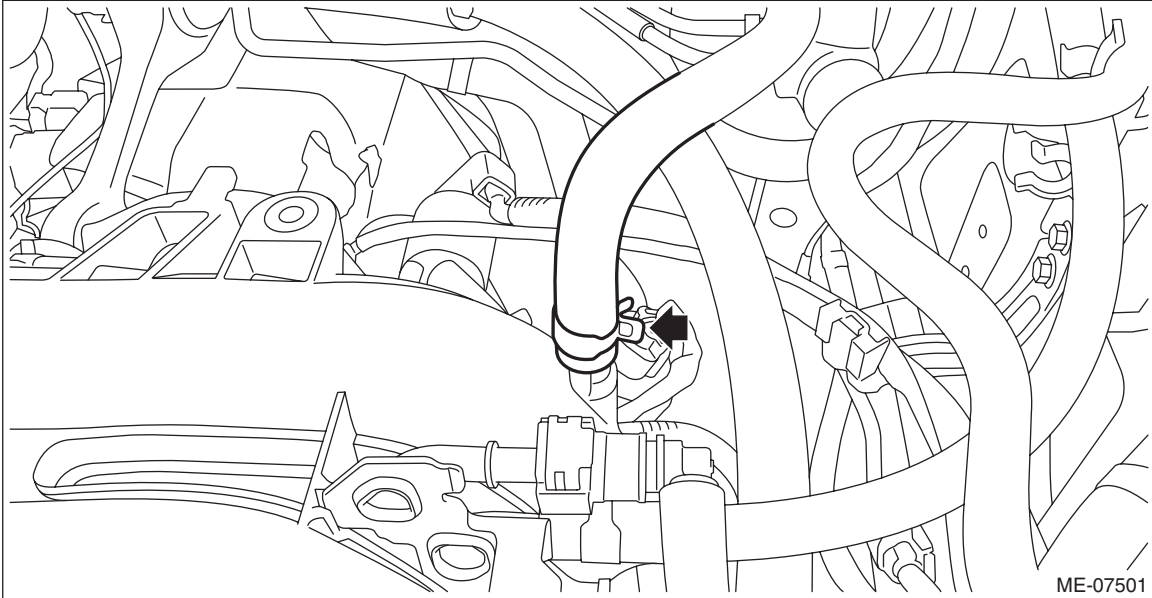
- 31) Secure the air breather hose to the engine rear hanger using clip. (MT model)



# Engine Assembly

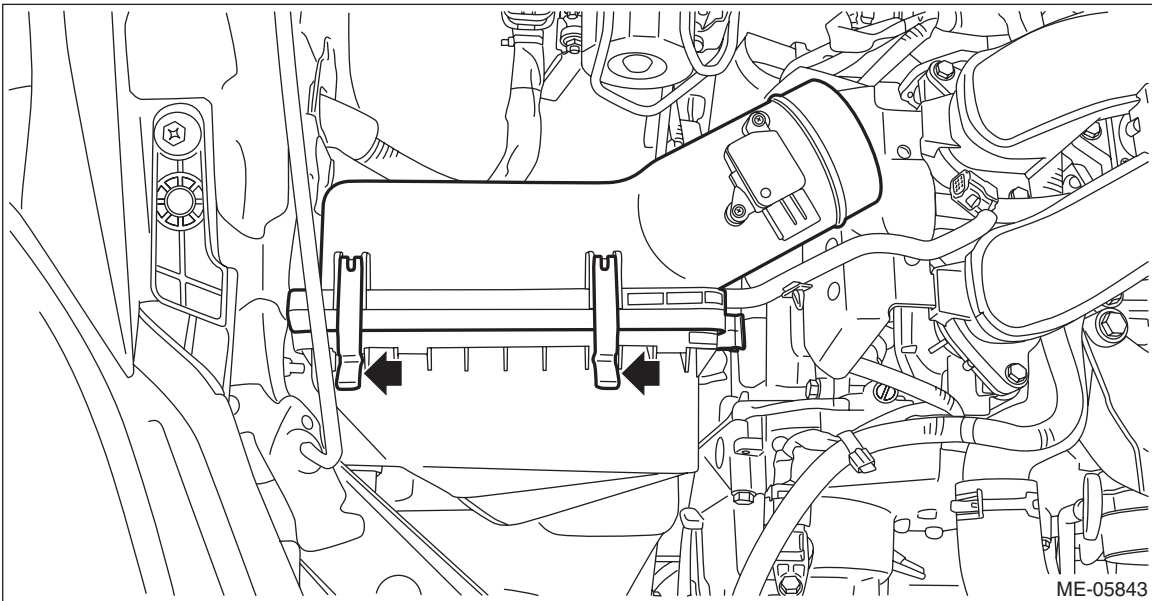
## MECHANICAL

32) Connect the brake booster vacuum hose to the intake manifold.

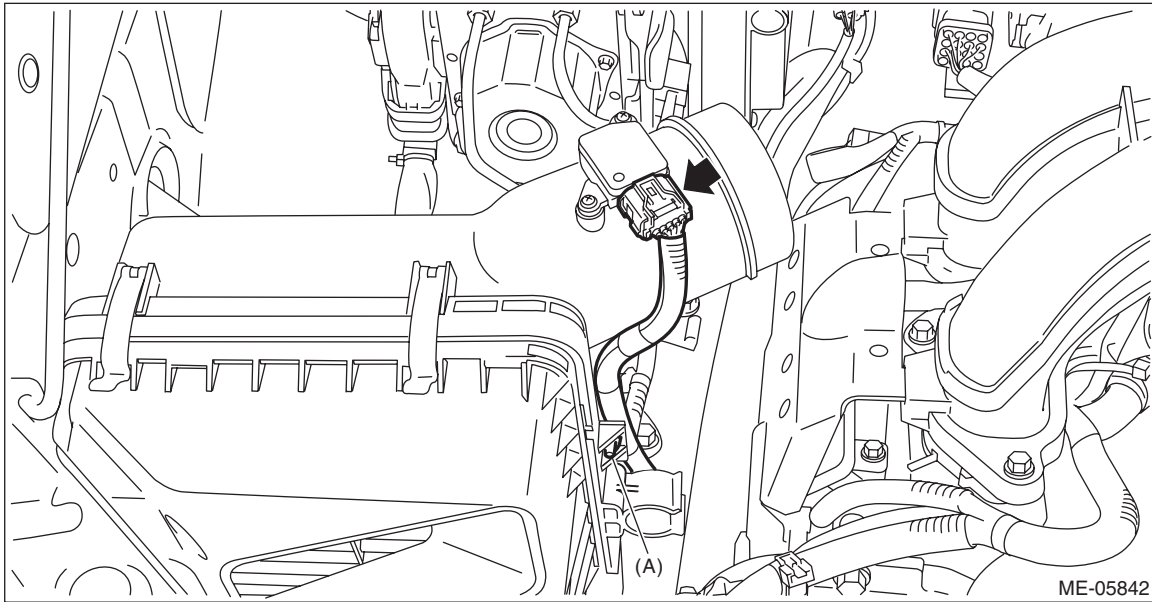


33) Install the radiator. <Ref. to CO(H4DO(w/o HEV))-82, INSTALLATION, Radiator.>

34) Install the air intake case (rear).



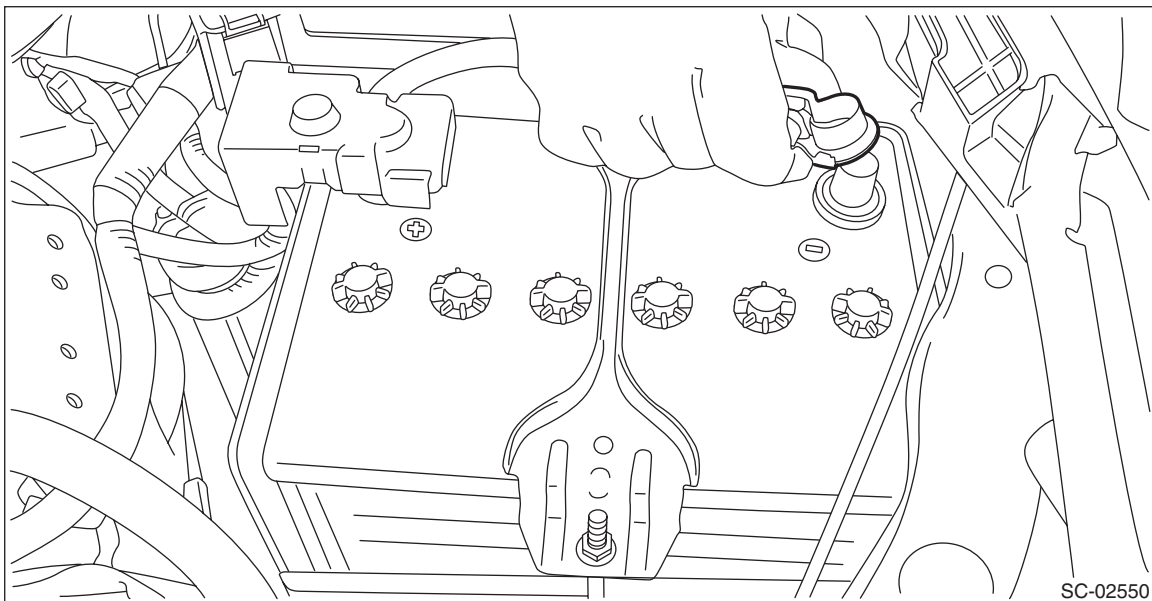
35) Install the clip (A) which secures the air flow and intake air temperature sensor harness, and connect the connector to the air flow and intake air temperature sensor.



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

37) Install the air intake duct. <Ref. to IN(H4DO(w/o HEV))-13, INSTALLATION, Air Intake Duct.>

38) Connect the battery ground terminal.



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

40) Charge the A/C system with refrigerant. <Ref. to AC-30, PROCEDURE, Refrigerant Charging Procedure.>

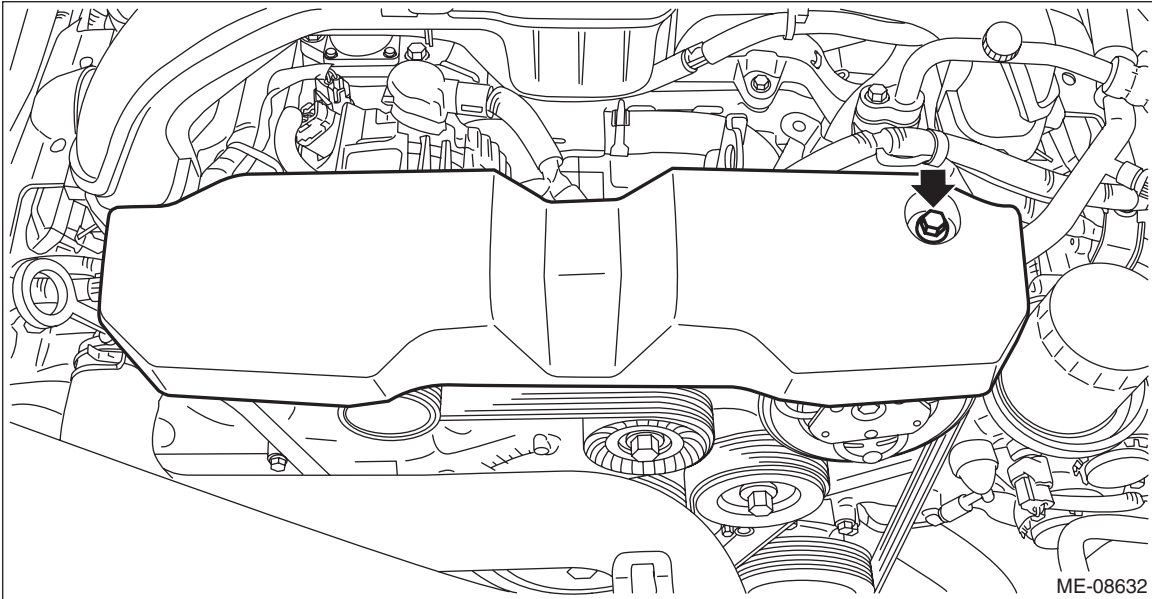
# Engine Assembly

## MECHANICAL

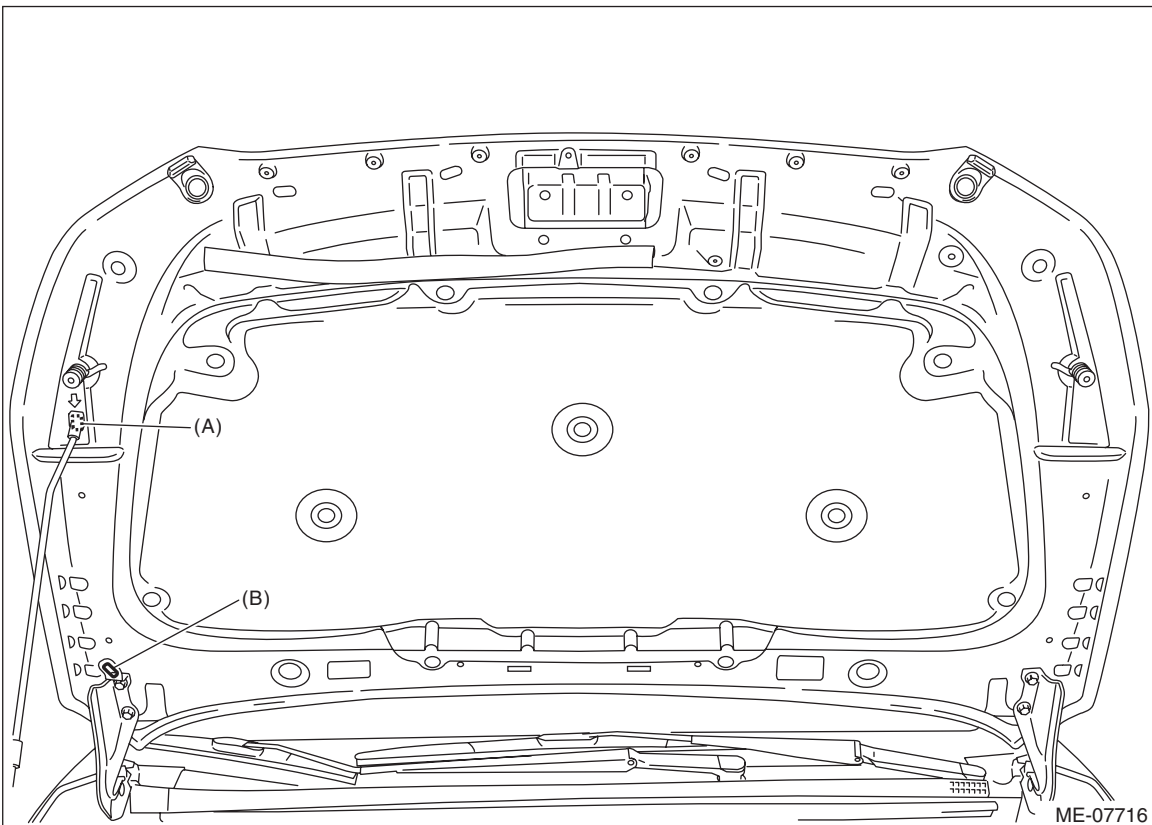
41) Install the V-belt cover.

**Tightening torque:**

**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



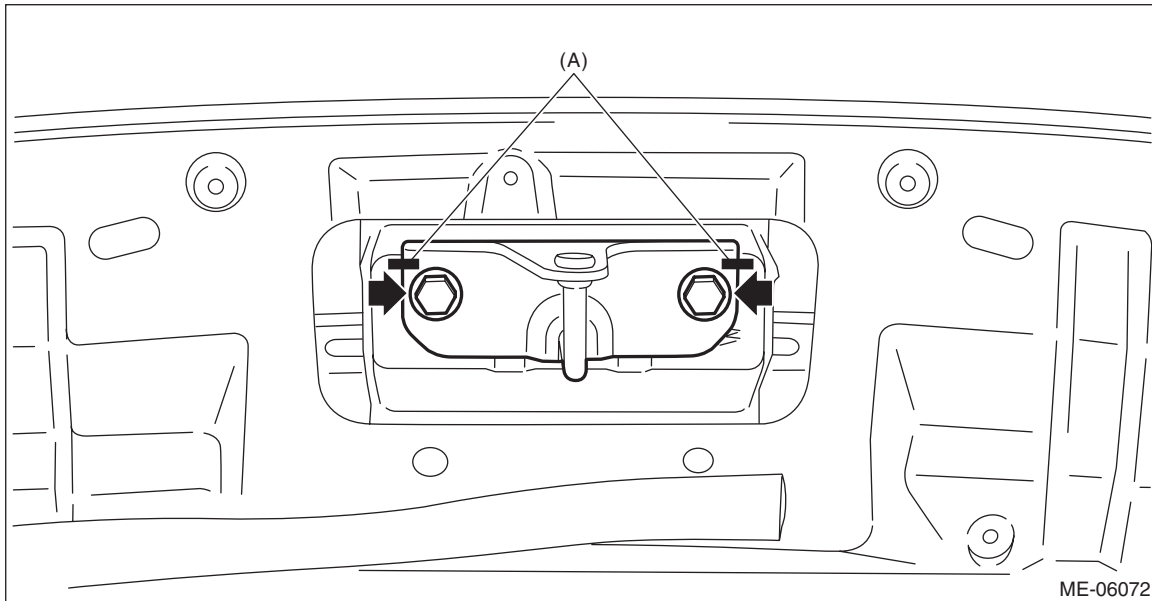
42) Change the front hood stay position from (B) to (A).



43) Install the front hood striker to the front hood by aligning the alignment marks (A), and close the front hood.

**Tightening torque:**

**33 N·m (3.4 kgf-m, 24.3 ft-lb)**



## 2. HEV MODEL

1) Install the engine mounting onto the engine.

**Tightening torque:**

**35 N·m (3.6 kgf-m, 25.8 ft-lb)**

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

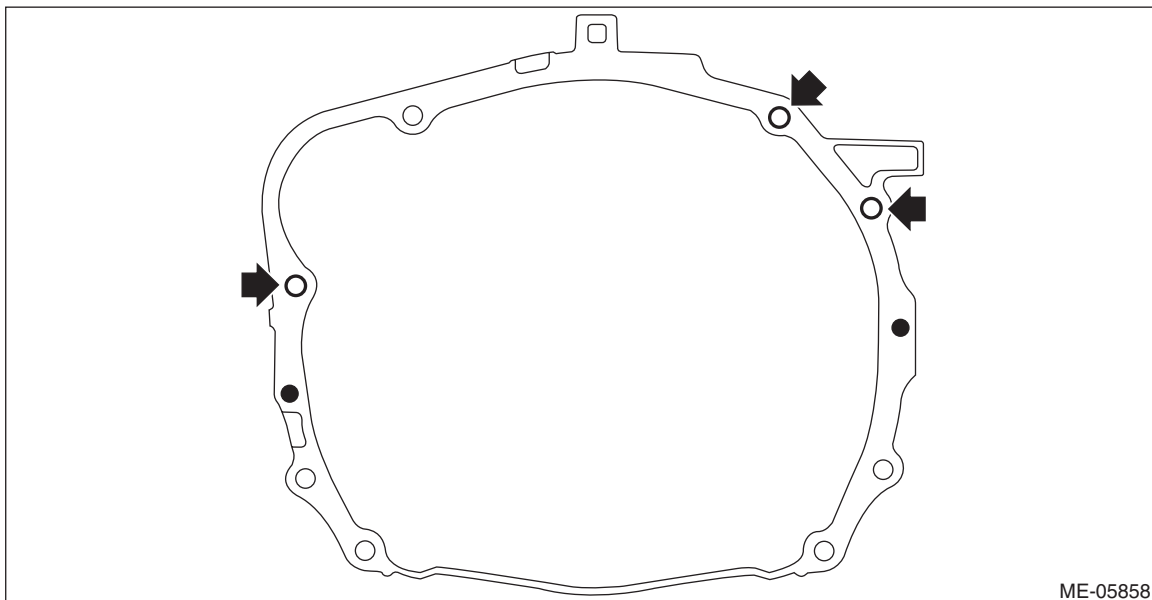
NOTE:

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

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

**Tightening torque:**

**50 N·m (5.1 kgf-m, 36.9 ft-lb)**



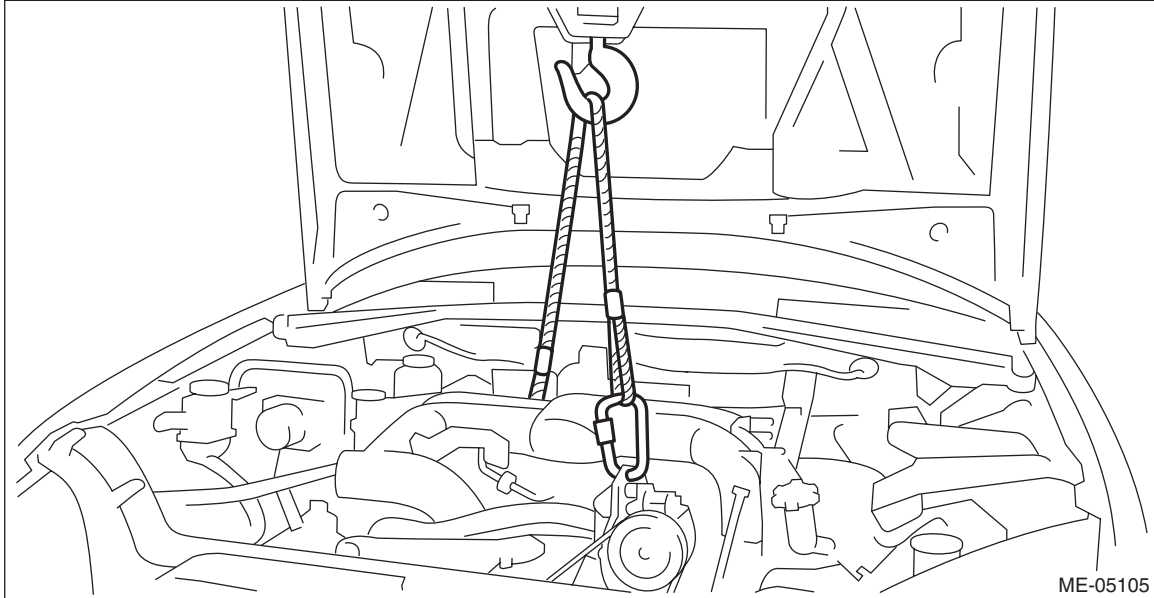


# Engine Assembly

## MECHANICAL

---

4) Remove the lifting device and wire ropes.



5) Remove the garage jack.



6) Connect the fuel delivery tube and evaporation hose.

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

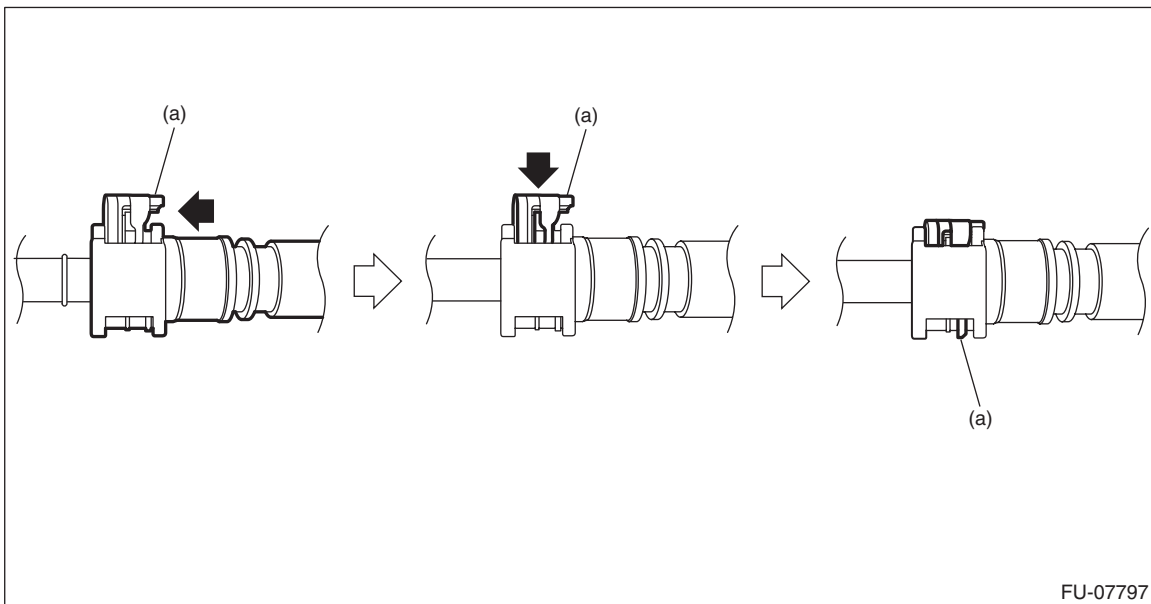
(2) Connect the quick connector (A) of the fuel delivery tube to the fuel pipe assembly, and secure the fuel delivery tube using clip (B).

**CAUTION:**

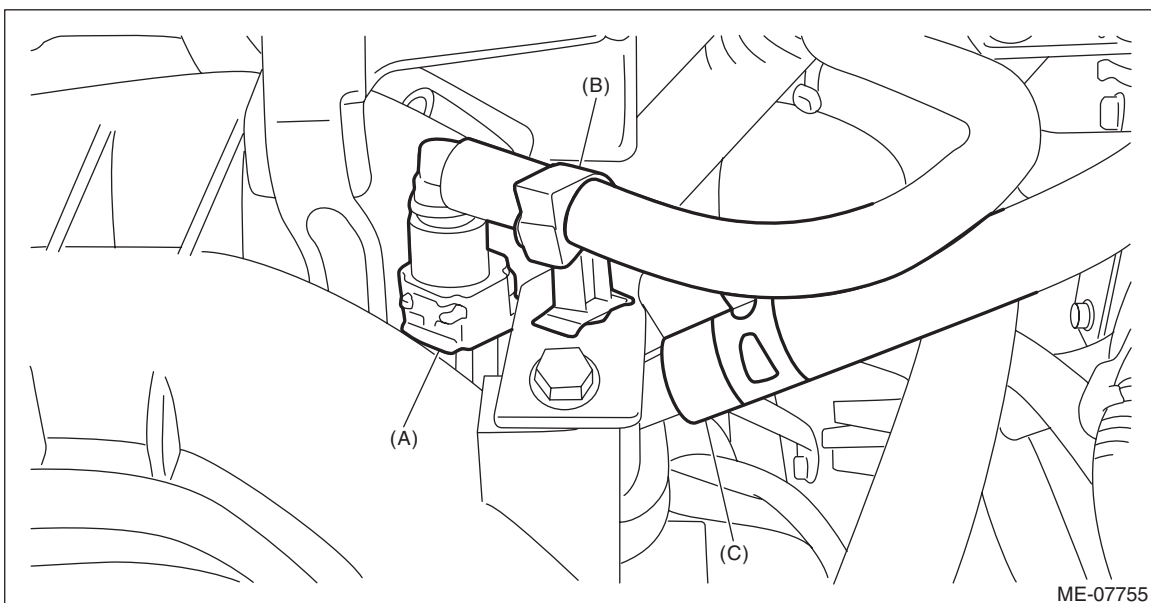
- Check that there is no damage or dust on the quick connector. If necessary, clean the seal surface of the pipe.
- When connecting the quick connector, make sure to insert the pipe all the way in before locking the slider.
- When it is difficult to lock the slider, check that the pipe is fully inserted.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

**NOTE:**

Connect the quick connector as shown in the figure.



(a) Slider



# Engine Assembly

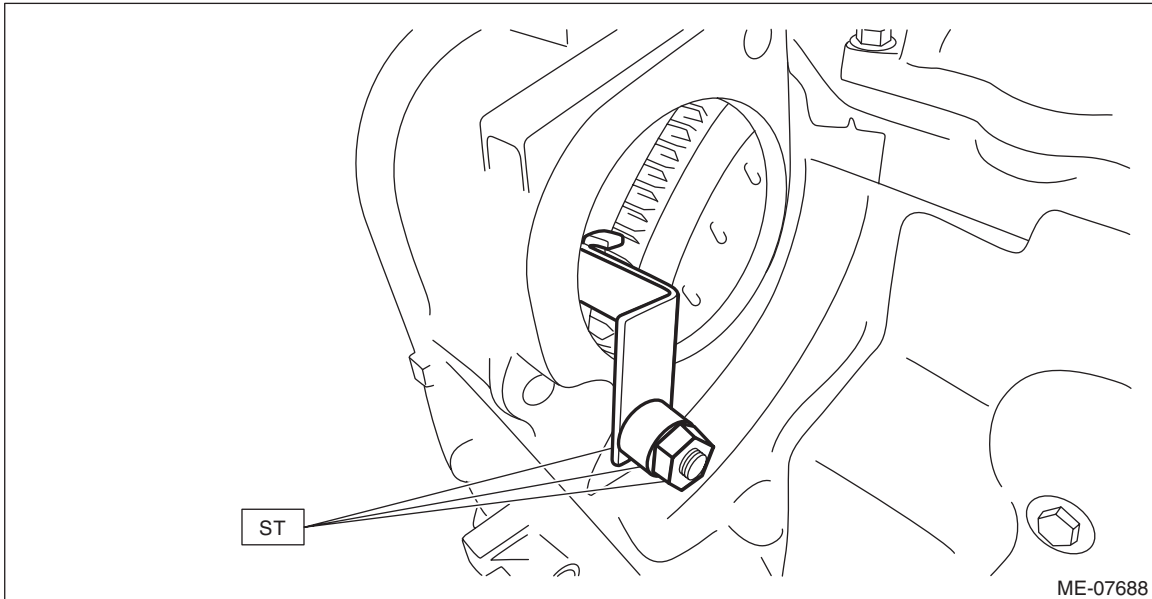
## MECHANICAL

7) 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



8) Install the torque converter clutch to drive plate.

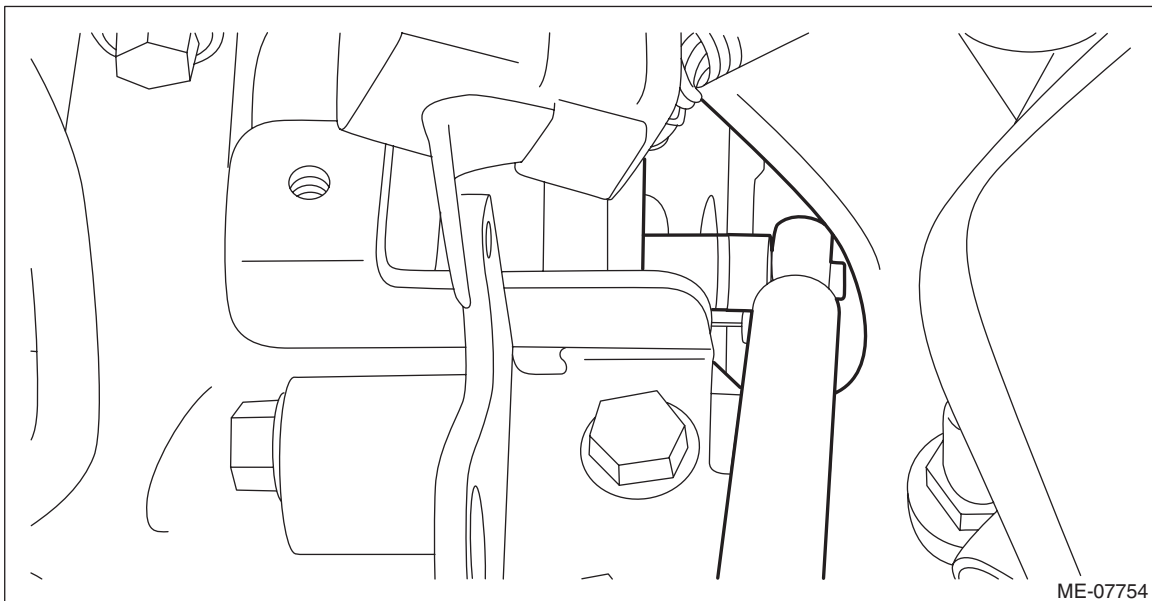
(1) Insert the wrench into the crank pulley bolt and rotate the crank pulley to install the bolts which hold torque converter clutch to drive plate.

### 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)**



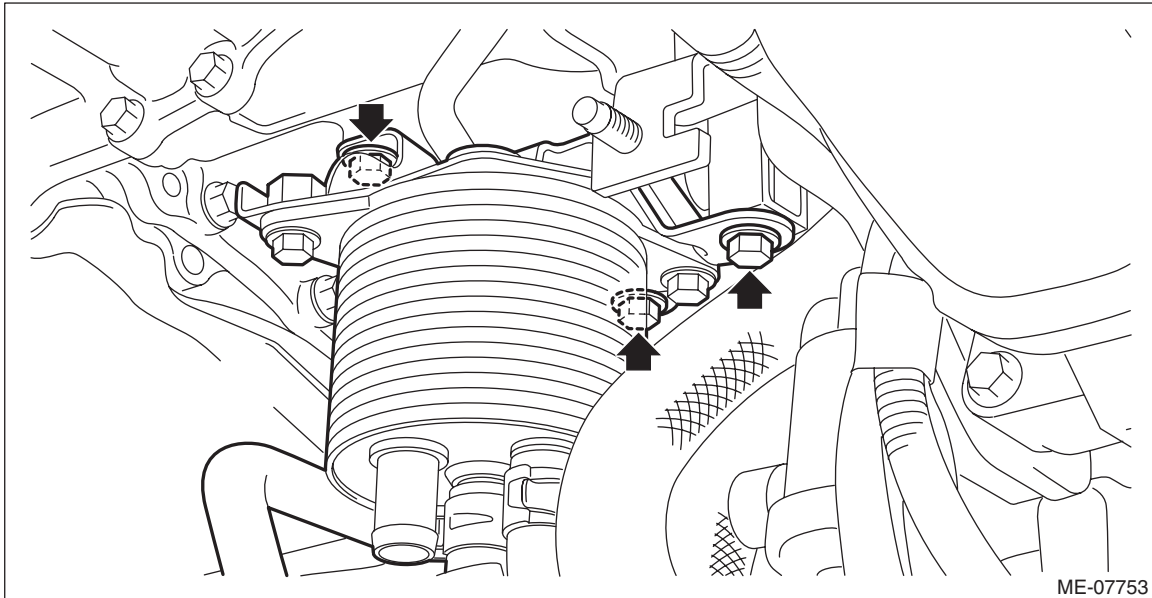
(2) Fit the plug to service hole.

9) Install the starter. <Ref. to SC(H4DO(HEV))-11, INSTALLATION, Starter.>

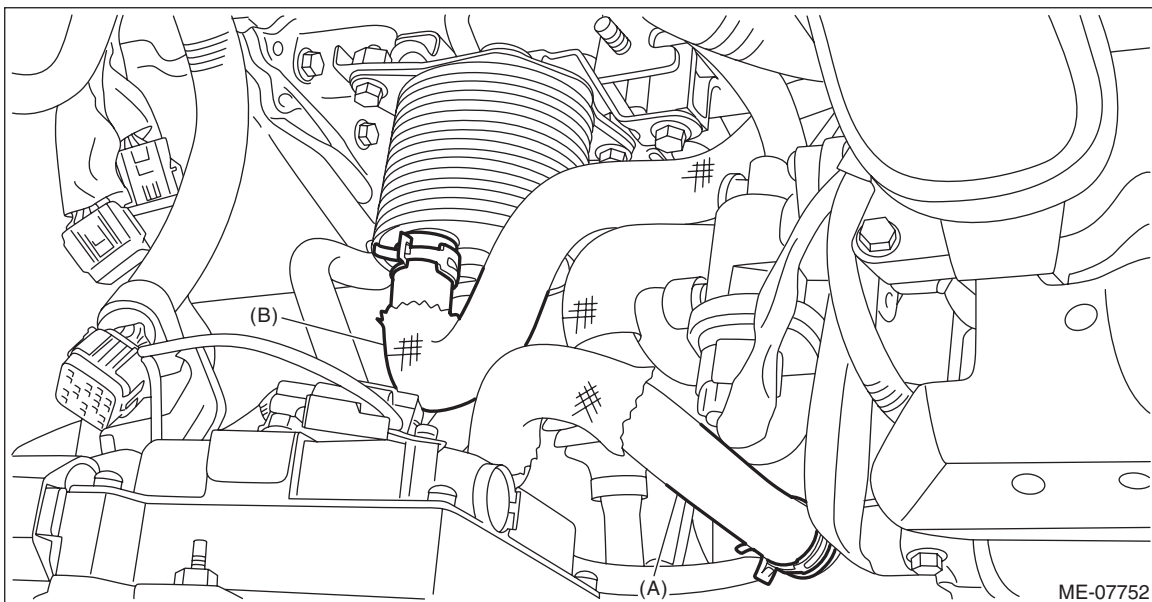
10) Set the CVTF cooler (with warmer feature) to the transmission, and install the bolts which secure the CVTF cooler (with warmer feature) to the transmission.

**Tightening torque:**

**23 N·m (2.3 kgf-m, 17.0 ft-lb)**



11) Connect the engine coolant inlet hose (A) to the EGR cooler, and connect the engine coolant outlet hose (B) to the CVTF cooler (with warmer feature).



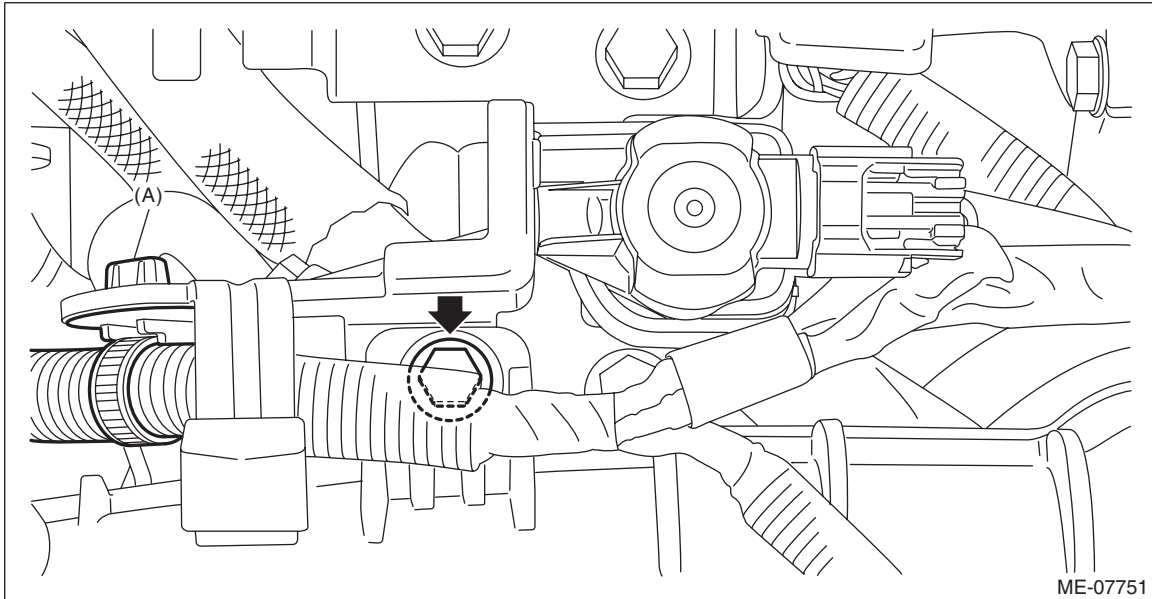
## Engine Assembly

### MECHANICAL

12) Install the bolts which secure the purge control solenoid valve bracket to the intake manifold, and secure the engine harness to the purge control solenoid valve bracket with the clip (A).

**Tightening torque:**

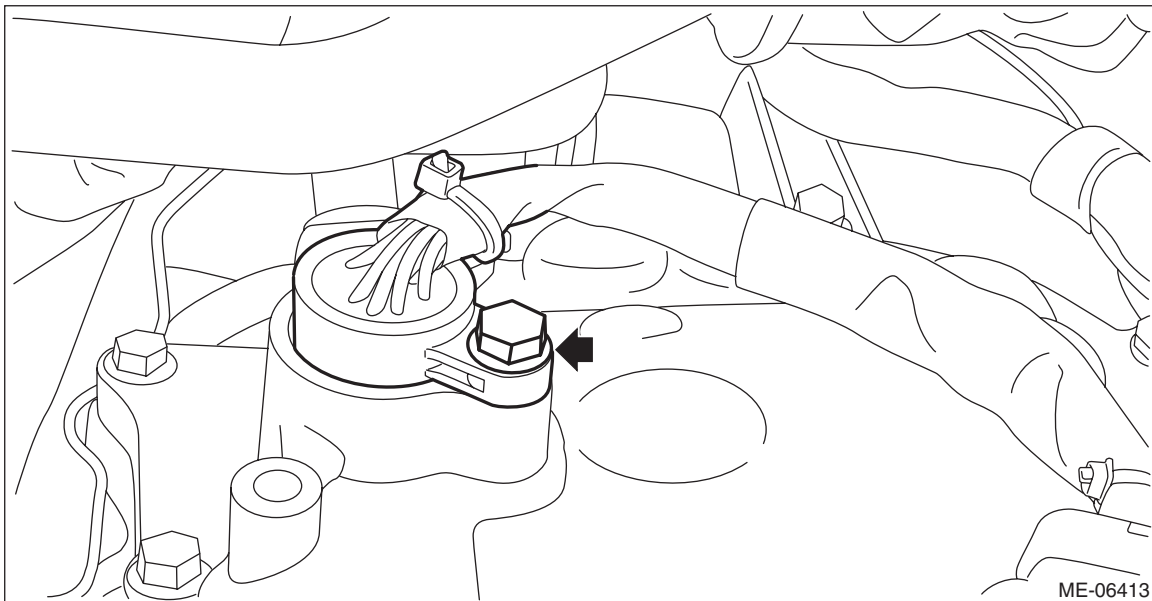
**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



13) Remove the bolt and turn the transmission harness counterclockwise to install the transmission harness to the control valve body.

**Tightening torque:**

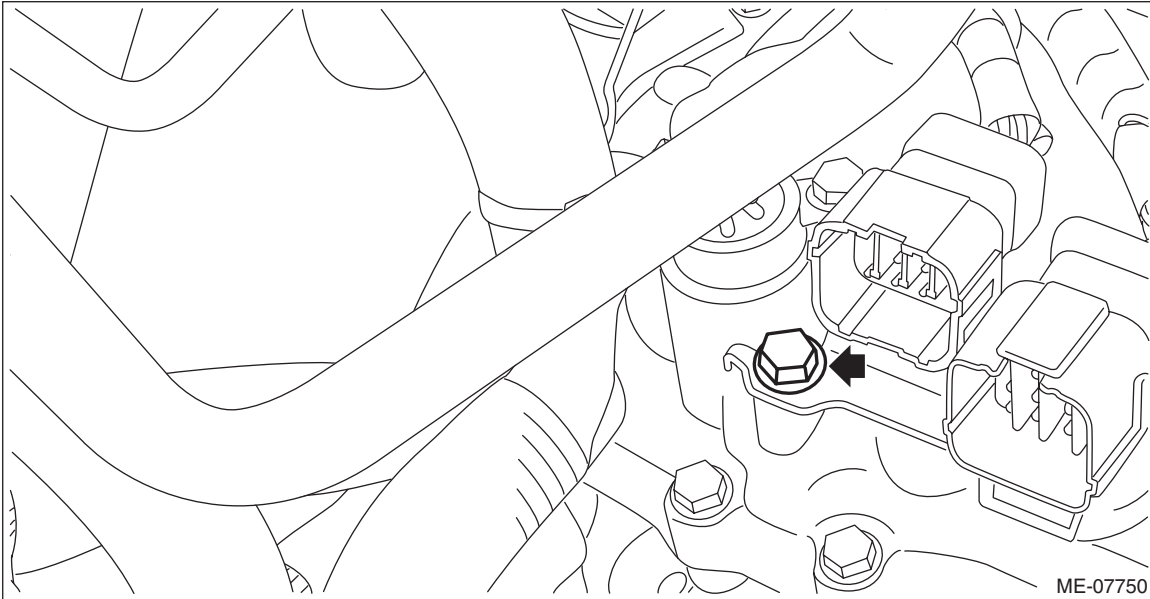
**7 N·m (0.7 kgf-m, 5.2 ft-lb)**



14) Install the bolt which holds the transmission harness stay.

**Tightening torque:**

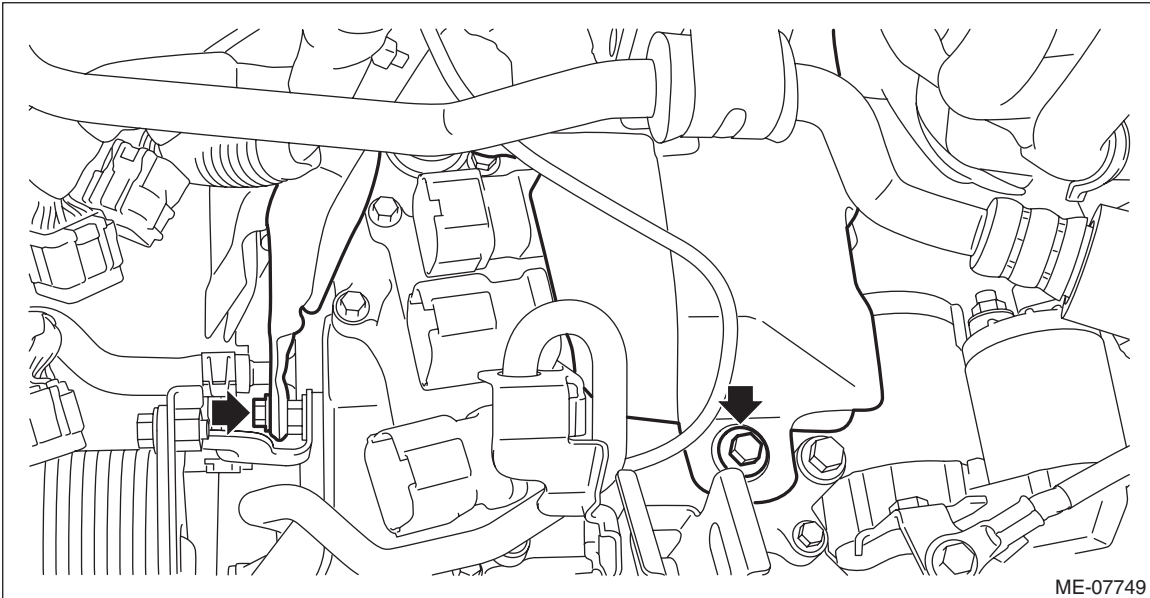
**7 N·m (0.7 kgf-m, 5.2 ft-lb)**



15) Install the transmission case cover.

**Tightening torque:**

**8 N·m (0.8 kgf-m, 5.9 ft-lb)**



16) Connect the bulkhead harness connector to the transmission harness connector (C), inhibitor harness connector (D) and drive motor harness connector (E).

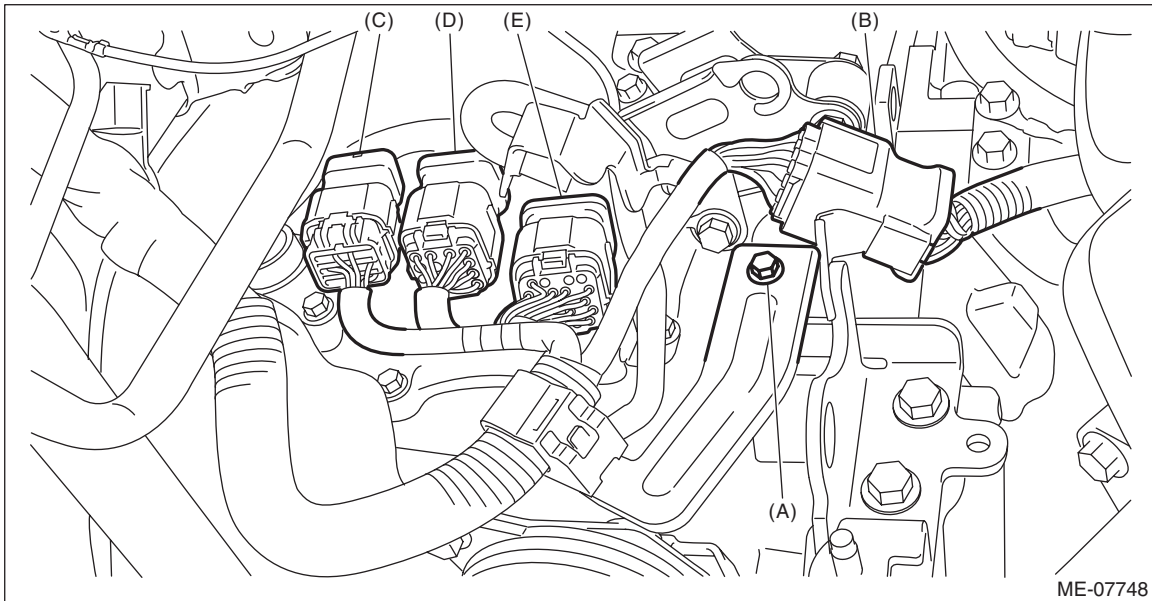
## Engine Assembly

### MECHANICAL

17) Connect the bulkhead harness connector to the engine harness connector (brown) (B), and install the bolt (A) securing the bulkhead harness connector bracket.

**Tightening torque:**

**7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**



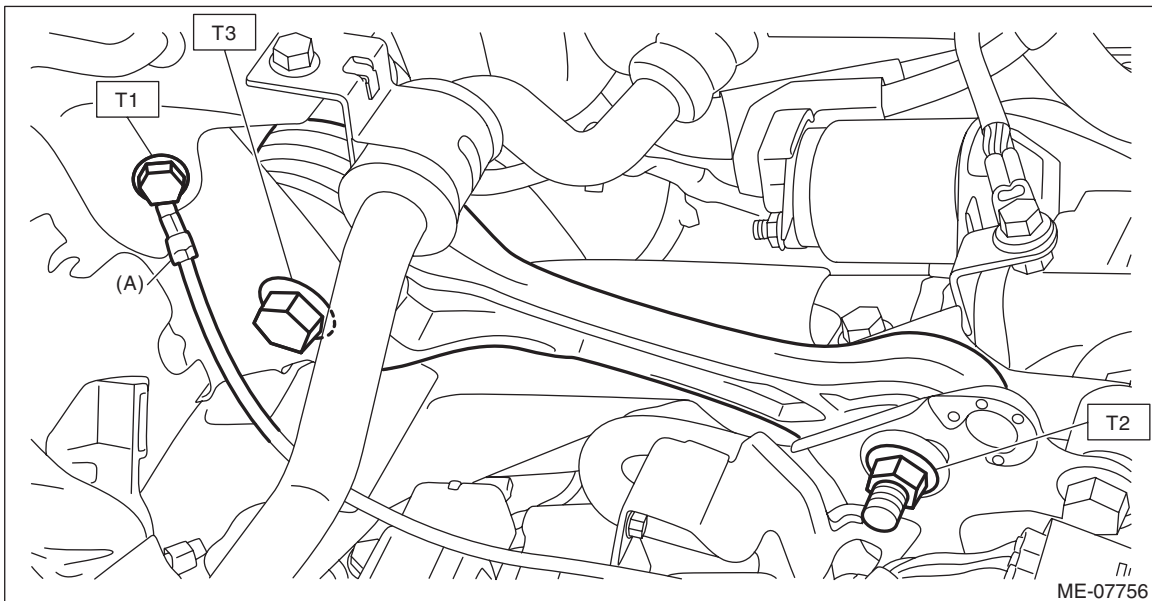
18) Install the pitching stopper, and connect the transmission radio ground terminal (A) to the vehicle.

**Tightening torque:**

**T1: 13 N·m (1.3 kgf-m, 9.6 ft-lb)**

**T2: 50 N·m (5.1 kgf-m, 36.9 ft-lb)**

**T3: 58 N·m (5.9 kgf-m, 42.8 ft-lb)**



19) Lift up the vehicle.

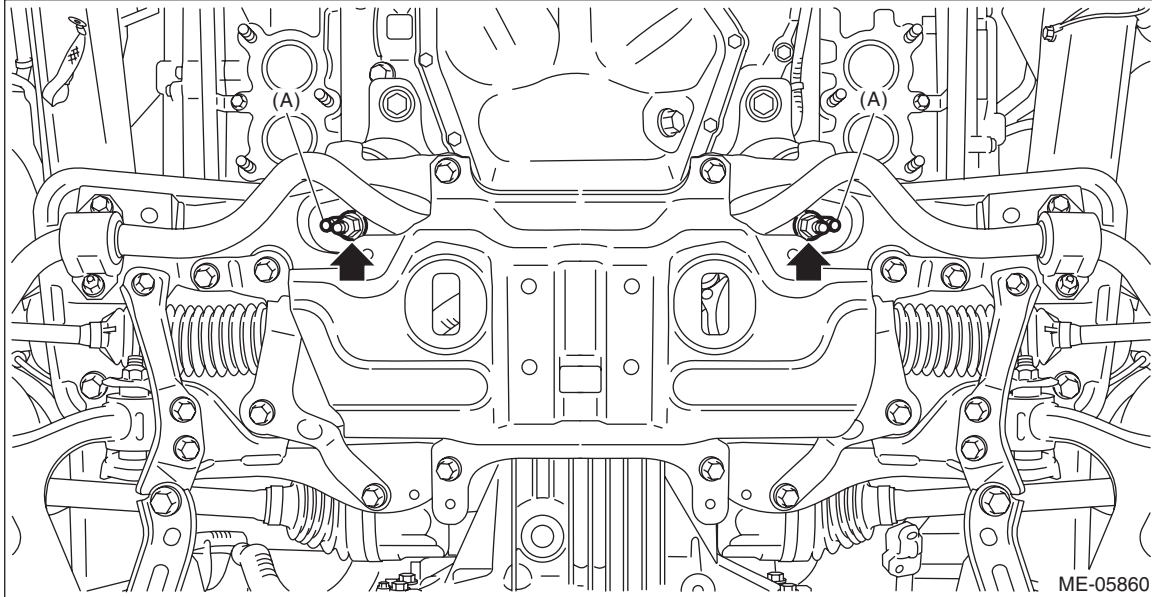
20) Install the nuts which hold the engine mounting to the crossmember.

NOTE:

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

**Tightening torque:**

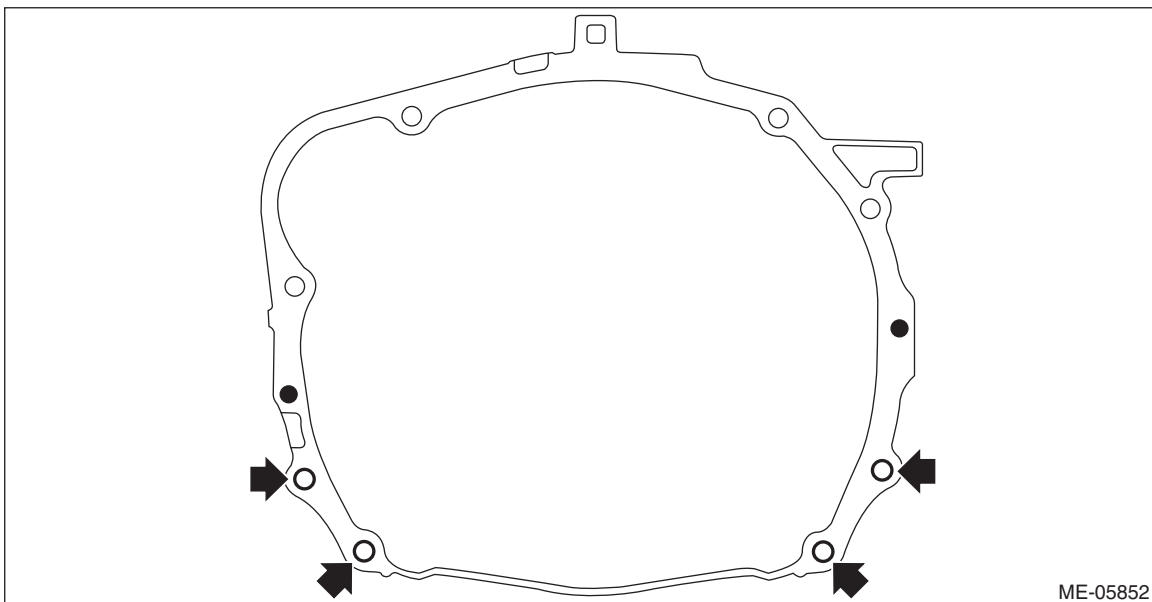
**60 N·m (6.1 kgf-m, 44.3 ft-lb)**



21) 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)**





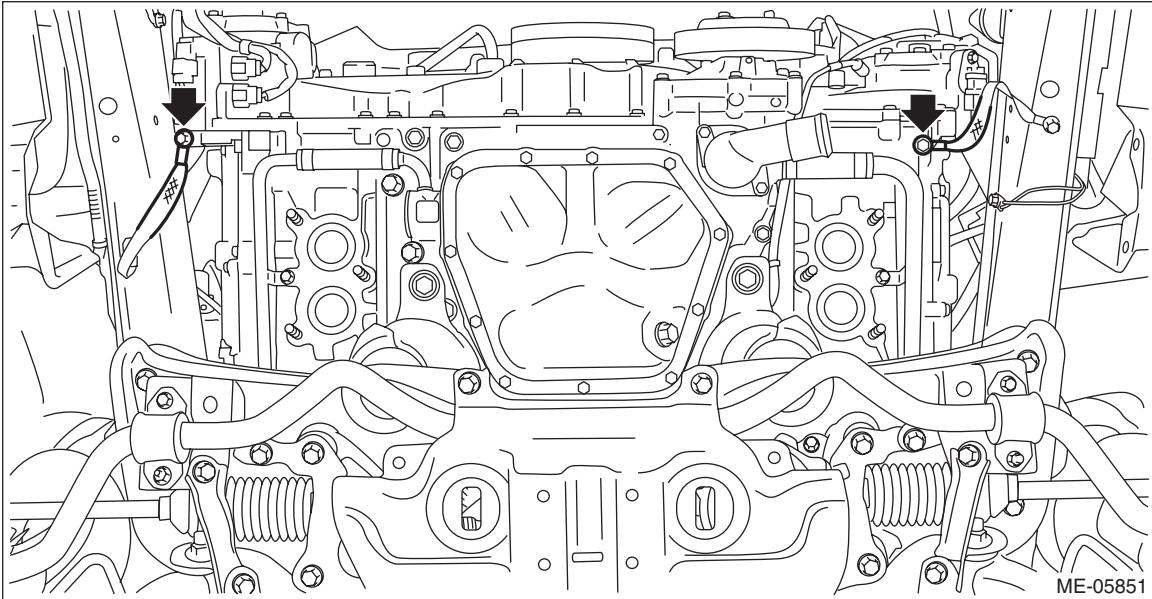
# Engine Assembly

## MECHANICAL

22) Connect the ground cable.

**Tightening torque:**

**7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**



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

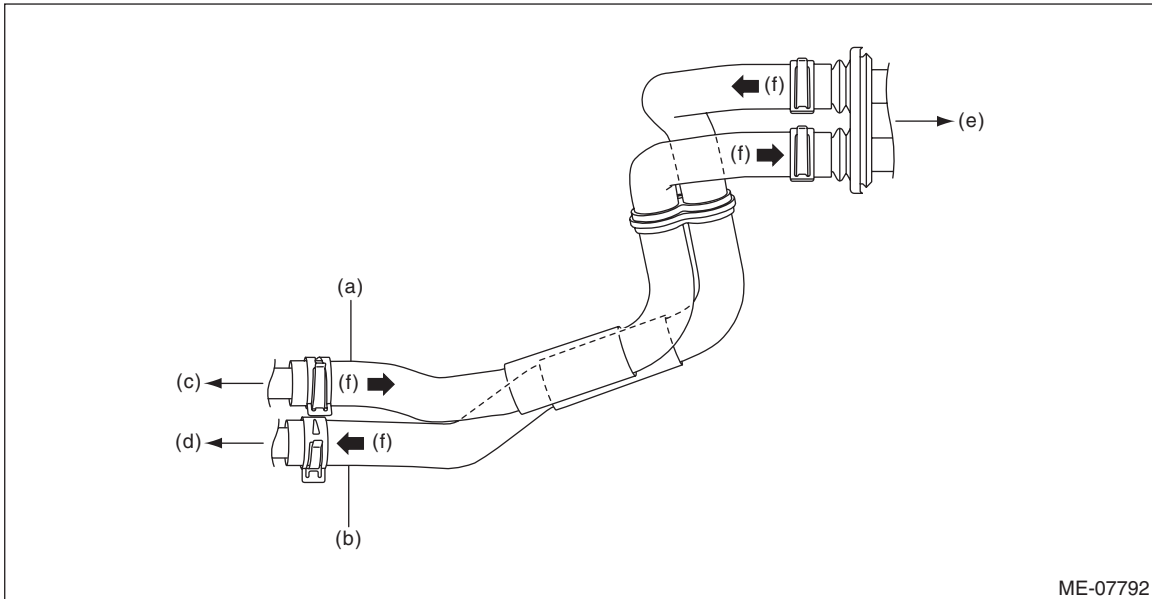
24) Lower the vehicle.

25) Connect the brake booster vacuum hose (C) to the brake vacuum pipe.

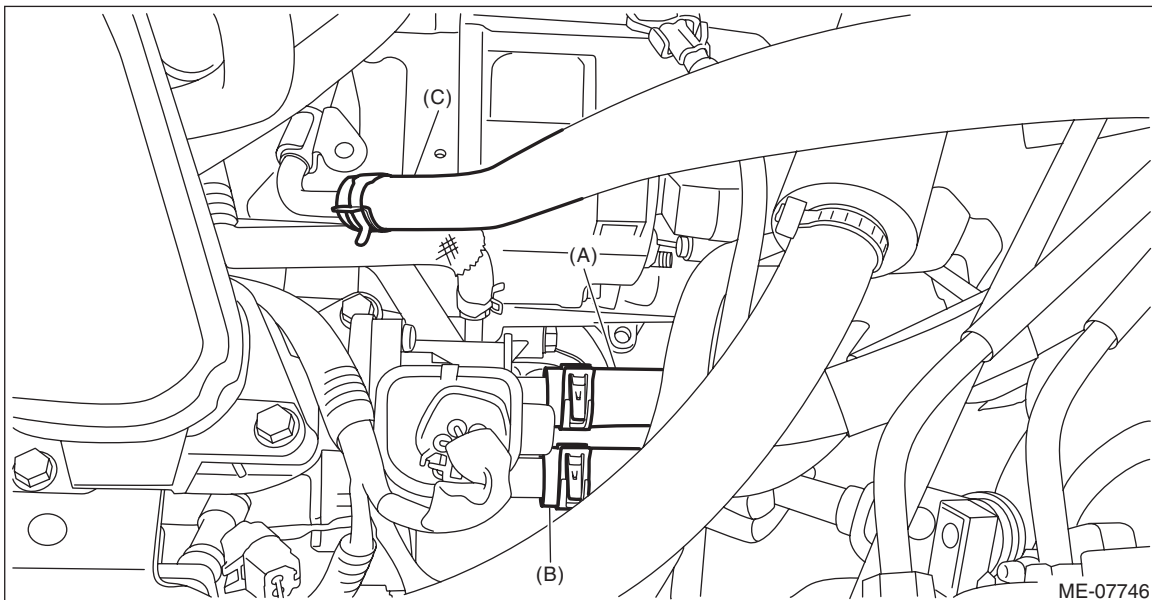
26) Connect the heater inlet hose (A) to the water pipe assembly, and connect the heater outlet hose (B) to the water pipe LH.

**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 |



27) Connect the A/C pressure hose to A/C compressor. <Ref. to AC-71, REMOVAL, Hose and Pipe.>

# Engine Assembly

## MECHANICAL

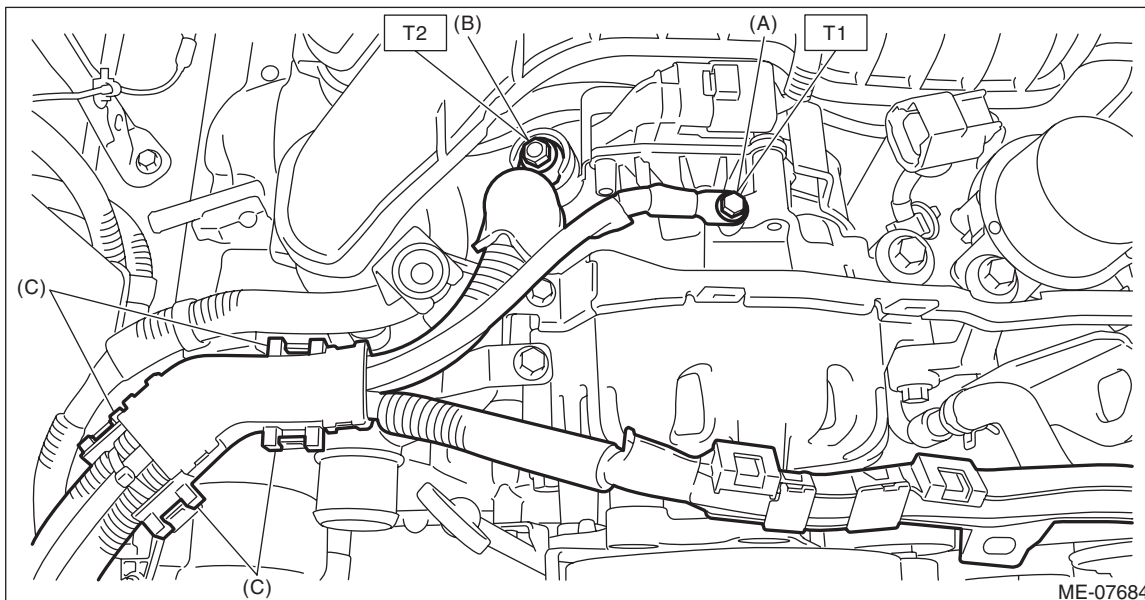
28) Set the battery cable assembly, and secure the battery cable assembly to the battery cable bracket No. 1 with the clip (C).

29) Connect the terminal (A) and the terminal (B) to ISG.

### **Tightening torque:**

**T1: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**

**T2: 15.5 N·m (1.6 kgf-m, 11.4 ft-lb)**



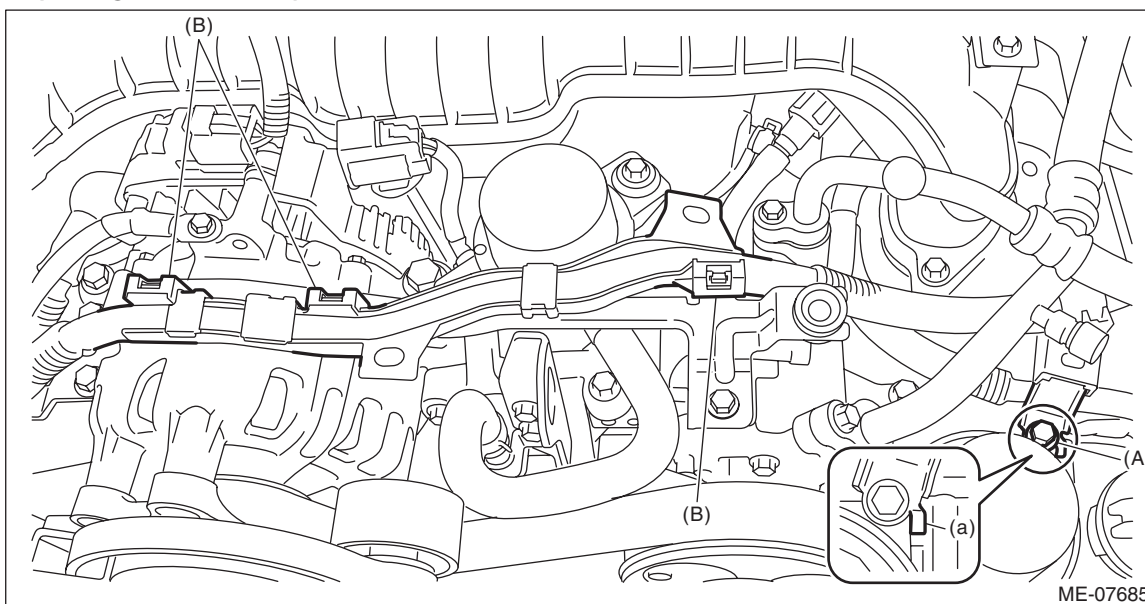
30) Secure the battery cable assembly to the collector cover bracket with the clip (B), and install the bolt (A) which secures the battery cable stay to the chain cover.

### **NOTE:**

When installing the battery cable stay, install it by fitting the folded end (a) of the battery cable stay to the chain cover boss.

### **Tightening torque:**

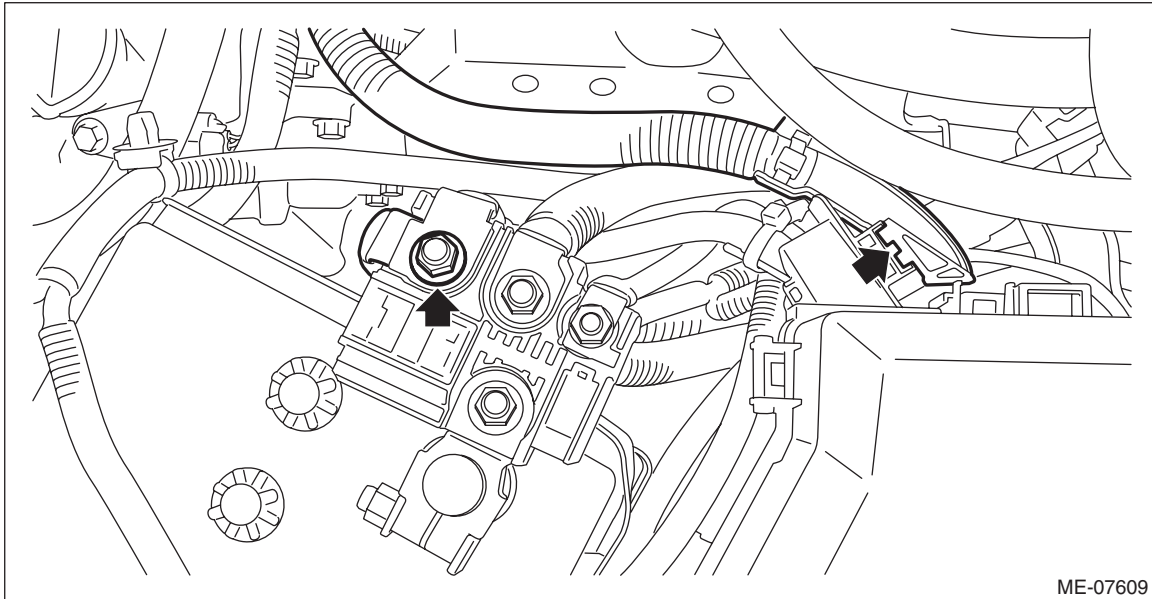
**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



31) Install the battery cable assembly to the main fuse box, and install the nut which secures the battery cable assembly to the slow blow fuse (12 volt auxiliary battery).

**Tightening torque:**

**7.5 N·m (0.8 kgf-m, 5.5 ft-lb)**

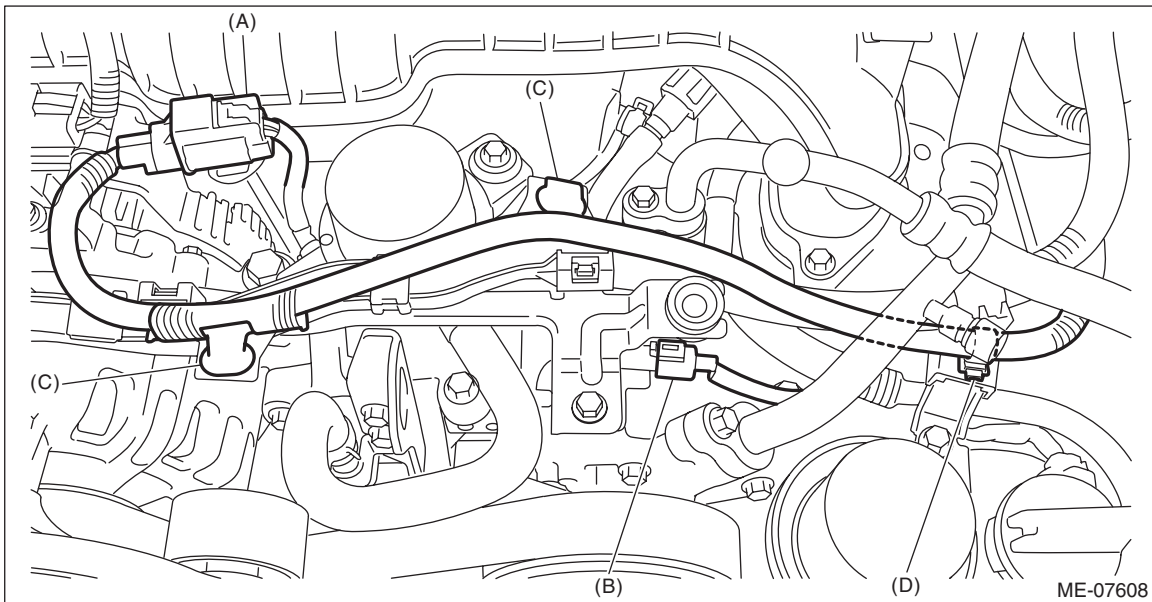


ME-07609

32) Install the terminal boot to the positive terminal of the 12 volt auxiliary battery.

33) Set the harness, and secure the harness to the battery cable assembly with the clip (C) and the clip (D).

34) Connect the connector (A) to the brake vacuum pump, and connect the connector (B) to the A/C compressor.

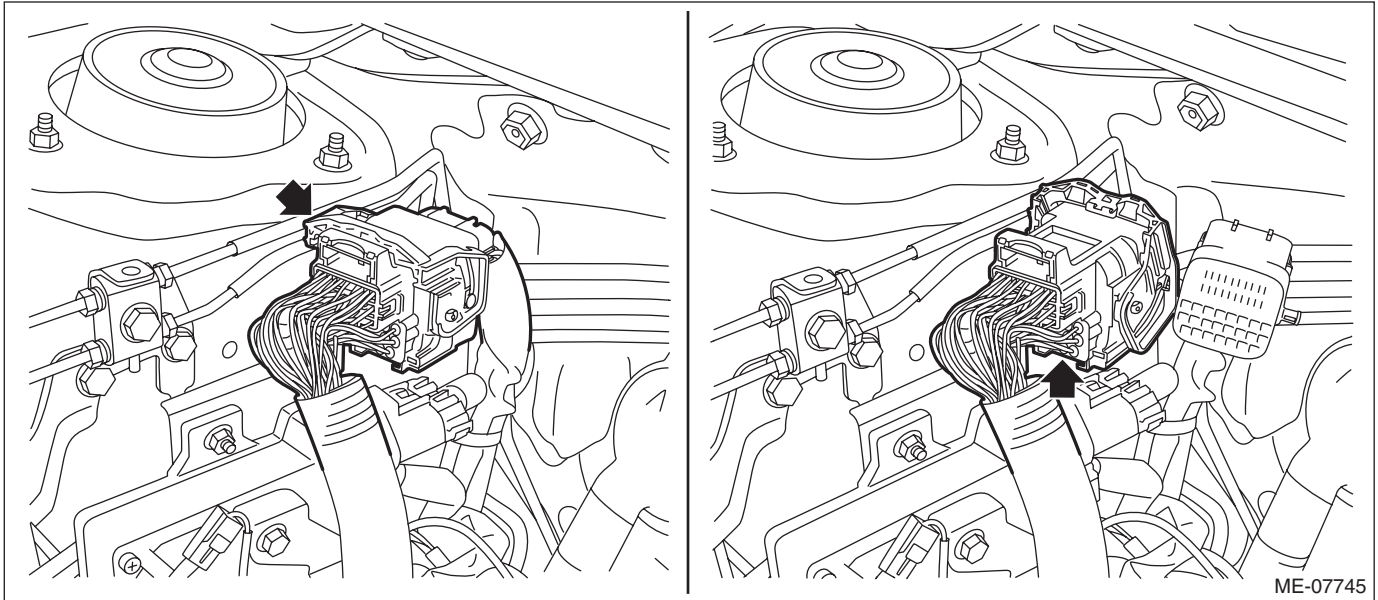


ME-07608

## Engine Assembly

### MECHANICAL

35) Install the engine harness connector (black) to bracket, then connect the bulkhead harness connector to the engine harness connector (black).



36) Install the radiator. <Ref. to CO(H4DO(w/o HEV))-82, INSTALLATION, Radiator.>

37) Install the air cleaner case. <Ref. to IN(H4DO(HEV))-8, INSTALLATION, Air Cleaner Case.>

38) Install the air intake duct. <Ref. to IN(H4DO(HEV))-15, INSTALLATION, Air Intake Duct.>

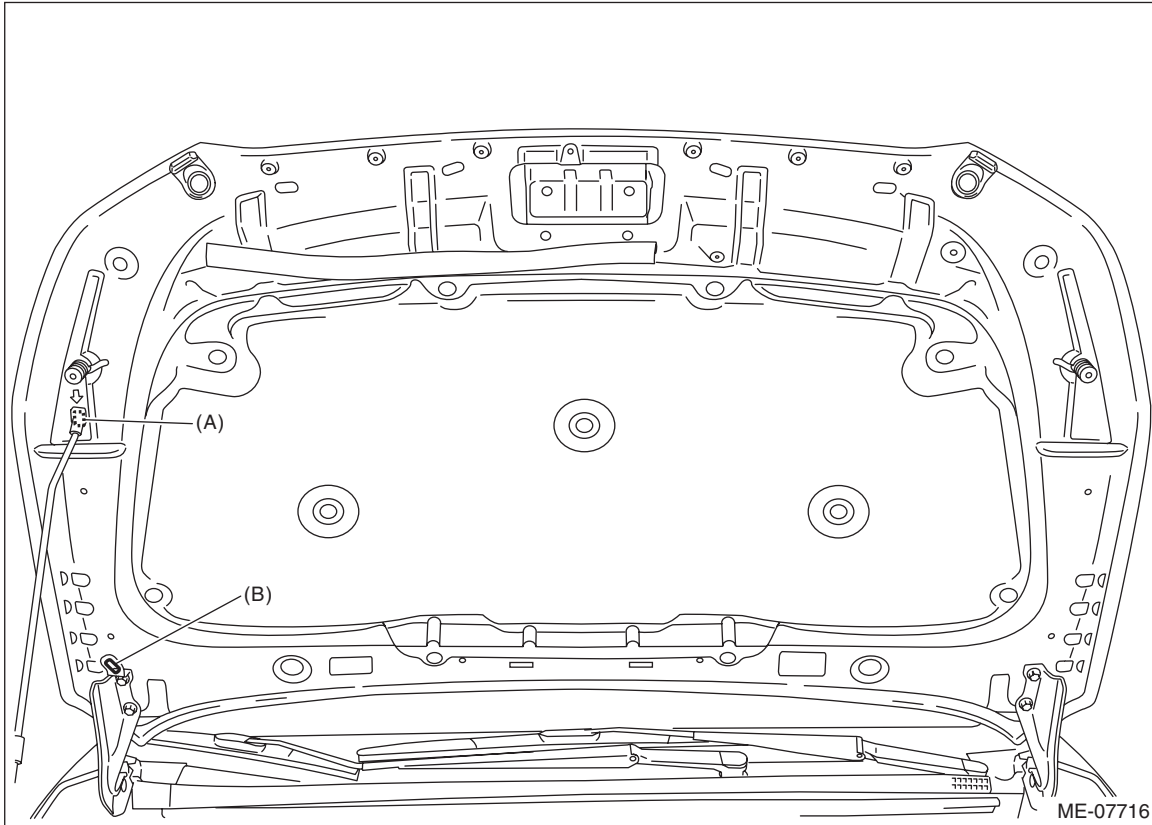
39) Connect the battery ground terminal. <Ref. to NT-5, BATTERY, NOTE, Note.>

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

41) Charge the A/C system with refrigerant. <Ref. to AC-30, PROCEDURE, Refrigerant Charging Procedure.>

42) Install the collector cover.

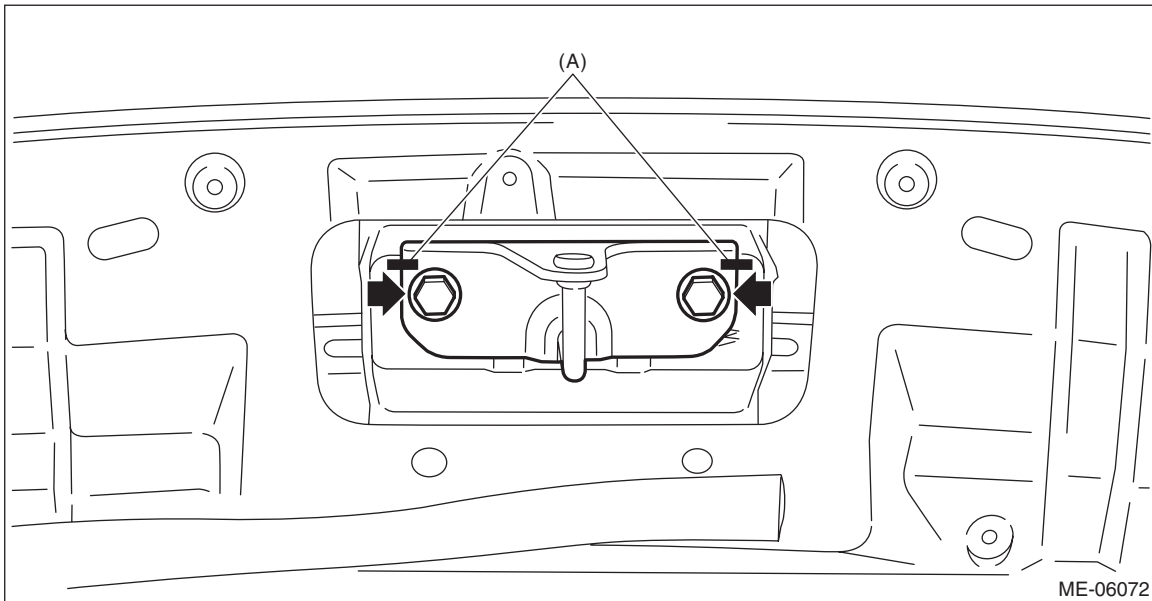
43) Change the front hood stay position from (B) to (A).



44) Install the front hood striker to the front hood by aligning the alignment marks (A), and close the front hood.

**Tightening torque:**

**33 N·m (3.4 kgf-m, 24.3 ft-lb)**



## C: INSPECTION

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