

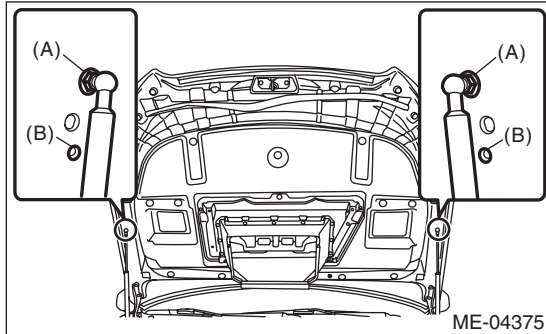
## 9. Engine Assembly

### A: REMOVAL

1) Change the front hood damper mounting position from (A) to (B), and completely open the front hood.

**Tightening torque:**

**20 N·m (2.0 kgf-m, 14.8 ft-lb)**

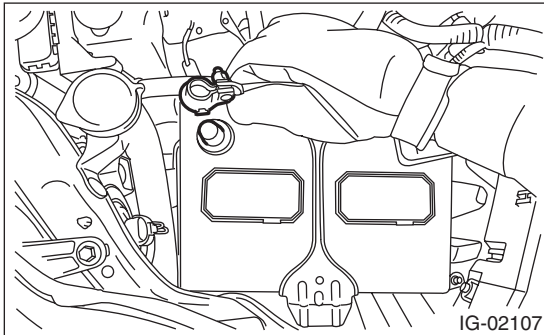


2) Remove the collector cover.

3) Collect the refrigerant from A/C system. <Ref. to AC-20, Refrigerant Recovery Procedure.>

4) Release the fuel pressure. <Ref. to FU(H4DOTC)-66, RELEASING OF FUEL PRESSURE, PROCEDURE, Fuel.>

5) Disconnect the ground cable from battery.



6) Open the fuel filler lid and remove the fuel filler cap.

7) Remove the air intake duct. <Ref. to IN(H4DOTC)-12, REMOVAL, Air Intake Duct.>

8) Remove the intercooler. <Ref. to IN(H4DOTC)-17, REMOVAL, Intercooler.>

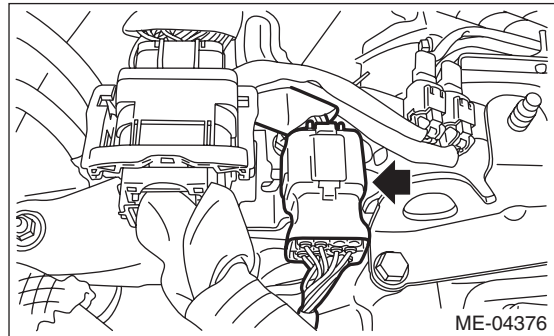
9) Remove the air by-pass valve. <Ref. to IN(H4DOTC)-26, REMOVAL, Air By-pass Valve.>

10) Remove the radiator. <Ref. to CO(H4DOTC)-21, REMOVAL, Radiator.>

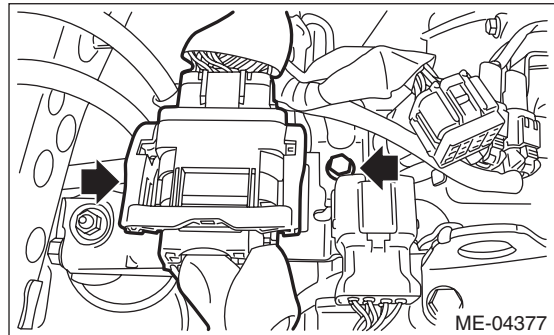
11) Remove the front exhaust pipe. <Ref. to EX(H4DOTC)-5, REMOVAL, Front Exhaust Pipe.>

12) Lower the vehicle.

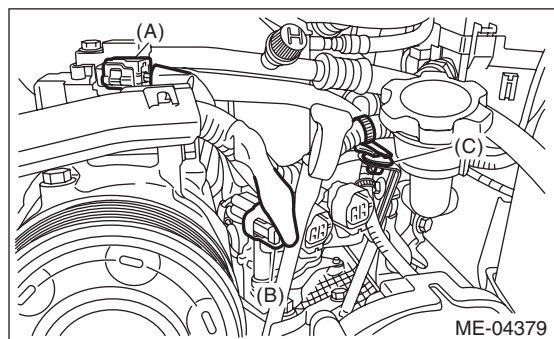
13) Disconnect the bulkhead harness connector from the engine harness connector (brown).



14) Remove the bolt securing the bulkhead harness connector bracket, and disconnect the bulkhead harness connector from the engine harness connector (black).

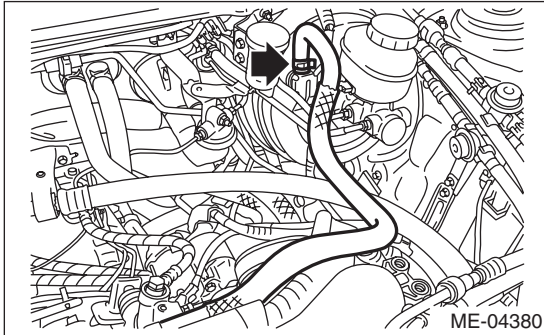


15) Disconnect the connector (A) and connector (B) from A/C compressor, and remove the clip (C) securing the generator cord to the intake manifold protector LH.

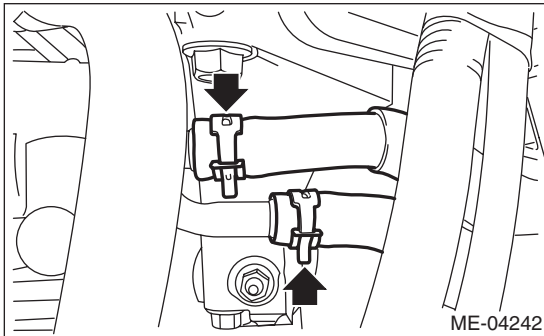


16) Disconnect the following hoses.

- (1) A/C pressure hose <Ref. to AC-68, REMOVAL, Hose and Pipe.>
- (2) Brake booster vacuum hose

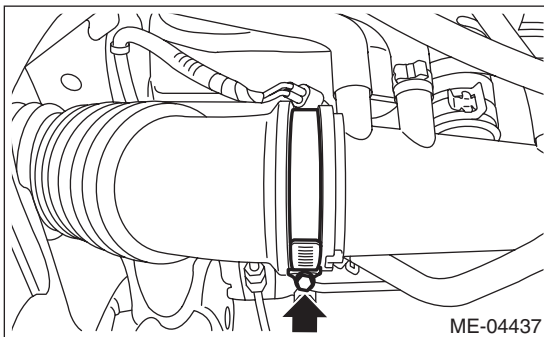


(3) Heater inlet hose and heater outlet hose

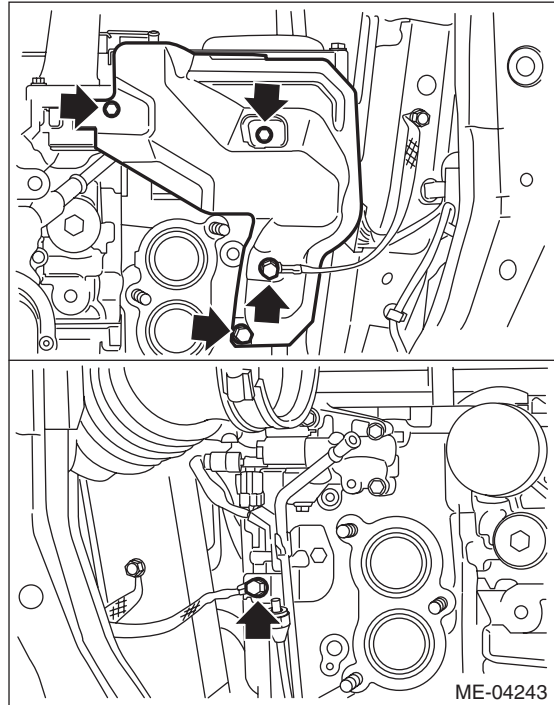


17) Lift up the vehicle.

18) Remove the intake duct from the air intake boot.



19) Disconnect the ground cable on the engine side, and remove the engine harness cover.



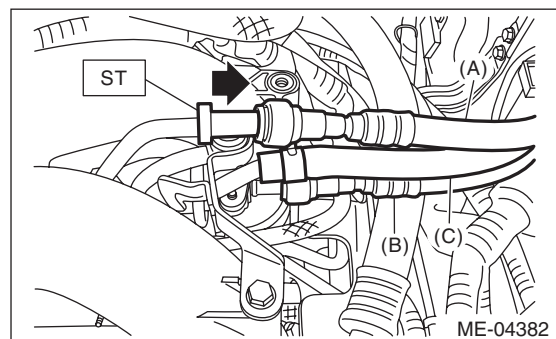
20) Lower the vehicle.

21) Attach ST to the fuel delivery pipe and push ST in the direction of arrow mark to disconnect the fuel delivery hose.

ST 42099AE000 QUICK CONNECTOR RELEASE

## CAUTION:

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



- (A) Fuel delivery hose
- (B) Fuel return hose
- (C) Evaporation hose

# Engine Assembly

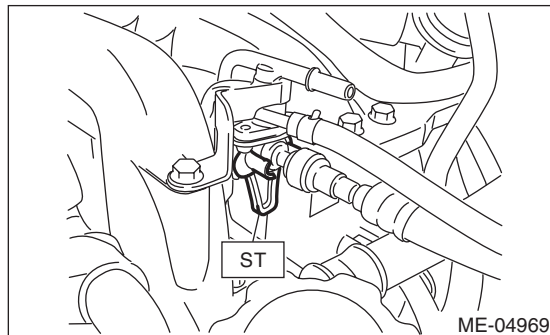
## MECHANICAL

22) Disconnect the fuel return hose using the ST.  
ST 18371AA000 CONNECTOR REMOVER

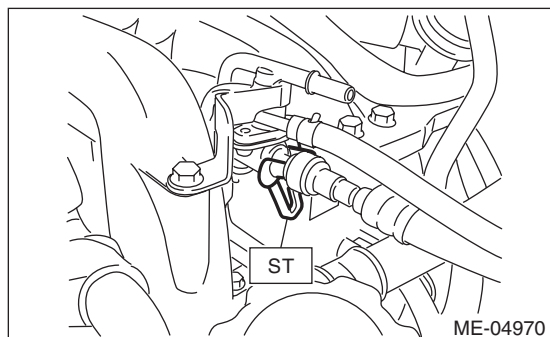
### CAUTION:

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

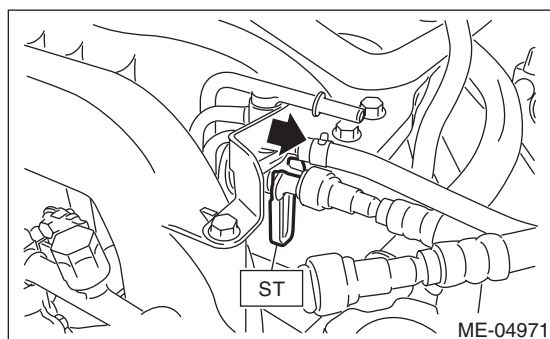
(1) Attach ST to the fuel return pipe as shown in the figure.



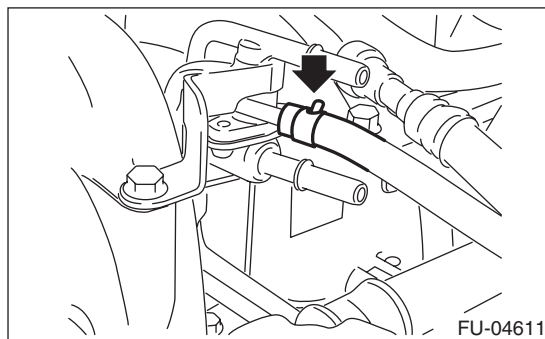
(2) Insert the front side of ST into the quick connector.



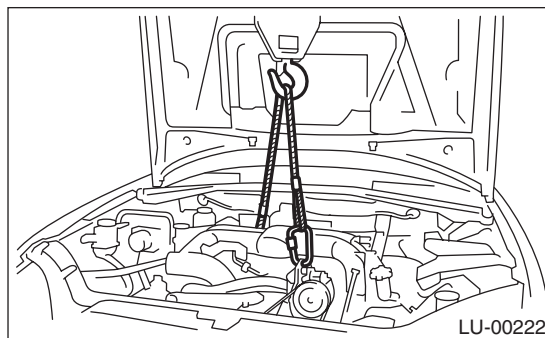
(3) Insert the back side of ST into the quick connector and push ST in the direction of arrow mark to disconnect the fuel return hose.



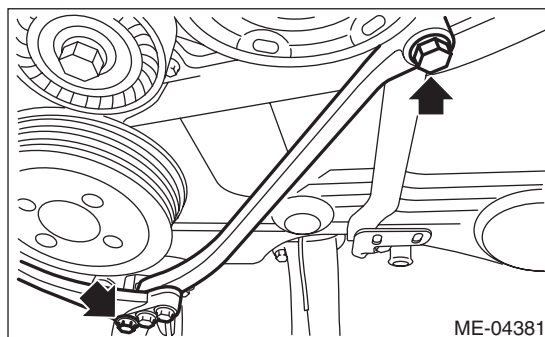
23) Remove the clip and disconnect the evaporation hose from the fuel pipe.



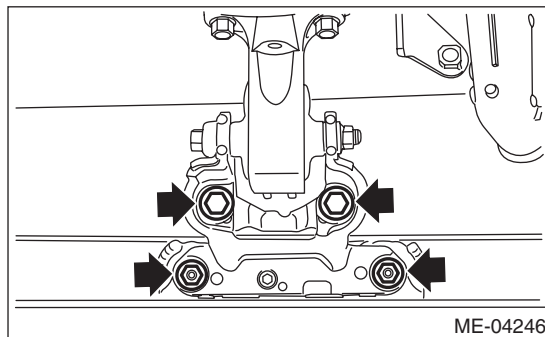
24) Support the engine with a lifting device and wire ropes.



25) Remove the stopper rod.



26) Remove the bolt and nut which secure engine mounting to the cradle.

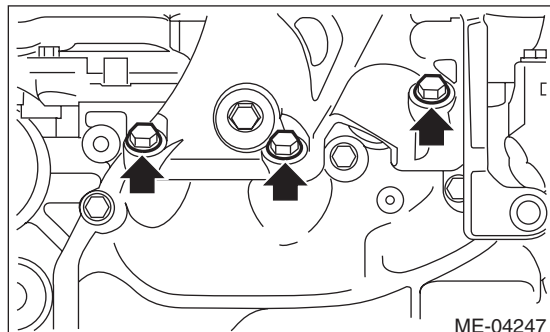


27) Lift up the vehicle.

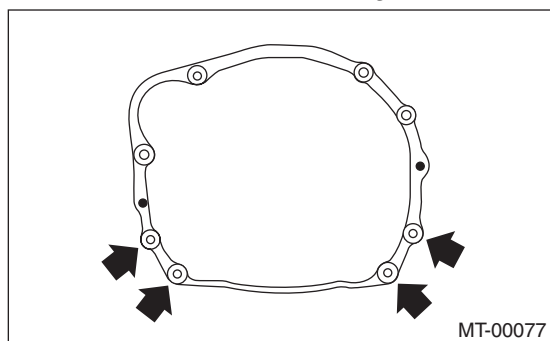
### CAUTION:

When lifting up the vehicle, raise up wire ropes at the same time.

28) Remove the bolts which secure the engine mounting onto the engine, and remove the engine mounting.



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



30) Lower the vehicle.

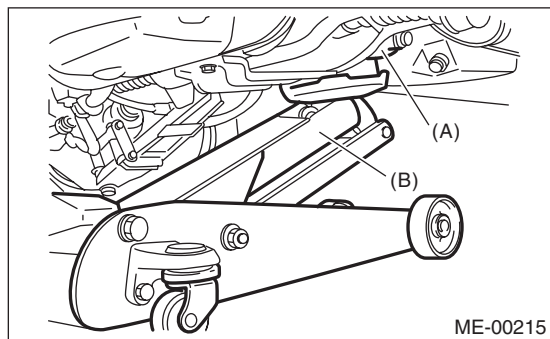
## CAUTION:

**When lifting down the vehicle, lower wire ropes at the same time.**

31) Support the transmission with a garage jack.

## NOTE:

Fine adjustment of the transmission height can be performed with this operation.



- (A) Transmission
- (B) Garage jack

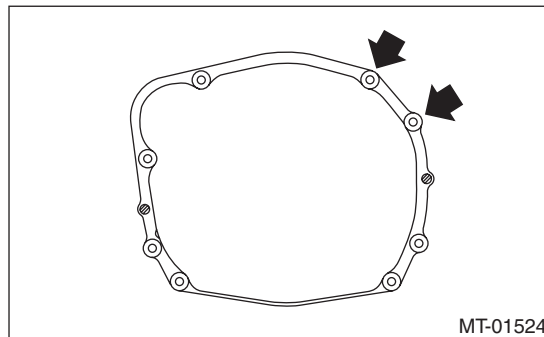
32) Separation of engine and transmission

## CAUTION:

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

(1) Remove the starter. <Ref. to SC(H4SO)-9, REMOVAL, Starter.>

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



33) Remove the engine from vehicle.

(1) Slightly raise the engine.

(2) Adjust the height of the transmission with garage jack.

(3) Move the engine horizontally until main shaft is withdrawn from clutch cover.

(4) Slowly move the engine away from engine compartment.

## NOTE:

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

## B: INSTALLATION

1) Apply a small amount of grease to splines of main shaft.

## Grease:

**NICHIMOLY N-130 or equivalent**

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

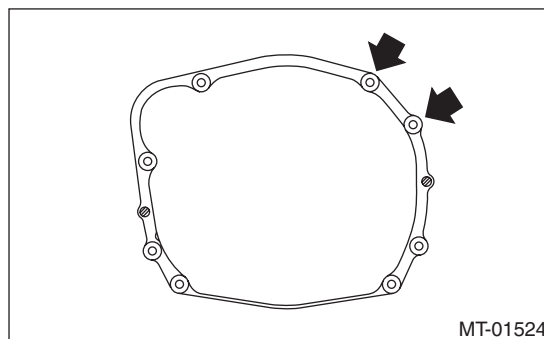
## NOTE:

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

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

## Tightening torque:

**50 N·m (5.1 kgf-m, 36.9 ft-lb)**



4) Remove the garage jack.



# Engine Assembly

## MECHANICAL

5) Install the starter. <Ref. to SC(H4SO)-9, INSTALLATION, Starter.>

6) Lift up the vehicle.

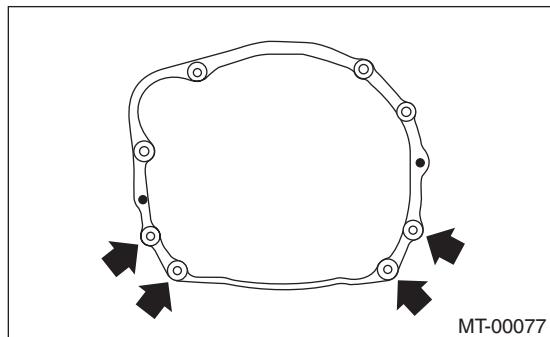
### CAUTION:

**When lifting up the vehicle, raise up wire ropes at the same time.**

7) Attach the bolts and nuts which hold lower side of the transmission to engine.

### Tightening torque:

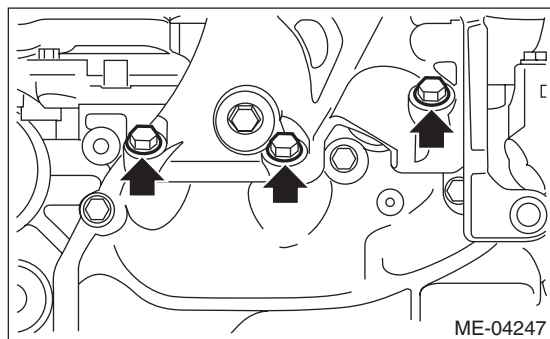
**50 N·m (5.1 kgf-m, 36.9 ft-lb)**



8) Set the engine mounting, and tighten the bolts which hold engine mounting to the engine.

### Tightening torque:

**58 N·m (5.9 kgf-m, 42.8 ft-lb)**



9) Lower the vehicle.

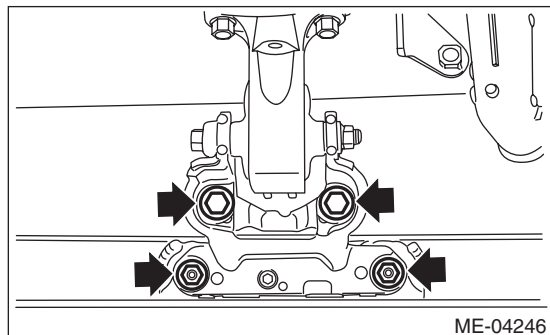
### CAUTION:

**When lifting down the vehicle, lower wire ropes at the same time.**

10) Attach the bolts and nuts which secure engine mounting to the cradle.

### Tightening torque:

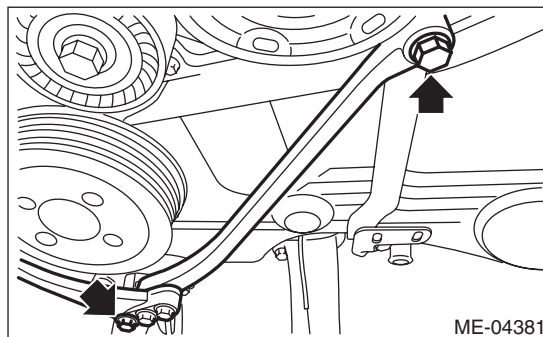
**60 N·m (6.1 kgf-m, 44.3 ft-lb)**



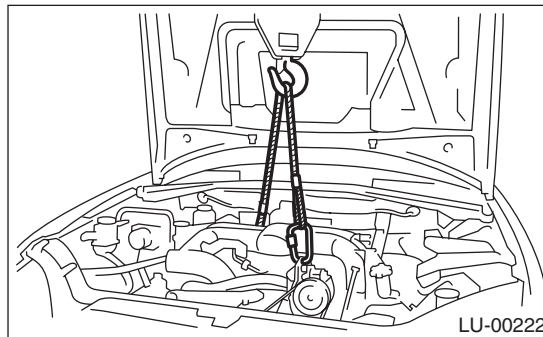
11) Install the stopper rod.

### Tightening torque:

**36 N·m (3.7 kgf-m, 26.6 ft-lb)**



12) Remove the lifting device and wire ropes.

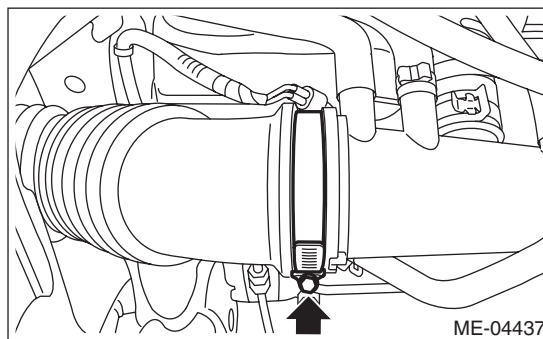


13) Lift up the vehicle.

14) Install the intake duct to the air intake boot.

### Tightening torque:

**2.5 N·m (0.3 kgf-m, 1.8 ft-lb)**

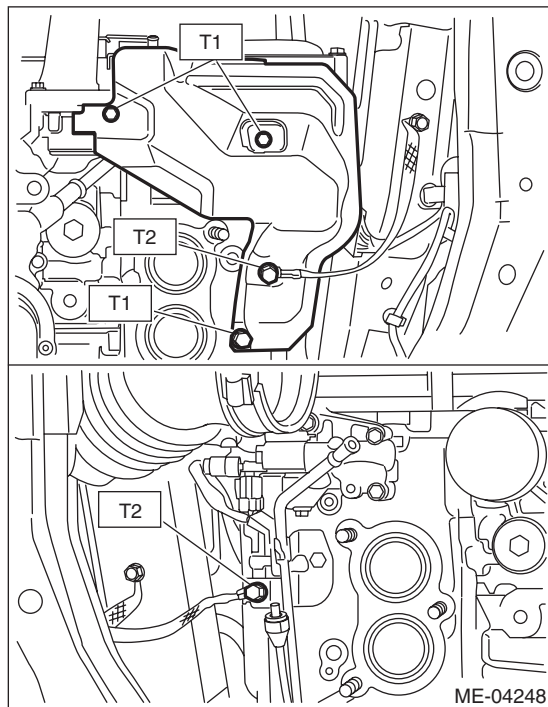


15) Install the engine harness cover, and connect the ground cable.

**Tightening torque:**

**T1: 6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**

**T2: 7 N·m (0.7 kgf-m, 5.2 ft-lb)**

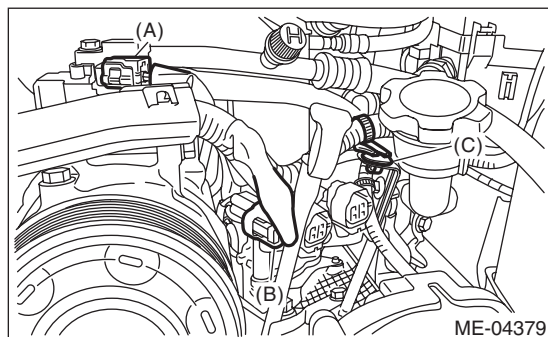


16) Lower the vehicle.

17) Connect the following hoses.

- (1) Fuel delivery hose, fuel return hose and evaporation hose
- (2) Heater inlet hose and heater outlet hose
- (3) Brake booster vacuum hose
- (4) A/C pressure hose <Ref. to AC-68, INSTALLATION, Hose and Pipe.>

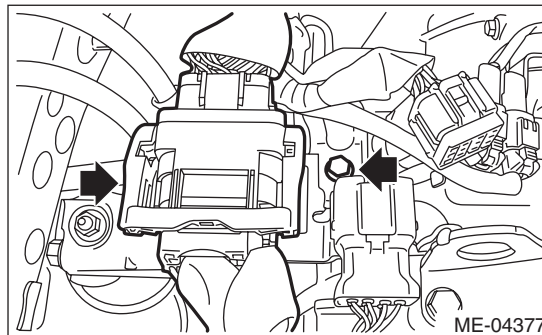
18) Install the clip (C) securing the generator cord to the intake manifold protector LH, and connect the connector (A) and connector (B) to the A/C compressor.



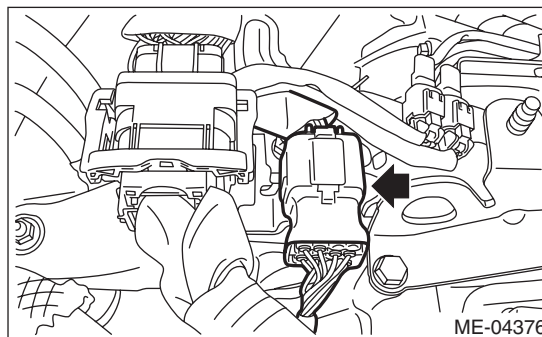
19) Connect the bulkhead harness connector to the engine harness connector (black), and install the bolt securing the bulkhead harness connector bracket.

**Tightening torque:**

**6.4 N·m (0.7 kgf-m, 4.7 ft-lb)**



20) Connect the bulkhead harness connector to the engine harness connector (brown).



21) Install the front exhaust pipe. <Ref. to EX(H4DOTC)-7, INSTALLATION, Front Exhaust Pipe.>

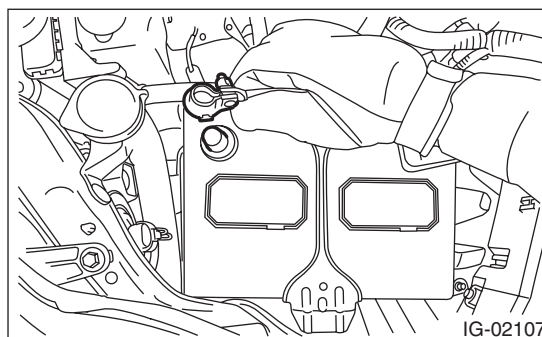
22) Install the radiator. <Ref. to CO(H4DOTC)-22, INSTALLATION, Radiator.>

23) Install the air by-pass valve. <Ref. to IN(H4DOTC)-26, INSTALLATION, Air By-pass Valve.>

24) Install the intercooler. <Ref. to IN(H4DOTC)-18, INSTALLATION, Intercooler.>

25) Install the air intake duct. <Ref. to IN(H4DOTC)-12, INSTALLATION, Air Intake Duct.>

26) Connect the battery ground terminal.



27) Fill engine coolant. <Ref. to CO(H4DOTC)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>

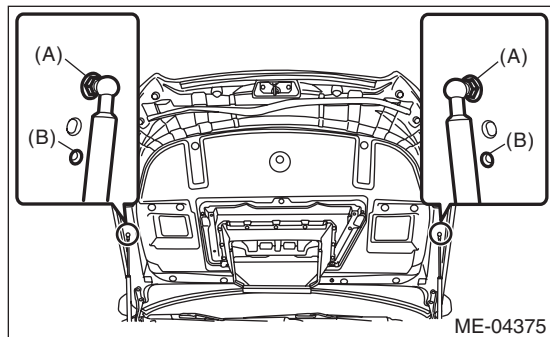
28) Charge the A/C system with refrigerant. <Ref. to AC-21, PROCEDURE, Refrigerant Charging Procedure.>

29) Install the collector cover.

30) Change the front hood damper mounting position from (B) to (A), and close the front hood.

**Tightening torque:**

**20 N·m (2.0 kgf-m, 14.8 ft-lb)**



### C: INSPECTION

1) Check that the pipes, hoses, connectors and clamps are securely connected.

2) Check that the engine coolant is up to specified level.

3) Start the engine and check for exhaust gas leakage, engine coolant leakage, fuel leakage, noise or vibration.