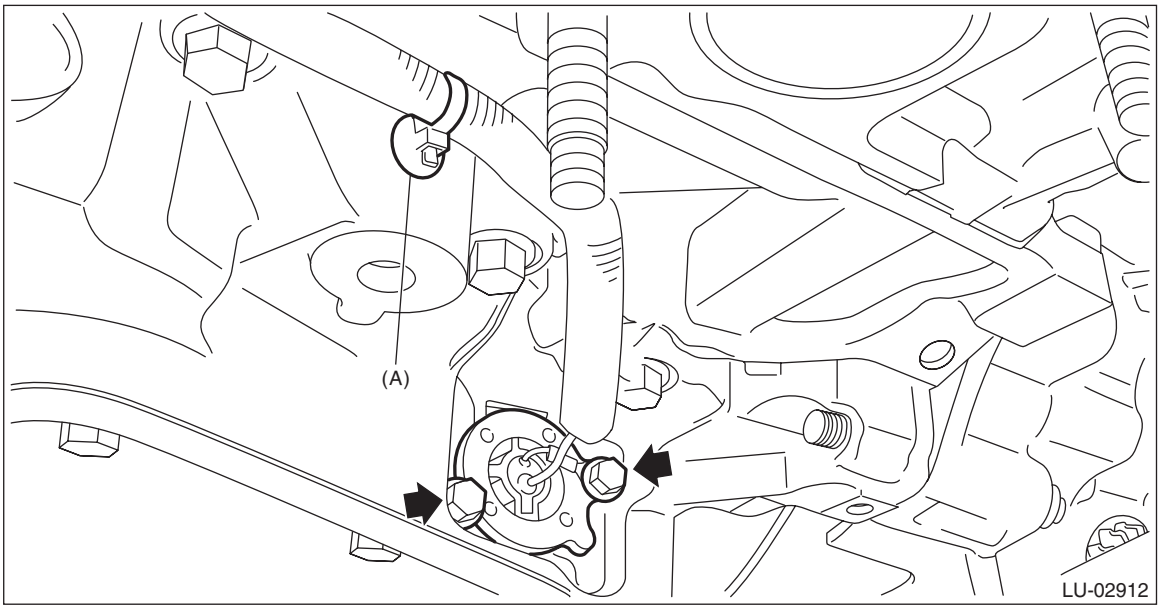
# 13.Oil Level Switch

## A: REMOVAL

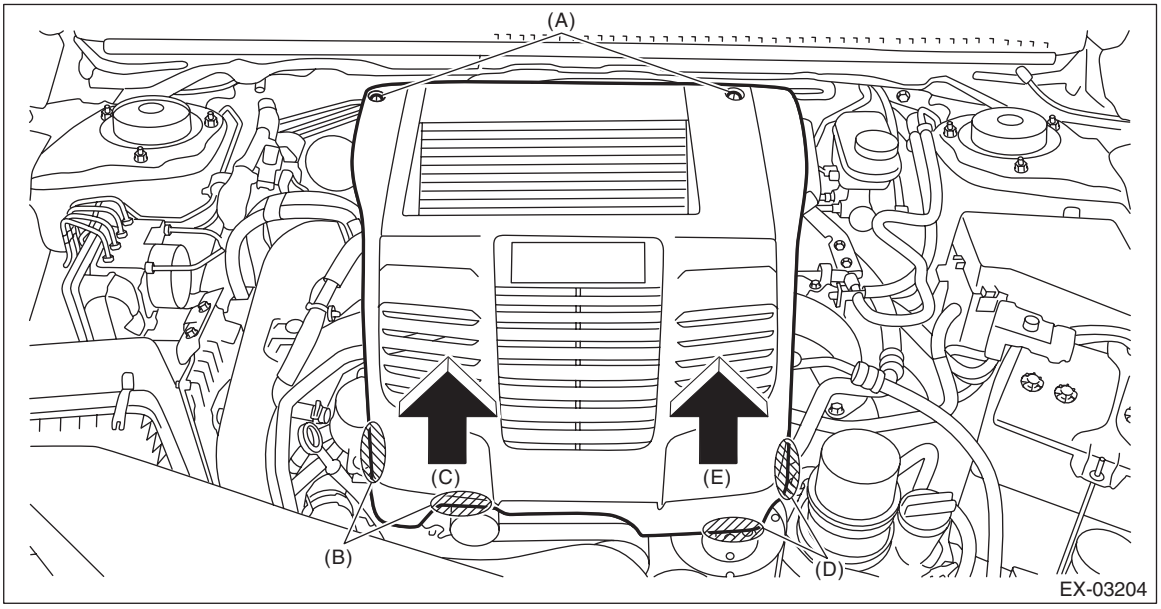
### 1. WHEN REMOVING FRONT CROSSMEMBER

1) Remove the front crossmember. <Ref. to FS-22, REMOVAL, Front Crossmember.>
2) Remove clip (A) from the oil pan upper, and remove the oil level switch.



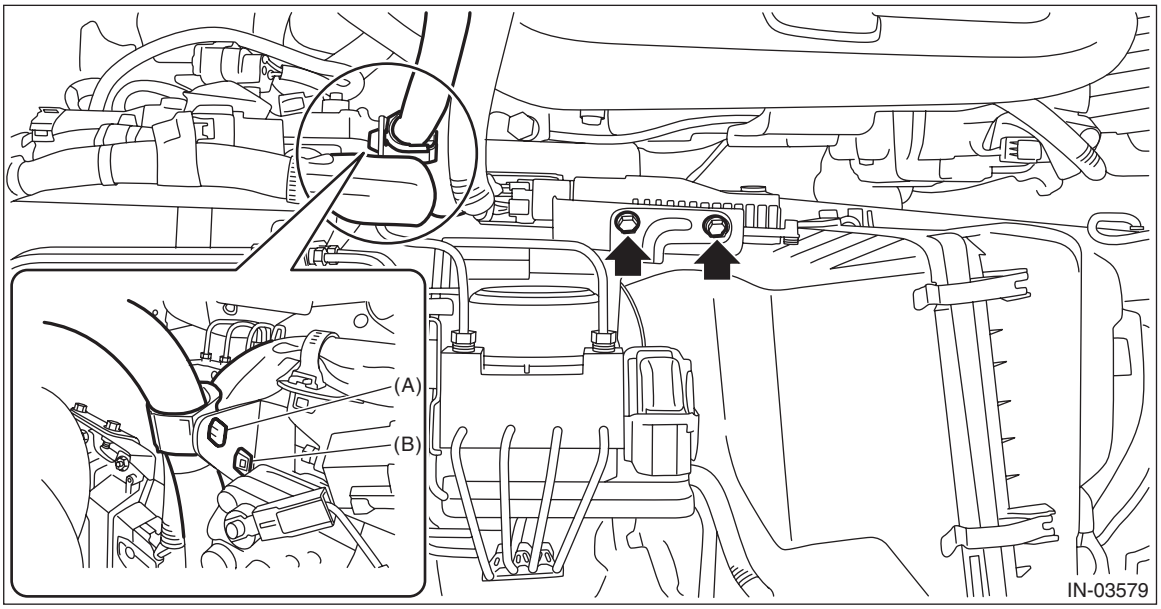

### 2. WHEN NOT REMOVING FRONT CROSSMEMBER

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.



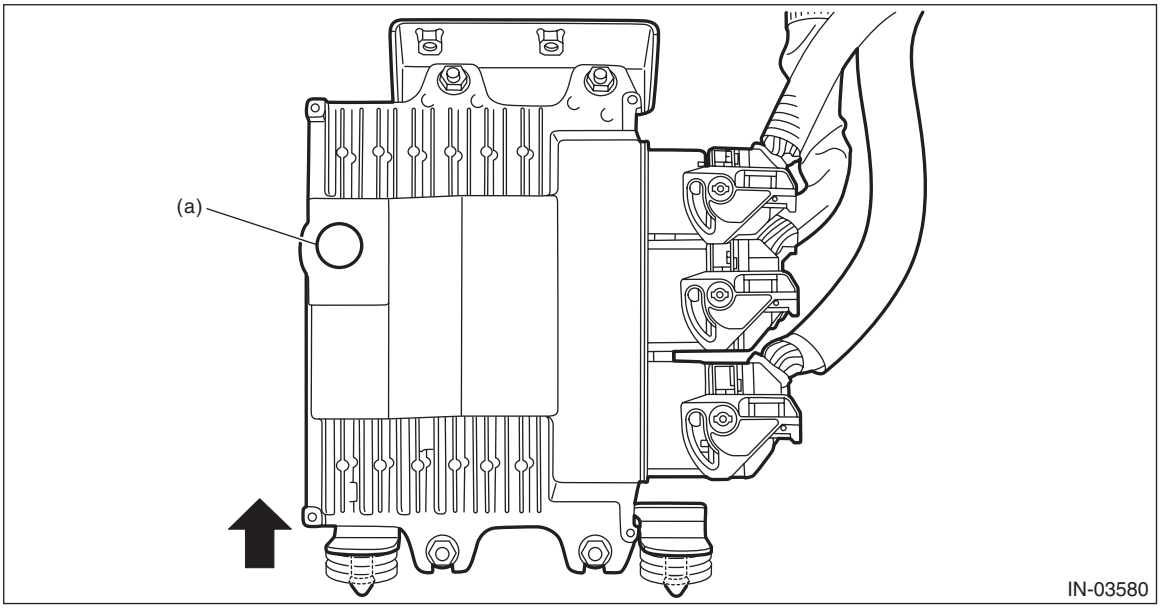

4) Disconnect the ground terminal from battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>
5) Remove the air intake duct. <Ref. to IN(w/o STI)-22, REMOVAL, Air Intake Duct.>

6) Remove the clips (A) and (B) which secure the engine harness and bulkhead harness to the bracket, and remove the bolt which secures the engine control module (ECM) to the bracket.



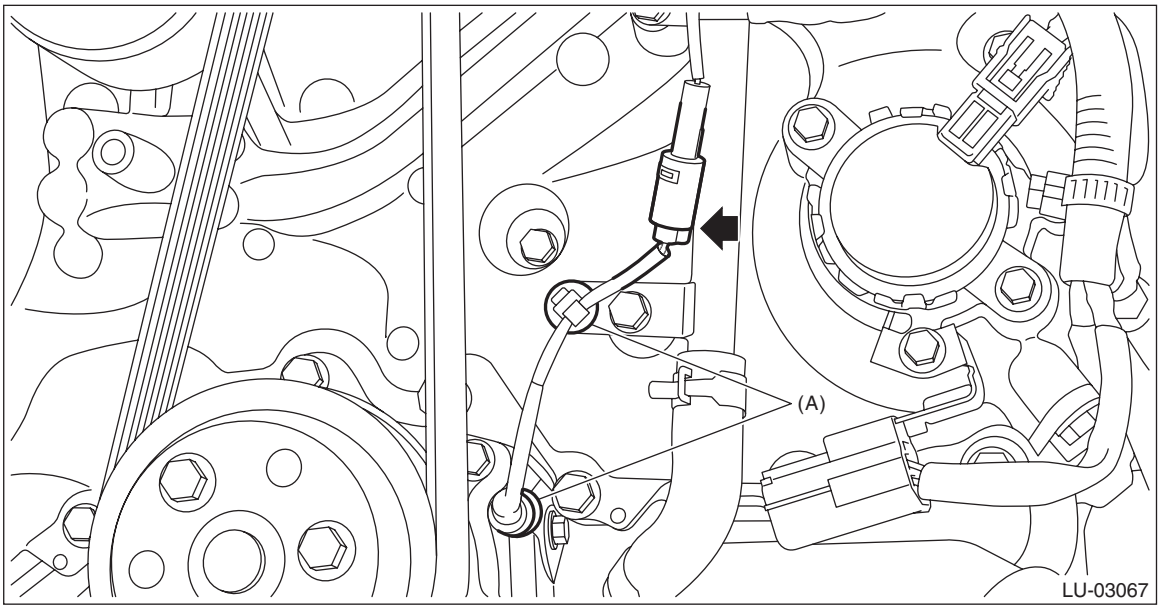

7) Pull out the engine control module (ECM) from the bracket, and move it to a location that does not interfere operation.

NOTE:
When performing the pulling out operation, pay attention not to apply excessive load to the breather filter portion (a) in order to avoid the damage.

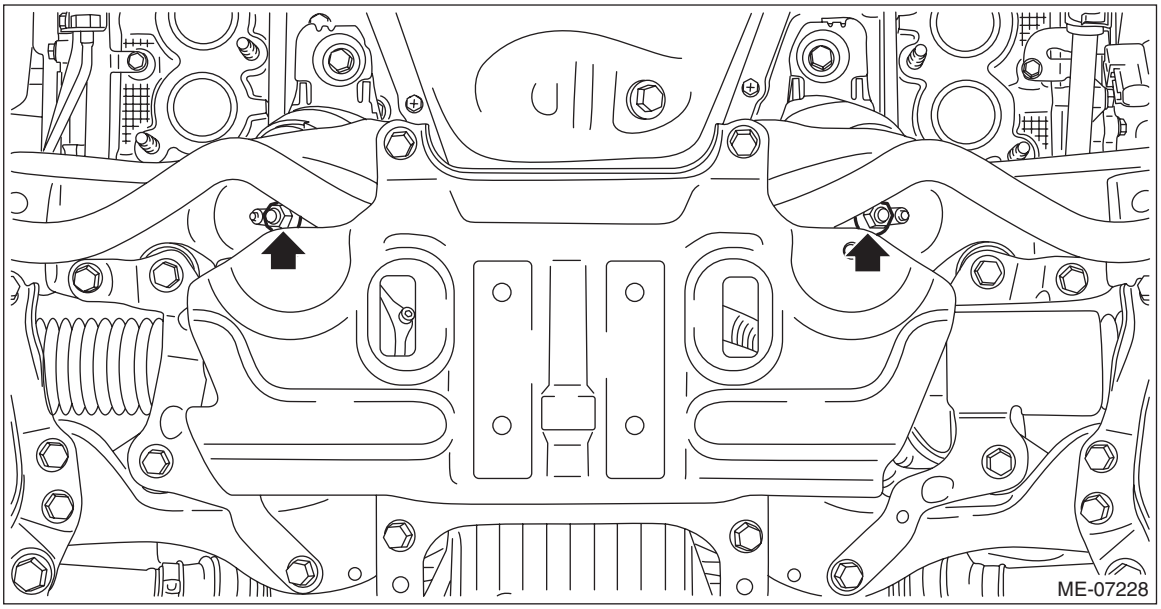



8) Drain the engine oil. <Ref. to LU(w/o STI)-11, REPLACEMENT, Engine Oil.>
9) Remove the front exhaust pipe. <Ref. to EX(w/o STI)-9, REMOVAL, Front Exhaust Pipe.>

10) Disconnect the oil level switch connector from the engine harness, and remove the clip (A) securing the harness.

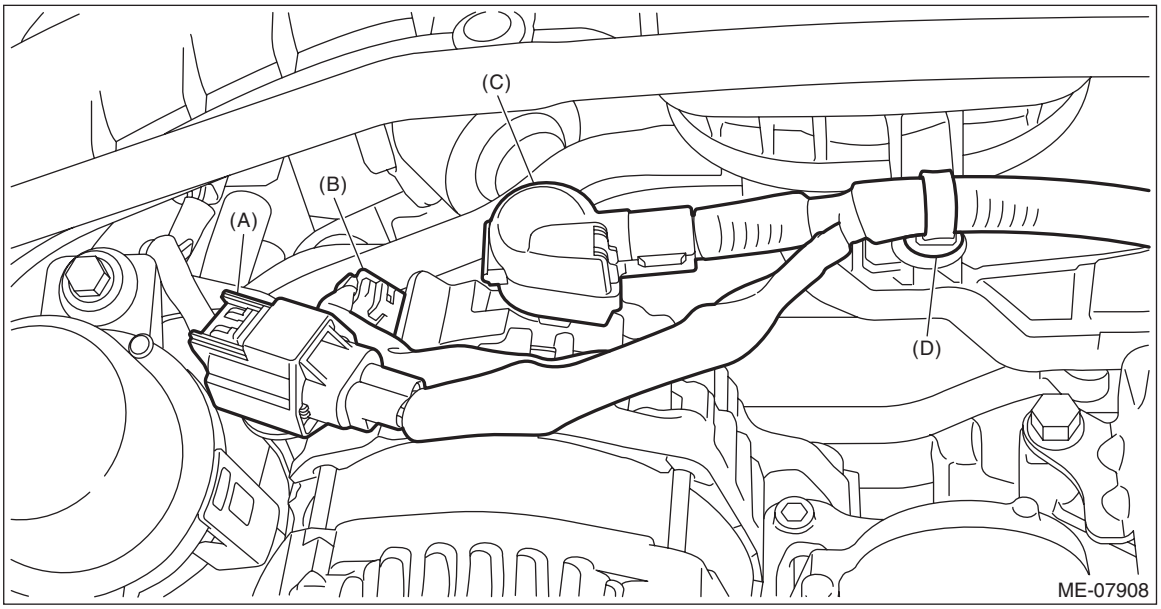



11) Remove the nuts which secure the engine mounting to the front crossmember.

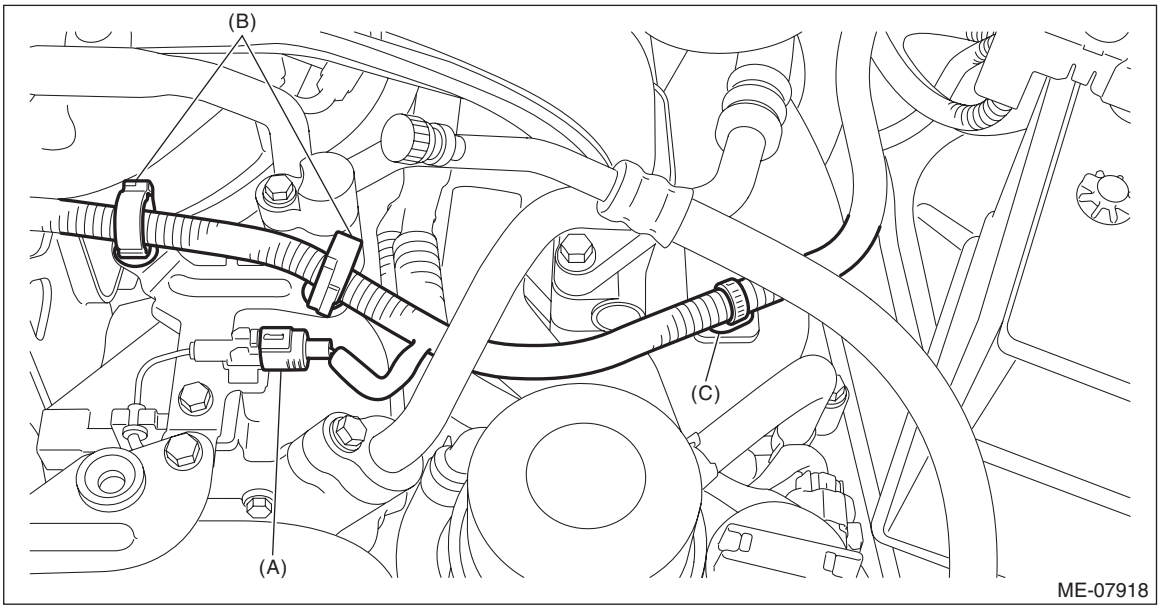



12) Remove the electric power steering gearbox. <Ref. to PS-56, REMOVAL, Electric Power Steering Gearbox.>
13) Remove the front drive shaft LH. <Ref. to DS-48, REMOVAL, Front Drive Shaft.>
14) Lower the vehicle.
15) Remove the intercooler. <Ref. to IN(w/o STI)-38, REMOVAL, Intercooler.>
16) Disconnect the connector (A) from the brake vacuum pump.

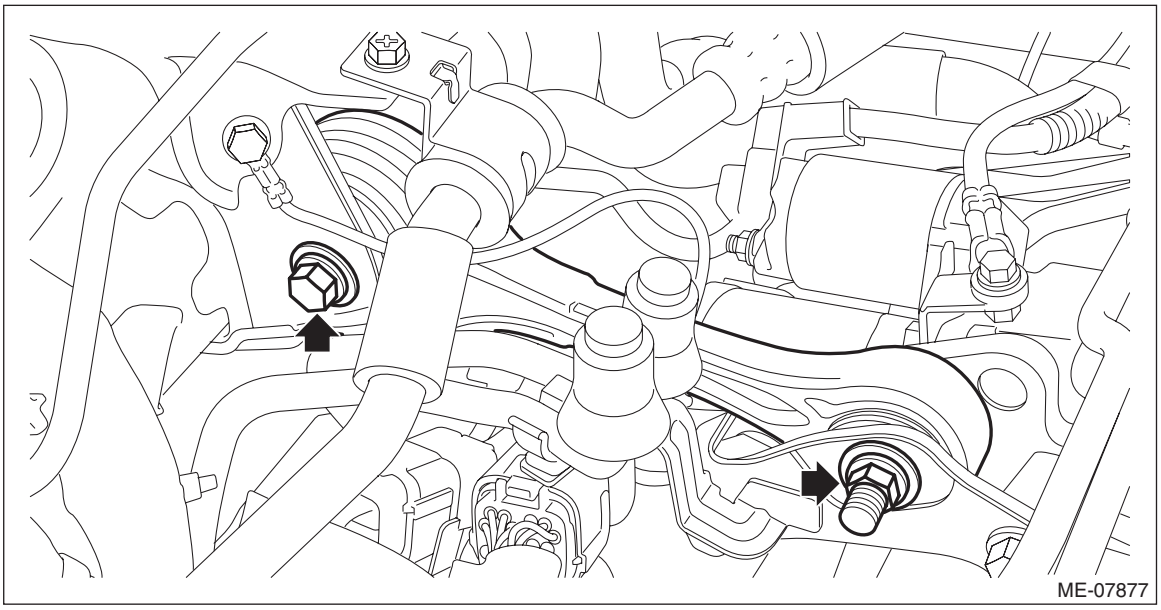
17) Disconnect connector (B) and terminal (C) from the generator, and remove the clip (D) securing the generator cord to the intake manifold.




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 pitching stopper.

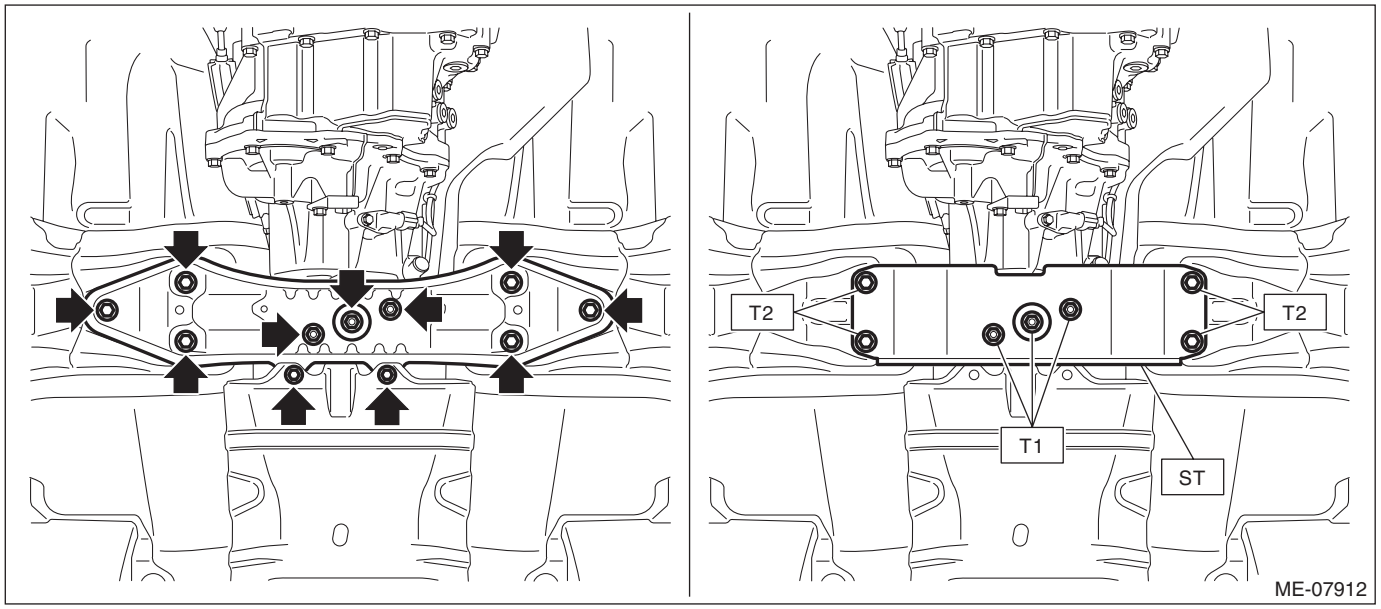



21) Lift up the vehicle.
22) Set the transmission jack to the transmission. (CVT model)

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

23) 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)***

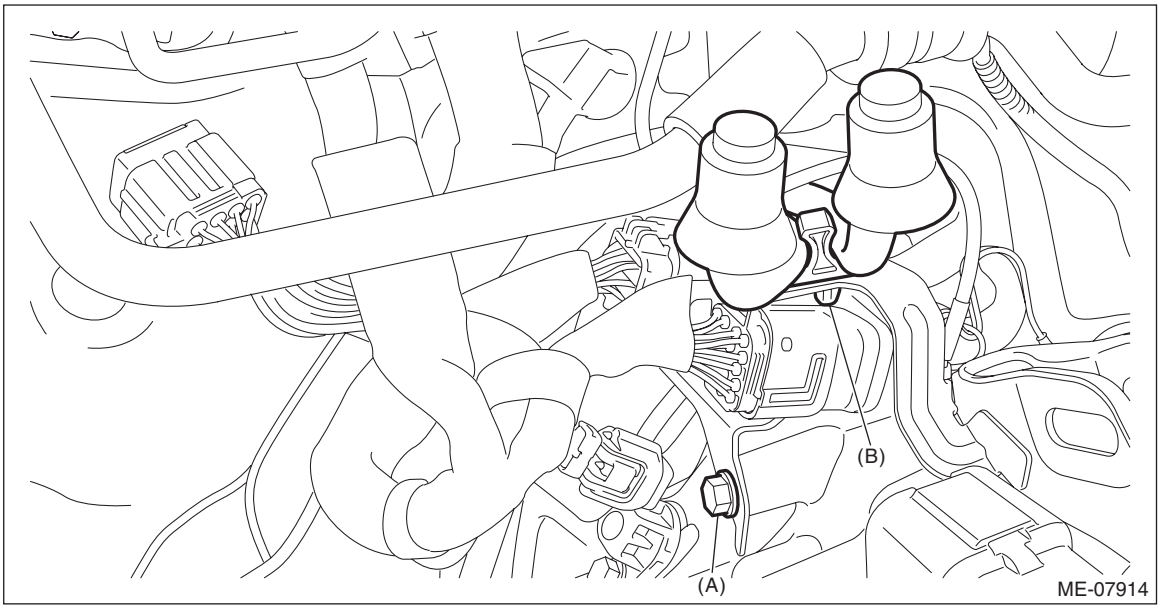



24) Remove the transmission jack. (CVT model)
25) Lower the vehicle.
26) Remove the bolt (A) securing the transmission harness stay to the CVT. (CVT model)

NOTE:
This procedure is required to prevent the transmission connector from touching the A/C pressure hose during engine lift-up.

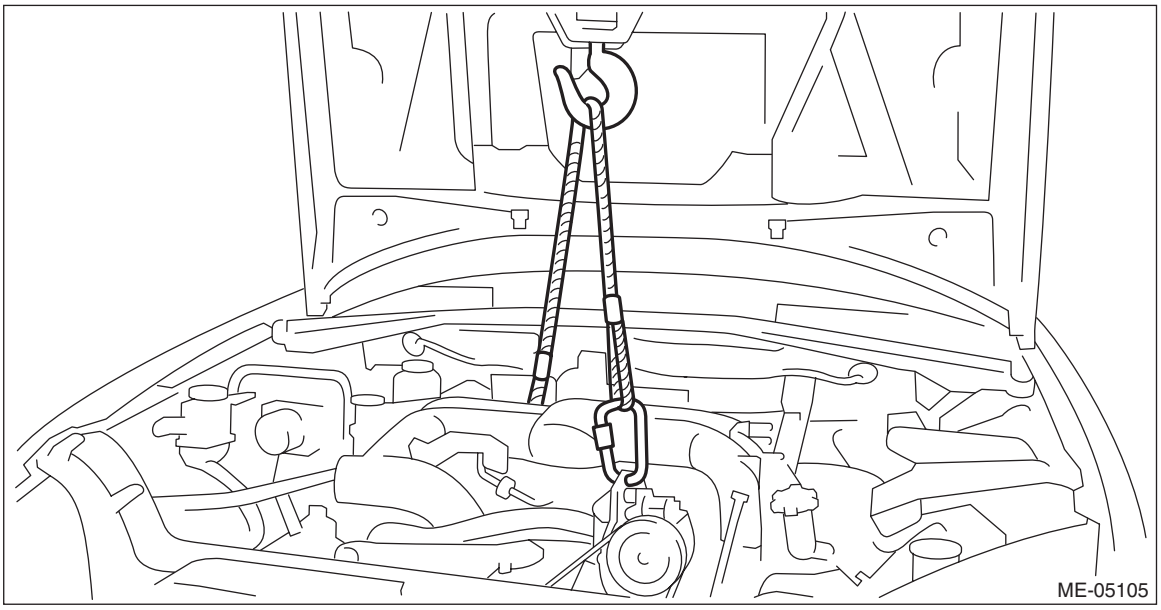
27) Remove the air breather hose from the clip (B), and then remove the clip (B) from the pitching stopper bracket. (CVT model)

NOTE:
This procedure is required to prevent the clip from touching the A/C pressure hose during engine lift-up.

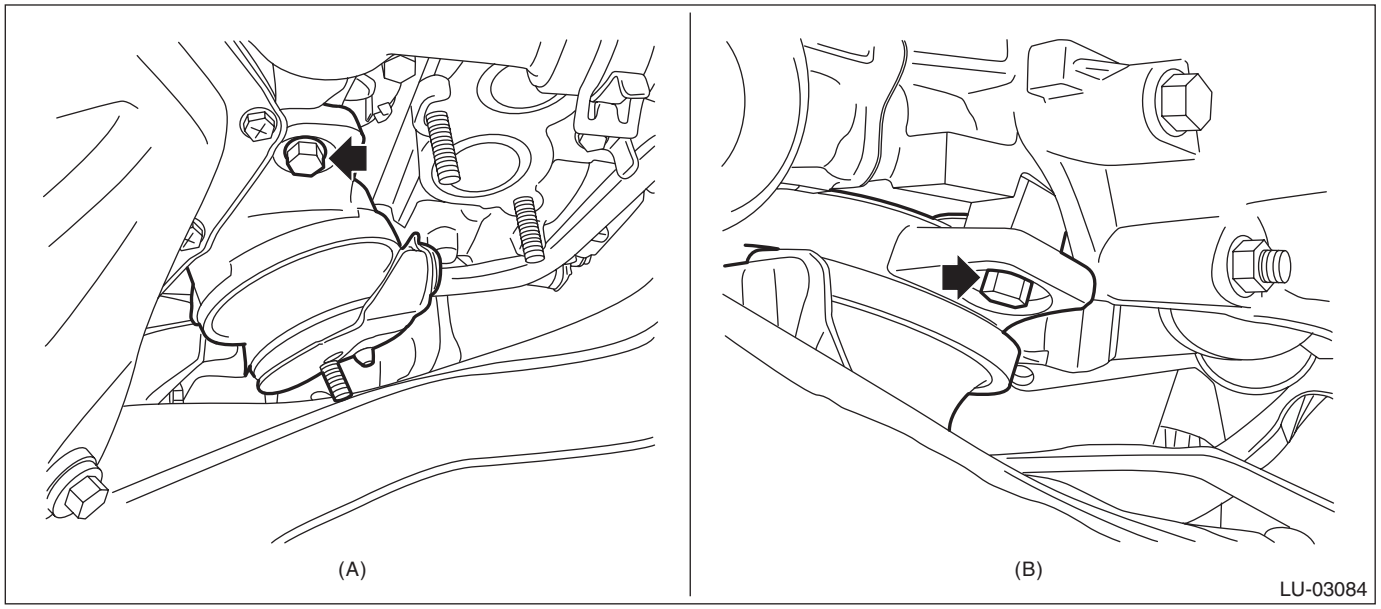



28) Lift up the engine with a lifting device and wire ropes.

**CAUTION:**
**When lifting up the engine, pay attention to the clearance of each part and be careful not to lift the engine too much, in order to prevent damaging the vehicle.**

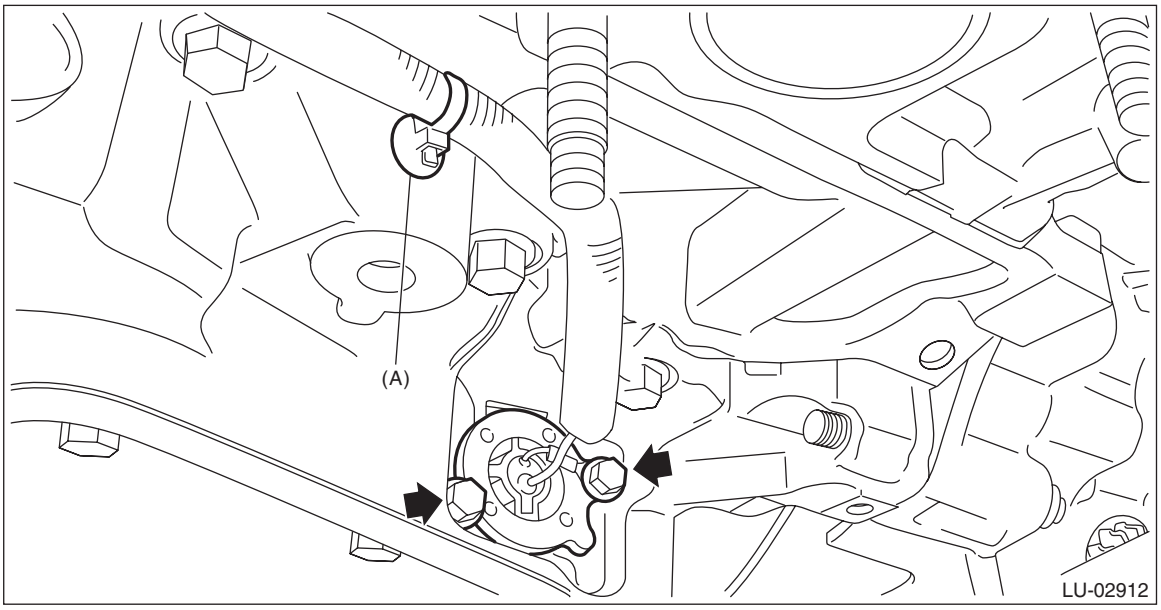


29) Remove the engine mounting LH from the engine.




(A) Front side (B) Rear side

30) Remove clip (A) from the oil pan upper, and remove the oil level switch.



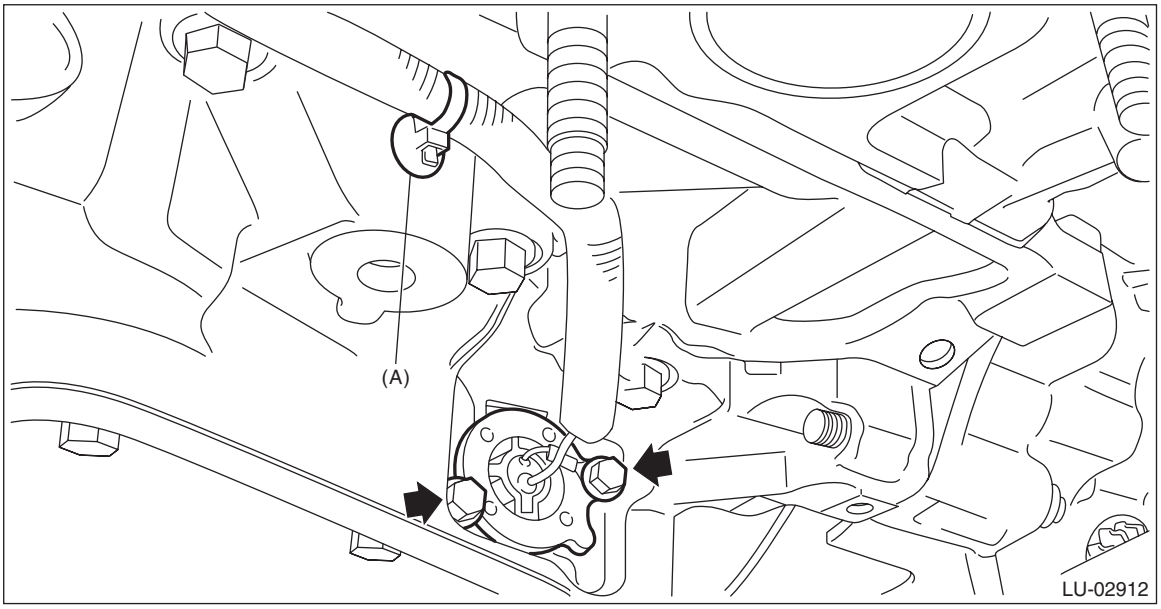
## B: INSTALLATION

### 1. WHEN FRONT CROSSMEMBER HAS BEEN REMOVED

1) Install the oil level switch and the clip (A) to the oil pan upper.

NOTE:
- Use new O-rings.
- Apply a coat of engine oil to the O-rings.

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



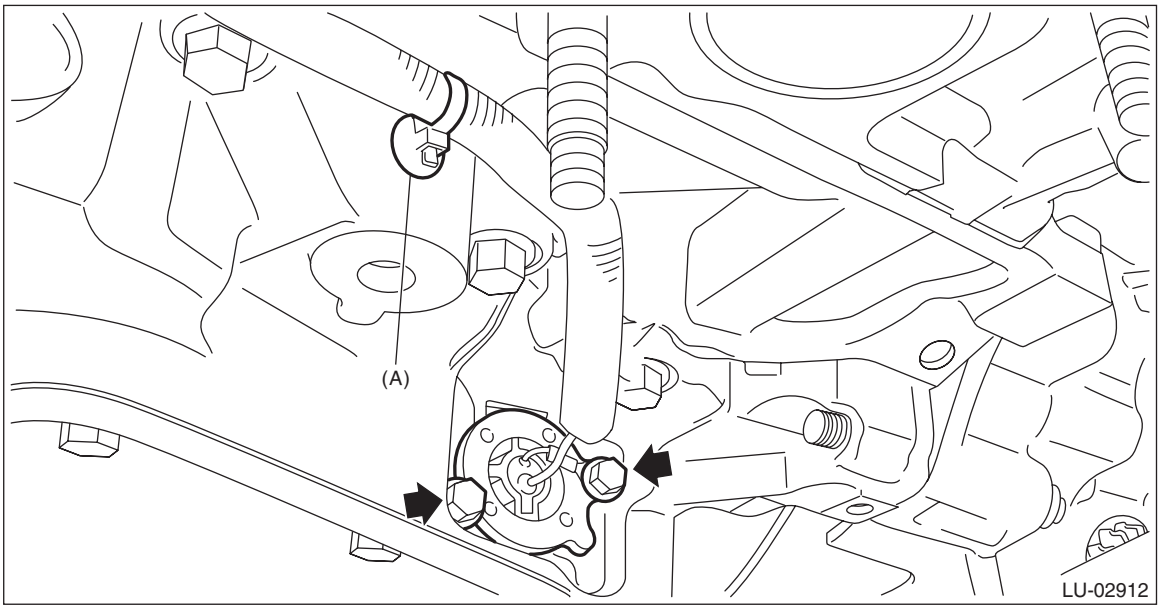

2) Install the front crossmember. <Ref. to FS-26, INSTALLATION, Front Crossmember.>

## 2. WHEN FRONT CROSSMEMBER HAS NOT BEEN REMOVED

1) Install the oil level switch and the clip (A) to the oil pan upper.

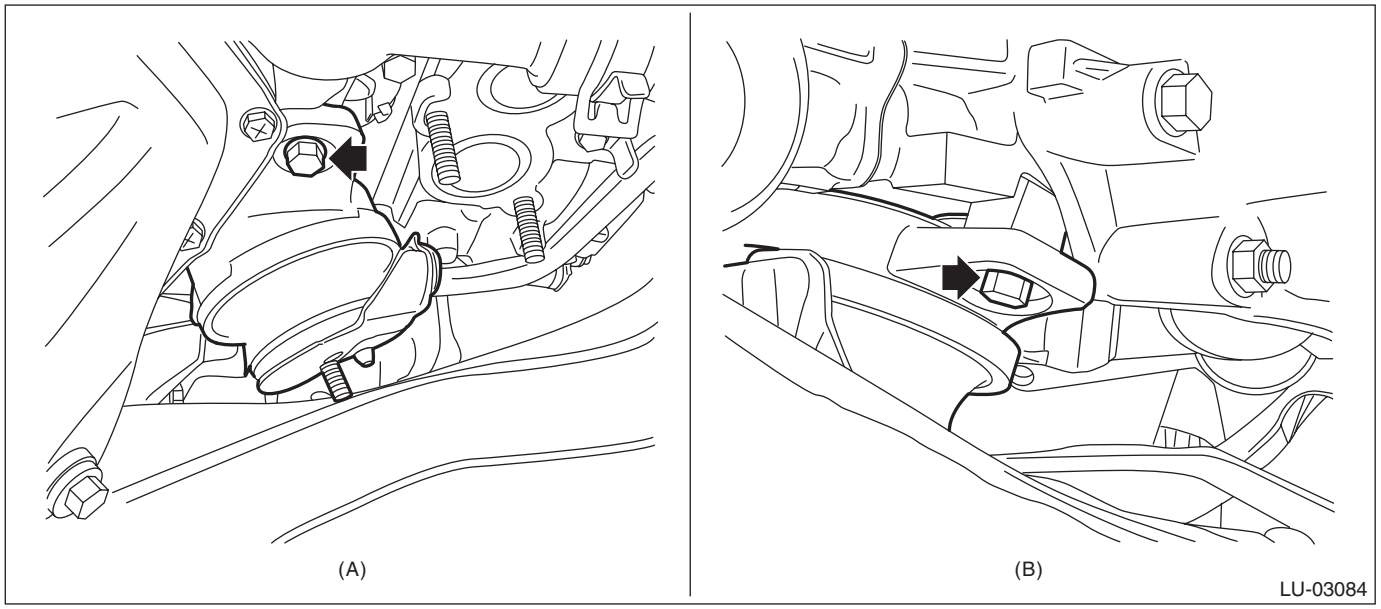
NOTE:
- Use new O-rings.
- Apply a coat of engine oil to the O-rings.

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



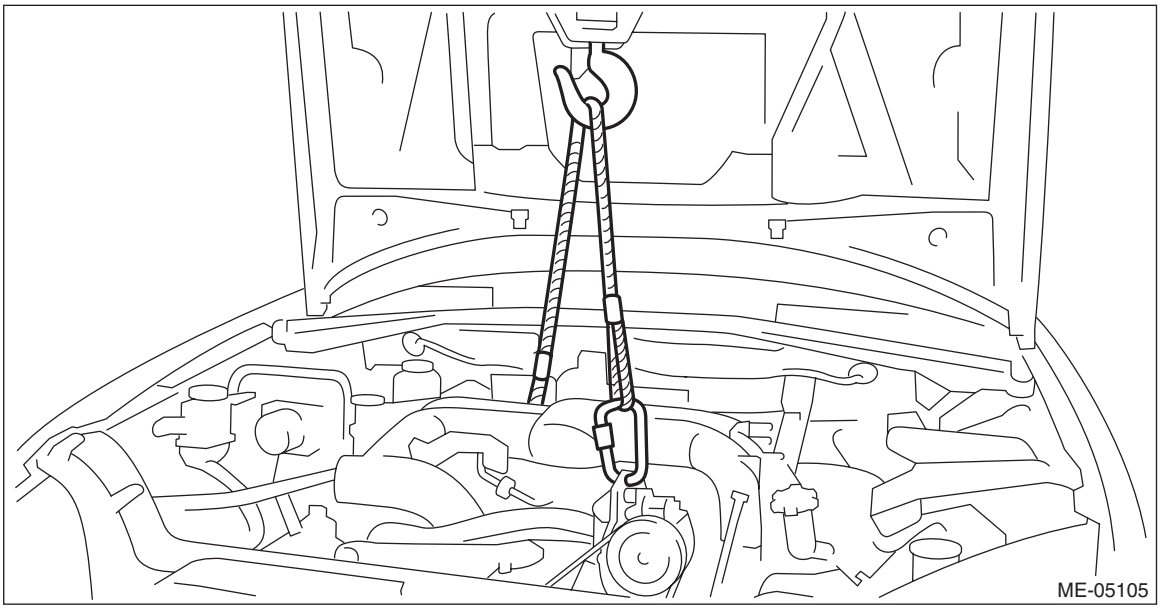

2) Install the engine mounting LH onto the engine.

***Tightening torque:***
***35 N·m (3.6 kgf-m, 25.8 ft-lb)***



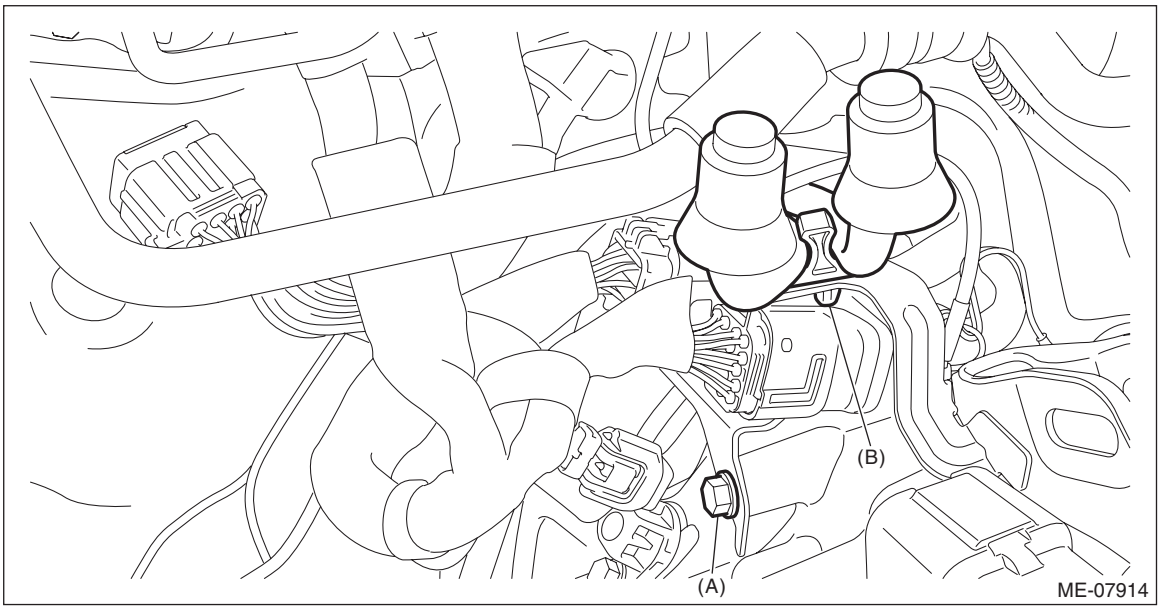

(A) Front side (B) Rear side

3) Lower the engine and remove the lifting device and wire ropes.




4) Install the clip (B) to the pitching stopper bracket, and then install the air breather hose to the clip (B). (CVT model)
5) 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)***

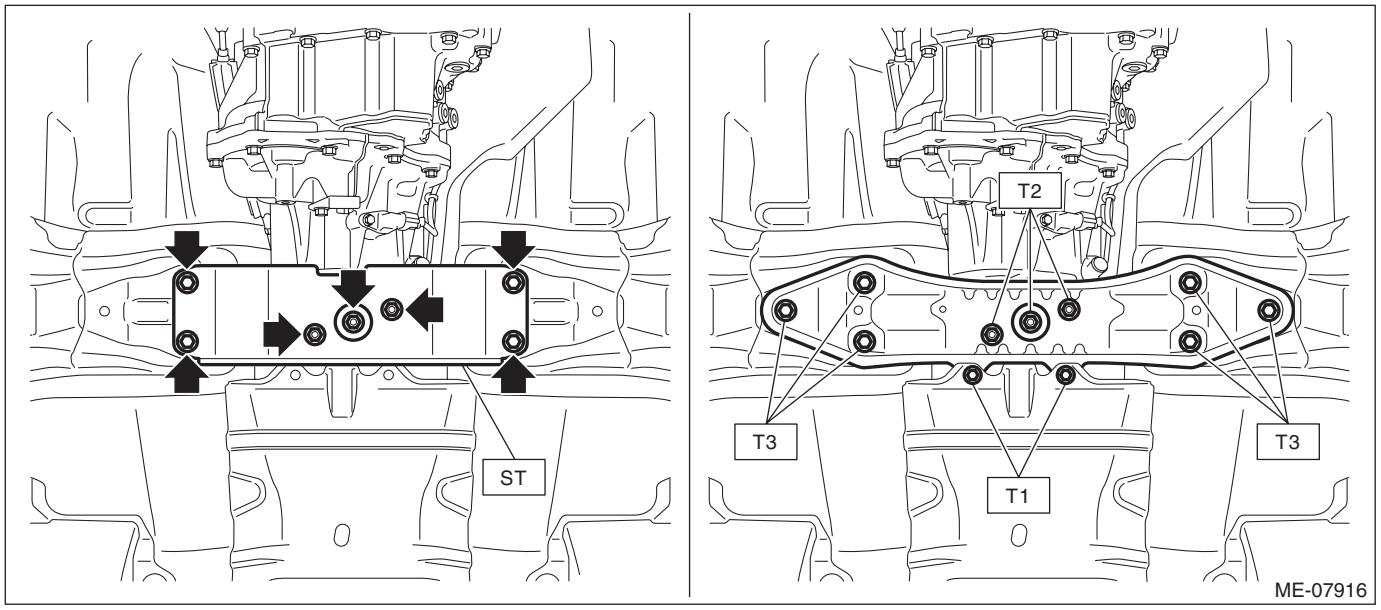



6) Lift up the vehicle.
7) Set the transmission jack to the transmission. (CVT model)

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

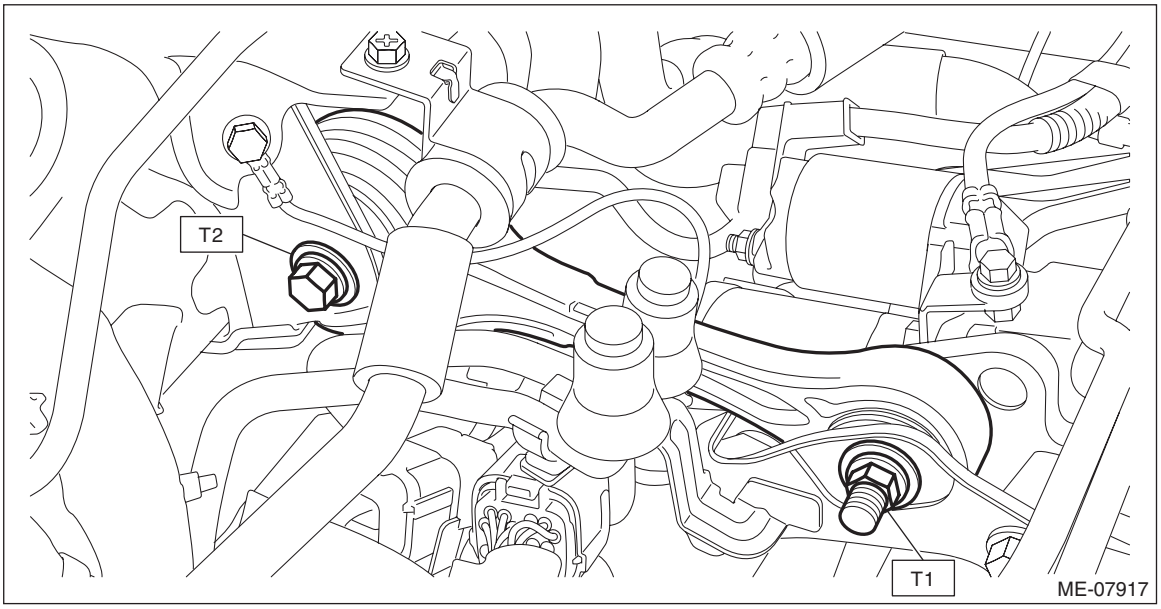
8) Remove the ST and install the rear crossmember. (CVT model)
ST 41099YC001 ST REAR MOUNT

***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)***



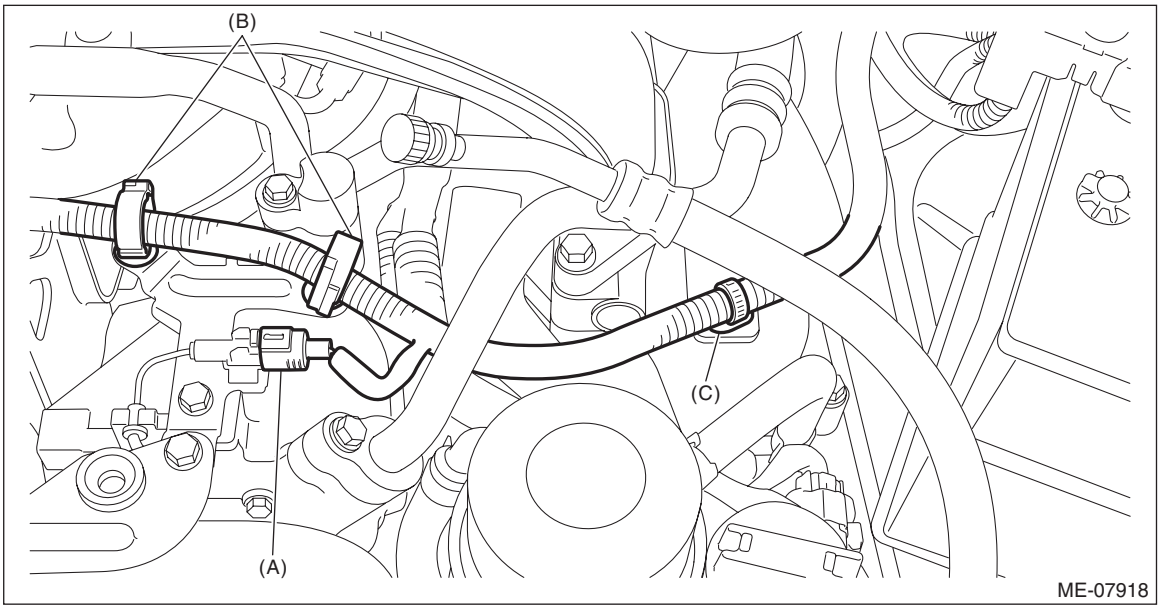

9) Remove the transmission jack. (CVT model)
10) Lower the vehicle.
11) Install the pitching stopper.

***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)***




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

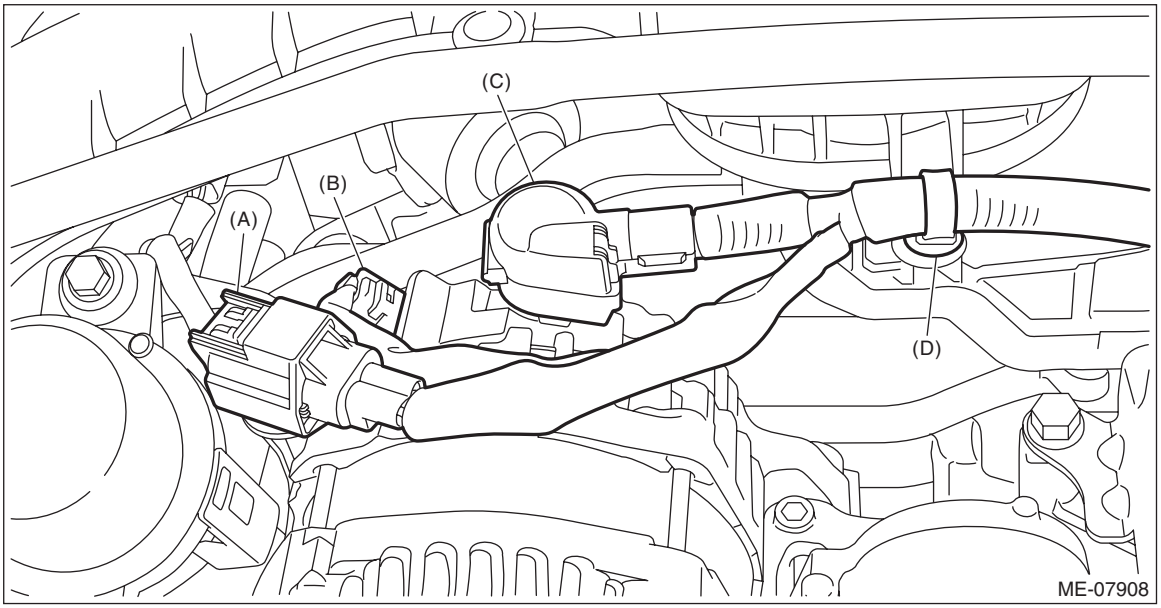
13) Install the generator cord to clip (B), and connect the connector (A) to A/C compressor.




14) 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)***

15) Connect the connector (A) to the brake vacuum pump.

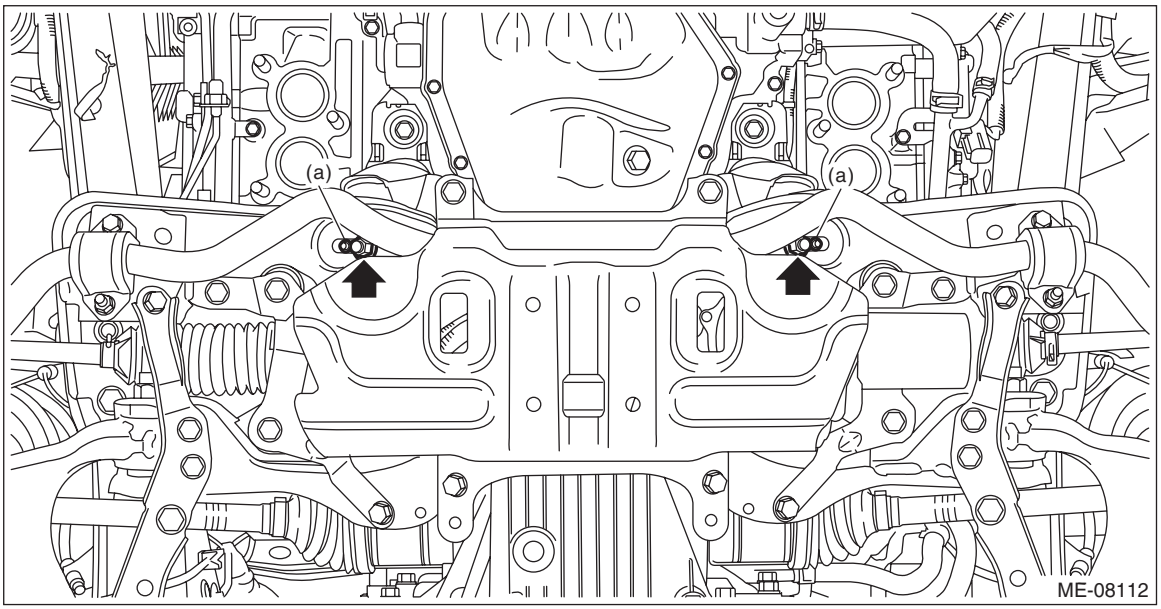



16) Install the intercooler. <Ref. to IN(w/o STI)-41, INSTALLATION, Intercooler.>
17) Lift up the vehicle.
18) Install the electric power steering gearbox. <Ref. to PS-58, INSTALLATION, Electric Power Steering Gearbox.>
19) Install the front drive shaft LH. <Ref. to DS-49, INSTALLATION, Front Drive Shaft.>

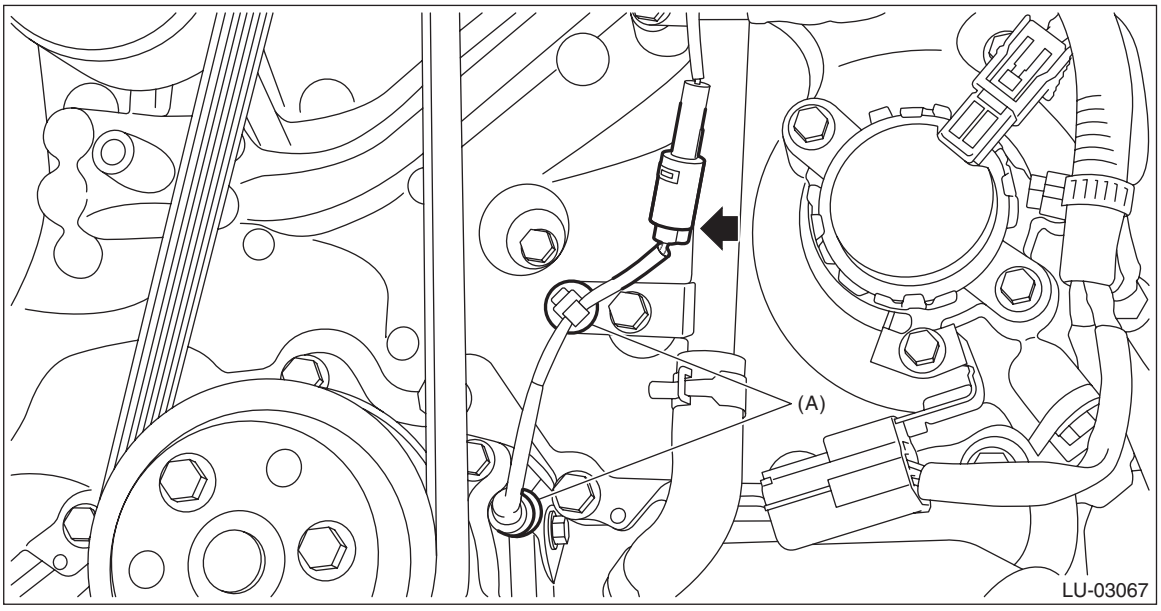
20) Install the nuts which hold the engine mounting to the crossmember.

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

***Tightening torque:***
***60 N·m (6.1 kgf-m, 44.3 ft-lb)***

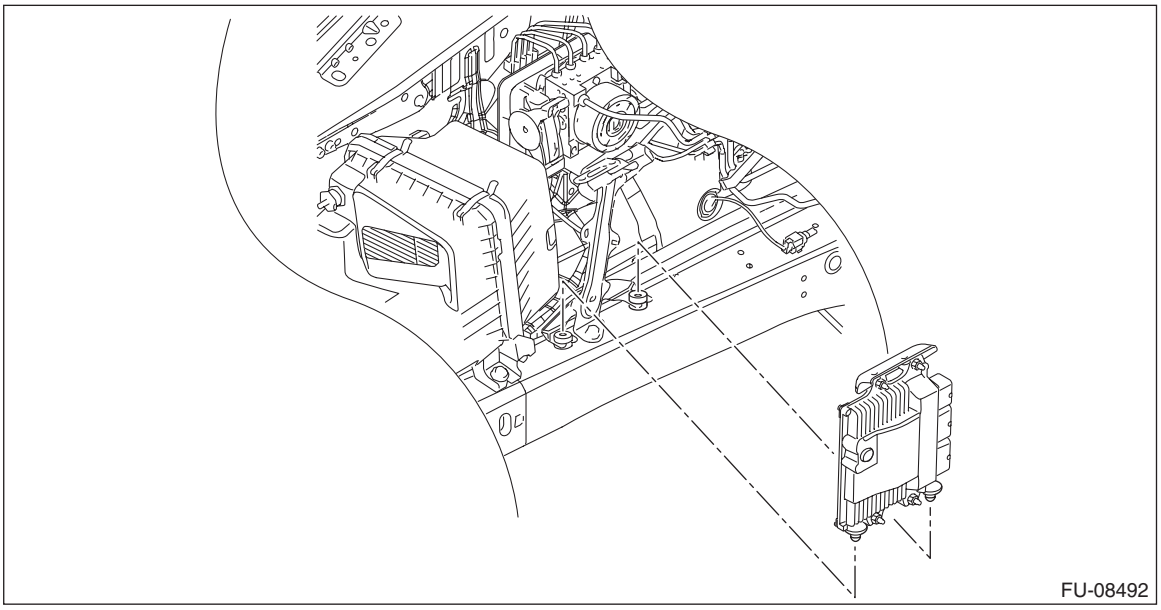



21) Connect the connector of oil level switch to the engine harness, and install the clip (A) securing the harness.



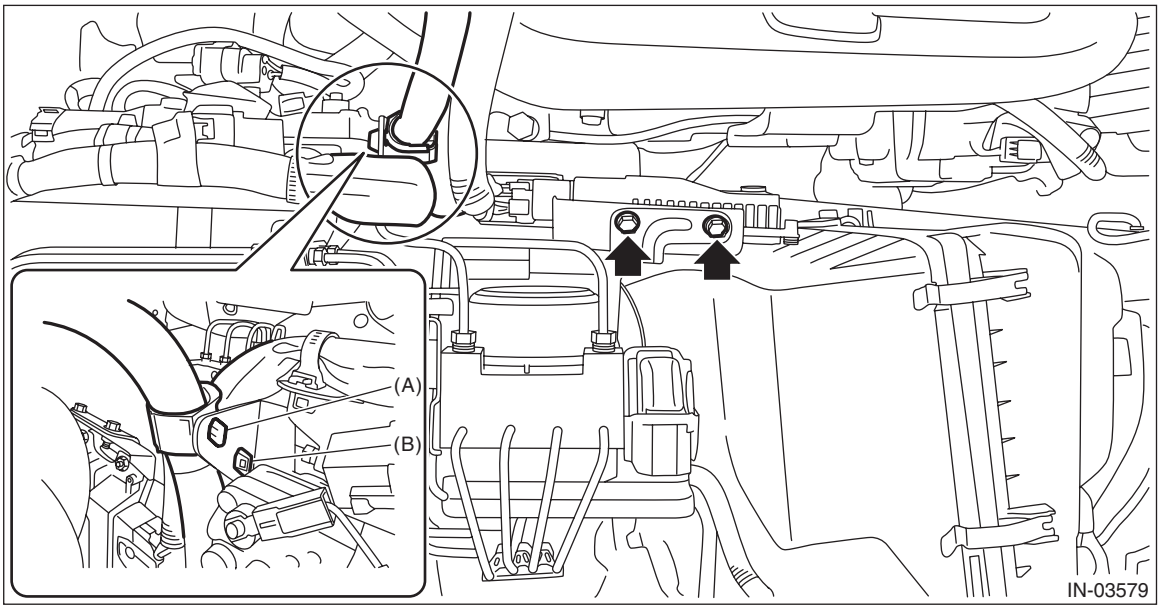

22) Install the front exhaust pipe. <Ref. to EX(w/o STI)-19, INSTALLATION, Front Exhaust Pipe.>

23) Insert the engine control module (ECM) to the bracket.




24) Install the bolt which secures the engine control module (ECM) to the bracket, and then secure the engine harness and bulkhead harness to the bracket with clips (A) and (B).

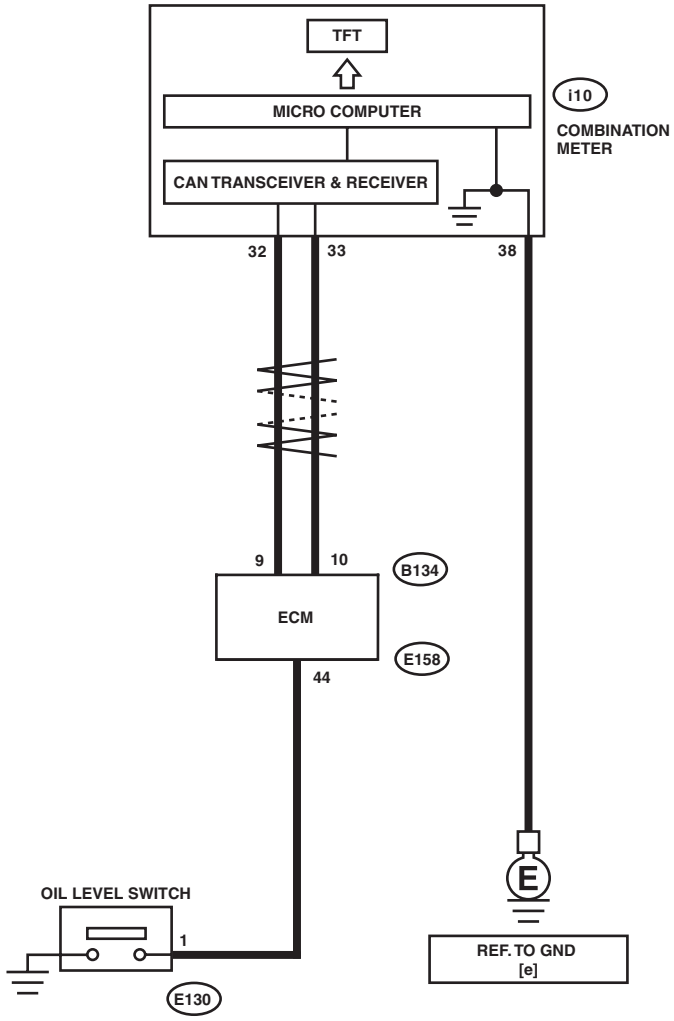
***Tightening torque:***
***7.5 N·m (0.8 kgf-m, 5.5 ft-lb)***

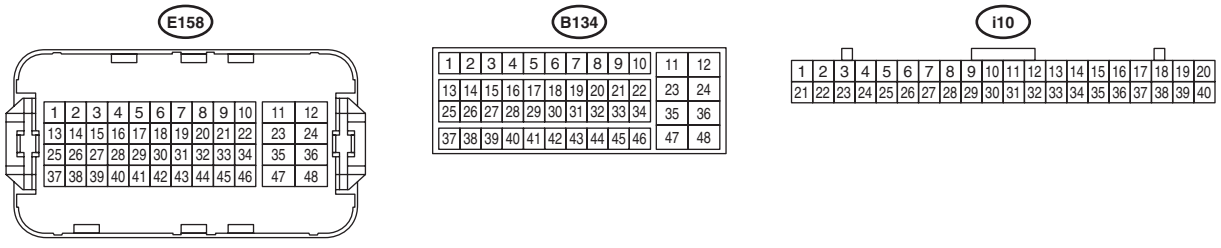



25) Install the air intake duct. <Ref. to IN(w/o STI)-22, INSTALLATION, Air Intake Duct.>
26) Connect the ground terminal to battery sensor. <Ref. to NT-5, BATTERY, NOTE, Note.>
27) Install the collector cover.
28) Refill the engine oil. <Ref. to LU(w/o STI)-11, REPLACEMENT, Engine Oil.>
29) Fill engine coolant. <Ref. to CO(w/o STI)-14, FILLING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
30) Set the front hood to the normal position. <Ref. to NT-20, FRONT HOOD DAMPER STAY, NOTE, Note.>
31) Install the striker - front hood. <Ref. to EB-15, ASSEMBLY, Front Hood.>
32) Close the front hood.

## C: WIRING DIAGRAM

- Engine electrical system <Ref. to WI-162, WIRING DIAGRAM, Engine Electrical System.>
- CAN communication system <Ref. to WI-110, WIRING DIAGRAM, CAN Communication System.>




LU-03190

# D: INSPECTION

## 1. INSPECTION WHEN LOW ENGINE OIL WARNING LIGHT ILLUMINATES ON LCD

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK ENGINE OIL LEVEL.** | Is engine oil level normal? | Go to step **2**. | Replace engine oil or refill, and check again while the oil level is normal condition. <Ref. to LU(w/o STI)-11, REPLACEMENT, Engine Oil.><br>To disable the low engine oil warning, install the spare fuse at the delivery mode fuse in the main fuse box. Then turn the ignition switch to ON (engine off) again, to confirm the low engine oil warning is not displayed. Remove the spare fuse installed to finish.<br>NOTE:<br>The engine oil level switch is normal if the low engine oil level warning is not displayed with the delivery mode fuse inserted. |
| 2 | **CHECK LAN SYSTEM.** | Has a DTC of the LAN system been input? | Perform the diagnosis according to DTC. | Go to step **3**. |
| 3 | **CHECK OIL LEVEL SWITCH CIRCUIT.**<br>1) Turn the ignition switch to ON (engine OFF).<br>2) Read the current data for engine in the Subaru Select Monitor to confirm the item for “Oil level switch”. <Ref. to EN(w/o STI)(diag)-37, DISPLAY CURRENT ENGINE DATA, OPERATION, Subaru Select Monitor.> | Is the “Oil level switch” signal displayed in Subaru Select Monitor HIGH? | To disable the low engine oil warning, install the spare fuse at the delivery mode fuse in the main fuse box. Then turn the ignition switch to ON (engine off) again, to confirm the low engine oil warning is not displayed. Remove the spare fuse installed to finish.<br>NOTE:<br>The engine oil level switch is normal if the low engine oil level warning is not displayed with the delivery mode fuse inserted. | Go to step **4**. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 4 | **CHECK COMBINATION METER.**<br>Perform the self-diagnosis of combination meter to check if there are any faults in the combination meter. <Ref. to IDI-6, OPERATION, Combination Meter System.> | Is combination meter OK? | Go to step **5**. | Replace the combination meter. <Ref. to IDI-13, REMOVAL, Combination Meter.> |
| 5 | **CHECK SECURE CONNECTION OF CONNECTOR BETWEEN ENGINE HARNESS AND OIL LEVEL SWITCH.** | Is there any insecure connection? | Repair the connection condition. Then, to disable the low engine oil warning display, install the spare fuse at the delivery mode fuse in the main fuse box. Then turn the ignition switch to ON (engine OFF) again to confirm the low engine oil warning is not displayed. Remove the spare fuse installed to finish.<br>NOTE:<br>The engine oil level switch is normal if the low engine oil level warning is not displayed with the delivery mode fuse inserted. | Go to step **6**. |
| 6 | **CHECK OIL LEVEL SWITCH.**<br>1) Deliberately short circuits by connecting the engine harness connector terminal and chassis ground.<br>2) Turn the ignition switch to ON (engine OFF).<br>3) Read the current data for engine in the Subaru Select Monitor to confirm the item for “Oil level switch”. <Ref. to EN(w/o STI)(diag)-37, DISPLAY CURRENT ENGINE DATA, OPERATION, Subaru Select Monitor.><br>***Connector & terminal***<br>***(E130) No. 1 — Chassis ground:*** | Is the “Oil level switch” signal displayed in Subaru Select Monitor HIGH? | Replace the oil level switch. <Ref. to LU(w/o STI)-54, REMOVAL, Oil Level Switch.> | Go to step **7**. |

| Step | | Check | Yes | No |
|---|---|---|---|---|
| 7 | **CHECK SECURE CONNECTION OF CONNECTOR BETWEEN ENGINE CONTROL MODULE (ECM) AND ENGINE HARNESS.** | Is there any insecure connection? | Repair the connection condition. Then, to disable the low engine oil warning display, install the spare fuse at the delivery mode fuse in the main fuse box. Then turn the ignition switch to ON (engine OFF) again to confirm the low engine oil warning is not displayed. Remove the spare fuse installed to finish.<br>NOTE:<br>The engine oil level switch is normal if the low engine oil level warning is not displayed with the delivery mode fuse inserted. | Go to step **8**. |
| 8 | **CHECK ENGINE HARNESS.**<br>1) Disconnect the engine control module (ECM) side connector.<br>2) Set the ST between the engine control module (ECM) and engine harness. <Ref. to EN(w/o STI)(diag)-6, CAUTION, General Description.><br>3) Disconnect the connector between the engine harness and the oil level switch.<br>4) Measure the resistance between connector terminals.<br>***Connector & terminal***<br>***(B158) No. 44 — (B130) No. 1:*** | Is the resistance less than 1 Ω? | Replace the engine control module (ECM). <Ref. to FU(w/o STI)-132, REMOVAL, Engine Control Module (ECM).> | Repair or replace the open circuit of engine harness. |

## 2. OTHER INSPECTIONS

1) Check that the oil level switch does not have deformation, cracks, or damage.
2) Check the oil level switch installation part for oil leakage and oil seepage.