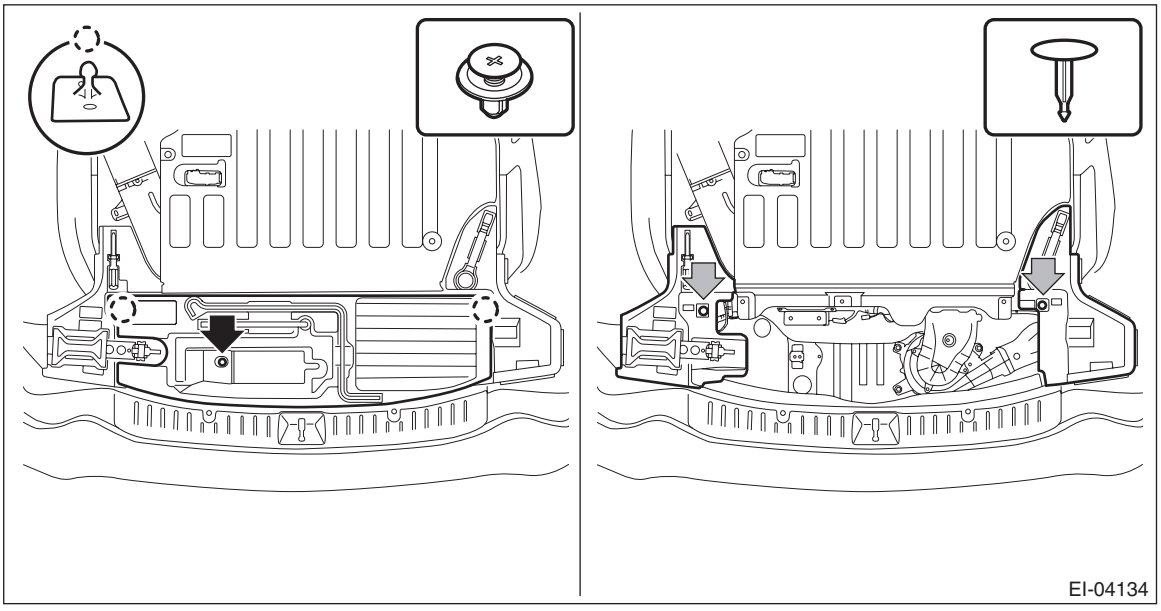
5. High Voltage Battery

A: REMOVAL

WARNING:
The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>

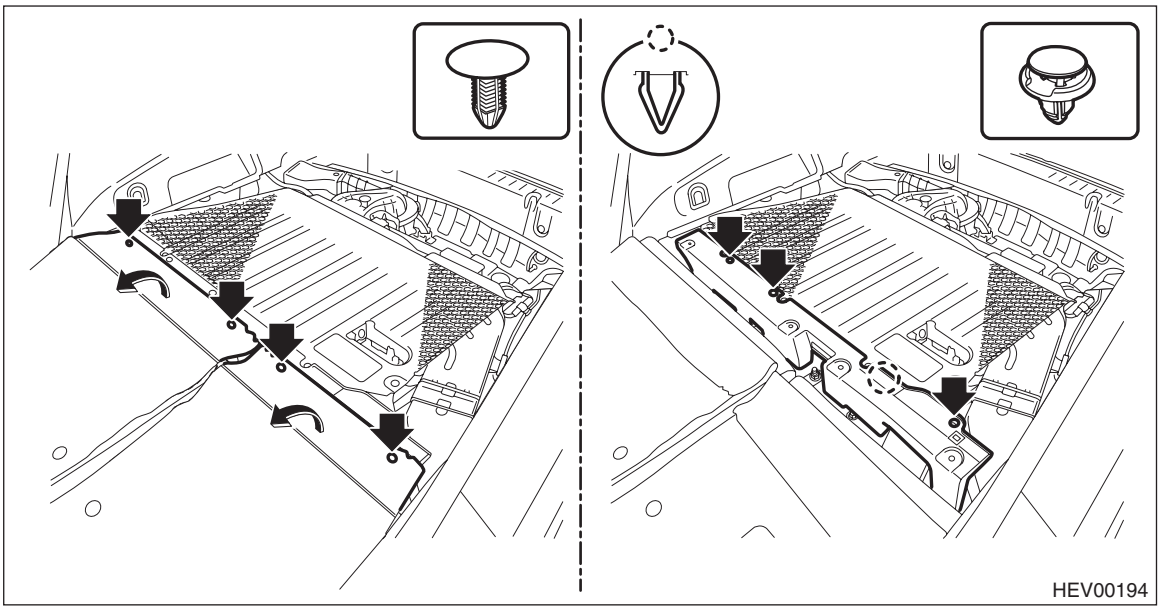
CAUTION:
• Return the replaced high voltage battery to a qualified collection service for safety reasons. If you use manufacturer's designated channel, the battery will be handled properly and safely by a qualified collection service.
• If high voltage battery is not properly processed and disposed of or left unprocessed, it could cause electrical shock accidents. Always have the high voltage battery collected by the manufacturer.
• Do not leave the removed high voltage batteries in a place where water may splash. It could cause fire accidents.

1) Remove the service disconnect plug. <Ref. to HEV-15, REMOVAL, Service Plug.>
2) Release the clips and claws, then detach the sub-trunk assembly and the spacer - rear floor side.



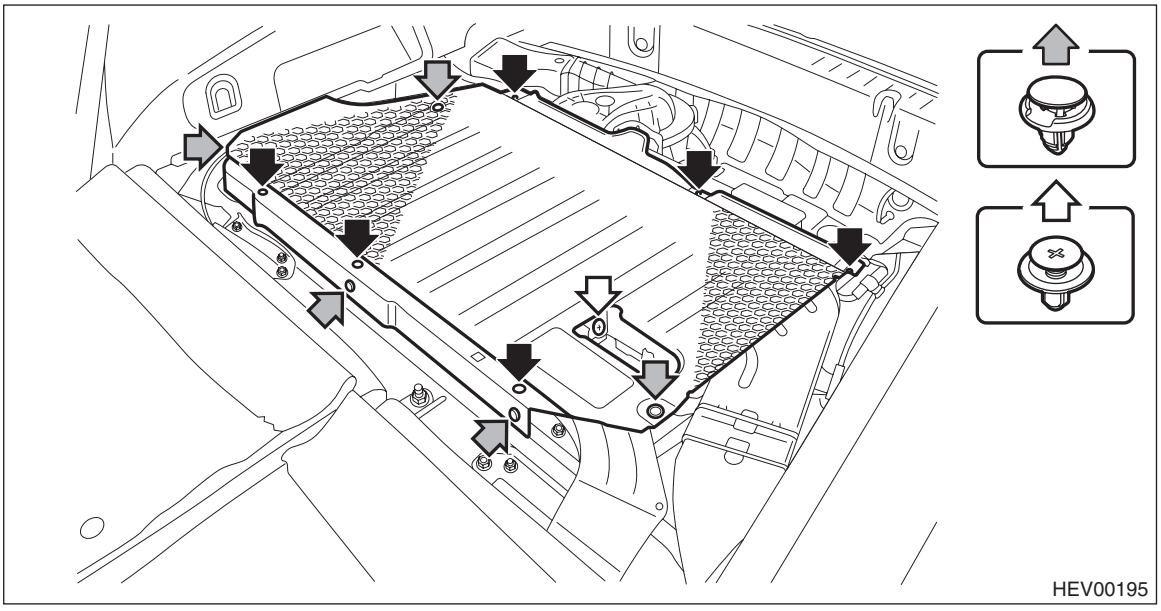
3) Remove the rear seat cushion and fold the backrest assemblies LH and RH. <Ref. to SE-23, REMOVAL, Rear Seat.>

4) Remove the spacer - rear floor front.
(1) Release the clips, and fold back the bottom of the cover COMPL - rear backrest LH and RH of the rear seat back.
(2) Release the clips and claws, then detach the spacer - rear floor front.

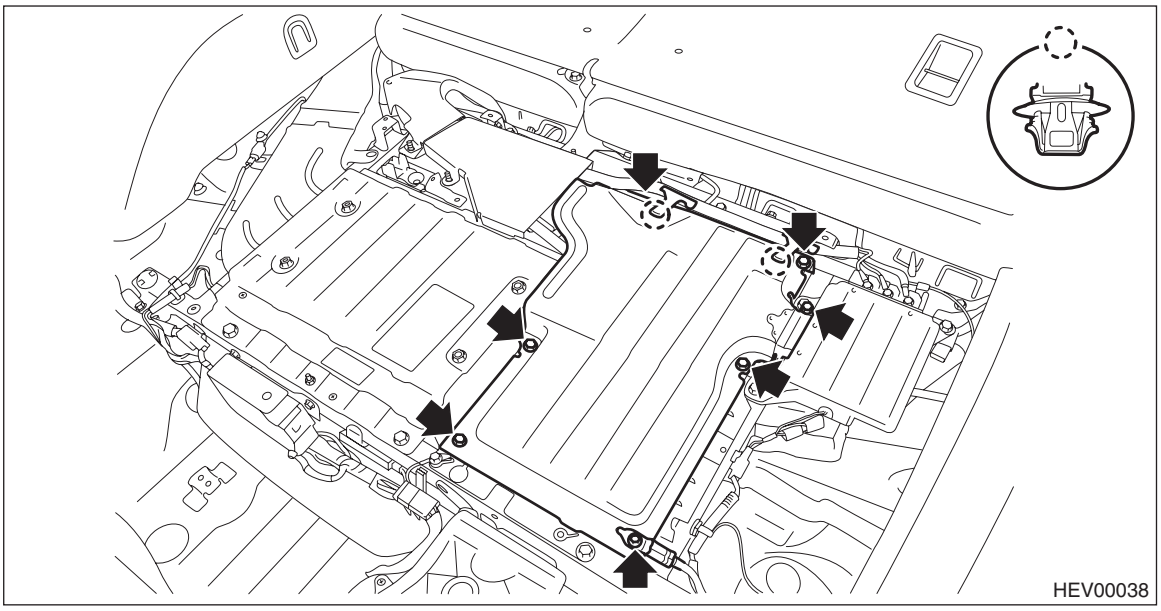


5) Remove the TORX®bolts, release the clips, and then remove the battery cover.

Preparation tool:
TORX® T30



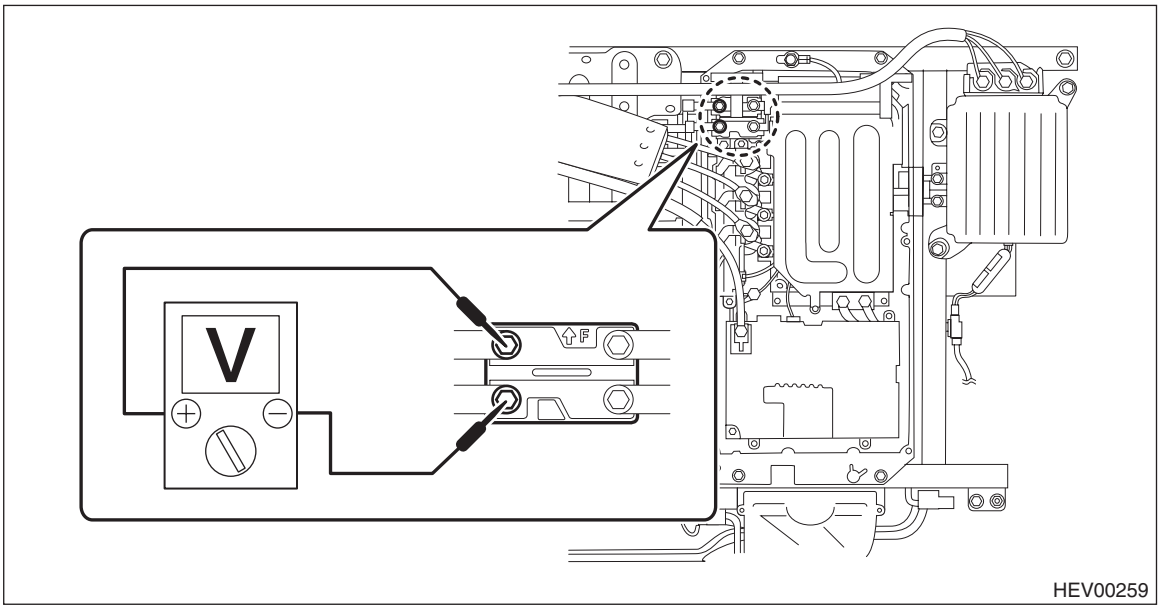
6) Remove the inverter cover.
   (1) Remove the bolts and ground terminal.
   (2) Release the cable clips, and remove the inverter cover.



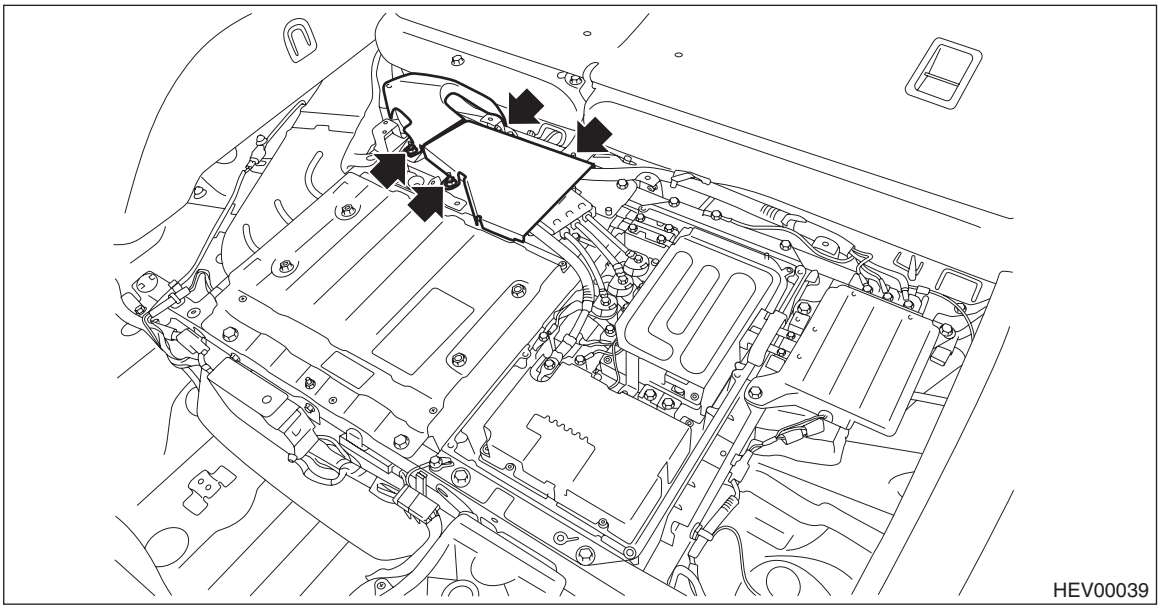
7) Perform zero-voltage test.
   (1) Measure the voltage of the high voltage DC line at the high voltage battery side of the electric noise filter.

Preparation tool:
Insulation multimeter

Standard: 0 V

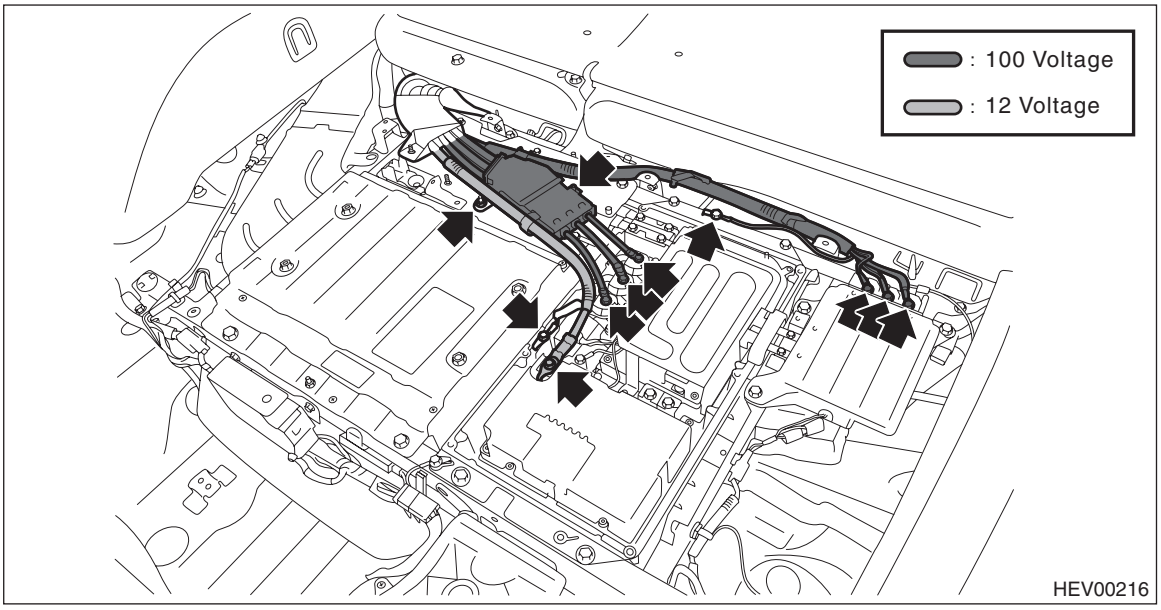


8) Remove the nut and remove the cover - shield battery and the cover - shield seat.



9) Remove the bolts and nuts and disconnect the ground terminal and the power cable.

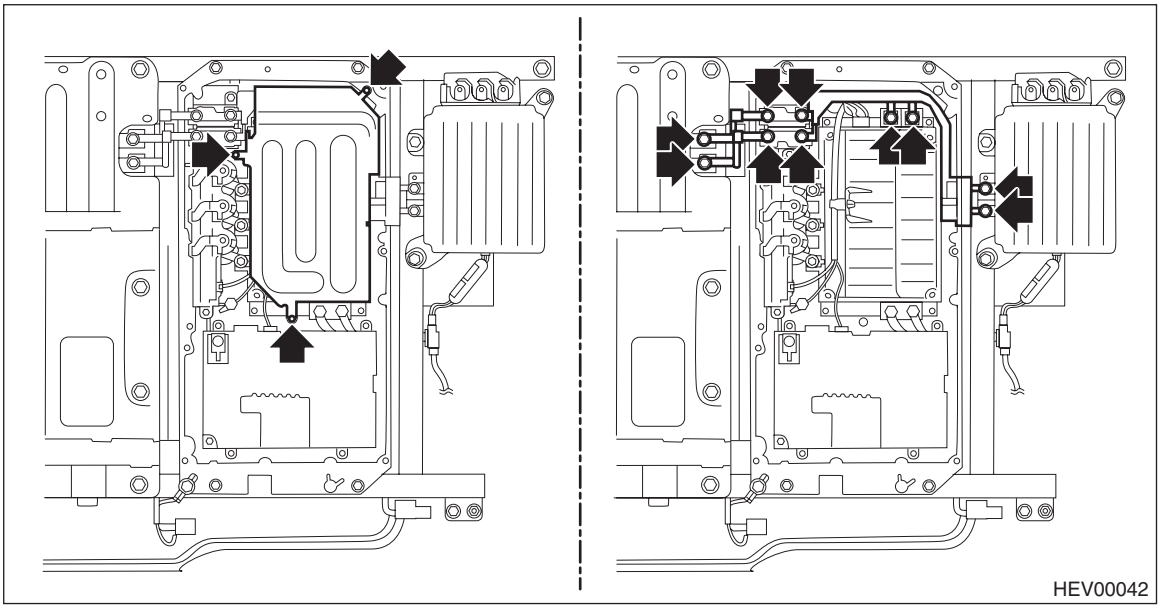
CAUTION:
- **Be careful not to use excessive force when disconnecting the power cable to avoid any damage.**
- **Always wrap the disconnected power cable terminals with insulating tape.**



10) Remove the cooling duct front (rear). <Ref. to HEV-62, COOLING DUCT FRONT (REAR), REMOVAL, High Voltage Battery Cooling System.>
11) Remove the cooling fan assembly. <Ref. to HEV-70, COOLING FAN ASSEMBLY, REMOVAL, High Voltage Battery Cooling System.>

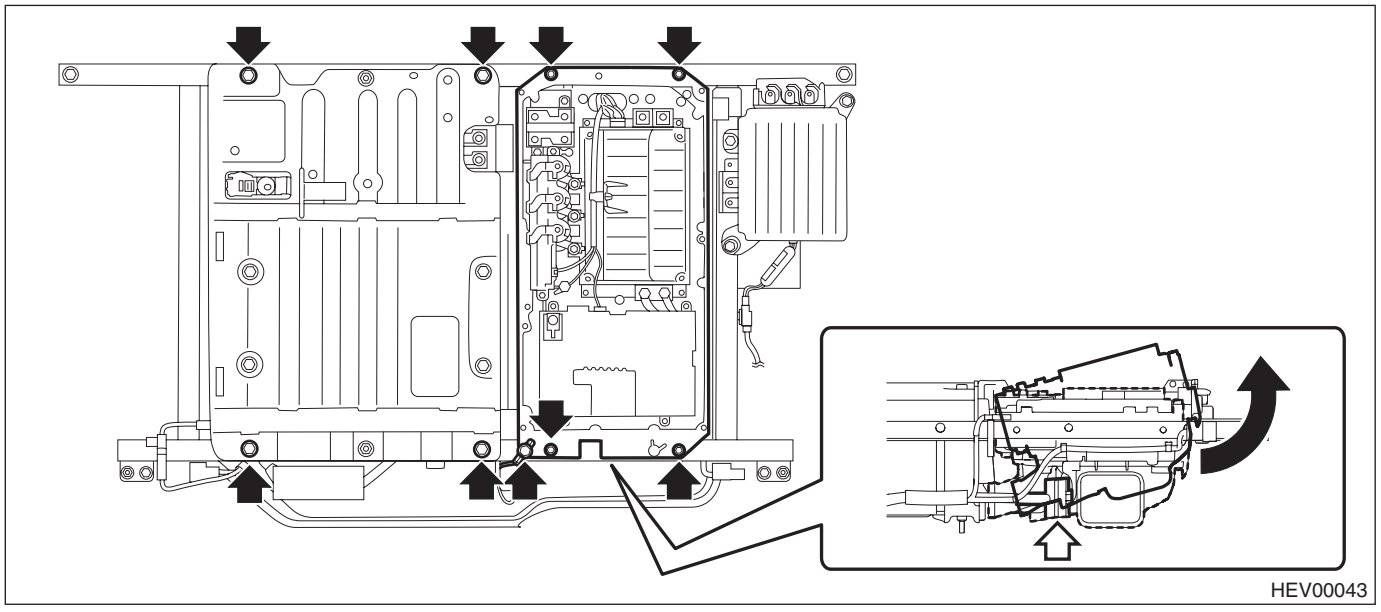
12) Remove the inverter assembly.
(1) Remove the bolts to remove the inverter shield.
(2) Remove the bolts and disconnect the bus bars between the high voltage battery and electric noise filter and between the electric noise filter and electric oil pump inverter respectively.

CAUTION:
Always wrap the high voltage battery terminal with insulating tape.



(3) Disconnect the connector.
(4) Remove all the mounting bolts of the high voltage battery to make the battery free.
(5) Remove the bolts, and then detach the ground terminal and the inverter assembly.

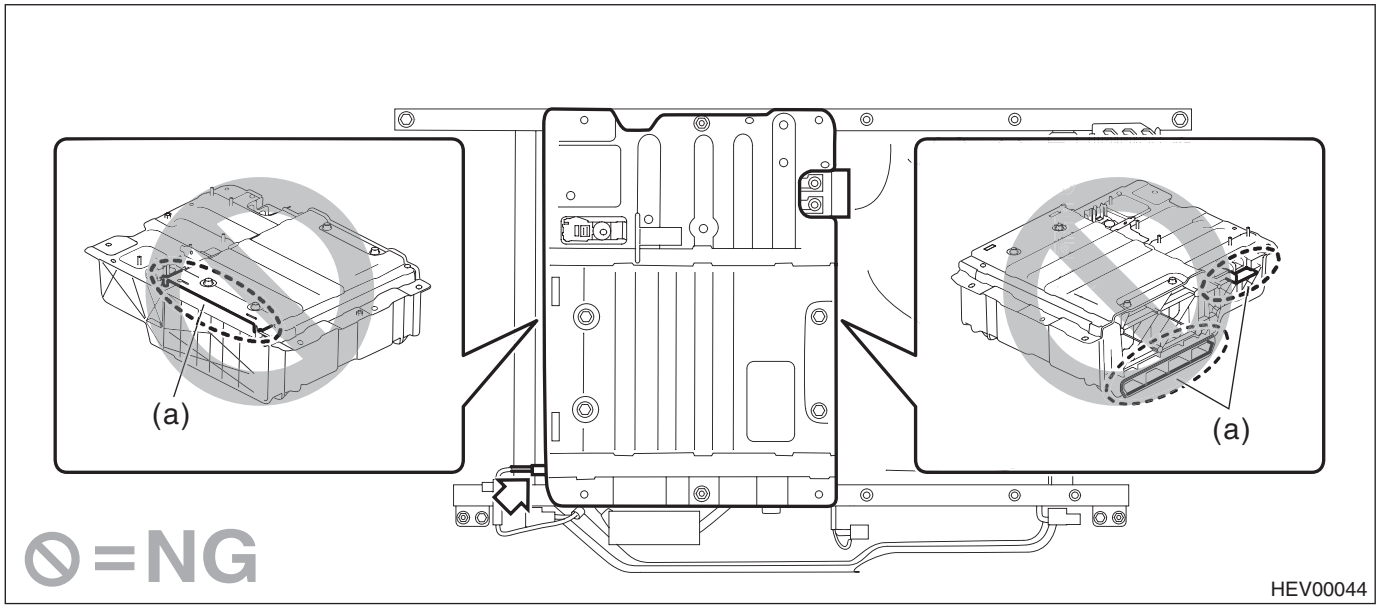
CAUTION:
Be careful not to damage the duct seal located underneath the high voltage battery.



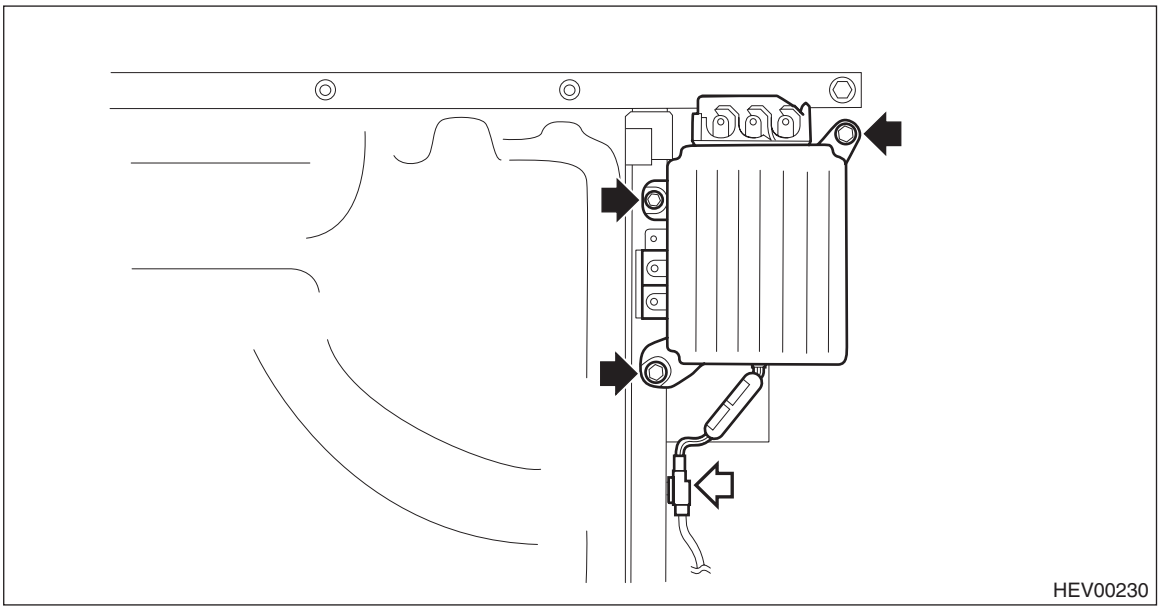
13) Remove the high voltage battery.

CAUTION:
• Since the high voltage battery weighs a lot, do not hold it by the area (a). Otherwise it may break or deform. Also, two persons must work together when removing the high voltage battery.
• The high voltage battery is a non-disassembly part. Do not try to remove the cover or other parts for disassembly.

(1) Disconnect the connector.
(2) Remove the high voltage battery from the high voltage battery frame assembly.

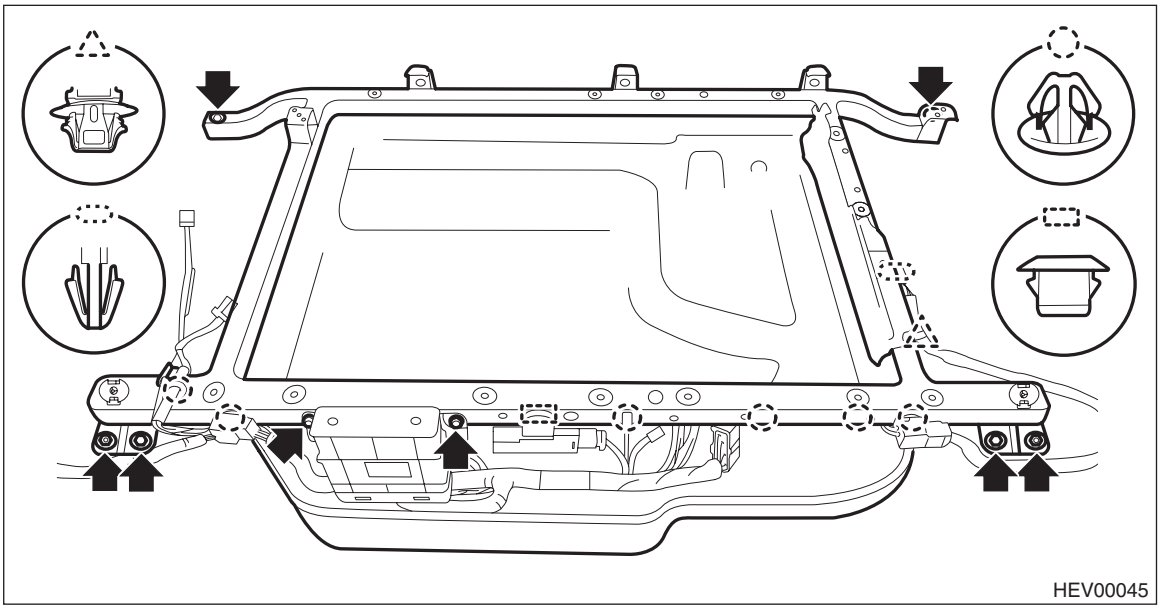


14) Remove the high voltage battery frame assembly.
(1) Remove the connectors and bolts, and remove the electric oil pump inverter.

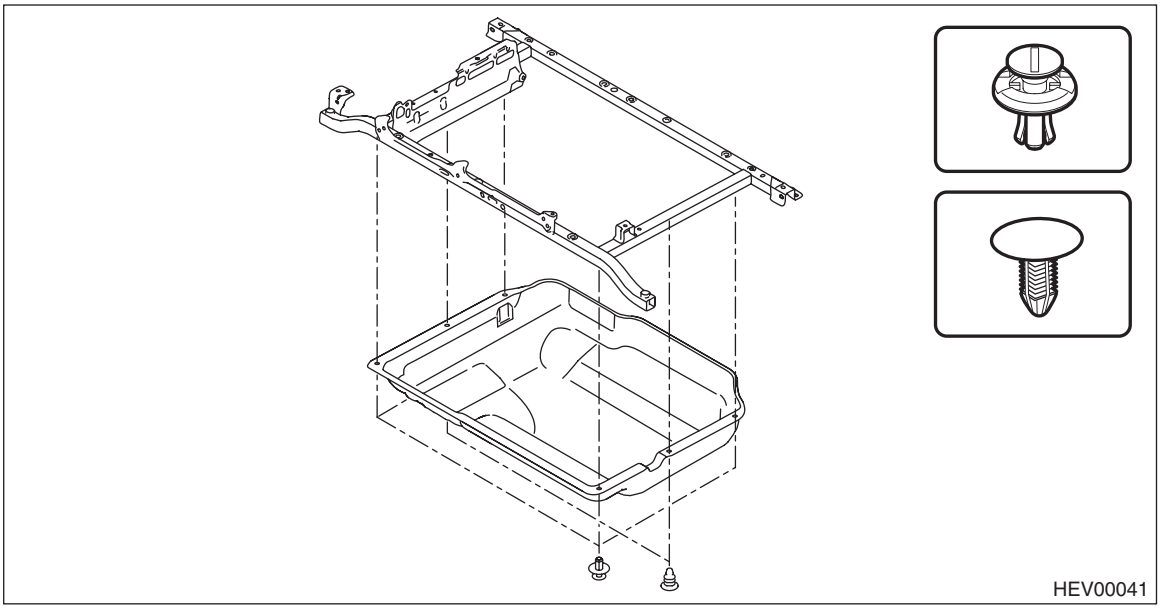


(2) Remove the connector clip and release the harness clip.

(3) Remove the bolts and nuts to remove the high voltage battery frame assembly from the vehicle.



(4) Release the clips, and remove the cover - battery LWR from the high voltage battery frame assembly.



B: INSTALLATION

WARNING:
The hybrid system includes a high voltage circuit. Mishandling could cause accidents such as electric shock or leak. Always check "CAUTION (HYBRID SYSTEM)" and perform the proper operation. <Ref. to PC-7, CAUTION (HYBRID SYSTEM), Precaution.>

CAUTION:
When replacing the high voltage battery with a new part, be sure to use the service disconnect plug bundled with the new battery. Also, never use the service disconnect plug from the old high voltage battery for another vehicle.

1) Install the cover - battery LWR.
2) Install the high voltage battery frame assembly.

Tightening torque:
24.5 N·m (2.5 kgf-m, 18.1 ft-lb)

3) Install the electric oil pump inverter.

Tightening torque:
22 N·m (2.2 kgf-m, 16.2 ft-lb)

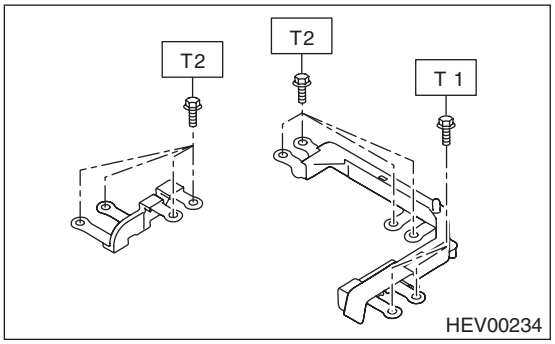
4) Mount the high voltage battery on the high voltage battery frame assembly, then install the inverter assembly.

CAUTION:
- **If the duct seal is damaged, replace it with a new part.**
- **Be sure that the high voltage battery is securely attached to the cooling duct inverter duct.**

Tightening torque:
High voltage battery and inverter assembly: 22 N·m (2.2 kgf-m, 16.2 ft-lb)
Ground terminal: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)

5) Connect the bus bar.

Tightening torque:
T1: 6.5 N·m (0.7 kgf-m, 4.8 ft-lb)
T2: 7.5 N·m (0.8 kgf-m, 5.5 ft-lb)



6) Install the inverter shield.

Tightening torque:
6.5 N·m (0.7 kgf-m, 4.8 ft-lb)

7) Install the cooling fan assembly. <Ref. to HEV-73, COOLING FAN ASSEMBLY, INSTALLATION, High Voltage Battery Cooling System.>
8) Install the cooling duct front (rear). <Ref. to HEV-71, COOLING DUCT FRONT (REAR), INSTALLATION, High Voltage Battery Cooling System.>

9) Connect the ground terminal and the power cable.

CAUTION:
• When connecting the power cable, pay attention to the letters (U, V, and W) imprinted on the drive motor inverter amperage sensor body as well as on the protector of the power cable.
• Connect the power cable properly referring to the letters (U, V, and W) imprinted on the electric oil pump inverter body. The power cable with the identification tape is connected to (U) and the power cable with a claw is connected to (V).
• Do not apply excessive force to the terminals and watch to make sure the cable is not damaged or pinched.

Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
10) Install the cover - shield battery and the cover - shield seat.

Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
11) Install the ground terminal and inverter cover.

CAUTION:
Check that the sound proofing material on the inverter cover is not detached or damaged.

Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
12) Install the battery cover.

Tightening torque:
7.5 N·m (0.8 kgf-m, 5.5 ft-lb)
13) Install the spacer - rear floor front.
14) Install the rear seat cushion. <Ref. to SE-27, INSTALLATION, Rear Seat.>
15) Install the sub-trunk assembly and the spacer - rear floor side.
16) Install the service disconnect plug. <Ref. to HEV-16, INSTALLATION, Service Plug.>

C: INSPECTION

1) Check that the high voltage battery has no deformation, cracks or other damages. <Ref. to PC-14, PRECAUTION FOR HIGH VOLTAGE BATTERY, CAUTION (HYBRID SYSTEM), Precaution.>
2) Connect the Subaru Select Monitor, and read the Diagnostic Trouble Code (DTC). If any diagnosis code (DTC) is displayed, refer to “List of Diagnostic Trouble Code (DTC)” in “HYBRID ELECTRIC VEHICLE (DIAGNOSTICS)” section. <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>