BEV Fault Code C102571 - Hybrid/EV System, Cooling Heater Relays - Actuator Stuck

Published Date 21 February 2024

Valid For

Mack LR-E and Volvo VNR-E Model Year 2021 to Current

BEV units can set fault C102571 which can lead to No charge, No cab heat, and possible unit derate/shutdown.

There are currently no diagnostic troubleshooting steps in PTT for the fault code.

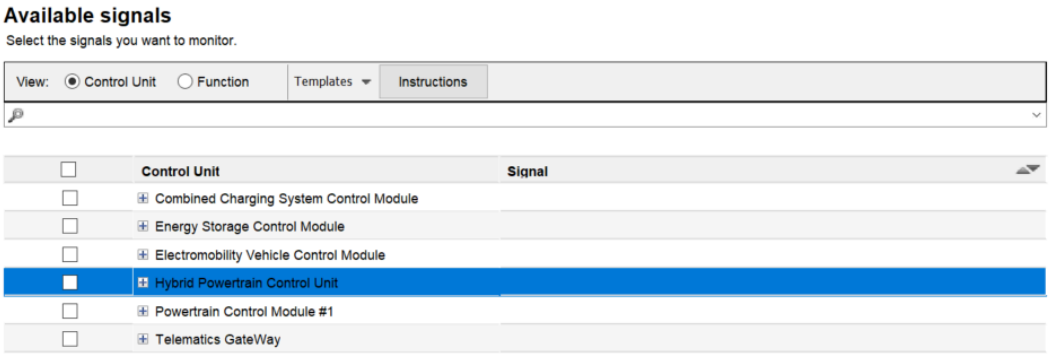
Follow troubleshooting steps found in CBR solution CBR-2255 before moving further.

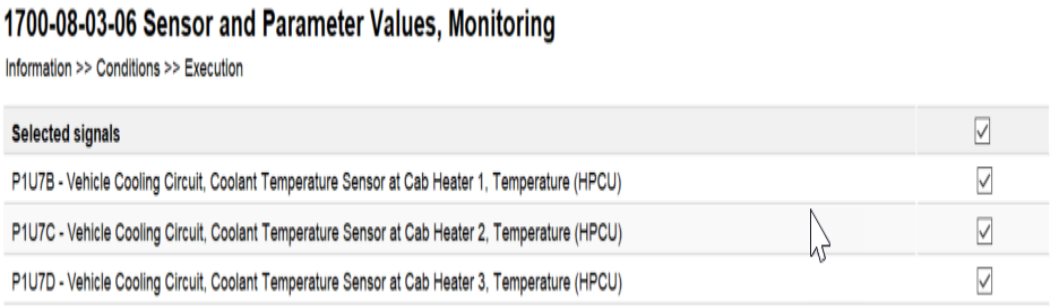
1. Replace all of the Heater relays. Refer to **3119-03-02-11 Relays, Electric Heater ESS, Replacement.**

Part Number	Description	QTY
20709545	Heater Relay	Phase 1 trucks - 4 Relays
		Phase 2 trucks - 3 Relays

2. Run 2 processes in Tech Tool under Calibrate - **1700-08-03-33 Function Parameters Reset**.
   - Coolant heater relay, reset fuse mode
   - Coolant heater relay reset

3. Perform **1700-08-03-06 Sensor and Parameter Values, Monitoring** and monitor the cab heater temperatures.





Monitor temperatures with heater active. Temperatures should rise evenly and settle at 140f to150f. If heaters do not heat up evenly and spike in temperature, there is still an issue with the system. Checking coolant flow through the heaters and performing a thorough bleeding of the system may be needed.

Related links and attachments

- KC-2349 1700-08-03-33 IMG 1
- KC-2349 1700-08-03-06 IMG 1
- KC-2349 1700-08-03-06 IMG 2
- KC-2349 1700-08-03-06 IMG 1
- KC-2255
- KC-2349 3119-03-02-11
- KC-2349 1700-08-03-33 IMG 2

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to others that might find it helpful

Feedback
Give feedback
to help improve the content of this article

Available signals

Select the signals you want to monitor.

View: Control Unit | Function | Templates | Instructions

Control Unit	Signal
Combined Charging System Control Module	
Energy Storage Control Module	
Electromobility Vehicle Control Module	
Hybrid Powertrain Control Unit	
Powertrain Control Module #1	
Telematics GateWay	

1700-08-03-06 Sensor and Parameter Values, Monitoring

Information >> Conditions >> Execution

Selected signals

Exit >

Available signals

Select the signals you want to monitor.

View: ◉ Control Unit ○ Function | Templates | Instructions

	Control Unit	Signal
☐	⊞ Combined Charging System Control Module	
☐	⊞ Energy Storage Control Module	
☐	⊞ Electromobility Vehicle Control Module	
☐	⊞ Hybrid Powertrain Control Unit	
☐	⊞ Powertrain Control Module #1	
☐	⊞ Telematics GateWay	

Calibrate

Select an operation and click Start

- 1 - Service and maintenance
  - 1700-08-03-33 Function Parameters Reset
- 2 - Engine, Engine mounting and equipment
- 3 - Electrical system and instruments
- 4 - Transmission
- 5 - Brakes
- 6 - Axles, suspension and steering
- 7 - Frame, springs, shocks and wheels
- 8 - Body, cab and interior
- 9 - Miscellaneous

1700-08-03-33 Function Parameters Reset

☑ Run the operation in simulation mode

Purpose

Reset of service parameters

Description

Reset the relevant service parameters after one or more of the following components has been replaced or serviced

- Variable Geometry Turbo
- ESS thermal propagation DTCs
- Electrical Vehicle Air Compressor (EVAC)
- Electric vehicle air compressor air filter
- Coolant heater relay
- Coolant heater relay, reset fuse mode

Start >

1700-08-03-33 Function Parameters Reset

Simulation

Information >> Conditions >> Execution >> Result

Purpose

ents has been replaced or serviced

Replaced components

- [ ] Variable Geometry Turbo
- [ ] ESS thermal propagation DTCs
- [x] Coolant heater relay
- [ ] Coolant heater relay, reset fuse mode
- [ ] Electrical Vehicle Air Compressor (EVAC) 1 and Air Cleaner (ACL)
- [ ] Air filter compressor

Information

Reset function to be run

Coolant heater relay activation counter, Reset

This routine needs to be run only when there is yellow lamp indication in the dashboard and there is a message on Instrument cluster to "replace heater relays"

Heater relay needs to be replaced before running this operation

Coolant Heater "A", Relay, Activation Count : 0

Coolant Heater "B", Relay, Activation Count : 0

Coolant Heater "C", Relay, Activation Count : 0

Coolant Heater "D", Relay, Activation Count : 0

Select Coolant heater relay

- ( ) Coolant heater relay A
- ( ) Coolant heater relay B
- ( ) Coolant heater relay C
- ( ) Coolant heater relay D

Close

Continue >

Cancel

31904-2 Relays, Electric Heater ESS, Replacement

All

i	Illustrations may differ slightly from the actual vehicle being serviced. However, key components addressed in this information are represented as accurately as possible.

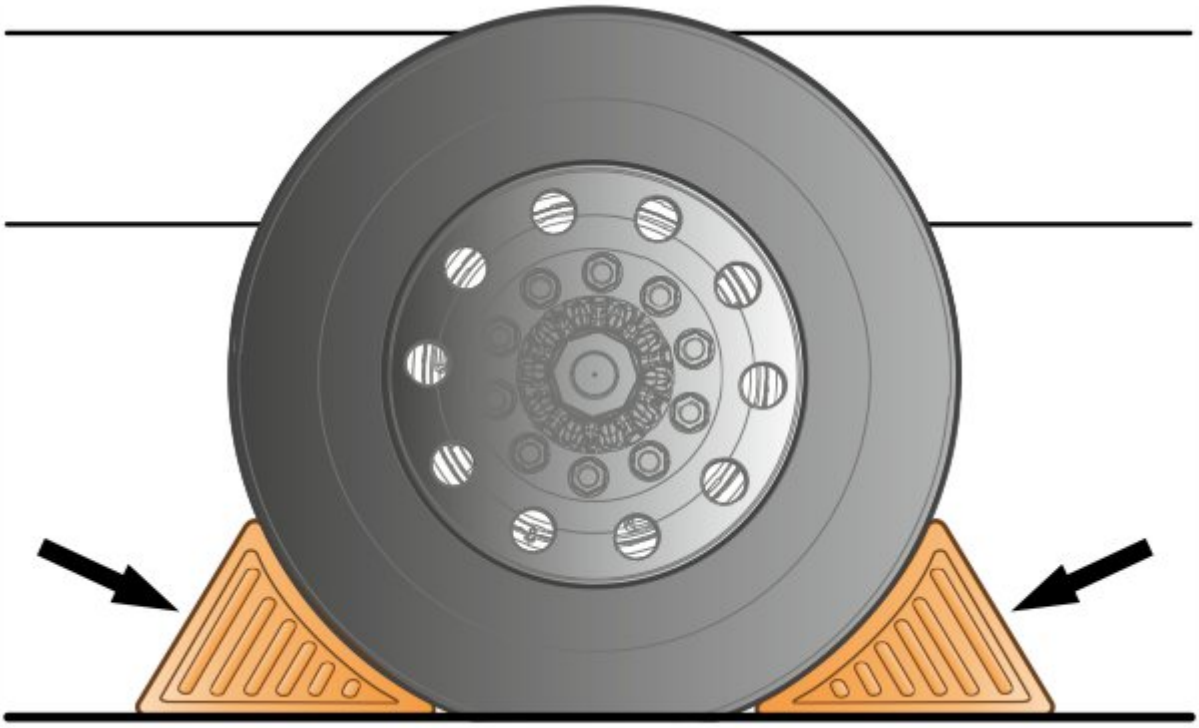
i	Colors used in illustrations are for highlighting purposes only and do not correspond to the actual colors of the vehicle.

i	All threaded fasteners that do not have a tightening torque specification in the information are tightened to a standard torque. Standard torques are available in the following specification. ➠ Standard Tightening Torques

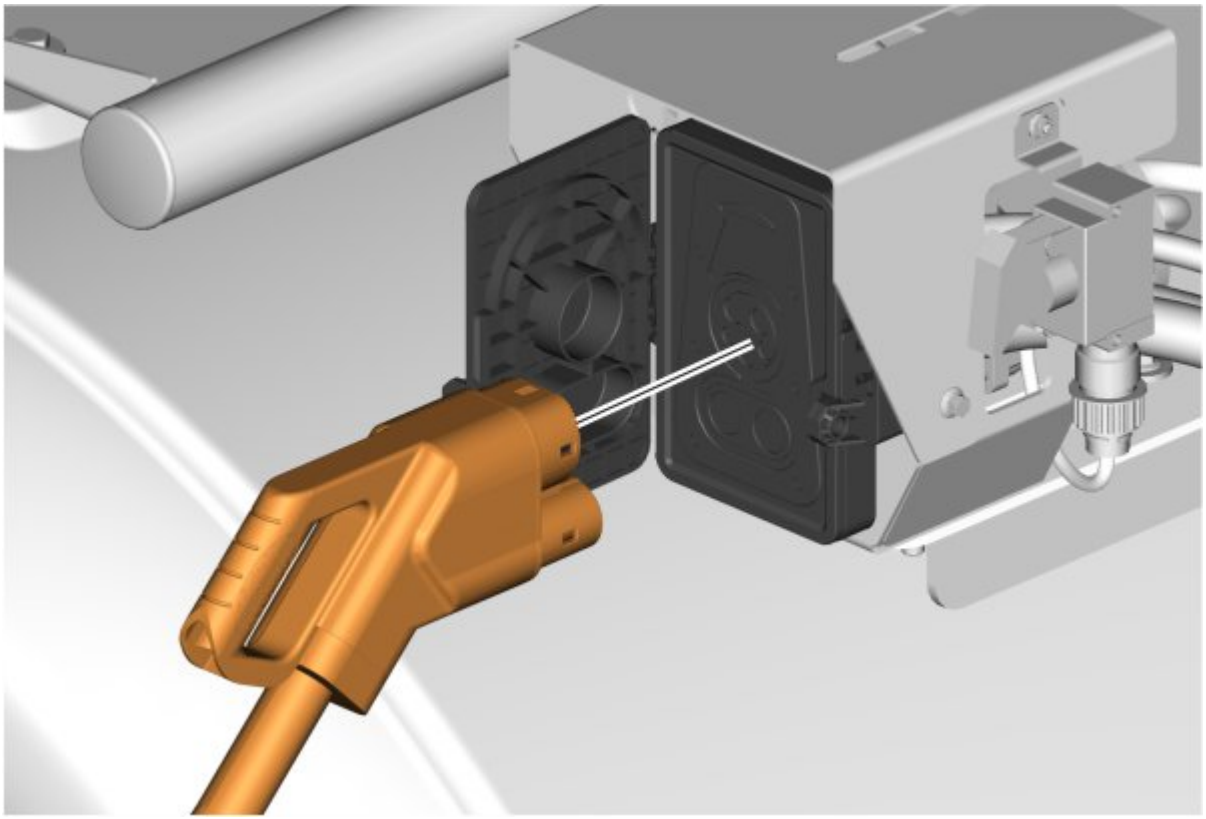
Special tools

88890334

1	Apply the parking brake.
2	Place the gear selector in neutral.
3	Remove the power key.
4	Safeguard the key.
5	Install the wheel chocks.

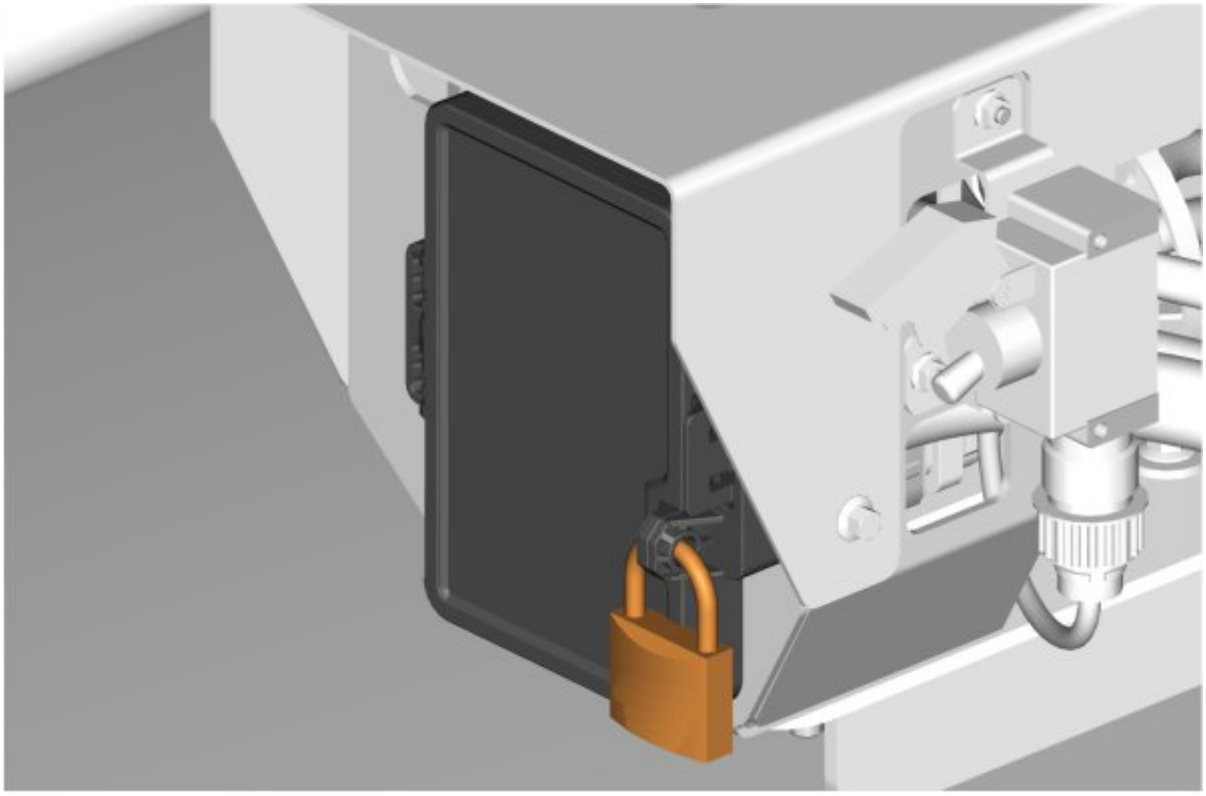


6	Disconnect all external power supply or charging devices.



7	Lock the access to the CCS (Combined Charging System).

Required material	
PADLOCK	88890334



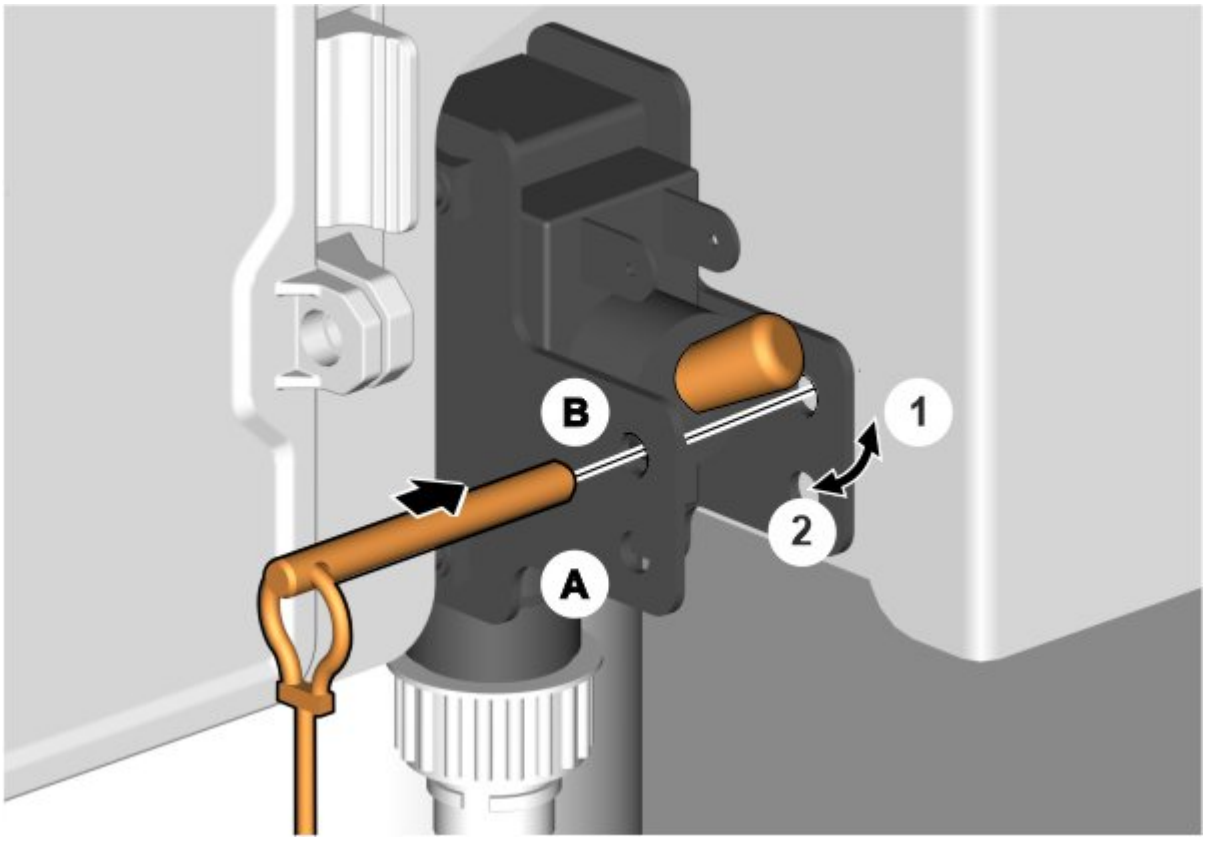
8	Set the chassis switch to position **(1)**.

Switch, position

Position	Status
1	OFF
2	ON

9 Remove the safety pin from the slot **(A)** and install in the slot **(B)** .

Note
The purpose is to prevent unexpected movements of the switch.



DANGER

Risk of serious injury or death.

A cab that is not tilted to the end position constitutes a safety risk.

- It is forbidden to work in, under or in front of a cab that is not fully tilted.
- No persons are to remain in, under or in front of the cab while tilting is in progress.
- Always tilt the cab to the end position.

CAUTION

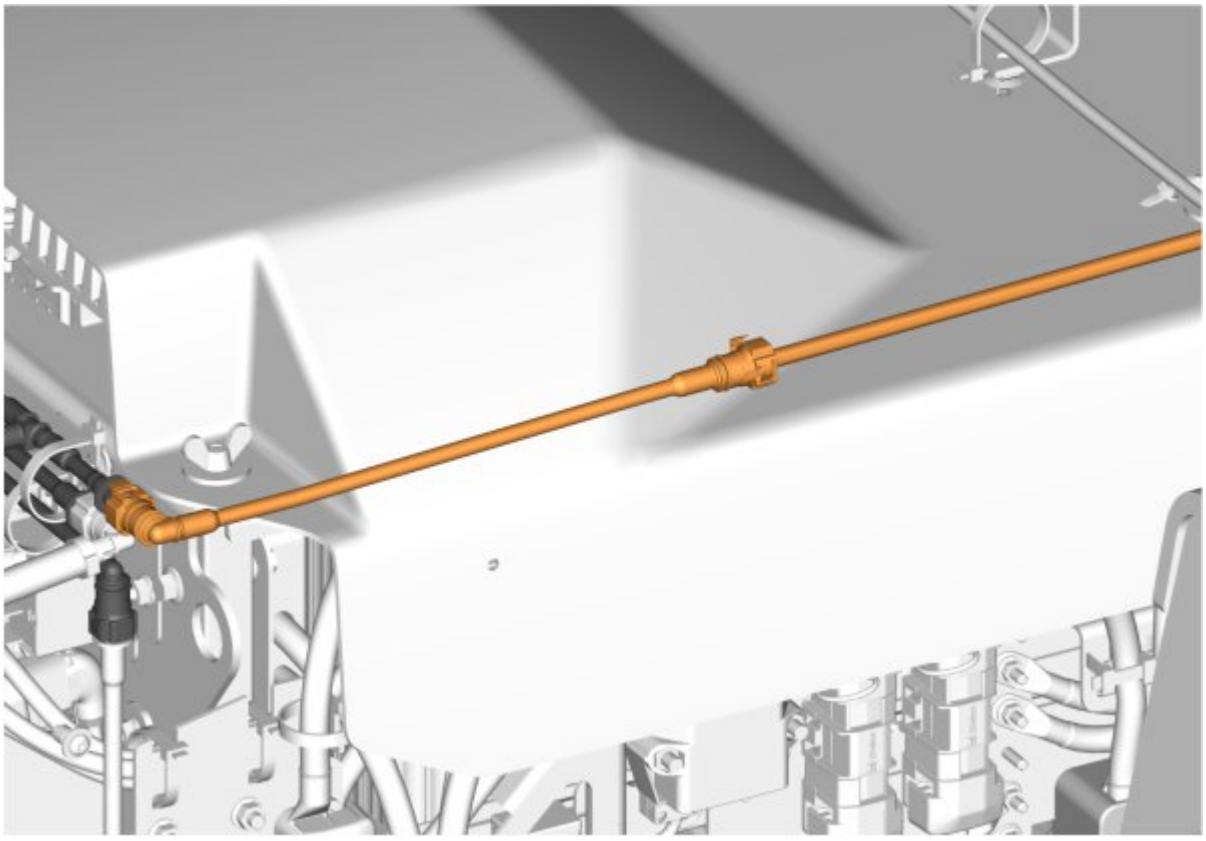
Risk of material damage.

Failure to secure loose material in the cab, to close all the doors and to have adequate space in front of the vehicle before tilting the cab may result in material damage.

▸	Secure all loose material within the cab before tilting.
▸	Ensure that all the doors are closed.
▸	Make sure that there is adequate space in front of the vehicle before tilting the cab.

10	Tilt the cab forward.

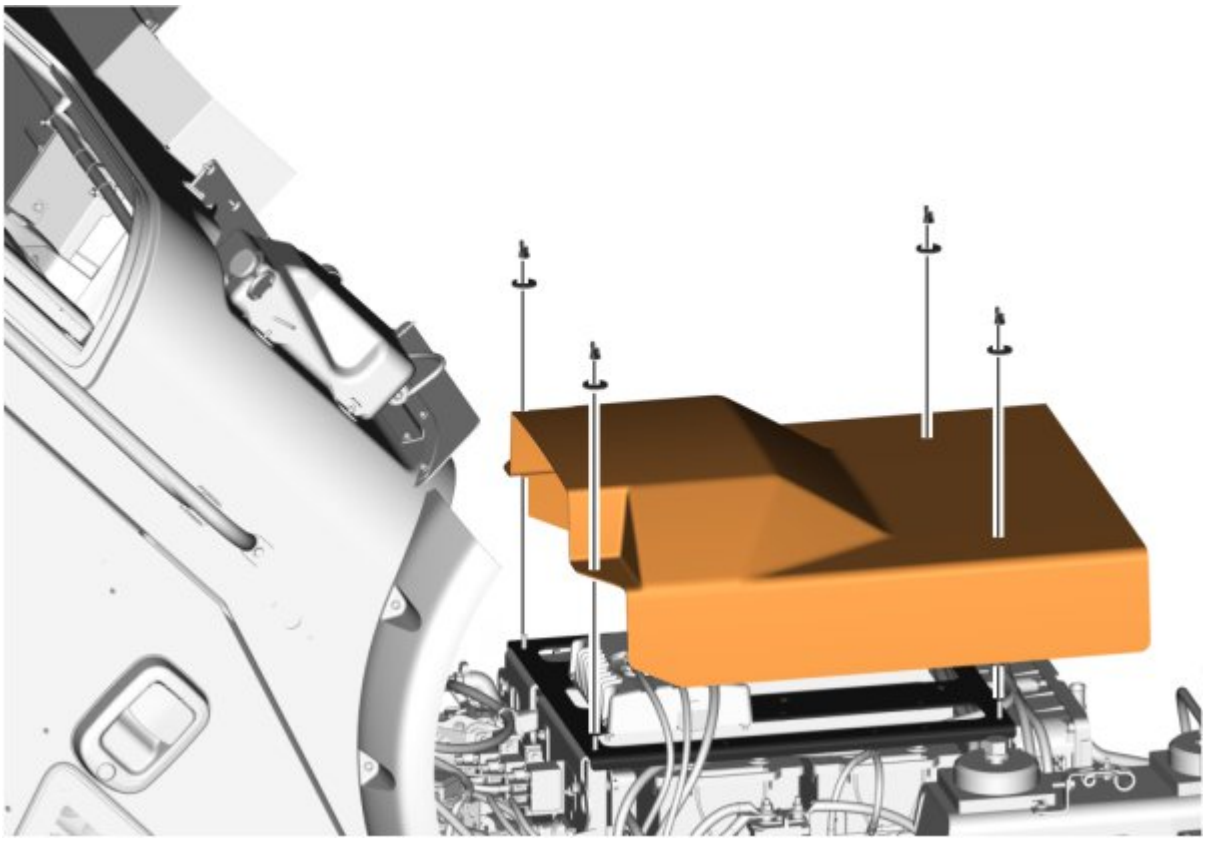
11	Move aside the hose.



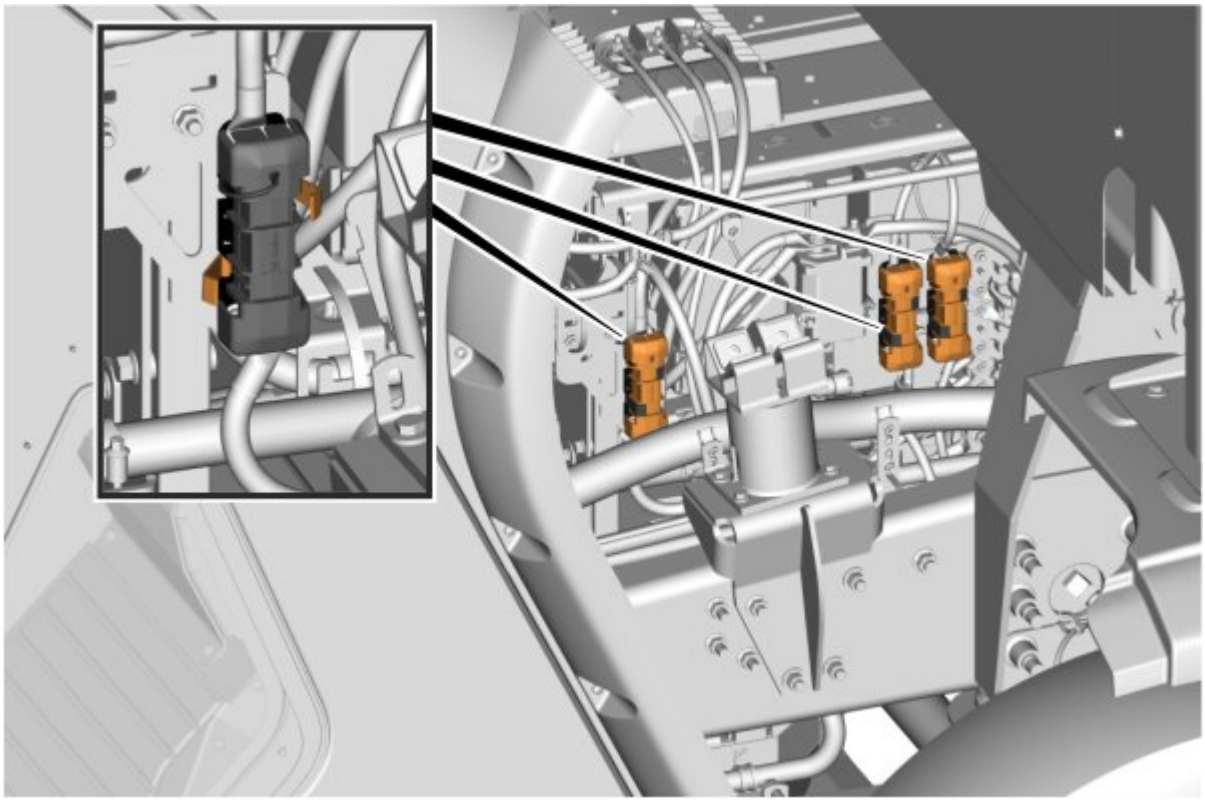
12	Remove the wing nuts.

13	Remove the washers.

14	Remove the cover.

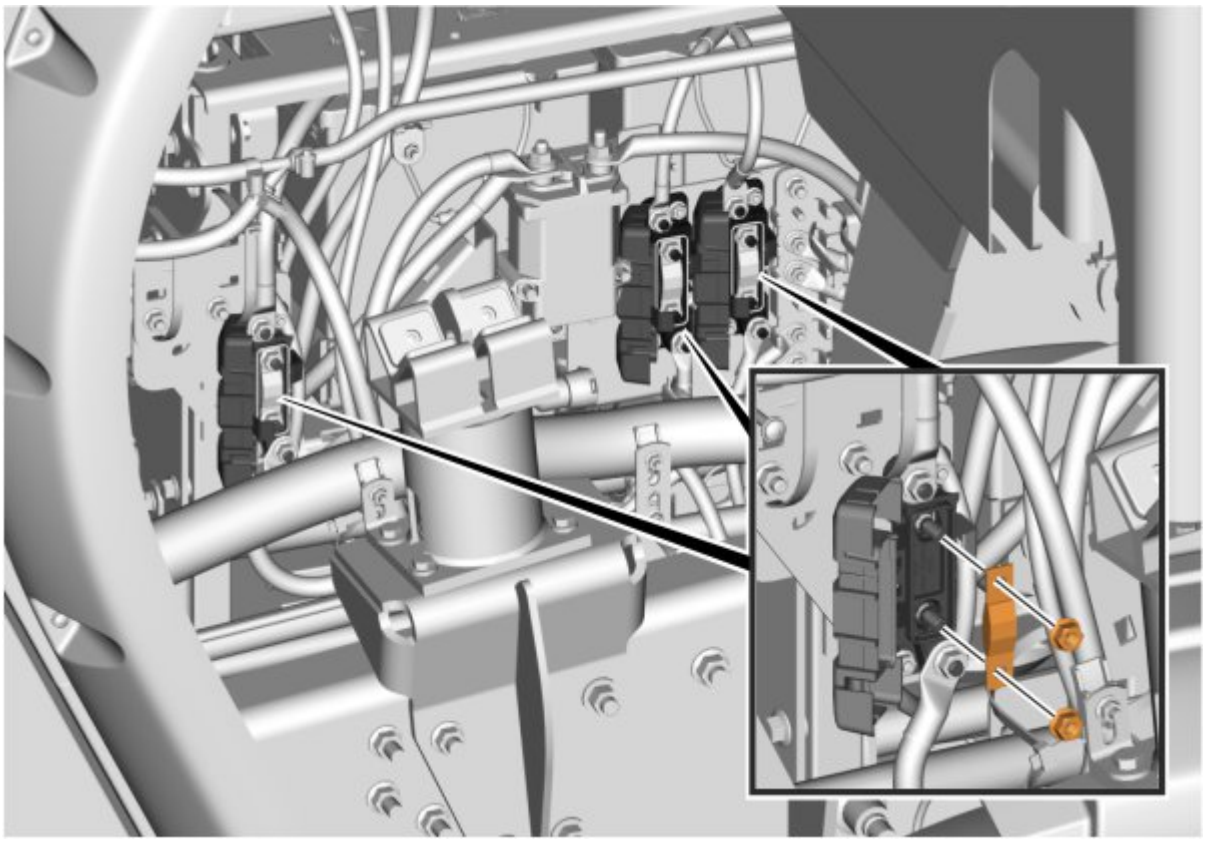


15	Release the clips.
16	Remove the covers.

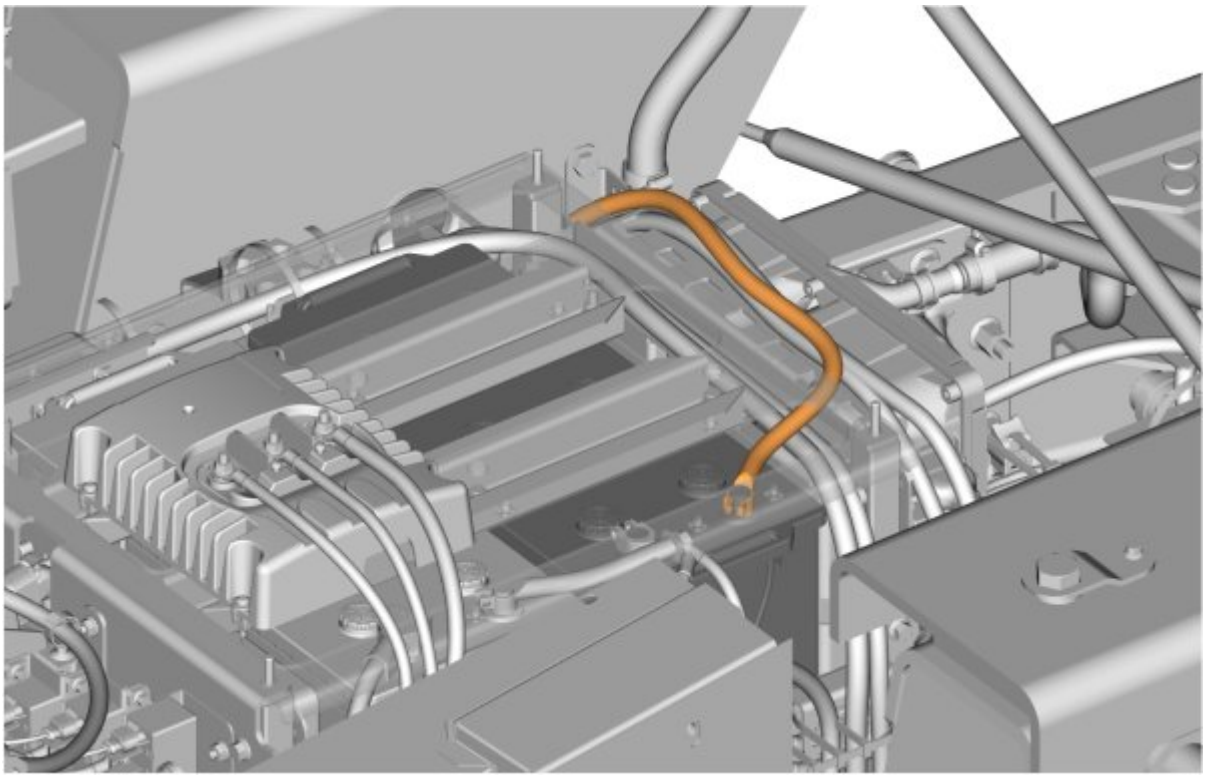


17	Remove the nuts.
18	Remove the fuses.

Note
Note the position.

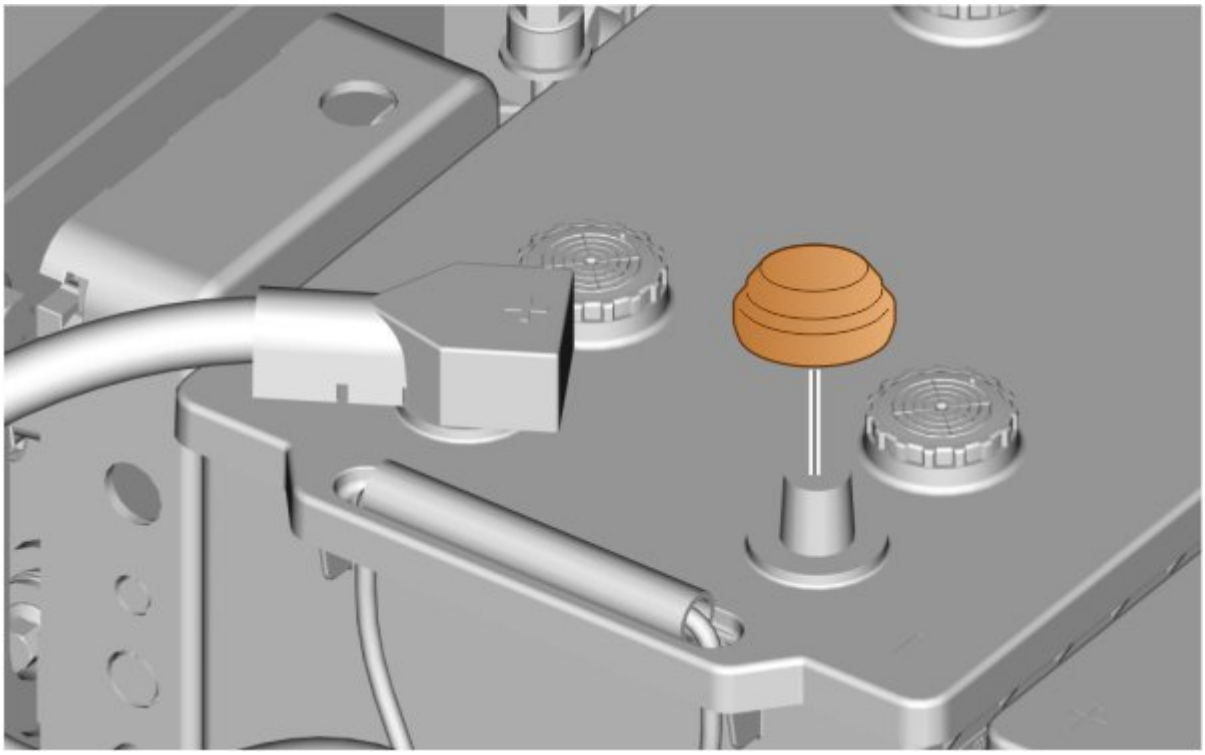


19	Disconnect the cable from the negative terminal.

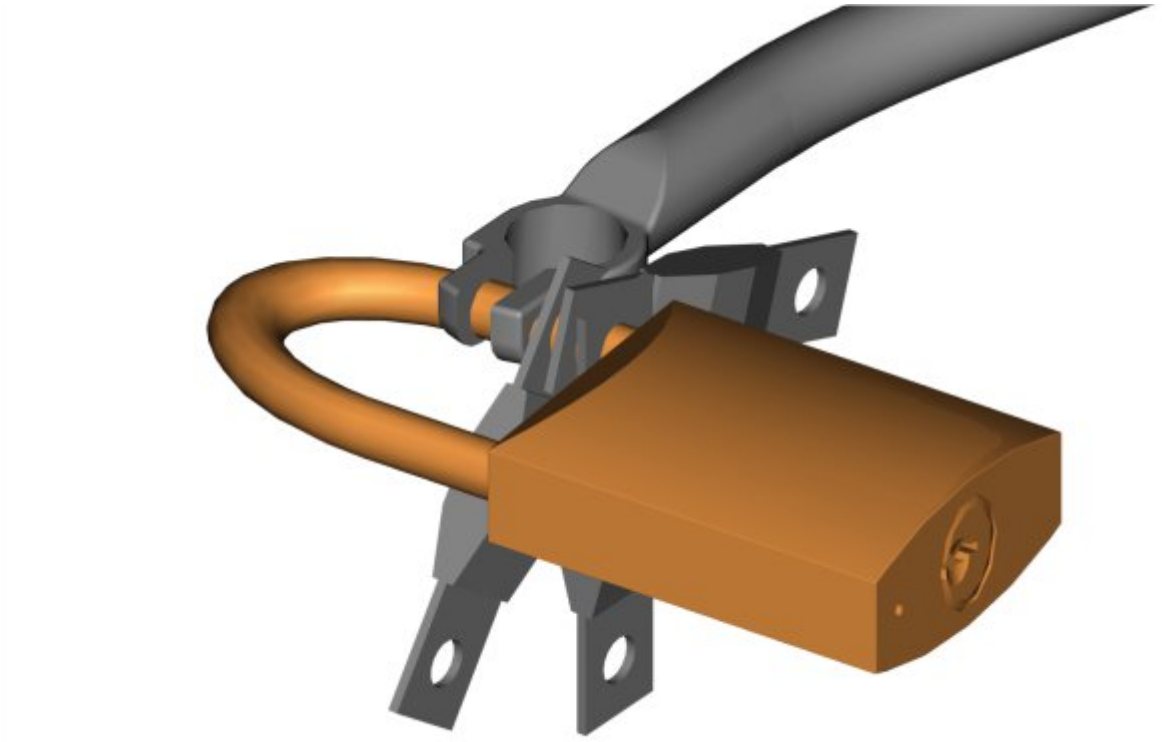


20	Install the plug.

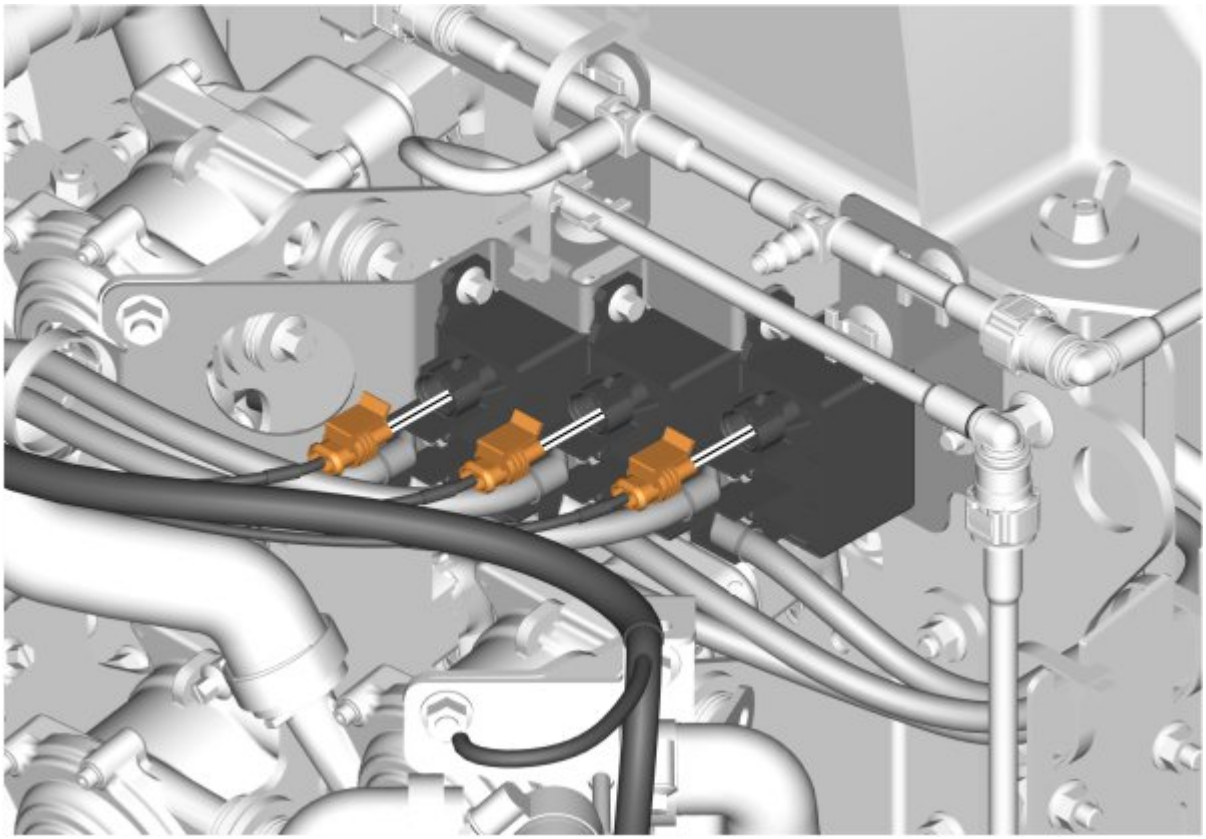
Required material	
PLUG	975827



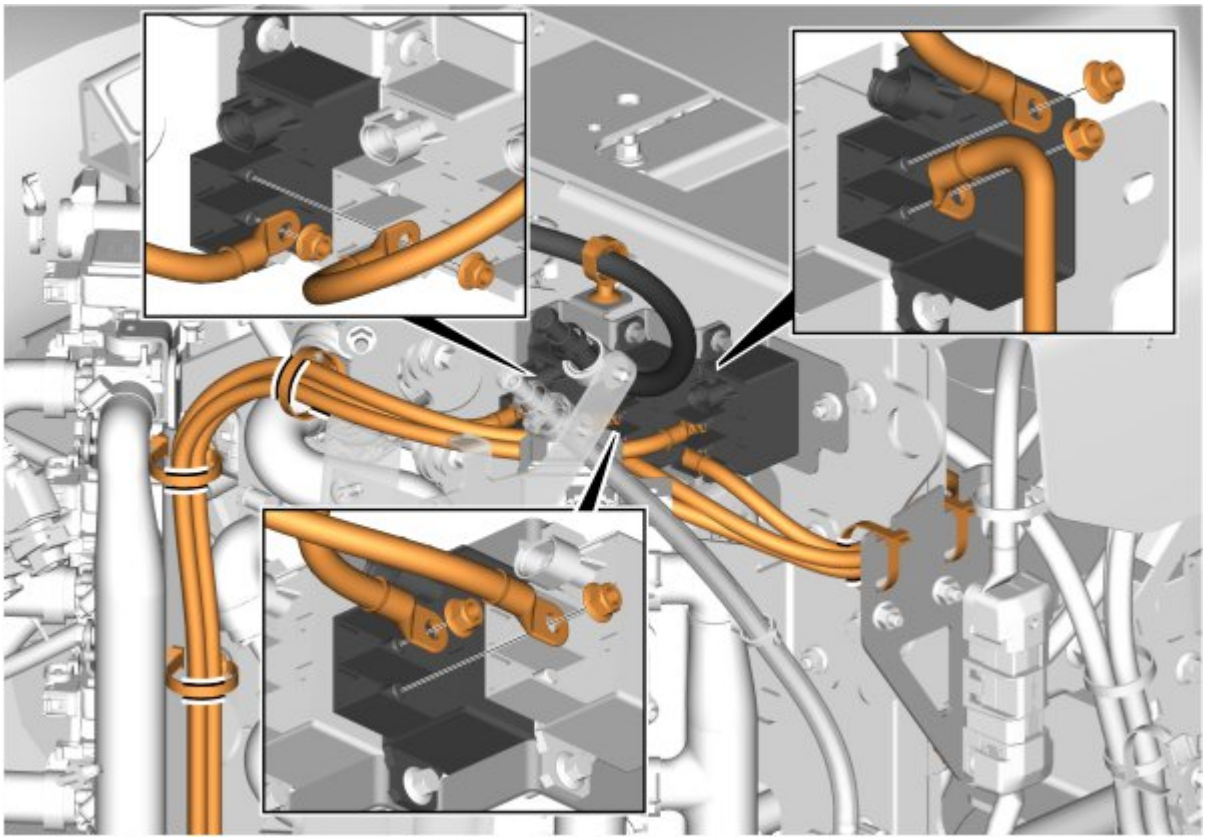
21	Lock the negative terminal along with the fuses.



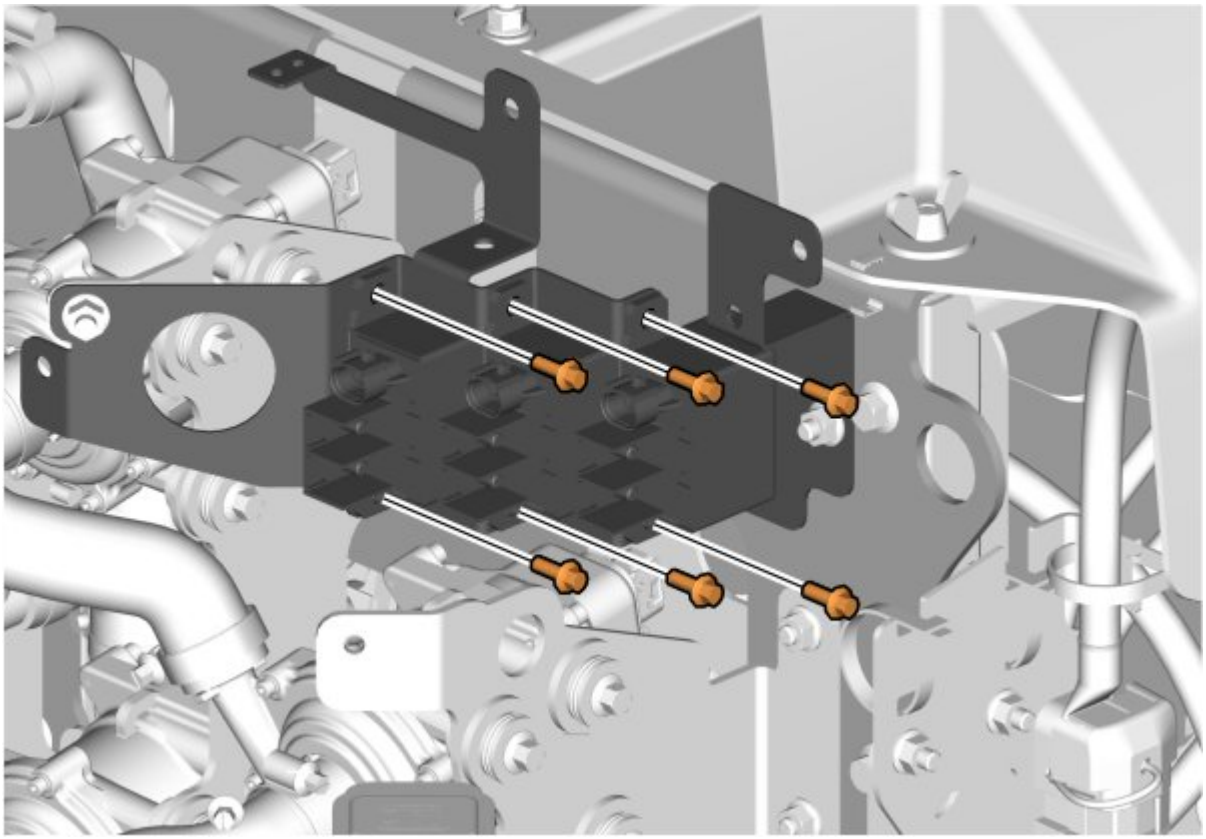
22	Disconnect the connectors. **Note** Note the positions.



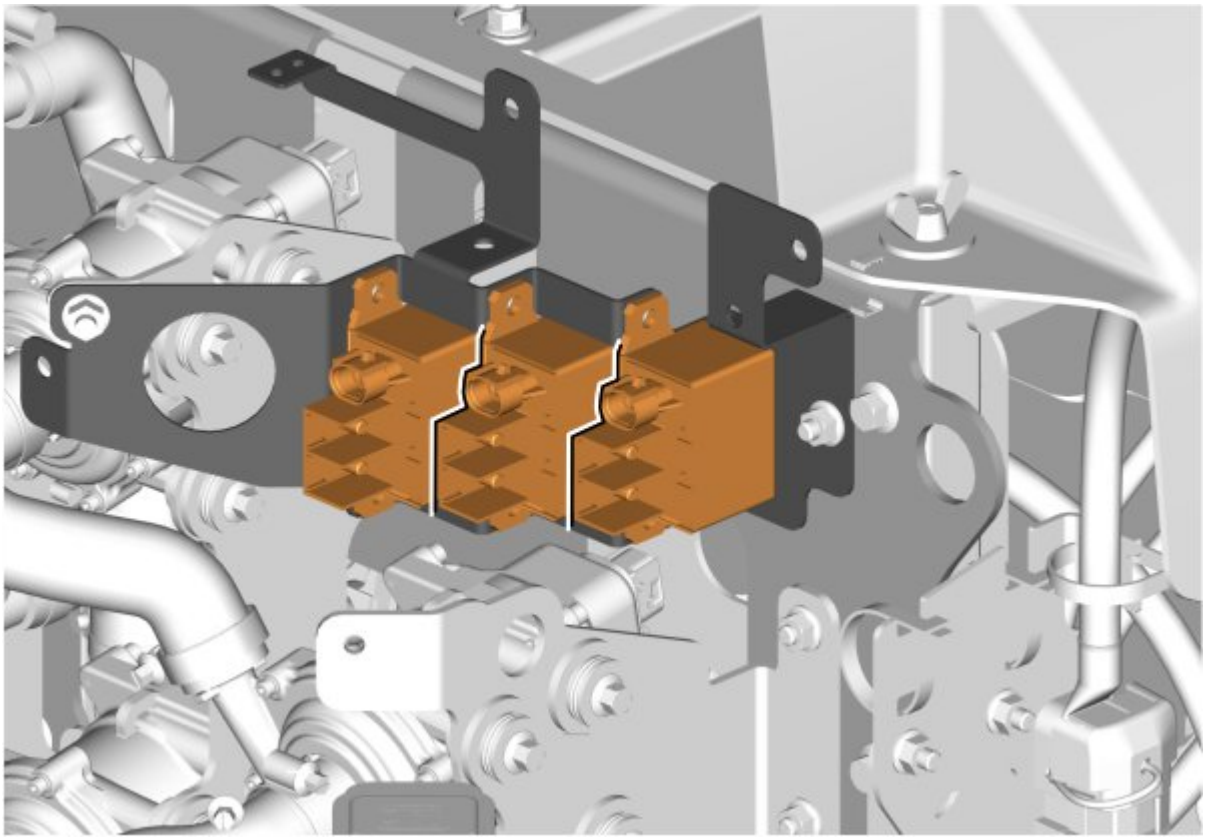
23	Remove the cable ties. **Note** Note the positions.
24	Remove the nuts.
25	Remove the cables.



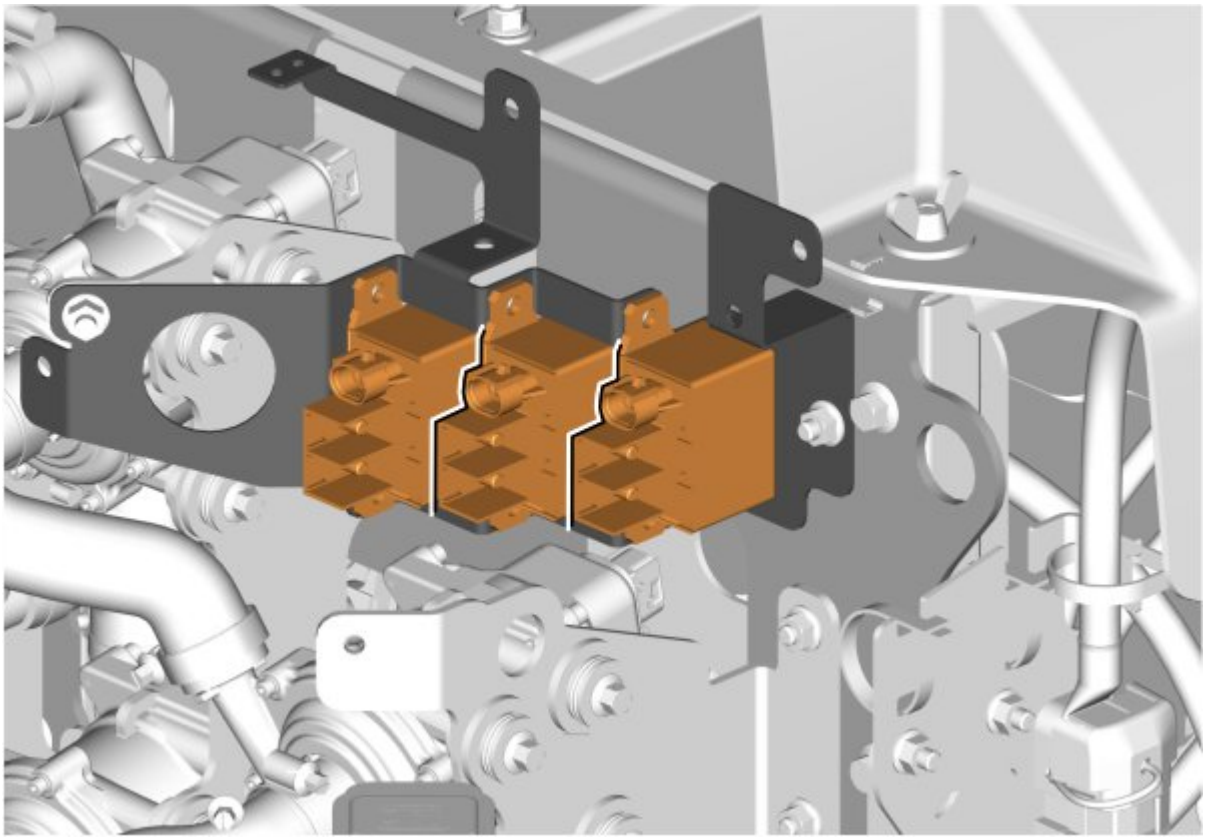
26	Remove the screws.



27	Remove the relays.



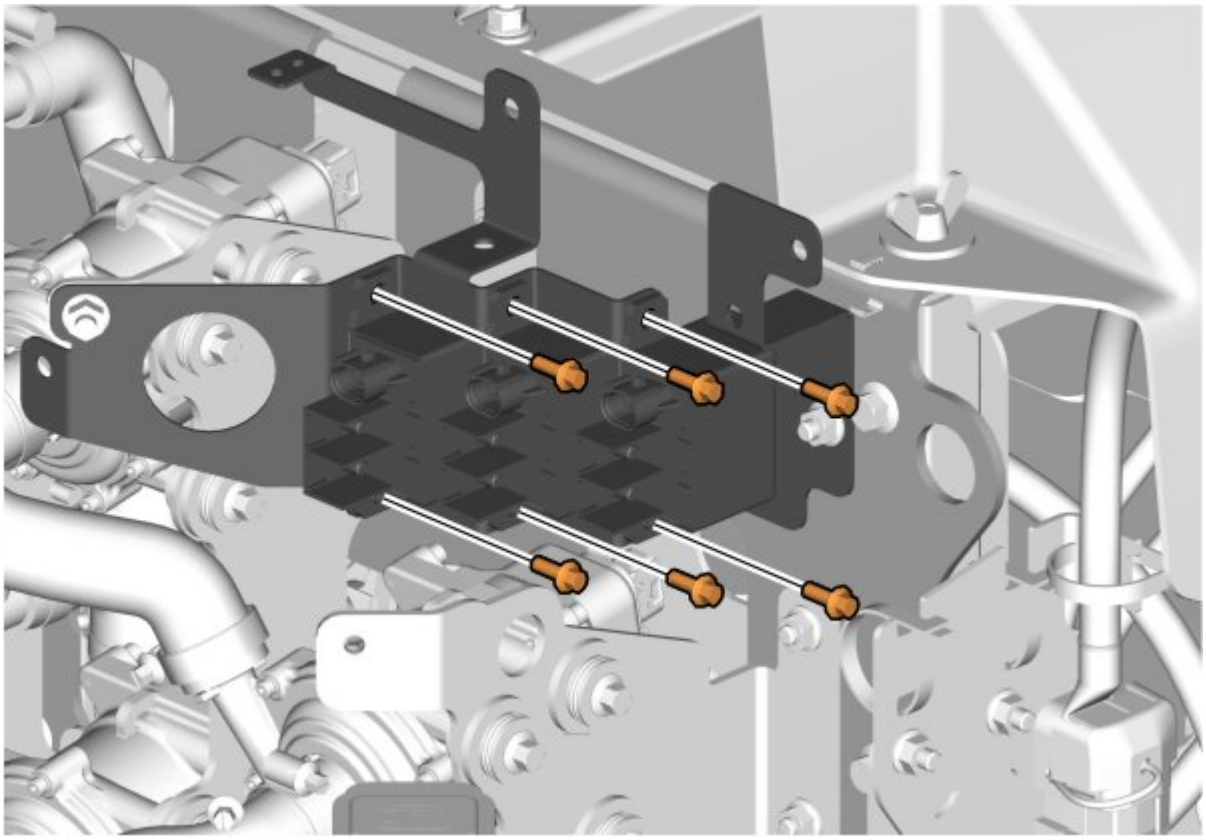
28	Install the relays.



29	Install the screws.

30	Torque tighten the screws.
	Tightening torque

Power relay, main switch, screw	10 ±1.5 Nm (7 ±1 lb_f·ft)



31	Install the cables.

32	Install the nuts.

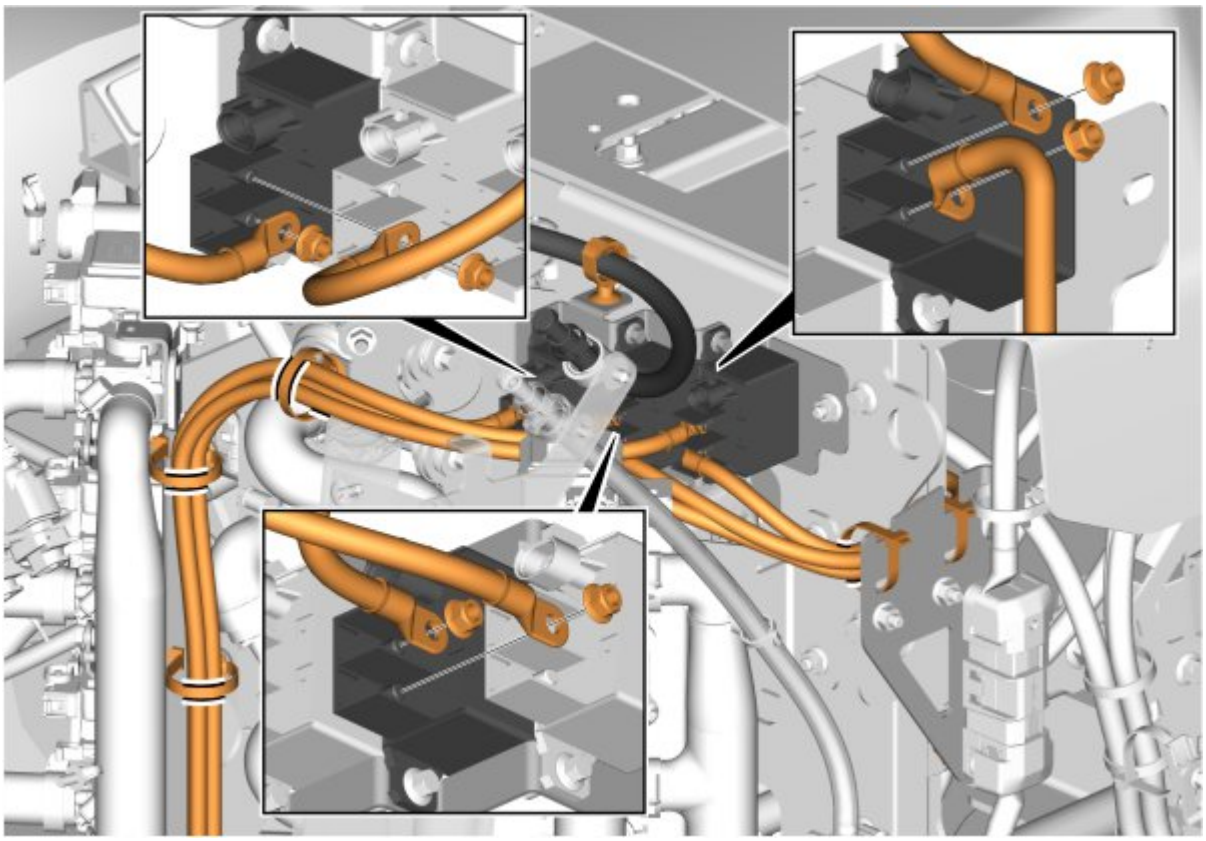
33	Torque tighten the nuts.	
	Tightening torque	
	Cable terminal, relay, nut	7.5 ±0.5 Nm (6 ±0.4 lb_f·ft)

34	Apply corrosion inhibitor to the cable terminals.	
	Required material	
	CORROSION INHIBITOR	22185810

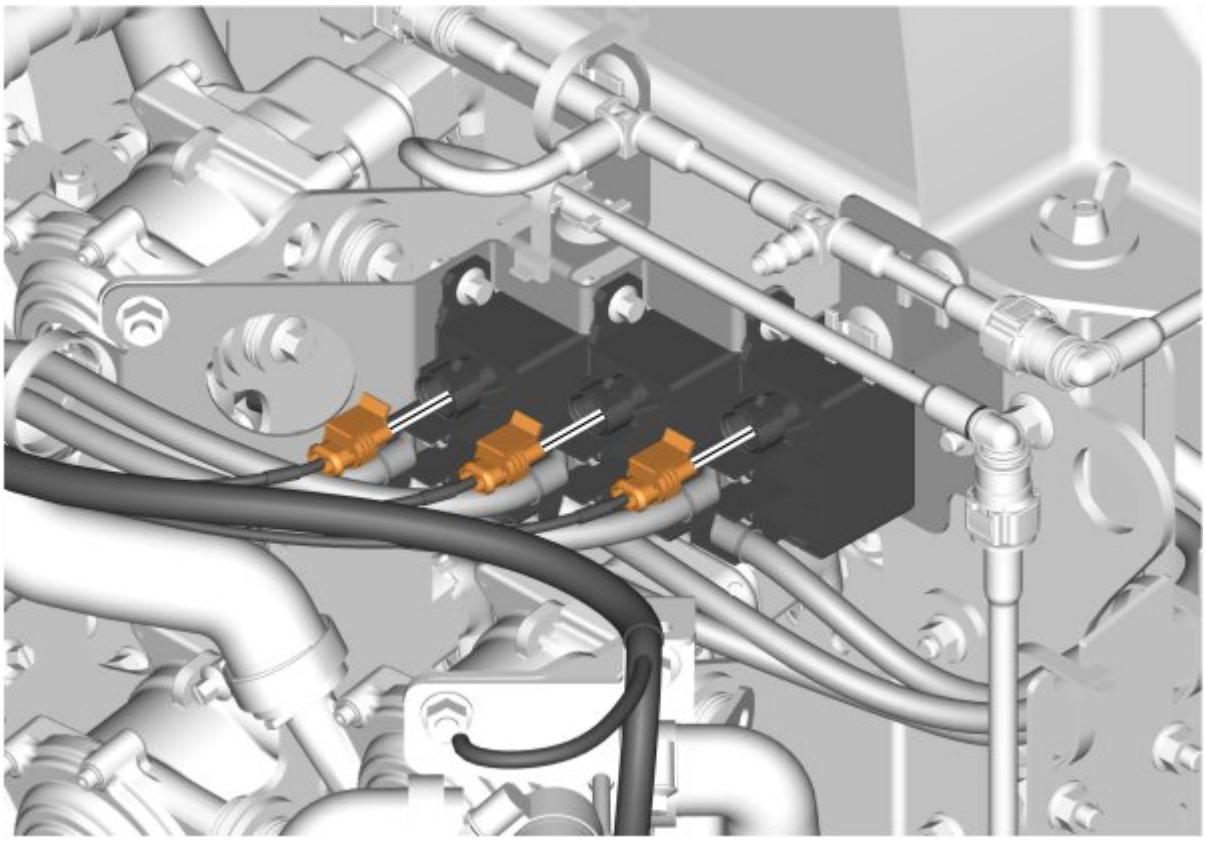
35	Install the cable ties.

Note
Use new parts.

Note
As noted.



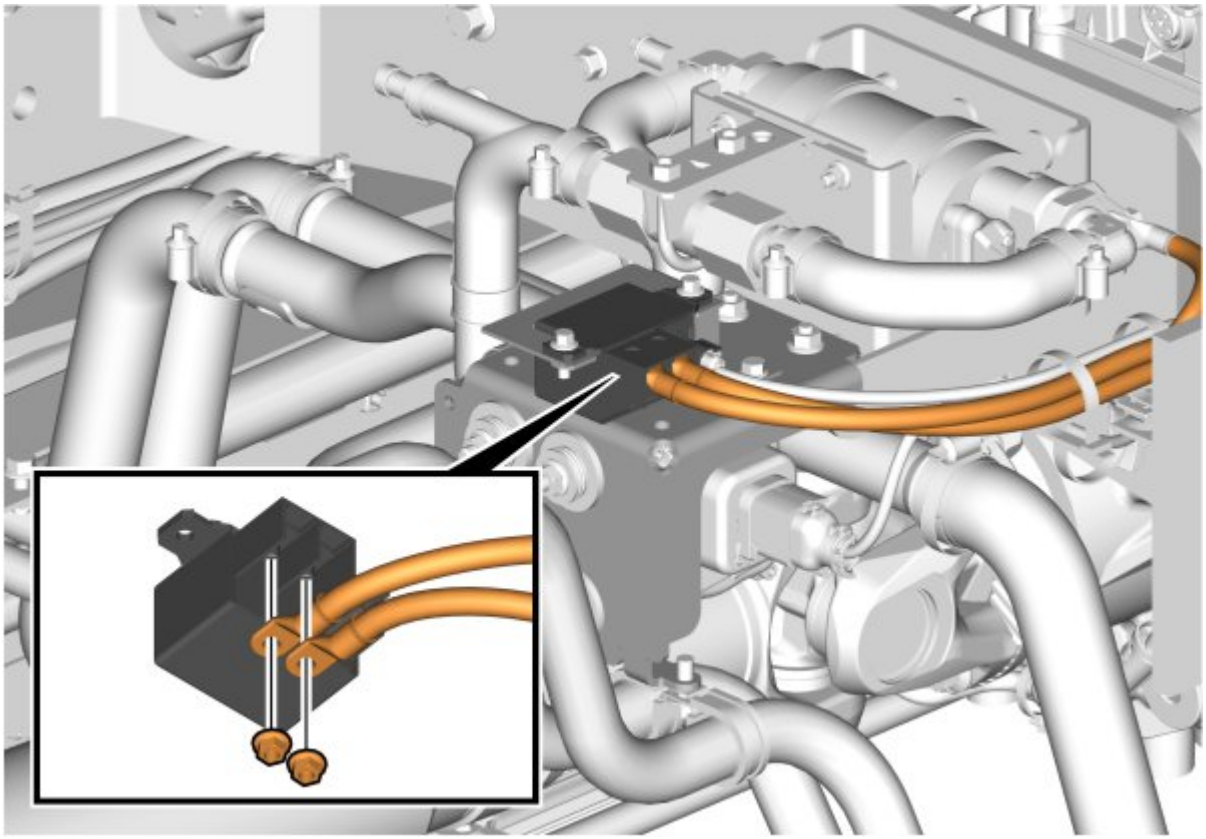
36	Connect the connectors. **Note** As noted.



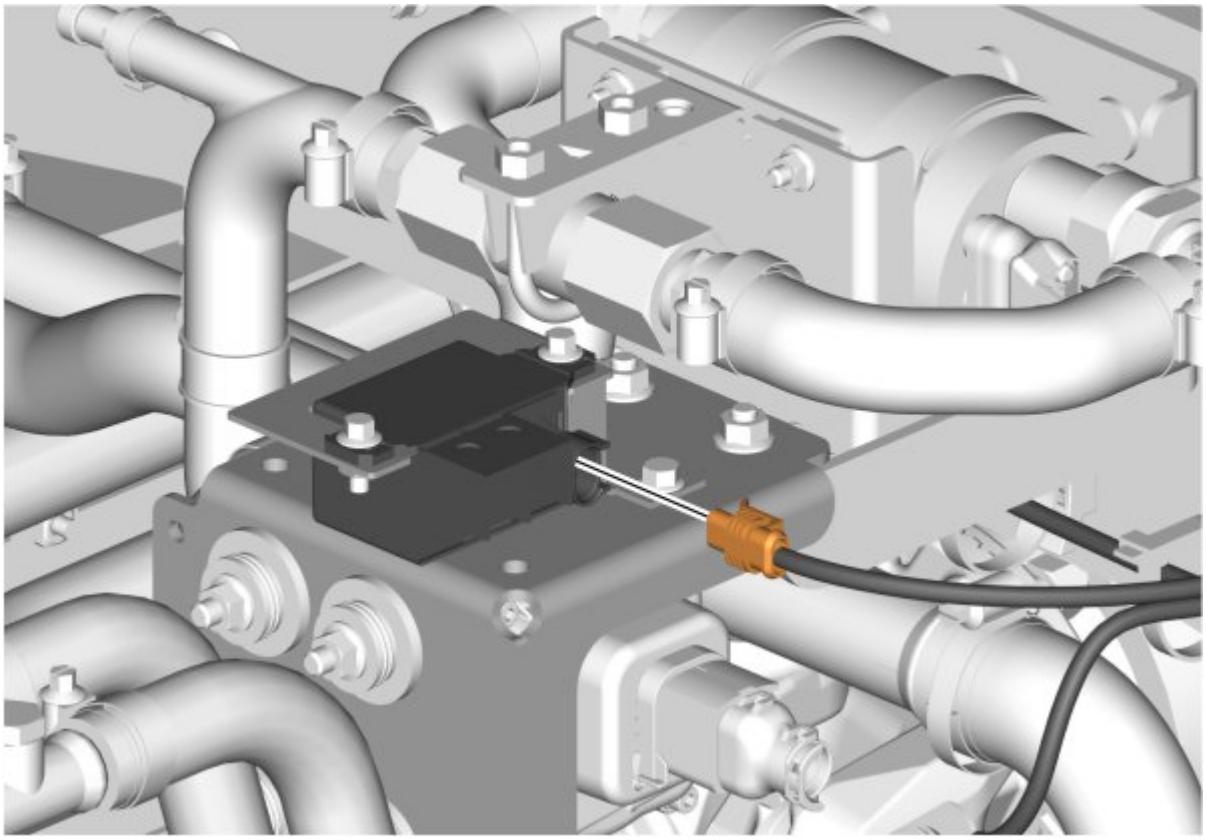
37	Remove the nuts.

38	Release the cable terminals.

39	Move aside the cable harness.

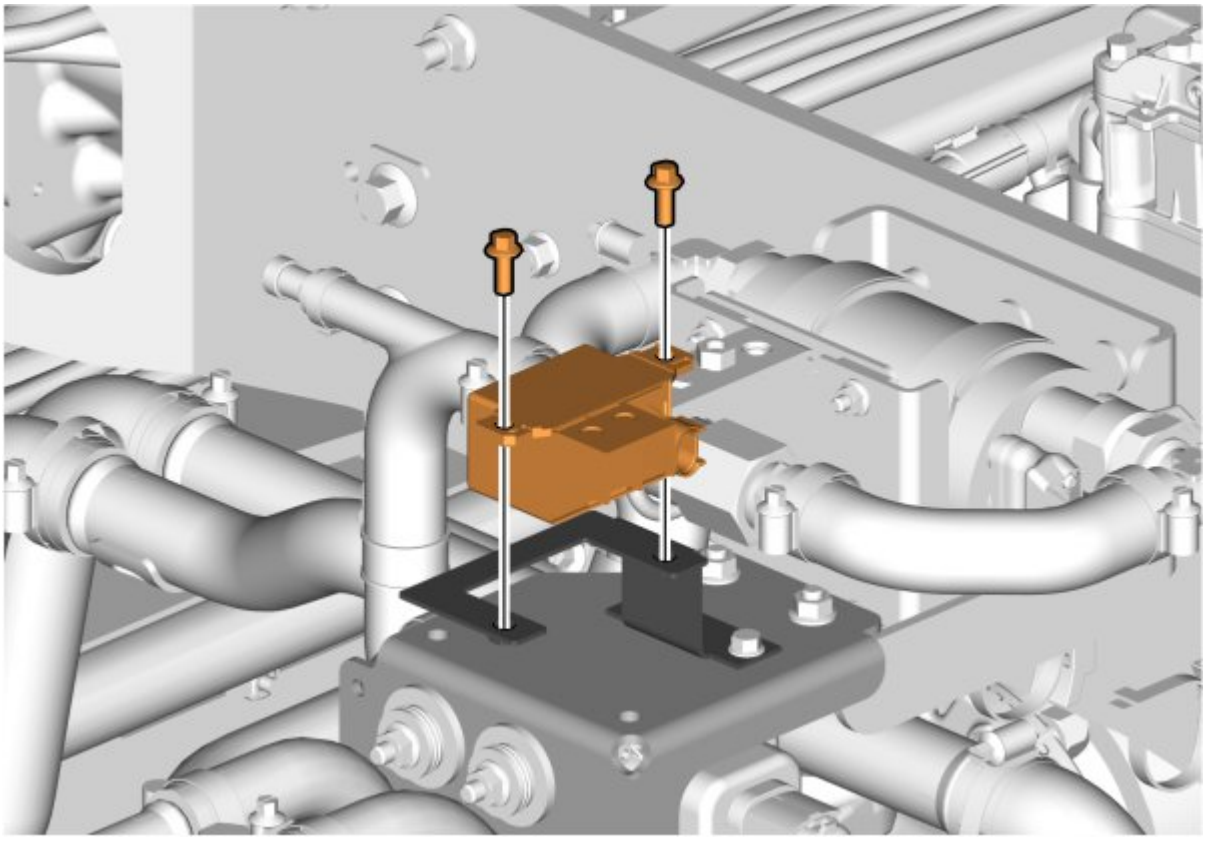


40	Disconnect the connector.



41	Remove the screws.

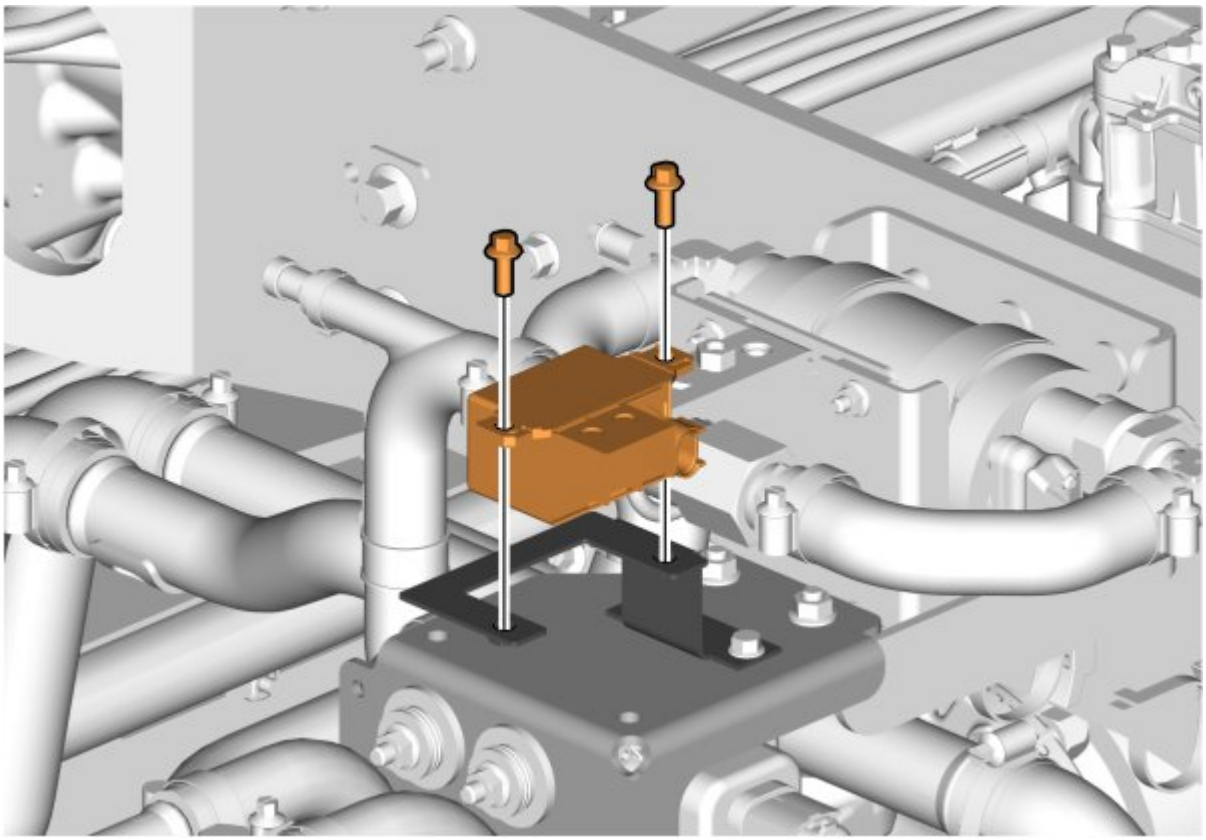
42	Remove the relay.



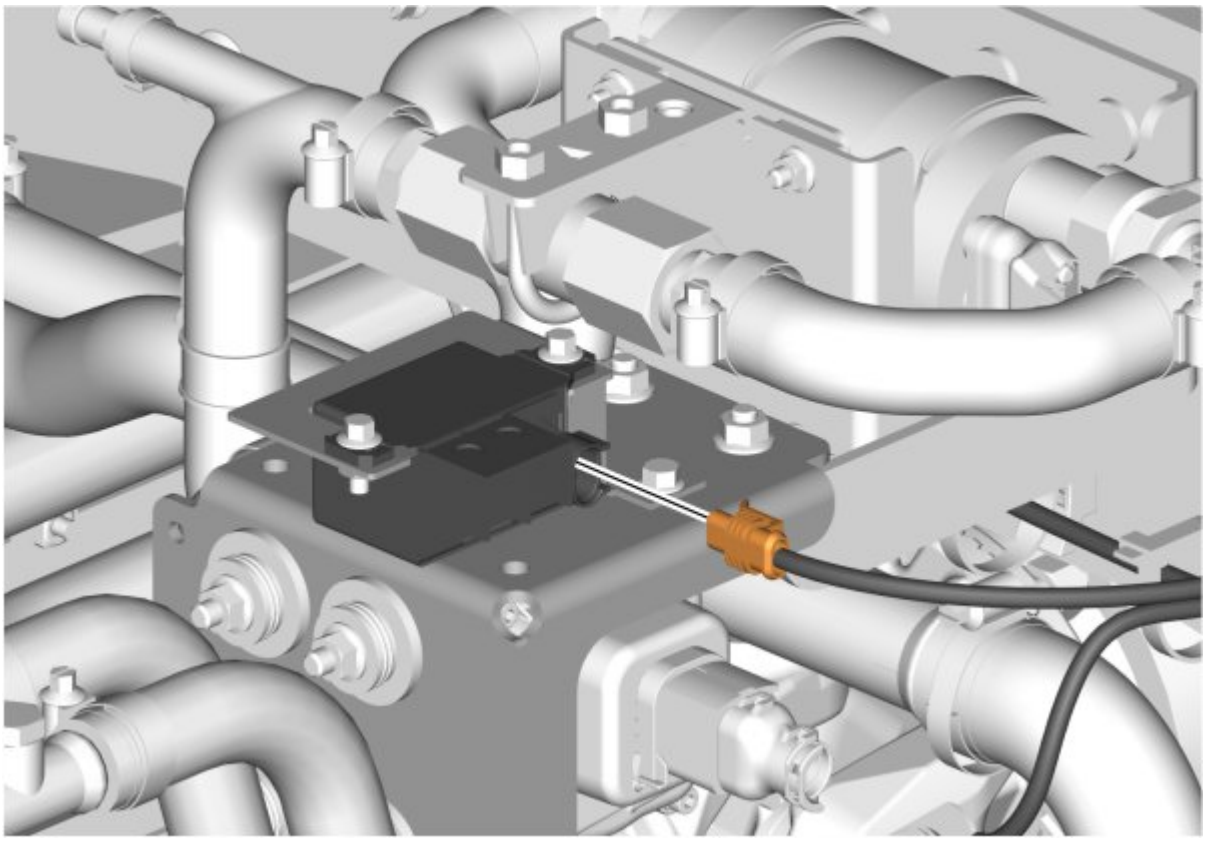
43	Install the relay.

44	Install the screws.

45	Torque tighten the screws.	
	Tightening torque	
	Relay, screw	M6
		10 ±1.5 Nm (7 ±1 lb_f·ft)



46	Connect the connector.



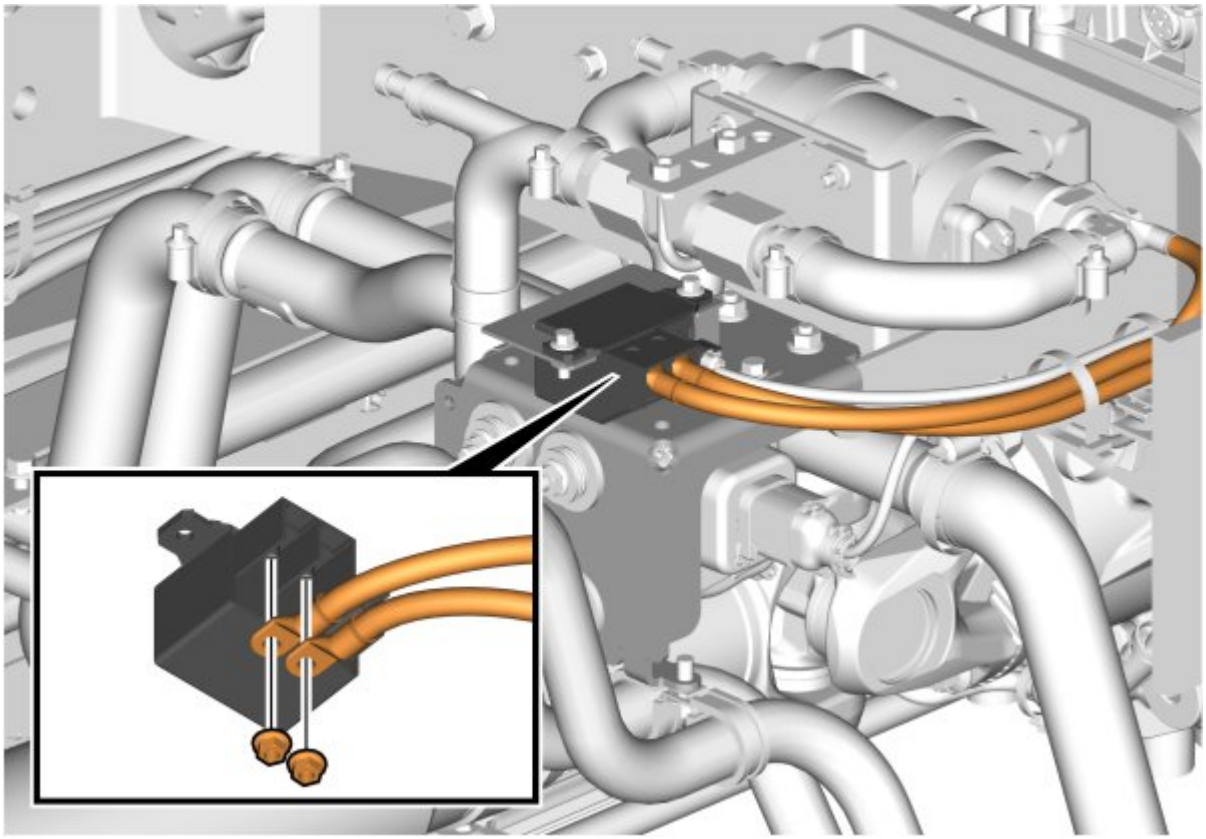
47	Position the cable harness.
48	Install the cable terminals.
49	Install the nuts.

50	Torque tighten the nuts.

Tightening torque	
Relay, nut	7.5 ±0.5 Nm (6 ±0.4 lb_f·ft)

51	Apply corrosion inhibitor to the cable terminals.

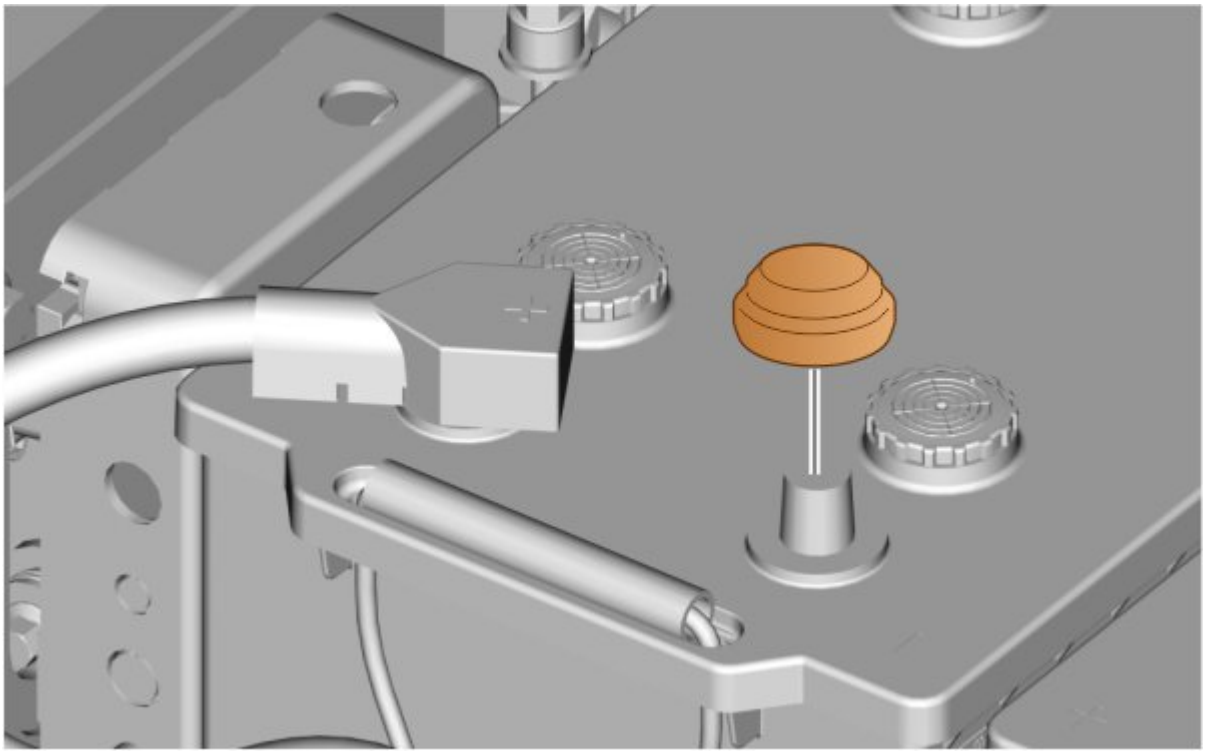
Required material	
CORROSION INHIBITOR	22185810



52	Ensure that none of steps performed for decommissioning were altered.

53	Remove the plug.

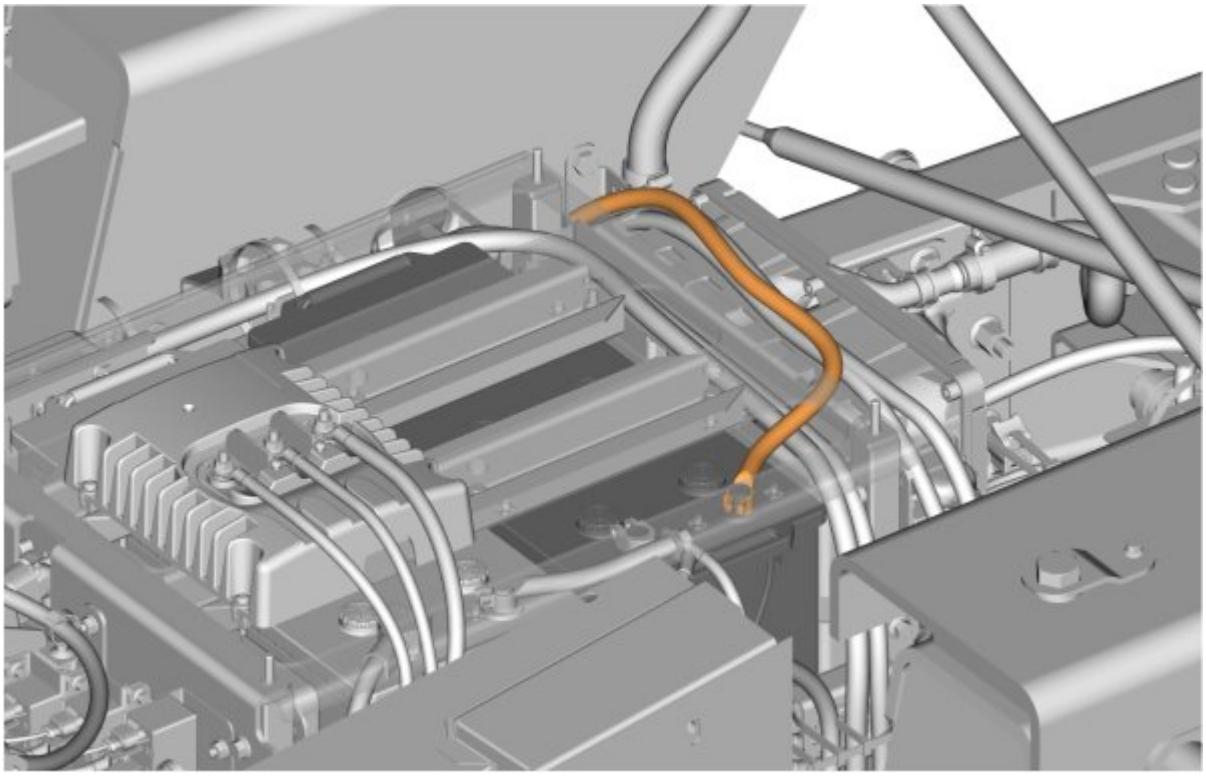
Required material	
PLUG	975827



54	Connect the cable to the negative terminal.

55	Torque tighten the nut.	
	Tightening torque	
	Battery, cable terminal, nut	20 ±2 Nm (15 ±1 lb_f·ft)

56	Apply corrosion inhibitor to terminal and connector.	
	Required material	
	CORROSION PROTECTION	21735988

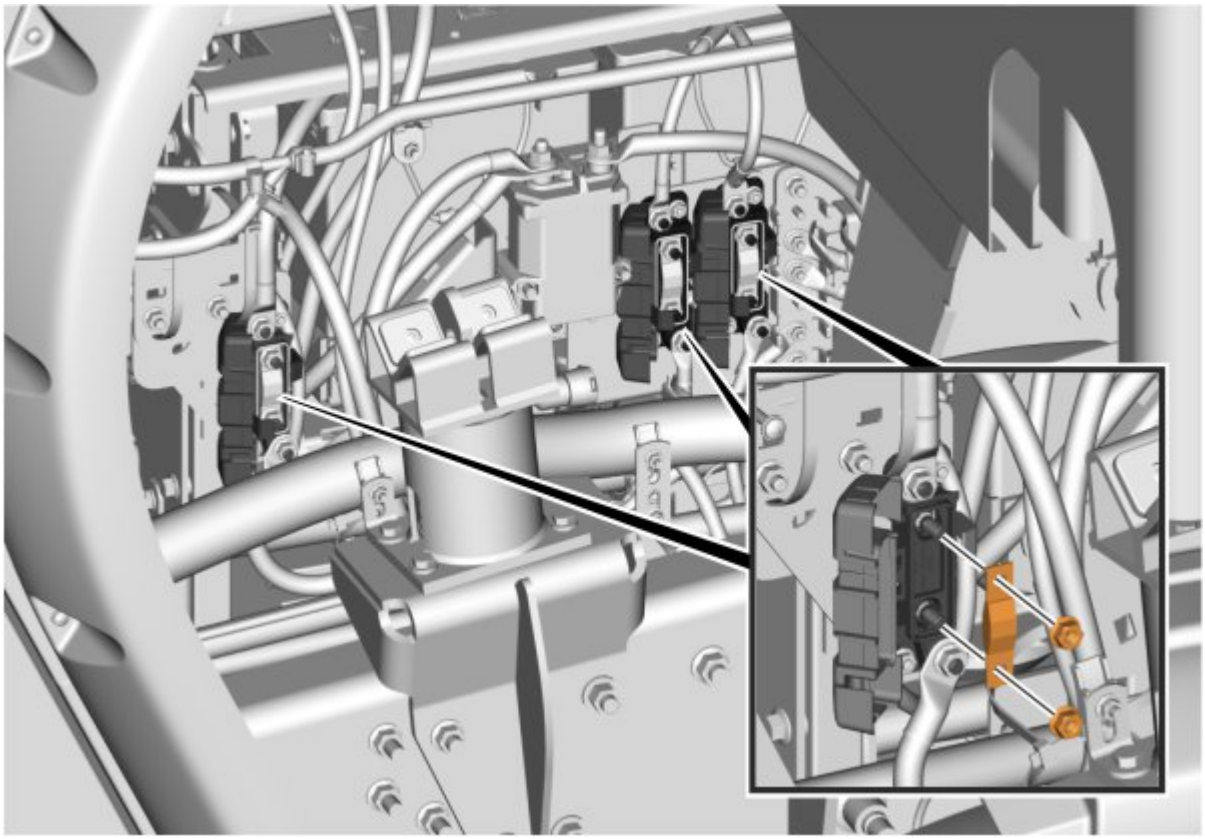


57	Install the fuses. **Note** Install as noted.

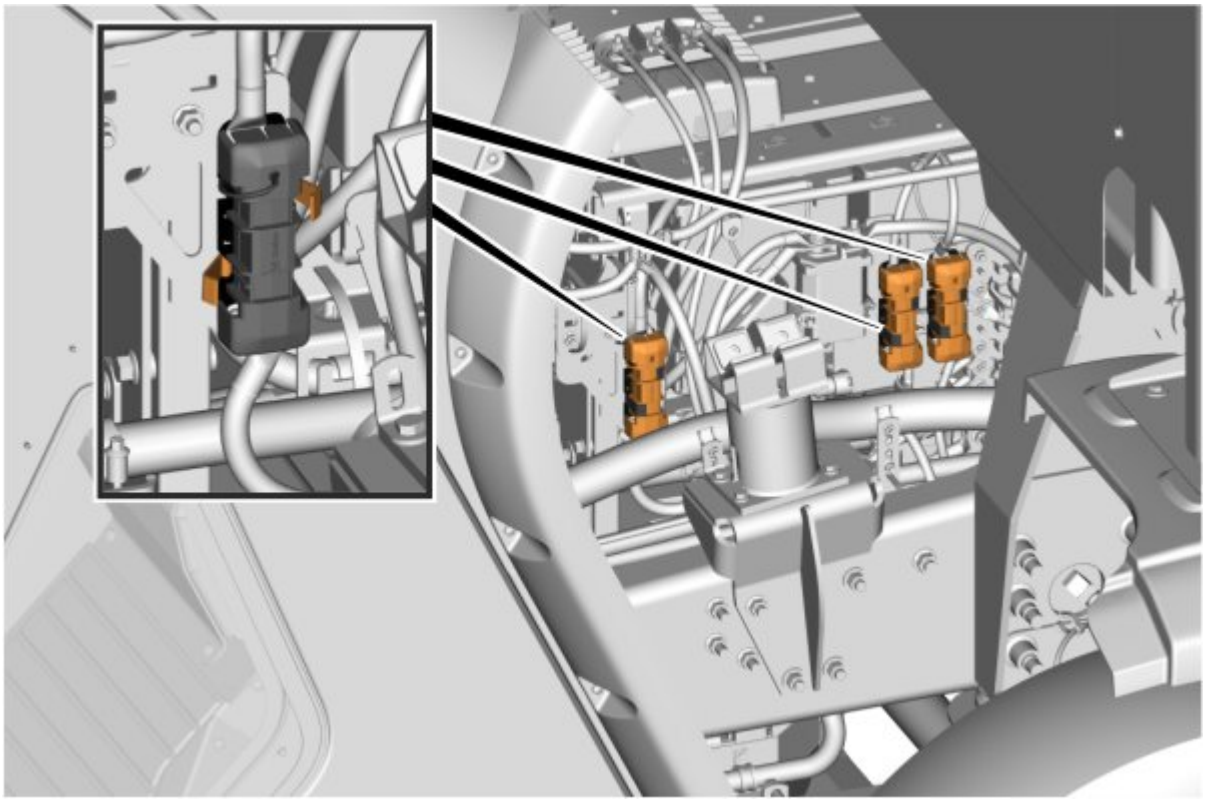
58	Install the nuts.

59	Torque tighten the nuts.	
	Tightening torque	
	Fuse, nut	15 ±3 Nm (11 ±2 lb_f·ft)

60	Apply corrosion inhibitor to fuse connections.	
	Required material	
	CORROSION INHIBITOR	22185810

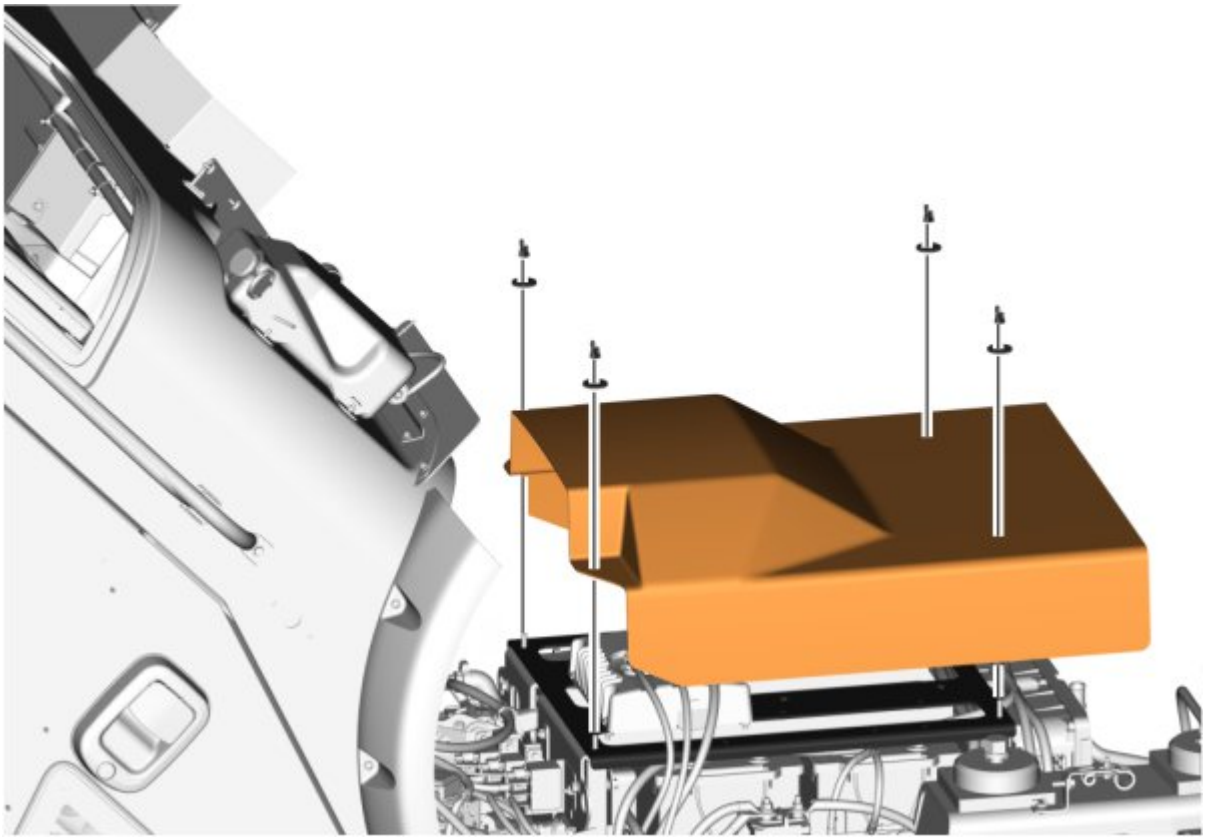


61	Install the covers.
62	Lock the clips.

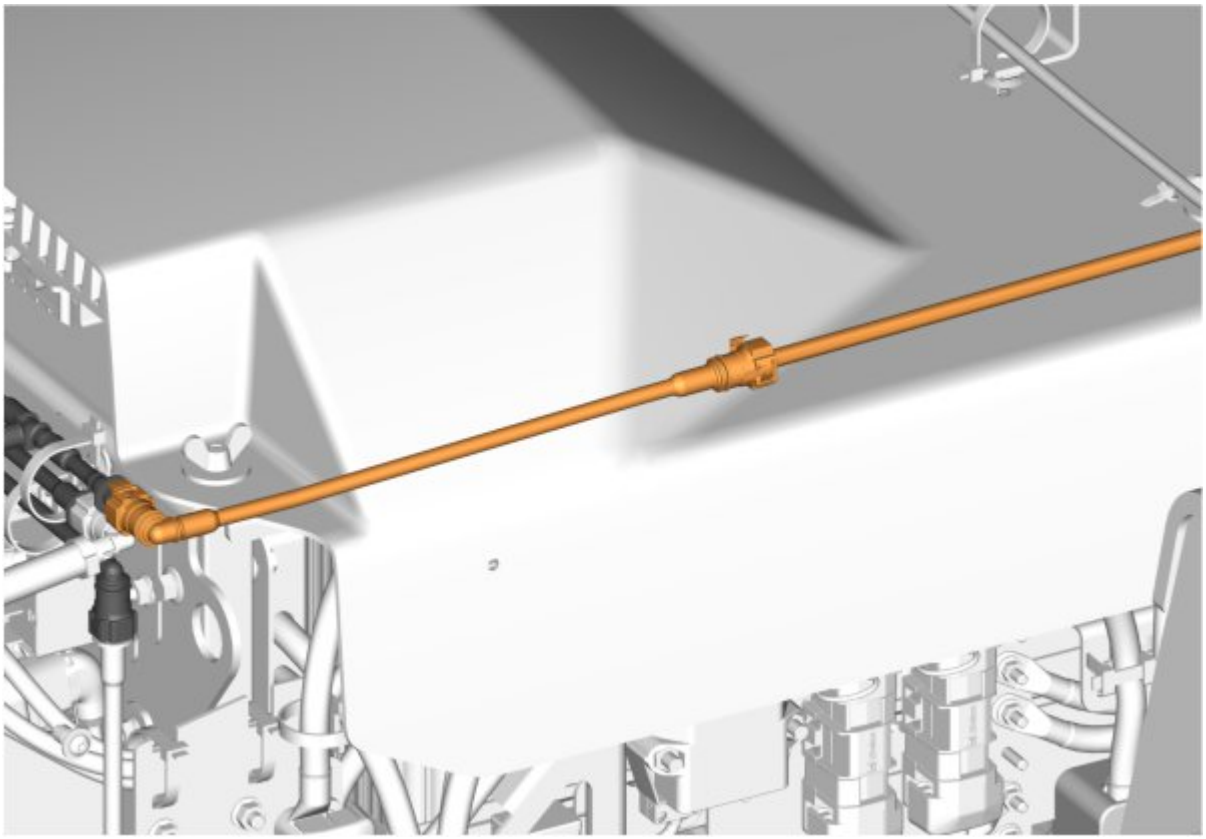


63	Install the cover.
64	Install the washers.

65	Install the nuts.



66	Position the hose.

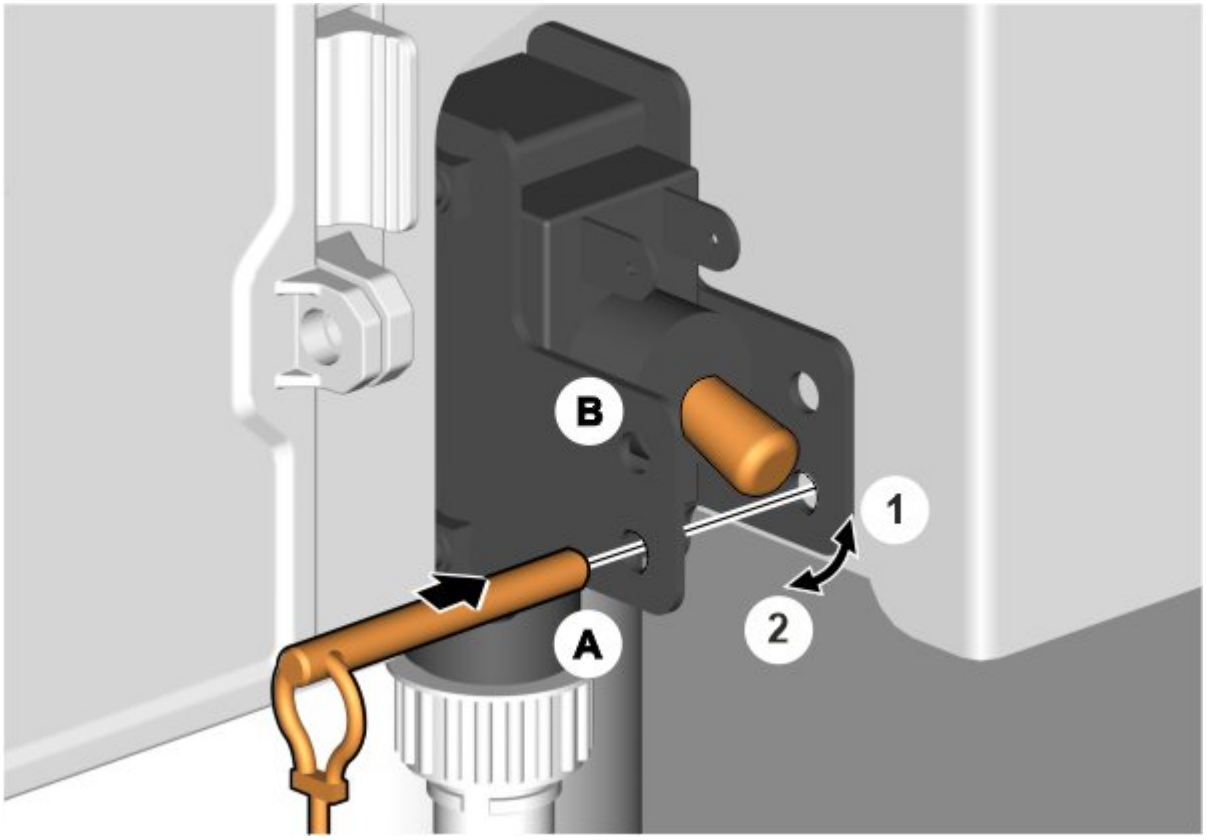


DANGER
Risk of serious injury or death. A cab that is not tilted to the end position constitutes a safety risk.
▸ It is forbidden to work in, under or in front of a cab that is not fully tilted.
▸ No persons are to remain in, under or in front of the cab while tilting is in progress.
▸ Always tilt the cab to the end position.

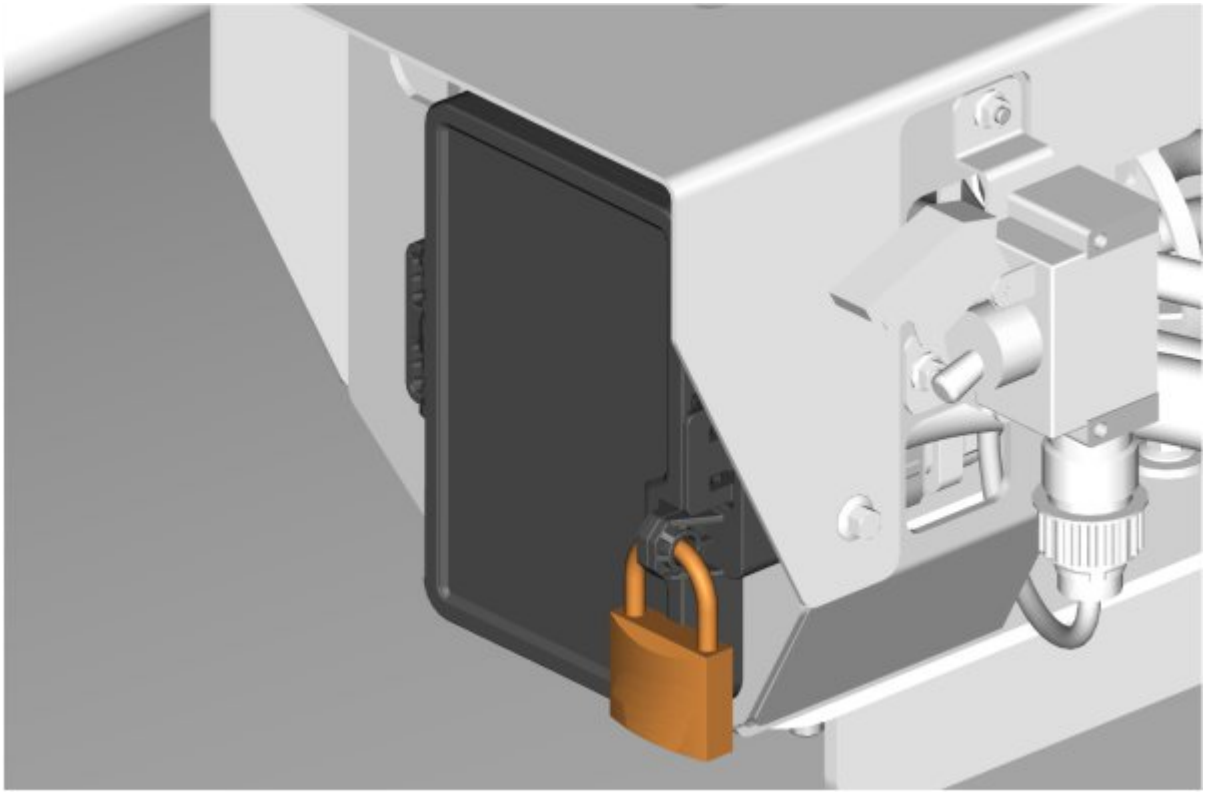
67	Tilt back the cab.

68	Remove the safety pin from the slot **(B)** and install in the slot **(A)** .

69	Set the chassis switch to position **(2)**. **Switch, position** **Position** / **Status** 1 / OFF 2 / ON



70	Unlock the access to the CCS.



71	Connect the diagnostic tool (Premium Tech Tool).

72	Perform **Function parameters reset, calibration** in the diagnostic tool (Premium Tech Tool).
73	Select the replaced coolant heater relay.
74	Disconnect the diagnostic tool (Premium Tech Tool).

75	Remove the wheel chocks.