



Inspect HV Battery Positive Contactor Fasteners

Classification	Campaign Bulletin	Section/Group	16 - HV Battery System	Country/Region	United States, Canada
Year	2018	Model	Model 3	Version	All

Bulletin Classification: *This campaign bulletin addresses a known non-safety-related condition and provides recommended technical diagnosis and repair procedures. Apply this procedure to all vehicles in the affected VIN range listed. These instructions assume knowledge of motor vehicle and high voltage electrical component repairs, and should only be executed by trained professionals. Tesla assumes no liability for injury or property damage due to a failure to properly follow these instructions or repairs attempted by unqualified individuals.*

This Service Document supersedes SB-18-16-013 R2, dated 22-October-19. Each content change is marked by a vertical line in the left margin. Discard the previous version and replace it with this one.

Condition

Certain Model 3 vehicles might have too few HV battery positive contactor mounting nuts installed, which can allow movement that might affect the conductivity of the contactor terminals.

Correction

Inspect the vehicle for symptoms related to the condition. If symptoms are present, replace the mounting nuts, the terminal fasteners, or the contactor itself.

Correction Description	Correction	Time
SB-18-16-013 Not Applicable	S011816013	0.00
Inspect Contactor, Fasteners Check OK	S021816013	1.00
Install Insulators, Inspect Contactor, Fasteners Check OK	S031816013	1.00
Inspect Contactor, Replace Fasteners	S041816013	1.05
Install Insulators, Inspect Contactor, Replace Fasteners	S051816013	1.10
Inspect And Replace Contactor	S061816013	1.35
Install Insulators, Inspect And Replace Contactor	S071816013	1.35

Required Part(s):	Part Number	Description	Quantity
	1117669-00-A	BOLT,5-LOBE,M6X19,[109],ZNNI,MAT,PTP,SEAL	2
	1108907-00-A	BREATHER, NITTO Z-PLUG-S	1
	1115916-00-A	BOLT,TE,M6X14,[88],ZNNI,SEAL,SDOG	4 - 5
	1117252-00-A	BOLT,HF,M12X40,STL [109],ZN,ADH,MAT	2
	1093060-00-A	NUT&WSHR,M8,STL[9],DOUBLE SEMS	1

If necessary:

1108958-00-A	SEAL,PROBE LID,HVBAT	1
1467483-00-A	KIT, PENTHOUSE HV INSULATORS, M3	1
2007207	NUT HF M6-1.00[8]ZnAl	3
1093060-00-A	NUT&WSHR,M8,STL[9],DOUBLE SEMS	1
2007104-00-B	NUT HFPT M8X1.25 [10]-ZNNI	1 - 2
1104475-00-C	BOLTANDWSHR[DBL],M8X23,STL ZNFL,SDOG ADH	1 - 2
1089334-00-H	ASY, SWITCH, HV	1

Shop supplies:

Paint pen

These part numbers were current at the time of publication. Use the revisions listed or later, unless otherwise specified in the [Parts Catalog](#).

Special Tool(s):	Part Number	Description
	1076927-00-A	Resistance meter, microohm, Hioki RM3548
	1076928-00-A	Test Probes, Hioki 9461
	1076921-00-B	Insulation Multimeter, Fluke 1507
	1130480-00-A	Test Probes, Slim, Fluke TP38
	1059330-00-B	Skt, 1/4in Dr, 5-Lobe Torx External
	1026636-00-A	Pack Enclosure Leak Tester, HV Battery
	1140501-00-A	Pack Kit, Enclosure, Leak Test, HV Battery, Complete
	1144879-00-A	Kit, Encl Leak Test Adapters, HV Battery
	1455410-00-A	Kit, Dummy Plug
	1108272-00-B	Cap, Logic Conn, Inv, 3DU

Procedure

⚠ WARNING: Only technicians who have been trained in High Voltage Awareness are permitted to perform this procedure. Proper personal protective equipment (PPE) and insulating HV gloves with a minimum rating of class 0 (1000V) must be worn at all times a high voltage cable, busbar, or fitting is handled. Refer to Tech Note [TN-15-92-003, "High Voltage Awareness Care Points"](#) for additional safety information.

1. Use the laptop to go to the Penthouse HV Joint Resistance Measurements [webpage](#).

NOTE: Tesla credentials might be required to view and fill out the form.

2. In section 1, click on the calendar icon and select the date the service is being performed.
3. In section 2, type the vehicle's VIN into the field.
4. Keep the webpage open to enter additional measurements in later steps.
5. Remove the penthouse cover (refer to Service Manual procedure 16101002).

NOTE: Install insulators if they are not installed (refer to Service Manual procedure 16302001).

6. Perform a zero adjust of the Hioki resistance meter (refer to Service Manual procedure 16300100).
7. Remove the insulator from the DC input busbar joints.

- Use the Hioki resistance meter to measure the resistance at the HV joint between the DC input negative busbar and the fast charge contactor negative input (Figure 1).



Figure 1

- Type the measured resistance in mOhms into section 3 of the Penthouse HV Joint Resistance Measurements webpage.

NOTE: For example, if the resistance was 0.57 mOhms, type “0.57” into the field in section 3.

- Use the Hioki resistance meter to measure the resistance at the HV joint between the DC input positive busbar and the fast charge contactor positive input (Figure 2).

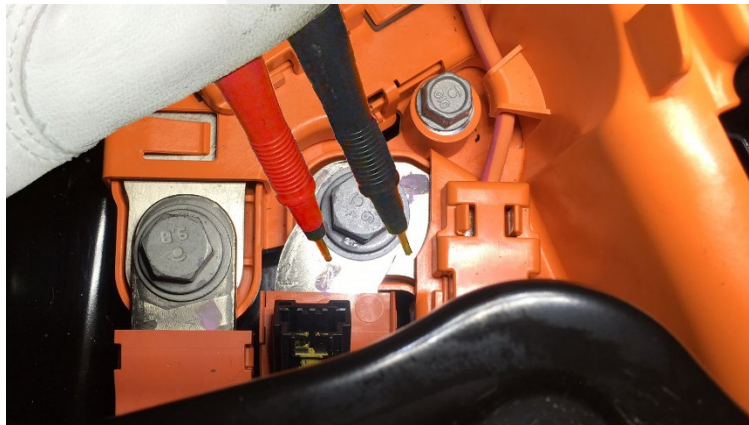


Figure 2

- Type the measured resistance in mOhms into section 4 of the Penthouse HV Joint Resistance Measurements webpage.

NOTE: For example, if the resistance was 0.55 mOhms, type “0.55” into the field in section 4.

- Install the insulator onto the DC input busbar joints.

13. Raise the high voltage controller to a vertical position (Figure 3).

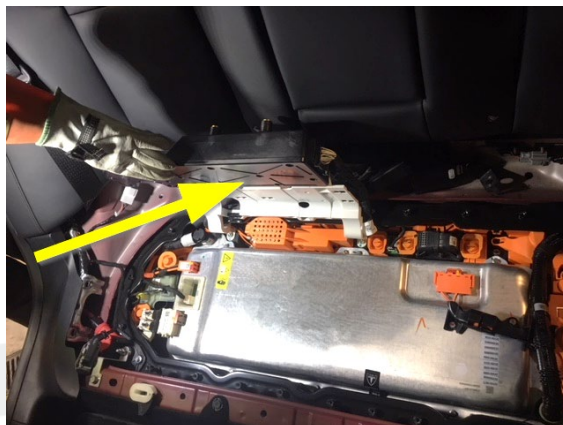


Figure 3

14. Remove the insulator caps from the HV battery positive contactor (Figure 4).

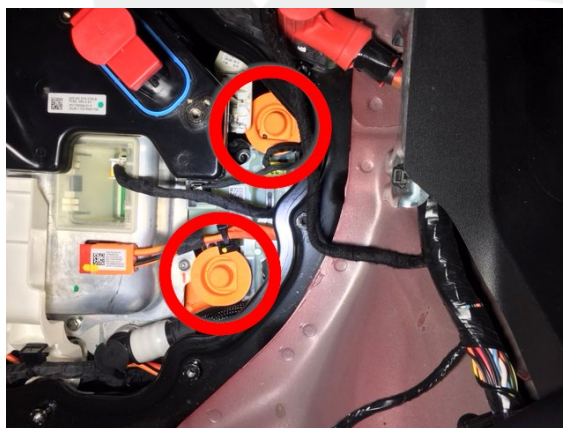


Figure 4

15. Use the Hioki resistance meter to measure the resistance at the HV joint between the HV battery positive contactor and the positive DC busbar (Figure 5).



Figure 5

16. Type the measured resistance in mOhms into section 5 of the Penthouse HV Joint Resistance Measurements webpage.

NOTE: For example, if the resistance was 0.50 mOhms, type "0.50" into the field in section 5.

17. Verify that all fields of the Penthouse HV Joint Resistance Measurements webpage are correctly filled out, and then click **Submit**.
18. Visually inspect the nuts that attach the HV battery positive contactor to the penthouse floor (Figure 6).
 - If there are 3 nuts installed, skip to step 32.
 - If there are less than 3 nuts installed, describe which nuts are missing in the Cause Narrative field of the Repair Order, and then continue to the next step.



Figure 6

19. Remove and discard the nuts that attach the HV battery positive contactor to the penthouse floor (Figure 6).
20. Install 3 new nuts to attach the HV battery positive contactor to the penthouse floor (torque 8 Nm) (Figure 6), and then mark the nuts with a paint pen after they are torqued.
21. Visually inspect the positive DC busbar and insulator near the HV battery positive contactor, and where the busbar attaches to the contactor, for any signs of damage (Figure 7).
 - If damage is seen, take photographs of the damage. Create a Toolbox session, attach the photos to the session, and indicate Toolbox Article #44198 as the problem. Escalate the session, and wait for further instruction.
 - If damage is not seen, continue to the next step.



Figure 7

22. Use the Hioki resistance meter to measure the resistance again at the HV joint between the HV battery positive contactor and the positive DC busbar (Figure 8).



Figure 8

23. If the resistance at the HV joint between the HV battery positive contactor and the positive DC busbar:

- Is 0.06 mOhms (60 μ Ohms) or less, skip to step 27.
- Is greater than 0.06 mOhms (60 μ Ohms), continue to the next step.

24. Remove and discard the bolt, install a new bolt (torque 9 Nm), and then mark the bolt with a paint pen after it is torqued.

25. Use the Hioki resistance meter to measure the resistance again at the HV joint between the HV battery positive contactor and the positive DC busbar (Figure 8).

26. If the resistance:

- Is 0.06 mOhms (60 μ Ohms) or less, skip to step 27.
- Is still greater than 0.06 mOhms (60 μ Ohms), record the resistance in the Cause Narrative field of the Repair Order, and then skip to step 34.

27. Use the Hioki resistance meter to measure the resistance at the HV joint between the HV battery positive contactor and the center of the HV battery positive terminal (Figure 9).



Figure 9

28. If the resistance:

- Is 0.11 mOhms (110 μ Ohms) or less, skip to step 32.
- Is greater than 0.11 mOhms (110 μ Ohms), continue to the next step.

29. Remove and discard the nut, install a new nut (torque 9 Nm), and then mark the nut with a paint pen after it is torqued.
30. Use the Hioki resistance meter to measure the resistance again at the HV joint between the HV battery positive contactor and the center of the HV battery positive terminal (Figure 9).
31. If the resistance:
 - Is 0.11 mOhms (110 μ Ohms) or less, skip to step 32.
 - Is still greater than 0.11 mOhms (110 μ Ohms), record the resistance in the Cause Narrative field of the Repair Order, and then skip to step 34.
32. Install the insulator caps onto the HV battery positive contactor (Figure 4).
33. Lower the high voltage controller (Figure 3), and then skip to step 36.
34. Perform all of the steps to remove and discard the HV battery positive contactor (refer to Service Manual procedure 16302102).
35. Perform all of the steps to install a new HV battery positive contactor (refer to Service Manual procedure 16302102).
36. Install the penthouse cover and connect 12V power (refer to Service Manual procedure 16101002).

Affected VIN(s) Affected Model 3 vehicles built between approximately May 1, 2018 and May 19, 2018.

NOTE: This is a simplified summary of the affected VIN list. Refer to the VIN/Bulletin Tracker or Customer/Vehicle profile to determine applicability of this bulletin for a particular vehicle.

For feedback on the accuracy of this document, email ServiceBulletinFeedback@tesla.com.