



## Second Charger Upgrade

<b>Classification</b>	Repair Bulletin	<b>Section/Group</b>	44 – High Voltage System	<b>Country/Region</b>	All
<b>Year</b>	All	<b>Model</b>	Model S	<b>Version</b>	All

**Bulletin Classification:** *This repair bulletin provides instructions and guidelines for a noted condition or a customer concern. The information provided can address a broad range of known or perceived issues with the operation of Tesla vehicles. This bulletin might not be VIN-specific.*

*This Service Bulletin supersedes SB-12-44-005 R1, dated 31-Jan-13. The content changes are identified with double vertical lines. Discard the previous Service Bulletin and replace it with this one.*

This bulletin describes how to install a second (slave) charger in a car that is currently only configured for one charger. This requires reconfiguring the coolant lines and firmware as well.

### Inspection

1. Connect a laptop with Tesla Diagnostic System (TDS) to the vehicle.
2. Select Views > Vehicle Information > Vehicle Configuration Update. If the charger type is Dual, a second charger is already installed, and this procedure does not need to be performed. If the charger type is Single, continue this procedure.

### Accessing the High Voltage Junction Box

**⚠ 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 00 (500V) must be worn any time a high voltage cable is handled. Refer to service bulletin SB-13-92-003, High Voltage Awareness Care Points for additional safety information.

1. Perform the vehicle electrical isolation procedure (refer to Service Manual procedure 17010000).
2. Connect a 12V charger to support the 12V battery while the HV system is disconnected.
3. Remove the rear seat cushion frame (refer to Service Manual procedure 13023002).

4. Remove the 6 bolts that secure the HV junction box cover (torque 5 Nm) (Figure 1). Remove the cover.

**⚠ WARNING:** Measure for voltage across the junction box terminals. If voltage is present across the terminals, seek expert advice. Due to the risk of electrocution, do not continue with this procedure until a zero voltage reading is verified.

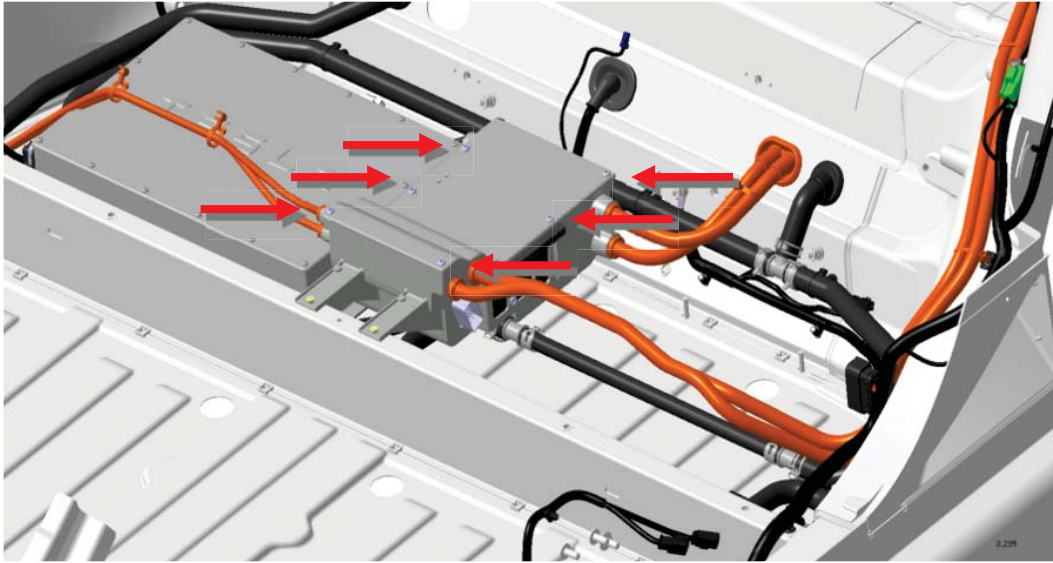


Figure 1

5. Disconnect the 5 connectors that attach the junction box to the master charger (Figure 2).

**NOTE:** Note the positions of all components before removal.

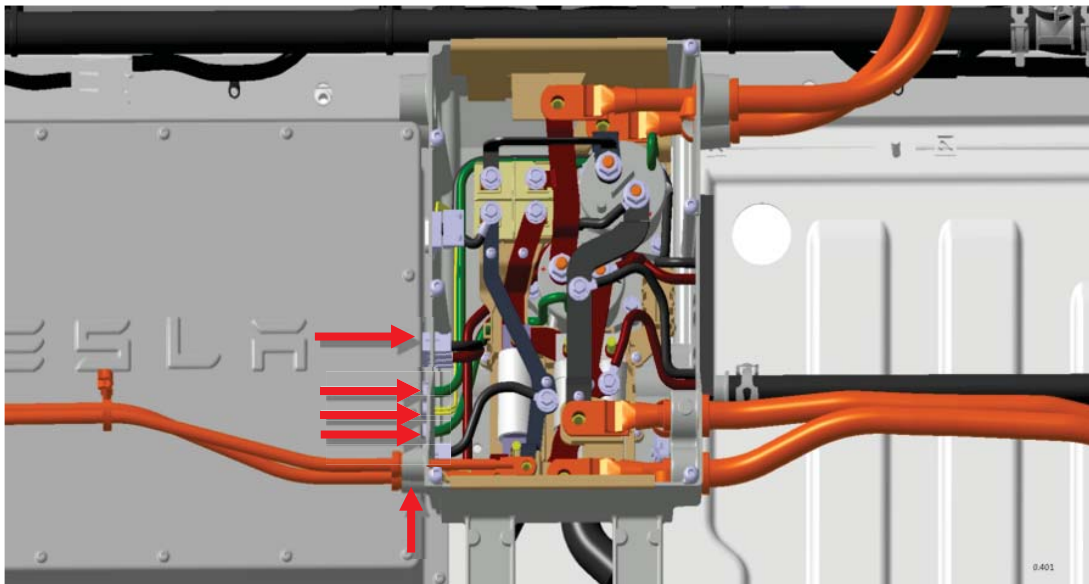
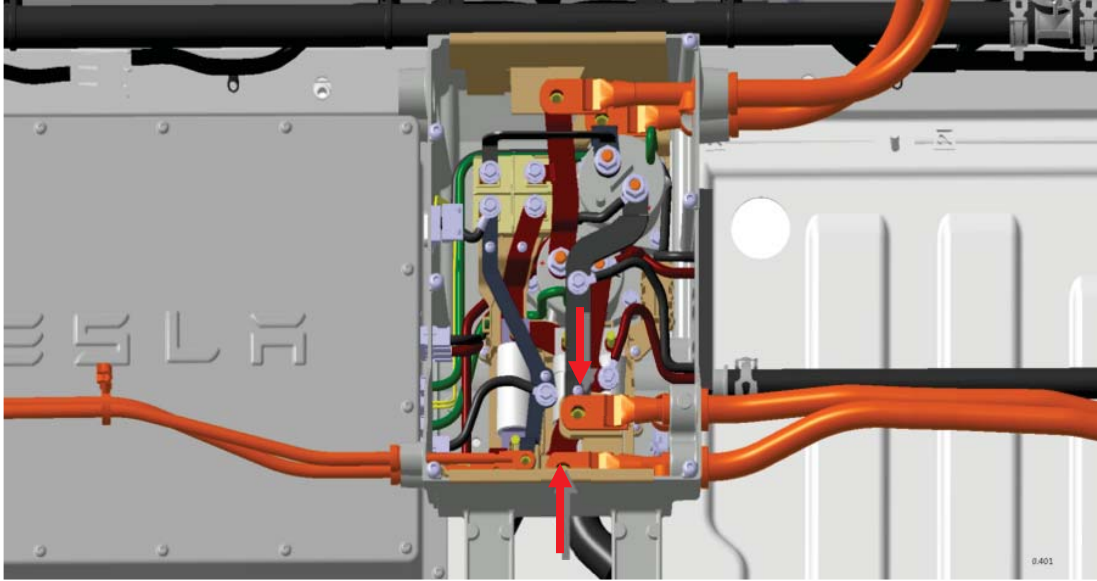


Figure 2

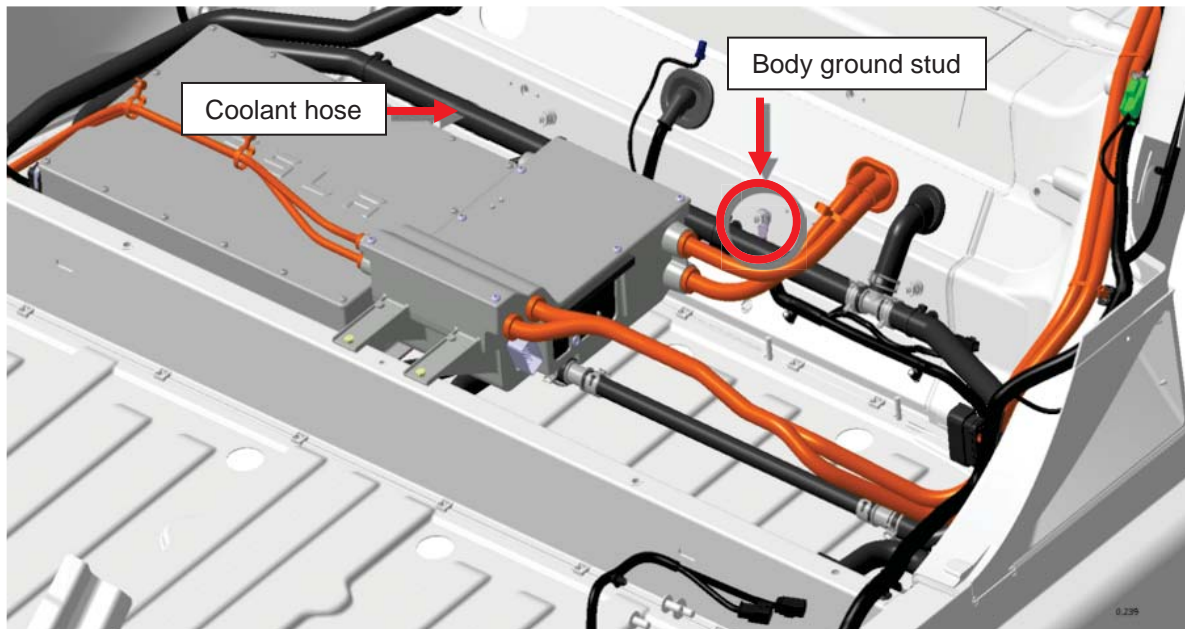
6. Remove the 2 bolts that secure the positive and negative charge port cables at the HV junction box (torque 9 Nm).

7. Release the 2 quick connectors that secure the charge port cables to the HV junction box body (Figure 3). Move the cables aside.



**Figure 3**

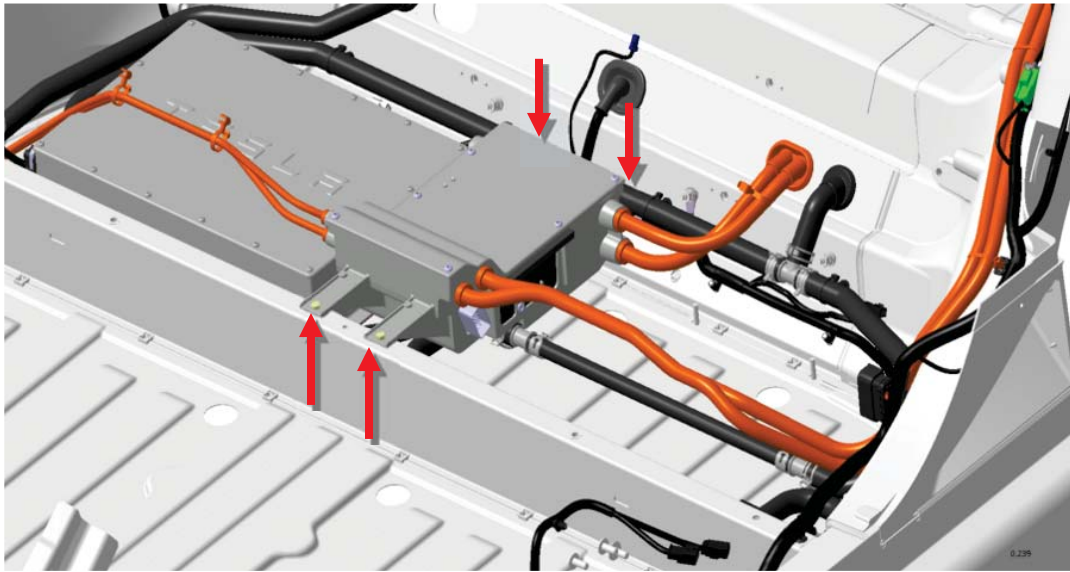
8. Release the 2 clips that secure the charger coolant hose to the body.
9. Move the coolant hose aside for access to the HV junction box bracket bolts (Figure 4).



**Figure 4**

10. Remove the HV junction box ground strap from the body ground stud (torque 9 Nm) (Figure 4).

11. Remove the 4 bolts that secure the HV junction box (torque 5 Nm) (Figure 5).

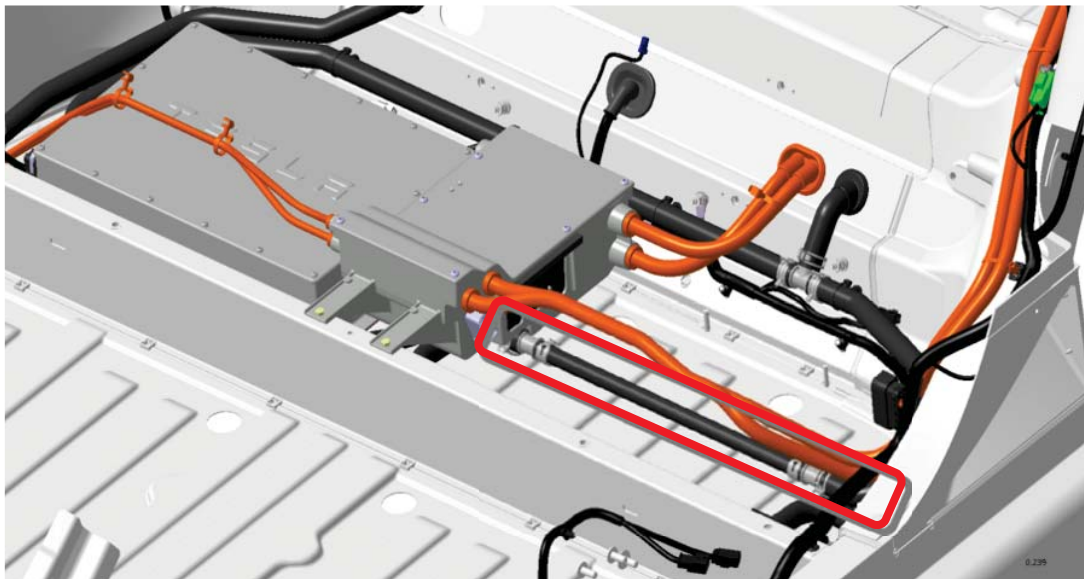


**Figure 5**

12. Move the HV junction box aside for access.

13. Disconnect the harness connector from the side of the HV junction box.

14. Locate the restrictors on each end of the substitute coolant hose running across the empty charger bay (Figure 6). Clamp both hoses on the outside of each restrictor to minimize coolant loss.



**Figure 6 (Substitute coolant hose and restrictors)**

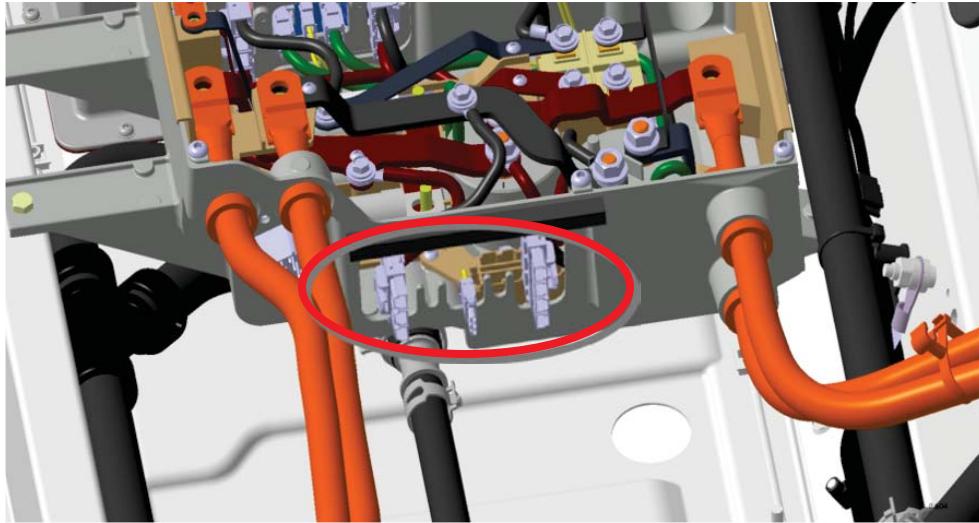
15. Place shop towels around the affected area to absorb any coolant spills.

16. Release the 2 hose clips.

17. Disconnect the substitute coolant hose. Remove the hose and both restrictors.

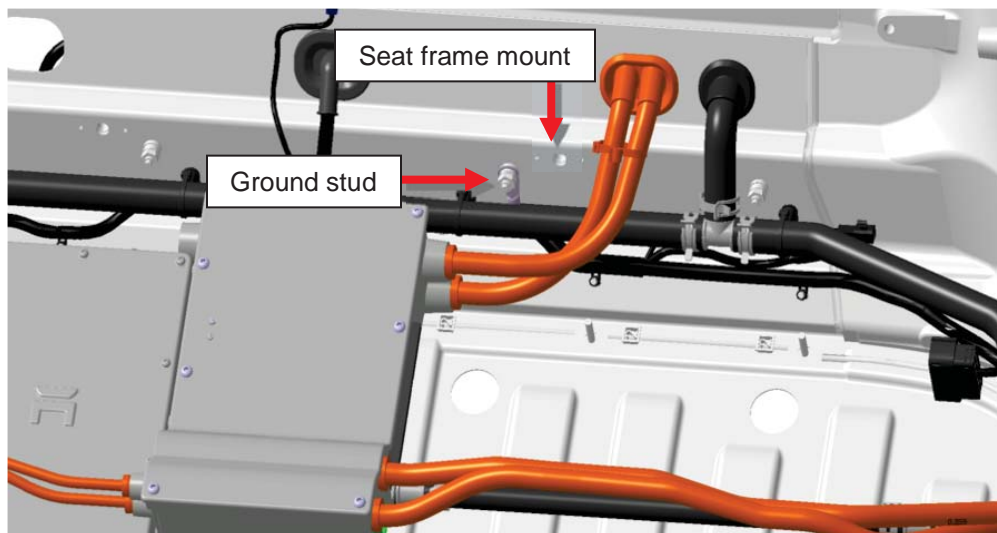
## Installing the New Slave Charger

1. Before beginning installation, pull the three connectors for the slave charger out of the side of the junction box (one HVIL loop, one input, one output) (Figure 7).



**Figure 7 (Slave connectors)**

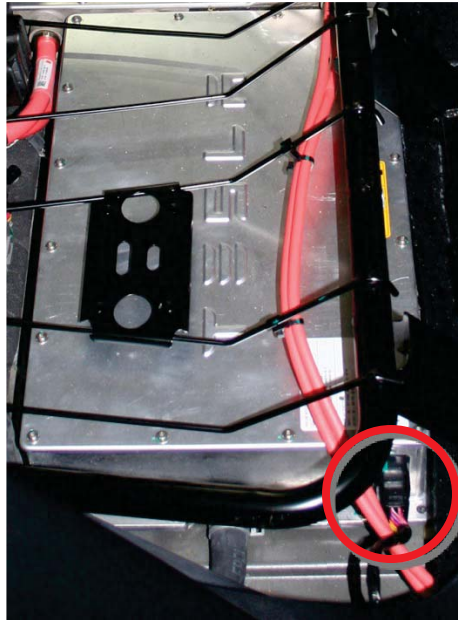
2. Attach the ground strap to the slave charger (torque 5 Nm) prior to placing the charger in position.
3. Place the charger in position and attach the coolant hoses. Tighten the mounting nuts (torque 6.5 Nm).
4. Position the HV junction box back in place. Reinstall the 4 bolts that secure the HV junction box (torque 5 Nm).
5. Reinstall the ground strap for the HV junction box to the same body stud as the slave charger (Figure 8). Position the ground strap so that it does not interfere with the seat bottom frame mounting point that is next to the ground stud.



**Figure 8**

6. Install the 3 connectors from the HV junction box to the slave charger (Figure 7).

7. Use a clippable hose ring to wrap around the coolant hose where it contacts the rear LH side corner of the charger. Copy the placement of the same piece on the master charger.
8. Reconnect the harness connector to the side of the slave charger.
9. Move the coolant hose back into its former location (see step 8 of the procedure “Accessing the High Voltage Junction Box”).
10. Fasten the 2 clips that secure the charger coolant hose to the body.
11. Reinstall the 2 quick connectors that secure the charge port cables to the HV junction box body (Figure 3). Move the cables back into their former location.
12. Reinstall the 2 bolts that secure the positive and negative charge port cables at the HV junction box (torque 9 Nm).
13. Reinstall the HV junction box cover and the 6 bolts that secure it (torque 5 Nm) (Figure 1).
14. Disconnect the master charger low voltage connector on the outboard side of the charger (Figure 9).



**Figure 9 (Shown with seat cushion frame installed)**

15. Restore HV power to the car by reversing the Electrical Isolation procedure.

**NOTE:** Do not reinstall the seat cushion frame yet.

## Upgrading Firmware

1. Pull down the center storage tray or center cover to detach the front 2 clips. The storage tray or center cover does not need to be completely removed.
2. Reconnect the laptop with TDS with the diagnostic cable. Use the CAN breakout cable to connect the laptop to the PT bus.

3. Select Views > Battery > Charger Config. Select Convert To Slave, then select the Play icon. Follow the on-screen instructions.
4. Reconnect the master charger low voltage connector (Figure 9).
5. Select Views > Vehicle Information > Vehicle Configuration Update. Change the charger type to Dual, then select the pencil icon to save the configuration to the vehicle.
6. Reset the gateway.

**NOTE:** Resetting the gateway sends the new (dual charger) vehicle configuration to the server. This might take up to 10 minutes. If the firmware is updated before the server receives the new configuration, the server sends a firmware package that is only correct for the old (single charger) configuration. The updated configuration can be confirmed in Production Garage. Query the VIN and check the Firmware tab. If CHGS is listed in the Vehicle Hardware Configuration, the server has received the new dual charger configuration.

7. Select Views > Service Loader to update the vehicle firmware.

## Refilling Coolant

1. Perform the coolant air purge routine (refer to Service Manual procedure 18300000).
2. While the coolant air purge routine is running, check the charger coolant hose connections to make sure there is no leakage.
3. Reinstall the seat cushion frame. Installation is the reverse of removal.

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<b>Affected Part(s)</b>	6009278-00-F ASY,CHRGR,10kW
	1008531-00-C ASY,GRND STRAP,BRAIDED,WITH TERM,CHRGR
	1008770-00-A BOLT,M6-1.0X12,FHCS,DIN6921,G10.9,ZF720
	1006799-00-A NUT,HEX,M6,1.0,STL,ZNCFL1000,SL (Qty. 4)
	1019470-00-A HOSE RING, CLIPPABLE, 25MM ID X 30MM (BLACK RUBBER SLEEVE)
	1012820-00-A G-48 COOLANT, ETHYLENE GLYCOL, 50/50 MIX

KIT-SB1244005-01\* SECOND CHARGER KIT

\*Use the Complete Kit Part Number for DMS parts entry only. Order parts separately as listed above.

### Warranty/DMS Coding:

Description	Complaint	Cause	Correction	Time
Inspection Only; Charger Installation Not Required	A091	B053	S011244005	0.1
Install Second Charger	A091	B053	S021244005	2.7

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