



## Ohmmu – Telsa 12V Lithium Battery T1230 Installation Guide for 2012 through 2014 Model S

Installation video available at [www.ohmmu.com/models](http://www.ohmmu.com/models)

Time for procedure: ~90 minutes

Level of difficulty: Moderate (2012-2014) Easy (2015+)

Tools needed: Socket wrench, 10mm Socket, 13mm Socket, Socket Extension (4 to 12" length), 10mm wrench, 8mm socket-driver and flat-head screw-driver

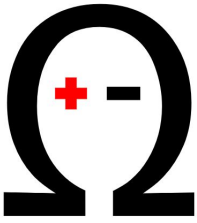
**IMPORTANT:** Before you begin, roll windows down, open frunk and use MCU to "Power Off" vehicle (go to "Service" menu and select "Power Off" then confirm)



### Steps 1-3 are optional but recommended to make process easier

1. Remove carpet liners in the frunk (bottom carpet, two side carpets and one top trim carpet. Will need to remove the cargo net holder plastic knobs to do this; remove by turning counter clockwise.
2. (Tools: 10mm socket, socket wrench) Remove the 10 bolts that hold the frunkboot in place.
3. Remove the frunk-boot by sliding it out.
4. Remove the passenger side frunk height adjustment bolt (bolt with rubber disc as head); do so by simply grabbing hold of the rubber portion and turning counterclockwise.

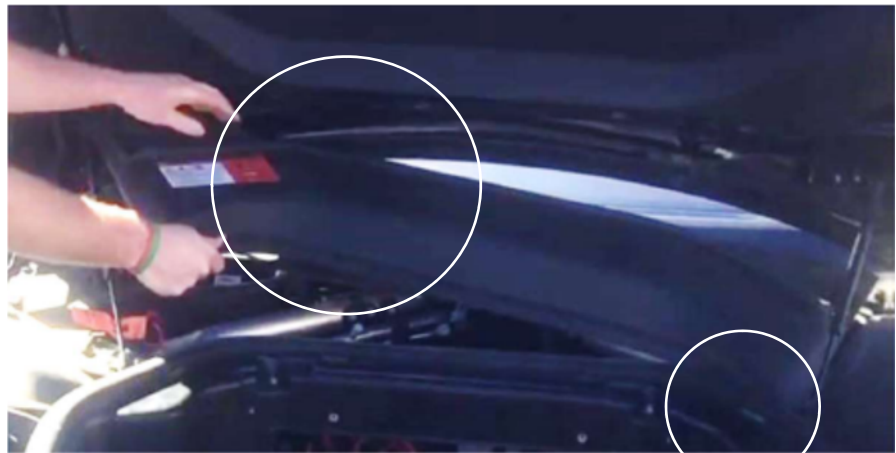




5. Remove the passenger side frunk trim by simply pulling it up along edges and snapping it out of position.

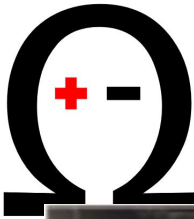


6. Remove the center frunk trim by simply pulling it up along edges and snapping it out of position.



7. Remove the air filter





8. The lower windshield trim will need to be removed by pulling it out of its track along the base of the windshield.



9. (Tools: 10mm socket and socket wrench) Remove the air filter box by removing 2 10mm bolts, one on either side of air duct. Careful not to drop bolts, can be tough to reach them if this happens.



10. Now you can visualize the 12V battery and notice the break-out fuse panel on the top. You should now remove the HVIL (High Voltage Interlock Loop) harness by unlocking and pulling the loop from its socket.





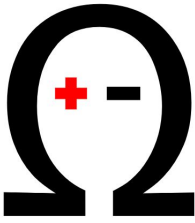
11. (Tools: 10mm wrench); Loosen the negative terminal lead on the battery by using a 10mm wrench. Once it is loosened remove the lead and secure it out of the way.



12. Remove the cover on the break-out fuse panel that sits atop the 12V battery.
13. (Tools: 13mm socket, socket wrench) Remove the 13mm nut on the DC-DC converter lead and the 13mm nut on the batteries positive terminal.



14. Remove the break-out fuse panel from the top of the battery and secure it out of the way (if vehicle is equipped with air-suspension, space is limited, do your best)
15. (Tools: deep-well 10mm socket, socket wrench) Loosen the 2 x 10mm nuts on the battery strap, then remove the battery strap (may have to remove one of the nuts completely to do this)
16. Now is the fun part; shimmy the battery out of there! Easiest way to do this is to spin the battery 90 degrees then tip it on to its side, then lift it out of the space. (see video on our website for a better understanding of this).



17. (Tools: 8mm socket driver) Remove the 2 terminal adapters on the stock/old 12V battery and transfer them over to your new ohmmu Lithium battery in the same orientation as they were on the stock battery (the negative lead should be turned enough to allow the battery handle to fold up and down).



18. Now slide your new battery back in the same way you were able to get the old one out. It can be a challenge to get it into the tray, it is easier to install this battery than to do another AGM battery due to lighter weight and slightly smaller profile.
19. (Tools: deep-well 10mm socket, socket wrench) Reattach the battery strap with the 2 x 10mm nuts to secure it in position.
20. (Tools: 13mm socket, socket wrench) Fasten the 13mm nut to secure the positive terminal of the new battery to the fuse break-out bus.
21. (Tools; 13mm socket, socket wrench) Fasten the 13mm nut to secure the DC/DC positive lead back in position.
22. Reattach the fuse break-out cover.
23. (Tools: 10mm wrench) Reattach the negative terminal lead (some small spark/arc may occur when reconnecting as the vehicle starts booting computers instantly) and tighten down with 10mm wrench. Careful to make sure the fuse break-out cover is back in place so the 10mm wrench doesn't accidentally strike one of the positive leads/fuses/plates under that cover while tightening this terminal (touching the metal of the vehicle is fine).
24. Reattach the HVIL harness and secure until you hear the "click", then pull it slightly to ensure it is locked in position.
25. (Tools: 10mm socket and socket wrench) Reattach the air-box with 2 x 10mm bolts.
26. Reinstall the air filter.
27. Reinstall the trim at bottom of windshield.
28. Reinstall frunk center liner (clips into place). Ensure the tab on the High-Voltage Interlock Loop is pulled through the edge of this trim, it must be visible/exposed after you are done installing the battery so emergency personnel can find the loop.

29. Reinstall frunk passenger side liner by clipping into place and then fastening the passenger side frunk height adjustment bolt.

**Steps 30-32 are optional, if you removed the frunk boot.**

30. (Tools: 10mm socket and socket wrench) Reinstall the frunk boot by fastening the 10 x 10mm bolts.

31. Reinstall the carpeting and frunk liner.

32. Reinstall cargo net knobs.

**NOTE:** When you get back into the vehicle, it will reinitialize and reboot all of the systems in the vehicle because the HVIL (High Voltage Interlock Loop) was removed during the 12V install. The vehicle will briefly throw an alert that the vehicle needs service. This error will go away once all systems are rebooted, and it identifies that the loop is back in place. If you forgot to reattach the loop, this error will persist, and your vehicle will refuse to drive or charge the battery (because the High Voltage battery cannot “connect” without that loop in place).



## **DISCLAIMER**

Ohmmu Energy is not responsible for any problems or damage resulting from a failed battery installation. This document is intended to be used as a reference guide only for the installation of the Ohmmu Model S battery. Ohmmu Energy is not liable for improper installation and any damage as a result of an improper installation.