product page

Installation Guide

CATL Battery 30 Kwh 173Ah 173Volt BMS

Tools needed

¼” Ratchet
¼” 6” extension
¼” driver 7mm shallow socket
¼” driver 8mm shallow socket
¼” drive 13mm socket
Razor knife
Soldering iron
Solder 18-20 gauge
Flush cut diagonal cutters
Multi meter (VOM)
Optional: ¼” impact driver
Optional tool Heat Gun

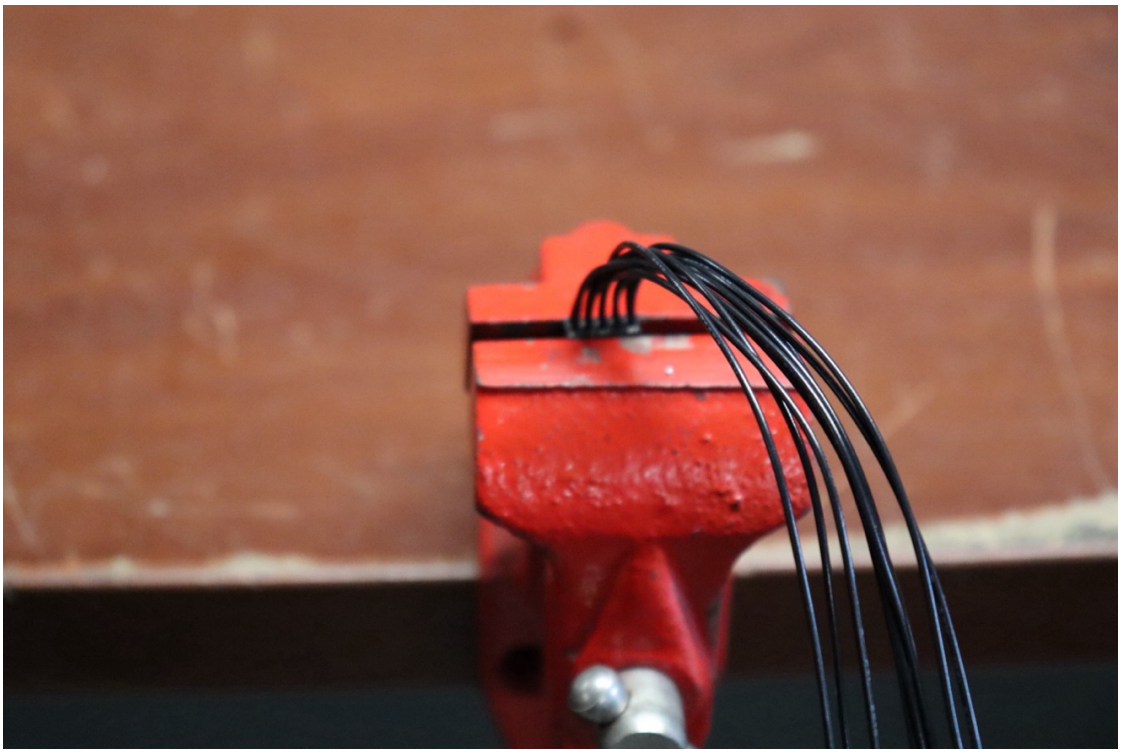
Additional Items

Heat Shrink 1/16” to 1/8”
Zip ties
Kapton tape 1/4” to 1/2”
RTV
Thermistors
10 K NTC

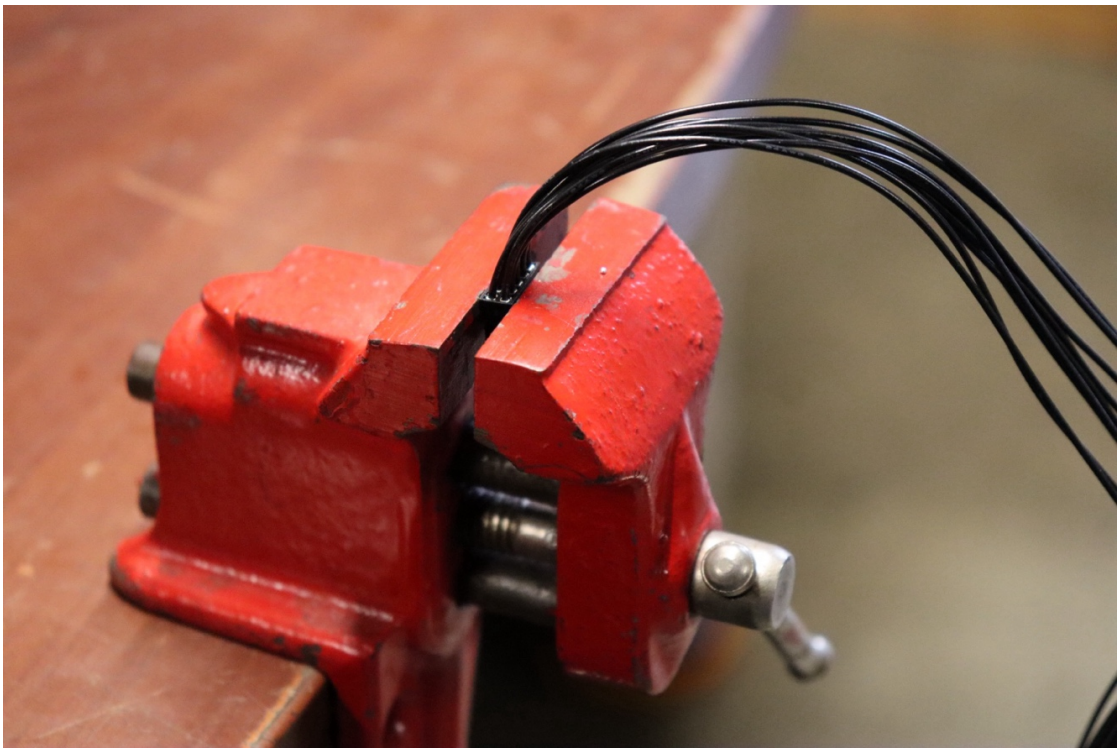
Documents

https://evwest.com/support/CATL_Pack_BMS_Settings_Quick_Start_Guide.pdf

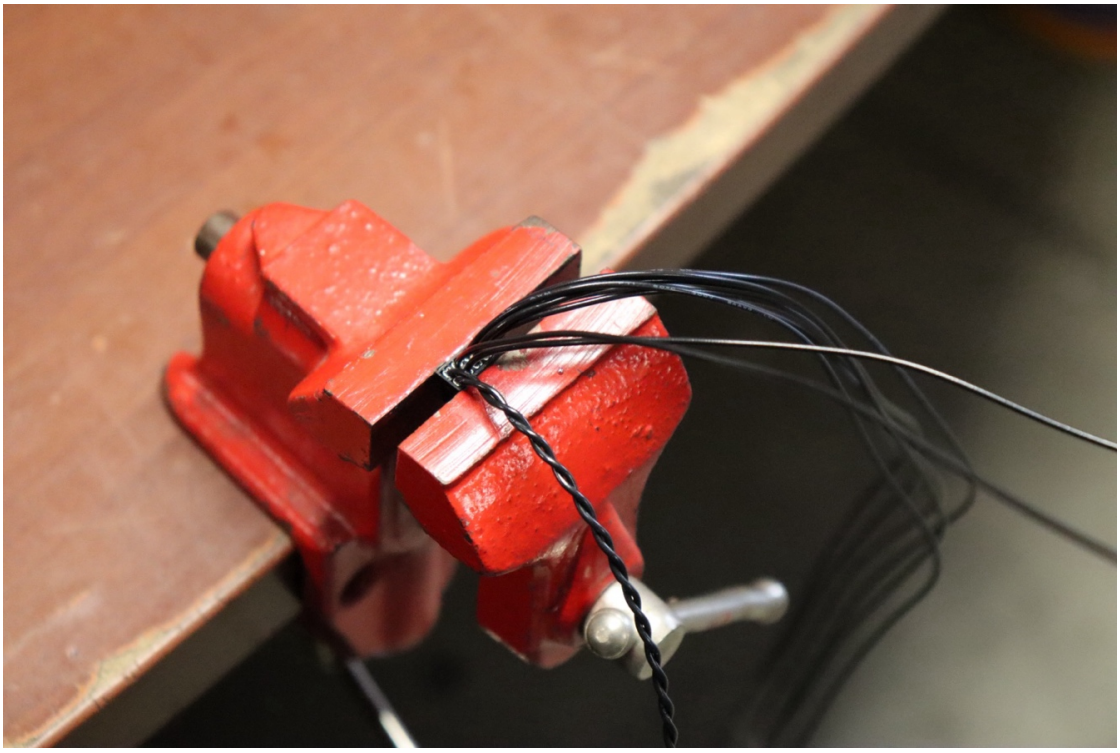
Thermistor Harness

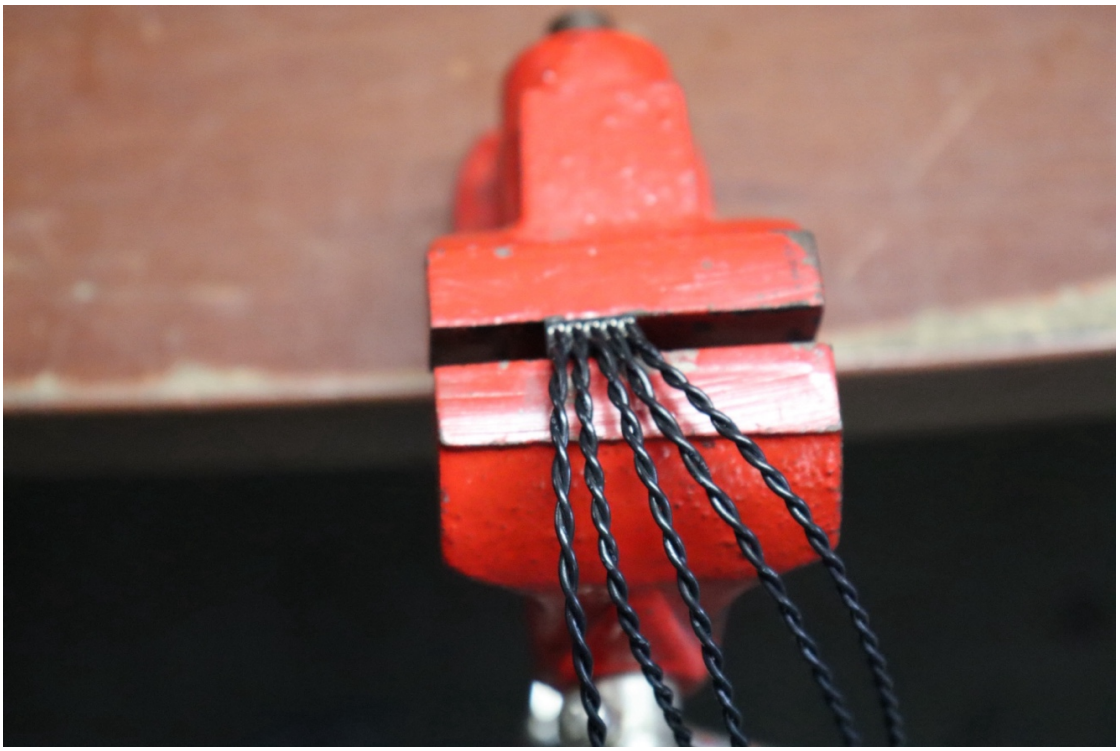


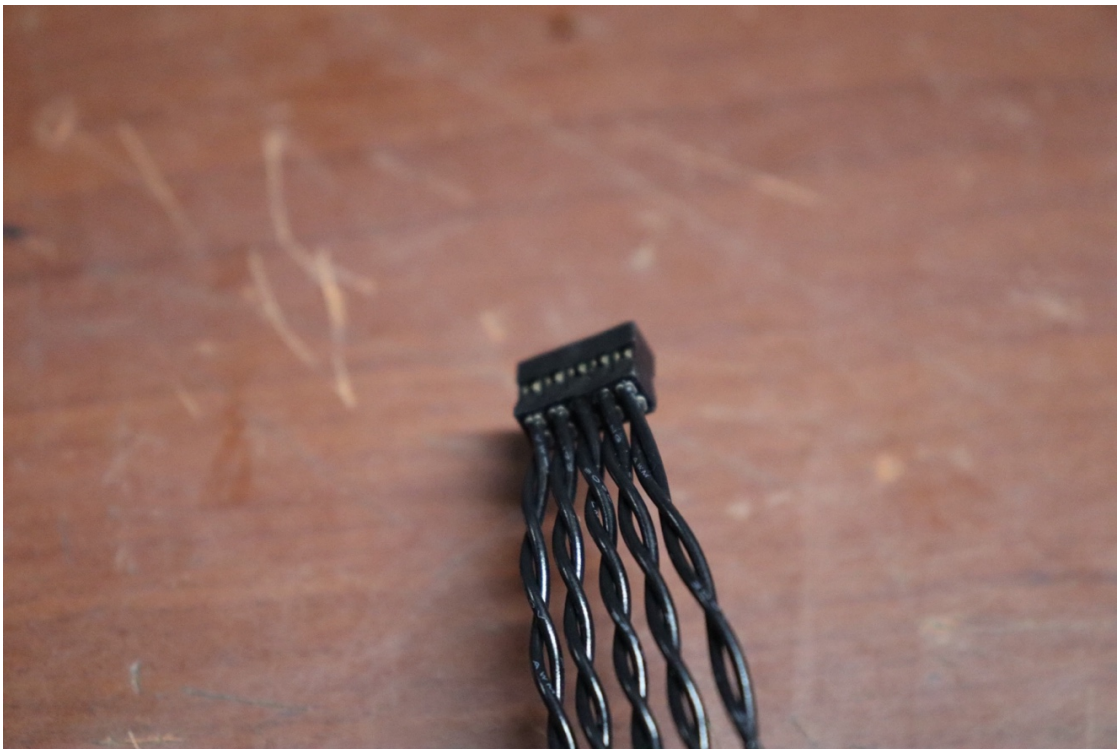
1) Separate thermistor wires for thermistors 1,2,3,4 and 5



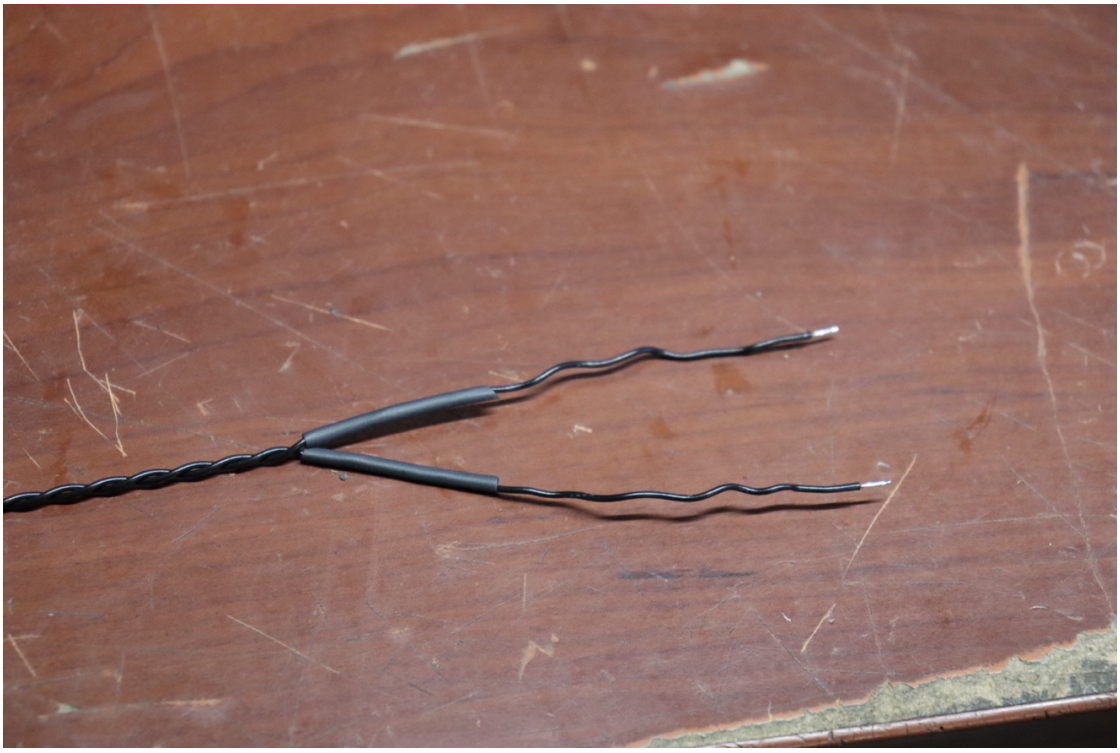
2) Twist thermistor pairs together (optional step)



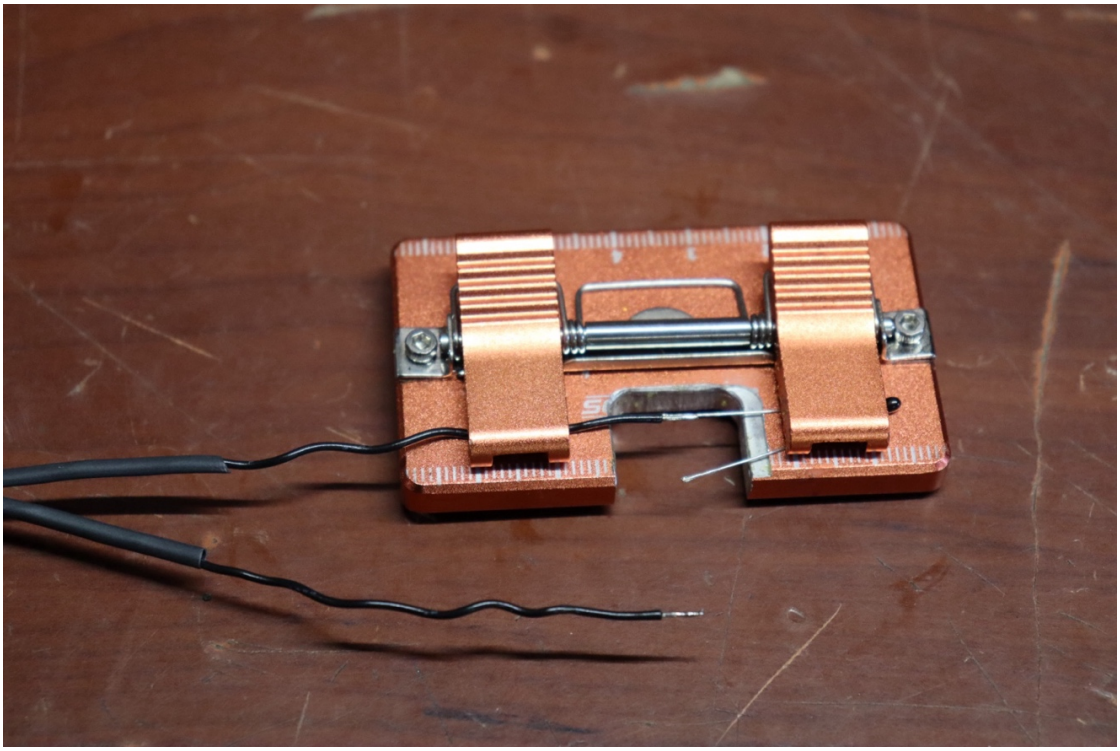




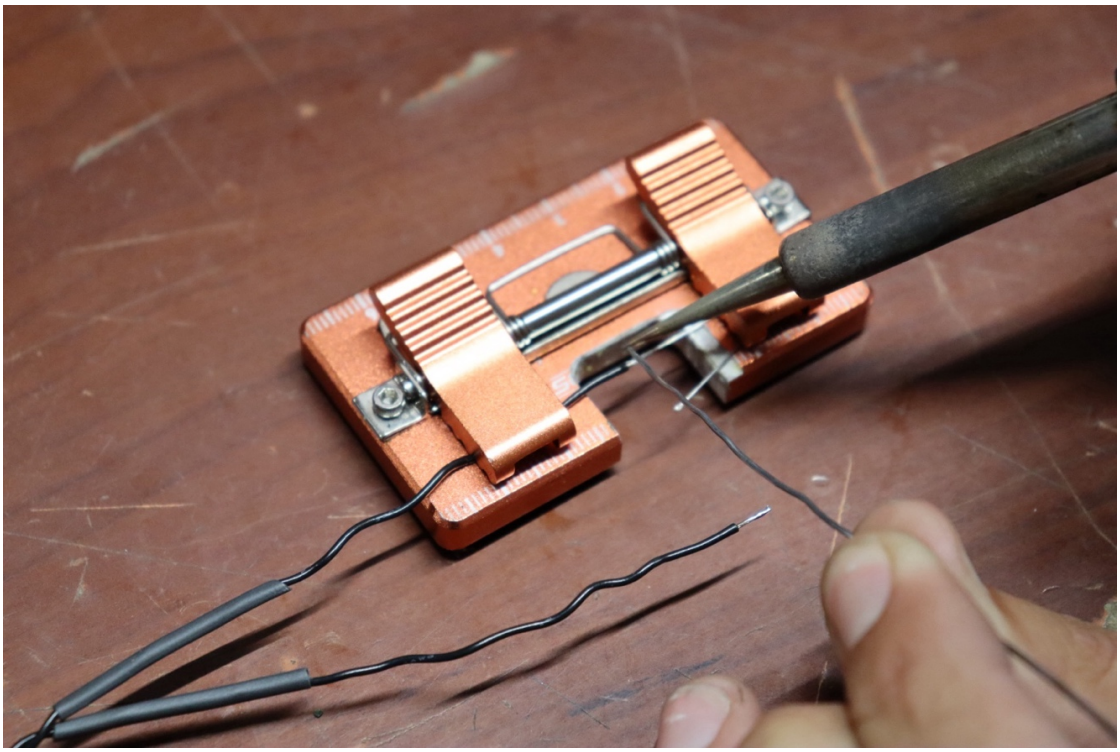
3) Cut to length. Thermistor #1 - Full length | Thermistor #2 -21” | Thermistor #3 - 25” | Thermistor #4 - Full length | Thermistor #5 - 20”

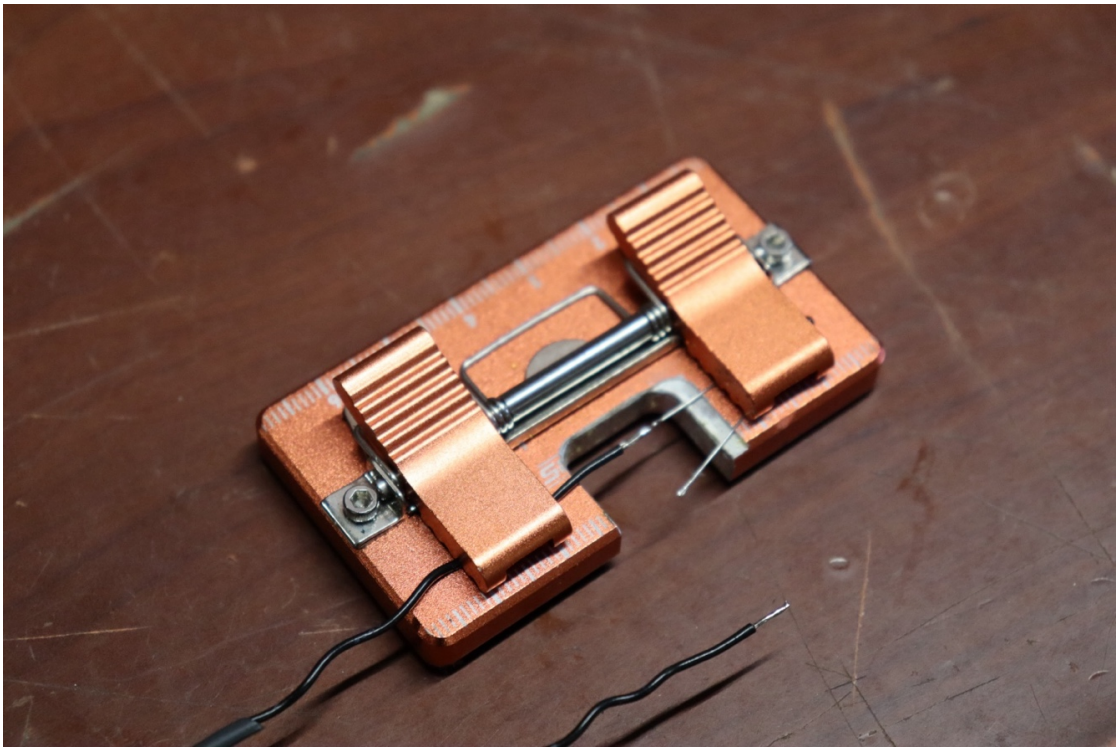


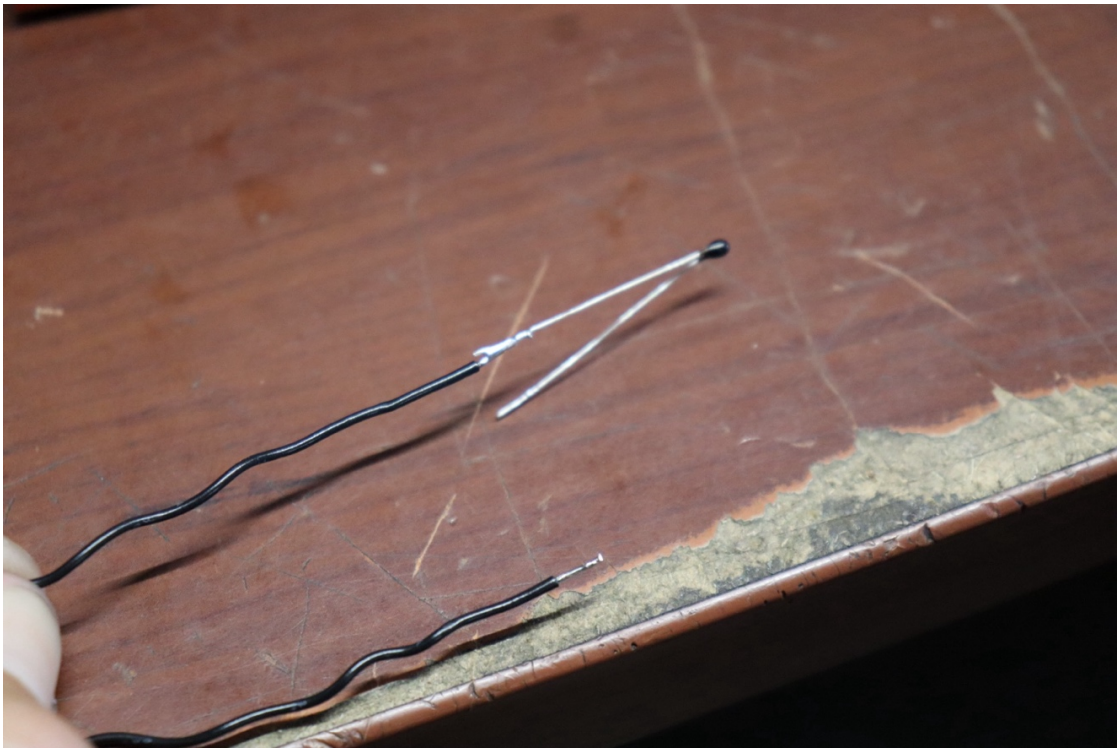
4) Strip and add heat shrink

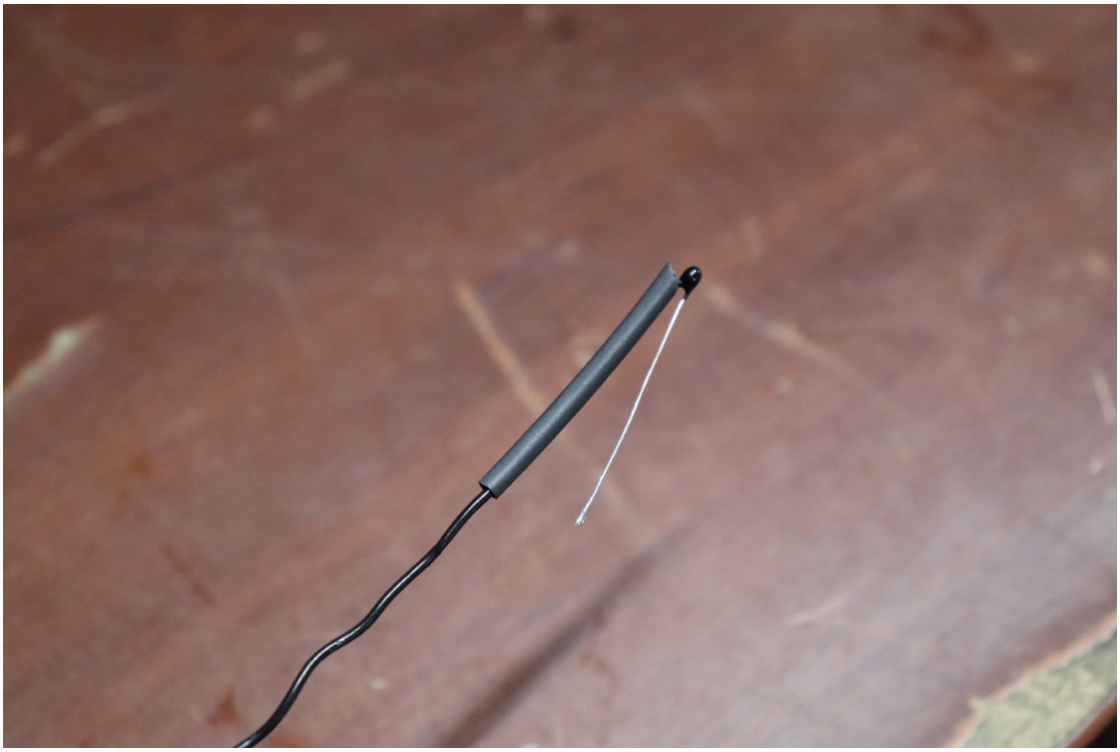


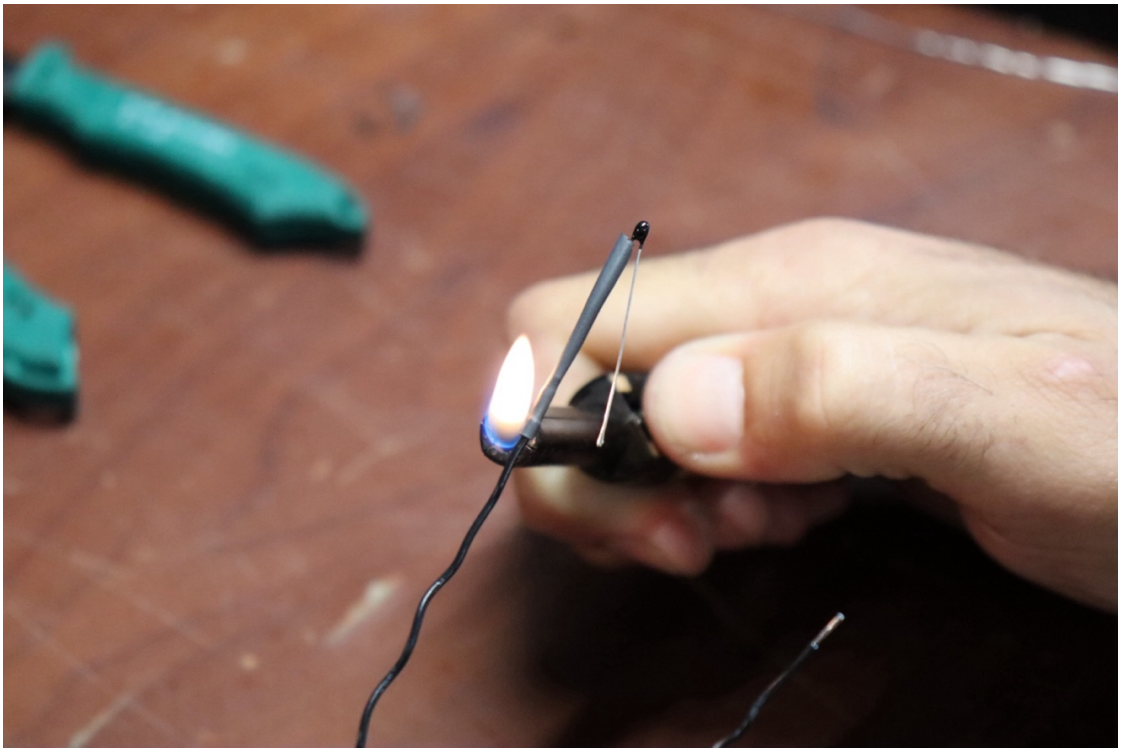
5) Solder Thermistor to the wires

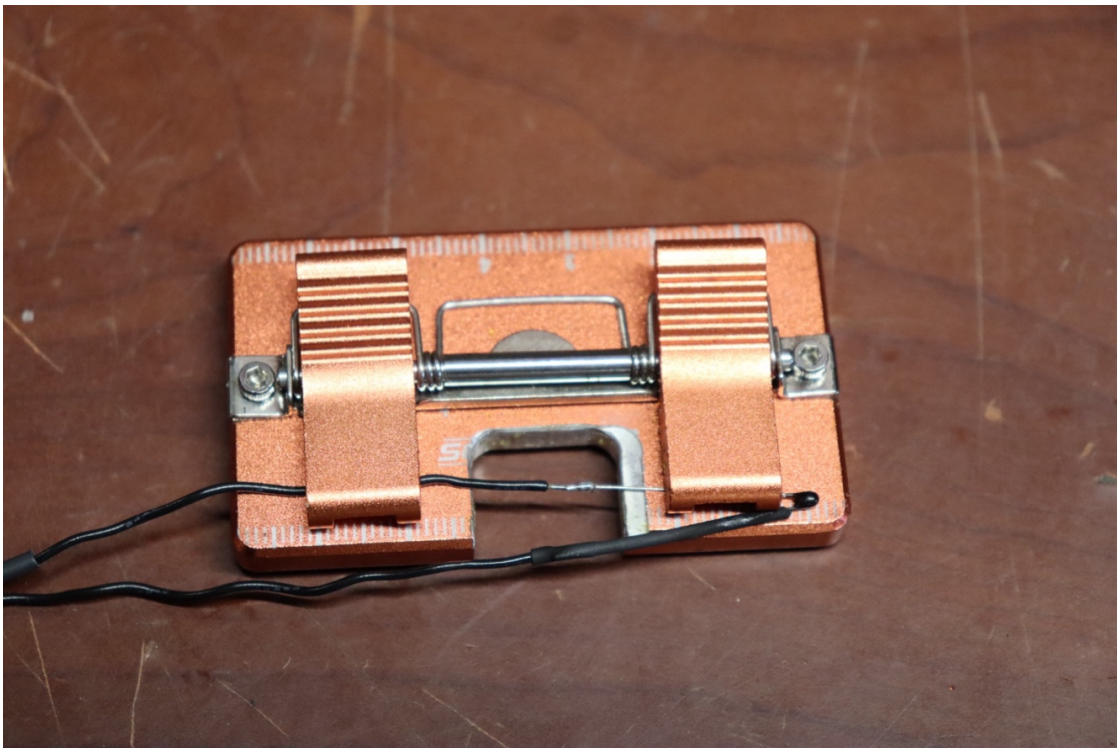


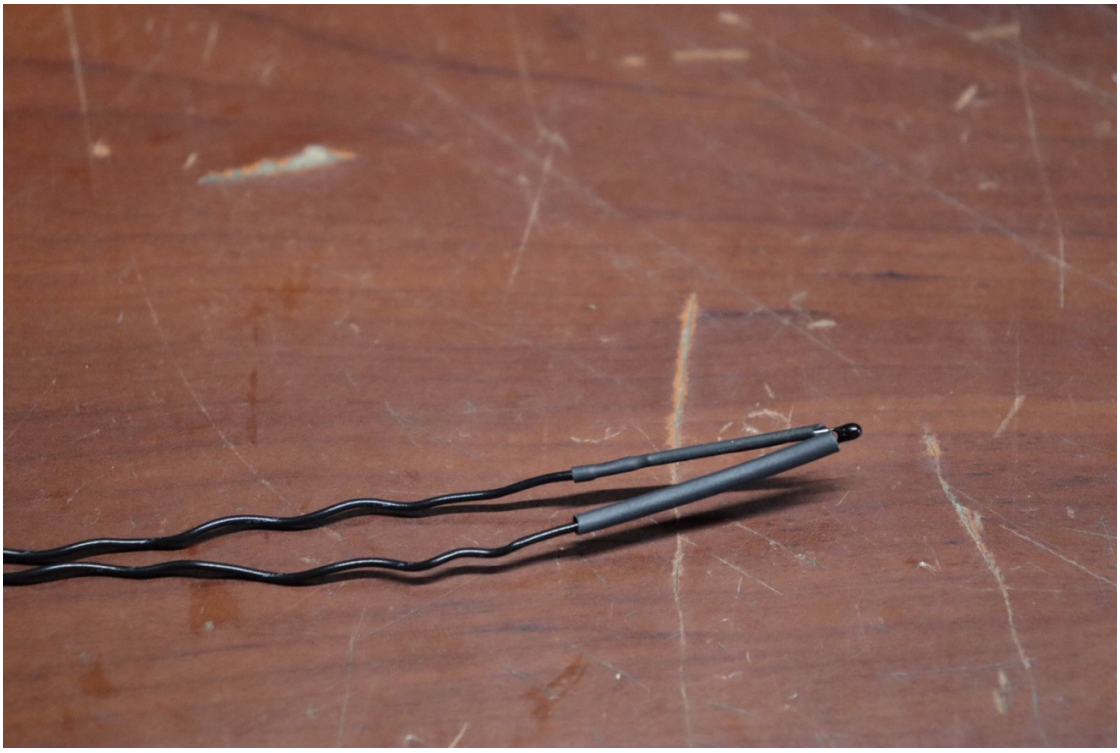


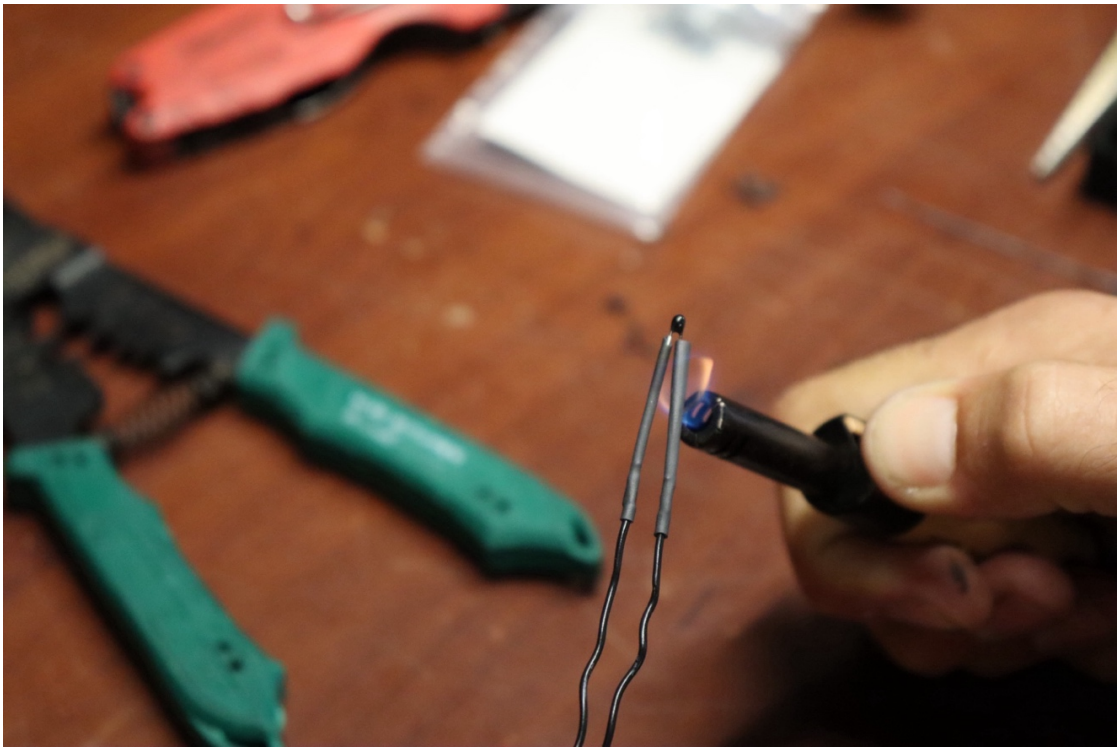




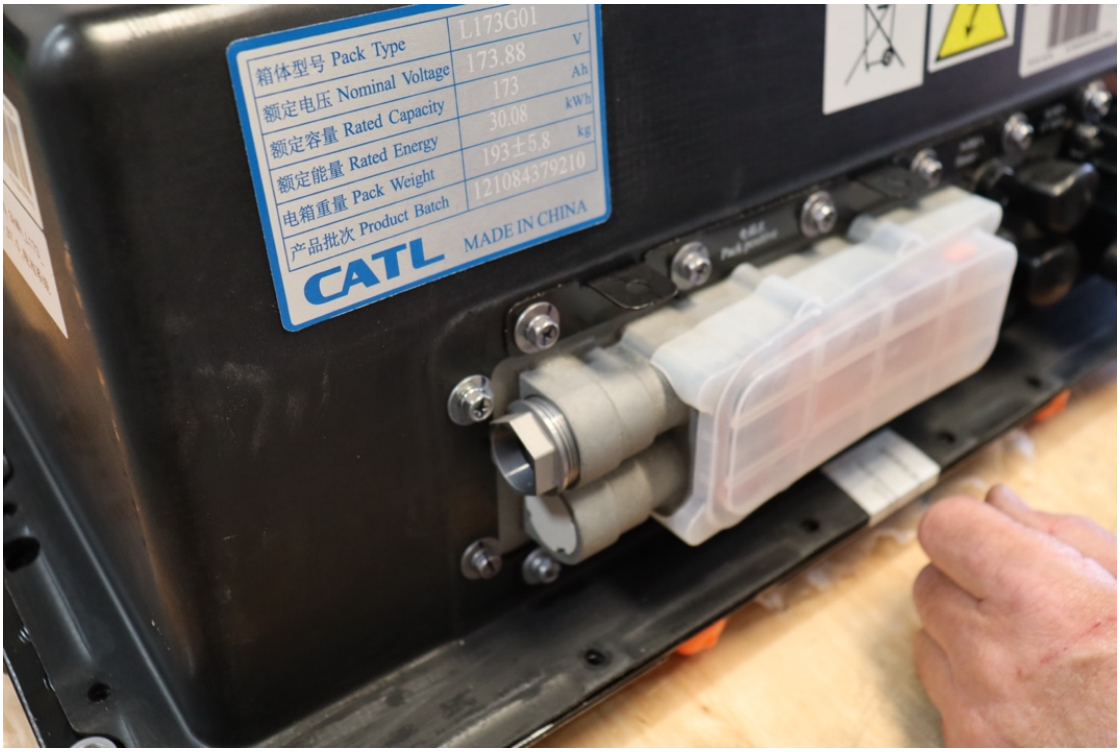




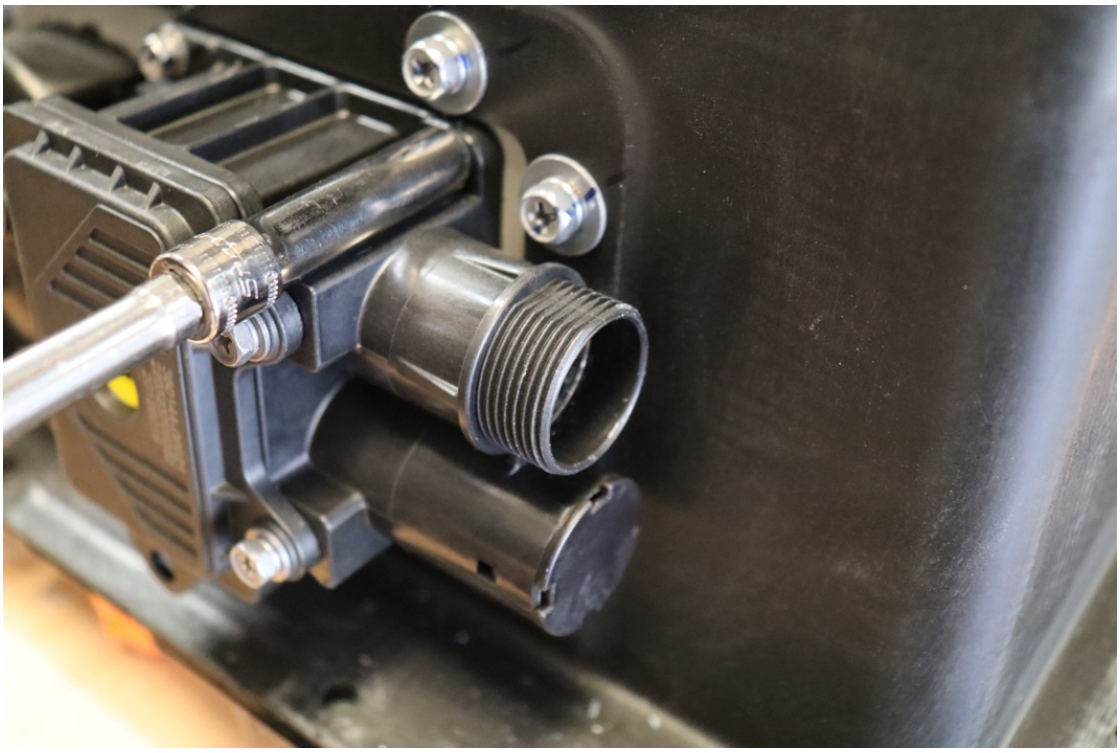


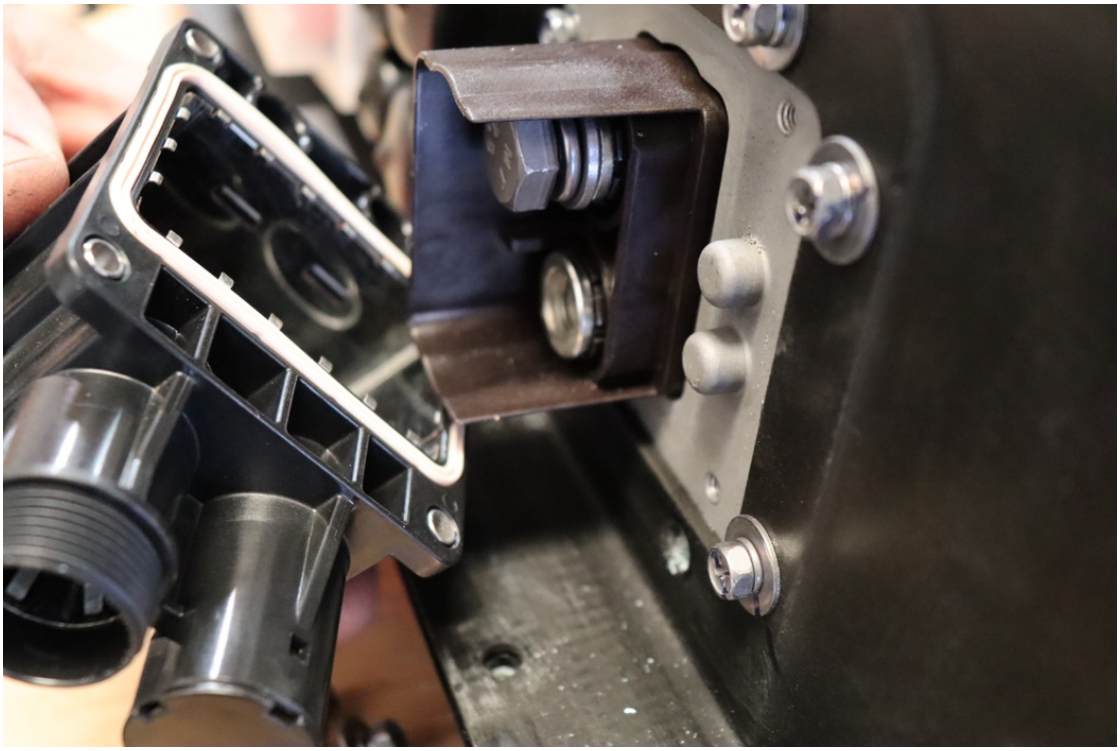


Disassembly of Battery Pack



1) Unscrew negative and positive cable seals

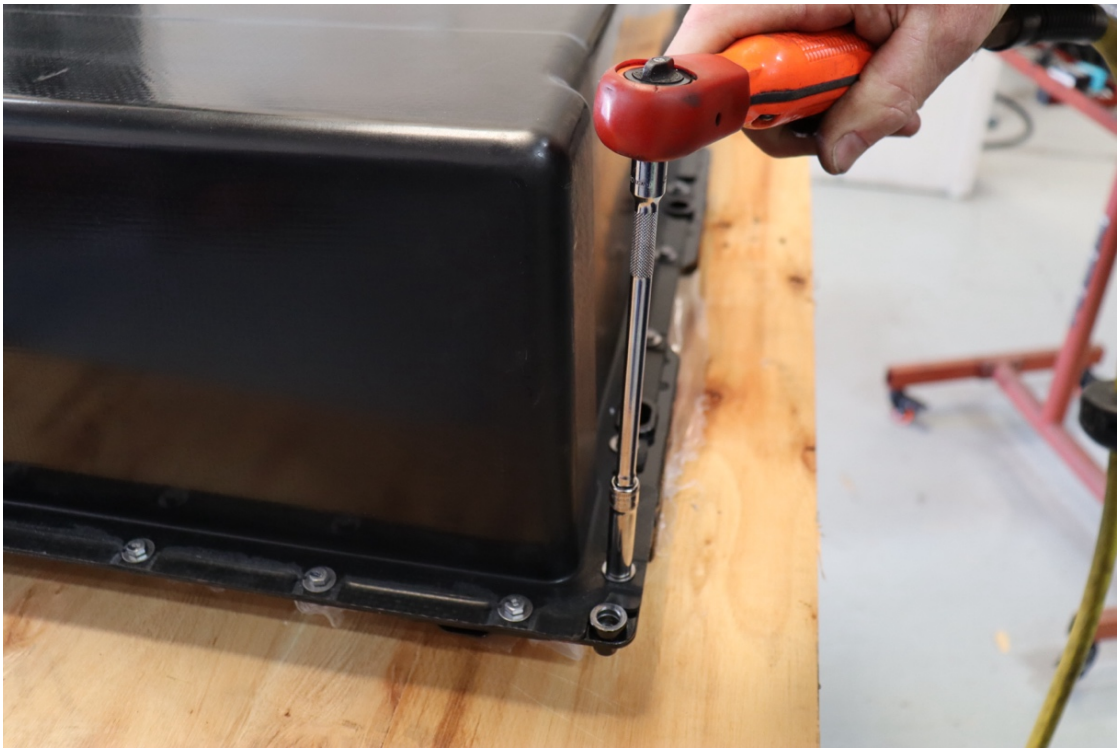




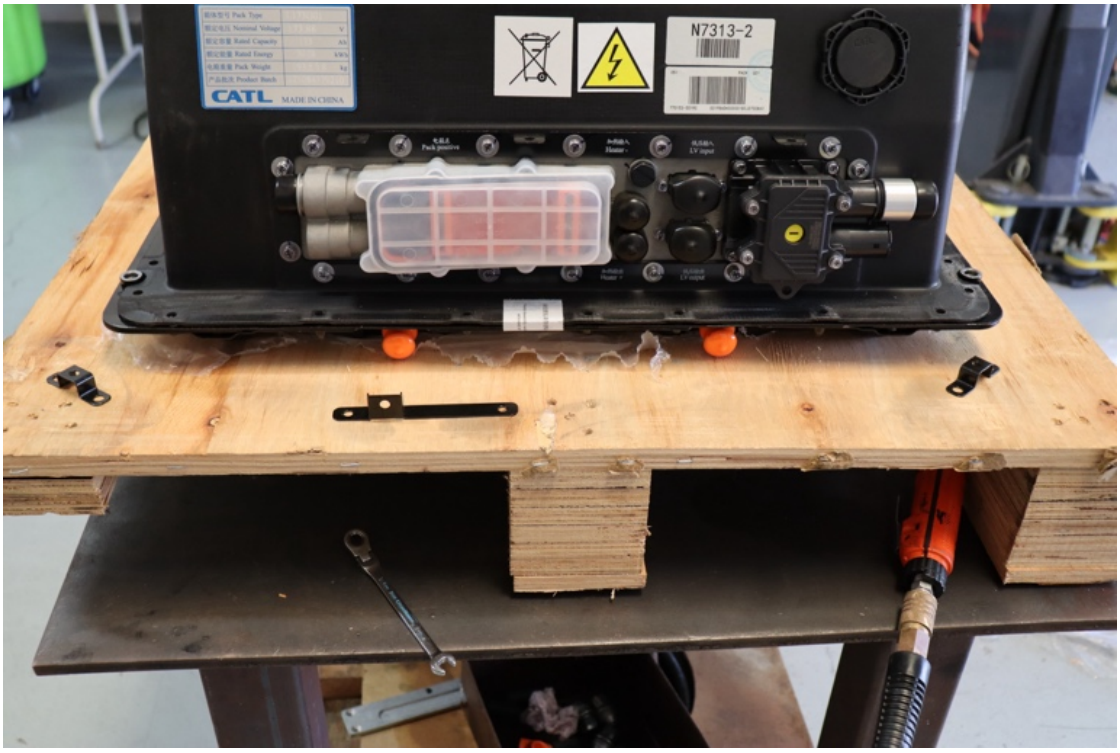
2) Remove four (4) 7mm bolts from under the negative battery cable cover

3) Remove sixteen (16) bolts from around the termination area

4) Remove four (4) 14mm bolts from battery box to palette.



5) Remove thirty-four (34) 8mm bolts from the rim of the battery enclosure



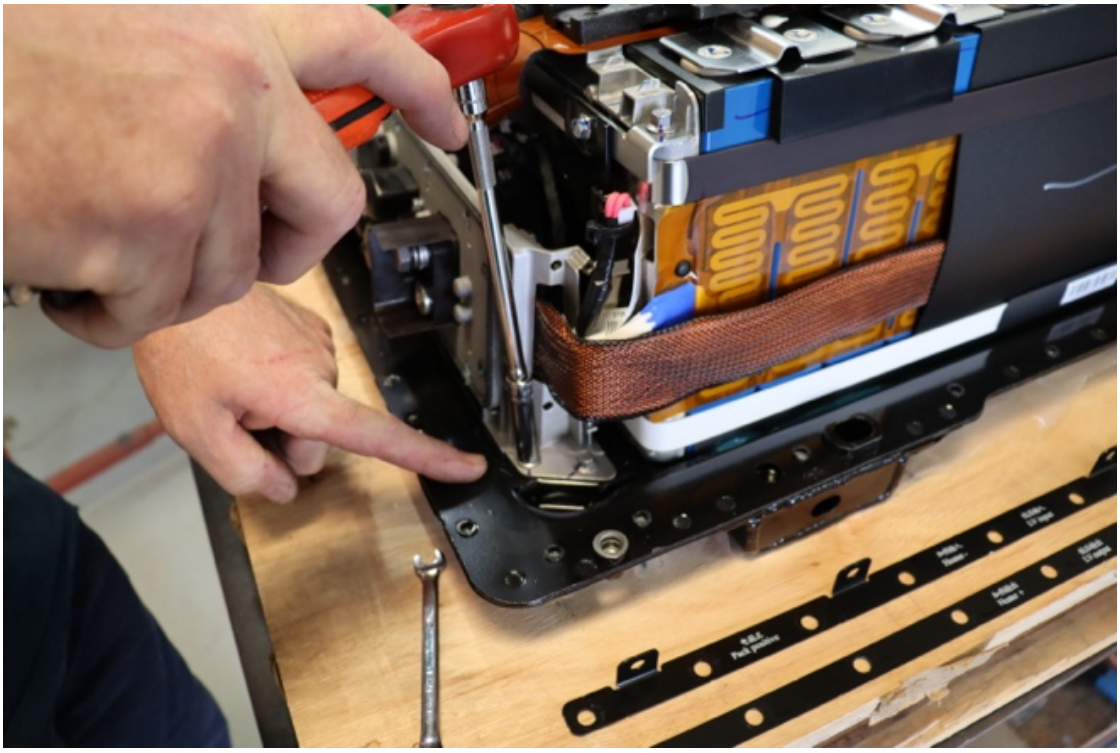
6) Remove and discard the three brackets

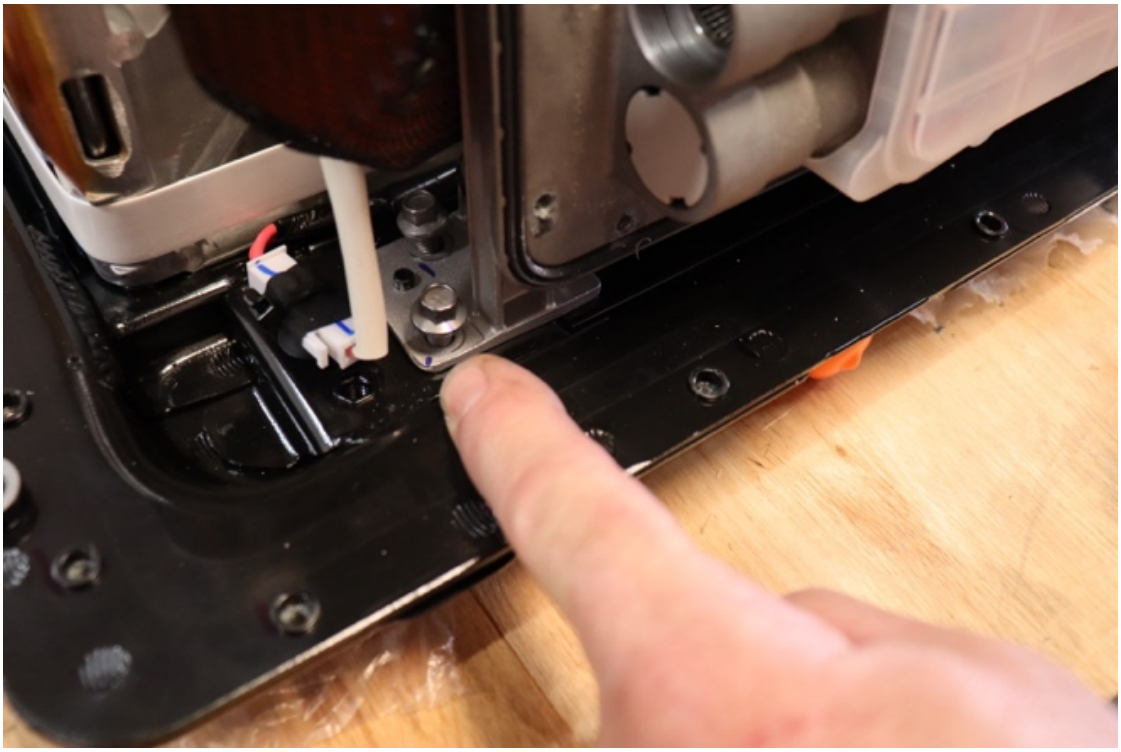
7) Remove labeling brackets and set aside

8) Cut the ‘void warranty sticker’

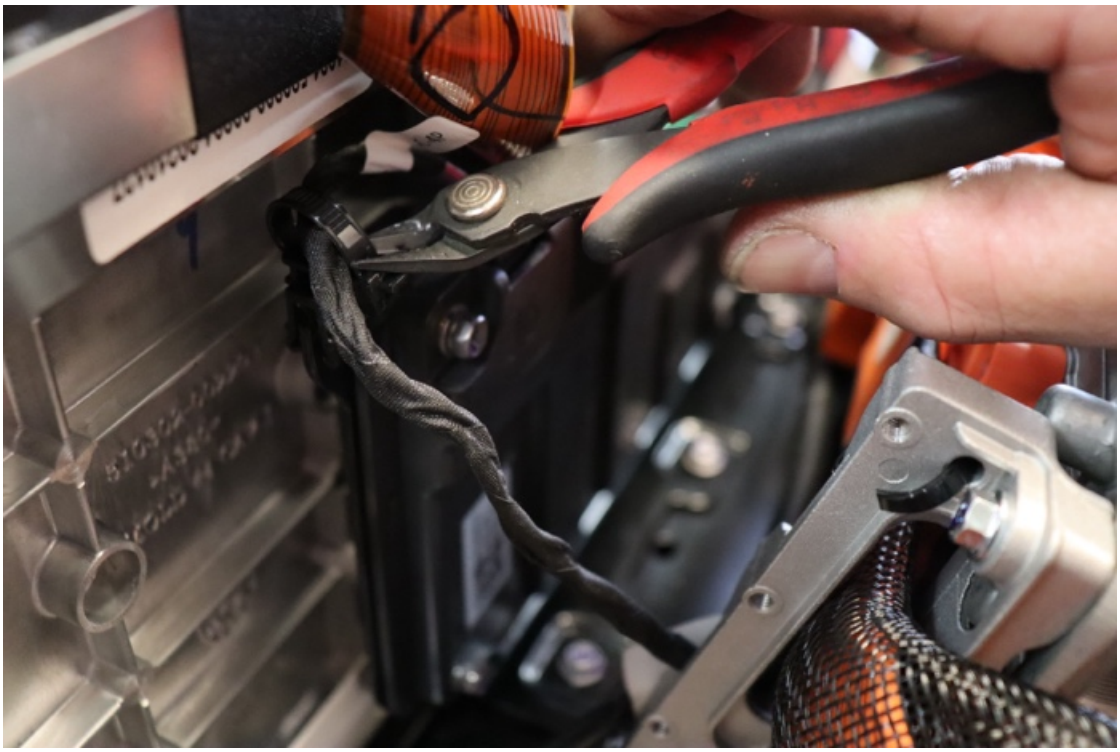
9) Lift rear of the cover then slide it forward to remove from the battery module.

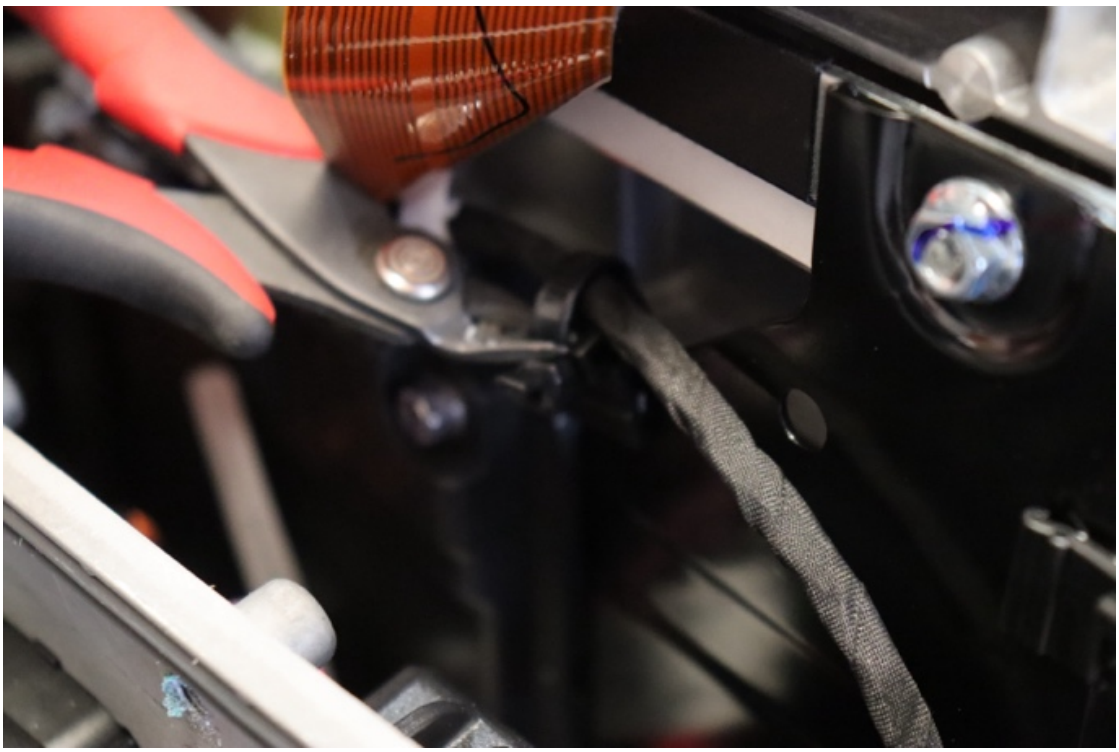
10) Peel off black tape and uncover terminals. NOTE: Save tape for reuse, stick to the foam



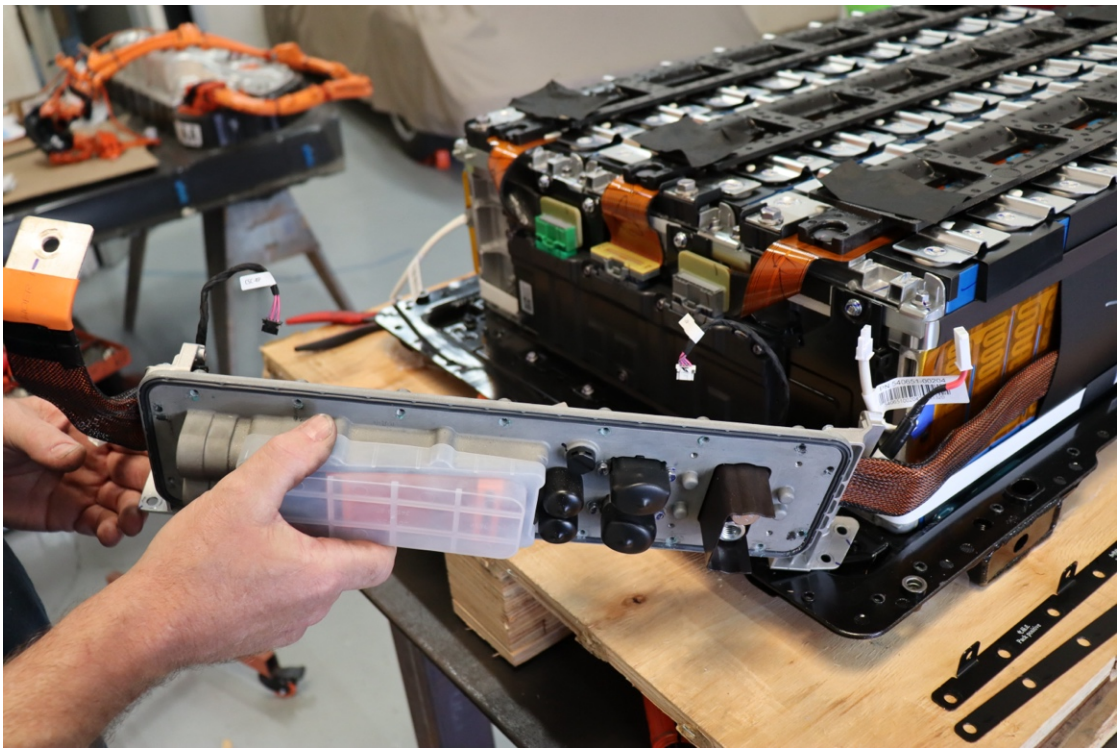


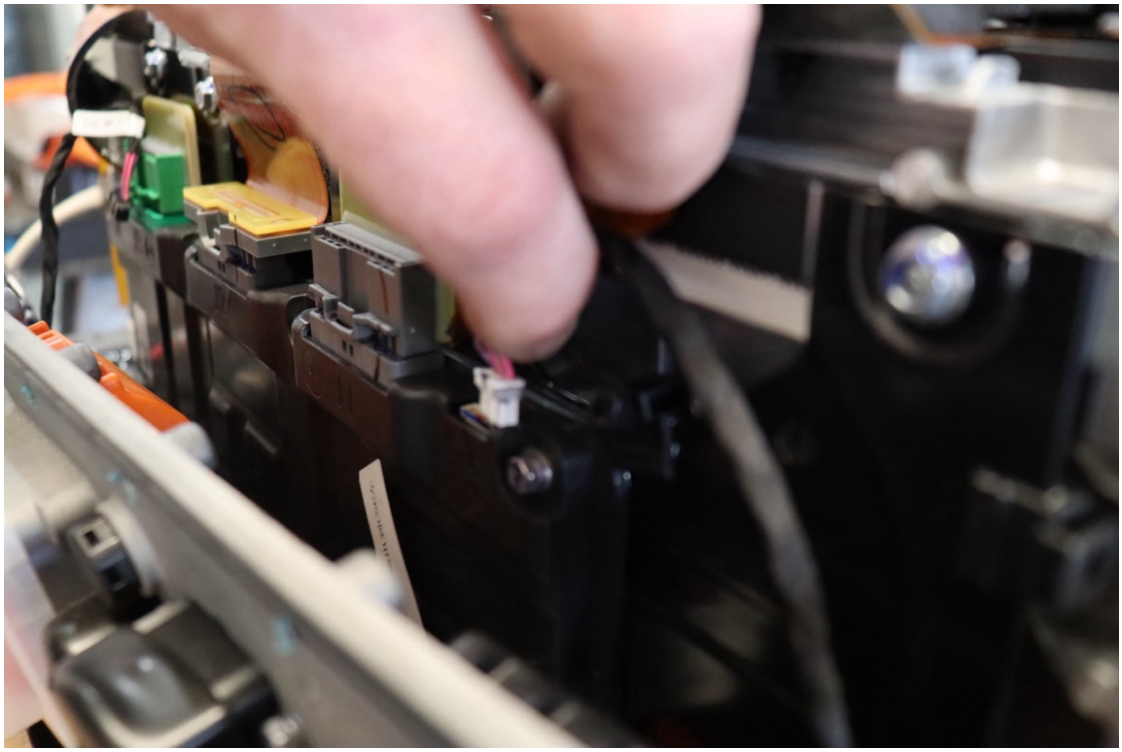
11) Remove connection control panel. Four (4) 8mm bolts in two locations



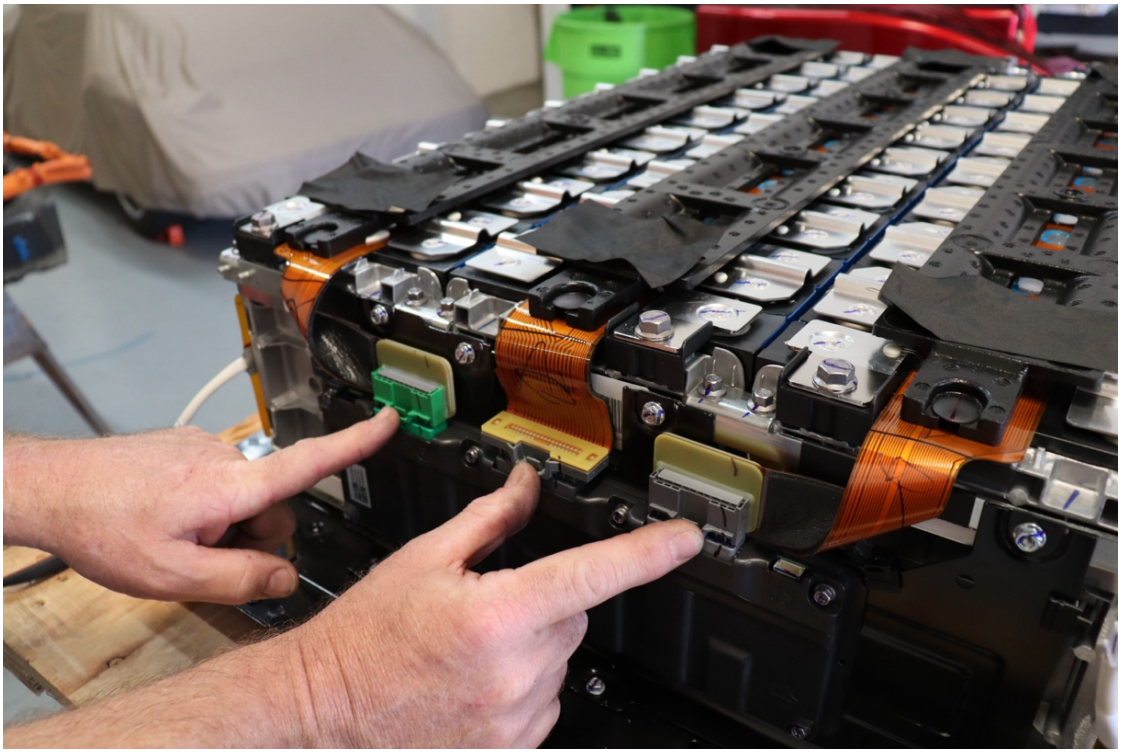


12) Cut two more zip ties

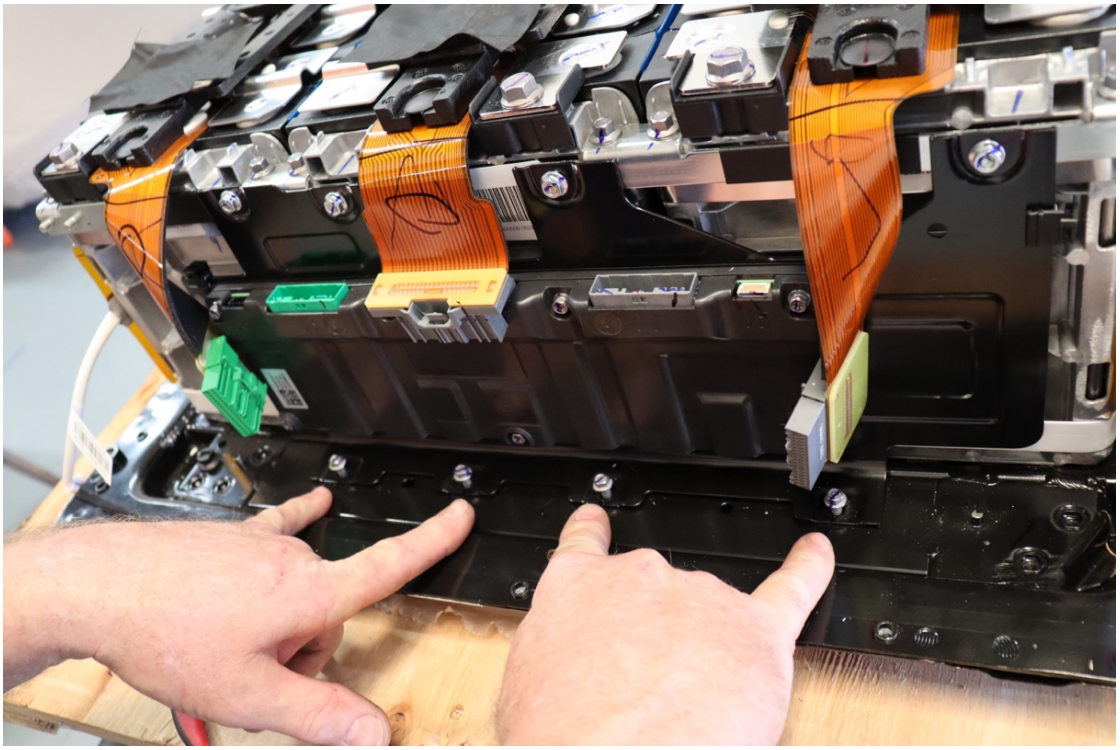




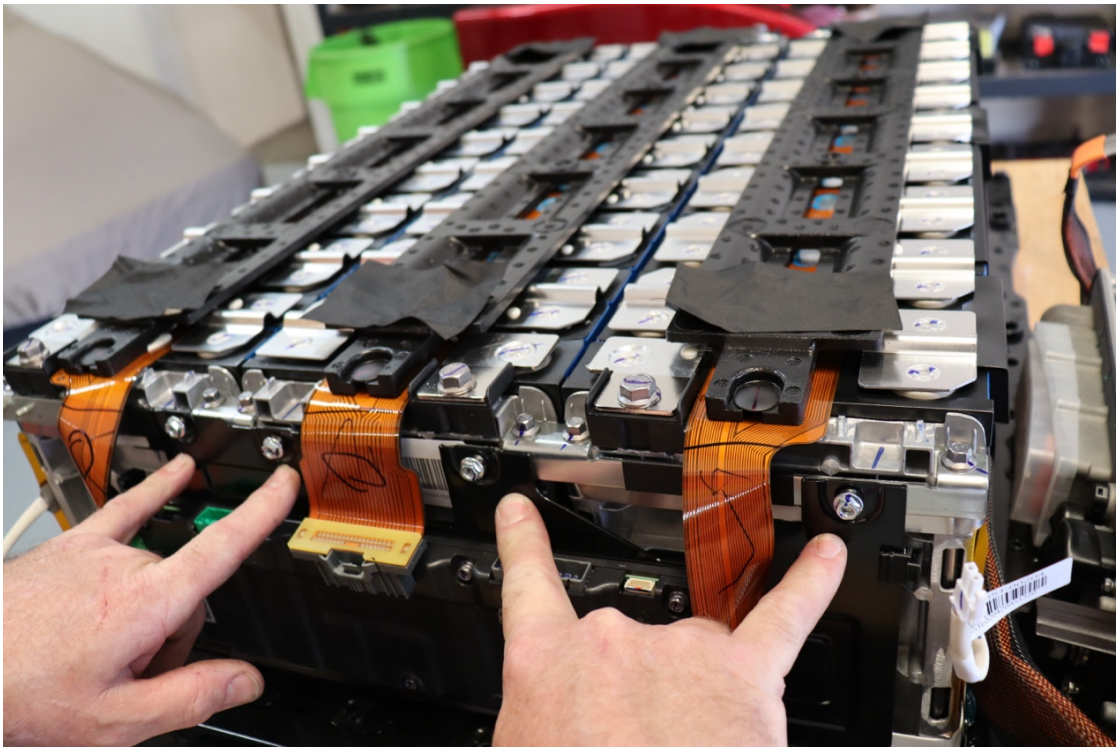
13) Remove connection bulkhead out of the way of the CATL BMS. Unplug pink and purple wires from CATL BMS.



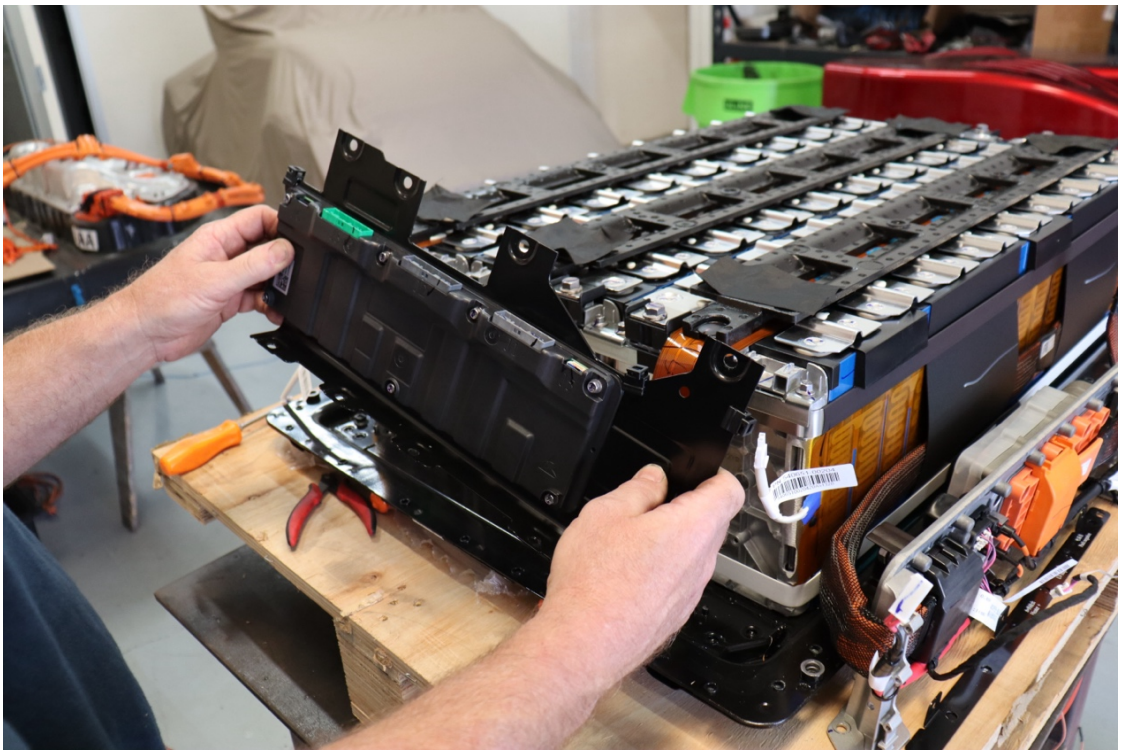
14) Unplug the three BMS plugs. CAUTION: Cell voltage on all three BMS plugs



15) Remove four (4) 7mm bolts holding the bottom BMS bracket

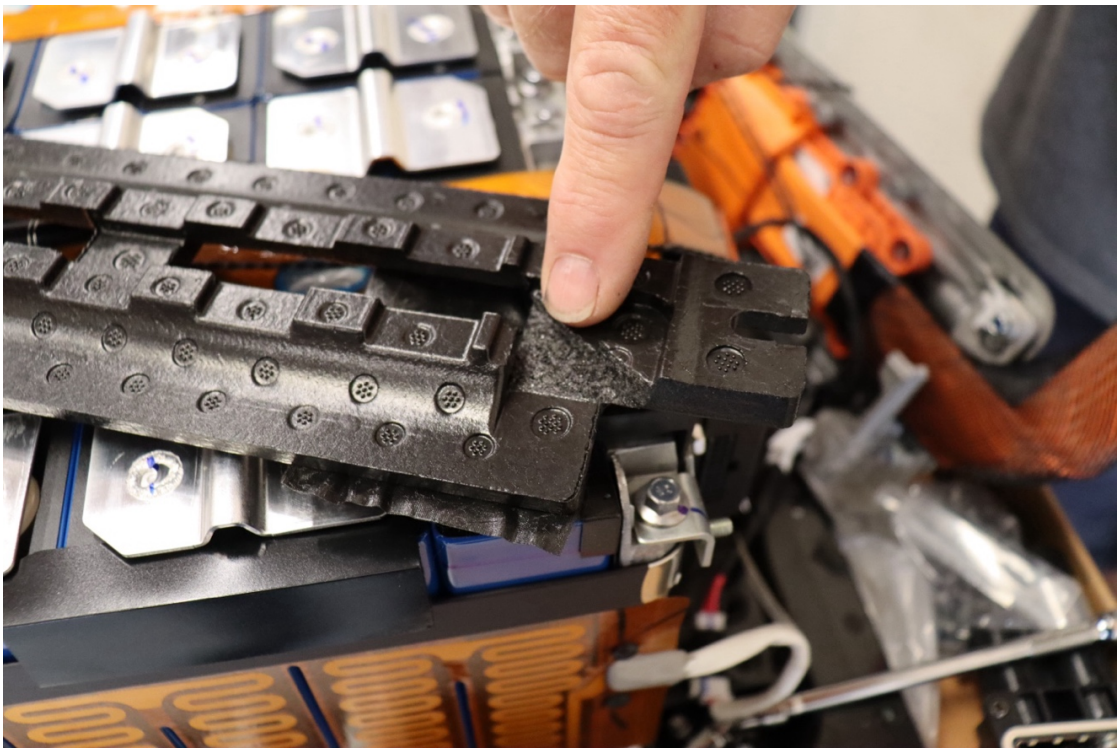


16) Undo the four (4) 8mm nuts holding the top of the BMS bracket



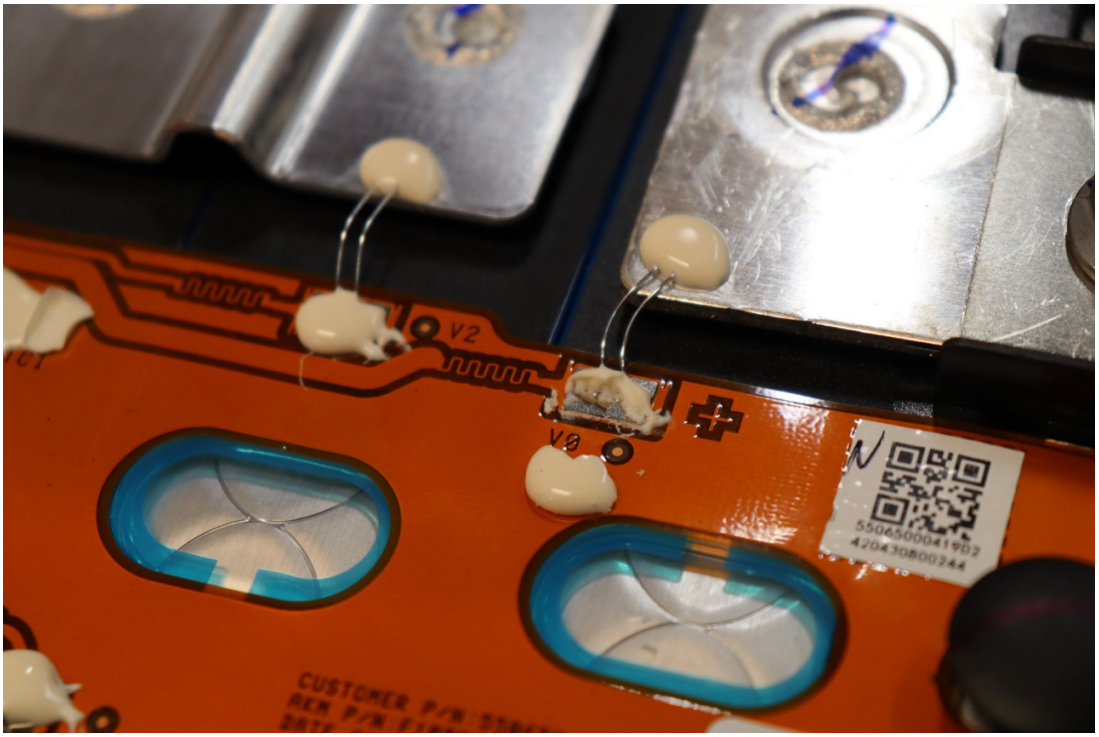
17) Remove and discard CATL BMS and bracket

18) Remove all foam insulators

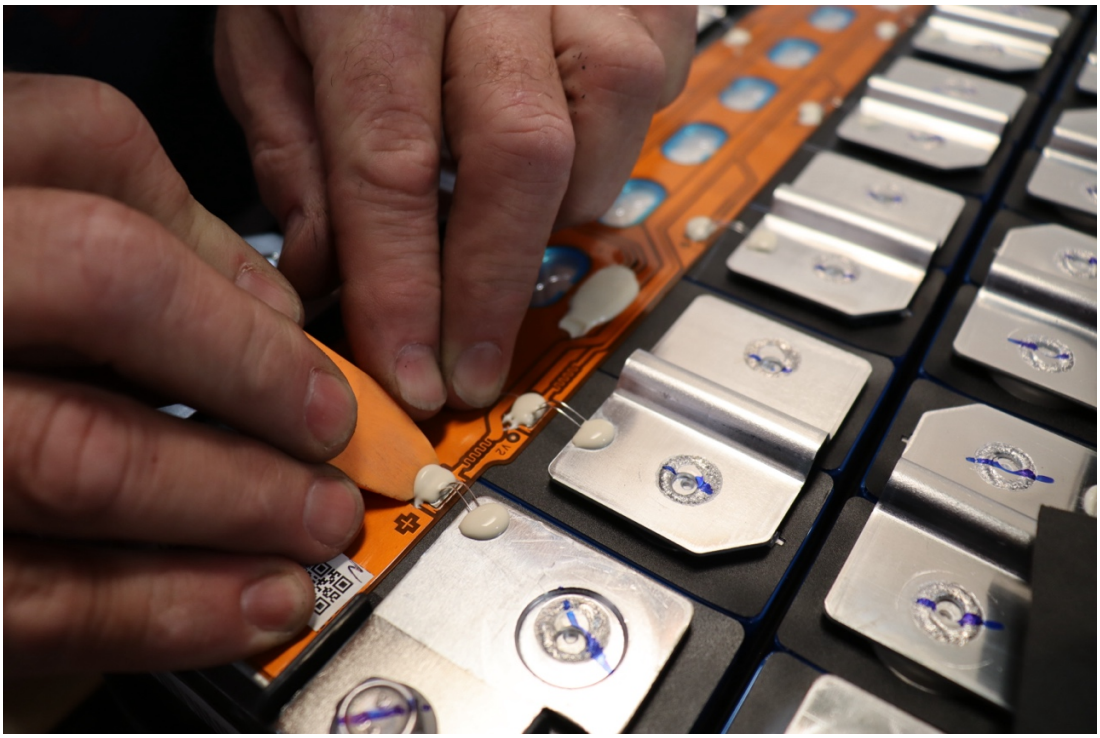


19) Modify foam insulators for wire passage

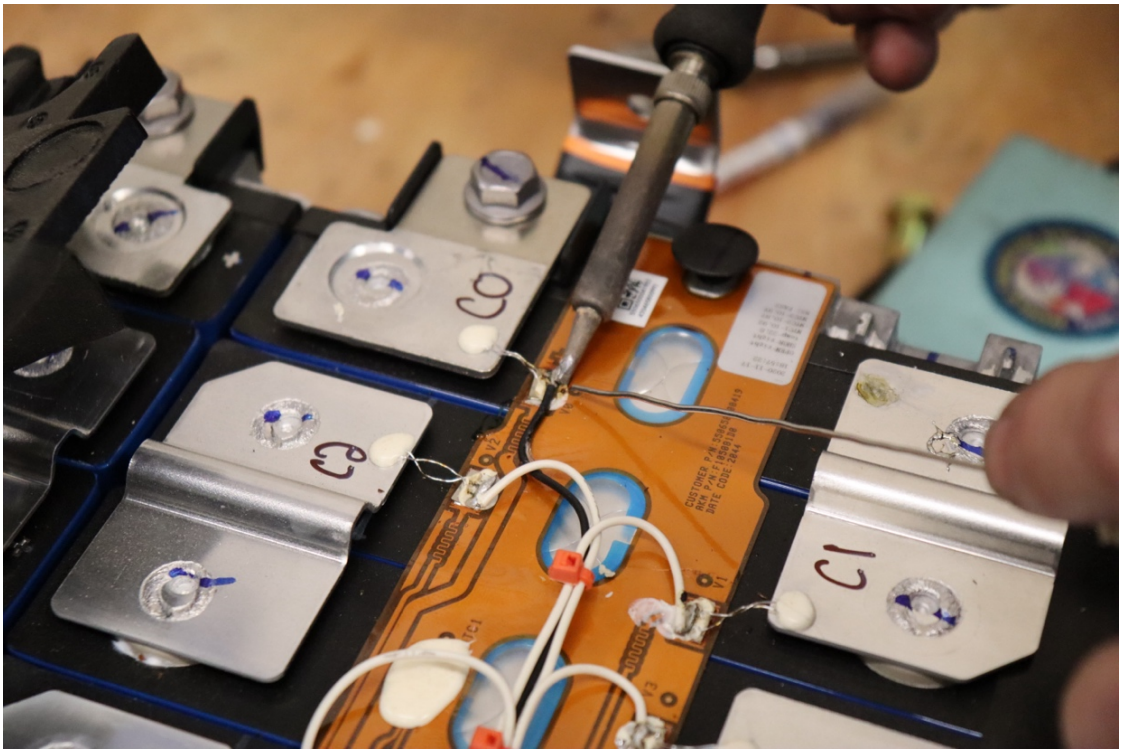
Wiring BMS



1) Remove RTV/silicone with a non-conductive panel removal tool. USE EXTREME CAUTION NOT TO BREAK SMALL WIRES WHILE DOING SO.



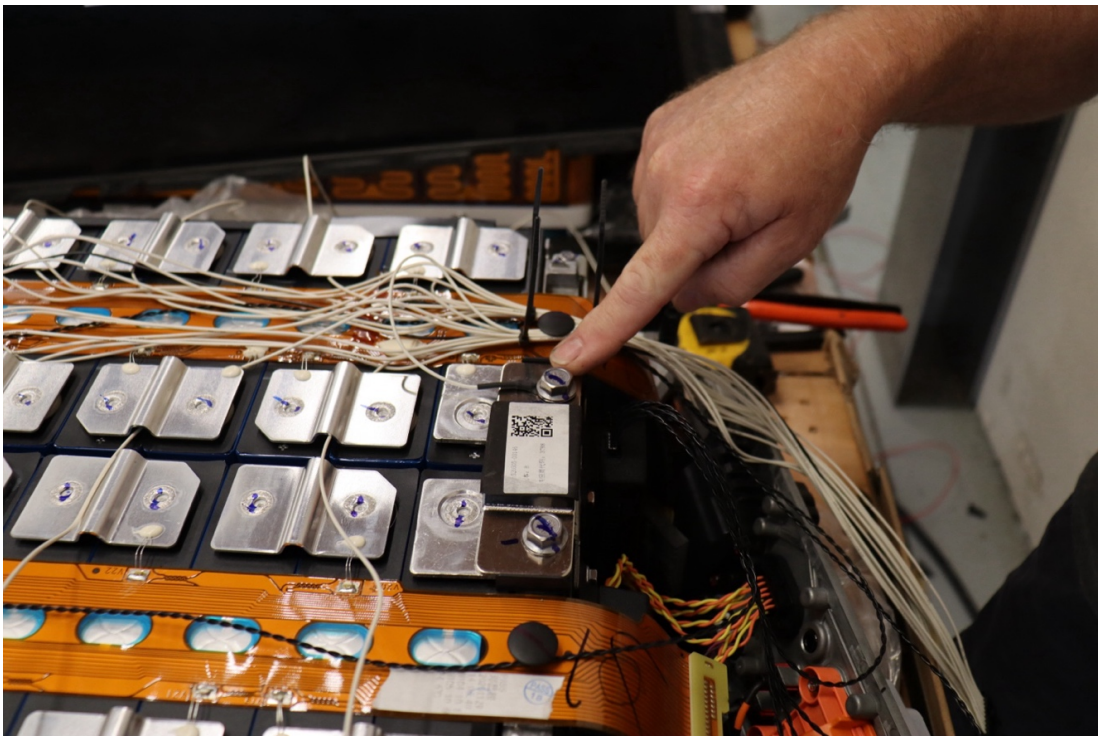
2) Rub uncovered surface until shinny/polished (need third photo of clean shiny terminal pad)



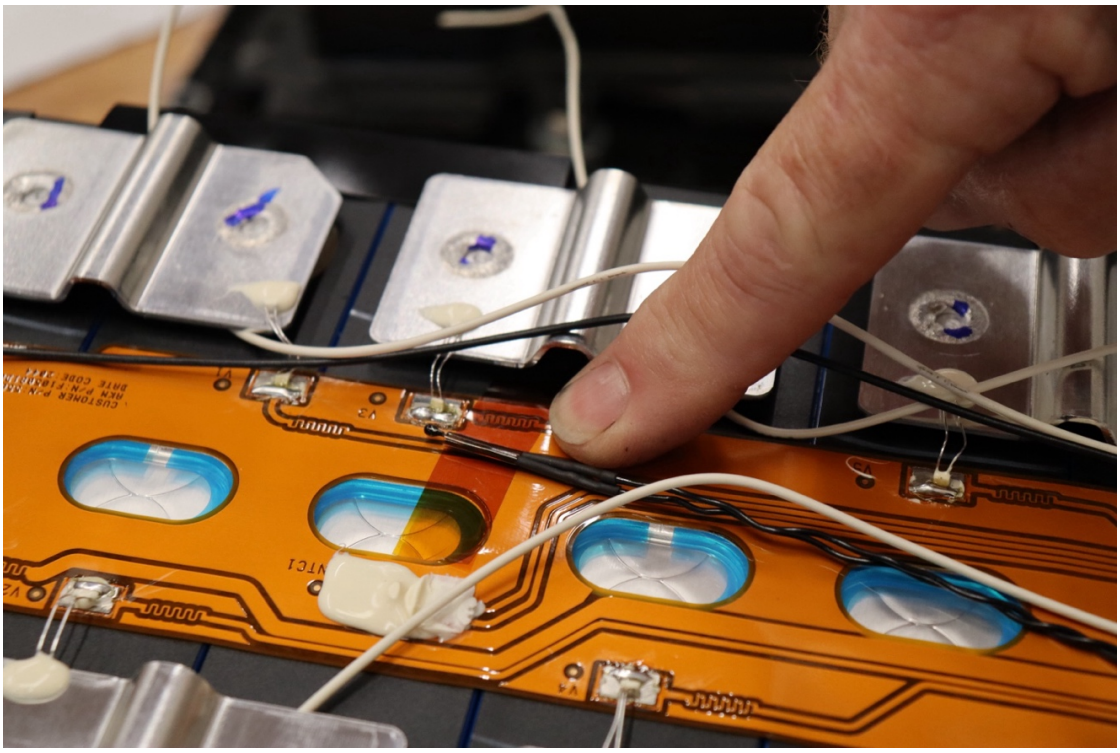
3) Using the wiring diagram available on the EV West BMS page, Solder BMS wires to each corresponding cell tap that was uncovered and polished in step #28

4) Route wires to cell taps

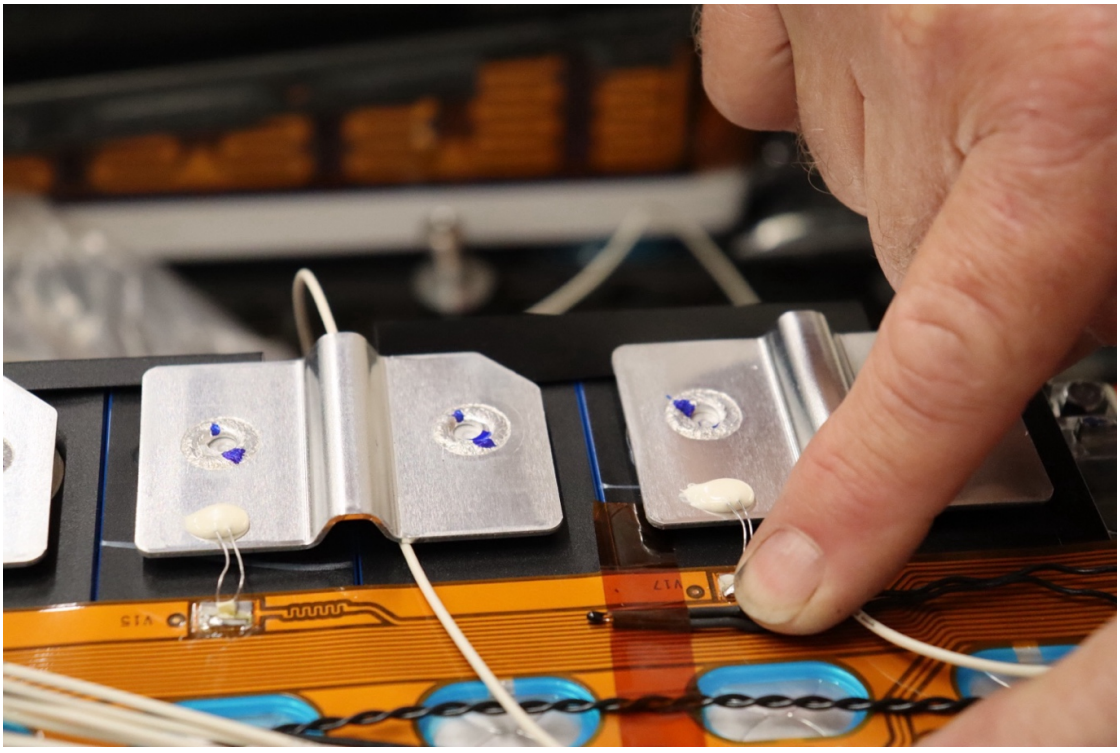
Note: W0 and W18 can optionally be connected to busbar bolts



5) LTCA W18 connected to bank one most positive

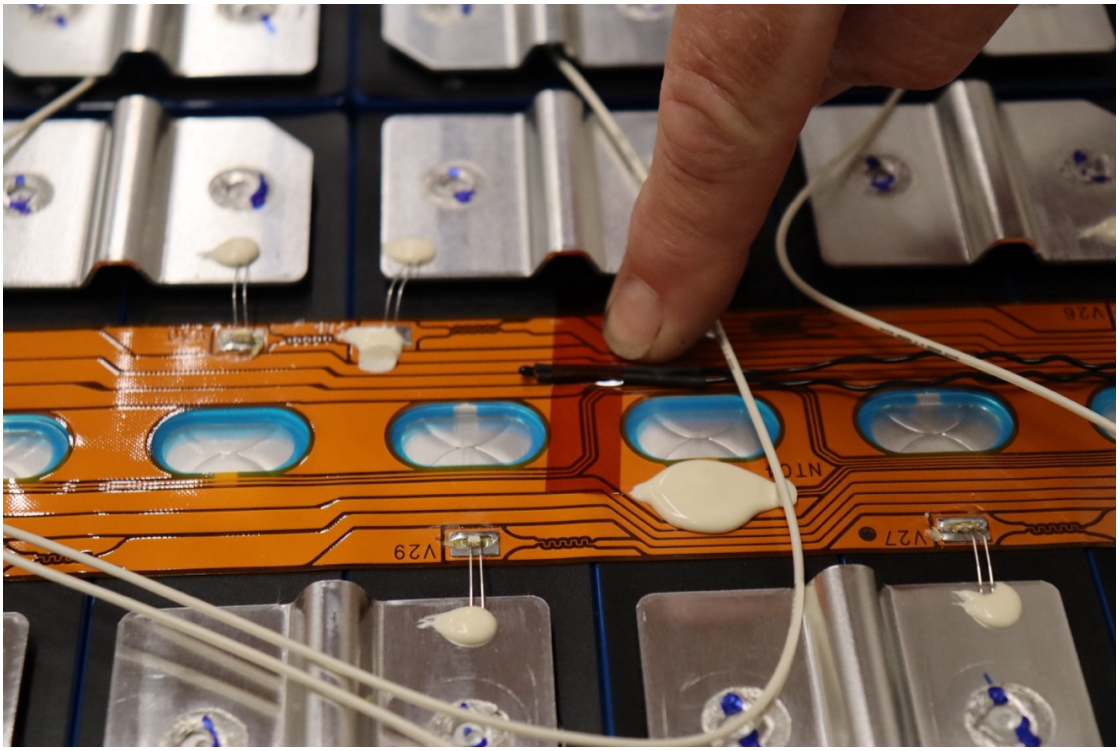


6) Secure thermistors to ribbon cable with tape. (ADD magnify glass V numbers in photo)

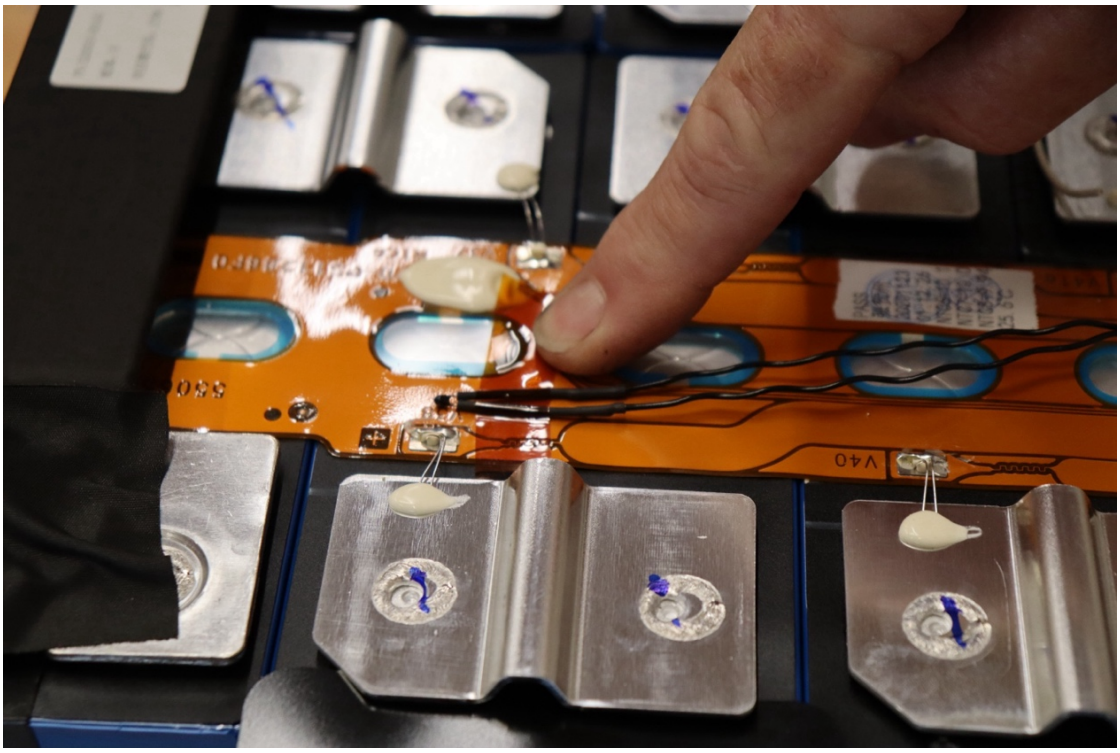


7) TH2

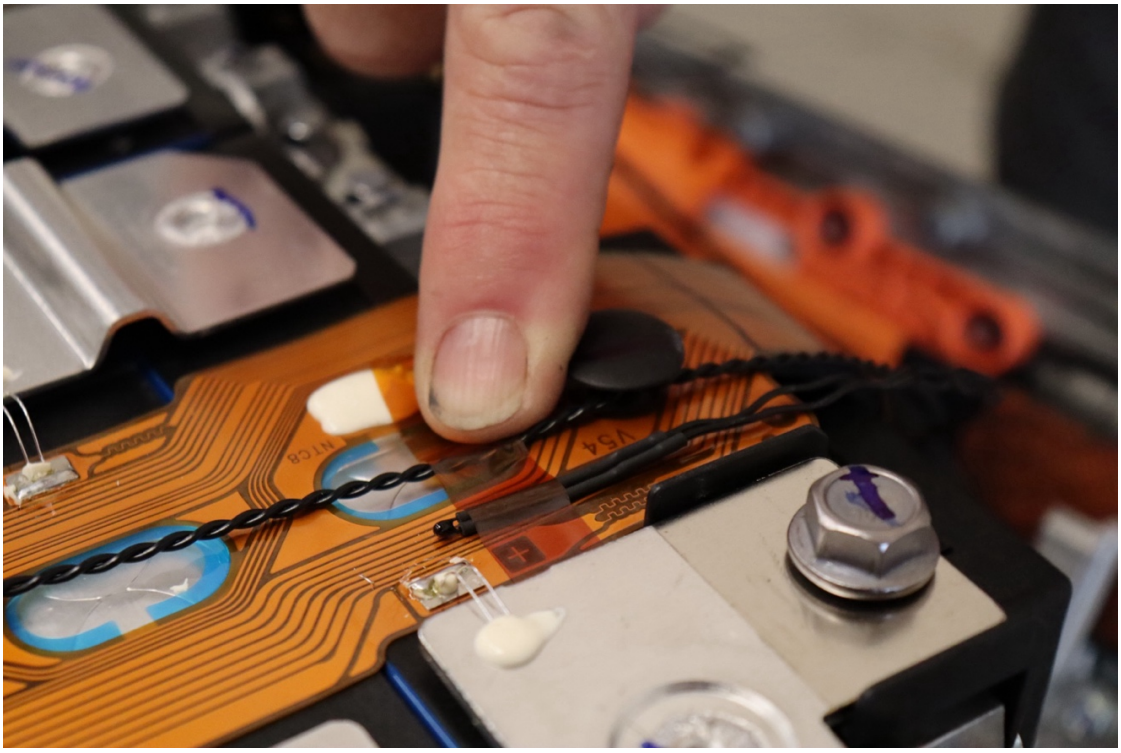
8) TH2



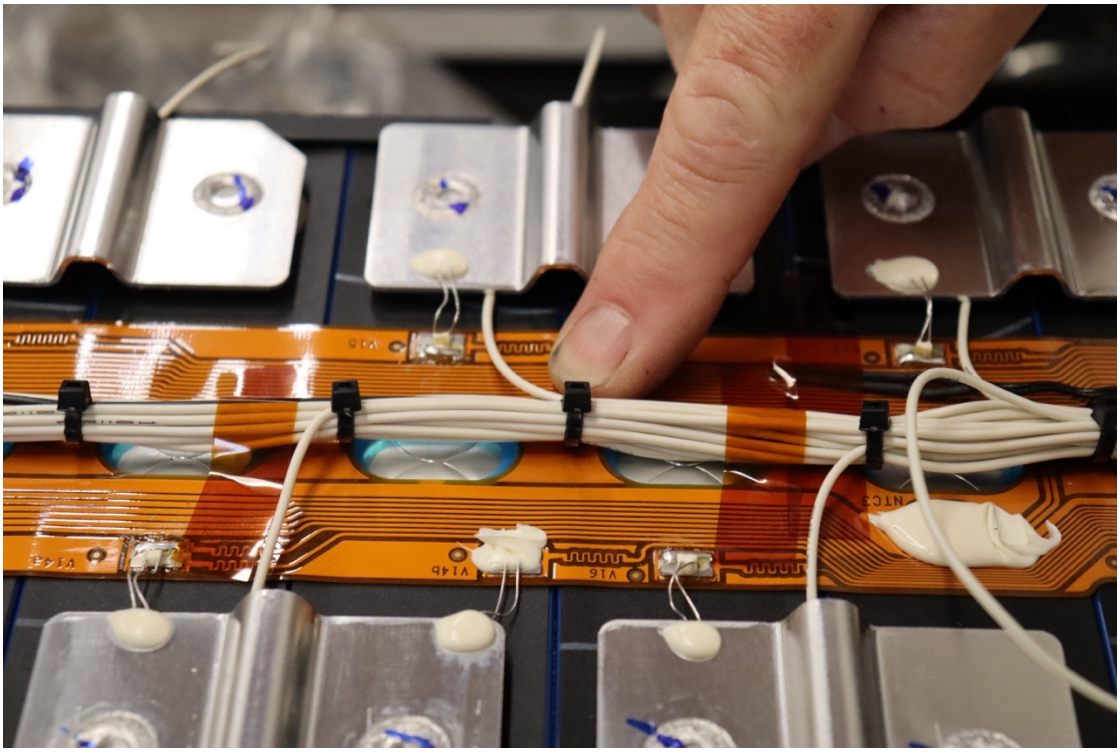
9) TH3



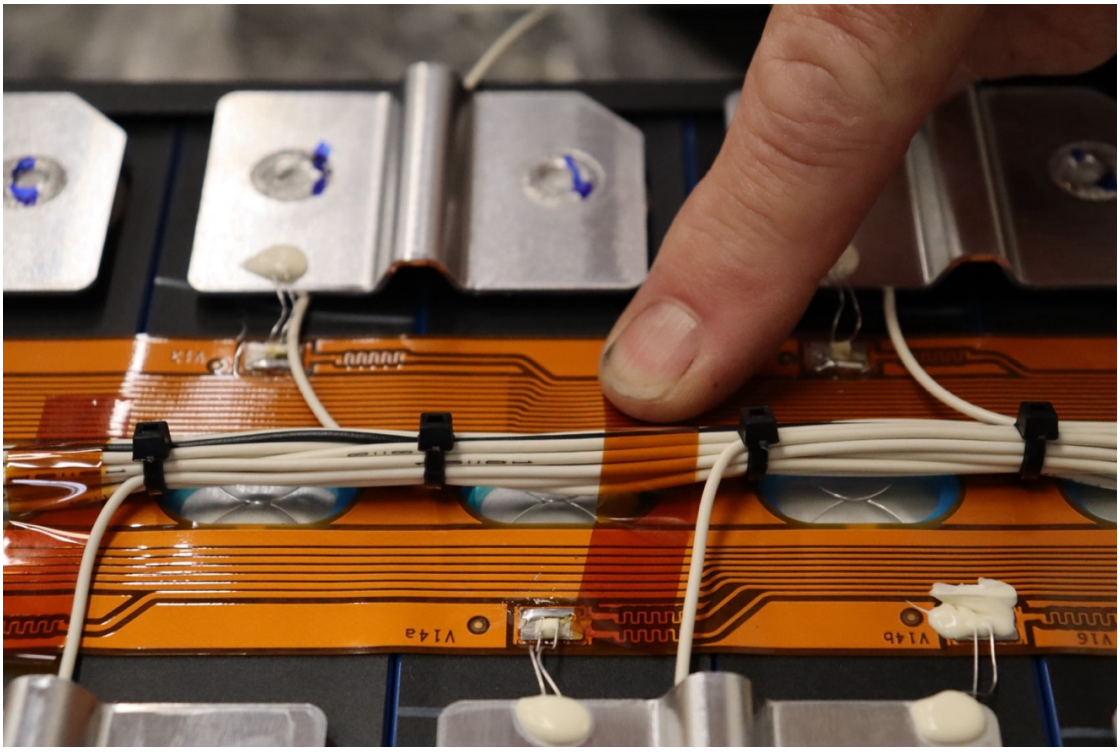
10) TH4



11) TH5



12) Secure harness wire bundles with zip ties. One at each all seam

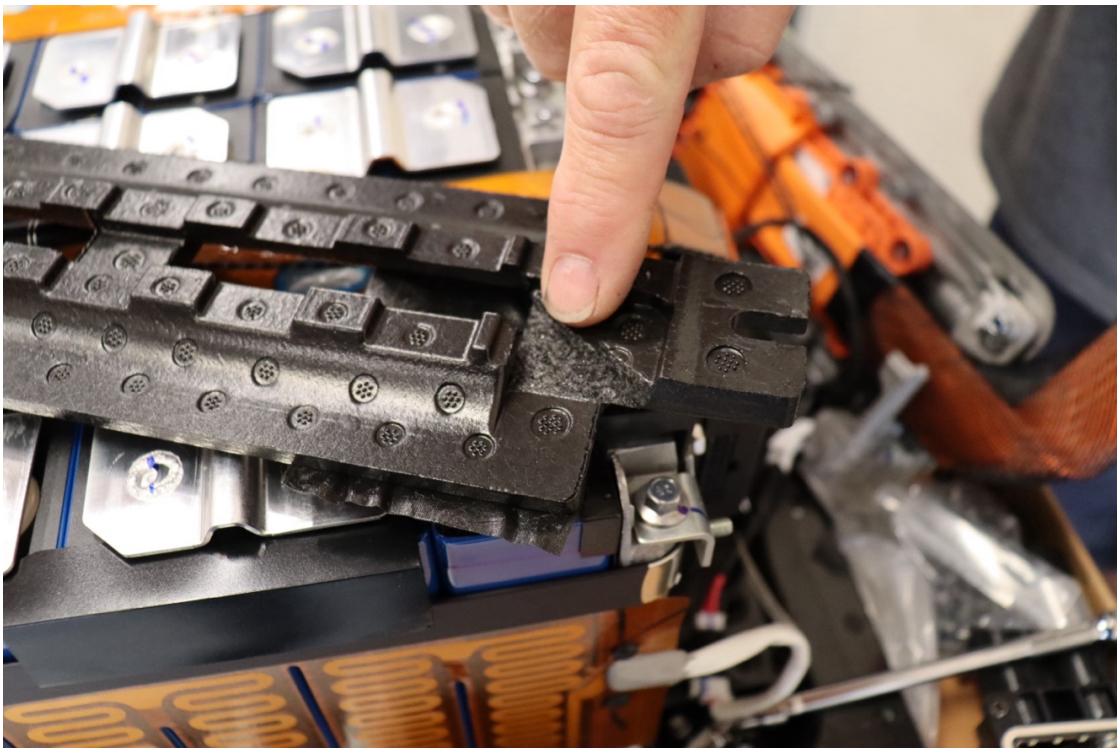


13) Secure zip tied harness to ribbon cable with Kapton tape

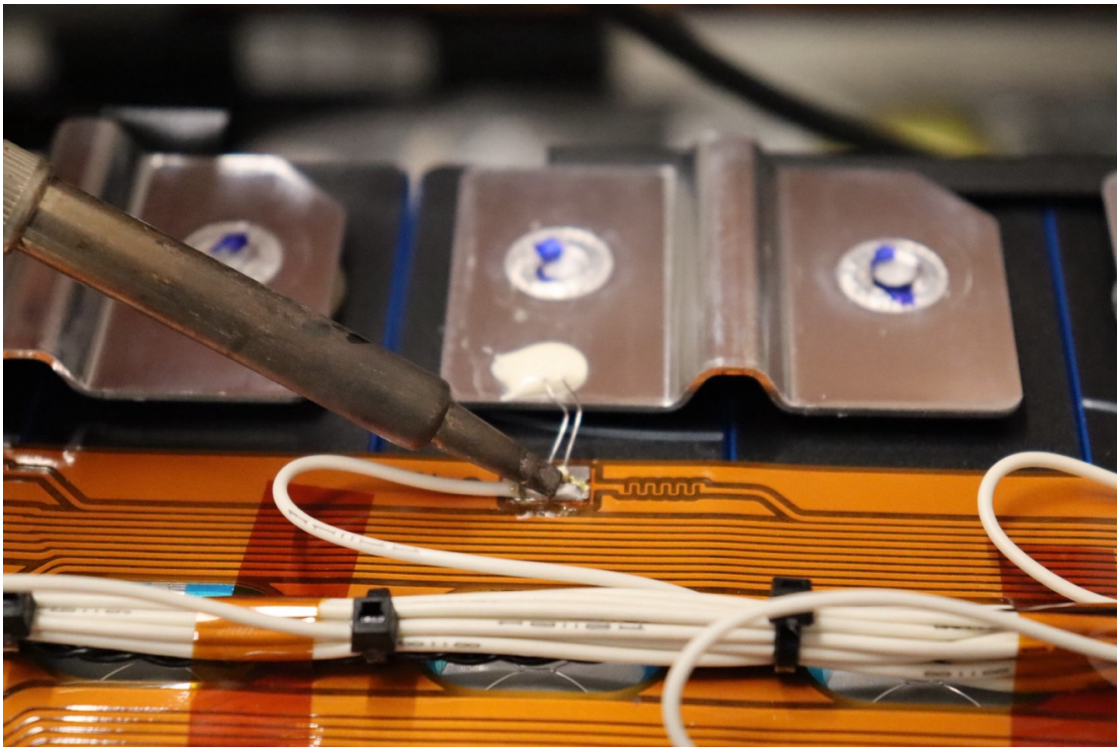
14) Route wires to cells

15) Trim wires to desired lengths

16) Route thermistor harness.



17) Relieve foam insulators for wire exit.

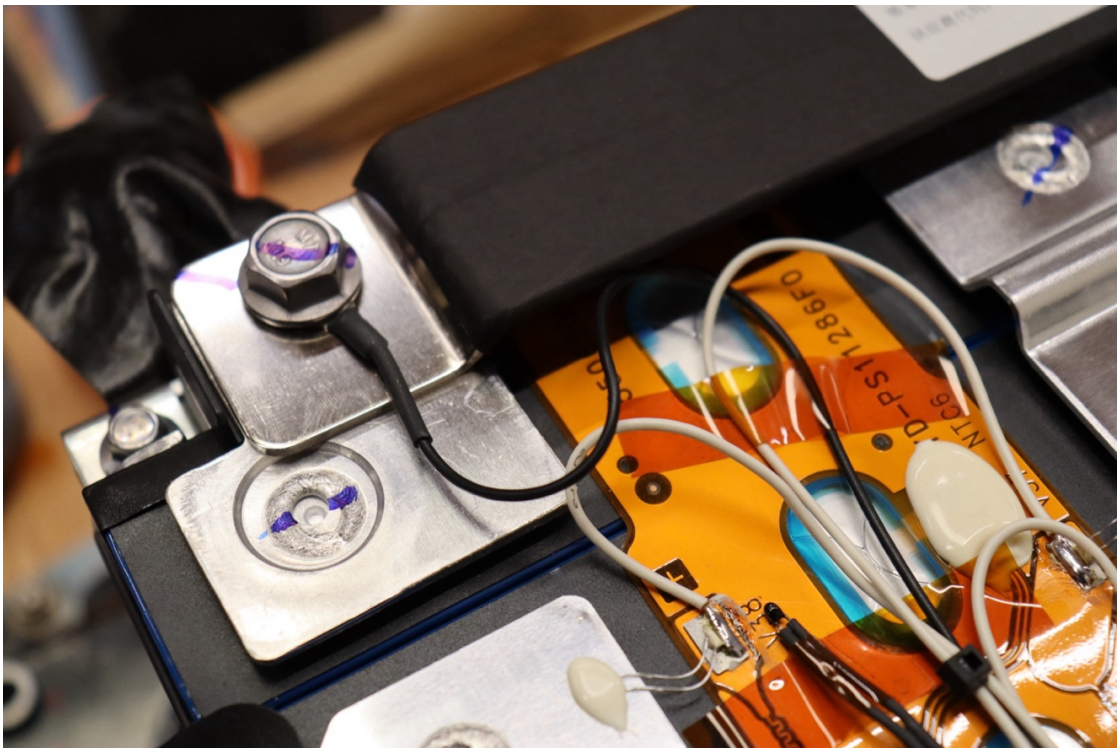


18) Solder wires to cell tap pads on ribbon cable

19) Route wire bundle to side of foam retainer pin for clearance exiting pack

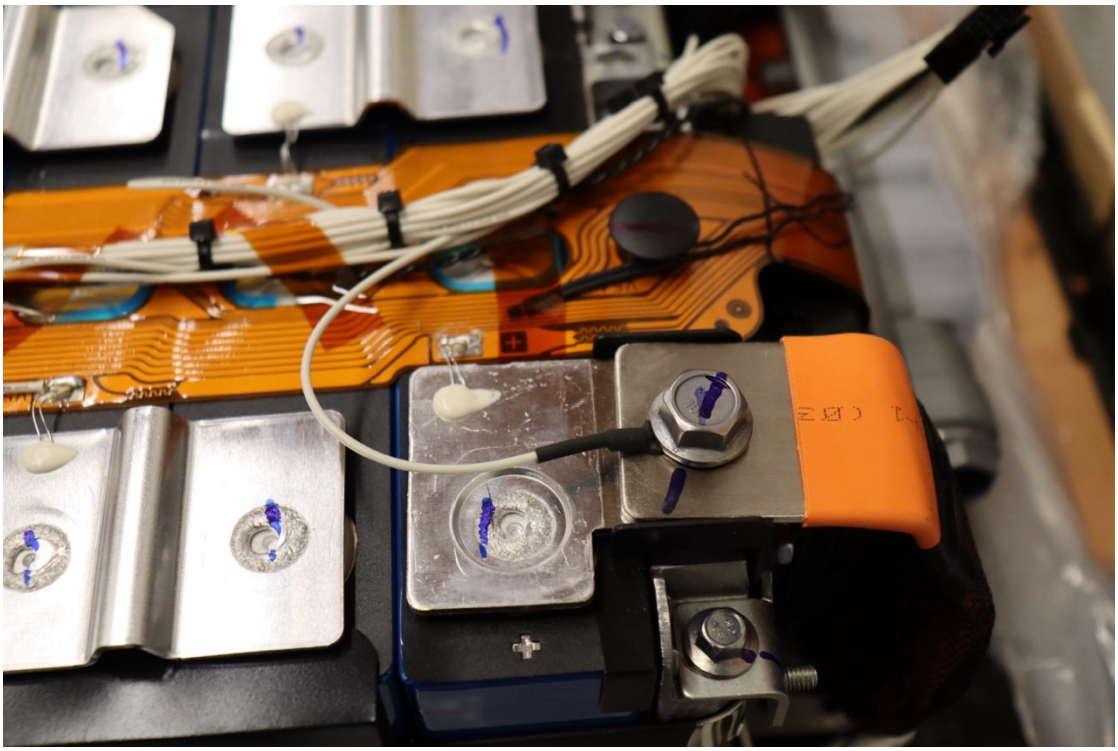
20) Optional ring terminal connection of LTC A1, W18 (white) and LTCA2, W0 (black)

21) LTCA1 W0 black wire

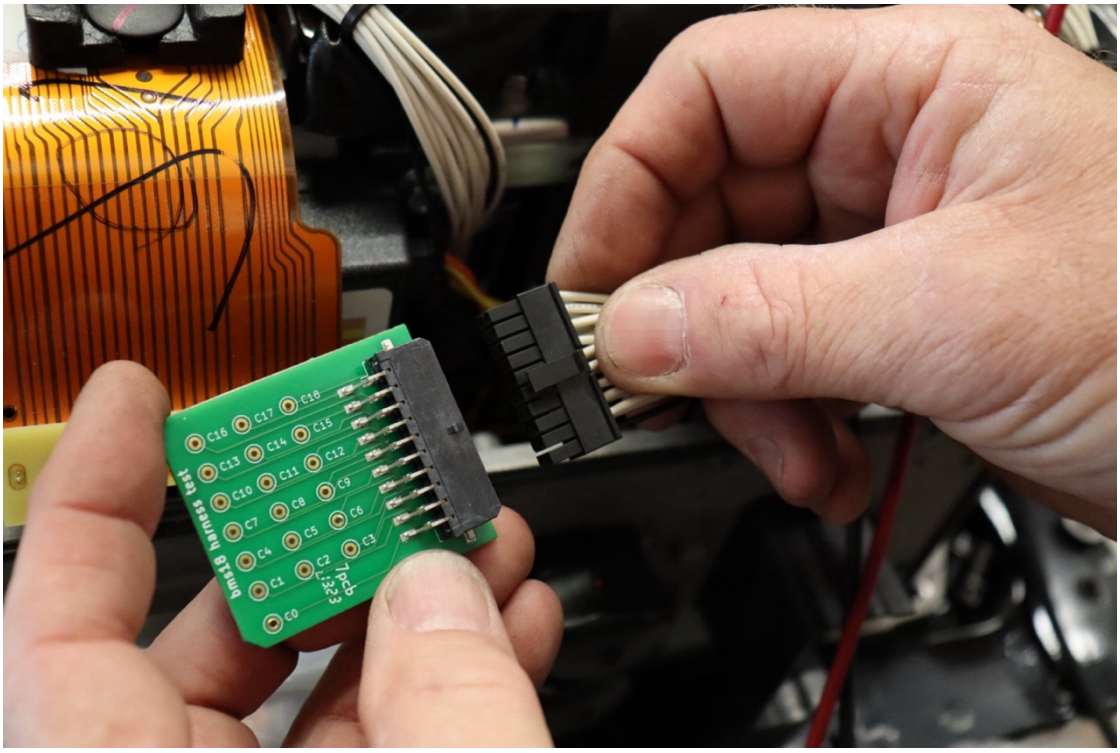


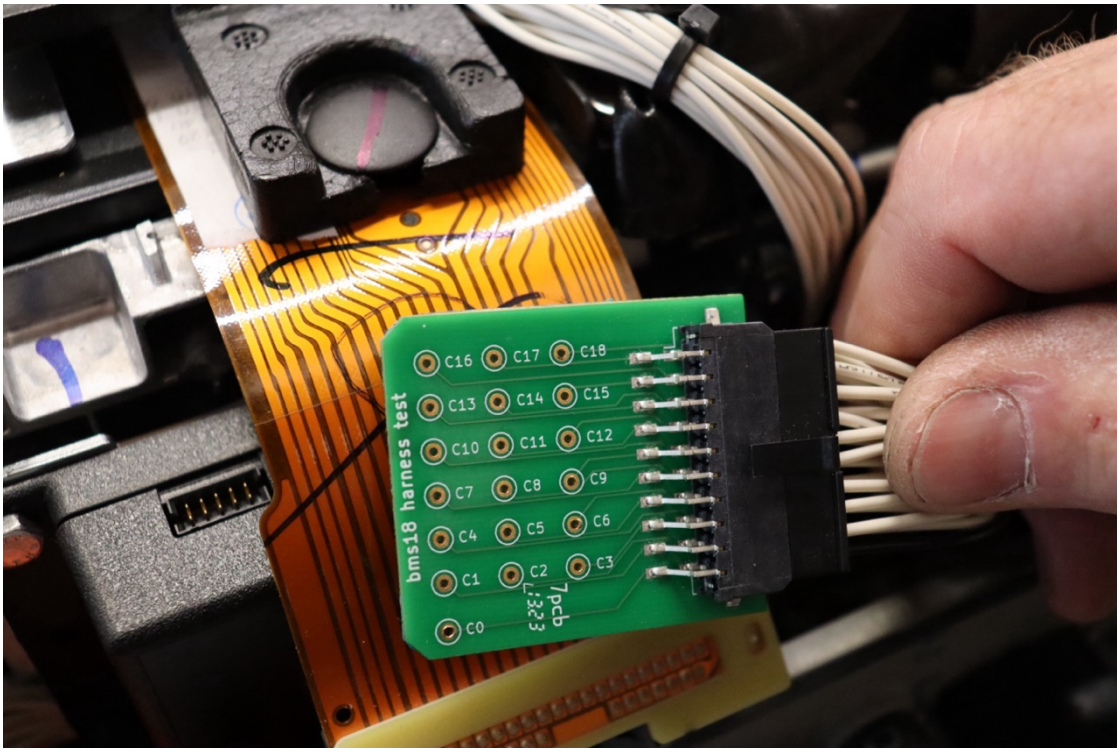
22) LTC A3, W0 (black)

23) LTC A3, W0 (left side black wire) LTC A2, W18 (right side white wire)

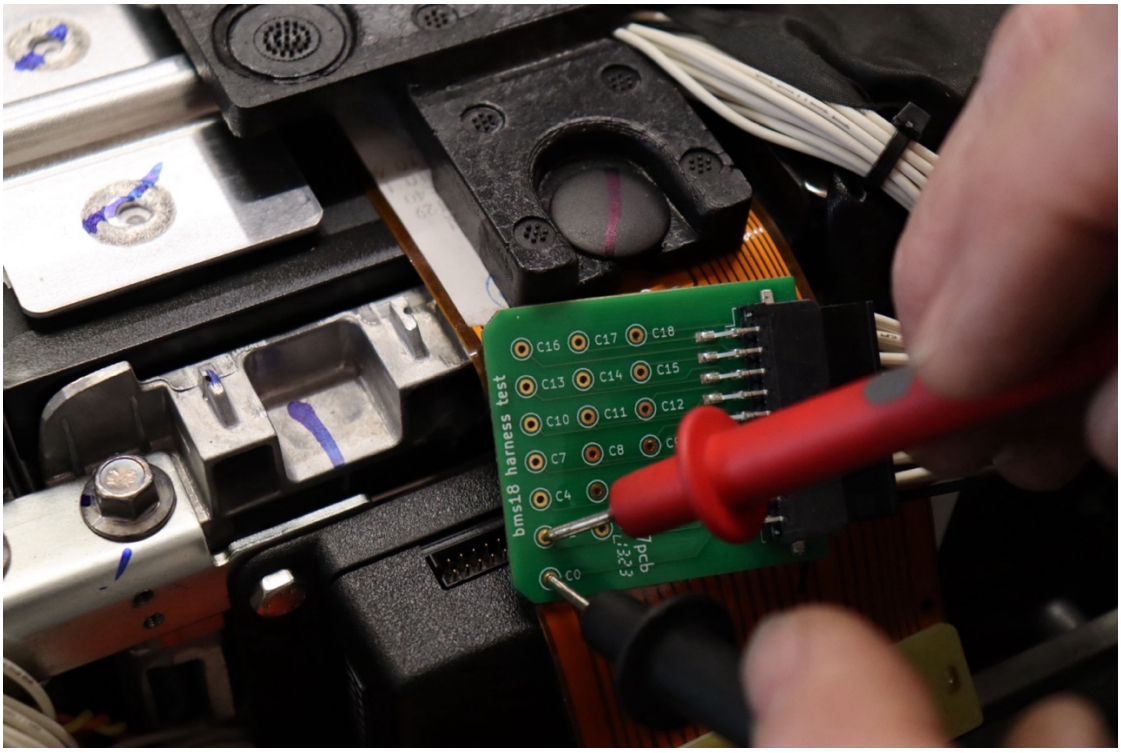


24) LTC A3, W18 (white wire)





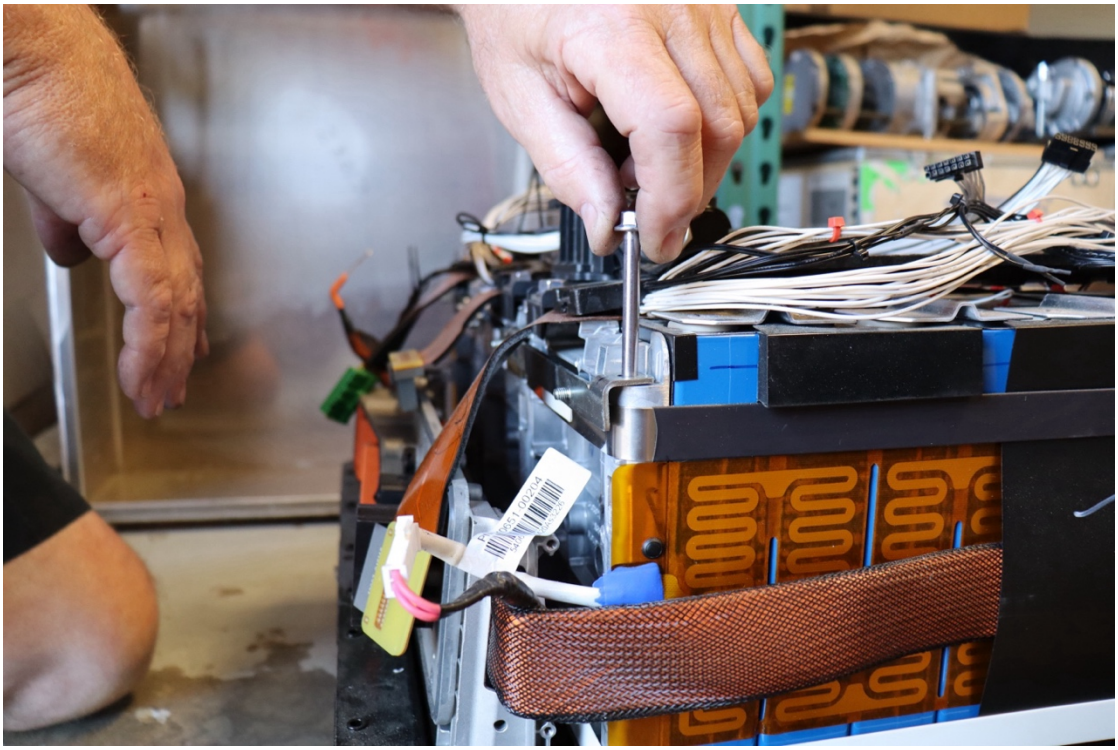
25) Connect cell tester

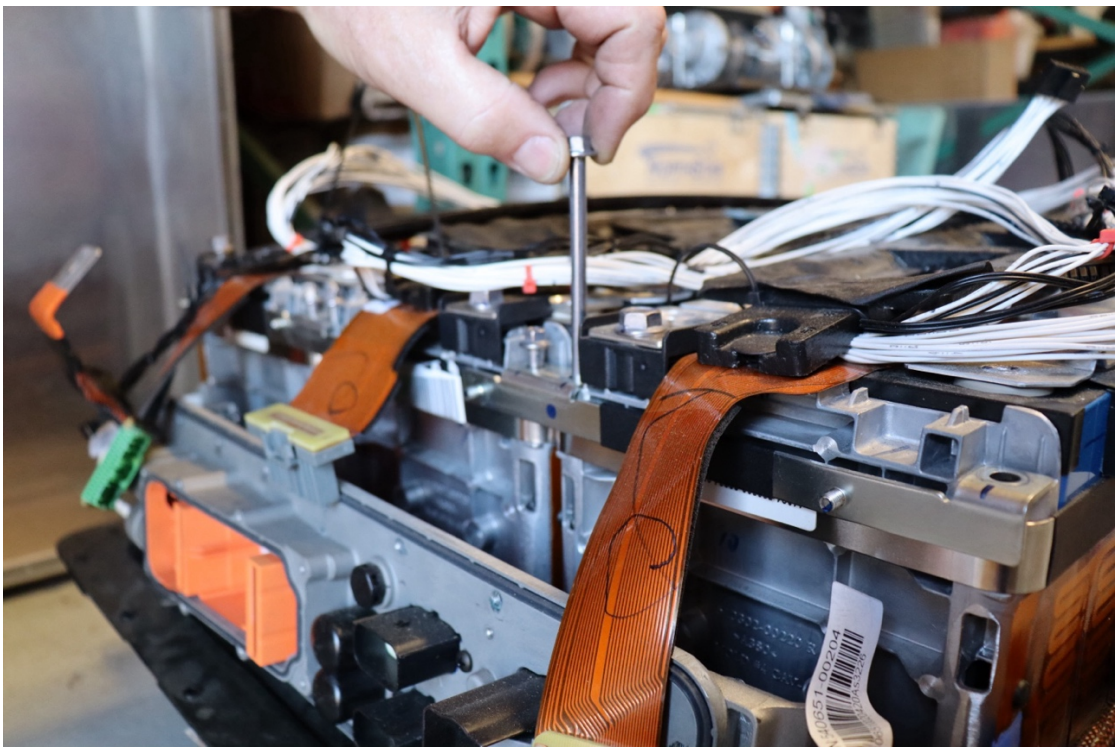


26) Check each cell voltage C0 through C18

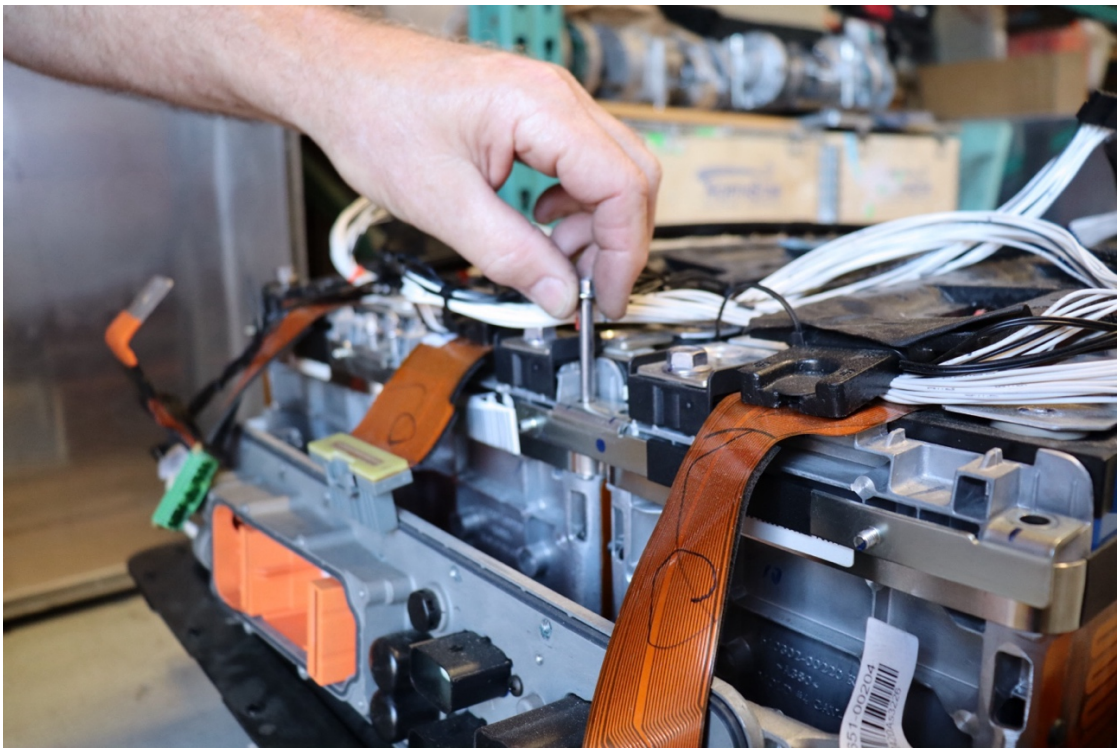
27) Glue thermistors to ribbon cable

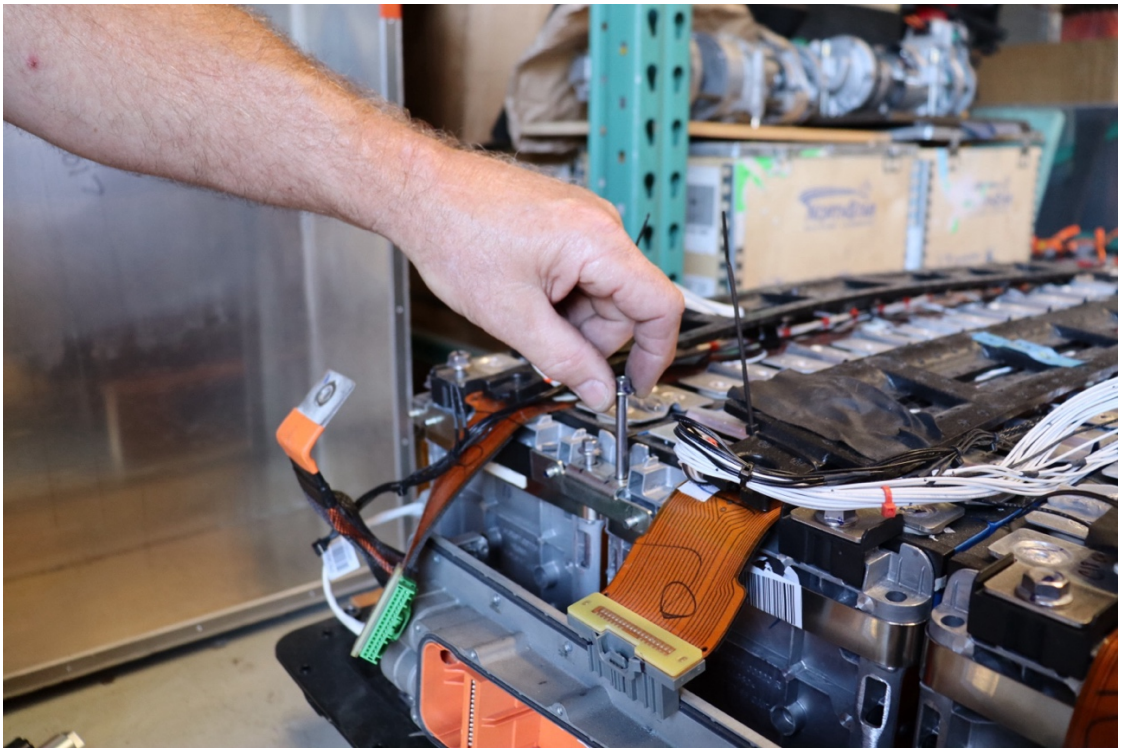
Mounting BMS

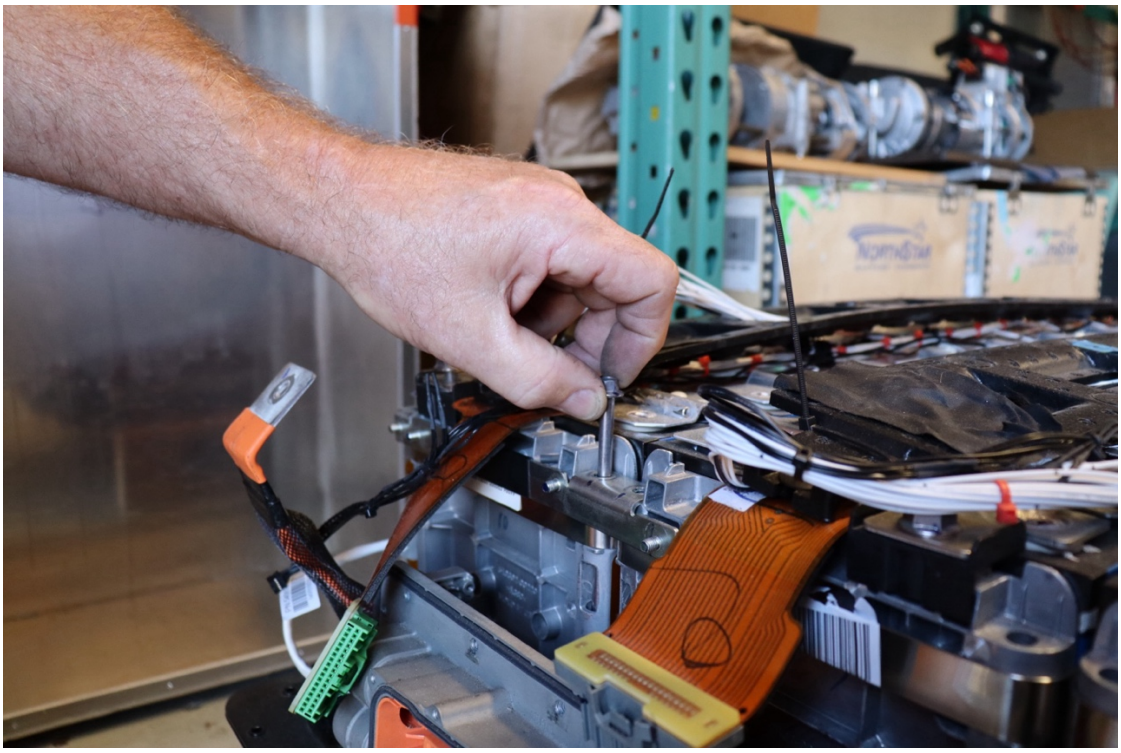


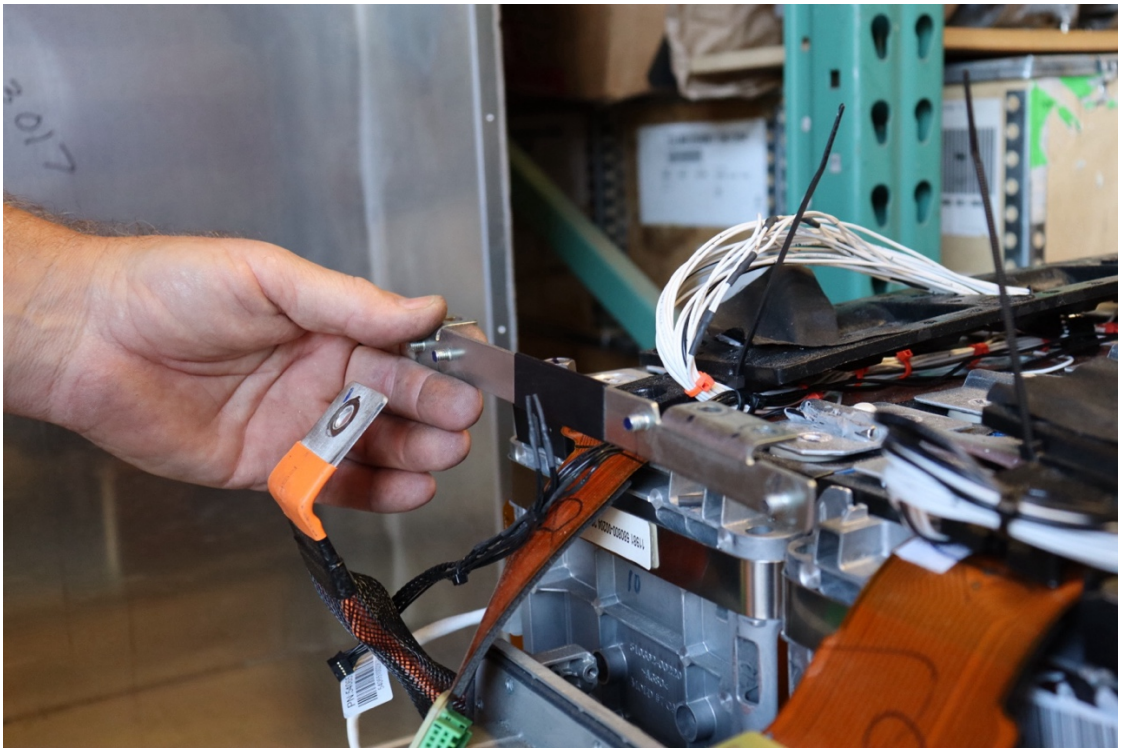


1) Remove 6 bolts holding bracket to cells. Might be held in place with epoxy, heat bolt bottoms to release.

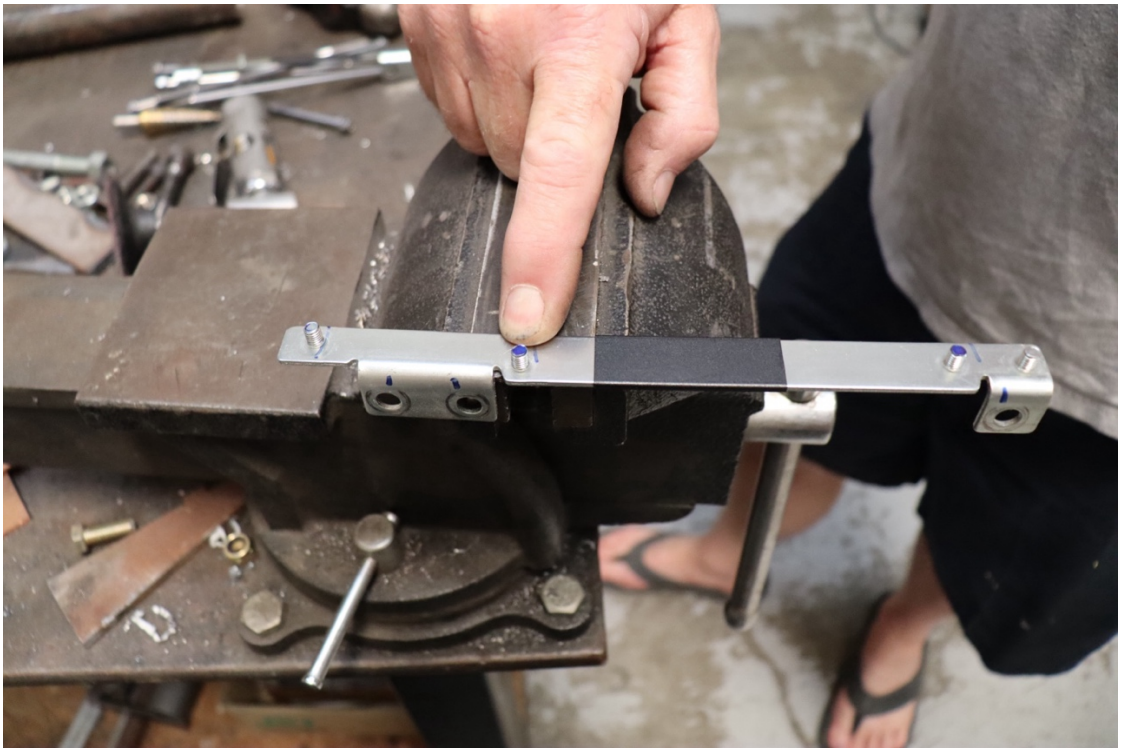




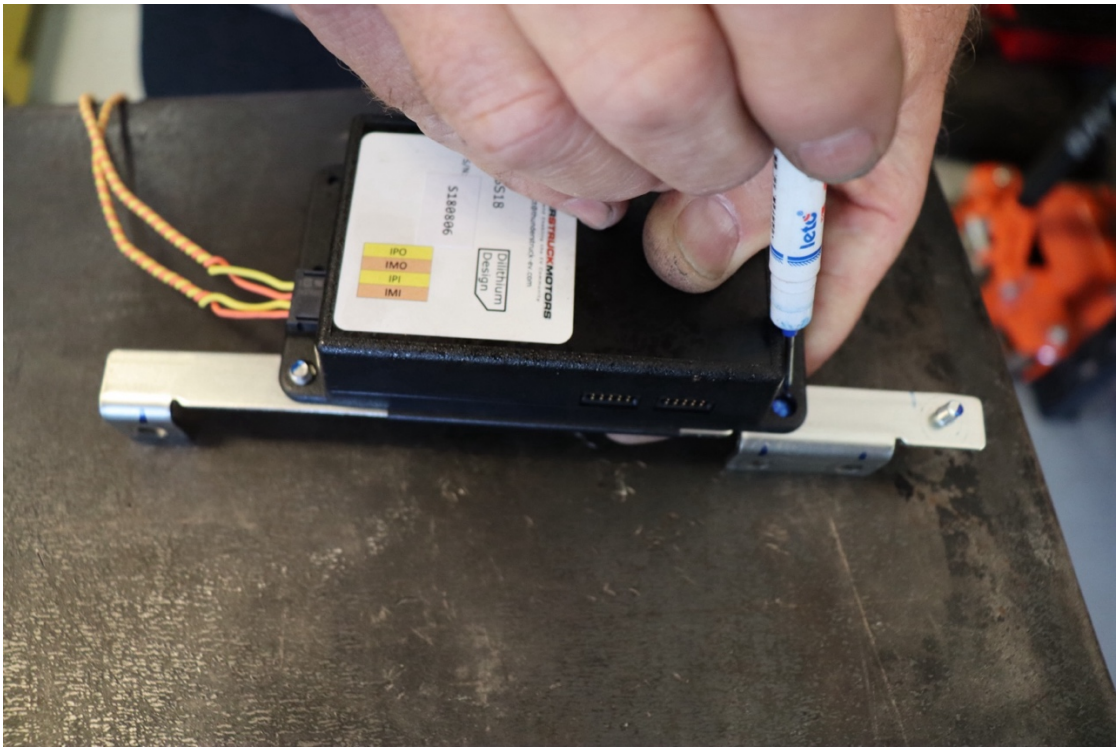




2) Remove Brackets



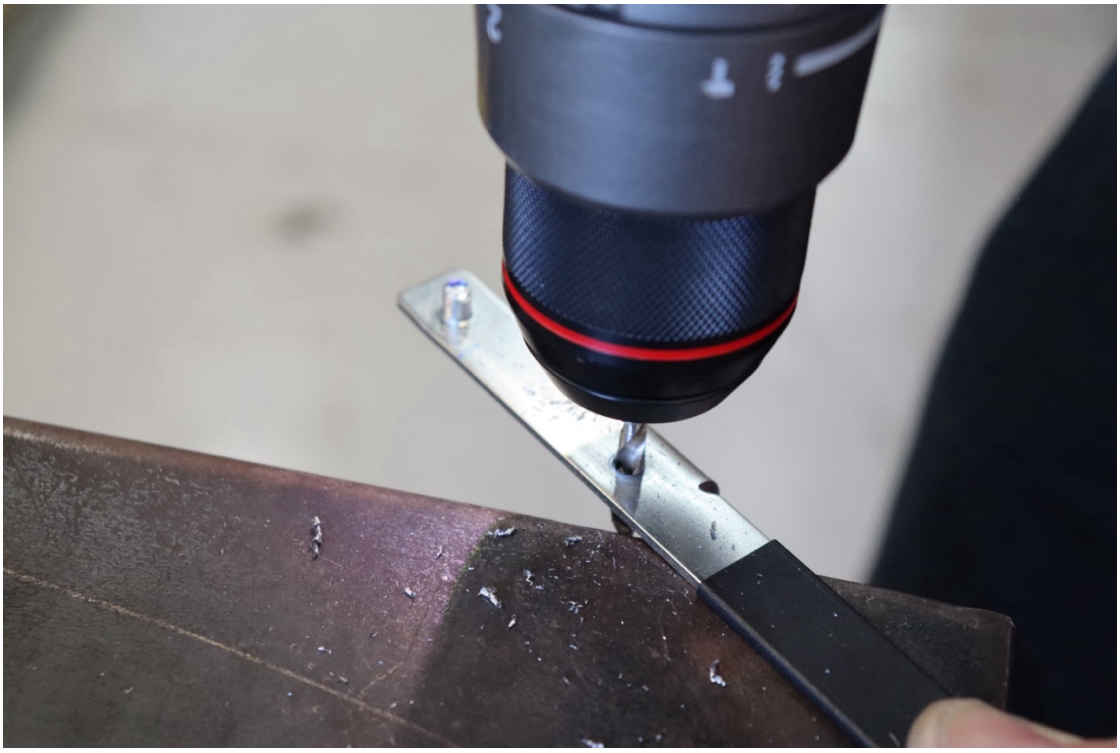
3) Cut, drill, grind, hammer out indicated studs.

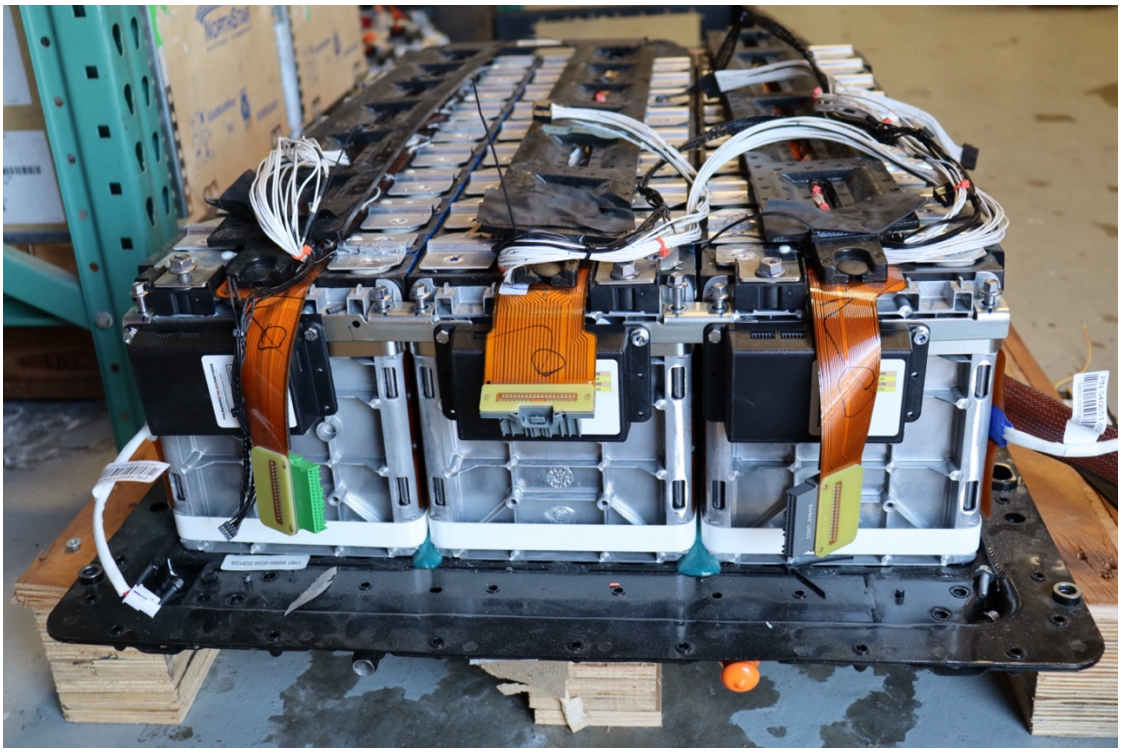


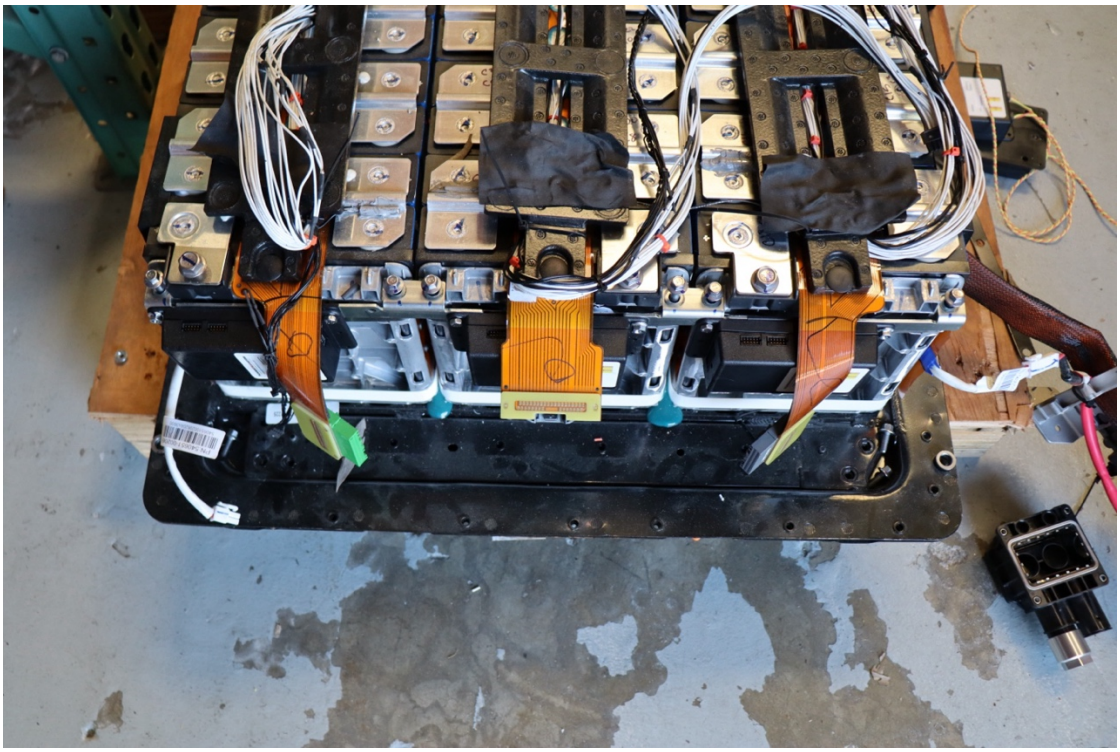
4) Mark location of BMS

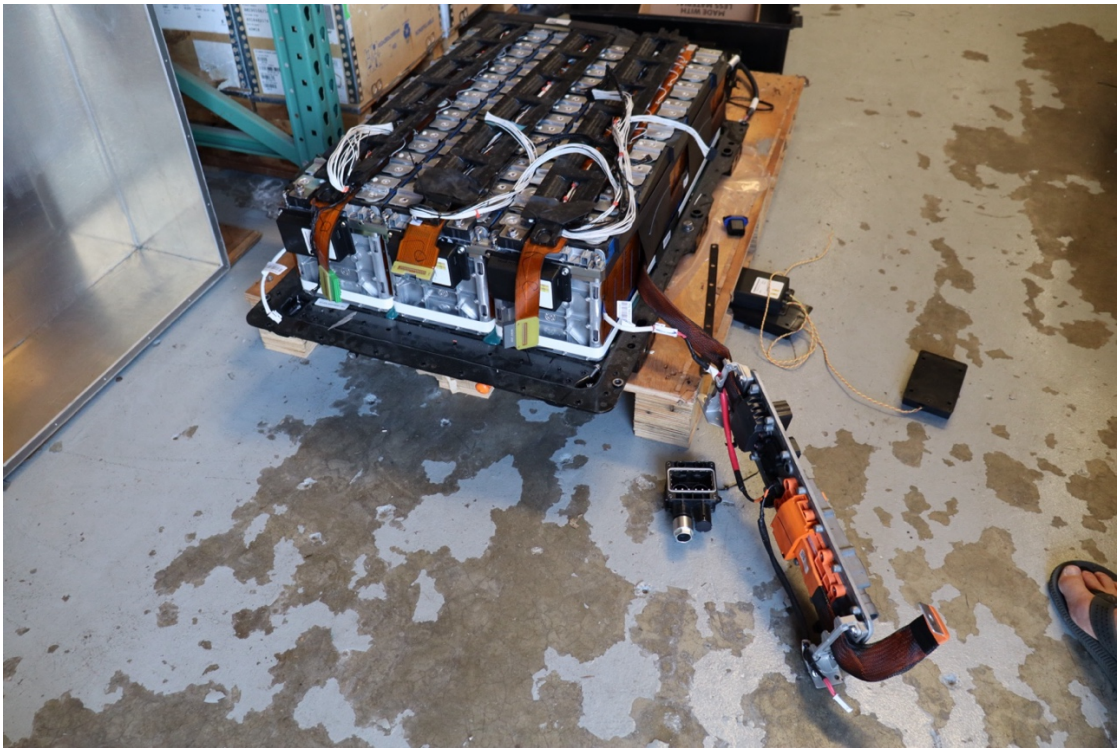
5) install brackets on battery to mark mounting locations for middle LTC

6) Drill for mounting hardware. We use M5 X 7mm bolts



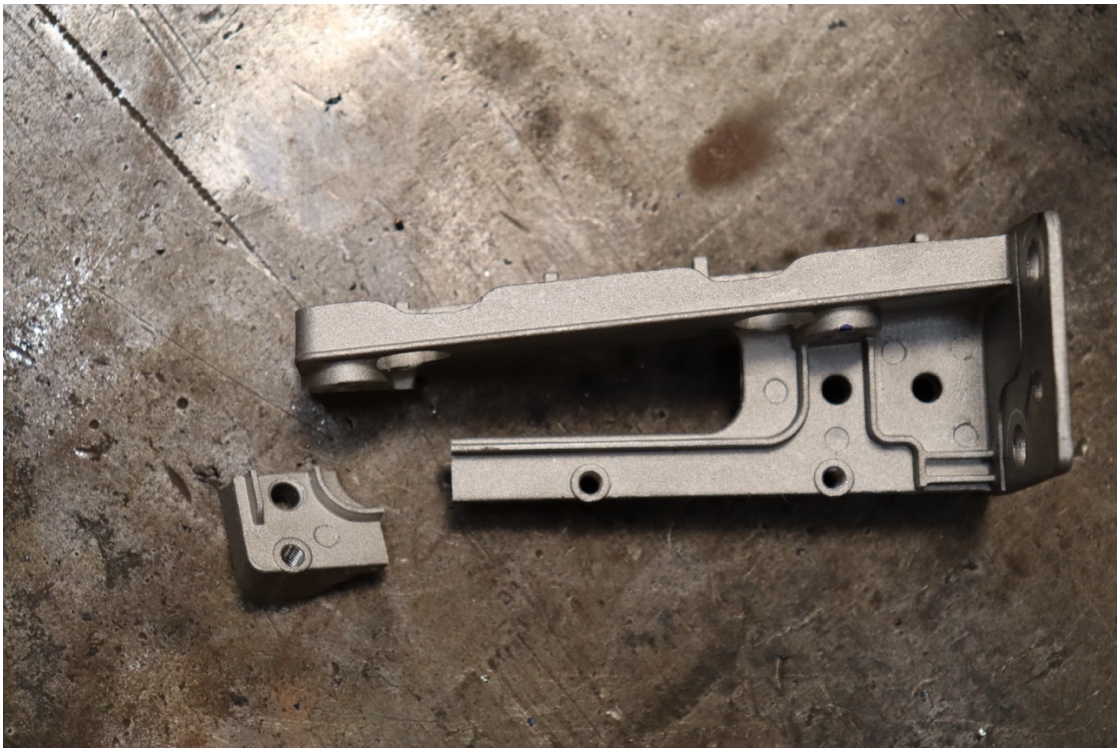


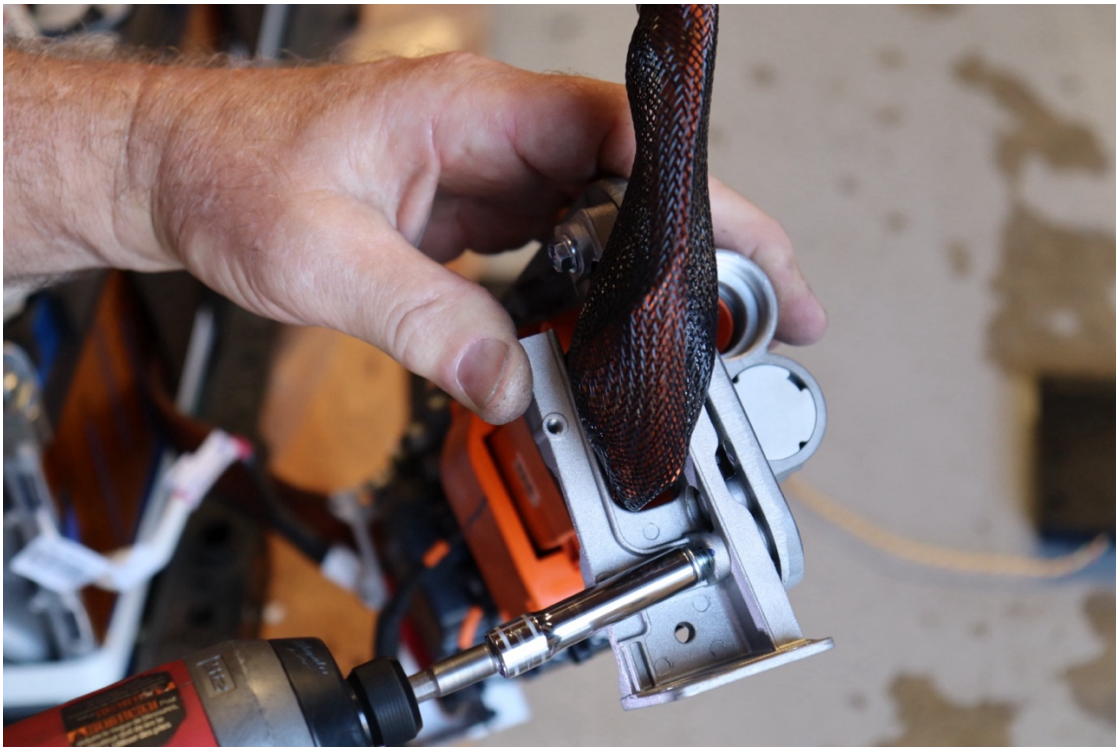




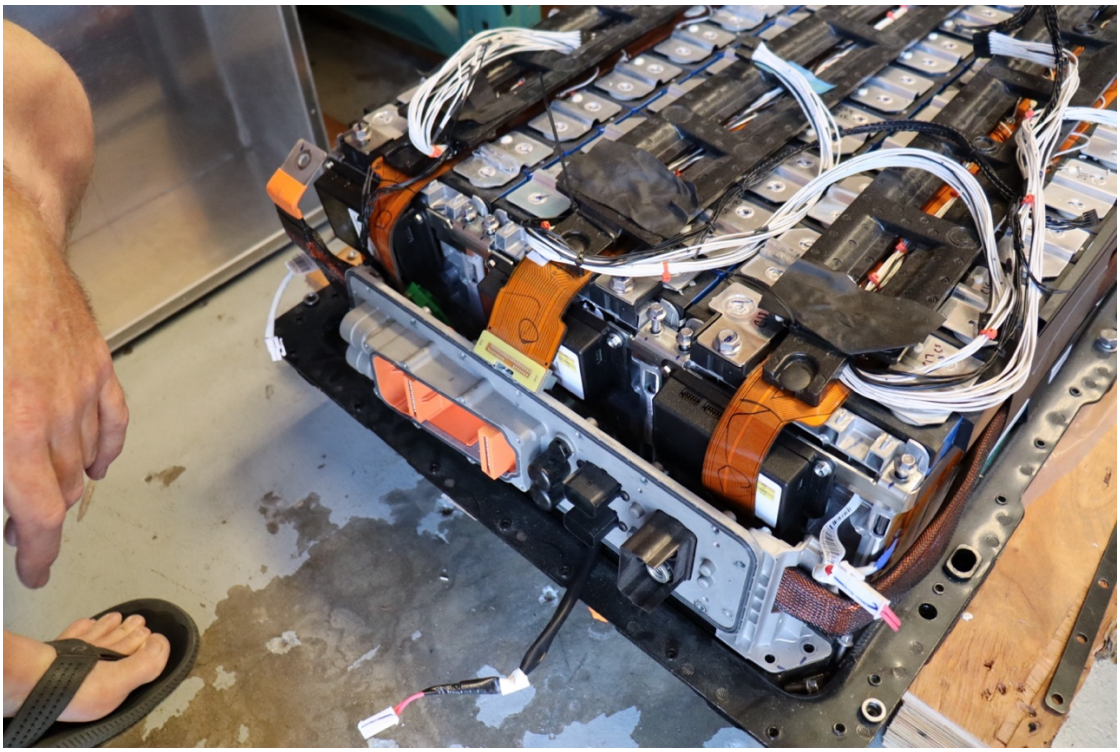
7) Remove cable holding bracket

8) Cut bracket corner to clear new BMS

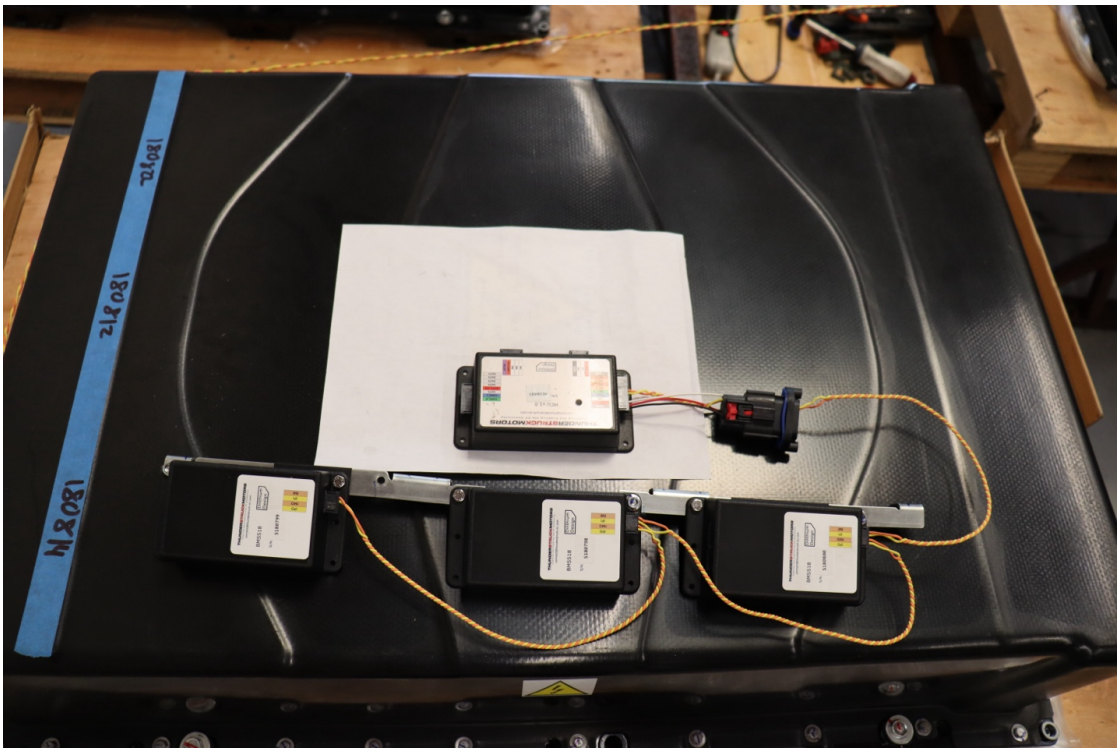




9) Install modified cable bracket



10) Install cut cable bracket



11) Example of basic wiring needed with BMSS and MCU. Be aware there will be additional wiring for other functions of the MCU

Procedure: MCU Wiring and BMS Configuration

1) **Power and Control Inputs**

Connect the Key Switch Input to the MCU's ignition or enable pin.

Supply +12 V from the battery positive terminal to the MCU's VIN (Battery 12+).

Tie the MCU ground to the vehicle chassis ground.

2) Signal Routing to BMS Satellites

Connect the MCU's IPO and IMO signal lines to the BMSS LTC A1 IPI and IMI inputs, respectively.

Daisy-chain from BMSS LTC A1 to A2: connect A1's IPO/IMO outputs to A2's IMI/IPI inputs.

Daisy-chain from BMSS LTC A2 to A3: connect A2's IPO/IMO outputs to A3's IMI/IPI inputs.

(Set serial port Utilities https://evwest.com/support/DD_SerialPortUtilities_v1.3.pdf)

3) Parameter Configuration

Input the EV West–recommended BMS settings. ee EV West parameter recommendations at the following URL

https://evwest.com/support/CATL_Pack_BMS_Settings_Quick_Start_Guide.pdf

Cell Map Verification:

Enter `SHOW CMAP`.

Confirm all 54 cells display as "X" (no "." placeholders).

Cell voltage test

Enter `SHOW CELLS`.

Confirm cell voltage

Thermistor Setup:

Enable external thermistor support: `ENABLE THERMISTORS EXT`.

Enter `SHOW THERMISTORS`.

Verify each of the five thermistor channels reports a valid temperature.

4) Finalize Settings

Execute `LOCK PARAMETERS` to prevent further changes.