12V Power Assembly Wiring

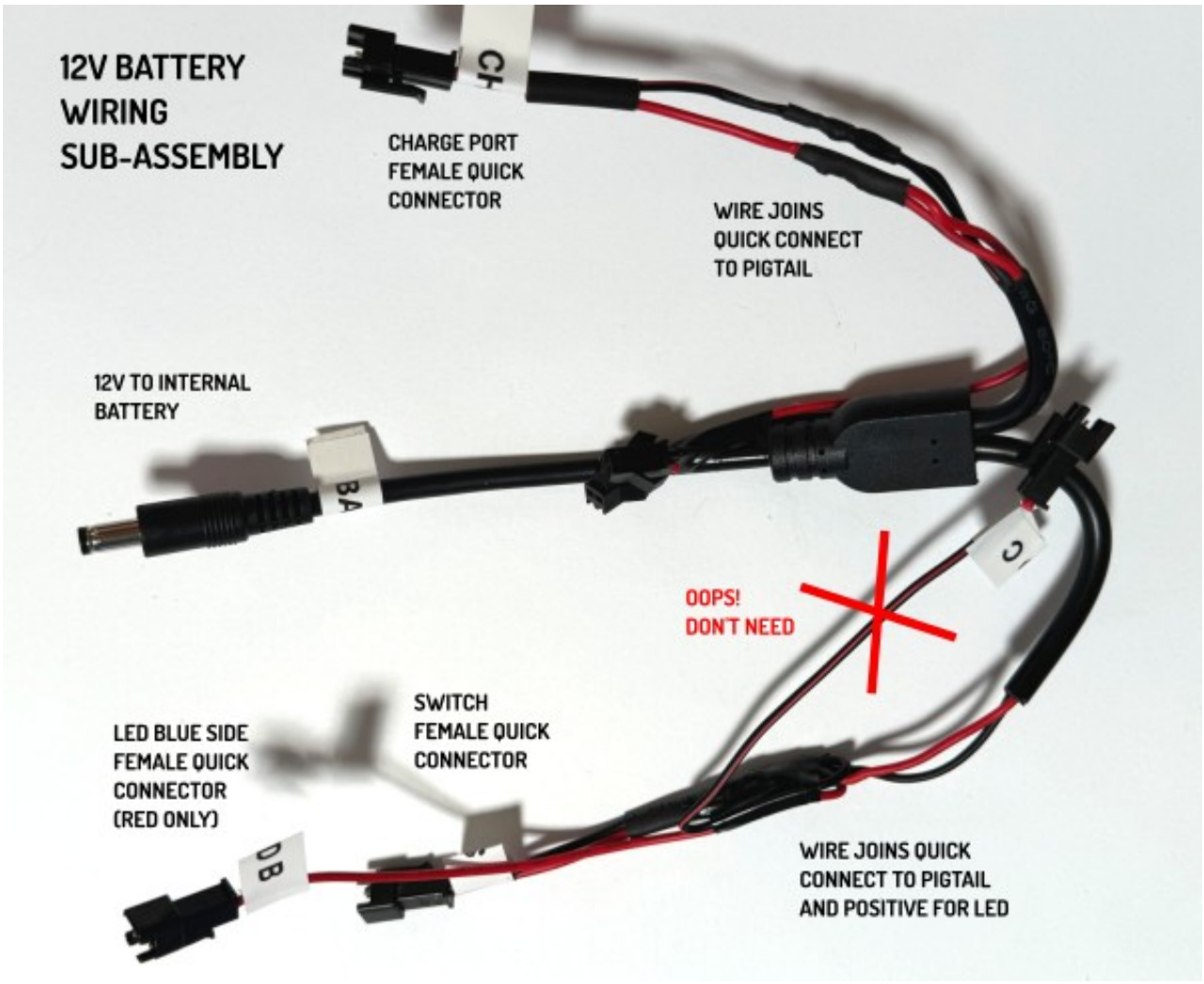
Features

- Charging port for primary internal battery
- Bypass switch to isolate the pack electronics from the battery while charging
- Secondary battery port - just flip the bypass switch and then plug in your emergency power

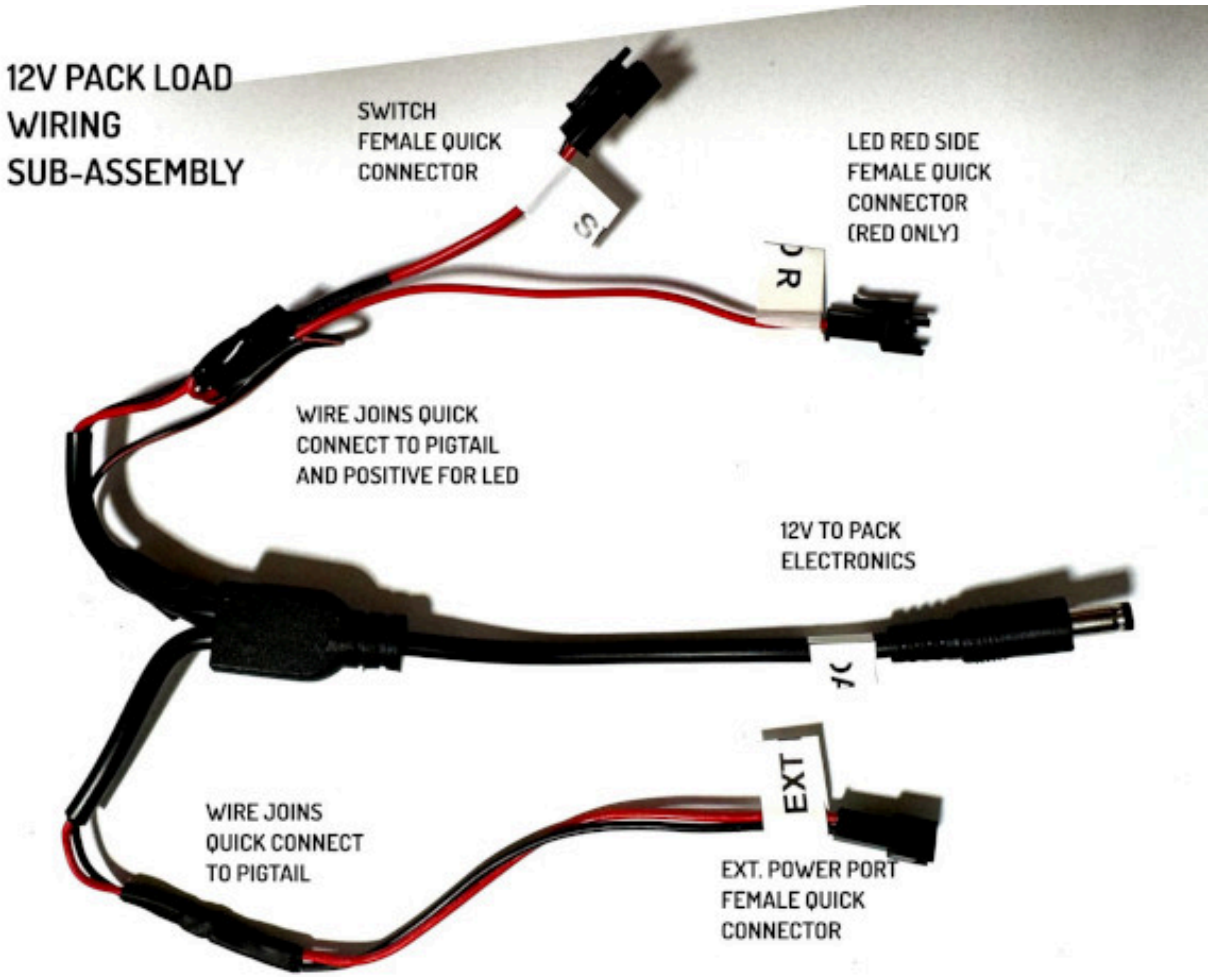
Overview

For this project we will create two identical Y connectors with 12V DC input, 12V DC output and connect them together with a bypass switch.

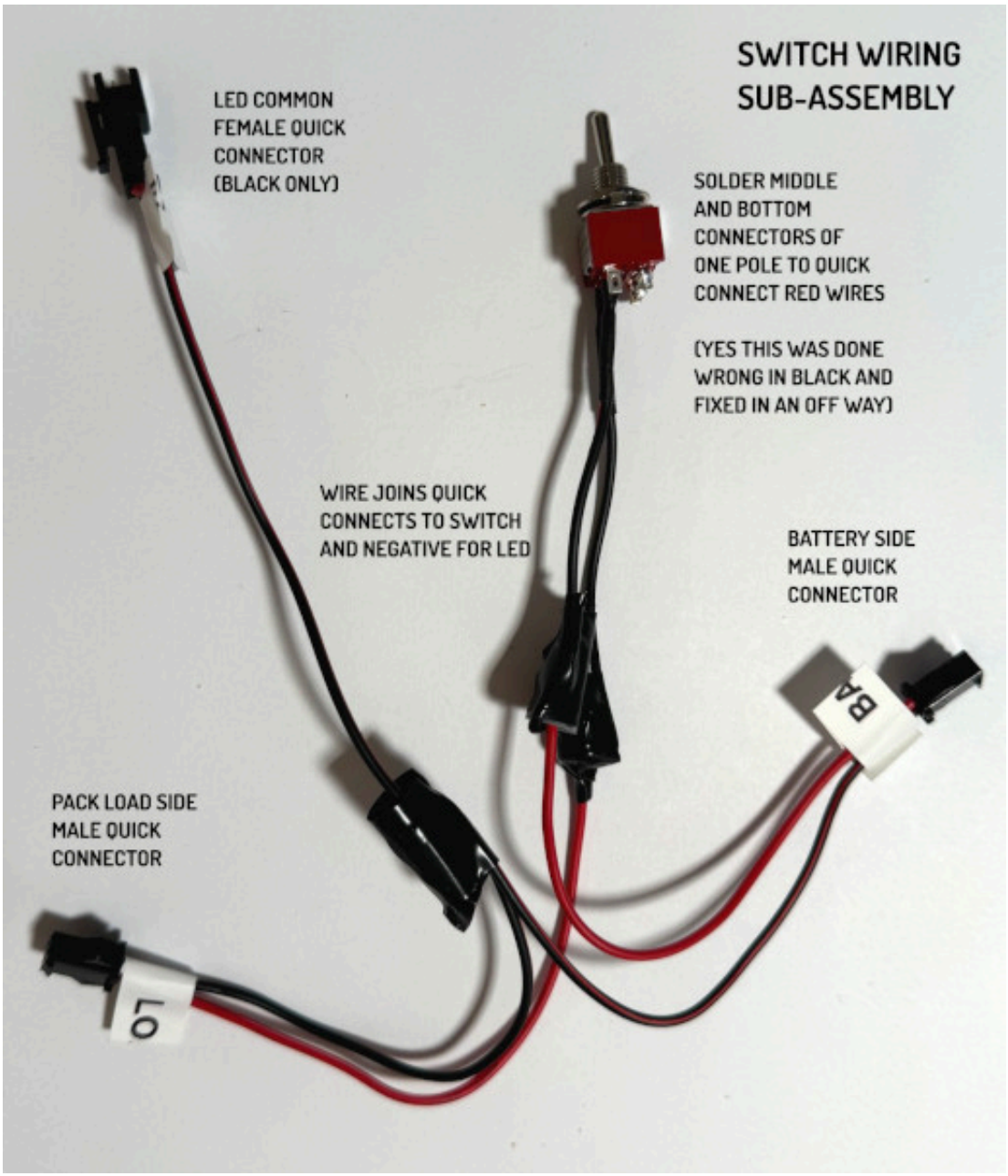
Photos



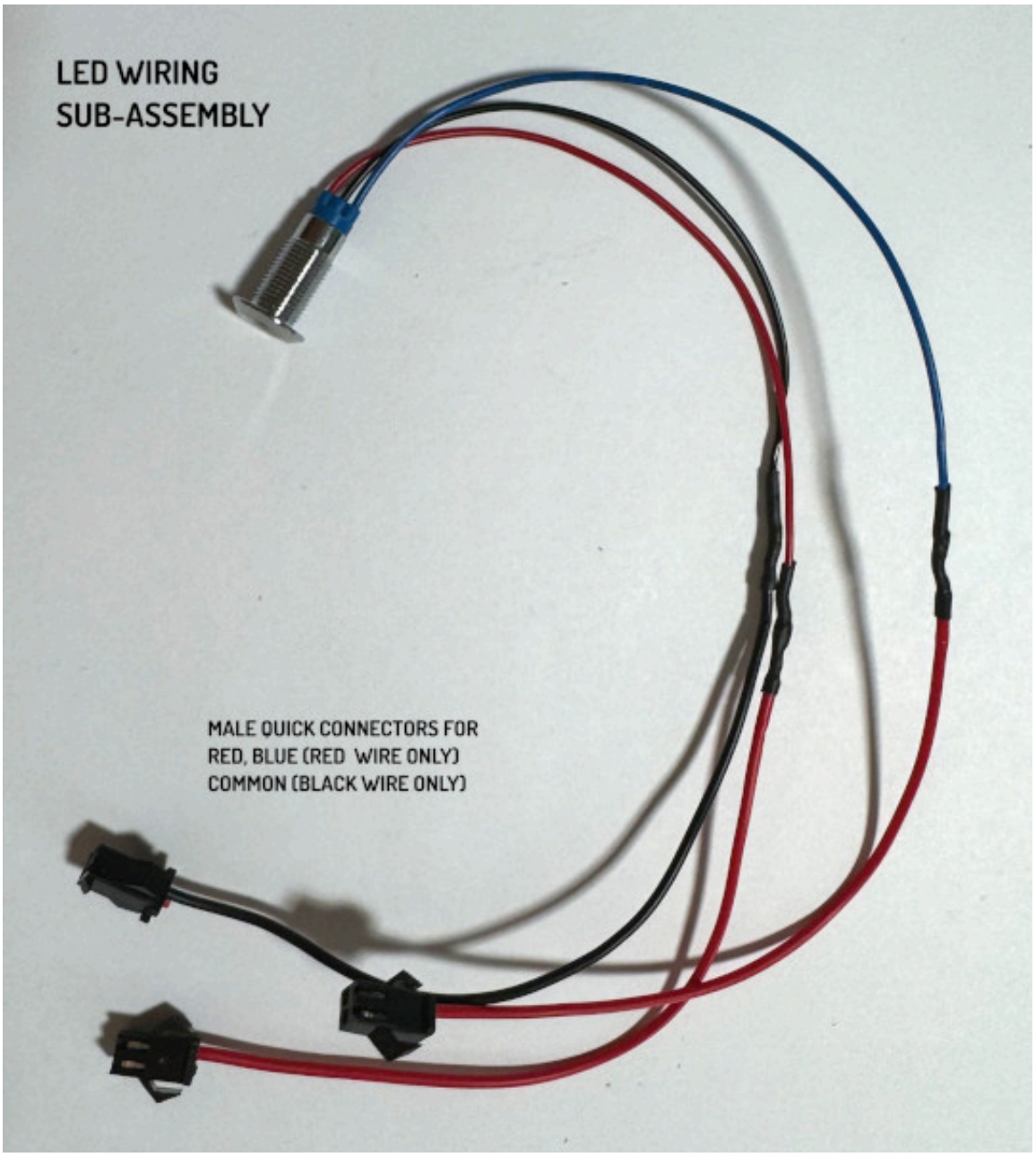
Battery-side wiring Y sub-assembly



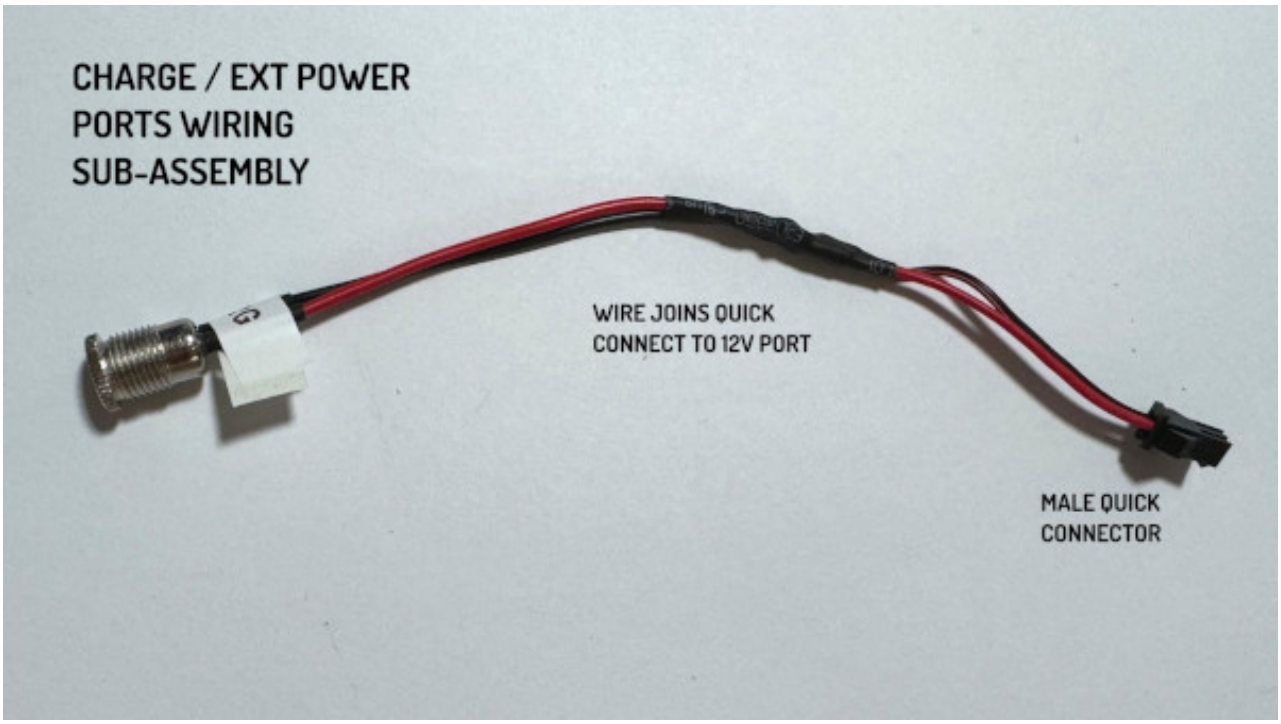
Load-side wiring Y sub-assembly



Switch wiring sub-assembly

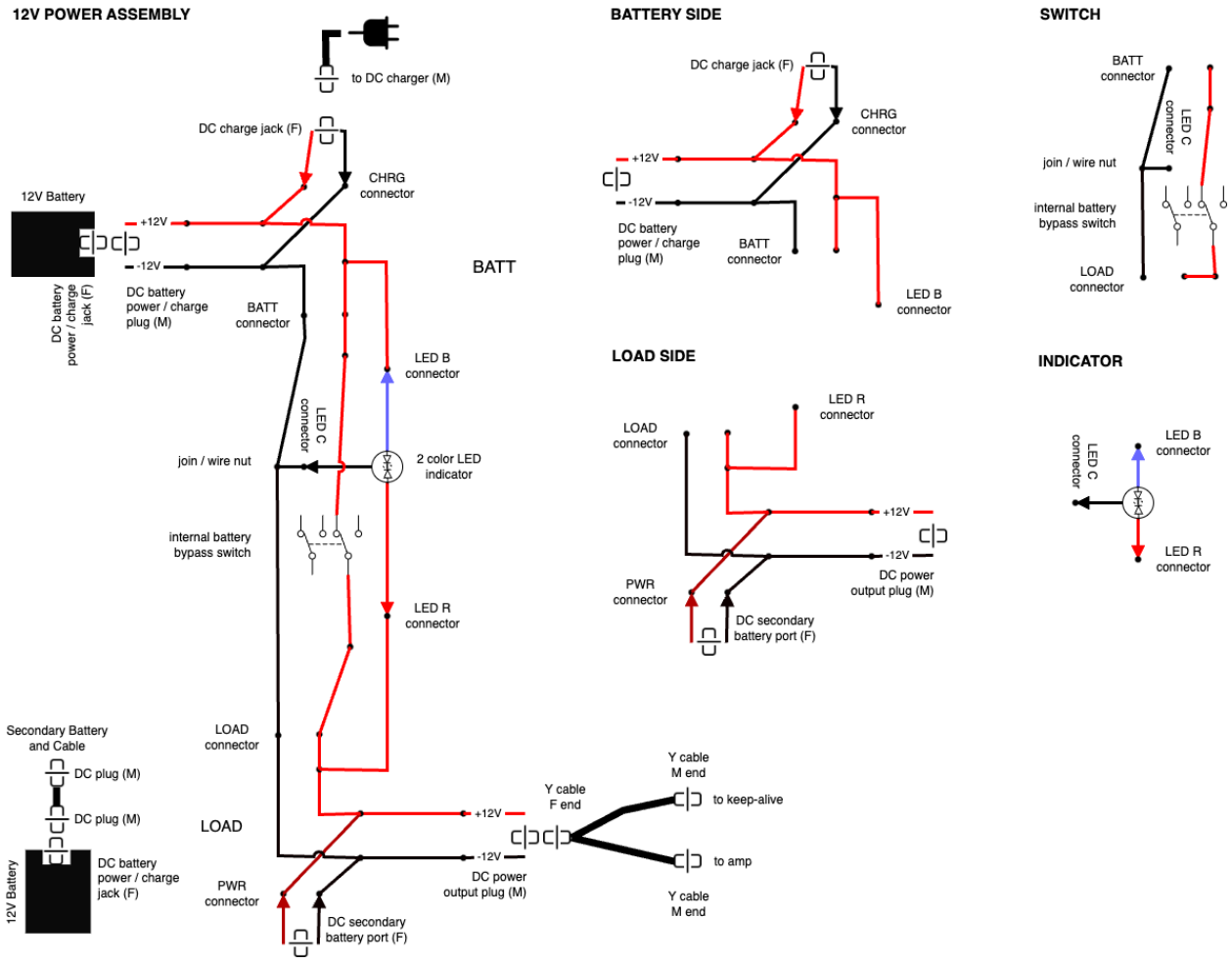


Two-color LED indicator sub-assembly



Charge & External power sub-assemblies

Diagram



(draw.io source)

Guide

Tools

1. Soldering iron and supplies to wire disconnect switch to quick connect wires

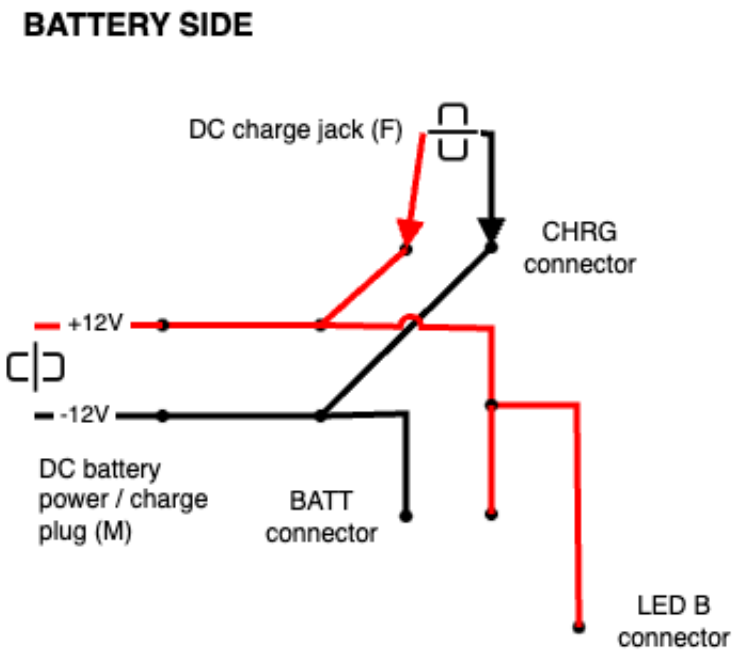
Parts

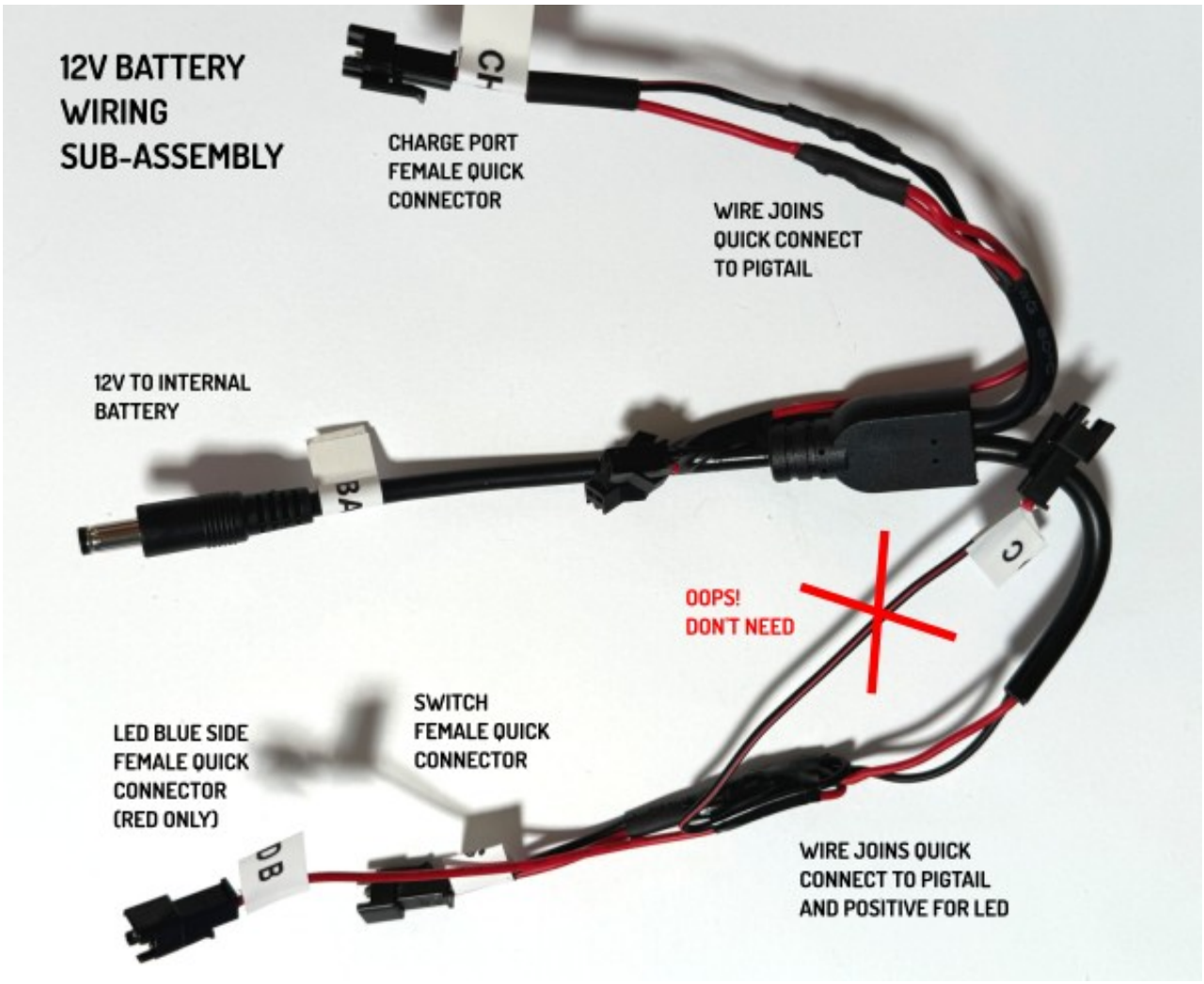
1. 2 x 12V DC rechargeable battery pack (6000mAh)
2. 2 x 12V DC M plug to 2 pigtail (18g)
3. 1 x 12V DC M to M cable, 3ft (18g)
4. 7 x F connector (pre-wired red/black, 18g)
5. 7 x M connector (pre-wired red/black, 18g)
6. 2 x DC barrel jack (pre-wired red/black, 18g)
7. 1 x DPDT mini toggle switch or pre-wired SPST toggle switch for no-solder option

8. butt connectors (18g), wire nuts or opt for soldered wire connections
9. cable and wire management supplies (zip ties, zip tie mounts) as desired
10. 1 x 12V Y-Cable -- 1F to 2M ends (if needed for split load such as 12V keep-alive and amp -- also included with Talentcell battery pack, so optional)
11. 0-# x 12V extension cables (0 or more, depending on mounting locations)

Power Sub-Assemblies

Battery Connection Sub-Assembly

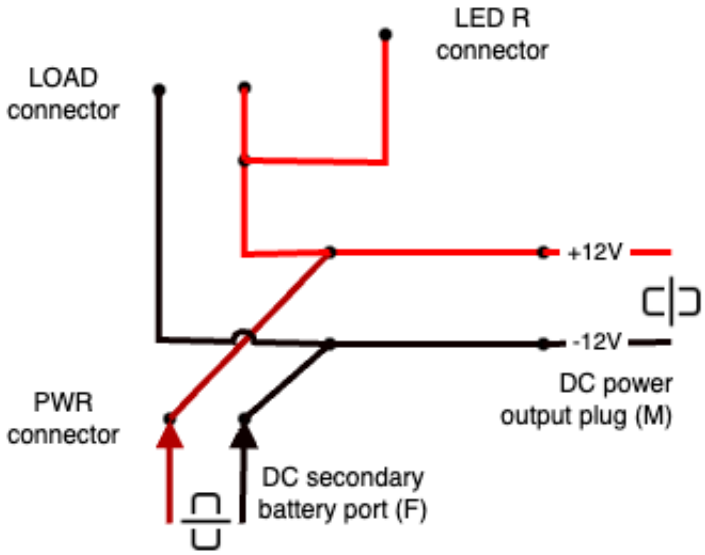


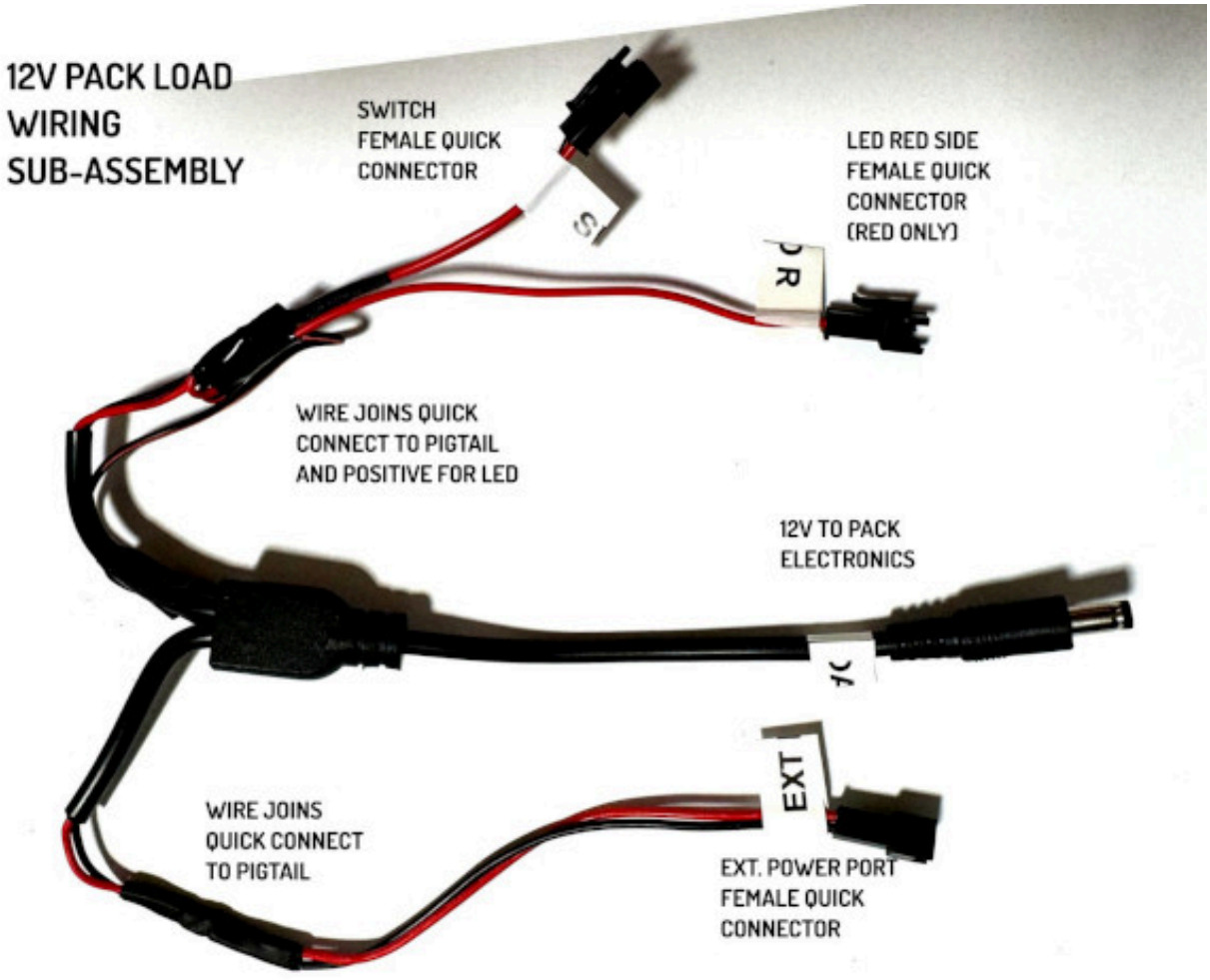


1. Label one 12V pigtail (part #2) BATT
2. Connect one bare-wire side of a 12V pigtail to a pre-wired FEMALE quick connector (part #4) using your preferred wire connection strategy. Label the two-wire quick connector CHRG.
3. Snip the black wire off of one FEMALE quick connector. Label the connector LED B.
4. Connect the other bare-wire side of the 12V pigtail to both a new pre-wired FEMALE quick connector AND the single-wire connector created in the previous step. Connect the three red wires to each other and the two black wires to each other. Label the two-wire FEMALE quick connector BATT SW.

Pack Load Sub-Assembly

LOAD SIDE

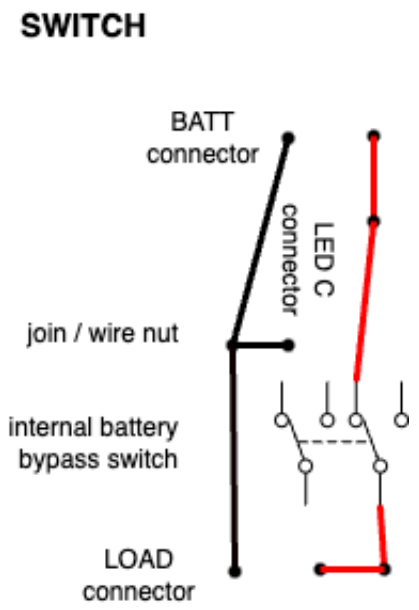


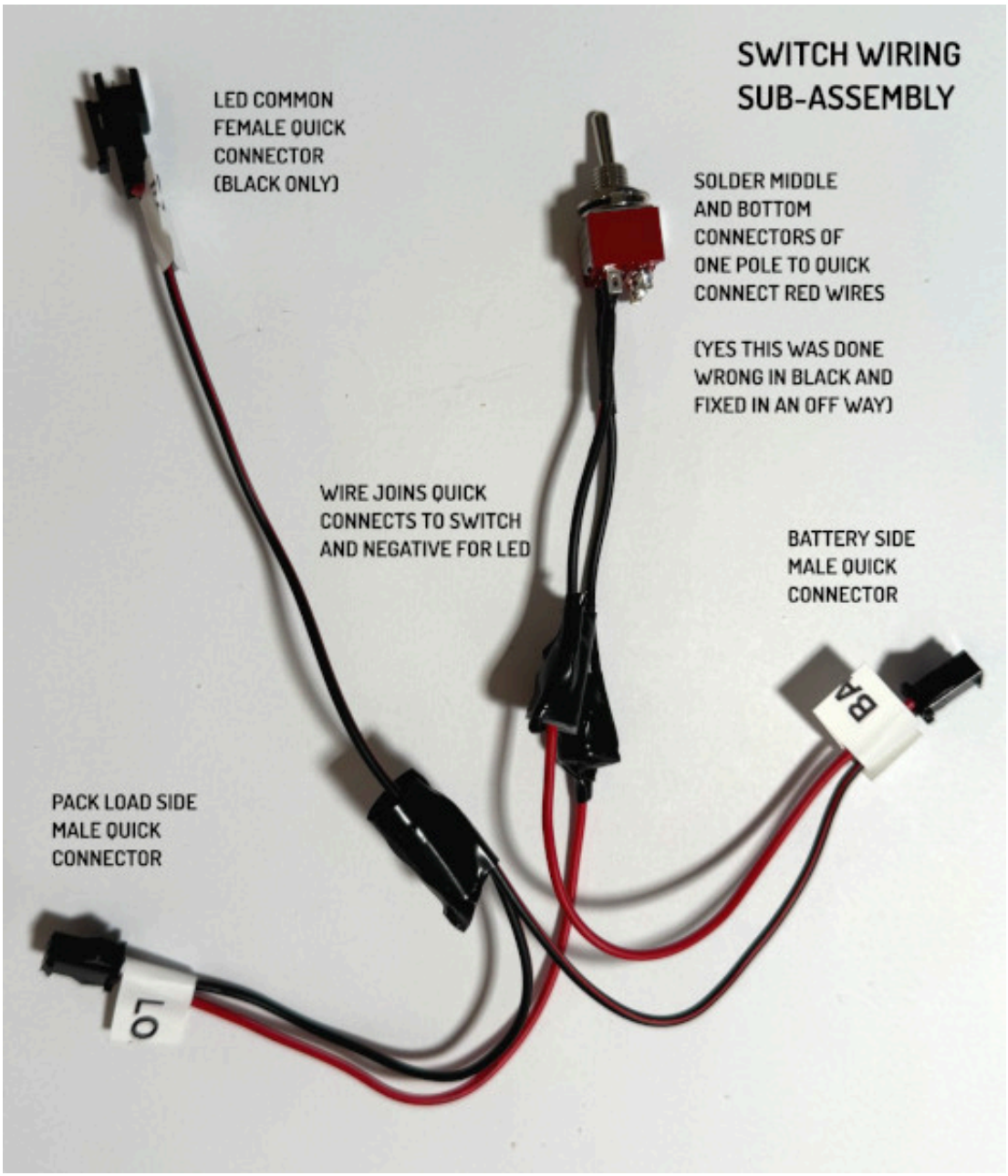


1. Label one 12V pigtail (part #2) LOAD

2. Connect one bare-wire side of the 12V pigtail to a pre-wired FEMALE quick connector (part #4) using your preferred wire connection strategy. Label the two-wire quick connector EXT.
3. Snip the black wire off of one FEMALE quick connector. Label the connector LED R.
4. Connect the other bare-wire side of the 12V pigtail to both a new pre-wired FEMALE quick connector AND the single-wire connector created in the previous step. Connect the three red wires to each other and the two black wires to each other. Label the two-wire FEMALE quick connector LOAD SW.

Bypass Switch Sub-Assembly

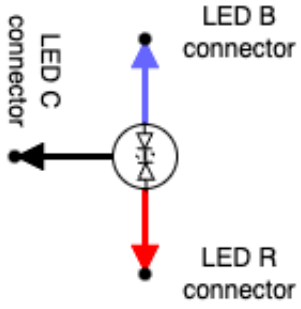


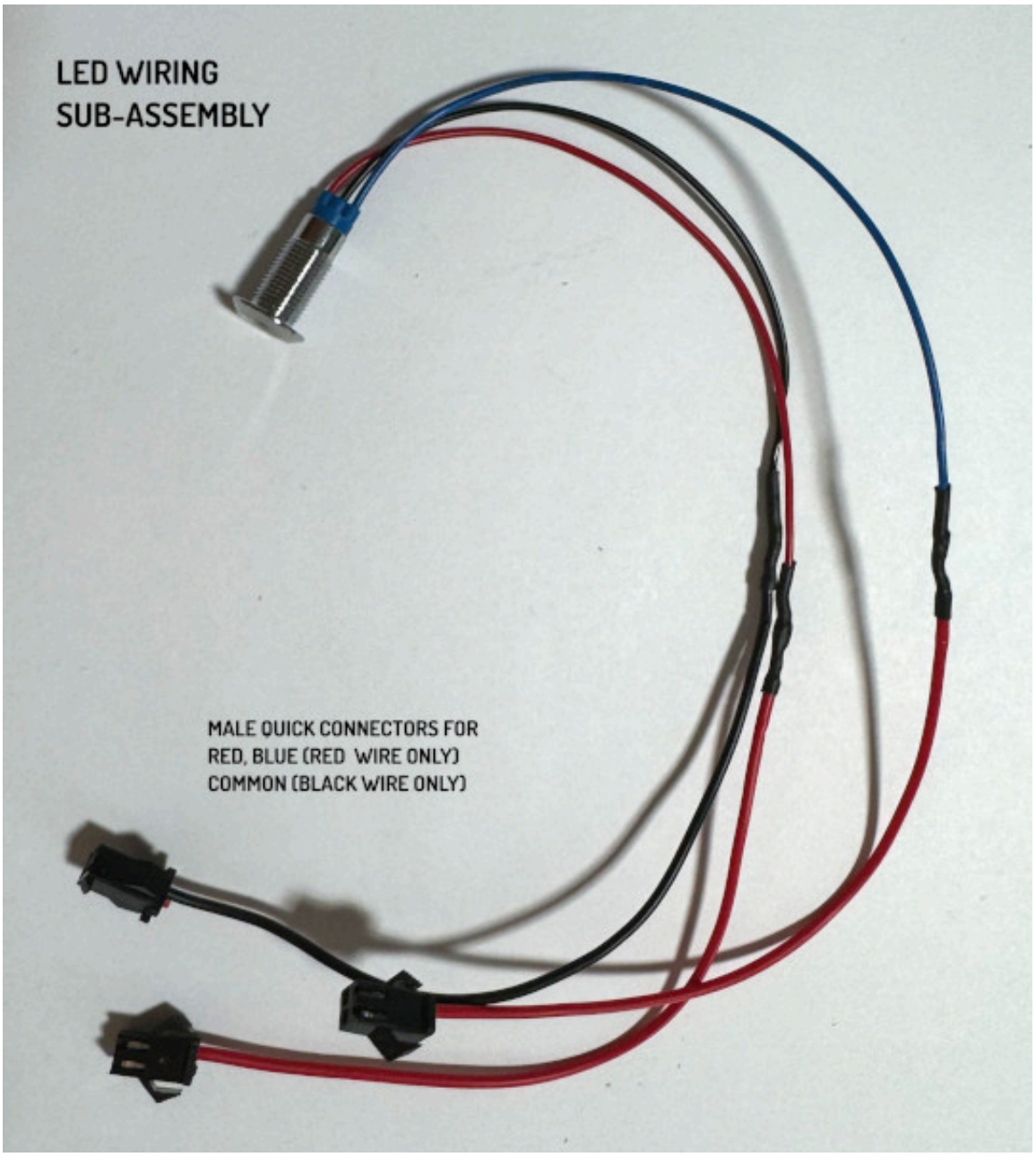


1. Label a MALE quick connector BATT
2. Label a MALE quick connector LOAD
3. Snip the red wire off of one FEMALE quick connector and label it LED
4. Solder the red wire from the BATT connector onto the left center terminal of the DPDT switch
5. Solder the red wire from the LOAD connector onto the left bottom terminal of the DPDT switch
6. Connect the three black wires from BATT, LOAD, and LED quick connectors using your preferred wire connection strategy

LED Indicator Sub-Assembly

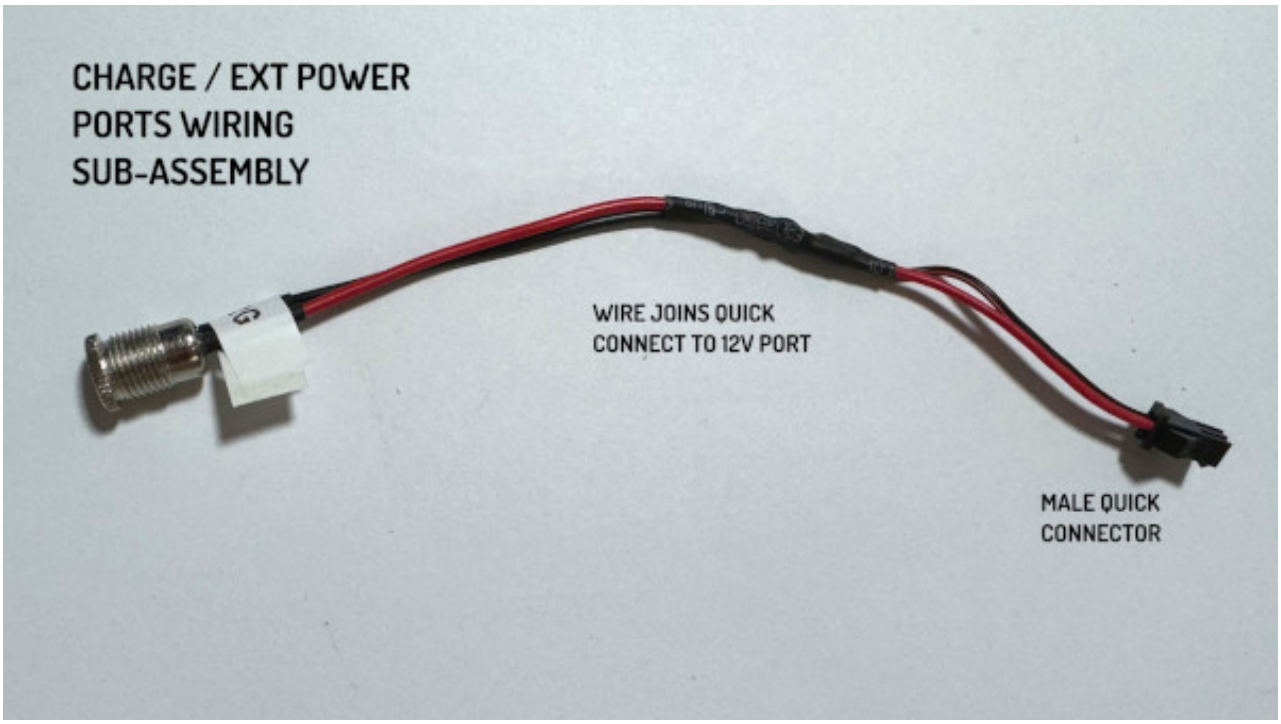
INDICATOR





1. Snip the black wires off of two MALE quick connectors, labeling the red wire of one LED B and the red wire of the other LED R
2. Snip the red wire off of one MALE quick connector. Label the black wire LED C
3. Connect the red wire of the LED to the LED R quick connector red wire
4. Connect the blue wire of the LED to the LED B quick connector red wire
5. Connect the black wire of the LED to the LED C quick connector black wire

Power Input Sub-Assemblies



1. Connect the black and red wires from one pre-wired 12V port to the black and red wires on one MALE quick connector. Label it CHRG.
2. Connect the black and red wires from one pre-wired 12V port to the black and red wires on one MALE quick connector. Label it EXT.

Mounting Assemblies

1. After drilling your mounting holes, you should be able to feed the MALE connectors on the LED sub-assembly and the power input sub-assemblies through their respective mounting holes
2. Pass the shaft of your bypass switch through the hole and use the washers, nut, etc. to affix the switch and attached sub-assembly

Connecting Sub-Assemblies

Using your quick connects and matching labels:

1. Connect the CHRG MALE quick connector on the power in sub-assembly to the CHRG FEMALE quick connector on the BATT sub-assembly
2. Connect the EXT MALE quick connector on the power in sub-assembly to the EXT FEMALE quick connector on the LOAD sub-assembly

3. Connect the BATT MALE quick connector on the SWITCH sub-assembly to the BATT SW

FEMALE connector on the BATT sub-assembly

4. Connect the LOAD MALE quick connector on the SWITCH sub-assembly to the LOAD SW FEMALE connector on the LOAD sub-assembly

5. Connect the LED B FEMALE quick connector on the BATT sub-assembly to the LED B MALE connector on the LED sub-assembly

6. Connect the LED R FEMALE quick connector on the LOAD sub-assembly to the LED R MALE connector on the LED sub-assembly

7. Connect the LED C FEMALE quick connector on the SWITCH sub-assembly to the LED C MALE connector on the LED assembly