Hit Box UP5 Direct Soldering Mod

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Disclaimers

- **If you do not have substantial modding and soldering experience**, we recommend using the services at Arcade Shock to perform this mod: [AS UP5 Solder Mod].
    - Hit Box is not responsible for any damage incurred to the controller during modification, this includes but is not limited to the solder installation of the Brook UP5.
    - Please reach out to *support@hitboxarcade.com* if you have any warranty related questions.

- **This mod applies to only to PS4 Hit Boxes that *do not* have the v3.3 board.**
    - If you have a v.3.3 board, use the other guide for UP5 installation: [UP5 Plug-n-play Install for v3.3].
    - If you do not know if your Hit Box has a v3.3 board, open up the bottom of the Hit Box and reference the Compatibility section.

Purpose

This guide demonstrates how to directly solder a Brook UP5 to the Hit Box and Cross|Up.

Compatibility

- PS4 Hit Box (4 menu buttons on the top)
  - PS4 Hit Boxes from 2016 – 2022
  - PS4 Hit Boxes in 2023 without the v3.3 board
    - For further details, see the Disclaimer section.
- PS4 Cross|Up
  - All PS4 Cross|Ups (including Alpha and Kickstarter versions)

Compatibility (cont)

- **HIT BOX**

  Your Hit Box must be able to accept the Hit Box v1.05 firmware in order to use the UP5.
  - If your Hit Box has 4 menu buttons on the top, test your Hit Box compatibility by installing the v1.05 firmware: [Hit Box Firmware Download]
  - If your Hit Box accepts the firmware, then it can accept the UP5 mod.
  - If your Hit Box *does not* accept the firmware, do not install any UP5 mod and please reach out to *support@hitboxarcade.com* for assistance.
  - If your Hit Box *does not* have 4 menu buttons on the top, it will not work with the UP5.

- **CROSS|UP**

  Install the "CROSS|UP PS4 FIRMWARE".
  - Follow the instructions through the link to gain UP5 compatibility: [Cross|Up Firmware Download]

Identifying the I2C ports that will be used

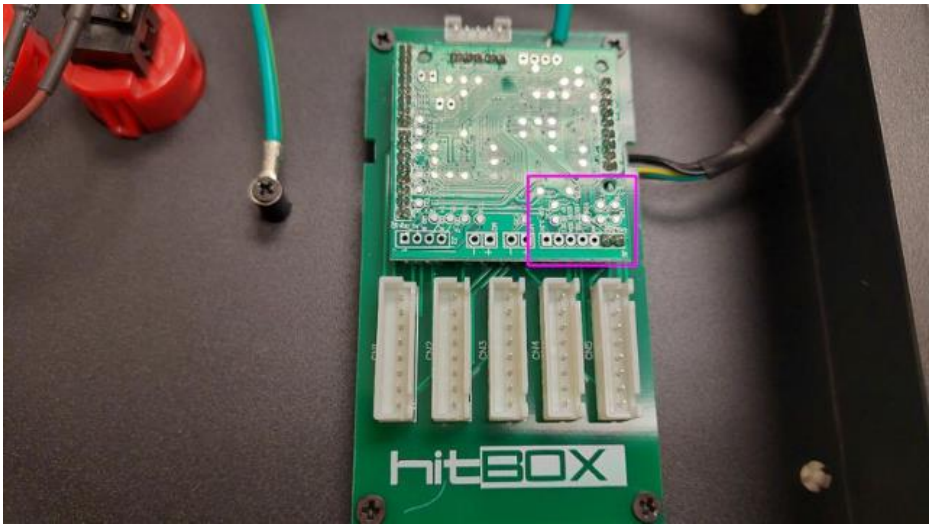

Figure A – The I2C ports of the Hit Box PCB are highlighted (labeled J6 on the PCB silkscreen)

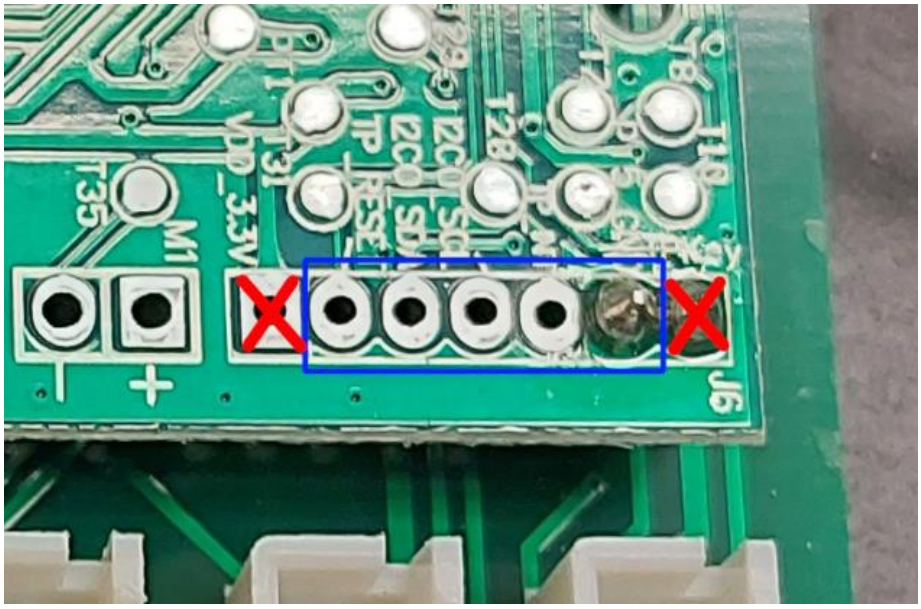

Figure B – This shows where to solder the JST-PH5 header included with the Brook UP5 kit

Before soldering, remove the Hit Box back plate to access the PCB and breakout. Then remove the button's wiring-harness connectors (CN1, CN2, CN3, CN4) and then the USB connector at the top of the board. The highlighted area in *Figure A* and *Figure B* shows where the right-angle JST-PH5 header that comes with the UP5 will be soldered to.

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Prepping the connector to solder

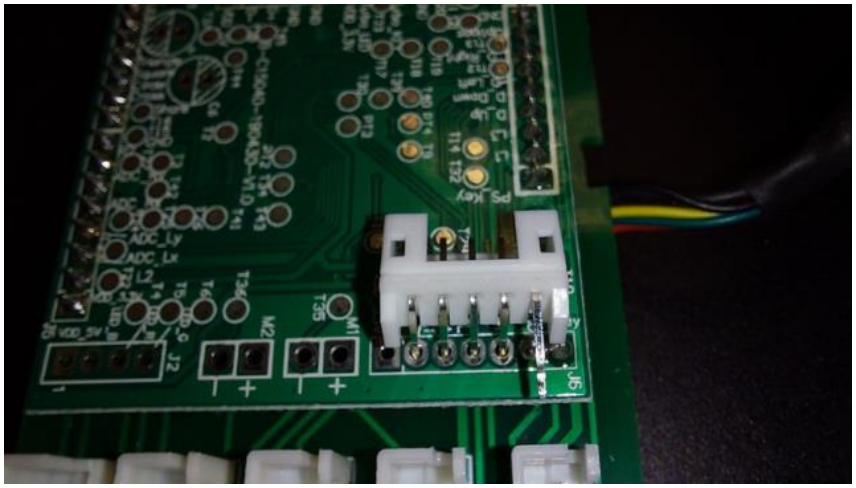

Figure C – The JST-PH5 from the UP5 kit is lined up with the holes before soldering.

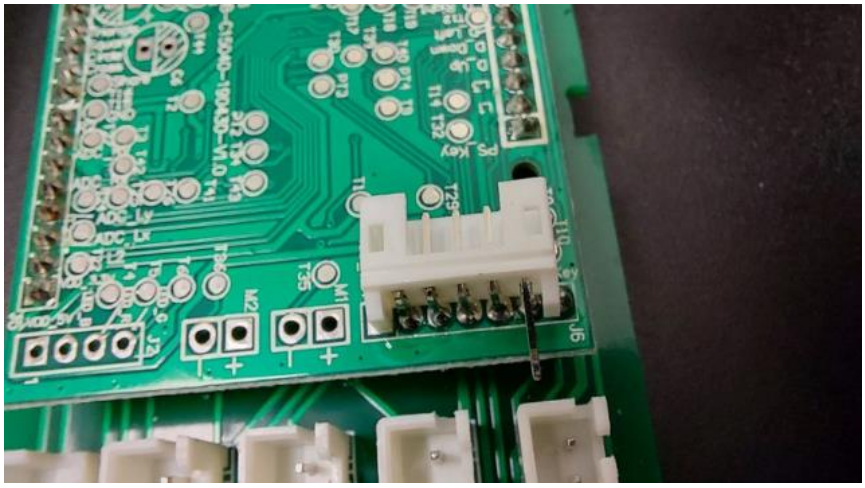

Figure D – The first 4 pins of the JST-PH5 are soldered to the Hit Box PCB

There are 7 ports in the group labeled J6 of the Hit Box PCB. 2 ports are already being used by the breakout. 5 ports will be used for this installation, and 1 port (the VDD_3.3V port, leftmost in the group) will not be used. Line up the leftmost pin of the connector with the RESET port of the PCB (and not the VDD_3.3V port). Note that the connector will not sit flush to the PCB because of the 5th pin that is already being utilized by the Hit Box breakout. Gently bend the 5th pin out of the way for now.

Figure C shows the connector lined up with the I2C ports, and with the Ground pin flipped up. *Figure D* shows the first 4 ports soldered in.

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Soldering the 5th JST-PH5 pin

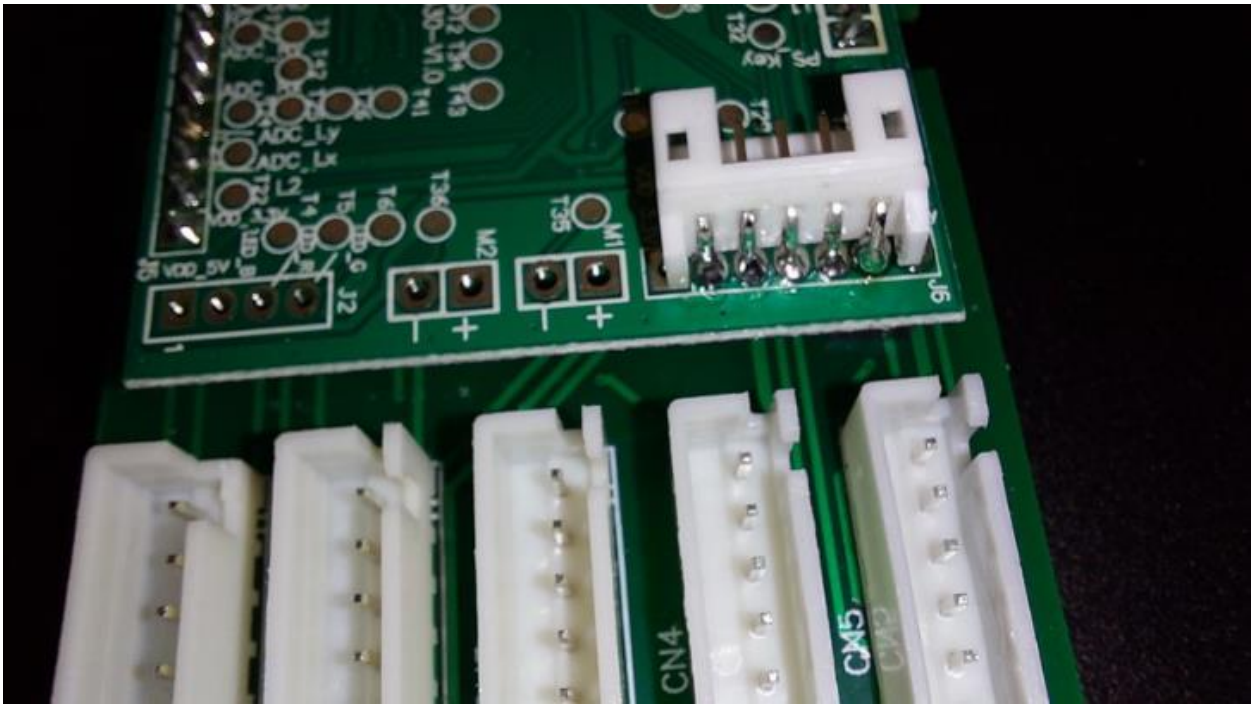

Figure E – The ground pin on the JST-PH5 connector is joined to the existing ground pin.

The last pin can be soldered directly to the top of the existing pin. The pin from the connector will need to be cut with flush cutters, gently flipped back down, and joined to the existing solder blob for the PCB's ground pin.

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Connecting the JST-PH2 VDD 5v line

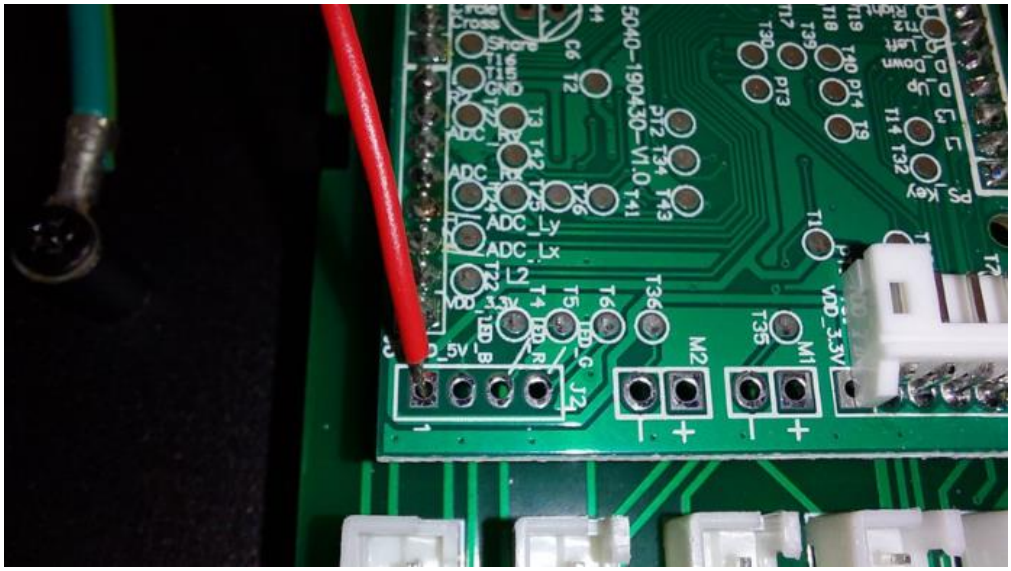

Figure F – The red VCC line from the UP5's JST-PH2 connector lined up against the VDD_5V port on the J2 section of the Hit Box PCB

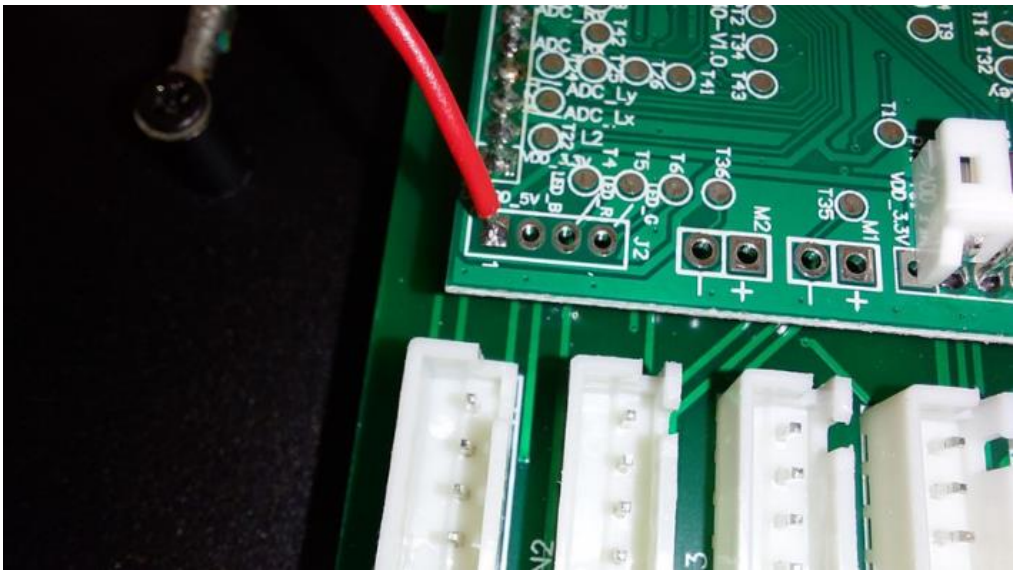

Figure G – the VCC line from the UP5 is soldered to the VDD_5v port of the Hit Box PCB.

A 5v power line for the UP5 is mandatory. The Hit Box PCB operates at 3.3v, so power for the UP5 can only be obtained from VSYS, the power regulator or the VDD_5V port.

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Connecting the JST-PH2 Ground line

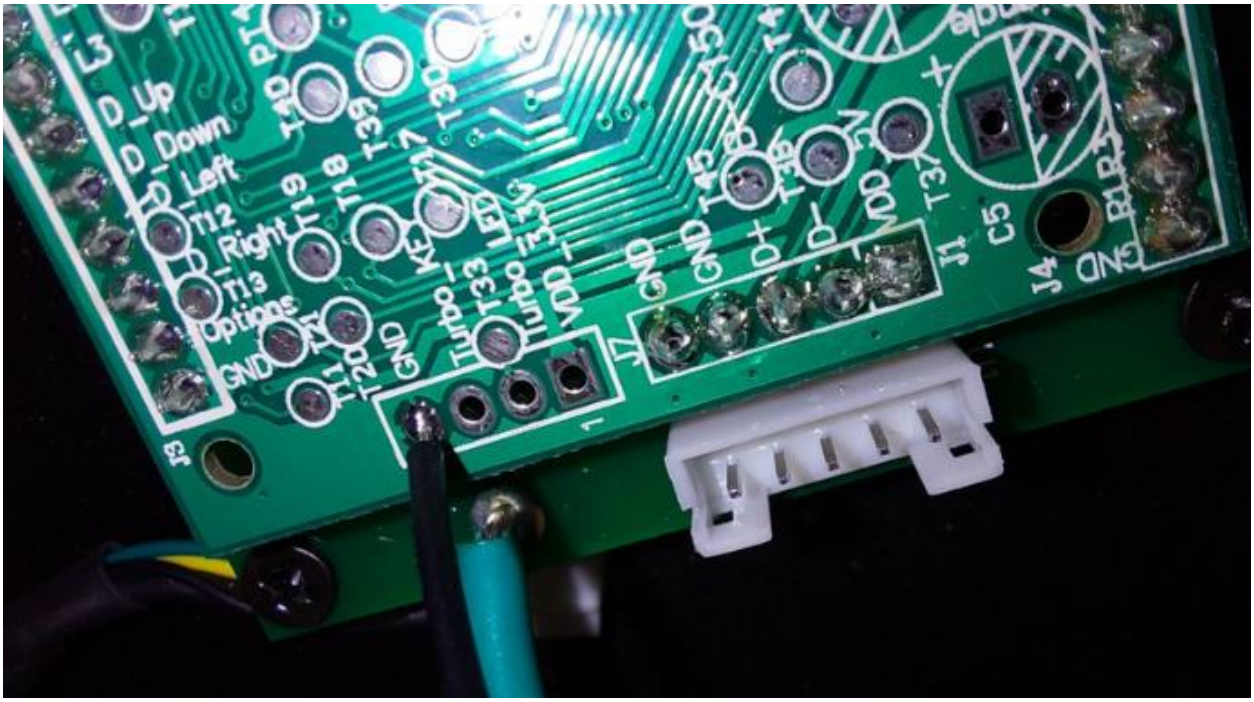

Figure H – the Ground port from the J7 group is connected the UP5

The Ground line from the JST-PH2 connector of the UP5 can be connected to the unused ports. The Ground port on the J7 group is a convenient place to solder the UP5 to. Other ports might also work but have so far been untested.

Final steps

• The UP5 and its SOCD-switch pins need to be insulated so that the leads don't touch the metal case. (To prevent short-circuiting).

• Replace the button wire-harnesses (CN1, CN2, CN3, CN4) and the USB connector.

• Replace the lid

• Flash the PCB with Hit Box's latest Firmware.

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The Completed UP5 Mod

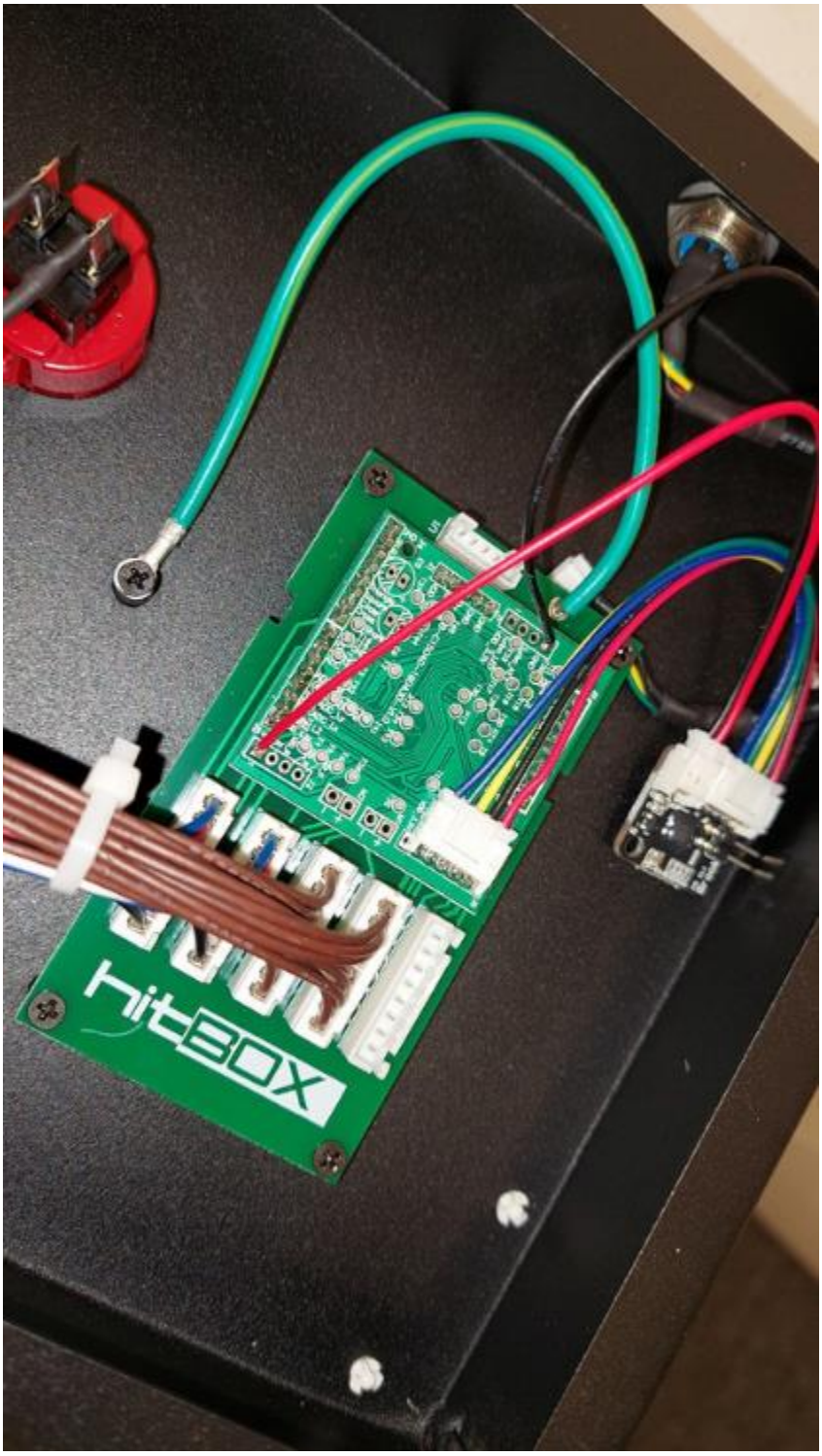

Figure I – a Brook UP5 is soldered to a Hit Box PCB using the PCB's I2C connectors. The UP5 takes power from a VDD_5V port. An unused Ground port is used for the UP5's Ground line.

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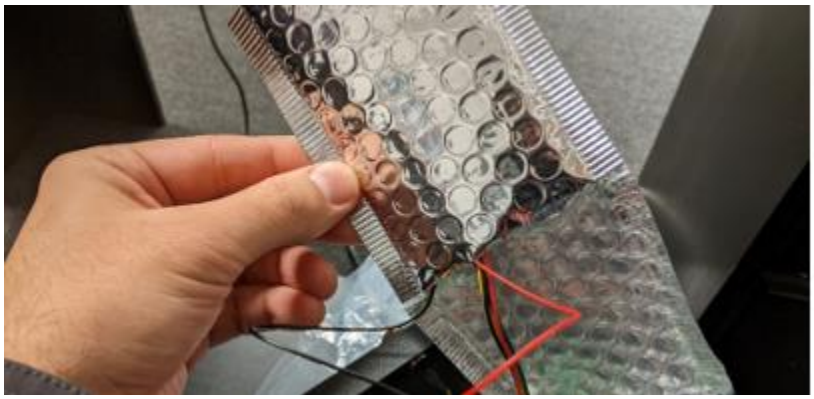

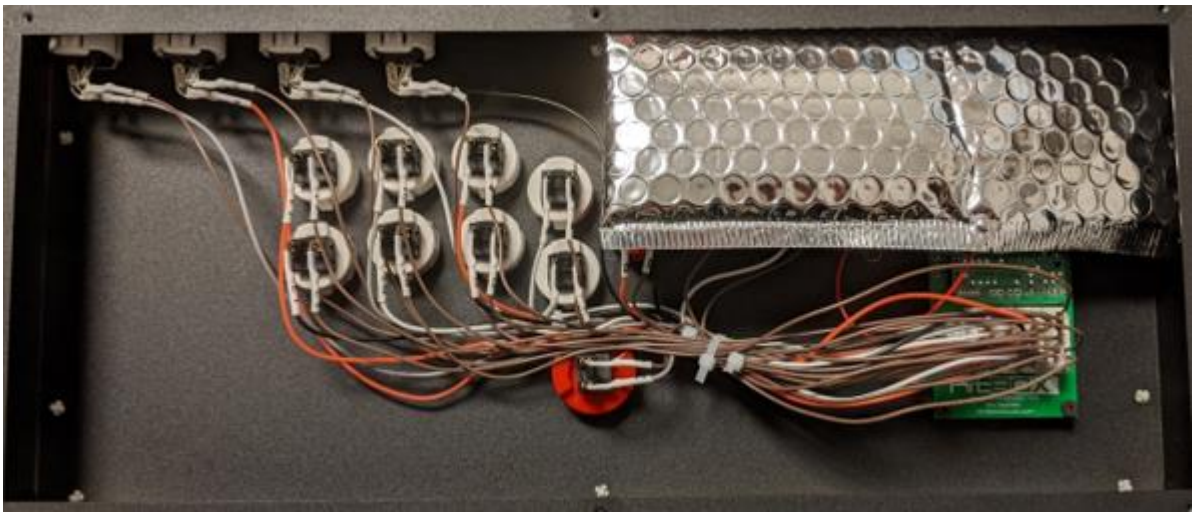

Use a static bag or mounting puddy to ensure the UP5 does not come into contact with the case.