

Saberz Project M Chassis Installation Guide

Version 2.4 – January 2024



saberz.com

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1 Disclaimer and Important Starting Notes

Disclaimer

- Perform your chassis installs at your own risk. These instructions are intended to only outline and suggest the installation process we followed to successfully perform installs on this chassis set.
- These instructions are NOT intended to replace the vendor documentation for any of the electrical components described in this document. It is especially important you read and become completely familiar with all vendor-provide instructions and documentation. Be sure to download and carefully read the ProffieBoard and NPXL documents from the vendor.
- Read and understand this document completely before moving forward with your install. All steps are very important. Failure to read this document completely (and not following the steps correctly) can result in damaging your chassis, hilt and/or electronic components!
- It is assumed you, as the installer, have experience with soldering, wiring and proper handling of electronics and follow all safety protocols.
- Exact instructions for soldering the wires to your ProffieBoard are not provided, only the wiring diagram we used for our installs.
- Never use a heat gun anywhere near this chassis set as PLA, SLS (and resin) printed parts are sensitive to heat.
- Please use care when doing your install! We are not responsible for any damages done to your chassis set (and/or hilt) by you or your installer during the install process.

Important Starting notes

One of the biggest mistakes when installing a chassis is 1) using too much glue and 2) not providing extra length of wire for all components (speakers, tactile switches, NPXL PCB, the ProffieBoard etc.). This is critical for supporting future servicing of components which can go bad. Using just a small amount of gap filling type superglue will provide full adhesion of the parts, and yet will allow the removal of the part when the bead of glue is broken with a razor. Over-gluing components will result in destruction of the chassis when said parts are attempted to be removed, such as when needing to be replaced (e.g. if a speaker goes bad). Additionally, not providing extra wire for all components will result in inefficient wire slack to solder on a new part, such as a blown speaker or defective NPXL PCB. This chassis set is designed with enough room inside to allow extra wire for all components.

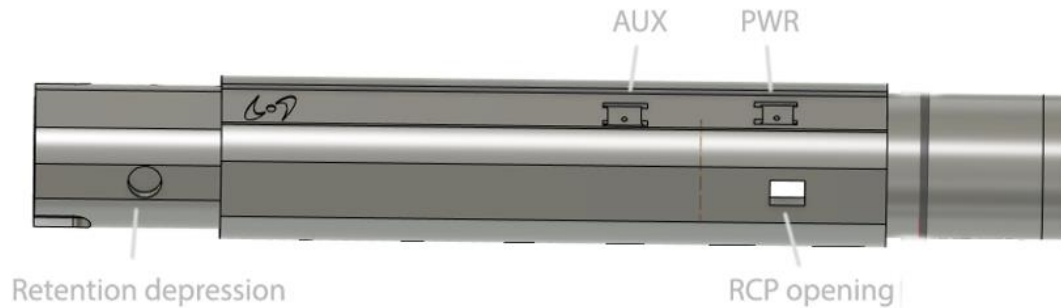


2 Chassis Models

There are two versions of the Saberz Project M chassis (one for 24mm speakers and a new version for 28mm speakers):

Standard:

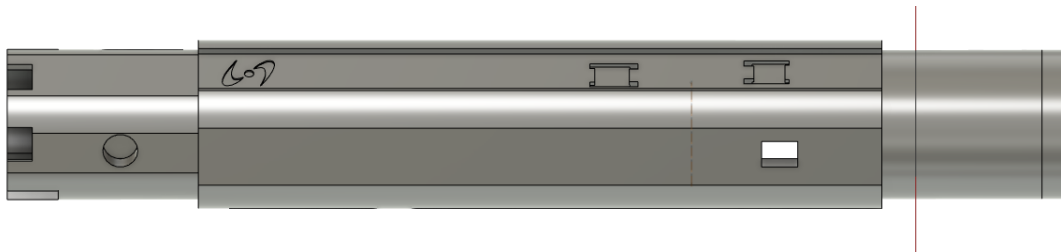
- Designed for 24mm Smuggler's Outpost speakers
- 1.3mm RCP port under the emitter-side rivet.
- M6*8 chassis retention screw (part of the speaker-side rivet)
- Supports 7/8 NPXL blades.



Hero:

- All features of the standard version.
- Designed for 28mm TCSS 4W 28mm WOWSpeaker OR Smuggler's Outpost Elite speakers. Requires modifications to the 28mm speakers as seen in the following YouTube video:

<https://www.youtube.com/watch?v=vvV4Ct2Laro>



2.1 Supported Features

- ProffieBoard v2.2
- Designed using the Keystone 18650 battery sled for fully removable batteries
- External 1.3mm recharge ports (for use with 1A 3.7V Li-ion smart charger)
- Chassis versions supporting 24mm or 28mm speakers
- Shtok V3 NPXL connectors
- The chassis set will be completely and firmly anchored in place within the hilt by a "retention rivet" (which is part of the chassis kit)

2.2 Chassis Set Parts

The chassis set is offered 3D-printed in SLS material. What's included:

- Two 3D printed SLS custom chassis

The following parts are included with the Saberz Project M hilt:

- Two high-impact fully painted and weathered kill keys in high-impact Delrin (for emitter-side silver rivets).
- Two aluminum RCP hex-driven rivet RCP covers (to protect the RCP port when kill keys are not in use).
- Two custom speaker-side aluminum hex retention rivet screws (used to firmly secure the chassis into the hilt).



2.3 Button Functions

- Emitter-side red button - PWR
- Emitter-side silver button – AUX
- Center red and silver buttons – hilt coupler retention screws.
- Emitter-side rivet – RCP
- Speaker-side rivet - Retention

3 Required Parts

3.1 Suggested Parts List

This chassis set was designed for (and tested with) the following suggested parts. Remember two of each part is needed to build out both chassis for the Project M Darth Maul staff saber.

- Saberz Project M 3D-printed chassis set kit (2), available from the following:
 - o [Saber-Fights Etsy store](#)
- [Proffieboard v2.2 \(2\)](#)
- SanDisk or Patriot (suggested) SD card (2).
- [SHTOKCUSTOMWORX NPXL V3 HILT SIDE PCB CONNECTOR – LONG PINS \(2\)](#)
- [NPXL LED PCB Lens Covers \(2\)](#)
- [Keystone 18650 battery sleds \(2\)](#)
- [Brass tactile switches](#)– (4) This chassis set is designed for 1.7mm (0.4mm plunger height).
- Speakers – our chassis sets were developed for the following specific Smuggler’s Outpost speakers:
 - o 24mm version of the chassis (2):
[Smuggler’s Outpost Elite 24mm 2w 4ohm Bass Speakers](#)
 - o For the 28mm version of the chassis (2):
Recommended:
[Smuggler’s Outpost Elite 28mm Elite 2W 4OHM Bass Speaker](#)

Alternatively, also supported is the [TCSS 4W 28mm WOWSpeaker](#)
 - o KR Sabers 25mm speakers can also be used. The required 25mm adapters are only compatible with the 28mm version of the chassis set. The speakers are available here:
[25mm 8ohm 3W+ Bass Speaker – The Saber Armory](#)

Charger - [1A 3.7V Li-ion smart charger with 2.1mm plug](#)

- [1.3mm recharge ports \(2\)](#)
- [1.3mm recharge port adapter \(1\)](#)

Batteries (2) - [Sony Li-Ion 18650 3.7V 15A 3120mAh PCB Protected Rechargeable Battery](#)

- Alternative:
<https://www.illum.com/18650-keepower-3120mah-sony-us18650vtc6-protected-high-discharge-button-top-p1831r-r-series.html>
- Suggested Micro USB Cable Cord – required to fit into SD card connector on the ProffieBoard within this chassis:
[A to Down Angle Micro B - Down Angled Micro USB Cable - 1x USB A \(M\), 1x USB Micro B \(M\) - Black \(USBAUB2MD\)](#)



Glue – We have great success using a [precision hot glue gun](#) (in very small amounts) in all areas of this install which require glue. It provides a very strong hold, and at the same time allows the removal of parts where needed (example given, if a speaker blows or if a NPXL PCB goes bad and needs to be replaced).

3.2 Wire and Component List

- [WYCTIN 60-40 Tin Lead Rosin Core Solder Wire for Electrical Soldering](#)
- [22 AWG wire \(recommended\):](#)
- Red – NPXL power (+)
- Black – NPXL and Battery power (-)
- [28 AWG wire \(recommended\):](#)
- Red – Board power (+)
- [28 AWG wire \(recommended\):](#)
- Red – power (+)
- Black – power (-) and switches GND
- Green – Speaker (-)
- White – PWR (+) tactile switch / Speaker (+)
- Yellow – AUX (+) tactile switch
- Violet – DATA

Soldering note – set the soldering iron temperature to recommended settings per electronics vendor documentation.

Additionally, after soldering each PCB is it suggested to use an appropriate PCB cleaner to remove residual flux before installing these parts into your chassis. We use WD-40 Specialist electrical contact cleaner spray with great success. **NOTE:** Be sure to allow this product to completely dry before inserting a battery in the chassis!



4 Preparation Steps

4.1 Chassis Preparations

If using the FDM version, be sure to sand away any flash left behind after removing support structures. No sanding or modifications are required if you purchased the SLS version of this chassis.

Hilt modifications - unlike other Darth Maul sabers, no modifications are required for the Saberz Project M hilt. The only adjustments required will be the tuning of the plunger screws (on the underside of the power and auxiliary buttons) which is covered later on in this document.

4.2 Before Starting

TEST FIT ALL PARTS INTO THE CHASSIS SET - Even with the highest quality 3-D printed parts, (such as the SLS versions offered for this chassis set), there is always a slight possibility of undetectable variations in tolerances in the finished product. Due to this we highly recommend test fitting all components before you start the installation process.

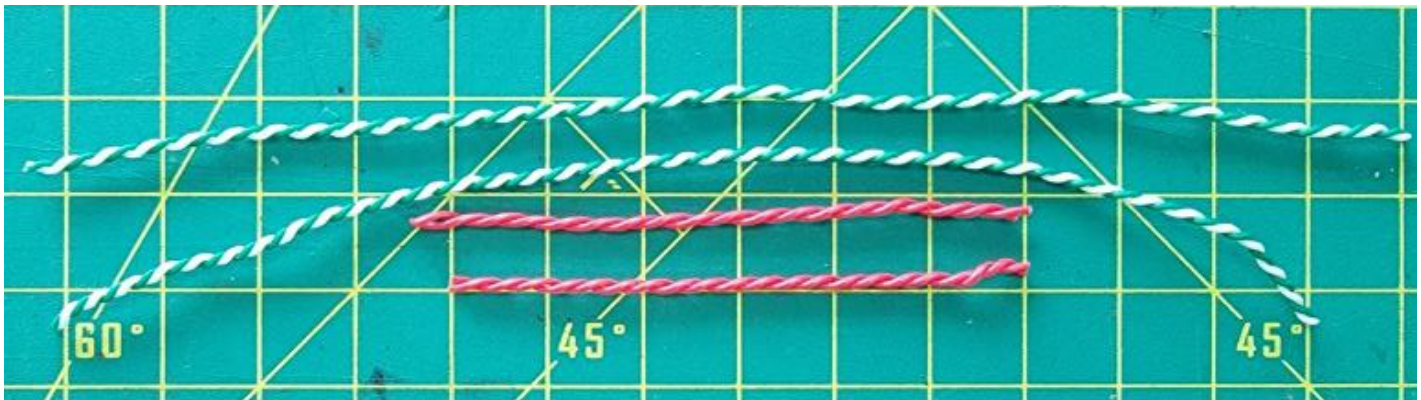
Check fitment of all electronic components as follows:

- Emitter opening – Test-fit an assembled NPXL PCB in this area before starting the install.
- The ProffieBoard holder area – **Note:** this area was intentionally designed for the proffie to tightly “snap” into place. Be sure to sand any raised edges along the ProffieBoards and then ensure they press-fit into place.
- Battery sled – Testing the battery sleds is only done after sanding the battery holders as outlined in section 4.4.
- Test-fit the speakers into the speaker holder areas at the inner end of the chassis.

4.3 Wire Preparations

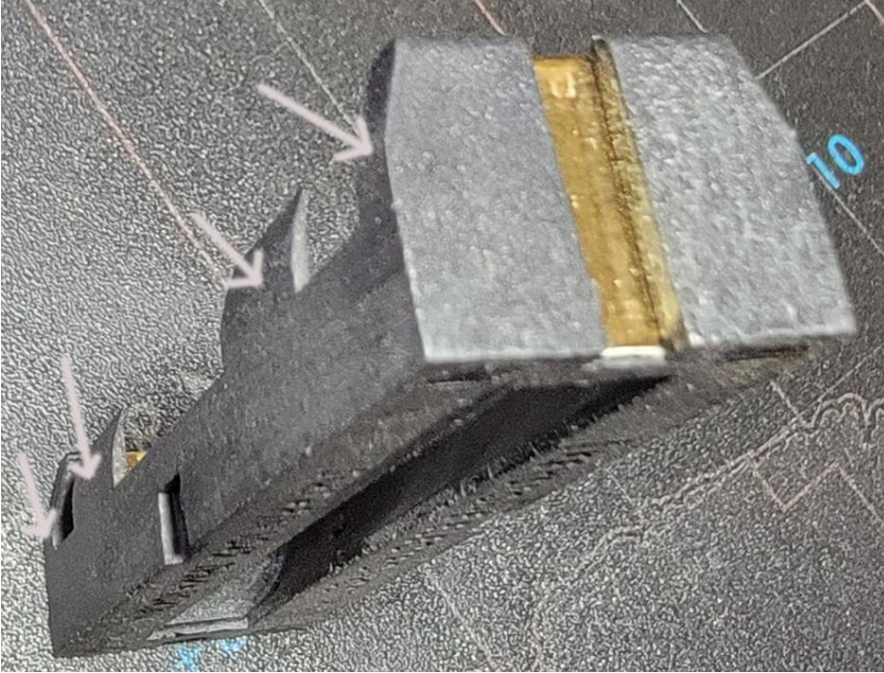
Braid the speaker wires and red PWR wires in advance of the install. This can be quickly and efficiently done by securing one end of the wires to be braided in a vice and the other end in a drill chuck. Then spin the drill until the braid is nice and tight.

Note: The red wires seen below are for the RCP.



4.4 Battery Sled Preparations

- Cut off the metal tabs (seen on the bottom of the batter sleds) so the unit will fit into the chassis, (this can be done easily and cleanly by bending the extended parts of the tabs back and forth until they break off).
- Cut off the plastic nubs on the bottom of the sled.
- Sand (just) the bottom of the sled using 120 grit sandpaper to ensure the underside is completely smooth and to allow the sled to sit lower in the chassis.
- Sand the sides at the ends of the battery sled until the sled slides into the chassis snugly.
- It is also recommended to carefully sand along the curve of this area on each side of the battery sled. Just enough to help prevent the chassis from slight expansion once the batteries are inserted:



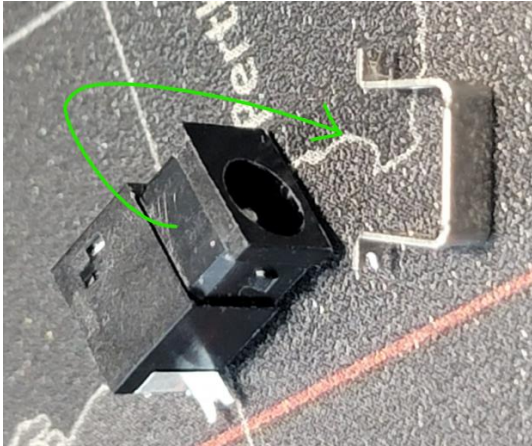
- After sanding is completed clean the sled with a little rubbing alcohol to remove sanding dust residue.
- Pull out and tin the (+) and (-) tabs with solder and place the tabs aside for later use when the hot and negative wires will be soldered on.



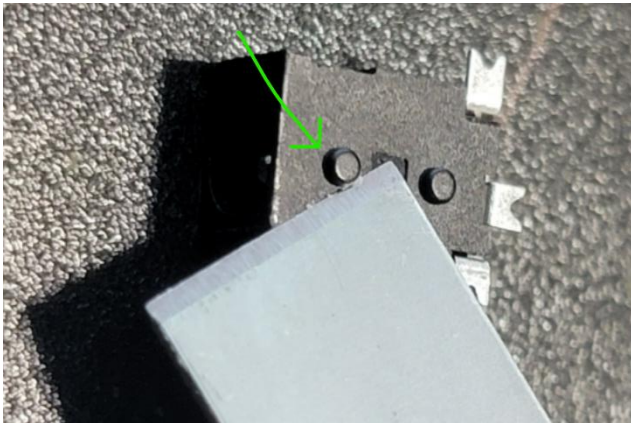
5 Recharge Ports (RCPs)

5.1 Preparation

- Remove the metal bracket from the front of the RCP and discard. This part easily pops right off.



- Carefully shave off the small plastic tabs located towards the front of the RCP:



- Test fit the RCP into the chassis.

Note: The RCP will not slide in easily and this is by design. If by chance the tolerances of the RCP cutout in the chassis are too tight (due to offset 3D printing tolerances), lightly file the RCP opening in the chassis. Be absolutely sure not to over-file this area. Simply file a very little at a time until the RCP goes in very snugly.

5.2 Wiring and Installation

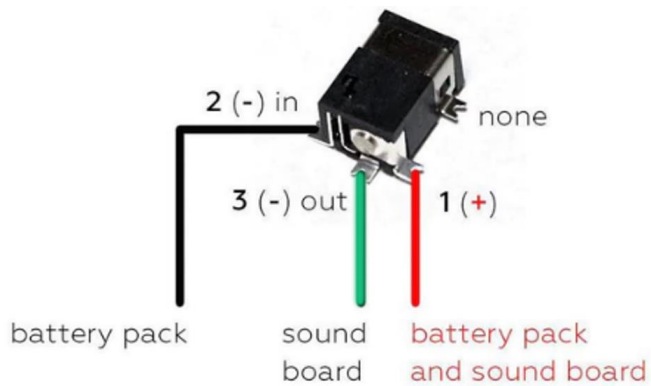
1- Solder the leads followed with heat shrink tubing as seen below:

Wire the RCP as seen follows:

- Two **RED** 28 AWG wires to the (+) tab (braided together).
One will later be connected to the (+) on the battery sled (which will be directly next to the ProffieBoard area of the chassis) and the other will be later connected to the BATT (+) pad on the ProffieBoard.

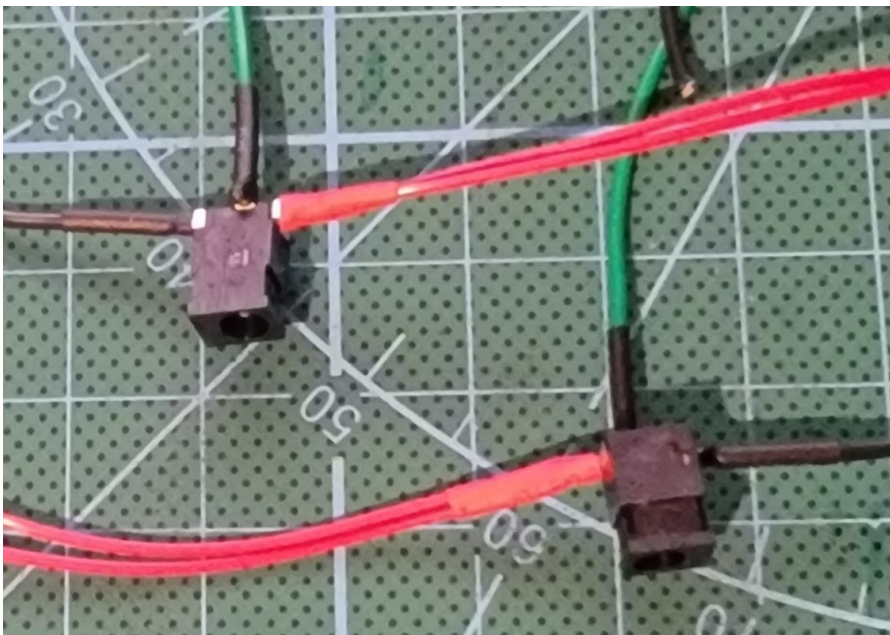
Wire one each of the following:

- **GREEN** 22 AWG wire (long wire) will later connect to the BATT (-) on the ProffieBoard.
- **BLACK** 22 AWG wire (short wire) will later connect to the (-) on the battery sled.



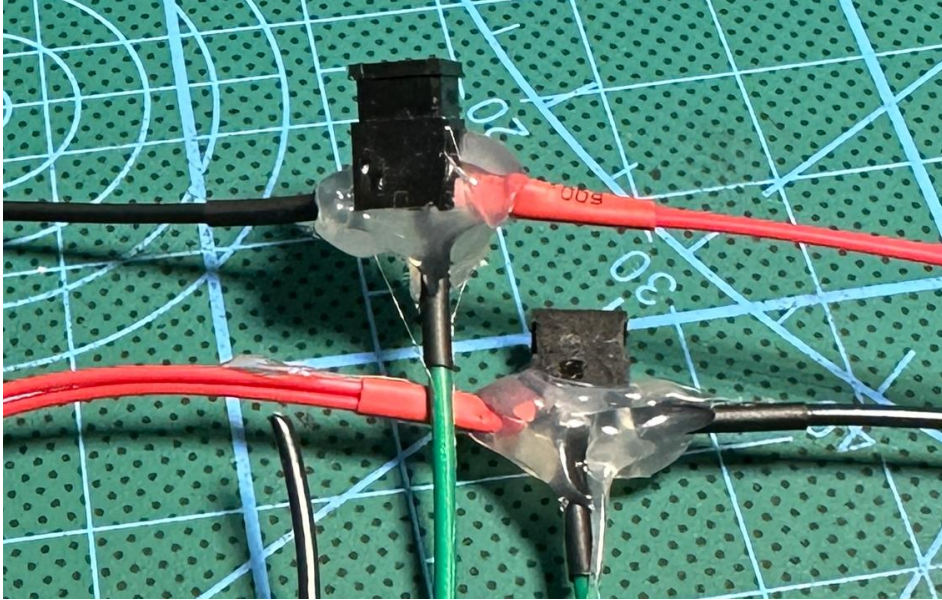
2- Completed heat shrink tubing once completed.

Note: The direction of the wires seen below is important as this provides better wire management later on in the install:

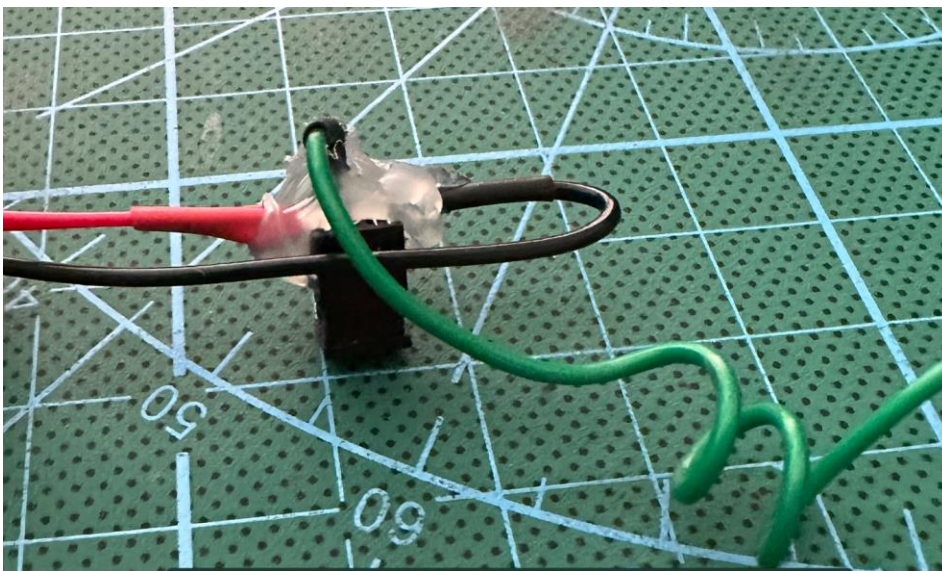


- Since the soldered connection points on the RCP are very small (and due to this somewhat delicate) it is important to protect them with a thin application of hot glue to fully secure them. This prevents weld damage to the small RCP welds later on due to wire movement during the install process.

Important! Failure to do this will result in the welds breaking from the movement of the wires during the install!



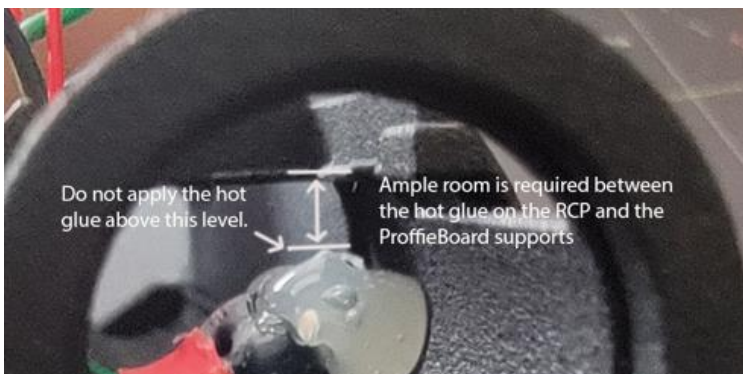
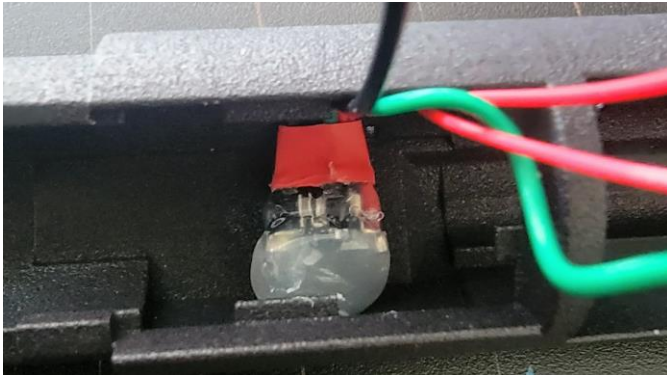
- Once the hot glue is dry, the final step is to orient the wires as follows:
 - o Black – using a thin paint brush handle, carefully bend the wire to face the opposite direction.
 - o Green – Using the same paint brush handle, bend the green wire downward and then curl a section of the wire. This provides needed flexibility in the wire slack when connecting this wire to the ProffieBoard later.
 - o Red pair- no changes.



Important! Before installing the RCP into the chassis, take note the RCP opening is situated closer to one end of the RCP housing. The image below indicates the required orientation in which the RCP needs to be facing. Failure to situate the RCP as seen below will result in the recharge port hole not lining up with the RCP opening in the hilt!



- Install the RCP properly and secure it in place with gap filling superglue.
- Once the glue is fully dry (and cured) carefully add a bead of hot glue to fully secure the RCP in place. Use a small (just enough) amount of hot glue as seen below:



6 Shtok NPXL PCBs (Version V3 setup)

Disclaimer: As with all components, be sure to reference, study and understand the owner's manual from the PCB vendor.

6.1 Prepare the NPXL PCBs

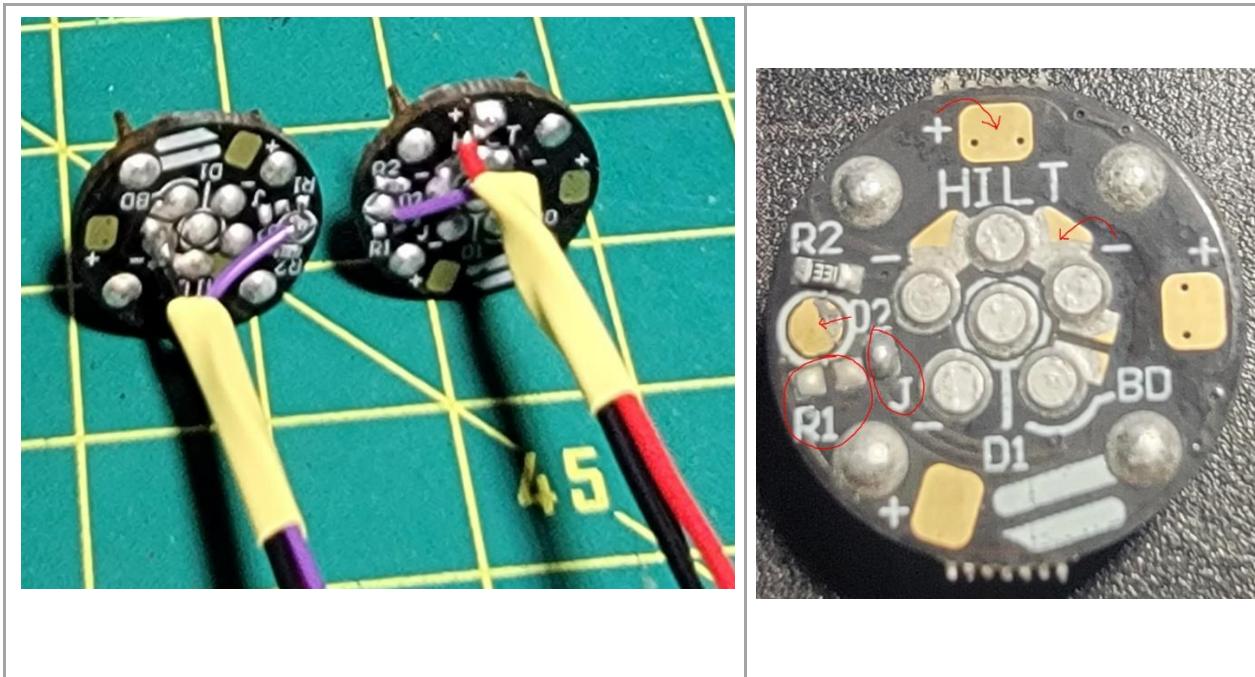
- Carefully sand the outer edges of the NPXL PCB unit to verify fitment into the emitter side of the chassis.
- If you did not purchase assembled NPXL PCBs you will need to solder the pins onto the PCBs.
- Test-fit the NPXL PCB again (this time with the clear PCB lens on) into the emitter end of the chassis. The PCB should snap in and stop solidly at the thin raised inner ring which keeps the PCB at the correct placement. Carefully push the PCB back out using wood dowel or eraser side of a pencil. Be sure to remove the plastic lens from the PCBs before the next steps of soldering on the wires.

Soldering warning from the PCB vendor (links below):

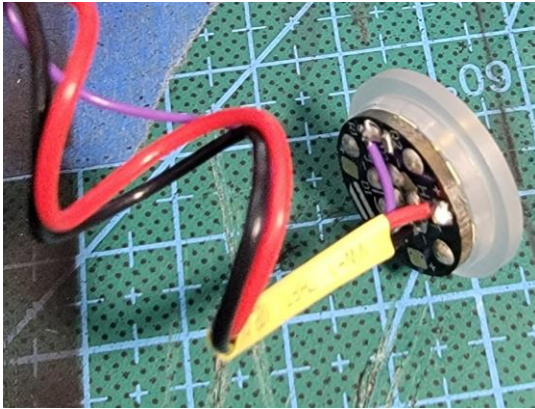
WARNING! DON'T OVERHEAT THE PCB WHEN SOLDERING!

- When soldering pins to the Pixel blade connector, make sure to not overheat the PCB, as this will damage pixels.
- Since there will be no accent LEDs for the metal "LEDs" seen on the side of the Project M Darth Maul hilt use the following V3 configuration:
 - o Leave the on-board 330-ohm resistor in place on R2.
 - o Bridge the J pad.
 - o Remove the resistor on the R1 pad.

Finished examples:



- Solder the required wires (as seen in the wiring diagram at the bottom of this document) to the proper pads on the bottom of the NPXL PCB.
- Clean off the PCB with an appropriate PCB cleaner to remove residual flux before proceeding. We use WD-40 **Specialist electrical contact cleaner spray** and lightly brush around the soldered pads with a light bristle toothbrush.
- Gently attach the plastic lens cover to the PCB.
- Form the NPXL PCB wires into a “spring” (by tightly wrapping the wires around a paint brush handle) as seen below. This will allow slack in the wires and ease of removal if you ever need to replace the NPXL PCB:

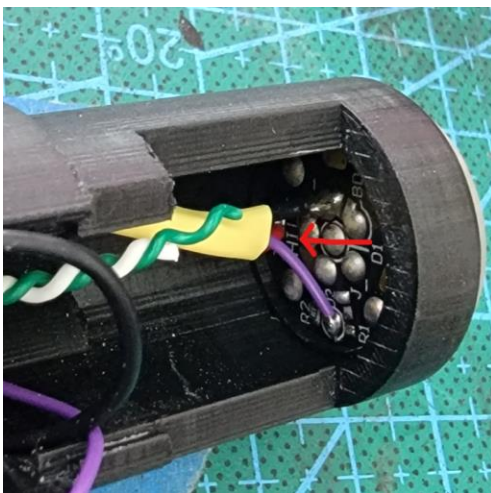


- Carefully push the NPXL into place into the emitter for a final test fit, and then use a paint brush handle to push the emitter back out.

Note: Be careful not to damage the weld points on the NPXL PCB when pushing it back out! Also, it is suggested the emitter should not be put back into place until after the ProffieBoard wiring is completed at the end of the installation process.

- Once the installation is completed, it is not suggested to glue the NPLX PCB in place as it should be snug enough to stay in place without any adhesive. This also helps in the event you need to replace the NPLX PCB in the future.

Additionally, after the install when you insert the NPCL PCB into the chassis be sure it's oriented as seen in the below image, (with the NPXL PCB rotated so the wires are located on the inner-most side of the chassis). This provides needed space for connecting the Micro USB connector to the ProffieBoard later on in this area:



7 Power and Auxiliary Tactile Buttons

The tactile switches should be installed before installing the battery sled as wires for the AUX switch will be routed under the batter sled, (however they can be installed afterwards as there is enough space under the sled for these wires to slide in).

Solder 115mm each of 28 AWG **BLACK** and **WHITE** wire onto the prongs on one switch, and 28 AWG **BLACK** and **YELLOW** wire onto the other switch.

- The white and black set will be used for the PWR button.
- The yellow and black set will be used for the AUX button.



Important! Before proceeding note the tactile switches need to be installed directly against the inner portions of the tactile depression as follows:



- Carefully route the wires through the wire holes (keeping in mind the soldered connections on the tactile switches are very delicate)!
- Install the black/white set (for power) in switch the depression closer to the emitter.
- Install the black/yellow set (aux) in the switch depression further from the emitter.
- Use a very small dab of super glue in the switch holder and carefully press the switches into the holder.



Optional: The connections to the tactile switches are very delicate. To prevent these welds from being broken (in later steps while moving the wires around inside the chassis) it is recommended to apply a small drop of superglue or e6000 glue (in the inner-chassis area, where these wires come through the chassis body). Allow the glue to completely dry before moving onto the next steps.

8 Battery Sled Installation

Note: Study the wiring diagram at the bottom of this document to become completely familiar with the battery sled wire locations. Before starting, note the (-) side of the battery sled will be situated at the speaker-side of the chassis and the (+) side will be located next to the ProffieBoard area of the chassis:



If not already done, remove the battery (+) and (-) tabs from the battery sled before soldering the following connections:

Battery sled negative:

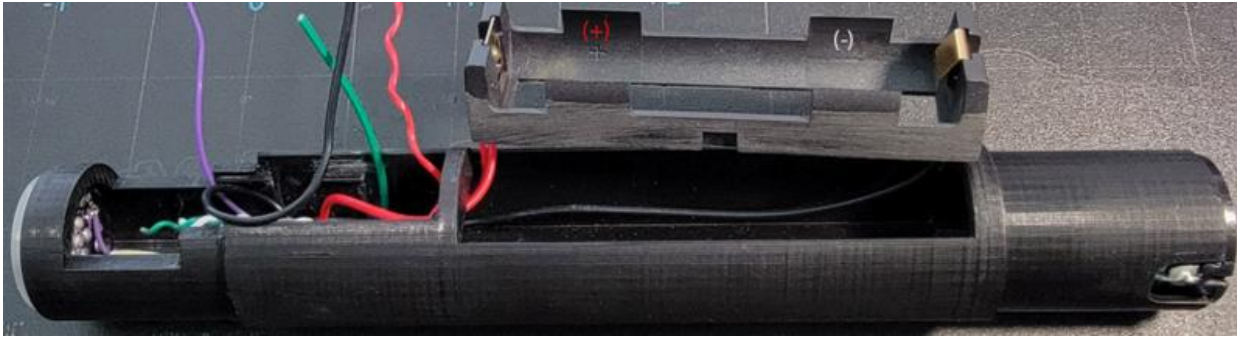
- Trim the (short) 22 AWG **BLACK** battery (-) wire from the RCP to a length *just* long enough to be able to wire it to the negative side of the battery sled.
- Solder this connection (to the loose negative metal tab which will be slid back into the battery sled later).

Battery sled positive:

From the twisted pair of **RED** 28 AWG wire from the (+) on the RCP;

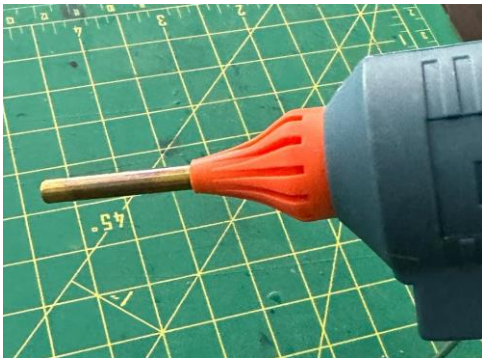
- The first **RED** 28 AWG wire will go from the RCP to the positive metal tab on the battery sled. (The second **RED** 28 AWG wire will go from the RCP to the Batt + pad on the ProffieBoard (in a later step).
- Solder on the **RED** 22 AWG wire (from the NPXL PCB) to the positive metal tab on the battery sled (in the exact same spot as the above RED 28 AWG wire from the RCP).
- Press the (now wired) positive and negative posts into the corresponding locations in the batter sled.
- Slowly lower the battery sled into the chassis, making sure the wires underneath stay in the center channel to prevent them from being pinched under the sled.





After fitting the sled properly in place, secure it with a small amount of glue using one of the below options:

- Gap-filling super glue - We recommend this over standard super glue as gap-filling type is removable in the event the battery sled needs to be pulled out later.
- Hot glue – We found this to be a more optimal option (over the above gap-filling super glue option) as it sets faster and is just as easily removable later. The key for either option is to use just enough glue to hold the sled in place. When using hot glue, press the sled into place, making sure no wires are pinched, and then apply a dab of hot glue from each end of the chassis (to where each end of the sled meets the chassis) to secure the sled in place (and NOT by using hot glue under the sled). Be sure not to apply the glue near any wires! Also you will need a long-nose attachment for your hot glue gun to reach these inner areas:



Important! Once the glue has dried, use hobby tweezers to slide the extra length of the green/white twisted wire back into the wire-management channel which resides under the battery sled.



Future note: At the end of the install, (and after the chassis is completed and tested), it is suggested to add a final amount of gap-filling super glue to fully secure the battery holder into the chassis.

9 Speakers

9.1 Preparations

Use the (previously prepared) braided length of 28 AWG **GREEN** and **WHITE** which should be long enough to go from the speaker-end of the chassis past the ProffieBoard area at the other end of the chassis.

- White for positive (+).
- Green for negative (-).

Use a razor to remove any tabs or imperfections which could interfere with a nice flat fit of the speaker against the chassis:

- 1) **24mm speakers** – no modifications to the speakers are needed:



- 2) **28mm speakers** - will require the modifications seen within this YouTube video:

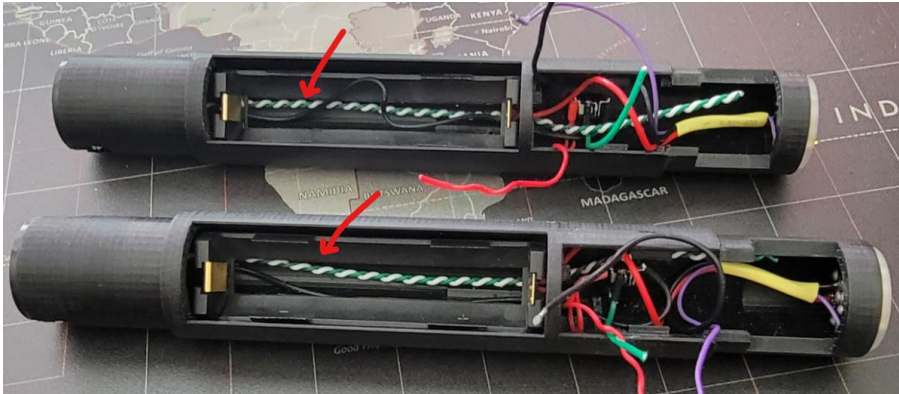
<https://www.youtube.com/watch?v=vV4Ct2Laro>

- 3) **25mm speakers** – no modifications to the speakers are needed - An optional adapter set is available which supports 25mm speakers and is only compatible with the 28mm version of the chassis set. These are printed with Ultimaker tough black PLA using a .2mm print head for maximum detail.



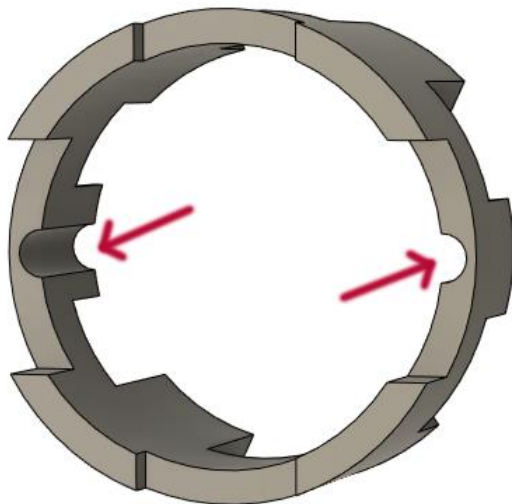
9.2 Speaker Wiring and Installation

- Solder the green wire to the speaker prong with the red mark (+) and white wire to the remaining prong (-).
- Route the braided speaker wire pair into the wire channel under the (future) battery sled and over to the ProffieBoard area.
- Secure the speaker into the end of the chassis with a small bead of gap-filling super glue, e6000 glue, (or hot glue).



25mm adapter instructions:

- 1- The FDM 25mm adaptors will snugly fit into the SLS chassis main body. Use a couple dabs of hot glue to secure the adaptors in place.
- 2- Pull the speaker wires through and solder them to the (+) and (-) pads of the 25mm speaker as described in section 9.2 below.
- 3- Be sure to solder the speaker wires at the center of each post, as wire channels reside directly under the centers of the (+) and (-) posts on the KR 25mm speaker:

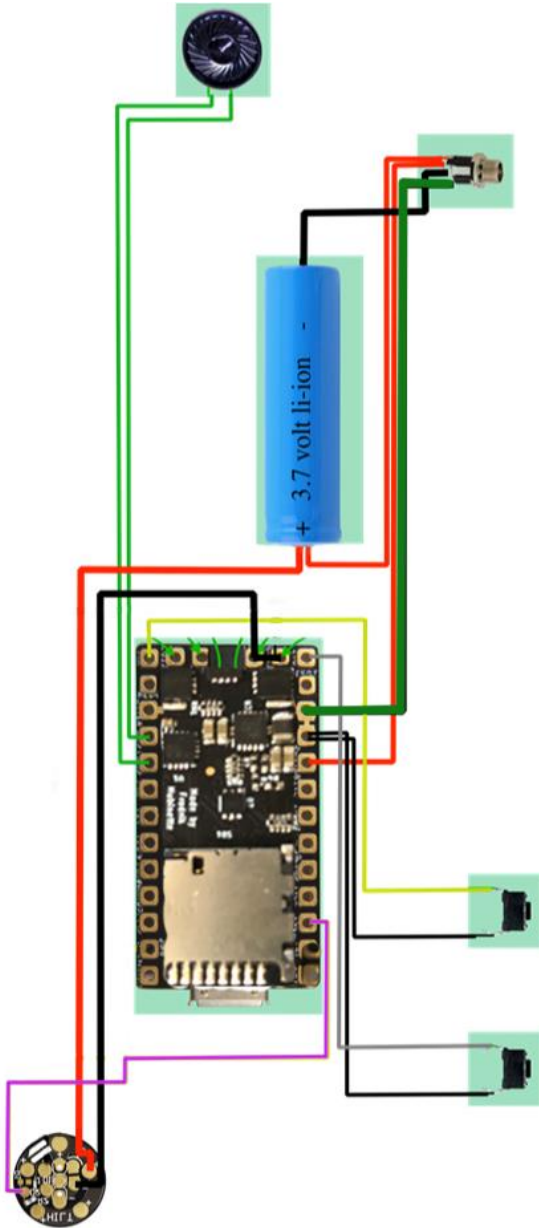


- 4- Glue the speaker into place (we use hot glue since it is removable later without damaging the chassis in case the speaker ever needs to be replaced).

[Quick 25mm speaker adapter outline video](#)

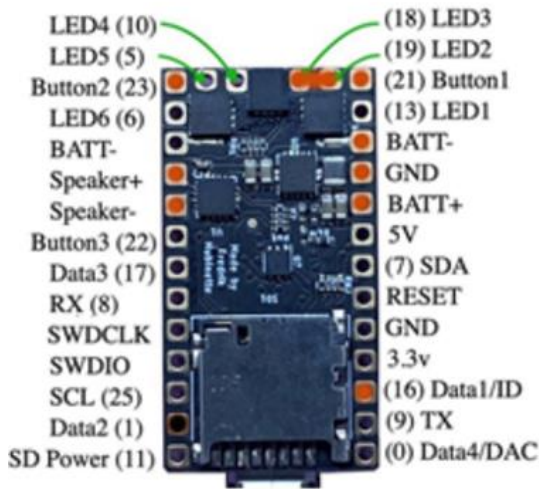
10 ProffieBoard Install and Wiring

10.1 Suggested Wiring Diagram



10.2 ProffieBoard Pads

Connect the wires to the under-side as seen below. Remember to bridge LED 2 and 3 as seen in the above diagram.



Note: As always, be sure to be completely read and be completely familiar with the vendor's documentation.

10.3 ProffieBoard Install

Once you have completed soldering all the connections to the ProffieBoard (for each of the two chassis in this set), you will need to firmly press the 4 corners of the proffie to seat fully into place.

Steps:

- Make sure you have NOT yet inserted the battery into the chassis!
- Be sure none of the wires are interfering with the support tabs (in which the ProffieBoard will reside on). Push these wires under or otherwise out of the way of these tabs:

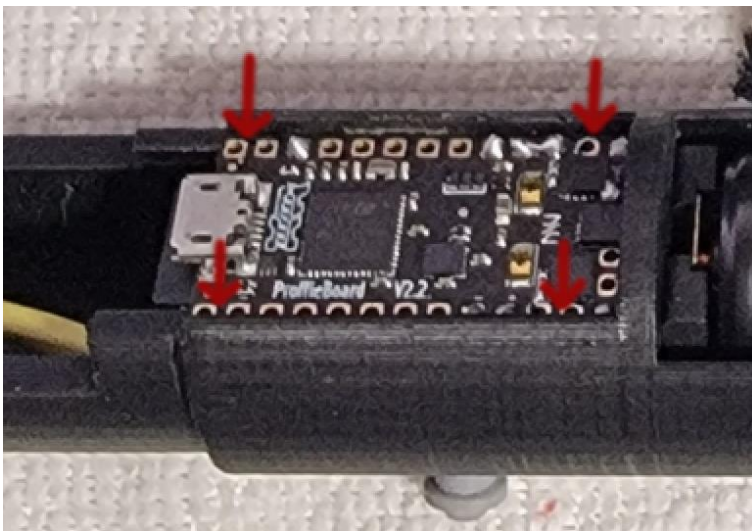


- Firmly but carefully press the ProffieBoard into the proffie holder until you hear it snap into place, (you may have to use a little pressure to get it to seat all the way, be careful not to damage the chassis during this process).

- Visually inspect the board to ensure all corners have seated correctly. If it does not seat properly it could indicate there could be a wire resting on one of the support tabs (or you did not sand the ribbed areas along the sides of the ProffieBoard smooth).
- Before proceeding further we always recommend cleaning the ProffieBoard one last time to ensure all traces of any oils (from the handling process in the previous steps) are removed. This can be (very carefully) done by applying a small amount of “WD-40 Specialist electrical contact cleaner” to a toothbrush and then gently brushing the top of the ProffieBoard. Do NOT spray this product onto the ProffieBoard while it is installed in the chassis as it can be damaging some 3D printed materials. Be SURE to wait a proper amount of time to allow all of the cleaner completely dry BEFORE proceeding to the next steps. We recommend an hour just to be safe. **DO NOT use standard “WD-40”!! Only use “WD-40 Specialist electrical contact cleaner”.**
- Now that the board is properly seated (and clean) it is safe to insert the SD card (containing your fonts) followed by the battery. Note: Do NOT apply any glue just yet, it is best to test the board first and then come back later to glue the ProffieBoard into place after testing.
- Upload your configs to the ProffieBoard. (Follow the vendor user-guide for the correct programming method including uploading your font folders to the SD cards).
- After successfully uploading the configuration, test the functions by CAREFULLY turning on the chassis.
IMPORTANT NOTES:
 - Be SURE not to touch the ProffieBoard or any wires while testing!
 - **NEVER** attempt to test a NPXL blade with the chassis outside of the hilt, doing so will short out and destroy the ProffieBoard when the pins misalign!!
- Verify the following:
 - o LEDs on the emitter light up.
 - o PWR/AUX button functions work as expected.

Once the above testing is completed, perform the following steps for the final task of gluing the ProffieBoard into the chassis:

- Insert the kill key and remove the battery.
- Using a very thin rod or brush, apply a very light amount of gap-filling super glue (at the 4 corners of the board, where the rim of the chassis meets the board). It is suggested not to glue the entire area board and just add a dab in these four sections:



- Applying gap-filling super glue in these 4 areas (in combination with the tight press-fit design of this component) fully secures the board within the chassis AND allows the benefit of removing the board from the chassis later if needed (without damaging the chassis).

Important battery suggestions:

Before inserting batteries inspect all parts to ensure they are secured properly in place and if not apply additional gap-filling CA glue where needed:

- Do not over-glye these parts, use a minimal (just enough) amount to secure the parts in place, which provides the ability for you to remove them later if needed.
- A reminder it is not always necessary to glue in the NPXL PCB as it should press-fit into place.
- It is suggested to use a loose piece of strong ribbon under the positive end of your battery for easy removal later. Do not glue ribbon to the battery sled (it will stay in place without glue, and therefore can be replaced later when the ribbon wears out):



11 Post-Install

11.1 Important Reminders

- Allow all PCBs to be dry and free of PCB cleaner before installing your SD card and batteries.
- Always use the kill key before inserting or removing batteries.
- Always remove the batteries before performing any repairs to your electronic parts.
- Always be mindful and aware the NPXL PCB pins are very delicate, handle the chassis with great care when out of the hilt!

12 Adjusting and Securing the Power and Auxiliary Buttons

Note: The black rubber O-rings (on the PWR and AUX buttons) which came with your Project M hilt may need to be either removed or replaced with thinner O-rings when using a chassis with this saber.

The screw seen under the PWR and AUX buttons acts as a “plunger” and will need to be adjusted by turning the screw (a specific number of turns) to set the screw plunger at the optimal distance above the tactile switches on the chassis.



Once you have found the best position for optimal button presses it is important to secure the plunger screw in place as otherwise it will loosen over time which causes the plunger screw to no longer properly depress the tactile switches on the chassis in the hilt. We recommend using the (removable grade) of Loctite 222 purple as it is not permanent and will securely keep your plunger screw from loosening up over time and usage.

13 Important – Chassis Insertion and Removal Instructions

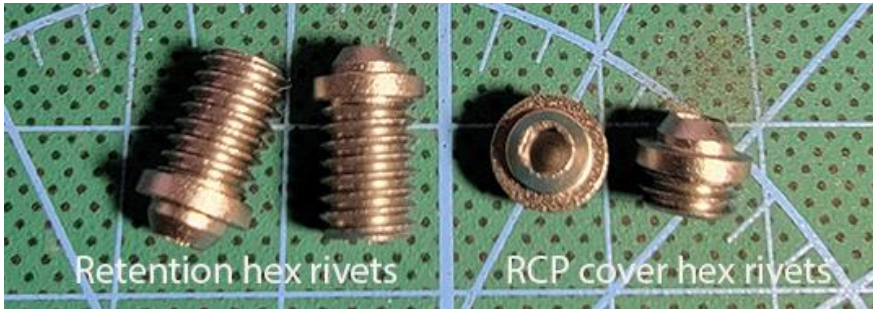
It is especially important to follow this exact order, otherwise you could damage the chassis:

The below instructions can also be seen in the following YouTube video:

<https://www.youtube.com/watch?v=NxufcAojLI>

Inserting the chassis into the hilt:

- Start off with the emitter housings removed from the hilt.
- Optional - unscrew the PWR/AUX buttons a couple of turns, (this step may not be necessary for SLS chassis versions).
- Remove both rivet screws from the hilt.
- Carefully and slowly insert the chassis with the correct orientation to the buttons (speaker-end goes in first).
- Once the retention depression is lined up correctly carefully screw down and secure the retention hex rivet, (snug only, DO NOT TORQUE). You will know the retention rivet screw correctly lines up with the retention depression on the chassis when the button screws all the way down easily.
- Insert the Delrin kill key rivet.
- Slowly screw on the emitter housing, do not force if it stops (instead unscrew just a bit and then continue).
- Screw down the PWR/AUX buttons (if they had to be backed out).
- Repeat for other side of hilt.



Important! Remember to always be careful handling the chassis when it is outside of the hilt. The pogo pins are especially delicate, and you could short out the ProffieBoard by touching it with your fingers when the kill key is not inserted.

Also remember never to touch your ProffieBoard as the oils from your fingers could short out the board next time you power it on!

Removing the chassis:

- Optional - Back out the PWR and AUX buttons a couple of turns (this step may not be necessary for SLS chassis versions).
- Unscrew and remove the emitter housing (be extra careful not to damage the pogo pins at the emitter-end of the chassis as this section will stick out of the hilt a bit after the emitter housing is removed).
- Remove the retention rivet and then remove the kill key rivet.
- Carefully slide the chassis out of the hilt, (holding your hand under the open end to prevent the chassis from falling to the floor if it slides out faster than expected).
- Insert a kill key into the RCP of the removed chassis.
- Repeat for other side of hilt.

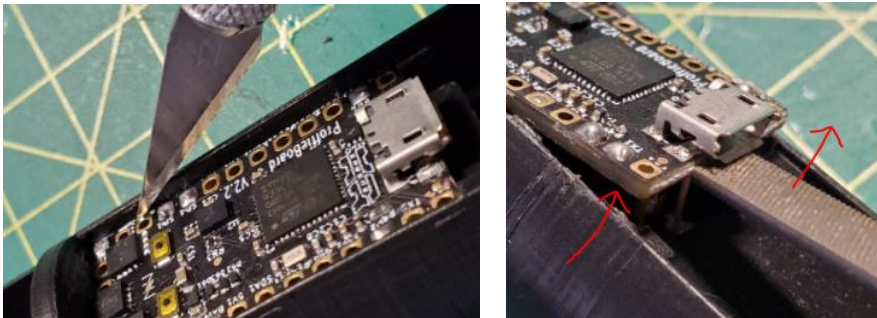
14 Additional

- It is highly NOT RECOMMENDED to power on a chassis outside of the hilt. Handling the chassis while powered on outside of the hilt with the ProffieBoard (and other electronics) exposed can cause shorts which will destroy the unit. Be extremely careful when inserting batteries back into the chassis. Always be sure the positive (+) and negative (-) on the battery match to the correct posts in the battery sled.
- NPXL Blades – It should not be necessary to sand the 7/8" NPXL blades to fit properly in the Project M hilt.
- It is normal to see small scratches on the chassis set from time to time from the removing and replacing them in the hilt. If you wish to remediate, rub in a drop or so of Vallejo black primer using a cloth. Be sure to remove the batteries before doing such tasks!

14.1 Example ProffieBoard Removal Process

In the event of ProffieBoard hardware failure (or the like), the following steps outline how to remove the ProffieBoard from the chassis:

- 1- Insert the kill key and then remove the battery and SD card.
- 2- Carefully run an Exacto blade along the areas where superglue was previously applied to the board. Do this several times, until the glue seal is broken:



- 3- Carefully (but firmly push) the ProffieBoard upwards as seen above (if the board does not budge run the blade along the glued areas again):

Important! There is always risk of damaging a board (or the chassis) when removing them from a chassis, especially if the installer over-glues these parts in place. We have not had any damage to any of our ProffieBoards which were removed using this procedure. If you take your time and are extremely careful you should be able to avoid any damages. We use a flat file for this purpose. It may take some pressure to pop the board out of the holder.

NOTE - be sure NOT to damage the SD card slot! The file should be applied just on the edge of the board, and not resting against or touching the actual SD card slot.



We hope you truly enjoy this chassis set as much as we do.

As always, please feel completely free to contact us if you have any questions on the content of this document or anything regarding the install process of these parts for your saber. We are always happy to help!