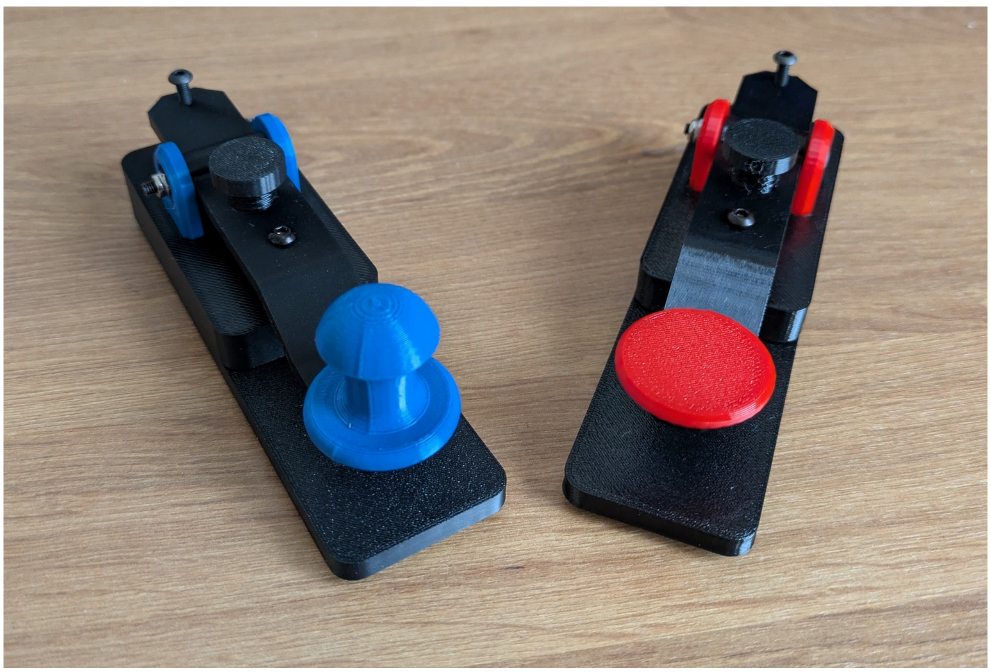
KM4CFT
Technologies LLC

KM4CFT 3D Printed Straight Key Kit

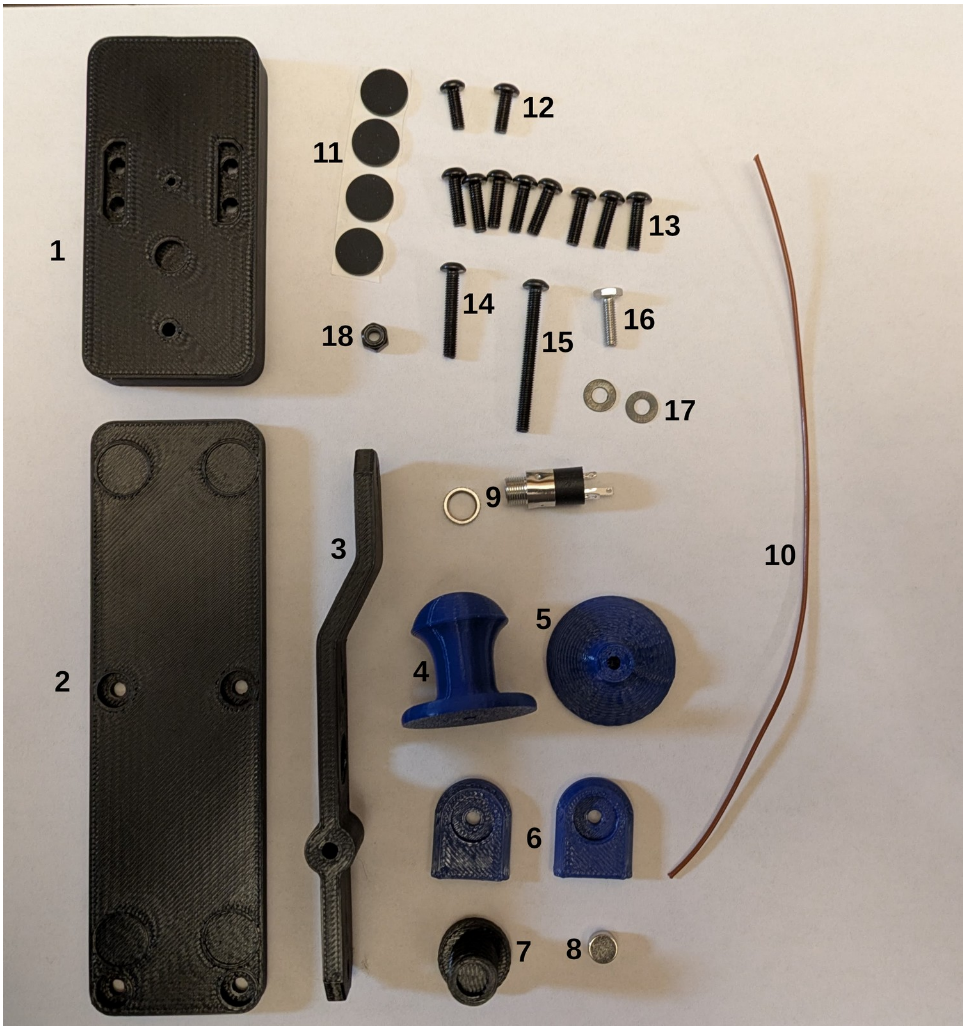
By: Jonathan Kayne, KM4CFT

Thank you for your purchase of the KM4CFT Straight Key Kit! This key takes inspiration from the popular J-38 straight keys of the American Signal Corps along with the straight keys made by Putikeeg by implementing the magnetic screw for tension adjustment. It is sized to maintain user comfort while keeping it as small and lightweight as reasonable. It also includes **both** a standard knob and a navy style knob so that you can experiment around with your preference, great for those unsure! The kit is easy an easy and fun build for both new and seasoned CW operators!



Revision 1, November 24, 2025

Table of Contents



Parts List:

	Item	Qty/Length		Item	Qty/Length
1	3D Printed Base	1x	10	Wire	6”
2	3D Printed Bottom Plate	1x	11	10mm Rubber Feet	4x
3	3D Printed Arm	1x	12	M3x8 Screw	2x
4	3D Printed Navy Knob	1x	13	M3x10 Screw	8x
5	3D Printed Standard Knob	1x	14	M3x18 Screw	1x
6	3D Printed Hinge	2x	15	M3x30 Screw	1x
7	3D Printed Lead Screw	1x	16	M3x10 Hex Head Screw	1x
8	6mm Diameter 2mm Thick Magnet	2x	17	M3 Washer	2x
9	3.5mm Audio Jack	1x	18	M3 Nylock Nut	1x

KM4CFT Straight Key Assembly Instructions

Before we begin assembly you will need the following tools:

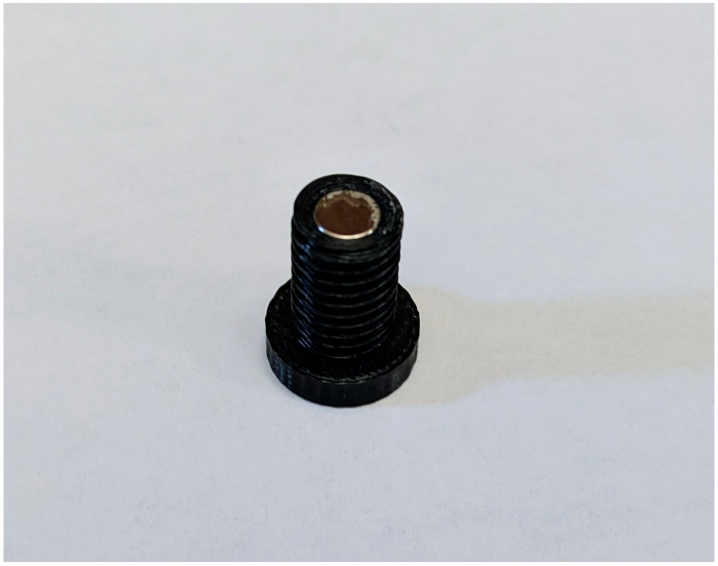
- Soldering Iron
- Solder
- Flush Cutters
- Wire Strippers
- Needle Nose Pliers
- 2mm Allen Key
- 5.5mm Wrench
- 5.5mm Socket with driver
- Superglue for magnets

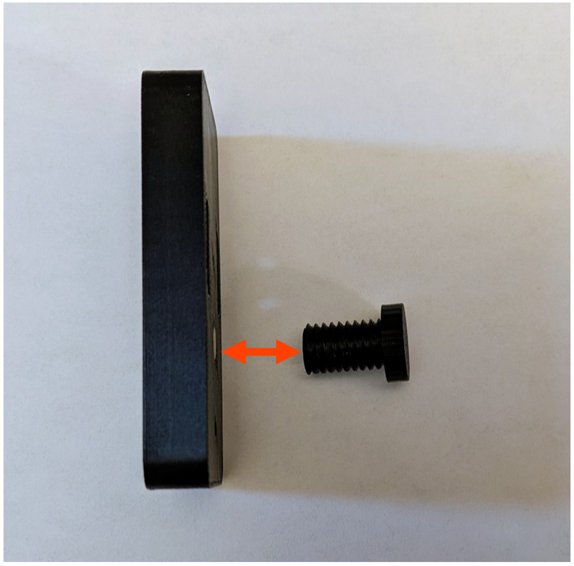
Step 1: Glue in Magnets

Pay close attention to this step! Read it through BEFORE doing anything and make sure you understand what you need to do otherwise you might mess up the build!

Take out your 3D printed base and glue one of the magnets into the small hole pointed out in the picture below.

Next, take out the 3D printed lead screw and use your other magnet to determine which orientation **REPELS** the magnet glued into the base. Use this info to glue the magnet into the lead screw. Use a flat surface (like a table) to press it into place.

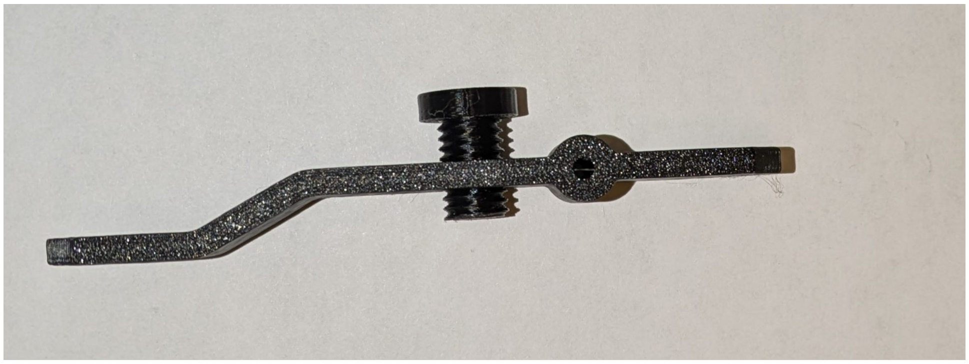




If you did this correctly, the lead screw should be repelled when pointed at the base.

Step 2: Screw Lead Screw into Arm

Next, take out the 3D printed Arm piece and screw the lead screw into the hole. Note the orientation shown in the image below.



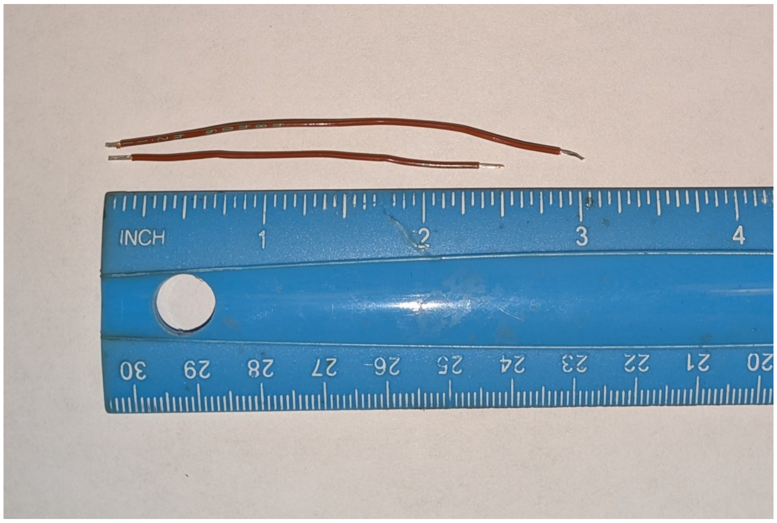
Be sure to rotate the lead screw back and forth to “break in” the parts.

Step 3: Install Knob

Next, take an M3x8 screw and one of the two knobs (standard or navy) based on your preference. Press the screw through the hole on the end such that it points upward, then using an allen key, screw the knob into place. Note the orientation shown in the following image:

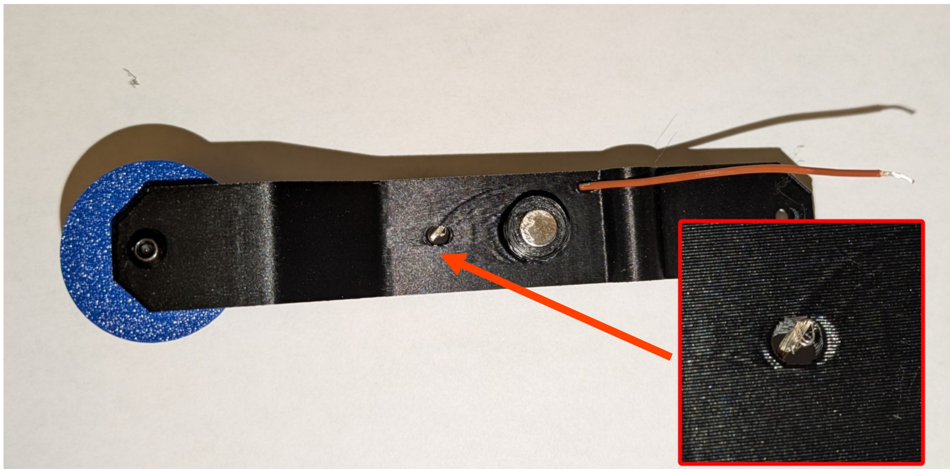
Step 4: Prepare the Wire

Take out the piece of wire. Using wire cutters, cut one piece to be 2.5” long and another that is 3” long. Strip about 1/8” of insulation off both ends of both wires.

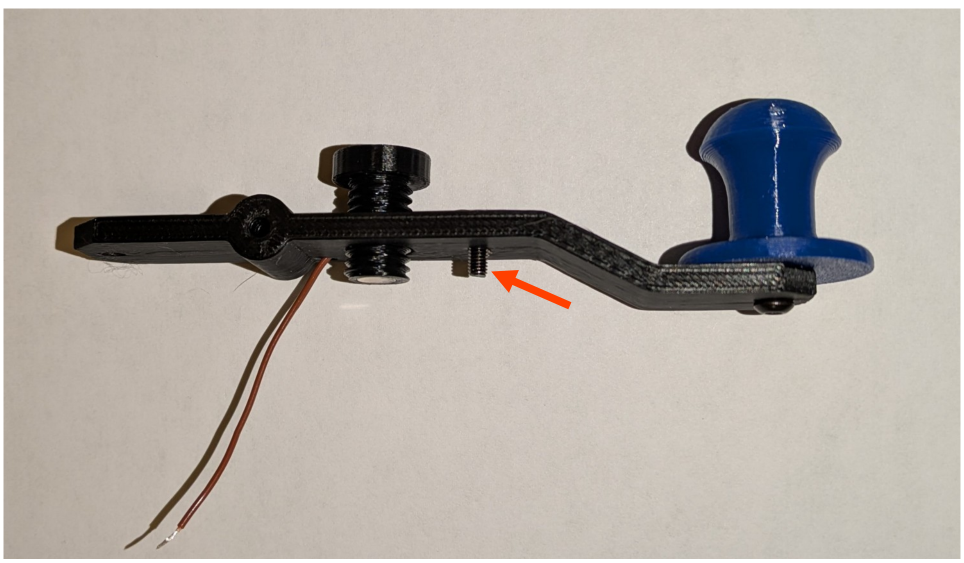


Step 5: Install Upper Contact

Set the 2.5” piece of wire aside. Take the 3” piece of wire and carefully feed it through the small hole on the bottom of the arm near the hinge until it gets stopped by the hole between the lead screw and the bend.

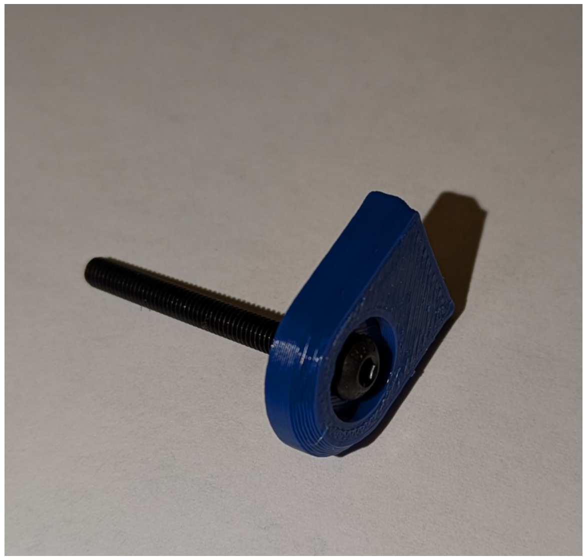


Take an M3x8 screw and screw it all the way through. It should push the bare section of wire downwards, making electrical contact with the screw.

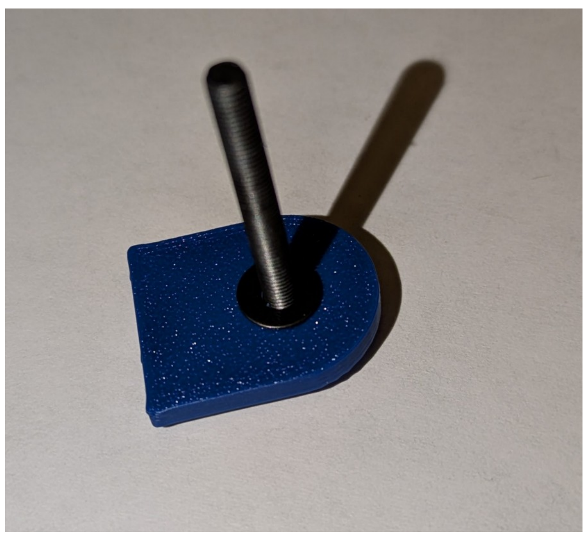


Step 6: Attach Arm Assembly to Hinges

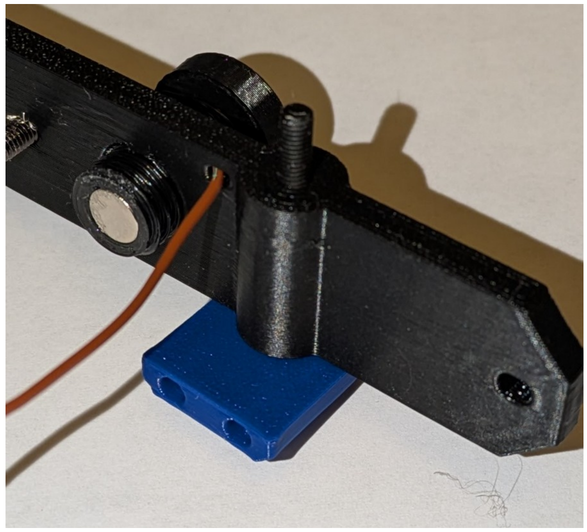
Take the two 3D printed hinge pieces, 2 washers, the M3x30 screw, and the nylock nut. First, pass the screw through one of the hinge pieces:



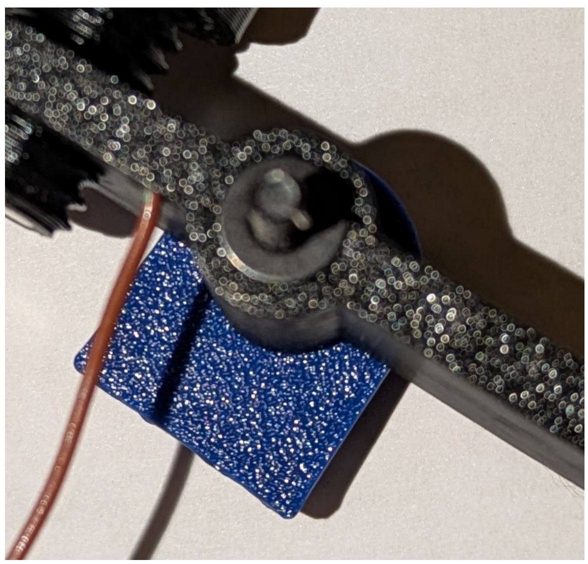
Drop in a washer:



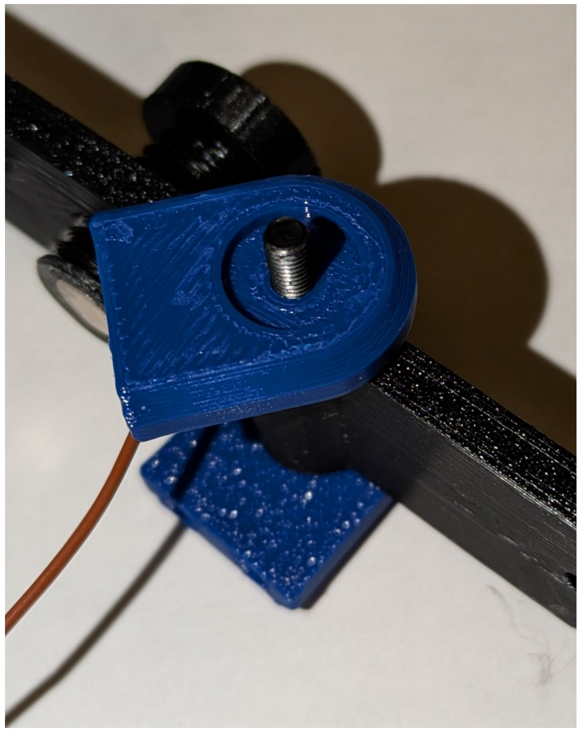
Drop in the arm assembly:



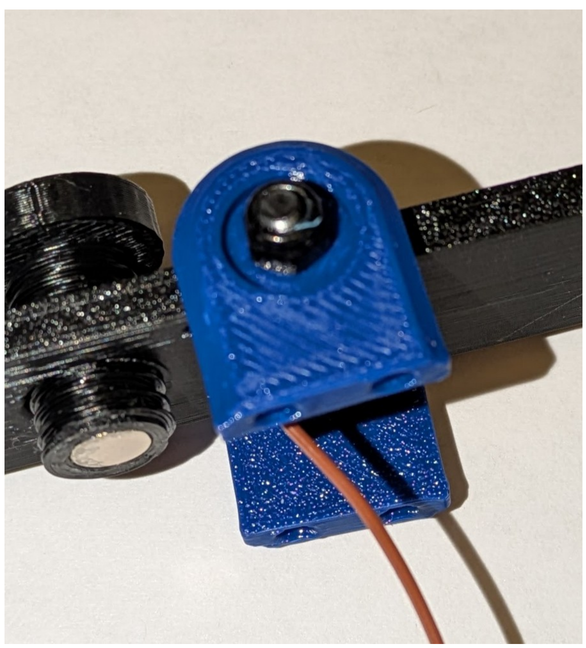
Then another washer:



Then finally the other 3D printed hinge piece:

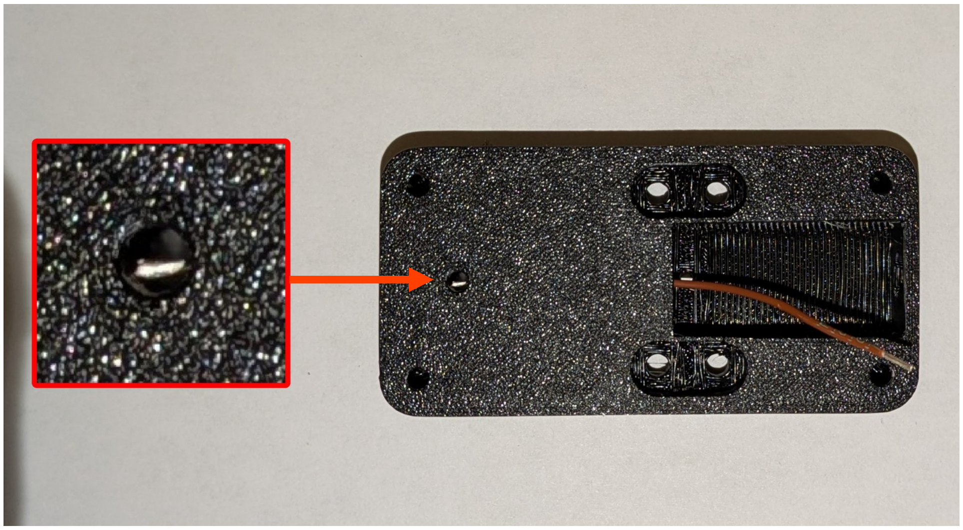


Take the nylock nut and screw it into place until it is tight. This is easiest to achieve with a ratchet and 5.5mm socket. Once tight, loosen the nut by about two full turns. Once done, the hinges should easily rotate with no resistance.

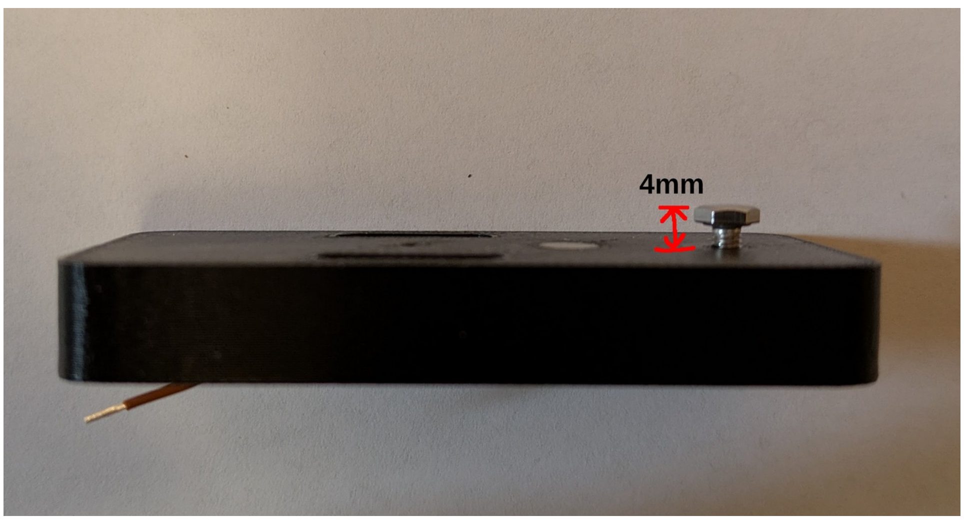


Step 7: Install Lower Contact

Take the 3D printed base, the 2.5” piece of wire and the M3x10 Hex Head Screw. On the underside of the base, there is a hole in the side. Push the 2.5” piece of wire through until it is stopped by the hole for the hex head screw:

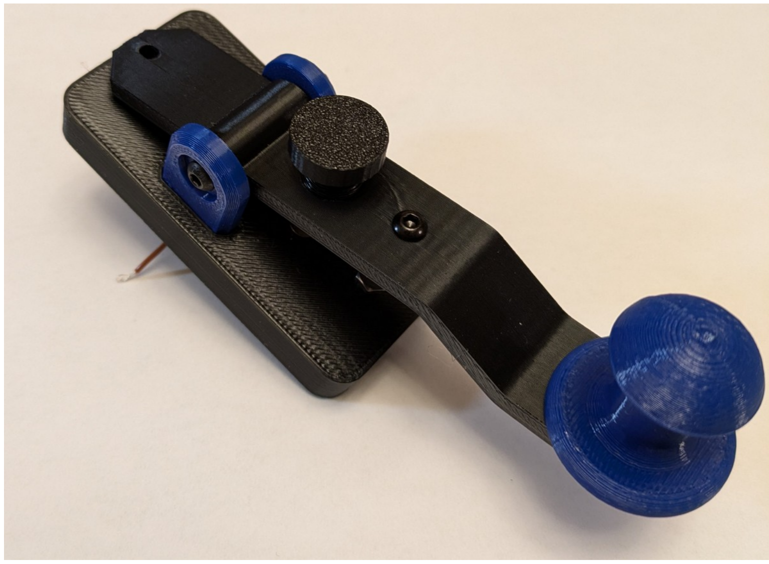


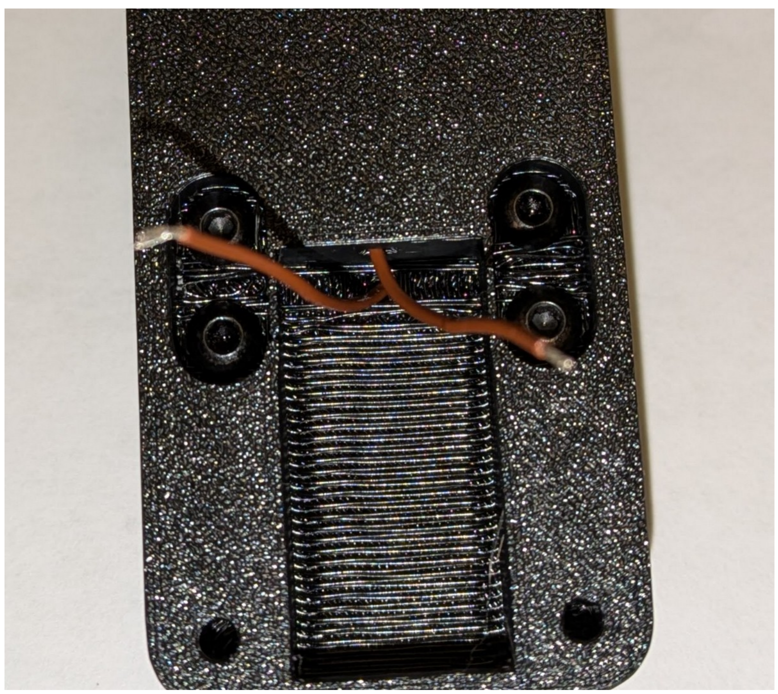
While maintaining light pressure, flip the base over and screw the hex head screw into place until it is 4mm above the surface:



Step 8: Mount Arm Assembly to Base

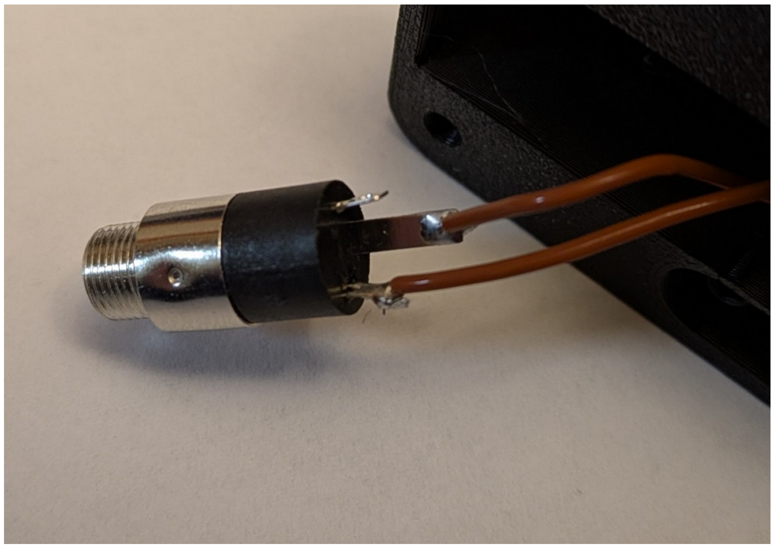
Take 4 of the M3x10 screws. Before mounting, push the wire sticking out of the arm assembly through the small hole of the base then press the hinges into the recessed slots. Secure the hinges to the base with the M3x10 screws from the underside of the base. These are self-tapping holes so do not over-tighten.





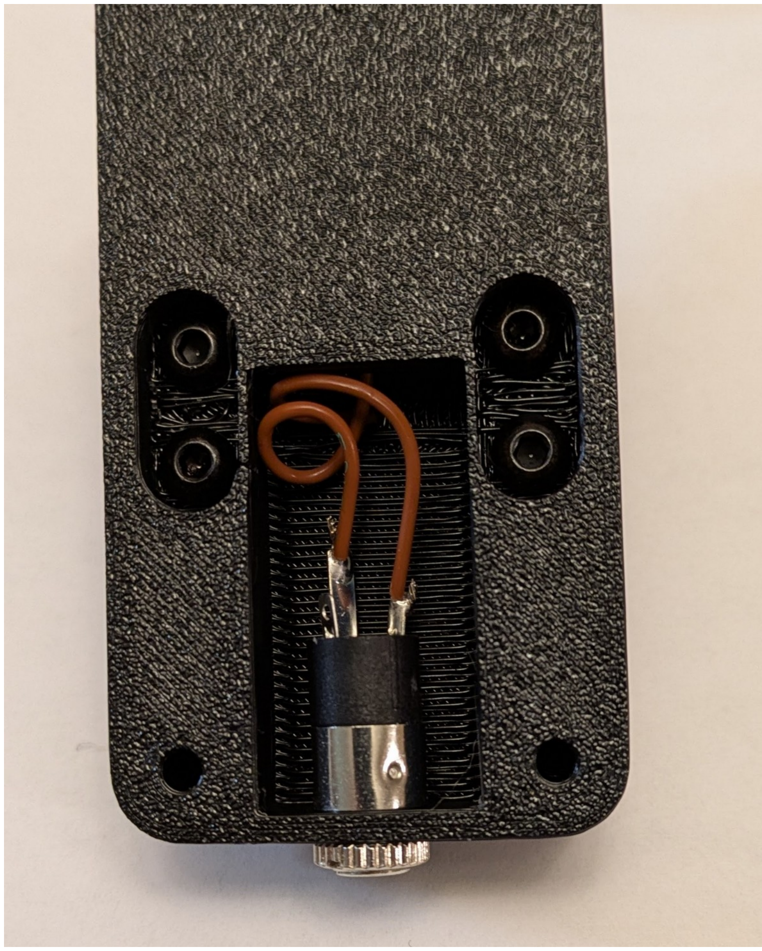
Step 9: Solder Wires to 3.5mm Jack

Take the 3.5mm audio jack. Before we do any soldering, take the accompanying nut and do a "test screw". Screw it onto the jack and move it back and forth. You might need pliers to help you depending on how much resistance the set gives you (just be careful not to cross thread it!). Once you are done, remove the nut and solder the wires on the underside of the base. Polarity does not matter but I prefer to solder the base wire to the Sleeve contact and the arm wire to the tip contact. Refer to the image below for the pinout:



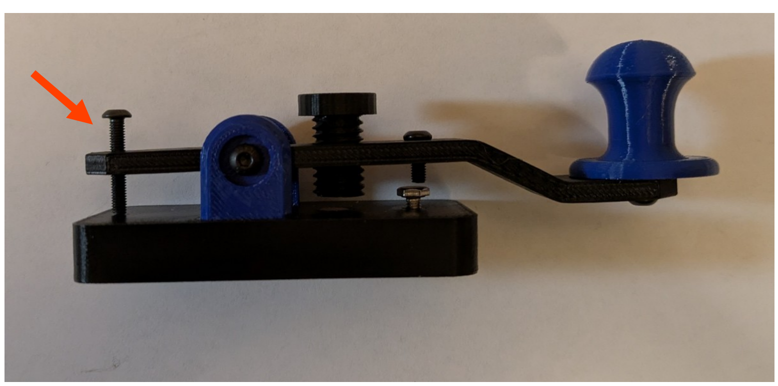
Step 10: Mount the 3.5mm Jack

Press the jack through the hole at the back of the base and secure it with the nut. The screwing and unscrewing of the previous step should make this easy.



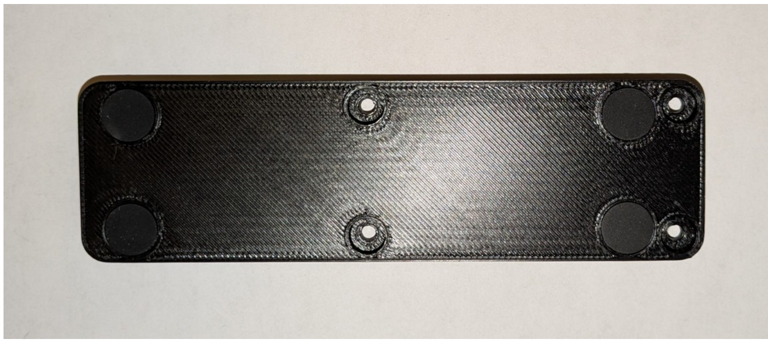
Step 11: Install Contact Distance Adjustment Screw

Take the M3x18 screw and screw it into the back of the arm. Tighten it until the contact distance in the front is to your liking.

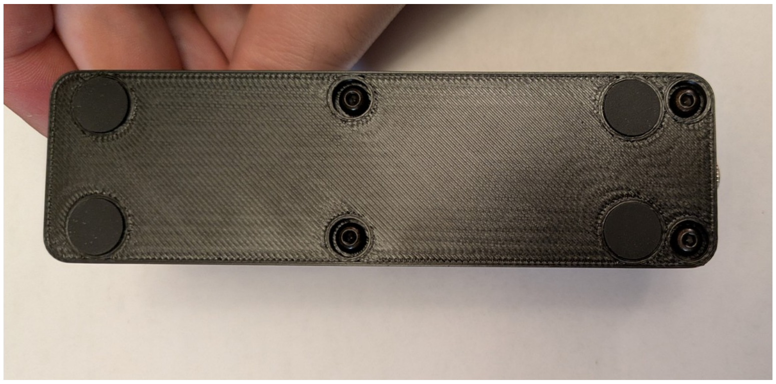


Step 12: Install Bottom Plate

Take your 3D printed Bottom plate, rubber feet and 4 M3x10 screws. Install the 4 rubber feet:



Finally secure the bottom plate to the Base plate using the M3x10 screws:



Step 13: Enjoy your new Straight Key!

At this point you have completed your KM4CFT 3D Printed Straight Key. Adjust the tension using the lead screw and the distance with the rear screw. Congratulations!