



Standard Build Procedure

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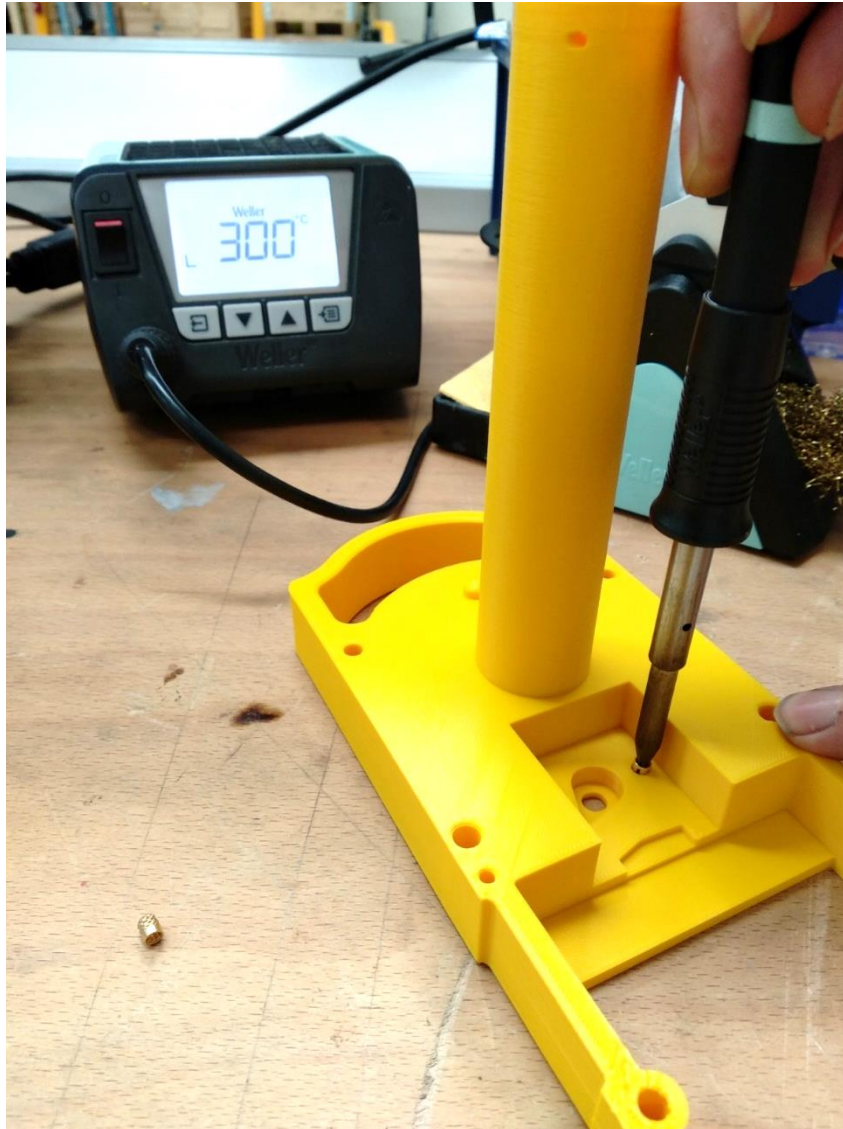
Version history

Version	Issue date	Notes & changes
1	28-09-20	Initial Release

1. END PLATE SUB-ASSEMBLY

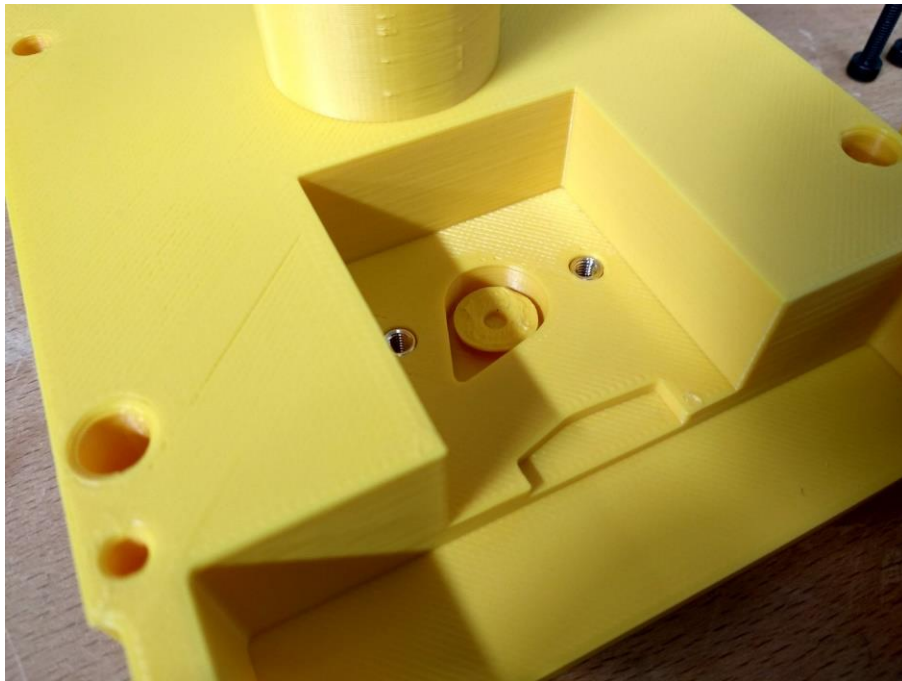
1.1. INSERT THREADED BRASS INSERTS TO END PLATE

Insert 2x M3 Threaded Brass Inserts into the End Plate as shown. Hold the soldering iron on the insert and the heat generated will let it sink into the plastic recess. Note: the soldering iron should be set to 300°C.



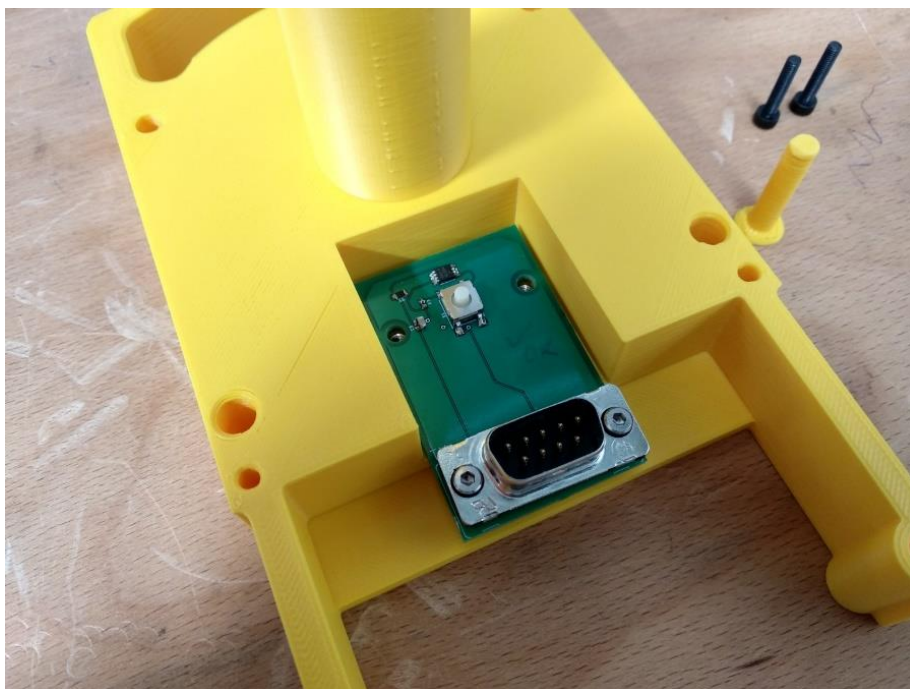
1.2. INSERT MIN STROKE PIN

Insert the 'Min Stroke Pin' into the recess on the End Plate as shown.



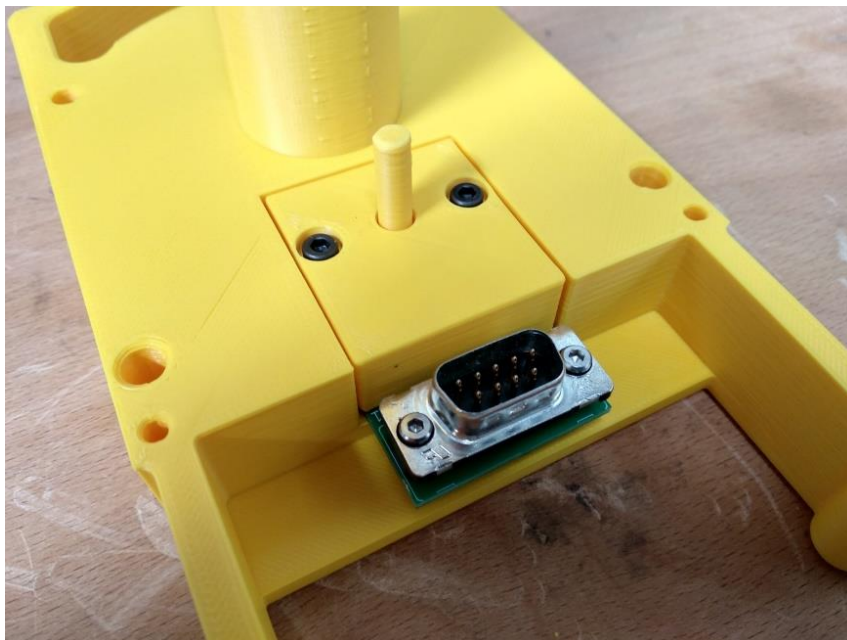
1.3. INSERT BVA PCB

Insert the BVA PCB into the End Plate recess in the orientation shown, with the holes on the PCB lined up with the M3 Inserts from Step 1.1.



1.4. ATTACH PCB COVER AND MAX STROKE PIN

Attach the PCB Cover with the Max Stroke Pin in the orientation shown. Use 2x M3x15 SHCS to secure the cover.



1.5. INSERT M6 BRASS THREADED INSERT INTO BAG PUSHER

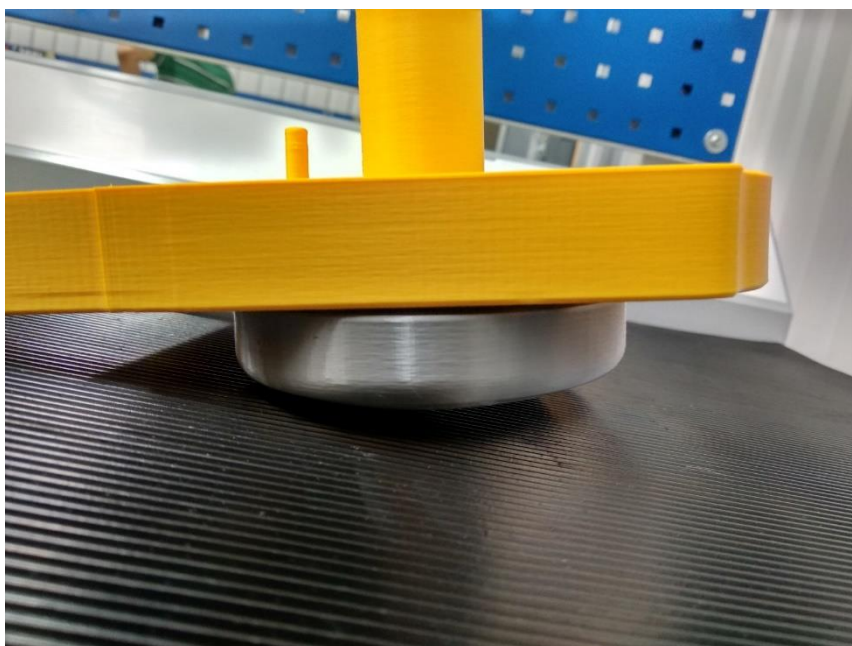
Insert 1x M6 Threaded Brass Insert into the Bag Pusher as shown. Hold the soldering iron on the insert and the heat generated will let it sink into the plastic recess. Note: the soldering iron should be set to 300°C.



1.6. INSERT THREADED ROD WITH STRAIGHTNESS JIG NUT

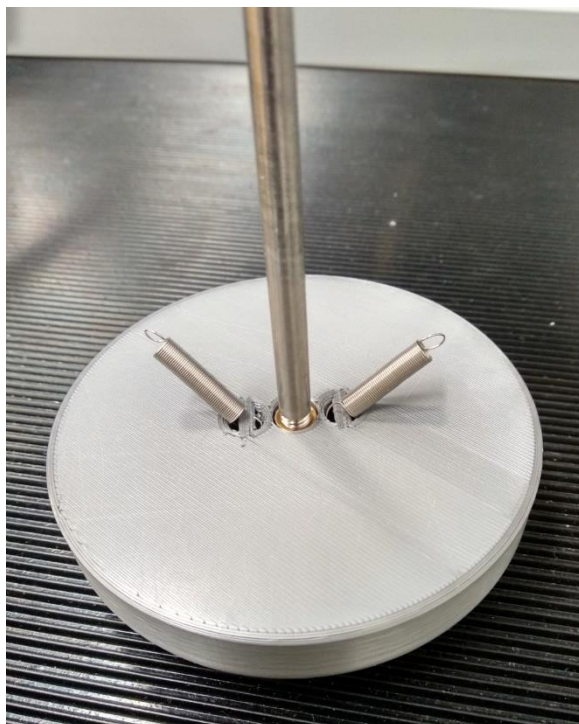
Immediately after removing the soldering iron from the previous step, while the Threaded Brass Insert is still warm, insert the M6 Threaded Rod into the insert on the Bag Pusher (all the way in then back off a quarter turn), and through the middle aperture on the End Plate. Then tighten the Straightness Jig Nut on the End Plate spigot as shown.

Note: Ensure the Bag Pusher sits flat against the End Plate before the Threaded Insert cools. Rotate the Pusher to ensure uniform parallelism between these faces. Once the joint has cooled, remove the Straightness Jig Nut.



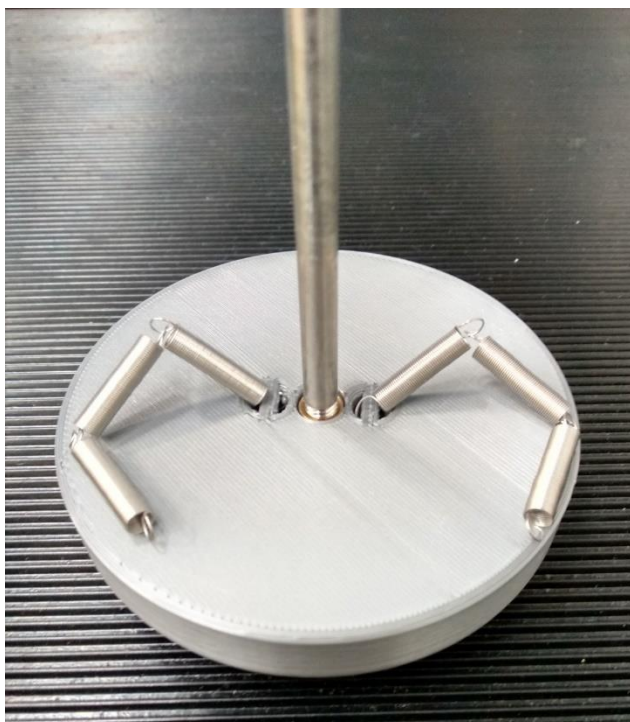
1.7. INSERT EXTENSION SPRINGS INTO BAG PUSHER

Remove the Bag Pusher and Threaded Rod from the End Plate. Insert 2x of the Extension Springs (SODEMANN E01800141000S) into the recesses of the Bag Pusher as shown. A Pair of tweezers may help with assembly.



1.8. ATTACH FURTHER 4x EXTENSION SPRINGS

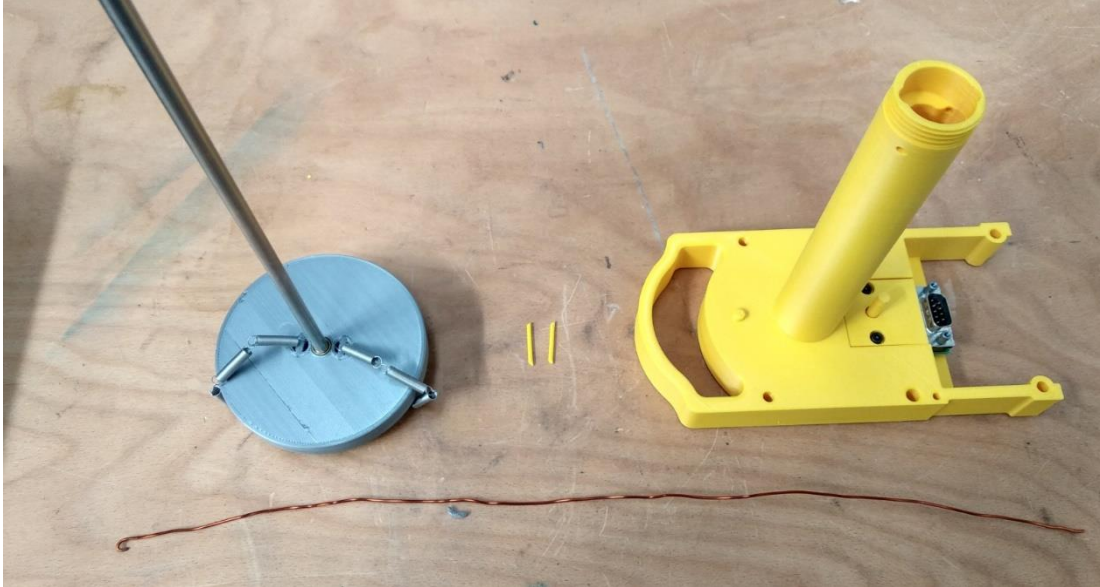
Attached a further 4x Extension Springs to create two separate rows of 3x Extension Springs.



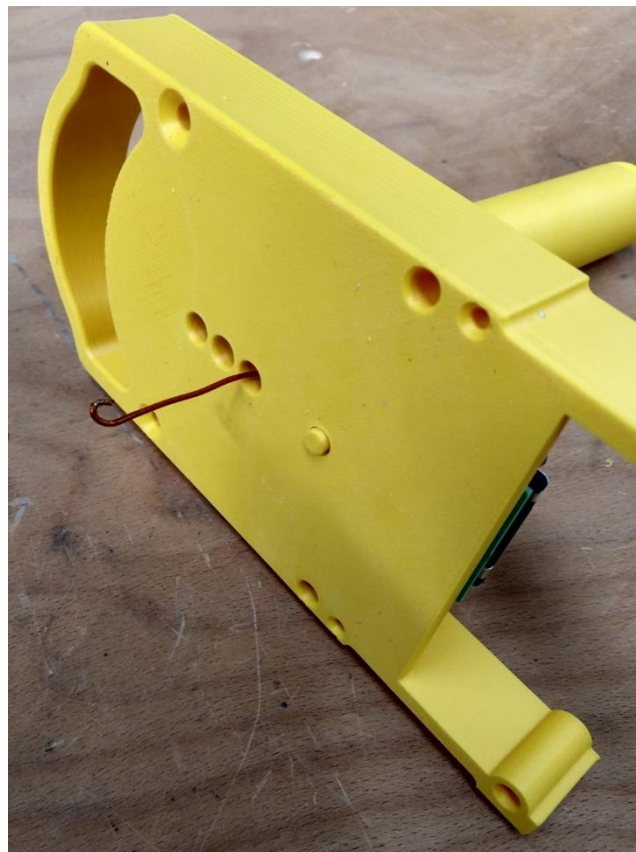
1.9. ATTACH BAG PUSHER TO END PLATE USING SPRINGS

Gather the following material:

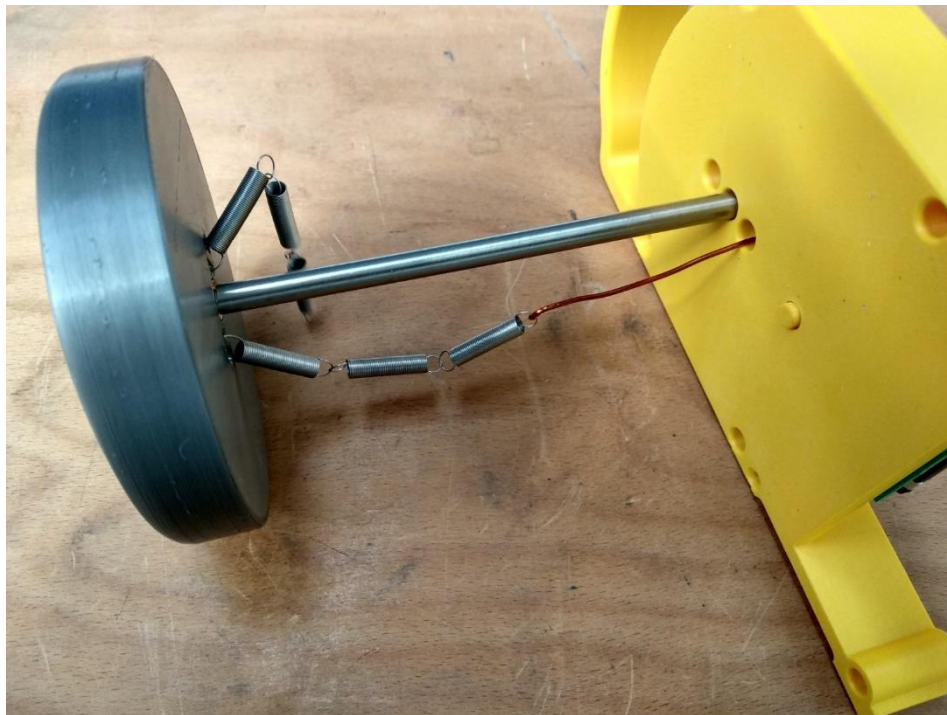
- 2x Spring Pins
- Bag Pusher/threaded rod/springs sub-assembly from step 1.8.
- End Plate sub-assembly from Step 1.4.
- 300mm length of ~1mm diameter copper wire..



Create a hairpin hook on one end of the copper wire using pliers. Insert this through the End Plate spigot and through the bottom hole on the front face as shown.



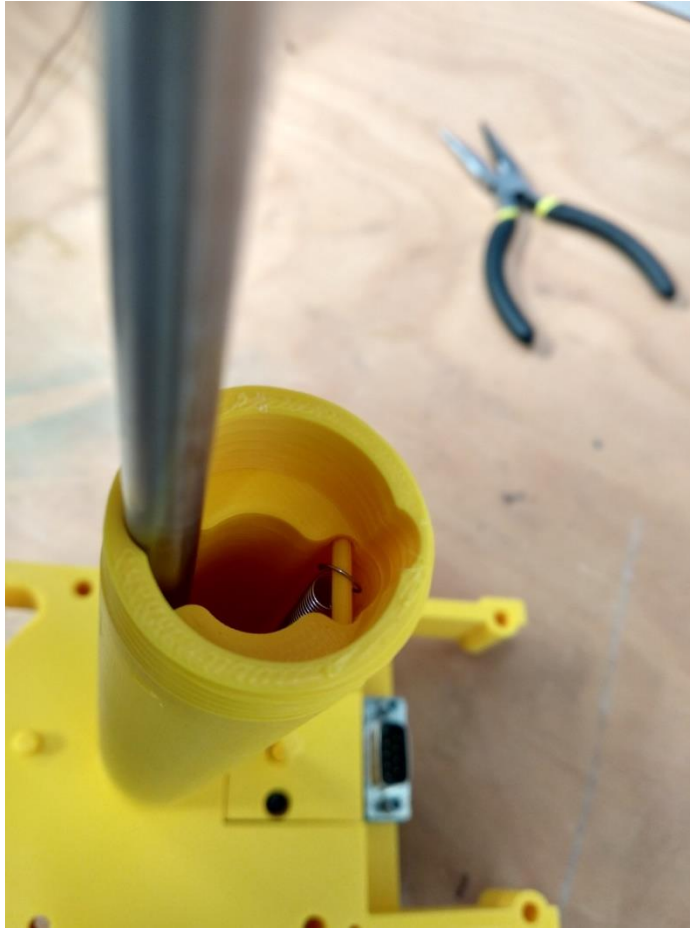
Insert Threaded Rod through the middle hole on the front face of the End Plate. Attach the copper wire hook to the end hook of one of the springs as shown.



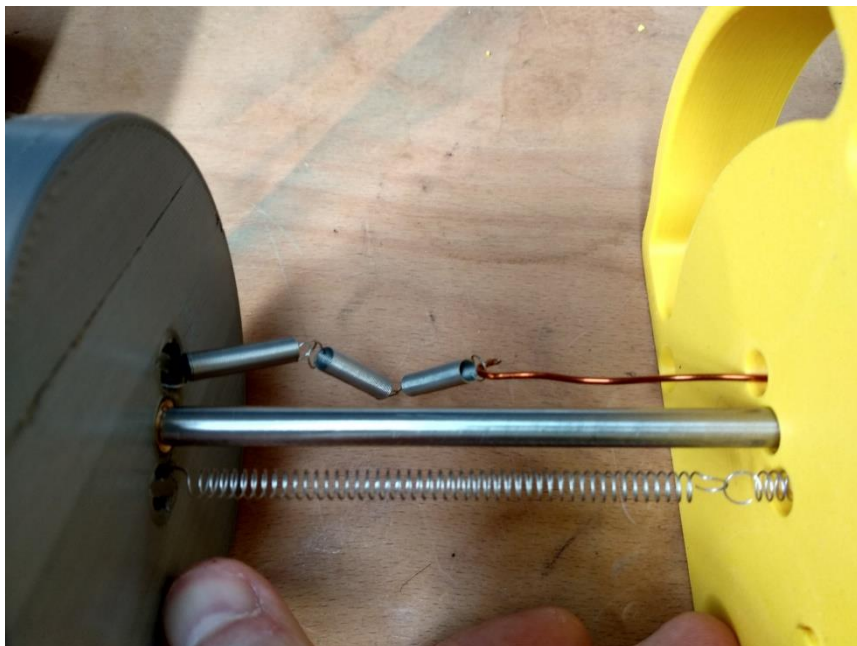
Pull the copper wire through the End Plate spigot until the end of the spring hook lines up with the corresponding pin hole. Insert one of the Spring Pins through the pin hole and through the end hook of the spring.



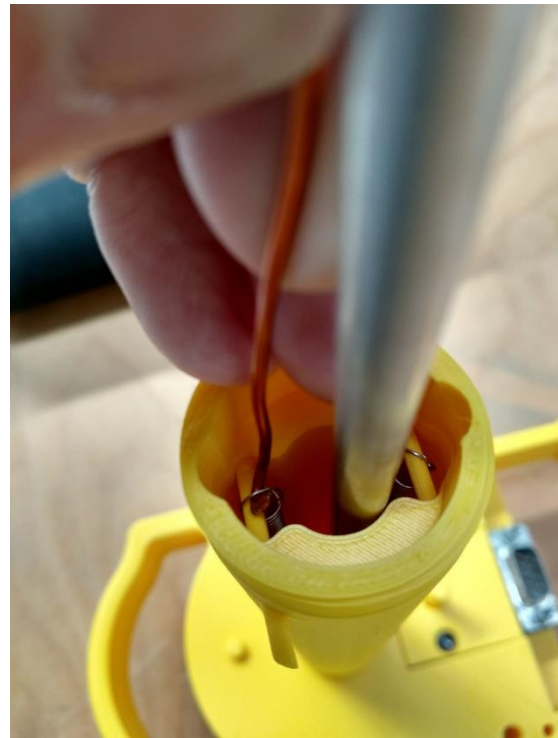
Unhook the copper wire from the spring. The spring should remain in place with the pin.



Repeat the process with the second row of extension springs by inserting the copper wire through the top hole on the front face of the End Plate.



Again, pull the copper wire through the End Plate spigot until the end of the spring hook lines up with the corresponding pin hole. Insert one of the Spring Pins through the pin hole and through the end hook of the spring.



Unhook the copper wire from the spring. The spring should remain in place with the pin.



2. HOUSING SUB-ASSEMBLY

2.1. INSERT OUTER IRON TUBE

Insert the Outer Iron Tube into the Housing. A hydraulic press may be required.



2.2. INSERT IRON END DISC

Insert the Iron End Disc into the recess of the Housing. The disc should sit flush with the end face of the Housing. The 2x through-holes on the disc should be at approx. 12 o'clock and 6 o'clock.



3. TRANSLATOR ASSEMBLY

3.1. WINDING BOBBIN

The winding setup should be similar to that illustrated here. The spool of copper (1.12mm Dia) should be fixed on a solid bar but able to rotate freely. There should be a 'tensioning' mechanism which grips the copper wire as the operator winds the turns onto the bobbin.



The Bobbin should also be constrained on a solid bar which is approx. 1-3mm smaller in diameter than the bobbin ID, allowing the bobbin to rotate freely.

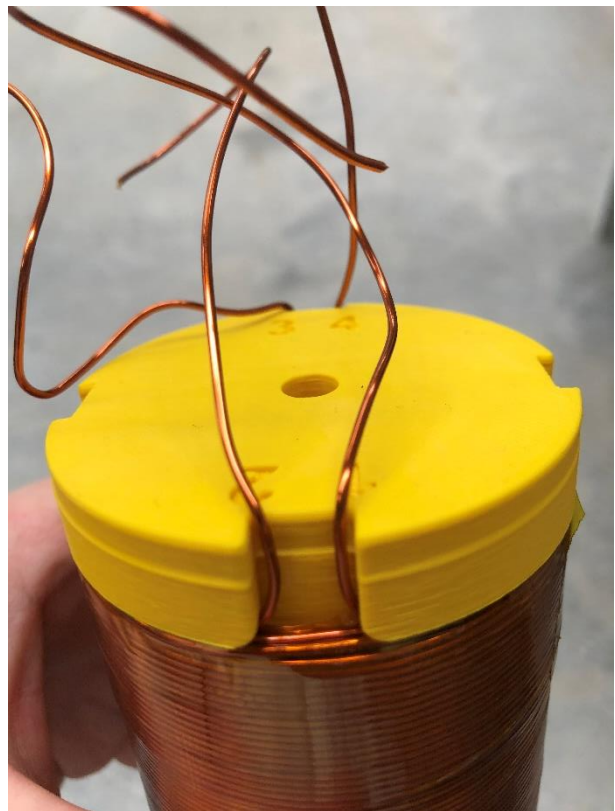
The Winding Handle should be bolted through the Bobbin End Cap using an M6x30mm Screw and Plain Nut.

The first and third turns should be trapped between the handle and bobbin as shown, with at least 100mm of excess wire provided for each wire out connection.



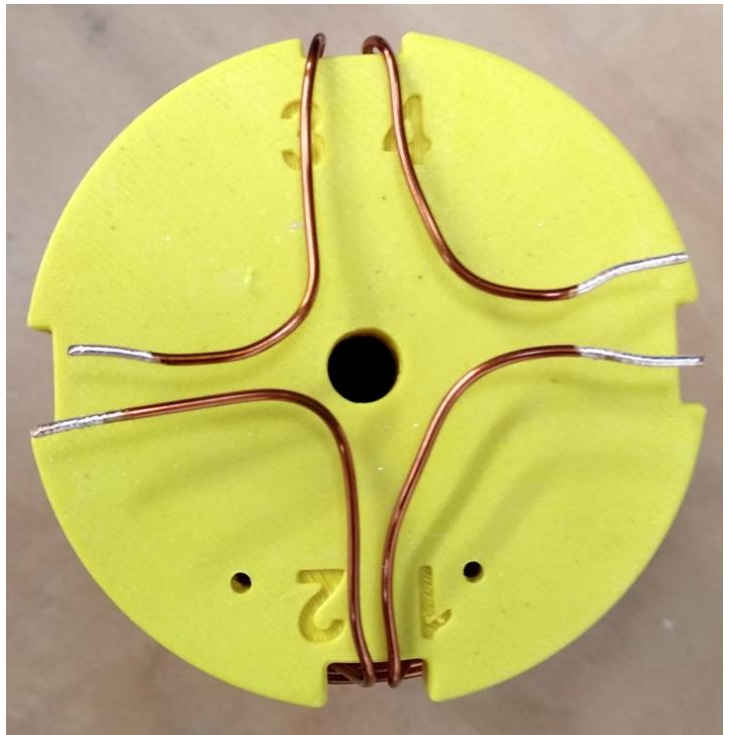
The bobbin is wound in 4 layers. Layers 1 & 2 come exit the bobbin at the same cut-out in the End Cap as shown. Layers 3&4 enter and exit at the same cut-out but 180° opposite 1&2.

A layer of Kapton tape should be applied to the Outer layer to encapsulate and insulate the winding.



3.2. PREPARE WIRE OUTS

There are 4x wire outs from the coil windings on the Translator, corresponding to numbers 1-4 on the Translator End Caps. Create a 90° bend in each wire out and cut approximately flush with the OD of the Translator as shown below. Also strip approx. 10mm of enamel off the copper end of each wire out using appropriate stripping tool or knife.



3.3. INSERT WAGO CONNECTORS TO HOLDER

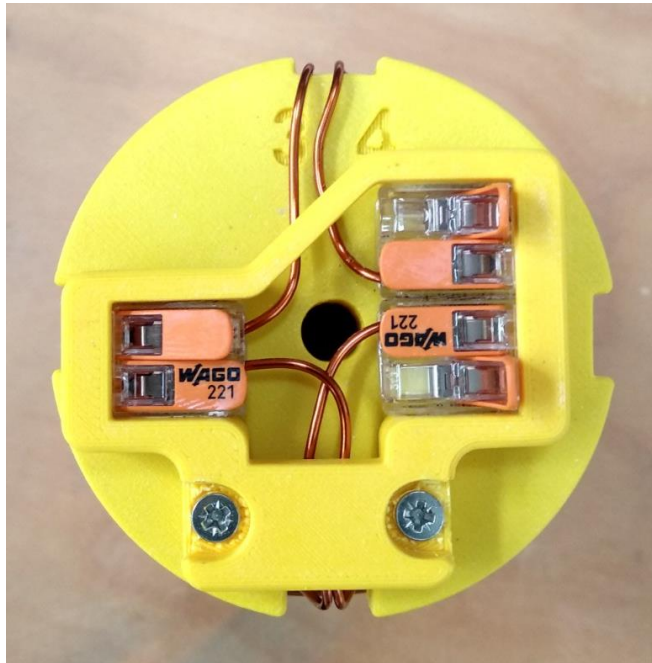
Insert 3x 2-Way WAGO Connectors into the Connector Housing as shown below.



3.4. ATTACH CONNECTOR HOLDER TO TRANSLATOR END CAP

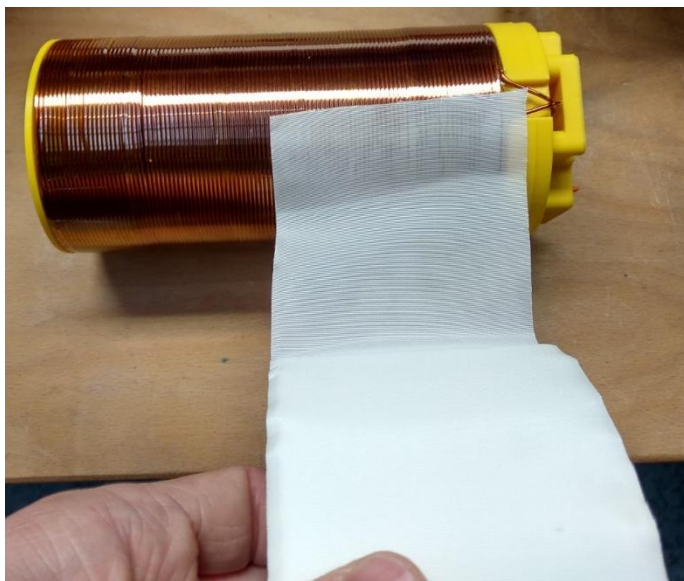
Attach the Connector Holder to the Translator End Cap using No.2 x ½" Pozi Screws as shown. The wiring should be as follows:

- Wires 2 & 3 should be connected in series using the left hand WAGO.
- Wire 4 should be inserted into the lower terminal of the top right WAGO.
- Wire 1 should be inserted into the upper terminal of the bottom right WAGO.



3.5. APPLY GLASS TAPE INSULATION

Apply 70mm F376 Class H Glass Tape Insulation (self-adhesive) to the half of the Translator nearest the connector end. Leave approx. 5mm of overlap with the Bobbin End Cap. Ensure 360° of coverage and as little overlap as possible on the insulation itself. Use a suitable knife to cut the tape.



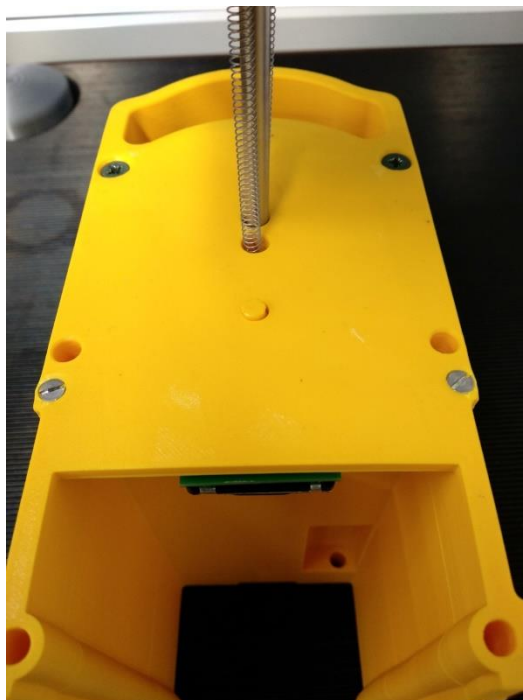
4. ASSEMBLY OF END PLATE, HOUSING, & TRANSLATOR

4.1. ATTACH END PLATE & HOUSING

Attach the End Plate sub-assembly to the Housing by inserting the End Plate spigot into the Iron End Disc aperture. The Max Stroke Pin should line up with the 6 o'clock hole on the Iron End Disc.

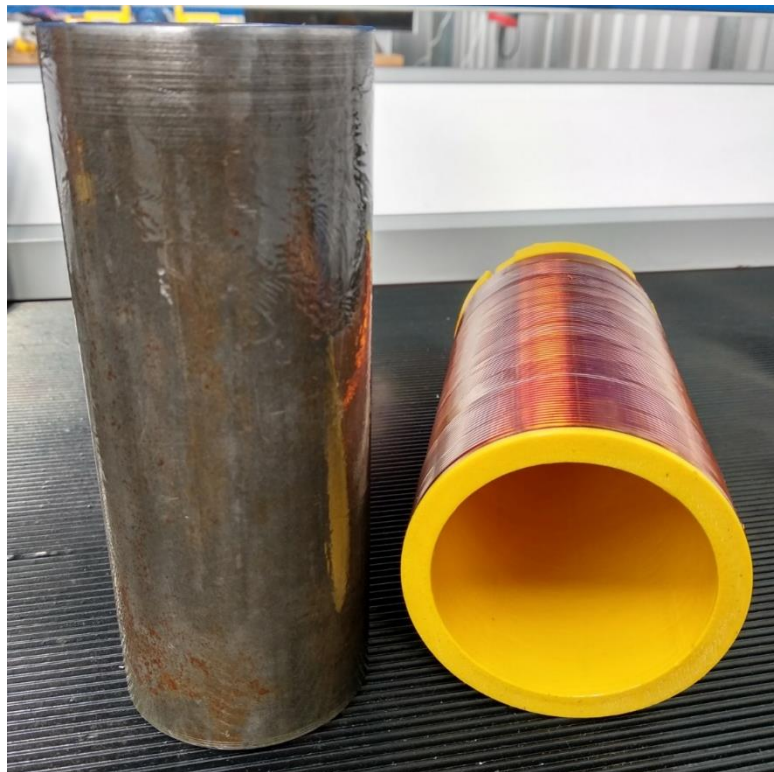


Insert 2x Pozi Decking Screws 4.5x75mm into the top 2 holes of the End Plate, and insert 2x No.4 x 40mm Slotted Countersunk Screws into the bottom 2 holes as shown.



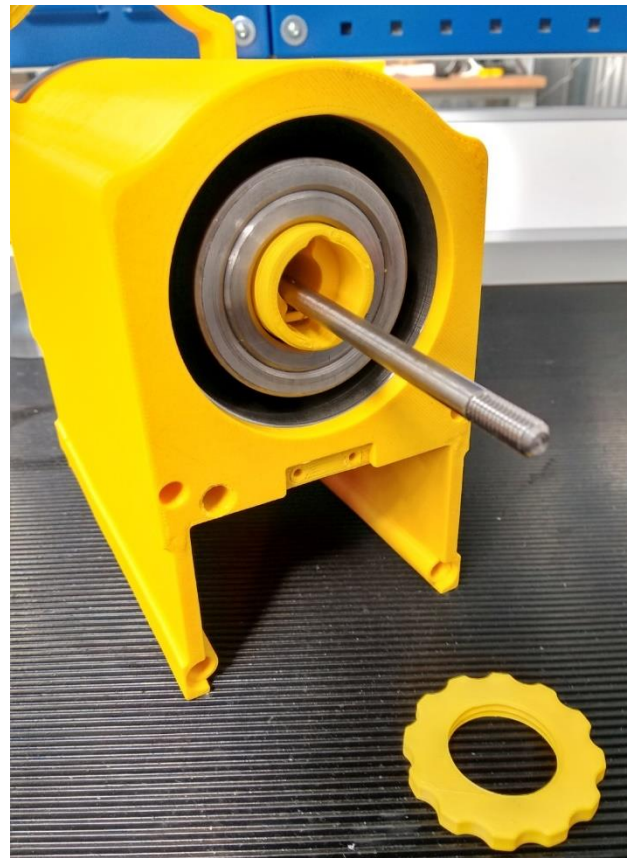
4.2. APPLY SILICONE GREASE TO INNER IRON & TRANSLATOR BORE

Apply a thin layer of Silicone Grease (e.g. RS 494-124) to the Outer Diameter of the Inner Tube and the Inner bore of the Translator.



4.3. INSERT INNER IRON TUBE INTO HOUSING

Insert the Inner Tube into the Housing as shown. The chamfered end of the tube should face outward as shown.



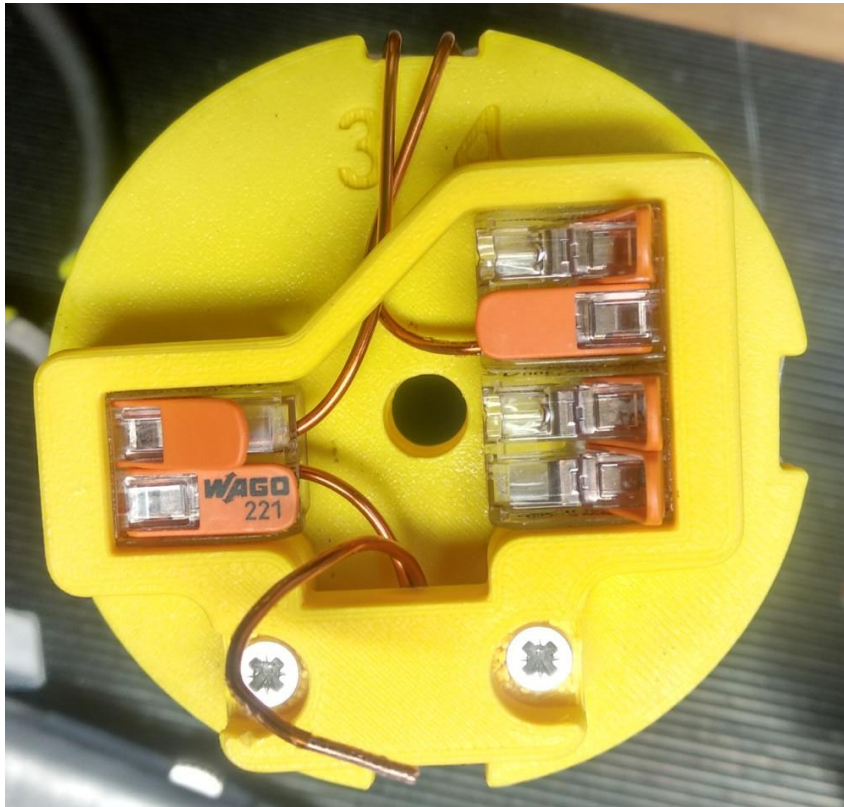
4.4. ATTACH INNER TUBE NUT

Screw the Inner Tube Nut onto the end of the spigot. Nut should be hand-tight. Do not over-tighten.

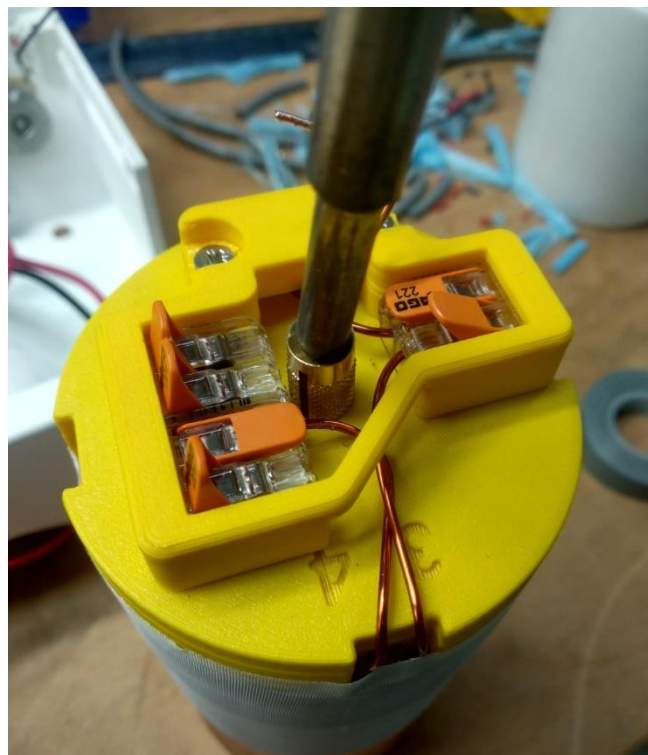


4.5. INSERT M6 BRASS THREADED INSERT INTO BOBBIN END CAP

Ensure the 6mm hole on the bobbin end cap has no wires impeding it. If any are in the way, disconnect them from their WAGO terminal for now so the aperture is clear, as shown below.

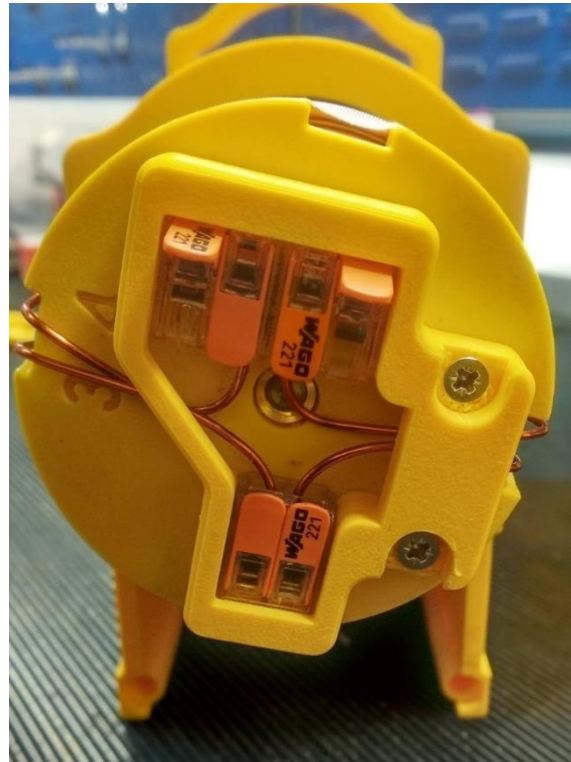


Insert the M6 Brass Threaded Insert into the hole and use a soldering iron set to 340°C to sink it flush with the Translator End Cap.



4.6. ATTACH TRANSLATOR TO HOUSING

Immediately after inserting the M6 Brass Threaded Insert from the previous step, assemble the Translator to the Housing using the threaded rod. Rotate the Translator until the threaded rod is flush with the end face of the Bobbin End Cap. Replace any wires removed during the previous step by referring to Step 3.3.



5. ASSEMBLY OF POWER CABLE

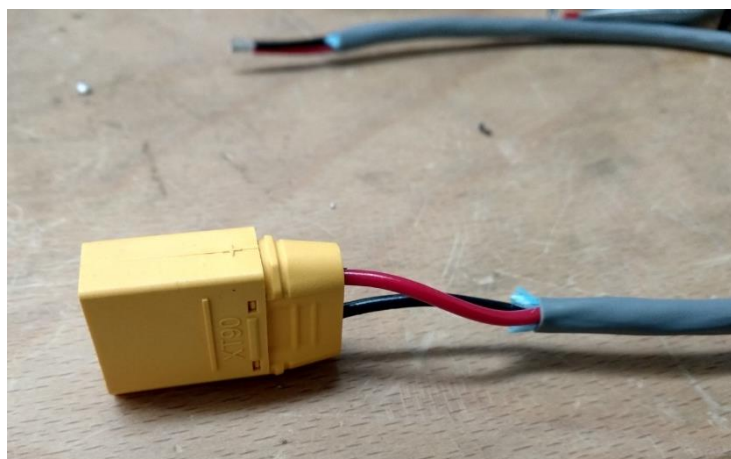
5.1. CUT AND STRIP CABLE ENDS

Using 2-Core Unscreened wire 0.35mm^2 (e.g. RS 673-3239), cut a 360mm length and strip 50mm of outer sheath from each end. Also strip 10mm of wire insulation from each core.



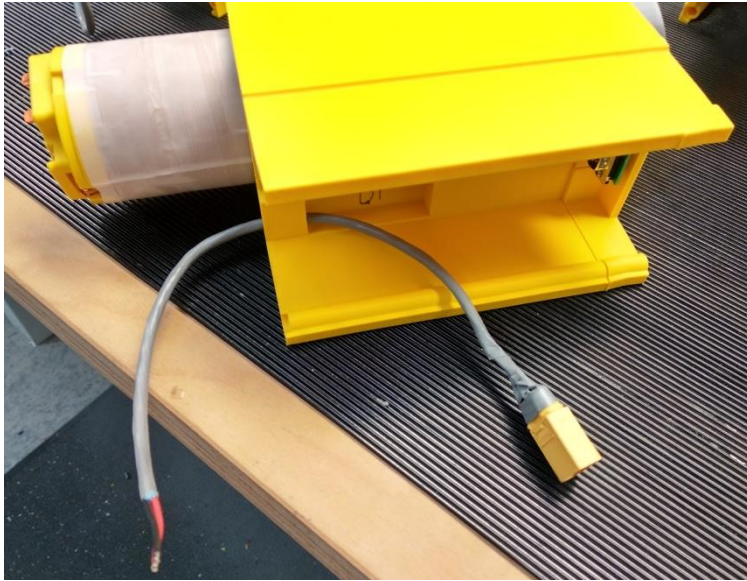
5.2. SOLDER POWER PLUG

Insert the back shell of the Power Plug (RS180-5379) through the cable cores as shown. Solder the cable cores to the Power Plug solder cup terminals. Red should be connected to + and black should be connected to -.



5.3. ATTACH TO HOUSING AND TERMINATE

Place the Housing on its side and thread the cable through the recess underneath the housing as shown.



Reorientate the housing to standing position and remove the 2x screws holding the Connector Holder in place. Thread the cable underneath the Connector Holder. Terminate the Red and Black wires as follows:

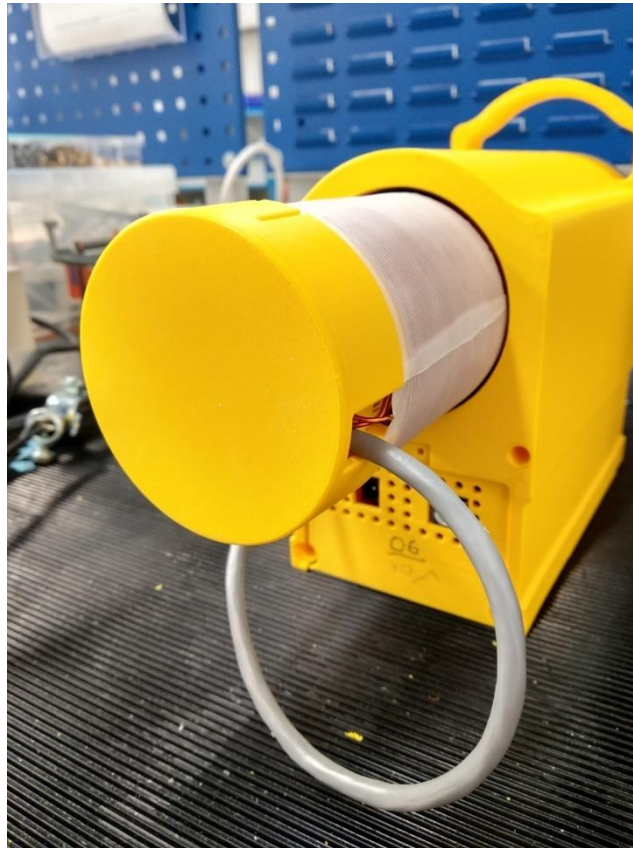
- Black should terminate at the upper terminal of the upper right hand WAGO.
- Red should terminate at the lower terminal of the lower right hand WAGO.

Replace the screws holding the Connector Housing which will now clamp the cable and provide strain relief.



5.4. ATTACH TRANSLATOR COVER

Attach the Translator Cover by clipping it onto the Translator End Cap. The Power Cable should enter/exit the cut-out as shown.



5.5. ATTACH LIBERTINE LPS STICKERS TO HOUSING

Attach 2x Libertine LPS Stickers to the sides of the Housing as shown below.

