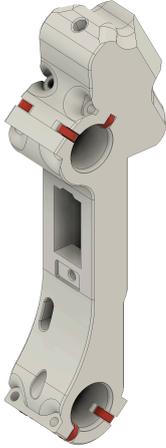


LTS Respooler Pro - Assembly Guide

General Assembly and Printing Notes

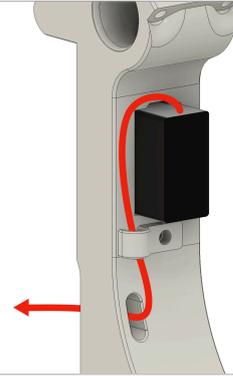
- The screws thread right into the plastic without inserts, don't over-tighten them!
- It's best if the black parts are printed with a durable filament like PLA-CF or PETG
- Some parts use supports that need to be removed
- The screws are not pictured in the assembly guide

Assembly Guide

<p>Start the assembly with the part <i>Filament Guide</i>.</p>	
<p>Insert the 8 bearings (<i>MR63zz</i>) pictured in red in the shown positions and secure them with a M3 x 10 screw each.</p>	
<p>Push the servo into position as pictured. The side with the cable should be facing up.</p> <p>Secure it with the two screws that came with the servo.</p>	

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Guide the servo cable down and through the hole. Secure it using the *Cable Clip*.



Take the part *Motor Base*.



Insert the Nema 17 stepper motor and secure it using 3 **M3 x 6** screws.

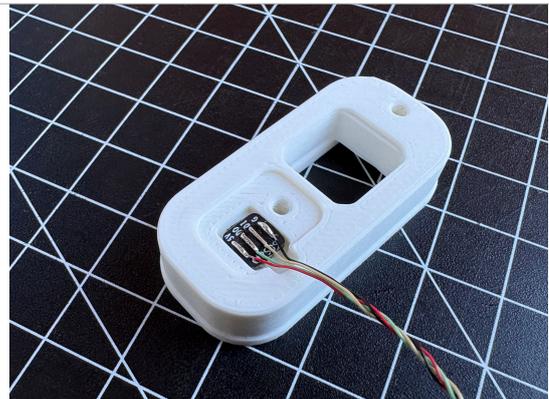


Install the *Driver Board* or the *Control Board* onto the motor base and screw it down using 4 **M3 x 6** screws.

Place one **M3 nut** in each of the hexagonal holes.

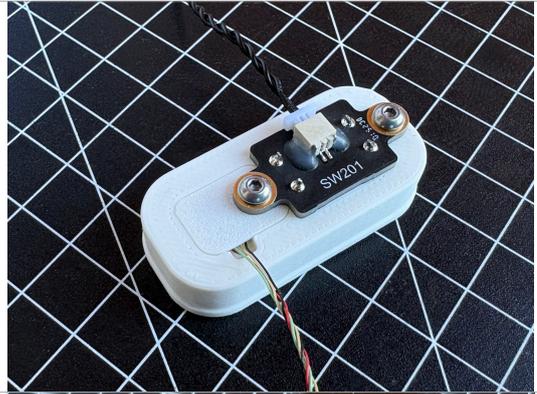


Take the part *Control Panel* and insert the LED as seen in the picture. No need to use glue, it will be secured in the next step.



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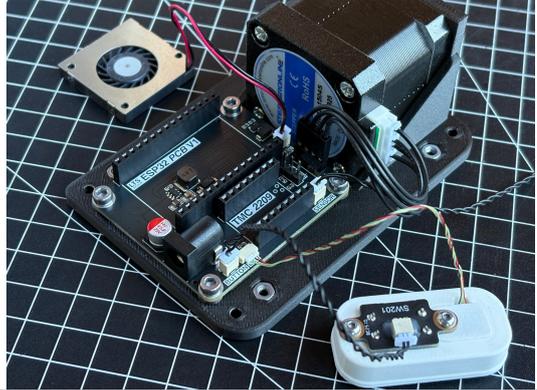
Place the *Control Panel Plate* on top of the LED. Install the button as seen on the picture and secure everything using 2 **M2 x 8** screws.



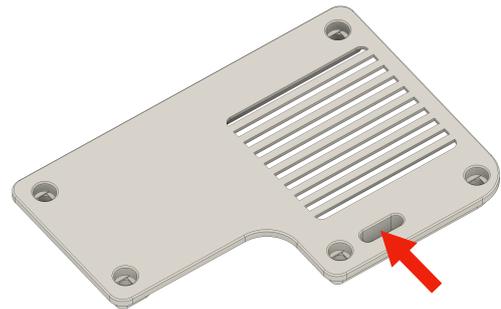
Connect all the wires except for the servo wire to the PCB according to the labels on it. Connect the long 200 mm cable to the connector labeled „SENSOR“.

Make sure to insert the connectors carefully.

The cooling fan is optional, you don't have to use it.

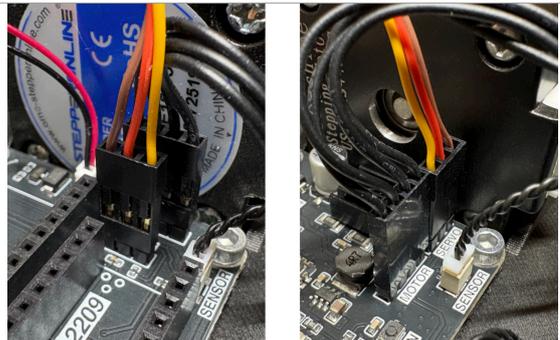


Thread the servo wire through the hole in the *Electronics Case Lid* from above.

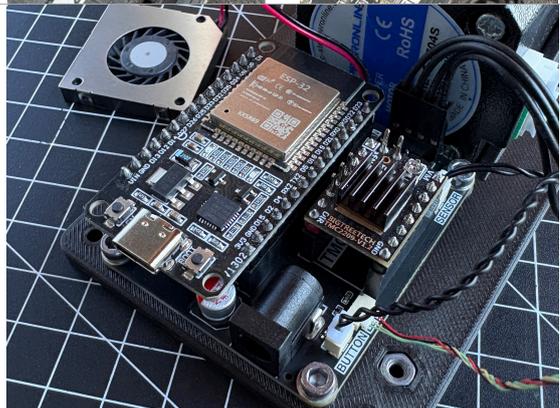


Connect the servo wire to the PCB. Pay attention to the orientation!

The case lid is now in-between the PCB and the Filament Guide.



Install the ESP32 and the TMC2209 onto the *Driver Board* PCB. Pay attention the orientation!



LTS Respooler Pro - Assembly Guide

Now, install the *Electronics Case*. First, thread the control panel through the corresponding opening from below, then push it into position.

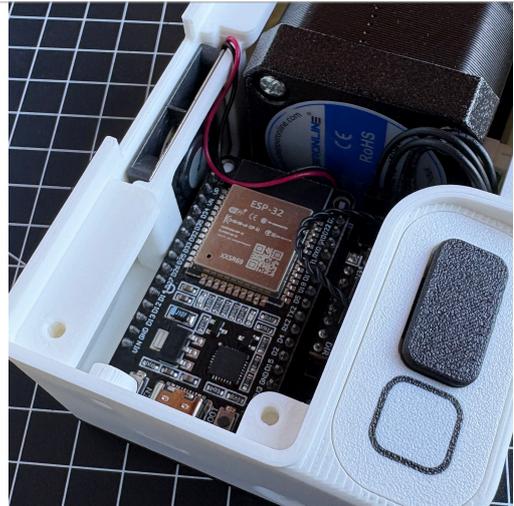
Screw the case to the motor base from underneath using 4 **M3 x 6** screws.

Make sure not to pinch any wires.



Slide the fan into the slot in the case with the exhaust facing up.

Push the printed *Control Panel Button* onto the button, the friction should be enough to keep it in place.



With all the electronics in place, you can now close the Electronics Case with the case lid and 5 **M3 x 6** screws.

Route the wire for the filament sensor through the hole in the lid next to the servo wire.

You can now upload the code to the ESP32 using the [Web Flasher](https://flash.lts-design.com) at flash.lts-design.com



Take the *Motor Pulley* and slide a **M3 nut** into the small slot next to the hole.

Push the pulley onto the shaft of the stepper motor and secure it using a **M3 x 6** screw.



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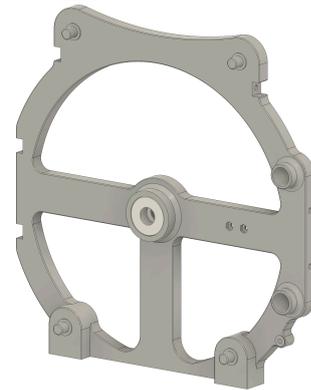
Attach the Electronics Case to the *Base* using 4 **M3 x 10** screws (from below).



Take the *Spool Center* and insert the *Spool Shaft* into it. Secure it using a **M3 x 10** screw through the long hole in the spool center part.



Remove all the supports from the *Frame R* and press the two 6001zz bearings into position on either side of the center.



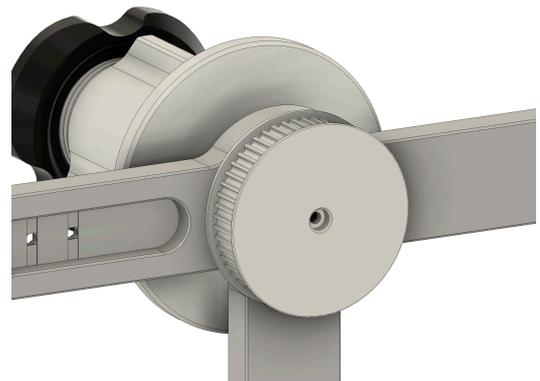
Push the spool shaft through the two central bearings as seen on the picture.

Slide the *Spool Shaft Washer* onto the shaft (here pictured in red).

You can also screw on the *Spool Nut* now.



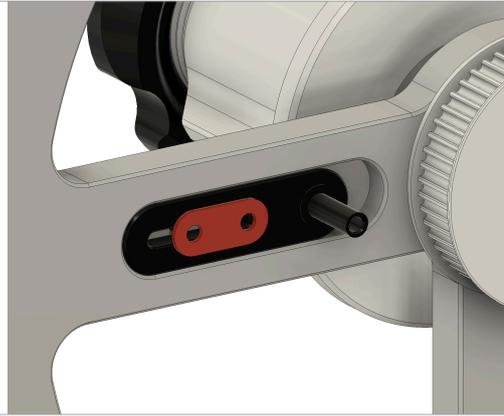
Attach the *Spool Pulley* and secure it using a **M3 x 10** screw.



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Attach the *Tension Holder* as shown in the picture and secure it loosely with 2 **M3 x 10** screws.

Don't forget to add the washer (pictured in red) and the **M3 nuts** on the other side. The black piece should be able to move side to side.



Assemble the tension pulley by taking the parts *Tension Pully Top* and *Tension Pully Bottom* and sticking them together.

Insert a small *MR85zz* bearing on each end.



Attach the pulley with an **M3 x 16** screw.



Take the four *Rollers* and press a bearing (*608zz*) into each of their ends.



Push the two *Linear Rods* into their position.



LTS Respooler Pro - Assembly Guide

Slide the Filament Guide onto the rods.

The Filament Guide and the Electronics Case are still connected by the servo cable. You can already set the frame down on the base.



Slide the rollers into position and attach the *Frame L*.



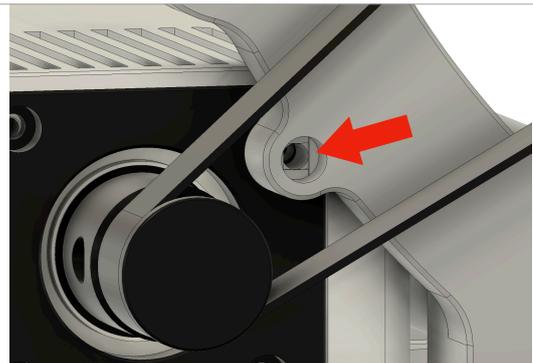
Lower the frame onto the base and connect the drive belt. Secure the frame from below using 8 **M3 x 16** screws.



Connect the frame to the Electronics Case using 2 **M3 x 10** screws.

This step is **important** because without it the belt might start skipping, even at low resistance.

If needed, you can now adjust the belt tension.

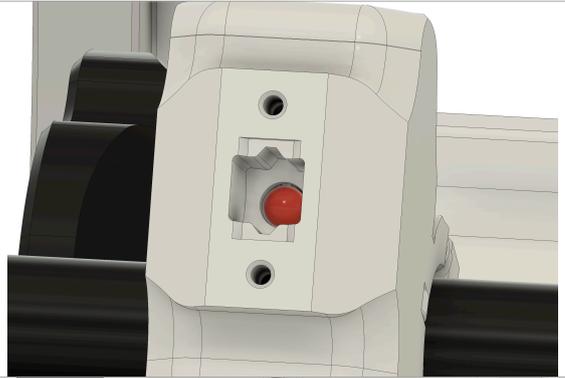


Attach all three *Braces* between the two frame sides using 8 **M3 x 10** screws in total.



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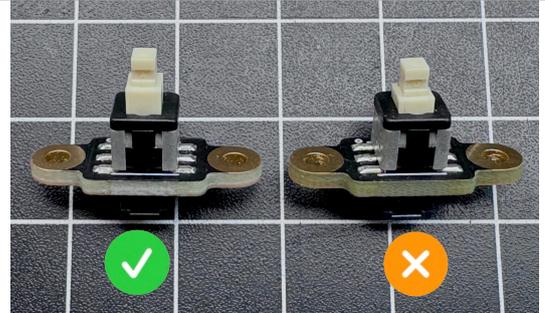
Drop the 4 mm steel ball into the hole of the Filament Guide, as seen on the picture.



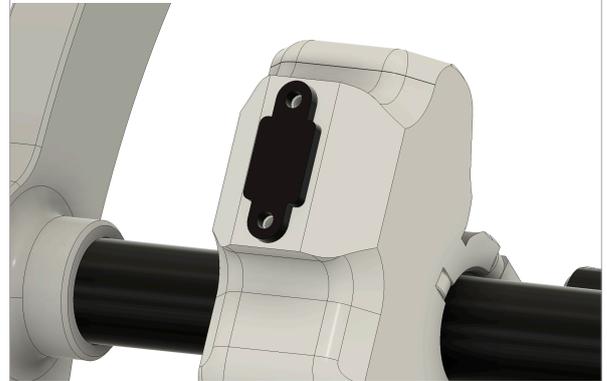
Place the small *Filament Switch Stopper* part on top of the steel ball. It's pictured in red. The rounded side should be facing down.



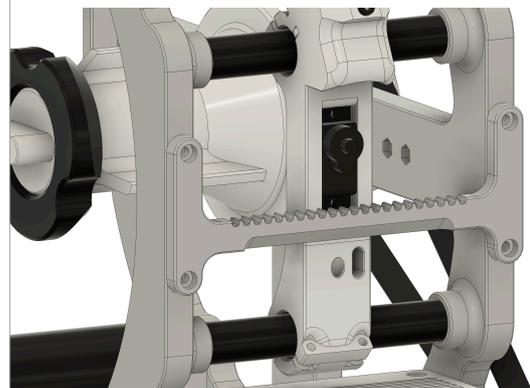
Take the „*Self-Locking Button Switch*“ from Maker's Supply. Make sure that it's in the unlocked position like in the picture.



Attach the switch to the Filament Guide using 2 **M2 x 8** screws. You can now connect the cable from the Electronics Case, the connector should be facing to the right.

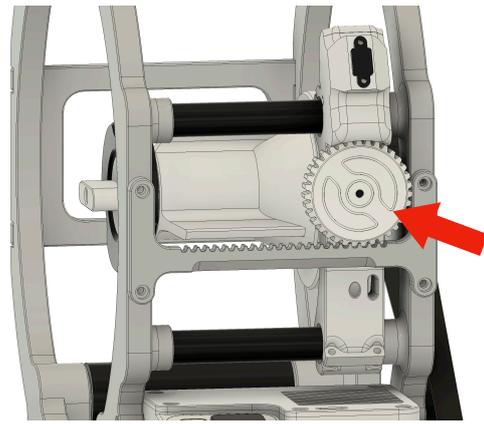


Screw the *Gear Rack* to the front of the Respooler as pictured using 4 **M3 x 10** screws.



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1. Move the Filament Guide all the way to the right.
2. Power on the Respooler PCB. The servo should make a noise and move to its zero position.
3. Attach the gear to the servo and secure it with the screw that came with the servo.



Cut two 4 mm PTFE tubes to length and insert them into the Filament Guide as pictured.



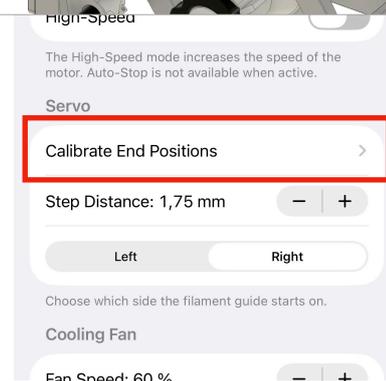
If you want, you can now glue the *TPU Feet* into position.



Important: Use the app to adjust the end positions of the Filament Guide!

The web version of the app can be found at control.lts-design.com

You can also fine-tune the step width of the Filament Guide to achieve better spooling results.



And with that, your Respooler is complete! :)

Let me know if you run into any issues!

