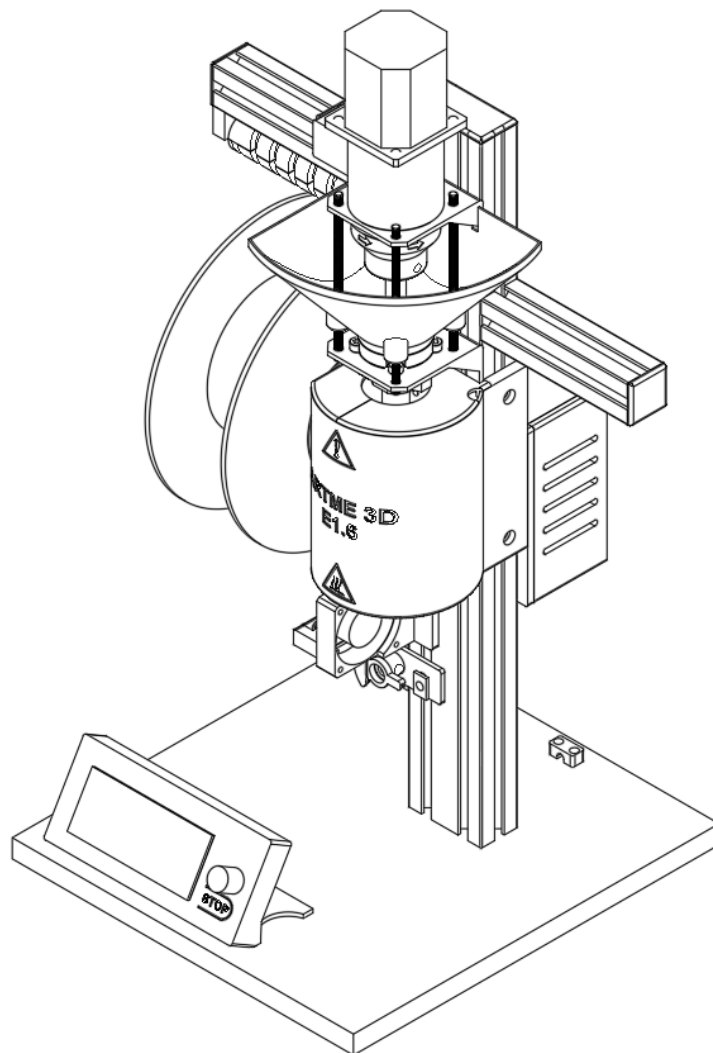


08 Sensor (optical) assembly

Assembly instructions

Original Desktop Filament Extruder E1.7 by ARTME 3D

Version 25.04.2022





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Required tools for this assembly section:

Phillips screwdriver PH1
Needle nose pliers
lighter
superglue
if necessary vice/hammer

Overview packages

Package 0: Delivered carton
Package 1: Screws (SC)
Package 2: Spare Parts (SP)
Package 3: Custom Metal Parts (CM)
Package 4: Extruder Barrel (EB)
Package 5: Electronics (EL)
Package 6: Tools (TO)

Step 1:

3D Printing:

Sensor body SO02

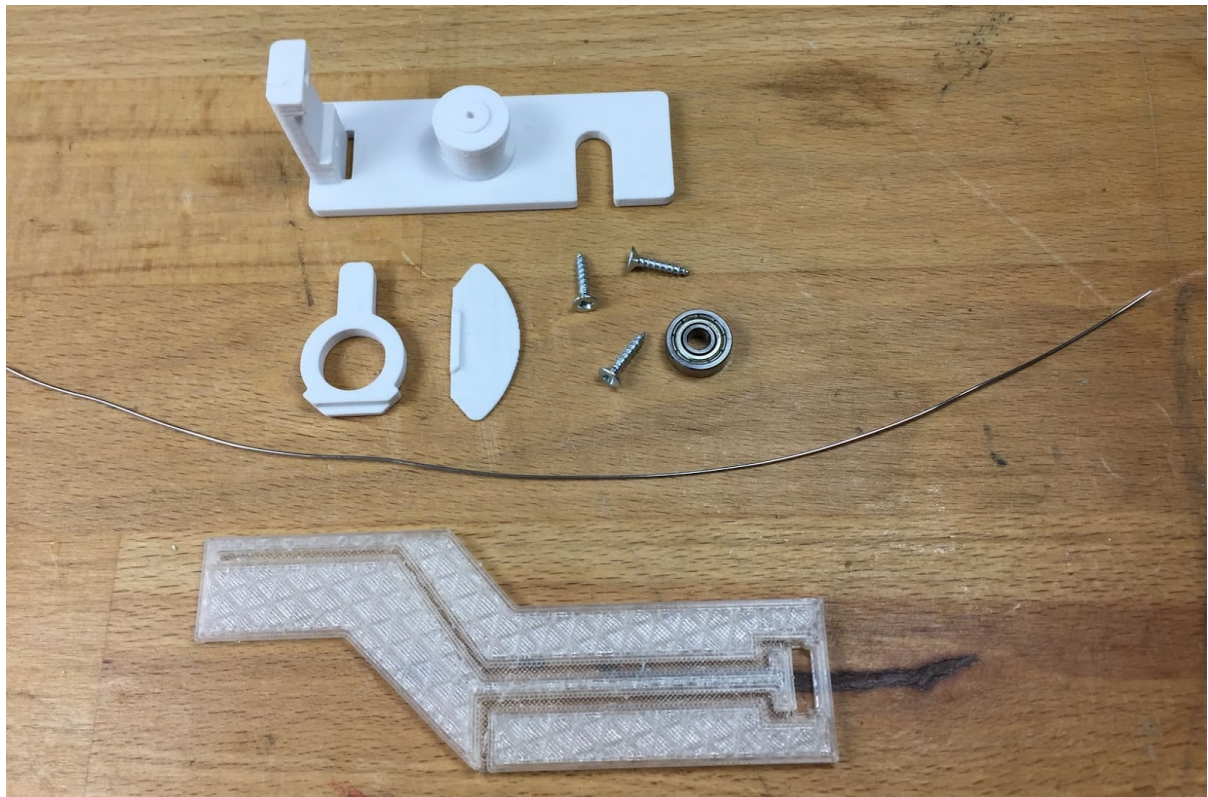
Sensor arm SO03

Sensor shutter SO04

Bending aid SO05

Remove from package 1: 3x wood screw 2.5x12 (SC01)

Remove from package 2: Ball bearing 4x12x4 (SP10), wire 0.6x210mm (SP09)

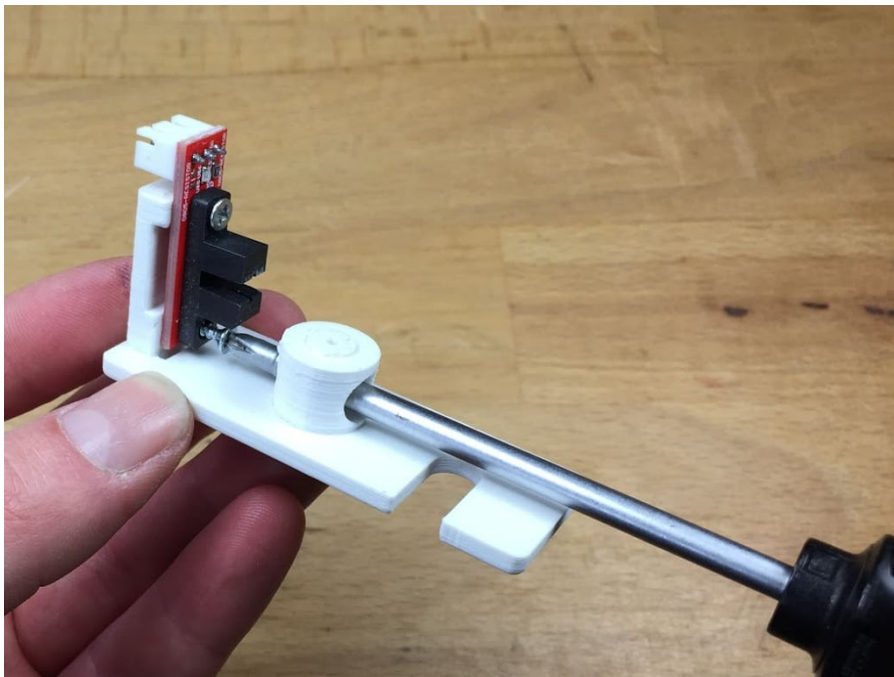
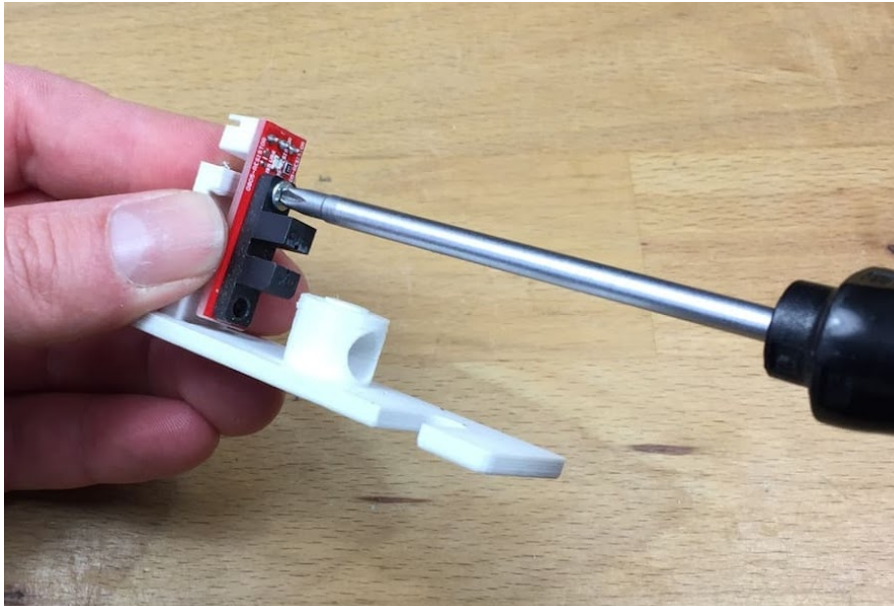


Step 2:

Tool: Phillips screwdriver PH1

Remove from package 5/already mounted: Optical endstop (EL05)

Fasten the sensor to the sensor holder with two wood screws. Alignment see picture.
If necessary, remove the plug of the sensor for better handling.



Step 3:

Tool: vice if necessary

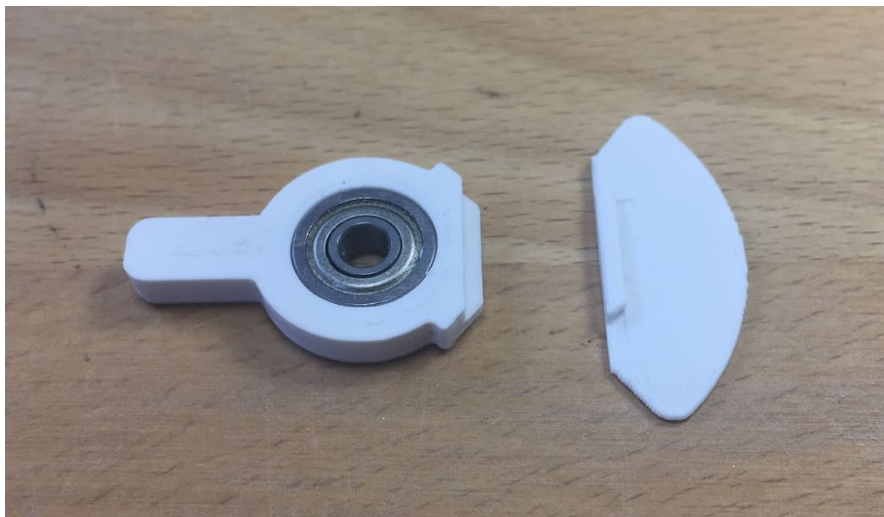
Press the ball bearing into the sensor arm. This may require some force. Rework the hole if necessary or press the bearing in with a vice. If you do not have these tools, you can use light hammer blows in a pinch. But be careful: Be sure to place a piece of wood (or similar) on the ball bearing before using the hammer. Do not damage the ball bearing! The ball bearing must be flush with the surface of the sensor arm.

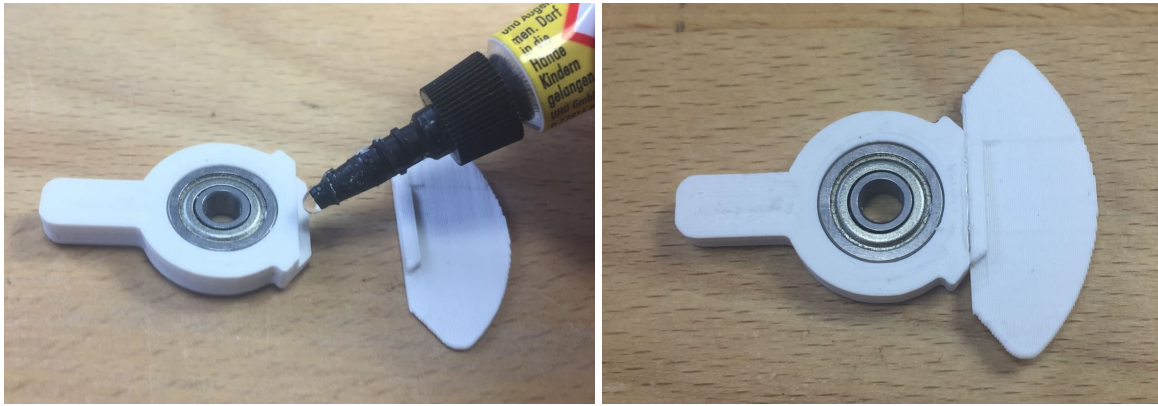


Step 4:

Tool: Superglue

Alignment of the orifice before mounting. Important: The diaphragm must be aligned as shown in the picture. The bezel lies flat. The small recess points upwards. The sensor arm lies flat with the small recess pointing upwards. Then glue the aperture to the sensor arm in this orientation. Hold the parts in this position until the glue is solid. The aperture must not bend while drying. (See also pictures next page)

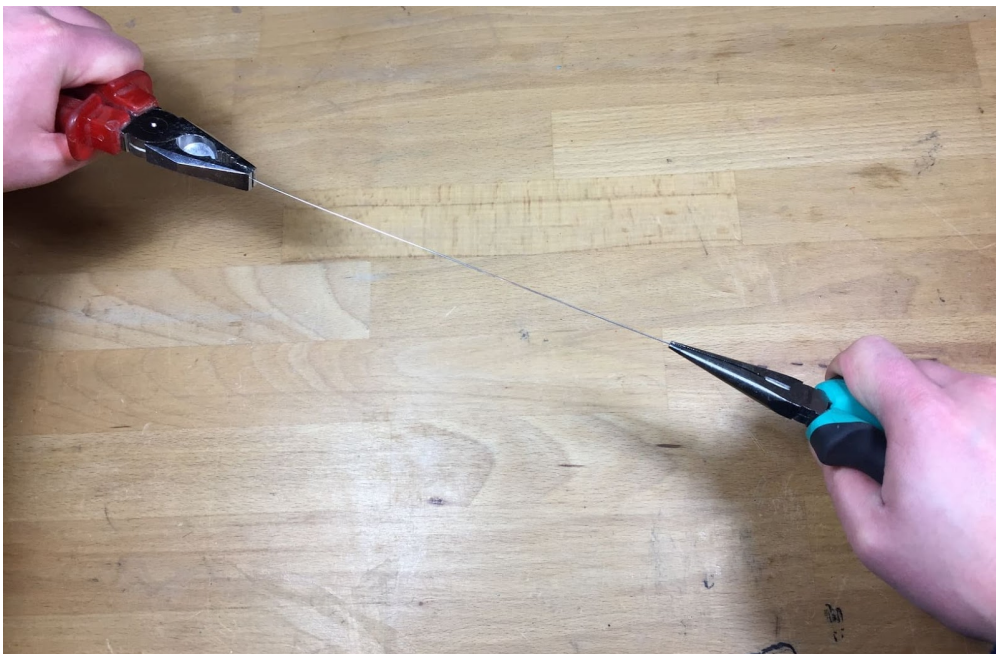




Step 5:

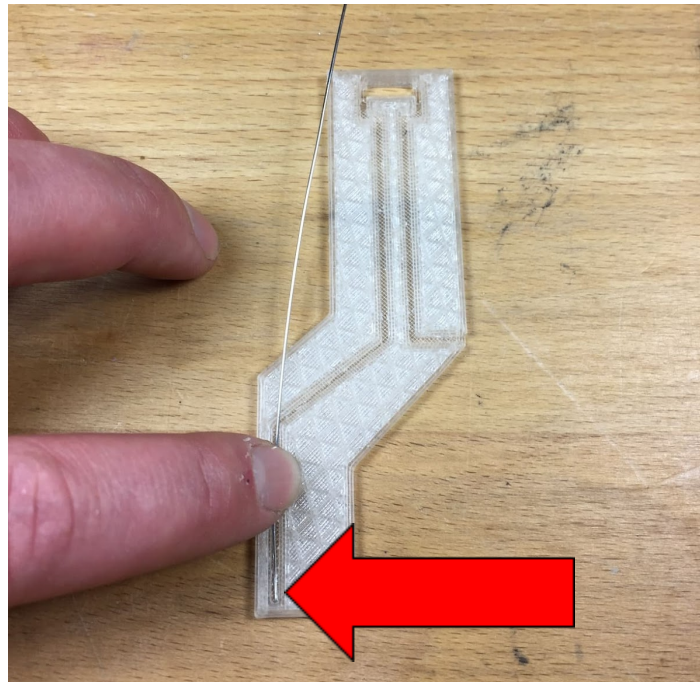
Tool: Combination Pliers/Flat Nose Pliers

Pull the wire straight. To do this, pinch the ends of the wire between two pairs of pliers and pull until a slight stretch is felt. Then the wire should be straight. Alternatively, one end of the wire can be clamped in a vise.



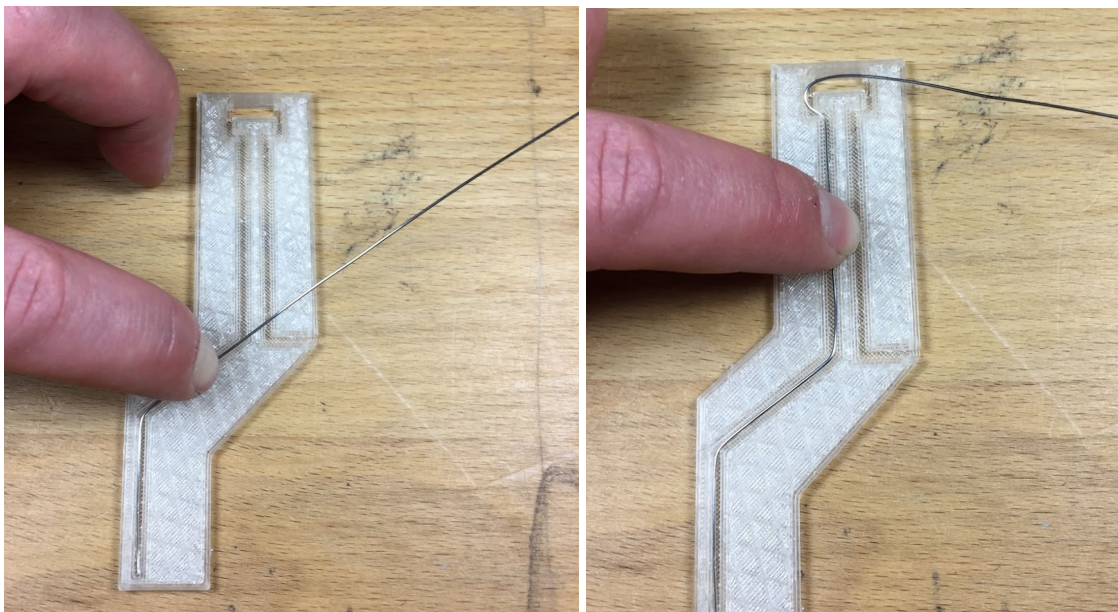
Step 6:

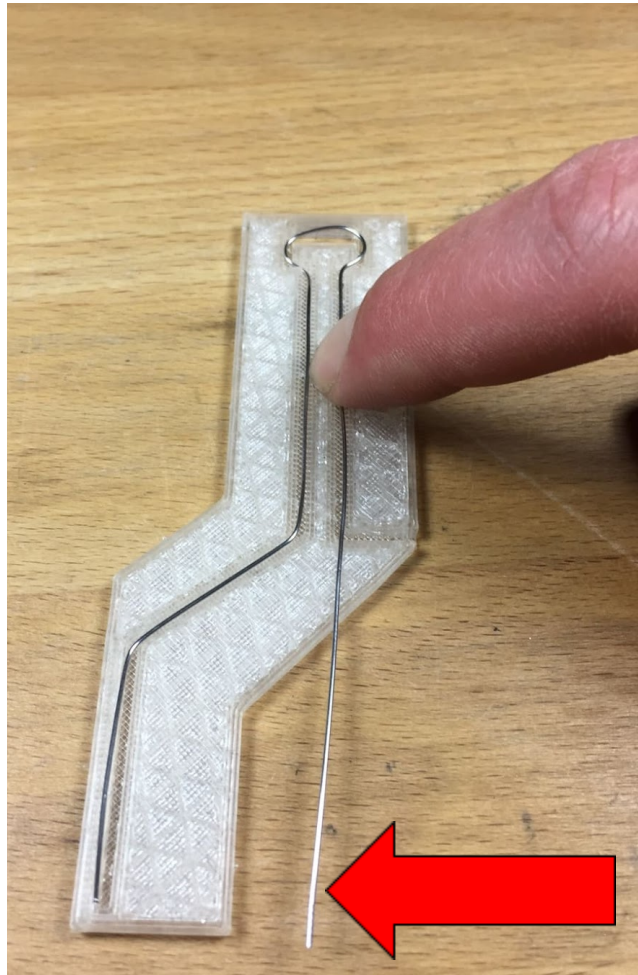
The wire is placed in the mold in the bending aid. See picture for starting point.



Step 7:

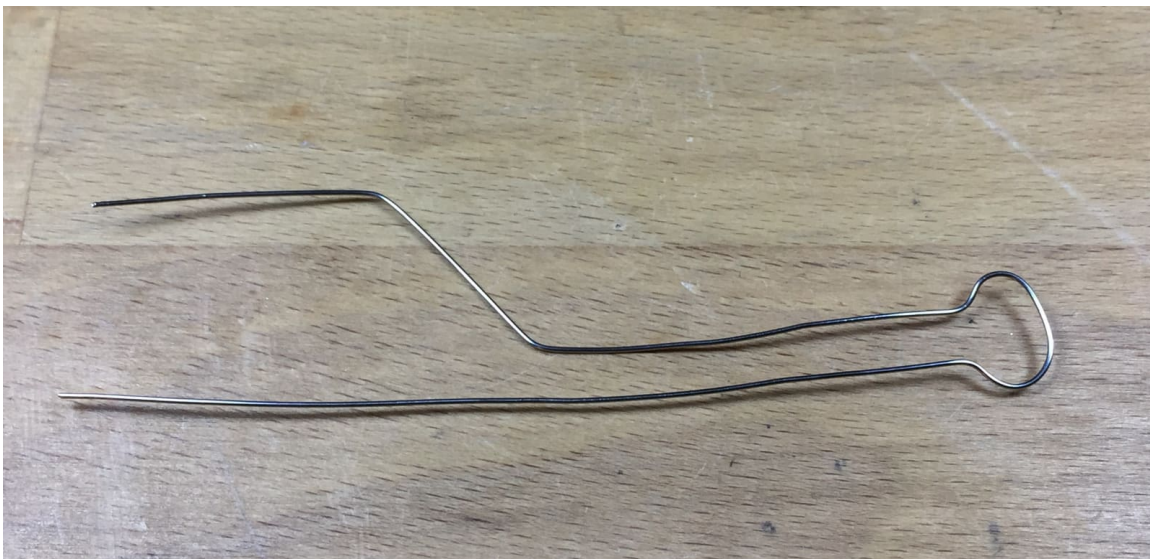
Now bend the wire along the shape. You can use needle-nose pliers to make the bends more precisely. End point see picture next page.





Step 8:

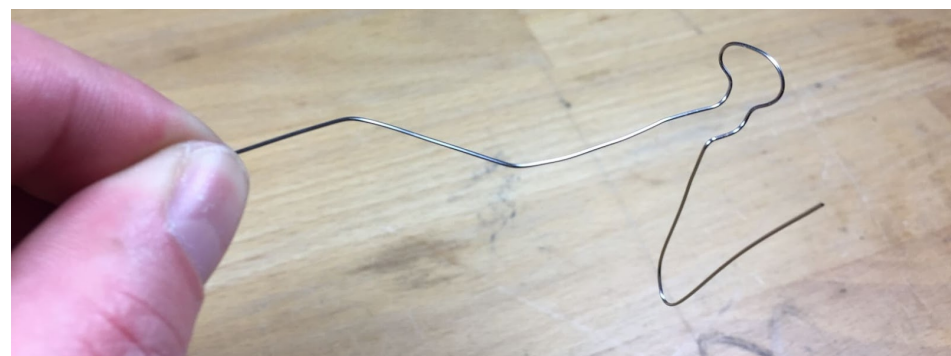
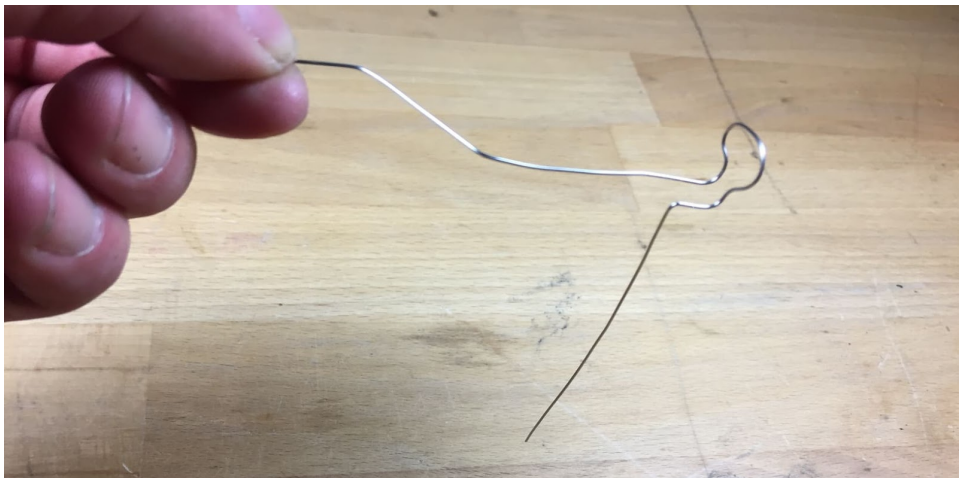
Remove the wire from the mold. This is how the wire should look now:



Step 9:

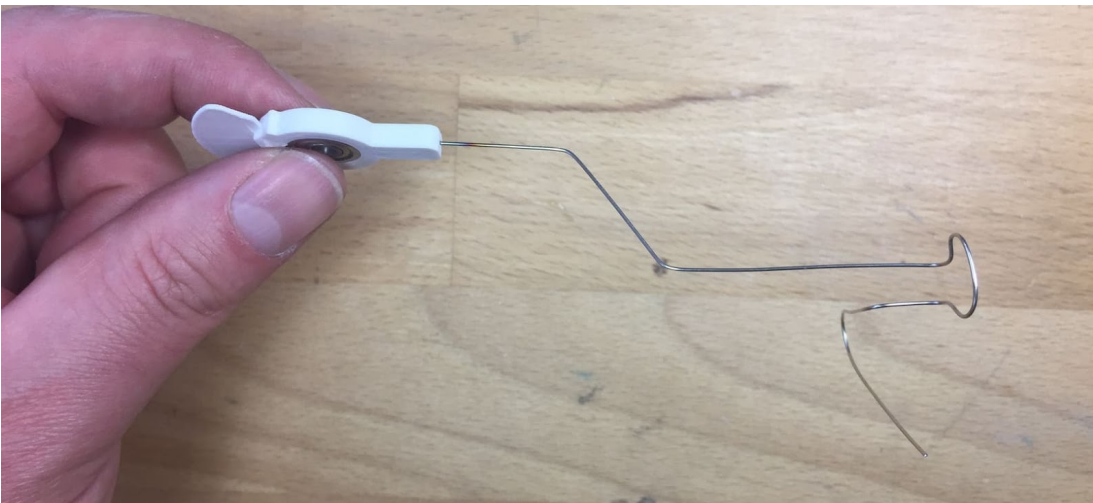
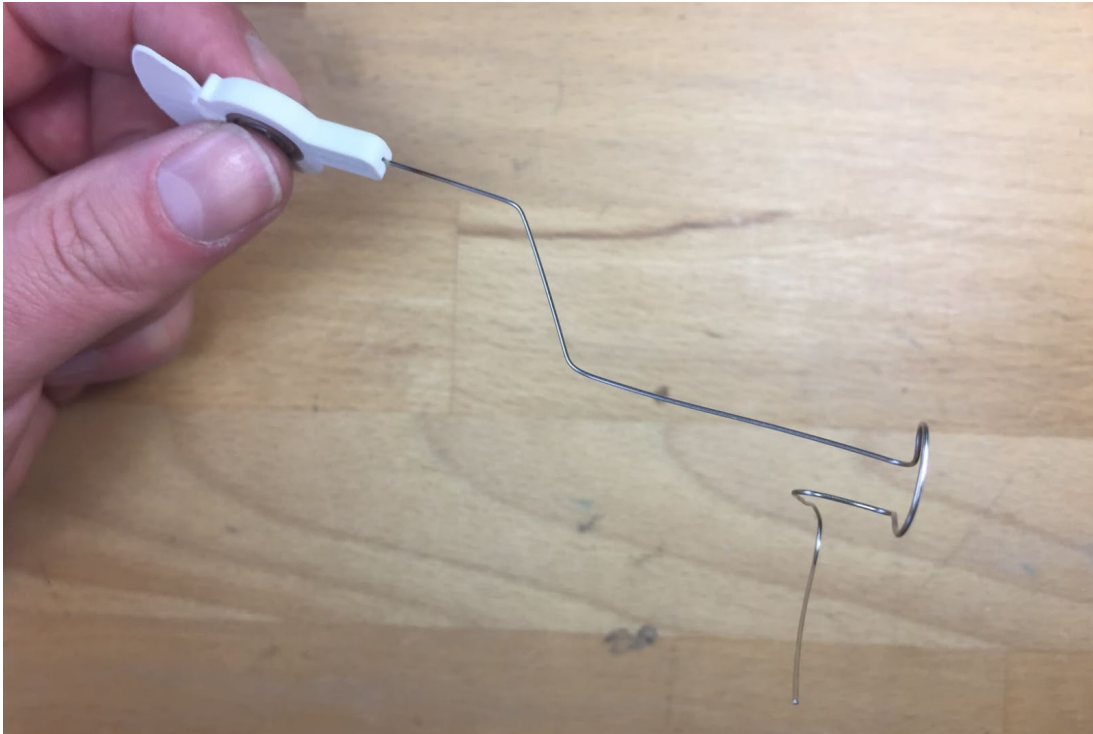
The eyelet-shaped piece is bent upwards at a 90° angle, see picture.

The end piece is bent down at a 90° angle and then a piece is bent up again, creating a V-shape. See pictures and image in the next step. This serves to hang a small weight at this point later if needed.



Step 10:

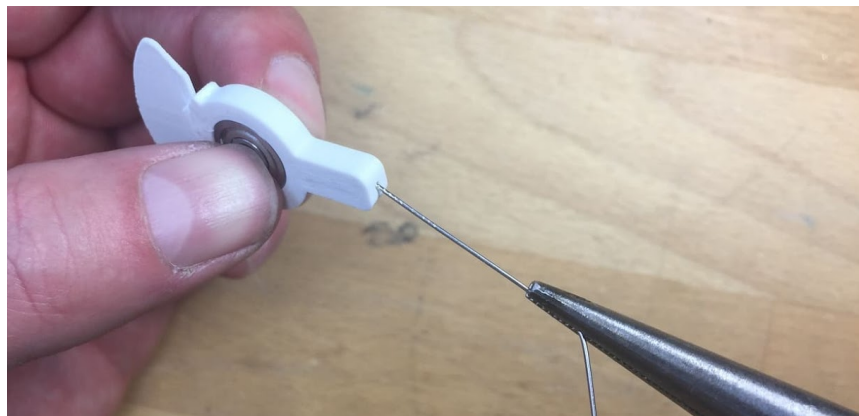
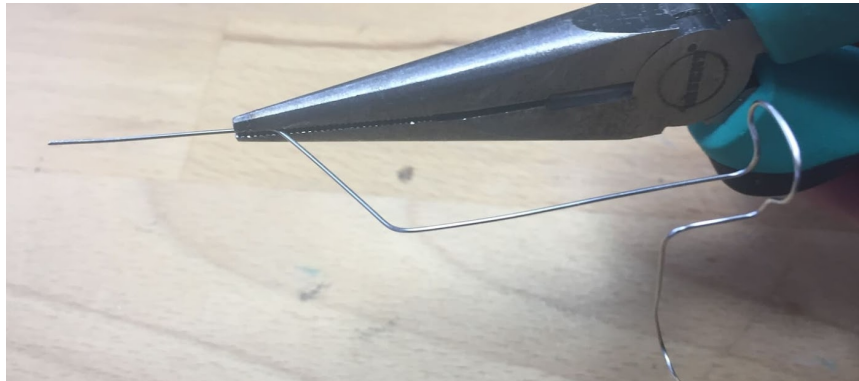
In the following steps, the wire is connected to the sensor arm. Before this is done, all parts must again be properly aligned. The sensor arm is aligned so that the thinner end of the shutter points upwards. The wire is aligned so that the eyelet shaped piece faces up. See pictures. How to make the connection follows in the next step.



Step 11:

Tools: needle-nose pliers, lighter

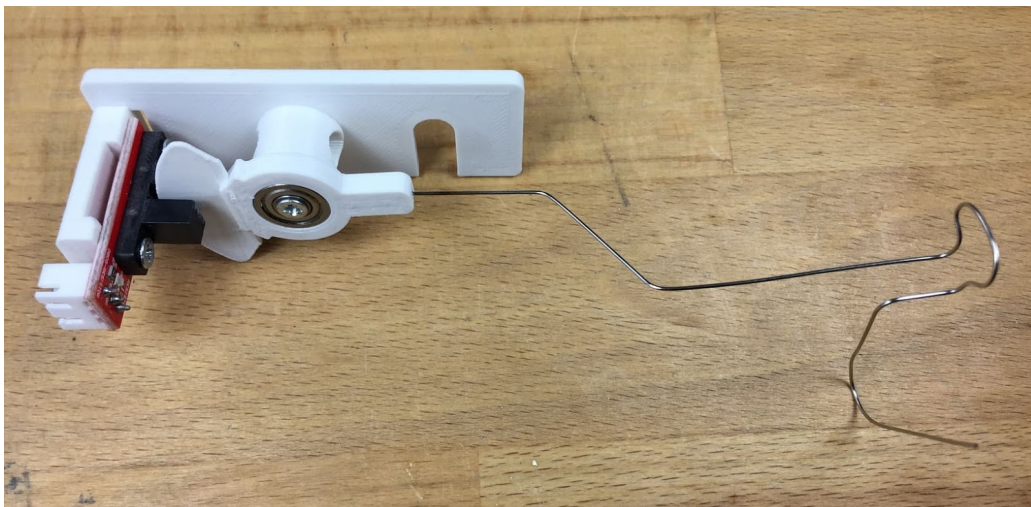
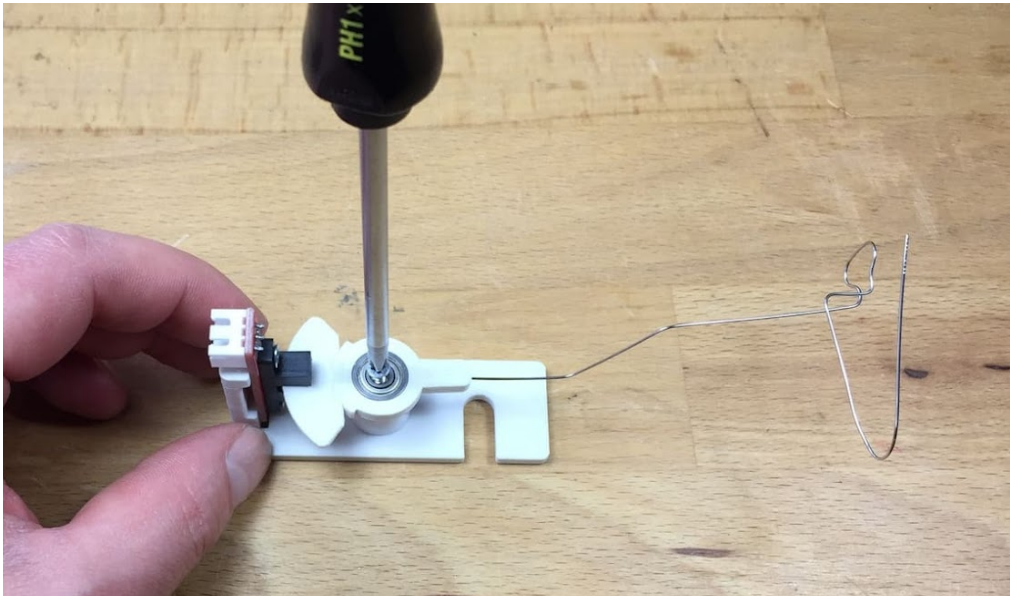
Hold the initial piece of wire with needle nose pliers. Leave about 15mm of wire protruding. Heat this protruding piece of wire with a lighter. Press the hot wire into the small hole in the sensor arm and hold it until it has cooled down. The wire should now be firmly glued. Caution: Be sure to align the sensor arm as explained in the previous step.



Step 12:

Tool: Phillips screwdriver PH1

Screw the sensor arm onto the sensor body with the wood screw. See picture for alignment. Then check if the sensor arm can be moved freely. If the shutter on the optical endstop is dragging, rework print parts.



Step 13:

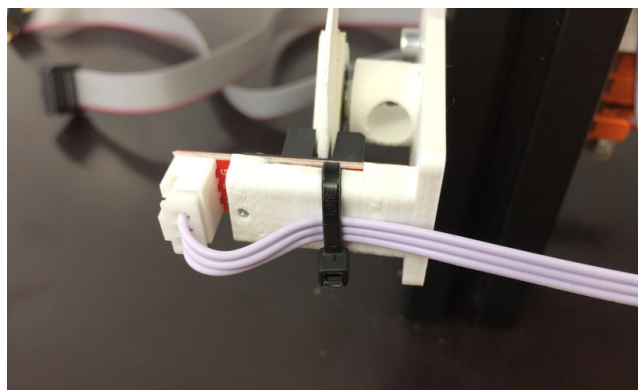
Place the sensor body on the sensor holder on the main frame.



Step 14:

Remove from package 2: 1x cable tie (SP11).

Reconnect the connection cable to the sensor and secure it against tensile load by pushing a cable tie into the slot between the optical limit switch and the sensor body and fastening it. (older image, reversed).



Done:

Now continue with assembly instructions "09-Puller assembly".