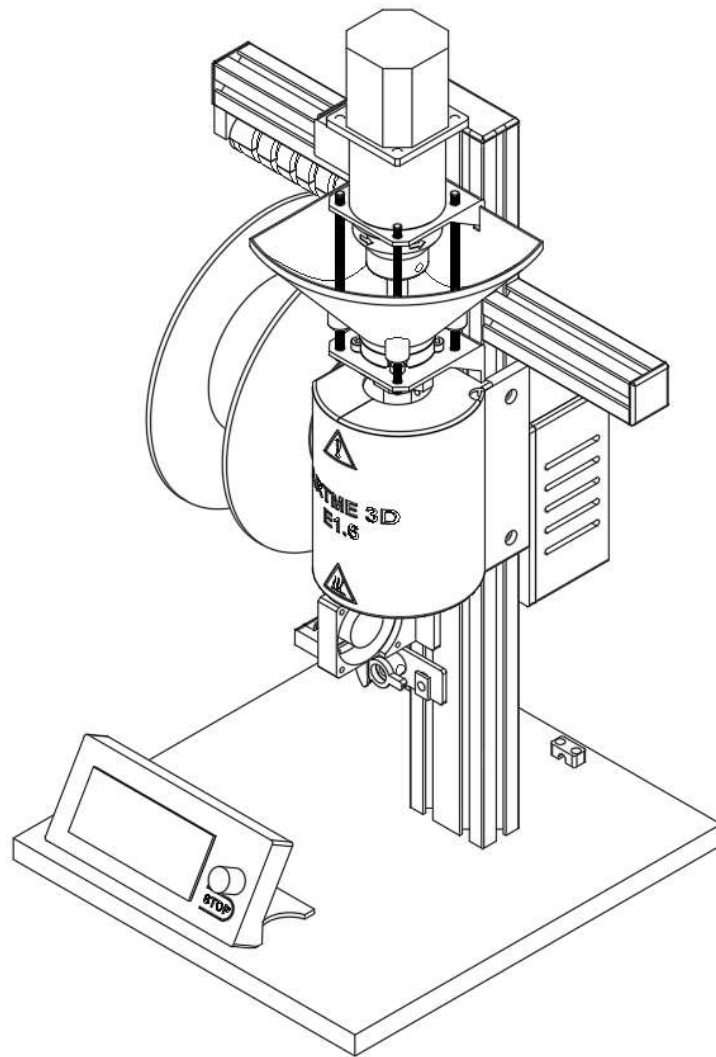


# 08 Sensor (optical) assembly

## Assembly instructions

Original Desktop Filament Extruder E1.6 by ARTME 3D

Version 04.01.2022





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### **Required tools for this assembly section:**

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

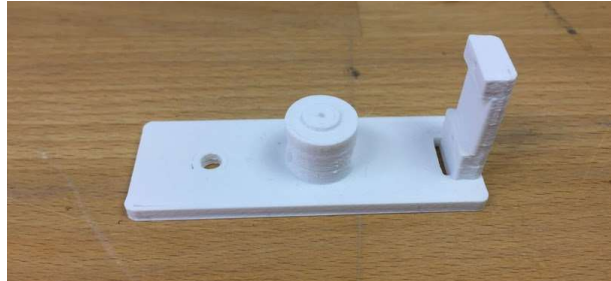
### **Overview packages**

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:

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3D Printing: Sensor Body SO02

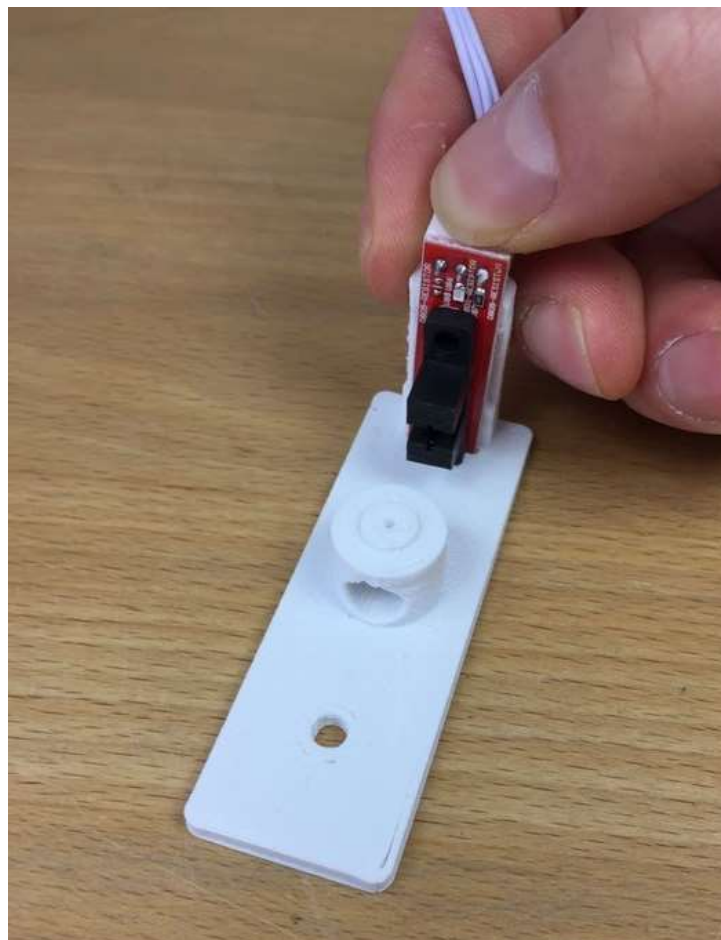


## Step 2:

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Remove from package 5/already mounted: EL05 Optical limit switch.

Hold the sensor against the sensor holder. See picture. Remove connector for better handling.



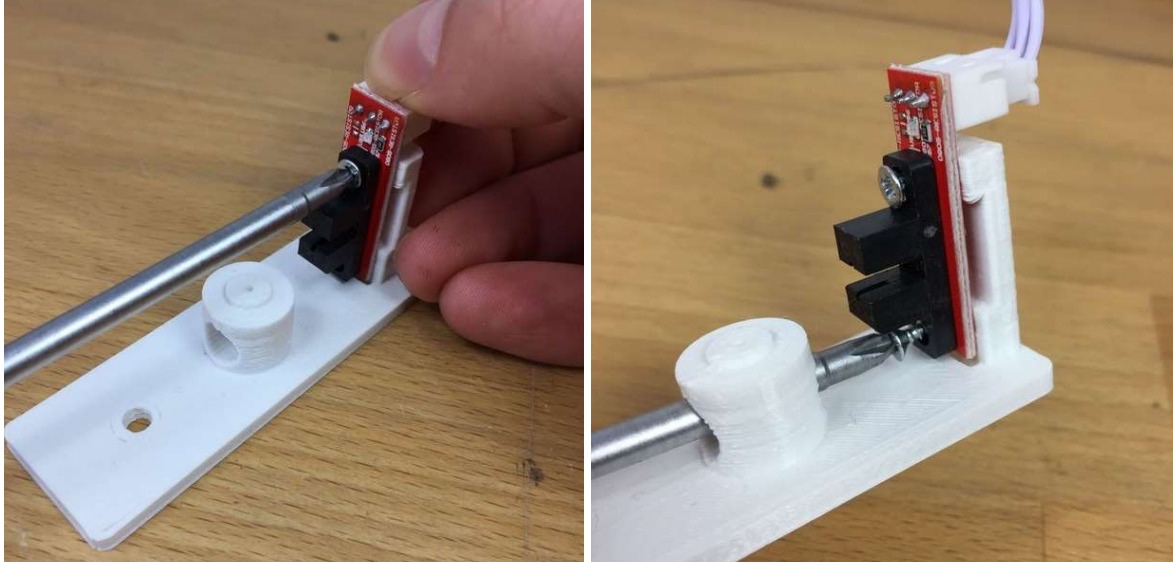
## Step 3:

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Remove from package 1: 2x wood screw 2.5x12 (SC01)

Tool: Phillips screwdriver PH1

Fasten the sensor with two wood screws 2.5x12. See picture.



## Step 4:

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3D printing:

Sensor arm SO03, sensor shutter SO04

Remove from package 2: Ball bearing 4x12x4 (SP10)



## Step 5:

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Tool: Vise, 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.

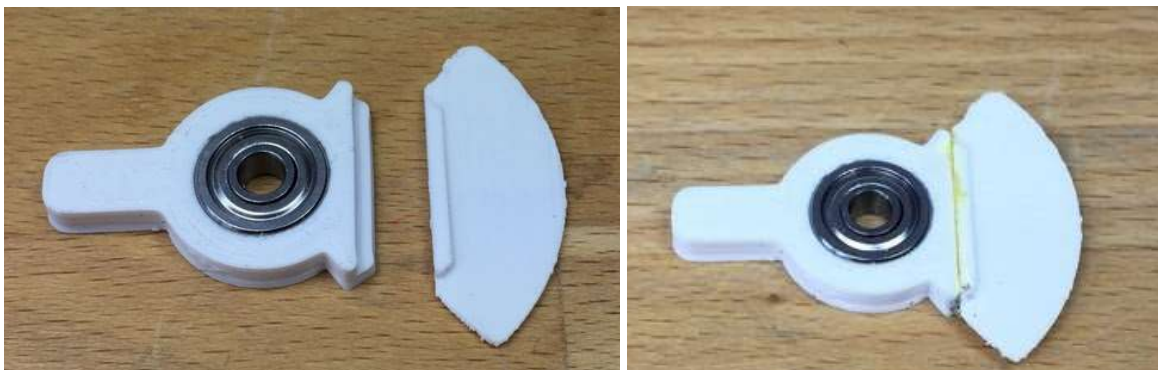


## Step 6:

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Tool: Superglue

Alignment of the shutter before mounting. Important: The shutter must be aligned as shown in the picture. The shutter lies flat. The small recess points upwards. The sensor arm lies flat with the small recess pointing upwards. Then glue the shutter to the sensor arm in this orientation. Hold the parts in this position until the adhesive is firm. The shutter must not bend during drying. (The shape of the parts is slightly different in the latest version, but the assembly is identical).

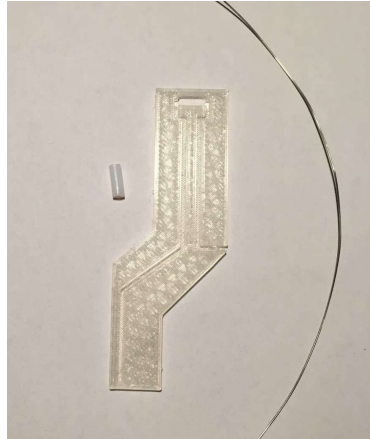


## Step 7:

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3D Printing: Bending aid SO05

Remove from package 2: Wire 0.6x210mm SP09, PTFE tube piece 4x2x10 (SP08)



## Step 8:

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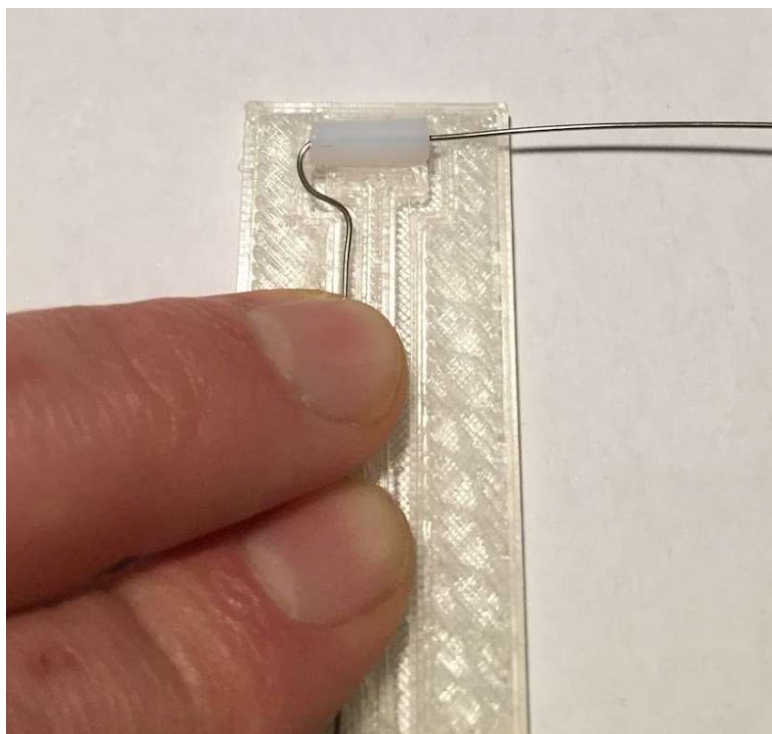
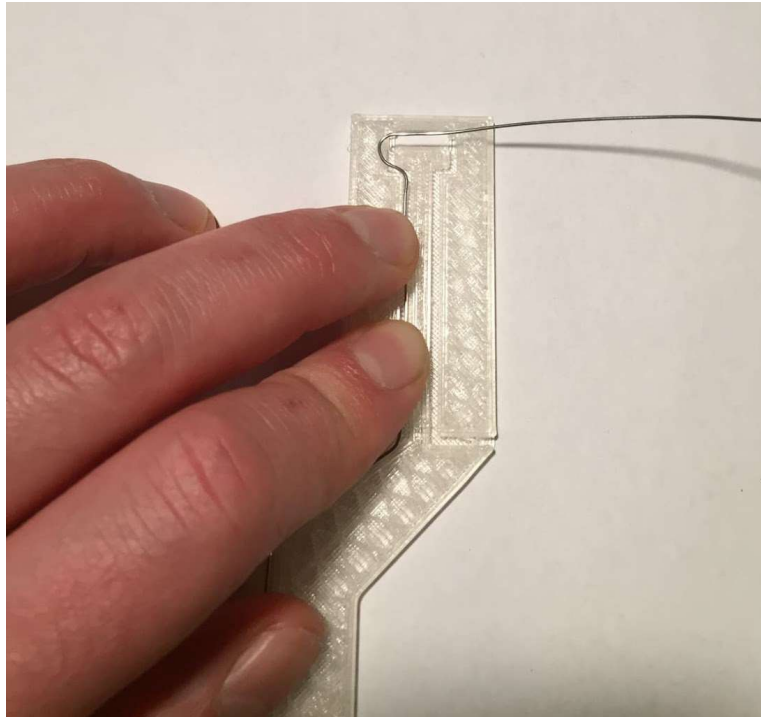
The wire is placed in the mold in the bending aid. See picture for starting point.



## Step 9:

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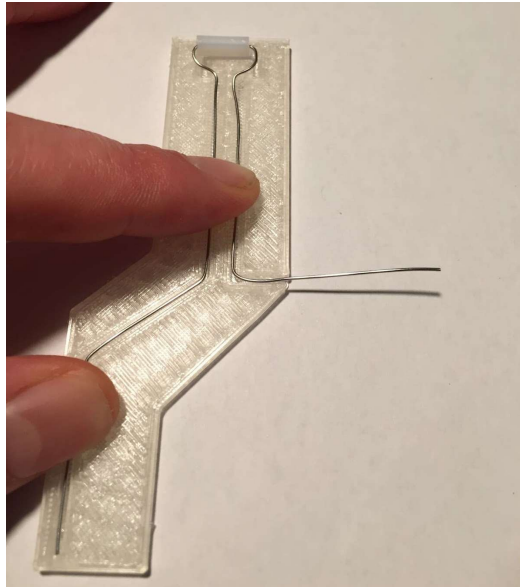
Now bend the wire along the shape to the following point (See picture). You can make the bends more precisely with needle-nose pliers. Then put the short piece of PTFE tube on the wire and place it in this position.



## Step 10:

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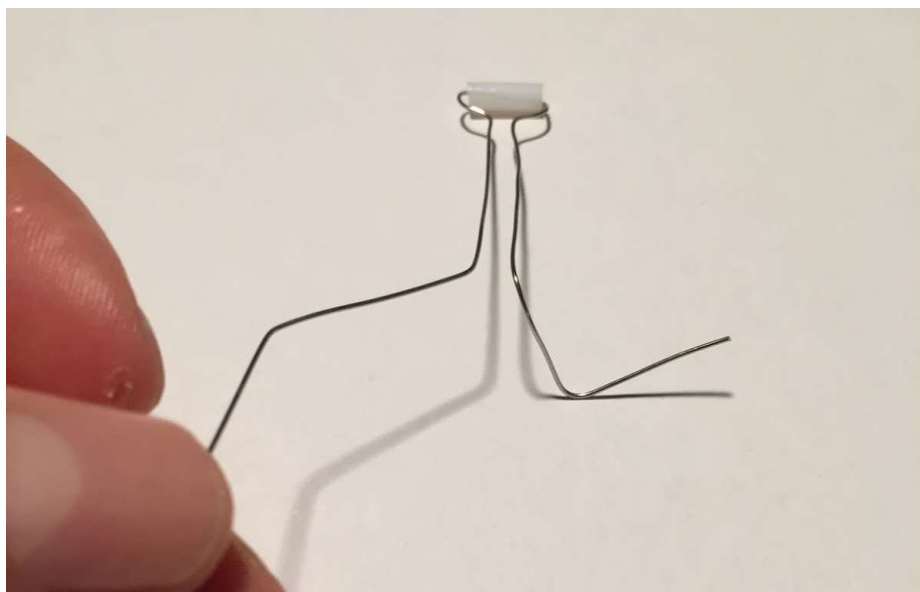
Now the wire is bent along the form to the end. The end protrudes beyond the mold.



## Step 11:

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The protruding end is bent down and a piece bent up again, so that a V-shape arises. This serves to hang a small weight at this point later if necessary.



## Step 12:

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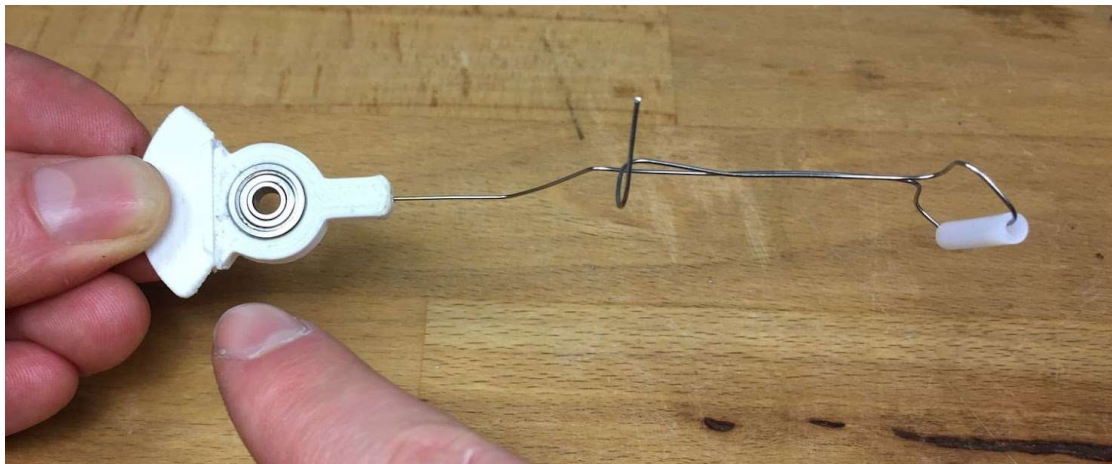
The piece with the short PTFE tube is bent down a little, see picture.



## Step 13:

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In the following, 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 thicker end of the orifice plate points downwards. The wire is aligned so that short piece of PTFE tube is rotated 90 degrees to the sensor arm. See pictures. How to make the connection follows in the next step.

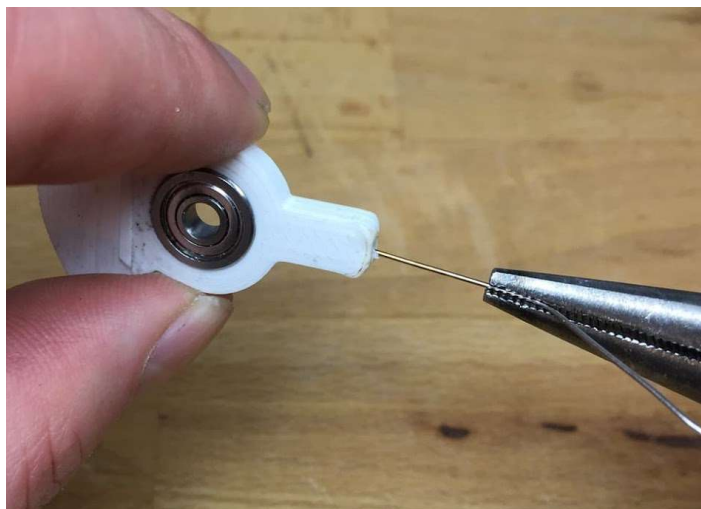
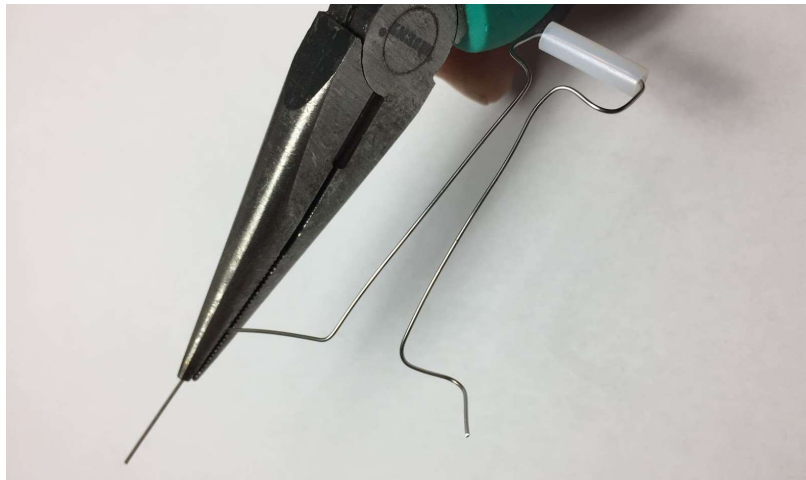


## Step 14:

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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.



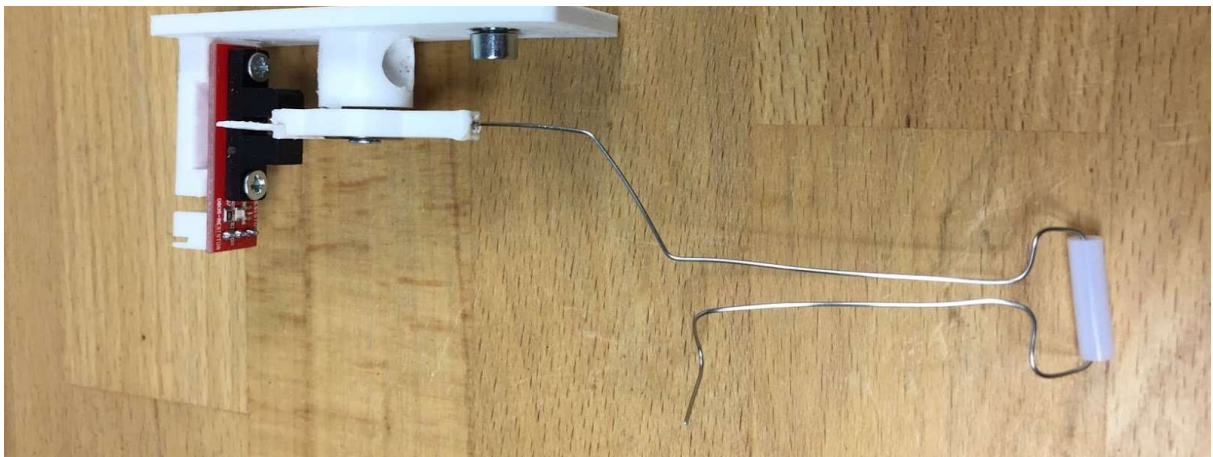
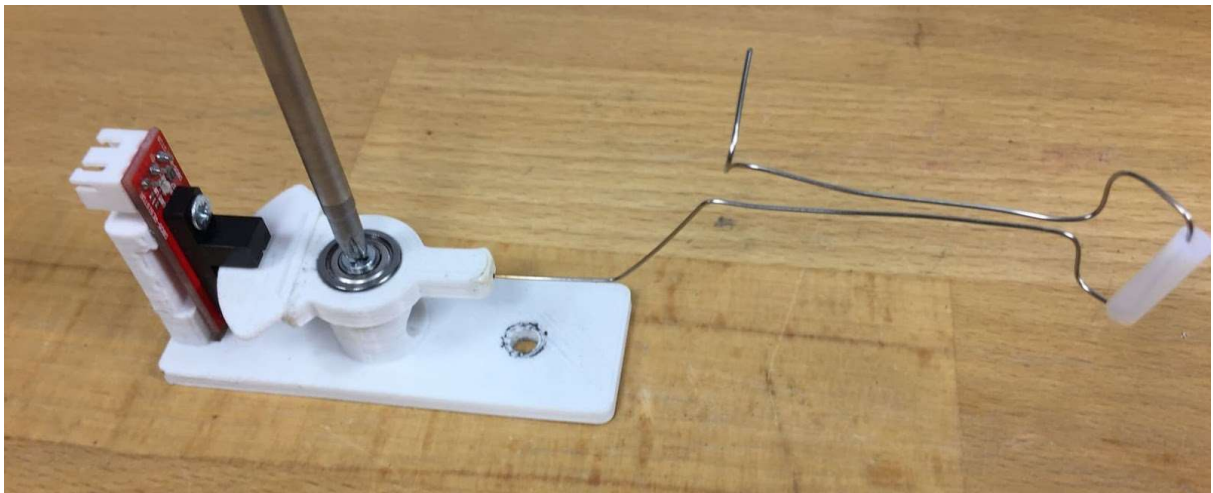
## Step 15:

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Tool: Phillips screwdriver PH1

Remove from package 1: Wood screw 2.5x12 SC01

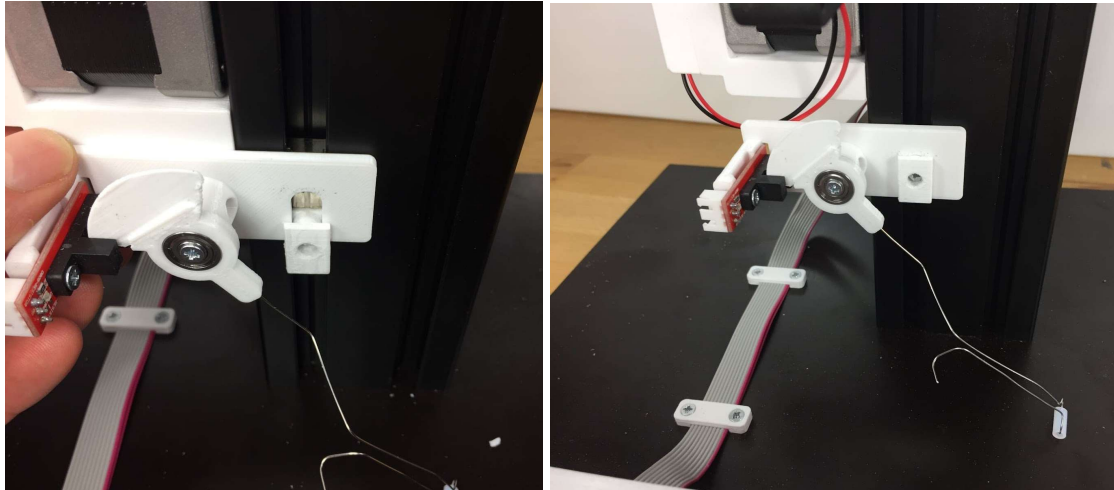
Screw the sensor arm onto the sensor body. Then check if the sensor arm can be moved freely. If the orifice on the optical limit switch should drag, rework pressure parts.



## Step 16:

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



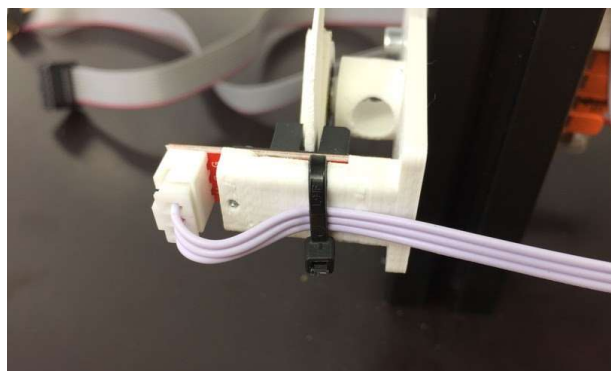
## Step 17:

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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:

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