

OMNI^{3D}

OMNI^{PRO}

SERVICE MANUAL



VERSION 1.0
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1. Introduction

Information about this service manual:

Important Information:

Reading and understanding the Omni PRO Printer Service Manual and following all safety precautions is essential before attempting any repairs or making any changes to the printer.

Printer Model:

This manual contains service information for the OmniPRO printer

User Responsibilities:

The manufacturer of the printer hereby provides the user with this manual and provides basic training in the operation of the printer. It is the user's responsibility to follow all rules in the manual, and to ensure that those operating the printer have been trained by the vendor's personnel, under penalty of voiding the warranty.

Device maintenance:

The OmniPRO printer has components capable of reaching high temperatures. For this reason, use extreme caution when performing repairs. Disconnect the printer from the power supply before attempting repairs.



Warning! - A message about a very important piece of information to pay particular attention to.



Tip! - This information occurs before information which can speed up or ease work.

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Disclaimer



Caution! The manufacturer reserves the right to change the printer design and make relevant changes in the technical documentation without prior notice to the customer to upgrade the machine according to technological development. Therefore, the information provided in this document and all other documents or help systems associated with this documentation are subject to change.



Caution! No part of this operating manual may be copied, transmitted, stored in an information retrieval system, or translated into another language in any other form and with the use of carriers (mechanical, electronic, photocopy, recording and other) without explicit written consent granted by OMNI3D Sp. z o.o

2. Maintenance Schedule

2.1 Maintenance performed by user

Working time [h]*	Print time [h]*	Maintenance and service activities
100	100	Cleaning fan filters, checking and topping up coolant
	200	Cleaning the build platform Cleaning the inside of the printer
	300	Lubrication of the X and Y axis carriages
500		Replacing carbon/HEPA filters
1000		Checking the build chamber fans Checking the printer fans Cleaning the X and Y lead screws Checking the tightening of the lead screw mounting screws and nuts

*Worktime and print time value can be read on LCD screen in *Settings>About*

Table 1 User maintenance schedule

2.2 Maintenance performed by authorised service

These activities are also chargeable during the warranty period. Failure to carry out these activities during the warranty period is considered a voiding of the warranty.

Working time [h]*	Print time [h]*	Maintenance and service activities
	2000	X, Y axis cleaning, electronics chamber cleaning, nozzle replacement, extruder belt replacement, servo replacement, extruder cable replacement, X motor cables replacement, extruder carriage lubrication, filter replacement (if necessary), X axis accordion cover replacement
	4000	Replacement of the Y-axis accordion cover, replacement of the chamber heater fan motor, replacement of the X and Y-axis clutches, maintenance 2000 h
	6000	Replacing Bowden tubes Replacing printer cooling fans, cleaning brush replacement + 2000 h maintenance
	8000	Maintenance 4000 h + maintenance 2000 h
10000	10000	Coolant replacement, cooling pipe replacement, radiator fan replacement, Z-axis lead screw lubrication, electronic fan replacement, Z-axis clutch replacement + 2000 h maintenance
300000		Replacing the 24V power supply

*Worktime and print time value can be read on LCD screen in *Settings>About*

Table 2 Authorized service maintenance schedule

First and subsequent inspections:

1. 2000h
2. 4000h+2000h
3. 6000h+2000h
4. 8000h=2000h+4000h
5. 10000h+2000h
6. 12000h=2000h+6000h
7. 14000h=2000h+4000h
8. 16000h=2000h+6000h
9. 18000h=2000h+4000h
10. Etc.

3. Maintenance after every 2000 print time hours.

3.1 Extruder Belt replacement.



Required tools: 2 mm Hexwrench

Step 1: Turn off the printer

Step 2: Remove extruder cover

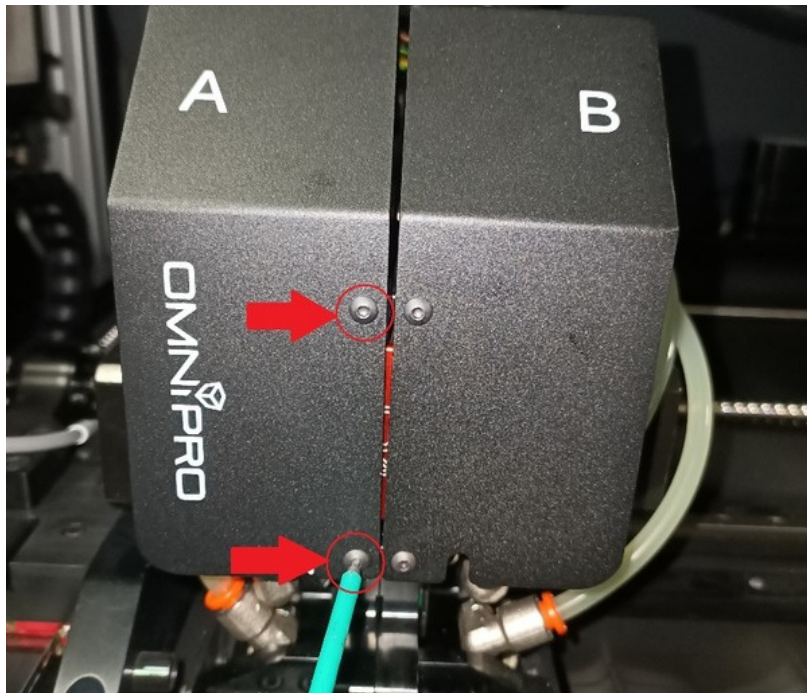


Figure 1 Removing extruder cover

Step 3: Remove tension from the belt tensioner

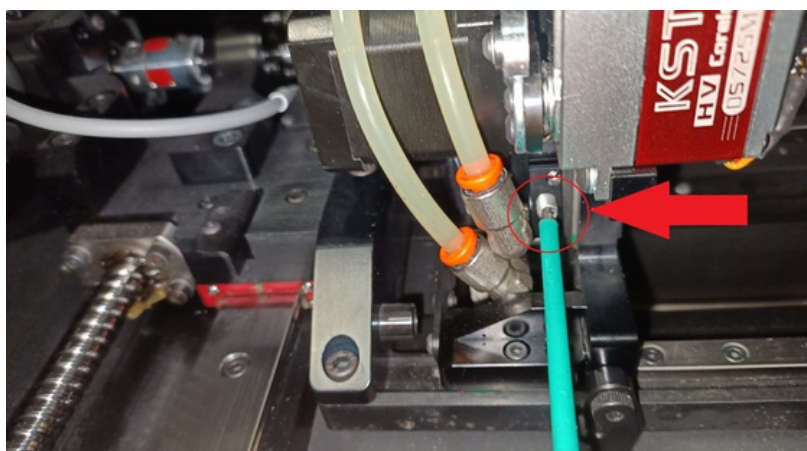


Figure 2 Removing tension from the belt

Step 4: Spread extruder halves

Step 5: Slide belt out of the gears

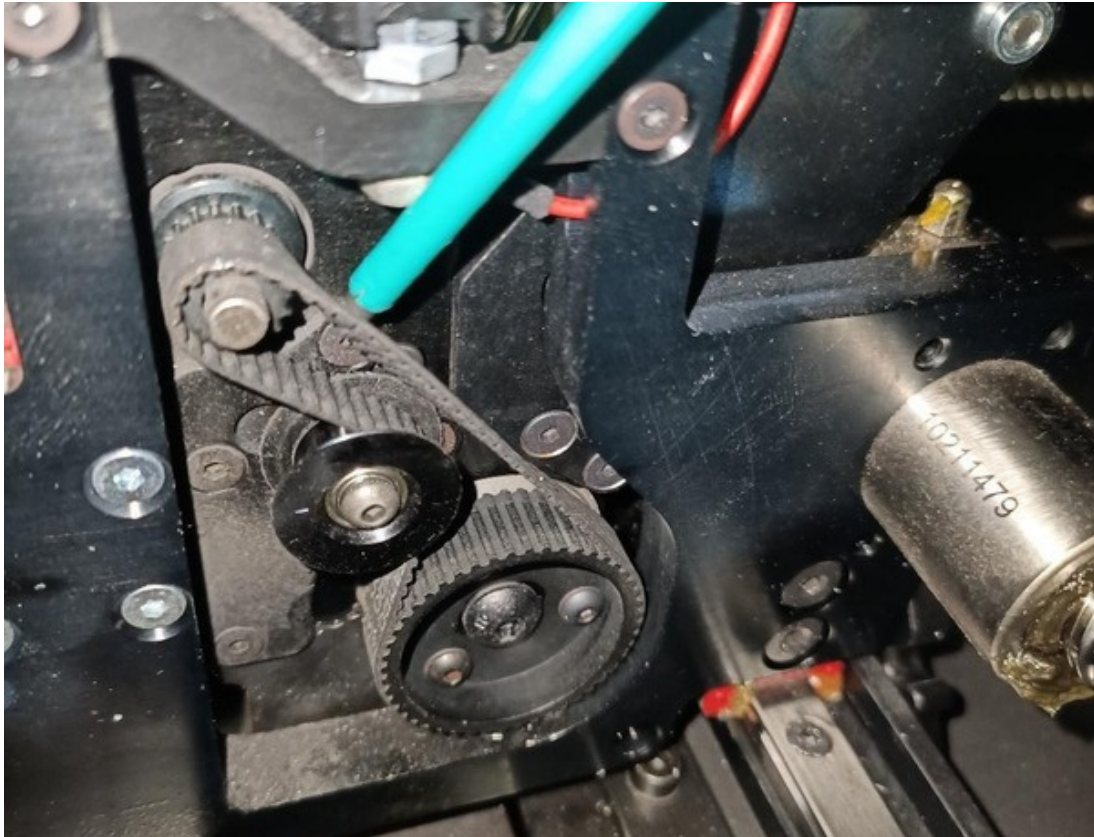


Figure 3 Removing belt

3.1.1 Reassembly procedure

It is done in the reverse order of disassembly.

3.2 Extruder cable replacement

Tools required: Allen wrench 2 mm, cutter
Parts required: Extruder cable

Step 1: Turn off the printer

Step 2: unscrew the screws holding the A extruder cover

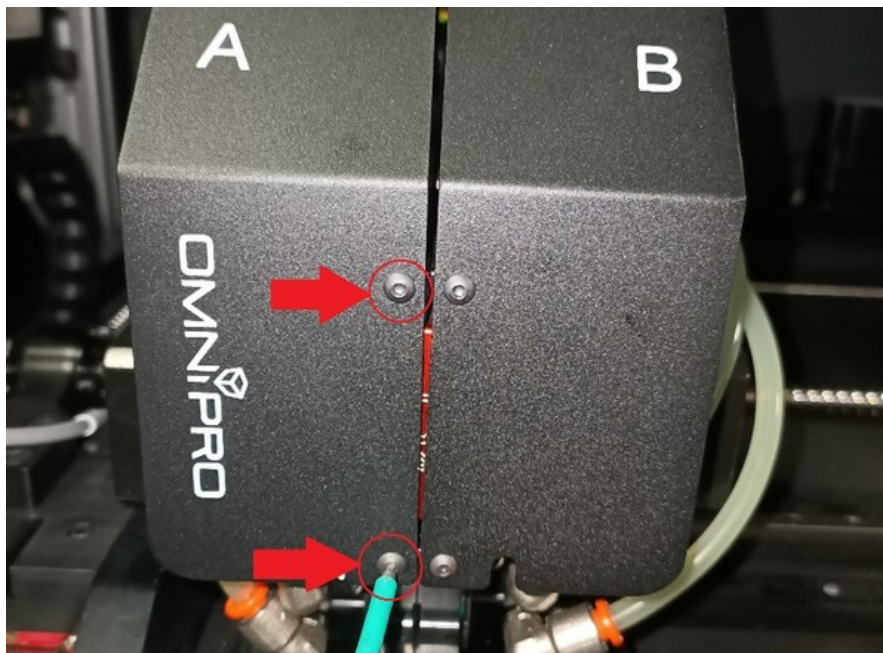


Figure 4 Removing extruder cover

Step 3: Disconnect extruder cable

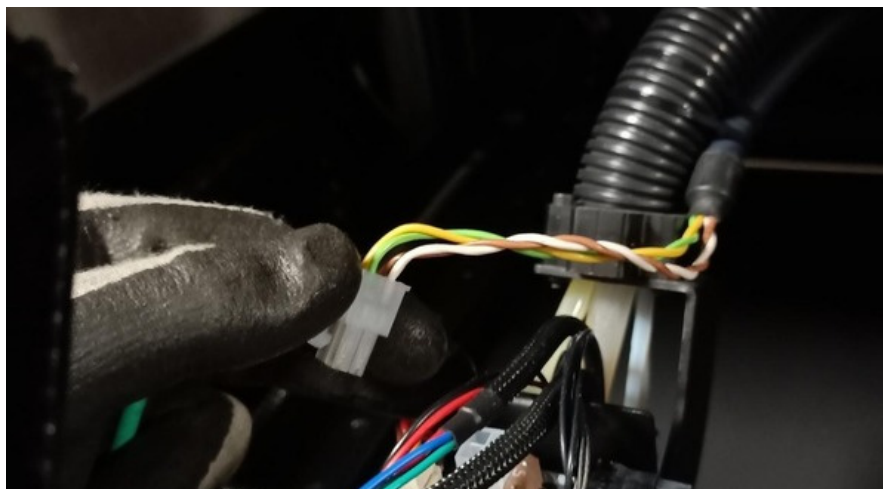


Figure 5 Unplugging extruder cable

Step 4: Cut zip ties holding the cable.



Figure 6 Cutting Zip ties

Step 5: Disconnect extruder cable in filament changer chamber.



Figure 7 Disconnecting extruder cable

3.2.1 Reassembly procedure

It is done in the reverse order of disassembly.

3.3 Servo replacement



Tools required: Allen key 2 mm, 2,5 mm

Parts required: Servo PN00775.

Step 1: Turn off the printer

Step 2: Demount HEAD board cover.

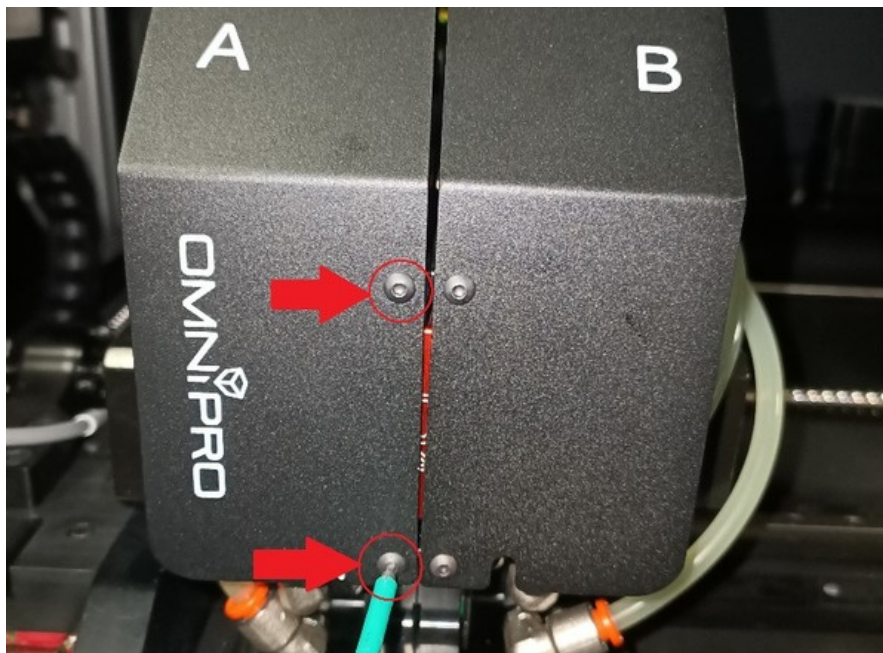


Figure 8 Removing extruder cables

Step 3: Disconnect servo cable.



Figure 9 Servo socket on HEAD board

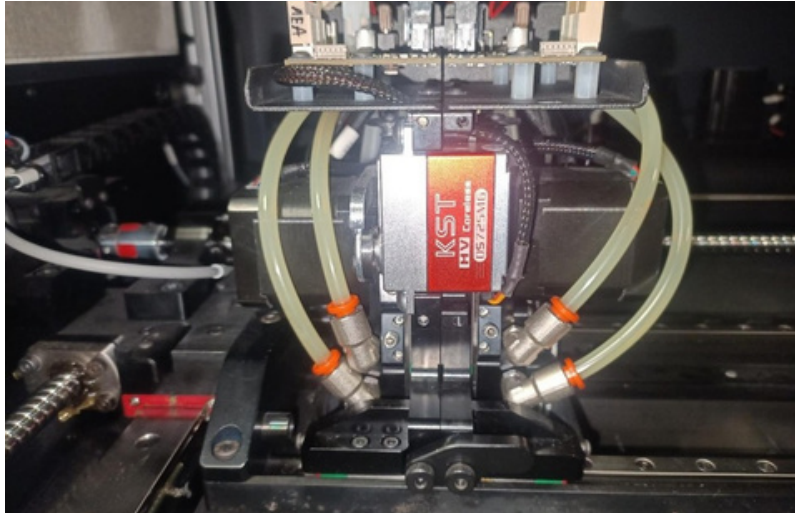


Figure 10 Servo

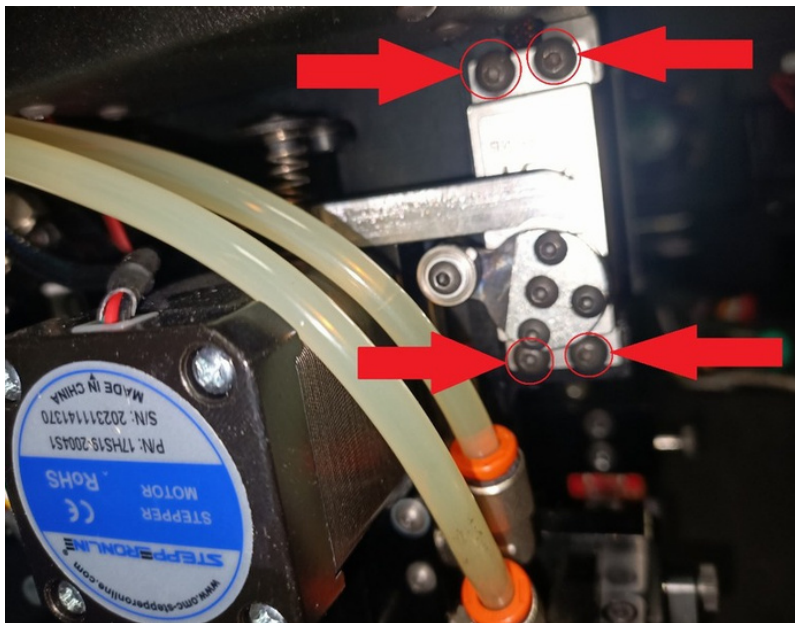


Figure 11 Screws holding servo

Step 4: Remove screws holding servo and take the servo out.

3.3.1 Assembly

Step 1: Rotate both servo's shafts so that they are in the same extreme position. Next mount the arm just like in the old servo.

Step 2: Screw servo to its mount.

Step 3: Connect the servo's cable.

Step 4: Mount HEAD board cover.

3.4 X Motor cables replacement



Tools required: Allen wrench 2, 2,5mm.

Parts required: X motor cables set

Step 1: Turn off the printer

Step 2: Disconnect engine's wires.



Figure 12 Disconnecting X motor cables

Step 3: Twist cable chain to disconnect it.



Figure 13 Disconnecting cable chain

Step 4: Remove screws holding the driver board's cover.

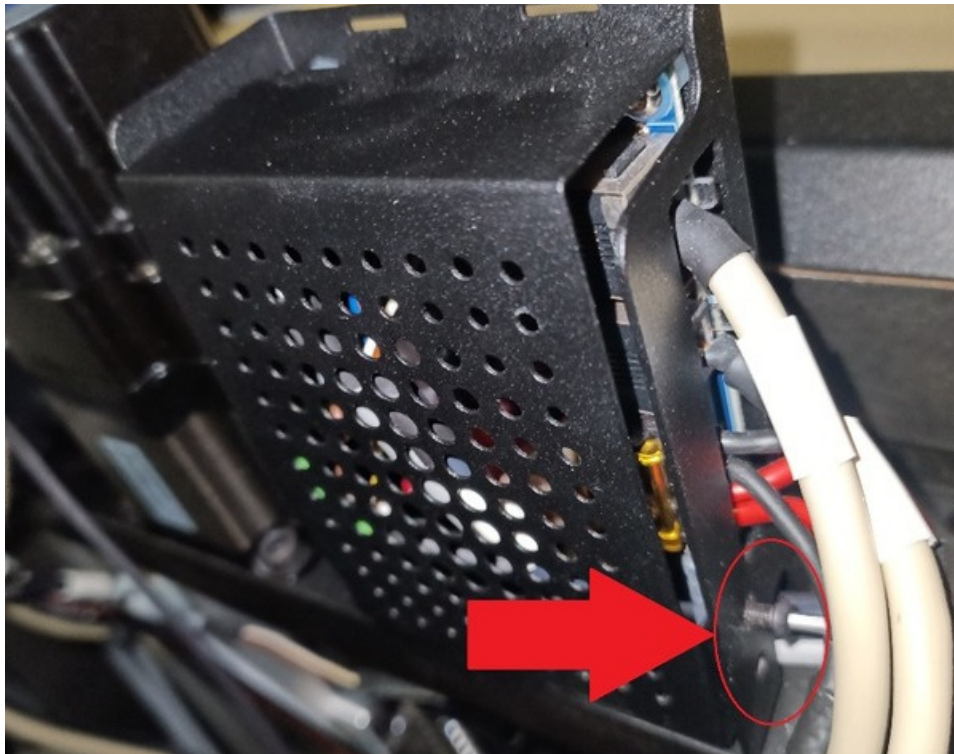


Figure 14 Removing driver board's cover

Figure 4: Unplug 3 cables pointed in the picture.

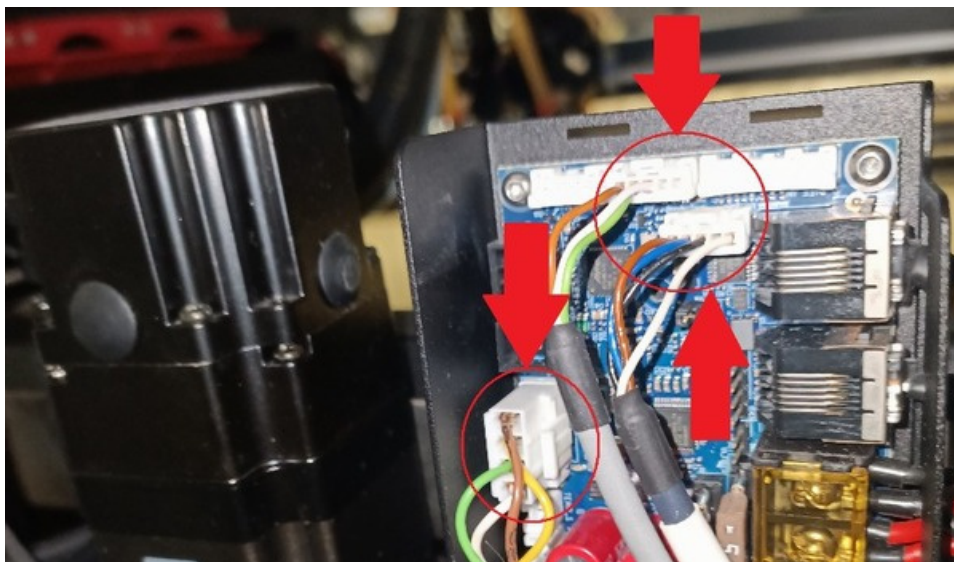


Figure 15 Disconnecting cables

3.4.1 Reassembly

Reassembly should be done in reverse order.

3.5 Extruder carriages lubrication



Required tools: Allen key, 2 mm.

Required parts: lubrication set PN005TM



Figure 16 lubrication set PN005TM

Extruder carriages lubrication.

Extruder carriages should be lubricated every 2000 print time hours. If the extruders do not move freely, they may jam in random positions which will interfere with the printing process. The lubrication tip should go about 5mm into the lubrication hole. Then apply approximately 0.2ml of grease to each carriage. The capacity of the syringe is 1ml, so the amount of grease should be sufficient for greasing two carriages two times.

After the lubrication process is complete, check manually if the extruders move freely in the whole range of their motion.

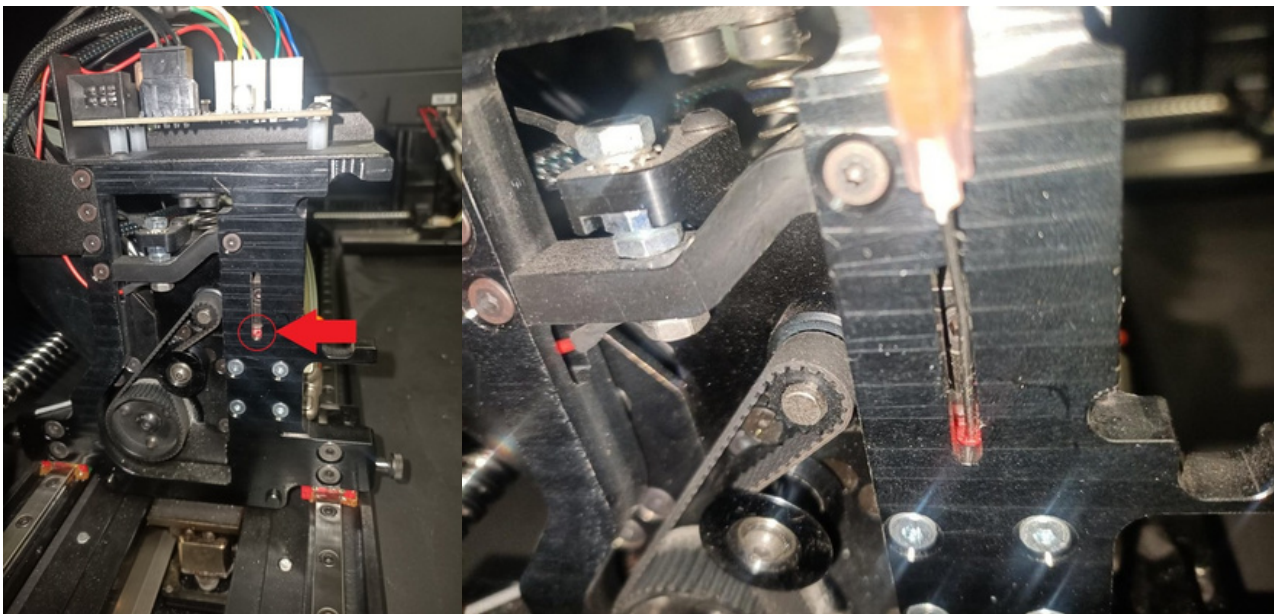


Figure 17 Extruder carriages and their lubrication ports. Figure 18 Extruder carriages lubrication

3.6 Filter replacement

To replace the filter, open two latches holding the filter



Figure 19 Extruder carriages and their lubrication ports

3.7 X axis accordion cover replacement



Tools required: Allen key 2 mm

Parts required: 2x X axis accordion cover

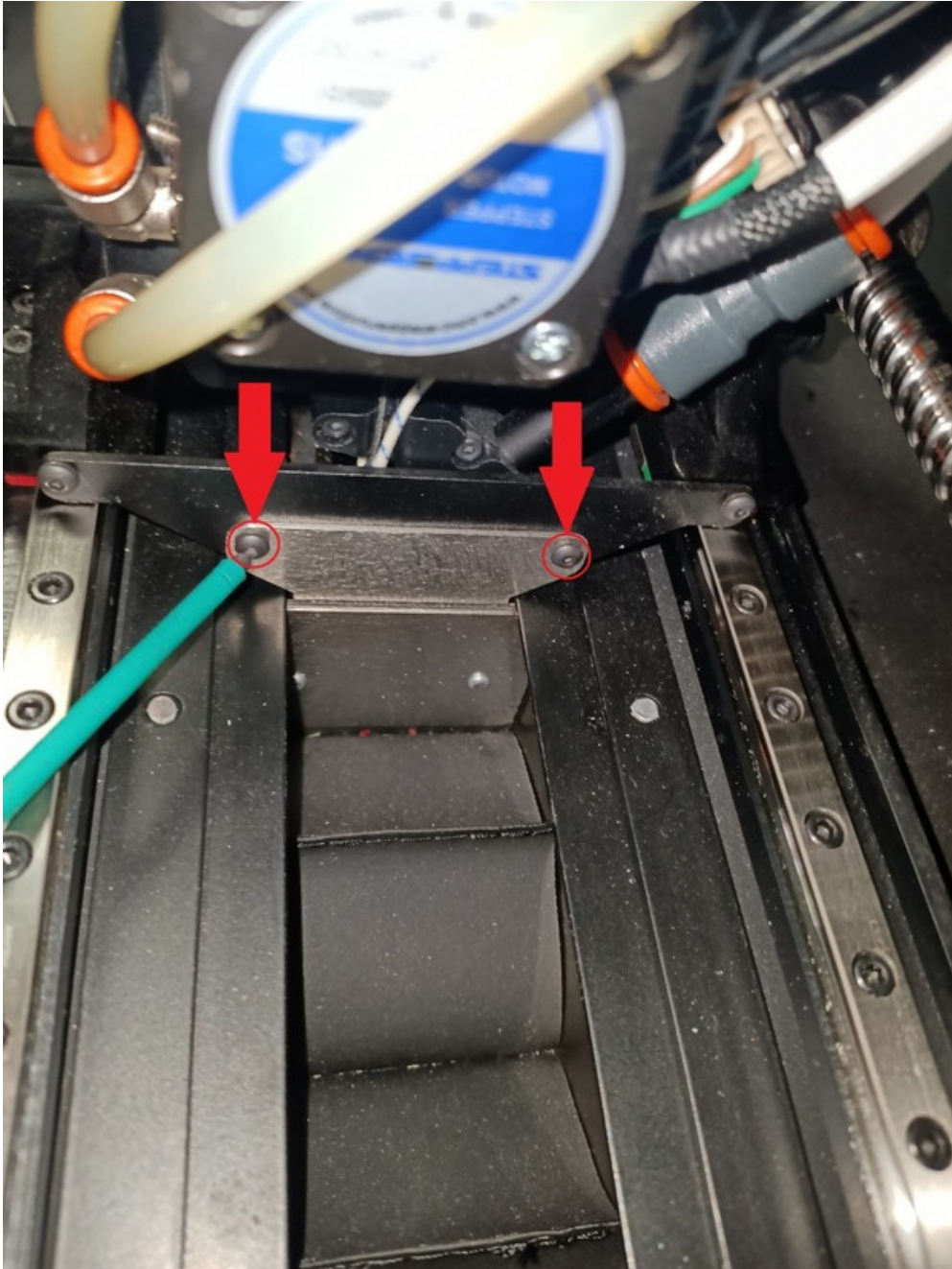


Figure 20 Extruder carriages and their lubrication ports

4. Maintenance after every 4000 print time hours

4.1 Bowden cable replacement



Required tools: no

Tools needed: Filament Bowden cables set.

Step 1: Press down on the orange socket (shown below) and pull the bowden at the same time. The bowden should be disconnected from both the head and the filament flow sensor located in the filament chamber. The blue bowden goes to the left extruder and the banners go to the right extruder.

Step 2: Connect the new bowden to the old one using adhesive tape.

Step 3: Pull the new bowden by dragging the old one.

Step 4: Disconnect the bowden and remove the adhesive tape.

Step 5: Connect the new bowden by pushing its tip into the orange socket. Check that the bowden is properly attached by pulling on it.

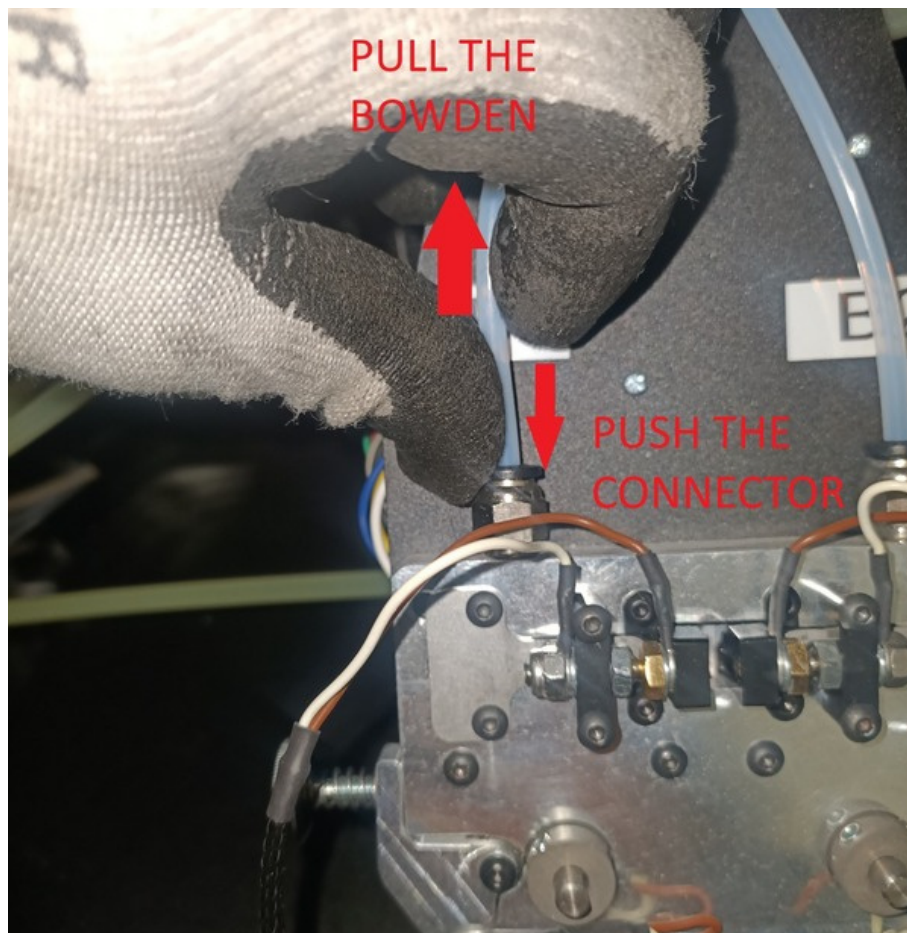


Figure 21 Bowden cable removal

4.2 Heater's fan engine replacement



Tools required: Allen wrench: 2,5, 3, 4 mm, lift.

Parts required: heater's fan engine

Step 1: Turn off the printer and remove power cables.

Step 2: Remove the heater's cover.

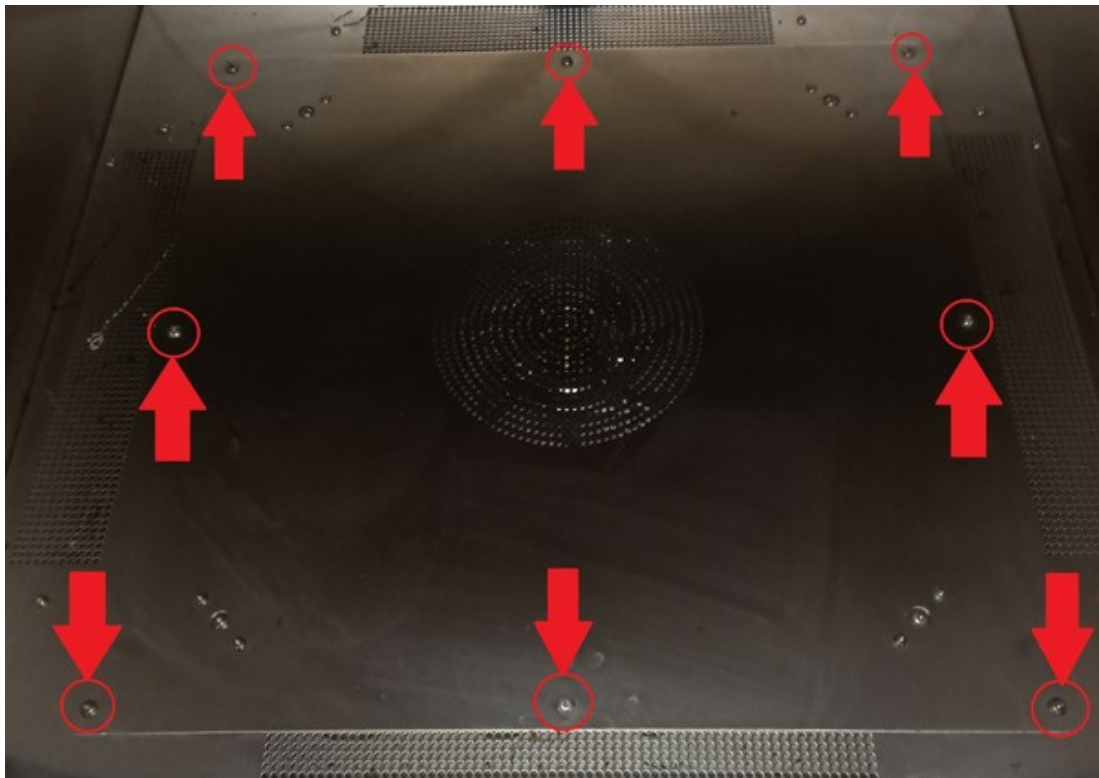


Figure 22 Heater's cover



Figure 23 Proper securing of the printer

Step 3: Remove the fan.



WARNING! Fan has anticlockwise thread

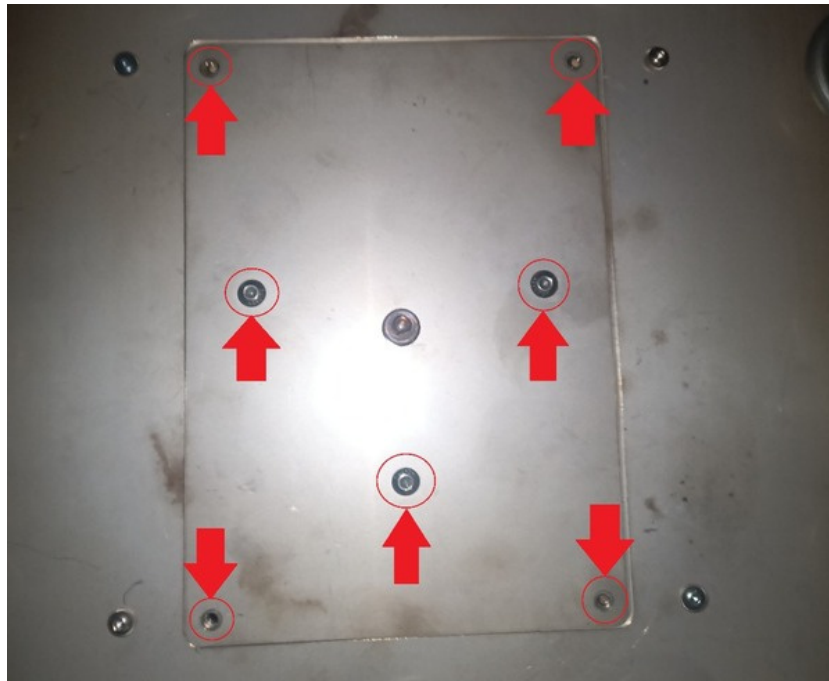
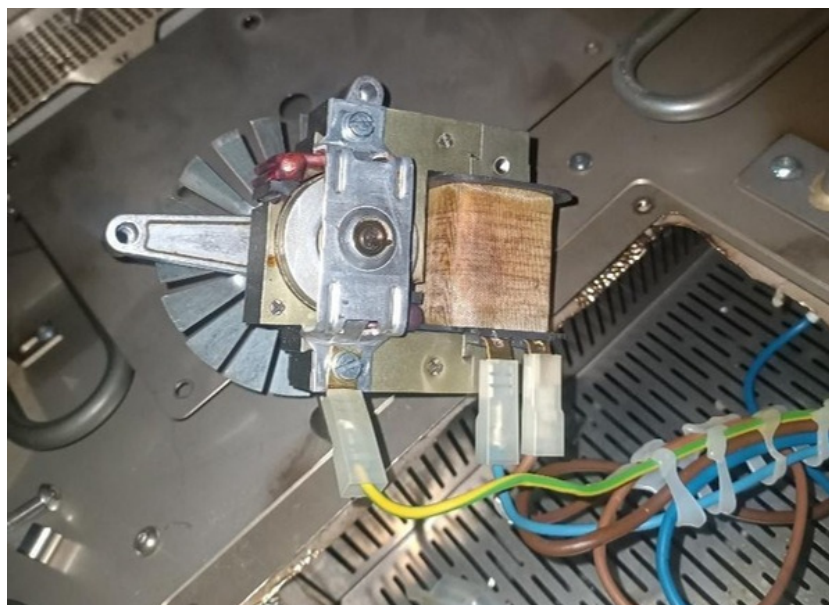


Figure 24 Remove motor cover

Step 4: Remove moto cover



Rysunek 25 Demontaż grzałki

Step 5: Disconnect the motor power cables.

4.2.1 Assembly

Installation should be done in the reverse order of removal.

4.3 X and Y axis couplings replacement

Required tools: Allen wrench 2, 2,5, 4 mm.
Required parts: 3 piece couplings.

Step 1: Remove screws holding motor mount and remove it to get access to coupling

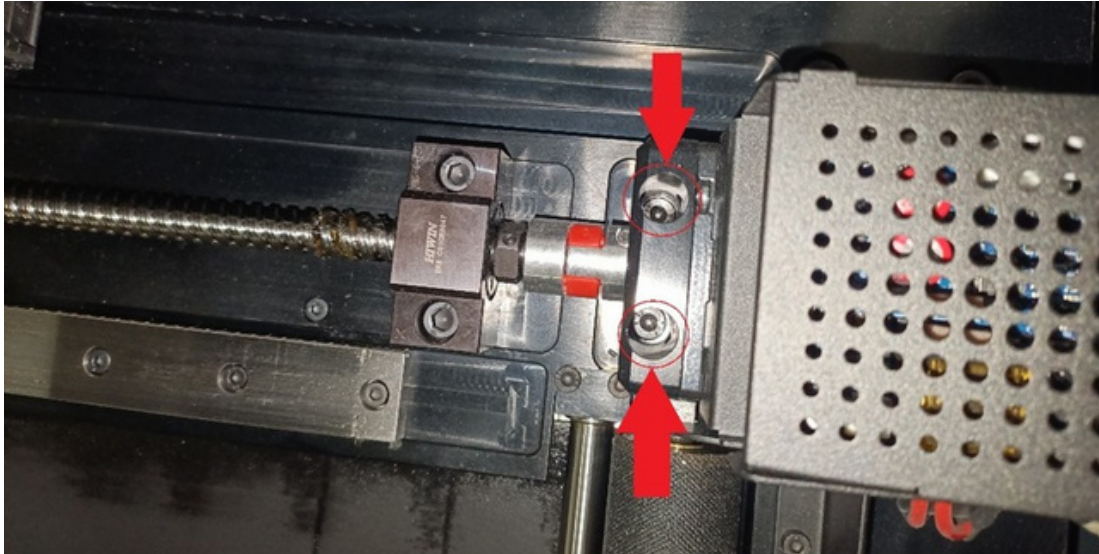


Figure 26 Coupling replacement

Step 2: After removing the engine, unscrew the couplings with a 2,5 mm Allen wrench.

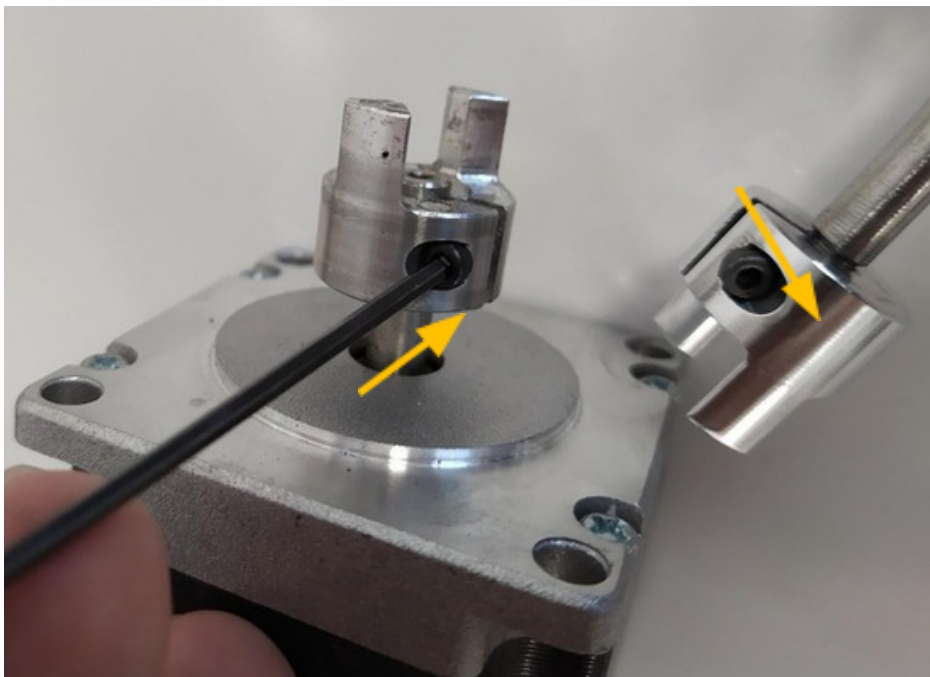


Figure 27 Coupling replacement

4.3.1 Assembly

Step 1: Put elastomer liner on one of the couplings.

Step 2: Put coupling with liner on the shaft so that its face is on the same plane as the face of the shaft.

Step 3: Attach the engine with loosely inserted coupling.

Step 4: Position the coupling like on the picture below. Elastomer liner should not be compressed too much or have too much play.

Step 5: Screw the screws with 1,3 Nm momentum.

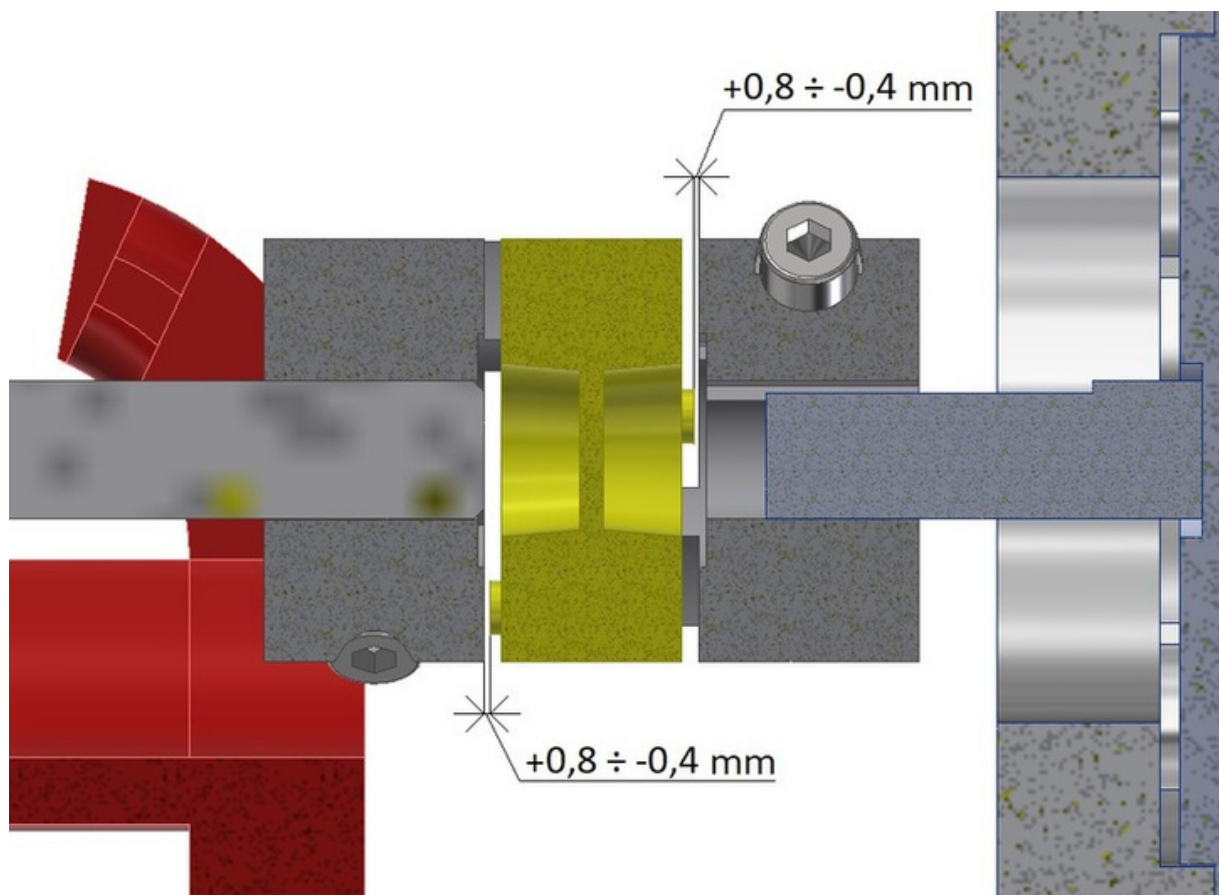


Figure 28 Coupling tolerances

5. Maintenance after every 6000 print time hours

5.1 Cleaning brush replacement



Required tools: Allen wrench 3 mm.

Required part: cleaning brush

Cleaning brush replacement.

Remove the cleaning brush retaining screw and slide the brush upwards. Installation is done in reverse order. Set the brush at the same height as the old brush so that it cleans both heads.



Figure 29 Cleaning brush replacement

6. Maintenance after every 10000 work time hours

6.1 Replacement of coolant, cooling pumps, cooling pipes and radiator's fan



Tools required: Allen wrench: 2, 2,5, 3 mm, knife, screw driver PH2, wrench 7 mm.

Parts required: Havoline XLC Concentrate (30% concentrate, 70% distilled water, cooling system capacity is about 250 ml), cooling pumps, cooling pipes

Step 1: Empty the coolant reservoir. Prepare a container in advance to pour out the coolant.

Step 2: Unplug the pipes.

Step 3: Remove the pumps (pumps are integral part of the reservoir).

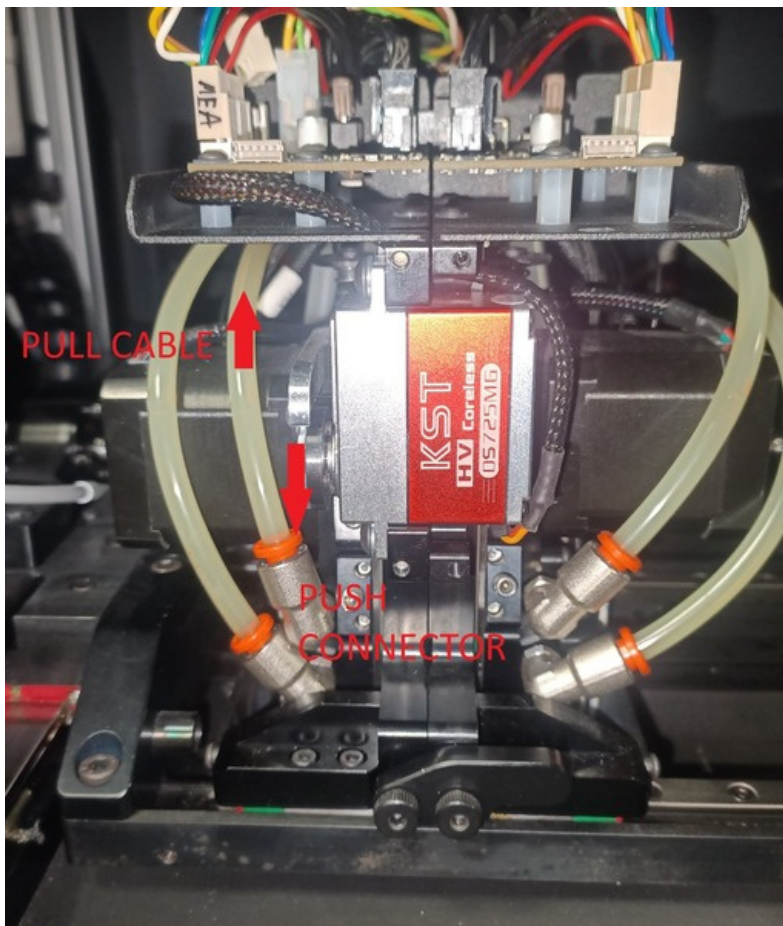


Figure 30 Disconnecting pipes

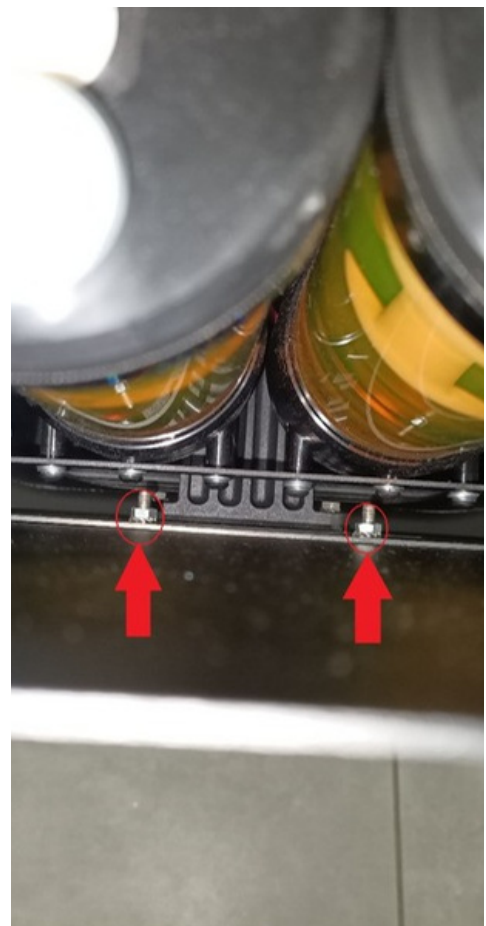


Figure 31 Cooling tanks removal



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