Print Head Replacement & Flushing Procedure

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October 28, 2024

Tritone
Industrial Additive Manufacturing

Contents

1. Purpose

Provide instructions on cleaning and assembling a new print head.

NOTE: This procedure is to be done only by the Tritone Service Engineer!

2. Hazards and Precautions

Disposable protective gloves must be worn when performing these procedures.

3. Equipment and Materials

The following equipment and materials are required for the procedures below.

#	Item No.	Item Name	QTY
1.	33-PHAD-0002	PRINT HEAD SUB-ASSEMBLY	1
2.	15- IPAI-0001	ISOPROPYL ALCOHOL (IPA), 8.99%, CAS#: 67-63-0	A/R
3.	40-SEAL-3001	SEAL DISC, SILICON, 1mm X 12mmØ	1
4.	15-GLOV-0012	GLOVES, NITRILE, NO POWDER, SIZE: L	1
5.	15-WIPR-0004	WIPES FOR CLEAN ROOM, POLYESTER, 4” X 4”	A/R
6.	03-ORIG-0001	O-RING, VITON, 75 SHORE A, 2-022	2
7.	45-CSCR-0410	CAP SCREW DIN 912 M4 x 10	1
8.	45-CSCR-0310	CAP SCREW DIN 912 M3 x 10	1

4. New Head Integration Procedure

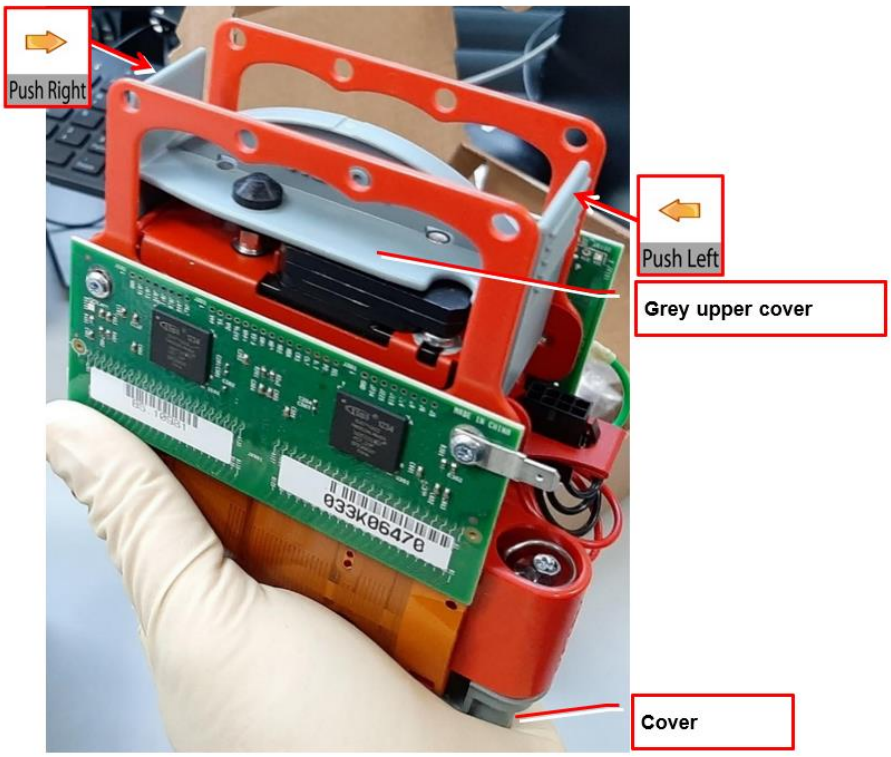

Figure 1: Filter House and Cover

NOTE: The original liquid is supplied by Xerox.

Gloves

CAUTION! Wear disposable protective gloves.

1. To remove the upper grey cover, push the grey plastic side walls inward and pull upward.
2. To clean the filter house:
    a. Use an IPA-soaked cloth to clean the filter house.
    b. Use air pressure to dry the filter house.

5. Assembling the New Head

1. To prepare the filter house:
    a. Use an IPA-soaked cloth to clean the filter house.
    b. Use air pressure to dry the filter house.
2. To assemble the upper and lower filter houses to the print heads:
    a. Clean the filter house.
    b. Assemble the Silicon O-ring onto the lower filter house.
    c. Assemble the O-ring onto the Cover.
    d. Assemble the upper and lower filter houses onto the inner part.
    e. Connect all the parts using M4x30 and M3x10 screws.

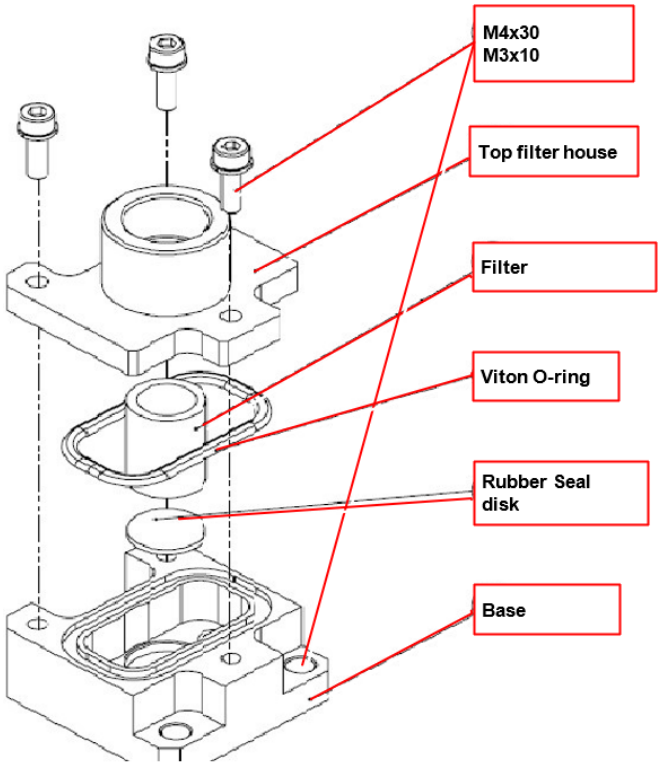

Figure 2: Assembly

3. In the Software Mold Station window, verify that the Head's temperature is closed.

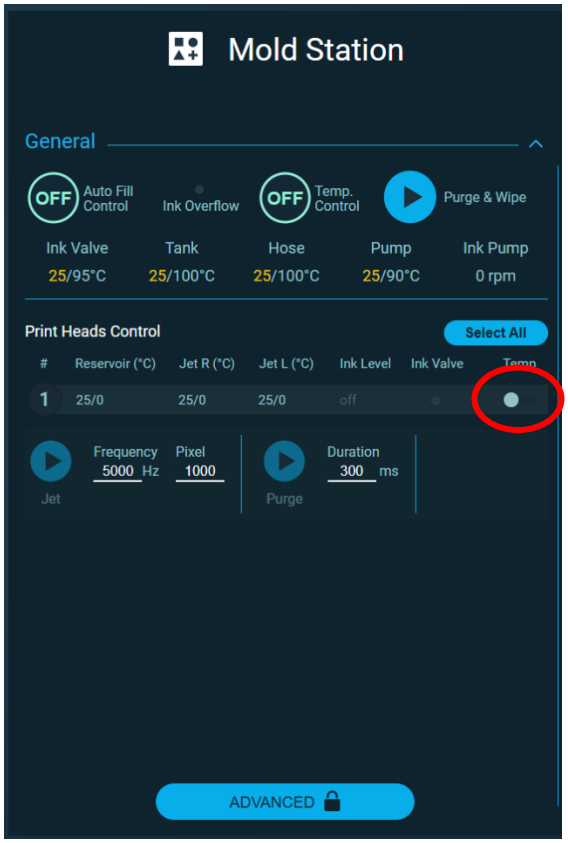

Figure 3: Software Mold Station

4. Verify that the feedback is grey, and that the temperatures display 20 (red in the figure below).

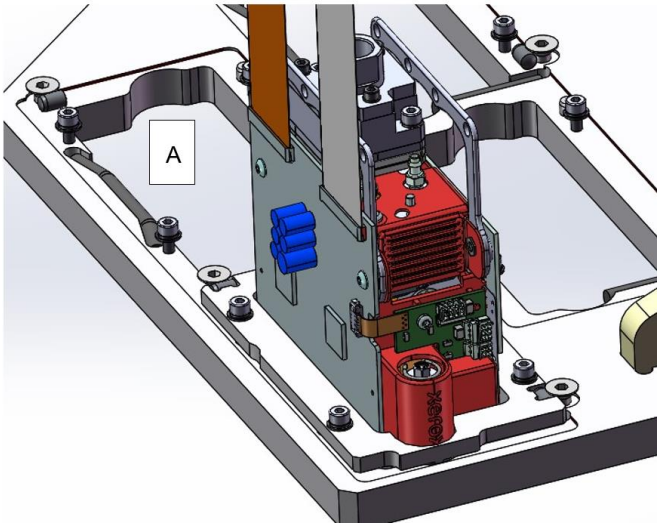

Figure 4: Print Head and Frame

5. Verify that there are location rubbers in the Heads' cluster's frame (Marked A)

6. Open the grey protective cover.

Figure 5: Gray Protective Cover

7. **Important**: Verify that on the electric panel, the Xerox board power switch – PS2 – is OFF.
8. Assemble the new print head onto the bracket of the Heads' cluster.
9. Assembling:
    a. Assemble the V/P tubes.
    b. Screw the ink feeding tube to the thread, as shown.
    c. Connect the left power connector.
    d. Connect the right WAVE connector (also on the Driver sides).
    e. Connect the DATA connector (also on the Driver sides).

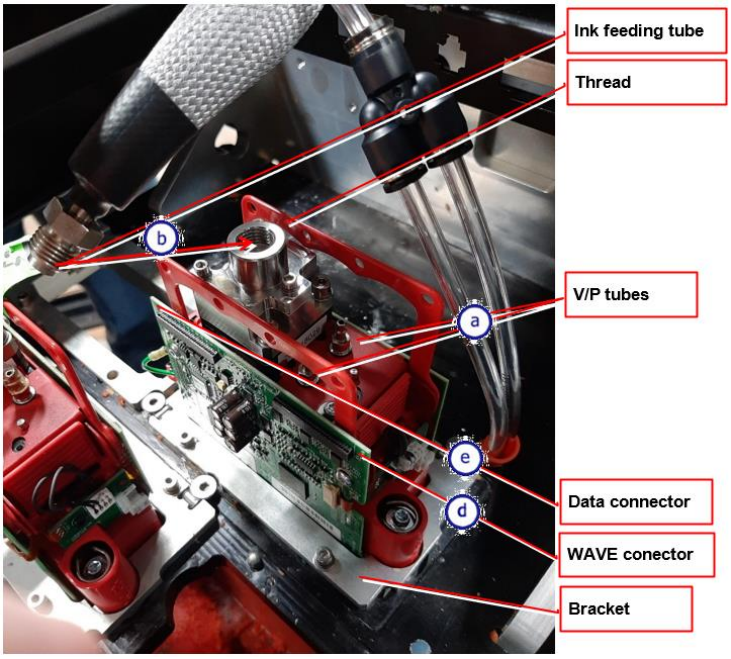

Figure 6: Assembly

6. Mold Material Procedure

1. To power on the Xerox driver, switch on the PS2 in the electric panel.
2. Verify that the regulator is set to 0.4 and reduce the KITA vacuum sensor to 0.45.
3. Perform a 6x500 purge (at room temperature, after Initialization and with no temp ON).
   Wait until all the Xerox liquid flows out.
4. Use a polyester cloth to carefully clean only the print head surface.
5. Raise the temperature of the required print head to 60˚C and release the Xerox liquid again – perform a 500x3 purge.

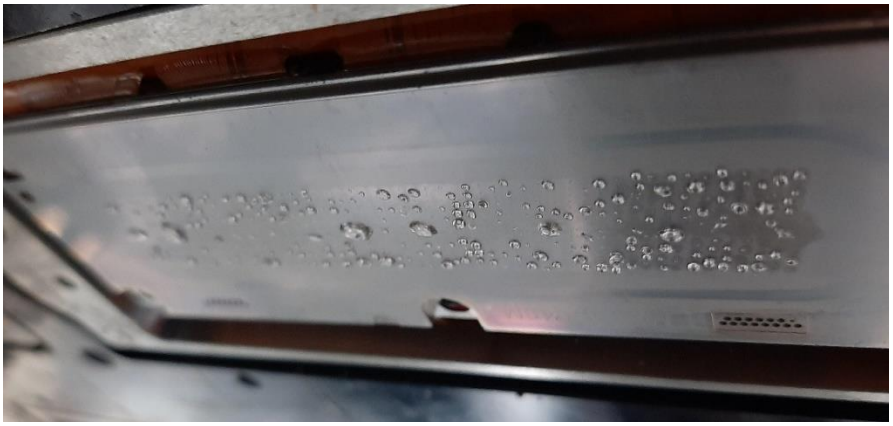

Figure 7: Purge

6. Raise the ink and print heads' temperature to 105˚C. The pump remains on 90˚C.
   Make sure that the entire temperature line is ready, and that the ink level is normal.
7. Perform a 500x5 purge from the Mold station window, until ink flows out.
   If needed, open the pump and the ink valve manually.
8. Press the Ink Auto Fill Control button:
   - In the Software GUI, make sure the ink level is green, indicating that it is Normal.
   - Make sure mold material comes out of the print head as shown in figure 10, and that the ink level changes to Low after the purge procedure.
   - After the refill, make sure the ink level changes to Normal again. If it is not full and shows Low, check again by performing another purge and ensuring that mold material comes out of the print head.
   - If mold material does not come out of the print head, and only air comes out, check the print head level threshold number and the line. This parameter can be seen in the development software.

An example of how to fix the ink threshold level:

a. In the development software, press the Mold station button, then in the Printer Controller menu, press the Mini Wizard button.

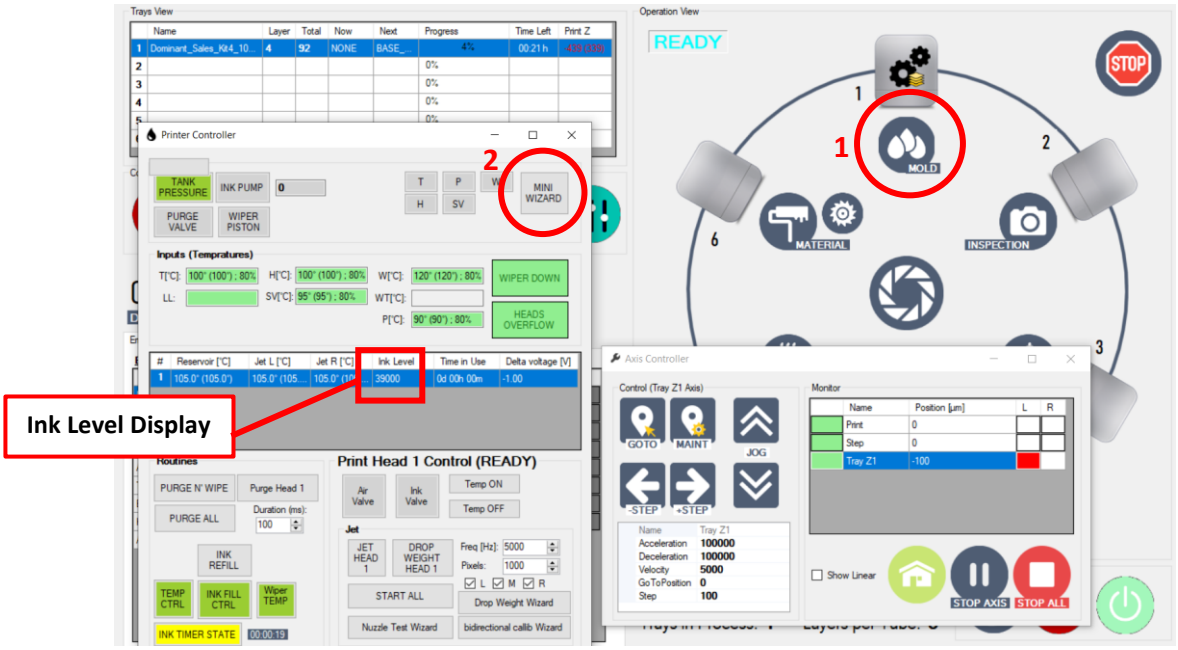

Figure 8: Development Software

b. In the Mini Wizard menu, select the desired print head, and check the Ink Level Threshold value by pressing Purge:

- When pressing purge, the Ink Level should decrease to approximately 33000.
- This indicates, that 5000 has been added to the Ink Level. When the print head is empty, check the Ink Level Threshold value (in the development software), and add 5000.

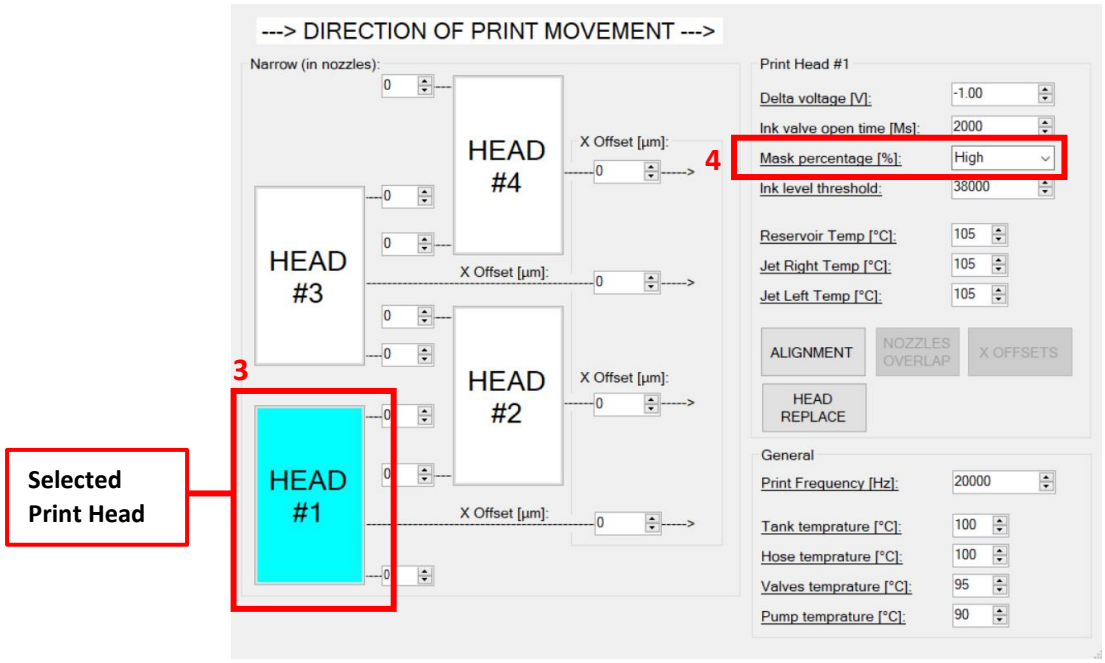

Figure 9: Mini Wizard

c. Repeat step 8 until the desired result is achieved.

9. Raise the KITA vacuum sensor to 0.75.
10. Use a polyester cloth to carefully clean only the print head surface.

Figure 10: Print Head Surface

11. Conduct a nozzle test and check the condition of it.
12. Put the nozzle plate on the table.
    Print the nozzle test by pressing the Jet in the Mold station window (ensure the table has been cut before performing the test).
13. Place a slide on the table:
    a. In the Mold station window, verify that the parameters are 20000 and 1000.
    b. Press Jet.

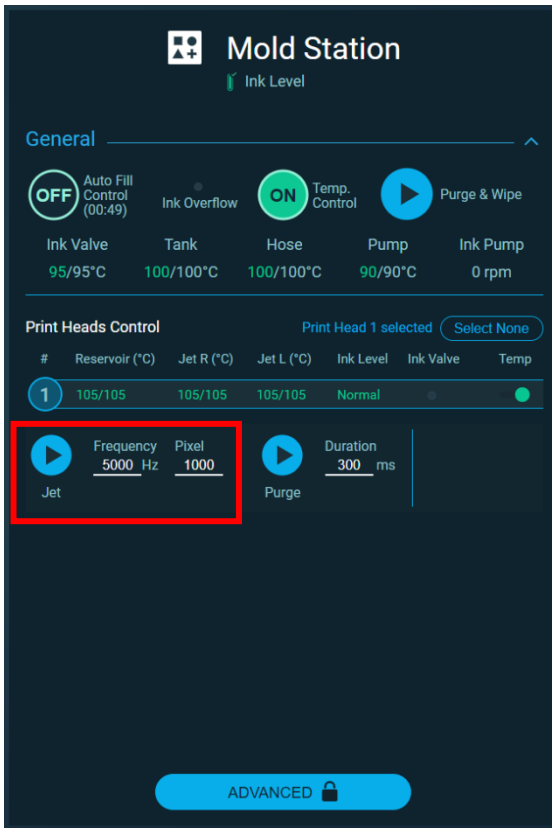

Figure 11: Mold Station Window

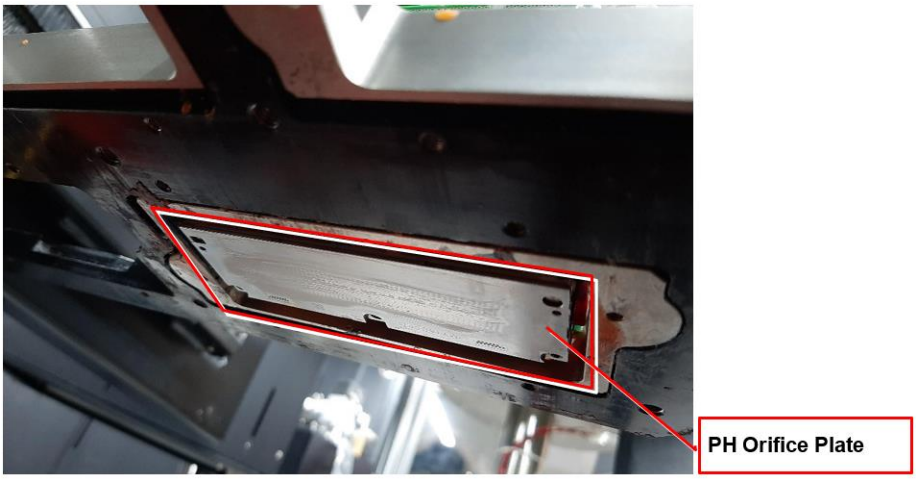

Figure 12: Print Head

14. Test the condition of the nozzle test.
    If it is detected that nozzles are missing, repeat the procedure from step 8.

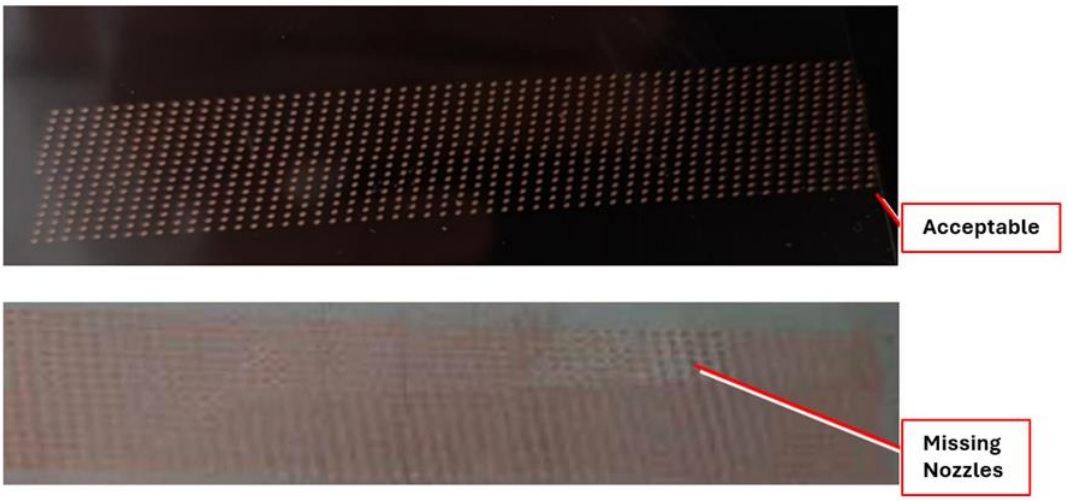

Figure 13: Nozzle Conditions

15. Perform a drop weight.
16. Perform a print head calibration, as described in document number 60-PRHD-0001.

7. Revision History

Date	Comments	Revision
October 28, 2024	First Release	1.0