

HP Scitex FB500 Industrial/FB700 Printer - Inspecting the Ink Thermistors

c03653449 | HP and Customer Viewable

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Environment

HP Scitex FB500
HP Scitex FB700
Carriage assembly
On-carriage reservoir Ink thermistor

Questions/Symptoms

Printheads do not jet any ink

No ink in reservoir but no error message

Inspect the ink thermistor sensor

Answer/Solution

The HP Scitex FB500 and FB700 printers use two printheads per color channel. Each pair of printheads is supplied with ink by an on-carriage reservoir for that color. The on-carriage reservoir is periodically refilled with ink pumped from the ink cartridge (box).

Each on-carriage ink reservoir contains a sensor called a thermistor. The thermistor senses if ink is present or not present in the reservoir. When ink is not sensed, the ink pump is commanded to run to refill the reservoir with ink drawn from the cartridge. In some rare cases, the thermistor becomes covered with a residue or other foreign debris that causes it to fail to sense that the reservoir is empty, and thus the ink pump is not command to run. As a result, the printheads eventually run out of ink, causing print defects. There is no error message because the sensor is falsely reading that ink is already present. If this occurs, normal operation can be restored by accessing the sensor and cleaning it.

The ink thermistor can be accessed for inspection and/or cleaning by following the steps described in the remainder of this document.

Caution: The ink thermistor sensors are fragile and could be damaged by improper handling. HP recommends that printer operators/owners consult an HP authorized service provider or the regional HP Customer Care Center before proceeding with this document.

Preparation:

Required Tools and supplies:

- #2 Philips screwdriver
- Latex or other protective gloves
- Lint-free cloths
- CH122A HP UV Printhead Flush
- Plastic sheeting such as Saran Wrap, or other thin, non-permeable material that will not react with ink. A thin media, such as polystyrene sheet, may be also used.

1. On the printer's control panel, go to "Ink > Maintenance > Printhead Procedures > Empty Printheads" and empty the desired color(s).
2. Ensure the auxiliary power supply for the ink system vacuum is connected and powered before beginning.
3. Turn off the printer at the main power switch.

Remove the carriage cover:

Move the carriage by hand out to the center of the rail for ease of access. Place plastic sheeting underneath the carriage so that any ink that happens to drip from the carriage during the procedure will not stain the belt. Alternatively, the service-end enclosure can be removed to allow work with the carriage parked over the service station.

The carriage cover is secured by four #2 Philips screws. See Figure 1.

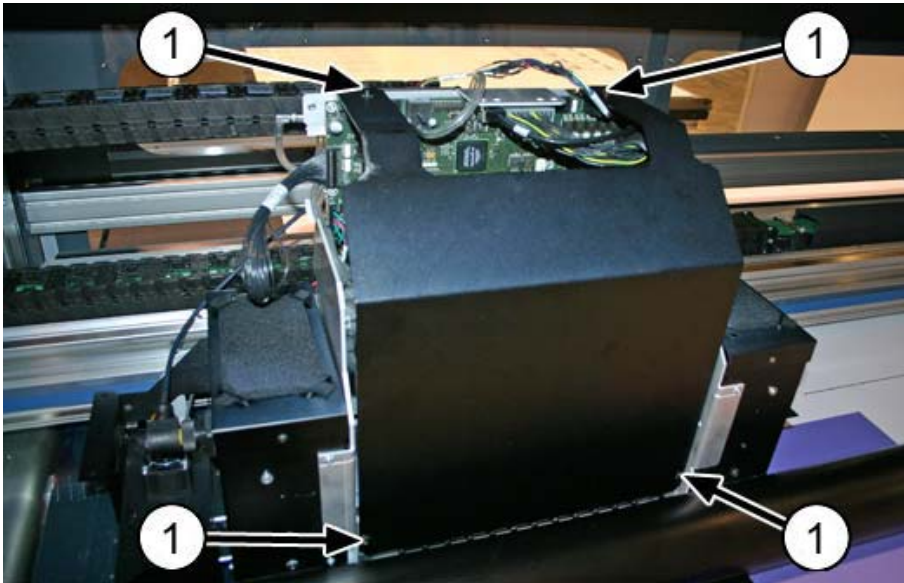


Figure 1

1 - Carriage cover screws (4 locations)

Remove these screws, then remove the carriage cover and set it aside.

Locate and identify the reservoirs:

The reservoirs are gray cylindrical objects located at the front of the carriage. There is one reservoir per color channel. See Figure 2.

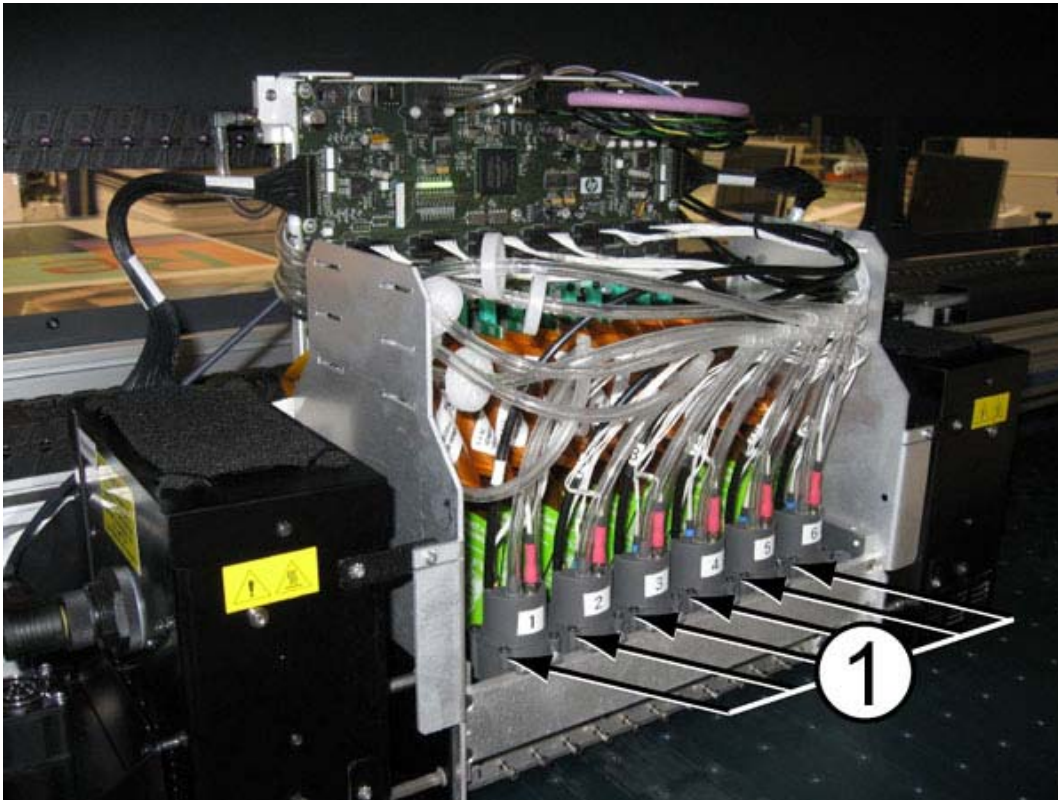


Figure 2 On-carriage reservoirs. Exact appearance may vary by printer vintage
1 - Reservoir (6 locations)

From left to right, the reservoirs are for the following colors:

- (1) Black
- (2) Cyan
- (3) Magenta
- (4) Yellow
- (5) Light Cyan (or White #1)
- (6) Light Magenta (or White #2)

Disassemble the reservoir:

Each reservoir comprises of two halves, upper and lower. The upper half is secured to the lower half by four black screws. The lower half of the reservoir is secured to the carriage by two silver screws located at the front. DO NOT remove these two silver screws. Removing the lower half of the reservoir is not part of this procedure. See Figure 3 for the screw locations.



Figure 3 Reservoir fasteners identified

1 - Black screws that secure the reservoir halves (4 locations). These screws will be removed.

2 - Silver screws that secure the lower half of the reservoir to the carriage (2 locations). DO NOT remove these screws.

Using a #2 Philips screwdriver, remove the four black screws that secure the upper half of the reservoir to the lower half.

When all four screws have been removed, the upper half--with all tubing and wires still connected--can be lifted away from the lower half.

Locate and identify the thermistor tip:

Carefully turn the upper half of the reservoir so that you can see the inside. The thermistor sensor is a thin glass tube that descends into the reservoir space. See Figure 4.

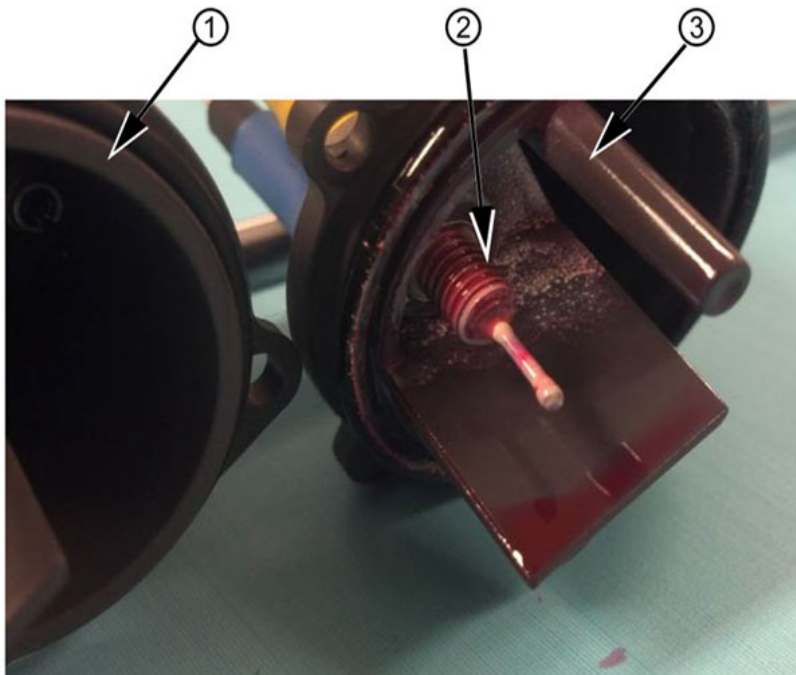


Figure 4 Thermistor inside reservoir top

- 1 – Lower half of the reservoir. NOTE: DO NOT attempt to remove the lower half from the printer.
- 2 – Thermistor sensor
- 3 – Upper half of the reservoir

The thermistor shown in Figure 4 has a uniform coating of ink residue. The thermistor may also be found with what appears to be a large blob of material on the tip. This material is excess epoxy that has broken free of the seal at the base of the thermistor and migrated down the tip. See Figure 5.

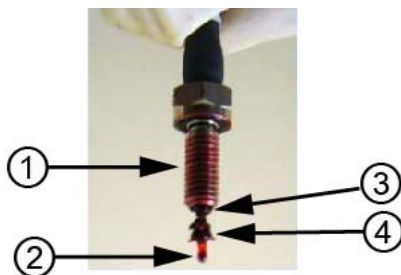


Figure 5 Migrated material on the thermistor tip. Thermistor removed from the reservoir for clarity; it is not necessary to remove the thermistor.

- 1 - Metal thermistor base
- 2 - Glass thermistor tip
- 3 - Epoxy seal between glass and metal
- 4 - Excess epoxy that has come loose and migrated down the tip

In most cases the loss of the excess epoxy has no effect on the seal at the base of the thermistor. The excess material can be removed and the thermistor will continue to function.

Clean the Thermistor Tip

- 1. While wearing protective gloves, moisten a lint-free cloth with HP Printhead Flush Solution.
- 2. Gently clean the thermistor tip until all residue has been removed and the clear glass tip is completely visible.
- 3. If migrated epoxy was found (see Figure 5), carefully remove the epoxy from the thermistor tip.

Reassemble the Reservoir:

The two halves of the reservoir are sealed with a rubberized O-ring. See Figure 6.

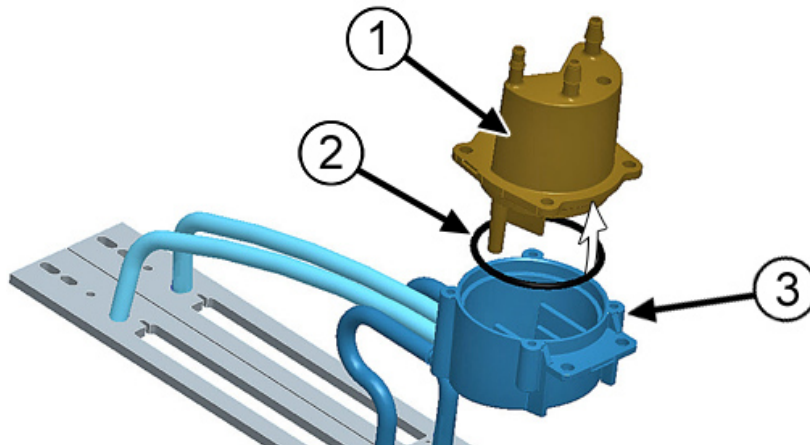


Figure 6 Re-assembling the reservoir. Multiple components removed for clarity. It is not necessary to remove components.

Do not attempt to remove the lower reservoir half from the printer.

- 1 - Upper reservoir half
- 2 - O-ring
- 3 - Lower reservoir half

For best results, place the O-ring ("2" in Figure 6) around the upper half of the reservoir ("1" in Figure 6), then place the upper half onto the lower half ("3" in Figure 6). Ensure the O-ring is in place and install the four black Philips screws. Hand-tighten the screws evenly using a star pattern. Tighten each screw in increments in the order shown in Figure 7.

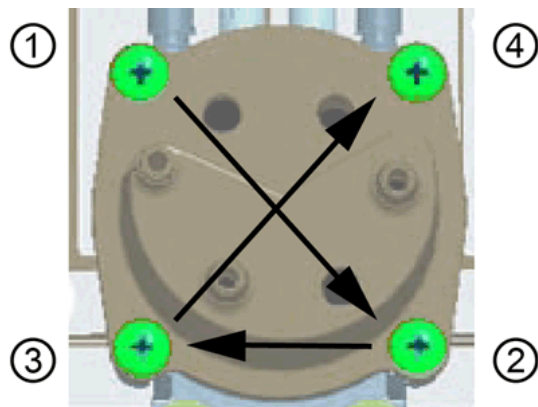


Figure 6 Star pattern to tighten reservoir fasteners. Tighten screws in the order indicated.

Refill the Reservoir:

When the reservoir has been reassembled, power on the printer. When ready, select "Ink > Maintenance > Printhead Procedures > Fill Heads with Ink" and fill the desired color(s).

After refilling, verify that the Vacuum Status is nominal (5.25 "H2O) and ink is not drooling from the bottom of any printheads. Low vacuum status accompanied by Low Vacuum Warnings and/or ink drooling/seeping from the printhead indicates that the reservoir seal is imperfect. Empty the reservoir again, loosen the four fasteners, and reseal the O-ring. Reassemble, refill, and re-test.