

2000 Hour Maintenance

Liquefier Tip Replacement

Replace Tips at approximately 2000 hours - depending upon operating conditions. Tips can also be damaged by improper care while performing maintenance in the area around the tips.

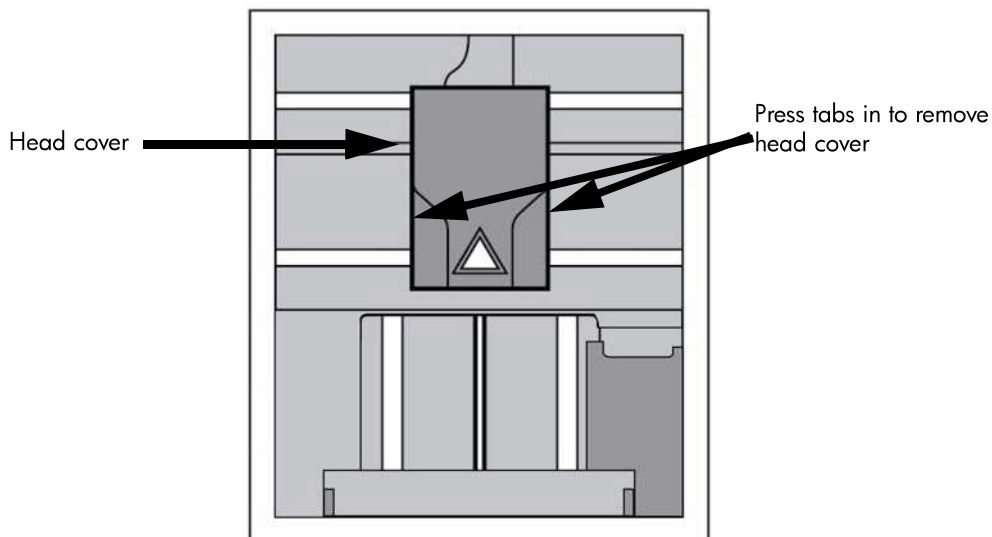


Note: CatalystEX displays the tip time (hrs) - from the Printer Services Tab - Printer Info button (Tip time will reset to zero after replacement).

Removing Tips:

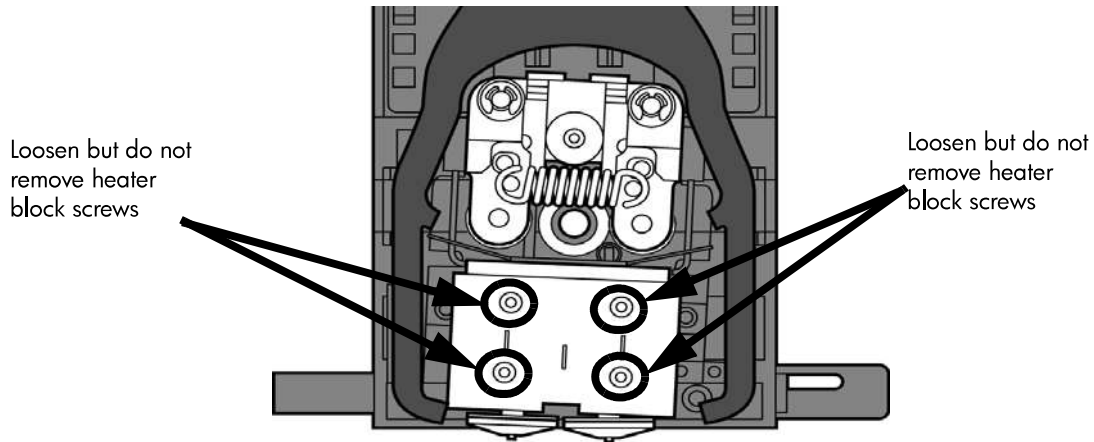
1. You will need to make sure the printer is powered ON before replacing the extrusion tips.
2. From the display panel press **Maintenance**.
3. Press **Machine**.
4. Press **Tip**.
5. Press **Replace**.
6. The printer will display **Load Model - Unloading**.
7. You can now open the printer door and replace the tips - or you can **Cancel** the tip replacement procedure.
8. Remove plastic head cover by squeezing raised pads on sides of cover. See [Figure 33](#).

Figure 33: Removing the Head Cover



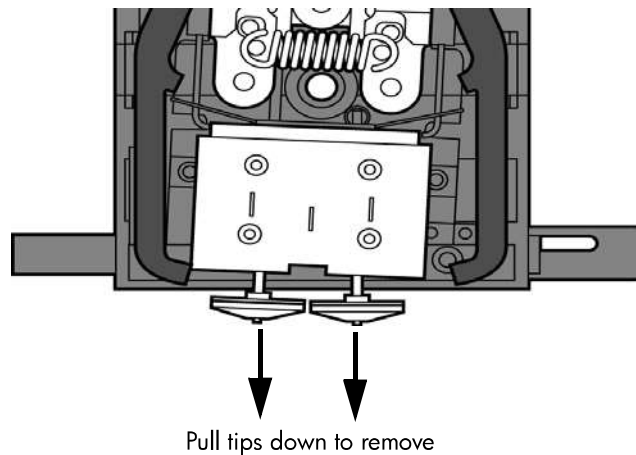
9. Remove Tips:
 - a. Use $\frac{7}{64}$ " T-Handle Allen wrench to loosen the heater block screws three to four full turns counterclockwise - or until the top of the screws are flush with the metal cover. DO NOT remove the screws entirely. See [Figure 34](#).

Figure 34 Tip removal



- b. Use needle nose pliers to grasp the stainless steel shield of the tip.
- c. Pull the tip shield toward you, then pull down to remove the tip from the heater block. Discard the used tip. See [Figure 35](#).

Figure 35 Remove the tips



- d. Repeat for second tip if necessary.

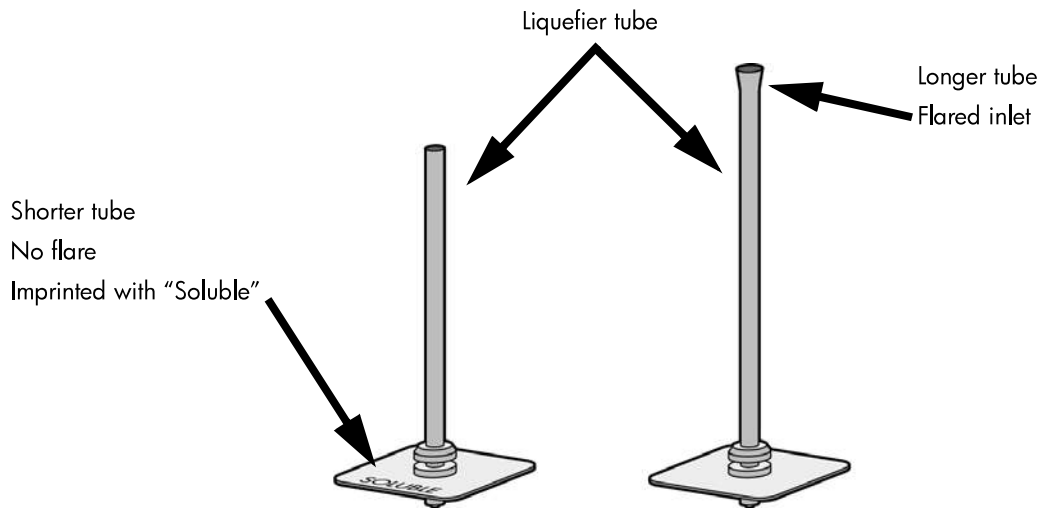
Installing Tips:

1. For a Dimension BST1200es, the SUPPORT tip and MODEL tip are interchangeable. Both tips are the same as the MODEL tip shown in [Figure 36](#). (The tips come in a Red capped container).
2. For a Dimension SST 1200es, you must identify the correct replacement tip. The SST 1200es uses two tip types. You must make sure a SUPPORT tip is used on the LEFT side of the head assembly. A MODEL tip must be used on the RIGHT side of the head assembly (See [Figure 36](#).). The Model tip comes in a red capped container. The Support tip comes in a black capped container.



CAUTION: For a Dimension SST 1200es: Model and SOLUBLE support tips are different. The correct tip must be installed in the correct side.

Figure 36: Identifying Tips

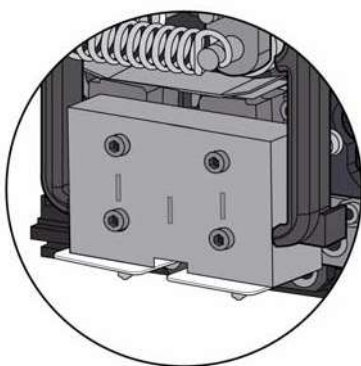


3. With gloved hand, insert the new tip into the heater block.
4. Use needle nose pliers to grasp the stainless steel shield of the tip.
5. Pull the tip shield toward you, then lift up to install the tip.
6. Push the tip toward the back of the printer once it is all the way up against the heater block.
7. Verify the tip is fully inserted into the heater block and that the stainless steel shield is aligned, see [Figure 37](#).
8. Use $\frac{7}{64}$ " T-Handle Allen wrench to firmly tighten the heater block clamp screws.

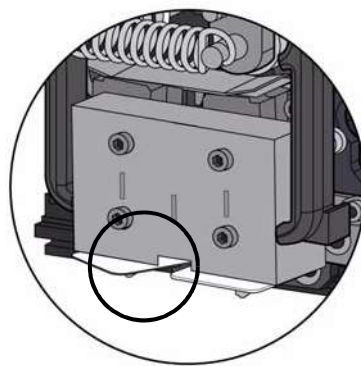


Note: Make sure Tip remains all the way up against the heater block as you tighten the screws.

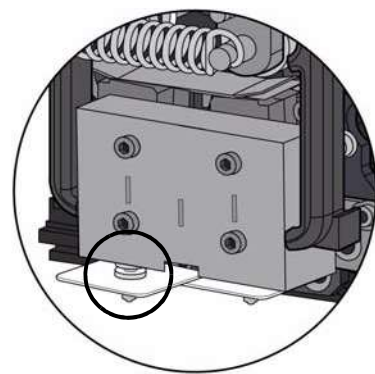
Figure 37: Installation Examples



CORRECT



INCORRECT -
Shield interference

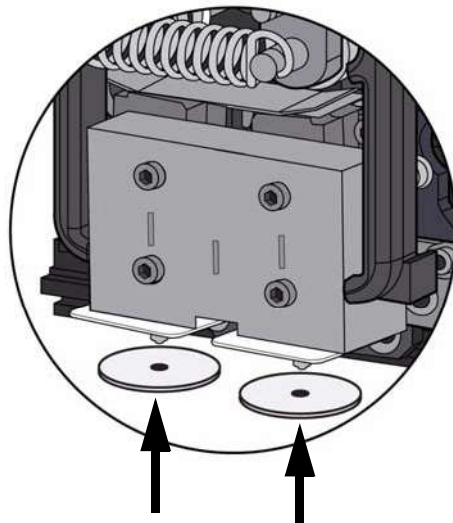


INCORRECT -
Tip not seated

9. Repeat steps 3 through 8 for second tip if necessary.

10. Install the tip shrouds by pushing up onto the tips. See [Figure 38](#).

Figure 38: Install shrouds



11. Replace Plastic Head Cover and close the printer door.
12. The printer will display **Tip Maintenance - Tips Replaced?** - select **Yes** to begin material load.
 - a. The printer will display **Load Model - Replace Both Cartridges** (flashing).
 - If you want to replace a material cartridge, do so now (See [“Loading Material”](#) on page 27).
 - If you do NOT want to change a material cartridge, you must unlatch and latch the cartridges to continue (Press the cartridge forward to unlatch, then press it forward again to latch).



Note: Because the material ‘unloaded’ during the tip replacement, the printer is in a material replacement mode. You must unlatch/latch the cartridges to continue.

- If there is a delay in the unlatch/latch process, the printer will display **Both Cartridges Not Replaced Or Invalid**. Select **Retry**, then unlatch/latch the cartridges.
- b. The printer will now begin to load material. See [“Loading Material”](#) on page 27.
 - c. After Material Loading is complete the printer will display **Tip Calibration - Install Modeling Base And Build Calibration Part**.



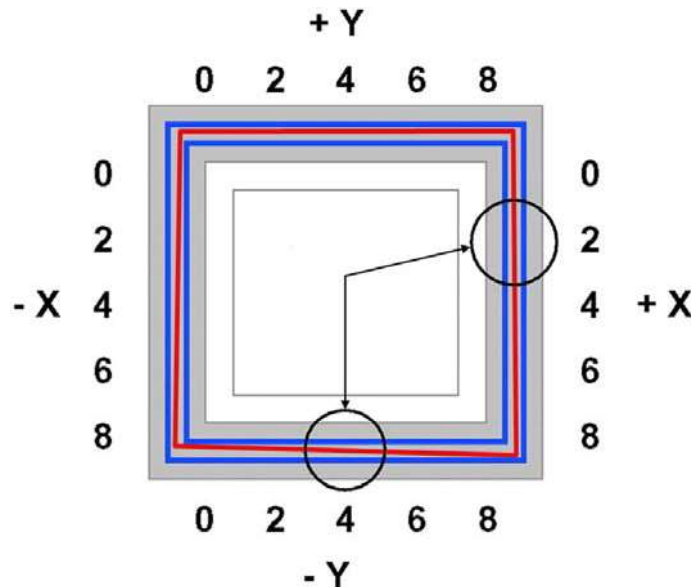
CAUTION: Make sure a NEW, UNUSED modeling base is installed before starting calibration. Calibration results will be incorrect if a NEW, UNUSED modeling base is not used.

Tip calibration:

Tip replacement requires Tip Calibration.

1. Select **Start Part** (flashing) - the printer will run two calibration parts.
 - The printer will automatically build a Z Calibration part, measure the part and calibrate the Z Axis for tip depth and tip level (approximately 5 minutes). The Z calibration is automatic.
 - The printer will then automatically build an XY Calibration part (approximately 10 minutes). You must inspect the XY Calibration part and calibrate the X and Y axis for tip offset:
2. When the XY Calibration part is complete the printer will display **Remove Part and Select XY Adjustment - X:0, Y:0**
3. Remove the XY tip calibration part from the printer.
4. Inspect the part and calibrate the X and Y axis, See [Figure 39](#).
 - a. Use the magnifier from the Startup kit to view the support road (shown in red).
 - b. Identify the location on the +X or -X side of the part where the support road is best centered within the model boundaries (shown in blue).
 - c. Read the number closest to this location. This is the required X Tip Offset adjustment. If the number is on the -X side, a negative offset is required.
 - d. Select **Increment** or **Decrement** to input the X offset adjustment - the value will change in the upper display window (by default, the printer will be ready to accept the X value).
 - e. When you are satisfied with your X offset value, **Select Y** and repeat steps A- D to identify and input the required Y Tip Offset adjustment.

Figure 39 Example XY Tip Offset Part.
This example requires an adjustment of $X = + 2$, $Y = - 4$



5. Select **Done** after you have input the X and Y offsets. The printer will return to **Maintenance**. Run the XY calibration a second time to be sure the values changed the offset properly.
6. When finished, press **Done** until back at **Idle**.