# Dimenson 1200es RP Machine Instructions

The machine's power switch is located on the front of the cabinet, near the bottom right corner (See Figure 1). After the switch is pushed, Dimension boots up in three to seven minutes.



**Figure 1: Location of Power Switch**
**(View From Front of Printer)**

**NOTE**
**If the printer was off and is at room temperature, it requires approximately 40 minutes to warm up before you can perform any functions. Temperatures are factory-preset and not adjustable. The panel displays the head and envelope temperatures while Dimension is warming up and cooling down.**
**NOTE**
**For safety, the head and Z Platform do not move while the chamber door is open. During warm-up and operation the door is locked. The door can be opened only when Dimension is not building a part, getting ready to build a part, or in Pause mode.**

## Insert Modeling Base

Once the machine has warmed up, make sure retainers are turned 'down' - so as not to interfere with the modeling base installation. Set the modeling base on the Z Platform aligning the tabs on the modeling base with the slots on the metal tray. Slide the modeling base toward the back of the unit until its front edge (with the handle) is flush with the front edge of the tray (see Figure 2). Secure the base with the two retainers by turning them up.
**NOTE**
**When inserting and removing the modeling base, use the handle to avoid touching the top surface. Grease and oil that contact the top build surface could cause poor part adhesion. You can clean the build surface with isopropyl alcohol if necessary.**
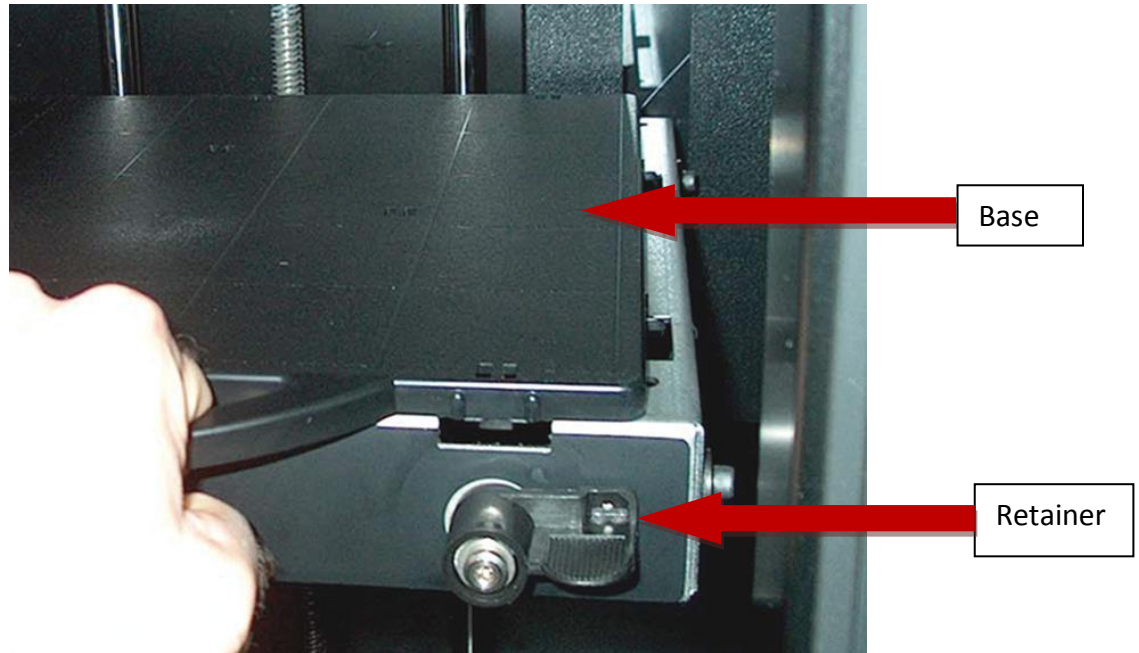
Base

Retainer

**Figure 2: Inserting a modeling base**

# Sending Your CAD File to the System

This section describes the procedures used for sending your own CAD files to Dimension.

**Send a "job" to Dimension:**

1. Create an STL file with your CAD software.
2. Click on the CatalystEX icon on the desktop of your PC. The CatalystEX main window opens (see Figure 3).
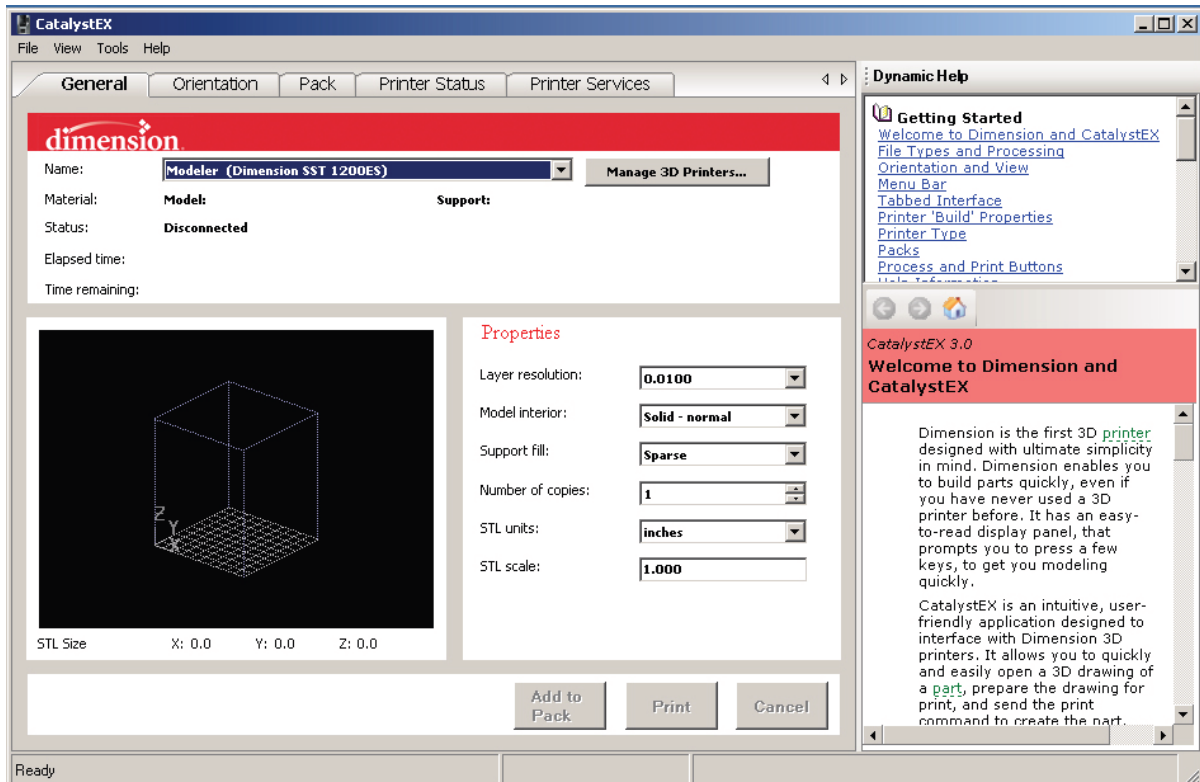
**Figure 3: CatalystEX main window**

3. From the **File** menu, click **Open**.

4. Select and Open an STL file produced with your CAD software.

5. Choose one of several options for printing your part. From the
General Tab:

**NOTE**
**For detailed information about the many file processing options available in CatalystEX, refer to the CatalystEX Help files.**

• Click 'Print' to have CatalystEX process your part and
immediately send it to your Dimension for printing.
...OR...

• Click 'Pack' to have CatalystEX process the part for
printing, but not send the part to your Dimension... send
the part to the printer later as part of a pack (from the Pack
Tab).

Regardless of how you choose to prepare your file for printing, the end result will be the same.
CatalystEX will process the STL file into a CMB file. It is the CMB file that CatalystEX will send to
the Dimension printer to create your part.

**NOTE**
**For more information about STL files, CMB files, part orientation, modeling envelope placement, print 'job' efficiency, and other print controls refer to the CatalystEX Help file.**

## The Display Panel During Build:

The top two lines of the display panel show printer-status messages (see Figure 4). The bottom line of the panel shows the material amounts remaining in the cartridges.

**NOTE**
**If a material amount is flashing, it indicates that the**
**remaining material will NOT be sufficient to complete**
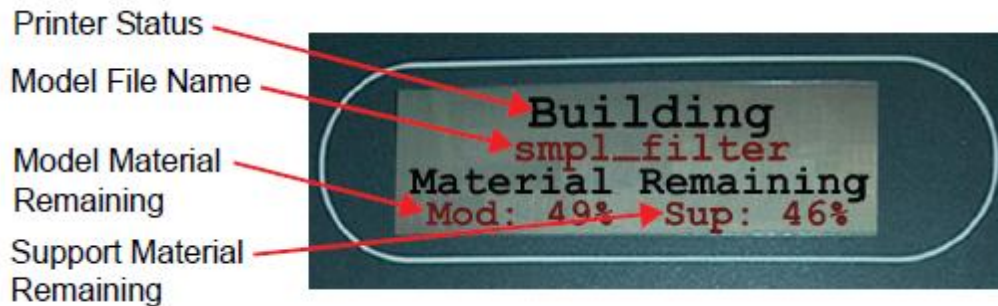**the current build.**



**Figure 4: Display panel during build**

# Chamber Lights

When a part starts to build, the chamber lights are automatically ON.  You can toggle lights ON or OFF through the Display Panel.  You can also turn the light on continuously. Go to the **Idle** or **Ready to Build** mode. Press **Maintenance** and then press **Next** until **Setup Maintenance** is displayed. Press **Lights Always**. The light will remain ON until the system is powered OFF.

# Pausing Build

While building a part, you may want to pause the operation - e.g, to allow for replacement of a material cartridge. To pause the build operation at any time, press **Pause**.

**NOTE**
**When the build process is paused, Dimension completes the current tool path before pausing.**
**This may take several minutes.**

# Resuming Build from Pause Mode

If you have pressed **Pause**, and are ready to resume building the part, press **Resume**. Dimension resumes modeling.

# Canceling a Job

You can cancel a job at any time while the part is building.

**Cancel a job:**

1. Press **Pause**.
2. Once Dimension stops building, press **Cancel Build**. The panel displays Are you sure?
3. Press **Yes**. The panel displays Build Stopped followed by the part name.
4. The panel prompts you to remove the part and replace the modeling base. Once the chamber door has been opened and closed, the panel asks: Part Removed?
5. Press **Yes** only after removing the part

.

### CAUTION

If you press Yes before removing the part, the system can be damaged and a service call will be required.

# Removing a Completed Part

When the part has completed, the panel displays Completed Build, and the file's name. It also shows Remove Part and Replace Modeling Base.

**Remove a completed part from the Dimension system:**

1. Open the modeling chamber door.
2. Release the modeling base retainers and pull the modeling base towards you, out of the tray guides.
3. Insert a new modeling base.
4. Close the modeling chamber door.
5. After you have opened and closed the door, the panel displays Part Removed? only after removing the part, press Yes.
   • After you press Yes, the panel displays the status as Ready to Build for the next part in the queue.

**Remove a completed part from the modeling base:**

1. After removing the base from the printer, firmly flex the modeling base back and forth with your hands to loosen the part. From best results, flex the modeling base front-right to back-left.

**CAUTION**
**If you press Yes before removing the part, the system can be damaged and a service call will be required.**
**CAUTION**
**The system can be damaged if your answer Yes and the part has not been removed!**

2. Pull the part off the base or use a putty knife to pry the part completely off.

**NOTE**

**Supports are much easier to remove when the modeling base is still warm.**

## Empty Purge Container

The black, plastic purge container is attached to the right side of the modeling envelope rear wall (see Figure 5).
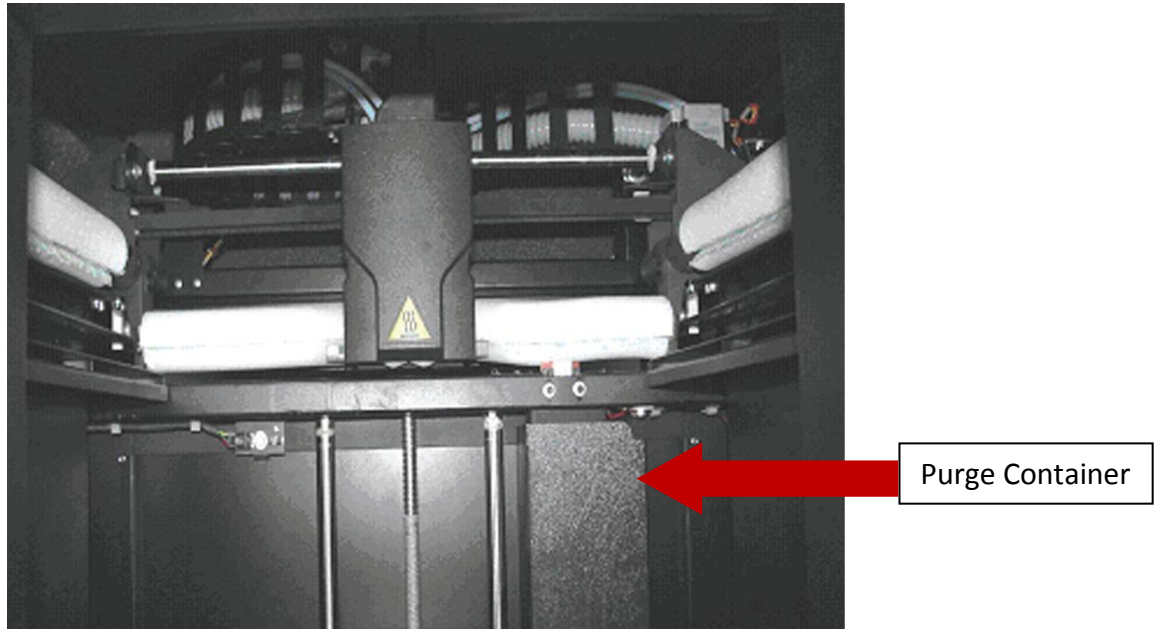


Purge Container

**Figure 5 Purge container location.**

**NOTE**
**A full purge container may impact part quality.**

1. Remove the purge container by grasping it and pushing it upward to release it from its three mounts.
2. Pull the container towards you and out of the chamber.
3. Empty the container and reinstall on 3 mounts.

# Removing Support Material

Dimension SST uses soluble supports - a water-based solution designed to allow you to simply wash away the support material.  Your part is left smooth and clean with the fine details intact. The soluble support material can be removed by hand with relative ease, but is designed to be dissolved off of your parts for hands-free part finishing.

1.  Place the part in the rack at the top of the machine (see Figure 6).  Multiple parts can be loaded in the tank as long as they fit and can be properly submerged.

**Caution**
**Make sure the tank does not overfill when submerging the part. If the tank overfills then use paper towels and a mop to clean up the spill.**
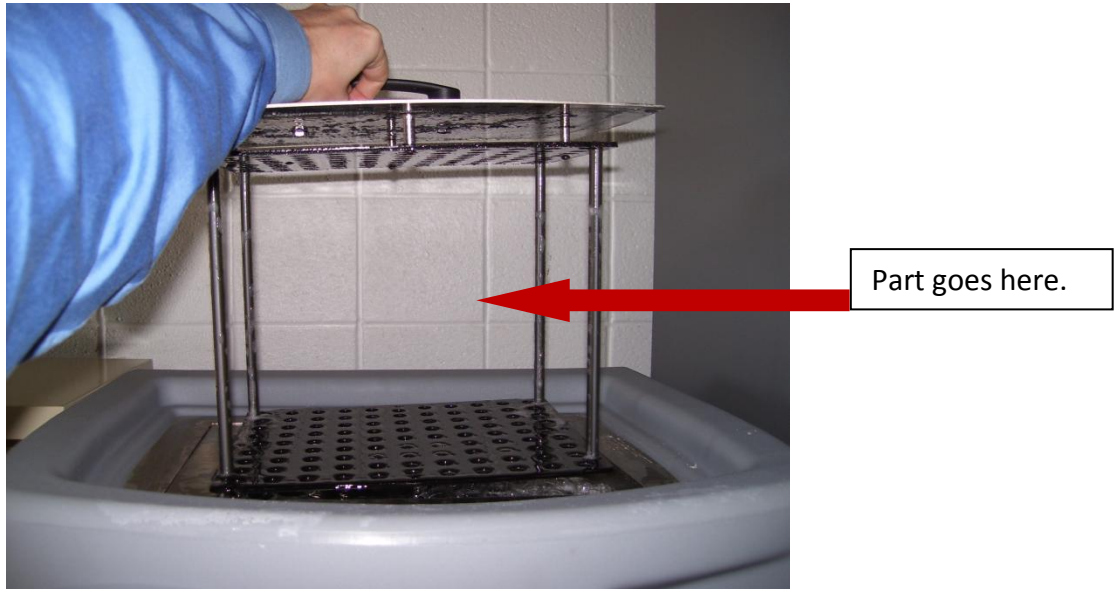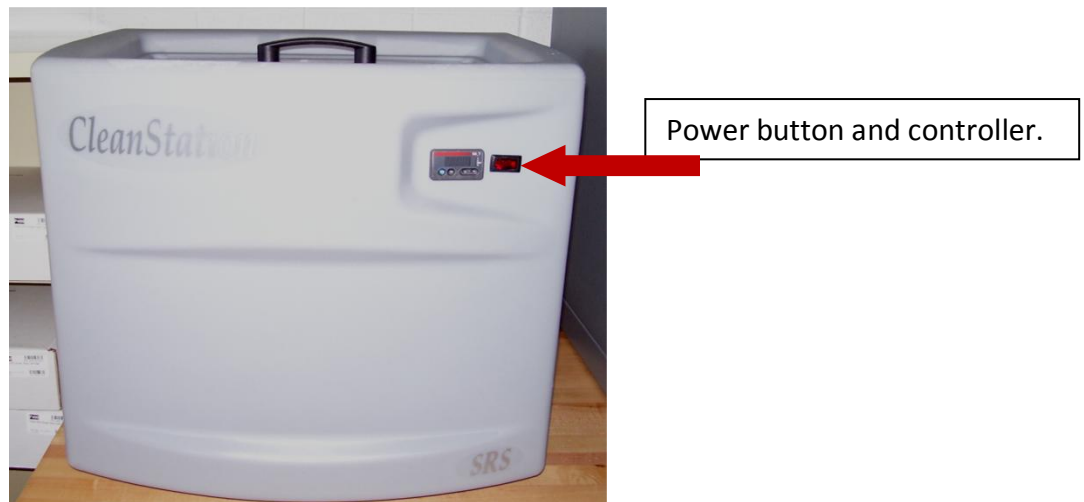


Part goes here.

**Figure 6: Tray in soluble support material removal tank.**

2. Turn unit the red power switch on.
3. Press the down arrow on the controller to start the 4 hour cycle for cleaning the part (see Figure 7).



Power button and controller.

4. Once the cycle is clean, rinse the part in the sink in the lab.

If you notice a brown discoloration, this indicates that the solution in the tank needs replacing. Please contact Dr. Tuttle or Bob Mackie to have the solution replaced. Also, if the solution level is low, please contact Dr. Tuttle or Bob Mackie to have the unit filled.

# Loading Material

Material cartridges are factory packaged in a box and an anti-static, moisture-proof bag to preserve shelf life. Material will stay humidity free inside the cartridge for at least 30 days after opening. Shelf life is more than one year if the cartridge package remains sealed.

**Load material cartridges:**

1. Remove packaging.
2. Remove the red sealing plug from the cartridge: (see Figure 8)

**NOTE**
**Plug must be removed before cartridge can be installed.**

A. Turn the plug a quarter turn counter clockwise.
B. Lift up the plug to remove it from the cartridge - discard (or recycle) the plug.



**Figure 8: Remove red plug before loading**

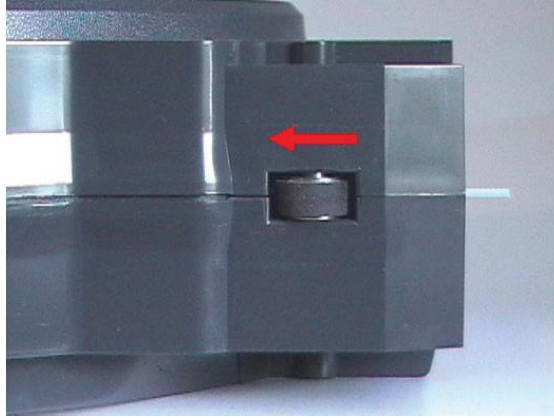3. Find the end of the material filament taped with a "flag".

**Figure 8: Direction to move cartridge roller**

4. Move the filament out of cartridge using the pinch roller to expose about 12 inches of material. You should easily be able to move the material out (See Figure 8).

**NOTE**
**The above step makes sure that the filament will feed freely from the spool.**

5. With a cutter, snip the filament ½" from the end of the cartridge (See Figure 8).

**CAUTION**
**Be careful when touching the pinch roller on the side of the cartridge. If you roll it backwards, you could draw the material into the cartridge (see Figure 7 for the correct direction to move the cartridgeroller). If this occurs, there is no way to retrieve the filament without opening the cartridge and exposing the material to humidity, which reduces shelf life to a few days.**

6. If the printer is in **Idle**, press the **Load Material** button, which will be blinking.
7. Display will prompt with **Load Model - Replace Both Cartridges** (flashing).
8. Insert material cartridges into their appropriate slot from the front of the printer (Model material cartridge goes in the Top slot; Support material goes in the Bottom slot).

**NOTE**
**You might get the message, Cartridge Not Replaced Or Invalid. This occurs if you do not insert the new cartridges within 30 seconds. In this case the cartridge will not lock into its slot. You must press the Retry button before continuing the process.**

9. The panel will display **Material Load - Ready To Load.** Press **Load** to load model material. (Or, if the model material has been previously loaded, the panel will display **Load Support - Replacing Support.** Skip to Step 9.) Display with show percentage of material left in cartridge.
  • Watch the model extrusion tip (see Figure 9) to see if material extrudes (purges) after loading. The panel will then display **Did Model Material Purge?**
  • Press **Yes** (to continue) or **No** (to return to Load Material) as appropriate — or press **Purge Again** if you're unsure which to choose.

10. Next you are prompted with **Support Load - Ready to Load** (if not previously loaded)**.** Press **Load** to load support material.

• Watch the support extrusion tip (see Figure 9) to see if material extrudes (purges) after loading. The panel will then display **Did Support Material Purge?**
• Press **Yes** (to return the printer to the Ready to Build state) or **No** (to return to Load Material) as appropriate — or press **Purge Again** if you're unsure which to choose.
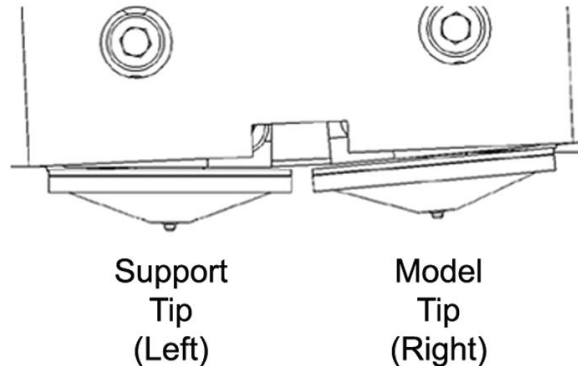


**Figure 9: Close-up of extrusion tips**

**NOTE**

**If the display shows Load Failed, press Retry. If load fails again, remove the cartridge, snip the material (See Figure 8), remove filament in the printer, and reinsert the cartridge.**

# Unloading Material

The model and support material cartridges may be replaced separately or at the same time. In idle-, load-, or build-related modes, the panel displays the percentage of material remaining in the cartridges. If the printer will be operating unattended for a long period, and the material level is getting low, you may want to replace the cartridges before starting a new part. Of course, you will also need to replace the cartridges when they are empty.

**Unload material cartridges:**

1. From **Idle** (or **Ready To Build**), Press **Load Material**.
    A. The panel displays **Load Material** and prompts with,**Replace model**?
        • Press **Yes**. to unload the Model Material. The panel displays **Replacing model**.
        • Press **No** if you do not wish to unload the model material.
    B. The panel then prompts with, **Replace support?**
        • Press **Yes**. to unload the Support Material. The panel displays **Replacing support**,
        • Press **No** if you do not wish to unload the support material.
    C. After you have made the above choices, the panel displays **Unloading** for approximately 2 minutes (the selected materials will be unloaded from the extrusion head).
    D. When unloading is complete, the panel will prompt you to remove a cartridge based upon your choices - i.e., **Replace Both Cartridges, Replace Model (Top) Cartridge, or Replace Support (Bottom) Cartridge**.

2. Remove the material cartridge(s) by first pushing it forward gently, and then pulling it out of the slot.

> • When you remove a cartridge there will be approximately 213 cm (7 feet) of filament that will need to be pulled from the system. (This is normal. Material is only retracted from the extrusion head during 'unloading'.)

3. To store a partially used cartridge, place a small flag of tape on the filament near the cartridge. Cut off and discard the remaining material. The tape