

GASSSS – Bambu Lab P1P 3D Printer



Setup and Operation Guide



September 4, 2024

GA-ASI Proprietary Data

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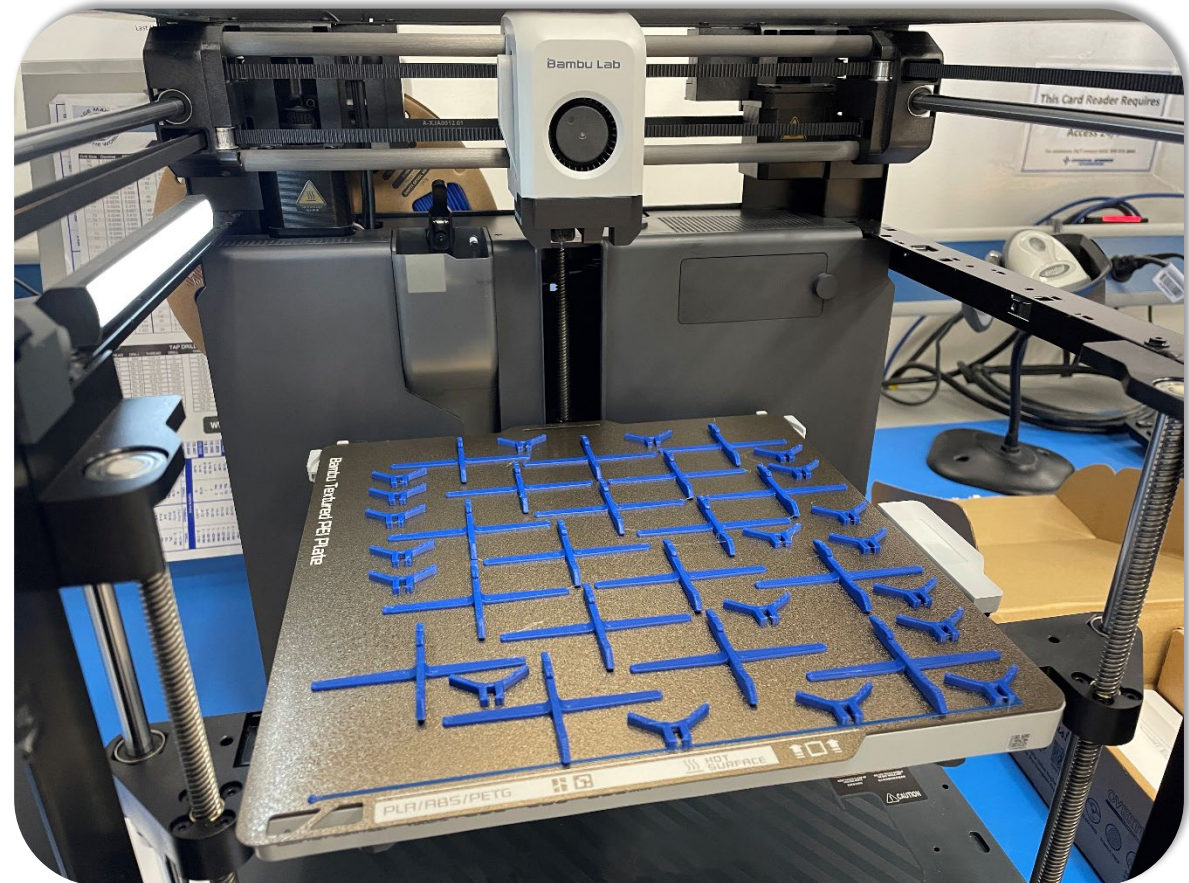
3D Printer Setup and Operation Overview



The following steps outline the main processes associated in unboxing, setting-up, running, and tearing down the printer for different GASSSS events.

Following these steps is pertinent to ensuring the printer is setup correctly and to lower the risk for any damage to the printer occurring due to mishandling or improper setup.

1. Printer Unboxing
2. Printer Setup
3. Filament Loading
4. Build Preparation
5. Build Turnover
6. Filament Unloading
7. Printer Teardown
8. Printer Packaging



1. Printer Unboxing



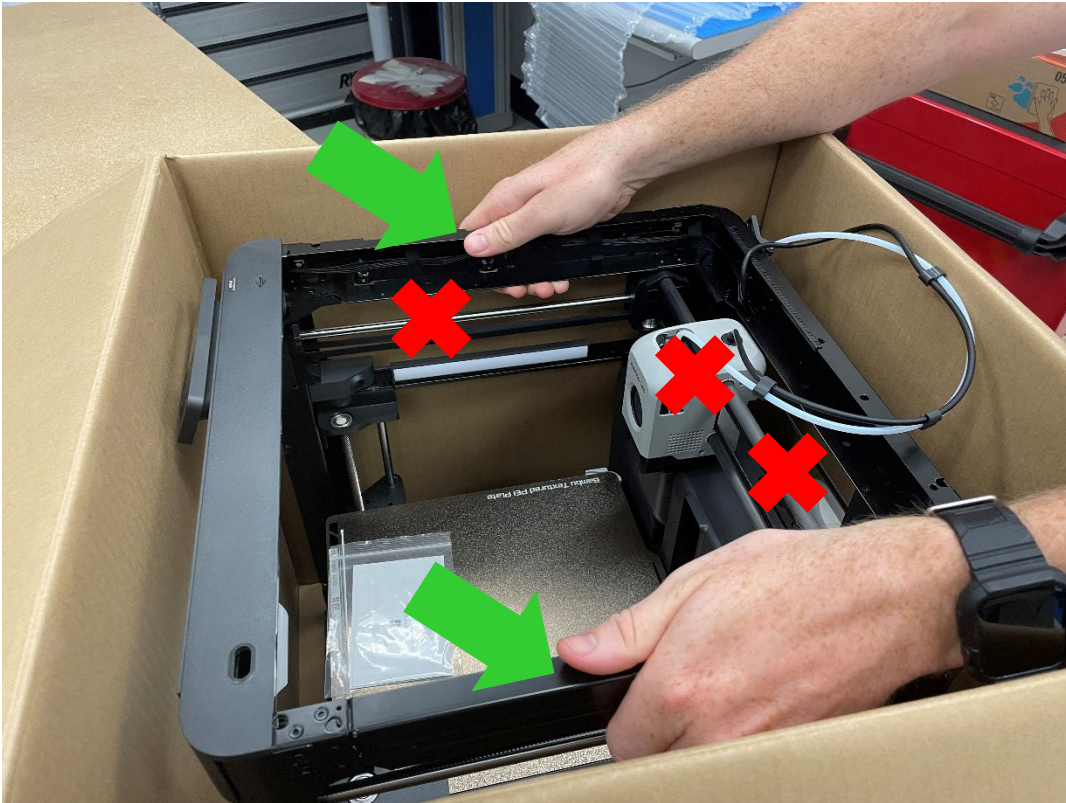
1. Open the storage box the printer is stored and moved in
2. Remove all protective packaging and set aside (take note of how packaging was originally placed to ensure it is packaged again properly to prevent damage)



1. Printer Unboxing (cont.)



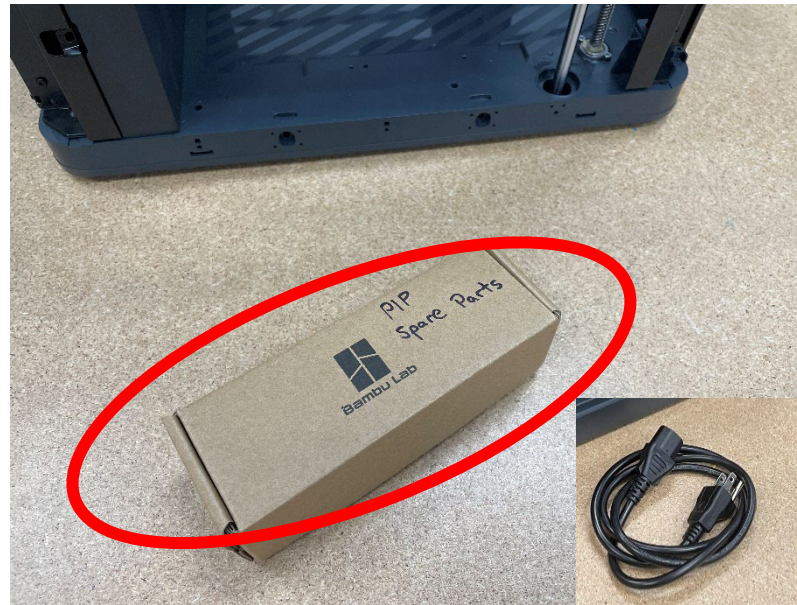
3. Carefully grasp the printer by the top frame rails (depicted location with green arrows) and lift the printer out of the box. **BE CAREFUL NOT TO GRASP THE PRINTER'S GUIDE RAILS OR GANTRY BELTS, THIS COULD DAMAGE THE PRINTER (shown by red X's).**



1. Printer Unboxing (cont.)



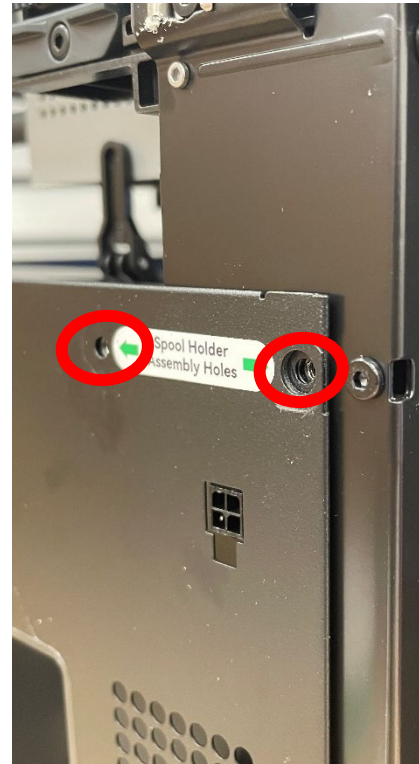
4. Ensure the printer is on a solid and level surface – this is important because as it prints it will want to move and vibrate – if the printer is not on a level surface, it could cause damage to the printer or cause issues with the build.
5. Remove the tool/supply box (labeled “**P1P Spare Parts**”), power cord, and filament box(es) from the printer storage box.
6. Place all protective packaging back in the box while the printer is in use (**DO NOT THROW THIS AWAY**) this will be used again when re-packaging the printer to prevent damage during shipping/handling.



2. Printer Setup



1. Remove the filament spool holder, the associated (2) hex machine screws, and the hex wrench from the parts/tools box (labeled “P1P Spare Parts”). There is a small bag inside the spare parts box with the machine screws is labeled, “for spool holder”).
2. Using the hex wrench attach the spool holder to the labeled area on the backside of the printer with the 2 hex machine screws.



3. Filament Loading



1. Remove the selected filament spool from its box/bag and unfasten the filament from the spool storage holes on the side of the spool (take caution when doing this because if the filament is not held down, it could unravel quickly and become tangled and unusable). Note: Ensure the filament has adequate material left on the spool, if the printer runs out, you will have to repeat these steps in the middle of the event. It's recommended to not use a spool with less than ~50 g left. Most spools will have indicator marks to let you know how much is remaining.
2. Using the side cutters in the parts/tool box, cut the end of the filament at a ~45 degree angle (cut the filament far enough up the spool such that there are not any remnants of kinked filament from being placed in the spool storage holes – kinked filament will not feed through the printer's guide tube).

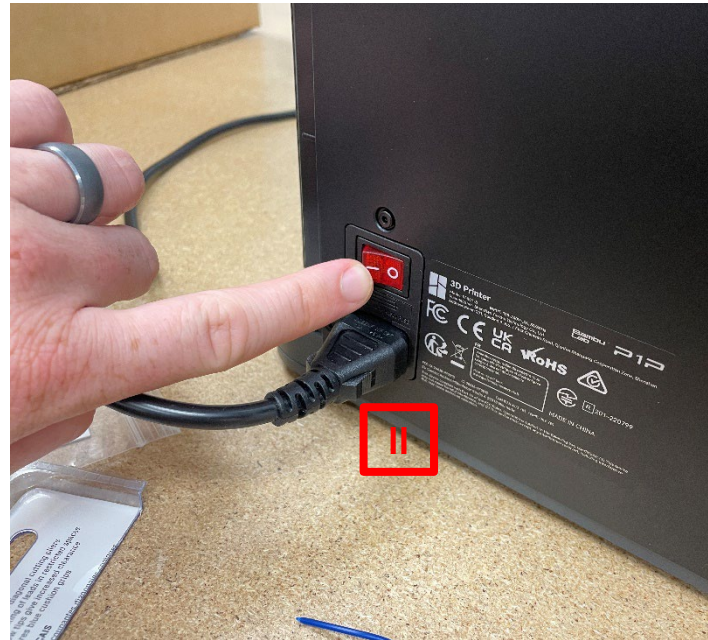
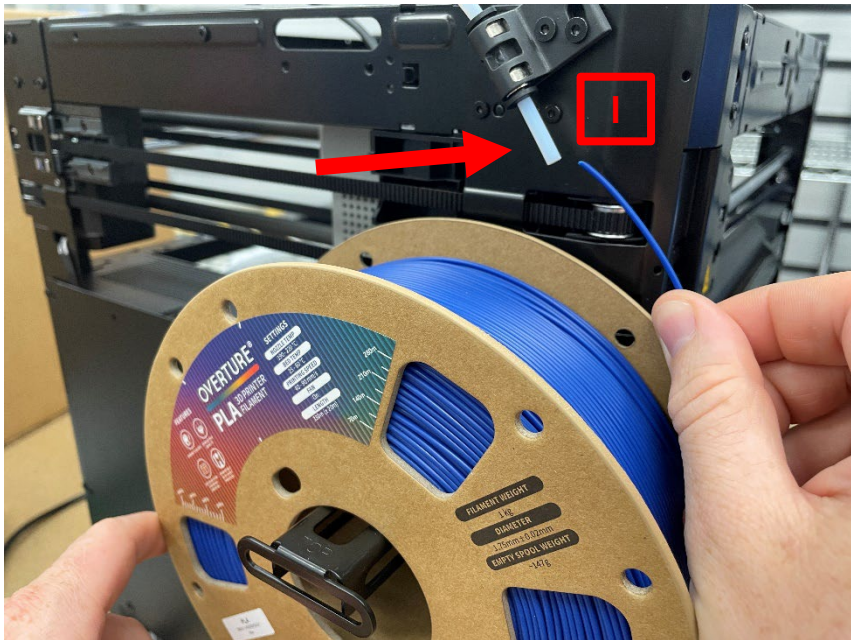


Do not cut above here, the kink from spool storage will affect the loading of the filament






3. Filament Loading (cont.)

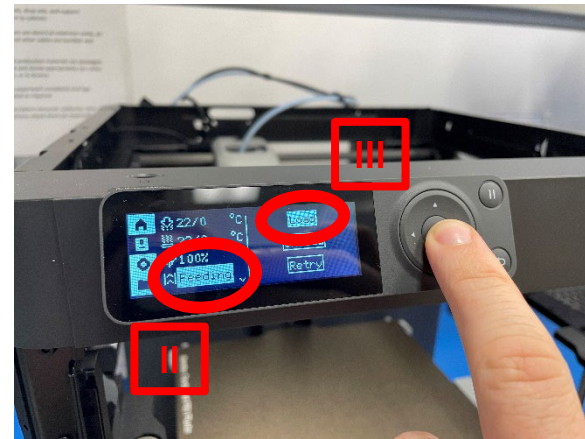
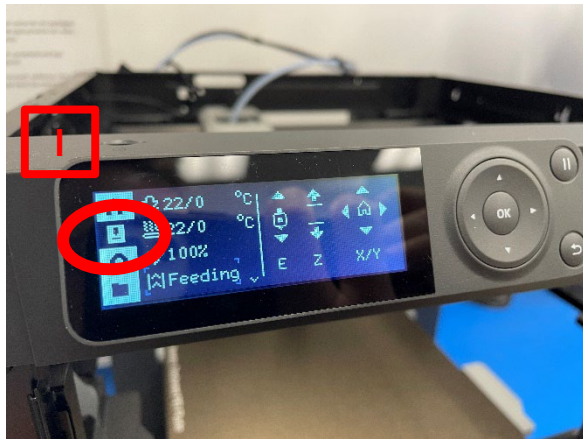
- 3. While holding the cut end of filament, place the filament spool on the printer's spool holder.
- 4. Slowly feed the filament up the **printer's filament guide tube** until you can no longer feed it anymore.
- 5. **Plug in the power cord**, and turn on the printer's **main power switch** on the back of the printer.





3. Filament Loading (cont.)

- On the printer's user interface, using the arrow keys, navigate to the **printer setup icon** (2nd from the top) to prepare to load the filament. 
- Using the arrow keys, navigate down to the **"feeding"** option (this is to load material to the hot end) – the printer will take a minute or so to heat up the hot end to the proper temperature for filament loading. 
- Click **"Load"** and feel the filament going into the guide tube at the back of the printer (make sure the filament is being grabbed and fed into the printer) – if the filament is not being loaded into the hot end, you may need to push the filament slightly until the gears "grab" the filament. 

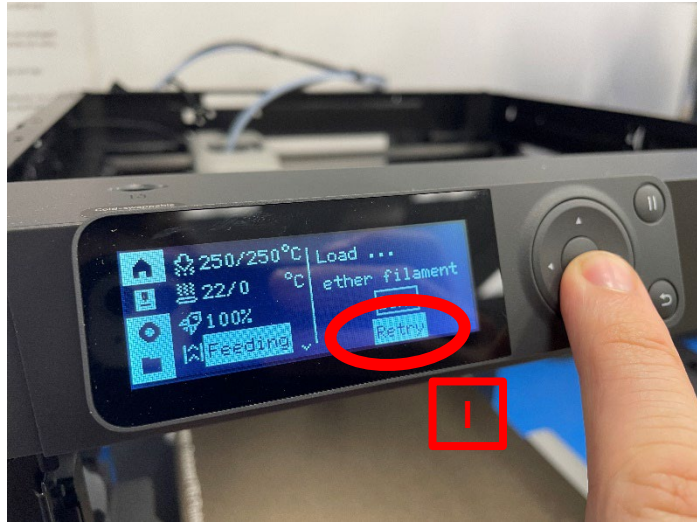




3. Filament Loading (cont.)






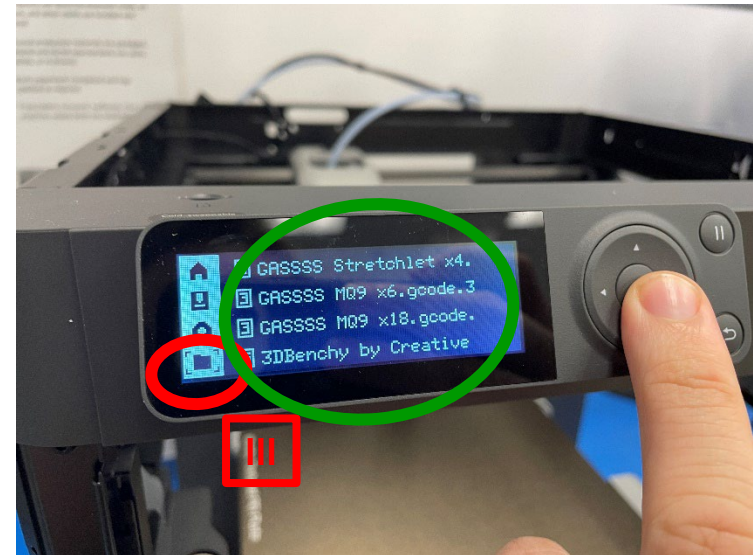
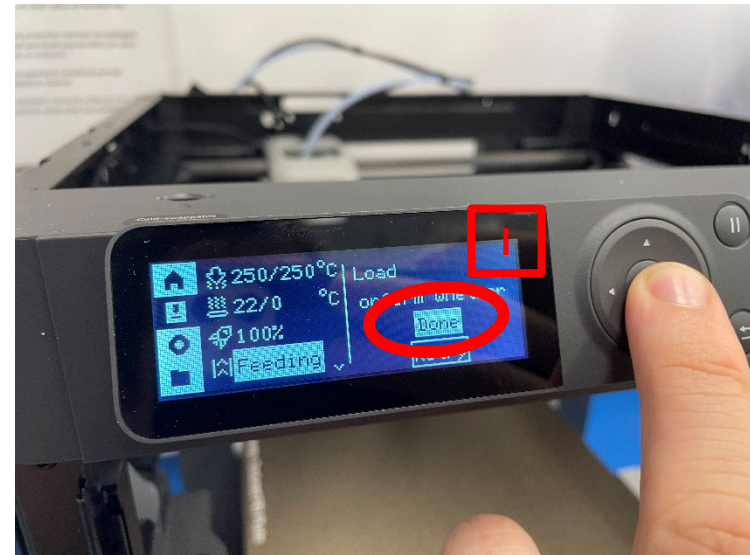
9. You may need to hit the “**retry**” button a few times during the filament loading process until the material begins “purging” from the nozzle.
10. Hit “**retry**” until you see filament coming out of the nozzle (**where red arrow points below**) that is the color you are printing with – this is important if the previous color is different (in this case, the previous color was green, so hitting “retry” was necessary until the filament being purged turned blue).





4. Build Preparation

1. Once the filament is being purged in the correct color. Hit the “done” button on the printer’s user interface. 
2. You are almost ready to print. Ensure the build plate is securely attached to the build platform (it’s magnetic) and is free of any and all debris from storage and/or previous prints. If there are previous prints on the build plate, (if the build plate is cool) grab the front tab of the build plate, flex the plate and the parts should pop off. 
3. Navigate to the “file” icon on the printer’s main menu (bottom-most icon on the left column). This is where you will select which parts you want to print. 
4. Pick your build file. The GASSSS Stretchlet is a GA-branded bracelet – this will print 4 at a time and take about 30 minutes. The GASSSS MQ9 x6 will print 6 mini MQ9s – this will take about 30 minutes to print. The GASSSS MQ9 x18 will print 18 mini MQ9s – this will take about 1 hour to print.

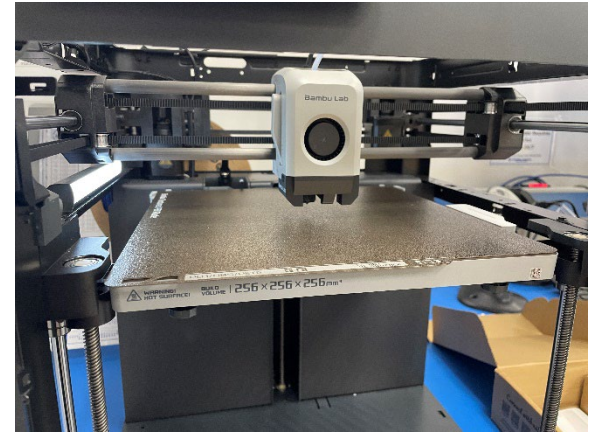
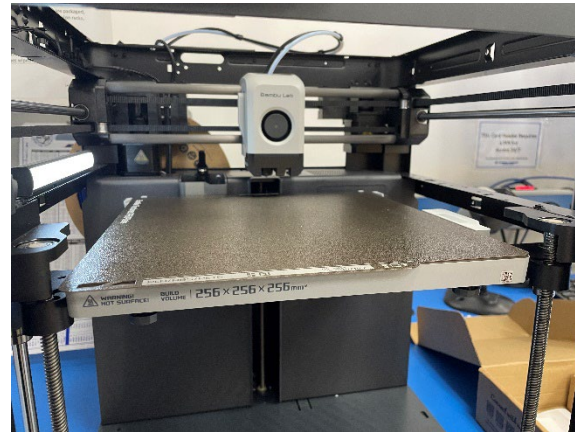
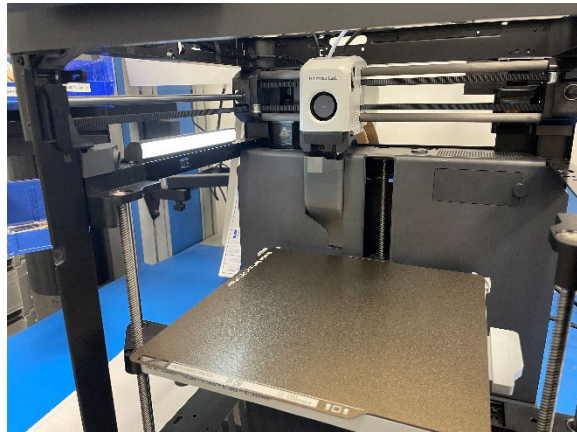
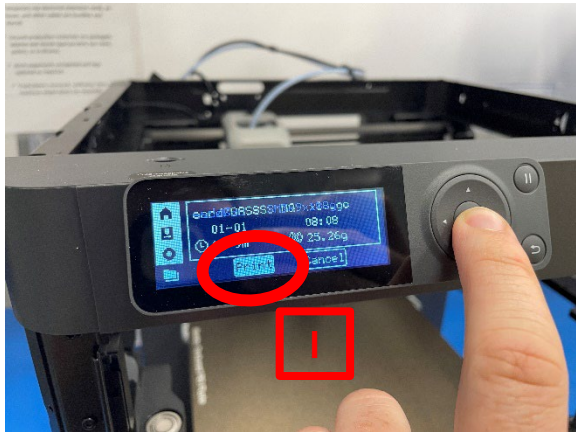




4. Build Preparation (cont.)



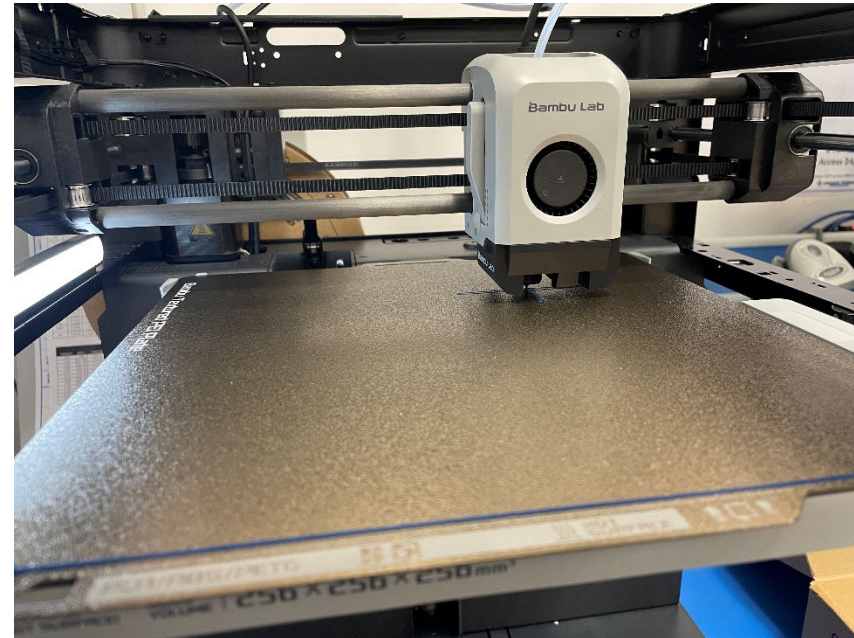
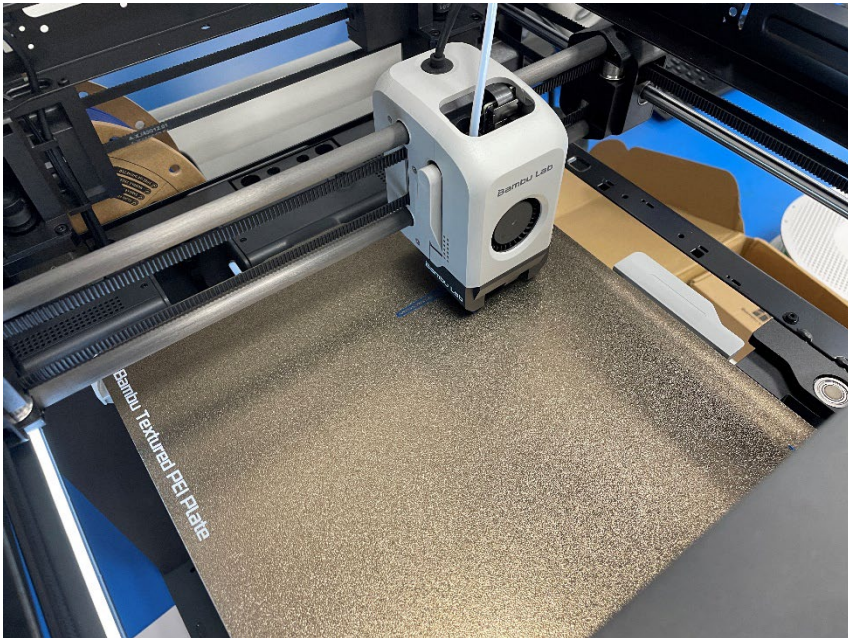
5. Once you select the build file you want to print, click the “print” option on the user interface.
6. The printer will now heat up the nozzle and build plate (this is now the time when you don’t want anyone touching the printer, there will be hot surfaces and the printer will begin moving quickly which could be a pinch hazard if someone has their fingers near the belts and gantry system).
7. The printer will perform a series of self-calibration checks before printing (this will make a vibrating sound and it will probe the bed several times to ensure proper calibration). Once this is complete the build will start automatically.
8. Note that throughout the build the printer will purge filament a few times to ensure clean material in the nozzle, the purged material will be dumped out of the “chute” on the back of the printer.





5. Build Turnover

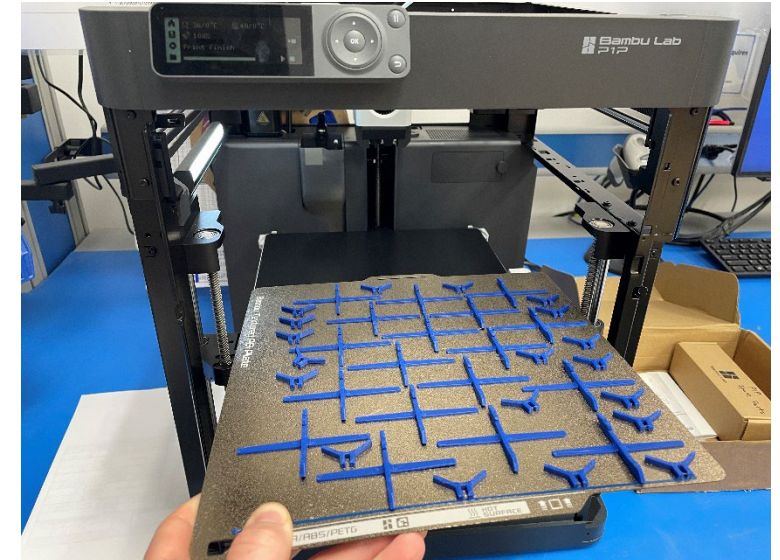
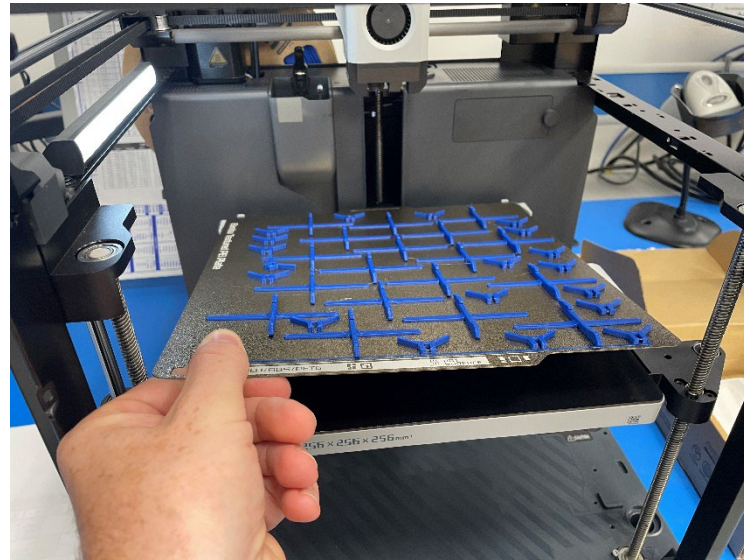
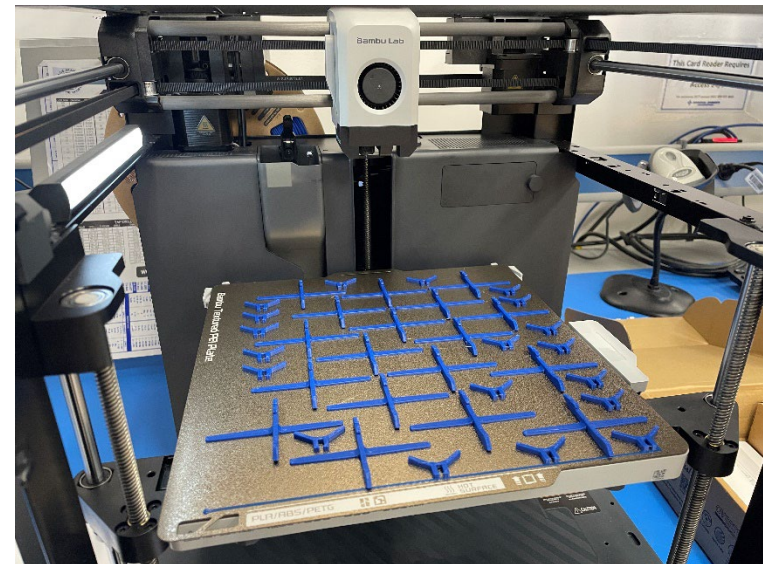
1. Watch the printer in the first few minutes as it begins laying down material. The most likely problem to occur are the prints not completely “sticking” to the build plate. If a part pops off during printing, press the “stop” button on the user interface. Once the build plate has cooled enough to touch, remove the build plate and flex the parts off the build plate to clear the plate completely.
2. Sometimes, especially if outside, extra adhesion promoters are needed to keep the parts stuck to the bed. In the parts/tool box (labeled “P1P Spare Parts”), there is a glue stick that can be used to apply an additional adhesion promoter to help keep the parts secured to the build plate while printing.
3. If a build plate adhesion error occurred, restart the printer in accordance with step 4 on slide 11. If not, proceed normally to slide 14.



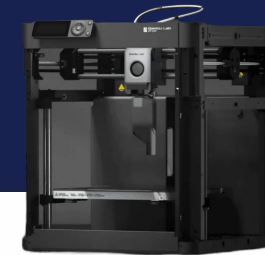
5. Build Turnover (cont.)



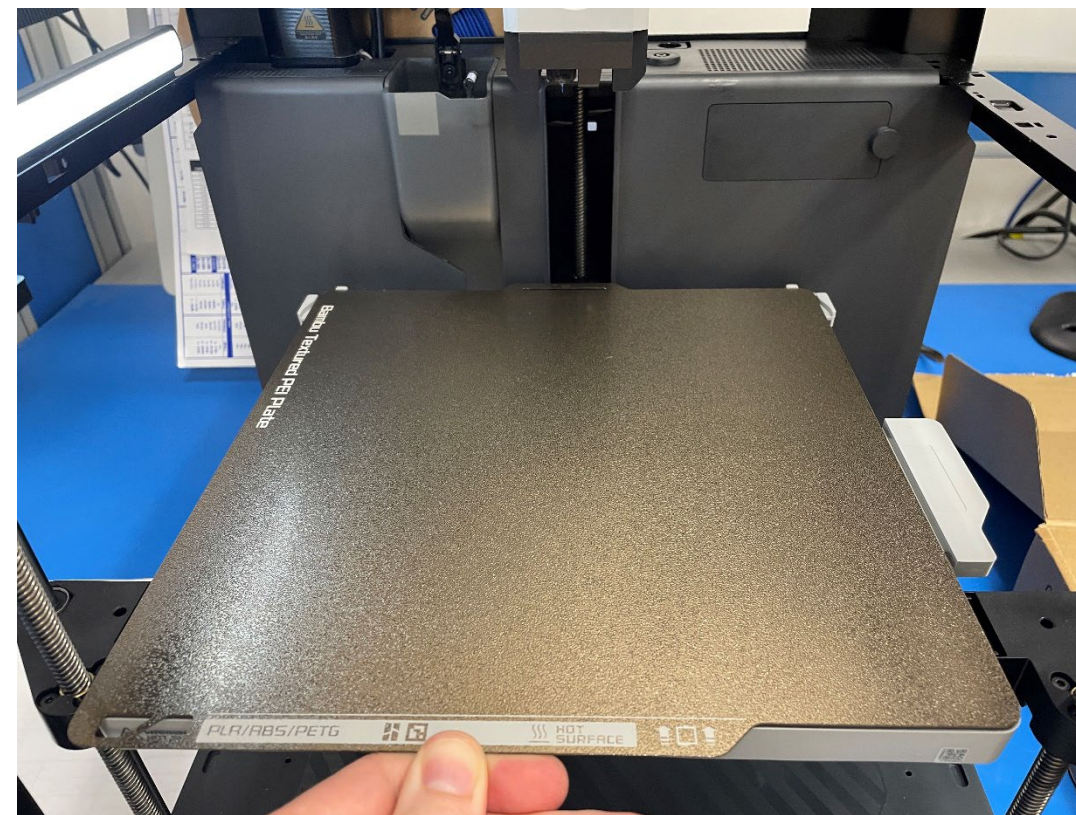
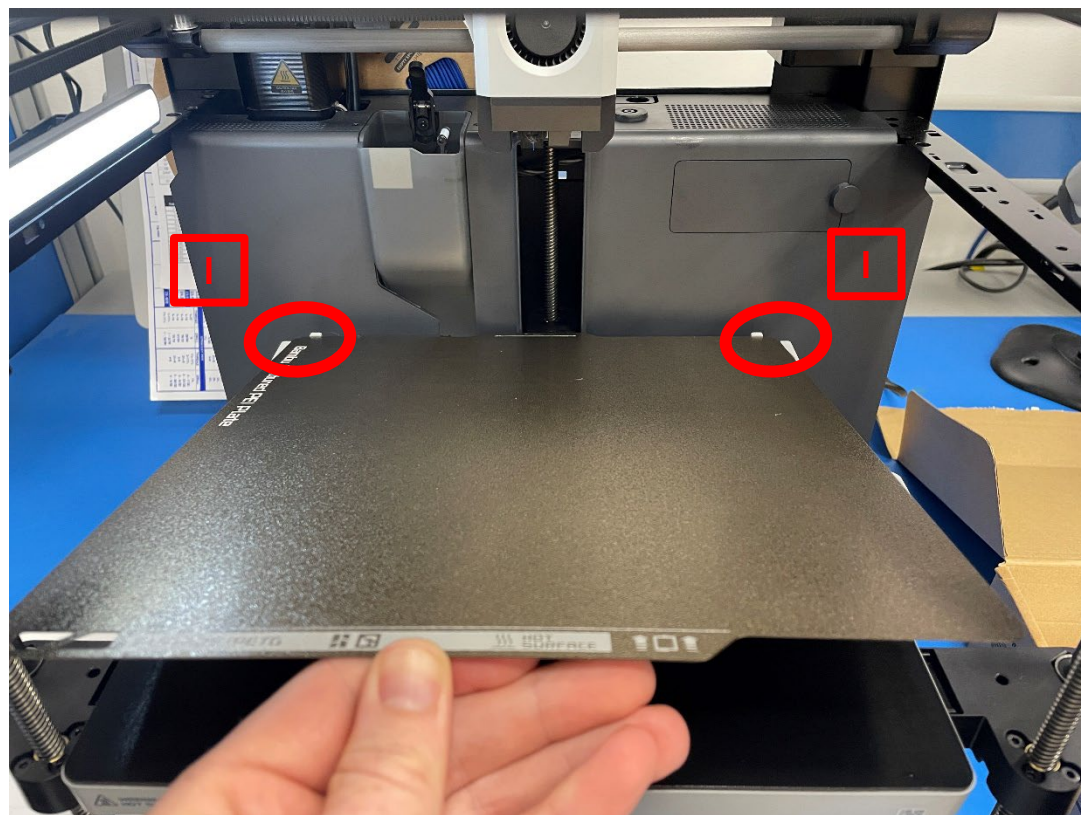
3. Once the print has finished, allow the build plate to cool enough such that it can be touched without any risk for burns.
4. Remove the build plate off of the print platform by grabbing the front tab and gently flex the plate to remove all of printed parts (they also may be able to just be pulled right off if the plate is cool enough).



5. Build Turnover (cont.)



5. With the build plate cleaned-off, place the build plate back onto the build platform, ensuring that it is lined-up with the **alignment tabs** on the back of the build platform and centered with the build platform. The magnetic surfaces will secure the build plate to the build platform.
6. Repeat the process again for any subsequent parts or builds you would like to run during your event.



6. Filament Unloading



1. At the conclusion of your event, prepare the printer for storage by first unloading the material. Navigate to the same menu on the printer's user interface used for loading material (**second icon from the top on the left column**). Navigate to the **"unload"** option and click unload.

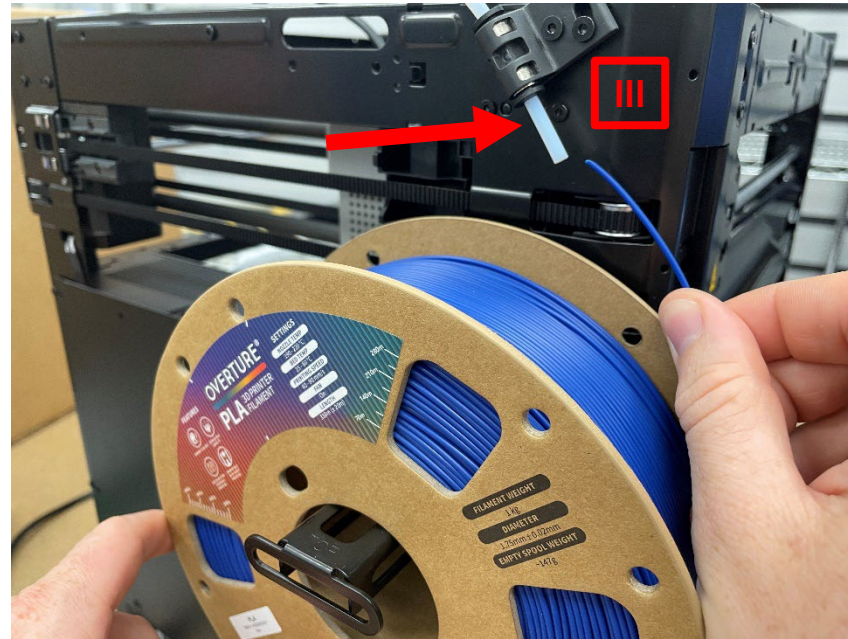
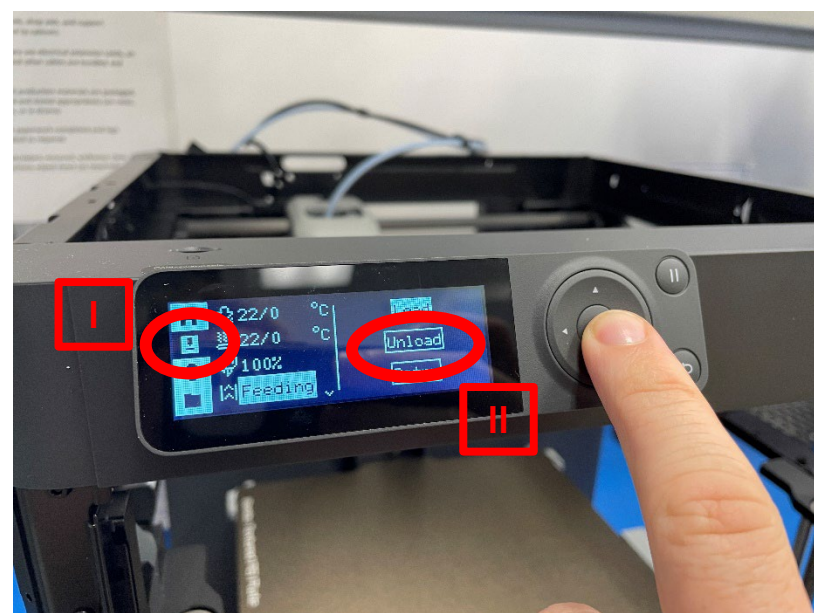


2. The printer will heat up the nozzle, purge any material out of the line, and then back the filament out of the hot end.

3. Once the material has been unloaded, carefully back the filament out of the printer's **filament guide tube** and **re-attach the open end of the filament to the filament spool storage holes** (double looping through multiple holes will ensure the material does not unwind during shipping and handling).



4. Place the used spool back in its box, or off to the side until the printer is ready to be loaded back into its box. The filament can be stored on top of or below the printer's build platform.



7. Printer Teardown



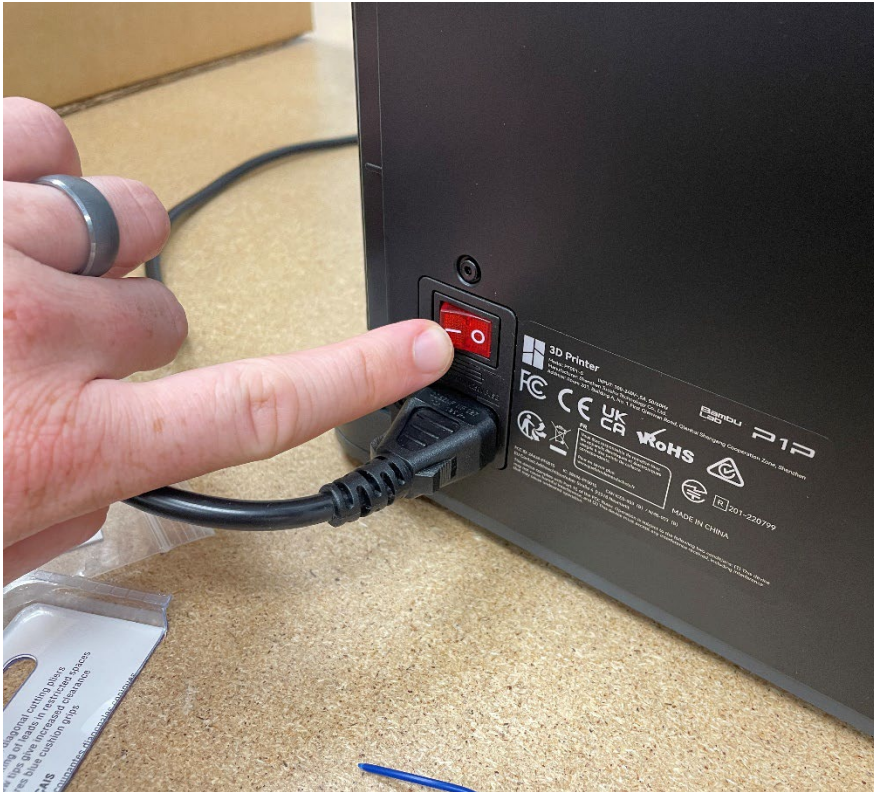
1. Just like during setup, using the hex wrench , remove the spool holder on the backside of the printer with the 2 hex machine screws.
2. Place the two hex machine screws in their appropriate bag.
3. Place the hex wrench, machine screws, and filament spool holder back into parts/tool box.





7. Printer Teardown (cont.)

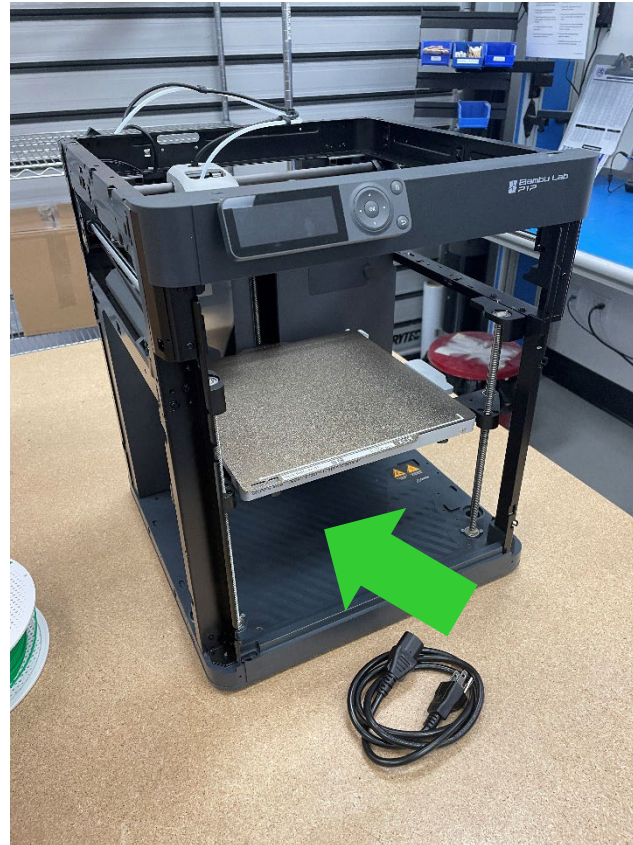
4. Turn the printer's main power switch to the "off" position.
5. Unplug the printer and remove the power cord. Neatly wrap-up the power cord for storage in the box.





8. Printer Packaging

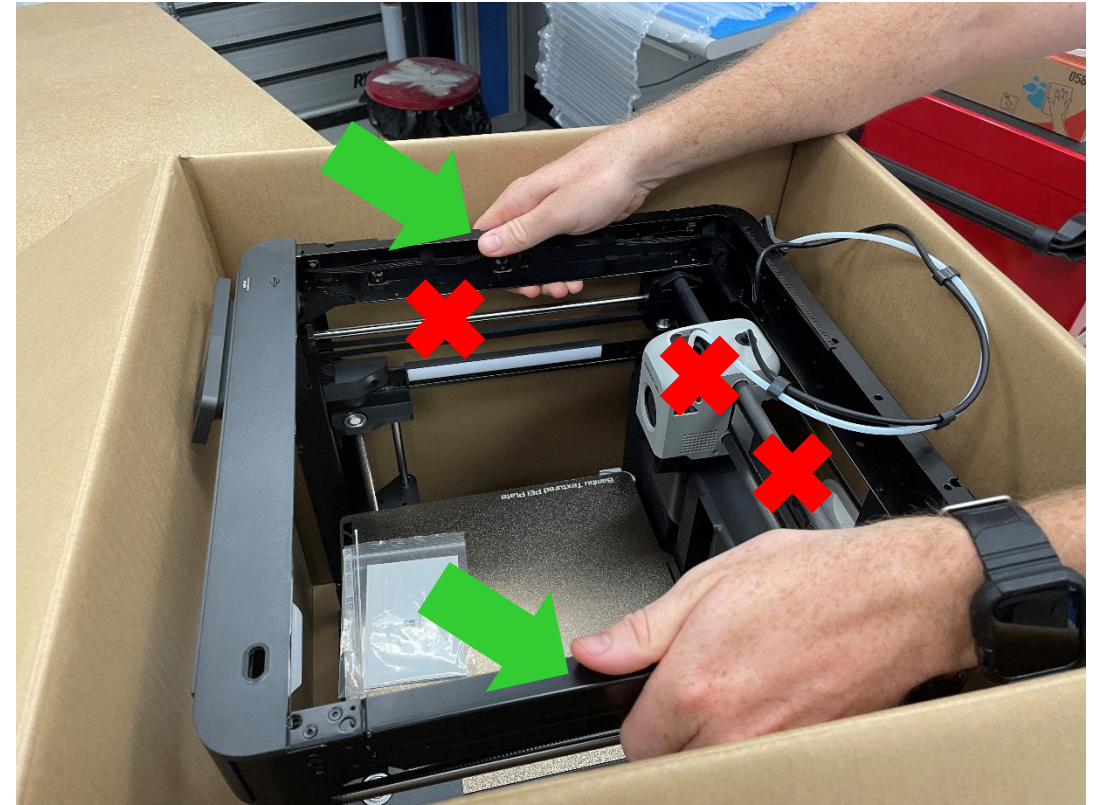
1. Remove all protective packaging from printer's storage box.
2. Place one sheet of the protective plastic air packaging on the bottom of the box to protect the bottom of the printer.
3. Place the filament spool, parts/tool box, and power cord below the build platform of the printer (NOT BELOW THE ENTIRE PRINTER).



8. Printer Packaging (cont.)



- 4. Carefully grasp the printer from the main (black) frame rails (not the gantry rail or gantry belts and lower the printer back into the storage box.





8. Printer Packaging (cont.)

5. Place the remaining protective packaging in and around the printer inside of the storage box.
6. Close the box back up and re-tape the lid shut (if tape is available).



Additional Filament Purchasing



- Additional filament spools can be purchased easily for this printer.
- The most readily available vendor to purchase from is Amazon.
- The recommended material type is PLA.
- The recommended manufacturer is Overture.
- The required filament diameter size is 1.75 mm.
- Any color will work fine.

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Color	1kg White
Item Weight	2.2 Pounds
Item Diameter	1.75 Millimeters