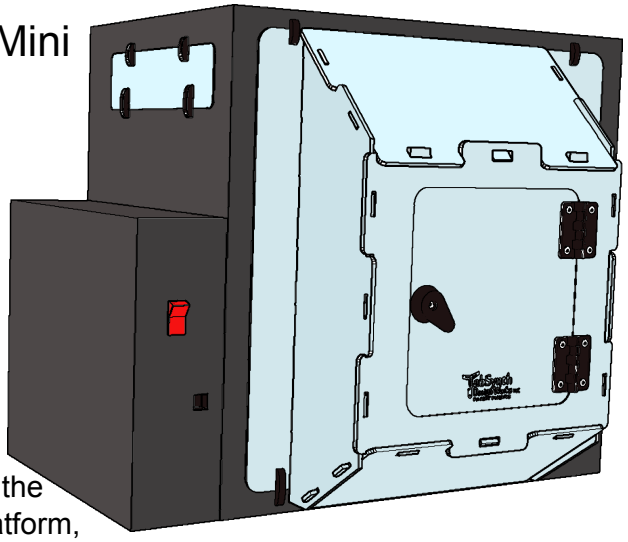
Acrylic 3D Printer Enclosure

Made for: Lulzbot Mini

With new patent-pending Tab & Slot snap fit assembly by:

TabSynth Design Works LLC

www.TabSynth.com



This enclosure, by TabSynth Design Works LLC, is designed for the Lulzbot Mini 3D printer. This enclosure fits closely into the panel openings on your printer, reducing drafts on the print platform, improving print quality, and reducing the tendency for warping on larger prints.

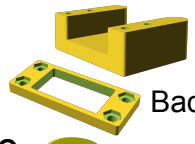
In addition to printer design, 3D printing involves a dynamic combination of variables: geometry, slicing parameters, plastic filament, and environment. Any one of these variables can have a significant effect on the quality of your prints.

This enclosure is an attempt to reduce some of the environmental variables which can adversely impact your printing. It changes the internal operating conditions in ways that the manufacturer did not intend, or test.

While this modification has exceded our expectations, it should still be considered an experimental setup, and no guarantee, implied or explicit, is made as to the serviceability or fitness for use in your particular environment. Should you wish to, the enclosure is easy to remove. As always, paying close attention to your printer and it's operating condition, is key to successful printing and safe operation of your printer. TabSynth Design Works warrants this product against manufacturing defects only.

Kit Parts List:


Handle & Latch assembled


Arm Bracket

Backing Plate

2x  Hinges

8x  Sm. Panel Clips

13x  M3 Nuts

8x  Lg. Panel Clips

4x  Arm Bracket Screws (M3x20)

8x  Hinge Screws (M3x10)

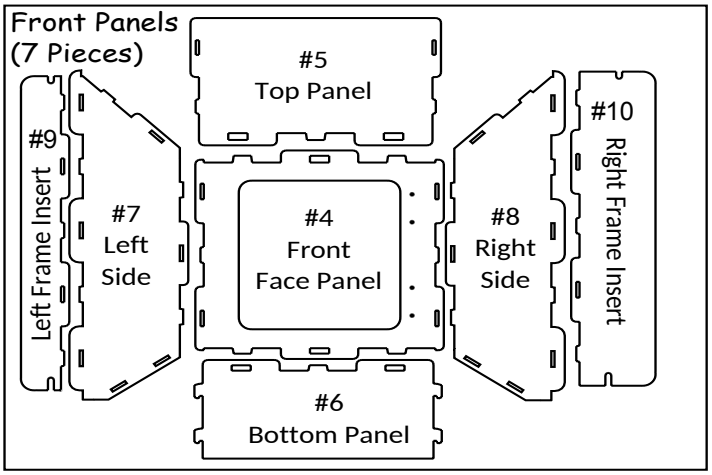
1x  Latch Screw and nut (M3x16)

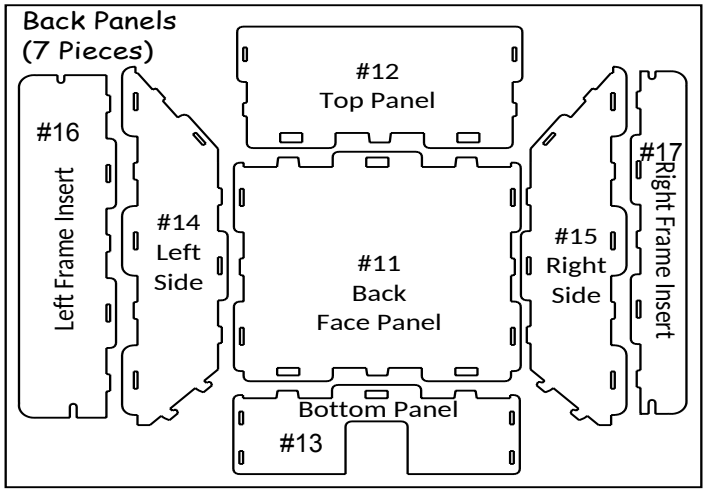
8x  Plastic Hex Washers

Tools Required:

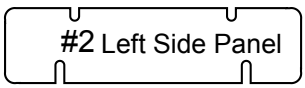

3 mm Hex wrench

2 mm Hex wrench

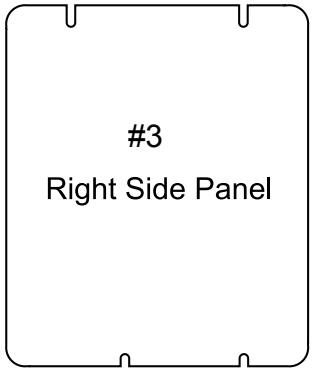


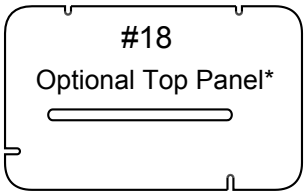


Side Panels (2 Pieces)


#2 Left Side Panel


#1
Door


#3
Right Side Panel

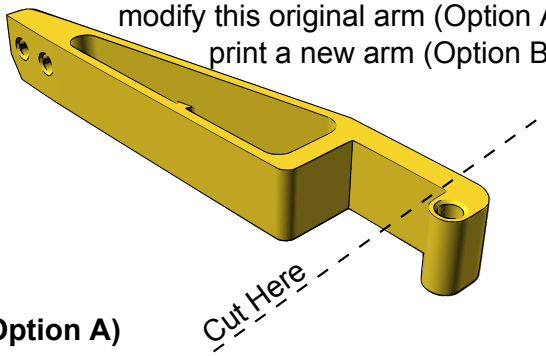

#18
Optional Top Panel*

*To order go to www.DrazzticAction.com or email info@DrazzticAction.com

Install the Removable Spool Arm

Step 1:

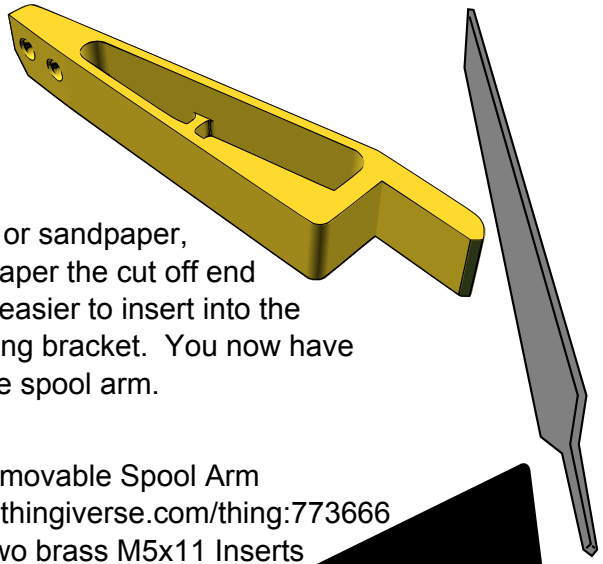
Remove the original spool arm using a 3mm Hex wrench to take out the two pivot bolts. Next decide whether you want to modify this original arm (Option A), or print a new arm (Option B).



(Option A)

If you decide to modify the original arm: Use a hack saw or band saw to cut the hinge portion from the arm.

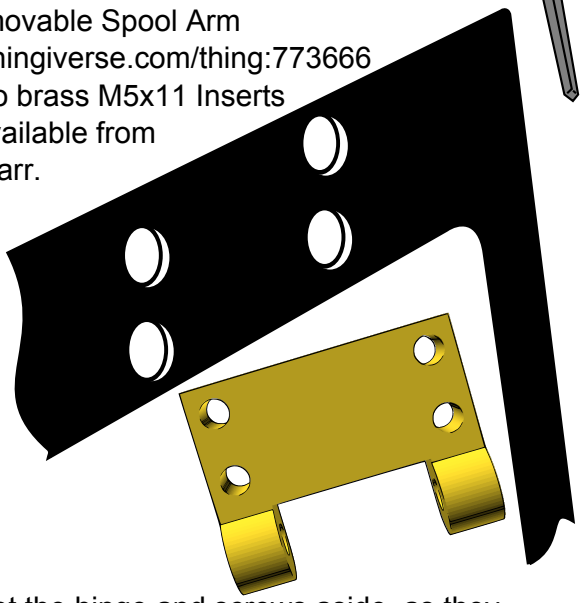
Step 2: (Option A)



Using a file or sandpaper, round and taper the cut off end so that it is easier to insert into the new mounting bracket. You now have a removable spool arm.

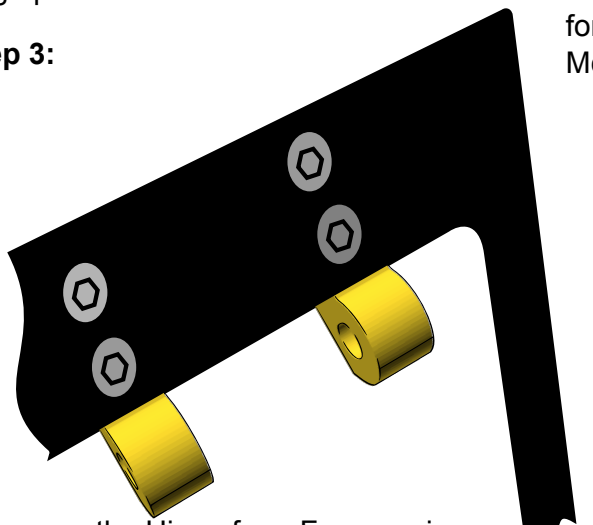
(Option B)

Print the removable Spool Arm
http://www.thingiverse.com/thing:773666
Requires two brass M5x11 Inserts for plastic available from Mcmaster-Carr.



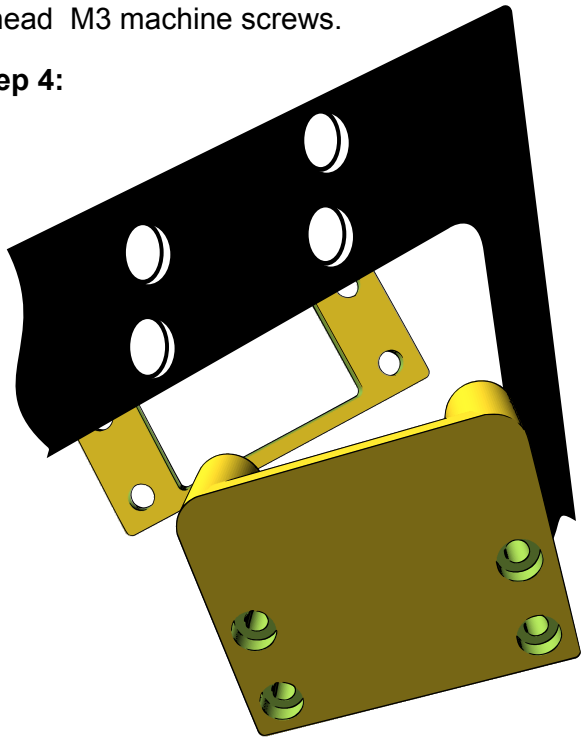
Set the hinge and screws aside, as they will not be used with this modification.

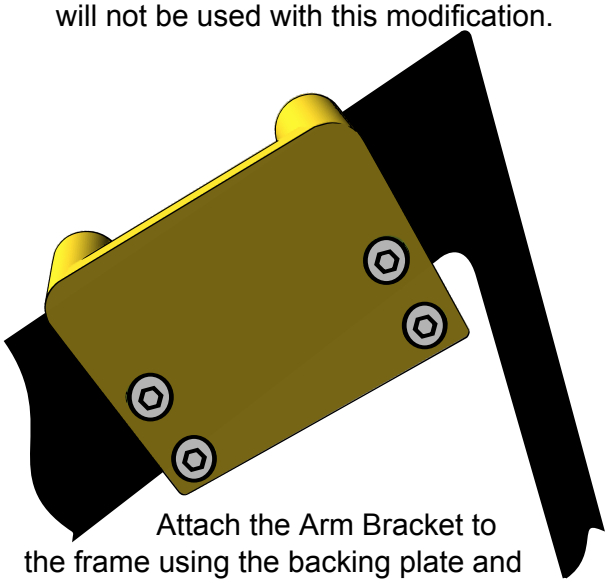
Step 3:



Remove the Hinge from Frame using a 2mm hex wrench to remove the four flat head M3 machine screws.

Step 4:

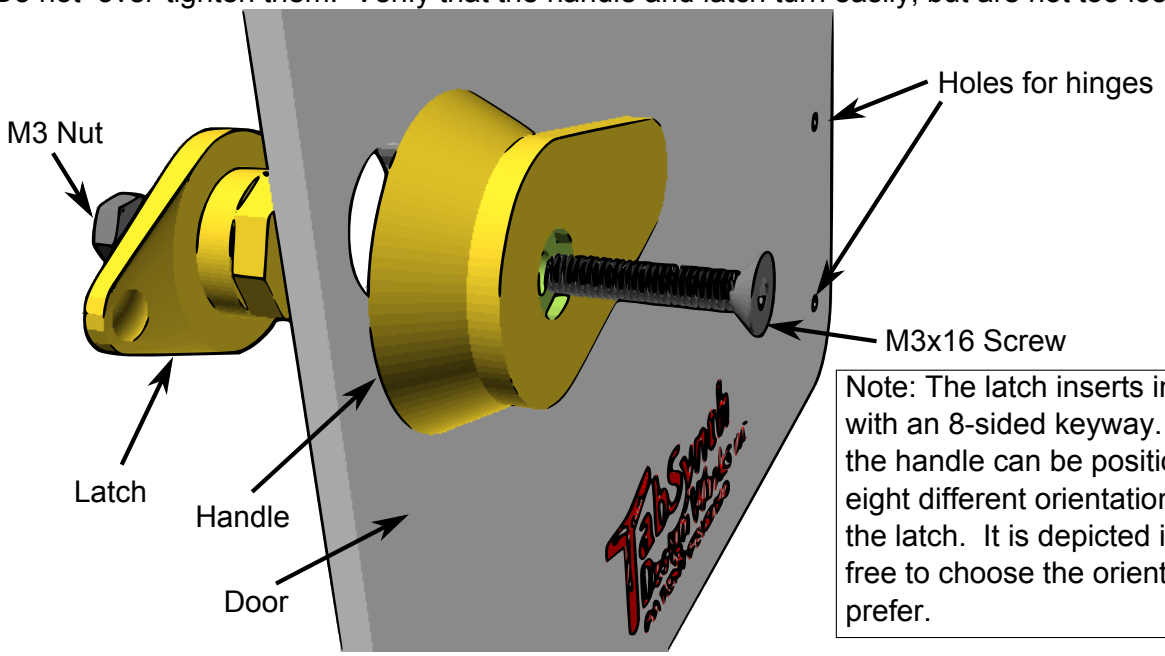




Attach the Arm Bracket to the frame using the backing plate and four long M3x20 machine screws supplied. The backing plate goes on the inside of the frame. The Arm Bracket goes on the outside, with the rounded side facing up. Insert the removable spool arm into the bracket from the top, fully seating it.

Install the Door Latch and Hinges

Step 5: First use a 2mm Hex wrench to remove the screw holding the door handle and latch together. Next get the Door panel (#1) and install the door latch from the inside through the large hole in the door, with the handle on the ouside, and the holes for the hinges to the right, as you look at the front of the door. Secure the latch and handle with the provided M3x16 screw and nut, using your 2mm hex wrench. Do not over-tighten them. Verify that the handle and latch turn easily, but are not too loose.

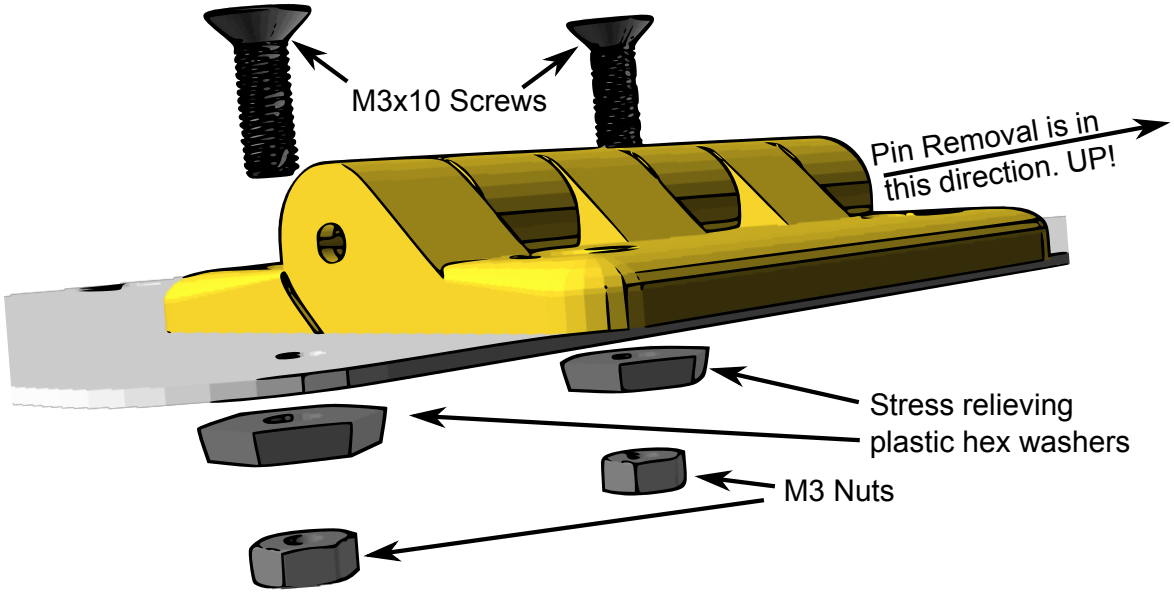


Note: The latch inserts into the handle with an 8-sided keyway. This means that the handle can be positioned in any of eight different orientations relative to the latch. It is depicted in-line, but you are free to choose the orientation which you prefer.

OPTIONAL: You may choose to reverse the door, and have the hinges on the left, if you wish. To do so, just flip the door when installing the handle, latch and hinges. You must also flip the Front Face Plate (#4), so that the hinge holes are on the left when assembling the front panels.

The instructions show the assembly of the front panel without the door installed simply for clarity. You may elect to install the door before assembling the front bay of the enclosure.

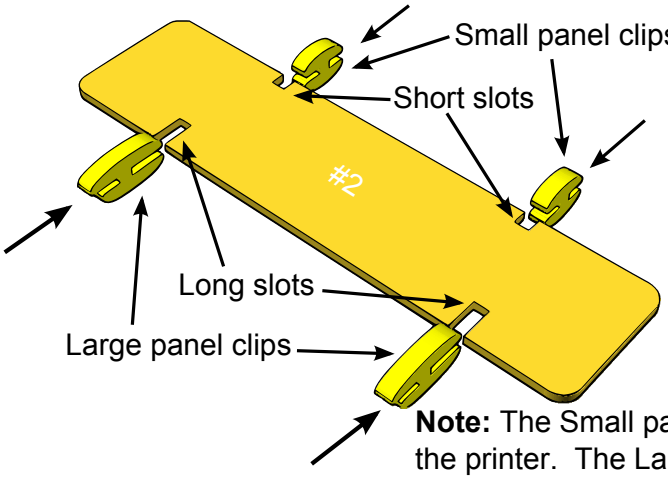
Step 6: Install the two hinges on Door (#1) using four short M3x10 machines screws. The hinge pin, in the center of each hinge is removable from one end. That end should point up when installed. Secure each screw to the door with a stress relieving plastic hex washer and M3 nut.

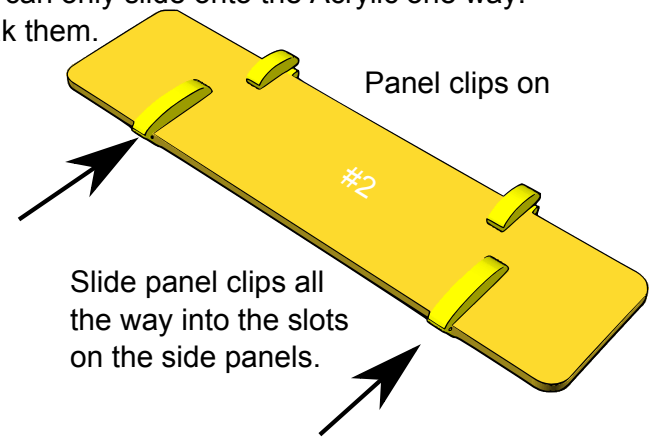


Take care not to over tighten the screws. You want them secure, but not too tight.
Important: The acrylic panels can be cracked, if you apply too much force to them, during assembly.

Installing Side Panels on Printer

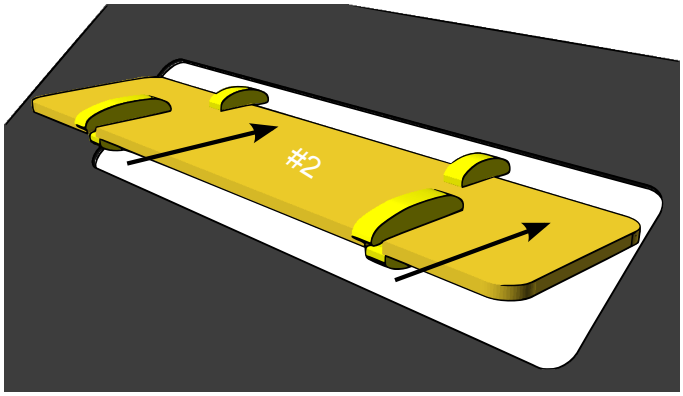
Step 7: Slide the panel clips onto the Left Side Panel (#2) as shown. Two small panel clips slide into the two small slots on the top of the panel, and two large panel clips slide into the two large slots on the bottom of the panel. **Important:** The panel clips are designed for a close fit on the printer wall, which is thinner than the Acrylic panels, so they can only slide onto the Acrylic one way. Attempting to force them on reversed may break them.

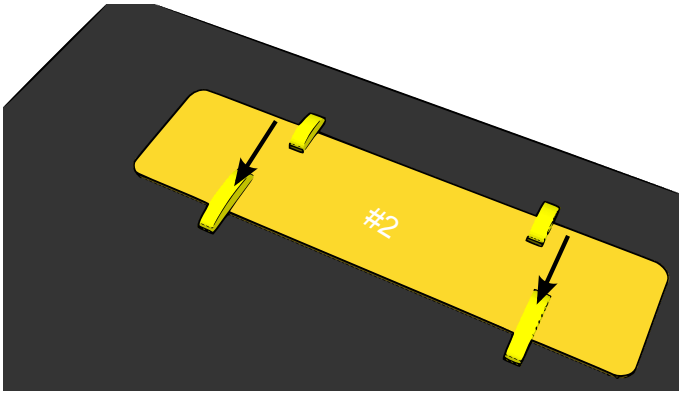




Note: The Small panel clips should protrude in order to engage the frame of the printer. The Large panel clips should be pushed all the way in for installation, and then pulled down to lock the panel in place on the printer

Step 8: Install the Left Side Panel (#2) into the left side opening on the printer frame by first engaging the small panel clips, at the top on the frame edge, then rotate the panel into position. The lower clips protrude just enough to catch the lower edge of the frame opening and hold the panel securely in position. Slide the lower clips down to engage the printer frame and lock the panel into position. Since the clips are designed to be a close fit to the frame, you may need to wiggle the panel a bit to get them to slide down over the frame edge. It should not require a great deal of force.





Step 9: Install the Right Side Panel (#3) into the opening on the right side of the printer's frame, just as you did for the Left Side Panel (#2). Removing the panels is simply the reverse of installation. Slide the two lower clips up, and rotate the panel out.

Important Note on Cleaning Acrylic:

Laser cut Acrylic panels should only be cleaned with water, using a damp soft cotton cloth. Any solvent cleaner, such as alcohol or glass cleaner, may cause the acrylic to craze and crack.

About your Acrylic enclosure:

Your enclosure is made from acrylic panels which have been precisely cut to exactly fit your model printer. Take care when assembling and installing your enclosure panels. They can be assembled easily, and require only a modest bending force to engage tab and slot joints. Acrylic panels can break if subjected to impact or significant bending force. If it is hard to put two pieces together - STOP! Look closely at what you are doing. You likely have something misaligned. Be Gentle!

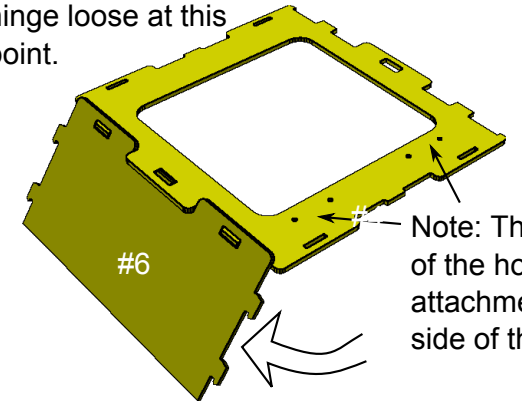
Assembly of the Front the Enclosure

Gather the seven acrylic pieces for the front of the enclosure (#4-10) and remove the protective plastic film from all panels before assembly.

About your Acrylic enclosure:

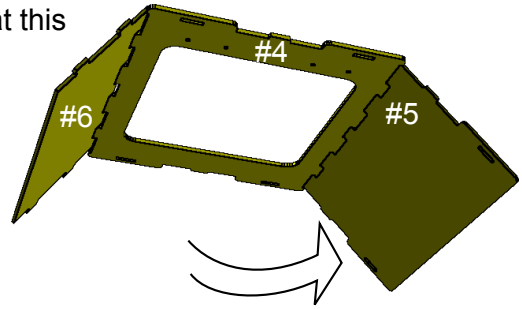
Your enclosure is made from acrylic panels which have been precisely cut to exactly fit your model printer. Take care when assembling and installing your enclosure panels. They can be assembled easily, and require only a modest bending force to engage tab and slot joints. Acrylic panels can break if subjected to impact or significant bending force. Ifit is hard to put two pieces together - STOP! Look closely at what you are doing. You likely have something misaligned. Be gentle.

Step 10: Insert the bottom panel (#6) of the front bay into the front face panel, (#4) with a slight bending motion, and rotating into position to engage the slots and tabs. The attachment should hinge loose at this point.

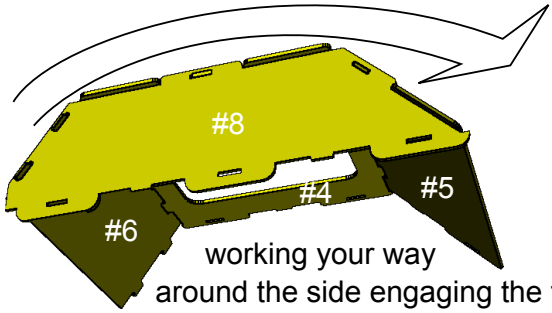


Note: The position of the holes for hinge attachment on the right side of the front panel.

Step 11: Insert the top panel (#5) of the front bay into the front face panel (#4) in the same manner as the bottom panel (#6). Both should freely hinge at this point.

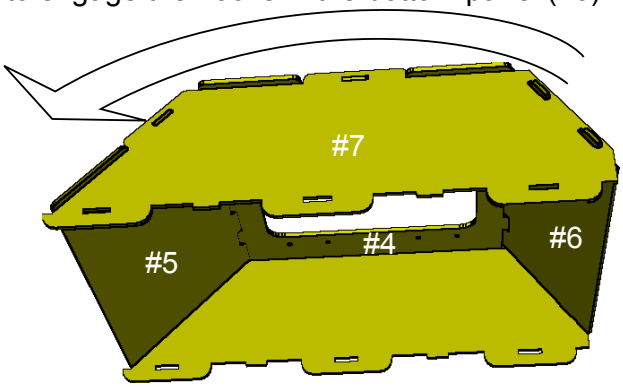


Step 12: Insert the right side panel (#8) by first engaging the hook tabs on the botttom panel (#6) into the slots on the side panel (#8)

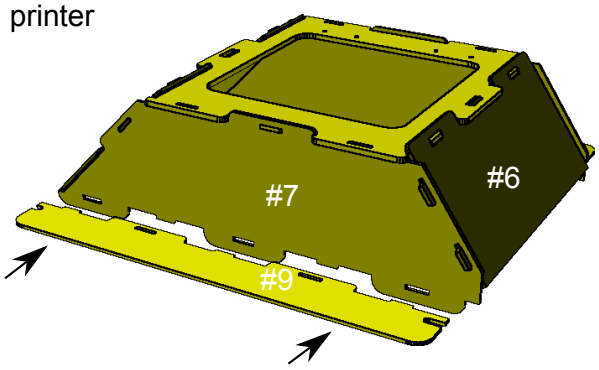


working your way around the side engaging the tabs and slots of the Front panel (#4) and then the top panel (#5) with a slight bending motion.

Step 13: Repeat with the left side panel (#7). Be sure to engage the hooks in the bottom panel (#6) first.

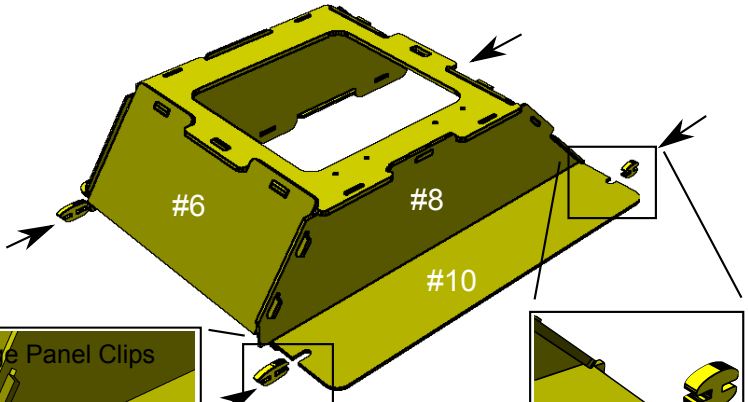


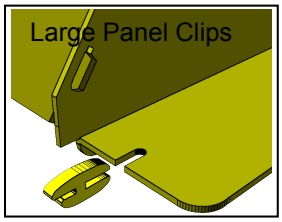
Step 14: Attach the left side insert (#9) to the left side panel (#7) with a slight bending motion. The long panel clip slot goes to the bottom of the printer

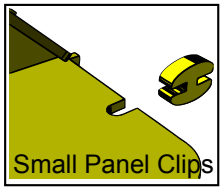


Note: Left and right sides are as viewed from the front of the printer with the bays installed. Be sure that the left and right inserts are installed correctly.

Step 15: Attach the right side insert (#10) to the right side panel (#8). Next attach the small and large panel clips.







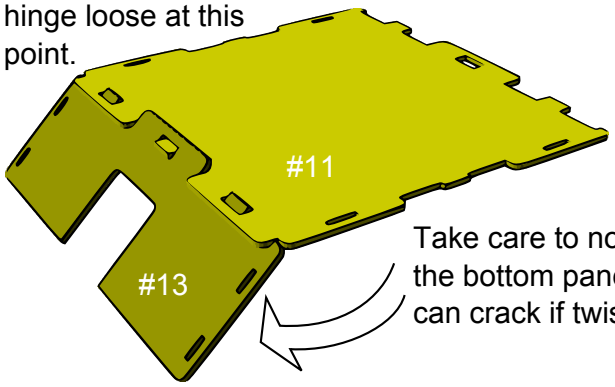
Assembly of the Back of the Enclosure

Gather the seven acrylic pieces (#11-#17) for the back of the enclosure and remove the protective plastic film from all parts before assembly.

About your Acrylic enclosure:

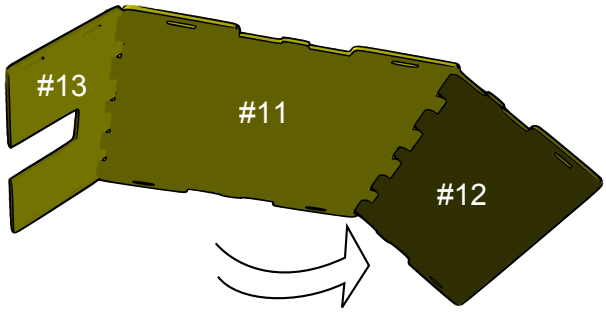
Your enclosure is made from acrylic panels which have been precisely cut to exactly fit your model printer. Take care when assembling and installing your enclosure panels. They can be assembled easily, and require only a modest bending force to engage tab and slot joints. Acrylic panels can break if subjected to impact or significant bending force. Ifit is hard to put two pieces together - STOP! Look closely at what you are doing. You likely have something misaligned. Be gentle.

Step 16: Insert the bottom panel (#13) of the back bay into the back face panel (#11), with a slight bending motion, and rotating into position to engage the slots and tabs. Attachment should hinge loose at this point.



Take care to not force the bottom panel. As it can crack if twisted.

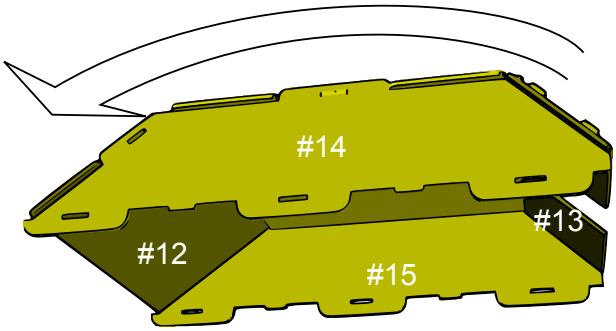
Step 17: Insert the top panel (#12) of the back bay into the back face panel (#11) in the same manner as the bottom panel. Both should freely hinge at this point.



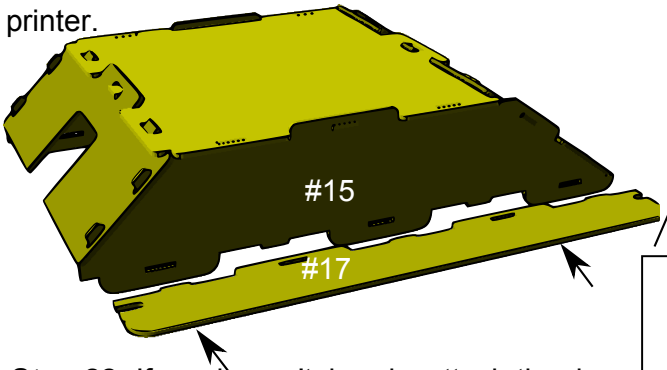
Step 18: Insert the right side panel (#15) by first engaging the hook tabs into the botttom panel (#13) working your way around the

side engaging the tabs and slots with a slight bending motion.

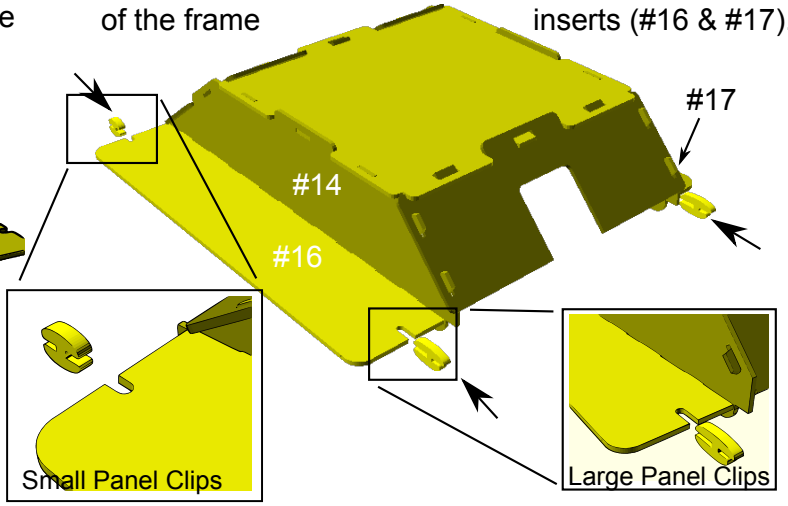
Step 19: Repeat with the left side panel (#14). Be sure to engage the hooks in the bottom panel (#13) first.



Step 20: Attach the left side frame insert (#17) to the back bay assembly with a slight bending motion. The long panel clip slot goes to the bottom of the printer.



Step 21: Repeat with the right side frame insert (#16). Then attach the small and large panel clips to each end of the frame inserts (#16 & #17).



Step 22: If you haven'talready, attach the door to the front of the enclosure (panel #4) using remaining M3x10 screws, nuts and stress relieving plastic hex washers.

Step 23: Install the assembled front and back bays to your printer using the panel clips to engage the printer frame and secure the enlosure in place.

