3D printing workshop 2

By Friend

Workshops

1. Find a model, getting printing profile, slicing, removing item from bed, safety
2. Area explanation, safety, removing support, cleaning bed, changing filament, swapping extruder head, troubleshooting
3. Blender basics, stitching models together

After these three workshops, you should be able to do these by yourself: take the idea you have, make a model, print it out, simple post-process. This should help cut down time in our development cycle from initial ideas discussion, to us starting the discussion iterating from first working prototype you've made.

If there’s a word you don’t understand in the slide, let me know and I’ll add it here

- Purging: pushing old filament out of nozzle as completely as you can, so it doesn’t mix with the new filament in the print
- Skirt/brim: types of bed adhesion helper
- PEI sheet: a special sheet glued to the heated glass bed, it helps with adhesion

Tools

- Located at bench
- Both hand tools and safety tools

Friend’s stuff

- I have some snacks and clean clothes in there
- If you’re stay late and get hungry, feel free to take something; just tell me afterwards
  - Don’t take my ice cream in the fridge though
- If you spill water/chemical on yourself, feel free to take my shirt; just tell me afterwards
  - There is: 1 t-shirt, 1 pair of socks, 1 boxers, 1 small towel
  - Wash it before you return too please

Filaments

- Hive’s current use filaments stored in here
- Has loads of humidity sucking packs (I don’t know the formal name), so put filaments back in there once you’re done with it
- If you ever buy your own filament, feel free to ask me for a storage bag

Safety sheets

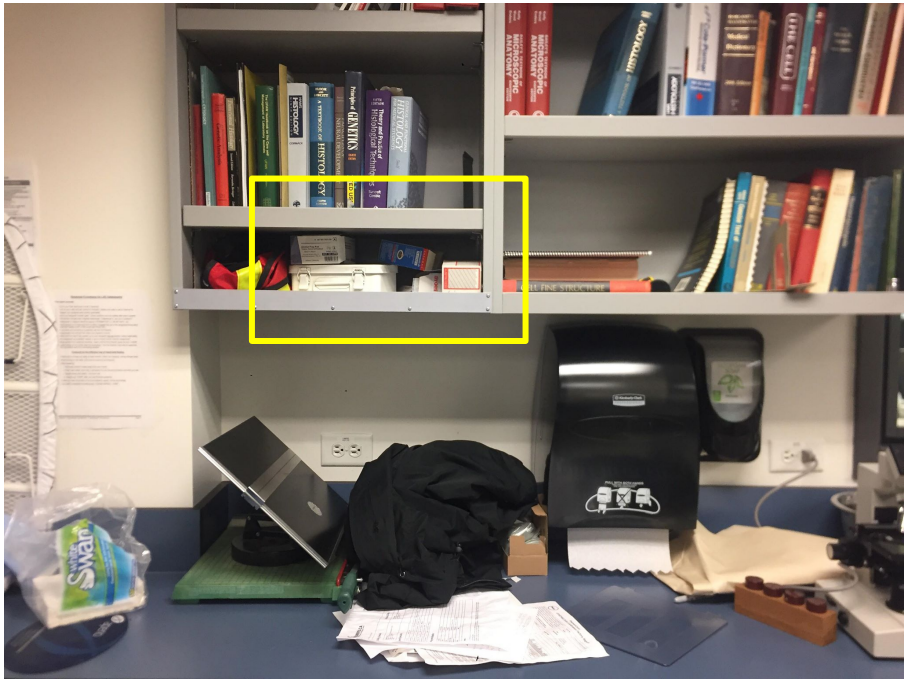
- Simplified safety guide is in github.com/rprakitpong/HIVE-3Dprinters under “HIVE-3Dprinters” -> ”Taz 6” -> ”Documentations” -> ”Maintenance” -> ”Info sheets” -> ”Super simplified safety sheet pdf.pdf”
- Also located above the printer

Trash

- If it’s 3d printed trash, put it into recycling bin (yellow highlight)
- Otherwise, normal bin (green highlight)

First aid stuff

- There’s band aid and alcohol wipes if you ever cut yourself



Safety

- Key points:
  - If you have something sharp in one hand, put gloves in the other
  - Don’t directly touch hot stuff
  - Don’t hesitate to call me if there’s any issues
    - My number: 778-927-7563

Laptop

- Password is the same as all other laptops
  - If you don’t know, ask around
- There’s Cura Lulzbot with all the settings already loaded
- It’s a bit slow though

Removing support

- You should have your prints from workshop 1 where the supports needs to be removed
- Use pliers and cutters to pull out support material
- It’s a skill you’ll eventually get better at
- If dual extruder and you use soluble support: if HIPS, put it in limonene and close the lid, wait for a day for HIPS to get gooey and easy to remove

Cleaning bed

- Normally, you don’t have to do this
- Mix 20% isopropyl alcohol, 80% water in a cup (there’s a plastic cup on the bench), use paper towel to wipe solution on the bed, then wipe again with water
- Use P1500 sandpaper (on bench) to sand the bed, then wipe with water
- These two steps are interchangable

Changing filament

- Heat nozzle to around 160C
  - 160C generally works with most plastic types
  - Home screen -> “Temperature” -> “Nozzle” -> Scroll to 160C
  - You’ve learned how to navigate the LCD so I won’t go into the detail here
- When it reaches temperature, lift idler retainer as shown so nothing clamps the filament

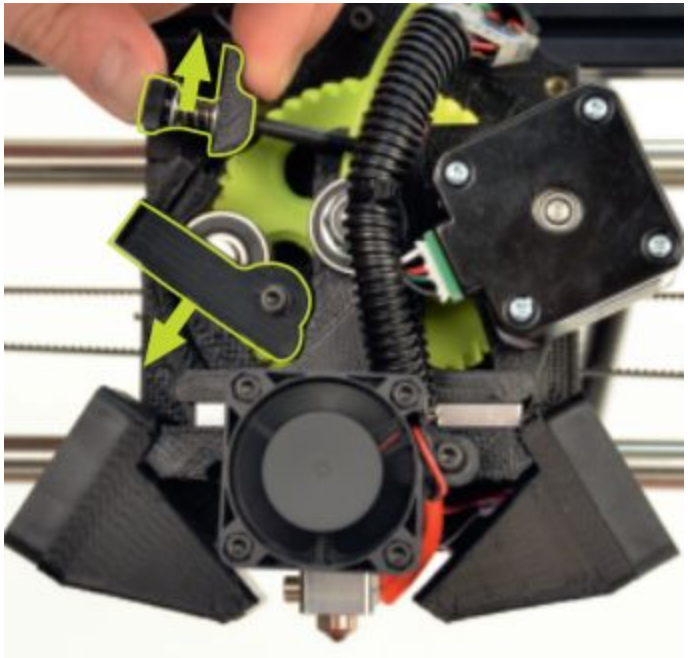
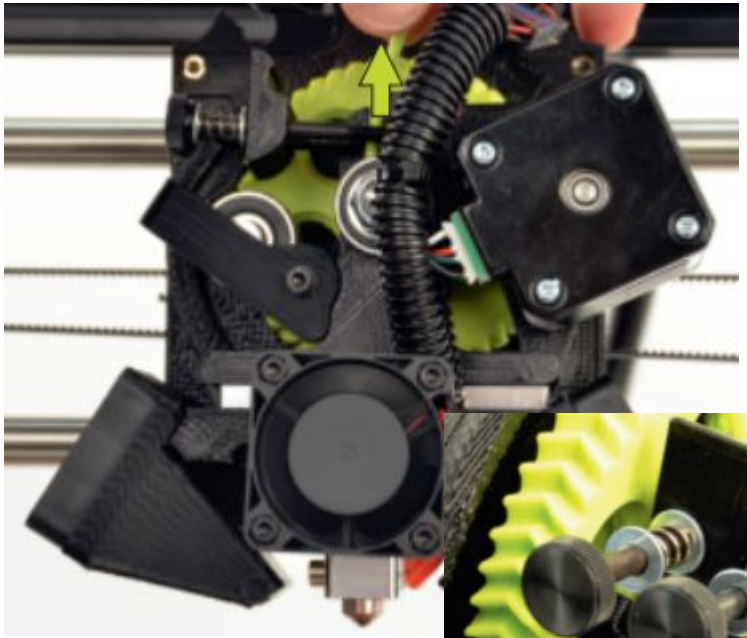


Image from download.lulzbot.com/TAZ/6.01/documentation/guide/PDFs_for_web/TAZ_6_QSG_OPERATION_WEB.pdf

Changing filament

- Pull out filament, then put your desired filament in
- Make sure it goes through the feed hole

Image from download.lulzbot.com/TAZ/6.01/documentation/guide/PDFs_for_web/TAZ_6_QSG_OPERATION_WEB.pdf



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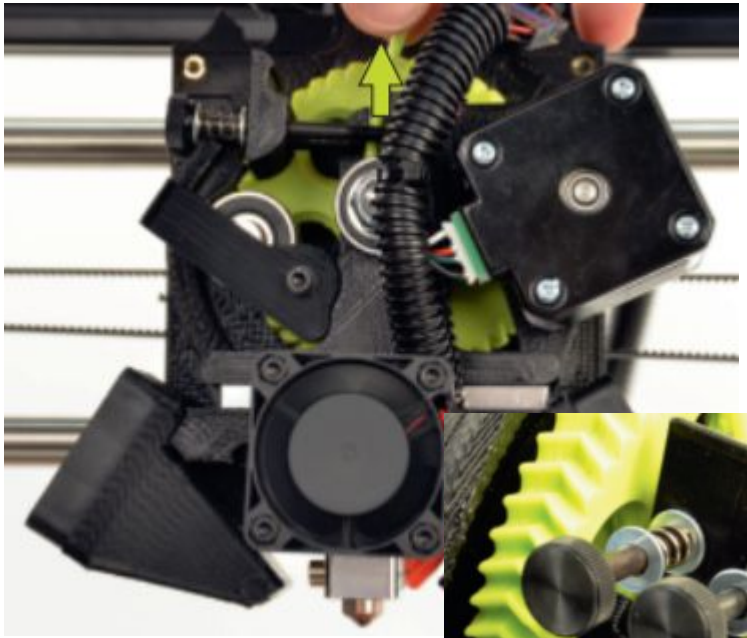

Changing filament

- Once it feels stuck, stop pushing and reclamp the idler
  - Official guide uses higher temperature, make you push out new filament to the very end, push out some of the old filament
  - Good practice, but completely unnecessary and a bit wasteful
    - Purging happens through skirt/brim at start of print anyways

Image from download.lulzbot.com/TAZ/6.01/documentation/guide/PDFs_for_web/TAZ_6_QSG_OPERATION_WEB.pdf

Swapping extruder

- To switch extruder, you have to swap the physical extruder head, and flash the firmware
- I'll demonstrate
- For written procedure, this is a good guide: ohai.lulzbot.com/project/lulzbot-taz-dual-extruder-tool-head-v3-install/; key steps are:
  - 8-11: swap physical extruder head
  - 14-15: install new printer, flash firmware
  - 20, 23: remove old filament and insert new filament

Troubleshooting

- Simply: if it sounds weird, if it vibrates, if something pops off, turn off the printer (red power switch)
- Common ways it can go wrong
  - Forgot to remove/replace z-calibration button when switching between single and dual extruder
  - Going to low when calibrating, bending the bed
  - Bed temperature too high, PEI sheet warp
    - Shouldn’t happen if you stick to settings on github repo