

# HOW TO PRINT WITH THE FORMLABS FORM2 RESIN PRINTER

Version V2

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Version v2

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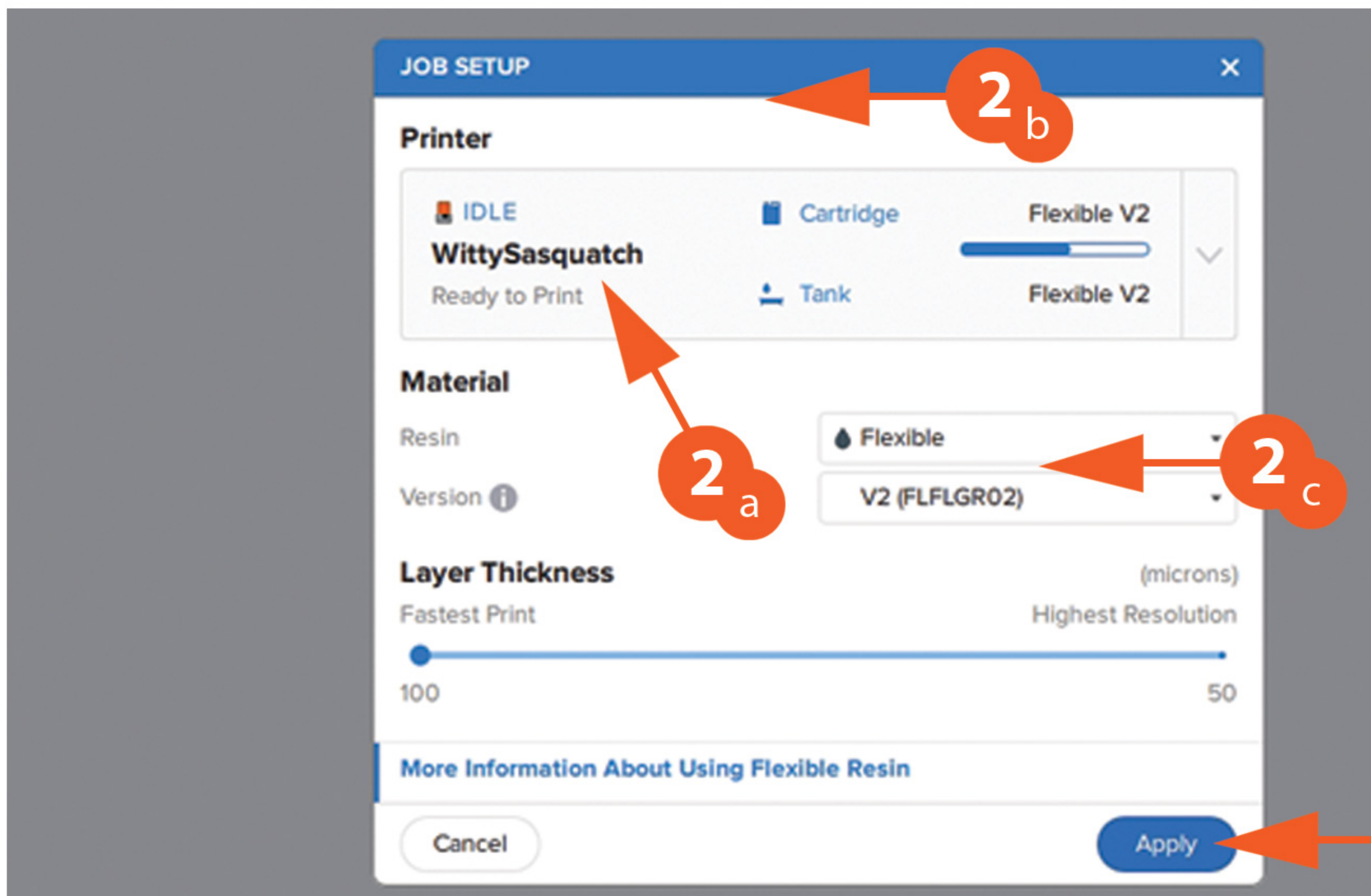


1

First have the Makerspace tech load up the type of resin you require for your print as well as the proper tray.

Turn on the Form2 3D printer **and then** power up the PC beside it.

1a - Double click on the Preform icon.



2

2a - You should now see the name of the printer,

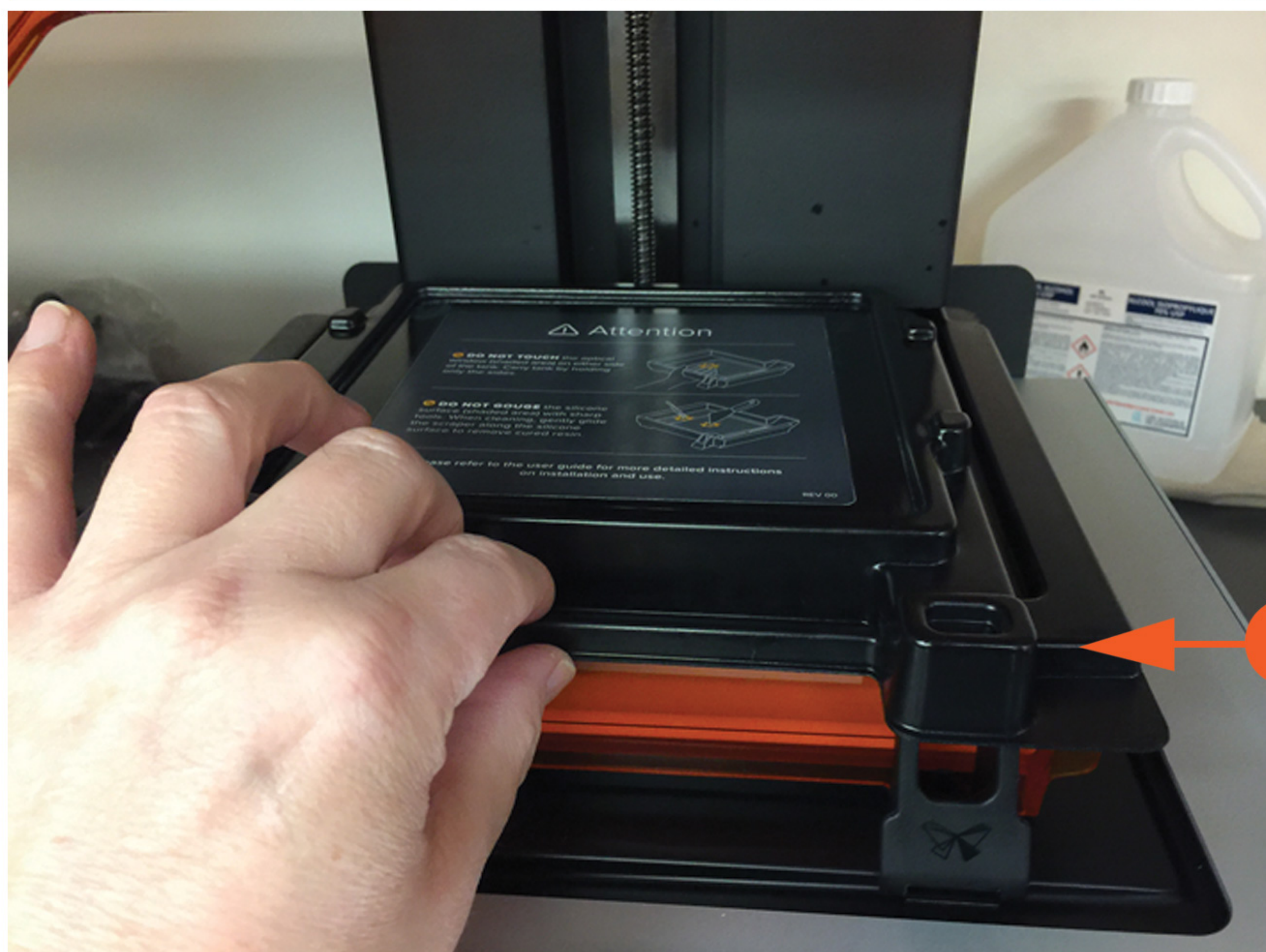
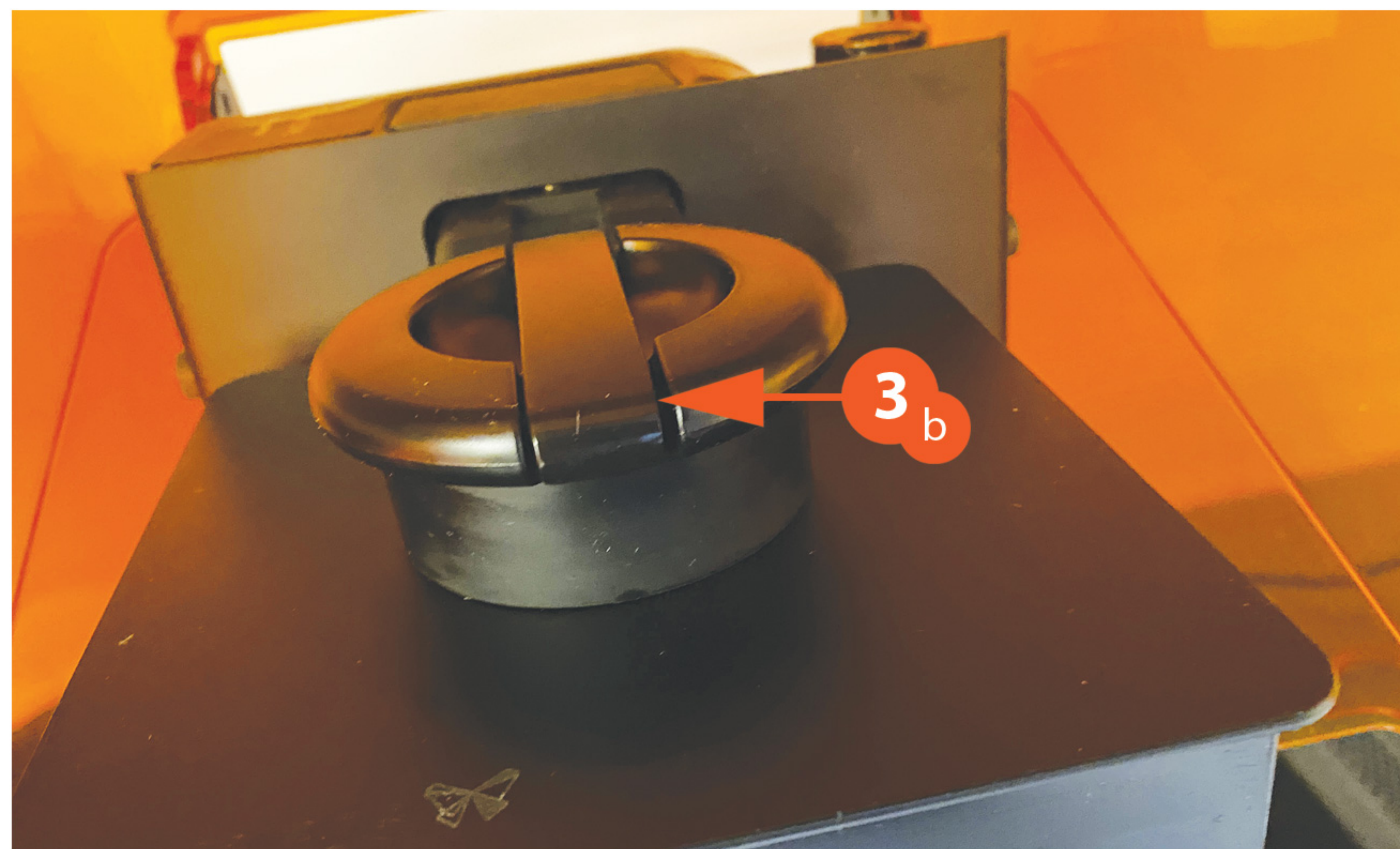
2b - The cartridge type,

2c - The resin type and the version (this should match the label on the cartridge).

2d - Click on Apply.

2e - Press the tank cap to open the vent.



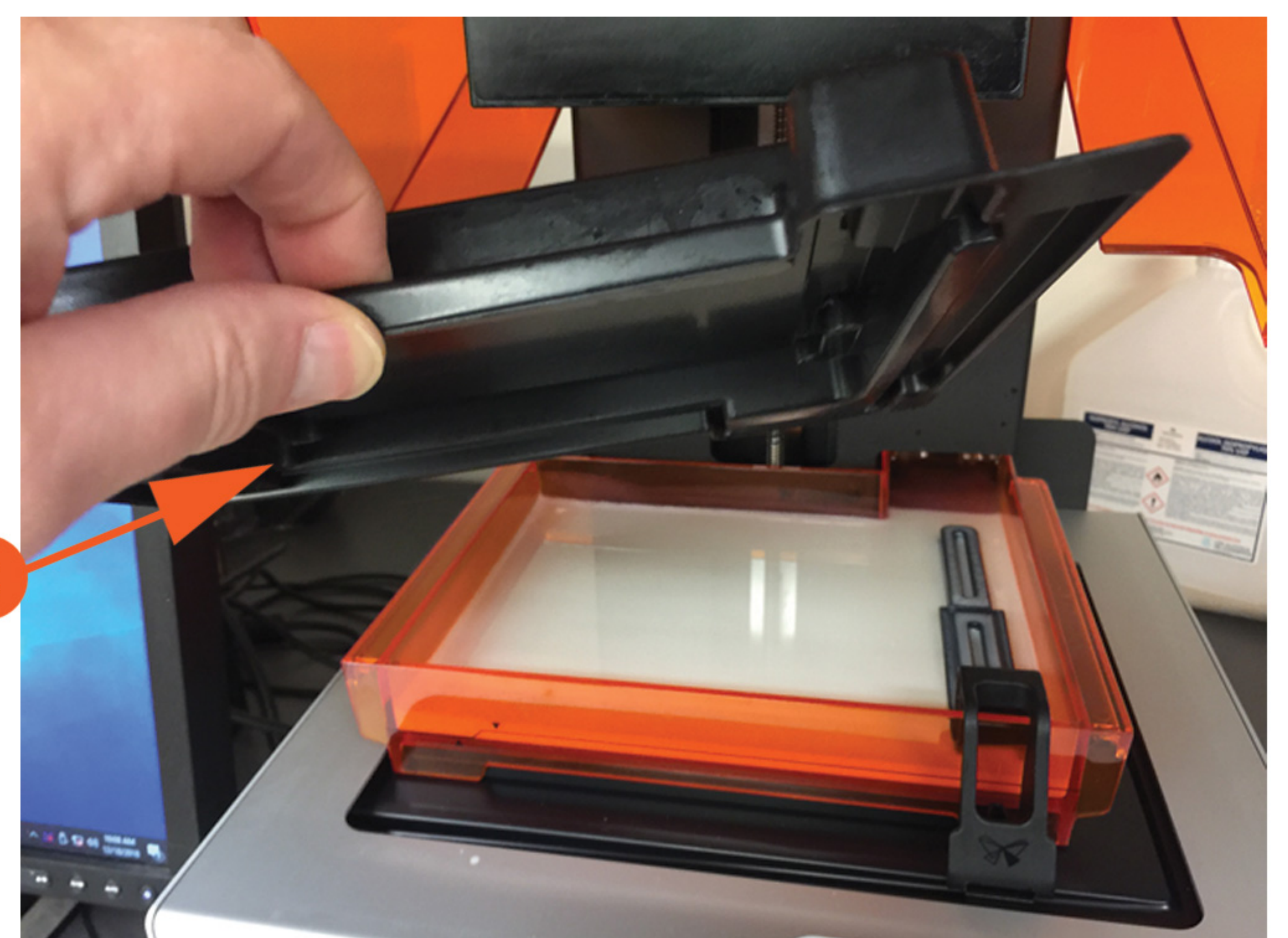


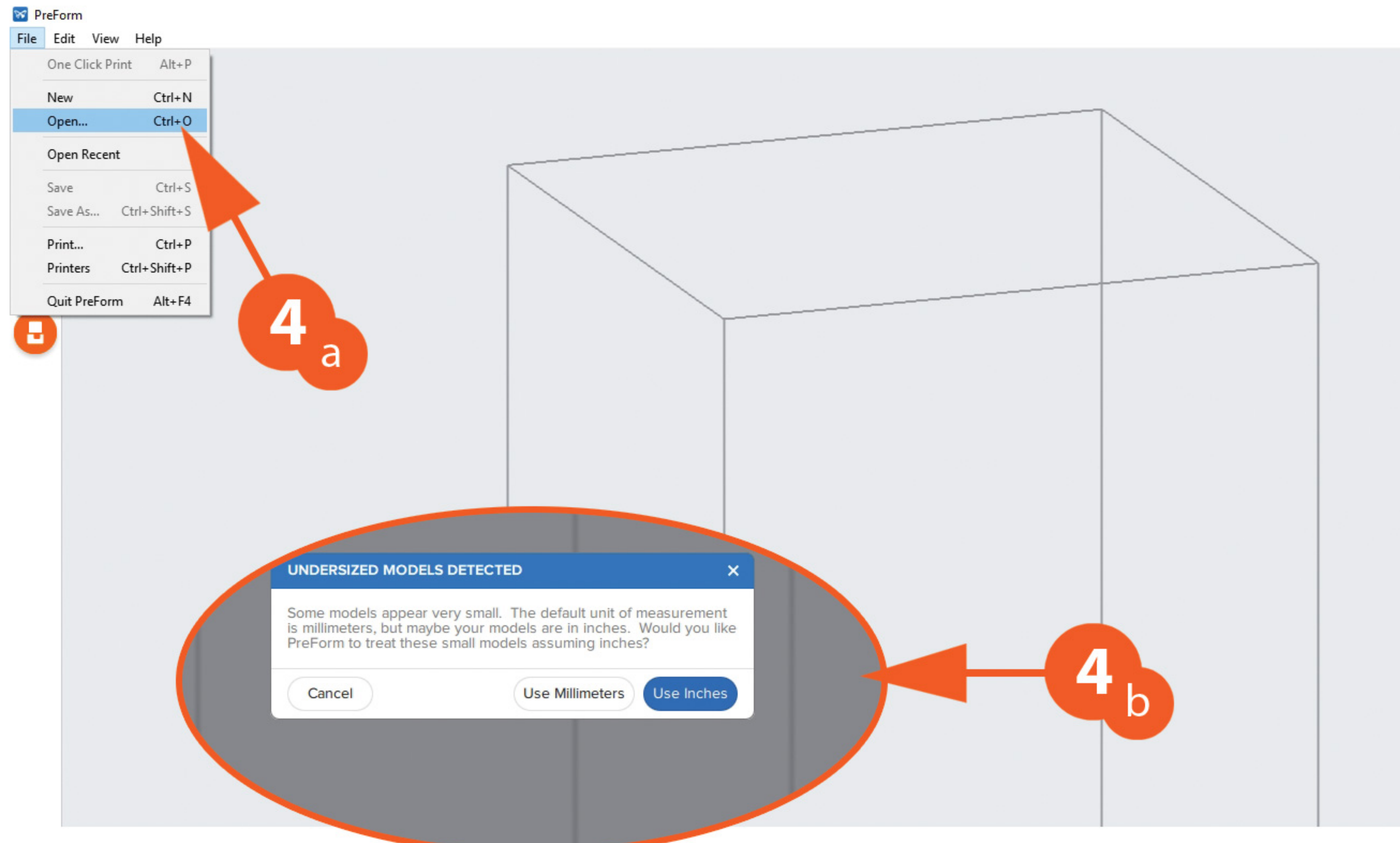
**3**

3a - Open the orange cover, pull up slowly until it stops.

3b - Make sure the build plate lever is in the down/locked position.

3c - Remove the tray cover by pulling up the front. Place it in the sink behind you.



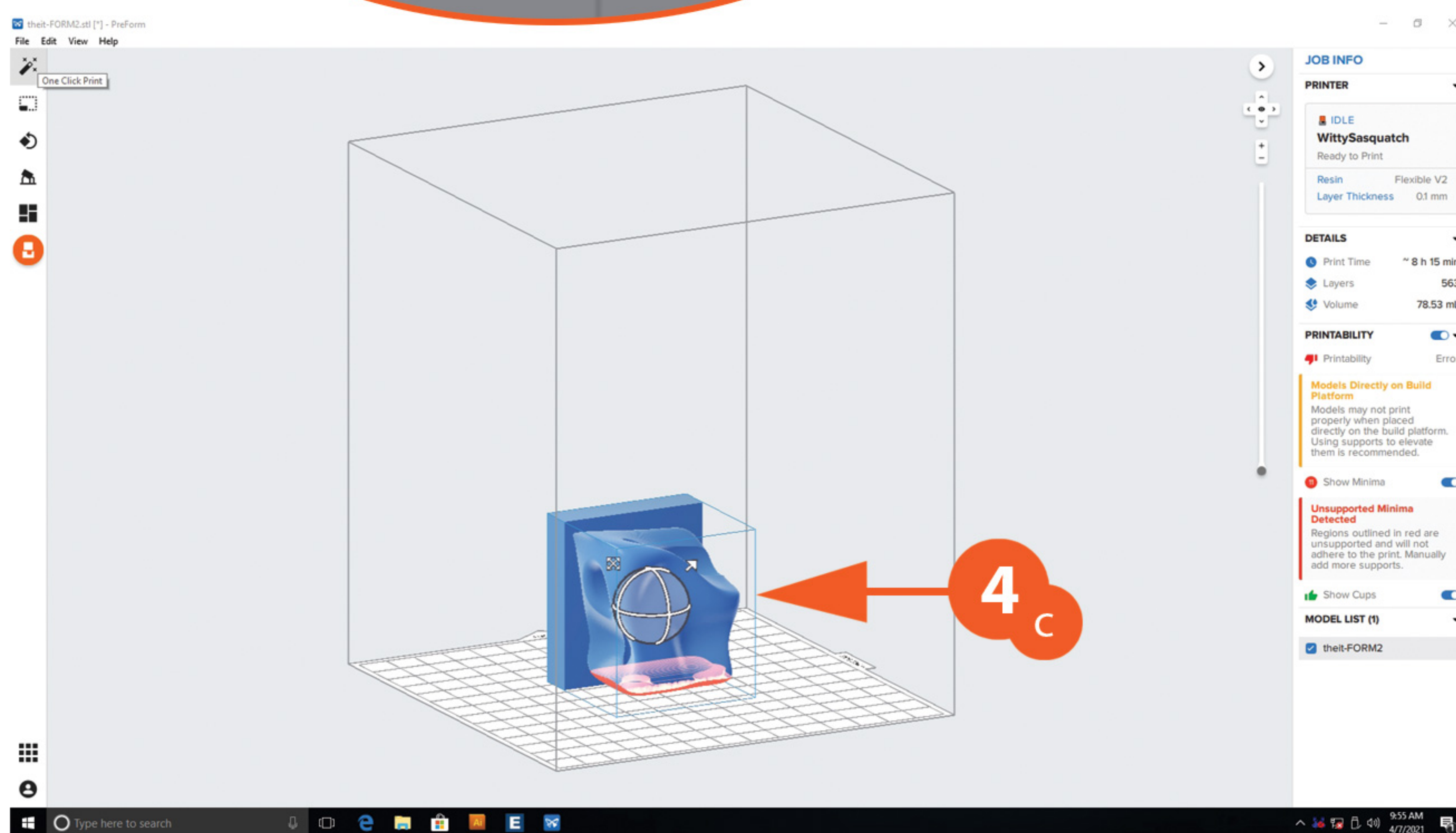


**4**

4a - In the Preform program, open up your 3D STL (or OBJ) file.

4b - If this Pop-up appears, select the correct format that your model was built with.

4c - When your model appears you then may want to rotate it to have certain features not on the bottom. Always try to have the least important or non seen areas at the bottom.



4d - To rotate simply click your mouse on an axis on the gimbal/sphere, and drag it in the direction you like.

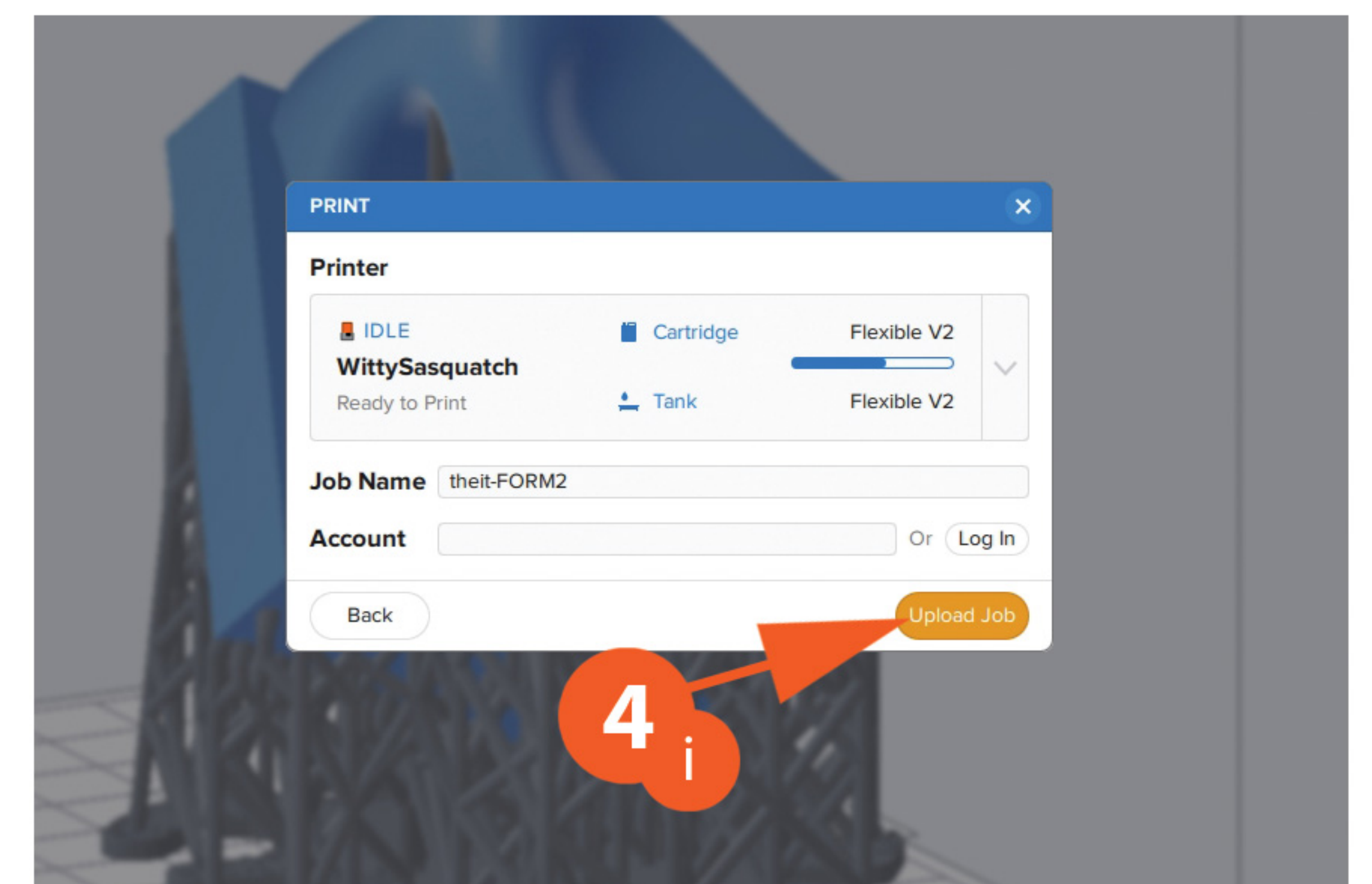
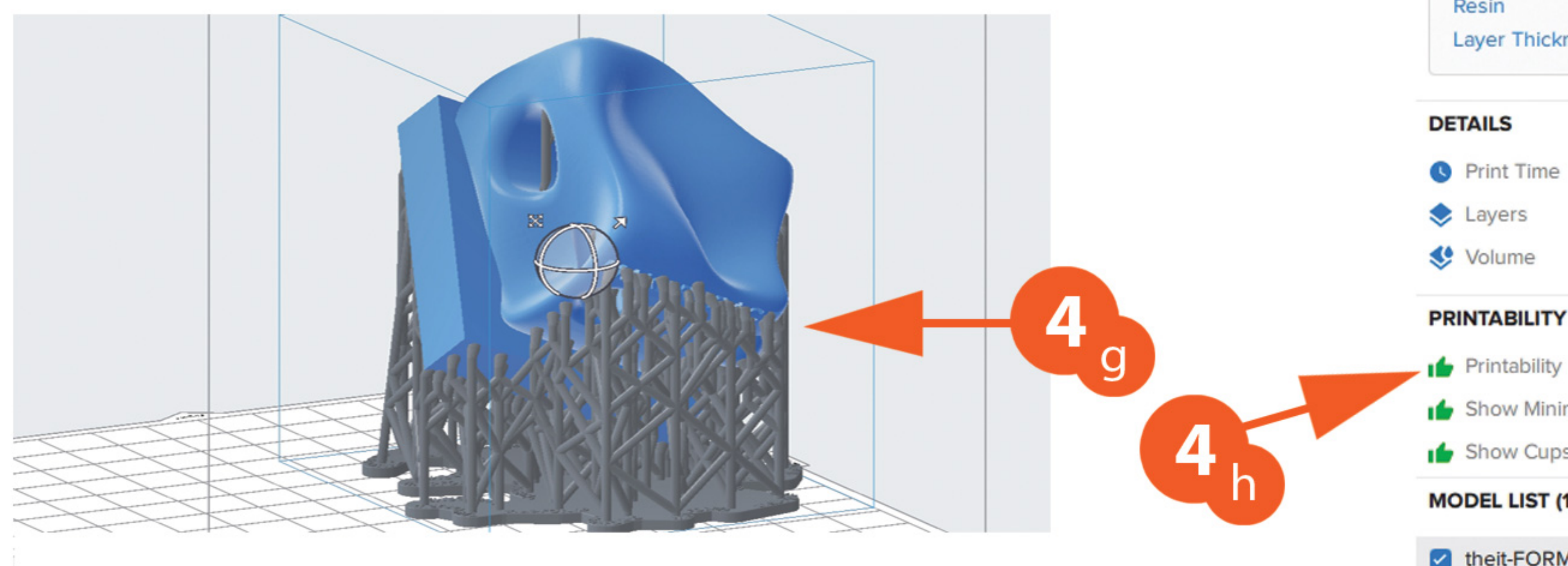
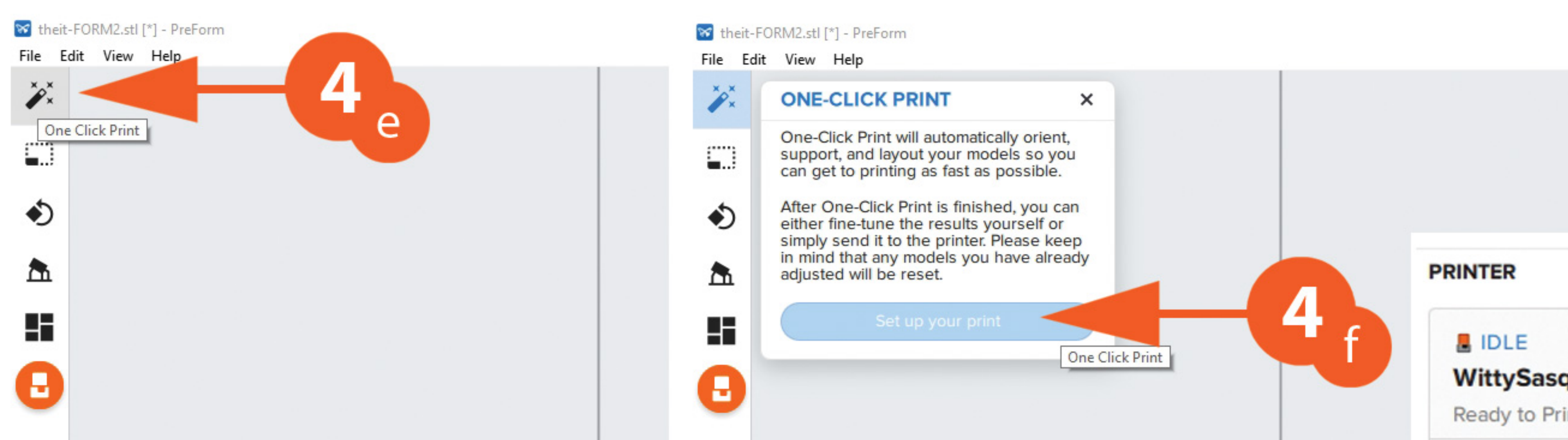
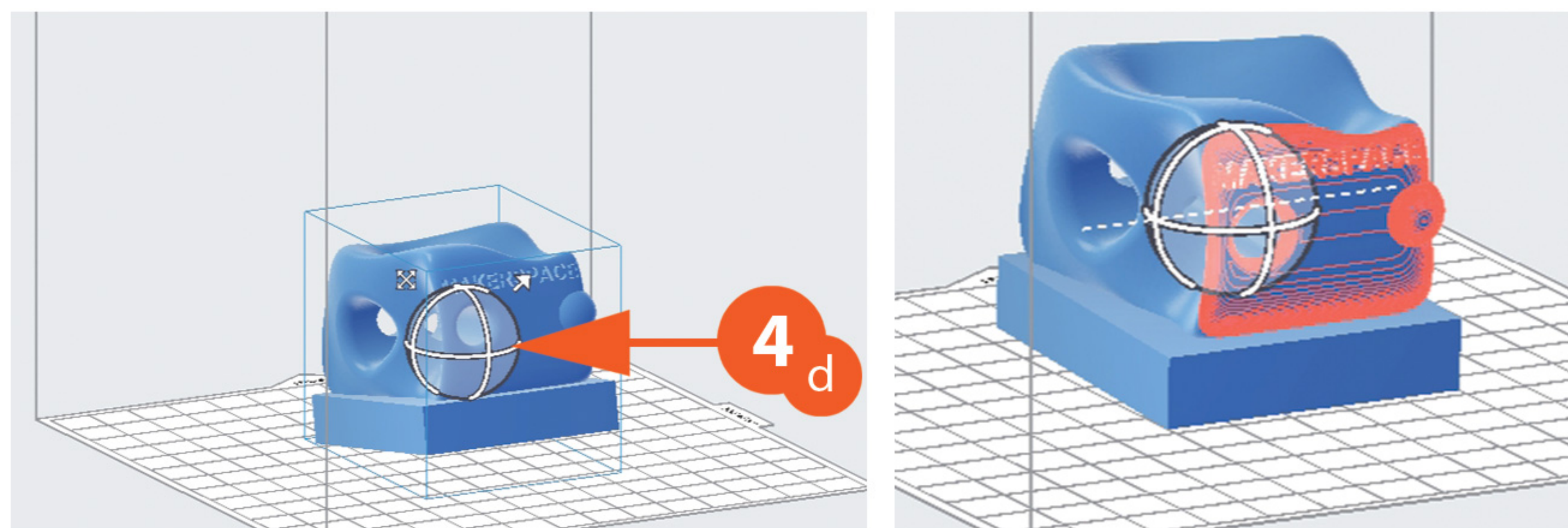
4e - Now in the top left corner, click on One Click Print.

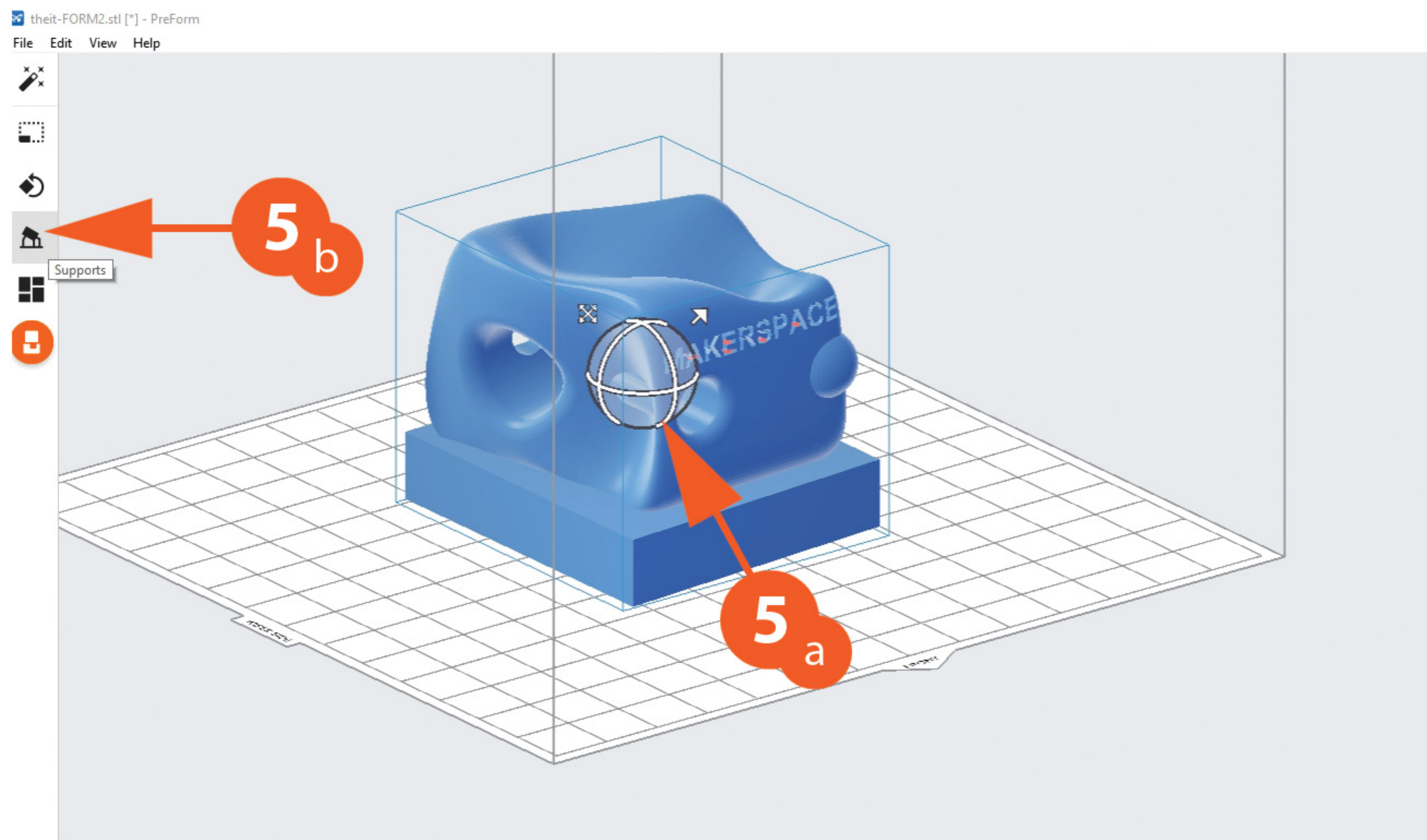
4f - And click on Set Up Your Print.

4g - This will now re-orientate your object and create supports for the best possible print \*(or what it thinks is the best way).

4h - Make sure the Printability on the right side pop-up menu, has a green thumbs up and a Pass.

4i - A pop-up will appear, click on Upload Job.





**5**

**How to Manually setup your model and also adjust the support.**

If you are happy with the orientation and the supports on your model, please proceed to Page 5, Step 7.

5a - Move and Rotate your model to where you want it.

5b - Click on the Supports icon, It will open a pop-up menu.



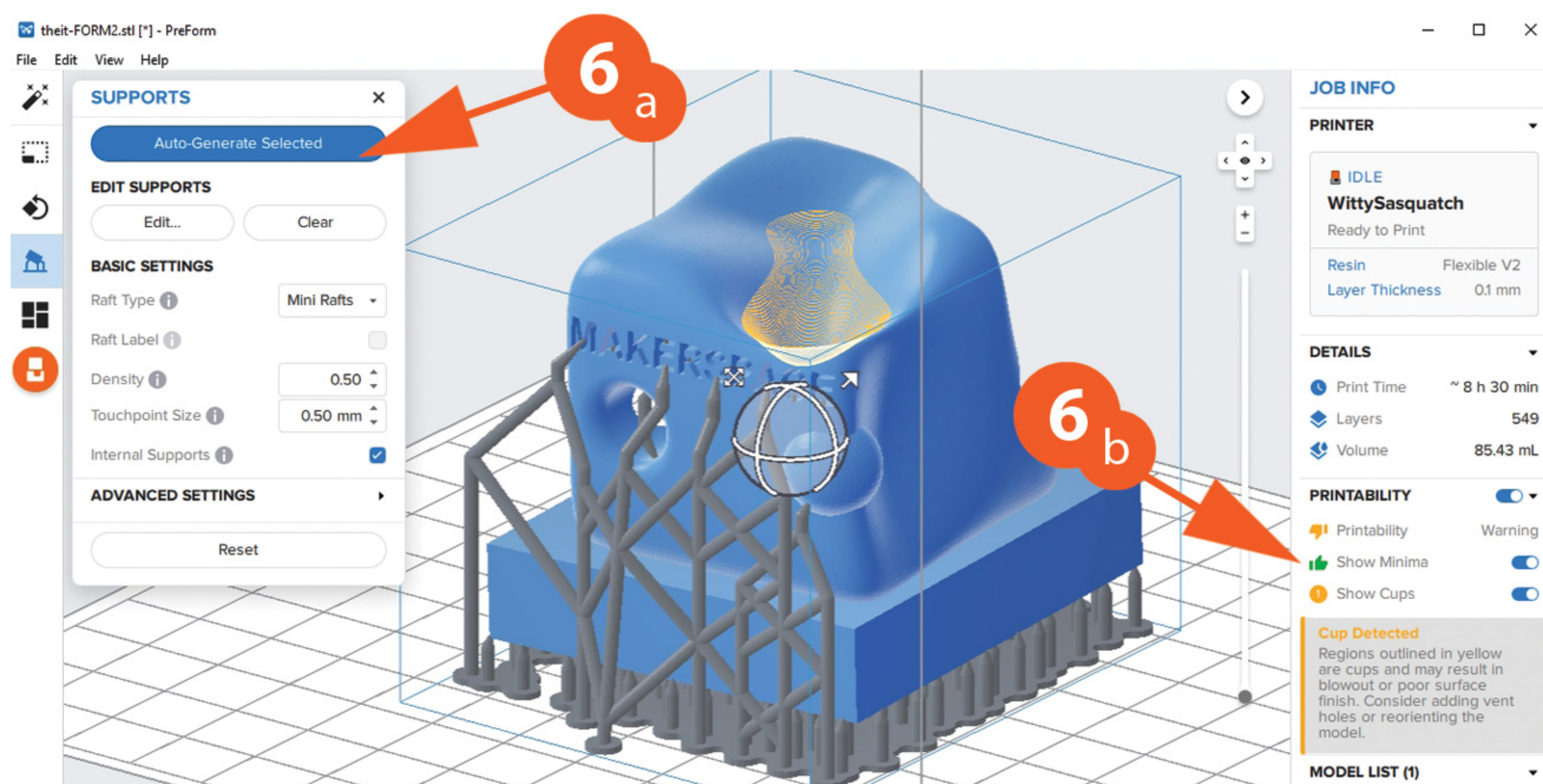
5c - Raft Type, you can select: a full, a mini or no raft here. A raft is a base. It usually needs a support to print well.

5d - Raft Label, Click on this if you want the name of the print on the raft/base.

5e - Density is how many supports are used. 1 is default. You can go down to as low as .5

5f - Touchpoint size is the tip of the support where it meets the model. 2.2mm is the default. You can go as slow as .5mm

5g - Internal Supports, check this if you think your model needs internal supports.



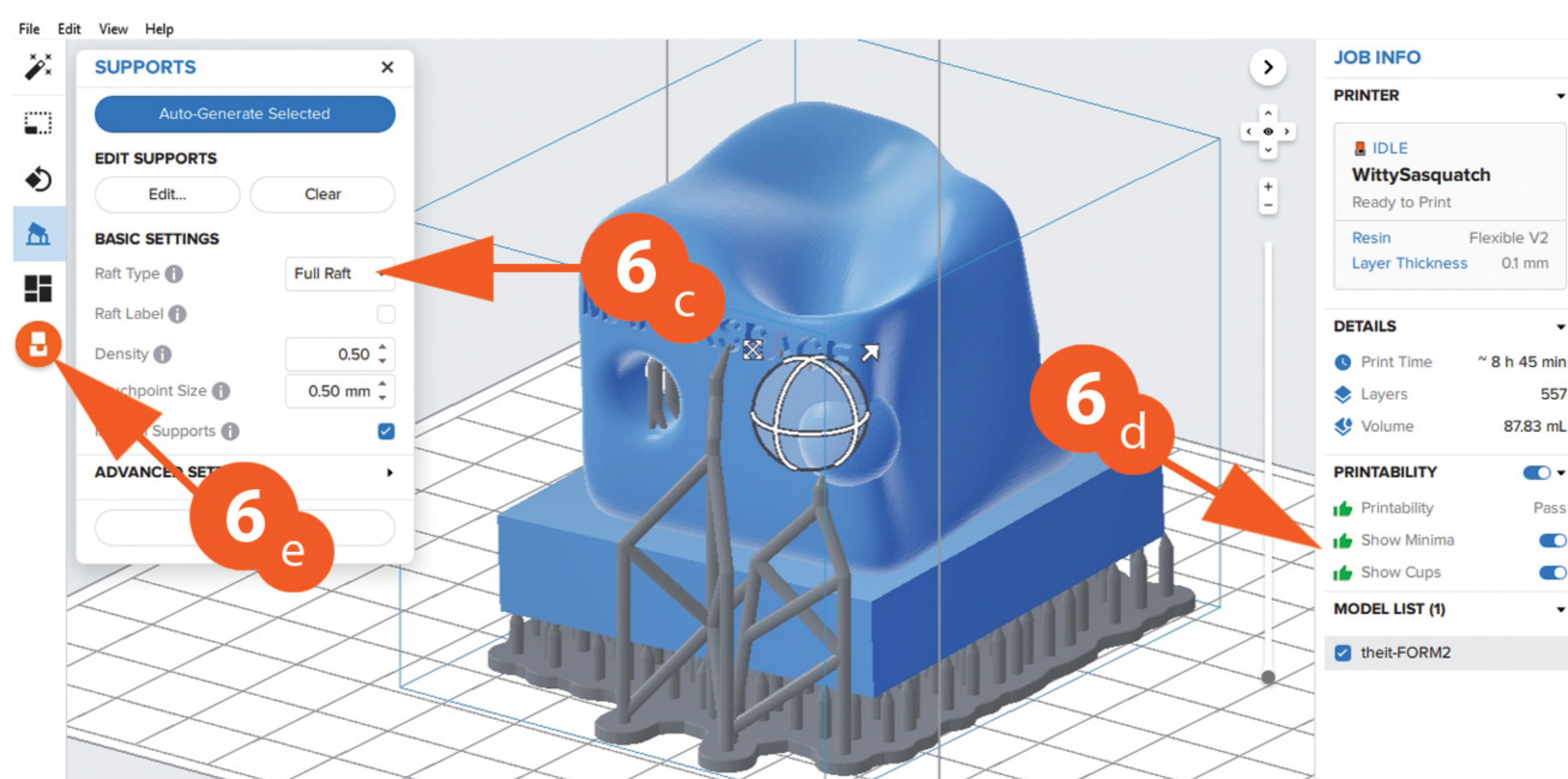
**6**

6a - Click on Auto Generate Selected.

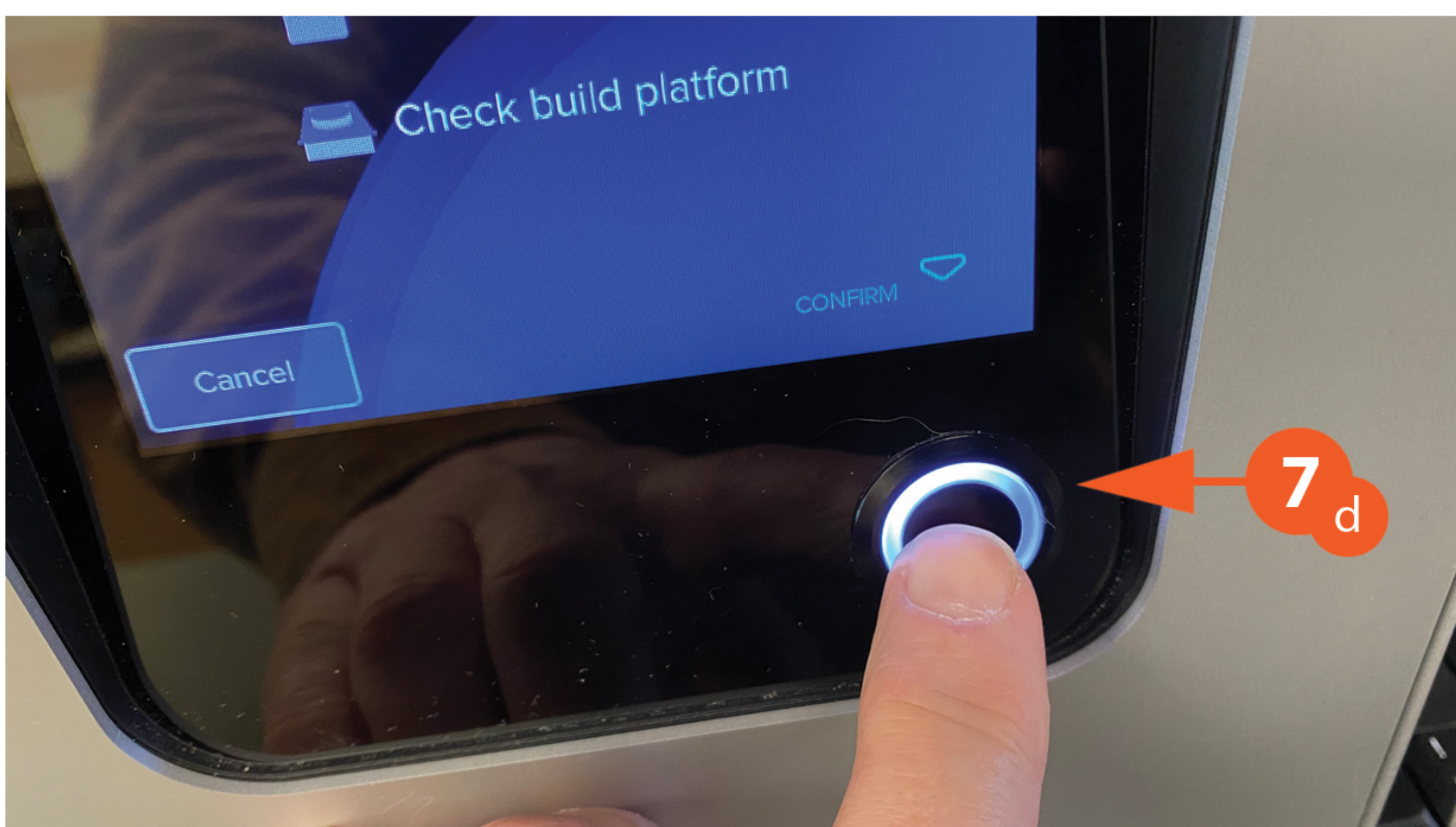
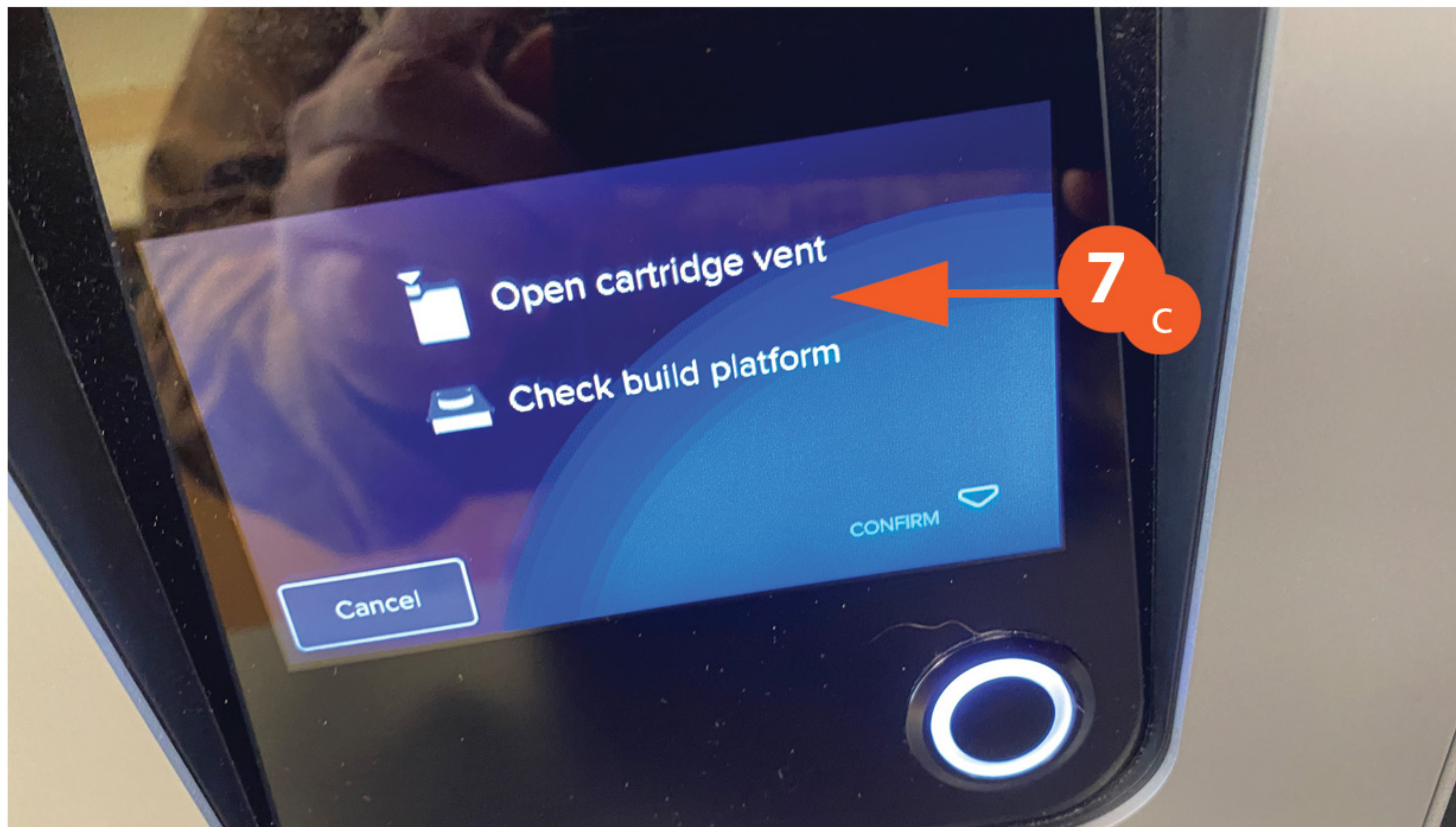
6b - If you have a Yellow, Thumbs Down in any area your print may not print ok. As an example this print has a problem with the top area (cups), and warns about printability.

6c - Changing just the Raft Type to Full, instead of Mini...

6d - has made this print printable. So you have to play with the settings sometimes. Make sure to click on Auto Generate Selected whenever you make a change.



6e - Once you have 3 Green thumbs, click on the Printer Icon to upload the file to the printer.



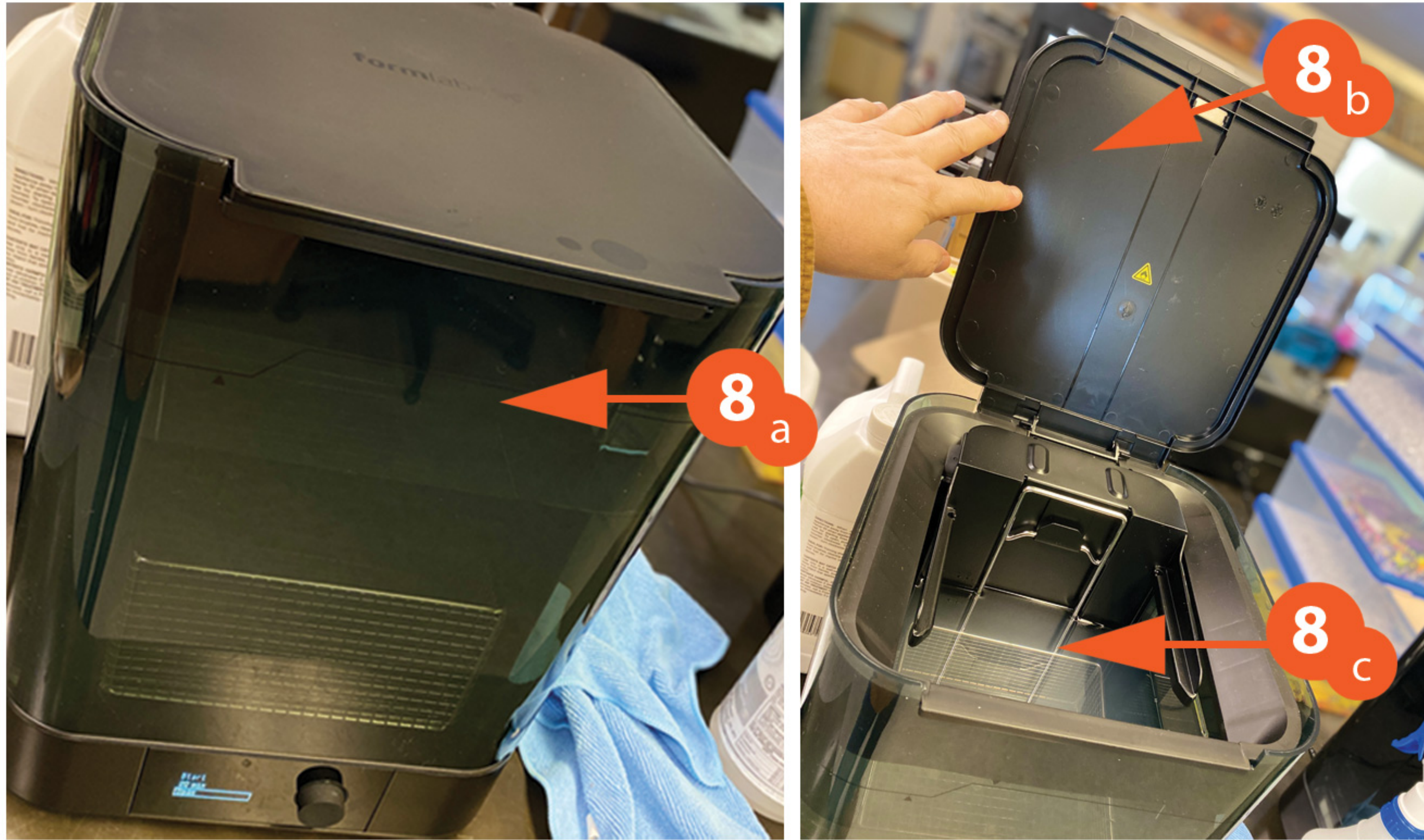
# 7

7a - After you have clicked on the Upload Job button the print job will appear on the Form2 display and will state: "Ready To Print"... when the file is ready.

7b - Press the Print Now button on the screen...

7c - Double check the vent is open, and the build platform is secure.

7d - Press the Round Glowing Button to begin the print.



## 8

Prepare the Form Wash.

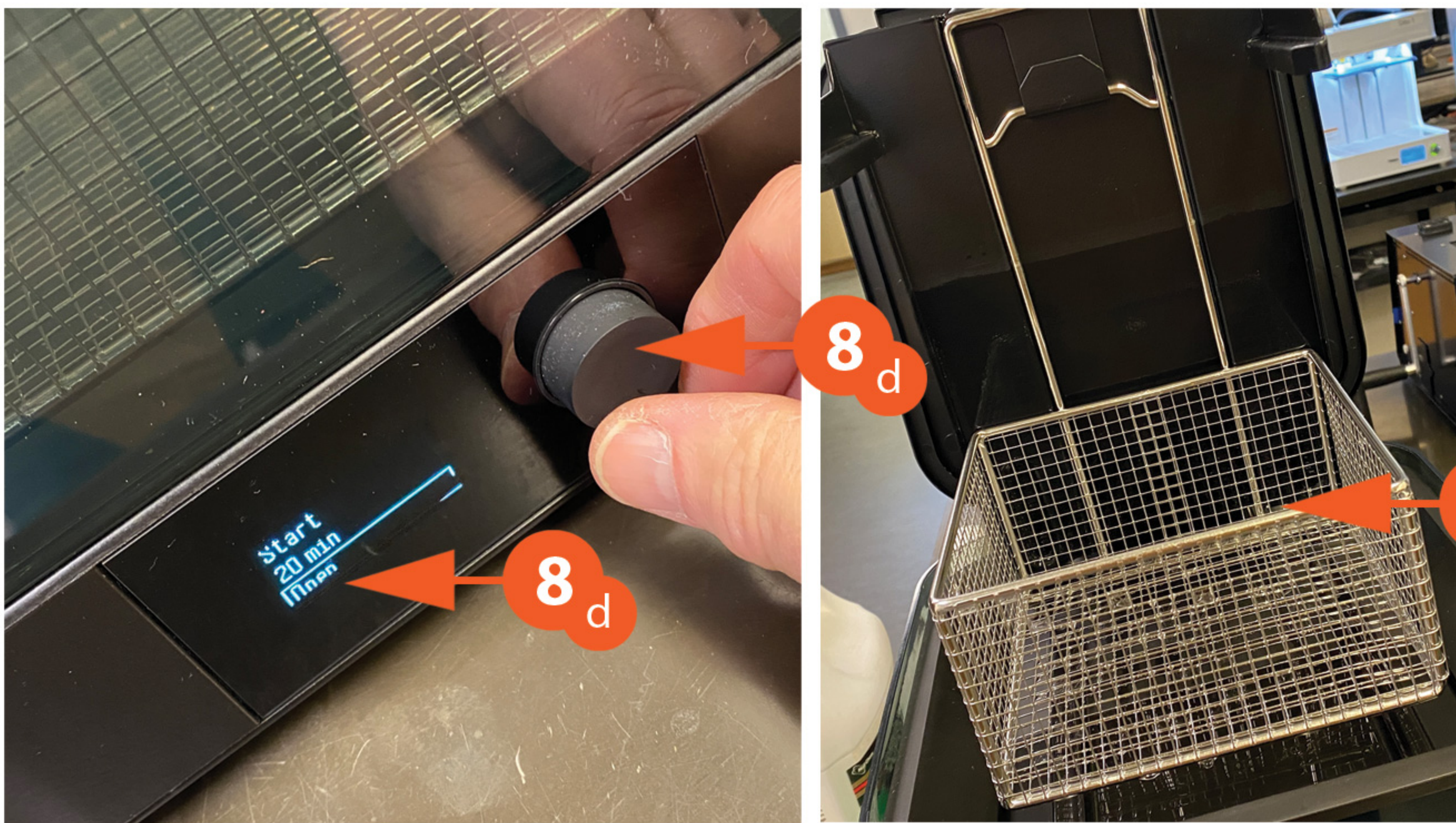
8a - Go to the Form Wash and make sure the Basket has been removed.

8b - To do this open the lid...

8c - If the basket is there...

8d - Go to the dial/button at the bottom, rotate it until it is over Open, then push the button in.

8e - The basket will then lift up out of the liquid. Remove the basket by lifting it straight up and then place it in the sink.

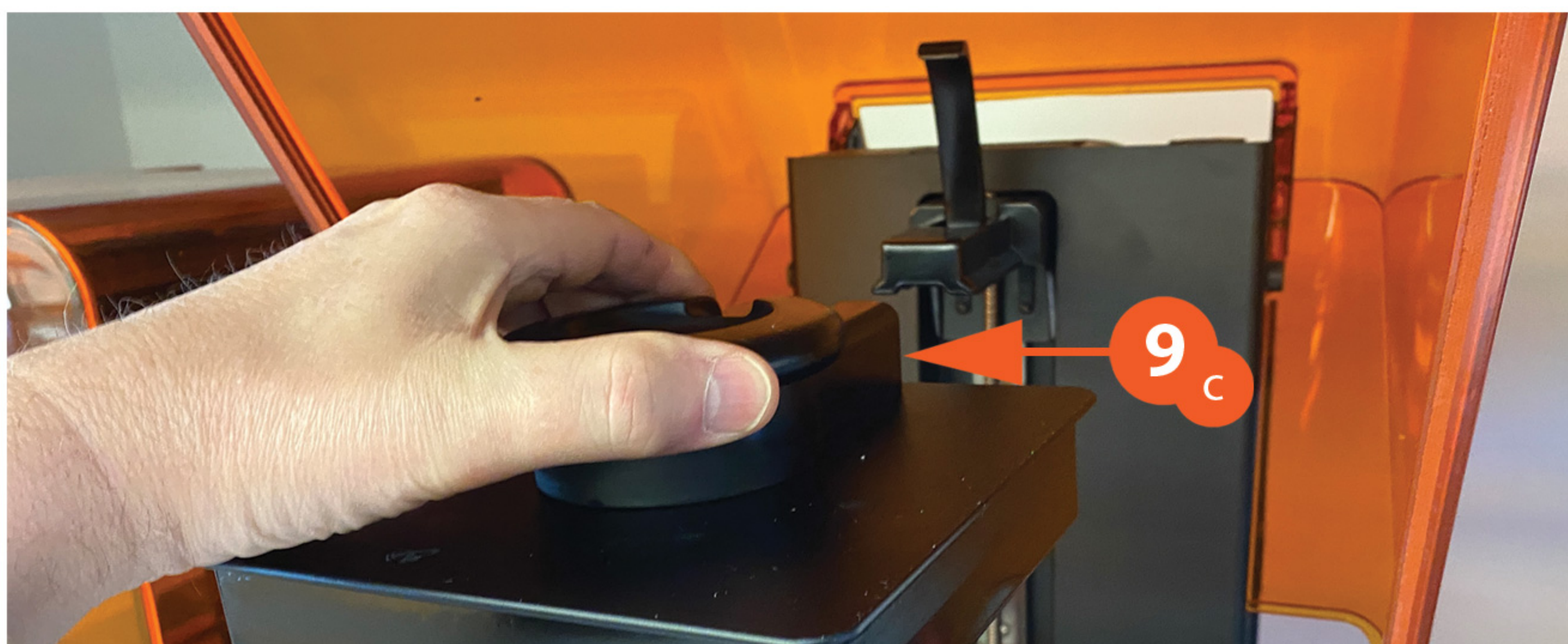


## 9

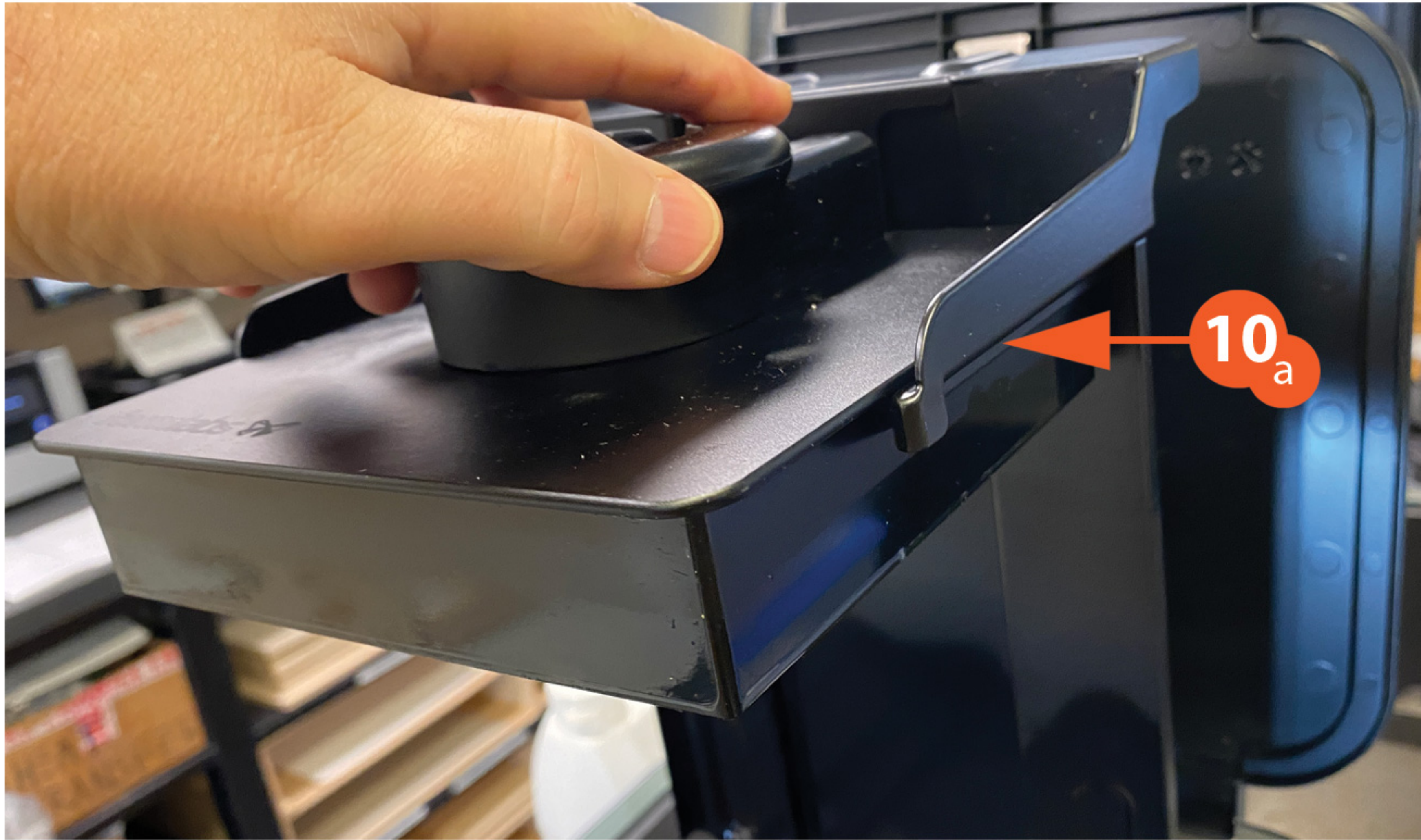
9a - When the Print is complete, open the cover.

9b - And pull up the latch on the Build Platform.

9c - Slide the Build plate toward you and off the latch rail. Take it to the Form Wash. Use a paper towel under the build plate as you are taking it to the Form Wash.







# 10

10a - Make sure the Form Wash is in the open position... take the build plate and gently slide it onto the rails on the Form Wash. It will click once seated at the back.

10b - Rotate the dial/button so the display is highlighting the time. Then push in the button.

10c - Now using the dial/button, rotate it to the correct time. See the chart below for the correct time for your material. Push the button to set it.

Wash Times:

**Colours, White & Clear** - 10 minutes\*

**Grey Pro** - 15 minutes\*

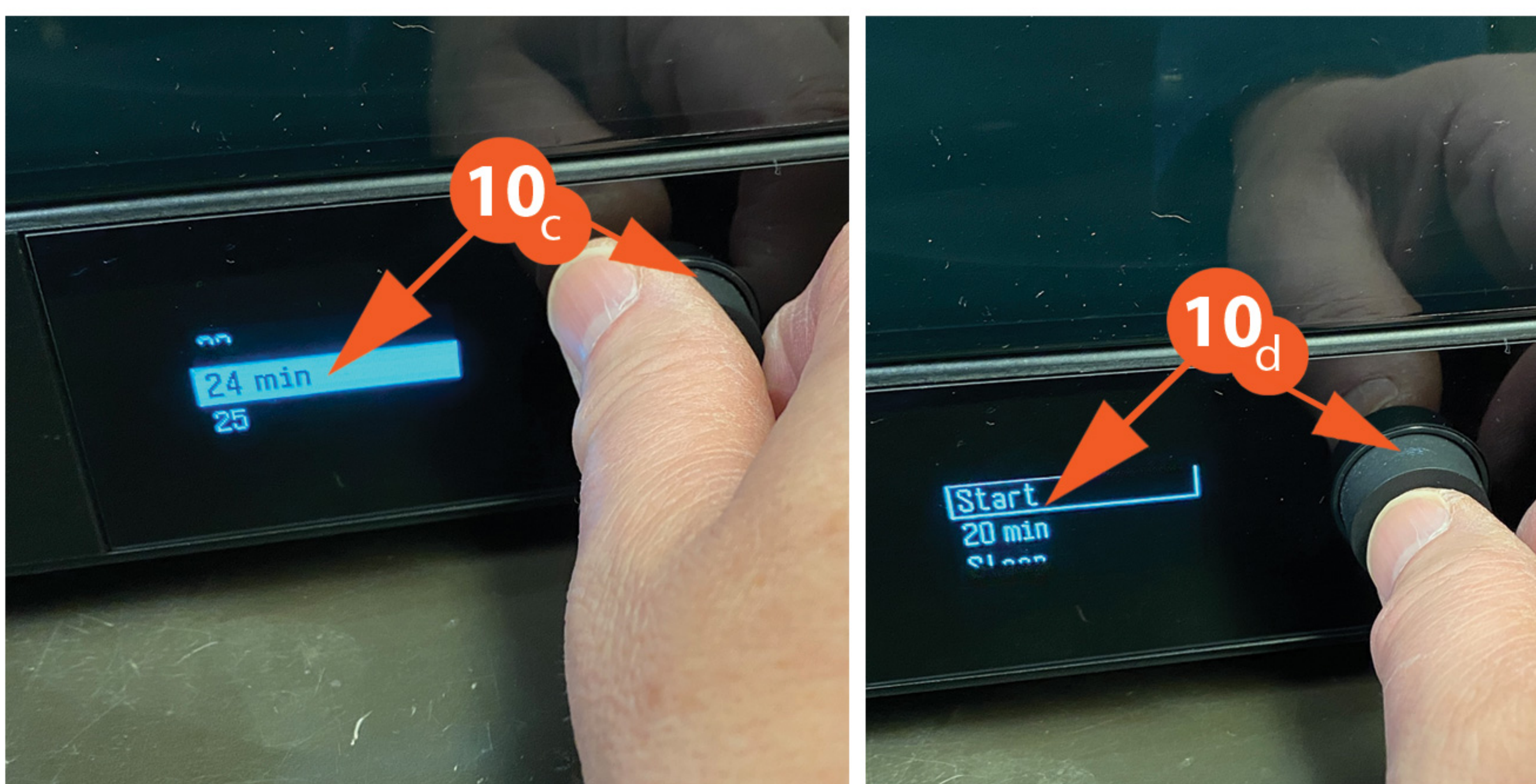
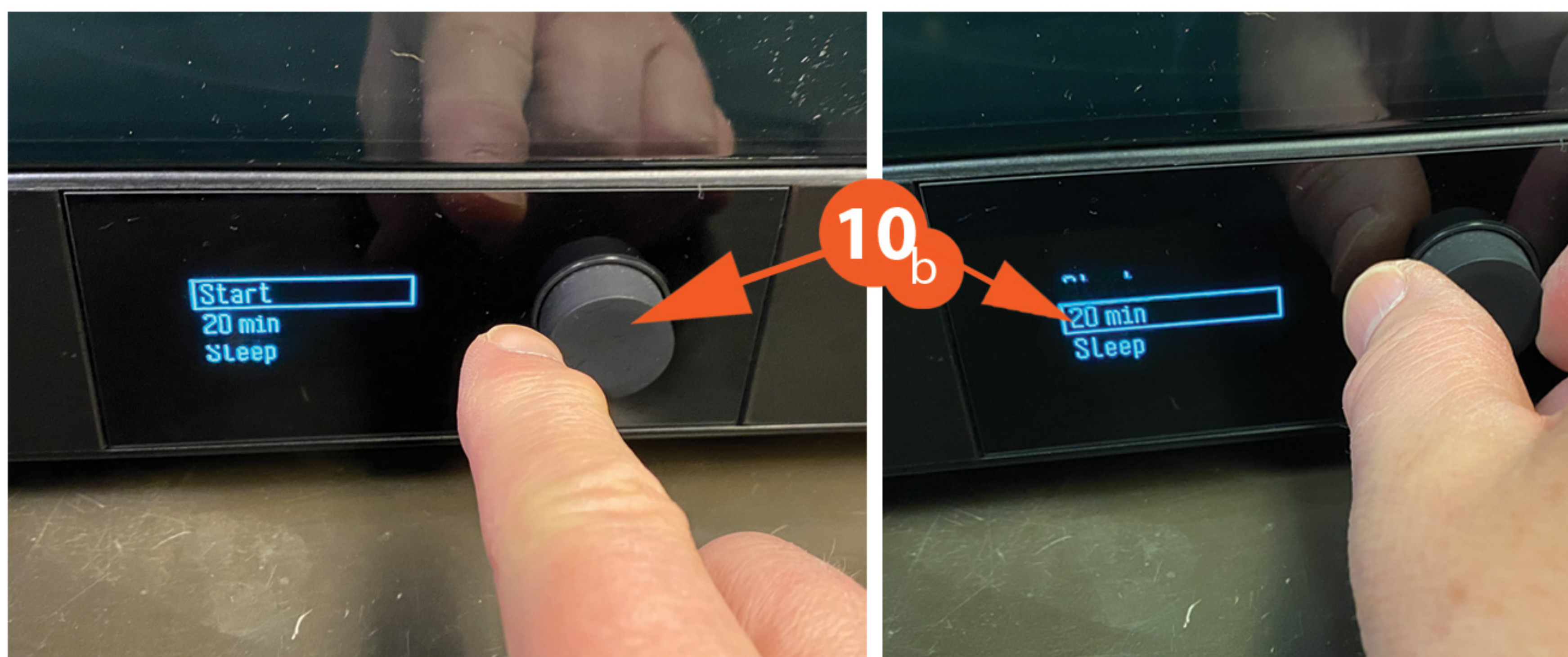
**Elastic, Flexible & Tough** - 10 minutes in the Form Wash, then another 10 minutes\* in 2nd wash tank.

10d - Rotate the dial/button again up to Start. Push the dial/button to start the wash.

10e - The Form Wash will stop and Open (raise up the platform) after the wash time.

Let parts drip dry for at least 30 minutes, you can leave on the Form Wash to dry.

\*Do not let prints go for longer than these times, as it can degrade the print quality.





# 11

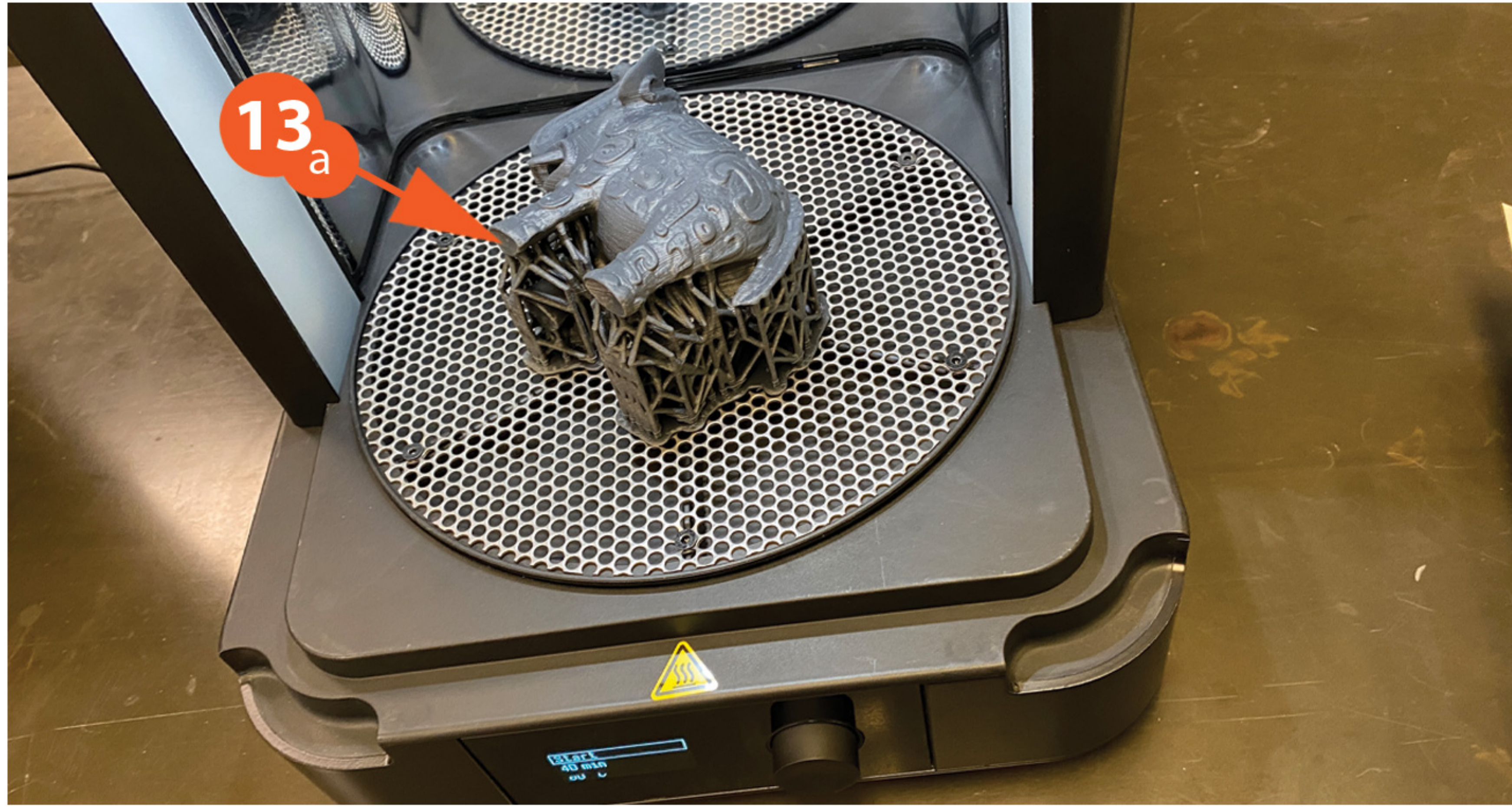
11a - Slide the Build platform off of the Form Wash. Then open the the rear door lon the left side, on the Form Wash, and take out the scraper tool.

11b - Using the scraper tool, gently pry under your model in different areas until your print pops off of the build platform.

# 12

12a - Open up the Form Cure, by gently pulling up from the bottom corner, until it rests inverted on the top.





# 13

13a - Place your print on the table, and close the lid.

13b - Rotate the dial/button to the time setting, and push the button.

13c - Rotate the dial/button to the proper time setting. Push the dial/button once you have the correct time. See the chart below for time settings.

Cure times:

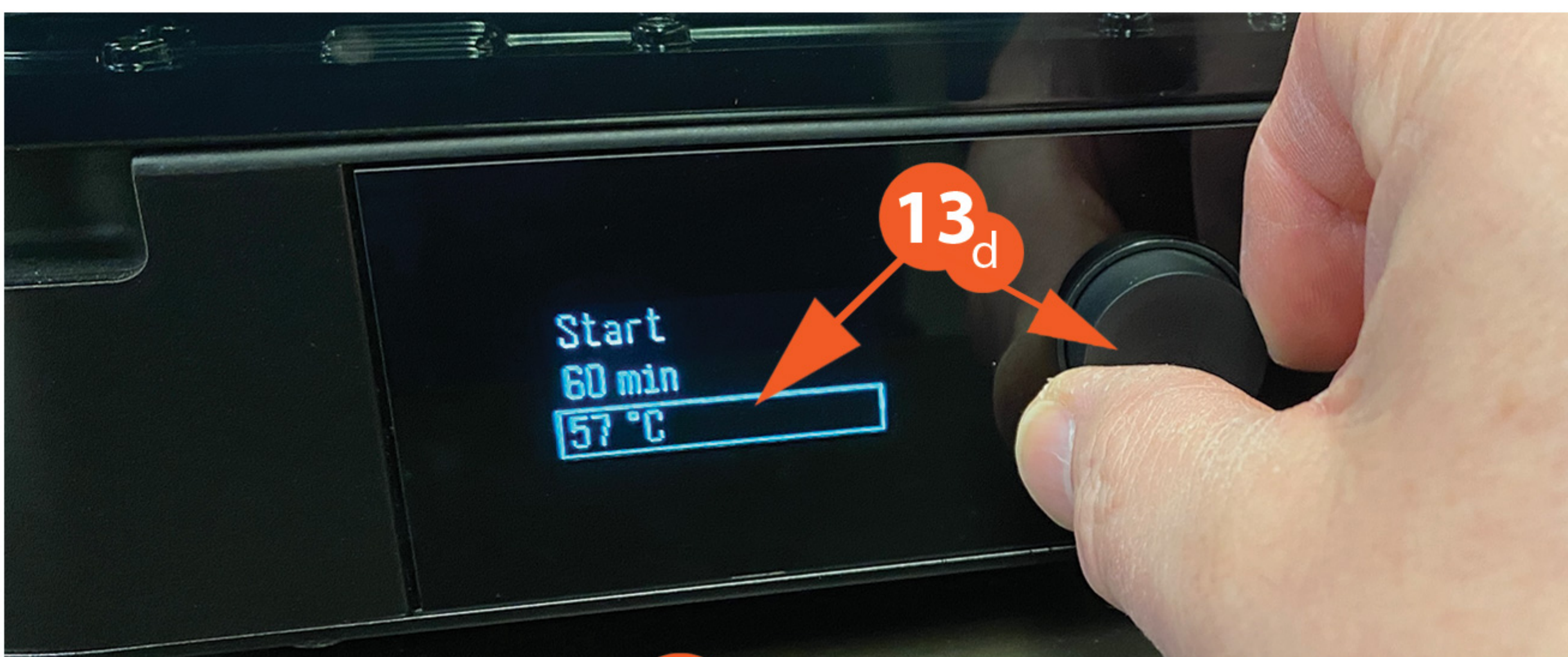
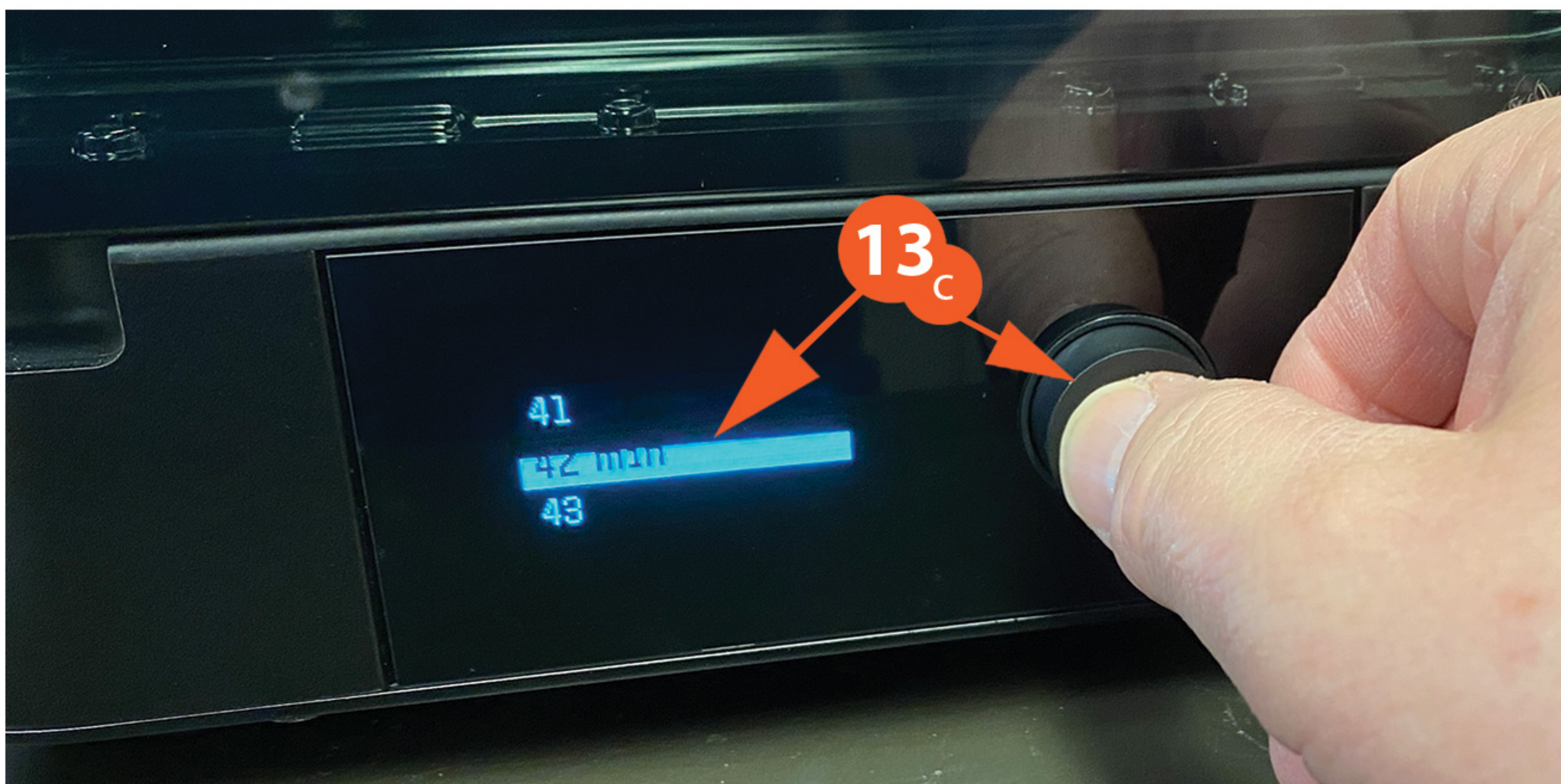
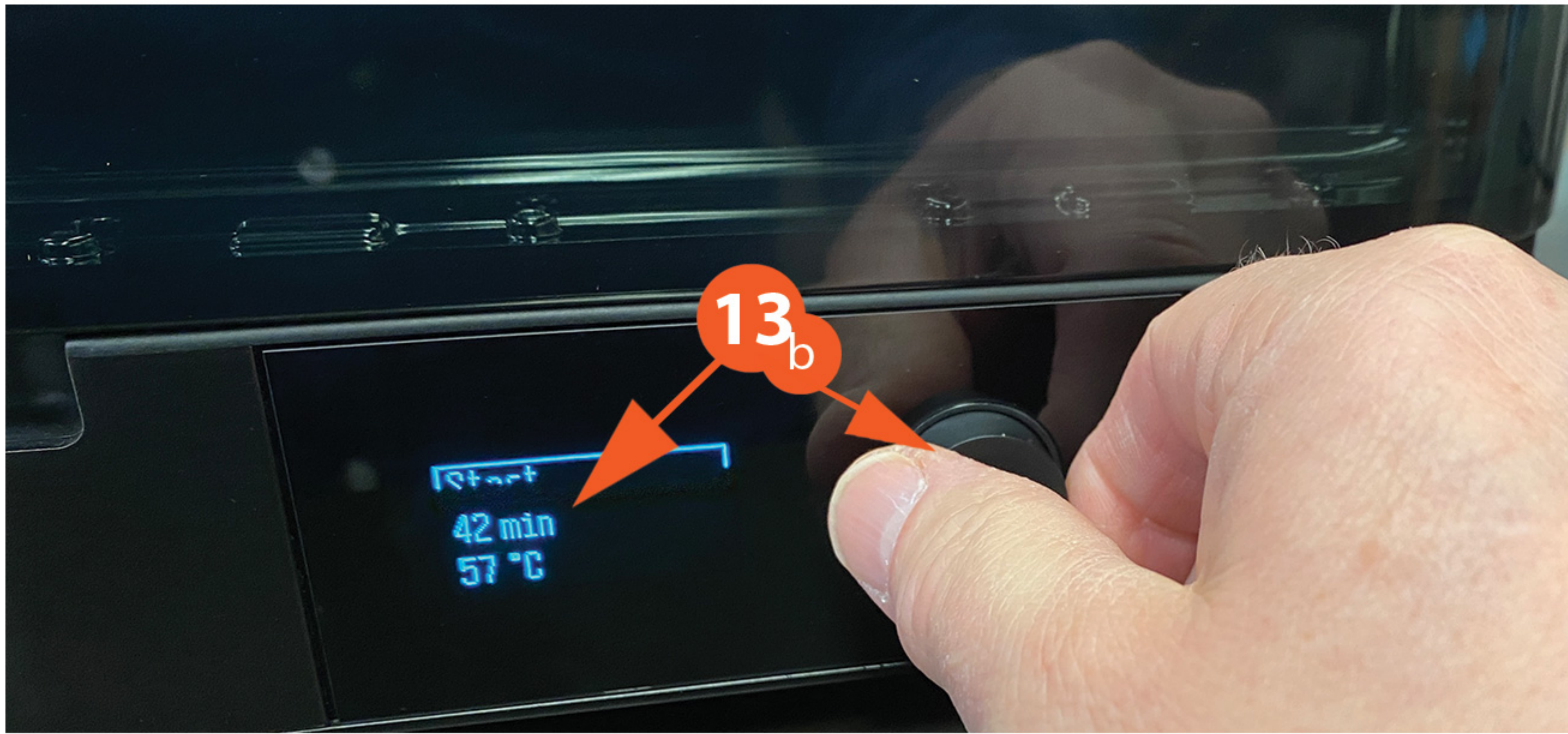
- Flexible - 15 minutes
- Grey Pro - 15 minutes
- Tough - 60 minutes
- Elastic - 20 minutes
- White - 30 minutes

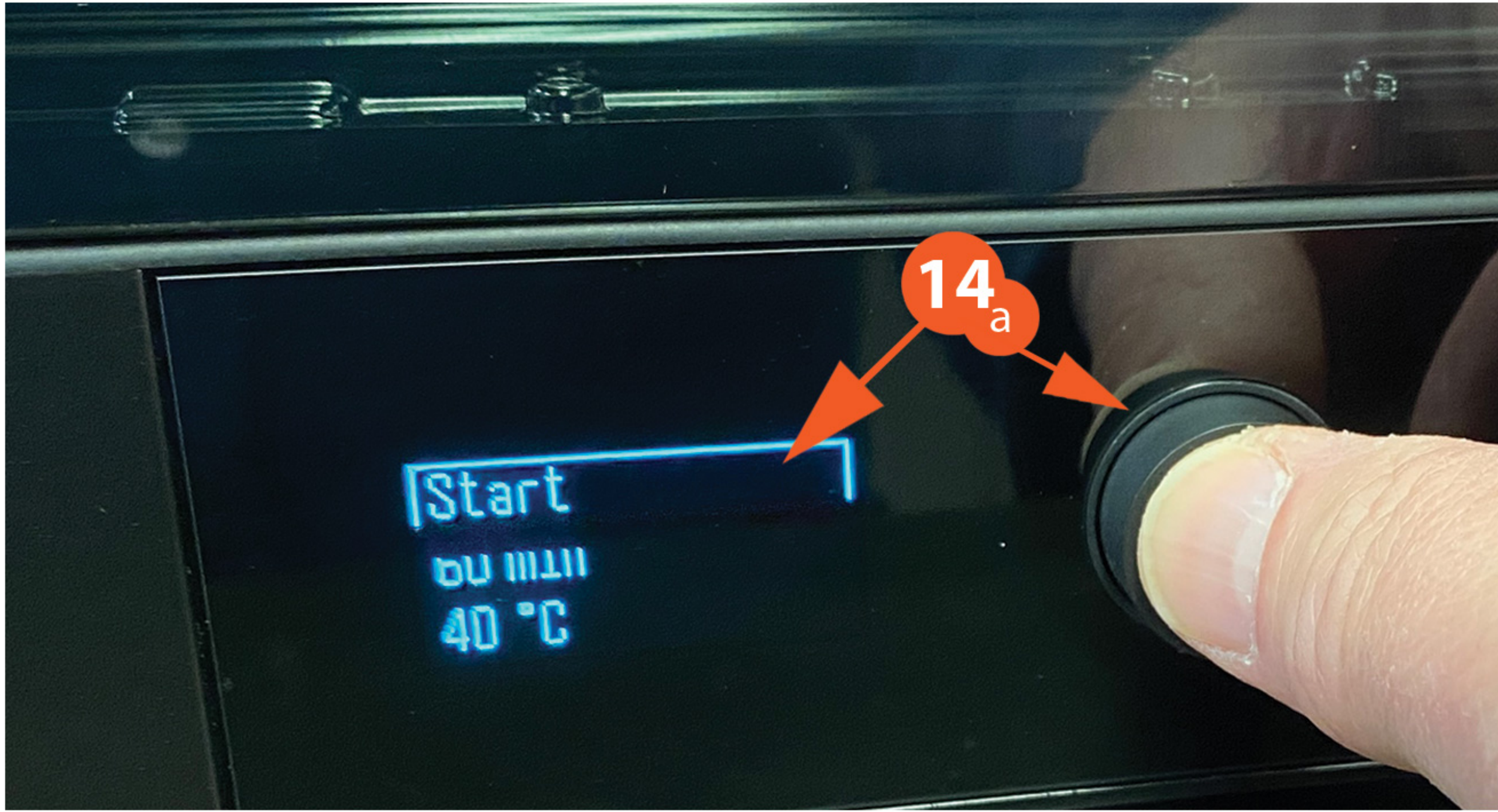
13d - Rotate the dial/button to the temperature setting, and push the button.

13e - Rotate the dial/button to the correct temperature setting. Push the button in when you have the correct temperature. See the chart below for temperature settings.

Cure temperature settings:

- Flexible - 60 deg celcius
- Grey Pro - 80 deg celcius
- Tough - 60 deg celcius
- Elastic - 20 deg celcius
- White - 60 deg celcius

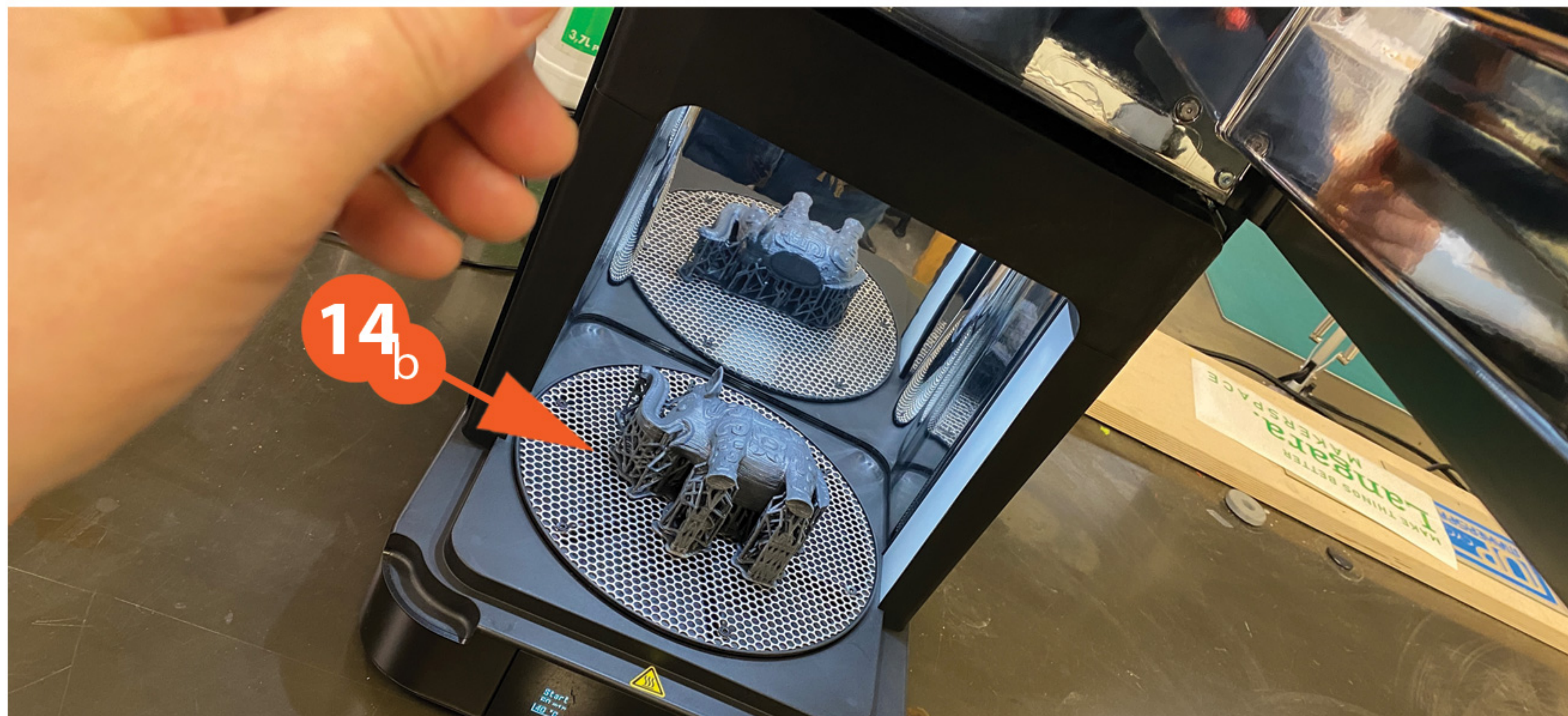




**14**

14a - Rotate the dial/button back up to Start, and push in the button to begin the cure.

14b - When the cure is complete, open up the top and remove your print.



**15**

15 - Place your print on a cutting board

15a - And using the Formlabs side cutters (located in the rear left door of the Form Wash)...

15b - Begin cutting the supports off.

15c - Try to get as close as possible to the print without damaging the actual print.

15d - As you are progressing, you can try to pull parts of the supports off in chunks.





## 16

16a - This was a complex print that had a lot of supports. The model also had warnings that it was not built correctly (a download from the Smithsonian). It is important to have a good model to start with!

16b - You can see from the support side that the supports can leave a real mess. You can cut these nibs flush with a knife and use a fine file and sandpapers to smooth out the model.

You can see by this print, that it is very important to orientate your model so the least amount of supports are on the good side and of the print.

This print should of been printed right side up, but sometimes the PreForm software states it will not print correct at those settings. So you just have to play with the settings until you find a good balance.