Fortus 400mc: Material Changeover

The process for switching filaments on the Fortus.

Written By: Andrew John Oliver

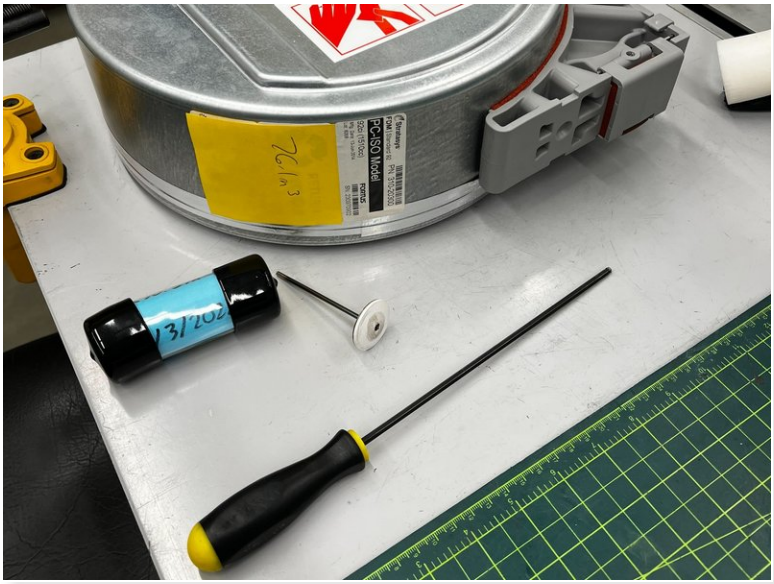
Introduction

There is a specific sequence of processes that must be followed whenever the material type is being changed. This guide details what steps must be taken and the most efficient and time-effective way to complete them.

Step 1 — Note Current Status

- Before starting the changeover process, navigate to *Modeler Status > Material Status*
- Take note of the amount of material left in each canister

Step 2 — Begin Changeover Process



Model Material	Model Tip	Support Material	Support Tip
ABSi	T10, T12, T16, T20	SR-20	T12SR20
ABS-M30 ABS-M30i	T10, T12, T16, T20	SR-20 SR-30	T12SR20 T12SR30
ABS-ESD7	T12, T16	SR-30	T12SR30
ASA	T10, T12, T16, T20	SR-30	T12SR30
Nylon 12	T12, T16, T20	SR-110	T12SR100
PC-ABS	T10, T12, T16, T20	SR-20	T12SR20
PC	T10, T12, T16	SR-100	T12SR100
PC PC-ISO	T12	PC_S	T12
PC/PC-ISO	T16, T20	PC_S	T16
Ultem* 9085	T16, T20	ULT_S	T16
Ultem 1010	T14, T20	U1010S1	T16
PPSF	T16, T20	PPSF_S	T16

- Gather all of the supplies needed for the changeover: new material canisters, appropriate tips, and the ball-end Allen wrench included with the machine

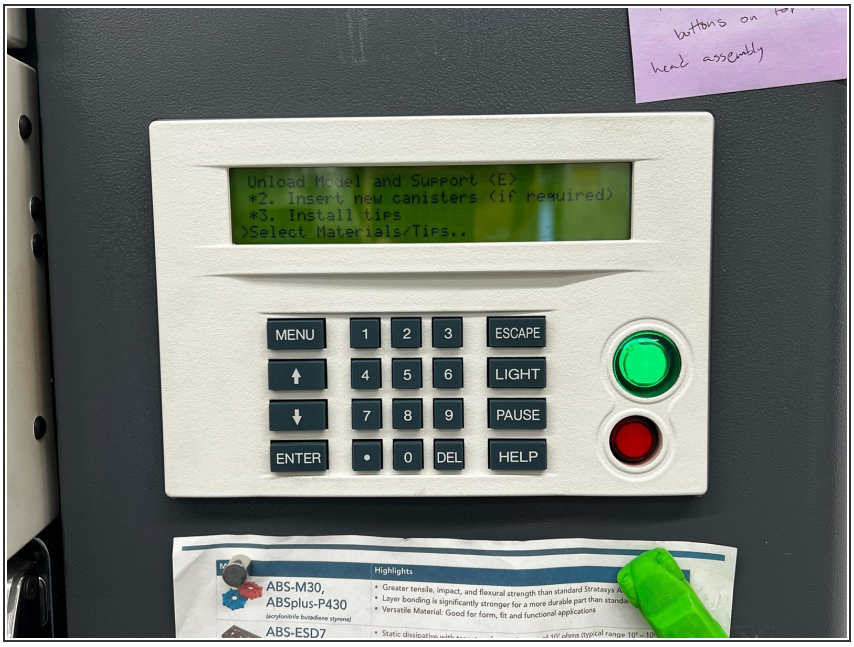
  Make sure the model and support material are compatible with each other and that you've chosen the correct tips for each

- From the main menu, navigate to *Operator Control > Change Tips/Mat'l*

  This will guide you through all the necessary steps in the correct order

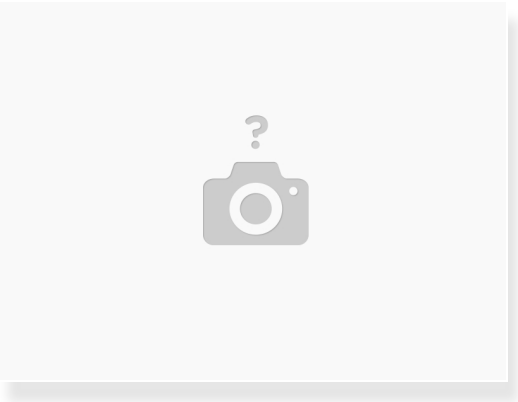
  It is strongly recommended that you use this material changeover option rather than doing it manually using the *Load/Unload Mat'l* menu

Step 3 — Change Material Canisters



- Select *Unload Model and Support..* and wait for the machine to unload the canisters
  - It will unload first the model canister and then the support canister. The canister LED will first flash rapidly, then it will flash at a slower rate when the canister is ready to be removed
- Once unloaded, remove the canister(s) from the machine and insert the new canister(s)
  - For more detail on this process, see steps 2 and 3 of this guide
- Label any partially used canisters with a sticky note that includes the material type, amount of material left (from step 1), and the date it was removed from the machine

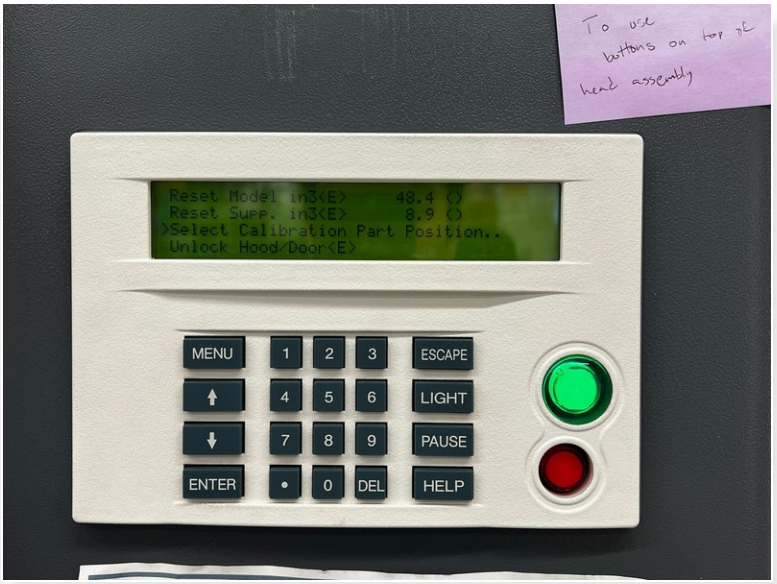
Step 4 — Change Liquefier Tips



- The liquefier tips are material-specific once they have been used, so you must change the respective tip(s) whenever the model or support material is changed
- See this guide for detailed instructions on changing tips

You only need to change a tip if the material is changing. For example, if you do not change the support material, then the support tip can remain

Step 5 — Select Tips and Reset Odometers



- Navigate to the next page in the changeover process by choosing *Select Materials/Tips..*
- Cycle through the possible combinations of tips by using the *Select Tips* command. Stop when the configuration displayed matches the tips you just installed
- Select *Reset Tip Odometers..* and take note of the values associated with each tip. Add that number to the cumulative value on the sticky note inside each tip container
- Press the Enter key to clear the odometer value of the tip(s) that were changed

Step 6 — Load and Calibrate

- Unlock the oven door from the *Reset Tip Odometers* page and place a build sheet on the platen
  - See step 4 of this guide for details and troubleshooting about inserting a build sheet
- Once the build sheet is secure, navigate to *Select Calibration Part Position > Locate Part Start*
- Use the 2, 4, 6, and 8 keys to jog the head to the desired start position. It is recommended that you place the first calibration part at the front left corner of the build sheet
  - When selecting a part start, the model tip indicates the front left corner of the bounding box of the part
- Press Enter to set the part start, then select *Load and Calibrate..*

Step 7 — Wait for Stabilization

Current Oven Temp.	Material Type Being Installed									
	ABSi	ABS-M30	ABS-ESD7	ASA	Nylon 12	PC-ABS	PC	Ultem* 9085	Ultem 1010	PPSF
Room temp.	4	4	4	4	4	4	4	8	8	8
ABS-M30, ABSi Auto Cool-Down	---	---	---	---	---	4	4	6	6	6
ABS-ESD7	---	---	---	---	---	4	4	6	6	6
ASA	---	---	---	---	---	4	4	6	6	6
Nylon 12	---	---	---	---	---	4	4	6	6	6
PC-ABS	4	4	4	4	4	---	4	6	6	6
PC	4	4	4	4	4	4	---	4	4	4
Ultem* 9085	6	6	6	6	6	4	4	---	4	4
Ultem 1010	6	6	6	6	6	4	4	4	---	---
PPSF	6	6	6	6	6	6	4	4	---	---

- Whenever the new model material has a different oven temperature from the previous material, there is a required oven stabilization time
- If you used the *Change Tips/Mat'l* option, the machine will determine the appropriate stabilization time and will print the calibration part automatically when that time has passed

Step 8 — XYZ Offset Calibration

- Any time that one or both of the liquefier tips is changed, you must perform the XYZ Offset Calibration
- Once the oven temperature has stabilized and the first calibration part has been printed, see this guide for details on performing the calibration