Makertech DSE Stage 09 - Heater Checks and Fan Shrouds

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Step 1 — Fan Shroud



(i) Before starting check the fan shrouds:

- Original Fan Shroud 20.5mm
- Raised Fan Shroud 19mm
- With the nozzle touching the print platform, the bottom of the fan shrouds should be above the nozzle.
- (i) Due to tolerancing issues with the DSE setup your fan shrouds may be too close to or lower than the nozzle.
- (i) If you find your fan shrouds to be too close to or lower than the nozzle, remove them now (if you haven't already) and continue with this stage.
- (i) The final step of this stage shows you how to print the updated raised fan shrouds.

Step 2 — Preparing Filament



- Use side cutters or scissors to cut the filament at a sharp angle.
- (i) The proforge 2/2S takes 1.75mm filament.
- (i) We recommend using PLA for the first print/calibration.

Step 3 — Filament Loading



• Place a spool of filament onto both of the spool holders.

It goes with out saying, but it's recommended to use two different colours.

- Feed the filament from the spools into the extruder's.
- Right spool to right extruder and left spool to left extruder.
- Push down on the extruder arm with one hand and feed the filament through with the other until you get all the way to the bottom of the Hotend.

Step 4 — Heating Hotends



A Before powering up either Hotend make sure that the black PTFE tubing is pushed all the way down the Hotend, it should go into the Hotend by 6CM. Double check, as running filament through the Hotend with the PTFE tube not all the way down will ruin the Hotend.

- Go to Tools -> Preheat
- Heat Hotend #1 to 200C.
- Press the Extruder button to toggle to Hotend #2
 - Similarly, heat Hotend #2 to 200C.
- (i) Wait for the Hotends to heat up.

A Caution - the Hotends will cause burns if touched while hot!

Step 5 — Filament Extrusion



(i) With the Hotends up to temp and the filament loaded, go to Tools -> Extrusion.

- This will toggle between the Hotends.
- This is the length of filament that will be fed, each time you tap the down arrow.
- This is the speed setting.
- You should have a smooth and continuous flow of plastic coming out of both Hotend nozzles.

The extruded plastic will be hot!

- NOTE: When powering down from a hot Hotend, power the hotend down first and let it cool to at least 100C before completely powering off - as this prevents the heat from rising up the hotend with the absence of the fan cooling it.
- *i* If you are not getting any filament extruded check the extruder motor is turning in the correct direction (anti-clockwise) to feed the filament. See next step if your extruder is turning in the wrong direction.

Step 6 — Invert Extruder Motor Direction



- If an extruder from the previous step moves in the wrong direction power off your printer and disconnect the touchscreen.
- In the aruino IDE go to the "configuration.h" tab.
- Scroll down to line 863. (Go to File -> Preferences and check "Display line numbers")
 - #define INVERT_E0_DIR false
 - Replace *false* with *true* to change the motors direction. E0 is Hotend #1 and E1 is Hotend #2.
- Re-upload the firmware.
- Once uploaded, connect back the touch screen and power up the printer from the mains again.
- Continue from previous step.

Step 7 — Proforge 2S - Heated Bed



- Go to Tools -> Preheat
- Press the extruder icon to toggle to the bed.
- Power on the bed by setting its temperature to 60C typical for PLA printing.
- A red LED should shine on the back of the heated bed and it should begin to heat up.
 Avoid touching the bed whilst hot!

Step 8 — Printing the Raised Fan Shroud



- (i) To print the raised fan shrouds follow the steps in <u>Stage 11</u> of the main build guide. Instead of the Benchy test model, print the fan shroud models:
 - Left/Rear Fan Shroud
 - Right/Front Fan Shroud
 - When arranging the models in Cura make sure to have the large flat side flat against the build platform.
 - From the setup menu check Advanced, scroll down to the Shell tab and set Fill Gaps Between Walls to Everywhere.
- Remove the original fan shrouds before printing if they are knocking into the print.