



Bukito Flight Check: What to do before starting to print for the first time. Version 1.0 Beta, Feb. 4, 2014.

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Plug in Power and USB

- Open Repetier Host (see “Software Downloads” at bukobot.com).

Go to Printer settings.

- MAC: “usbmodem-XXXXXXXX”
- Windows: COM(Number)
- Linux: USB(Number)

If your printer is plugged into your USB port and you do not see one of these options, you probably haven't installed the FTDI driver (see “Software Downloads” at bukobot.com). Find the correct driver for your system on this page: <http://www.ftdichip.com/Drivers/VCP.htm>

- Make sure baud rate is set to 250000
- Close printer settings and connect to printer.

Systems check.

Switch to “Print Panel” (“Manual Control” in newer windows versions) and check motor connections and directions (if any are wrong, click “Stop motor” or “Turn motor off” before plugging/unplugging them, fix wrong direction by turning the connector over) center the X and Y, and make sure Z has room to move in both directions

- Click the positive 10 for the X axis. Extruder should move toward the right.
- Click the positive 10 for the Y axis. Platform should move toward the front.
- Click the positive 10 for the Z axis. Extruder should move up should move up.

Check Your Endstops

Locate the blue reset button near the USB connector and be ready to press it if an endstop does not function. Click the “Stop Motor” button in Repetier host to make sure the motors are not engaged, then manually push the extruder to the right end. Click the “Home X” button in Repetier host, then tap the X endstop switch. The extruder should begin moving left and stop when you hit the button. When it stops, it will reverse a few millimeters, then move to the left again more slowly for a few more millimeters. If the extruder does not stop when you tap the the endstop switch, check your endstop wiring. You may have the X endstop plugged into the wrong endstop port. If it works, click “Home X” again to ensure that the X carriage properly touches the endstop when it gets to the left end.

Repeat this procedure with the Y axis, starting by moving the platform manually to the front.

Click the “Stop Motor” button in Repetier host again and make sure that your Z axis is at least a few inches above its endstop so that you have time to react if the axis does not stop, turning both screws together by hand if necessary. Unlike the other axes, Z has enough mechanical advantage to potentially break things if it does not stop, but is also moves much more slowly.

Click “Home Z”, then test the Z endstop again as above. Be sure to keep your finger on the reset button in case the endstop does not function.

Lift your Z axis to 100mm using the jog controls.

Check your heaters

Switch to temperature curve view.

Make sure you are set to extruder 1, set temperature to 60 and turn it on.

Check to see that the extruder 1 temperature (thin red line) starts moving up (it should be pretty fast)

If it doesn't start to rise after a few seconds, see the “troubleshooting” documentation. Turn your extruder off.

Assuming it did work, continue with the setup.

Aligning (“trammig”) the platform.

The term “tram” means to make your platform parallel to the X/Y plane of the machine. This does not need to be level (perpendicular to gravity), and in fact your machine should be able to print upside-down.

Tighten your three platform mounting adjustment nuts until the springs are fully compressed, then home your Z axis. Click “Stop Motor” to make sure your X and Y motors are disengaged and turn off the power switch.

Move the extruder and platform by hand until the nozzle is over the glass nearest one of the adjustment screws, and loosen that nut until the nozzle just touches.

To check the height, slip a piece of paper under the nozzle to use as a feeler gauge (post-it notes work particularly well for this if you put the sticky side up and stick your fingers to it). The nozzle should just barely press the paper against the platform and resist when you try to move the paper around, but should not grip it firmly. Move the extruder and platform to one of the other screws and repeat this procedure until all three have been adjusted.

Test extrusion.

Heat your extruder to 210C if you are going to test with PLA, or 240 if you are going to test with nylon. Straighten the end of your filament and push it into the hole by the filament drive gear (see assembly instructions.)

Set the extrude length to 10mm and press extrude when the temperature curve display in Repetier Host indicates that it has reached the target temperature. If you hear your extruder clicking when you try this, a try inserting the filament again. It will be easier to get it started if you sharpen the tip of the filament a bit.

Click “extrude” a few more times until plastic starts coming out of the nozzle. If your machine was pre-assembled, there may already be PLA in the nozzle that may not match the color of what you put in. If this happens, just continue extruding until the old plastic is flushed out and the plastic coming out is the same color as what's going in. Some people like to save their printer's first test extrusion, or “noodle”, as a keepsake.

Your machine is configured to automatically extrude a few millimeters of filament every 30 seconds if you leave it idling while hot. This is to prevent plastic from sitting hot in the nozzle too long and burning or oozing out and leaving the nozzle un-primed. For the next step, you want your nozzle hot so that the metal is fully expanded, but you don't want any plastic coming out, so retract the plastic 10mm.

You may have to slightly adjust the tramming when the machine is hot. Repeat the procedure above if your prints seem to have trouble sticking to the platform.

See the Repetier Host documentation about how to take an .stl file, slice it and run it through the system.

You're done and ready to start printing in 3D!