ADIMLab 3D Printer

Filament using and extrude problem solving

1. feed the filament:

(1) Please make sure the front end of the filament is straight:

Cut the tip at a sharp angle

(2) Press down the extruder plunger:

Press the lever lightly. Pressing too far will block the filament.

(3) Insert filament and push it to the end, the insert length is about 90mm:

If the filament feels blocked at around 40 mm, change the pressure on the lever (press heavier or lighter) to align the filament end with the internal path. If the filament won't go through, path alignment using the supplied alignment tool may be necessary.
( 4 ) Preheat the filament :

① Please use the LCD, “Info screen” press the button, rotate the button and select “Prepare”, Click to confirm :

② In the submenu, rotate to select ‘Preheat’ PLA”, Click to confirm :
③ In the submenu, rotate to select “Preheat PLA”, Click to confirm:

④ Waiting for the nozzle temperature to reach the preset temperature:

(5) Manual extrusion:

① When the nozzle temperature reaches about 195°C, Press down the extruder plunger, will extrude a piece of filament:
If you could find the filament comes out, it proves you load the filament well, and there is no clog in the hot end system:

Common problem during this statement:

① When load the filament, did not press the Press down the extruder plunger: will result the Extruder gear didn’t rotate and lead the filament to the nozzle, and cannot extrude during printing.

② If not insert filament and push it to the end, also will result the extrude problem, and cannot extrude during printing.
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③ If the hot end is clogged, the extruder won’t extrude the filament, we need to

2. Unloading the filament:

( 1 ) Preheat:

① "Info screen" press down the rotate button, and select "Prepare", click to confirm:

② In the submenu, rotate to selection "Preheat PLA", and click to confirm:

④ In the submenu, rotate to selection “Preheat PLA”, and click to confirm:

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⑤ Waiting for the nozzle temperature to reach the preset temperature:

(2) Press down the extruder plunger:

(3) Manually extrude a piece of filament:
(4) Quickly pull out the filament while pressing down extruder plunger:

(Notice: Keep the extruder plunger pressed, quickly pull out the filament, do not pause)
3. Replace filament before printing:

(1) Unload previous filament:

The operation steps are the same as '2. Unloading the filament';

(2) Load the new filament:

The operation steps are the same as '1. Loading the filament';

Common problem during this statement:

① No preheating before unplugging filament: causing filament to break or damage the extruder.

② Pause or release the extruder plunger during pull out the filament process: the front end of the filament is deformed by the gears and cannot be pulled out normally.

4. Change filament during printing:

(Notice: if the previous filament is shortage, and need to change the new roll, please make sure the previous filament be unload and then insert the new filament, not use the new filament to push the previous filament)

Method 1 (New marlin):

(1) Select to change filament:
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“Info screen” press the button, rotate the button and select “Change filament”, click to confirm:

(2) The printing will pause to wait, the Extruder system will move to the left-behand position:

(3) Press the extruder plunger down:
(4) press out a piece of filament manually:

(5) Quickly pull out the filament while pressing down the plunger:

(Notice: Keep the extruder plunger pressed, quickly pull out the filament, do not pause)
(6) press down the extruder plunger again:

(7) reload the filament, and push it to the bottom:
(8) click the rotate button of the LCD:

![LCD display showing PRINT PAUSED, Insert and Click, Nozzle: E1 195/195]

(9) then the Extruder will extrude some filament:

![LCD display showing PRINT PAUSED, Purging..., Nozzle: E1 194/195]

(10) Click the “Continue” menu:
(11) Finish the changing filament, Extruder will come back to the previous printing position and continue:

Method 2:

(1) Pause the printing:

“Info screen” press down the button, rotate to select “Pause print”, Click to confirm:
If you use the old version marlin, the extruder will stop at the Current print position, and leave some molten filament here, so, we recommend you pause when printing the fill position.

The new marlin add the advanced pause function, to move the nozzle to the LEFT-BEHAND position to prevent the high temp nozzle damage.

(2) Press the extruder plunger down:

(3) Press out a piece of filament manually:
(4) Quickly pull out the filament while pressing down the plunger:

(Notice: Keep the extruder plunger pressed, quickly pull out the filament, do not pause)
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( 5 ) press down the extruder plunger again:

( 6 ) reload the filament, and push it to the bottom, and make sure you can see the filament come out:

( 7 ) "Info screen" press down the button, rotate to select "Resume print", and click to confirm:
(8) if you use the old version marlin, will start printing from the current printing position;

If you use the new version marlin, the extruder will extrude some filament first:

(9) Click “Continue” menu:
5. Test printing:

( Please refer to the instruction in the SD card: “ADIMLab Assembly specifications” the 4th and 5th chapters in the directory of “2. Assembly specifications” )

( 1 ) Common problems:

① The first layer does not stick to the print surface

This is by far the most common 3D printing problem, and probably the first one you may encounter. The first layer is the essential one as it is the base of the printed object. Therefore, if it isn’t perfect, the chance of print failure increases.

What happens when the first layer isn’t perfect? Most of the time you will not be able to start the printing process, or the printed objects may continue to constantly detach from the print surface.

Making the first layer stick:

- Proper calibration of the first layer – First, you must perform the First layer calibration. Once you are happy with the result, you can start printing. Later on, you may apply small adjustments to the nozzle height through the Live Adjust Z option when the printer is creating the initial three layers. Just press the Knob and go to the Live Adjust Z. If you are not sure how the proper first layer looks, check out the photo above.
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- **Prepare the print surface** – Keep the surface free of grease. Otherwise, your first layer will have a difficulty sticking to the print bed. Before starting any of your prints from ABS, PLA and many other materials, simply wipe the print surface clean with IPA 90%+. Also, you should use Acetone from time to time, when prints stop sticking – but do not use it on daily basis. **PETG is an exception, so do not use IPA 90%+ and Acetone when you are printing with this material.** For PETG, we recommend using a separating agent (e.g. a glue stick). A complete guide how to prepare the print surface can be found at PEI print surface preparation.

- **Use proper printing temperatures** – Make sure to use the proper nozzle and especially the correct heatbed temperatures. If you are experimenting with new materials that don’t adhere well, you can try to bump up the heatbed temperature by 5-10°C. This way the plastic will stick a bit better.

- **Decrease the printing speed** – If everything above failed, then try decreasing the printing speed. The easiest way how to do it is by rotating the knob during the printing process. Anti-clockwise = decrease speed, Clockwise = increase speed. We suggest decreasing the speed to about 75% for first three layers, then return it to normal.

② nozzle scraping to the hot bed:

When the nozzle is scraped to the hot bed, the material cannot be smoothly extruded from the nozzle, resulting in no filament come out. At the same time, the extruder gear will also make a "squeaky" sound because of the resistance.
6. How to solve the problem of the extruder not working:

(1) didn't push the filament to the bottom:

phenomenon: The extruder gear is rotating, but there is no filament get out.

solution: Insert filament and push it to the end, the insert length is about 90mm.

(2) Nozzle scraping to hot bed:

phenomenon: The extruder emits a "click" sound, and the extruder cannot extrude out.

solution: Please level the bed again, make sure the distance between the nozzle and the bed is about one thin paper thick.

(3) can't get out the filament during printing:

① the filament are entangled, result in the shortage of filament feeding, and no filament out of the nozzle. And the extruder gear will also make a "squeaky" sound due to the "planing".
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solution: Check if the filaments are smooth and rearranged.

② The extruder fan not rotate, the throat heat up and result in the clog of the Teflon tube inside the throat, the extruder will makes a "squeaky" sound.

solution: check if the extruder fan is working. Please make sure it's always on.

③ If you press down the extruder plunger and manually insert the filament to the nozzle, there is no filament get out, prove Hot end system get clogged, and the extruder will makes a "squeaky" sound.

solution:

a. Stop the printing first, keep the nozzle temp at 200°C.

b. Press down the extruder plunger, use hand or tweezers to pull the filament out of the hot end system. Notice, please keep the process being slowly.

c. Push the new filament, make sure the front of the filament is straight, into the hot end manually, if there is filament get out, you solved the problem.

d. If still no filament get out, please keep the 200°C, and pull the filament out, press the extruder plunger down, use the follow tool to Insert the inside of the nozzle from the inlet of the extruder and squeeze it hard.
d. if still can't clean the nozzle well, please refer to:

https://www.facebook.com/groups/1235236596606278/permalink/1302181233245147/?__xts__[0]=68.ARAOFv3Zb4TNINGjZuoJR8-.DakZrLYIP4XVUFS74agujt2Lq0RjZD4ubmRaYFK6aOKgGGjBoKXqPJ7HXvHEMjAn9LeX-xDuWsJpOVjAZG3-VulyfvbG4rj8VqyjE7tVHSNLG5HsZhkgM503M9jmLWqzuTx1fcnb3gt5x5CZkQ5peyh5aZh&__tn__=-UC-R

④ The extruder motor swings back and forth, resulting in no extruding:

Solution: if the extruder wire One phase has poor electrical contact or disconnection, will result the motor swings, you can find this problem via seeing the extruder gear. You need to check the plugs and pins are in good condition.
(4) nozzle temp can't heat up well:

①the heater can’t heat up, or there is no value for the LCD.

solution:

a. Check if the heater and sensor fasten well in the hot end hole.

b. measure the resistance of the heater bar(about 14.5Ω) and the thermal sensor(about 15kΩ).

c. if there is no problem, please check the voltage of the heater port, it should be about 24V.