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PRINTING WITH THE FROG

FILAMENT SETTINGS

This is the world upside down. You've been trained hard not to get strings with your settings, but working with TheFrog I've found that some stringing is actually good to keep the machine clean. Some stringing is good, but globs are bad. Globs will likely pause the print.

When you work with your “perfect tip” settings, TheFrog tends to accumulate fluff in the FrontTrap cavity, under the blade and in the extruder's iddler. This rarely pauses the machine and it is easily cleaned with a toothbrush opening the FrontTrap (remember cleaning under the blade!). Remember to clean also the extruder's iddler before starting a new print
My advice is to start with default generic material settings. Unless there are globs it will probably go alright. If you get globs, raising the temperature just a bit usually fixes it. If you have problems with a filament, your settings adjustments should go towards getting a thin string rather than none. When cut, the tail has nowhere to end but the pit and the machine keeps clean. The blade provides the cutting point.

OK, the frog does not make miracles and you will probably get a few jams, in fact they will be more pauses than jams, but it is easy and fast to get over them and continue with the print.
What follows only applys if you print with TheZeroBeast firmware.

Pausings from a bad sensor reading.

These are the type of pauses that are most common with TheFrog.
Usually caused by the buildup of hairs, globs or fluff in the roller cavity that do not let the roller roll. Yes, the FrontTrap does really work well as a trap for hairs and bits, keeping the rest of the machine clean. You'll need tweezers and a toothbrush to clean the FrontTrap.
A repeated bad sensor reading may also be caused by a grinned filament.

Let's analyze what you might find when you open the trap:

DUST – might be caused because the blade scrapes the filament. Check for scraping sounds on loading. Check that the blade is completely hidden from the filament's passage when retracted. If not, check that the blade sits well in the bottom of the blade holder.

HAIRS – They rarely pause the machine. If the hair is long enough and it's conected to the hot end, it will dissappear on its own the very next load. It looks like working with TheFrog, a little bit of stringing is actually positive. If the hairs are shorter, they will probably end in the front trap and may end up pausing the machine. It might pause with the first hair or you may find a full collection of them when you open the FrontTrap. You might also get long hairs if the blade is not well aligned or if your TPU roller is too hard and the blade cannot beat its rugosity.

FLUFF – Same origin as the short hairs. Fluff may also accumulate in the gear pulley area. It is convenient to check that the area is free of it before starting a long print. Occasionally, fluff may stick to the tip and travel all the way up through the bowden to cause a PINDA false reading.
GLOBS – While hairs rarely pause the machine, globs do cause the machine to pause. Also, it might be the first one, or you may find five or six on opening the FrontTrap. Try to adjust your settings so you have no globs.

If you are getting repeated sensor misreadings and you see nothing to clean, there might be a ball of fluff behind the roller, hairs rolled in its shaft. Or perhaps a grinned or too thin filament.

Hairs could be very difficult to see sometimes. Open the BackTrap to check and clean. In the worst cases you might have to open the TopCover (3 bolts) to clean well, or even check that there is no hair rolled inthe bearing's shaft.

If you are getting sensor misreadings out of nowhere, everything is clean, and the bearing rolls nicely, ytou can try this: paint some lines in the roller (i.e. each 3 mm).It's proven that this will help the sensor's performance. It also helps a lot to identify easily if the roller is actually rolling (meaning that the filament is advancing) when you open the front trap.

Opening the FrontTrap will not cause the machine to pause. You can open it while printing to check how dirty is the macine and clean it if necessary. While loading the FrontTrap must be closed. If the FrontTrap is left open while unloading, hairs can be pulled out of the hot end.

Machine behaviour: Pauses, retracts filament all the way to the MMU2, shows tip (usually perfect) and waits.

Solution. Fix the tip if necessary, pull back the filament. Open front trap and clean well all the fluff and hairs in the cavity. Make sure that the roller can roll easily. Hairs could be difficult to see. Check also the blade's movement. There could be debris blocking the slot under the blade. Close the front trap. Press the button in the MK3. The machine will load and you'll have to press the button again to start printing. Watch out for whatever gets stuck in the tip after reloading. Better clean it before the extruder gets to the wipe tower or to the part.

Any jam that causes a MMU2 halt

Recogniced by a flashing led in the device, can usually be solved by first: fixing the root of the problem, second: putting the filaments ready in the load position and third pressing the middle button of the MMU2..

Some example of these jams are:

- Jams from a false PINDA reading
Occurs when unloading. Could be caused by the buildup of hairs or fluff in the PINDA ball area, dragged by the filament tip from the extruder when retracting. Machine behaviour: Filament retracts too much. Machine pauses. Led flashes in the MMU2

Solution: Free the Festo connector in the MMU2. Push the filament through. If it

doesn't go straight through the selector you might have to open the MMU2 and put the filament tip through the hole. The tip of the filament should clean all the rubbish of the PINDA in the selector on its way out. Check the PINDA light. Pull the filament back to the load position. Fit the Festo again and push the middle button in the MMU2.

- Jams from a grinded filament.
Usually occurs when loading but also when unloading. Caused by a grinded filament for whatever reason (a bad sensor reading, a tangled filament in the spool rollers, a tip too thick to get out of the extruder, etc.)

Machine behaviour. The machine behaves exactly like in the case of a false PINDA reading, except that you'll find no fluff in the PINDA ball and the filament could be anywhere in the machine.

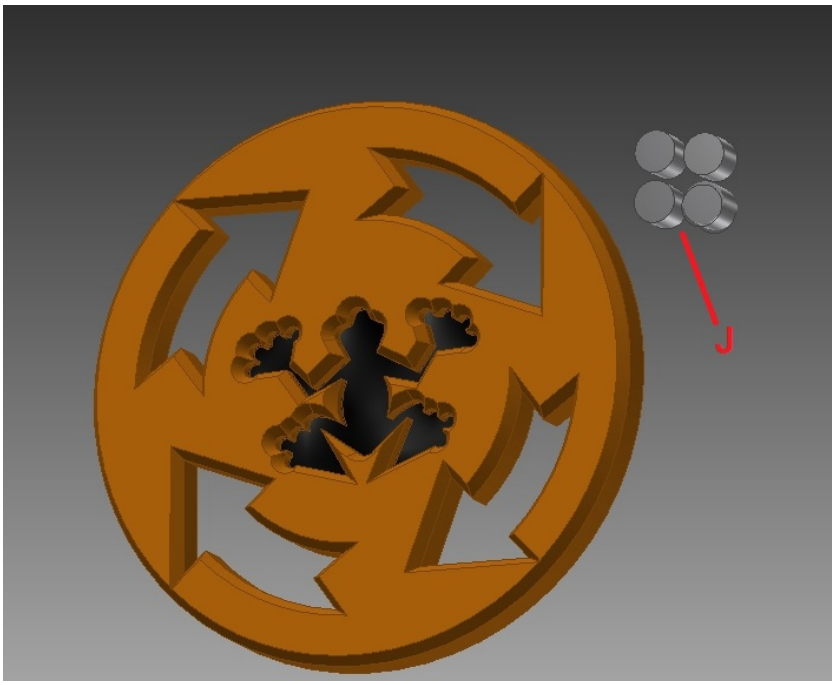
Solution: Check if the filament is grinded. If it is, just cut the damaged part, place the filament in the load position, secure the Festo and push the middle button of the MMU2.

When you are printing with The Frog, if the machine pauses, you fix whatever you think it was, restart again and then the machine stops again (could be the next load or the next time the machine uses the same filament), this usually means that whatever it was the reason that caused the first pause (a “dirty” roller, a grinded filament,...), it was not correctly fixed the first time you tried.

However, with The Frog you should have very few jams, and you should be able to recover swiftly from all of them.

BONUS

TheFrogSpinner



Ready to tackle your first unassisted (hopefully) multicolor print? Just a few filament changes so you can see that The Frog really works. And now that the spools are loaded, why not PETG? Are you afraid or what? Don't bother about settings. Just use PETG defaults with TheZeroBeast touch.
I usually slow the printing speed to maybe 50% on the first layer when printing a small and intrincate part like this.
Once you print it, you'll need to glue four of those little magnets to the back of the spinner to attach it to the stepper.. No, my psychiatrist says there's nothing wrong with me liking magnets...

And now that you are getting maybe a little more confident, and although it is completely unnecessary, you can print that FrontTrap part with the MK7 logo in other color, just for the show off!! STL files are BONUS2A and 2B. It's just a few more filament changes, only to get warm. Take a look while it's working. How do you like those tips? Open the FrontTrap. Any debris accumulating? If there's debris there, that may give you an idea of how much are you going to need to tend the machine (open the FrontTrap and clean) with that particular filament. I'd call it preventive cleaning maybe? The nice thing is that it can be done without stopping the printer.

There you are. Your MMU2 is finally working.