

Recovering from an Aborted Build

Description

It can be frustrating to experience a model build failure late into a long build. In earlier machine firmware versions this typically meant a lost job and a complete re-start required. Failures can have many causes including power cuts, paper tears, other machine related issues or un-planned opening of the machine lid during a build.

In version 6.0 we've added a limited capability for the machine to recover from an aborted build.

Background

The normal print cycle of the CG-1 machine comprises five sequential phases: 1) Glue Application, 2) Feeding Paper, 3) Paper Lamination, 4) Colour Printing and 5) Cutting. As the first phase of the recovery process is always glue application, the last completed layer of the aborted build must be exposed, i.e. paper must be cut and cleared away from the build area before attempting recovery. After the glue phase the machine will prompt for paper to be fed through and then continue the build as normal.

Operation

The machine will offer to recover a build when you select "Print" from the home menu and it detects that the previous build did not complete - note that this includes a build manually cancelled by a user. The details about the aborted build are not forgotten until either the build is recovered and completed or a new/different build is started. The aborted build details will also persist through a power-cycle of the machine.

When recovering there are some important issues to consider:

- 1) You should not move the job on the build plate. Doing this would change the position relationship or registration between the model under build and the machine itself. We will consider adding a true build start from a selected layer function for a future release if feedback tells us it makes sense to do so.
- 2) You will need to tell the machine which layer you're recovering to. The machine will prompt for this by bringing up a screen indicating the layer that was current at the time of the abort.
- 3) The machine needs a clear view of the bed in order to apply glue. The recovery process always starts with the glue application phase (as the previous application will have most likely dried) before prompting for paper to be fed through and then continuing with the normal build process.
- 4) A 100% clean recovery is not guaranteed depending during which phase an abort occurred and some may require that you cut and remove paper from the model before starting.

The behaviour and ability of the machine to recover and the quality of that recovery depends on during what phase the abort happened.

1) Abort during Glue Application

This is an easy and effective recovery. To recover from here you simply need to allow the machine to re-glue the current layer, feed paper when prompted and continue with the build.

2) Abort during Feeding Paper

This recovery is also easy and effective. Once again allow the machine to re-glue the current layer, feed paper and continue with the build.

3) Abort during Paper Lamination

This recovery could be problematic because you have a blank sheet of paper laminated into the model which if it cannot be removed easily without causing damage will show as a 0.1mm unprinted stripe on the finished model.

4) Abort during Colour Printing Phase

Resuming here is likely best achieved by selecting to re-build the last built layer.

5) Abort during Cutting Phase

This is potentially the most problematic stage because an uncut laminated and printed layer sits as the last layer of the model and this will need to be taken into account when you get to weeding the completed model. You might need to cut this layer away manually.