



## **MakerBot Global Customer Support Team**

### **Error Messages for Fifth Generation Printers**

Version 1.7.0 (Updated March 25, 2015)

Welcome to the MakerBot Global Customer Support Team. I am Tom Makin, Executive Director of Customer Support at MakerBot. We are pleased to provide you with this Error Code Messages Document for Fifth Generation (“5<sup>th</sup> Gen”) Printers. Please read the following carefully and I look forward to working with you as we move “full speed ahead”.

#### **How to use this document**

The *Error Messages Index (5<sup>th</sup> Gen)* is for use by authorized international resellers to assist in the diagnosis of error-code related problems with MakerBot 5<sup>th</sup> Generation printers. This document will help identify issues and their potential solutions but does not contain explicit instructions nor does it imply permission to perform these repairs without prior authorization from MakerBot support.

#### **Contacting support**

Resellers should contact MakerBot support before attempting any repair that requires opening the machine or any internal part (excluding Smart Extruder).

Support can be reached by emailing [globalsupport@makerbot.com](mailto:globalsupport@makerbot.com). Your account manager is always available to help facilitate this connection but for support related issues, please reach out to the MakerBot Global Support Team.

In your outreach, be sure to include the following:

- The product type and serial number
- The Smart Extruder serial number
- A short description of the problem.

#### **Use at your own risk**

Use the error code document at your own risk. These error codes are provided for diagnosis only. Attempting to repair a printer without authorization from support may void the warranty on the unit.

#### **Confidential and not to be disclosed**

These error codes are for internal use only by authorized international resellers. Distribution of this document to end-users or any other entity is a violation of the reseller agreement and will result in breach of contract.

## Fifth Generation Error Codes

*LAST RELEASE FIRMWARE v1.7.0*

### **11: Watchdog Triggered**

- The Carriage has shut itself down due to a lock-up.
- This should occur very rarely if ever. If this error occurs persistently, something is wrong with the Bronx PCB.

### **15: Chamber Heater Controller Disconnect**

- The Brooklyn PCB cannot communicate with the Gowanus PCB.
- The most likely cause is a cable disconnect from the Brooklyn PCB to the Gowanus PCB.
- A less likely cause is a damaged cable between the Brooklyn PCB and Gowanus PCB.
- A distant third cause is that the chamber electronics themselves are damaged.

### **16: Carriage Disconnected**

- The Brooklyn PCB cannot communicate with the Bronx PCB.
- The most likely cause is that the FFC is disconnected from either the Brooklyn PCB or the Bronx PCB.
- A less likely cause is a damaged FFC.
- A distant third cause is that the carriage electronics are damaged.

### **46: Bad Tool Connected**

- This error is caused by an unexpected response when querying the memory (EEPROM) of the Smart Extruder.
- This can be temporarily caused by poor communication with the Smart Extruder. Check the Smart Extruder's connection and retry.
- If this error is persistent for a given Smart Extruder, it is likely caused by the Smart Extruder's memory being corrupted. The Smart Extruder will likely have to be returned and its firmware reflashed.

### **48: Door Interlock Triggered (Chamber Door Is Open)**

- The Z18's front door is required to be closed during printing. If the door is opened during a print, the print will suspend. If the door is open, prints cannot start.
- This error occurs during printing but not during any other operations.

### **50: Heater Short**

- Heater diagnostics are run every time you start to heat the Smart Extruder. If the diagnostics detect a short, this error occurs.
- A short indicates that the two heater wires are connected to each other or that the heater wire outputs on the carriage electronics are damaged and connected to each other.

*Fifth Generation Error Codes*

#### **51: Tool Fan Short**

- Fan diagnostics are run every time you start to heat the Smart Extruder. If the diagnostics detect a short, this error occurs.
- A short indicates that the two fan wires are connected to each other or that the fan wire outputs on the carriage electronics are damaged and connected to each other.

#### **52: Filament Fan Short**

- Fan diagnostics are run every time you start to heat the extruder. If the diagnostics detect a short, this error occurs.
- A short indicates that the two fan wires are connected to each other or that the fan wire outputs on the carriage electronics are damaged and connected to each other.

#### **54: No Tool connected (Smart Extruder Not Connected)**

- Smart Extruder is not connected to the carriage.

#### **55: Heater Rise Watchdog**

- Temperature not going up as expected. The temperature rate of rise is checked after you start heating the extruder.
- In firmware v1.3.0, there are false positives of this error in the case of heating to target from a starting point approximately 165°C or higher. These false positives are fixed in firmware v 1.3.1.

#### **56: Hold Watchdog “Heaters were Turned off Due to Inactivity”**

- No issue. This is intentional and prevents any damage to the Smart Extruder by sitting at temperature and not extruding. The hot plastic will eventually expand enough to cause internal extruder issues.

#### **57: Temperature Sag Watchdog**

- Temperature was at the target temperature but has dropped 20°C below the target.
- Check to see if the filament fan and fan duct are present. Excessive ventilation of the extruder nozzle will cause this error.

#### **58: Temperature Overrun Watchdog**

- Temperature is 20°C or more above the target temperature.

#### **65: Thermocouple Communications Failure**

- The Bronx PCB is having issues communicating with the Smart Extruder. There's a faulty connections somewhere between the thermocouple, Yonkers PCB and Smart Extruder pogo pins.

#### **66: Thermocouple out of Range**

- The values being read from the thermocouple are far outside the range of actual possible temperatures. This could indicate a damaged ADC or a damaged thermocouple.

**67: Thermocouple Unplugged**

- The value read from the thermocouple ADC indicates that the thermocouple is not connected to the ADC inputs. It is likely disconnected at the Yonkers PCB.

**69: Thermocouple Data Invalid**

- The data we are getting from the thermocouple ADC is not valid data. There is likely a communication failure over the pogo pins. A lower likelihood cause is damage to the Yonkers PCB, specifically the ADC.

**70: Tool Open**

- Tool diagnostics are run every time you connect a Smart Extruder. If the diagnostics detect an open circuit, this error occurs.
- An open circuit indicates that the tool power pin is not connected. This either indicates damage to the pogo pins or that the Smart Extruder is not fully connected to the carriage.

**71: Heater Open**

- Heater diagnostics are run every time you start to heat the Smart Extruder. If the diagnostics detect an open circuit, this error occurs.
- An open circuit indicates that one or both of the heater wires are not connected. Since the heater is on the extruder, the error could indicate bad connectivity over the pogo pins.

**72: Tool Fan Open**

- Fan diagnostics are run every time you start to heat the Smart Extruder. If the diagnostics detect an open circuit, this error occurs.
- An open circuit indicates that one or both of the fan wires are not connected.

**73: Filament Fan Open**

- Fan diagnostics are run every time you start to heat the Smart Extruder. If the diagnostics detect an open circuit, this error occurs.
- An open circuit indicates that one or both of the fan wires are not connected.

**74: Heater Over Temp**

- Smart Extruder temperature reads > 300°C or chamber heater controller temperature reads > 119°C.

**75: Thermocouple Data Not Changing**

- The temperature reading on the Smart Extruder has been “stuck” at the same value for 2 minutes. This indicates something has gone wrong with the Smart Extruder or that it is not properly connected to the carriage.

**80: No Filament**

- Filament is not loaded in the Smart Extruder or filament has run out and is loaded but beyond the filament entry point in the Smart Extruder.

**81: Filament Slip**

- Filament is jammed.
- The encoder wheel inside the Smart Extruder has not moved over a large number of steps commanded to the Smart Extruder. The encoder wheel should move along with the filament so if it is not moving, the filament is also not moving.

**85: Unsupported Tool**

- A tool is connected but its type is not recognized. This error is usually replaced by Error [54: No Tool connected](#).

**86: Tool Read Error**

- See Error [54: No Tool connected](#).

**87: Tool Checksum Fail**

- See Error [54: No Tool connected](#).

**88: Invalid Encoder Resolution**

- See Error [54: No Tool connected](#).

**96: Chamber Thermistor Disconnected**

- Chamber thermistor connection diagnostics are constantly run, and this error can occur at any time.
- Either the heater or chamber thermistor cables are not connected or faulty.

**97: Chamber Heater Disconnected**

- Chamber Heater diagnostics are constantly run whenever the chamber begins to heat.
- The Chamber Heater is not plugged into the Gowanus PCB.
- 12V power is not connected to the Gowanus PCB.

**98: Chamber Heater Failure**

- Heater failure diagnostics are run whenever the chamber begins to heat.
- This error only occurs if there is a failure on the Gowanus PCB.

**99: Chamber Fan Failure**

- The fan is unplugged, obstructed or faulty.
- Possibly the 12V supply to the Gowanus is not connected.

**100: Chamber Temperature Overrun**

- This diagnostic runs at all times when the Chamber Heater is heating.
- An external heat source is heating the chamber or there is something wrong with the Gowanus board.

**Homing Error (Errors 1013, 1016, 1020-25, 1032, 1033)**

- The Smart Extruder nozzle is not moving as it should and so the homing detection is failing:
  - Check that the nozzle can move up and down.

- Load filament - pushing filament through the nozzle may resolve sticking during homing.
- Unload filament and reload filament.

#### **1001: Toolhead Not Heating**

- Occurs during heating if the toolhead has not reached target temperature in 5 minutes.
- Check that the Smart Extruder is seated properly.

#### **1008: Tool Tx Failure**

- The carriage electronics are not communicating. Usually this indicates that the FFC is disconnected either at the Brooklyn PCB or the Bronx PCB.
- The FFC itself, or either connector, could be damaged.

#### **1009: Carriage Program Failure**

- The carriage electronics could not successfully program. Usually this indicates that the FFC is not connected either at the Brooklyn PCB or the Bronx PCB.
- Occasionally an error can occur during programming but the machine attempts the programming again and is successful on the second try. If the printer can preheat the Smart Extruder without errors, then programming the Bronx PCB was successful.

#### **1010: Chamber Controller Program Failure**

- The chamber electronics could not successfully program. Usually this indicates that the chamber controller cable is not connected either at the Gowanus PCB or at the Brooklyn PCB.
- Occasionally an error can occur during programming but the machine attempts the programming again and is successful on the second try. If the printer can preheat without errors, then programming was successful.

#### **1011: JsonToolpath Parse Error**

- There is something wrong with the tool path file -- this error occurs during a print.
- Resend / redownload the file.
- Reslice the file.

#### **1014: Smart Extruder Connect Failed**

- This Error occurs when the “Attach Extruder” utility fails.
- Remove and replace Smart Extruder and try “Attach Extruder” utility again.

#### **1018: Suspend Index Not Found**

- This is a software bug.
- Power cycle your printer.

#### **1019: Suspend No Valid Last Move**

- This is a software bug.
- Power cycle your printer.

**1024: No HES Change**

- Smart Extruder nozzle doesn't move during Z-homing.
- Load filament to clear nozzle and try again.

**1027: Both Sides Too High**

- Software error in assisted leveling.
- Try running assisted leveling again.

**1029: No Build Plate**

- This error occurs on the Replicator Mini exclusively.
- Reinstall build platform.

**1030: File Transfer Timeout**

- An error occurred during the firmware update file transfer.
- Attempt to install the firmware once again.

**1031: Corrupted Firmware File**

- The firmware file you attempted to upload was corrupted in download / transit or writing.
- Try the firmware upload again.
- If upgrading from Firmware 1.6.0, 1.6.1, or 1.6.2, try power cycling the printer.

**1036: No Mac Address Set**

- There are no unique network IDs assigned.
- At the Factory: The machine has not gone through the integration station.
- Printer needs to be reintegrated.

**1038: Could Not Send Toolhead Command**

- The carriage electronics are not communicating. Usually this indicates that the FFC is disconnected either at the Brooklyn PCB or the Bronx PCB.
- The FFC itself or either connector could be faulty.

**1039: Out of Bounds**

- The bot tried to move to a location outside of its known axis lengths.
- This usually indicates a file sliced for another printer type.
- In Firmware v1.3.0, there are false positive cases of this error when homing fails. These false positives are fixed in v1.3.1.

**1040: Out of Filament**

- Filament has run out during printing.
- The firmware automatically unloads the remaining filament piece when this occurs. This is to prevent clogging from loading new filament on top of old filament.

**1041: No Filament**

- There is no filament loaded.
- This error occurs if you try to start a print with no filament loaded.

**1042: Network Error**

- A network failure occurred when trying to start a digital store print. The digital store model was not able to be received to start the print.

**1043: Cloud Slicing Error**

- Cloud slicing failed to slice your model for printing. This error can occur when attempting to print from your cloud library via the Bot Interface.

**1045: EEPROM Update Failed**

- Updating the usage information on the Smart Extruder's EEPROM failed.
- Most likely caused by poor connection to the Smart Extruder at the end of a print.

**1500: System Error**

- This is a generic software error and should ideally not occur in released firmware.
- If it does occur, we need to look at the logs to see what the actual issue is since 1500 is generic.
- An example of something that would cause a 1500 is the firmware trying to look up a field in the printer settings that doesn't exist.

**Error Message from older firmware:****13: Toolhead Disconnected**

- **NOTE: THIS ERROR IS DEPRECATED STARTING WITH FIRMWARE VERSION 1.2. IT IS REPLACED BY ERRORS 15 and 16.**
- Check FFC connections to the Brooklyn PCB, Bronx PCB and Rikers PCB.
- Check if Gowanus PCB and Brooklyn PCB are connected:
  - Replace Top FFC
  - Replace Bottom FFC
  - Replace Rikers PCB
  - Replace Bronx PCB
  - Replace Gowanus PCB
  - Replace Brooklyn PCB