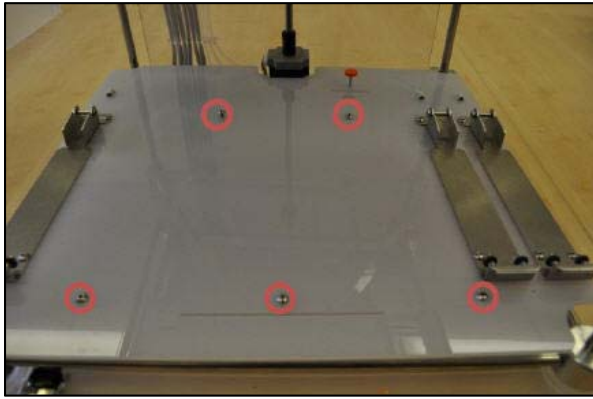
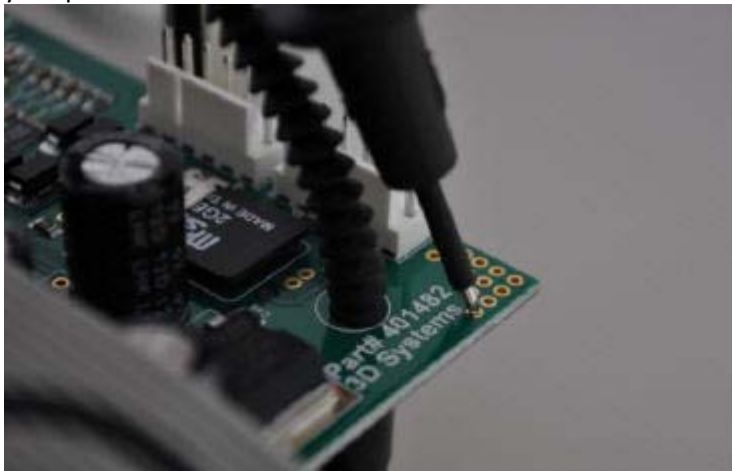


### 3. Set the right voltage on extruder motors.

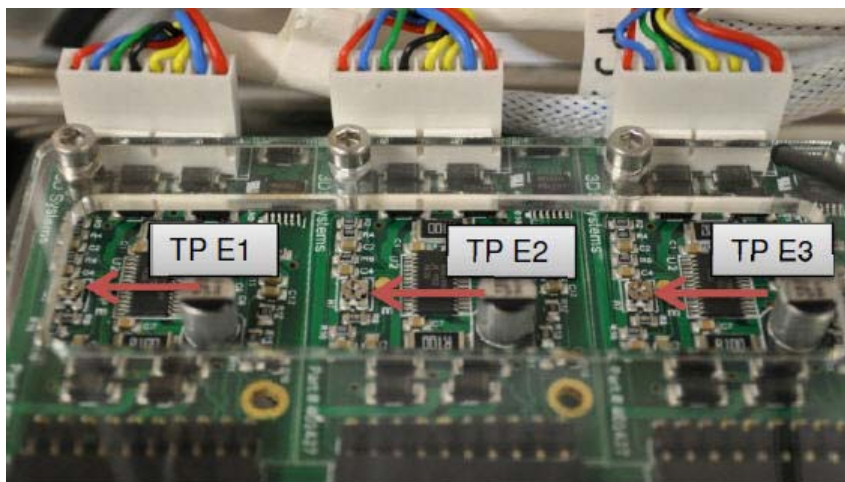
- a. Remove the 5 bolts and the floor panel



Use a multimeter and measure the DC voltage between the ground and the small screw-head named TP on the picture below, be very careful don't touch other points with the multimeter this may cause a damage to your printer :



The ground is on the corner of the Main-Board



These are the 3 screws on the of a Cubex Trio, the Duo has only 2 and the Cubex single extruder only 1. Each print-jet board has a screw.

The voltage between the Ground and a TP point is set by 3Dsystems to 1.1 Volts, but this is not enough and with a such low voltage the extruder doesn't have enough torque to ensure a good job. Most of the time a flow failure is caused by this bad setting.

Take a small screwdriver and turn a little the TP screw to increase the voltage (make very little adjustments). Now you have 2 choices:

1. Set the voltage to 1.8 V . This voltage ensure a very strong torque, this will allow you to use some irregular filaments that are up to 1.85-1.9mm. Clogged jet will always produce a flow failure but you'll no more have failures caused by the weakness of the extruder.

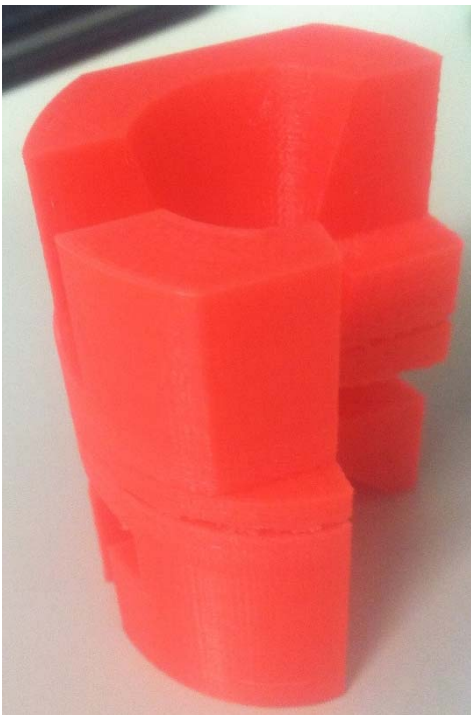
I use this setting on my Cubex but I've full metal Hot end, if you have the original Cubex hot end I suggest you don't use this setting because it may cause an increased pressure on the hot end and the PTFE tube into the original Cubex hot end may not support that pressure.

This voltage REQUIRES a sink on the driver of the board, the driver of the print-jet board is the big black chip on the middle of the board.

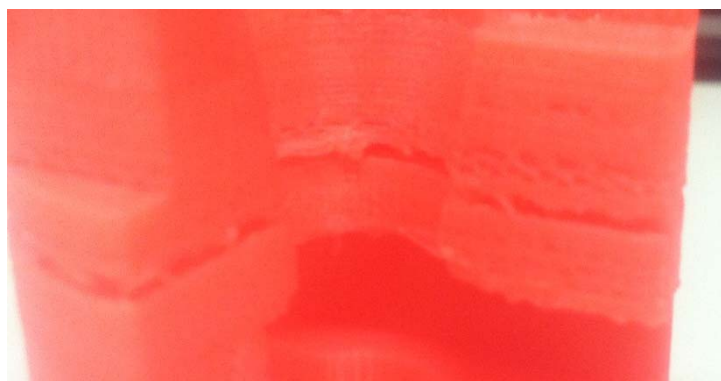
With the increased voltage the driver heats and when he becomes hot he reduces the power of the motor and you'll experience exactly the same problems as if you set a too low voltage. Glue the sink with thermal epoxy.



2. Set the voltage to 1.5 Volts . This setting is safe for the original 3Dsystem hot ends, I've used them up to 1.65 Volts with no problems, so 1.5V is safe. I strongly suggest you to put a sink on the driver, like shown on the picture above, because I've experienced problems and strange behaviors caused by the overheated driver chip while I was printing large parts even with a such low voltage. The pictures below are an example :



This part was printed with 1.6 Volts, the top and the bottom are OK, but in the middle the driver heated too much and caused many lost steps in the motor with lack of material, no flow failure was detected and the print went to end but the part was unusable.



Increasing the voltage produces a little heat on the extruder's motor, but on my Cubex the temperature was always lower than the temperature of the x-axis motor, this last is very hot (50-60°C) on my printer with the original 3DSystems settings.

The extruder's motor is around 30-40°C with 1.8V on the Print-Jet board, this doesn't cause problems, the extruder is cooler than the motor because the hot-end sink beneath takes the heat away.