

# 8 GDS Helpsheet



*World Leaders in Computer Controlled Testing  
Systems for Geotechnical Engineers and Geologists*

Hardware

Advanced Controller

Checking Connectors and Setting 5 Volts

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## 1. Introduction

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All the mechanical, electronic and computing functions of the GDS digital controller are generated from a single printed circuit board (PCB) populated with integrated circuits (IC's or "chips") and discrete components such as resistors and capacitors. In the event of a malfunction of the controller, GDS may ask you to check that various internal connectors are firm and that the 5 volts which operates the logic is set correctly. The procedures are given below.

## 2. Checking Connectors

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1. Ensure controller is powered off and the ac power lead is removed.
2. Remove the eight cap-headed Allen screws retaining the top plate.
3. With the assistance of a colleague raise the front edge of the top-plate by approximately 150mm, ensuring that no cables are stretched .
4. Check that the connectors to the PCB are all secure (refer to Fig.1 below for locations), as follows:-

CON3 - The ribbon cable from the IEEE connector. There are polarising guides in the plug housing on the PCB and on the terminating socket on the cable. Lay the ribbon cable in its natural arc from the IEEE connector, without any twists in the cable, and push the socket firmly on to the plug. Then push home the locking levers.

CON2 - The ribbon cable from the display. There are polarising guides in the plug housing on the PCB and on the terminating socket on the cable. Lay the ribbon cable in its natural arc from the display, without any twists in the cable (this will normally loop over and through the loop formed by the IEEE ribbon cable), and push the socket firmly on to the plug. Then push home the locking levers.

CON8The five-way connector from the transducer. Align the socket with the two plugs on the corners of the socket pointing up and the black wire towards the bottom of the PCB and push the socket firmly on to the plug.

CON7The three-way connector on the small ribbon cable coming from the top plate. Align the socket with the two lugs on the corners of the socket pointing up and push the socket firmly on to the plug.

CON6The eight way connector on the cable coming from the stepper motor through the top-plate. Align the socket with the red and white striped wire towards the bottom of the

PCB and push the socket firmly on to the plug. (Note that the colour of the wires towards the top of the PCB vary according to the controller type, 200cc or 1000cc)

CON5 The eight-way connector on the wiring harness coming from the power supply. Align the socket with the white wire towards the top of the PCB and push the socket firmly on to the plug. CON1 The eight-way blue connector on the transparent ribbon cable from the keyboard. Lay the cable so that it comes directly from the keyboard down on to the PCB plug without any twists in it and push the socket on to the ten-way plug so that one tine is visible on either side of the socket when it is in position.

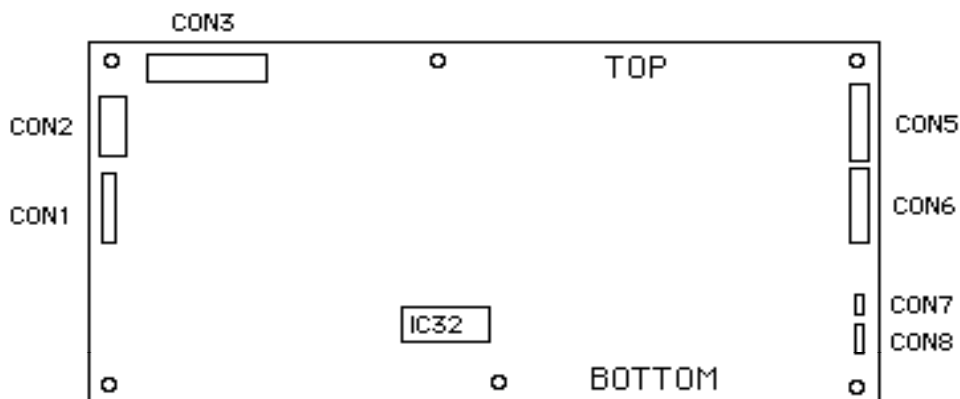
5. ***On some MKIII controllers there is a black 7-way screw-connector-block between the power supply and the main PCB. Check that the screws in this connector block are all tightened down correctly.***

### 3. Checking 5 Volts

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1. Connect a power lead from an a.c. power supply with a voltage corresponding to that indicated on the back of the controller. Do not touch the power supply module inside the controller, there are high voltages present.
2. Connect the test leads from a calibrated voltmeter to one of the connector tines on CON-5 marked
3. **0v BLACK**, and the other to one of the connector tines on CON-5 marked **+5v RED**.
4. Turn the controller on and observe the voltage reading; it should indicate **5.20v** exactly. If this is not the case then adjust this voltage to 5.20v using the variable resistor VR1 on the power supply module.
5. Power-off the controller and remove the voltmeter test leads.
6. Replace the top-plate and the eight cap-headed Allen screws retaining it in position.
7. Power-on the controller and carry out the diagnostics as described in section 2.4 of the Users Handbook.

#### MKIII CONNECTOR LAYOUT



**Please Note:-** On later controllers there is provision for measuring the +5v via two test tags (0v & +5) below IC 32. The voltage setting is now 5.1 volts not 5.2 volts as above.