

# 158 GDS Helpsheet

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Hardware

Advanced Controller

Replacing Pressure Transducer

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## 1. Introduction

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This helpsheet guides how to replace the pressure transducer in a non-USB GDS advanced digital pressure/volume controller. Mechanically, the barrel has a tapped hole which enables a pressure transducer to be connected directly to the underside at the outlet end of the pressure cylinder. On replacing the transducer the gain resistors and firmware may have to be updated to suit.

Note, after replacing the pressure transducer you will need to recalibrate the controller using an external pressure transducer. Helpsheet 15 details the procedure for this.

## 2. Removing the top-plate

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With the help of a colleague remove the top plate. This is done by first removing the 8 caphead screws fixing the top plate to the lower case.

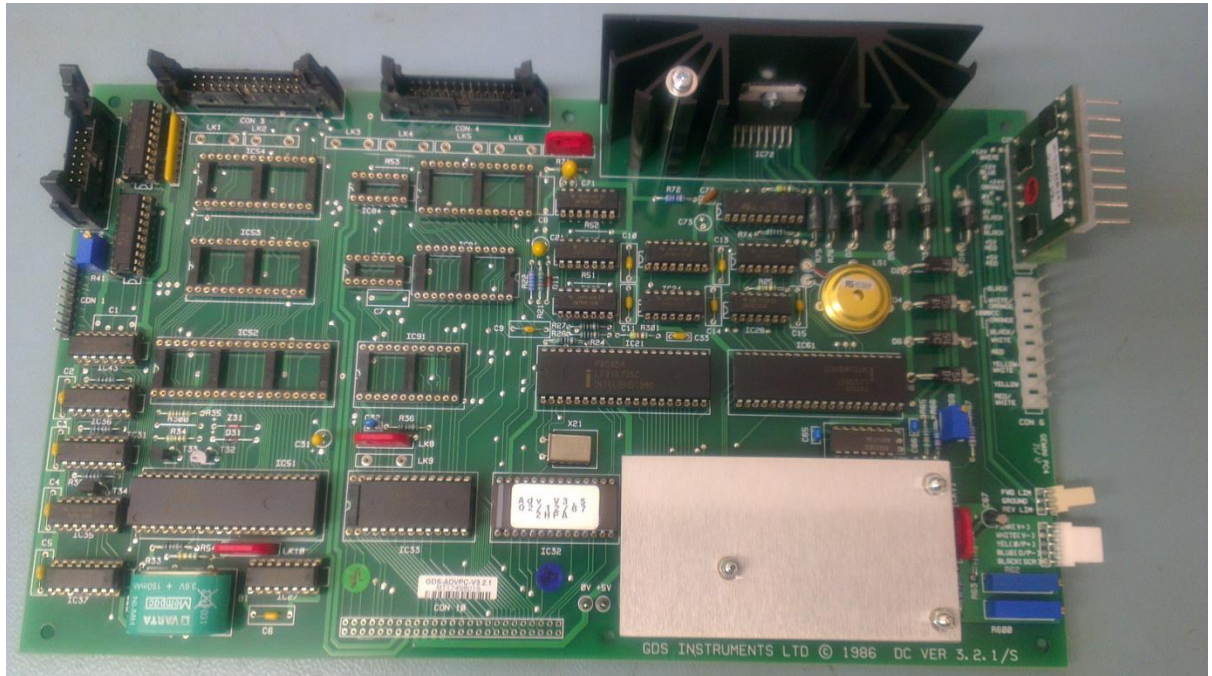
Gently raise the top-plate making sure you do not stress any of the cables connecting it to the main PCB.

Disconnect these linking cables at the PCB end, making sure you make full notes including photos/diagrams if required to describe their location and orientation.

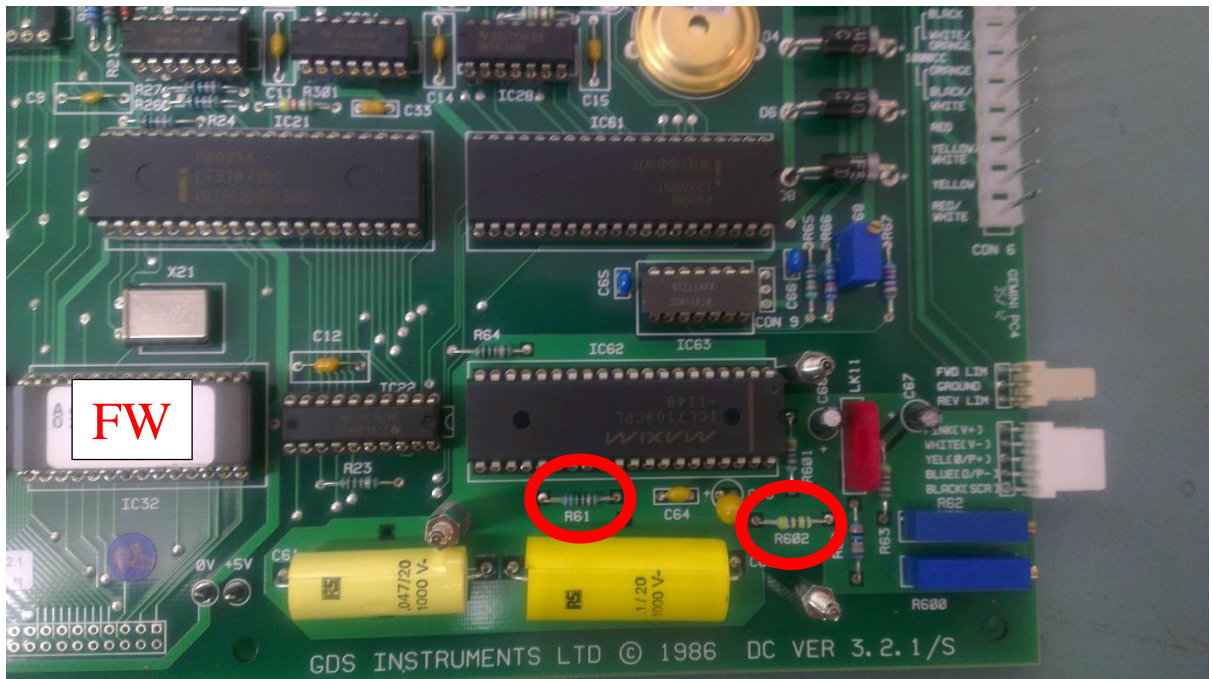
Lay the top plate back on its side on a soft surface behind the controller base. Remove the main PCB from the controller base.

### 3. Changing the firmware / resistors

Remove the PCB from the controller base by gently releasing the 6 white plastic mounting clips. Note, these may become brittle after many years in use, so be careful not to overstress while removing.



Next, remove the protective aluminium shield in the bottom right corner of the PCB by releasing the 3 nuts holding it in place.



If the controller range has been changed a replacement firmware chip will be required. If this has been provided use a small screwdriver to gently prize off the original firmware chip (marked FW above). Try to ensure this is lifted off vertically or the legs can be damaged or even snapped. Replace with the new chip ensuring the little notch is on the left and all legs are correctly positioned before pressing firmly into place.

If the transducer full scale output has changed the gain resistors will also need to be changed. To do this snip/de-solder and remove the resistors from the R61 and R602 positions. Replace with the new resistors, ensuring they are fitted in the correct location as they will be different values.

Fit the PCB back into the controller base ready for re-calibrating.

## 5. Changing the Transducer

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First empty the controller of as much water as possible. The existing transducer should be unscrewed from the controller base. Clean the threads and dry them before fitting the new transducer.

Depending on the controller range it may be sealed using Loctite, a dowty seal or a copper washer. Apply to the threads of the new transducer a small amount of the Loctite hydraulic sealant 542 provided. Screw the pressure transducer into the connection in the underside of the cylinder and spanner tighten.

***Note: Under no circumstances attempt to deair the inside of the new transducer by inserting any kind of device into it, as this will cause damage to the transducer diaphragm. Any small air bubble trapped can be removed in use by cycling the pressure applied to work out the bubble or pass it into solution.***

Re-connect the top plate to the main PCB ensuring the cables are connected correctly. Refer to your notes made when disassembling. If you are not sure about the layout look inside another controller or request assistance from GDS support via [support@gdsinstruments.com](mailto:support@gdsinstruments.com).

Recalibrate the controller according to the instructions in Helpsheet 15.