

# 105 Helpsheet



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

Hardware

STD & ADV Controller

De-airing

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## 1. Introduction

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The water used within the chamber of a GDS controller should always be de-aired as thoroughly as possible. With the end cap of the controller closed, a target pressure with a change of 100 kPa should be reached within about 5 to 10 seconds or less. If the target pressure takes longer than this, it is possible that some air has entered the controller barrel.

## 2. Quick De-Airing Method

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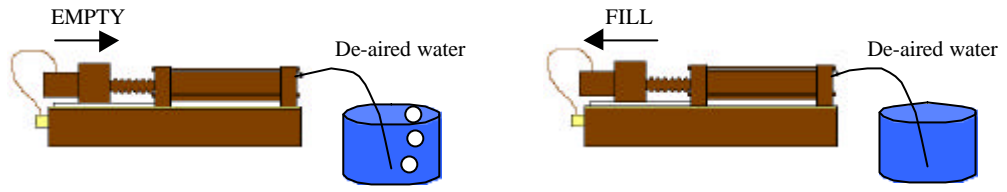
Every time a connection is made with a GDS controller, you should be very careful not to introduce bubbles of air into the barrel. Before making a connection, with the outlet open to atmosphere, always perform the EMPTY function (key strokes: "RESET" "EMPTY") until water leaks out of the connector. At this point, stop the controller and complete the connection.

If the controller is still slow to reach a target pressure **with the end cap closed**, please follow the following method of section 3 to ensure complete de-airing of the controller.

## 3. Thorough De-Airing Method

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- a) Make sure the controller outlet is open to atmosphere. Ideally a small tube should be connected to enable the controller to be filled with water later in the procedure.
- b) With the end of the short tube submerged, completely empty the controller of water. (see diagram 1). To empty use the following keystrokes: "RESET" "EMPTY". The controller will continue to empty until it safely reaches it's own in-built limit switches.
- c) With the short tube remaining submerged in de-aired water, set the controller to fill. To fill the controller use the following keystrokes: "RESET" "FILL". The controller will continue to fill until it safely reaches it's own in-built limit switches.
- d) Now with the outlet end of the controller slightly raised, set the controller to empty about  $\frac{1}{4}$  of the water in the barrel. Keep watching for air bubbles flowing out of the controller. For most tests it is recommended that the controller be around  $\frac{3}{4}$  full to allow for water output as well as input. Whilst emptying to the  $\frac{3}{4}$  full level, **the controller is only de-aired when air bubbles have stopped flowing out of the tube.**



**Figure 1 (a) and (b): Stages in de-airing a GDS controller.**