

## Frequently Asked Questions

### Hardware

**1. Q: When I view the system monitor before starting the test there is always about  $\pm 0.005$  kN (1 lb) load fluctuations. Why is this? When there is no contact between the vertical load cell and the specimen, why is there a small fluctuation in the load and how can I make it zero?**

**A:** There is always going to be a small load fluctuation of about 0.025% of the load cell's full capacity. This translates to about 0.1 lb not 1 lb.

Follow these steps to zero the load cell:

1. Go to the system monitor and record the analog reading of the vertical load cell when it is at no load condition (load cell not in contact with anything).
2. Go to calibrate summary
3. Overwrite the offset value for the vertical load cell with the analog reading value from step one.
4. Click the apply and ok buttons
5. On the system monitor window, you should now see that the vertical load cell is reading essentially zero.

**\*Note:** This zeroing process can be applied to other sensors such as pressure transducer.

**2. Q: During the test, a controller error message appears on the screen telling me that a limit switch is on, what should I do?**

**A:** To recover from a triggered limit switch, go through the following steps.

1. Identify the limit switch that was triggered (upper or lower).
2. Move the platen (up if the lower switch was triggered, down if the upper limit switch was triggered) using the load frame Position menu and keypad.
3. Adjust the crossbar (up if the lower switch was triggered, down if the upper limit switch was triggered).
4. Reapply the load attained before the error message occurred.
5. Click the Retry button.

**3. Q: Could the Node ID# for the LoadTrac-II change by itself? What possible reasons could you think to have prompted the change?**

**A:** The node ID cannot change by itself. The default node ID# for the LoadTrac-II is 65. If you had been using a different node ID number, rebooted the system and by mistake pressed the ESC key on the keypad during the boot process, the controller would have reverted back to the default value.

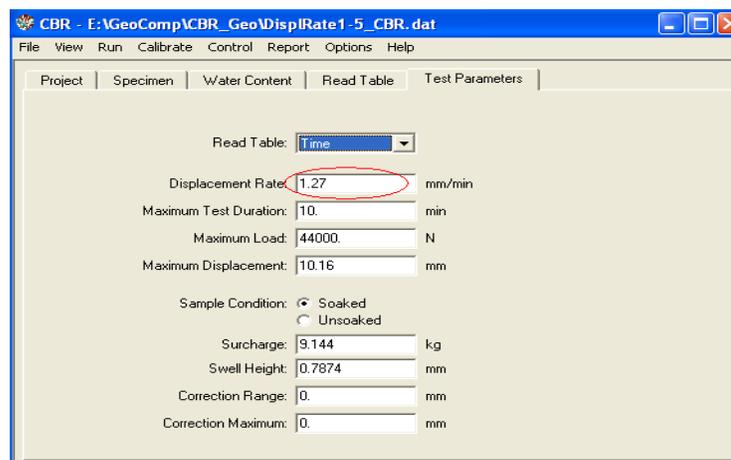
In addition to changing the node ID back to the value you had been using, it is very important that you check all the LCD menu entries against those listed in the table found in the Setup section (Section 2.1.4) of the hardware manual for the unit in question.

**4. Q: We have a CBR test running and an error message that reads, " Load reading of 65528 is out of range," popped up. Why does this show up and how do we prevent it?**

**A:** When you receive an error message stating, "Load reading of 65528 is out of range" it means that the load cell sensor has maxed out. Your sample strength is stronger than the capacity of the load cell.

You will have to use a higher capacity load cell for this type of soil that you are testing.

**5. Q: In Test Parameters screen, the target velocity is entered as 1.27 mm/ min. But during the experiment, the actual velocity is seen as 1.42-1.57 mm/min. We would like to learn the reason of this.**



**A:** The difference in the displacement rate between the specified one and the actual one can be attributed to the following:

- The vertical LVDT calibration may be off. Check the calibration factor and if necessary recalibrate the LVDT sensor.
- The load step multiplier under Options → Hardware → Step Multiplier may need to be adjusted. Be certain that the calibration factor for the LVDT is correct, and then follow these steps to adjust the load step multiplier:
  1. Open the System Monitor window (select System from the View menu) and then run the LoadTrac-II platen all the way down until it reaches the lower limit switch.
  2. Move the platen up until the displacement transducer reads about 20000 to 30000 counts (as seen in the left-hand text field, second from the top, on the System Monitor window).
  3. Record both the Displacement reading (in mm or in) and the Pulse Count for the Load Motor. (Note that the Pulse Count is the motor step count.)

4. Now move the platen up until the displacement reads 40000 to 45000 counts.
5. Again record both the Displacement reading (in mm or in) and the Pulse Count.
6. Calculate the Load Step Multiplier as follows:

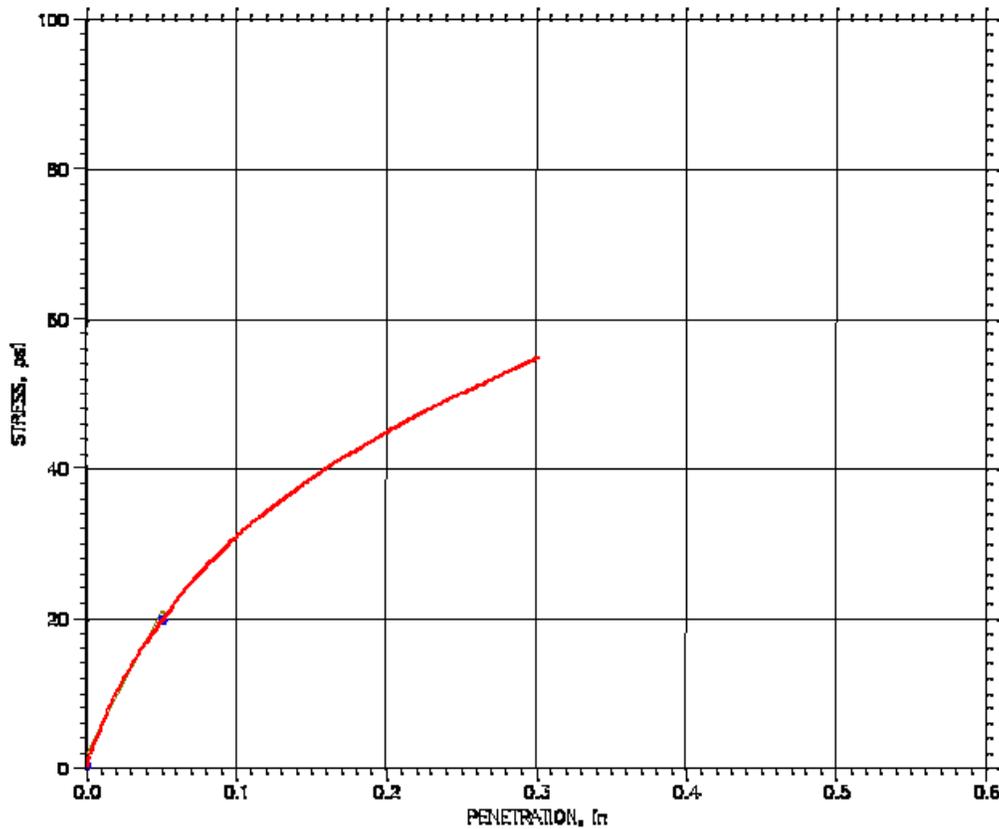
$$\text{Load Step Multiplier} = \Delta \text{ Vertical travel} / \Delta \text{ Pulse count}$$

7. Open the Hardware Setup window (select the Hardware item on the Options menu) and replace the Load Step Multiplier value with the one you have calculated. Then click the Apply button.
- The polarity of the displacement sensor may be wrong. It should be unipolar for a Novotechnik sensor (one with square cross section).

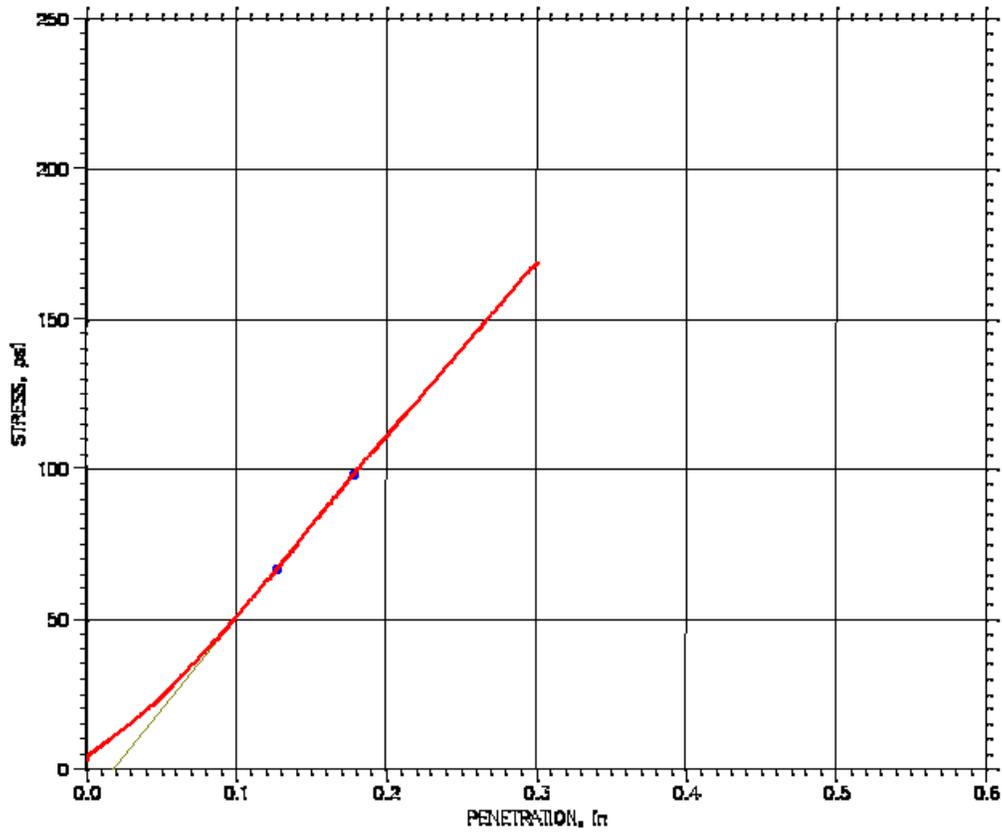
### Software

1. Q: I have a question about a CBR test. Sometimes we do not get info for the 0.3 in penetration and sometimes we do. I have attached two files that demonstrate this. Why is it stopping?

#### CALIFORNIA BEARING RATIO TEST REPORT



CALIFORNIA BEARING RATIO TEST REPORT



Project	Specimen	Water Content	Read Table	Test Parameters
Read Table: <input type="text" value="Time"/>				
Displacement Rate:		<input type="text" value="5.e-002"/>	in/min	
Maximum Test Duration:		<input type="text" value="30."/>	min	
Maximum Load:		<input type="text" value="2500."/>	lb	
Maximum Displacement:		<input type="text" value="0.3"/>	in	
Sample Condition: <input checked="" type="radio"/> Soaked				
<input type="radio"/> Unsoaked				
Surcharge:		<input type="text" value="9070."/>	gm	
Swell Height:		<input type="text" value="0.265"/>	in	
Correction Range:		<input type="text" value="0."/>	in	
Correction Maximum:		<input type="text" value="0."/>	in	

**A:** It is because of the concave correction at the beginning of the CBR curve. The first test does not need any correction; however the second one does. The curve shifts by the correction amount resulting in missing the 0.3 CBR value. The tests were run with a maximum penetration of 0.3 in in the test parameters screen.

If you need to obtain the CBR value at 0.3 in, then you need to enter a value greater than 0.3 in for the maximum displacement.

**2. Q:** When I use report software, I want to use scale as I want but it does not change, as I want. It change but not as I want for example If I want to change vertical displacement scale say negative 0.02, it will not change but if I change it to negative 0.2 it will change (in this particular case the default minimum value is negative 0.05). Similar thing happens to normal and shear stress scale too.

**A:** The software tries to keep both the vertical and horizontal scale in a ratio of 1:1 so that the Mohr circles are actually circles not ovals. Consequently, there are values in the scaling that are not acceptable to the software. You may have to keep on trying different values.

**3. Q:** After running a successful test we ran into troubles with the report. We were not able to generate a report because all links on the report pull down menu are inactive. Are we missing something or is the software not entirely installed.

**A:** Once a test is finished or even while it is running:

1. Go to File

2. Click on Load, this will load the test data on the open window on the desktop.
3. Go back to Report, you should see now the Graph, Settings, and Edit menus all activated.
4. You can change units, scales, and edit the test data points.
5. Remember that every time you change or edit something, you will need to save the file, and load it again.

**4. Q: I calibrated my transducer and filled out the Calibration table under the Options menu. However, I can't get the program to save the new calibration numbers. When I open the file back up the old calibration numbers are still there. How do I save the new calibration data?**

**A: Go to File>Save As. Save the file under a new name such as newtemplate.dat.**