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MOBILE ROLLING STRAIGHT EDGE

CONTENTS

CHAPTER 1

1.1 DESCRIPTION

The machine simulates a 3 metre straightedge sliding along the road surface and consists of a rigid frame supported on two parallel rows of rubber tyred wheels. At the mid-point of the length is a sensing wheel which is free to move in such a way that it detects depressions but not bumps in the road surface. Movement of this wheel is transmitted to a LVDT and Sensor on the trip wheel for the instrument's total distance travelled (both in metres).

In use the straightedge is pushed along the road surface at a slow walking pace whilst the number of irregularities, size and their distance from the starting point are noted. To avoid the need for constant observation a warning tone is fitted. Set to sound when a 6mm depression is exceeded.

The rolling straightedge is made in three sections, clamped together so that the overall alignment of the wheels is maintained. A case is supplied for each section for storage and transport.

1.2 GENERAL CARE

It is absolutely essential that the wheels are kept clean and free of tar, chippings etc. failure to clean the wheels after use will lead to inaccurate results. In addition, recalibration cannot be carried out with wheels in poor condition.

- DO clean wheels using Lamp Oil or similar paraffin based solvent and a suitable cloth.
- DO NOT use any solvent likely to attack rubber and or plastic.
- DO NOT lift assembled straight edge bodily off the ground.
- ALWAYS roll sections together and apart on a smooth surface.
- DO NOT use excessive force when clamping sections together.
- NEVER push the straightedge at speed over badly rolled surfaces.
- NEVER tow the straightedge behind a vehicle.
- NEVER drag the straightedge sideways when turning round – roll the sections apart and lift them clear of the ground to turn them.
- Do not drop or handle the RSE roughly.
- Push RSE at a slow walking pace.
- Check all nuts and bolts are tight before testing.
- Keep battery charged and DO NOT over charge

Slow walk Yes!

Run No !

CHAPTER 2

2.1 SETTING UP

Read General Care instruction (1.2)

Each straightedge is calibrated as a complete unit and sections are not interchangeable. This should be particularly noted where more than one straightedge is owned, or where more than one is being used on the same site.

Examine all wheels to ensure that they are free from bitumen, stones and other deposits (section 2) and that each is able to rotate freely. Damage to any of the supporting wheels will affect the alignment of the straightedge and d therefore its accuracy.

Check that the vertical movement of the sensing wheel in the centre section is being transmitted smoothly to the LVDT in the instrument head.

The straightedge can now be assembled. Make sure the section clamp plates are clean and free from any grit or dirt. Each pair of clamp plates is clean and free from any grit or dirt. Do not use excessive force when clamping sections together.

2.2 OPERATION

- Read General Care instructions (Section 2)
- Check the compliance specification for the carriageway.
- The rolling straightedge is operated on a longitudinal test line or lines, parallel to the centre line of the carriageway.
- The rolling straightedge is operated on a longitudinal test-line or lines, parallel to the centre line of the carriageway.
- At the end of each section, the depressions in each size category are totalled and checked for compliance with the specification.

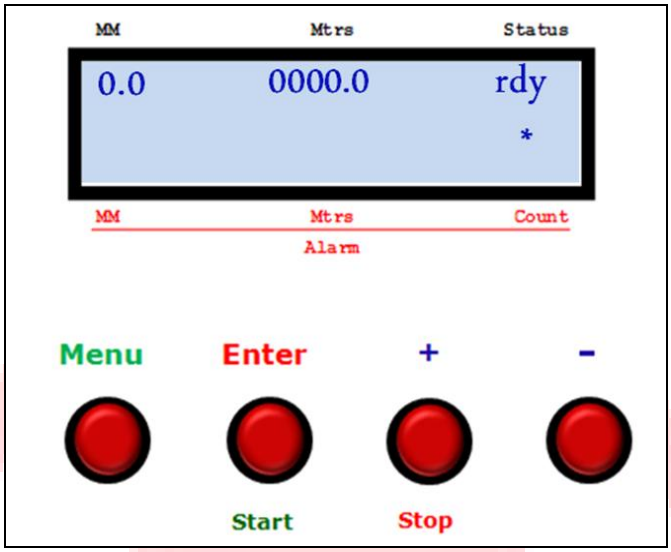
With some very coarse, heavily chipped, grooved or brush textured surfaces, there may be some difficulty I reading the indication at the prescribed speed. It is not necessary to maintain a constant speed and it is recommended that the rate of progress be adjusted to suit the type of surface under test, in the case of concrete surfaces, “worm casts” produced by the texturing process should be removed before making measurements, similarly, and loose chippings should be swept from the surface.

On completion of the test the straightedge can then be dismantled and re-boxed.

CHAPTER 3

3.1 PANEL LAYOUT

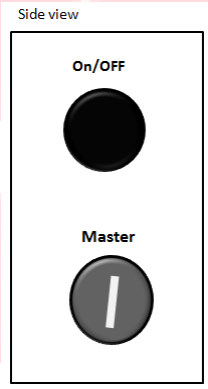
MM	: Live Millimeters
Mtrs	: Live Metres
Status	: Test or Controller Condition
MM	: Last Alarm Value (Maximum Value
Mtrs	: Metre Value when Max Alarm Value occurred
Count	: Alarm Counts
Menu	: Menu Selection
Enter	: Selection Button
+	: Selection Button
-	: Selection Button



Front Panel

Side View

On/Off : Power or Off
Master : Key Switch/Operator Mode or Supervisor Mode



Side View

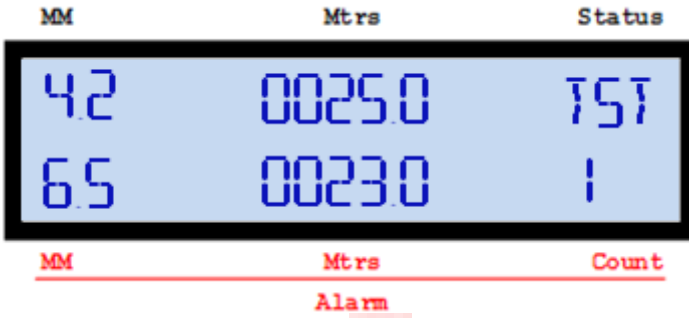
3.2 QUICK START GUIDE

With the battery fully charged (12 – 13 volts), Use the following Steps:

1. Switch the unit On
2. Select Supervisor Mode with the Master Switch
3. Use the Enter Button to DELETE the last alarm values
4. Switch the device Off
5. Go to the site location. Assemble the RSE and place it at the start point
6. Switch the device On
7. Press the Start Button
8. Push the RSE at a slow walking pace, an audible “Beep Beep” sound will occur when a depression in the road surface is greater than the pre-set alarm value.
9. Continue pushin the RSE until the alarm sound stops
10. The arlarm values are automatically saved

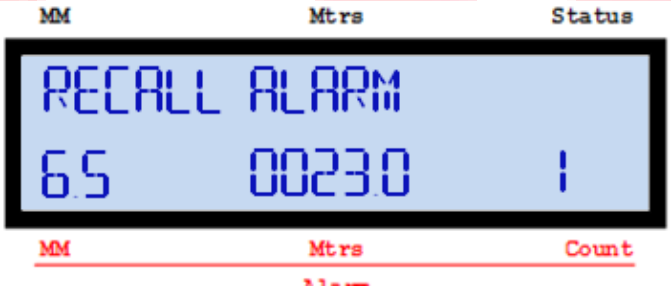
11. Alternatively manually record the values shown on the display
12. The alarm values are reset when the next alarm occurs
13. On completion of test press the Stop Button and Power Off.
14. Disassemble the RSE and return the lab

Battery Level Indicator



If required recall the alarm values:

15. Power On
16. Press the Menu Button
17. Press Enter
18. The alarm values will display at 3 second intervals
19. Press the Menu Button
20. Power Off



3.3 OPERATOR MODE

In operator mode the operator can:

- Start a test sequence – Start Button
- Stop a test sequence – Stop Button
- Recall te
- Refer to the things to know section

3.4 SUPERVISOR MODE (via Key Switch)

In supervisor mode the supervisor can:

- Delete the results from memory
- Set the alarm value
- Calibrate the millimetre scale
- Calibrate metre scalte
- Save the calibration values
- Retrive the default calibration values
- Use the Key Switch to select the supervisor mode
- Use the Menu Button to xyxle through the options

CHAPTER 4

4.1 MENU 1

Delete the Test results from memory:

Menu Button to skip

OR

Enter Button to delete

NOTE:
If the memory is not deleted the results file will grow larger and larger making it difficult to decipher.
For example:
"Start Test" ...alarm 1...alarm 2...alarm 3..."Stop Test" (memory not deleted)..."Start Test"...alarm 1...alarm 2... alarm 3...alarm 4...alarm 5...alarm 6... "Stop Test"

"Recall alarm" alarm values will be displayed every 3 seconds as follows 1,2,3,1,2,3,4,5,6 end. This could be confusing.

The solution is to delete the file before each test or atleast every second or third test.

4.2 MENU 2

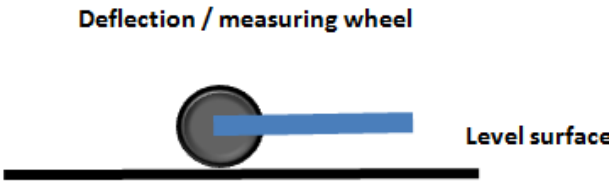
Set the alarm value.

- Menu Button to skip
- Plus Button to increase the alarm value
- Minus Button to decrease the alarm value
- Menu 5 to save

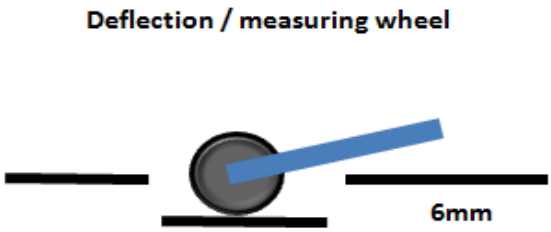
4.3 MENU 3

Calibrate the millimetre scale.

- Enter Button Zeros the millimetre scale



- Move the deflection wheel to a known value
- Plus Button increase the millimetre scale
- Minus Button decrease the millimetre scale
- Menu 5 to save



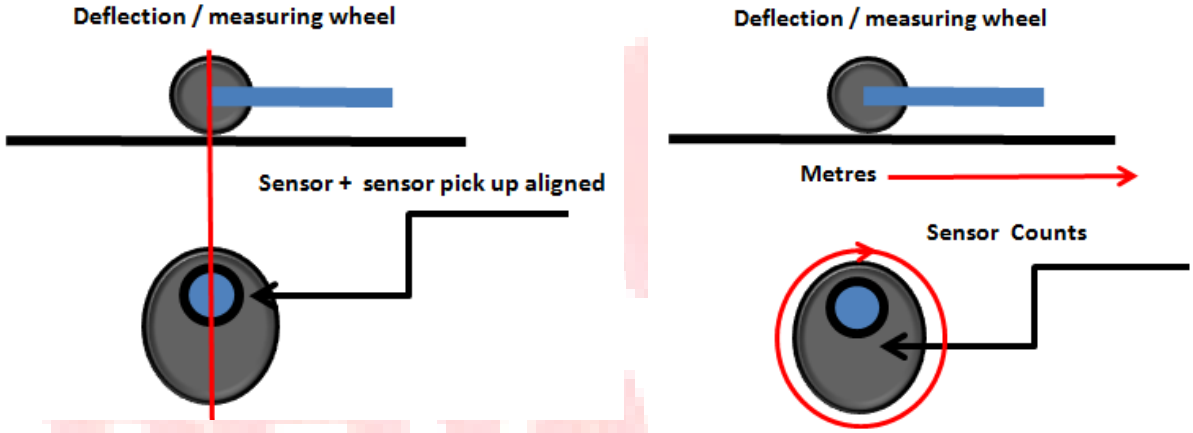
4.4 MENU 4

Calibrate the metre scale

- Enter zeros the metre reading and the metre counter

- Roll the RSE to a known distance
- Plus Button increase the metre scale
- Minus Button decreases the metre scale
- Menu 5 to save

Alternative:
Measure the diameter of the measuring wheel in millimetres. (mm x 3.14159/1000) = metres
Manually rotate the measuring wheel one count. Adjust the metre scale according to the calculated metre value.



4.5 MENU 5

Save Calibration

- Menu Button to skip
- Enter Button to save

WARNING:
Save the calibration overwrites all previous calibration values.

4.6 MENU 6

Reset the default calibration values.

- Menu to skip
- Enter to recall

- Warning:

Recalling the default values overwrites all previous calibration values

CHAPTER 5

5.1 THINGS TO KNOW

- **Display Start –Up**

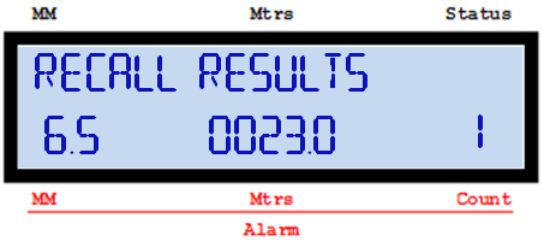
MEMORY CHECK

- **Display after Start-Up**

Ready Mode indicates the metre sensor if activated, 5.0v indicates the regulated supply voltage to the sensor and microprocessor. The voltage should never drop below 5.0 volts.

- **Recall Results (Key Switch off)**

Operator mode – Menu Button – Enter Button
Updates every 3 seconds until all the results have been displayed.



CHAPTER 6

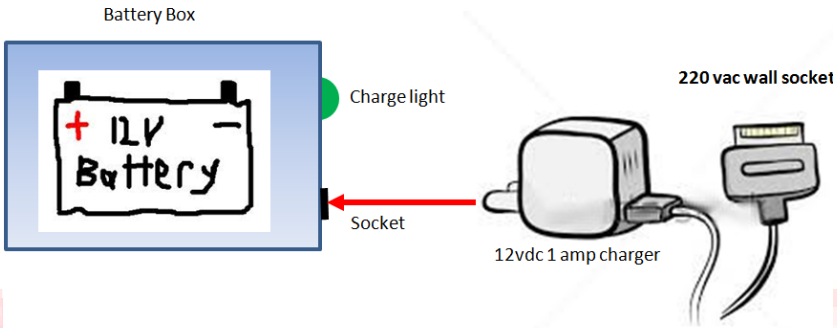
6.1 BATTERY

The battery is the heart of the unit and should be charges at least 12hrs before using the RSE. 12 to 13 volts is a full battery, 10 volts or lower is a flat battery. Depending on the conditions a full battery shoud give approximately 24 working hours.

BATTERY LEVEL INDICATOR

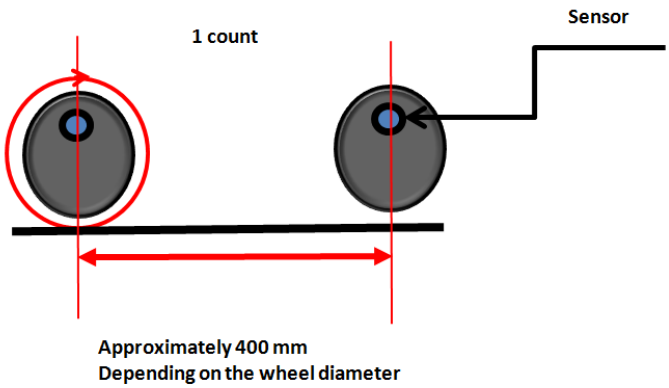
Battery Specifications

- Sealed rechargeable battery
- 12 volt 7 Ah (Same as used with house alarms and gate motors)
- Charger 220 vac to 12vdx (1 amp) Centre Pin Positive



CHAPTER 7

7.1 MEASURING WHEEL



WARNING:
The sensor will still count if one rolls the SE backwards adding to the total sistance and losing accuracy.

7.2 DEFLECTION WHEEL