

OVERLAY THICKNESS SELECTION

Measurement layer thicknesses from 1 to 4 inches (2.5 to 10.2 cm) may be selected. Press **<THICK>**. The gauge displays:

```
Layer Thickness:
  x.xx in.
Input and
Press ENTER
```

Enter the desired layer thickness and press **<START/ENTER>**.

AVERAGE

Up to twelve readings may be averaged by the gauge. Press **<SHIFT>** and **<AVERAGE>** to display:

```
No. of readings
to average: xx
Do you want
to change?
```

To change the number of readings to average, press **<YES>**. Enter the desired number and press **<START/ENTER>**.

STORAGE FUNCTION

Test measurement can be stored in the gauge memory under the *active project number*. To enter or select a project number, press **<SHIFT>** and **<PROJECT>**. The gauge displays:

```
Current Project:
  xxxxxxx
Do you want a
new Project #?
```

To accept the displayed project number, press **<NO>**. To enter a different project number, press **<YES>** and input a new project number (up to 12 digits).

To store a measurement, press **<STORE>**. Enter a station number when prompted. Enter the distance from the centerline when prompted, and enter whether the location is left or right of the centerline.

If desired, additional information may be entered under the station number (up to 12 characters). To store additional information, press **<YES>**.

OFFSET FUNCTION

To take measurements that are outside the calibration range of the gauge, an *Offset* must be entered. **The gauge applies the offset to all measurements until the offset is disabled.**

For site calibration, refer to Chapter 5 of the *Manual for Operation and Instruction*.

Press **<SHIFT>** and **<OFFSET>**. To enable or change the density offset, press **<1>**. When the current offset value is displayed, press **<YES>** to change the value.

Press **<1>** to enter an offset value using the gauge keypad or **<2>** to select a value previously stored in the gauge memory. Follow the gauge prompts to enter or select the offset value.

TESTING AND MEASUREMENT

NOTE

The following brief description applies only to single readings. To take multiple readings and averages, refer to the *Model 4640-B Manual of Operation and Instruction*.

Place the gauge over the test site. Release the gauge handle and push it down until the handle is resting on the stop pin.

Press **<START/ENTER>**. The gauge displays:

```
MA: xxxxx PCF
Thick: xxx in.
Avg: xx
Time: xx secs.
```

After the count time has elapsed, the gauge displays:

```
Dens: x.x PCF
%MA: x.xx%
100-%MA: xx.xx%
%VOID: x.xx
```

To store this reading, press **<STORE>** (see *Storage Function*).

After taking readings, lift the gauge from the test site by the source rod handle. This returns the source rod to the **SAFE** position. When not taking readings, always keep the source rod in the **SAFE** position.

Model 4640-B

Thin-Layer Density Gauge

QUICK REFERENCE CARD



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GAUGE START UP

YES EXIT	NO/CE C/CE	STATUS 7	AVERAGE 8	SPECIAL 9
STORE MS	THICK MR	PROJECT 4	PRINT 5	ERASE 6
MA/ VOIDLESS +	TIME -	SP. CAL. 1	OFFSET 2	CALC. 3
SHIFT x	STD +	RECALL 0	.	START/ ENTER =

Model 4640-B Keypad

NOTE

The operator should wear a dosimeter or radiation badge when working with the 4640-B Thin-Layer Density Gauge.

Press **<ON>**. The gauge performs an LCD test and a 300-second self-test. Following the self-test, the gauge enters the *Ready* mode. The display is:

```
<READY> mm/dd/yy
Avg: xx
Time: xx mins.
BATT LIFE xx Hrs
```

The first line of the display alternates between the current time and date. The second line indicates any gauge options that are enabled, such as *Average Mode*. The third line indicates the enabled count time. The last line indicates the remaining battery life.

THE STANDARD COUNT

To compensate for the source decay and naturally occurring background radiation, and to check proper operation of the gauge, take a standard count daily. Use the magnesium (Mg) reference block and air gap spacer for this operation.

Place the reference block on a dry, flat surface of asphalt or compacted soil with a density of at least 100 pcf (1600 kg/m³). The location should be at least 3 m (10 ft) from any building or vertical structure and 10 m (33 ft) from any other nuclear gauge or radioactive source.

Place the air gap spacer on the reference block and then place the gauge on the spacer. Ensure that the source rod is in the **SAFE** position. The handle end of the gauge should rest over the two posts on the spacer.

Press **<STD>**. The gauge displays the last standard count. To take a new standard count, press **<YES>**. Check the gauge position, then press **<START/ENTER>** to begin the standard count.

After taking the standard count, the gauge displays the results and beeps. Record the count in the standard count log and press **<YES>** to accept the count. The gauge returns to the *Ready* mode.

SITE PREPARATION

The 4640-B gauge is designed for use on asphalt surfaces and does not require a great deal of surface preparation.

NOTE

Keep the gauge turned parallel to the direction of the paver and rollers.

Find a smooth, level location on the asphalt. Remove any loose material (sand, aggregate, and so on) from the site. Ensure that the gauge does not “rock.” It must remain level and steady. If the gauge rocks, find a more suitable test site. If taking a measurement around a core, the gauge may be moved a few inches away from the hole to level the gauge.

GAUGE SETUP

COUNT TIME

To view the current count time (length of measurement), press **<TIME>**.

```
- Count Time -
   xx min.
Do you want
to change ?
```

To change the count time, press **<YES>**. Use the numeric keys to select the desired count time. The gauge returns to the *Ready* mode.

DATE AND TIME

To access the current date and time settings, press **<SHIFT>** and **<SPECIAL>**. Press **<1>**, **<0>**, and **<START/ENTER>**. Enter the access code and press **<START/ENTER>**. The gauge displays:

```
Date: mm/dd/yy
Do you want to
change Date?
```

To change the date and/or time, press **<YES>**. Note that both the date and time must include *leading zeroes*. For example September 9, 2002 must be entered as “090902” and 9:05 must be entered as “0905.” Enter the new date and, when prompted, the new time.

MARSHALL/VOIDLESS DENSITY

To select a Marshall or voidless density value, press **<MA/VOIDLESS>**. The gauge displays:

```
MA: xxxxx PCF
VD: xxxxx PCF
Do you want
to change?
```

To change a value, press **<YES>**. The values should be a result of laboratory samples or a predetermined specification. To correct any input errors or abort the change, press **<CE>**.