

OFFSET FUNCTION

The gauge can be adjusted using an offset. The gauge applies the offset to measurements until the offset is disabled or the gauge is turned off.

Press **<OFFSET>**. The gauge displays the *Offset* menu.

WET DENSITY OFFSET

To select wet density offset from the *Offset* menu, press **<1>**. If the function is disabled, enable it by pressing **<YES>**. To change the current factor, press **<YES>**. To enter a new wet density offset, select either + (positive) or - (negative) to display:

```
-WD Offset-
Press Enter
when completed
```

Enter the new factor and press **<ENTER>**.

MOISTURE OFFSET

To select moisture offset from the *Offset* menu, press **<2>**. After selection, enable the function by pressing **<YES>**.

When prompted **Do you want a new M-Offset?**, press **<YES>**. For a gauge-derived offset, value **<1>**. For a stored value, press **<2>**.

For more information on offsets, see the Model 3440 Manual of Operation and Instruction.

TESTING AND MEASUREMENT

Ensure that the gauge is in the correct mode. Press **<SHIFT>** and **<MODE>**.

For *Soils* mode, press **<1>**. For *Asphalt* mode, press **<2>**.

Ensure that the count time is correct.

Ensure that the depth is set properly. If not, see if the *Depth* function is set to *Automatic*. To check the mode, press **<SHIFT>** then **<DEPTH>**.

When the gauge is in the correct position, press **<START>** to begin the test.

SOIL AND BASE COURSES

After the measurement is complete, the gauge displays:

```
%PR = xxxx%
DD = xxxx
WD = xxxx
M = xxx% M = xxx
```

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

ASPHALT SURFACE

After the measurement is complete, the gauge displays:

```
%MA = xxxx
WD = xxxx
M = xxx% %M = xxxx
%VOIDS = xxxx
```

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

STORAGE FUNCTION

When storing a reading, the gauge can also prompt the operator for information required on U.S. Federal Highway Administration (FHWA) projects. To select this option, select *Special Rdwy* from the *Special* functions menu. The gauge displays the current storage status. Press **<YES>** to toggle the function ON or OFF. To accept the displayed status, press **<NO/CE>**.

Assign a project number before storing readings by pressing **<SHIFT>** and **<PROJECT>**. If the displayed project number is correct, press **<NO>**. If the project number is incorrect, press **<YES>** and enter a new project number (up to 12 characters).

To store readings, press **<STORE>**. Follow the gauge prompts to enter any additional project information.

Model 3440

Surface Moisture-Density Gauge

**QUICK
REFERENCE
CARD**



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GAUGE START UP

NOTE

The operator should wear a dosimeter or radiation badge when working with the 3450 Surface Moisture-Density Gauge.

Press **<ON>**. The display will come on and the gauge performs a short self-test routine. Following the self-test, the gauge displays:

```
READY mm/dd/yyyy
Depth: XXXX
Time: XXXXXX
Batt volts: XX
```

While displaying the count time, depth, and remaining battery life, the screen alternates between displaying the current time and date.

GAUGE SET UP

TIME FUNCTION

To view the current time for test measurements, press **<TIME>**. Make the desired time selection with the numeric keys and press **<ENTER>**.

CHANGING THE DATE AND TIME

To access the current date and time settings, press **<SHIFT>** then **<SPECIAL>**. Press **<1>**, **<9>**, and **<ENTER>**. Enter the access code and press **<ENTER>**. To select the *Time/Date* function, press **<1>**.

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

To change the date and time, press **<YES>**. Both the date and time must include *leading zeros*. For example, *September 5, 1999* must be entered as *09051999* and *9:05* must be entered as *0905*. Enter the new date and, when prompted, the new time.

CHANGING MARSHALL/PROCTOR/VOIDLESS VALUES

To select or change a Marshall, Proctor, or voidless density value, press **<PROCTOR/MARSHALL>**. At the **Want to change?** display, press **<YES>**. At the next display, use the numeric keys to select the type of value you are using.

Marshall or Proctor Value

If changing either a Marshall or Proctor value, the gauge prompts for either a *Stored value* (press **<1>**) or a *New value* (press **<2>**).

If enabling a stored value, the gauge displays the values. Press the numeric key that corresponds to the desired value.

For a new value, use the numeric keys number keys to enter the new value, then press **<ENTER>**. At the **Do you want to save this value for later use?** prompt, press **<YES>**. As when enabling a stored value, select the desired value.

Density Value

Enter the voidless density value and press **<ENTER>**.

THE STANDARD COUNT

To check the gauge operation and allow the gauge to compensate for natural source decay, take a standard count daily. Use the reference standard block for this operation.

Place the reference standard 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 2 m (6 ft) from any building or vertical structure and 10 m (33 ft) from any other nuclear gauge or radioactive source.

Ensure that the top surface of the reference standard block and bottom of the gauge are clean of debris. Place the gauge between the grooves on the reference standard block with the source rod to the left and the right side of the gauge against the metal butt plate on the block.

For the first display, press **<STANDARD>**. For the second display, press **<YES>**.

```
-Standard Count-
Is gauge on Ref.
block & Source
rod in SAFE pos?
```

```
-Standard Count-
DS=xxxx
MS=xxxx
Take new count?
```

To begin the count, press **<YES>**. Upon completion of the count, the gauge will "beep." Write the count in the standard count log and accept the count by pressing **<YES>**. When in the *Ready* mode, the gauge is ready to take test measurements.

SITE PREPARATION

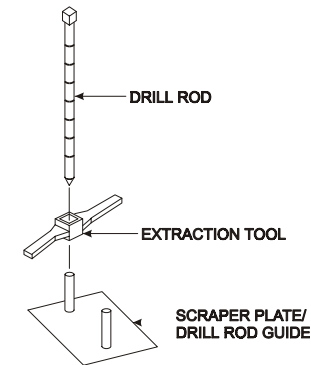
Surface preparations are critical to gauge performance and test result accuracy. The following procedures will help ensure accurate test results.

SOIL AND BASE COURSES

CAUTION

Safety glasses must be worn during this procedure.

Place the scraper plate on the test surface. Smooth the area by sliding the plate back and forth. Lift the plate from the surface and fill any voids or depressions. Replace the plate and press down slightly to further level the surface.



Put the drill rod through the extraction tool then through one of the guides on the scraper plate (see figure). **Wearing safety glasses**, step on the scraper plate and hammer the drill rod at least 50 millimeters (2 in) deeper than the desired test depth. The drill rod increment

markings include the additional depth. Mark the test area. Remove the drill rod by pulling straight up on the drill rod extraction tool. **Do not loosen the drill rod by moving it from side-to-side.**

To ensure no debris falls into the hole, remove the scraper plate by lifting it straight up.

Place the gauge on the smoothed surface and ensure the source rod is over the drilled hole. Lower the source rod to the correct depth and release the trigger. Gently slide the gauge to the right, so the source rod touches the side of the hole.

ASPHALT SURFACE

Locate a smooth, level site on the asphalt. Fill the voids on open mixes with sand or cement. **The gauge base must rest on the asphalt, not the fill material!** Ensure that the gauge does not "rock." It must remain level and steady. If the gauge rocks, then find a more suitable test site.

Place the source rod in the backscatter position (lower the source rod **one** notch) and release the trigger. **Ensure that the source rod is in the proper index rod notch and not resting on the asphalt.**