Nuclear Gauge Testing Manual

Edition 3, Amendment 4

Section 4: Operating Instructions
Section 4: Operating Checks
Operating Instruction N101: Standard Count Troxler 3440

1  Set up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

► Press ON and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

► Press STANDARD + and the following is displayed:

<table>
<thead>
<tr>
<th>Standard Count-</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS = XX</td>
</tr>
<tr>
<td>MS = XX</td>
</tr>
<tr>
<td>Take new count?</td>
</tr>
</tbody>
</table>

► Press YES EXIT and the following is displayed:

Is gauge on Std. Block & Source rod in SAFE pos?

► Press YES EXIT and the following is displayed:

Taking Standard Count-XX seconds remaining

► At the end of the counting period the following is displayed:

<table>
<thead>
<tr>
<th>MS = XX XX %P</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS = XX XX %P</td>
</tr>
<tr>
<td>Do you want to use the new STD</td>
</tr>
</tbody>
</table>

Record the following values:
- MS as the moisture standard count.
- DS as the density standard count.

► Press YES EXIT and the display will return to <READY>.

► Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N102: Statistical Count Troxler 3440

1 Set up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

Press and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

Press and the following is displayed:

Press and the following is displayed:

Press and the following is displayed:

Press and the following is displayed:

At the end of the counting period, the following will be displayed:

Record R as the density ratio.
Record R as the **moisture ratio**.

- Press NO/CE and display will return to <READY>.
- Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N103: Standard Count Troxler 3430

1 Set up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

▶ Press ON YES and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

▶ Press STANDARD and the following is displayed: DS=XXXX MS=XXX New Std Count?

▶ Press ON YES and the following is displayed: Press START for Standard Count

▶ Press START ENTER and the following is displayed: Standard Count XXX Seconds

At the end of the counting period the following will be displayed:

Record the following values:
- DS as the density standard count.
- MS as the moisture standard count.

▶ Press ON YES and the display will return to <READY>.

▶ Press OFF NO if the nuclear gauge is not required for further use.
Operating Instruction N104: Statistical Count Troxler 3430

1  Set up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

Press ON YES and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

- Press SPECIAL and the following is displayed:

- Press repeatedly until the following is displayed:

- Press START ENTER and the following is displayed:

- Press START ENTER and the following is displayed:

At the end of the counting period the following will be displayed:

- Press repeatedly until the following is displayed:

Record Dens. R as the density ratio.

- Press repeatedly until the following is displayed:

Record Moist R as the moisture ratio.

- Press ON YES and the display will return to <READY>.

- Press OFF NO if the nuclear gauge is not required for further use.
Operating Instruction N107: Standard Count Troxler 4640B

1 Set up
Position the air gap spacer on the reference block. Position the nuclear gauge on the spacer so that the handle end rests over the two posts on the spacer.
Check that the source rod handle is correctly located in the shielded position.

Press ON and allow the nuclear gauge to complete the self-test routine.

2 Measurement
When <READY> is displayed:

- Press STD and the following will be displayed:
  -Standard Count- XXXX XXXX
  - Take a new Standard Count?

- Press YES EXIT and the following will be displayed:
  - Place Gauge on Spacer & both on Block, Put Rod In SAFE, Press ENTER

- Press START/ENTER and the following will be displayed:
  - Taking Standard Count. XX seconds remaining.
  - Std 1 Std 2
  - XXXX XXXX
  - X.XX%Z X.XX%Z
  - Use new Stds?

At the end of the counting period, the following will be displayed:

Record the following values:
- Std1 as the System 1 standard count.
- Std2 as the System 2 standard count.

Press YES EXIT and the display will return to <READY>.

Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N108: Statistical Count Troxler 4640B

1   Set up

Position the air gap spacer on the reference block. Position the nuclear gauge on the spacer so that the handle end rests over the two posts on the spacer.

Check that the source rod handle is correctly located in the shielded position.

▶ Press ON and allow the nuclear gauge to complete the self-test routine.

2   Measurement

When <READY> is displayed:

▶ Press SHIFT x and the following will be displayed:

▶ Press CALC 3 and the following will be displayed:

▶ Press START/ENTER and the following will be displayed:

At the end of the counting period, the following will be displayed:

Record the second value on the first line of displayed data as the System 1 density ratio.

Record the second value on the second line of displayed data as the System 2 density ratio.

▶ Press NO/CE and the display will return to <READY>.

▶ Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N109: Standard Count CPN MC3

1 Set up

For a 50 mm thick reference block, place the transport case on its end with the CPN logo uppermost. Locate the reference block with the three studs upright on the case across the protective strips. Position the nuclear gauge on the block so that the studs on the block fit into the depressions in the gauge base.

For a 75 mm thick reference block, position the nuclear gauge on the reference block so that the studs fit into the depressions in the nuclear gauge base.

Check that the source rod handle is correctly located in the shielded position.

2 Measurement

Press

At the end of the counting period:

Press repeatedly until the following is displayed:

<table>
<thead>
<tr>
<th>cpm</th>
<th>wet</th>
<th>H2O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prv</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Std</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Xi</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>N</td>
<td>256</td>
<td>256</td>
</tr>
</tbody>
</table>

Record the following values:

- Std wet as **density standard count**.
- Std H2O as **moisture standard count**
Operating Instruction N110: Statistical Count CPN MC3

1 Measurement

A statistical analysis is performed using data obtained during a standard count. The analysis is displayed together with the density and moisture standard counts.

Following completion of the standard count as detailed in Operating Instruction N109, the following will be displayed:

<table>
<thead>
<tr>
<th>Comp</th>
<th>湿</th>
<th>h2o</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prv</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Std</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Xi</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>N</td>
<td>256</td>
<td>256</td>
</tr>
</tbody>
</table>

START new standard
CLEAR Exit

Record the following values:

- $X_i$ 湿 as the **density ratio**.
- $X_i$ h2o as the **moisture ratio**.
Operating Instruction N113: Standard Count Humboldt 5001EZ

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge closest to the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

► Press PWR and allow the nuclear gauge to complete the initialising routine.

The following will be displayed:

- *DATA XX/XX/XX
- *SET UP XX:XX:XX
- *ENGINEERING

DEPTH = SAF

2 Measurement

► Press F2 and the following will be displayed:

- *SET UP 2
- *SET MEASUREMENT MODES
- *SET TRNCH COR.
- *SET TARGETS

- MEAS = FAST/NORM/SLOW
- STD = 4MIN/16MIN
- TYPE = ASPH/SOIL/THIN
- DEPTH = AUTO/MANUAL

► Press F2 and the following will be displayed:

Repeatedly until “4MIN” flashes.

► Press F2 and the following will be displayed:

DS = XXXX MM/DD/YY
MS = XXX MM:HH
- *TAKE NEW STD
- *USE CURRENT STD

► Press STD STAT and the following will be displayed:

TAKING STANDARD
TIME REMAINING X:XX
DS = X
MS = X DEPTH = SAF

► Press F3 and the following will be displayed:

STD TEST RESULTS
DS = XXXX.X
MS = XXX.X

At the end of the counting period, the following will be displayed:

DS = XXXX %ERR = X.X
MS = XXX %ERR = X.X
- *REJECT & TAKE NEW STD
- *RETAINTHE NEW STD
Record the following displayed values if no error message is displayed:

- DS as the **density standard count**.
- MS as the **moisture standard count**.

Press \[ \text{MAIN MENU} \] and the display will return to the main menu.

If an error message is displayed:

- Press \[ \text{F4 MAIN MENU} \] and the display will return to the main menu.
- Press \[ \text{PWR} \] if the nuclear gauge is not required for further use.
Operating Instruction N114: Statistical Count Humboldt 5001EZ

1  Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge closest to the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

Press [PWR] and allow the nuclear gauge to complete the initialising routine.

The following will be displayed:

*DATA Xx/xx/xx
*SET UP xx:xx:xx
*ENGINEERING

DEPTH=SAF

2  Measurement

Press [F2] and the following will be displayed:

*SET UP 2
*SET MEASUREMENT MODES
*SET TRNCH COR.
*SET TARGETS

MEAS = FAST/NORM/SLOW
STD = 4MIN/16MIN
TYPE = ASPH/SOIL THIN
DEPT = AUTO/MANUAL

Press [F2] repeatedly until "16MIN" flashes.

Press [STD STAT] and the following will be displayed:

DS = XXXX MM/DD/YY
MS = XX MM:HH
*TAKE NEW STD
*USE CURRENT STD

Press [F2] and the following will be displayed:

TAKING STATISTICS
TIME REMAINING X:XX
DS -X
MS -X DEPTH – SAF

At the end of the counting period, the following will be displayed:

STAT TEST RESULTS
DS = XXXX.R = X.XXX
MS = XXX.R = X.XXX

or

DS = XXXX %ERR = X.X
MS = XXX %ERR = X.X
*REJECT & TAKE NEW STD
*RETAHM THE NEW STD
Record the following displayed values:

- R in the DS row as the **density ratio**.
- R in the MS row as the **moisture ratio**.

If an error message is displayed:

- Press **F4 F3** to take new counts.
- Press **MAIN MENU** and the display will return to the main menu.
- Press **F2** and the following will be displayed:
  - **SET UP 2**
  - **SET MEASURE MODES**
  - **SET TRENCH COR.**
  - **SET TARGETS**
- Press **F2** and the following will be displayed:
  - **MEAS** = FAST/NORM/SLOW
  - **STD** = 4MIN/16MIN
  - **TYPE** = ASPH/SOIL/THIN
  - **DEPTH** = AUTO/MANUAL
- Press **F2** repeatedly until "4MIN" flashes.
- Press **MAIN MENU** and the display will return to the main menu.
- Press **PWR** if the nuclear gauge is not required for further use.
Operating Instruction N115: Standard Count Humboldt 5001C

1  Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

▶ Press \textbf{ON} and allow the nuclear gauge to complete the initialising routine.

The following will be displayed:

\begin{center}
\begin{tabular}{l}
\textbf{SAF} \\
\textbf{00000}
\end{tabular}
\end{center}

2  Measurement

▶ Press \textbf{STA} \textbf{STD} and the following will be displayed:

\begin{center}
\begin{tabular}{l}
\textbf{C.SAF} \\
\textbf{XXX} \\
\textbf{SAF} \\
\textbf{XXXX.X}
\end{tabular}
\end{center}

At the end of the counting period, the following will be displayed:

Record the displayed value as the \textit{density standard count}.

▶ Press \textbf{9} \textbf{MS} and the following will be displayed:

\begin{center}
\begin{tabular}{l}
\textbf{SAF} \\
\textbf{XX}
\end{tabular}
\end{center}

Record the displayed value as the \textit{moisture standard count}.

▶ Press \textbf{OFF} if the nuclear gauge is not required for further use.
Operating Instruction N116: Statistical Count Humboldt 5001C

1  Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

Press ▶ ON and allow the nuclear gauge to complete the initialising routine.

The following will be displayed:

2  Measurement

Press ▶ SHIFT STA STD and the following will be displayed:

At the end of the counting period, the following will be displayed:

Press ▶ DC and record the displayed value as the density ratio.

Press ▶ 9 MC and record the displayed value as the moisture ratio.

Press ▶ OFF if the nuclear gauge is not required for further use.
Operating Instruction N117: Standard Count Humboldt 5001P

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge closest to the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

2 Measurement

- Press **ON** and allow the nuclear gauge to stabilise for at least 10 minutes before commencing the test.

  The following will be displayed:

  - **XXX**
  - **XXXX**

  **Note:** The previously set depth will be displayed. It is not necessary to adjust the displayed depth.

- Press **SHIFT** and **STD** simultaneously and the following will be displayed:

  - **C:XXX**
  - **X:XX**
  - **C:XXX**
  - **XXXX.X**

  At the end of the counting period, the following will be displayed:

  Record the displayed value as the **density standard count**.

- Press **9** and record the displayed value as the **moisture standard count**.

- Press **OFF** if the nuclear gauge is not required for further use.
Operating Instruction N118: Statistical Count Humboldt 5001P

1  Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge closest to the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

2  Measurement

Press \(\text{ON}\) and allow the nuclear gauge to stabilise for at least 10 minutes before commencing the test.

The following will be displayed:

\[
\begin{align*}
\text{Note: } & \text{ The previously set depth will be displayed. It is not necessary to adjust the displayed depth.} \\
& \\
\text{Press } & \text{SHIFT} \hspace{1cm} \text{STAT} \text{ simultaneously and the following will be displayed:} \\
& \\
& \text{At the end of the counting period, the following will be displayed:} \\
& \\
& \text{Record the displayed value as the density ratio.} \\
& \\
& \text{Press } & \text{and record the displayed value as the moisture ratio.} \\
& \\
& \text{Press } & \text{if the nuclear gauge is not required for further use.}
\end{align*}
\]
Operating Instruction N119: Standard Count Instrotek Xplorer 3500

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block. Check that the source rod handle is correctly located in the shielded position.

Press \textit{ON} \textit{YES} and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When \textit{READY} is displayed:

- Press \textit{STD} and the following is displayed: \textit{DS=XXXX MS=XXX New Std Count?}
- Press \textit{ON} \textit{YES} and the following is displayed: \textit{Standard Count Press START}
- Press \textit{START ENTER} and the time will count down from 240 seconds and display: \textit{Time = XXX sec Standard Count}

At the end of the counting period, the following will be displayed:

- Press \textit{DS = XXXX MS = XXX Use New STD CNT?}

Record the following values:
- DS as the \textit{density standard count}.
- MS as the \textit{moisture standard count}.

Press \textit{ON YES} and display will return to \textit{READY}.

Press \textit{OFF NO} if the nuclear gauge is not required for further use.
Operating Instruction N120: Statistical Count Instrotek Xplorer 3500

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block. Check that the source rod handle is correctly located in the shielded position.

► Press \( \text{ON} / \text{YES} \) and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When \(<\text{READY}>\) is displayed:

► Press \( \text{MENU} \) and the following is displayed:

- RECALL - UP/DOWN or ENTER

► Press \( \text{DOWN} \) repeatedly until the following is displayed:

- STAT TEST - UP/DOWN or ENTER

► Press \( \text{START ENTER} \) and the following is displayed:

Press START for 20m. Stat Test

► Press \( \text{START ENTER} \) and the following is displayed:

- STAT TEST - Rdg #X: XX Sec

At the end of the counting period, the following is displayed:

PRESS DOWN and the following is displayed:

D: XXX M: XXX DOWN views data

Record Dens. R as the density ratio.

► Press \( \text{DOWN} \) repeatedly until the following is displayed:

Dens. R = XX DOWN views data

Record Moist R as the moisture ratio.

► Press \( \text{START ENTER} \) and the display will return to \(<\text{READY}>\).

► Press \( \text{OFF NO} \) if the nuclear gauge is not required for further use.
Operating Instruction N121: Standard Count Troxler 3440P

1  Set-up
Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

► Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2  Measurement
When <READY> is displayed:

► Press

**STD** repeatedly until the following is displayed:

- Standard Count
  - DS = XX
  - MS = XX
  Take new count?

► Press

**YES** repeatedly until the following is displayed:

Is gauge on Std Block & Source rod in SAFE pos?

► Press

**ENTER START** repeatedly until the following is displayed:

Taking Standard Count
XX seconds remaining

At the end of the counting period, the following is displayed:

DS = XX XX %P
MS = XX XX %P
Do you want to use the new STD?

Record the following values:
- MS as the moisture standard count.
- DS as the density standard count.

► Press

**YES** and the display will return to <READY>.

► Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N122: Statistical Count Troxler 3440P

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

- Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press SETUP

- Press until stat test appears as an option

- Press 4 the following is displayed:

1. Take STAT Test
2. Review STAT Test
3. Print STAT Test
   <ESC> to Exit

- Press 1 the following is displayed:

Place Gauge on Std. Block & Source Rod in SAFE Pos. Press <START>

At the end of the counting period, the following will be displayed:

Record R as the density ratio.

- Press ENTER START the following is displayed:

DENS STAT TEST
Avg cnts: XXXX
R: XX (XXXX)
ENTER for Moist

Record R as the moisture ratio.

- Press ENTER START the following is displayed:

MOIST STAT TEST
Avg cnts: XX
R: XX (XXXX)
View Stat. data?

- Press NO and display will return to the SETUP menu.

- Press ESC to exit.

- Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N123: Standard Count Troxler 3430P

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block. Check that the source rod handle is correctly located in the shielded position.

- Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press repeatedly until the following is displayed:

- Press repeatedly until the following is displayed:

- Press repeatedly until the following is displayed:

At the end of the counting period, the following is displayed:

Record the following values:
- MS as the moisture standard count.
- DS as the density standard count.

- Press and the display will return to <READY>

- Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N124: Statistical Count Troxler 3430P

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

- Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press **SETUP**
- Press **down** until stat test appears as an option
- Press **4** the following is displayed:
  - 1. Take STAT Test
  - 2. Review STAT Test
  - 3. Print STAT Test
  - <ESC> to Exit
- Press **1** the following is displayed:
  - Place Gauge on Std. Block & Source Rod in SAFE Pos.
  - Press <START>

At the end of the counting period, the following will be displayed:

Record R as the density ratio.

- Press **ENTER START** the following is displayed:

Record R as the moisture ratio.

- Press **NO** and display will return to the SETUP menu
- Press **ESC** to exit.
- Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N125: Standard Count Troxler 3450

1 Set-up
Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.
Check that the source rod handle is correctly located in the shielded position.

► Press \text{ON} and allow the nuclear gauge to complete the self-test routine.

2 Measurement
When \text{<READY>} is displayed:

► Press \text{STANDARD} the following is displayed:

► Press \text{1} the following is displayed:

► Press \text{ENTER} the following is displayed:

At the end of the counting period, the following is displayed:

Record the following values:
• MS as the moisture standard count.
• DS1 + DS2 as the density standard count.

► Press \text{YES} and the display will return to \text{<READY>}.

► Press \text{OFF} if the nuclear gauge is not required for further use.
Operating Instruction N126: Statistical Count Troxler 3450

1  Set-up
Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.
Check that the source rod handle is correctly located in the shielded position.

- Press **ON** and allow the nuclear gauge to complete the self-test routine.

2  Measurement
When <READY> is displayed:

- Press **SPECIAL**

- Press **2** to access the Gauge Status/Test menu:

1 – Take STAT Test
2 – Review STAT Test
3 – Print STAT Data
Press ESC To Exit

- Press **2** and the following is displayed:

Put Rod In STD Pos
Place Gauge On
Standard Block
Press ENTER

- Press **1** and the following is displayed:

STAT Test  Avg  R
D-1: PASS  xxxx  xxxx
D-2: PASS  xxxx  xxxx
M: PASS    xxxx  xxxx

- Press **ENTER** and the gauge displays the progress of the STAT test.

At the end of the counting period, the following will be displayed:

Record R(D-1) + R(D-2) as the **density ratio**.

Record R as the **moisture ratio** for M.

- Press **<ESC>** to return to the <READY> screen.

- Press **OFF** if the nuclear gauge is not required for further use.
Operating Instruction N127: Standard Count CPN MC1 and MC3 Elite

1  Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block.

Check that the source rod handle is correctly located in the shielded position.

► Press \[\text{ON} \quad \text{YES}\] and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

► Press \[\text{STD}\] and the following is displayed:

DS= ####
MS= ####
Take new Std Count? Press YES or NO

► Press \[\text{ON} \quad \text{YES}\] and the following is displayed:

Place Gauge on Poly Std. Block in SAFE Position
Press Start

► Press \[\text{START} \quad \text{ENTER}\] and the following is displayed:

Standard Count
Time: XXX sec.

At the end of the counting period, the following will be displayed:

DS= ####
MS= ####
Use new STD CNT? Press YES or NO

Record the following values:

- DS as the density standard count.
- MS as the moisture standard count.

► Press \[\text{ON} \quad \text{YES}\] and the display will return to <READY>.

► Press \[\text{OFF} \quad \text{NO}\] if the nuclear gauge is not required for further use.
Operating Instruction N128: Statistical Count CPN MC1 and MC3 Elite

1 Set-up

Position the nuclear gauge on the reference block between its raised edges, such that the side of the nuclear gauge furthest from the source rod is in contact with the metal plate on the side of the block. Check that the source rod handle is correctly located in the shielded position.

Press ON and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

Press MENU

Press 1 when the display reads: Stat Test

Press START ENTER

After 20 minutes, the display will show the results of the test, you can scroll through to see each count.
Operating Instruction N201: Test Parameters (Soils) Troxler 3440

1 Set-up

- Press **ON** and allow the nuclear gauge to complete the self-test routine.

2 Units

When <READY> is displayed:

- Press **SHIFT** and the following is displayed:
  - SPECIAL

- Press **9** and the following is displayed:
  - SPECIAL FUNCTION
    - YES – Next menu
    - 1 - STAT TEST
    - 2 - DRIFT TEST

- Press **YES** repeatedly until the following is displayed:
  - EXIT

- Press **SPECIAL** again and the following is displayed:
  - 9

- Press **9** and the following is displayed:
  - YES – Next menu
    - 9 - SET UNITS
    - 10 - BAND RATE
    - 11 - COMM PROTOCOL

- Press **DEPTH** and the following is displayed:
  - 2

The display will return to <READY>.

3 Count time

- Press **TIME** and the following is displayed:
  - TIME: XX
    - 1 – 15 sec
    - 2 – 1 min
    - 3 – 4 min

- Press **DEPTH** and the following is displayed:
  - -COUNT TIME– 1 min

The display will return to <READY>. 
4 Soil mode

► Press

SHIFT

and the following is displayed:

MODE: XXXX
Select: 1 – SOIL
2 – ASPHALT
(CE to exit)

► Press

MODE

8

and the following will be displayed briefly:

SOIL MODE

The display will return to <READY>.

5 Maximum dry density

► Press

PROCTOR/
MARSHALL
+

and the following is displayed:

MA = XXXX kg/m³
PR = XXXX
VD = XXXX
Want to change?

To retain the value, go to 5.1.
To change the value, go to 5.2.

5.1 Retain the value

► Press

NO/CE
C/CE

to retain the displayed value of PR.

The display will return to <READY>. Go to 6.

5.2 Change the value

► Press

YES
EXIT

to change the displayed value of PR.

And the following will be displayed:

Select:
1 – MA
2 – PR
3 – Voidless
5.3 Enter a new value

To enter a new value, go to 5.3.

To select a stored value, go to 5.4.

Press \[
\begin{array}{c}
\text{DEPTH} \\
2
\end{array}
\]
and the following is displayed:

Select source of Proctor value:
1 – Stored Value
2 – New Value

Press \[
\begin{array}{c}
\text{DEPTH} \\
2
\end{array}
\]
and the following is displayed:

Proctor: XXXX kg/m³
Press ENTER when completed

Use the numbered keys to enter the required value to the nearest 1 kg/m³.

Press \[
\begin{array}{c}
\text{START/ENTER} \\
=
\end{array}
\]
and the following is displayed:

PR = XXXX kg/m³
Do you want to save this value for later use?

Note: It is not necessary to save the displayed value to enable it.

If the value is not to be saved:

Press \[
\begin{array}{c}
\text{NO/CE} \\
\text{C/CE}
\end{array}
\]
and the display will return to <READY>. Go to 6.

To save the displayed value:

Press \[
\begin{array}{c}
\text{YES} \\
\text{EXIT}
\end{array}
\]
and the following is displayed:

Select Proctor Memory Cell:
1:XX2:XX
3:XX4:XX

Press the numbered key (1, 2, 3 or 4) to select a memory cell in which to store the value.

And the following will be displayed:

Proctor XXXX kg/m³
ENABLED stored in cell X

The display will return to <READY>. Go to 6.
5.4 Select a stored value

- Press  
  
  and the following is displayed:

- Press the numbered key (1, 2, 3 or 4) to select the required value:

  And the following will be displayed:

  The display will return to <READY>.

6 Material wet density bias

- Press  
  
  and the following is displayed:

- Press  
  
  The following will be displayed:

  To disable the material wet density bias, go to 6.1.
  To enable the material wet density bias, go to 6.2.

6.1 Disable material wet density bias

- Press  
  
  to confirm that the density offset is to remain disabled or

  to disable the density offset.

  And the following will be displayed briefly:

  The display will return to <READY>. Go to 7.
6.2 Enable material wet density bias

Press **YES EXIT** to enable the density offset or **NO/CE C/CE** to confirm that the density offset is to remain enabled.

The following will be displayed:

To retain the value, go to 6.2.1.
To change the value, go to 6.2.2.

6.2.1 Retain the value

Press **NO/CE C/CE** to retain the displayed value of wet density offset.

The following will be displayed briefly:

The display will return to <READY>.

6.2.2 Change the value

Press **YES EXIT** and the following is displayed:

- WD Offset -
  Select + or -
  1 = +
  2 = -

Press **COUNT 1** or **DEPTH 2** and the following is displayed:

- WD Offset
Press enter when completed

Use the numbered keys to enter the required value to the nearest 1 kg/m³.

Press **START/ENTER =**

The following will be displayed:

The display will return to <READY>. 
7 Material moisture bias

Press \texttt{OFFSET} and the following is displayed:

Press \texttt{DEEPHT} and the following will be displayed:

To disable the material moisture bias, go to 7.1.
To enable the material moisture bias, go to 7.2.

7.1 Disable material moisture bias

Press \texttt{NO/CE} to confirm that the moisture offset is to remain disabled or \texttt{YES/EXIT} to disable the moisture offset.

And the following will be displayed briefly:

The display will return to \texttt{<READY>}. Go to 8.

7.2 Enable material moisture bias

Press \texttt{YES/EXIT} to enable the moisture offset or \texttt{NO/CE C/CE} to confirm that the moisture offset is to remain enabled.

And the following will be displayed:

To retain the displayed K value, go to 7.2.1.
To change the displayed K value to a gauge-derived value, go to 7.2.2.
To change the displayed K value to a stored value, go to 7.2.3.
7.2.1 Retain the value

Press

NO/CE
C/CE

to retain the displayed K value.

The following will be displayed:

Moisture Offset
ENABLED
K = XXX

The display will return to <READY>. Go to 8.

7.2.2 Change to a gauge-derived value

To change the moisture bias to a gauge-derived value:

Press

YES
EXIT

and the following is displayed:

Select source of Offset:
1 – gauge derived
2 – stored value

Press

COUNTS
1

and the following is displayed:

SELECT
1 – True M XXX%
2 – Gauge M XX%
ENTER to enable

Press

COUNTS
1

and the following is displayed:

True Moisture -
XXXX %
Press ENTER
when completed

Press

START/
ENTER =

and the following is displayed:

SELECT
1 – True M XXX%
2 – Gauge M XX%
ENTER to enable

Press

START/
ENTER =

and the following is displayed:

K = XXX
Do you want to save this
value for later use?

If the value is not be saved:

Press

NO/CE
C/CE
And the following will be displayed:

The display will return to <READY>. Go to 8.

To save the displayed value:

- Press 
  
  and the following is displayed:

- Press a numbered key (1, 2, 3 or 4) to select a memory cell in which to store the value.

- Press 
  
  and the following will be displayed:

And the following will be displayed briefly:

The display will return to <READY>. Go to 8.

7.2.3 Change to a stored value

- Press 
  
  and the following is displayed:

- Press 
  
  and the following is displayed:

- Press a numbered key (1, 2, 3 or 4) to select the required memory location.

- Press 
  
  and the following is displayed:

The display will return to <READY>.
8 Trench offset

▸ Press OFFSET MR and the following is displayed:

- OFFSET - Select:
  1 - Dens. - ZZZ-
  2 - Moist - ZZZ-
  3 - Trench - ZZZ-

▸ Press CALC 3 and the following is displayed:

or

Trench Offset ENABLED  
Want to use Trench Offset?

▸ Press NO/CE to disable the trench offset.

The following will be displayed briefly:

Trench Offset DISABLED

The display will return to <READY>.

▸ Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N202: Measurement (Soils) Troxler 3440

1  Set-up

- Press ON and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

- Press ENTER

In the manual depth mode, the gauge will prompt for the source rod depth.
In the automatic depth mode, the gauge software reads the depth strip on the source rod to determine the source rod depth.

At the end of the counting period, the following will be displayed:

Record the following values:
- % PR as the percent protector to the nearest 0.1%.
- DD as the dry density to the nearest 0.001 t/m³.
- WD as the wet density to the nearest 0.001 t/m³.
- M as the moisture content (t/m³) to the nearest 0.001 t/m³.
- % M as the moisture content (%) to the nearest 0.1%.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000).

- Press SHIFT

- Press COUNTS

And the following will be displayed:

Record the following values as appropriate:
- Dens Ct as the density count.
- Moist Ct as the moisture count.

- Press NO/CE and the display will return to <READY>.
- Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N203: Test Parameters (Soils) Troxler 3430

1  Set-up

Press ON YES and allow the nuclear gauge to complete the self-test routine.

2  Units

When <READY> is displayed:

- Press SPECIAL and the following is displayed:

- Press repeatedly until the following is displayed:

- Press START ENTER and the following is displayed:

- Press to set the desired unit.

- Press ON YES and the display will return to <READY>.

3  Count time

- Press TIME and the following is displayed:

- Press to set the desired count time.

- Press ON YES and the display will return to <READY>.

4  Depth

- Press DEPTH and the following is displayed:

- Press repeatedly until the required test depth is displayed.

- Press ON YES and display will return to <READY>.
5  **Soil mode and maximum dry density**

- Press **MA/PR** and the following is displayed:

- Press **↓** until **PR** is displayed.

To retain the displayed value, go to 5.1.
To change the displayed value, go to 5.2.

5.1  **Retain the value**

- Press **OFF/NO** to retain the displayed value of **PR**.

The display will return to **<READY>**. Go to 6.

5.2  **Change the value**

- Press **ON/YES** to change the displayed value of **PR**.

The following is displayed:

For each digit:

- Press **↓** repeatedly until the required number is displayed.

- Press **START/ENTER** to confirm each number.

The display will return to **<READY>**.

6  **Material wet density bias**

- Press **SPECIAL** and the following is displayed:

- Press **↓** and the following is displayed:

- Press **START/ENTER** and the following is displayed:
Press \textbf{START ENTER} and the following is displayed:

\begin{itemize}
  \item [Dens. Offset OFF]
  \begin{itemize}
    \item \text{Want to enable?}
  \end{itemize}
  \begin{itemize}
    \item \text{Want to disable?}
  \end{itemize}
\end{itemize}

To disable the material wet density bias, go to 6.1.
To enable the material wet density bias, go to 6.2.

\textbf{6.1 Disable material wet density bias}

Press \textbf{OFF NO} to confirm that the density offset is to remain disabled
or \textbf{ON YES} to disable the density offset.

And the following will be displayed:

The display will return to \textlessREADY\textgreater. Go to 7.

\textbf{6.2 Enable material wet density bias}

Press \textbf{ON YES} to enable the density offset
or \textbf{OFF NO} to confirm that the density offset is to remain enabled.

And the following will be displayed:

To retain the displayed value, go to 6.2.1.
To change the displayed value, go to 6.2.2.

\textbf{6.2.1 Retain the value}

Press \textbf{START ENTER}

The following will be displayed briefly:

The display will return to \textlessREADY\textgreater. Go to 7.

\textbf{6.2.2 Change the value}

Press \textbf{↓} to enter a negative or wet density bias.
or \textbf{↑} to enter a positive wet density bias.
Operational Instruction N203: Test Parameters (Soils) Troxler 3430

For each digit:

- Press until the required number is displayed.
- Press to confirm each number.

And the following will be displayed:

The display will return to <READY>.

7 Material moisture bias

- Press and the following is displayed:
- Press and the following is displayed:
- Press and the following is displayed:
- Press and the following is displayed:
- Press and the following is displayed:

To disable the material moisture bias, go to 7.1.
To disable the material moisture bias, go to 7.2.

7.1 Disable material moisture bias

- Press to confirm that the moisture offset is to remain disabled or to disable the moisture offset.

And the following will be displayed:

The display will return to <READY>. Go to 8.
7.2  Enable the material moisture bias

Press

ON
YES

to enable the moisture offset or

OFF
NO
to confirm that the moisture offset is to remain enabled.

And the following will be displayed:

K = 0.0
(↑↓ or ENTER)

Press

to enter a negative K value

or

to enter a positive K value

For each digit:

Press

until the required number is displayed.

Press

START
ENTER
to confirm each number.

And the following will be displayed:

Moist Offset ON

The display will return to <READY>.

8  Trench offset

Press

SPECIAL

and the following is displayed:

- RECALL -
(↑↓ or ENTER)

Press

and the following is displayed:

- OFFSET -
(↑↓ or ENTER)

Press

START
ENTER

and the following is displayed:

Offset: density
(↑↓ or ENTER)

Press

repeatedly until the following is displayed:

Offset: Trench
(↑↓ or ENTER)

Press

START
ENTER

The following will be displayed:

Trench Offset OFF
Want to enable? or

Trench Offset ON
Want to disable?
Press **ON** to confirm that the trench offset is to remain disabled

or **OFF** to disable the trench offset.

And the following will be displayed briefly:

The display will return to **<READY>**.
Operating Instruction N204: Measurement (Soils) Troxler 3430

1 Set-up

Press ON YES and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

Press START ENTER and the following is displayed:

Depth: XX mm
Time: XX sec

At the end of the counting period:

Press repeatedly until the required values are displayed.

Record the following values:

- WD as the wet density to the nearest 0.001 t/m³.
- DD as the dry density to the nearest 0.001 t/m³.
- % PR as the relative compaction to the nearest 0.1%.
- Moist as the moisture content (t/m³) to the nearest 0.001 t/m³.
- % Moist as the moisture content (%) to the nearest 0.1%.
- M Count as the moisture count.
- D Count as the density count.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

Press ON YES and the display will return to <READY>.

Press OFF NO if the nuclear gauge is not required for further use.
Operating Instruction N207: Test Parameters (Soils) CPN MC3

1 Measurement units

**Pre-March 1988 Nuclear Gauge:**

- Press **STEP** and **UNIT** simultaneously until the density and moisture display is obtained.
- Press **UNIT** until "gcc" is displayed.

**Post-March 1988 Nuclear Gauge:**

- Press **STEP** and **UNIT** simultaneously.
- Press **ENTER** until "gcc" is displayed.
- Press **STEP**
- Press **ENTER** until "Density" is displayed.
- Press **CLEAR**

2 Count time

- Press **TIME** 0 **UNIT** 1 **TIME** 0 **TIME** 0 **TIME** 0
- Press **ENTER**

3 Maximum dry density

- Press **%COMP** until "Md" is displayed.
- Press **MAX** and use the numbered keys to enter the maximum dry density to the nearest 0.001 t/m³.
4 Material wet density bias

Press D BIAS 5 , to enter a negative bias. Use the numbered keys to enter the material wet density bias to the nearest 0.001 t/m³.

Press ID - and enter

Press ENTER

5 Material moisture bias

Press M BIAS 6 ,

To enter a positive bias:

Press ID + And use the numbered keys to enter the material moisture bias to the nearest 0.001 t/m³.

To enter a negative bias:

Press ID - and use the numbered keys to enter the material moisture bias to the nearest 0.001 t/m³.

Press ENTER
1 Measurement

At the end of the counting period, the following will be displayed:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Label</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dn</td>
<td>dry density</td>
<td>t/m³</td>
</tr>
<tr>
<td>Dn</td>
<td>wet density</td>
<td>t/m³</td>
</tr>
<tr>
<td>Dn</td>
<td>moisture content</td>
<td>t/m³</td>
</tr>
<tr>
<td>%h2o</td>
<td>moisture content</td>
<td>%</td>
</tr>
<tr>
<td>%dry</td>
<td>relative compaction</td>
<td>%</td>
</tr>
<tr>
<td>Ct</td>
<td>density count</td>
<td></td>
</tr>
<tr>
<td>Ct</td>
<td>moisture count</td>
<td></td>
</tr>
<tr>
<td>Ei</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Record the following values, as appropriate:

- Dn wet as the **wet density** to the nearest 0.001 t/m³.
- Dn dry as the **dry density** to the nearest 0.001 t/m³.
- Dn h2o as the **moisture content (t/m³)** to the nearest 0.001 t/m³.
- %h2o as the **moisture content (%)** to the nearest 0.1%.
- %dry as the **relative compaction** to the nearest 0.1%.

**Pre-March 1988 Nuclear Gauge:**

Press **STEP** simultaneously.

Record the following values as appropriate:

- Ct wet as the **density count**.
- Ct h2o as the **moisture count**.

Press **STEP** simultaneously to return to the density and moisture display.

**Post-March 1988 Nuclear Gauge:**

Press **STEP** simultaneously.

Press **STEP** repeatedly until “Counts” is displayed.
Record the following values as appropriate:

- Ct wet as the **density count**.
- Ct h2o as the **moisture count**.

To return to the density and moisture display:

- Press \[\text{CLEAR}\] simultaneously to return to the density and moisture display.

- Press \[\text{STEP}\]

- Press \[\text{ENTER}\] repeatedly until “**Density**” is displayed.

- Press \[\text{CLEAR}\]
Operating Instruction N211: Test Parameters (Soils) Humboldt 5001EZ

1  Start-up
   • Press \( \text{PWR} \) and allow the nuclear gauge to complete the initialising routine.

   The following will be displayed:
   
   \*DATA \( XX/XX/XX \)
   \*SET UP \( XX:XX:XX \)
   \*ENGINEERING \( \text{DEPTH}=\text{SAF} \)

   • Press \( \text{F2} \) and the following will be displayed:
     
     \*SET UP
     \*SET MEASUREMENT MODES
     \*SET TRNCH COR.
     \*SET TARGETS

2  Measurement units
   • Press \( \text{F1} \) and the following will be displayed:

   \*SET DATE
   \*SET TIME
   \*UNITS = PCF/SI

   • Press \( \text{F3} \) repeatedly until “SI” flashes.

   • Press \( \text{MAIN MENU} \) and the display will return to the main menu.

3  Count time
   • Press \( \text{F2} \text{ F2} \)

   The following will be displayed:
   
   MEAS = FAST/NORM/SLOW
   STD = 4MIN/16MIN
   TYPE = ASPH/SOIL/THIN
   DEPTH = AUTO/MANUAL

   • Press \( \text{F1} \) repeatedly until “NORM” flashes.

4  Soil mode
   • Press \( \text{F3} \) repeatedly until “SOIL” flashes.
5  **Depth**

- Press F4 repeatedly until “AUTO” flashes.
- Press MAIN MENU and the display will return to the main menu.

6  **Maximum dry density**

- Press MAX “D” and the following will be displayed:
- Press F3 OR F4 to increase or decrease the displayed value until the required value (within the range 900 kg/m³ to 3000 kg/m³) is obtained.

(To convert from t/m³ to kg/m³, multiply the maximum dry density by 1000.)

- Press MAIN MENU and the display will return to the main menu.

7  **Material wet density bias**

There is no facility to set a material wet density bias using the keypad.

8  **Material moisture bias**

- Press F2 and the following will be displayed:
- Press F4 and the following will be displayed:
- Press F2 repeatedly until the “KVAL” value flashes.
- Press F3 OR F4 to increase or decrease the displayed value until the required K value is obtained.

A maximum value of 0.20 (in increments of 0.10) and a minimum value of -0.10 (in increments of 0.01) may be set.
To disable the material moisture bias, set a value of “0.0”.

- Press **MAIN MENU** and the display will return to the main menu.

- Press **PWR** if the nuclear gauge is not required for further use.
Operating Instruction N212: Measurement (Soils) Humboldt 5001EZ

1  Start-up

▶ Press PWR and allow the nuclear gauge to complete the initialising routine.

2  Measurement

▶ Press MEAS and the following will be displayed:

At the end of the counting period, the following will be displayed:

Record the following values as appropriate:

- DD as the **dry density** to the nearest 0.001 t/m³.
- WD as the **wet density** to the nearest 0.001 t/m³.
- %PR as the **relative compaction** to the nearest 0.1%.
- %M as the **moisture content** to the nearest 0.1%.
- M as the **moisture content** to the nearest 0.001 t/m³.

To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

▶ Press F4 and the following will be displayed:

Record the following values as appropriate:

- DC as the **density count**.
- MC as the **moisture count**.

▶ Press MAIN MENU and the display will return to the main menu.

▶ Press PWR if the nuclear gauge is not required for further use.
Operating Instruction N213: Test Parameters (Soils) Humboldt 5001C

1 Start-up

- Press ON and allow the nuclear gauge to complete the initialising routine.
- Press CLEAR ENTER SHIFT simultaneously until the following is displayed:

2 Soil mode

- Press repeatedly until “SOIL” is displayed
- Press CLEAR ENTER

3 Maximum dry density

- Press LWR D MAX D and the following will be displayed:

3.1 Retain the value

- Press CLEAR ENTER to retain the displayed value of maximum dry density.

3.2 Change the value

- Press and hold SHIFT Use the numbered keys to enter the required value in kg/m³.

(To convert from t/m³ to kg/m³, multiply the maximum dry density by 1000.)

- Press repeatedly until the following is displayed:

4 Material wet density bias

There is no facility to enter a material wet density bias using the keypad.
5  Material moisture bias

5.1  Retain the value

Press and the following will be displayed:

5.2  Change the value

Press and hold and use the numbered keys to enter the K value.

Press repeatedly until the following is displayed:

5.3  Disable the material moisture bias

To disable the moisture bias, enter a value of "0.0".

Press repeatedly until the following is displayed:

Press if the nuclear gauge is not required for further use.
Operating Instruction N214: Measurement (Soils) Humboldt 5001C

1 Start-up

► Press ON and allow the nuclear gauge to complete the initialising routine.

2 Measurement

► Press CLEAR ENTER SHIFT simultaneously until the following is displayed: XXX

► Press TRENCH NORM and the following will be displayed: C:XXX

At the end of the counting period, the following will be displayed:

Record the displayed value as the dry density to the nearest 0.001 t/m³.

► Press 0 WD and record the displayed value as the wet density to the nearest 0.001 t/m³.

► Press 5 M and record the displayed value as the moisture content (t/m³) to the nearest 0.001 t/m³.

► Press 6 %M and record the displayed value as the moisture content (%) to the nearest 0.1%.

► Press 2 %COMP and record the displayed value as the relative compaction to the nearest 0.1%.

► Press 7 DC and record the displayed value as the density count.

► Press 8 MC and record the displayed value as the moisture count.

► Press SHIFT CLEAR ENTER simultaneously until the following is displayed: 0.0
(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N215: Test Parameters (Soils) Humboldt 5001P

1 Start-up

Press ON and allow the nuclear gauge to stabilise for at least 20 minutes before commencing the test.

2 Depth

Press UP or DOWN repeatedly until the required measurement depth is displayed.

3 Maximum dry density

Press SET RD D

3.1 Retain the value

Press SHIFT SET RD D to retain the displayed value of maximum dry density.

3.2 Change the value

Press and hold SHIFT and use the numbered keys to enter the required value to the nearest 1 kg/m³.

(To convert from t/m³ to kg/m³, multiply the maximum dry density by 1000.)

Press SHIFT SET RD D to store the value.

4 Material wet density bias

There is no facility to enter a material wet density bias using the keypad.

5 Material moisture bias

Press SET RD K

5.1 Retain the value

Press SHIFT SET RD K to retain the displayed K value.
5.2 Change the value

Press and hold **SHIFT** and use the numbered keys to enter the K value.

Press **SHIFT** and **SET RD K** to store the value.

Press **OFF** if the nuclear gauge is not required for further use.
Operating Instruction N216: Measurement (Soils) Humboldt 5001P

1 Start-up

► Press ON and allow the nuclear gauge to stabilise for at least 10 minutes before commencing the test.

2 Measurement

► Press NORM and the following will be displayed:

At the end of the counting period, the following will be displayed:

Record the displayed value as the **density count**.

► Press 8 MC and record the displayed value as the **moisture count**.

► Press 0 WD and record the displayed value as the **wet density** to the nearest 0.001 t/m³.

► Press 4 DD and record the displayed value as the **dry density** to the nearest 0.001 t/m³.

► Press 5 M and record the displayed value as the **moisture content (t/m³)** to the nearest 0.001 t/m³.

► Press 6 %M and record the displayed value as the **moisture content (%)** to the nearest 0.001 t/m³.

► Press 1 %PR and record the displayed value as the **relative compaction** to the nearest 0.1%.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N217: Test Parameters (Soils) Instrotek Xplorer 3500

1. Set-up
   - Press ON YES and allow the nuclear gauge to complete the self-test routine.

2. Units
   When <READY> is displayed:
   - Press MENU and the following is displayed:
     - RECALL - UP/DOWN or ENTER
   - Press DOWN repeatedly until the following is displayed:
     - SET UNITS - UP/DOWN or ENTER
   - Press START ENTER and the following is displayed:
     Units: kg/m³
     UP/DOWN or ENTER
   - Press DOWN to set the desired unit.
   - Press ON YES and the display will return to <READY>.

3. Count time
   - Press TIME and the following is displayed:
     Cnt Time: X min
     UP/DOWN or ENTER
   - Press DOWN to set the desired count time.
     Cnt Time: 1 min
     UP/DOWN or ENTER
   - Press ON YES and the display will return to <READY>.

4. Depth
   - Press DEPTH the following is displayed:
     DEPTH: XX mm
     UP/DOWN or ENTER
   - Press DOWN repeatedly until the required test depth is displayed.
5 Soil mode and maximum dry density

Press and the following is displayed:

Press and the following is displayed:

To retain the displayed value, go to 5.1.
To change the displayed value, go to 5.2.

5.1 Retain value

Press to retain the displayed value.

The display will return to the <READY> screen. Go to 6.

5.2 Change the value

Press to change the displayed value of PR.

The following is displayed:

For each digit:

Press repeatedly until the required number is displayed.

Press to confirm each number.

The display will return to <READY>. Go to 6.

6 Material wet density bias

Press and the following is displayed:

Press and the following is displayed:

- RECALL - UP/DOWN or ENTER

- OFFSET - UP/DOWN or ENTER
Press and the following is displayed:

- **START ENTER**

To disable the material wet density bias, go to 6.1.
To enable the material wet density bias, go to 6.2.

### 6.1 Disable material wet density bias

- **Press ON YES** to disable the density offset.
  
  or
  
- **Press OFF NO** to confirm that the density offset is to remain disabled.

The following will be displayed briefly:

- **Density Offset Disabled**

The display will return to <**READY**>. Go to 7.

### 6.2 Enable material wet density bias

- **Press ON YES** to enable the density offset.
  
  or
  
- **Press OFF NO** to confirm that the density offset is to remain enabled.

And the following will be displayed:

- **D Off = XXXX kg/m²**
  
  **UP/DOWN or ENTER**

To retain the displayed value, go to 6.2.1.
To change the displayed value, go to 6.2.2.
6.2.1 Retain the value

Press \[\text{START ENTER}\] and the following will be displayed: \[\text{Density Offset Enabled}\]

The display will return to \(<\text{READY}\>\). Go to 7.

6.2.2 Change the value

- Press \[\text{UP}\] for a positive value.

or

- Press \[\text{DOWN}\] for a negative value.

For each digit:

- Press \[\text{DOWN}\] until the desired number is displayed.

- Press \[\text{START ENTER}\] to confirm each number.

And the following will be displayed:

\[\text{Density Offset Enabled}\]

The display will return to \(<\text{READY}\>\).

7 Material moisture bias

- Press \[\text{MENJ}\] and the following is displayed: \[\text{- RECALL - UP/DOWN or ENTER}\]

- Press \[\text{DOWN}\] and the following is displayed: \[\text{- OFFSET - UP/DOWN or ENTER}\]

- Press \[\text{START ENTER}\] and the following is displayed: \[\text{Offset Density UP/DOWN or ENTER}\]

- Press \[\text{DOWN}\] and the following is displayed: \[\text{Offset: Moisture UP/DOWN or ENTER}\]
To disable the material moisture bias, go to 7.1.
To enable the material moisture bias, go to 7.2.

7.1 Disable the material moisture bias

Press \[
\text{START} \\
\text{ENTER}
\]
and the following is displayed:

Moist Offset OFF
Want to enable?

or

Moist Offset ON
Want to disable?

To disable the material moisture bias, go to 7.1.
To enable the material moisture bias, go to 7.2.

7.1 Disable the material moisture bias

Press \[
\text{ON} \\
\text{YES}
\]
to disable the moisture offset.

or

Press \[
\text{OFF} \\
\text{NO}
\]
to confirm that the moisture offset is to remain disabled.

The following will be displayed:

The display will return to \(<\text{READY}\\text{>}. Go to 8.

7.2 Enable the material moisture bias

Press \[
\text{ON} \\
\text{YES}
\]
to enable the moisture offset.

or

Press \[
\text{OFF} \\
\text{NO}
\]
to confirm that the moisture offset is to remain enabled.

The following will be displayed:

To retain the displayed value, go to 7.2.1.
To change the displayed value, go to 7.2.2.

7.2.1 Retain the value

Press \[
\text{START} \\
\text{ENTER}
\]
and the following is displayed:

The display will return to \(<\text{READY}\\text{>}. Go to 8.
7.2.2 Change the value

- Press **UP** for a positive value.
- or

- Press **DOWN** for a negative value.

For each digit:

- Press **DOWN** until the required number is displayed.

- Press **START** to confirm each number.

And the following will be displayed:

The display will return to <**READY**>.

8 Trench offset

- Press **MENU** and the following is displayed:

- Press **DOWN** and the following is displayed:

- Press **START** and the following is displayed:

- Press **DOWN** repeatedly until the following is displayed:

- Press **START** and the following is displayed:

- Press **ON** to disable the trench offset.

  or

- Press **- RECALL - UP/DOWN or ENTER**

- Press **- OFFSET - UP/DOWN or ENTER**

- Offset: Density UP/DOWN or ENTER

- Offset: Trench UP/DOWN or ENTER

- Trench Offset OFF

- Want to enable?

  or

- Trench Offset ON

- Want to disable?
Press OFF NO to confirm that the trench offset is to remain disabled.

The following will be displayed:

The display will return to <READY>. 

Trench Offset Disabled
Operating Instruction N218: Measurement (Soils) Instrotek Xplorer 3500

1. **Set-up**
   - Press and allow the nuclear gauge to complete the self-test routine.

2. **Measurement**
   - When <READY> is displayed:
     - Press and the following is displayed:
     - Time = XX sec
     - Depth: XX mm
   - At the end of the counting period:
     - Press repeatedly until the required values are displayed.
   - Record the following values as appropriate:
     - WD as the **wet density** to the nearest 0.001 t/m³.
     - DD as the **dry density** to the nearest 0.001 t/m³.
     - % PR as the **relative compaction** to the nearest 0.1%.
     - Moist as the **moisture content (t/m³)** to the nearest 0.001 t/m³.
     - % M as the **moisture content (%)** to the nearest 0.1%.
     - M Count as the **moisture count**.
     - D Count as the **density count**.
     - (To convert from kg/m³ to t/m³, divide the displayed value by 1000.)
   - Press and the display will return to <READY>.
   - Press If the nuclear gauge is not required for further use.
Operating Instruction N219: Test Parameters (Soils) Troxler 3440P

1 Start up

- Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement units

When <READY> is displayed:

- Press SETUP

- Press 2

The following will be displayed:

- Units -
  1. pcf
  2. kg/m³
  3. g/cm³

- Press 2

The following will be displayed:

Metric Units
Kg/m³ ENABLED

The display will return to <SETUP>.

3 Count time

- Press SETUP

- Press 1 and the following is displayed:

TIME: XX
1 - 15 sec
2 - 1 min
3 - 4 min

- Press 2

The following will be briefly displayed:

COUNT TIME
1 min

The display will return to <READY>. 
4 Soil mode

- Press **MODE**

  The following will be displayed:
  
  MODE: XXXX
  Select: 1 - ASPHALT
  2 - SOIL
  Press # to Select

- Press 2

  The following will be displayed briefly:

  Soil Mode
  ENABLED

  The display will return to <READY>.

5 Material wet density bias

- Press **OFFSET** the following is displayed:

- Press 1

  The following will be displayed:

  Density Offset:
  x x kg/m²
  1. Enable 2. Disable 3. Change Offset

  To disable the material wet density bias, go to Step 5.1.
  To enable the material wet density bias, go to Step 5.2.
  To change the material wet density bias, go to Step 5.3.

5.1 Disable material wet density bias

- Press 2

  The following will be displayed briefly:

  Density Offset
  DISABLED

  The display will return to <READY>. Go to 7.
5.2 Enable material wet density bias

Press 1

The following will be displayed:

Density Offset
ENABLED

5.3 Change material wet density bias

Press 3

The following is displayed:

Density Offset
xx kg/m³
Select (+/-)
Input and <ENTER>

Use the numbered keys to enter the required value to the nearest 1 kg/m³.
(To convert from t/m³ to kg/m³, multiply the material wet density bias by 1000.)

Press ENTER START

The following will be displayed briefly:

Density Offset
ENABLED

6 Material moisture bias

Press OFFSET

The following is displayed:

OFFSET--Select:
1 - Dens OFF
2 - Moist OFF
3 - Trench OFF

Press 2

The following will be displayed:

Moisture Offset:
1. xxxx 2. xxxx
3. xxxx 4. xxxx
5. New 6. Disable

6.1 Disable material moisture bias

Press 5

The following will be displayed:

Moisture Offset
DISABLED

The display will return to <READY>. Go to Step 8.
6.2 Enable the material moisture bias
► Press the number corresponding to any of the stored values.

6.3 Change a material moisture bias value
► Press 5 the following is displayed:

For manual entry:
► Press 1 the following is displayed:
Use the numbered keys to enter the average oven dry moisture content to the nearest 0.01%.

► Press ENTER the following is displayed:
Use the numbered keys to enter the average standard blocks moisture content to the nearest 0.01%.

► Press ENTER the following is displayed:
To save the displayed value:
► Press YES the following is displayed:
► Press a numbered key (1, 2, 3 or 4) to select a memory location in which to save the value.

The following will be displayed briefly:

If the value is not to be displayed:
► Press NO

The display will return to <READY>.

For gauge derived:
► Press 2 the following is displayed:
Use the numbered keys to enter the true moisture content to the nearest 0.01%.
Press \[ \text{ENTER START} \] the following is displayed:

Place the gauge on the measurement site and press any key.

At the completion of the counting period, the following will be displayed:

To save the value:

Press \[ \text{YES} \]

To enable the value without storing:

Press \[ \text{NO} \]

7 **Trench offset**

Press \[ \text{OFFSET} \] the following is displayed:

Press \[ 3 \] the following is displayed:

To enable the trench offset:

Press \[ 1 \]

The following is displayed:

To disable the trench offset:

Press \[ 2 \]

The following is displayed:
To change the trench offset:

Press 3

The following is displayed:

Press ENTER START

At the end of the counting period, the display will return to <READY>.

Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N220: Measurement (Soils) Troxler 3440P

1 Start up

Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press ENTER/START

In the manual depth mode, the gauge will prompt for the source rod depth. In automatic mode, the gauge software reads the depth strip on the source rod to determine the depth.

At the end of the counting period, the following will be displayed:

Record the following values as appropriate:

- % PR as the relative compaction to the nearest 0.1%.
- DD as the dry density to the nearest 0.001 t/m³.
- WD as the wet density to the nearest 0.001 t/m³.
- M as the moisture content (t/m³) to the nearest 0.001 t/m³.
- % M as the moisture content (%) to the nearest 0.1%.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

Press ESC

Press RECALL

Press

The following will be displayed:

Record the following values as appropriate:

- DC as the density count.
- MC as the moisture count.

Press ESC and the display will return to <READY>.

Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N221: Test Parameters (Soils) Troxler 3430P

1  Start up
  ▶ Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2  Measurement units
When <READY> is displayed:
  ▶ Press
  ▶ Press

The following will be displayed:

The following will be displayed briefly:

The display will return to <SETUP>.

3  Count time
  ▶ Press
  ▶ Press
  ▶ Press

and the following is displayed:

The following will be displayed briefly:

The display will return to <READY>.
### 4 Soil mode

Press **MODE**

The following will be displayed:

Press 2

The following will be displayed briefly:

The display will return to **<READY>**.

### 5 Material wet density bias

Press **OFFSET** the following is displayed:

Press 1

The following will be displayed:

To disable the material wet density bias, go to Step 5.1.
To enable the material wet density bias, go to Step 5.2.
To change the material wet density bias, go to Step 5.3.

#### 5.1 Disable material wet density bias

Press 2

The following will be displayed briefly:

The display will return to **<READY>**. Go to 7.
5.2 Enable material wet density bias

- Press 1

The following will be displayed:

5.3 Change material wet density bias

- Press 3

the following is displayed:

Use the numbered keys to enter the required value to the nearest 1 kg/m³.
(To convert from t/m³ to kg/m³, multiply the material wet density bias by 1000.)

- Press ENTER START

The following will be displayed briefly:

The display will return to <READY>.

6 Material moisture bias

- Press OFFSET

the following is displayed:

- Press 2

The following will be displayed:

6.1 Disable material moisture bias

- Press 6

The following will be displayed:

The display will return to <READY>. Go to Step 8.
6.2 Enable the material moisture bias

- Press the number corresponding to any of the stored values.

6.3 Change a material moisture bias value

- Press the following is displayed:

  **For manual entry:**

- Press the following is displayed:

  Use the numbered keys to enter the average oven dry moisture content to the nearest 0.01%.

- Press the following is displayed:

  Use the numbered keys to enter the average standard blocks moisture content to the nearest 0.01%.

  **For gauge derived:**

- Press the following is displayed:

  Use the numbered keys to enter the true moisture content to the nearest 0.01%.

- Press the following is displayed:

  Place the gauge on the measurement site and press any key.

  At the completion of the counting period, the following will be displayed:

  **To save the value:**

  - Press

  **To enable the value without storing:**

  - Press
7 Trench offset

Press OFFSET

the following is displayed:

Trench Offset
M: 0  D: 0
1. Enable  2. Disable  3. Change Offset

-OFFSET-
1 - Dens.  -OFF-
2 - Moist.  -OFF-
3 - Trench  -OFF-

Press 3

the following is displayed:

To enable the trench offset:

Press 1

The following is displayed:

Trench Offset
ENABLED

To disable the trench offset:

Press 2

The following is displayed:

Trench Offset
DISABLED

To change the trench offset:

Press 3

The following is displayed:

Place Gauge in
trench on Std.
Block in SAFE Pos.
Press <START>

Press ENTER

START

At the end of the counting period, the display will return to <READY>.

Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N222: Measurement (Soils) Troxler 3430P

1 Start up

► Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

► Press

the following is displayed:

In the manual depth mode, the gauge will prompt for the source rod depth. In automatic mode, the gauge software reads the depth strip on the source rod to determine the depth.

At the end of the counting period, the following will be displayed:

Record the following values as appropriate:

- % PR as the relative compaction to the nearest 0.1%.
- DD as the dry density to the nearest 0.001 t/m³.
- WD as the wet density to the nearest 0.001 t/m³.
- M as the moisture content (t/m³) to the nearest 0.001 t/m³.
- % M as the moisture content (%) to the nearest 0.1%.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press

► Press

► Press

The following will be displayed:

Record the following values as appropriate:

- DC as the density count.
- MC as the moisture count.

► Press and the display will return to <READY>.

► Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N223: Test Parameters (Soils) Troxler 3450

1 Set-up

- Press ON and allow the nuclear gauge to complete the self-test routine.

2 Unit

When <READY> is displayed:

- Press SPECIAL to access the gauge setup menu.
- Press 4 to access the gauge setup menu.

Scroll through the menu using the arrow keys.

- Press 8 and the following is displayed:

<table>
<thead>
<tr>
<th>UNITS in XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – PCF</td>
</tr>
<tr>
<td>2 – kg/m³</td>
</tr>
<tr>
<td>3 – g/cm³</td>
</tr>
</tbody>
</table>

- Press 2 and the following is displayed:

| UNITS IN kg/m³ |

The display will return to the Gauge Setup menu.

3 Count time

- Press TIME and the following is displayed:

<table>
<thead>
<tr>
<th>COUNT TIME: XX</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 15 sec</td>
</tr>
<tr>
<td>2 – 1 min</td>
</tr>
<tr>
<td>3 – 4 min</td>
</tr>
</tbody>
</table>

- Press 2 and the following is displayed:

<table>
<thead>
<tr>
<th>-COUNT TIME-</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 sec</td>
</tr>
</tbody>
</table>

The display will return to <READY>. 
4  **Soil mode**

- Press **MODE** and the following is displayed:
  - **MODE** –
    1 – Soil Mode
    2 – Asphalt Mode
    3 – Thin Layer Mode

- Press **1**

And the following will be displayed briefly:

The display will return to <**READY**>.

5  **Material wet density bias**

- Press **OFFSET** and the following is displayed:
  - **OFFSET** Select
    1 – Wet Density OFF
    2 – Moisture OFF
    3 – Trench OFF

- Press **1**

The following will be displayed:

```
Wet Density Offset:
xxxx kg/m³
1 – Enable  2 – Disable
3 – Change Offset
```

To disable the material wet density bias:

- Press **2** and the following is displayed:
  - Wet Density Offset
    DISABLED

To enable the material wet density bias:

- Press **1** and the following is displayed:
  - Wet Density Offset
    ENABLED
5.1.1 Change the value

- Press ![3](image) and the following is displayed:
  ![Wet Density Offset](image)

- Press ![+](image) or ![−](image)

- Use the numbered keys to enter the required value to the nearest 1 kg/m³.

- Press ![ENTER](image)

  The following will be displayed:

  ![Density Offset](image)

  The display will return to <READY>.

6 Material moisture bias

- Press ![OFFSET](image) and the following is displayed:
  ![OFFSET Select](image)

- Press ![2](image)

  The following will be displayed:

  ![Moisture Offset](image)

  To disable the moisture offset:

  - Press ![2](image) and the following is displayed:
    ![Moisture Offset](image)
To enable the moisture offset:

- Press 1 and the following is displayed:

| Moisture Offset ENABLED |

### 6.1.1 Change the value

- Press 3 and the following is displayed:

<table>
<thead>
<tr>
<th>Moisture Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Stored Offset</td>
</tr>
<tr>
<td>2 – Gauge Derived</td>
</tr>
<tr>
<td>3 – Keypad Entry</td>
</tr>
</tbody>
</table>

To select a stored offset:

- Press 1 and the following is displayed:

<table>
<thead>
<tr>
<th>Moisture Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select K Value Cell:</td>
</tr>
<tr>
<td>1 – 0.00</td>
</tr>
<tr>
<td>2 – 0.00</td>
</tr>
<tr>
<td>3 – 0.00</td>
</tr>
<tr>
<td>4 – 0.00</td>
</tr>
</tbody>
</table>

- Use the numbered keys to enter the required value to the nearest 0.01%.

The display will return to <READY>.

### 6.1.2 Change to a gauge-derived value

To change the moisture bias to a gauge-derived value:

- Press 3 and the following is displayed:

<table>
<thead>
<tr>
<th>Moisture Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Stored Offset</td>
</tr>
<tr>
<td>2 – Gauge Derived</td>
</tr>
<tr>
<td>3 – Keypad Entry</td>
</tr>
</tbody>
</table>

- Press 2 and the following is displayed:

<table>
<thead>
<tr>
<th>Gauge Derived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moisture Offset</td>
</tr>
<tr>
<td>1 – Measure Moisture</td>
</tr>
<tr>
<td>2 – Input True Moist</td>
</tr>
</tbody>
</table>

- Press 1 and the following is displayed:

<table>
<thead>
<tr>
<th>Place Gauge On Surface To Be Tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press START For 4 One – Minute Counts</td>
</tr>
</tbody>
</table>

- Press START

The gauge displays the progress of the measurements. After each reading, the gauge displays the results. To continue to the next measurement:
After the last measurement:

Press **ENTER** and the following is displayed:

To enter the true moisture later:

Press **1**

To overwrite the partial offset:

Press **YES**

To use the stored partial offset:

Press **NO**

To enter the true moisture now:

Press **2** and the following is displayed:

7 **Trench offset**

Press **OFFSET** and the following is displayed:

Press **3** and the following is displayed:

To disable the trench offset:

Press **2** and the following is displayed:
To enable the trench offset:

- Press 1 and the following is displayed:

```
Trench Offset
ENABLED
```

To create a new trench offset:

- Press 3 and the following is displayed:

```
Set Rod To STD Pos
Press START For
1 Minute STD Count
In Trench
```

Position the gauge inside the trench and:

- Press START

The gauge will display the progress of the standard count operation.

After the standard count, the gauge displays:

```
New Trench Offset
TMO = xxxx
TDO = xxxx xxxx
Want To Accept ?
```

To enable the new trench offset:

- Press YES

To create another trench offset:

- Press NO
Operating Instruction N224: Measurement (Soils) Troxler 3450

1 Set-up

► Press ON and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

► Press START

In the manual depth mode, the gauge will prompt for the source rod depth.
In the automatic depth mode, the gauge software reads the depth strip on the source rod to determine the source rod depth.

At the end of the counting period, the following will be displayed:

Record the following values:

- % PR as the percent proctor to the nearest 0.1%.
- DD as the dry density to the nearest 0.001 t/m³.
- WD as the wet density to the nearest 0.001 t/m³.
- M as the moisture content (t/m³) to the nearest 0.001 t/m³.
- % M as the moisture content (%) to the nearest 0.1%.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press and the display will return to <READY>.

► Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N225: Test Parameters (Soils) CPN MC1 and MC3 Elite

1  Set-up

► Press **ON** and allow the nuclear gauge to complete the self-test routine.

2  Units

► Press **MENU** the first screen will be:

   1. Recall
   2. Set depth
   UP/DOWN for next
   Select #, ESC exit

► Press **DOWN** the following is displayed:

   11. Auto scroll
   12. Set units
   UP/DOWN for next
   Select #, ESC exit

► Press **12** (button 1, then 2)

   1. PCF
   2. kg/m²
   3. GCC
   Select #, ESC exit

   After selecting the unit of measurement, the gauge returns to the menu screen.

► Press **ESC** returns to the ready screen

   GAUGE READY
   COUNT TIME: # min
   Depth: ### Offset: N
   <date> <time>

3  Count time

► Press **TIME** and the following is displayed:

   Cnt Time: ### min.
   UP/DOWN TO CHANGE
   YES to Accept
   ESC to Exit

► Press UP and DOWN to set the desired count time.

► Press **YES** returns to the ready screen

   GAUGE READY
   COUNT TIME: # min
   Depth: ### Offset: N
   <date> <time>
4 Depth

The Elite gauge is equipped with an automatic non-magnetic depth indicator. The depth is automatically read as you lower the source into the measure position and the appropriate constants are selected to calculate the density.

The gauge can be placed into manual depth mode by disabling the Automatic depth mode from the MENU functions.

5 Soil mode and maximum dry density

Press and the following is displayed:

- Press for Proctor.
- Press YES

Use the number buttons to change the value. Once you have entered the PR value, the gauge will return to ready screen.

6 Offset

There are three offset options for gauge: density, moisture, and trench.

To use the offset mode:

- Press
- Press 6

- Scroll UP and DOWN to select the offset you want to enable.
- For entering a negative number, use the DOWN button; for a positive number, use the UP button.

Note: When an offset is enabled, a Y on the gauge ready screen will appear next to the offset.
Operating Instruction N226: Measurement (Soils) CPN MC1 and MC3 Elite

1 Set-up

Press and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When the ready screen is displayed:

Press and the following is displayed.

At the end of the counting period, the gauge will display:

- **WD**: wet density to the nearest 0.001 t/m³.
- **DD**: dry density to the nearest 0.001 t/m³.
- **% PR**: relative compaction to the nearest 0.1%.
- **Moist**: moisture content (t/m³) to the nearest 0.001 t/m³.
- **% Moist**: moisture content (%) to the nearest 0.1%.
- **M Count**: moisture count.
- **D Count**: density count.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

Press and the display will return to the ready screen.

Press if the nuclear gauge is not required for further use.
Nuclear Gauge Testing Manual

Edition 3, Amendment 4

Section 4: Testing Asphalt
Operating Instruction N301: Test Parameters (Asphalt) Troxler 3440

1 Set-up

- Press \[\text{ON}\] and allow the nuclear gauge to complete the self-test routine.

2 Units

When <READY> is displayed:

- Press \[\text{SHIFT}\] \[\text{X}\] and the following is displayed:

- Press \[\text{SPECIAL}\] \[9\] and the following is displayed:

- Press \[\text{YES}\] \[\text{EXIT}\] repeatedly until the following is displayed:

- Press \[\text{SPECIAL}\] \[9\] and the following is displayed:

- Press \[\text{DEPTH}\] \[2\] and the following is displayed:

The display will return to <READY>.

3 Count time

- Press \[\text{TIME}\] \[\_\] and the following is displayed:

- Press \[\text{DEPTH}\] \[2\] and the following is displayed:

The display will return to <READY>. 
4 **Asphalt mode**

- Press **SHIFT**

- Press **MODE**

- Press **DEPTH**

- Press **COUNT**

- Press **YES**

- Press **NO/CE**

The display will return to <READY>.

- Press **SHIFT**

- Press **MODE**

- Press **DEPTH**

- Press **DEPTH**
Press and the following is displayed:

**YES**

**EXIT**

and the following is displayed:

**ASPHALT: 100% MA % VOIDS**

or

**NG/CE**

**C/CE**

and the following is displayed:

**ASPHALT: 100% MA**

The display will return to <READY>.

5 Maximum density

Press and the following is displayed:

**PROCTOR/ MARSHALL**

+  

and the following is displayed:

MA = XXXX kg/m³  
PR = XXXX  
VD = XXXX  
Want to change?

To retain value, go to 5.1.  
To change value, go to 5.2.

5.1 Retain the value

Press **ND/CE**  
**C/CE**  

to retain the displayed value of MA.

The display will return to <READY>. Go to 6.

5.2 Change the value

Press **YES**  
**EXIT**

and the following will be displayed:

Select:
1 – MA  
2 – PR  
3 – Voidless

Select source of Marshall value:
1 – Stored Value  
2 – New Value

Press

**COUNT**

1

and the following is displayed:

To enter a new value, go to 5.3.  
To select a stored value, go to 5.4

5.3 Enter a new value

Press **DEPTH**

2

and the following is displayed:

Marshall:  
**XXXX kg/m³**  
Press ENTER when completed
Use the numbered keys to enter the required value to the nearest 1 kg/m³.

Press START/ENTER and the following is displayed:

MA = XXXX kg/m³
Do you want to save this value for later use?

If the value is not to be saved:

Press ND/CE and the display will return to <READY>. Go to 6.

To save the displayed value:

Press YES and the following is displayed:

Select Marshall
Memory Cell:
1:XX2:XX
3:XX4:XX

Press the numbered key (1, 2, 3 or 4) to select a memory cell in which to store the value.

And the following will be displayed:

Marshall
XXXX kg/m³
ENABLED!
stored in cell X

The display will return to <READY>. Go to 6.

5.4 Select a stored value

Press COUNTS 1 and the following is displayed:

Select desired Marshall:
1:XX2:XX
3:XX4:XX

Press the numbered key (1, 2, 3 or 4) to select the required value:

And the following will be displayed:

Marshall
XXXX kg/m³
ENABLED!
stored in cell X

The display will return to <READY>.

6 Voidless density

Press PROCTOR/MARSHALL + and the following is displayed:

MA = XXXX kg/m³
PR = XXXX
VD = XXXX
Want to change?
Press **YES** and the following is displayed:

SELECT:
1 - MA
2 - PR
3 - VOIDLESS

Press **CALC** and the following is displayed:

Voidless Density XXXX kg/m³
Press enter when complete

Use the numbered keys to enter the required value to the nearest 1 kg/m³.

Press **START/ENTER** =

And the display will return to <READY>.

7 Material wet density bias

Press **OFFSET** and the following is displayed:

-OFFSET- Select:
1 - Dens. -ZZZ-
2 - Moist -ZZZ-
3 - Trench -ZZZ-

Press **COUNTS** 1

The following will be displayed:

Density Offset DISABLED
Do you want to ENABLE?

or

Density Offset ENABLED
Do you want to DISABLE?

To disable the material wet density bias, go to 7.1.
To enable the material wet density bias, go to 7.2

7.1 Disable material wet density bias

Press **NO/CE** C/CE to confirm that the density offset is to remain disabled.

or

Press **YES** EXIT to disable the density offset.

And the following will be displayed briefly:

The display will return to <READY>.  

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7.2 Enable material wet density bias

Press **YES** to enable the density offset. or **NO/CE** to confirm that the density offset is to remain enabled.

The following will be displayed:

To retain the value, go to 7.2.1.
To change the value, go to 7.2.2.

7.2.1 Retain the value

Press **NO/CE** to retain the displayed value of Wet Density Offset.

The following will be displayed briefly:

The display will return to *READY*.

7.2.2 Change the value

Press **YES** and the following is displayed:

- WD Offset -
  Select + or -
  1 = +
  2 = -

Press **COUNT** or **DEPTH** and the following is displayed:

Use the numbered keys to enter the required value to the nearest 1 kg/m³.

Press **START/ENTER** and the following will be displayed:

The display will return to *READY*. 
Operating Instruction N302: Measurement (Asphalt) Troxler 3440

1 Set-up

- Press [ON] and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press [START/ENTER]

The following will be displayed:

Depth: 0 mm  
MA: XXX kg/m³  
Time: XX sec.

or

Depth: 0 mm  
MA: XXX kg/m³  
(WD Offset)  
Time: XX sec.

(asphalt density bias labelled)  
(asphalt density bias enabled)

At the end of the counting period, the following will be displayed:

% MA = XX.X %  
WD = XXXX kg/m³  
M = X.X  
% VOID = XXX %

or

% MA = XX.X %  
WD = XXXX kg/m³  
(WD Offset)  
ENTER – More Info

(asphalt density bias disabled)  
(asphalt density bias enabled)

If more information is required:

- Press [START/ENTER]

And following will be displayed:

M = XX  
%M = XX  
%VOID = XX

Record WD as the **wet density**.
And following will be displayed:

Record Dens Ct as the **density count**.

- Press **NO/CE** and the display will return to *READY*.
- Press **OFF** if the nuclear gauge is not required for further use.
Operating Instruction N303: Test Parameters (Asphalt) Troxler 3430

1 Set-up

- Press and allow the nuclear gauge to complete the self-test routine.

2 Units

When <READY> is displayed:

- Press and the following is displayed:
  - Press repeatedly until the following is displayed:
  - Press and the following is displayed:
  - Press to set the desired unit.
  - Press and the display will return to <READY>.

3 Count time

- Press and the following is displayed:
  - Press to set the desired count time.
  - Press and the display will return to <READY>.

4 Depth

- Press and the following is displayed:
  - Press repeatedly until the required test depth is displayed.
Press ON and the display will return to <READY>.

5  Asphalt mode and maximum density

Press MA and the following is displayed:

Press \downarrow until “MA” is displayed.

To retain the displayed value, go to 5.1.
To change the displayed value, go to 5.2

5.1  Retain the value

Press OFF to retain the displayed value.

The display will return to <READY>. Go to 6.

5.2  Change the value

Press ON to change the display value of MA

The following will be displayed:

For each digit:

Press \downarrow repeatedly until the required number is displayed.

Press START to confirm each number.

The display will return to <READY>.

6  Asphalt density bias

Press SPECIAL and the following is displayed:

Press \downarrow repeatedly until the following is displayed:
Press

and the following is displayed:

Press

The following will be displayed:

or

To disable the asphalt density, go to 6.1
To enable the asphalt density bias, go to 6.2.

6.1 Disable asphalt density bias

Press to confirm that the density offset is to remain disabled

or to disable the density offset.

The following will be displayed briefly:

The display will return to <READY>. Go to 7.

6.2 Enable asphalt density bias

Press to disable the density offset or to confirm that the density offset is to remain disabled.

And the following will be displayed:

To retain the display, go to 6.2.1.
To change the display, go to 6.2.2.

6.2.1 Retain the value

Press

The following will be displayed:

The display will return to <READY>. Go to 7.
6.2.2 Change the value

- Press \( \uparrow \) to enter a positive asphalt density bias or \( \downarrow \) to enter a negative asphalt density bias.

For each digit:

- Press \( \downarrow \) until the required number is displayed.

- Press START ENTER to confirm each number.

The following will be displayed briefly:

The display will return to <READY>.

7 Asphalt voidless density

- Press SPECIAL and the following is displayed:

- Press \( \downarrow \) repeatedly until the following is displayed:

- Press START ENTER and the following is displayed:

For each digit:

- Press \( \downarrow \) until the required number is displayed.

- Press START ENTER to confirm each number.

The display will return to <READY>.
Operating Instruction N304: Measurement (Asphalt) Troxler 3430

1  Set-up

► Press ON YES and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

► Press START ENTER and the following is displayed:

At the end of the counting period:

► Press repeatedly until the required values are displayed.

Record the following values as appropriate:

- WD as the **wet density** to the nearest 0.001 t/m³.
- D as the **density count**.

To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press ON YES and the display will return to <READY>.

► Press OFF NO if the nuclear gauge is not required for further use.
Operating Instruction N307: Test Parameters Troxler 4640B

1 Start-up

- Press ON and allow the nuclear gauge to complete the self-test routine.

2 Measurement units

- Press SHIFT x and the following will be displayed:

  SPECIAL FUNCTION
  YES - next menu
  1 - Surface Voids
  2 - Recover Erase

- Press STATUS 7 and the following will be displayed:

  Units in ZZZ
  Press: 1 - US
  2 - METRIC
  ENTER - no change

- Press OFFSET 2 and the following will be displayed:

  Density in kg/m³
  Select: 1 - kg/m³
  2 - g/cm³
  Enter - no change

- Press OFFSET 2 and the following will be displayed:

  UNITS - METRIC
  Density in g/cm³

(Units of g/cm³ are equivalent to t/m³.)
The display will return to <READY>.

3 Count time

- Press TIME and the following will be displayed:

-Count Time-
XX min.
Do you want to change?

- Press YES EXIT and the following will be displayed:

  Set: 1- 0.5 min.
  2- 1 min.
  3- 2 min.
  4- 3 min.

- Press OFFSET 2 and the following will be displayed:

-Count Time- 1 minutes!

The display will return to <READY>. 
4 **Layer thickness**

- Press **THICK** and the following will be displayed:

  ![Layer Thickness: X XX cm. Input and Press ENTER]

- Use the numbered keys to enter the layer thickness to the nearest 0.1 cm.
  (The minimum value that can be set is 2.54 cm).

- Press **START/ENTER** and the following will be displayed briefly:

  ![Layer Thickness: X.XX cm.]

  The display will return to <READY>.

5 **Marshall and maximum (voidless) density**

- Press **MA/Voidless** and the following will be displayed:

  ![MA: X.XXX g/cm³
  VD: X.XXX g/cm³
  Do you want to change?]

  If MA and VD values of “0.000 g/cm³” are displayed:

- Press **NO/ICE**

  If values other than “0.000 g/cm³” are displayed:

- Press **YES EXIT** and the following will be displayed:

  ![MARSHALL
  X.XXX g/cm³
  Input and Press ENTER]

- Press **RECALL 0**

- Press **START/ENTER** and the following will be displayed:

  ![VOIDLESS DENSITY
  X.XXX g/cm³
  Input and Press ENTER]

- Press **RECALL 0**

- Press **START/ENTER** and the display will return to <READY>. 
6 Asphalt density bias

Press \[\text{OFFSET} \quad 2\]

The following will be displayed:

\[
\begin{array}{c}
\text{Offset: DISABLED} \\
XX \text{ g/cm}^3 \quad 1 - \text{Enable/Change} \\
2 - \text{Disable}
\end{array}
\]

or

\[
\begin{array}{c}
\text{Offset: ENABLED} \\
XX \text{ g/cm}^3 \quad 1 - \text{Enable/Change} \\
2 - \text{Disable}
\end{array}
\]

To disable the asphalt density bias, go to Step 6.1. To enable the asphalt density bias, go to Step 6.2.

6.1 Disable asphalt density bias

Press \[\text{OFFSET} \quad 2\]

and the following will be displayed briefly:

\[
\text{Offset: DISABLED!}
\]

The display will return to <READY>.

6.2 Enable asphalt density bias

Press \[\text{SP. CAL} \quad 1\]

and the following will be displayed:

\[
\begin{array}{c}
\text{Offset: ENABLED} \\
XX \text{ g/cm}^3 \quad \text{Want to change offset value?}
\end{array}
\]

To retain the displayed value, go to Step 6.2.1. To change the displayed value, go to Step 6.2.2.

6.2.1 Retain the value

Press \[\text{NOISE} \quad \text{O/C}\]

The display will return to <READY>.

6.2.2 Change the value

Press \[\text{YES} \quad \text{EXIT}\]

and the following will be displayed:

\[
\begin{array}{c}
\text{Select source of Offset} \\
1 - \text{keyboard} \\
2 - \text{stored value}
\end{array}
\]

To enter a new value, go to Step 6.2.2.1. To select a stored value, go to Step 6.2.2.2.
6.2.2.1 Enter a new value

- Press [SP. CAL] 1 and the following will be displayed:

  Offset value: ---- g/cm³
  Select 1 = +
  2 = -

- Press [SP. CAL] 1 to enter a positive bias. or [OFFSET] 2 to enter a negative bias.

  Offset value: x ---- g/cm³
  Input and press ENTER

  Note: It is not necessary to save the displayed value to enable it.

If the value is not to be saved:

- Press [NO/CE] and the display will return to <READY>.

To save the displayed value:

- Press [YES] and the following will be displayed:

  Enter permanent Memory location to save Offset (1 – 12)? --

- Use the numbered keys to enter the memory location.

  Note: Record the memory location and bias to facilitate subsequent retrieval of saved values.

- Press [START/ENTER] and the following will be displayed briefly:

  Offset: ENABLED x XX g/cm³
  Saved in memory location X

  The display will return to <READY>.

6.2.2.2 Select a stored value

- Press [OFFSET] 2 and the following will be displayed:

  Offset: # X-
  XX g/cm³
  1 – to select
  2 – for next
- Press [OFFSET] 2 repeatedly until the required memory location and value is displayed.

- Press [SP. CAL.] 1 and the following will be displayed briefly:

  Offset: ENABLED
  XX g/cm²

  The display will return to <READY>.

- Press [OFF] if the nuclear gauge is not required for further use.
Operating Instruction N308: Measurement (Asphalt) Troxler 4640B

1  Start-up
   ▶ Press ON and allow the nuclear gauge to complete the self-test routine.

2  Measurement
   When <READY> is displayed:
   ▶ Press START/ENTER

   The following will be displayed:
   (asphalt density bias disabled)
   MA: XXXX g/cm³
   Thick: XXXXX cm
   Avg: XX
   Time: XX secs

   or
   (asphalt density bias enabled)
   MA: XXXX g/cm³
   Thick: XX.XX cm
   Avg: XX, Offset
   Time: XX secs.

   At the end of the counting period, the following will be displayed:

   Record Dens as the wet density to the nearest 0.001 t/m³.
   ▶ Press and the following will be displayed:

   Record Cnts as the density count values for System 1 and System 2.
   ▶ Press and the display will return to <READY>.
   ▶ Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N309: Test Parameters (Asphalt) CPN MC3

1  Measurement units

*Pre-March 1998 Nuclear Gauge:*

- Press `[STEP]` and `[UNIT]` simultaneously until the density and moisture display is obtained.
- Press `[UNIT]` until “gcc” is displayed.

*Post-March 1998 Nuclear Gauge:*

- Press `[STEP]` and `[UNIT]` simultaneously.
- Press `[ENTER]` until “gcc” is displayed.
- Press `[STEP]` and `[ENTER]` until “Density” is displayed.
- Press `[CLEAR]`

2  Count time

- Press `[TIME]` until “0.0”
- Press `[ENTER]`

3  Maximum density

- Press `[%COMP]` and use the numbered keys to enter “0.0”
4  **Asphalt density bias**

Press

To enter a positive bias:

Press and use the numbered keys to enter the asphalt density bias to the nearest 0.001 t/m³.

Press

To enter a negative bias:

Press and use the numbered keys to enter the asphalt density bias to the nearest 0.001 t/m³.

Press
Operating Instruction N310: Measurement (Asphalt) CPN MC3

1 Measurement

▶ Press

At the end of the counting period, the following will be displayed:

<table>
<thead>
<tr>
<th>XXX</th>
<th>XXX</th>
<th>XXX</th>
<th>XXX</th>
</tr>
</thead>
<tbody>
<tr>
<td>DaXX</td>
<td>ETOX:XX</td>
<td>TOXX:XX</td>
<td></td>
</tr>
<tr>
<td>gcc</td>
<td>wet</td>
<td>h2o</td>
<td>dry</td>
</tr>
<tr>
<td>Dn</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Pr</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>%</td>
<td>XXXX</td>
<td>XXXX</td>
<td>XXXX</td>
</tr>
<tr>
<td>Md</td>
<td>XXX</td>
<td>XXXX</td>
<td></td>
</tr>
<tr>
<td>Bi</td>
<td>XXX</td>
<td>XXX</td>
<td></td>
</tr>
</tbody>
</table>

Record Dn wet as the wet density to the nearest 0.001 t/m³.

Pre-March 1988 Nuclear Gauge:

▶ Press

Record Ct wet as the density count.

▶ Press

simultaneously to return to the density display.

Post-March 1988 Nuclear Gauge:

▶ Press

simultaneously.

▶ Press

STEP

UNIT

1 -c

▶ Press

ENTER

repeatedly until "Counts" is displayed.

▶ Press

CLEAR

Record CT wet as the density count.

▶ Press

STEP

UNIT

1 -c

simultaneously to return to the density display.
Press repeatedly until "Density" is displayed.
Operating Instruction N313: Test Parameters (Asphalt) Humboldt 5001EZ

1  Start-up
   ▶ Press PWR and allow the nuclear gauge to complete the initialising routine.

   The following will be displayed:

   - *DATA XXXX/XX
   - *SETUP XX:XX:XX
   - *ENGINEERING
   - DEPTH=SAF

   ▶ Press F2 and the following will be displayed:

   - *SET UP 2
   - *SET MEASUREMENT MODES
   - *SET TRNCH COR.
   - *SET TARGETS

2  Measurement units
   ▶ Press F1 and the following will be displayed:

   - *SET DATE
   - *SET TIME
   - *UNITS = PCF/SI

   ▶ Press F3 repeatedly until "SI" flashes.

   ▶ Press MAIN MENU and the display will return to the main menu.

3  Count time
   ▶ Press F2 F2

   The following will be displayed:

   - MEAS = FAST/NORM/SLOW
   - STD = 4MIN/16MIN
   - TYPE = ASPH/SOIL/THIN
   - DEPTH = AUTO/MANUAL

   ▶ Press F1 repeatedly until "NORM" flashes.

4  Asphalt mode
   ▶ Press F3 repeatedly until "ASPH" flashes.
5  Depth

- Press **F4** repeatedly until “AUTO” flashes.
- Press **MAIN MENU** and the display will return to the main menu.

6  Maximum density

- Press **MAX “D”** and the following will be displayed:

```
MAXD = XXXX
*INCREASE
*DECREASE
```
- Press **F4** to decrease the displayed value until a value of 900 kg/m³ is obtained.
- Press **MAIN MENU** and the display will return to the main menu.

7  Asphalt density bias

There is no facility to set an asphalt density bias using the keypad.

8  Material moisture bias

- Press **F2** and the following will be displayed:

```
*SET UP 2
*SET MEASURE MODES
*SET TRENCH COR.
*SET TARGETS
```
- Press **F4** and the following will be displayed:

```
MAXD = XXXX
LWD= XXXX
KVAL = X.XXX
SPG=X.XXX
*INCREASE
*DECREASE
```
- Press **F2** repeatedly until the **KVAL** value flashes.
- Press **F4** repeatedly until a displayed value of “0.0” is obtained.
- Press **MAIN MENU** and the display will return to the main menu.
- Press **PWR** if the nuclear gauge is not required for further use.
Operating Instruction N314: Measurement (Asphalt) Humboldt 5001EZ

1  Start-up
   ▶ Press PWR and allow the nuclear gauge to complete the initialising routine.

2  Measurement
   ▶ Press MEAS and the following will be displayed:

   TAKING MEASUREMENT
   TIME REMAINING X:XX
   DC = X
   MC = X DEPTH=BAC

   And the end of the counting period, the following will be displayed:

   MEASURE ASPH RESULTS
   WD = XXXX.X%   %MA = XXX.X
   AC = X.X       MAXD = XXX
   *NEXTM DEPTH=BAC

   Record WD as the wet density to the nearest 0.001 t/m³.
   (To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

   ▶ Press F4 and the following will be displayed:

   DC = XXXX.X   DS = XXXX.X
   MC = XX.X     MS = XXX.X
   VR = XX.XX    %AV = X.XX
   *LAST MDEPTH=BAC

   Record DC as the density count.

   ▶ Press MAIN MENU and the display will return to the main menu.

   ▶ Press PWR if the nuclear gauge is not required for further use.
Operating Instruction N315: Test Parameters (Asphalt) Humboldt 5001C

1  Start-up

► Press \( \text{ON} \) and allow the nuclear gauge to complete the initialising routine.

► Press \( \text{CLEAR} \) \( \implies \text{SHIFT} \) \( \implies \text{ENTER} \) simultaneously until the following is displayed:

2  Asphalt mode

► Press \( \text{1} \) \( \implies \text{S/A} \) repeatedly until “ASPH” is displayed.

► Press \( \text{CLEAR} \) \( \implies \text{ENTER} \)

3  Maximum density

► Press \( \text{LWR D} \) \( \implies \text{MAX D} \) and the following will be displayed:

\[
\text{dEn} \quad \text{XXX.X}
\]

If a value of “0.0” is displayed:

► Press \( \text{CLEAR} \) \( \implies \text{ENTER} \) to retain the displayed value.

If a value other than “0.0” is displayed:

► Press \( \text{SHIFT} \) and use the numbered keys to enter a value of “0.0”

► Press \( \text{CLEAR} \) \( \implies \text{ENTER} \) repeatedly until the following is displayed:

\[
\text{SAF} \quad 0.0
\]

4  Asphalt density bias

There is no facility to enter an asphalt density bias using the keypad.

► Press \( \text{OFF} \) if the nuclear gauge is not required for further use.
Operating Instruction N316: Measurement (Asphalt) Humboldt 5001C

1  Start-up

Press ON and allow the nuclear gauge to complete the initialising routine.

2  Measurement

Press CLEAR ENTER SHIFT simultaneously until the following is displayed:

Press NORM TRENCH and the following will be displayed:

At the end of the counting period, the following will be displayed:

Record the displayed value as the wet density to the nearest 0.001 t/m³.
(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

Press 7 DC and record the displayed value as the density count.

Press SHIFT CLEAR ENTER simultaneously until the following is displayed:

Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N317: Test Parameters (Asphalt) Humboldt 5001P

1. **Start-up**
   - Press **ON** and allow the nuclear gauge to complete the initialising routine.

2. **Depth**
   - Press **UP** or **DOWN** repeatedly until the required measurement depth is displayed.

3. **Maximum density**
   - Press **SET RD D**
     - If a value of “0.0” is displayed:
       - Press **SHIFT SET RD D** to retain the displayed value.
     - If a value other than “0.0” is displayed:
       - Press **SHIFT and hold** and use the numbered keys to enter a value of “0.0”.
       - Press **SHIFT SET RD D** to retain the displayed value.

4. **Asphalt density bias**
   - There is no facility to enter the asphalt density bias using the keypad.

5. **Material moisture bias**
   - Press **SET RD K**
     - If a value of “0.0” is displayed:
       - Press **SHIFT SET RD K** to retain the displayed value.
     - If a value other than “0.0” is displayed:
       - Press **SHIFT and hold** and use the numbered keys to enter a value of “0.0”.
Press \( \text{SHIFT} \text{SET RD K} \) to store the value.

Press \( \text{OFF} \) if the nuclear gauge is not required for further use.
Operating Instruction N318: Measurement (Asphalt) Humboldt 5001P

1 Start-up

► Press ON and allow the nuclear gauge to stabilise for at least 10 minutes before commencing the test.

2 Measurement

► Press NORM and the following will be displayed:

At the end of the counting period, the following will be displayed:

Record the displayed value as the **density count**.

► Press 9 WD and record the displayed value as the **wet density** to the nearest 0.01 t/m³.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press OFF if the nuclear gauge is not required for further use.
Operating Instruction N319: Test Parameters (Asphalt) Instrotek Xplorer 3500

1  Start-up
   ▶ Press [ON YES] and allow the nuclear gauge to complete the self-test routine.

2  Units
   When <READY> is displayed:
   ▶ Press [MENU] and the following is displayed:
   ▶ Press [DOWN] repeatedly until the following is displayed:
   ▶ Press [START ENTER] and the following is displayed:
   ▶ Press [DOWN] to set the desired unit.
   ▶ Press [ON YES] and the display will return to <READY>.

3  Count time
   ▶ Press [TIME] and the following is displayed:
   ▶ Press [DOWN] to set the desired count time.
   ▶ Press [ON YES] and the display will return to <READY>.

4  Depth
   ▶ Press [DEPTH] the following is displayed:
   ▶ Press [DOWN] repeatedly until the required test depth is displayed.
Press **ON** and the display will return to `<READY>`.

5 **Asphalt mode and maximum density**

- Press **MA** and the following is displayed:
  - ENTER selects FR
  - DOWN selects MA

- Press **DOWN** and the following is displayed:
  - MA: XXXXX
  - Change value?

To retain the displayed value, go to 5.1.
To change the displayed value, go to 5.2

5.1 **Retain value**

- Press **OFF** to retain the displayed value.

The display will return to `<READY>`. Go to 6.

5.2 **Change the value**

- Press **ON** to change the displayed value of MA.

The following is displayed:

- MA: XXXXX
  - UP/DOWN or ENTER

For each digit:

- Press **DOWN** repeatedly until the required number is displayed.

- Press **START ENTER** to confirm each number.

The display will return to `<READY>`.

6 **Material wet density bias**

- Press **MENU** and the following is displayed:
  - RECALL
  - UP/DOWN or ENTER

- Press **DOWN** and the following is displayed:
  - OFFSET
  - UP/DOWN or ENTER
To disable the material wet density bias, go to 6.1.
To enable the material wet density bias, go to 6.2

6.1 Disable material wet density bias

Press \[\text{ON} \rightarrow \text{YES}\] to disable the density offset.

or

Press \[\text{OFF} \rightarrow \text{NO}\] to confirm that the density offset is to remain disabled.

The following will be displayed:

The display will return to \(<\text{READY}>\).

6.2 Enable material wet density bias

Press \[\text{ON} \rightarrow \text{YES}\] to disable the density offset.

or

Press \[\text{OFF} \rightarrow \text{NO}\] to confirm that the density offset is to remain enabled.

The following will be displayed:

To retain the displayed value, go to 6.2.1.
To change the displayed value, go to 6.2.2.
6.2.1 Retain the value

Press \( \text{ON} \) \( \text{YES} \) and the following will be displayed:

Density Offset Enabled

The display will return to <READY>

6.2.2 Change the value

Press \( \text{UP} \) for a positive value.

or

Press \( \text{DOWN} \) for a negative value.

For each digit:

Press \( \text{DOWN} \) until the required number is displayed.

Press \( \text{START} \text{ENTER} \) to confirm each number.

The following will be displayed briefly:

Density Offset Enabled

The display will return to <READY>.
Operating Instruction N320: Measurement (Asphalt) Instrotek Xplorer 3500

1 Start-up

- Press **ON** and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

- Press **START ENTER** and the following is displayed:

  | Time = XX sec |
  | Depth: XX mm |

At the end of the counting period:

- Press **DOWN** repeatedly until the required values are displayed.

Record the following values as appropriate:

- WD as the **wet density** to the nearest 0.001 t/m³.
- D Count as the **density count**.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

- Press **ON YES** and the display will return to <READY>.

- Press **OFF NO** if the nuclear gauge is not required for further use.
Operating Instruction N321: Test Parameters (Asphalt) Troxler 3440P

1  **Start up**

   - Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2  **Measurement units**

   When <READY> is displayed:

   - Press **SETUP**

   - Press **2**

   The following will be displayed:

   - Press **2**

   The following will be displayed briefly:

   The display will return to <SETUP>.

3  **Count time**

   - Press **SETUP**

   - Press **1** and the following is displayed:

   - Press **2**

   The following will be briefly displayed:

   The display will return to <READY>.  

- Units -

  1. pcf
  2. kg/m³
  3. g/cm³

Metric Units

Kg/m³

ENABLED

TIME: XX

1 - 15 sec
2 - 1 min
3 - 4 min

COUNT TIME

1 min
4  **Asphalt mode**

- Press **MODE**

The following will be displayed:

- Press

The following will be displayed briefly:

```
Asphalt Mode
ENABLED
```

The display will return to `<READY>`.

5  **Material wet density bias**

- Press **OFFSET**

The following is displayed:

- Press

The following will be displayed:

```
Density Offset
xx kg/m³
1. Enable 2. Disable 3. Change Offset
```

To disable the material wet density bias, go to Step 5.1.

To enable the material wet density bias, go to Step 5.2.

To change the material wet density bias, go to Step 5.3.

5.1 **Disable material wet density bias**

- Press

The following will be displayed briefly:

```
Density Offset
DISABLED
```

The display will return to `<READY>`. Go to 7.
5.2 Enable material wet density bias

► Press 1

The following will be displayed:

Density Offset
ENABLED

5.3 Change material wet density bias

► Press 3

The following is displayed:

Density Offset
xx kg/m³
Select (+/-)
Enter and <ENTER>

Use the numbered keys to enter the required value to the nearest 1 kg/m³.
(To convert from t/m³ to kg/m³, multiply the material wet density bias by 1000.)

► Press ENTER START

The following will be displayed briefly:

Density Offset
ENABLED

The display will return to <READY>.

6 Material moisture bias

► Press OFFSET

The following is displayed:

-OFFSET--Select:
1 - Dens. -OFF-
2 - Moist -OFF-
3 - Trench -OFF-

► Press 2

The following will be displayed:

Moisture Offset
1. xxxx 2. xxxx
3. xxxx 4. xxxx
5. New 6. Disable

6.1 Disable material moisture bias

► Press 6
The following will be displayed:

The display will return to <READY>. Go to Step 8.

6.2 **Enable the material moisture bias**

- Press the number corresponding to any of the stored values.

6.3 **Change a material moisture bias value**

- Press the following is displayed:

  For manual entry:

  - Press the following is displayed:

  Use the numbered keys to enter the average oven dry moisture content to the nearest 0.01%.

  - Press the following is displayed:

  Use the numbered keys to enter the average standard blocks moisture content to the nearest 0.01%.

  - Press the following is displayed:

  To save the displayed value:

  - Press the following is displayed:

  Press a numbered key (1, 2, 3 or 4) to select a memory location in which to save the value.

  The following will be displayed briefly:

  If the value is not to be displayed:

  - Press

  The display will return to <READY>. 
For gauge derived:

- Press **2** the following is displayed:

  True Moisture %
  X.XX
  Press <ENTER>

Use the numbered keys to enter the true moisture content to the nearest 0.01%.

- Press **ENTER START** the following is displayed:

  Place gauge on soil,
  Lower rod and
  Press any key

Place the gauge on the measurement site and press any key.

At the completion of the counting period, the following will be displayed:

To save the value:

- Press **YES**

To enable the value without storing:

- Press **NO**

7 Trench Offset

- Press **OFFSET** the following is displayed:

  -OFFSET-
  1 - Dans.  -OFF-
  2 - Moist.  -OFF-
  3 - Trench  -OFF-

- Press **3** the following is displayed:

  Trench Offset
  M: 0  D: 0
  1. Enable  2. Disable  3. Change Offset

To enable the trench offset:

- Press **1**

The following is displayed:

To disable the trench offset:

- Press **2**
To change the trench offset:

- Press 3

The following is displayed:

- Press 

At the end of the counting period, the display will return to <READY>.

- Turn the power switch off if the nuclear gauge is not required for further use.

Trench Offset DISABLED

Place Gauge in trench on Std. Block in SAFE Pos. Press <START>
Operating Instruction N322: Measurement (Asphalt) Troxler 3440P

1 Start up

► Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2 Measurement

When <READY> is displayed:

► Press ENTER START

the following is displayed:

In the manual depth mode, the gauge will prompt for the source rod depth. In automatic mode, the gauge software reads the depth strip on the source rod to determine the depth.

At the end of the counting period, the following will be displayed:

Record WD as the wet density:

► Press ESC

► Press RECALL

► Press

The following will be displayed:

Record the following values as appropriate:

- DC as the density count.
- MC as the moisture count.

► Press ESC and the display will return to <READY>.

► Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N323: Test Parameters (Asphalt) Troxler 3430P

1  Start-up
   ▶ Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2  Measurement units
   When <READY> is displayed:
      ▶ Press  SETUP
      ▶ Press  2
      The following will be displayed:

            - Units -
            1. pcf
            2. kg/m³
            3. g/cm³

      ▶ Press  2
      The following will be displayed briefly:

            Metric Units
            Kg/m²
            ENABLED

      The display will return to <SETUP>.

3  Count time
   ▶ Press  SETUP
   ▶ Press  1 and the following is displayed:

            TIME: XX
            1 - 15 sec
            2 - 1 min
            3 - 4 min

   ▶ Press  2
   And the following will be briefly displayed:

            COUNT TIME
            1 min

      The display will return to <READY>. 
4  Asphalt mode

Press MODE

The following will be displayed:

Press 1

The following will be displayed briefly:

The display will return to <READY>.

5  Material wet density bias

Press OFFSET the following is displayed:

Press 1

The following will be displayed:

Density Offset
xx kg/m³
1. Enable 2. Disable 3. Change Offset

To disable the material wet density bias, go to Step 5.1. To enable the material wet density bias, go to Step 5.2. To change the material wet density bias, go to Step 5.3

5.1  Disable material wet density bias

Press 2

The following will be displayed briefly:

The display will return to <READY>. Go to 7.
5.2  Enable material wet density bias

Press 1

The following will be displayed:

Density Offset
ENABLED

5.3  Change material wet density bias

Press 3

The following will be displayed:

Density Offset
xx kg/m³
Select (+/-)
Input and <ENTER>

Use the numbered keys to enter the required value to the nearest 1 kg/m³.
(To convert from t/m³ to kg/m³, multiply the material wet density bias by 1000.)

Press ENTER

The following will be displayed briefly:

Density Offset
ENABLED

The display will return to <READY>.

6  Material moisture bias

Press OFFSET

The following will be displayed:

-OFFSET--Select:
 1 - Dens.  -OFF-
 2 - Moist  -OFF-
 3 - Trench -OFF-

Press 2

The following will be displayed:

Moisture Offset
1. xxxx  2. xxxx
3. xxxx  4. xxxx
5. New  6. Disable

6.1  Disable material moisture bias

Press 6

The following will be displayed:

Moisture Offset
DISABLED

The display will return to <READY>. Go to Step 8.
6.2 **Enable the material moisture bias**

- Press the number corresponding to any of the stored values.

6.3 **Change a material moisture bias value**

- Press 5 the following will be displayed:

**For manual entry:**

- Press 1

the following will be displayed:

Use the numbered keys to enter the average oven dry moisture content to the nearest 0.01%.

- Press ENTER

the following will be displayed:

Use the numbered keys to enter the average standard blocks moisture content to the nearest 0.01%.

- Press ENTER

the following will be displayed:

To save the displayed value:

- Press YES

the following will be displayed:

Press a numbered key (1, 2, 3 or 4) to select a memory location in which to save the value.

The following will be displayed briefly:

If the value is not to be displayed:

- Press NO

The display will return to <READY>.

**For gauge derived:**

- Press 2

the following is displayed:
Use the numbered keys to enter the true moisture content to the nearest 0.01%.

Press ENTER START the following is displayed:

Place the gauge on the measurement site and press any key.

At the completion of the counting period, the following will be displayed:

To save the value:

Press YES

To enable the value without storing:

Press NO

7 Trench offset

Press OFFSET the following is displayed:

Press 3 the following is displayed:

To enable the trench offset:

Press 1

The following is displayed:

To disable the trench offset:

Press 2

The following is displayed:
To change the trench offset:

- Press 3

The following is displayed:

- Press ENTER

At the end of the counting period, the display will return to <READY>.

- Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N324: Measurement (Asphalt) Troxler 3430P

1  Start up

► Turn the power switch on and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When <READY> is displayed:

► Press (ENTER START) the following is displayed:

<table>
<thead>
<tr>
<th>Depth: XX mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>PR: XXXX kg/m³</td>
</tr>
<tr>
<td>Time: XX sec.</td>
</tr>
</tbody>
</table>

In the manual depth mode, the gauge will prompt for the source rod depth. In automatic mode, the gauge software reads the depth strip on the source rod to determine the depth.

At the end of the counting period, the following will be displayed:

Record WD as the wet density:

► Press (ESC)

► Press (RECALL)

► Press (↓)

The following will be displayed:

Record the following values as appropriate:

- DC as the density count.
- MC as the moisture count.

► Press (ESC) and the display will return to <READY>.

► Turn the power switch off if the nuclear gauge is not required for further use.
Operating Instruction N325: Test Parameters (Asphalt) Troxler 3450

1  Set-up

- Press ON and allow the nuclear gauge to complete the self-test routine.

2  Units

When <READY> is displayed:

- Press SPECIAL
- Press 4 to access the Gauge Setup menu.

Scroll through the menu using the arrow keys.

- Press 8 and the following is displayed:

  1 - Set Time/Date
  2 - Print Set-Up
  3 - Depth Indicator
  4 - Set Beeper Level

  UNITS in XXX
  1 – PCF
  2 – kg/m³
  3 – g/cm³

- Press 2 and the following is displayed:

  UNITS IN kg/m³

The display will return to the Gauge Setup menu.

3  Count time

- Press TIME and the following is displayed:

  COUNT TIME: XX
  1 – 15 sec
  2 – 1 min
  3 – 4 min

- Press 2 and the following is displayed:

  -COUNT TIME-
  60 sec

The display will return to <READY>. 
4 Asphalt mode

- Press \( \text{MODE} \) and the following is displayed:

\[
\begin{array}{c}
- \text{MODE} = \\
1 - \text{Soil Mode} \\
2 - \text{Asphalt Mode} \\
3 - \text{Thin Layer Mode}
\end{array}
\]

- Press \( 2 \) and the following will be displayed briefly:

Asphalt Mode Enabled

The display will return to <READY>.

5 Material wet density bias

- Press \( \text{OFFSET} \) and the following is displayed:

\[
\begin{array}{c}
\text{OFFSET Select} \\
1 - \text{Wet Density OFF} \\
2 - \text{Moisture OFF} \\
3 - \text{Trench OFF}
\end{array}
\]

- Press \( 1 \) and the following will be displayed:

Wet Density Offset:

\[
\begin{array}{c}
\times \times \times \times \text{kg/m}^3 \\
1 - \text{Enable} \\
2 - \text{Disable} \\
3 - \text{Change Offset}
\end{array}
\]

To disable the material wet density bias:

- Press \( 2 \) and the following is displayed:

Wet Density Offset
DISABLED

To enable the material wet density bias:

- Press \( 1 \) and the following is displayed:

Wet Density Offset
ENABLED
5.1.1 Change the value

- Press and the following is displayed:

- Press or

- Use the numbered keys to enter the required value to the nearest 1 kg/m³.

- Press

The following will be displayed:

The display will return to <READY>.

6 Material moisture bias

- Press and the following is displayed:

- Press

The following will be displayed:

To disable the moisture offset:

- Press and the following is displayed:
To enable the moisture offset:

- Press 1 and the following is displayed:

**Moisture Offset**
- Enabled

### 6.1.1 Change the value

- Press 3 and the following is displayed:

**Moisture Offset**
- 1 – Stored Offset
- 2 – Gauge Derived
- 3 – Keypad Entry

To select a stored offset:

- Press 1 and the following is displayed:

**Moisture Offset Select K Value Cell**
- 1 – 0.00
- 2 – 0.00
- 3 – 0.00
- 4 – 0.00

- Use the numbered keys to enter the required value to the nearest 0.01%.

The display will return to `<READY>`.

### 6.1.2 Change to a gauge-derived value

To change the moisture bias to a gauge-derived value:

- Press 3 and the following is displayed:

**Moisture Offset**
- 1 – Stored Offset
- 2 – Gauge Derived
- 3 – Keypad Entry

- Press 2 and the following is displayed:

**Gauge Derived**
- Moisture Offset
- 1 – Measure Moisture
- 2 – Input True Moisture

- Press 1 and the following is displayed:

**Place Gauge On Surface To Be Tested**
- Press START For 4
- One – Minute Counts

- Press START

The gauge displays the progress of the measurements. After each reading, the gauge displays the results. To continue to the next measurement:

- Press START
After the last measurement:

- Press **ENTER** and the following is displayed:

  Moisture Offset
  1 – Stored Partial Moisture Offset
  2 – Input True Moisture

To enter the true moisture later:

- Press **1**

To overwrite the partial offset:

- Press **YES**

To use the stored partial offset:

- Press **NO**

To enter the true moisture now:

- Press **2** and the following is displayed:

  Input True Moisture
  xxxxx %
  ENTER When Done

**7 Trench offset**

- Press **OFFSET** and the following is displayed:

  OFFSET Select:
  1 – Wet Density OFF
  2 – Moisture OFF
  3 – Trench OFF

- Press **3** and the following is displayed:

  Trench: TMO = xxxxx
  TDO = xxxxx
  1 – Enable 2 – Disable
  3 – Change Offset

To disable the trench offset:

- Press **2** and the following is displayed:

  Trench Offset
  DISABLED
To enable the trench offset:

- Press 1

and the following is displayed:

Trench Offset
ENABLED

To create a new trench offset:

- Press 3

and the following is displayed:

Set Rod To STD Pos
Press START For
1 Minuto STD Count
In Trench

Position the gauge inside the trench and:

- Press START

The gauge will display the progress of the standard count operation.

After the standard count the gauge displays:

New Trench Offset
TMO = xxxx
TDO = xxxx xxxx
Want To Accept?

To enable the new trench offset:

- Press YES

To create another trench offset:

- Press NO
Operating Instruction N326: Measurement (Asphalt) Troxler 3450

1  Set-up
   ➤ Press 
   ON
   and allow the nuclear gauge to complete the self-test routine.

2  Measurement
When <READY> is displayed:
   ➤ Press
   START

   In the manual depth mode, the gauge will prompt for the source rod depth.
   In the automatic depth mode, the gauge software reads the depth strip on the source rod to
determine the source rod depth.

   At the end of the counting period, the following will be
displayed:

   Record the following values:
   •  \(\%MA\) as the percent Marshall to the nearest 0.1%.
   •  WD as the wet density to the nearest 0.001 t/m³.
   •  \(\%VOIDS = 100 \times 1-WD/VOIDLESS\) (when enabled).
   (To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

   ➤ Press
   down

   And the following will be displayed:

   Record the following values as appropriate:
   •  DC for system 2 (upper right reading) as the density count.

   ➤ Press
   ESC
   and the display will return to <READY>.

   ➤ Press
   OFF
   if the nuclear gauge is not required for further use.
Operating Instruction N327: Test Parameters (Asphalt) CPN MC1 and MC3 Elite

1. **Set-up**
   - Press **ON YES** and allow the nuclear gauge to complete the self-test routine.

2. **Units**
   - Press **MENU** the first screen will be:
     - 1. Recall
     - 2. Set depth
     - UP/DOWN for next
     - Select #, ESC exit
   - Press **DOWN** the following is displayed:
     - 1. Auto scroll
     - 11. Auto scroll
     - 12. Set units
     - UP/DOWN for next
     - Select #, ESC exit
   - Press **12** (button 1, then 2)
     - 1. PCF
     - 2. kg/m³
     - 3. GCC
     - Select #, ESC exit
   - After selecting the unit of measurement, the gauge returns to the menu screen.
   - Press **ESC** returns to ready screen
     - GAUGE READY
     - COUNT TIME: # min
     - Depth: ### Offset: N
     - <date> <time>

3. **Count time**
   - Press **TIME** and the following is displayed:
     - Cnt Time: ## min
     - UP/DOWN TO CHANGE
     - YES to Accept
     - ESC to Exit
   - Press UP and DOWN to set the desired count time.
   - Press **YES** returns to ready screen
     - GAUGE READY
     - COUNT TIME: # min
     - Depth: ### Offset: N
     - <date> <time>
4 Depth

The Elite gauge is equipped with an automatic non-magnetic depth indicator. The depth is automatically read as your lower the source into the measure position and the appropriate constraints are selected to calculate the density.

The gauge can be placed into manual depth mode by disabling the automatic depth mode from the MENU functions.

5 Asphalt mode and maximum density

Press and the following is displayed:

Press for max dens.

Press YES

Use the number buttons to change the value. Once you have entered the PR value, the gauge will return to ready screen.
Operating Instruction N328: Measurement (Asphalt) CPN MC1 and MC3 Elite

1  Set-up

► Press and allow the nuclear gauge to complete the self-test routine.

2  Measurement

When the ready screen is displayed:

► Press and the following is displayed:

Depth: XX mm
Time: XX sec

At the end of the counting period, the gauge will display:

► WD: ### kg/m³
%MA: ####
%VODAS: ####
Press UP/DOWN

► WD: ### kg/m³
%MA: ####
%VODAS: ####
Press UP/DOWN

► Moist: ### kg/m³
DD: #### kg/m³
% Mois: #: # %PR: #
Press UP/DOWN

Record the following values:
- WD as the wet density to the nearest 0.001 t/m³.
- D Count as the density count.

(To convert from kg/m³ to t/m³, divide the displayed value by 1000.)

► Press and the display will return to the ready screen.

► Press if the nuclear gauge is not required for further use.