TOOL MASTER Lite 14
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Brig, 26\textsuperscript{st} of March 2014

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1. Items Check List

Upon receiving the Tool Master Lite 14, please check the following items are accounted for:

A. TM Lite 14 Pre-setter  
B. Adaptors  
C. User's Manual and Certification  
D. Lubricating oil and lint-free cloth

The Pre-setter is identified by a unique Serial Number. The Identification Plate is located on the back of the unit, and also includes the Model and Year. Please write the following information for future reference, and in the event you need to contact Dorian Tool for support.

| Model: TM Lite 14 | Year: _______ | Serial No.: ____________________ |

Special Cautions

Please read this instructions manual prior to using the TOOL MASTER LITE 14 Pre-setter, and follow the recommendations listed when using and handling the instrument:

- Do not place magnets or magnetic material on the magnetic bands
- Position the instrument at least 3 feet from magnetic sources
- Do not tamper with the instrument
- Use original parts only
- Do not store the pre-setter in a high-humidity environment
- Keep the pre-setter in a room where the temperature range is -3 to 38 °C
- Follow the maintenance recommendations listed in this User's Manual
2. Technical specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height Capacity:</td>
<td>12 in./300mm</td>
</tr>
<tr>
<td>Diameter Capacity:</td>
<td>10 in./250mm</td>
</tr>
<tr>
<td>Resolution:</td>
<td>.0005&quot;/.01mm</td>
</tr>
<tr>
<td>Measuring Method:</td>
<td>Contact</td>
</tr>
<tr>
<td>Measuring Detection:</td>
<td>Magnetic Band</td>
</tr>
<tr>
<td>Power Input:</td>
<td>1.5V Type AA Battery (2 for X-axis DRO, 1 for Z)</td>
</tr>
</tbody>
</table>
3. Parts breakdown

A. Z-Axis Magnetic Band
B. Z-Axis Guide
C. Z-Axis Display/Control
D. Z-Axis Locking Knob
E. X-Axis Locking Knob/backside
F. X-Axis Magnetic Band
G. X-Axis Fine Adjustment Knob
H. X-Axis Guide
I. Probe
J. Spindle/ Needle bearing sleeve
K. Base
L. Support Legs
M. X-Axis Display/Control
## 4. Control description

### Control Key | Function
--- | ---
ENTER | • Confirm selection

**SET**
- • Access programming menu by pressing and holding for 5 sec.
- • Reset X-Axis origin by holding and pressing CLEAR
- • Reset Z-Axis origin by holding and pressing CLEAR
- • Toggle between ORG origins by holding and pressing ABS/REL (Absolute Mode)
- • Toggle between CNT origins by holding and pressing ABS/REL (Relative Mode)
- • Navigate through programming menu

**ABS/REL**
- • Toggle between Absolute and Relative Measurement Mode
- • Navigate through programming menu

**CLEAR**
- • Clear Measurement to zero (Relative Mode only)
- • Toggle between options in programming menu
5. Display identification

- A. ENTER Key
- B. SET Key
- C. ABS/REL Key
- D. CLEAR Key
- E. Measurement
- F. Active Origin (Main Origin, 0,1,2,3) (Absolute Mode)
- G. Relative Origin (Main Origin, 0,1,2,3) (Relative Mode)
- H. Low Battery Alarm
- I. No Meaning (displayed with ORG 1)
- J. Diameter Reading Mode (Not shown when in Radius Reading Mode)
- K. No Meaning (displayed with ORG 0)
- L. Relative Mode Selected
- M. No Meaning (displayed with ORG 2)
- N. Absolute Mode Selected
- O. No Meaning (displayed with Main Origin)
- P. Inch Scaling
- Q. Millimeter (mm) Scaling
6. Installation

The TM Lite 14 does not require major assembling. After unpacking the unit, place the pre-setter in a designated flat surface. If the unit needs to be transported, please lock the X and Z-Axis Locking Knobs before moving the instrument.

Once the pre-setter is in place, unpack the Needle bearing sleeve and place it in the tool pot.

The pre-setter is now ready to be used.
7. Reference setting

The X and Z axes need to be referenced prior to use the pre-setter.

It is recommended to perform these procedures every week, or in the event that the Tool Sleeve is removed from the unit, or that new batteries have been installed.

**X-Axis Reference**

1. Select Absolute Mode by pressing the **ABS/REL** key. The display should read **ABS**.

2. Make sure that the Main Origin is active. The display should read **ORG** with no number (0 through 3) next to it.

If a different origin is active, press **SET** and hold it while pressing **ABS/REL** until the Main Origin is active.

3. Set the pre-setter’s scaling to measure diameter. Refer to page 13 to select the scaling.

4. Release the X-axis Locking Knob and position the Probe in contact with the Tool Sleeve’s diameter (above the knurled area), as shown below.

5. Press the **SET** key and hold while pressing the **CLEAR** Key. The display will show 3.7325” in inch mode and 99.49 (Or the engraved value of the tool pot) mm in metric mode. The X-axis is now referenced.
**Z-Axis Reference**

1. Select Absolute Mode by pressing the **ABS/REL** key. The display should read **ABS**.

2. Make sure that the Main Origin is active. The display should read **ORG** with no number (0 through 3) next to it.

   If a different origin is active, press **SET** and hold it while pressing **ABS/REL** until the Main Origin is active.

3. Release the Z-axis Locking Knob and position the Probe in contact with the Tool Pot surface, as shown below.

4. Press the **SET** key and hold while pressing the **CLEAR** Key. The display shows the calibrating value, similar to the engraving on the tool pot. Z-axis is now referenced.
Enter offset values / working with adapters

If adaptors are used, must the engraved offset value of the adaptor be set as offset values in the Z axis.

Procedure.

a) Press the SET key and hold it for 5 seconds to access the Programming Menu.
b) Press SET twice until OFFSETS is displayed and press ENTER.
c) Select the offset that you would like to use for the tool. Use SET and ABS/REL to select the desired offsets and press the ENTER key to edit it.
d) Enter the calculated Offset Value. Use SET and ABS/REL to navigate between spaces and CLEAR to increase the value. The first cell corresponds to the value’s sign (positive or negative).
- Example: Select the first digit and press CLEAR to make the value negative. Press SET to edit the next digit to enter the engraved value on the adaptor.
e) Press ENTER once the value is set, and the display goes back to the OFFSETS menu.
   Press CLEAR twice to exit to the main screen.
d) Select the chosen machine offset by pressing and holding the SET key followed by pressing ABS/REL until the chosen offset is shown.

The Z-axis reference zero is now set for this particular adaptor.

Please see next page for further information
Radius/Diameter Selection

The TOOL MASTER LITE 14 pre-setter gives you the option to measure a tool's radius or diameter. The pre-setter is set to measure diameter by default. The following steps show how to toggle between the two scaling options.

1. On the X-axis Display, press and hold the **SET** key for about 5 seconds to access the Programming Menu.

2. Press **SET** until **SCALING** is displayed.

3. Toggle between **RAD** and **DIA** (diameter and radius) by pressing the **SET** and **ABS/REL** key. Select the desired option and press **ENTER** to set your choice.

4. Press **CLEAR** several times to exit the Programming Menu. The radius/diameter selection is complete.

**NOTE:** Do not change the scaling option on the Z-Axis Display. It should always be set to **RAD**.

---

![Step 1/2](image1)

![Step 3](image2)

![Step 4](image3)
**Units Selection**

The Tool Master Lite gives you the option to display measurements in inches or millimeters.

The pre-setter is set to measure in inches by default. The following steps show how to toggle between the two unit options.

1. On the X-axis Display, press and hold the **SET** key for about 5 seconds to access the Programming Menu.
2. Press **SET** until **UNITS** is displayed.
3. Toggle between inch and mm (inch and millimeter) by pressing the **SET** and **ABS/REL** keys. Select the desired option and press **ENTER** to set your choice.
4. Press **CLEAR** several times to exit the Programming Menu. The unit selection is now complete.

Perform the same sequence to set the unit in the Z-Axis Display.
8. Measurements

After referencing the pre-setter as shown in the previous sections, it is ready to be used. Follow these steps to perform a tool measurement.

**Z-Axis**

1. Enter a tool

2. Follow the guidelines mentioned in this manual to set the Z-axis reference zero for the adaptor. Select Absolute Mode and select the desired offset by pressing SET and holding it while pressing ABS/REL.

3. Place the Probe on the cutting edge of the tool as shown. The Z-axis measurement is displayed.

**CAUTION:** Do not crash the measuring Probe against any tooling, as it may result in loss of pre-setter precision and/or tool breakage.
**X-Axis**

1. Untighten the X-Axis Locking Knob.

2. Position the Probe so that it touches the tool's cutting edge. Be careful not to damage the Probe or the tool's cutting edge.

3. Rotate the Tool Sleeve to identify the maximum diameter. The X-Axis Display shows the tool's diameter.

TIP: You can check for maximum tool run-out by switching to **RELATIVE** Mode, touching the tool's cutting edge, and pressing **CLEAR** to reset the measurement to zero. Rotate the Tool Sleeve to identify maximum run-out.
Relative Measurements

Use Relative measurements when the distance between two tool points is required without losing the referenced zeroes. Follow these steps to make relative measurements:

1. Position the Probe in the first or relative reference point as shown below.
2. Press the **ABS/REL** key to toggle to **RELATIVE** Mode.
3. Press the **CLEAR** key to zero or reset the measurement.

![Steps 1, 2 & 3](image)

4. Move the probe to the second point. The Display shows the difference between the two points.

5. Press the **ABS/REL** to return to **ABSOLUTE** Mode with the set reference zero.

![Step 4](image)
9. Maintenance

Cleaning

The pre-setter does not require particular cleaning. Occasionally clean the Guide Rails with a brush and a clean cloth. Avoid environments with high concentrations of dust or humidity as recommended in this manual.

Lubrication

Apply a thin coat of spray lubricant to the X-axis Guide Rail to prevent oxidation. Do not use grease lubricants. If the pre-setter is not going to be used, remove the Tool Sleeve and spray with lubricant to prevent rusting. Spray the Flange and X-Axis Guide Rail as well.

Battery Replacement

All data is stored in the event the battery is removed or needs to be replaced. After installing a new battery, perform the X and Z-axis reference as shown in this manual.
10. Menu overview

To access the Programming Menu, press and hold the SET key for about 5 seconds. Use ABS/REL and SET to navigate through the options, and ENTER to select an entry.

<table>
<thead>
<tr>
<th>Submenu</th>
<th>Description</th>
</tr>
</thead>
</table>
| DIR     | ● Defines the positive and negative travel directions for the measurement reading  
          ● Manufacturer only |
| ORIGIN  | ● Set value for Main Origin  
          ● Manufacturer only |
| OFFSETS | ● Allows the user to input four (4) offsets from the reference zero  
          ● Offsets can be selected in Absolute Mode only |
| HYST    | ● Manufacturer only |
| SLEEP   | ● Define time lapse for Display Auto Shut-off  
          ● Press CLEAR to increase time limit and ENTER to set |
| UNITS   | ● Define the measurement units (inch or mm) |
| SCALING | ● Select RADIUS or DIAMETER  
          ● Blocked on Z-Axis |
| LIN CORR| ● Linear Correction Input  
          ● Manufacturer only |
| SETUP   | ● Sensor Calibration  
          ● Manufacturer only |
| SYS     | ● System Settings  
          ● Manufacturer only |
| REL HB23| ● Software Number |