# OPERATOR'S MANUAL

Norbar Torque Tools

## PROTRONIC® STANDARD

Part Number 34484 | Issue 1 | Original Instructions (English)

For the most up-to-date version of the Operators Manual please visit
https://www.norbar.com/Portals/0/NorbarProducts/operators_handbook/34484.pdf

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# CONTENTS

# PART NUMBERS COVERED BY THIS MANUAL

This manual covers the set up and use of Norbar ProTronic® Standard Tools.

| Part Number | Description | Torque Measurement (N·m) |
|---|---|---|
| 130517 | ProTronic® Model 100 ⅜" sq. dr. | 5 - 100 |
| 130518 | ProTronic® Model 100 ½" sq. dr. | 5 – 100 |
| 130519 | ProTronic® Model 200 ½" sq. dr. | 10 - 200 |
| 130520 | ProTronic® Model 340 ½" sq. dr. | 17 - 340 |

# IMPORTANT SAFETY INSTRUCTIONS

**WARNING: RISK OF FLYING PARTICLES**

**OVER-TORQUING CAN CAUSE BREAKAGE. AN OUT OF CALIBRATION ANGLE WRENCH CAN CAUSE PART OR TOOL BREAKAGE. BROKEN HAND TOOLS, SOCKETS OR ACCESSORIES CAN CAUSE INJURY. EXCESS FORCE CAN CAUSE CROWFOOT OR FLARE END FITTING SLIPPAGE.**

- Read **this manual completely** before using ELECTRONIC WRENCH.
- To ensure accuracy, work must not move in angle mode.
- For personal safety, and to avoid wrench damage, follow good professional tool and fastener installation practices.
- Periodic recalibration is necessary to maintain accuracy.

- **Wear safety goggles, user and bystanders.**
- Be sure all components, including all adaptors, extensions, drivers and sockets are rated to match or exceed torque being applied.
- Observe all equipment, system and manufacturer's warnings, cautions and procedures when using this wrench.
- Use correct size socket for fastener.
- Do not use sockets showing wear or cracks.
- Replace fasteners with rounded corners.
- **To avoid damaging wrench:** Never use wrench with power off. Always turn ON wrench so applied torque is being measured.
- Do not press **POWER** M while torque is applied or while wrench is in motion.

- Never use this wrench to break fasteners loose.
- Do not use extensions, such as a pipe, on handle of wrench.
- Check that wrench capacity matches or exceeds each application before proceeding.
- Verify calibration if dropped.
- Verify calibration of wrench if you know or suspect its capacity has been exceeded.

- Always pull - do not push - on wrench handle and adjust your stance to prevent a possible fall should something give.
- Do not attempt to recharge alkaline cells.
- Store wrench in dry place.
- Remove batteries when storing wrench for periods longer than 3 months.

**WARNING: ELECTRICAL SHOCK HAZARD.**

**ELECTRICAL SHOCK CAN CAUSE INJURY.**
**PLASTIC HANDLE IS NOT INSULATED.**

**DO NOT USE ON LIVE ELECTRICAL CIRCUITS.**

**IMPORTANT: SAVE THESE INSTRUCTIONS**

**Disclaimer:**
Operation of ProTronic® Wrench is not warranted in an EU member state if operating instructions are not in that State's language.

# SPECIFICATIONS

## Head Type

- Square drive 72 or 80 teeth, sealed flex

## Display

- DISPLAY TYPE: Dot Matrix LCD (192 x 65 Resolution)
- VIEWING DIRECTION: 6:00
- BACKLIGHT: WHITE (LED)

## Sealed Button Pad

**POWER** - ON/OFF and torque and angle re-zero

**ENTER -** measurement mode select and menu entry

**UP** – increases torque and angle settings and menu navigation

**DOWN** - decreases torque and angle settings and menu navigation

**UNITS -** units select (lbf·ft, lbf·in, N·m, kgf·m, kgf·cm, dN·m) and enter PSET (pre-set) menu

**LCD BACKLIGHT –** Illuminates all screens and last peak torque or angle recall

## Functions

- Set - torque or angle target
- Track - real time display of torque or accumulated angular rotation with progress lights
- Peak Hold – 10 sec. flashing of peak torque or alternating peak torque/angle on release of torque
- Peak Recall - display last peak torque or peak torque/angle on button press
- Memory - display of last 50 peak torque or peak torque/angle readings

## Accuracy

Temperature: @ 22°C (72°F)

Angle: Angle: ±1% of reading ±1° @ Angular Velocity > 10°/sec < 180°/sec: ±1° for test fixture

Torque: CW
±2% of reading, 20% to 100% of full-scale
±4% of reading, 5% to 19% of full-scale

## Dimensions: Length / Weight

| Model | Length (mm) | Weight (kg) | Square Drive |
|---|---|---|---|
| 130517 | 458 | 1.15 | ⅜” |
| 130518 | 462 | 1.30 | ½” |
| 130519 | 650 | 1.65 | ½” |
| 130520 | 749 | 1.85 | ½” |

## Pre-set Range

- ANGLE: 0 to 360° CW or CCW (Display Resolution 1°)
- TORQUE: (Display Range and Resolution as shown below)

| Model | lbf·ft | lbf·in | N·m | kgf·m | kgf·cm | dN·m | Overload (N·m) |
|---|---|---|---|---|---|---|---|
| 130517 | 3.69 – 73.76 | 44 - 885 | 5 - 100 | N/A | 51 – 1,020 | 50 – 1,000 | 125 |
| 130518 | 3.69 – 73.76 | 44 - 885 | 5 - 100 | N/A | 51 – 1,020 | 50 – 1,000 | 125 |
| 130519 | 7.4 – 147.5 | 89 – 1,770 | 10 - 200 | 1.02 – 20.39 | N/A | N/A | 250 |
| 130520 | 12.5 – 250.8 | 150 – 3,009 | 17 - 340 | 1.73 – 34.67 | N/A | N/A | 425 |

**Operating Temperature:** 0°F to 130°F (-18°C to 54°C)

**Storage Temperature:** 0°F to 130°F (-18°C to 54°C)

**Measurement Drift:** ANGLE: -0.12 Angular Degrees per Degree C
TORQUE: +0.01% of reading per Degree C

**Humidity:** Up to 90% non-condensing

**Battery:** Three "AA" Alkaline Cells, up to 80 hours continuous operation

**Default Auto Shut-off:** After 2 minutes idle – (Adjustable, see Settings Section)

# USER INSTRUCTIONS

## Basic Functions (Quick Start)

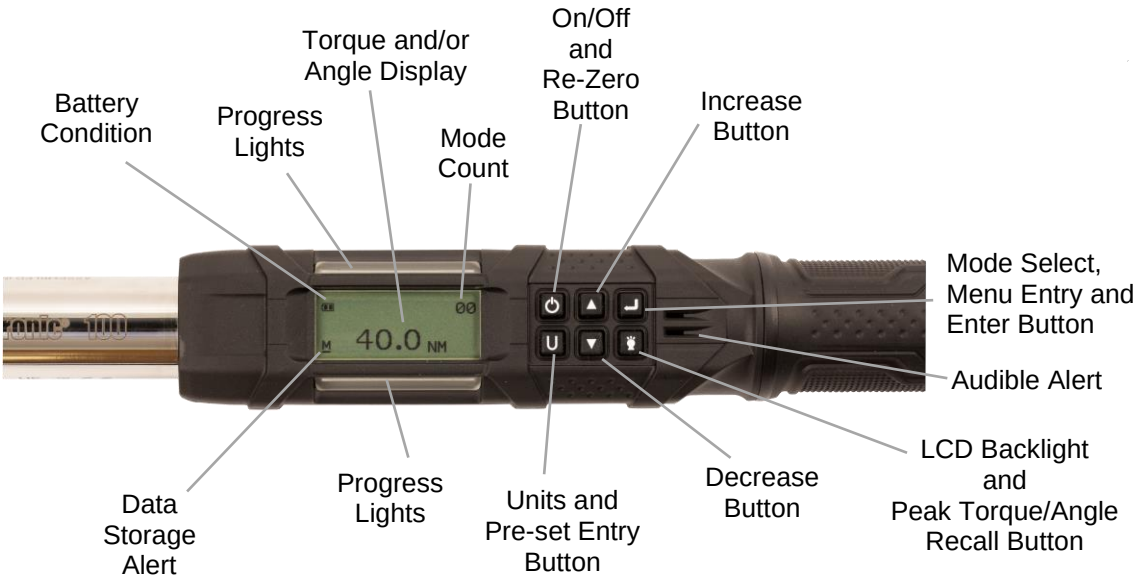



**Figure 1 –** Install three fresh "AA" cells into wrench handle

## Progress Lights

**Yellow**: First light indicates 40% of target torque or angle reached, Second indicates 60% of target reached, Third indicates 80% of target reached.

**Green**: Indicates target torque or angle reached.

**Red**: Indicates exceeded torque or angle target +4% for targets above 20% to 100% of full-scale or target +10% for targets from 5% to 20% of full-scale, or exceeded MAXIMUM pre-set target. (Note: Yellow lights also turn on with red)**.**

## Wrench Power on Sequence

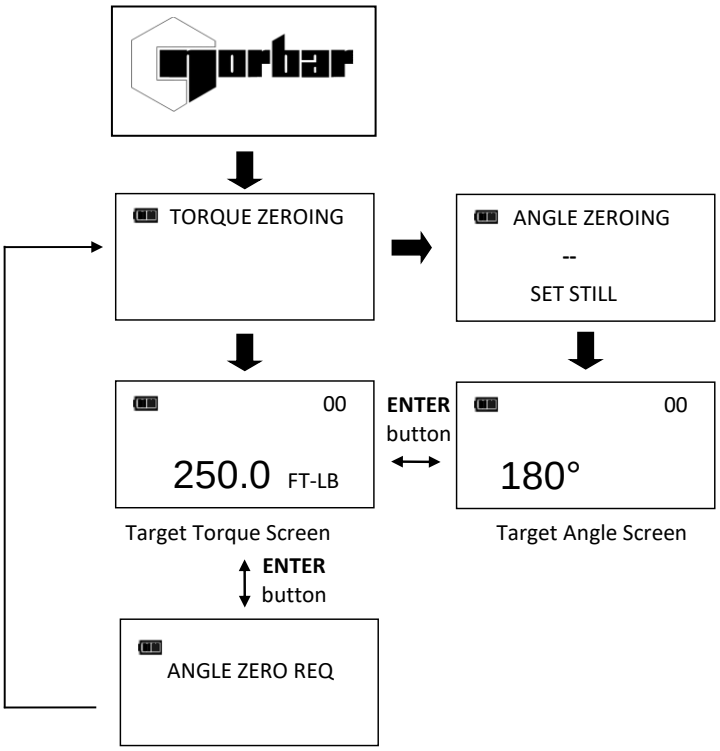
**NOTE: Do not turn on wrench while torque is applied, otherwise torque zero offset will be incorrect and wrench will indicate a torque reading when torque is released. If this occurs, re-zero wrench by momentarily pressing POWER M button while wrench is on a stable surface with no torque applied.**

1. Turn on Wrench

   Momentarily press **POWER** M button. Norbar logo is displayed followed by torque re-zeroing screen. If previous measurement was angle measurement, then angle re-zeroing screen follows the torque zeroing screen. After re-zeroing, the target torque or target angle screen is displayed depending on previous measurement mode.

2. Select Measurement Mode

   Toggle between target TORQUE and ANGLE screens by repeatedly pressing **ENTER** ↵ button.




**NOTE:** **If wrench is powered up in torque only measurement mode, angle is not zeroed until mode is changed to angle measurement mode, at which time torque and angle zeroing begins automatically after 2 seconds. Wrench should be placed on a stable surface with no torque applied.**

**NOTE:** **Pressing ENTER button while angle is zeroing will abort zeroing function to allow user to select another measurement mode.**

## Torque Mode

1. Set Target

   Use **UP /DOWN** buttons to change TORQUE target value.

2. Select Units of Measure.

   Repeatedly press **UNITS** button while on target TORQUE screen until desired units are displayed.

3. Apply TORQUE

   Grasp centre of handle, (DO NOT pull on battery end-cap) and slowly apply torque to fastener until progress lights display green and a ½ second audible alert and handle vibration alerts user to stop.

4. Release TORQUE

   Note peak TORQUE reading flashing on LCD display for 10 seconds. Pressing **BACKLIGHT** button while peak torque is flashing will continue to display value until button is released. Momentarily press **UP /DOWN , ENTER** or **UNITS** button to immediately return to target TORQUE screen. Reapplying TORQUE will immediately start another TORQUE measurement cycle.

5. Recall Peak TORQUE Reading

   To recall last peak TORQUE measurement, press and hold **BACKLIGHT** button for approximately 3 seconds. Peak TORQUE will flash for 10 seconds.

## Angle Mode

**NOTE: Do not apply torque while torque and angle are zeroing otherwise torque zero offset will be incorrect and wrench will indicate an angle reading when torque is released. If this occurs, re-zero wrench by momentarily pressing POWER button with wrench setting on a stable surface with no torque applied.**

1. Angle Zero

   If "ANGLE ZERO REQ" message is displayed, wait 2 seconds for automatic angle zeroing sequence before applying torque or moving wrench.

2. Set target

   Use **UP /DOWN** buttons to change target ANGLE value.

3. Apply Torque and Rotate Wrench

   Grasp centre of handle, (DO NOT pull on battery end-cap) and slowly apply torque to fastener and rotate wrench at a moderate consistent speed until progress lights display green and a ½ second audible alert and handle vibration alerts user to stop.

4. Release torque

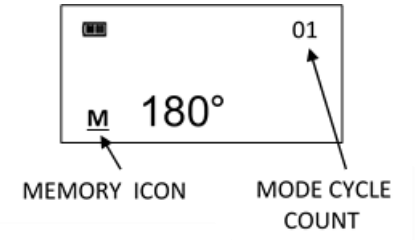
   Note alternating peak TORQUE and ANGLE readings flashing on LCD display for 10 seconds. Pressing **BACKLIGHT** button while peak angle is flashing will continue to display value until button is released. Momentarily press **UP /DOWN, ENTER** or **UNITS** button to immediately return to target ANGLE screen. Reapplying torque (ratcheting) before target screen is displayed will continue ANGLE accumulation as wrench is rotated.

5. Recall Peak ANGLE Reading

   To recall last peak ANGLE measurement, press and hold **BACKLIGHT** button for approximately 3 seconds. Peak TORQUE and ANGLE will be displayed alternately for 10 seconds**.**

## Mode Cycle Count

ProTronic® mode cycle count feature is used to indicate number of times wrench has reached target torque in torque measurement mode or target angle in angle measurement mode.




## Torque and Angle Mode Cycle Counting

1. Numerical counter located in top right of target torque or target angle screen will increase after each torque or angle cycle if applied torque or angle has reached target value.

2. When toggling between torque mode and angle mode using **ENTER** button or if target is changed, numerical counter will reset back to 00. Counter WILL NOT reset when re-zeroing, on menu entry/exit or power down.

3. Memory icon will turn on indicating at least one torque or angle cycle data has been stored in memory.

## Main Menu

Main menu displays wrench operational information.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.

2. Use **UP /DOWN** buttons to highlight menu selection then press **ENTER** button.

Menu Selections:

- EXIT - Exits Main menu and returns to target screen.
- SET HEAD LENGTH - Displays wrench head length entry screen.
- SHOW DATA - Displays stored torque and angle data.
- CLEAR DATA - Clears stored torque and angle data.
- CYCLE COUNT - Displays torque/angle cycle count screen.
- LANGUAGE - Displays language selection menu.
- SETTINGS - Displays settings menu (see Settings Section).
- CONFIGURE - Displays configuration menu (see Configuration Section).

3. To exit Main menu and return to target torque or angle screen, press **ENTER** button while EXIT menu selection is highlighted.

## Setting Head Length

**NOTE: If an adapter or extension is added to wrench, length of adapter/extension being used can be entered to correct for a different length than head used to calibrate wrench without requiring re-calibration.**

1. To enter a head length, from target torque or angle screen, press and hold **ENTER** button for 3 seconds.

2. With SET HEAD LENGTH menu selection highlighted, momentarily press **ENTER** button.

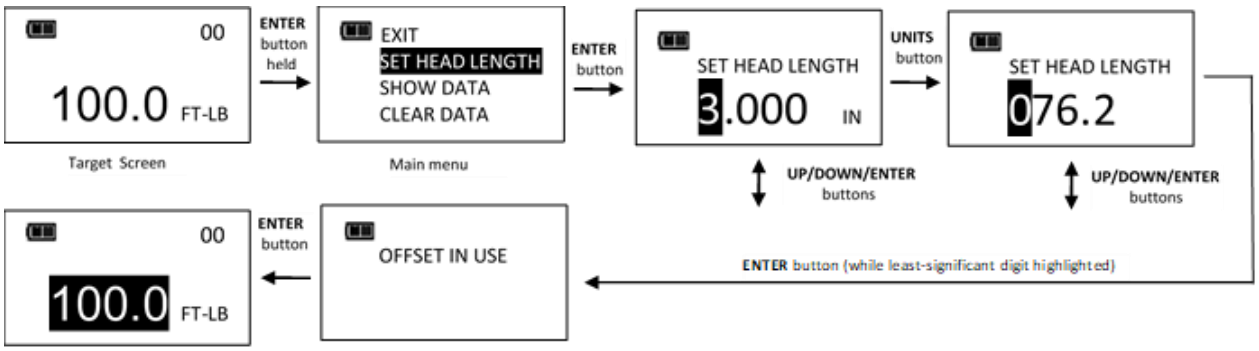
3. Set Head Length screen is displayed next. Default head length is length of head at calibration and is displayed with most-significant digit highlighted. Use UP **/DOWN** buttons to increase/decrease head length. Pressing and holding **UP /DOWN** buttons will progressively increase/decrease value faster.

4. Press **ENTER** button to accept digit and highlight next-significant digit.

5. Default units of length is in millimetres. Press **UNITS** **U** button to change.

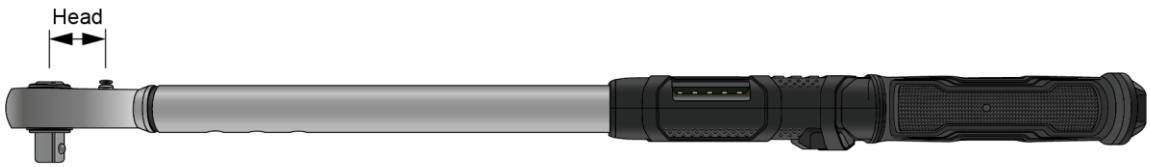
6. Pressing **ENTER** button after least-significant digit is set returns to main menu. If length is changed from default, “OFFSET IN USE" message will be displayed whenever wrench is re-zeroed. Pressing the **ENTER** button will display target screen with target highlighted in black to indicate offset is in use.

**NOTE: If UP /DOWN buttons are pressed simultaneously while on the Set Head Length screen, displayed head length resets to zero.**



**NOTE:** **These ProTronic® tools have a default/calibrated 'Set Head Length' equivalent to the distance between the release plunger and the centre of the drive.**

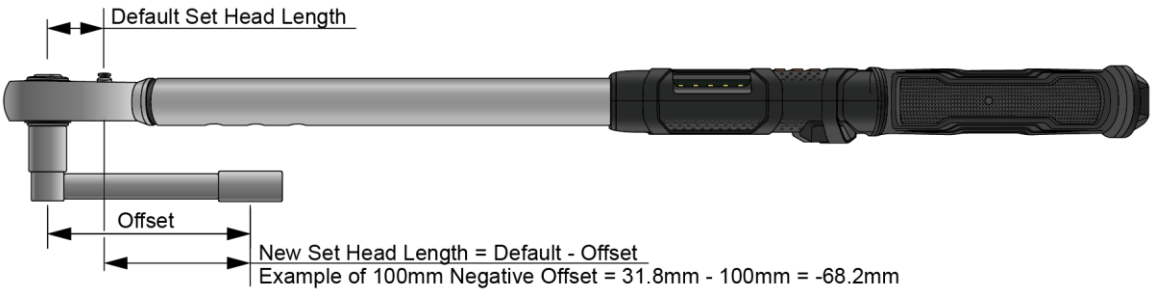
| ProTronic® Model | Size | Sq. Dr. | Head Type | Calibrated 'Set Head Length' |
|---|---|---|---|---|
| 130517 | 100 N·m | ⅜" | Fixed | 31.8 |
| 130518 | 100 N·m | ½" | Fixed | 31.8 |
| 130519 | 200 N·m | ½" | Fixed | 31.8 |
| 130520 | 340 N·m | ½" | Fixed | 35.0 |




**NOTE:** **When an offset is added, change the 'Set Head Length' to the sum of the default/calibrated 'Set Head Length' plus the offset length:**


## Use of Negative Offsets

**NOTE:** **When a negative offset is fitted, change the 'Set Head Length' to the default/calibrated 'Set Head Length' minus the offset length (this can generate a negative number for the new 'Set Head Length')**



## Viewing Stored Torque and Angle Data

Torque data is stored in memory after each torque cycle if applied torque has reached target value. Torque and angle data is stored in memory after each angle cycle if applied angle has reached target value. Memory Indicator is displayed when data is stored in non-volatile memory.

1. To view stored torque and angle data, from target torque or angle screen, press and hold **ENTER** button for 3 seconds.

2. Highlight SHOW DATA menu selection by pressing **UP /DOWN** buttons then press **ENTER** button to display Show Data screen.

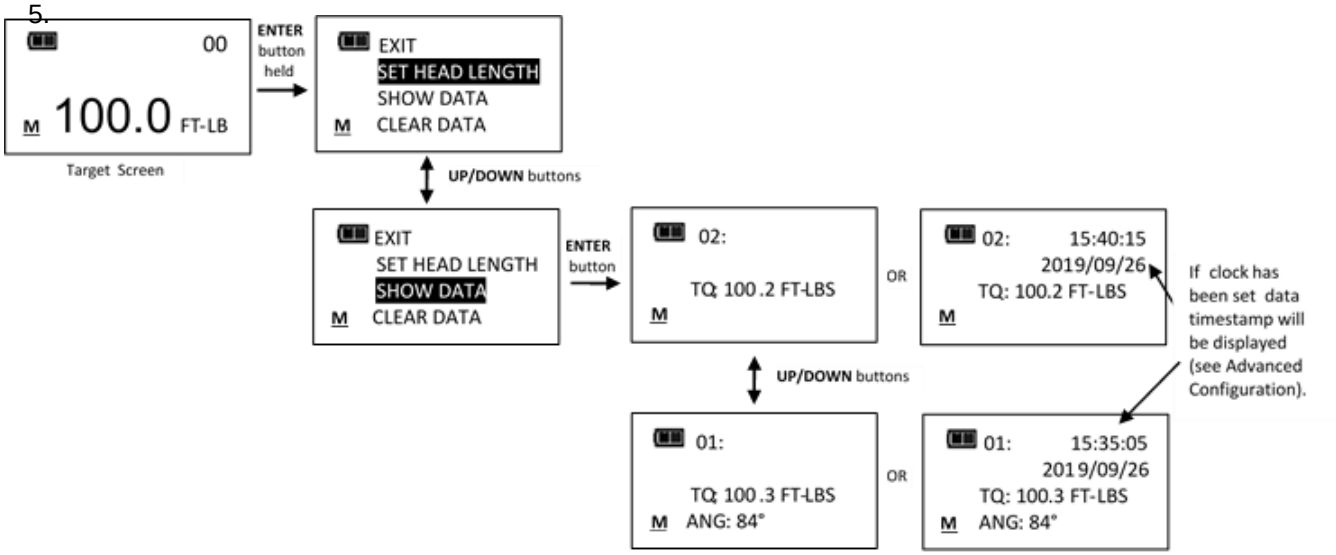
3. In Show Data screen, scroll through each stored data record by pressing **UP /DOWN** buttons.

   Example: 02 = Show Data List Counter: TQ = Peak torque value

   01 = Show Data List Counter: TQ = Peak torque value: ANG = Peak angle value

4. Pressing **ENTER** button while on Show Data screen returns to main menu.

5.




**NOTE: A maximum of 50 data records can be stored in memory. Memory full icon will be displayed when full. New data will replace oldest record until memory is cleared.**

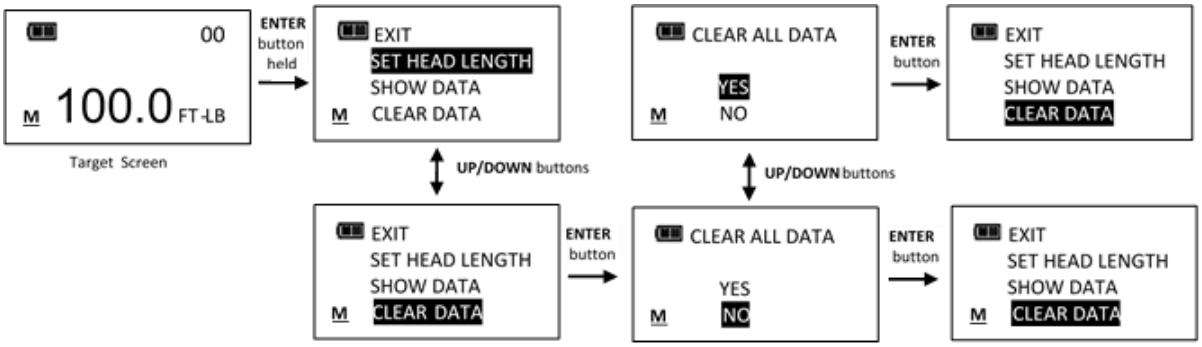
## Deleting Stored Torque and Angle Data

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.

2. Highlight CLEAR DATA menu selection using **UP /DOWN** buttons then press **ENTER** button to display CLEAR ALL DATA screen.

3. In CLEAR ALL DATA screen, highlight YES menu selection to delete all stored data, or NO menu selection to exit without deleting data.

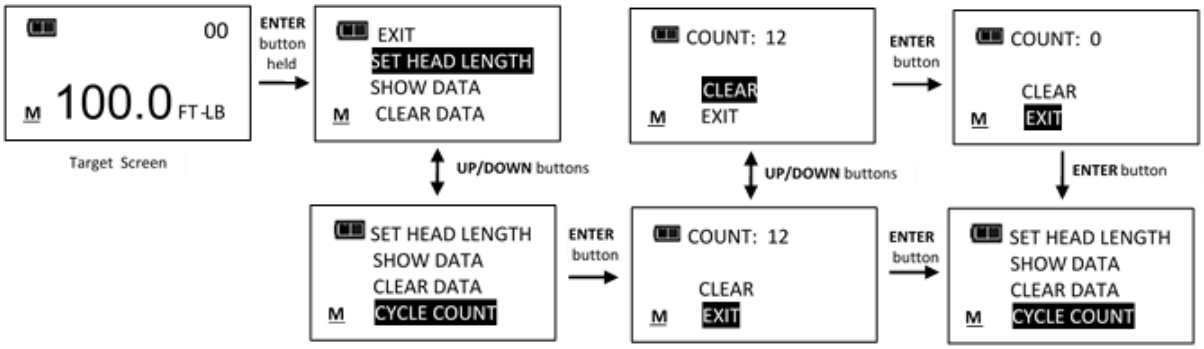
4. Press **ENTER** button after making selection.




## Viewing and Clearing Wrench Cycle Counter

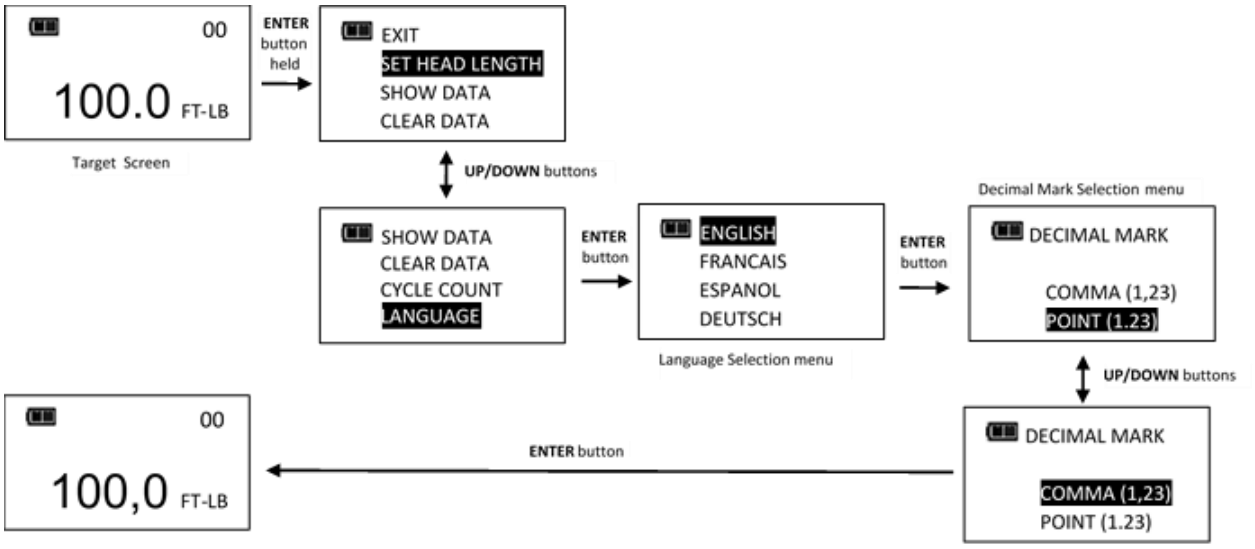
Each time torque or angle target is reached, wrench cycle counter is increased. Maximum cycle count is 999999.

1. From target torque or angle screen, press and hold **ENTER** ↵ button for 3 seconds.
2. Highlight CYCLE COUNT menu selection using **UP** ▲ **/DOWN** ▼ buttons.
3. Press **ENTER** ↵ button to display CYCLES screen.
4. To exit CYCLE COUNT screen without clearing count, press **ENTER** ↵ button while EXIT menu selection is highlighted.
5. To reset wrench cycle count to 0, highlight CLEAR menu selection then press **ENTER** ↵ button.
6. EXIT menu selection is automatically highlighted after count is cleared. Press **ENTER** ↵ button to return to main menu.




## Language

1. From target torque or angle screen, press and hold **ENTER** ↵ button for 3 seconds.
2. Highlight LANGUAGE menu selection using **UP** ▲ **/DOWN** ▼ buttons.
3. Press **ENTER** ↵ button to display LANGUAGE selection screen.
4. Highlight desired language using **UP** ▲ **/DOWN** ▼ buttons and press **ENTER** ↵ button.
5. Decimal Mark selection menu is displayed. Decimal separator can be a comma or decimal point. Use **UP** ▲ **/DOWN** ▼ buttons to select decimal separator then press the **ENTER** ↵ button.

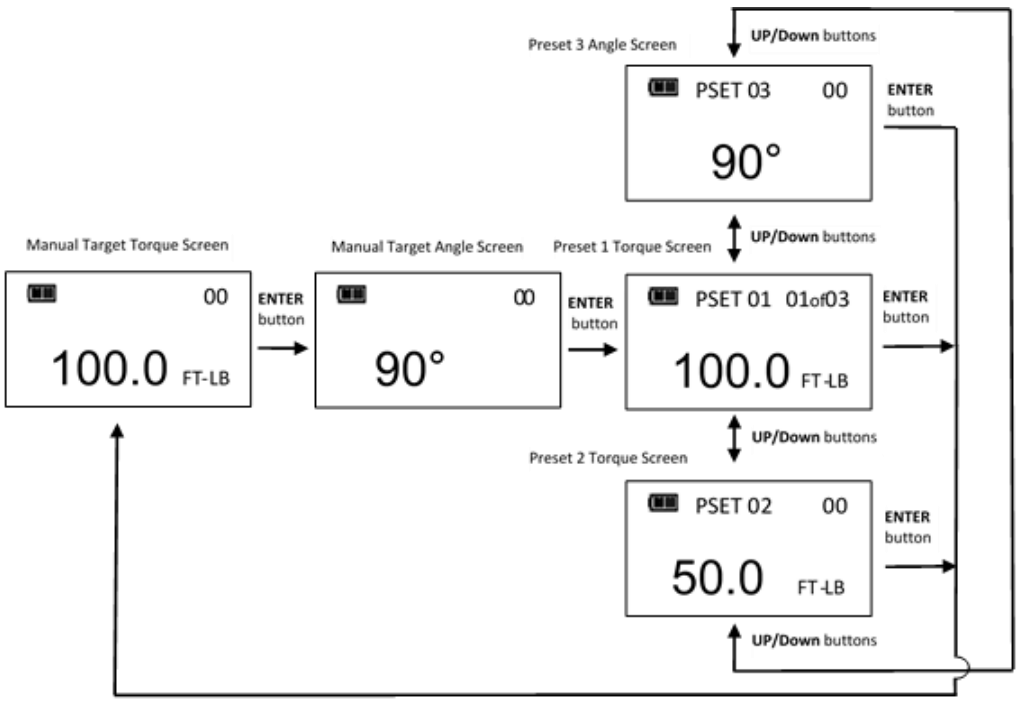



To exit Main menu and return to target torque or angle screen, press **ENTER** ↵ button while EXIT menu selection is highlighted.

## Target Pre-sets (PSET)

PSET function gives user ability to configure 10 pre-set target torque or target angle settings, each with a minimum (target), maximum (over range) and batch count value. PSETs are stored in non-volatile memory so that they are retained while power is off.

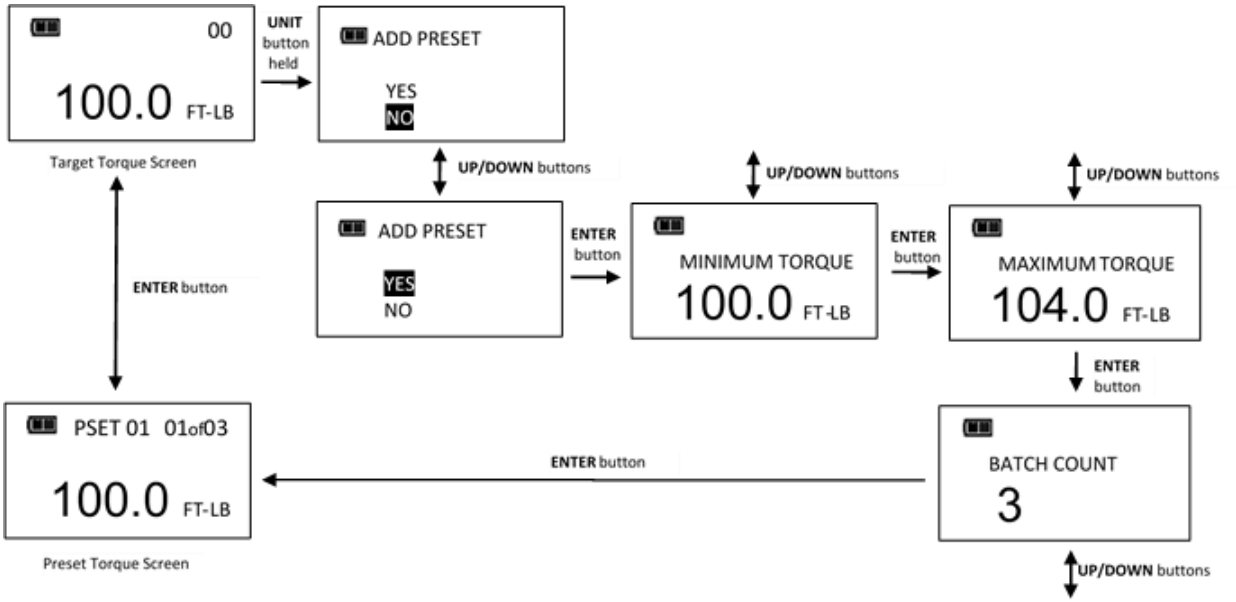
**NOTE: After adding a Pre-set (see below), navigate between manual target torque, angle mode and PSET screen by repeatedly pressing ENTER ↵ button. While PSET screen is displayed, press UP ▲ /DOWN ▼ buttons to select additional configured PSETs.**




**NOTE: Pre-sets with a non-zero batch count are displayed as 01ofXX.**

## Adding a Torque Pre-set

1. From target torque screen, select units of measure.
2. Press and hold **UNITS U** button for 3 seconds.
3. ADD PRE-SET confirmation screen is displayed. Highlight YES menu selection using **UP ▲ /DOWN ▼** buttons then press **ENTER ↵** button**.** NO menu selection returns to main menu without adding a PSET.
4. MINIMUM TORQUE is target value at which green progress lights, audible alert and vibrator turn on. Initial MINIMUM TORQUE value is value from target torque screen. MINIMUM TORQUE can be set to any value within wrench torque range by pressing **UP ▲ /DOWN ▼** buttons. Once desired target torque value has been set, press **ENTER ↵** button**.**
5. MAXIMUM TORQUE screen is displayed next. MAXIMUM TORQUE is torque value above which red progress lights turn on. Initial MAXIMUM TORQUE value will be MINIMUM TORQUE plus 4%. Maximum torque value can be set greater than MINIMUM TORQUE value to 10% above wrench maximum range by pressing **UP ▲ /DOWN ▼** buttons. Once desired value has been set, press **ENTER ↵** button**.**
6. BATCH COUNT screen is displayed next. Default value is zero. Batch count range is 0 to 99. Press **UP ▲ /DOWN ▼** buttons to increase/decrease batch count. Mode Count increases each time target torque is reached if a batch count of zero is entered. Mode Count is displayed as 01ofXX if a non-zero batch count is entered and resets to 01 after batch count completed. Once desired value has been set, press **ENTER ↵** button**.**
7. PSET target screen is displayed labelled with next available PSET number from 01 to 10.
8. To enter additional torque pre-sets, repeatedly press **ENTER ↵** button until target torque screen is displayed and repeat steps above.




## Adding an Angle Pre-set

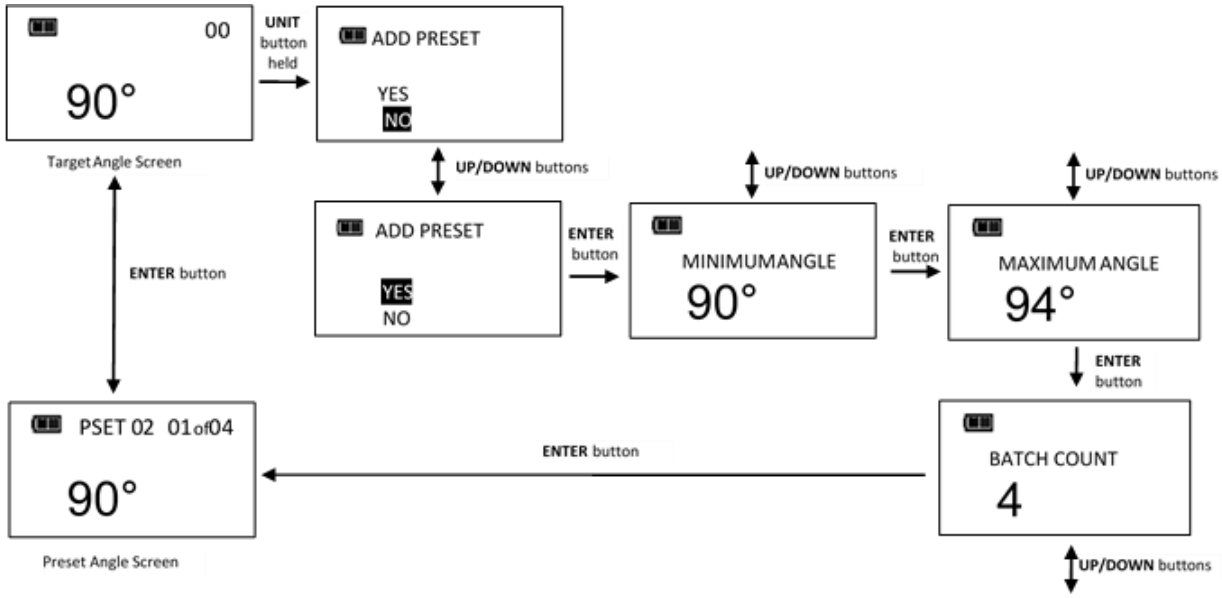
1. From target angle screen, press and hold **UNITS U** button for 3 seconds.
2. ADD PRE-SET confirmation screen is displayed. Highlight YES menu selection using **UP ▲ /DOWN ▼** buttons then press **ENTER ↵** button**.** NO menu selection returns to main menu without adding a PSET.
3. MINIMUM ANGLE screen is displayed. MINIMUM ANGLE is target value at which green progress lights, audible alert and vibrator turn on. Initial MINIMUM ANGLE value is value from target angle screen. MINIMUM ANGLE can be set from 0 to 360° by pressing **UP ▲ /DOWN ▼** buttons. Once desired target angle value has been set, press **ENTER ↵** button**.**

4. MAXIMUM ANGLE screen is displayed next. MAXIMUM ANGLE is angle value above which red progress lights turn on. Initial MAXIMUM ANGLE value will be MINIMUM ANGLE plus 4%. Maximum angle value can be set to any value greater than MINIMUM ANGLE by pressing **UP ▲ /DOWN ▼** buttons. Once desired value has been set, press **ENTER ↵** button**.**

5. BATCH COUNT screen is displayed next. Default value is zero. Batch count range is 0 to 99. Press **UP ▲ /DOWN ▼** buttons to increase/decrease batch count. Mode Count increases each time target angle is reached if a batch count of zero is entered. Mode Count is displayed as 01ofXX if a non-zero batch count is entered and resets to 01 after batch count completed. Once desired value has been set, press **ENTER ↵** button**.**

6. PSET target screen is displayed labelled with next available PSET number from 01 to 10.

7. To enter additional angle pre-sets, repeatedly press **ENTER ↵** button until target angle screen is displayed and repeat steps above.




## Editing a Pre-set

Edit PSET function gives user ability to edit stored PSETS on wrench.

1. From Pre-set screen to be edited, press and hold **UNITS U** button for 3 seconds.

2. CHANGE PRE-SET screen is displayed.

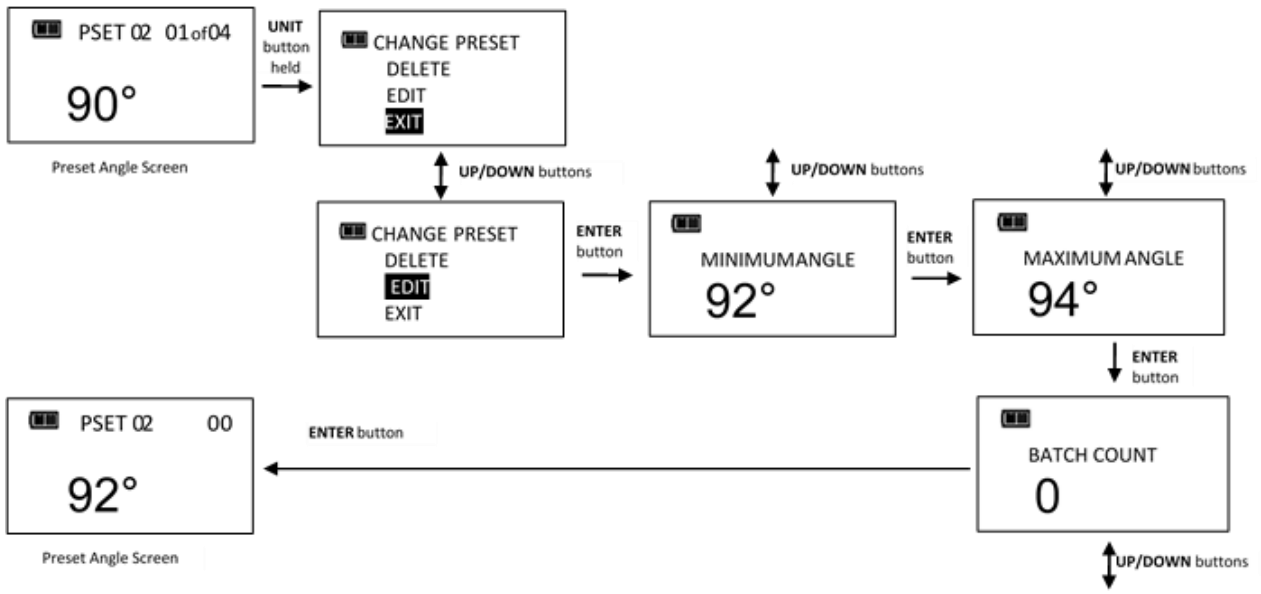
3. Highlight EDIT selection using **UP ▲ /DOWN ▼** buttons then press **ENTER ↵** button.

4. MINIMUM TORQUE or ANGLE screen is displayed. Value can be changed by pressing **▲ /DOWN ▼** buttons. Once desired target torque or angle value has been set, press **ENTER ↵** button**.**

5. MAXIMUM TORQUE or ANGLE screen is displayed next. Value can be changed by pressing **▲ /DOWN ▼** buttons. Once desired target torque or angle value has been set, press **ENTER ↵** button**.**

6. BATCH COUNT screen is displayed next. Value can be changed by pressing **UP ▲ /DOWN ▼** buttons. Once desired batch count value has been set, press **ENTER ↵** button**.**

7. PSET target screen is displayed labelled with same PSET number.

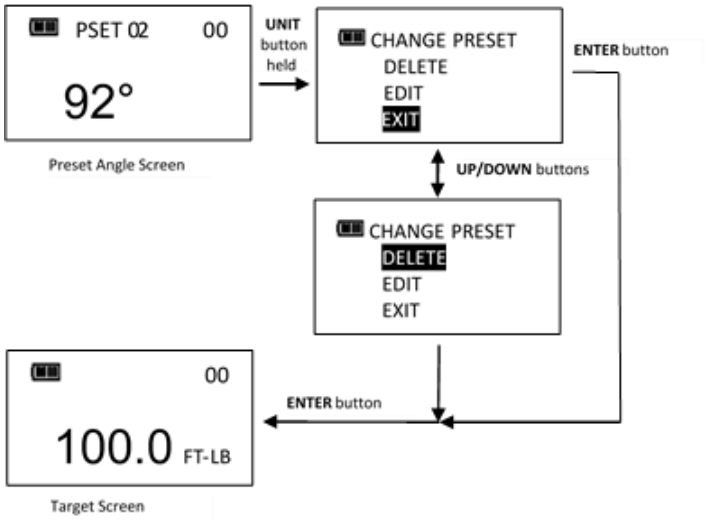



**NOTE: Pressing ENTER ↵ button while EXIT menu selection is highlighted will exit without editing PSET.**

## Deleting a Pre-set

Delete PSET function allows user to remove stored pre-sets from wrench.

1. From Pre-set screen to be deleted, press and hold **UNITS U** button for 3 seconds.
2. CHANGE PRE-SET screen is displayed.
3. Highlight DELETE menu selection using **UP ▲ /DOWN ▼** buttons and press **ENTER ↵** button**.**
4. Target screen is displayed and deleted PSET is no longer available for selection.




**NOTE: Pressing ENTER ↵ button while EXIT menu selection is highlighted will exit without deleting PSET.**

**NOTE: When a PSET is deleted, all other stored PSET's will retain their original PSET numbers. When a new PSET is entered, it will be assigned first available PSET number in sequence.**

# SETTINGS MENU

## Accessing Settings Menu

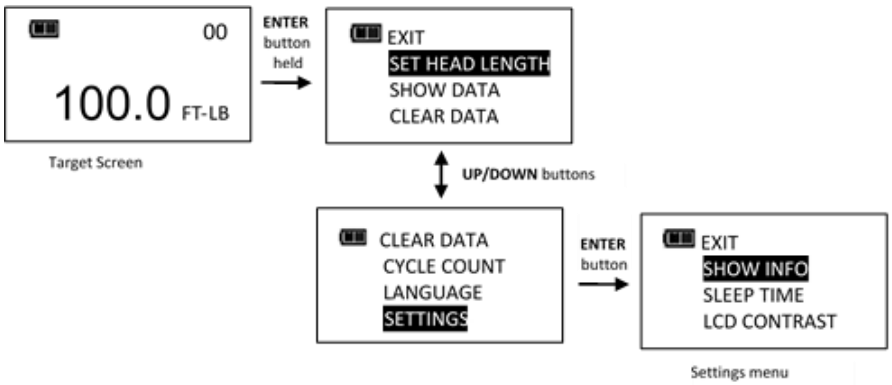
Settings are accessed from SETTINGS menu selection on main menu.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight SETTINGS menu selection using **UP /DOWN** buttons.
3. Press **ENTER** button to display Settings menu.

   Menu Selections:

   - EXIT - Exits Settings menu and returns to target screen.
   - SHOW INFO - Displays wrench operational information.
   - SLEEP TIME - Displays power down interval setup screen.
   - LCD CONTRAST - Displays LCD contrast setup screen.
   - KEY BEEP - Displays button press beep enable/disable setup screen.
   - AUTO BACKLIGHT - Displays auto backlight enable/disable screen to turn on backlight during measurement.
   - TOGGLE BACKLIGHT - Displays B**ACKLIGHT** button toggle or timeout enable/disable screen.
   - VIBRATOR CONFIG - Displays vibrator ON/OFF configuration for when target reached.
   - BATTERY TYPE – Displays the battery type selection screen.

4. To exit Settings menu and return to target torque or angle screen, press **ENTER** button while EXIT menu selection is highlighted.




**NOTE: All user configurable settings are stored in non-volatile memory and are retained while power is off.**

## Show Info

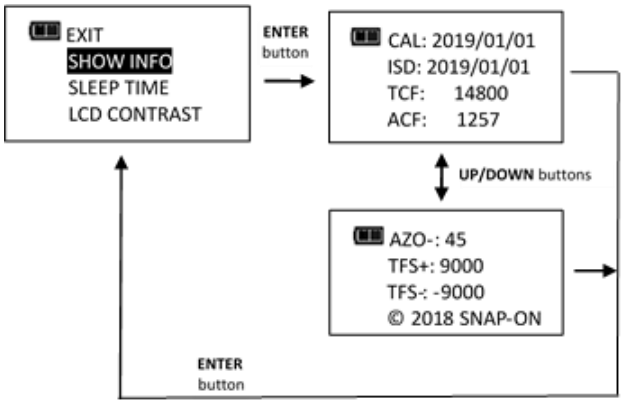
Show Info menu selection displays wrench operational information.

1. From Settings menu, press **ENTER** button while SHOW INFO selection is highlighted.
2. SHOW INFO screen is displayed.
3. **UP /DOWN** buttons are used to scroll screen.

Operational Information:

- CAL: Date of last wrench calibration.
- ISD: In-Service Date.
- TCF: Torque Calibration Factor.
- ACF: Angle Calibration Factor.
- VER: Software version.
- OVR CNT: Overtorque Counter tracks how many times an over-torque event occurred on wrench (torque >125% of full-scale).
- TQZ: Torque Zero Offset.
- AZZ: Z-Axis Angle Zero Offset.
- AZX: X-Axis Angle Zero Offset.
- AZO+: Gyro Zero Offset at CW full-scale torque.
- AZO-: Gyro Zero Offset at CCW full-scale torque
- TFS+: CW Full-scale torque ADC value
- TFS-: CCW Full-scale torque ADC value
- Copyright

4. Pressing **ENTER** button exits Show Info screen and returns to Settings menu.




## Setting Sleep Time

This function will allow user to set interval wrench enters power-down state following last applied torque or button press.

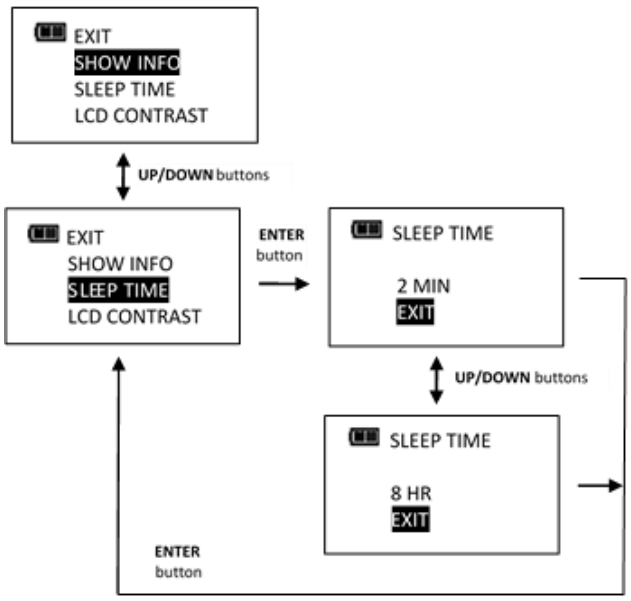
1. From Settings menu, use **UP /DOWN** buttons to highlight SLEEP TIME selection then press **ENTER** button.
2. SLEEP TIME screen is displayed.
3. Use **UP /DOWN** buttons to select sleep interval.

   Selectable Intervals:

   - 2 MIN (factory default)
   - 5 MIN
   - 10 MIN
   - 30 MIN
   - 1 HR

- 2 HR
- 8 HR

4. Press **ENTER** ↵ button to accept selection and exit to Settings menu.

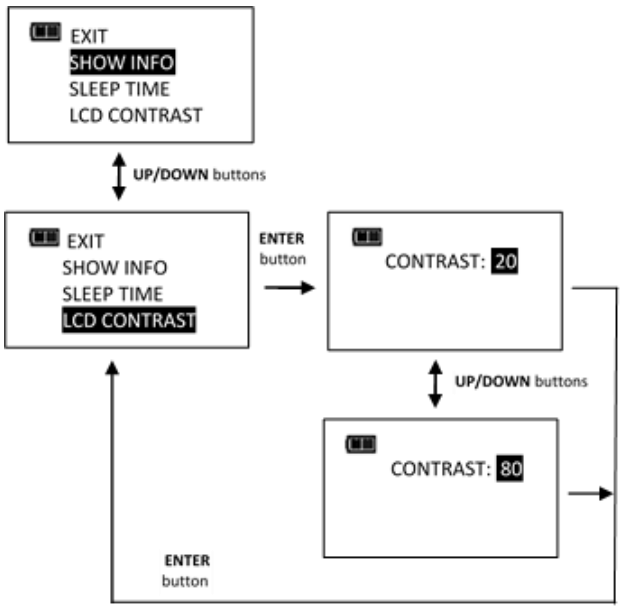



## Setting LCD Contrast

This function will allow user to set LCD contrast for optimal viewing.

1. From Settings menu, use **UP** ▲ **/DOWN** ▼ buttons to highlight LCD CONTRAST selection then press **ENTER** ↵ button.
2. CONTRAST screen is displayed.
3. Use **UP** ▲ **/DOWN** ▼ buttons while viewing display to change contrast to desired level.

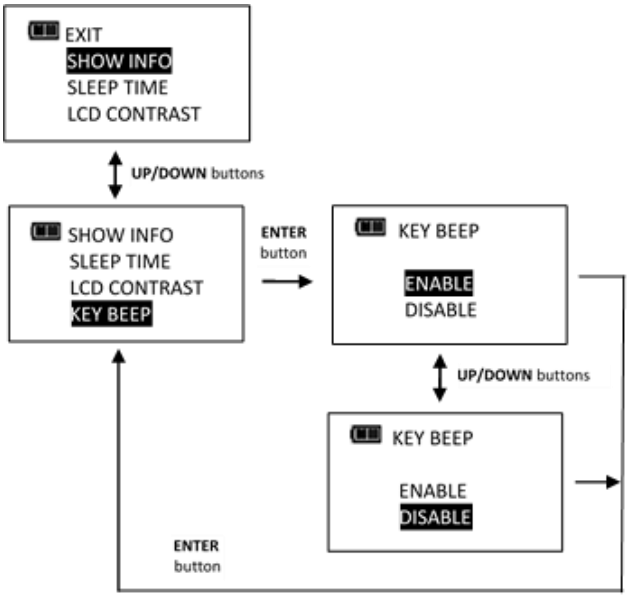
   Selectable levels: 20 to 80 in increments of 5 (factory default = 40).
4. Press **ENTER** ↵ button to accept selection and exit to Settings menu.



## Key Beep Setup

This function will allow user to enable or disable audio feedback when a button is pressed.

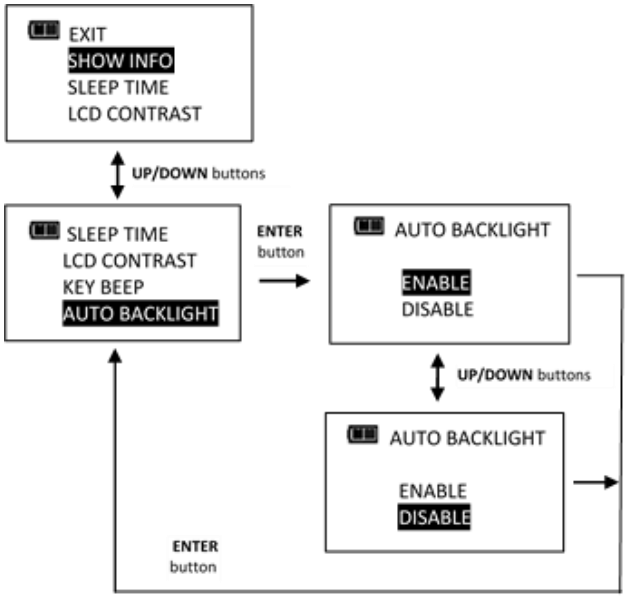
1. From Settings menu, use **UP** ▲ **/DOWN** ▼ buttons to highlight KEY BEEP selection then press **ENTER** ↵ button.
2. KEY BEEP screen is displayed.
3. Use **UP** ▲ **/DOWN** ▼ buttons to highlight ENABLE (factory default) or DISABLE selection.
4. Press **ENTER** ↵ button to accept selection and exit to Settings menu.




## Auto Backlight Setup

This function will allow user to enable or disable backlight from turning on during torque or angle measurement.

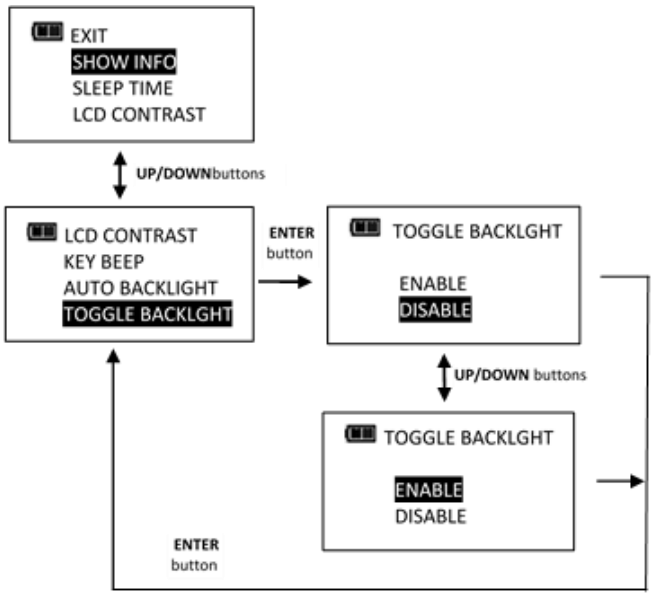
1. From Settings menu, use **UP** ▲ **/DOWN** ▼ buttons to highlight AUTO BACKLIGHT selection then press **ENTER** ↵ button.
2. AUTO BACKLIGHT screen is displayed.
3. Use **UP** ▲ **/DOWN** ▼ buttons to highlight ENABLE (factory default) or DISABLE selection.
4. Press **ENTER** ↵ button to accept selection and exit to Settings menu.



## Toggle Backlight Setup

This function will allow user to enable or disable backlight toggle function. If toggle mode is disabled, **BACKLIGHT** button turns on backlight and it automatically turns off after five seconds following any last button press. If toggle mode is enabled, a **BACKLIGHT** button press will turn on backlight and it will remain on until next **BACKLIGHT** button press.

1. From Settings menu, use **UP /DOWN** buttons to highlight TOGGLE BACKLIGHT selection then press **ENTER** button.
2. TOGGLE BACKLIGHT screen is displayed.
3. Use **UP /DOWN** buttons to highlight ENABLE or DISABLE (factory default) selection.
4. Press **ENTER** button to accept selection and exit to Settings menu.



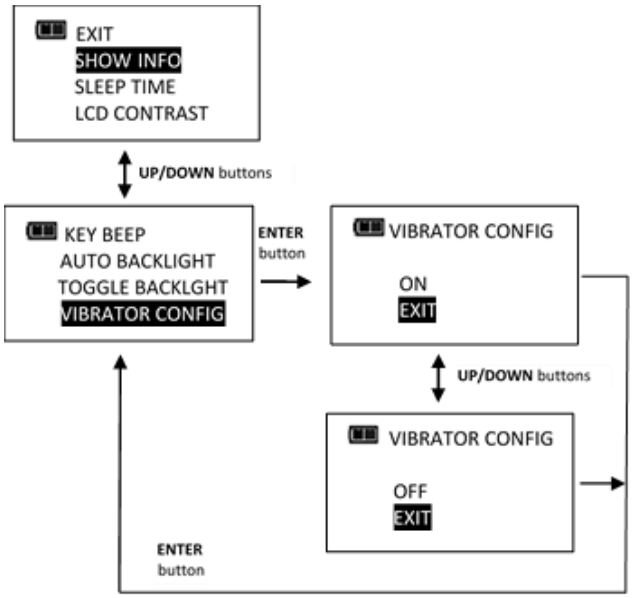

**NOTE: Backlight will turn off when wrench powers down either by POWER button press or sleep time.**

**NOTE: If toggle backlight is enabled and backlight is on, backlight will remain on during and after applying torque.**

## Vibrator Configuration

This function will allow user to configure vibrator for On or Off when target is reached for preference and/or battery power savings.

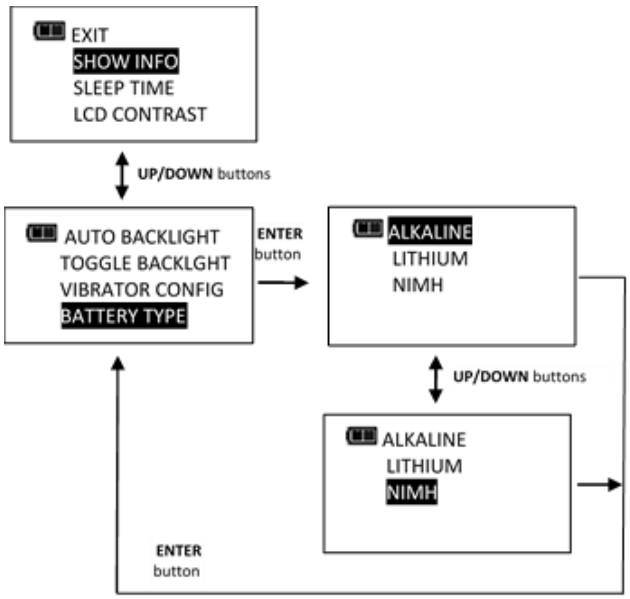
1. From Settings menu, use **UP /DOWN** buttons to highlight VIBRATOR CONFIG selection then press **ENTER** button.
2. VIBRATOR CONFIG screen is displayed.
3. Use **UP /DOWN** buttons to toggle ON or OFF selection.
4. Press **ENTER** button to accept selection and exit to Settings menu.




## Battery Type Selection

This function will allow user to configure the battery discharge thresholds for the type of battery used.

1. From Settings menu, use **UP ▲ /DOWN ▼** buttons to highlight BATTERY TYPE selection then press **ENTER ↵** button.
2. BATTERY TYPE screen is displayed.
3. Use **UP ▲ /DOWN ▼** buttons to select the type of battery being used.
4. Press **ENTER ↵** button to accept selection and exit to Settings menu.



# CONFIGURATION MENU

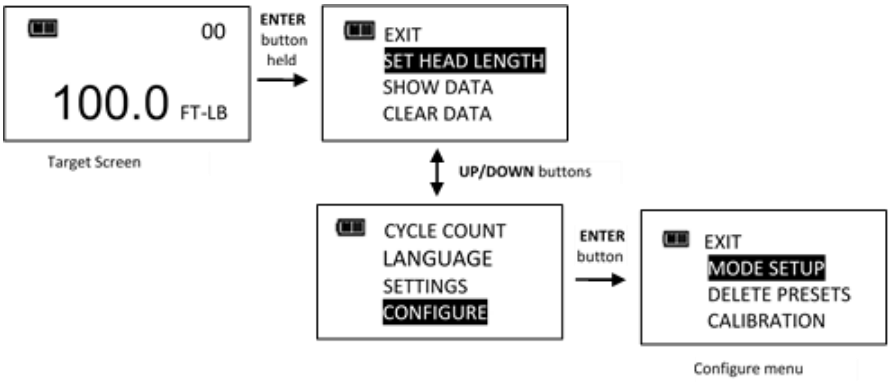
## Accessing Configuration Menu

Configuration is accessed from CONFIGURE menu selection on main menu.

1. From target torque or angle screen, press and hold **ENTER** button for 3 seconds.
2. Highlight CONFIGURE menu selection using **UP /DOWN** buttons.
3. Press **ENTER** button to display Configure menu.

   Menu Selections:

   - EXIT - Exits Configure menu and returns to target torque or angle screen.
   - MODE SETUP - Displays wrench mode setup menu.
   - DELETE PRE-SETS - Displays delete all pre-sets menu.
   - CALIBRATION - Displays wrench calibration menu (password protected – default factory setting 91748).
   - SET DATE/TIME - Displays clock date and time entry screens.
   - SET CAL INTRVAL - Displays calibration interval setup screen (requires clock date and time setup).
4. To exit Configure menu and return to target torque or angle screen, press **ENTER** button while EXIT menu selection is highlighted.




**NOTE: All user configurable settings are stored in non-volatile memory and are retained while power is off.**

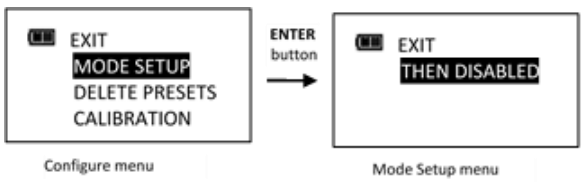
## Mode Setup

Mode setup menu allows user to enable/disable Torque THEN angle mode.

1. From Configure menu, press **ENTER** button while MODE SETUP selection is highlighted.
2. Mode Setup menu is displayed.

   Menu Selections:

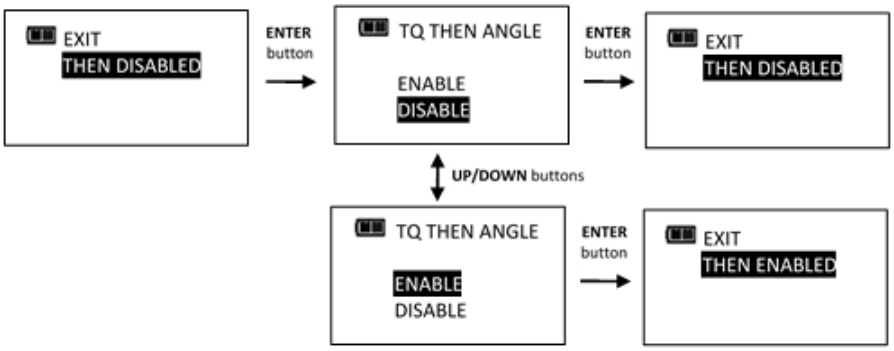
   - EXIT - Exits Mode setup menu and returns to Configure menu screen.
   - THEN DISABLED - Displays THEN Mode enable/disable screen.
3. Use **UP /DOWN** buttons to highlight menu selections.
4. Press **ENTER** button while EXIT menu selection is highlighted to return to Configure menu.



## Enable/Disable Torque THEN Angle Mode

This function will allow user to enable or disable Torque THEN Mode.

1. From Mode Setup menu, use **UP ▲ /DOWN ▼** buttons to highlight THEN DISABLED selection (factory default) then press **ENTER ↵** button.
2. TQ THEN ANGLE enable/disable screen is displayed.
3. Use **UP ▲ /DOWN ▼** buttons to select ENABLE or DISABLE selection.
4. Press **ENTER ↵** button to accept selection and exit to Mode Setup menu.

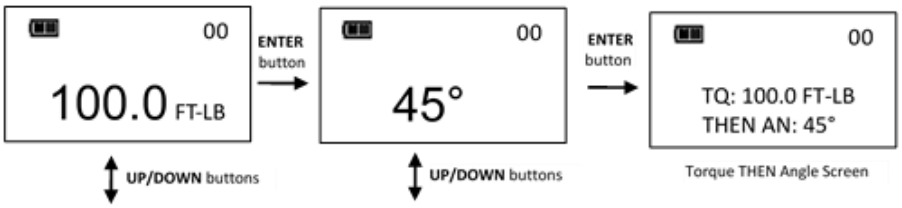



**NOTE: Menu selection indicates current configuration (ENABLED or DISABLED).**

## Torque THEN Angle Mode

Torque THEN Angle mode is setup by first setting a target torque and units then a target angle before selecting Torque THEN Angle mode. In Torque THEN Angle mode, when applied torque reaches target torque, wrench automatically switches to angle mode for angle measurement. Progress lights indicate applied torque progress while torque is measured and angle when angle is measured.

1. From target torque screen, use **UP ▲ /DOWN ▼** buttons to set target torque and **UNITS U** button to select torque measurement units then press **ENTER ↵** button.
2. Angle target screen is displayed. Use **UP ▲ /DOWN ▼** buttons to set target angle then press **ENTER ↵** button.
3. Torque THEN Angle mode screen is displayed.
4. Apply torque until target is reached then rotate wrench to target angle.




**NOTE: UNITS U button can be used to select torque units while on Torque THEN Angle screen.**

**NOTE: Torque THEN Angle Pre-sets are entered by pressing and holding UNITS U button while on Torque THEN Angle screen. Refer to "Adding a Torque Pre-set" and "Adding an Angle Pre-set" in Basic section for parameter entry.**

**NOTE: Torque cycle is not recorded in memory unless both torque and angle reach targets.**

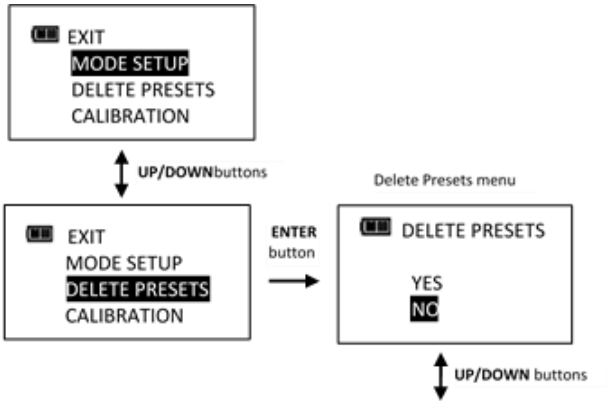
**NOTE: Red and yellow progress lights turn on if torque exceeds 110% of wrench full-scale or if angle exceeds target plus 4% in manual mode.**

**NOTE: Red and yellow progress lights turn on if torque exceeds maximum torque or if angle exceeds maximum angle in Pre-set mode.**

## Delete All Pre-sets

Delete Pre-sets function allows user to delete all pre-sets at once.

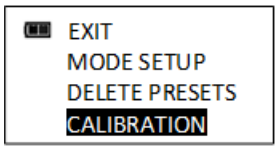
1. From Configure menu, use **UP ▲ /DOWN ▼** buttons to highlight DELETE PRE-SETS selection then press **ENTER ↵** button.
2. Delete Pre-sets confirmation screen is displayed.
3. Use **UP ▲ /DOWN ▼** buttons to select YES or NO selection.
4. Press **ENTER ↵** button to accept selection and exit to Configure menu.




**NOTE: If Delete Pre-sets is selected without a Pre-set configured, following screen is displayed:**


## Calibration

Calibration menu is password protected - default factory setting 91748. Contact your local Norbar Repair Centre regarding Calibration menu.



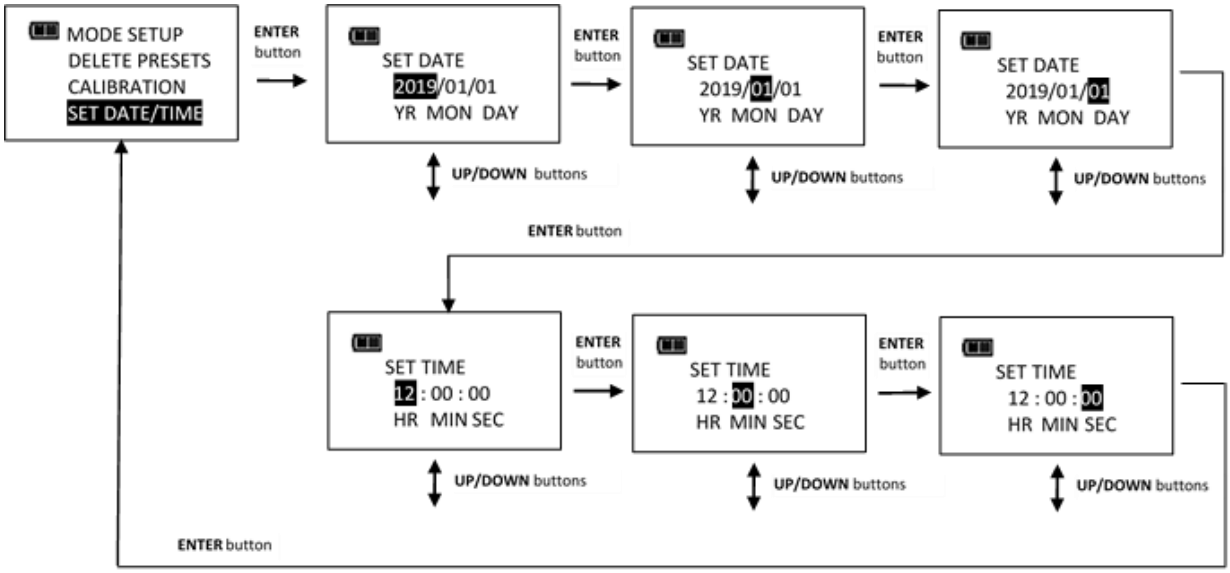

## Setting Date and Time

Set Date/Time function allows user to set real-time-clock date and time for time stamping data records, recording last calibration date and notifying user of an expired calibration interval.

**NOTE: When date and time is set for first time, In-Service date is also set and is used for calculating initial calibration interval (see "Setting Calibration Interval" in Configuration Section).**

1. From Configure menu, use **UP ▲ /DOWN ▼** buttons to highlight SET DATE/TIME selection then press **ENTER ↵** button.
2. SET DATE screen is displayed with year highlighted.
3. Use **UP ▲ /DOWN ▼** buttons to set year then press **ENTER** button to highlight month.
4. Use **UP ▲ /DOWN ▼** buttons to set month then press **ENTER ↵** button to highlight day.
5. Use **UP ▲ /DOWN ▼** buttons to set day then press **ENTER ↵** button.
6. SET TIME screen is displayed with Hour highlighted.

7. Use **UP** ▲ **/DOWN** ▼ buttons to set hour then press **ENTER** ↵ button to highlight minutes.
8. Use **UP** ▲ **/DOWN** ▼ buttons to set minutes then press **ENTER** ↵ button to highlight seconds.
9. Use **UP** ▲ **/DOWN** ▼ buttons to set seconds then press **ENTER** ↵ button.
10. Clock is set and Configure menu is displayed.




**NOTE: Year selection will scroll up from 2017. Month selection will scroll from 1 to 12. Day selection will scroll from 1 to 31.**

**NOTE: Hour selection will scroll through 0 to 23. Minute and Second selections will scroll through 0 to 59.**

**NOTE: If batteries are removed from wrench for longer than 20 minutes, clock will revert to default settings and must be re-entered at power on.**

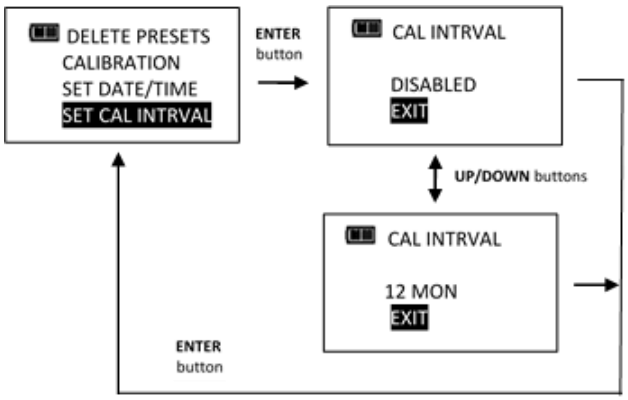
## Setting Calibration Interval

This function will allow user to set calibration interval for when "CAL NEEDED" message will be displayed.

1. From Configure menu, use **UP** ▲ **/DOWN** ▼ buttons to highlight SET CAL INTRVAL selection then press **ENTER** ↵ button.
2. CAL INTERVAL screen is displayed.
3. Use **UP** ▲ **/DOWN** ▼ buttons to change calibration interval.

   Selectable Intervals:

   - DISABLED (factory default)
   - 3 MON
   - 6 MON
   - 12 MON
4. Press **ENTER** ↵ button to accept selection and exit to Configure menu.



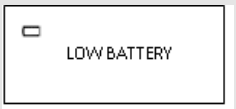
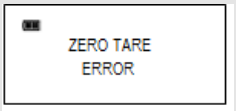
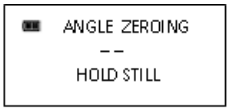
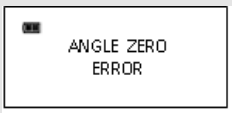
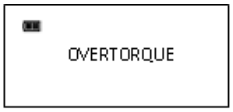
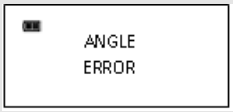
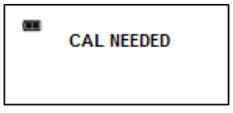
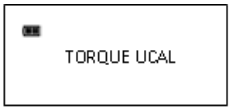

**NOTE:** **Clock Date and Time must be set before calibration interval will function. If batteries are removed from wrench for longer than 20 minutes, clock will revert to default settings and must be re-entered at power on.**

**NOTE:** **Calibration interval is calculated from either In-Service Date or last Calibration date (see SHOW INFO menu) depending on which is more recent date. When clock Date is greater than In-Service or Last Calibration date, plus Cal Interval, "CAL NEEDED" message will be displayed on power up and after a re-zero. Pressing ENTER ↵ button will continue to target menu. Applying torque while "CAL NEEDED" message is displayed will immediately display torque or angle measurement and return to target menu when released.**

**NOTE:** **As an alternative to calibration interval, a Calibration Cycle Counter is provided in Calibration menu (Contact your local Norbar Repair Centre regarding Calibration menu).**

# TROUBLESHOOTING

**NOTE: If any of following issues persist, return wrench to an authorised Norbar Repair Centre.**

| Issue | Possible Cause | Resolution |
|---|---|---|
| Wrench does not turn on when **POWER** M button pressed. | Dead/No batteries | Replace batteries |
| | Software glitch | Cycle power using end-cap |
| Torque reading out of spec. | Calibration required | Recalibrate |
| | Incorrect head length entered | Enter correct offset head length |
| Wrench did not retain settings while batteries were removed. | Batteries removed before setting were saved in non-volatile memory. | Clear data, re-enter settings and press and hold **POWER** M button to power down wrench before removing batteries. |
|  | Low battery | Press **ENTER** ↵ button to continue using wrench and replace batteries soon. |
|  | Dead battery | Press **POWER** M button to turn off wrench and replace batteries. |
|  | Torque applied while zeroing | Remove torque and re-zero |
| | Wrench over torqued | Recalibrate |
| | Wrench improperly calibrated | Recalibrate |
| | Torque sensor failure | Return to Factory |
|  | Wrench moving during zeroing | Place wrench on stable surface |
| | Gyro unstable | Return to Factory |
|  | **ENTER** ↵ button pressed during angle zeroing (Aborted zeroing to access menus) | Press **POWER** M button to re-zero |
|  | Over 125% of full-scale torque applied | Cycle power using **POWER** M button and recalibrate |
|  | Wrench rotated too fast during angle measurement | Press **POWER** M button to re-zero |
|  | Calibration interval exceeded or invalid date entered with calibration interval enabled | Calibrate wrench or press **ENTER** ↵ to continue. Disable calibration interval if not required. |
|  | Memory error | Clear data memory |
|  | Torque uncalibrated | Calibrate torque |
|  | Angle uncalibrated | Calibrate angle |

# USE OF ADAPTORS, EXTENSIONS AND UNIVERSALS

Anytime an adaptor, extension or universal is used with a torque wrench in such a way that fastener distance is different than torque wrench square drive distance at calibration, an adjustment to head length is required to get a proper fastener torque reading.

When using wobble extension or a universal, do not exceed more than 15 degrees of offset from perpendicular drive.

# CALIBRATION

Contact your Norbar sales representative for calibration services.

**IMPORTANT: CALIBRATION EVENTS ARE RECORDED IN WRENCH MEMORY WHICH PROVIDES EVIDENCE TO VOID FACTORY CERTIFICATION**

# MAINTENANCE / SERVICE

Clean wrench by wiping with a damp cloth. DO NOT use solvents, thinners or carburettor cleaners. DO NOT immerse in anything.

Service, repair and calibration are to be done by Norbar Service Centre's only. Contact your Norbar representative.

Ratchet head repair can be done by Norbar representative or user.

**NOTE: If display shows persistent "TORQUE ZERO ERROR" at power on, wrench is damaged and must be returned for repair.**

**If display shows "ANGLE ERROR" in angle mode, fastener rotation speed has exceeded capacity of wrench.**

**Wrench must be held still during angle zeroing. Motion is indicated by alternating dashes "- -" on display.**

**Remove battery when stored for extended periods (Note: clock will revert to default settings).**

## Battery Replacement

Replace with three "AA" cells only.

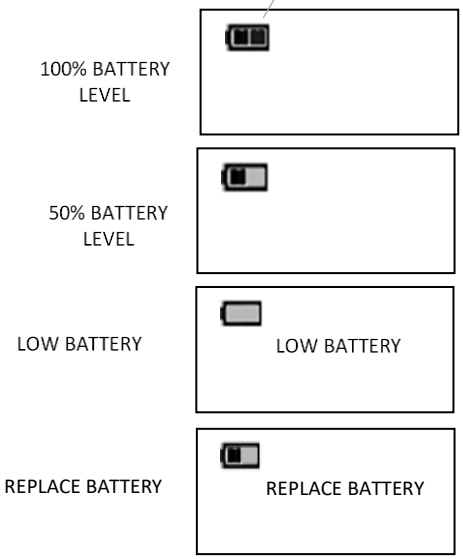
- Do not attempt to recharge Alkaline or Lithium cells.
- Do not mix different battery types.
- Replace all batteries at same time.
- Store wrench in dry place.
- Remove batteries when storing wrench unused longer than 3 months.

**NOTE:** **When replacing batteries, real-time-clock will maintain date and time for 20 minutes.**

**NOTE:** **Turn End Cap counter-clockwise to unscrew.**



UNSCREW END CAP
INSERT NEW CELLS
POSITIVE (+) END
INTO HANDLE FIRST




**NOTE:** **When Replace Battery screen is displayed wrench will no longer operate until batteries are replaced. Only POWER button functions which immediately turns off wrench.**

# MEMORY INDICATORS

| | | |
|---|---|---|
| DATA IN MEMORY | M | Less than 50 torque and angle records stored in |
| MEMORY FULL | $M_F$ | 50 torque or angle records stored in memory<br>Oldest record will be replaced by next record |
| MEMORY ERROR | $M_E$ | Memory read or write error<br>Return to Norbar Repair Centre if persists after clearing memory |

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