DTT Series Digital Torque Testers
User Manual

for DTT Models above Serial Number: 2200

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ASG, Division of Jergens, Inc.

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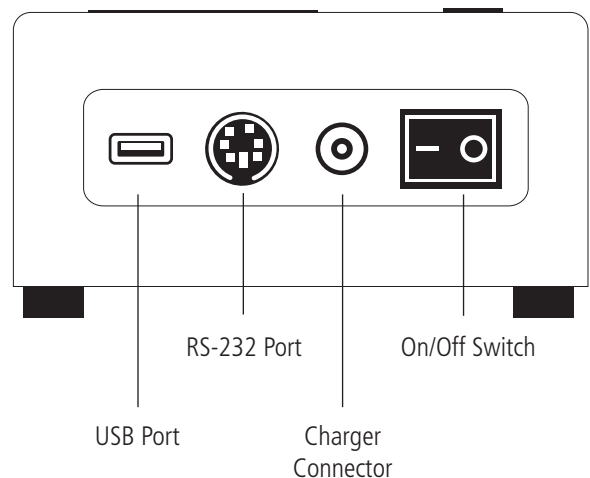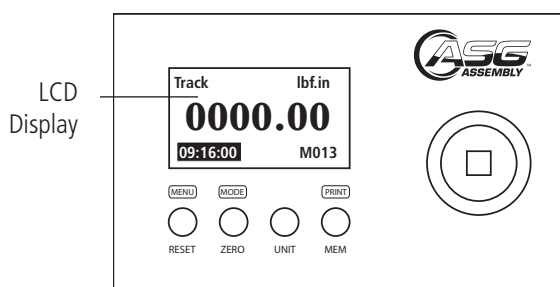Page 3 of 23

Service and Warranty

ASG, Division of Jergens, Inc., warrants to the original purchaser buying the ASG DTT meter with the intention of use rather than resale, for a period of 1 year. ASG will replace those items found to be defective or otherwise fail to conform, or at ASG's option repay the price paid for the item. The buyer's remedies with respect to any item found to be defective or otherwise not conforming shall be limited exclusively to the right of replacement or repayment. In no event shall ASG be liable for any incidental, special, or consequential damages or for damages in the nature of penalties.

DISCLAIMER: Seller makes no other warranty what-so-ever, expressed or implied, and all implied warranties of merchantability and fitness for a particular purpose are disclaimed and excluded from this transaction and shall not apply to the goods sold hereunder. The ASG DTT meter is an electronic instrument and should be treated with the same care given any sensitive electronic instrument. Avoid dropping the unit or dropping items on the unit. Avoid high shock loads to the transducer. Use the proper driver adapter when using clutch type power tools.

Overload Capacity Caution

Do not deliberately exceed the capacity of the unit. The maximum capacity of the DTT meter can be found on the spacer ring surrounding the transducer. The overload capacity of a DTT meter is 200% of its maximum load capacity. If the meter is taken over capacity, a warning tone will sound, the word "OVERLOAD" will flash on the LCD, and the unit will LOCK until the RESET button is pressed. Immediately stop applying torque when the overload warnings are observed. A unit subjected to overload or subjected to harsh conditions, such as use with an impact tool, will not be covered under warranty.

System Overview

LCD Display

Track   lbf.in
0000.00
09:16:00   M013

MENU   MODE   PRINT
RESET ZERO UNIT MEM

RS-232 Port   On/Off Switch

USB Port   Charger Connector

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System Overview (Continued)

Model	DTT-5, DTT-10, DTT-30, DTT-50, DTT-100, DTT-200, DTT-500
Size	7.12" x 4.4" x 2.0" (180mm x 111mm x 50mm); Size with Mounting Plate*: 8.625" x 4.4" x 2.19" (219mm x 111mm x 56mm)
Weight	5 lb (2.3 kg) Weight with Mounting Plate*: 6.8 lb (3.1 kg)
Display	Graphics LCD Display Size 128x64 dots
Battery	17 hour battery life (NiMH 7.2/v Rechargeable)
Battery Charger	110-120 VAC 60 Hz 12W input, 12 VDC 500ma output (Optional International Charger Available: 220-240 VAC input, ASG # 915966)
ADC	16 Bit
CPU	8 Bit
Communication	Mini USB to USB, RS-232
Key Button	4 Buttons
Unit of Measure	6-7 User Selectable Torque Units (Depending on Model)
Mode of Measure	3 Modes: Track, Peak, and First Peak
Display Digits	6 Digits Maximum
Special Function	Auto Reset, Auto Memory, Auto Zero, Real Time Clock, Pass/Fail, Statistics, Torque Bar, Battery Indicator and Charging Status, Transducer State
Memory	500 Readings with Alarm when Full
Accuracy	± 0.5% of Full Scale

* DTT-200 and DTT-500 come with mounting plate

Model Number	ASG Number	Torque Range	
		lbf.in	N.m
DTT-5	66700	0.5 - 5.0	0.06 - 0.56
DTT-10	66701	1.0 - 10.0	0.11 - 1.13
DTT-30	66702	3.0 - 30.0	0.33 - 3.4
DTT-50	66703	5.0 - 50.0	0.56 - 5.6
DTT-100	66704	10.0 - 100.0	1.13 - 11.3
DTT-200	66705	20.0 - 200.0	2.3 - 22.6
DTT-500	66706	50.0 - 500.0	5.6 - 56.5

Battery Charger

110-120V US Power Adapter
(Supplied) ASG #66608

220-240V International Power Adapter
(Optional, Must Order Separately)

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Standard Equipment

All DTT meters are supplied with the following standard items:

- DTT torque meter
- Rundown adapter (see chart below)
- Carrying case with insert
- Battery charger
- Mini USB to USB cable (ASG #66629)

ASG #CP66614 and #CP66616 are springs to be used with #CP66612 Adapter

Additional optional rundown adapters can be found on page 7

Included with DTT-5 (66700)					
ASG Number	**Type**	**Drive Size**	**Torque Range**		**Spring Color**
			lbf.in	**N.m**	
66620	Adapter w/ Spring	4mm HIOS	0.25 - 2.0	0.03 - 0.23	Black
CP66612	Adapter	1/4" Hex	N/A	N/A	N/A
CP66614	Spring	N/A	1.3 - 5.0	0.15 - 0.56	Yellow

Included with DTT-10 (66701) and DTT-30 (66702)					
ASG Number	**Type**	**Drive Size**	**Torque Range**		**Spring Color**
			lbf.in	**N.m**	
66620	Adapter w/ Spring	4mm HIOS	0.25 - 2.0	0.03 - 0.23	Black
CP66612	Adapter	1/4" Hex	N/A	N/A	N/A
CP66614	Spring	N/A	1.3 - 5.0	0.15 - 0.56	Yellow
CP66616	Spring	N/A	4.5 - 26.0	0.51 - 2.9	Black

Included with DTT-50 (66703) and DTT-100 (66704)					
ASG Number	**Type**	**Drive Size**	**Torque Range**		**Spring Color**
			lbf.in	**N.m**	
66633	Adapter w/ Spring	4mm HIOS	4.5 - 26.0	0.51 - 2.9	Black
66617	Adapter w/ Spring	1/4" Hex	4.5 - 26.0	0.51 - 2.9	Black
66618	Adapter w/ Spring	1/4" Hex	25.0 - 80.0	2.8 - 9.03	Black

Included with DTT-200 (66705)					
ASG Number	**Type**	**Drive Size**	**Torque Range**		**Spring Color**
			lbf.in	**N.m**	
66618	Adapter w/ Spring	1/4" Hex	25.0 - 80.0	2.8 - 9.03	Black
66634	Adapter w/ Spring	3/8" Hex	50.0 - 200.0	5.6 - 22.6	Black

Included with DTT-500 (66706)					
ASG Number	**Type**	**Drive Size**	**Torque Range**		**Spring Color**
			lbf.in	**N.m**	
66618	Adapter w/ Spring	1/4" Hex	25.0 - 80.0	2.8 - 9.03	Black
66642	Adapter w/ Spring	3/8" Hex	50.0 - 500.0	5.6 - 56.5	Black

Instructions for Using the Rundown Adapters

Below is a list of **all** rundown adapters ASG offers for the DTT and DTT-L Series

- Rundown adapters are included with the DTT torque testers.   Please see the charts on page 6 for the included adapters.
- Rundown adapters are **not** included with the DTT-L torque tester, choose the needed rundown adapters from the chart below when ordering the tester.

ASG Adapter Number	Drive Size	Torque Range	
		lbf.in	N.m
66620	4 mm HIOS	0.25 - 2.0	0.03 - 0.23
66631	4 mm HIOS	1.3 - 5.0	0.15 - 0.56
66612 *	1/4" Hex	1.3 - 5.0, 4.5 - 26.0 *	0.15 - 0.56, 0.51 - 2.94 *
66617	1/4" Hex	4.5 - 26.0	0.51 - 2.94
66633	4 mm HIOS	4.5 - 26.0	0.51 - 2.94
66635	5 mm HIOS	4.5 - 26.0	0.51 - 2.94
66618	1/4" Hex	25.0 - 80.0	2.8 - 9.03
66639	5 mm Hex	25.0 - 80.0	2.8 - 9.03
66634	3/8" Hex	50.0 - 200.0	5.65 - 22.6
66642	3/8" Hex	50.0 - 500.0	5.65 - 56.5

* ASG Adapter #66612 comes with two springs covering torque range from 1.3-5.0 lbf.in (0.15-0.56) and 4.5-26.0 lbf.in (0.51-2.94 N.m)

ASG #66620	ASG #66631	ASG #66612	ASG #66617	ASG #66633
ASG #66635	ASG #66618	ASG #66639	ASG #66634	ASG #66642

Usage

Procedure for Manual Torque Drivers

- Attach a proper adapter to connect the driver to the 3/8" female square.
- **NOTE:** It is NOT recommended to use the power tool adapters to calibrate hand torque tools.
- Select **FIRST PEAK** mode using the **MODE** button. Press the **RESET/ESC** button if the display is not at 0.
- Turn the driver or wrench clockwise or counterclockwise until the "break" point is reached.
- In **FIRST PEAK** no other reading can then be displayed until the reset button is pressed.
- The LCD display will show the torque that the driver or wrench is set at. Note the reading or write it down. To enter it into the DTT memory, press the **MEM/ENTER** button. If you are testing several tools note the memory numbers of the readings for the various tools. This number is in the upper right hand corner of the LCD. The unit can save up to 500 readings. After that no further readings can be entered until the memory is cleared. See the main menu section starting on page 11 for instructions on downloading and clearing the readings in the memory.
- If the torque is not correct, adjust the tool. Repeat the test. When the reading is proper, perform the test several times to be sure the readings are consistent. The proper reading may be an average of several readings.

Procedure for Power Screwdrivers

- Put the appropriate rundown adapter into the unit's female 3/8" square socket. This is also called a joint simulator. It allows the power tool to reach its working speed before tightening up and causing the clutch to operate.
- Run the tool in reverse to make sure the adapter is unwound. Do not disassemble the driver adapter.
- Make sure the unit is in **PEAK** mode. If it is not, use the **MODE** button to select **PEAK** mode.
- Press the **RESET/ESC** button to be sure the display is at 0.
- Run the tool forward until it shuts off. The reading on the display will be the torque setting of the tool's clutch. Note the reading or write it down.
- To enter it into the units memory, press the **MEM/ENTER** button. If you are testing several tools, note the memory numbers of the readings for the various tools. This number is in the upper right hand corner of the LCD. The unit can save up to 500 readings. After that no further readings can be entered until the memory is cleared. See the main menu section starting on page 11 for instructions on downloading and clearing the readings in the memory.
- If the torque is not correct, adjust the clutch. Repeat the test. When the reading is proper, perform the test several times to be sure the readings are consistent. The proper reading may be an average of several readings.
- Always unwind the rundown adapter after each test. Do NOT leave the spring under tension while not in use.

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Battery Indicator

Before using the unit, make sure the battery has been charged for at least 4 hours. If the battery is low, the LCD may not function. If the battery dies during use, the on/off switch will need to be cycled to use the unit after the charger is connected. Allow the battery to fully charge then detach the charger. The battery will be fully charged after up to 4 hrs of charging.

CAUTION: If the battery overheats during charging a thermal fuse will open. The unit will not operate until the fuse resets. Allow the DTT meter to sit for up to 30 minutes with the charger disconnected then turn the unit back on.

If the battery level is less than 6.9 V, the "**Battery Empty**" message will be displayed and the tester will power down automatically. When battery charger is connected and battery is charging, the plug icon will blink. Charging time is about 2.3 hours for full charge. **NOTE:** Only use the 12V power adapter/charger supplied. **The supplied charger is a battery charger only. It is not to be used as an AC adapter to power the DTT meter in place of using the batteries in normal operation.**

Battery Level > 8.00V

7.99V > Battery Level > 7.60V

7.59V > Battery Level > 7.30V

7.29V > Battery Level > 7.00V

Battery Level < 7.00V

Charging symbol
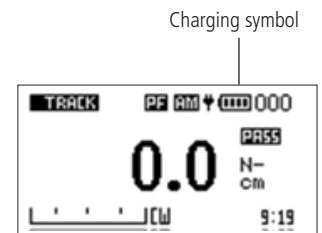
Basic Function

Clockwise torque is displayed on the DTT and recognized by the symbol "CW." Counter-clockwise torque is displayed on the DTT and recognized by the symbol "CCW."

Display of Clockwise/Counter-Clockwise

Load indicator bar for clockwise — Clockwise symbol

Load indicator bar for counter-clockwise — Counter-clockwise symbol
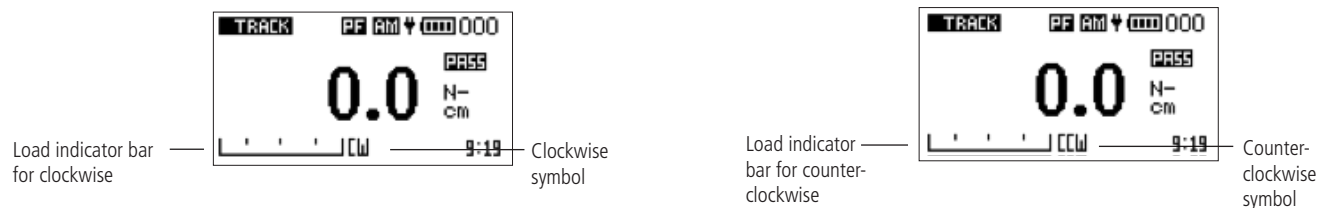
A load indicator bar alerts the operator as to how much torque load is being applied to the transducer as related to its full scale rating.

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Basic Function (Continued)

Zeroing the Tester

The display automatically zeros when the unit is turned on. The zero key can be pressed to set the meter to zero.

## Changing the Unit of Measure

You can choose from the following units of measure depending on the capacity of your tester: N.mm (not available on the DTT-500), N.cm, N.m, kgf.cm, kgf.m, lbf.in, and lbf.ft. To change the display units, press the UNIT key. Each time the UNIT key is pressed, it will select the next available unit until the tester returns to its original setting. The DTT automatically converts readings as new units of measure are selected. NOTE: All units may not be displayed depending on tester capacity.

Changing the Mode of Measure

You can choose from the following modes of measure: Track, First Peak and Peak Torque. To change the display mode press the MODE key. Each time the MODE key is pressed, it will select the next available mode until the tester returns to its original setting.
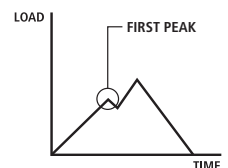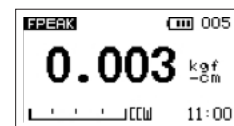
Track Mode

Press the MODE key until "Track" appears on the display. The display will now indicate the torque applied in either direction as it is applied to the transducer.
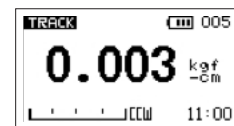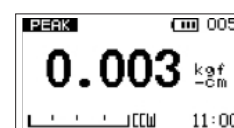
First Peak Mode

Press the MODE key until "F-Peak" appears on the display. The display will show the torque level applied to the transducer. Applying more torque will not change the reading on the display. Example: F-Peak records the first click and ignores additional clicks.

Peak Mode

Press the MODE key until "Peak" appears on the display. The display will show the maximum torque applied to the transducer during a cycle.

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Basic Function (Continued)

Backlit Display

When you press any key or apply torque to the transducer greater than 0.5% of full scale, the backlight will go on for 60 seconds.

Saved Reading to Memory

Any reading can be saved at anytime by pressing the **MEM** key. A total of 500 readings can be stored in the database including the torque reading, unit, direction, date, and time. When reading 501 is attempted, an alarm will beep twice. The DTT will not accept any new values. The records need to be deleted manually to create space in order to record any new values.

Output Signal

The DTT meter can output data using the supplied mini USB cable (or the optional RS-232 cable, not supplied) and the TorqueLink 2.4 software. TorqueLink 2.4 can be downloaded at www.asg-jergens.com on the Literature and Downloads page.

Command	Action
Pressing PRINT key	If current mode is track mode, send live reading value with unit
	If current mode is first peak torque mode, send first peak torque value with unit
	If current mode is peak torque mode, send peak torque value with unit
Upload All	Send all memory

Main Menu

- Press and hold the **MENU** key to access the main menu
- To move between the options listed on the main menu page, press the **UP** or **DOWN** arrow keys to move the cursor
- Press **ENTER** to select the sub-menus, activate feature and enter values. Within sub-menus, **UP** and **DOWN** arrow keys will also change numerical values
- Sub-menus include setting, memory, calibration, transducer state, date and time, and about
- Press **MENU/ESC** to return to the main menu page

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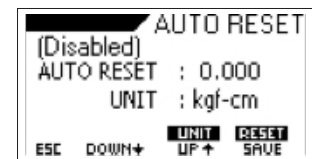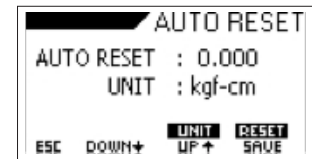Page 11 of 23

Main Menu (Continued)

Setting

- Press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**.
- To move between the options listed on the setting page, use the **UP** or **DOWN** arrow keys to move the cursor. The options on the setting page are auto reset, pass-fail, auto memory, auto print and factory rest.
- Press **ENTER** to select the sub-menus, activate feature and enter values. Within sub-menus the **UP** and **DOWN** arrow keys will also change numerical values.
- Press **MENU/ESC** to return to the setting menu page

Auto Reset

The Auto Reset feature is used to automatically reset the reading value in peak mode. This mode works when the reading value is higher than the setting value, causing the peak value to change to a new held value. The user does not need to press the **RESET** key, since the peak value will automatically reset. This feature works in peak mode only. If this feature is activated, the icon "AR" will display on main display.
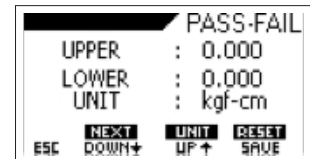
- To access the Auto Reset menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **AUTO RESET** and press **ENTER.**
- The display will show the set auto-reset menu page. Press the **MESU/ESC** key to return the settings page.
- Use **UP** and **DOWN** keys to change the value. Press and hold **UP** key to change units. Press **SAVE** to set new value and return to setting menu. Press and hold **SAVE** key to reset value to zero to set a new value. Press **ESC** to return to setting menu.
- Select a reset value 10% of the expected torque reading on the tool being tested to avoid erroneous readings
- Auto Reset feature will automatically be disabled if you set **AUTO RESET** = 0 or Auto Memory feature is on
- Press and hold the **RESET/SAVE** key to reset to zero
- Function of button will change depending on the menu

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Main Menu (Continued)

Pass-Fail

The Pass-Fail feature is used to set a defined acceptable maximum and minimum torque range for measuring. It is activated by setting the lower level and upper level torque limit. As long as the torque value is within this range, the display will show a **PASS** message. Any reading values outside this range (higher or lower), the display will show a **FAIL** message. If this feature is activated, the PF symbol will display on the main display.
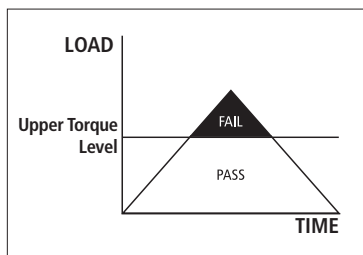

- To access the Pass-Fail menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **PASS-FAIL** and press **ENTER.**

- Press and hold the **DOWN** arrow key to toggle between the upper and lower limits. Press and hold the **UP** arrow key to change units. Press the **UP** and **DOWN** keys to change the numerics. Press and hold the **SAVE** key to reset value to 0 to select a new value. Press **ESC** key to return to the setting menu.

- To reset, press and hold the **RESET** button

NOTE: Pass-Fail feature will be automatically disabled if you set **LOWER LEVEL and UPPER LEVEL** = 0.000

NOTE: Lower level must be less than the upper level
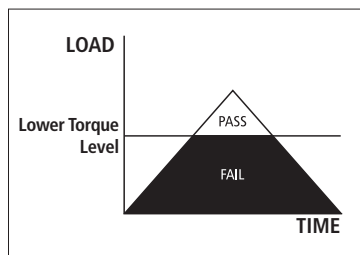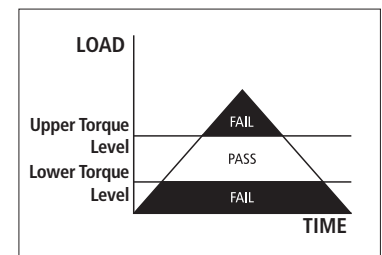
Example:

Lower Level = 0 N.m

Upper Level = 20 N.m

Example:

Lower Level = 20 N.m

Upper Level = 0 N.m

Example:

Lower Level = 10 N.m

Upper Level = 20 N.m

Main Menu (Continued)

Auto Memory

The Auto Memory feature is used to automatically store the reading in the memory and reset the display to 0. The user does not need to press RESET key or MEM key. When you get the peak value, the reading will automatically be stored in the memory included the torque reading, unit, date, and time. If you activate this feature, the AM symbol will be displayed on the main display.

- To access the Auto Memory menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **AUTO MEMORY** and press **ENTER.**
- If **OFF** is selected in this mode, the auto memory feature will be turned off
- If **CLOCKWISE** is selected in this mode, tester will only record the clockwise torque reading. If counter-clockwise torque is applied, the tester will reset the reading and the tester will be ready to take new reading.
- If **COUNTER-CLOCKWISE** is selected in this mode, the tester will only record counter-clockwise torque reading.   If clockwise torque is applied, the tester will reset the reading and the tester will be ready to take new reading.

Auto Print

The Auto Print feature is used to automatically send measured value to ports connection. The user does not need to press the **PRINT** key. When you receive the measured value will automatically send to ports connection. If you activate this feature, the AP symbol will display on the main display.

- To access the Auto Print menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **AUTO PRINT** and press **ENTER.**
- If **OFF** is selected in this mode, turns auto print feature off
- If **CLOCKWISE** is selected in this mode, the auto print feature will work in specific clockwise direction only
- If **COUNTER-CLOCKWISE** is selected in this mode, the auto print feature will work in specific counter-clockwise direction only

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Main Menu (Continued)

Factory Reset

Factory Reset will turn off **AUTO RESET, PASS-FAIL,** and **AUTO MEMORY** at the same time without having to go into each option individually.

```
                  FACTORY RESET
  AUTO RESET  : OFF
  PASS-FAIL   : OFF
  AUTO MEMORY : OFF
  AUTO PRINT  : OFF
 ESC                    ENTER
```

- To access the Factory Reset menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **SETTING** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **FACTORY RESET** and press **ENTER.**

- Press **ENTER** to activate factory reset or press **MENU/ESC** to return to the **SETTING** menu

Memory

This is used to view the saved record, delete the last record, delete all records and calculate the statistics value of all saved memory records.

```
       MEMORY MENU
 VIEW
 DELETE LAST
 DELETE ALL
 UPLOAD ALL
 STATISTICS
 ESC  DOWN↓  UP↑  ENTER
```

- To access the Memory menu, press and hold the **MENU/ESC** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** menu and press **ENTER.**

- The display will show the **MEMORY** menu page. The options on the memory page are view, delete last, delete all, and statistics.

- Press the **MENU/ESC** key to return to the main menu page

View

This is used to view all saved records in memory. The detail of each saved record consists of mode, reading value with unit, direction, date, and time.

```
    VIEW     010/ 500
 009:   Peak  ccw  0.000
        in-lbf    12/01/15
 010:   Peak  ccw  0.000
        in-lbf    12/01/15
 ESC  DOWN↓  UP↑
```

- To access the View menu, press and hold the **MENU/ESC** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** and press **ENTER.** Use the **UP** or **DOWN** arrow keys to move the cursor to **VIEW** and press **ENTER.** The display will show the view menu page.

- Press the **MENU/ESC** key to return to the memory menu page

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Main Menu (Continued)

Delete Last

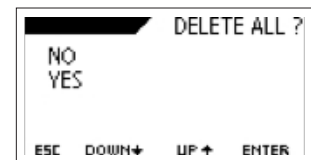This is used to delete the last saved record.

- To access the Delete Last menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **DELETE LAST** and press **ENTER**.

- The display will show **DELETE LAST** menu page

- Press the **ESC** key to return to the memory menu page

- Press the **UP** and **DOWN** arrow keys to select **NO** or **YES**. If you select **NO** and press the **ENTER** key, the monitor will return to the memory menu page. If you select **YES** and press the **ENTER** key, the meter will delete last saved record and return to the memory menu page.
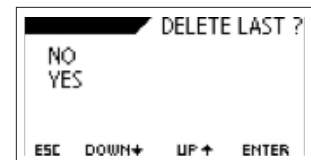
Delete All

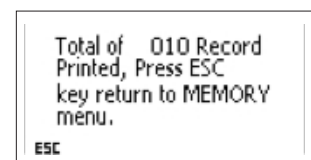This is used to delete all saved records.

- To access the Delete All menu, press and hold the **MENU/ESC** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **DELETE ALL** and press **ENTER**.

- Press **ESC** key to return to the memory menu page

- Press the **UP** or **DOWN** arrow keys to select **NO** or **YES**. If you select **NO** and press the **ENTER** key, the meter will return to the memory menu page. If you select **YES** and press the **ENTER** key, the meter will delete all saved records and return to the memory menu page.

Upload All

This is used to transfer memory to a computer.

- To transfer memory to a computer, press and hold the **MENU/ESC** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **UPLOAD ALL** and press **ENTER**.

- The display will show the transfer memory menu page

- Press the **ESC** key to return to the memory menu page

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Main Menu (Continued)

Statistics

The statistics are calculated for all of the readings currently in the memory and include: maximum, minimum, mean, std, cov., based on all units in memory.

- To access the Statistics menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **MEMORY** and press **ENTER**. Use the **UP** or **DOWN** arrow keys to move the cursor to **STATISTICS** and press **ENTER.**

- Press the **ESC** key to return to the memory menu page

```
                    STATISTICS
   Max  = 0.0000
   Min  = 0.0000
   Mean = 0.0000
   STD  = 0.0000
   COV  = 000.00

 ESC
```

Calibration

ASG service technicians to calibrate the tester; please contact ASG for additional calibration information.

Transducer State

This is used to check the status of the transducer. If you suspect that your transducer has sustained an overload, check the status of the transducer immediately.

- To access the Transducer State menu, press and hold the **MENU/ESC** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **TRANSDUCER STATE** and press **ENTER.**

- Place the tester horizontally on a flat level surface and go to the main menu page

- Use the **UP** and **DOWN** arrow keys to move the cursor point to **TRANSDUCER STATE** and press the **ENTER** key

- The display will show **TRANSDUCER STATE** menu page. Press the **ESC** key to return to the main menu page.

- If the % offset is greater than 10%, please contact ASG to arrange for evaluation.

- Transducer state offset number is for reference only and does not determine whether the transducer is yielded

- These values are given only as an indicator – the need for repair may vary according to the individual characteristics of the transducer

```
  TRANSDUCER STATE
 OVERLOAD COUNT : 00
      OFFSET : -0.10

 ESC
```

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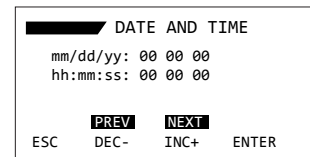
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Main Menu (Continued)

Date and Time

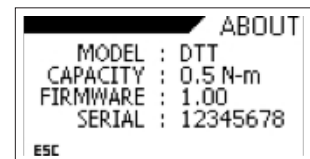This allows you to set the current date and time.

- To access the Date and Time menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **DATE AND TIME** and press **ENTER.**

- Use the **DEC-** and **INC+** arrow keys to change the numerical values. Press and hold these keys (**PREV** and **NEXT**) to toggle between the category.

- Press the **ENTER** key to save information

- Press the **ESC** key to return to the main menu page

```
▰▰▰▰▰▰◢ DATE AND TIME
   mm/dd/yy: 00 00 00
   hh:mm:ss: 00 00 00

           PREV     NEXT
 ESC    DEC-    INC+    ENTER
```

About

This shows the information regarding your tester (firmware revision, model, capacity, serial number).

- To access the About menu, press and hold the **MENU** key to access the main menu. Use the **UP** or **DOWN** arrow keys to move the cursor to **ABOUT** and press **ENTER.**

- Press the **ESC** key to return to the main menu page

```
▰▰▰▰▰▰◢ ABOUT
    MODEL : DTT
 CAPACITY : 0.5 N-m
 FIRMWARE : 1.00
   SERIAL : 12345678
ESC
```

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Software

Torque Link 2.4

This program is designed to enhance the functionality of DTT.   The program will retrieve memory from the DTT meter and analyze it as well as display and analyze readings in real time.

Menu Bar: Displays all the program's menu

Table: Shows the information retrieved from DTT memory and reading taken in real time

Real Time: The area that shows the data retrieval in real time

Result: Shows the analyzed result

Pass/Fail: The area that shows the result of the set conditions of the test tools where the upper and lower limits are entered and enabled

Menu Bar

- **New:** Open a new data sheet
- **Open:** Open saved "*.tl" data files to the table
- **Save:** For data storage in the form of torque file "* .tl"
- **Print:** Command to print directly to the printer
- **Export to Excel:** Save and export the data to Excel spreadsheet
- **Click To Connect:** Connect to DTT meter
- **Download:** For downloading the data in the memory of DTT
- **Delete Last:** To delete data at the end of the table

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Software (Continued)

Table

No.	Mode	Direction	Torque	Units	Date&Time
1	Track	CCW	0.133	kgf-cm	01/11/16 10:38
2	Track	CCW	0.133	kgf-cm	01/11/16 10:38
3	Track	CCW	0.133	kgf-cm	01/11/16 10:38
4	Track	CCW	0.133	kgf-cm	01/11/16 10:38
5	Track	CCW	0.133	kgf-cm	01/11/16 10:38
6	Track	CCW	0.133	kgf-cm	01/11/16 10:38
7	Track	CW	0.413	kgf-cm	01/11/16 11:50

- **No.:** Shows the sequence of data
- **Mode:** Indicates the mode of operation when the reading was taken
- **Direction:** Indicates the direction of the force, CW represents the clockwise rotation, CCW represents the counter-clockwise rotation
- **Torque:** Indicates the torque value taken
- **Units:** Represents the unit of measurement
- **Data & Time:** The date and time the reading was taken

No.	Mode	Direction	Torque	Units	Date&Time
1	Track	CCW	0.133	kgf-cm	01/11/16 10:38
2	Track	CCW	0.133	kgf-cm	01/11/16 10:38
3	Track	CCW	0.133	kgf-cm	01/11/16 10:38
4	Track	CCW	0.133	kgf-cm	01/11/16 10:38
5	Track	CCW	0.133	kgf-cm	01/11/16 10:38
6	Track	CCW	0.133	kgf-cm	01/11/16 10:38
7	Track	CW	0.413	kgf-cm	01/11/16 11:50

* Edit the table by double-clicking the cell and then changing it

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Software (Continued)

Real Time

Shows the last transmission from the DTT and includes the torque reading, the direction the reading was taken, the mode of operation and the unit of measurement.

Result

- **Sample**: Display of the statistical analysis and number of readings in memory used for calculations
- **Max:** Shows the highest value in the table
- **Min:** Shows the smallest value in the table
- **Mean:** Values on average
- **SD:** Values of the standard deviation
- **COV:** Coefficient of variation
- **PASS:** Shows number of torque readings that meet the conditions set in Pass/Fail. Displays both the number and a percentage
- **FAIL:** Show number of torque readings that fail the conditions set in Pass/Fail. Displays both the number and a percentage
- In this example, 'PASS-FAIL' was not enabled

Pass/Fail

- **Upper Limit**: The highest limit that is still considered acceptable
- **Lower Limit:** The lowest limit that is still considered acceptable
- When the data does not meet set conditions of upper limit or lower limit, the character will turn to red
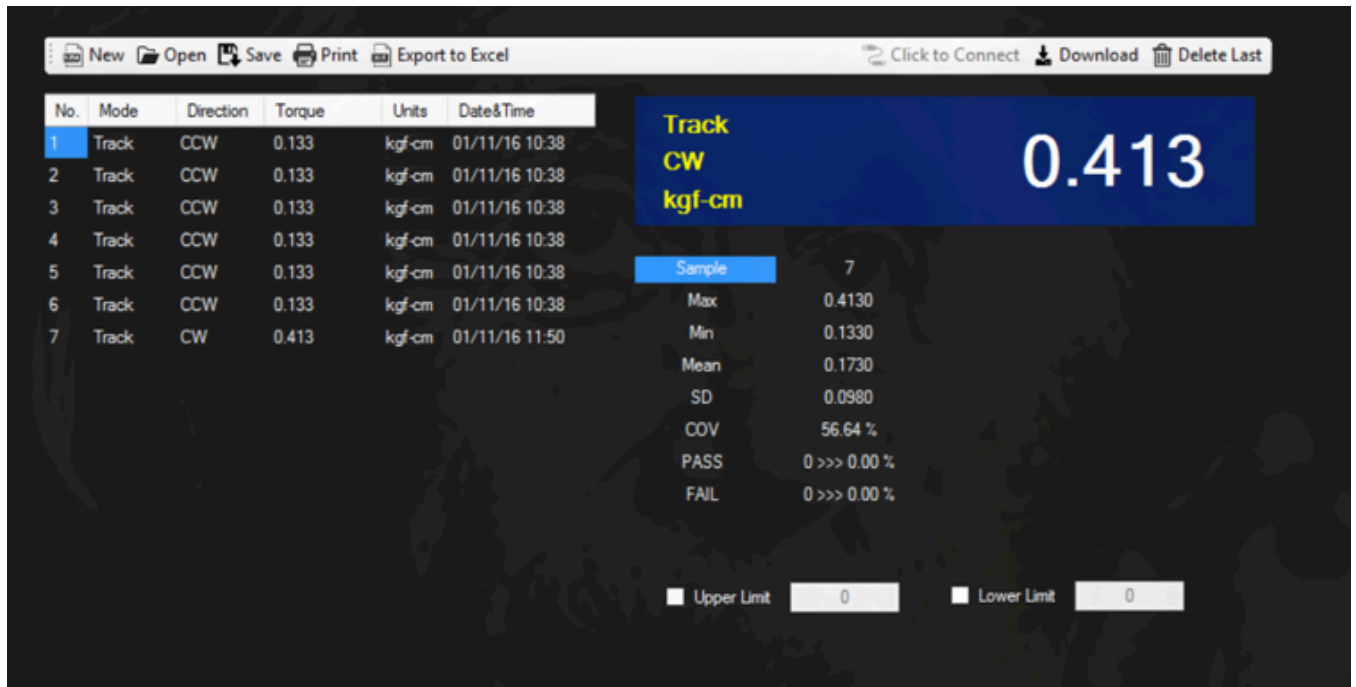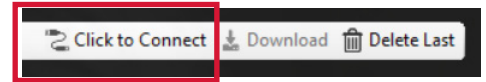- In this example, 'PASS-FAIL' was not enabled

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Software

Retrieving Information from the DTT

1. Plug the USB cable into the DTT meter and the PC

2. Turn on the DTT meter

3. On the menu bar in Torque Link 2.4, select "**Click to Connect**". TorqueLink will automatically find and connect the with DTT meter.

4. When the connection is complete, the "**Download**" button appears. Press the "**Download**" button to download the data in the DTT meters memory.

5. All information is downloaded into a table. Data is analyzed automatically.

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Software (Continued)

Capturing Data in Real Time

1. Plug the USB cable into the DTT meter and the PC
2. Turn on the DTT meter
3. On the menu bar in Torque Link 2.4, select the "**Click to Connect**". TorqueLink will automatically find and connect with the DTT meter.
4. When DTT is in **Peak** or **F-Peak** mode, peak data will be sent automatically and show in the program
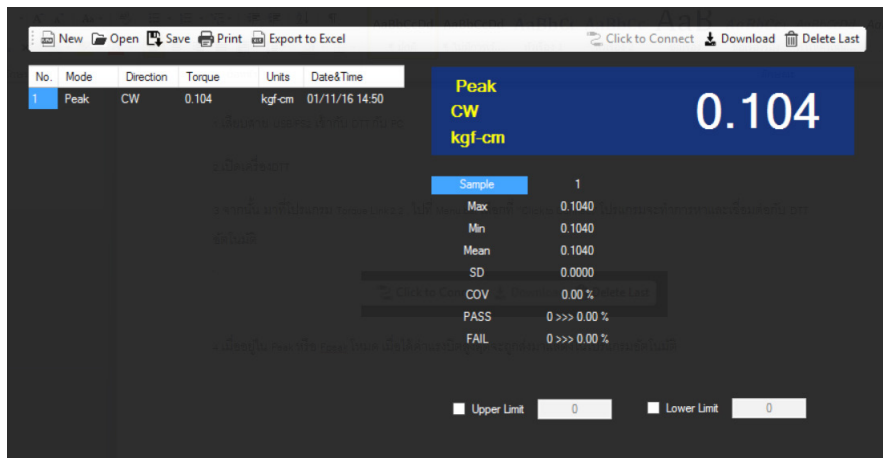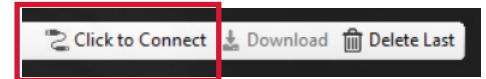
Error

- When information retrieved from the DTT recognizes an error, program will notify by highlighting in red color, and this data will not be analyzed
- Data that has errors can be corrected manually by double-clicking to edit them directly

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