



A *Snap-on*® Company

COMPUTORQ3

DIGITAL TORQUE WRENCH REPAIR AND CALIBRATION INSTRUCTIONS



ISSUED January 25, 2005

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SAFETY INSTRUCTIONS

Failure to follow **WARNING** instructions can cause personal injury to the operator.
Failure to follow **CAUTION** instructions can cause the equipment to fail or break in use.



! WARNING



Always wear Safety Glasses or goggles when using or repairing the gearless digital torque wrenches.



Read this manual completely before repairing the gearless digital torque wrenches.

DO NOT use or test a the gearless digital torque wrenches that shows signs of damage (damaged drives or sockets, cracked or broken parts) caused by misuse. Recommend replacement.

DO NOT exceed rated maximum torque.

Check all other test accessories for wear, damage or crack prior to their use with the gearless digital torque wrenches. Do not exceed their rated maximum torque.

Always pull (DO NOT push) to apply torque. Adjust your stance to prevent a fall if something should give suddenly.



CAUTION

Periodic recalibration is necessary to maintain accuracy.

Periodic maintenance (examination and/or cleaning) of the torque wrench is highly recommended.

INTRODUCTION

This manual covers maintenance, repair, and calibration instructions of the gearless digital torque wrenches. Each wrench model has an Exploded Illustration that lists all the components and shows assembly details. The exploded illustration must be used as a guide for assembling the gearless digital torque wrenches.

CLEANING

Wipe all exterior parts with a dry, clean and lint free cloth. **DO NOT USE** any abrasive or corrosive materials to clean any components of the gearless digital torque wrenches. A non-abrasive polishing agent applied with a dry, clean and lint free cloth may be used to polish the exterior chrome parts.

REPAIR TOOLS REQUIRED

- Torque Tester (range determined by the torque wrench to be tested) with a loader
- 1 Philips Screwdriver size “0”
- 1 T10 Hex Bit Screwdriver
- 1 Soldering Iron

INSPECTION

Inspect all wrenches prior to repair. Check for worn, broken, cracked or damaged parts. Replace parts when necessary.

CAUTION

Some wrenches may be damaged beyond repair. The most common abuse is the use of an extension or cheater bar on the handle. This is evident if the plate, handle or the drive is bent or there are cheater bar marks on the handle near . **DO NOT REPAIR** the wrench if it shows these signs. The components may be permanently damaged. The **SAFETY** and **INTEGRITY** of the wrench could be impaired. Recommend that the wrench be replaced.

ACCURACY VERIFICATION

This procedure is used to check the accuracy of gearless digital torque wrenches in both the Clockwise and Counterclockwise directions.

There are two major international standards that establish torque wrench accuracy requirements. They are ASME B107.14M Hand Torque Tools (American Society of Mechanical Engineers) and ISO 6789 Hand Torque Tools – Requirements and Test Methods (International Organization for Standards). Both Standards are recognized as established accuracy test methods and referenced in this section. ASME and ISO standards are subject to review and changes. The repair manual will be reviewed and revised periodically but may not reflect the latest revision of the specifications listed above.

The gearless digital torque wrenches are accurate to $\pm 2\%$ clockwise and $\pm 3\%$ counterclockwise @ 72° F. At other temperature ranges; $\pm 4\%$ clockwise and $\pm 6\%$ counterclockwise.

NOTE

For the greatest accuracy, use a mechanical loader and set the tester in the track mode.

ASME B107.14M

1. Preload the wrench by loading the wrench three times at 60% of full scale in the clockwise direction.
2. Set the wrench scale at 20% of full scale (e.g., 20 in.lb. at 100 in.lb. FS). Repeat the test 2 more times. Record all three readings.
3. Set the wrench scale at 60% of full scale (e.g. 60 in.lb. at 100 in.lb. FS). Repeat the test 2 more times. Record all three readings.
4. Set the wrench scale at 100% of full scale (e.g. 100 in.lb. at 100 in.lb. FS). Repeat the test 2 more times. Record all three readings.
5. Repeat steps 1 through 4 in the counterclockwise direction.
6. If all of the readings are within the accuracy requirement, no calibration adjustment is required. If they are not see the section on calibration adjustment.

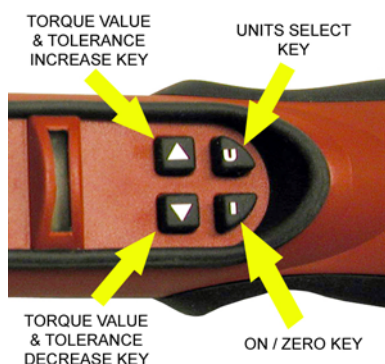
NOTE

Torque wrench readings **MUST** be obtained by applying force at or very close to the middle of the handle (per ANSI & ISO specifications).

ISO 6789

1. Preload the wrench by loading the wrench five times at 60% of full scale in the CW direction.
2. Set the wrench scale at 20% of full scale (e.g., 20 in.lb. at 100 in.lb. FS). Repeat the test 4 more times. Record all five readings.
3. Set the wrench scale at 40% of full scale (e.g., 40 in.lb. at 100 in.lb. FS). Repeat the test 4 more times. Record all five readings.
4. Set the wrench scale at 60% of full scale (e.g., 60 in.lb. at 100 in.lb. FS). Repeat the test 4 more times. Record all five readings.
5. Set the wrench scale at 100% of full scale (e.g., 100 in.lb. at 100 in.lb. FS). Repeat the test 4 more times. Record all five readings.
6. Repeat steps 1 through 5 in the counterclockwise direction.
7. If all of the readings are within the accuracy requirement no calibration adjustment is required. If they are not see the section on calibration adjustment.

CALIBRATION



1. The gearless digital torque wrench must be turned off to start the calibration sequence.
2. Load the wrench three times to full-scale reading in the clockwise direction.
3. Hold down the ▲ up arrow and the ▼ down arrow button at the same time. Continue holding both buttons down then press the I on/zero button until the number “44” appears on the display.



4. Upon release of ▲, ▼, I, the number “44” stops blinking. Press and hold the unit select button U until the buzzer sound indicates acceptance.
5. Next, size and unit appears on the display, press the ▲ up arrow or the ▼ down arrow button to select the full scale torque value and unit of measurement. Then hold down the U button to lock the selection in.



6. When “UCAL” shows on the display;
 - a. Press the I on/zero button and hold it down.
 - b. Press the ▲ up arrow button momentarily.
 - c. Press the ▼ down arrow button and keep holding it down until “CAL” appears on the display.



7. Next with “CAL” on the display press the **U** button to start calibration.



8. A blinking zero and unit will appear on the display, apply torque using the loader until the tester display shows the maximum range of the wrench. When the display show the maximum range calibrate the wrench by:
 - a. Change the display on the wrench by pressing the ▲ up arrow or the ▼ down arrow buttons until the maximum reading shows on the display.
 - b. Press the **U** button to lock the maximum reading in.



- c. Calibration is complete when the maximum range and unit of measure are displayed with out blinking.
9. Check accuracy as shown in the ACCURACY VERIFICATION section of the manual.

CHANGE THE BATTERIES



1. Unscrew the battery cover screw with a “0” Phillips screwdriver.
2. Remove the battery cover.



3. Remove the batteries and replace with two (2) “CR123A” 3V Lithium cells.



4. Replace the battery cover and tighten the screw.

CHANGING THE P C BOARD ASSEMBLY



1. Remove the P C Board assembly by unscrewing the three (3) screws on the bezel with a T-10 TORX screwdriver.



2. Turn the wrench over and remove the battery cover screw with a “0” Phillips screwdriver.



3. Remove the batteries.



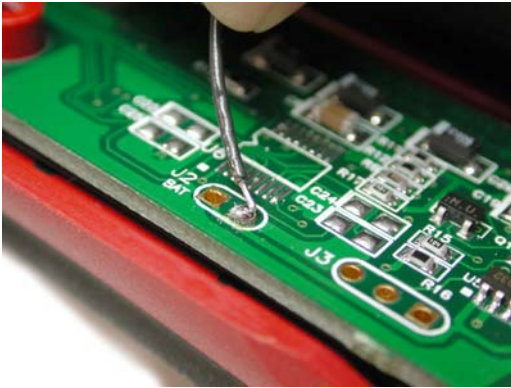
4. Remove the two (2) screws on the end handle with a T-10 TORX screwdriver.



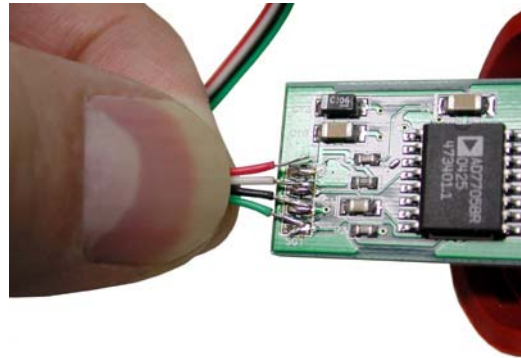
5. Remove the two (2) screws on the bottom of the battery area with a “0” Phillips screwdriver.



6. Carefully remove the display/board assembly from the wrench, without breaking the wires.



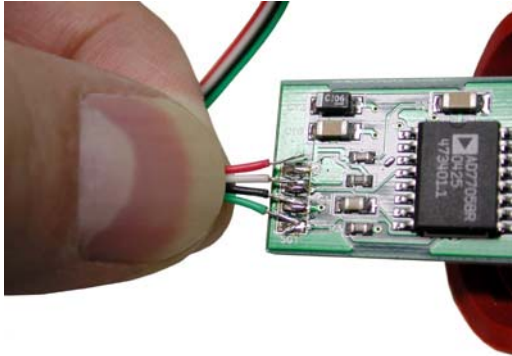
7. Un-solder the black wire located at J2 on the P C Board.



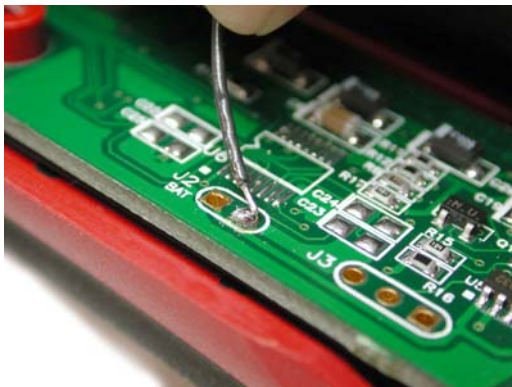
8. Next, Un-solder the ribbon wires located at SG1 on the P C Board. First wire: red, second: white, third: black, and fourth: green.



9. Replace the PC board assembly with a new one.



10. Solder the ribbon wire located at SG1 on the P C Board. The ribbon wires are soldered as follows: first wire: red, second: white, third: black, and fourth: green.



11. Next, solder the black wire located at J2 on the P C Board.



12. Carefully place the board back into the wrench. Check to make sure that the wires are not pinched or damaged.



13. Secure the P C Board assembly by screwing in the three (3) screws on the bezel with a T-10 TORX screwdriver.



14. Then, replace the two (2) screws on the end handle with a T-10 TORX screwdriver.



15. Replace the two (2) screws on the bottom of the battery area with a “0” Phillips screwdriver.



16. Install two (2) “CR123A”, 3V Lithium cells.



17. Replace the battery cover screw with a “0” Phillips screwdriver.

18. Perform a unit calibration.

19. Finally, perform accuracy verification.