Sturtevant Richmont®
Torque Measurement Systems

Sturtevant Richmont
The Tools You Trust.

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Service and Operating Instructions Instructions

SLTC, SLTCS and SLTCR Series Switch Torque Wrenches

Applicable Products

P/N	Model	Description
810230	SLTC 150I	Switch Wrench, hardwire, 150 in.lbs./17 Nm cap., preset, dovetail
810231	SLTC 300I	Switch Wrench, hardwire, 300 in.lbs./34 Nm cap., preset, dovetail
810232	SLTC 750I	Switch Wrench, hardwire, 750 in.lbs./85 Nm cap., preset, dovetail
810233	SLTC 1800I	Switch Wrench, hardwire, 1800 in.lbs./204 Nm cap., preset, dovetail
810155	SLTC 3600I	Switch Wrench, hardwire, 3600 in.lbs./408 Nm cap., preset, dovetail
810152	SLTCS 7200I	Switch Wrench, hardwire, 7200 in.lbs./813 Nm cap., preset, 3/4” fixed Sq. Dr.
810154	SLTCR 7200I	Switch Wrench, hardwire, 7200 in.lbs./813 Nm cap., preset, 3/4” Sq. Dr. ratchet

Introduction

Sturtevant Richmont preset torque wrenches are designed and manufactured to provide consistent user-selectable torque in high-cycle applications.

All of these torque wrenches are designed and equipped to provide hardwire electric communication of the start and finish of the “click” of the wrench. They may be used with the S/R Programmable Torque Verifier (PTV) or wired directly to a PLC to asist in error-proofing the assembly process. The SLTC-Series tools use the S/R dovetail system and accept all S/R Interchangeable Heads. The SLTCS has a fixed square drive, and the SLTCR has a ratcheting square drive instead of the dovetail.

These tools indicate torque in the clockwise direction only as indicated on the wrench case. The tools may be used in the opposite (CCW) direction but will not indicate torque. When using the tools in either direction care must be taken not to exceed the capacity of the wrench.

SLTC-Series Torque Wrench. The Switch Assembly is the same on all Switch Wrench series and capacities, and the torque presetting procedure is the same for all.

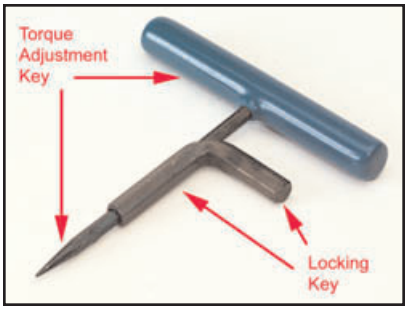


The electric ratings are the same for all SLTC-, SLTCR, and SLTCS-Series Switch Wrenches. The rating is 60 VAC/75 VDC at 3 Amperes maximum.

Torque Setting- Equipment

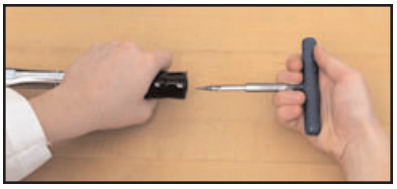
To set the torque on these torque wrenches the following are needed:

1. A torque tester of accuracy equal to or greater than 1% of indicated value.
2. An S/R CART Tool (Calibration and Removal Tool).
3. For SLTC-Series tools, an appropriate S/R Interchangeable Head of the same common centerline length as will be used on the tool during assembly is also needed.

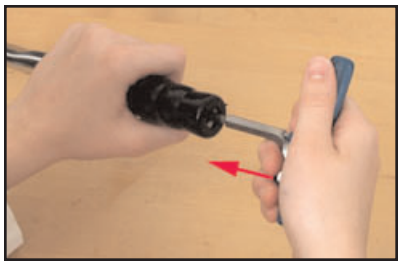


Torque Setting - Procedure

1. Insert the Torque Adjustment Key into the wrench as shown. The Locking Key should not yet be engaged. The Torque Adjustment Key will slide easily into the center of the wrench adjustment mechanism. Some slight rotation of the key may be necessary to assure it fully engages the torque adjustment mechanism.



2. Insert the Locking Key into the jam nut by sliding it forward on the CART Tool. Only finger pressure will be needed to tell when the Locking Key meets the jam nut. It may be necessary to slightly rotate the Locking Key to allow the hex on the key to engage the hex on the nut. When the engagement occurs, you will feel the Locking Key slide further forward slightly.



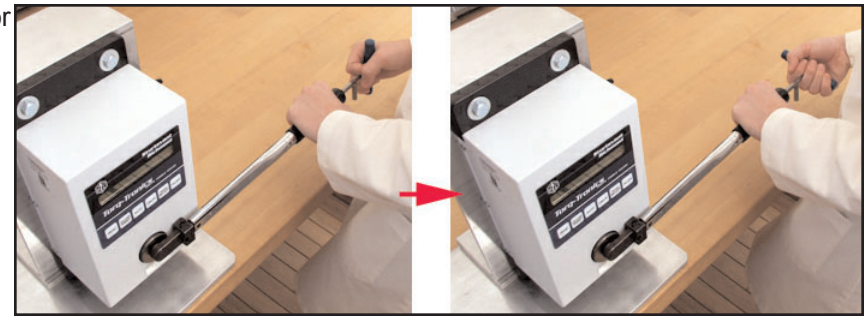
3. Hold the Locking Key in position and rotate the Torque Adjustment Key slightly clockwise to insure the jam nut is disengaged from the torque adjustment mechanism.



4. Engage the square drive of the torque wrench to the tester. The drive must be fully engaged for proper testing. Check the current torque setting before making any torque setting adjustments.



5. With the wrench still engaged to the tester, grasp the wrench grip and rotate the CART Tool slightly clockwise to increase the torque setting or slightly counter-clockwise to decrease the torque setting. If there is a large difference between the current torque level and the desired setting, repeat the rotation several times, while checking the torque between adjustments. The greater the amount of rotation, the greater the change in torque. Care should be taken not to exceed the maximum torque; small amounts of rotation between tests on the tester are recommended. Continue adjusting and checking until the desired torque is attained.



6. Grasp the wrench and the CART Tool. Hold the Adjustment Key in place and rotate the Locking Key clockwise until it jams against the torque adjustment mechanism. This will be felt as firm resistance to further rotation. Then hold the Locking Key in place and attempt to rotate the Adjustment Key counter-clockwise. It should not move more than a small fraction of a turn. When that is complete, the torque is set and locked in place.



Using the Torque Wrench

1. Attach the appropriate fastener engagement device to the tool (socket or interchangeable head). It is imperative that the interchangeable head used on the SLTC have the same common centerline length as that used in presetting the torque.
2. Engage the fastener completely with the socket or interchangeable head.
3. Grasp the center of the vinyl grip and with a steadily-increasing force move the wrench in the direction of the torque arrow on the case.
4. Continue increasing the force until an audible and/or tactile impulse (the “click”) is experienced.
5. Immediately stop applying force to the wrench.

Connecting the Torque Wrench to the Programmable Torque Verifier (PTV)

The SLTC, SLTCS and SLTCR-Series torque wrenches have a threaded connector on the Switch Module, and the PTV has a two-prong connector on its side. Attach the Switch Wrench to PTV cable to the wrench, then to the PTV.

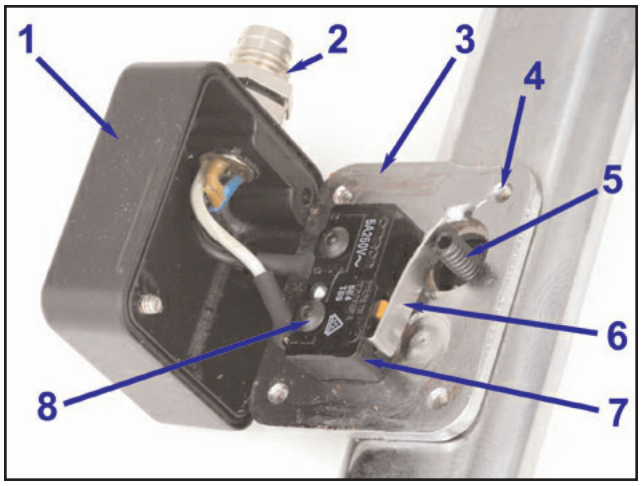
Connecting the Switch Wrench to a Programmable Logic Controller (PLC)

A special cable, ordered separately, is required to attach these tools to a PLC. This cable has a threaded connector for the switch wrench and it has bare wires for attaching to the PLC I/O connections. Attach the cable to the I/O connections, then attach the cable to the switch wrench.

Servicing the Switch Assembly - Necessary Tools

To perform any service on the switch mechanism the following tools will be needed:

1. One hex key, 1/16”.
2. One hex key, 0.050”
3. One flat tip screwdriver, with 1/8” wide blade



Key to Photograph

1. Box Lid
2. Threaded Connector
3. Chassis Plate
4. Tapped Screw Hole
5. Trigger Set Screw (P/N 890002)
6. Microswitch Trigger
7. Microswitch (P/N 811142)
8. Microswitch Mounting Screws (P/N 890010)

Servicing Procedures

Box Lid Removal

1. Use the 1/8” flat tip screwdriver to remove the four machine screws (P/N 890011) holding the Box Lid in place.
2. Carefully remove the Box Lid. This will leave the internal components accessible as shown in photograph above.

Microswitch Replacement

1. To remove the Microswitch, use the 0.050” hex key to loosen and remove the Microswitch Mounting Screws.
2. Lift the Microswitch off the Chassis Plate.
3. Disconnect the wires.
4. Connect the wires to the new Microswitch.
5. Position the Microswitch as shown in the photograph above and install the two Microswitch Mounting Screws.

Trigger Set Screw Replacement

1. Use a 1/16” hex key to remove the Trigger Set Screw.
2. Apply two drops of Perma-Lok MM115 thread adhesive (or equivalent) to the leading threads on the new Trigger Set Screw. This prevents loosening of the screw during wrench use.
3. Insert the replacement Trigger Set Screw into the hole and into the tapped hole in the tang. Snug the Trigger Set Screw with the 1/16” hex key.

Tang Replacement

If it is necessary to replace the tang, please contact your distibutor to determine and order the correct tang for the tool. The Trigger Set Screw will need to be removed before replacing the tang, and reinstalled after the tang is replaced. See the procedure immediately before this one.

Ratchet Replacement (SLTCR Only)

To replace the ratchet you will need a pair of inside snap ring pliers, a 1/8” or 3mm flat tip screwdriver and the correct Ratchet Renewal Kit (P/N 816997).

1. Use the snap ring pliers to remove the snap ring.
2. Lift the square drive and washer straight out of the ratchet housing.
3. Remove slide pin and ball. Use caution - the ball is under the slide pin and is spring loaded.
4. Remove the spring.
5. Clean the inside of the ratchet housing thoroughly.
6. Insert the new spring into the recess for it.
7. Place the new ball on the spring.
8. Use the flat tip screwdriver to compress the ball and spring while sliding the new slide pin over them until both sides of the housing are engaged by the slide pin.
9. Center the slide pin and insert the new square drive into the housing.
10. Place the new washer on the square drive.
11. Use the snap ring pliers to install the new snap ring.

Care and Cleaning

Always store the wrench in a clean and dry environment. To clean the wrench wipe off dirt and grease with a clean moist cloth. Do not immerse the wrench in cleaning fluids. If the wrench is to be stored for an extended period of time, return the wrench to its’ lowest torque setting (20% of capacity) before storing it.

Repair Parts, Service, and Certification

Repair parts, service and certification may be obtained through your S/R distributor.

Any style or type of device that changes the overall length of the wrench when used on it will have an effect on the torque output. Always set the torque with such device in place.

Caution

- Always wear safety glasses when working with hand tools.
- Always make certain that the fastener engagement device properly engages the fastener before applying torque.
- Do not exceed the rated capacity of the torque wrench for any reason.
- Every torque wrench should be checked for accuracy periodically.

For further assistance or parts diagrams, contact us using the information provided on the front of this document.