

Torq-Matic™ Wrench Quick-Disconnect Base Plate Upgrade

Model(s) Affected

Torq-Matic™ (TM) wrenches with the quick-disconnect (QD) base plate option installed.

Action Required

This bulletin is a follow up to Product Alert TM-019 and provides instructions to upgrade the TM wrench QD base plate for improved safety and product longevity.



Warning!

As stated in Product Alert TM-019, all sixteen QD base plate cap screws must be used to fasten the QD base plate to the wrench pocket plate until the QD base plate is upgraded.

Upgraded QD Base Plate

The QD base plate has been redesigned, requiring full-penetration welds at the QD base plate to stem seam, ultrasonic testing after welding, post-weld heat treatment, and magnetic-particle inspection after machining. In addition, the stem will extend past the top surface of the QD base plate with gussets welded to it and the QD base plate for additional stiffness.

Caution! Note that the QD pocket design only considers the weight of the wrench at full extension and normal dynamic forces acting on the wrench. It does not take into account the possibilities of abnormal external forces such as:



- Slips not set and lower jaws clamped on to and supporting weight of drill string.
 - Top drive collision with top of pipe with suspended tubular or link arms.
 - Stem of pocket swinging into stationary object while suspended from crane during installation or removal.
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QD Base Plate Swap Program

The part number for the new QD base plate is DT51700. In order to change out the QD base plates, Canrig will initiate a swap program on a rolling basis. Rigs identified to participate in the swap will need to order the new part number. Canrig will contact the customers with additional details on the swap program. To place an order for the new QD base plate, see the Canrig contact information in the footer of this document.

QD Base Plate Designs

The images below illustrate the differences between the current, current-with-upgrade, and new-design QD base plates.

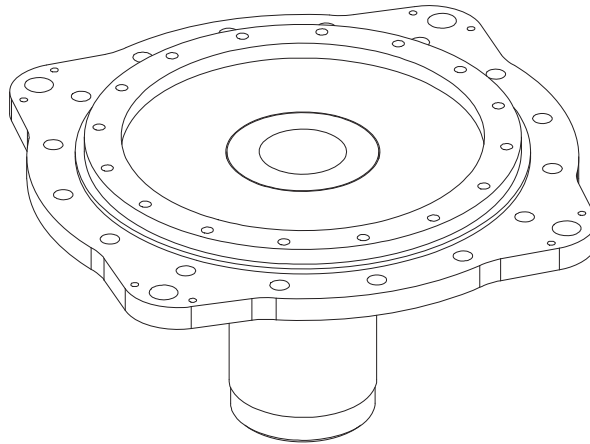


Figure 1: Current (original) QD base plate design.

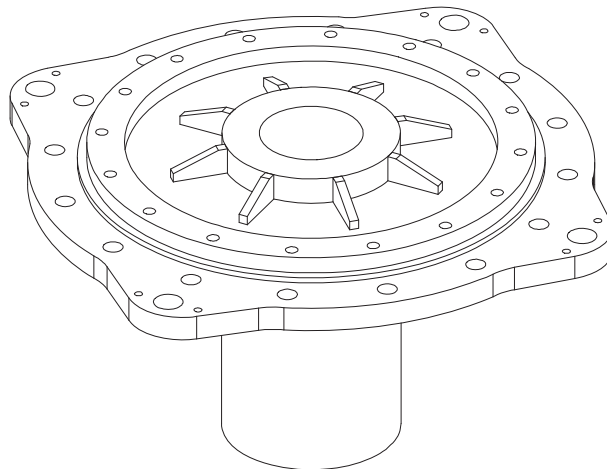


Figure 2: Upgraded QD base plate design.

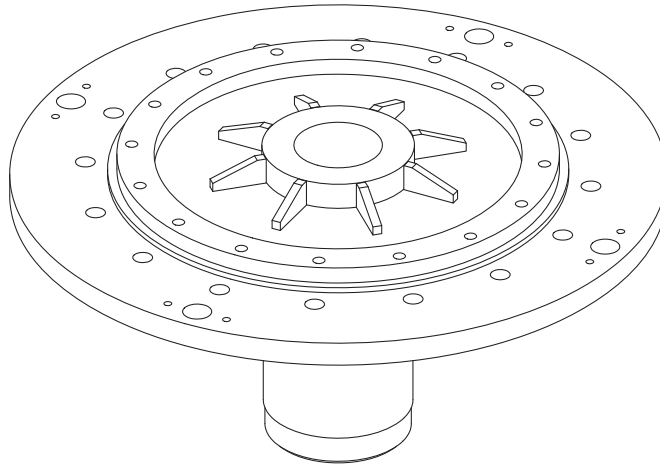


Figure 3: New QD base plate design.

Required Tools and Equipment for Installation

- Overhead crane with minimum 5-ton lifting capability
- Forklift
- Shipping skid supplied with wrench
- Compressed air
- Impact ratchet and air hose
- Torque multiplier
- Torque wrench (350 & 700 ft-lb)
- Anti-seize
- 3/4-10 UNC tap to clean threads
- 1-1/8" six-point socket (16 mounting bolts)
- #8 JIC cap and plugs (2 sets) to cap off rotation motor hoses
- Ratchet and sockets: 1-1/2", 3/4", 7/16"
- Open/box combo wrenches: 15/16", 7/8"
- 0.025 mm feeler gauge
- Bubble level gauge

Pre-Installation Checks



Caution!

Prior to replacing the QD base plate on the wrench, check the installed pocket for signs of wear or deformation.

1. Visually inspect the weld seam at the joint between the pipe stem and the round plate to ensure there are no signs of cracks.
2. Place a bubble level gauge along the inside diameter of the pipe stem to ensure it is perpendicular to the surface.
3. Check the four outside diameter QD pin holes for signs of oblong wear or other deformation.
4. Check the QD pins for signs of wear or deformation.
5. Prior to installing the replacement QD base plate on the wrench, place the QD base plate into the pocket and try to insert the 0.025 mm feeler gauge into the gap between the QD base plate and the pocket at various locations around the perimeter. The feeler gauge should not fit anywhere in the gap between the QD base plate and the pocket.



Warning!

Do not install the replacement QD base plate if any non-conforming conditions are found during these pre-installation checks.

Removal Procedure



Caution!

Complete a JSA before beginning work.

1. Bleed off any hydraulic pressure.
2. Ensure that all electrical power to the wrench is disconnected.



Caution!

Lock out/tag out per local requirements.

3. Remove rotation motor guard by removing two 3/4" mounting bolts. See Figure 6 on page 7.

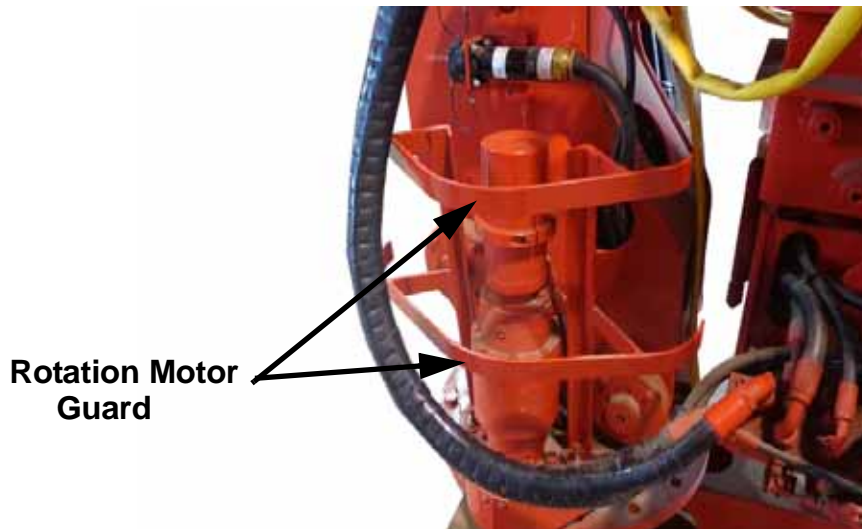


Figure 4: Rotation motor guard.

4. Disconnect both rotation motor hydraulic hoses (making note of correct connections).
5. Cap and plug hydraulic connectors with #8 JIC cap and plugs. See Figure 5.

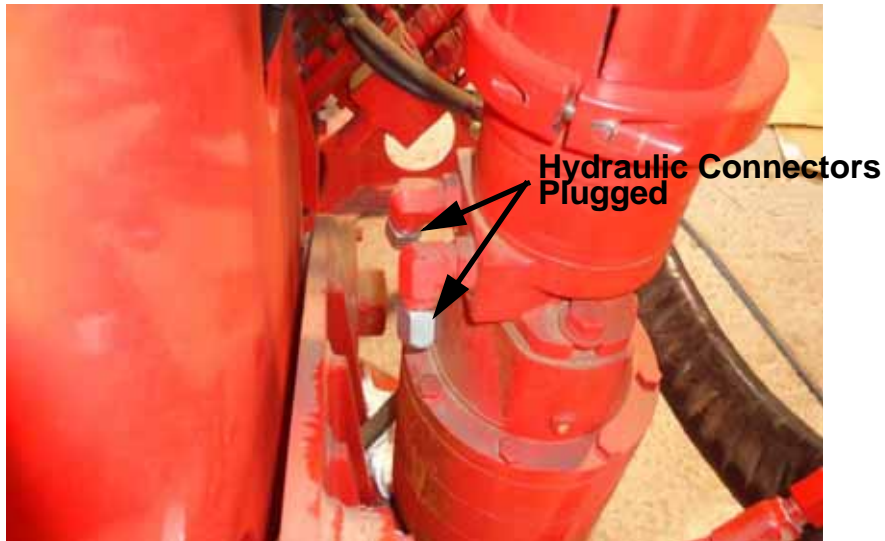


Figure 5: Hydraulic hoses removed and connectors plugged.

6. Remove front and rear base guards.
7. Remove rotation motor by removing the four 15/16" mounting bolts.

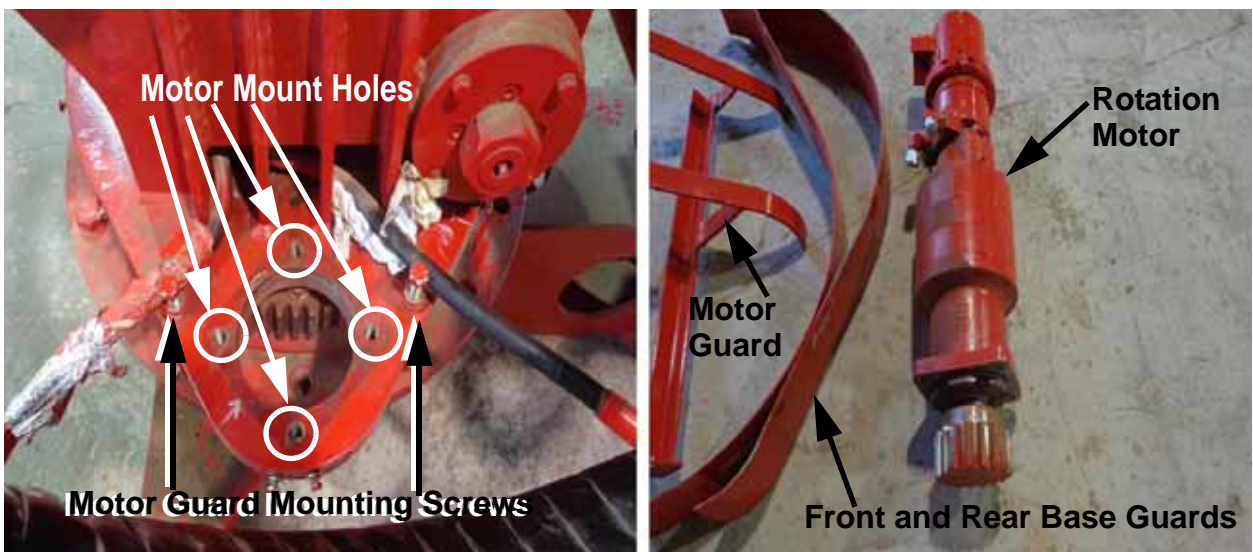


Figure 6: Motor and guard removed.

8. Connect lifting sling to overhead crane.
9. Raise wrench 1/2 inch above shipping skid.



Warning!

The bottom-plate assembly will fall once all bolts are off. **Do not raise wrench more than 1/2" from shipping skid to prevent injury or damage from falling bottom plate.**

10. Remove the 16 (1-1/8") mounting bolts one at a time.
11. Rotate the bottom plate assembly to get access to each bolt from the rear.



Figure 7: Remove mounting bolts.



Figure 8: Disconnected bottom plate.

12. Move wrench to a safe area with the crane, keeping the wrench low (a few inches off the ground).



Figure 9: Move wrench to a safe area.

Installation Procedure

Prepare New Modified Bottom Plate Assembly

1. Clean threads with tap.
2. Apply anti-seize and torque 1-8 UNC Grade 8 Bolts to 700 ft-lb.
3. Remove old bottom plate assembly with fork lift.
4. Move wrench above modified QD base plate assembly.

Install New Bottom Plate Assembly

1. Install a few mounting bolts hand tight. See Figure 10.



Figure 10: Install some mounting bolts hand tight.

- Put wrench over the shipping skid. Leave wrench an inch or so above the skid so the bottom plate can be rotated to install mounting bolts.
- Apply anti-seize and install remaining of the 3/4-10 UNC Grade 8 bolts.
- Torque to 380 ft-lb.



Figure 11: Wrench located over shipping skid.

- Re-Install rotation motor, rotation motor guard, front and rear bottom assembly guards in reverse order of removal. See Figure 6 on page 7.



Note:

The rotation motor may be installed while wrench is still suspended above the shipping skid to help align the gear splines.

- Reconnect hydraulic lines.

7. Remove wrench from shipping skid and install in rig floor pocket.
8. Install QD pins, pin retaining plates, and retaining bolts.
9. Prior to beginning normal operations, function the wrench in the rotational, horizontal, and vertical directions several times to ensure the QD base plate does not shift while the wrench is in motion.

Follow-Up Inspections

1. Perform the following inspections after every rig move as part of the rig-up procedure:
 - a. Visually inspect the weld seam at the joint between the pipe stem and the round plate of both the QD base plate and pocket to ensure there are no signs of cracks.
 - b. Check the four outside diameter QD pin holes of both the QD base plate and pocket for signs of oblong wear or other deformation.
 - c. Check the QD pins for signs of wear or deformation.
 - d. After installing the wrench into the pocket, try to insert the 0.025 mm feeler gauge into the gap between the QD base plate and the pocket at various locations around the perimeter. The feeler gauge should not fit anywhere in the gap between the QD base plate and the pocket.



Warning!

Do not use the QD pins if any non-conforming conditions are found during these inspections. Secure the wrench to the pocket using the traditional means of bolting it down with the 16 pocket bolts. Contact Canrig to resolve the non-conforming condition.

2. Conduct a magnetic particle inspection (MPI) on all visible QD base plate weld seams every 50,000 cycles or every 12 months, whichever comes first. Contact Canrig for repair or replacement if any wear indications are identified.