Removing and Replacing the Quick Change (QC)

To remove and replace the Quick Change you will need the following tools:

- Square tip QC removal tool (with 1/4” drive socket)
- 7/8” stamped flat wrench
- Socket wrench with 1/4” drive (or 1/4” adapter) and 1” extension
- Medium strength thread cement (blue or purple)
- Hot air gun (only needed in a few cases)

Please read the following directions carefully. The quick change should only be replaced under the advice of a CarveWright technician.

Removing the Quick Change

1. **Ready the machine:** Unplug the machine from the power outlet and place it on a stable work platform. Raise the head up several inches and move the Y-truck to the center of the machine for best access.

2. **Detach the flexshaft from the top of the Z-truck:** Move the Z-truck to the very top of its travel (until it reaches the hard stop) so that the flexshaft support tube protrudes from the head cover (See Figure 1). The flexshaft assembly is retained by a ball detent located in the flexshaft receptacle. Firmly grasp the flexshaft support tube while reaching under the clear front cover with your other hand to grab the Z-truck. Pull up firmly on the flexshaft support tube and twist slightly while bracing the Z-truck with your opposite hand. **DO NOT PULL ON THE SHEATH.** The flexshaft will pop out of the detent. Wrap the end of the flexshaft in tape so that the core will not fall out and lay the detached flexshaft end to the side.

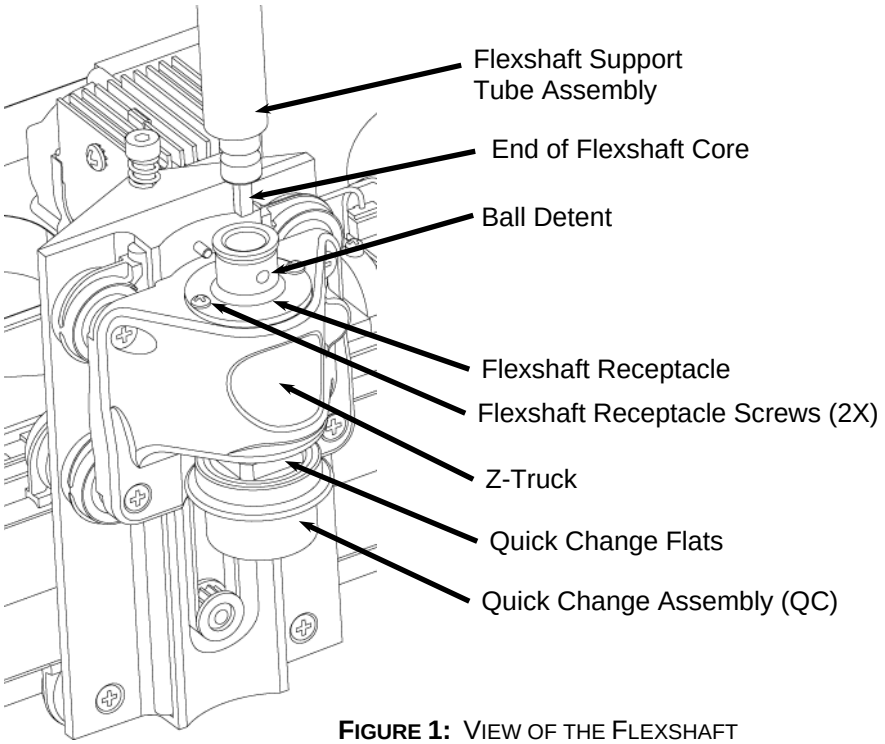

FIGURE 1: VIEW OF THE FLEXSHAFT CONNECTION TO THE Z-TRUCK

3. **Assemble the socket Wrench:** Assemble the square tip QC removal tool and the extension/adapter to a standard socket wrench. Make sure that the wrench is set to lock in the standard tightening direction (clockwise as viewed from the back of the wrench, counter-clockwise as viewed in Figure 2)

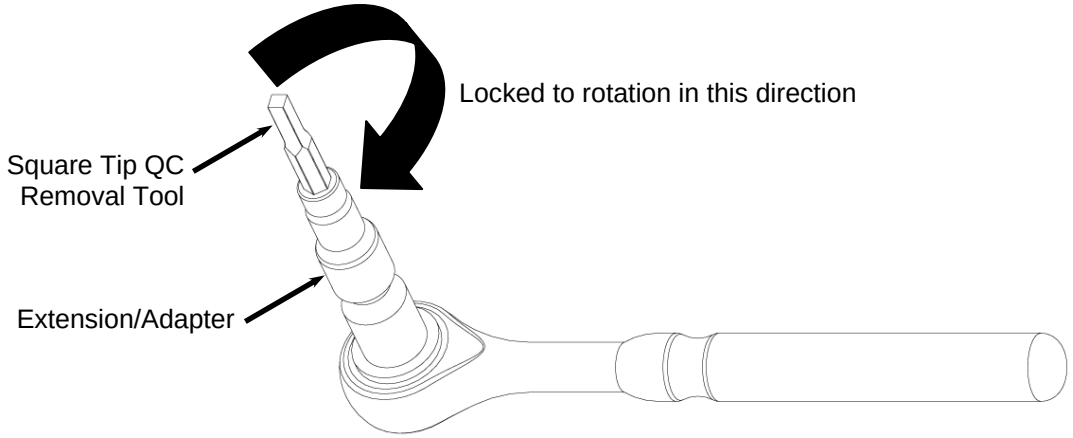

FIGURE 2: ASSEMBLED SOCKET WRENCH

4. **Position the wrenches for QC removal:** Remove any bit in the quick change and make sure that the QC cap is in the down position exposing the entire height of the flats on the QC. Insert the assembled socket wrench into the spindle from below. Rotate the quick change until the square tip of the removal tool falls into the square hole in the spindle shaft. Place the 7/8" flat wrench onto the flats of the QC assembly.

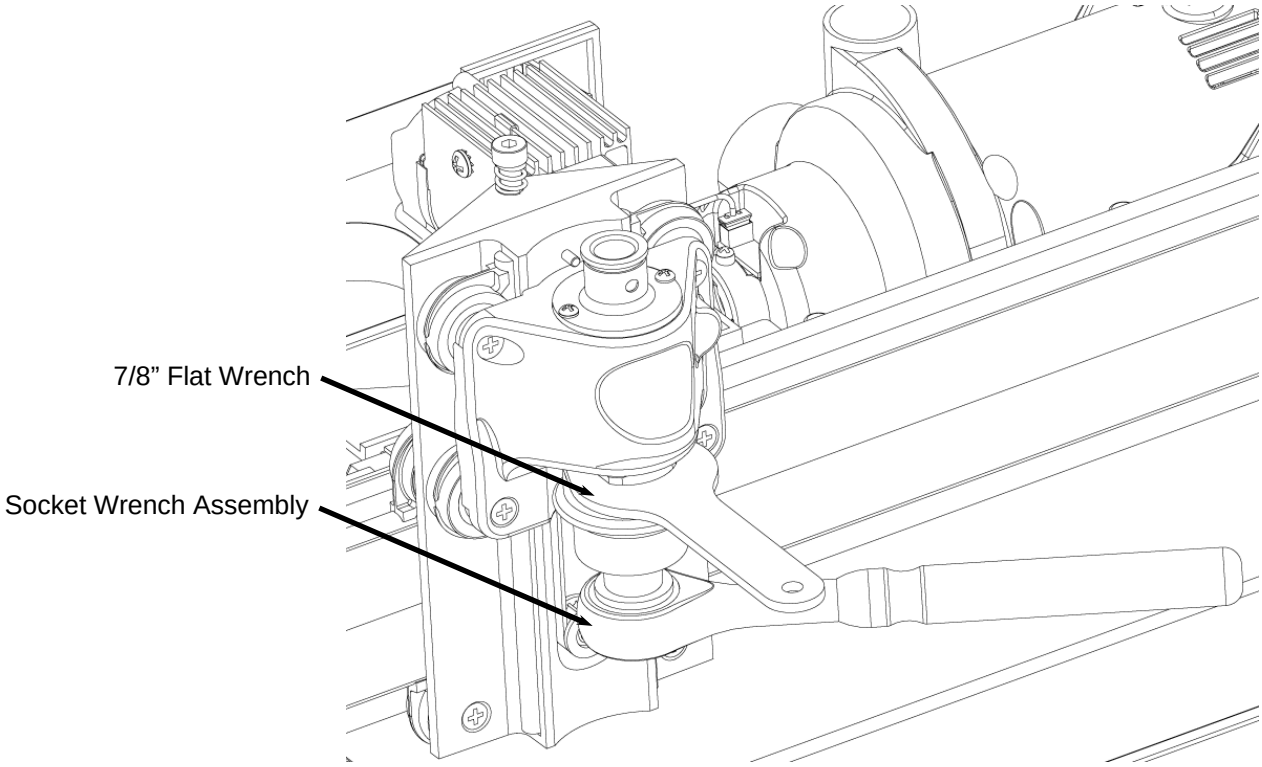

FIGURE 3: PLACEMENT OF WRENCHES ON QC

5. **Remove the QC:** Hold the socket wrench in place while turning the flat wrench in the clockwise direction as seen from above (the threads are standard right-handed direction threads). Be sure to use small, quick, motions instead of constant pressure to break the thread cement loose.

6. **For a stuck QC use heat:** If the quick change will not loosen, use a heat gun on the upper portion of the quick change (on the flats) to soften the thread cement inside the threads and repeat Step 5 again. Be careful to apply the heat to the metal portion of the QC so as not to melt the plastic cap. If quick change does not loosen after a minute or so of trying with the wrenches, reheat and try again.

7. **In the event that a bit is stuck in a broken QC:** If a bit is stuck in the QC you will not be able to use the square tip QC removal tool. In this case you will have to lock the shaft from turning from the top of the spindle. Start by removing the two screws holding the flexshaft receptacle and to reveal the top of the spindle shaft. There will be a square hole at the top of the shaft into which the flexshaft core slips. Locate an Allen wrench or correctly sized flathead screwdriver to fit into the square. Please consult with the service technician if you do not have the proper tools. While holding the spindle in place with the Allen wrench, use a 7/8 inch flat wrench to unscrew the quick-change assembly as in Step 5.

Assembling the New Quick Change

1. **Prepare the spindle shaft:** Make sure that any thread cement left on the spindle shaft threads is removed (especially on the bottom face). We recommend using a wire brush to remove the hardened thread cement and a pick if the brush is unable to remove all of the cement.

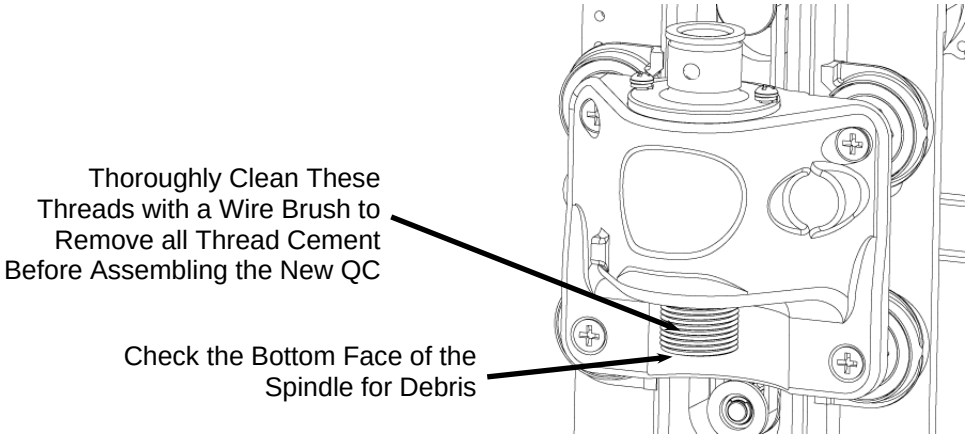

FIGURE 4: CLEAN SPINDLE THREADS

2. **Apply thread cement to the spindle shaft threads:** Apply two small drops of medium strength thread cement (Loctite - blue or purple) onto the spindle threads before reattaching the new quick-change assembly.

3. **Tighten the QC:** Thread the new QC onto the shaft and tighten with the two wrenches. Make sure that it is seated all the way down and tight. It should take much less pressure to tighten the quick change than it took to remove it. It is

important to verify that the QC is all the way down. Perform the following test with two US quarters: Stack the two quarters together and try to insert them into the gap between the top of the QC and the bottom of the Z-Truck. The gap in a properly tightened QC will not allow the quarter stack to reach the threaded shaft. If the quarter stack reaches the threaded shaft then it needs to be tightened down further.

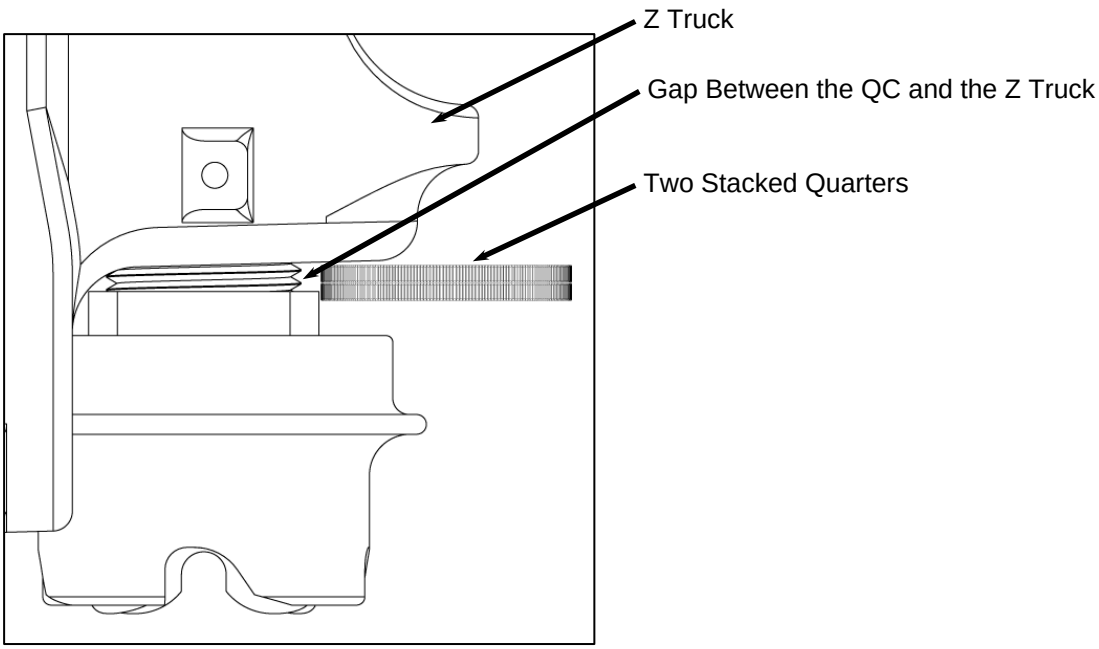

FIGURE 5: VERIFYING THAT THE QC IS ON ALL THE WAY

4. **Prepare the flexshaft assembly for re-insertion into the machine:** Gently pull the protruding flexshaft core (with squared end) out of the sheath several inches. Push the core back into the sheath and make sure that it slips into, and engages, the cutting motor. It will drop into the receptacle on the motor side about 5/8ths of an inch. Turn the core by hand and feel for resistance of the motor. If the shaft spins without resistance, push the core inward while rotating until it drops into the slot and engages the motor.

5. **Insert the flexshaft into cutting head:** Looking through the slot in the top cover, locate the flexshaft receptacle on the top of the Z-truck. Inside the receptacle there is a square recess that mates with the exposed square end of the flexshaft core. Turn the chuck on the bottom of the cutting head (open the safety cover for access) until the square core end can be inserted into the recess. Press the flex shaft all the way down into its receptacle. A click will be heard and felt as the shaft snaps into place.