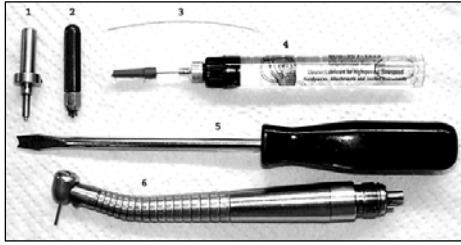


# MIDWEST TRADITION – JC (JACOBS CHUCK) REPAIR PROCEDURE



1. High-Speed Spindle Punch (00024 & 00024R)
2. Midwest Tradition - Jacobs Chuck Bur Wrench (40413)
3. Wire Reamer
4. Pen Oiler
5. Modified Flathead Screwdriver
6. Midwest Tradition – JC Handpiece

The Midwest Tradition is an excellent handpiece. It has a small head, a steel housing and it is well balanced. There are three “Tradition” models – one with a Jacobs Chuck, one with a Lever Style Auto-Chuck and another with a Pushbutton Auto-Chuck. Although the repair procedure for each model is very similar, there are some key differences. The repair procedure for the Jacobs Chuck style handpiece will be presented first, followed by the Lever and Pushbutton style repair process.

Note: This handpiece can be easily converted to a pushbutton style, using the aftermarket conversion kit (40423PBC). Refer to the Midwest Tradition & XGT – PB Repair Procedure section for the conversion instructions.

**STEP 1** Try to determine the problem before opening the handpiece. Insert a high speed bur, checking that it inserts smoothly and tightens securely. Twist the bur manually to feel how smoothly it turns. Attach it to your air hose and run the handpiece (if you can). Check that air pressure is at 38 p.s.i.. Listen for the appropriate pitch at full speed and for a smooth rundown. Check the water spray – it should be a fine mist. Attempt to cut a shell to test the torque. Disassemble the handpiece following the instructions below.

## DISASSEMBLY



**STEP 2** Remove the back cap using a modified flathead screwdriver (see picture to the left and below). The cap unscrews in a counter clockwise direction.

*TIP: Sometimes the cap is very tight. Be very careful not to let the tool slip and strip or scratch the back cap. If it is scratched, lap with fine grit sandpaper.*



This is a close-up picture of the modified flathead screwdriver tip used to open the back cap in the picture above. This can be modified using a bench grinder.

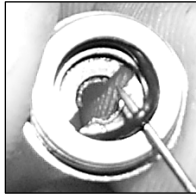


**STEP 3** When the back cap is removed, the turbine will usually remain in the handpiece. Use your high-speed spindle punch (00024R) to push it out. Remove the turbine, and investigate the cause of the problem. Most handpieces wear out the bearings and O-rings only.



**STEP 4**

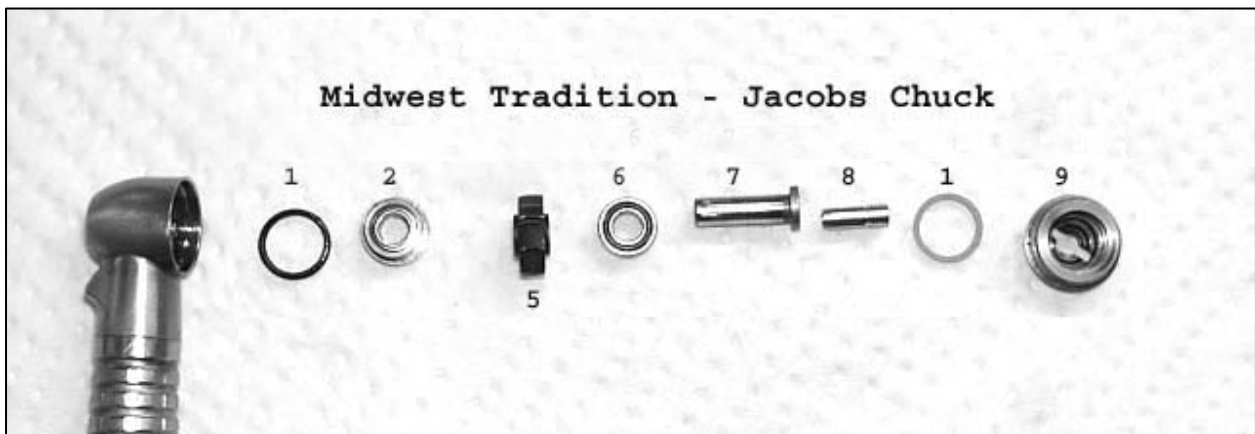
Using a pin, remove the o-ring from the head of the handpiece.



**STEP 5**

Remove the o-ring from the back cap, also.

The following picture shows the exploded view of the turbine assembly for the Midwest Tradition – Jacobs Chuck handpiece.

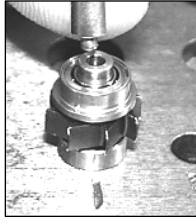


Picture Number	Part Number	Description
1	404071 404072	O-Ring - Blue Square O-Ring - Black
2	40405B	Flanged Bearing
5	40498	Impeller
6	40405C	Straight Bearing
7	40497	Spindle
8	40416	Jacobs Chuck
9	40415A	Back Cap



**STEP 6**

Using the Midwest Tradition - Jacobs Chuck Bur Wrench (40413), remove the chuck from the spindle.



#### **STEP 7**

Place the entire turbine unit into hole #1 with the chuck side down. Using the high-speed spindle punch (00024R), place the punch tip in the bur hole. Using the press, push the spindle out of the bearings and impeller.



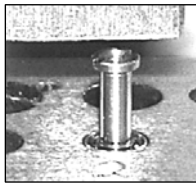
#### **STEP 8**

Using the wire reamer, gently push it into the end of the waterline to loosen any debris that may have accumulated there.

#### **STEP 9**

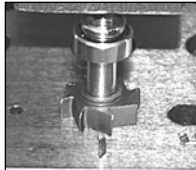
Place the old bearings and o-rings aside. Do not discard the old bearings and o-rings until the reassembly process has been completed. Clean the remaining parts in an ultrasonic cleaner until they are clean. Get the new parts from your inventory.

### **REASSEMBLY**



#### **STEP 10**

**Original and Aftermarket Turbine:** For both the original and aftermarket turbine assemblies, the reassembly process begins by placing the straight bearing (40405C) into hole #2 on the work block with the balls in the bearing facing upwards, toward the ram of the press. Press the spindle into the bearing. Tip the work block to remove the spindle and bearing.



#### **STEP 11**

**Original and Aftermarket Turbine:** Since the impeller is flanged on both sides, it is much easier to align with hole #1 on the work block, as the flange will set down in it. Make sure that the teeth of the impeller are facing in the same direction as the in the picture, so that it will spin in a clockwise direction when the handpiece is put on air. Carefully press the partially assembled spindle through the impeller.



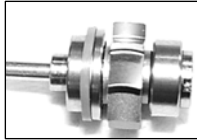
#### **STEP 12**

**Original and Aftermarket Turbine:** Place the flanged bearing (40405B) with flange facing upwards, closest to the ram of the press, into hole #3 of the work block. Press the partially assembled spindle through the flanged bearing.



#### **STEP 13**

**Original and Aftermarket Turbine:** Using the Midwest Tradition - Jacobs Chuck Bur Wrench (40413), reinsert the chuck into the spindle. Do not tighten it without a high speed bur or bur blank in the spindle, as this could damage the chuck.



#### STEP 14

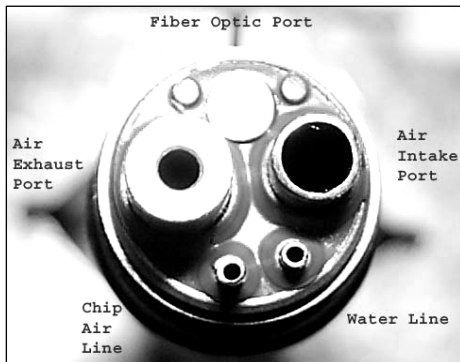
Place the o-ring (404071 or 404072) onto the flanged bearing. Also place a new 404072 o-ring into the back cap.



#### STEP 15

Place the reassembled turbine into the back cap. Install the turbine into the head of the handpiece by tightening the back cap in a clockwise direction - be very careful not to cross-thread it. Tighten it with the modified flathead screwdriver. The handpiece is now fully assembled.

**STEP 17** Test the handpiece by rotating the bur between your thumb and forefinger. The rotation should be smooth and easy, without drag.



**TIP:** At first it may not feel as smooth as it should. Squirt a one second blast of The Dentist's Choice "Once a Day" lubrication into the air intake port. Put the handpiece on "air". Hold it at 38 p.s.i. for about 30 seconds. It should start to wind up to full speed. It will whine when it is at full power.

**TIP:** If it will not turn, recheck for a crimped O-ring! Don't forget to look for dents. Using your air hose, blast any debris out of the handpiece, including all of the water, chip and air lines. Then reinstall the o-rings, turbine and back cap.

When testing the handpiece, flip the water on to make sure the water lines are clear. Always test for torque or cutting power. Use a seashell for testing the handpiece. A piece of plastic does not work, it melts. Remember when testing for torque, a Midwest Tradition will stop at about 6oz to 8oz of pressure. If it is not running properly it will stop the instant you touch something hard. If it cuts well and sounds good, it is done!