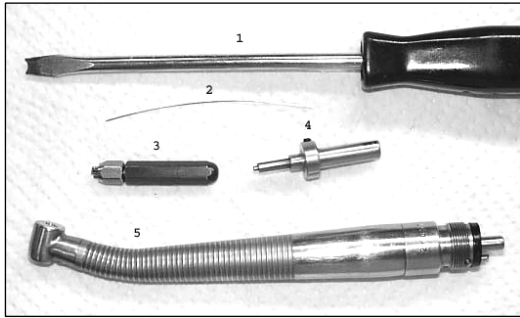


MIDWEST 8000/8000I REPAIR PROCEDURE



1. Modified Flathead Screwdriver
2. Wire Reamer
3. Midwest Jacobs Chuck Bur Wrench (40413)
4. High-Speed Spindle Punch (00024 & 00024R)
5. Midwest 8000 Handpiece

Both the Midwest 8000 and 8000i (Insight with fiber optics) are sturdy, old handpieces that are still occasionally encountered in the field. Compared to the Quiet-Air, it is considerably lighter, the head is smaller and the housing is made of steel. It is a very fast handpiece (about 400K RPM) yet, a very noisy handpiece as well. The bur tool is the same as the Tradition. Both models are Jacobs Chuck style only and at this time, there is not an auto-chuck conversion kit available for these handpieces.

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. Attempt to cut a shell to test the torque. Disassemble the handpiece following the instructions below.

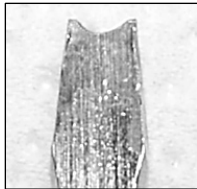
DISASSEMBLY

STEP 2



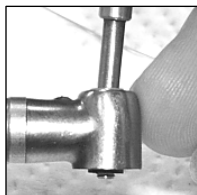
Remove the back cap using a modified flathead screwdriver (see picture to the left and below). The cap unscrews in a counter clockwise direction.

***TIP:** Sometimes the cap is very tight. Be very careful not to let the tool slip and strip or scratch the back cap. If this occurs, lap the cap surface on some fine grit sandpaper to remove imperfections.*



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.

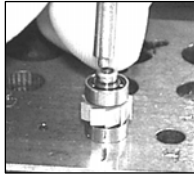
STEP 3



When the back cap is removed, the turbine will usually remain in the handpiece. Use your high-speed spindle punch (00024 & 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.

TIP: The front fiber shield is unique to the Midwest 8000. When you take out the turbine, most often the shield will stay in the handpiece head. Carefully push it out. Over time, and with repeated autoclaving, the fiber shield will become hard and break. Save it if possible, but if it does break, a new one can be installed.

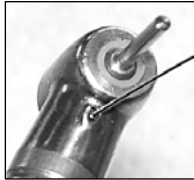
TIP: After removing the shield you will notice it contains an o-ring and spring washer.



STEP 4

Place the flange of the spindle into hole #1 of the work block. Place the tip of the high speed spindle punch squarely into the spindle hole and press off the bearings and impeller.

TIP: Note the bearings are both straight angular bearings.



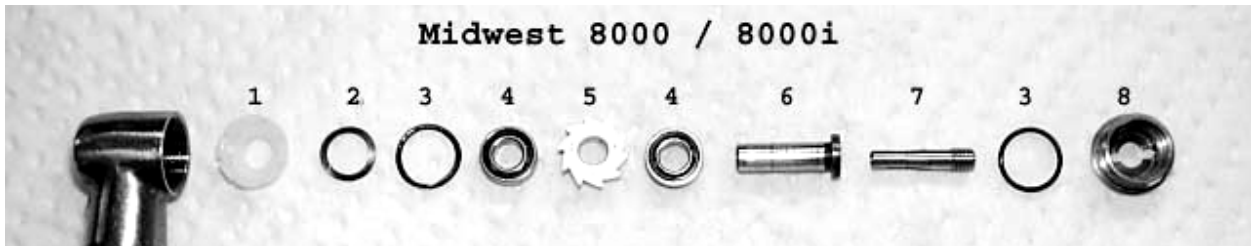
STEP 5

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

STEP 6

Set the old bearings and o-rings to the side. Clean the remaining parts in the ultrasonic cleaner until they are clean. Get the new parts from inventory. When the parts are removed, dry them completely before attempting reassembly.

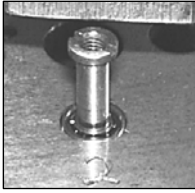
The following picture shows the exploded view of the turbine assembly. Note: The chuck has already been removed from the spindle.



Picture Number	Part Number	Description
1	40426	Autoclavable Insert
2	40410	Spring Washer
3	40427	O-Ring - Black
4	40405D	Straight Angular Bearing
5	40428	Impeller
6	40429	Spindle
7	40414	Metal Chuck
8	40415B	Back Cap

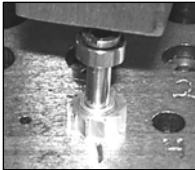
Note: The Midwest 8000 had a flat spacer with the loading spring from the factory. When rebuilding, you can replace the flat spacer with another loading spring (40410).

REASSEMBLY



STEP 7

Set the rear bearing (40405D) into hole #2 of the work block, making sure that the balls are facing upwards, towards the ram of the press. Using the ram of the press, push the spindle through the bearing until the flange is snug against the bearing.



STEP 8

Place the flange on the impeller flush into hole #1 of the work block. Ensure that the teeth on the impeller are facing in the proper direction so that it will spin in a clockwise direction when installed. Using the ram of the press, push the impeller onto the partially assembled spindle.



STEP 9

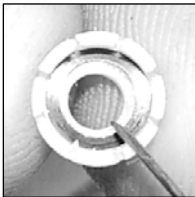
Place the front bearing into hole #2 of the work block. Note: This time, make sure that the balls are facing down into hole #2, away from the impeller. Using the ram of the press, push the bearing onto the partially assembled spindle.



When completed, the turbine assembly should look like the picture to the left.

STEP 10

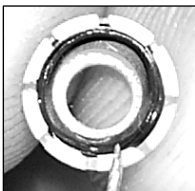
Using the Midwest Jacobs Chuck Bur Wrench (40413) reinsert the chuck (40414) into the spindle. Once the threads begin to catch, insert a high speed bur and continue to tighten the chuck to secure it. Not only will this step help you to insert the turbine into the head but also, the chuck can easily be tested at this time. The bur should slip in easily and be securely held when the chuck is tightened. If there is a problem, try replacing the chuck and retest.



STEP 11

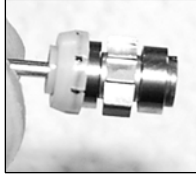
Place the spring washer (40410) into the plastic autoclavable insert (40426) with the bow arched upwards. Use a pin to help position it properly.

Note: If the flat spacer is missing, 2 – 40410 loading springs can be used.



STEP 12

Carefully place an o-ring (40427) into the autoclavable insert, on top of the spring washer.



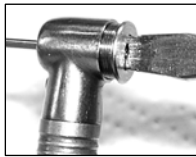
STEP 13

Slip the autoclavable insert onto the front bearing. Be careful not to kink the o-ring. If it will not easily slip on, use a pen oiler to slightly lubricate the o-ring.



STEP 14

Insert an o-ring into the back cap. Slightly lubricate it, if necessary, using a pen oiler. Slip the back cap onto the rear bearing.

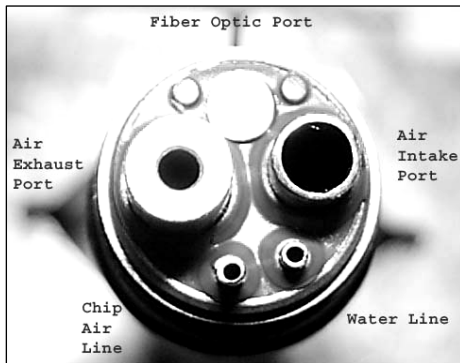


STEP 15

Insert the completed turbine assembly 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.

Note: It may be necessary to push on the back side of the turbine/backcap to help locate the front insert into the head.

STEP 16 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 8000 / 8000i 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!