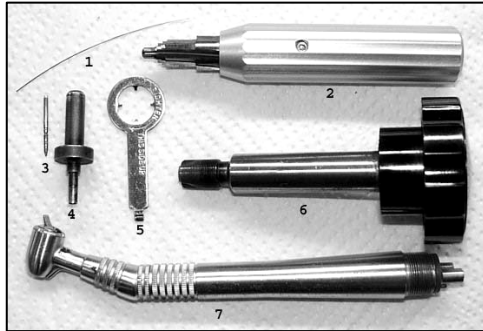
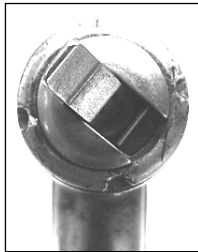


MIDWEST QUIET-AIR L WITH POWER LEVER & MIDWEST QUIET-AIR L FIBER OPTIC WITH POWER LEVER REPAIR PROCEDURE



1. Wire Reamer
2. MWQA Head Reamer (00023)
3. High Speed Bur
4. Auto-Chuck Protector Punch (00024 & 00024A)
5. MW L Back Cap Wrench (40408A)
6. MWQA Threading Tap (00023A)
7. MWQA L with Power Lever Handpiece



The Midwest Quiet-Air L with Power Lever has an “auto-chuck” mechanism. This design allows the insertion of a bur into the handpiece without the use of a bur tool. By raising the lever (as shown in the pictures to the left and above) the chuck is opened, allowing a high speed bur to be inserted. Most other manufacturers have variations of an auto-chuck system with a push button mechanism, as will be seen later. Auto-chucks are designed to last but, over time, they can also break. When the auto-chuck mechanism fails, it can not be repaired – it must be replaced. Most often, repairs to this handpiece involve replacing only the bearings and o-rings, just like the Standard and In-Sight Fiber-Optic models.

Rebuilding Midwest Quiet-Air L with Power Lever is very similar to rebuilding the Quiet-Air Standard turbine except for a few minor differences:

- A. There is no bur tool needed, as these handpieces are designed with an auto-chuck mechanism.
- B. The back cap has a latch built into it to release the bur and it usually comes off much easier than the Standard back cap.
- C. The turbine does not have a lock nut.
- D. There will be a small washer/spacer in front of the front bearing (the flanged bearing), and a spacer is between the impeller and front bearing.

DISASSEMBLY

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.



STEP 2

Using the back cap wrench (40408), unscrew the back cap in a counter clockwise direction.



STEP 3

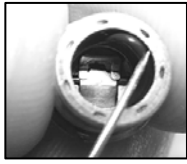
Remove the turbine, and investigate the cause of the problem. For most handpieces, replacing the bearings and o-rings should solve the problem.

Note: At this time, determine whether you have a Midwest original or an “aftermarket” turbine assembly. An OEM spindle will have a flange at the rear just below the button.



This is the exploded view for both the original and aftermarket assemblies. Determine which one you are working on and proceed with the proper reassembly process.

Picture Number	Part Number	Description
1	40411LW	Lever Pressure Plate
2	40410	Spring Washer
3	404071 404072	O-Ring - Blue Square O-Ring - Black
4	40405A	Flanged Bearing
5	40411QLS	Spacer Washer .017
6	40412QL	Original Impeller
7	40405D	Lever Type Spindle/ Chuck Combo
8	40411QLS	Flanged Spindle Only
9	40411L	After/Market L Spindle
10	40408L	Lever Type Back Cap



STEP 4

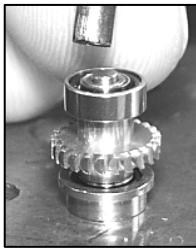
Remove any o-rings that might still be on the bearings, in the back cap or inside the head.



STEP 5

Original Turbine: Press off the bearings and impeller using hole #4 in your work block. Use the highspeed round punch (00024R) for this disassembly.

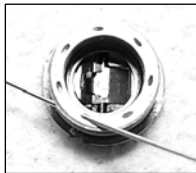
TIP: Be very careful to position the turbine so the flange on the back of the spindle will pass through the block and not hang up on the edge. It is a good idea to put the spindle on hole #4 and slide it back and forth to ensure the flange around the release button is in the hole. This will ensure that it will pass through when you press the spindle and auto-chuck out.



Aftermarket Turbine: Because the aftermarket spindle does not have a flange, you are able to press the spindle through the bearings and impeller in one motion. Place the bur end of the spindle into hole #7 of the work block. Place the auto-chuck protector punch over the button on the spindle. Press the spindle through the bearings and impeller.

STEP 6

Clean the parts in an ultrasonic cleaner until clean. When the parts are removed, make sure to blow them dry completely before attempting reassembly.



STEP 7

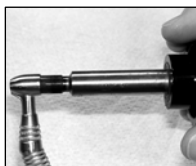
Examine the back cap. Check the air exhaust holes, making sure they are clean and open. If they are dirty or clogged, run a wire reamer through them.

TIP: If these air exhaust holes are not completely clean the handpiece will not run at full power.

STEP 8



Use the Midwest Quiet-Air head reamer (00023) to ensure that no dents are present. To do this, insert the tool all the way into the head. First, twist the tool in a counterclockwise direction 1 - 2 turns – this will push any dents back out. Then, twist the tool in a clockwise direction to cut any remaining material out. Remove the tool and blast air into the head and the air, water and exhaust lines to thoroughly clean them.



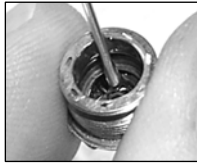
STEP 9

Sometimes the back cap threads in the head of the handpiece can get filled with gunk or they can become damaged or worn, making it difficult to screw the back cap on. This can be easily fixed using the MWQA threading tap (00023A). **Try screwing the back cap on to determine if this procedure is necessary.** If so, place the tool squarely into the back cap. Slowly turn the tool in a counterclockwise direction until it seats squarely into the first thread – a

small click is usually felt. Then, begin to slowly turn the tool in a clockwise direction, paying careful attention not to cross-thread the tool into the handpiece. Continue twisting the tool into the handpiece until it is approximately ¼ inch deep into the head (the depth of the threads). Carefully, unscrew the tool and blast air into the head and ports to thoroughly clean out any material left behind.

REASSEMBLY

STEP 10 Insert a new o-ring (404072) in the cap. Use your needle to position it in the slot (see the picture from Step 3).



STEP 11 With a pen oiler (shown in the picture), oil the o-ring and set the cap aside.

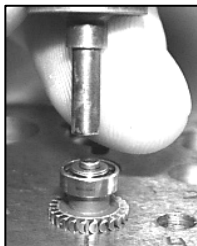


STEP 12
Original Turbine: Position the straight bearing (40405D), with the balls facing upwards, into hole #2 of your work block. Start the spindle (40411L), with the button and flange facing up towards the ram on your press, into the bearing with your fingers. Then, carefully place the auto-chuck protector punch over the button on the spindle and press until the flange of the spindle rests snugly against the bearing, as seen in the picture to the left.



Aftermarket Turbine: Use the KaVo impeller setting tool. Start by placing the impeller over hole #1 in your work block so it would spin in a clockwise direction. Next, place the button into the KaVo tool and press until set.

STEP 13 Pick the block up off the press and shake the bearing and spindle out of the hole.



STEP 14
Original Turbine: Position the impeller over hole #1 on the work block. Place the spindle into the impeller. Using the auto-chuck protector punch, press the spindle and bearing into the impeller. Note: The longer shaft on the impeller should be closest to the rear bearing (facing upwards).



Aftermarket Turbine: Place the rear bearing over hole #2 on your work block with the balls facing down. Insert the spindle into the bearing and press until set. If the bearing is loose on the spindle, a small amount of Loctite may be used to secure it on the spindle shaft.



STEP 15
Original Turbine Only: Place flat spacer washer on the spindle (on an aftermarket impeller this washer has been machined onto the impeller).

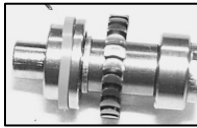


STEP 16

Original Turbine: Place the flanged bearing (40405A) into hole #3 of the work block. Be sure that the flange on the bearing is closest to the ram of the press. Place the partially assembled turbine into the bearing. Using the auto-chuck protector punch, press the spindle snugly into the bearing.

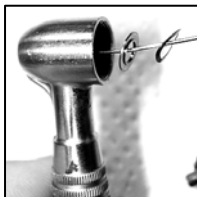


Aftermarket Turbine: Place the flanged bearing (40405A) into hole #3 of the work block. Be sure that the flange on the bearing is closest to the ram of the press. Place the partially assembled turbine into the bearing. Using the auto-chuck protector punch, press the spindle snugly into the bearing. Be careful not to press the spindle through the 40405D bearing.



STEP 17

Put a rubber o-ring onto the flange bearing and place the turbine in the back cap.



STEP 18

Using a needle, replace the lever pressure plate and spring washer (with arc facing up), as demonstrated in the picture to the left.



STEP 19

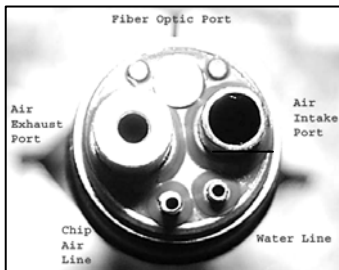
Holding the handpiece in a position so the spring washer stays in place, insert the turbine. Gently wiggle the turbine to seat the o-rings.

STEP 20

Screw on the back cap being very careful not to cross-thread it. Tighten it with the back cap wrench. Insert a high speed bur. The handpiece is now fully assembled.

STEP 21

Test the handpiece first by pulling on the bur to ensure that the chuck is holding it securely. This also helps seat the o-rings. Next, rotate 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 and examine the spring washer to see if it slipped out of position!

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 to test the torque or power of the handpiece. A piece of plastic does not work, it melts. Remember when testing for torque, a Midwest Quiet-Air 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!