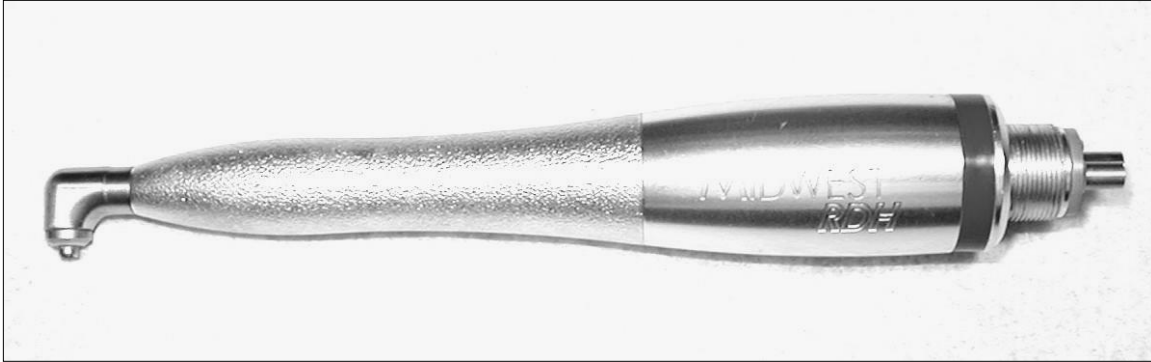


Midwest RDH Handpiece Repair Procedure



The Midwest RDH handpiece is fairly common and is used by hygienists to clean teeth. The most common problems for this handpiece include a bad prophy head or a dirty motor. Both of these problems can be easily solved. As always, try to determine the problem before disassembling the nosecone.

Some signs to look for are:

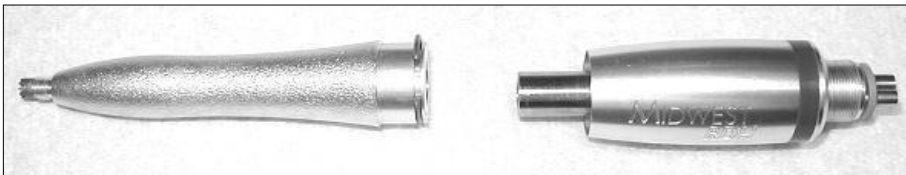
- The Motor is locked up:
 - Try removing the prophy head and running the motor. If the motor now runs freely without the head, simply replace the prophy head (Part# SO-720445). If not, disassemble and overhaul.
- There is little or no torque when the motor is running:
 - You may have a cracked drive gear at the top of the nose section, or you may have a dirty motor in need of overhaul.
- The nose section spins when the motor is running
 - This is a sign of a faulty prophy head, simply replace the head.

The repair procedures for each of these problems is addressed below



STEP 1

To remove the nose portion from the motor portion, secure the nose assembly approximately $\frac{3}{4}$ up the shaft. Use about a $\frac{3}{4}$ " collet to hold the nose. Then wrap the motor housing with a strip of rubber and gently wiggle the housing while simultaneously pulling up. This will allow the two pieces to work apart.



STEP 2

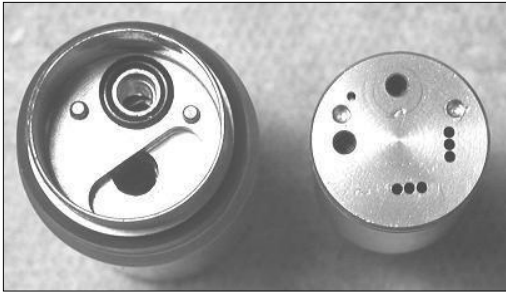
Remove the two pieces and set them on your work surface.

You can now see the retaining clip that was holding the two pieces together. Try to be careful with this clip as it is hard to replace.



STEP 3

Now place the threads of the motor into a 9/16" collet (far left picture). Remove the motor housing by unthreading it in a counterclockwise direction. Place the outer housing on your work surface and then remove the motor canister from the base piece (near left picture). It should simply lift out with little resistance.



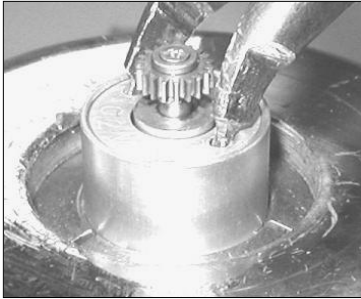
STEP 4

Take time to note that the motor canister sits correctly in the base piece by aligning posts. The two male posts in the base piece line up with the two female holes in the canister. At left, you can see the two meshing pieces.



Picture Number	Part Number	Description
1	N/A	Motor Housing Nose
2	N/A	Nose Drive Assembly
3	40605	Planetary Gears
4	40605R	Ring Gear
5	40605P	Spacer Plate
6	40535	Main Motor Housing
7	N/A	Motor Canister (Bearings inside are 40405C)
8	40487-O	Air Drive O-Ring
9	40422RDH	Color Bands
10	40487	Head or Base Piece

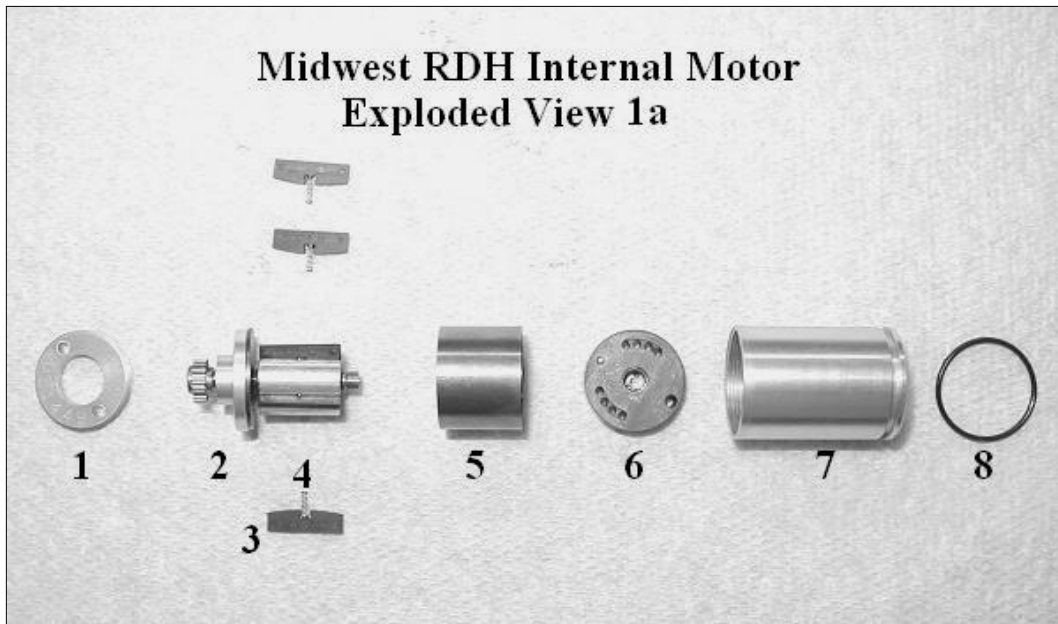
Parts 1 thru 5 of the Exploded View 1 can be exposed by removing a c-clip from inside the top of the motor housing. If you do remove these items, it is best to clean them and apply some grease to the planetary gears before reassembly.



STEP 5

Now we will disassemble the motor canister. Remove the canister o-ring and place the canister into a collet and secure. Now place the tips of a set of 45- degree needle nose pliers into the two holes in the top plate of

the canister (far left picture). This plate is standard thread so turn it counterclockwise to unscrew. Once the top plate is loose, lift it off the motor and remove the canister from the collet by lifting the outer edges. If you grab the drive gear, you will spill blades and springs about.



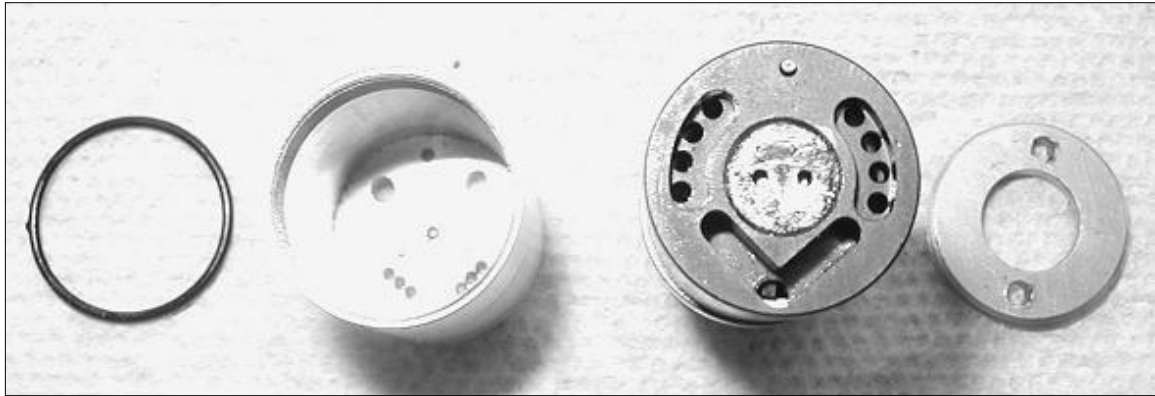
Picture Number	Part Number	Description
1	N/A	Motor Canister Top Plate
2	N/A	Gear and Rotor Assembly
3	40420	Rotor Blades
4	10019	Rotor Blade Springs
5	40520RH	Rotor Housing
6	N/A	Rear Motor Plate
7	N/A	Motor Canister Housing
8	N/A	Canister O-Ring
None	40405C	Internal motor bearings

STEP 6

With the motor disassembled as pictured in the previous exploded view, examine the individual parts. Place the pieces in your ultrasonic cleaner and replace the blades and springs if necessary.

STEP 7

Begin the reassembly process by placing the blades and springs into the rotor. Next, slide the rotor housing over the rotor and blades. Follow this step by placing the rear motor plate onto the rear shaft of the rotor.



STEP 8

The above picture shows the inside of the canister (left), and the back or bottom of the rear motor plate (right). Be sure to insert the motor carefully into the canister. Line the alignment pin in the plate up with the top hole in the inside of the canister. Both the pin and the appropriate hole are at the top of the picture.



STEP 9

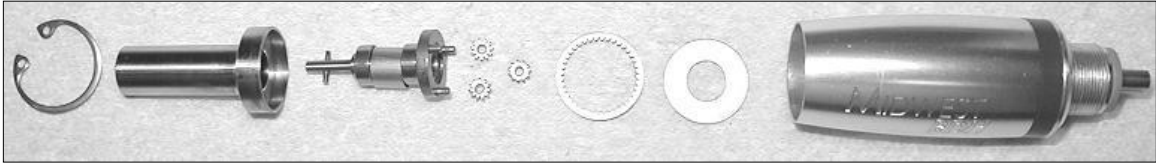
Now start to thread the motor canister top plate into the top of the canister. This will keep the rotor from falling out as you place it back into the collet holder. With the canister held firmly in the collet, use your pliers to tighten the top plate.

If you had removed the large black canister o-ring, now is a good time to place it back in the appropriate groove.



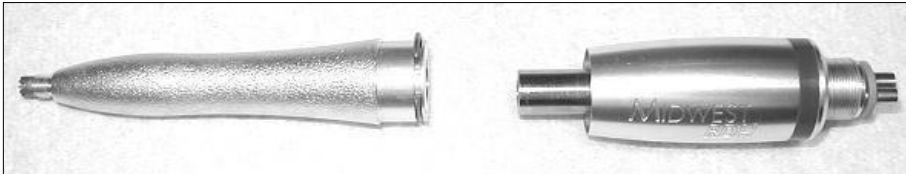
STEP 10

Secure the head or base piece in a 9/16" collet. Place the motor canister into the base piece (far left picture). Refer to the picture in **STEP 4** for proper alignment. Now lower the outer housing over the motor and tighten. The threads are regular so turn the housing in a clockwise direction.



STEP 11

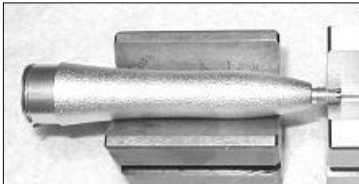
After the housing has been secured to the base piece, reinsert the motor nose assembly, parts 1 thru 5 from the Exploded View 1 picture. Please remember to call the corporate office if you need any help on this or any other step.



STEP 12

Now that the motor has been reassembled we will look at the nose section

repair process. Remember to only disassemble the nose section if there is a problem with the top gear. None of the internal shaft bushings are available.



STEP 13

Place the nose section on a pair of V-blocks and locate the gear retaining pin. Now that you have located the pin, tap it out using a small thin punch. Remove the gear and replace it with a 60219 gear and 60219A retaining pin.



The above picture shows the disassembled nose section. The top gear is replaceable, but the main shaft is not, so be careful when handling the shaft. You can use your Midwest Nosecone Tool (00014) to gain access to the shaft.

STEP 14

The last step deals with meshing the nose assembly and motor assembly back together. Secure the threads of the motor in a 9/16" collet. Then lower the nose section down over the motor until it rests on the large retaining clip. Half-cock the nose section so that part of the retaining clip is feeding down into the top of the motor housing. Then, while applying downward pressure, press the final edge of the clip into the housing with a small flat screwdriver.

Midwest RDH Prophy Nosecone Repair



Disassembly (Note: Complete Nose Assembly is now available, part# 40534. \$119ea. As of 10/2011)



STEP 1

Insert a 9/16" Collet into your table mounted collet holder. Next, insert the handpiece threads into the collet and secure. Then, wrap the upper portion (Nose section) of the RDH with a strip of Gum Rubber (00032). Once tight, slowly jiggle the nose section while also pulling up. This should release the nose section from the main RDH Body.

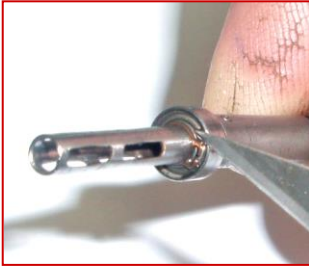


STEP 2

Insert your 00014 MW Nosecone wrench into the opening on the bottom of the nose section. The two teeth on the wrench will exactly match the notches in the internal nosecone nut. Pushing hard into the nut,



unscrew in a conventional counter-clockwise motion. This will allow you to remove the internal nosecone main spindle assembly.



STEP 3

To remove the small brass clip washer, take your exacto knife and carefully slip it out of its groove. Then, slowly slide it up and off the end of the chuck.



STEP 4

Once the brass clip washer has been removed, you can slide the 60102 spindle bearing up and off of the chuck as well. If the chuck is broken, simply tap out the small 60219A pin holding the chuck and drive fork together.



1	Spindle Nut	N/A
2	Drive Fork	N/A
3	Spindle Bearing	60102
4	Chuck	40520
5	Bearing Spacer	N/A
6	Loading Spring	40410
Not Pictured	Brass Clip Washer	40520A
Not Pictured	Complete Nose	40534

Assembly



STEP 1

If you did replace the chuck, simply attach it to the drive fork with a 60219A pin. Next, slide a new 60102 bearing over the spindle and press it down to the bottom spindle flange. Then, carefully slide the brass clip washer down over the chuck until it clicks into the groove on the chuck, just above the bearing.



STEP 2

Insert the assembled main spindle into the open, non-threaded, end of the spindle nut.



STEP 3

The bearing spacer has two very different sides. The bottom is thin with an internal bevel, while the top edge is thicker with a flat surface. Insert the main spindle assembly into the thinner,

beveled edge of the bearing spacer. Next, while holding the assembly upright, slide the loading spring over the end of the chuck so the it sits on the upper, flat edge of the bearing spacer.



STEP 4

Now, while holding the spindle assembly upright, slide the 00014 MW Nosecone wrench over the drive fork and into the notches on the bottom of the spindle nut. Next, while still holding the assembly upright, lower the main nosecone housing down over the spindle assembly. Once lowered, thread the spindle nut into the nosecone in a traditional clockwise direction.



STEP 5

Now we must connect our reassembled nose section to the main RDH Body. First, secure and compress the large C-Clip at the bottom of the nose section with a large Zip-Tie, (larger ones work best).



STEP 6

Once you have secured and compressed the large C-Clip, carefully lower the nose section onto the motor assembly, which should be secured, once again in a 9/16" collet.



Lower the nose section until the C-clip slips into the upper edge of the main RDH body and the Zip-Tie has been pushed up to the main knurled edge of the nose section. Then, simply cut the Zip-Tie loose with an exacto knife and firmly push the nose section all the way into the main RDH body.



STEP 7

Your Midwest RDH Should now be fully assembled and ready to test. Many times, the colored rubber band at the bottom of the motor will be missing or in poor condition. Replacing this band improves the look of the handpiece greatly and we recommend this addition with most RDH repairs.

The bands are part# 40422RDH and come in several colors.

