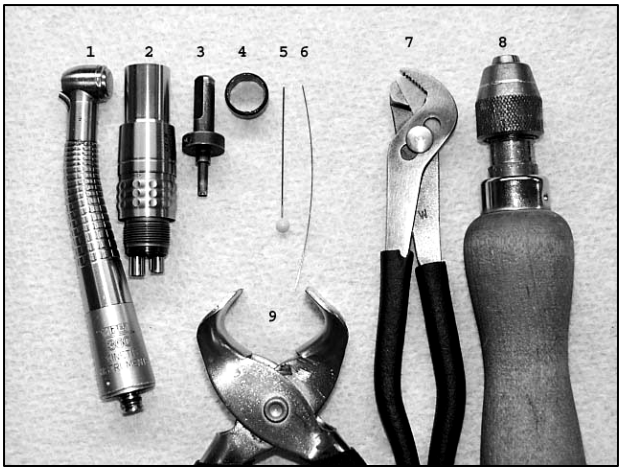
Viper 360 – PB (Pushbutton)
Repair Procedure



1. Viper 360 – PB Handpiece
2. NSK Coupler
3. Auto-Chuck Protector Punch (00024 &00024A)
4. Viper PB Back Cap Removal Tool
5. Push Pin
6. Wire (To clear water line)
7. Small Channel Lock Pliers
8. Hand-held Collet (00036)
9. Dykes (Cutters)…picture shows fish skinners

The Viper 360 is a popular, well-engineered handpiece. It has a fiber optic lighting component.

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.

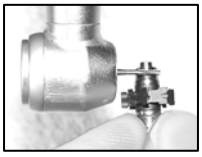
DISASSEMBLY

STEP 2
Using the Viper back cap removal tool, Hold with the small channel lock pliers and twist in a counterclockwise direction to unscrew the back cap and remove the turbine assembly.

TIP: *Sometimes the cap is very tight. Be very careful not to let the tool slip and strip or scratch the back cap.*

STEP 3
Instead of pressing the bearings off the spindle, they must be broken off. This is done so the relationship between the impeller and spindle is not disturbed. To do this, grip the turbine assembly as seen in the picture to the left. Position the assembly over a trash can and *wear eye protection*. Be very careful that the small channel lock pliers do not make any contact with the impeller, as this could damage it and/or disturb its position on the spindle and thus its balance. Also ensure that the channel lock position on the pliers will not allow them to close all the way. If the pliers can fully close, it is very likely that when the bearing breaks, the pliers will collapse onto and damage the spindle.

Once the bearings have been removed, the inner races of the bearings will be left on the spindle, as seen in the picture to the left (picture is actually a Kavo turbine, but the procedures are identical for both.)



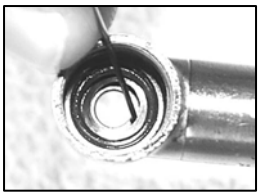
STEP 4
In order to get a better grip on the inner bearing race with the jaws of the fish skinners, it is helpful to cut small grooves on opposite sides of the race. Using a high speed handpiece and a cutting bur, as seen in the picture to the left, lightly score grooves on opposite sides of the bearing race. *It is very important that the bur does not contact and damage the impeller or cut through the bearing race and damage the spindle.*

STEP 5
The inner race of the bearings must now be removed. Grab hold of one of the bearing races with a pair of side cutters or dykes (as shown).

STEP 6
Now place the assembly over the large hole in your work block (shown at left). Once there, place the auto-chuck protector punch over the back of the spindle and press (below right). Then turn the spindle over and use the same technique on the other race.

TIP: *You may find this technique a little hard to manage with only two hands at first. Keep practicing, possibly on an old spindle. It is a very quick and safe way to remove inner races once you get the hang of it. Call us with any questions on this method.*

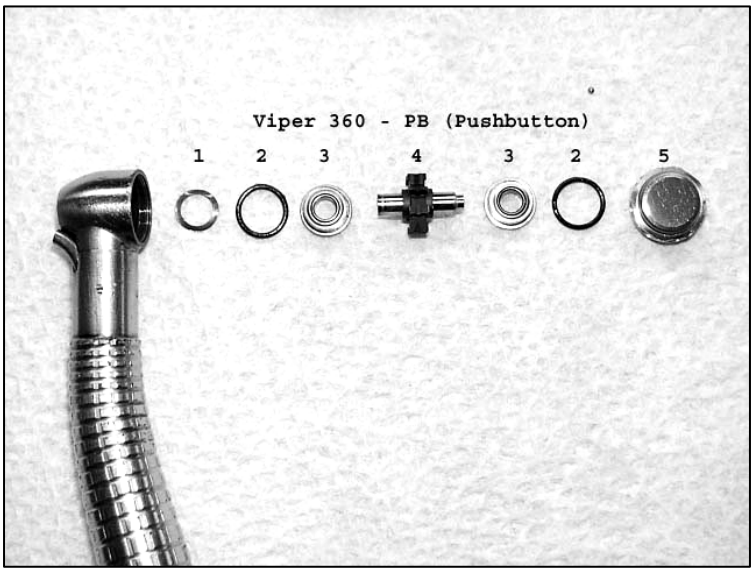
Please Note: *Older versions of this Viper turbine may have a spacer washer between the impeller and each bearing. You must reuse these upon reassembly.*



STEP 7
Remove the o-ring, spring washer and Teflon washer from inside the handpiece head. Also remove the o-ring from the back cap.

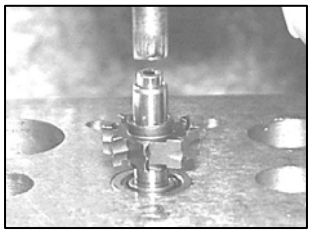
STEP 8
Set the old o-rings, and washers aside. You may need to reuse the Teflon and spring washers. Clear any debris or water deposits from the water line, using a wire reamer. Place all the parts into the ultrasonic cleaner until they are clean. Get new parts from inventory. Always remember to thoroughly dry everything after it has been cleaned in the ultrasonic cleaner.

The following picture is the exploded view of the Viper 360 handpiece.

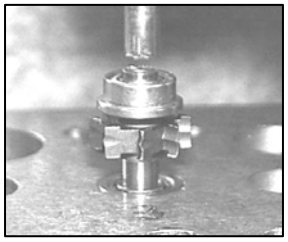


Picture Number	Part Number	Description
1	40410	Spring Washer , (Teflon Washer Not-Pictured)
2	404072	O-Ring
3	40405A	Flanged Angular Bearing
4	08000PB 08001PB 08002PB 08000 08001 08002	Viper 360 Chuck/Spindle Combo (Red Impeller) Viper 360 Chuck/Spindle Combo (Blue Impeller) Viper 360 Chuck/Spindle Combo (Black Impeller) Factory Turbine (Red Impeller) Factory Turbine (Blue Impeller) Factory Turbine (Black Impeller)
5	08000C or 08001C	PB Back Cap (08000C for mini, 08001C for Standard)
	48123	Connector End O-Ring Kit

REASSEMBLY

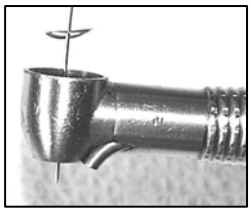


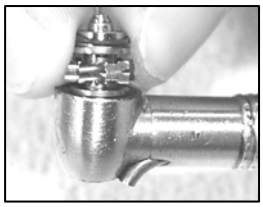
STEP 9
Place the front bearing into hole #2 of the work block, with the “step” where the o-ring will sit facing down, into the hole, away from the impeller. Use the auto-chuck protector punch to press the spindle into the bearing until the impeller just touches the bearing.



STEP 10
Place the rear bearing into hole #2 of the work block, with the "step" where the o-ring will sit facing down, into the hole, away from the impeller. Use the auto-chuck protector punch to press the spindle into the bearing. Press until the impeller just touches the bearing.

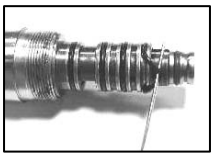
STEP 11
Reinstall the Teflon and spring washers into the head of the handpiece. Use a needle (far left), to properly insert and center the two new o-rings on washers. Once this is done, place the flanged bearings and insert the turbine into the head of the handpiece (near left).



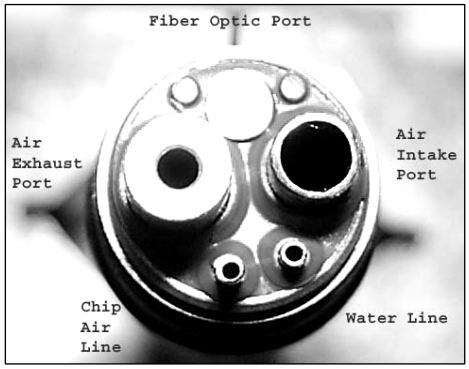


STEP 12
Next, thread the back cap onto the handpiece finger tight. Using the back cap tool and the small channel lock pliers, snug the back cap into the head of the handpiece. Depress the pushbutton back cap and insert a high speed bur. Ensure that the chuck is holding the bur securely.

STEP 13
Like all NSK Handpieces, the O-Rings connecting the handpiece to the coupler are located on a shaft at the bottom end of the handpiece. To replace these O-Rings, you must first remove the bottom sheath (pictured). Unscrew the sheath in a normal counterclockwise direction.



STEP 14
Once the sheath has been taken off, use a needle to remove the o-rings from the connecting shaft. After removing them, replace the o-rings with a new set, part # 48123. Then simply screw the sheath back onto the handpiece. This can cure poor torque and even water leaks if old o-rings are worn and brittle.



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.*

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 <u>not</u> work, it melts. Remember when testing for torque, a Viper 360 will stop at about 6 - 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!