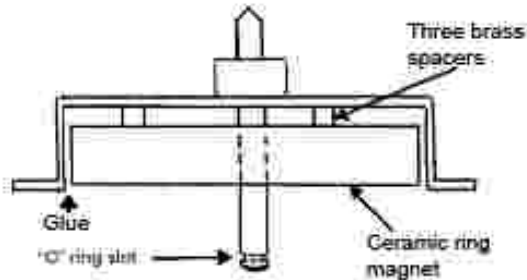


## REPAIR OF CVS MOTOR LOOSE CERAMIC RING MAGNET

Some early motors had defective application of adhesive to hold the ceramic ring magnet in place in the rotor. This will cause scraping sounds to come from the motor as it turns. This is caused by the ceramic ring magnet rubbing against the motor circuit board. This problem was caught early and the factory advised to take extra precautions. Old stock was repaired. However, some have managed to surface.

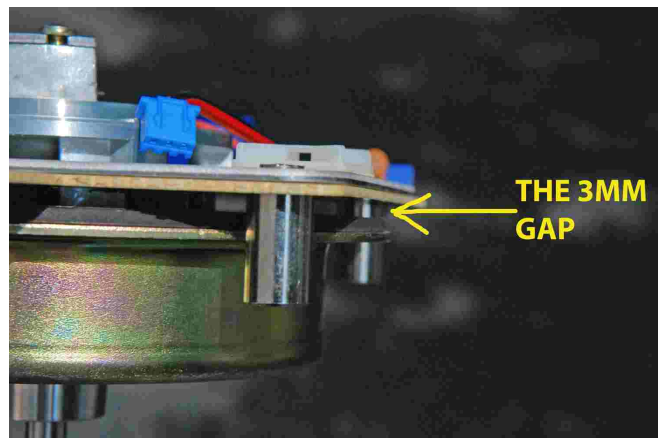
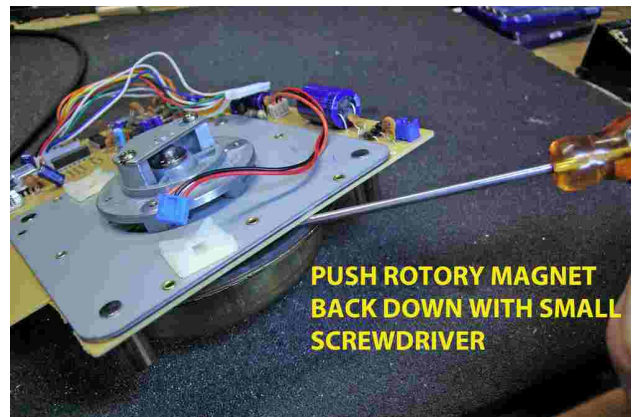


Motor Rotor in Upright Position



The ceramic ring magnet is cemented inside the rotor, and adhered to it with industrial adhesives. Removal of this rotor from the motor assembly would seem the logical step. However, this can cause damage the bearing. This is because the “C”clip that holds the rotor locked in place actually causes small burrs at the insertion point. When one attempts to remove the rotor, one can scrape the inside of the outer bearing. Thus, the following method:

1) First we must reposition the ceramic ring magnet back into place. Turn the rotor and observe how the ceramic ring magnet rubs on the circuit board. Then, use a small screwdriver and push the ring back into the rotor.



2) Observe that when the motor is turned upside-down the rotor will fall downward and reveal a gap of about 3 mm.

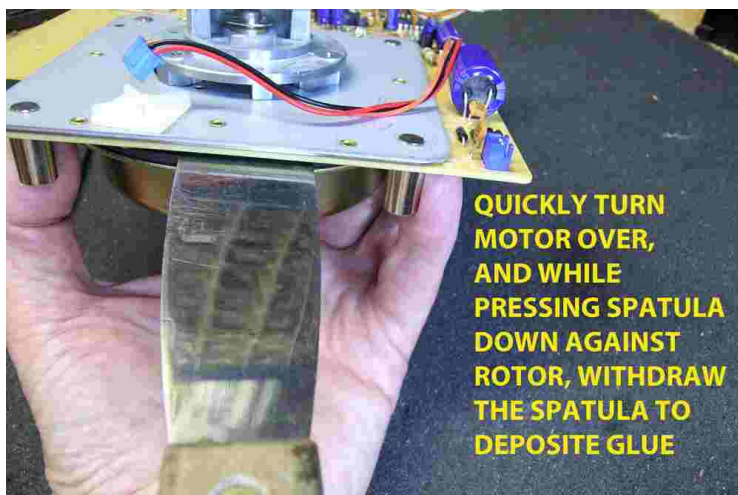
We want to force some glue into that gap, and make it to fall just at the meeting of the inside wall of the rotor and the ceramic ring magnet. We can accomplish this with a very small glue applicator, or with a “putty knife,” or spatula.

The appropriate adhesives vary. We prefer so-called “white glues,” like Elmer’s, or 5-minute epoxy. On the right is a squeeze bottle that has a long nose and is filled with white glue. This is difficult to find. If you have such a bottle you can insert the long tip into the rotor/ceramic ring magnet gap and squeeze some glue into the gap.



3) Assuming that we must use the spatula method, put a small amount onto the end of the spatula.

4) Have a lot of light available so you can see what you are doing. Pull up on the rotor to expand the gap as much as possible, and insert the spatula with the glue. You must position the glue such that it is just inside the rotor, at the rotor/ceramic ring magnet gap.



5) When properly positioned, quickly turn the motor over and push down on the blade of the spatula as you withdraw it. This will permit you to deposit the glue right at the inside wall of the rotor. This will allow the adhesive to fall down into the gap between inner wall of the rotor and the rotor/ceramic ring magnet.

6) Repeat the above step (#5) 3 more times at different, but equal spacings.

7) Let the motor sit upside-down for one or two hours if you are using white glue, or similar. If you are using 5 minute epoxy, let it sit upside-down for 30 minutes.

