

## Speedometer Repair & Lube Pt. 1

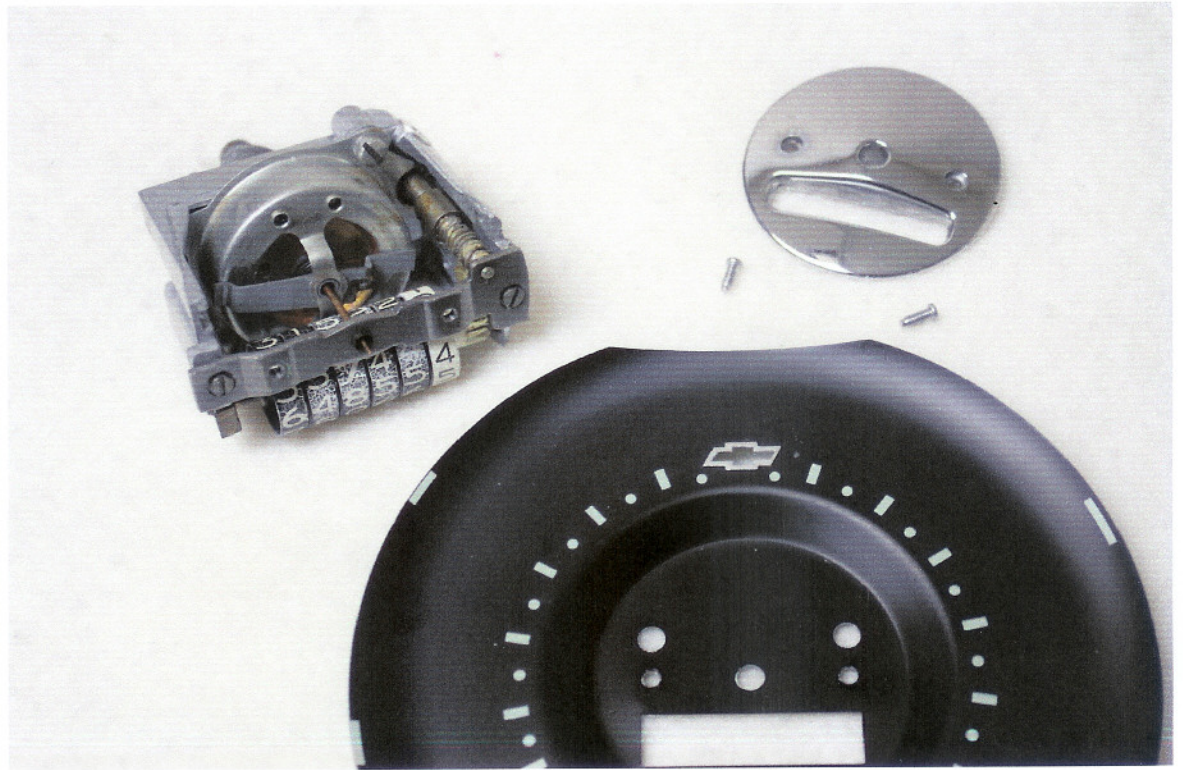
1. Begin disassembly on a clean area approximately 2' by 3' so you have plenty of room to lay out parts as you disassemble them. I use a piece of white or light colored paper to do this on so no parts get lost. If you do this where there might be a chance of a breeze, TAPE DOWN the paper or apply weights to keep from losing parts. Lay all parts aside in the order you remove them.
2. Take note of where the needle is pointing when the face is in a vertical position. It should be covering the long white line at the bottom of the face. Turn the Brass drive assembly a couple of times COUNTERCLOCKWISE as view from the back to make sure the needle drops back to the lower long line. Remove the needle by carefully pulling and turning the needle to the LEFT at the same time. Be sure to hold onto the chrome center of the needle as the needle portion is very fragile. It should come off fairly easy. If it doesn't come off right away STOP and turn the unit face down. Take a small amount of PB Blaster or some other penetrating lube and carefully apply a couple of drops to the needle shaft visible behind the black face and let it run down the shaft to the needle. If you have to do this take a 10 minute break to let it soak then try again. When the needle is off you have what looks like this:



- 3.
4. If you need to paint the needle do it now so it has time to dry before reassembly.

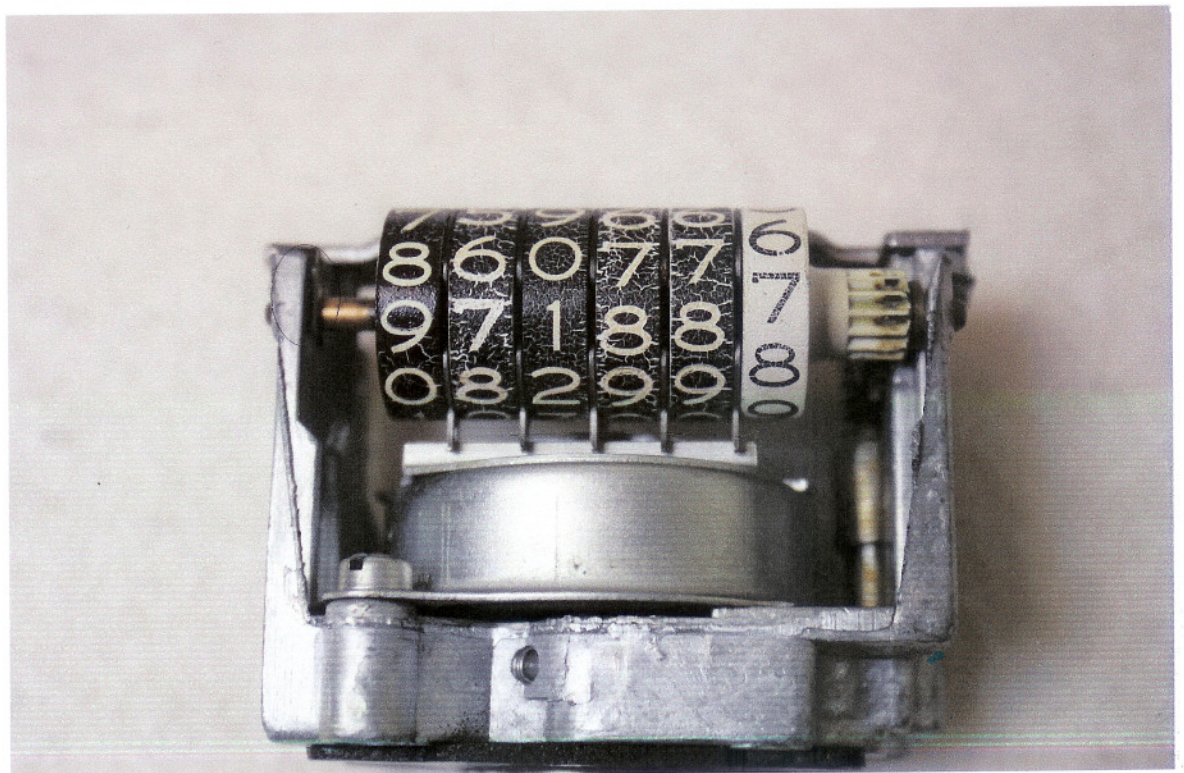


5. Using a small flat screwdriver, remove the screws holding the chrome center and the black face.



6.

7. Turn the main head over to match the next picture.

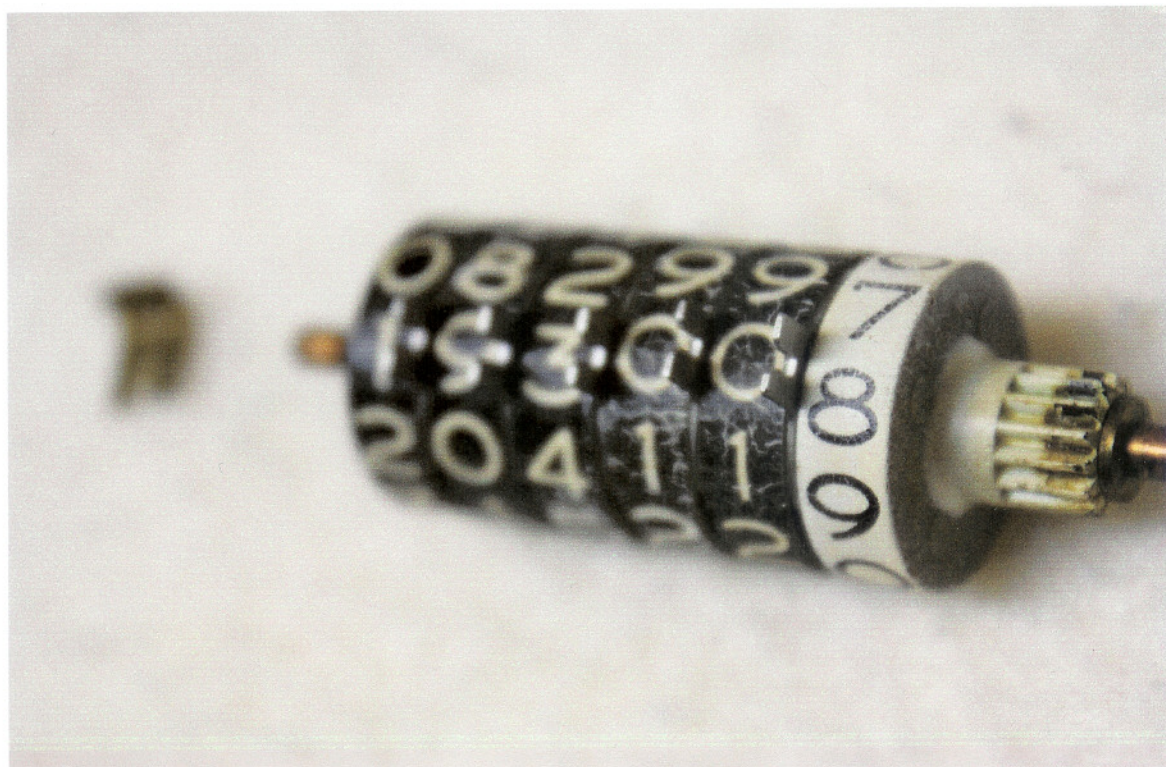


8.



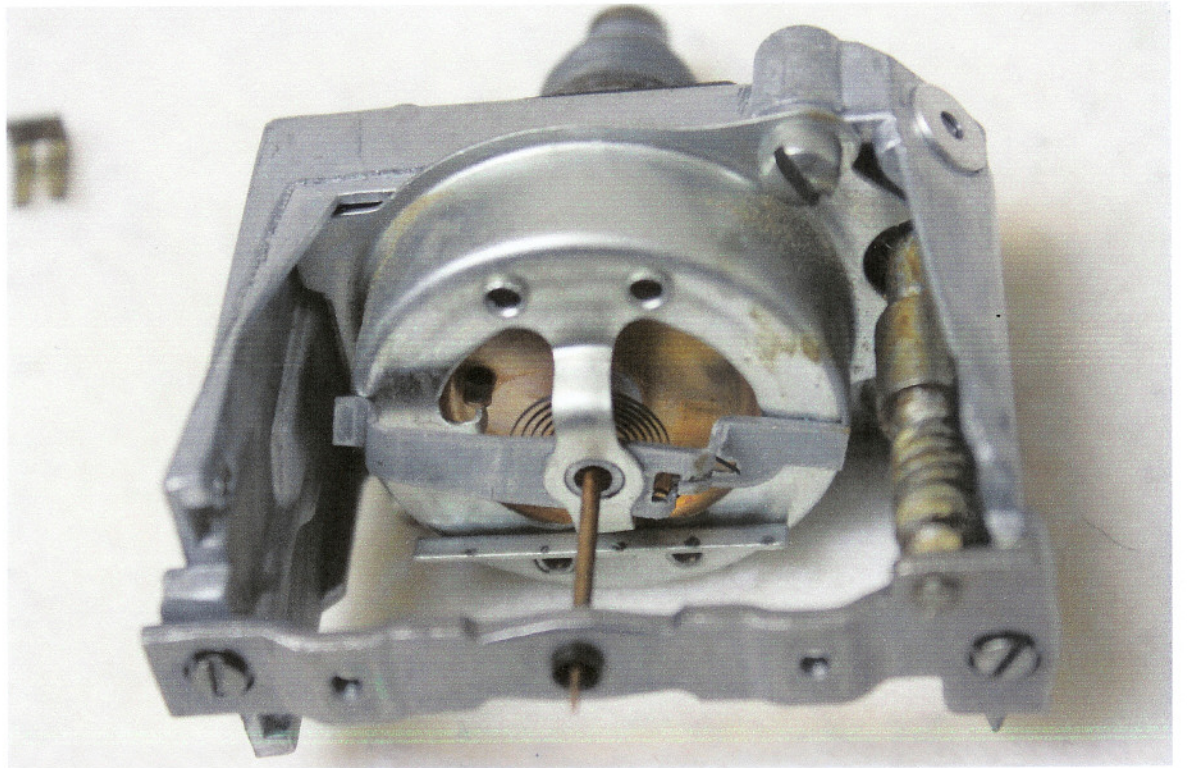
## Speedometer

1. In this picture you will notice the small brass clip in the upper left corner. It holds the odometer assembly to the head. Also take note of the 5 forks at the bottom of the odometer assembly and how they are slipped over the small flange. Remove the clip carefully as it may want to fly off somewhere, then slide the odometer assembly to the left releasing the shaft on the right and lifting slightly slide back to the right releasing the assembly. Set aside carefully so as not to disturb the mileage. I forgot to check the depth of field on the next photo but it sort of shows the forks that slip over the flange.

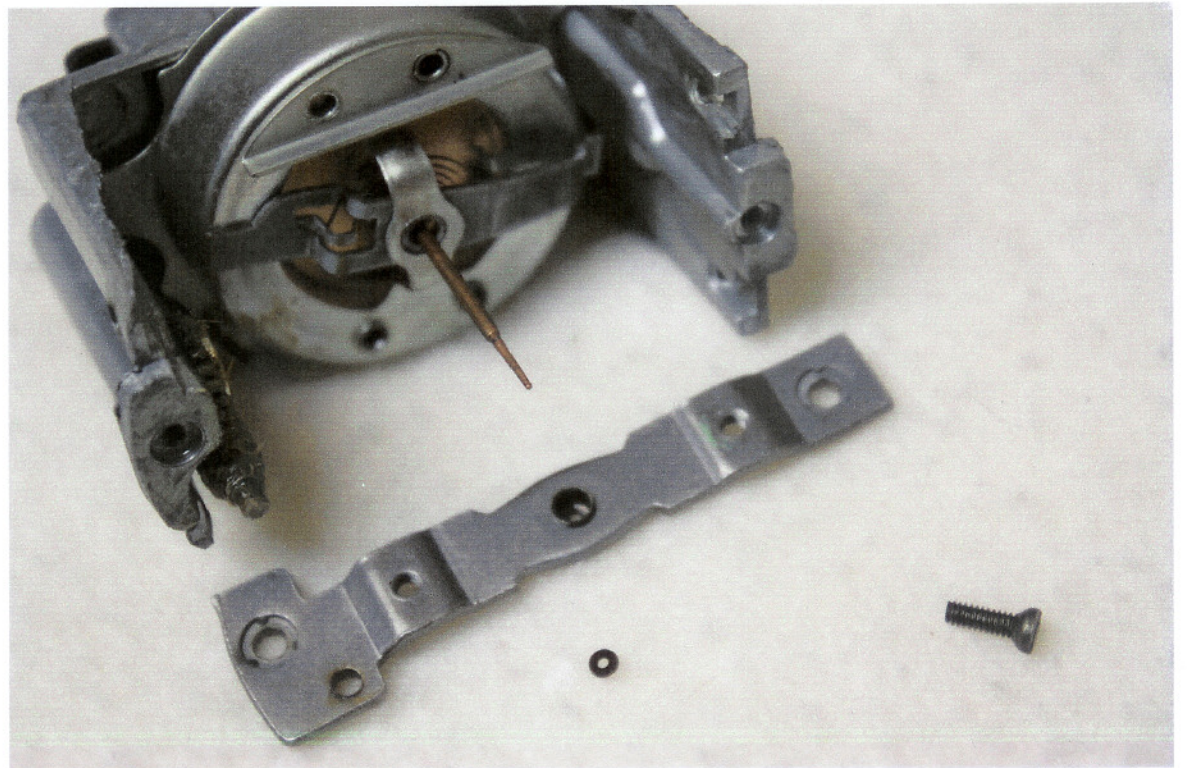


- 2.
3. Position the head as in the next picture and remove the two screws in the lower corners holding the front bearing assembly. There should be a VERY small washer on the front side of the shaft that fits down in the well of the bearing.





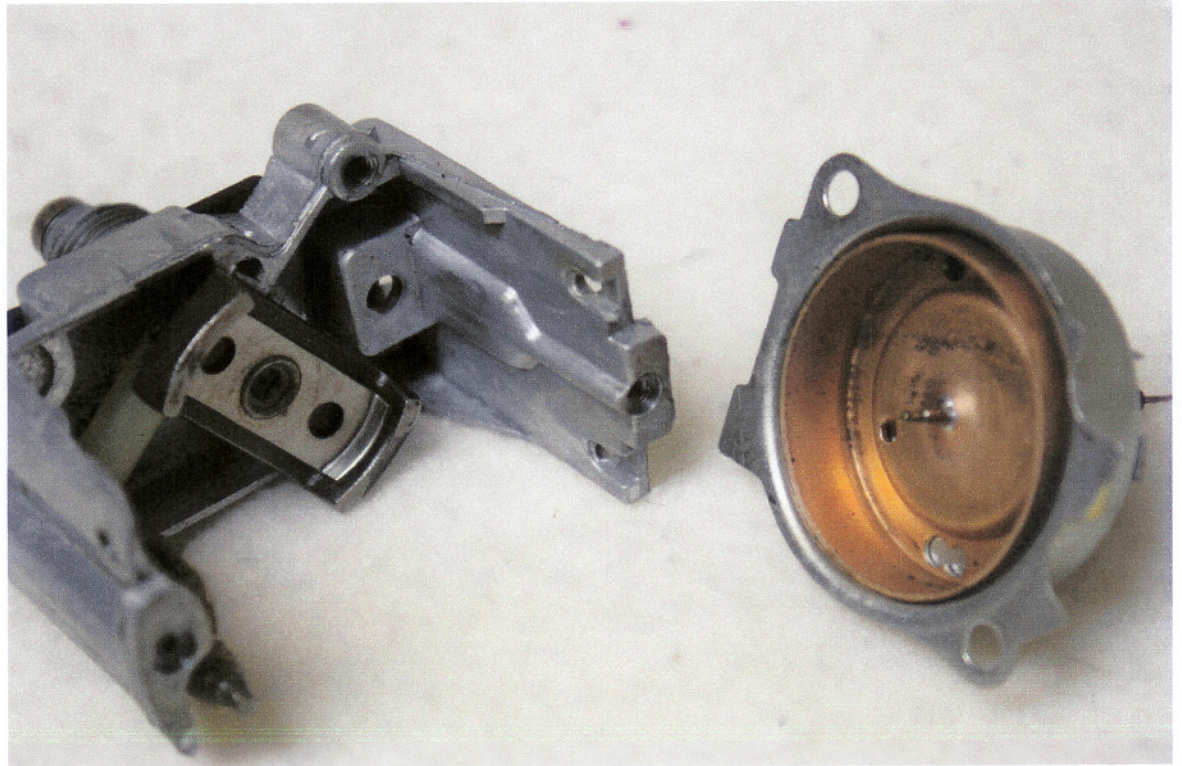
4.



5.

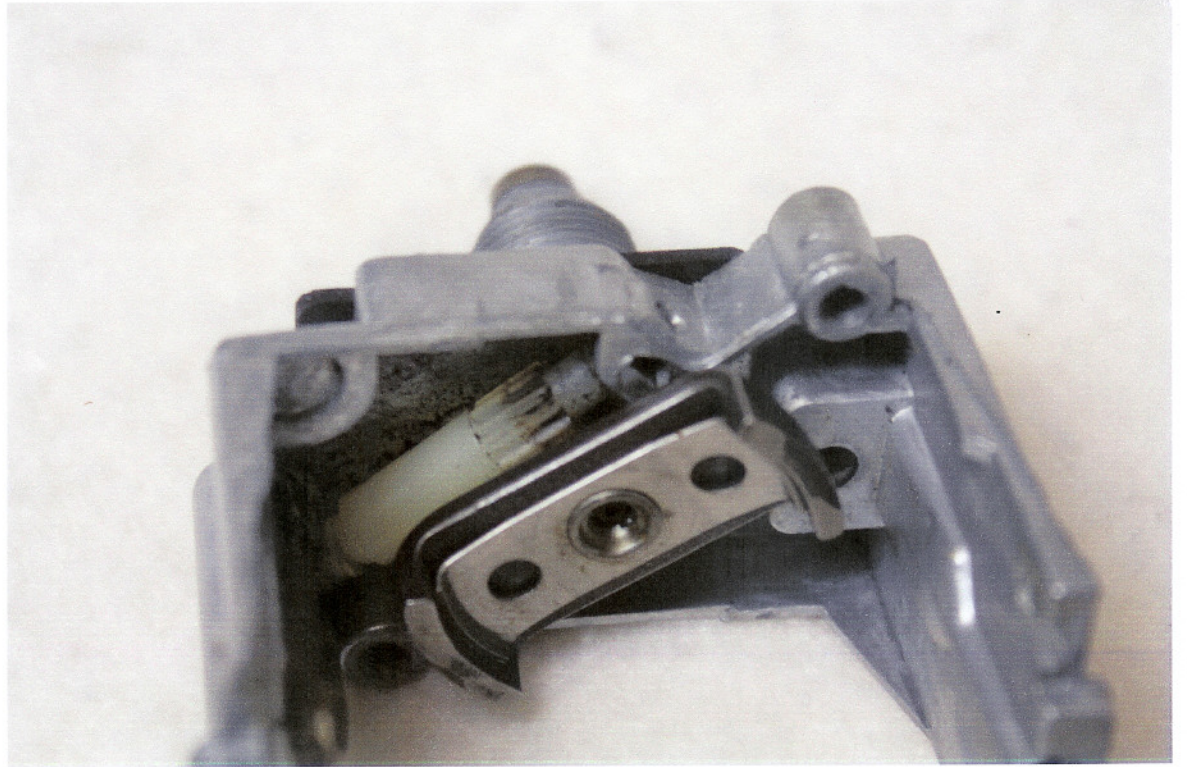


6. From this point on you must treat the needle armature and the shell it fits into as one unit or you could ruin the return spring. This spring is carefully calibrated when manufactured to apply tension to the armature as the rotating magnets work against it.
7. Remove the two screws holding the shell to the head and remove the assembly from the head by GRASPING THE NEEDLE SHAFT RIGHT NEXT TO THE SHELL so they do not separate. After you get the shell assembly off you can lay it down as in the next picture.

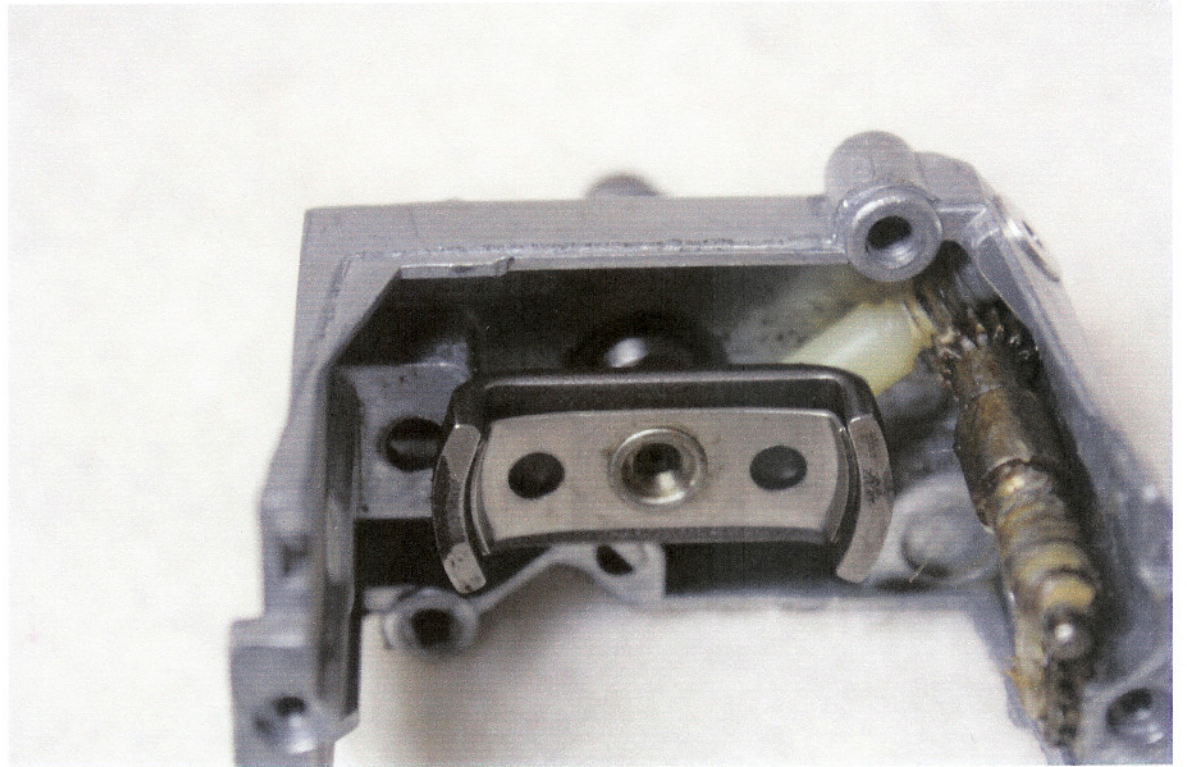


- 8.
9. In the above picture you will see the rear bearing that is usually the culprit for causing a buzzing or otherwise noisy speedometer. Also shown is the driving magnet that spins with the cable.
10. In the next picture you can see the rest of the odometer drive mechanism which is a series of worm gear drives. These can be taken out, cleaned and lubed with light grease and reassembled. You can also put a couple of drops of light oil on the inside of the main bearing at the base of the magnet while spinning the shaft. Also with a pry out the brass cup on the back by the threaded fitting and remove the wick and add a couple of drops of oil then reassemble.





1.



2.



3. Now it's time to final lube and reassembly. I usually turn the head unit with the magnet shaft up and put a drop of light oil in the bearing cup. It is really *hard* to get a small amount in there so I take the corner of a paper towel and blot it to get most back out just so when it is spinning it isn't slinging oil all over everything.
4. After lubing the rear bearing it's time to reassemble. Make sure the first odometer gear is in place, carefully set the needle and shell assembly in place remembering to keep the parts from separating. Tighten the two screws. I like to spin the rear shaft counterclockwise after every step just to make sure the previous step didn't cause any binding. Also before going any further make sure the needle armature stop is on the correct side of the shell stop. (refer to the picture in step 11) midway between the edge of the shell and the center shaft.
5. You will notice the shaft is very loose in the shell center as there is not a bearing at this location. Apply a small drop of oil to the needle shaft right at the shoulder where the needle attaches. Make sure the odometer shaft is in place and attach the front bearing plate. It will only fit one way.
6. If you have new decals to refresh the numbers on the odometer this is the time to do it before reassembly of the odometer.
7. Now take the odometer assembly and line up all the forked pieces and assemble to the head making sure all the forks are fitted to the flange. Slide the shaft to engage the gear and attach the brass clip. If you had the tiny washer that fits on the front of the needle shaft install it now.
8. You may want to dust the black face before installing and also polish the chrome center cap. Attach with the two screws.
9. Very carefully set the needle on the shaft at about the second long bar up from the lower left position. Before pushing it all the way on, turn the shaft from the back to verify it moves up when you turn the shaft. (If it doesn't, you are turning the wrong way or you missed a step somewhere. Back up until it works.) As you push on the needle from the center, carefully twist left until the needle lines up with the first long white line on the face. Keep spinning the shaft after every adjustment just to make sure it drops back to the line. You can now make sure the needle doesn't hit the face by carefully moving the needle by pushing on the shorter bottom part. If it touches the face anywhere you can gently lift on the end of the needle with the blade of a flat screwdriver. **JUST DON'T BREAK IT OFF.** I don't know if they are reproduced or not.
10. You should now have a silent speedometer when reinstalled. Don't forget to lube the cable before you attach it to the back of the head.

