

## The Preventive Maintenance Series

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### Early Model and FC Speedometer Heads (Spyder and Corsa in a future article).

On a recent five above zero morning I was headed west on the interstate when my Greenbrier speedometer emitted a screech accompanied by a vibrating needle, indicating a dry bushing. Within a minute the needle pegged at 80 and got really loud. Unfortunately this is pretty typical of 50+ year speedometers. These failures usually occur in cold weather so every fall I unhook the cable from the head and spray a little WD40 at the bushing, except this year I did not heed my maintenance checklist and failure occurred. WD40 doesn't hang around long, but usually will prevent the problem through the winter and with warm weather the bushing doesn't gall as easily. If your speedometer is gently twitching at various speeds, the problem is the cable hanging up and releasing inside the casing. You can remove the cable from the casing at the dashboard end with a pair of pliers. Inspect it and lightly lube it except for the last foot going into the head. If you have trouble getting it back in it is probably because the casing is bad. Use a drill to move it through but do the last three inches by hand to make sure you get it back in to the speedometer drive at the differential without damage.

Removing the dash on FC vehicles with Powerglide is great fun. Two very important tips in this area are: **1. Cover the dashboard areas around the shifter and the panel cutout area with double masking tape. 2. Create slack in the shifter cable so you can pull the unit out enough to get the e clip off.** Also protect your steering column because you have to rotate the panel when you remove it. The harness stays in the dashboard and you must remove all the bulbs and connectors. I think it is also easier to remove the ignition switch lock assembly and the bezel nut and just let the switch with its connector hang from the harness. The lock is removed by inserting a paper clip in the hole with the key in "off". Push in on the paperclip and turn the key counterclockwise and out. And of course it helps to have a much modified cut off 5/8" open end wrench for the shifter cable nut.

In my case the speedometer bushing was worn very badly and with our area speedometer shop out of business it was time to check other options. Before they closed the cost for a rebuild was \$140. The on line vintage speedometer shops I checked do not give online quotes, they want to see what they are dealing with and I can understand that. The only price I could get was \$150 and up. CCP offers a \$136 exchange plus shipping both ways.

### The good used option

I rounded up 12 used early units, 10 car (100 mph) and two FC (80 mph). The following is my method of rehab:

Acquire the head end (square) of a used speedometer cable for test purposes, only as long as it takes to check a speedometer that is still in a car. Use an electric drill (in reverse) to check a known accurate speedometer in a similar vehicle (you could show up at an event to find a helpful owner). Record what the accurate speedometer reads with the drill wide

open. I used a cordless drill **fully charged** and since I had both an additional FC and a '63 coupe with accurate speedometers, I had good number to work with for both type of heads. The car read 40 for the 100 mph head and the 80 mph FC read 48 (all drills will probably be different). I then had a number to work with when checking used units. **Be sure your battery voltage is the same for each check because the wide open speed can vary 3 mph.**

With the head removed from the dash panel, removing the needle is next. You need two of the old time bottle/can openers with masking tape on the pivot area. Use a soldering gun on the needle for 30 seconds (starting cold) and then use the two pry tools (bottle end) to pop the needle off. Out of 12, I only had one that would not come off; it was marked as a rebuild and I suspect they used Loctite which is totally unnecessary. If this is your first visit to a speedometer, you might take some pictures as you go. Remove the two screws and the face, next remove the two screws and the cross bar. Pull the retainer off of the odometer wheel shaft and **carefully** remove the odometer by sliding it towards the retainer end and then out. Remove the vertical pinion and then the two screws securing the speed ring. Hold the needle and lift it out and set it aside. Do not let the two piece unit come apart or it may damage the hair spring. You could remove the lower pinion but unless you are doing a trip odometer it is usually perfect, so leave it in place. This completed my disassembly.

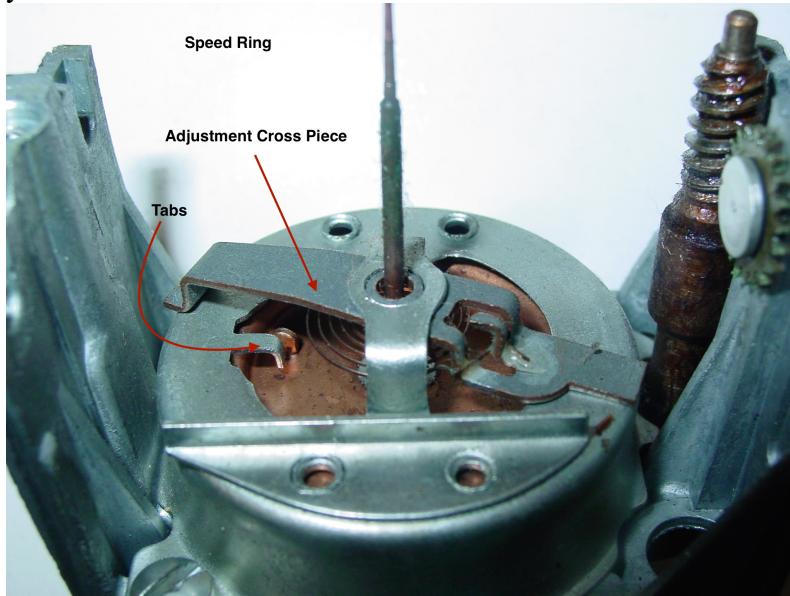
I checked side to side play in the bushings and spun the magnet by hand to get a feel for the condition of the bushing. Three of my group were badly worn and I set them aside. The ones that felt good I lined up sitting on two boards and added 3 in 1 oil to cover the area under the magnet. Over the following day I would spin the magnets by hand and check for oil appearing on the bottom. The first one took only a couple of hours and the last two were oiled after a full day. I finished this segment by running them all with the drill for about a minute each facing up and when I again spun the magnet by hand I could feel the difference and was satisfied they were lubed. Cleanup of excess oil followed.

Set the speed ring carefully down over the magnet and secure with the two screws. Look down on the speed ring with the vertical pinion area on your right. Then look through the hole on the left side of the speed ring and make sure the small tab on the center cup is above the bent down tab on the outer ring. Also note the moveable cross piece that is attached on one end to the hair spring. Later this will be used for minor adjustments in the needle when you use your wide open drill to calibrate. Insert the vertical pinion, then the cross support, then the odometer and its retainer. Attach the face and lightly set the needle on the shaft so you could rotate it on the shaft if necessary. Place the head in the straight ahead position so gravity will return the needle and adjust to the 0 position. Gently flip the needle a couple of times to verify the return. Tap the needle to seat it (doesn't take much) and then use your drill to check the operation.

If your pre-recorded wide open drill speed is not duplicated on the rehab unit, you can make a small adjustment in the hair spring tension by using a small screwdriver to push on either end of the cross piece noted in the above paragraph. Once you have established

the correct setting, reinstall the head in the dash panel but run it with your drill again just before installing the panel to make sure the needle is not dragging on any of the parts.

This was my method of dealing with a speedometer issue. The above will also apply to late model cars except Corsas. If you have other techniques that work please share with your fellow DIY enthusiasts.



Shifter wrench mentioned above