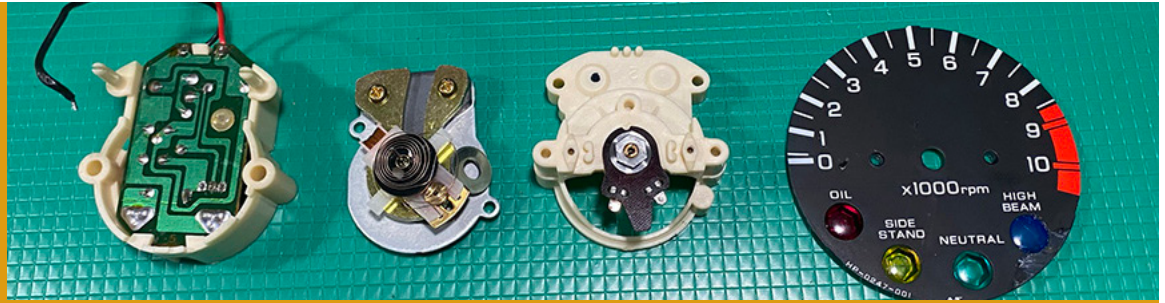


SOME NOTES BEFORE YOU START



I put this document together to help others who are interested in repairing their Nighthawk tachometers, since they are selling for \$500-\$600 and beyond for NOS units.

Thanks to these sources that got me started:

DantheFordFixer on Youtube - <https://www.youtube.com/watch?v=CBExLJmbCZw>

Roger Paiseu's page - <https://www.nighthawk750.com/pariseau/nh-tachometer.html>

Dave Doster's page - <https://www.nighthawk750.com/maint/tach-repair.html>

Some notes in addition to the following documentation

The steps I took - You may find some better ways to do things and may follow some of the steps from the above sources, but I wrote down what worked for me.

How to open the case - This is up to you. The used Nighthawk I bought a few years ago had already had the repair and the previous owner cut the bezel to open it up and re-fastened it to the case with rivets.

I bought a working replacement from eBay because I didn't like the way the repaired tach looked. The newer one lasted about two years before having the same issue, so I put the original one back on and it lasted another year.

Oops - With two dead tachs, I chose to attempt a repair on the older unit that had been previously fixed. I was almost done with it when I somehow got the spring coils tangled together while putting the movement back in the case. I ruined the bottom one trying to get it sorted out and ended up doing the same work on the newer tach movement. ***Be careful with the springs.***

For my repair, I chose to cut around the circumference of the case with a Dremel tool. If you do this, be aware of the light tubes for the indicator lights. I address this in the documentation. Also, it's a good idea to make some vertical random marks on the case to help you realign it before gluing or taping it back together.

Testing the repair - As noted in the documentation, I didn't press the needle quite all the way in and I have taped the top and bottom of the case together temporarily with the silver tape used on air conditioning ducts. If it looks good in a road test on a dry day, I'll go ahead and press the needle firmly down and epoxy or glue the case together. It looks good at idle, indicating about 1,000 RPM, the recommended setting for idle. I bought a small tach/hour meter from Amazon but cannot get it to show reasonable readings. If you have a test tach, that might be an option for you to compare readings.

Soldering - I'm not an expert but have soldered things in the past. Practice a little if you're rusty. Good luck and I hope you find this useful.

Fixing a broken tachometer on 1991-2003 Honda 750 Nighthawk.

DISCLAIMER - *This is based on my experience. Yours may vary. I'm not responsible for any damages to anyone's tach or other property or injuries. Follow these directions at your own risk. You will need a soldering iron and the skills to use it.* - Gary Ward, July 2021

The problem: Your tachometer needle starts acting erratically and mostly just bouncing around.

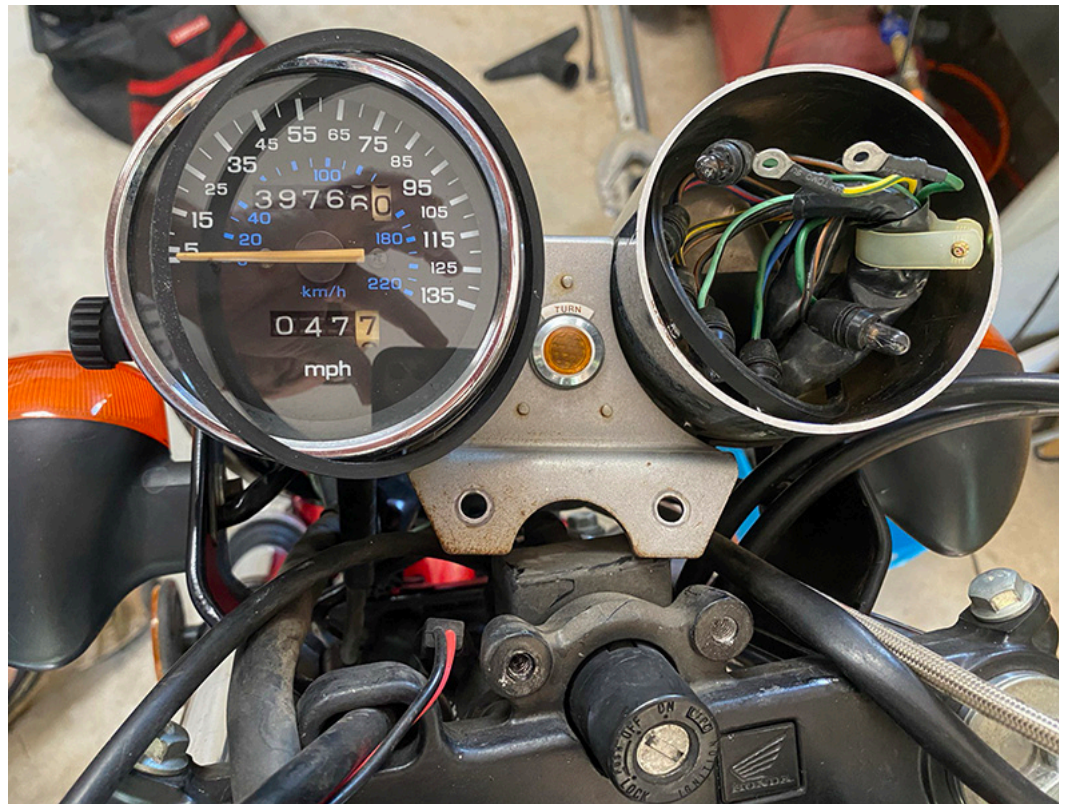
The cause: Usually it's because of a cold solder joint that has disconnected from the inner portion of the tachometer's top movement spring that is connected to ground.

The fix: Opening the sealed tachometer case and resoldering the wire back to its contact point.

Summary of the steps involved: **1)** Remove the tachometer from its wiring, the instrument cluster and outer chromed case. **2)** Open the sealed case. **3)** Mark the position of the tachometer movement relative to the case, then remove the needle and faceplate. **4)** Desolder wires connecting the bottom circuit case to the top and set the bottom part aside. **5)** Desolder the springs from the lugs connected to the wires in the previous step. **6)** Remove the two screws holding the metal plate to the main enclosure. **7)** Separate the inner movement and the case. **8)** Note that the top spring should now be unattached. Note where its inner section connected to a small contact point on a plastic disk separating it from the lower spring. **9)** Re-solder the inner section to the contact point. **10)** Re-assemble the movement. **11)** Re-solder the upper contact points of both springs to their original connections. **12)** Re-solder wires back to top of lugs. **13)** Re-assemble the remaining parts but don't press needle all the way tight. **14)** Before putting back in case, check repair by hooking the tach innards up by connecting the two wires that came out of the back. Green goes to screw marked "GND". Crank your engine and see if tach responds correctly. **15)** At this point, eyeball it to see if it's indicating correct RPM or connect an electronic tachometer for calibration. **16)** Seal up case, according to whatever method you chose to split it, reinstall lights and wires.

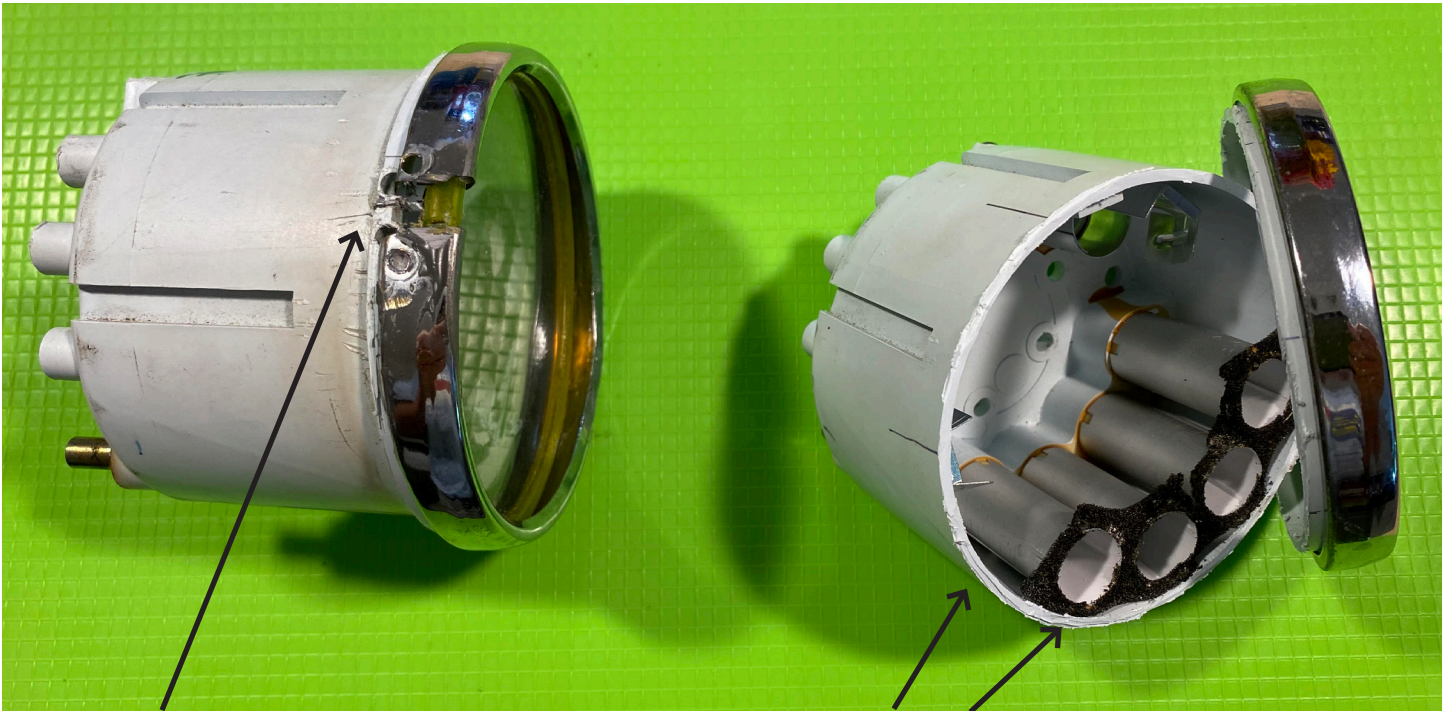
1) Remove the tachometer from its wiring, the instrument cluster and outer chromed case.

This part is pretty straightforward, so I won't get into details except to say that I removed the headlight to make it easier to get to the screws in the back of the tach that hold the inside mechanism to the chrome case. I also removed the assembly from the triple tree top clamp to make it easier. There is enough wire to pull the inside free from the case and disconnect it. Mark where the bulbs and wires go with a Sharpie -- on the bulb holders and case.



2) Open the sealed case

There are three suggested ways to open the tachometer case:



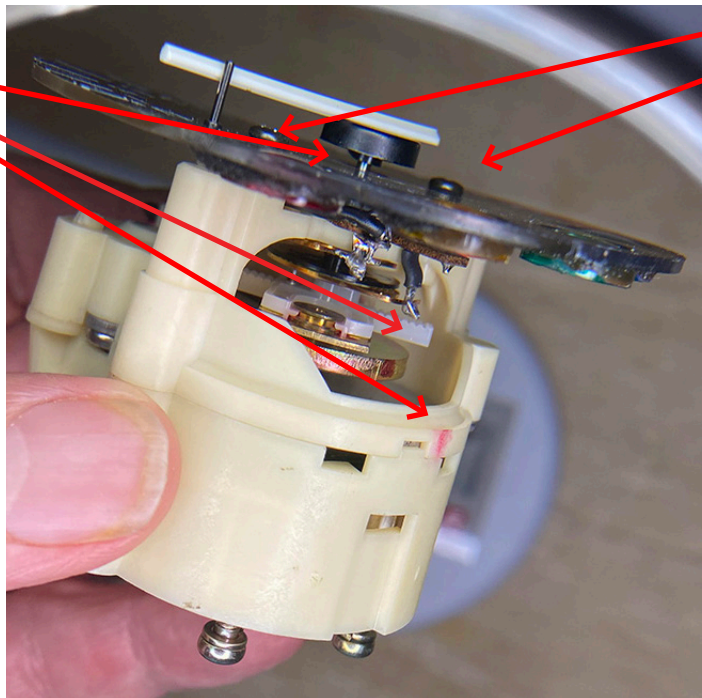
A. Cut through the bezel ring with a Dremel tool or saw and rivet it back to the case when done. You may have issues with the rubber seal under the glass and need to use another sealant.

B. Cut around the circumference of the case, about a 1/4 inch below the bezel ring with a Dremel tool. Note this just misses the tubes for the indicator lights. Reassemble with tape or epoxy glue

C. (Not shown) Pry the bezel ring off by running a sharp screwdriver around under the edge. Reassemble by re-crimping.

3) Mark the position of the tachometer movement relative to the case, then remove the needle and faceplate.

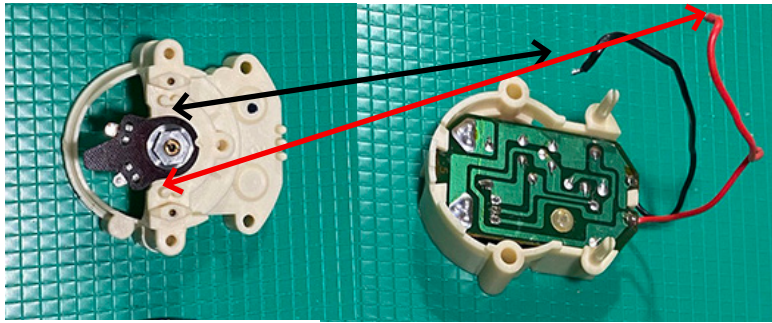
Mark plastic part of mechanism and case so you'll know where the needle was when you replace it. Gently pry the needle off using a screwdriver you work around underneath it. Careful not to scratch dial face.



Remove two screws holding faceplate and set aside.

4) Desolder wires connecting the bottom circuit case to the top and set the bottom part aside.

Top that contains mechanism we'll be working on. Desolder the red and black wires



Bottom

5) Desolder the springs from the lugs connected to the wires in the previous step.

NOTE: The photo below was taken with the unit assembled, so ignore the fact that it still has the dial, needle, lower unit and red and black wires attached.

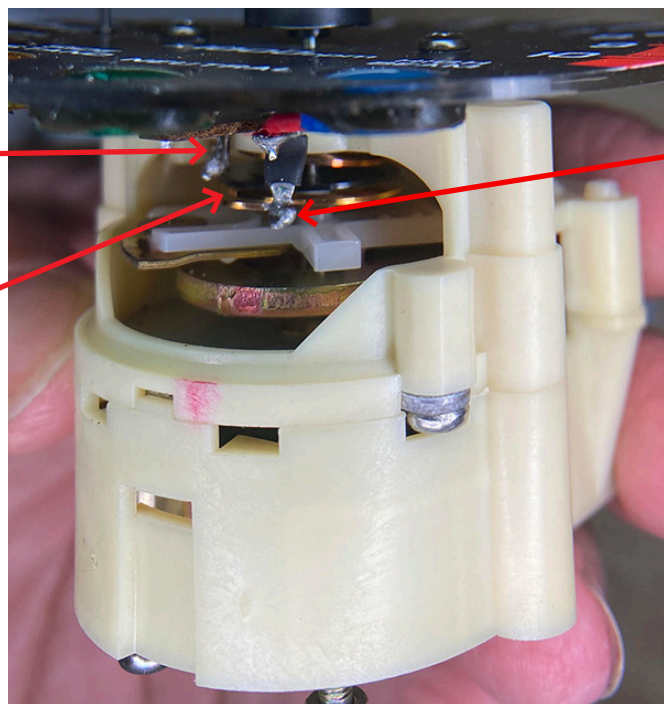
What you are looking at: There are two clocksprings separated by a black plastic disk. The outer end of each spring is connected to one of the visible lugs here. The inner ends of the springs are connected to points you cannot see from this view.

Note that both springs are positioned so they wind counter-clockwise from the center.

Desolder both of the outer spring ends from these connections. This will allow us to remove the inner mechanism and get to the inner connection of the top spring and repair the solder

Ground spring
Outer end of spring is soldered to this lug that connects to the black wire

Separating disk
The end of the ground spring that has come loose is soldered to a contact here that will be visible when the outer spring ends are unsoldered and the mechanism is removed from the housing.



Spring that connects to the circuit board

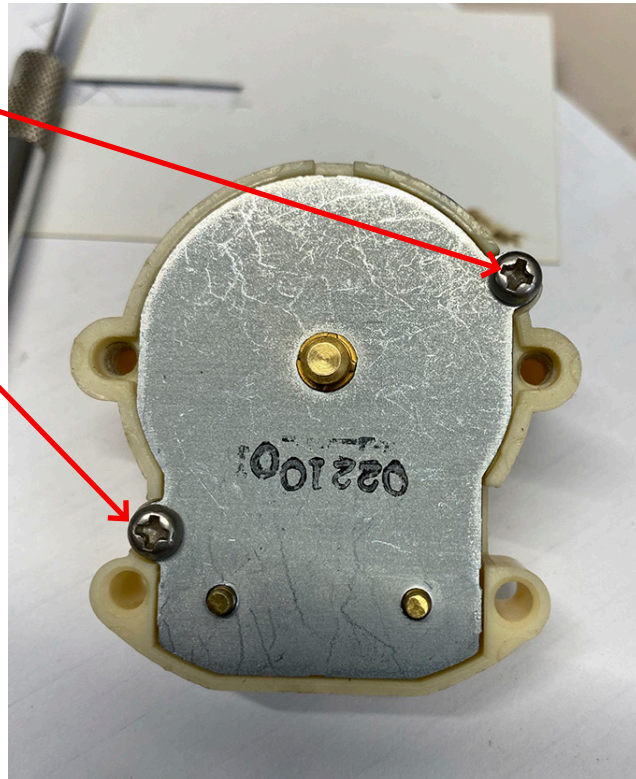
The outer end of this spring is soldered to the longer lug here and the inner solder joint should be OK on this one.

6) Remove the two screws holding the metal plate to the bottom of the main enclosure.

!!CAUTION: When you remove the bottom plate, the top spring should be entirely loose. Don't let it fall out and roll away where you can't find it.

7) Separate the inner movement and the case.

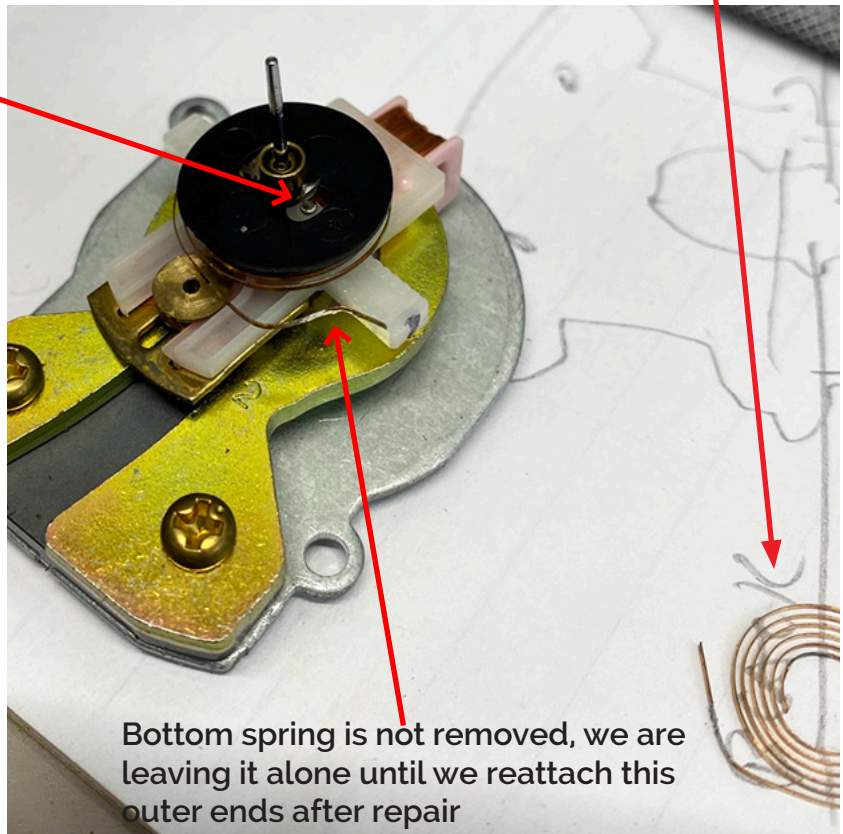
8) Note that the top spring should now be unattached. Note where its inner section connected to a small contact point on a plastic disk separating it from the lower spring movement.



Top spring removed and upside down from the way it attaches.

The problem: This is where we'll need to resolder the inner part of the top spring

!!CAUTION: Make sure when you put the top spring on to resolder, that it is oriented in the same direction as the bottom spring here.

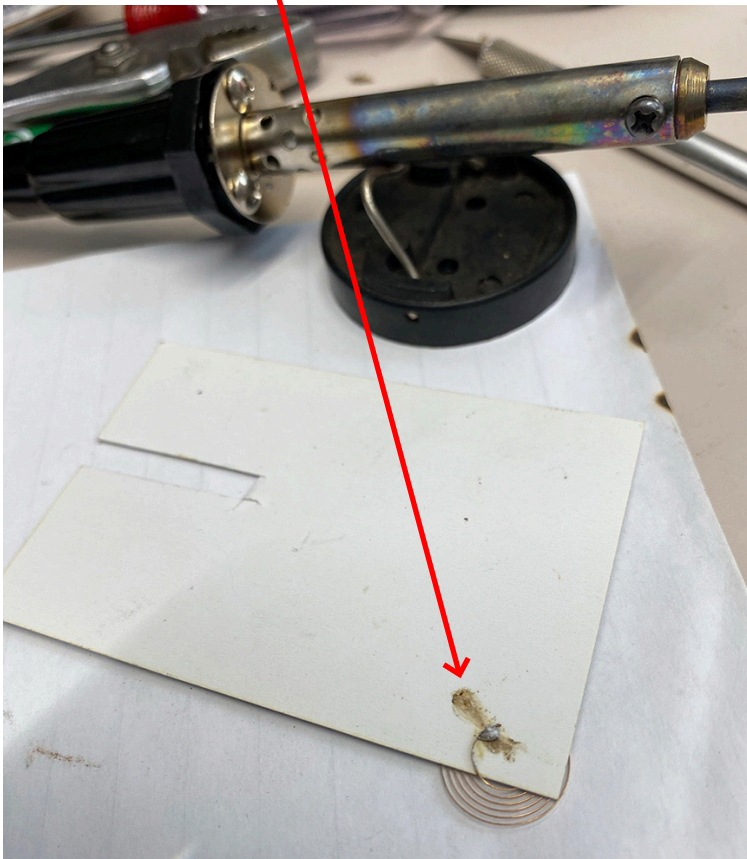
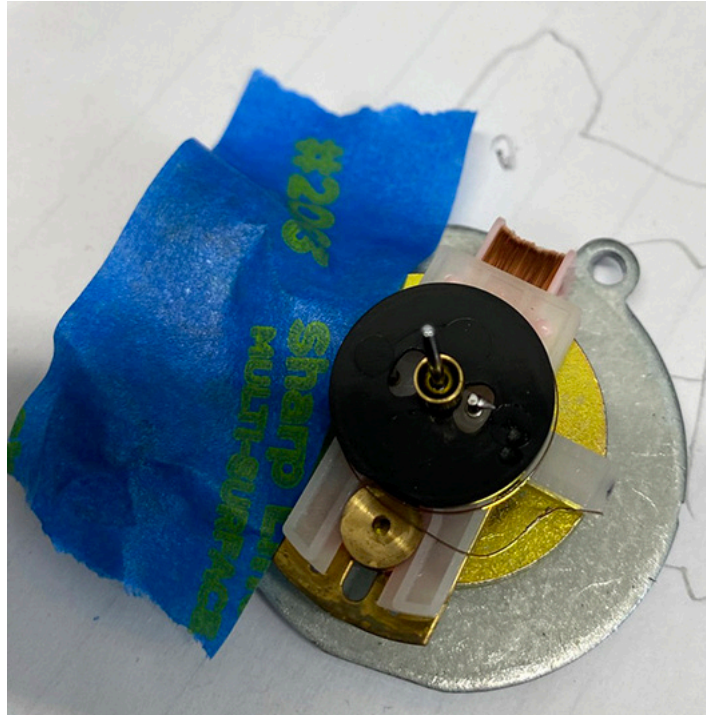


Bottom spring is not removed, we are leaving it alone until we reattach this outer ends after repair

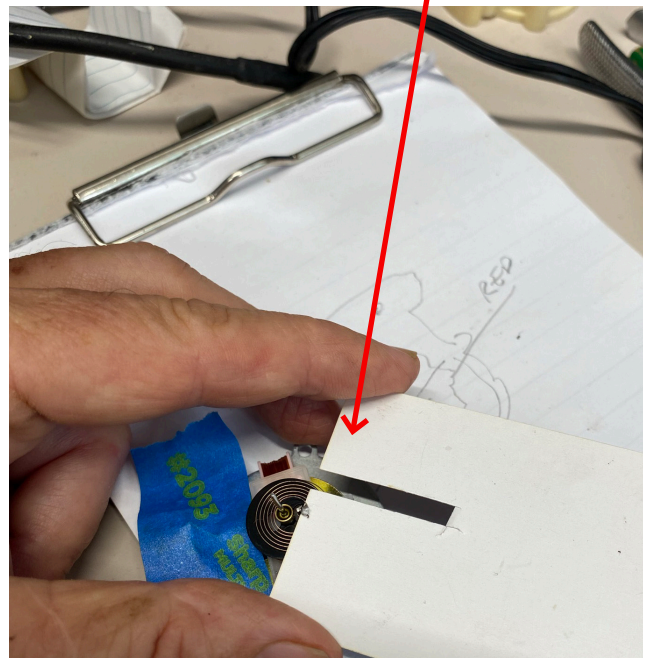
9) Re-solder the inner section to the contact point.

I used a piece of masking tape to keep the mechanism from rotating during the repair

!!CAUTION: I was worried about getting solder on another piece of the spring coil, so I cut a slot in a business card and used it to isolate the point where I wanted to place a tiny drop of solder. This drop was too big and had to be re-done because when I tried to put the mechanism back together, it pressed against the top of the housing and kept the mechanism from rotating. So, keep it tiny and isolated.

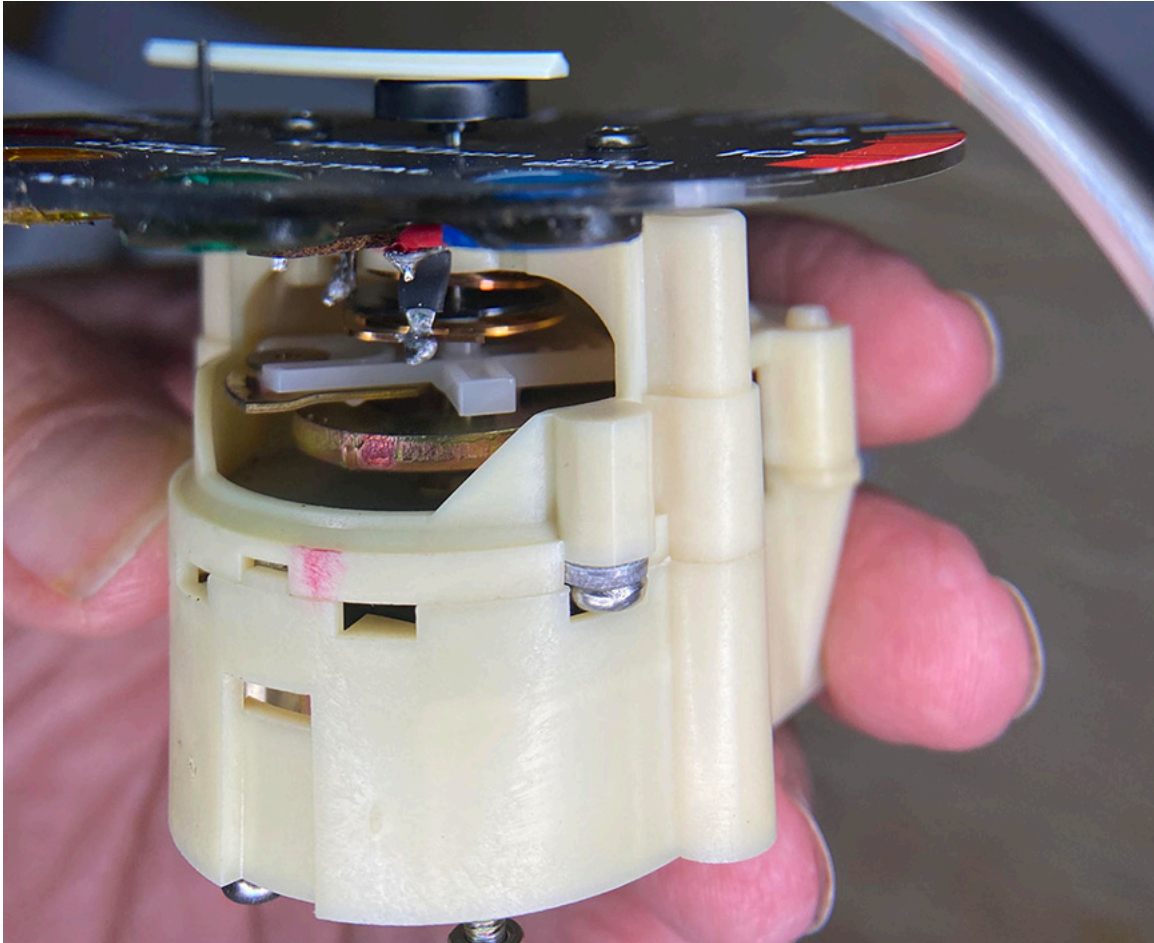


!!CAUTION: I also used the card to shield the rest of the spring when I soldered the inner end to the connection point.



!!CAUTION: When you are handling the springs and the reassembled inner unit, be delicate. Make sure the springs don't get stretched or bent or that one spring gets tangled with the other. This can ruin a spring.

10) Re-assemble the movement. **11)** Re-solder the upper contact points of both springs to their original connections. **12)** Re-solder wires back to top of lugs. **13)** Re-assemble the remaining parts but don't press needle all the way tight.



14) Before putting back in case, check repair by hooking the tach innards up by connecting the two wires that came out of the back. Green goes to screw marked "GND". Crank your engine and see if tach responds correctly. **15)** At this point, eyeball it to see if it's indicating correct RPM or connect an electronic tachometer to your engine for calibration. **16)** Seal up case, according to whatever method you chose to split it, reinstall lights and wires.

