

Minolta X700 CLA Tutorial

By Gene Pate - learncamerarepair.com

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Post #1

A Customer sent in a Minolta X-700 for a CLA and light seals.

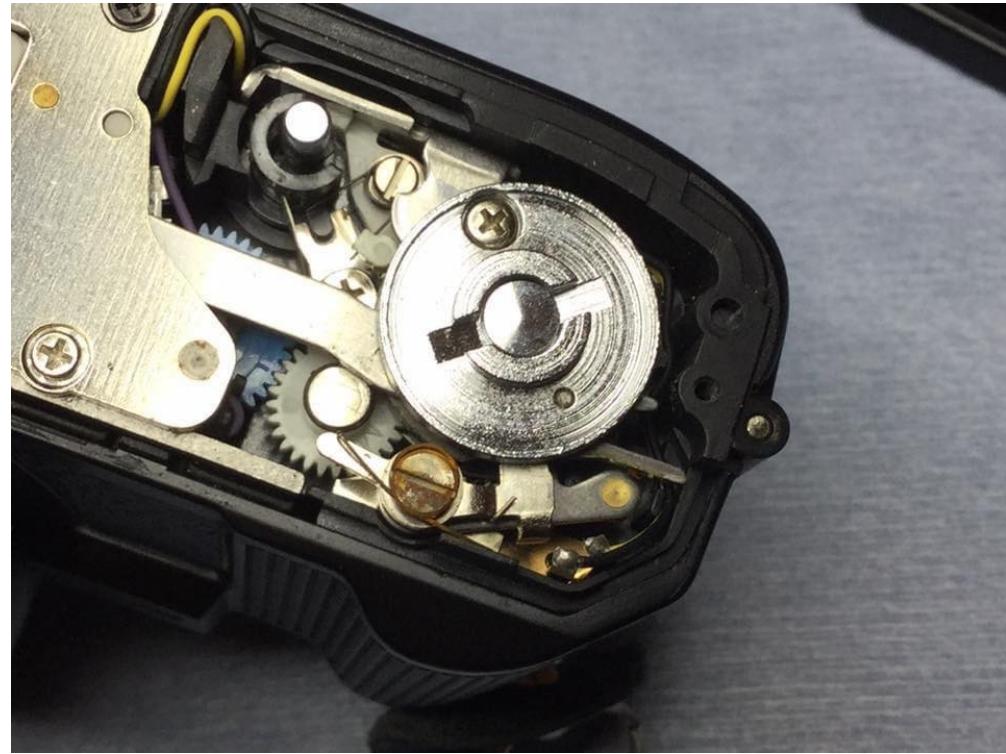
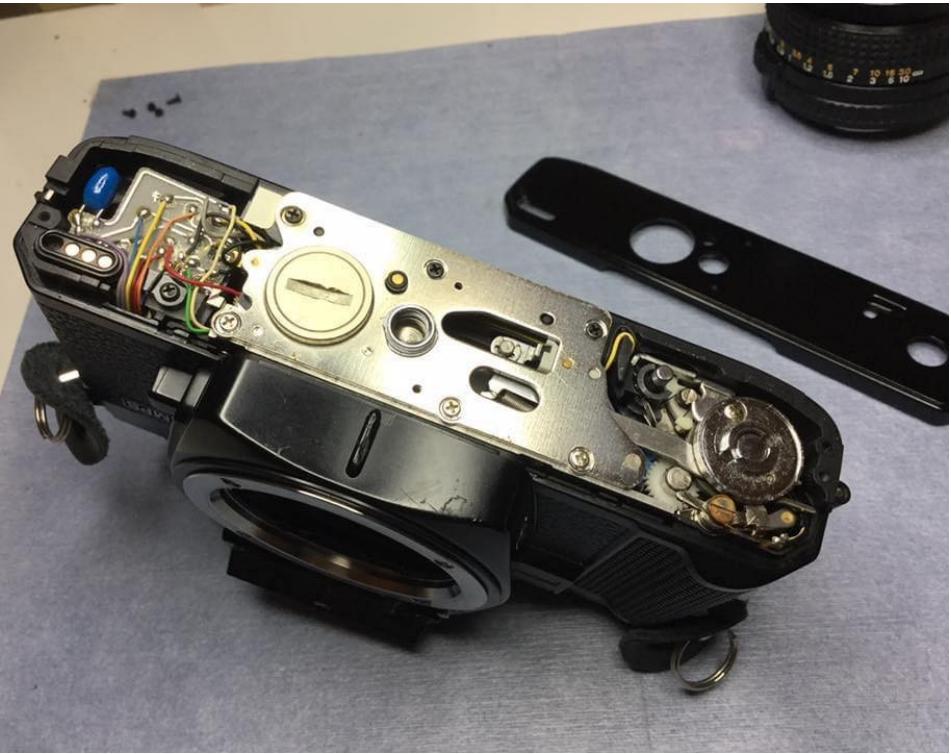
Upon testing the functions test ok with the exposure erratic, bouncing around plus or minus - not too bad for negative film but probably would cause concern shooting transparencies.

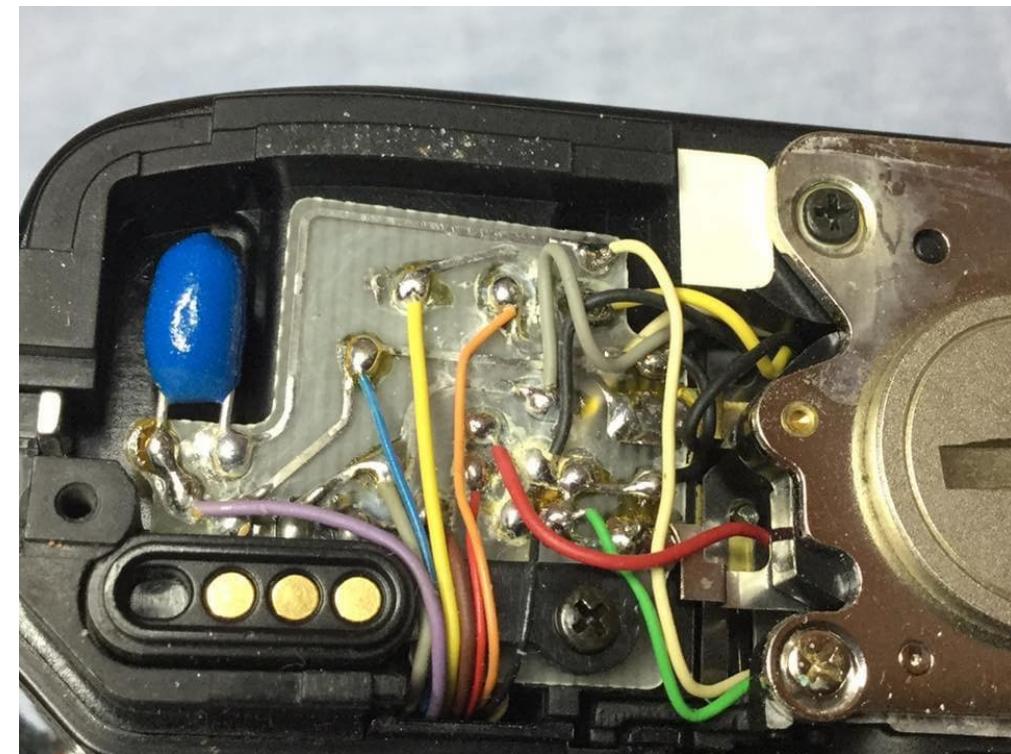
Upon opening the film door I noticed the rewind assembly seemed loose, checking further revealed the plastic rewind shaft bearing is broken (this happens after repeated hard pulling on the rewind knob to open the film door).

I removed the bottom cover to get a look at the lower circuit board and found corrosion from water damage, I removed the rewind assembly and found water damage inside the top cover.

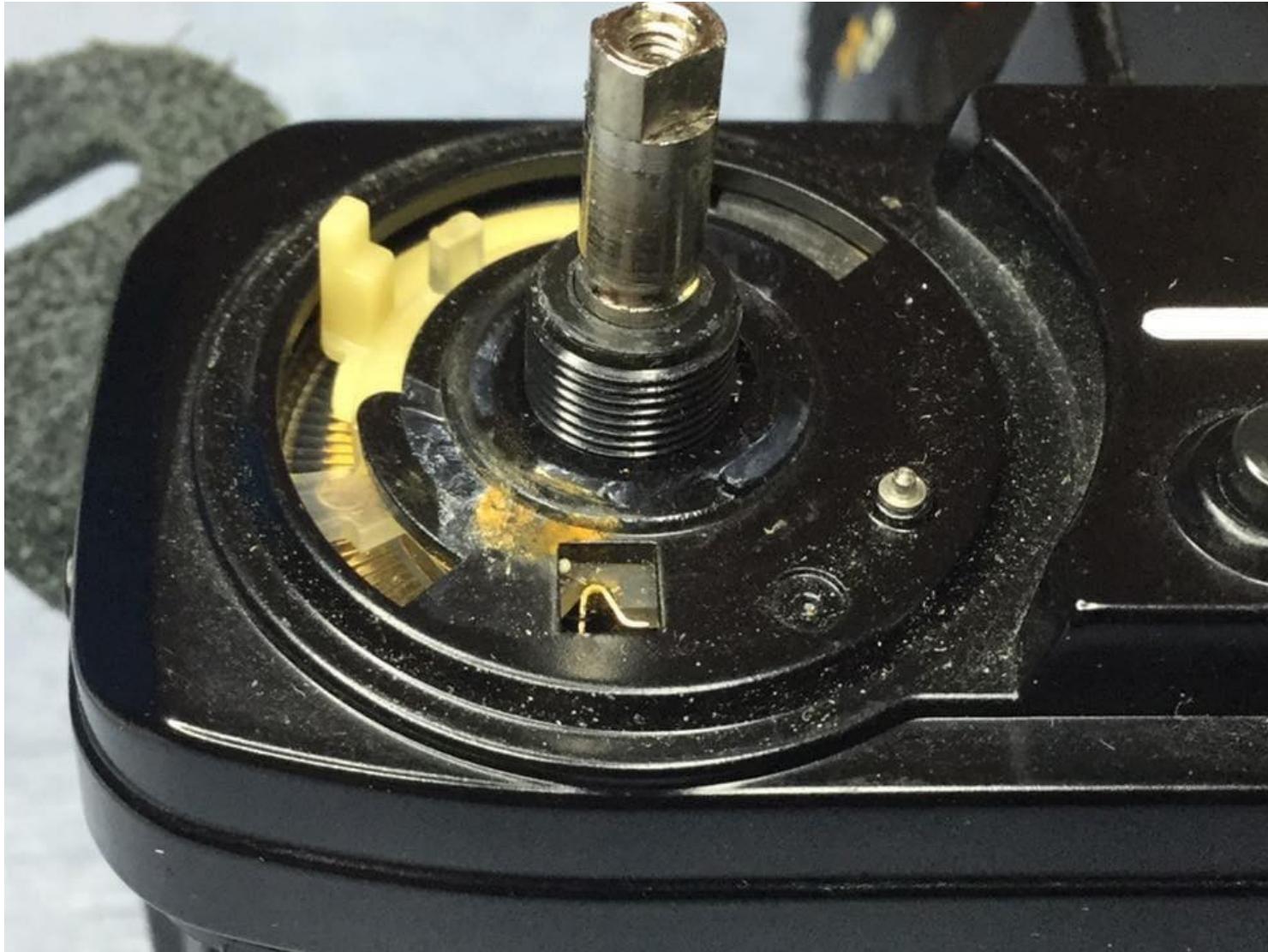
Under normal circumstances I don't like to repair water damaged cameras but I was encouraged by the fact that although there are erratic exposures the camera basically works, the batteries are good, there's a little battery drain but it's not heating up the batteries and killing them in short order.











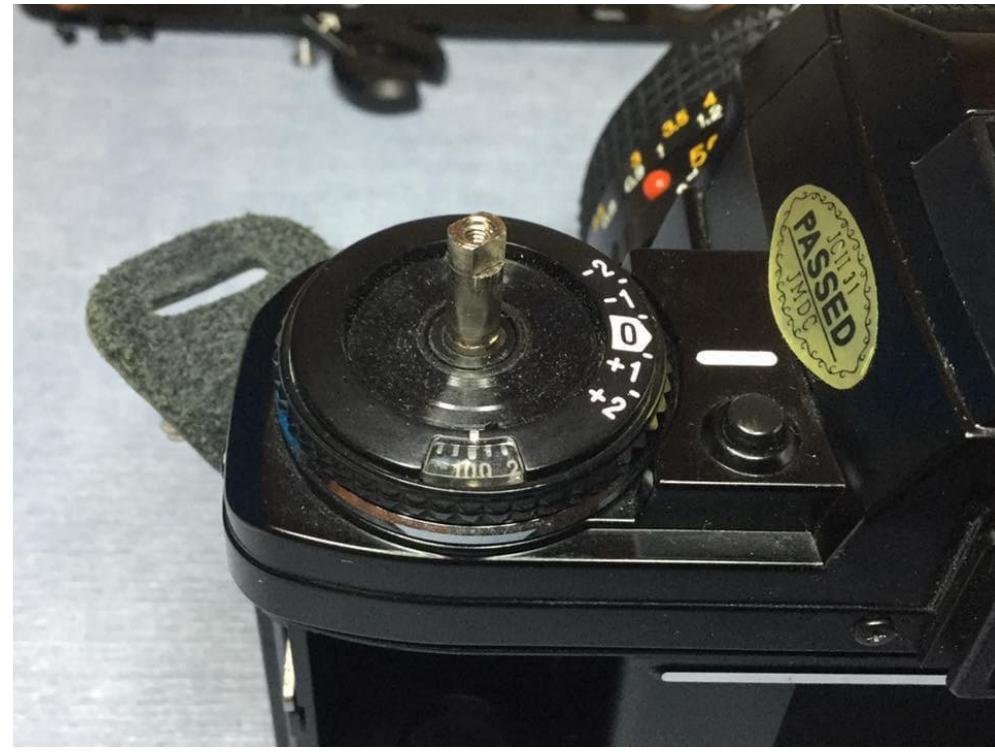
Post #2

Remove the batteries -

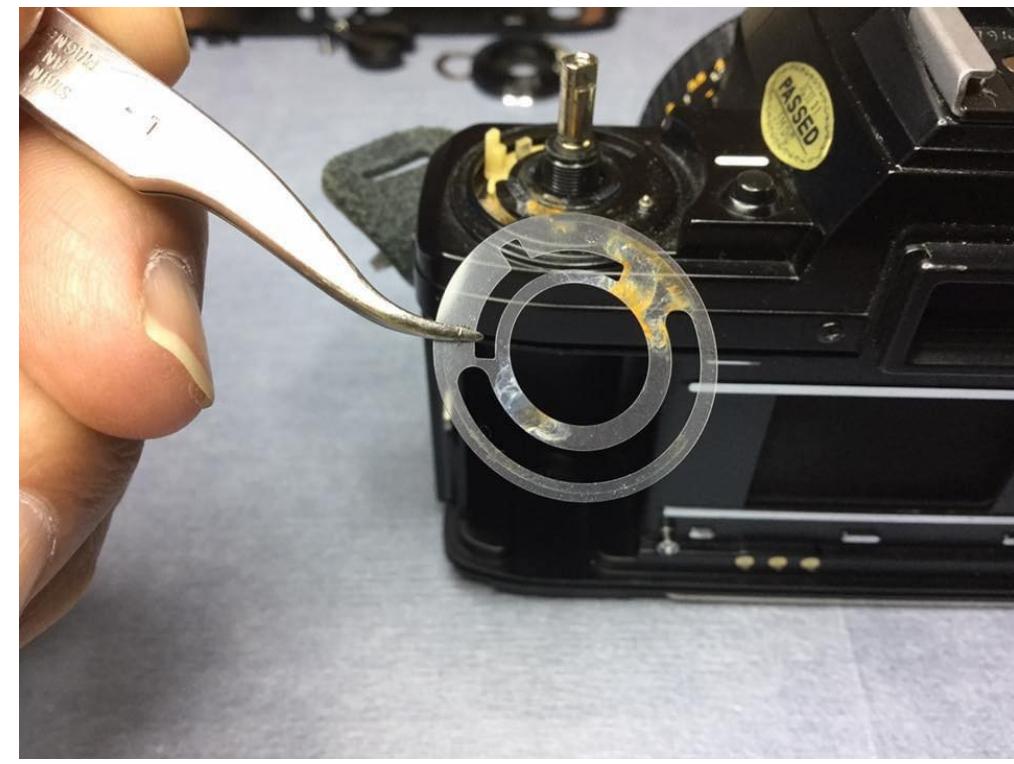
Remove the rewind assembly, winding assembly and the shutter mode selector assembly (some repair guides suggest setting ASA 200 for reference but in reality any setting will suffice). Upon reassembly the ASA assembly has to fit into the notches on the underside of the ASA dial and ASA 200 makes it easier.

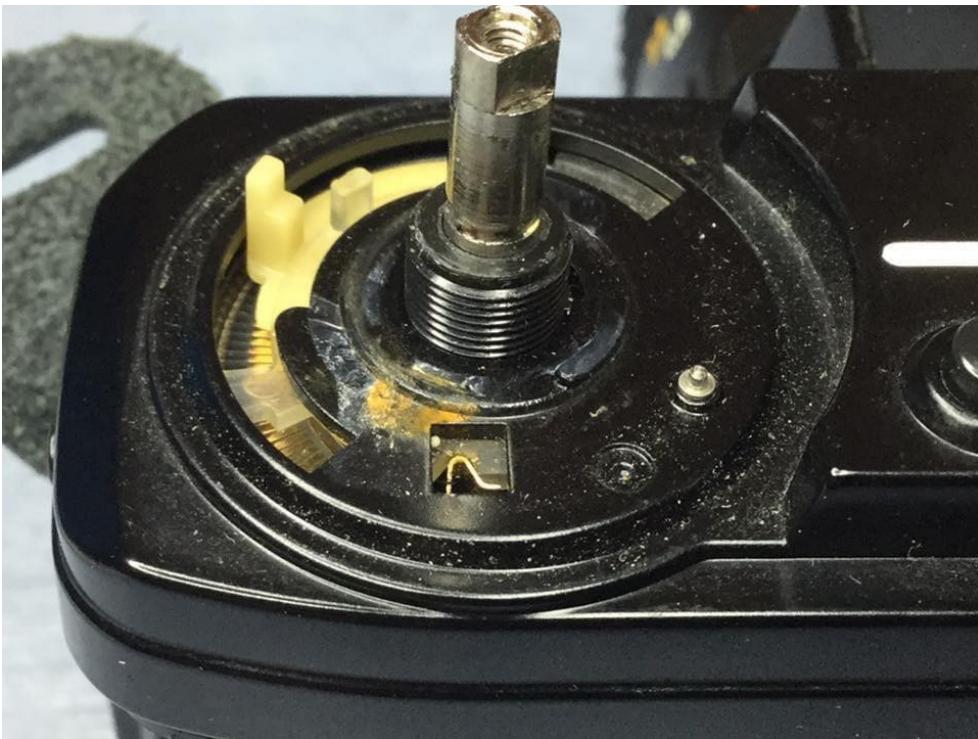
I removed the winding lever components first because the cap screw was already loose, for ease of disassembly remove the mode dial assembly first because the dial can interfere with your spanner depending upon the style you use.





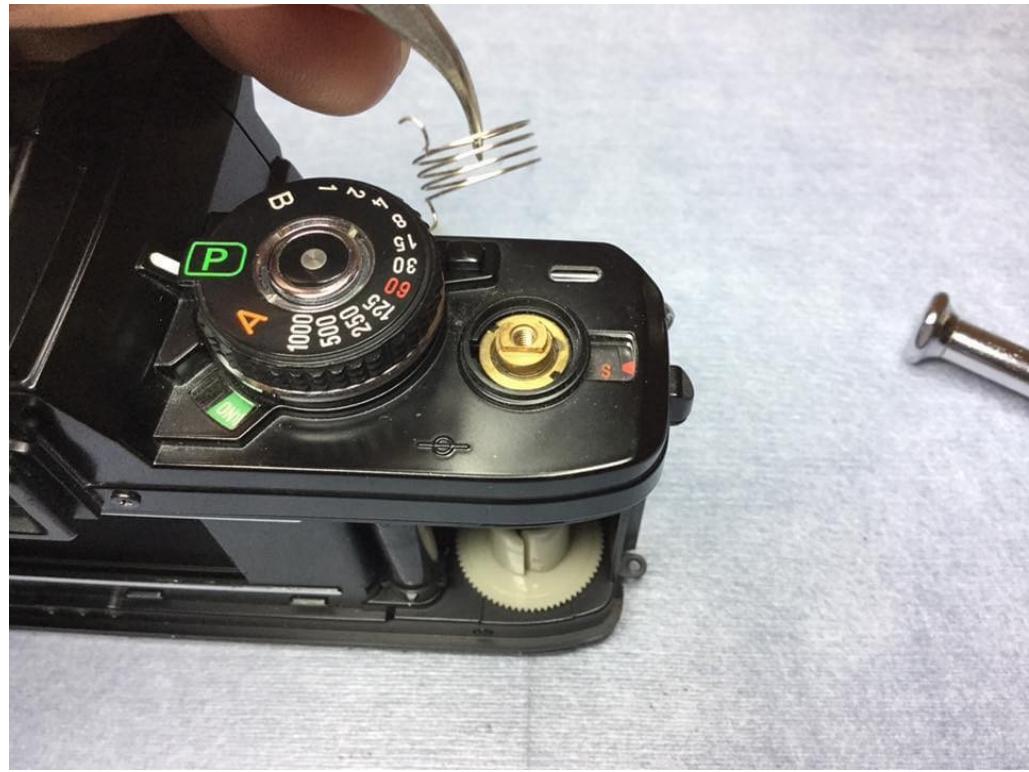


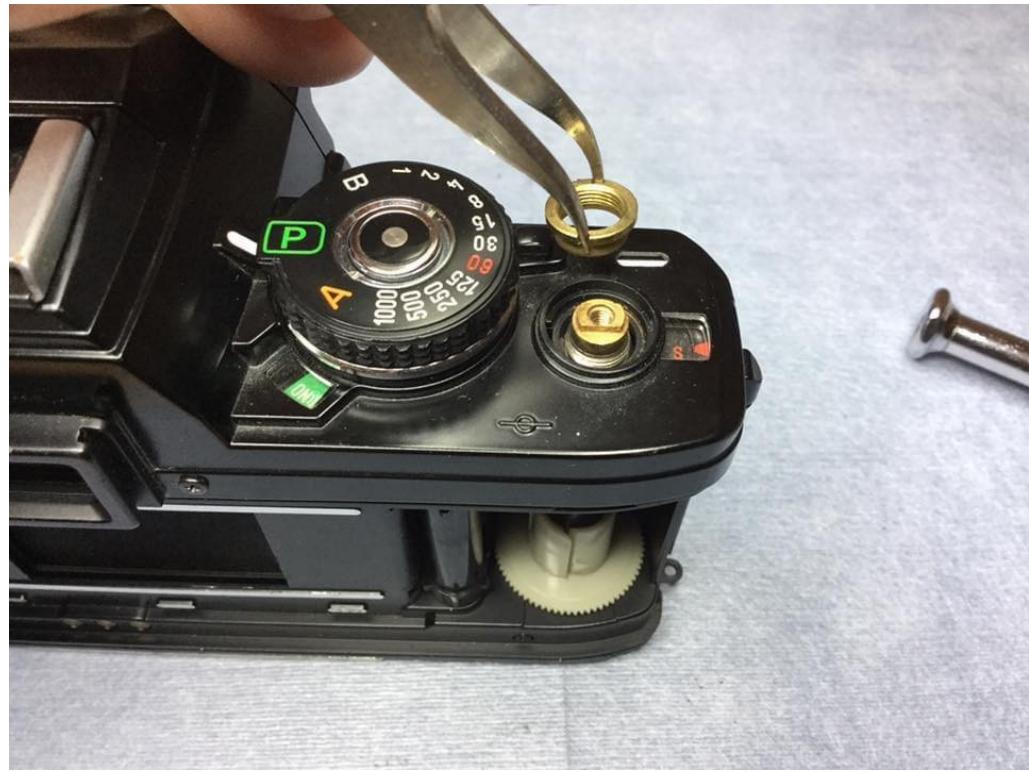


















Post #3

Remove the nameplate - two screws.

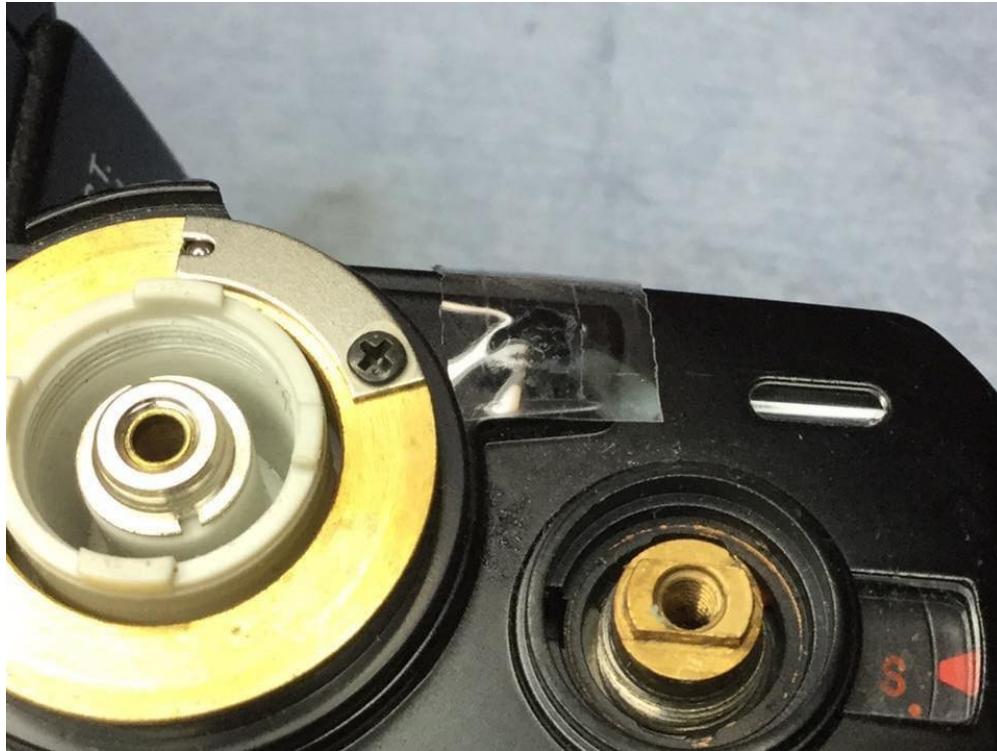
Remove the top cover screws - three screws - two next to the eyepiece and one on the top cover rewind end.

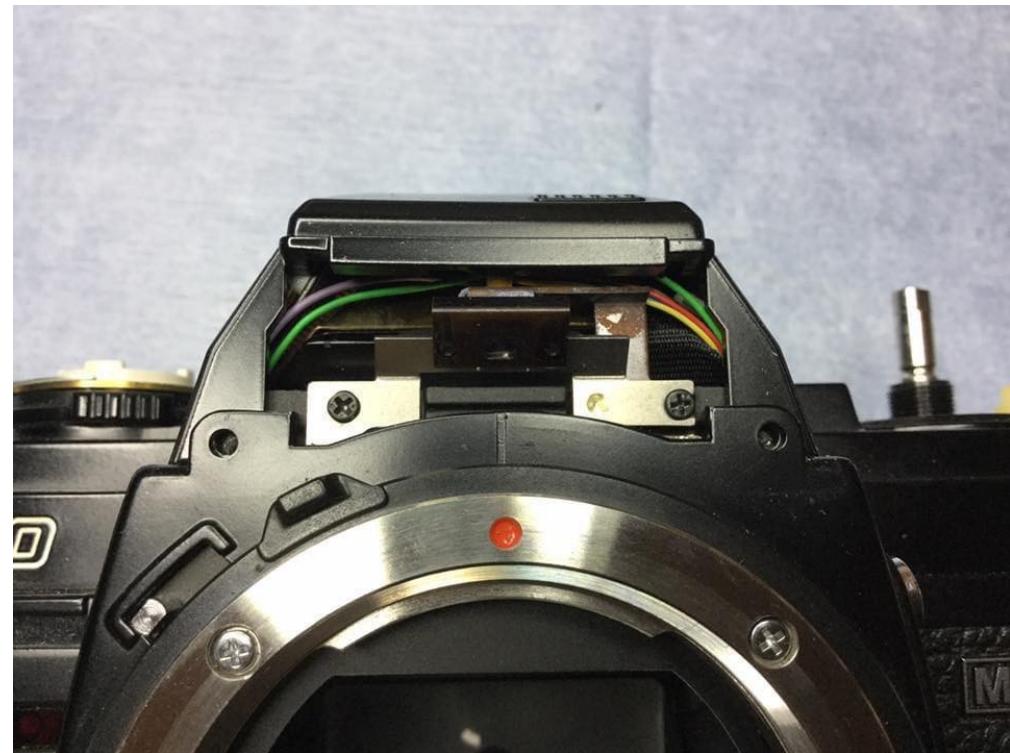
I always put a small piece of tape on the mode dial lock button to keep it with the top cover because when the top cover is lifted off its loose.

The eyepiece frame is loose, the SV brush is loose.

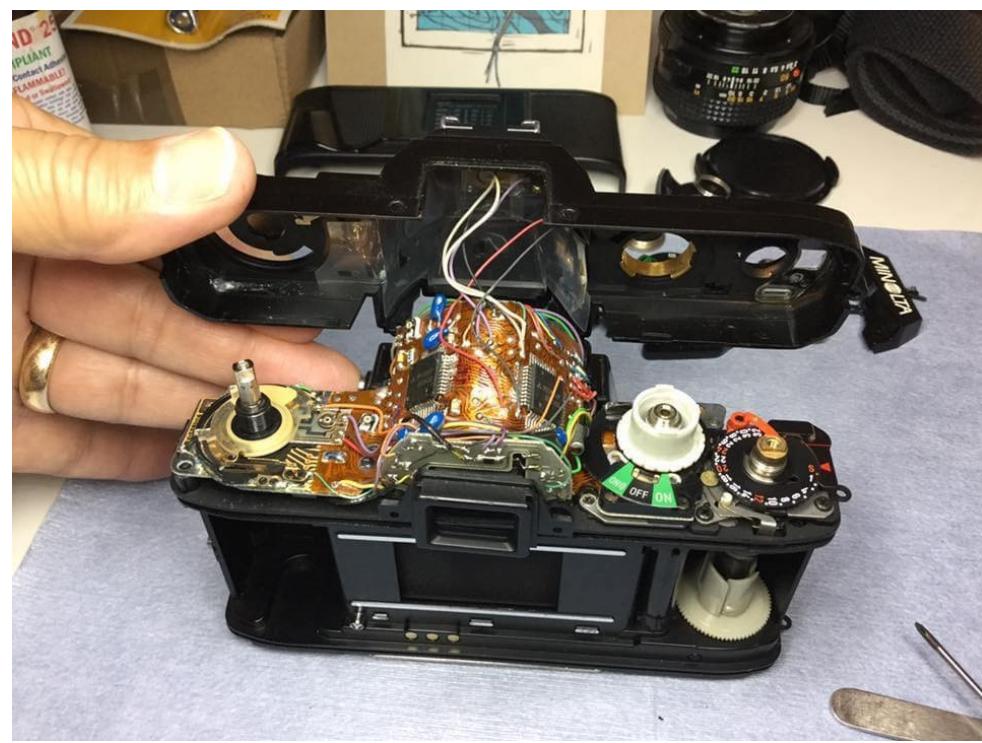
Desolder the six top cover wires - black and red (piezo beeper) - white and gray (dedicated flash contact pins) - purple from the sync contact and black from the hot shoe ground.

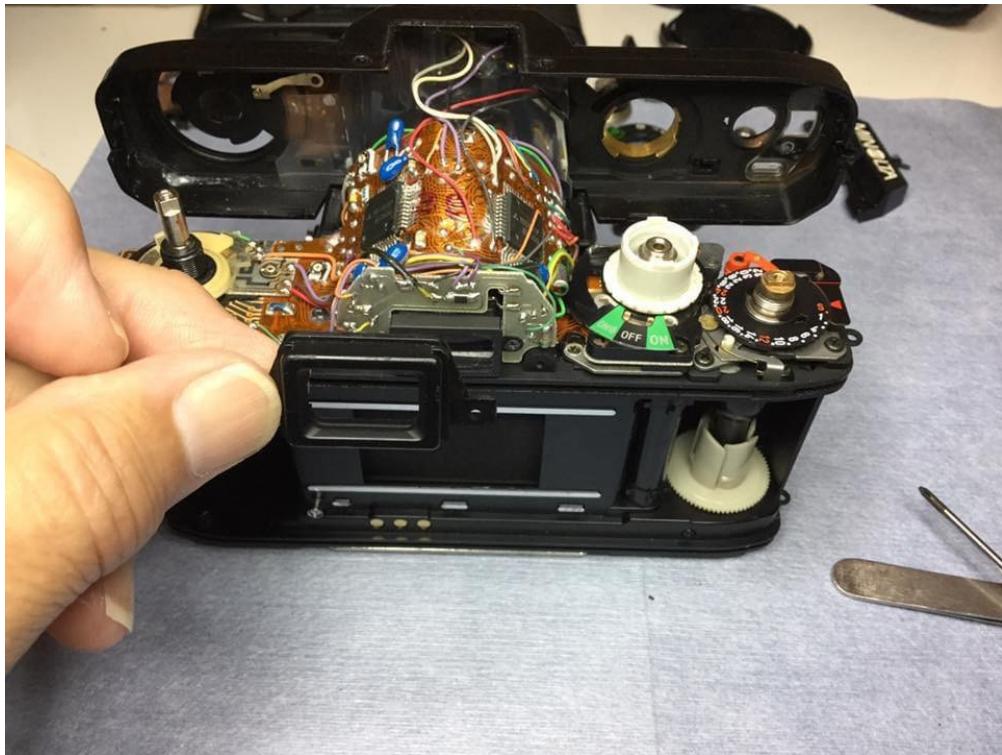
Note the water damage and corrosion on the main flex circuit...

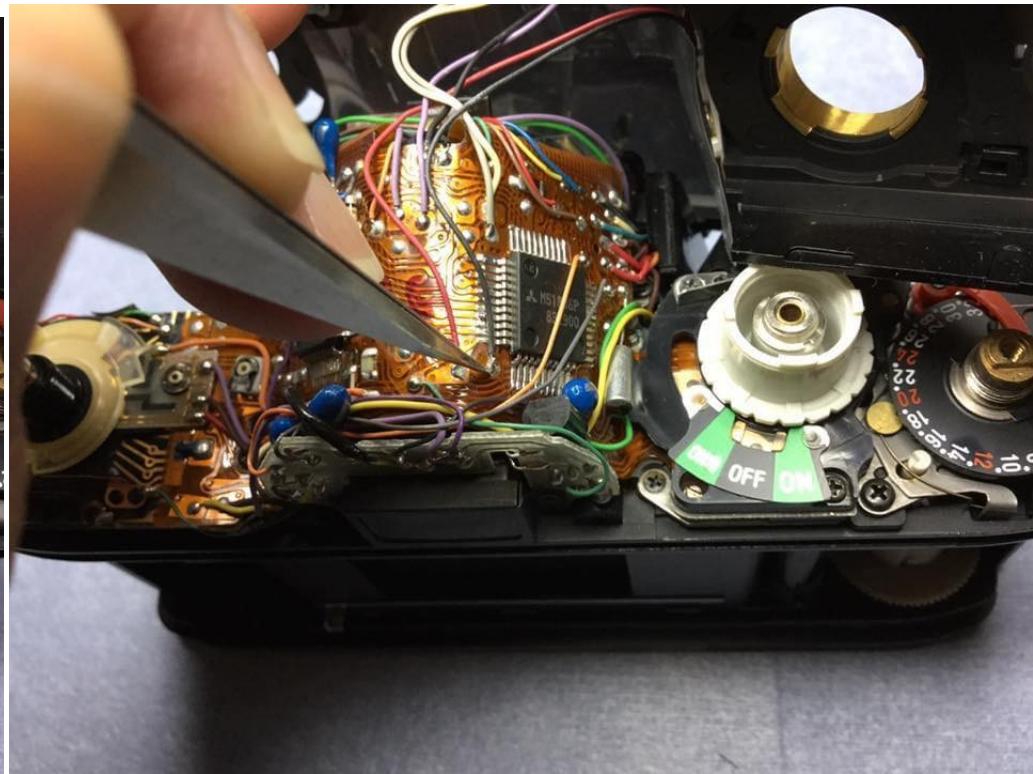
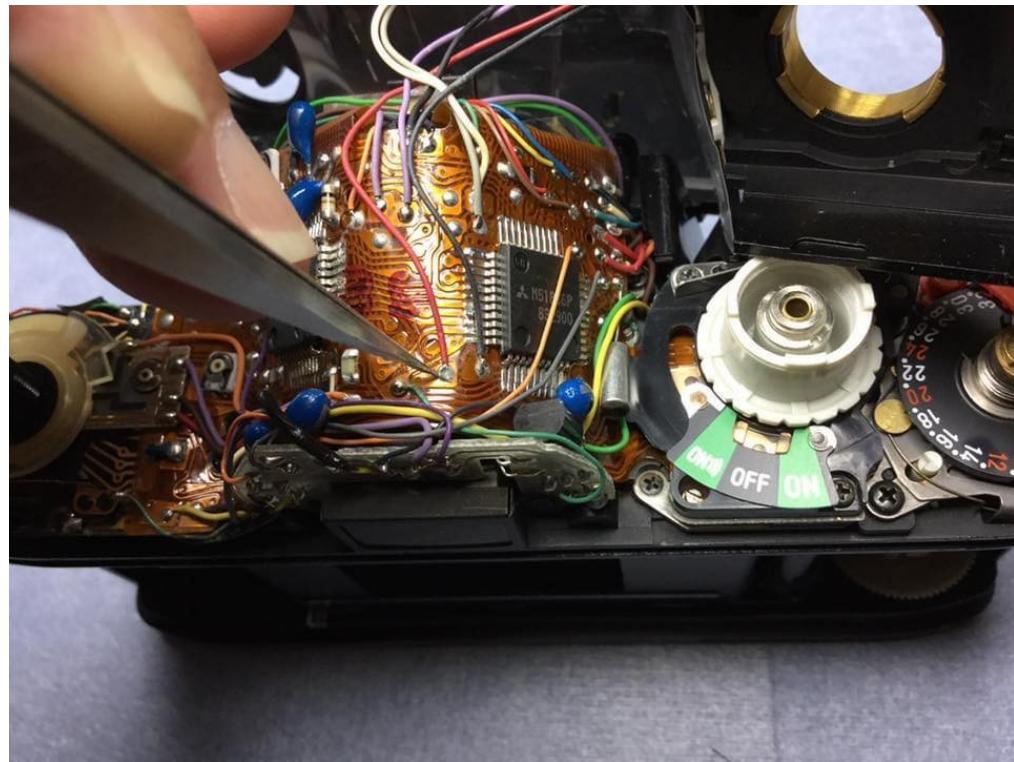


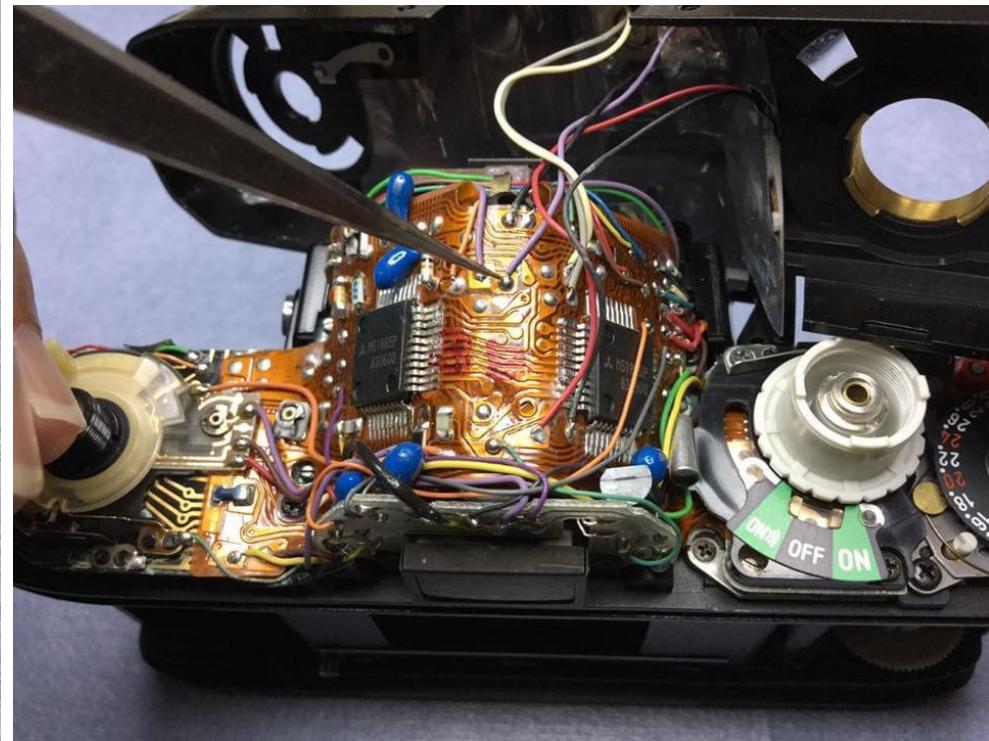
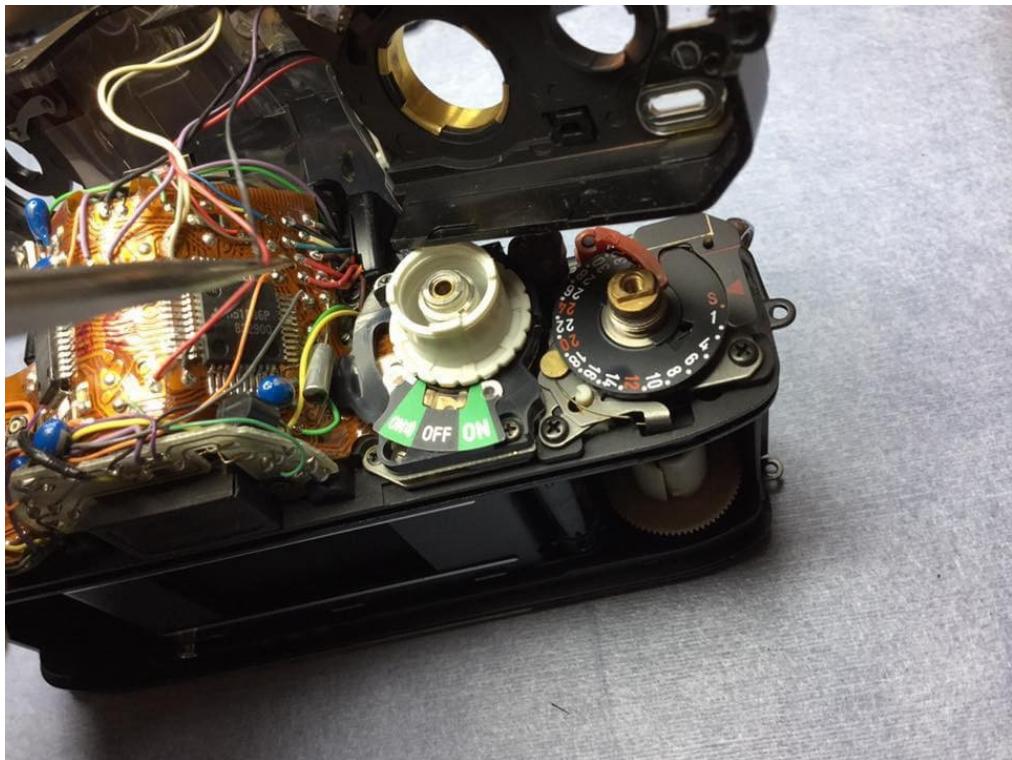


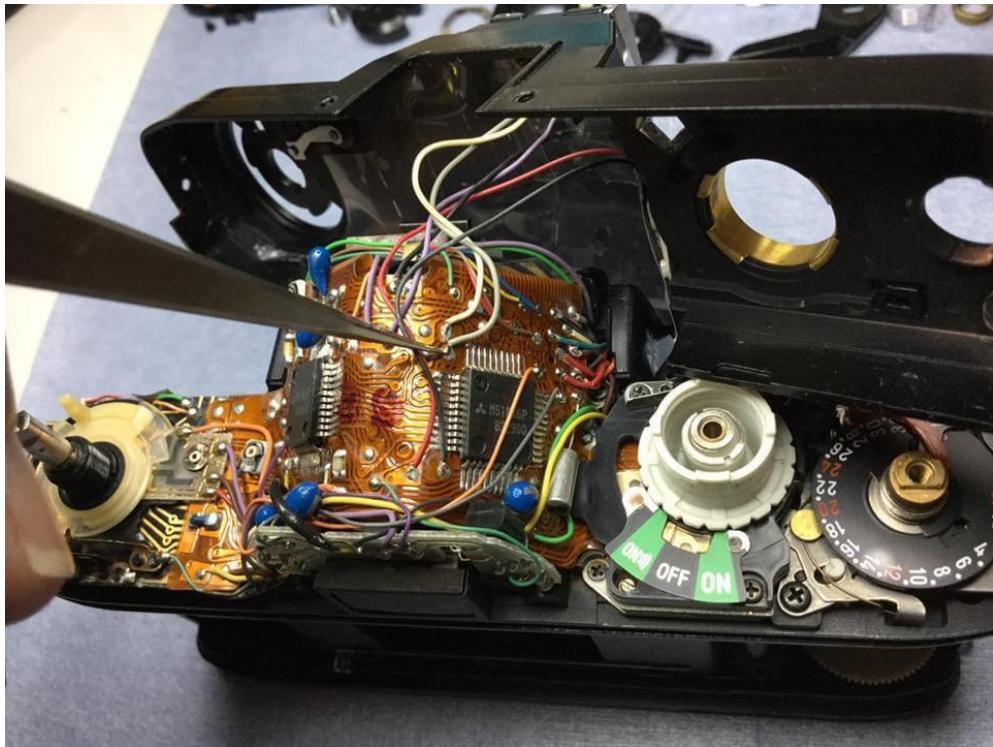


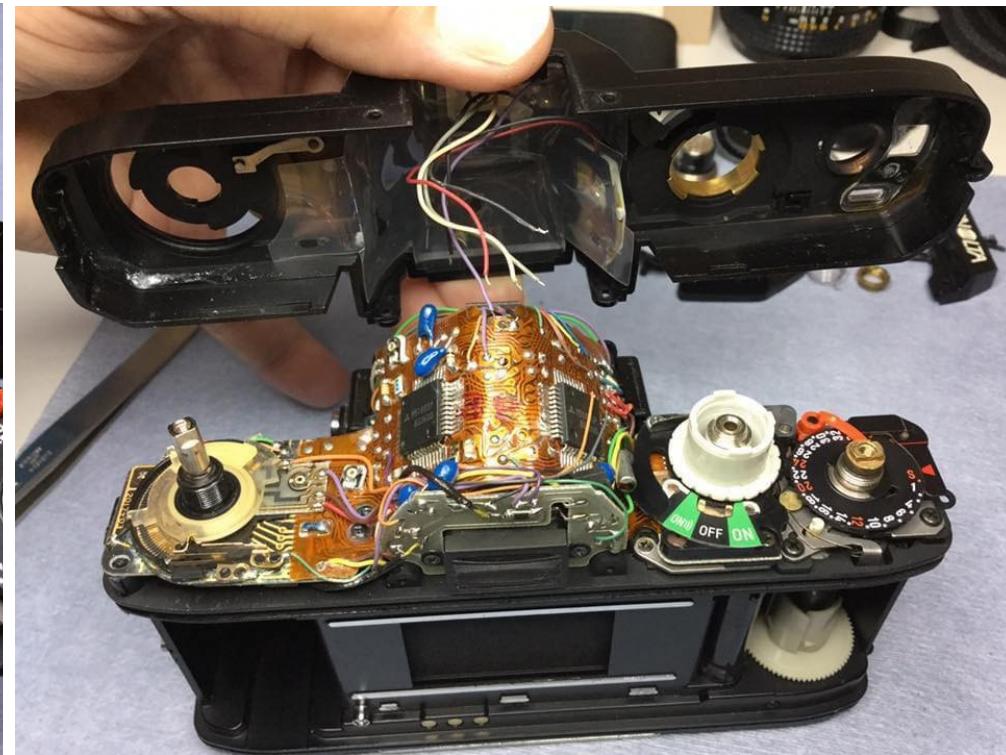
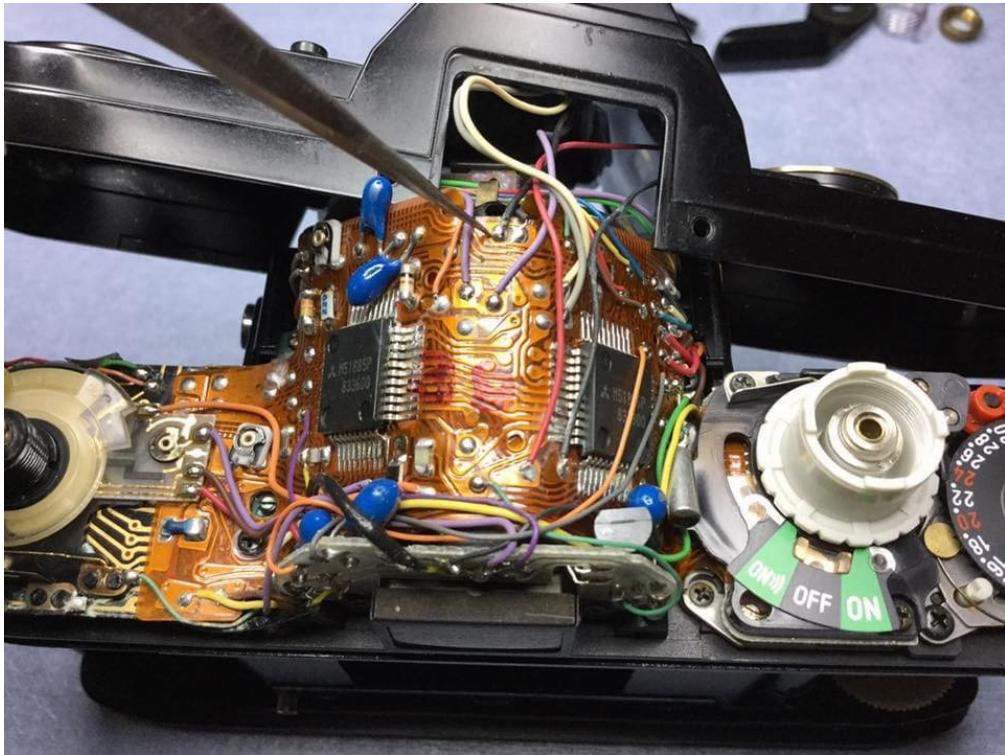






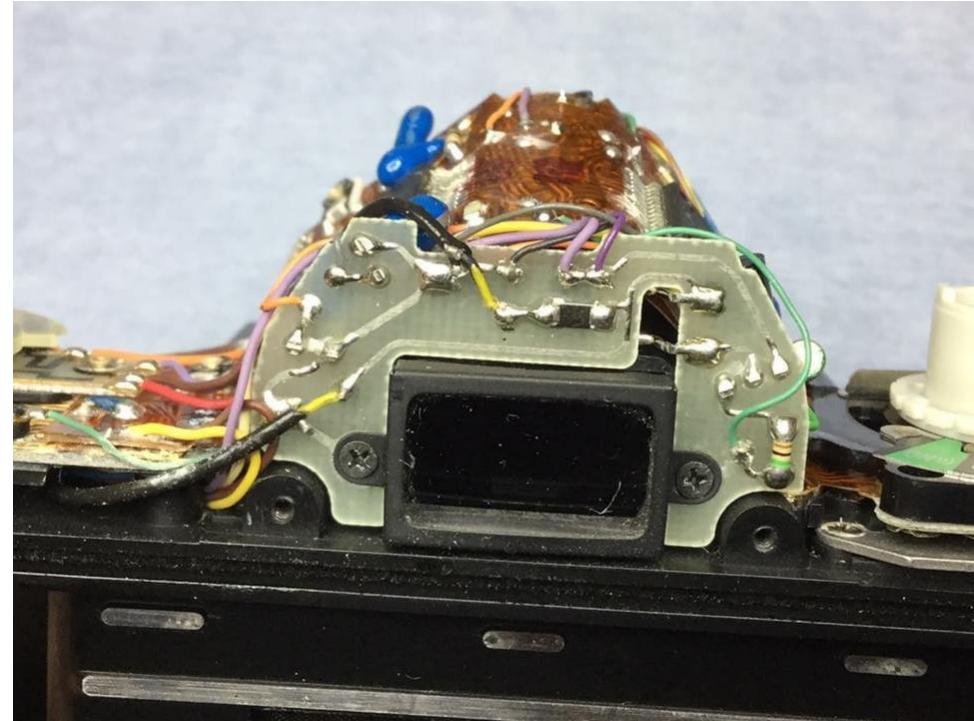
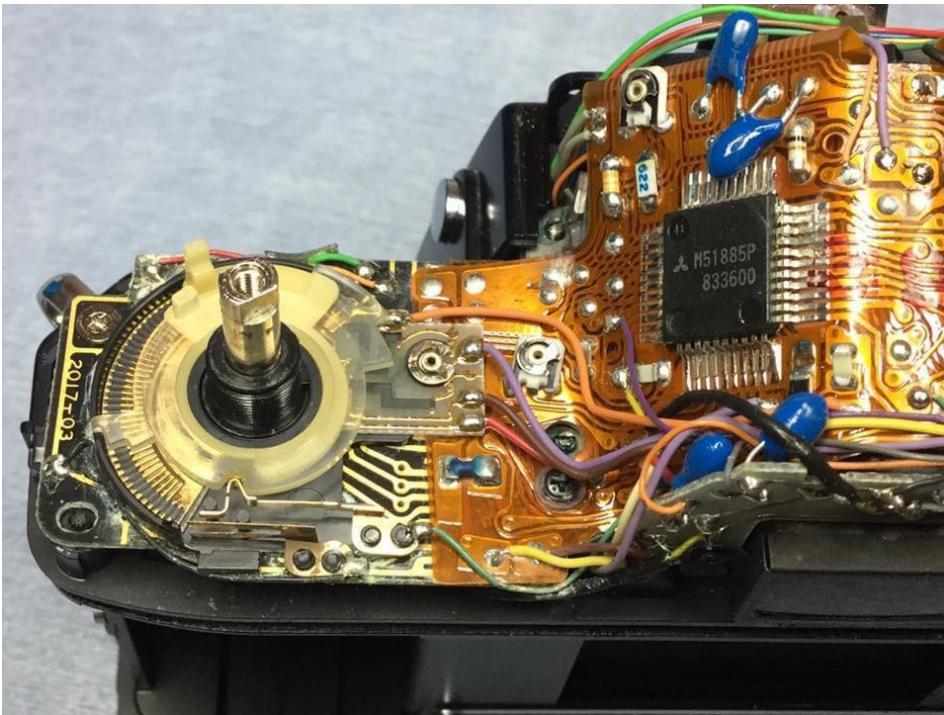


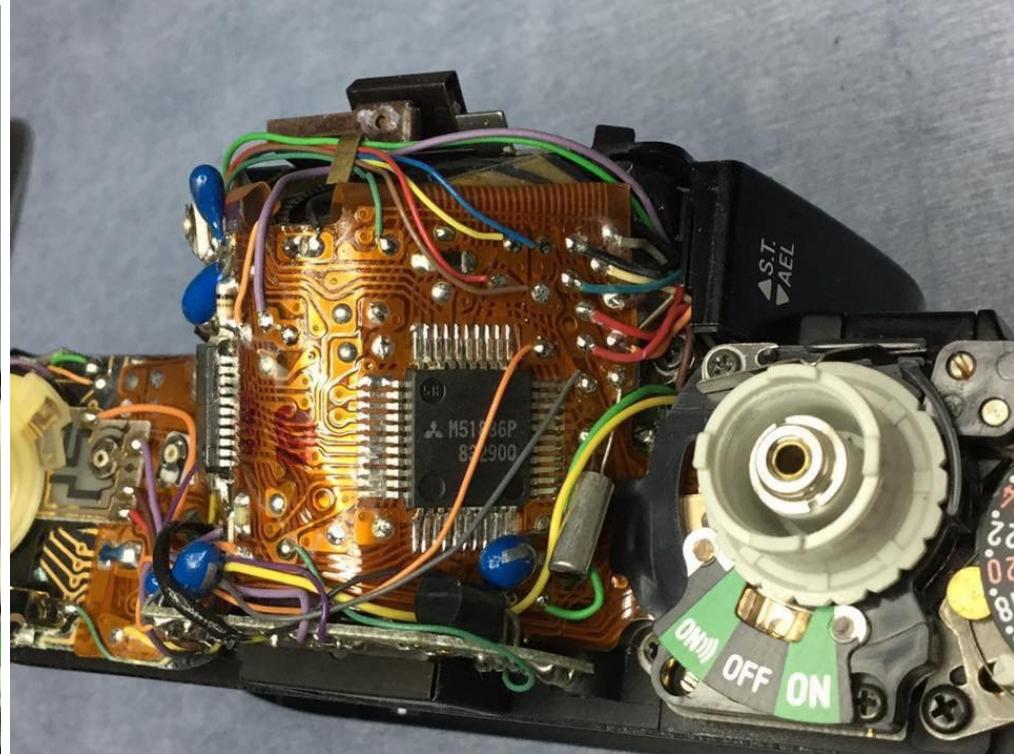
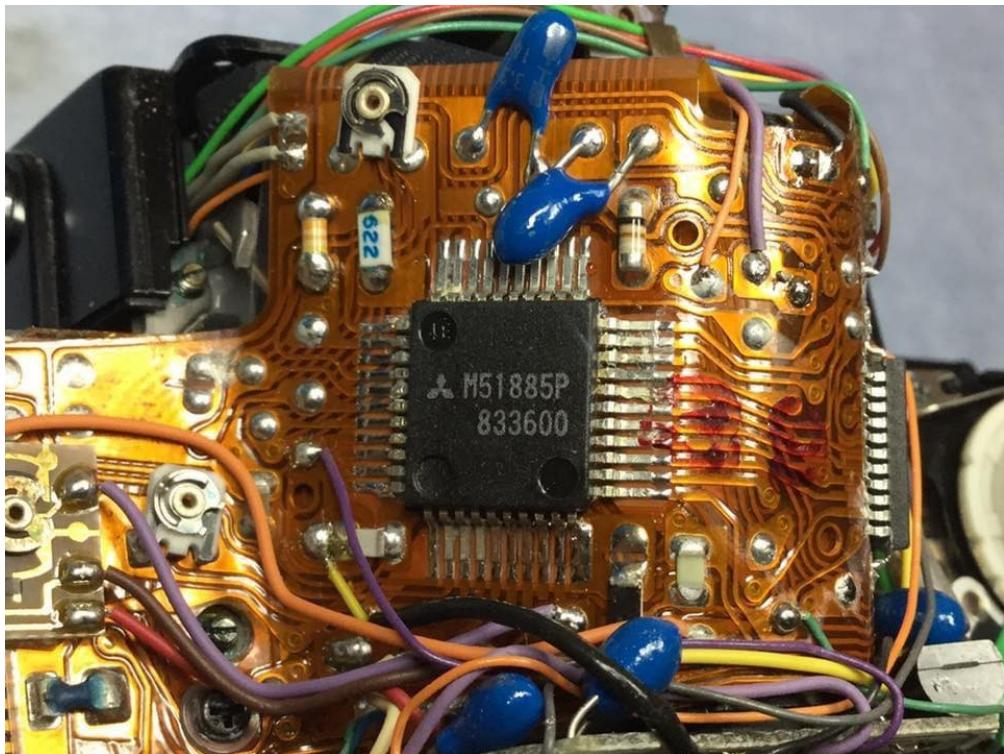


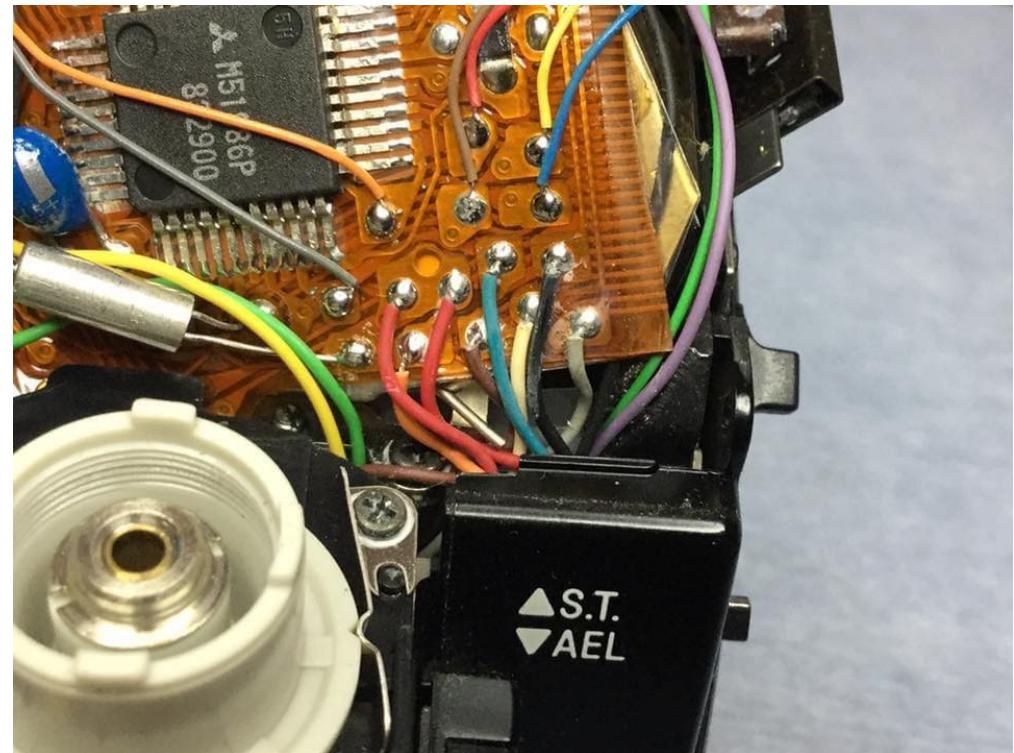
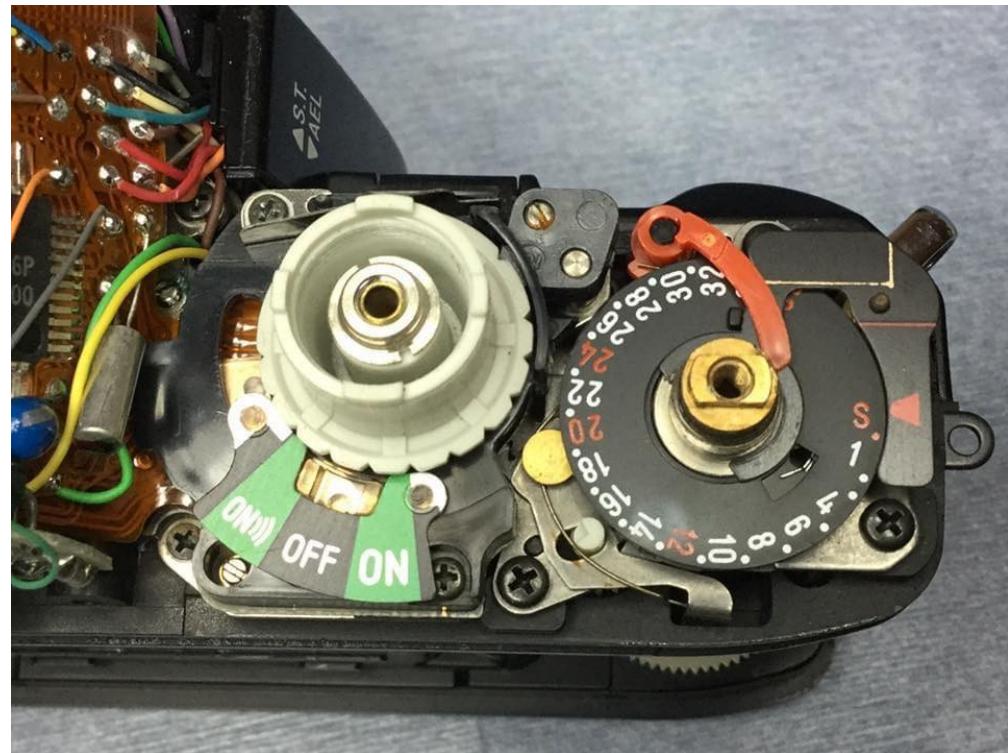


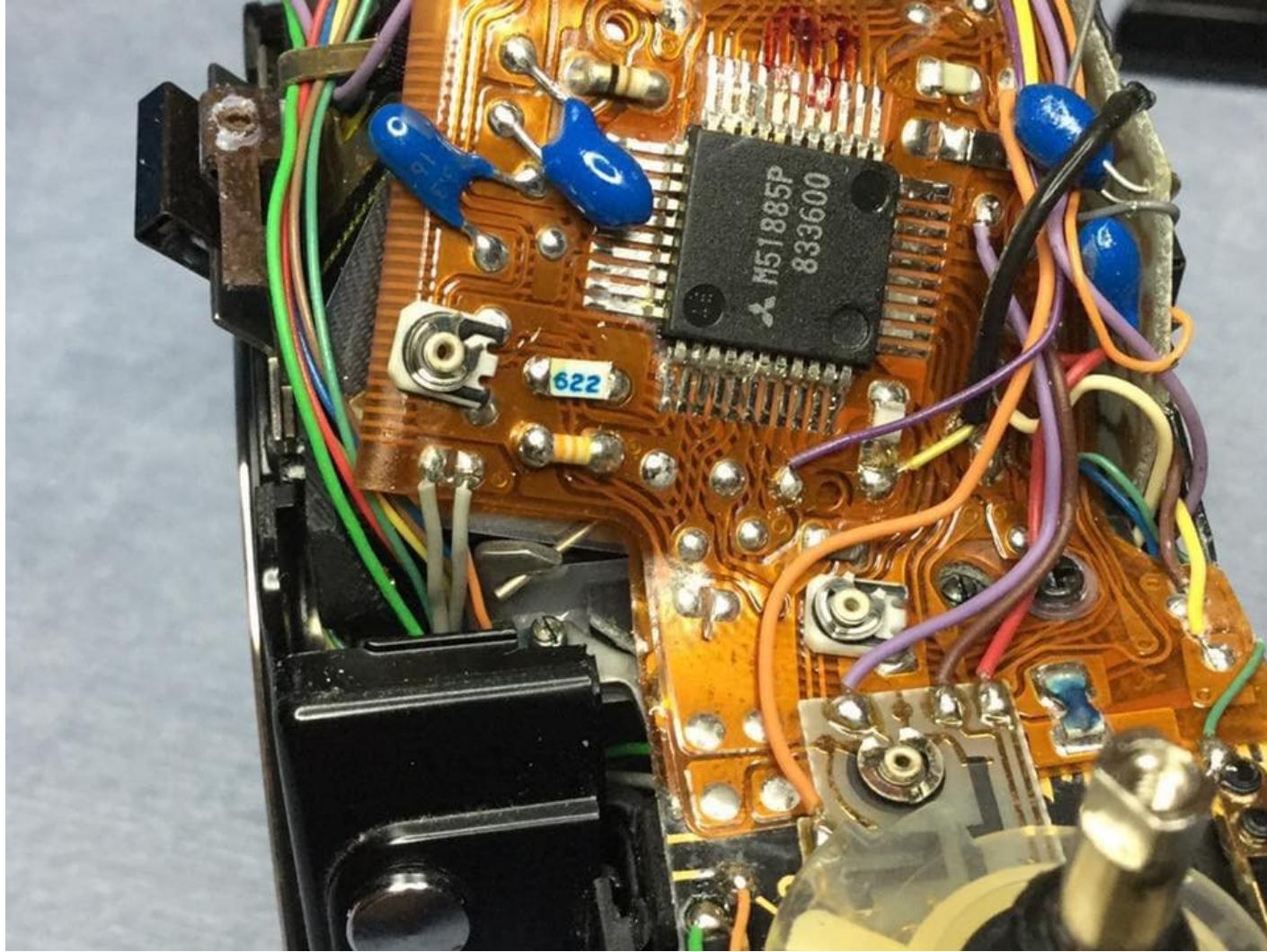
Post #4

Looking over the flex circuit I can see pockets of water damage that needs to be cleaned, take plenty of photos and note the wire routing.



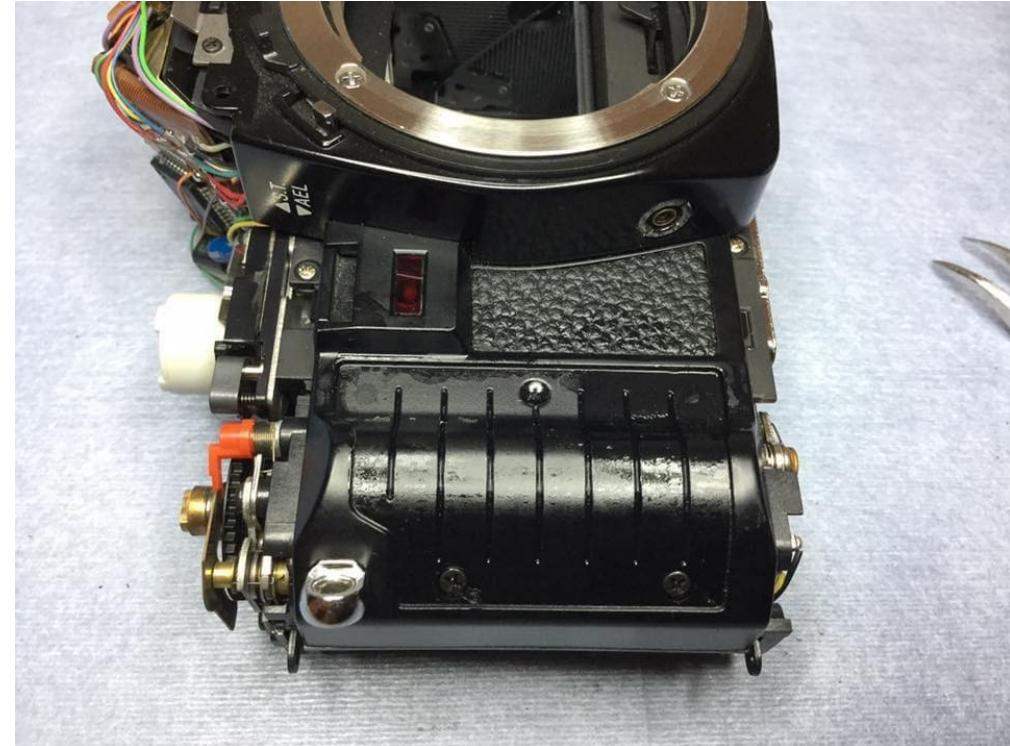
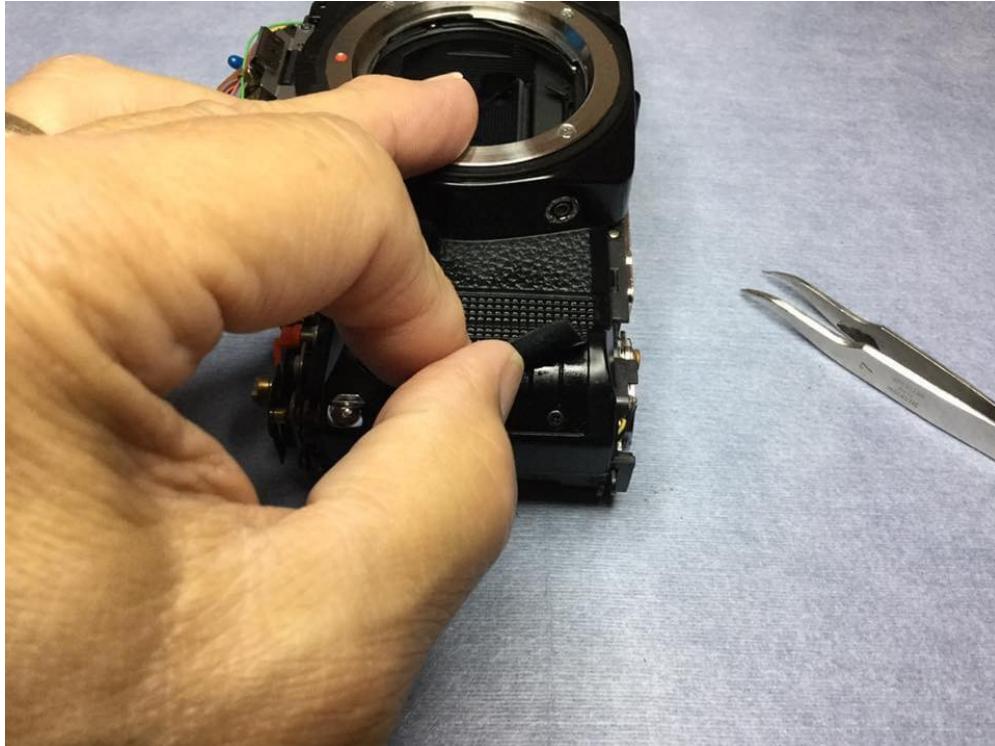


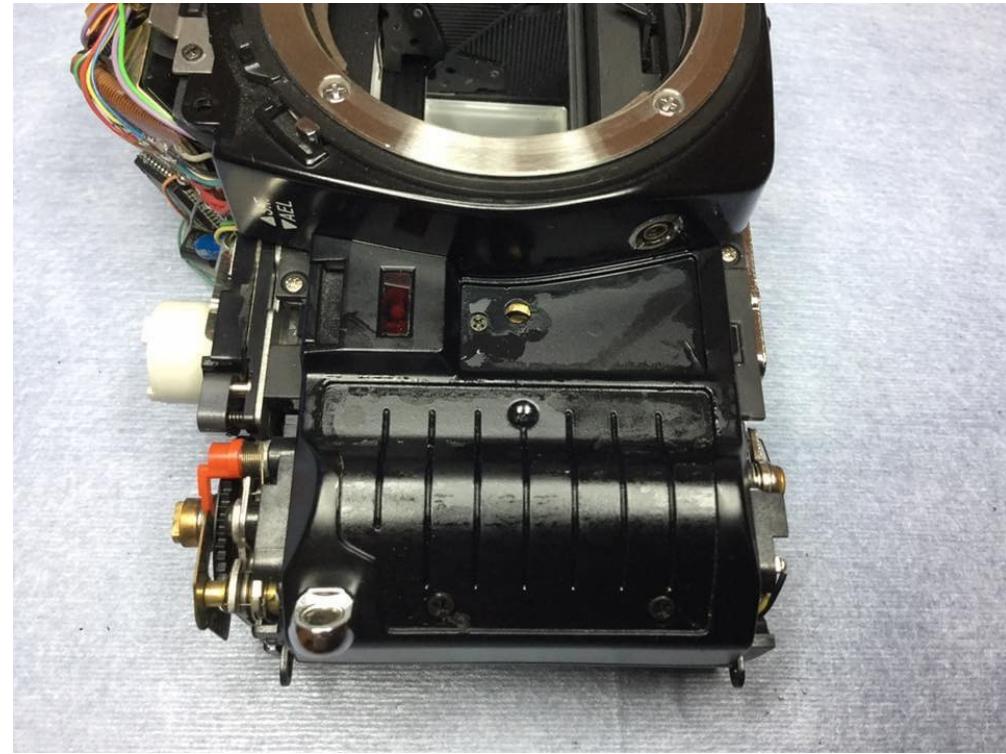
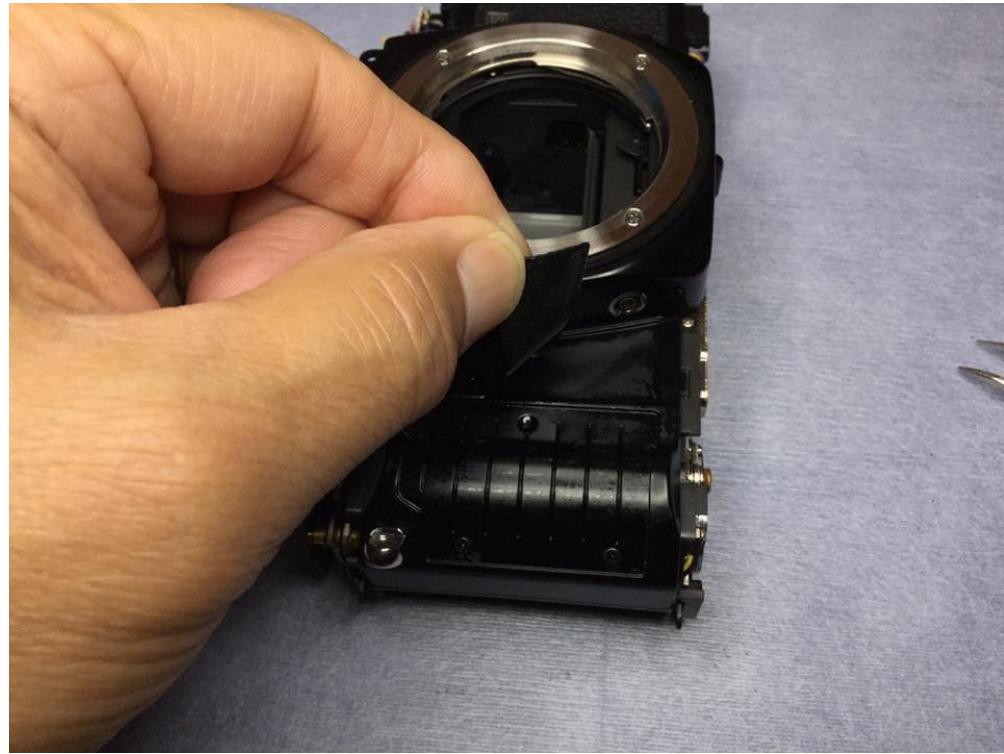


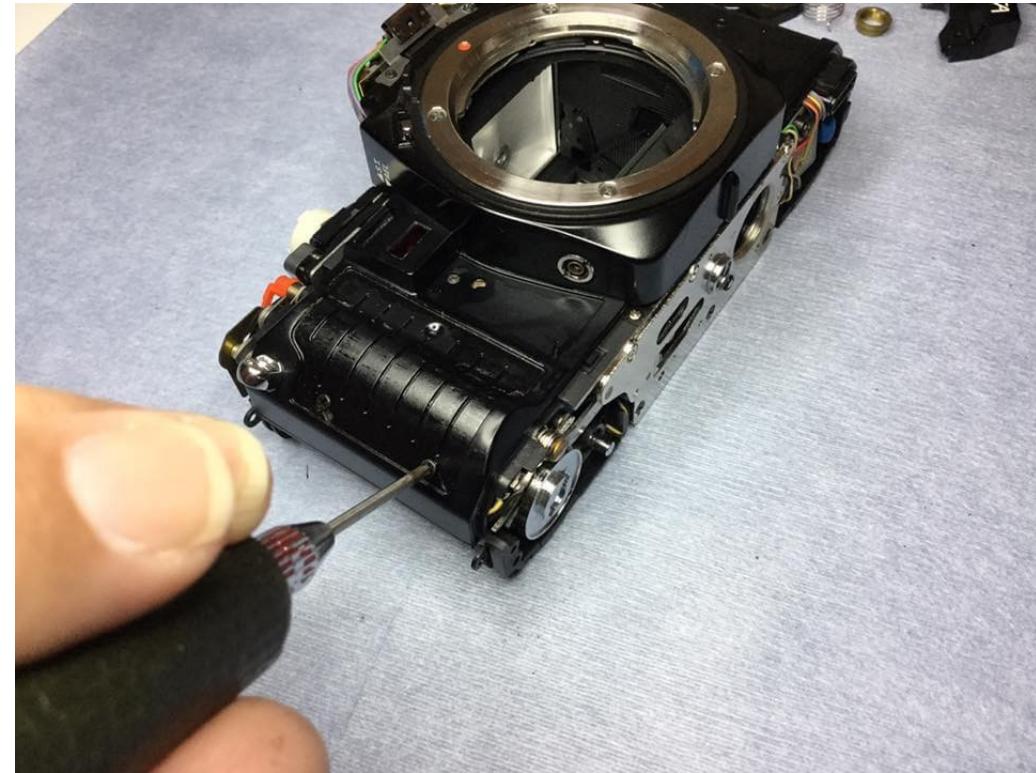
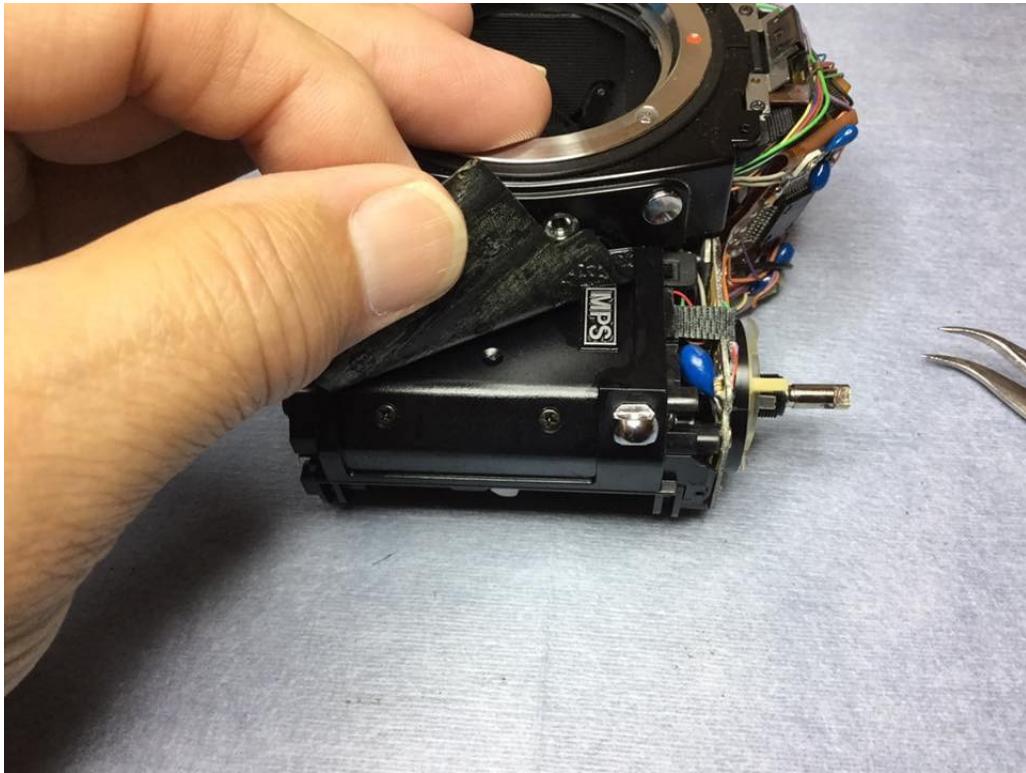


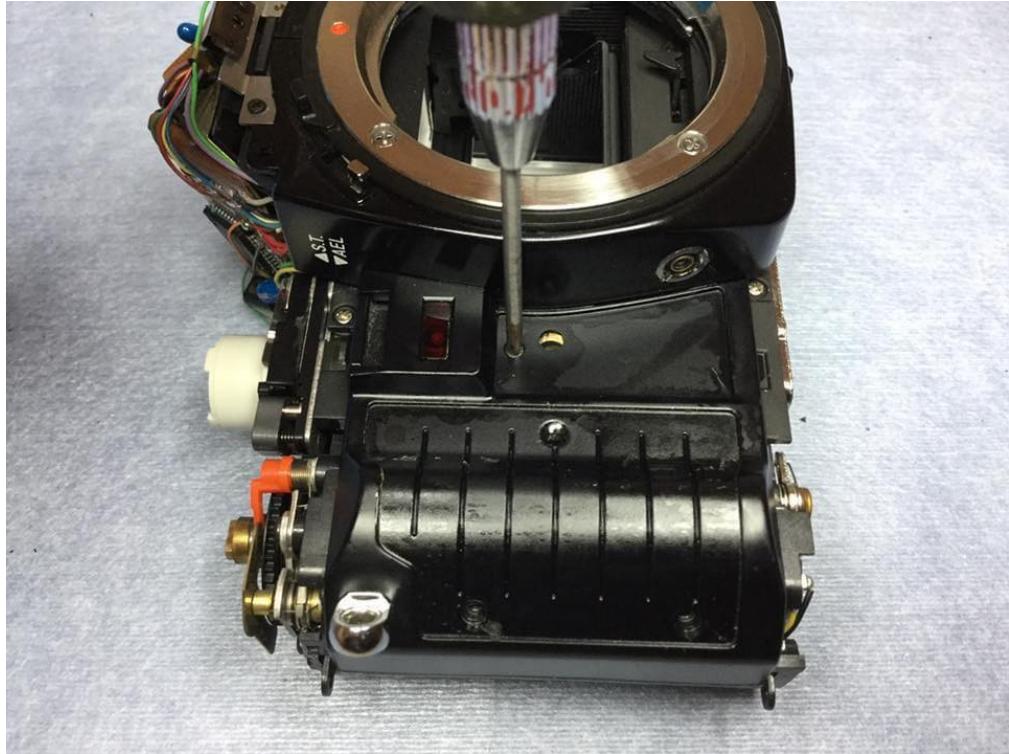
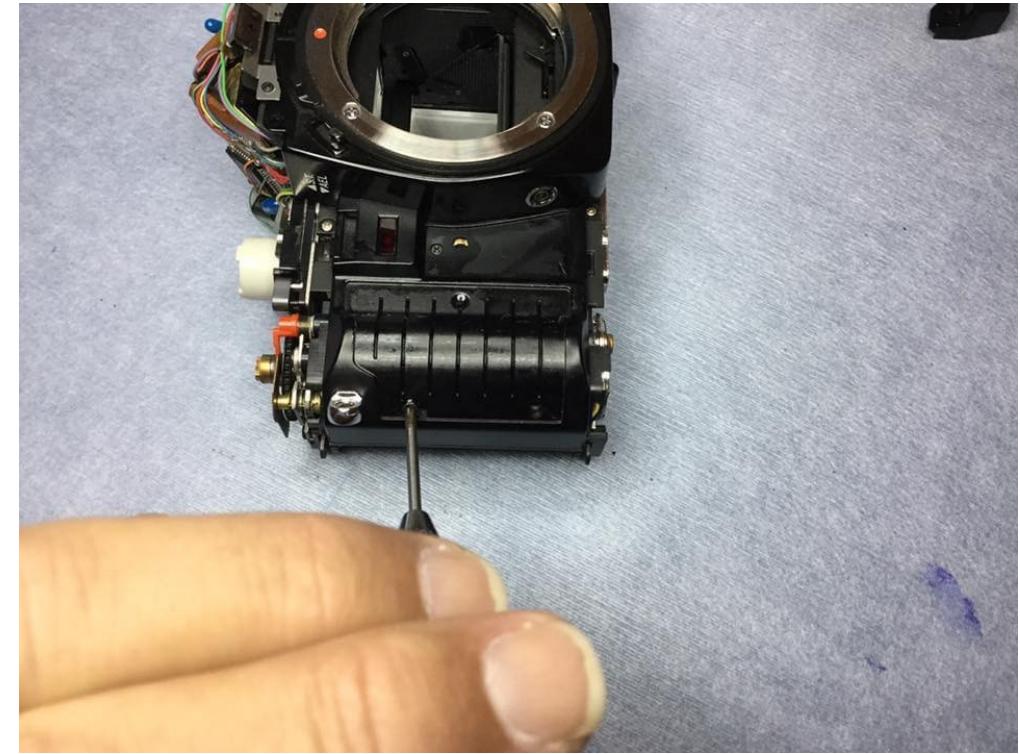
Post #5

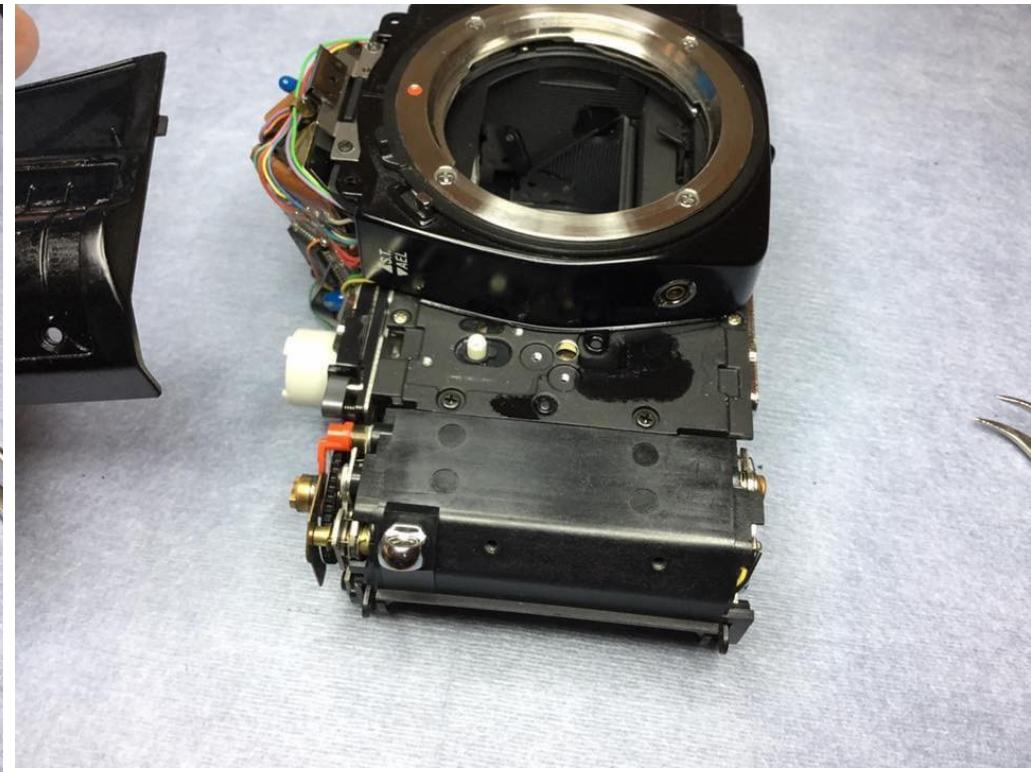
Remove the wind side and rewind side front leatherette, remove the screws, remove the two panels, remove the one screw holding the front apron around the lens mount and remove it - the lens release button and the depth of field preview buttons are loose.

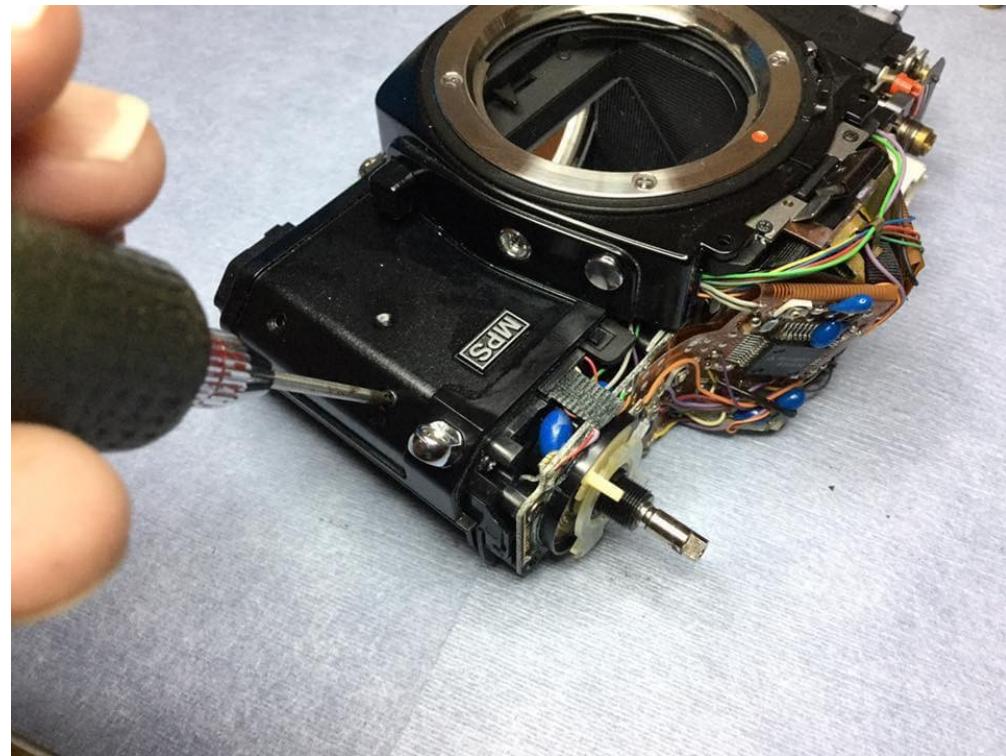
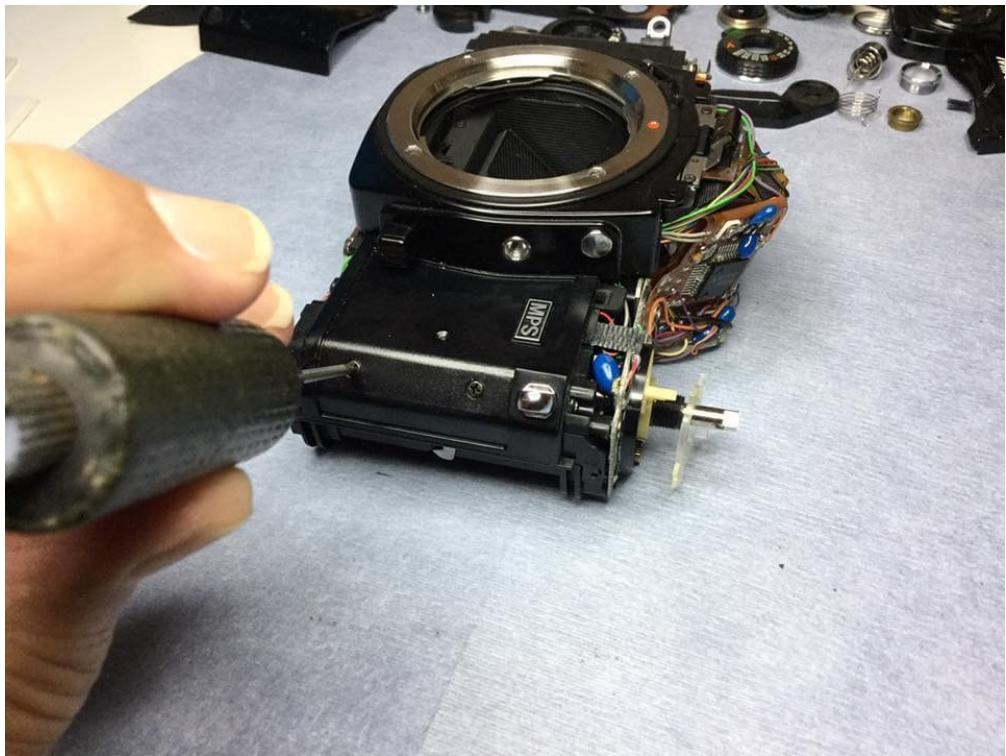


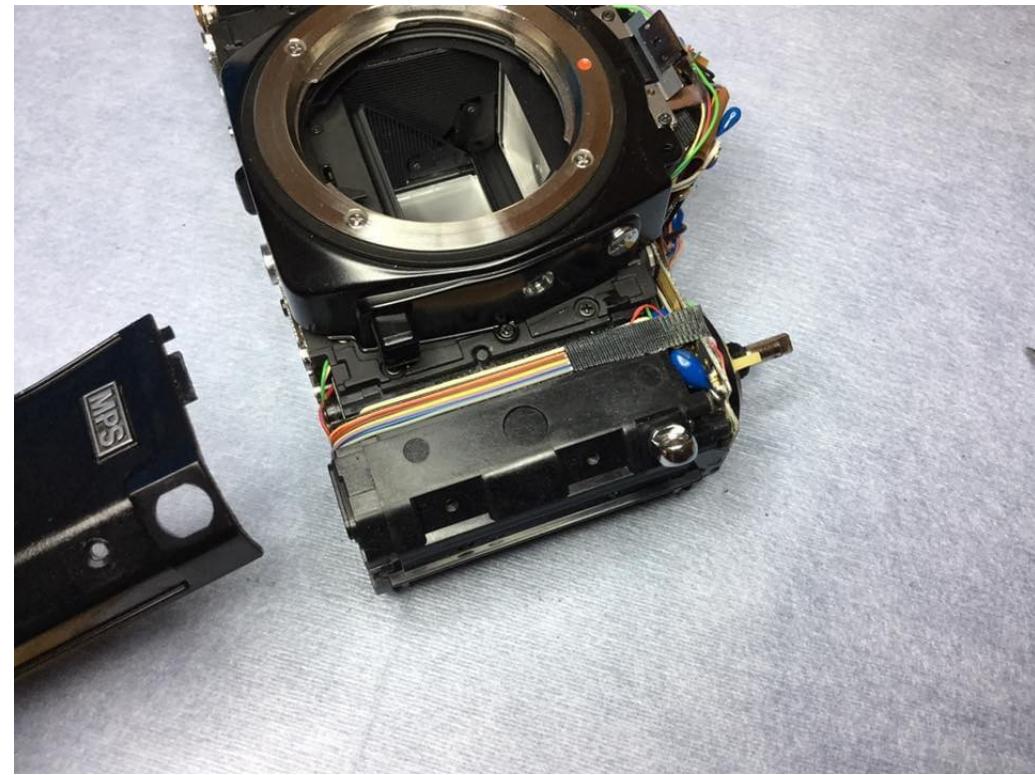
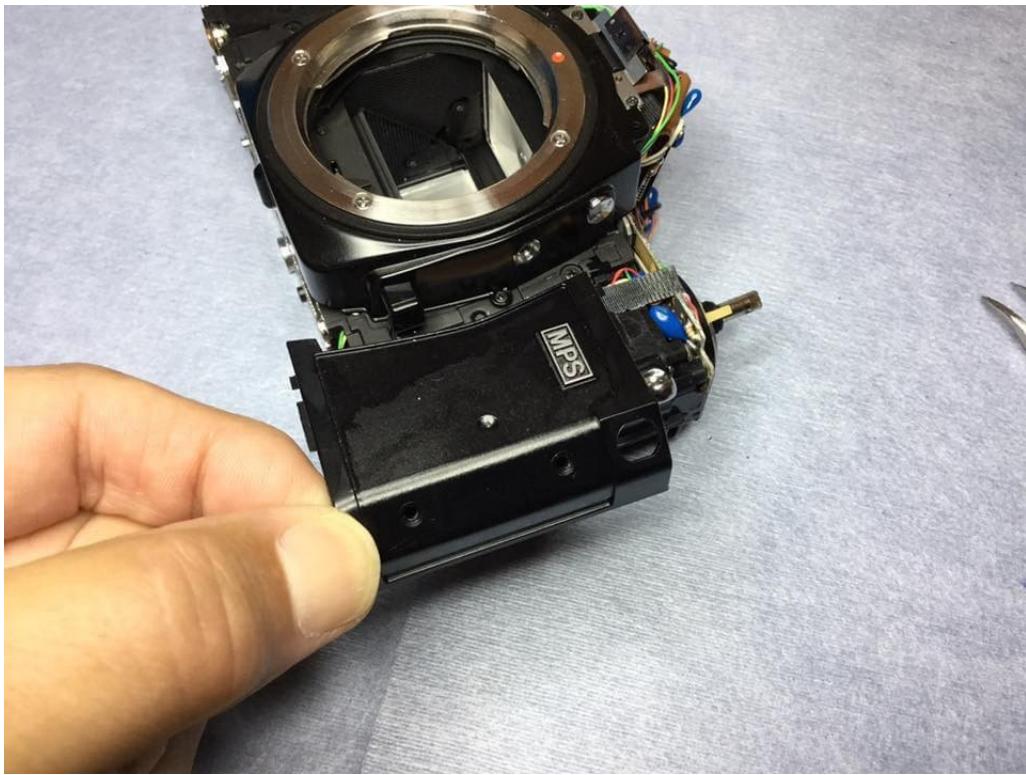


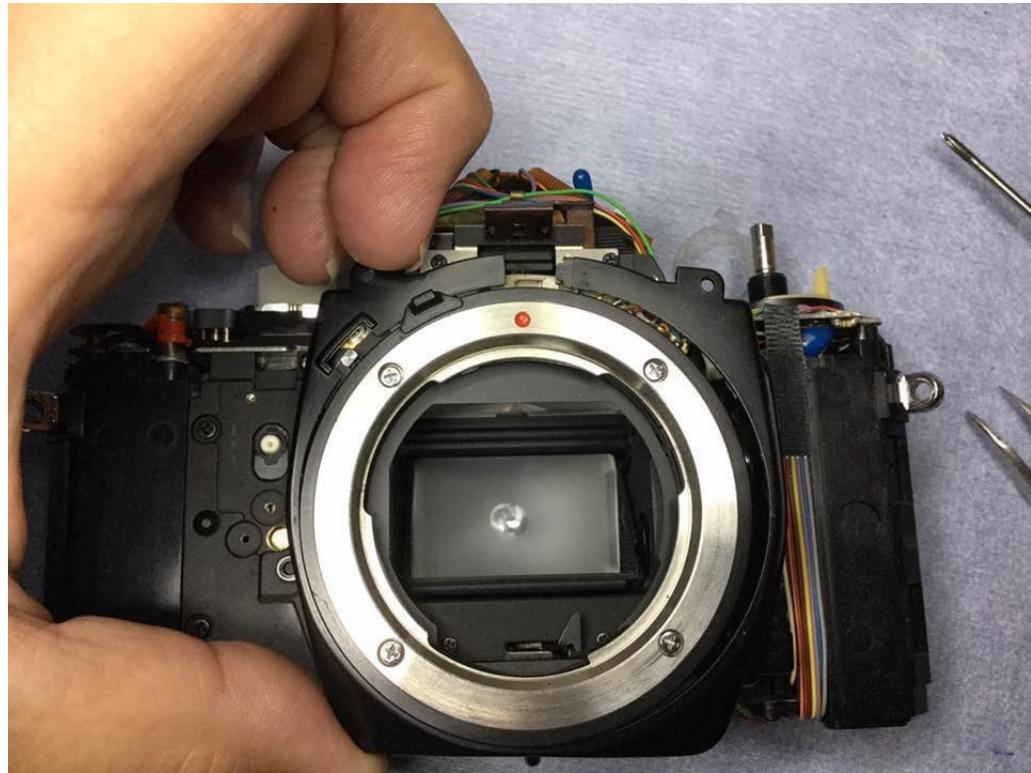
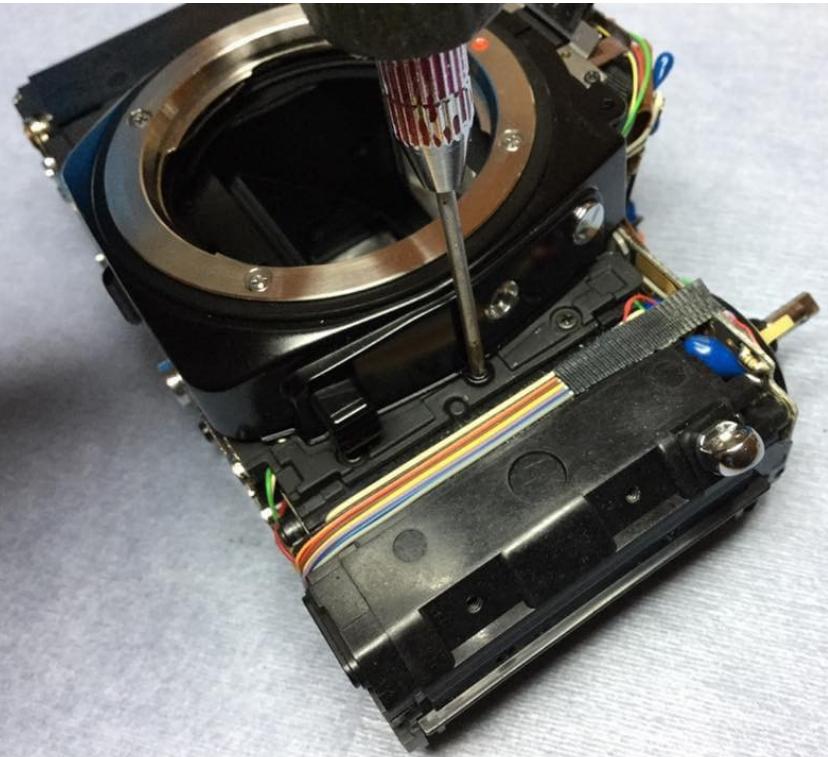


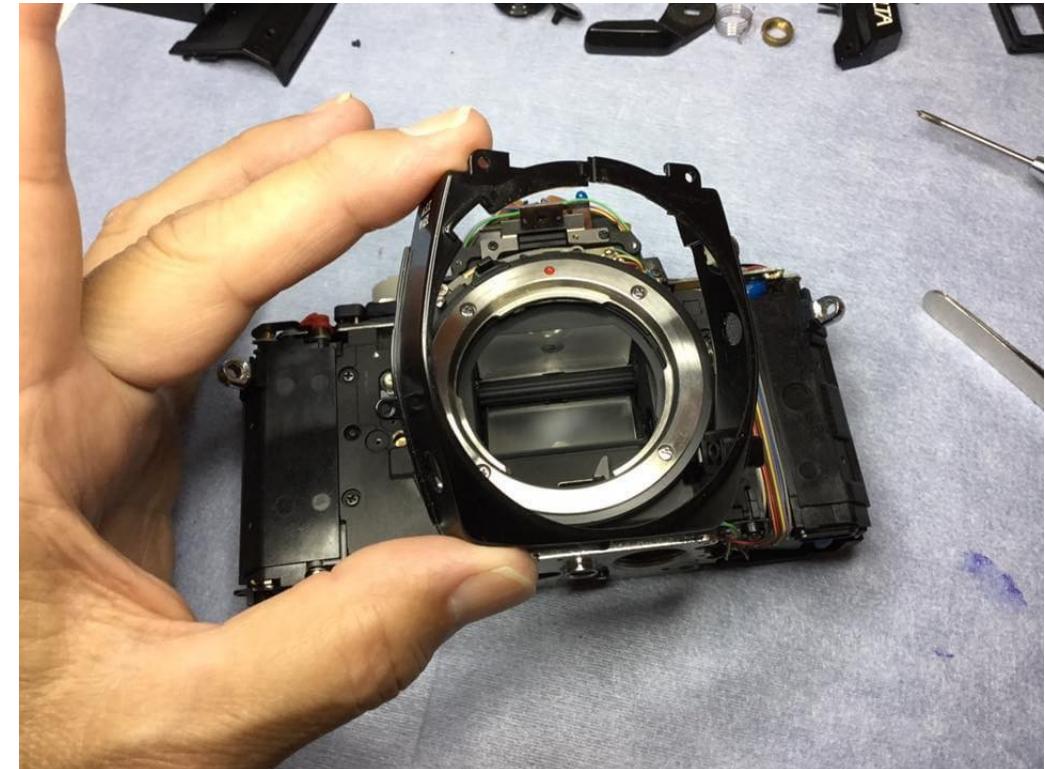


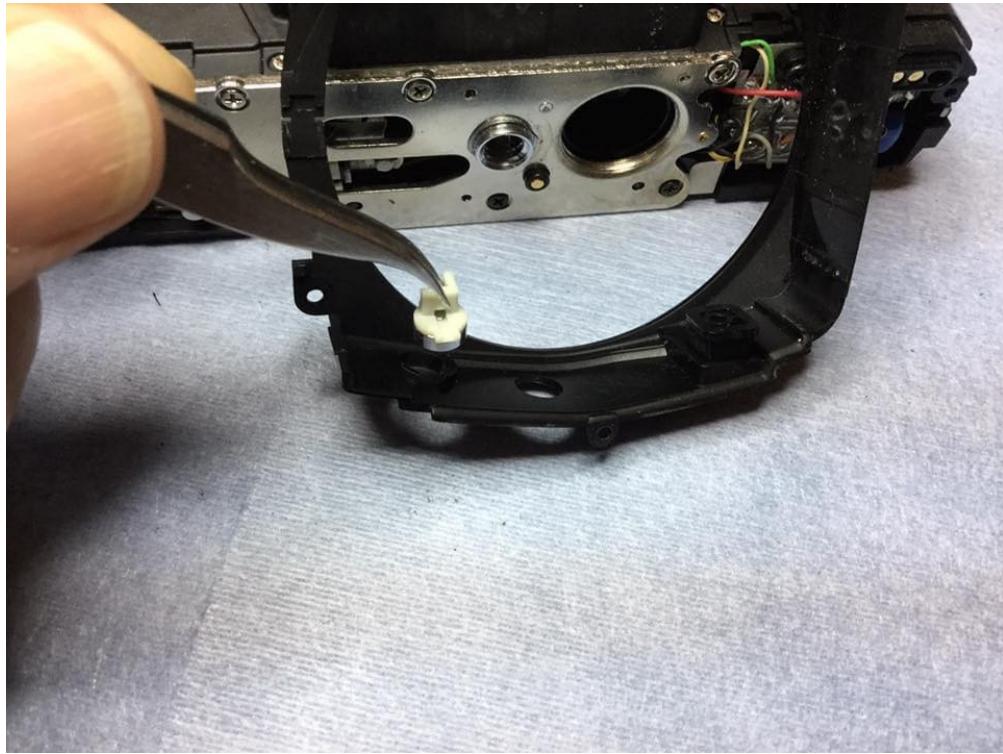


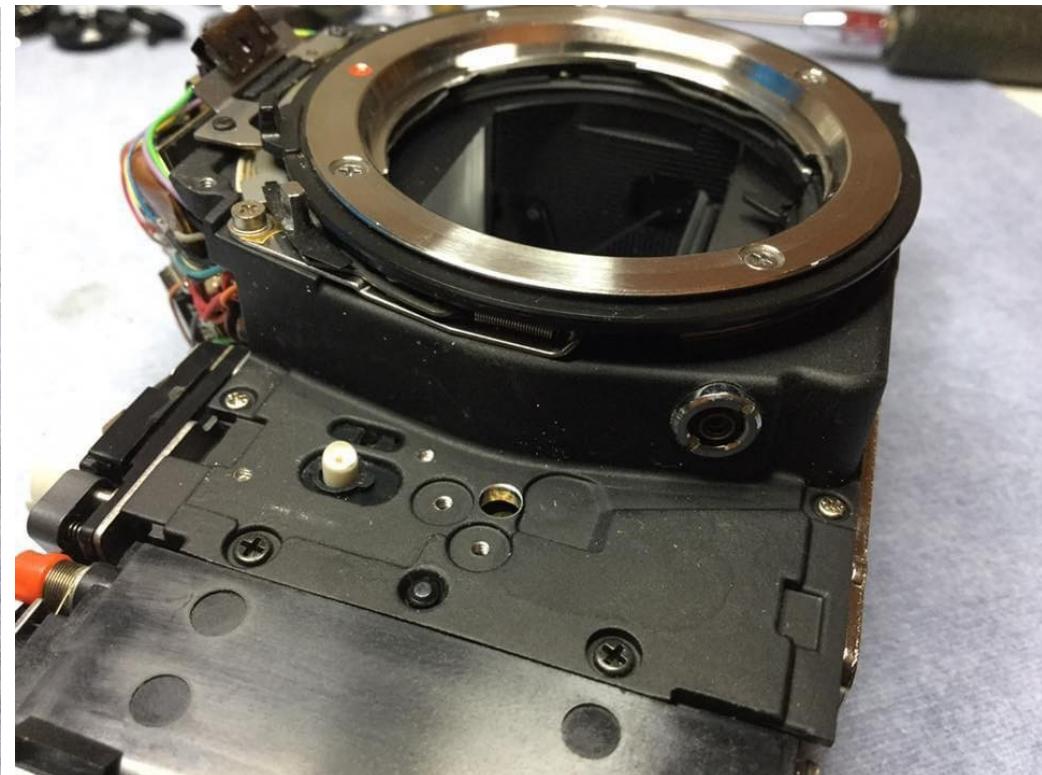






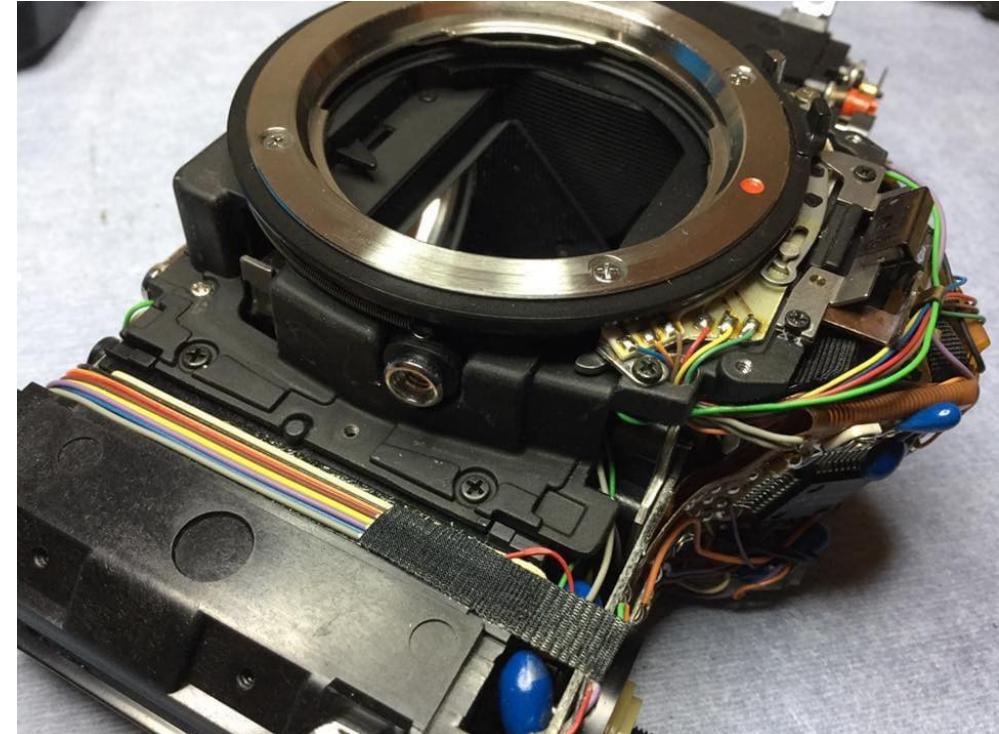
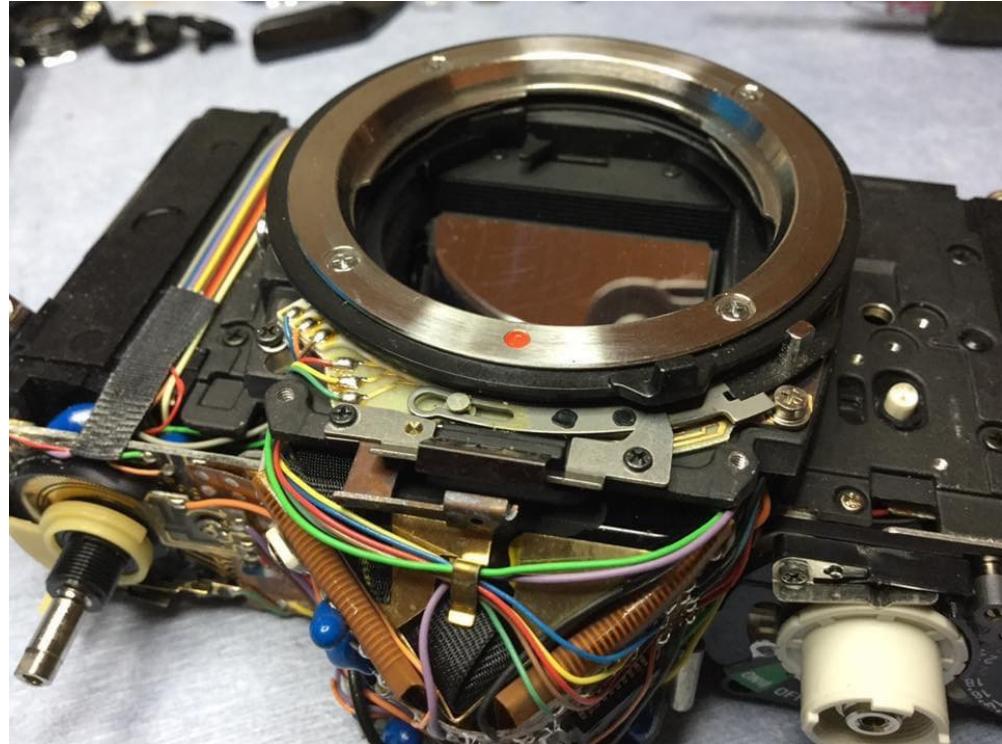


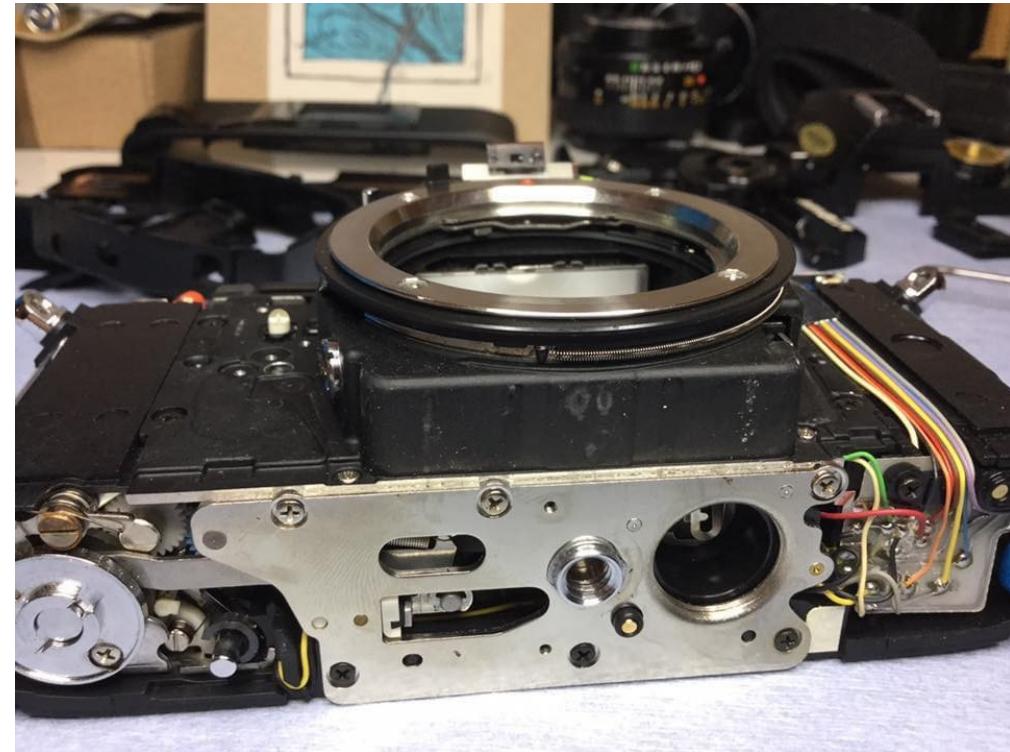
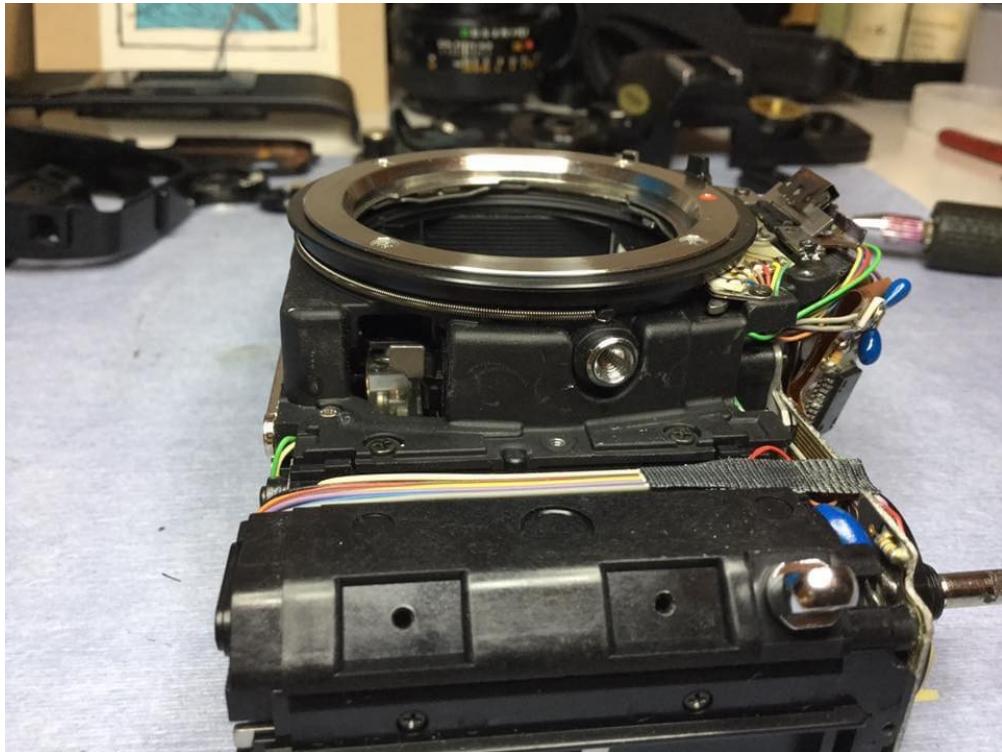


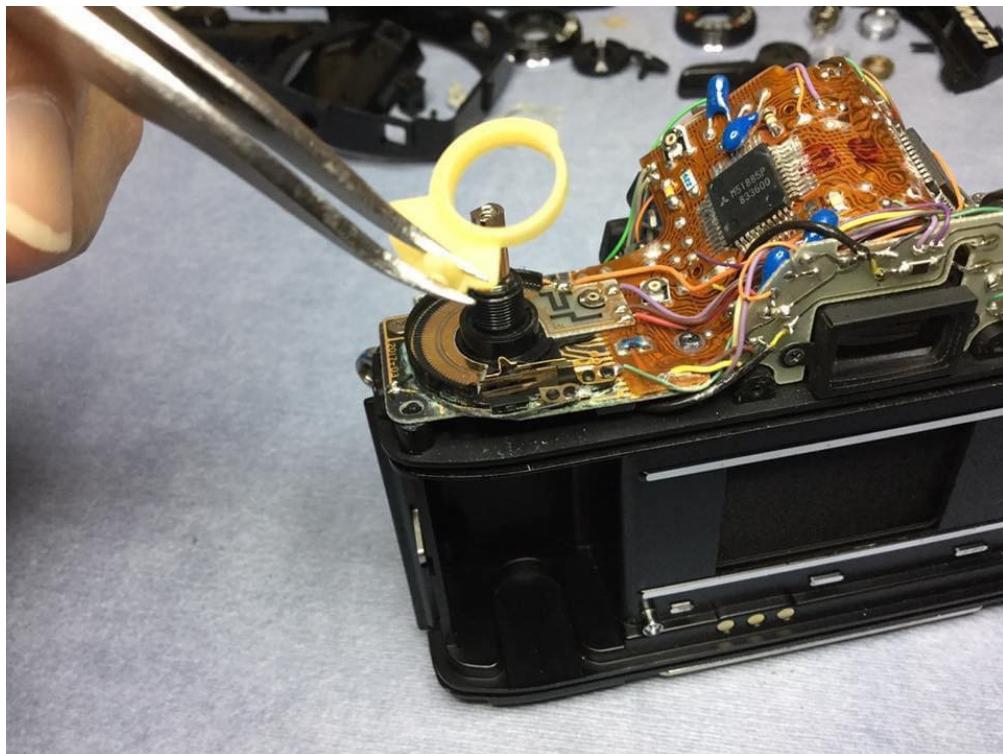
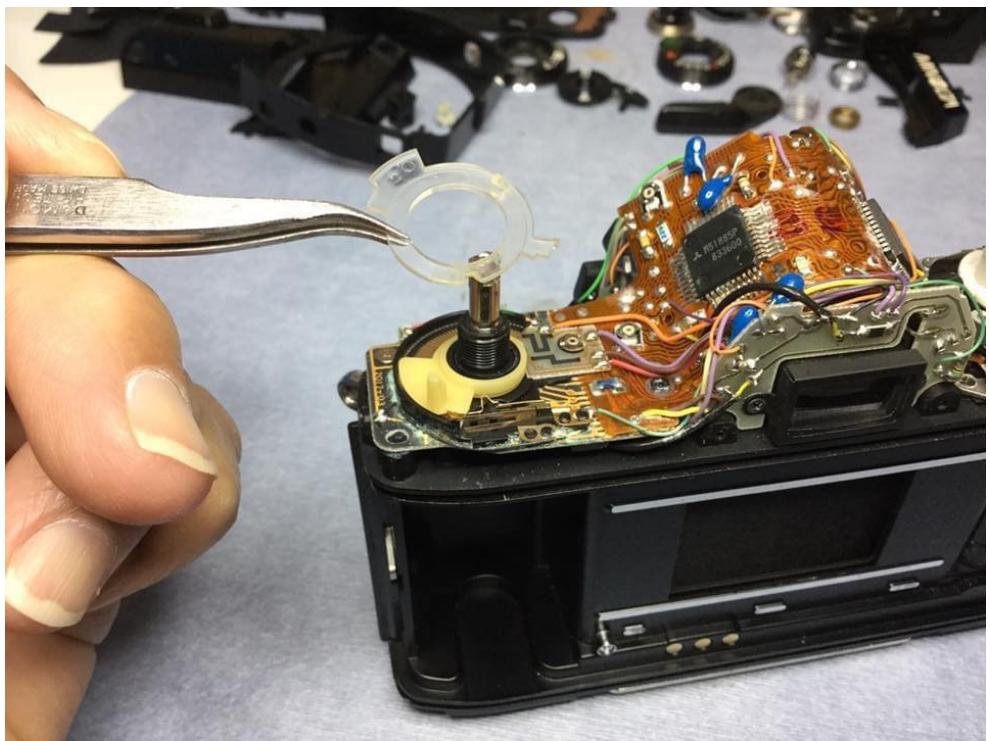


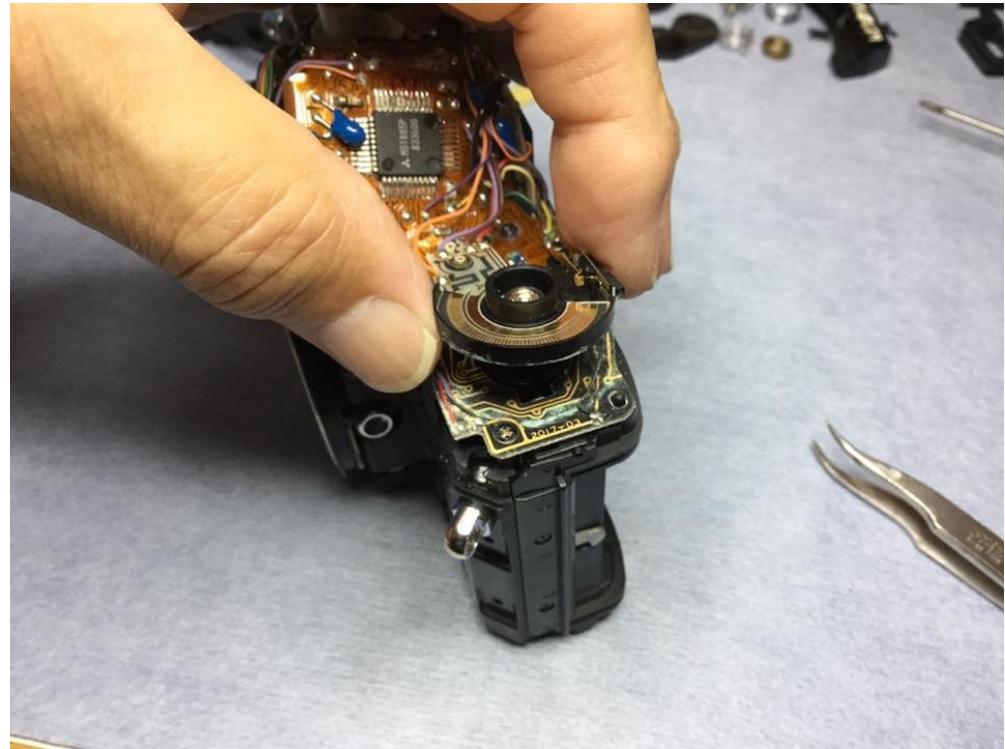
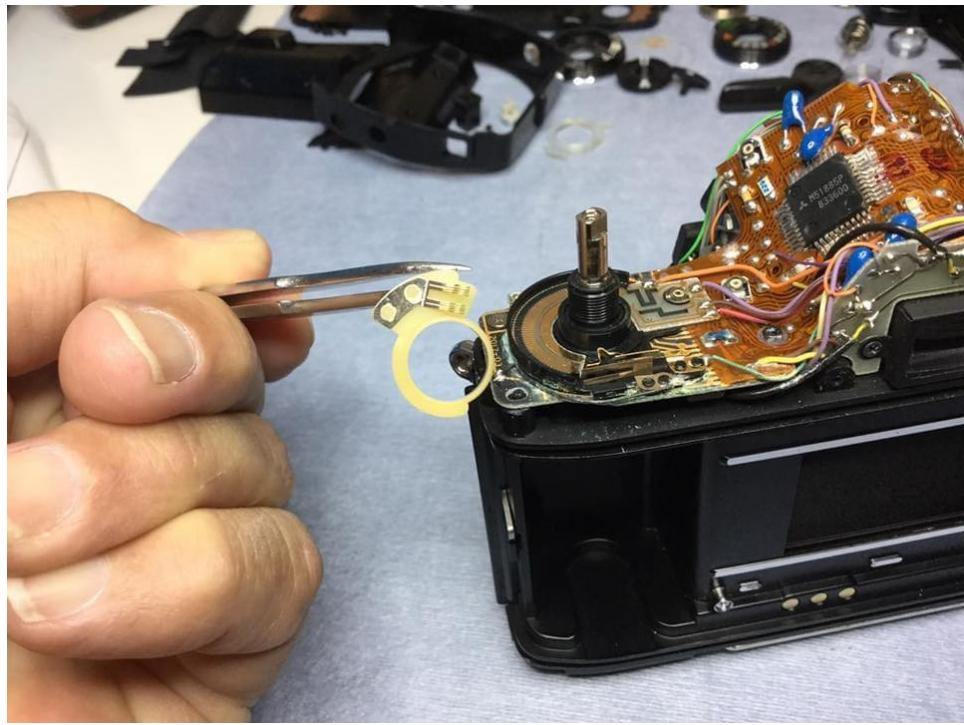
Post #6

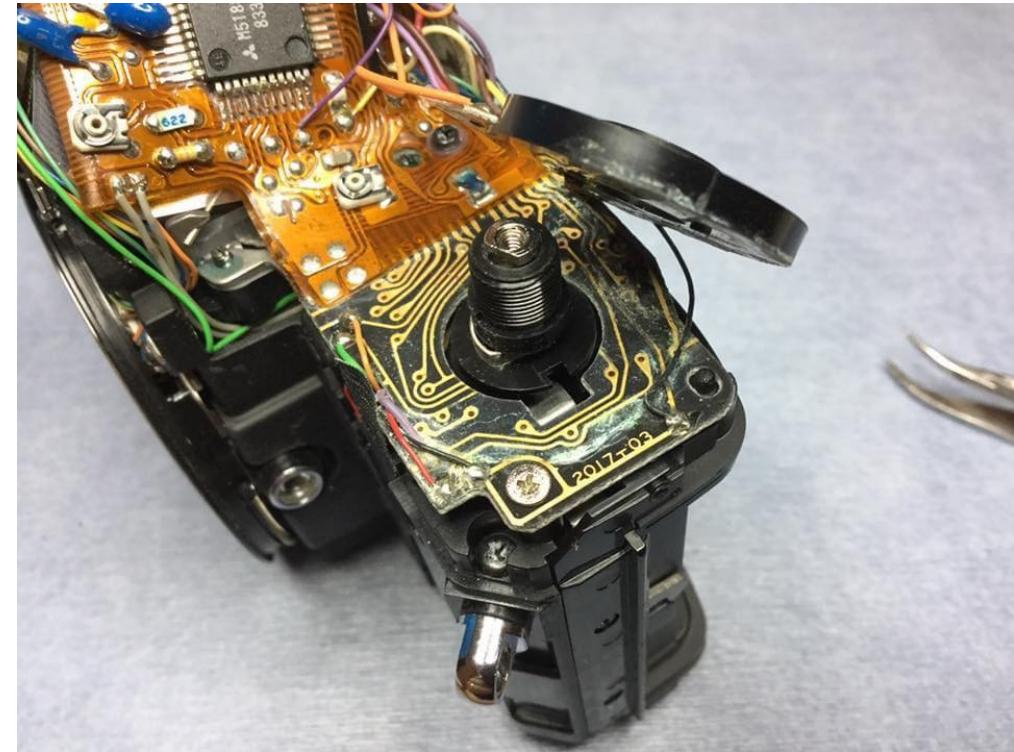
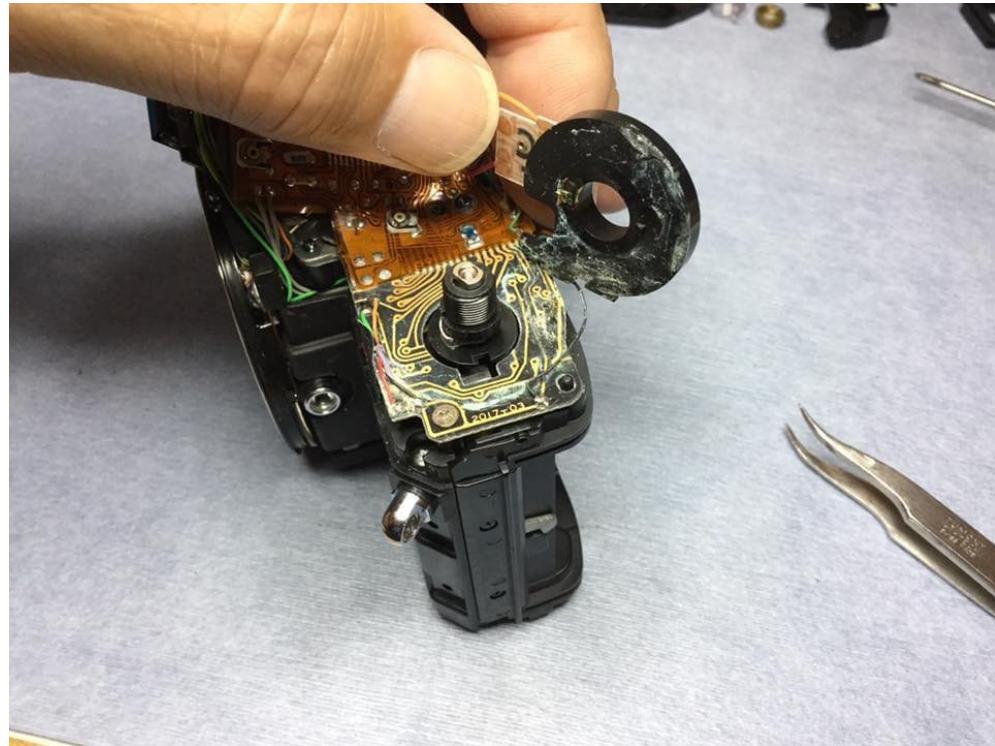
Remove the SV brush components (more water damage)... inspect everything and make notes.





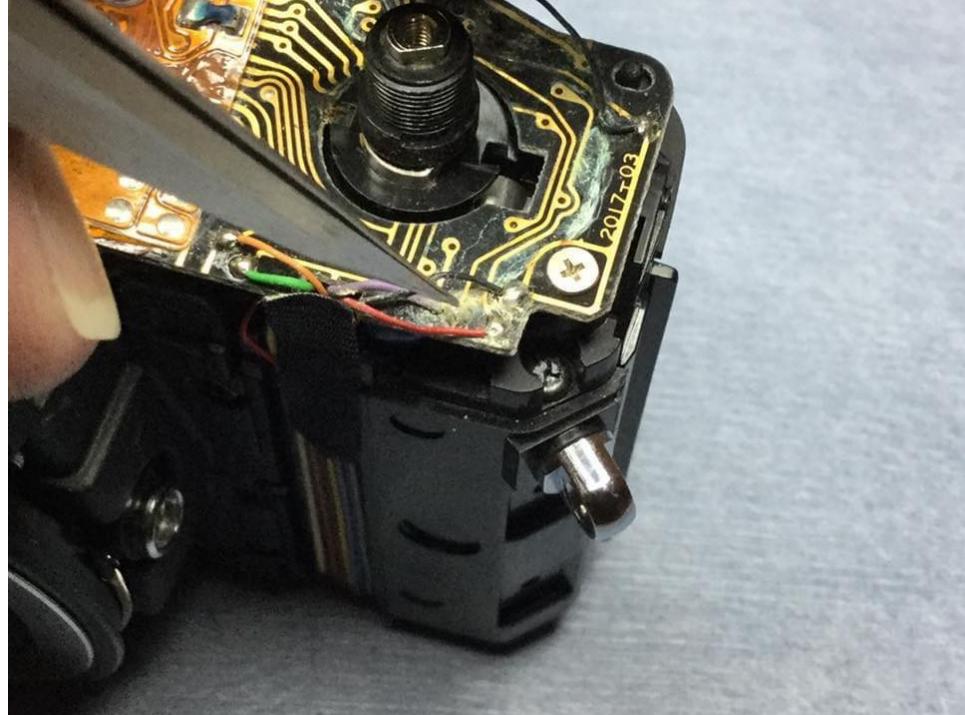
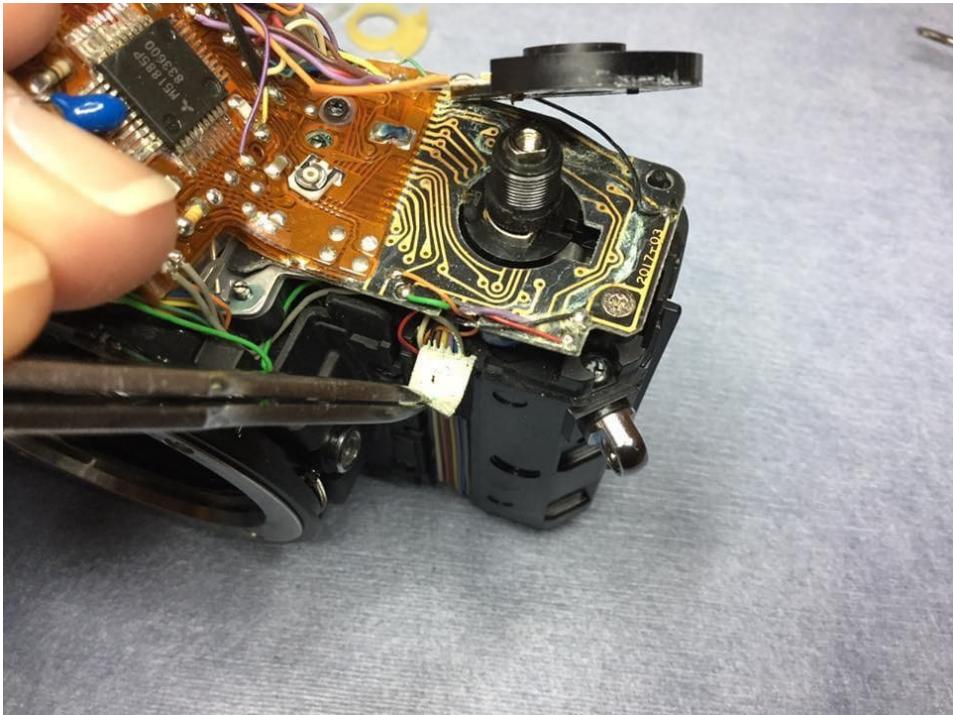


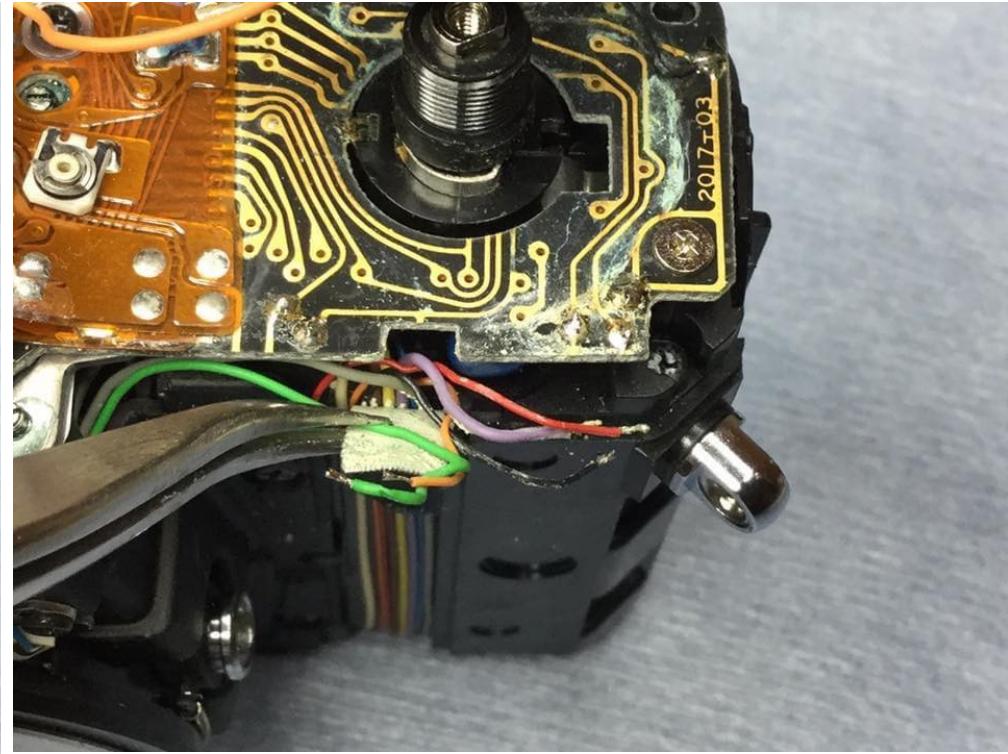
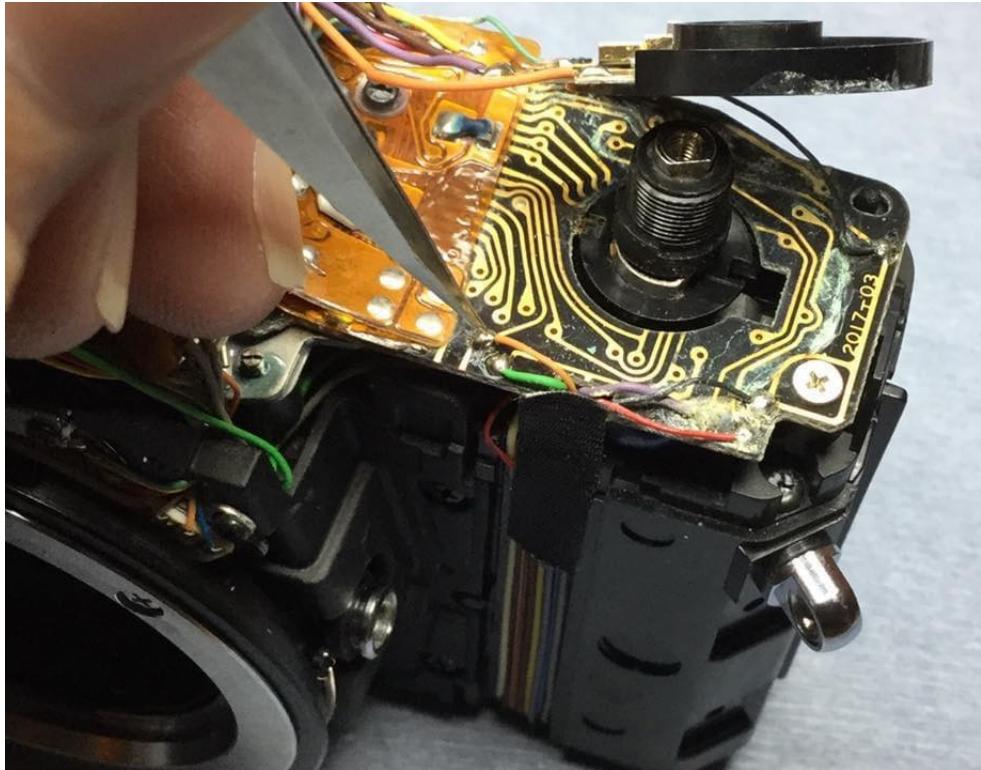




Post #7

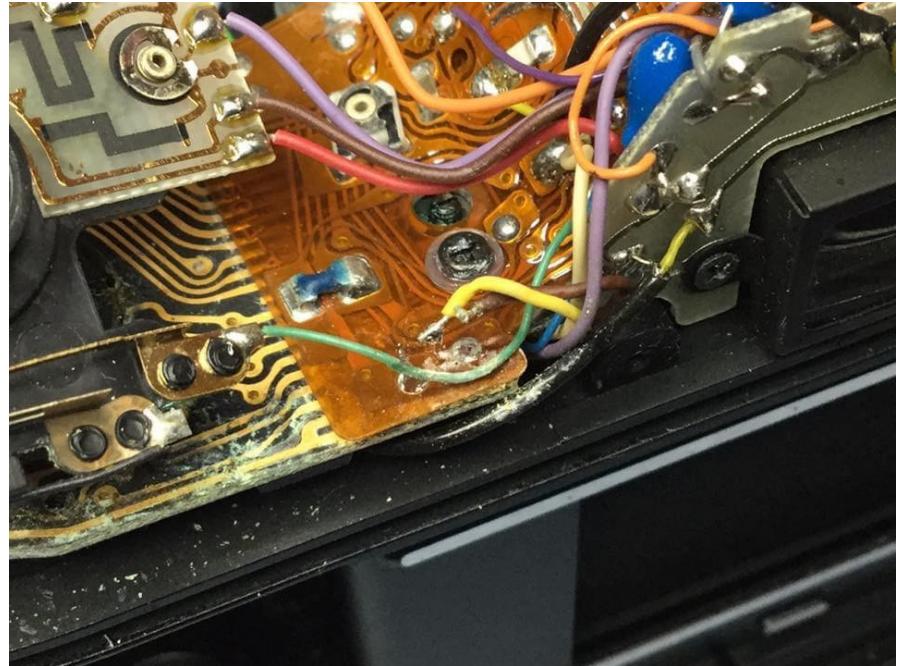
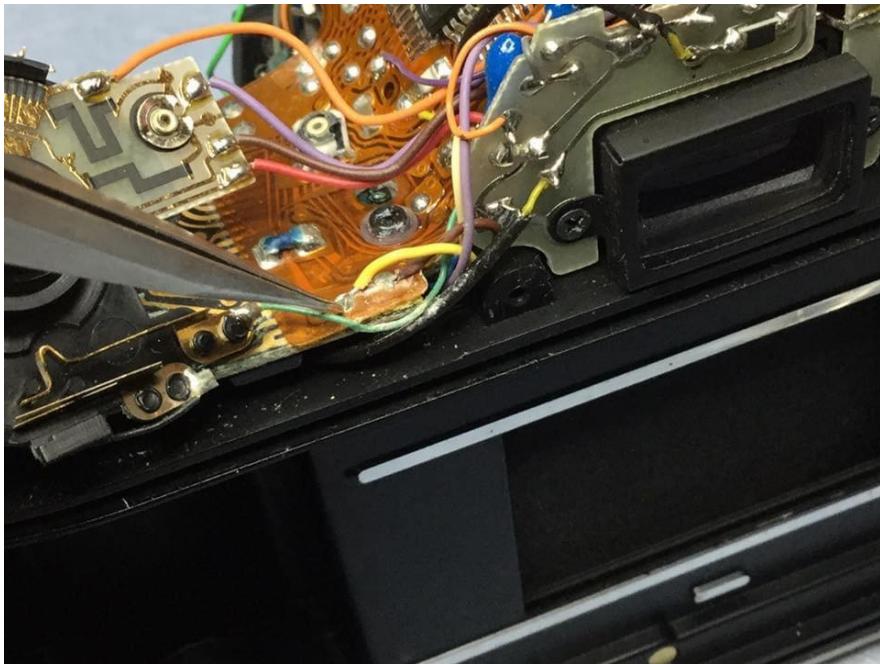
Pull back the tape covering the wires at the top rewind side of the LED PCB (printed circuit board) desolder the red, green, orange, violet and black wires.

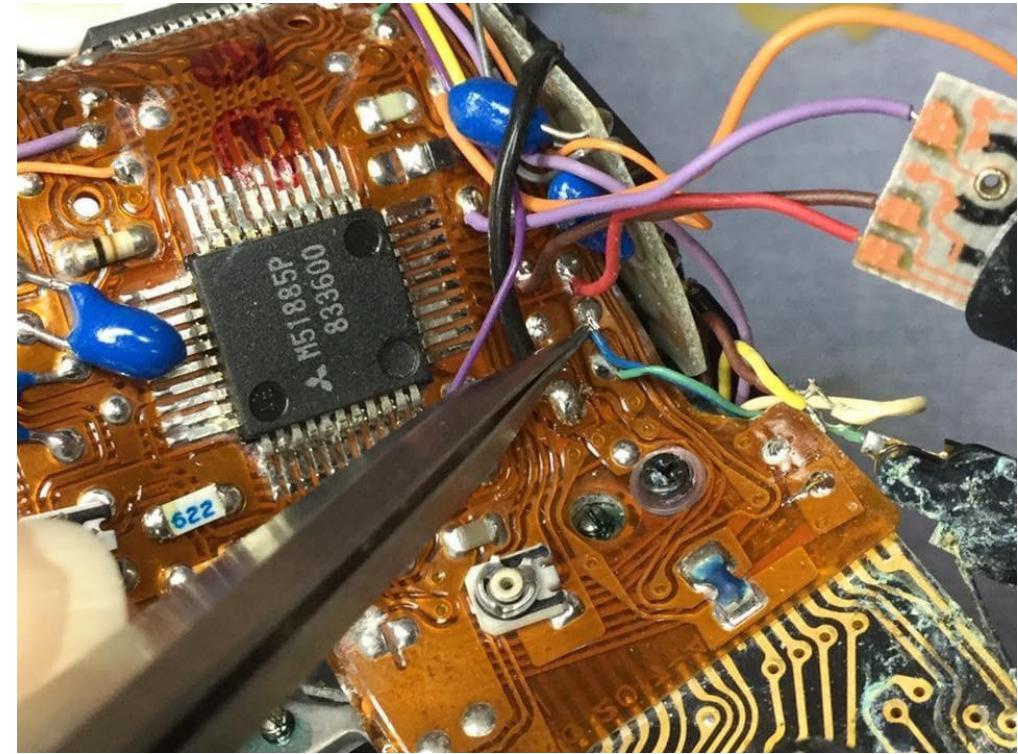
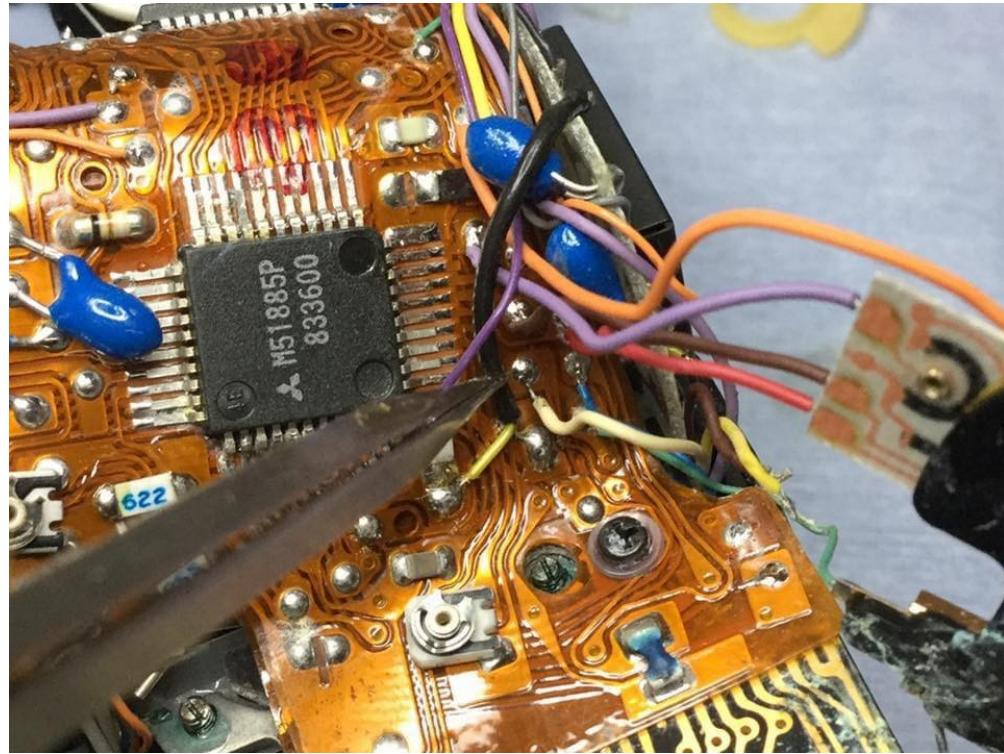


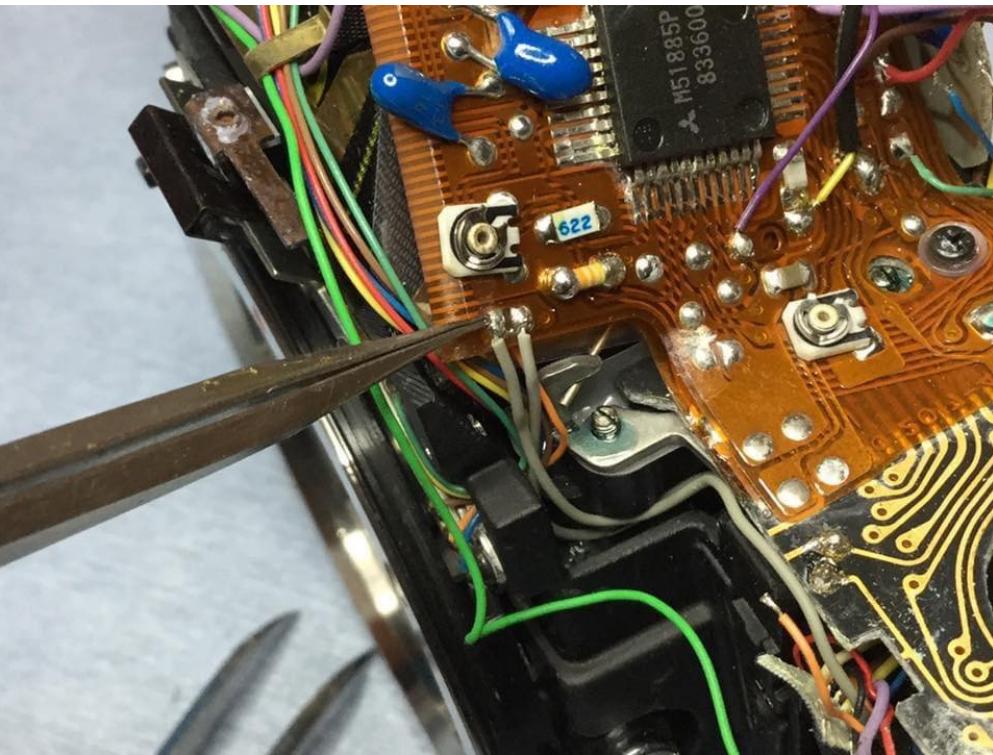
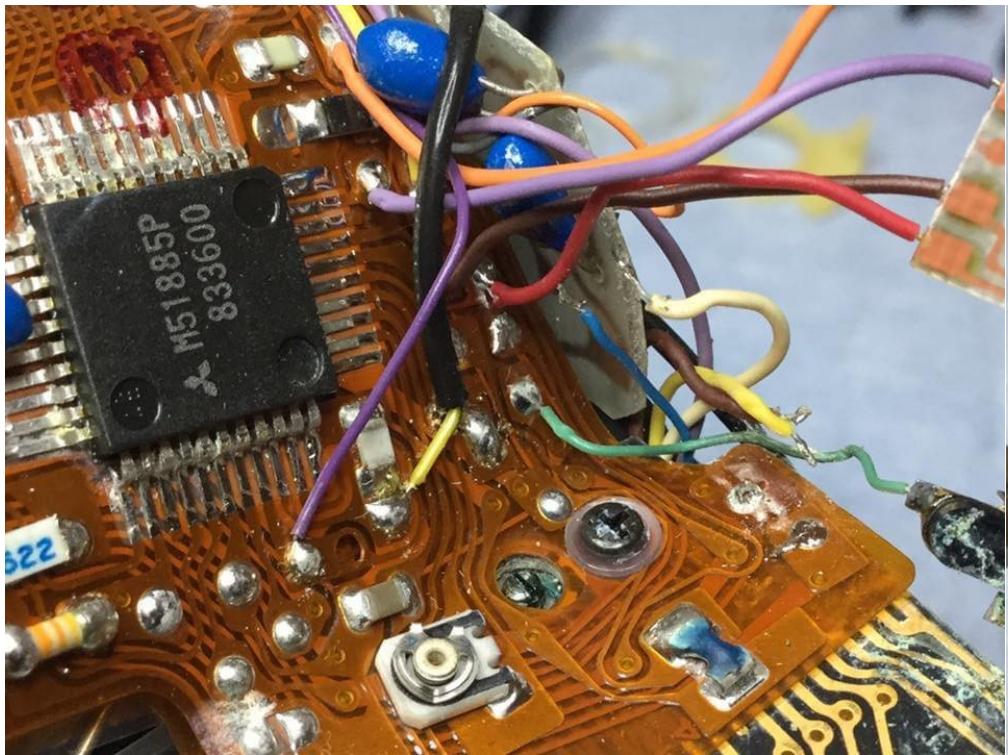


Post #8

Desolder the wires from the motor drive PCB - yellow, brown, blue, white and gray.



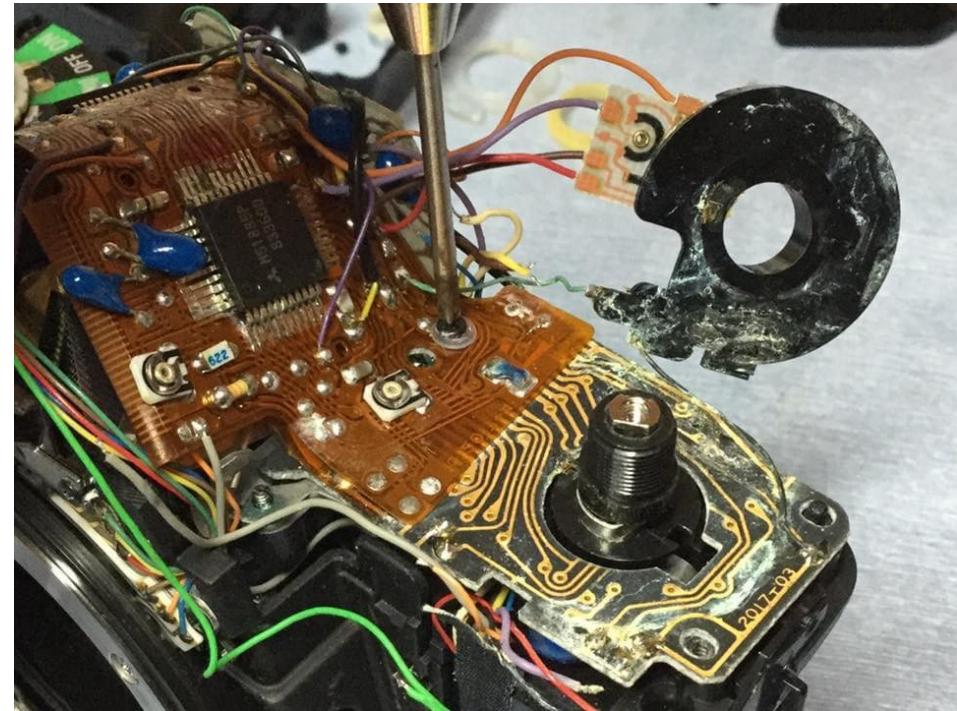
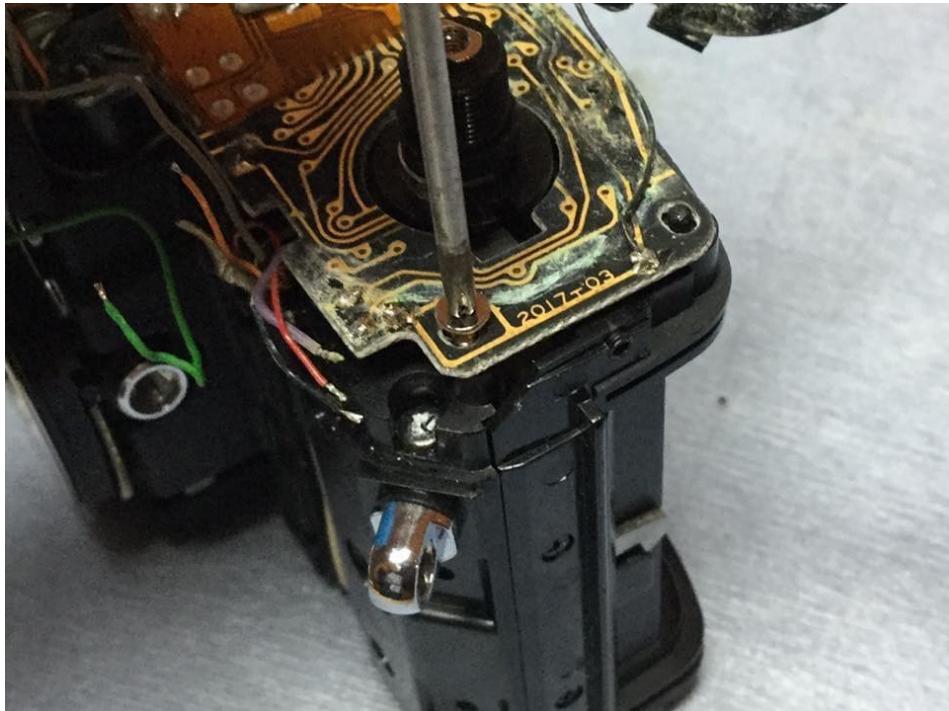


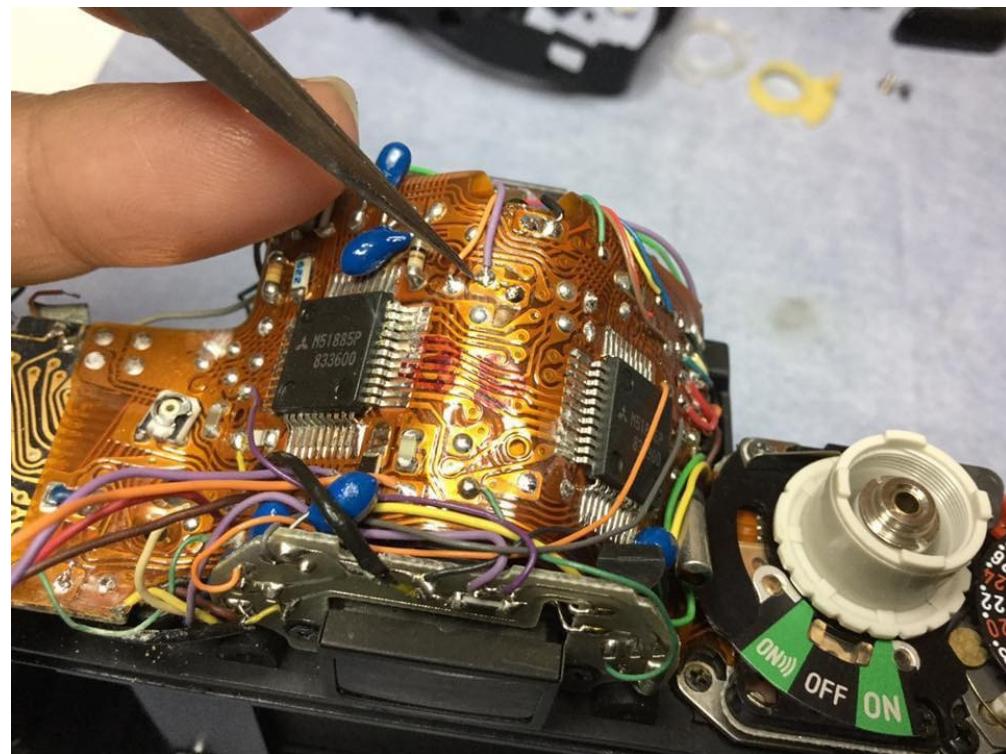
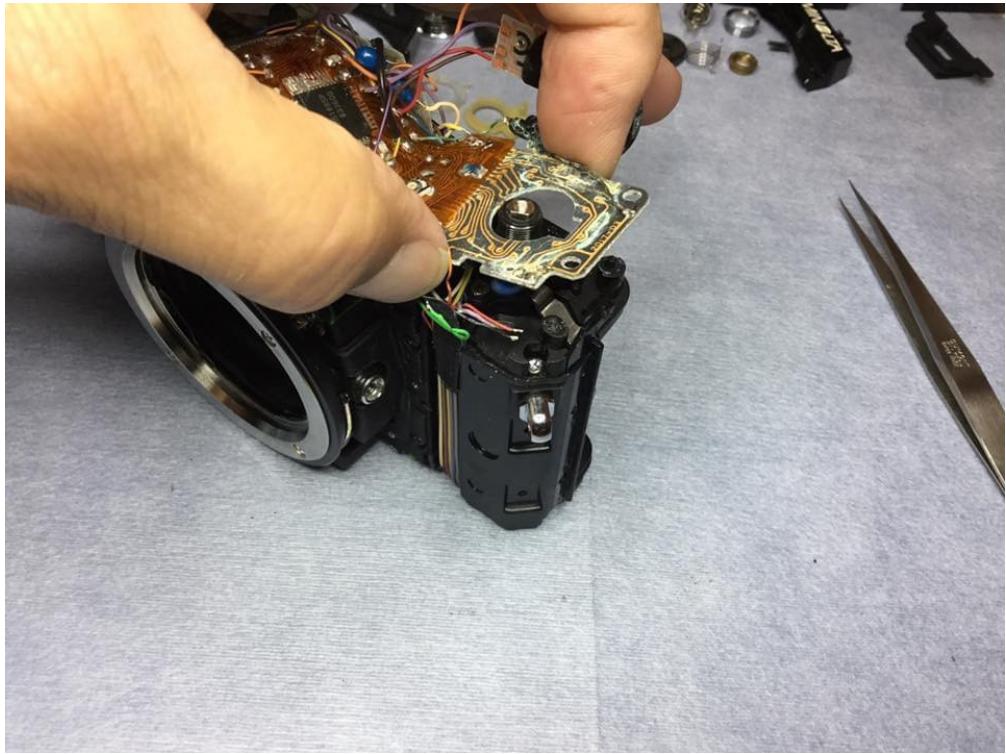


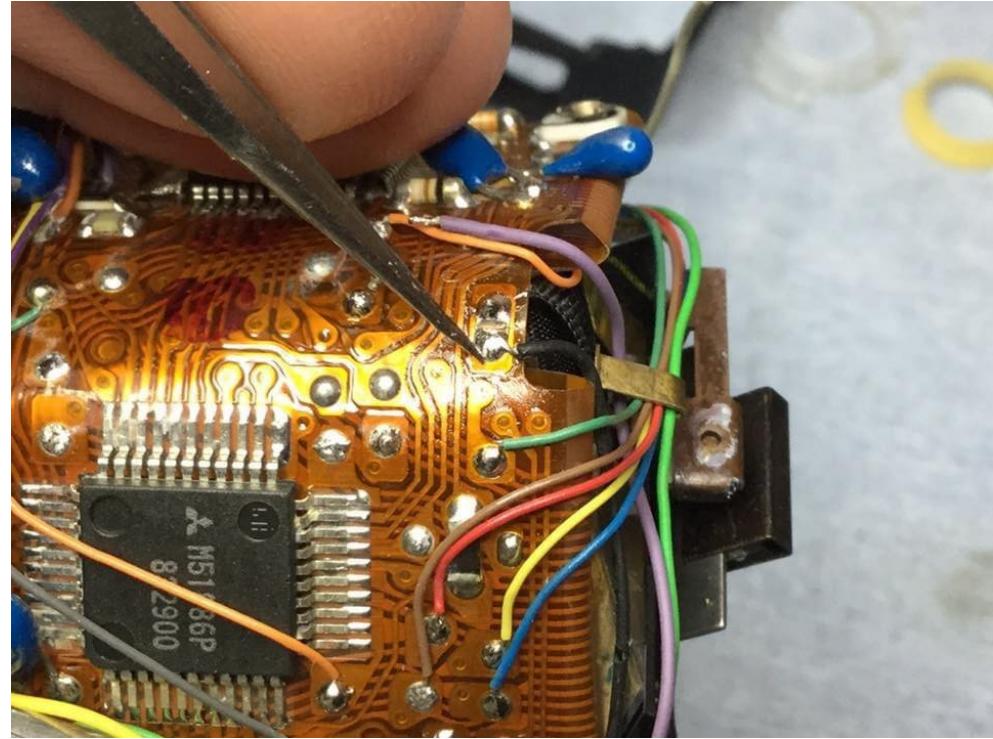
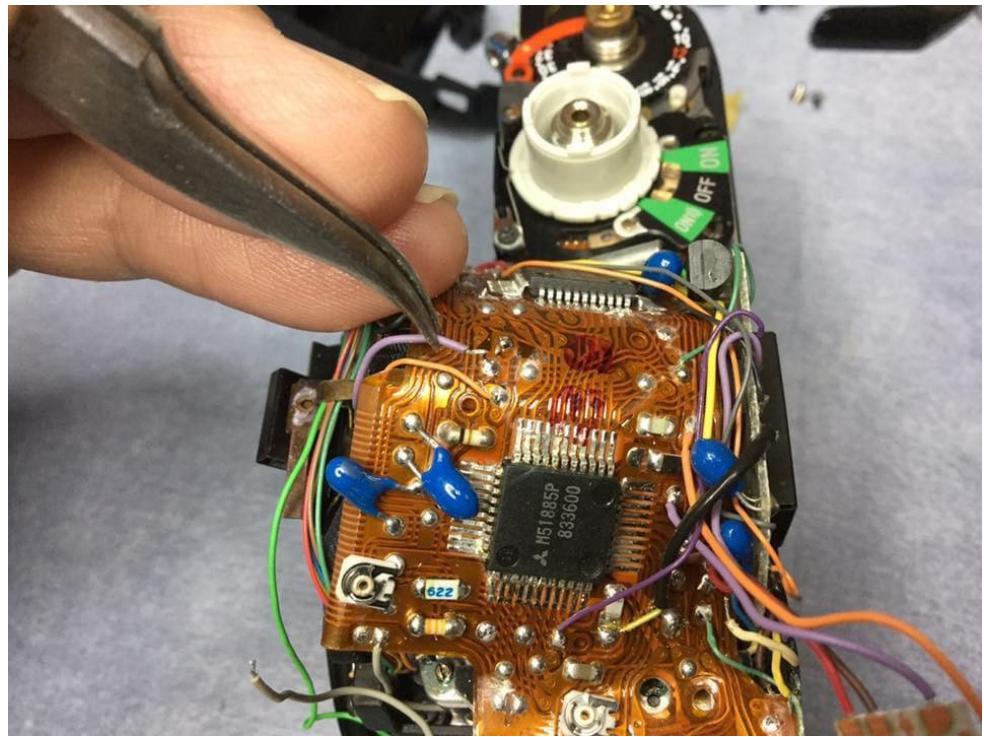
Post #9

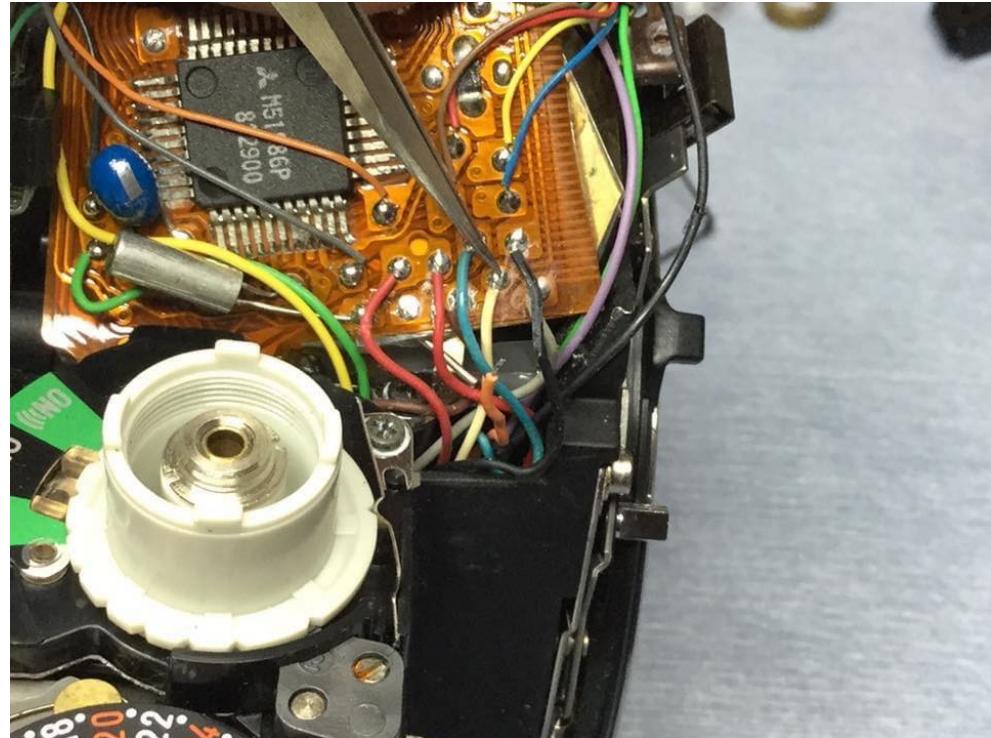
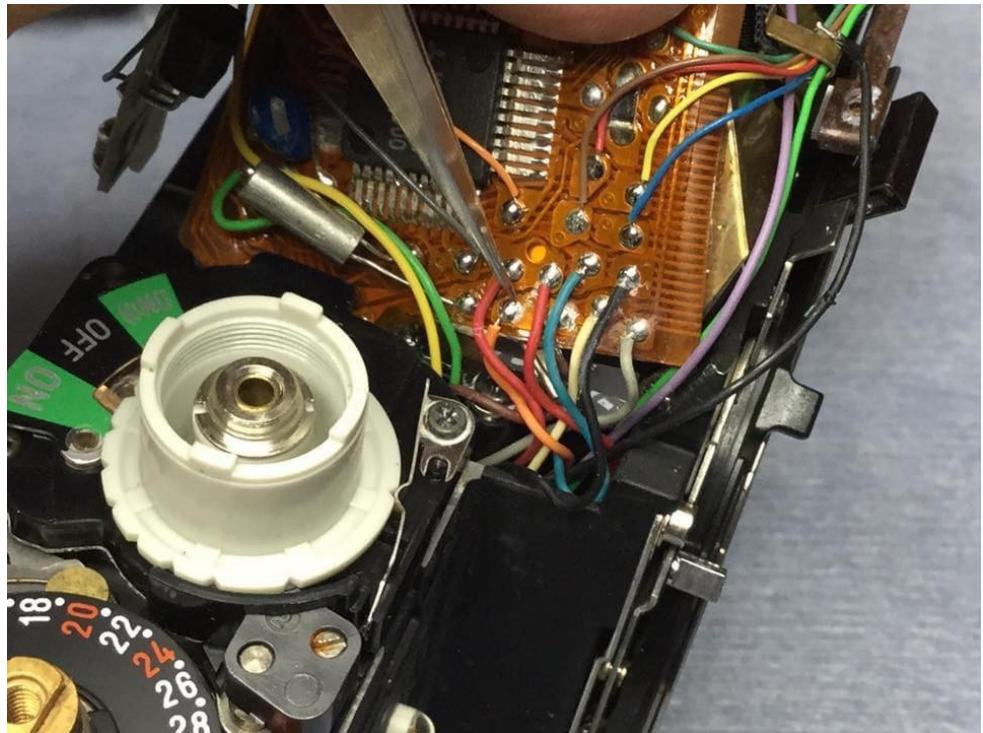
Remove the screws holding the SV PCB and lift it free.

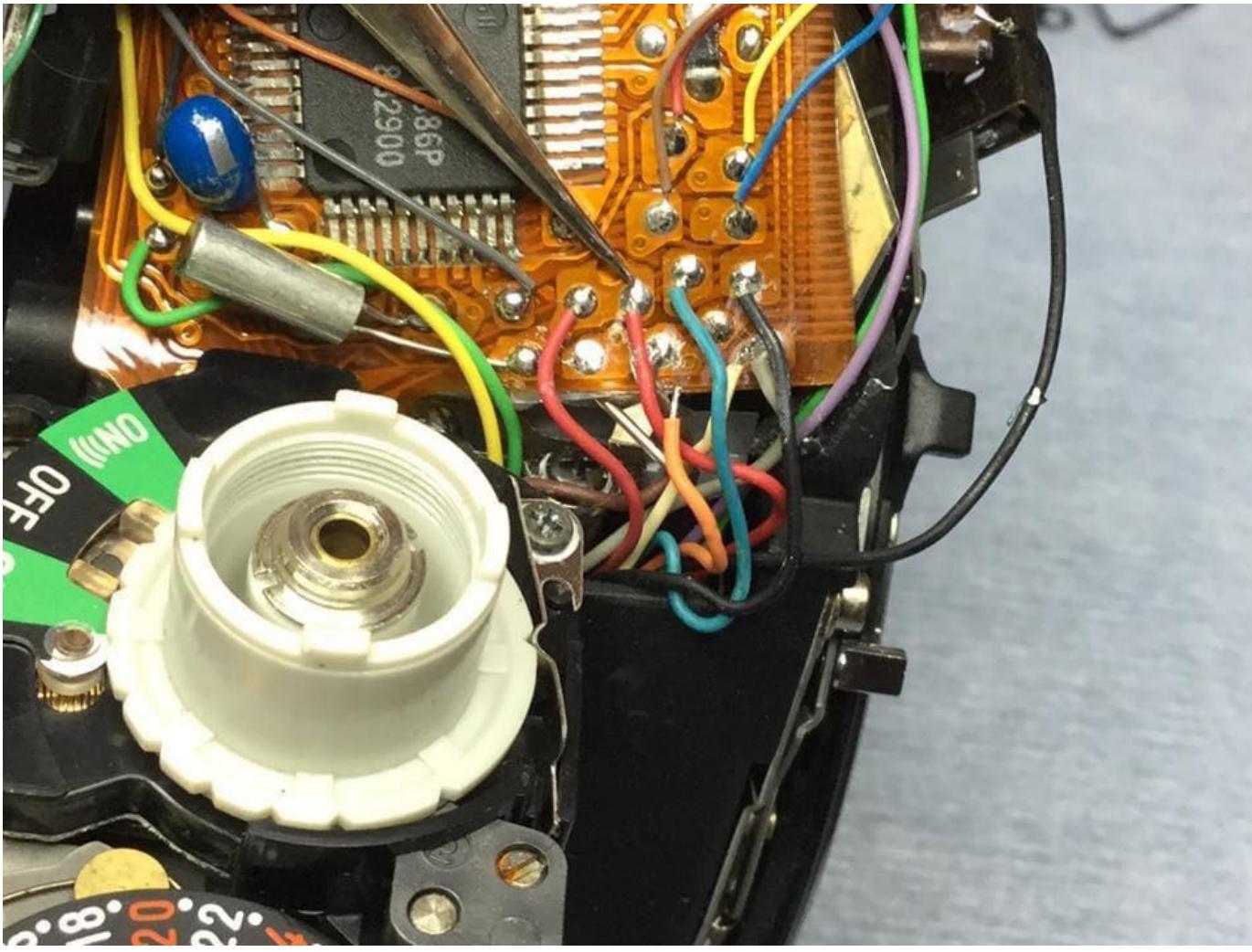
Desolder the wires pointed out in the photos, these are the shutter wires (you can wait to remove these wires until after the mirror unit is pulled but they eventually need to be desoldered so I'm already there).





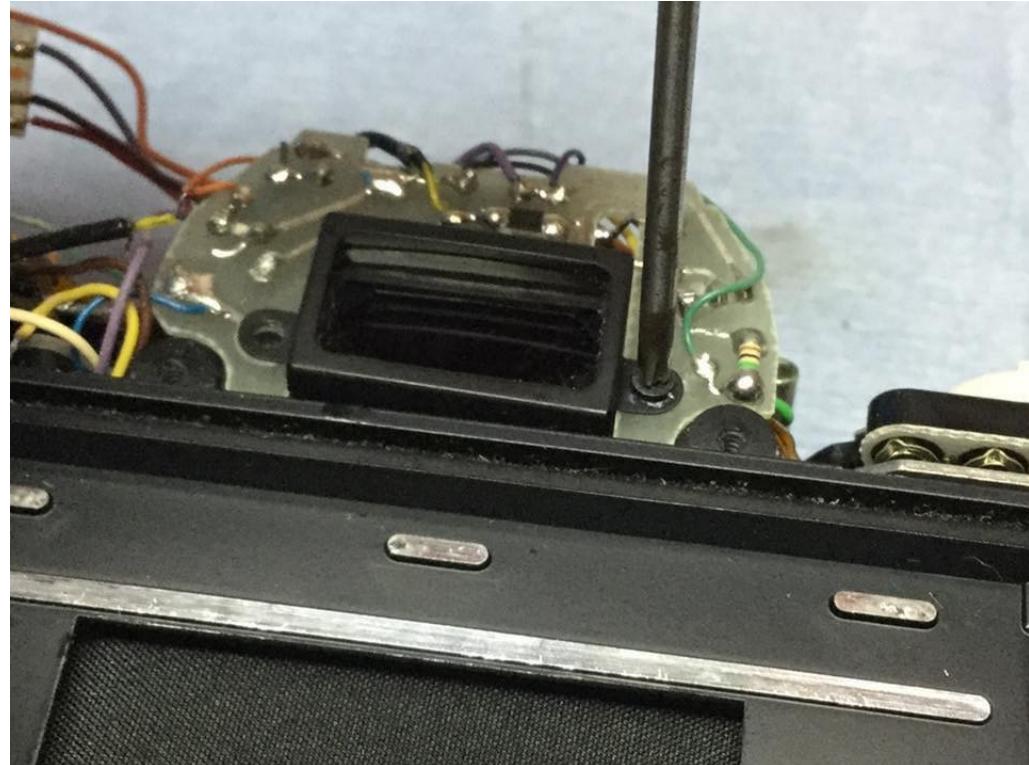
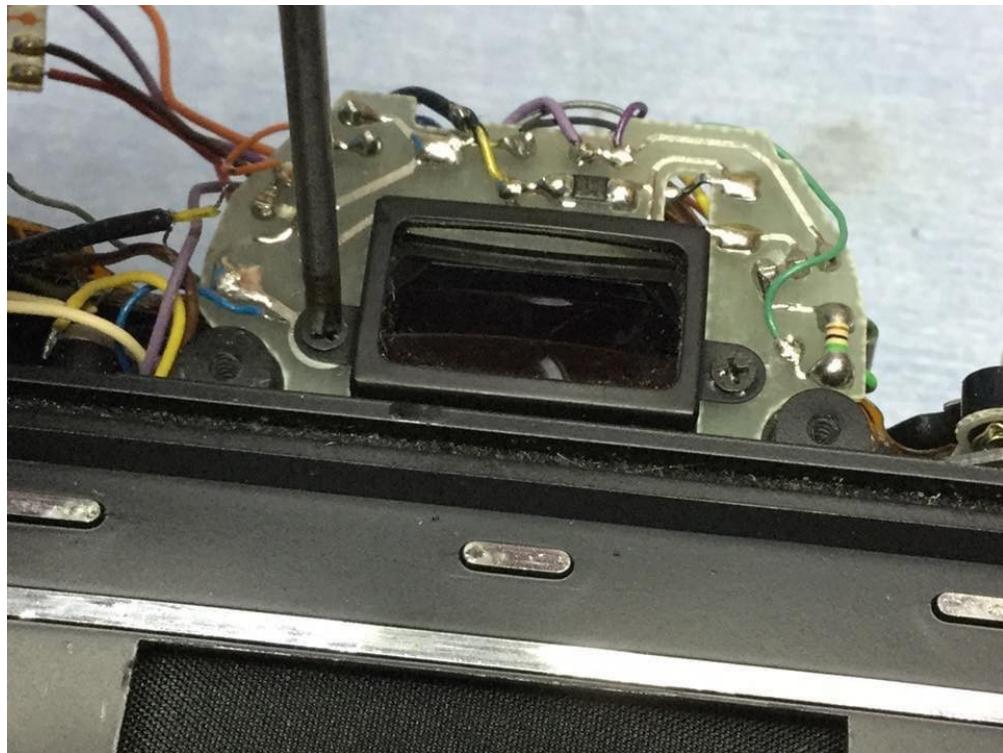


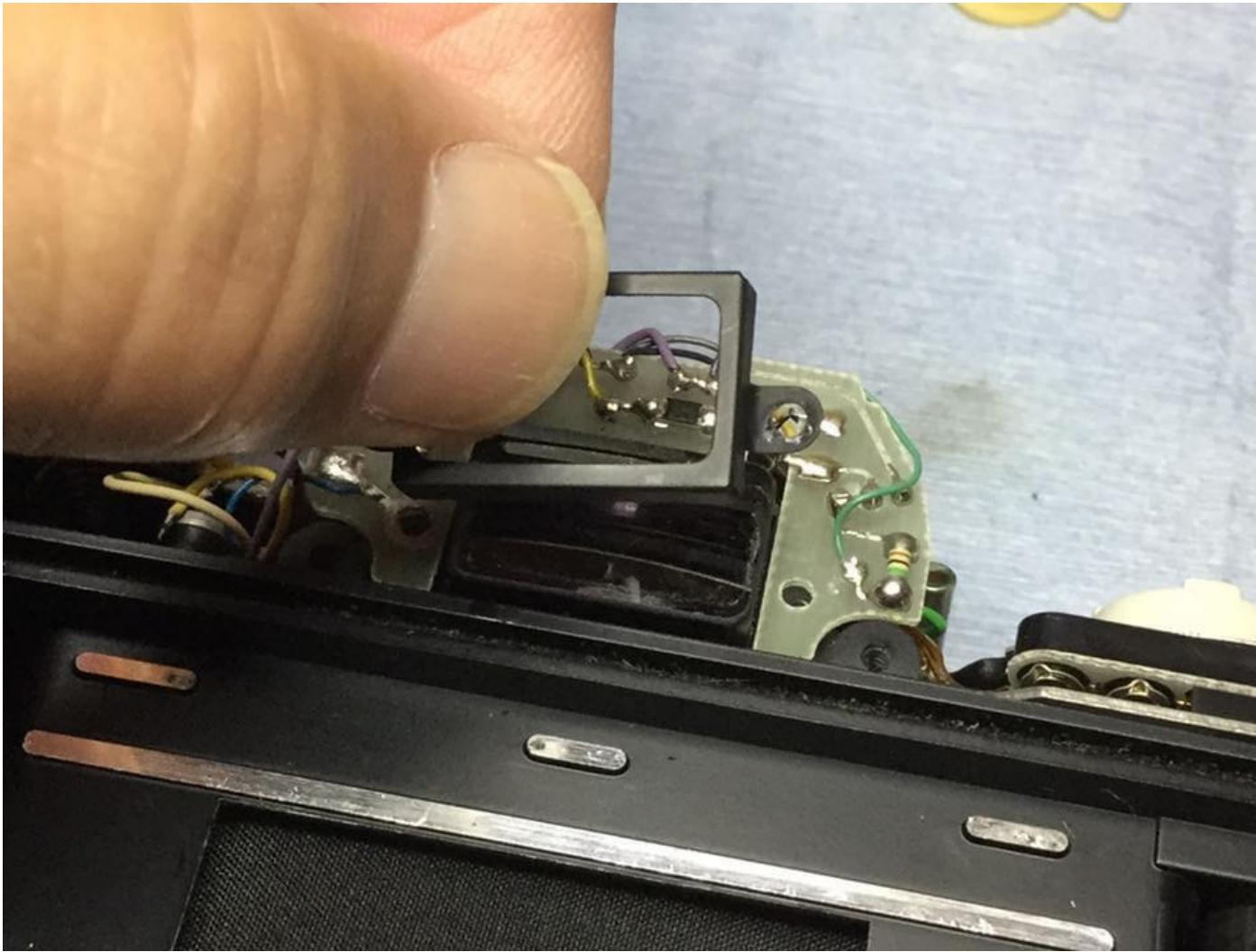




Post #10

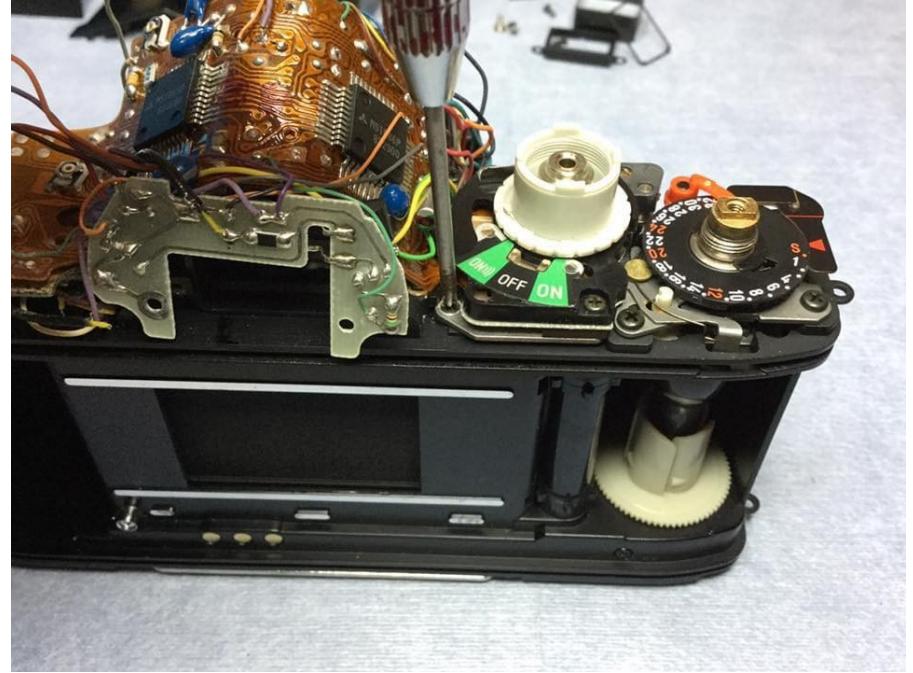
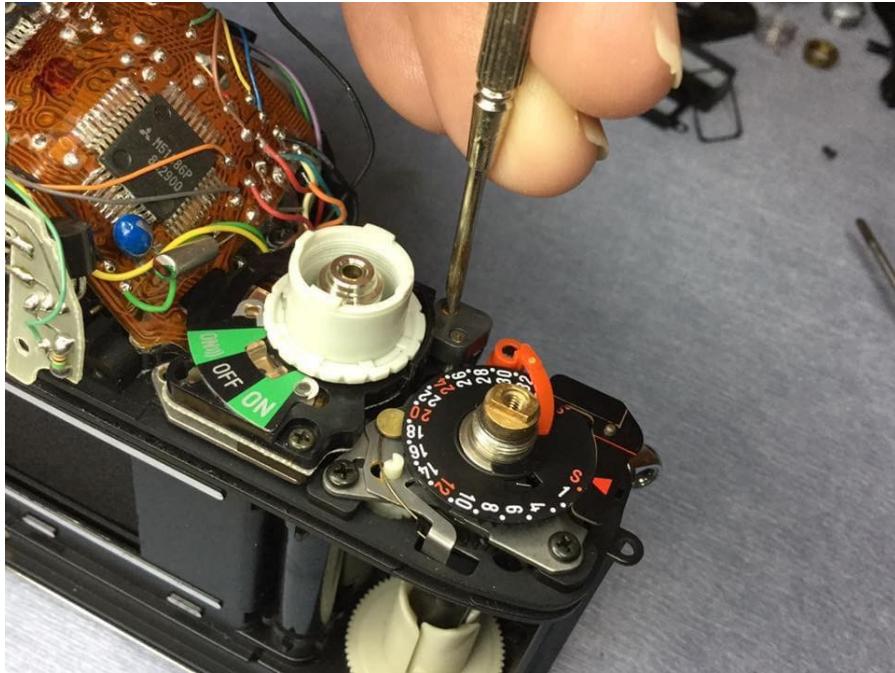
Remove the screws holding the eyepiece and watch for the loose parts, free the photocell PCB.

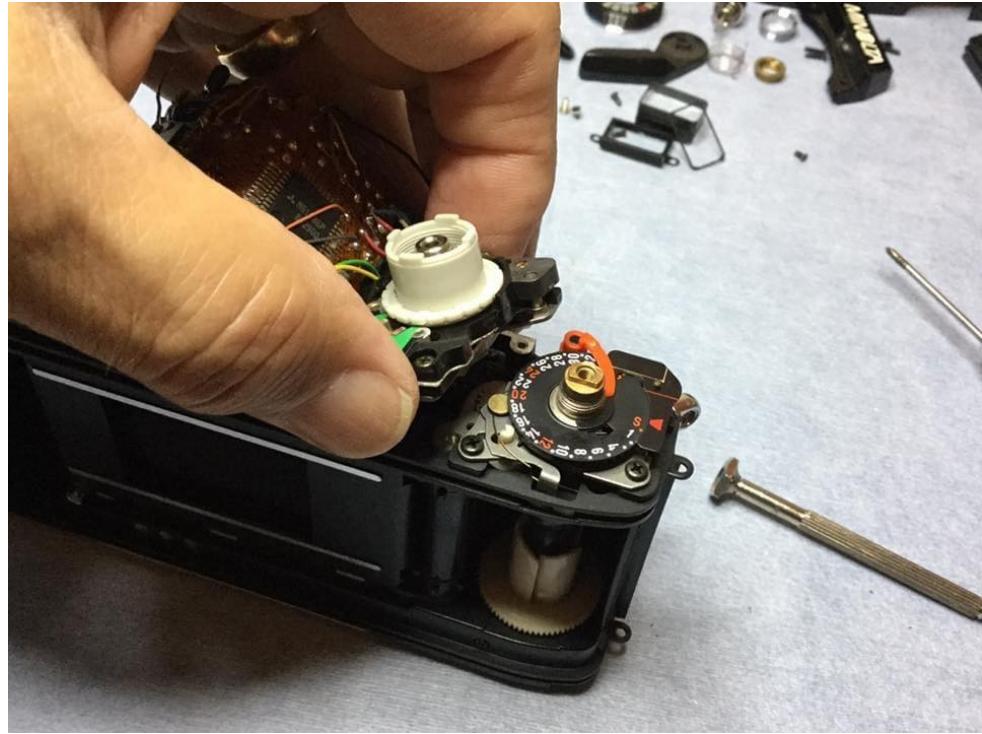
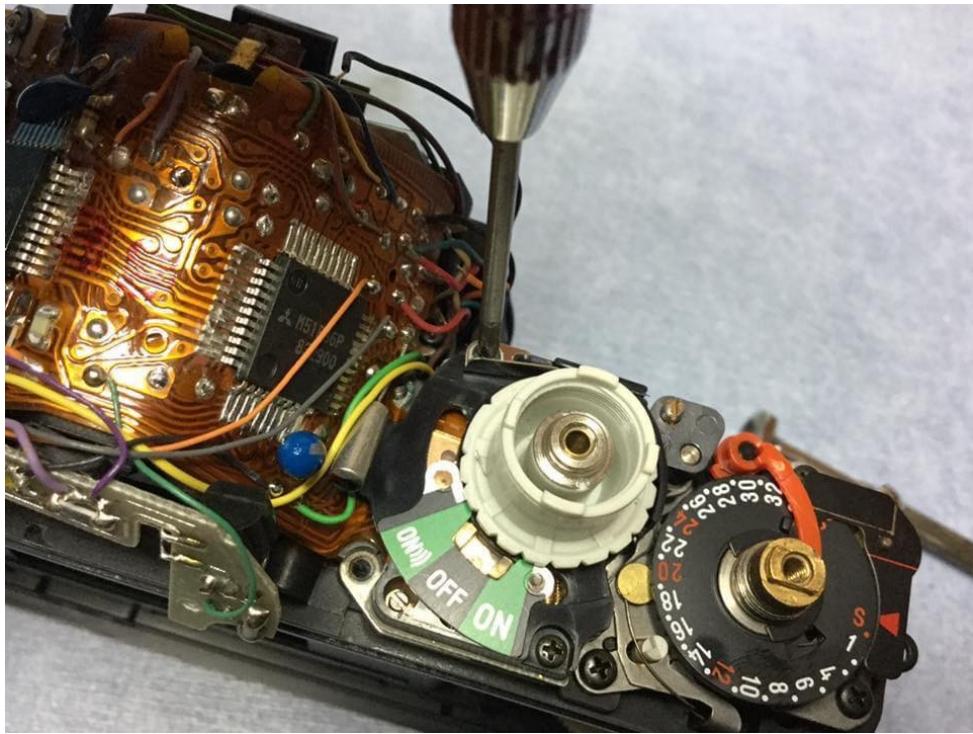


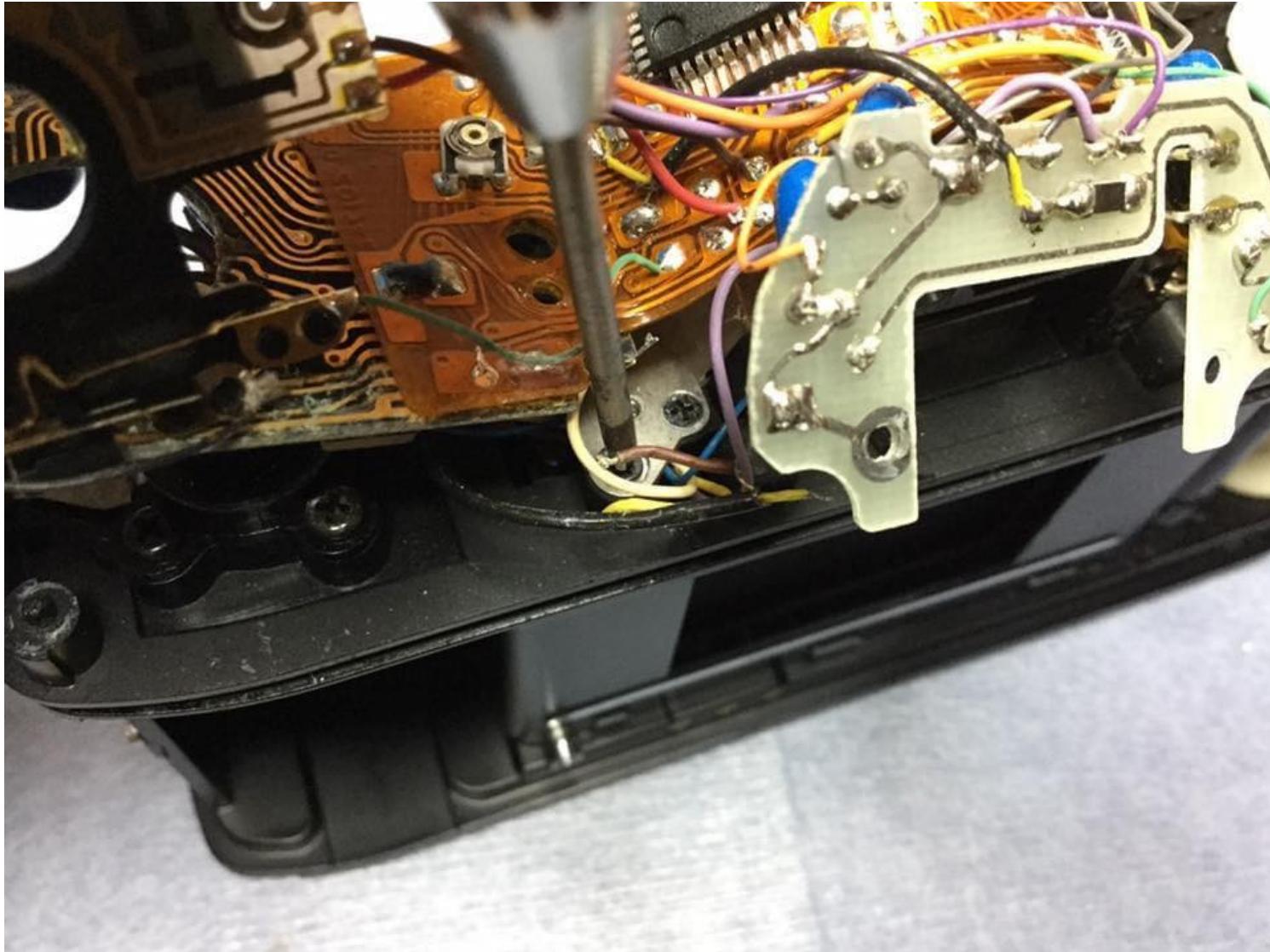


Post #11

Remove the screws holding the mode selector baseplate - three screws (slotted screw in the center of the lock button - the screw will stay in place after it's loosened) - one screw on the rewind side holding the mirror assembly frame.



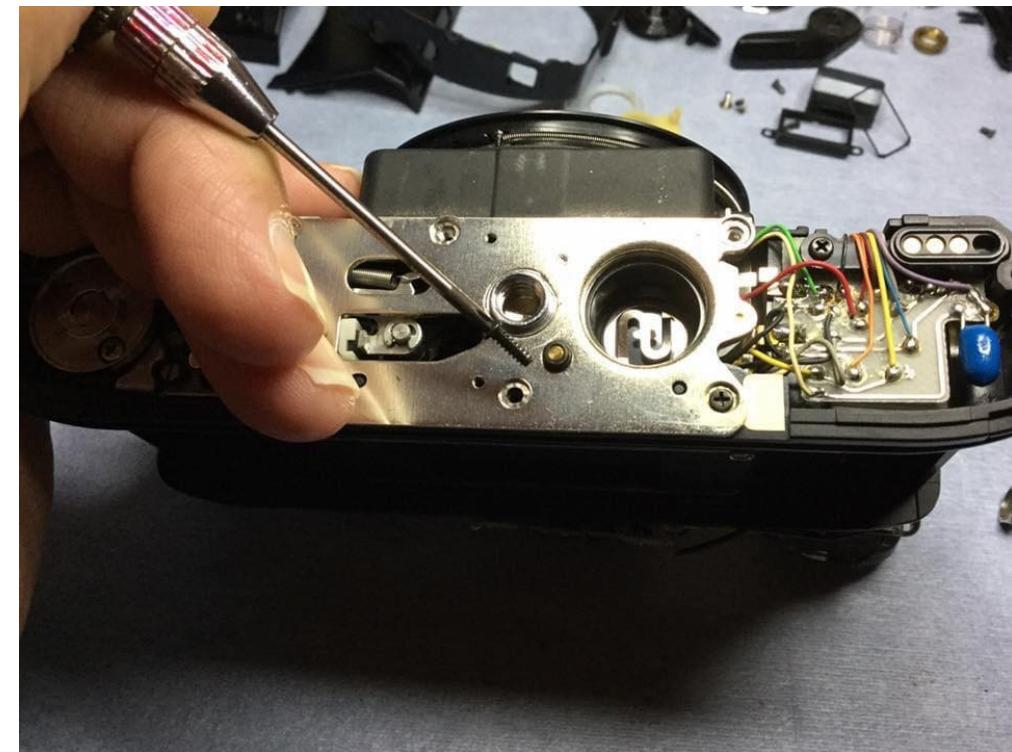
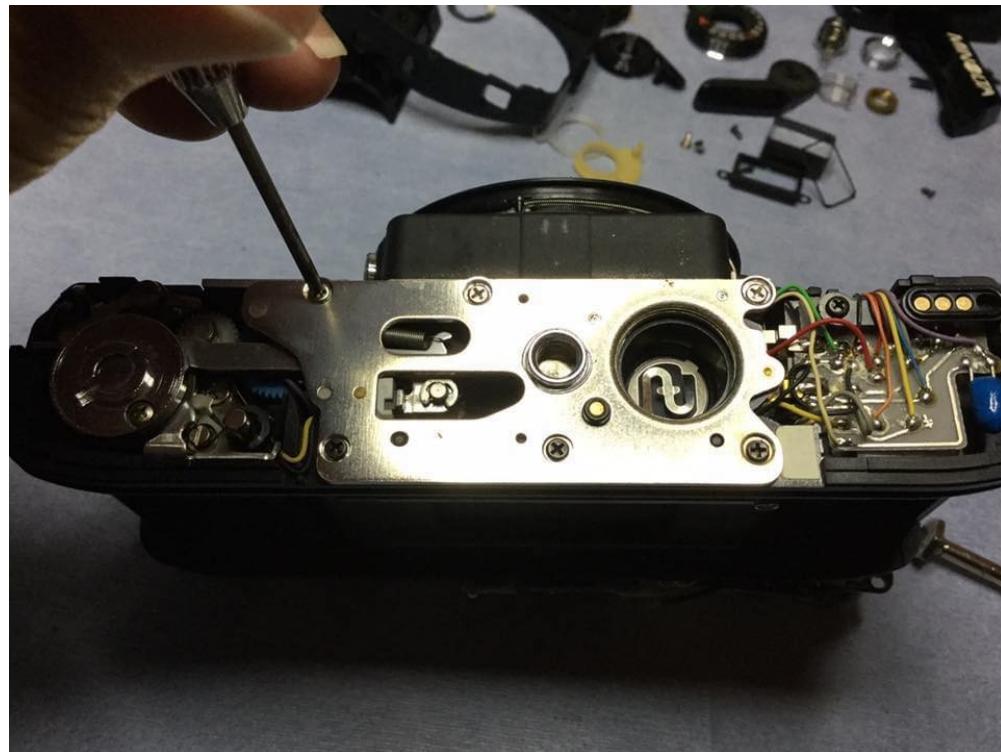


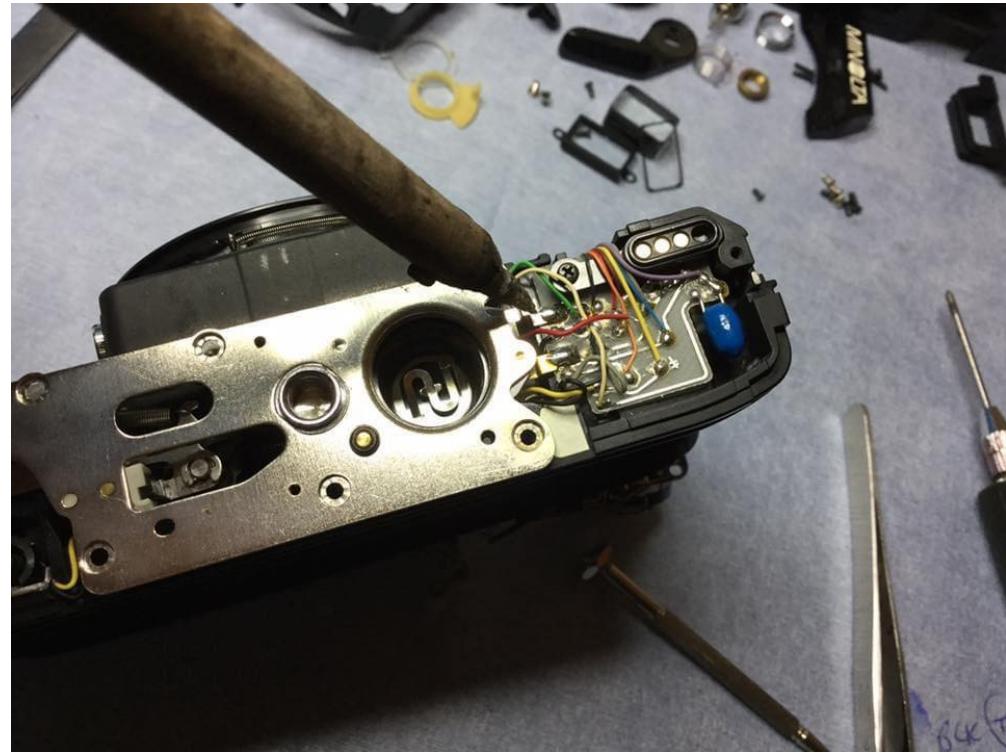


Post #12

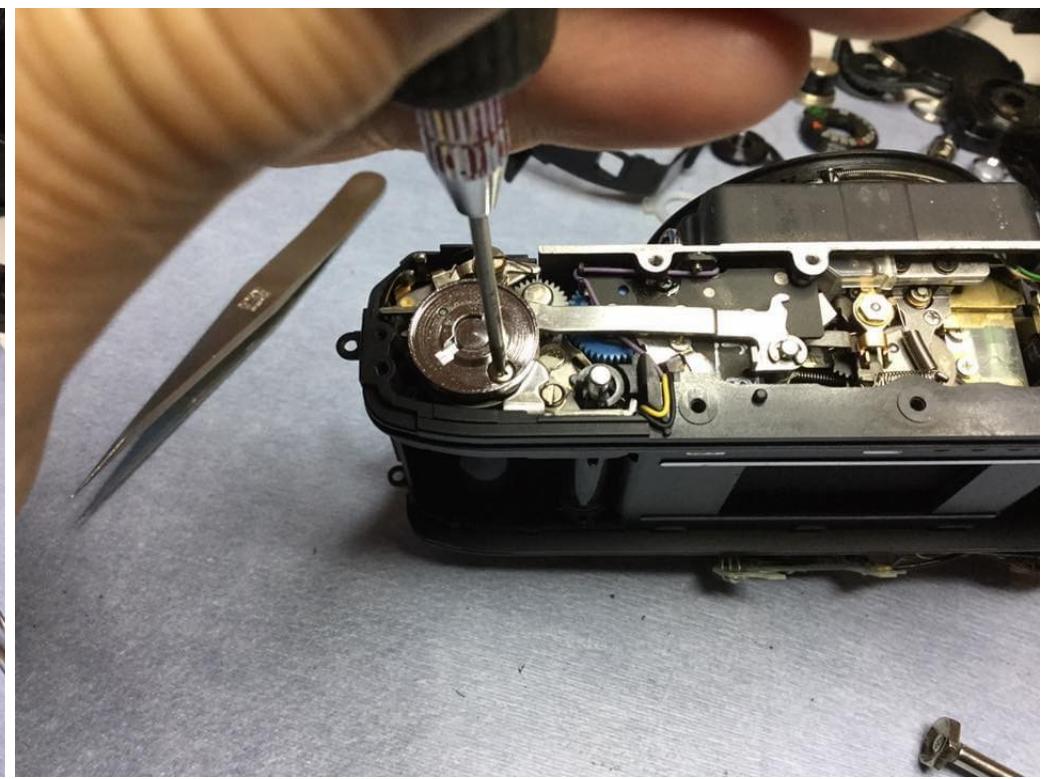
Remove six screws holding the battery baseplate, desolder the red power wire from the battery compartment, lift up the baseplate noting the mirror charge lever is attached, use your soldering iron to heat the two large connectors on the motor drive (MD) PCB one at a time until they lift off the board (you can use a solder wick but chances are you'll still have to heat the connectors to remove them).

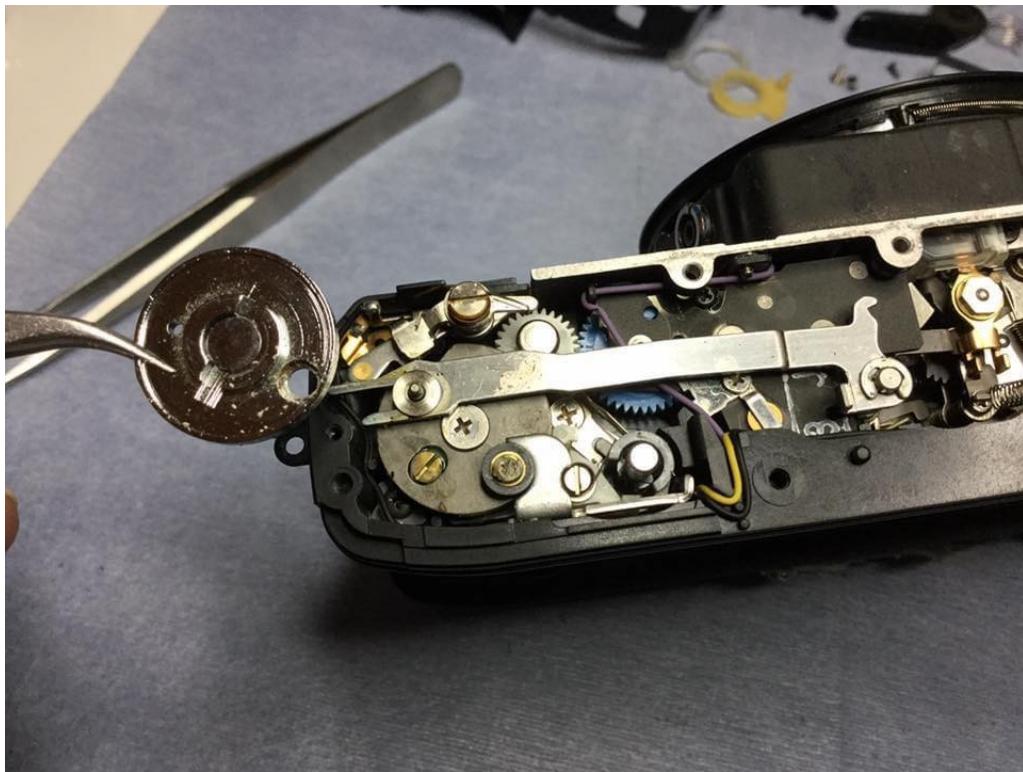
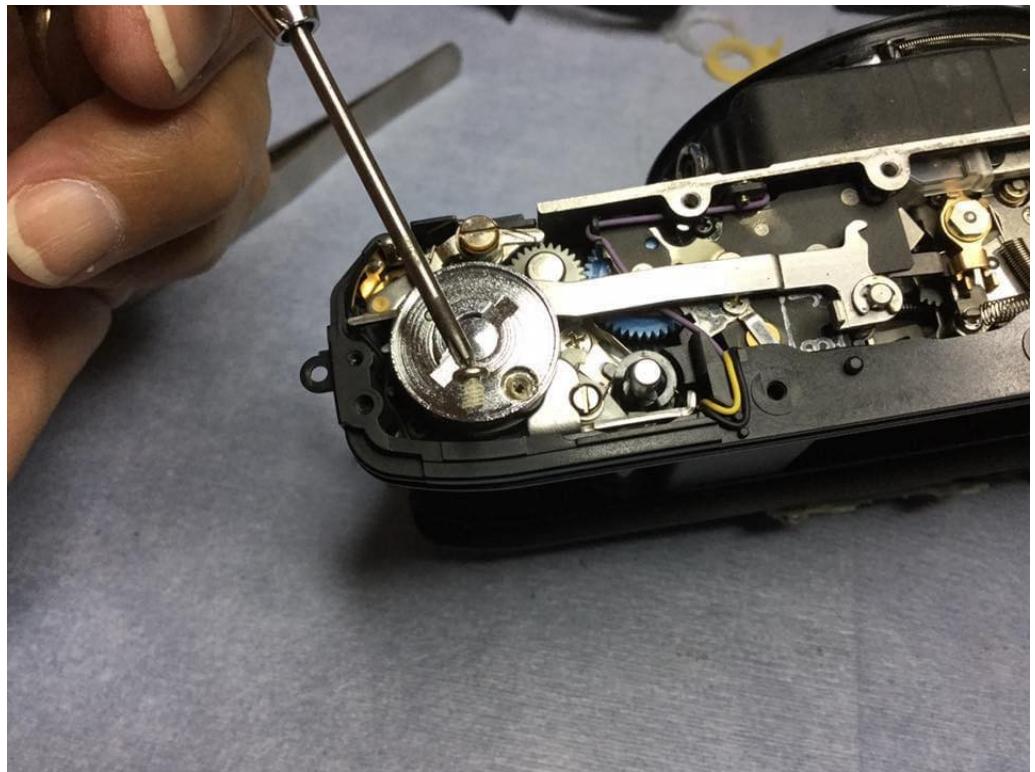
Detach the spring, remove the MD coupler - one screw and it's cemented in so it's hard to remove, remove the "E" clip hold the charge lever, lift it off with the loose bearing that fits over the pin on the winding coupler.

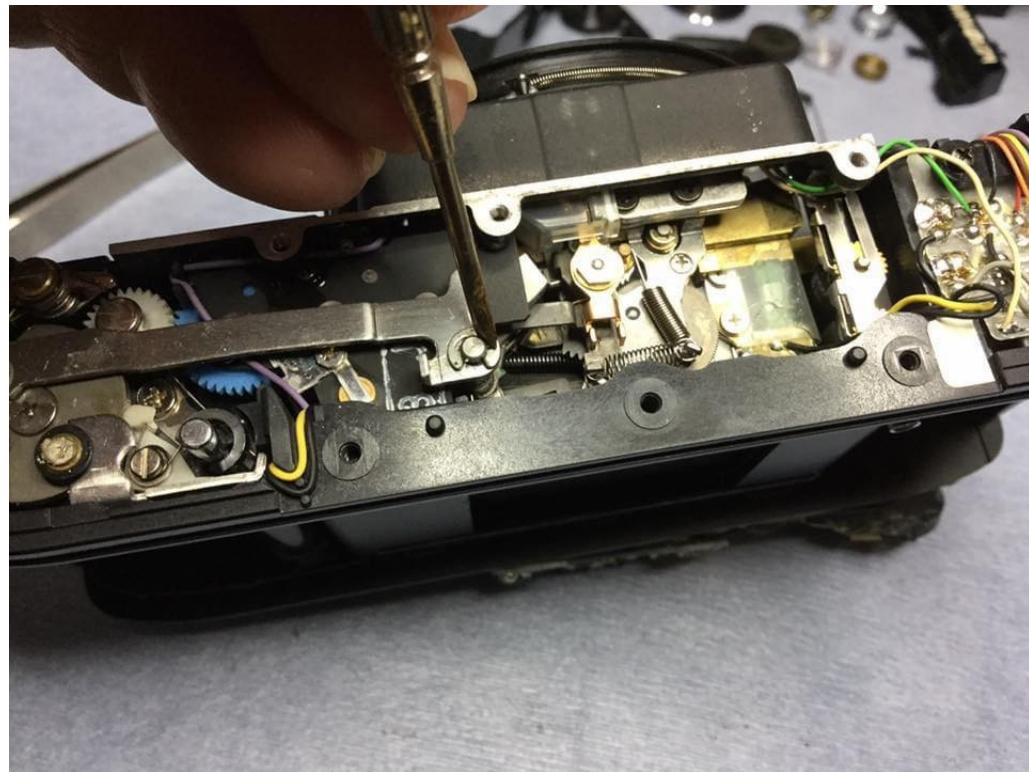


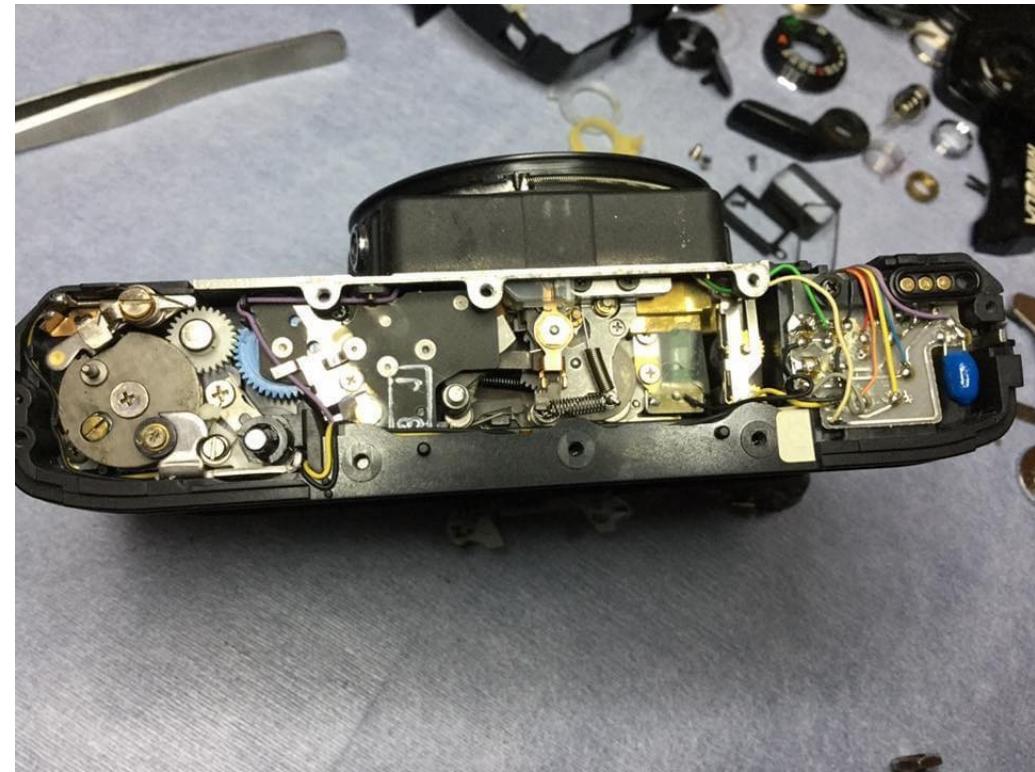
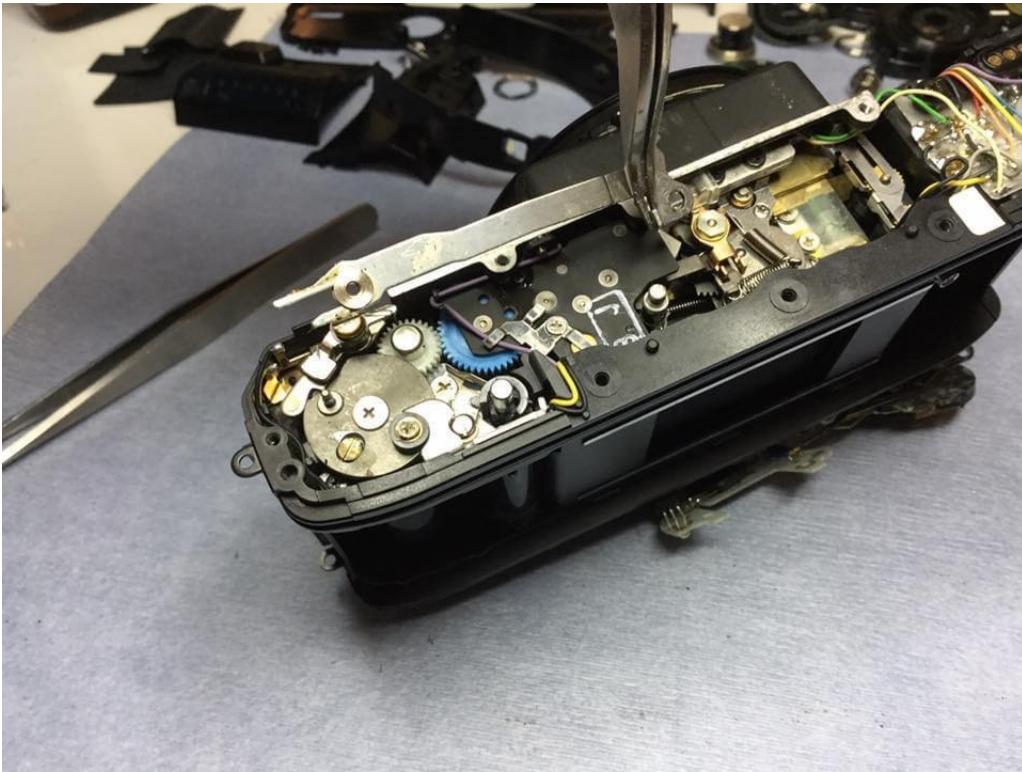












Post #13

Unsolder wires from the MD circuit board - green, white from the release magnet.

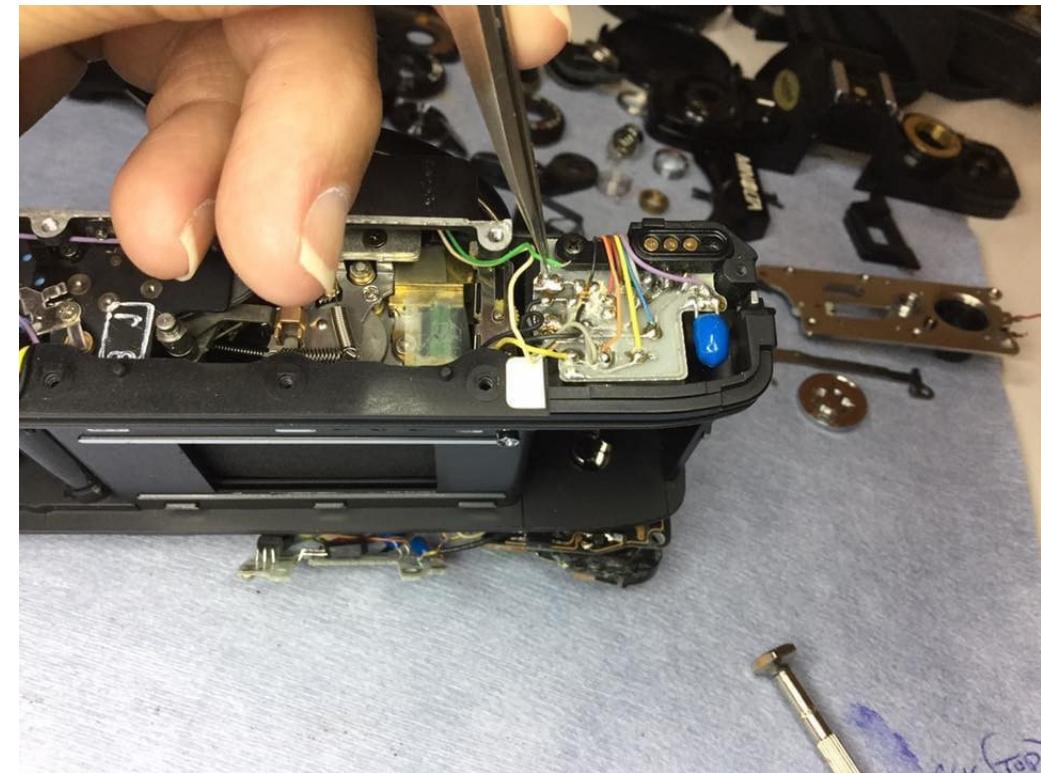
Yellow, black from the reset switch.

Black, gray from the data back pins.

Black from the aperture magnet.

Note; there are wiring variations depending upon the year made, not all wires are pointed out in these photos.





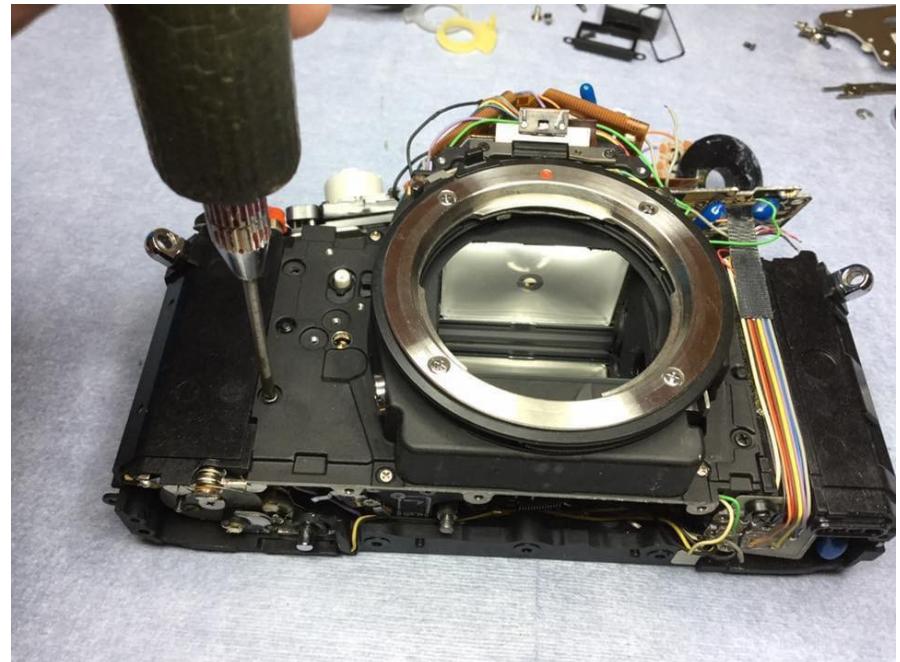
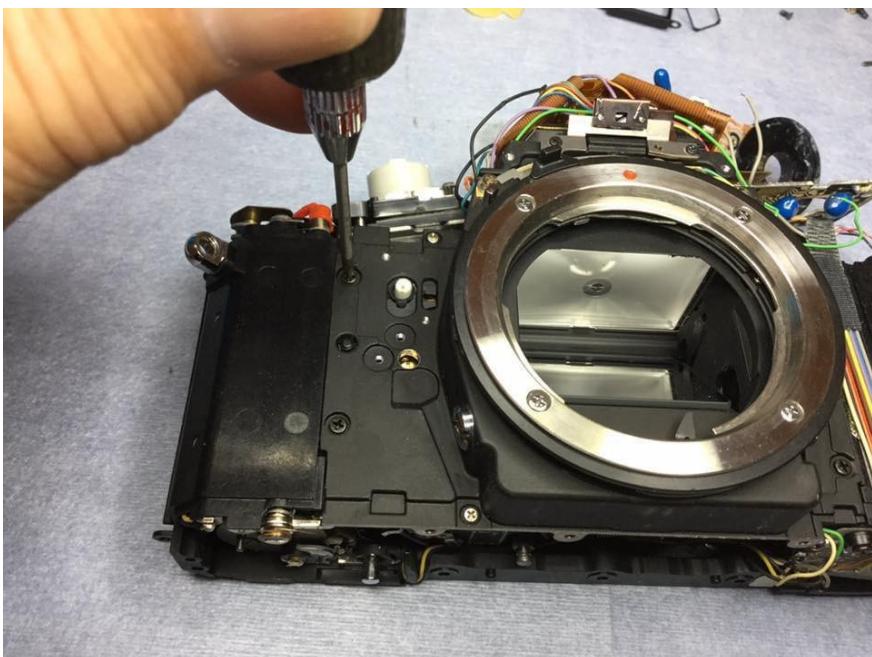


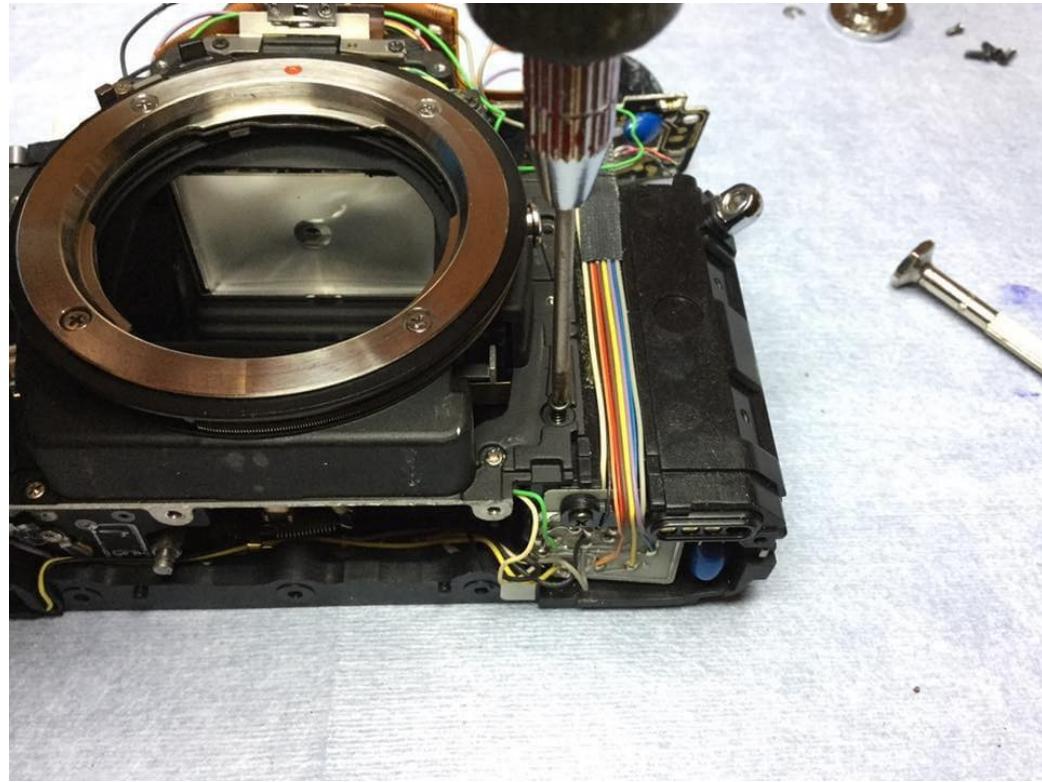
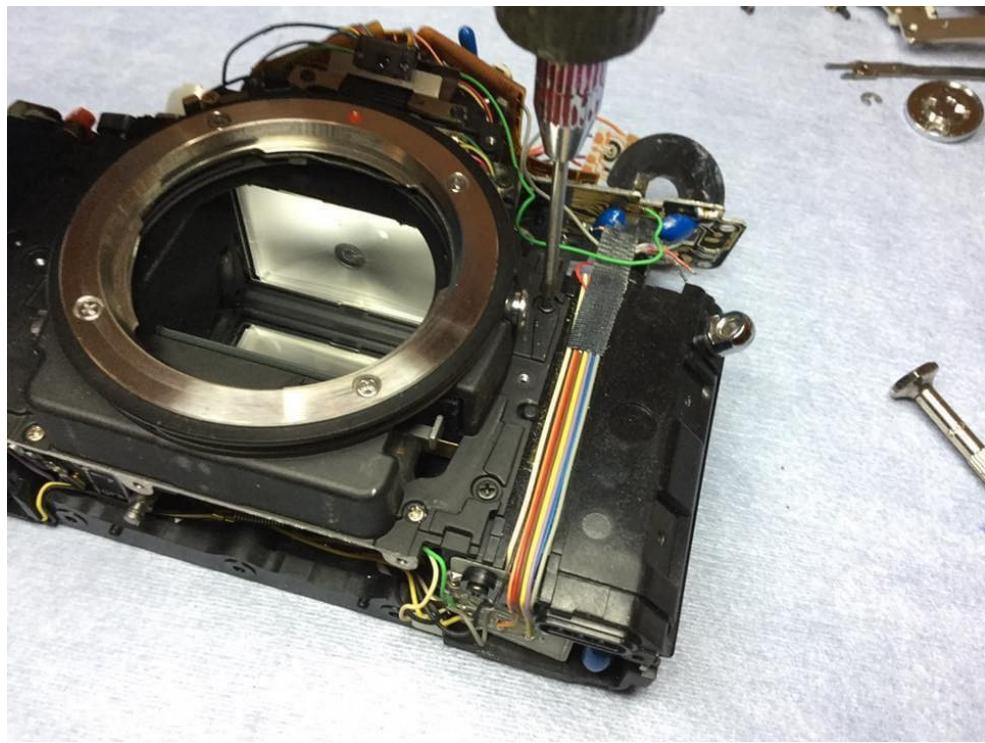
Post #14

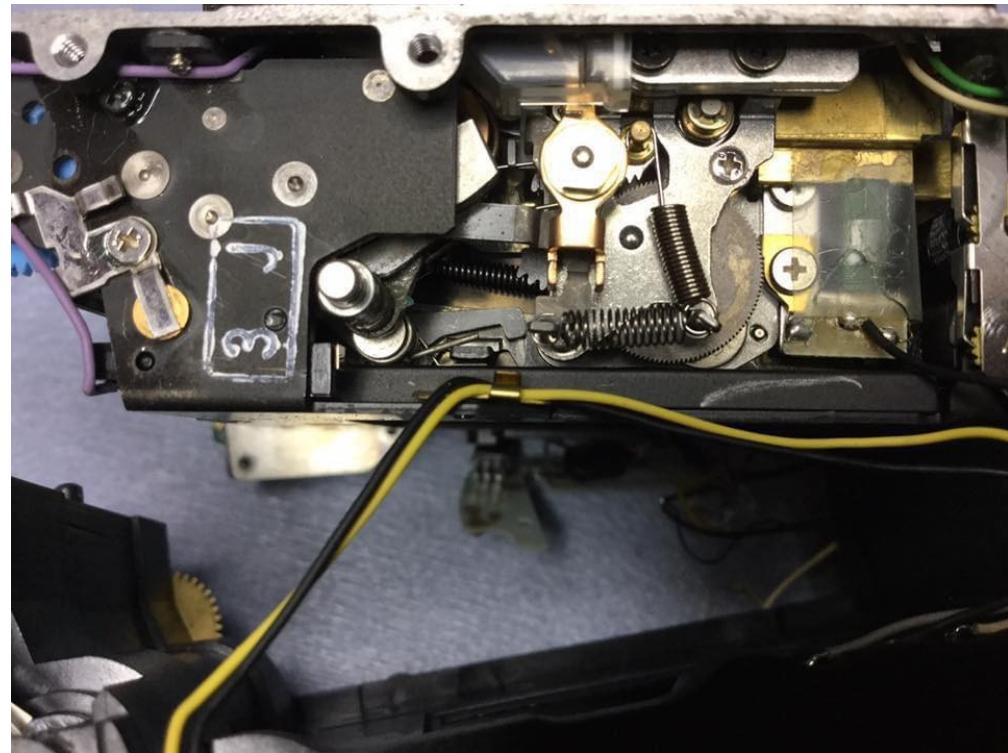
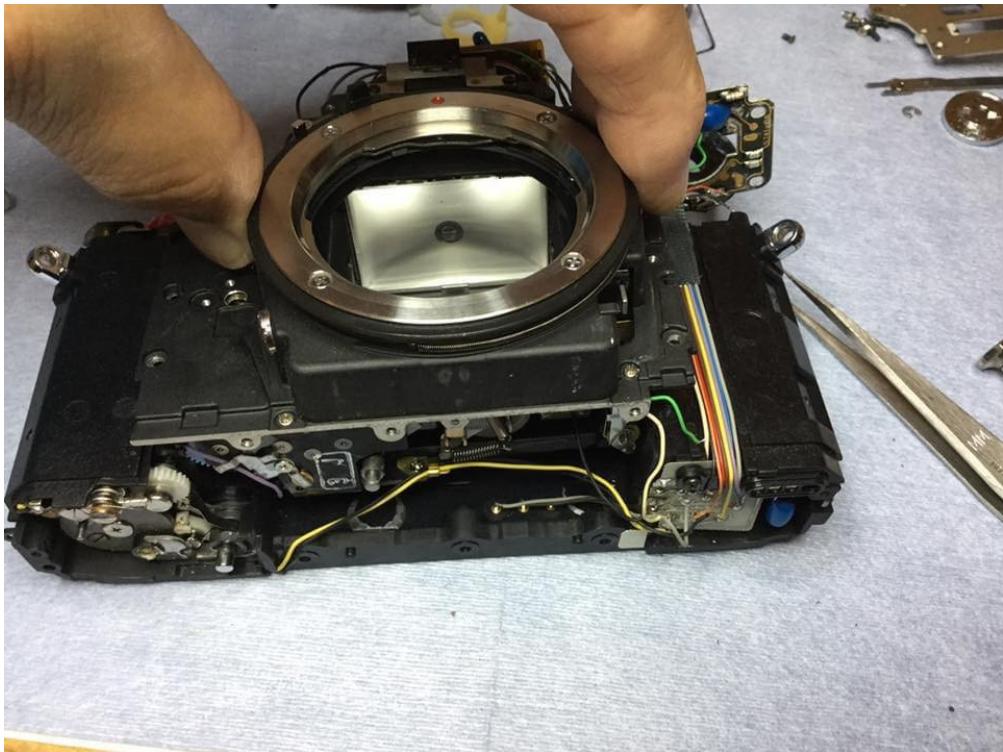
Remove the remaining four screws holding the front plate/mirror unit to the body and carefully move the mirror assembly out far enough to remove the yellow and black reset wires from the brass wire keeper (move the tabs away freeing the wires).

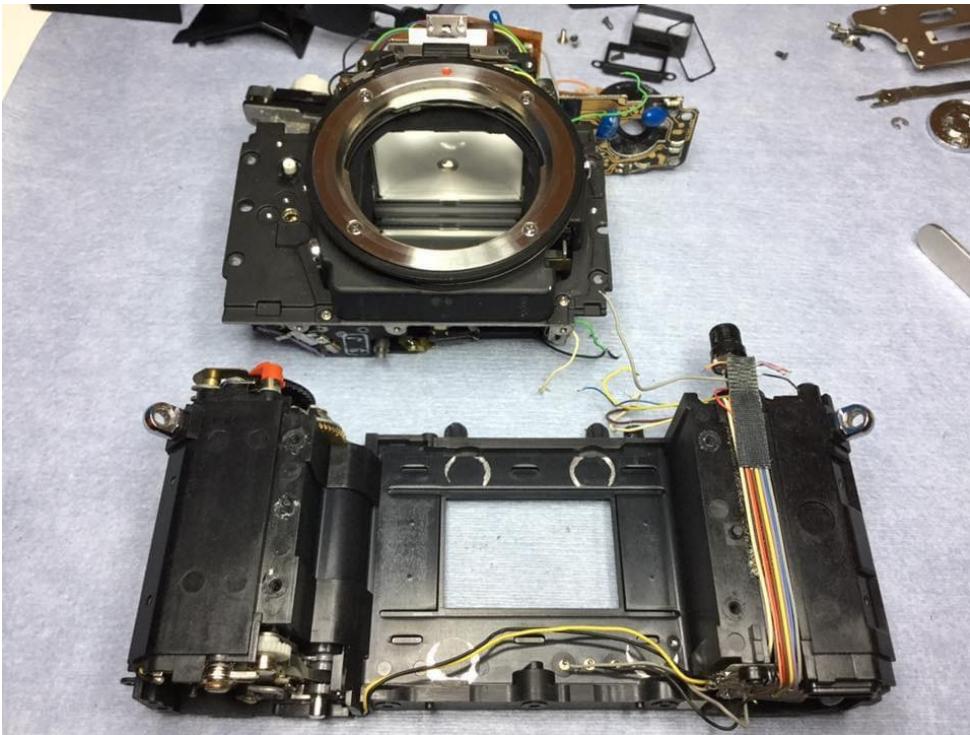
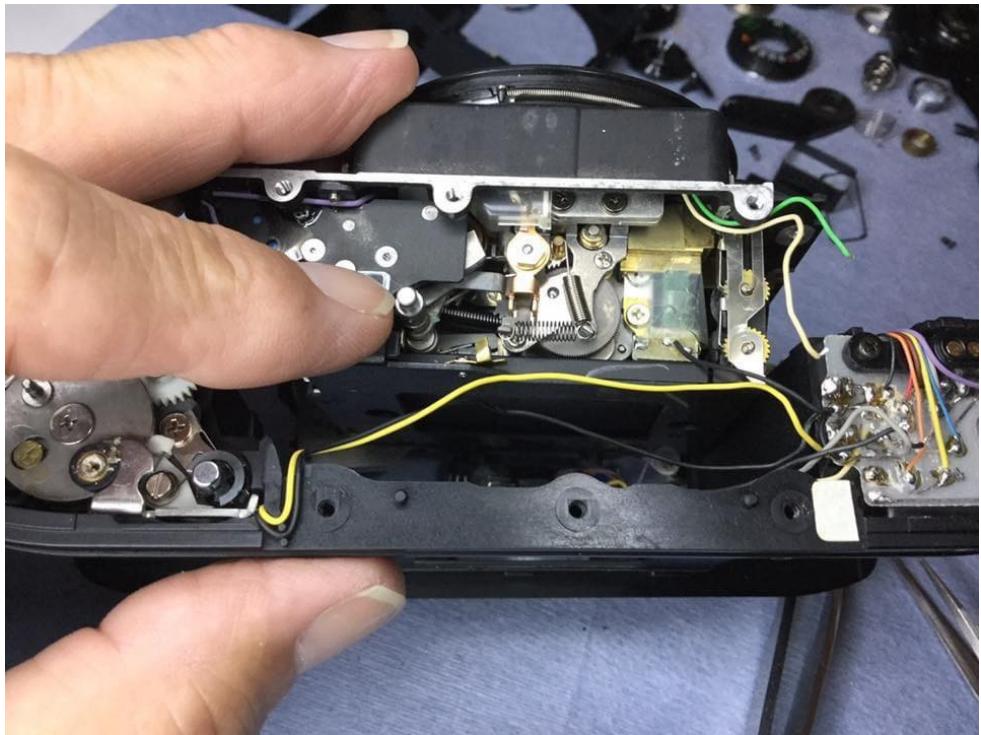
Lift the front plate/mirror unit away from the body.

More water damage ...



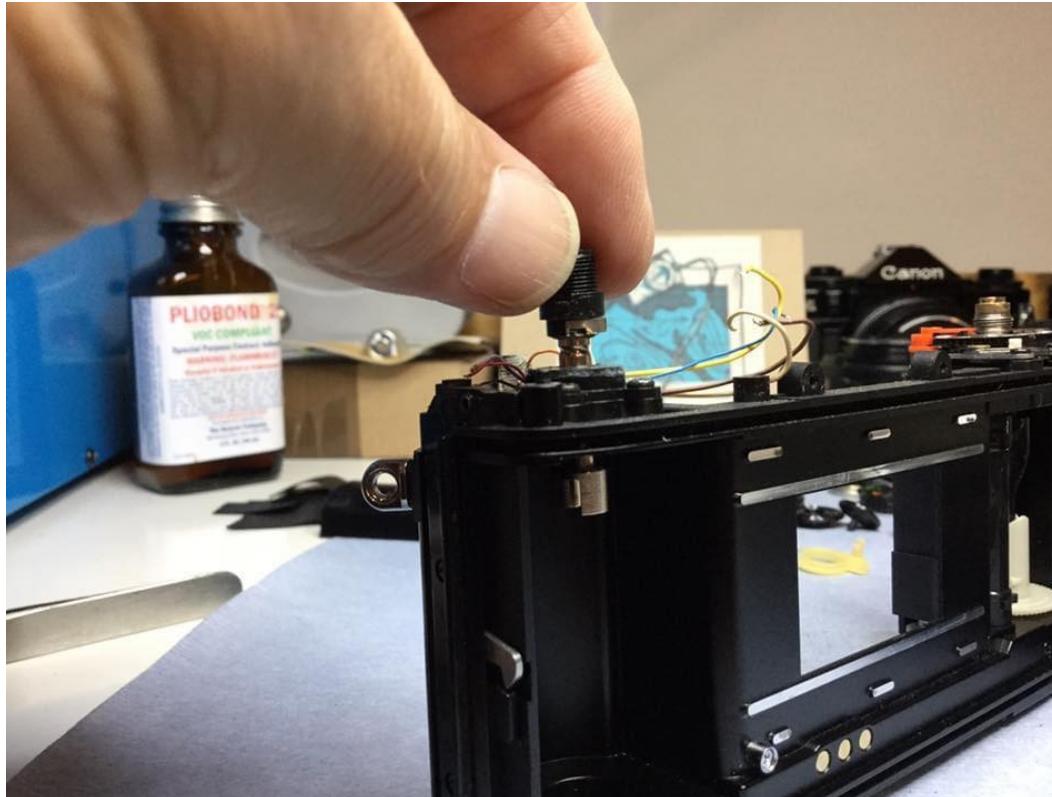






Post #15

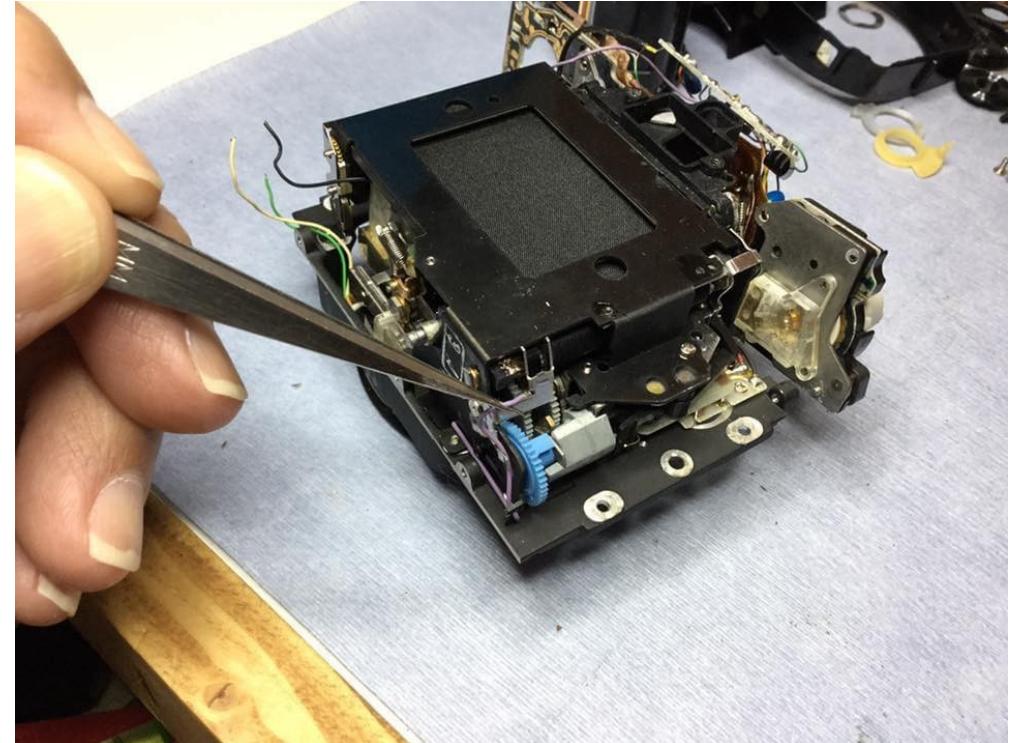
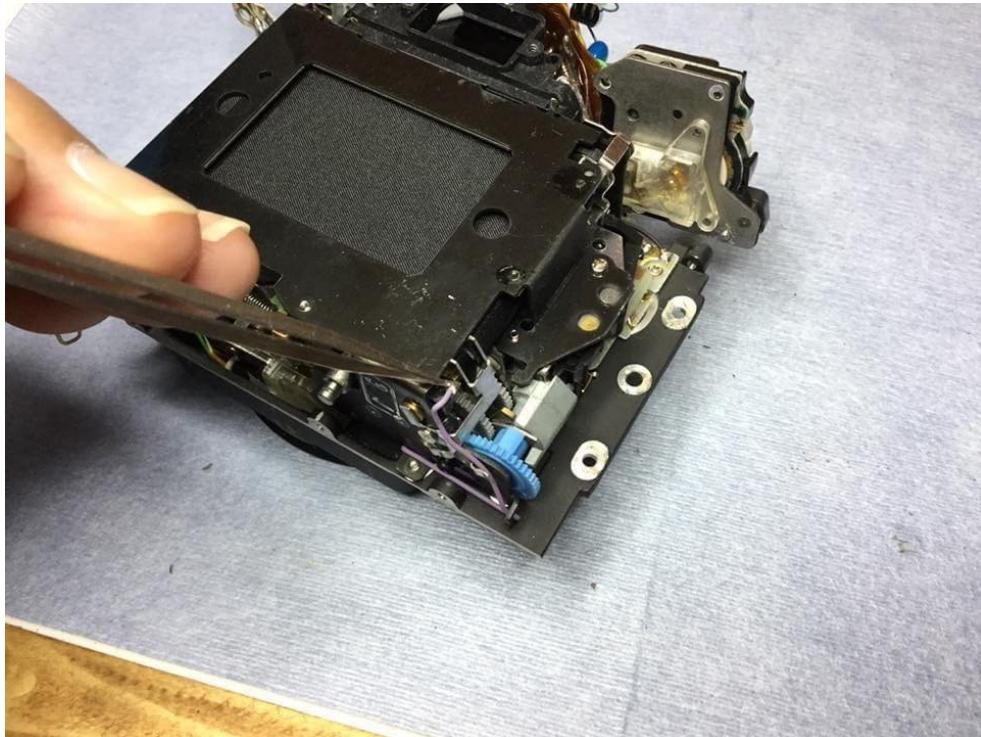
Here's a chance to show the broken rewind bearing I mentioned earlier. Hopefully I still have a new one to replace it, if not I'll be forced to epoxy it - fortunately the break is clean and rough enough that the epoxy would set up a strong joint...

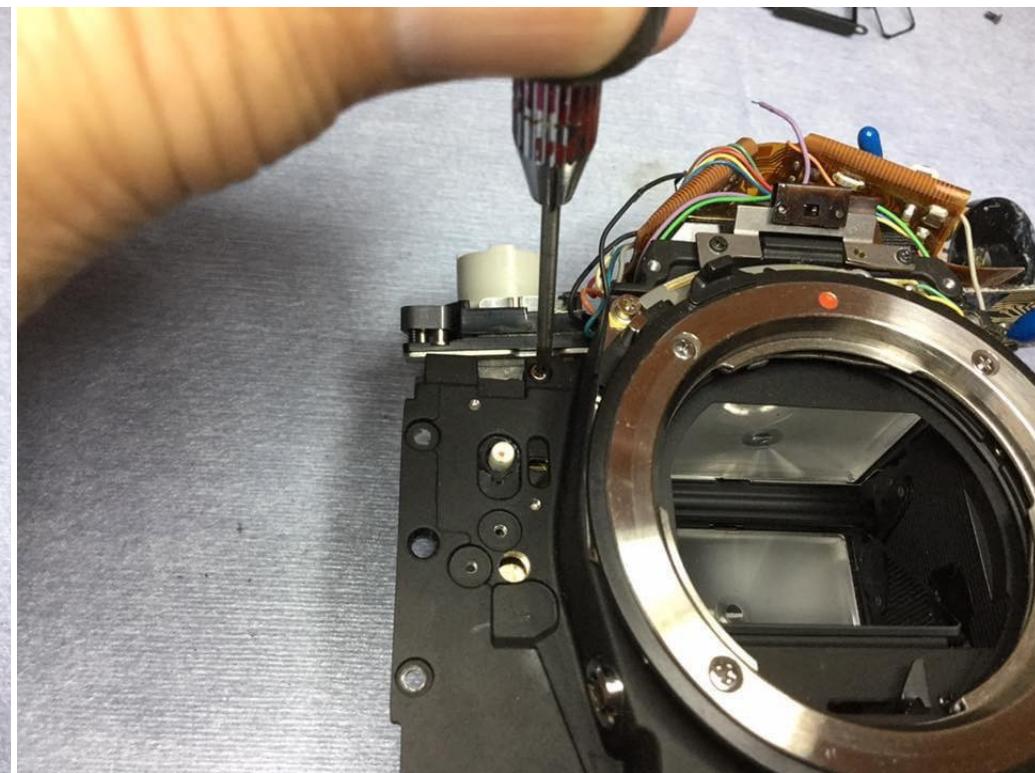
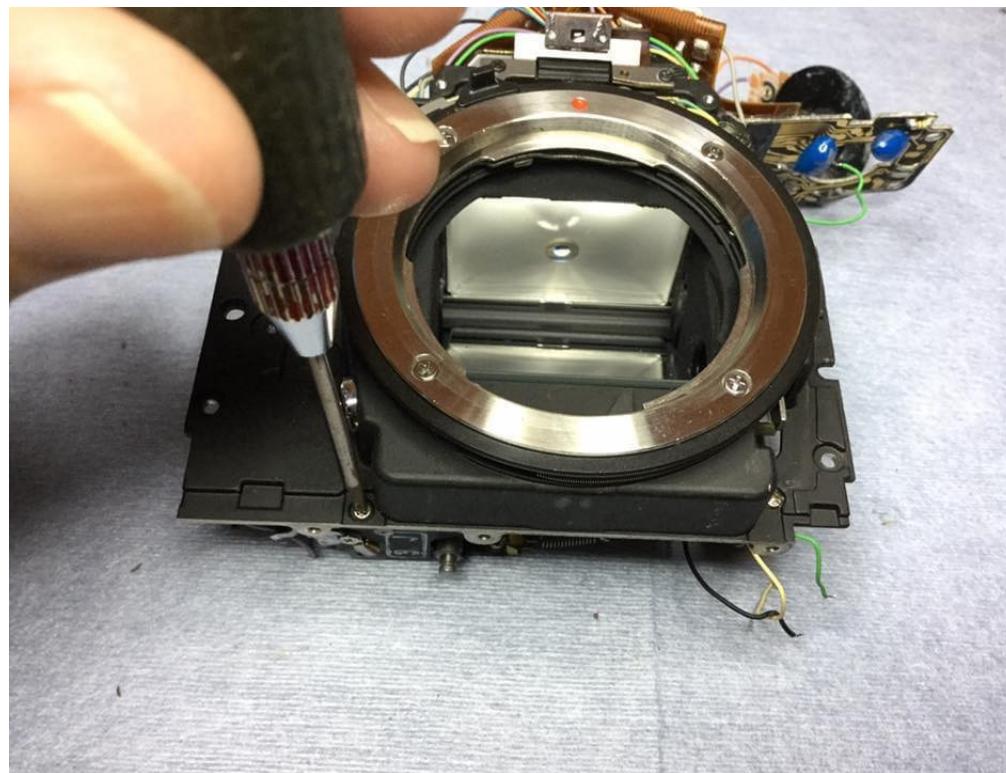


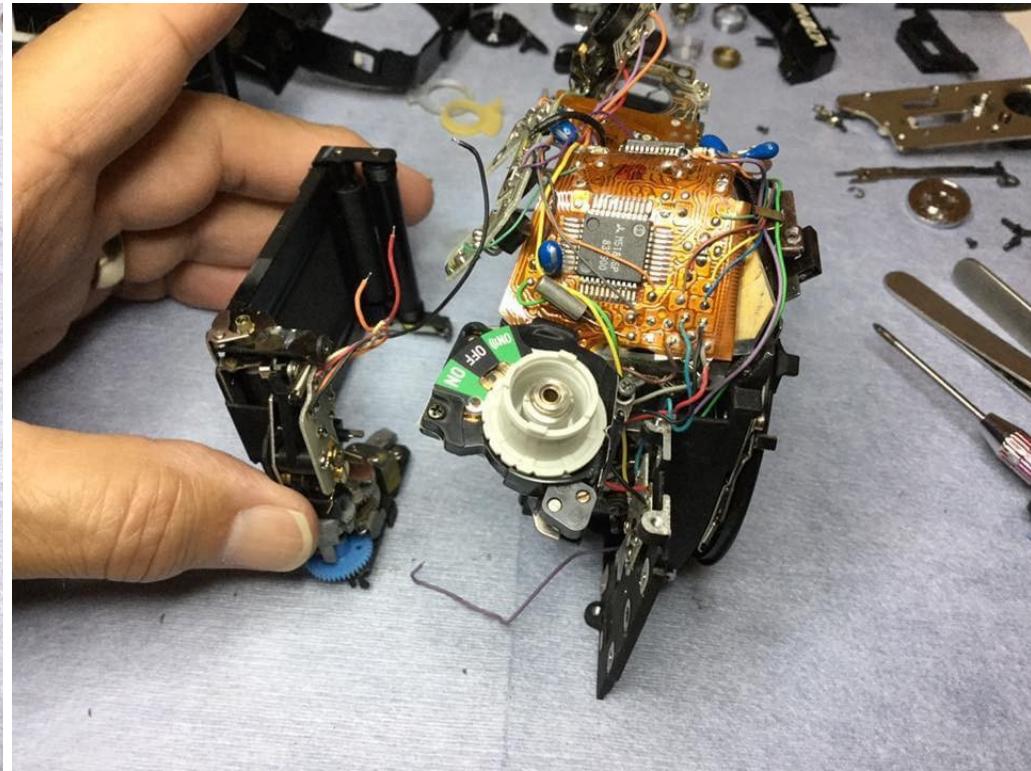
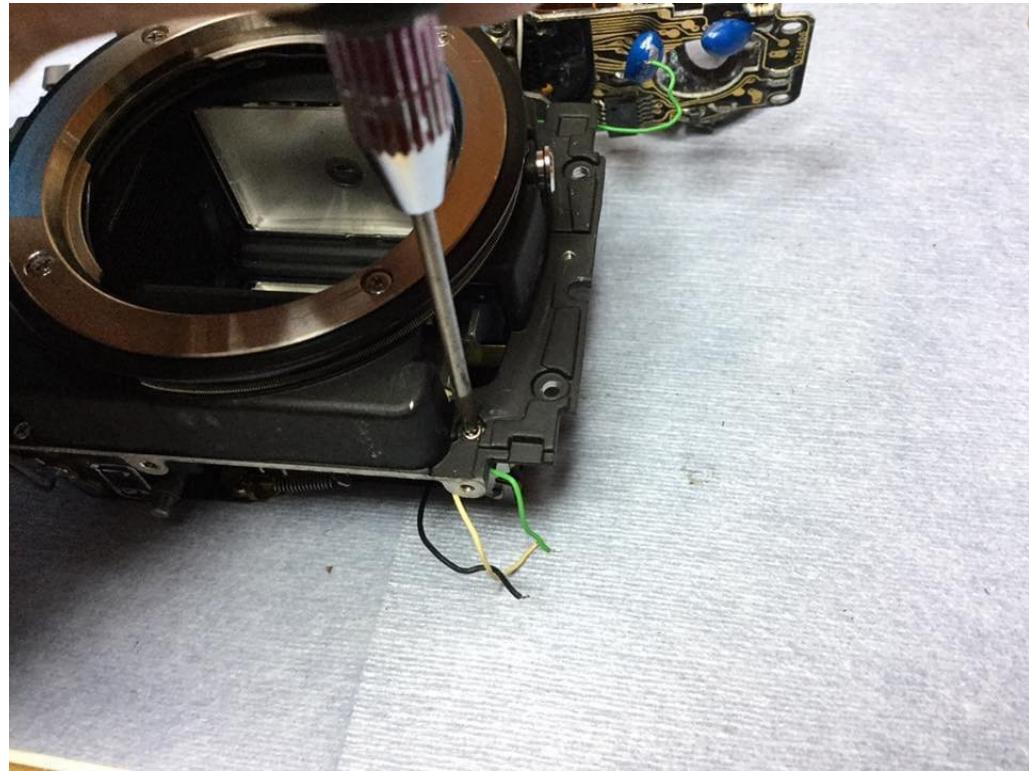
Post #16

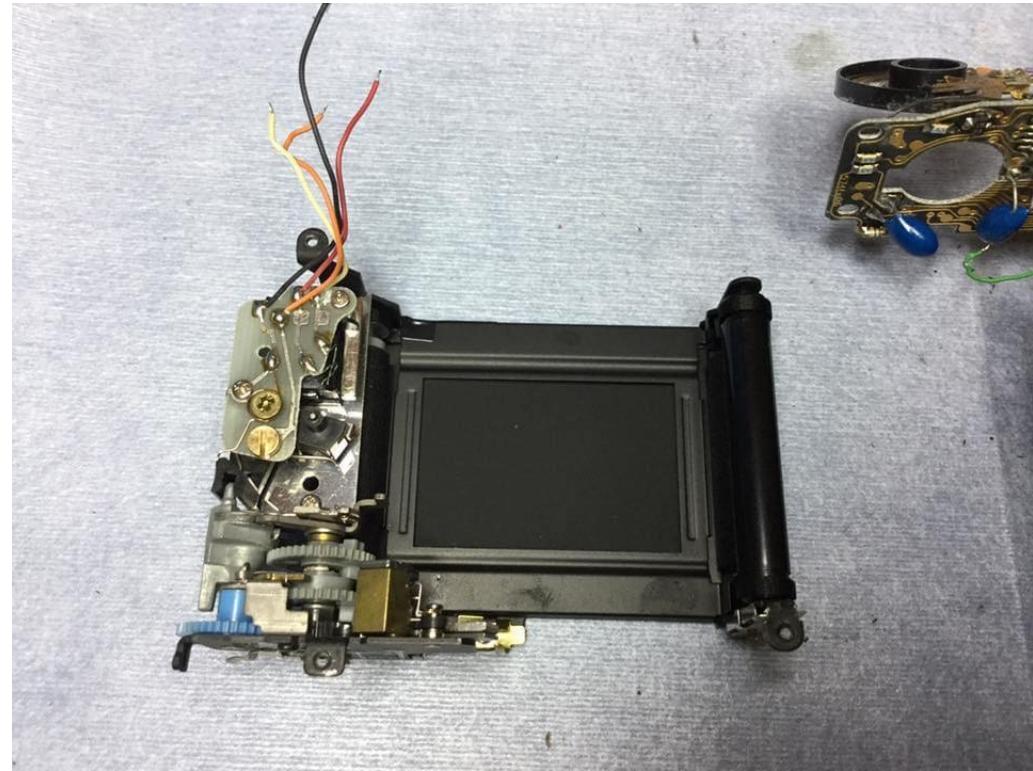
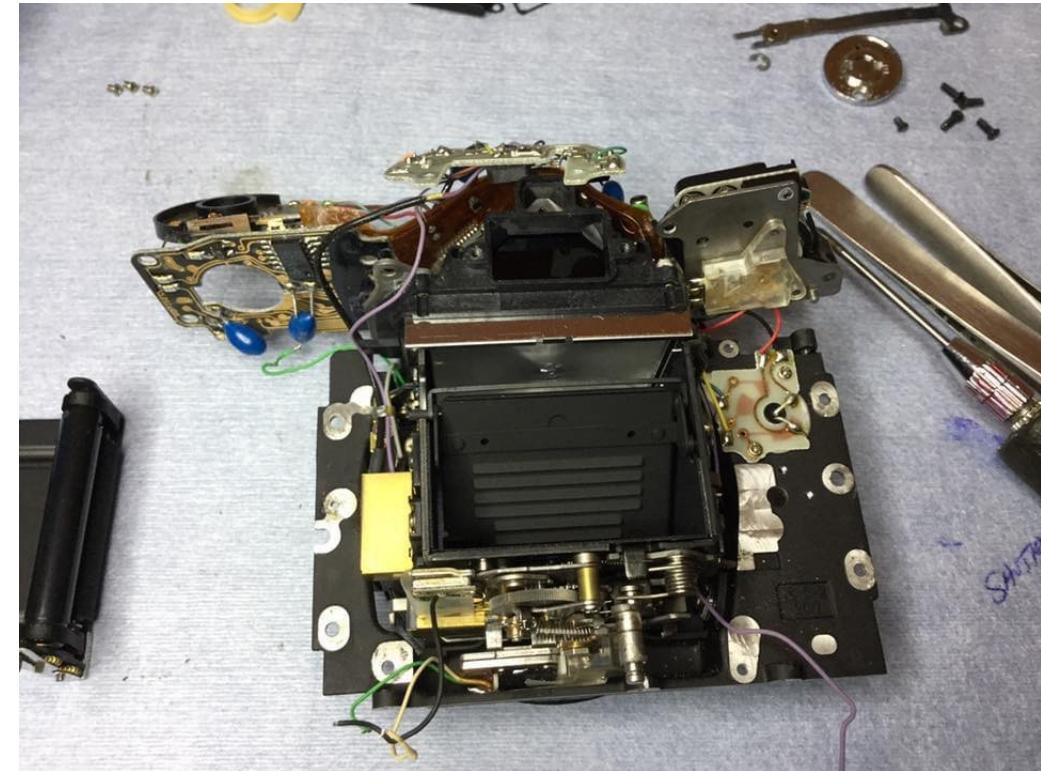
Desolder the purple sync wire from the back of the shutter.

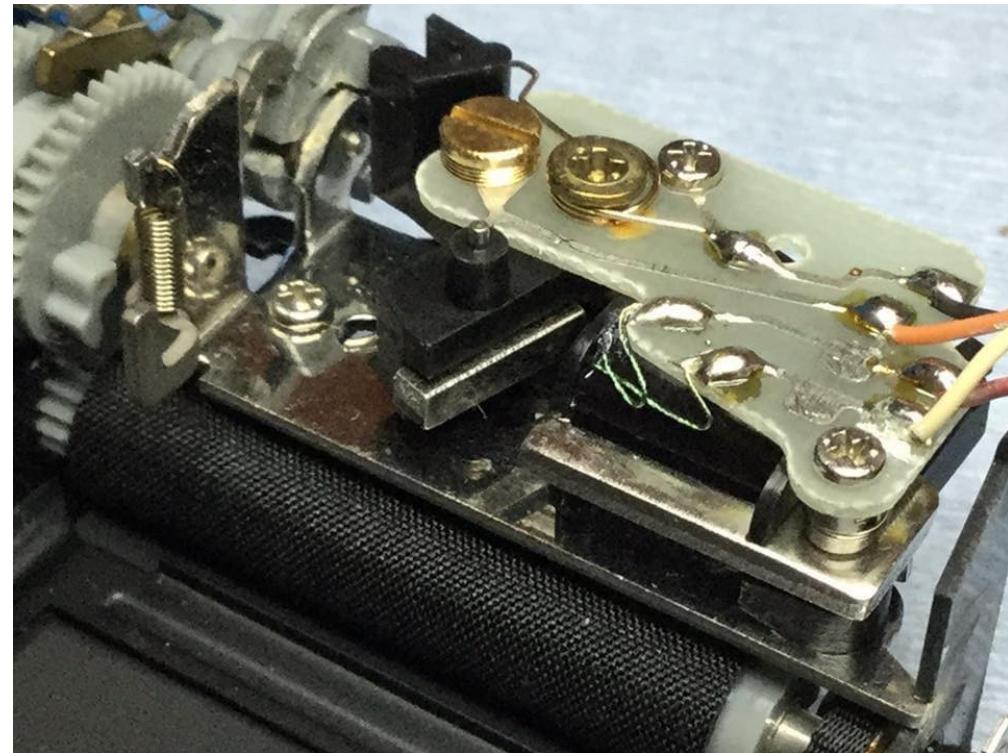
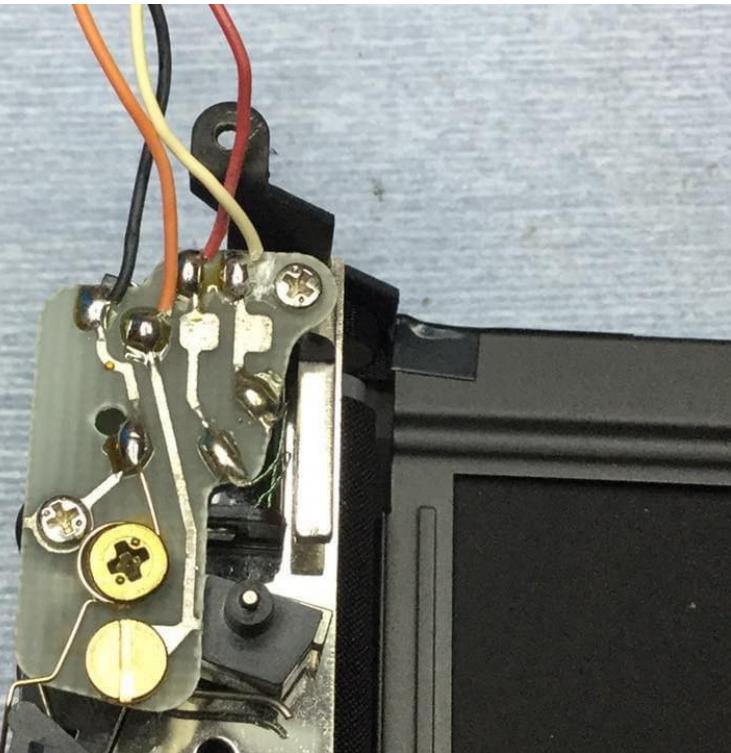
Remove the three white/chrome screws holding the shutter to the mirror assembly, move the mirror charge lever to the charged position and lift off the shutter... more water damage... there's a slight buildup on the shutter magnet surfaces - that's what is causing the erratic exposures!

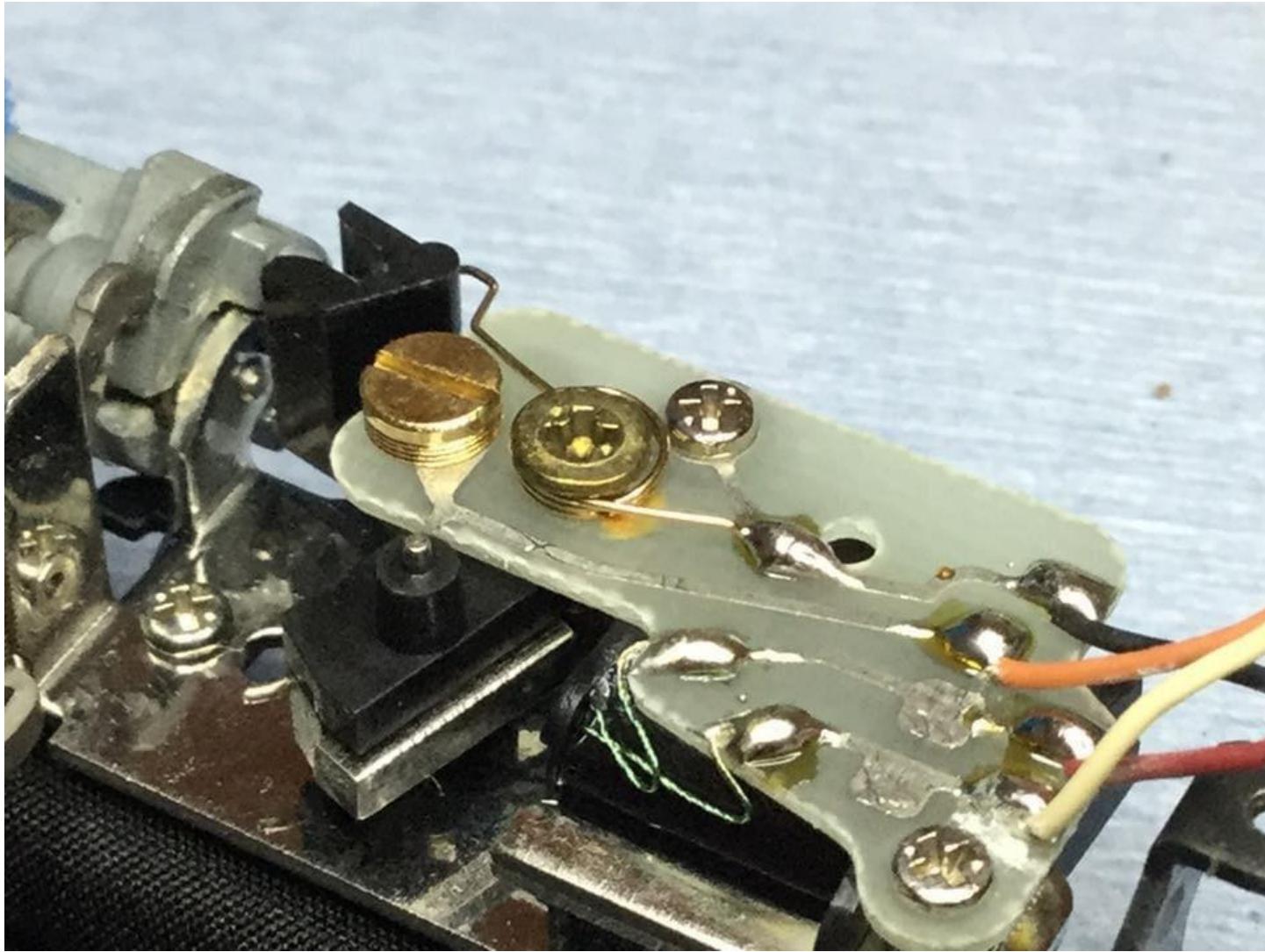












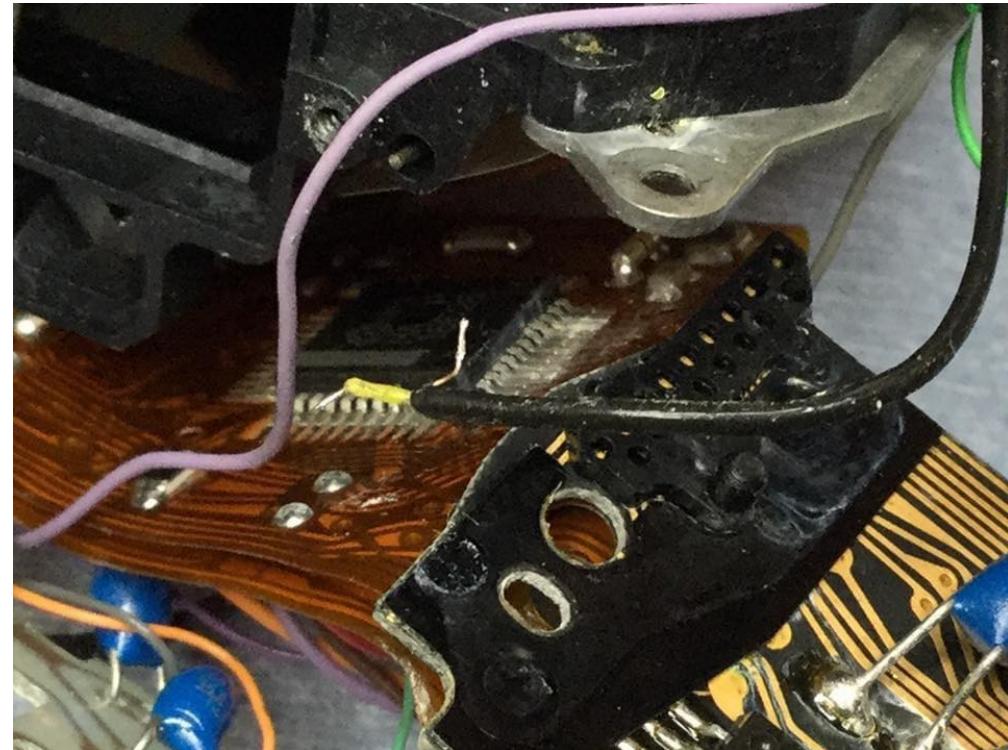
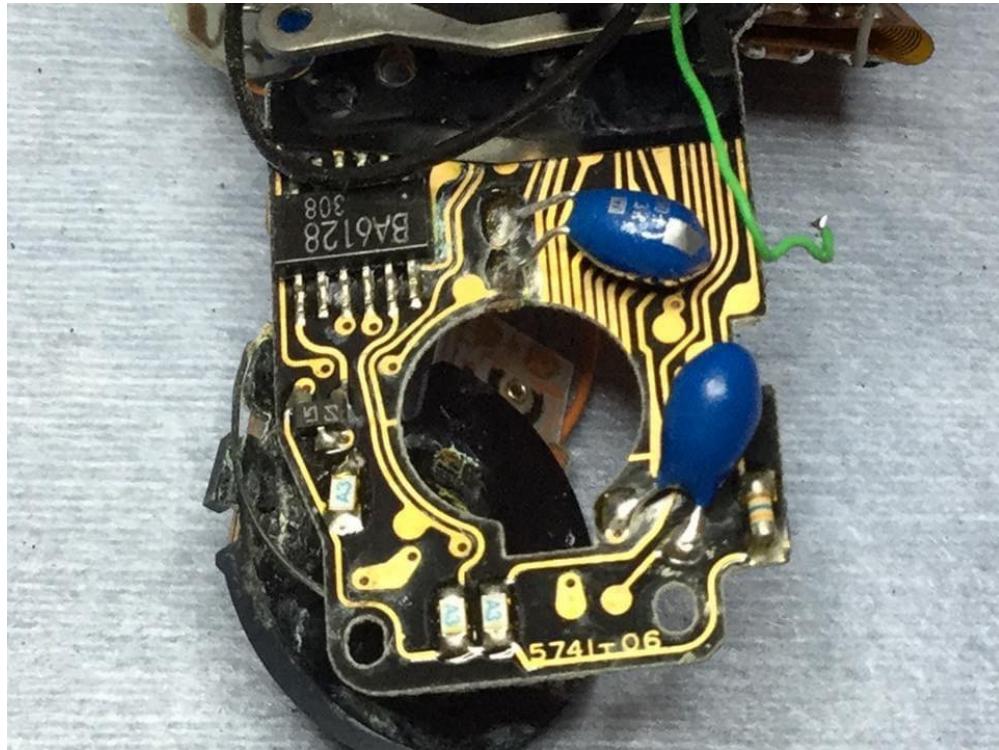
Post #17

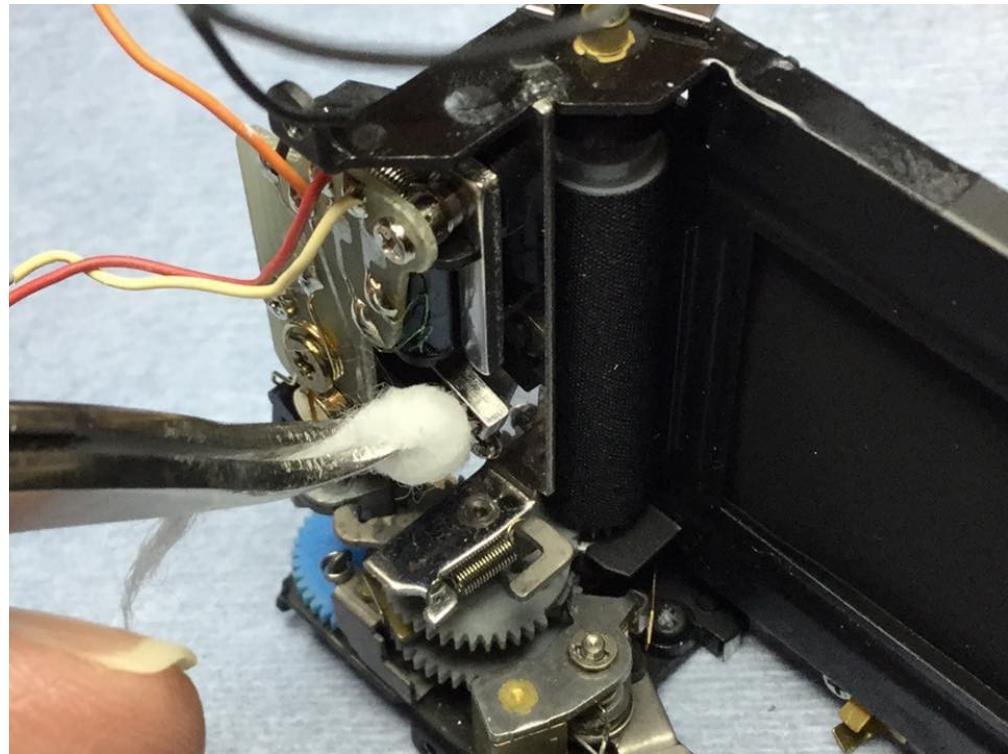
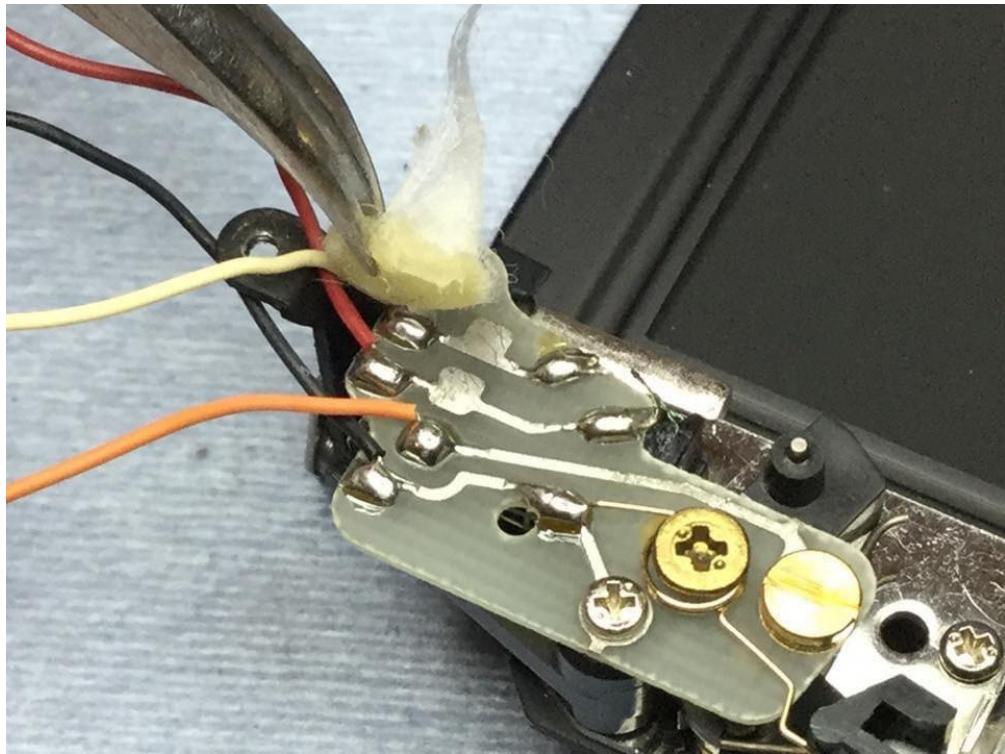
Cleaning the water damage and corrosion from the shutter, switches, lubricated the shutter and cleaned corrosion from the PCB's and main flex.

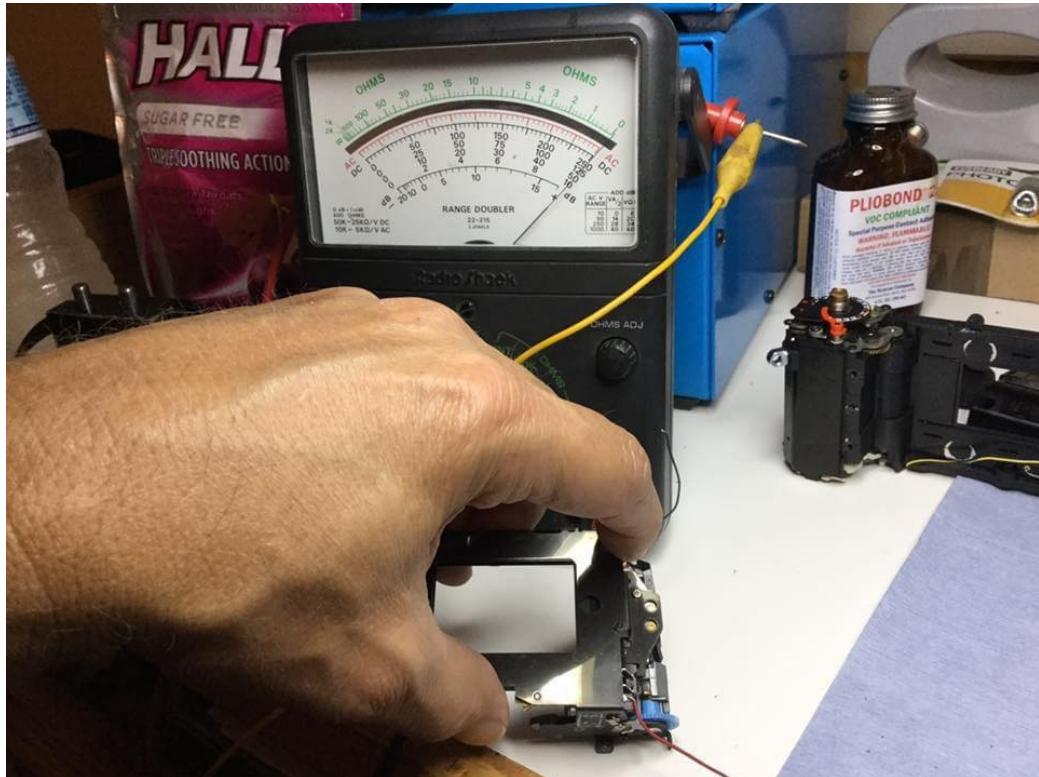
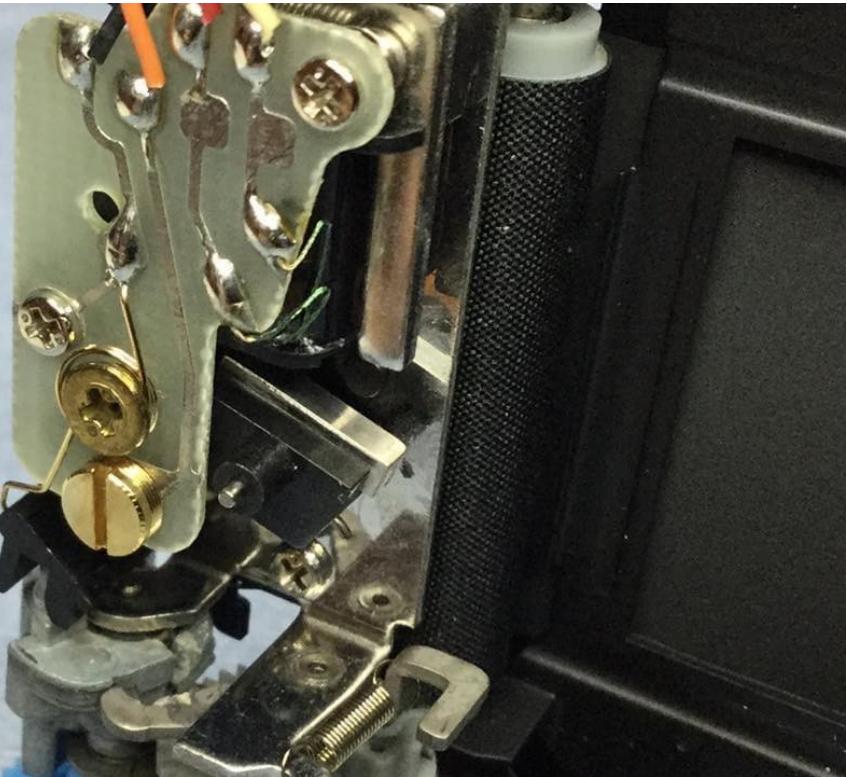
In the photos I'm testing the resistance of the sync contacts and operation of the shutter assembly.

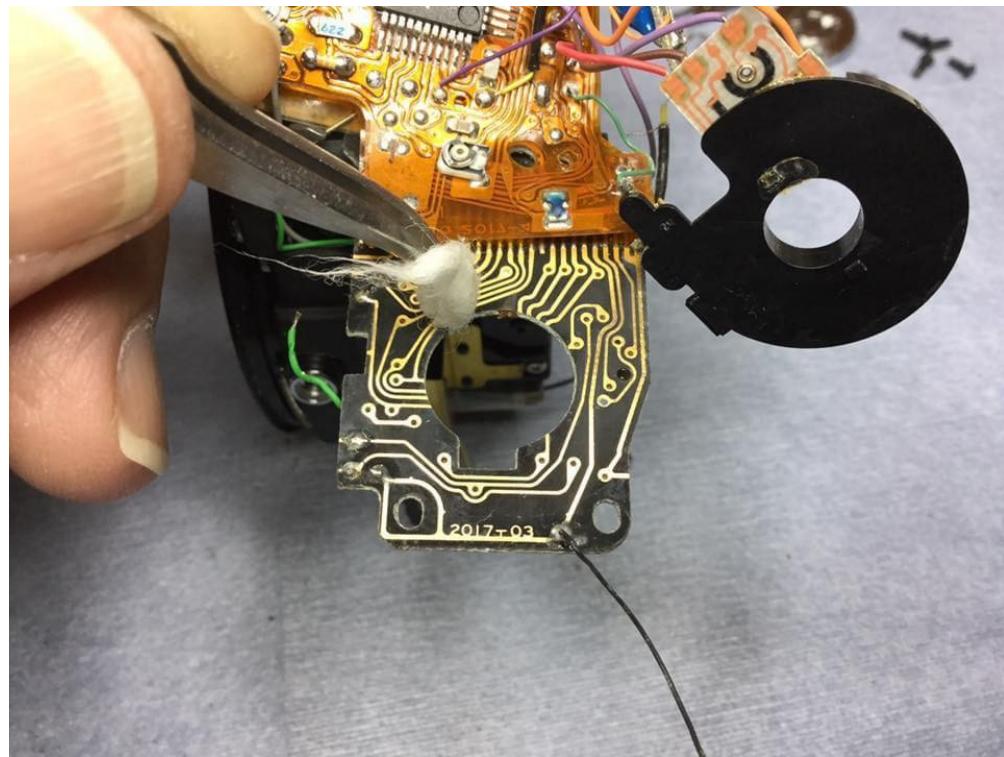
I found a break on the underside of the SV PCB where corrosion ate away at a part of the printed board, after cleaning it, I applied a little flux and repaired the connection with solder.

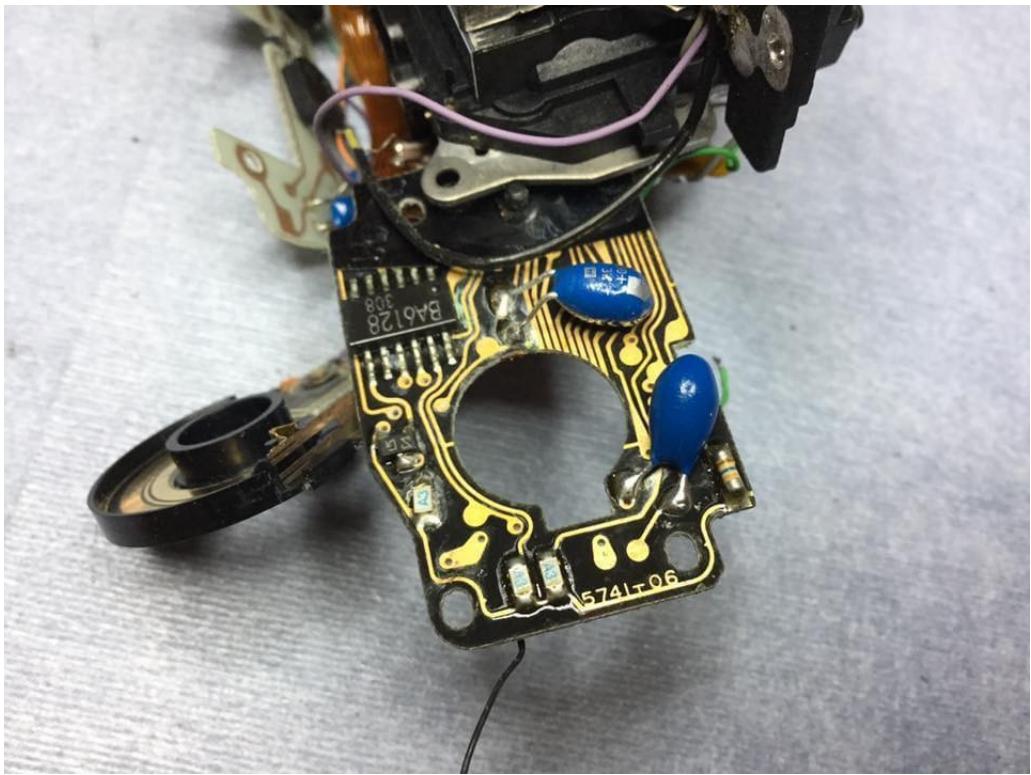
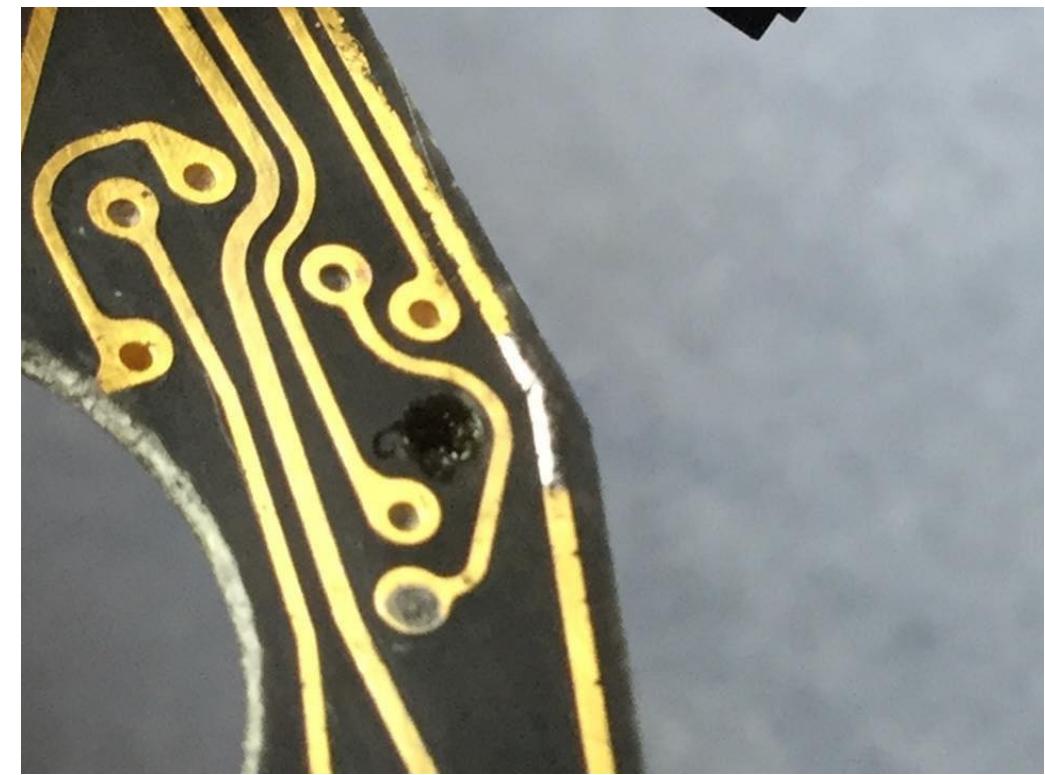
Next I'll clean the MD PCB and begin reassembly cleaning the magnets and testing the switches as I reassemble the various components.

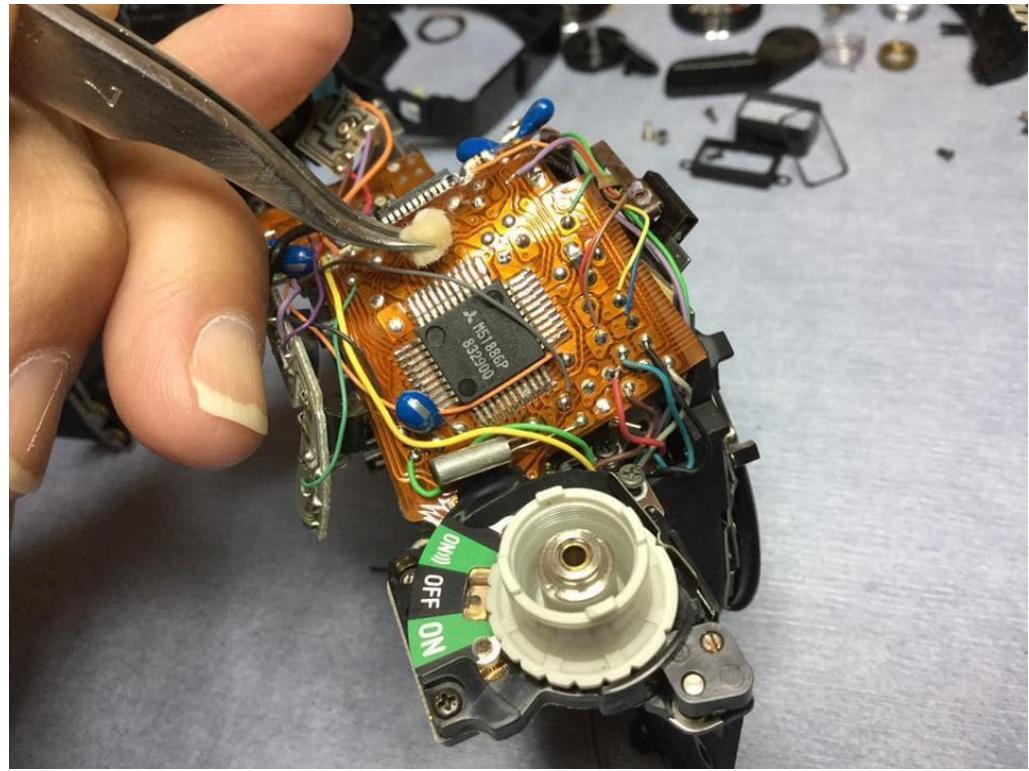
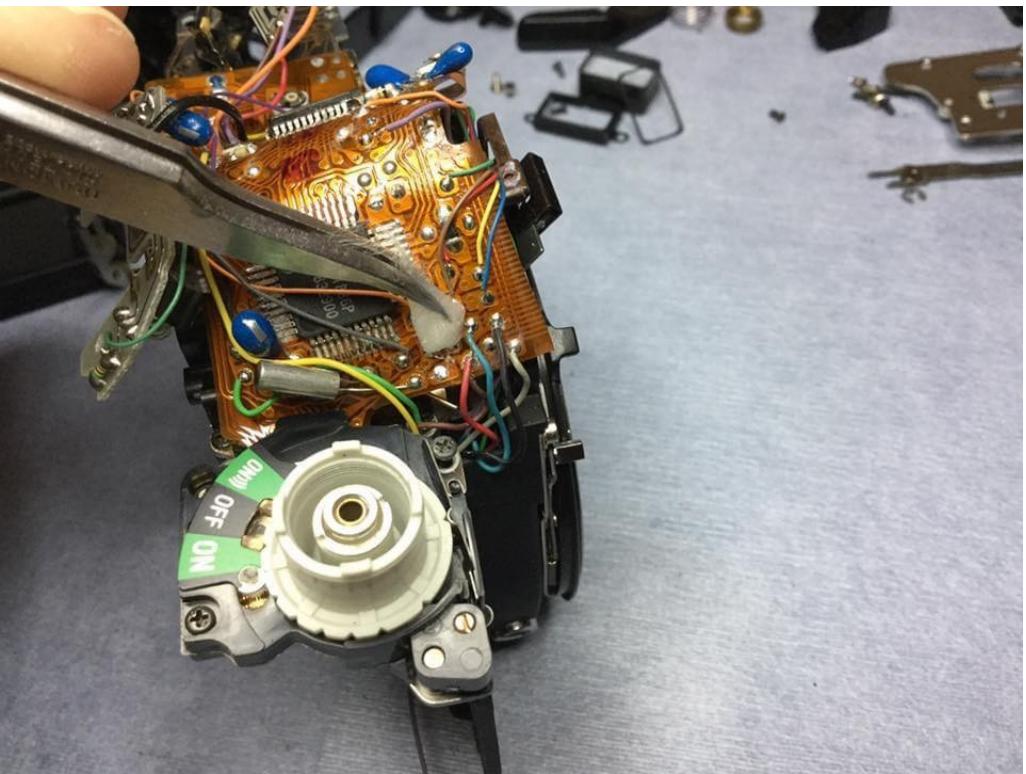


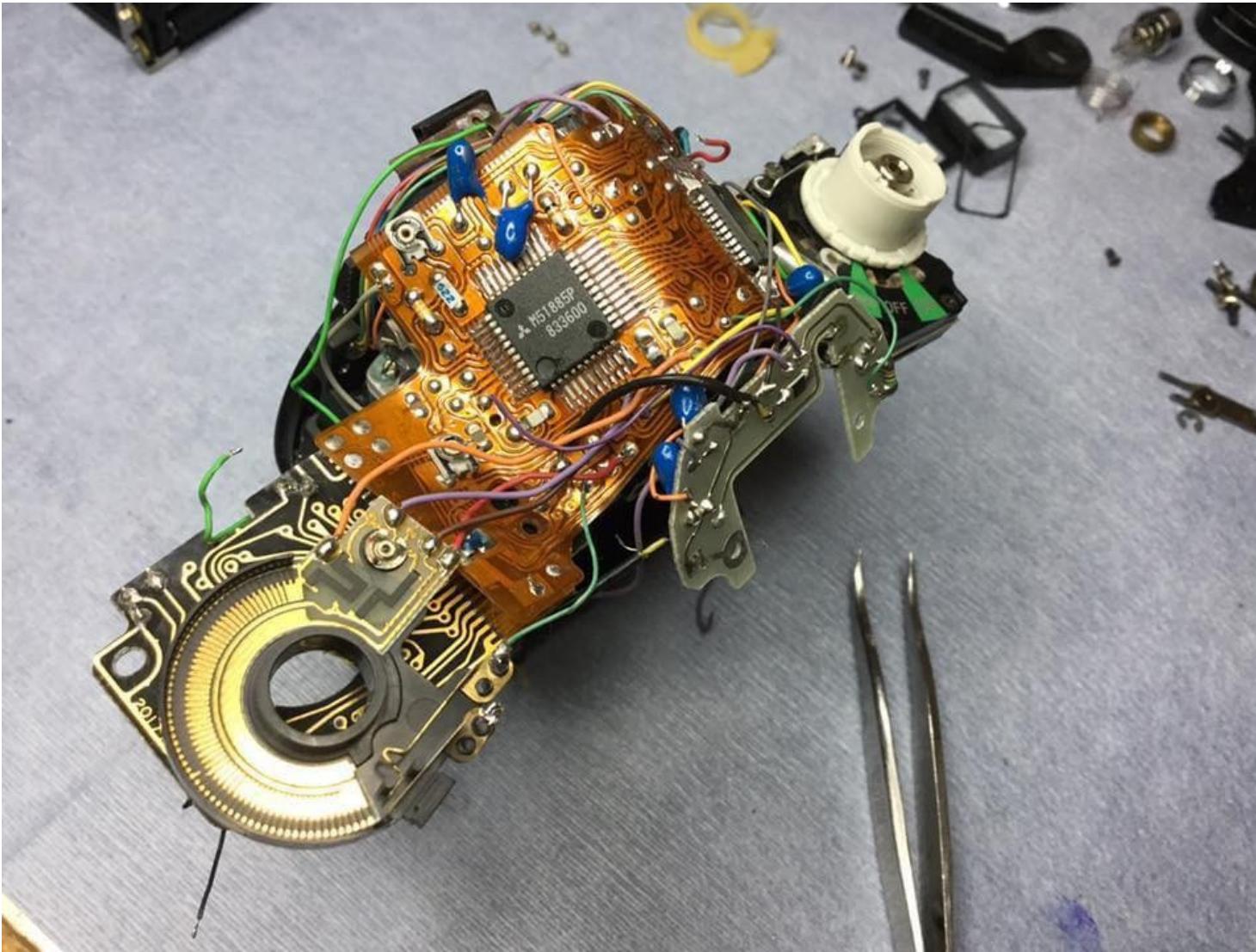








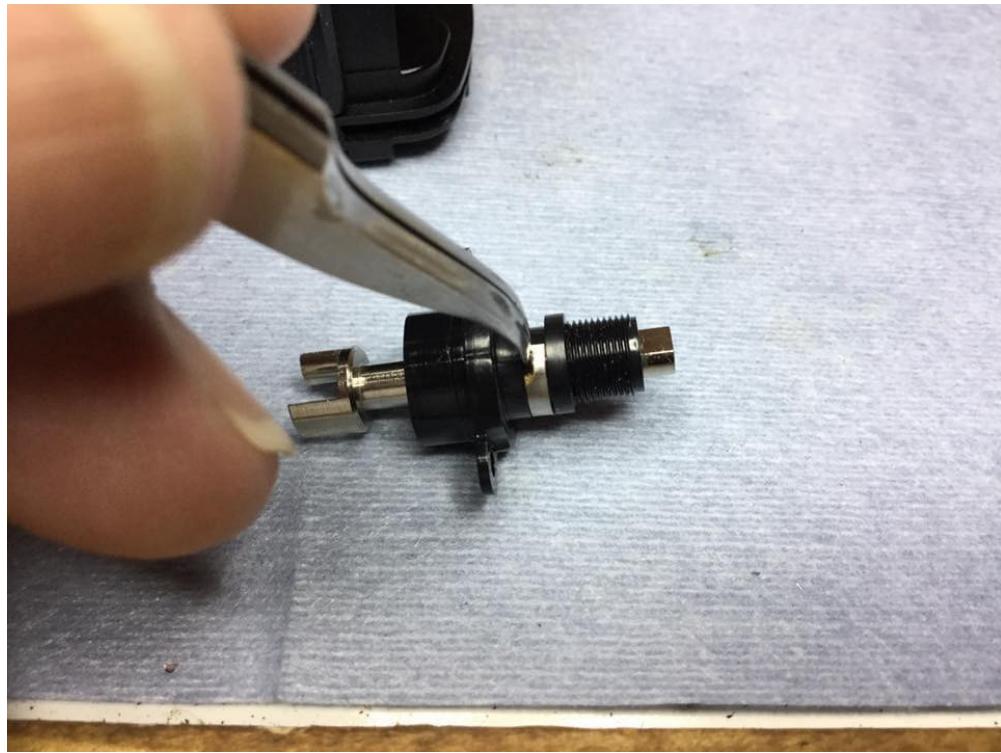


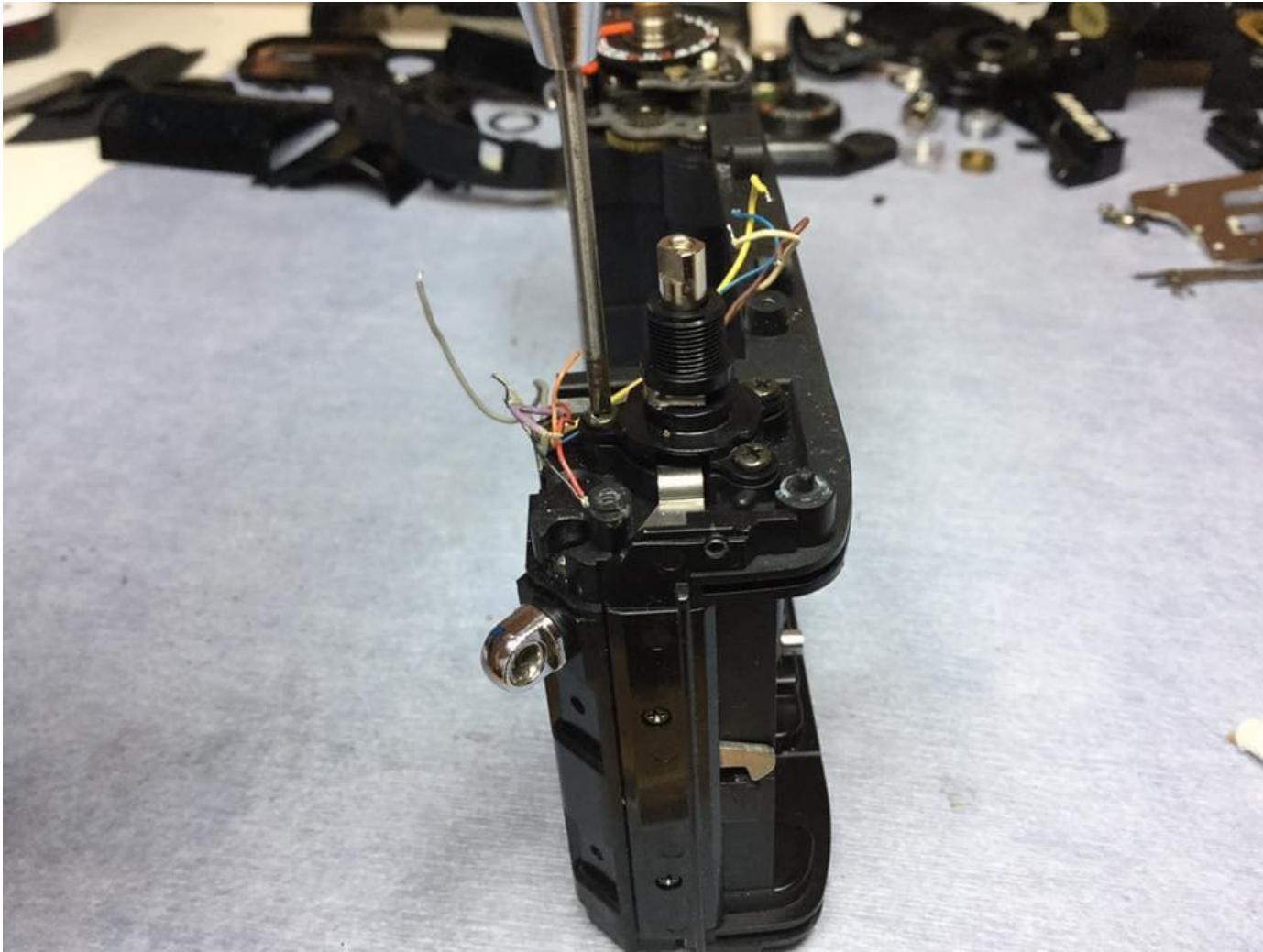


Post #18

It's time to replace that broken rewind bearing for the rewind shaft, luckily I still have brand new parts in stock for this camera - it's just a matter of transferring the metal detent clip and applying a spot of Pliobond to keep it from slipping off its hooking point (a factory tip) and reassembling the bearing to the body.



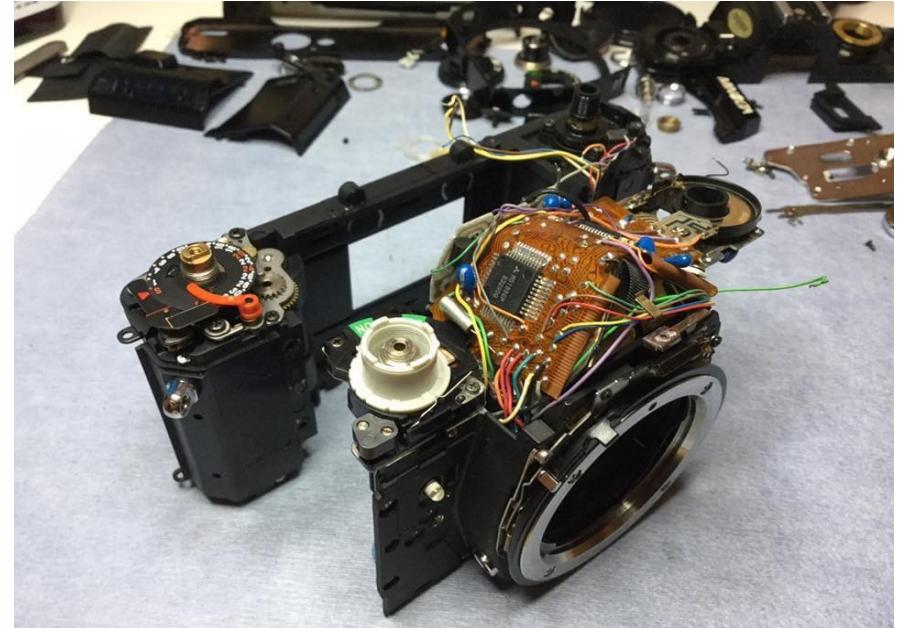
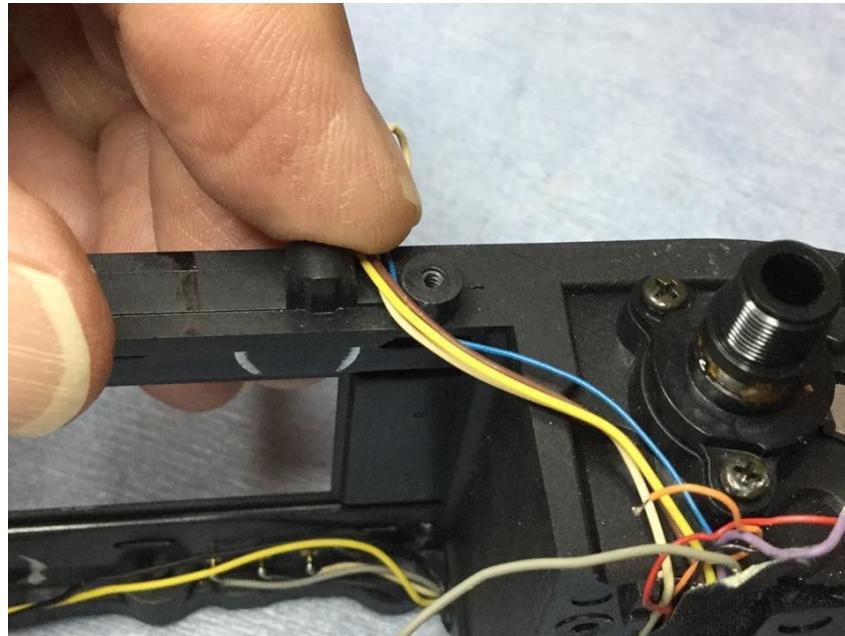


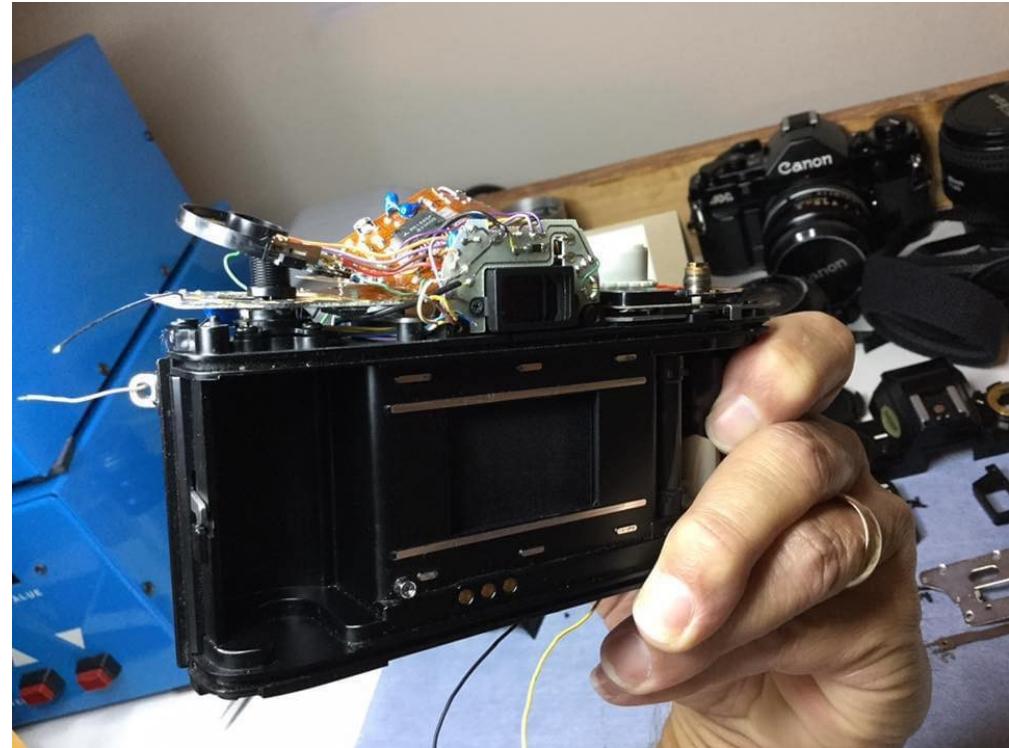


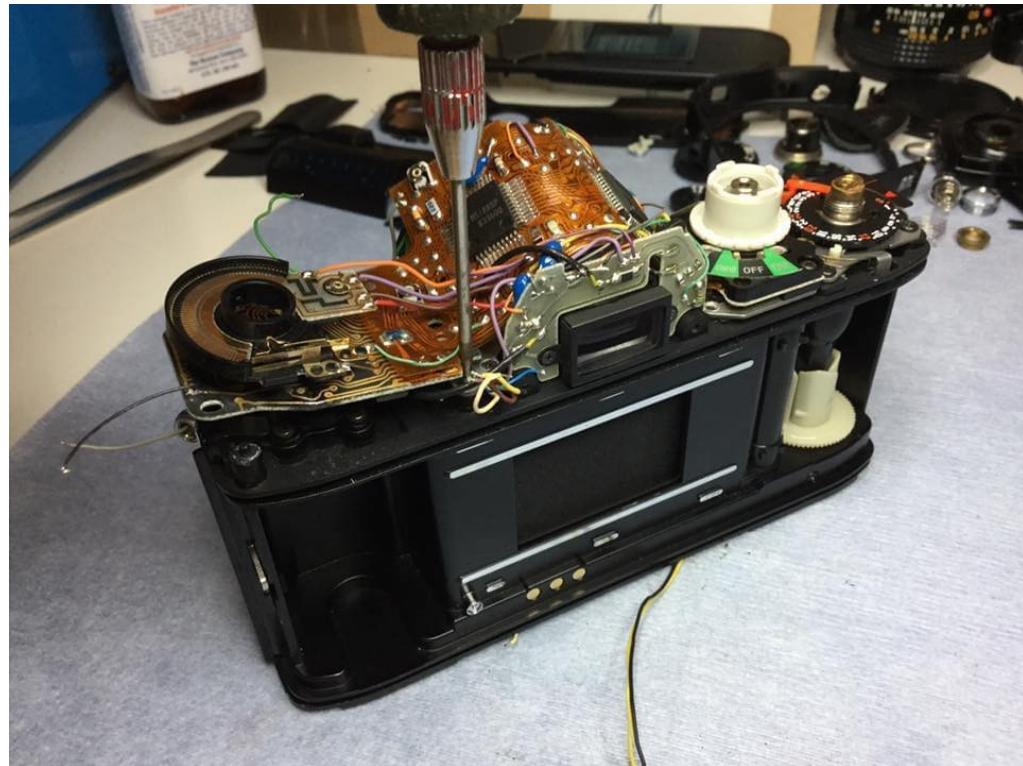
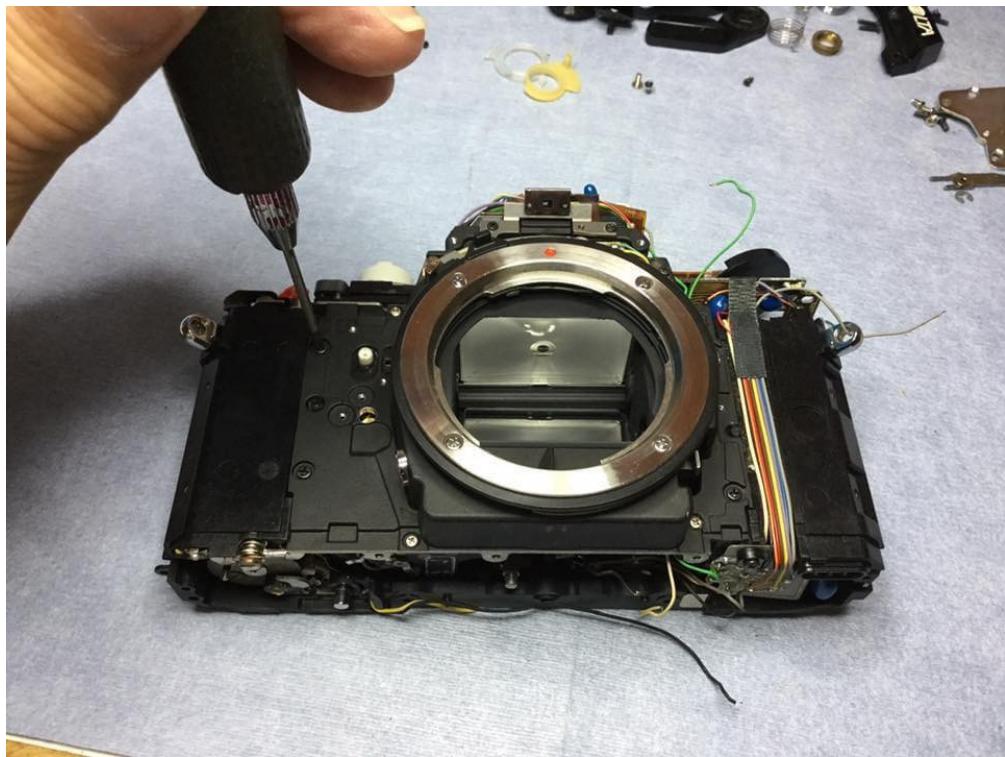
Post #19

Route the wires so they pass between the body Post and the mirror assembly at the rear rewind side, charge the mirror and the shutter, mount the assembly to the body and reinstall the retaining screws.

When the body and mirror/shutter assembly are mated you can test the release by applying 1-2 volts to the green wire that goes to the SV PCB Board at the top rewind side - the mirror and shutter should release.





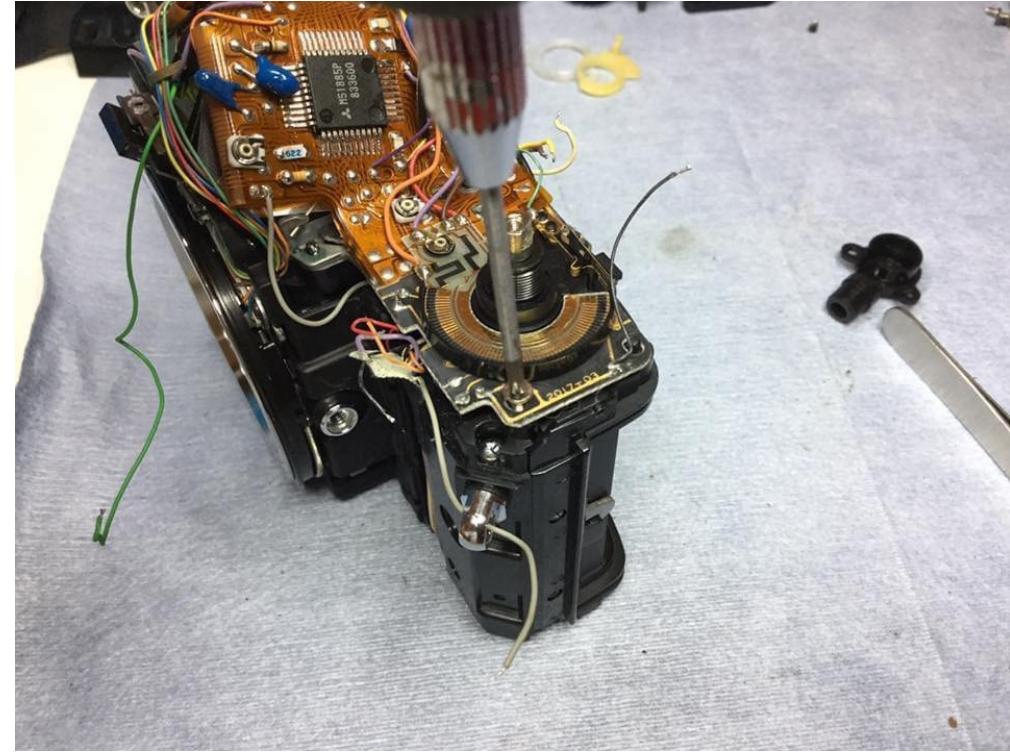
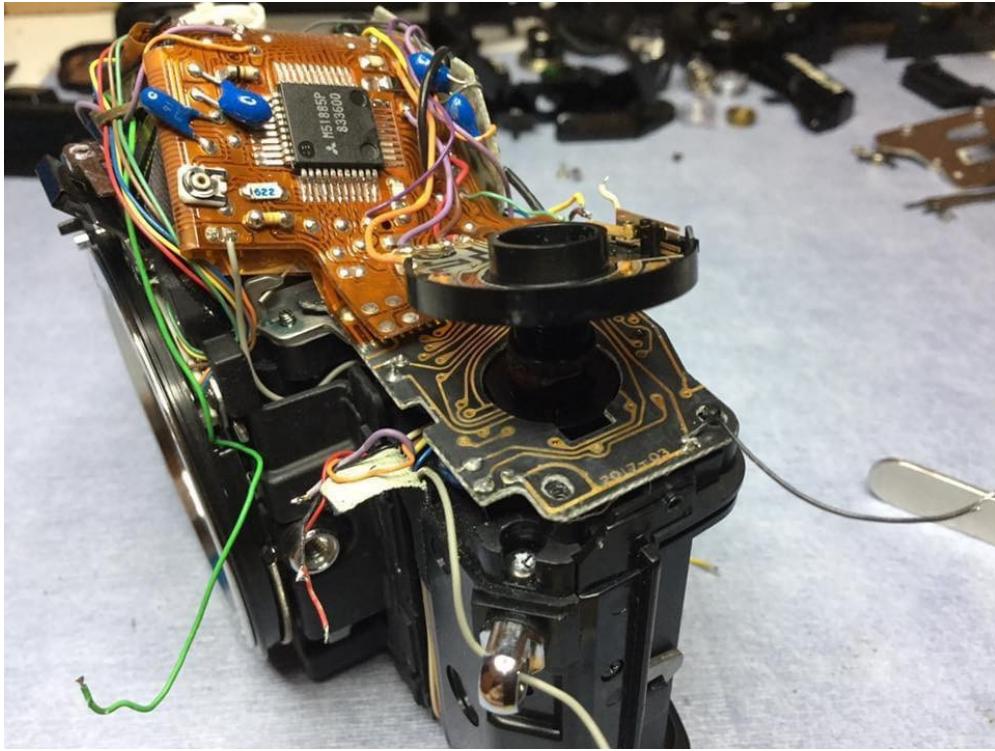


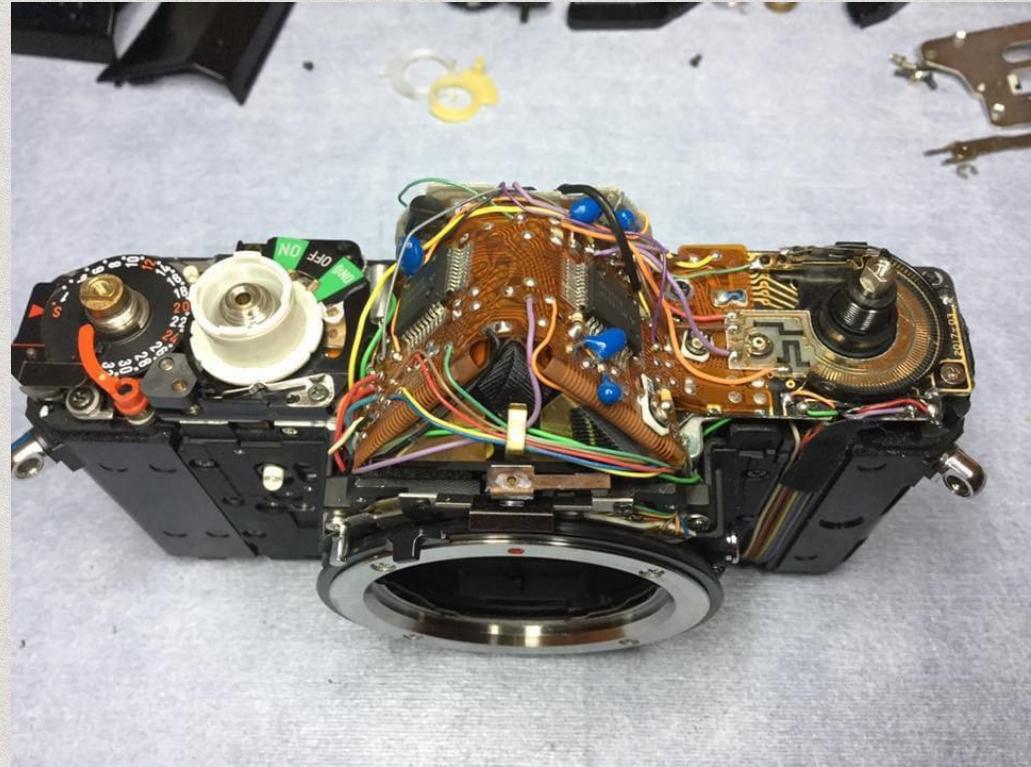
Post #20

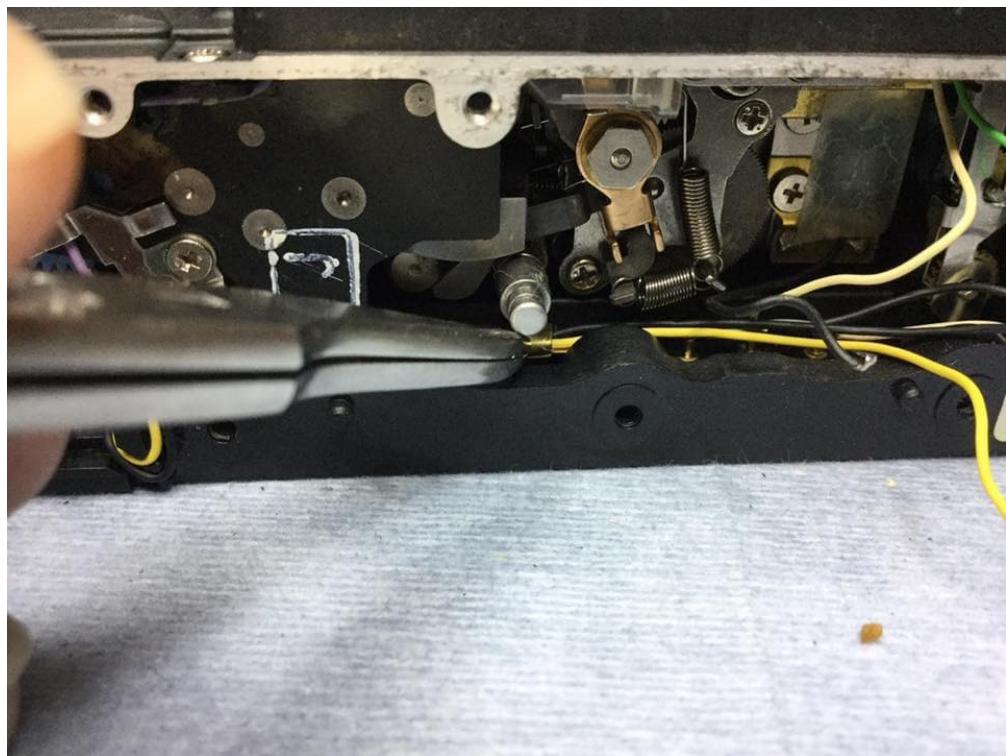
Reassembly is the reverse of disassembly - after soldering the wires in place, clean the flux off with alcohol and Q-Tips (I tear off pieces of the cotton and use tweezers to clean in between the connections).

Not Shown - is the blue shutter gear coupling to the white winding gear at the bottom wind side - there is a dash mark on the blue gear and it represents the timing with the white wind gear it couples with - when properly coupled the dash on the blue should point to the center of the post holding the white winding gear.

There is a cross point screw there that when loosened allows the white gear to move out of engagement to allow this timing to be made - when remeshing the two gears do not make them too tight to each other that will make them bind, make sure they move freely...

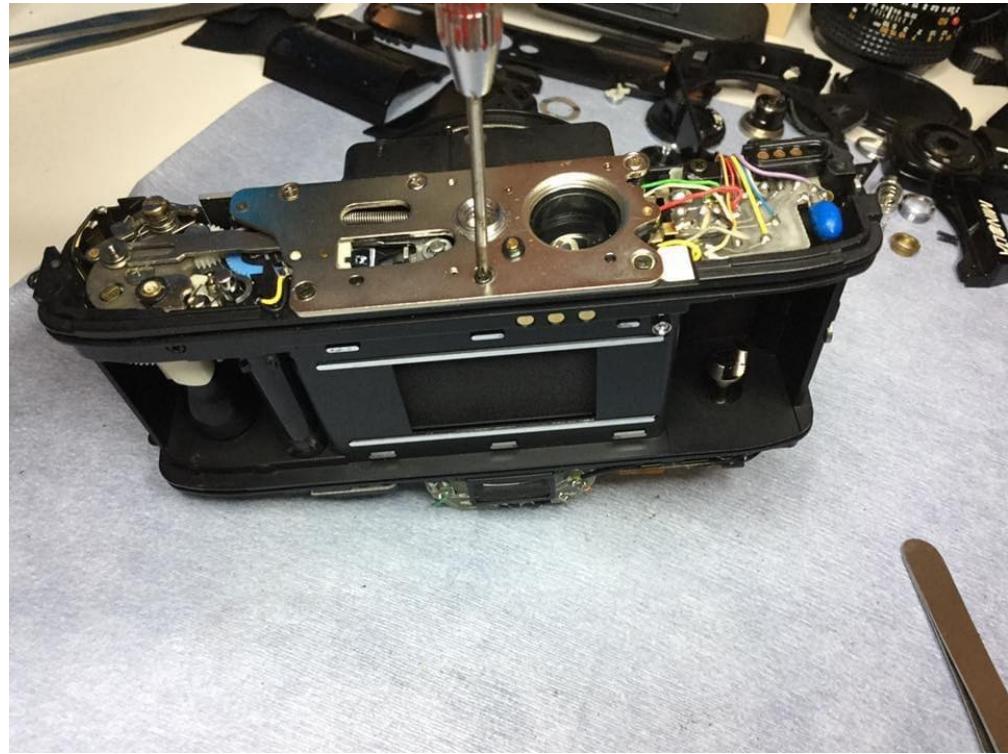
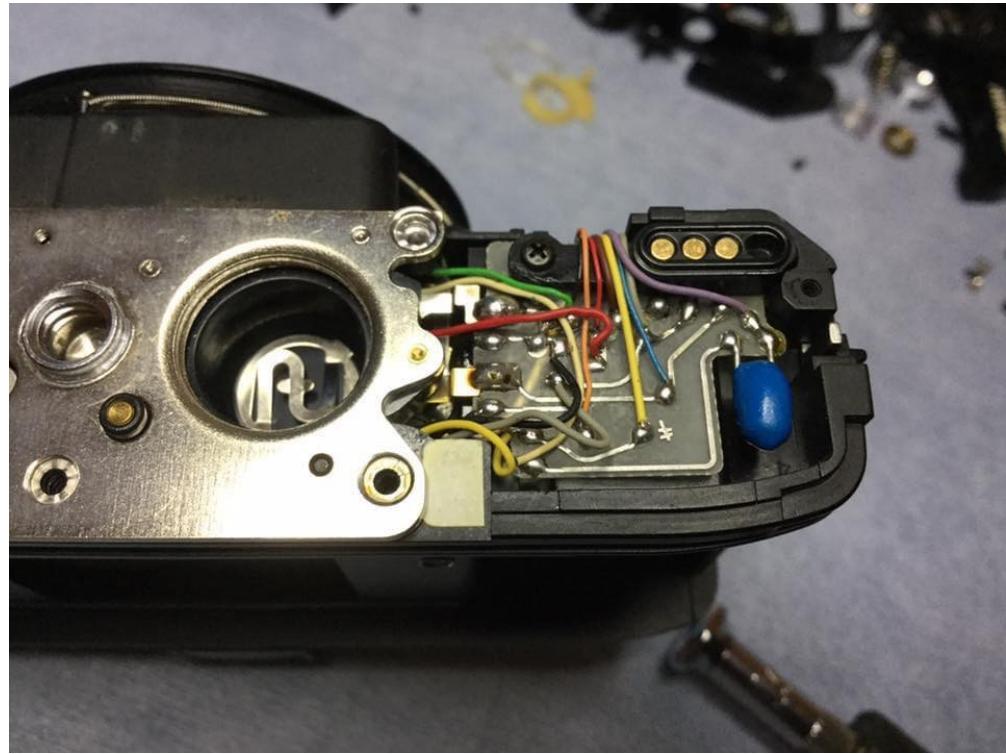


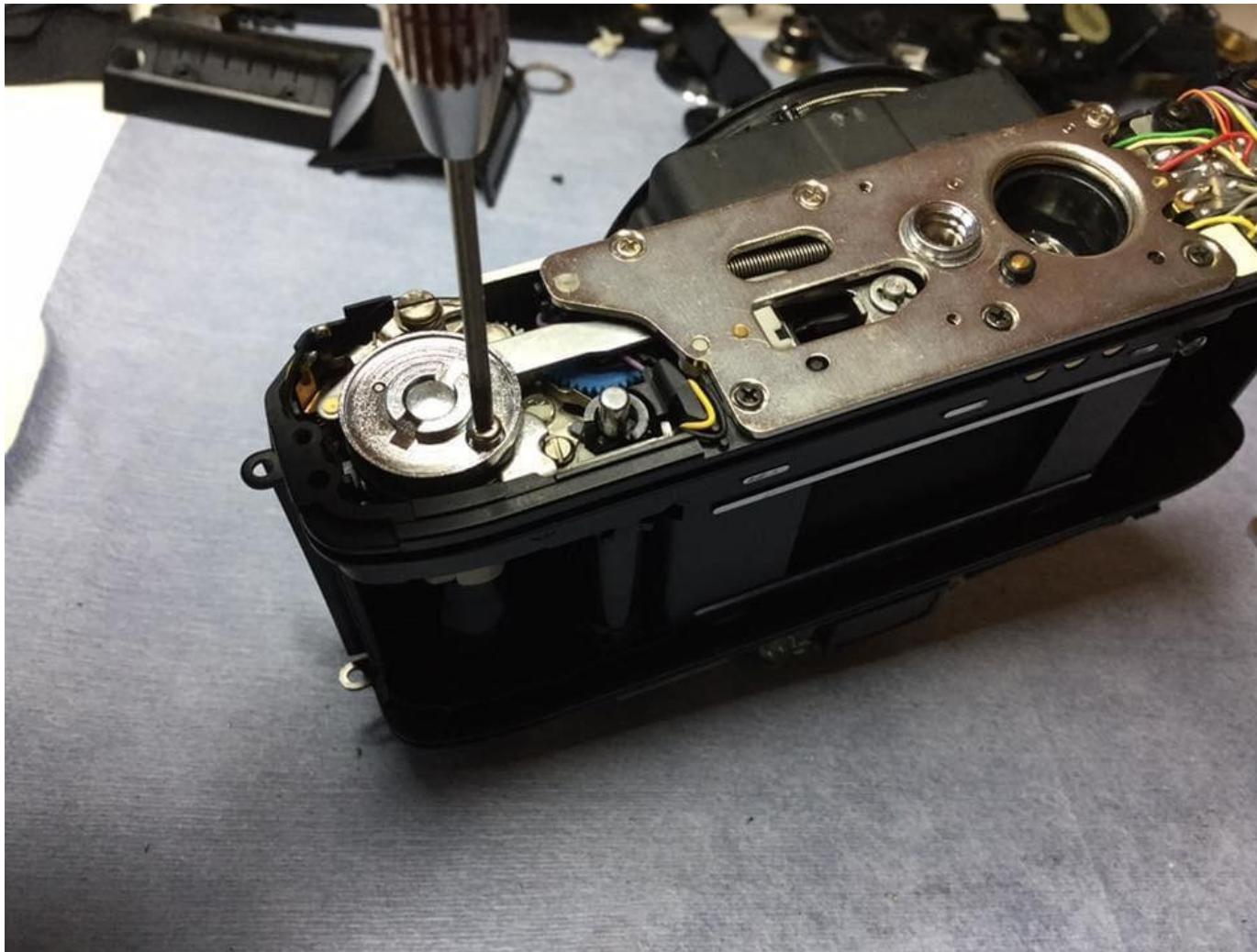












Post #21

Setting up the shutter speeds and confirming good exposure in all modes - the exposure is no longer erratic and is very consistent.





Post #22

Reassemble the front apron and covers, make sure not to pinch any wires and everything operates smoothly (buttons, dials etc...).

Clean the viewfinder and replace the lights seals (there are some faint water marks on the viewfinder fresnel screen that I'm unable to remove without risking damaging the screen).

