

## Checking Polarity:

The most reliable means of checking polarity is the use of a multimeter or test light with the car running. This can be done before you remove your original FIV. If you are not experienced or not comfortable with doing this yourself you should seek the help of a certified technician.

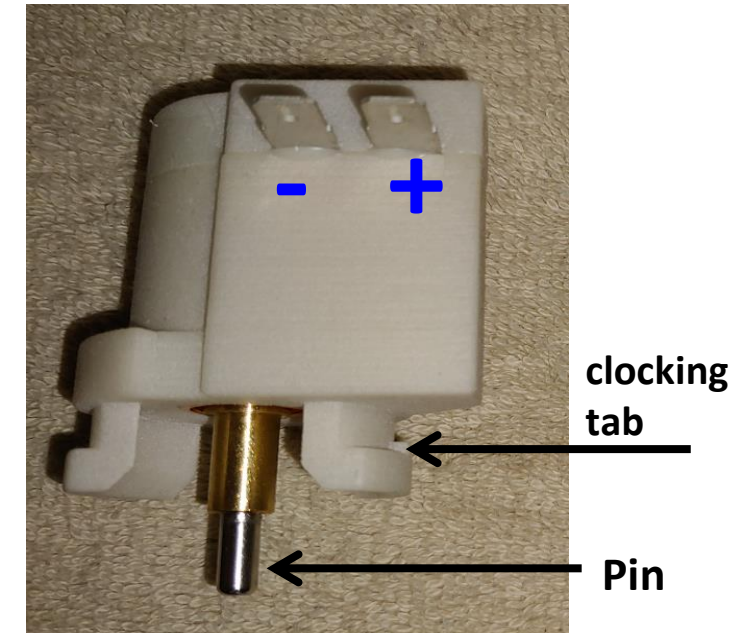
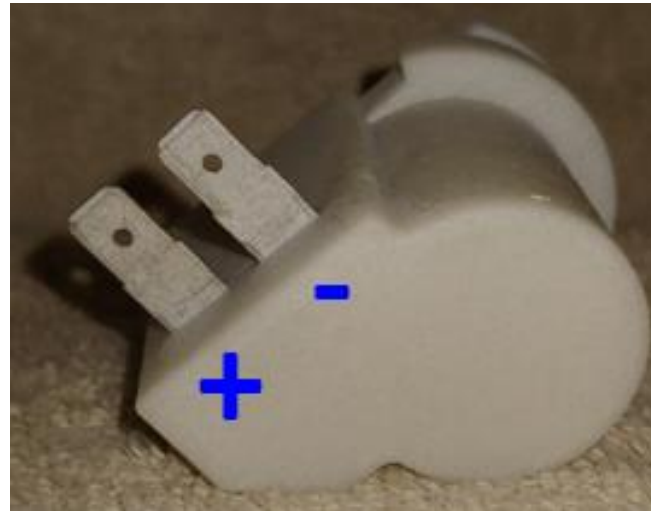
Disconnect the FIV wiring harness connector but leave the FIV installed. With the car running, using a multimeter or test light, probe one of the 2 terminals while grounding the second lead of your multimeter or test light. Repeat with the second terminal. The multimeter should show around 13.5 and 14.7 V when you probe the proper terminal. Your test light will light when you probe the proper terminal.

Once you have identified the positive terminal mark it with a piece of tape around the harness wire or use a paint pen on the plastic connector.

**Note:** The new replacement FIV has an internal diode. While it is not the primary purpose of the diode this diode will likely protect your replacement against reverse polarity. The new replacement will not function with the polarity reversed as power will be shorted to ground due to the diode orientation. The original FIV harness has a wire color difference, indicating polarity, but after 40 plus years it is often very difficult to see the color difference. In 1979 the Eldorado used dark blue for positive and black for ground.

**Note 2:** While one terminal is ground the power for the FIV runs through the fuel pump circuit and thus the resistance measured may be very similar for both wires and thus not as obvious as confirmation of the positive terminal. The FIV only receives power when the fuel pumps are running and therefore NOT constantly with key-on other than the first few seconds.

**Proper identification of polarity is required. The new FIV will not function with reversed polarity!**



## REMOVAL:

**-Air cleaner anchor stud:** Note it will not be super tight as the wingnut being tight is really the important thing. Mine has a jog in the anchor so you hand tighten only to the position which aligns the jog properly. Turn CCW and remove it. *Note: You may need to slightly rotate the FIV CW within the limit of the retaining notch.*

**-FIV Electrical plug:** Note the electrical plug orientation. The terminal closest to the FIV ~45 deg corner terminal is the positive, "+", terminal. You could mark it if you want or take a photo looking down at the top. If you are unsure which way the plug should be assembled you need to determine which is the positive terminal with a multimeter.

**-FIV:** Push down on the top of the FIV (to clear the rotational locking tab and notch on the Throttle Body - TB) and turn 90 degrees CCW (terminals will face the front of the car). You are depressing a spring to do this so while keeping pressure on it after turning 90 degrees slowly raise the FIV so parts do not go flying especially if your spring retaining clip is missing.

*Note: The FIV pushes down on a plunger and the FIV has a small pin in the end. So when you remove the FIV you need to make certain the pin didn't fall out.*

**-Observe the spring/plunger position:** If the plunger comes up a with spring pressure a couple of inches your retaining clip was either removed or is gone because of reasons we don't want to think about.

*Note: I STRONGLY RECOMMEND REMOVING THE CLIP because they can break and they can become "latched". If it becomes "latched" your FIV will do nothing (closed all of the time). The "latched" condition is specifically mentioned in the original Cadillac documentation as being a KNOWN FAILURE MODE. Its function is only to keep the plunger spring in a more controlled position during assembly of the FIV but the replacement uses an internal controller without a mechanical arm. The arm was easy to break off so possibly that's why Cadillac added the clip.*

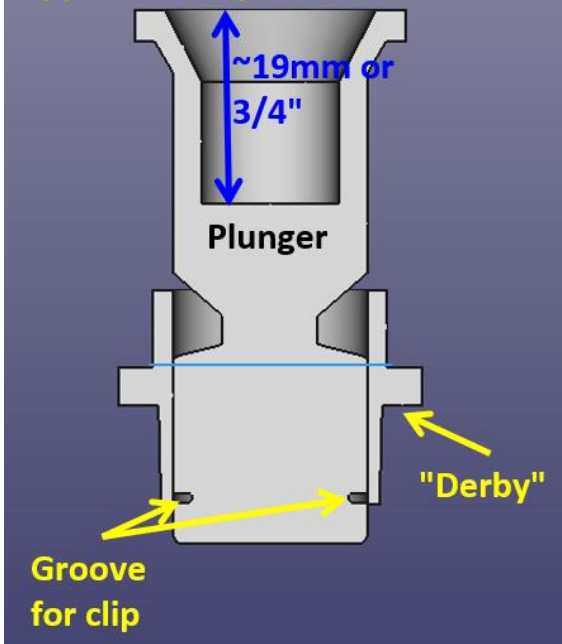
**-Remove the plunger and "derby":** If you can pull the plunger and spring out with minimal effort it's not latched. If it's not latched remove the plunger and spring. The "derby" may come out too. If not remove it. The taller side of the derby goes down and the short side up. Pay attention to how it was installed. If it's latched you should stop and check the Cadillac EFI manual "Blue book", for instructions which may mean removing the Throttle body. **Also see Note 1 to the right.**

-Remove the clip if you have one. It may even break during removal. These are stainless steel clips and the legs can be brittle and they are hard so nothing which should be lost in the intake manifold.

**-Clean plunger and "derby":** Clean the plunger and the derby so they slide in/out of each other without getting stuck. Carbon will build-up where airflow escapes between the two parts and if your FIV hasn't been working or has been working but with only partial travel there is likely carbon build-up in an area where it can, and will likely, cause enough sticking that the plunger won't slide back out once the FIV actuator cools. That happened to me before I cleaned mine. If that happens you will have no high idle EVEN THOUGH THERE IS NOTHING WRONG WITH THE FIV.

**Note 1: Verify your plunger pocket depth. A common compensation for a bad FIV involves inserting a spacer at the pocket bottom to reduce the required pin extension. The original plungers do have a silver colored metal disk at the bottom so you need to measure the depth to know for certain if someone has added something. If something was added it needs to be removed.**

**Verify plunger pocket is approximately 3/4" or 19mm**



## ASSEMBLY:

**-Derby/ spring/plunger:** Insert the derby with the longer side down/ shorter side up. Place the spring over the derby. Place the plunger inside the spring.

*Note: DO NOT FORGET TO ASSEMBLE THE PLUNGER!! Failure to do that and you will likely have a pin in your intake manifold if it slips out of the FIV. They are held by friction/surface tension and can come out. Once installed they are trapped by the plunger and FIV.*

**-FIV:** Align the FIV 90 degrees CCW to final position (terminals facing the front of the car); depress the FIV and turn CW, 90 degrees, once the FIV is depressed. There is a "nub" or locking mechanism for rotational location. You are depressing to clear the nub. You may need to feel for a "sweet spot" in depressing the FIV. DO NOT FORCE IT IF IT DOES NOT WANT TO TURN IT JUST TAKES A LITTLE FINESE. Once it's in the correct position allow the FIV to come up a few millimeters (around 1/8").

*Note 2: BEFORE YOU INVERT THE FIV VERIFY YOU INSTALLED THE PLUNGER . Pay close attention to the pin in the FIV. I normally place my finger on the side of the pin to keep it in place for as long as I can. Once the FIV is squarely down over the plunger the pin will be trapped.*

*Note 3: You can gently rotate the FIV once in place and you can feel the nub touching in both directions to know it's in the correct place.*

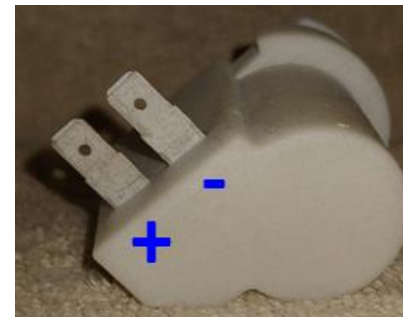
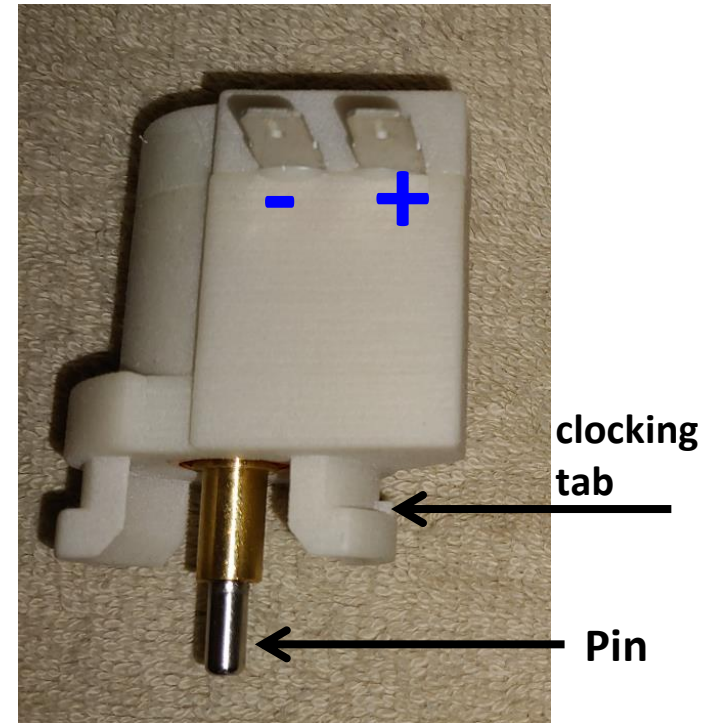
**-Air cleaner anchor stud:** Rotate the FIV slightly CW **within the nub notch** to give yourself the best clearance for the air cleaner anchor. Thread the anchor in. Do not expect the anchor stud to be tight. The wing nut keeps everything tight. The replacement FIV is a little taller than the original so if you feel the FIV is a little tall to thread the anchor in simply depress the FIV down slightly while threading the anchor rod. The anchor will clear the FIV in the final position.

**-Electrical connector:** Plug the electrical connector plug back in making sure "+" is on the terminal more closely aligned with the 45 degree corner of the FIV.

**-Idle screw adjustment:** You will need to verify and adjust your idle RPM screw at the front of the TB once you have installed the new FIV. I normally recommend starting with 3-3.5 turns CCW from full closed. Check the position visually with a flashlight from above before you change anything and then count the turns to close from your original position to establish your original reference point (which someone may have changed due to a failing FIV).

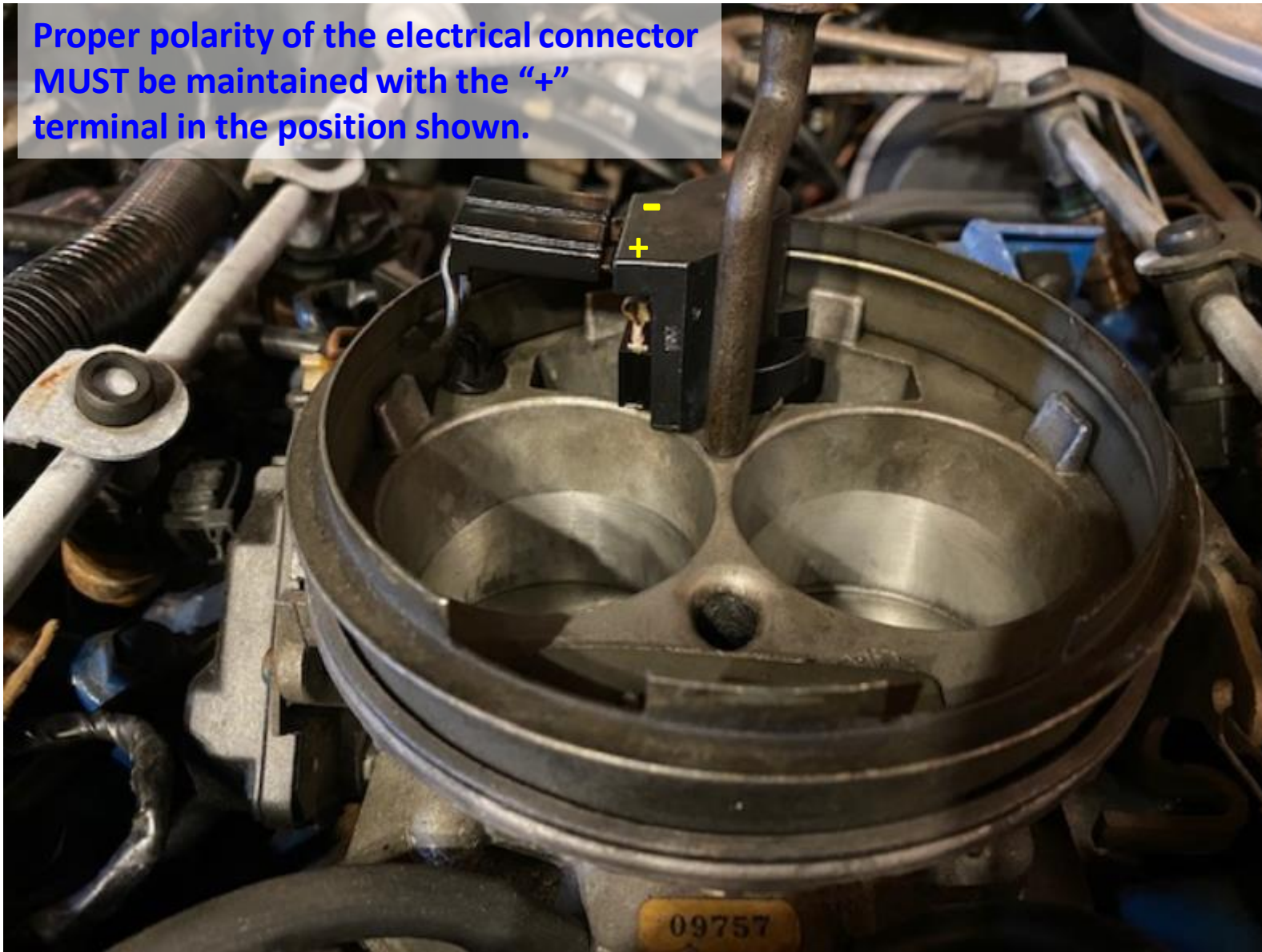
Replace your air cleaner and don't forget any tools under hood.  
You're now done.

Document date: 10JA2021 "punched455" on eBay





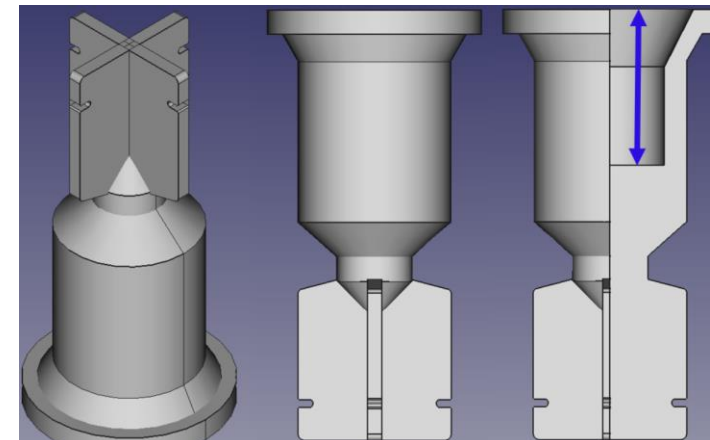
**Proper polarity of the electrical connector  
MUST be maintained with the “+”  
terminal in the position shown.**



Note 4: The air cleaner lid rod will likely not be in the proper position fully threaded. Back-off until it is properly aligned. The wing nut will ensure tension on the rod and that's all that is required.



**Note 5: There is a polarity to the electrical connector. This MUST be maintained with the “+” terminal in the position shown. If you don't know which terminal is positive you MUST verify it else you may damage the new FIV.**



Verify  
0.750"  
(19mm)  
Depth  
prior to  
assembly