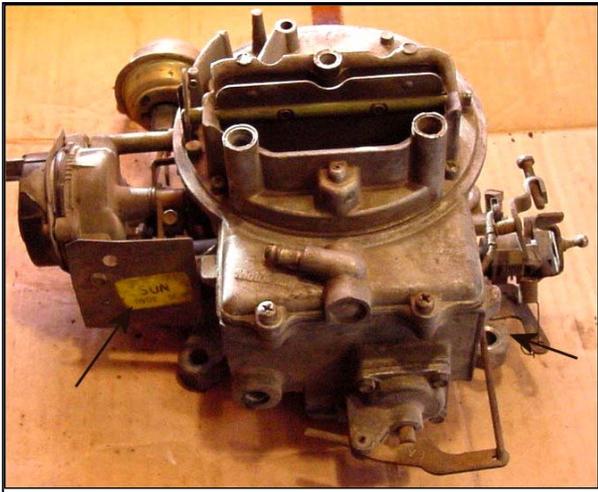


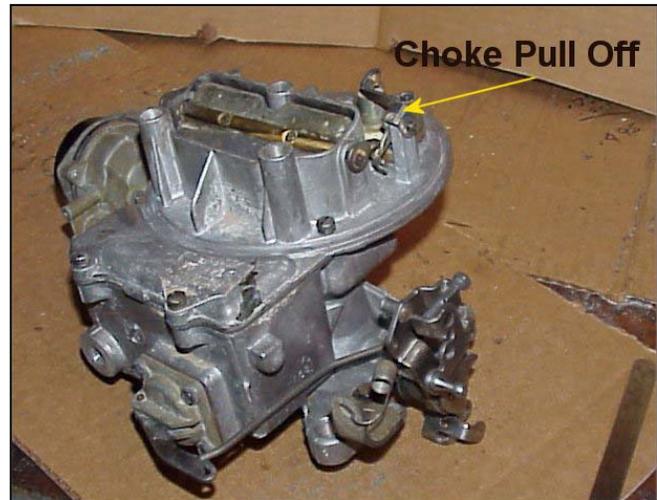
# Motorcraft 2150/2100 Carburetor Rebuild

These instructions can be used on the 2100 and the 2150. On the 2100 you will not have the metering rods in the venturi cluster assembly. The choke pull off on the 2100 can be located either on the back half - on top of the carburetor or the same as the 2150.

2150



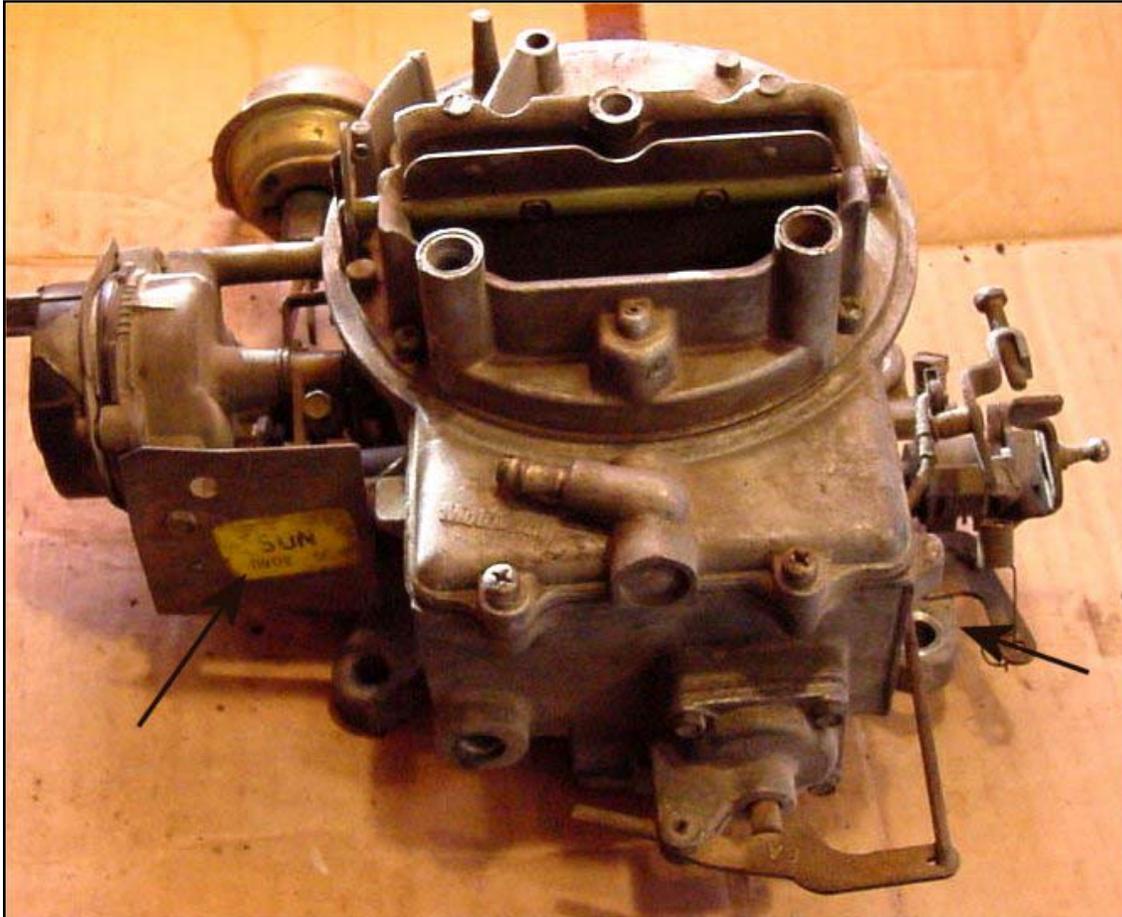
2100



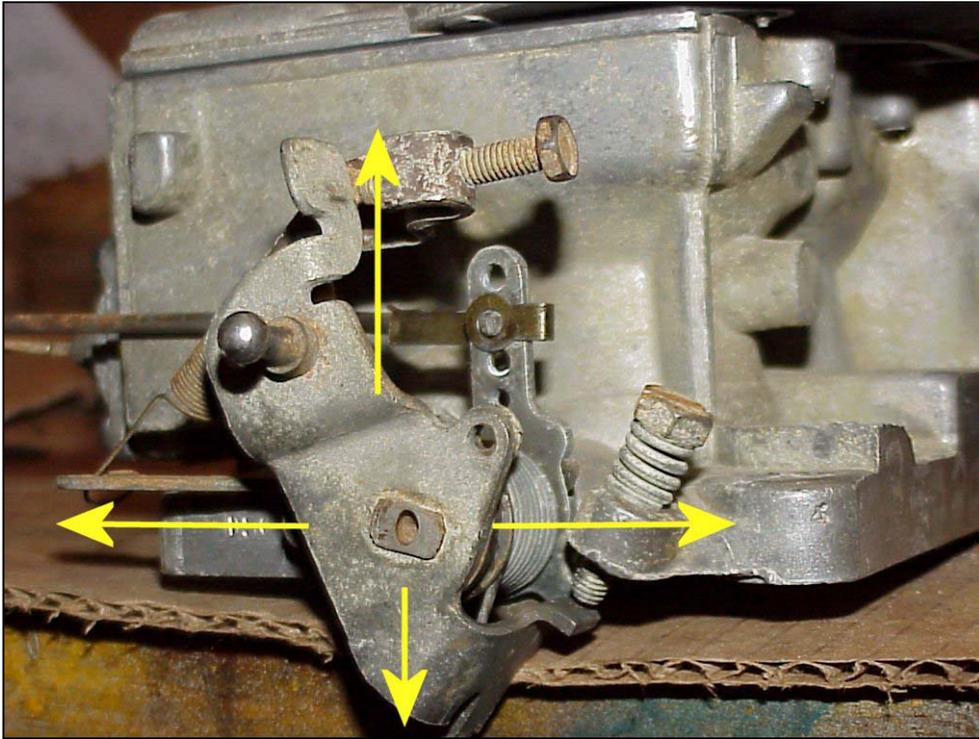
**Overview:** Gasoline and air travel through many small passageways inside the carburetor. Over time these passageways may become blocked with dirt or residue from evaporated gas if the car has been sitting for an extended period. The result is poor operation and decreased gas mileage. Rebuilding the carb entails taking it apart, soaking it in carb cleaner, blowing **out all of the passages** with compressed air, reassembly, installation and adjustments. A few small parts are also replaced during reassembly along with all of the gaskets.

## **Step 1- Remove The Carburetor From Your Car**

Check for the numbers on the carburetor to make sure your parts store as a kit. On this particular carburetor the numbers were in two places. Be sure when dismantling the carb you remove this type of choke cover that has a number so it won't be evaporated when the carburetor is cleaned. Another thing to check for if this is a carburetor you picked up, it is a 1.08 venturi size (see carb ID section)

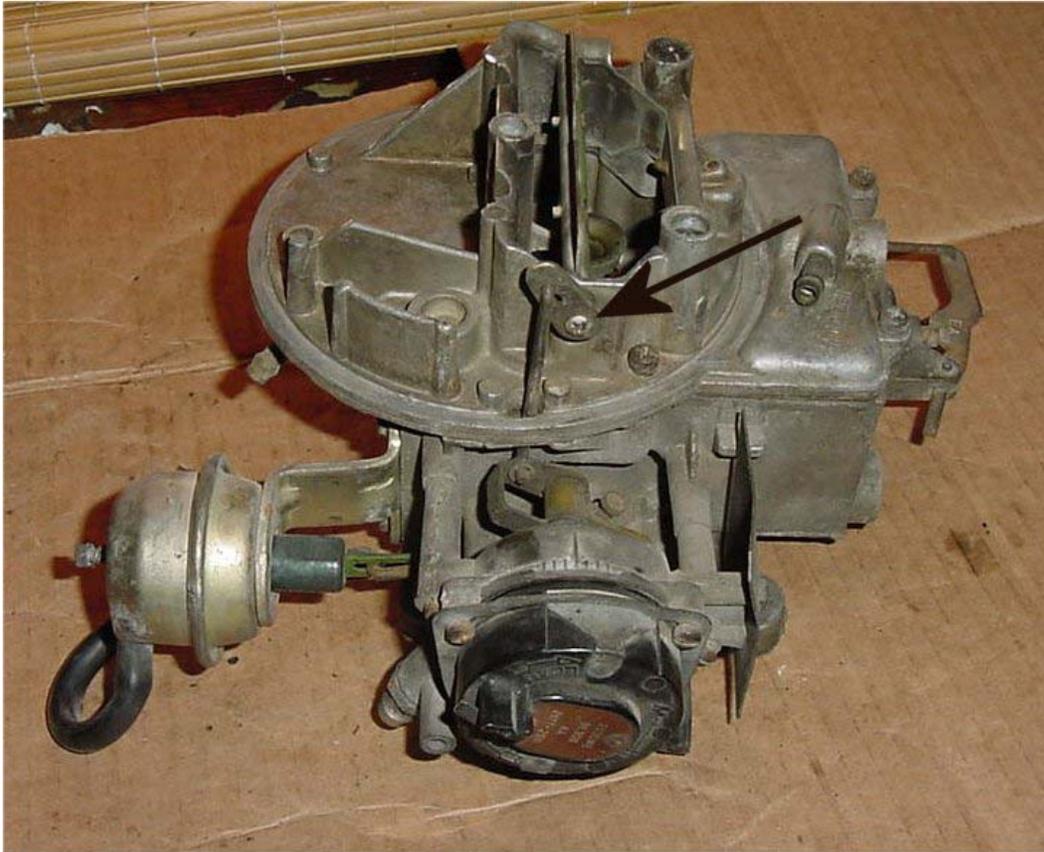


One thing to check before your rebuild is to check the play in the throttle plate. Try moving the throttle lever side ways and up and down. If there is a lot of play, you might need to look for another carburetor. I have only seen this on two carburetors.

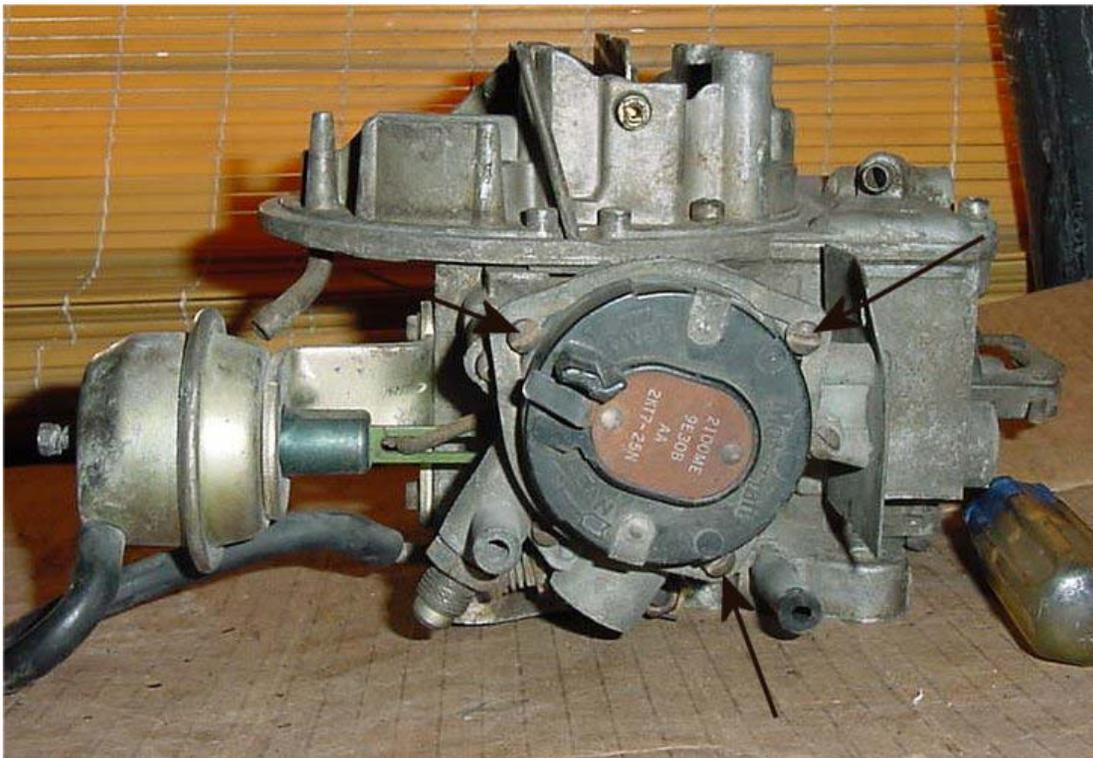


**Step 2 - Dismantle The Carburetor.**

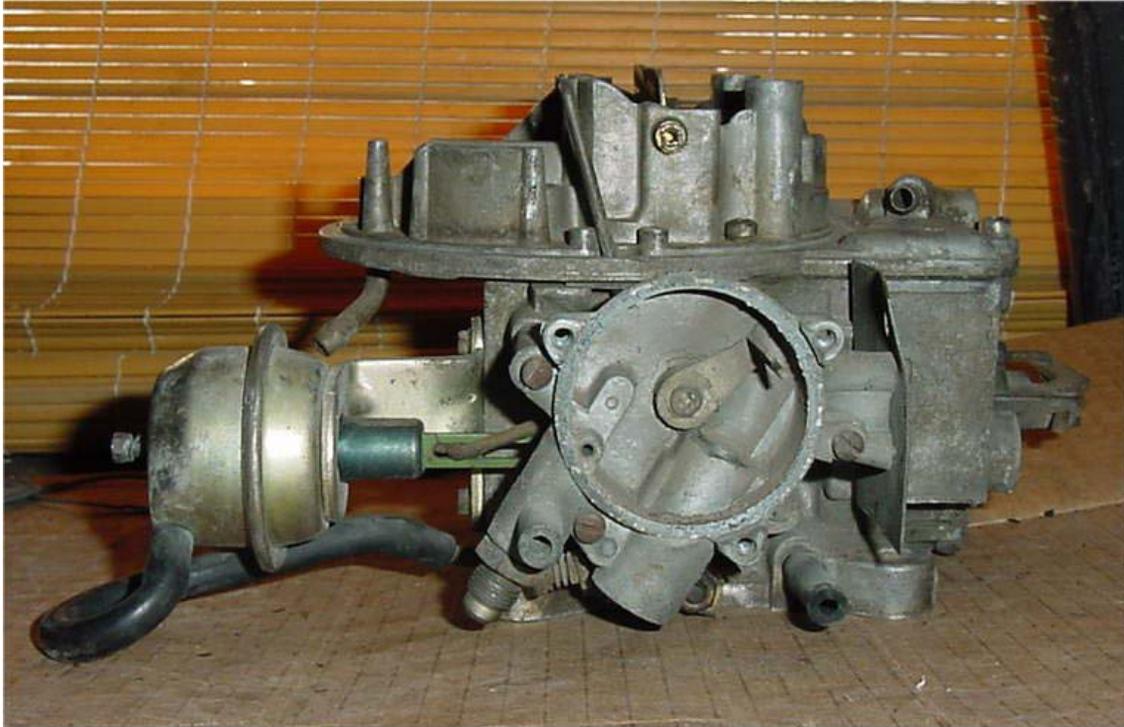
Remove Choke Lever and remove it from the rod.



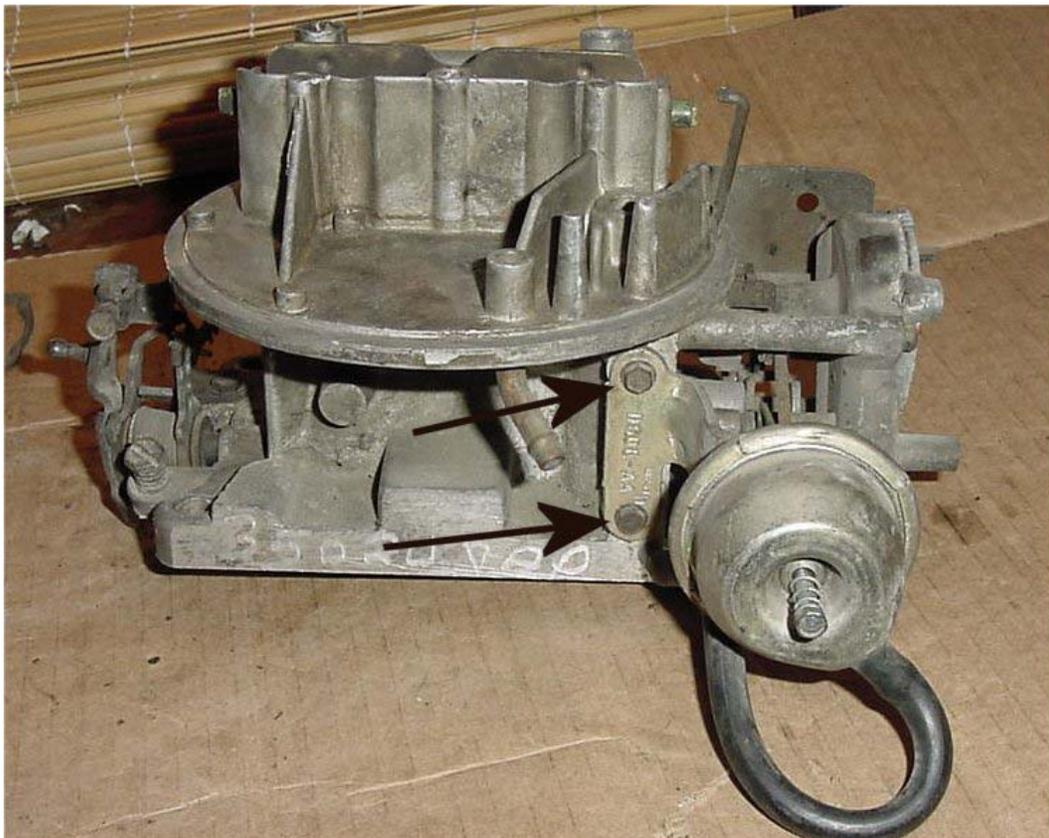
Remove the choke (black plastic piece) by removing the three screws and clamp



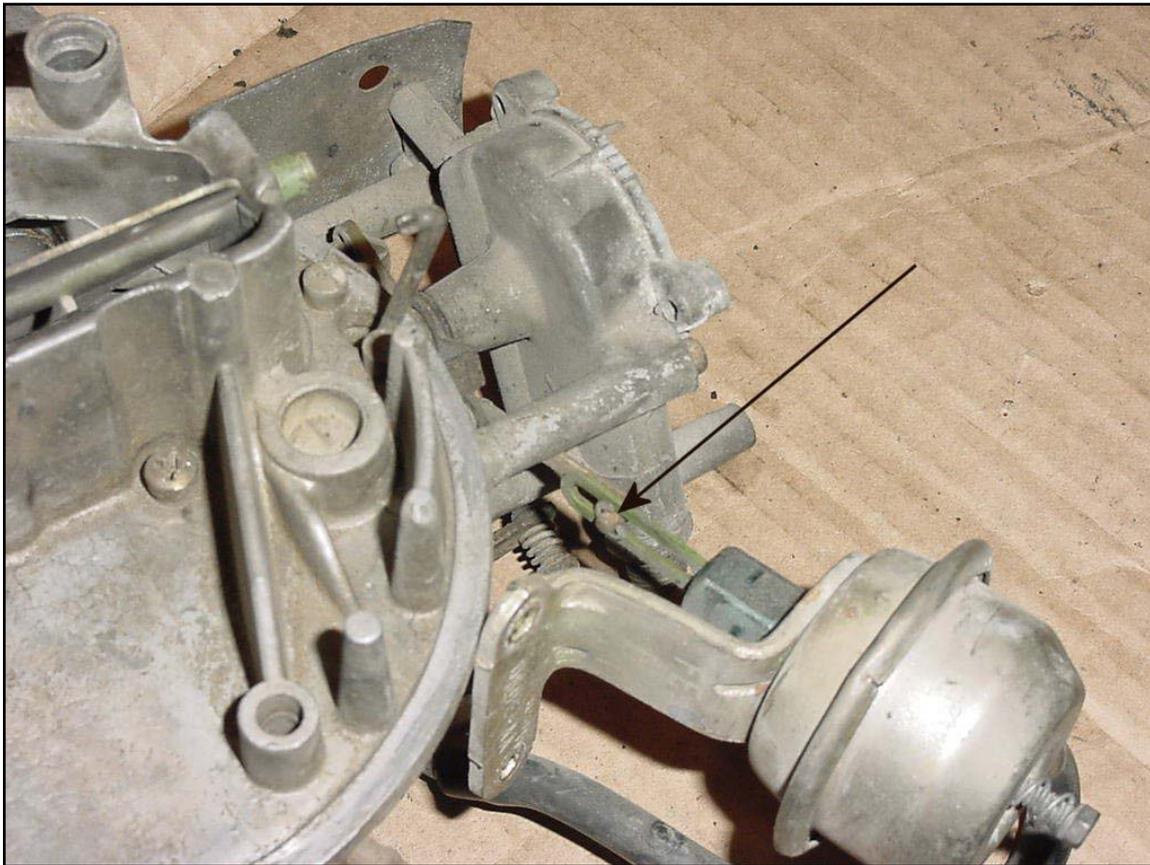
Choke housing removed. The next step is an option, there is a small gasket behind the choke housing. To get to it, you will have to remove the three screws the holds the housing to the carburetor. This can be a big mess when putting back together. I usually don't replace the gasket and leave the housing attached when cleaning the carburetor. Just tighten the three screws after cleaning.



Remove the two screws that holds the choke pull off to the carburetor

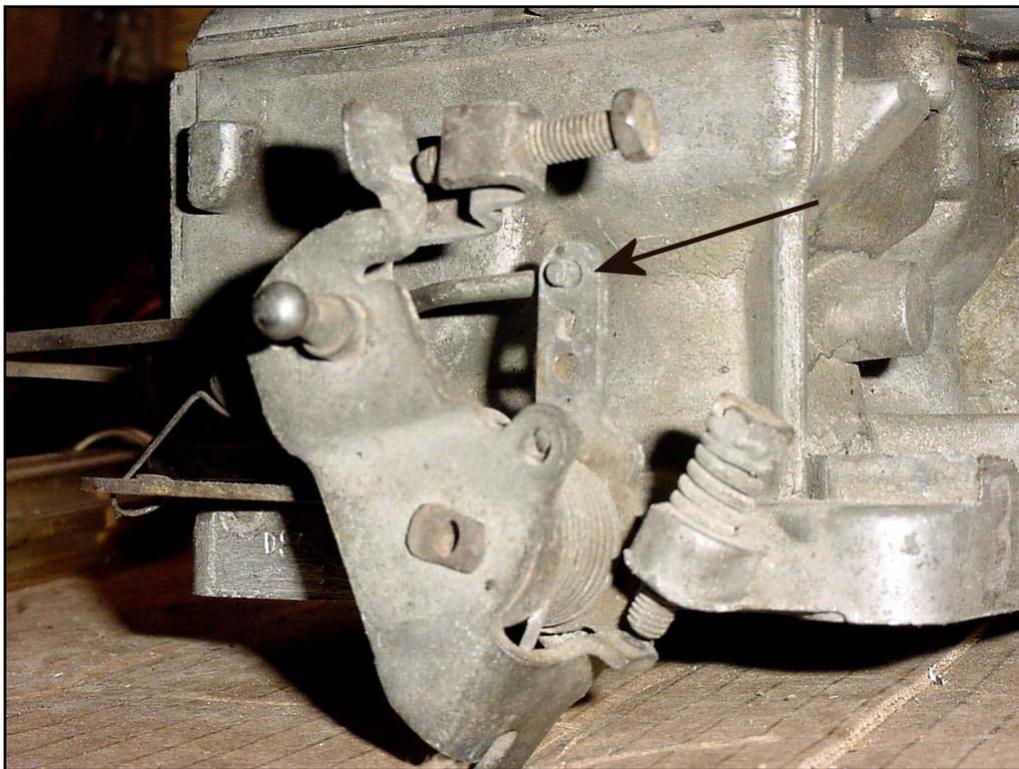
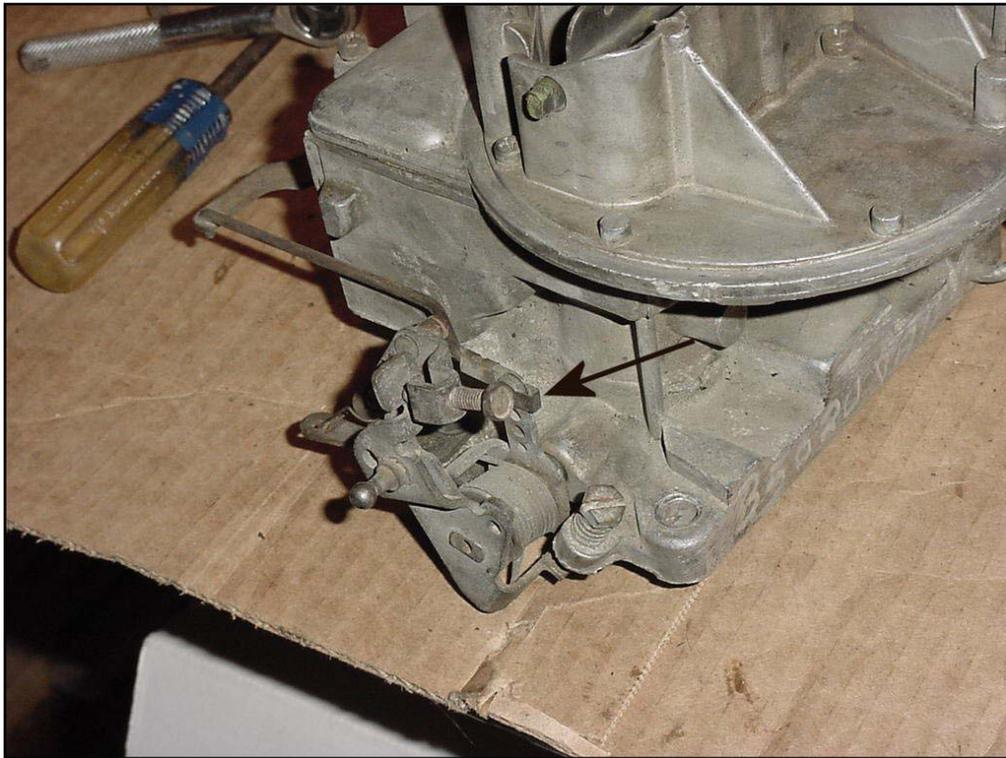


Remove the C-Clip that the choke pull off rod to the choke pull off. Remove the vacuum line and remove the unit from the carburetor.

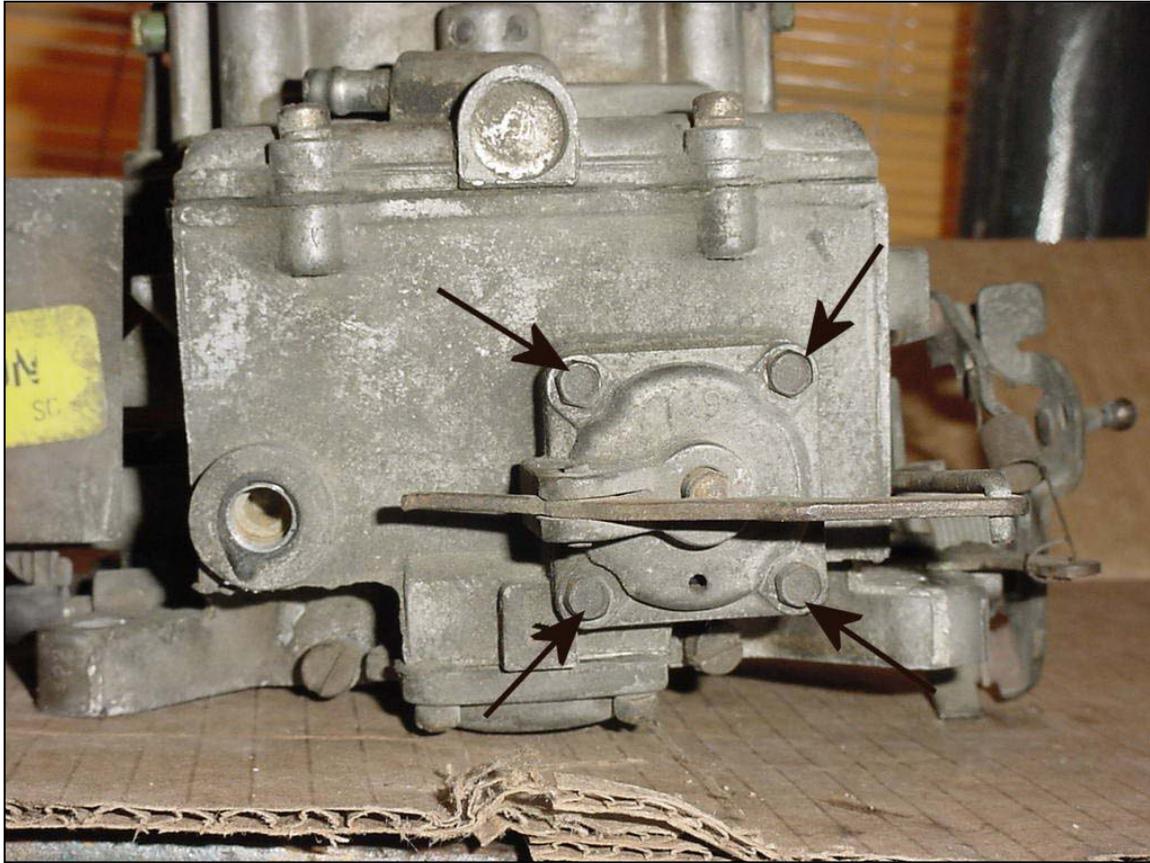


This would be a good time to make sure the unit is good. Wipe the end of the vacuum line and use your suction to see if the unit pulls in. If it does not pull in, replace the unit.

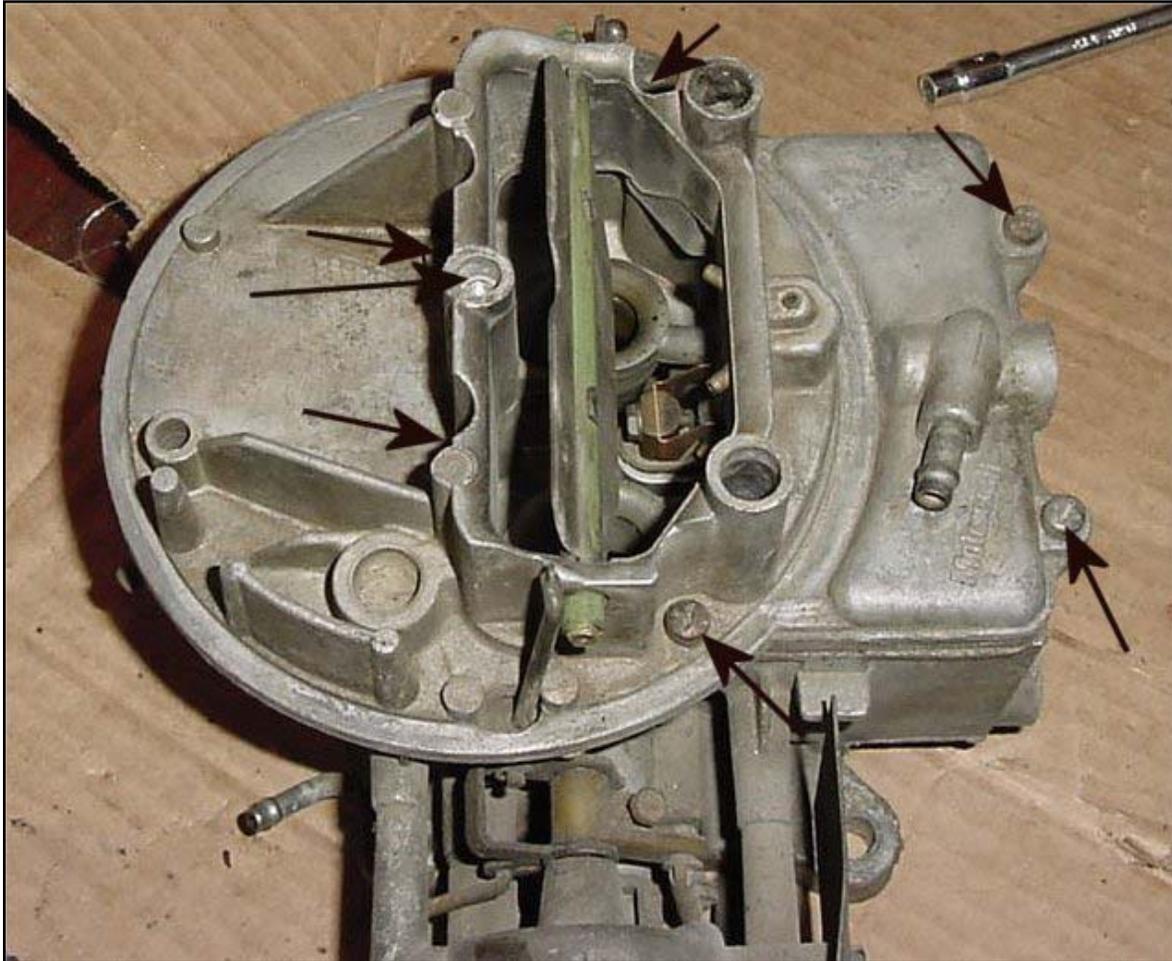
Remove the accelerator rod. Take note of which of the holes it was removed from. Usually the manual states on a 302, it should go into the third hole (1<sup>st</sup> hole is the bottom). The one in the picture is in the wrong hole.



On the front of the carb remove the 4 screws for the accelerator pump. Inside the pump there should be a diaphragm type element and a spring. There is also a rubber plug attached to the base of the carb (remove later).



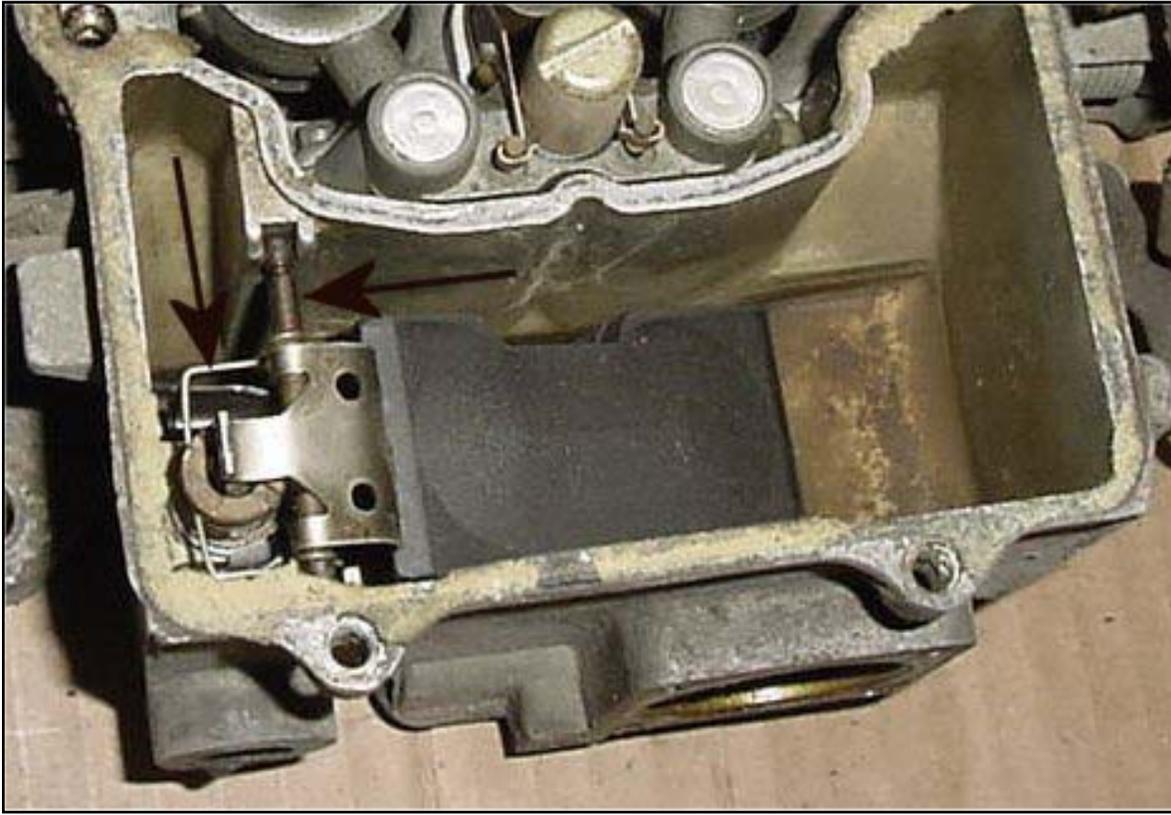
Now remove the top by removing the top screws. Sometimes there can be 4 or six screws. You also have to remove the thread rod that goes through the center of the carb that the wing nut screw on to hold down the air cleaner. Pull top straight off. You might have to tap it a few times to break it loose.



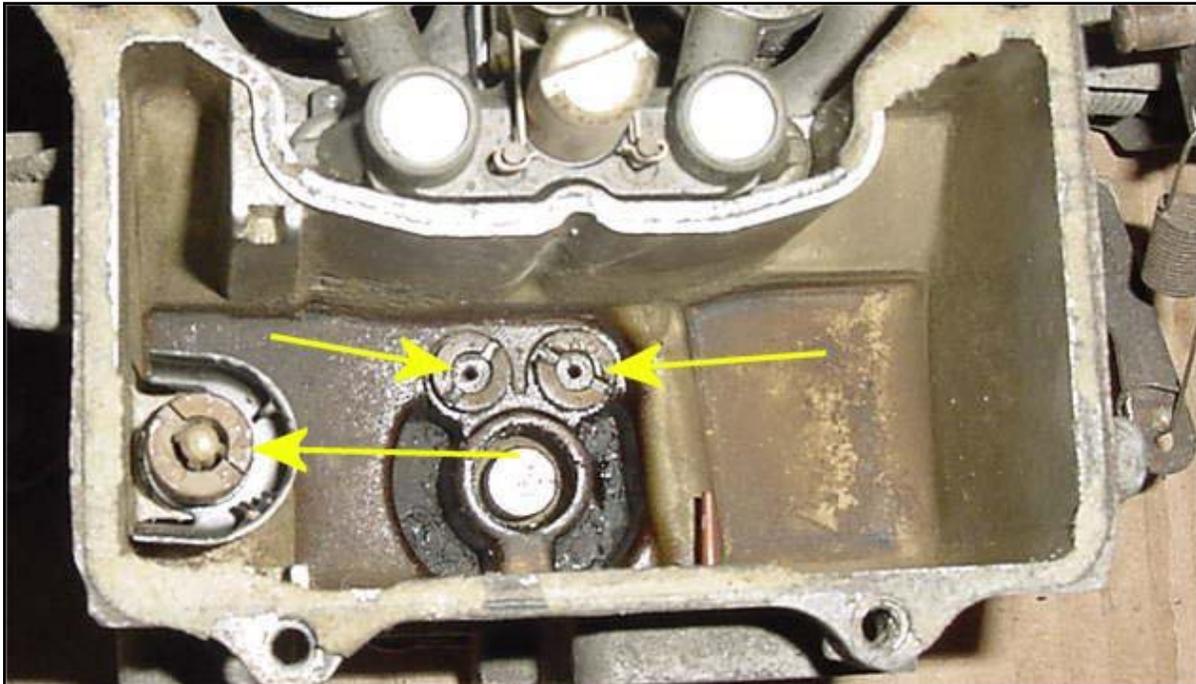
You will note in this picture that the top gasket is destroyed. Go ahead and try and match up the new gasket with what is left of the old. Be sure that all the holes match.



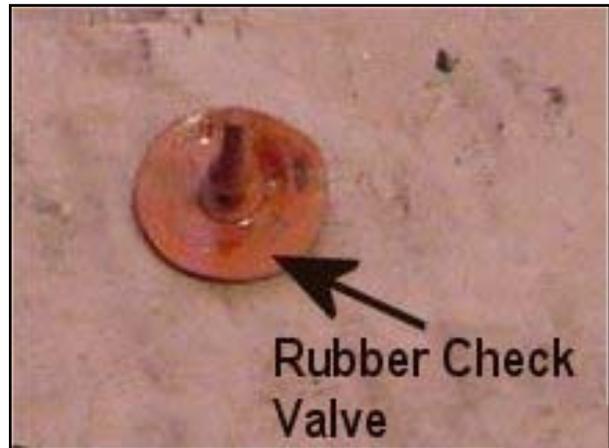
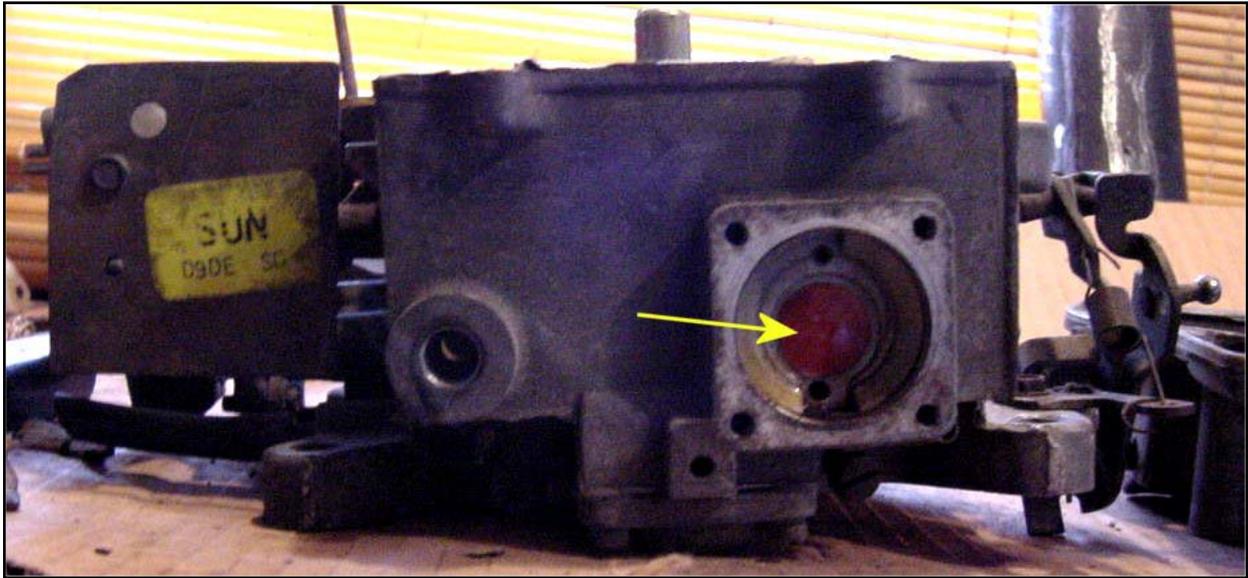
Remove the carb internals starting with the float. The rod that holds the float is secured by the wire clip that runs behind the needle seat. Use a pair of long nose pliers to remove the wire clip and the rod with the float can then be removed.



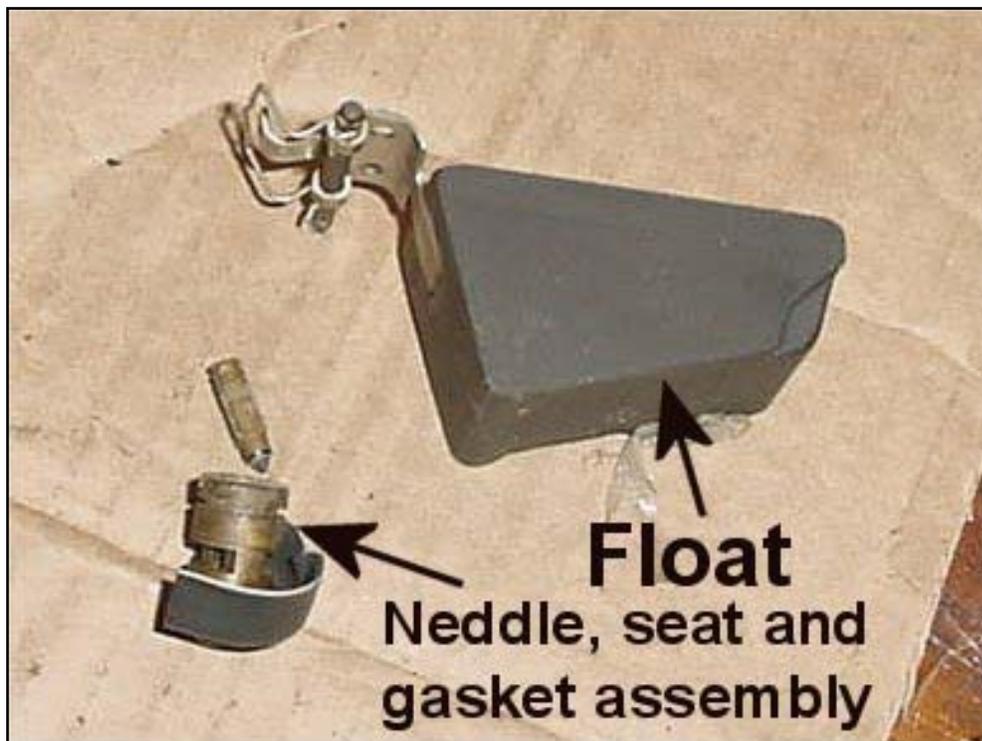
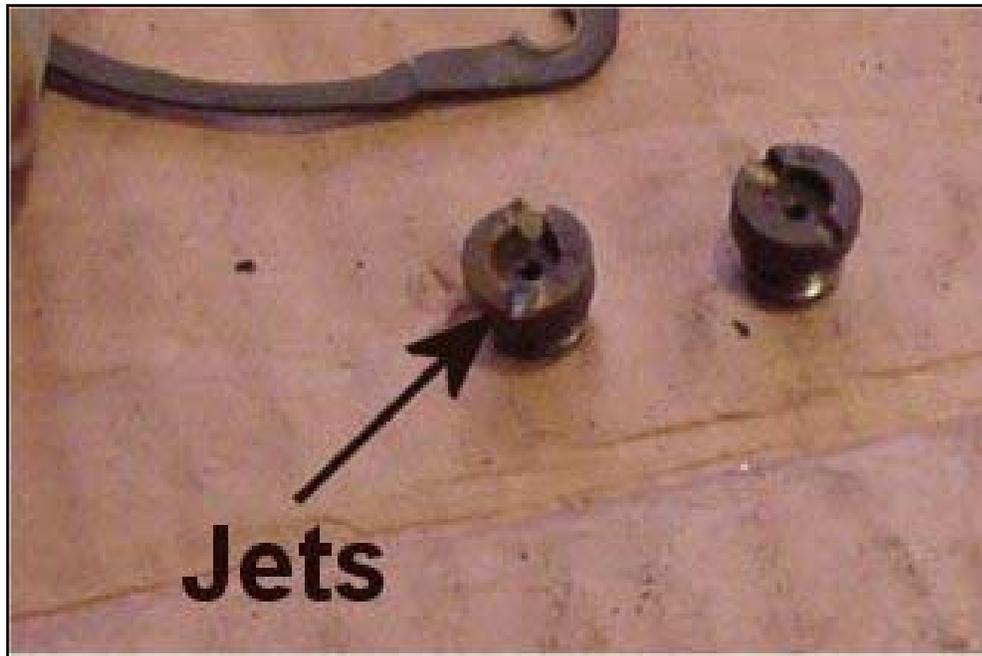
Remove the seat and gasket assembly and the two jets. It is best to use a BIG screwdriver when removing these parts. They are round and slotted. You can remove them with a flat bladed screwdriver but BE CAREFUL. They're made of brass and the slotted portions strip easily. Again, using the biggest screwdriver you can find to maximize torque and minimize the chances of the blade slipping from the slot.



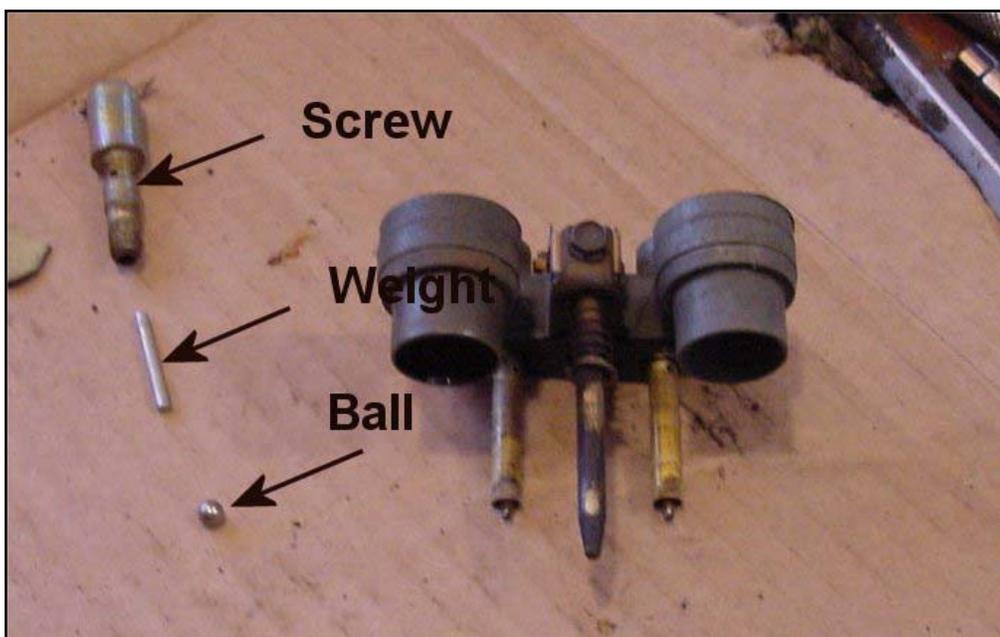
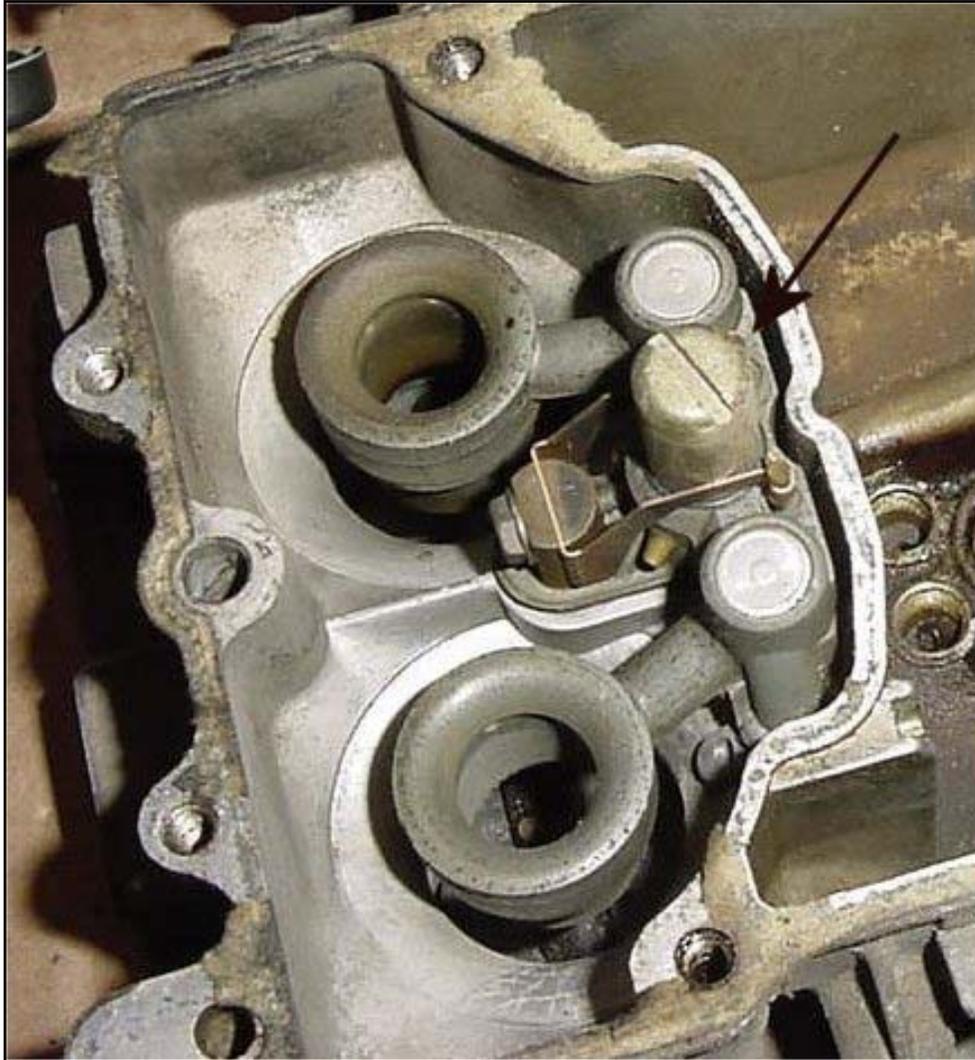
Now carefully remove the rubber plug that was behind the accelerator pump and sticks into the float bowl. If you can remove this without tearing, it is a big bonus unless it is rotted or tore. If it comes out ok, dip it into some oil and keep in your tool box incase you need it in the future. I believe to get this rubber plug, you have to buy a new carburetor kit. Also keep and gaskets that looks good.



Parts you just removed from the inside the carburetor.

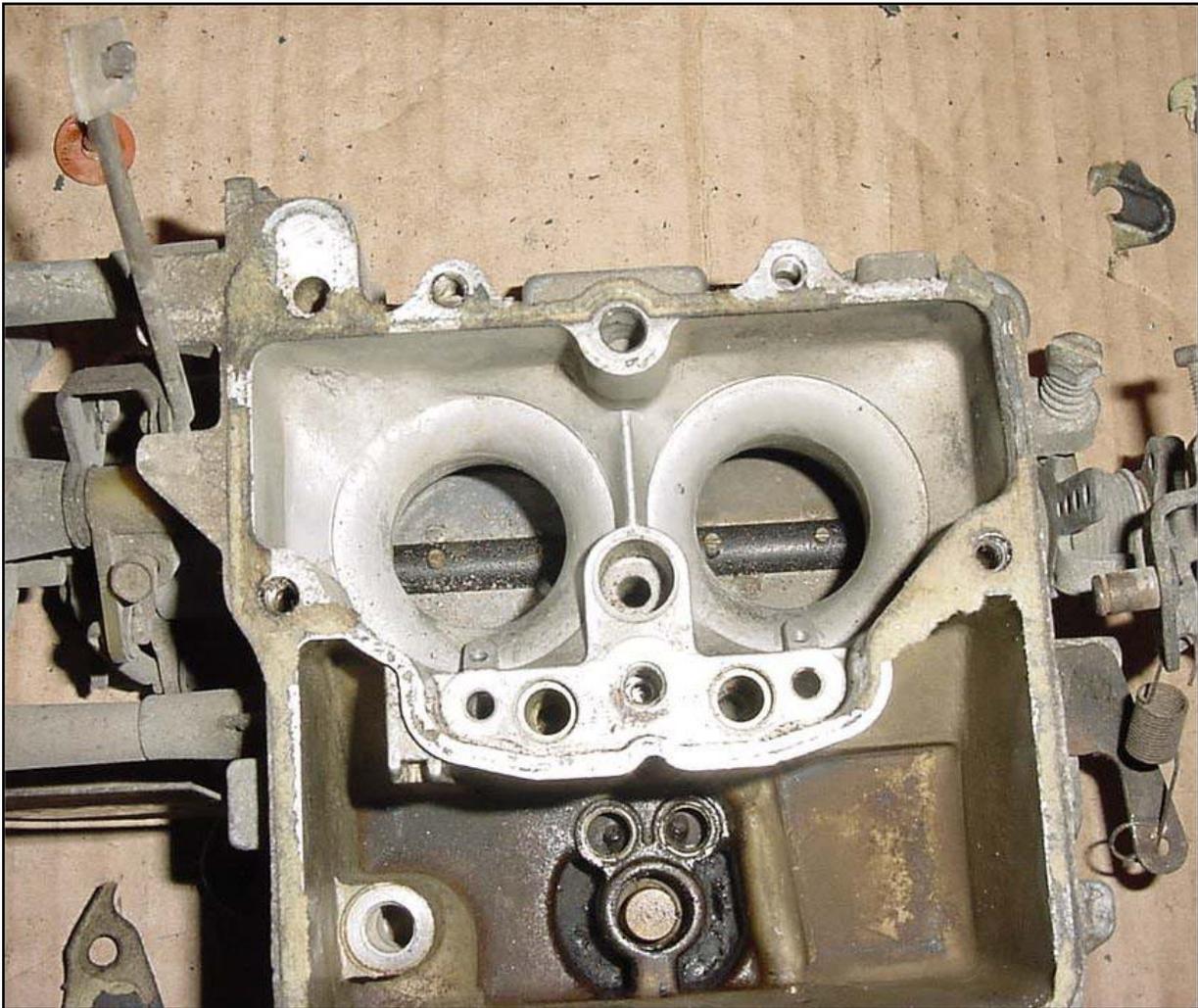


Remove large screw and remove the venturi cluster assembly, weight and discharge check ball. You might have to turn the carburetor over and tap it a few times for the check ball to fall out.



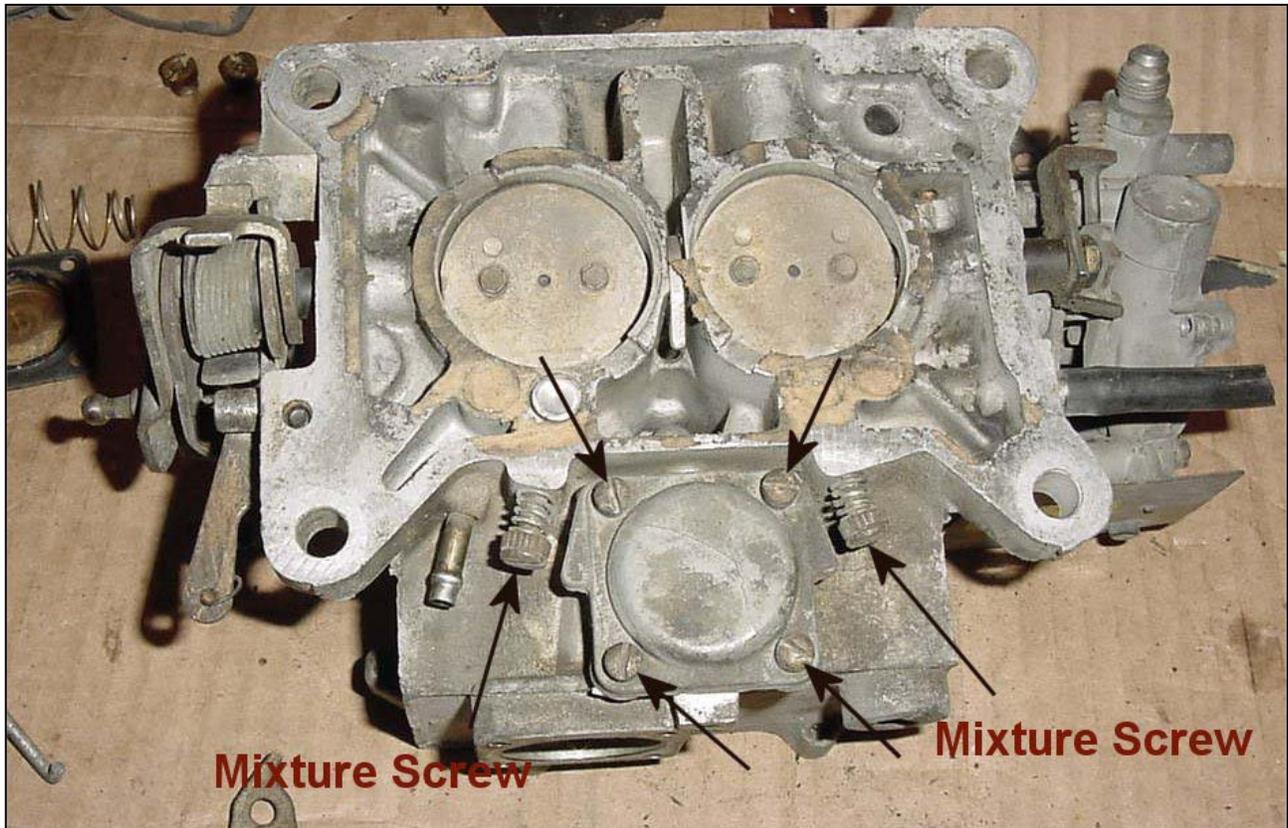


The inside of the bowl after everything is removed.



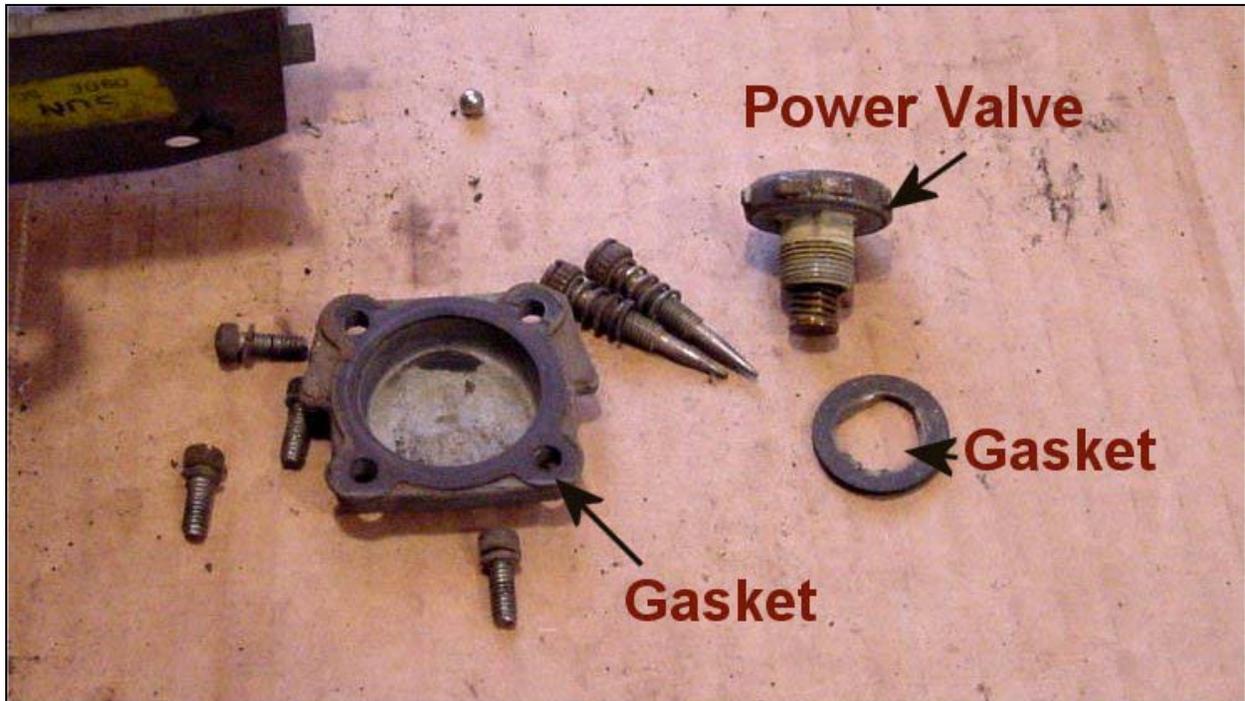
Flip the carburetor over and remove the fuel/air mixture screw. Some people note how many turns it takes to remove them such that they can be put back at the same position when the carburetor is reassembled. I would do this as a backup measure in case there is difficulty setting the idle mixture per the shop manual method. Also remove the 4 screws that hold the power valve cover.

**NOTE – DON'T remove the throttle plates, which open and close with the throttle, for two reasons: 1) You have to be careful when you put them back on such that they are fully open with wide open throttle and fully closed at idle and 2) if they're not put on tight enough there is a chance you can damage your engine if the screws come loose and work their way into your engine. I do make sure the plates are open when I soak the carburetor to ensure the cleaner works into the passages near where the plates sit when they're closed.**



Now take a 1" wrench or crescent wrench and unscrew the power valve.





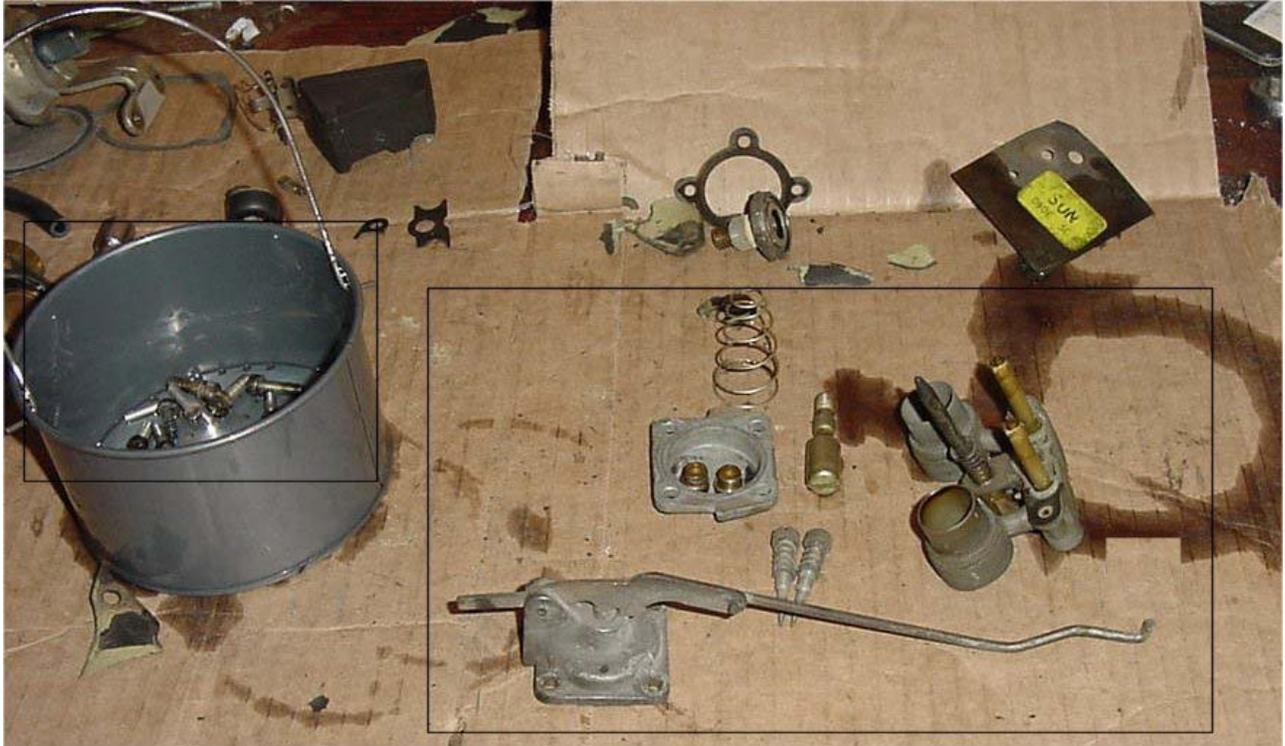
**Step 3 - Soaking the Carburetor in Cleaner** – I chose to buy the carburetor parts cleaner from Advance Auto. The metal container is so small, I have no ideal what carburetor would fit in it. I went to Lowes and bought a 2 gallon plastic bucket and poured the cleaner into it. The cleaner has been in this plastic bucket for about a month now and has not leaked or softened up. You can pour the cleaner back into the metal container when finish. This is up to you and I take no responsibility for any messes if your bucket decided to leak.



**All plastic pieces, choke, float, pull off valve, power valve, and gaskets should not be soaked.**

Makes sure the throttle plates are open to let the cleaner get into the passageways in the barrels. You really only need to soak the main body of the carb, top, venturi cluster and choke housing and all bolts and screws (everything in the picture that has a square around it should be soaked along with the main body). Arrange the parts such that this happens. Keep this in mind when looking for a bucket as buckets that are too wide may not result in not enough depth when the carburetor cleaner is poured in.

Wear rubber gloves when dealing with the carburetor cleaner. It's nasty stuff. The cleaner should be poured outside or in the garage as the fumes are terrible. Let the parts sit in the cleaner overnight.



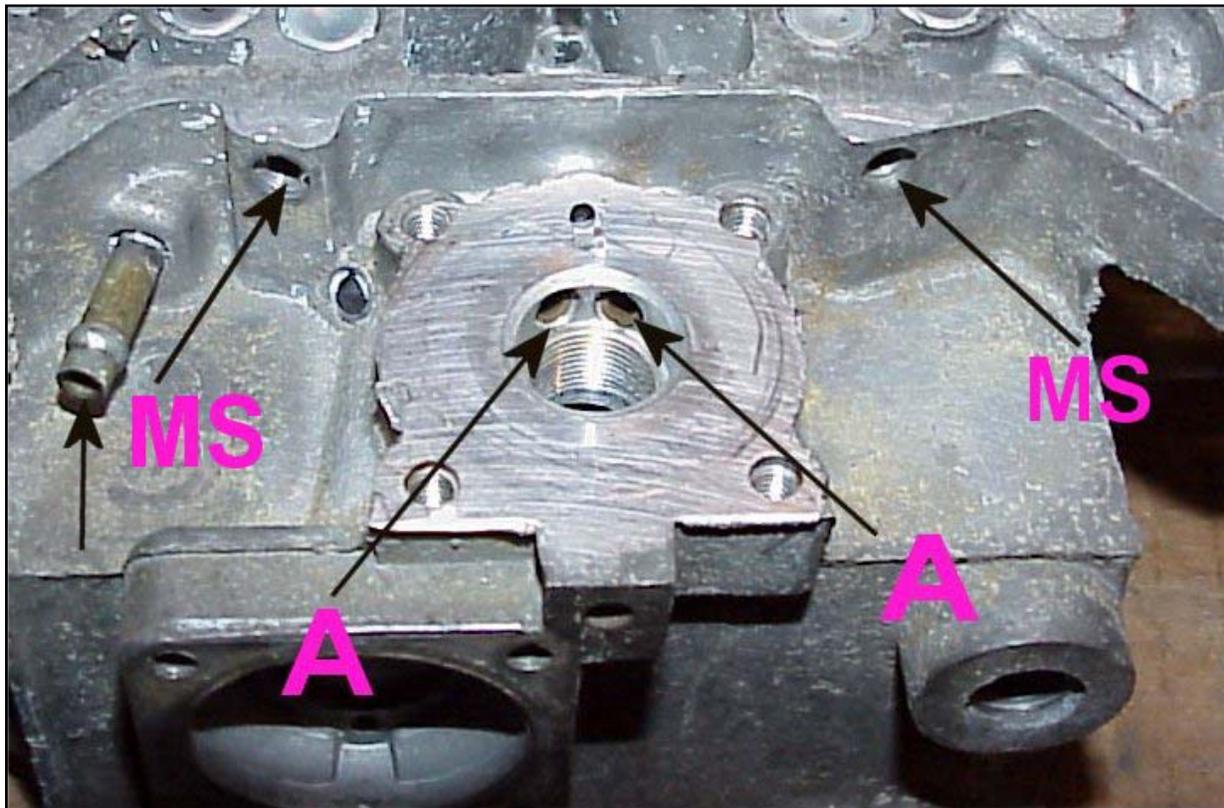
**Step 4 - Blowing Out the Air Passageways** Wear rubber gloves here as you'll be picking up parts that were sitting in the cleaner. Protective eyewear and something would also be advised.

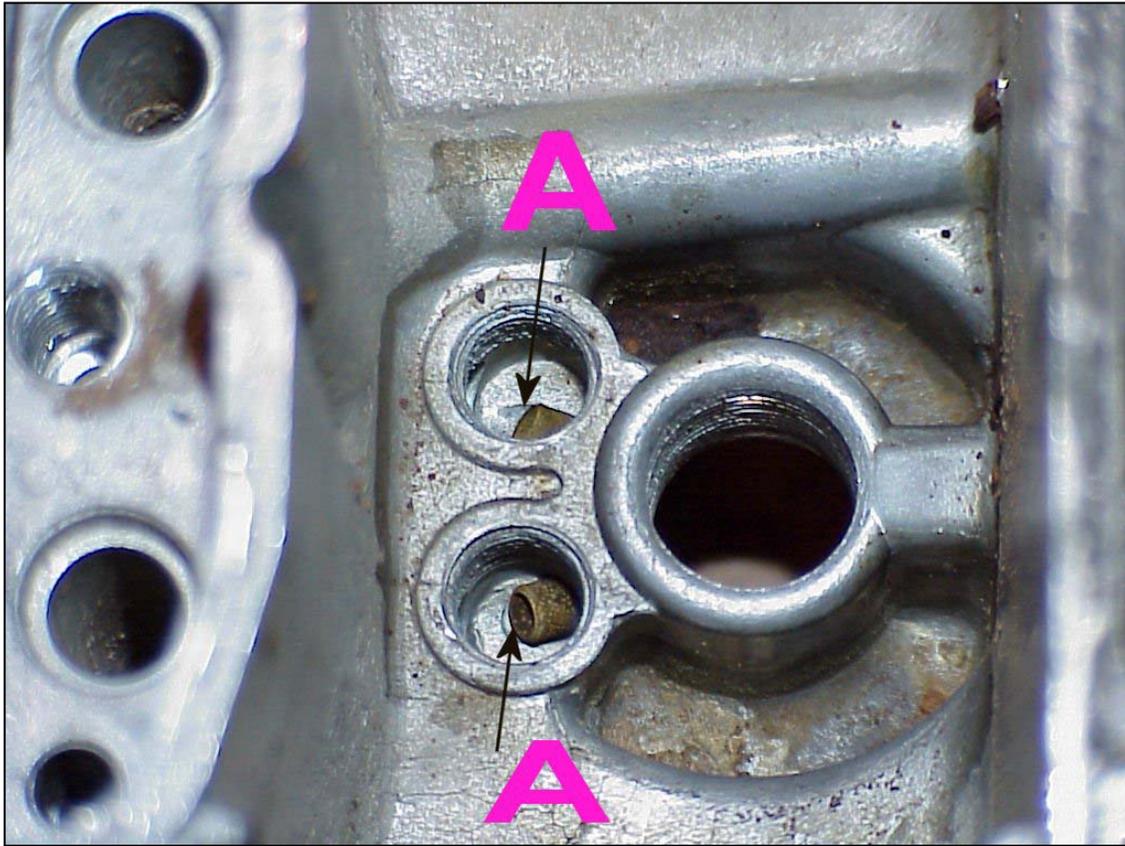
- Drain off the parts cleaner.
- Rinse the main body with water.
- Rinse the venturi cluster

Now with compressed air or an aerosol type choke cleaner, blow out every passageways on the main body, top, venture cluster, jets and anything with a hole except the screw holes. You will get some liquid spray on you when blowing out the passageways so watch out.

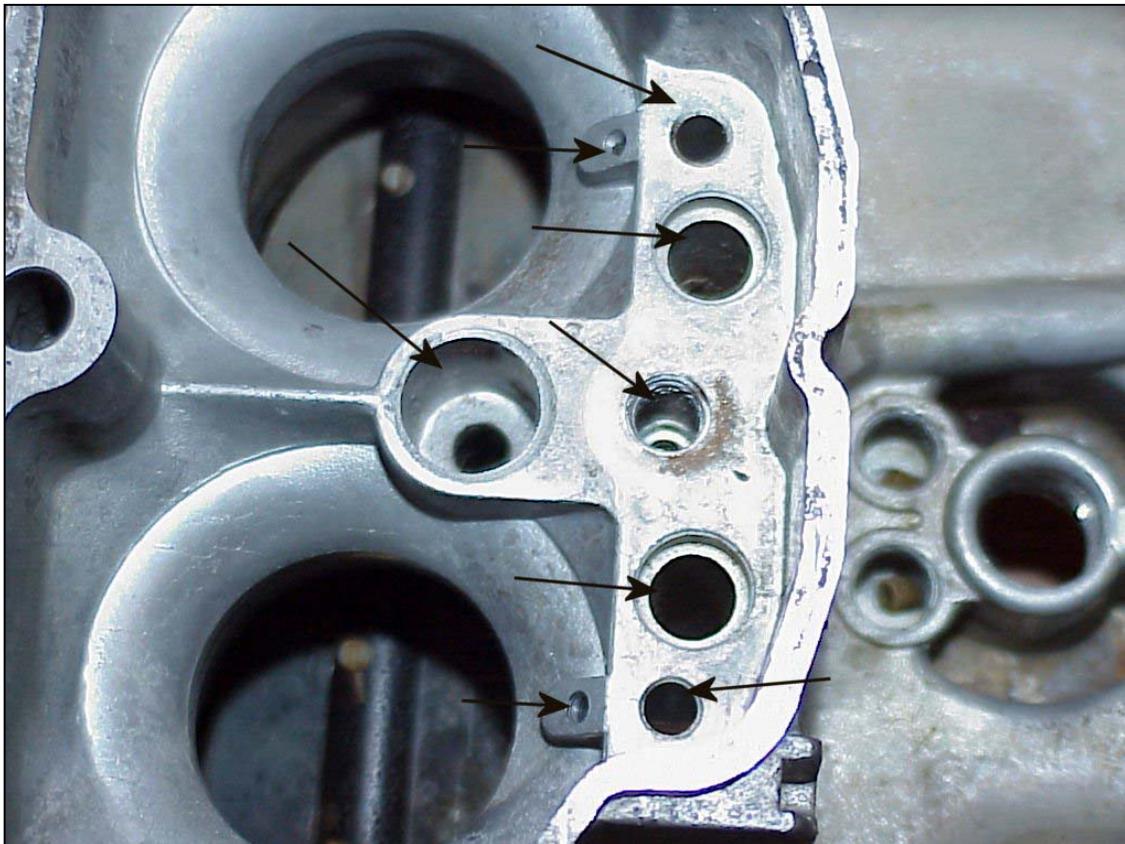


Blow out “A” (see next picture where this comes out), Mixture Screw (MS) and the vacuum line.

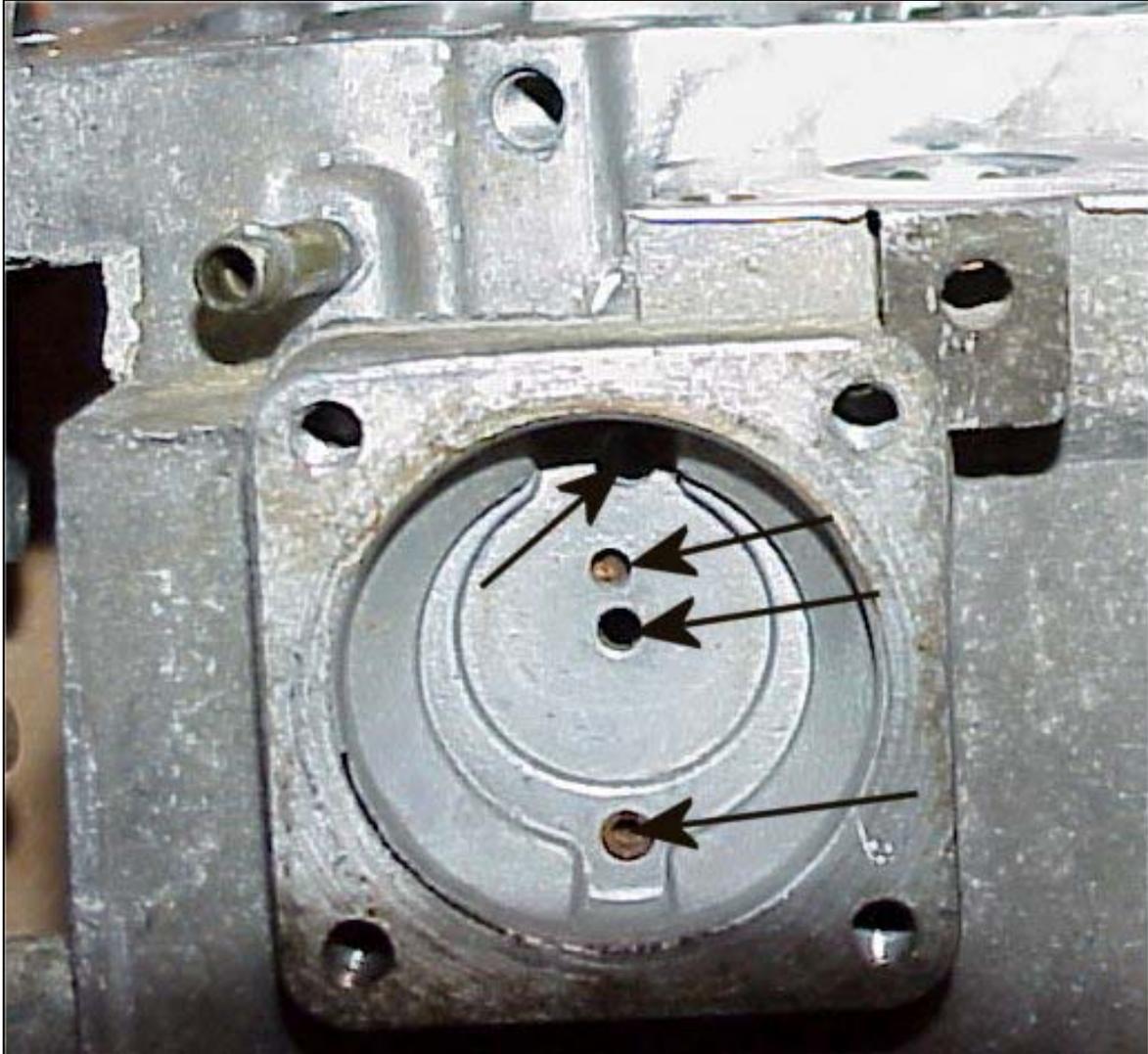




Blow out where the passages where venturi cluster was taken out from (see arrows).



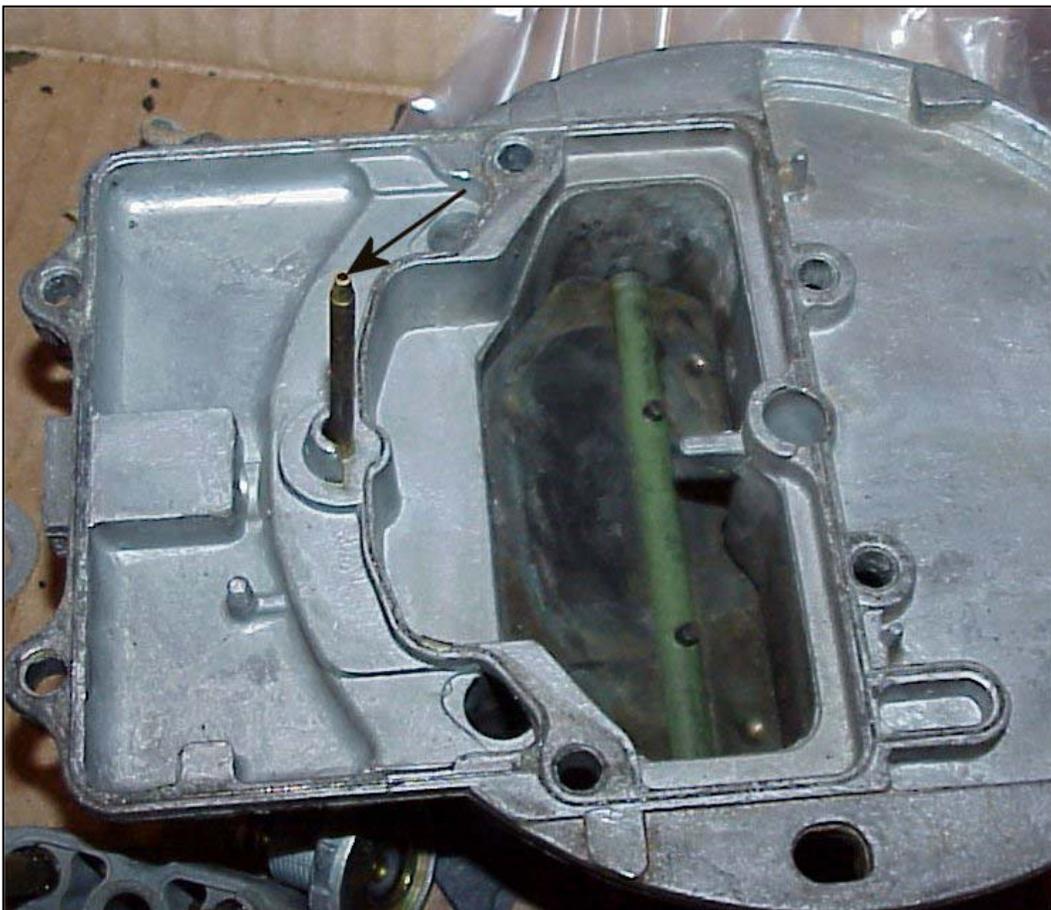
Blow out all passages in the accelerator passage (see arrows)



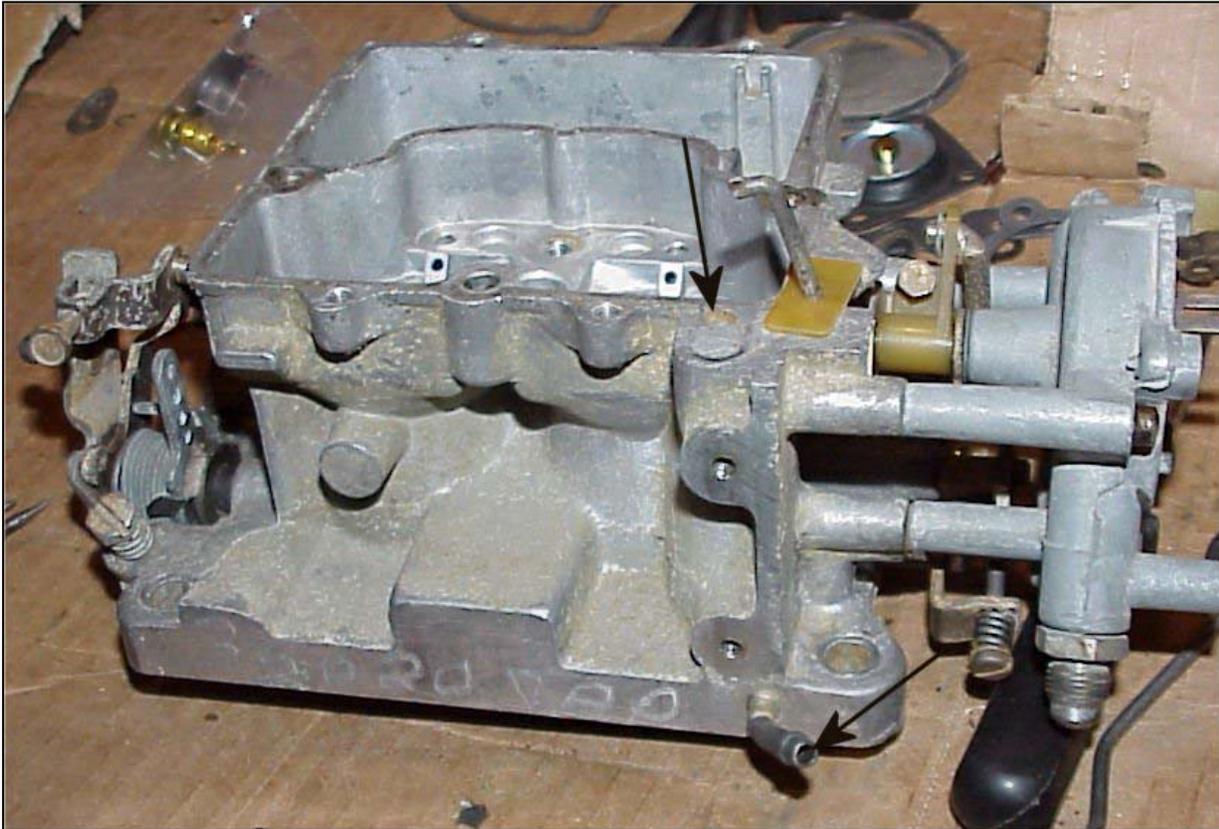
Blow out all the passages in the venturi cluster.



Blow out the passages in the top.



Blow out all passages on top of the body and any other passages or vacuum lines.



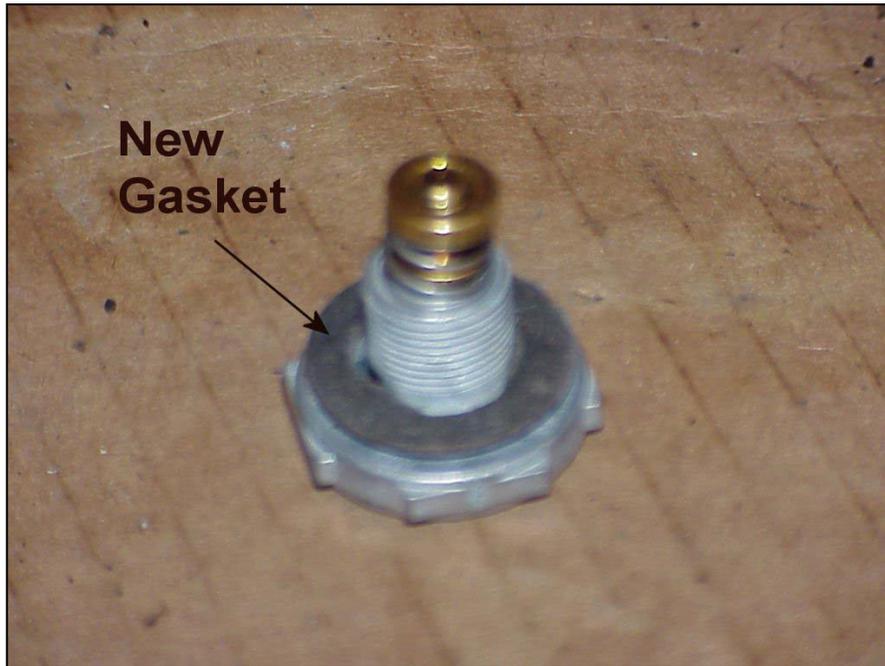
### Step 5 - Reassembly

The carburetor rebuild kit contains some of the smaller parts and all gaskets. I don't recommend this brand for first timers as it didn't have directions. **NOTE** - The kits contain extra parts to ensure they can be used for different carburetors. Don't be alarmed if you have extra parts.

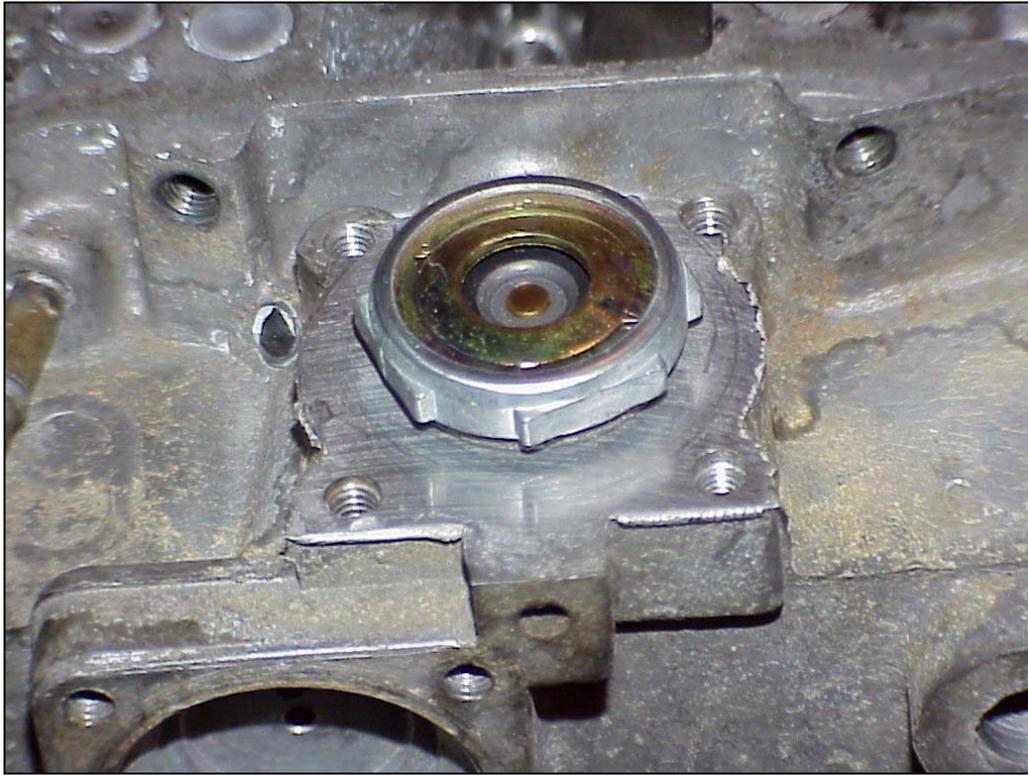
First pick out all your gaskets by matching them with the old ones.



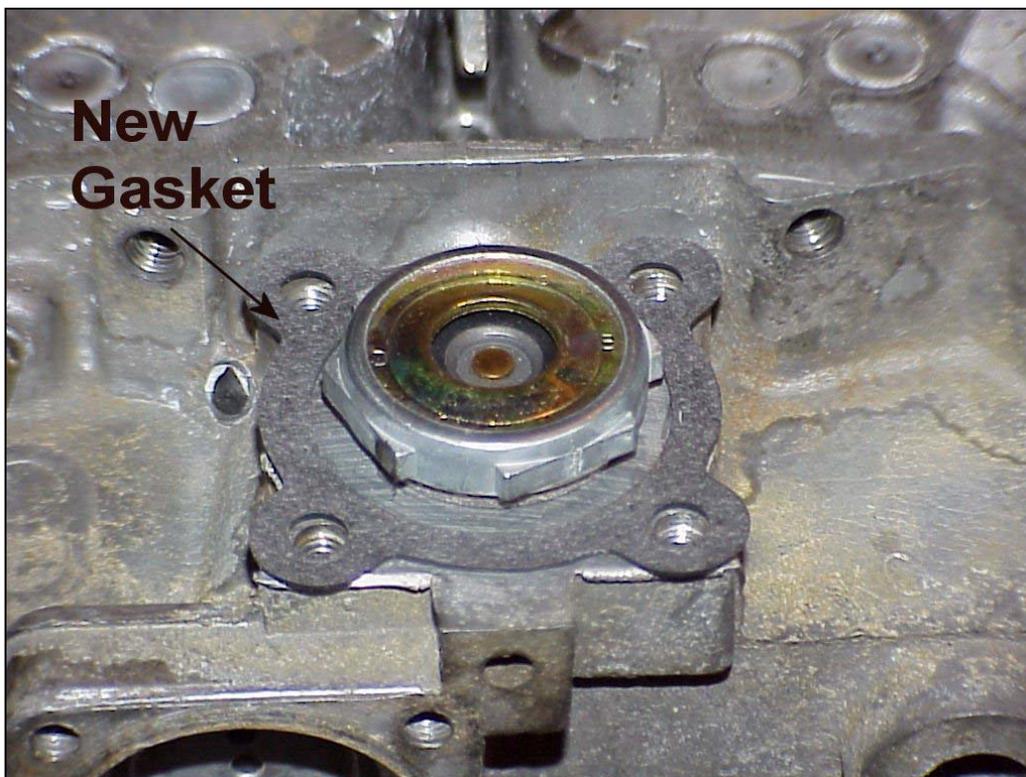
Now flip the carburetor over and install the new gasket on the power valve.



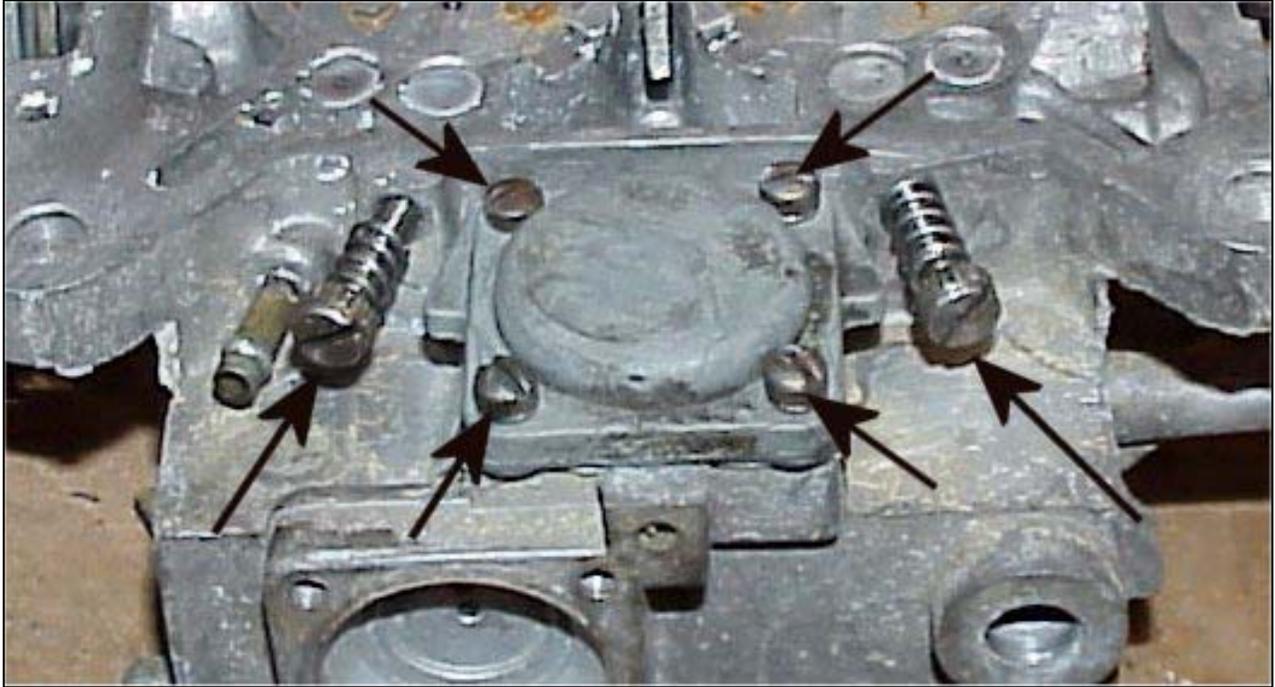
Install power valve into the bottom of the carburetor. The power valve should be on tight but not gorilla tight. You don't want to crush the gasket



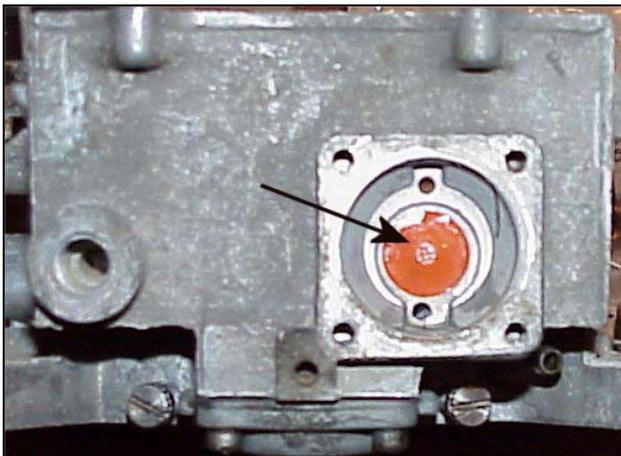
Install new gasket for the power valve cover.



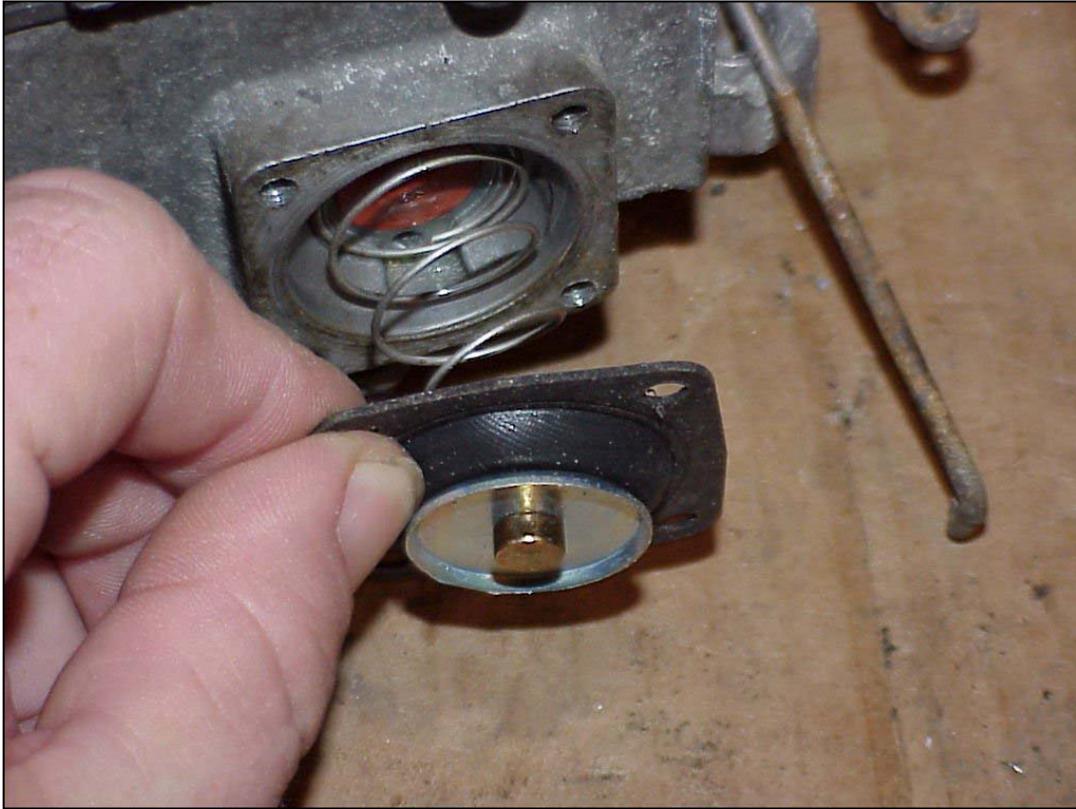
Install Power Valve Cover with screws. Next install the fuel air mixture screws /springs. At the beginning when you took these out, if you counted the turns, replace them back into the same position. If you did not count. the initial idle mixture setting should be 1 1/2 turns out. Turn the screws in until their lightly seated and then back them off 1 1/2 turns. **Don't try to really tighten the screws.** Doing so will damage the tip and they'll have to be replaced. Lightly seated means just that - lightly seated.



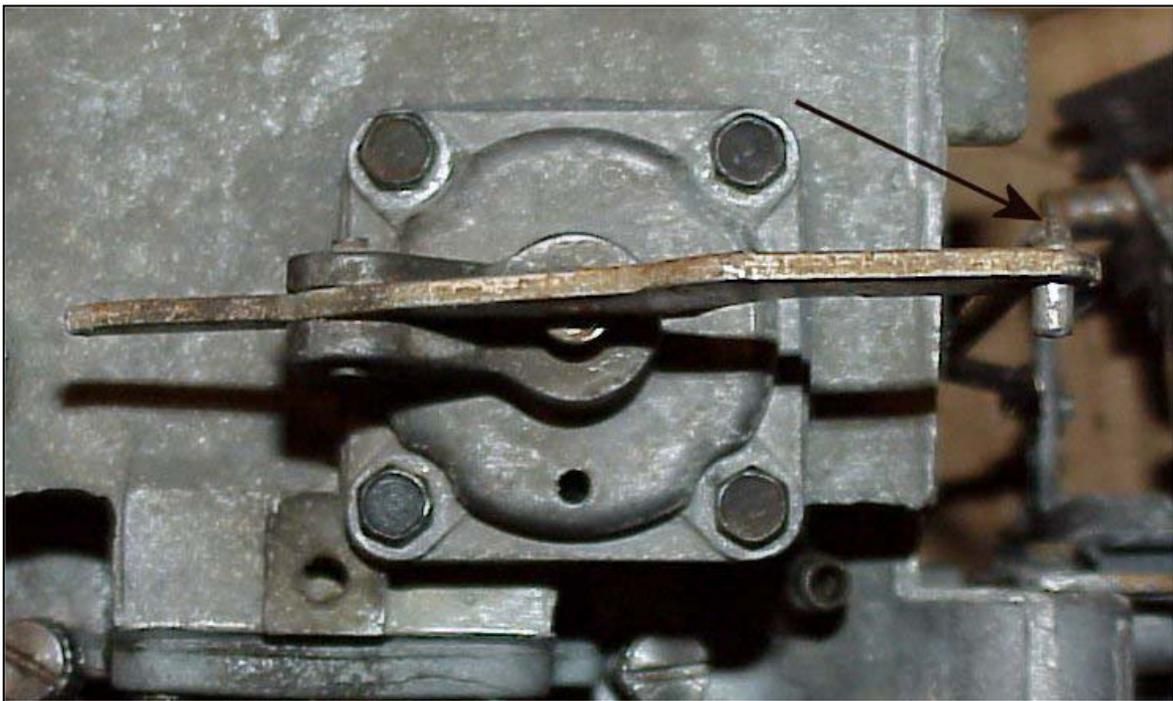
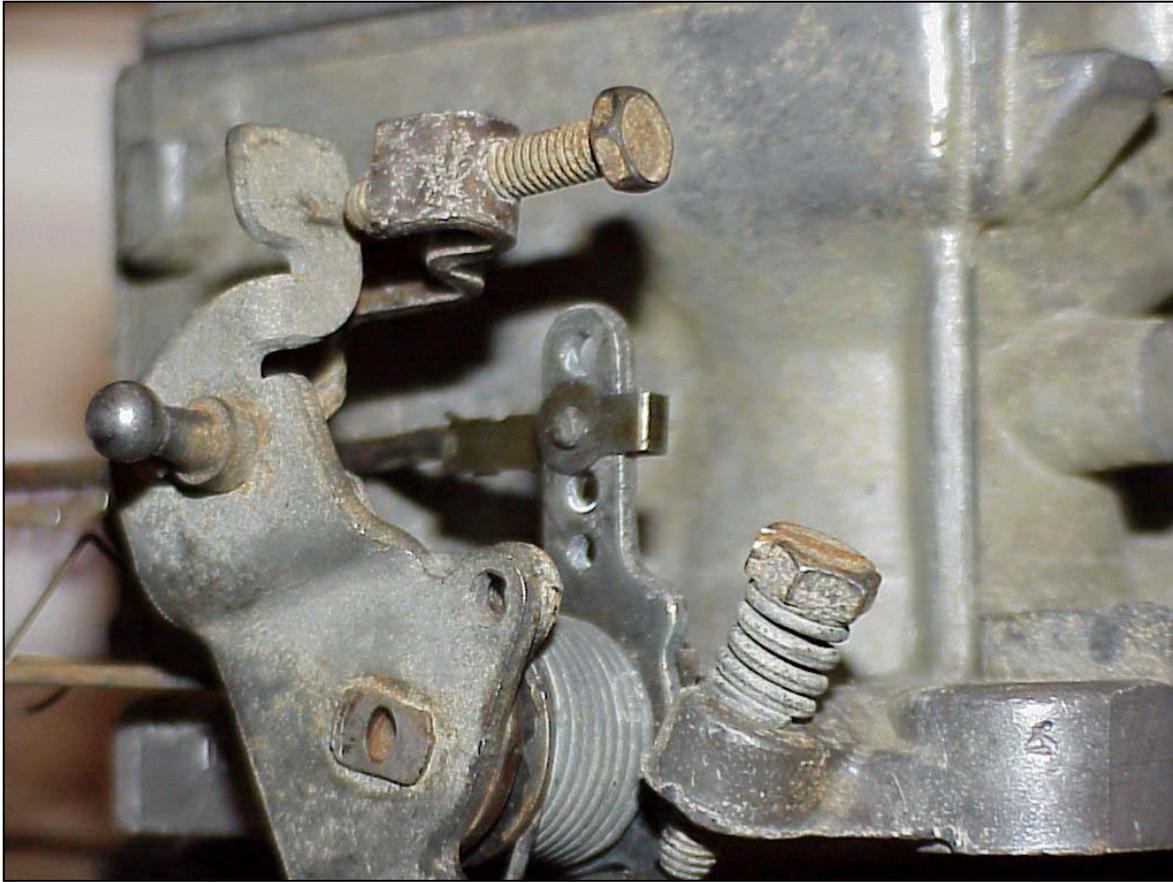
Insert the little red rubber plug (elastometer valve) into the base of the carb. Use a pair of needle nose pliers to pull the nipple from inside the fuel bowl. You might put a little greese to help to pull it through.



I start on the outside front. For the accelerator pump the first thing you need to do is insert  
After that comes the return spring and diaphragm. The wide end of the spring should touch the base  
of the carb and the button on the diaphragm should face outward.  
Put the cover over the diaphragm and insert the 4 screws.



Insert the accelerator pump rod into the proper hole on the pump arm. Attach the other end of the rod to the throttle with the retainer into the third hole.



Now we start the inside of the carburetor. Start by putting the main jets at the bottom back in. They should screw right in. Take note of the size. For a 2.8, they should be around 48 to 49 size. Use a BIG screw driver to install these.



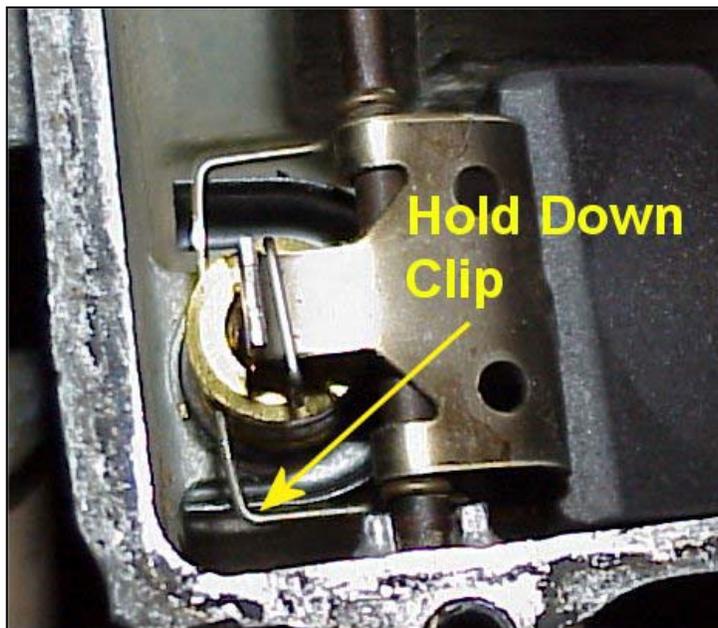
Next put the needle seat in. There should be a gasket between the needle seat and the carb.



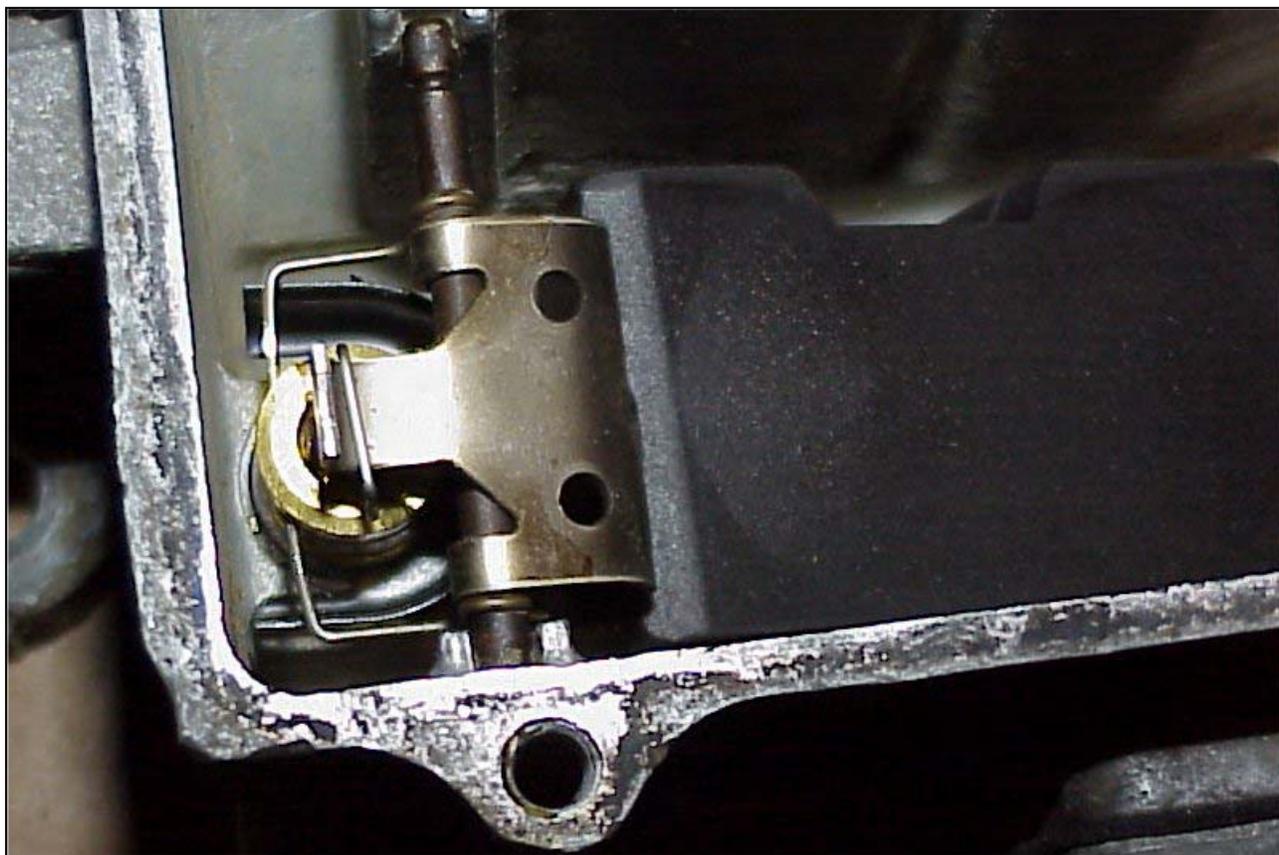
Install the float clip onto the needle.



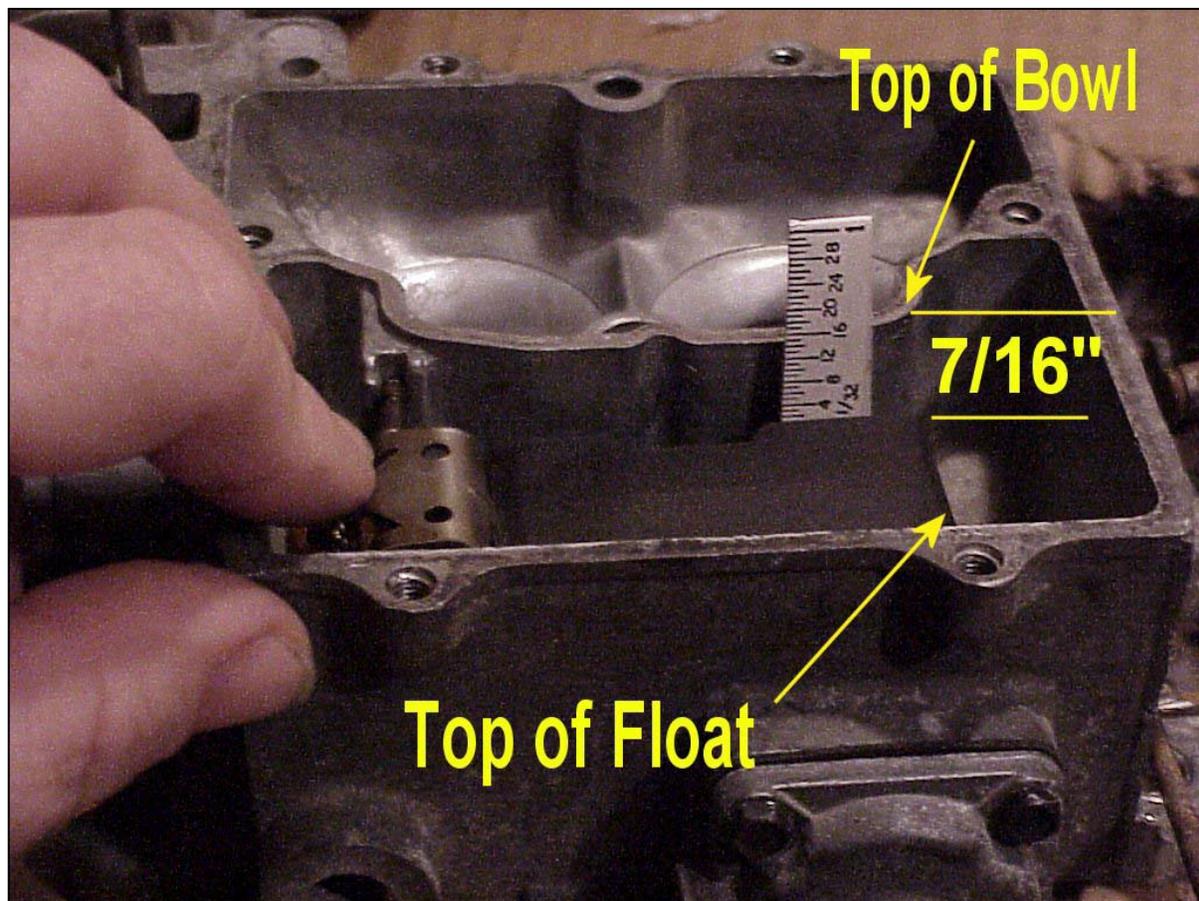
Put the needle in the needle seat. In this case I did not remove the old retaining rod. If you want to replace it, slide the float over the rod and then attach the wire retainer to the rod. The wire retainer sits in grooves in the rod.



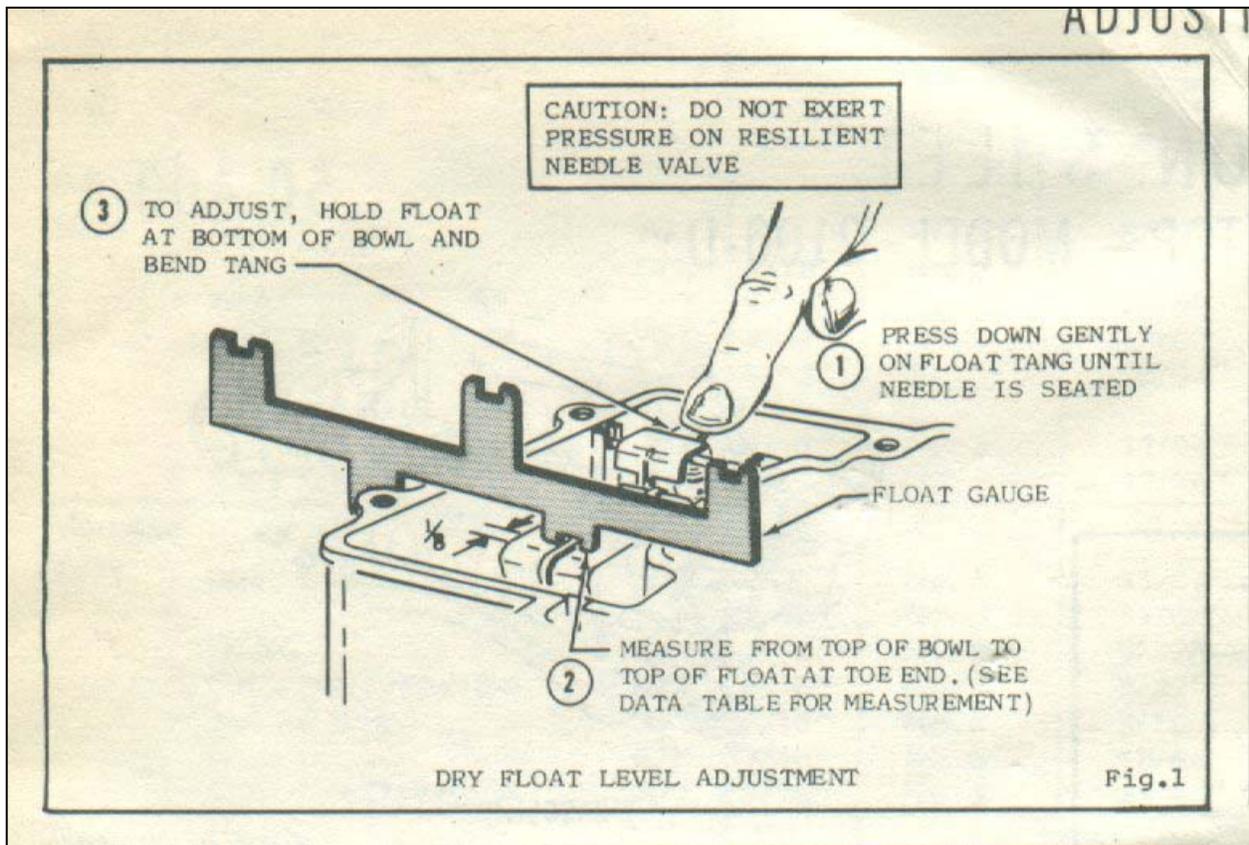
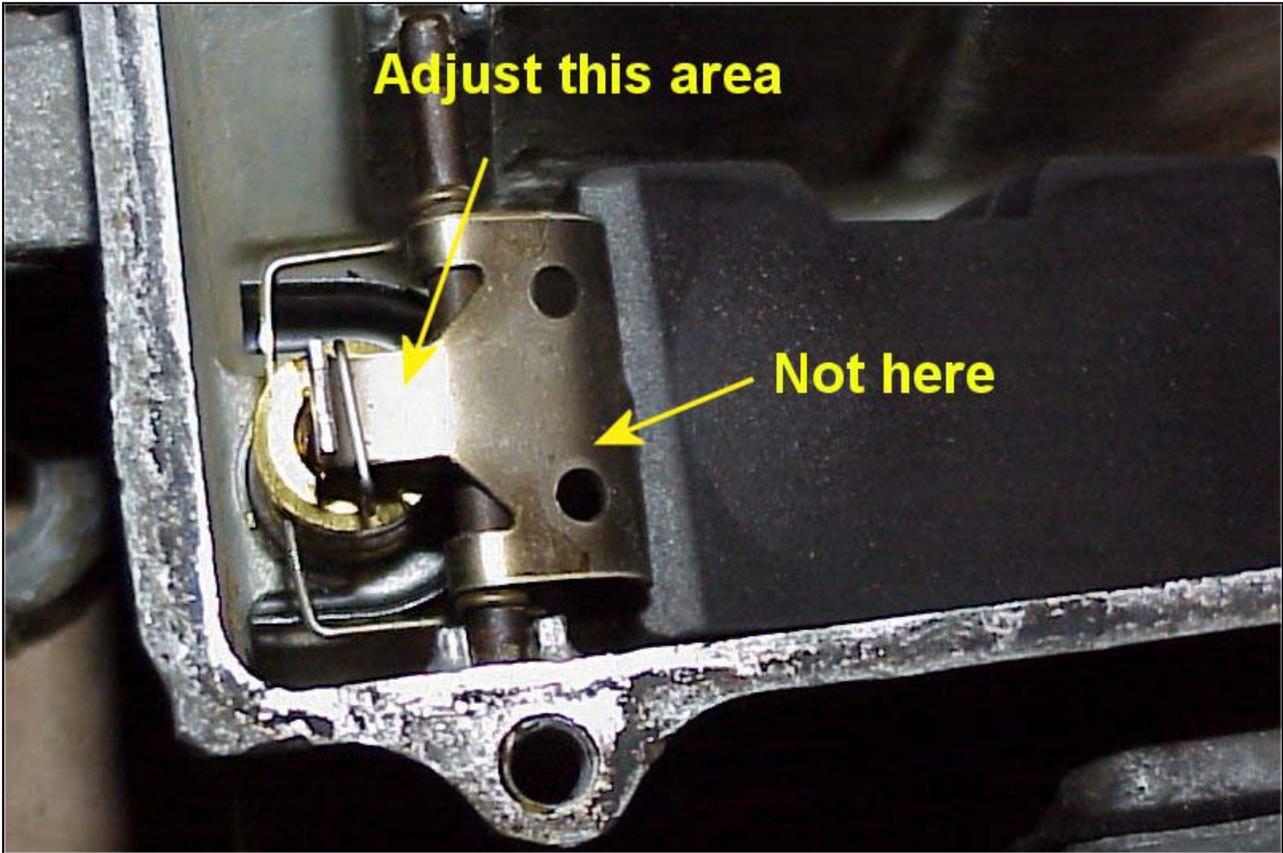
Now install the float and use needle nose pliers to push the retaining wire down the back of the needle seat. There should be a groove in the needle seat to hold the wire retainer in place.



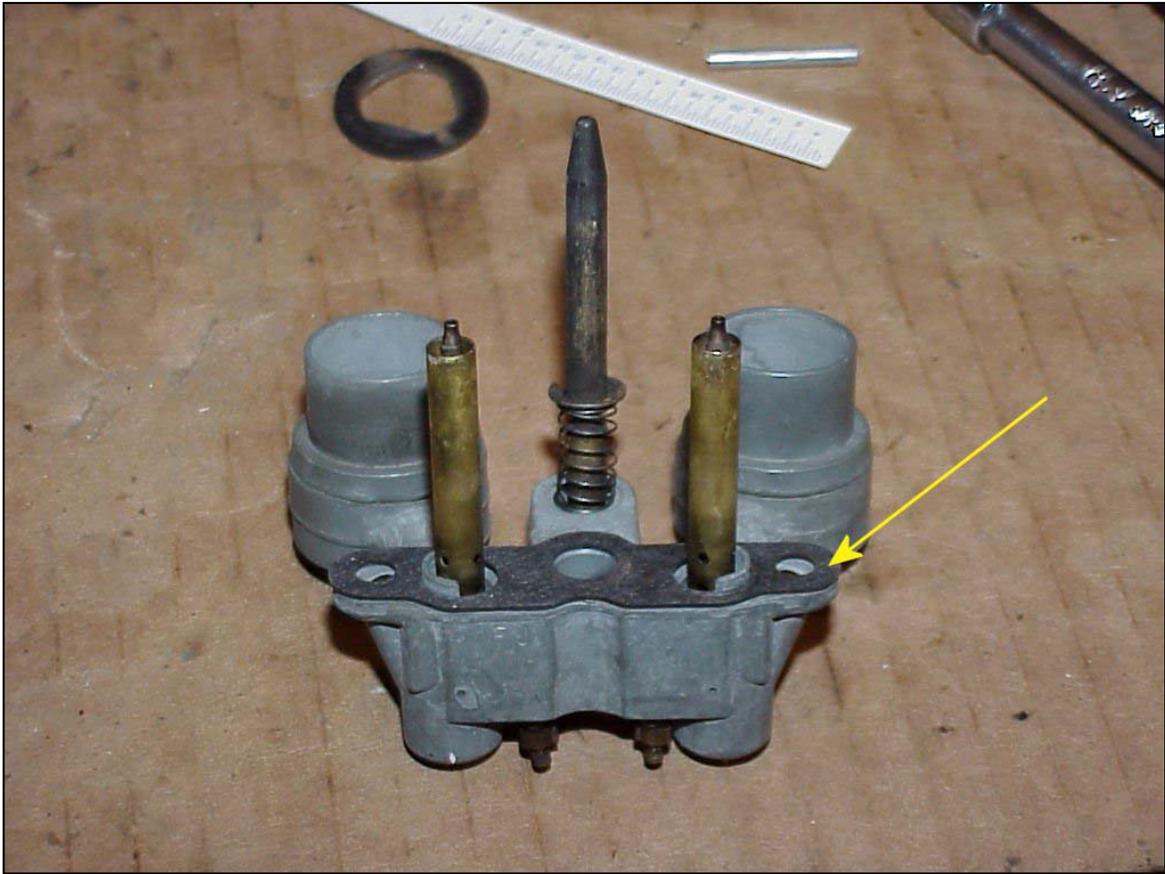
To set the dry float level, push down the float at the needle and seat. DO THIS LIGHTLY – NO PRESSURE. The tip of the float to the top of the bowl should be  $7/16''$ . In the picture, I show you how. The gauge is a little off since it was hard to hold the camera, ruler and push on the float at the same time.



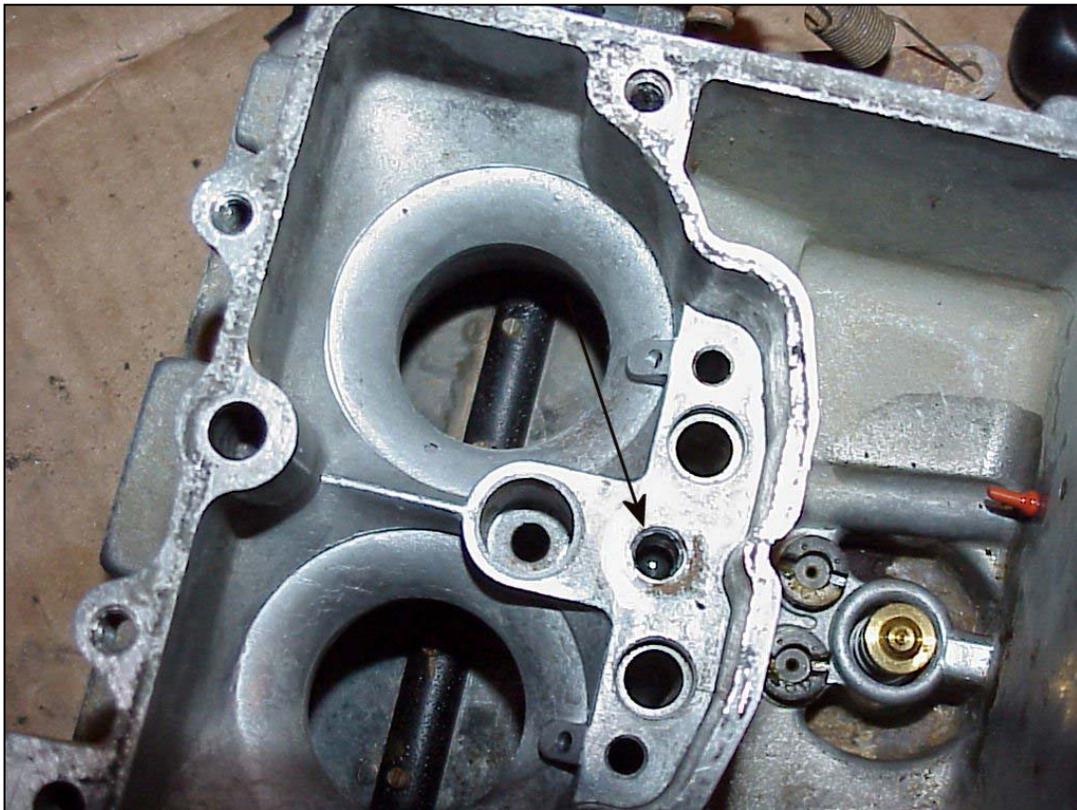
If float needs adjusting, hold the float at the bottom of the bowl and bend the float tab(not the metal around the float).



Install the new gasket onto the venturi cluster.



Install the small metal ball into the hole in the middle where the venturi cluster goes.



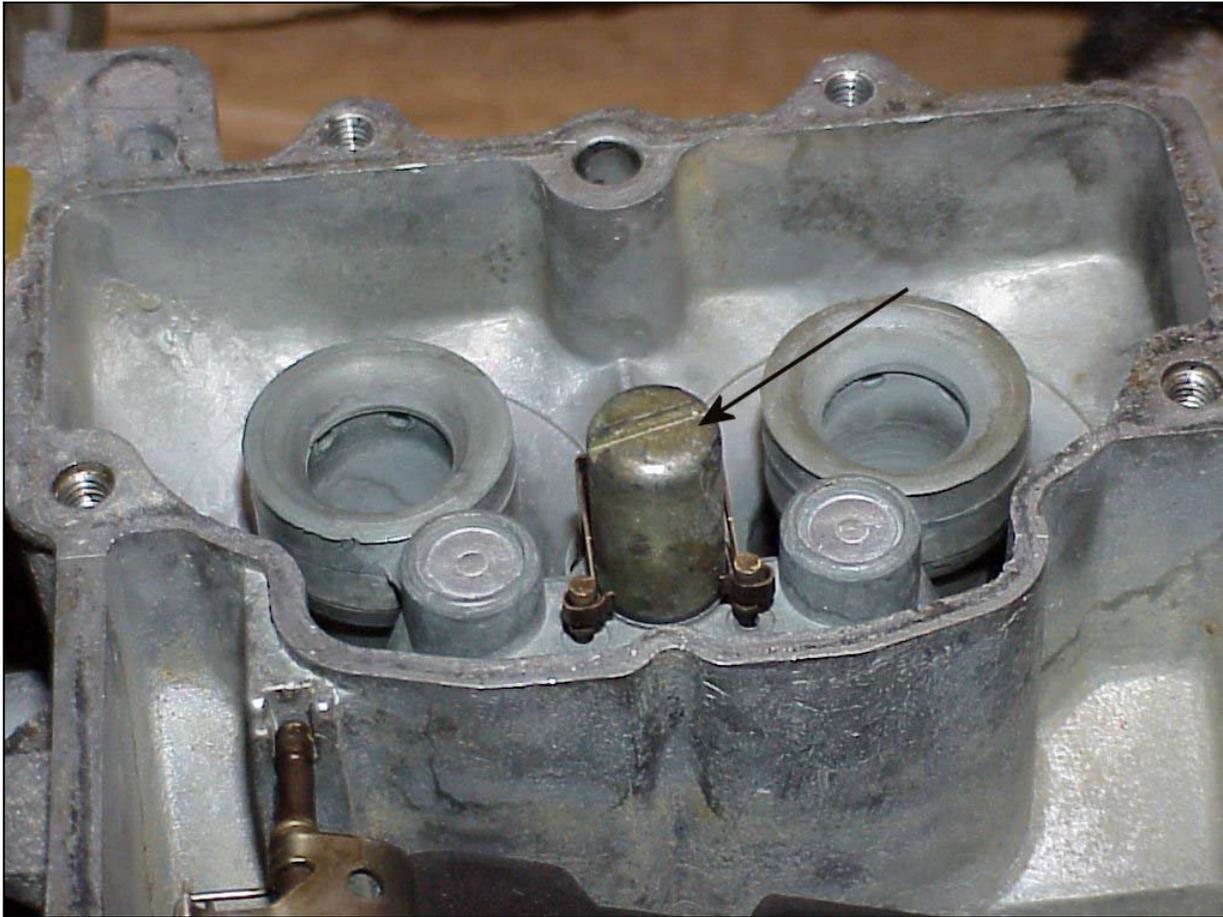
Install the new gasket onto the hollow screw.



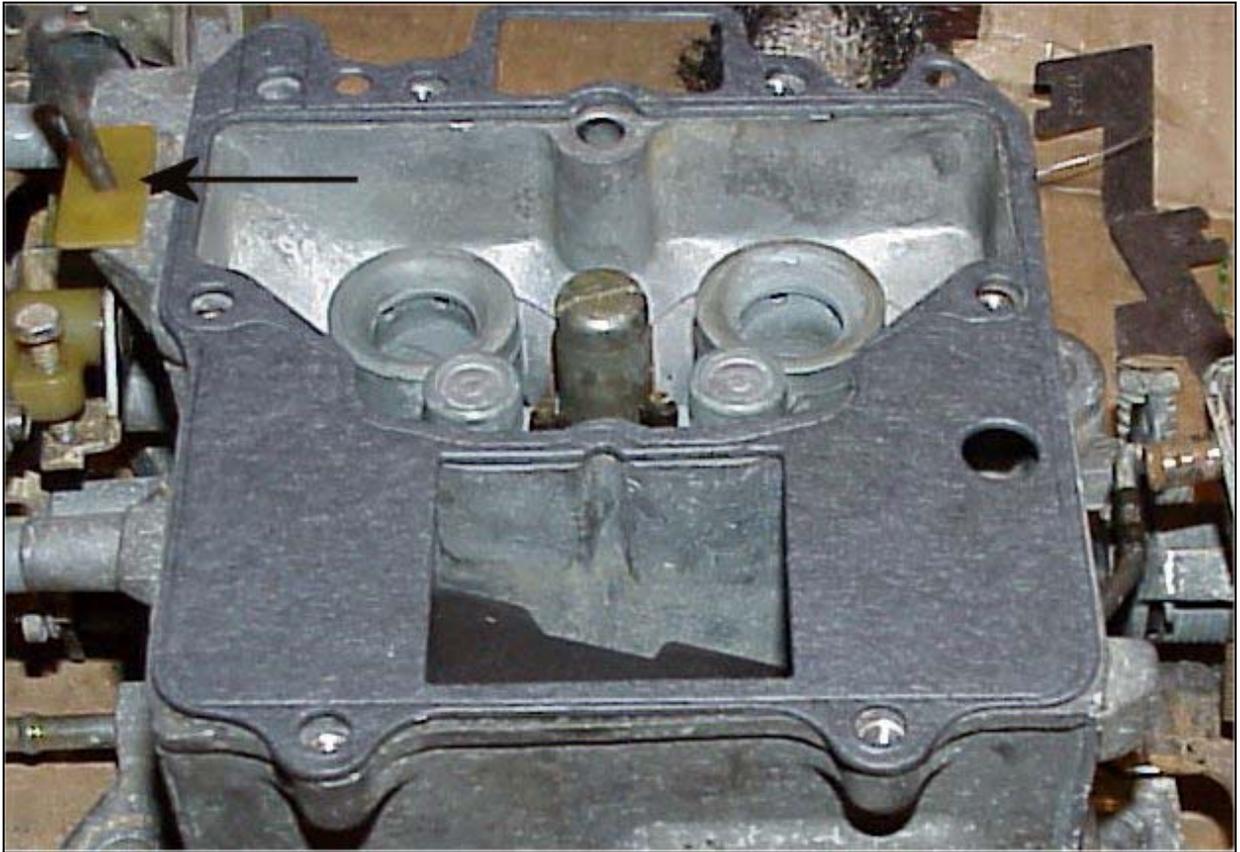
Insert the weight into the hollow screw.



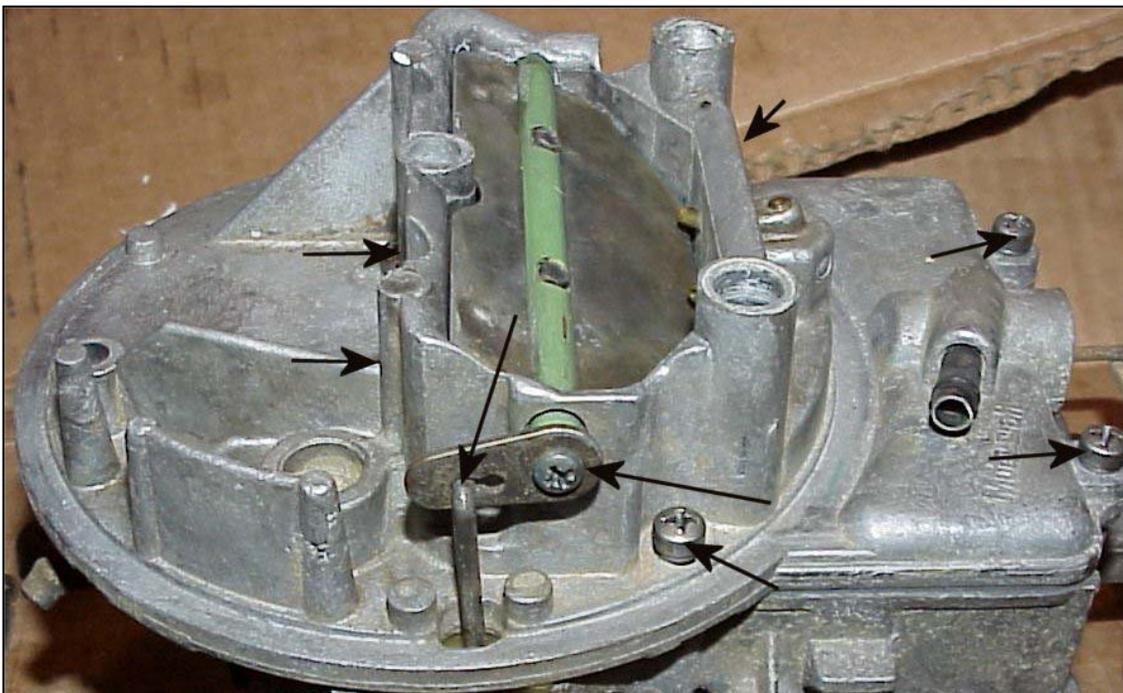
Now very carefully insert the hollow screw into the venturi cluster. You can also insert the weight into the hole first than the hollow screw. You may have to shake things a little to get the screw to drop over the rod.

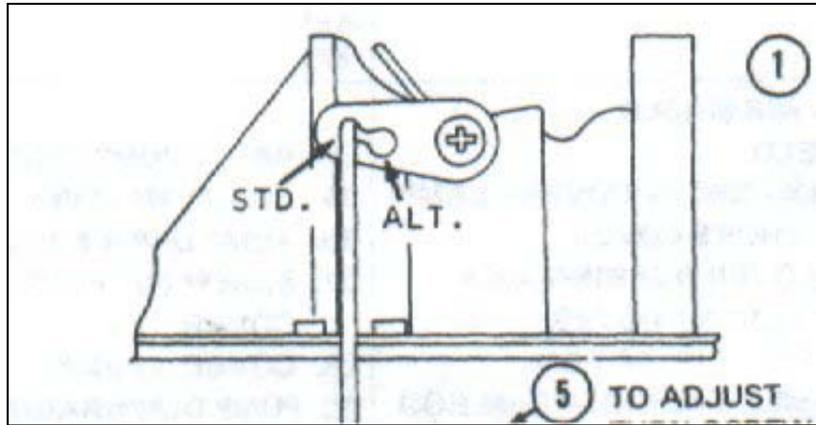


Install the top gasket onto the bowl. Be sure that the plastic piece that is on the choke rod is in the correct position. Make sure that all the holes line up and any vacuum ports

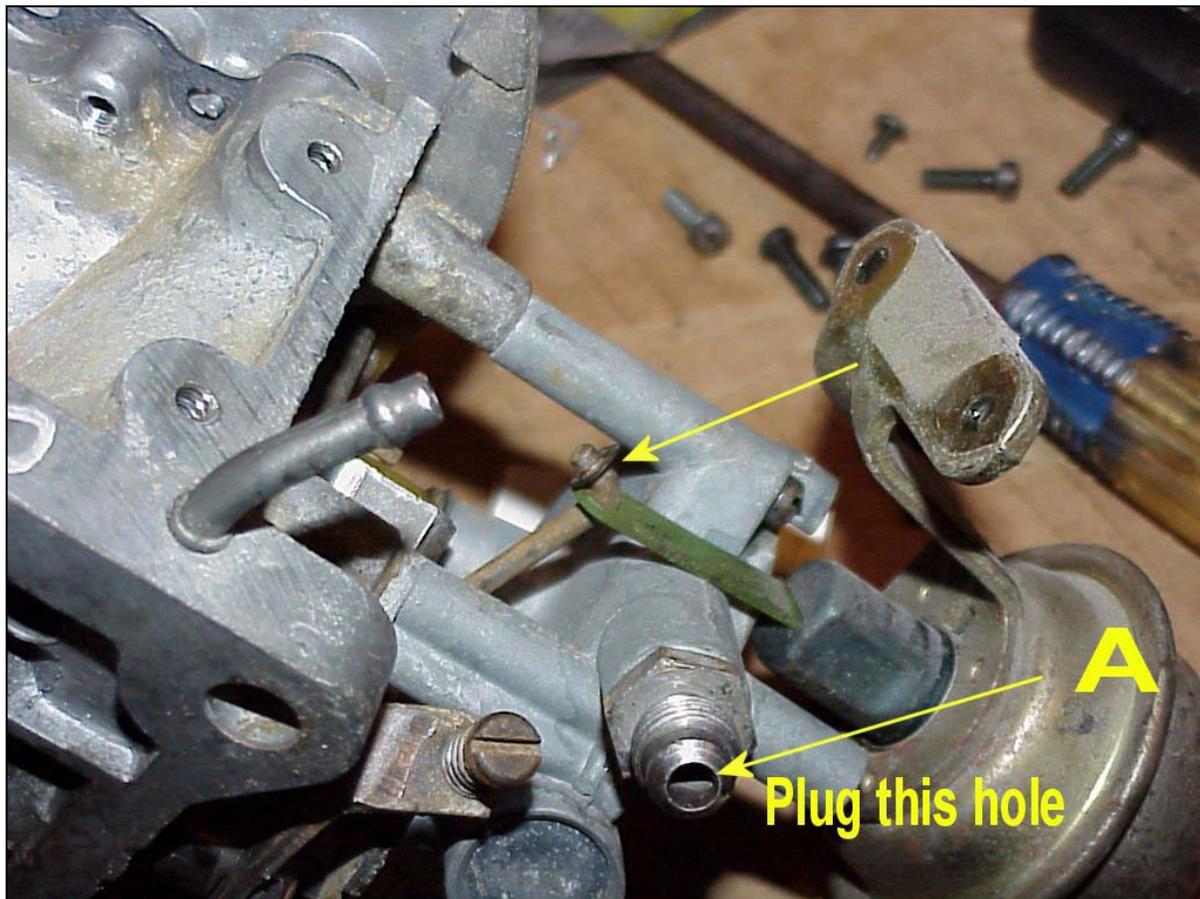


Feed the choke rod through the top on the carburetor and place on top. Be sure do not puncture the float with the rod that in on the bottom of the top. Align screws holes and install all the top screws. Install the choke lever – farthest hole for standard area and closest hole for high altitudes areas.





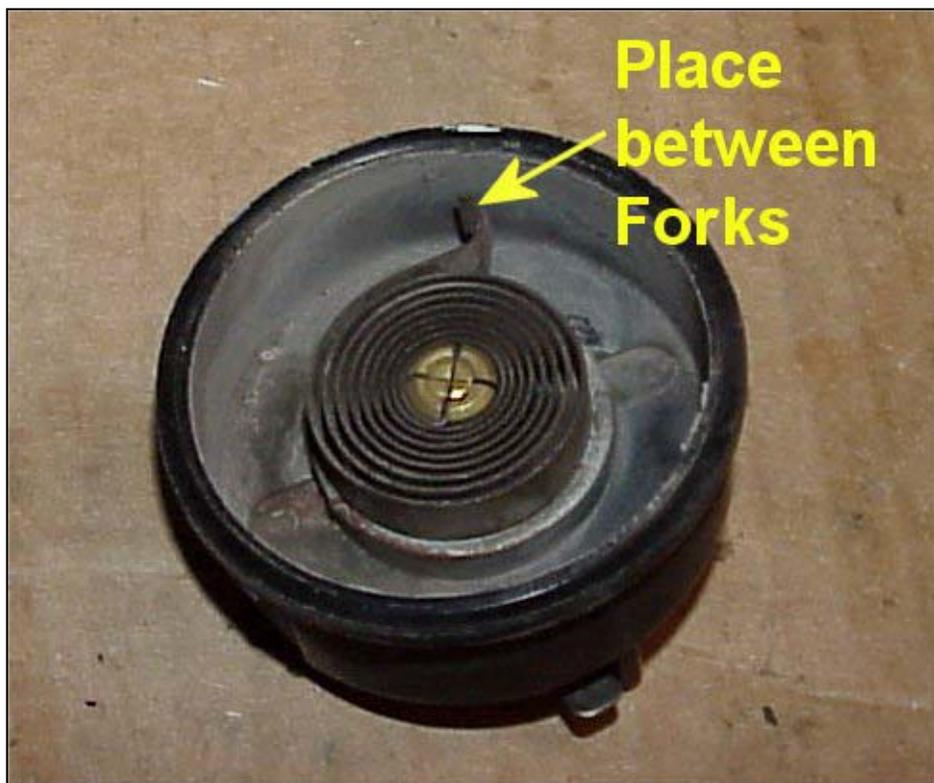
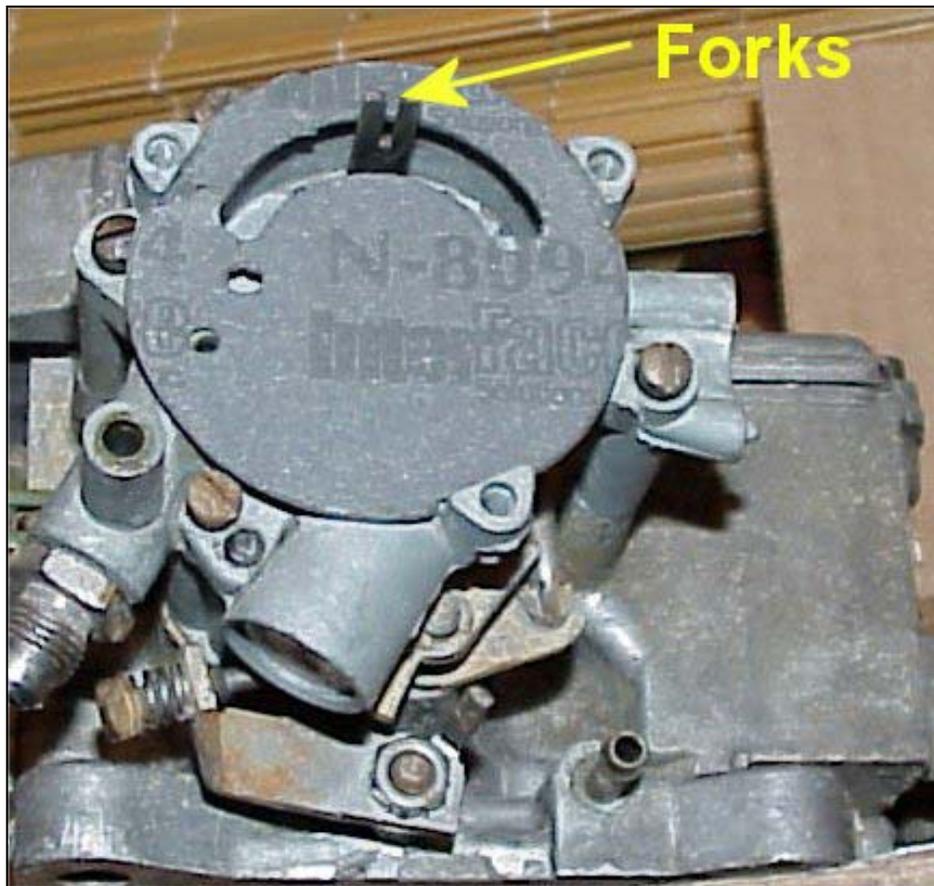
Install the rod to choke pull off valve using a new C-Clip. This would be a good time to plug up hole "A" since your ranger uses a electrical choke and there is no connection for this hook up.



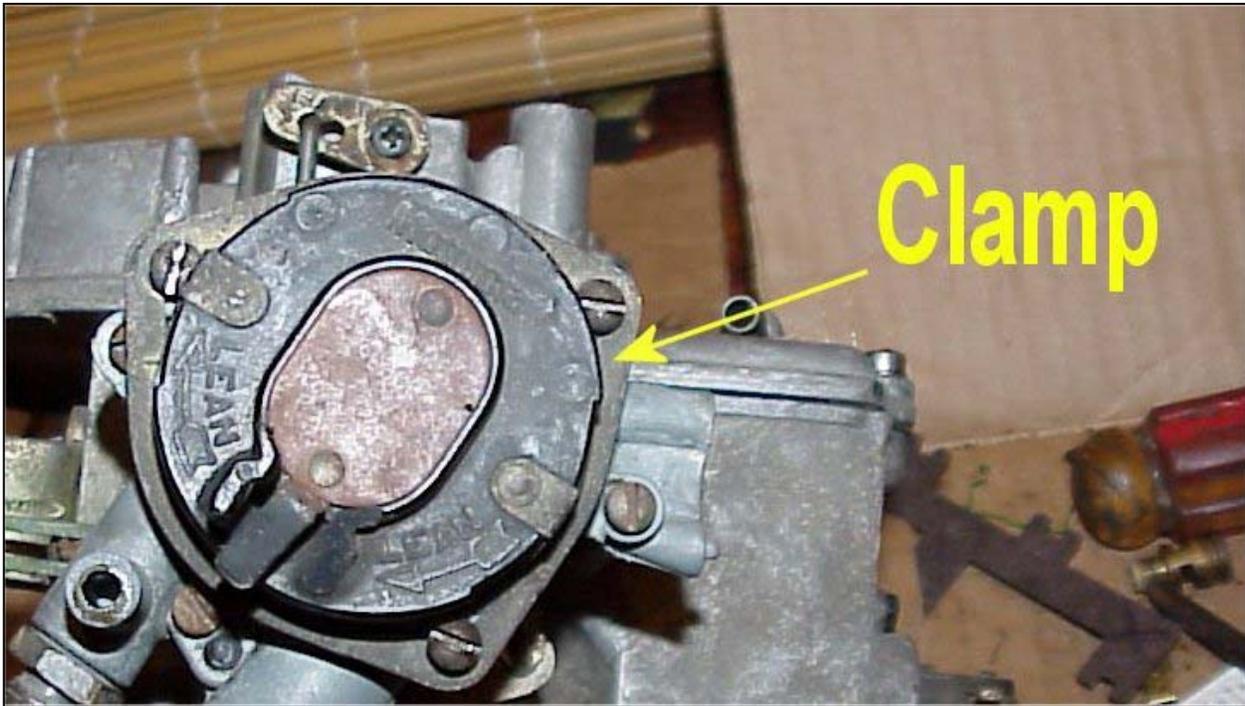
Install the choke pull off onto the carburetor.



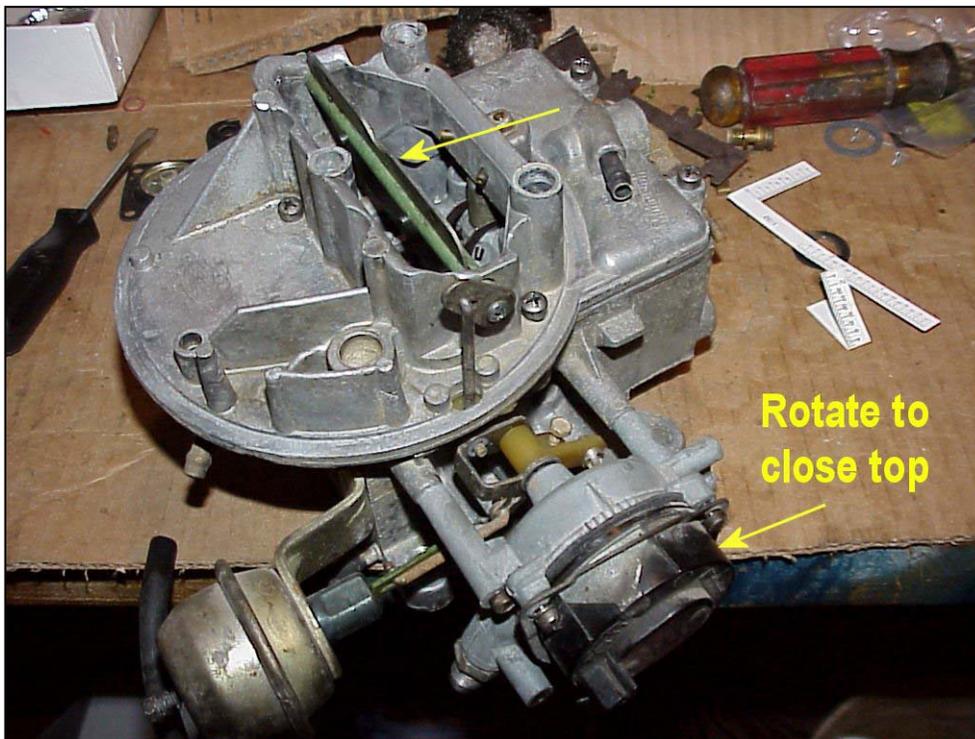
Install the choke cover gasket, choke cover and spring. Be sure that the spring fits between the forks.

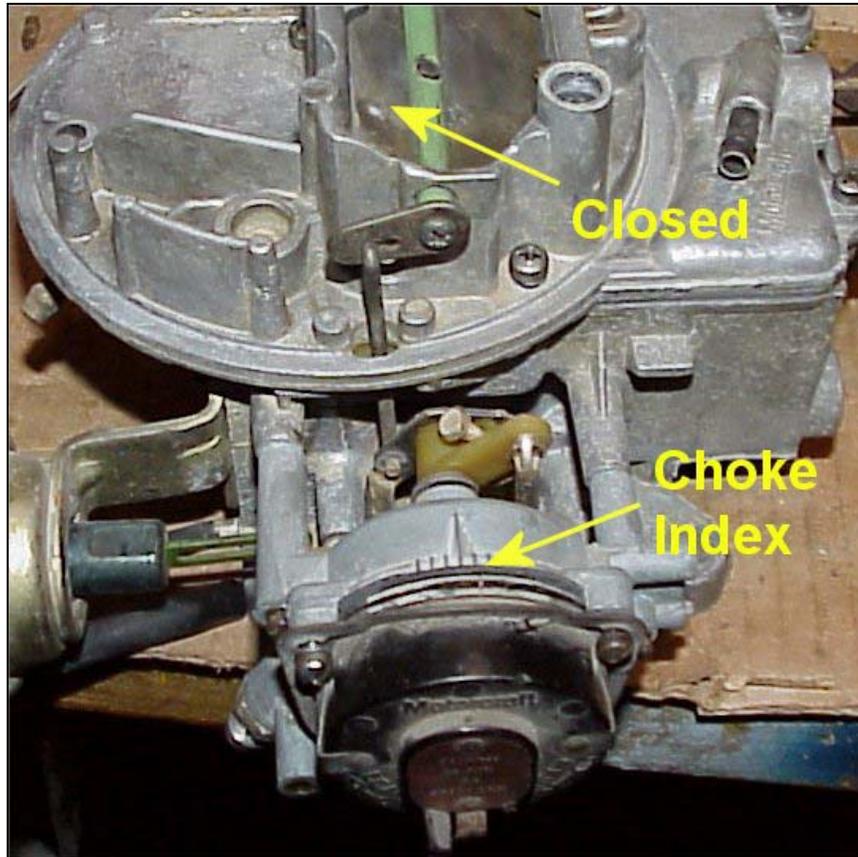


Install the Choke cover clamp but leave loose so you can turn it to adjust.

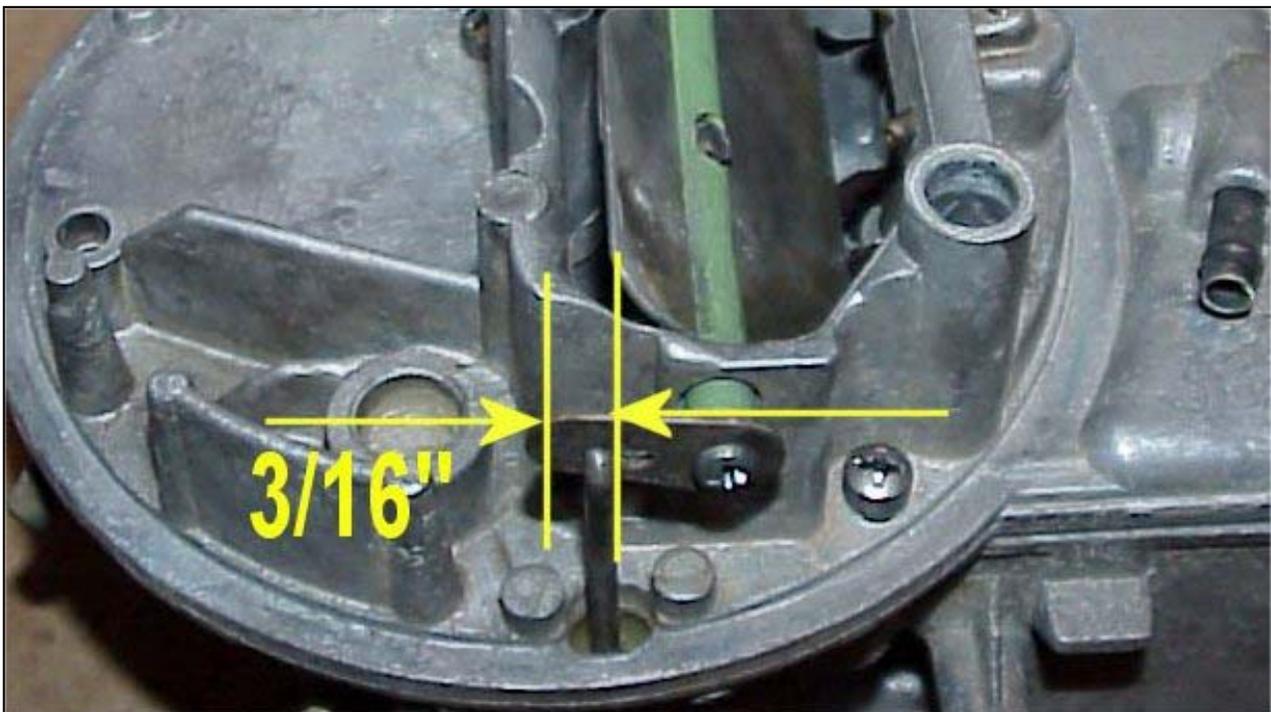


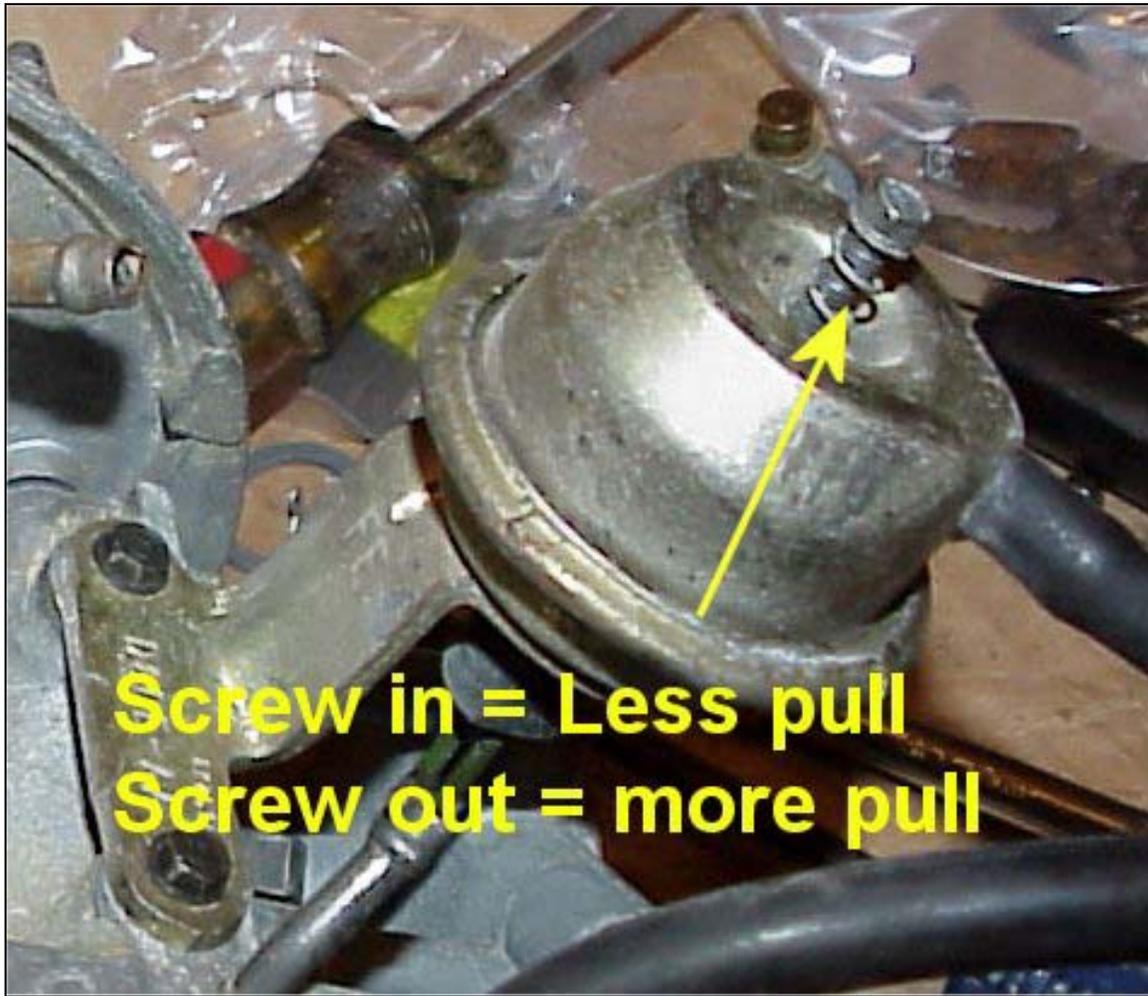
**Step 6 - Choke** – Everything thing should be already set. If not, go to the choke adjustments. The standard way that I set the choke is to turn the choke cover until the top butterfly closes. You might do this a couple of times to make sure it correct. Also take note that the choke index should be close to the center mark.



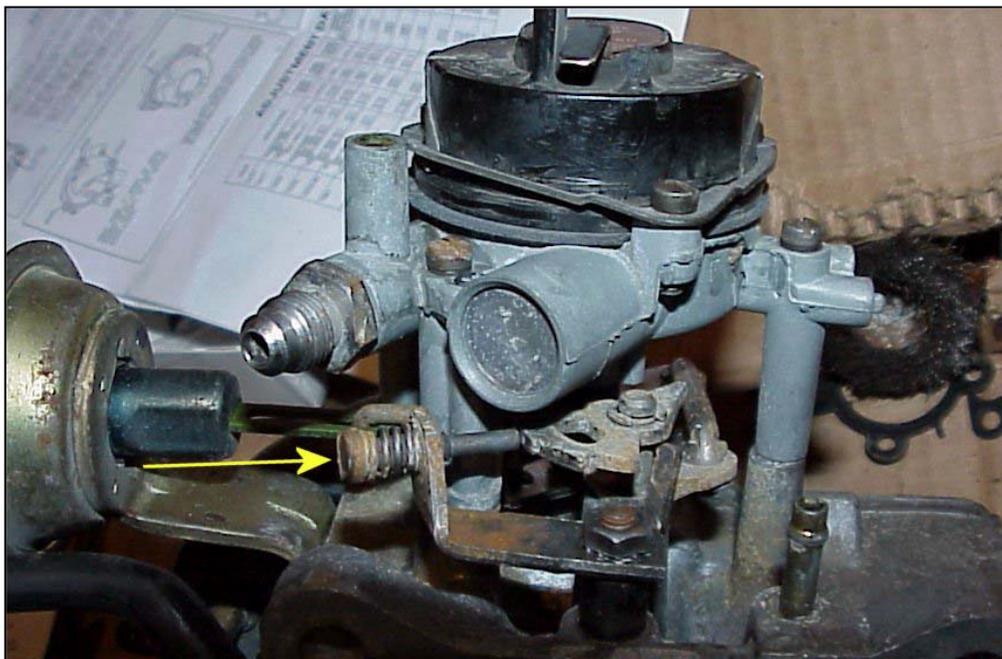


Once you have this set, apply some vacuum to the choke pull off valve. The choke should pull open about 1/8". If not, adjust the screw on back of the choke pull off to get the correct setting





When you put this back on the engine and it idles to high during warm up. You can adjust this screw to raise or lower the RPM.



## **Choke Major settings** - if someone has mess with the adjustments.

There are 2 adjustments that need to be made to the choke for it to work properly. The first that needs to be set is the choke over-travel lever, which is the screw in the plastic piece behind the main choke housing.

Set the fast idle speed screw (under choke housing) such that it comes in contact with the V mark on the fast idle cam. Make sure it doesn't move from that position.

Hold the choke in the rich position. This can be done by temporarily putting the black spring housing with the spring back on the choke and turning it counterclockwise or by pushing the lever manually inside the choke housing counterclockwise.

Place a drill bit (check specs or shop manual for proper size) between the choke plate on top of the carb and the carb base.

Adjust the screw such that the choke plate just begins to touch the drill bit.

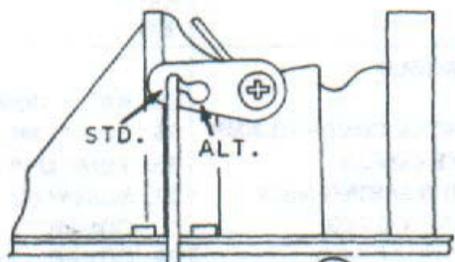
Next comes the choke plate pull down adjustment, which is the plastic nut that attaches the choke plate to the choke pull down rod near the top of the carb.

Partially unbend a paper clip and use a pair of pliers to make a 90 degree bend 1/8 of an inch from the end. Put the bent end of the paper clip into the right side of the slot on top of the small piston in the choke housing. Push the piston and paper clip down until the paper clip catches on the ridge on the inside of the cylinder. At that point push on the lever inside the choke housing counterclockwise. The paper clip in the ridge should prevent the choke piston from going up.

Put a drill bit of the correct diameter (see specs or shop manual for correct size, may be different than last time) between the base of the carburetor and the choke plate. Adjust the choke plate pull down such that the choke plate just touches the drill bit.

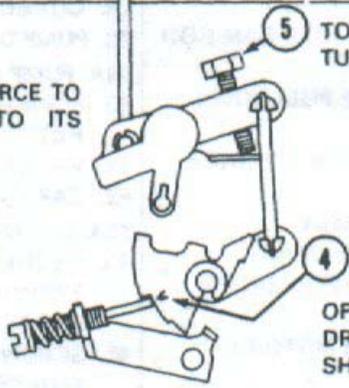
**NOTE** Go back and check that the over-travel lever is still adjusted properly after adjusting the pull down. It should be but mine were so far off that I had to readjust both of them. You can verify both are adjusted properly if the fast idle screw touches the V mark on the fast idle cam and the proper spacing is between the choke plate and the carb body when the choke is fully closed (lever in choke body fully counterclockwise).

You can now attach the round, black cover onto the choke. The end of the spring should slide into the slot on the lever inside the choke housing. Check the specs to determine the proper orientation.



1 TEMPORARILY TURN CHOKE COVER 90° RICH BEYOND INDEX. (USE NO EPOXY OR TIGHTEN RETAINER SCREWS TO BREAK OFF POINT AT THIS TIME.)

3 APPLY A VACUUM SOURCE TO PULL DIAPHRAGM INTO ITS SEATED POSITION.



5 TO ADJUST TURN SCREW.

2 OPEN THROTTLE TO PLACE FAST IDLE SCREW ON HIGH STEP OF CAM.

4 OPEN THROTTLE TO ALLOW FAST IDLE CAM TO DROP. CLOSE THROTTLE. FAST IDLE SCREW SHOULD THEN REST ON V MARK OF CAM.

FAST IDLE CAM LINKAGE ADJUSTMENT

FIG. 3

**Step 7 - Reinstallation On Car** - Use no silicone "gasket glue" on the carburetor gasket. If it was used on prior installations there may be a significant amount of old gasket remaining that must be scraped off before reinstallation. Try not to let the bits fall inside of the engine.

The carburetor should be installed on the car with a thick gasket between the carb spacer and carburetor. This is to keep the heat away from the carburetor and boiling out the gas when the engine is turned off when warm. Just snug the carburetor bolts and do not over tighten. You could break a carb ear off.

**Step 8 - Warm Idle Speed Adjustment**

Start the car and let it warm up to normal operating temperature. This is also a good time to observe the carb while the car is warming up to check for leaks. Also verify that the choke plate moves to the fully open position when the car is warm. Make sure the fast idle adjusting screw (by the choke) is no longer contacting the fast idle cam. The idle should be governed by the warm idle adjusting screw (driver's side of the car) and not by the fast idle screw at this point.

Turn on the headlights (alternator should be under load)

Put the car in the drive position for automatic transmission cars (a helper is probably necessary here) or neutral for manual cars.

Check the idle speed with tachometer. Adjust it to spec by turning the warm idle adjusting screw.

## Step 9 - Idle Mixture Adjustment

The idle mixture is set with the two screws in the front of the carburetor. Both should be set 1 1/2 turns out initially from when the carburetor was assembled.

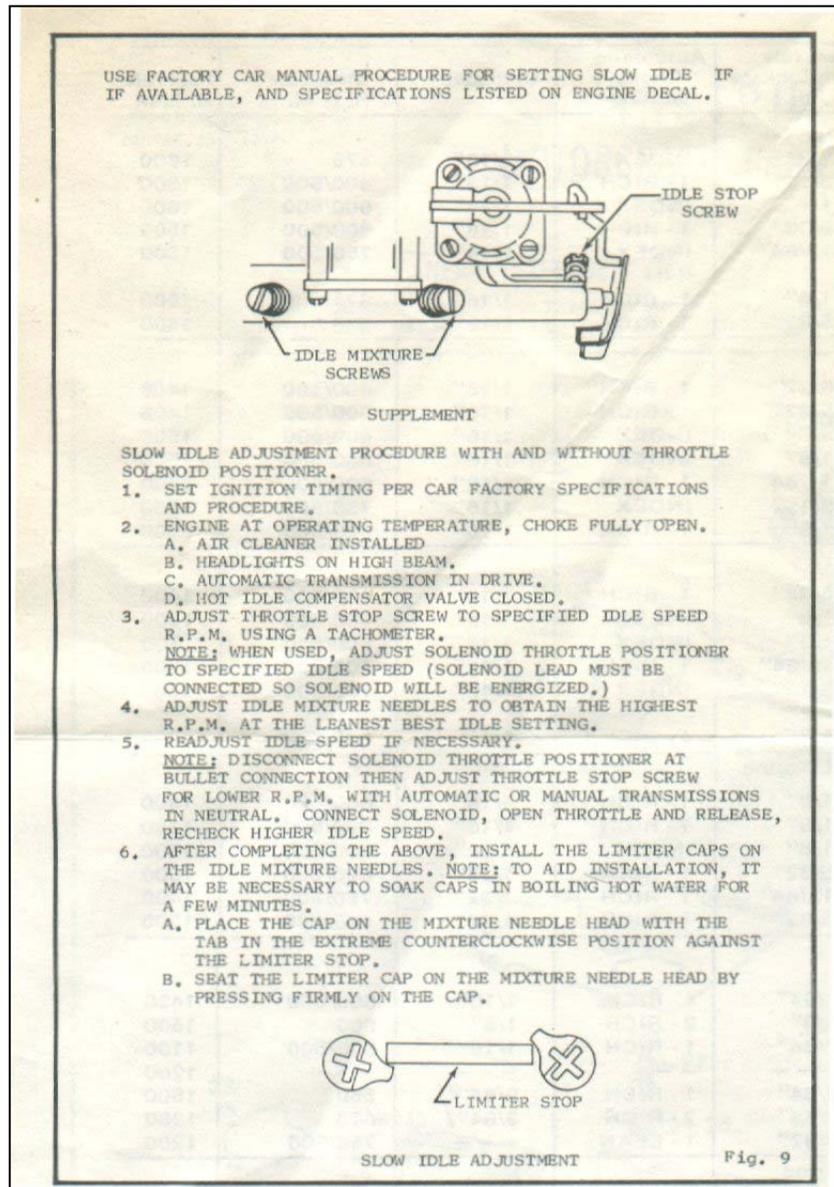
Wait till the choke is fully open and motor has warmed up to operating temperature.

Now start by turning one of the screws inward (clockwise) until the engine RPMs begin to drop. I usually turn the screws 1/4 turn at a time so I can keep track of how many turns out they are. After that turn the screw out until the RPMs begin to drop.

Now turn the screw in again and stop when the maximum smoothness and RPMs are obtained. Follow the same procedure on the other screw. **NOTE** - after both needles are done there should be no more than 1/2 turn difference between them.

You can also use a vacuum gauge and watch for the highest vacuum possible per each side.

The warm idle speed will need to be adjusted again after the mixture is set properly.



## Off-Road Tricks

Some Motorcraft 2150 carburetors use a damper spring on the float pivot rod to stabilize the float when the vehicle is jostled.

Some early-'80s carburetors use a bowl filler that occupies the upper space to the left of the float (opposite the pivot rod). The bowl filler helps keep fuel from sloshing around excessively and helps maintain the fuel level above the power valve and main jets in the bottom of the fuel bowl.

The float damper spring and bowl filler are both excellent modifications for an off-road carburetor.

