

# The GAK using Ziv's GAK in the box

By Webslinger

The **Gonzo Air Kit** or GAK has been around for a long time as a "Do-It-Yourself" performance modification. This is probably the least expensive way to increase horsepower by 15-20% for the XVS650.

*Kit includes:*

- chrome Emgo pods
- chrome breather filter
- breather filter adapter
- stainless washers to shim the needles
- stainless washers to space off the choke screws
- stainless cap screws to replace brass screws on the carb covers
- drill bit to remove PMS plugs
- 3mm ball-end driver for the cap screws.
- **Three pair of main jets ARE included. (122.5, 125 & 127.5)**

**NOT** recommended for bikes with intact stock exhaust.

<i>Exhaust</i>	<i>GAK jets</i>	<i>Mix screws</i>	<i>Shims</i>	<i>Adj. needles</i>
<i>Stock</i>	<i>Not rec</i>	<i>Not rec</i>	<i>Not rec</i>	<i>Not rec</i>
<i>2nd Baffle drilled</i>	<i>Not rec</i>	<i>Not rec</i>	<i>Not rec</i>	<i>Not rec</i>
<i>3rd Baffle drilled</i>	<i>120 -125</i>	<i>3.5</i>	<i>2</i>	<i>4th notch</i>
<i>Gutted</i>	<i>125 – 127.5</i>	<i>3.5</i>	<i>2</i>	<i>4th notch</i>

## Steps

### Removal of the tank

- Remove the seat
- Then the Speedo



- Then the tank
  - Turn off the fuel - then disconnect the fuel line



- Then remove the rear mounting bolts



## Remove air-box

The air-box is secured by two Ring type hose clamp metal bands that go around the top of your carbs. You unscrew them from the left hand side of the bike.



Finally the crankcase breather tube is connected at the back of the air-box by a spring clip.





## Installing the filters

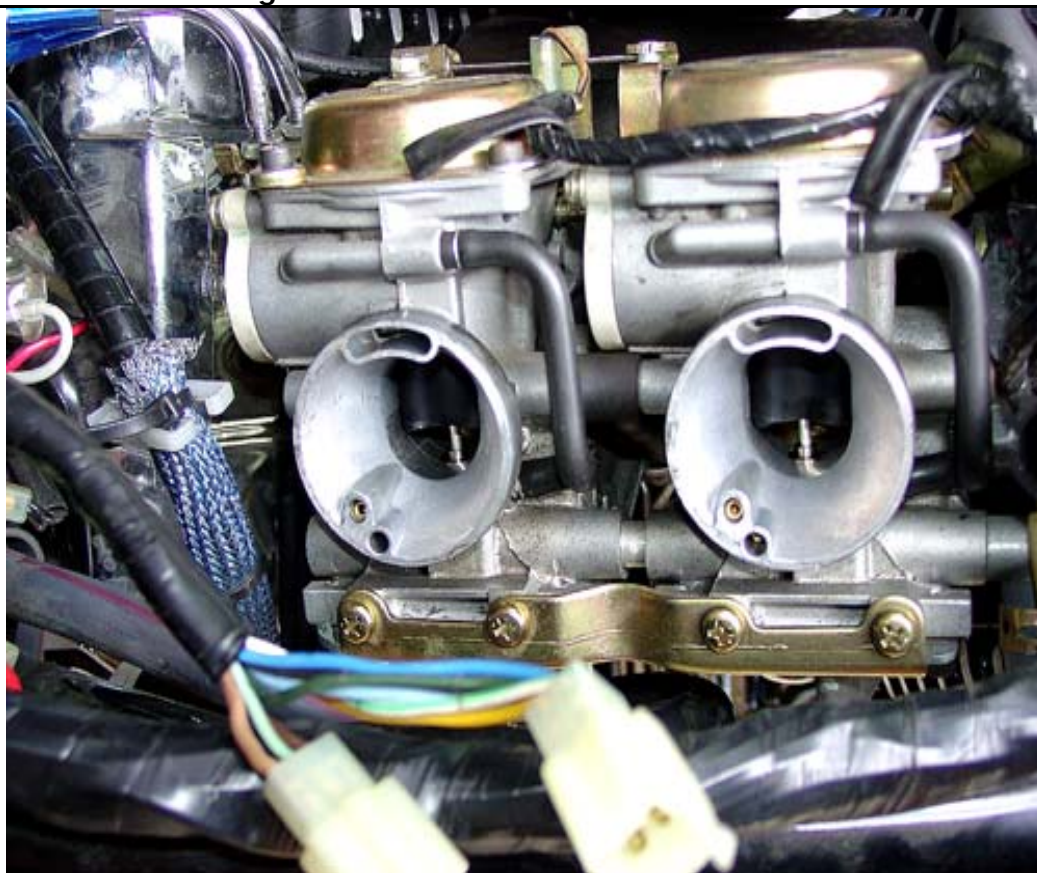
This is simple and make sure the filters are completely sealed around the top of the carbs.. Don't over tighten the Ring hose clamps as this could make the filters slip off the carbs without you knowing. Just tighten it hand tight. The picture below shows how all three filters should sit when they are all mounted, shown from the right-hand side of the bike. With the air-box now removed and the breather tube free, install the crankcase breather filter and secure it with the supplied hose clamp and breather filter adapter. Make sure the pod air filters are all evenly oiled before putting them on and have an even pink color throughout. I used K&N air filter oil - just a light mist - **DO NOT OVER OIL** as this will restrict airflow



Now the carbs...

## Jetting the carbs

I started on the right side of the bike.



This shows a view from the top of the carbs looking down into the venturis. You can see the vacuum slides and needles. The tapered end of the needles fit into the needle jets in the wall of the carbs.

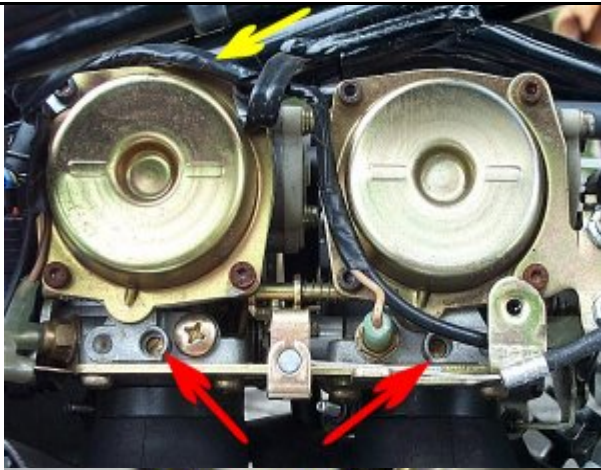
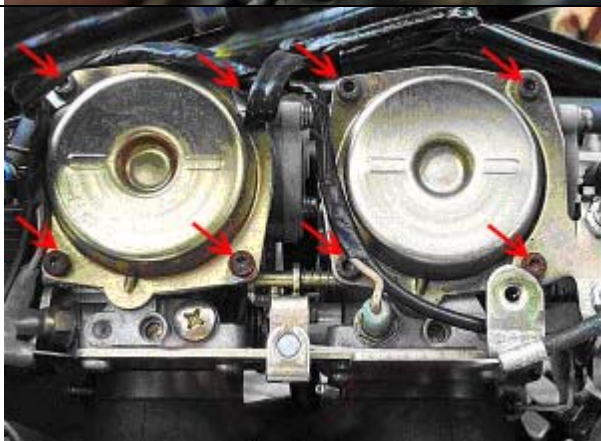


Photo Courtesy of Jeff Sweigart



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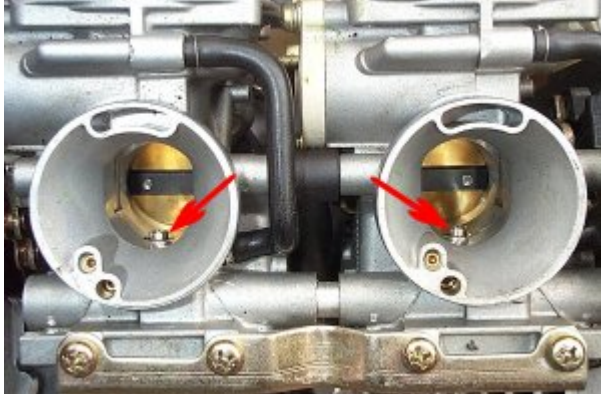
This shows a view of the right side of the carbs with the covers on. The clamp for the choke slide has already been removed and the choke cable is hanging free. The red arrows point to the idle mixture screws or PMS screws. The idle mixture screws are recessed about 1/4". The drill bit is used to drill a pilot hole for the sheet metal screw through the top of the brass plug. You have to be careful to not let the bit penetrate too far and damage the idle mixture screw under the plug. Once the hole is drilled, the screw is threaded a few turns into the plug and a pair of pliers can be used to pull the plug from the carb body. The idle mixture screws should be turned in (clockwise) until they seat gently. Open each idle mixture screw 3 1/2 turns (counter clockwise).

The stock brass screws are very soft and can be a real pain in the butt, as the heads strip easily. Some have used a posi-drive bit very successfully to remove the brass screws – I used a good rap on the end of the screw driver with a hammer. Some of the heads stripped as expected and I ended up cutting a single deep slot in the heads of the screws and using a large flat blade screw driver to remove them. Whatever you do, replace those damn brass screws with allen head bolts! Stainless allen head bolts are supplied with the kit. (Ziv - you da man!!!!)





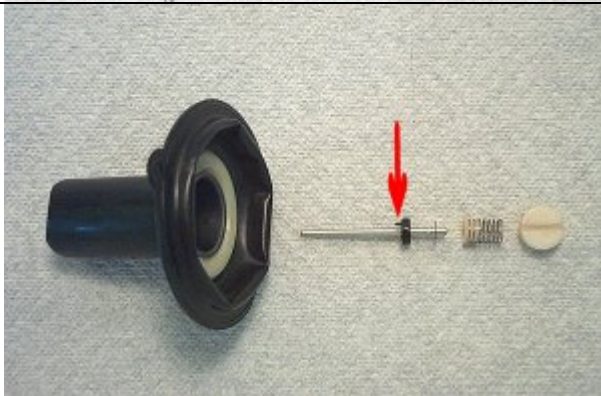
Once you carefully remove the cover plates, the vacuum slides are exposed with the slide springs. The covers have been removed and the vacuum slide assemblies with the slide springs are exposed. Remove the springs and carefully remove the slides by gently pulling on the diaphragm edges.



Another look down into the venturis with the slides and needles removed. The arrows point to the needle jets located on the venturi walls.



The vacuum slide and needle assemblies



The vacuum slide assembly parts. The slide, needle with black spacer/seat, cir clip, spacer washer, needle seat spring and needle cap.



You shim the needles by installing 2 # 4 washers between the black spacer/seat and the cir clip.

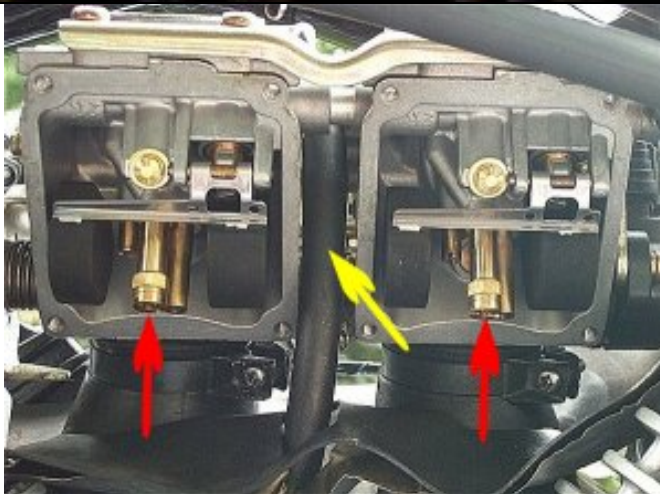
To disassemble the needle from the slide, remove the needle cap with a flat blade screw driver. Be sure to hold the vacuum slide by the plastic cylinder body and not the diaphragm. Handle the diaphragm as little as possible to avoid ripping or damaging it. Once the needle cap is removed, the needle and needle seat spring will fall out of the slide. Note the little nub on the black nylon spacer/seat, indicated by the red arrow in the picture above. **Just break it off so that you don't have to mess with it.** Remove the black spacer/seat from the old needle and push it onto the new needle, up against the circlip. Spacer washers are included in the GAK kit. Place the 2 spacer washers on the top of the needle against the circlip. Place the needle seat spring on the top of the needle and insert the new assembly into the slide. Install the needle cap and tighten it firmly but not excessively. Make sure it's not cross threaded or over tightened!

Insert the slide assemblies back into the carbs being careful to align the diaphragms in their seats. Gently move the slides in and out a short distance to make sure that they are free moving. Place the springs back in the slides and put the covers back on. The bottom right hand screw on the rear carb is just in front of the choke slide. A longer bolt is supplied. The needles are done – now the jets



The main jets are housed in the float bowls on the left side of the carbs. The idle speed adjustment knob/cable will have to be moved out of the way to get to the cover screws. Remove the brass screws.... *(Man I'd love to meet the guy that thought that up)*, just like the other side. The only difference here is that gas in the float bowls will drain out onto your bike. Be ready with a couple of rags to catch the gas as it leaks from the float bowls. Keep track of the placement of all the brackets and holders.

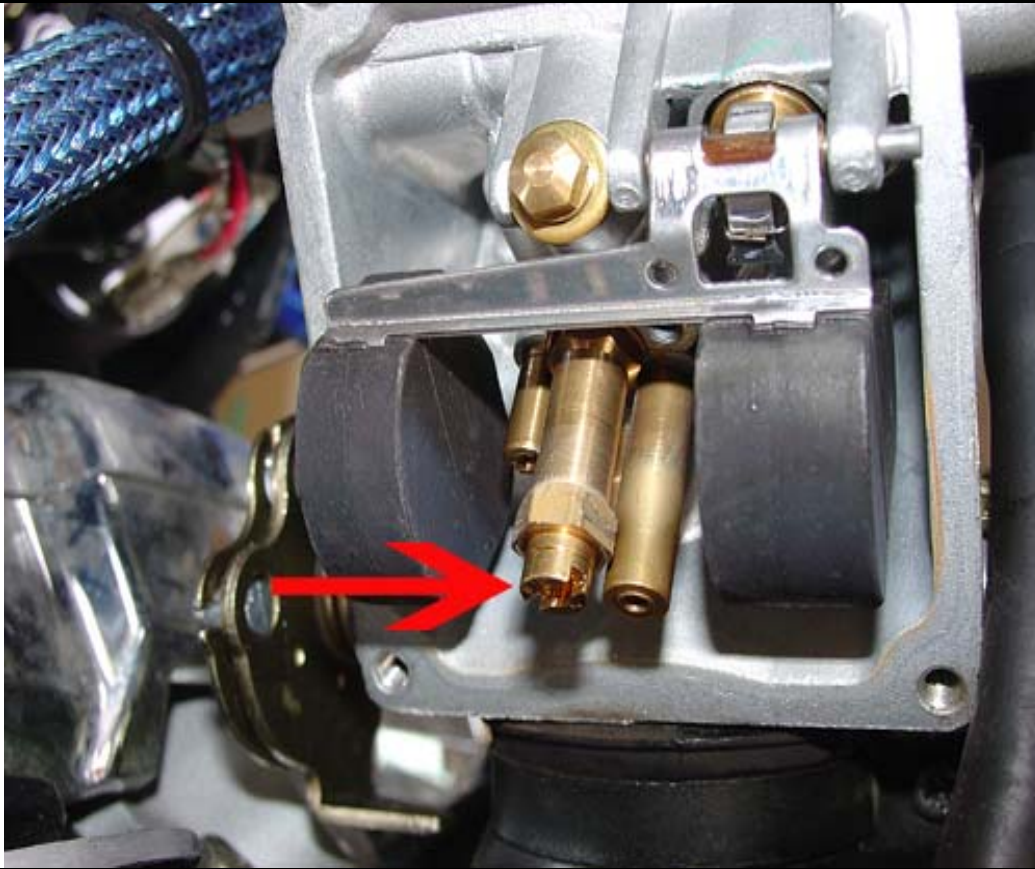
In this photo – you see the difference btw Stainless and non stainless screws



The float bowls house the main jets, pilot jets and floats. The carb vent hose is seen between the two carbs and is routed down through the heat shield between the cylinder jugs.

The yellow arrow points out the carb vent hose. Make sure the vent hose remains intact and is not bent or kinked. (more on this hose later – Keep it in mind!!!!)





The main jet on each carb is located between the floats. Be careful not to hit the floats or bend the float adjustment tang. It can be a chore getting the floats adjusted again if they become misaligned.



The main jet standoffs end in a hex head fitting that can be held with a small wrench while a screw driver is used to remove the jets.



Install the new jets in accordance with your pipe configuration.....

<i>Exhaust</i>	<i>GAK jets</i>	<i>Mix screws</i>	<i>Shims</i>	<i>Adj. needles</i>
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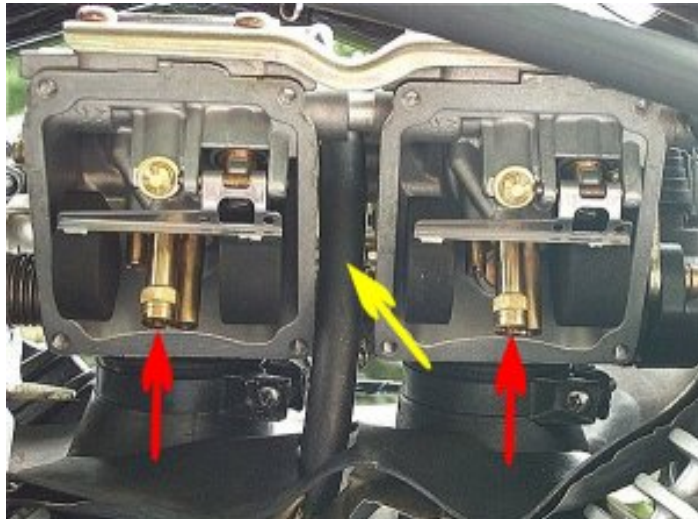
Replace the covers. Ziv has included a very handy tool for this....(*Ziv rides again*) Again, use the allen heads. Use 8, 4mm x 12mm bolts for these covers.



Attach the idle speed adjustment to its bracket.

Replace the tank in the reverse order you took it off with and replace the speedo

Now remember the carb vent hose?



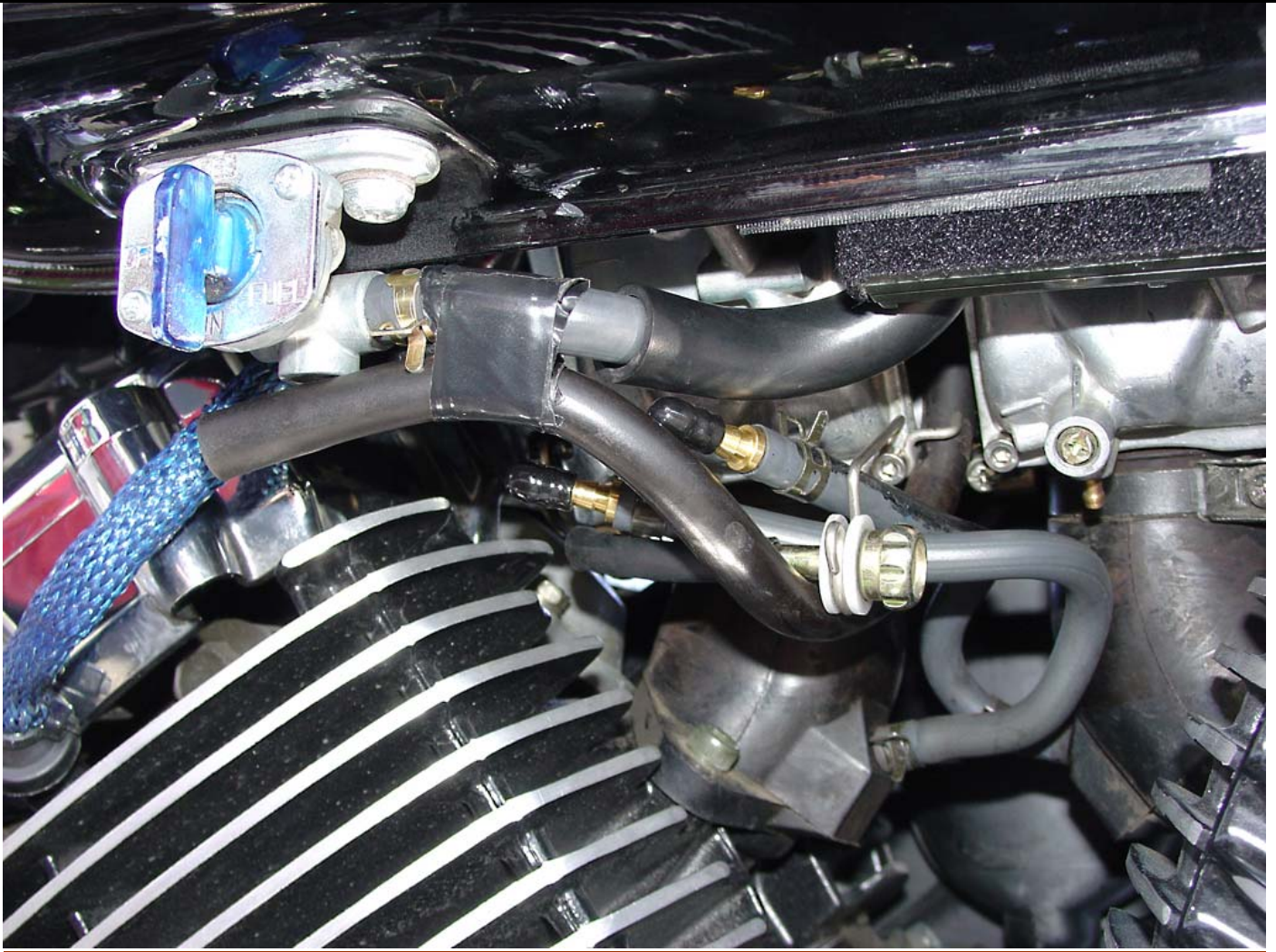
### **This is very Important**

Disconnect it from the bottom mounting point – at the bottom of the old air cleaner assembly.

Re-route the bottom of the hose and tape it facing forward to the bottom of the fuel petcock assembly.....

I found this the hard way – if you don't cross winds will cause the bike to surge acting as if it were "cutting out".

What you are in effect doing is pressurizing the float bowls



Don't forget **YOU MUST** synchronize the carbs after you do all this

Jets are done!