

700 through 1100 VIRAGO Installation Guide  
**Congratulations on your purchase of  
The KJS System**

Revised: June: 2015

Please read carefully before you start the installation of this new composite system. These tip's are proven through years and hours of R&D and were designed for self-installation with minimal prior mechanical background. It is mentioned in the trouble shooting section a separate attachment, about vacuum leaks on installing the manifold, please remember, you can't do the final checks of the carb's performance, if is not sealing properly, intake manifold leaks are 99% of all problems ! The carb supplied for your system is a TM40-6 formally known as a HS40, here's a link to mikuni for more details, [http://www.mikuni.com/pdf/hs40\\_manual.pdf](http://www.mikuni.com/pdf/hs40_manual.pdf) also, visit the FAQ from the web site for further explanations, on how the system works and exhaust system clarifications

NOTE: which ever air filter you choose, the one on the web site is a K&N, part # RC 1950, no brackets required, but custom filters, depending on how heavy will need brackets to the frame to support any Extra weight that some air filters have. This save's ware & tear on the rubber boot. We don't sell air filters; there are just too many kinds

### **MANIFOLD INSTALLATION**

The most important thing to remember is the old theory, practice make's perfect. Use **BLACK SILICONE ADHESIVE SEALANT ULTRA BLACK RTV SILICONE GASKET MAKER**, this is for installing and sealing the manifold correctly & takes up to 24 HR.S, too cure, read there package for use

**A:** With the old dual carb system, it's a fact that on older models, that one cylinder may have run richer than the other. Over a period of time, this gums up the intake valves and piston rings. With the spark plugs removed and the duel carbs you can spray down into the cylinders & intake/exhaust valves the valve stems with WD 40, turning the engine over from time to time. Do this over a period of a day or two, to loosen up all the old crap, so when you fire up the new system, it clears it out and you'll be able to enjoy the KJS system to its fullest potential. If you choose to perform this step, be aware that you'll see lots of really nasty smoke on your first engine start up. . If the engine pops, then the valves are carboned up and it will clear in a 100 mile. This holds true for older abused models that used duel carb's that been bad for years

**B: Note, with the composite manifold never over tighten. There tough! So be sure you understand this, it works! Never over tighten, again, let the silicone do its job. If you have a 3<sup>rd</sup> party do the install for you, remember, most mechanics know everything, and they don't get paid to read these instructions, so if they brake it, as they say, they have to buy you a new one. This is called installation abuse! Please just use common sense, thank you**

**C:** Here comes the practice part: NOTE; Record the size of gaskets being used! Using the gaskets supplied on the front & rear cylinder's; insert the 4 bolts, finger tightening in a figure 8. **Front Cylinder TOP. This will act as a pivot point**, then swing the manifold down into position, then insert the **Rear Cylinder TOP, Front Cylinder BOTTOM, Rear Cylinder BOTTOM**, holding the manifold as still as possible! This will give you a good sense for the final install with silicone. There will be enough room for the silicone, we call this the squish zone, this space is needed for final installation, which the silicone will take up, and when cured, will seal perfectly.

**D:** By now, you have mastered this technical part, and are ready to apply silicone. After cleaning the cylinder heads, apply an amount of silicone on the gasket, only on the circle part, and stick it to the head, pad it down, and the excess can be wiped out and applied to the face, this will help when installing the manifold to bond with each other

Apply silicone to the manifold, Again only in a circle about 3/16 of an inch wide, and 1/16<sup>th</sup> of an inch high, not to wiggle it, and install with the bolts & washers supplied. Remember. It, s going to ooze out a little when bolted up, so you'll have to determine what's fair

**E:** Well, everything looks good. Use the four new bolts with the 4 washers provided; to help spread the torque pattern. You should have silicone on the gasket face, to match the manifold you put the silicone on. From the right side of the bike, tilt the manifold out at the rear without letting the silicone coming in contact with the gaskets, and insert one bolt in the **Front Cylinder TOP. This will act as a pivot point**, then swing the manifold down into position, then insert the **Rear Cylinder TOP, Front Cylinder BOTTOM, Rear Cylinder BOTTOM**, holding the manifold as still as possible! Otherwise, you'll smear the silicone, and you'll have to start all over again.

Finger tight in a figure 8 pattern as many times as necessary starting with the REAR bottom, while positioning the manifold, feeling the seating motion - You'll feel it match up as you wiggle the manifold from the front and a up and down motion. This manifold is like nothing else's and has 3 compound angles, so feeling the motion is part of the installation. These bolts are tiny, so don't go crazy. You're only going to use 75 % of the specified torque. That's barely finger tight, once this is done, let cure for a couple of hours, (Patience is important) and then do the other 25% let cure there for up to 24 hr.s then check it again and do the final torque. The torque is ((1.8 ft lbs)), or ((23 INCH lbs.)) or gently the tip of your baby finger on the end of a 10mm box end wrench. Remember that this isn't a head bolt on a Chevy. After warm up, and cool down, check them again for the last time. They should be about up to half of a turn loose if installed correctly. Note!!! Let the silicone do its job, never over tighten, that would be installation abuse!!!! Now the manifold installation is all done. SEE trouble shooting for seal check

**F:** There is now a video of just the manifold installation on the web page for downloading just so you get the idea and these paper instructions are true.

### **CARB INSTALLATION**

**A:** The new rubber intake boot is pre installed for you.

**B:** Now the carb is ready to install: insert carb into the rubber intake boot (use oil to promote) rotate to feel it seal and clamp it up easy. There is a vacuum port rubber plug on the side of the carb if needed. Again on the carb there are 2 slide body vent hose's, never block them, and one float bowl over flow hose, the 3 can be placed along the back side of oil lines facing towards the rear of the engine and then the heat from the engine will make them conform to shape of the engine galley towards the left rear side of the bike in case they ever have to over flow away from the exhaust. Again, make sure there not obstructed or blocked off, DO NOT use twist tie's they squish the lines? this will cause the carb not to function, every thing as been pre adjusted, and ready to go, again, important check for vacuum leak on the manifold, DON'T even try to adjust the carb, re install the manifold. It can be removed by using a 1 inch putty knife shaved to an edge, and gently tapped with a 6 oz hammer going from front to rear, side to side?

C: Throttle for the single cable, there is an adapter on the carb, simply slip the cable through, and adjust accordingly, with help from the upper adjustment, on the twist grip and oil and grease.

Dual throttle cable's, using your stock factory cables, position them where they were marked on the shipped carb and the adjusting coupler on the twist grip to get the desired push /pull tension and be sure all the cables and handle bar twist grip is greased and oiled for smooth operation

D: Depending on what bars you're using the throttle cable may have to be re-routed to give enough slack, so when turning the handlebars, it won't pull the gas on by mistake, and rev up the engine. The choke cable can be eliminated all together, since there is a manual button/or cable for cold start up's only

E: On all 81, 82 83, models, 700/750/920's the reed valve beside the left coil is not needed, simply throw it away, it doesn't do anything for the single carb system and was intended to help with the dual carb's follies, such as backfiring.

On models 1984 and newer, 1000/1100's (on top of the coil pack) there is a pressure sensor switch with two wires, connect the rubber vacuum hose no bigger than 3/16, rubber windshield washer hose is best, not clear plastic, it will collapse from it to the vacuum port on the side of the carb, this tells the ignition box to advance the engine's timing. HINT, the hose of the pressure sensor is molded, and crimps easily, so run the hose on the outside so it's visible along the front of the tank and up underneath, then you'll know there's no failure there?

(AIS) With the dual system you have front & rear 1/2 inch chrome tubes from the exhaust pipes can now be removed and plugged, (a 10MM fine thread will tap itself nicely) or just simply cut them back one inch, squish them in a vise and re-install. This is the (AIS) air induction system and is no longer needed and can be eliminated. This will make a difference in performance and also will clean up the engine's appearance dramatically

F: Replace all FUEL lines (they're likely rotten inside and the bits can jam the needle & seat) 5/16 fuel hose to fit the carb. On 1000/1100 use 1/4 inch from the pump directly with 10 inch hose to the carb it's self and stretch onto the 5/16 carb fitting with needle nose pliers. Now that everything is hooked up, you must prime the float bowl. Electric fuel pump models turn the ignition on and off a few times until you do not hear any more click, click, click (the sound of the fuel pump pressurizing the system). On 700/750/920's, use only wire screen type filters on gravity systems, not paper or brass, turn the fuel tap to the gravity feed position to prime, and connect the smaller hose from the pet cock to the vacuum port on the carb, so it will open the fuel pet cock diaphragm when in the on running position, gently tap on the float bowl, so the needle and seat doesn't stick while filling up

G: SPARK PLUGS: gap at .038 (new). This system was designed to use NGK. BPR 5ES NGK Stock # (7734) YES 5's NOT 7's!

H: Your engine has a crank case breathing system, either on the front or rear cylinder head cam shaft cover some models have it built into the frame which is good and others need to attach a 1/2 inch hose, and direct it upwards, under the tank is good, and attach a small breather filter, there are many kinds, the simpler, the better

## START UP TIPS

A: When engine is cold, turn the idle screw up 2 ½ turns from the last time the engine was hot, and as you push the star button, pull choke button at the same time out just as the engine turns over, then release the choke as soon as possible within 5 to 20 seconds not to foul the plugs & let the idle and warm it up, then re adjust the idle back down when hot.

B: This new system is more mechanical than automatic; attention to warm up is important. When starting the bike for the first time, **DO NOT REV IT UP**, let it idle for 20 minutes, the engine heat will help cure the silicone, and check for leaks before riding, see troubleshooting

C: Vacuum leaks are 99% of the cause of most problems; check the seal with Ether (quick start). It comes in a spray can, ETHER, no other product will do, with engine running, at no more than 1100 RPM spray it liberally 2 inch's all around the manifold sealing points, top and bottom, so it runs down the cylinder, it will evaporate within 2 seconds when the engine is hot. If there is a leak through the silicone, the engine will change pitch, will probably smother the engine. Do take care in this operation. This is one way to tell if it's not sealing. You'll notice the difference right away! If you experience a leak, you will need to reinstall the manifold: Do not polish the inside of the manifold; it's balanced just the way it is!

D: The brass airscrew (PMS) is the only adjustment and only functions for the first parts of the carb system. PMS airscrew is pre set and marked on the carb body and can never go past 3 turns out. It is marked where it has been pre set by me. If this section is rich, then turn the airscrew in 1/4-turn increments to find the sweet spot. Again, if you have a vacuum leak, this action will be futile!

**NOTE:** When cleaning the plugs, never use a brass brush; it will coat the plugs with brass, always use steel wire brush or sand blast. REMEMBER, if a plug is badly fouled up inside, the carbon deposits, will make the plug run erratically, and will mislead you, replace it with new ones!!!

F: It should be noted that the new carb system does supply a good atomized charge, so the plugs under good condition will have a light color to them, the outside rim of the plugs will show darker, and half way up the electrode hook, or tip. This is normal. To compare: like a WW2 fighter, the cylinder heads should be 180 degrees before you go, 160 min, the manifold itself will run around 85 degrees, making the fuel charge cold & excellent for performance, it is cold blooded !

**G: This system is guaranteed to work, let the silicone do its job of sealing, over tightening the manifold's specific torque may result in cracking the flange, this is considered installation abuse, and there is no warranty ,simply, Please use common sense, thank you.**

**CONCLUSION:** I know it may be hard to control your excitement with this new system, but you'll have plenty of time to give it the works. Revving it up, will only load the cylinders up with unburned gases, and thus you will not be able to judge the coloration of the plugs, which tell the tale. You know so-called trade secrets. It's my firm belief, you will be a carb expert, and should be proud of your accomplishment and enjoy the new throttle response & outstanding performance that this system delivers. Relearning to shift and throttle twisting will be a whole new experience. Some say that they don't look for a 6 Th gear any more. Please visit the trouble shooting and tips for further good info

Yours Truly. Ken

