RCC Turbos - Stage 1 Turbo Install: Suzuki Hayabusa (Gen 1)

- *Preparation/Disassembly:*

Remove the seat.
Disconnect negative terminal on the battery.
Drain the fuel tank.
Remove the fuel tank.
Remove the stock fuel pump from the tank.
Remove the air box.
Remove the MAP sensor and temperature sensor from the air box.
Remove left and right side fairings.
Drain engine oil.
Drain engine coolant.
Remove the oil filter
Remove the oil restrictor, behind the filter.
Remove the oil cooler lines.
Remove the radiator and oil cooler, as one unit, leaving only the bracket/support for radiator (before reinstalling the radiator please remove all the tabs along the bottom of the radiator).
Remove the entire exhaust system.
Remove the PAIR system.
Remove the oil pan from the engine.

- *Sensor Bracket Modification:*

On the left hand side of bike, on the inside of the frame, you will see a bracket, with a plastic vacuum canister, vacuum control solenoid valve, atmospheric pressure sensor, and some vacuum lines, with a check valve in the vacuum line.

Please remove this entire bracket, eliminate all the vacuum lines, the plastic canister, and the control solenoid valve, and also cut off the metal tab that held the vacuum canister.

Then reinstall this bracket with only the atmospheric pressure sensor, and plug the wires back in.

- *Tap/plug PAIR System Holes:*

Tap the four small PAIR system holes, above the exhaust ports, with an M6 x 1.0 tap.
Install the four small M6 screws into the exhaust holes after tapping them.

- *Modify the Oil Pan:*

Drill a ¾" hole on the left side of the oil pan.

Use thread sealant on the washer, and red Loctite on the threads. Make sure the sealing washer is against the inside of pan, then the stainless flat washer, then the nut.

Once the fitting is installed, reinstall the oil pan.

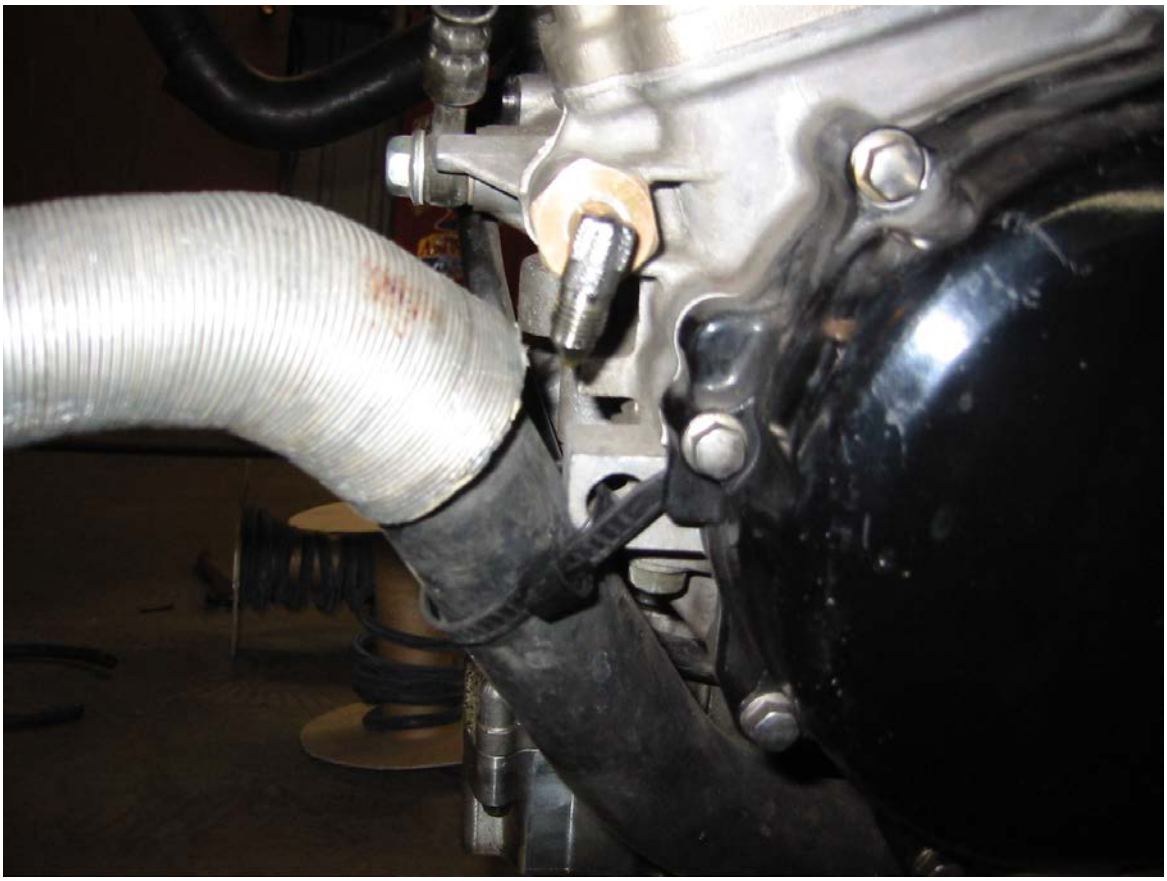
- *Install Header/Turbo/Oil Lines/Exhaust:*

Install the header and turbo as a unit, but with the bolts loose.
Use four of your original header bolts on the top of the turbo header (Allen head).
Use the four new bolts on the bottom row of the header (M8, 10mm flange head).

PLEASE NOTE! After installing the dump pipes and waste gate, the nipple on the top of the waste gate remains open, and no hose gets installed on the top fitting. The top fitting is used for boost control on Stage 2 and higher end kits. It is not used on Stage 1 kits.

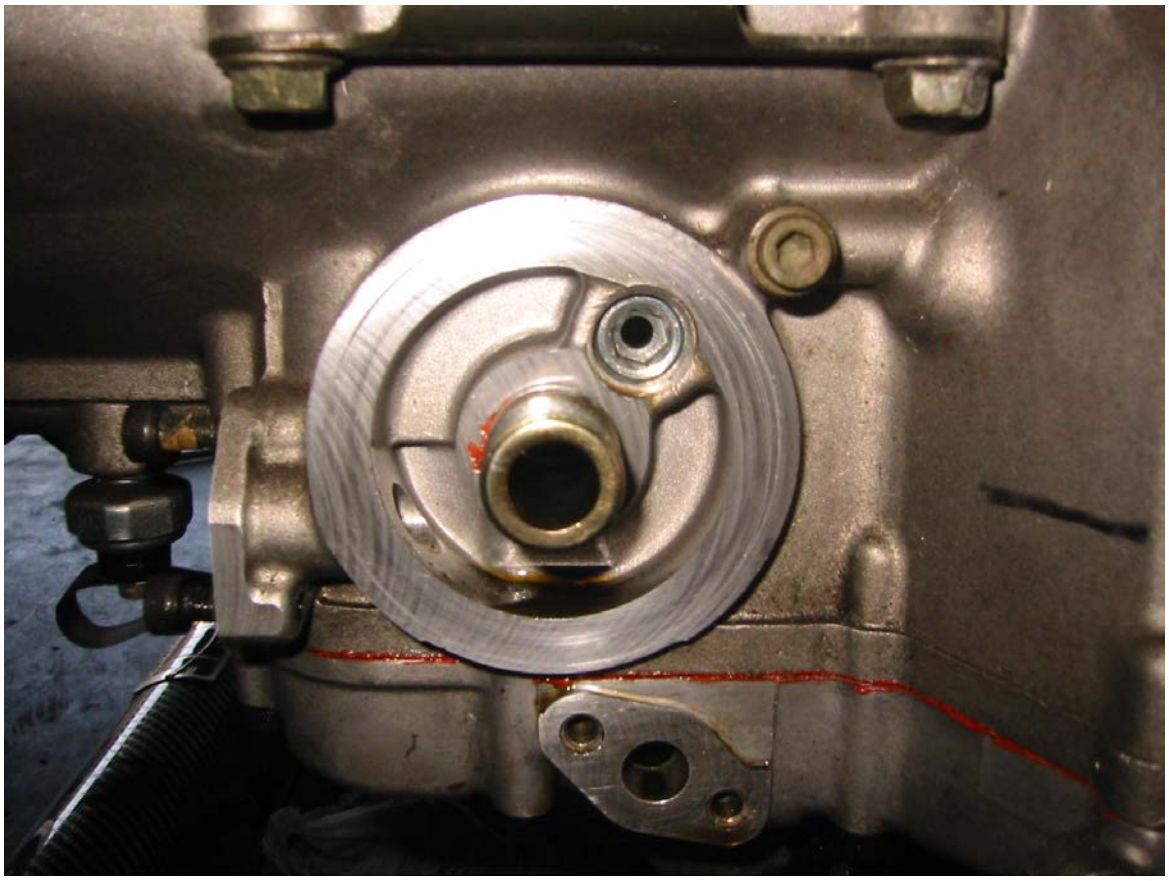
Install the turbo oil drain hose. You may have to shorten the hose slightly to get a perfect fit (depends on where the hole was drilled in the pan).

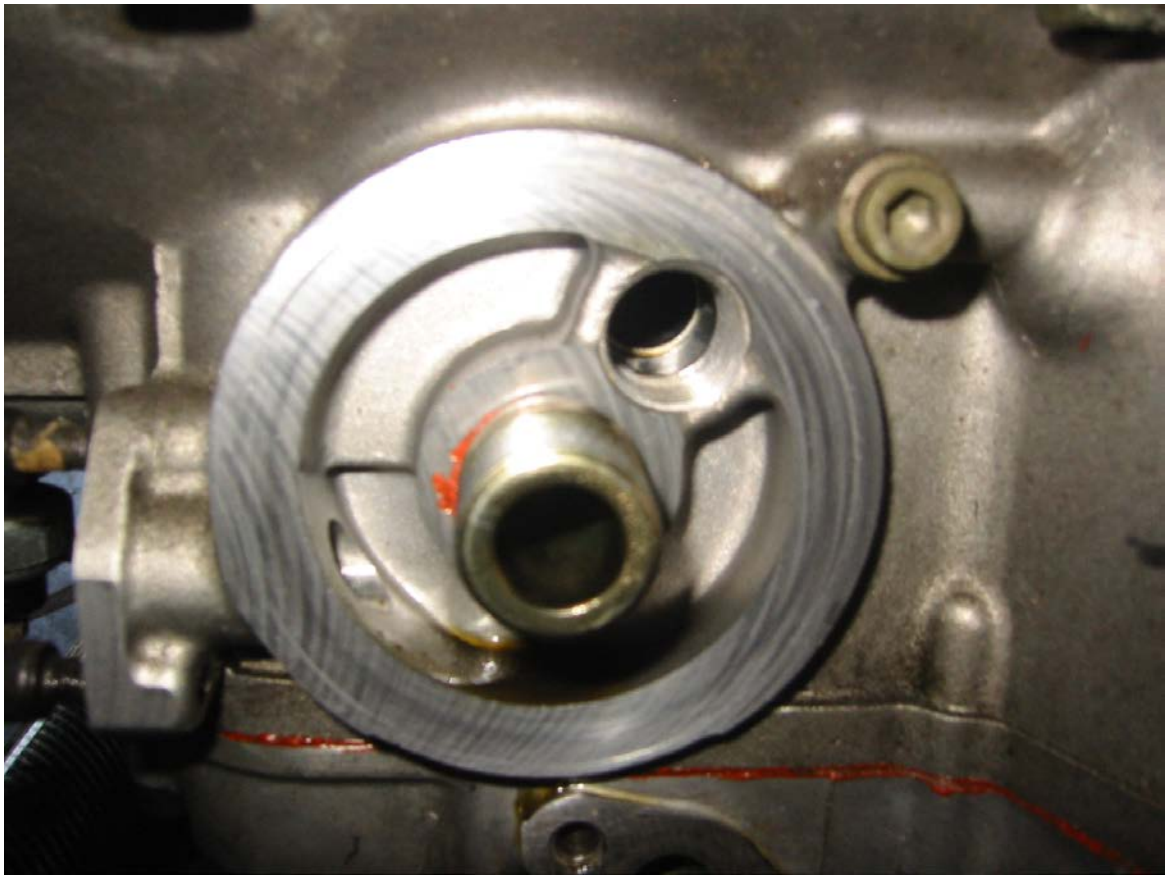
Remove the oil gallery plug on the left side of the engine.
You will also need to remove the stator cover to install the new fitting.
Install the new fitting and 90 degree elbow, positioning elbow as show in the following pictures.



Attach oil line to this elbow and to the turbo.

Install oil block off plates and make sure the oil restrictor behind the oil filter has been removed, as shown in the before and after pictures, below.

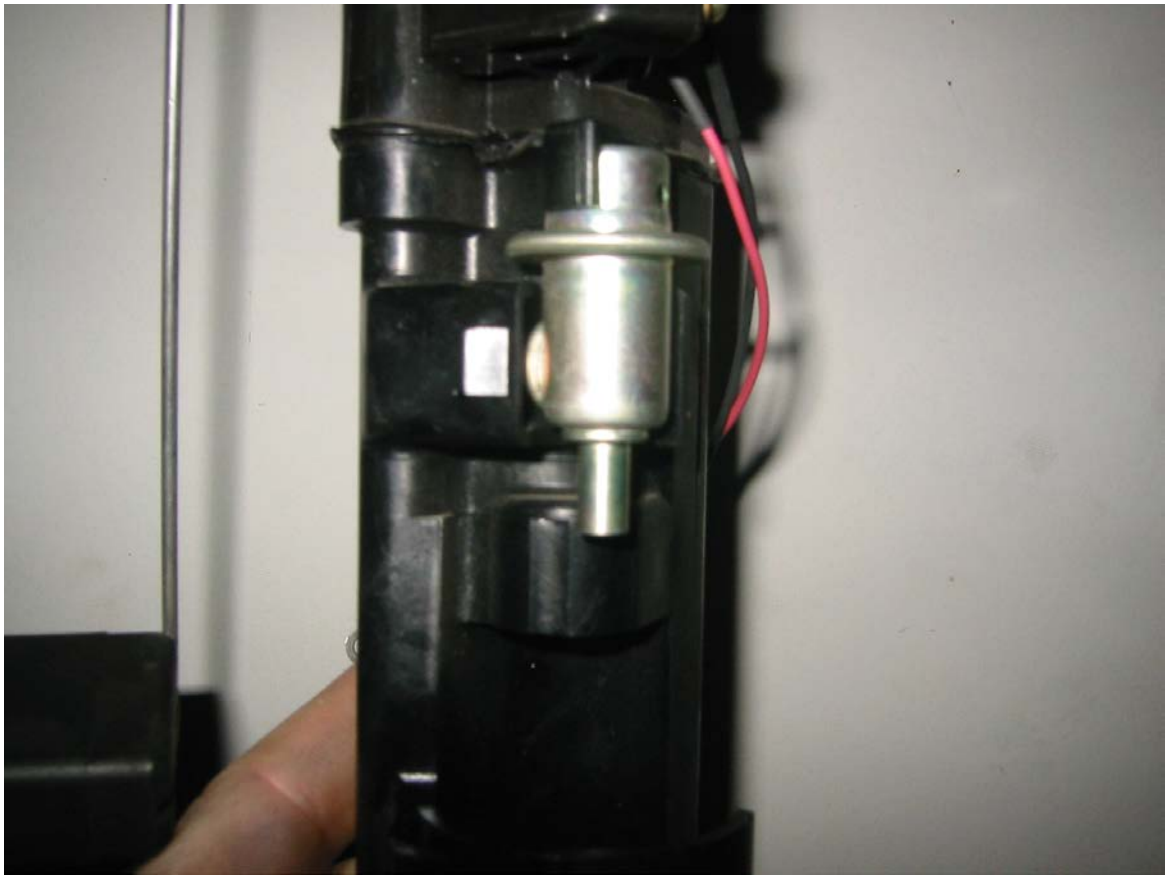




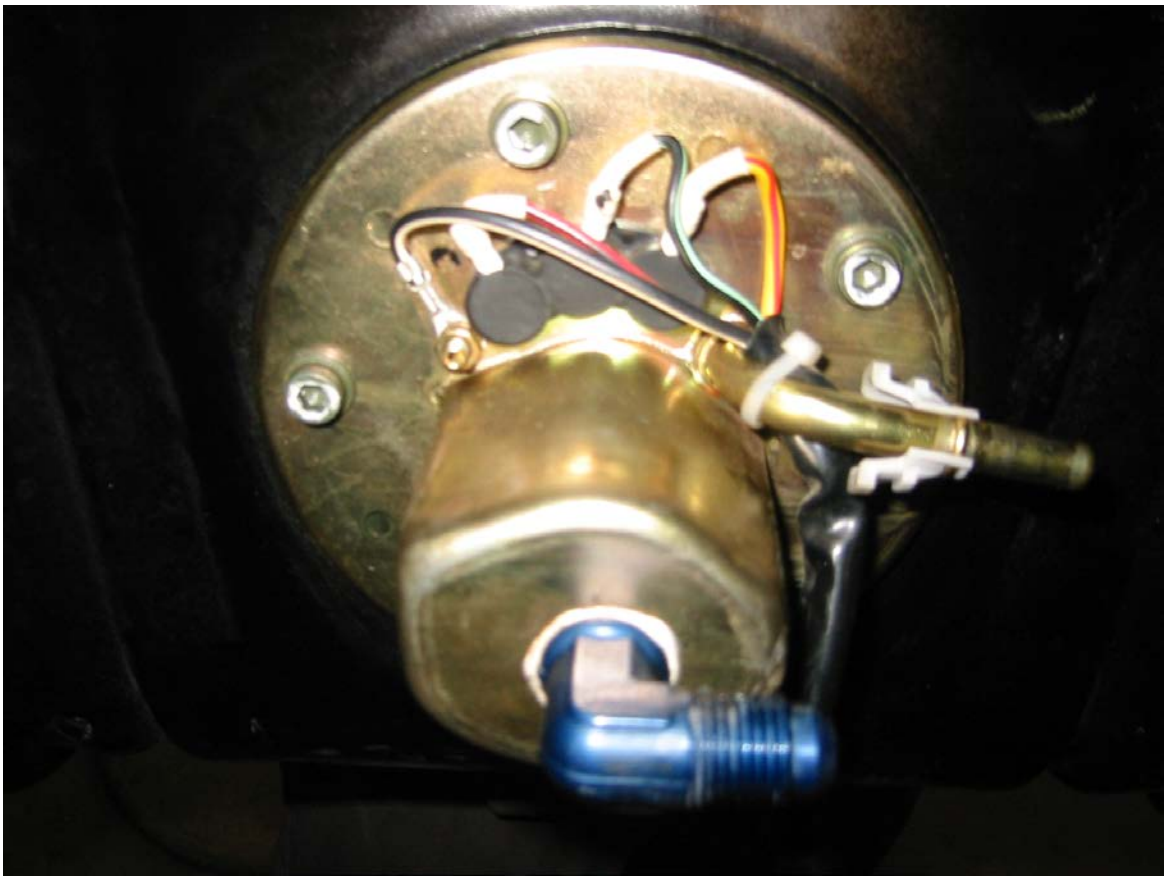
Install exhaust system/dump pipes loosely and check the fit of the fairings.
If everything lines up nicely, you can tighten the header, turbo, and exhaust system.

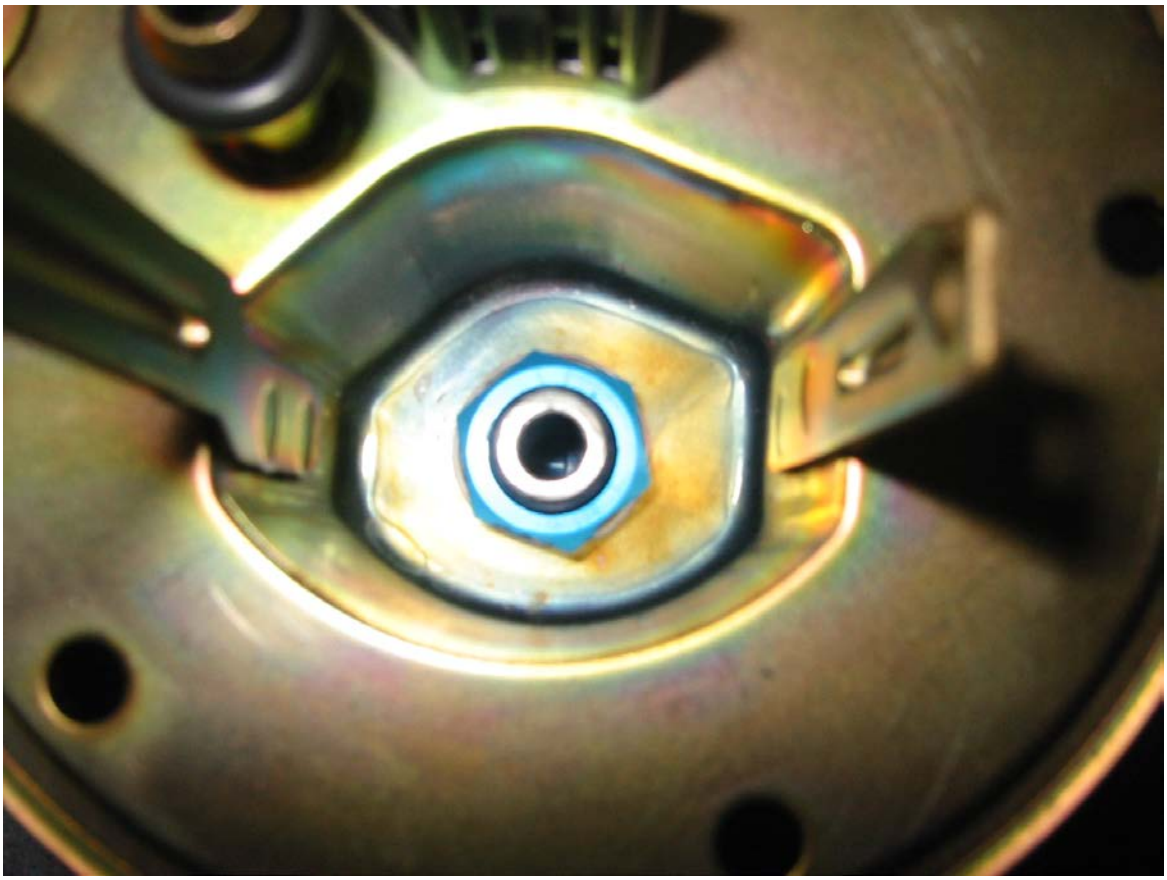
- *Modify the Factory Fuel Pump:*

With the fuel pump assembly removed from tank, remove the factory pump and regulator from the assembly.



Drill a 9/16" hole in the bottom of the pump housing.
Install the bulkhead fitting, as show in the pictures below.

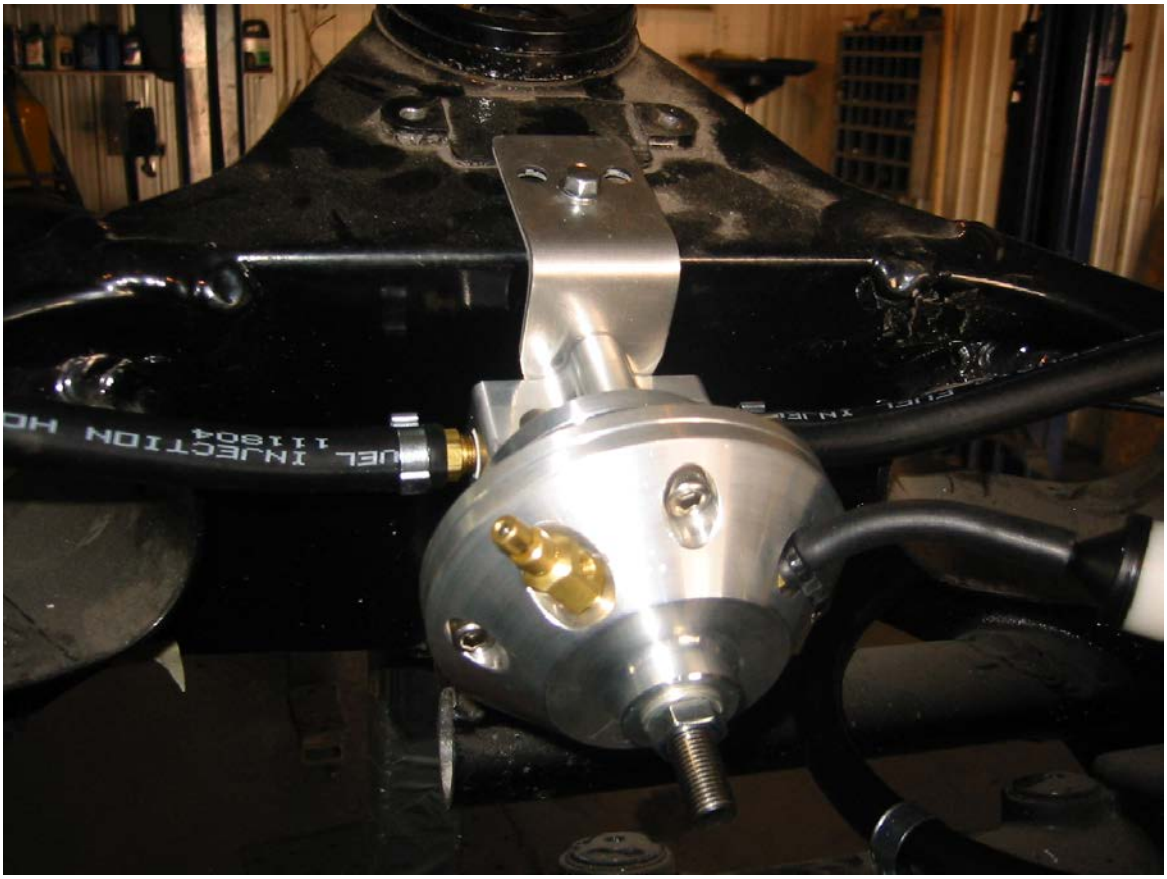




Sealing washer goes on the inside.
Please also use some pipe sealant on the washer and red Loctite on the nut.

- *Install FMU and Secondary Fuel Pump:*

Install the FMU on the frame, re-using the factory air box mounting hole/bolt, as shown in the picture below.



The vacuum line from FMU connects to one of the nipples on the #4 throttle body.
If you have a BOV, the hose that is labeled "#4 throttle body" is to be teed into the FMU hose, close to the throttle body.

Turn the bleed screw on the side of the FMU all the way in (clockwise) with your fingers only, than back it out a ½ turn.
Only use your fingers to do this.

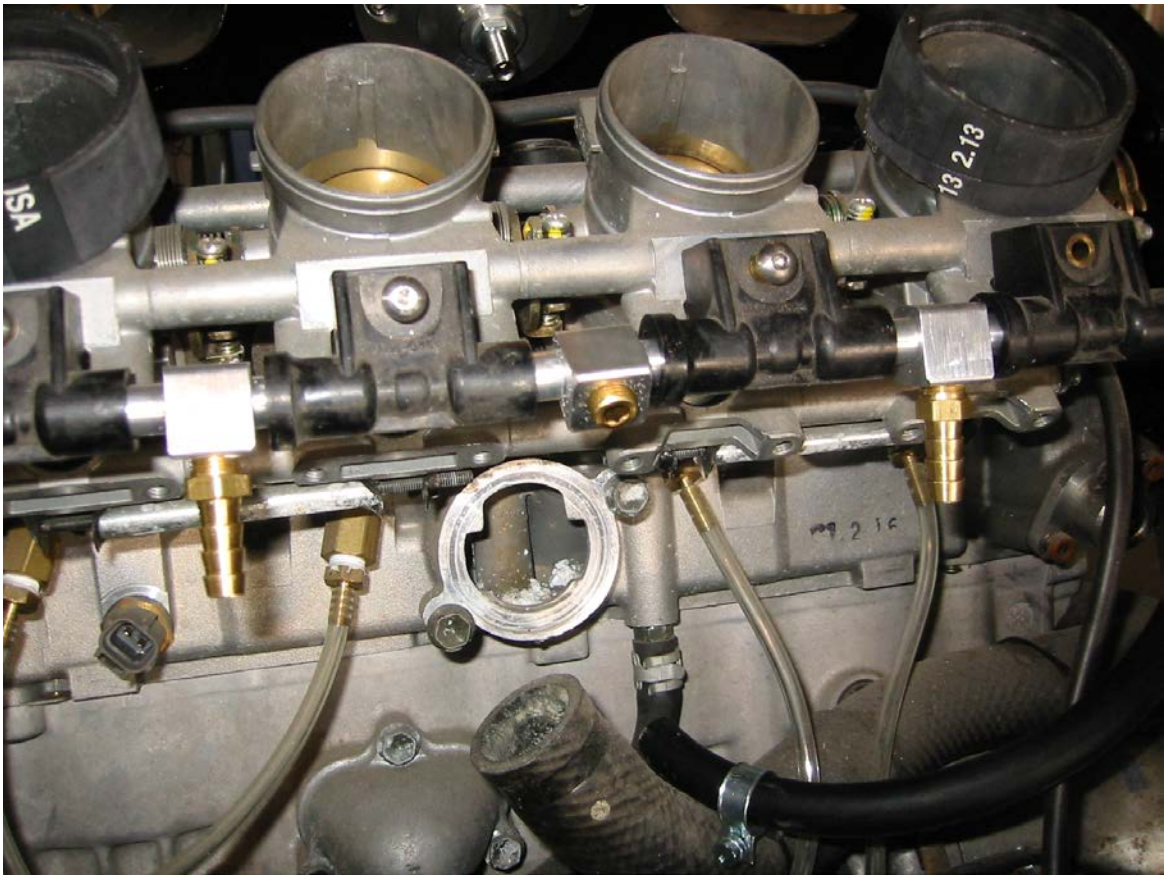
If you're not sure about this bleed screw, please call: 1-519-335-6504.

The fuel pump can be left lying on engine, as shown in the picture below.

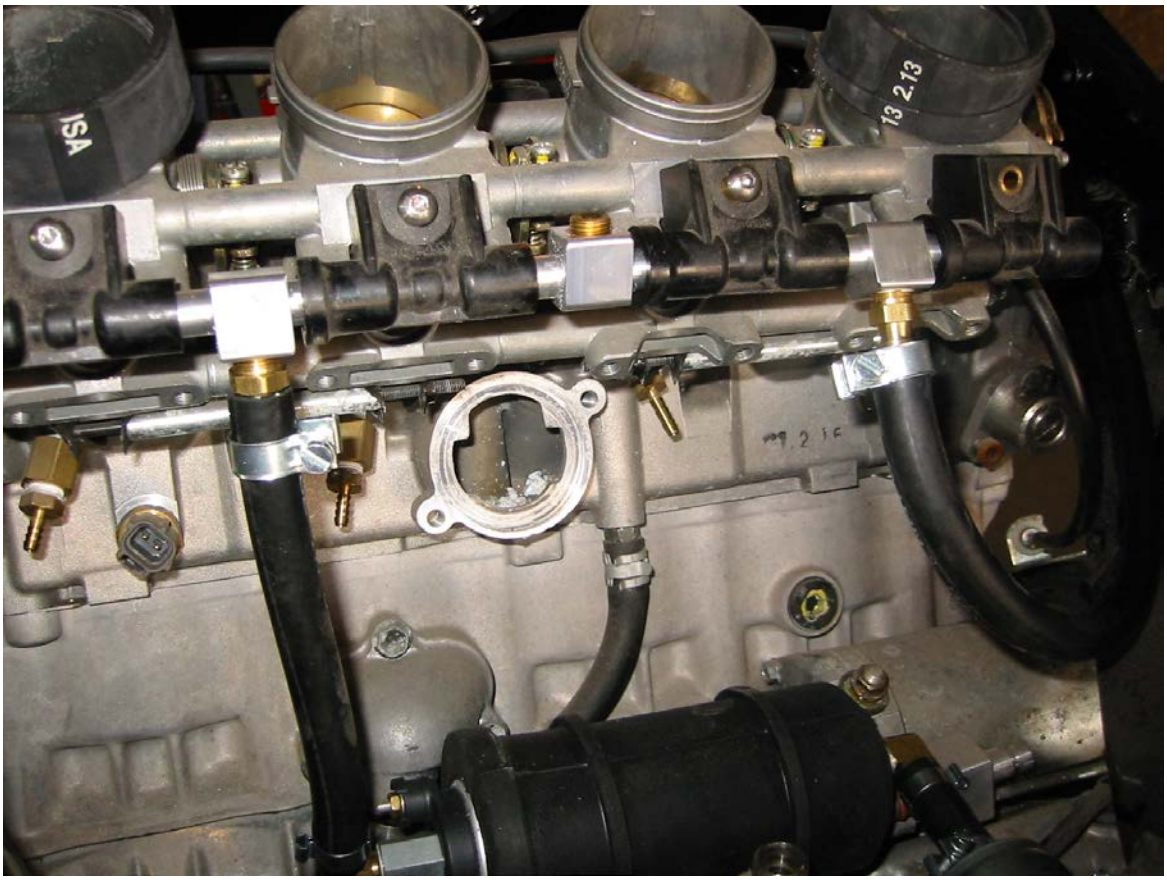
The line on the pump installs on the left side of the fuel rail.
Replace the 10 amp fuse for the fuel pump with the 20 amp fuse provided in the kit.

The line from the tank with the inline filter goes to the pump. Please route this hose between the top engine mount bolt and the frame. The hose will loop towards the rear shock, as shown in the picture below.

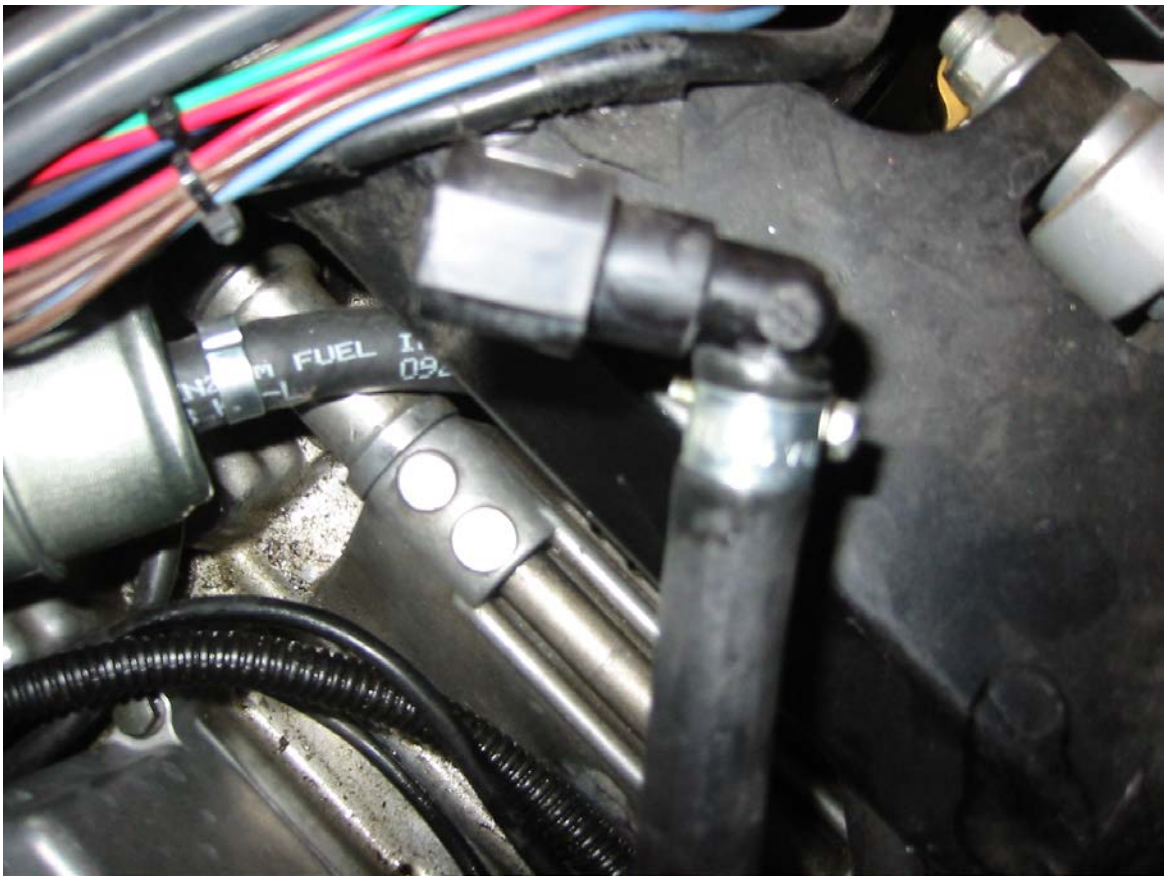
Install new fuel rail inserts into the factory rail.
The line on the left side of the fuel rail goes to the pump.
The center fitting is for a gauge to check the fuel pressure, which should be ~43 lbs.



The line from the tank with inline filter goes to the pump.
The right side fitting in fuel rail goes to the right side of the FMU.
The left side of the FMU returns back into tank.



You will need to remove the factory connectors from plastic fuel line and reuse them, put one on the return line and connect to tank later.



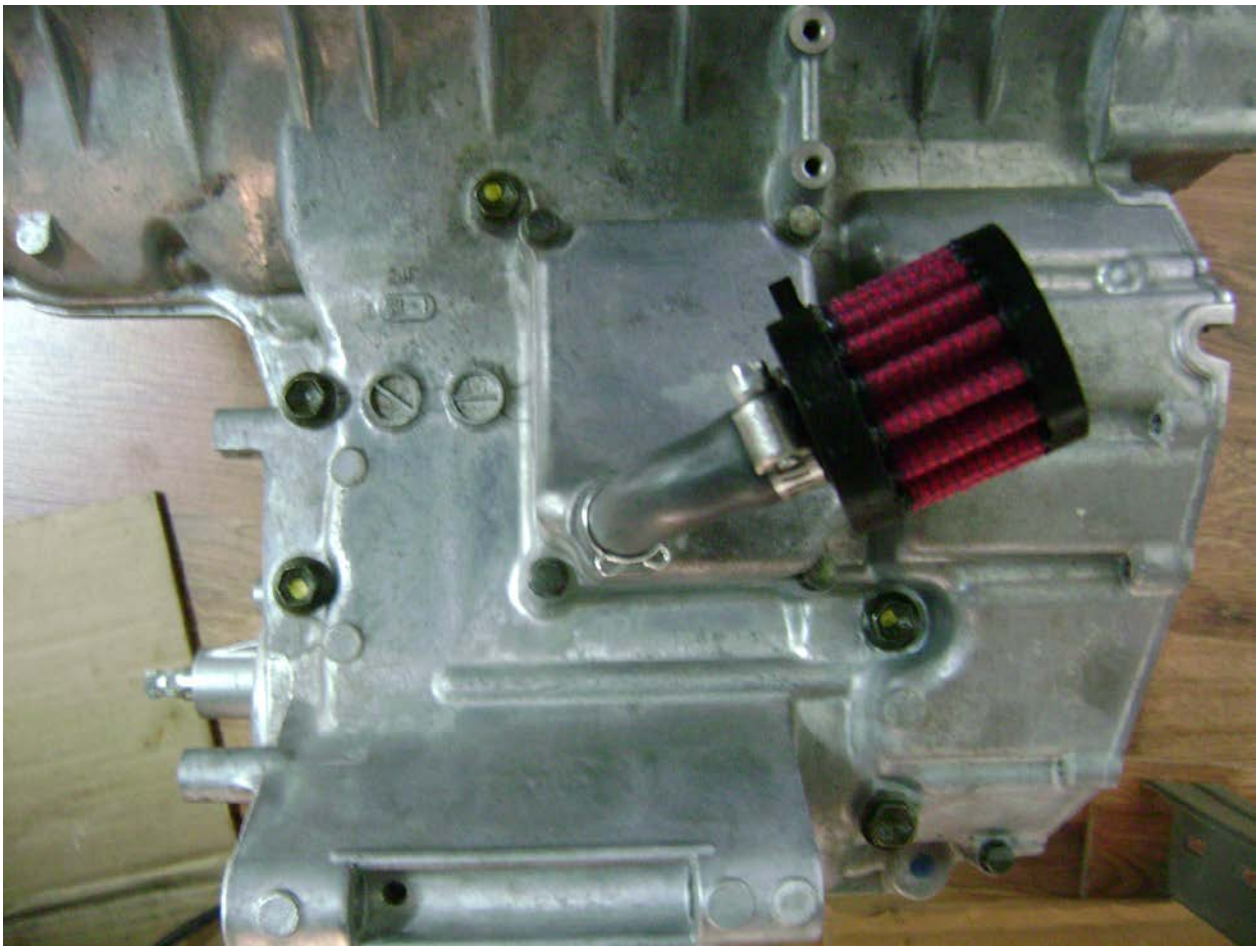
The fuel lines and vacuum lines are labeled.
Route the vacuum line from the waste gate to one of the nipples on the underside of the air box.
The other nipple is for the boost gauge. There is a piece of vacuum line included for the gauge.

The fuel pump can be wired to the factory pump wire
Yellow wire with red strip is the power for the pump. Connect the red wire from the pump to this one, and the ground wire can be fastened to a bolt on the crankcase breather cover.

- *Install the Crankcase Vent Filter:*

Cut your factory air box hose in half, near the middle, as shown in the following pictures.

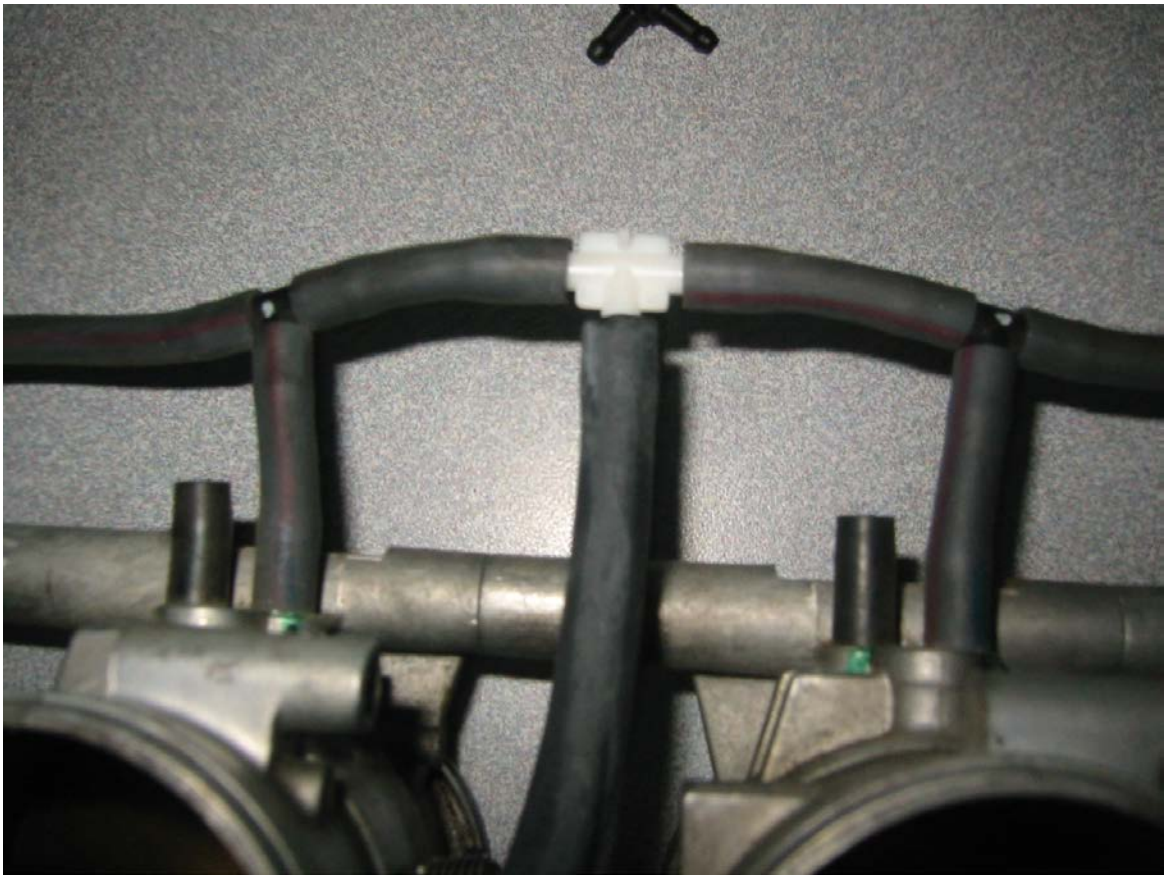
Install the hose and filter in the 1 or 2 o'clock position (as shown in the picture).

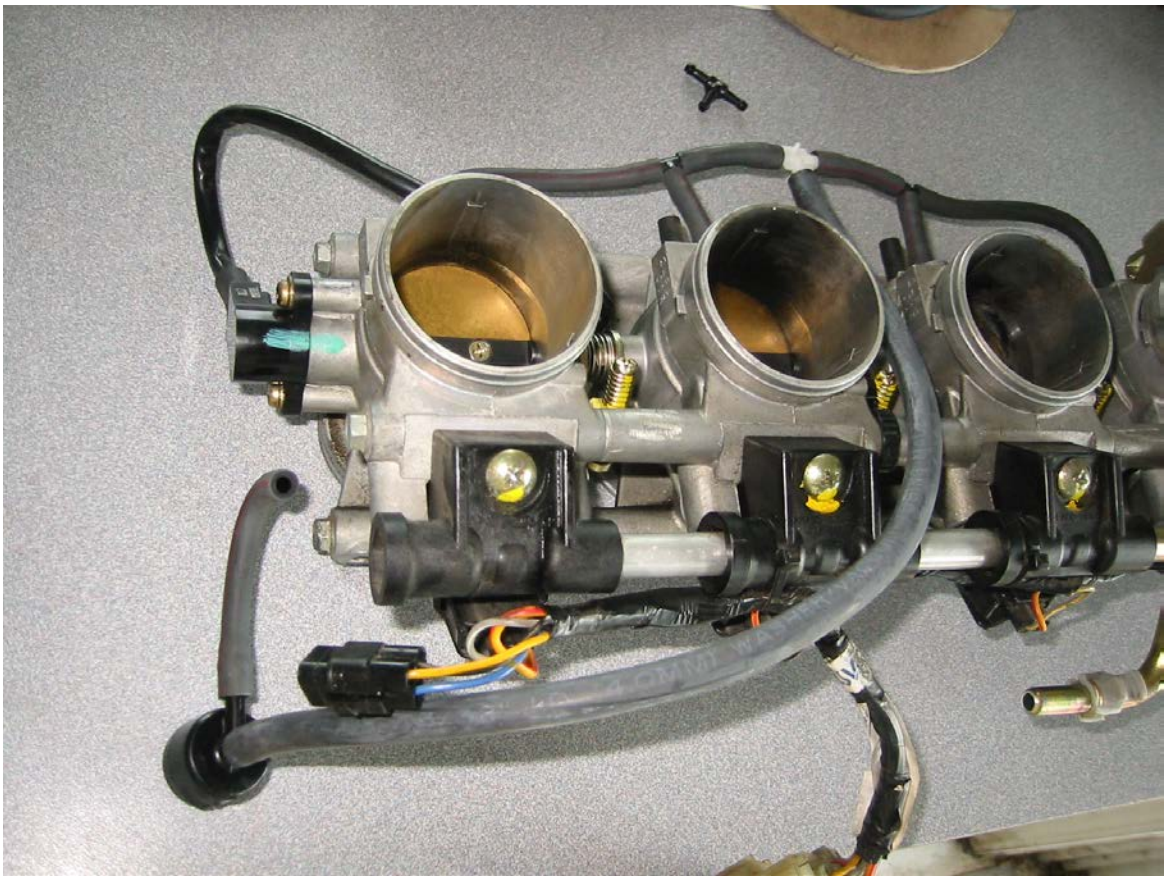


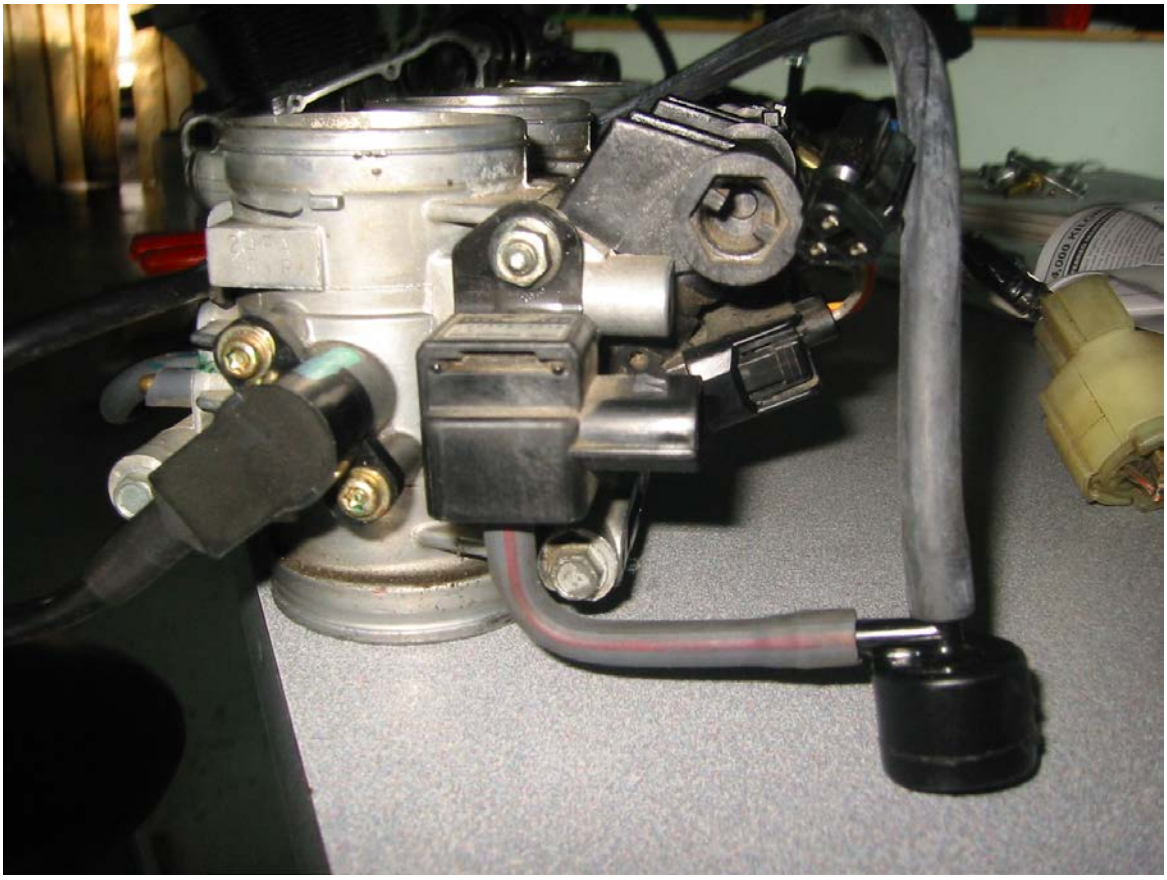
- *Relocate the MAP Sensor:*

The MAP sensor gets relocated to the left side of the throttle bodies.

The vacuum line with the check valve goes to this sensor (the hoses are labeled).





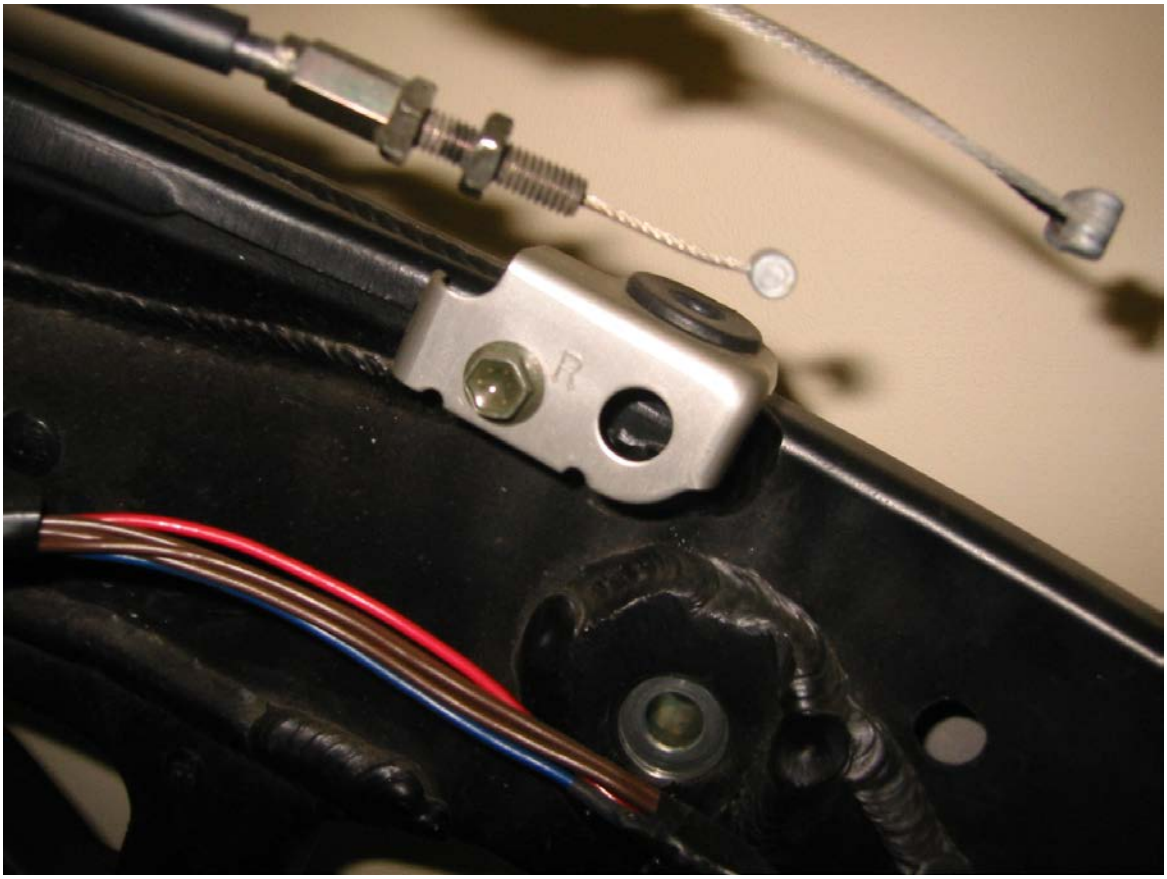


- *Install the New Air Box Straps and Air Box:*

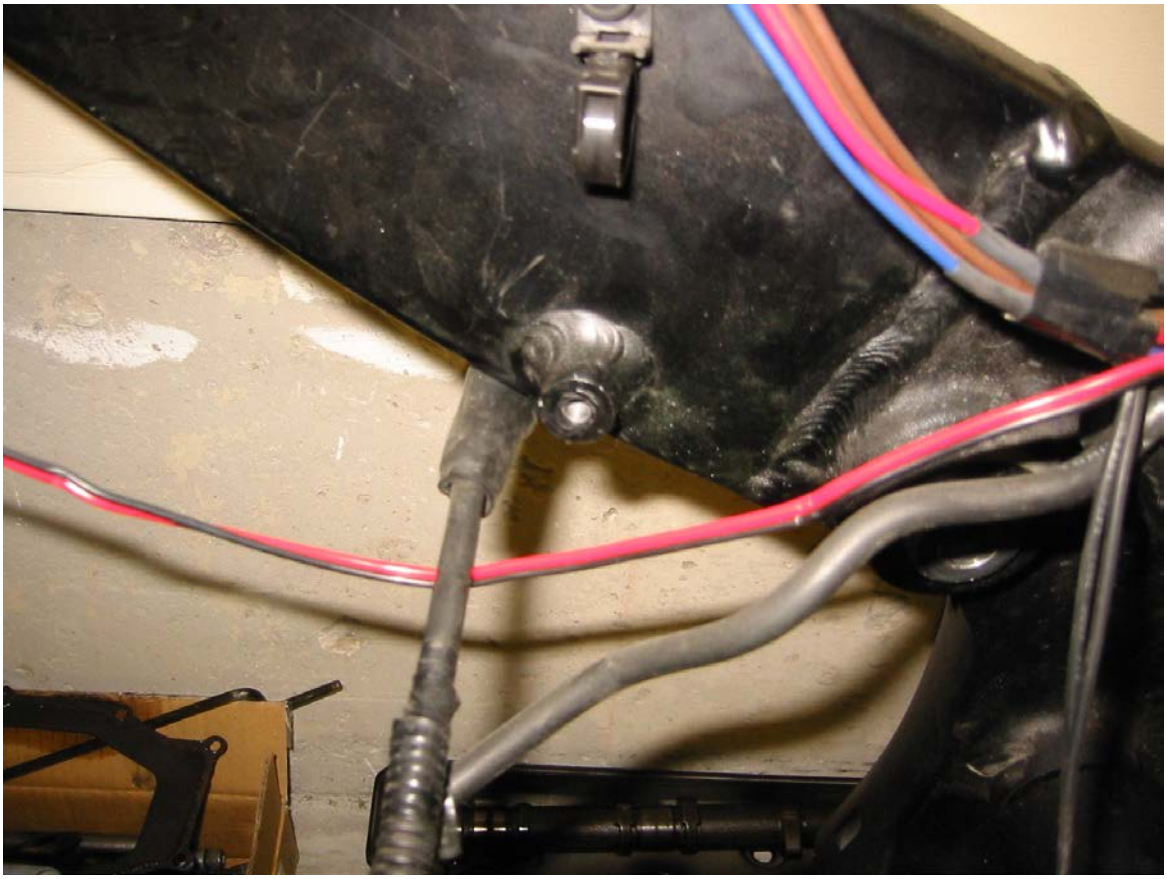
To install the air box and straps, you will need to mark and drill a ¼" hole in one end of the strap. You can also bend them to get a perfect fit.

Here are the suggested mounting locations:

Right side tab, next to the throttle bodies.

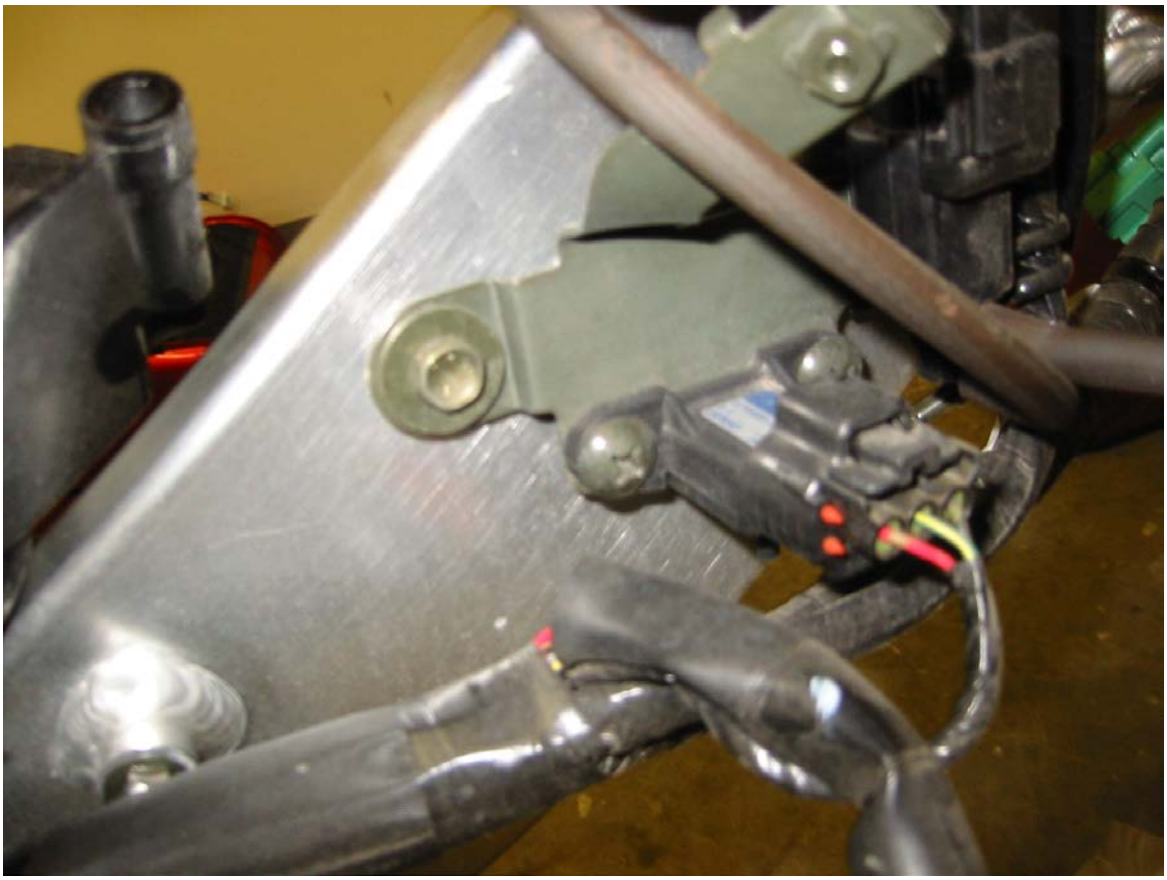


Right side boss on frame, which already has a small strap on it from factory.



Left side tab, next to the throttle bodies.

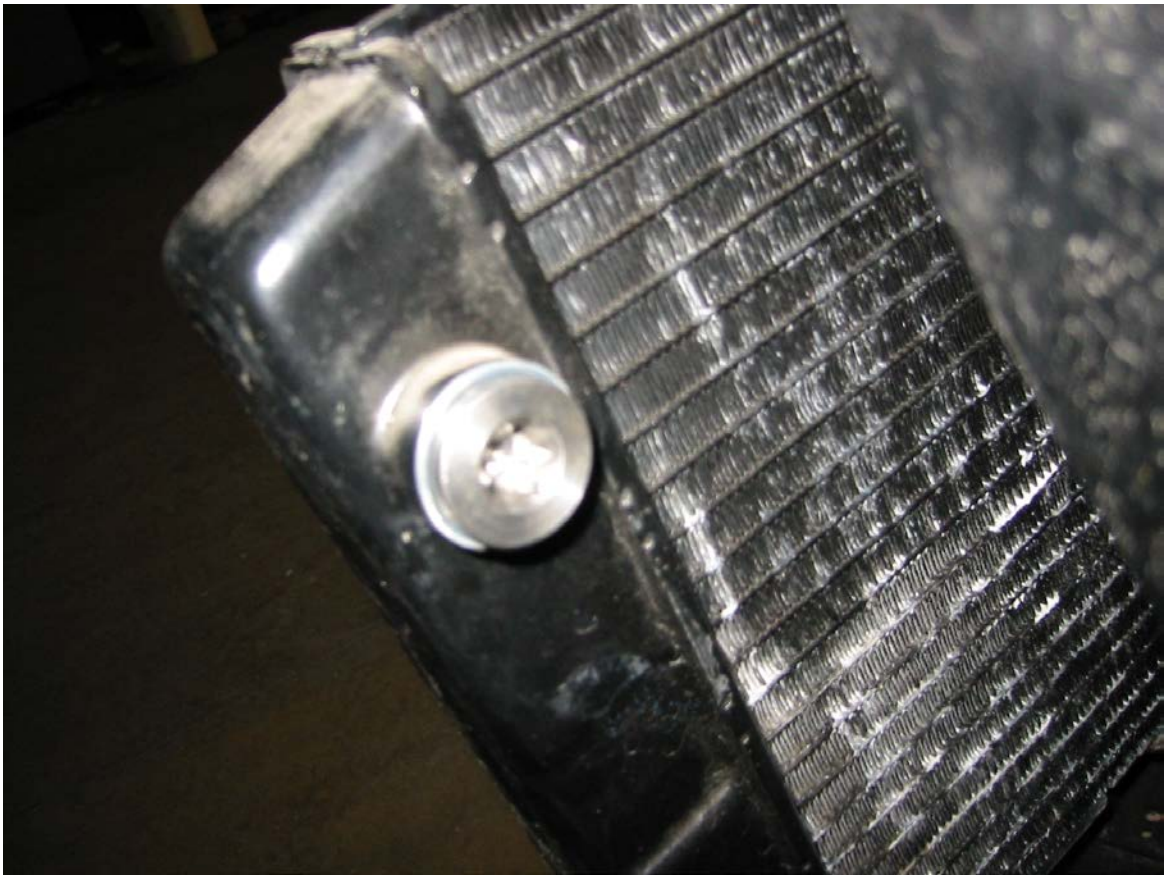
Left side rear strap can be mounted to the rearward bolt on the barometer sensor bracket.



- *Relocate the Air Intake Temperature Sensor and Fan Temperature Switch:*

Use a zip tie to fasten the air intake temperature sensor to the fuel rail or the wires that are attached to the fuel rail. This sensor will be left in the atmosphere as opposed to the inside of the air box.

Remove the fan temperature switch from the left side of the radiator and install the supplied plug.



Cut about two inches out of the right side radiator hose and install relocator and fan switch
You will need to lengthen the wires (wires are provided and labeled in the kit) and run the factory connector over to the new switch location.

- *Final Assembly:*

Install up-pipe on left side of engine and to the air box.

Please be sure to use supplied zip ties for the vacuum lines.

To reinstall the ram air tubes, they will need to be cut to go around the new lines and tubes.

When reinstalling the radiator, it may be necessary to remove some of the tabs on the bottom of the radiator for a good fit.

Once final assembly is done, refill the engine with oil and coolant, and recheck all connections, nuts, and bolts, then reconnect the battery.

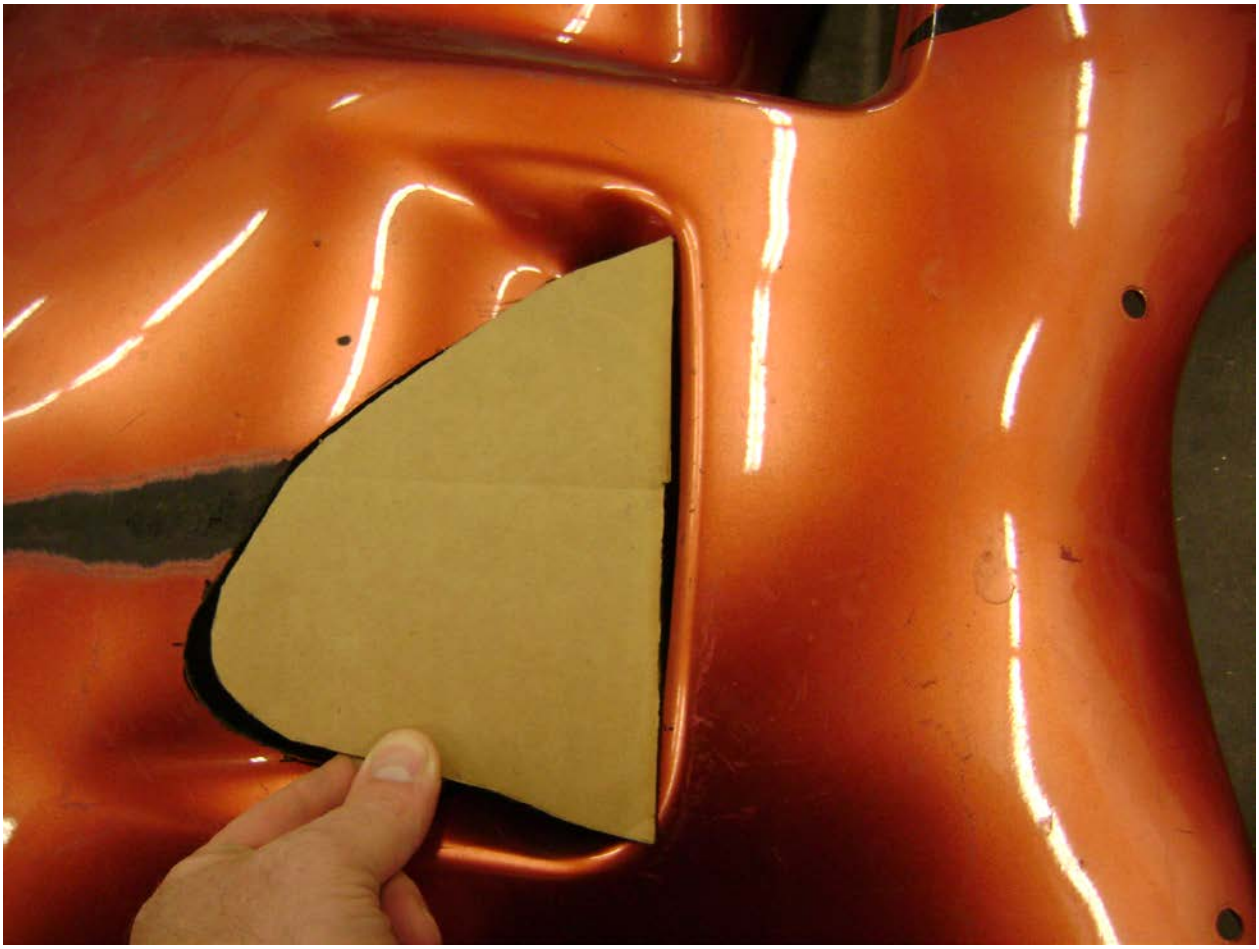
With the ignition on, set fuel pressure to 43 psi. Turning the set screw on the regulator clockwise increases pressure and counterclockwise lowers the pressure. The set screw is in the center of the FMU. You will need a 3/16” Allen wrench to adjust it, and a 9/16” wrench to relock the jamb nut.

With the fuel pressure set, you can start the bike, allow it to idle and reach operating temperature, and check for any fluid leaks.

- *Trim the Fairing:*

If everything is good, you can install the fairing. There will be some trimming required. Check to see if the fairings are touching anything, and trim as required.

Below are pictures of how to use the provided template to cut your right fairing for the dump pipes. Make sure the template is positioned as shown in the pictures below.



If you are installing a full pipe with muffler, you will not need to use the template or cut your fairing.

- *Upload the New Tune:*

PLEASE NOTE! While we do our best to provide a good map for the correct air/fuel it is always advised to have the mapping checked on a dyno. The software and laptop adapter is provided with the kit. If you should require any assistance with the mapping or learning the software, please do not hesitate to call us.

Air/fuel ratio while under boost should be between 11.5:1 and 11.8:1.

Thanks for your purchase of an RCC Turbo Kit!

If you need any assistance, please do not hesitate to contact us.

Call: **1-519-335-6504**, and ask for **Richard** (or e-mail: **richard@rccturbos.com**).