2008- 2015 ZX14 Stage 2 Installation instructions:

Please be sure to remove the secondary throttle plates during this install

The liquid thread sealant we recommend using for the install of this kit is
Permatex part #59234

Remove the seat and disconnect the battery, empty the fuel tank and remove

Drain oil and water

Remove side fairings

Remove the rad and oil cooler, including the oil lines

Remove the entire exhaust system

Remove stock fuel pump from tank

Next you have to remove your factory fuel lines, your air filter element, the ram air tube flanges on your frame, the 3 bolt frame plates (top of frame) and remove the small rubber plugs in frame, they will be replaced with either bolts or small billet plugs. Do not remove the rubber grommets that have brass threads in them, they will still be used for the fairing bolts

Now would also be a good time to replace your spark plugs, we recommend CR9E spark plugs, with the gap set to 0.018-0.020”

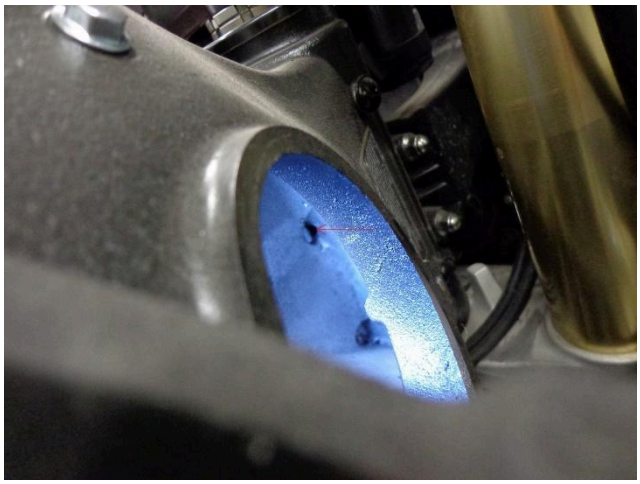
Remove the pair valve plates and hoses on the valve cover and install the new pair valve block off plates.

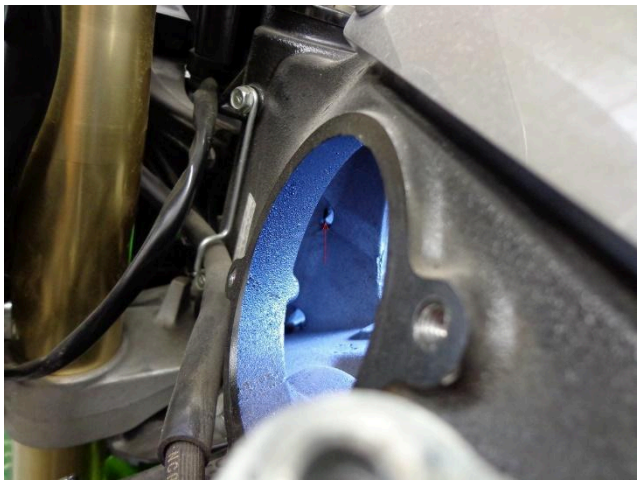
Leave the pair valve solenoid in place and plugged in so the ecu does not set codes.

Next you can install the oil cooler block off plate onto the engine, you have to use the o-ring from your original oil cooler. Use 4 of the M6x30mm flange head bolts provided with the 4 original washers for the oil cooler.

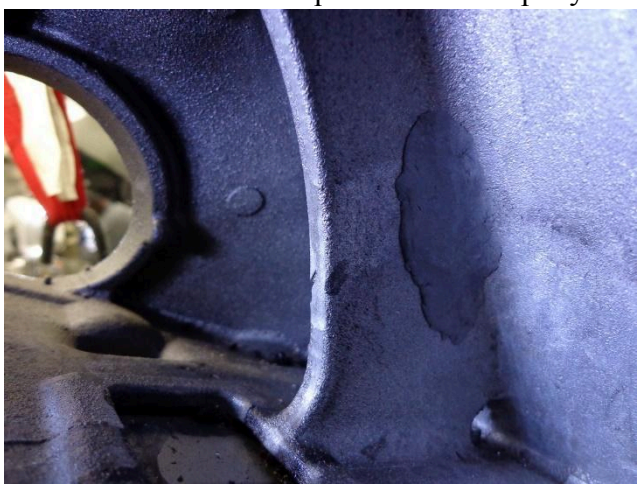
Next you can get to 2 part epoxy that was provided with the kit, in a small zip lock bag. This will be used to plug a hole in the steering neck on the inside of the frame, you access this location by reaching your hand in through one of the top frame holes (3 hole plates)

Have a look for this hole before doing anything with the epoxy. See pics below, there is only one hole to plug, the pics are showing the hole from the left and right sides through the ram air tube openings of the frame

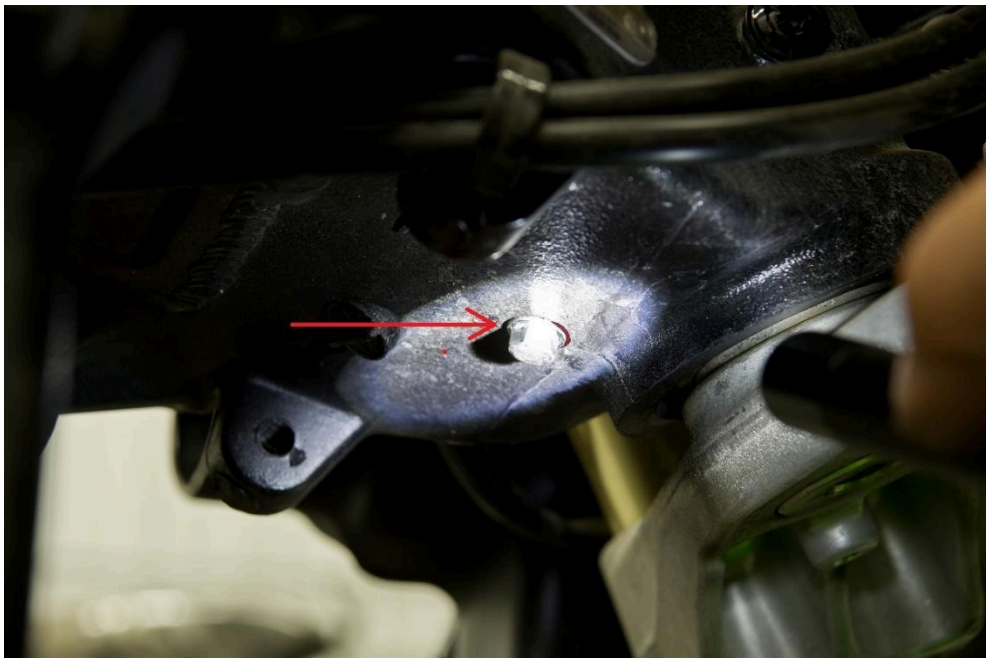




You have to knead the epoxy until it is all one color and mixed really well, then reaching through any of the frame access holes push the epoxy into the neck hole really well, there should be a somewhat equal amount of epoxy on either side of the frame gusset. See below:

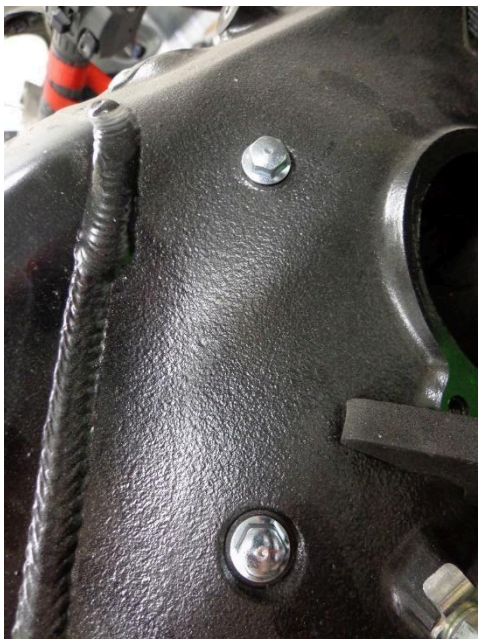


You can now tap the hole in the underside of the frame (steering neck) next to the lower triple clamp, 2006-2011 models will be tapped M6, and 2012 and newer models will be tapped M8, install provided M6x20mm bolt for the early models, and or install the M8x20mm bolt for the late models, see below:

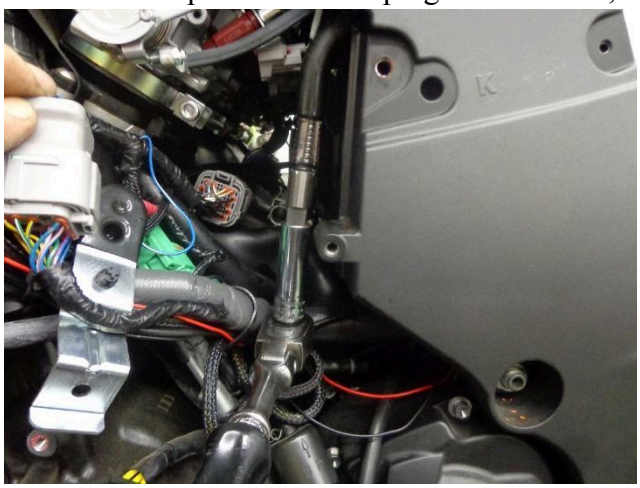


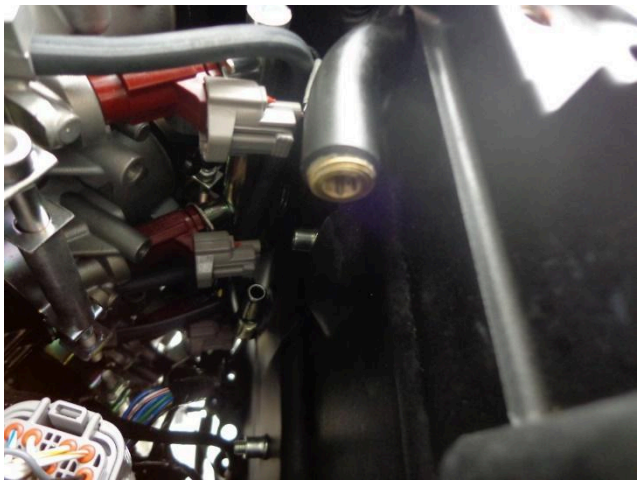
You can also install the billet air filter block off plate onto the frame, o-ring is supplied, use 2 of the provided M6x20mm flange head bolts. See below:

2006-2011 models also have 2 holes in the right hand side of the frame after you remove the factory air filter, you have to tap these holes M8 and install the provided M8x10mm button head bolts in these holes, use red Loctite, see below:

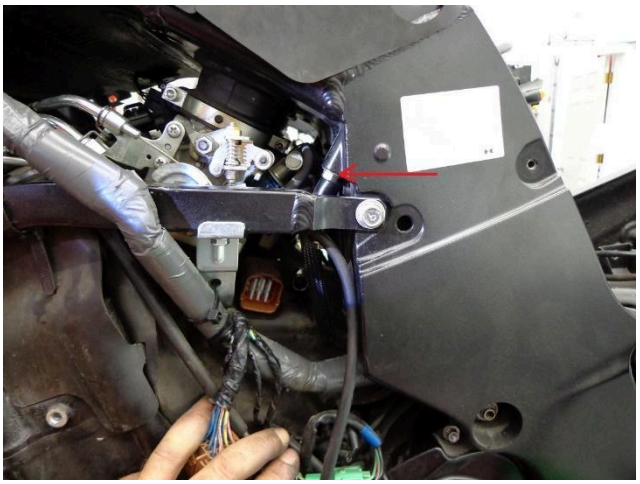


You can now tap the original crankcase breather nipple in the frame for ¼" NPT, clean well and install the provided brass plug into the hole, use the thread sealant on the plug

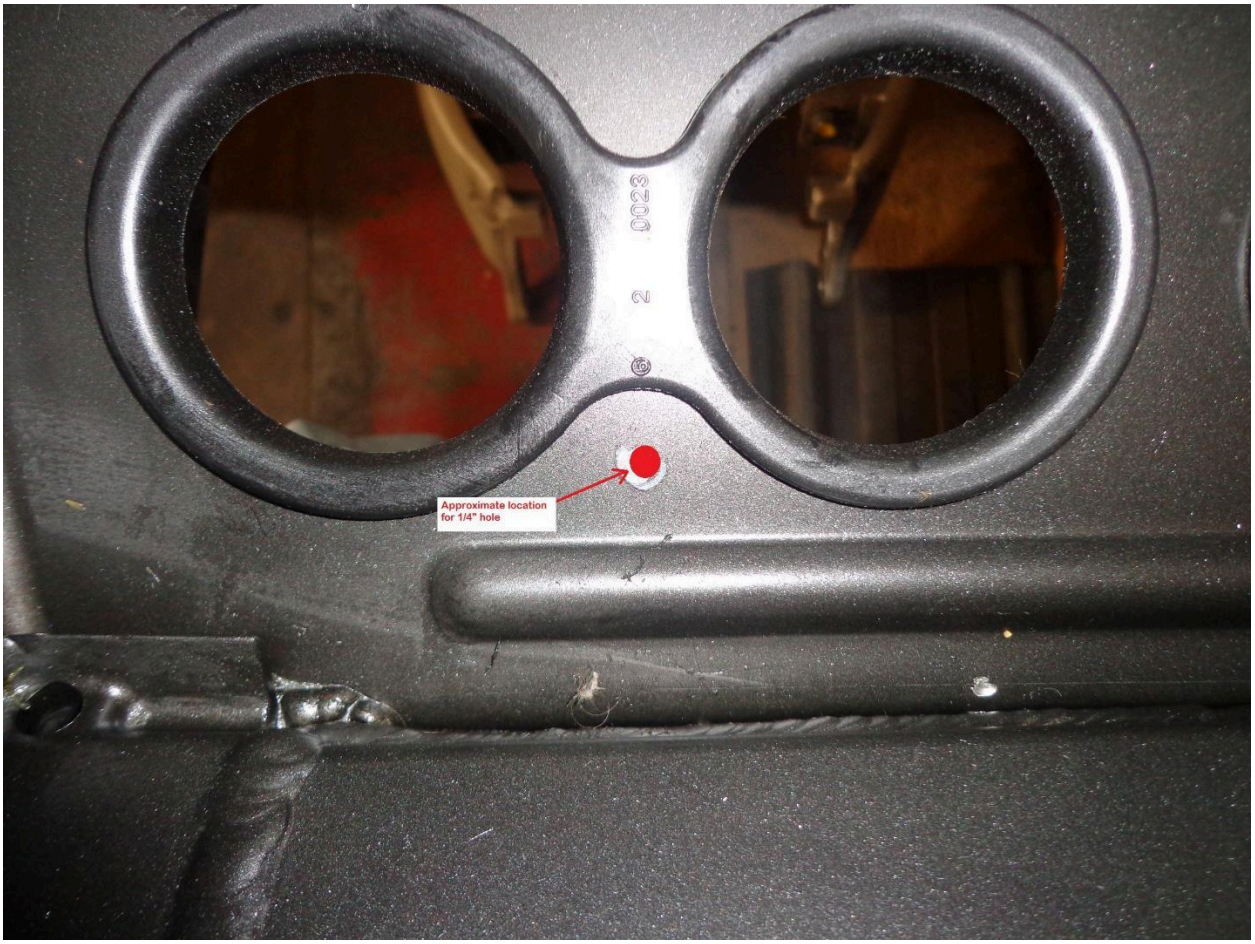




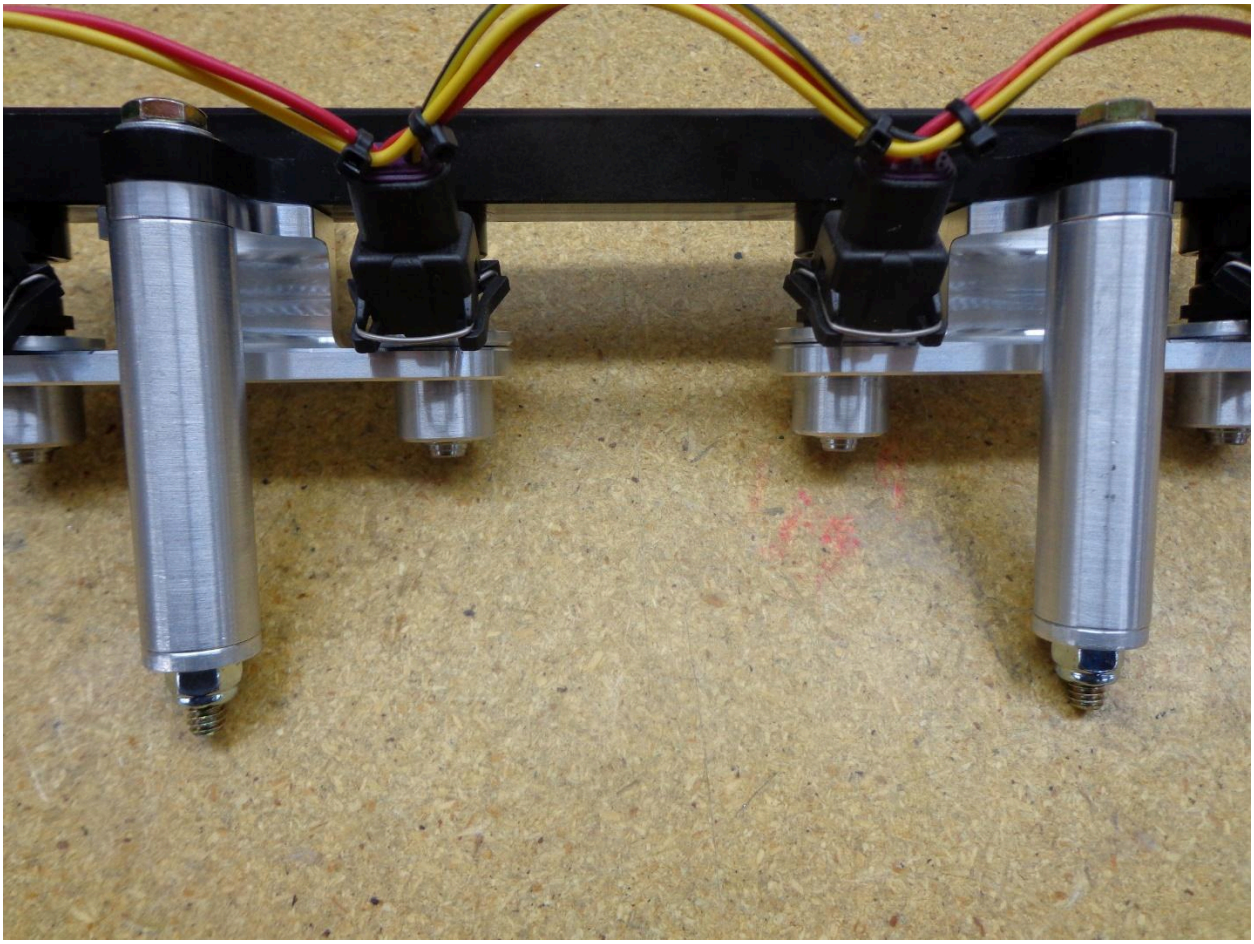
Remove the drain hose nipple from the frame and install one of the provided M8x10mm bolts into the hole, see below:



You have to drill two ¼” holes inside the frame at the rear of the throttle bodies, one hole between 1 and 2 throttle bodies, and 1 hole between 3 and 4 throttle bodies. Use the fuel rail to mark out these holes, take your time marking them, the approximate hole location as in pic below, hole location will be the same on each side. If you have any questions or uncertainties about this step please feel free to call us.

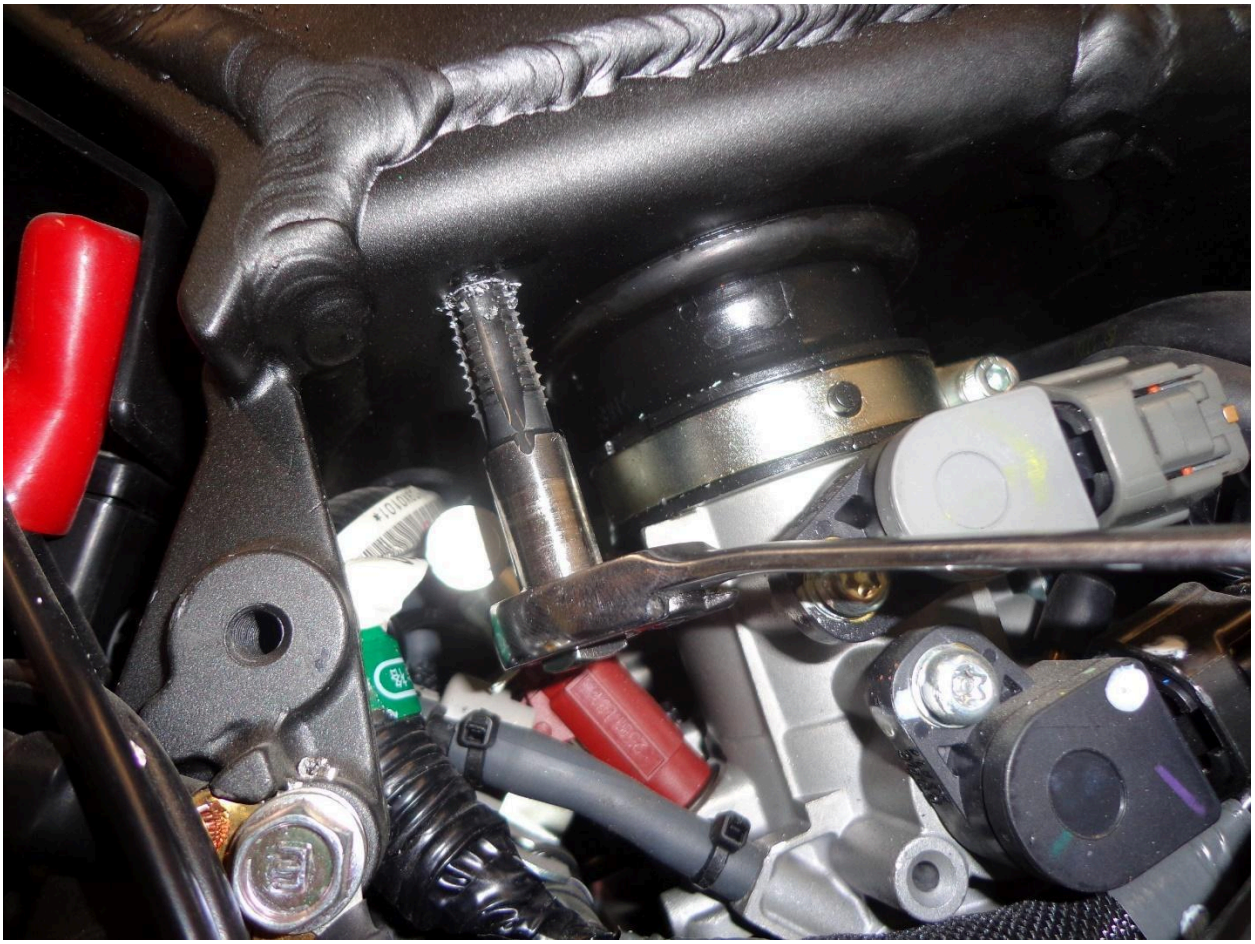


The fuel rail assembly is in the pic below, when installing it into the frame, the entire assembly fits inside the frame with exception of the nylock nut and the aluminum washer go on the outside of the frame. Please install the rail and leave the wires connected to the injectors.

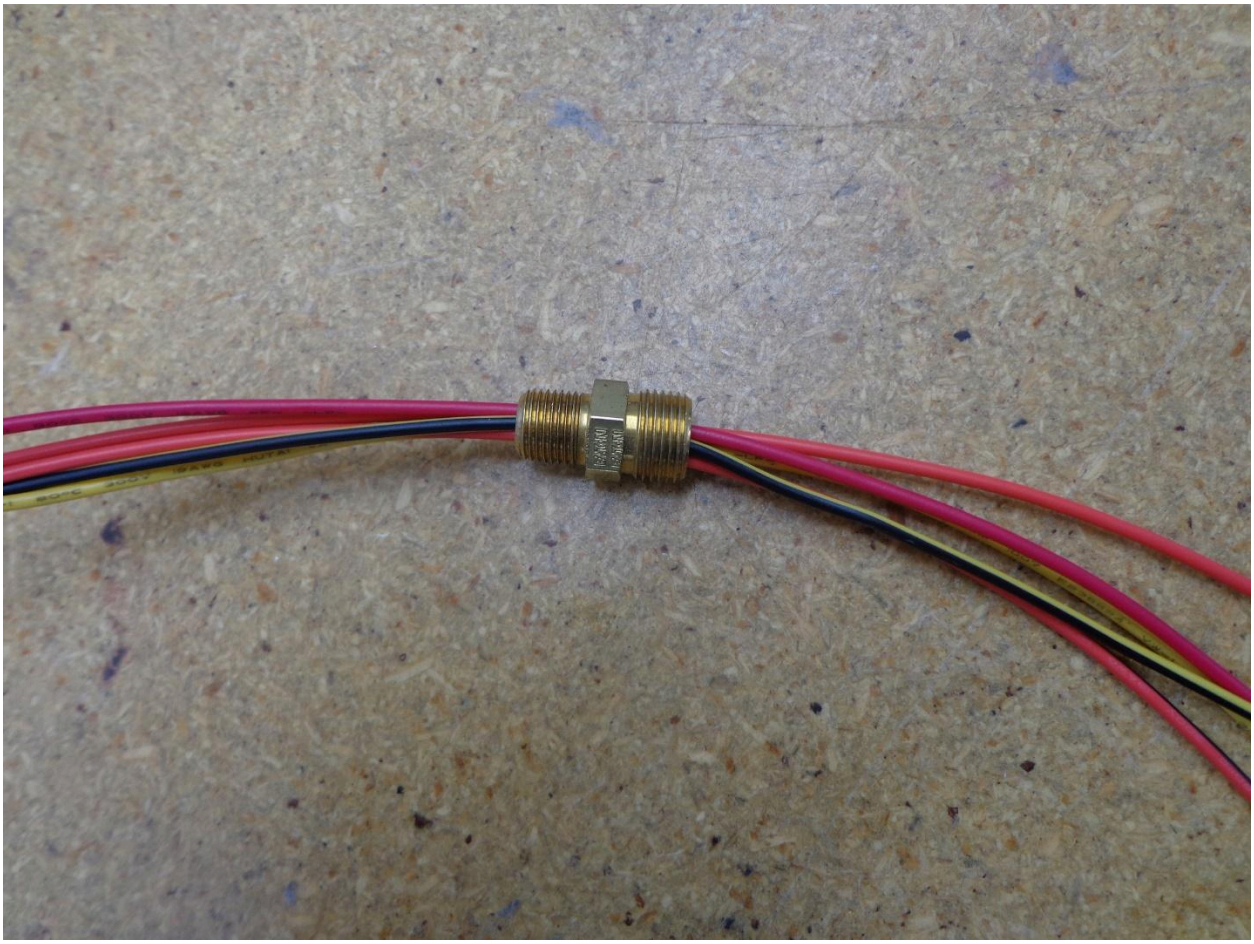


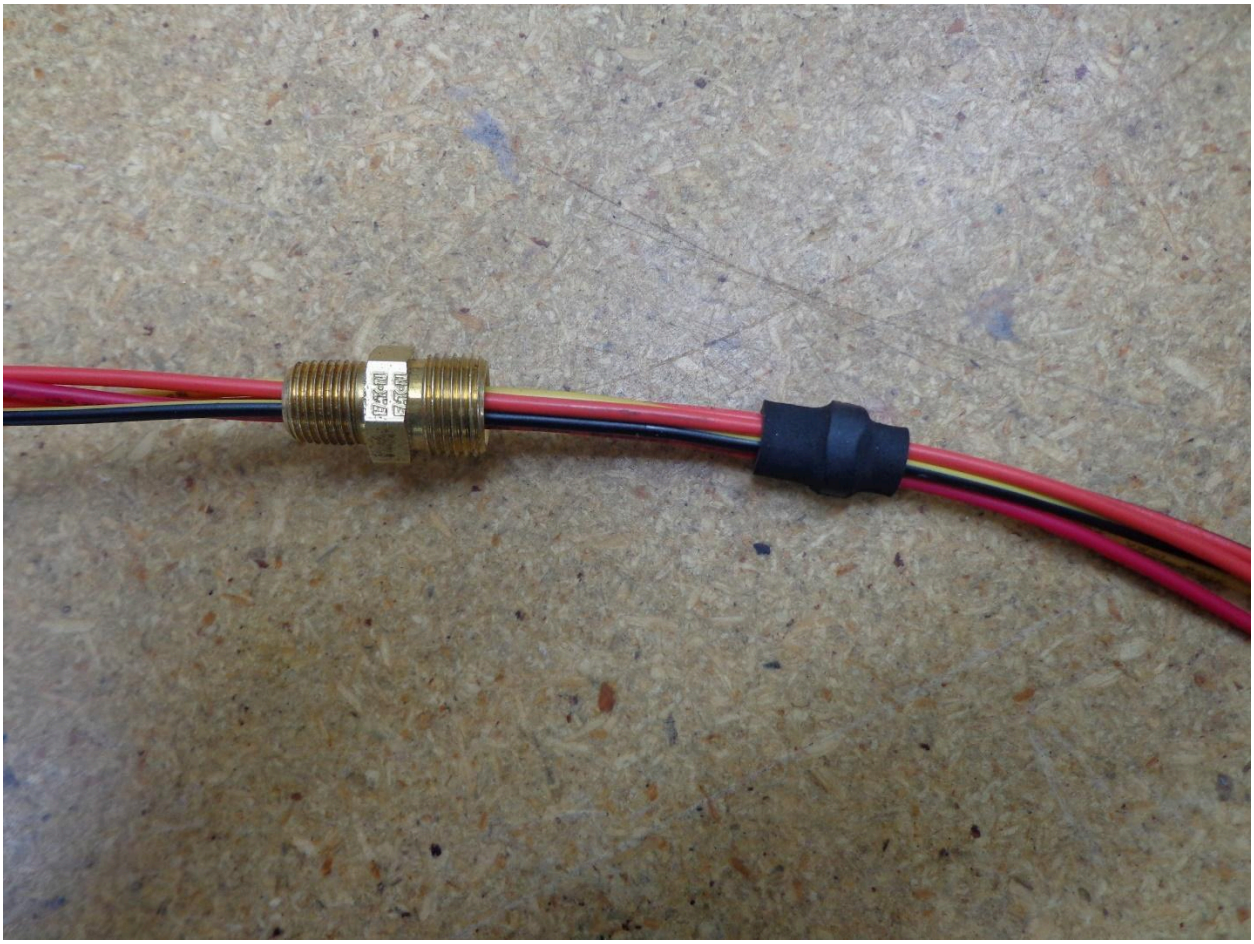
You also have to drill a hole in the right hand side of the frame for the secondary injector wires to pass through, see pic below, we like to use a 90 degree drill with a 5/16” center drill.

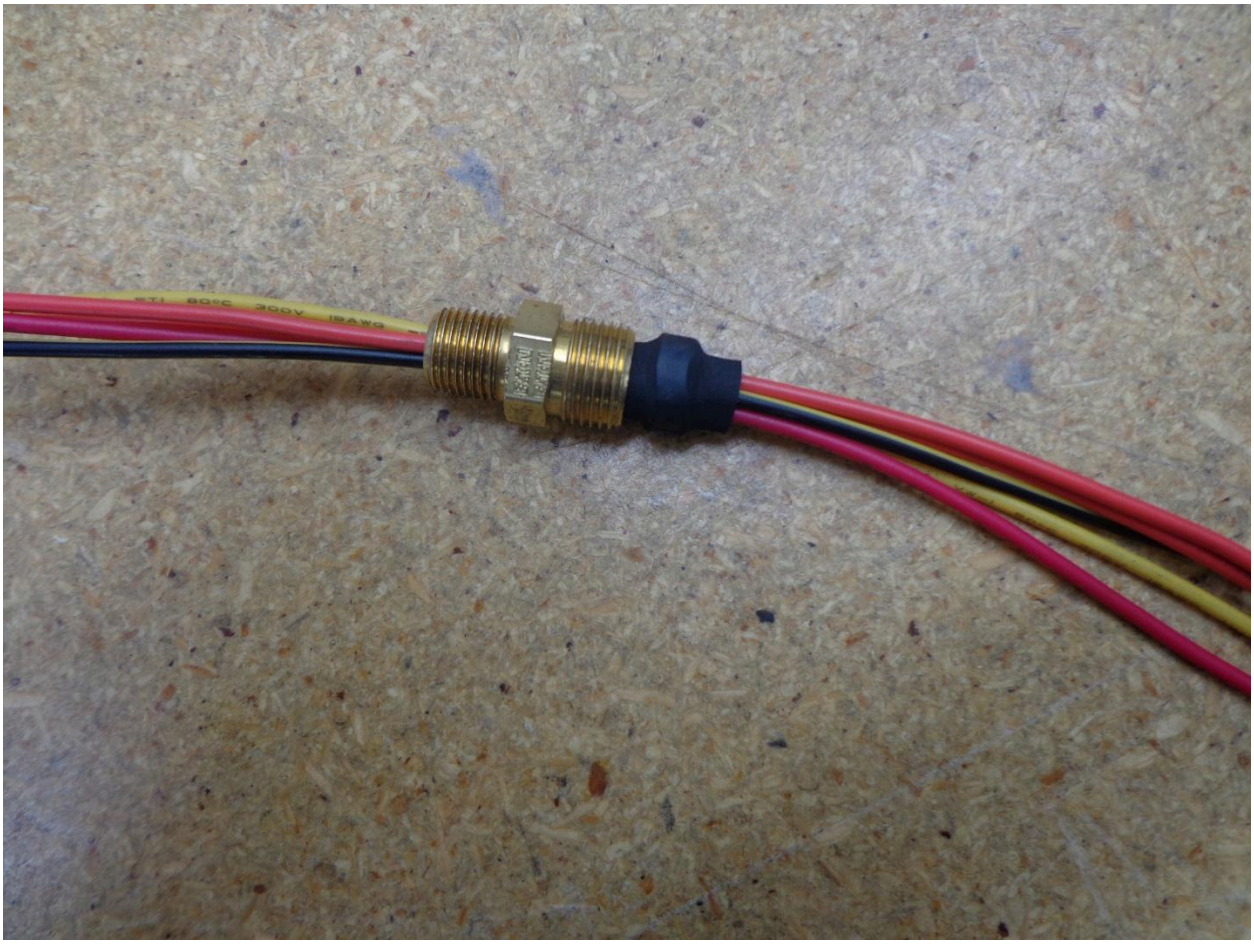
Next you have to tap this hole 1/8” NPT, see pic below, we use a ratchet wrench

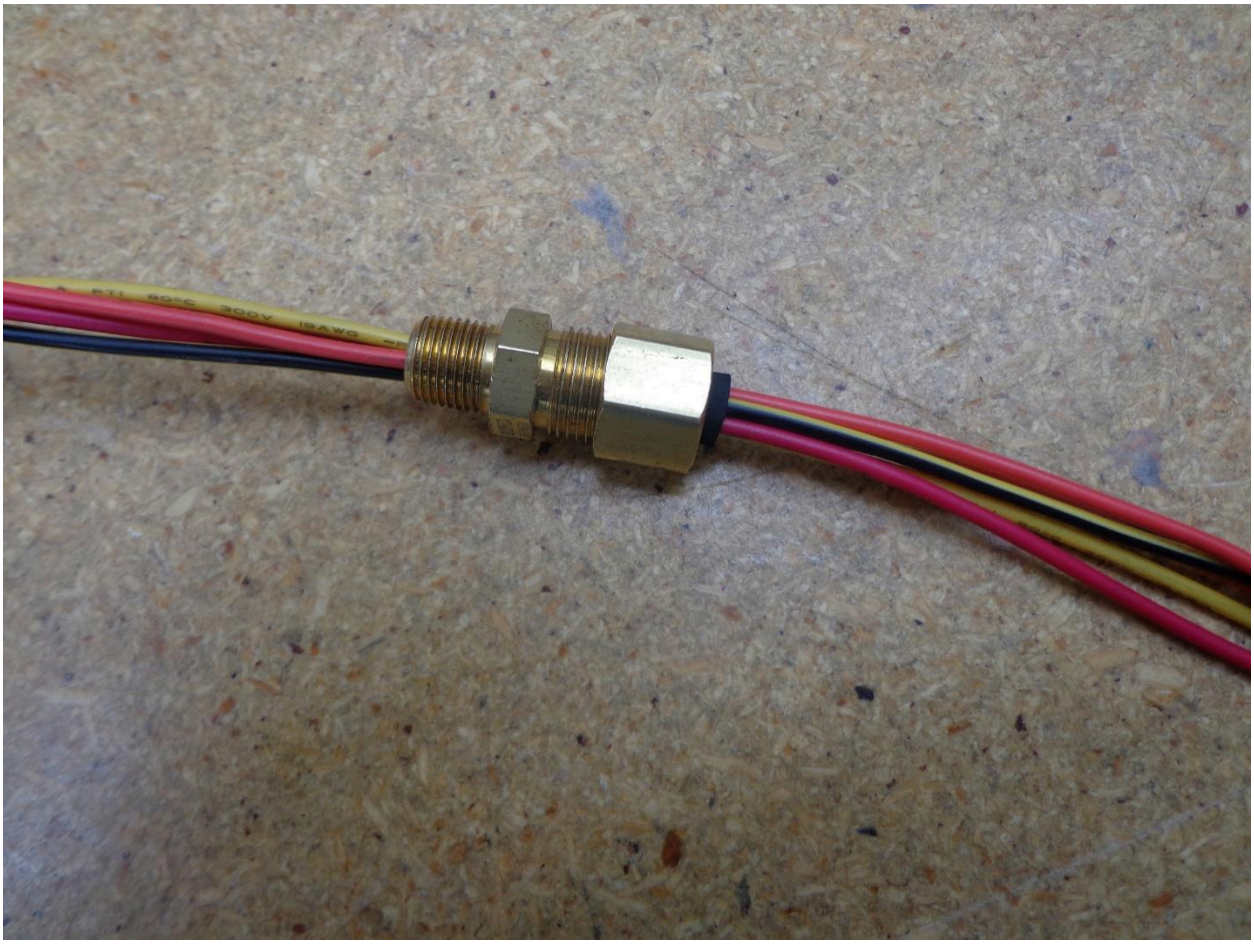


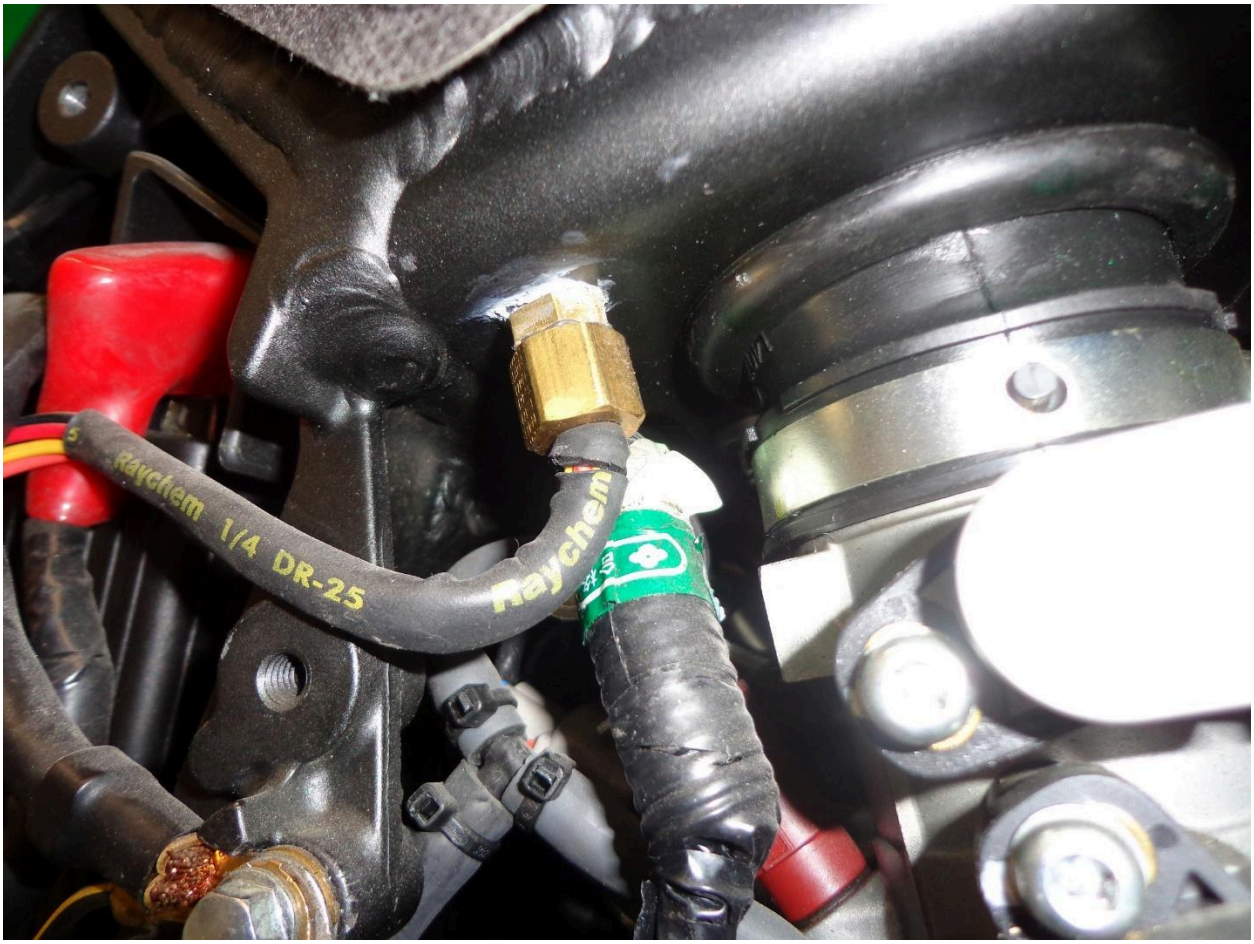
Next you can pass the injector wires through the hole in the frame you have just drilled and tapped, below are some pics of sliding the bulkhead fitting over the injector wires, please see below. Pass the wires through each part one at a time, they will not fit if you try them all at once, also leave the nut and furl loose so you can slide the fitting over the wires, put thread sealant on the 1/8” NPT threads before installing the fitting into the frame, once the fitting is snugged up into the frame you can carefully snug up the compression nut. We also recommend putting some silicone sealant on the wires and fitting inside the frame.





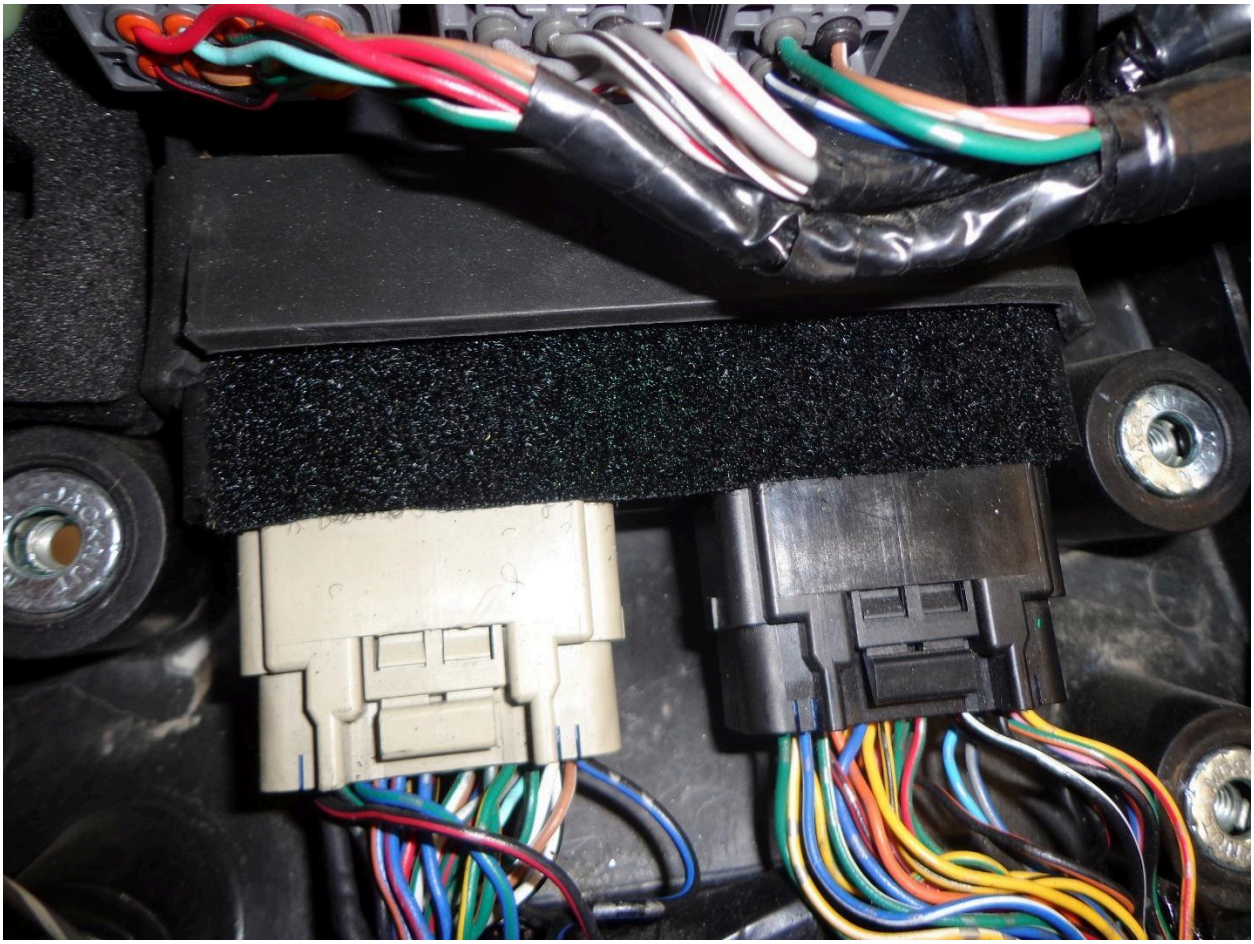




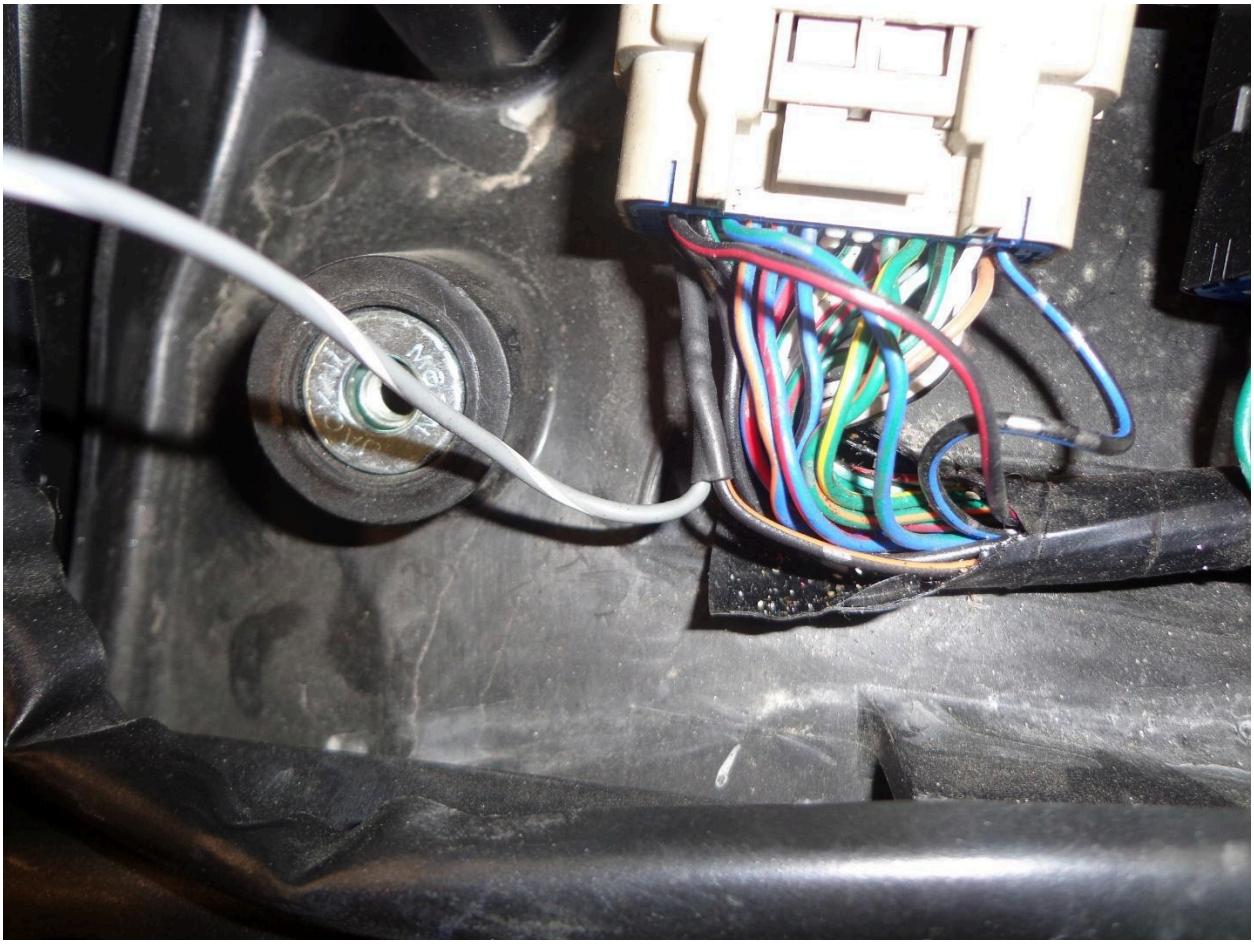


The injector wires now need to be installed into their connector, compare the connector at the Microtech harness to properly pin the injector harness.

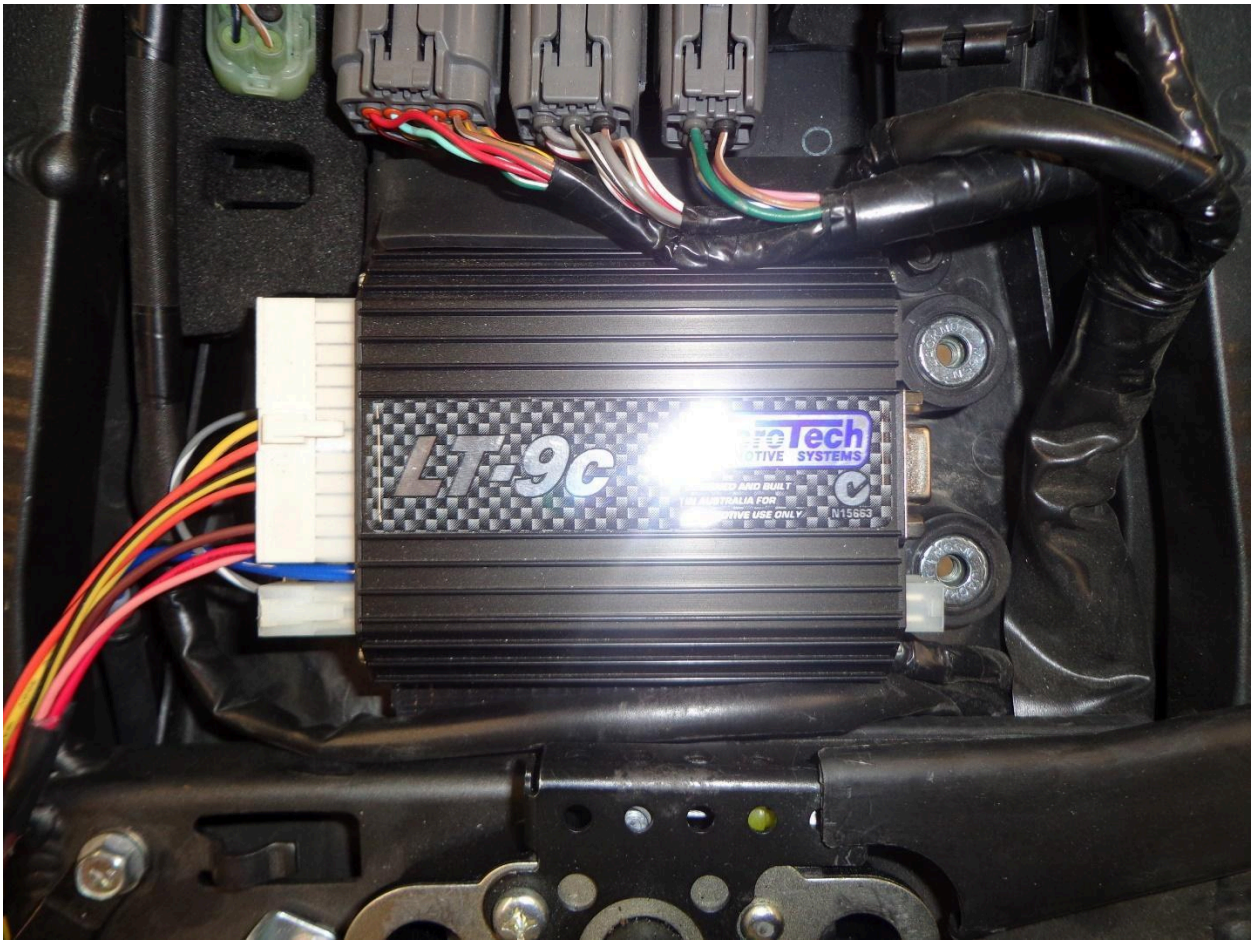
The Microtech ECU can be installed in the tail section, we provide a piece of Velcro for mounting it onto the factory ECU, see below



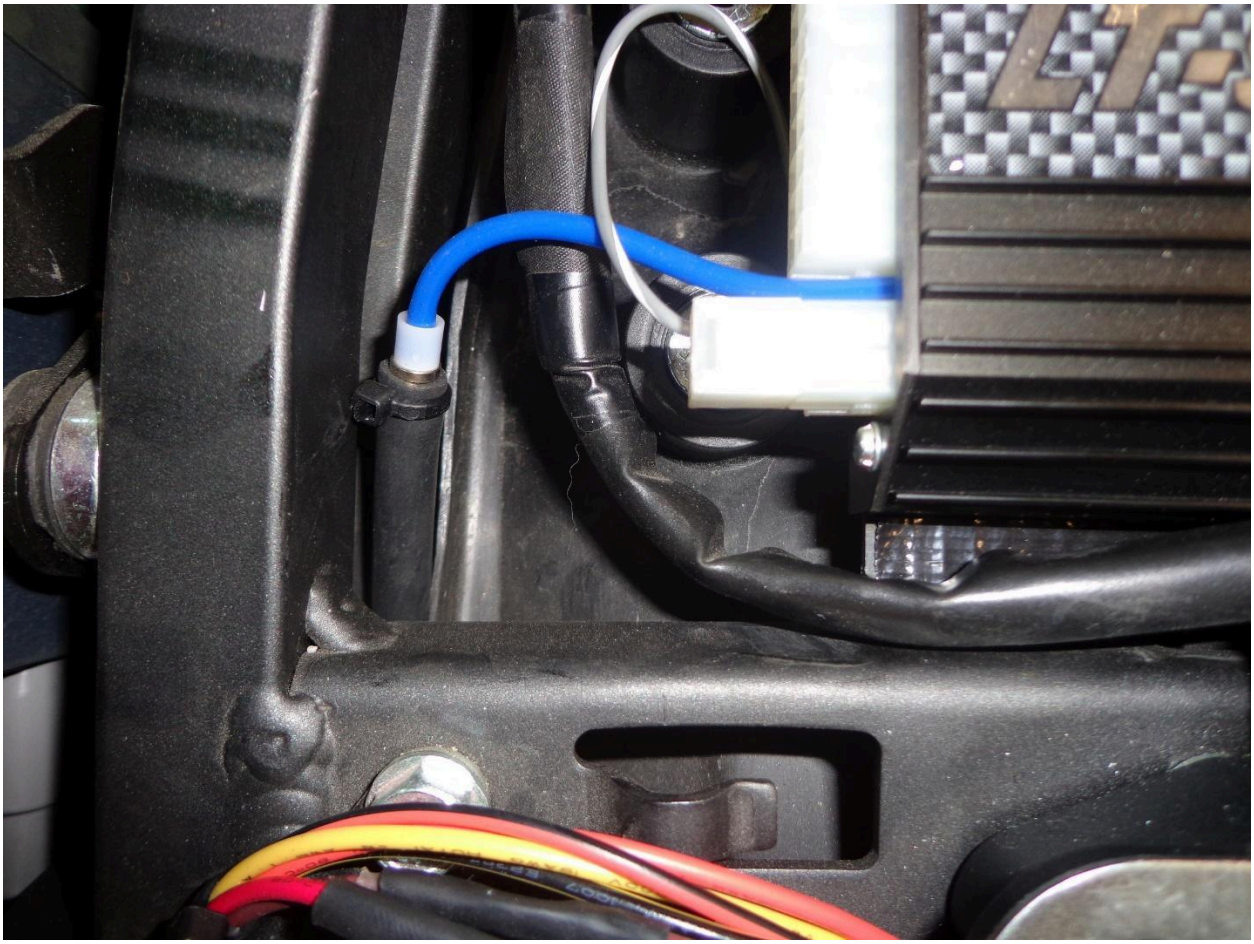
You need to spice into a tach wire for the Microtech, it is located in the lower row of the beige connector, it is a black wire with an orange tracer, see below



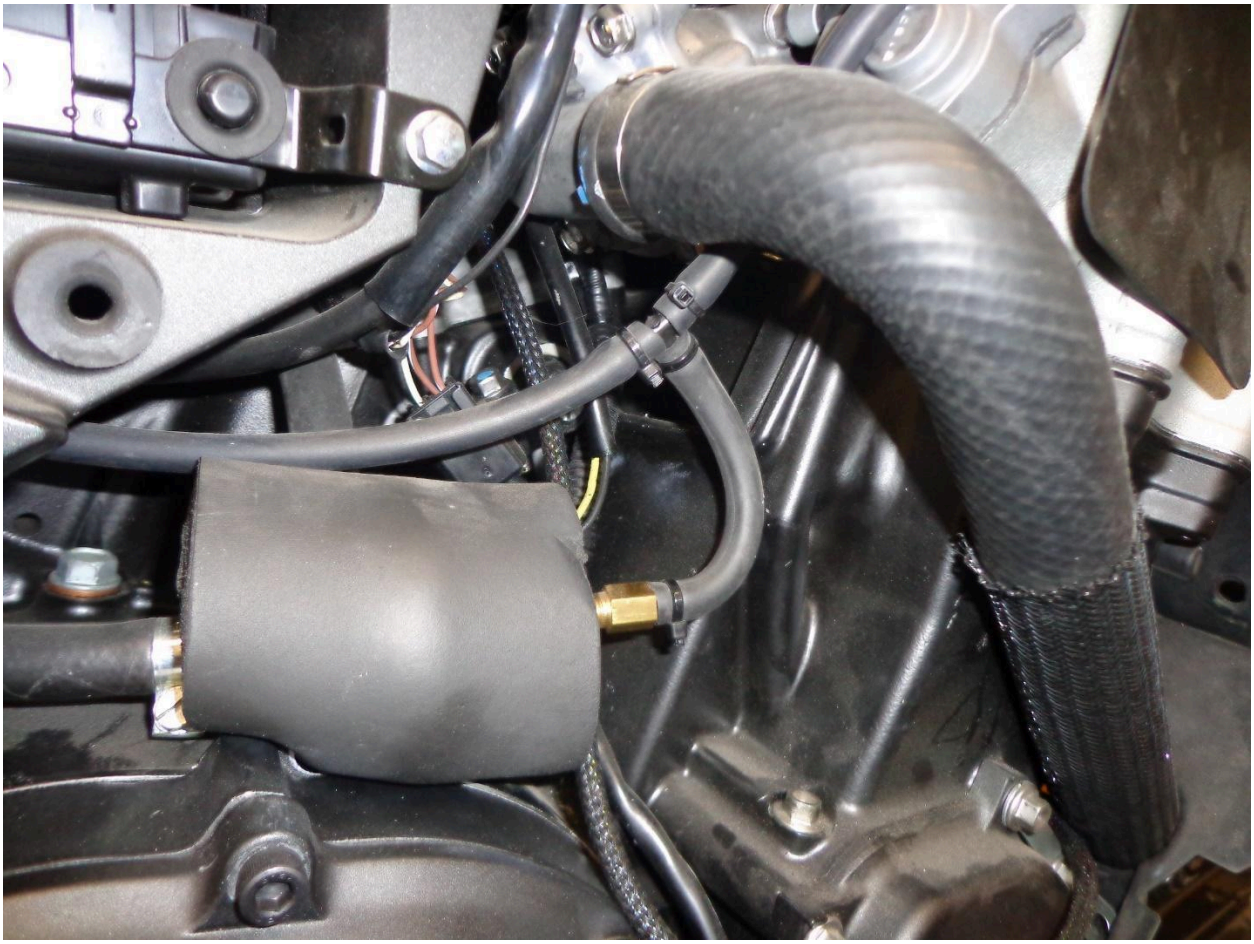
Once the tach wire is connected the Microtech ECU can be put into place, see below



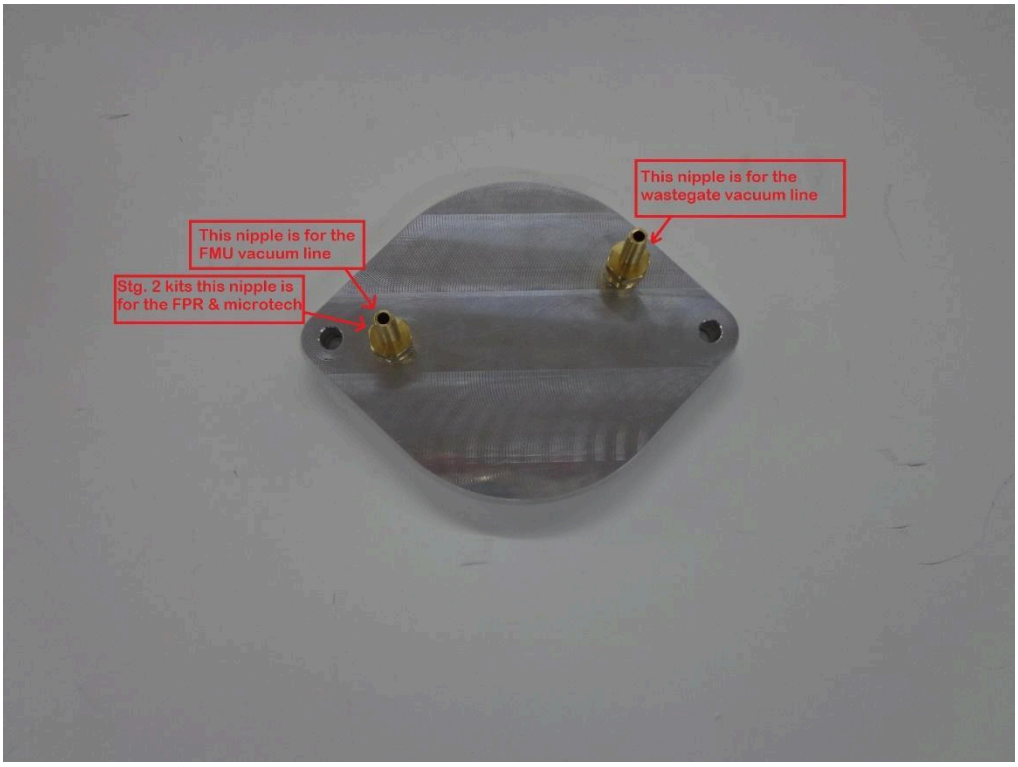
The vacuum line for the Microtech can be routed along the inside of the frame on the right hand side, see pics below for routing and connections.



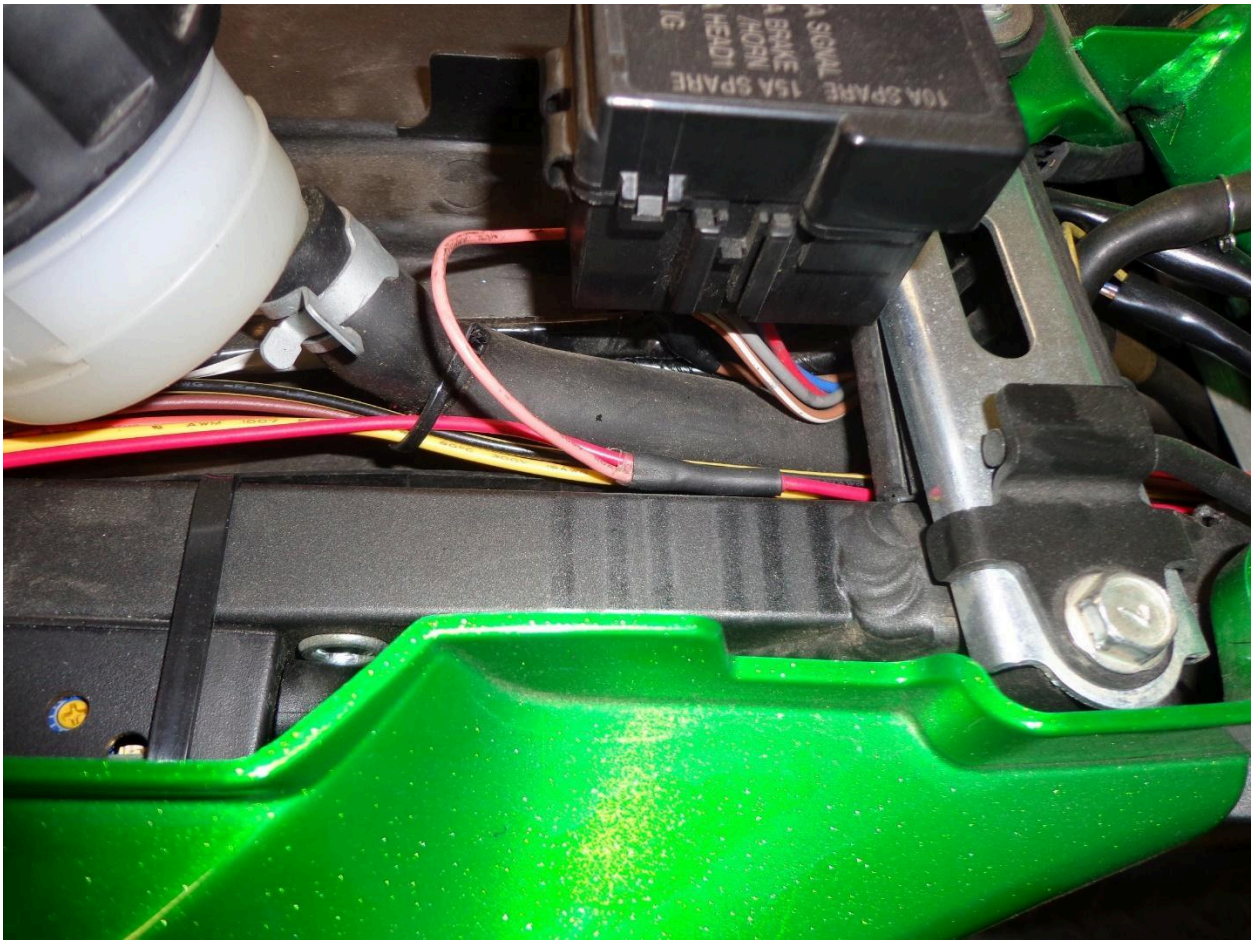
Pic below shows the Microtech vacuum line cut with the fuel pressure regulator hose teed into it

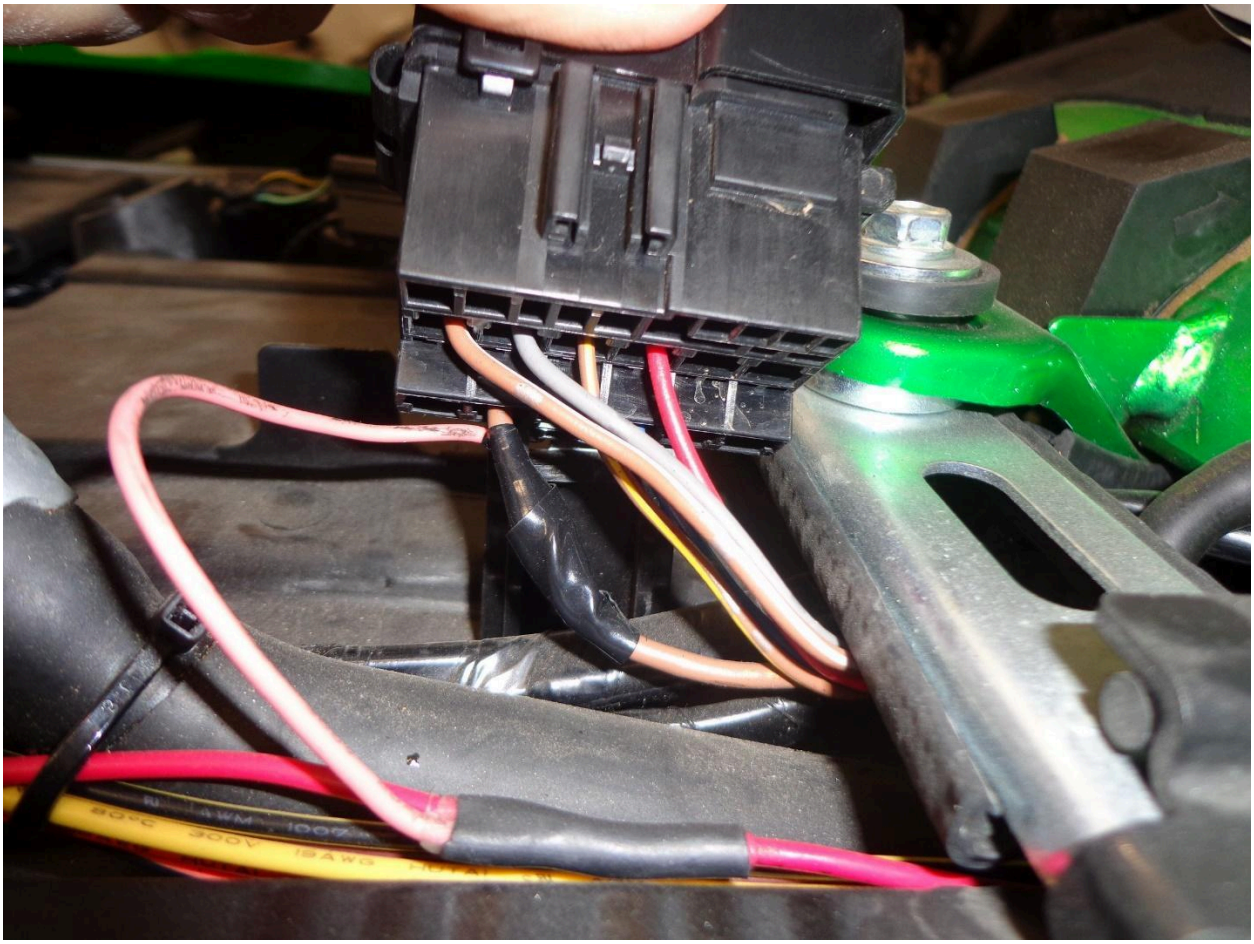


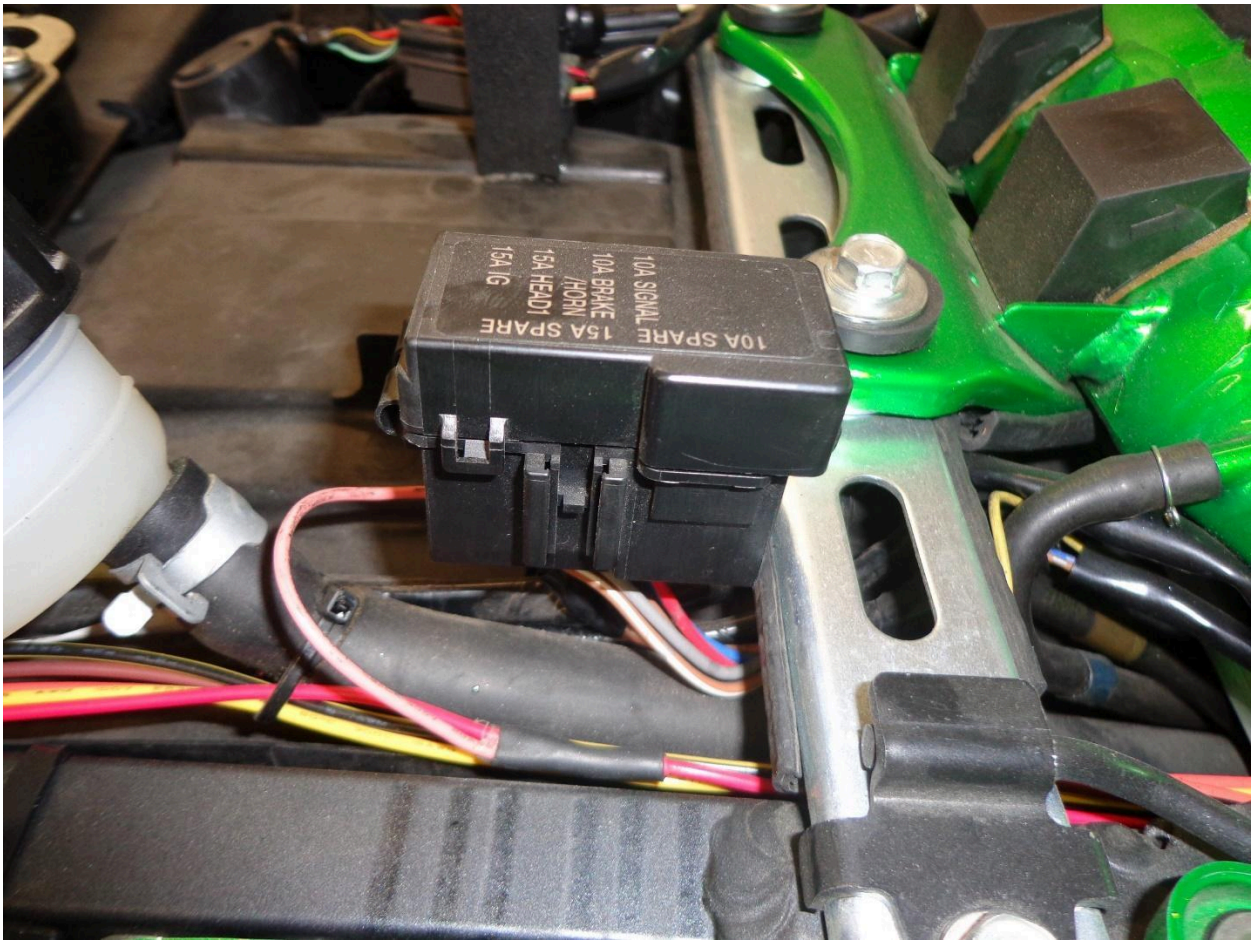
The Microtech hose will continue up the cylinder, to the rear most brass nipple on the 2 bolt frame plate. See below:



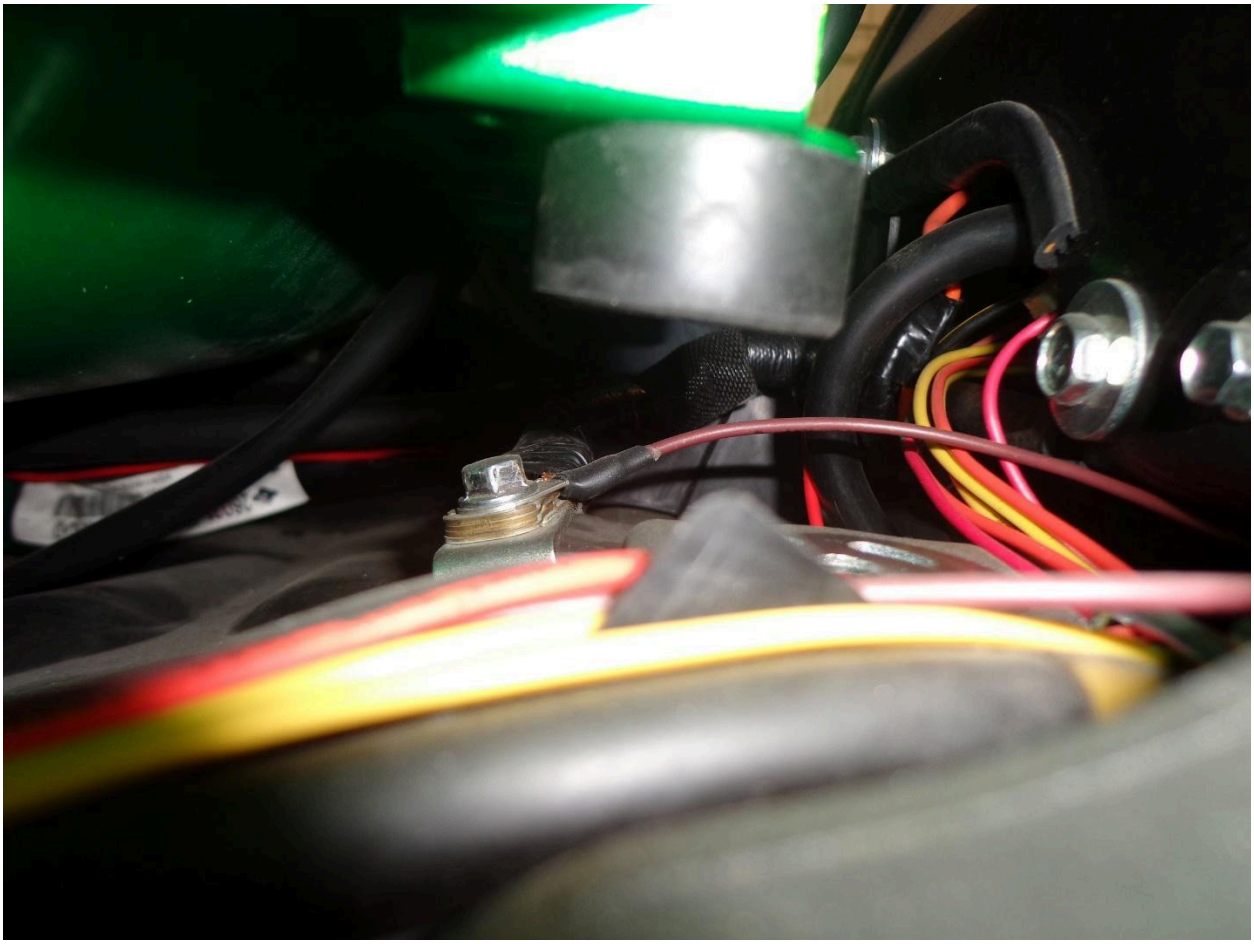
The Microtech wiring harness follows the same similar routing as the hose, the pink power wire connects to the brown power wire in the ignition fuse box, see pics below


10A SPARE
15A SPARE
HORN
BRAKE
SIGNAL

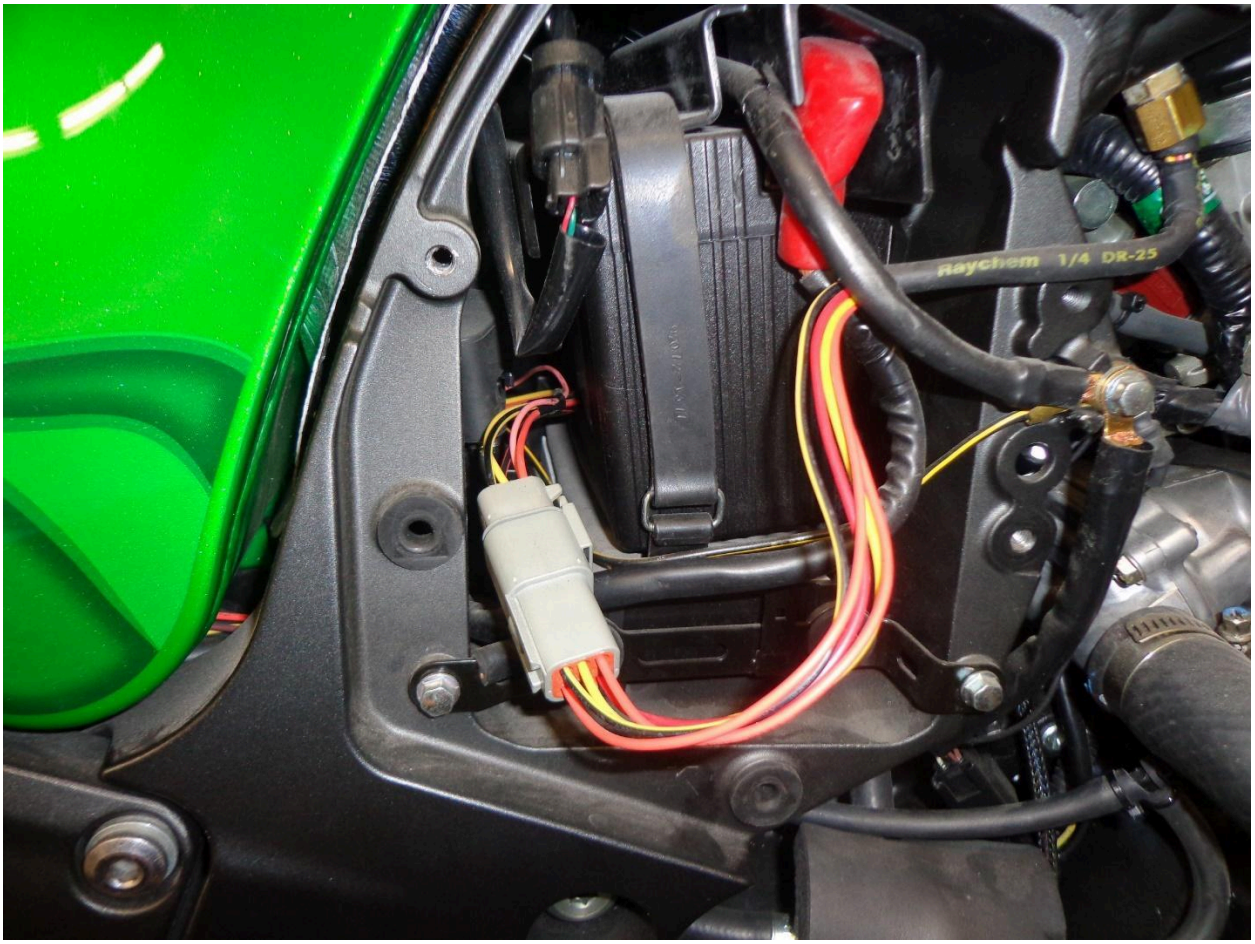




The harness gets routed into the battery box of the bike, the brown ground wire connects to the same bolt as the battery negative cable, see below

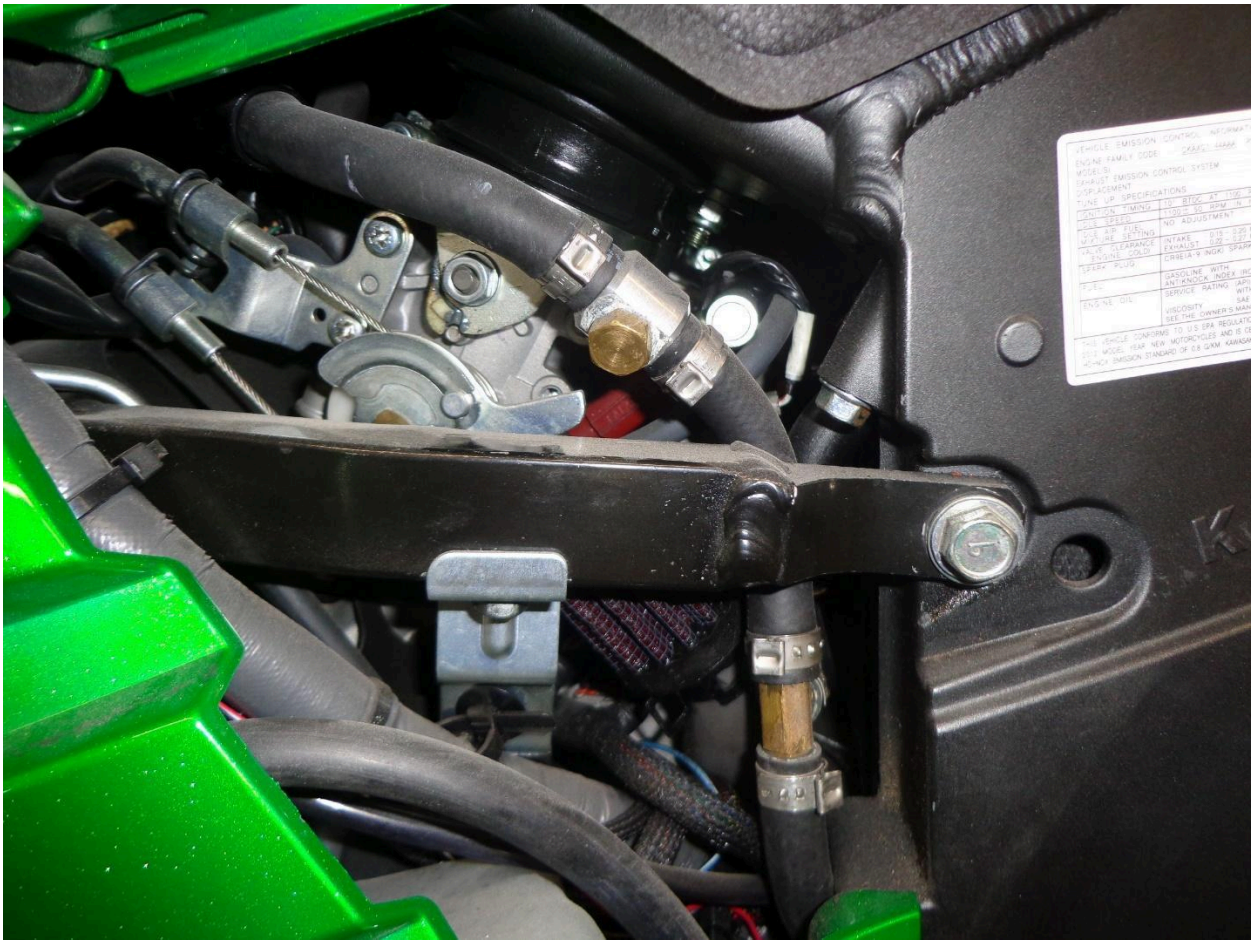


The Microtech harness and fuel injector harness connect at the battery box, see below



The fuel line bulkhead for the secondary injectors installs in the left side of the frame where the crankcase vent used to attach, the bulkhead fitting sits at about a 45 degree angle see below. After you have installed the entire fuel system you can connect the fuel, line to the bulkhead fitting as in the pic below

The fuel pressure test port is pictured below, when you do the installation of the fuel lines make sure they do not interfere with the throttle linkage and function.



You can install the fuel line inside the frame, between the bulkhead fitting and billet secondary fuel rail, see below

There is a bulkhead fitting provided for the idle air control solenoid on the 2012 and newer models, it installs into the grommet on the right hand side of the frame with provided hardware into the factory rubber grommet nut on the inside of the frame. You can cut the factory ISC hose to the correct length to install onto the nipple, install the 2 provided small hose clamps onto each end of the factory hose. There is a picture of the fitting below.

Next carefully tap the lower outside holes below the large frame openings for M8 threads, install the provided M8 x 8 bolts using red Loctite in these holes, and install the small frame plugs in the other 2 holes in the frame. Tighten the nylock nuts on the inside of the frame. Inspect and clean inside the frame as needed and lastly you can install the new billet frame plates with provided o-rings on the top of the frame, using the provided M6x30mm flange head bolts See pic below:

Please be sure to remove the secondary throttle plates during this install

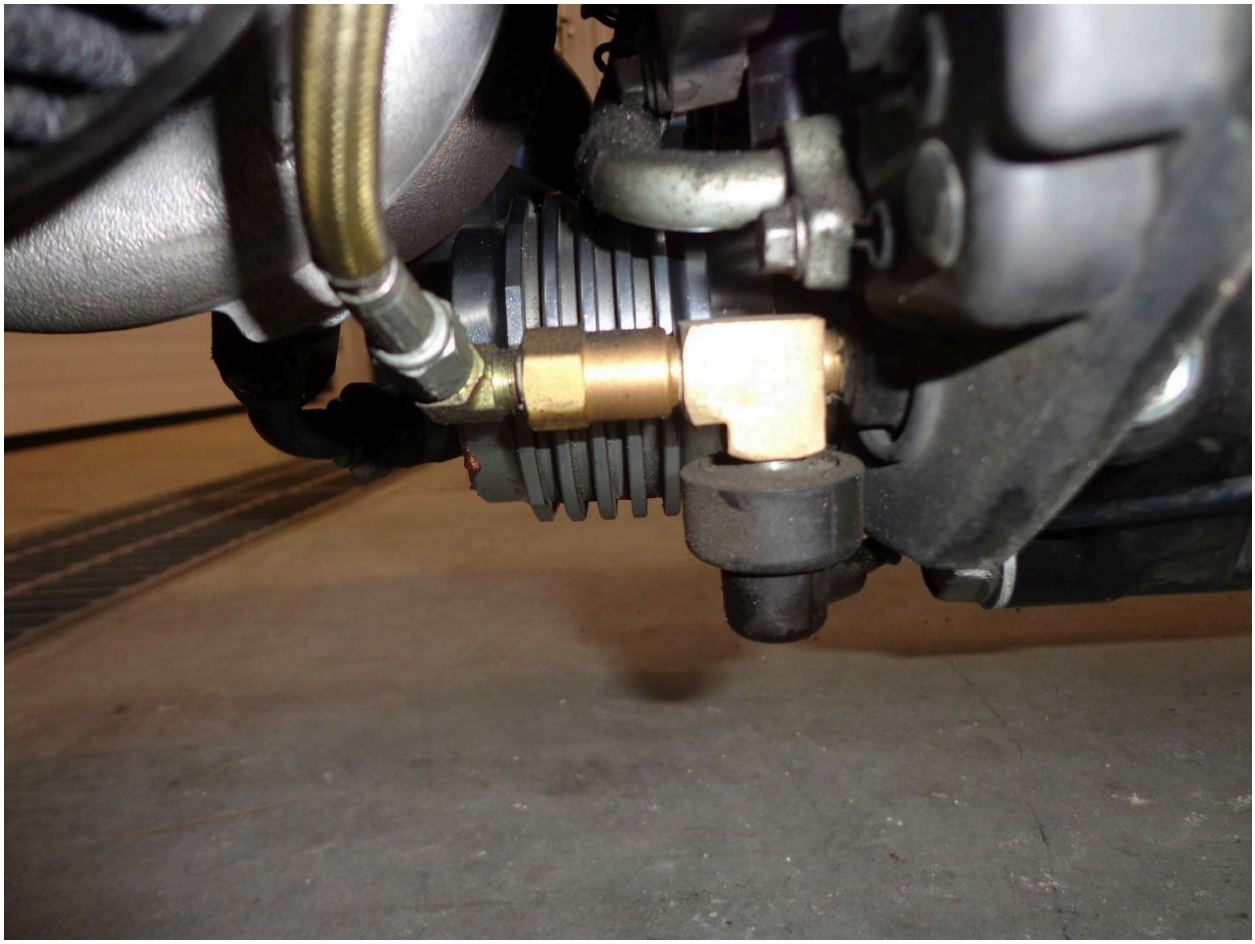
Please be sure to remove the secondary throttle plates during this install

The air temp sensor that was in the factory frame plate can be left in the small opening in the pic below

You can now remove the water fitting on the front right hand side of the engine, carefully tap it for 1/8” NPT thread, then using the 1/8” NPT brass plug provided with the kit, install it in this hole using liquid thread sealant. See below:

Install water fitting using original o-ring and bolts.

You can remove the factory oil pressure switch, and install the oil feed line fittings, check valve and install the oil pressure sensor into the side of the tee, note the sender is facing down, and feed fitting for the turbo is on a slight angle upwards, see pic below:

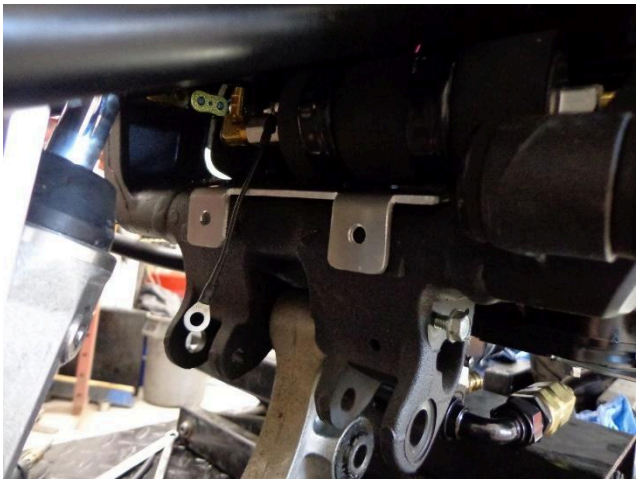


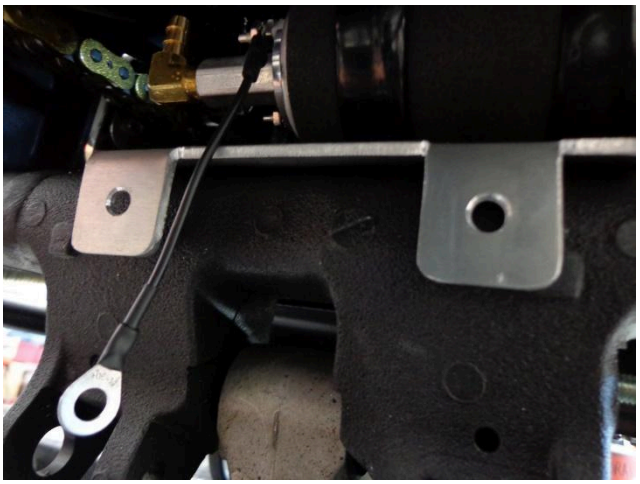
Install header and turbo as a unit

Use your original header nuts to attach the header. Tighten upper and lower nuts equally so the header flange is parallel with the head, See below:

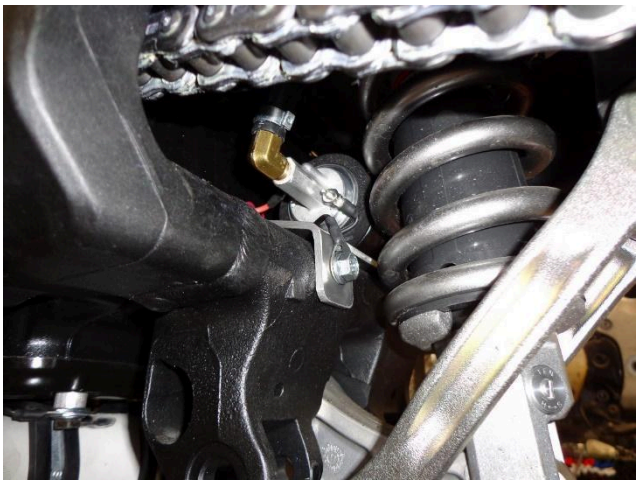
Below are pics of the modifications to the inner fender, (under tray) it has a few names. Basically the plastic below the fuel tank needs cut to allow for the new fuel fitting and lines to pass through;

You can now install the fuel pump. Mount it with provided hardware, you have to support the bike so that you can remove the swing arm pivot and shock. Once you have the pivot and shock removed position the pump as in the pics below:





Mark the holes and rill and tap the frame for M6 thread. Install the fuel pump with provided M6x20mm flange head bolts, install the ground wire for the fuel pump to the left bolt, see below:



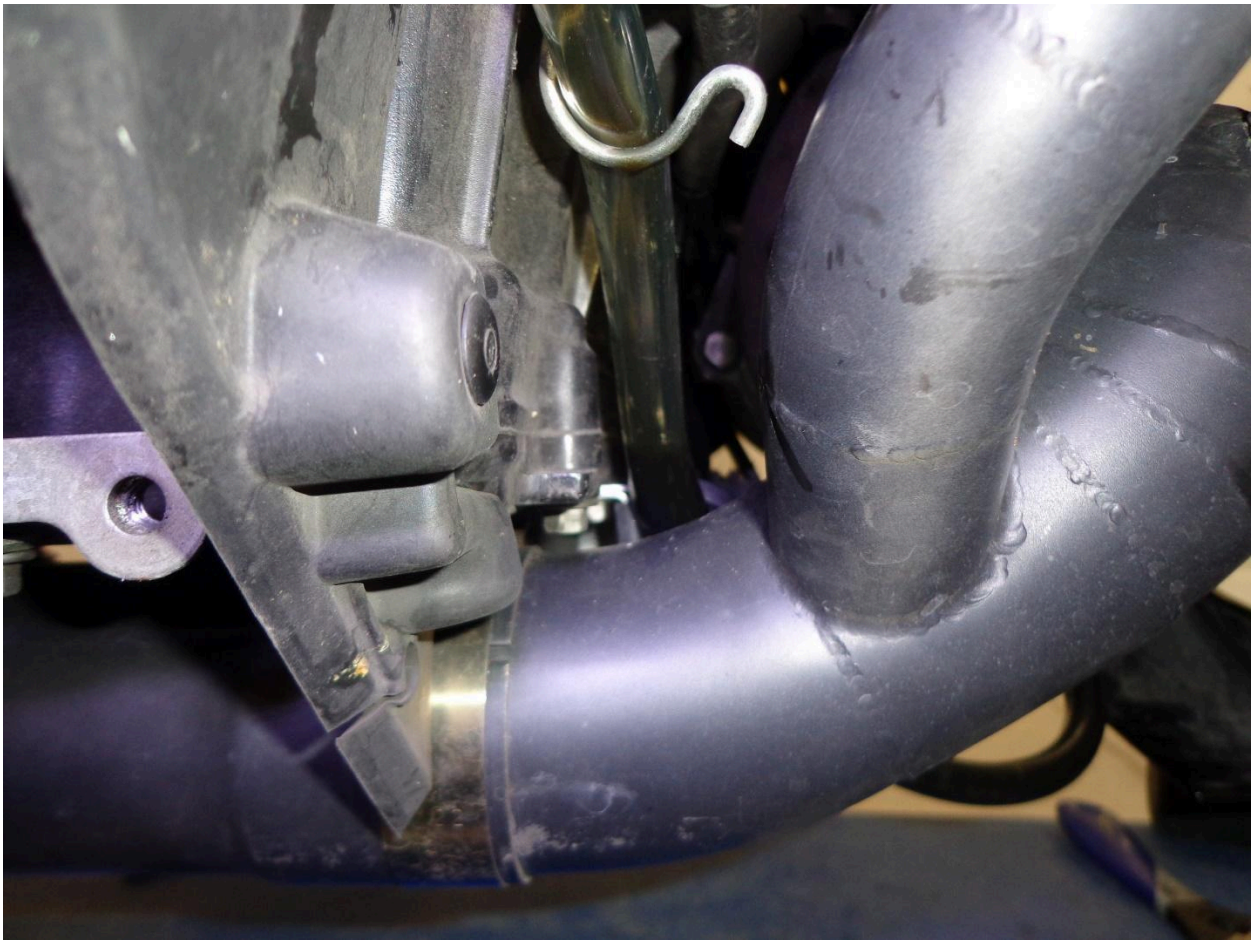
The oil scavenge pump can get installed onto the engine now. The pics below are from our testing and show a silver pump and clear line, the parts included in the kit are slightly different. To start with you will have to remove your ignition cover from the right hand side of your engine. You will be reusing the factory o-ring from the cover. Install it into the o-ring groove in the pump cover.

Remove the factory bolt from the timing rotor, install the new Allen head bolt with washer, apply a very small amount of red Loctite to the threads of the bolt and torque to 30 ft lbs.

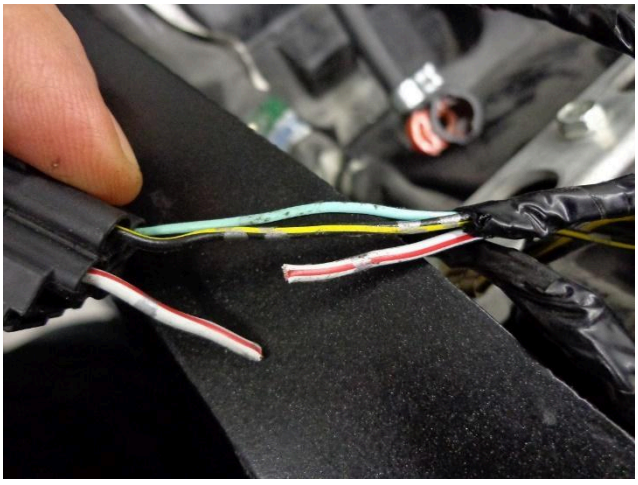
When installing the pump cover you have to remove the gear cover on the pump, the 4 Allen head screws on the cover to expose the gears. Now you can carefully install the pump, you will have to rotate the gears a little to align the Allen bolt with the pump driveshaft

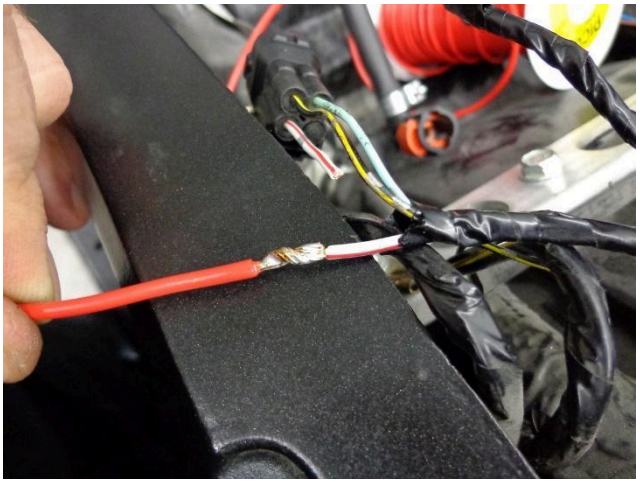
Once it aligns the pump will slide onto the engine and you can install the original cover bolts to hold the pump on the engine, torque these bolts to 7 ft lbs. Once they are on and tight you can install the small rectangular gear cover, take care of the O-ring on this cover that it is in its grove when installing, and tighten the screws up to 28 in/lbs.

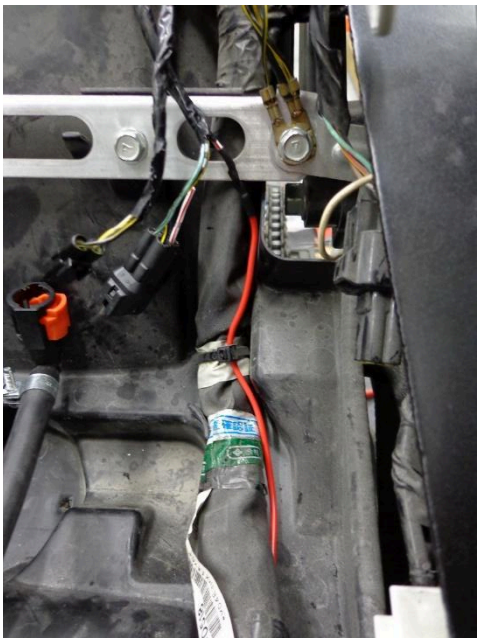
The provided drain line has a 90 degree fitting installed on one end, it can be connected to the bottom of the turbo, we recommend using as much of the provided drain line as possible. Position the 90 degree fitting pointing towards the left side of the bike and loop the hose around as in the picture below, once the fairings are on they will help support the hose. We have also provided a “P” clamp to mount to an oil pan bolt to help support the hose, once you get the hose routing like in the pics below you can install it onto the other 90 degree fitting and install it onto the pump. A hose clamp has been provided.



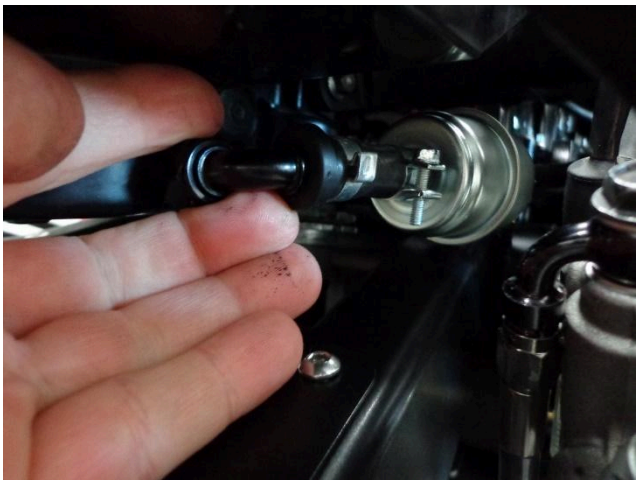
The positive wire for the fuel pump can get routed between the swing arm and the engine, it will follow the factory harness back to the fuel pump connector, there is will get connected to the factory fuel pump wire,(white with red tracer)

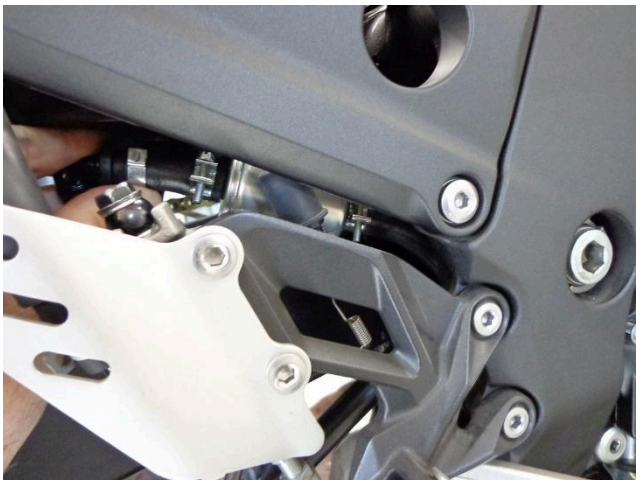




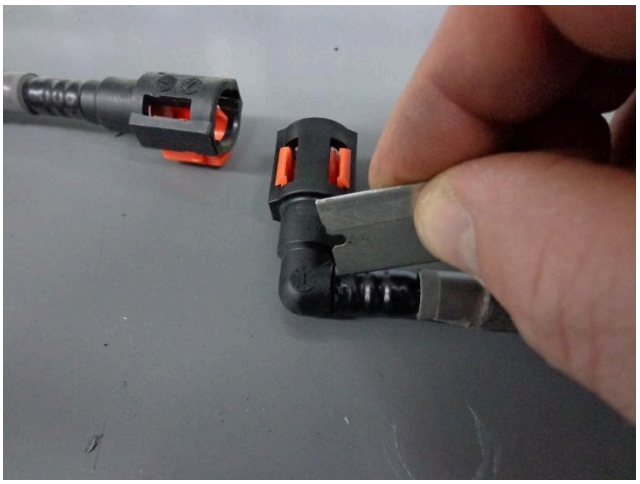


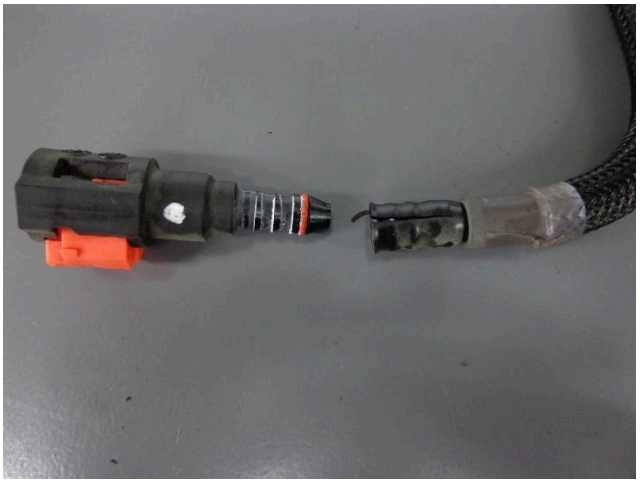
You can also install the fuel lines at this point, the lines are labeled, the outlet from the tank to the inlet of the pump (inlet of pump is the right side when sitting on the bike) has a fuel filter installed, the line slides onto the nipple on the pump and then you can tighten the supplied hose clamp, and the 90 degree fitting will connect to the tank later. See below:





You have to remove the quick connect ends from the factory fuel lines, see pics below:





The straight fitting will go on the new fuel line assembly, at the label that says “factory fuel rail fitting” use the supplied clamp to tighten the hose to the fitting.

This hose assembly will get installed onto the outlet of the pump, (the outlet is the left had side of the fuel pump when sitting on the bike, it has the wires and terminals on the outlet of the pump) route the hose from the left side of the bike, behind the engine, behind the swing arm main pivot and down to the nipple on the fuel pump outlet. The quick connect fitting gets installed onto the factory fuel rail fitting, and the hose coming off the bottom of the brass tees goes to the right hand side of the engine and later gets connected to the inlet of the 1:1 regulator assembly.

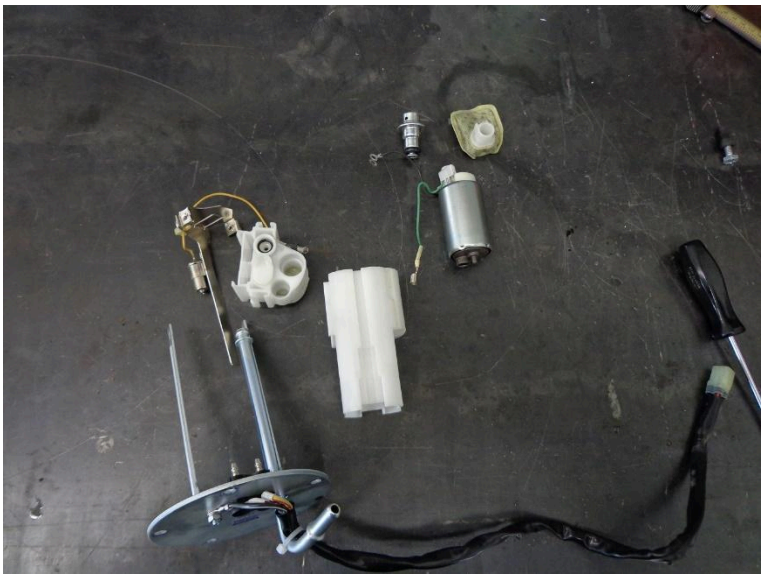
The 90 degree fitting will go on the fuel line with a label that says “return to tank” also tighten the hose to the fitting with the supplied clamp. This will connect directly to the fitting on the fuel tank later.

The return hose comes from the right hand side of the engine where the fuel pressure regulator will sit and routes behind the engine and then under the tab at the left, see below:

The center brass screw with the vacuum line on it is used for adjusting your static fuel pressure, turning the screw inwards (clockwise) raises the fuel pressure, turning it out (counterclockwise) lowers the fuel pressure.

The vacuum line with the TEE on it gets installed into the Microtech vacuum line.

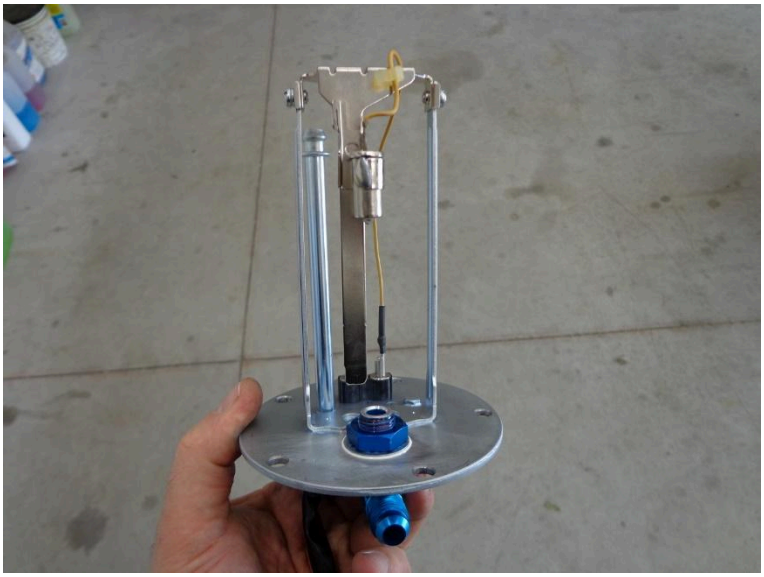
Please refer to the pics below for modifying the factory fuel pump sending unit, completely disassemble pump as in pic below.



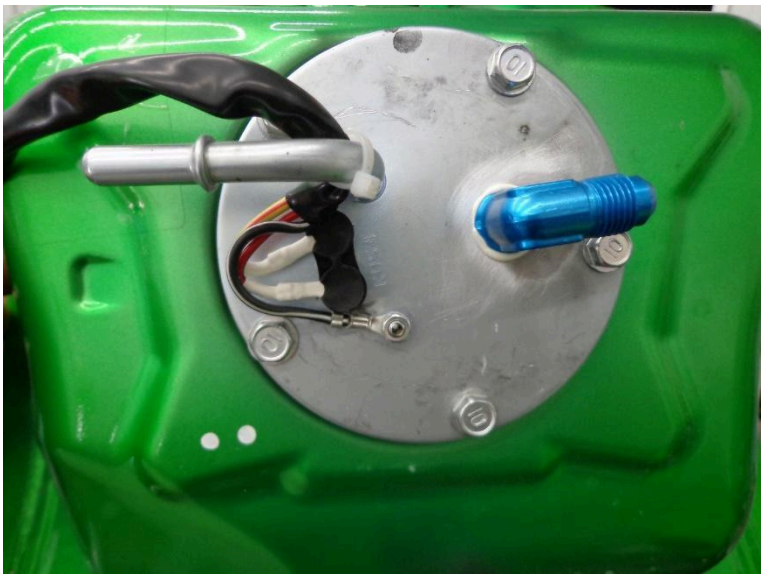
You have to drill a 9/16” hole in the plate, and sand back part of the factory bracket so that the washer sits flat. See pic below for hole location and where to sand.

See pics below for bulkhead fitting orientation and fuel sump assembly parts. Use sealant on the washer and fitting, and use red Loctite on the nut.

Below is a pic of the sump assembly back together ready to be installed back into the tank.

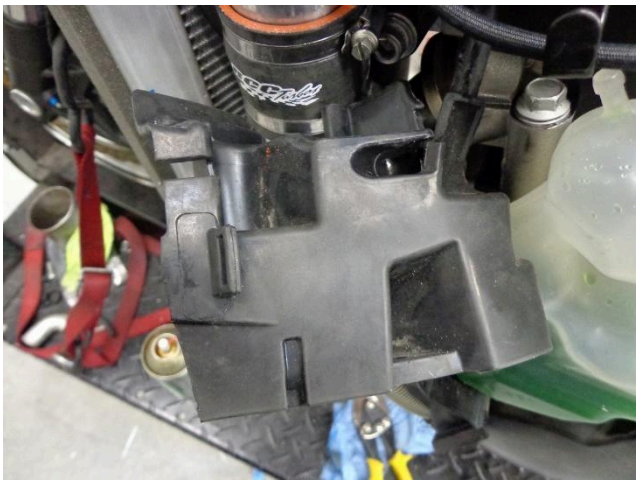


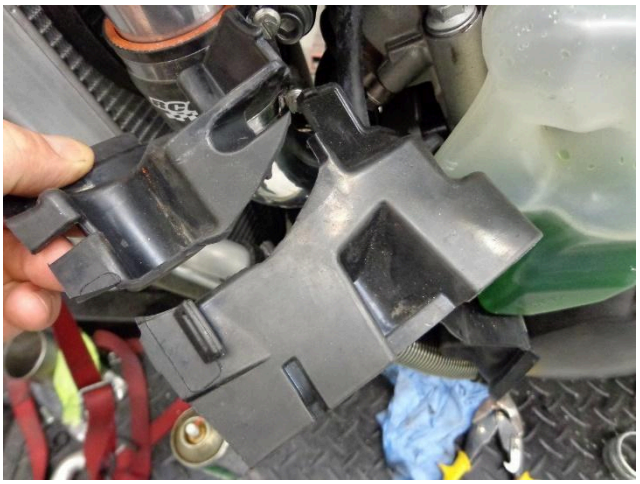
Pic below is of assembly back in the tank



The plastic and rubber shields around the radiator need trimmed for the charge piping and BOV if one was ordered. First 2 pics below are of the plastic rad panel, we use a good pair of tin snips for the trimming, notice on the left side where we have cut it:

Next 2 pics are of the rubber shield, it needs trimmed for the charge pipe, first pic is before trimming, and 2nd pic is after:





The right hand billet ram air tube plate (or blow off valve if you ordered one), and left hand upper charge pipe can now be installed using the provided O-ring and M6x20mm flange head bolts, see below:

On 2012 and newer models the blow off valve hose gets installed into the lower ISC hose, cut the hose in the center, install the brass TEE with the hose facing inwards of the engine, and install zip ties onto the hose, please see pics below:

On 2006-2011 models the blow off valve hose connects to the capped nipple on the forward side of #4 throttle body

On the 2012 and newer models there is a MAP sensor (IAP sensor) on the right hand side of the engine, behind the hoses that are mentioned in the picture above. You will have to remove the vacuum hose from this sensor, install the provided check valve onto this hose, it is labeled, remove the label before installing the hose, then install the hose that is attached to the check valve onto the MAP sensor, it is also labeled. This check valve will keep the engine light from coming on when the bike goes into boost. There is a picture of the check valve below.

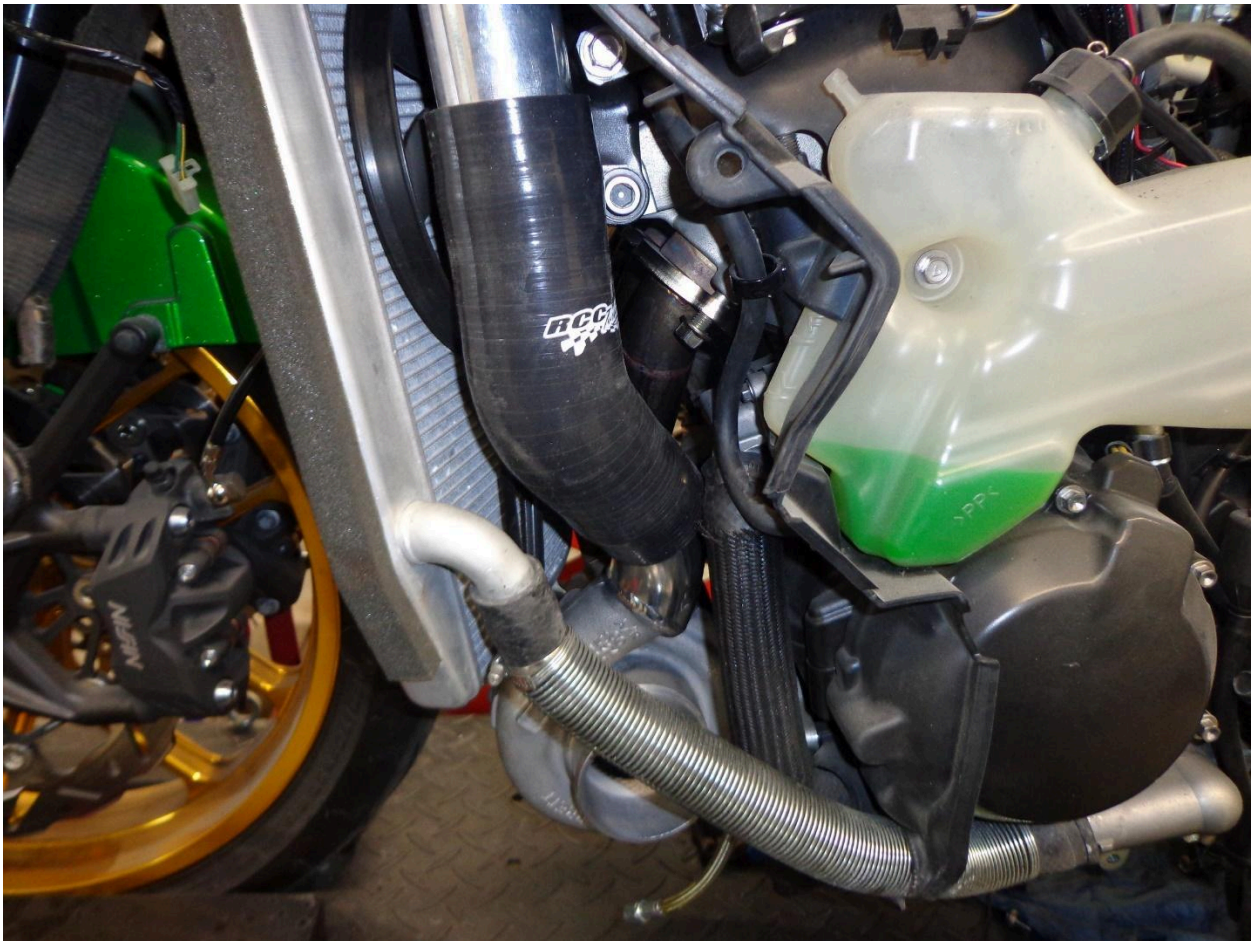
On 2006-2011 models the MAP sensor (IAP sensor) is on the left hand side of the throttle bodies.

The oil feed hose from the turbo can now be connected to the feed fitting on the engine, the oil feed line should cross over the top of the oil cooler block off plate, over the rear of the turbo compressor cover then down to the feed fitting on the engine.

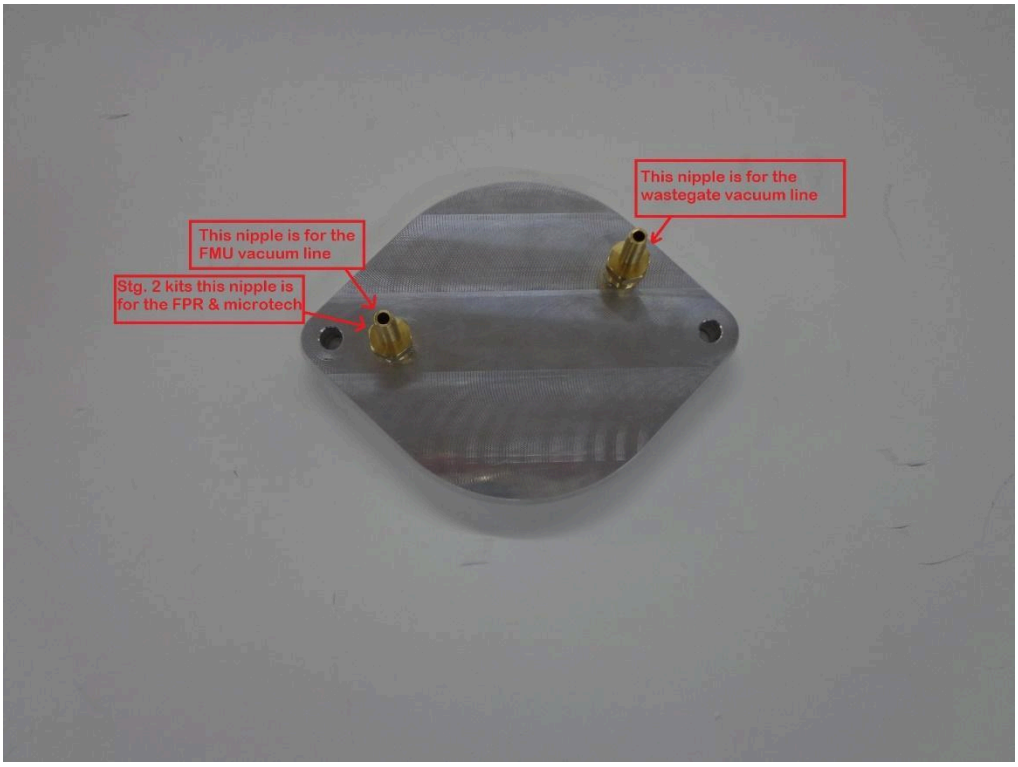
The waste gate and dump pipe assembly can be installed now too.

Once the exhaust is on and tight the rad can be installed, there is a plug provided for the nipple on the lower right of the rad that used to go to the oil cooler, you will have to cut a couple of inches off your original hose install the plug and hose onto the nipple on the radiator, you can reuse the original hose clamps off that hose. See below:

The lower silicone charge tube can also be fitted now using the 2 hose clamps provided see below:



The vacuum line for the waste gate connects to the most forward nipple on the 2 bolt frame plate and to the bottom (side port) of the waste gate. The upper fitting gets left open; it is not used for stage 1 kits, for stage 2 kits the upper fitting is for a boost controller



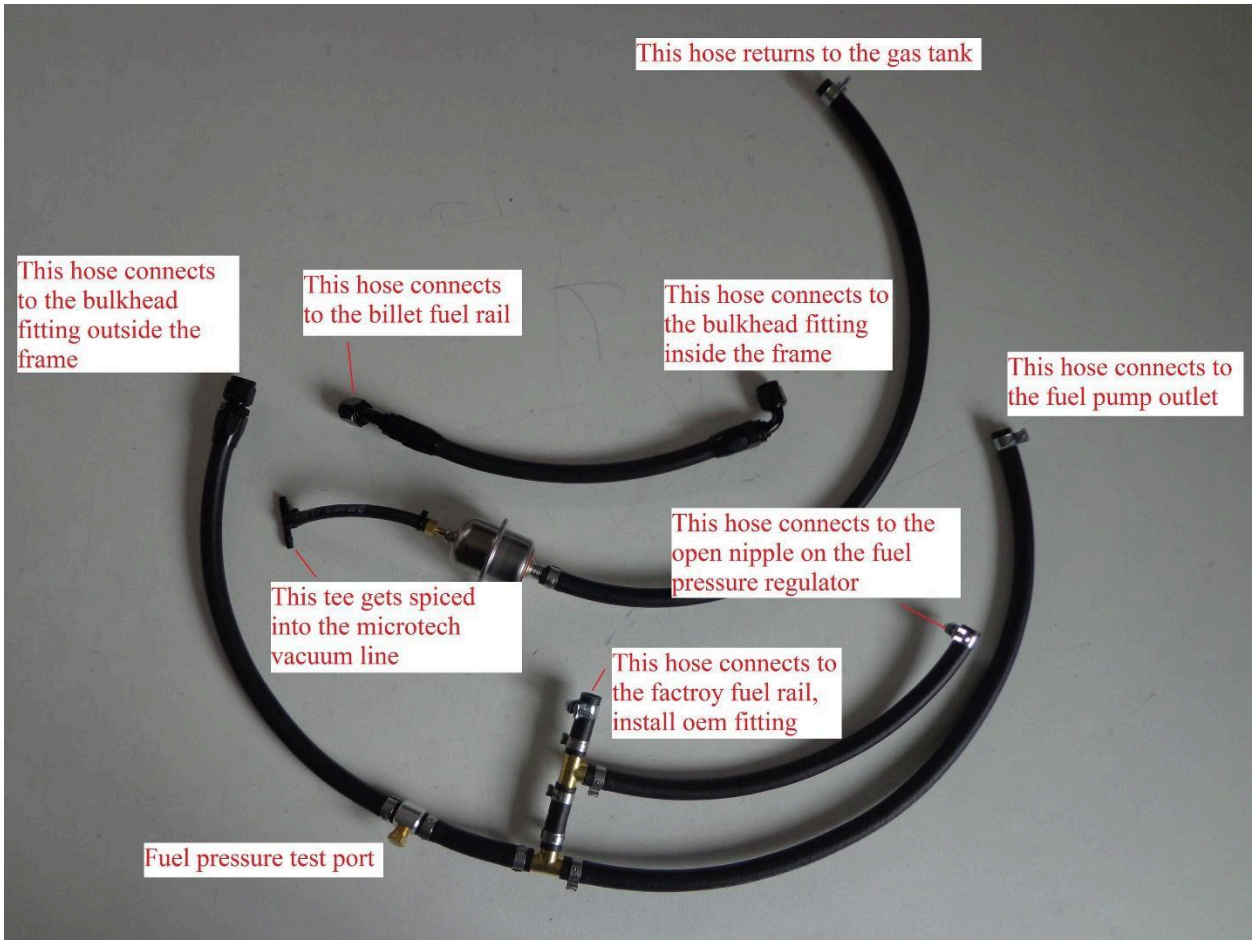
The crankcase vent will now be just a filter as we removed it from the frame and installed a plug into the frame. See below for pics on installing the new filter into the original hose. You basically remove 1.5” from the hose, and then install it with the filter tucked up next to the motor behind the wiring harness.

The fuel tank can be installed, oil put into the engine and coolant filled up.

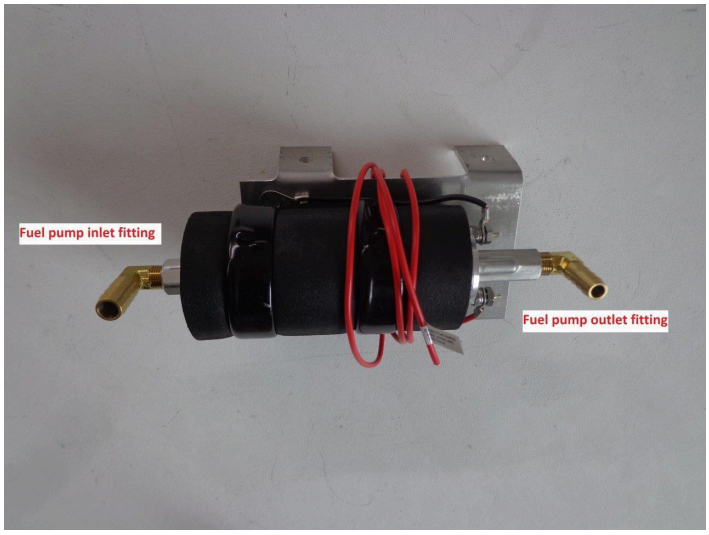
The fuel lines can be connected as the fuel tank is installed, there is an air filter template included to be used for aid in cutting your fairing.

After adding fuel to the tank fuel pressure should be set to 43 psi, then you should be able to start the bike, let it run for a while and check for leak, loose bolts, etc. If everything appears to be good you can start fitting your fairing back on.

Please be sure to remove the secondary throttle plates during this install


This hose returns to the gas tank
This hose connects to the bulkhead fitting outside the frame
This hose connects to the billet fuel rail
This hose connects to the bulkhead fitting inside the frame
This hose connects to the fuel pump outlet
This hose connects to the open nipple on the fuel pressure regulator
This tee gets spiced into the microtech vacuum line
This hose connects to the factroy fuel rail, install oem fitting
Fuel pressure test port


One end of this hose goes on a brass nipple on the right ram air plate, and the other end connects to the lower or side nipple on the wastegate



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.

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. 1-519-335-6504 ask for Richard

richard@rccturbos.com