



## **CNC Fabrication, LLC 4 Line Feed Fuel Bowl Retain Fuel Line Kit for an E99-03 Electric Pumped 7.3L Powerstroke Installation Instructions.**

Please read these instructions ***first*** to give you an idea, and continue to refer to the pictures as a reference guide. If you feel uncomfortable doing this install, please seek out a professionally trained diesel mechanic or someone very familiar with hydraulics.

**CONTENTS:** 1QTY DRIVER FRONT LINE, 1QTY DRIVER REAR LINE, 1QTY PASSENGER FRONT LINE, 1QTY PASSENGER REAR LINE (ALL FITTINGS ARE ON THE LINES), 1 SET OF TURBO TO PEDESTAL VITON O-RINGS, 1QTY 1/8" NPT ALLEN HEAD PIPE PLUG (INSTALL IF NOT INSTALLING A PRESSURE SENSOR IN THE ADAPTER COMING OFF THE 4-WAY CROSS FITTING)

1. Remove the battery ground clamps for safety. Remove the engine cover, intake spider, and turbo. Possibly the AIH solenoid relay. Drain the fuel bowl via the valve on the back side of the bowl. Place some rags in the bottom of the valley of the engine to soak up any residual fuel when the OEM fuel lines/fittings will be removed later. Cover the intake plenums and turbo pedestal oil ports so no dirt/debris gets into the engine during this install. Remove any necessary sensors, wiring, and/or plugs that may be in your way. Most you can work around, but it can make it easier to install this kit with some of them removed. It is also not required to remove the CAC tubes, but it's another thing that may make it a bit easier with them out. Disconnect the supply and return lines from the fuel bowl (you will possibly need new 3/8" and 5/16" Parker Vibralok O-rings during reinstall and can be purchased at your Ford/ International dealer, or from [www.dieselorings.com](http://www.dieselorings.com)). Remove the accessory drive belt, then the alternator. Then unbolt the alternator bracket and let it set in the engine bay so you don't have to disconnect the power steering pump/lines. Just leave it set enough toward the fan and that will be sufficient to install the fitting in the head. You may/may not want to remove the hpop lines, but not necessary. It is also not necessary to remove the AC pump and bracket, but it will make it easier.

2. Remove the OEM fuel lines from the front driver and rear passenger sides. Then remove the two brass Vibralok fittings and the two 1/8" square head pipe plugs in the heads. Remove the two Vibralok fittings on the passenger side of the fuel bowl. Next remove the allen head ORB (O-ring Boss) fitting on the bottom passenger side of the fuel bowl right next to where the OEM brass fittings are located. See the first picture where the 4 way cross fitting is.
3. It is highly recommended that you use Loctite brand 545 or petroleum use thread sealant only on the fittings with NPT pipe threads. You can use Teflon tape, but be very careful as to not get any tape over the opening of the fitting and make sure you wrap the tape on the fittings in the correct direction as IT DOES MATTER. This includes the threads that go into each corner of the heads and the 2 90\* fittings that go on the passenger side of the fuel bowl. All other threads on these fittings do not get any thread sealant. While installing the fittings into the fuel bowl and the heads, be careful not to damage the threads on the tubing side of the fitting and do not tighten them too far into the bowl as you might crack the bowl. Next, install two 90\* fittings in the fuel bowl where the Vibralok fittings were. Refer to picture 3 for reference. The 90\* fitting closest to the front of the truck needs to be pointed up and the fitting next to it needs to be pointed toward the transmission. Next install the o-ring swivel fitting into the fuel bowl as shown, and do not over tighten or you may crack the bowl. Then install the 4-way cross fitting onto the o-ring swivel fitting as shown with the "legs" pointing up and down. See picture 1. Do not tighten the cross fitting yet onto the o-ring swivel fitting until you get the other lines attached to the cross to get it in the correct position. Turn it in by hand until it's in the correct position (about four turns or so). The fitting on top of the 4 way cross fitting has an 1/8"NPT allen plug. If you are going to install a pressure sensor, remove the allen head plug and install the sensor as most sensors are 1/8" NPT thread type. You will need to trim the yellow valve handle for the bowl drain about 1/4" for the handle to clear the sensor. Next, install the four 45\* fittings in the heads. The passenger front will be the only one pointing up (picture 3) and the other 3 will point toward the center of the engine as shown in picture 2. **Note:** You may need to loosen the clamps where the up-pipes bolt to the exhaust manifolds in order to push back the up-pipe collector that connects to the turbo.
4. The fittings on the lines already have the ferrules preset onto the lines ready to install, so do NOT overtighten. Next, install the front lines first, and then install the back lines. Connect each line by starting the line nuts by hand only a couple threads to make sure they do not cross thread onto the already installed fittings in the heads/fuel bowl. If the nuts don't quite go on with just your fingers, then use a wrench to thread them on, but be certain they are not wanting to cross thread. Once they are threaded on far enough you will feel resistance when the ferrule is almost seated. Then tighten the nut another

1/3-1/2 of a turn (which is 2-3 flats of the nut). The connection is now properly set. DO NOT OVER TIGHTEN THE FITTINGS or you risk damaging the ferrule. These lines and fittings are hydraulic and are capable withstanding 3000psi.

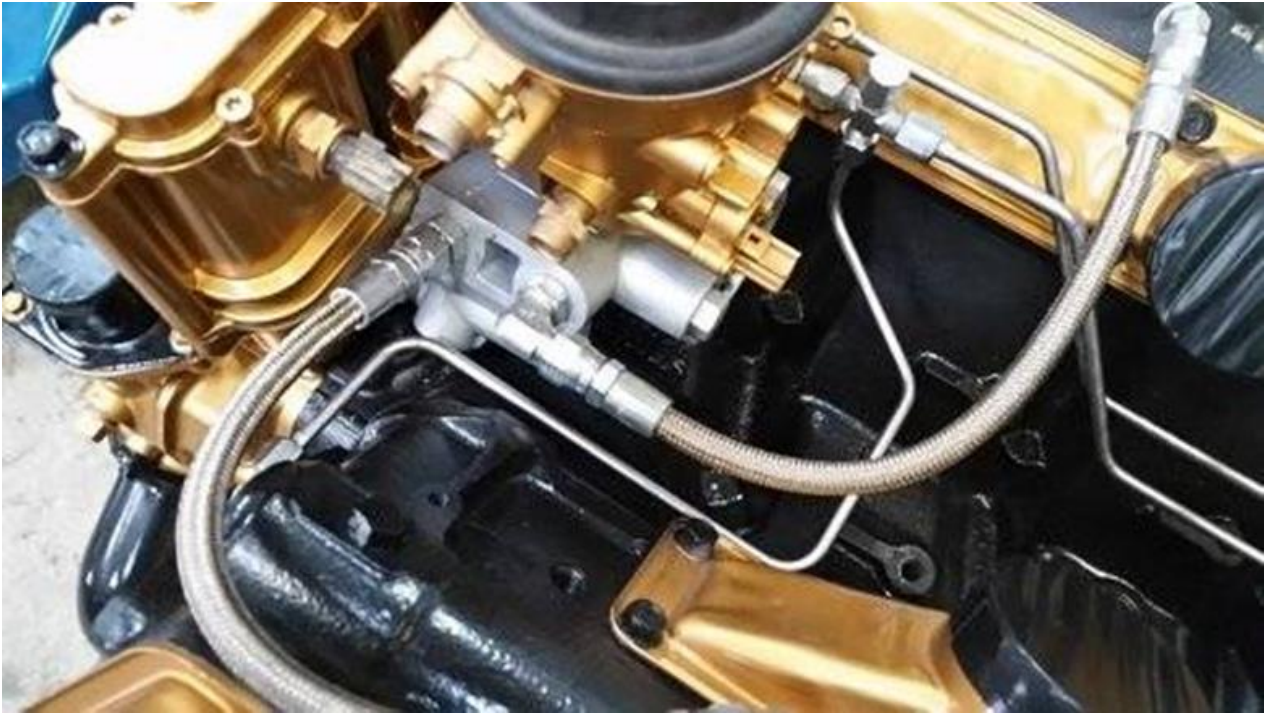
5. After all the fittings are tightened and double checked, turn on the ignition (DO NOT START THE ENGINE). This will pressurize the system and is a good opportunity to check for leaks. Good idea to maybe do this 2 or 3 times. Once you have verified there are no leaks, then reassemble the previously removed parts. It is also a good idea to install new turbo to pedestal O-rings, but may not be necessary if they have been recently replaced.
  
6. If you have chosen to purchase the bowl delete manifold with your fuel line kit, use the supplied bolt to hold the manifold to the high pressure oil pump reservoir. The OEM bolt is too long. The large ports on top of this manifold are -08 O-ring Boss threads, and depending on how you decide to plumb in you supply and return lines will determine which fittings you need. Most people will use an AirDog II 4G or FASS Titanium Signature Series type fuel pump system that has an integrated regulator for the return. These pumps make for a very nice and easy install so you will only need one fitting to connect the supply line to the manifold and install a plug in the other port.

**NOTE:**

After you have gone through and powered the fuel pump on and checked for leaks, and **IF** you have a fitting that is slightly leaking, turn off the pump and let the pressure bleed down. Undo the fitting and inspect for dirt/debris on the mating surfaces and be sure the tube didn't get bent and is "squared up" going into the female port in the fitting. If everything is clean and straight, then turn the nut on the connection that is leaking one more flat and recheck for leaks.

**DO NOT KEEP TIGHTENING DOWN THE NUT ONTO THE FITTING UNTIL IT PHYSICALLY CANNOT TIGHTEN ANYMORE. THIS WILL DAMAGE THE FITTING AND WILL NOT SEAL.**

Picture 1:



Picture 2:



Picture 3

