

♦ CLASSIC ♦ *Diesel Designs*

— SAN ANTONIO, TEXAS —

Thank you for purchasing an E-fuel conversion kit from Classic Diesel Designs, if you have any questions about the installation of this product, email us at Sales@ClassicDieselDesigns.com, or feel free to call us at 830-252-9767.

This kit replaces the complete feed and return lines of the factory fuel system for 1983-1994.5 F-Series trucks equipped with the 6.9 or 7.3 IDI. **This product is not compatible with the 7.3 powerstrokes.** This kit is designed to work in conjunction with our 38 gallon single tank kit, which comes with our billet sump preinstalled in the tank to plumb the fuel system from, if you do not already have our single tank kit, you can install one of our sumps in the existing rear tank and plumb the fuel system from the factory rear tank, with the option to upgrade to the larger rear tank later on if more capacity is needed.

With a sump installed in your rear tank, start by removing the stock fuel system components between the rear tank and engine. The front tank, selector valve, fuel lines, mechanical lift pump, factory filter head(s), return lines, and any low pressure hard lines with olive seals on the engine can be removed and discarded.

With the front tank components cleared from the frame, you will now have space to mount the provided filters and pump. Locate a flat section of frame

to mount the bracket with the preassembled pump and filters on the inside of the frame, with ample clearance to the cab, driveshaft(s) and driveline.

Now with everything mounted on the frame rail, next locate a spot in the engine bay to mount the fuel pressure regulator. The holley pump equipped kits will have the feed port on the bottom and the outlet port on side with the gauge to read the pressure setting. Walbro pump equipped kits will have a high pressure bypass regulator, with the side ports as interchangeable feed/return, and the bottom port is the regulated output.

With the regulator mounted, you are now ready to run the feed line from the tank to the injection pump. Our fuel systems use pushlock hose that require no hose clamps, with all possible connections using AN/JIC style flare fittings which seal on an angled flare to create a reliable, reusable fitting and line. To begin making these lines, install the black AN fittings on the steel fittings in the prefilter and in the sump (on our billet sumps, you can use either port as a feed or return). Take a length of our provided pushlock hose and mark the needed length to run from the sump to the prefilter with the hose tight against the frame and seated all the way on the barbs of the AN fittings. Now remove the black fittings and using clean diesel or motor oil as assembly lubrication, push the fittings onto the ends of the hose, seating the hose all the way on the barb against the cup which covers the hose end. Now you can install the fuel line on the truck, careful not to overtighten the fittings as they require little torque to seal. Now continue building lines up to the regulator in the engine bay, plumbed in order of:

Sump-> Prefilter/Water Separator-> Fuel Pump(s)-> Second Fuel Filter -> Regulator-> Injection Pump Feed

Now with the supply side of the fuel system complete, you can now install the included return line kit per our instructions here:

https://docs.google.com/document/d/1B5RwHEQ7U6UINh8DmjldbPciFzRo_eiJKv_kHTb4Flik/edit?usp=sharing At the rear of the engine you will install the provided Tee fitting to collect all the return fuel into one main line to go back to the sump. On Walbro equipped kits, the return line from the

regulator will plumb into the return line tee at the rear of the engine. With the tee installed, you can run the return line from AN fitting pointing back towards the rear of the truck, running the return line along your feed all the back to the return on the sump.

With the fuel system plumbed and ready for fuel, you just need to complete the wiring for the fuel pump(s). Included in the kit is a premade relay harness, this harness uses an ignition source (glow plug relay, injection pump shutoff wire or the fuse box are all good ignition sources) to trigger a 40 amp, waterproof relay that will supply high battery current to the fuel pump(s). The harness will already be terminated and labeled, simply mount the relay next to your starter solenoid on the passenger side fender and hook your fused power wire to the hot at all times side of the solenoid, and the ground wire to a good ground. Now with the ignition wire wired into your factory harness, run the long output wire from the relay up to the fuel pump, you should now have the fuel pump come on whenever the key is turned to the ignition position. Finally install the fuel pump blockoff plate on the passenger side of the engine block underneath the alternator.

Now with the pump running, check for leaks and begin purging air from the system by cracking open the bottom fitting on the regulator until fuel begins coming out of the line, then tighten the fitting back down and allow the fuel pump(s) to run for another 30 seconds to a minute to purge the air from the rest of the fuel system. While doing this, check your fuel pressure setting and adjust the regulator to the desired fuel pressure. On holley pump equipped kits, you will set your fuel pressure at 5 psi, for high pressure kits, refer to your injection pump builder for a recommended pressure setting. Begin cranking the truck over 10-15 seconds at a time with 1 minute in between to allow the starter to cool, to purge the remaining air from the injection pump with the injection lines cracked until fuel dribbles out of every line, then tighten the lines down and start the vehicle. Expect the engine to run rough as the air purges out of the fuel system, after some run time the engine should run smooth and start without excessive cranking.