Instructions for 10603 Fuel Rail Kit

This kit is for 1999-'04 4.6L 2V Ford engines. This Fuel Rail Kit may work on other versions of this engine that use the same, or similar O.E. fuel rails. This kit may fit a 5.4L 2V engine if a longer crossover fuel hose is utilized. The hose ends on the supplied crossover hose are reusable allowing a longer hose to be substituted if desired.

Kit #10603 - Fits 1999-'04 4.6L 2V Ford engines. For 1996-'98 4.6L 2V engines, use our Complete Fuel Rail Kit #10605.

NOTE: Check the drawing and bill of materials on the back side of these instructions to make sure you have all the parts listed. This kit is supplied with an inlet fitting to connect to the stock Ford fuel inlet line. If you want to plumb your own lines, this kit also includes a -8AN inlet fitting (Item #17). Note that this kit includes a special mounting adapter (Item #1) that accepts the stock fuel pressure sensor. If this installation is for an engine swap that does not utilize the late model fuel system, you should use our Kit #10605 which includes a conventional fuel pressure regulator.

REMOVAL OF EXISTING FUEL RAILS (if applicable)
1. Disconnect the ground connection to your vehicle's battery. This is a safety precaution. Allow engine to cool before proceeding.
2. Your stock fuel rails will have a valve on them that looks like a tire valve. This will usually be at the front end of one rail and will have a black plastic cap on it. Remove the cap. If you press on the core of the valve, it will release the pressure in the fuel rails. Caution! Fuel will spray out and you should have a towel or other absorbent cloth to catch any fuel that is released. Bleed system until flow stops. Wipe up any spills that may occur.
3. Remove any bolts or screws that hold the rails to the engine. You may want to save these screws as some of them have other uses. However, new stainless screws are provided in the kit for reattaching our rails if you do not need or want to use the stock screws.
4. Remove inlet fuel line and return line. Not all systems will have a return line. This engine does not. Most EFI systems use a type of push-on fuel line connector to the fuel rails. A special tool is required to remove these connectors. These tools are very inexpensive and are available at most regular auto parts stores. Your local NAPA store would be a good source.
5. Inspect the o-rings on the injectors. If you see any deterioration or cuts or slices, they must be replaced. It's not a bad idea to replace them in any event if the vehicle is not new.

INSTALLATION OF FUEL RAIL KIT
1. Lubricate O-rings on both ends of injectors with a light oil or WD-40 or equivalent.
2. Carefully push injectors into manifold. Do notcock them sideways when you do this or you can damage the O-ring.
3. Install all necessary fittings into fuel rails. Clamp rails in a vise with special jaws to protect finish. Follow these instructions for installing fittings.
4. Thread 90-degree stainless steel fitting (Item #4 or optional #17 fitting) into back of passenger's side rail (Item #3). The passenger's side is the one without the small nipple sticking out of the side. Do not use Teflon tape as it can shred and get into the fuel system, clogging the injectors. Use a special sealant available in any hardware store, such as Loctite #569. (Note: This is not a thread locking compound, but is a sealant.) Determine the finished position that you want the fitting to be in. The fitting is designed to approximate the position of the stock return line on the factory fuel rail. Please carefully follow these steps when installing any fitting into any of the fuel rail parts. Thread fitting (with pipe sealer on threads) into rail.
5. Thread the 3/8-NPT to -6AN fitting (Item #8) into front end of passenger’s side rail and the 90° 3/8-NPT to -6AN fitting (Item #9) into the front of driver’s side rail following same procedure as in Step #4. This 90° fitting moves crossover hose up enough to clear the thermostat housing.
6. Thread the 3/8-NPT to 1/8-NPT reducer (Item #5) into rear of the driver’s side rail. Then thread the supplied 1/8-NPT pipe plug (Item #6) into the reducer. If you want to utilize the factory fuel pressure bleeder valve, you can unscrew it from your stock rails or get one from a Ford dealer and thread it into the reducer instead of the pipe plug. The Ford part number is E0AY-9H821-A.
7. In your kit is a stainless steel angle adapter. (Item #1) Attach this adapter to side of the driver side rail (Item #2). The driver side rail has a small nipple sticking out of the side. Place the two supplied O-rings into the grooves of this nipple. Caution: Do NOT try to put these rings on dry or you will damage them. Coat with oil or other lubricant. Then, with lubricant still on rings, push the stainless angle adapter onto the nipple keeping it straight as possible. Align screw holes and attach bracket to rail with (2) supplied M5 x 15 (Item #13) long stainless screws. Tighten securely.
8. Position each fuel rail over the injectors and with lubrication on the injector O-rings, carefully but firmly push rails down until you feel them seat.
9. Take stainless clamps (Item #10) and place over the fuel rails aligning them with the stock mounting holes on the manifold. You can use the stock screws or the supplied (4) M6 x 15 stainless screws (Item #14) supplied in the kit. Thread screws into holes and tight securely with a Phillips screwdriver.
10. Mount stock factory fuel pressure sensor to adapter on side of driver's side rail using stock screws. Examine o-ring on bottom of this sensor and replace if necessary. Lubricate o-ring with oil before inserting the sensor into the stainless adapter (Item #1).
11. Take supplied crossover hose assembly and attach it to the two -6AN fittings. Tighten snugly with an 11/16” wrench.

FINAL STEPS OF INSTALLATION
12. Go over entire system and check that every single connection is tight.
13. Reconnect battery.
14. Turn on ignition so that electric fuel pump begins pumping but do not start car. Recheck all connections for any leaks. This includes where injectors go into fuel rails. If leaks occur, turn off ignition. Correct any problems. Wipe up any gas puddles.
15. Repeat step 14, again carefully checking for any leaks.
16. Once you are confident that no leaks occur, start engine and check for leaks again with engine running. Check where injectors seat into manifold. Again, if you see any leaks, immediately stop engine and fix the problem.
17. It is a good idea to check your system on a regular basis to make sure that no leaks develop, especially in the first few days you drive the vehicle. Gasoline leaks can turn into a very dangerous and expensive proposition.

SPECIAL INSTRUCTIONS FOR FUEL PRESSURE REGULATORS
NOTE: The following information only applies if you are not using the factory regulator and elect to utilize one of our aftermarket regulators in a custom plumbed fuel system. Professional Products regulators are factory pre-set for 40 PSI of fuel pressure. We suggest you check the pressure with a fuel pressure gauge. Pressure adjustments must always be made with the engine idling. Turn the top adjustment stud clockwise for more pressure, counter-clockwise for less. Tighten lock nut once desired pressure is obtained. Typically pressure should be set in the 40 to 50 PSI range for EFI equipped engines depending upon the application. Check specifications for your specific system. The 1/8-NPT port in the side is for a fuel pressure gauge. You can use a Professional Products #11113 gauge (or equivalent) which will thread directly into this port.

Professional Products offers two styles of EFI regulators. A 2-port model (far left) which is suitable for most applications, and a 4-port model. The 4-port can be used when you want to run a separate inlet line into both fuel rails. The unused port can be plugged with a 3/8-NPT pipe plug.