

Instructions for 10614 Fuel Rail Kit

This kit is for the 2005-'06 GM LS2

Kit #10614 - Fits 2005-'06 GM LS2 without a return line to the fuel tank.

NOTE: Check the drawing and bill of materials on the back side of these instructions to make sure you have all the parts listed. We supply a fitting to connect to the stock GM fuel inlet line (#14). If you are plumbing your own lines, we recommend a -6 inlet fitting for most low to medium performance street applications up to about 450 hp and the -8 for more powerful engines. We supply an optional -8AN inlet fitting (#6). (Use of -8 inlet will require a larger -8 hose to connect to fuel rail fitting (#5)).

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. New stainless screws are provided in the kit for reattaching our rails.
4. Remove fuel inlet and return line from the rails. A special tool available at most auto parts stores is required to remove the fuel lines.
5. Detach electrical connections from each injector. Disconnect anything attached to fuel rails. Remove the fuel rail assembly. Each injector has an o-ring on each end of it. One end fits tightly into the rail and the other end fits tightly into the manifold. When you lift up on the rails, it may pull off of the injectors or it may bring some of them with it. If so, be careful that they do not drop out and become damaged. Handle injectors with care.
6. 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 not cock 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. Do not use Teflon tape as it can shred and get into the fuel system, clogging the injectors. Use a special sealant for pipe threads available in any hardware store, such as Loctite #569. This is not a thread locking compound as normally connected to the Loctite brand name. 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. Tighten it with a wrench until it stops. Then back it out about a half a turn. Then retighten it. Each time you do this, it will go in a little further. Keep doing this until it is securely tight and in the desired position if it is a 90° fitting. Do not over tighten as the rail may split.
5. Depending on which end of the rails you plan to use the crossover hose, thread the supplied 3/8-NPT to -6AN adapter fittings (#10) into either the front or rear of the rails. On most stock setups there will not be enough room to have the hose in the back. If this is an engine swap, you may be able to use the hose across the back if so desired. Follow same procedure outlined in step 4 for installing fittings.
6. Thread the 3/8-NPT to 1/8-NPT reducer (#6) into an unused port on a rail. Then thread the supplied 1/8-NPT pipe plug (#7) into the reducer. If you want to utilize a factory style fuel pressure bleeder valve, you can get one from a Ford dealer and thread it into the reducer instead of the pipe plug. The Ford part number for the valve is E0AY-9H321-A.
7. Attach stainless steel brackets (#1) to manifold with M6 x 15 S/S screws, flat washers and lockwashers. (#3, #4, #8) Snug screws down but do not tighten. Leave screws loose enough to allow brackets to be moved. **NOTE:** The long leg of the bracket with the long slot in it goes down against the manifold. This is very important. If you put the bracket on backwards, the rails may leak.
8. Position each fuel rail over the injectors and with lubrication on the in-

jector O-rings, carefully but firmly push rails down until you feel them seat.

9. Align top end of mounting brackets (#1) with holes in rails. Move brackets until holes line up. You may have to firmly push down on rails to achieve alignment. Thread supplied M6 x 30 screws (#2) through rails and through brackets. Put flat washers, lockwashers and nuts (#4, #8, #9) onto screws. Holding rails down onto injectors with your hand, tighten screws (#3) into manifold and then tighten nuts on screws through rails and brackets.

10. Attach crossover hose assembly (#11) to the two fittings at the end of the rails. Use an 11/16" wrench and tighten securely.

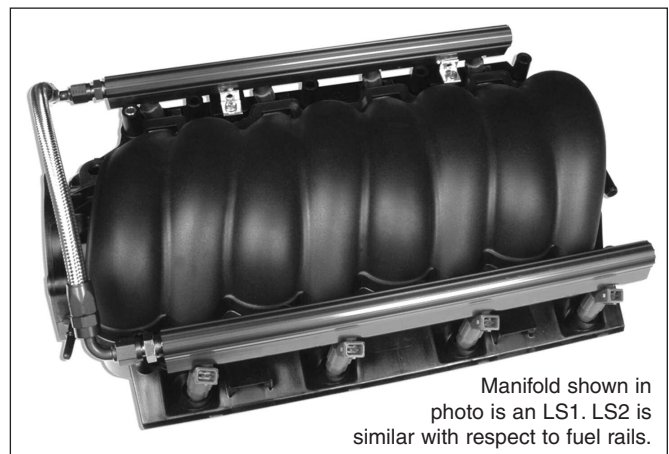
11. Thread the supplied stainless fuel inlet fitting (#14) into end of hose (#15). Thread other end of hose onto 90° fitting (#12) in end of rail. Tighten securely. Attach the stock fuel inlet line onto the stainless fitting (#14).

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 ENGINE SWAPS

If this engine is being used in a vehicle other than what it came in, you most likely will not need to use the Extension Hose (#15) or the special fitting (#14) since these are designed for connecting to the stock fuel inlet line. You can just use either the 90° -6 fitting (#12) or 90° -8 fitting (#5) and plumb an AN fuel line directly to either of those two fittings. However, note that most engine swaps will require an external fuel pressure regulator and a return line to the fuel tank. See below for the two types of adjustable fuel pressure regulators offered by Professional Products that would be suitable for this type of installation.



Manifold shown in photo is an LS1. LS2 is similar with respect to fuel rails.

This photo shows rails installed on a stock LS1 manifold with front crossover hose. Note that not all parts in kit are shown in this photo. See drawing and bill of material on back of this sheet for complete parts list.



Professional Products offers two styles of EFI regulators. A 2-port model (far left) supplied in this kit, and a 4-port model, which can be used to run a separate inlet line into both fuel rails, eliminating the crossover hose (#11). Plug unused port in regulator with a 3/8-NPT pipe plug.

