



GFB FX-S Fuel Pressure Regulator

Instruction Manual



Part # 8050

Introduction

Thank you for purchasing your new GFB FX-S Fuel Pressure Regulator. Our Engineers at GFB have spent countless hours in development to ensure you have purchased the highest quality product available.

The FX-S is street and race fuel safe, suitable for regular unleaded, methanol, ethanol or diesel fuels.

Warning!!! – Fuel systems operate under considerable pressure both during operation and when powered down. Extreme caution must be taken when working with fuels as they are extremely flammable and dangerous.

Modifications to fuel systems must be undertaken by a qualified mechanic or technician, using appropriate safety measures (i.e. safety gloves, fire extinguisher, etc.) or serious injury may occur.

What's included:

- » FX-S Fuel Pressure Regulator
- » 1/16" NPT 4mm hose barb
- » Mounting bracket
- » 3x 1/8" NPT blanking plugs
- » 2x M4 x 12 button head bracket screws

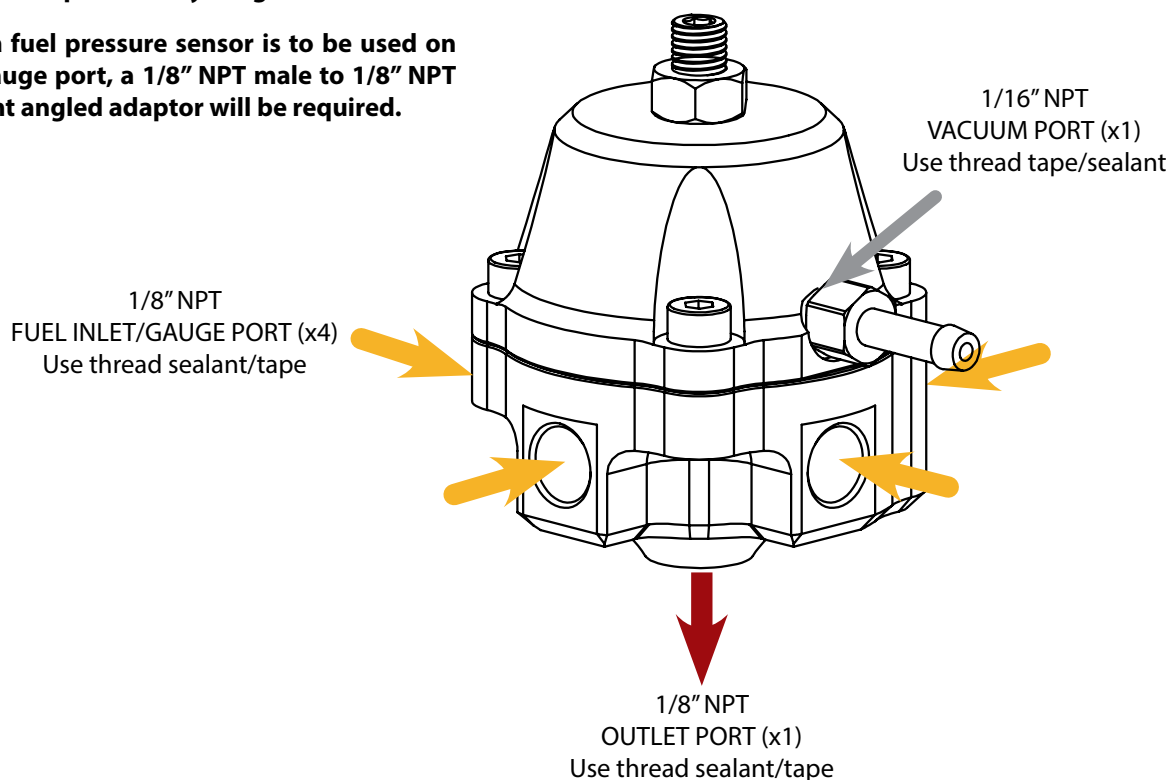
The FX-S has five fuel ports on the body (4 inlet/reference pressure, 1 outlet), all of which are 1/8" NPT. Please ONLY use 1/8" NPT fittings, and note that whilst 1/8" BSP fittings look very similar and will seem to screw in, they will not provide a leak-proof joint.

Fuel-safe thread tape or sealant will be required on all fitting threads.

You can use any of the 4 side ports on the FX-S for fuel inlet, gauge, or EFI fuel pressure sensor, depending on what configuration best suits your needs. Any un-used ports are to be pugged with the supplied NPT plugs.

The outlet on the underside of the FX-S is ONLY for fuel return to the tank - do not use this port for anything else.

****note: if a fuel pressure sensor is to be used on the rear gauge port, a 1/8" NPT male to 1/8" NPT female right angled adaptor will be required.**

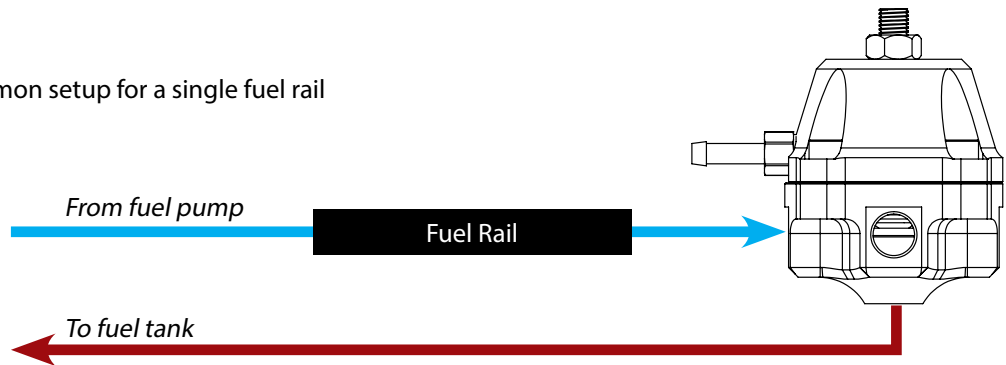


Fuel Line Configurations

There are many different configurations for connecting the FX-S, some of the more common are shown below. The best setup for your car will depend on your engine (single or twin rail), the amount of space you have, whether you are using factory hoses or completely re-designing the fuel system.

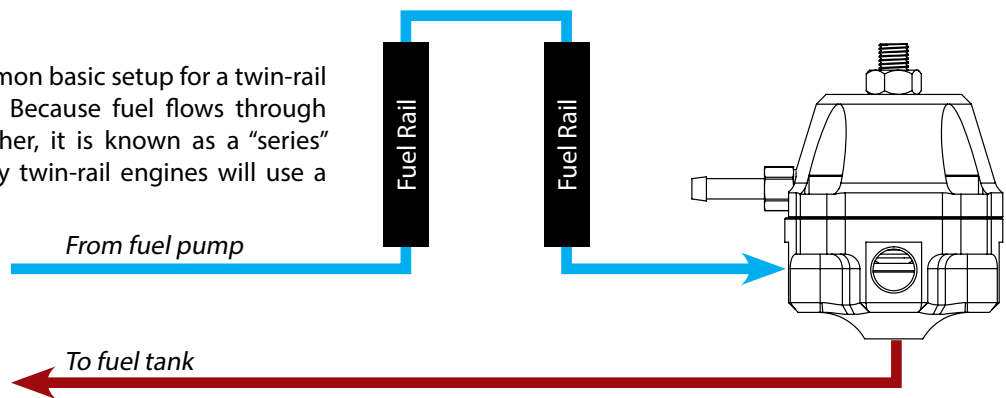
Single Rail:

This is the most common setup for a single fuel rail engine.



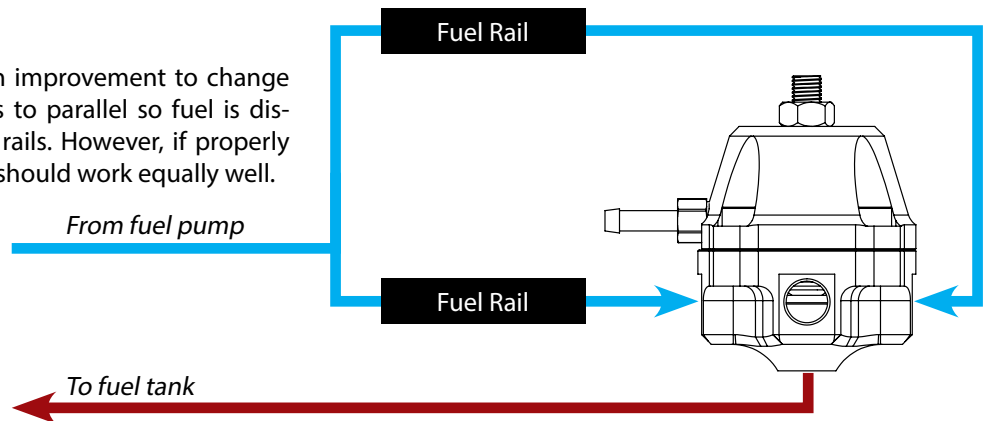
Series Rail:

This is the most common basic setup for a twin-rail vee and flat engine. Because fuel flows through one rail then the other, it is known as a "series" setup. Usually factory twin-rail engines will use a series setup.



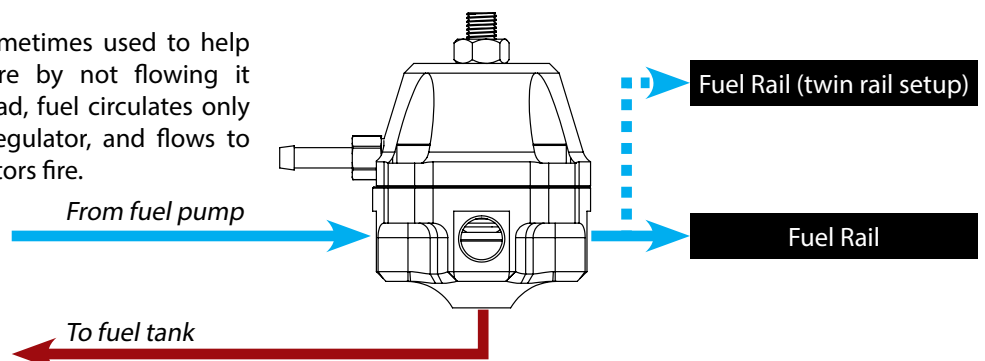
Parallel Rail:

It is often considered an improvement to change factory series rail setups to parallel so fuel is distributed evenly to both rails. However, if properly designed, both systems should work equally well.



Semi-Returnless or "Dead Head":

This configuration is sometimes used to help reduce fuel temperature by not flowing it through the rail/s. Instead, fuel circulates only through the pressure regulator, and flows to the rail/s when the injectors fire.



Installation

Step 1:

Remove fuel pump relay or fuse to run the engine until it stalls. This will relieve the majority of the fuel pressure from the existing system.

Step 2:

Let engine cool down. This will minimize any chance of fuel vapour igniting due to hot exhaust etc.

Step 3:

Disconnect battery terminals to prevent potential ignition of fuel in the event of an accidental short circuit.

Step 4:

Remove factory fuel pressure regulator. Covering the fuel hose with a cloth will help stop any spraying of fuel when disconnecting the hose from the fuel line. Clean up any residual fuel that may have leaked out.

Step 5:

Fit new fuel lines and fittings on vehicle side. Do not cut corners here and use cheap or incorrectly-sized fittings, as this will almost always be the most expensive option if you end up with a fuel leak, causing a fire and potentially harming you and burning your beloved project!

Step 6:

Determine the best mounting location for the FX-S, and install using the supplied bracket. You will need to use either M6, or ¼" threaded fasteners to mount the FX-S, usually on the strut tower, firewall, directly to the fuel rail, or onto the intake manifold. Modification to the bracket may be required to suit your mounting application. The FX-S is secured to the bracket using the supplied M4x12 button head screws (please use a METRIC 2mm hex key).

Step 7:

Connect the fuel hoses and fittings, making sure everything is tightened and any braided hoses are correctly fitted. Again, we do not want any fuel leaks whatsoever. ENSURE YOU HAVE THE FUEL SUPPLY AND DRAIN HOSES CONNECTED TO THE CORRECT CORRESPONDING PORTS ON THE FX-S. Since the inlet and outlet ports are the same size, it is possible to accidentally swap them. If this happens the FX-S will not function correctly and may result in damage to the engine or fuel pump.

Step 8:

Re-connect the battery and fuel pump fuse, then prime the fuel pump to check for any leaks. It is perfectly normal to hear a "squeaking" noise when you prime the fuel pump for the first time. This noise will only be heard until all the air is purged out of the fuel lines.

Step 9:

With no vacuum hose connected to the top of the FX-S, start your engine, and use a 3mm hex key to adjust the base fuel pressure by turning the adjustment screw. Looking from the top of the FX-S, turning the Hex key clockwise will increase fuel pressure, and anti-clockwise will reduce fuel pressure. If you are unsure where to set your base fuel pressure, a good starting point is approximately 45psi (3bar). When you are satisfied with your set pressure, tighten the 10mm jam nut against the FX-S to prevent vibration from loosening the adjustment screw and resetting your fuel pressure. Now you can switch the engine off again.

Step 10:

Connect a vacuum/boost hose (not included, recommended I.D. 4mm/5/32") from your intake manifold directly to the hose barb on the upper half of the FX-S. Please make sure that this hose does not branch off to any other device (i.e. blow off valve, boost controller, etc) for the fastest and most accurate manifold reference.

Step 11:

Check all hoses and fittings again for any possible fuel leaks. If all checks out OK, you are now ready to run. Please note that tuning may be required to obtain the correct air/fuel ratios across the RPM range.



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