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Fuel Injection Pressure Regulator PN 1047

Introduction: The RobbMc FI fuel pressure regulator is an adjustable, bypass (return) style regulator designed for use with most fuel injection systems. The Teflon o-ringed plunger helps maintain fuel in the lines for quicker restarts.

Applications: Electronic fuel injection systems using gasoline or alcohol fuels (except methanol).

Maximum Recommended Pump Volume: 180 gph (681 lph) free flow

Pump Requirements: For best performance, the pump should be able to provide a pressure *at least* 10 psi higher than the set pressure of the regulator. The *volume* output of the pump must be adequate for the horsepower produced.

Adjustment Range: 10 to 80 psi
Note: Adjusting the pressure higher than 80 psi may damage the regulator.

Inlet Port: 3/8 NPT Outlet Ports: Two 3/8 NPT Gauge Port: 1/8 NPT Bypass Port: ½ NPT

NPT Fittings: Use Teflon sealant on all tapered NPT threads. This not only seals the threads but also helps prevent galling of the threads, especially when aluminum fittings are used.

Fuel Line Connections:
There are three 3/8 NPT ports on the sides of the regulator. Chose any one to be the inlet from the fuel pump. The remaining two then become outlet ports. If only one of the two is used as an outlet, plug the other with a 3/8 NPT plug.

The larger, bottom 1/2 NPT port is the return/bypass port. Connect the return line (which sends fuel back to the gas tank or PowerSurge) to this port.

The smaller, 1/8 NPT port on one side of the regulator is for a fuel pressure gauge. Plug with a 1/8 NPT plug if not used.

Boost Reference: The regulator includes a brass fitting which accepts a 5/32” rubber hose for boost/vacuum referencing/indexing. Applying boost pressure to this fitting will increase fuel pressure about 1 psi for every 1 psi of boost. Applying vacuum to this fitting will reduce fuel pressure about 1 psi for every 2 inHg of vacuum. **Leave the fitting open to atmosphere if not used for boost/vacuum indexing**.

Regulator Mounting: The regulator can be mounted at any angle. In general, the closer to the injection the better (to reduce the pressure drop between the regulator and the injection). However, mounting the regulator anywhere within about 6 feet of the injection is usually satisfactory. Keep the regulator at least 1 foot from the exhaust or use a heat shield.

In many cases the regulator can be mounted by suspending it in the fuel line so no mounting bracket is required. If a mounting bracket is desired (for mounting the regulator on the inner fender for example) the optional **RobbMc Mounting Bracket PN 1049** can be used. This bracket can be attached to the regulator in eight different ways providing a multitude of mounting options.

Recommended **Minimum** Fuel Line Sizes: It's best to follow the pump manufacturer's recommendations for minimum fuel line size. Exactly how big the fuel lines must be depends on many factors including fuel line pressure, length, and the number of restrictions such as fittings. However, as a **rule of thumb, for fuel injection**:
Pump to the Injection Line Size:
5/16" (or -5AN) up to about 500 hp
3/8" (or -6AN) up to about 750 hp
1/2" (or -8AN) up to about 1500 hp
Return Line Size: The minimum return line size (from the return port on the regulator back to the tank or PowerSurge) depends on the pump output volume:
Fuel pumps up to 70 gph (265 lph): 5/16” or -5AN
Fuel pumps up to 100 gph (378 lph): 3/8” or -6AN
Fuel pumps up to 180 gph (681 lph): ½” or -8AN

Return Line Backpressure: Even when the recommended return line size is used, it is important to check the backpressure in the return line. Once the pump and regulator are installed and all the lines are connected, check the backpressure in this manner:

~Remove the jam nut and pressure adjustment set screw.
~With the engine off (not running) turn on the electric fuel pump. Let the pump run until the lines are full of fuel.
~With the pump still running, check the fuel pressure gauge. It should read no more than 10 psi (less is better).
~If the gauge reads more than 10 psi, the restriction in the return line is too high.
~If the restriction is too high, reduce the restriction with larger lines, fewer sharp bends, etc.

Fuel Pressure Gauges: Mounting a fuel pressure gauge on/near the engine is not recommended because pressure gauges tend to read lower as the temperature of the gauge increases. Try to mount the gauge remotely using a small fuel line, or use an electric gauge. **If you must mount a pressure gauge on/near the engine, DO NOT use a liquid filled gauge**. Liquid filled gauges are notorious for providing false readings when the gauge is hot. For safety, use *only* an electric gauge if it will be mounted inside the car with the driver/passengers.

Regulator Pressure Setting Adjustment: The regulator will adjust from about 10 psi to 80 psi. Loosen the jam nut and turn the set screw clockwise to increase pressure. Do not try to adjust the pressure higher than 80 psi as this may damage the regulator. Trying to run less than 10 psi may result in erratic fuel pressure. Tighten the jam nut after adjusting the pressure to prevent the set screw from rotating.

TROUBLESHOOTING: If the regulator does not seem to function properly, check the following;

~Make sure the fuel pressure gauge is accurate (do not mount a liquid filled gauge in the engine compartment).

~Make sure the fuel pump is providing enough fuel (it must be able to provide a pressure at least 10 psi higher than the set pressure of the regulator, and enough volume for the power of the engine).

~Make sure the return line is connected to the bottom (1/2 NPT) port on the regulator.

~Check the regulator for leaks. If leaking, and the leak is not coming from one of the fittings, the diaphragm and/or sealing washers may need replaced.

~With the adjustment screw backed all the way out, the pressure gauge should read no more than 10 psi. If the pressure is higher than 10 psi, decrease the flow restriction in the return line.

~If the fuel pressure drops too much during full throttle, check pump flow and return line restriction.