

# MSD INSTALLATION INSTRUCTIONS

## 3-Port Competition Fuel Pressure Regulator (Return Style) PN 29387

**IMPORTANT:** This regulator must use a fuel return line. The fuel return line runs between the fuel return port of the regulator and the fuel tank. Fuel pressures cannot be adjusted if the fuel return line is absent.

### Parts Included:

- 1 - 3-Port Fuel Pressure Regulator, 3-12 PSI
- 1 - Bracket
- 2 - Bracket Mounting Screws
- 1 - Bypass Spacer (to modify Mallory Fuel 110 and 140 Series Electric Fuel Pumps)

### SPECIFICATIONS:

Port thread sizes (ALL): 3/8" NPT

Adjustment range: 3-65 PSI

Fuel Application:

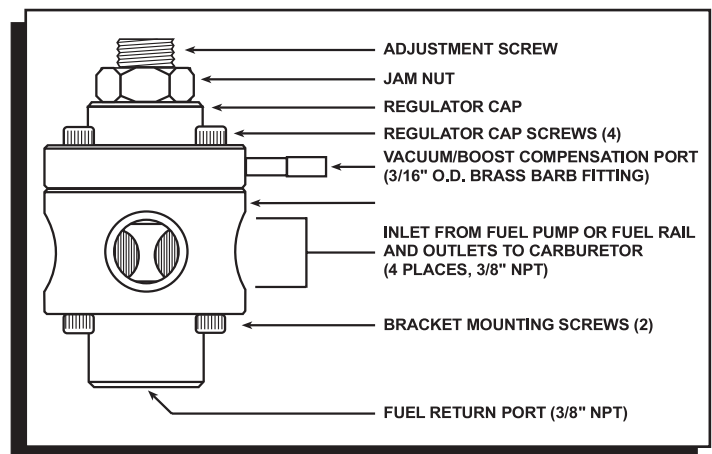
Part No. 4309, Gasoline, Automotive/Street and Racing applications;

Part No. 4310, Alcohol/Methanol, Automotive/Street and Racing applications.

### GENERAL INFORMATION

Mallory's 3-Port, return style regulator regulates fuel pressure between high pressure fuel pumps and carburetors or fuel injection systems. The regulator is recommended for Mallory Fuel 60FI, 110, 110FI, and 140 Series Electric Fuel Pumps.

By returning excess fuel and fuel pressure to the fuel tank, this regulator benefits fuel pumps in several ways. The fuel pump will run cooler, draw less current and will always have full volume output available at the pressure setting. The fuel return line runs between the fuel return port of the regulator and the top of the fuel tank. The fuel tank must have provisions for a fuel return line.



This regulator is equipped with a vacuum/boost compensation port (brass barb fitting) that can be used to momentarily decrease fuel pressure (vacuum compensation) at idle and part throttle, or increase fuel pressure under blower boost (boost compensation). While it is not necessary to connect a hose to the vacuum/boost compensation port, it may be beneficial in some cases. However, the small plug on the barb must be removed before use.

**MALLORY FUEL 110 AND 140 SERIES ELECTRIC FUEL PUMP SUGGESTED MODIFICATION ONLY WHEN USING RETURN STYLE REGULATORS (See Figure 1)**

**Step 1**

Release the jam nut on the bypass plug. Remove the bypass plug. Remove the bypass spring and plunger. Discard the bypass spring.

**Step 2**

Inspect the bypass plunger. The bypass plunger surface should be clean and slide freely in the chamber. Check the bypass plunger pad and remove any debris embedded in its surface.

**Step 3**

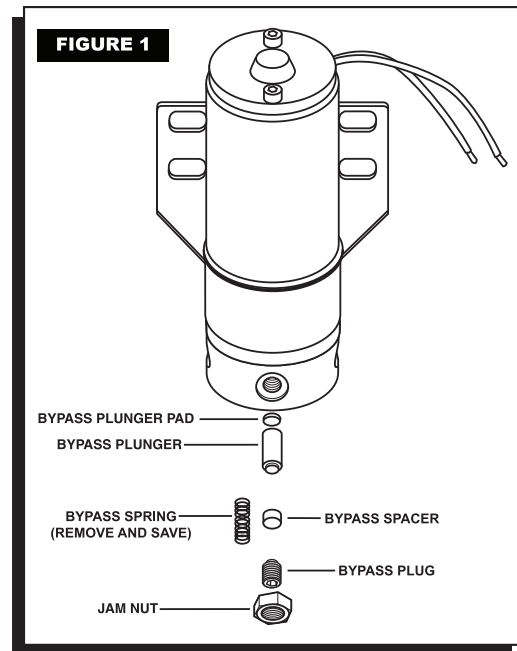
Install the bypass plunger pad in the bypass plunger. Install the bypass plunger and bypass spacer. Clean the bypass plug.

**Step 4**

Apply thread sealant compound on the bypass plug. You can find thread sealant compound at a hardware store. Do not use Teflon tape.

**Step 5**

Install the bypass plug. Gently tighten bypass plug until you feel it lock (torque to 5 in/lbs). Install and tighten the jam nut.



**MOUNTING PROCEDURE**

The regulator is ready for installation in applications requiring 3-12 PSI fuel pressure ranges.

The regulator may be mounted at any angle. For maximum efficiency, mount the regulator as close as possible to the carburetors or fuel injection systems. **DO NOT mount the regulator on or near exhaust manifolds. A bracket is provided for convenient mounting under an intake bolt.**

**FITTINGS, FUEL LINES AND FUEL RETURN LINE**

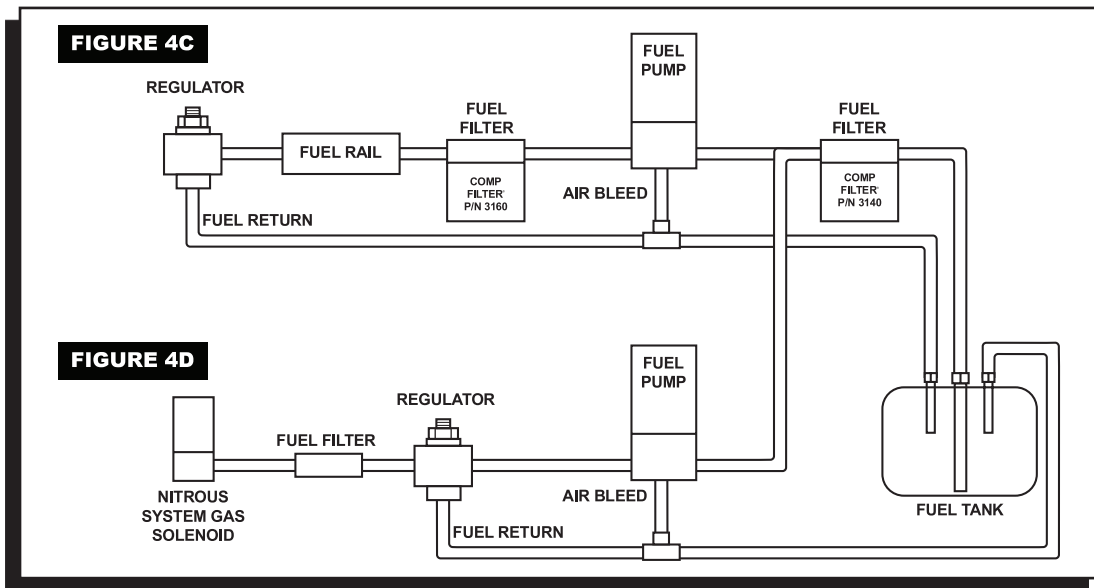
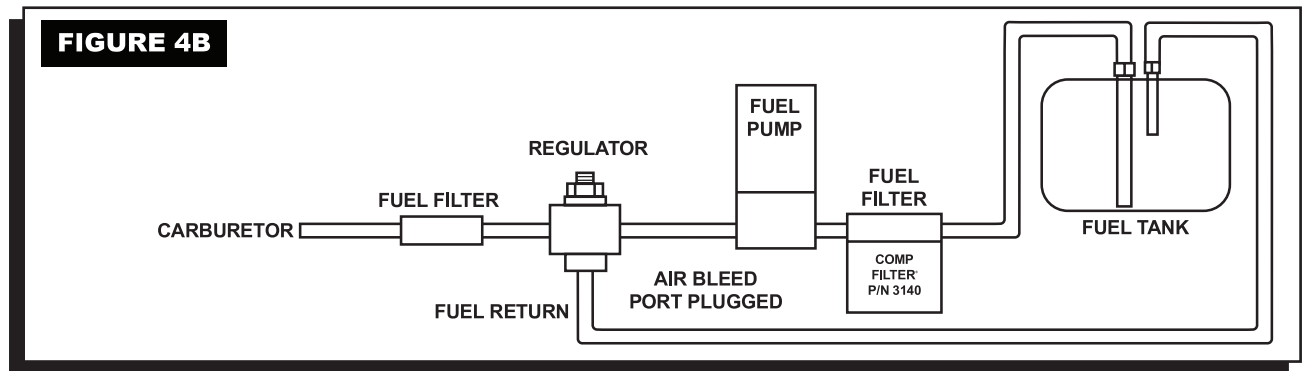
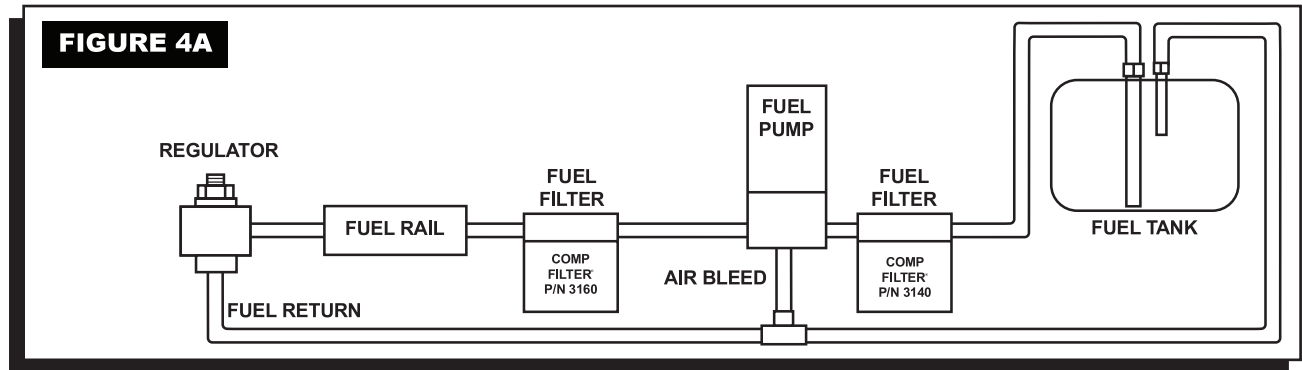
The fuel return line should be as large, or larger, as the fuel line between the fuel pump and the regulator. See Figure 3.

Purchase fittings (and plugs). Use a thread sealant compound on the fitting threads. You can find thread sealant compound at a hardware store. Do not use Teflon tape. Install the fittings. Do not overtighten the fittings. This could damage the regulator. Connect the fuel lines and fuel return line. See Figure 4A-4D.

**FIGURE 3 FUEL RETURN LINE SIZE RECOMMENDATIONS**

Fuel Return Line Length/ Distance	FUEL PUMP GALLONS PER HOUR (FREE FLOW)		
	1 TO 99	100 TO 129	130 TO 199
16 - 20'	1/2"	1/2"	5/8"
11 - 15'	3/8"	1/2"	5/8"
6 - 10'	3/8"	1/2"	1/2"
1 - 5'	3/8"	3/8"	1/2"

3/8" = #6AN      1/2" = #8AN      5/8" = #10AN



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## FUEL PRESSURE ADJUSTMENT

**NOTE:** It is not necessary to have the engine running while setting fuel pressures with this type of regulator. DO NOT exceed the fuel pump manufacturer's maximum recommended operating pressures. This could damage the fuel pump. (See Figure 5 for Mallory Fuel Series Electric Fuel Pumps maximum recommended operating pressures.)

<b>FIGURE 5</b>			
<b>MAXIMUM OPERATING PRESSURE</b>			
<b>MALLORY FUEL SERIES</b>			
<b>60FI</b>	<b>110</b>	<b>110FI</b>	<b>140</b>
50 PSI	9 PSI	60 PSI	14 PSI

### Step 1

Remove and discard the plastic cap on the vacuum/boost compensation port. Release the jam nut on the adjustment screw. Remove the adjustment screw.

### Step 2

Turn on the fuel pump. Check the fuel system for fuel leaks. Check the fuel pressure with the adjustment screw removed. The pressure must be less than 3 psi. If not, a less restrictive return line must be used. Turn off the fuel pump and correct any fuel leaks before proceeding. Install adjustment screw.

### Step 3

Adjust fuel pressure. Check the fuel system for fuel leaks. Turn off the fuel pump and correct any fuel leaks before proceeding. Install and tighten jam nut.

## VACUUM/BOOST COMPENSATION PORT

While it is not necessary to connect a hose to the vacuum/ boost compensation port, it may be beneficial in some cases. The vacuum/boost compensation port can be used to momentarily decrease fuel pressure (vacuum compensation) at idle and part throttle, or increase fuel pressure under blower boost (boost compensation). Connect a hose between the vacuum/boost compensation port and a carburetor or intake manifold vacuum port to vacuum index the regulator. The set pressure of the regulator decreases about 1 PSI for every 2 inches Hg (2 inches on the vacuum gauge).

<b>REGULATOR SERVICE PARTS:</b> (INCLUDES FUEL TYPE CONVERSIONS AS NOTED)	<b>KIT PART NO.</b>
DIAPHRAGM KIT, GASOLINE, FOR REGULATOR PART NO. 4309. ALSO USED TO CONVERT REGULATOR PART NO. 4310 TO USE GASOLINE.	<b>3156</b>
DIAPHRAGM KIT, ALCOHOL/METHANOL, FOR REGULATOR PART NO. 4310. ALSO USED TO CONVERT REGULATOR PART NO. 4309 TO USE ALCOHOL/METHANOL.	<b>3157</b>

Connect a hose between the vacuum/boost compensation port and an intake manifold boost port to boost index the regulator. The set pressure of the regulator increases 1 PSI for every 1 PSI of boost.

**NOTE:** DO-NOT exceed the fuel pump manufacturer's maximum recommended operating pressures. This could damage the fuel pump.

### Limited Warranty

MSD warrants this product to be free from defects in material and workmanship under its intended normal use\*, when properly installed and purchased from an authorized MSD dealer, for a period of one year from the date of the original purchase. This warranty is void for any products purchased through auction websites. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD. Any item that is covered under this warranty will be returned free of charge using Ground shipping methods.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representation whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD or its suppliers be liable for special or consequential damages.

\*Intended normal use means that this item is being used as was originally intended and for the original application as sold by MSD. Any modifications to this item or if it is used on an application other than what MSD markets the product, the warranty will be void. It is the sole responsibility of the customer to determine that this item will work for the application they are intending. MSD will accept no liability for custom applications.