INSTALLATION INSTRUCTIONS

3-PORT COMPETITION FUEL PRESSURE REGULATOR (RETURN STYLE)

PART NO. 4309

NOTE: DO NOT RUN THIS PUMP WITHOUT FUEL (EXCEPT FOR BRIEF PERIODS WHILE PRIMING).

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.

PART INCLUDED IN THIS KIT

1 3-Port Fuel Pressure Regulator
1 Bracket
2 Bracket Mounting Screws
1 Bypass Spacer (to modify COMP PUMP® 110 and 140 Series Electric Fuel Pumps)

SPECIFICATIONS:

Port thread sizes (ALL): 3/8” NPT
Adjustment range: 3-12 PSI (approximate)
Fuel Application: Gasoline, Automotive/Street and Racing applications

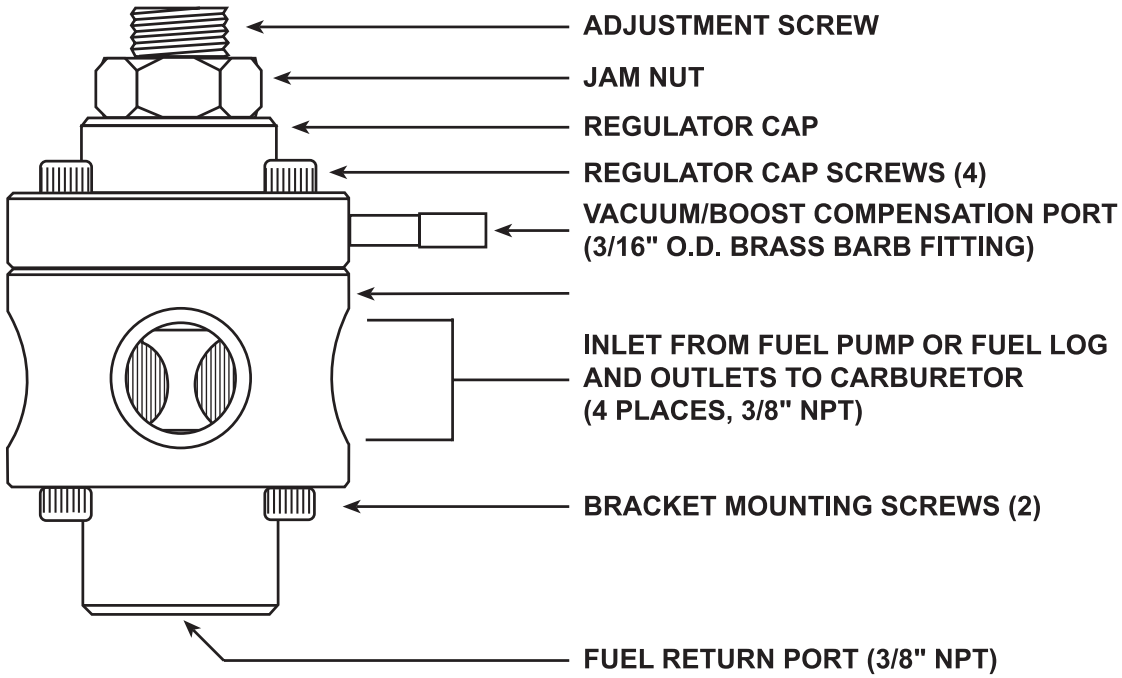
GENERAL INFORMATION

Mallory’s 3-Port, return style regulator regulates fuel pressure between high pressure fuel pumps and carburetors. The regulator is recommended for Mallory COMP PUMP® 110, and 140 Series Electric Fuel Pumps.

NOTE: This regulator is not recommended for pumps over 200 gallons per hour.

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 tomomentarily 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 COMP PUMP® 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. Save the bypass spring for possible future use.

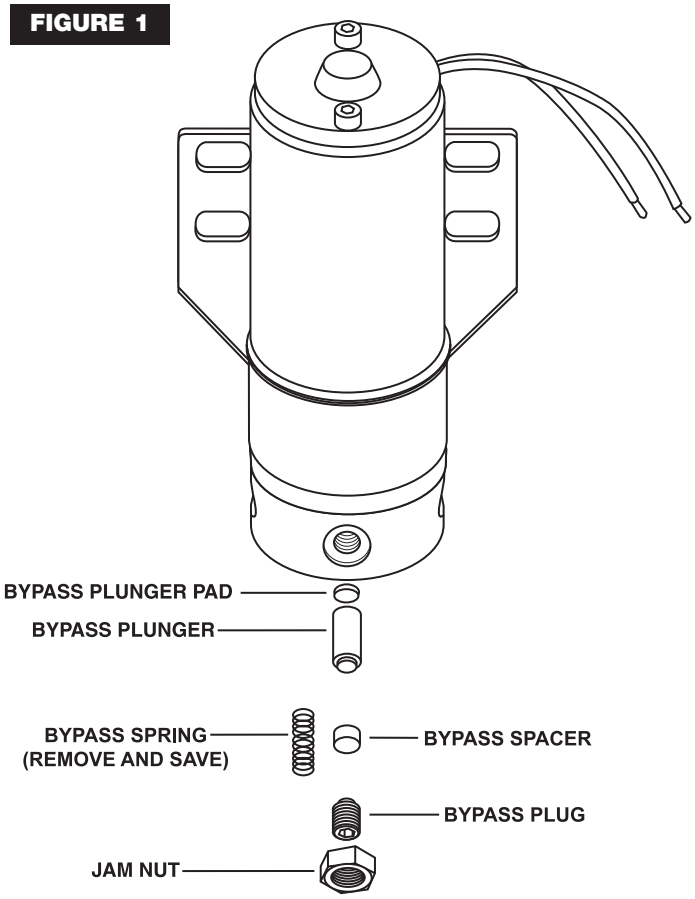
Step 2
Inspect the bypass plunger. The bypass plunger surface should be clean and slide freely in the chamber. Check the bypass plunger pad and remove any debris embedded in its surface.

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.

FIGURE 1



MOUNTING PROCEDURE

The regulator may be mounted at any angle. For maximum efficiency, mount the regulator as close as possible to the carburetors.
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 3A-3C.

FIGURE 2

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” = #6AN	1/2” = #8AN	5/8” = #10AN	

FIGURE 3A

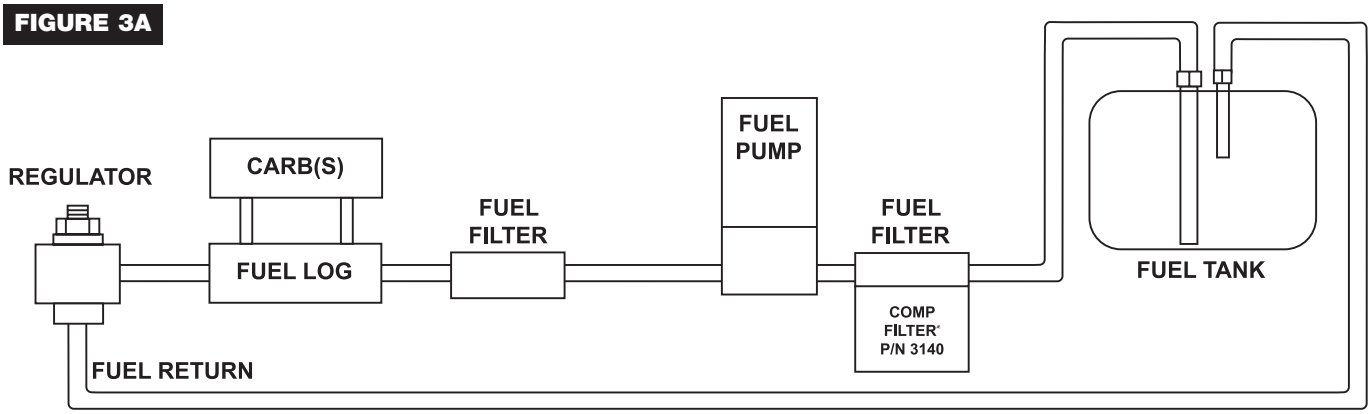


FIGURE 3B

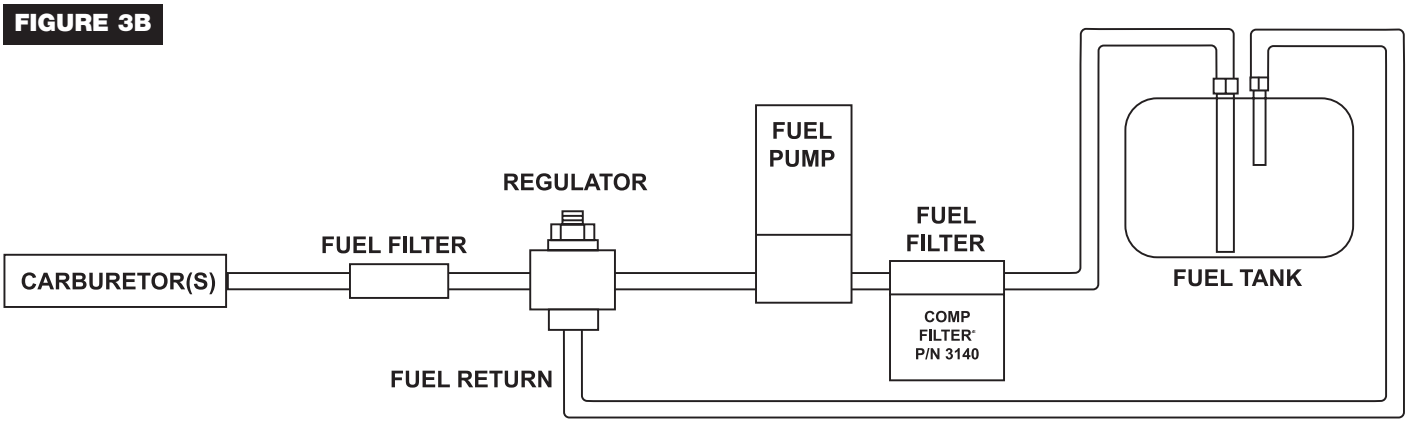
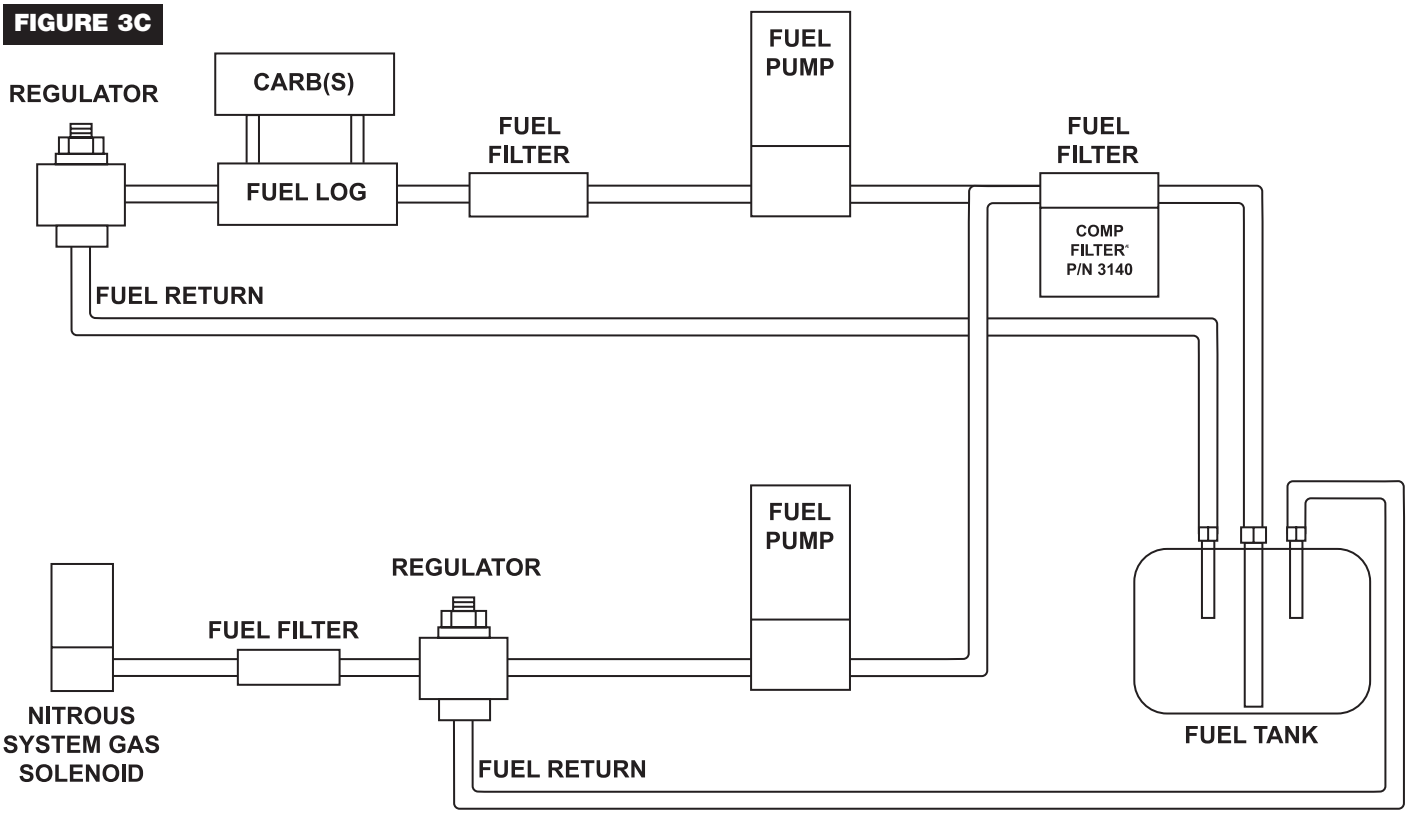


FIGURE 3C



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 4 for Mallory COMP PUMP ® Series Electric Fuel Pumps maximum recommended operating pressures.)

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

With the engine off, 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 POR

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). 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: DONOT exceed the fuel pump manufacturer's maximum recommended operating pressures. This could damage the fuel pump.

REGULATOR SERVICE PARTS:	KIT PART NO.
DIAPHRAGM KIT, GASOLINE, FOR REGULATOR PART NO. 4309.	**3156**

FIGURE 4 **MAXIMUM OPERATING PRESSURE**

COMP PUMP® SERIES	
110	140
7 PSI	14 PSI

MALLORY IS A DIVISION OF THE MR. GASKET PERFORMANCE GROUP
10601 MEMPHIS AVE. #12, CLEVELAND, OH 44144
216.688.8300 FAX 216.688.8306

FORM 1078
06/05
Made in U.S.A.
Printed in U.S.A.