



**Comp Pump® Series 250
Electric Fuel Pump
Instruction Manual
Part#: 5250, 5250A**



INSTALLATION INSTRUCTIONS

COMP PUMP® SERIES 250 ELECTRIC FUEL PUMP

PART NOS. 5250 AND 5250A

PARTS INCLUDED IN THIS KIT:

- 1 COMP PUMP® Series 250 Electric Fuel Pump
- 3 Fittings, 3/4" - 16 x #8 AN Flare
- 3 O-rings, Nitrile 0.644ID x 0.087 thickness

NOTE: DO NOT OPERATE THIS PUMP WITHOUT FUEL EXCEPT FOR BRIEF PERIODS WHILE PRIMING

SPECIFICATIONS

Maximum recommended operating pressure: 20 PSI
(factory set at approximately 15 PSI)

Maximum dry suction lift: 3 feet. This is maximum distance above the fuel level in the fuel tank that the fuel pump will prime itself.

Oil pressure switch rating: 15 AMP

Fuel pump over current protection: 15 AMP fuse

Fuel application: Part No. 5250, Gasoline; Part No. 5250A, Alcohol / Methanol

GENERAL INFORMATION

The COMP PUMP® 250 Series Electric Fuel Pump is a high volume fuel pump designed for serious racing applications. The pump is factory set to approximately 15 PSI. In all cases, this fuel pump must be used with a fuel pressure regulator. We recommend the following:

Standard Regulator

Mallory 4 Port Regulator	Part No. 4200	(gasoline)
	Part No. 4201	(alcohol)

Return Style Regulator

Mallory 5 Port Regulator	Part No. 4300M	(gasoline)
	Part No. 4301M	(alcohol)

This fuel system must have a fuel return line going to the fuel tank. We recommend at minimum a #8 AN (1/2") line.

If you use a standard fuel pressure regulator, not a return style, run the fuel return line from the fuel pump's fuel return port. Use the 3/4"-16 thread x #8 AN flare fitting provided to connect your #8 AN line.

If you use a return style fuel pressure regulator, run a #10 AN fuel return line from the fuel pressure regulator's fuel return port and install a 3/4"-16 thread plug and o-ring in the fuel pump's fuel return port. You can find a 3/4"-16 thread plug at most hardware stores. Do not try to adjust the bypass adjustment - pump damage may result.

Be sure to install a suitable fuel filter (maximum 100 micron) between the fuel tank and the fuel pump. Mallory COMP FILTER® Series Part Nos. 3140 or 3500 are recommended. This prevents debris from becoming wedged in the fuel pump's Gerotor and locking it. An additional filter(s) (maximum 40 micron) should be installed just before the carb(s).

MOUNTING PROCEDURE

Step 1

Mount the pump as close as possible to the fuel tank in a well ventilated area with minimal exposure to road debris. Avoid exposing the pump and fuel lines to moving parts and hot surfaces, such as the exhaust system.

The pump should be mounted at tank level or below.

NOTE: Increasing distance between pump and tank will decrease pump efficiency.

Step 2

Using the pump mounting bracket as a template, locate mounting holes on a solid member, such as the vehicle chassis. Drill clearance holes for 5/16" bolts. **NOTE: To ensure against a potential fire hazard from pump flooding, mount the pump in a vertical position with the motor on top.**

See Figure 1.

Step 3

To prolong pump life and efficiency, a high volume fuel filter such as the Mallory COMP FILTER® Series 500 Fuel Filter (Part No. 3500) must be installed between the pump and fuel tank. Connect #8 AN fuel lines as shown in Figure 2 for Standard Regulator or #10 AN lines as shown in Figure 3 for Return (Bypass) Style Regulator.

Step 4

Be sure to install one of the Mallory High Volume Fuel Pressure Regulators between the pump and carburetor. For maximum efficiency, mount the pressure regulator as close as possible to the carburetor. See instructions packaged with the pressure regulator. Make sure all fittings are tight so that air cannot enter the system.

FIGURE 1

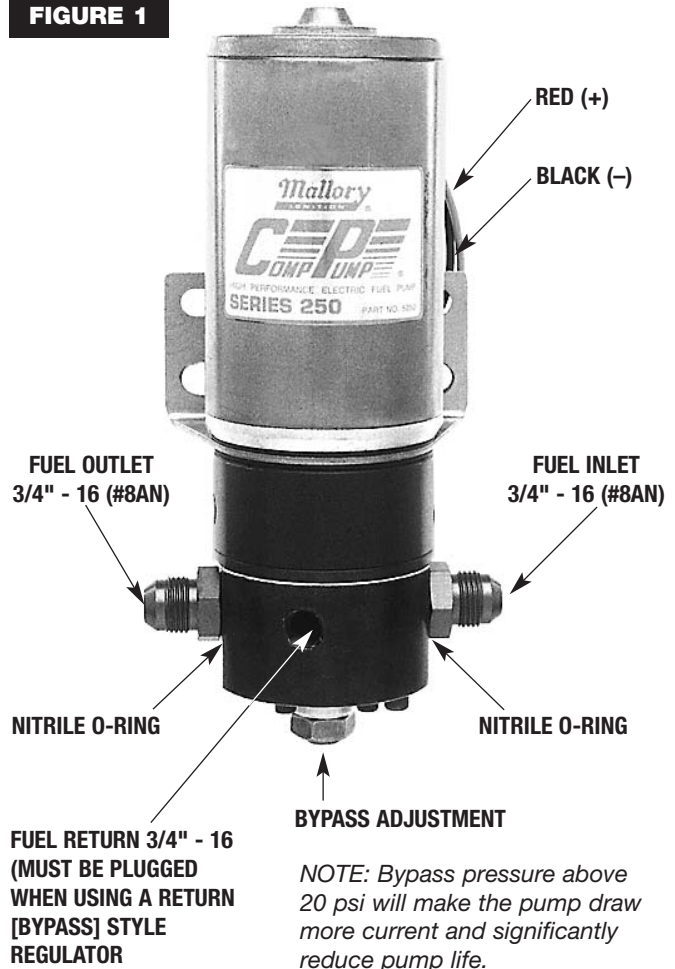


FIGURE 2

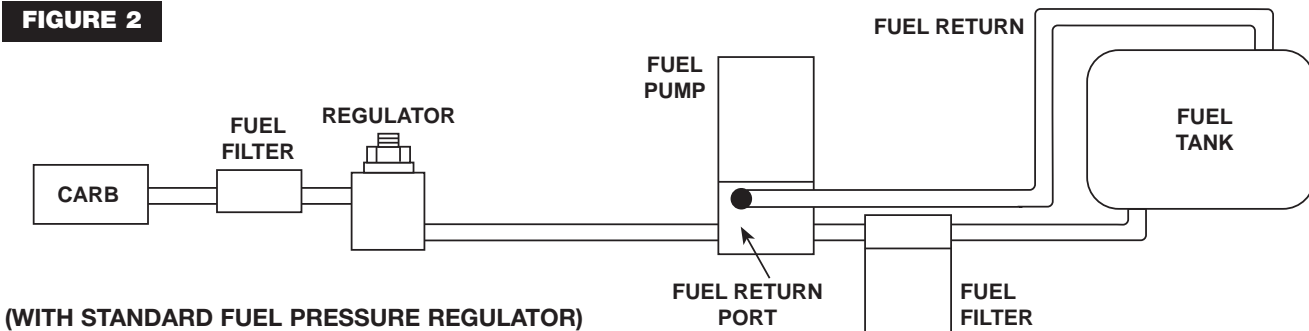
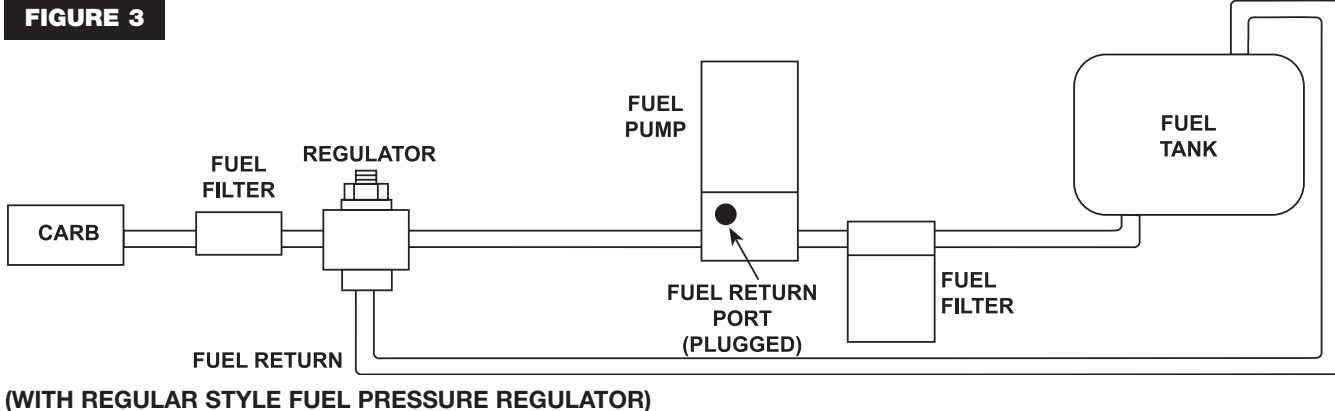


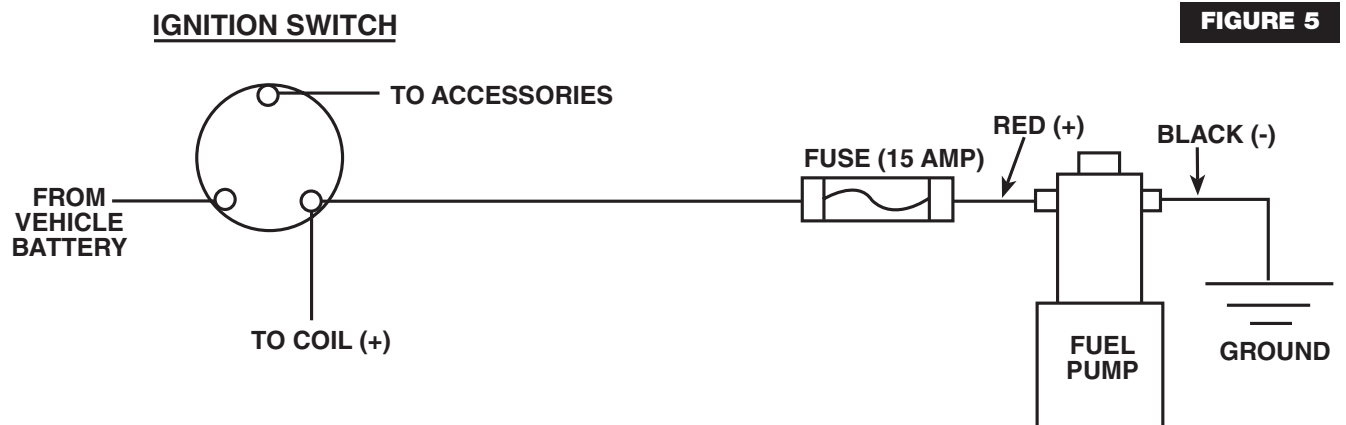
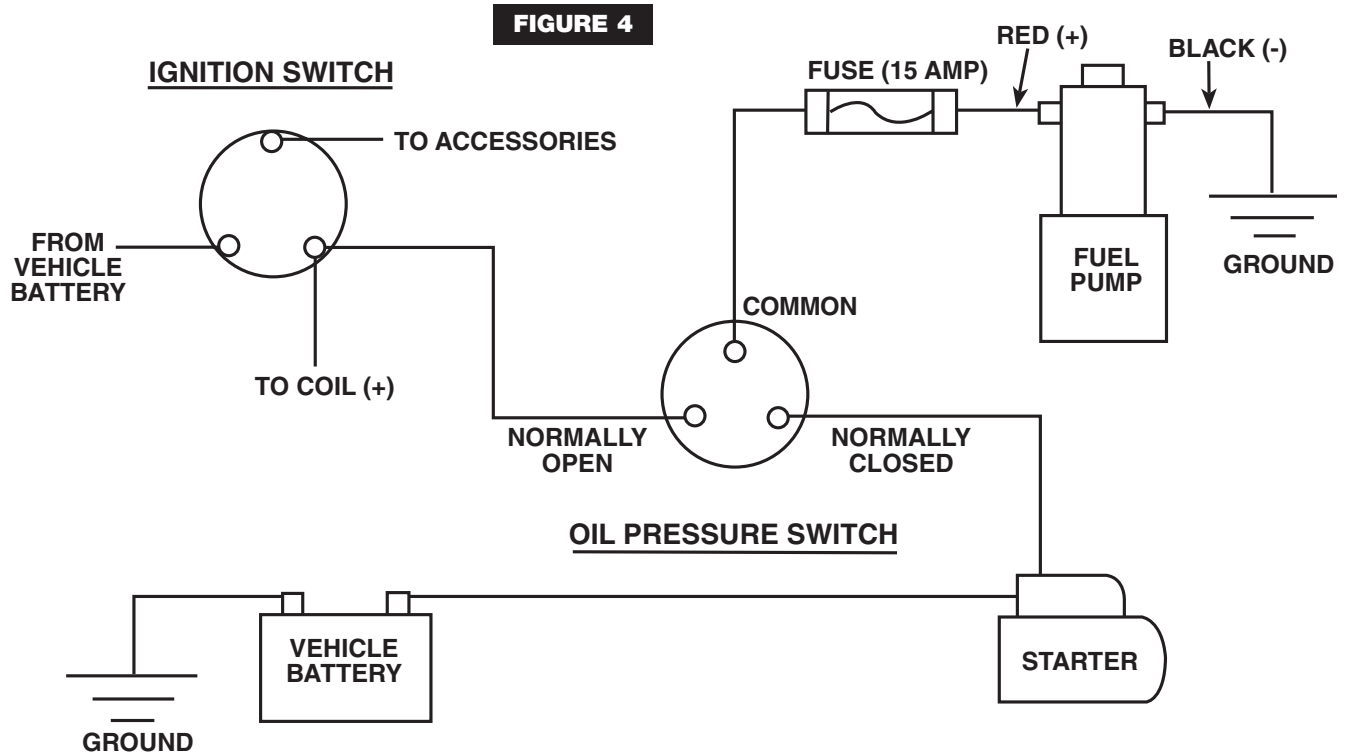
FIGURE 3



WIRING PROCEDURE

Wiring the pump to an oil pressure switch provides power only when the ignition switch is on and the engine is running. This prevents the pump from running if your engine stalls. Use 12 gauge wire or larger and be sure to disconnect the battery ground cable before wiring the pump. Refer to Figure 4 when connecting the pump to an oil pressure switch.

The pump may be wired directly to the ignition switch "ON" terminal and grounded to the frame or battery. Refer to Figure 5 when connecting the pump to the ignition switch "ON" terminal.



MAINTENANCE – PUMP DISASSEMBLY

If your pump fails to produce adequate pressure or volume, it may require cleaning. Follow the steps below to disassemble and clean your Mallory Electric Fuel Pump. Refer to Figure 6 while performing the following steps.

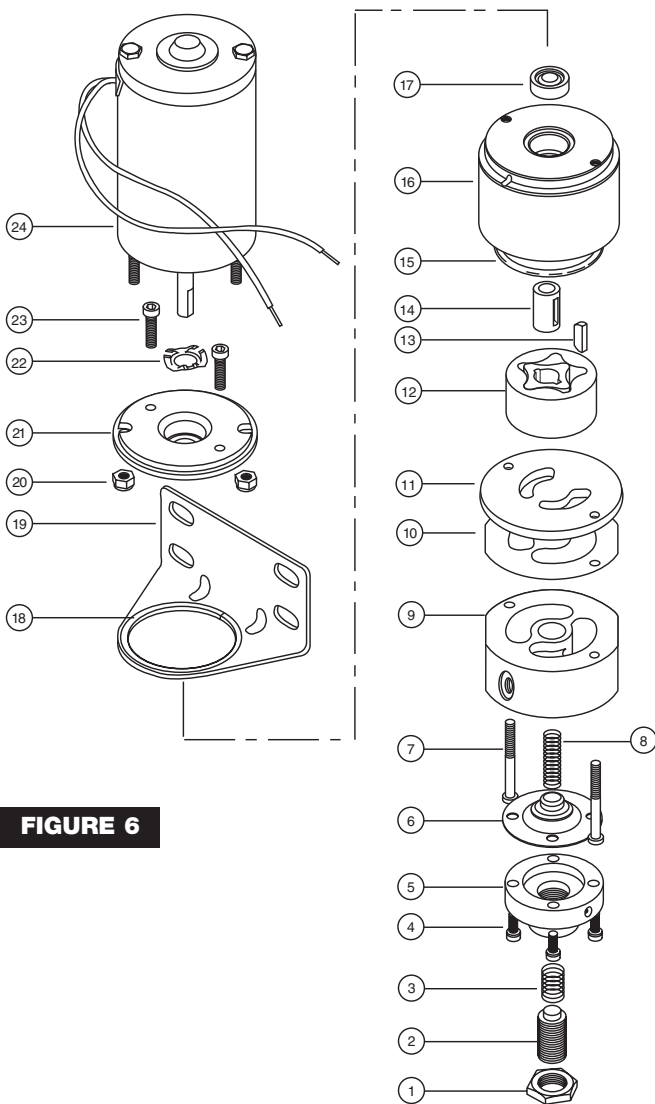
Step 1

Remove the pump from the vehicle and clean pump exterior. Place the pump on its side on a clean work surface. Scribe or draw a line across the pump housing, port plate and fuel chamber so that you can reassemble the pump correctly.

Step 2

Remove the two fuel chamber screws from the bottom of the pump. Remove fuel chamber and port plate from the pump.

NOTE: Do not drop the gerotor from the pump cavity.



Step 3

Place your hand beneath the gerotor and hold the pump in an upright position. The gerotor should slide out of the pump and into your hand.

Step 4

To disassemble the fuel chamber, first remove the lock nut and adjusting screw, then turn the fuel chamber over so that the diaphragm spring falls into your hand. Remove the four screws holding the diaphragm cap to the fuel chamber. Remove the diaphragm cap, diaphragm, and damper spring from the fuel chamber.

Step 5

Clean the gerotor and reinstall it in the pump housing. Inspect the O-ring and gasket, and replace them if necessary. Inspect the diaphragm for any small tears or bubbles in the surface, and replace it if necessary. Inspect the gerotor housing and port plate for wear. If the generator has worn through the plating, return the pump to Mallory for repair.

Step 6

Assemble the pump in the reverse order that you disassembled it. Test bypass pressure. Adjust bypass so that pump is producing between 13 and 20 psi.

1. JAM NUT
2. ADJUSTING SCREW
- *3. PRESSURE ADJUSTMENT SPRING
- *4. CAP SCREW (4)
5. REGULATOR CAP
- *6. GASOLINE DIAPHRAGM
ALCOHOL/METHANOL DIAPHRAGM
- *7. FUEL CHAMBER SCREW
- *8. DAMPER SPRING
9. FUEL CHAMBER
- *10. FUEL CHAMBER GASKET
11. PORT PLATE
12. GEROTOR
- *13. GEROTOR BUSHING KEY
- *14. GEROTOR BUSHING
- *15. O-RING
16. GEROTOR HOUSING
- *17. SEAL
- *18. BRACKET VIBRATION GASKET
19. BRACKET
20. MOTOR HOUSING NUT (2)
21. MOTOR ADAPTER
22. SPRING WASHER
23. MOTOR ADAPTER SCREW (2)
24. MOTOR

*THESE PARTS ARE INCLUDED IN SEAL / DIAPHRAGM KITS
PART NO. 3171 FOR GASOLINE
PART NO. 3172 FOR ALCOHOL

IMPORTANT: Turn fuel chamber screws by hand until they contact the chamber. Then torque to 24 inch/pounds



ELECTRIC FUEL PUMP TROUBLESHOOTING GUIDE

The following pertains primarily to Mallory COMP Pumps equipped with Gerotor style pump systems, but also applies to many other fuel systems.

BASIC INFORMATION

The Mallory Gerotor style COMP Pumps are more forgiving than vane style pumps, but it is still important to insure they are properly mounted and receive clean fuel.

The correct mounting position is even with or below the tank and preferably behind or next to the fuel tank. All electric pumps push fuel far better than they can pull (suck) fuel.

Make sure that a low restriction filter is between the tank and the pump. A 40-micron element is sufficient to protect the pump from contamination such as dirt, rust, fuel cell foam, etc. Mallory has them available that will screw directly into the pump itself.

Electric pumps need a clean and stable power source. Run a minimum of 12 gauge wires to the pump if it is relatively close to the power source. Longer runs should utilize 10 gauge wire instead. With a trunk-mounted battery, we recommend that you use a relay to allow for short power wires to be run. Do not pull power from a common terminal, especially if the ignition is wired to the same terminal.

The regulator used must be properly matched to the flow characteristics of the fuel pump. Refer to the compatibility information in the current Mallory Catalog. Small regulators and big pumps don't work. Also, check to make sure the pump and regulator are designed for the type of fuel that is going to be used.

For the longest possible life from your Mallory or any other brand of electric fuel pump, it is highly recommended that you use a bypass style regulator. This allows the pump to run cooler, keeps the fuel cooler reducing the chance of vapor lock, draw less amperage, and supply constant flow of fuel. The minor inconvenience that running a return line to the tank presents is more than offset by the positives mentioned above.

Fuel line size is based on the length of the lines in addition to the intended use. The supply line to the engine is based on the horsepower of the engine. The

return line size is based on the total volume of the fuel pump. Basically, to insure stable fuel pressure, the return line should be of sufficient diameter to handle the full volume of the fuel pump without the engine running. That means that the return should be as big or bigger than the supply line.

Use liquid thread sealing or a suitable pipe dope and not thread sealing tape on all threaded fuel systems connections. Pieces of the tape can break off as they are being assembled and plug up lines, get stuck on small passages, and even seize up a pump if they are large enough.

Don't buy cheap fittings. Use low restriction fittings, preferably CNC machined ones like those listed in the Mallory catalog. Tightly angled fittings can be just as bad of a restriction as too small of a line size. The larger the radius, the better and make sure that you buy quality fuel lines. Look at them closely and make sure they have a large inside diameter. That especially applies to some of the low cost dual feed lines being sold today. Some 3/8" OD lines are 1/4" or less ID.

FREQUENTLY ASKED QUESTIONS

Q.- Why can't I adjust my fuel pressure down? Even with the adjuster backed all of the way out, I still have too much.

A.- Start by checking to make sure the regulator is suitable for the pump you have installed. Next, if it is a bypass system, check the return line size. If the return line is too small, the regulator isn't causing the pressure, rather it's the return line size is too small. This is especially a problem when the factory return line is used. Ford Mustangs are probably the most common offenders.

There are a couple ways to prove it. The easiest way is to remove the spring from the regulator. Without starting the engine, turn on the pump. The pressure gauge must read less than 3 PSI on a carburetor-equipped engine and less than 10 PSI with high-pressure fuel injection.

Q.- When I first hit the throttle hard, the pressure drops then comes back up. Why?

A.- The pump has to catch up to the demand. The

problem would not exist if the car had a return (bypass) style regulator. The fuel would always be flowing.

Q.- When I adjust the fuel pressure, it's fine when it's cold, but then it starts dropping off. If I let it cool off, the pressure comes back up. If I readjust it hot, then I have too much pressure cold. What's going on?

A.- This is a classic problem when there is a liquid filled gauge mounted on or near the engine. The pressure isn't changing, it's the gauge reacting to the underhood temperature. To prove it, start the engine with everything cold, then blow hot air from a hair dryer on the gauge. You can watch the pressure reading drop. It's just the nature of liquid filled gauges and hot engines. Try to mount the gauge away from as much engine heat as possible.

Q.- I want to run a return style system, but there isn't another hole in the tank. What can I do short of welding in a fitting. Can I dump it back into the feed line?

A.- Run the return into the fill neck if you have to, but you cannot either put it into the feed line or the bottom of the tank. Remember to keep the return line above the fuel level in the tank.

Q.- Every Spring, I have to take apart my pump and regulator apart. I store my car in the winter in a garage. Why the sticky mess?

A.- The higher octane the gas, the quicker it evaporates. If you leave fuel in the system, add one of the many additives available and put in a regular

pump gas. Racing type gasoline evaporates quickly and leaves a sticky mess that will gum up everything. Just remember to put the right fuel in before you go out and stand on the throttle.

Q.- I took my pump apart, cleaned it up and tighten it back up. Now it doesn't want to run. What did I do wrong?

A.- When you put the pump assembly back on the bottom of the motor, be sure to draw both of the screws up slowly and evenly. Do not over tighten them. Make sure all of the pieces go back on the same way they came off. Putting a grease pencil mark down the side of the pump housing is the simple way to make sure that you don't put it together backwards. They'll fit, but they won't flow the fuel right.