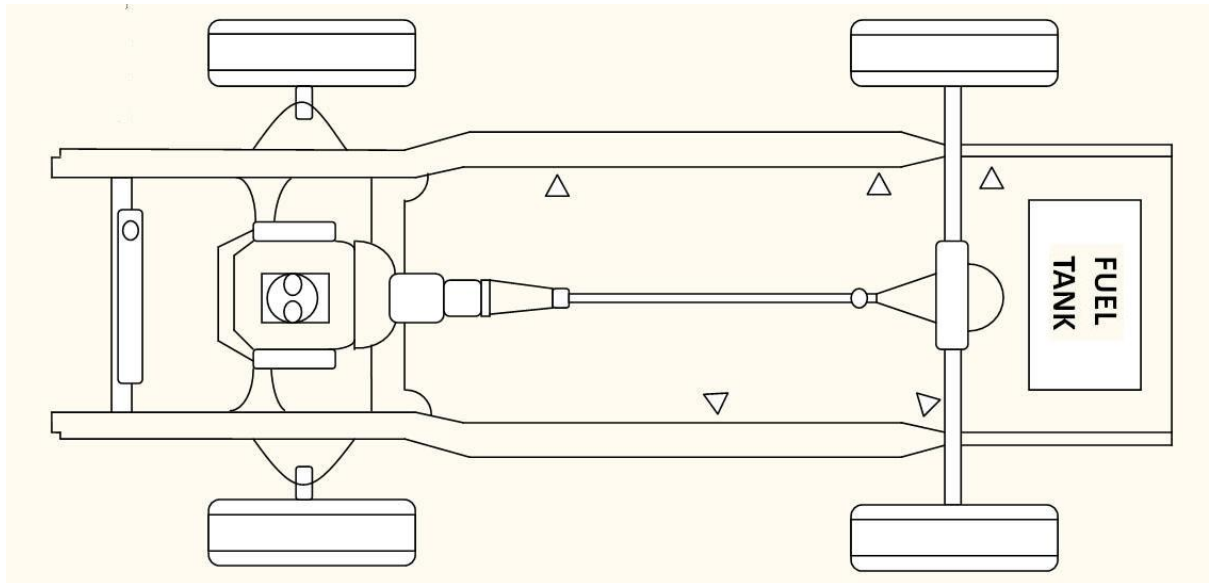


Universal Electric Fuel Pump Installation Instructions

➤ Precautions.

1. Your choice of an Autobest Universal Fuel Pump requires the correct voltage and polarity to operate. The polarity can be determined by checking which terminal on the battery has the heavier gauge connected to the engine block. Vehicle destined for the United States will be negative (-).
2. Because the Universal Fuel Pump will run when power is applied, there must be an oil pressure safely switch, (available commercially) installed to interrupt the operation of the fuel pump in the event of an accident or similar incident that stalls the engine. This prevents fuel from continuing to pump into a non-running engine.
3. The use of an in-line fuel filter should be installed before the inlet side of the fuel pump.
4. Excessive heat will vaporize gasoline prior to reaching the engine. To avoid vapor lock, the fuel pump should not be mounted in or around the engine compartment, near exhaust system components or any area that may exceed 140 degrees fahrenheit or 65 degrees Celsius.
5. Mounting of the fuel pump should be directly to the frame, when possible, to ensure a good ground. Remove any dirt, paint or undercoat from the mounting area for a good electrical connection. Suggested mounting locations are shown in the illustration below.



- a) The mounting height of the fuel pump should not be more that 18 inches above the lowest point of the fuel tank.
- b) The use of rubber mounting washers should be used to avoid and operational noise of the fuel pump.

➤ Positioning and Mounting of the Fuel Pump.

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The location of your Autobest Universal Fuel Pump is important for proper operation. If you are replacing an existing universal pump, the previous mounting location should be satisfactory if the previous pump worked correctly. If the new pump is being used to by-pass an existing in tank unit or mechanical fuel pump, please follow these mounting instructions:

1. Access the possible locations and select an area close to the existing fuel lines close to the fuel tank. Whenever possible use the vehicle frame for mounting ensuring that there is a good ground where you choose to mount the pump.
2. Autobest recommends that you mount the fuel pumps outlet at 30 degrees above horizontal to reduce the risk of vapor lock. This mounting technique will allow vapor to pass easily through the pump.
3. Drill pilot holes at the desired location and use self tapping screws to mount the pump to the new location ensuring that the area is free from dirt, paint or undercoat. A good ground is essential to the proper operation of the fuel pump.
4. Connect the flexible fuel lines by cutting the fuel line near the pump. Any worn or damaged fuel lines should be replaced before continuing. Eliminate the appropriate length of fuel line ensuring that the installation of the new flexible hose extends at least two inches over the fuel line; use hose clamps to secure the connection at each end. (Autobest recommends that the fuel tank be near empty to avoid fuel spillage. It is also recommended that the mounting of the pump be complete prior to cutting the fuel line to minimize any loss of fuel.)

➤ Making the Electrical Connections

The installation of the new oil pressure switch is needed at this time. If replacing an existing universal pump, there may already be an oil pressure switch installed. **In the event that there is no oil pressure switch that will cut power to the electric fuel pump, you must install one.** There are several manufacturers of the type of oil pressure switch needed, which are available commercially.

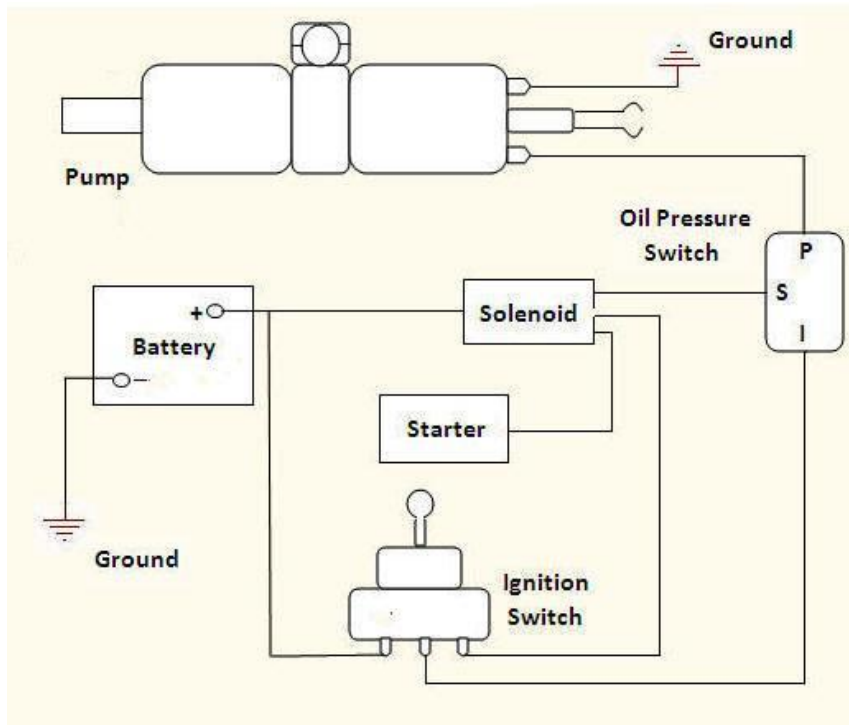
After the oil pressure switch is installed, you are ready to make the electrical connections to your Autobest fuel pump.

1. Locate a 12-volt power source that is normally open and controlled by the ignition switch.
2. The oil pressure switch will have three terminals. One to connect to the pump (P), one to connect to the starter relay (S), and one to ignition (I).
3. Using #16 gauge wire, install the correct size terminals that should have been supplied with the oil pressure switch to be used.
4. Making sure that the ignition switch is in off position. Connect the power lead from the fuel pump to the (P) terminal of the oil switch. Then connect a lead to the (I) terminal of the oil switch to the open 12-volt power

Universal Electric Fuel Pump Installation Instructions

source controlled by the ignition switch (described in step 1 of this section). Lastly, connect a lead from the normally closed starting system to the (S) terminal of the oil switch.

5. Connect the ground wire from the fuel pump to ground as shown in the illustration below.



➤ Eliminating or By-Passing Old Fuel Pump

Universal Electric Fuel Pumps have many different applications across import and domestic vehicles. The following instructions are a guideline when an Autobest electric fuel pump is used in series with a mechanical fuel pump or as a replacement for an existing mechanical fuel pump.

1. Loosen and disconnect the fuel lines from the mechanical fuel pump.
2. Cut an appropriate length of flexible fuel hose and connect the fuel lines that you disconnected from the mechanical fuel pump to each other. Clamps should be used to secure the connection.
3. Remove the old mechanical fuel pump and install a plate to cover the hole at the old mounting location or the plug the outlet hole of the mechanical pump.
4. Some older vehicles are equipped with mechanical pumps that also contain a separate diaphragm to operate the windshield wipers. Be careful not to disturb the vacuum lines. The installer may find it easier to installing a "U" shape piece of hose connected to the inlet and outlet of the mechanical pump.

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5. Universal Electric Fuel Pumps are sometimes used to replace a defective in-tank fuel pumps. Ensure that the in-tank fuel pump unit is not restricted and that the in-tank filter or strainer is not plugged if they are being left in the fuel tank.

➤ Putting it All Together.

Making sure that everything works correctly can be done at this time.

1. Disconnect the fuel line somewhere between the fuel pump outlet and the carburetor. Because of the special oil pressure switch installed that will not allow the pump to operate in the event of an engine stall, it is necessary to crank the engine, which will energize the fuel pump and begin pumping of fuel.
2. The engine may start because of the fuel that is stored in the carburetor, but will only run for a few seconds.
3. Have a container available to catch the fuel being pumped from the removed fuel line while you are priming the pump.
4. Crank the engine by holding the ignition key in the start position. The special oil pressure switch will allow the fuel pump to operate in the engine cranking position.
5. The pump should prime within 20 to 30 seconds. If it does not:
 - a. If pump is not running, check electrical connections including a good ground (see above instructions).
 - b. If pump is running, but is not pumping fuel. Check fuel lines for kinks, leaks or blockages. Check the inlet of the fuel pump ensuring that the suction side of the fuel pump is free from air leaks. Note: the pump will not prime unless the outlet side is disconnected and open to the air, allowing any trapped air to escape so that fuel can enter the pump.
6. After the pump is primed, reattach the fuel lines and start the engine and check the following:
 - a. Kinked or clogged lines
 - b. Secured electrical connections
 - c. Leaks of fuel or air
 - d. Carburetor flooding (trouble shoot per manufacture guidelines)
7. The fuel pump will pulse during normal operation, even at idle. The special oil pressure switch will cut power to the fuel pump once the engine is stopped. The pump will normally take a couple of seconds after the engine is off to stop pulsing. This is completely normal
8. Excessive unusual loud noise that develops during hot operation may mean that vapor lock is forming. Vapor lock can cause the engine to run out of fuel in severe cases and will not allow the pump to re-prime until the operating conditions cool down. Re-evaluate the location of the fuel pump and move to a cooler location if possible. Ensure that the fuel pump is mounted at the correct angle to eliminate the possibility of vapor lock.

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Avoid long runs of suction fuel line. Mount the fuel pump as close to the fuel tank while keeping it in the coolest possible location.