

Supplemental Information & Instructions for 377-420 Facet Fuel Pump (Solid State) Replaces SU Pumps in British Cars

Moss Motors has bought and sold this pump for decades. A number of different manufacturers make what we have come to call the "Facet Type Pump". We have bought pumps from several different suppliers. We considered them to be equivalent in quality and we backed them all with our 2 year warranty. Some of the pumps turned out to be problematic, and we now carry the genuine Facet pump, made in the USA. Even though we have gone to the trouble of re-writing the manufacturer's instructions, there is a certain amount of improvisation involved in the installation because we not have vehicle specific installation kits or vehicle specific instructions. (*You can help us by providing that information-see bottom of page 4*)

The Facet pumps are solid state electronic fuel pumps. They are designed to replace the original equipment fuel pump on carburetor-equipped cars. The solid-state design provides greater reliability, longer life, easy installation, freedom from hot weather vapor lock, and faster engine starting in cold weather. When properly installed, this fuel pump will provide a consistent, steady fuel supply to keep your vehicle running smoothly for many years to come, even under severe driving conditions.

- Fuel Compatibility: compatible with gasoline, diesel, biodiesel, blended alcohol fuels and fuel additives.
- Solid State Reliability: Proven on thousands of original equipment applications. No electrical contacts. No bearings or diaphragms to wear out or fatigue. Lasts four to five times longer than many other electric fuel pumps.
- Easy to Install: Two-bolt installation plus the small size makes installation easy.
- Virtually Eliminates Vapor Lock: When properly installed on most vehicles a constant, smooth, dependable supply of fuel under pressure is assured in the hottest weather or in high altitudes.

Manufacturer's Specifications

- | | | |
|--|----|---|
| • Output Pressure: 1.5 to 4.0 lbs/sq in | 40 | • Reverse Polarity protection |
| • Output: 25 gallons per hour | 41 | • UL Certified |
| • Red wire: bare wire | 42 | • ELV Compliant |
| • Black Wire: 0.25" ring connector | 43 | • 1.6 amp average draw |
| • Pipe nipples: 3/8" OD, threaded 1/8-27 | 44 | • Self Priming and Self Regulating |
| INT | 45 | • Compact & Light-18 ounces and 3 |
| • Maximum lift: 12 inches above top of | 46 | inches high |
| gas tank. | 47 | • Corrosion Resistant over 100 hours of |
| • Transient Protection | 48 | salt spray |
| • State of the art Electronics, sealed | | |

Suggested Tools & Hardware

Electric drill, 7/32" drill bit, tube cutter, locking pliers (vice grips), 7/16" wrench, fuel line plugs, hose clamps and a suitable tool for tightening them, wiring connectors, crimper for connectors, wire, 5/16" fuel hose. The manufacturer suggests using 3 to 5 Amp automotive-type fuse in an in-line fuse holder . If you do not have one, check your local auto parts store.

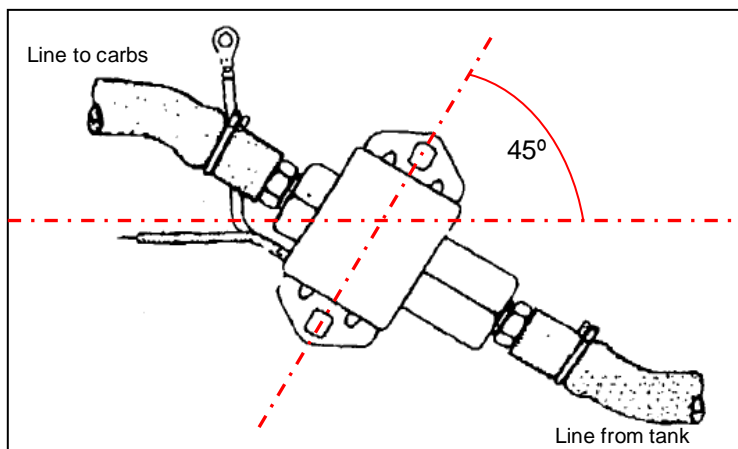
Before You Begin...

Carefully read through these instructions before you pick up a tool.

- To prevent damage to your new fuel pump, install only after checking the proper voltage and polarity. The vehicle's polarity can be determined by checking to see which battery terminal has a heavy lead wire connected to the chassis. If the Positive terminal (+) is connected to the chassis, it is positive ground. If the Negative terminal (-) is connected to the chassis, it is negative ground.
- To reduce the possibility of vapor lock, do not mount the fuel pump in the engine compartment, near the exhaust system, or **any** location that may exceed 140° F (65° C) ambient temperature.
- To ensure a good ground, mount the fuel pump on the vehicle frame whenever possible. The area of the frame to be used should be thoroughly cleaned down to bare metal to obtain a good electrical connection.
- If your vehicle is equipped with a fuel cut-off device, make sure you use that circuit to power the pump. Some vehicles use an oil pressure safety switch which will shut off the fuel pump if the engine stops with the key in the run position.
- If you have anything other than a brand new gas tank in your vehicle, we strongly suggest that you fit a fuel filter between the pump and the tank. Rust particles in the tank will, over time, damage the pump. Since many British Car owners have already fitted a filter, this may be a non-issue for you. We do stock an inline fuel filter (377-424) that will remove particles to 74 microns. It threads directly into the inlet side of the pump. If you want to pick up a filter locally, look for that specification.
- The pump may make a tapping or clicking noise during operation. To dampen the noise, consider using rubber shock mounts when installing the fuel pump. Although some of our suppliers used to offer these mounts, none are available through Moss at this time. We have been told that generic rubber mounts are available from hardware/home improvement centers. If you do use rubber mounts you must run a separate wire or strap to maintain your electrical connection from the pump body to vehicle frame.
- The gas tank should be near empty. If it isn't, a considerable amount of fuel may spill when the lines are disconnected from the fuel pump. We suggest that you drain the tank into a gas can, capping it and setting it aside for later.
- You are working with gasoline and electricity. If you can do the work out side on a hard level surface, the fuel vapor will disperse. If you are going to do this in a garage, open the doors/windows and set up a fan to blow the fuel vapor outside. We suggest that you have a fire extinguisher (ABC rated) handy.
- Jack the car up and support it securely with automotive jack stands on a solid level surface. Never work on a car supported by a jack.

Deciding Where to Mount the Pump

Select a location near the existing fuel lines and close to the fuel tank. If the original pump is near the tank, that is where this pump should go. Use the vehicle frame when possible. If another location is used, be sure you have a good electrical ground. To avoid priming problems, do not mount the fuel pump more than 12" (30.48 cm) above the bottom level of the fuel tank. If the pump is even or below the bottom of the tank, it will be easier to prime. NOTE: It is recommended that the outlet of the pump be at least 45° above horizontal. This will allow any vapor buildup to easily pass through the pump.



Mounting the Pump

1. Disconnect ground cable from battery.
2. Using the pump mounting bracket as a template, mark the two holes for the mounting bolts.
3. Dimple the metal with a center punch.
4. Drill two 7/32" holes through the steel.
5. Thoroughly clean the frame surface around the drilled holes to remove any paint, grease, rust, etc, to ensure a good electrical connection through the frame. **THE PUMP MUST BE WELL GROUNDED OR IT WILL NOT OPERATE**
6. Firmly secure the pump to the frame with self-tapping screws. If you choose to mount the pump to a bulkhead where you have access to both ends of the mounting bolts, we suggest you use 1/4" flat washers and 1/4-20 Nyloc nuts to secure the pump mounting bolts. If rubber shock mounts are to be used (normally not required with square solid state pumps), a location must be selected that allows you to tighten the 1/4" nut from the backside. Always use the ground strap (wire) to make the electrical connection from one side of the shock mount to the other.
7. Wrap the threads of the hose barbs with Teflon Tape.
8. Install the hose barbs in the inlet and outlet ports on the pump. If you bought the fuel filter that threads into the inlet port, it will replace one of the hose barbs. The fuel fittings and/or fuel filter should be tightened with approximately 10-ft-lbs. of torque.
9. Bolt the pump in place, at a 45° angle as shown on the previous page. Connect lengths of suitable sized flexible fuel hose to both hose barbs coming out of the pump. Secure the hose with hose clamps. The length of the hose will be based on where you plan on cutting into the fuel line.
10. Cut the fuel line near the fuel pump. Connect the fuel line from the tank to the hose connected to the inlet port on the pump. Connect the fuel line that runs to the carburettor to the hose connected to the outlet port on the pump. The flexible hose should extend at least 2 inches over the fuel line. Use suitable sized hose clamps to secure the ends of the hose. *Doing steps 8 & 9 in this order minimizes the time you have the fuel line from the tank open. If you did not drain the tank, this will minimize the amount of fuel lost during the changeover.*

Electrical Connections

It is suggested that the pump be powered through a 3 to 5 Amp automotive-type fuse. If the fuel pump power circuit in your vehicle is not fused, you can insert an inline fuse holder with a 3 to 5 Amp fuse in the wire.

Negative Ground

The black wire with the 1/4" ring connector is grounded to the frame. You can use one of the fuel pump mounting bolts if that bolt makes a good ground connection.

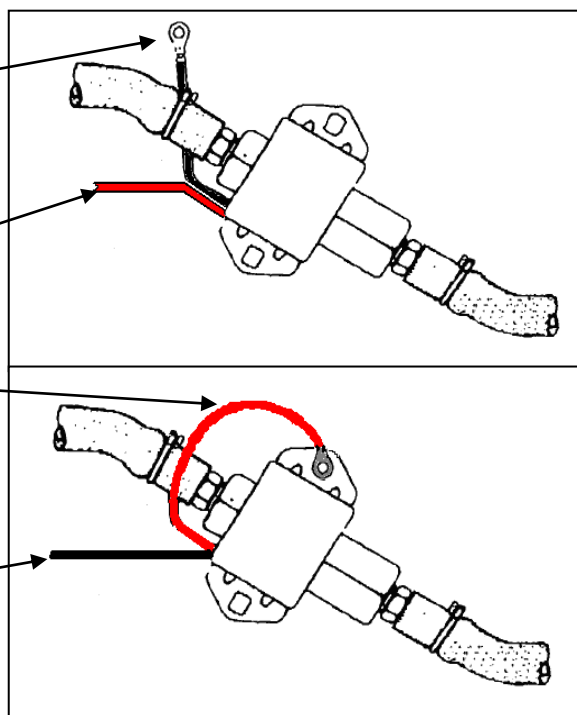
The red wire is connected to a power source that is hot when the starter is engaged, and when the key is in the run position

Positive Ground

The red wire should be stripped and a 1/4" ring connector crimped on. It must be connected to the frame using one of the fuel pump mounting bolts; both the wire and the pump body must be in good electrical contact with the chassis.

The black wire is connected to the wire that was connected to the SU pump originally.

Note: Facet's instructions indicate the pump is for negative ground only. This is an error; install the pump as shown in these instructions.



Final Check-Out

Before you try and start the car, check the following:

All fuel hose connections are dry and secure.

All electrical connections are secure.

Note: If you have an oil pressure cut-off switch installed, the pump will operate only when the starter is cranking the engine over, or when the engine is actually running. When you shut the engine off, the pump will continue to pump for several seconds. This is normal, because it takes that long for the oil pressure to drop far enough to activate the switch.

1. Disconnect line from the new fuel pump, somewhere between the pump and the carburetor. The easiest thing to do is to put a length of fuel hose on the outlet side of the pump, with the end of the hose on a gas can or other suitable receptacle.
2. Turn on the pump to prime, and bleed air from the lines.
3. If the pump does not prime in 20 to 30 seconds:
 - a. If the pump is not running
 - i. Check for good ground connection
 - ii. Check that you have 12V at the pump with the key in the start and run position.
 - b. If the pump is running, but there is no fuel coming out of the hose, check for
 - i. Kinks in a fuel line or hose
 - ii. Loose suction line connection between the tank and the pump
 - iii. The outlet end of the fuel hose may be obstructed; if it is hard up against the bottom or side of the gas can/receptacle the hose needs to be repositioned.
4. Once you have fuel coming out of the hose, turn off the key.
5. Re-connect the hose going from the pump outlet to the steel line that runs to the carburetor.
6. Disconnect the fuel feed at the carburetor(s).
7. Place a catch basin or gas can under the open hose.
8. Turn on the key to the start or run position
9. When you get fuel at the open end of the hose, turn the key off.
10. Reconnect the fuel feed at the carburetors.
11. Start the car.
12. When the engine starts, do a thorough inspection of all fuel line connections. They should be dry and tight.
13. If the carbs start to flood, shut the engine off and check the float height and the needle and seat.
14. As long as the engine is running, the pump will be pulsing, even if the car is only idling.

Dealing with Vapor Lock

Depending on where the pump is located and the ambient temperature, it may be possible to overheat the pump. The pump will get quite loud, which is an indication that vapor lock is forming. In some instances, it may be severe enough to cause the carbs to run out of gas, and the car will die. If that happens, the pump will not re-prime until it has had a chance to cool down. If this happens, we suggest that you reconsider the location of the pump and the routing of the line and hose from the tank to the pump. One or both is getting too hot. You can check the temperature of the pump with an infrared temperature sensor. Hand-held versions are available (see our 286-245 on the Moss website).

Although every effort has been made to ensure the accuracy and clarity of this information, errors and/or omissions on our part are almost inevitable. Any suggestions that you may have that will improve the information (especially detailed installation notes) are welcome. Please use the simple email form on the "Contact Us" page on the Moss website: <http://www.mossmotors.com/AboutMoss/ContactUs.aspx> If you prefer, you may call our Technical Services Department at 805-681-3411. So many people call us for help that we are often not able to answer the calls as fast as we'd like, and you may be asked to leave a message. We apologize in advance for the inconvenience. We will get back to you within 2 business days.



Moss Motors, Ltd.

440 Rutherford Street, Goleta, California 93117

In the US & Canada Toll Free (800) 667-7872 FAX (805) 692-2510 (805) 681-3400

Moss Europe Ltd.

Hampton Farm Industrial Estate, Hampton Road West, Hanworth Middlesex, TW13 6DB

In the UK: 020-8867-2020 FAX:- 020-8867-2030