

MARINE FUEL PUMP REMOVAL AND INSTALLATION

REQUIRED TOOLS:

- Appropriate Eye Protection
- Assorted Hand Tools

⚠ CAUTION: EXERCISE GREAT CARE IN THE INSTALLATION OF THIS FUEL PUMP. READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING THE INSTALLATION. IT IS STRONGLY RECOMMENDED THAT A CLASS B FIRE EXTINGUISHER BE AT HAND AND NO SMOKING. BE CERTAIN THAT THE VOLTAGE OF THIS ELECTRIC FUEL PUMP IS THE SAME AS YOUR BOAT'S ELECTRICAL SYSTEM.

THIS INSTALLATION PROCEDURE IS IN ACCORDANCE WITH THE UNITED STATES COAST GUARD SAFETY STANDARDS FOR ELECTRICAL AND FUEL SYSTEMS - FINAL RULE (JANUARY 31, 1977).

THIS FUEL PUMP IS NOT APPROVED FOR AIRCRAFT USE.

PRIOR TO REMOVAL

PLAN YOUR INSTALLATION

- Position the pump so it can be reached for inspection, maintenance, or removal without removal of any permanent boat structure.
- Position the pump above the fuel tank and beyond the anti-siphon device, or the fuel stop valve.
- The pump must be mounted within 12 inches of the engine unless it is used to transfer fuel between tanks.
- The conducting wires and the pump must be mounted away from the battery. If the pump and fuel lines are within 12 inches and above the horizontal plane of the battery top surface they must be shielded with dielectric material.

TAKE THESE PRECAUTIONS

• ELECTRICAL SYSTEM

- Use No. 16 AWG stranded copper wire or larger conductor listed for Marine Use in all of the electrical wiring.
- All electrical wiring must be supported at 18-inch intervals or less.
- If terminating electrical wiring outside of a junction box or other enclosure, use closed ring connectors, eyelet connectors, or captive spade connectors.
- Use a 10 amp fuse between pump and oil pressure safety switch for current overload protection.
- Use a No. 6 AWG wire conductor to connect the mounting bracket to a common ground for static protection.

• FUEL SYSTEM

- All (non-metallic) hoses used between the pump and carburetor must be USCG Type A.
- Hose clamps must be used at all fuel hose connections.
- Any cut fuel line must have a bead or flare at the end if a fuel hose is to be attached.
- Be certain the materials you use are corrosion resistant.
- An oil pressure safety switch must be utilized in the system to shut off the fuel pump in the event that the engine should stop while the ignition is still on. The fuel pump must not operate except when the engine is running or when you are starting the engine.
- A fuel filter must be installed between the fuel tank and the pump and it must be supported on the engine or boat, independent of the fuel line.

ACCESSORY ITEMS THAT MAY BE NEEDED FOR INSTALLATION (THESE ITEMS ARE NOT INCLUDED IN FUEL PUMP PACKAGE).

- No. 16 AWG stranded copper wire or larger marine-approved.
- Fuel line hose - USCG Type A
- Hose clamps
- Fuse - 10 amp
- Cable supports
- Oil pressure safety switch
- Terminals (closed ring, eyelet, or captive spade)
- Fuel filter - between fuel tank and inlet of fuel pump if boat is not so equipped.
- No. 6 AWG wire for grounding pump bracket.

FUEL PUMP INSTALLATION INSTRUCTIONS

1. The fuel tank (tanks) should be empty and the fuel stop valve or anti-siphon device closed.
2. Run the boat's bilge blower motor for at least ten minutes to evacuate any gasoline fumes that may have accumulated.
3. Be certain all of the boat's accessories are off. Disconnect the ground cable from the battery or batteries, if more than one.
4. This new electric fuel pump may be used as a stand-by unit, "booster" or as an independent fuel pump installation.
 - a. If the mechanical pump is also being replaced, and is only used as a fuel pump, it can be removed and the hole blocked with the appropriate gasket and cover plate.

- b. If the mechanical pump is also being used to drive vacuum accessories, there will be a second set of lines; leave the pump in place. Remove the fuel inlet and outlet lines. Plug the outlet fittings of the mechanical fuel pump. Also, be sure to join the fuel inlet and outlet lines to form a leak-proof connection.
 - c. If the electrical fuel pump is used in conjunction with the mechanical pump, no rerouting of the fuel lines is necessary.
5. Examine the electric fuel pump to determine the inlet and outlet. "OUT" is stamped in the outlet cover. The outlet fitting will lead toward the fuel carburetor.

NOTE: Placing a small amount of lightweight oil in the inlet will aid in priming.

6. Orient the pump above the anti-siphon device or fuel stop from the outlet of the fuel tank, and below the level of the carburetor.
7. Mount the fuel pump within 12 inches of the engine and away from engine heat. Do not mount pump where it could be immersed in water.
8. Locate the pump in the mounting position with the outlet about 30 degrees above horizontal. Using the mounting bracket as a template, drill a 17/64" hole for the self-tapping screw provided.
9. Using a No. 6 AWG copper wire, connect one end to the fuel pump mounting bracket and the other end to the boat's common ground. Use electrical terminals where applicable. Secure the mounting bracket and pump firmly using the self-tapping screw (lock washer and nut)

NOTE: The No. 6 static ground wire may be connected under the head of the mounting bolt.

10. Using Coast Guard Type A fuel hose, connect the electric pump in the fuel line to fuel tank and carburetor. Fittings are provided with the pump for this purpose. (An optional fuel filter may be included between the pump and carburetor. Secure it to the boat or engine.)

NOTE: An in-line fuel filter must be installed between the tank outlet and pump inlet if no other fuel filter exists. Secure it to the boat or engine. If it is necessary to cut the existing metal fuel line, do it with a rotary tube cutter or a fine-tooth hacksaw. After cutting the fuel line, flare the end with a proper flaring tool and remove burrs. Use enough hose to fit at least 2 inches over the fuel line and secure it with clamps.

ELECTRICAL INSTALLATION INSTRUCTIONS

1. Make the electrical connections with USCG-approved insulated stranded copper wire (No. 16 AWG or larger).
2. If a separate switch is used, minimum ratings are 10 amps.
3. If the boat's electrical system is NEGATIVE GROUND, connect the BLACK WIRE to a suitable ground. If it is POSITIVE GROUND connect the BROWN WIRE to a suitable ground.

4. Connect a length of 16 AWG (or larger) stranded marine type wire from the PUMP (P) terminal on the oil pressure safety switch to the remaining fuel pump lead wire using a butt splice connector provided. Include a 10 amp fuse in the line if the line is not already fused. (The optional 10 amp dash switch is also placed in this line.)
5. Connect a wire from the IGNITION (I) terminal of the oil pressure safety switch to a voltage source switch that is energized when the ignition is turned on. A good location is "IGN" terminal of the ignition switch or at the fuse block.

⚠CAUTION: THE VOLTAGE SOURCE CONNECTION MUST BE AHEAD OF ANY BALLAST RESISTOR OR RESISTANCE WIRING.

6. Connect a wire from the START (S) terminal of the oil pressure safety switch to the START terminal on the ignition switch.
7. Re-connect the battery (batteries) ground cable that was disconnected in STEP 3 of fuel pump installation instructions.

MAKE THE FINAL CHECK

1. Run the boat's bilge blower motor for at least 10 minutes to evacuate any gasoline fumes that may have accumulated.
2. Turn ignition switch to "ON" and start engine to see if pump is working. You may hear a clicking inside the pump, as the piston reciprocates, while priming.

NOTE: On boats equipped with freshwater cooling systems, perform function test with the boat in the water or have an ample source of water to provide for engine cooling.

3. Inspect all fuel system connections to be certain that they are dry and that no gasoline is leaking from any of the fuel line connections. Tighten any connection as necessary.

TROUBLESHOOTING

1. Check for worn needle and seat assembly if carburetor flooding exists.
2. Check for proper venting of fuel tank (tanks).
3. Check anti-siphon device or fuel stop valve for proper operation.
4. Be sure the oil pressure safety switch is operating.
5. Examine fuel line and filter (filters) for possible plugged or dirty condition.
6. Check for proper electrical connections and pump ground.
7. Make certain fuel line, hoses, and fitting connections are clean and dry.
8. If the fuel line and/or pump are too near a hot area a vapor lock condition may result. The fuel line may need to be wrapped or the pump shielded from heat.

