



550HP SIX VALVE HIGH VOLUME FUEL PUMP

Part Number: 1038 Application: Ford 331-428 FE series V8 engines up to 550 horsepower

Maximum Output Volume: 190 gph free flow; 90 gph at 4.5 psi.

Maximum Output Pressure: 7 psi. (+/- 1psi) (About 1 psi less when using a vapor return line)

Recommended Fuel: Gasoline or Gasoline/Ethanol blends (methanol not recommended)

Recommended **Minimum** Line Size from Tank to Pump:

3/8" (or -6AN) up to 450 horsepower

1/2" (or -8AN) up to 550 horsepower

Recommended **Minimum** Line Size from Pump to Carb:

5/16" (or -5AN) up to 450 horsepower

3/8" (or -6AN) up to 550 horsepower

Side Inlet Port: 1/2 NPT (NPT = National Pipe Thread, tapered)

Bottom Outlet Port: 1/2 NPT Side Outlet Port: 3/8 NPT

Bottom "Vapor" Return Port: 1/8 NPT

Rotating The Valve Body: The valve body is the bottom portion of the pump with the inlet and outlet ports. By loosening the six screws (four long and two short) on the bottom of the pump which thread into the steel clamp ring, the valve body can be rotated to any position.

Water Pump Clearance: The steel clamp ring has a flat machined into it to help clear the water pump and upper water pump hose. If the pump valve body is rotated, it may be necessary to rotate the clamp ring to a new position or file a new flat on the ring.

Fittings for Inlet: Try to use a straight fitting to reduce restriction, especially on the inlet. Do *not* use a sharp 90 degree fitting. RobbMc offers steel fittings to connect AN line. Fittings to connect rubber hose or inverted flare line are available at most hardware and auto parts stores. Steel or brass fittings are preferred because aluminum NPT fittings may gall in the aluminum pump ports and be difficult to remove later. Use Teflon thread sealant on the NPT threads.

Fittings for the Outlet: Choose the side or bottom outlet port. While a straight fitting is preferred, a 45 or a *smooth* 90 degree fitting on the outlet is acceptable. RobbMc offers steel fittings to connect AN line. Fittings to connect rubber hose or inverted flare are available at most hardware/auto parts stores. Steel or brass fittings are preferred because aluminum NPT fittings may gall and be difficult to remove later. Use Teflon thread sealant on the NPT threads. Plug the unused outlet port with the provided plug.

Bolting the Pump to the Engine: Removing the power steering pump makes installing the pump easier; as does rotating the engine so the pump arm is pressing on the low side of the eccentric. Makes sure that none of the oil filter adapter gasket extends out the front of the block or it will interfere with the pump. A small amount of grinding/filing on the pump and/or engine may be required to clear the front of the engine.

Fuel Filters: A filter between the tank and the pump is not required if the factory in-tank filter sock is still in use. If the in-tank filter sock has been removed, a large, free flowing 90 to 150 micron filter such as RobbMc PN 1024 or 1025 should be used. An additional filter (30 to 50 micron) should be used between the pump and the carb.

Pressure Regulator: In most cases, a pressure regulator is not required. However, if the carb(s) in use requires a pressure lower than the pressure supplied by the pump, a non-return regulator can be used between the pump and the carb(s). Also, using a vapor return line will reduce the pressure about 1 psi.

Vapor Return: There is a metered 1/8 NPT port on the bottom of the pump for a "vapor" return line. A vapor return line allows a small amount of fuel to circulate from the pump back to the gas tank, keeping the pump and fuel cooler. This reduces the chance of fuel vaporization ("vapor lock") and can also improve hot restarts. Some Fords came from the factory with a 1/4" vapor return line connected between the stock fuel filter and the gas tank. That same line can be connected to the RobbMc pump by using the provided 1/8 NPT to 1/4" barb fitting. If your car does not have a factory return line, any 1/4" or larger return line can be used by installing the appropriate fitting. **NOTE: When using the vapor return line, it is normal for the fuel pressure to bounce at low rpm.** If you are not using a vapor return line, plug the port with an 1/8 NPT plug.

TROUBLESHOOTING

This pump will provide enough fuel for at least 550 hp. If a fuel delivery problem is suspected, install a fuel pressure gauge that can be seen by the driver so the fuel pressure entering the carb can be monitored. Note the fuel pressure during full throttle acceleration. If the pressure does not drop below 4 psi, the problem is not with the fuel system. NOTE: Nitrous oxide systems may require more than 4 psi.

DO NOT TRUST PRESSURE GAUGES MOUNTED IN THE ENGINE COMPARTMENT: Most fuel pressure gauges (especially liquid filled) read lower as the temperature of the gauge increases. If the fuel pressure at idle appears to decrease as the engine warms up, and the gauge is mounted in the engine compartment, it is most likely a problem with the gauge.

If the pressure drops below 4 psi, check the following:

~Make sure the fuel lines between the tank and the pump are at least 3/8". Engines over about 400 hp may require 1/2" lines and/or less restrictive fittings/pre-filter. RobbMc offers 1/2" fuel tank sending units for many cars.

~Make sure there are no kinks or smashed sections in the feed line. Remove any sharp 90-degree fittings.

~Replace any rubber lines showing signs of cracking. Cracked lines may not leak fuel but may allow air bubbles to be sucked into the line, which greatly reduces pump efficiency.

~Make sure all fittings and hose clamps are tight so air cannot be sucked into the fuel.

~There must be a vent somewhere on the tank. If a vent tube is used, make sure it is not plugged or kinked. The addition of a vented gas cap may help.

~Make sure the pickup tube is not uncovering during hard acceleration. Try filling the tank completely with fuel. If this fixes the fuel pressure problem, run the tank at least half full when racing, add a sump to the tank, or switch to a baffled tank or fuel cell.

~Make sure there are no obstructions in the fuel line: **Remove the gas cap.** Remove the hose from the pump inlet and use compressed air to blow air into the hose until you hear a steady flow of air coming from the tank. If this corrects the fuel pressure problem, it is an indication that the tank needs to be removed and cleaned. If the tank is removed for cleaning, remove the factory in-tank filter sock. Add an external filter (such as RobbMc PN 1024 or 1025) in the line between the tank and the pump.

~If a filter is used between the tank and the pump, make sure it is not restricting flow. Replace or clean the filter element or install a freer flowing filter.

~On hot days, fuel vaporization can *greatly* reduce pump efficiency and cause erratic fuel pressure.

Vaporization can best be reduced by keeping engine coolant temperature under 180 degrees F.

Vaporization can also be reduced by using a vapor return line, running race/aviation gas, using a "cool can" to cool the fuel, rerouting the fuel away from the exhaust, wrapping the fuel lines with insulating material, and by reducing the restriction in the lines using larger lines, fewer sharp bends, or less restrictive fittings.

If none of the above cures the fuel pressure problem, the engine is producing over 550 hp or there may be a problem with the pump. If a problem is suspected, email us at robb@robbmcperformance.com and we will make arrangements with you to send the pump back to us for testing and/or repair. If the pump was purchased less than 90 days ago, we will repair it for free. If more than 90 days, we will repair the pump for no more than half the cost of a new pump, no matter how old the pump.