



PREMIER PUMP & POWER
THE WAVE OF THE FUTURE

OPERATOR'S MANUAL

INSTALLATION, OPERATION AND MAINTENANCE
INSTRUCTIONS

EPT4-150DPJD **6" Dry Prime Trash Pump**

PLEASE READ CAREFULLY
YOUR WARRANTY MAY BE VOID IF
INSTRUCTIONS ARE NOT FOLLOWED

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OVERVIEW OF PUMP DESIGN AND OPERATION

The **Premier Pump EPT4-150DPJD** series is an automatic self-priming pump driven by a diesel engine or electric motor. Specially designed to handle abrasive fluids such as sewage and sludge containing solids up to 3" (76.2mm) in diameter, it provides a dependable, high efficiency solution. The pump has proven itself fully capable in a variety of applications including intermittent flow conditions, open pumping and sewage by-pass pumping where moderate air handling is required.

PUMP COMPONENTS

CHASSIS

The chassis provides a stiff platform upon which the complete pumping unit is mounted. It also doubles as an integral fuel tank capable of holding enough fuel to run the unit at full power for 24 hours. The chassis features a balanced lifting bail designed to support the weight of the fully loaded pump. The lifting bail is the only attachment point suitable to lift the pump. For the users convenience clean-out plugs are located on the rear of the chassis and D-rings are located on all four corners of the chassis. The clean-out plug allows for easier rinsing of the fuel tank. The D-rings provide appropriate tie-down points.

ENGINE

The units come standard with an adequately powered diesel engine or electric motor rigidly mounted to the chassis. To protect the engine, safety cut-off protection is provided against low oil pressure and high coolant temperature. Should either of these situations exist, the engine will automatically shut down. Do not restart the engine without first identifying the source of the problem. The control panel also includes a tachometer and hour meter. The tachometer allows the user to define the pump's power setting. The hour meter permits the user to schedule routine maintenance. The pump also features an engine mounted air compressor, which is used to power the priming system. The compressor is driven directly by the engine and is plumbed into both the engine's lubrication and coolant systems thus maximizing the reliability of the priming system.

PUMP END

The pump end is a centrifugal pump specifically designed for municipal and industrial applications. The impeller is a two-vane enclosed impeller with the ability to handle 3" diameter solids. To further increase the dependability of the unit, the pump is coupled to the engine through a torsional damper. The damper, designed to isolate vibrations between the pump and engine, minimizes the effects of shock loading.

A distinctive feature of the pump is that it has been designed for ease of use and maintenance. The pump is primed by the VP automatic priming system and is supplied, as standard, with a mechanical seal and positive oil feed. The mechanical seal and oil

bath allow the pump to be run dry for prolonged periods. The back pull-out design allows the bearing housing and impeller to be removed without disturbing either the suction or discharge piping. Both the impeller and suction cover are fitted with cast iron renewable, axial clearance wear-rings.

PRIMING SYSTEM

The priming system produces a vacuum, which is used to draw fluid up through the suction hose and into the pump, once the pump is fully flooded it is completely primed. The vacuum is created by accelerating compressed air through a venturi. When the compressed air flows through the narrowest portion of the venturi, it reaches its highest speed. At this point it also has its lowest pressure. Side drillings positioned at this point in the main duct of the venturi are connected to the pump casing via a ball valve and a series of chambers. The air is evacuated from the pump casing and suction hose by drawing it through the chambers and side drillings of the venturi into the venturi's main duct where it is exhausted to the atmosphere.

Using this method of priming the pump has three main advantages over alternative automatic priming systems. The vacuum is created indirectly and so there is no risk that contaminants in the pumping fluid, which could potentially damage a vacuum pump or any other direct method, will be passed into the air compressor. Secondly, with the exception of the air compressor that utilizes the large reserves of the engine's lubrication and coolant systems to maximize its reliability, this arrangement has no moving parts. Finally, the components of the priming system are adequately corrosion proofed. The venturi is made from bronze. The collars used to mount the venturi and braided steel air line is made from stainless steel. All the other fittings of the priming system are made with zinc-chromate finish.

OPERATION OF THE PUMP

With the pump properly plumbed into the system and fully primed, bring the pump unit up to half speed. Then turn the engine off and allow the unit to coast to a stop. If it stops suddenly or there is any unusual noise, identify the cause of the trouble. Do not restart the engine until the problem is corrected. Repeat this procedure until the unit quietly coasts to a stop when the power is cut-off. Continuously check the bearing housing and stuffing box temperature. If either becomes too hot to hold your hand tightly and indefinitely against housing the pump may be binding, stop the unit and correct the cause of the trouble. If pumping hot liquids, this may not apply.

The pump may be throttled by fitting a butterfly valve or similar, to the discharge side of the pump. However, the pump must never be throttled on the suction side because this may cause it to cavitate. Throttle can reduce the power consumption of the pump. When the pump is exposed to freezing temperatures, it should be draining immediately after stopping.

PRE-START CHECKLIST

- Fill the fuel tank, using clean diesel fuel.
- Check the fuel supply for contaminants such as water, dirt or algae
- Drain the water from the fuel/water separator
- Check that there is fuel in the fuel line, if necessary prime the fuel line
- Check the engine oil level
- Check coolant level
- Check the indicator button for the battery charge
- Check the oil level in the pump's mechanical seal oil reservoir
- Make sure that the fan/alternator drive belt is tight
- Make sure that the safety guard surrounding the torsional damper is secure and in place
- Check that suction and discharge connections are tight and secure
- Make sure that the pump is level

STARTING THE ENGINE

- Turn the throttle to the desired level. Do not exceed the maximum speed of 2100 RPM
- Check gauges for proper operating levels.

NORMAL OPERATING PARAMETERS

Once the pump is running, check the following:

1. Engine is running smoothly
2. Vacuum gauge is within acceptable limits, 10"-28" Hg
3. Oil pressure and water temperature are within the pre-set limits
4. Water is moving through the pump

STARTING THE ENGINE USING THE OPTIONAL MSS200 AUTOSTART CONTROLLER

The MSS200 autostart controller is designed to automatically empty a holding tank. It uses a pair of control floats that stop and start the pump. The floats should be set so that when the holding tank is full the controller turns on the pump and drains the tank. The pump continues to run until the tank is near empty, it then turns off the pump.

- The YELLOW float is set to the high water mark and is the START signal
- The RED float is set to the low water mark and is the STOP signal
- Make sure the ignition KEY is in the OFF position
- Set the MSS200 autostart controller to Automatic

MAINTENANCE SAFETY INSTRUCTIONS

WARNING!!

Improper practices or carelessness can cause burns, cuts, mutilation, asphyxiation or other bodily injury or even death.

Read and understand all of the safety precautions and warnings before performing any repair. This list contains the general safety precautions that **must** be followed to provide personal safety. Special safety precautions are included in the procedures when they apply.

- Make sure the work area surrounding the product is dry, well lit, ventilated, free from clutter, loose tools, parts, ignition sources and hazardous substances. Be aware of hazardous conditions that can exist.
- **Always** wear protective glasses and protective shoes when working.
- Rotating parts can cause cuts, mutilation or strangulation.
- Do **not** wear loose-fitting or torn clothing. Remove all jewelry when working.
- Disconnect the battery (negative [-] cable first) and discharge any capacitors before beginning any repair work. Put a “**DO NOT OPERATE**” tag on the controls.
- Use **ONLY** the proper engine barring techniques for manually rotating the engine. Do **not** attempt to rotate the crankshaft by pulling or prying on the fan. This practice can cause serious personal injury, property damage, or damage to the fan blade(s) causing premature fan failure.
- If an engine has been operating and the coolant is hot, allow the engine to cool before you slowly loosen the filler cap and relieve the pressure from the cooling system.
- Do **not** work on anything that is supported **ONLY** by lifting jacks or a hoist. **Always** use blocks or proper stands to support the product before performing any service work.
- Relieve all pressure in the air, oil, fuel and the cooling systems before any lines, fittings, or related items are removed or disconnected. Be alert for possible pressure when disconnecting any device from a system that utilizes pressure. Do **not** check for pressure leaks with your hand. High-pressure oil or fuel can cause personal injury.
- To prevent suffocation and frostbite, wear protective clothing and **ONLY** disconnect fuel lines in a well-ventilated area.
- To avoid personal injury, use a hoist or get assistance when lifting components that weigh 23 kg [50 lb] or more. Make sure all lifting devices such as chains, hooks, or slings are in good condition and are of the correct capacity. Make sure the hooks are positioned correctly. **Always** use a spreader bar when necessary. The lifting hooks **must not** be side-loaded.

- Corrosion inhibitor, a component of SCA and lubrication oil, contains alkali. Do not get the substance in your eyes. Avoid prolonged or repeated contact with skin. Do not swallow internally. In case of contact, immediately wash skin with soap and water. In case of contact, immediately flood eyes with large amounts of water for a minimum of 15 minutes. IMMEDIATELY CALL A PHYSICIAN. KEEP OUT OF THE REACH OF CHILDREN.
- Naptha and Methyl Ethyl Ketone (MEK) are flammable materials and **must** be used with caution. Follow the manufacturer's instructions to provide complete safety when using these materials.
- To avoid burns, be alert for hot parts on products that have been turned off, and hot fluids in lines, tubes, and compartments.
- **Always** use tools that are in good condition. Make sure you understand how to use them before performing any service work.
- **Always** use the same fastener part number (or equivalent) when replacing fasteners. Do not use a fastener of lesser quality if replacements are necessary.
- Do not perform any repair when fatigued or after consuming alcohol or drugs that can impair your functioning.
- Some state and federal agencies in the United States have determined that used engine oil can be carcinogenic and can cause reproductive toxicity. Avoid inhalation of vapors, ingestion, and prolonged contact with used engine oil.
- Coolant is toxic. If not reused, dispose of in accordance with local environmental regulations.

GENERAL MAINTENANCE GUIDELINES

The unit should be checked at regular intervals for any slight increase in noise or heat that may develop in any part of the pump, including the coupling, stuffing box, and bearings. See the Troubleshooting section at the end of this manual for help in diagnosing the cause of this problem.

The mechanical seal is primarily designed to prevent air being drawn into the back of the pump through the stuffing box. It also prevents gritty particles in the pumping liquid from entering the stuffing box. When servicing or replacing the seal, it is essential that precautions are taken to assure that the seal chamber is kept free of dirt. Though the mechanical seal is designed to allow the pump to run dry for prolonged periods, the seal relies upon a constant supply of oil for both lubrication and cooling. Never run the pump without first checking the seal's oil reserve is full.

The pump end's bearings are grease lubricated. The bearing housing should be about one-third full of good ball bearing grease. Extreme care must be taken to assure that dirt does not contaminate the bearing grease. Too much grease in the bearing housing causes the bearing to run hot. Add small amount of grease every 3 to 6 months being careful to remove old grease if necessary to maintain the housing not more than 1/3 full.

Maintenance of the correct clearance between the pump end's suction cover and impeller significantly affects the operating efficiency of the complete unit. The pump end is supplied with replaceable wear rings that are designed to maintain the correct clearance. When the clearance increases by about .020 " the rings should be replaced.

| Summary of engine and pump lubricants | | | |
|--|---------------------|---|--------|
| Engine | Lubricating oil | All Season | 15W-40 |
| | | Winter | 10W-30 |
| | | Arctic | 5W-30 |
| | Oil Filter | Fleetguard LF3345 | |
| Pump | Mechanical seal oil | Royal Purple | |
| | Bearing grease | Esso Multi-P Purpose H/ Texaco Mutifak 2 | |

REPLACEMENT PARTS

A parts breakdown of the pump end is included in the accompanying pump manual; however, when ordering parts please give your pump's model and serial number.

| <u>Daily</u> | Every 250 hours or 3 months | Every 500 hours or 6 months | Every 1000 hours or 1 year | Every 2000 hours or 2 years |
|---|---|--|--|--|
| Maintenance Check | Check/Inspect | Check/Inspect Replace | Check/Inspect | Check/Inspect Replace |
| <ul style="list-style-type: none"> • Oil levels of both engine and pump's mechanical seal reservoir • Coolant level • Fan • Drive belt • Fuel-water separator • Drain pump casing when finished using | <ul style="list-style-type: none"> • Change lubricating oil • Replace lubricating oil filter • Inspect air cleaner • Inspect intake system • Check charge air cooler • Check oil level of pump's mechanical seal reservoir • Check grease level in pump's bearing house • Check bolt torques of torsional damper • Inspect and clean bore of venturi | <ul style="list-style-type: none"> • Change lubricating oil • Replace lubricating oil filter • Replace fuel filter • Inspect air cleaner • Inspect air intake system • Check antifreeze • Check charge air cooler • Check oil level of pump's mechanical seal reservoir • Check grease level in pump's bearing house • Check bolt torques of torsional damper • Inspect and clean bore of venturi | <ul style="list-style-type: none"> • Change lubricating oil • Replace lubricating oil filter • Replace fuel filter • Adjust valve lash clearance • Inspect air cleaner • Inspect intake system • Check antifreeze • Check charge air cooler • Inspect fan hub • Inspect belt tensioner • Check belt tension • Check oil level of pump's mechanical seal reservoir • Check grease level in pump's bearing house • Check bolt torques of torsional damper • Inspect and clean bore of venturi | <ul style="list-style-type: none"> • Change lubricating oil • Replace lubricating oil filter • Replace fuel filter • Change antifreeze • Inspect air cleaner • Check charge air cooler • Inspect intake system • Inspect fan hub • Check belt tension • Inspect damper • Check oil level of pump's mechanical seal reservoir • Check grease level in pump's bearing house • Check bolt torques of torsional damper • Inspect and clean bore of the venturi |

TROUBLESHOOTING - ENGINE

| Problem | Possible causes | Possible solutions |
|---|---|---|
| Engine will not start but producing exhaust smoke | Starting procedure is not correct | Verify the correct starting procedure |
| | Engine cranking speed is too low | Check the engine cranking speed with a handheld tachometer. If the cranking speed is less than 150 rpm, refer to engine manual. |
| | Starting aid is necessary for cold weather | Check for correct operation of cold starting aid |
| | Air in the fuel system | Bleed the fuel system and check for leaks |
| | Fuel supply is not adequate | Check the flow return line is plumbed to the bottom of the tank |
| | Fuel drain backup | Verify the fuel return line is plumbed to the bottom of the tank |
| | Fuel pump overflow valve is malfunctioning | Check the overflow valve. Replace if necessary |
| | Fuel transfer pump malfunctioning | Inspect the fuel transfer pump. Replace if necessary |
| | Intake air restriction is high | Check the air intake system for restriction |
| | Fuel contaminated | Verify by operating the engine with clean fuel from a temporary tank. |
| | Throttle linkage adjustment is not correct | Check the fuel pump throttle linkage adjustment. |
| | Valves or injectors adjusted wrong | Adjust valves and injectors |
| Injector is malfunctioning | Inspect the injectors. Replace if necessary | |

| | | |
|---|--|--|
| Engine will not start and is not producing exhaust smoke continued. | Starting procedure is not correct | Verify the correct starting procedure |
| | Fuel level is low in tank | Fill the fuel tank |
| | Electric or manual fuel shutdown binds | Check for loose wires and verify that the solenoid is functioning. Check that the manual shutoff level is not binding at the injector pump |
| | Air in the fuel system | Bleed the fuel system and check for leaks |
| | Fuel transfer pump malfunctioning | Inspect the fuel transfer pump. Replace if necessary |
| | Fuel drain backup | Verify the fuel return line is plumbed to the bottom of the tank. |
| | Fuel pump overflow valve is malfunctioning | Check the overflow valve. Replace if necessary. |
| | Throttle linkage adjustment is not correct | Check the fuel pump throttle linkage adjustment. |
| | Fuel injector pump is malfunctioning | Perform the fuel injector pump test. |
| | Fuel injector pump timing is not correct | Adjust injector timing. |
| | Blown low oil pressure and/or high coolant temperature safety cut-out switches | Check fuse and/or replace gauges if necessary. |

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| Coolant temperature is above normal | Coolant level is low | Inspect the engine and cooling system for external coolant leaks. Repair if necessary and replace lost coolant. |
| | Radiator fins are damage or obstructed with debris | Inspect the radiator fins. Clean and repair the fins as necessary. |
| | Cooling system hose is collapsed, restricted or leaking | Inspect the radiator hoses. |
| | Lubricating oil level is low | Check the lubricating oil level. Verify the dipstick calibration and the oil pan capacity. Fill the system to the specified level. |
| | Fan shroud is damaged or missing or the air recirculation baffles are damaged or missing | Inspect the shroud and the recirculation baffles. Repair, replace or install if necessary. |
| | Fan drive belt is loose, tight or not in alignment | Check the fan drive belt |
| | Fan drive is malfunctioning | Check the fan drive |
| | Radiator cap is not correct, is malfunctioning, or has low-pressure rating | Check the radiator pressure cap |
| | Temperature gauge is malfunctioning | Check and/or replace the temperature gauge |
| | Thermostat is not correct or is malfunctioning | Check the thermostat for the correct part number and for the correct operation |
| | Fuel pump is malfunctioning | Test the fuel pump on a fuel pump test stand. Replace the fuel pump if necessary. |
| | Engine's water pump is malfunctioning | Check the engine's water pump for correct operation. Replace the water pump if necessary |
| | Air in the cooling system | Inspect and bleed the cooling system |
| Cooling system is contaminated with dirt, scale or sludge | Clean the cooling system | |

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|------------------------------|--|---|
| Low lubricating oil pressure | Lubricating oil level is low | Check and replenish lubricating oil |
| | Lubricating oil pressure sensor or gauge is malfunctioning | Check the oil pressure switch or gauge for correct operation |
| | Lubricating oil is diluted with fuel | Change the oil. If the oil becomes diluted again, contact an authorized repair Facility. |
| | Lubricating oil is diluted with water | Check for a missing dipstick, rain cap and/or oil fill cap |
| | Lubricating oil does not meet specification for operating conditions | Change the oil and filters. |
| | Lubricating oil leak | Inspect the engine for external oil leaks. Tighten the cap screws, pipe plugs and fittings. Replace gaskets if necessary. |
| | Lubricating oil viscosity not correct | Make sure the correct lubricating oil is being used. |
| | Lubricating oil high-pressure relief valve is malfunctioning | Remove and inspect the high-pressure relief valve |
| | Lubricating oil filter is plugged | Change the oil and filters. |

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|-------------------------------|--|--|
| Engine runs rough or misfires | Fuel contaminated | Verify operation of engine with clean fuel in a temporary tank |
| | Air in the fuel | Bleed the fuel system and check for leaks |
| | Fuel leak | Check the fuel lines, fuel connections and fuel filters for leaks |
| | Fuel pump overflow valve is malfunctioning | Check the overflow valve. Replace if necessary. |
| | Fuel lift pump is malfunctioning | Check the fuel lift pump for correct operation. Check the pump output pressure. Replace the fuel lift pump if necessary. |
| | Valve lash excessive | Adjust valves. Make sure the push rods are not bent and/or rocker levers are not severely worn. |
| | Fuel injector pump timing is not correct | Inspect the injectors. Replace if necessary |
| | Fuel injector pump malfunctioning | Put the engine at top dead center. Check and adjust the fuel timing. |

TROUBLESHOOTING - PUMP

| Problem | Possible causes | Possible solutions |
|---|---|--|
| No liquid delivered | Pump is not primed | Check the priming system |
| | Speed too low | Check the engine is running at the required power/speed. |
| | Sum of suction and discharge head greater than rated head of pump | Check the total head requirements against pump performance curve. |
| | Impeller completely plugged | Clean any debris out of the impeller. |
| | Suction piping or strainer plugged and/or leaking air | Clean any debris out of the suction hose and strainer. Repair any leaks in suction hose |
| | Worn impeller and/or wear rings | Inspect and replace as necessary |
| | Worn mechanical seal | Inspect and replace as necessary |
| Not enough liquid delivered or not enough pressure. | Air leaks in suction or stuffing boxes. | Inspect and repair any leaks |
| | Speed too low | Check the engine is running at the required power/speed. |
| | Sum of suction and discharge head greater than rated head of pump | Check the total head requirements against pump performance curve. |
| | Impeller, suction hose and/or strainer partially plugged | Clean any debris out of the impeller and suction hose. |
| | Mechanical defects | Inspect and if necessary replace the following: Shaft Bearings Wear rings Impeller Coupling |
| | End of suction hose not immersed deep enough | Add more hose to the suction line |

| | | |
|-----------------------------------|---|--|
| | Air entering suction pipe | Make sure the end of the suction hose is deep enough in the water to avoid a vortex forming. |
| Pump works for a while then quits | Leak in the suction hose | Repair any leaks in suction hose |
| | Sum of suction and discharge head greater than rated head of pump | Check the total head requirements against pump performance curve. |
| | Air or gases in liquid | Check that the priming system is functioning and that pump is not cavitating. |
| Pump takes too much power | Speed too high | Reduce engine speed/power |
| | Head lower than rating; pumps too much liquid. | Throttle the discharge of pump with a butterfly valve of similar. |
| | Rotating element binds | Inspect and if necessary replace the following: Shaft Bearings Wear rings Impeller Coupling |
| | Wearing rings worn. | Inspect and replace wear rings as necessary. |
| Pump noise and vibration | Misalignment between the engine and pump end. | Check coupling. |
| | Engine and/or pump end are loose | Check engine and pump end mountings, tighten mounting bolts if necessary. |
| | Impeller partially plugged | Clean any debris out of the impeller. |
| | Mechanical defects | Inspect and if necessary replace the following: Shaft Bearings Wear rings Impeller Coupling |
| | Suction or discharge pipe not anchored. | Secure the suction and discharge piping as necessary. |
| | Pump is cavitating | Suction lift is too great for pump. |

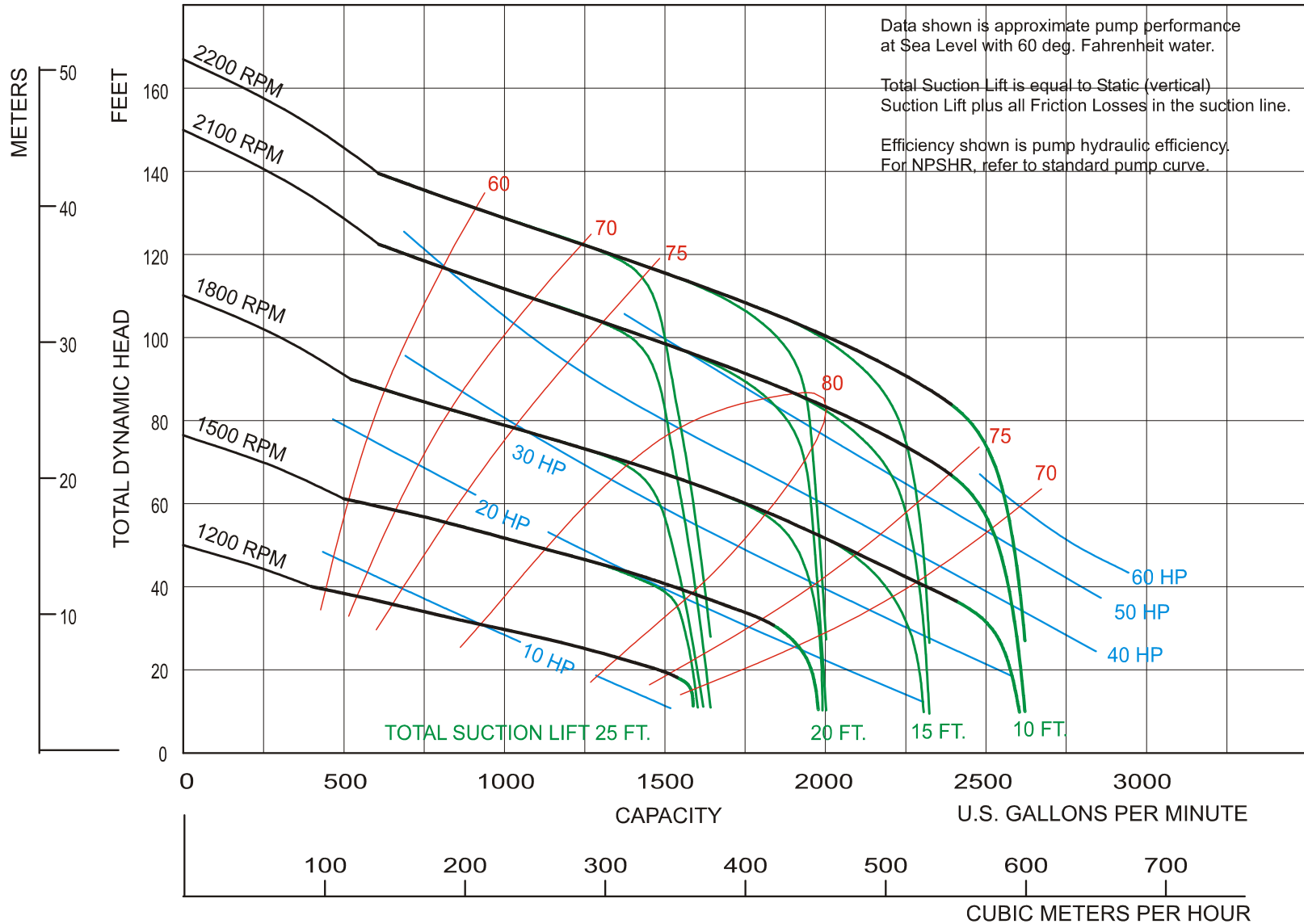
TROUBLESHOOTING - PRIMING SYSTEM

| Problem | Possible causes | Possible solutions |
|---------------|---|---|
| Low/No Vacuum | Dirty venturi | Remove and clean thoroughly |
| | Worn venturi o-rings | Replace o-rings |
| | Leaks in the air line supplying compressed air to the venturi | Check the fittings and air line between the compressor and venturi for leaks. |
| | Check valve on discharge side of pump leaks | Inspect check valve for wear and obstructions. Clean valve seat. |
| | Ball valve used to drain pump casing left open. | Close ball valve |
| | Ball valve connecting venturi to suction cover of pump closed | Open ball valve |
| | Low air delivery. | Check for the operation of the compressor. |

Feet x .305 = Meters
 Inches x 25.4 = Millimeters
 GPM x .227 = Cubic Meters/Hour
 GPM x 3.785 = Liters/Minute
 HP x .746 = KW

| Speed | Impeller Dia. | Style | Solids Dia. | N _S | Suction | Discharge | No. vanes |
|---------|---------------|----------|-------------|----------------|---------|-----------|-----------|
| VARIOUS | 10.09" | ENCLOSED | 3" | 3300 | 6" | 6" | 2 |

SINGLE VOLUTE



Conditions and terms of sale

Controlling provisions: These terms and conditions shall control with respect to any purchase order or sale of sellers products. No waiver, alteration or modification of these terms and conditions whether on buyers purchase order or otherwise shall be valid unless the waiver, alteration or modification is specifically accepted in writing and signed by an authorized representative of seller.

Delivery: Seller will make every effort to complete delivery of products as indicated on sellers acceptance of an order, but seller assumes no responsibility or liability, and will accept no backcharge for loss or damage due to delay or inability to deliver caused by God, war, labor difficulties, accident, delays of carriers, by contractors or suppliers inability to obtain materials, shortages of fuel and energy, or any other causes of any kind whatsoever beyond the control of the seller. Seller may terminate any contract of sale of its products without liability of any nature, by written notice to buyer, in the event that the delay in delivery or performance resulting from the aforementioned causes shall continue for a period of sixty (60) days. Under no circumstances shall seller be liable for any special or consequential damages or for loss, damage or expense (whether or not based on negligence) directly or indirectly arising from delays or failure to give notice of delay.

Limited warranty: Seller warrants for one year from the date of shipment seller's manufactured products to the extent that seller will replace those having defects in materials or workmanship when used for the purpose and in the manner which seller recommends. If sellers examination shall disclose to it's satisfaction that the products are defective, and an adjustment is required, the amount of such adjustment shall not exceed the net sales price of the defective products and no allowance will be made for labor or expense of repairing or replacing defective products or workmanship or damage resulting from the same. Seller warrants the products which it sells of other manufacturers to the extent of the warranties of their respective makers. Where engineering design or fabrication work is supplied, buyer's acceptance of seller's design or of delivery of work

shall relieve seller of all further obligation other than as expressed in seller's product warranty. THIS IS SELLERS SOLE WARRANTY. NO OTHER WARRANTIES, WRITTEN OR ORAL, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, ARE MADE OR AUTHORIZED. NO AFFIRMATION OF FACT, PROMISE, DESCRIPTION OF PRODUCT OF USE OR SAMPLE OR MODEL SHALL CREATE ANY WARRANTY FROM MANUFACTURER, UNLESS SIGNED BY THE PRESIDENT OF THE MANUFACTURER. Seller neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of its engineering designs or products. This warranty shall not apply to any products or parts of products which (a) have been repaired or altered outside of sellers facility, in any manner or (b) have been subjected to misuse, negligence, or accidents; or (c) have been used in a manner contrary to seller's instruction or recommendations. Seller shall not be responsible for design errors due to inaccurate or incomplete information supplied by buyer or its representative.

Sellers liability: Seller will not be liable for any loss, damage, cost of repairs, incidental or consequential damages of any kind, whether based upon warranty (except for the obligation accepted by seller under "warranty" above), contract or negligence arising in connection with the design, manufacture, sale, use or repair of the products or of the engineering designs supplied to buyer.

Returns: Seller cannot accept the return of any products unless its written permission has been first obtained, in which case same will be credited subject to the following: (a) All material must on its arrival at sellers facility, be found in first class condition; if not, cost of putting in saleable condition will be deducted from credit memoranda. (b) A handling charge deduction of (20%) will be made for all credit memoranda issued for material returned. (c) Transportation charges, if not prepaid, will be deducted from credit memoranda.

Cancellation or alteration: Cancellation or alteration of an order by buyer may not be made without advance written consent of seller and shall be

subject to a cancellation charge. The cancellation charge shall be a minimum of fifteen (15%) or actual cost incurred by seller at the time of cancellation or alteration, whichever is greater.

Shipments: All products sent out shall be carefully examined, counted and packed. The cost of any special packing or special handling caused by buyers requirements or requests shall be added to the amount of the order. No claim for shortages will be allowed unless made in writing within ten (10) days of receipt of a shipment. Claims for products damaged or lost in transit should be made on the carrier, as seller's responsibility ceases, and title passes, on delivery to the carrier.

Special products: Orders covering special or non-standard products are not subject to cancellation or return except on such terms as seller may specify on application.

Quotations: All quotations are subject to approval, acceptance and correction at the home office. Any errors in quotations resulting in orders will be corrected and re-submitted to the customer for their acceptance or refusal. All quotations are valid for 30 days from the date on the quotation.

Prices and designs: Prices and designs are subject to change without notice. All prices are **FOB point of shipment**, unless otherwise stated.

Taxes: The amount of any sales, excise or other taxes, if any, applicable to the products covered by this order, shall be added to the purchase price and shall be paid by buyer unless buyer provides seller with an exemption certificate acceptable to the taxing authorities.

Terms of sale: For value received, buyer agrees to honor all terms of the sale, as outlined on the reverse hereof, including, but not limited to the following:

- Net 30 days unless specified in writing.
- Buyer agrees and understands that payments will be considered past due if payment is not received within thirty (30) days of the invoice date.
- Buyer agrees that all past due payments shall bear interest at the rate of 1.5% per month (18% per annum) until paid in full.
- Buyer agrees that it is the intention of buyer and seller to conform strictly to all usury laws now in force and effect in the state of purchase.
- Buyer further agrees not to suffer or permit any charge, lien, security interest, adverse claim or encumbrance of any and every nature

whatsoever against the equipment until the indebtedness secured thereby is satisfied in full.

- Minimum invoice amount will be no less than \$25.00 plus transportation.

Use of equipment: Buyer agrees to maintain and use the equipment solely in the conduct of its own business, in a careful and proper manner, and in conformity with all applicable permits, licenses, statutes, ordinances, regulations and laws.

Insurance: Buyer shall have and maintain at all times with respect to all equipment insuring against risk of fire, theft and other risks as seller may require, until the indebtedness secured thereby is satisfied in full.