

TROUBLESHOOTING

SERVICE GUIDE	
TROUBLE AND CAUSE	REMEDY
<p>1.Failure to pump:</p> <ul style="list-style-type: none"> a. Pump not properly primed b. Suction lift too great c. Speed too slow d. Motor running in wrong direction 	<ul style="list-style-type: none"> a.Be sure that pump case and suction line are full of water. See priming instructions. b.Locate the pump closer to the water source. Make sure that the suction-piping diameter is large enough. c.Check the voltage at motor terminals and at the meter when the pump is operating. Check for loose connections. If voltage is low, contact your Power Company. Be sure that wire size is adequate. d.Check the wiring diagram on the motor nameplate. If it is a 3-Phase motor, refer to the Wiring instructions.
<p>2.Motor Overloads</p> <ul style="list-style-type: none"> a. Total head lower than pump rating, unit delivering too much water b. Specific gravity and viscosity of liquid being pumped different than the pump rating c. Speed too high 	<ul style="list-style-type: none"> a.Increase backpressure on pump by turning outlet isolation valve to partially closed position that will not overload the motor. b.Consult factory. c.Check and correct, lower speed.
<p>3.Little or no discharge; unit will not prime; or reduced capacity and/or head:</p> <ul style="list-style-type: none"> a. Casing not filled with water b. Total head too high c. Suction head higher than pump designed for d. Impeller partially or completely plugged e. Hole or leak in suction line f. Foot-valve too small g. Impeller damaged h. Foot-valve or suction line not submerged deep enough in water; pulling air i. Insufficient inlet pressure or suction head j. Suction piping too small k. Casing gasket leaking l. Suction or discharge line valves closed m. Piping is fouled or damaged n. Clogged strainer or foot-valve o. Air pockets or leaks in suction line p. Strainer too small or clogged q. Insufficient submergence of suction pipe r. Excessive suction lift s. Excessively worn impeller 	<ul style="list-style-type: none"> a.Fill pump casing. Using a foot-valve will extend pump life and facilitate immediate priming. b.Shorten suction head. c. Lower suction head, install foot-valve, and prime. d.Disassemble pump and clean out impeller. e.Repair or replace suction line. f. Match foot-valve to piping or install one size larger foot-valve. g.Disassemble pump and replace impeller. h.Submerge lower in water. i. Increase inlet pressure by adding more water to tank or increasing backpressure by turning gate valve on discharge line partially closed position. j. Increase pipe size to pump inlet size or larger. k.Replace. l. Open. m.Clean or replace. n.Clean or replace. o.Check the line for air leaks for excessive lift. p.Check the end of the suction pipe and foot valve to see that it is not plugged or buried in mud or sediment. When installing in pond or lake, support the suction line so that it will be submerged in water, but not imbedded in mud or sediment. A strainer with greater screen area may be required. q.Add sufficient pipe to keep the submerged end well below the water surface. r.If caused by suction pipe friction, increase the size of the pipe; otherwise move the pump closer to the water level s.Order replacement parts. See repair list.

SECTION 15

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<p>4. Pump leaks at shaft:</p> <ul style="list-style-type: none"> a. Worn mechanical seal b. Replacement seal not installed properly 	<ul style="list-style-type: none"> a. Replace. b. Follow Maintenance instructions carefully.
<p>5. Motor will not start:</p> <ul style="list-style-type: none"> a. Blown fuses or tripped breakers b. No electric current at motor c. Motor hums but will not start d. Motor damaged by lightning or voltage surge 	<ul style="list-style-type: none"> a. Replace with new fuses or reset breakers. NOTE: Blown fuses or tripped breakers are caused by a short circuit in the panel electrical system or motor wiring. b. The power supply may be off, the connections may be loose, connections may be incorrect, or the wire may have been chewed by rodents. c. Turn power off. Check the rotating element of the pump to see that it turns freely. d. Take the motor to any authorized motor repair shop.
<p>6. Pump losses prime or loss of suction after satisfactory operation:</p> <ul style="list-style-type: none"> a. Air leaks in suction line b. Excessive suction lift and operating too near shut-off point c. Water level drops while pumping, exposing suction pipe or strainer d. When unit was last turned off, water siphoned out of pump casing e. Suction head higher than pump designed for f. Insufficient inlet pressure or suction head g. Clogged foot-valve, strainer, or pump h. Defective wearplate(s) 	<ul style="list-style-type: none"> a. Check suction piping. Piping might have frozen, causing it to split. Repair or replace suction line. b. Move the pump closer to the water level. c. Check the water supply. Add a length of pipe to the suction line to keep the submerged end under water. d. Refill (reprime) pump casing before restarting. e. Lower suction head, install foot-valve and primer. f. Increase inlet pressure by adding more water to tank or increasing backpressure by turning gate valve on discharge line to partially closed position. g. Unclog, clear, or replace as necessary. h. Replace.
<p>7. Pump vibrates and/or makes excessive noise</p> <ul style="list-style-type: none"> a. Mounting plate or foundation not rigid enough b. Foreign material in pump causing unbalance c. Impeller bent d. Cavitation present e. Piping not supported to relieve any strain on pump assembly 	<ul style="list-style-type: none"> a. Reinforce. b. Disassemble pump and remove. c. Replace impeller. d. Check suction line for proper size and check valve in suction line if completely open, remove any sharp bends before pump, and shorten suction line. e. Make necessary adjustments.
<p>8. Pump runs but no fluid</p> <ul style="list-style-type: none"> a. Faulty suction piping (air leak) b. Pump located too far from fluid source c. Suction valve closed d. Clogged strainer e. Fouled foot-valve f. Discharge height too great g. Fouled impeller h. Faulty mechanical seal 	<ul style="list-style-type: none"> a. Replace. b. Relocate. c. Open. d. Clean or replace. e. Clean or replace. f. Lower the height. g. Clean or replace. h. Replace