

INSTRUCTION AND REPAIR MANUAL

TROUBLESHOOTING CENTRIFUGAL PUMP

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Your Aurora Pump has been engineered and carefully selected for your application. It should provide years of trouble-free service. However, any piece of machinery is subject to wear and occasional malfunctions.

To help you quickly isolate and rectify any malfunction the following troubleshooting chart has been prepared.

Frequent use of the chart to determine the cause of minor operating problems may prevent a major problem or possible breakdown of your pump.

TROUBLE	PROBABLE CAUSE	REMEDY
1. Pump fails to prime or loses its prime	<ul style="list-style-type: none"> a. Air leaks in suction lines b. Suction strainer is clogged c. Suction lift is too high d. Defective priming valve e. Defective packing or seal 	<ul style="list-style-type: none"> a. Clean and tighten all suction connections; relocate suction inlet in liquid source b. Remove dirt, leaves or other material from strainer. c. Re-evaluate pump requirements and correct suction conditions accordingly. Consult your local Aurora Pump Sales Office. d. Replace valve. e. Replace packing or seal.
2. No discharge from pump	<ul style="list-style-type: none"> a. Pump is not properly primed b. Total head is too high c. Driver is not operating at rated speed d. Impeller or discharge line is clogged e. Wrong direction of rotation f. Pump is vapor bound 	<ul style="list-style-type: none"> a. Reprime the pump; refer to priming troubles and remedies. b. Re-evaluate head calculations; measure elevation differences between pump and liquid source, and pump and discharge point. Consult your local Aurora Pump Sales Office. c. Check voltage of electric motor; check steam pressure of steam turbine; check engine R.P.M.'s. Refer to applicable maintenance manuals for possible troubles and corrective action. d. Back flush pump to clear obstruction; disassemble pump and/or piping and remove obstruction. e. Check wiring against diagram on motor name plate and in controller; reverse any two power leads on a three-phase motor; replace a single phase motor. f. Provide additional pressure on liquid being pumped by elevating liquid source or pressurizing the supply tank.
3. Pump does not deliver rated capacity	<ul style="list-style-type: none"> a. Pump is not properly primed b. Suction lift is too high c. Excessive air in liquid d. Air leakage through stuffing box e. Driver is not operating at rated speed f. Impeller is clogged g. Wearing rings are worn h. Impeller is damaged i. Pump is vapor bound 	<ul style="list-style-type: none"> a. See 2.a. above. b. See 1.c. above. c. See 1.a. above. d. See 1.e. above. e. See 2.c. above. f. See 2.d. above. g. Replace wearing rings. h. Replace impeller. i. See 2.f. above.

CENTRIFUGAL PUMP TROUBLESHOOTING

TROUBLE	PROBABLE CAUSE	REMEDY
4. Insufficient pressure	<ul style="list-style-type: none"> a. Excessive air in liquid b. Drive is not operating at rated speed c. Wrong direction or rotation d. Total head is too high e. Wearing rings are worn f. Impeller is damaged g. Casing gasket is defective allowing internal leakage h. Liquid is vaporizing 	<ul style="list-style-type: none"> a. See 3.c. above b. See 2.c. above c. See 2.e. above d. See 2.b. above e. See 3.g. above f. See 3.h. above g. Replace casing gasket. h. See 2.f. above
5. Pump starts then stops pumping	<ul style="list-style-type: none"> a. Air leaks in suction line b. Air pocket in suction line c. Water seal line is plugged d. Excessive air in liquid e. Suction lift too high f. Defective packing or seal g. Pump is vapor bound 	<ul style="list-style-type: none"> a. See 1.a. above. b. Reprime the pump; eliminate air pocket conditions. c. Remove obstruction from water line. d. See 1.a. above. e. See 1.c. above. f. See 1.e. above. g. See 2.f. above
6. Excessive power consumption	<ul style="list-style-type: none"> a. Speed is too high b. Wrong direction of rotation c. Total head is too high d. Total head is too low e. Impeller is clogged f. Impeller is binding g. Motor shaft is bent or worn h. Driver and pump are misaligned i. Power frame shaft is bent j. Wearing rings are worn k. Packing is incorrectly installed 	<ul style="list-style-type: none"> a. Internal electric motor wiring is incorrect; replace motor; refer to applicable driver maintenance manuals for possible troubles and corrective action. b. See 2.e. above. c. See 2.b. above. d. Re-evaluate head conditions; correct as required. Consult your local Aurora Pump Sales Office. e. See 2.d. above. f. Relieve strain on casing; adjust impeller clearance. g. Replace motor shaft. h. Realign driver with pump. i. Replace shaft. j. See 3.g. above k. Install packings correctly; replace if necessary.
7. Pump is noisy or has excessive vibration	<ul style="list-style-type: none"> a. Magnetic hum b. Motor bearings are worn c. Foreign material in impeller d. Impeller is binding e. Motor shaft is bent or worn f. Driver and pump are misaligned g. Power frame shaft is bent h. Foundation is not rigid i. Worn bearing in power frame j. Impeller is damaged k. Lack of lubrication in power frame l. Pump is not properly leveled m. Piping is not supported n. Pump is cavitating 	<ul style="list-style-type: none"> a. Consult motor manufacturer. b. Replace bearings. c. Remove foreign material. d. See 6.f. above. e. See 6.g. above. f. See 6.h. above g. See 6.i. above. h. Strengthen foundation; change method of mounting pump unit. i. Replace bearing. j. See 3.h. above. k. Lubricate power frame bearing; replace bearings if damaged. l. Check levelness of pump. m. Provide support for suction and discharge piping. n. Re-evaluate pump application; consult local Aurora Pump Sales Office.