

INSTRUCTION AND REPAIR MANUAL

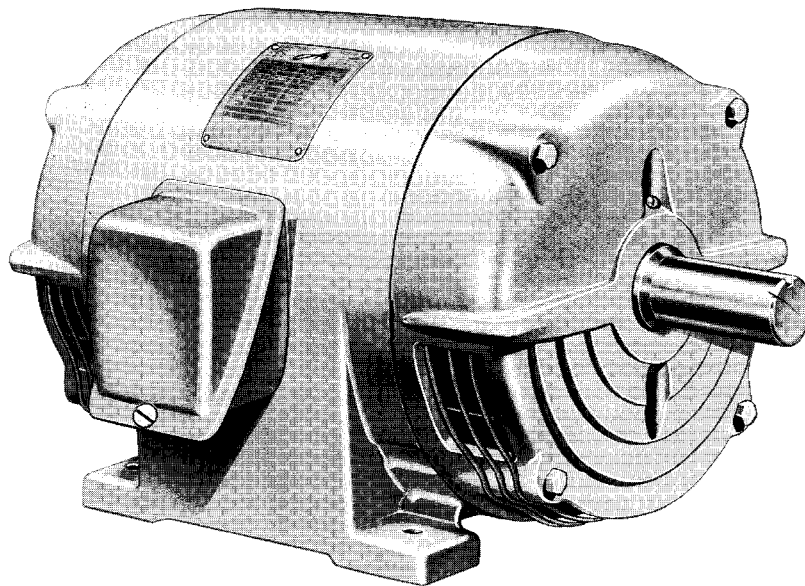
TROUBLESHOOTING ELECTRIC MOTOR

5

The following troubleshooting chart is furnished to you as part of Aurora Pump's continuing efforts to provide total service to their customers.

The troubles or symptoms, their probable causes and the suggested remedies contained in this troubleshooting chart will aid you in quickly determining and correcting most problems as they occur. It is not

the intent of Aurora Pump to replace the recommendations of the motor manufacturer as to operation and maintenance. Rather, this chart is offered as a supplement to such data. Any specific questions or problems regarding your motor should be directed to the manufacturer of the motor. Be sure to supply the relevant data from the motor nameplate when inquiring about motor service or maintenance.



ELECTRIC MOTOR TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SUGGESTED REMEDY
Motor does not start	<ol style="list-style-type: none"> 1. Break in power supply circuit -- <ol style="list-style-type: none"> a. Blown or defective primary fuses or opened circuit-breakers b. Blown or defective secondary fuses or opened circuit-breakers 2. Open control circuit -- <ol style="list-style-type: none"> a. Overload trips are open b. Defective holding coil in magnetic switch c. Loose or poor connections in control circuit 3. Magnetic switch closes <ol style="list-style-type: none"> a. Poor switch contact b. Open circuit in control panel c. Open circuits in lead to motor d. Leads improperly connected 	<ol style="list-style-type: none"> 1. Close break in circuit -- <ol style="list-style-type: none"> a. Check voltage across all phases above the disconnect switch. Replace fuses or reset circuit-breakers as necessary. b. Check voltage across all phases below disconnect switch (with disconnect switch closed). Replace fuses or reset circuit-breakers as necessary. 2. Complete the control circuit -- <ol style="list-style-type: none"> a. Push reset button. b. Push start button and allow sufficient time for operation of time delay, if used, then check voltage across magnetic holding coil. If correct voltage is measured, coil is defective. If no voltage is measured, control circuit is open. c. Make visual inspection of all connections and re-tighten as necessary. 3. Check switch operation <ol style="list-style-type: none"> a. Open manual disconnect switch, close magnetic switch by hand and examine contactors and springs. b. Check voltage at T1-T2-T3. c. Check voltage at leads to outlet box. d. Check lead numbers and connections.
Motor fails to come up to speed	<ol style="list-style-type: none"> 1. Low or incorrect voltage 2. Incorrect connection at motor 3. Overload - Mechanical 4. Overload - Hydraulic 	<ol style="list-style-type: none"> 1. Check voltage T1-T2-T3 in control panel and at motor leads in outlet box. 2. Check for proper lead connections at motor, compare with connection diagram on motor. 3. Check impeller setting. Check for locked or tight shaft. 4. Check impeller setting. Check GPM against pump capacity and head.
Motor runs hot	<ol style="list-style-type: none"> 1. Inadequate ventilation 2. Overload 3. Unbalanced supply voltage 	<ol style="list-style-type: none"> 1. Assure adequate supply of fresh air. Check air blast through motor by feeling air discharge at bottom of motor. 2. Check load with ammeter. 3. Check supply voltage with voltmeter.
Motor vibrates	<ol style="list-style-type: none"> 1. Headshaft misaligned 2. Worn shaft bearings or bent shaft 3. Hydraulic disturbance in discharge piping 4. Unbalanced rotor assembly 5. Motor not mounted securely 	<ol style="list-style-type: none"> 1. Remove top drive coupling and check alignment of motor to pump. 2. Disconnect motor from pump and run motor only to determine source of vibration. 3. Check isolation joint in discharge piping near pump head. 4. Balance rotor. 5. Secure properly and check alignment.
Motor noisy	<ol style="list-style-type: none"> 1. Worn thrust bearing 2. Electrical noise 	<ol style="list-style-type: none"> 1. Remove dust cover, rotate rotor by hand and make visual examination of balls and races. (Bearing noise is usually accompanied by high frequency vibration.) 2. Most motors are electrically noisy during the starting period. The noise should diminish as the motor reaches full speed.
Incorrect rotation	<ol style="list-style-type: none"> 1. Incorrect connections 	<ol style="list-style-type: none"> 1. Refer to connection diagram and re-connect according to instructions.