

Motor Troubleshooting

⚠️ WARNING Turn off power at the electrical service entrance fuse or breaker box before touching motor or removing cover.

Motor won't start. No hum, no sound.

No power.

Check fuse or circuit breaker.

No power to motor.

Check power connection. Check for loose connections. Apply power, check voltage at motor terminals with voltmeter. **⚠️ CAUTION** Turn power off again at the electrical service entrance fuse or breaker box before proceeding. Check motor overload continuity. See winding problem below.

Motor won't start. Hums.

Locked bearings.

Uncouple pump and spin motor shaft. Check for tight pump seal, obstruction in pump housing or bad bearing.

Incorrect connections.

Check motor connection diagram. Check control circuit diagram.

Low voltage

Motor terminal voltage must be within + or - 10% of nameplate voltage.

Excessive load.

Clogged pump impeller. Bent shaft or bad bearing.

Winding problem.

Check for short, open or ground in winding, lead connections or winding to motor housing.

Start switch open.

Switch should be closed at standstill. Check continuity across contacts.

Start capacitor failure.

White residue probably means faulty capacitor.

Loose capacitor connections.

Visual inspection.

Note: “Capacitor Trouble Shooting Procedure” on page 21.

Excessive noise, vibration.**Defective motor bearings.**

Spin unloaded shaft, check noise.

Loose or binding parts.

Visual inspection of pump and motor.

Bent shaft.

Remove motor and check shaft run-out.

Start switch doesn't open.

Start/stop, start/stop, if motor noise disappears, switch may be defective.

Motor hot, smoking or cycling.**Motor overloaded.**

Full-load current greater than nameplate can mean excessive pump load.

Clogged air openings.

Visual/manual inspection.

Voltage too high/low.

Must be within + or – 10%.

Incorrect connection.

Check nameplate and control diagrams.

Winding shorted or grounded.

Check winding for damage. Check for ground condition. Measure winding resistance.

Start switch fails to open.

Check for welded contacts. Check for broken mech spring. Replace switch.

Run capacitor failure.

Bulged capacitor indicates failure.

Hot or noisy bearings.

Endshields loose or cocked.

Check through-bolts for tightness. Check frame-to-endshield rabbet fit. Spin motor shaft, should turn freely.

Bent shaft.

Measure shaft run-out (straightness).

Defective bearing.

Spin shaft, check for noise, endplay.

Capacitor Troubleshooting

1. To check capacitor ohmmeter, remove all power from the motor.
2. Use insulated screwdriver to discharge capacitor by shorting across terminals.
3. Set ohmmeter to highest value, put clips on capacitor terminals.
4. Check for the following indications:
 - a. Needle drops to zero range and slowly rises, capacitor probably good.
 - b. Needle drops and stays at zero, capacitor probably shorted.
 - c. Needle remains at high value, capacitor probably has open circuit.