



Motor Trouble-Shooting Chart

Caution:

1. Disconnect power to the motor before performing service or maintenance.
2. Discharge all capacitors before servicing motor.
3. Always keep hands and clothing away from moving parts.
4. Be sure required safety guards are in place before starting equipment.

Motor fails to start upon initial installation.

Like Causes:

What To Do:

Motor is miswired.

Verify motor is wired correctly per information supplied with the motor.

Motor damaged and rotor is striking stator.

May be able to reassemble; otherwise, motor should be replaced.

Fan guard bent and contacting fan.

Replace fan guard or, if possible, straighten it out.

Motor has been running, then fails to start.

Like Causes:

What To Do:

Fuse or circuit breaker tripped.

Replace fuse or reset the breaker.

Stator is shorted or went to ground. Motor will make a humming noise and the circuit breaker or fuse will trip.

Disassemble motor and inspect windings and internal connections. A blown stator will show a burn mark. Motor must be replaced or the stator rewound.

Motor overloaded or load jammed.

Inspect to see that the load is free. Verify amp draw of motor versus nameplate rating.

Capacitor (on single phase motor) may have failed.

First discharge capacitor. To check capacitor, set volt-ohm meter to RX100 scale and touch its probes to capacitor terminals. If capacitor is OK, needle will jump to zero ohms, and drift back to high. Steady zero ohms indicates a short circuit; steady high ohms indicates an open circuit.

Disassemble motor and inspect both the centrifugal and stationary

Catalog Number

ex.110088



[Competitors Catalog Number](#)



Model Number

ex.M6C17FB10



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Starting switch has failed.

switches. The weights of the centrifugal switch should move in and out freely. Make sure that the switch is not loose on the shaft. Inspect contacts and connections on the stationary switch. Replace switch if the contacts are burned or pitted.



Motor runs but dies down.

Like Causes: **What To Do:**

Voltage drop.

If voltage is less than 10% of the motor's rating contact power company or check if some other equipment is taking power away from the motor. If motor is run using an extension cord, verify that this extension cord is properly sized for motor's current draw.

Load increased.

Verify the load has not changed. Verify equipment hasn't got tighter. If fan application verify the air flow hasn't changed.

Motor takes too long to accelerate.

Like Causes: **What To Do:**

Defective capacitor

Test capacitor per previous instructions.

Faulty stationary switch.

Inspect switch contacts and connections. Verify that switch reeds have some spring in them.

Bad bearings.

Noisy or rough feeling bearings should be replaced.

Voltage too low.

Make sure that the voltage is within 10% of the motor's nameplate rating. If not, contact power company or check if some other equipment is taking power away from the motor.



Motor runs in the wrong direction.

Like Causes: **What To Do:**

Incorrect wiring.

Rewire motor according to wiring schematic provided.

Motor overload protector continually trips.

Like Causes: **What To Do:**

Load too high.

Verify that the load is not jammed. If motor is a replacement, verify that the rating is the same as the old motor. If previous motor was a special design, a stock motor may not be able to

duplicate the performance. Remove the load from the motor and inspect the amp draw of the motor unloaded. It should be less than the full load rating stamped on the nameplate.

Ambient temperature too high. Verify that the motor is getting enough air for proper cooling. Most motors are designed to run in an ambient temperature of less than 40°C. (Note: A properly operating motor may be hot to the touch.)

Protector may be defective. Replace the motor's protector with a new one of the same rating.

Winding shorted or grounded. Inspect stator for defects, or loose or cut wires that may cause it to go to ground.



Motor vibrates.

Like Causes: **What To Do:**

Motor misaligned to load. Realign load.

Load out of balance. (Direct drive application.) Remove motor from load and inspect motor by itself. Verify that motor shaft is not bent. Rule of thumb is .001" runout per every inch of shaft length.

Motor bearings defective. Test motor by itself. If bearings are bad, you will hear noise or feel roughness. Replace bearings. Add oil if a sleeve of bearing. Add grease if bearings have grease fittings.

Rotor out of balance. Inspect motor by itself with no load attached. If it feels rough and vibrates but the bearings are good, it may be that the rotor was improperly balanced at the factory. Rotor must be replaced or rebalanced.

Motor may have too much endplay. With the motor disconnected from power turned shaft. It should move but with some resistance. If the shaft moves in and out too freely, this may indicate a preload problem and the bearings may need additional shimming.

Winding may be defective. Test winding for shorted or open circuits. The amps may also be high. Replace motor or have stator rewind.

Bearings continuously fail.

Like Causes: **What To Do:**

Load to motor may be Besides checking load, also inspect drive belt tension to ensure it's not too tight may be too high. An unbalanced load will also cause the

excessive or unbalanced. bearings to fail.

High ambient temperature. If the motor is used in a high ambient, a different type of bearing grease may be required. You may need to consult the factory or a bearing distributor.



The motor, at start up, makes a loud rubbing or grinding noise.

Like Causes:

What To Do:

Rotor may be striking stator.

Ensure that motor was not damaged in shipment. Frame damage may not be repairable. If you cannot see physical damage, inspect the motor's rotor and stator for strike marks. If signs of rubbing are present, the motor should be replaced. Sometimes simply disassembling and reassembling motor eliminates rubbing. Endbells are also sometimes knocked out of alignment during transportation.

Start capacitors continuously fail.

Like Causes:

What To Do:

The motor is not coming up to speed quickly enough.

Motor may not be sized properly. Verify how long the motor takes to come up to speed. Most single phase capacitor start motors should come up to speed within three seconds. Otherwise the capacitors may fail.

The motor is being cycled too frequently.

Verify duty cycle. Capacitor manufacturers recommend no more than 20, three-second starts per hour. Install capacitor with higher voltage rating, or add bleed resistor to the capacitor.

Voltage to motor is too low.

Verify that voltage to the motor is within 10% of the nameplate value. If the motor is rated 208-230V, the deviation must be calculated from 230V.

Starting switch may be defective, preventing the motor from coming out of start winding.

Replace switch.



Run capacitor fail.

Like Causes:

What To Do:

Ambient temperature too high.

Verify that ambient does not exceed motor's nameplate value.

Possible power surge to motor, caused by lightning strike or other high transient voltage.

If a common problem, install surge protector.