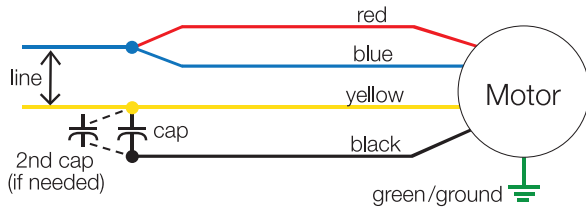


AC TROUBLESHOOTING GUIDE

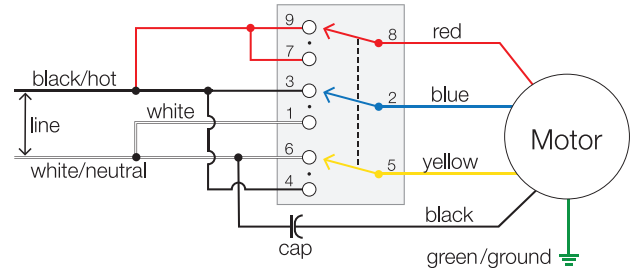
by **GROSCHOPP®**

AS-183 | 4 Wire Reversible PSC Motor



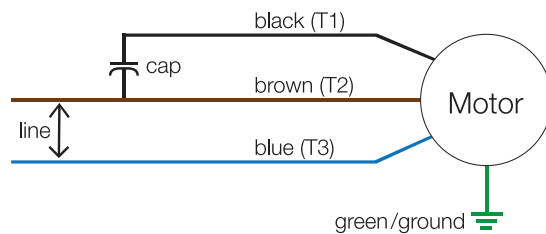
Schematic shows CW rotation facing the drive end. For CCW rotation, transpose the blue and yellow leads. (See figure to right)

AS-183 | Triple Pole Double Throw Switch



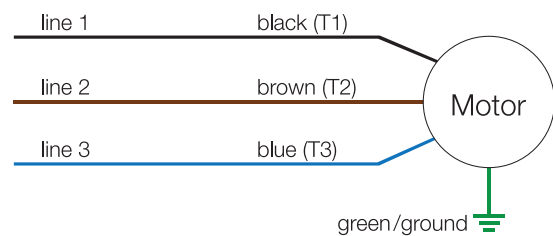
Schematic shows reversal diagram for a 4 wire reversible PSC motor using a triple pole double throw switch.

AS-193 | 3 Wire Reversible PSC Motor



Schematic shows CW rotation facing the drive end. For CCW rotation, move line from brown to black lead.

AS-184 | 3 Wire 3 Phase Motor



To reverse rotation, transpose any two leads.

PROBLEM

PROBABLE CAUSE

CORRECTIVE ACTION

1

Motor fails to start upon initial installation

Motor is wired incorrectly

Refer to the wiring diagram to verify the motor is wired correctly.

Motor damaged and rotor is striking stator

Rotate the motor's shaft and feel for rubbing.

Power supply or line trouble

Check the source of power, overload, fuses, controls, etc..

2

Motor has been running, then fails to start

Fuse or circuit breaker is tripped

Replace the 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)

Check for leaks through the coils. If leaks are found, the motor must be replaced.

Motor overloaded or jammed

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

	Capacitor (on single phase motor) may have failed	First discharge the capacitor. To check the capacitor, set the volt-ohm meter to RX100 scale and touch its probes to the capacitor terminals. If the capacitor is OK, the 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.
3 Motor runs but dies down	Voltage drop	If the voltage is less than 90% of the motor's rating, contact your power company or check to see that another piece of equipment isn't taking power away from the motor.
	Load increased	Verify that the load has not changed and the equipment has not gotten tighter. If it is a fan application, verify that the air flow hasn't changed.
4 Motor takes too long to accelerate	Defective capacitor	Test the capacitor per previous instructions.
	Bad bearings	Noisy or rough feeling bearings should be replaced by the motor supplier.
	Voltage too low	Make sure the voltage is within 10% of the motor's nameplate rating. If not, contact your power company or check if some other equipment is taking power away from the motor.
5 Motor runs in the wrong direction	Incorrect wiring	Rewire the motor according to the schematic provided.
6 Motor overloaded/ Thermal protector continuously drips	Load too high	Verify that the load is not jammed. If the motor is a replacement, verify that the rating is the same as old motor. If the 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 (only true for three phase motors).
	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 or less than 40°C. (Note: A properly operating motor may be hot to the touch.)
7 Motor overheating	Overload. Compare actual amps (measured) with nameplate rating	Locate and remove the source of excessive friction in the motor or load. Reduce the load or replace the motor with one of greater capacity.
	Single phasing (three phase only)	Check the current at all phases. It should be approximately the same.
	Improper ventilation	Check external cooling fan to be sure air is moving properly through the cooling channels. If there is excessive dirt build-up, clean the motor.

8

Motor vibrates

Unbalanced voltage (three phase only)	Check the voltage at all phases. It should be approximately the same.
Rotor rubbing on stator	Tighten the thru bolts.
Over voltage or under voltage	Check the input voltage at each phase of the motor to make sure the motor is running at voltage specified on the nameplate.
Open stator winding (three phase only)	Check the stator resistance at all three phases for balance.
Improper connections	Inspect all the electrical connections for proper termination, clearance, mechanical strength, and electrical continuity. Refer to the motor lead diagram.
Motor misaligned to load	Realign the load.
Load out of balance (direct drive application)	Remove the motor from load and inspect the motor by itself. Verify that the motor shaft is not bent.
Defective motor bearings	Test the motor by itself. If the bearings are bad, you will hear noises or feel roughness.
Load too light (single phase only)	Some vibration at a light load is standard. Consider switching to a smaller motor for excessive vibration.
Defective winding	Test the winding for shorted or open circuits. The amps may also be high. For defective winding, replace the motor.
High voltage	Check the power supply to make sure voltage is accurate.

9

Bearings fail

Load to motor may be excessive or unbalanced	Check the motor load and inspect the drive belt tension to ensure it's not too tight. An unbalanced load will also cause the bearings to fail.
High ambient temperatures	If the motor is used in an environment with high ambient temperatures, a different type of bearing grease may be required. You may need to consult the factory.
High motor temperatures	Check and compare the actual motor loads to the motor's rated load capabilities.

10

Capacitor fail

Ambient temperature too high	Verify that the ambient temperature does not exceed the motor's temperature rating (found on the nameplate)
Possible power surge to the motor (caused by a lightning strike or other high transient voltage)	If this is a common problem, install a surge protector.

If problems can't be resolved with this chart, please contact your supplier for assistance.