

# My Pump Motor is Dead or Cycling On/Off



## What to do when your pump fails.

There are four common ways in which pump motors generally fail:

### PUMP MOTOR MAKES A LOT OF NOISE

**Bearing Failure** - this is discussed in greater detail in the section entitled "my pump is noisy" because it results in a very loud noise. If the bearings on your pool motor fail, the only solution is to replace the pump or motor.

### PUMP MOTOR SIMPLY HUMS AND TURNS OFF

**Capacitor Failure** - if the motor simply hums or buzzes and then clicks off when you try to turn it on there is a good chance that the capacitor is bad. Replacing a capacitor is fairly inexpensive, but there is no guarantee that it will be a lasting repair. On a newer motor, it probably makes sense, but on an older motor, you might be better off going ahead and replacing that motor or the entire pump.

**Locked Rotor** - if there is something stuck in the impeller that will not allow the shaft of the motor to turn, then the motor will quickly overheat internally and click off.

**Low Voltage** - if the voltage to the motor is not high enough, then the motor may not have the power to start. This could be the result of low supply voltage, or of improper wire sizing.

### PUMP MOTOR CYCLES ON AND OFF

Your pool motor is equipped with an internal temperature sensor. If the temperature of the motor rises above a certain level, it will automatically cut the power to the motor until the temperature of the motor drops below the setpoint. Here are some possible causes:

**Internal Short** - if there is a short in the windings of the motor, then it will create a lot of heat rather than motion. Some motors may run fine all winter, but when you add the internal heat of the motor to the external heat from the summer sun, it may kick it over the threshold. Whatever the case, this motor will need to be replaced.

**Improper Voltage** - if the voltage to the motor is not within 10% of the nameplate rating, then the motor will over heat. This is the case whether the voltage is too high or too low.

## **PUMP MOTOR DOES NOTHING AT ALL**

If your pump motor is not coming on at all or is coming on and off, there are several possible causes:

**Tripped Circuit Breaker** - we get called out several times each year on dead motors, only to find out that the circuit breaker is tripped. Sometimes this tripping is random and does not occur again for a long time. If the breaker keeps on tripping, then it is a good idea to take an amperage reading to try to determine whether it is the motor or the circuit breaker that is bad.

**Faulty Controls** - there are various switches and timers that conduct the electricity to the pump motor. A failure at any one of these points can keep the power from even reaching the motor. When this happens, you have to take an electrical tester and test the power coming from the various switches and relays to see where the failure has occurred.

**Dead Motor** - if the power reaches the back terminals on the motor and there is no sign of life within the motor then it is time to replace the motor.

The troubleshooting and repairs described in this section are advanced in nature and should be done only by a technician who is licensed, qualified and insured. Our technical staff has decades of experience in the field of pool electrical work and has the proper state licensing as well. Do not entrust your work to unqualified or unlicensed individuals.