TESTING AND CHANGING A RUN CAPACITOR

What a Run Capacitor Does?

The run capacitor provides continuous phase-shifted current to the motor start winding allowing the motor to run:

- With the design efficiency
- In the right direction
- With the appropriate torque
- With near "unity" power factor (power factor near 1.0)

The Run Capacitor Could be Failing if:

- Motors fail to start
- Motors run in the wrong direction
- Motors run slowly or with poor torque
- Motors overheat or over amp
- Power factor is low

Causes of run capacitor failure
overvoltage and over temperature

How to test the run capacitor

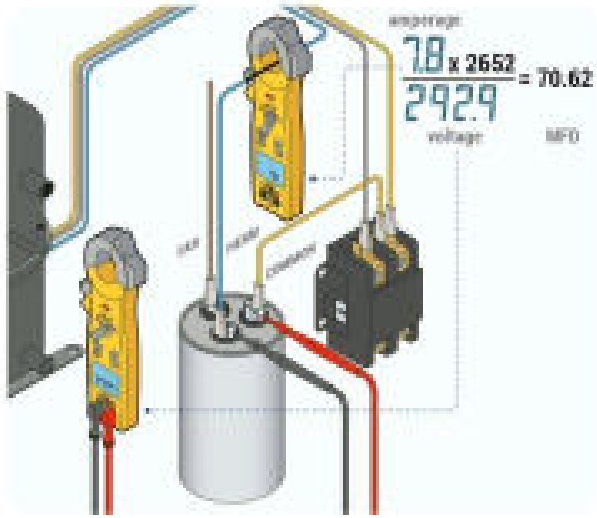
THE SYSTEM IS RUNNING

Under Load Testing

In order to test under load you need to take measurements with the system running. Wear proper PPE and only do so when safe.You need to have an accurate multimeter that can measure Voltage and Amperage reliably. Often under load measurements may come out high if the amp clamp picks up interference from other circuits.

Measure the amperage on the start wire with the wire centered in the clamp and multiply by 2652.Now measure the voltage across the capacitor and divide the amperage x 2652 by that voltage to find the capacitance in MFD.

If the under load MFD is less than 10% low we suggest replacement. If it is over the rating it is often a mis-measurement



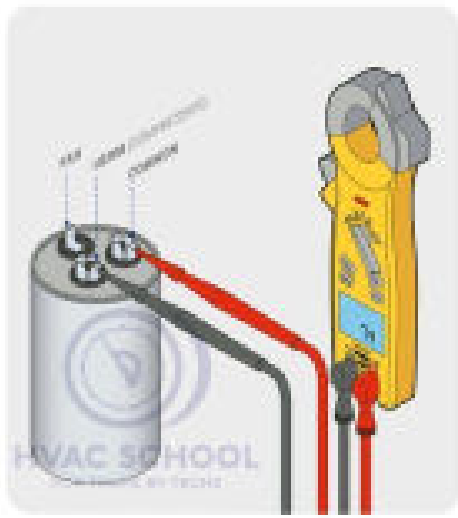
THE SYSTEM IS NOT RUNNING

Bench Test

Bench Testing is simply removing both leads from the run capacitor after safely disconnecting power and discharging the capacitor.

You then place a meter designed to test capacitance across the terminals and note the reading.

Be careful not to touch the meter probes and to get a good solid connection to the metal connection spades on the capacitor. **If the measurement is more than 10% low we suggest a replacement.**

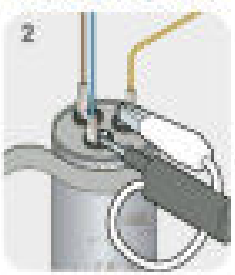


Replacing the run capacitor

Remove disconnect

Disconnect power by turning off disconnect or breaker and confirming with a meter that power is off.

Discharge capacitor



Discharge the capacitor with a high ohm resistor or well-insulated pliers or screwdriver.

Disconnect wires

Disconnect wires, and release it from the strap.

Replace capacitor

Replace capacitor with an exact MFD match with the same or higher voltage rating.

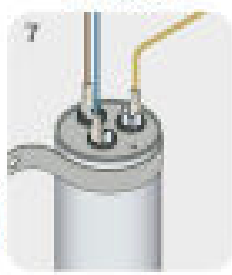
Re-sizing of strap

Adjust the strap to hold the new capacitor. Check before using self tappers to avoid puncturing the coil.

Attach the wires

Double-check to make sure all wires are in their proper places. Tighten them with a needle nose.

Test system



Turn on the system and measure motor amperage against RLA. Perform under load test again where practical.

Clean up and reattach

Strap all wires neatly and route properly, clean up the area and safely install all panels