

# TRAULSEN TECHNICAL BULLETIN

PRODUCT SERVICE DEPARTMENT

FORT WORTH, TX 76137

## COMPRESSOR TROUBLESHOOTING

### Introduction:

This technical bulletin is to inform the field of proper trouble shooting techniques and procedures. It will also outline how to troubleshoot compressors given different amp draws on Traulsen refrigeration products. This technical bulletin may not cover all situations that may arise in the field and final diagnosis of field based equipment is the sole responsibility of the technician contracted to perform any work required.



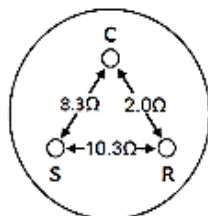
**WARNING** Certain procedures in this section require electrical test or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power and follow lockout / tagout procedures, attach test equipment and reapply power to test.

### Tools Required:

- Basic hand tools
- Clamp around amp meter
- Volt Ohm meter
- Basic 3 in 1(1/2 HP)

### Terminology:

- **OEM** – Original Equipment Manufacturer – Refers to the manufacturer of a piece of equipment or component.
- **RLA** – Rated Load Amps – The OEM test conditions amperage rating (does not necessarily indicate the normal running amperage as conditions and applications can vary from OEM test conditions)
- **LRA** – Locked Rotor Amps – The OEM test condition lock rotor amperage rating indicating the expected amperage at which a motor does not turn when power is applied.
- **Start Components** – The capacitor and relay combinations used to start and/or run a compressor motor consist of a start capacitor and start relay if IAA is shown on the serial number of the compressor. If CAA is listed then there will be a potential relay along with a start capacitor and a run capacitor.



Example

Ω= OHM= Unit Resistance  
 R= Run  
 S= Start  
 C= Common

This example shows the readings of the resistance through the compressor motor windings. (C-S C-R). If the windings are good the start winding resistance (C-S) will always be higher than the run winding resistance (C-R).

**Note:** This example shows one set of possible combinations that can be seen in the field. Resistance values will vary between different compressors.

**Basic Troubleshooting:**

- What is my amp draw and voltage when the compressor is starting?
- What is the resistance of the windings?
- What is the RLA (Rated Load Amps) of the compressor?
- What is the LRA (Locked Rotor Amps) of the compressor?
- Have I thoroughly checked to see if the start components are working correctly?

**Chart 1**

Symptom	Reason	Possible Resolution
0 amps	Check for voltage between C & R terminals.	No: Check external overload & find where the power loss is.  Yes: open winding or the internal overload is open
Amps lower than RLA	Lower head & high suction.	Weak valves, busted crankshaft or connecting rod.
Slightly higher amps than RLA	Overload open & compressor not running consistently.	Bad run capacitor, tight bearings, or winding issues.
Very high amps but not LRA	Issue with compressor windings.	Ohm windings and compare with manufacturer's resistances.
Reading LRA	Compressor not starting, reading 5 to 6 times RLA.	Check start capacitor, start relay & wires for burning, try 3 in 1.  Check voltage drop (+/-10%) and for resistance.

**Contact Traulsen Technical Service:**

If further assistance is needed feel free to contact Traulsen Technical Service at 800-825-8220 between the hours of 7:30am – 11:30am CST & 12:30pm – 4:30pm CST.