

COMPRESSOR CHANGE-OUT TECHNICAL EVALUATION FORM

It is recommended that when a compressor is being replaced a complete evaluation of the part and system be made. Changing the compressor is one of the larger repairs that a service technician can encounter during the repair of a heating and cooling system. This checkout form has been developed to help guide the technician through the repair process.

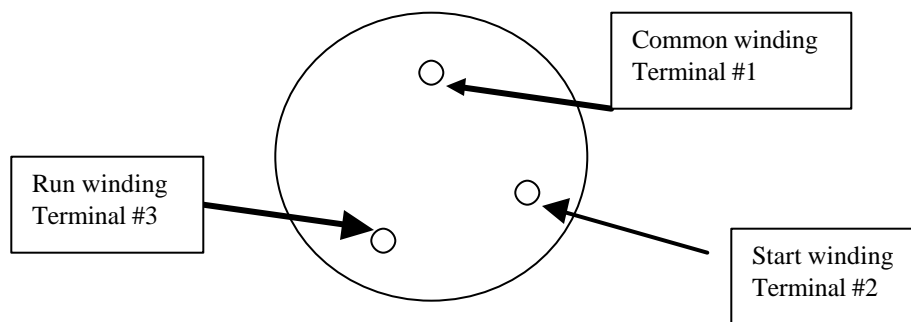
Testing the existing compressor

Important Note: Before making any electrical checks disconnect all electrical power to system including Indoor and outdoor power sources.

To make the following tests disconnect power wiring going to compressor!!

Is the compressor single ϕ ☐ Is the compressor 3 ϕ 208/230v ☐ Is the compressor 3 ϕ 460v ☐

Winding ohm readings



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Compressor Winding Information

OhmΩ Reading between terminal 1 and 2 = _____ Ω (Ohm reading)

Between terminal 1 and 3 = _____ Ω

Ohm reading between terminal 2 and 3 = _____ Ω

Ohm reading between terminal 1 and ground _____ Ω

Ohm reading between terminal 2 and ground _____ Ω

Ohm reading between terminal 3 and ground _____ Ω

Winding reading(1,2) + (1,3) = (2,3) ***if not compressor winding is damaged***

Note: A reading of infinity to ground should be detected between each terminal to ground. **If not**, test for short to ground at the compressor windings.

Capacitor testing

Run capacitor value _____ mfd. Did capacitor test good with capacitor tester or volt ohm meter ☐ yes ☐ no

Other Inspections

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Inspect all wiring, is there any damage to wire or wire terminals ☐ yes ☐ no

Inspect compressor contactor, are the contact points burned ☐ yes ☐ no

Has the compressor failed any of the winding tests ☐ yes ☐ no, if so than an acid test must be made of the compressor oil

Has acid been detected in the compressor oil ☐ yes ☐ no

Whenever the system is opened to the Atmosphere, it is required that a replacement Liquid line drier be installed at the outdoor unit. When Acid is detected in a system utilizing a acid test kit, a Suction Line Filter Drier must be installed!!!

Compressor Mechanical Tests

Note: before the mechanical testing can be completed the compressor and the unit wiring must be reconnected as per unit electrical wiring diagram.

With the unit connected to electrical power, will the compressor operate ☐ yes ☐ no

If no: revert back to compressor winding information and collect information again.

Compressor Pressure Information

Discharge pressure at compressor _____ psig

Suction pressure at compressor _____ psig

Superheat at suction tubing at outdoor unit _____ F°

Sub cooling at the liquid line leaving the outdoor unit _____ F°

Amp draw at run winding _____ a. Amp draw at start winding _____ a.

Amp draw at common winding _____ a

Voltage at compressor contactor terminal T1 and T2 _____ v.(single phase)

T1, T2, _____ v. T2, T3, _____ v. T1, T3 _____ v. (3 Ø)

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If the Compressor will not operate:

What is the lock rotor amp rating on the listed for that unit ____ amp?

What is the lock rotor amp draw on the common wire to the compressor _____ amp?

What is the lock rotor amp draw on the run winding ____ amp?

What is the lock rotor amp draw on the start winding ____ amp?

If a compressor failed and the cause has not been determined and eliminated, the replacement compressor will fail.

Since you cannot see inside of a hermetically sealed compressor the oil is a valuable service tool on what caused the failure. Make an oil inspection and measurement tool out of an old clear one gallon milk jug. Prior to use add ounce lines to the jug.

The oil quantity is listed on the compressor data tag.

Place the removed compressor on a secure tailgate or bench.

Slowly tip the compressor toward the open suction stub.

Place the milk jug under the suction stub to capture the used oil.

Look at the clarity and quantity of the oil.

Once done with your inspection pore the oil back into failed compressor suction stub.

Compressor fail because of:		Oil looks like this:	Caused by a system issue:	
1.	Flooding	Sparkly pieces of ground up bearing	Check metering device, over charge, low indoor airflow, lack of load on the evaporator	
2.	Flooded startups then get better quickly	Small chunks of broken scroll wrap	Refrigerant migration into compressor during off cycle, indicated by noise & vibration	
3.	Slugging	Big chunks of brokenparts, vented terminal pin	Buried line set, evaporator above and no inverted suction loop	
4.	Loss of lubrication	No or very little oil remaining	Low velocity, low load, short cycling, traps, piping errors, cause by system issue, accumulator "J" tube orifice clogged preventing oil return	
5.	Contamination			
6.	Overheating			
7.	Electrical Problems			

For additional compressor pressure and temperature testing questions refer to the A/C and/or Heat Pump Field Assistance Request Form!

Technician's Name: _____ Date: _____