

ENGINEERING POLICY

Tecumseh Compressor Company
Compressor Group



Tecumseh

ENGINEERING POLICY ON: Start Winding Protection

ISSUED: 6/20/66

EP-3
PAGE: 1 of 2
REV. DATE: 4/23/2007

Experience tells us that a start winding protector is desirable on all single phase CSR compressor applications.

Several conditions can occur in these applications that will cause a start winding burn out, against which the standard motor protector will not protect.

The relay contacts may remain closed, there by causing continuous operation with the start capacitor in the circuit. this condition could be caused by one or more of the following reasons:

1. Burned out relay coil.
2. Broken relay wire.
3. Welded relay contacts. Contacts may weld due to relay bounce on opening or closing; rapid cycling of the compressor due to a jiggling thermostat; rapidly resetting low or high pressure controls; or any short cycling where the compressor runs less than 20 seconds and the relay contacts close with charge still on the start capacitor.
4. Wrong relay due to mismarkings or improper substitution at the field service level.
5. Mis-marked start capacitors that are other than the correct rating.
6. Low voltage and high load conditions causing the relay to recycle rapidly due to inadequate breakdown torque of the motor.
7. Relay whose settings have changed due to mechanical fatigue of the parts due to age, moisture, heat or atmospheric contamination.
8. Relay malfunction due to incorrect manufacturing or distortion due to wring at the terminals.

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PAGE: EP-3
REV. DATE: 2 of 2
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It is also possible to have a start winding failure due to line voltage being applied across the start winding. This condition may be caused by one or more of the following:

1. Shorted or grounded capacitor -
 - a. Most run capacitors fail shorted.
 - b. Most start capacitors fail open, some shorted.
 - c. A ground in either capacitor or in the wiring will put 115 volts across the start winding.

2. Miswiring -
 - a. Interchange of the start and run leads in the compressor terminal box.
 - b. Interchange of the start and run leads at the components.
 - c. Other types of wiring errors.