Engineering Recommendation on: No. ER-7

Time Delay Relay Revised 6/16/99

Issued: October 22, 1969

On occasion the system design engineer may feel it advisable to provide a means of limiting the inrush current of a unit. When there are two compressors involved, this can be done by the sequence start method.

There are also times when it is deemed desirable to avoid the possibility of rapid re-cycling which could be brought about by a chattering thermostat or by manually operating the thermostat, on-off-on etc.

Both the sequence start aspect and the controlled re-cycle rate can be handled by the use of a time delay relay.

When a time delay relay is used there are certain requirements regarding its design and reliability that must be met. These requirements are outlined below:

1. When the thermostat contacts close, the delay relay must close within the time interval of 10 to 45 seconds with the relay in an ambient of 0. to 115.F (-17.8. to 46.1.C), normal air movement, and the applied voltage to the relay within the minimum/ maximum range established by the unit design.

2. After closing, the delay relay must remain closed for a minimum of 3 seconds and a maximum of 30 seconds, if the thermostat contacts are opened immediately. This must hold true throughout the ambient and voltage range described in 1. above.

3. After continuous operation in 115 F (46.1C) ambient and with maximum voltage being applied the delay relay shall open within 30 seconds after the voltage is removed.

4. The delay relay must have a cycle life of 100,000 cycles.

5. The contacts of the relay must remain closed during a normal vibration test, such as operational shock in its intended mounting location.

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