

A collection of short
pointed topical papers.

Cold W.A.R.

Whether it's **A**ir Conditioning or **R**efrigeration



Fault Finder

by: Garth Denison
Senior Application Engineer

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Refrigeration Fault Finder Guide

Insufficient or No Cooling *(Thermostat calling for cooling)*

A

Unit Runs

High Head Pressure

Air Cooled

Water Cooled

Evap. Condenser

Low Head and High Suction

Low Suction Pressure

B

Unit Cycles On...

Internal Motor Thermostat

Thermal Overload

High Suction

Normal Suction

High Pressure Switch

Air Cooled

Water Cooled

Tower

Low Pressure Switch

C

Unit Will Not Run (Power to contactor)

Open Contactor

No power to holding coil

Power to holding coil

Closed Contactor

Motor will not run

Motor Hums

3 phase

1 phase (CSR)

1 phase (PSC)

Refrigeration Fault Finder Guide

Insufficient or No Cooling (Thermostat calling for cooling)

Fault Number Key

- | | |
|--|--|
| 1. Low pressure switch open | 26. Tight compressor |
| 2. High pressure switch open | 27. Compressor box hot |
| 3. Motor overload open | 28. Scaled or dirty coil |
| 4. Control transformer or fuse open | 29. Low air quantity |
| 5. Broken or loose control wire | 30. Air re-circulation |
| 6. Holding coil burned out | 31. Dirty water screen |
| 7. Motor winding open | 32. Pump stopped |
| 8. Internal motor stator open | 33. Overcharge of refrigerant |
| 9. Contactor's contacts burnt off or missing | 34. Non condensables in system |
| 10. Single phasing | 35. Dirty coil |
| 11. Grounded winding | 36. Defective water valve |
| 12. Stuck compressor | 37. Insufficient water |
| 13. Bad start capacitor | 38. Water too warm |
| 14. Bad run relay | 39. Low refrigerant charge |
| 15. Wired wrong | 40. Restricted drier or filter |
| 16. Run capacitor open or shorted | 41. Restricted capillary |
| 17. High low pressures not equal | 42. Bad TX valve power element |
| 18. High voltage and low suction | 43. Restricted refrigerant distributor |
| 19. Suction gas too warm | 44. Improperly sized compressor (under/over sized) |
| 20. High head pressure | 45. Compressor running "unloaded" |
| 21. Inefficient compressor: valves, gaskets etc. | 46. Pressure operating control improperly set |
| 22. Wrong refrigerant | 47. Defective or improperly set EPR valve |
| 23. Too much evaporator air | 48. Defective or improperly set CPR valve |
| 24. Low voltage | 49. Low evaporator load |
| 25. Phase unbalance | 50. Condensers low ambient controls defective |

Refrigeration Fault Finder Guide

Insufficient or No Cooling (Thermostat calling for cooling)

A

Unit Runs

High Head Pressure

Air Cooled

29	30	33
34	35	

Water Cooled

28	33	34
36	37	

Evap. Condenser

28	29	30
31	32	

Low Head and High Suction

21	44	45

Low Suction Pressure

22	29	39
40	41	42
43	44	49

B

Unit Cycles On...

Internal Motor Thermostat

18	19	40

Thermal Overload

High Suction

20	21	
22	23	

Normal Suction

22	24	25
26	27	

High Pressure Switch

Air Cooled

29	30	33
34	35	50

Water Cooled

28	33	34
36	37	38

Tower

29	30	37

Low Pressure Switch

29	39	40
41	42	44
46	47	48

C

Unit Will Not Run (Power to contactor)

Open Contactor

No power to holding coil

1	2	3
4	5	8

Power to holding coil

6		

Closed Contactor

Motor will not run

7	8	9

Motor Hums

3 phase

7	10	
11	12	

1 phase (CSR)

12	13	
14	15	

1 phase (PSC)

7	12	
16	17	