COLMAC COIL
Manufacturing Inc.

Mechanical Integrity of Evaporator Coils

Presented by:

Joe Fazzari

"The Heat Transfer Experts"

Mechanical Integrity of Evaporator Coils

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Major issues to watch for:

i. Excessive ice or material build up
ii. Corrosion of tubes, fins, or connections
iii. Exceeding MAWP – hydraulic shock or trapped liquid
iv. Fan vibration and integrity
v. Refrigerant distribution tubes rubbing
vi. Integrity of housing, unit supports and piping supports
vii. Protection against traffic hazards
viii. Electrical issues with motors and wiring
ix. Missing fan guards
x. Suitable for operating conditions

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Excessive ice or material build up

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Corrosion of tubes, fins, or connections

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Corrosion of tubes, fins, or connections

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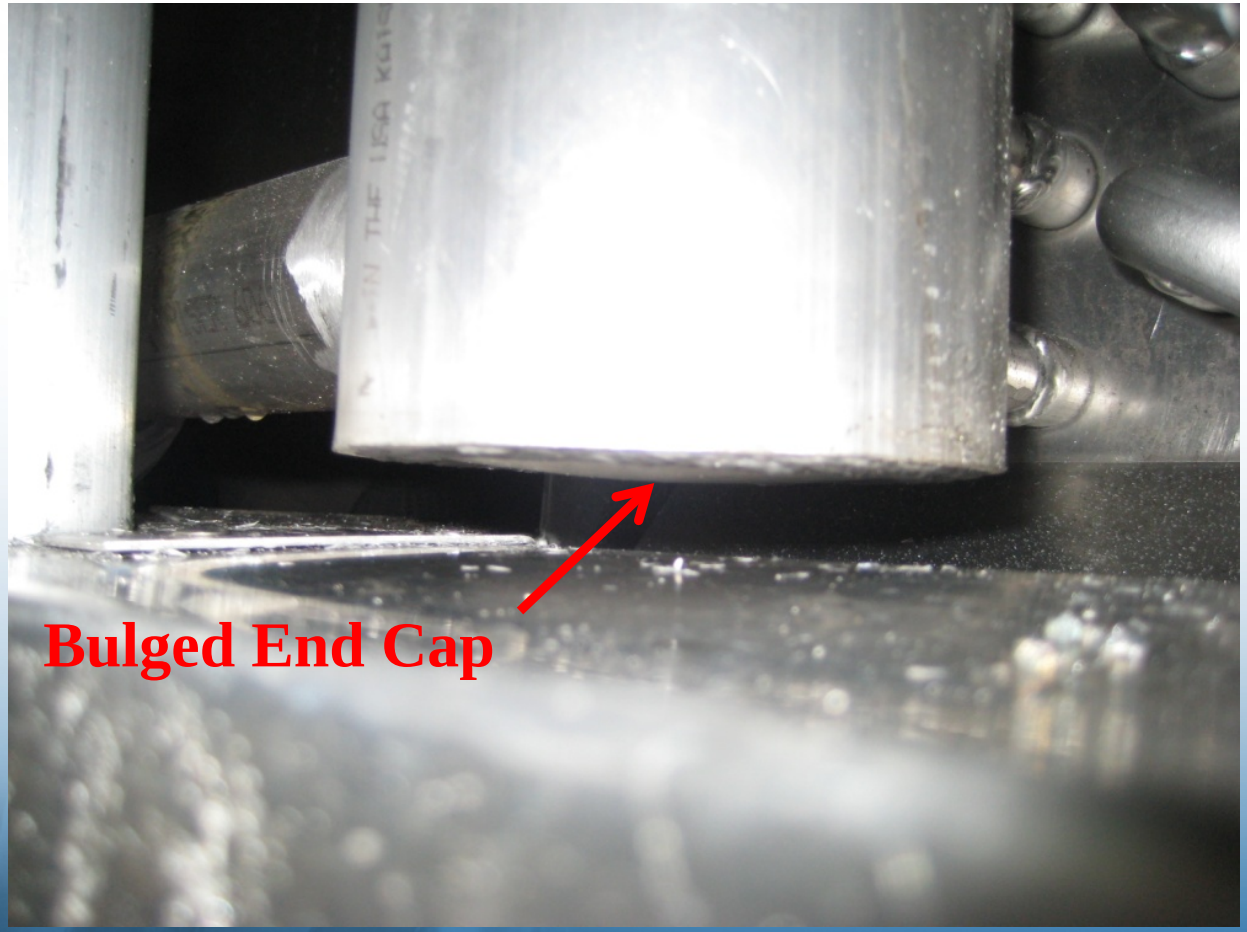
Exceeding coil MAWP- hydraulic shock or trapped liquid



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Exceeding coil MAWP- hydraulic shock or trapped liquid

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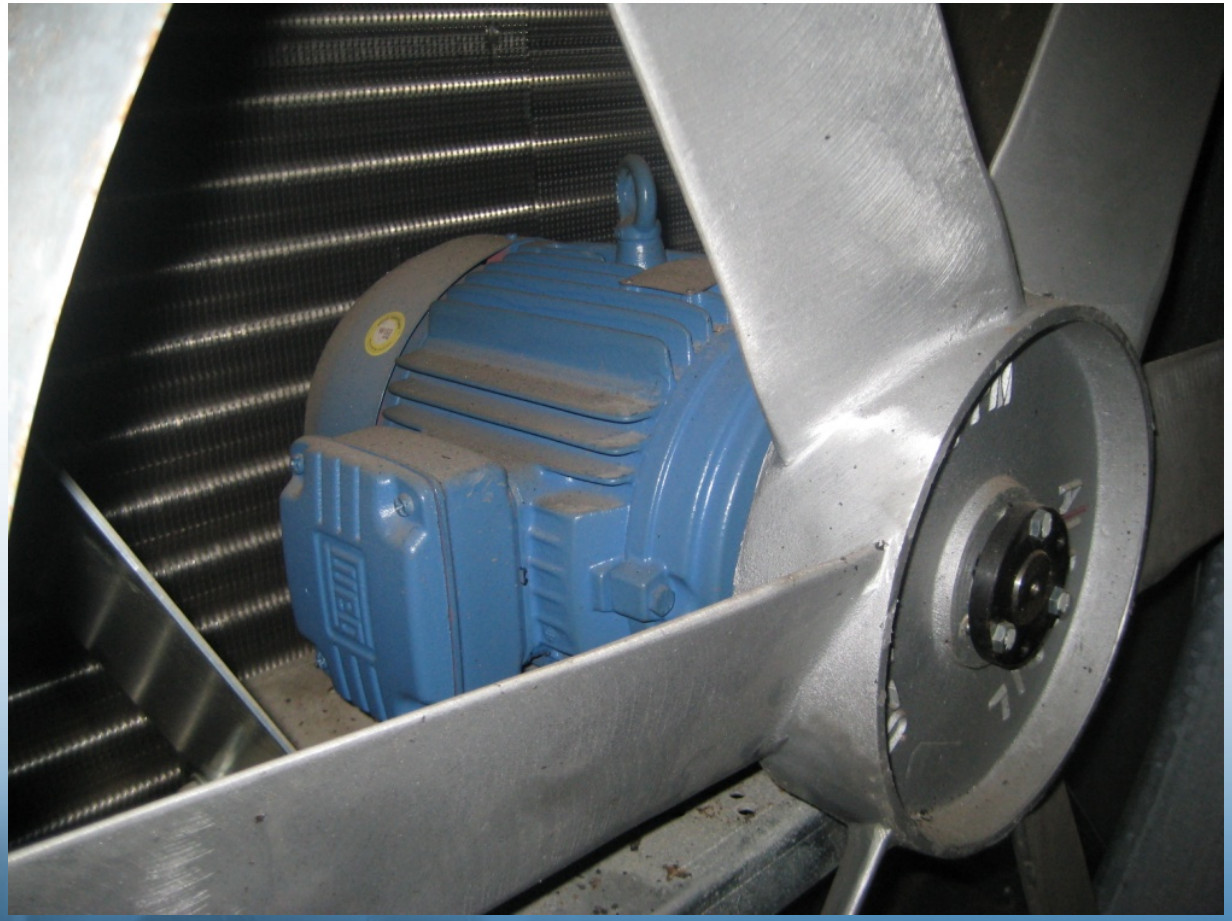
Fan Vibration



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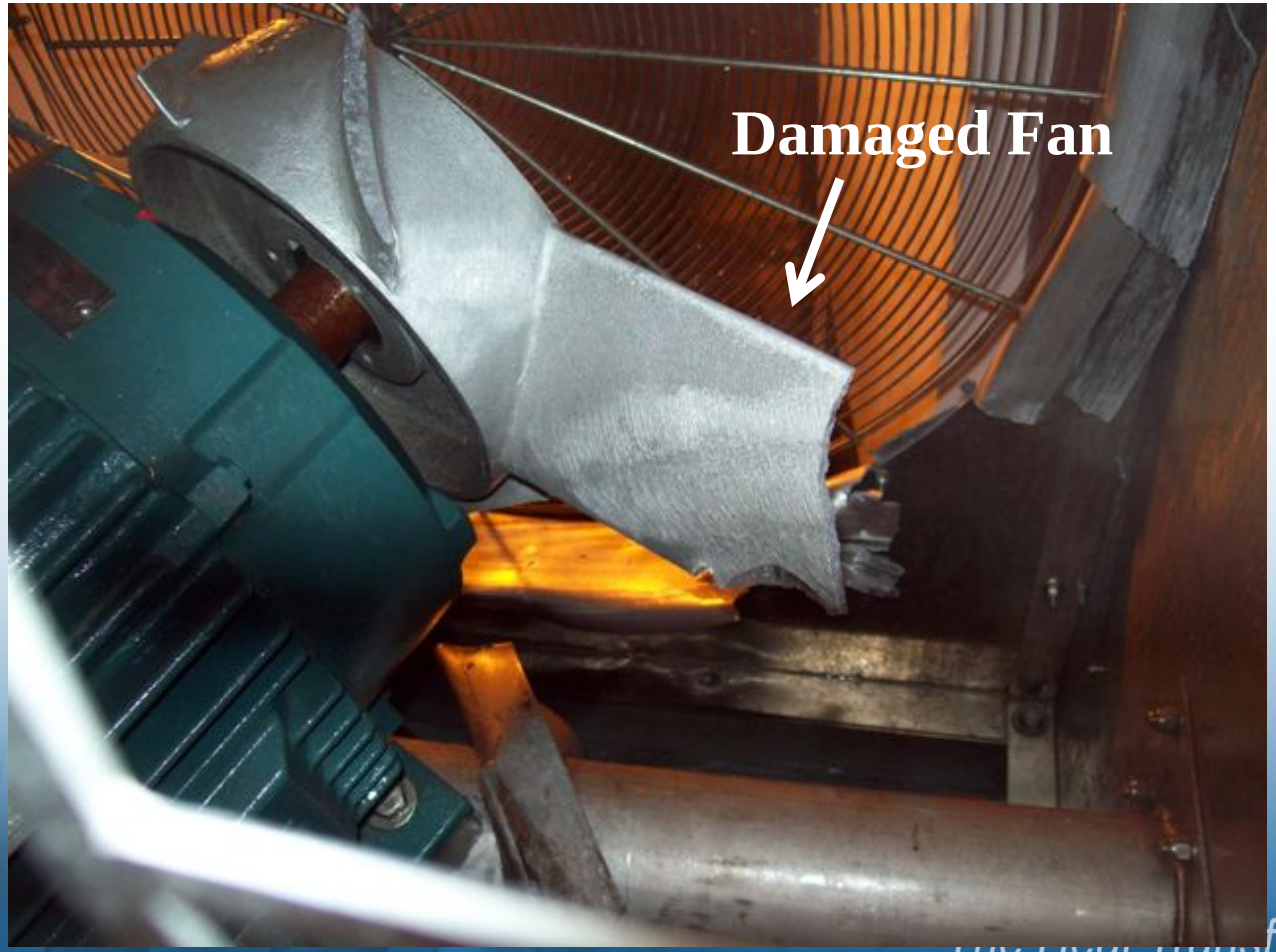
Fan Vibration



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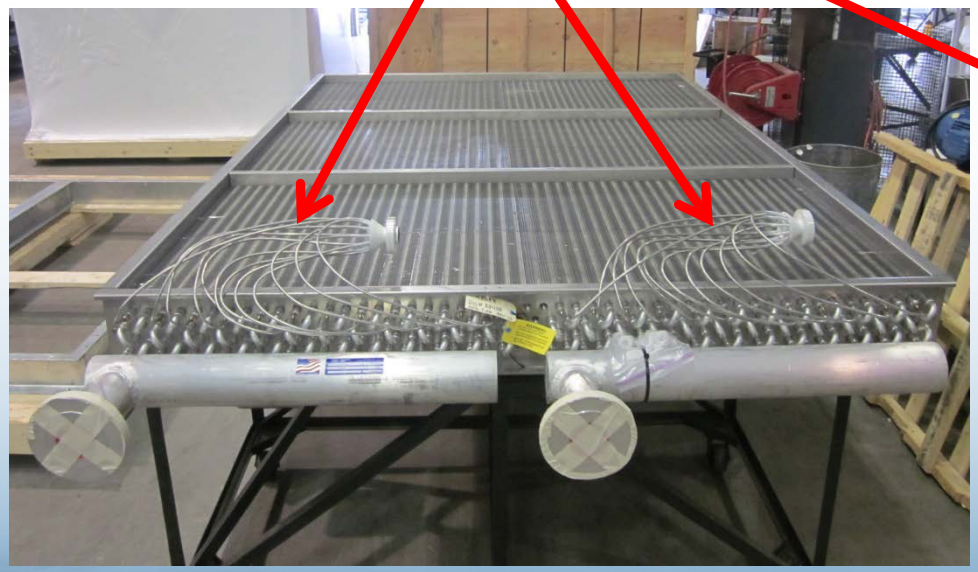
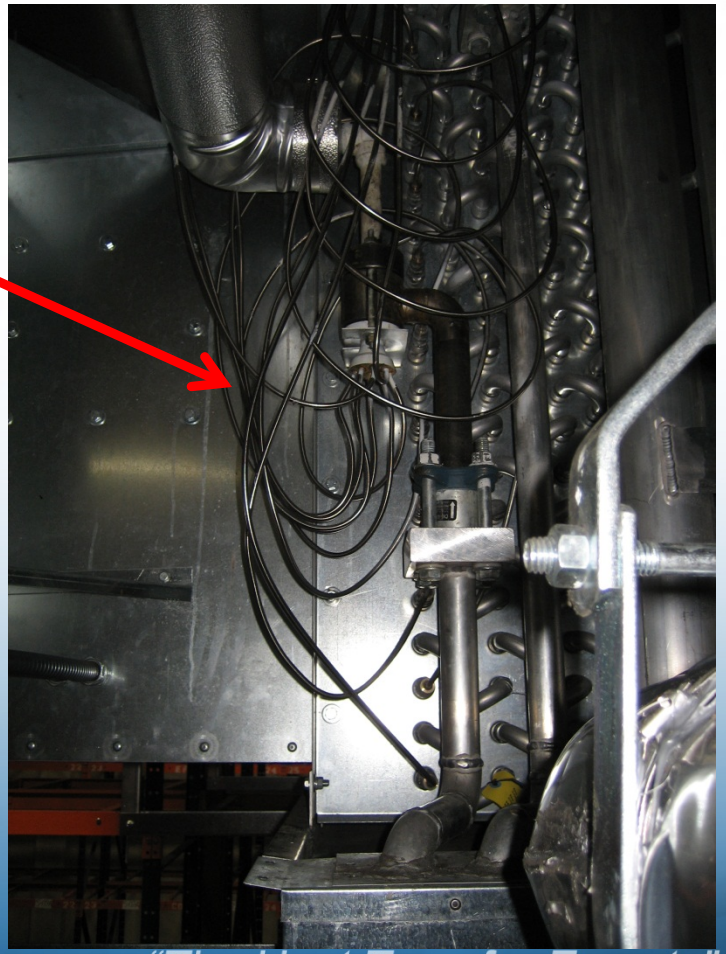
Refrigerant Distributor Tubes Rubbing





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Refrigerant Distributor Tubes Rubbing

Check for signs of rubbing

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Integrity of Unit and Piping Supports

Unit Supports

Piping Supports

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Integrity of Unit and Piping Supports

Improper Supports

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Protection Against Traffic Hazards

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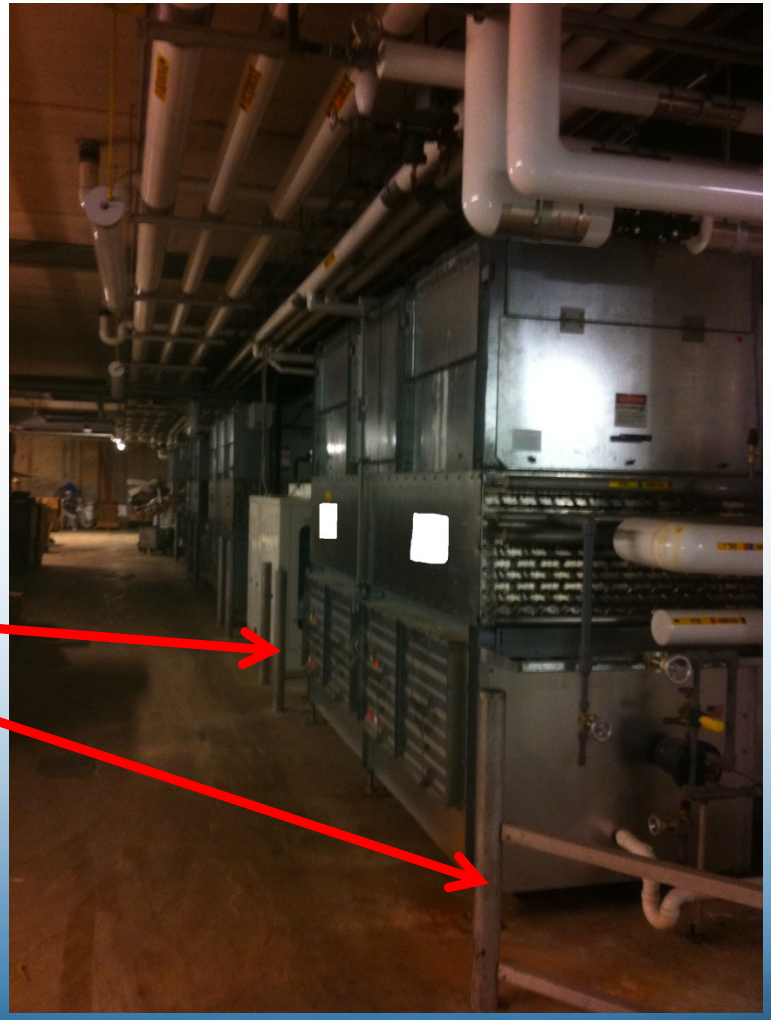
Protection Against Traffic Hazards



Guarding for Lift Truck Traffic

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Electrical Overloads, Wiring

Loose Connector

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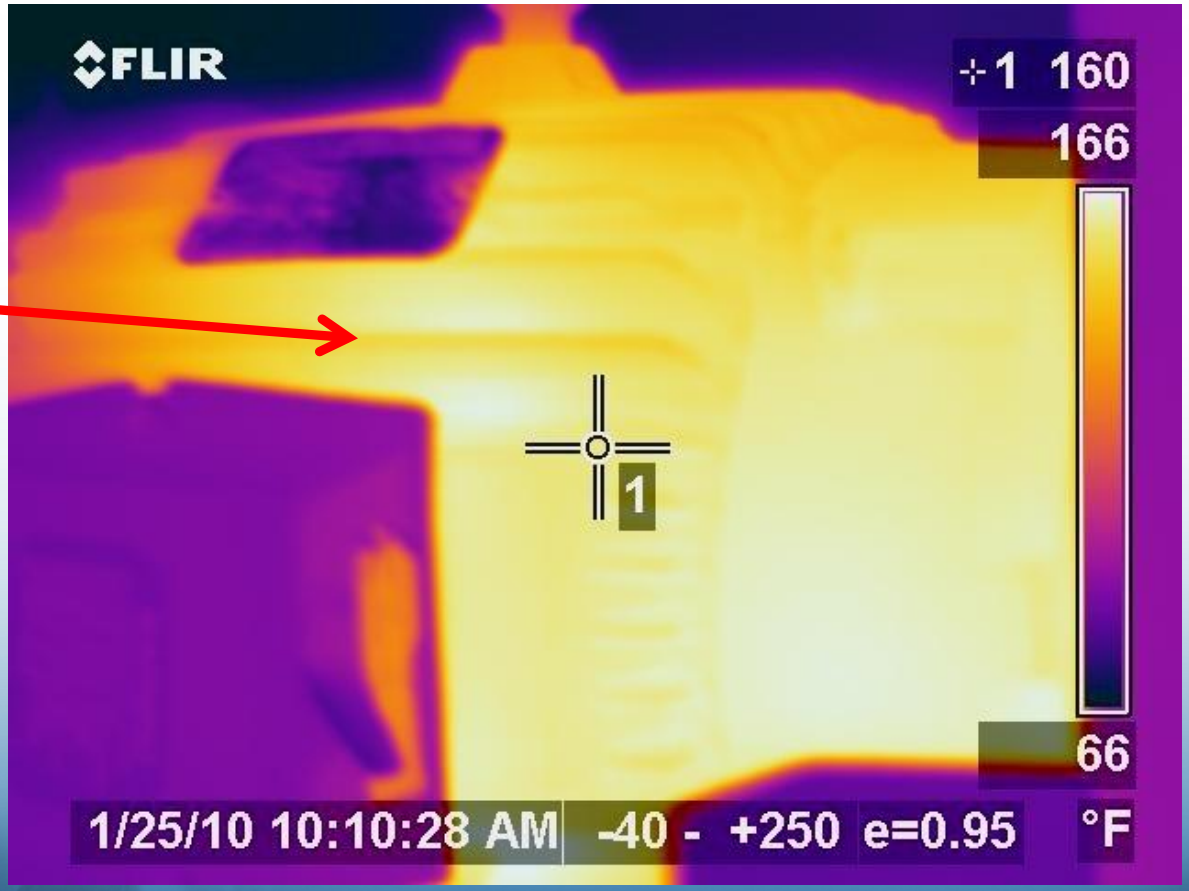
Electrical Overloads, Motors

Overheating Motor



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Missing Fan Guards

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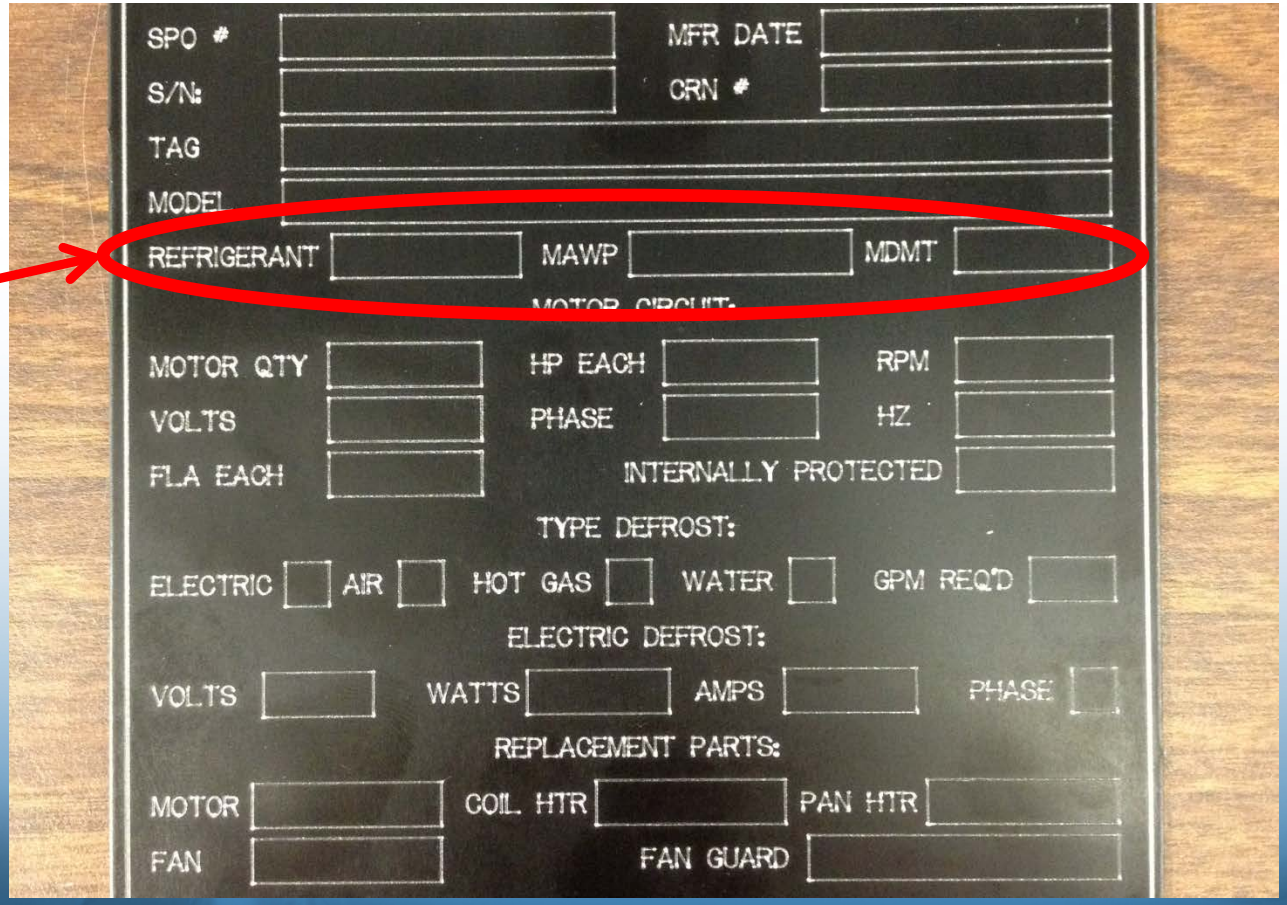
Suitable for Operating Conditions

Check nameplate data for suitable operating conditions



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Typical manufacturer's recommendations, annually:

- Clean the coil surface.
- Inspect defrost drain pan. Clean if necessary. Check for proper drainage.
- For Water Defrost, inspect water defrost distribution pans. Clean if necessary.
- Inspect all insulated and uninsulated lines connected to the unit.
- Check all wiring & tighten all electrical connections.
- Check all motors and fans, tightening when necessary all motor mounting bolts and fan set screws.
- Check operation of control system and proper functioning control valves, drain line heaters, thermostats, etc.
- Check that all safety controls are operating appropriately.
- The units should be periodically checked for proper defrosting and defrost timing due to variations in the quantity and pattern of frost.

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Reference materials:

- Manufacturer's IOMs
- IIAR Bulletin No. 109
- IIAR 2
- ASME B31.5
- ASHRAE Standard 15
- ANSI / IIAR Standards