

Cooling Season

Equipment breakdown guide from Liberty Mutual Insurance



Every year air conditioning (A/C) units fail primarily because of poor preventive maintenance prior to start-up, and a lack of routine maintenance during the operating season.

Information contained in this guide is designed to assist the customer in the management of their own activities and should not be construed as legal advice.

Customers should always consult with the equipment manufacturer.

This information does not amend, alter, or otherwise affect the provisions or coverage of any insurance policy.

In addition, a well-maintained unit will tend to operate more efficiently, thus reducing energy costs. To help you achieve reliable and efficient service from an A/C unit, we offer the following suggestions. The steps below should only be completed by a qualified individual with sufficient experience and expertise.

Crankcase

One of the most critical controls in the A/C unit is the crankcase heater.

Preferably, the heater should be left energized while the equipment is idle. The energized heater will minimize refrigerant migration to the compressor and dilution of the crankcase oil. In all cases, it is very important that the crankcase heater be energized at least 8 hours before starting the A/C unit.

Condenser

The AC condenser should be cleaned at a minimum of once each year. If the condenser is located in a high dust and dirt area, it should be scheduled for more frequent cleaning. A clean condenser will prevent high head pressure which can shorten the life of the unit.

Electrical

The motor magnetic starters should be inspected prior to start-up.

- The contacts may be deteriorated as the result of cycling of the compressor.
- All terminal connections should be checked and tightened and all pitted contacts should be replaced.
- The overload protection on the unit should also be examined for proper sizing.

Mechanical

Because the operating and safety controls are the heart of the unit, they should be checked to see that they are properly calibrated and in working order. Like all electrical and mechanical equipment, these controls wear out and must be replaced. If possible, the oil in the unit should be tested prior to starting the unit. The results of the analysis will let you know if the oil will hold up for the coming season. If there is any question about the oil quality, the oil should be replaced.

Moisture

The A/C system should be equipped with a moisture indicator. This device will detect the presence of moisture within the system. If moisture is present, filter dryers should be installed or changed to remove this moisture. More importantly, the source of the moisture should be determined and preventive action taken to correct the condition.

Air Conditioning Preseason Checklist

Compressors

- Energize the crankcase heaters for at least 8 hours prior to startup. Leave them energized for the remainder of the cooling season so that whenever the compressor is idle, the heater will prevent refrigerant migration to the crankcase.
- Test the lubricating oil for color and acidity.
- Check the crankcase oil level.

Motors

- Check the air passages of open motors for cleanliness and obstructions.
- Check the condition of the bearings.
- Lubricate the bearings.
- Take insulation resistance readings.

Pumps and Fans

- Check the condition of the bearings and lubricate.
- Check for abnormal conditions such as cracks and dents.
- Replace system air filters.
- Ensure any pumps do not show signs of excessive leakage.

Operating and Safety Controls

- Determine that the controls are properly calibrated and working properly.
- Examine flow switches by removing them and checking for corrosion and proper linkage operation.

Refrigerant Circuits

- Be sure the circuit is equipped with a moisture indicator.
- If moisture is indicated, install new liquid line filter/drier cores. Identify and correct the source of the moisture.

Thermostatic Expansion Valves

- Check the expansion valve for proper operation and superheat settings over the full range of operation.

Condensers

- Clean fins and coils of air cooled and evaporative condensers. Protect the fan motors from moisture while cleaning.
- Clean shell and tube condensers of scale and debris. Clean cooling tower baffles, sump and spray nozzles.



The illustrations, instructions, and principles contained in the material are general in scope and, to the best of our knowledge, current at the time of publication. Our risk control services are advisory only. We assume no responsibility for: managing or controlling customer safety activities, implementing any recommended corrective measures, or identifying all potential hazards.

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