Risk information – Equipment breakdown

Refrigeration systems

Introduction

The majority of claims received each year are the result of a refrigeration system breakdown.

This guide is a reminder that you should have your refrigeration equipment serviced at the start of each season.

Safety

Remember that a refrigeration system starts automatically, so do not place fingers or hands into hazardous areas unless the system has been isolated from the power supply.

The compressor

Check the oil level with the compressor running. The oil level should be half way up the sight glass. Remove old oil stains. As the oil and refrigerant gas are in contact with each other oil stains are often an indicator of refrigerant leaks. Clean refrigeration systems will allow owners and service personnel to notice any new oil leaks. Oil and refrigerant leaks are one of the most common causes of refrigeration system break down.

For compressors driven by vee belts, check the belts for cracks, stretching or fraying. Loose belts will slip. Over-tight belts will cause premature wear on the bearings of the compressor and electric motor, and increase power usage. Belts should deflect about 20 mm with thumb pressure in the middle of the belt (note this should only be checked with the power turned off). The belts and pulleys should always be fitted with an adequate guard. Electrical covers should be fitted over all switches and kept in good condition.

Condensers

The condenser removes the heat from the refrigeration system. Any blockage of the condenser affects the efficiency of the refrigeration system. This in turn places more strain on the compressor and increases the system's running costs. Indoor condensers should be cleaned at least once per year. Outdoor condensers should be checked daily for blockage by plastic, paper or other rubbish and cleaned as required.

Evaporators

The evaporators should be kept clean and defrosted. Dirt or ice build up in the evaporator reduces the efficiency of the refrigeration system. The refrigerated unit should not be over filled as free air circulation is critical to the operation of the system.

Fans

There are a number of fans in a refrigeration system. Fans will typically be located at the condenser and evaporator but may also be located above a compressor. Check for broken, cracked, bent or loose blades. Check hubs, fan shafts and bearing for wear, vibration or noise.

Controls

The refrigeration controls should be checked for correct operation and adjustment. Determine that the controls are properly calibrated and in working order particularly thermostatic controls, oil pressure safety switches and flow switches. Motor contactors and motor overload protection should be examined for defects. Timing devices should also be checked for correct operational sequence and duration. If the system is fitted with an overload reset button, ask your refrigeration service company to show you how to reset it.

Keep the cold in

Maintain the door seals. Keep the doors closed as much as possible. Avoid drafts on open displays. Cover display units after hours to reduce heat gain. Remember that in most cases air conditioning is turned off out of hours so the operation environment may be warmer than expected. Keeping the cold in may save up to 15% of your running energy bill.

Hour meters

Hour meters should be fitted to each refrigeration compressor system. These meters record the actual operating hours of the compressor so that the appropriate servicing and maintenance can be performed to the Manufacturer's specifications and removes the guess work of when to change the compressor's oil, when to perform minor and major overhauls or even planned replacement of a compressor as it reaches its designed life.

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