

## CONTROLLING REFRIGERATION LOSSES

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Refrigeration Basics – Preventive Maintenance – Claim Handling



**Loss Control for the Retail Grocer**

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## Introduction

### *Refrigeration Breakdowns and their effect on your bottom-line...*

Unexpected refrigeration breakdowns and the resulting losses from food spoilage cost the retail and wholesale food industries billions of dollars each year. In a marketplace as competitive as the food industry, every additional strain on your bottom line inhibits your ability to compete in a marketplace that is being challenged by large national chains. In light of this and other challenges, business-owners must explore every possible source of potential revenue and unnecessary loss.

Often overlooked, the effect of a single refrigeration breakdown can seriously threaten a traditional store's ability to compete. Some types of refrigeration breakdowns are virtually unavoidable – lightning damage in the middle of the night, for instance. But most refrigeration losses are, to some degree, predictable and, therefore, preventable. Although we don't know exactly when a refrigeration breakdown is going to occur, we know that over time, system components become worn or damaged and need to be repaired or replaced. Through simple, inexpensive preventive maintenance, the majority of the refrigeration breakdowns in the grocery industry can be avoided.

Preventive maintenance is generally accepted as a sound business practice with many types of equipment. Commercial vehicles, for instance, are typically maintained according to the auto manufacturer's recommendation. Fire protection equipment is usually maintained according to NFPA standards. Display cases and checkout stands are impeccably maintained because a damaged case or fixture is obvious to customers.

But many grocers tend to neglect refrigeration equipment until a breakdown occurs. And insurance is usually purchased to cover the product loss and the repair or replacement of the damaged equipment. However, the uninsured costs that are subtracted directly from a business' bottom line are often hidden.

#### **Consider This:**

- **Most forms of food spoilage and equipment breakdown insurance require a deductible.**
  - **A record of frequent or costly refrigeration breakdowns may result in higher insurance premiums.**
  - **The costs of product removal, cleanup, inventory, re-stocking, and claim filing generally are not covered.**
  - **Lost sales during most breakdowns are not covered and when customers don't find what they want, they shop elsewhere.**
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## Refrigeration Basics

*Air conditioning and refrigeration is the process of treating air so as to control, simultaneously, temperature, humidity, cleanliness and distribution to meet the requirements of the conditioned space.*

In order to control the losses that can be caused by refrigeration breakdowns, it is important that you have a basic understanding of the principles of refrigeration. Not all systems are alike, so it is wise to ask your refrigeration service technician to walk you through your specific system. But most systems in retail grocery stores consist of:

- Compressors – The “heart” of the system. Compressors compress refrigerant and circulate it through the system.
  - Refrigerant – The “blood” of the system. Refrigerant flows through the system piping, coils and vessels. It is used to collect heat from cases and coolers and transfer that heat to the condenser.
  - Evaporators – Finned units in cases and coolers that pick up heat.
  - Condensers – Component often found outdoors where heat is released.
  - Flow Controls – Temperature is regulated by flow controls, which determine how much refrigerant flows through the system at a given time.
  - Other Controls – Electrical controls, thermostatic controls, defrost settings are all found on today’s modern refrigeration systems.
  - Electric Motors – The compressors and cooling fans are powered by electric motors. Most of today’s compressors have motors sealed in the compressor housing.
  - Fans and Blowers – Compressors and compressor rooms are cooled by electric fans. Refrigerated areas (walk-in coolers and freezers, display cases) use fans and blowers to transfer heat in evaporator units and condensers.
  - Electrical Service – Powers the compressors, fans and blowers.
  - Piping and Vessels – Contain and distribute the refrigerant oil.
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## Preventive Maintenance

*Preventive maintenance is the routine inspection of selected equipment to uncover conditions that can lead to premature failure of equipment while in service.*

Every year, Avant Supermarket Group sees numerous claims related to the failure of refrigeration units. With the exception of external power failures, nearly all refrigeration breakdowns can be prevented by implementing a simple, cost-effective preventive maintenance strategy. To help you reduce your exposure to refrigeration loss, we offer the following recommendations, which can be applied to most any commercial refrigeration system.

### Basic Maintenance

The cost of a single, minor refrigeration loss far exceeds the cost of performing these simple tasks. As with all types of equipment, specific manufacturer recommendations should be followed, but at a minimum, business owners should take the following steps to keep their equipment operating properly and efficiently at all times.

#### Daily

1. Check and record temperatures in all refrigerated areas frequently. Obviously, this will identify any breakdown. If a display case seems to be warming slowly over a two or three-day period, it may need to be defrosted. Improperly defrosted systems have to work harder to cool, thus shortening the life span of the refrigeration equipment and increasing utility bills.

#### Monthly

1. Inspect compressors, cooling fans, and compressor areas for general cleanliness and ventilation.
  2. Inspect electrical connections to identify deterioration, loose connections, and corrosion. All wiring should be contained in conduit and junction boxes.
  3. Check electrical circuits to assure proper overload protection.
  4. Inspect visible refrigeration lines for corrosion, leakage, oil, and loose clamps.
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5. Check moisture indicators to detect the presence of moisture within the system. If moisture is present, filter dryers should be installed or changed. More importantly, the source of the moisture should be identified and corrected.
6. Check cooling fans and motor mounts for correct operation, cracks, and tightness.
7. Check refrigerant levels.
8. Check systems, oil levels, and operation of oil recovery system.
9. Check operation of refrigeration alarm system (if applicable).

### **Every Three Months**

1. Clean indoor and outdoor condenser units thoroughly with air hose or water. Dirty condensers operate less efficiently, shortening the life span of the compressor units and increasing the amount of energy needed to maintain case temperature.

### **Annually (To be performed by a qualified technician)**

1. Check expansion valves and other controls.
2. Perform a spectro-chemical analysis to determine the quality of the oil. If oil is not in good condition, it should be replaced.
3. Inspect motor magnetic contactor and replace if needed.
4. Check crankcase heater circuits on outdoor units.
5. Test low-pressure cutoff switch against manufacturer's recommendations.

*NOTE: Refrigeration systems come in a wide variety of types and capacities. The recommendations above refer most specifically to traditional reciprocating compressors and rack systems. If your system does not fall into one of these categories, contact your refrigeration service company for Preventive Maintenance recommendations.*

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## Claim Handling

*Proper response after a loss is critical in reducing the financial impact of the breakdown, and assuring the prompt settlement of a refrigeration-related claim.*

### Protect the Product

If a refrigeration breakdown is detected in time, product loss can be significantly reduced or eliminated if store personnel are prepared and know what to do in the event of a breakdown.

- Move product to other coolers and/or freezers as quickly as possible.
- Contact a dry-ice supplier now, in anticipation of a future loss.
- In some cases, product can be preserved with dry ice during a temporary breakdown, if dry ice is readily available.

### Restore Refrigeration Equipment to Service

- Contact your refrigeration maintenance company immediately upon discovering a refrigeration breakdown.

### Photograph Damaged or Destroyed Product

- If product is clearly not salvageable, photograph the damaged or destroyed product in the cases, coolers and freezers.
- Photograph the same product again in the trash.

### Inventory Damaged or Destroyed Product

- Inventory product using a hand-held scanner or a checkout lane scanner.
  - If scanning is not an option, list a description and price for each product.
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## **CONTROLLING REFRIGERATION LOSSES**

### **Documentation**

- The cause (or suspected cause) of the breakdown, including the date and time the breakdown is thought to have occurred.
- What repair work was performed to restore the system to service? Who performed the service?
- Was any third party potentially responsible for the breakdown? (Refrigeration contractors, on or off-site construction crews, city utilities, etc.).

### **Submit the Claim**

Compile all pertinent documentation, photos, repair bills, inventory lists, etc., and submit to:

Avant Supermarket Group  
Attn: Gail Sanders.  
7050 W. 107<sup>th</sup> St. Suite 210  
Overland Park, Kansas 66212

Phone: 913-948-8170 x225  
Fax: 913-948-81710

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