



ZERO ZONE

MEDIUM AND LOW TEMPERATURE DISPLAY CASES

INSTALLATION & OPERATION MANUAL



CASE CLOSED

GENERAL INFORMATION

CLEANING

The case and doors are cleaned prior to shipping. However, the case should be thoroughly cleaned before start-up and routinely thereafter to maintain a clean appearance. Use mild detergent and warm water (never an abrasive cleaner) to wipe out the inside of the case. Wash down all glass doors with glass cleaner. Do not use any products containing silicon on anti-fog glass coatings. Clean interior glass reduces fogging and increases visibility. The case will remain bright and sparkling with just a few minutes of cleaning each week. Internal components can be cleaned after removal of access panels. The case drain should be regularly cleared of debris and price tags.

Coils may be cleaned with a garden hose or pails of water. Cases that use pump, drain pans and condensate evaporators should be cleaned with a minimum amount of water. The drain should be blocked and the water removed with a shop vacuum.

Do not use high-pressure water or steam to clean the interior.

SHELF LOCATION

- The shelves are adjustable in 1" increments on cantilever shelf cases and may be located in any position for best display advantage.
- Be sure brackets are completely seated.
- Wire shelf brackets are stamped with "R" for Right and "L" for left to aid installation.

SHELVES

Zero Zone manufactures many different styles of shelves, baskets, and product stops. The shelves and baskets are placed on the shelf brackets for shipping. Solid shelves have three parts. A solid center section and two snap-in brackets. Some of the baskets may be reversed and used as a typical shelf. The fully assembled shelves are installed in cases prior to shipping.

Solid shelves can be disassembled for cleaning. A screwdriver can be used to spread the snap open to remove the brackets from the center section.

LOADING THE CASE

The case may be loaded with merchandise after it has been operated for at least 24 hours with correct case temperature and proper control operation. While loading the shelves, leave an air space between the top of the merchandise and the shelf above it so the customer can remove the merchandise. The air space allows an air curtain on top of the product. Product should not extend beyond the front of the shelves or block the return air grill.

The shelf loads are as follows:

ITEM	SHELF DESCRIPTION	MAXIMUM LOAD PER SHELF
1	22" and 24" deep	250 lbs.
2	27" deep	400 lbs.
3	Bakery or Meat Brackets	
	at 0°	250 lbs.
	at 5°	250 lbs.
	at 10°	150 lbs.
	at 15°	100 lbs.

Some deflection may occur under higher loads.

GENERAL INFORMATION

LIGHT SWITCH

The light switch is located inside the right-hand door. Turn the light switch off during the initial case temperature pull down to prevent the case lights from cycling off and on. Always turn the lights off when replacing lamps.

CASE THERMOMETER

The cases are shipped with 2 thermometers. One thermometer is factory mounted in the discharge air stream. The second thermometer is shipped loose and should be installed in the warmest product location. Specific instructions are packaged with the shipped loose thermometer.

SERVICE

See **Figure 33 on page 41** and **Figure 35 on page 43** for the typical component layout of the 30" door case. See **Figure 34 on page 41** and **Figure 36 on page 43** for the typical component layout of the 24" door cases.

The bumper and kickplate must be removed to gain access to the drain clean out and electrical connections. Disassemble the bumper and kickplate by removing the 2 or 3 metal screws located in the kick rail. The bumper assembly can be lifted up and removed from the case. The kickplate can be removed, exposing the electric tray cover and drain (**Figure 17 on page 18**).

EVAPORATOR

The evaporator coil, located at the rear bottom of the case, is factory assembled with distributor, expansion valve, and other refrigeration components. To inspect the coil, remove the center or left of center coil cover. A small inspection window is located at the rear of the case. To inspect the entire coil, remove the remaining coil covers and raise the evaporator cover.

EXPANSION VALVE

Unless otherwise specified, a superheat adjustable externally equalized thermostatic expansion valve with a removable strainer and pressure limiting charge (low temp only) is mounted to the evaporator coil. The valve is not preset. Adjust the superheat setting for maximum coil effectiveness. Typical superheat settings are between 6°F and 10°F. Close coupled systems should use the higher superheat setting to minimize the chance of liquid flood back. To adjust the expansion valve, remove the right end coil cover. Remove the cap from the bottom of the valve. When looking at the valve stem end, turn the valve stem counterclockwise to decrease superheat. Turn the valve stem clockwise to increase super heat. Measure the suction line temperature at the expansion valve sensing bulb and compare it to the suction temperature corresponding to the saturated pressure. Make sure that line pressure drop is taken into account.

Turn the valve stem only ¼ turn at a time and allow sufficient time (20 to 30 minutes) for the valve to settle before making any further adjustments. Replace the valve stem cap after the valve superheat has been adjusted. **BE CERTAIN THE VALVE STEM CAP IS WIPED DRY FIRST.**



Caution!

DISCONNECT POWER TO THE CASE BEFORE SERVICING ELECTRICAL COMPONENTS TO AVOID PERSONAL INJURY AND DAMAGE TO THE UNIT.

EVAPORATOR FANS

Air is circulated throughout the case with 115 volt low temperature fan motors. These motors must be operating at all times except during defrost in low temp cases. Fan motors should be replaced with motors having the same characteristics including type, physical size, lubricant temperature range, wattage and RPM. Fan blades should be replaced with factory original equipment part.

GENERAL INFORMATION

SERVICE (CONT.)

CONDENSATE EVAPORATION SYSTEM

Zero Zone remote cases can be equipped with an automatic condensate evaporation system. The system uses a pump and drain pan located behind the kickplate and a condensate evaporator pan mounted on the top of the case.

Condensate water and any liquid spilled in the case drains out into the drain pan. The pump is equipped with a float that turns the pump on when there is a sufficient liquid level. Liquid is pumped through a plastic hose through a check valve and into the condensate evaporation pan. The evaporation pan is equipped with a heater and a float switch to turn on when the heater is submerged in liquid. When the heater is energized, the pan will be extremely hot and should not be touched. The pump and condensate pan should be cleaned regularly. Any spilled product should be cleaned to prevent odors.

AIR CURTAIN VELOCITY

Air curtain velocity is affected by stocking levels, coil frost loads, temperature and fan condition. The measurement method also affects the reading. Zero Zone recommends using an Anor Velometer Jr., set to the 0-to-800 fpm range. Air velocity should be measured at the back edge of the discharge air honeycomb, at the center of the middle door in the case (other doors have slightly lower velocity). A typical low temp velocity reading is 400 to 500 feet per minute in a fully-packed low temp case, after the case has defrosted and pulled down to operating temperature. Air curtain velocity in a partially-packed display case is significantly lower because more air exits the back wall duct holes. In medium temp cases, the velocity should be 300 to 400 feet per minute after the case has defrosted and pulled down to temperature.

FAN REMOVAL

1. Turn off power to fans. Remove coil cover.
2. Unplug fan from fan power supply plug located on the front face of the fan housing.
3. Remove the fan blade nut and fan blade.
4. Remove the two mounting bolts and remove the fan assembly from the fan housing.
5. Remove the three fan motor mounting screws from the back of the fan motor.
6. Reverse steps 1 - 5 to install.

LED POWER SUPPLIES AND BALLASTS

Most Zero Zone case ballasts or LED power supplies are located in the door mullion. Ballasts for the 1-door and WA, are located behind the kickplate.

FLUORESCENT LIGHTING

These systems use a lens to direct light output evenly across the shelves. Turn off power before servicing the lamps. The lens must be removed to access the lamp. The lens must be replaced after servicing for proper operation. Detailed information is contained in the door instruction booklet.