



# INSTALLATION AND OPERATING INSTRUCTIONS

## PFW and XAP SERIES



**SAFETY FIRST**

1. Read these instructions thoroughly before installing merchandiser.
2. Heed all warning labels and stickers.
3. Electrical work should be performed by **Qualified Electricians** only.
4. Self-Contained Display Cases are shipped with generic settings. Therefore, a **Qualified Refrigeration Service Technician** should properly adjust case settings for each store's unique ambient conditions if necessary.
5. Disconnect power before servicing. Merchandiser contains moving parts.
6. Only **Qualified Refrigeration Service Technicians** should perform service work on Killion merchandisers.

**Call Killion for technicians in your area.**

**ATTENTION**

**READ INSTALLATION & OPERATING  
INSTRUCTIONS THOROUGHLY BEFORE  
OPERATING THE MERCHANDISER.**

**ATTENTION**

**LISEZ ATTENTIVEMENT LES INSTRUCTIONS  
D'INSTALLATION ET D'UTILISATION AVANT  
D'UTILISER LE PRESENTOIR.**

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## INSTALLATION

### Shipment Examination

If the packaging is externally damaged, do not accept the shipment unless the damage is listed on the Bill of Lading and the crate/packaging is opened in the presence of the carrier's agent.

If there is no visible external damage, but the contents are damaged or goods are missing, have the carrier's agent inspect the shipment immediately for concealed damage.

On all shipments, consignee will be responsible for filing a claim with the carrier. If replacement parts are required, send order to:

**KILLION INDUSTRIES, INC.**

**1380 Poinsettia Ave.**

**Vista, CA 92083**

**Toll Free (800) 421-5352**

**Fax (760) 727-1622**

[parts.service@killionindustries.com](mailto:parts.service@killionindustries.com)

### ATTENTION

**Read the entire INSTALLATION SECTION before placing the unit in its final location.**

### ATTENTION

**Lisez la SECTION d'INSTALLATION entière avant de placer l'unité dans son endroit final.**

### Location

Killion refrigerators are Type I Open Display Refrigerators and designed to operate in air-conditioned stores where temperature and relative humidity are maintained at or below 75°F dry bulb temperature and 55% relative humidity. Avoid locations where the refrigerator is exposed to heat sources such as the sun's rays or hot tables as these external heat sources can affect the refrigerator's efficiency.

Do not enclose refrigerated display cases with walls. There should be ample space on each side of the condensing unit to facilitate free airflow. Closing off either side by any means will cause the refrigerator undue strain, and could damage the compressor.

Air drafts will affect a refrigerator's temperature holding capability. Be certain there is no air-conditioning or heating vents discharging air into the display case area. Overhead fans, swamp coolers, or anything that creates a draft will disrupt the air curtain and adversely affect the refrigerator. An open door will sometimes create an air movement that will sweep the refrigerated air out of the merchandising area.

For self-contained refrigerators with the condensing units located in the bottom portion of the unit, do not locate the refrigerator directly against a wall. There should be a minimum of four inches between the rear of the refrigerator and the wall.

## Uncrating

Refrigerators are shipped on pallet skids. Since the refrigerators are easier to move when attached to pallet skids, move the merchandiser close to its final location before removing from the pallet skid.

Check the shipment with your itemized sales order for possible shortage of materials. If a shortage exists, report immediately to Killion. Check all air grills for obstructions. Verify nothing is blocking air grills.

## Securing Merchandiser

If your case comes in multiple sections, please refer to the Joining Instructions to properly attach each section before securing to units to the floor.

Once a Mobile unit is in its final location, the rear wheels must be locked in place. To lock the rear wheels, locate the locking knob on the side of each wheel. Turn the locking knob clockwise until each rear wheel is locked.

## Plumbing

### Leveling

Refrigerated display cases must be level, otherwise internal drains will not function properly. With the assistance of a level, adjust leveling feet and/or add shims to level the refrigerated display case. For mobile cases, shims should only be added once casters are all locked. This is a good time to verify that all packaging material and other debris have been removed from the refrigerator as these items could adversely affect the drainage system.

### Self-Contained Models

These units come equipped with the following condensate removal system:

- **Condensate Wick** – Water in the condensate pan is drawn up through the fabric wick while warm air from the condensing unit is forced through the wick, drying it. A heating element at the bottom of the pan is used to provide extra capacity in times of need. The heating element is limited by a timer to maintain energy consumption limits.

The wick must be secured into the pan and be sitting upright in the path of the warm air for proper operation. Do not block air flowing through the wick. The wick should be inspected at least every three months and replaced as needed. If a replacement wick is needed, please contact Killion's customer service department at 1-800-421-5352 x120 or email at [parts.service@killionindustries.com](mailto:parts.service@killionindustries.com).

### Remote Models

Remote models contain condensate drain lines that must be properly routed to the store's drainage system prior to operation. The following must be observed when installing the drainage system:

The water seals are pre-installed to prevent warm air from leaking into the cooling system. Never install more than one water seal in series in any one run of piping. Never downsize the diameter of pipe. Long runs of piping must be supported in order to prevent sagging and maintain slope. Drainpipe opening at floor sink must be above flood rim. Never place piping in contact with refrigeration lines. In some locations, it may be necessary to prevent the drain piping from freezing. While there are suitable alternative methods for drain hook-up, the preferred method is to run each P-Trap independently to the floor sink.

## Electrical Supply

A licensed electrician must make or verify all electrical connections. All wiring must comply with applicable local and national codes. Each refrigerator must be served with a separate overload protected circuit. It is necessary that a separate, dedicated circuit be provided for each merchandiser to prevent the possibility of another appliance tripping the breaker and causing an interruption of electrical service. Some cases require multiple power circuits. Each circuit must be connected to its own dedicated circuit breaker and supplied with adequate power.

If your unit comes with a power cord, be sure that it is plugged into the proper mating electrical receptacle. Because of potential safety hazards under certain conditions, we strongly recommend against the use of an extension cord with any refrigerated merchandiser.

The unit must be connected to a properly sized power supply. Check for voltage specifications on the ETL label that is located in one of the following locations:

- For cases without casters/wheels the label will be located in the upper right interior of case.
- For cases with casters/wheels, the label will be located on the lower left back of the case.
- If the merchandiser comes in multiple parts, there will be labels on each unit.

On self-contained cases, the power switch will be located \_\_\_\_\_

## Lighting

For units with under the shelf lighting, each light has a plug that connects to a receptacle located on the back panel of the refrigerator. These shelves may be removed for cleaning, with the light intact, by unplugging the light from the back panel of the refrigerator. The lights may also be removed from their shelf clips and left inside the case while the shelf is removed.

For self-contained units with interior case lighting, the light switch will be located on the right side panel toward the bottom rear.

## Refrigeration System

### Expansion Valves

All models operate with a thermostatic expansion valve. In self-contained units, the expansion valve is set at the factory and should not require any further adjustment. In remote units, the expansion valve is set at the factory, but may require adjustment in the field by the installing certified refrigeration technician. The expansion valve should only be adjusted according to the valve manufacturer's recommended procedure.

### Self-Contained Models

Self-contained models are factory equipped with a temperature control unit and a pressure control. The temperature control unit controls the case temperature, controls defrost times and durations, and limits the on-time of the heating element in units equipped with a wicking condensate system. The pressure control is built into the condensing platform and acts as a safety for the compressor for high and low pressure cut in's and out's.

Refrigeration controls are preprogrammed at the factory. Please note these settings are generic factory settings. It is recommended that these settings be monitored and adjusted (if necessary) by a Qualified Refrigeration Service Technician to accommodate each store's unique ambient conditions and for the product being displayed.

The compressor runs until the discharge air coming off the evaporator coil reaches the thermostat cutout setting. Once the appropriate temperature has been reached, the temperature controller will shut the unit off until the temperature has risen a preset number of degrees.

Periodically, the refrigerator enters into a defrost cycle. Defrost cycles are time-initiated, and either temperature or time-terminated. The evaporator fans continue to operate regardless of whether the compressor is running or not.

## Remote Models

For proper operation, it is recommended that a solenoid valve be added to the liquid line and controlled via a thermostat or another controller. Additionally, these units require connection to a defrost time clock to properly cycle defrost times.

## Stocking / Product Load Limits

The cold air re-circulating system requires free airflow through all grills, including the grill at the lower front of the refrigerator.

- **DO NOT** place product in merchandisers until case is at proper operating temperature.
- **DO NOT** stock the product so tightly between shelves that the refrigerated airflow is hampered. Overstocking refrigerated merchandisers can lead to reduced temperature holding capacity and expose the unit to undue strain.
- **DO NOT** stock product beyond the edges of the shelves.
- **DO NOT** place product beyond load limit lines.
- **DO NOT** stock product so tightly against back wall that airflow is restricted. There should be at least a one-inch gap between the back of the case and product.
- **DO NOT** block any air grills, honeycomb air discharge areas, or any panels with slots intended for air intake or discharge.

For units with multiple levels for product display:

- **DO NOT** place bottom shelf lower than 8 inches above the bottom deck. This would cause an interruption of airflow.
- **DO NOT** leave less than a 1-1/2" gap between the top of the product on one shelf to the bottom of the price tag molding on the above shelf.
- **DO NOT** place upper shelf less than 10 inches below the top of the case. This also would cause an interruption of airflow.

### CAUTION

**Proper product rotation is necessary to prevent product loss. Move older product to the front of the case and set the newer product in the back.**

### ATTENTION

**La rotation appropriée de produit est nécessaire pour empêcher la perte de produit. Déplacez un produit plus ancien à l'avant du cas et placez le produit plus dans le dos.**

## Relocating / Moving

Before moving or relocating a case that has been in use, it is important to remove all condensate water from all water dissipater trays and evaporator pans, so that water damage does not occur. A wet/dry vacuum works well to remove water.

Be sure that all plumbing, electrical, and refrigeration connections are disconnected by qualified technicians before attempting to relocate the case. Follow all directions in the **Pre-Installation** and **Installation** sections when placing the unit in its new location. If moving a vertical-style case, it is recommended to resecure the case to a pallet using lag bolts before moving with a pallet jack.

## MAINTENANCE

Regular periodic cleaning will ensure proper operation, minimize service costs, and prolong the life of refrigerated merchandisers. Depending on the conditions of your store, you may need to increase maintenance intervals described below.

### WARNING

**Remove product to a suitable storage refrigerator while performing maintenance. Turn off refrigerated merchandiser and disconnect from electrical source prior to performing maintenance.**

### AVERTISSEMENT

**Enlevez le produit sur un réfrigérateur approprié de stockage tout en exécutant l'entretien. Tournez le marchandiseur au loin frigorifié et le démontez de la source électrique avant d'exécuter l'entretien.**

## Routine Maintenance

### Weekly

- Clean all dust and debris from the merchandising display areas.
- Clean all air grills, grates, honeycombs, and panels with a damp cloth, using a mild soap if necessary.

### Monthly

- Clean case interior with a damp rag soaked in mild soap and water.
- Clean shelving / display racks with mild soap and water.
- Wipe down light tubes and interior surfaces.

### Quarterly (every 3 months) for Self-Contained Units Only

- Check the conditions of condenser air filters (located at the lower front of the case). Replace if dust is beginning to accumulate.
- Check the condition of the condensate wick filter if present (located at the rear of the case, on the right side). Replace if the filter material is significantly discolored or is beginning to sag away from the black plastic frame. Note: **DO NOT DISCARD** the stainless-steel wick cage if the filter is being replaced.
- Wet-vac water and sediment from condensate pans.
- Wipe interior of condensate pan clean of all sediment.



## Bi-Annually (every 6 months)

At the front of the case:

1. Remove lower interior bottom deck screws to expose evaporator coil, drain pan, and condensate pump. Note: not all units are equipped with a pump.
2. Vacuum the evaporator pan and wipe clean of sediment or deposits in coil drain pan and around condensate pump.
3. Wipe evaporator fan blades clean to remove any dirt or film that may be deposited on them. Use caution to not bend blades with undue pressure.
4. Clean evaporator coil with a non-acidic, EPA approved cleaner, such as Nu-Brite or Alka-Brite, or comparable product.
5. Check the condensate drain line
  - a. For units with a condensate pump(s), check the pump and pump line for blockage. Be sure the condensate pump is operational and freely transferring condensate water.
  - b. For units with a P-Trap style drain, clear any debris or blockage from the evaporator pan side.
6. Replace bottom deck and access panel (screw into place).

At the rear/top of the case for Self-Contained Units Only:

1. Remove screens, panels, or hoods to gain access to the condensing unit area located on either the top or bottom of the unit. Vacuum the interior cabinet.
2. Check the end of the condensate tube/pipe that terminates near the condensate evaporator pan or high-volume pump to make sure that there are no blockages.
3. Vacuum dust and debris from condenser coil and motor area. Clean condenser coil with a non-acidic, EPA approved cleaner, such as Nu-Brite or Alka-Brite, or comparable product.
4. Replace any screens, panels, screws, etc. that may have been removed during the maintenance procedure.

### **WARNING**

**Improper maintenance or a reduction in scheduled maintenance may result in hazardous conditions and reduce case performance.**

### **AVERTISSEMENT**

**L'entretien inexact ou une réduction de l'entretien peut avoir comme conséquence des conditions dangereuses et réduire l'exécution de cas.**

**Disregarding any of the above written instructions will void the warranty.**

## Troubleshooting

If you feel that your refrigerated merchandiser is not operating properly, please review the following list before placing a service call:

### Troubleshooting Check List

1. **Is the refrigerator in a defrost cycle?** Refrigerators periodically go into defrost cycles to remove ice buildup on the evaporator coil. The display on the refrigeration controller will read dEF during this period. During a defrost cycle, the refrigerator thermometer may read above 41° F. The thermometer provided in the refrigerator measures the air temperature in the back of the case. This is only the air temperature; the product temperature will remain below 41° F when the case is operating properly. Wait an hour and return to the merchandiser to recheck the temperature.
2. **Do the store conditions exceed 75° F / 55% relative humidity?** Killion Type I Refrigerated Display Cases are not designed to operate in conditions exceeding 75° F / 55% relative humidity.
3. **Has the compressor stopped running for an extended period of time?** The most common cause is high pressure triggering the high pressure safety switch. This can happen when the condensing coil, or the intake filter(s) to the condensing coil, are dirty. Clean the condensing coil or replace any dirty intake filters. Have a qualified technician locate and reset the high pressure safety switch and restart the case.

The second most common cause is a tripped float switch for any unit with a condensate dissipator pan. This is a possibility when there is too much humidity in the store environment or if the wick filter is not properly installed. If the wick is installed properly and still in good condition, Killion Industries can provide alternate settings for store level personnel or an on-site technician.

4. **Are external sources such as heaters, sunrays, drafts, hot tables, etc. introducing heat into the case?** Move these external sources away from the refrigerated merchandiser or move the merchandiser away from these external sources.
5. **Is the return air grill on the front of the bottom deck blocked with dust or product?** Remove all product and dust from the return air grill to ensure proper airflow.
6. **Is there too much product loaded into the case that it is blocking the air flow from the back of the unit?** The load limits outlined in the Product Stocking / Load Limits section of this manual must be followed.
7. **Is the case leaking water?** Check to make sure that the condensate removal system is working properly. Make sure all condensate lines and pans are free from debris. Make sure the condensate pump(s), if equipped, is operating properly. If your system uses an evaporative wick, make sure it is secured and sitting upright in the condensate pan. Ensure that the heating element in the condensate pan is operating properly and that the float switch is not stuck in the down position.

If you need further assistance, please call Killion's customer service department at  
1-800-421-5352 x120.

## REFRIGERATOR WARRANTY 20210426

### 90 DAYS PARTS & LABOR+ 9 MONTHS PARTS

**KILLION INDUSTRIES, INC.** warrants the refrigerator and all parts thereof manufactured by Killion Industries to be free from defects in material and workmanship under normal use and service. Killion Industries' obligations under this Warranty shall be limited to repairing or replacing, at its option, any part of the refrigerator which proves to be defective, to Killion Industries' satisfaction, within 90 days from the date of invoice. Killion Industries will assume responsibility for the reasonable cost of labor provided Killion Industries is the dispatching agent. No labor costs will be paid unless the repairing agent has obtained a Service Authorization Number from Killion Industries prior to the repair. If a malfunction occurs after 90 days from the date of invoice, Killion Industries shall provide a replacement of the defective part for an additional 9 months. This Warranty shall not apply to the refrigerator, or any part thereof, which has been subject to any accident, alteration, abuse, misuse, or damage by flood, fire, or act of God. In no event shall the company be liable for injury to person or property caused by defective equipment, loss of use, revenue, or profit or for any other indirect, special or consequential damages including, but not limited to, food product loss.

#### **SPECIAL ATTENTION**

Killion Refrigerated Merchandisers require an adequate supply of free inlet air available. Please note the location of the condensing unit, as both top and bottom mounted units are available. Additionally, an unobstructed exhaust area for the dissipation of hot condensing unit air must be available so it does not recycle into the inlet air.

Top mounted condensing units should not be located under a low ceiling or "boxed-in" under a canopy or any similar construction thereby restricting or completely shutting off free air circulation. Inadequate or improper airflow through the condenser section can result in higher operating temperatures, excessive wear, and possible compressor failure.

Bottom mounted condensing units should not be located directly against a wall. There should be a minimum of four inches clear between the rear of the refrigerator and the wall.

Installation made under such location conditions will constitute improper installation and unit abuse, thereby invalidating all mechanical warranty coverage.

**WARRANTY IS NOT TRANSFERABLE.** This warranty is not assignable and applies only in favor of the original purchaser / place of original installation. Any such assignment or transfer shall void the warranties herein made and shall void all warranties, expressed or implied, including any warranty of merchantability or fitness for a particular purpose.

**TRANSPORTATION COSTS.** KILLION will pay the cost of freight for any and all parts under warranty. KILLION will not accept returned parts freight collect, unless that shipment has received prior approval. KILLION is not responsible for any other transportation costs.

**WARRANTY CLAIMS.** All claims should include: model number, serial number, and all pertinent information supporting the existence of the alleged defect. Any action for breach of these warranty provisions must commence within One (1) year after the cause of action occurred.

This warranty is in lieu of all other warranties, expressed or implied, and does not include any implied warranties of merchantability or fitness for a particular purpose. KILLION'S sole liability shall be limited to the repair or replacement of any defective part or parts, as above stated, and shall not include labor or other expenses incurred in the removal and /or installation of defective parts or equipment, unless otherwise specified above.