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RECEIVING THE AIR CONDITIONER

Inspect the air conditioner. Check for concealed damage that may have occurred during shipment. Look for dents, scratches, loose assemblies, evidence of oil, etc. Damage evident upon receipt should be noted on the freight bill. Damage should be brought to the attention of the delivering carrier -- NOT to McLean Cooling Technology -- within 15 days of delivery. Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier.

Pentair Technical Products cannot accept responsibility for freight damages; however, we will assist you in any way possible.

HANDLING AND TESTING THE AIR CONDITIONER

If the air conditioner has been in a horizontal position, be certain it is placed in an upright, vertical or mounting position for a minimum of five (5) minutes before operating.

CAUTION

Do not attempt to operate the air conditioner while it is horizontal or on its side, back or front. The refrigeration compressor is filled with lubricating oil. This will cause permanent damage to the air conditioner and also voids the warranty.

TEST FOR FUNCTIONALITY BEFORE MOUNTING THE AIR CONDITIONER TO THE ENCLOSURE.

Refer to the nameplate for proper electrical current requirements, and then connect the power cord to a properly grounded power supply. Minimum circuit ampacity should be at least 125% of the amperage shown in the design data section for the appropriate model. No other equipment should be connected to this circuit to prevent overloading.

Operate the air conditioner for five (5) to ten (10) minutes. No excessive noise or vibration should be evident during this run period. The condenser blower (ambient air), the evaporator blower (enclosure air), and the compressor should be running.

Condenser air temperatures should be warmer than normal room temperatures within a few minutes.

The compressor is provided with automatic reset thermal overload protection. This thermo-switch is located and mounted inside the plastic enclosure clipped to the compressor. The switch operates when the compressor overheats due to clogged or dirty inlet air filter or if ambient air temperatures exceed nameplate rating or if enclosure dissipated heat loads exceed the rated capacity of the air conditioner. The thermal overload switch will actuate and stop compressor operation. The blowers will continue to operate and the compressor will restart after it has cooled to within the thermal overload cut-in temperature setting.
INSTALLATION INSTRUCTIONS

1. Inspect air conditioner and verify functionality before mounting the air conditioner, see HANDLING AND TESTING THE AIR CONDITIONER on page 3.

2. Using the cutout dimensions shown in this manual, prepare the air "IN" and air "OUT" openings, and mounting bolt hole pattern for the enclosure.

3. Using the gasket kit provided, install gaskets to air conditioner. See Mounting Gasket Kit on page 6 for proper location.

4. Mount air conditioner on enclosure using mounting bolts and washers provided to secure unit to enclosure. Allow unit to remain upright for a minimum of five (5) minutes before starting. Caution! Air conditioner must be in upright position during operation.

5. Refer to the top of the nameplate for electrical requirements. Connect the power cord to a properly grounded power supply. Use of an extension cord is not recommended. Electrical circuit should be fused with slow blow or HACR circuit breaker.

6. When the unit is equipped with an automatic temperature controller, the controller is preset at the factory for your convenience and should not require adjustment.

SYSTEM CONTROLS

Level I Temperature Controller

The Level I controller is located inside the air conditioner. To adjust, disconnect power to the air conditioner and open the front panel by loosening the front panel screw. Refer to Figure 2 on page 7 to locate the controller. Turn the controller adjustment screw slot counter-clockwise to increase and clockwise to decrease the temperature set point, see Figure 1. The thermostat cooling set point is indicated by the alignment of the adjustment screw slot with the dial decal. After completing adjustment, close the front panel and tighten the front panel screw. Restore power to the air conditioner for operation.

Level II and III Temperature Controller

The Level II and III controller mounted on the air conditioner front panel is factory set for standard operation. All operating parameters are programmable for custom applications. Refer to the Level II and III programming and Operating Instruction Manual, 10-1008-161.
## TECHNICAL INFORMATION

### DESIGN DATA

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Hz</th>
<th>Phase</th>
<th>BTU/Hr @ 131 F/131 F</th>
<th>Amps @ 131 F/131 F</th>
<th>BTU/Hr @ 95 F/95 F</th>
<th>Amps @ 95 F/95 F</th>
<th>Max Amb Temp °F/°C</th>
<th>Shipping Weight lb./kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>CR290216GXXX</td>
<td>115</td>
<td>50/60</td>
<td>1</td>
<td>2000/2200</td>
<td>7.4/7.4</td>
<td>1700/2000</td>
<td>7.0/6.0</td>
<td>131/55</td>
<td>98/44</td>
</tr>
<tr>
<td>CR290226GXXX</td>
<td>230</td>
<td>50/60</td>
<td>1</td>
<td>2500/2700</td>
<td>4.6/3.9</td>
<td>1900/2300</td>
<td>4.4/3.3</td>
<td>131/55</td>
<td>98/44</td>
</tr>
<tr>
<td>CR290416GXXX</td>
<td>115</td>
<td>50/60</td>
<td>1</td>
<td>3500/4000</td>
<td>13.5/13.5</td>
<td>2400/2800</td>
<td>10.7/9.6</td>
<td>131/55</td>
<td>118/54</td>
</tr>
<tr>
<td>CR290426GXXX</td>
<td>230</td>
<td>50/60</td>
<td>1</td>
<td>3500/4000</td>
<td>6.7/6.6</td>
<td>2400/2800</td>
<td>5.9/5.3</td>
<td>131/55</td>
<td>118/54</td>
</tr>
</tbody>
</table>

- XXX will be replaced with a three-digit number designating all desired options. Consult the factory for specific model numbers.

## DIMENSION DRAWING

**CR29 Models 2200-4000 BTU/Hr. (645-1172 Watt)**

![DIMENSION DRAWING](image-url)
Mounting Gasket Kit

Design Notes

1. Gasket kit included. Apply gasket to rear of air conditioner before mounting on enclosure.
2. Service cord terminated with appropriate plug cap.
3. Millimeter dimensions [ ] are for reference only; do not convert to inch dimensions.
4. Allow at least 4 inch inlet and 6 inch outlet clearance for proper ambient air flow. Allow 20 inch above filter for removal.

Mounting gasket kit part no. 29-4100-02 as applied to rear of CR29.

Mounting Cutout Dimensions

NOTE:
1. DASHED LINES REPRESENT OUTSIDE OF AIR CONDITIONER
Components List

<table>
<thead>
<tr>
<th>Part Description</th>
<th>115 Volt 2200</th>
<th>115 Volt 4000</th>
<th>230 Volt 2700</th>
<th>230 Volt 4000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blower, Condenser</td>
<td>29-4121-10</td>
<td>29-4121-10</td>
<td>29-4120-10</td>
<td>29-4120-10</td>
</tr>
<tr>
<td>Blower, Evaporator</td>
<td>29-4121-10</td>
<td>29-4121-10</td>
<td>29-4120-10</td>
<td>29-4120-10</td>
</tr>
<tr>
<td>Capacitor, Compressor</td>
<td>N/A</td>
<td>10-1032-13</td>
<td>10-1032-09</td>
<td>10-1032-14</td>
</tr>
<tr>
<td>Compressor</td>
<td>10-1016-23 SP</td>
<td>10-1016-26 SP</td>
<td>10-1026-74 SP</td>
<td>10-1026-77 SP</td>
</tr>
<tr>
<td>Thermal Overload, Compressor</td>
<td>10-1007-19</td>
<td>10-1007-45</td>
<td>10-1007-57</td>
<td>10-1007-51</td>
</tr>
<tr>
<td>Filter, Air, Reusable</td>
<td>10-1000-32</td>
<td>10-1000-32</td>
<td>10-1000-32</td>
<td>10-1000-32</td>
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<tr>
<td>Thermostat, SPST, 55-100F</td>
<td>10-1061-16</td>
<td>10-1061-16</td>
<td>10-1061-16</td>
<td>10-1061-16</td>
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<tr>
<td>Mounting Gasket Kit</td>
<td>29-4100-02</td>
<td>29-4100-02</td>
<td>29-4100-02</td>
<td>29-4100-02</td>
</tr>
<tr>
<td>Relay, Compressor</td>
<td>10-1028-20</td>
<td>10-1028-14</td>
<td>10-1028-07</td>
<td>10-1028-15</td>
</tr>
<tr>
<td>Power Cord</td>
<td>Consult factory</td>
<td>Consult factory</td>
<td>Consult factory</td>
<td>Consult factory</td>
</tr>
</tbody>
</table>

Parts List

<table>
<thead>
<tr>
<th>Part</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Condenser Coil</td>
<td>29-4101-00</td>
</tr>
<tr>
<td>2</td>
<td>Filter, drier, refrigerant</td>
<td>52-6028-00</td>
</tr>
<tr>
<td>3</td>
<td>Compressor</td>
<td>See Components List</td>
</tr>
<tr>
<td>4</td>
<td>Hot Gas bypass valve (CR29-04xx units only)</td>
<td>52-6027-11</td>
</tr>
<tr>
<td>5</td>
<td>Evaporator coil</td>
<td>29-4102-00</td>
</tr>
<tr>
<td>6</td>
<td>Inlet air filter, reusable aluminum</td>
<td>10-1000-32</td>
</tr>
<tr>
<td>7</td>
<td>Blower (115V)</td>
<td>29-4121-10</td>
</tr>
<tr>
<td></td>
<td>Blower (230V)</td>
<td>29-4120-10</td>
</tr>
<tr>
<td>8</td>
<td>Compressor thermal overload switch</td>
<td>See Components List</td>
</tr>
<tr>
<td>9</td>
<td>Capacitor, compressor (CR29-04xx units only)</td>
<td>See Components List</td>
</tr>
<tr>
<td>10</td>
<td>Capacitor, compressor (CR29-0226 units only)</td>
<td>See Components List</td>
</tr>
<tr>
<td>11</td>
<td>Terminal block</td>
<td>086912</td>
</tr>
<tr>
<td>12</td>
<td>Power cord</td>
<td>Consult Factory</td>
</tr>
<tr>
<td>13</td>
<td>Temperature controller</td>
<td>Consult Factory</td>
</tr>
<tr>
<td>14</td>
<td>Relay, compressor (CR29-04xx units only)</td>
<td>See Components List</td>
</tr>
<tr>
<td>15</td>
<td>Relay, compressor (CR29-02xx units only)</td>
<td>See Components List</td>
</tr>
<tr>
<td>16</td>
<td>Mounting gasket kit</td>
<td>29-4100-02</td>
</tr>
</tbody>
</table>
Wire Diagrams and schematics

Wire Diagram, Level 1, 2000 BTU

ELECTRICAL SCHEMATIC
NOTE: For voltage, hertz, and options not shown in this manual, refer to the wiring diagram attached to the unit.
Wire Diagram, Level II and III, 2000 BTU
NOTE: For voltage, hertz, and options not shown in this manual, refer to the wiring diagram attached to the unit.
TEMPERATURE CONTROL
The electromechanical thermostat is factory preset to 75 F/23 C. To change the temperature setting, refer to SYSTEM CONTROLS on page 4.

PRINCIPLES OF OPERATION
If electrical power to the air conditioner is interrupted and reapplied immediately (within 3 to 5 seconds), the compressor may not restart due to the high back pressure of the compressor. It takes a minimum of one (1) minute after shut-down for the compressor suction and discharge pressures to equalize in order for the air conditioner to restart.

Operating the air conditioner below the minimum ambient temperature or above the maximum ambient temperatures indicated on the nameplate voids all warranties.

It is recommended that the warranty section of this manual be read in order to familiarize yourself with parameters of restricted operation.

The moisture that the enclosure air can contain is limited. If moisture flows from the drain tube continuously this can only mean that ambient air is entering the enclosure. Be aware that frequent opening of the enclosure's door admits humid air which the air conditioner must then dehumidify.

MAINTENANCE

Compressor
The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service.

Should the refrigerant charge be lost, recharging ports (access fittings) on the suction and discharge sides of the compressor are provided for recharging and/or checking suction and discharge pressures.

Under no circumstances should the access fitting covers be loosened, removed or tampered with.

Breaking of seals on compressor access fittings during warranty period will void warranty on hermetic system.

Recharging ports are provided for the ease and convenience of reputable refrigeration repair service personnel for recharging the air conditioner.

Inlet Air Filter
Proper maintenance of the inlet air filter, located behind the front cover, will assure normal operation of the air conditioner. If filter maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

If the compressor's operating temperature increases above designed conditions due to a dirty or clogged filter (or plugged condenser coil), the air conditioner's compressor will stop operating due to actuation of the thermal overload cut-out switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switch's cut-in setting, the compressor will restart automatically. However the above condition will continue to take place until the filter or coil has been cleaned. It is recommended that power to the air conditioner be interrupted intentionally when abnormally high compressor operating temperature causes automatic shut-down of the unit.

The above described shut-down is symptomatic of a clogged or dirty filter, thus causing a reduction in cooling air flow across the surface of the compressor and condenser coil.

Do not run the air conditioner for extended periods of time with the filter removed. Particles of dust, lint, etc., can plug the fins of the condenser coil which will give the same reaction as a plugged filter. The condenser coil is not visible through the filter opening, so protect it with a filter.

Continued operation under the above conditions can and will damage and shorten compressor life. The air conditioner is available with an easily removable inlet filter to facilitate necessary cleaning. There should be no reason to neglect this necessary maintenance.
How To Remove, Clean or Install a New Inlet Air Filter

RP aluminum washable air filters are designed to provide excellent filtering efficiency with a high dust holding capacity and a minimum amount of resistance to air flow. Since they are constructed entirely of aluminum, they are lightweight and easy to service. Optimum filter performance is maintained by recoating the filters after washing with RP Super Filter Coat adhesive. To achieve maximum performance from your air handling equipment, air filters should be cleaned on a regular basis.

The inlet air filter is located behind the right side panel. To access the filter, pull from slot on top cover. The filter may now be cleaned or a new filter installed.

Cleaning Instructions:

1. Flush the filter with warm water from the exhaust side to the intake side. DO NOT USE CAUSTICS.
2. After flushing, allow filter to drain. Placing it with a corner down will assure complete drainage.
3. Recoat the filters with RP Super Filter Coat adhesive. When spraying filter do so from both sides for maximum concentration of adhesive.

Condenser and Evaporator Air Movers

Blower motor requires no maintenance. All bearings, shafts, etc. are lubricated for the life of the motor during manufacturing.

If one of the condenser impeller motors (ambient impellers) should fail, it is not necessary to remove the air conditioner from the cabinet or enclosure to replace the blower. The condenser blower is mounted on its own bulkhead and is easily accessible by removing the front cover.

CAUTION

Operation of the air conditioner in areas containing airborne caustics or chemicals can rapidly deteriorate filters, condenser coils, blowers and motors, etc. Contact Pentair Technical Products for special recommendations.

Refrigerant Loss

Each air conditioner is thoroughly tested prior to leaving the factory to insure against refrigeration leaks. Shipping damage or microscopic leaks not found with sensitive electronic refrigerant leak detection equipment during manufacture may require repair or recharging of the system. This work should only be performed by qualified professionals, generally available through a local, reputable air conditioning repair or service company.

Refer to the data on the nameplate which specifies the type of refrigerant and the charge size in ounces.

Before recharging, make sure there are no leaks and that the system has been properly evacuated into a deep vacuum.
TROUBLE SHOOTING

Basic Air Conditioning Trouble Shooting Check List

1. Check manufacturer’s nameplate located on the unit for correct power supply.
2. Turn on power to the unit. The evaporator (Enclosure or “COLD” air) blower should come on. Is there airflow?

   YES, proceed to step 3.

   NO, possible problem:
   - Open motor winding
   - Stuck blower motor
   - Obstructed wheels/blades

   Repair or Replace defective part

3. Check thermostat setting and adjust thermostat to the lowest setting. This should turn on the condenser blower and compressor. Did condenser blower and compressor come on when the thermostat was turned on?

   YES, proceed to step 4.

   NO, possible problem:
   - Defective thermostat

   Replace part

4. Are both blowers and the compressor running? If not, the unit will not cool properly.
5. Check condenser (Ambient or “HOT” air) blower for airflow. Is there airflow?

   YES, proceed to step 6.

   NO, possible problem:
   - Defective thermostat
   - Open motor winding
   - Stuck blower motor
   - Obstructed wheels/blades

   Repair or Replace defective part

6. Carefully check the compressor for operation - motor should cause slight vibration, and the outer case of the compressor should be warm. Is the compressor showing signs of this?

   YES, wait 5 minutes, then proceed to step 7.

   NO, possible problem:
   - Defective thermostat
   - Defective capacitor
   - Defective overload
   - Defective relay

   Repair or Replace defective part

7. Make sure the coils are clean. Then check evaporator “air in” and “air out” temperatures. If the temperatures are the same:

   - Possible loss of refrigerant
   - Possible bad valves in the compressor

   Repair or Replace defective part

8. To check for a bad thermostat, turn power off to the unit. Remove control box cover and place both thermostat wires onto one terminal (replace control box cover for safety). This will bypass the switch in the thermostat. Turn on the power. If both blowers and the compressor come on, the thermostat needs to be replaced.
## Symptoms and Possible Causes:

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit won’t cool</td>
<td>Blower not running</td>
</tr>
<tr>
<td></td>
<td>Compressor not running</td>
</tr>
<tr>
<td></td>
<td>Compressor runs, but has bad valves</td>
</tr>
<tr>
<td></td>
<td>Loss of refrigerant</td>
</tr>
<tr>
<td>Compressor tries to start but won’t run</td>
<td>Low line voltage at start. Should be +/-10% rated voltage.</td>
</tr>
<tr>
<td></td>
<td>Compressor motor stuck</td>
</tr>
<tr>
<td></td>
<td>Bad relay</td>
</tr>
<tr>
<td></td>
<td>Bad overload switch</td>
</tr>
<tr>
<td></td>
<td>Bad run/start capacitor</td>
</tr>
<tr>
<td>Unit blows breakers</td>
<td>Undersized breaker/fuse or not time delayed</td>
</tr>
<tr>
<td></td>
<td>Short in system</td>
</tr>
<tr>
<td>Getting water in enclosure</td>
<td>Drain plugged</td>
</tr>
<tr>
<td></td>
<td>Drain tube kinked</td>
</tr>
<tr>
<td></td>
<td>Enclosure not sealed (allowing humidity in)</td>
</tr>
</tbody>
</table>
WARRANTY

Pentair Technical Products warrants that the Goods manufactured by Pentair Technical Products will be free from defects in material and workmanship for a period of one (1) year from the date of shipment by Pentair Technical Products, subject to the following conditions and exclusions:

A. Conditions. All Goods must be installed and operated according to the following specifications:

1. Maximum voltage variation no greater than plus or minus 10% of nameplate nominal rating;
2. Maximum frequency variation no greater than plus or minus 3 Hz. of nameplate nominal rating;
3. Must not exceed minimum and maximum stated temperatures on the nameplate;
4. Must not exceed (BTU/Hr) rating, including any heat sink as indicated on the nameplate;
5. Refrigerant bearing Goods must not be restarted for a period of one (1) minute after intentional or accidental shut-off;
6. The filters (if applicable) must be cleaned regularly;
7. The Goods and any parts thereof must not be modified, unless prior written authorization is received from Pentair Technical Products; and
8. All Goods must be installed and grounded in accordance with all relevant electrical and safety codes, as well as the National Electric Code and OSHA rules and regulations.
9. All Goods must be installed in a stationery application, free of vibration.

A violation of any one of these conditions shall render the warranty hereunder void and of no effect.

B. Exclusions. This warranty shall be void if product is misapplied in any way or:

1. Buyer specified product is inappropriate for system or environment in which it is operating.
2. Pentair Technical Products product modified in any way without prior written authorization from Pentair Technical Products.
3. Removal or modification of Pentair Technical Products label affixed to product without written Pentair Technical Products approval.

Pentair Technical Products must be notified of a claim in writing not later than fourteen (14) days from the date when Buyer has become aware of such occurrence, or where the defect is such that it may cause damage, immediately, such notice containing a description of how the defect manifests itself. Failure to provide such prompt notice to Pentair Technical Products shall result in forfeiture of Buyer's rights under this warranty.

In the event of a warranty claim, Buyer is to return defective goods to Pentair Technical Products in accordance with Pentair Technical Products Return Policy. Warranty period for repaired goods remains at 1 year from shipment of original goods. Pentair Technical Products sole obligation to Buyer under this warranty will be, at Pentair Technical Products option:

A. Repair or replace Pentair Technical Products products or parts found to be defective in material or workmanship.

B. Issue credit for the purchase price paid by Buyer relating to such defective Goods or part.

THIS WARRANTY CONSTITUTES THE ENTIRE WARRANTY WITH RESPECT TO THE GOODS AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

RETURN AND REPAIR POLICY

Pentair Technical Products products that: (i) are made to order, (ii) have been modified by Buyer, (iii) have special finishes, or (iv) are determined by Pentair Technical Products to constitute “custom” products that cannot be returned to stock or resold to other Buyers, will not be accepted for return by Pentair Technical Products.

All returns require a Return Material Authorization number (RMA #), regardless of reason for return, whether it be for warranty or out of warranty repair. Returns without an RMA # will be refused by our Receiving Department. An RMA # is valid for 60 days.

A. An RMA # will be issued by our Repair Department in Anoka, MN at 866-545-5252. Buyer should have following information available at time of RMA request: 
1. Complete Model Number, Serial Number and description of damaged unit being returned.
2. Original Buyer Purchase Order number and date product was received by Buyer.
3. Quantity to be returned and a brief description of failure for each unit, if different.
4. Contact information of Buyer that must include: name of company, billing and shipping address, phone, number, fax number, freight carrier and the name and phone number of a Buyer contact who can elaborate on the claimed defect in detail.
5. Buyer must provide a Repair Purchase Order number for both warranty and out of warranty repairs. The PO will not exceed 50% of a new unit. Buyer will be notified of repair charges that exceed approved PO amount.

B. All returns to Pentair Technical Products must be securely packed, using original cartons if possible. All returns must have the RMA number visible on the outside of the carton. Pentair Technical Products is not responsible for material damaged in transit. Any refrigerant-bearing Goods must be shipped upright for return.

C. Shipping cost for all non-warranty repairs is the responsibility of the sender and must be shipped prepaid. Shipping costs for all warranty related repairs will be covered by Pentair Technical Products provided the goods are returned using a Pentair Technical Products approved carrier. If after diagnoses the product is determined by Pentair Technical Products not be covered under warranty, Buyer will be responsible for all shipping charges and will be billed accordingly.

D. Non-warranty repairs are subject to a $75 minimum analysis fee. Analysis fee will be waived if Buyer approves repair work. If approval is not received within 30 days, material will be scrapped and all shipping expenses and corresponding analysis fees will be billed to Buyer.

E. At Buyer's request, Failure Analysis can be provided by Pentair Technical Products for warrantable goods at no charge. Failure analysis for non-warranty repairs are subject to a $100 per hour Engineering charge plus any other incurred testing costs.

F. All returned merchandise must be sent to the following address: Pentair Technical Products, 2100 Hoffman Way, Anoka, MN 55303-1745.

G. Credit for accepted returns shall be at the original selling price or the current selling price, whichever is lower, less the restocking charge indicated as follows:
   1. Within 60 days of invoice date - 20% of applicable selling price.
   2. Within 61-120 days of invoice date - 30% of applicable selling price.
   3. Within 121-180 days of invoice date - 40% of applicable selling price.
   4. Beyond 180 days - subject to individual review by Pentair Technical Products.

   If product being returned for credit requires repair or modification, the cost of any labor or material necessary to bring product into saleable condition will be deducted from credit. Buyer may not take credit against returns without prior written Pentair Technical Products approval.

LIMITATION OF LIABILITY

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