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**R290 VENDING MERCHANDISER
INSTALLATION, OPERATION, AND SERVICE
MANUAL**



WARNING: This product can expose you to chemicals including nickel, which is known to the State of California to cause cancer (For more information go to www.p65warnings.ca.gov)

SEE BELOW FOR HYDROCARBON REFRIGERATION (R-290) CAUTIONARY STATEMENTS



DANGER: This unit is charged with propane refrigerant. Propane is an extremely flammable and an explosive gas. Please read this manual/guide carefully and follow all safety precautions contained herein to reduce risk of fire and/or explosion. Failure to follow the safety precautions may result in serious injury or death, and/or property damage. Component parts shall only be replaced with like components and servicing shall be done by licensed and qualified personnel, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

- **DANGER** - Risk of fire or explosion. Flammable refrigerant used. Do not use mechanical devices to defrost refrigerator. Do not puncture refrigerant tubing.
- **DANGER** - Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
- **CAUTION** - Risk of fire or explosion. Flammable refrigerant used. Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed.
- **CAUTION** - Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.
- **CAUTION** - Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.
- **CAUTION** - Keep clear of obstruction all ventilation openings in the appliance enclosure or in the structure for building-in.

R290 Service and Repair Guidelines

- It is **HIGHLY** recommended to practice safe refrigeration repair techniques when servicing R290 refrigeration systems.
- Servicing includes repairs to the hermetically sealed system and/or any part of the electrical system. The EPA limit on the amount of R290 charge for commercial applications is, 150 grams/5.29 ounces.
- Repair on R290 systems must always be done in a well-ventilated area.
- Because R290 is highly flammable, a combustible gas leak detector is required when servicing R290 systems.

- The EPA has exempted R290 from Section 608, Venting Prohibition; however, due to safety concerns, it is recommended that R290 be recovered with a R290 recovery unit.

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Storage and Unpacking

Storage and Transportation:

The vending machine should be stored and transported in an upright position. It is not recommended to tilt the merchandiser. If the merchandiser is tilted beyond 45 degrees of vertical, oil may drain from the compressor causing premature failure.

Do Not stack merchandisers on top of one another due to risk of falling. Falling merchandisers could result in damaged units or serious injuries. It is recommended to use warehouse racking design to accommodate the weight of the merchandisers and prevent falling.

Unpacking and Pallet Removal

Prior to installation, the outer packaging on the Vending Machine will need to be removed. The majority of the packaging materials can be recycled and disposed of in an environmentally friendly manner. The wooden skid is secured to the Vending Machine with hex-headed screws and will require the use of a 3/8" hex-socket for screw removal.

1. First remove two screws from each side perimeter board using a long 3/8" hex-socket.



2. Remove the six Philips screws from the front perimeter board and remove board.



3. Remove two Philips screws from the left or right side. This will remove the skid footing to aid in use of pallet jack.



4. Insert pallet jack from the front side.
CAUTION: Stay clear of the load cells.



5. Use lifting device to lift the unit high enough to remove pallet and the orange pallet cushions from the back.



6. Slide unit off the pallet jack into position on a sturdy level surface. Use the included stackers for leveling if required.



Start-Up

Set-up Prior to Installing at Retail Location:

The Vending Machine refrigeration system will arrive at the customer location ready to operate within design parameters that have been tested and deemed optimum for ice storage.

Prior to installing the Vending Machine at the retail location, perform a series of steps for set up and checks to ensure the unit was not damaged during delivery. NOTE: The pallet and all packaging material must be removed before proceeding.



1. Prior to energizing the Vending Machine, place the MODE key in the 'RUN' position and the DOORS key in the 'LOCK' position.
 - Failure to place the MODE key in the 'RUN' position prior to energizing will result in a blank screen on the card reader.
2. Energize the Vending Machine.

- **After a 2-minute delay, the compressor and the condenser fan should start.**
 - NOTE: If the unit does not start within a few minutes, check the on/off switch located next to the electronic control display.
- Let the machine run for approximately 1 hour. The Vending Machine will continue to run until it has reached the factory pre-set cut-out temperature of +16°F/-9°C.

Reporting Provision Code:

3. At start-up, watch for and record the provision code to be displayed on the card reader. Report the provision code to Vendnovation by calling 425-637-2344. Vendnovation will provision the Vending Machine and update firmware if needed. They will also assign product and link to test credit card system.

Door Locks and Sensors:

With the unit on, the doors can now be tested.

4. Check the doors – they should be locked.
5. Turn the MODE key to the 'SET-UP' position.
 - "Synchronize Inventory" will display
6. Press cancel button once
 - "Hardware" will display
7. Press enter button once
 - "Test Door" will display
8. Press enter button once
 - The doors will unlock and "Door Closed"
 - If it displays "Door Open" the door sensors need to be adjusted.
9. Open and close each door
 - As each door is opened and closed the display should show "Door Open" or "Door Closed"

10. Press cancel button once
 - The doors will lock again
11. Return the MODE key to the 'RUN' position.

Calibrate Scale:

12. Turn the MODE key to the 'SET-UP' position.
 - Synchronize Inventory" will display
13. Press cancel button once
 - "Hardware" will display
14. Press enter button once
 - "Test door" will display
15. Press cancel button three times
 - "Calibrate Scale" will display
16. Press enter button once
 - System will calibrate and should display "0"
17. Return the MODE key to the 'RUN' position.

Test Transactions:

18. Load a few bags of ice in the Vending Machine.
19. Verify that the display reads correct bag size and price.
20. Perform a test transaction and verify the transaction processed successfully.
21. Contact Vendnovation and have the Vending Machine unit linked to a live credit card account.
Call 425-637-2344

End of Vending Setup Instructions

Installation

Placing Merchandiser: When placing the vending machine, allow a minimum of 3 inches of air space from all surfaces of the cabinet and any surrounding structures. This air space allows for air flow over the surface of the cabinet, thus

reducing condensation and aids in drying these surfaces. On outdoor auto-defrost models, the 3-inch space behind the vending machine will also help ensure that the evaporator drain tube, which exits the back wall, is not being restricted during the defrost cycle.

Merchandiser Leveling: The vending machine installation location should have a solid, level base. If the vending machine is exhibiting a slight forward lean, the front of the cabinet should be blocked up to bring the cabinet to a level position. On auto-defrost models, a forward lean may affect proper draining of the unit cooler assembly during the defrost cycle.

- Leveling Kit (4 pc.) No. 5350029, which is compatible for use on most cabinet models, is available.

Contact the Merchandiser Sales Department at Leer, Inc. for additional information.

Electrical:

Warning! Component parts shall only be replaced with like components. Electrical work and servicing should be done by licensed professionals. Disconnect power before performing service, certain models may contain multiple voltages. Leer does not assume responsibility for any damage to people or things deriving from violation, improper use or in any case not in compliance with Leer's instructions.

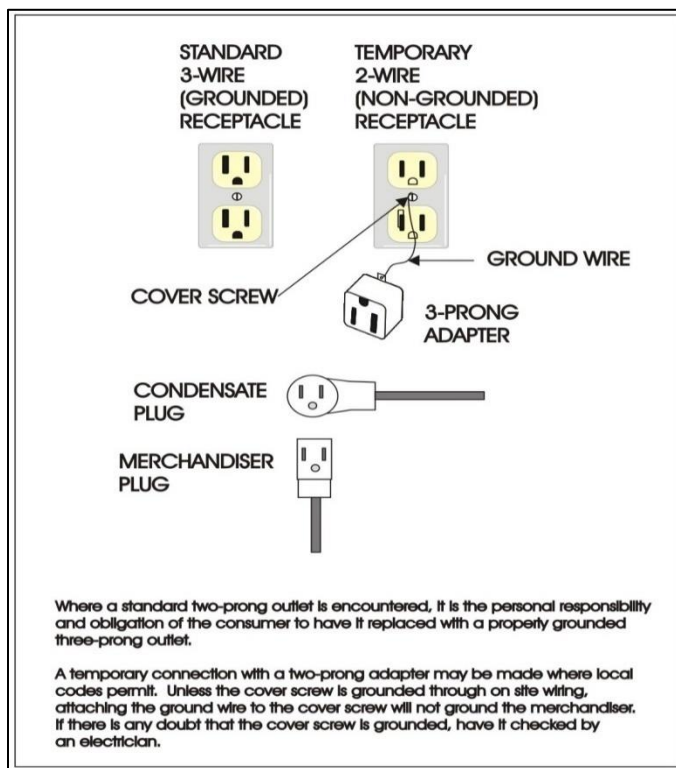


Figure 1: Grounding

The vending machine must be plugged into a dedicated and properly grounded 115V/60hz/1Ph circuit with a circuit fuse or breaker rated at a 15 or 20 Amps depending on model. The electrical service connections to the vending machine must be compliant with national electric code and local codes that may apply. **DO NOT** use extension cords. The 20 Amp plug configuration, that some models come with, should **NOT** be removed. Some models are equipped with a main power switch. If so equipped, make sure the switch is in the OFF position before plugging the merchandiser into the lower receptacle of the electrical outlet.

WARNING: Operating more than one appliance on the same circuit may result in voltage fluctuations when both appliances are operating simultaneously. This voltage fluctuation may cause the circuit breaker to trip and/or may cause voltage drops. As a result, the power to the freezer may be interrupted and freezing performance can be adversely affected which may cause equipment damage and /or product loss. Voltage supply to the merchandiser must not vary more than ± 10 percent of the normal 115V. Information

regarding the electrical voltage and frequency being supplied to the merchandiser can be found on the merchandiser's serial data plate typically located at the upper left corner of the merchandiser's interior. Information regarding the maximum fuse/circuit breaker size required for the specific model is available from the condensing unit data plate.

Condensate Evaporator: Indoor auto-defrost models require a condensate evaporator heater assembly (sold separately). It will require simple installation by the consumer (see Figure 2). A separate copy of this instruction sheet is supplied with the condensate evaporator assembly. The condensate evaporator assembly contains a drip pan to collect water generated by the vending machine's defrost cycle and a heat element to evaporate the water. Once energized, the heat element in the condensate evaporator assembly is continuously generating heat. The vending machine is to be placed so that there is at least 1 inch of air space between the back surface of the condensate evaporator housing and any wall surface behind the cabinet which allows for heat dissipation away from the surface of the wall. The main power cord should also be routed to avoid pinching.

Note: Do not operate an indoor auto-defrost vending machine without having a condensate evaporator assembly installed under the evaporator drain tube exiting the back wall of the cabinet. Failure to install this assembly will result in water draining directly onto the floor during the defrost cycle. This may result in water damage to the floor and create a hazardous slip condition in the area surrounding the vending machine.

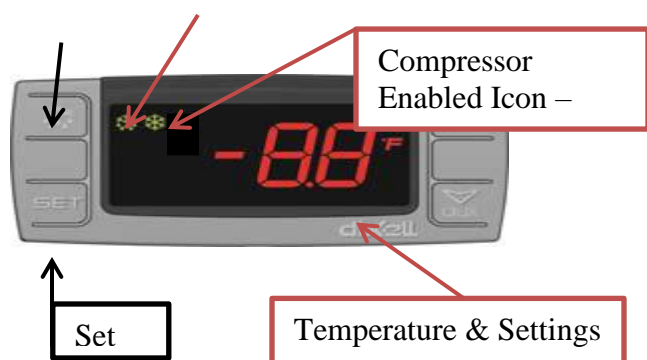
Operation

Temperature Controls: R290 Vending is only available with an electronic control.

Electronic Controls: Digital Display:

Manual
Defrost

Defrost Enabled



Operating Mode Display:

- Snowflake “ON” – compressor enabled in run cycle; control displays current cabinet temperature.
- Snowflake “Flashing” – anti short cycle delay enabled to protect the compressor from trying to start too frequently.
- Melting Snowflake “ON” – defrost in progress, control displays the letters “DE”
- To view the control’s programmed “Set Point” (cut-out temperature): press and release the “Set Key.”
- To initiate a manual defrost cycle: press and hold the “Manual Defrost Key” for more than 2 seconds.

Note: Manual Defrost will not initiate unless the unit is at standard operating temperatures.

Electronic Control Operation:

The electronic control combines the functions of both the mechanical thermostat and defrost timer into a single control. The control also offers the consumer the capability of monitoring the operational status of the merchandiser via the icon and digital temperature display (located on the face of the control). The controller has been programmed by the manufacturer to operate the vending machine within the design parameters of the refrigeration system. The set-point (cut-out) for these controls has programmed parameters for 16°F, with a differential of 8°F for an Auto Defrost. Should the user desire to alter the Set-Point, the new set-points should not exceed +/- 4° of the original factory setting. Do not alter any of the programming parameters in the controls without first consulting with Leer

Auto-Defrost Control: The AD control is also located under the condensing unit cover and contains two thermal-couple probe wires. Both probe wires are routed through the cabinet’s suction line hole and into the unit cooler assembly, which is mounted to the interior ceiling of the cabinet. The Red, Air Sensing Probe (“P1”) routes through the unit cooler and has its’ sensing bulb secured to the outer, left-hand wall of the unit cooler. Probe “P1” monitors the air temperature in the merchandiser at that location. During the normal operation of the control, the digital display will show the cabinet temperature at the probe “P1” location. The Black, Evaporator Probe “P2” is inserted into the finned section of the evaporator coil, near the top of the unit cooler assembly. This probe monitors the temperature of the evaporator coil during the defrost cycle.

Electronic Control Startup: Turn the switch if equipped into the ON position. **After a 2-minute delay, the compressor and the condenser fan should start.** The evaporator fan motors and the light fixture will operate immediately when power is applied. The condensing unit will continue to run until the air temperature in the cabinet reaches +16°F on an Auto Defrost.

Note: If a defrost is required upon startup the controller will enter defrost mode after the 2-minute delay. Normal operation will resume upon defrost termination and a short drip time.

Possible Displayed Alarm Codes:

“P1” – Air Probe failure: The control will override the “P1” functions and cycle the compressor at 5-minute intervals, until the probe fault can be corrected.

“P2” – Evaporator Probe failure: The control will override the “P2” function and operate with a timed defrost cycle, until the probe fault can be corrected.

“HA” – Maximum Temperature Alarm: The cabinet air temperature has exceeded programmed temperature for a period exceeding 15 minutes.

The alarm will continue to display until the cabinet temperature drops below maximum levels.

“LA” – Minimum Temperature Alarm: The cabinet air temperature has dropped below the programmed minimum. This alarm will continue to display until the cabinet temperature rises above the minimum level.

Note: Should a “P1” or “P2” alarm occur, check the probe wire connections to the control prior to replacing the probe wire.

For more detailed information regarding the Electronic Control programming and instructions, please contact: Leer, Inc. Merchandiser Division Customer Service. Phone: 800-766-5337. Contact information is available on our web-site at <http://www.leerinc.com/ice-merchandisers/merchandiser-sales-distributors/>


Loading Ice: The merchandiser should be pre-chilled prior to loading with ice. Pre-chilling will aid the merchandiser in reaching storage temperature at a faster rate once loaded and reduce the risk of melting product. Do not over fill the merchandiser with ice!

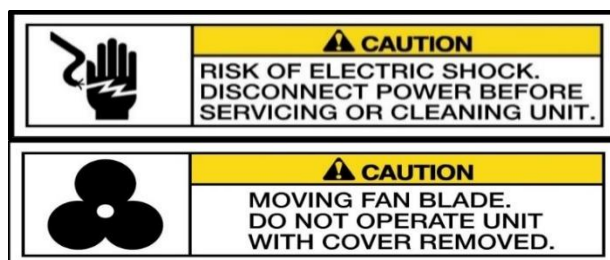
Stocking Instructions:

To unlock the doors, use the door key switch and turn to the horizontal position. Return key to the vertical position to lock.

Auto-Defrost Models: Avoid stacking ice above the top edge of the air ducts that are installed on the walls of the cabinet interior. Blocking off these air ducts may restrict the even distribution of cold air throughout the cabinet which may result in warm spots developing within the cabinet. Also, do not stack ice high enough to block off the evaporator fans in the unit cooler assembly. The evaporator fans are intended to pull warm air entering the cabinet into the unit cooler and then push that warm air across the surface of the evaporator coil. This process removes the heat prior to distributing the air into the cabinet.

Maintenance and Service

 **Danger!** This unit is charged with propane refrigerant. Propane is an extremely flammable and explosive gas. Component parts shall only be replaced with like components. Maintenance and repair of the electrical and refrigeration systems should only be done by licensed, trained and qualified personnel. Disconnect power before performing service, certain models may contain multiple voltages. Leer does not assume responsibility for any damage to people or things deriving from violation, improper use or in any case not in compliance with Leer’s instructions.



Cleaning the Merchandiser: The vending machine should be cleaned annually. In corrosive environments such as coastal regions and areas where deicing chemicals and road salts are used, more frequent cleaning is recommended. The exterior of the merchandiser can typically be cleaned with the use of detergents diluted in warm water followed with a tap water rinse. The exterior paint is capable of withstanding the use of polishing compounds and most solvents. If using stronger cleaning agents, they should be tested on a small, inconspicuous areas prior to application onto visible surfaces of the merchandiser. If cleaning the interior of the merchandiser, the use of detergents with strong odors (i.e. citrus based cleaners), abrasive cleaners containing chlorine bleach, and any form of solvent based cleaners are not recommended. They may leave objectionable odors inside the cabinet which may be absorbed by the ice being stored in the merchandiser.

Cleaning Door Gaskets: Door gaskets may mildew and stiffen over time. The gasket is made of a soft, flexible rubber-like material that can be

cleaned using most kitchen and bath cleaners designed for mildew removal. Review manufacturer information and instructions on any cleaning agent prior to use to determine the cleaner's compatibility with the surface being cleaned.

Cleaning Condenser Coils:

It is recommended to inspect and clean the condenser coil and fan blades every 3 months. There are a variety of methods available for cleaning the condenser coils. Keep in mind that the debris is being drawn into the coil by the condenser fan and the debris should be removed in the opposite direction.

- The simplest and preferred method would involve the use of a vacuum cleaner to suck the debris out of the coil from the outside surface.
- Another method is using compressed air to blow dust from the coil. The debris should be blown out from the inside surface of the coil.

WARNING: When using compressed air, there may be a cloud of dust released into the air surrounding the machine.

It is recommended that the service person wear proper protective equipment (i.e. safety glasses and a dust mask) when performing coil cleanings.

Note: DO NOT use any type of filter media in front of the condenser coil to trap dust. Filter testing has proven to create enough restriction of air flow to reduce the efficiency of the coil's heat exchange.

Auto-Defrost Overview: Auto-Defrost models are equipped to be self-defrosting and enter defrost mode once every four hours automatically. During the defrost cycle, the power to the refrigeration system will be automatically re-directed to the defrost circuit. This will shut down power to the condensing unit and evaporator fan motors and also send power to a heat element that is attached to the surface of the evaporator coil. The heat generated by the element will melt the ice build-up on the evaporator coil and the resulting melt water will

drain through a tube out of the back wall of the merchandiser.

On outdoor cabinet models, the melt water will exit the drain tube directly to the ground.

On indoor cabinet models, the consumer needs to install the condensate evaporator heater assembly (described in the **Installation** section of this manual) onto the exterior back wall of the cabinet. The melt water from the defrost cycle will drain into a catch pan where it will then be heated to the point of evaporation. The function of the condensate evaporator's heat element should be checked routinely. Failure of the element could result in an over-flow condition for the assembly's drain pan. A simple check of the heater would be a touch test of the surface temperature of the assembly's housing. The condensate evaporator's heat element is energized continuously so the surface of the housing should always be hot to the touch. If testing the heat element with a meter, the element can be unplugged from its' power source and a resistance reading can be taken through the plug's bladed terminals. The condensate heater is rated to generate 125 watts of power, which translates to approximately 106 ohms of resistance.

It is recommended to check the operation and condition of the evaporator coils for excessive ice buildup every 3 months.

Auto-Defrost Operation: The controller is factory set for a 24 minute defrost cycle to occur at 4-hour intervals. Like a mechanical defrost timer, the electronic control will switch power from run mode (condensing unit and evaporator fans) to defrost mode (defrost heat element). Whereas a mechanical timer operates strictly on a timed cycle, the duration of the electronic control's defrost cycle is controlled by the temperature at the sensor probe "P2." If the temperature at this probe reaches 60°F prior to the 24-minute timed cycle ending, the control will override the timed cycle and immediately switch power from the defrost mode to a drip time then standard run mode. If temperature is not reached at probe "P2," the defrost cycle will continue for the entire 24- minute programmed cycle prior to returning to run mode. Energizing the defrost

circuit in the electronic control can be verified with the illumination of the “melting snowflake” and the letters “DE” appearing on the control’s display.

The electronic defrost circuit is equipped with a defrost termination safety switch and is attached to one of the evaporator coil tubes (located inside the Unit Cooler Assembly). This switch senses temperature and will cut power to the defrost heat element should the temperature at the surface of the switch reach 100° F. This switch only terminates power to the heat element and will not end the timed / temperature defrost cycle. Once the merchandiser has returned to run mode, the termination safety switch will re-set when the temperature at its’ surface reaches 70° F.

Warning! The defrost safety switch functions as a possible fire protection device. Do not remove or by-pass the switch from the defrost circuit.

Note: If the vending unit loses power, it will automatically enter a defrost cycle.

Solid Doors and Maintenance: Cabinets designed for outdoor use will have a metal clad door that has been insulated with the same urethane foam insulation as the cabinet. For routine cleaning of the door’s exterior surface, a mild detergent diluted in warm water should be adequate.

Decaling Recommendations Solid Door:

- a) Use a decal with a 2-mil cast vinyl substrate. Cast vinyl contains less memory than a calendared vinyl or a polyester substrate and will conform to the embossed surface with the least amount of stress on the decal’s adhesive.
- b) The decal’s adhesive should have a minimum peel-strength rating of 80 oz. /inch.
- c) Clean the surface of the door with isopropyl alcohol and either air dry or dry with a clean cloth.
- d) Heating the surface of the door immediately before applying the decal will aid the adhesive bond of the decal. Never apply a decal to a surface that is colder than 50° F.

- e) Use a soft roller or plastic squeegee to apply the decal and press it into the embossed surface of the metal. Applying a small amount of heat to the surface of the decal will aid in this process.

Door Gaskets and Hardware:

Routine inspection of the door gasket seal and the action of the door’s hinges are recommended.

A simple test of the spring-load tension is to open the door just enough to insert two fingers between the surface of the cabinet and the handle side of the door. When the fingers are withdrawn, there should be enough tension set on the hinge spring-loads to slowly move the door to a closed position. If the door does not move from this two-finger location, it’s likely that either the spring-load requires re-tensioning or lubrication. If the door moves part way from the two-finger location but stops short of the cabinet, the compression of the gasket along the hinge side of the door should be checked. If there is too much compression, the door will bind when closed and should have its hinge-mount location checked and possibly adjusted. Removing the hinge covers will expose the spring-loads for tension adjustment or removal. Removal of the spring-load will expose the hinge-adjustment plate and mounting screws should hinge adjustment be required. See **Figure 2** for instruction regarding spring-load installation and adjustment.

If damage has occurred to the gasket, it may allow outside air to penetrate the cabinet and the gasket should be replaced. The gasket profile is a barbed dart that inserts into a slot opening in the surface of the door frame. See **Figure 3** for instructions on solid door gasket replacement.

Vending Calibration:

Routine calibration is recommended every time the unit is empty or near empty. This should be done once a month to insure proper inventory. Follow steps from page 5-6. - **Calibrate Scale Before Loading Ice!**

R290 Refrigeration Service:



Danger: Do not attempt to open the refrigeration system! Propane is an extremely flammable and explosive gas.

Like other refrigeration systems, a unit charged with R290 is not serviceable on a consumer level. The use of special tools and proper procedures performed by licensed, trained and qualified professionals is required.

R290 General Information:

R290 refrigerant is flammable, but the amount of refrigerant used is relatively small and the chance of ignition in the event of refrigerant leak is extremely low. Millions of commercial and residential refrigeration products are already using similar, if not exact, refrigerants worldwide.

R290 refrigeration grade propane has a much higher purity than standard propane. The higher

moisture content of standard propane will damage a refrigeration system. Standard propane also has a scent added (another impurity) that refrigeration grade materials do not.

R290 is a high-performance refrigerant. The superior thermodynamic properties of R290 compared to R404a and R134a allow for a reduced charge per system and lower system energy use.

Most important, It's eco-friendly! R290 is classified as a hydrocarbon (HC) refrigerant, which is a natural, non-toxic, refrigerant and the top alternative to hydrofluorocarbon (HFC) refrigerants. R290 has an Ozone Depletion Potential (ODP) of 0 and an ultra-low Global Warming Potential (GWP) of 3.

SPRING CARTRIDGE INSTALLATION INSTRUCTIONS

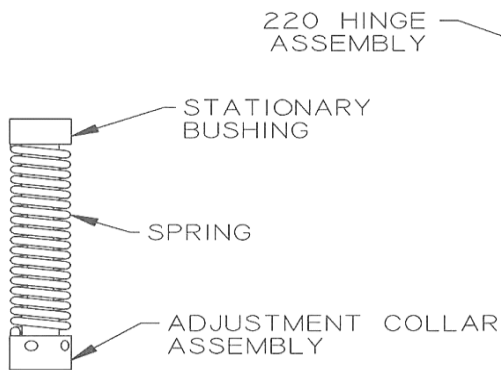


Figure 1

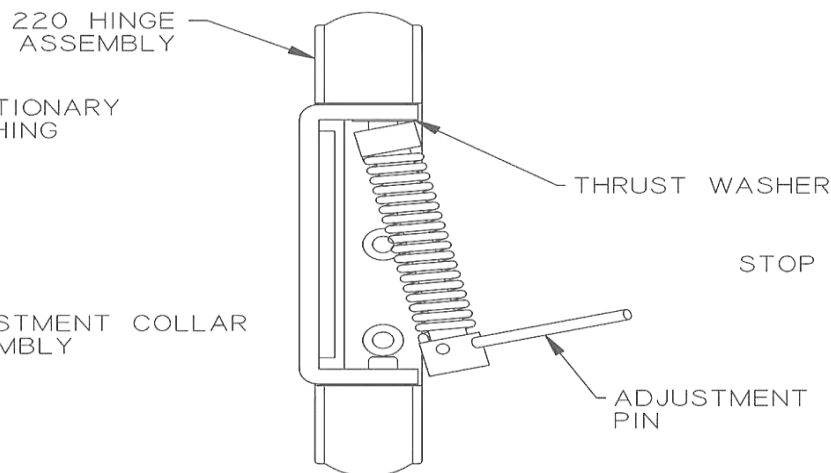


Figure 2

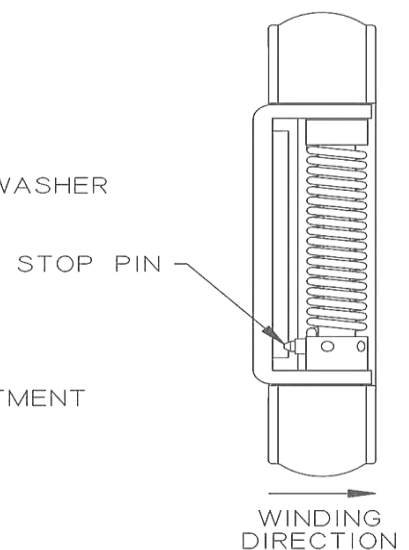


Figure 3

- 1) Install No. 220 Hinge with Adjustment Plate.
- 2) Assemble Spring Cartridge. Grease bushing end of pin prior to insertion into Stationary Bushing. Apply a small amount of grease to the hinge-pin hole on the end of the Adjustment Collar Assembly. (Fig. 1).

3) Place Thrust Washer and Stationary Bushing over square pin in the Hinge and insert the Adjustment Pin into the Adjustment Collar. Using the Adjustment Pin, compress the Spring and place the Adjustment Collar over the round pin (Fig. 2).

4) Using the Adjustment Pin, turn the Adjustment Collar until the Pin contacts the Hinge. Then insert the Stop Pin in hole of Adjustment Collar (Fig. 3). **CAUTION:** The Stop Pin must fully seat on Adjustment Collar. Failure to do so may cause the Stop Pin to become dislodged. Inserting the Adjustment Pin more than halfway thru the Adjustment Collar can cause partial push out of the Stop Pin. Repeat adjustment until desired tension is reached. The maximum tension is 6 holes or approximately 1-1/4 turns.

5) Install Cover on Hinge.

WARNING: Use safety glasses when installing and adjusting spring tension.

Figure 2: Spring Install Instructions

Solid Door Magnetic Gasket Replacement Instructions:

1. Position solid door on a flat non-abrasive surface, exterior side down.
2. Remove old gasket by grasping firmly at the corner and pulling away from the door frame extrusion.
3. Inspect the extruded slot to insure there are no particles to interfere with the new gasket installation.
4. Align new gasket with door corners and use thumb to press into frame.
5. Start at one corner of the frame and begin pressing the new gasket into the slot. Using a non abrasive tool such as a hammer head works well for this application. Apply downward pressure while moving along the perimeter of the frame. Excessive pressure may stretch the gasket and cause bulging at the corners.

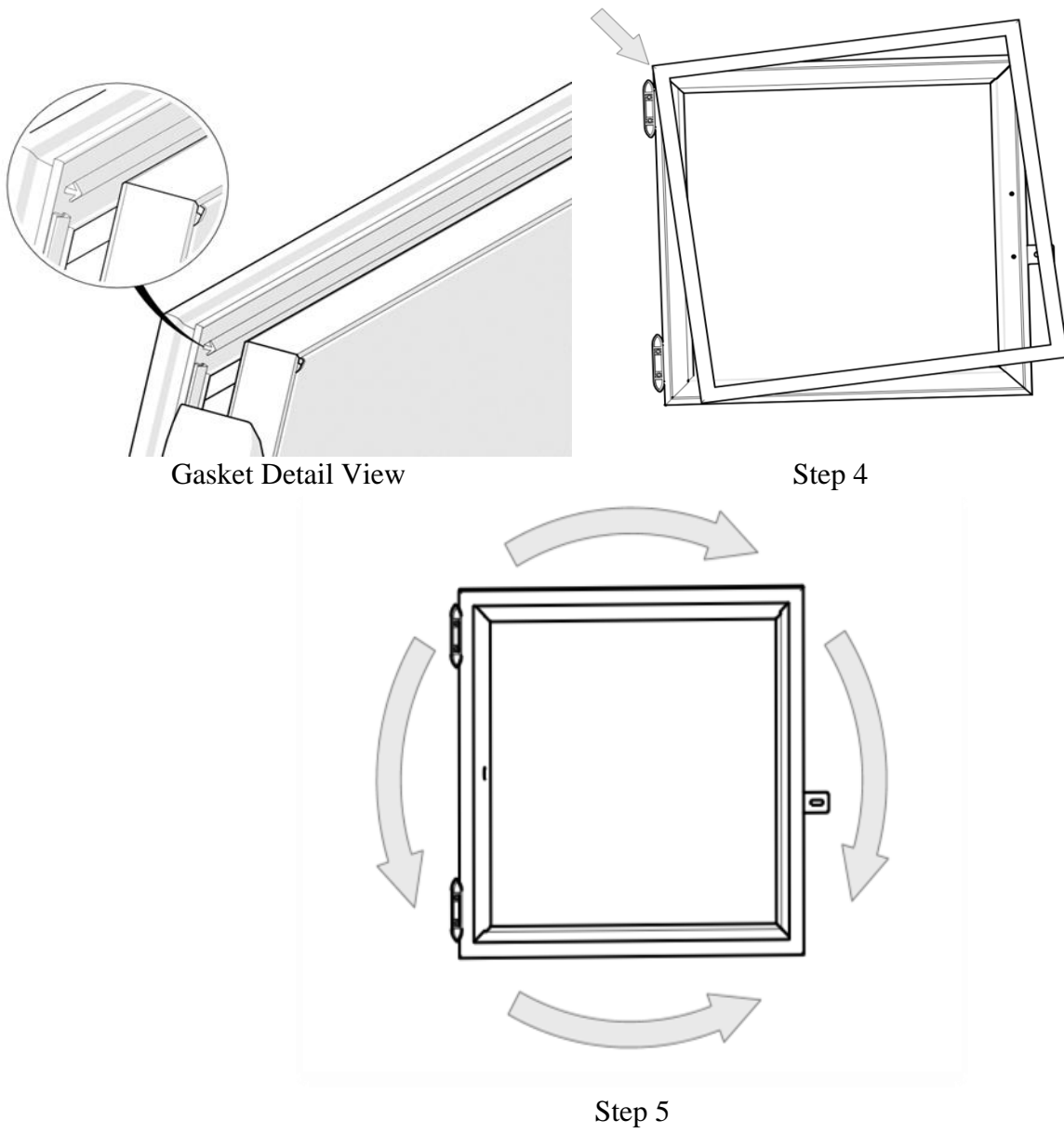
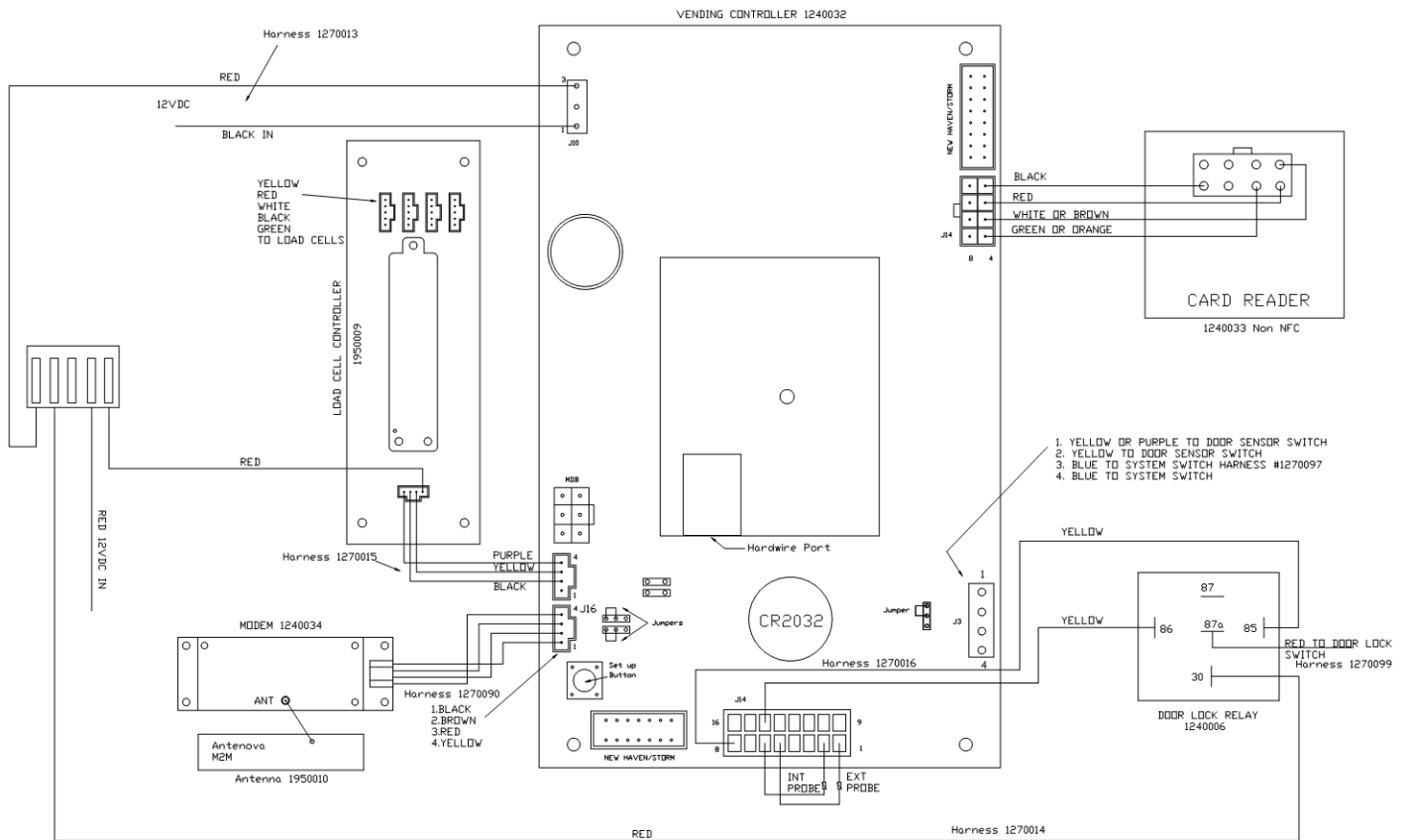
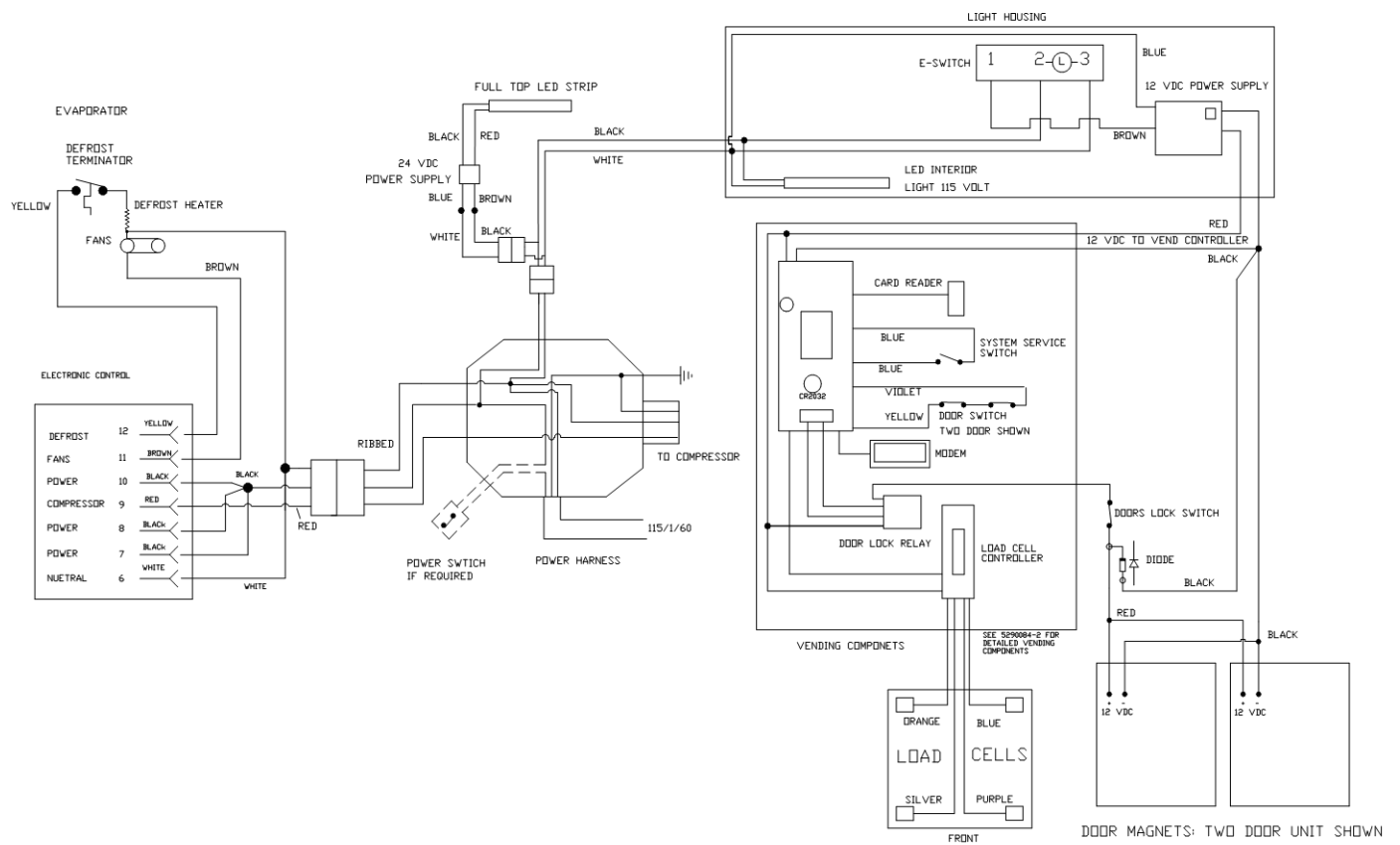


Figure 3: Door Gasket Install

Electronic Control- AD Wiring Diagram



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Warranty

ICE VENDING MACHINES: Seller warrants the machine under normal use and service, for one (1) year for the component parts (to be shipped by seller), and ninety (90) days for repair labor from the date of original shipment. The machine compressor motor is warranted for five (5) years from the date of original shipment. SELLER MUST BE CONTACTED AND PROVIDED A MACHINE SERIAL NUMBER FOR WARRANTY CLAIM. This applies only to goods installed in the United States, Canada or Mexico. Seller's obligation under this warranty shall be limited to repair (subject to the limitations below) or replacement of any part(s), F.O.B. Seller's factory, which prove(s) defective within the applicable warranty period. Seller reserves the right to inspect defective part(s) and may at Seller's discretion require return of part(s) to Seller's factory for inspection. The determination as to whether any defect exists shall be made in Seller's sole judgement.

GENERAL PROVISIONS APPLICABLE TO ALL WARRANTIES AND PRODUCTS: Seller shall not be liable for any breach of any express warranty set forth above unless Seller is informed immediately upon the discovery of defective part(s). The warranties described above are not assignable and shall operate only in favor of the original buyer/user. In event of any claim for breach of express warranty, Seller shall be responsible for labor charges for repair or replacement of any defective part(s) or assembly only for defects reported to Seller within ninety (90) days after the date of installation. ALL LABOR CHARGES SHALL BE AUTHORIZED OR APPROVED BY SELLER PRIOR TO THE REPAIR OR REPLACEMENT OF PART(S). In all other events, Seller shall not be responsible for any labor charges. Labor charges shall only include standard straight time labor hours at the site of product installation, and shall exclude charges for travel time, mileage, or other premium charges. These warranties shall not apply to any goods, or any part thereof, which may have been subject to any damage in transit, accident, negligence, abuse or misuse, unauthorized alteration or repair, acts of nature or failure to follow any of the Seller's manuals or instructions, if in Seller's sole judgement, such act, omission or event has detrimentally affected the physical condition, use or operating qualities of the product.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, BY REASON OF LAW, STATUE OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE, AND ALL IMPLIED WARRANTIES ARE HEREBY DISCLAIMED. SELLER SHALL NOT BE LIABLE FOR LOSS OF GOODS, MERCHANDISE OR OTHER PROPERTY, OR LOSS OF PROFITS, RESULTING FROM PRODUCT DEFECTS. IN NO EVENT SHALL SELLER'S LIABILITY UNDER ANY CIRCUMSTANCES FOR ANY BREACH OF CONTRACT OR FOR ANY OTHER CLAIM BY BUYER AGAINST SELLER EXCEED THE CONTRACT PRICE OF THE GOODS SOLD HEREUNDER WITH RESPECT TO WHICH SUCH CLAIM ARISES.

MODEL NO. _____
SERIAL NO. _____