

HRVC-010 / HRVC-012 Cooler

Operation, Service, and Parts Manual



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TABLE OF CONTENTS

Safety Information.....	4
General Information and Setup	6
• Introduction	6
• Unpacking the Cooler and Installing It On Location	6
Start-Up.....	8
Maintenance	9
Refrigeration System Service	10
• Components	10
• Refrigeration System Service and Analysis	11
Parts Exploded View.....	12
Wiring Diagram	15
Warranty and Credit / Return Policy	Back Cover

SAFETY INFORMATION

ROYAL VENDORS' COMMITMENT TO SAFETY

Royal Vendors is committed to safety with all of our product designs. We are committed to notifying the user of any possible danger involving the improper handling or maintenance of our products. The servicing of any electrical or mechanical device involves potential dangers, both to those servicing the equipment and to users of the equipment. These dangers can occur because of improper maintenance or usage. The purpose of this safety segment is to alert anyone servicing Royal equipment of potentially dangerous areas and to provide basic safety guidelines for proper upkeep.

This service manual contains various warnings that should be carefully read to minimize the risk of personal injury. This manual also contains service information to ensure that proper methods are followed to avoid damaging the machine or making it unsafe. It is also important to understand these warnings provide general guidance only. Royal could not possibly know, evaluate, or advise of all the conceivable ways in which service might be done. Consequently, Royal cannot predict all of the possible dangerous results. These outlined safety precautions are the basis for an effective safety program. Use these safety measures, along with the service bulletins, helpful hints, and product specification sheets, when installing or servicing Royal equipment.

We recommend that persons servicing our equipment maintain a similar commitment to safety. Only personnel properly trained should have access to the interior electrical and / or mechanical parts of the machine. This will minimize the potential dangers that are inherent in electrical and mechanical devices. Royal has no control over the vendor once it leaves the premises. It is the owner or lessor's responsibility to maintain the vendor in a safe condition. See installation insert located in the new machine for proper installation procedures, and refer to the service manual for recommended maintenance procedures. If you have any questions, please contact the Technical Service Department at 1 800 931 9214 (*outside North America, dial +1 304 728 7056*).

SAFETY REGULATIONS

- Read the safety segment before installation or service.
- Test for proper grounding before installing the machine to reduce the risk of electrical shock and fire.
- Disconnect the power cord from the wall outlet before servicing the machine.
- Only fully-trained service technicians should service the machine when it has power.
- Remove any product before moving a machine.
- Use appropriate equipment when moving a machine.
- Always wear eye protection, and protect your hands, face, and body when working near the refrigeration system.
- Use only authorized replacement parts.
- Be aware of inherent dangers in rocking or tipping a machine.

SECTION 1: ELECTRICAL HAZARDS GENERAL ADVICE

Careless or improper handling of electrical circuits can result in injury or death. Anyone installing, repairing, loading, opening, or otherwise servicing a machine should be aware of this precaution. Apply all of the normal precautions when handling electrical circuits, such as:

- Refrigeration servicing to be performed by qualified personnel only.
- Unplug the vendor before servicing.
- Replace electrical cords if there is any evidence of fraying or other damage.
- Keep all protective covers and ground wires in place.
- Plug equipment into outlets that are properly grounded and polarized (where applicable), and protected with fuses or circuit breakers of the correct size.
- All electrical connections must be dry and free of moisture before applying power.

WARNING: ALWAYS TEST TO VERIFY PROPER GROUNDING PRIOR TO INSTALLATION IN ORDER TO REDUCE THE RISK OF ELECTRICAL SHOCK AND FIRE.

SECTION 2: ELECTRICAL HAZARDS

1. Servicing with power off.

For maximum safety, unplug the power cord from the wall outlet before opening the machine's door. This will aid in avoiding electrical hazards. Service personnel should remain aware of possible hazards from hot components although electrical power is off.

2. Servicing with power on.

Some service situations may require access with power on. Only fully-qualified service technicians should perform power-on servicing. Particular caution is required in servicing assemblies that combine electrical power and mechanical movement. Sudden movement (to escape mechanical action) can result in contact with live circuits and vice versa. It is therefore important to maintain maximum clearances from both moving parts and live circuits when servicing.

WARNINGS:

- 1. ONLY FULLY-TRAINED SERVICE PERSONNEL SHOULD ACCOMPLISH SERVICING WITH POWER ON. SUCH SERVICE BY UNQUALIFIED INDIVIDUALS CAN BE DANGEROUS.**
- 2. LIGHTING CIRCUITS CAN BE HAZARDOUS. ALWAYS DISCONNECT THE MACHINE FROM THE WALL OUTLET BEFORE REPLACING A BULB OR SERVICING THE MACHINE IN THAT AREA.**

NEVER USE A HOSE, PRESSURE WASHER, OR ANY CLEANING METHOD THAT COULD WET ELECTRICAL COMPONENTS. IF WATER CONTAMINATION OF ELECTRICAL COMPONENTS IS SUSPECTED, USE QUALIFIED ELECTRICAL TESTING EQUIPMENT AND TEST METHODS TO ASSURE THAT THE MACHINE IS NOT A HAZARD BEFORE APPLYING POWER FOR ANY REASON.

This equipment is intended for the storage and display of non-potentially hazardous bottled or canned products only.

GENERAL INFORMATION AND SETUP

INTRODUCTION

This manual contains installation, operation, and service instructions for the HRVC-010 / HRVC-012 Cooler, by Royal Vendors, Inc. This manual also contains a parts exploded view and wiring diagram for the HRVC Cooler.

UNPACKING THE COOLER AND INSTALLING IT ON LOCATION

UNWRAP THE COOLER

Examine the outer wrapping for damages to packaging materials. Damage to exterior packaging may have resulted in damage to the cooler. File a claim with the shipping company immediately if the equipment is damaged.

Next, unpack the equipment:

1. Remove the plastic straps that secure the outer cardboard cover.
2. Remove the cover.
3. Remove the corrugated top and corner covers.
4. Remove the plastic wrapping surrounding the cooler.
5. Remove any strapping tape which may have been used to secure the door or grille.
6. Remove the plastic premask finish protector (if present) by peeling it off the unit.

PLACE THE UNIT ON LOCATION

Units are designed for indoor placement only. Provide at least 4" (10 cm) of wall space behind the unit cabinet and any adjacent wall or fixture. Remove the shipping skids by tilting the unit slightly to lift it out of the boards. Ensure the cooler is level (*see following section*).

LEVEL THE UNIT

To provide adequate condensate drainage and proper door alignment and operation of unit, the unit cabinet must be level. The leveling legs are factory-installed and may be adjusted by hand or with the aid of an adjustable wrench.

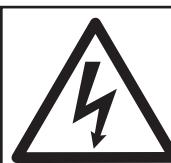
To level the unit:

The door is spring-loaded and will not function properly without proper leveling of the cabinet. Adjust the leveling legs so that the unit sits approximately level to the floor and the door closes properly. For best door operation, adjust the leveling legs so that the cabinet has a 1/16" (2 mm) rake or slant from front to rear. Optional casters are available to replace the leveling legs.

ADJUST THE STABILIZER LEGS

The HRVC-010 / HRVC-012 Cooler is equipped with stabilizer legs which are designed to prevent the cooler from tipping. Always ensure these legs are extended all the way to ground level. Failure to do so may result in the cooler tipping forward, potentially resulting in **broken bones, dismemberment, or even death!**

The stabilizer legs are located below the grille on the front of the cooler. Adjust the legs counterclockwise until they are both extended to ground level.



DANGER

Before servicing the unit, disconnect electrical service. Failure to do so could result in electrical shock or electrocution and could cause personal injury or death!

ROYAL VENDORS HRVC-010 / HRVC-012 COOLER STANDARD PARTS					
Parts	Factory Installed	Field Installed	Unit Size		Quantity
			HRVC-010	HRVC-012	
Refrigeration Deck	X		1	1	
Shelves		X	3	4	
Shelf Clips		X	12	16	
Operation and Service Manual	-	-	1	1	
Levelling Legs	X		4	4	
Lamps	X		2	2	
Leg Protective Sleeve		X	4	4	

NOTE: Parts shown are for standard units. Quantity of shelves and clips may vary based on factory-supplied options.

INSTALL THE SHELVES

Product shelves and a bag containing shelf support clips are packed inside the unit. Refer to the table below to verify the quantity of shelves and shelf supporting clips.

To install the shelves:

1. Determine the proper location for the shelf clips. Refer to the numbers on the pilaster to ensure that all clips are properly located.
2. Insert the top tab of the shelf clip into the desired hole of the pilaster. The retaining tab should be facing upward, as shown in Figure 1.
3. Rotate the clip downward and insert the bottom tab into the appropriate hole on the pilaster. If necessary, squeeze the clip slightly during installation.
4. Install all remaining clips as described above.
5. Install the shelves onto the clips so that the product retention bars are facing upward. Be careful not to dislodge the clips during shelf installation.
6. Shelves must be placed so that the retaining tab on the shelf clip captures the shelf, as shown in Figure 2.
7. Before loading the shelf, ensure that the shelf is resting on each of the four clips and that the clips are installed as shown in Figures 1 and 2.

CONDENSATE DISPOSAL

The evaporator drain pan is located in the base of the refrigeration deck. Airflow in the deck compartment hastens condensate evaporation so that external drain plumbing is not required.

WARNING

Do not overload the shelves. The unit is designed to use all the shelves provided, installed in equally-spaced configuration. Failure to install shelves correctly could result in personal injury or damage to the unit. If fewer shelves or a different installation configuration is desired, contact the manufacturer to ensure that shelf overloading will not occur.

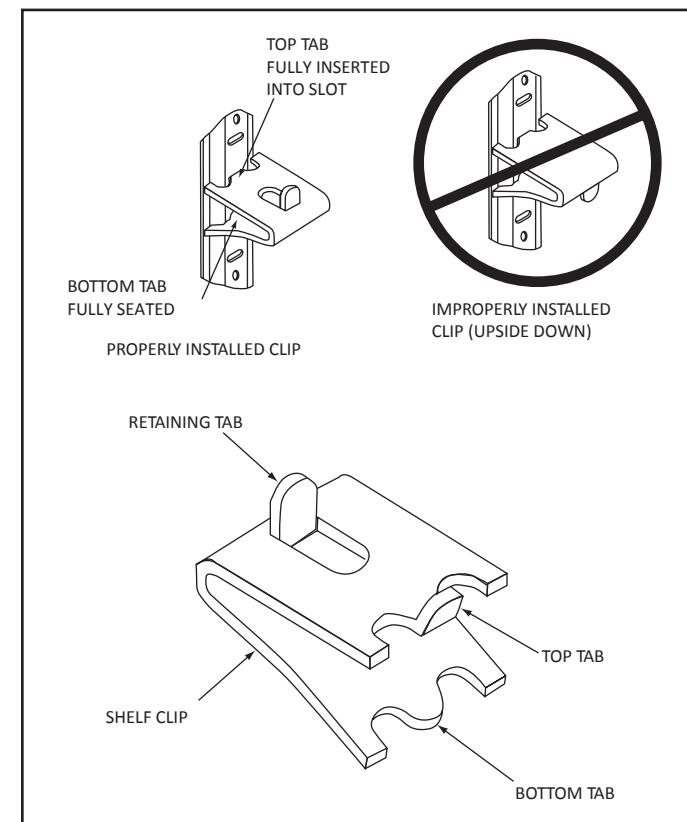


Figure 1. Shelf clip installation.



WARNING

Improper shelf clip installation may cause shelf and / or product to fall, which could result in personal injury or damage to the unit.

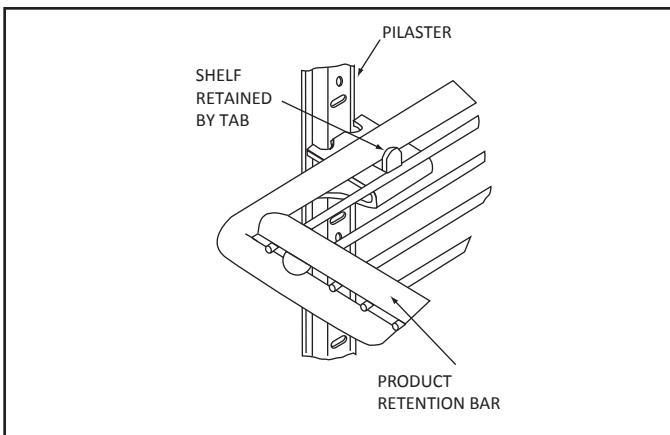


Figure 2. Proper installation of the shelf on the clip.

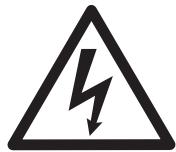
START-UP

PRELIMINARY CHECKS

Electrical Supply and Connections

Check to be sure that the electrical service to the unit meets all local and national electrical codes. Unit electrical data is shown on the unit data label, located on the inside of the cabinet in the upper left-hand corner. Review this label before initiating electrical service. The voltage range of the power supply to the unit should be 105 to 125 volts. Refer to the table below for unit data.

NOTE: Other motors or heavy appliances should not be used on the same circuit with the cooler.



DANGER

Before servicing the unit, disconnect electrical service. Failure to do so could result in electrical shock or electrocution and could cause personal injury or death!



CAUTION

If an extension cord is necessary, use only the three-wire grounding type. The use of ungrounded cords or an overloaded circuit voids the compressor warranty.



CAUTION

Allow 24 hours between temperature control adjustments. Excessive tampering with the temperature control could lead to service difficulties.

UNIT DATA		
UNIT	HRVC-010	HRVC-012
Voltage AC Nominal Range	115 105-125	115 105-125
Frequency	60 Hz	60 Hz
Total Amps	3.0	3.1
Refrigerant Type Charge Amount	R134a 8.81 oz. (0.25 kg)	R134a 9.17 oz. (0.26 kg)
Design Pressure High Side (psig) Low Side (psig)	220 128	220 128

INITIAL START-UP

Power Supply

Connect the unit to the power supply. Check to verify that the compressor, lamps, and fans are running.

IMPORTANT: Low line voltage is often the cause of service complaints. Check to see that the line voltage is within the specified range with the unit running.

Temperature Control

The temperature control adjustment knob is located in the top of the cooler's cabinet section. The dial is factory-set at position "4", which should maintain product at approximately 38° F (3.5° C). For colder temperature, turn the adjustment knob clockwise. Adjust the temperature in small increments until the desired cabinet temperature is reached.

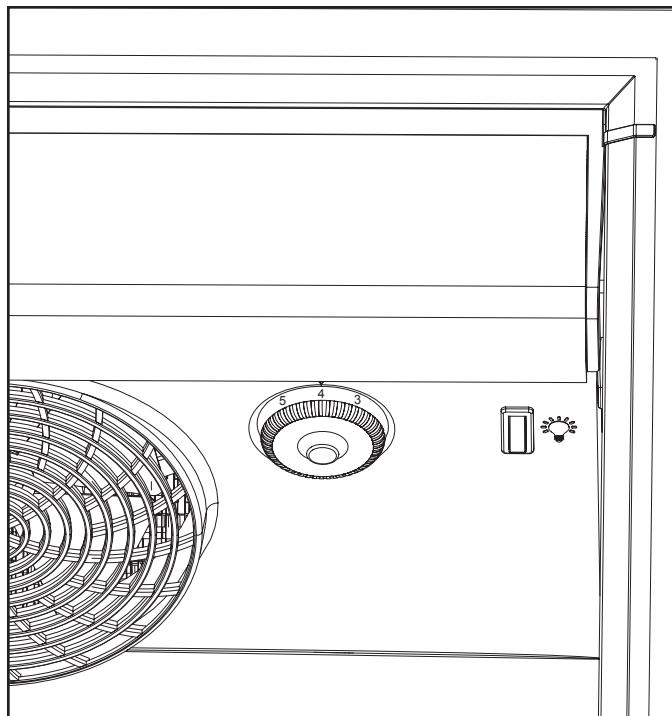


Figure 3. Temperature control adjustment knob location.

MAINTENANCE

CONDENSATE REMOVAL

The evaporator drain pan is located in the base of the refrigeration deck. Airflow in the deck compartment hastens condensate evaporation so that external drain plumbing is not required. In general, this renders the condensate pan maintenance-free.

CONDENSER

The condenser should be inspected periodically for accumulation of debris, which should be removed. A vacuum cleaner or wire brush can be used to remove debris. Be careful to not bend the condenser fins.

CABINET EXTERIOR

Cabinets should be cleaned with a solution of mild soap and water or mild household cleaner. Do not use caustic soap or abrasive cleaners, since these might damage the cabinet finish. Do not use steel wool, or rusting might occur. Never flush the vender's exterior with water.

INTERIOR SURFACE

The inside of the cabinet is coated with powder-coat paint. To clean, use a mild soap and water solution or mild household cleaner. Never flush the vender's interior with water.

UNDERNEATH COOLER

Underneath the cooler can be cleaned by hand or by using an appropriate cleaning tool up to 1 1/2" thick. Use a mild soap and water solution or mild household cleaner.

REFRIGERATION SYSTEM SERVICE

COMPONENTS

The HRVC-010 / HRVC-012 Cooler refrigeration system consists of a hermetically-sealed compressor and finned evaporator and condenser coils.

Condenser

The condenser has finned coils which assist in removing heat from the refrigerant. The condenser requires periodic cleaning for maximum efficiency.

Condenser Fan Motor

The condenser fan motor assembly is mounted between the condenser and the compressor. Air is drawn through the condenser, over the body of the compressor, and out the rear of the unit compartment.

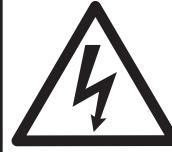
The motor is wired to cycle with the compressor, but it will continue to operate should the compressor cut out on the overload. The motor is permanently lubricated; therefore, oiling is not required or recommended.

Drier

The drier is installed in the system just before the capillary tube. The drier traps minute particles of foreign material and absorbs any moisture in the system.

Liquid Control and Heat Exchanger

Liquid refrigerant control to the evaporator of the system is accomplished by the use of a capillary tube. This capillary tube is soldered to the suction line to form a heat exchanger, which subcools the liquid refrigerant to maintain high efficiency within the system.

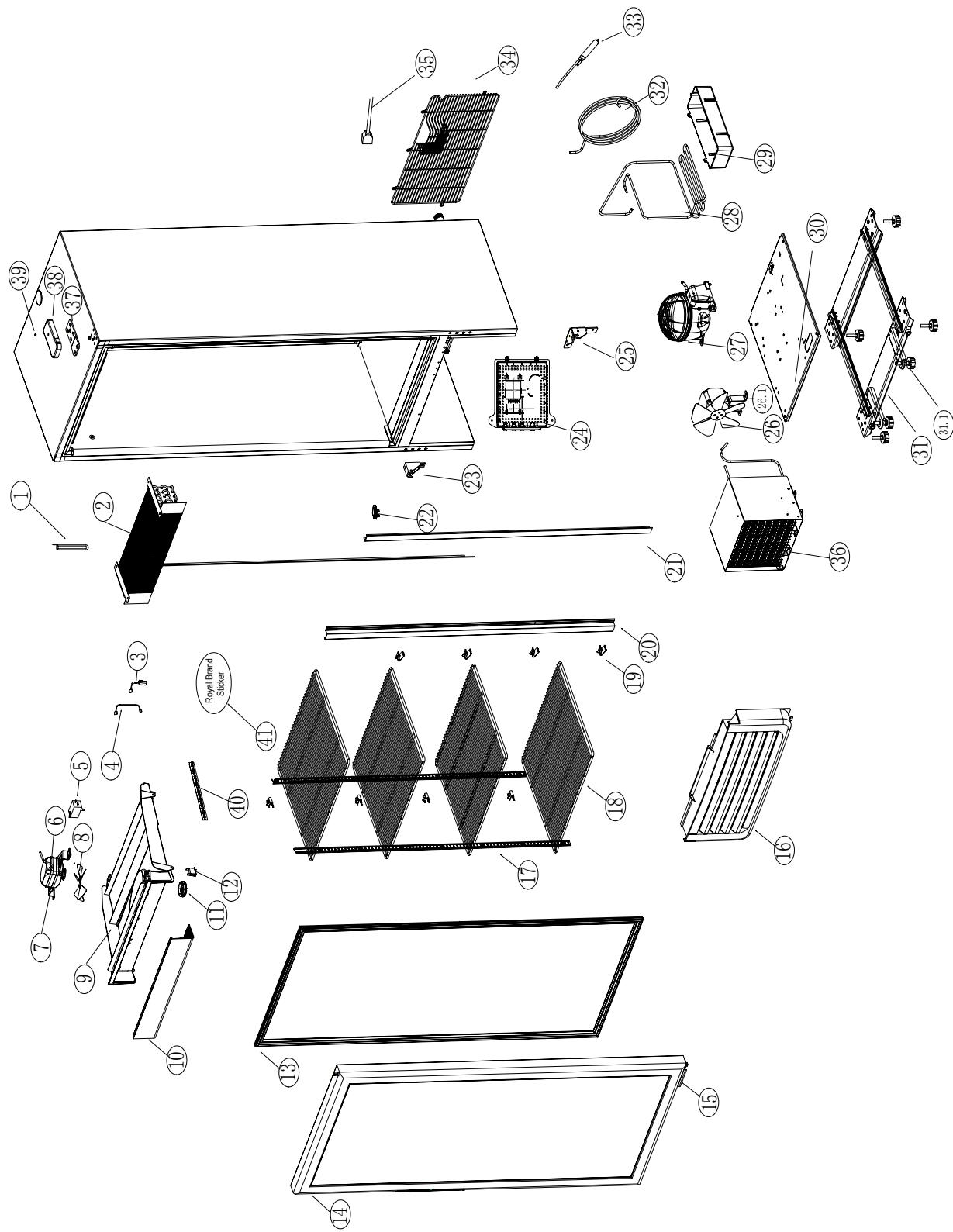


DANGER

Before servicing the unit, disconnect electrical service. Failure to do so could result in electrical shock or electrocution and could cause personal injury or death!

REFRIGERATION SYSTEM SERVICE AND ANALYSIS		
PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Compressor will not start; does not hum.	1. Line cord not plugged in. 2. Temperature control stuck in open position. 3. Wiring improper or loose.	1. Plug in the cord. 2. Repair or replace temperature control. 3. Check wiring against schematic.
Compressor will not start; hums but trips on overload protector.	1. Low voltage to unit. 2. Start capacitor defective. 3. Improperly wired.	1. Determine reason and correct. 2. Replace the capacitor. 3. Check wiring against schematic.
Compressor starts but does not switch off or start winding.	1. Low voltage to unit. 2. Run capacitor defective. 3. Compressor motor winding is defective or shorted.	1. Determine reason and correct. 2. Replace the capacitor. 3. Determine cause, correct, and replace compressor.
Compressor starts and runs, but short-cycles on overload protector.	1. Additional current passing through overload protector. 2. Low voltage to unit. 3. Overload protector defective. 4. Run capacitor defective. 5. Excessive discharge pressure. 6. Compressor too hot.	1. Check wiring schematic. Check for added fan motors, pumps, etc., connected to wrong side or protector. 2. Determine reason and correct. 3. Check current and replace protector. 4. Replace the capacitor. 5. Check ventilation, restrictions in cooling medium, restrictions in refrigeration system. 6. Check airflow across condenser.
Unit runs but short-cycles.	1. Overload protector. 2. Cold control. 3. Bad refrigeration unit.	1. Check wiring schematic for correct wiring. 2. Change cold control setting. 3. Replace the refrigeration unit.
Unit operates too long or continuously.	1. Dirty condenser. 2. Cold control contacts stuck or frozen. 3. Evaporator fan not working. 4. Bad refrigeration unit.	1. Clean condenser. 2. Replace cold control. 3. Check evaporator fan wiring. If correct, replace evaporator fan. 4. Replace refrigeration unit.
Cabinet temperature too high.	1. Cold control setting too high. 2. Inadequate cabinet air circulation. 3. Dirty evaporator. 4. Dirty condenser. 5. Inadequate air circulation at refrigeration deck.	1. Reset cold control. 2. Check evaporator fan motor. 3. Clean evaporator. 4. Clean condenser. 5. Check condenser fan motor.
Cooler freezing beverages.	Cold control set incorrectly.	Reset cold control.
Unit is noisy.	1. Loose parts or mountings. 2. Tubing rattling. 3. Bent fan blade causing vibration. 4. Fan motor bearings worn.	1. Find and tighten. 2. Reform to be free of contact. 3. Replace blade. 4. Replace motor.

PARTS EXPLODED VIEW



PARTS EXPLODED VIEW

Item No.	Part Number	Description	Model	Quantity
1	812,473	Thermometer	HRVC-10 / HRVC-12	1
2	820,037	Evaporator	HRVC-10 / HRVC-12	1
3	842,905	Interior light harness	HRVC-10 / HRVC-12	1
4	842,906	Evap fan harness	HRVC-10 / HRVC-12	1
5	822,102	Thermostat	HRVC-10 / HRVC-12	1
6	839,085	Evaporator fan motor	HRVC-10 / HRVC-12	1
7	810,452	Evap fan bracket	HRVC-10 / HRVC-12	2
8	810,453	Evap fan blade	HRVC-10 / HRVC-12	1
9	815,884	Evaporator hood	HRVC-10 / HRVC-12	1
10	815,858	Interior light cover	HRVC-10 / HRVC-12	1
11	822,103	Thermostat knob	HRVC-10 / HRVC-12	1
12	835,034	LED switch	HRVC-10 / HRVC-12	1
13	815,864	Glass door gasket, HRVC-010	HRVC-10	1
	815,869	Glass door gasket, HRVC-012	HRVC-12	1
14	852,481	Glass door (complete), HRVC-010	HRVC-10	1
	852,482	Glass door (complete), HRVC-012	HRVC-12	1
15	816,204	Door stop (bottom)	HRVC-10 / HRVC-12	1
16	815,862	Front grill	HRVC-10 / HRVC-12	1
17	810,393	Pilaster, HRVC-010	HRVC-10	4
	810,399	Pilaster, HRVC-012	HRVC-12	4
18	811,097	Shelf	HRVC-10 / HRVC-12	3 / 4
19	810,339	Shelf clip	HRVC-10 / HRVC-12	12 / 16
20	815,870	Right rear corner cover, HRVC-010	HRVC-10	1
	815,885	Right rear corner cover, HRVC-012	HRVC-12	1
21	815,871	Left rear corner cover, HRVC-010	HRVC-10	1
	815,886	Left rear corner cover, HRVC-012	HRVC-12	1
22	815,860	Drain funnel	HRVC-10 / HRVC-12	1
23	810,400	Bottom glass door bracket	HRVC-10 / HRVC-12	1
24	842,907	Power supply assembly	HRVC-10 / HRVC-12	1
25	810,394	Bottom door hinge	HRVC-10 / HRVC-12	1
26	839,082	Condenser fan motor (<i>includes fan blade</i>)	HRVC-10 / HRVC-12	1
26.1	810,397	Condenser fan bracket	HRVC-10 / HRVC-12	1
27	819,065	Compressor	HRVC-10 / HRVC-12	1
28	824,026	Condensate pan coil	HRVC-10 / HRVC-12	1
29	815,887	Condensate pan	HRVC-10 / HRVC-12	1

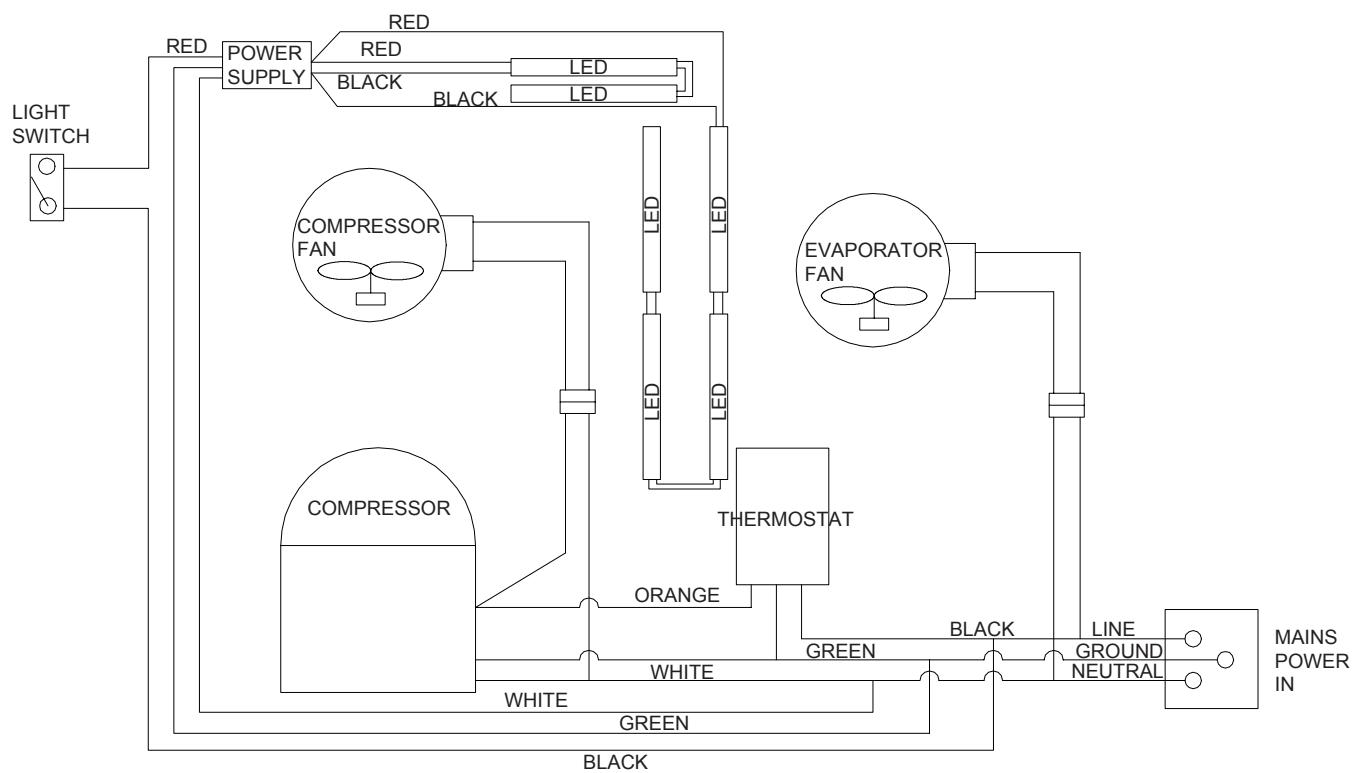
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PARTS EXPLODED VIEW

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30	810,395	Refrigeration base plate	HRVC-10 / HRVC-12	1
31	810,454	Stabilizer brackets assembly	HRVC-10 / HRVC-12	1
31.1	815,463	Leveling legs	HRVC-10 / HRVC-12	1
32	824,027	Service loop	HRVC-10 / HRVC-12	1
33	824,025	Drier filter	HRVC-10 / HRVC-12	1
34	811,098	Rear grill	HRVC-10 / HRVC-12	1
35	842,889	Main power cord	HRVC-10 / HRVC-12	1
36	820,034	Condenser	HRVC-10 / HRVC-12	1
37	810,398	Top door hinge	HRVC-10 / HRVC-12	1
38	815,866	Top hinge cover	HRVC-10 / HRVC-12	1
39	816,216	Top hinge cover hole plug	HRVC-10 / HRVC-12	1
40	841,059	LED strip	HRVC-10 / HRVC-12	1
41	853,086	Royal logo	HRVC-10 / HRVC-12	1
42	812,474	Caster without brake (<i>optional</i>)	HRVC-10 / HRVC-12	4

WIRING DIAGRAM



WARRANTY AND CREDIT / RETURN POLICY

- UNITED STATES CUSTOMERS ONLY -

NOTE: This policy applies to new cooler and freezer sales only. Stock service parts are covered under a separate one-year warranty policy.

WARRANTIES (to the original purchaser and to one end-user, when obtained from the original purchaser)

Royal Vendors warrants coolers and freezers for five years. The warranty for the refrigeration system, consisting of the evaporator and condenser fan motors, compressor, evaporator, condenser, and the refrigerant tubing, will be for five years. Refrigeration warranties will follow the serial number of the original unit. If the unit fails while under warranty, the same serial number will be attached to the replacement unit to track warranty status. Any unauthorized tampering or cutting (tapping) will void the warranty. LED lighting, plus the Health Safety Controller board (if so equipped), are warranted for three years. All other parts, except fluorescent light bulbs and finish, are warranted for one year.

Royal Vendors' obligation under warranty is limited to repairing or replacing the subject part at our option, when upon examination it was determined by Royal Vendors to be defective. Royal Vendors will pay shipping charges on all parts covered under this warranty when transportation has been made the most economical way. Labor charges to diagnose, repair, remove, or reinstall any part(s) are specifically excluded from warranty coverage.

The warranty is voided when a cabinet or any part thereof has been subject to misuse or alteration without proper authorization. Accident or damage caused by fire, flood, transportation, civil disorder, or act of God is not covered under warranty.

CREDIT AND REPLACEMENT POLICY

Credits or replacements will be issued on warranty items if the proper procedures are followed:

1. ROYAL VENDORS will pay shipping charges on all parts covered under this warranty when transportation has been made the most economical way. (*Example: Within the continental U.S.A., regular ground UPS.*) An A.R.S. (Authorized Return Service) sticker will be sent with all warranty parts. This method of shipping is preferred for returning parts to Royal.
2. Credits will only be issued to warranty parts that have been ordered under our ADVANCE WARRANTY policy, not for parts ordered as stock. (NO EXCEPTIONS.)
3. When ordering warranty parts in advance, please have the full vendor, refrigeration unit, and control board serial numbers.
4. A copy of the Packing Slip, the correct serial number, and complete Return Material Tag (provided with part) are required for returning parts. Please fill out the Return Material Tag completely, keeping the white copy for your records and returning the yellow copy with the attached part. Make sure to provide your company name, address, telephone number, serial number, and model number, along with a brief explanation of the problem.
5. If the item returned is not under warranty, it will be sent back to you at your expense along with a US\$10.00 handling fee, or it will be scrapped.
6. All warranty parts should be properly wrapped and packed securely to avoid further damage. Royal Vendors' parts that are returned from the field and have been tapped into, tampered with, not packaged properly, or have had the serial plate or label removed, will void the warranty.
7. If defective parts are not returned within 15 working days, the invoice will be due in full.

HOW TO READ THE SERIAL NUMBER

The first four numbers represent the year the machine was produced.

The fifth and sixth numbers represent the week within the year the machine was produced.

The letters represent the machine's model number.

The last five numbers are the number of the machine built during that production week.



Royal Vendors Publication
833121 Rev. 00a
December 2016



Printed in the United States of America