Preferred Service

Service Manual

This Base Manual covers general and specific information including, but not limited to the following models:

FBCI/VBCI 1150G 15” Beverage Center
FBCI/VBCI 1240G 24” Beverage Center

FRCI/VRCI 1240G 24” All Refrigerator
VRCO 1240D 24” All Refrigerator, Outdoor

FRDI/VRDI 1240D 24” Refrigerated Drawer
VRDO 1240D 24” Refrigerated Drawer, Outdoor

FWCI/VWCI 1150G 15” Wine Cellar, Single Zone
FWCI/VWCI 1240G 24” Wine Cellar, Single Zone

SMR-0014

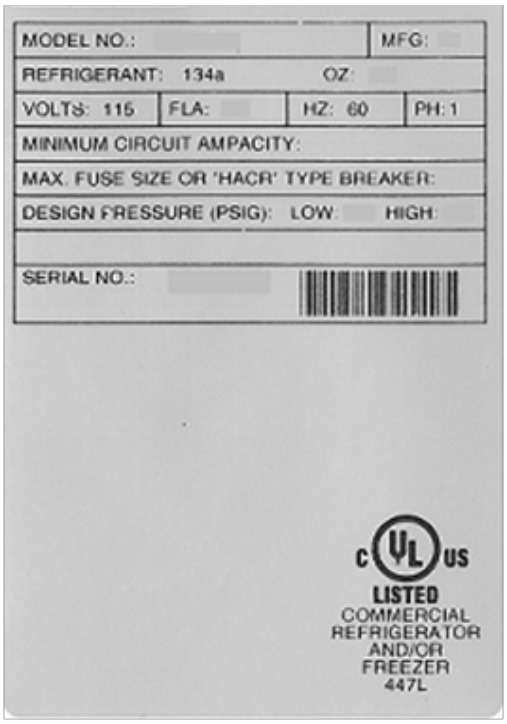
Table of Contents

SECTION 1 – Model and Serial Numbers

This manual contains specific instructions for servicing Viking Refrigeration Products, which include the following models:

FBCI/VBCI 1150G	15”	Beverage Center	FRDI/VRDI 1240D	24”	Refrigerated Drawer
FBCI/VBCI 1240G	24”	Beverage Center	VRDO1240D	24”	Refrigerated DWR, Outdoor
FRCI/VRCI 1240G	24”	All Refrigerator			
VRCO1240D	24”	All Refrigerator, Outdoor	FWCI/VWCI 1150G	15”	Wine Cellar, One Zone
			FWCI/VWCI 1240G	24”	Wine Cellar, One Zone

The model and serial numbers can be found inside the left compartment, located on the front left corner of the ceiling. This information is needed whenever service is required.



SAVE THESE INSTRUCTIONS

REVIEW ALL SERVICE INFORMATION IN THE APPROPRIATE SERVICE MANUAL AND TECHNICAL SHEETS BEFORE BEGINNING REPAIRS.

Pride and workmanship go into every product to provide our customers with quality appliances. It is possible, however, that during the lifetime of a product, service may be required. Products should be serviced only by a qualified authorized service technician who is familiar with the safety procedures required to perform the repair and is equipped with the proper tools, parts, testing instruments, and the appropriate service manual.

Safety Information

We have provided many important safety messages throughout this manual and on the appliance. ALWAYS read and obey all safety messages. This is a safety alert symbol.

This symbol alerts personnel to hazards that can kill or hurt you and others. All safety messages will be preceded by a safety alert symbol and the word "DANGER", "WARNING" or "CAUTION". These words mean:

DANGER

Immediate hazards which WILL result in severe personal injury or death.

WARNING

Hazards or unsafe practices which COULD result in severe personal injury or death.

CAUTION

Hazards or unsafe practices which COULD result in minor personal injury, product or property damage.

WARNING

BURN HAZARD
DO NOT touch condenser coils near defrost pan.
Doing so can result in burns.

All safety messages will identify the hazard, tell you how to reduce the chance of injury, and inform you what can happen if the instructions are not followed.

WARNING

To avoid risk of serious injury or death, repairs should not be attempted by unauthorized personnel.

CAUTION

VIKING will not be responsible for any injury or property damage from improper service procedures. If performing service on your own product, you must assume responsibility for any personal injury or property damage which may result.

To locate an authorized service agent, call:
Viking Customer Service
Phone No. 1-888-845-4641

Address your written correspondence to:
Viking Preferred Service
1803 HWY 82 West
Greenwood, MS 38930

Safety Information

Warning
Protect all flooring during the installation of Refrigeration Products. Additional support must be supplied for countertops being placed over units when installing units wider than 24”. While installing all cabinets, ensure that the rear leveling legs are engaged into the anti-tip brackets (supplied).

Take extreme caution when working with all tools on or near stainless steel surfaces as they can easily scratch. Always protect all surfaces to prevent dents and scratches.

Refrigerant HFC-134a
All models covered in this service manual are manufactured using refrigerant HFC-134a.

Potential Problems with HFC134a
HFC-134a compressors are manufactured with a synthetic based ester oil charge. The hygroscopic (water attraction) property of ester oil is many times greater than that of the mineral oils previously used with CFC-12. High system moisture causes the formation of acids and alcohol, which can damage the compressor. Systems or components of the refrigeration system should not be left open to the atmosphere for more than (15) minutes at any time as humidity from the air will enter the system and be absorbed by the oil. To assure system dehydration, the system should be evacuated to a level less than 100 microns and when isolated, shall not exceed 500 microns for a minimum of 10 minutes. Heating of the compressor shell may be required to achieve proper vacuum levels. Vacuum pump oil must never be allowed to enter the refrigeration system. ***No leak detection dyes are authorized for use within any Residential Refrigeration Products. Subject use will void complete system warranty and place the burden on the service company for downline service issues.***

Cleanliness of the system is extremely important. The presence of residue (Chlorinated or greasy residues, mineral oil, or impurities) can lead to capillary tube restrictions, oil return problems and compressor damage. Flux **must not** be used on any brazed joints.

Residential Refrigeration cabinets are critically charged systems. These systems do not have access ports for servicing to the system. Provided for access is a low side process tube, which will require the service technician to attach a piercing type “saddle valve”. Care must be taken to minimize or avoid the loss of any refrigerant due to the critical charge in the system. See I.D. plate for charge amount or contact the factory for additional information.

Anytime a Residential Refrigeration system is being serviced, it is recommended that the dryer be changed using the exact same style and size within the system to avoid possible charge problems or contaminant issues. When removing a dryer from an existing system never use heat. Cut the inlet and outlet tubing to avoid pushing contaminants into the system from the dryer.

WARNING

ELECTRICAL SHOCK HAZARD
Disconnect power or turn power disconnect switch to “OFF” position before removing top grille. Failure to do so can result in death or electrical shock.

WARNING

ELECTRICAL SHOCK HAZARD
Plug into a grounded 3-prong outlet. If a 2-prong wall receptacle is encountered, contact a qualified electrician.
DO NOT remove ground prong.
Unit must be grounded at all times.
DO NOT use an adapter.
DO NOT use an extension cord.
Failure to follow these instructions can result in death, fire, or electrical shock.

SECTION 2 – Installation Specifications

See Illustration 1 below for the general specifications for installation of the cabinets before beginning any service on the cabinet. Ensure all specifications are satisfied to alleviate installation problems, which may be causing the service call.

CAUTION: IF CABINET IS INSTALLED UNDER A COUNTER TOP IT SHOULD BE SUPPORTED BY STRUCTURE OTHER THAN THE REFRIGERATED CABINET TO PREVENT DAMAGE TO THE COUNTER TOP. BEFORE MOVING OR REPOSITIONING CABINET, ENSURE THAT THE COUNTER TOP IS SUPPORTED PROPERLY.

Illustration 1A. Installation Specifications – 15” Series

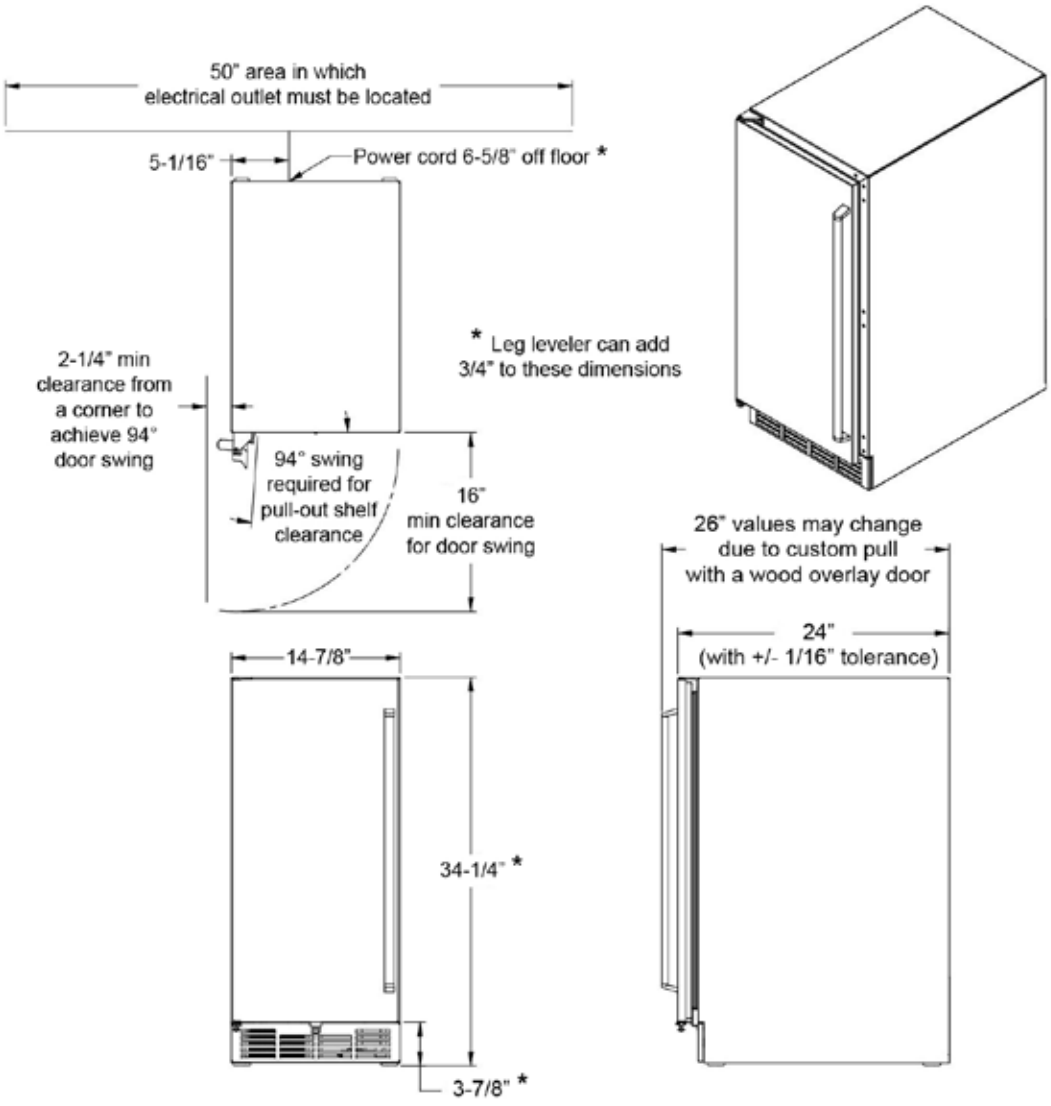
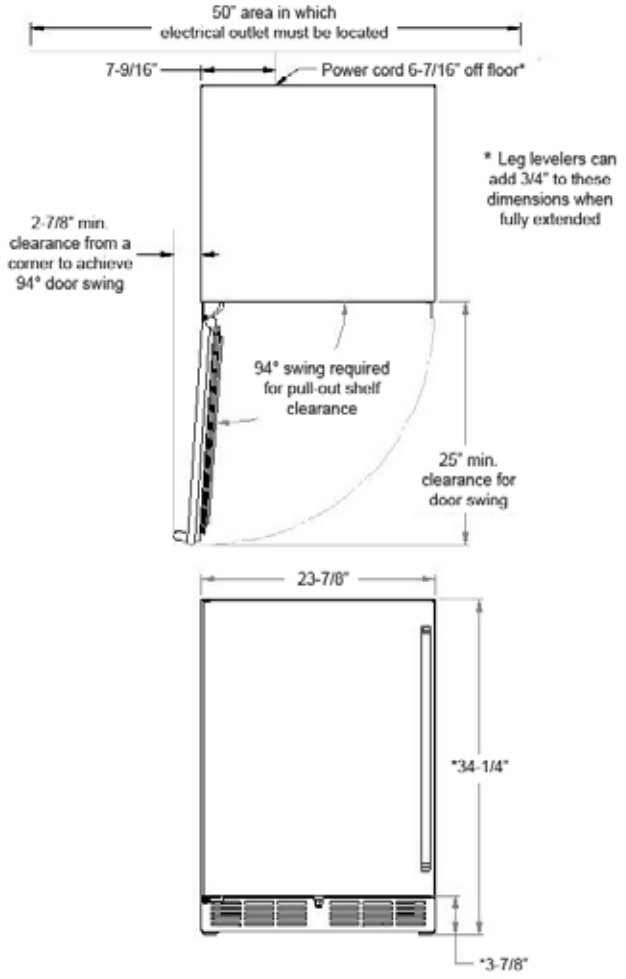
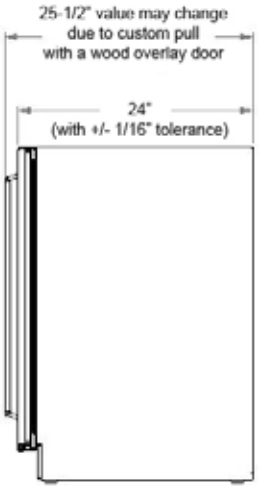


Illustration 1B. Installation Specifications – 24” Series





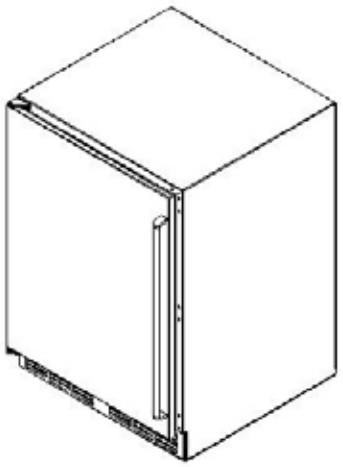


Illustration 2A.
Anti-Tip Installation, Hardware and Specifications – 15” Series

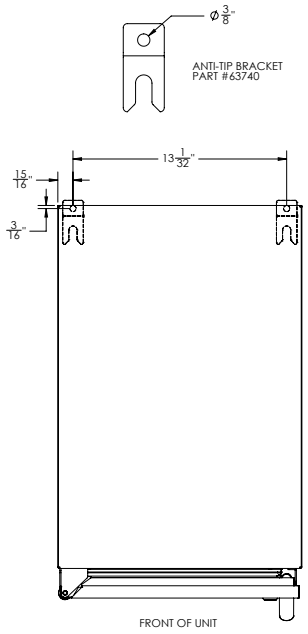
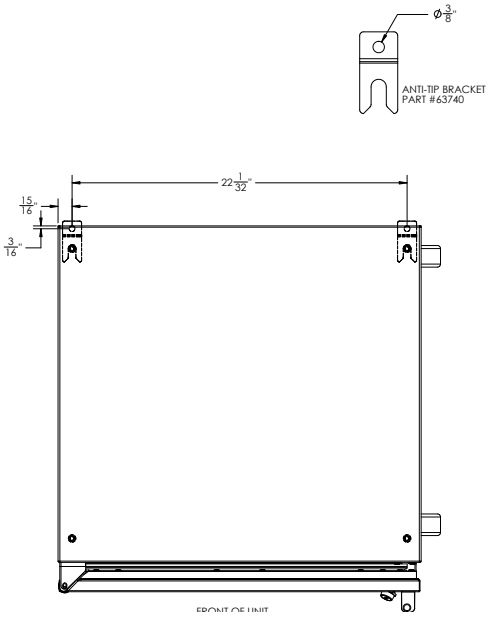


Illustration 2B.
Anti-Tip Installation, Hardware and Specifications – 24” Series



Use the above illustrations to locate the holes needed for your specific model. Mount the brackets as shown in Illustrations 2A and 2B, then slide the cabinet into the opening to engage and prevent tip during use.

NOTE: DO NOT EXTEND LEVELER LEG MORE THAT ¾” OUT OF BASE, SHIM OR PAD TO OBTAIN LEVELNESS IF ADDITIONAL HEIGHT IS NECESSARY.

SECTION 3

Normal Vapor/Compression Cycle Refrigeration

Refrigerant is pumped from the compressor to the condenser as a high-pressure, high-temperature vapor.

As the refrigerant cools in the high-pressure condenser, the vapor condenses into liquid. During this phase change, a great amount of heat is rejected with the assistance of the condenser fan.

The liquid then flows to the dryer where it is strained and filtered. From the dryer, the refrigerant flows through the capillary tube, which meters the liquid refrigerant to the evaporator.

As the low-temperature refrigerant passes through the evaporator coil, it continues to absorb a lot of heat, causing the boiling action to continue until the refrigerant is completely vaporized. It is during this phase change that the most heat is absorbed (the cooling takes place) in the refrigerator.

The refrigerant vapor leaving the evaporator travels through the suction line to the compressor inlet. The compressor takes the low-pressure vapor and compresses it, increasing both pressure and temperature. The hot high-pressure gas is pumped out the discharge line and into the condenser. The cycle continues.

Compressor Specifications

The compressors used in **15” & 24” Serie**s Refrigerated Cabinets are constructed using standard reciprocating hermetic style compressors.

Fan Motors (All Models)

The condenser and evaporator fan motors are identical. The fan was specifically selected for the design for maximum efficiency of the refrigeration system and to minimize noise, both air movement and mechanical noise from the motor.

The fan is a Tubeaxial or pancake fan. The electrical specifications are 115VAC, 50/60 Hz, 120/100 mA, 9/8 W. The motor has a resistance of 400 ohms +/-3%. The motor comes equipped with two uninsulated male 1/8” quick connect terminals. The blade spins clockwise when the struts from the center-hub are towards you.

The condenser fan motor is mounted to the outside of the condenser fan shroud within the machine compartment with #8 screws and pulls air through the condenser coil (air is pulled in the grille in front of the coil (left end of grille) and pushed out the right end of the grille.

The evaporator fan motor is mounted to the internal back wall of the cabinet. The air is drawn in through the louvered openings at the bottom of the evaporator cover panel, pulled through the evaporator coil and pushed out through the fan guard.

Electronic Control

Each temperature zone comes with an electronic control for controlling the system, which regulates the product temperature within that zone. The refrigeration system is controlled by the electronic control. This controller has been preset from the factory per the specifications shown on the following pages dependent upon the model it is controlling. This controller controls the compressor, condenser fan motor, and evaporator fan motor. The controller has the following electrical ratings: 120 V, 4 VA Max/ The controlling circuit is 20A max for the entire control.

This controller employs two separate relays, one for the compressor, condenser fan and evaporator fan motors, the other is for the light.

Temperature Control Adjustments

There are three separate controllers, beverage center controller, refrigerator controller and a wine cooler controller

Primary Key Functions

	Turns on/off the power to the unit
	Interior light
	Disables light, display and function of remaining buttons

	Displays maximum stored temperature, also used for navigating control codes and changing displayed values within the various menu options.
	Displays minimum stored temperature, also used for navigating control codes and changing displayed values within the various menu options

Power

The digital temperature controller and LED display comes equipped with a power button, which turns the respective cooling system ON or OFF. If when power is applied to the cabinet and the display reads OFF simply press the power button once to turn the cooling system ON. When the controller is ON it will display the current temperature reading.

Light

Viking controllers are equipped with a light button on the front of the controller panel. This button will turn on/off the light in the cabinet. The light is also equipped with a door switch that turns on the light upon a door opening. (The door switch is run through the digital input on the control).

Adjusting the Set-Point

The set point is the temperature at which when obtained, will cause the controller to turn off the cooling system. To adjust the set point, simply press the “**SET**” button and hold for 3 seconds, the “**SET**” button is located on the front of the controller panel. Upon pressing the SET button, the current set point will be displayed and the LED snowflake starts blinking. Press the “**UP**” or “**DOWN**” arrow buttons located on the front of the controller panel to the new desired set point. The controller will now retainn this new set point by either waiting 10 seconds or by pressing the “**SET**” button.

Minimum Temperature Reading

The controller can remember and display the lowest temperature the sensor has recorded. To display this reading, press and release the” **DOWN ARROW**” button. The “**Lo**” message will appear followed by the lowest temperature recorded. To return to normal display press and release the “**DOWN ARROW**” button or wait 5 seconds.

Maximum Temperature Reading

The controller can remember and display the highest temperature the sensor has recorded. To display this reading, press and release the “**UP ARROW**” button. The “**hi**” message appear followed by the highest temperature recorded. To return to normal display, press and release the “**UP ARROW**” button or wait 5 seconds.

How to Reset the Max and Min Temperature Recorded

To reset the max or min stored temperature press the “**SET**” button, while the max or min temperature is displayed, and hold until “**rST**” label starts blinking. Release “**SET**” button and the new stored value for max or min will be the current temperature reading.

To Lock and Unlock the Control

Press the “**UP + DOWN**” buttons simultaneously for 3 seconds. The “**PoF**” message will be displayed and the keyboard will be locked. At this point it will only be possible to see the set point, the MAX or the MIN temperature stored. If a button is pressed more than 3 seconds, the “**PoF**” message will be displayed. To unlock the control press “**UP + DOWN**” simultaneously for 3 seconds until the “**Pon**” message is displayed.

Changing temperature from Fahrenheit to Centigrade

WITH CONTROL POWERED ON

PRESS AND HOLD THE SET AND DOWN ARROW SIMULTAEOUSLY FOR 3-5 SECONDS ((HY) WILL APPEAR ON THE DISPLAY). RELEASE SET AND DOWN.

PRESS AND HOLD THE SET AND DOWN ARROW SIMULTANEOUSLY FOR 7-10 SECONDS ((Pr2) WILL APPEAR ON THE DISPLAY). RELEASE SET AND DOWN.

USING THE UP ARROW, SCROLL THROUGH THE PARAMETERS UNTIL THE DISPLAY READS (CF). PRESS THE SET KEY ONCE TO DISPLAY °F). USE THE DOWN ARROW TO CHANGE TO (°C). PRESS THE SET KEY TO RECORD THE CHANGE.

USING THE UP ARROW, SCROLL THROUGH THE PARAMETERS UNTIL THE DISPLAY READS (ALU). PRESS THE SET KEY ONCE TO DISPLAY THE CURRENT SETTING. USING THE UP ARROW, CHANGE THE SETTING TO “A” (See Table 1, page 14). PRESS SET KEY ONCE TO RECORD THE CHANGE.

NEXT (ALL) WILL SHOW IN THE DISPLAY, PRESS SET ONCE TO DISPLAY CURRENT SETTING. USING THE DOWN ARROW, CHANGE THE SETTING TO “B” (See Table 1, page 14). PRESS THE SET KEY ONCE TO RECORD THE CHANGE.

USING THE UP ARROW, SCROLL THROUGH THE PARAMETERS UNTIL (HY) SHOWS ON THE DISPLAY. PRESS THE SET KEY ONCE TO DISPLAY THE CURRENT SETTING. USING THE UP OR DOWN ARROW, CHANGE THE SETTING TO “C” (See Table 1, page 14)

PRESS SET ONCE TO RECORD THE CHANGE.

NEXT, (LS) WILL SHOW ON THE DISPLAY. PRESS SET ONCE AND USING THE DOWN ARROW, CHANGE TO “D” (See Table 1, page 14). PRESS SET ONCE TO RECORD THE CHANGE.

THEN (US) WILL SHOW ON THE DISPLAY. PRESS SET ONCE AND USING THE UP ARROW, CHANGE THE SETTING TO “E” (See Table 1, page 14). PRESS SET ONCE TO RECORD THE CHANGE.

NOW WAIT 10 SECONDS AND THE CONTROL WILL RESET TO READ THE CURRENT PROBE TEMPERATURE.

THE LAST THING THAT IS NEEDED IS FOR THE CURRENT SET POINT TO BE CHANGED. TO CHANGE THE CURRENT SET POINT, PRESS AND HOLD THE SET KEY FOR 3-5 SECONDS. ONCE THE CURRENT SET POINT DISPLAYS, USE THE DOWN ARROW TO CHANGE THE SETTING TO “F” (See Table 1, page 14). PRESS THE SET KEY ONCE TO RECORD THE NEW SET POINT.

Table 1

	Maximum Alarm Temperature	Minimum Alarm Temperature	Differential (Cut-in versus cut-out)	Minimum Set Point	Maximum Set Point	Set point where compressor shuts off
MODEL	**A**	**B**	**C**	**D**	**E**	**F**
FBCI/VBCI 1150G	13	-2	6	2	8	6
FWCI1/VWCI 150G	24	2	6	4	20	6
FRCI/VRCI 1240G	9	-2	6	-2	6	1
VRCO1240D	9	-2	6	-2	6	1
FBCI/VBCI 1240G	13	-2	6	2	8	6
FWCI/VWCI 1240G	24	2	6	4	20	6
FRDI/VRDI 1240D	9	-2	6	-2	6	1
VRDO1240D	9	-2	6	-2	6	1

Controller Alarm Signals

The controllers come with a set of alarm messages, which show in the display when something, possibly wrong with the cabinet or controller. The message will display until the alarm condition recovers. *All alarm conditions flash alternating between the alarm and the cabinet (zone) temperature, except for a cabinet (zone) probe failure.*

Message	Cause	Outputs
"P1"	Thermostat probe failure	Compressor output according to parameters "Con" & "COF"
"HA"	Maximum temperature alarm	Other outputs unchanged
"LA"	Minimum temperature alarm	Other outputs unchanged
"DA"	Door alarm	Compressor and fans restart

Alarm Recovery

Probe alarm: "**P1**"" automatically stops 10 seconds after the probe restarts normal operation. Always check probe connections and resistance before replacing the probe.

Temperature Alarms: "**HA**" and "**LA**" automatically stop as soon as the thermostat temperature returns to normal values.

Controller Programming

There are no adjustments to the programs that can be done from a service standpoint. The only method of programming is through the replacement of the controller for a beverage center, a refrigerator or a wine cellar, all look the same in appearance but there are three different part numbers.

WARNING
To avoid risk of electrical shock, personal injury or death; disconnect power to unit before servicing.

Controller Replacement

Before starting, make sure power has been disconnected to the unit, either by unplugging it from a receptacle or turning off the breaker.

1. Remove the front face plate be pressing the locking tab located at each end.

2. With the face plate off, using a Phillips head screwdriver, remove the two screws and slide the controller out.

3. Once removed, exchange wires one by one from the old controller to the new, making sure that the wire designation matches the terminals.

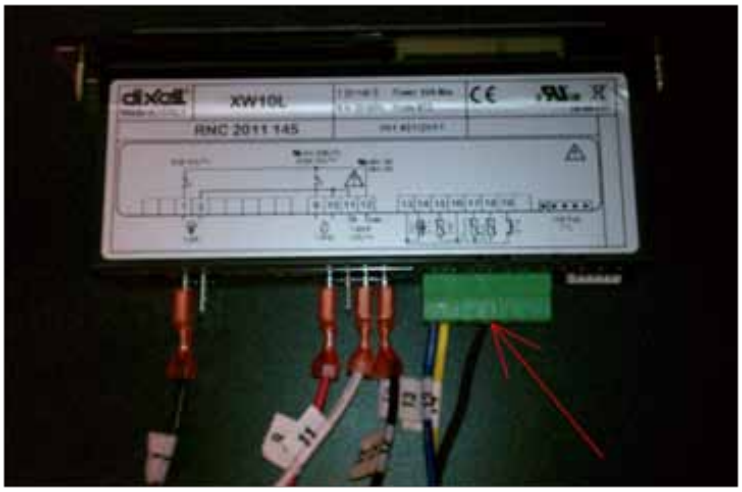
4. Slide the controller back into the cabinet / housing and re-fasten securely with the previously used method.

WARNING

To avoid risk of electrical shock, personal injury or death; disconnect power to unit before servicing.

Temperature Probe

All temperature probes within the zones are 10K ohm NTC probes. Each refrigerated zone has a single probe, which senses compartment temperature. The sensing probe is located directly behind the controller housing and is terminated directly onto the controller under the green terminals.



See the values below for temperature to resistance values when trouble shooting probe or temperature issues:

Temperature (F)	Resistance (Ohms)	Temperature (F)	Resistance (Ohms)
-22	111300	77	10000
-13	86430	86	8313
-4	67770	95	6940
5	53410	104	5827
14	42470	113	4911
23	33900	122	4160
32	27280	131	3536
41	22050		
50	17960		
59	14690		
68	12090		

WARNING
To avoid risk of electrical shock, personal injury or death; disconnect power to unit before servicing.

Probe Replacement

To replace the temperature probe, refer to the CONTROLLER REPLACEMENT section.

Shelf Removal

Remove the shelves and or drawers from any compartment by extending each to its most open position. In the center of each slide a plastic lever can be found. On the right side, the lever should be pressed downward, while on the left, it should go upward.
By pressing both levers at the same time, the self or drawer can be pulled out of the cabinet.

1. By depressing both levers at the same time, the shelf or drawer can continue to be pulled out of the cabinet (Fig.1).

Fig. 1

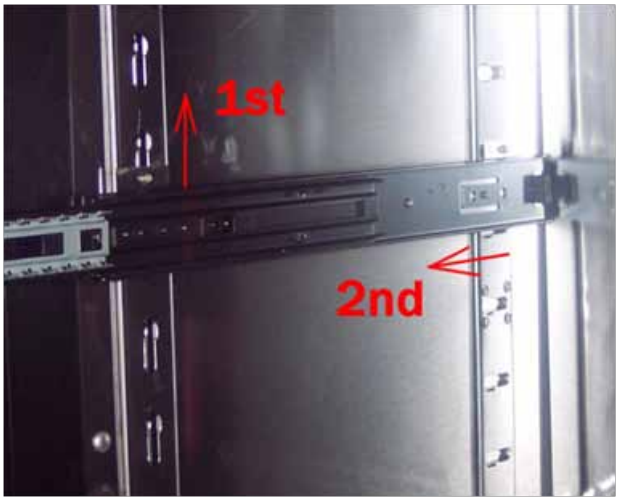


Fig. 2

2. Remove each cabinet slide by first lifting the front out of the key slot, and then forward. (Fig.2).

Defrosting

In the event that the evaporator coil is covered with ice (not frost), a physical defrosting may be needed to clear the coil. This condition may be the result of a door or drawer being left open, a failed temperature probe, door gasket leaks, or the refrigeration access hole not sealed.

CAUTION: DO NOT ALLOW EXCESSIVE MOISTURE TO DRAIN INTO THE EVAPORATOR DRAIN PAN. THE EVAPORATOR DRAIN PAN EMPTIES INTO A CONDENSATE PAN LOCATED IN THE COMPRESSOR COMPARTMENT. IT IS SIZED FOR NORMAL USES AND MAY OVERFLOW AND CAUSE WATER DAMAGE TO FLOORING.

DO NOT USE TOOLS TO DISLODGE OR REMOVE ICE.

WARNING
To avoid risk of electrical shock, personal injury or death; disconnect power to unit before servicing.

(Defrosting continued...)

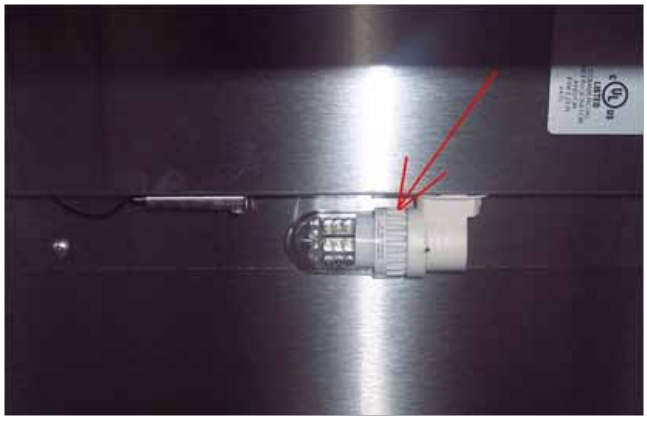
TURN OFF, OR UNPLUG THE UNIT BEING SERVICED

To defrost the evaporator coil, remove the shelves or drawers out of the cabinet. Remove all four of vertical shelf supports. Pull the top edge of the rear panel towards you until it get to a 45 degree angle. Now lift the panel up and out of the cabinet. This will expose the evaporator coil.

Using a hair dryer or heat gun, carefully remove all ice, remembering to use rags or sponges to catch melted water. When complete, reinstall all components.

Light Bulb Replacement

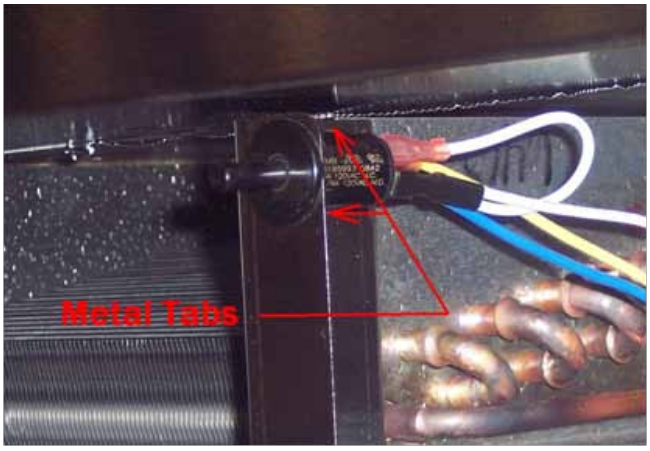
The light is located just behind the temperature control housing. To replace a defective or burnt out light bulb, simply unscrew the bulb counter-clockwise and replace with an identical LED bulb, Viking number 67026.



Door Switch Replacement

CAUTION: DISCONNECT POWER TO THE CABINET BEFORE SERVICING.

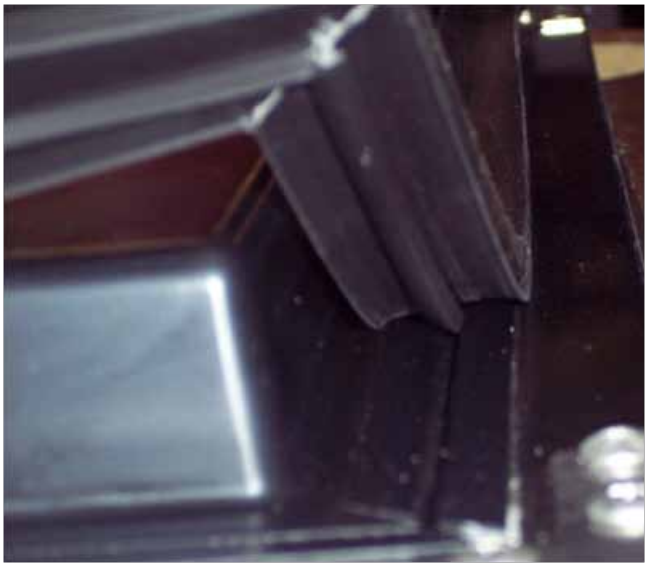
With the front grille removed, depress the two metal ears on the back side of the support bracket, at the same time pulling the switch forward. Transfer the wires one by one to the new switch. Push the switch back into place, making sure that the metal tabs are pushed through the bracket, holding the switch securely.



Door Gasket Replacement

Door and Drawer gaskets are easily replaceable. Starting at a corner, pull the gasket away from the door and continuing all the way around.

All Gaskets are a dart and slot design. The new gasket should be positioned onto the door or drawer. Starting at the corners, insert the gasket dart into the slot and press firmly. After all corners have been engaged, continue down each side until the entire gasket is in position. A rubber or plastic hammer can also be used to aid in the dart insertion.



SECTION 4 – Customer Calls

Viking’s warranty does not cover customer service education calls. If a service call occurs and the reason is customer education, the customer is responsible for any billings.

Guide for Screening Customer Calls

Make sure you are familiar with the factory specifications for this unit.

Keep in mind that there are many factors which can affect cabinet performance such as the ambient temperature, application, excessive door openings, product loading, etc. Additionally, the digital readout is monitoring true air temperature, not product temperature. (The readout has a 20 minute delay built into it for temperature rise).

Temperature Control Specifications

Model(s)	Temperature Zone	Factory Set Point & Differential Deg. F (Compressor Off \ On)	Controller Set-point Range Deg. F
FBCI/VBCI 1150G	Beverage Zone, 15”	42° Off \ 52° On	30° to 48°
FWCI/VWCI 1150G	Wine Zone, 15”	43° Off \ 51° On	40° to 68°
FRCI/VRCI 1240G	Refrigerator Zone, 24”(indoor)	34° Off \ 44° On	30° to 42°
VRCO1240D	Refrigerator Zone, 24”(outdoor)	34° Off \ 44° On	30° to 42°
FBCI/VBCI 1240G	Beverage Zone, 24”	42° Off \ 52° On	30° to 48°
FWCI/VWCI 1240G	Wine Zone	43° Off \ 51° On	40° to 68°
FRDI/VRDI 1240D	Refrigerated drawer, 24”(indoor)	34° Off \ 44° On	30° to 42°
VRDO1240D	Refrigerated drawer, 24”(outdoor)	34° Off \ 44° On	30° to 42°

Information required to properly analyze service issues:

What is the ambient temperature of the room/area that cabinet is installed in?

The standard ambient temperature range is 40°F to 105°F.

Under extreme temperature/relative humidity conditions the front face, gasket and/or glass door may show signs of sweating. This will diminish when temperature/relative humidity conditions return to normal.

Is the unit in an application of heavy use?

If the door(s) or drawers are being opened excessively or not sealing properly, this allows extra heat into the unit causing extended compressor run times. Ensure door(s) and drawers are closed completely and not left open for a long duration of time. No door adjustments should ever be necessary unless major structural damage has been done to the cabinet.

Is the condenser clean?

Viking’s warranty **does not** cover cleaning of the condenser.

Condenser coils that are covered with dust and or pet hair restrict air flow, resulting in high head pressures and reduction in efficiencies do to longer run times.

The condenser is located directly behind the front grille *(Fig. 3)*. Use a soft brush and vacuum to clean coil every 90 days.

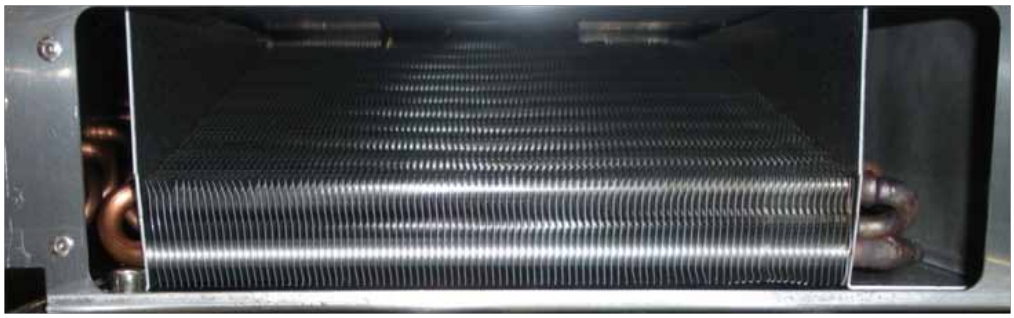


Fig. 3

Is the unit behind closed doors or is the air flow to and from the condenser obstructed?

The unit must have free air flow to the front grille at all times to operate properly. Restricting the air flow results in high-head pressures and reduction in efficiencies due to longer run times.

What is the controller set point? Has an adjustment been made?

Pressing and releasing the controller set button will display the current set point. To adjust the controller set point press and hold the set key for three (3) seconds, the current set point will flash in the display. Adjust the set point colder by pressing the down arrow key until point value shows in display. Press the set key once for the controller to memorize the new set point. Be sure to allow 24 hours between temperature controller adjustments.

Lighting

Viking uses state-of-the-art LED lighting, which is the most energy efficient light available. All units have both a manual light switch on the controller *(Fig. 4, page 22)* and a door activated switch *(Fig 5, page 22)* centered under the door or drawer. The manual switch should be positioned in the off position for normal operation. Check the door activated switch to ensure it is making sufficient contact with the plunger bracket.

Fig. 4

Fig. 5

Viking uses the following defrost technologies:

Defrost Method	Models
Off Cycle Defrost	All

General Troubleshooting

WARNING
To avoid risk of electrical shock, personal injury or death; disconnect power to unit before servicing.

Dianostic Guide
All Gaskets are a dart and slot design. The new gasket should be positioned onto the door or drawer. Starting at the corners, insert the gasket dart into the slot and press firmly. After all corners have been engaged, continue down each side until the entire gasket is in position. A rubber or plastic hammer can also be used to aid in the dart insertion.

This diagnostic guide can be used for any of Viking’s Refrigeration Products. All refrigeration systems are similar in design.

(1) Call for Cooling	LED Controller Display Snowflake is Illuminated, cabinet temperature will not achieve cut-out temperature (door has not been left open or excessive load - ambient temperature or internal product is not the cause). Blinking LED indicates the unit is in the anti-cycle time (5 minutes for all models).
(2) Evaporator Airflow?	Check evaporator airflow? The evaporator fan is controlled by the digital controller and the door switch. Ensure both the fan LED is illuminated and the door switch is depressed for the fan to be receiving power. Air should enter through bottom louvers and exit out of fan guard openings. (Evaporator fan cycles with compressor).
(3) Clear Obstruction	Clear any obstruction which may be hindering proper airflow through the evaporator, including product placed against the louvers or ice build-up on the coil, etc.
(4) Condenser Airflow	Check condenser airflow? The condenser fan motor will be in operation at the same time as the compressor. Ensure the LED Snowflake is illuminated. Air should be felt being pulled through louvers on the left half of the grille and pushed out of the louvers on the right when facing the unit.
(5) Clear Obstruction	Clear any obstruction which may be hindering proper airflow through the condenser, including anything blocking the louvers, dirt and debris on the coil, etc.

(6) Evaporator Fan Runs	Ensure the evaporator fan is running, see #2 on page 22.
(7) Voltage at Motor?	Check for the proper voltage at the motor. Voltage should be approximately 115V.
(7a) Find Voltage Interruption	Determine where voltage is being interrupted and correct. See wiring diagram for circuitry.
(8) Fan Blade Obstructed?	Ensure the fan blade is not obstructed.
(9) Fan Motor Defective	Replace the fan motor.
(10) Condenser Fan?	Check if the condenser fan is operating, see #4 on page 22.
(11) Voltage at Motor?	Check for the proper voltage at the motor. Voltage should be approximately 115V.
(12) Fan Blade Obstructed	Ensure the fan blade is not obstructed.
(13) Fan Motor Obstructed	Ensure the fan blade is not obstructed.
(14) Compressor Runs?	LED Snowflake must be illuminated for compressor to operate. Using a clamp on style amp probe, determine if the compressor is drawing current and record. If compressor is running go to #19.
(15) Power to Compressor?	Check to ensure power is at the black wires leading to the overload (115 V nominal). If no power, find where the voltage is being interrupted and repair.
(16) Replace Start Components	Before replacing, go to #17 to ensure compressor quality. Once compressor checks okay, replace overload and relay.
(17) Check Compressor	Using Multi-meter, check compressor winding(s). For all models, the resistance should be 20.9 ohms from common to start, and 5.5 to the run windings.
(18) Replace Compressor	Replace compressor if compressor windings are faulty. Always follow established industry practices and applicable local, state and federal laws regarding refrigerant handling.

(19) Suction Pressure	Monitor suction pressure to see how the system is operating. Since this refrigeration system is critically charged no field access has been provided. In order to understand how the system is operating, it is also necessary to determine the current draw of the compressor. In the event that the system must be accessed for troubleshooting it will be necessary to install a piercing type “saddle valve” on the low side process tube. Pierce the process tube and connect refrigeration gauges. To monitor the current, use a clamp on amp probe or similar device. Additionally, if system pressures seem low, check frost pattern of evaporator coil. See attached operating conditions chart for operating specifications.
(20) Metering Device?	If pressure is low, check to ensure metering device is not obstructed by monitoring pressures and the frost patterns. Try adding additional refrigerant to see if frost pattern changes. If frost pattern changes, system is most-likely low on charge. If no change, metering device may be restricted.
(21) Repair Metering Device	Following established industry practices and applicable local, state and federal laws regarding refrigerant handling, (See section Potential Problems with HFC-134a for Viking Range Processing recommendations), check for restrictions Within the system and repair.
(22) Correct Charge?	If charge is low from amperage readings and frost pattern, check system for leaks. Never add any dyes or other leak detection materials to the refrigeration system, as this will void the warranty. Find the leak and repair. Recharge the system by weighing in the proper charge as shown on the ID plate of the cabinet. Always follow established industry practices and applicable local, state and federal laws reading refrigerant handling. (See section Refrigeration Processing) for processing recommendations.
(23) Compressor OK?	If system pressure is excessively high without an excessive frost pattern on the evaporator, and compressor has an internal leaking sound when power is turned off, compressor may have internal damage.

(24) Replace Compressor	Replace compressor if compressor is inefficient. Always follow established industry practices and applicable local, state and federal laws regarding refrigerant handling. (See section Potential Problems with HFC-134a for Viking Range Processing recommendations).
(25) Unit Functioning Normal	If unit is still not functioning normally, contact factory for additional assistance or review above steps for possible omissions.

Service Diagnosis

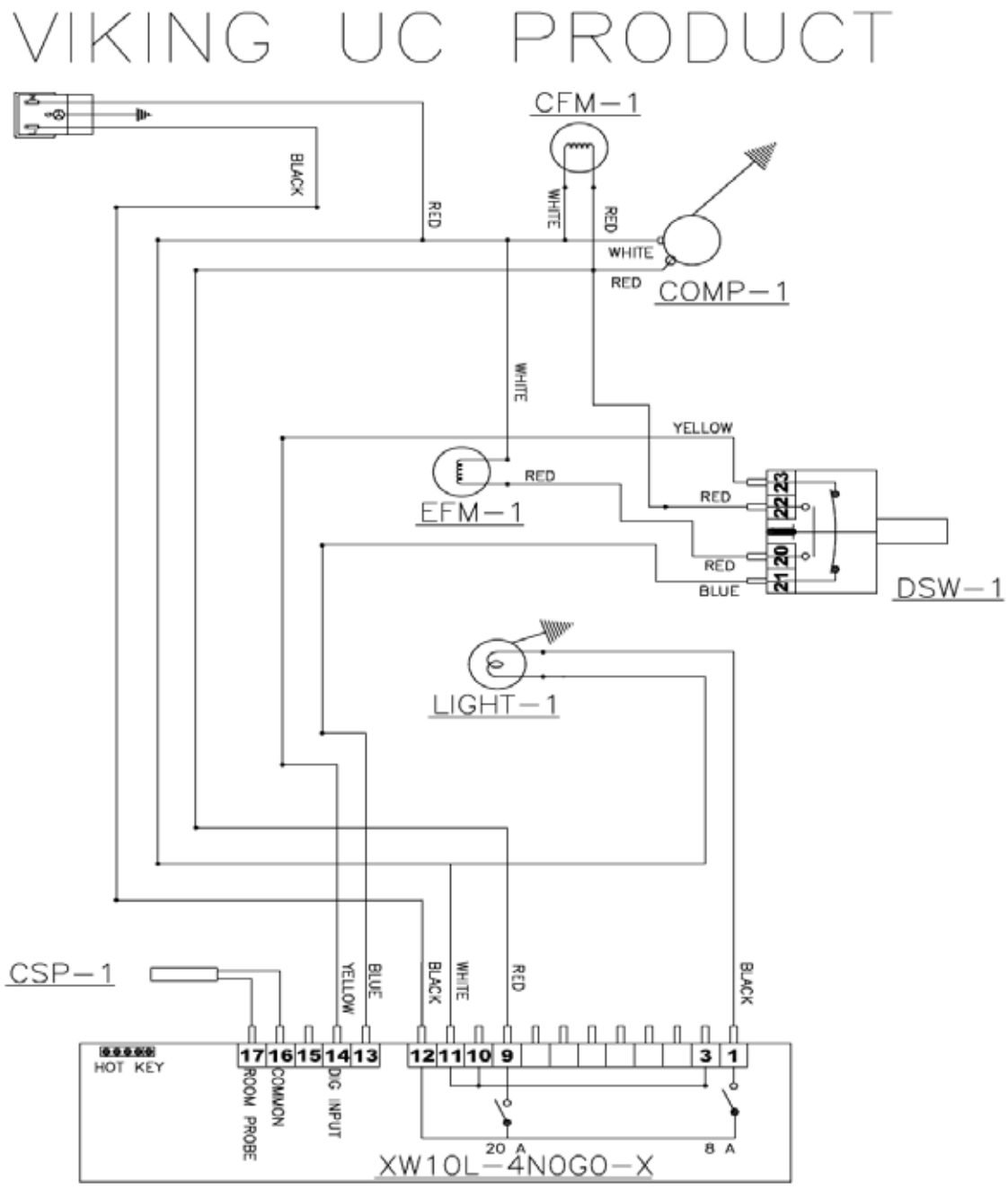
Problem	Check	Possible Cause	Remedy	Ref. Pg.
No Cooling	Solid State Controller	Controller powered Off	Depress Power button	13
		Not calling for cooling	Adjust temperature set point	11
		Bad contacts	Check for continuity and replace	14
		Loose connections	Tighten	14
		Cooling indicator light off	Replace Controller	14
	Power cord	Not plugged into receptacle	Plug into receptacle	
		Modular connection loose	Remove back panel and check connection	
	Controller	Open Circuit - Damaged	Replace Controller	14
	Supply Power	Blown breaker or fuse	Reset or replace	
	Compressor	Start Components	Replace Start Components	
		Refrigerant leak	Find leak, repair, and recharge	5

Cabinet Not Achieving Set Point	Door switch	Plunger broken	Replace Switch	17
		Not fully depressed	Door \ Drawer gaskets not seated properly	18
			Check lower hinge for smooth operation. Door must ride on cam assembly	
	Door \ Drawer Front Panels	Door \ Drawer panels Warped	Replace	
	Light On	Manual switch ON	Turn Off	11
	Evap. Coil for ice buildup	Door \ Drawer left open	Defrost coil	16
		Air leak from refrigerant line access hole	Defrost coil and reseal access hole.	16
		Product blocking evaporator inlet or outlet	Move product away from return louvers and supply fan	

Problem	Check	Possible Cause	Remedy	Ref. Pg.
Cabinet Not Achieving Set Point *(cont...)*	Evaporator Fan motor	Fan Failure	Replace	15
		Door not making contact with switch	Make sure door gaskets are clean and correctly mounted on doors	18
	Condenser Coil	Fan Failure	Replace	16
		Coil Covered with dirt, pet hair, etc.	Clean condenser with a brush and vacuum	20
	Product Temperature	Large amounts of warm product being loaded at one time	Allow extra time for pull down	
No Interior Light	Light Blub	Bulb loose in socket	Tighten	
		Bulb burnt out	Replace bulb	
Noise during operation	All components	Vibration	Secure components	
		Certain sounds are normal. Sounds from the compressor, fans, and valves are normal.		
Controller display is flashing “HA”	Door Closure	Door gasket torn or out of place	replair or replace	18
	Warm products	Was cabinet loaded with warm product	Allow extra time for pull down	
	Condenser coil	Coil covered with dirt, pet hair, etc.	Clean condenser using a brush and vacuum	20
	Louvered toe grill	Clear all obstructions		
	Light on	Manual switch is ON	Turn OFF	
	Surrounding ambient temperatures	Has the temperatures changed dramatically	Allow extra time for pull down	
	Evap. Coil for ice buildup	Door left open	Remove evaporator panel and defrost coil	16
		Product blocking evaporator inlet or outlet	Move product away from return louvers and supply fan	

Problem	Check	Possible Cause	Remedy	Ref. Pg.
Controller display is flashing “LA”	Surrounding ambient temperatures	Is the ambient temperature colder than controller set point	Unit can only maintain temperatures when ambient is warmer than set-point	
	Evaporator probe resistance	Check Resistance - Refer to section titled “Temperature Probe”	Replace probe if defective	15
	Controller	Check controller contacts - Is the compressor turning off when the controller is satisfied?	Replace Controller	14
Controller display is flashing “EE”	The controller has a data or memory failure		Controller must be reprogrammed	13
Refrigeration system runs for long periods of time	Condenser Coil	Coil covered with Dirt, pet hair, ect.	Clean condenser using a brush and vacuum	20
	Louvered toe grill obstructed	Clear all obstructions		
	Product temperature	Large quantities of warm product being loaded at one time	Allow extra time for pull down	
Refrigeration system runs for long periods of time	Door Closure	Door \ Drawer gasket torn or out of place	Repair or replace	18
	High ambient humidity	This is normal during high humidity and frequent door openings		
	High ambient humidity	During periods of high humidity, some condensation might appear on the outside surfaces. The condensation will disappear when the humidity drops. Meanwhile, be sure the doors are closing and sealing properly. If condensation persists, call the Viking Range Corporation for service.		
Stainless is discolored, looking like rust	Weather, cleaning chemicals		Clean and polish regularly using products such as Barkeepers Friend	

SECTION 5 – DiagramS



XW10L--REFRIGERATION SYSTEM CONTROLLER
DSW–1--LIGHT AND EVAP FAN MOTOR DOOR SWITCH
LIGHT 1--COMPARTMENT LIGHT
EFM 1--EVAPORATOR FAN MOTOR
CSP–1--REFRIGERATED COMPARTMENT 1 SENSOR PROBE
CFM–1--CONDENSER FAN MOTOR