UC Series
Service Manual

INTRODUCTION

This Technical Service Manual has been compiled to provide the most recent information on safety, installation, operation, features, troubleshooting, wiring diagrams, and repair procedures for the Under Counter Series starting with serial number 3603000. This information will enable the service technician to troubleshoot and diagnose malfunctions, perform necessary repairs, and return an Under Counter Series appliance to proper operational status.

The service technician should read the complete instructions contained in this technical service manual before initiating any repairs.

IMPORTANT SAFETY INFORMATION

Below are the Product Safety Labels used in this manual. The "Signal Words" used are **WARNING** or **CAUTION**.

When reviewing this manual, please note these different Product Safety Labels placed at the beginning of certain sections of this manual. You must follow the instructions given in the boxes below the Product Safety Labels in order to avoid personal injury and/or product damage.

The sample Product Safety Labels below illustrate the precautions that should be taken when the signal word is observed.

⚠ WARNING

INDICATES THAT HAZARDOUS OR UNSAFE PRACTICES COULD RESULT IN SEVERE PERSONAL INJURY OR DEATH

⚠ CAUTION

Indicates that hazardous or unsafe practices could result in minor personal injury or product and/or property damage

In addition, please pay attention to the signal word ***"NOTE"***, which highlights information that is especially important for the topic being covered.

TECHNICAL ASSISTANCE

If you should have any questions regarding a Sub-Zero appliance and/or this manual, please contact:

Sub-Zero Group, Inc.
ATTN: Service Department
P.O. Box 44988
Madison, WI 53744-4988

Customer Assistance
Phone #: (800) 222 - 7820
Facsimile #: (608) 441 - 5887

Technical Assistance
(For Technicians in Customer's Homes Only)
Phone #: (800) 919 - 8324

Parts / Warranty Claims
Phone #: (800) 404 - 7820
Facsimile #: (608) 441 - 5886

Service Department e-mail Address:
customerservice@subzero.com

Main Office Hours:
8:00 AM to 5:00 PM Central Time
Monday through Friday
(24/7 Phone Coverage)

This manual is designed to be used by Authorized Service Personnel only. Sub-Zero Group, Inc. assumes no responsibility for any repairs made on Sub-Zero refrigeration units by anyone other than Certified Service Technicians.

TABLE OF CONTENTS

WARRANTY INFORMATION

This page summarizes the *2, 5 & 12 Year Warranty* supplied with every unit (except the model UC-24RO), as well as the two special warranties: The *Non-Residential Warranty* which applies to units installed in non-residential applications, and the *Display/Model Home Warranty* which applies to distributor or dealer's display units and units in model homes, sold three years after date of manufacture. The last entries on this page are details and notes about the warranties.

TWO, FIVE & TWELVE YEAR Warranty Summary

- Two Year TOTAL PRODUCT Warranty, *parts & labor.
- Five Year SEALED SYSTEM Warranty, **parts & labor.
- Sixth through Twelfth Year LIMITED SEALED SYSTEM Warranty, sealed system **parts only.

ONE & FIVE YEAR Non-Residential Warranty Summary (Example: Office, Yacht, etc. and the model UC-24RO)

- One Year TOTAL PRODUCT Warranty, *parts & labor.
- Five Year LIMITED SEALED SYSTEM Warranty, sealed system **parts only.

ONE & FIVE YEAR Display/Model Home Warranty Summary (Display units sold three years after date of manufacture)

- One Year TOTAL PRODUCT Warranty, *parts & labor.
- Five Year LIMITED SEALED SYSTEM Warranty, sealed system **parts only.

Warranty Details:

** Total Product Parts includes, but is not limited to the following:*

Electronic Control System Components, Switches, Fan Motors & Blades, Defrost & Drain Heaters, Defrost Terminators, Drain Pans, Drain Tubes, Wiring, Light Sockets & Bulbs, Icemakers, Water Valves, Door hinges, Compressor Electricals, etc. . .

*** Sealed System Parts includes the following:*

Compressors, Condensers, Evaporators, Filter-Driers, Heat-exchangers, All Tubing That Carries the Freon.

***NOTE:** Condenser Fan Motors, Freon, Solder and compressor electricals are NOT considered sealed system parts.*

Warranty Notes:

- *All warranties begin at the time of the unit's initial installation.*
- *All Warranty and Service information collected by Sub-Zero is arranged and stored under the unit serial number, and when provided and/or available, the customer's last name.*

  ***NOTE:** Sub-Zero still requests that you have the model and serial number available whenever contacting the factory or parts distributor.*
- *The serial number tag is located on the upper left side wall of the compartment.* (See Figures 1-1, for serial tag layout)

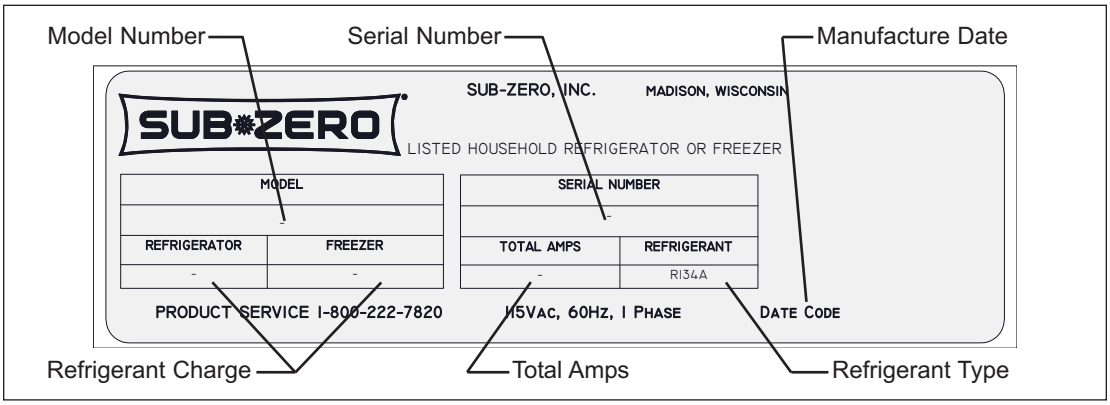


Figure 1-1. Serial Tag Layout
(The serial number tag is located on the upper left side wall of the compartment.)

MODEL DESCRIPTIONS

This page briefly describes the models covered in this manual, which are UC-24B, UC-24C, UC-24R and UC-24RO.

Model UC-24B (Figure 1-2)

Under **C**ounter Series, **24"** Width, **B**everage Center

- *Exterior Dimensions = 34" H x 23-7/8" W x 24" D*
- One (1) Adjustable Wine/Beverage Storage Shelf/Rack
- Two (2) Adjustable Glass Shelf
- One (1) Stationary Shelf
- One (1) Utility Bin
- Full-View Glass Door

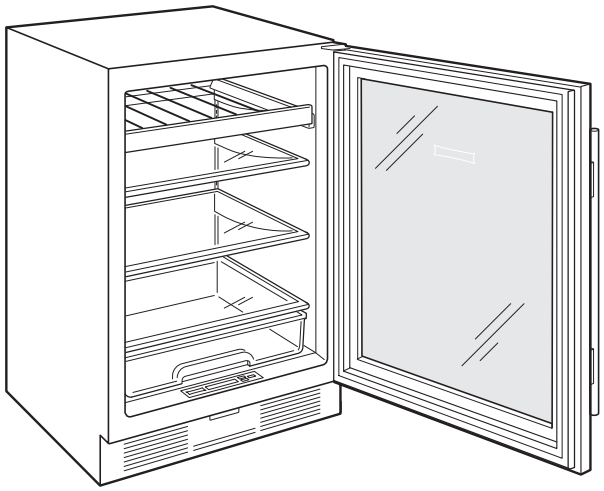


Figure 1-2. Model UC-24B

Model UC-24C (Figure 1-3)

Under **C**ounter Series, **24"** Width, **C**ombination - Refrigerator / Freezer

- *Combination Refrigerator Temperature Zone over Freezer Temperature Zone*
- *Exterior Dimensions = 34" H x 23-7/8" W x 24" D*
- One (1) Wine/Beverage Storage Shelf/Rack
- One (1) Adjustable Glass Shelf
- One (1) Stationary Shelf
- One (1) Door Shelf
- Automatic Icemaker
- Automatic Defrost

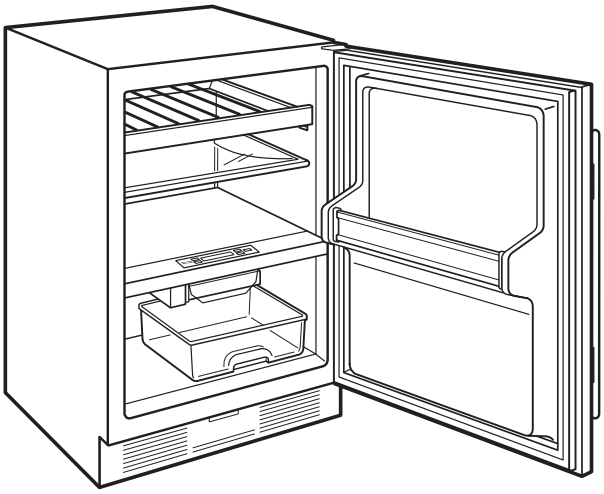


Figure 1-3. Model UC-24C

Model UC-24R (Figure 1-4)

Under **C**ounter Series, **24"** Width, All **R**efrigerator

- *One Refrigerator Temperature Zone*
- *Exterior Dimensions = 34" H x 23-7/8" W x 24" D*
- Two (2) Adjustable Glass Shelf
- One (1) Stationary Glass Shelf
- One (1) Utility Bin
- Two (2) Door Shelves
  (Bottom Door Shelf Holds 2-liter Bottles)

Model UC-24RO (Figure 1-4)

Under **C**ounter Series, **24"** Width, All **R**efrigerator for **O**utdoor Use

- *One Refrigerator Temperature Zone*
- *Exterior Dimensions = 34" H x 23-7/8" W x 24" D*
- Two (2) Adjustable Glass Shelf
- One (1) Stationary Glass Shelf
- One (1) Utility Bin
- Two (2) Door Shelves
  (Bottom Door Shelf Holds 2-liter Bottles)
- Door Lock

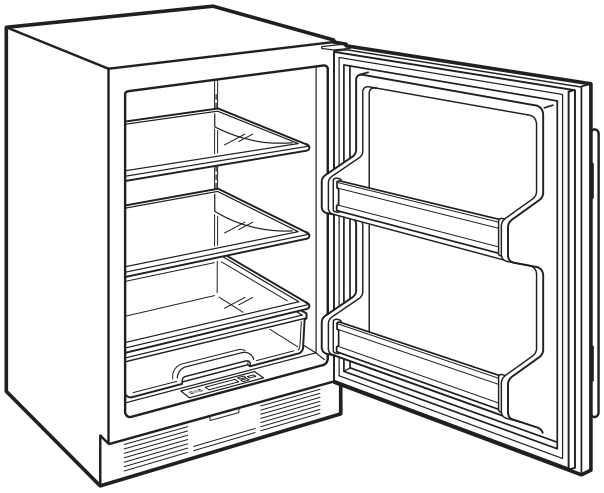


Figure 1-4. Model UC-24R & UC-24RO

INSTALLATION CONSIDERATIONS

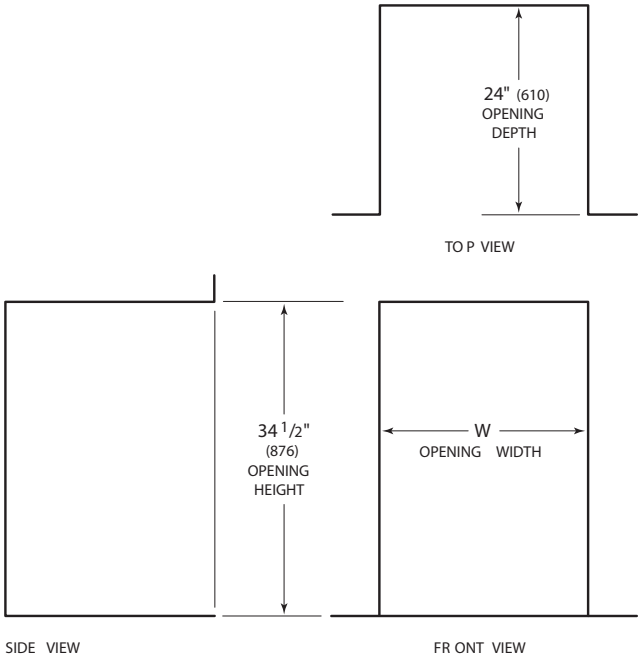
This section covers some of the more common installation issues seen by a Service Technician. An improper installation, though not a valid service issue, has the potential to lead to a call for service. Installation related complaints could include, but are not limited to: Unit leveling, unit movement, door misalignment, door not sealing, internal frost or condensation, exterior condensation, warm compartment temperatures, etc.

NOTE: *If additional installation information is needed, refer to the complete Installation Manual, or contact the Sub-Zero Service Department.*

Site Preparation

Opening Dimensions

UNDERCOUNTER MODELS



OPENING WIDTH	W
UC-24R	24" (610)
UC-24BG	24" (610)
UC-24C(I)	24" (610)
UC-24RO	24" (610)

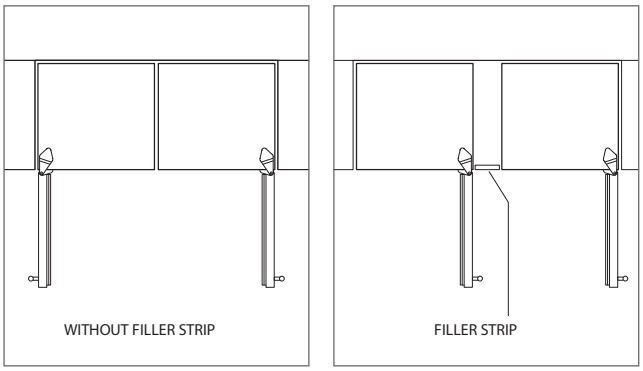
DUAL OPENING WIDTH	W
Two 24" (610) Models	48 1/8" (1222)

Dual installation kit required.

DUAL INSTALLATION

If two units are installed side by side, a dual installation kit may be required. Installations without a custom filler strip require a dual installation kit. If a dual installation kit is not specified, a 2" (51) filler strip is recommended between units. Dual installations without a filler strip can only be accomplished using two units with opposite hinges. Refer to the illustrations below.

Dual installation kits are available through an authorized Sub-Zero dealer. For local dealer information, visit the find a showroom section of our website, subzero.com. For questions regarding the installation, call Sub-Zero customer care at 800-222-7820.



Opposite hinges. Same side hinges.

Site Preparation

Electrical

Installation must comply with all applicable electrical codes.

The electrical supply should be located within the shaded area shown in the illustration below. A separate circuit, servicing only this appliance is required.

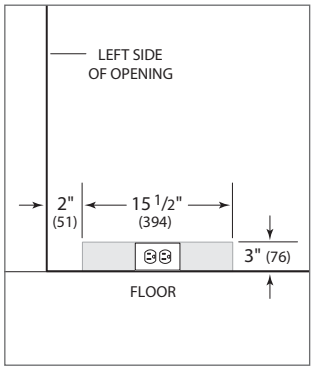
IMPORTANT NOTE: The electrical outlet must be placed so the grounding prong is to the right of the thinner blades. The outlet must be flush with the back wall.

Model UC-24RO is designed and safe for use in outdoor applications. When installed outdoors, a ground fault circuit interrupter (GFCI) is required to reduce the risk of electrical shock. A GFCI is not recommended for use with other undercounter models and may cause interruption of operation.

ELECTRICAL REQUIREMENTS	
Electrical Supply	115 VAC, 60 Hz
Service	15 amp
Receptacle	3-prong grounding-type

WARNING

Do not use an extension cord, two-prong adapter or remove the power cord ground prong.



Electrical supply location.

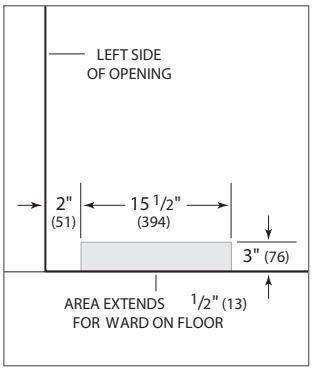
Plumbing

Installation must comply with all applicable plumbing codes.

For model UC-24CI, the water supply should be located within the shaded area shown in the illustration below. The water supply line should be connected to the house supply with an easily accessible shut-off valve. Do not use self-piercing valves.

A reverse osmosis system can be used provided there is constant water pressure of 20–100 psi (1.4–6.9 bar) supplied to the unit at all times. A copper line is not recommended for this application.

PLUMBING REQUIREMENTS	
Water Supply	1/4" OD copper, braided stainless steel or PEX tubing
Pressure	20–100 psi (1.4–6.9 bar)
Excess Line for Connection	36" (914)



Water supply location.

Site Preparation

Preparation

To operate properly, the door must open a minimum of 90°. Use a minimum 3" (76) filler in corner installations to assure a 90° door opening.

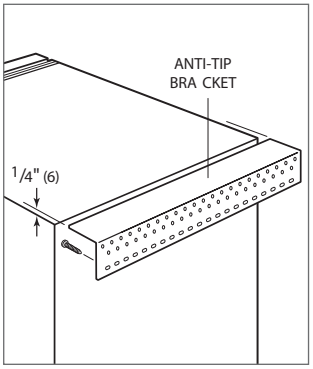
Uncrate the unit and inspect for damage. Remove and recycle packing materials. Do not discard the kickplate, antitip bracket, hardware and the leveling legs which hold the wood base to the bottom of the unit.

Anti-Tip Bracket

⚠ WARNING

To prevent the unit from tipping forward, the anti-tip bracket must be installed.

The anti-tip bracket should be attached to the wall behind the unit with the bracket flange located 1/4" (6) above the top of the unit. Refer to the illustration below. Failure to properly position the anti-tip bracket will prevent proper engagement.



Anti-tip bracket.

Installation

Installation

⚠ CAUTION

Before moving the unit into position, secure the door closed and protect any finished flooring.

Use an appliance dolly to move the unit near the opening.

If the unit has been on its back or side, it must stand upright for a minimum of 24 hours before connecting power.

LEVELING

Level the unit before sliding it into position. Turn each of the four leveling legs clockwise to raise the unit and counter-clockwise to lower. Refer to the illustration below.

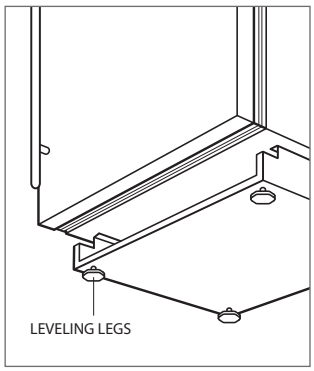
DOOR ADJUSTMENT

The top and bottom cabinet hinges are held in place with three permanent adjustment screws. For adjustments, loosen the screws, adjust the door and tighten screws. Refer to the illustrations below.

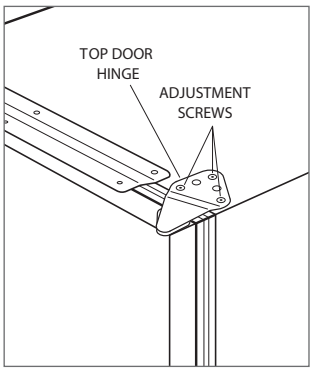
PLACEMENT

Plug the power cord into the grounded outlet and slide the unit into position.

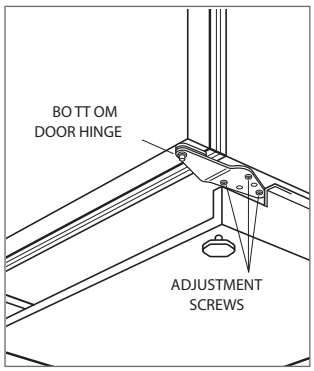
It may be necessary to install the unit 1/4" (6) beyond the front surface of adjacent cabinetry to prevent interference when the door is opened to 145°. Refer to the full-scale template on page 2-9.



Leveling.



Top door hinge.



Bottom door hinge.

Installation

Installation

WATER LINE (MODEL UC-24CI)

Purge the water line prior to final connection to the unit. This will remove any debris that may be present in the tubing from installing the new water line.

For model UC-24CI, connect the plastic tubing from the unit to the house water supply line with the fitting connection kit provided. Check all water line fittings for leaks.

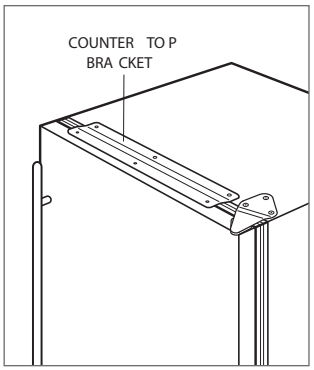
IMPORTANT NOTE: Water lines can not be exposed to freezing temperatures.

ANCHORING

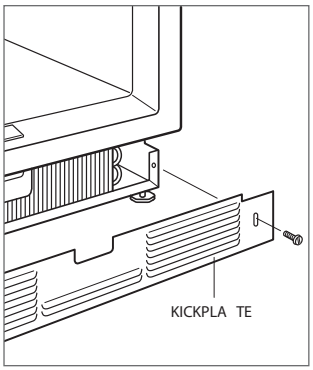
To anchor, use the optional countertop bracket provided, to secure the unit to the underside of the countertop. Refer to the illustration below. If the countertop bracket can not be utilized, install shims along the top and sides of the unit.

KICKPLATE

Install the kickplate using the two screws provided. Refer to the illustration below. The kickplate must be removable for service. The floor cannot interfere with removal. Do not cover the louvered section of the kickplate.



Anchoring.



Kickplate installation.

Panel Installation

Custom Door Panel

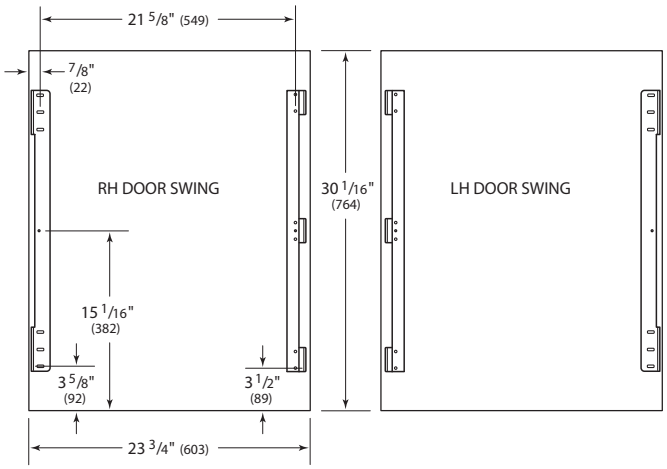
For overlay applications, a custom door panel must be installed. Panel size is critical for a proper fit. To verify panel requirements and dimensions, refer to the Sub-Zero design guide at subzero.com/specs.

Finish all sides of custom panels. They may be visible when the door is open or through the window of glass door models.

MODELS UC-24R AND UC-24C(I)

Remove the two panel mounting brackets attached to the front of the door. Place the custom overlay door panel face down on a protected work surface. Position the plastic template provided, flush with the lower edge of the panel. Verify proper location for right-hand (RH) or left-hand (LH) door swing. Mark the holes, remove template and drill pilot holes for the brackets. Secure mounting brackets with screws provided.

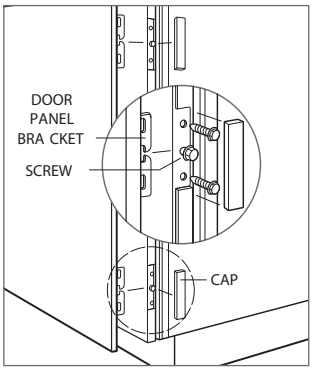
If the template is not available, position mounting brackets as indicated in the illustration below.



Panel mounting brackets.

To install the custom door panel, partially insert a screw in the center of each mounting position on the hinge side of the door. Engage the tabbed bracket to the handle side of the door, then slide the hinge side mounting bracket onto positioning screws. Slotted holes on the mounting bracket should slide under screw heads to support the panel. Refer to the illustration below. Panel can be adjusted 1/4" (6) up and down and side to side.

Once the custom panel is in place and properly adjusted, attach remaining screws to the hinge side mounting bracket, and install magnetic decorative caps as shown in the illustration below.



Panel installation.

Panel Installation

Custom Door Panel

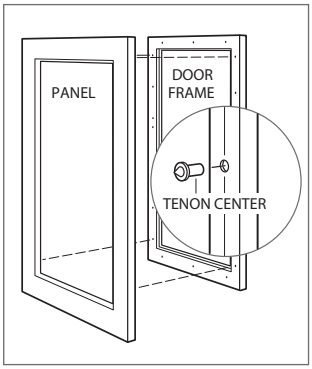
MODEL UC-24BG

The custom overlay door panel is attached using screws provided through the door frame. Screw locations are marked on the back of the custom panel using tenon centers inserted into holes of the door frame.

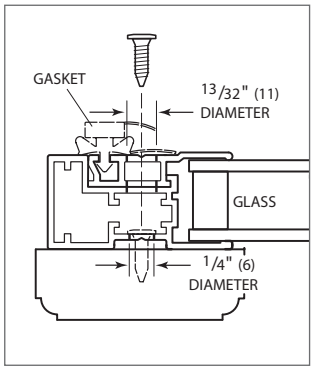
With the unit secured and door closed, hold the custom panel in desired position on the door. Lightly tap the front of the panel to locate mounting positions. Remove tenon centers. Refer to the illustration below.

The door frame has mounting holes to accommodate Sub-Zero accessory handles. If handle mounting holes are not utilized, the handle should be attached to the custom panel prior to mounting. Screw heads may need to be countersunk into the panel for proper alignment.

To mount the custom panel, open the door and use predrilled holes to position the panel. Drive screws into the panel through black tape on the door frame. Screw holes are hidden behind the door gasket. Use as many screws as necessary to secure the custom panel. Refer to the illustration below.



Tenon center.



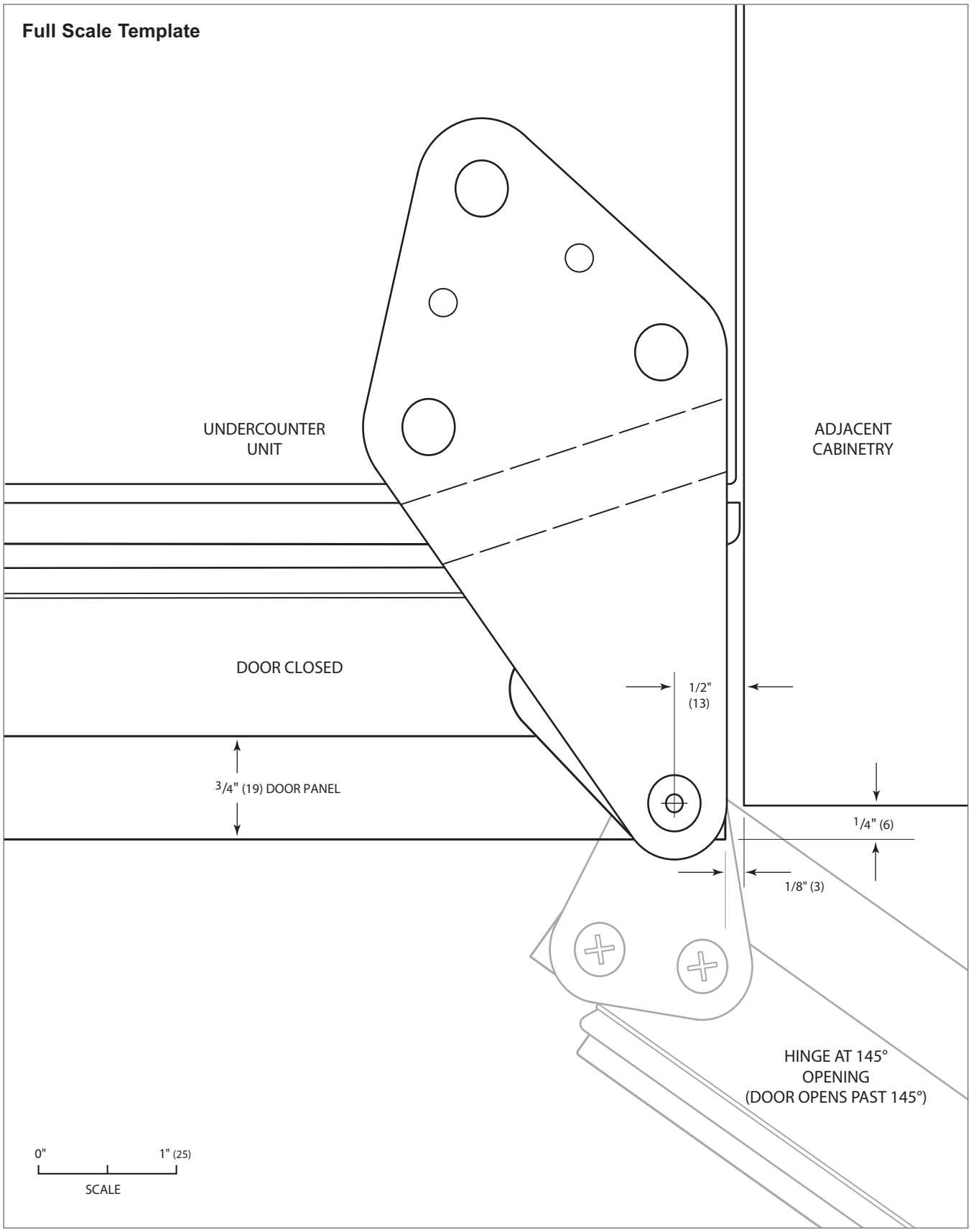
Door frame cross section.

Adjustments can be made to the custom panel with a few mounting screws in place, but not fully tightened. Once the proper position is achieved, install and secure all screws.

Cover holes on the inside of the door frame with the cover patches or plugs provided.

WARNING

Follow all city and state laws when storing, recycling or discarding unused refrigerators and freezers.



145° door opening (top view).

ELECTRONIC CONTROL TERMINOLOGY & COMPONENT DESCRIPTIONS

All UC Series units utilize an electronic control system which monitors, regulates, controls and displays a variety of functions and operations in the appliance.

The table below defines some of the basic electronic control system terminology.

Term/Component	Definition / Description
Main Control Board ..…….....……	The printed-circuit board (PC Board) which contains a microprocessor, relays, triacs and electrical connections that monitor and control all functions of the appliance.
Microprocessor ……..……....	An electrical component on the control board which receives electrical signals from other components, processes the information, then sends electrical signals to relays and triacs on the board to open or close, switching components in the appliance ON or OFF.
Relay ……...……	An electrical component on the control board which switches other components in the appliance ON or OFF when instructed to do so by the microprocessor.
Triac ……....……	Similar in function to a relay, the triac is a three terminal semiconductor for controlling current in either direction.
Control Panel Assembly ….....…	(Also referred to as the Control Keypad Interface), is that part of the electronic control system where all input operations are performed.
Membrane Switch ……..……....	Part of the control panel assembly, which consists of the function keys.
Keys (Function Keys) …….....	The “buttons” on the Membrane Switch used for input operations: “POWER”, “WARMER” and “COLDER”
LCD (Liquid Crystal Display)	A semi-liquid substance sandwiched between glass in the display of the control panel assembly. The molecules of this semi-liquid substance have no specific orientation. However, when electricity is applied to them, they react predictably, aligning and straightening in such a way as to control light passage.
Indicators ....……..…….....	The words, numbers and icons that appear on the display of the control panel assembly through the use of the LCD.
Error Codes ……..…….....	The code numbers that may appear on the display of the control panel assembly when accessing Error Code History. Error Codes are logged if the unit experienced specific problems related to electrical signals supplied by electrical components.
Temperature Units of Measure....	Temperatures may display on the LCD in Fahrenheit units of measure (°F) or Celsius units of measure (°C). A series of key strokes allows the temperature units of measure to be switched to display as either °F or °C.
Set-Point ……..…….....	The desired zone/compartment temperature, established by pressing the COLDER or WARMER keys.
High Offset (Cut-in) ……..….....	As the zone air temperature cycles up and down, the high offset is the maximum zone temperature that the electronic control system will allow before calling for cooling.
Low Offset (Cut-out)…….....	As the zone air temperature cycles up and down, the low offset is the minimum zone air temperature that the electronic control system will allow before interrupting cooling.
Thermistor ……..……	(Also Referred to as a Temperature Sensor), is a resistor with which resistance changes as the temperature around it changes. For electronic control system purposes, the microprocessor measures the resistance, then displays it as a temperature reading.

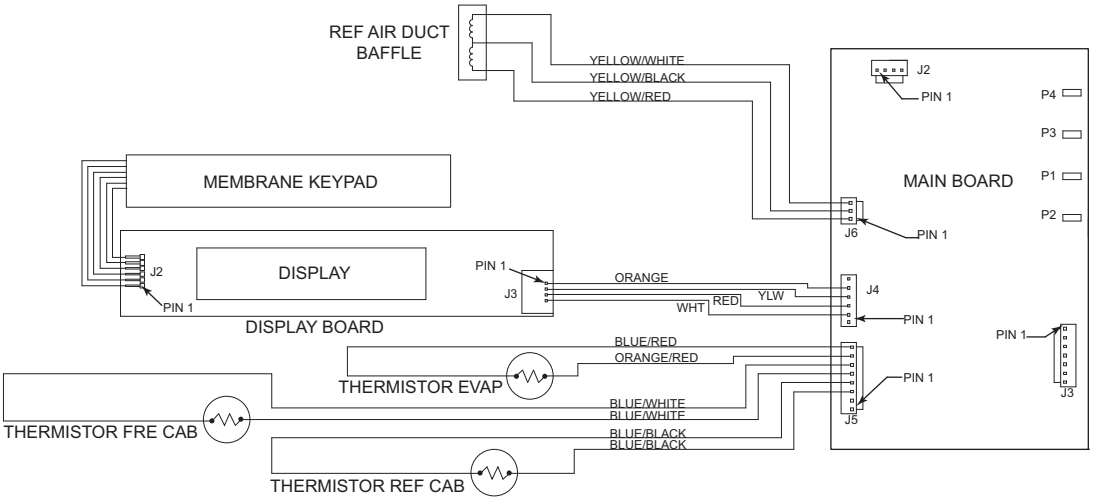
ELECTRONIC CONTROL SYSTEM OVERVIEW

Below is the wiring schematic for the model UC-24C, illustrating the components of the electronic control system.

- Manual input operations are performed at the control panel (membrane keypad).
- Temperatures and possible problems with the unit will appear in the control panel display (LCD).
- Monitoring, regulating and controlling functions take place at the main control board.

The entire electronic control system is described in greater detail on the following pages.

NOTE: *For more detailed electrical diagrams refer to the wiring diagram and schematic supplied with the unit.*



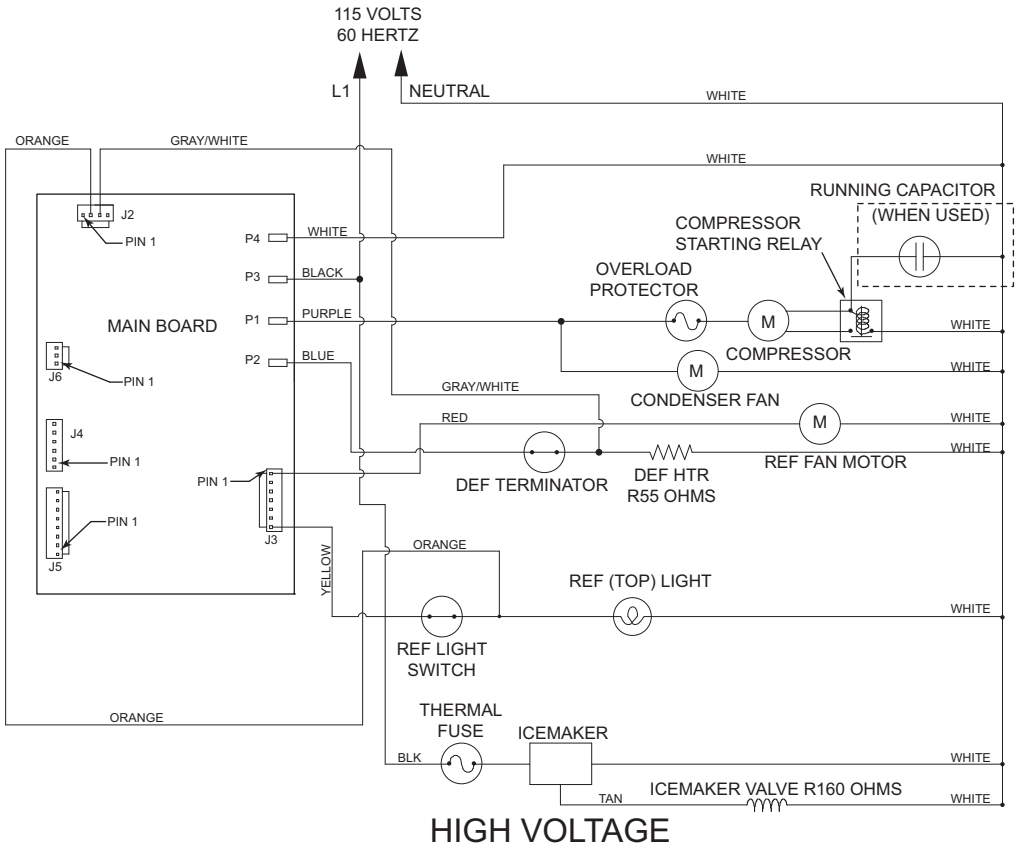


Figure 3-1. UC-24C Wiring Schematic

MAIN CONTROL BOARD LAYOUT AND SUMMARY TABLE

Electrical connection points on the main control board are labeled alphanumerically. These labels correspond with the alphanumeric summary table, located on the wiring diagram. By referencing the summary table, it is possible to identify which components are connected at which points on the main control board. Below is a layout diagram of the main control board, and a copy of a model UC-24C summary table. (See Figures 3-2 & 3-3)

NOTES:

- *All components on the control board are non-replaceable. If a problem with the control board is identified, the complete control board must be replaced.*
- *There is also a small control board in the control panel assembly (Not Shown). All components in the control panel assembly are non-replaceable. If a problem with the control panel is identified, the complete control panel assembly must be replaced.*

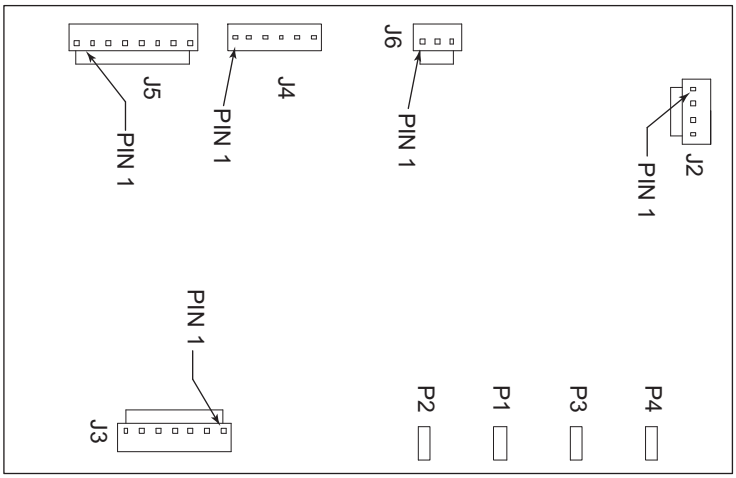


Figure 3-2. Main Control Board Layout

MAIN CONTROL BOARD SUMMARY									
TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR	TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS					LOW VOLTAGE CIRCUITS				
P4	L2	NEUTRAL	NEUTRAL INTO BOARD	WHITE	J5-8	EVAP	EVAPORATOR	SENSES EVAP TEMP	BLUE/RED
P3	L1	POWER IN	POWER INTO BOARD	BLACK	J5-7	EVAP	EVAPORATOR	SENSES EVAP TEMP	ORANGE/RED
P1	COMPRESSOR	COMPRESSOR	POWERS COMPRESSOR AND COND. FAN	PURPLE	J5-6,5	NOT USED	NOT USED	NOT USED	--
P2	DEFROST	DEFROST HEATER	POWERS DEFROST CIRCUIT	--	J5-4,3	CAB	REF COMPARTMENT	SENSES REF CAB TEMP	BLUE/BLACK
J3-7	LIGHTS	LIGHTS	POWERS LIGHTS	YELLOW	J5-2,1	CAB	FRE COMPARTMENT	SENSES FRE CAB TEMP	BLUE/WHITE
J3-6	NOT USED	NOT USED	NOT USED	--	J6-1	N	BAFFLE NEUTRAL	BAFFLE NEUTRAL	YELLOW/RED
J3-5	NOT USED	NOT USED	NOT USED	--	J6-2	C	BAFFLE CLOSE	PULSED TO CLOSE NEUTRAL	YELLOW/BLACK
J3-4	NOT USED	NOT USED	NOT USED	--	J6-3	O	BAFFLE OPEN	PULSED TO OPEN NEUTRAL	YELLOW/WHITE
J3-3	NOT USED	NOT USED	NOT USED	--	J4-6	NOT USED	NOT USED	NOT USED	--
J3-2	NOT USED	NOT USED	NOT USED	--	J4-5	DISPLAY	DISPLAY WIRING	GROUND FOR DISPLAY BOARD POWER SUPPLY	ORANGE
J3-1	FAN 1	EVAP FAN	POWERS EVAP FAN	RED	J4-4	DISPLAY	DISPLAY WIRING	SERIAL DATA TRANSMIT	YELLOW
J2-4	NOT USED	NOT USED	NOT USED	--	J4-3	DISPLAY	DISPLAY WIRING	SERIAL DATA RECEIVE	RED
J2-3	DEF	DEFROST SENSOR	SENSES WHEN DEF HEATER SHUTS OFF	ORANGE	J4-2	DISPLAY	DISPLAY WIRING	12DC POWER SUPPLY FOR DISPLAY BOARD	WHITE
J2-2	R DOOR	REF DOOR LIGHT SENSE	SENSES IF LOWER DOOR OPEN	GRAY/WHITE	J4-1	NOT USED	NOT USED	NOT USED	--
J2-1	NOT USED	NOT USED	NOT USED	--					

Figure 3-3. Main Control Board Summary Table (UC-24C)

CONTROL PANEL LAYOUT

NOTE: *The LCD in these units is not back lit.*

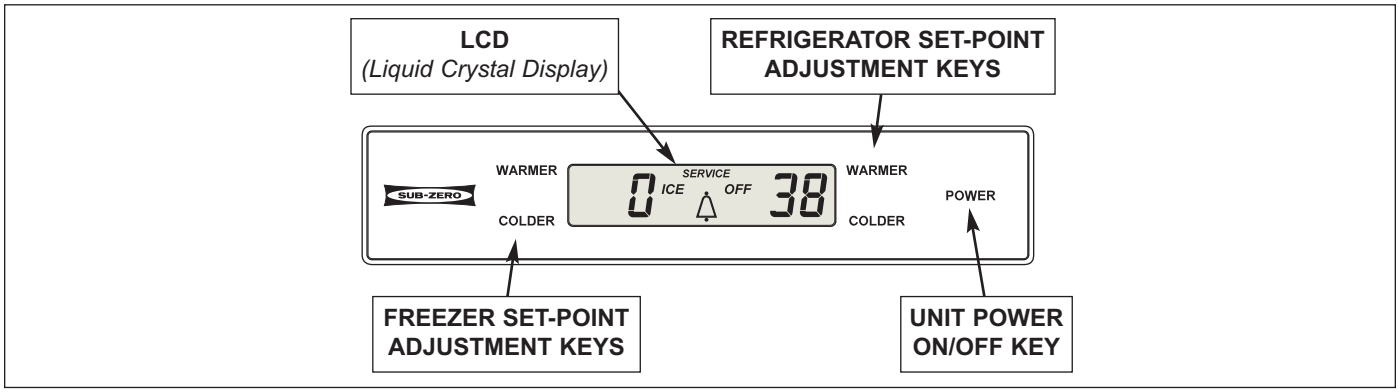


Figure 3-4. UC-24C Control Panel Layout

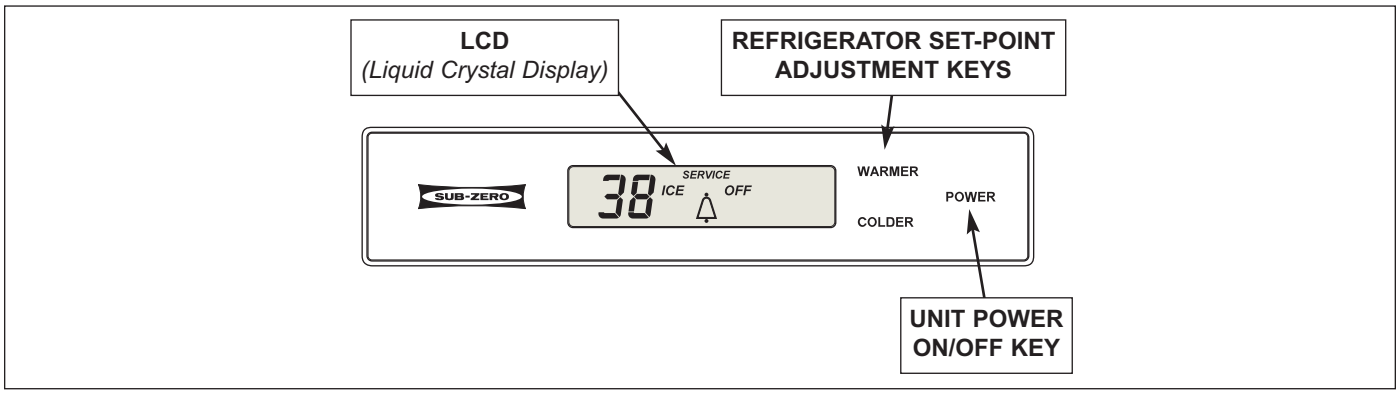


Figure 3-5. UC-24B, UC-24R, UC-24RO Control Panel Layout

BASIC ELECTRONIC CONTROL INPUT OPERATIONS

The following entries describe the basic input operations performed at a control panel (switching unit ON and OFF and adjusting set-point (temperature adjustment)). Please note that though it is possible to display temperatures in Fahrenheit or Celsius, Fahrenheit readings are shown.

Unit Power ON/OFF

All units are shipped in Off Mode. When power is supplied to the unit the word “OFF” is visible on the LCD. By pressing the POWER key (See Figure 3-6), power is allowed past the control board to the rest of the unit. This will be indicated by the unit lights illuminating and the LCD energizing.

NOTE: *Whenever the unit is switched OFF using the POWER key, the word “OFF” will be visible on the LCD as long as power is supplied to the unit and as long as the unit is not in Sabbath Mode, which will be covered later.*

⚠ WARNING

WHEN IN OFF MODE, AC POWER IS STILL PRESENT AT CONTROL BOARD!

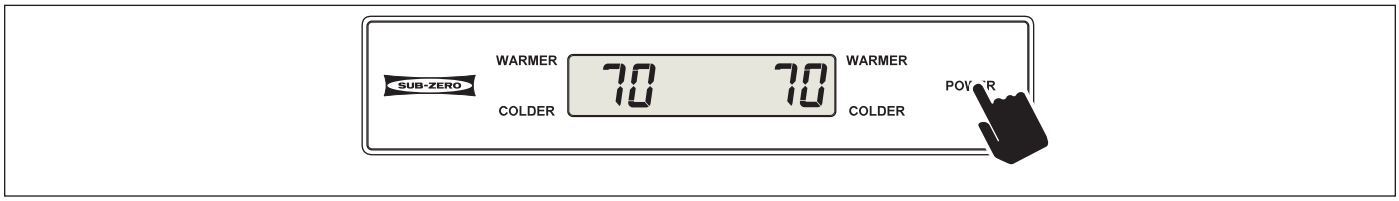


Figure 3-6. Unit Power ON/OFF - Press POWER Key

Adjusting Set-Point (Temperature Adjustments)

To adjust set-points, press WARMER or COLDER keys on control panel in multiple key strokes until the desired set-point is achieved. One key stroke equals one degree change (Fahrenheit or Celsius). (See Figure 3-7)

NOTES:

- *Temperature ranges are -5°F (-21°C) to +5°F (-15°C) in a freezer zone, +34°F (+1°C) to +45°F (+7°C) in a refrigerator zone, with initial set-points of 0°F (-18°C) and +38°F (+3°C), respectively.*
- *The initial stroke of the WARMER or COLDER keys will change previous set-point by one degree.*
- *The set-point will be displayed on the LCD for ten (10) seconds after the last WARMER or COLDER key stroke. After the ten (10) second delay, the zone temperature will be displayed. As the zone temperature changes, the temperature displayed on the LCD will change by no more than one (1) degree per minute.*

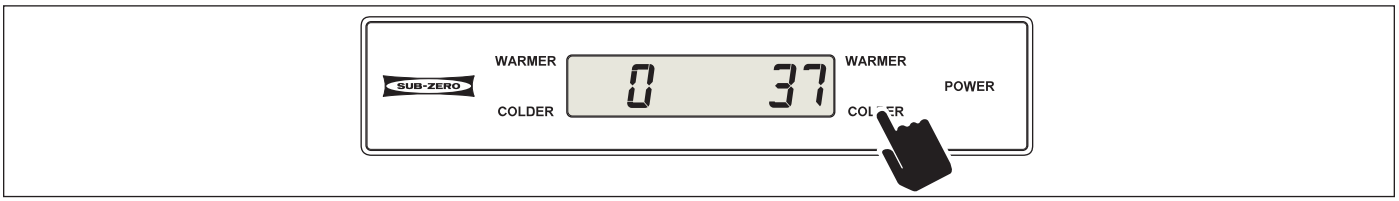


Figure 3-7. Adjusting Set-Point - Press WARMER or COLDER Key In Multiple Key Strokes

Door Ajar Alarm ON/OFF

All UC Units after serial #3603000 are equipped with a door ajar alarm feature. When activated, the alarm will alert a customer if a door is stuck open or left open longer than one (1) Minute. To enable the drawer ajar alarm feature the unit must be energized for at least sixty (60) seconds, then press the WARMER and COLDER keys simultaneously and release them. The bell icon will appear on the LCD indicating that the alarm feature is active. (See Figure 3-7A) Now, if the door is open longer than sixty (60) seconds, the bell icon will blink and the audible alarm will beep. To disable the drawer ajar alarm, simply press the WARMER and COLDER keys simultaneously and the bell icon on the LCD will disappear, indicating the alarm feature is OFF.

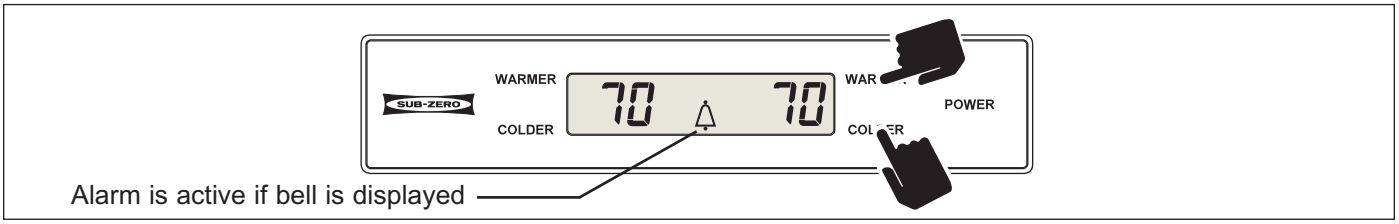


Figure 3-7A. Switching Door Ajar Alarm ON or OFF - Press WARMER and COLDER Keys

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS

The following pages describe unique input operations that a customer typically would not perform every day. The input operations described here are Temperature Unit Selection Mode, Sabbath Mode and Showroom Mode.

Temperature Units Selection *(Selecting Fahrenheit or Celsius Display - UC-24C Only)*

NOTE: *For Temperature Unit Selection in the models UC-24R, UC-24RO and UC-24B, see next page.*

The electronic control is initially set to display temperature in Fahrenheit (°F) units of measure. Units of measure can be converted from °F to °C (Celsius), and/or back again. This operation is called Temperature Units Selection.

NOTE: *Temperature Units Selection must be performed within the first (1) minute of switching the unit ON.*

To convert units of measure in a model UC-24C, first press and hold the Freezer WARMER key and the POWER key (this actually initiates Temperature Log Recall Mode, which is covered fully, later in this section). (See Figure 3-8) Then, press and hold the Freezer WARMER and COLDER keys for fifteen (15) seconds and " °C " will appear on the LCD indicating temperatures will now be displayed in Celsius units of measure. (See Figures 3-9) To convert back to Fahrenheit units of measure, repeat the steps above.

NOTE: *Temperature Units Selection Mode will end ten (10) seconds after the last key stroke.*

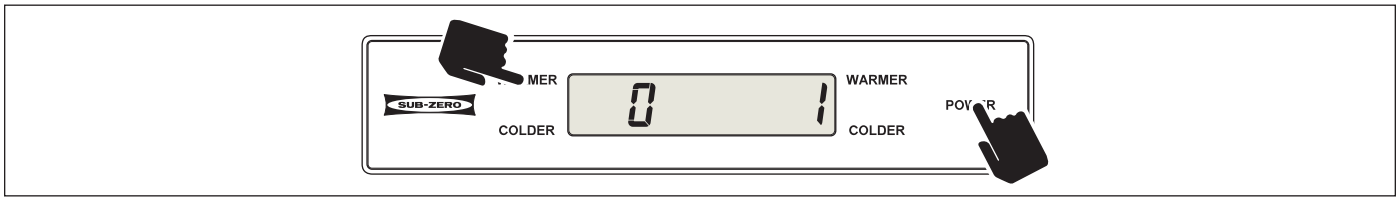


Figure 3-8. (Model UC-24C) Initiate TLR Mode First *(within first minute of switching unit ON)*
Press and Hold Freezer WARMER Key, Then Press POWER Key

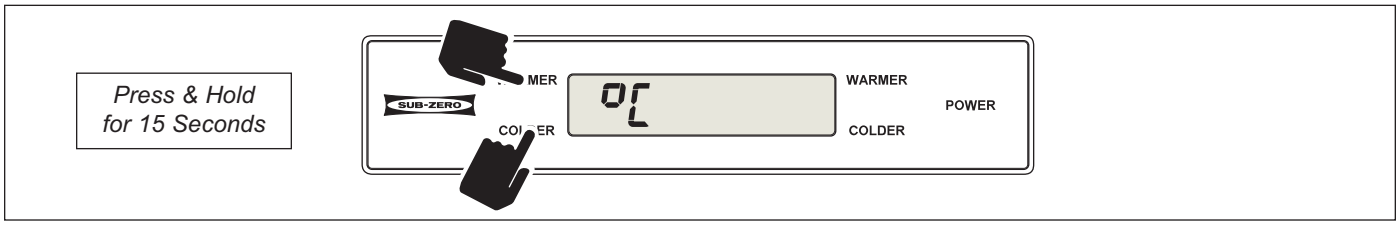


Figure 3-9. (Model UC-24C) Convert Temperature Units of Measure
Press and Hold the Freezer WARMER and COLDER Keys for 15 Seconds

Temperature Units Selection ***(Selecting Fahrenheit or Celsius Display - UC-24B, UC-24R, UC-24RO Only)***

NOTE: *For Temperature Unit Selection in the model UC-24C, see previous page.*

The electronic control is initially set to display temperature in Fahrenheit (°F) units of measure. Units of measure can be converted from °F to °C (Celsius), and/or back again. This operation is called Temperature Units Selection.

NOTE: *Temperature Units Selection must be performed within the first (1) minute of switching the unit ON.*

To convert units of measure in these models, first press and hold the WARMER key and the POWER key (this actually initiates Temperature Log Recall Mode, which is covered fully, later in this section). (See Figure 3-10) Then, press and hold the WARMER and COLDER keys for fifteen (15) seconds and " °C " will appear on the LCD indicating temperatures will now be displayed in Celsius units of measure. (See Figures 3-11) To convert back to Fahrenheit units of measure, repeat the steps above.

NOTE: *Temperature Units Selection Mode will end ten (10) seconds after the last key stroke.*

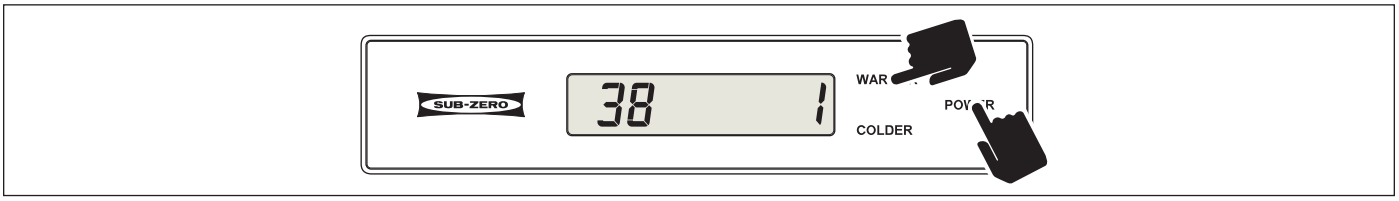


Fig. 3-10. (Models UC-24B, UC-24R, UC-24RO) Initiate TLR Mode First *(<u>within</u> first minute of switching ON)*
Press and Hold WARMER Key, Then Press POWER Key

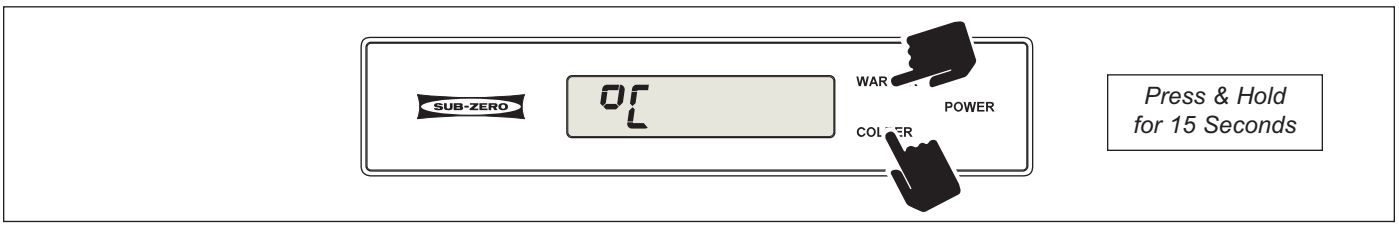


Figure 3-11. (Models UC-24B, UC-24R, UC-24RO) Convert Temperature Units of Measure
Press and Hold the <u>Refrigerator</u> WARMER and COLDER Keys for 15 Seconds

Sabbath Mode

Sabbath Mode was incorporated into the electronic control system for the observance of certain religious days. Initiating Sabbath Mode disables the LCD and lighting system.

To initiate Sabbath Mode, the unit must first be switched OFF using the POWER key (See Figure 3-12), then press and hold the POWER key for approximately ten (10) seconds, until the LCD and lights switch OFF (See Figure 3-13). To return to normal operation, press and release the POWER key.

NOTES:

- *During Sabbath Mode, the evaporator fan may function when the door is open.*
- *During Sabbath Mode, the LCD is disabled and set-points cannot be changed.*
- *The icemaker in the model UC-24C is fed direct from L1, so icemaker operation is not affected by Sabbath Mode.*
- *The Model UC-24B utilizes a rocker switch at the top of the compartment for controlling the accent lights. This accent lighting system is not affected by Sabbath Mode because its power comes direct from L1.*

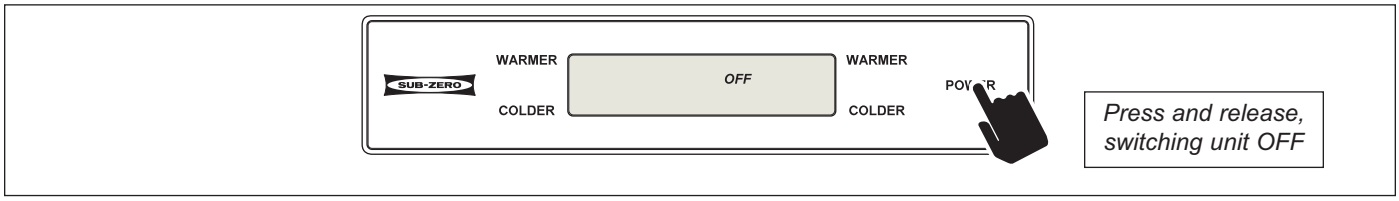


Figure 3-12. To Enter Sabbath Mode, Switch Unit OFF First

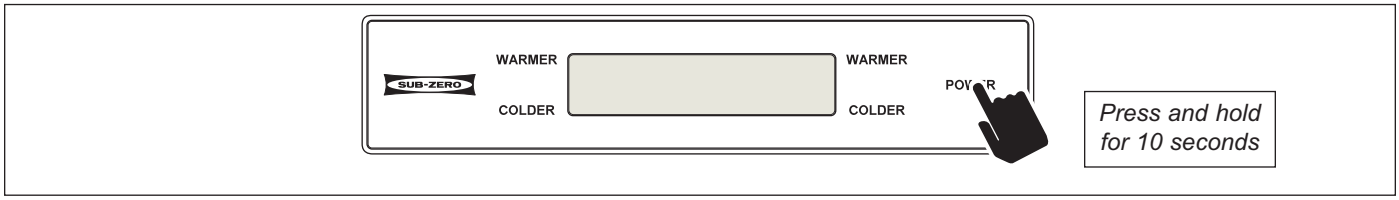


Figure 3-13. After Unit is Switched OFF, Press and Hold POWER **Key for 10 Seconds**

Showroom Mode

Showroom Mode was incorporated into the electronic control system so these appliances could be displayed in a showroom setting. When in Showroom Mode, all cooling functions are disabled, but the lighting system and LCD remain active.

To initiate Showroom Mode, the unit must first be switched OFF using the POWER key (See Figure 3-14). With the unit switched OFF, press and hold either pair of WARMER and COLDER keys, then press the POWER key, then release all three keys (See Figure 3-15).

To return unit to normal operating condition, repeat the steps above.

NOTES:

- *Always check set-points after returning unit to normal operating condition.*
- *It is possible to determine if a unit is in Showroom Mode by initiating Diagnostic Mode. If "Sr" is observed in the left temperature display area during Diagnostic Mode, the unit is in Showroom mode. Initiating Diagnostic Mode is covered later in this section.*

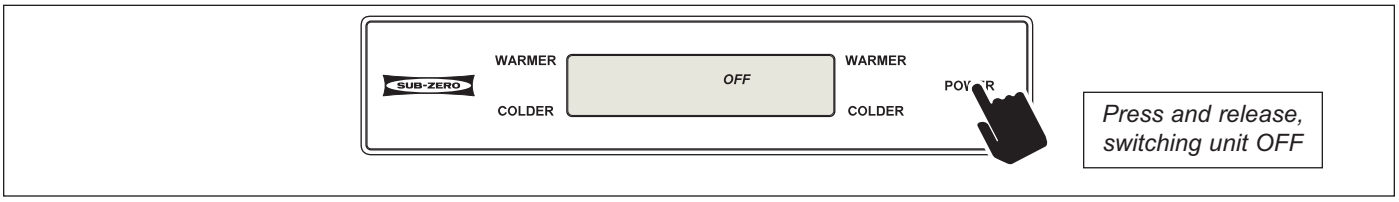


Figure 3-14. To Enter (or Exit) Showroom Mode, Switch Unit OFF First

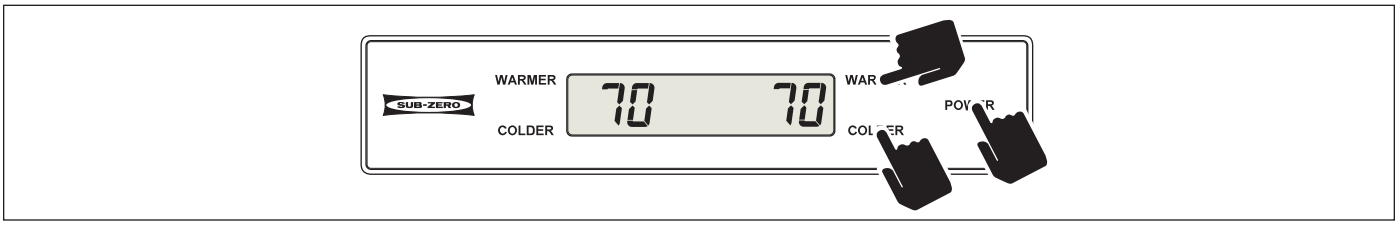


Figure 3-15. After Unit is Switched OFF, Press and Hold the WARMER and COLDER Keys, Then Press the POWER Key

FUNCTIONS OF ELECTRONIC CONTROL SYSTEM

The following few pages explain monitoring, regulating and controlling functions of the electronic control system.

Display Zone Temperatures

The temperature signals from the thermistors in the refrigerator and freezer compartments are monitored by the microprocessor and then displayed on the LCD. Though the compartment air temperature does fluctuate, the LCD displays the "average" temperature (See Figure 3-16).

NOTE: *If zone temperature changes, temperature display will change by one degree per minute.*

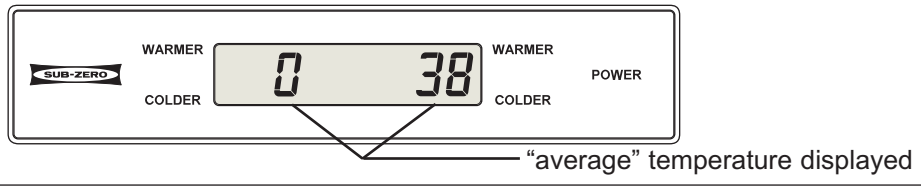


Figure 3-16. Display Zone Temperatures

Supply Power to the Lighting System

Power is supplied to the lighting system through the control board when the unit is switched ON by pressing the POWER key. With the door open, the door switch allows power to the lights. (See Figure 3-17).

NOTES:

- *Power to the lights is monitored by the microprocessor to control evaporator fan motor operation.*
- *When in Sabbath Mode, the lighting system is disabled. Sabbath Mode was covered earlier in this section.*
- *The accent lighting system in the model UC-24B is fed direct from L-1.*

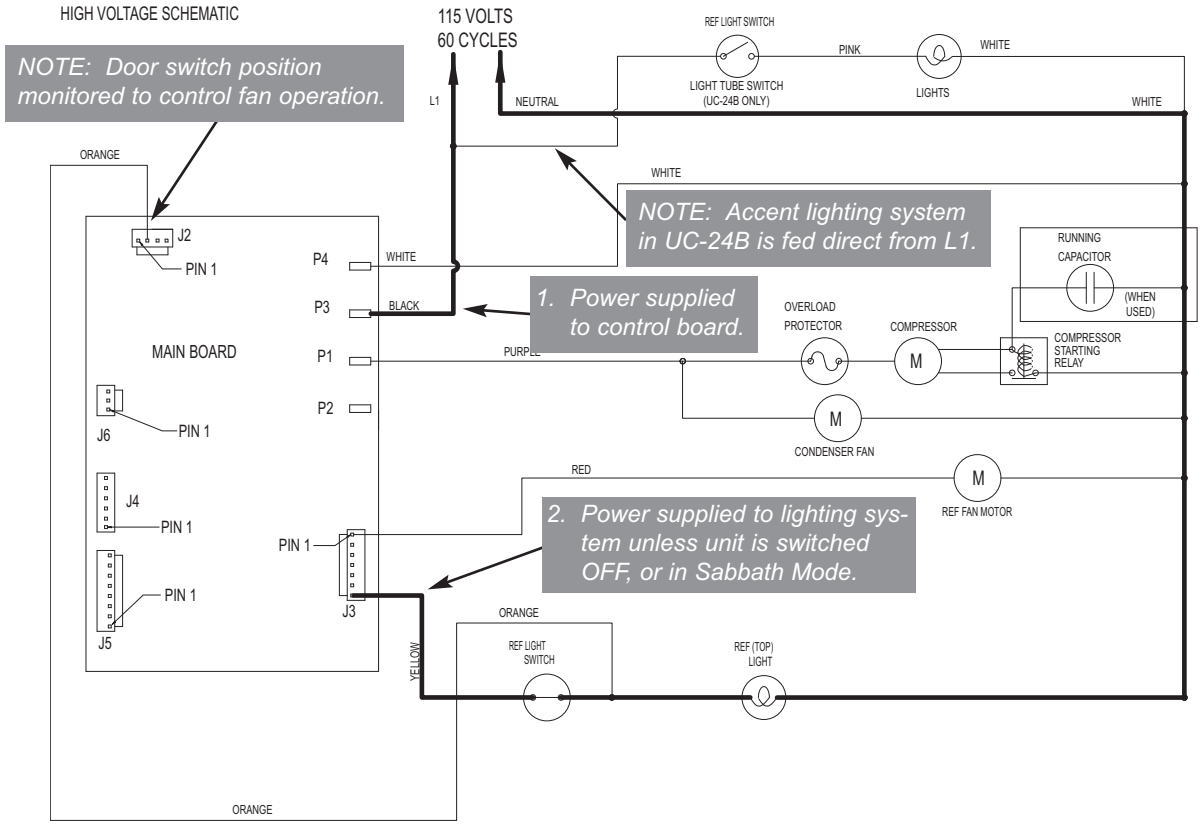


Figure 3-17. UC-24B Signal Trace Schematic (High Voltage) of Lighting System

Regulate Freezer Zone Temperature (UC-24C Only)

When the freezer compartment thermistor detects high off-set temperature, calling for cooling, the compressor and condenser fan motor are energized, as well as the evaporator fan motor. (See Figure 3-18)

If the door is opened while the evaporator fan is operating, the microprocessor will detect the power signal to the lights and cut power to the fan.

NOTES:

- When the freezer compartment calls for cooling after a defrost, the evaporator fan will not be allowed to run until the thermistor on the evaporator drops to 35°F (2°C).
- *If compartment temperature exceeds either high or low offset the temperature display will change by one degree (1°) per minute.*
- *If freezer compartment thermistor is faulty, compressor operation defaults to twenty (20) minutes ON, twenty (20) minutes OFF cycling; EE appears in left of LCD; SERVICE flashes and Error Code 07 is logged.*
- *If evaporator thermistor is faulty, the compressor will be energized after the dwell time and the evaporator fan will be energized 3 minutes later; SERVICE flashes and Error Code 08 is logged.*
- *When in Sabbath Mode, the freezer compartment thermistor still controls compressor operation, except there is a random fifteen (15) to twenty-five (25) second delay before the compressor is energized.*

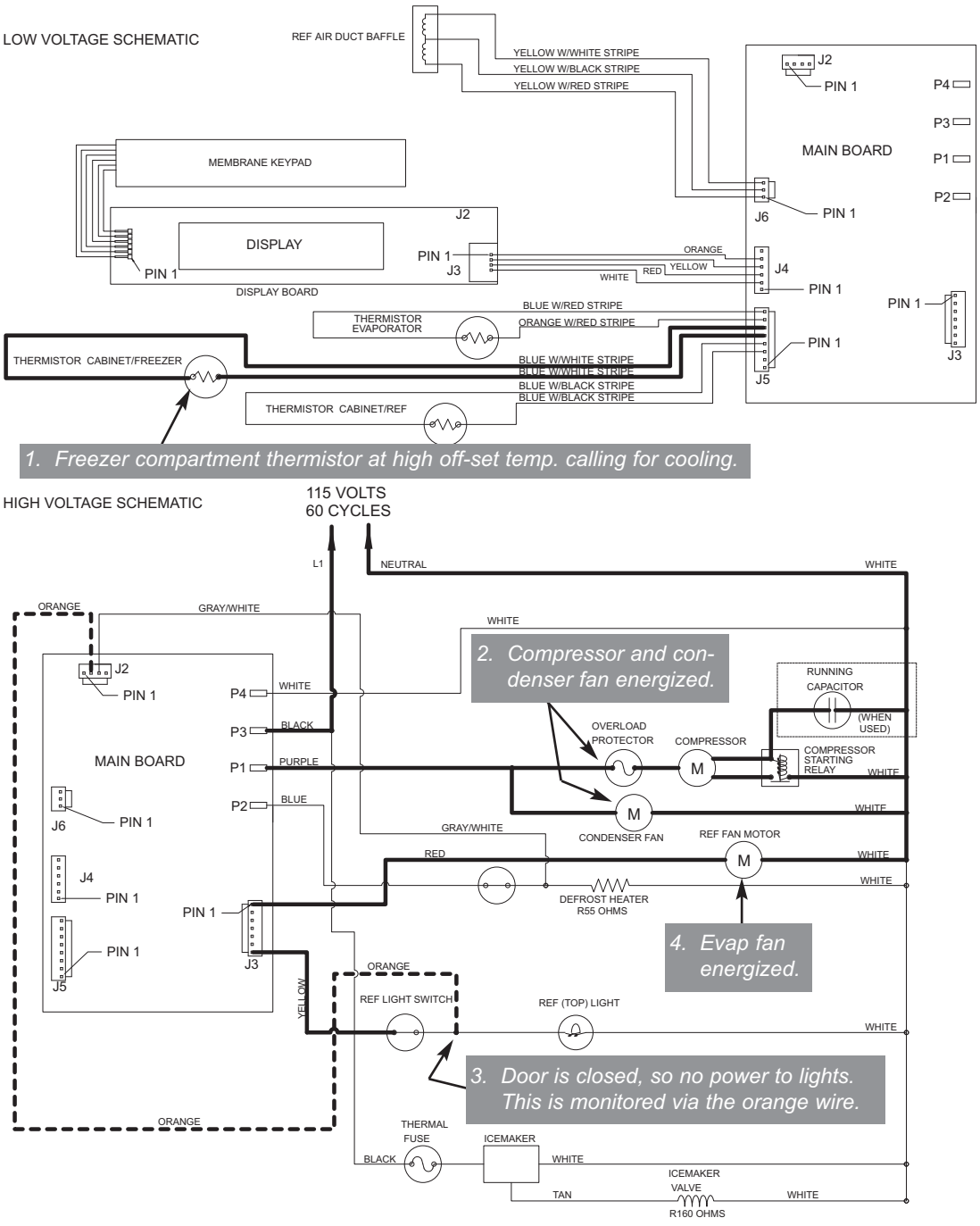


Figure 3-18. UC-24C Signal Trace - Regulate Freezer Zone Temperature

Regulate Refrigerator Zone Temperature (UC-24C Only)

When the thermistor in refrigerator compartment reaches high off-set temperature, calling for cooling, the microprocessor sends an 18 Volt pulse signal to the air baffle control to open, regardless of operational state of the compressor. When calling for cooling, the microprocessor repeats sending a pulse signal every five (5) minutes to the air baffle control to open. (See Figure 3-19)

When the refrigerator compartment thermistor detects low off-set temperature, the microprocessor sends an 18 Volt pulse signal to the air baffle control to close. Whenever the refrigerator compartment is not calling for cooling, the microprocessor repeats sending a pulse signal every five (5) minutes to the air baffle control to close.

NOTES:

- *If compartment temperature exceeds either high or low offset the temperature display will change by one degree (1°) per minute.*
- *If refrigerator compartment thermistor is faulty, air baffle defaults to twenty (20) minutes open, forty (40) minutes closed cycling; EE appears in right of LCD; SERVICE flashes and Error Code 05 is logged.*
- *When in Sabbath Mode, refrigerator compartment thermistor still controls baffle operation except there is a random fifteen (15) to twenty-five (25) second delay before the baffle is energized.*

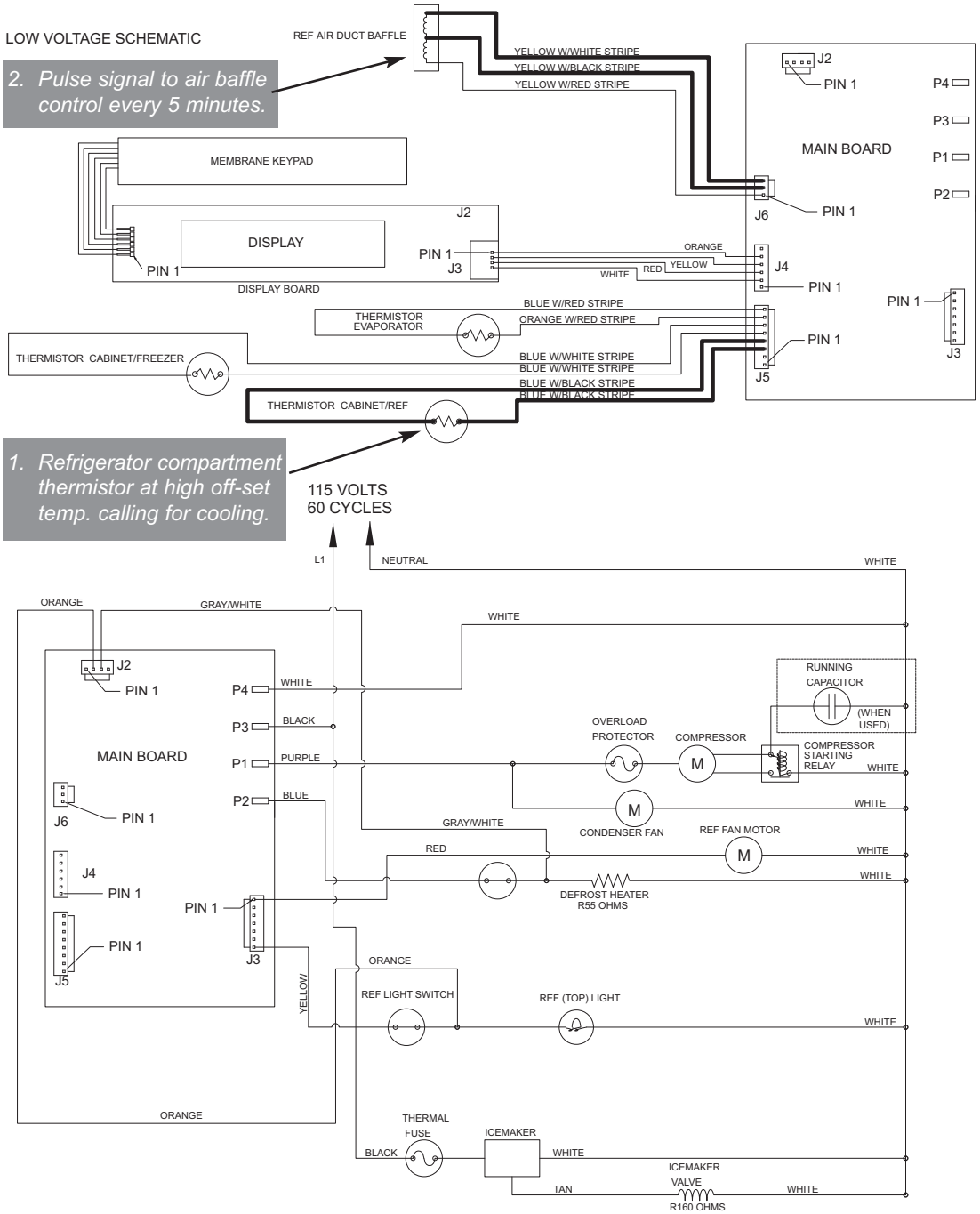


Figure 3-19. UC-24C Signal Trace - Regulate Refrigerator Zone

Regulate Refrigerator Zone Temperature (UC-24B, UC-24R, UC-24RO)

When the refrigerator compartment thermistor detects high off-set temperature, calling for cooling, the evaporator fan is energized, but the compressor and condenser fan are not allowed to run until the thermistor on the evaporator rises to 38°F (3°C). (See Figure 3-20)

If the door is opened while the evaporator fan is operating, the microprocessor will detect the power signal to the lights and cut power to the fan.

NOTES:

- *If compartment temperature exceeds either high or low offset the temperature display will change by one degree (1°) per minute.*
- *If refrigerator compartment thermistor is faulty, compressor operation defaults to twenty (20) minutes ON, forty (40) minutes OFF cycling; EE appears in right of LCD; SERVICE flashes and Error Code 05 is logged.*
- *If evaporator thermistor is faulty, the compressor will not energize until zone air temperature exceeds high offset by 5°F (3°C); SERVICE flashes and Error Code 06 is logged.*
- *When in Sabbath Mode, the refrigerator compartment thermistor still controls compressor operation, except there is a random fifteen (15) to twenty-five (25) second delay before the compressor is energized.*

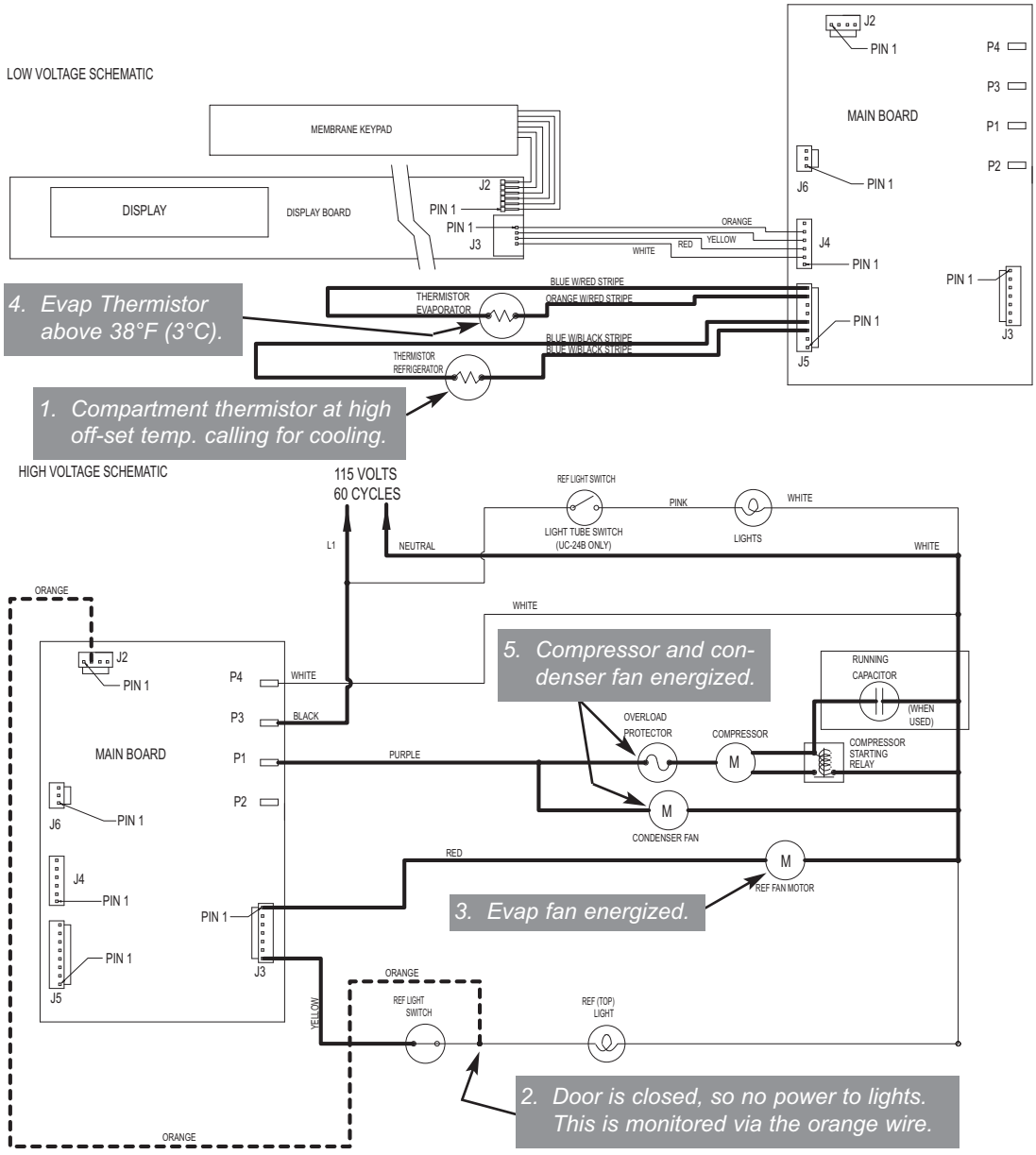


Figure 3-20. UC-24B Signal Trace - Regulate Refrigerator Zone

Minimize Condensation on Refrigerator Door Glass (UC-24B Only)

To help minimize the formation of condensation, or fog, on the door glass of the model UC-24B, the microprocessor detects when the refrigerator door is opened, via the door switch, then when the door closes, the evaporator fan is energized for five (5) minutes, regardless of compressor operational state. This draws any warmer moist air away from the door glass. (See Figure 3-21)

NOTE: *The evaporator fan also cycles with the compressor.*

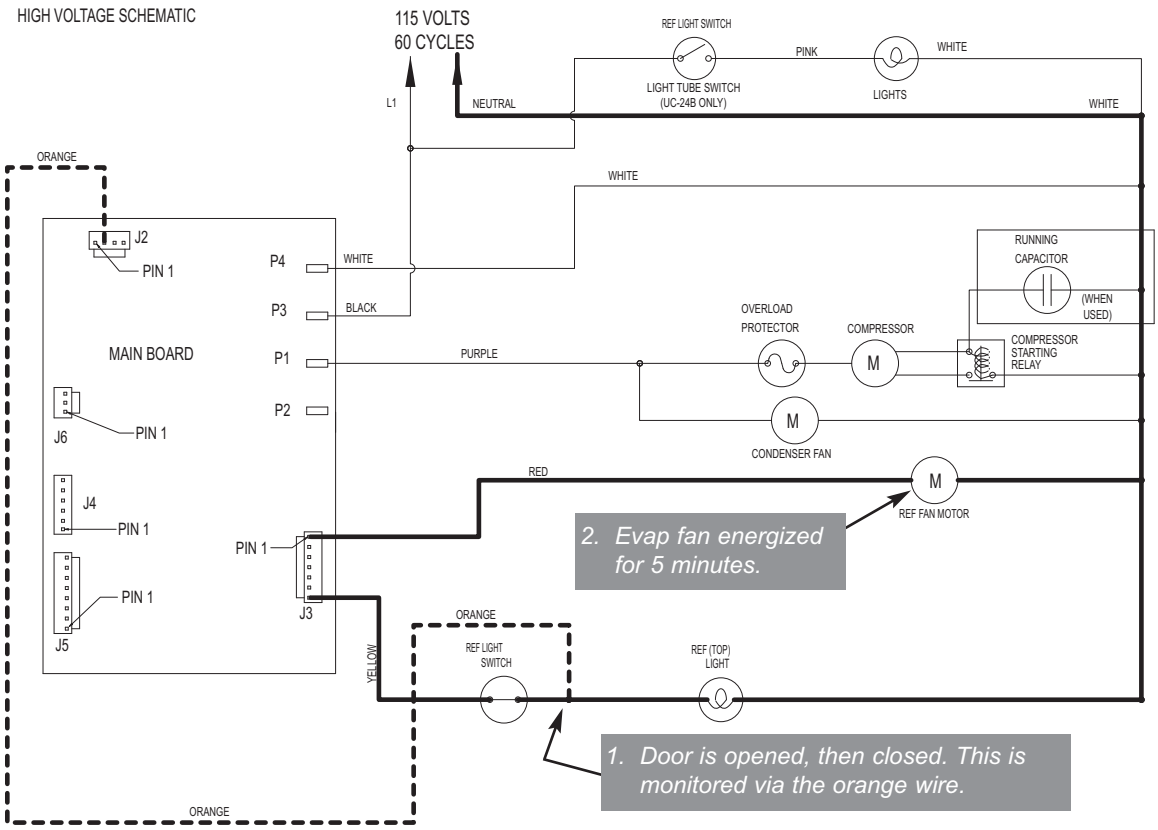


Figure 3-21. UC-24B Signal Trace Schematic - Evaporator Fan Operation in Glass Door Unit

Monitor and Control Freezer "Adaptive Defrost" (UC-24C Only)

Initially, the compressor will cycle-run for 12 hours, after which the microprocessor sends a signal to the defrost relay on the control board to close. This supplies power to the defrost heater. At the same time the compressor, condenser fan and evaporator fan are switched off.

With the "Adaptive Defrost" technique, the length of time that the defrost heater stays on to open the defrost terminator bimetal (70°F/21°C), is observed by the microprocessor via the grey w/white stripe wire to J2.

The microprocessor then determines the number of hours before the next defrost. If the heater stays on for a shorter time than specified, the microprocessor increases the next defrost interval. If the heater stays on longer than specified, the electronic control decreases the next defrost interval. (See Figure 3-22) This is an ongoing process whereby the defrost time and the defrost interval will vary by unit use.

NOTES:

- *A five (5) minute time delay/dwell follows all defrosts. At the end of the five (5) minute dwell, the compressor and condenser fan are energized, but the evaporator fan will not be energized until the evaporator temperature falls below 35°F (2°C).*
- *The minimum defrost interval is six (6) hours of compressor run time; the maximum defrost interval is eighty (80) hours of compressor run time; the maximum defrost duration is twenty-five (25) minutes plus five (5) minute dwell.*
- *If the grey w/white wire defrost sensing line is open, defrost operation defaults to twenty-five (25) minute defrost time and 6 hour build time, and Error Code 22 is logged. If the evaporator thermistor detects an underheat or overheat situation at the same time, Error Codes 20 or 23 will be registered, respectively.*
- *During defrost, the display temperature is locked.*

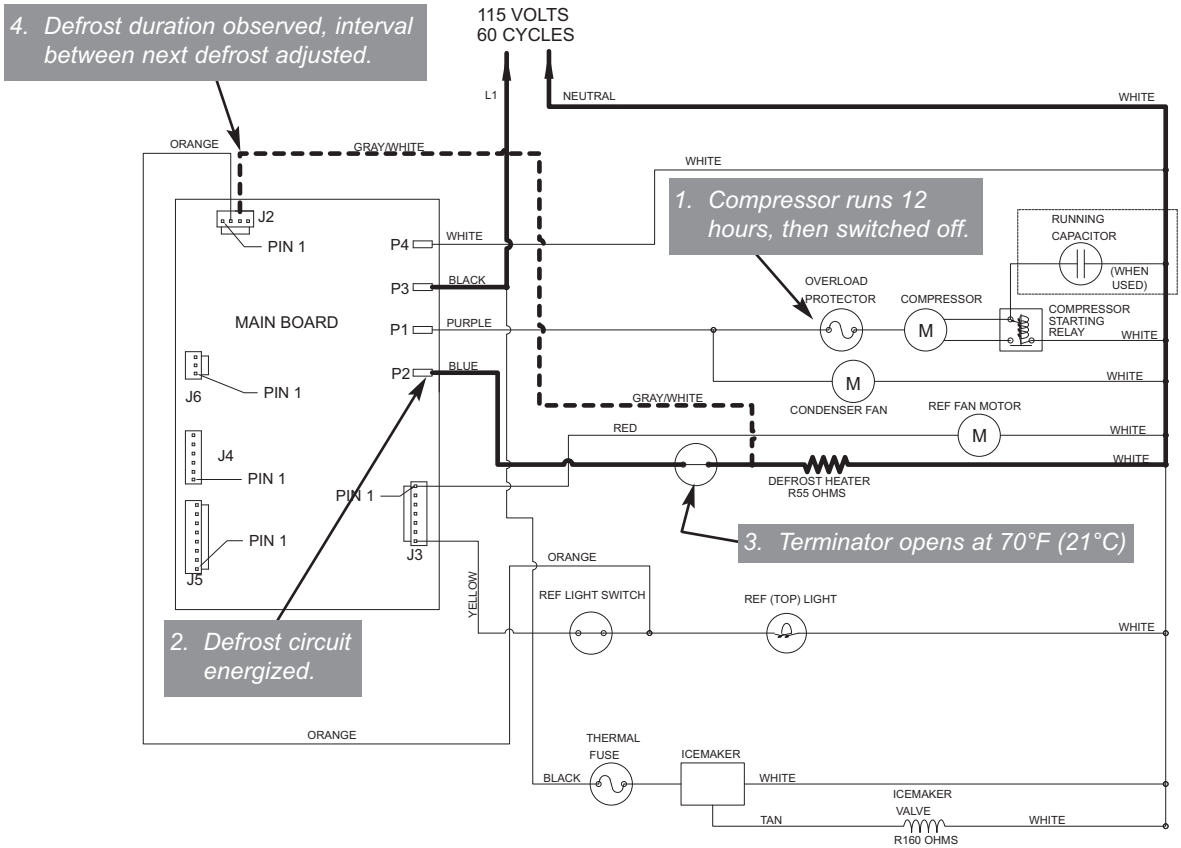


Figure 3-22. UC-24C Signal Trace Schematic - Adaptive Defrost

Monitor and Control Refrigerator Fan-Assisted, Off-Cycle Defrost (UC-24B, UC-24R, UC-24RO)

Temperature signals from the compartment and evaporator thermistor's are observed by the microprocessor. During off cycle defrost, if a refrigerator compartment temperature reaches high offset (calling for cooling) before evaporator temperature rises to 38°F (3°C), no power will be supplied to the compressor. But, the evaporator fan will be switched ON. Once the evaporator temperature reaches 38°F (3°C), normal cooling functions begin. (See Figure 3-23).

NOTES:

- *If refrigerator compartment thermistor is faulty, compressor operation defaults to twenty (20) minutes ON, forty (40) minutes OFF cycling; EE appears in right of LCD; SERVICE will flash and Error Code 05 will be logged.*
- *If evaporator thermistor is faulty, the compressor will not energize until zone air temperature exceeds high offset by 5°F (3°C); SERVICE flashes and Error Code 06 is logged.*
- *When in Sabbath Mode, the refrigerator compartment thermistor still controls compressor operation, except there is a random fifteen (15) to twenty-five (25) second delay before the compressor is energized.*

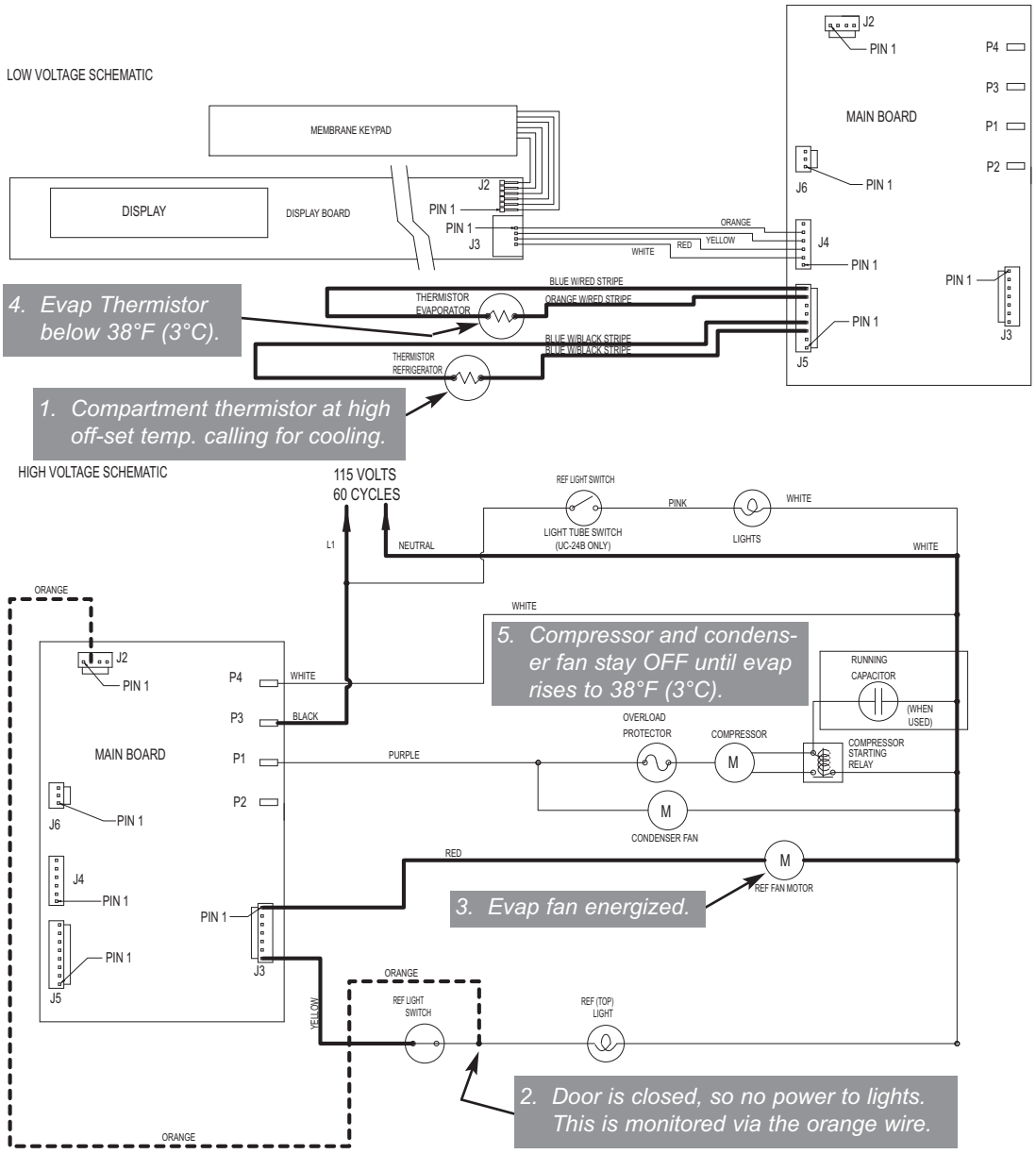


Figure 3-23. UC-24B Signal Trace - Refrigerator Fan Assisted Off-Cycle Defrost

Monitor Compressor Run Duration, Displays If Service is Needed

The microprocessor observes the state of the compressor relay to determine the length of compressor run time (See Figure 3-24). If the compressor runs 100% (Freezer = 6 hours, Refrigerator = 4 hours), an error code is logged (EC 40, or EC 50, respectively), and defrost will be initiated, but SERVICE will not flash.

If several 100% compressor run periods occur, and the door was not opened during the last excessive compressor run period, and the temperature in the zone is not able to fall half way between the set point and the low off-set, then SERVICE will flash (See Figure 3-25).

NOTES:

- *After the problem is corrected, the error code must be cleared from memory, otherwise a non-flashing "SERVICE" will display constant on the LCD. See "Clearing Non-Flashing "SERVICE" and Error Codes" later in this section.*
- *If the unit is ever switched OFF then back ON, the compressor will not energize for at least three (3) minutes. This three (3) minute minimum OFF time is used to protect the compressor and its electricals.*

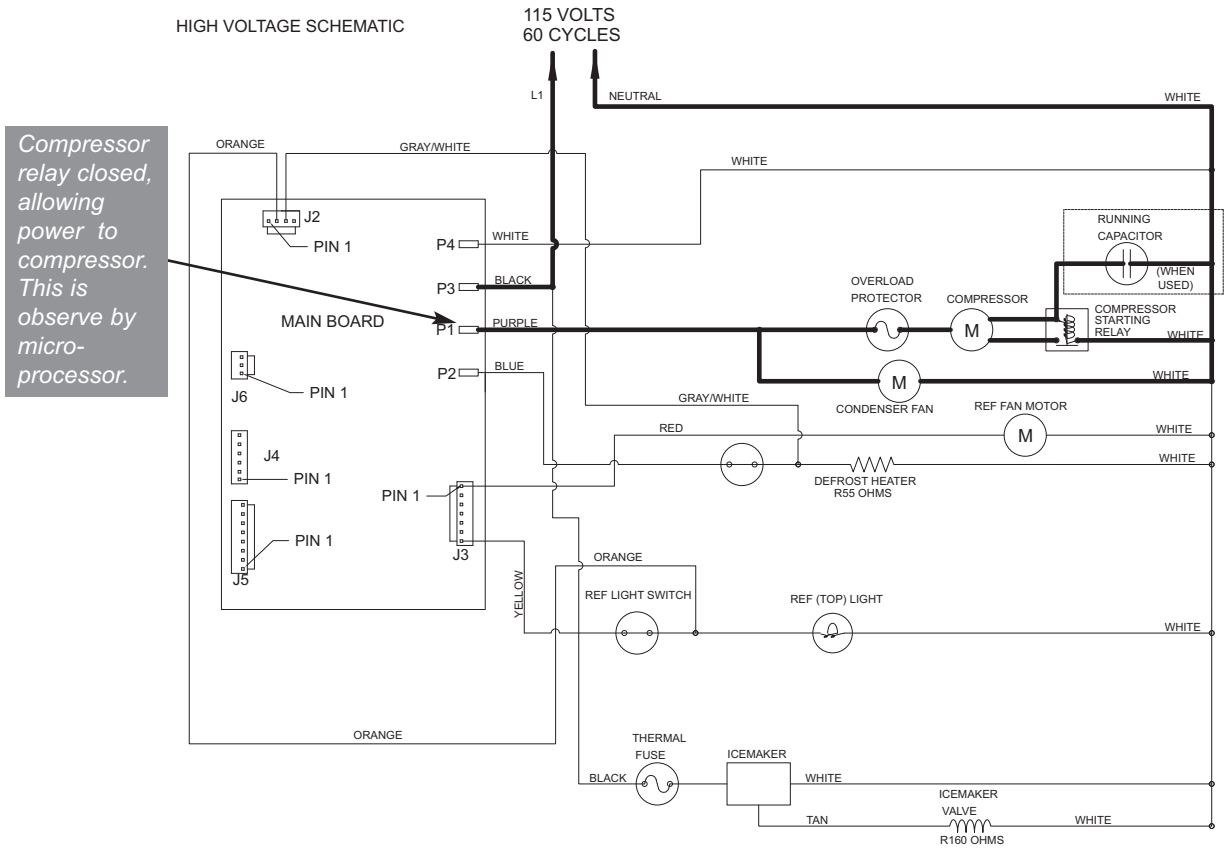


Figure 3-24. UC-24C Signal Trace Schematic - Compressor Run

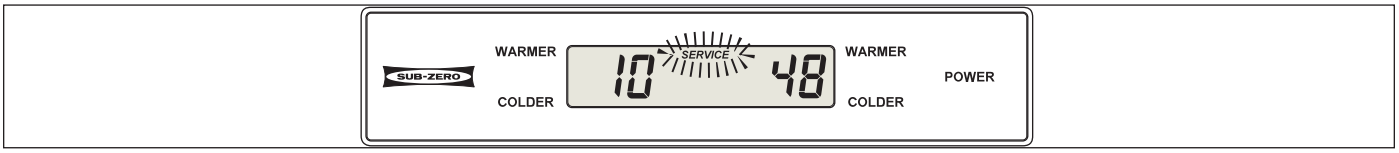


Figure 3-25. Service Flashing if several 100% compressor run periods occurred, the door was not opened during last excessive run period, and temperature is not able to fall half way between set point & low off-set.

POSSIBLE ERROR INDICATORS

The diagrams on this page illustration what a customers may see on the LCD if a problem/error exists with the unit.

NOTE: *Error code must be cleared from memory after problems are corrected, otherwise a non-flashing "SERVICE" will display constant on the LCD. See "Clearing Non-Flashing "SERVICE" and Error Codes" later in this section.*

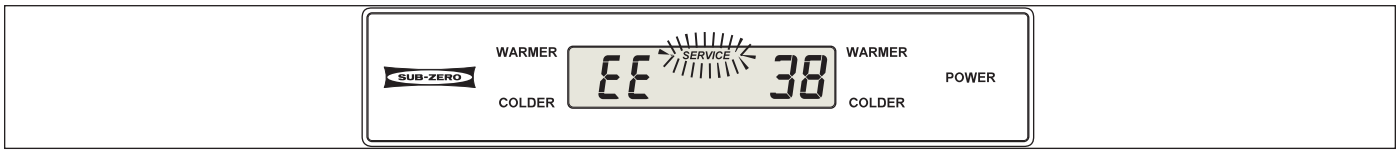


Figure 3-26.
"EE" Displayed at Left & "SERVICE" Flashing = Freezer Compartment Thermistor (or its Wiring) Fault

Figure 3-27.
"EE" Displayed at Right & "SERVICE" Flashing = Refrigerator Compartment Thermistor (or its Wiring) Fault

Figure 3-28.
Service Flashing = Evaporator Thermistor (or its Wiring) Fault

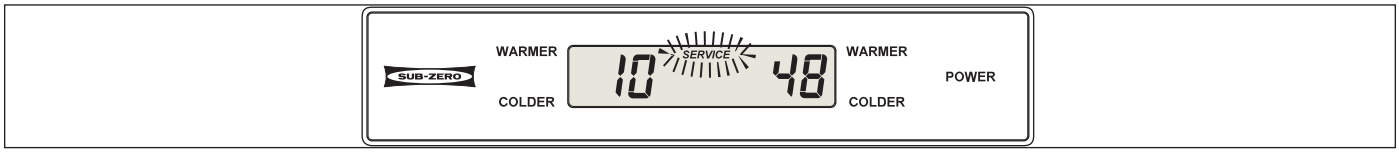


Figure 3-29.
Service Flashing = Several 100% run periods, the door was not open during last 100% run period, and zone temperature not able to fall half way between set point and low off-set.

Figure 3-30.
"SERVICE" Steady, not Flashing = Error Codes Observed in Diagnostic Mode, but not Cleared

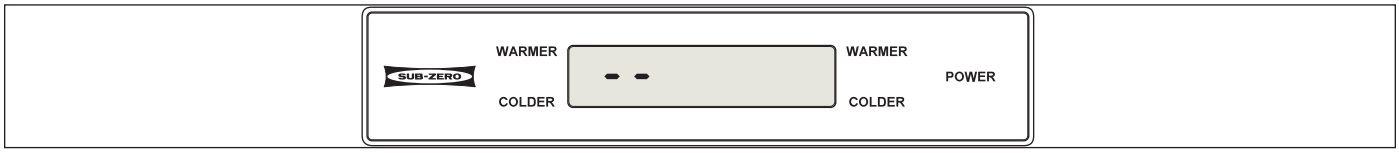


Figure 3-31.
" - - " (Double Dashes) Displayed = Model Configuration was not Performed

ELECTRONIC CONTROL TROUBLESHOOTING INPUT OPERATIONS

The following few pages explain troubleshooting input operations performed at the control panel. The input operations described are Diagnostic Mode, Manual Component Activation Mode and Temperature Log Recall.

Diagnostic Mode (a.k.a. Actual Temperature Display Mode)

Initiating Diagnostic Mode allows the Service Technician to observe real-time temperature readings from all thermistors without temperature averaging.

To initiate Diagnostic Mode, the unit must be ON, then press and hold either COLDER key, and press the POWER key, then release both keys (See Figure 3-32). The left display area will show the real-time temperature of the thermistor, the right display area will show the thermistor location code, and all LCD indicators will illuminate. Pressing either COLDER key while in Diagnostic Mode will toggle forward (increment) to the next thermistor location (See Figures 3-33 & 3-34), while pressing either WARMER key will toggle backward (decrement) to the previous thermistor location.

NOTE: *If the COLDER and POWER keys are pressed and held for ten (10) seconds, Manual Component Activation Mode will be initiated (this is covered later in the section).*

NOTE: *Diagnostic Mode will end twenty (20) seconds after the last key stroke.*

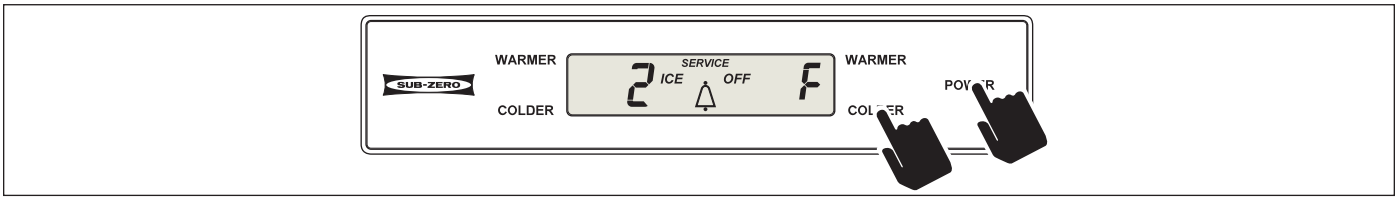


Figure 3-32. Initiate Diagnostic Mode - Press and Hold Either COLDER Key, Then POWER Key ("F" Indicates Freezer Zone/Compartment)

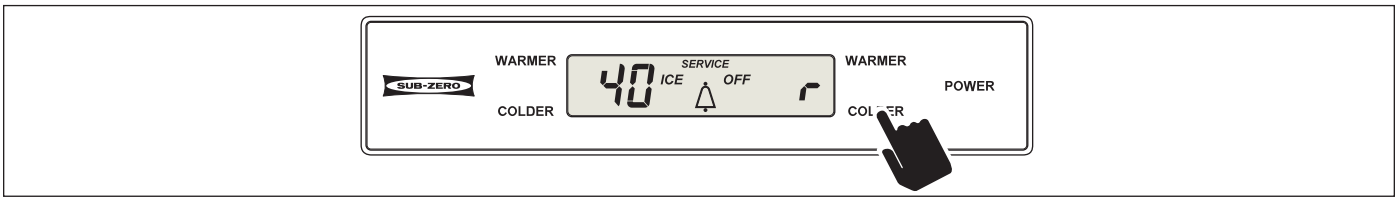


Figure 3-33. Toggle Through Temperature Readings - Press Either COLDER Key ("r" Indicates Refrigerator Zone/Compartment)

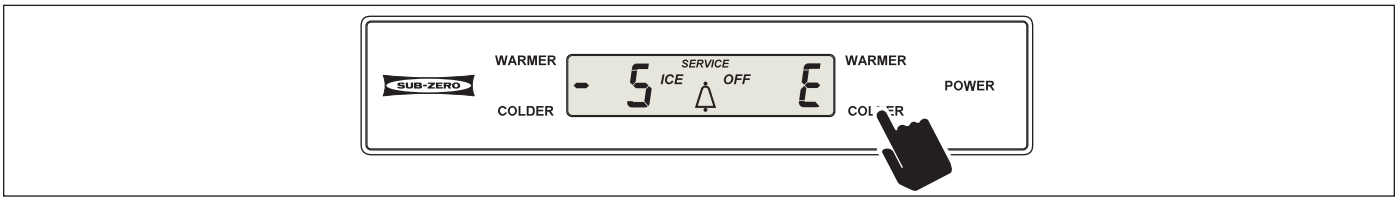


Figure 3-34. Toggle Through Temperature Readings - Press Either COLDER Key ("E" Indicates Evaporator)

THERMISTOR LOCATION CODE TABLES

Model UC-24B	
THERMISTOR LOCATION	**CODE**
Beverage Compartment	***r***
Evaporator	***E***

Model UC-24C	
THERMISTOR LOCATION	**CODE**
Freezer Compartment	***F***
Refrigerator Compartment	***r***
Evaporator	***E***

Models UC-24R, UC-24RO	
THERMISTOR LOCATION	**CODE**
Refrigerator Compartment	***r***
Evaporator	***E***

Diagnostic Mode Indicators

If “EE” is observed in left display area during Diagnostic Mode, the thermistor in that location is open or shorted, or there is a break in that thermistor’s wiring (See Figure 3-35).

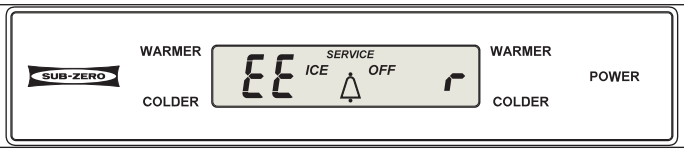


Figure 3-35. “EE” Observed in Diagnostic Mode = Thermistor Fault in Location Indicated by Code

If “Sr” is observed at left display area during Diagnostic Mode, the unit is in Showroom Mode, which was explained earlier in this section (See Figure 3-36).

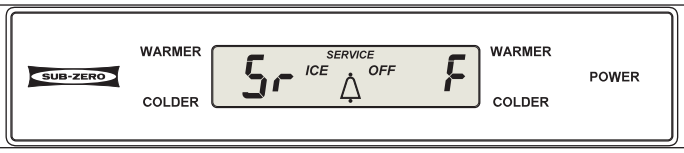


Figure 3-36. “Sr” Observed While in Diagnostic Mode = Unit is in Showroom Mode

If “EC” is observed in the right display area during Diagnostic Mode, the numbers at left are “Error Codes” (See Figure 3-37). Error Codes indicate problems registered by specific components. If error codes are registered, they will appear before temperature readings and can be toggled through with the temperature readings as described on the previous page. (See Error Code Table below and instructions on clearing Error Codes on next page.)

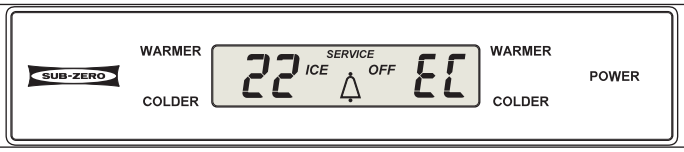


Figure 3-37. “EC” Observed While in Diagnostic Mode = Error Code
(See table below & how to clear Error Codes on next Page)

Error Code Table	
CODE	**INDICATION**
05	***Refrig. cabinet thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp’s***
06	***Refrig. evaporator thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp’s***
07	***Freezer cabinet thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp’s***
08	***Freezer evaporator thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp’s***
20	***Defrost under-heat with no voltage feedback through Gray/White wire at defrost start***
21	***Defrost overheat***
22	***No voltage feedback through Gray/White wire at defrost start***
23	***Defrost overheat with no voltage feedback through Gray/White wire at defrost start***
24	***Defrost under-heat***
30	***NA***
40	***Excessive Freezer Compressor Run (UC-24C Only)***
50	***Excessive Refrigerator Compressor Run (UC-24B, UC-24R and UC-24RO Only)***

Clearing Non-Flashing "SERVICE" and Error Codes

If Error Codes are observed in Diagnostic Mode, a non-flashing SERVICE icon will appear on the LCD when Diagnostic Mode ends, indicating error codes are still stored (See Figure 3-38). To clear a non-flashing SERVICE icon and the error codes, the problem must be corrected and the unit must be ON, then:

- ***On a model UC-24C:*** Press the Freezer WARMER and COLDER keys for fifteen (15) seconds, and the error codes are cleared. (See Figure 3-39)
- ***On a model UC-24B, UC-24R or UC-24RO:*** Press the Refrigerator WARMER and COLDER keys for fifteen (15) seconds, and the error codes are cleared. (See Figure 3-40)

Figure 3-38. Non-flashing SERVICE after Diagnostic Mode = Error Codes are Stored

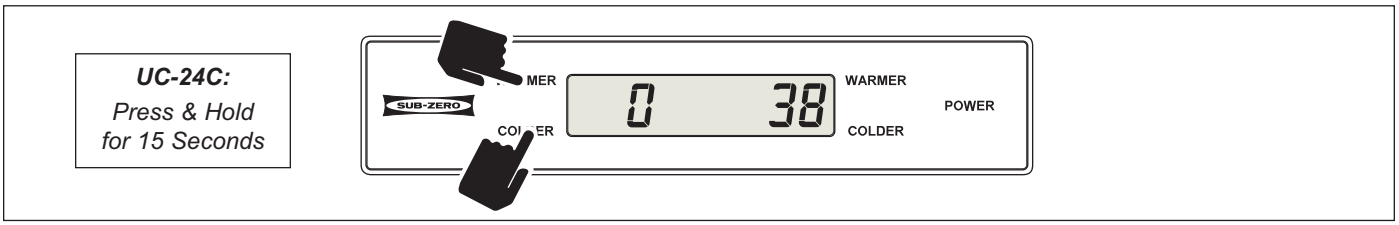


Figure 3-39. (Model UC-24C) Clear Non-Flashing SERVICE.
With Unit ON, Press and Hold the Freezer WARMER and COLDER Keys for 15 Seconds

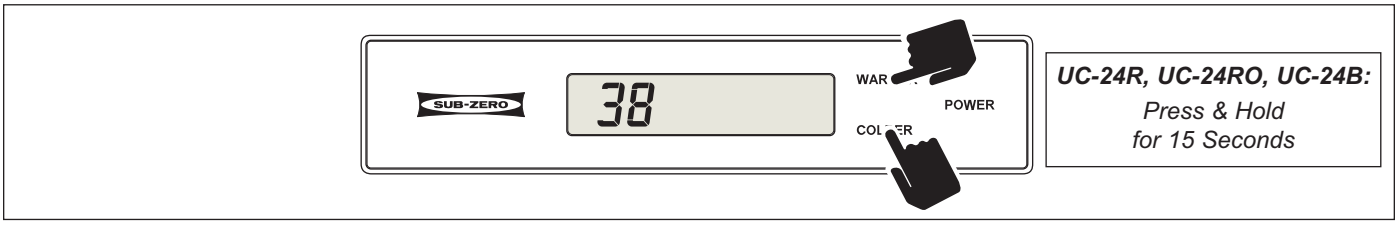


Figure 3-40. (Model UC-24B, UC-24R, UC-24RO) Clear Non-Flashing SERVICE.
With Unit ON, Press and Hold the Refrigerator WARMER and COLDER Keys for 15 Seconds

Manual Component Activation Mode

Manual Component Activation Mode energizes the cooling system for five (5) minutes, allowing a Service Technician to check for proper voltage readings at activated components without having to wait for the zone to call for cooling.

To initiate Manual Component Activation Mode the unit must be ON, then press and hold the desired COLDER key and the POWER key for ten (10) seconds (See Figures 3-41 and 3-42). All cooling functions for that zone will begin and the zone compartment temperature will be displayed in the left display area of the LCD, with the right display area showing the thermistor location.

NOTES:

- *If a COLDER and the POWER keys are pressed and held for less than ten (10) seconds, Diagnostic Mode will be initiated. This was covered earlier in the section.*
- In the model UC-24C, if the refrigerator COLDER key and POWER key are pressed for ten (10) seconds, the baffle control will energize, but the compressor, condenser fan motor and evaporator fan motor will switch to OFF mode.
- *It is possible to toggle through the other temperature readings as in Diagnostic Mode, but in this case the temperature readings will last for five (5) minutes rather than twenty seconds.*
- T*he compressor overload could prevent the compressor from energizing.*
- *Manual Component Activation Mode will end five (5) minutes after it is initiated. It is possible to end this five (5) minute run time and return to normal operation by pressing the POWER key. If this is done, note that the electronic control will observe a three (3) minute minimum compressor OFF time when the unit is switched back ON. This is to protect the compressor and its electricals.*

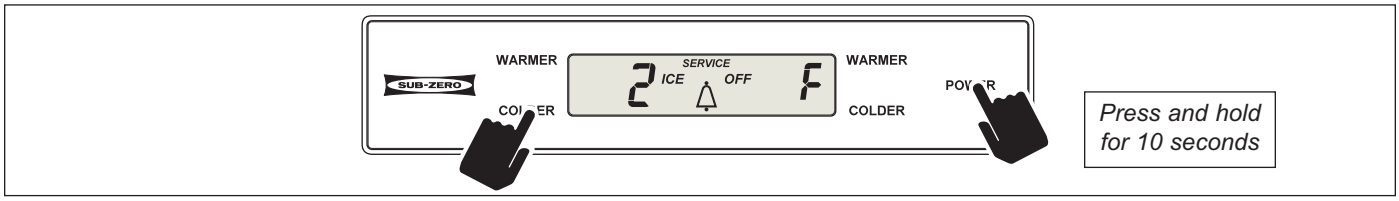


Figure 3-41. (Model UC-24C) Initiate Manual Component Activation Mode (Freezer Zone Shown) - Press and Hold Freezer COLDER Key and POWER Key for 10 Seconds

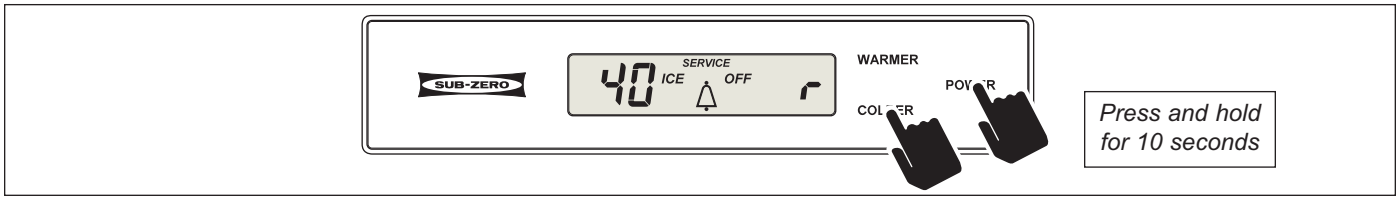


Figure 3-42. (Models UC-24B, UC-24R, UC-24RO) Initiate Manual Component Activation Mode - Press and Hold COLDER Key and POWER Key for 10 Seconds

Temperature Log Recall Mode

The electronic control system is equipped with a temperature history data storage system. This system logs/stores the average temperature of each individual thermistor every two hours, along with any event indicators (explained later in this section), that may have occurred. These two-hour periods are referred to as *"indexes".* Up to 168 indexes can be stored for each compartment, making it possible to observe the preceding fourteen days of the unit's temperature history *(each index equals 2 hour temperature average; 2 hours X 168 indexes = 14 days).* After 168 indexes are stored, each new index will bump the oldest index. Index number "1" being the most recent two-hour temperature average and index number "168" being the oldest. Accessing this temperature history data so it can be viewed on the LCD is accomplished by initiating Temperature Log Recall Mode.

There are two ways to initiate Temperature Log Recall Mode. One allows viewing of compartment temperature history only (see below), the other allows viewing of compartment temperature history and/or evaporator temperature history (see following page).

Initiate Temperature Log Recall Mode To View Compartment Temperature History Only: Begin with the unit ON. Now, press and hold the desired compartment WARMER key, then press the POWER key, then release both keys (See Figure 3-43). The left display area on the LCD will show average compartment temperature and in the right display area will be the index number. The first index number will be "1", indicating the most recent two-hour temperature average. The right display area will also flash the thermistor location code at 3 second intervals (See Figure 3-44).

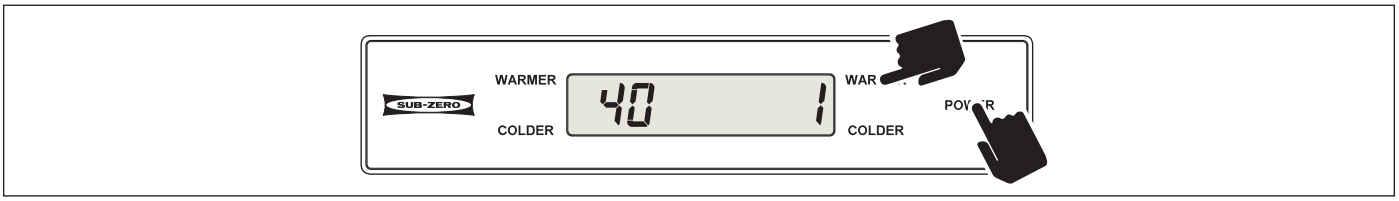


Figure 3-43. Initiate Temperature Log Recall Mode To View Compartment Temperature History Only - Press and Hold <u>Desired</u> WARMER Key, Then Press POWER Key

Figure 3-44. Thermistor Location Code Flashes Every 3 Seconds

To toggle <u>up</u> **(increment)** through the indexes (from 1 to 168), press the same WARMER key in multiple key strokes (See Figure 3-45). To toggle <u>down</u> **(decrement)** through the indexes (from 168 to 1), press the corresponding COLDER key in multiple key strokes (See Figure 3-46).

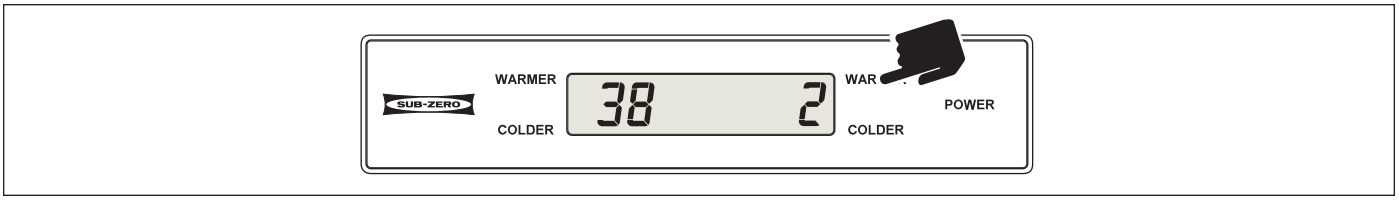


Figure 3-45. Toggle Up (Increment) Through Indexes - Press WARMER Key in Consecutive Key Strokes

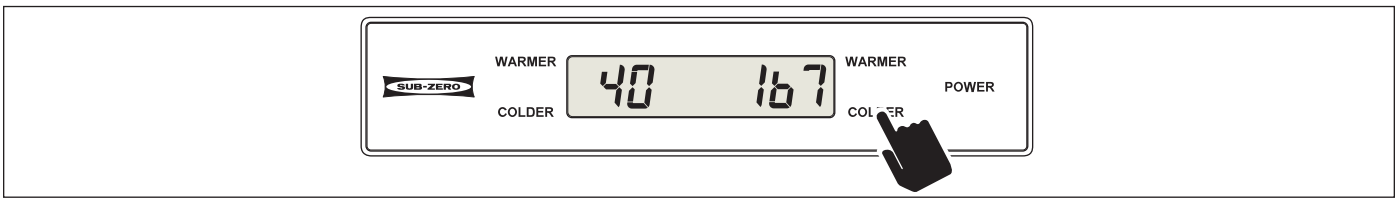


Figure 3-46. Toggle Down (Decrement) Through Indexes - Press COLDER Key in Consecutive Key Strokes

Initiate Temperature Log Recall Mode To View Compartment and Evaporator Temperature History: To view compartment and/or evaporator temperature history, begin with the unit ON and in Diagnostic Mode (See Figure 3-47). While in Diagnostic Mode, toggle through the readings until the desired thermistor temperature is displayed on the LCD (See Figure 3-48). Now, press and hold the POWER key first, then the WARMER key, then release both keys (See Figure 3-49). The left display area on the LCD will show average temperature and in the right display area will be the index number "1" indicating the most recent two-hour temperature average. The right display area will also flash the thermistor location code at 3 second intervals (See Figure 3-50).

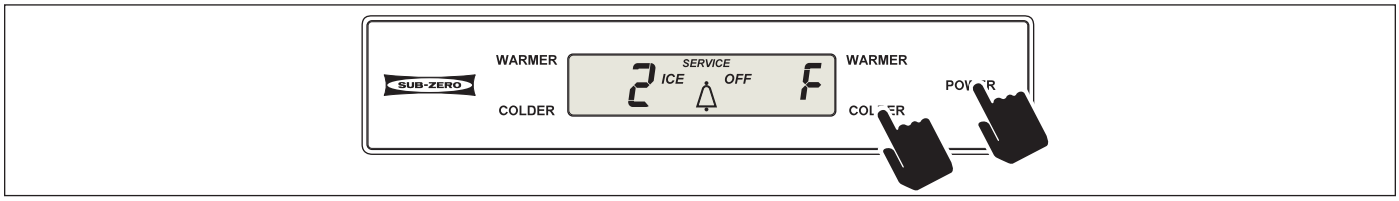


Figure 3-47. Initiate Diagnostic Mode - Press and Hold Either COLDER Key, then the POWER Key

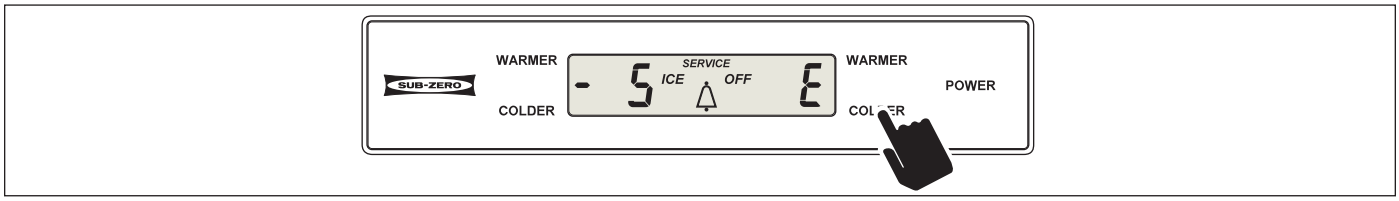


Figure 3-48. Toggle Through Readings - Press COLDER or WARMER Key Until Desired Thermistor Temperature is Displayed

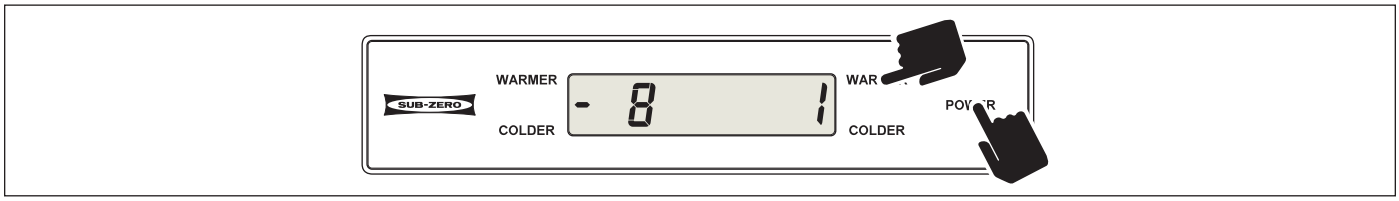


Figure 3-49. Initiate Temperature Log Recall Mode To View Temperature History - Press and Hold POWER key first, then WARMER Key

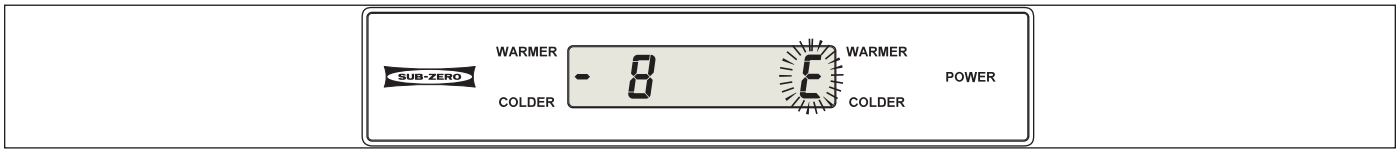


Figure 3-50. Thermistor Location Code Flashes Every 3 Seconds

To toggle up **(increment)** through the indexes (from 1 to 168), press the same WARMER key in multiple key strokes (See Figure 3-51). To toggle down **(decrement)** through the indexes (from 168 to 1), press the corresponding COLDER key in multiple key strokes (See Figure 3-52).

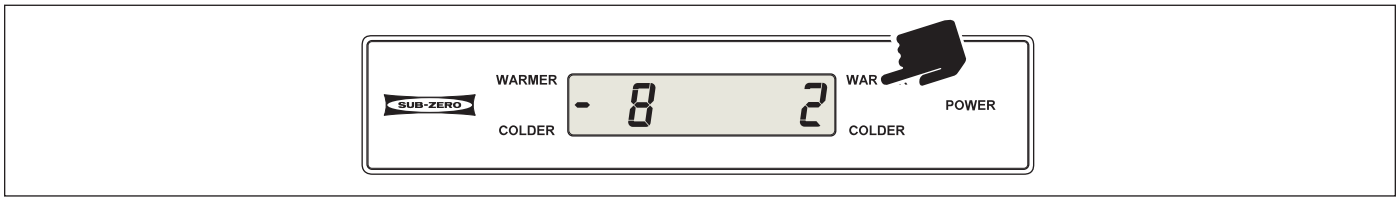


Figure 3-51. Toggle Up Through Indexes - Press WARMER Key in Consecutive Key Strokes

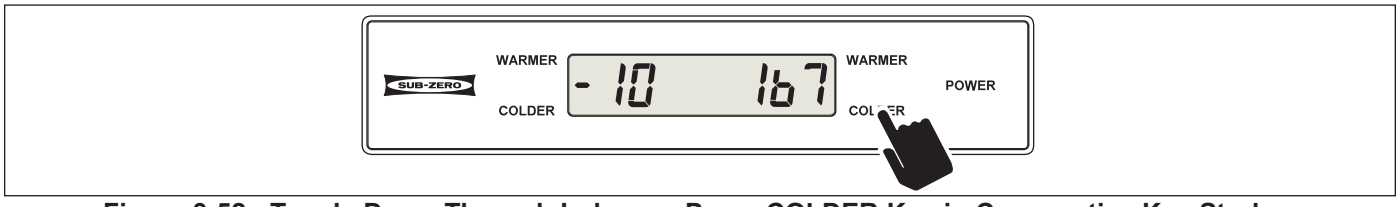


Figure 3-52. Toggle Down Through Indexes - Press COLDER Key in Consecutive Key Strokes

Temperature Log Event Indicators

The diagrams below illustrate possible event indicators that may be observed while in Temperature Log Recall Mode. (See Figures 3-53 through 3-55 and Temperature Log Index Chart on next page)

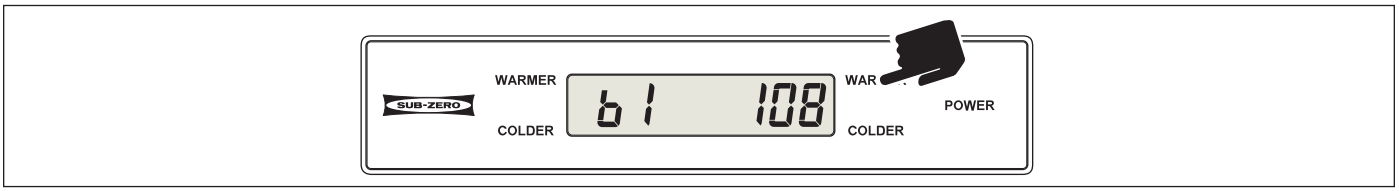


Figure 3-53. *"bl"* Indicates Index is "blank" - No Temperature has Been Logged Yet
(Only possible within first 14 days of unit operation, or after new control board is installed during service)

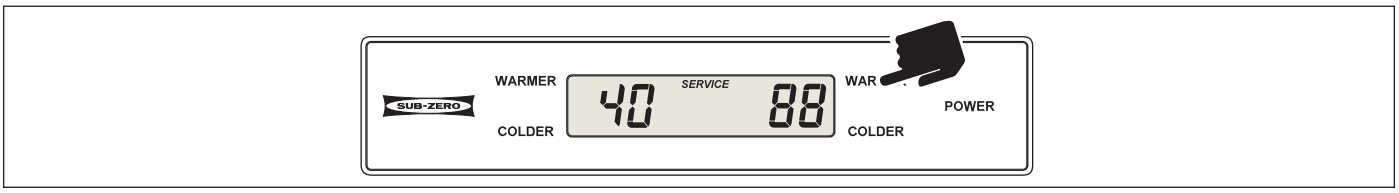


Figure 3-54. SERVICE Illuminates -
Indicates Unit was switched OFF During that Index Period by Pressing POWER Key

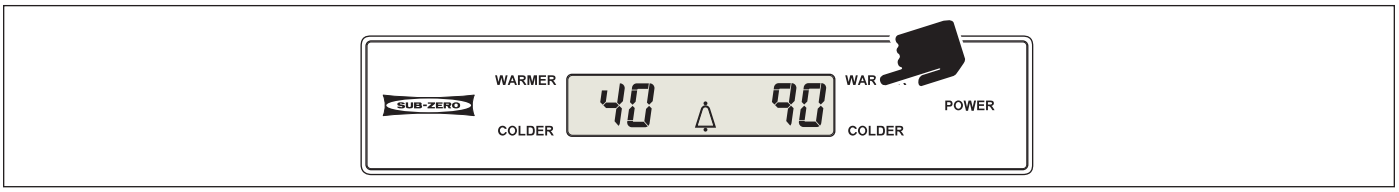


Figure 3-55. Bell Illuminates - Indicates Power Failure / Interruption During that Index Period

NOTES:
- *If the unit was in Showroom Mode during any of the 168 indexes, average temperatures will continue to be logged. No event indicator will appear with these temperatures.*
- *If the unit was switched OFF by pressing the POWER key during any of the 168 indexes and there was still power supplied to the control board, the average temperatures will continue to be logged. This means temperatures would be expected to rise and the SERVICE icon would be present in all indexes in which the unit was OFF.*
- *Temperature Log Recall Mode will end twenty (20) seconds after the last key stroke.*

Temperature Log Index Chart

NOTE : *The chart below applies to the hours in which the control has power. Temperature history data will only be stored when the control has 115V AC supplied to it. If power to the unit is interrupted, the average temperatures for that time period are stored with the event indicator. The temperature history data is stored in a non-volatile memory, so the data is not erased by a power failure, but actual time passage during the power failure will not be shown.*

TEMPERATURE LOG INDEX CHART			
Index= Hours Past	**Index= Hours Past**	**Index= Hours Past**	**Index= Hours Past**
1 = 2 Hrs	43 = 86 Hrs	85 = 170 Hrs	127 = 254 Hrs
2 = 4 Hrs	44 = 88 Hrs	86 = 172 Hrs	128 = 256 Hrs
3 = 6 Hrs	45 = 90 Hrs	87 = 174 Hrs	129 = 258 Hrs
4 = 8Hrs	46 = 92 Hrs	88 = 176 Hrs	130 = 260 Hrs
5 = 10Hrs	47 = 94 Hrs	89 = 178 Hrs	131 = 262 Hrs
6 = 12 Hrs	48 = 96 Hrs *(4 Days)*	90 = 180 Hrs	132 = 264 Hrs *(11 Days)*
7 = 14 Hrs	49 = 98 Hrs	91 = 182 Hrs	133 = 266 Hrs
8 = 16 Hrs	50 = 100 Hrs	92 = 184 Hrs	134 = 268 Hrs
9 = 18 Hrs	51 = 102 Hrs	93 = 186 Hrs	135 = 270 hrs
10 = 20 Hrs	52 = 104 Hrs	94 = 188 Hrs	136 = 272 Hrs
11 = 22 Hrs	53 = 106 Hrs	95 = 190 Hrs	137 = 274 Hrs
12 = 24 Hrs *(1 Day)*	54 = 108 Hrs	96 = 192 Hrs *(8 Days)*	138 = 276 Hrs
13 = 26 Hrs	55 = 110 Hrs	97 = 194 Hrs	139 = 278 Hrs
14 = 28 Hrs	56 = 112 Hrs	98 = 196 Hrs	140 = 280 Hrs
15 = 30 Hrs	57 = 114 Hrs	99 = 198 Hrs	141 = 282 Hrs
16 = 32 Hrs	58 = 116 Hrs	100 = 200 Hrs	142 = 284 Hrs
17 = 34 Hrs	59 = 118 Hrs	101 = 202 Hrs	143 = 286 Hrs
18 = 36 Hrs	60 = 120 Hrs *(5 Days)*	102 = 204 Hrs	144 = 288 Hrs *(12 Days)*
19 = 38 Hrs	61 = 122 Hrs	103 = 206 Hrs	145 = 290 Hrs
20 = 40 Hrs	62 = 124 Hrs	104 = 208 Hrs	146 = 292 Hrs
21 = 42 Hrs	63 = 126 Hrs	105 = 210 Hrs	147 = 294 Hrs
22 = 44 Hrs	64 = 128 Hrs	106 = 202 Hrs	148 = 296 Hrs
23 = 46 Hrs	65 = 130 Hrs	107 = 214 Hrs	149 = 298 Hrs
24 = 48 Hrs *(2 Days)*	66 = 132 Hrs	108 = 216 Hrs *(9 Days)*	150 = 300 Hrs
25 = 50 Hrs	67 = 134 Hrs	109 = 218 Hrs	151 = 302 Hrs
26 = 52 Hrs	68 = 136 Hrs	110 = 220 Hrs	152 = 304 Hrs
27 = 54 Hrs	69 = 138 Hrs	111 = 222 Hrs	153 = 306 Hrs
28 = 56 Hrs	70 = 140 Hrs	112 = 224 Hrs	154 = 308 Hrs
29 = 58 Hrs	71 = 142 Hrs	113 = 226 Hrs	155 = 310 Hrs
30 = 60 Hrs	72 = 144 Hrs *(6 Days)*	114 = 228 Hrs	156 = 312 Hrs *(13 Days)*
31 = 62 Hrs	73 = 146 Hrs	115 = 230 Hrs	157 = 314 Hrs
32 = 64 Hrs	74 = 148 Hrs	116 = 232 Hrs	158 = 316 Hrs
33 = 66 Hrs	75 = 150 Hrs	117 = 234 Hrs	159 = 318 Hrs
34 = 68 Hrs	76 = 152 Hrs	118 = 236 Hrs	160 = 320 Hrs
35 = 70 Hrs	77 = 154 Hrs	119 = 238 hrs	161 = 322 Hrs
36 = 72 Hrs *(3 Days)*	78 = 156 Hrs	120 = 240 Hrs *(10 Days)*	162 = 324 Hrs
37 = 74 Hrs	79 = 158 Hrs	121 = 242 Hrs	163 = 326 hrs
38 = 76 Hrs	80 = 160 Hrs	122 = 244 Hrs	164 = 328 Hrs
39 = 78 Hrs	81 = 162 Hrs	123 = 246 Hrs	165 = 330 Hrs
40 = 80 Hrs	82 = 164 Hrs	124 = 248 Hrs	166 = 332 Hrs
41 = 82 Hrs	83 = 166 Hrs	125 = 250 Hrs	167 = 334 Hrs
42 = 84 Hrs	84 = 168 Hrs *(7 Days)*	126 = 252 Hrs	168 = 336 Hrs *(14 Days)*

ELECTRONIC CONTROL SERVICE INPUT OPERATIONS

The input operations described here are Automatic Entry Model Configuration Mode, Manual Entry Model Configuration Mode and Manual Freezer Evaporator Defrost.

Automatic Entry Model Configuration Mode

The main control board is used in several different models, so when a UC-24 unit is manufactured, the main control board must be configured/programmed for the specific model it is used in by a series of key strokes at the control panel. This is called Model Configuration.

If a new main control board is installed during a service call, double dashes (- -) will appear on the LCD when power is applied (See Figure 3-56), indicating the unit has automatically entered Model Configuration Mode, so the new board must now be configured for the model it was installed into.

While in this mode toggle through the model codes by pressing the WARMER or COLDER keys, until the appropriate model code is displayed (See Figure 3-57 and 3-58, and Model Code Table below). With appropriate model code displayed, press POWER key to store model configuration (See Figure 3-59).

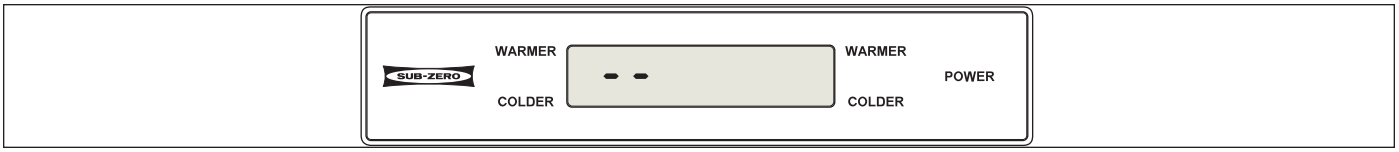


Figure 3-56. " - - " Double Dashes when New Board Installed = Model Configuration must be Performed

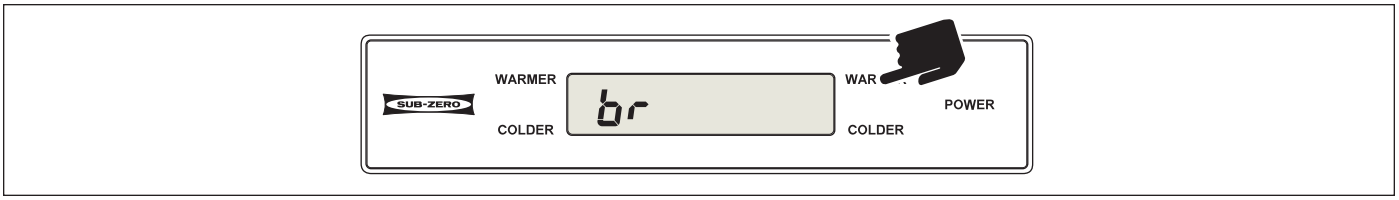


Figure 3-57. Press WARMER or COLDER key to Toggle Through Model Codes

Figure 3-58. Stop When Appropriate Model Code is Displayed

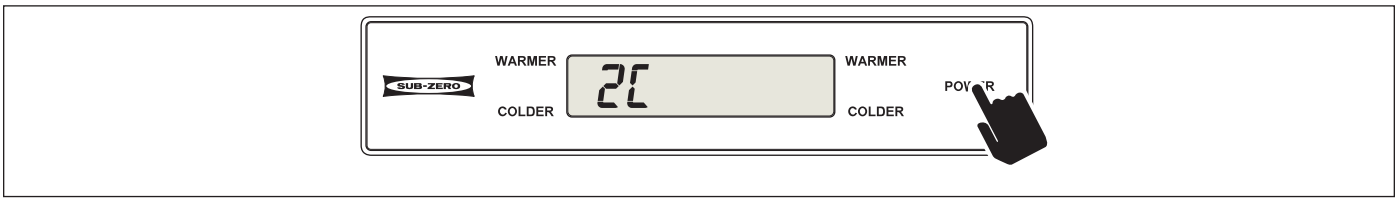


Figure 3-59. Press POWER Key to Store Model Configuration

MODEL CODE TABLE	
CODE	**MODEL**
br	**700BR**
bC	**700BC**
27	**427R**
bF	**700BFI**
2r	**UC-24R / UC-24RO**
2C	**UC-24C**
2b	**UC-24B**

Manual Entry Model Configuration Mode

Manual Entry Model Configuration Mode allows a Service Technician to verify that the main control board was configured correctly, and/or to reconfigure the main control board if a mistake was made during the configuration process.

To initiate Manual Entry Model Configuration Mode the unit must be ON and in Diagnostic Mode (See Figure 3-60). Then, press and hold the POWER key for fifteen (15) seconds. The unit will now be in Model Configuration Mode, with the model code of the last configuration displayed (See Figure 3-61 and Model Code Table on previous page). If needed, toggle through the model codes by pressing WARMER or COLDER keys, until appropriate model code is displayed (See Figure 3-62 and 3-63). With the appropriate model code displayed, press the POWER key to store model configuration (See Figure 3-64).

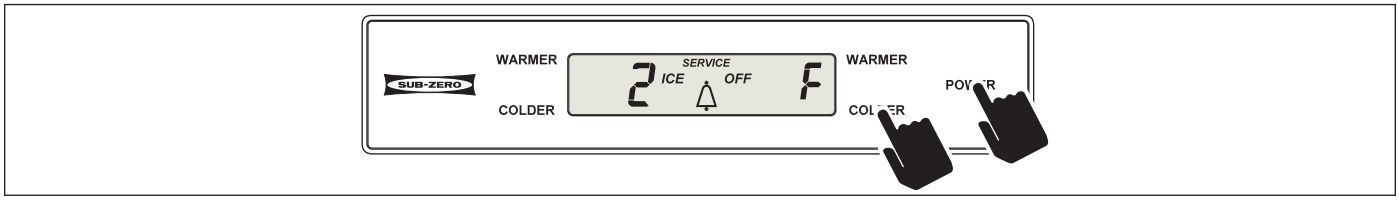


Figure 3-60. Initiate Diagnostic Mode First - Press and Hold Either COLDER Key, Then POWER Key

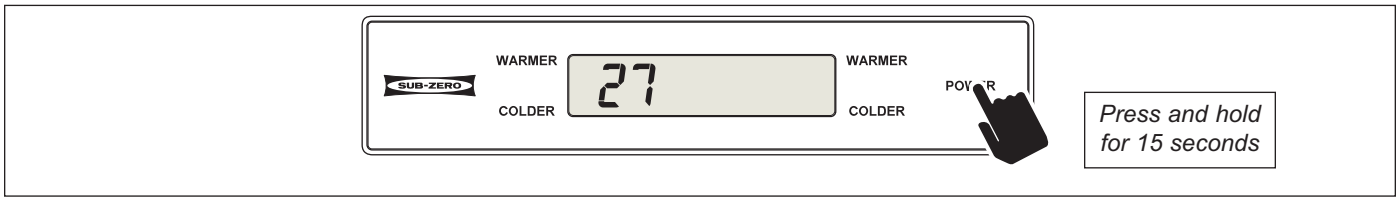


Figure 3-61. Press POWER key to Initiate Manual Entry Model Configuration Mode. Code for Last Model Configuration Appears

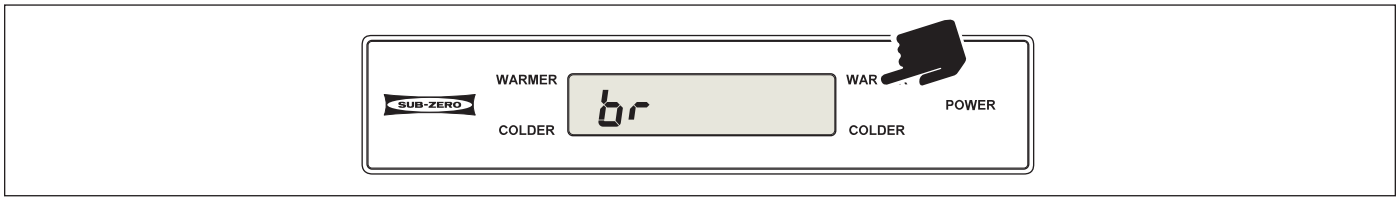


Figure 3-62. Press WARMER or COLDER key to Toggle Through Model Codes

Figure 3-63. Stop When Appropriate Model Code is Displayed

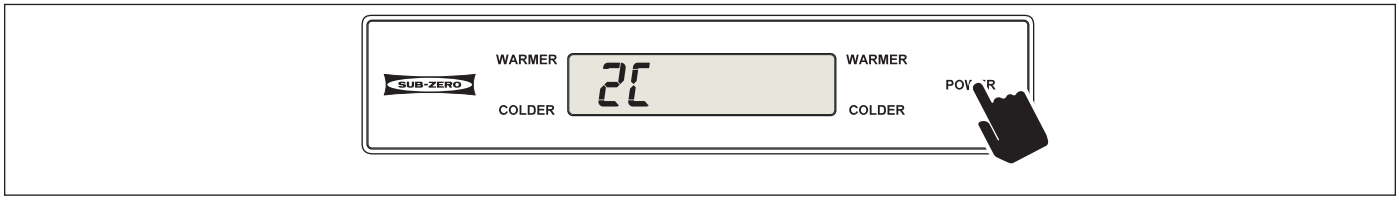


Figure 3-64. Press POWER Key to Store Model Configuration

Manual Freezer Evaporator Defrost (UC-24C Only)

Manual Freezer Evaporator Defrost was incorporated into the electronic control to assist in servicing the appliance.

To manually defrost the freezer evaporator the unit must be in the ON state, then press and hold the freezer WARMER and COLDER keys and the POWER key for five (5) seconds (See Figure 3-65).

NOTE: *Manual Freezer Evaporator Defrost will not operate if unit is in Sabbath Mode.*

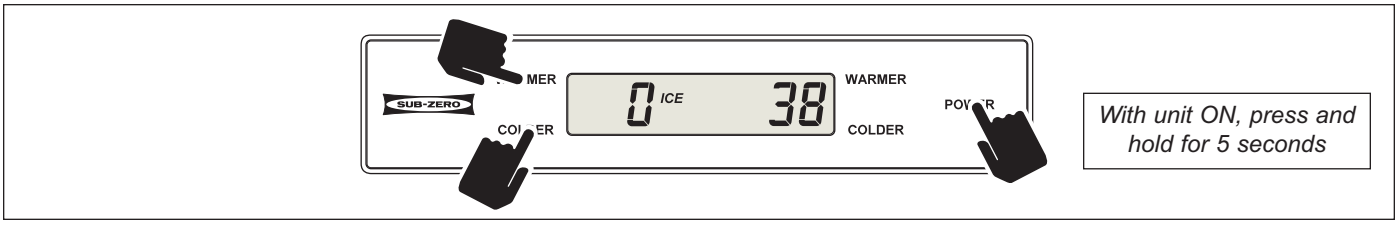


Figure 3-65. With Unit ON, Press and Hold the Freezer WARMER and COLDER Keys, Then Press the POWER Key

HFC-134a REFRIGERANT SERVICE INFORMATION

The sealed systems contain HFC-134a refrigerant. This section provides some general rules for working with 134a, and explains procedures to be followed while servicing the sealed system. This is followed by diagrams which illustrate sealed system operation, then model-specific refrigerant flow diagrams.

⚠ CAUTION

134a refrigerant requires Synthetic Ester oil in the compressor, and does not tolerate contamination from other refrigerants, moisture, petroleum-based lubricants, silicone lubricants, cleaning compounds, rust inhibitors, leak detection dyes, or any other type of additive.

General Rules for Working with 134a Refrigerant

- Use equipment dedicated to 134a sealed system service only.
- Use only 134a refrigerant for back-flushing and sweep-charging.
- Always replace the filter-drier when servicing the sealed system.
- The filter-drier must be cut from the sealed system. Never un-braze the drier as the heat will drive moisture back into the sealed system.
- Do not leave sealed system nor replacement compressor open to the atmosphere for more than ten (10) minutes.
- When the rubber plugs are pulled from the service compressor, a release of pressure should be heard. If no release of pressure is heard, do not use the compressor.
- Use ONLY virgin 134a refrigerant when recharging the sealed system.

SEALED SYSTEM REPAIR PROCEDURES	
Problem	**Service Procedures**
Non-Operating, Inefficient, Noisy Compressor	a. Capture refrigerant b. Replace Compressor c. Replace filter-drier d. Evacuate or sweep charge system e. Recharge system with Virgin 134a refrigerant. ***NOTE**: To check for a non-operating compressor, a hard start kit can be used.*
High Side leak	a. Capture refrigerant. b. Repair leak. c. Replace filter-drier. d. Evacuate or sweep charge system. e. Recharge system with Virgin 134a refrigerant.
Low Side Leak	a. Capture refrigerant. b. Repair leak (if at solder joint) or replace part. c. Back flush high side of sealed system. d. If all refrigerant has escaped & system is in vacuum, replace compressor e. Replace filter-drier. f. Evacuate or sweep charge system. g. Recharge system with Virgin 134a refrigerant.
Contaminated Sealed System *Examples:* > *Burned out compressor* > *Excessive moisture from leak in condensate loop or in low side* > *Plugged capillary tube*	a. Capture refrigerant. b. Repair leak (if at solder joint) or replace part. c. Back flush high side of sealed system. d. Replace compressor. e. Replace filter-drier. f. Replace heat exchanger if cap tube is clogged. g. Install a low side drier on suction line. h. Evacuate or sweep charge sealed system. i. Recharge with Virgin 134a refrigerant.
Restriction ***NOTE**: If restriction is due to sealed system being contaminated, see Contaminated Sealed System above.*	a. Capture refrigerant. b. Locate and remove restriction or locate and replace part. c. Back flush high side of sealed system. d. Replace filter-drier. e. Evacuate or sweep charge system. f Recharge system with Virgin 134a refrigerant.
Overcharge	a. Capture refrigerant. b. Replace filter-drier. c. Evacuate or sweep charge system. d. Recharge system with Virgin 134a refrigerant.

SEALED SYSTEM OPERATION

The six diagrams on these pages illustrate a basic sealed system. The components are listed in order of refrigerant flow, with an explanation of their fundamental role as part of a sealed system.

Compressor *(Figure 4-1)*

The compressor creates a high side and low side pressure difference in the sealed system by compressing the refrigerant gas, thus raising the pressure and temperature. The compressor discharges this high-pressure/high-heat gas through the drain pan heater loop, to the condenser.

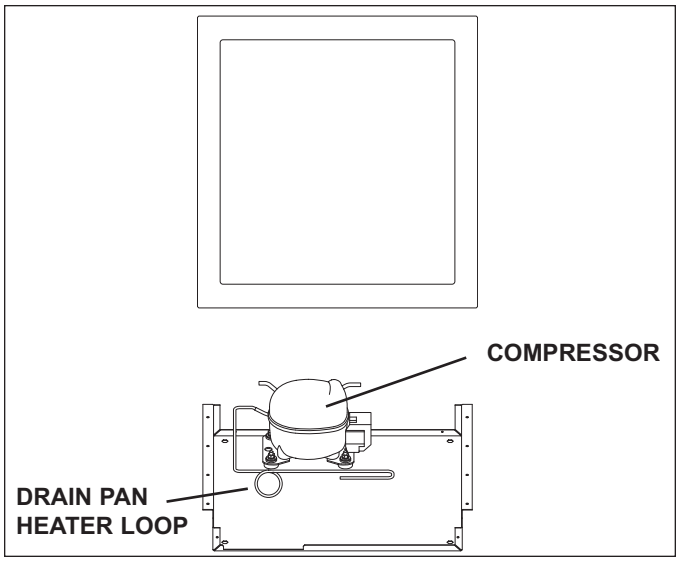


Figure 4-1. Compressor

Condenser *(Figure 4-2)*

The high-pressure/high-heat gas travels through the condenser, where the heat is dissipated by cooler air being drawn over the condenser tubing by the condenser fan. This changes the gas into a high-pressure/warm liquid that is then routed through the door gasket seat heater loop to prevent sweating. After traveling through the gasket seat heater loop, the high-pressure/warm liquid enters the high-side filter-drier.

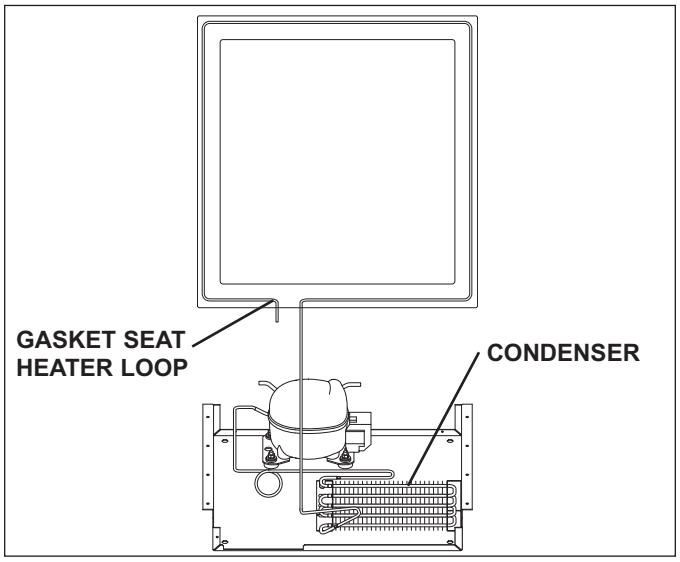


Figure 4-2. Condenser

High-Side Filter-Drier *(Figure 4-3)*

The high-pressure/warm liquid travels through the high-side filter-drier, which removes moisture from the refrigerant before it enters the capillary tube.

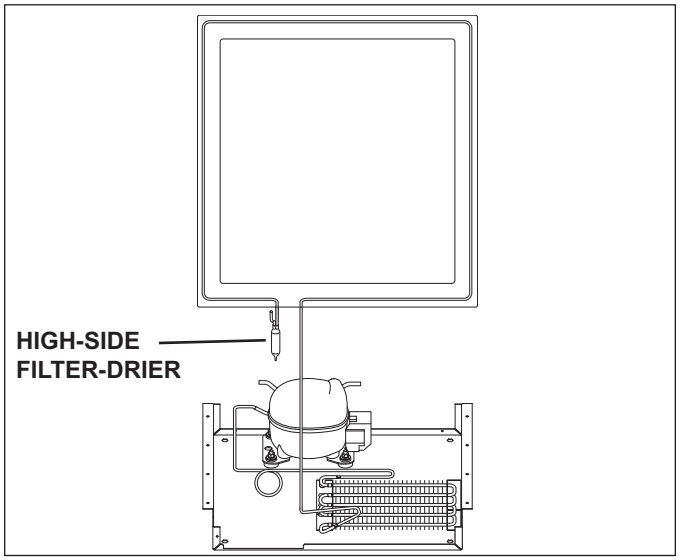


Figure 4-3. High-Side Filter-Drier

Capillary Tube (& Heat Exchanger) *(Figure 4-4)*

The warm liquid refrigerant travels through the long skinny capillary tube which is soldered to the suction line. *(These two tubes soldered together create the heat exchanger , See Figure 4-6.)* As the warm liquid refrigerant travels through the capillary tube it gives up heat to the cool refrigerant gas traveling through the suction line and the pressure drops, so it is a low-pressure/cool liquid before it enters the evaporator.

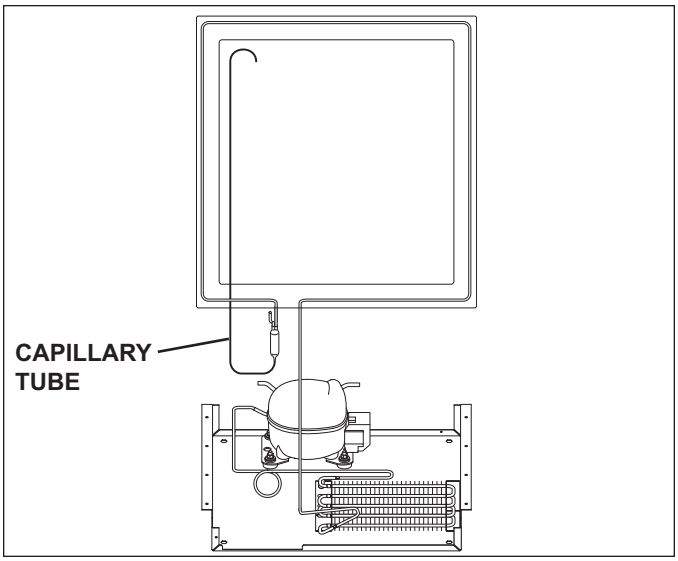


Figure 4-4. Capillary Tube (& Heat Exchanger)

Evaporator *(Figure 4-5)*

As the low-pressure/cool liquid refrigerant enters the evaporator, it vaporizes. This is caused by a dramatic pressure change which occurs when the refrigerant enters the larger diameter evaporator tubing from the smaller diameter capillary tubing. This vapor travels through the evaporator absorbing heat from the compartment, gradually converting it to a cool gas. This cool gas then enters the suction line.

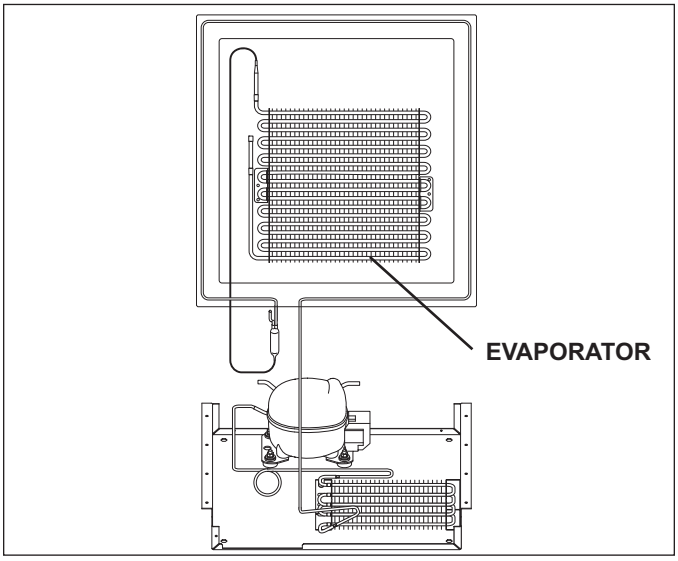


Figure 4-5. Evaporator

Suction Tube (& Heat Exchanger) ***(Figure 4-6)***

The cool gas travels through the suction line which is soldered to the capillary tube. *(As mentioned earlier, these two tubes soldered together create the heat exchanger.)* As this cool refrigerant gas travels through the suction line it absorbs heat from the warm liquid refrigerant traveling through the capillary tube, making it a luke warm gas. The lukewarm refrigerant gas then returns to the compressor where the process begins again.

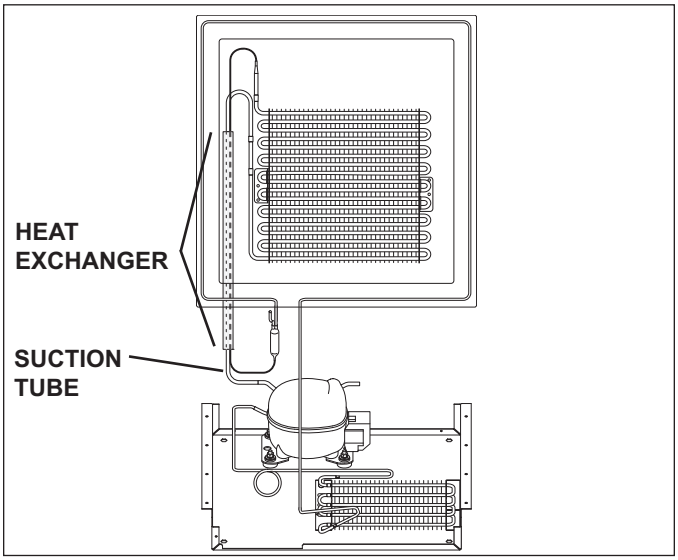


Figure 4-6. Suction Line & Heat Exchanger

SEALED SYSTEM REFRIGERANT FLOW DIAGRAM

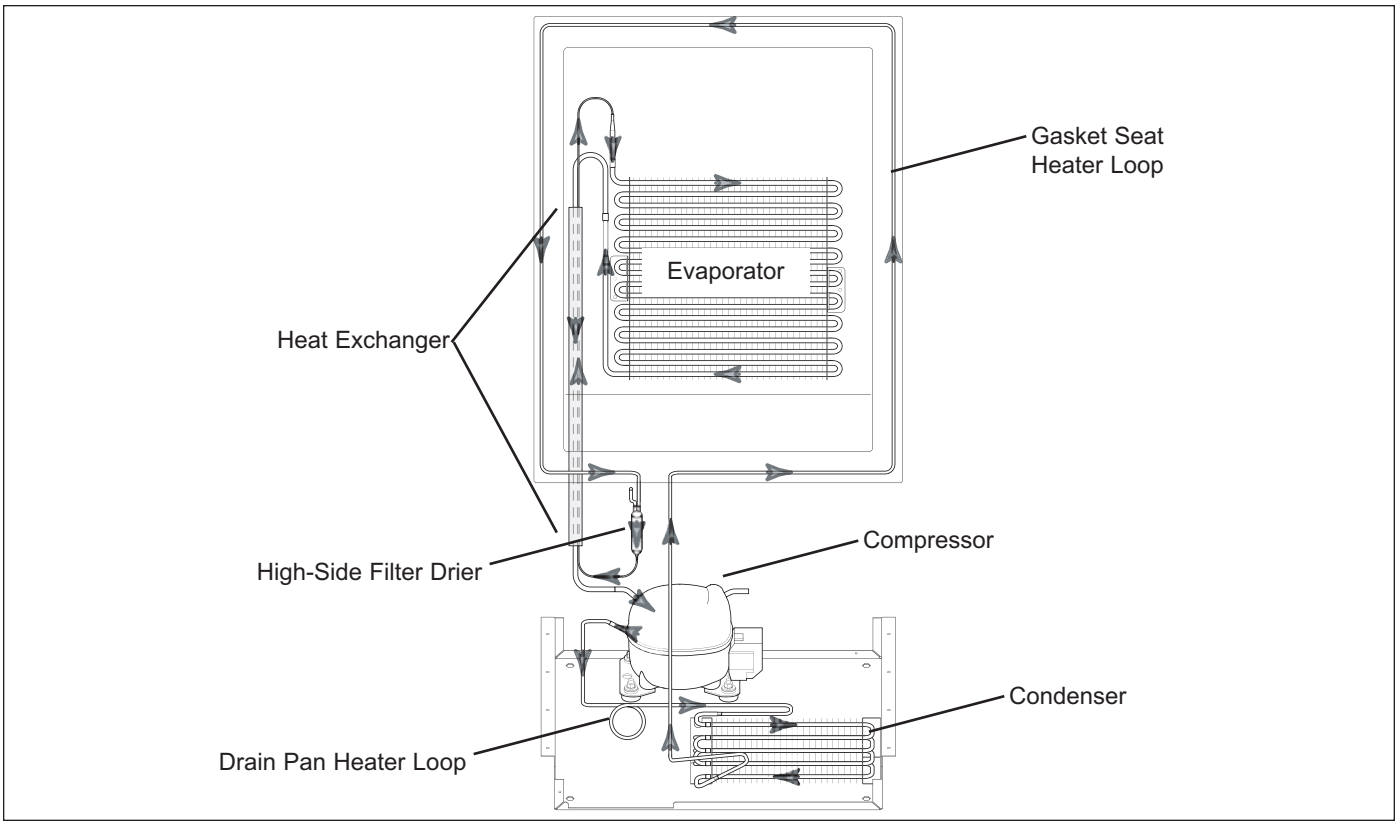


Figure 4-1. Models UC-24B, UC-24R and UC-24RO Refrigerant Flow

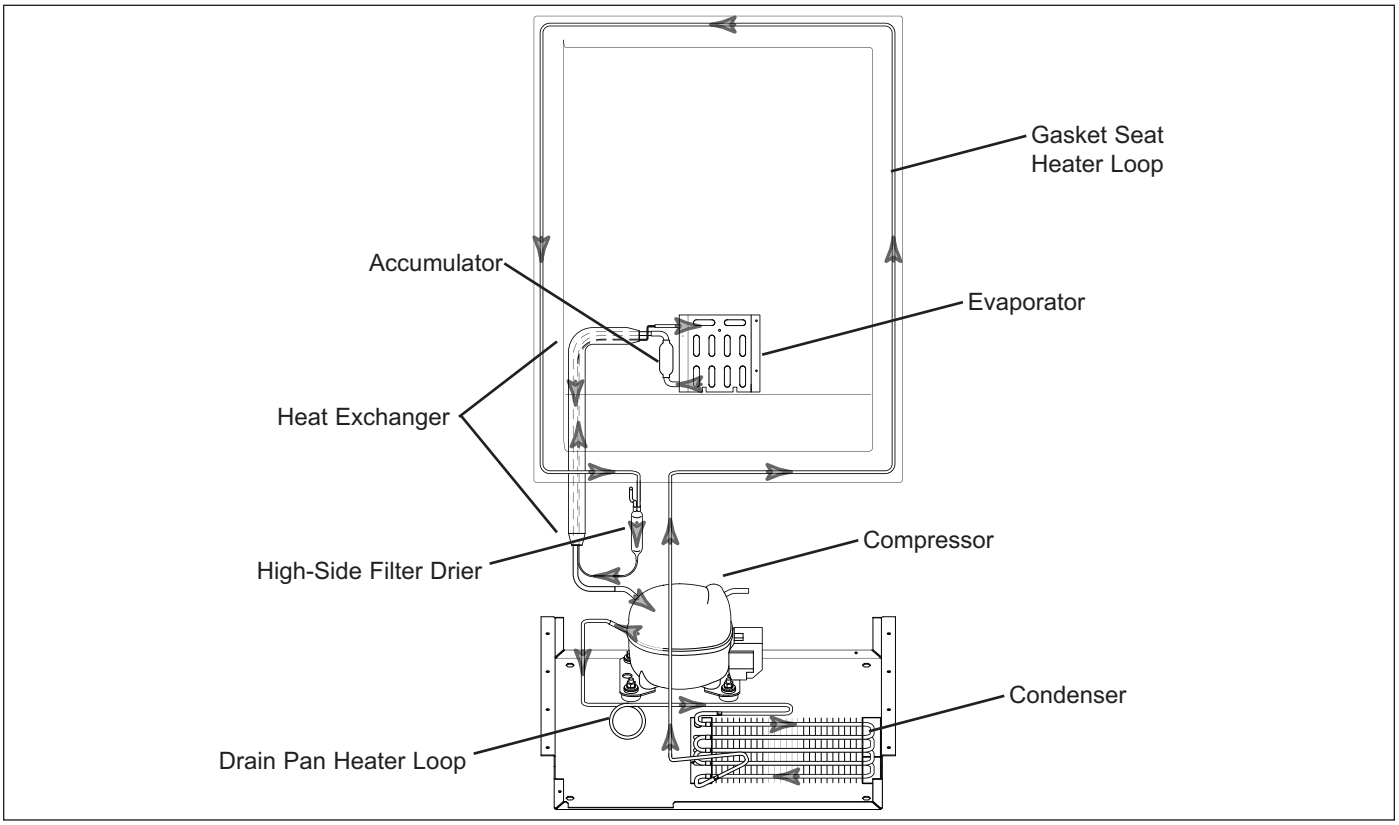


Figure 4-2. Model UC-24C Refrigerant Flow

AIRFLOW AND FAN BLADE SPACING DIAGRAMS

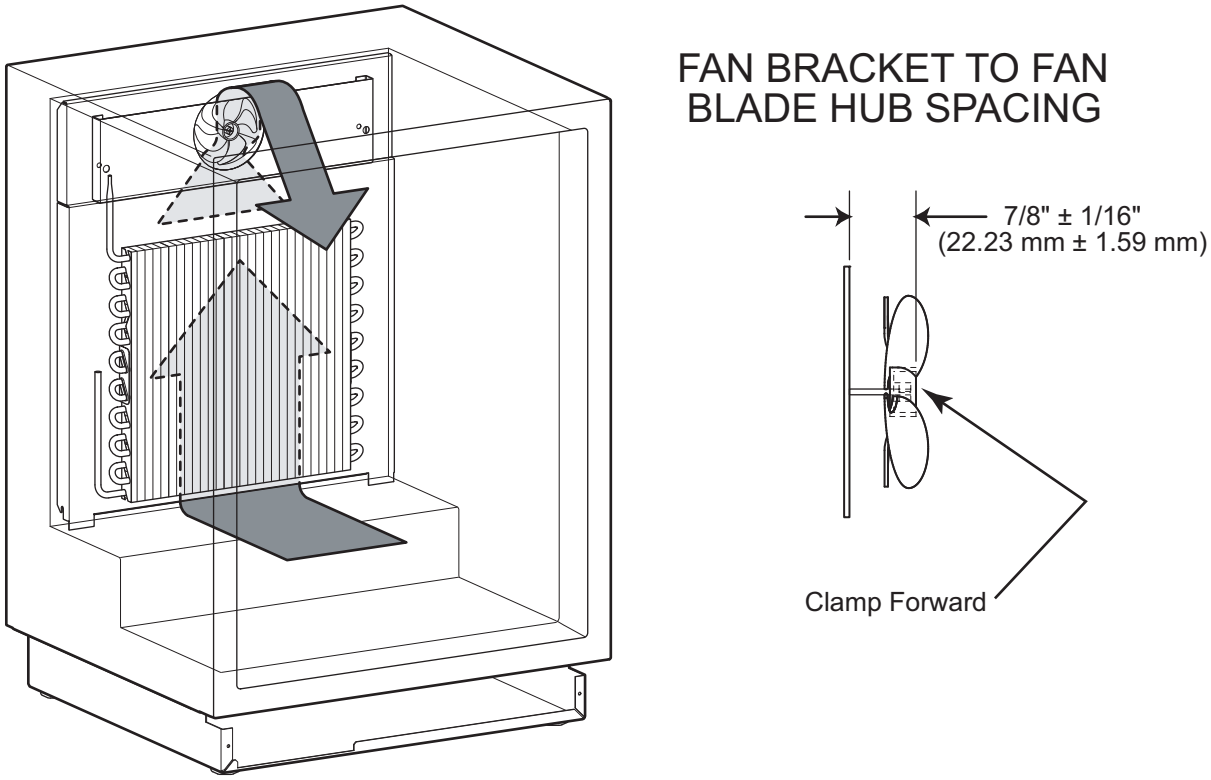


Figure 5-1. UC-24B, UC-24R, UC-24RO Airflow and Fan Blade Spacing

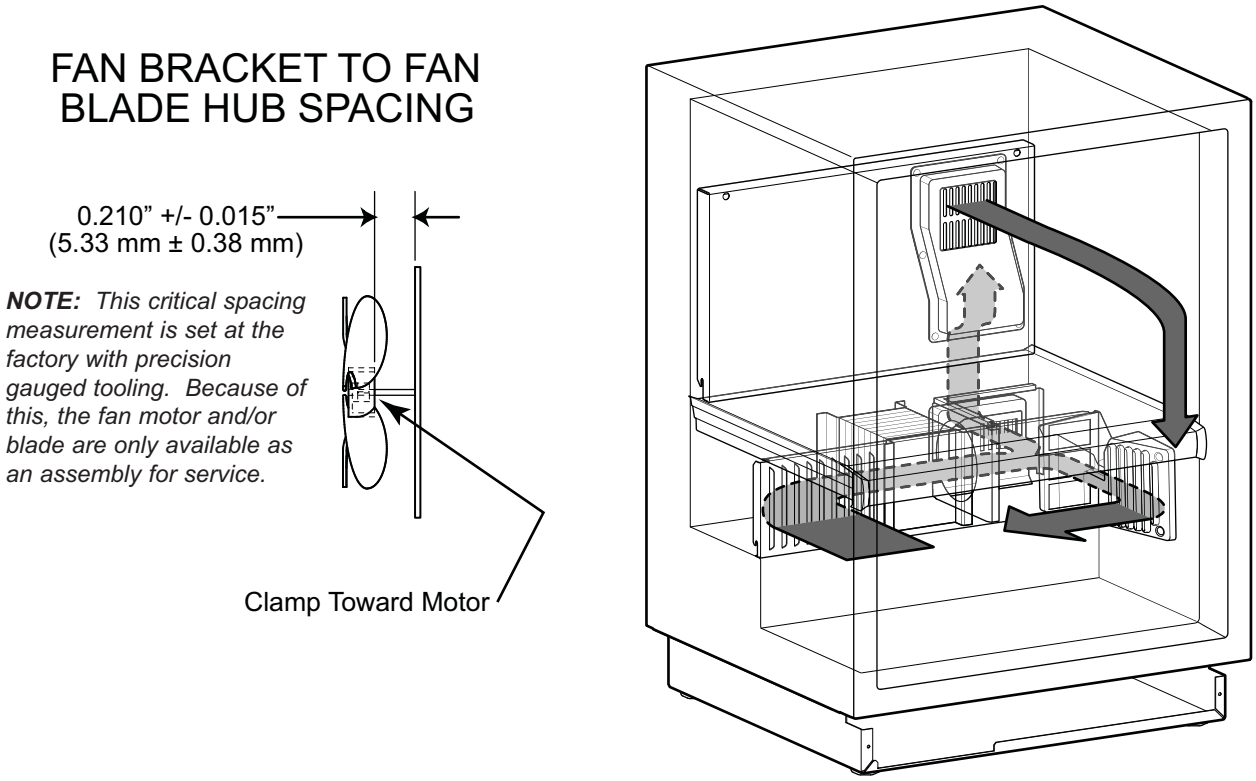


Figure 5-2. UC-24C Airflow and Fan Blade Spacing

MODULAR ICEMAKER

The model UC-24C utilizes a “modular icemaker.” The icemaker operation is not complex, however, an understanding of its cycle of operation is necessary in order for a serviceman to make a proper diagnosis.

Modular Icemaker Operation

When the icemaker thermostat has sensed temperatures of 17°F, the thermostat closes. At this time, the current now has a path through the thermostat to the motor. The motor is linked with the drive gear. From the module, there are copper contacts that ride on copper strips on the backside of the drive gear. (See Figure 6-1) As the drive gear rotates, these contacts from the module will make or break a circuit (track) to the copper strips to generate the icemaker cycle.

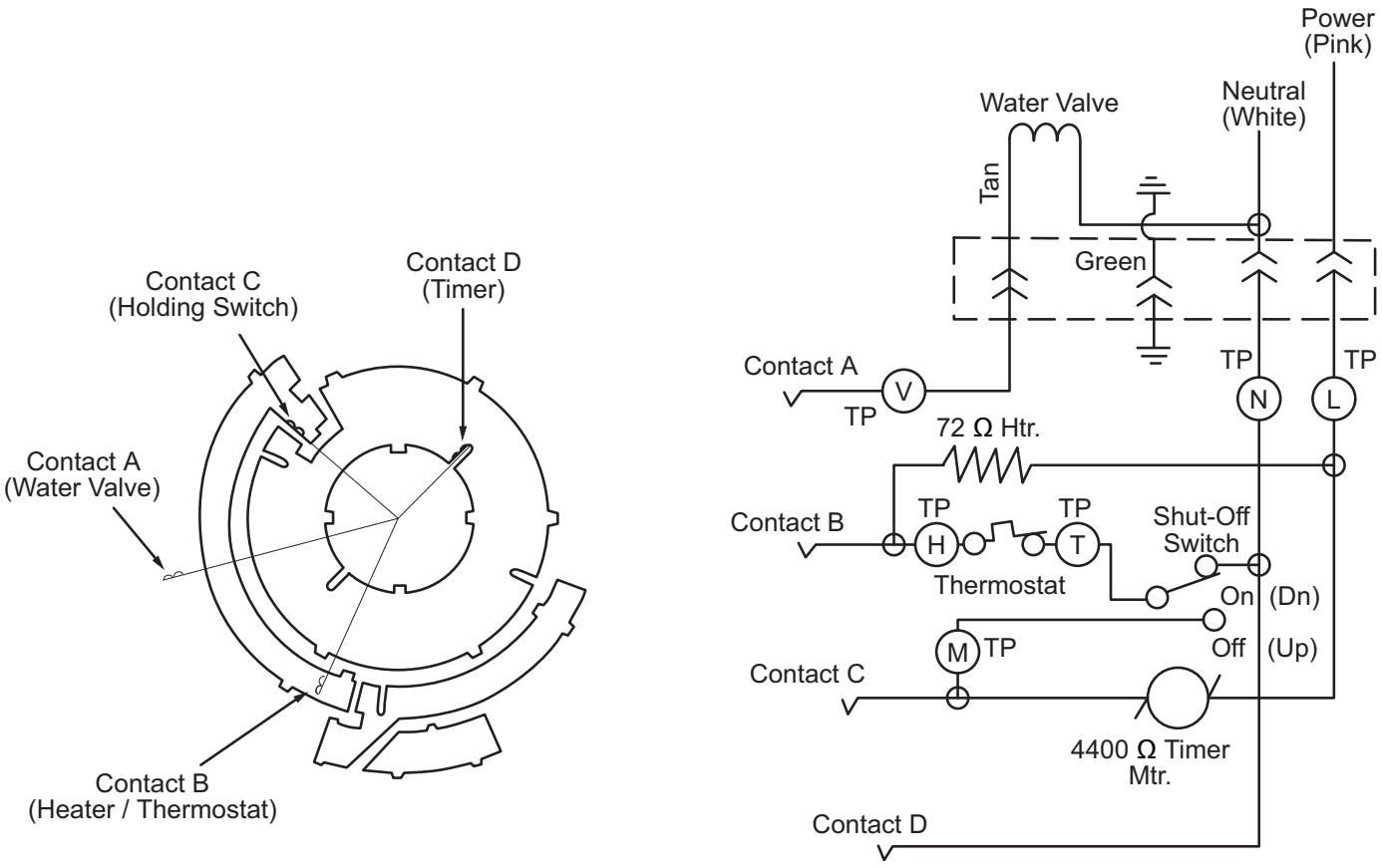


Figure 6-1. Modular Icemaker Electrical Schematic

Additional Icemaker Operation Notes

NOTES:

- *There is no "ICE" key on the control panel of the UC-24C. However, you may see the ICE icon appear during Diagnostic Mode because the LCD is common with other models.*
- *Power to the icemaker comes direct from L-1, so it is ON 100% of the time, unless the icemaker shut-off arm is tripped to the "up / OFF" position.*
- *The icemaker shut-off arm must be in the "down / ON" position for the icemaker to operate.*

What Happens During Ejector Blade Rotation

Figure 6-2 represents a view of the ejector blade from the front (or module side) of the icemaker. This diagram indicates what happens during the rotation of the ejector blade and will assist the Service Technician in diagnosing icemaker problems

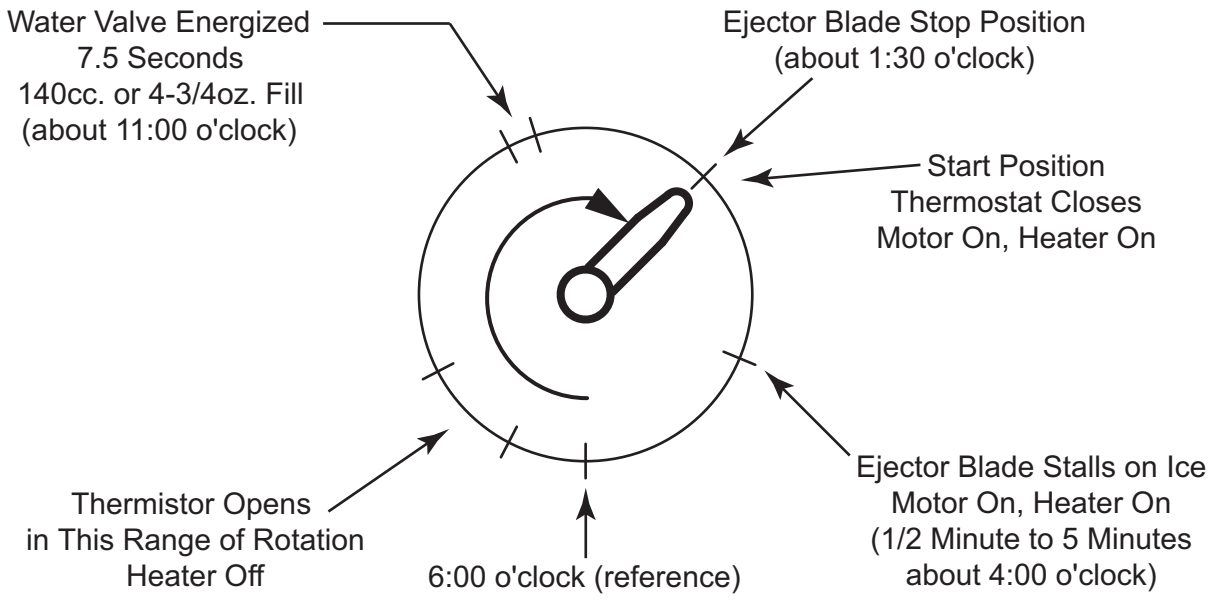


Figure 6-2. Ejector Blade Rotation Diagram

MODULAR ICEMAKER TEST PROCEDURES

Perform the following tests if the icemaker is thought to be defective. See Figure 6-3 for icemaker test port locations. Test 1 through 5 are performed with power supplied to the icemaker, so read the "WARNING" below and the "additional Ice Production Notes" on the previous page before proceeding.

⚠ WARNING

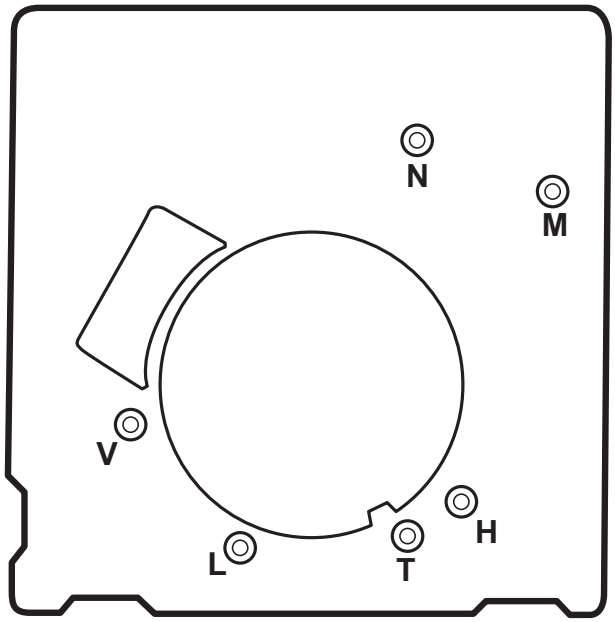
ELECTRIC SHOCK HAZARD! TESTS 1 THROUGH 5 BELOW ARE PERFORMED WITH POWER SUPPLIED TO THE ICEMAKER. CARE MUST BE TAKEN WHEN PERFORMING THESE TESTS TO AVOID SEVERE PERSONAL INJURY OR DEATH.

Voltage Tests

1. Check for power between ports "L" and "N". Make sure test probes go into test ports 1/2".
2. Strip 1/2" of insulation from each end of a 3" piece of insulated 14 gauge wire to create a jumper/test wire. Insert the stripped ends of this jumper/test wire into ports "T" and "H" to bypass the thermostat.
   NOTE: *Do not place the jumper/test wire between any other ports as this will damage the icemaker.*
   If the motor doesn't run, replace the module/motor assembly.
3. Leave the jumper/test wire in until the ejector blades rotate to approximately 8:00 o'clock. The mold heater should heat up. If not, see test 5 below.
4. Remove the jumper/test wire when the ejector blades reach the 8:00 o'clock position. The water valve should energize for 7.5 seconds when the ejector blades rotate to approximately 11:00 o'clock. If not, repeat test 2 through 4 and check for power to solenoid when ejector blades rotate to approximately 11:00 o'clock. If no voltage, check electrical connections.

Continuity Tests and Thermostat Inspection

5. With icemaker removed from the unit, check the resistance of the mold heater between ports "L" and "H." Reading should be between 62 - 82 Ohms. Replace mold/heater assembly if outside this range.
6. With the module/motor separated from the mold/heater assembly, check the resistance of the motor between ports "L" and "M." Reading should be between 3390 - 4410 Ohms. Replace module/motor assembly if outside this range.
7. If icemaker passes tests 1 through 6, check for adequate supply of Thermal-Mastic on icemaker thermostat. If little or no Thermal-Mastic, apply Thermal-Mastic to thermostat. If adequate supply is present, replace thermostat.
8. See General Troubleshooting Guide if icemaker passes tests 1 through 7.



TEST PORTS

H - T	=	Thermostat
L - H	=	Heater
L - M	=	Motor
L - N	=	AC Line Voltage
V - N	=	Valve

Figure 6-3. Icemaker Test Ports

NOTE: *Never attempt to turn the icemaker ejector blades by hand. Doing so will damage the icemaker*

WATER FILL ADJUSTMENT

The water valve should energize for approximately 7.5 seconds. This should supply 140cc. of water to the icemaker, or approximately 4.75 oz. If this is not the case, the fill amount can be adjusted with the water fill adjustment screw. (See Figure 6-4)

To increase the fill amount, turn the water fill adjustment screw counterclockwise. To decrease the fill amount, turn the water fill adjustment screw clockwise. A 360° turn will affect the fill by 40cc. A 180° turn will effect the fill by 20cc.

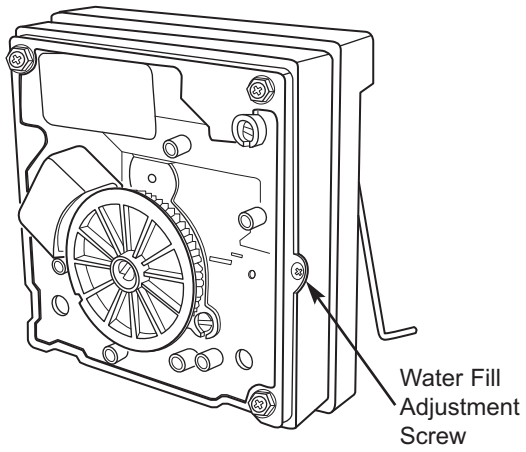


Figure 6-4. Water Fill Adjustment

ICEMAKER DISASSEMBLY

Module/Motor Assembly Removal

To remove the module/motor assembly, first remove the cover and the shut-off arm. Then, extract the module/motor assembly mounting screws and pull the module from the support. (See Figure 6-5)

Mold/Heater Assembly Removal

To remove the mold/heater assembly, first remove the cover and the shut-off arm. Insert a Phillips head screwdriver into the access holes and extract the screws. Then, pull the mold/heater assembly from the support. (See Figure 6-5)

Ejector Blades and/or Ice Stripper Removal

To remove the ejector blades and/or ice stripper, first remove the cover and the shut-off arm and disconnect the mold/heater assembly from the support. (See Figure 6-5) Then, pull the ejector blades and/or ice stripper from the mold.

Icemaker Thermostat Removal

To remove the icemaker thermostat, first remove the cover and the shut-off arm and disconnect the mold/heater assembly from the support. (See Figure 6-5) Then, use a needle-nose pliers to grasp one of the retaining clips and pull out. (See Figure 6-6)

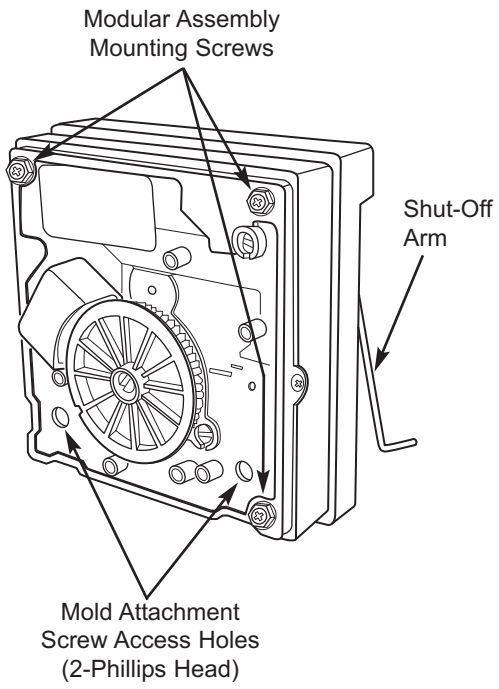


Figure 6-5. Icemaker Component Removal

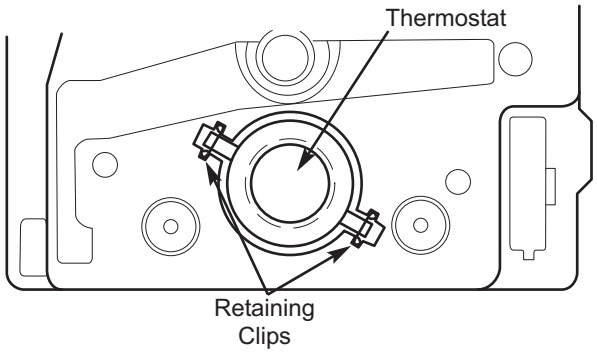


Figure 6-6. Thermostat Retaining Clips

COMPONENT ACCESS AND REMOVAL

This section explains how to adjust, access and/or remove Under Counter Series components. If different models have similar procedures, they are grouped together under the appropriate heading. The units covered in the procedures are listed between brackets after the heading.

An attempt has been made to arrange these procedures in such a way as to simulate which components would need to be removed first in order to gain access to other components. When following a component removal procedure, it may be necessary to reference another component removal procedure listed earlier in this section.

NOTE: *Before continuing, please take note of the WARNINGS and CAUTIONS below.*

⚠ WARNING

- **IF IT IS NECESSARY TO REMOVE A UNIT FROM ITS INSTALLATION, REMEMBER THAT THE UNIT COULD TIP FORWARD WHEN PULLED FORWARD BEYOND THE ANTI-TIP COMPONENTS, RESULTING IN SERIOUS INJURY OR DEATH. PULLING A UNIT FROM ITS INSTALLATION SHOULD ONLY BE PERFORMED BY AN AUTHORIZED SERVICE TECHNICIAN OR INSTALLER.**
- **TO AVOID ELECTRIC SHOCK, POWER TO THE UNIT MUST BE DISCONNECTED WHENEVER ACCESSING AND/OR REMOVING COMPONENTS POWERED BY ELECTRICITY OR COMPONENTS NEAR OTHER ELECTRICAL COMPONENTS. IF THE UNIT IS PLUGGED IN, BUT HAS NOT BEEN SWITCHED ON BY PRESSING THE POWER KEY, AC VOLTAGE IS STILL PRESENT AT THE MAIN CONTROL BOARD.**
- **IF REMOVING A DOOR REMEMBER THAT DOORS ARE HEAVY. IF THEY WERE TO FALL, THEY COULD CAUSE SERIOUS PERSONAL INJURY.**

⚠ CAUTION

- **If working in the compressor area, remember that compressor and tubing may be hot.**
- **If working on or around the evaporator or condenser, remember that evaporator and condenser fins are sharp.**

MODEL UC-24B

MODEL UC-24B EXTERIOR COSMETIC AND MECHANICAL COMPONENTS

Kickplate (Model UC-24B)

To remove the kickplate, extract the mounting screws located at each end of the kickplate and pull the kick-plate forward. (See Figure 7-1)

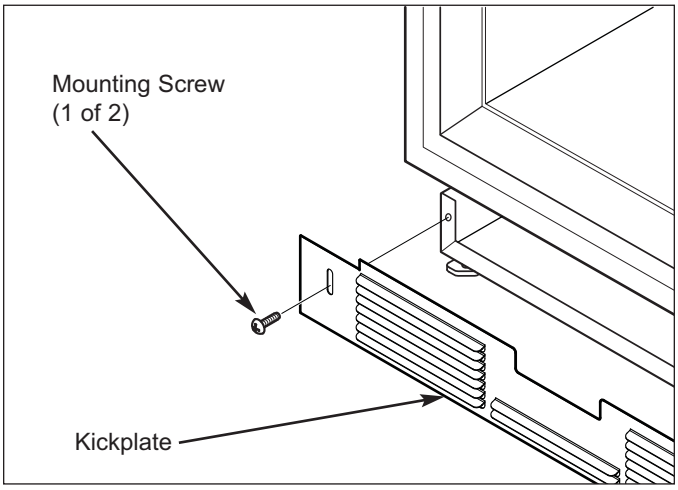


Figure 7-1. Kickplate Removal

Door Switch and Switch Box Bracket Assembly (Model UC-24B)

The door switch is inserted through the hole in the switch box bracket assembly Magnet and tabs on the sides of the switch hold the switch in place. The assembly is attached to the bottom of the cabinet with screws.

To remove the switch and switch box bracket assembly (See Figure 7-3):

1. Extract switch box bracket assembly mounting screws.
2. Pull assembly down, then rotate back to front.
3. Disconnect electrical leads from switch.
4. Depress tabs on side of switch while pushing switch out of hole.

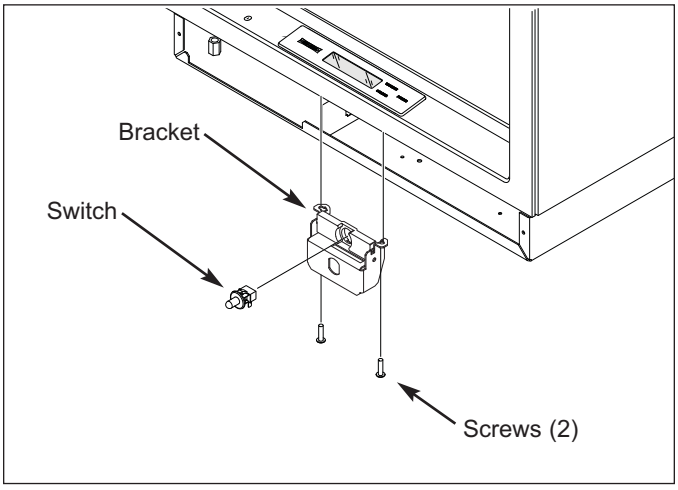


Figure 7-3. Light Switch & Switch box

Door Gasket (Model UC-24B)

An extruded dart at the back of the door gaskets is pressed into retaining channels that are part of the door glass frame.

To remove the door gasket, pull the gasket from the retaining channels (See Figure 7-4).

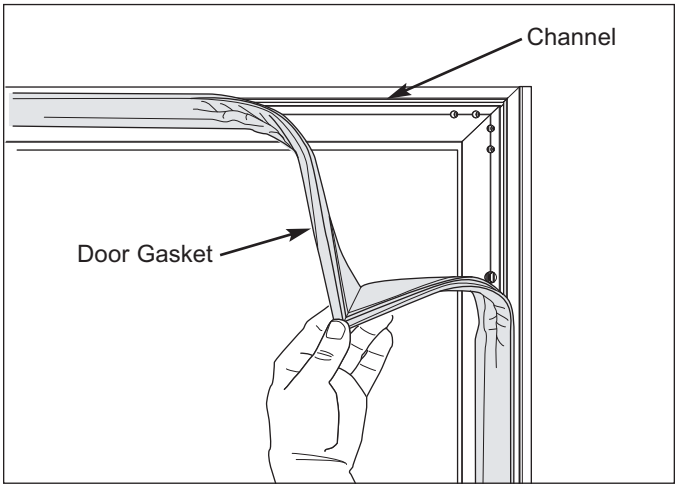


Figure 7-4. Gasket Removal

Door Assembly (Model UC-24B)

NOTE: *When removing a model UC-24B from its installation, an anti-tip bracket and a countertop bracket should have been used to make a solid installation.*

After pulling unit approximately 6” out from its installation (See Figure 7-5):

1. Open door.
2. Extract screws from top cabinet hinge.
3. Lift door with bottom door hinge pin out of the bottom cabinet hinge.

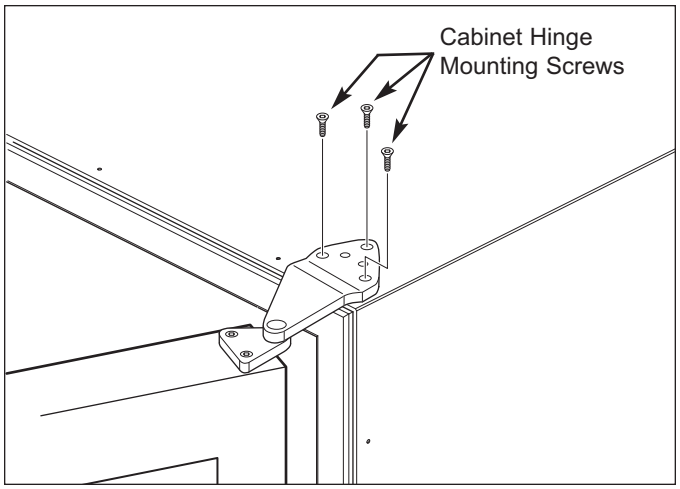


Figure 7-5. Door Removal

Stainless Steel Door Panel Assembly and Handle (Model UC-24B)

The stainless steel door panel on this model is captivated by the mounting of the handle, switch depressor and door hinges.

To remove the door panel assembly, first remove the door from the appliance, then (See Figure 7-6):

1. From beneath the door gasket, extract the handle mounting screws and pull handle and standoffs from door.
2. Extract switch depressor mounting screws and switch depressor.
3. Extract top and bottom hinge mounting screws along with the top and bottom hinge assemblies.
4. Pull stainless steel panel from door glass assembly.

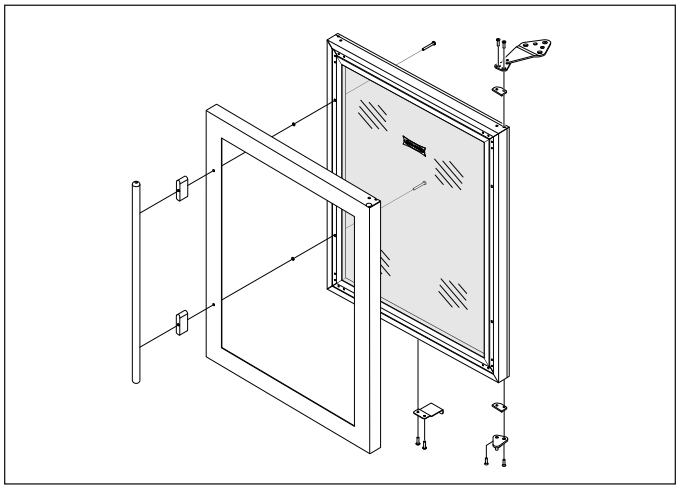


Figure 7-6. Stainless Steel Panel & Handle Removal

MODEL UC-24B INTERIOR COSMETIC AND MECHANICAL COMPONENTS

Cantilever Wine Rack Assembly (Model UC-24B)

The cantilever wine rack assembly consists of a removable wine rack assembly and an adjustable/removable cantilever support shelf assembly.
To remove a wine rack assembly (See Figure 7-7):

1. Empty the wine rack.
2. Pull rack forward until it stops.
3. Lift front of rack up while continuing to pull forward.
4. After indentations on the wine rack clear the rollers on the slides, lower front of rack while continuing to pull forward and lifting rear of rack.

NOTE: *The cantilever support shelf assembly is adjusted and removed the same way as a regular cantilever shelf as described below.*

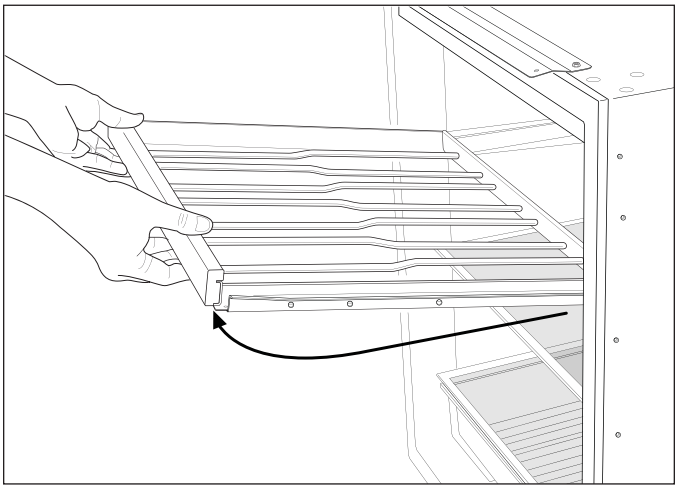


Figure 7-7. Wine Rack Removal

Cantilever Shelf (Model UC-24B)

The cantilever shelf has hooks at the back of each side rail that hook into the slots of the shelf ladders that are attached at the back left and right corners of the cabinet.

To remove the cantilever shelf, lift it up at the front, then lifting the hooks at the back up and out of the shelf ladder slots (See Figure 7-8).

To reinstall, tilt the front of the shelf up, align the hooks at back with the slots in shelf ladders, then insert hooks into slots and lower front of shelf.

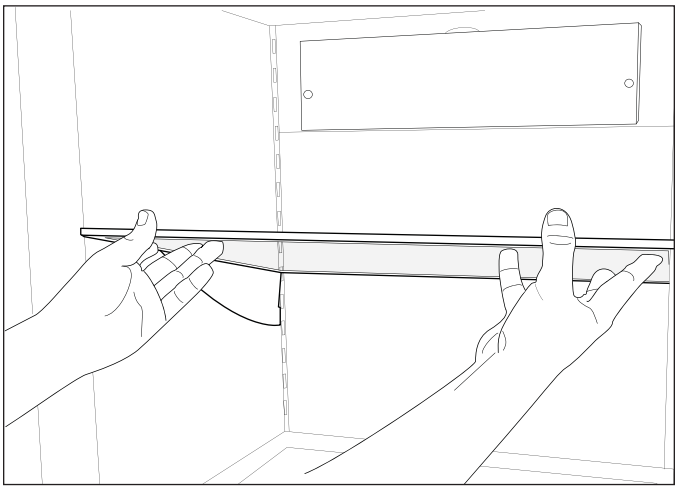


Figure 7-8. Cantilever Shelf Removal

Crisper Bin (Model UC-24B)

To open or remove the crisper bin, grab the handle that is molded into the bottom front of the bin and pull bin forward (See Figure 7-10).

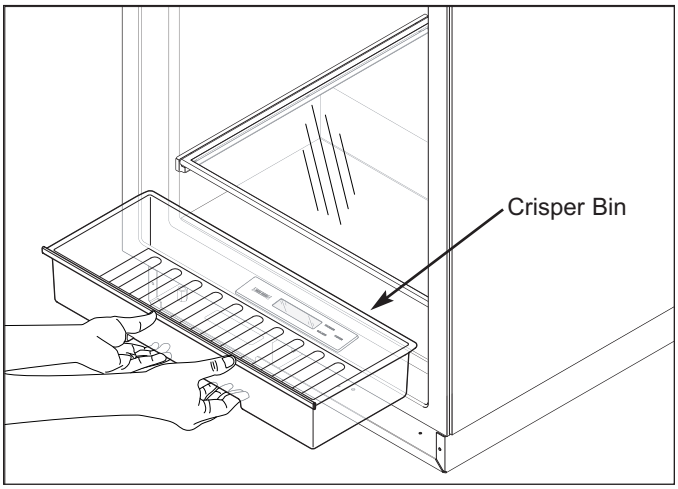


Figure 7-10. Crisper Bin Removal

Glass Floor/Shelf Assembly (Model UC-24B)

The glass floor/shelf assembly sets on top of the bin slides that are attached to each slide wall.

To remove the glass floor/shelf assembly, lift it up slightly and pull it forward, out of the compartment (See Figure 7-11).

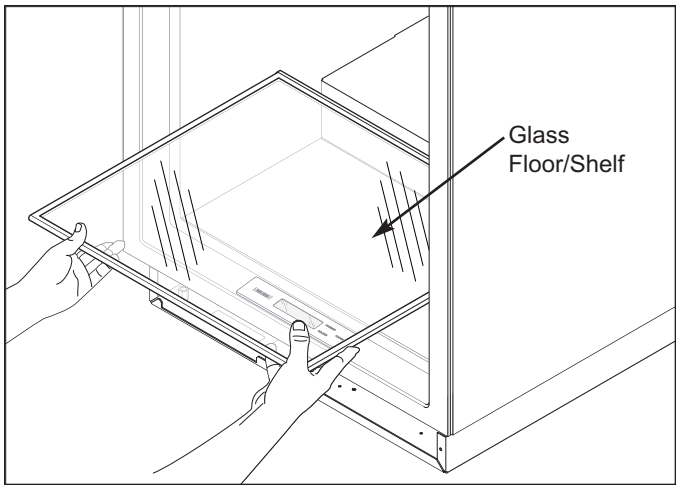


Figure 7-11. Glass Floor/Shelf Removal

Bin Slides (Model UC-24B)

The bin slides are attached to the side walls with screws.

To remove a bin slide, first remove the glass floor/shelf assembly, then (See Figure 7-12):

1. Extract slide mounting screws.
2. Pull slide away from side wall and out of compartment.

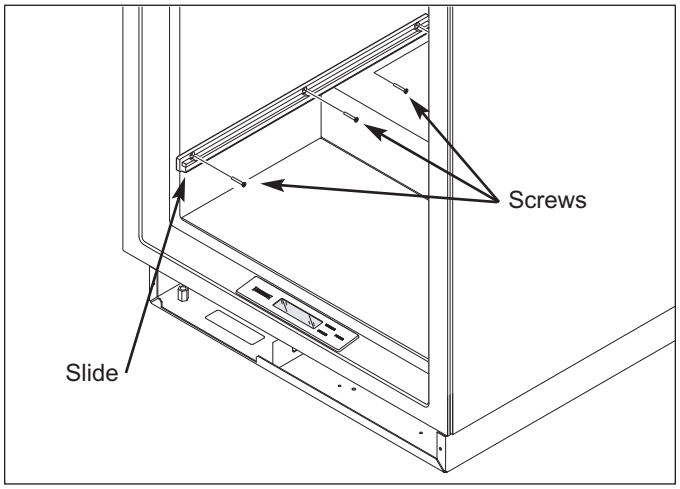


Figure 7-12. Bin Slide Removal

Control Panel/Display Assembly (Model UC-24B)

The control panel/display assembly is attached at the bottom front of the compartment by screws passing up from beneath the cabinet into screw grommets that are molded into the assembly.

To remove the control panel/display assembly, first remove the kickplate, then (See Figure 7-13):

1. Disconnect display electrical leads beneath unit.
2. With a stubby phillips-head screwdriver, extract control panel mounting screws.
3. Lift assembly up, feeding wires up through hole.

NOTE: *There is permagum packed around the wire leads. It must be replaced when replacing the control panel/display assembly. Failure to do so will lead to condensation on the assembly.*

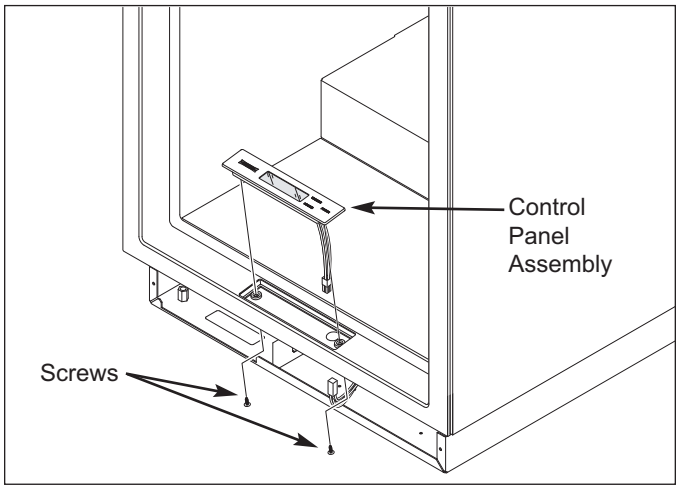


Figure 7-13. Control Panel Assembly Removal

Accent Light Strip and Switch (Model UC-24B)

The accent light strip is captivated in the channel of the light strip bracket, with the accent lighting switch inserted into a square hole in the bracket, just behind the light strip. This entire assembly is attached at the front of the compartment ceiling with screws.

To remove the light strip or switch (See Figure 7-14):

1. Extract the screws securing light strip bracket to ceiling, and lower the assembly down.
   a. *Light Strip Removal*
      1. Disconnect light strip electrical leads.
      2. Slide light strip out of the channel.
   b. *Light Switch Removal*
      1. Disconnect electrical leads from switch.
      2. Depress tabs on side of switch while pushing switch out of bracket.

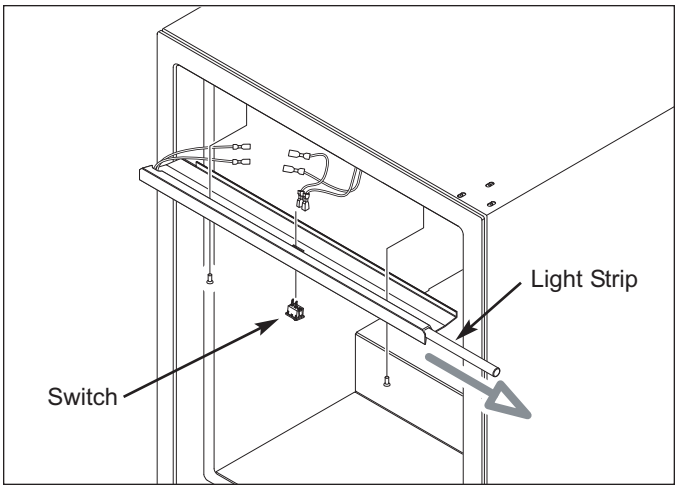


Figure 7-14. Accent Lighting Components Removal

Compartment Light Bulb & Socket (Model UC-24B)

The compartment light bulb and socket are in the ceiling of the compartment, just behind the accent lighting components. Tabs at the back of the socket hold it in the light bracket (See Figure 7-15).

Light Bulb Removal

Turn light bulb counterclockwise to remove it; clockwise to install it.

Light Socket Removal

Pull light socket from hole in bracket, then disconnect electrical leads.

NOTE: *This will break the tabs at back of socket, but this should not matter if replacing it. If not removing it in order to replace it, then drill out the heads of the rivets holding the bracket in place, lower the bracket down, then depress the tabs on the side of the socket while pushing it out of the bracket.*

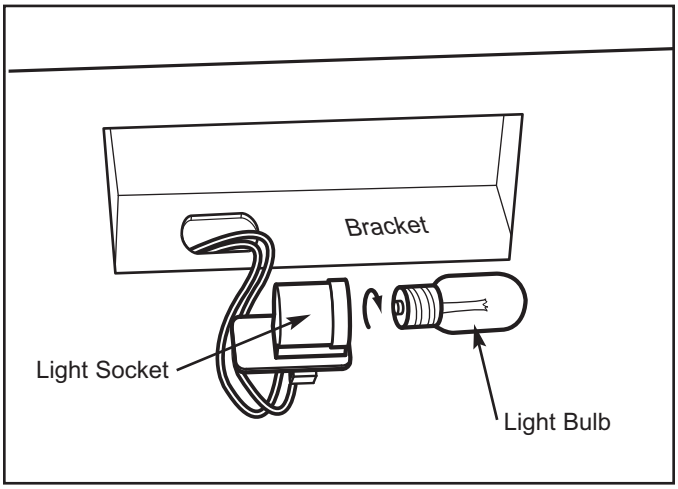


Figure 7-15. Compartment Light Bulb / Socket

Evaporator Fan Shroud and Evaporator Cover (Model UC-24B)

Screws pass though the refrigerator fan shroud and evaporator cover, then into screw grommet/stand-offs to secure the shroud and cover to the back wall. The evaporator cover is further secured by slots in its side flanges fitting over pegs at the bottom of each shelf ladder.

To remove the fan shroud and/or evaporator cover (See Figure 7-16):

Fan Shroud Removal

a. Extract the two mounting screws.
b. Pull fan shroud forward, out of compartment.

Evaporator Cover Removal

a. Extract the two mounting screws.
b. Pull fan shroud forward, out of compartment.
c. Remove wine rack cabinet slides and support spacers from hinge-side wall.
d. Lean top of evaporator cover forward, then lift it up off of locator pegs at the bottom of each shelf ladder

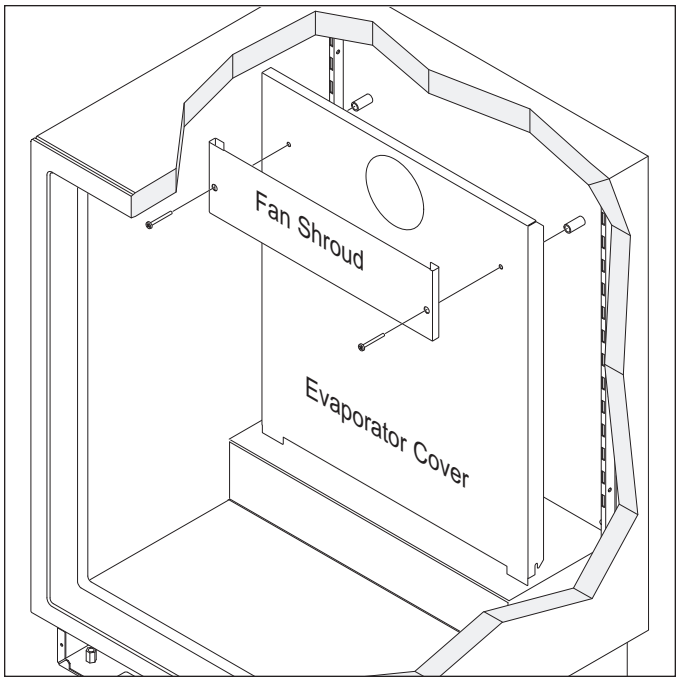


Figure 7-16. Fan Shroud and Evaporator Cover

Shelf Ladders (Model UC-24B)

The shelf ladders are attached to the side walls with screws.

To remove a shelf ladder, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover. Then, extract the shelf ladder mounting screws and pull the shelf ladder away from side wall and out of compartment. (See Figure 7-17)

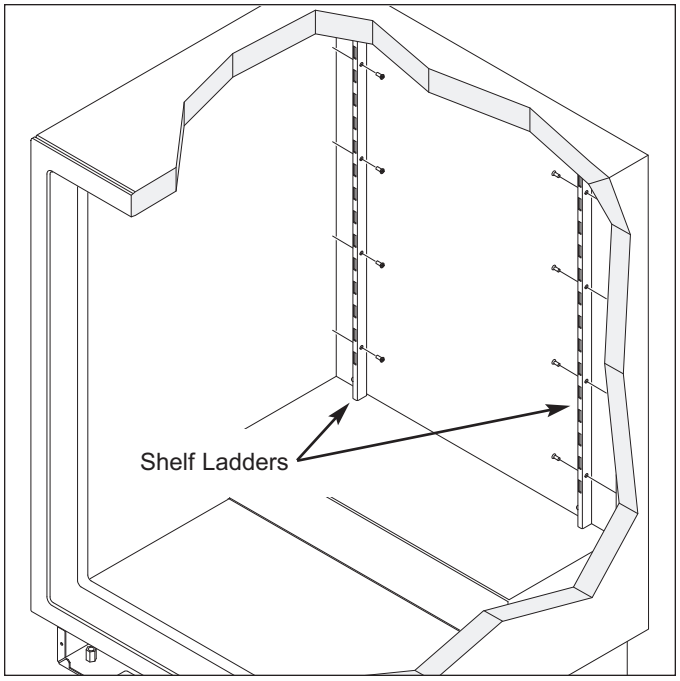


Figure 7-17. Shelf Ladder Removal

Evaporator Fan Assembly (Model UC-24B)

The evaporator fan assembly is attached to the rear wall with screws.

To remove the evaporator fan assembly, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-18):

1. Disconnect fan motor electrical leads.
2. Extract fan assembly mounting screws and pull assembly from compartment.

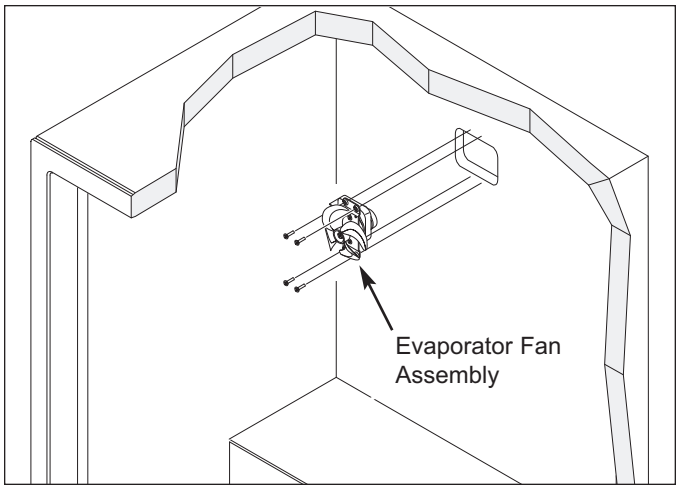


Figure 7-18. Evaporator Fan Assembly Removal

Compartment Thermistor (Model UC-24B)

The compartment thermistor is attached to the rear wall, above the evaporator, with a screw and P-clamp. The thermistor wires run direct to the electronic control board.

To remove a compartment thermistor, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-19):

1. Extract P-clamp mounting screw and pull thermistor body from P-clamp.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

Evaporator Thermistor (Model UC-24B)

The evaporator thermistor is inserted into an opening in the evaporator fins at the left side, just below the second return elbow from the top, and approximately to the center of the evaporator. The thermistor wires run direct to the electronic control board.

To remove the evaporator thermistor, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-19):

1. Pull thermistor from evaporator fins.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

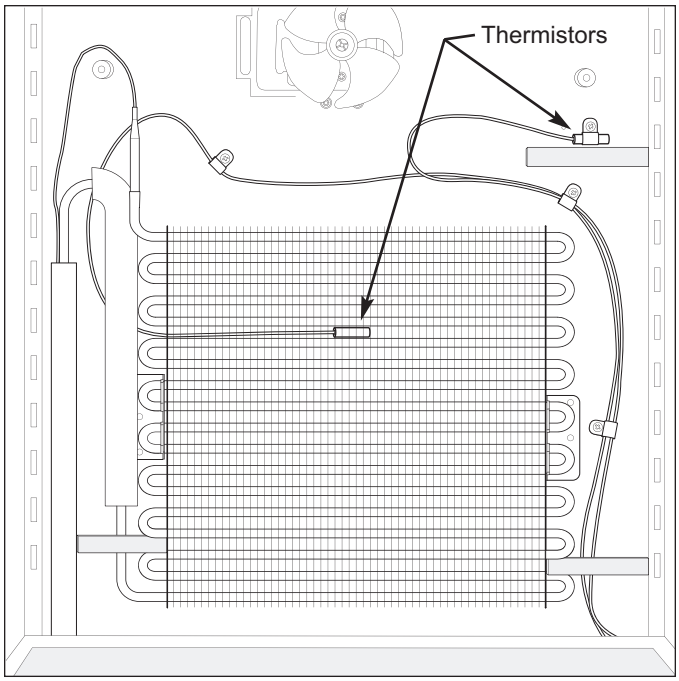


Figure 7-19. Evaporator Thermistor and Compartment Thermistor Removal

MODEL UC-24B UNIT TRAY MECHANICAL COMPONENTS

Main Control Board Assembly (Model UC-24B)

The control board assembly sits at the front left side of the unit tray, held in place with dual-lock fasteners, which is similar to velcro.

To remove the main control board assembly, first remove the kickplate, then (See Figure 7-20):

1. Lift control assembly up to separate the dual-lock fasteners.
2. Pull control assembly forward to expose wire harness electrical connectors at back of control assembly, then disconnect the wire harnesses.

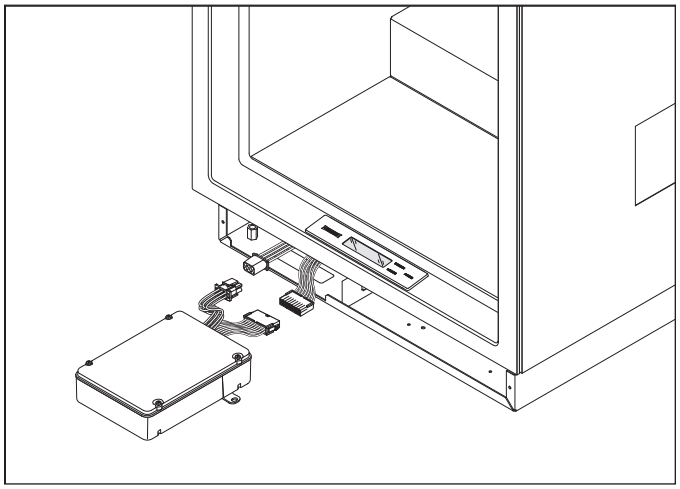


Figure 7-20. Main Control Board Assembly

Condenser Fan Assembly (Model UC-24B)

The condenser fan motor is secured to the condenser bracket with screws. The bracket is secured at the back of the unit tray by screws passing up from under the unit tray into threaded stand-offs.

To remove the condenser fan assembly, the appliance will need to be removed from it's installation in order to access the fan from the rear.

NOTE: *If removing a model UC-24B from its installation, an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

After pulling the appliance from its installation, (See Figure 7-21):

1. Remove unit cover from bottom back of appliance.
2. Disconnect fan motor electrical leads.
3. Extract grounding screw.
4. Carefully lean appliance toward side and extract bracket mounting screws, then lift assembly from unit tray.

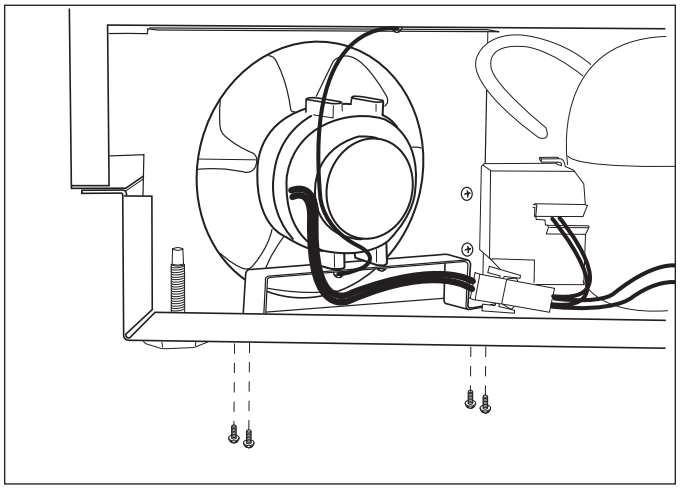


Figure 7-21. Condenser Fan Assembly Removal

MODEL UC-24B SEALED SYSTEM COMPONENTS

NOTE: *To remove any sealed system component from an Under Counter appliance, the appliance must be pulled from its installation. When removing an Under Counter appliance from its installation, keep in mind that an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

NOTE: *Before attempting to remove a sealed system component, evacuate the refrigerant from the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

High-Side Filter-Drier (Model UC-24B)

To Remove the filter drier (See Figures 7-22 and 7-23):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. With the edge of a file, score a line around capillary tube approximately one (1) inch (25 mm) from filter-drier outlet.
5. Fatigue capillary tube at line just scored until it separates.
6. With a tube cutter, cut inlet tube approximately one (1) inch (25 mm) from filter-drier.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* one (1) inch (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *When installing the replacement filter-drier, insert the capillary tube until it touches the screen, then pull the capillary tube approximately 3/8" (9.5 mm) away from the screen before brazing (See Figure 7-24). When installing a new filter-drier, be sure to thoroughly clean the tubing before brazing.*

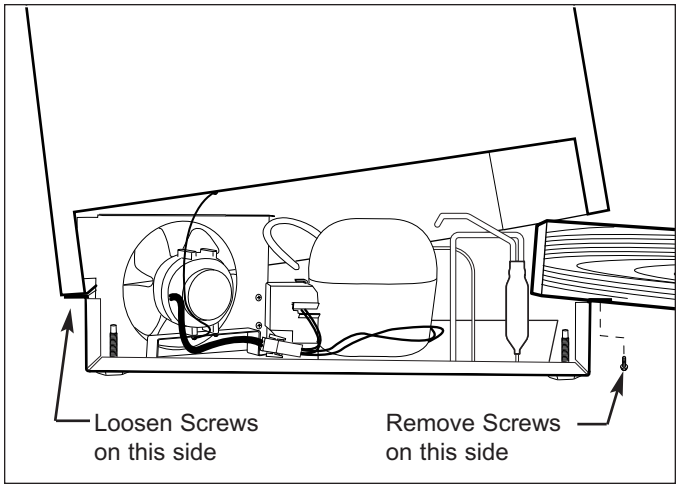


Figure 7-22. Unit Tray Component Access

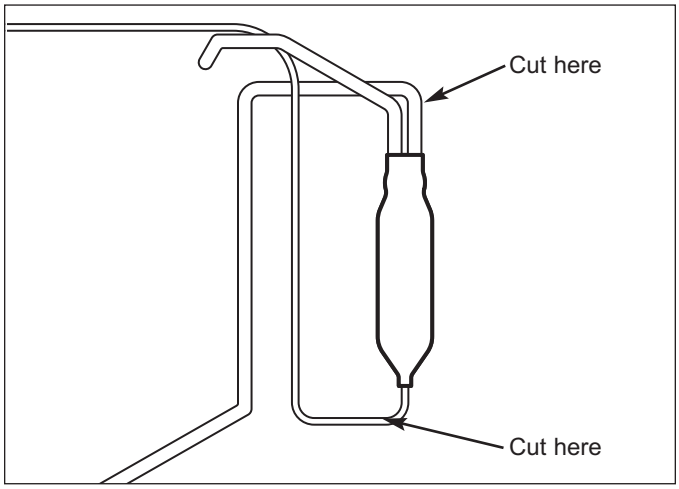


Figure 7-23. Drier Removal

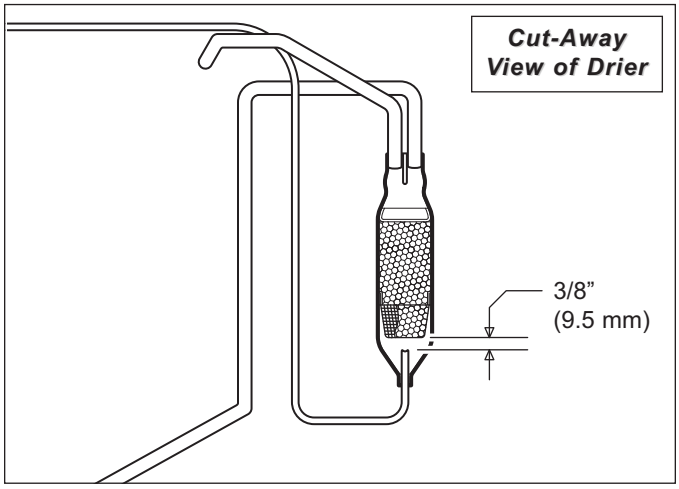


Figure 7-24. Drier Installation

Evaporator (Model UC-24B)

The evaporator is attached to the rear wall with screws, behind the evaporator cover.

NOTE: *When removing the evaporator, the evaporator thermistor must be pulled from evaporator and reused in new evaporator.*

To Remove the evaporator (See Figures 7-25):

1. Extract screws which hold evaporator to rear wall.
2. Pull bottom of evaporator up and rotate heat exchanger out.
3. With a file, score a line around capillary tube, 1” (25 mm) or less from evaporator inlet, then fatigue capillary tube at this line until it separates.
4. With a tube-cutter, cut evaporator outlet 1” (25 mm) or less from suction line connection point.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* 1” (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

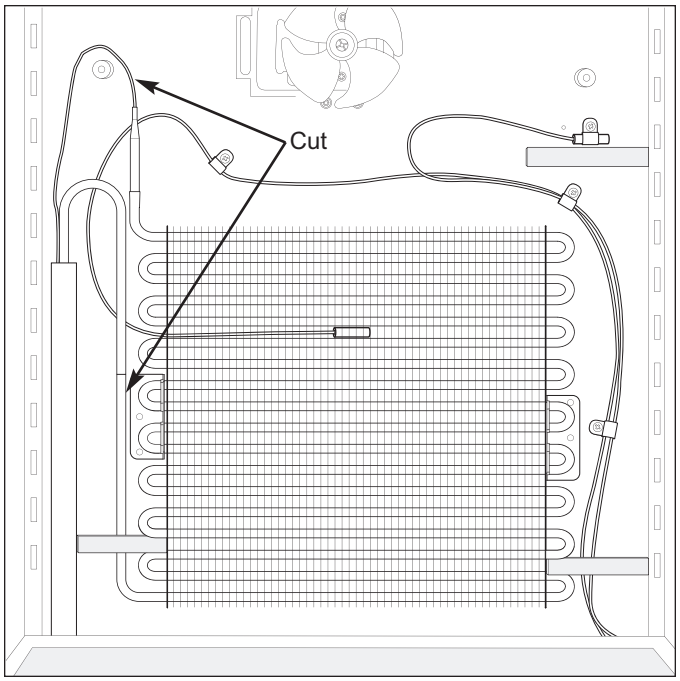


Figure 7-25. Evaporator Removal

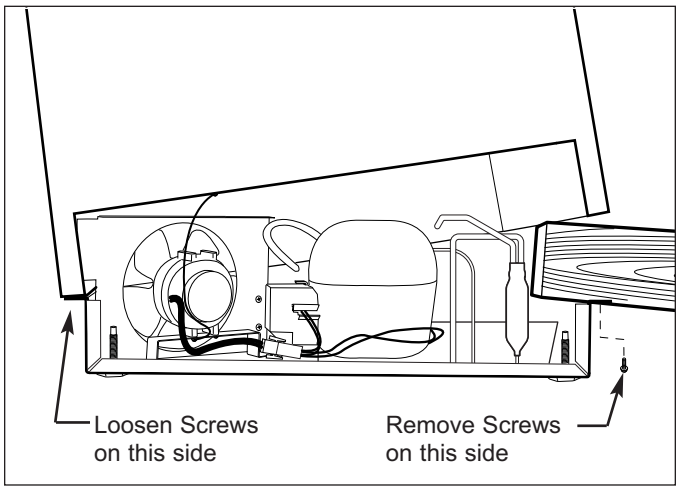


Figure 7-26. Unit Tray Component Access

Compressor (Model UC-24B)

The compressor is located at the back of the unit tray.

To Remove the compressor (See Figures 7-26 & 7-27):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. Disconnect compressor electricals.
5. With a tube-cutter, cut suction tube and discharge tube approximately 1-1/2" (38 mm) from compressor.
6. Remove nuts from compressor mounting studs and lift compressor off of mounting studs.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

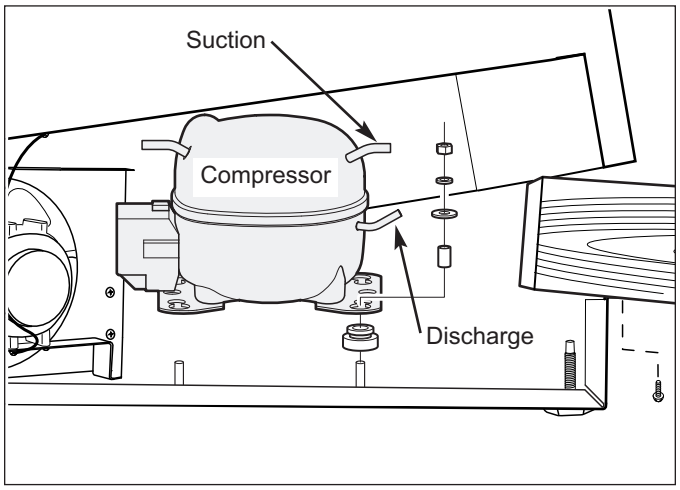


Figure 7-27. Compressor Removal

MODEL UC-24C

MODEL UC-24C EXTERIOR COSMETIC AND MECHANICAL COMPONENTS

Kickplate (Model UC-24C)

To remove the kickplate, extract the mounting screws located at each end of the kickplate and pull the kick-plate forward. (See Figure 7-28)

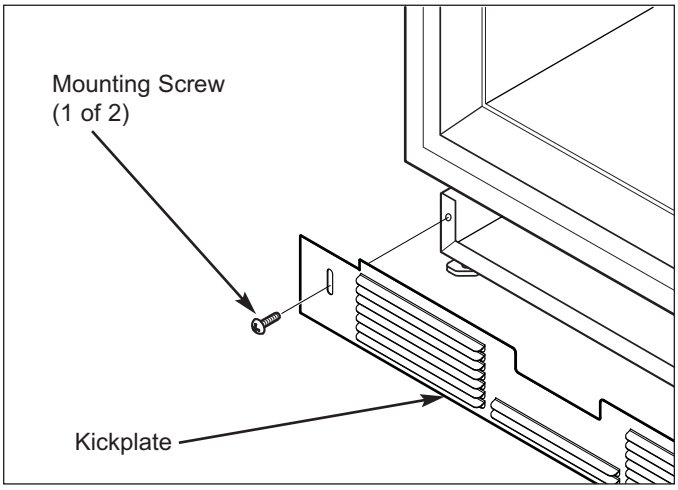


Figure 7-28. Kickplate Removal

Door Switch and Switch Box Bracket Assembly (Model UC-24C)

The door switch is inserted through the hole in the switch box bracket assembly Magnet and tabs on the sides of the switch hold the switch in place. The assembly is attached to the bottom of the cabinet with screws.

To remove the switch and switch box bracket assembly (See Figure 7-30):

1. Extract switch box bracket assembly mounting screws.
2. Pull assembly down, then rotate back to front.
3. Disconnect electrical leads from switch.
4. Depress tabs on side of switch while pushing switch out of hole.

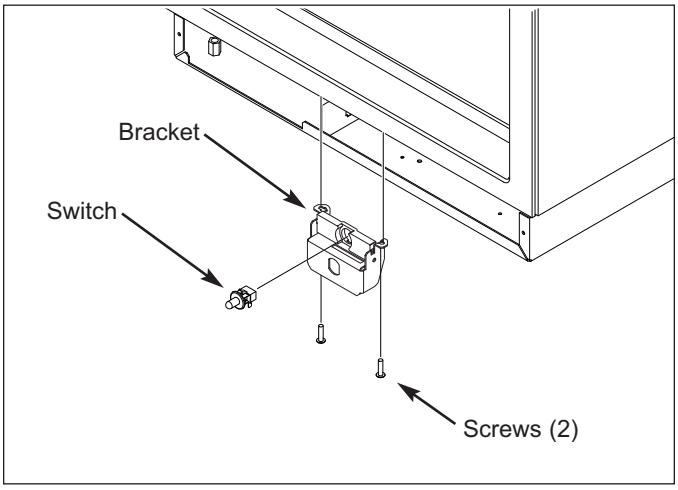


Figure 7-30. Light Switch & Switch box

Door Gasket (Model UC-24C)

An extruded dart at the back of the door gaskets is pressed into retaining channels that are molded into door liner.

To remove the door gasket, pull the gasket from the retaining channels (See Figure 7-31).

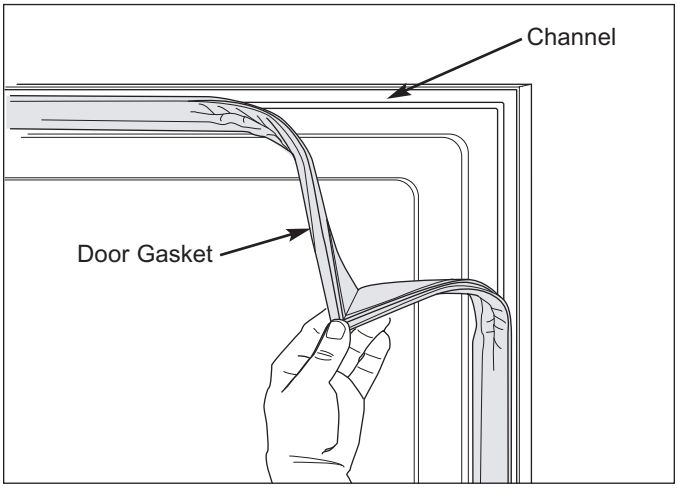


Figure 7-31. Gasket Removal

Door Shelf Components (Model UC-24C)

The door shelf retainer fits into notches in the retainer clips that are attached to the door dikes with screws.

To remove the door shelf components (See Figure 7-32):

1. Flex shelf retainer outward in the middle, disengaging it from retainer clips.
2. Extract retainer clip mounting screws and pull retainer clip from dike.

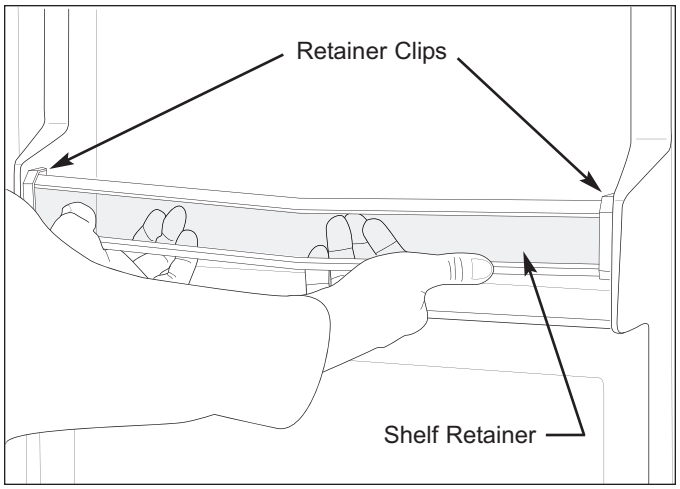


Figure 7-32. Door Shelf Removal

Door Assembly (Model UC-24C)

NOTE: *When removing a model UC-24C from its installation, an anti-tip bracket and a countertop bracket should have been used to make a solid installation.*

After pulling unit approximately 6” out from its installation (See Figure 7-33):

1. Open door.
2. Extract screws from top cabinet hinge.
3. Lift door with bottom door hinge pin out of the bottom cabinet hinge.

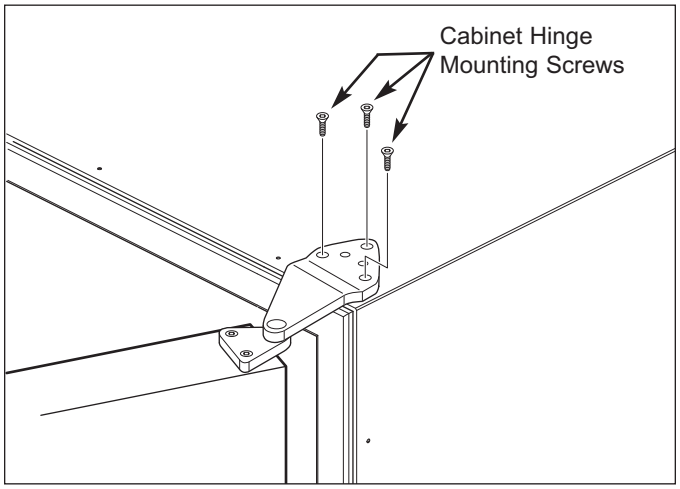


Figure 7-33. Door Removal

MODEL UC-24C INTERIOR COSMETIC AND MECHANICAL COMPONENTS

Wine Rack Assembly (Model UC-24C)

To remove a wine rack assembly (See Figure 7-34):

1. Pull rack forward until it stops.
2. Lift front of rack up while continuing to pull forward.
3. After indentations on the wine rack clear the rollers on the cabinet slides, lower front of rack while continuing to pull forward and lifting rear of rack.

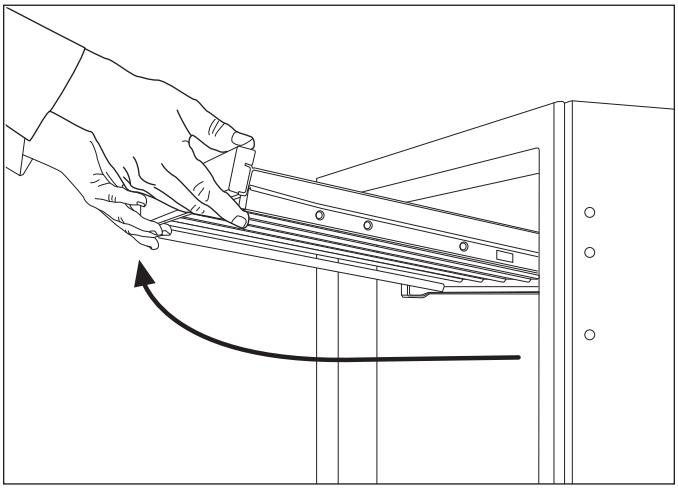


Figure 7-34. Wine Rack Removal

Cantilever Shelf (Model UC-24C)

The cantilever shelf has hooks at the back of each side rail that hook into the slots of the shelf ladders that are attached at the back left and right corners of the cabinet.

To remove the cantilever shelf, lift it up at the front, then lifting the hooks at the back up and out of the shelf ladder slots (See Figure 7-35).

To reinstall, tilt the front of the shelf up, align the hooks at back with the slots in shelf ladders, then insert hooks into slots and lower front of shelf.

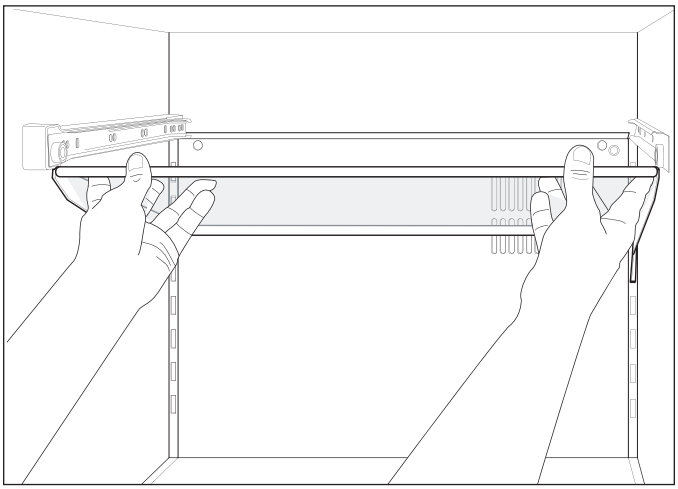


Figure 7-35. Cantilever Shelf Removal

Cabinet Slide and Support Spacer (Model UC-24C)

Cabinet slides are attached to the side walls with screws. If on the hinge side of the compartment, a wide plastic support spacer is attached between the slide and the wall.

To remove a cabinet slide, extract the mounting screws and pull the slide and support spacer from the wall (See Figure 7-36).

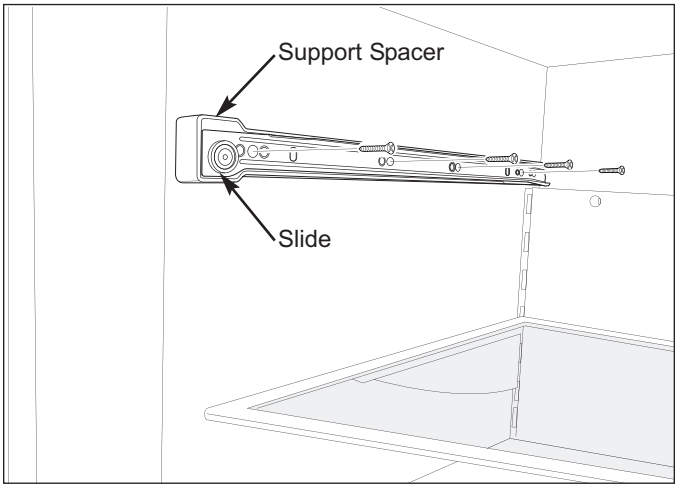


Figure 7-36. Cabinet Slide & Support Spacer

Ice Bucket (Model UC-24C)

To remove the ice bucket, grab the handle that is molded into the bottom front of the bucket and pull bucket forward (See Figure 7-37).

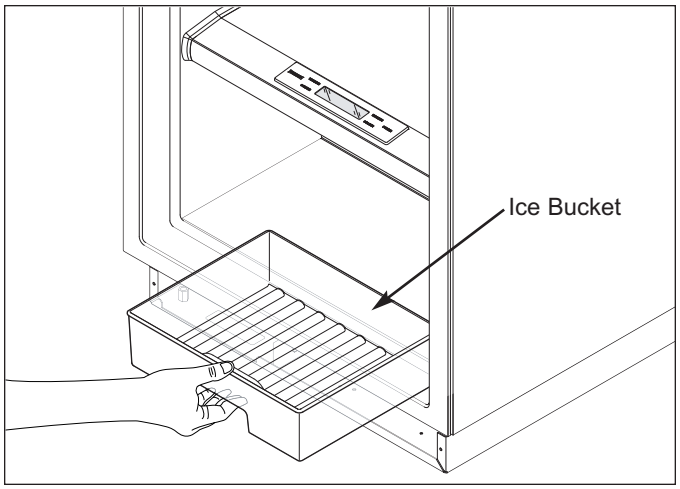


Figure 7-37. Ice Bucket Removal

Refrigerator Liner Cover (Model UC-24C)

Screws pass though the refrigerator liner cover into the rear wall, securing the cover to the rear wall. The liner cover is further secured by slots in its side flanges fitting over pegs at the bottom of each shelf ladder.

NOTE: *The refrigerator compartment thermistor passes through a key-hole slot in the refrigerator liner cover and is attached to the side wall with a screw and P-clamp.*

To remove the refrigerator liner cover (See Figure 7-38):

1. Extract the mounting screws.
2. Lean top of refrigerator liner cover forward slightly and work the compartment thermistor wire out of the key-hole slot.
3. Continue leaning top of refrigerator liner cover forward, then lift it up off of locator pegs at the bottom of each shelf ladder

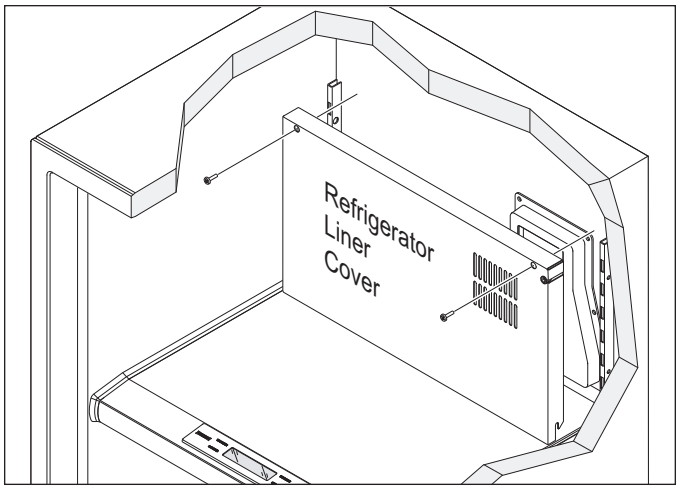


Figure 7-38. Refrigerator Liner Cover Removal

Refrigerator Compartment Thermistor (Model UC-24C)

The refrigerator compartment thermistor is attached to the refrigerator compartment right side wall, just below the cabinet slide, with a screw and P-clamp. The thermistor wires run direct to the electronic control board.

To remove a compartment thermistor, first remove the refrigerator liner cover, then (See Figure 7-39):

1. Extract P-clamp mounting screw and pull thermistor body from P-clamp.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

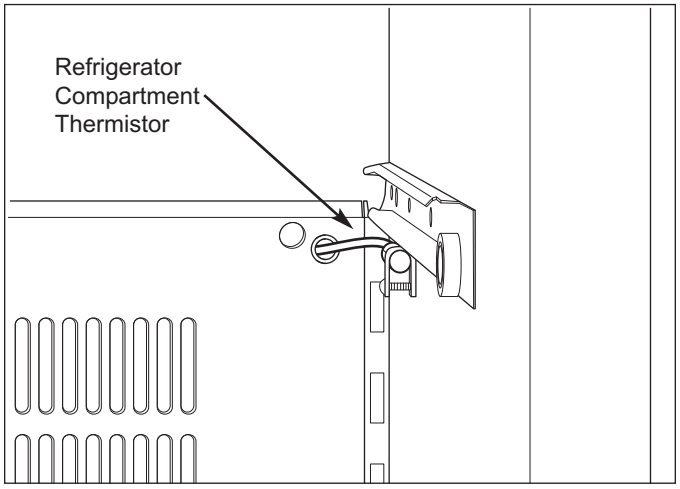


Figure 7-39. Refrigerator Compartment Thermistor

Shelf Ladders (Model UC-24C)

The shelf ladders are attached to the side walls with screws.

To remove a shelf ladder, first remove the refrigerator liner cover. Then, extract the shelf ladder mounting screws and pull the shelf ladder away from side wall and out of compartment. (See Figure 7-40)

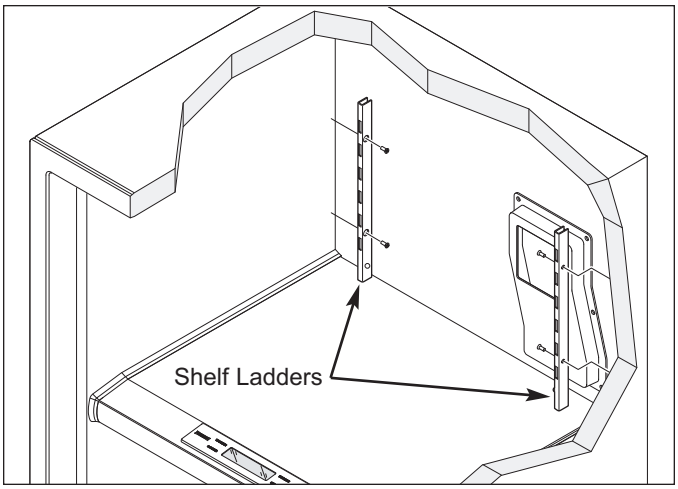


Figure 7-40. Shelf Ladder Removal

Compartment Light Bulb & Socket (Model UC-24C)

The compartment light bulb and socket are in the ceiling of the compartment. Tabs at the back of the socket hold it in the light bracket (See Figure 7-41).

Light Bulb Removal

Turn light bulb counterclockwise to remove it; clockwise to install it.

Light Socket Removal

Pull light socket from hole in bracket, then disconnect electrical leads.

NOTE: *This may break the tabs on the back of the socket, but since it should only be removed in order to replace it, this should not matter. If not removing it in order to replace it, then drill out the heads of the rivets holding the bracket in place, lower the bracket down, then depress the tabs on the side of the socket while pushing it out of the bracket.*

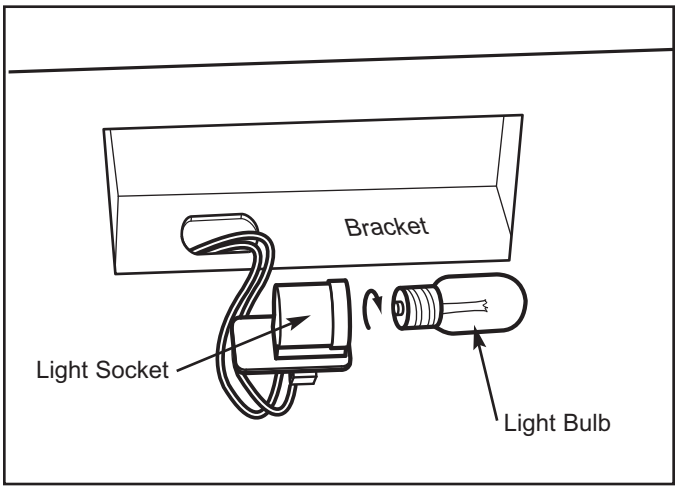


Figure 7-41. Compartment Light Bulb / Socket

Control Panel/Display Assembly (Model UC-24C)

The control panel/display assembly is attached at the top front of the mullion assembly by screws passing up from beneath the mullion into screw grommets that are molded into the display assembly. A wire cover is attached to the bottom of the mullion assembly with plastic rivets to protect the control cable.

To remove the control panel/display assembly, (See Figure 7-42):

1. Use a fingernail, putty knife, or similar device to extract the plastic rivet center posts, then pull rivets out and drop wire cover from bottom side of mullion assembly.
2. Disconnect display electrical leads at bottom side of mullion assembly.
3. With a phillips-head screwdriver, extract control panel mounting screws.
4. Lift assembly up, feeding wire leads up through access hole.

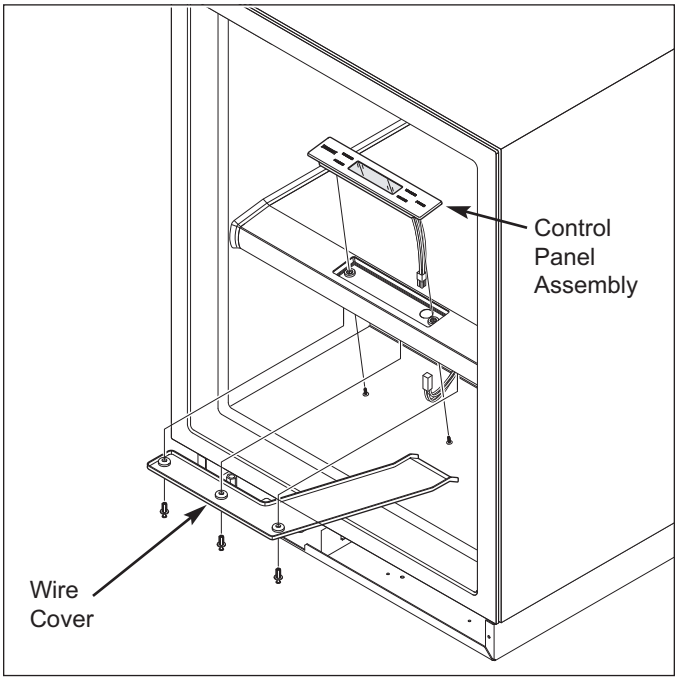


Figure 7-42. Control Panel/Display Assembly

Icemaker Assembly (Model UC-24C)

The icemaker assembly is attached to the right side of the evaporator cover with screws, two at the top of the icemaker and one at the bottom.

To remove the icemaker assembly, (See Figure 7-43):

1. Extract icemaker mounting screws.
2. Pull icemaker forward and to the left, then remove icemaker head cover.
3. Disconnect icemaker electrical leads, then pull icemaker out of compartment.

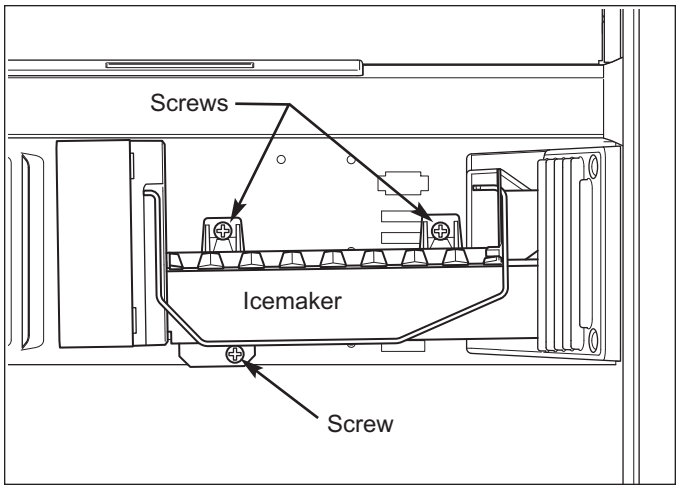


Figure 7-43. Icemaker Assembly Removal

Freezer Air Duct (Model UC-24C)

The freezer air duct is attached to the right side wall with screws passing through it into screw grommets. The rear of the air duct has flanges that hook into slots in the evaporator cover.

To remove the freezer air duct, first remove the icemaker assembly, then (See Figure 7-44):

1. Extract the front mounting screws.
2. Pull front of air duct toward the left and unhook the rear flanges from the slots in the evaporator cover.

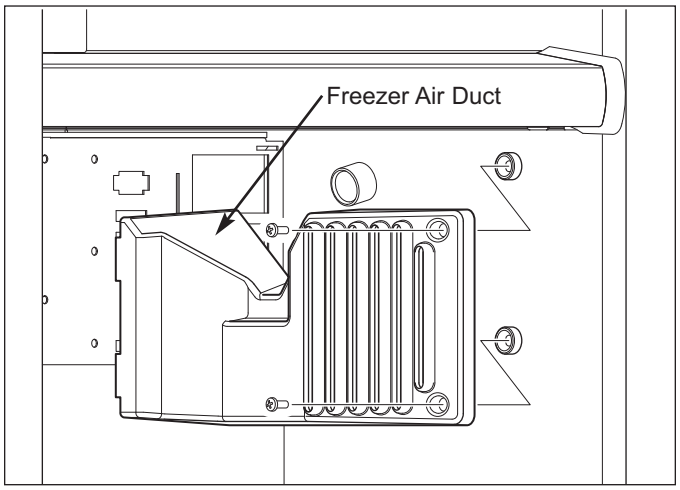


Figure 7-44. Freezer Air Duct Removal

Mullion Assembly (Model UC-24C)

The mullion assembly sits on supports at each side wall. Plastic rivets at the front bottom corners, along with the refrigerator liner cover sitting on the top rear of the mullion assembly hold it in place.

To remove the mullion assembly, (See Figure 7-45):

1. Use a fingernail, putty knife, or similar device to extract the plastic rivet center posts at each corner and along front of wire cover, then pull rivets out and drop wire cover from bottom side of mullion assembly.
2. Disconnect display electrical leads at bottom side of mullion assembly.
3. Pull mullion assembly forward, out of compartment.

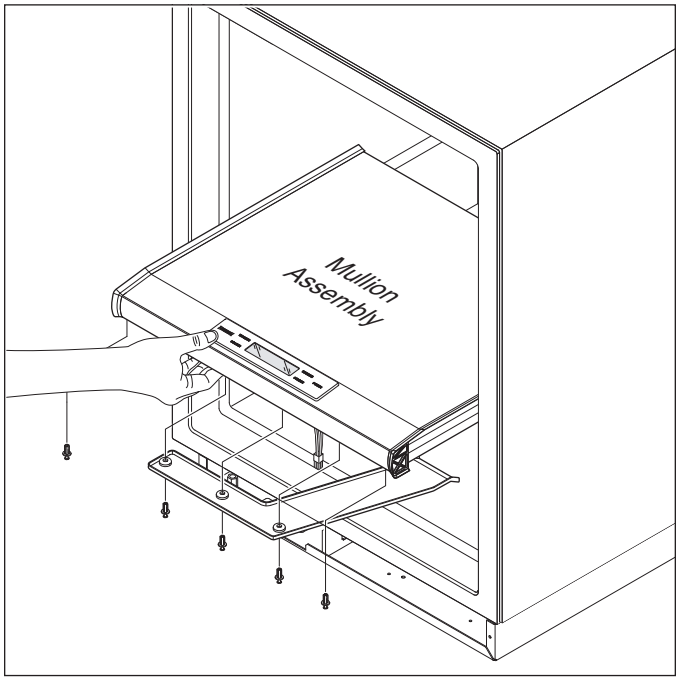


Figure 7-45. Mullion Assembly Removal

Defrost Terminator (Model UC-24C)

The defrost terminator is attached to the evaporator outlet.

To remove the defrost terminator, the mullion assembly must be removed first, then (See Figures 7-46):

1. Disconnect terminator wire leads from wire harness.
2. Pull terminator off of tubing.

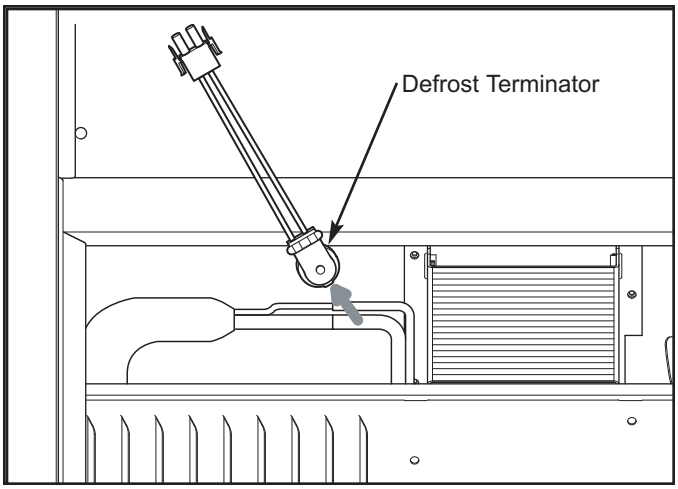


Figure 7-46. Defrost Terminator Removal

Freezer Evaporator Cover (Model UC-24C)

The evaporator cover has slots at the bottom of its side flanges that fit over pegs that are attached to the side walls. Screws passing through the front of the evaporator cover secure it to the evaporator brackets and evaporator fan bracket.

To remove the freezer evaporator cover, first remove the mullion assembly, icemaker assembly and freezer air duct, then (See Figure 7-47):

1. Extract the evaporator cover mounting screws.
2. Pull top front of evaporator cover forward and lift off of pegs.
3. Remove compartment thermistor and control cable out of top key-hole slot, as well as icemaker wire leads from lower right front access hole.

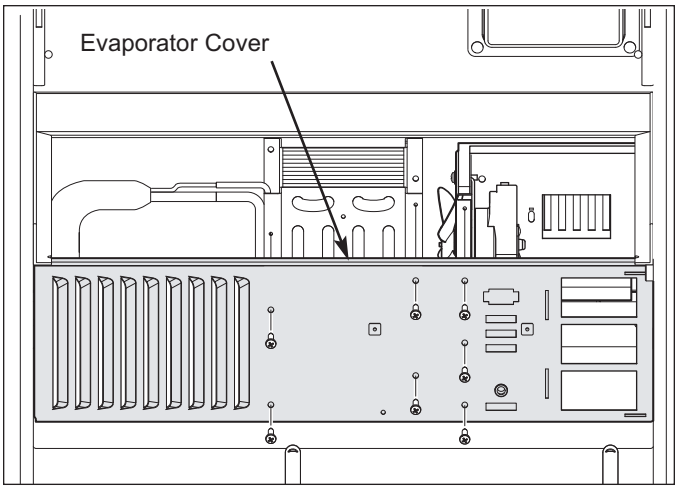


Figure 7-47. Freezer Evaporator Cover Removal

Freezer Compartment and Evaporator Thermistors (Model UC-24B)

The freezer compartment thermistor is attached to the freezer compartment right side wall, behind the freezer air duct, with a screw and P-clamp. The evaporator thermistor is attached to the evaporator with a screw and P-clamp. The wiring of both thermistors runs direct to the electronic control board.

To remove a freezer compartment or evaporator thermistor, first remove the mullion assembly, icemaker assembly, freezer air duct and evaporator cover, then (See Figure 7-48):

1. Extract P-clamp mounting screw and pull thermistor body from P-clamp.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

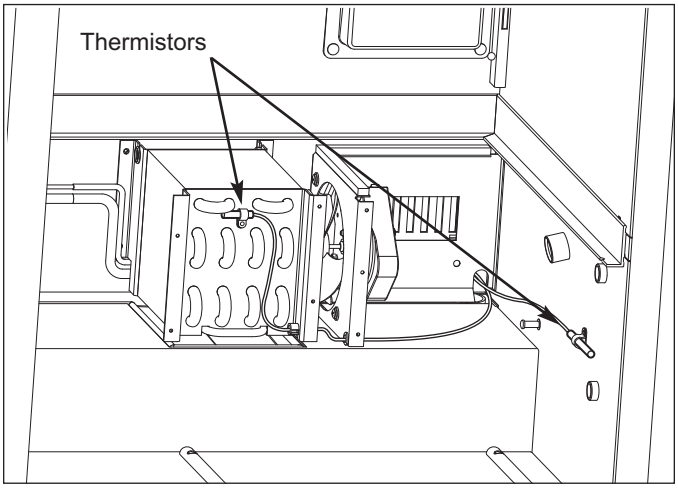


Figure 7-48. Freezer Thermistors

Evaporator Fan Assembly (Model UC-24C)

Screws pass through the rear bracket of the evaporator fan assembly, as well as the baffle control assembly, into screw grommet/stand-offs to secure the fan assembly the back wall.

To remove the evaporator fan assembly, first remove the mullion assembly, icemaker assembly, freezer air duct and evaporator cover, then (See Figure 7-49):

1. Disconnect fan motor electrical leads.
2. Extract fan assembly mounting screws.
2. Pull assembly forward, out of compartment.

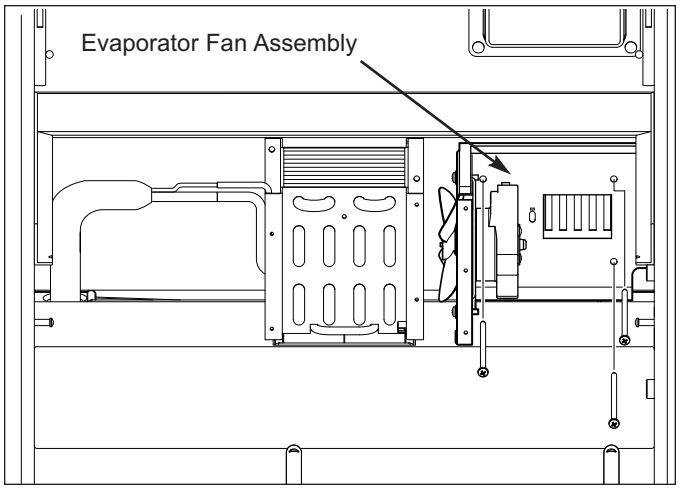


Figure 7-49. Evaporator Fan Assembly

Baffle Control Assembly (Model UC-24C)

Screws pass through the rear bracket of the evaporator fan assembly and the baffle control assembly, into screw grommet/stand-offs to secure them to the back wall.

To remove the baffle control assembly, first remove the mullion assembly, icemaker assembly, freezer air duct, evaporator cover and evaporator fan assembly, then (See Figure 7-50):

1. Disconnect baffle control assembly electrical leads.
2. Pull assembly forward, off of screw grommet/stand-offs and out of compartment.

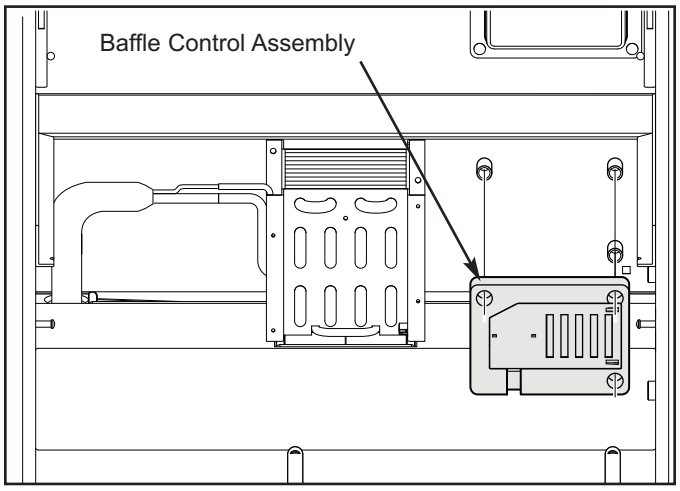


Figure 7-50. Baffle Control Assembly Removal

Defrost Heater Assembly (Model UC-24C)

The defrost heater is held to the bottom of the evaporator with heater clips.

To remove the defrost heater assembly, first remove the mullion assembly, icemaker assembly, freezer air duct and evaporator cover, then (See Figure 7-51):

1. Disconnect defrost heater electrical leads.
2. Extract evaporator mounting screws and pull evaporator forward and toward the left.
3. Slide defrost heater toward the rear of the evaporator.

   NOTE: *It may be necessary to remove the defrost heater clips with a needle-nose pliers in order to remove the defrost heater.*

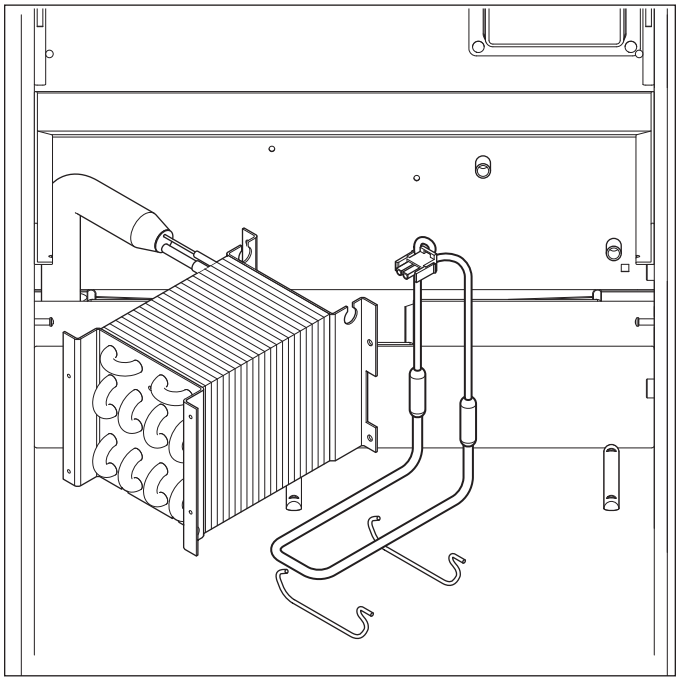


Figure 7-51. Defrost Heater Removal

MODEL UC-24C UNIT TRAY MECHANICAL COMPONENTS

Main Control Board Assembly (Model UC-24C)

The control board assembly sits at the front left side of the unit tray, held in place with dual-lock fasteners, which is similar to velcro.

To remove the main control board assembly, first remove the kickplate, then (See Figure 7-52):

1. Lift control assembly up to separate the dual-lock fasteners.
2. Pull control assembly forward to expose wire harness electrical connectors at back of control assembly, then disconnect the wire harnesses.

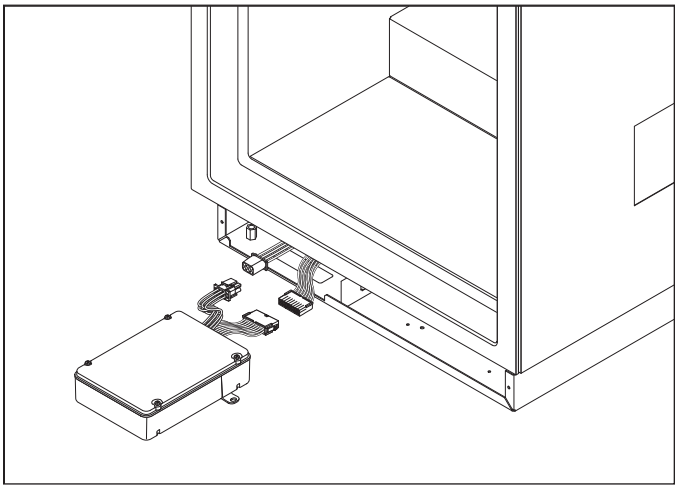


Figure 7-52. Main Control Board Assembly

Condenser Fan Assembly (Model UC-24C)

The condenser fan motor is secured to the condenser bracket with screws. The bracket is secured at the back of the unit tray by screws passing up from under the unit tray into threaded stand-offs.

To remove the condenser fan assembly, the appliance will need to be removed from it's installation in order to access the fan from the rear.

NOTE: *If removing a Model UC-24C from its installation, an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

After pulling the appliance from its installation, (See Figure 7-53):

1. Remove unit cover from bottom back of appliance.
2. Disconnect fan motor electrical leads.
3. Extract grounding screw.
4. Carefully lean appliance toward side and extract bracket mounting screws, then lift assembly from unit tray.

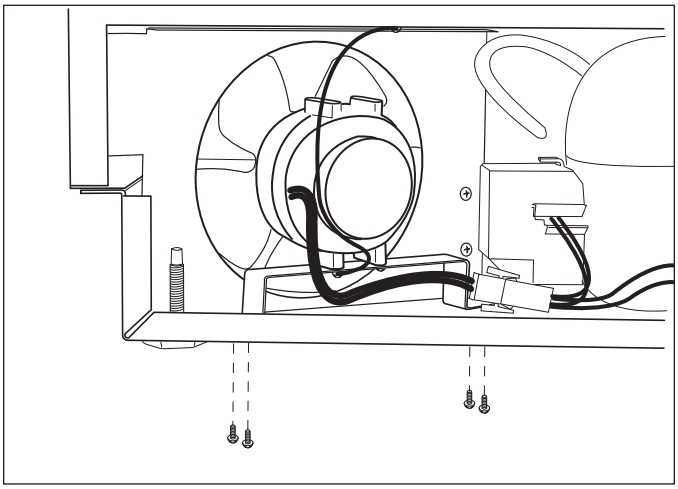


Figure 7-53. Condenser Fan Assembly Removal

Water Valve (Model UC-24C)

The quick-connect water valve is attached to a flange that is part of an air baffle that is attached to the unit tray.

NOTE: *To remove the water valve, the appliance must be pulled from its installation. When removing an Under Counter appliance from its installation, keep in mind that an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

NOTE: *Turn off water supply before attempting this repair.*

To Remove the water valve (See Figures 7-54 and 7-55):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. Disconnect valve electrical leads.
5. Extract valve mounting screws.
6. Disconnect water tubes from valve by pushing collar around tube toward valve, while pulling water tube away from valve.

NOTE: Water tubing attached to a quick-connect water valve may develop indentations around the tubing under the connection rings. To prevent leaks when installing a new water valve, it may be necessary to cut a new straight edge at the end of the water tube, if indentations are present, before inserting it into a new valve.

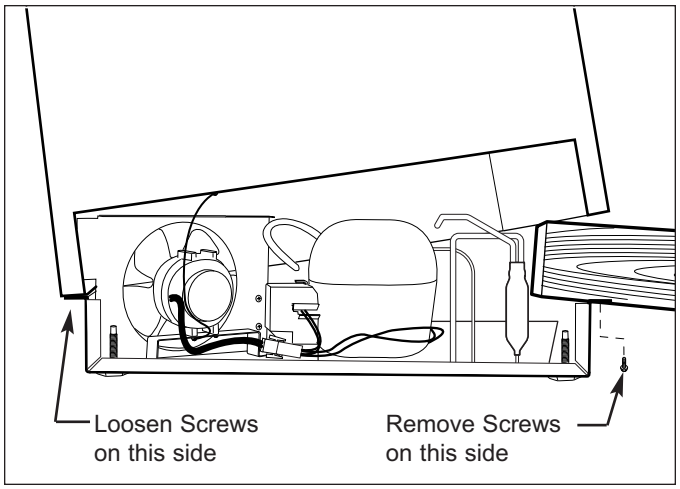


Figure 7-54. Unit Tray Component Access

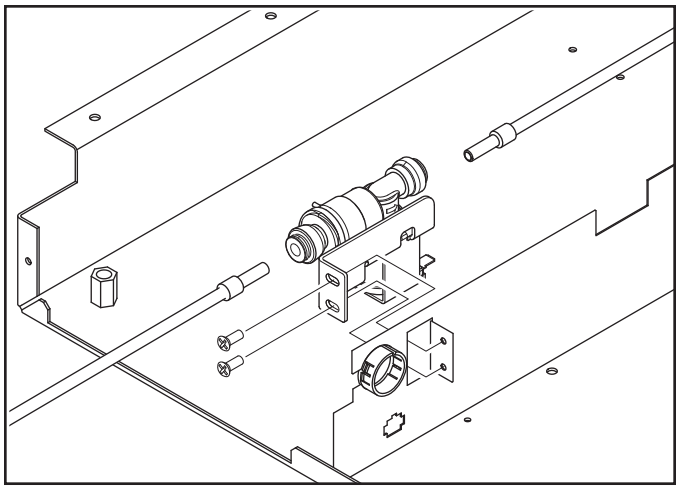


Figure 7-55. Water Valve Removal

MODEL UC-24C SEALED SYSTEM COMPONENTS

NOTE: *To remove any sealed system component from an Under Counter appliance, the appliance must be pulled from its installation. When removing an Under Counter appliance from its installation, keep in mind that an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

NOTE: *Before attempting to remove a sealed system component, evacuate the refrigerant from the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

High-Side Filter-Drier (Model UC-24C)

To Remove the filter drier (See Figures 7-56 and 7-57):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. With the edge of a file, score a line around capillary tube approximately one (1) inch (25 mm) from filter-drier outlet.
5. Fatigue capillary tube at line just scored until it separates.
6. With a tube cutter, cut inlet tube approximately one (1) inch (25 mm) from filter-drier.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* one (1) inch (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *When installing the replacement filter-drier, insert the capillary tube until it touches the screen, then pull the capillary tube approximately 3/8" (9.5 mm) away from the screen before brazing (See Figure 7-58). When installing a new filter-drier, be sure to thoroughly clean the tubing before brazing.*

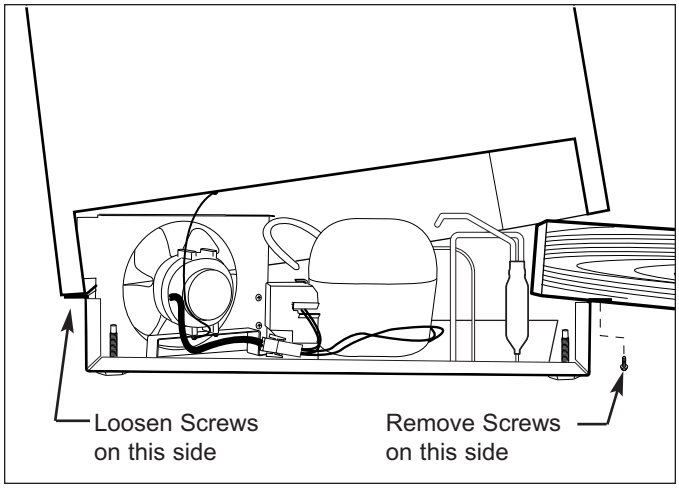


Figure 7-56. Unit Tray Component Access

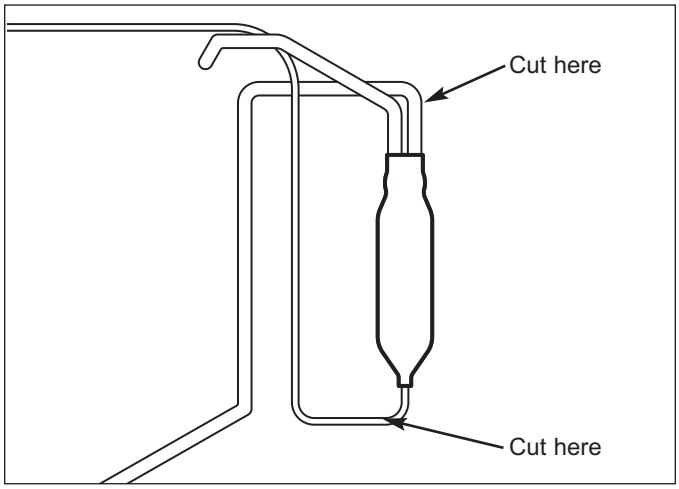


Figure 7-57. Drier Removal

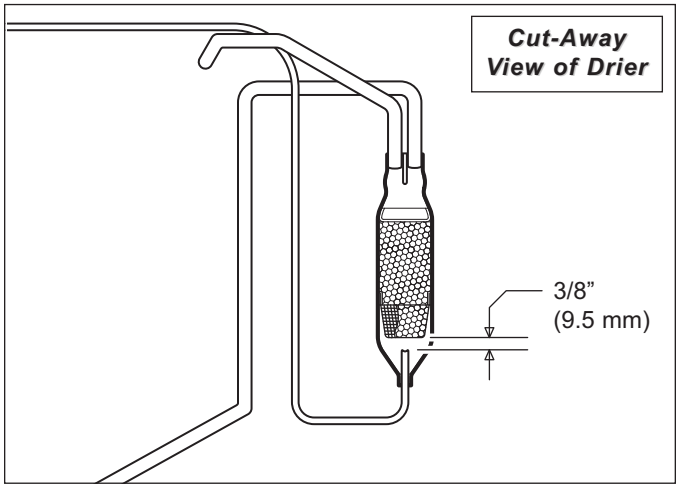


Figure 7-58. Drier Installation

Evaporator (Model UC-24C)

The evaporator is attached to the rear wall with screws, behind the evaporator cover.

To Remove the evaporator (See Figures 7-59):

1. Extract screws which hold evaporator to rear wall.
2. With a file, score a line around capillary tube, 1” (25 mm) or less from evaporator inlet, then fatigue capillary tube at this line until it separates.
4. With a tube-cutter, cut evaporator outlet 1” (25 mm) or less from suction line connection point.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* 1” (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

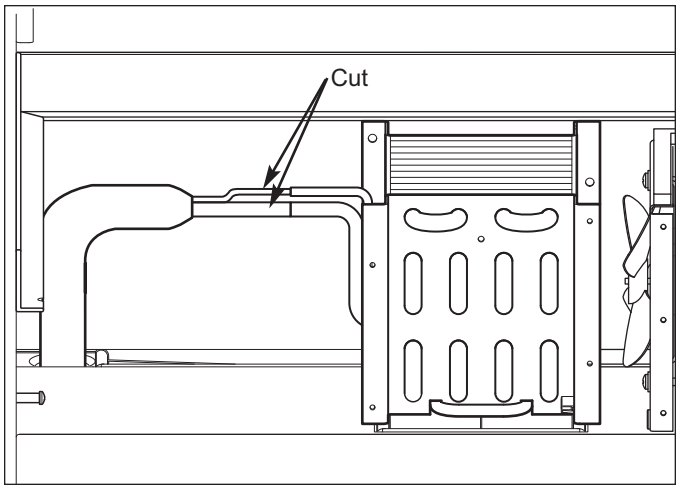


Figure 7-59. Evaporator Removal

Compressor (Model UC-24C)

The compressor is located at the back of the unit tray.

To Remove the compressor (See Figures 7-60 & 7-61):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. Disconnect compressor electricals.
5. With a tube-cutter, cut suction tube and discharge tube approximately 1-1/2" (38 mm) from compressor.
6. Remove nuts from compressor mounting studs and lift compressor off of mounting studs.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

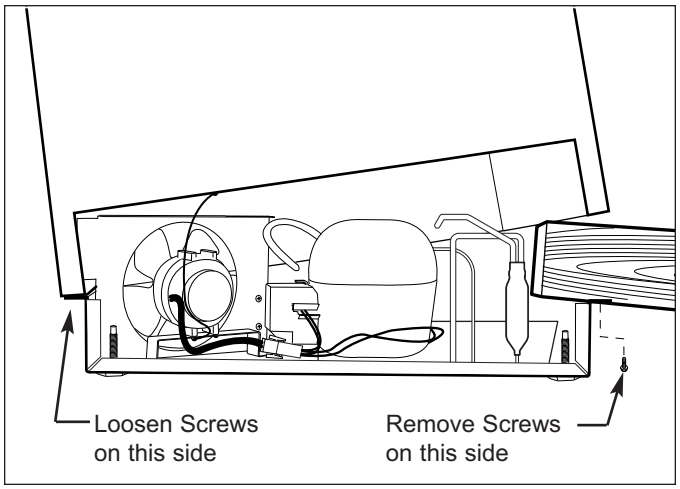


Figure 7-60. Unit Tray Component Access

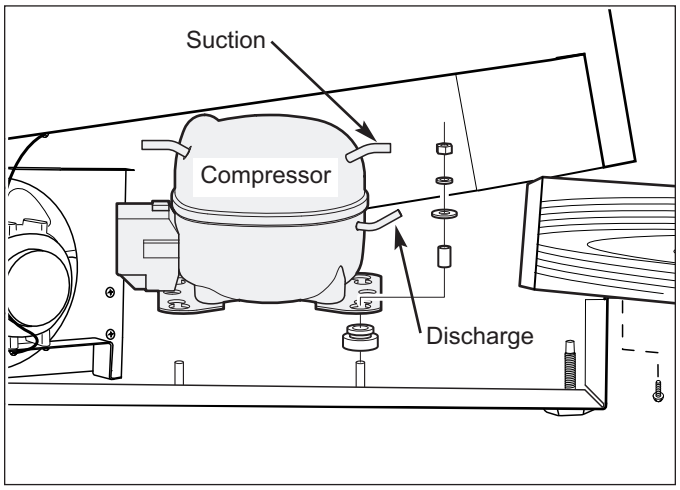


Figure 7-61. Compressor Removal

MODEL UC-24R AND UC-24RO

MODEL UC-24R AND UC-24RO EXTERIOR COSMETIC AND MECHANICAL COMPONENTS

Kickplate (Models UC-24R, UC-24RO)

To remove the kickplate, extract the mounting screws located at each end of the kickplate and pull the kick-plate forward. (See Figure 7-62)

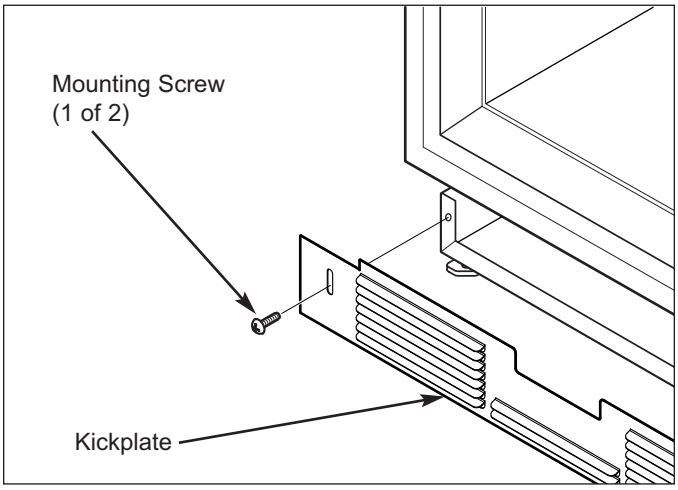


Figure 7-62. Kickplate Removal

Door Switch and Switch Box Bracket Assembly (Models UC-24R, UC-24RO)

The door switch is inserted through the hole in the switch box bracket assembly Magnet and tabs on the sides of the switch hold the switch in place. The assembly is attached to the bottom of the cabinet with screws.

To remove the switch and switch box bracket assembly (See Figure 7-64):

1. Extract switch box bracket assembly mounting screws.
2. Pull assembly down, then rotate back to front.
3. Disconnect electrical leads from switch.
4. Depress tabs on side of switch while pushing switch out of hole.

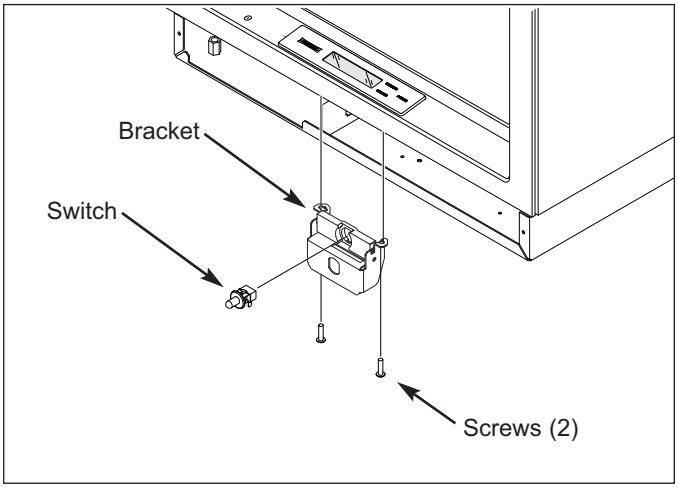


Figure 7-64. Light Switch & Switch box

Stainless Steel Door Handle (Model UC-24RO ONLY)

A screw passing through the handle standoff into the handle secures the handle to the standoff. The standoff then slides over a threaded stud that is attached to the door shell. A socket head set-screw inserted through the bottom of the standoff secures the standoff to the stud.

To remove a handle assembly (See Figure 7-65):

1. Use a 3/32” Allen-wrench to loosen the set-screw in each handle standoff.
2. Pull handle assembly off of the threaded studs.

   NOTE: To remove the handle from the standoffs, extract the handle mounting screws.

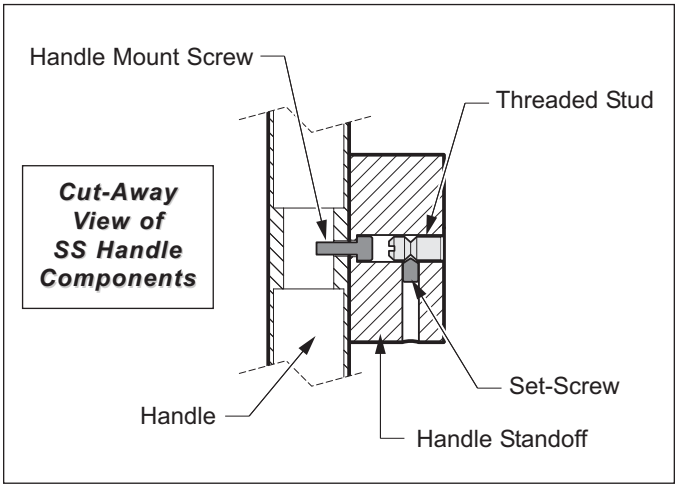


Figure 7-65. Stainless Steel Handle Removal

Door Gasket (Models UC-24R, UC-24RO)

An extruded dart at the back of the door gaskets is pressed into retaining channels that are molded into door liner.

To remove the door gasket, pull the gasket from the retaining channels (See Figure 7-66).

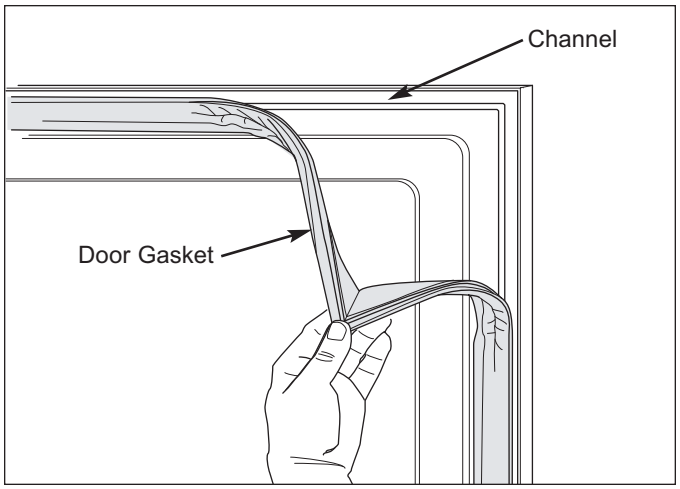


Figure 7-66. Gasket Removal

Door Shelf Components (Models UC-24R, UC-24RO)

The door shelf retainers fits into notches in the retainer clips that are attached to the door dikes with screws.

To remove a door shelf components (See Figure 7-67):

1. Flex shelf retainer outward in the middle, disengaging it from retainer clips.
2. Extract retainer clip mounting screws and pull retainer clip from dike.

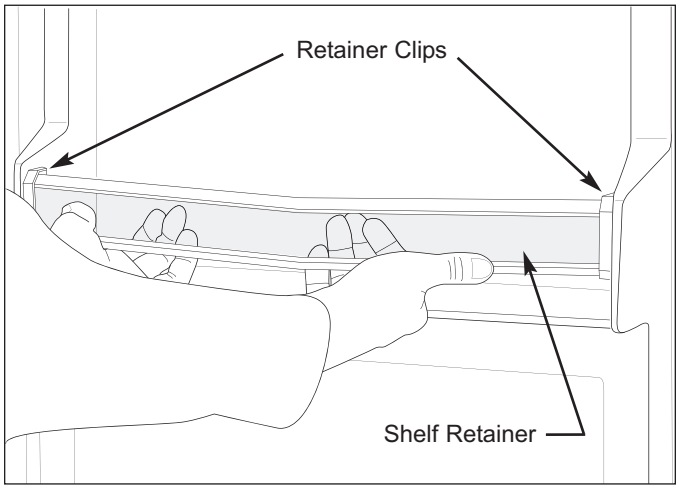


Figure 7-67. Door Shelf Components

Door Assembly (Models UC-24R, UC-24RO)

NOTE: *When removing a model UC-24R or UC-24RO from its installation, an anti-tip bracket and a countertop bracket should have been used to make a solid installation.*

After pulling unit approximately 6” out from its installation (See Figure 7-68):

1. Open door.
2. Extract screws from top cabinet hinge.
3. Lift door with bottom door hinge pin out of the bottom cabinet hinge.

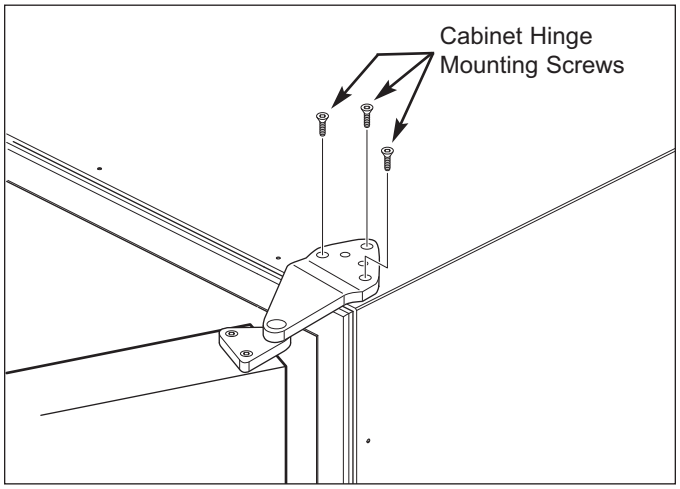


Figure 7-68. Door Removal

MODEL UC-24R AND UC-24RO INTERIOR COSMETIC AND MECHANICAL COMPONENTS

Cantilever Shelf (Models UC-24R, UC-24RO)

The cantilever shelf has hooks at the back of each side rail that hook into the slots of the shelf ladders that are attached at the back left and right corners of the cabinet.

To remove the cantilever shelf, lift it up at the front, then lifting the hooks at the back up and out of the shelf ladder slots (See Figure 7-69).

To reinstall, tilt the front of the shelf up, align the hooks at back with the slots in shelf ladders, then insert hooks into slots and lower front of shelf.

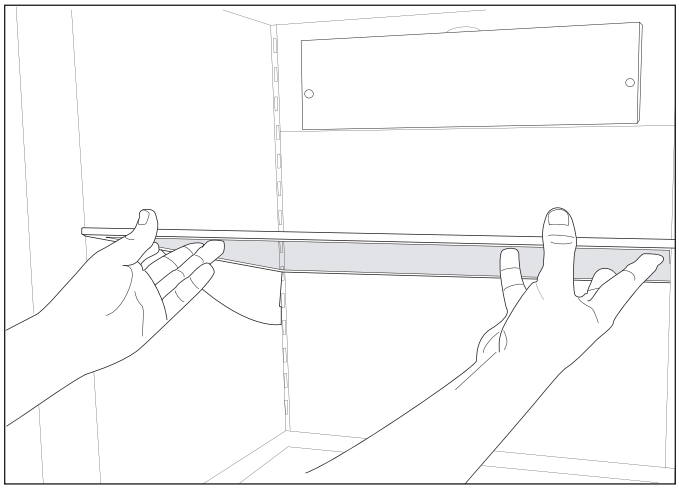


Figure 7-69. Cantilever Shelf Removal

Crisper Bin (Models UC-24R, UC-24RO)

To open or remove the crisper bin, grab the handle that is molded into the bottom front of the bin and pull bin forward (See Figure 7-70).

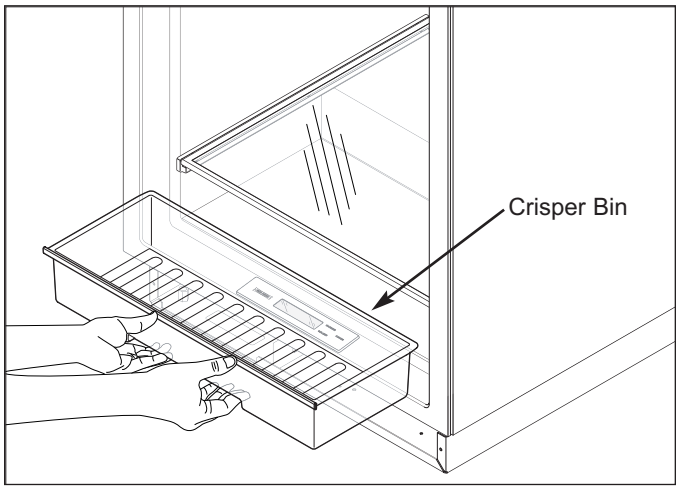


Figure 7-70. Crisper Bin Removal

Glass Floor/Shelf Assembly (Models UC-24R, UC-24RO)

The glass floor/shelf assembly sets on top of the bin slides that are attached to each slide wall.

To remove the glass floor/shelf assembly, lift it up slightly and pull it forward, out of the compartment (See Figure 7-71).

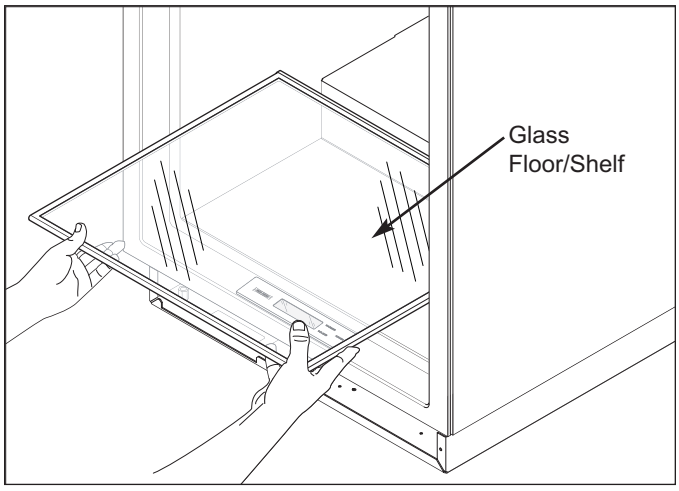


Figure 7-71. Glass Floor/Shelf Removal

Bin Slides (Models UC-24R, UC-24RO)

The bin slides are attached to the side walls with screws.

To remove a bin slide, first remove the glass floor/shelf assembly, then (See Figure 7-72).

1. Extract slide mounting screws.
2. Pull slide away from side wall and out of compartment.

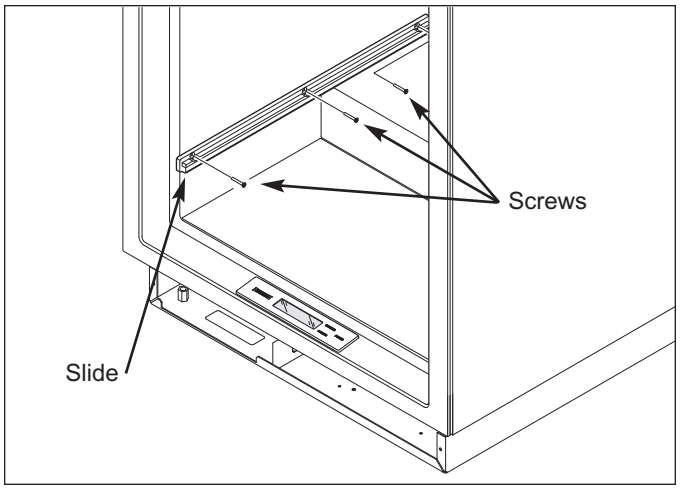


Figure 7-72. Bin Slide Removal

Control Panel/Display Assembly (Models UC-24R, UC-24RO)

The control panel/display assembly is attached at the bottom front of the compartment by screws passing up from beneath the cabinet into screw grommets that are molded into the assembly.

To remove the control panel/display assembly, first remove the kickplate, then (See Figure 7-73).

1. Disconnect display electrical leads beneath unit.
2. With a stubby phillips-head screwdriver, extract control panel mounting screws.
3. Lift assembly up, feeding wire leads up through access hole.

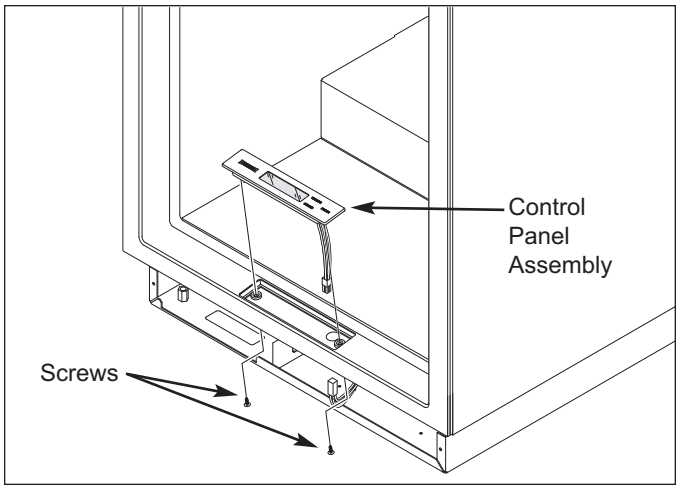


Figure 7-73. Control Panel Assembly Removal

Compartment Light Bulb and Socket (Models UC-24R, UC-24RO)

The compartment light bulb and socket are in the ceiling of the compartment. Tabs at the back of the socket hold it in the light bracket (See Figure 7-74).

Light Bulb Removal

Turn light bulb counterclockwise to remove it; clockwise to install it.

Light Socket Removal

Pull light socket from hole in bracket, then disconnect electrical leads.

NOTE: *This may break the tabs on the back of the socket, but since it should only be removed in order to replace it, this should not matter. If not removing it in order to replace it, then drill out the heads of the rivets holding the bracket in place, lower the bracket down, then depress the tabs on the side of the socket while pushing it out of the bracket.*

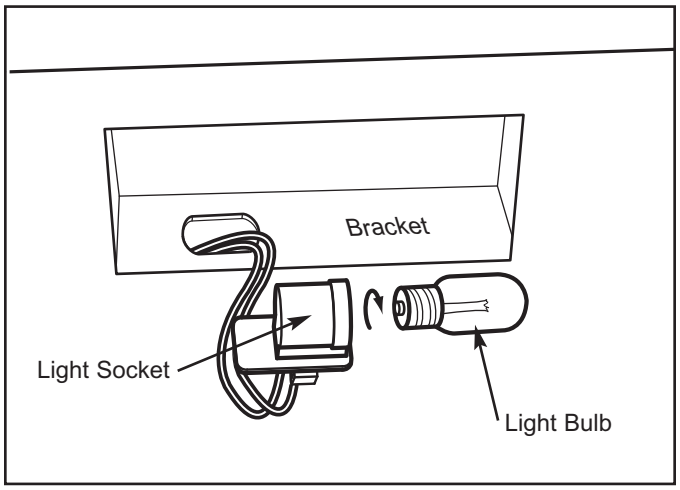


Figure 7-74. Light Bulb / Socket Removal

Evaporator Fan Shroud and Evaporator Cover (Models UC-24R, UC-24RO)

Screws pass though the refrigerator fan shroud and evaporator cover, then into screw grommet/stand-offs to secure the shroud and cover to the back wall. The evaporator cover is further secured by slots in its side flanges fitting over pegs at the bottom of each shelf ladder.

To remove the fan shroud and/or evaporator cover (See Figure 7-75):

Fan Shroud Removal

a. Extract the two mounting screws.
b. Pull fan shroud forward, out of compartment.

Evaporator Cover Removal

a. Extract the two mounting screws.
b. Pull fan shroud forward, out of compartment.
c. Remove wine rack cabinet slides and support spacers from hinge-side wall.
d. Lean top of evaporator cover forward, then lift it up off of locator pegs at the bottom of each shelf ladder

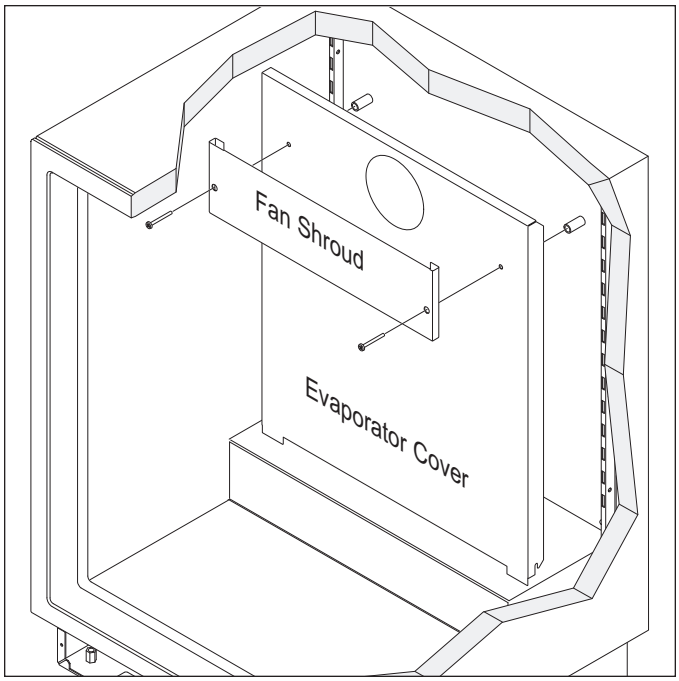


Figure 7-75. Fan Shroud and Evaporator Cover

Shelf Ladders (Models UC-24R, UC-24RO)

The shelf ladders are attached to the side walls with screws.

To remove a shelf ladder, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover. Then, extract the shelf ladder mounting screws and pull the shelf ladder away from side wall and out of compartment. (See Figure 7-76)

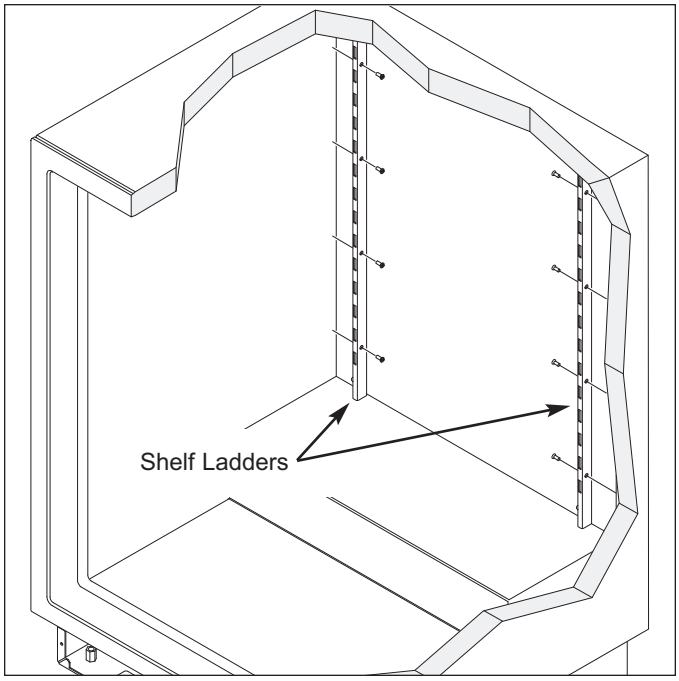


Figure 7-76. Shelf Ladder Removal

Evaporator Fan Assembly (Models UC-24R, UC-24RO)

The evaporator fan assembly is attached to the rear wall with screws.

To remove the evaporator fan assembly, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-77):

1. Disconnect fan motor electrical leads.
2. Extract fan assembly mounting screws and pull assembly from compartment.

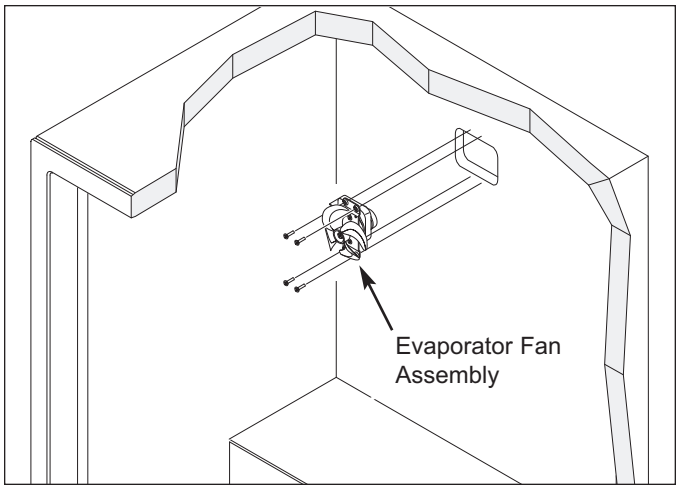


Figure 7-77. Evaporator Fan Assembly Removal

Compartment Thermistor (Models UC-24R, UC-24RO)

The compartment thermistor is attached to the rear wall, above the evaporator, with a screw and P-clamp. The thermistor wires run direct to the electronic control board.

To remove a compartment thermistor, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-78):

1. Extract P-clamp mounting screw and pull thermistor body from P-clamp.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

Evaporator Thermistor (Models UC-24R, UC-24RO)

The evaporator thermistor is inserted into an opening in the evaporator fins at the left side, just below the second return elbow from the top, and approximately to the center of the evaporator. The thermistor wires run direct to the electronic control board.

To remove the evaporator thermistor, first remove the cabinet slides and support spacers from the hinge-side wall, as well as the fan shroud and evaporator cover, then (See Figure 7-78):

1. Pull thermistor from evaporator fins.
2. Cut thermistor wire leads six (6) to twelve (12) inches (152 mm - 305 mm) from the point where they enter the compartment, then pull thermistor from compartment.

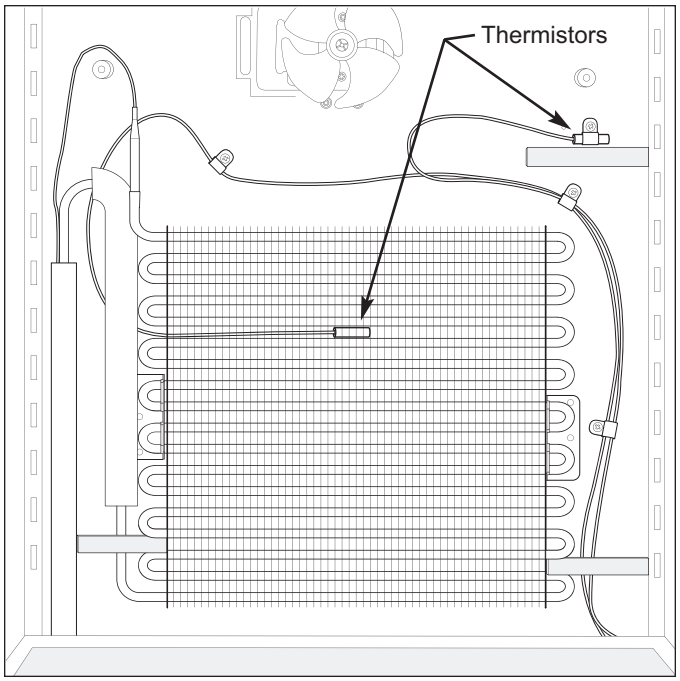


Figure 7-78. Evaporator Thermistor and Compartment Thermistor Removal

Model UC-24R AND UC-24RO UNIT TRAY MECHANICAL COMPONENTS

Main Control Board Assembly (Models UC-24R, UC-24RO)

The control board assembly sits at the front left side of the unit tray, held in place with dual-lock fasteners, which is similar to velcro.

To remove the main control board assembly, first remove the kickplate, then (See Figure 7-79):

1. Lift control assembly up to separate the dual-lock fasteners.
2. Pull control assembly forward to expose wire harness electrical connectors at back of control assembly, then disconnect the wire harnesses.

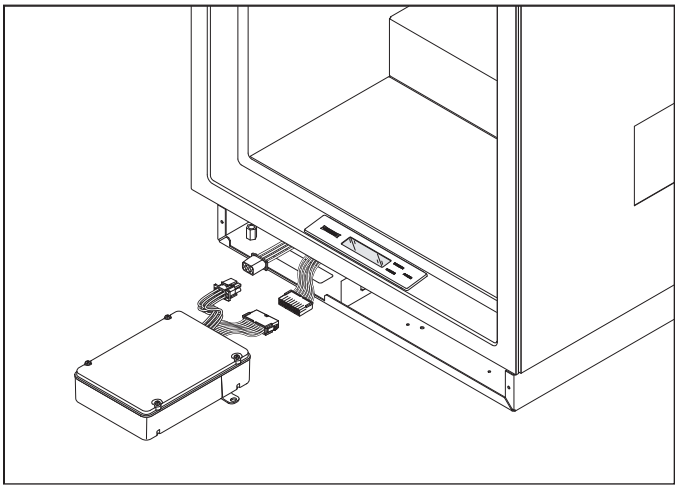


Figure 7-79. Main Control Board Assembly

Condenser Fan Assembly (Models UC-24R, UC-24RO)

The condenser fan motor is secured to the condenser bracket with screws. The bracket is secured at the back of the unit tray by screws passing up from under the unit tray into threaded stand-offs.

To remove the condenser fan assembly, the appliance will need to be removed from it's installation in order to access the fan from the rear.

NOTE: *If removing a Model UC-24R, or UC-24RO from its installation, an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

After pulling the appliance from its installation, (See Figure 7-80):

1. Remove unit cover from bottom back of appliance.
2. Disconnect fan motor electrical leads.
3. Extract grounding screw.
4. Carefully lean appliance toward side and extract bracket mounting screws, then lift assembly from unit tray.

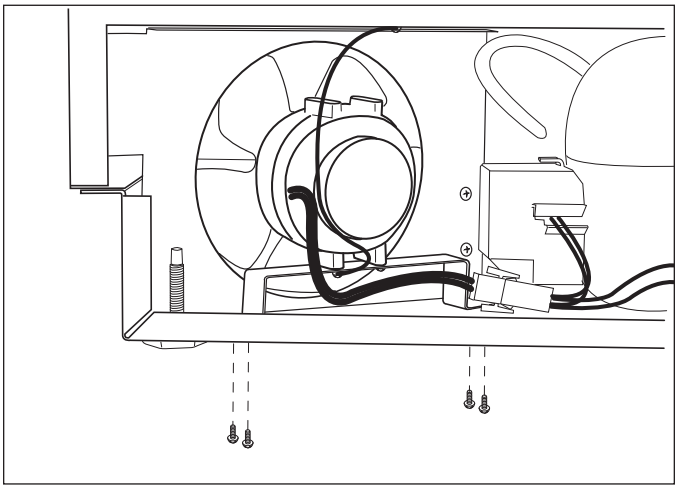


Figure 7-80. Condenser Fan Assembly Removal

Model UC-24R AND UC-24RO SEALED SYSTEM COMPONENTS

NOTE: *To remove any sealed system component from an Under Counter appliance, the appliance must be pulled from its installation. When removing an Under Counter appliance from its installation, keep in mind that an anti-tip bracket and a countertop bracket may have been used to make a solid installation.*

NOTE: *Before attempting to remove a sealed system component, evacuate the refrigerant from the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

High-Side Filter-Drier (Models UC-24R, UC-24RO)

To Remove the filter drier (See Figures 7-81 and 7-82):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. With the edge of a file, score a line around capillary tube approximately one (1) inch (25 mm) from filter-drier outlet.
5. Fatigue capillary tube at line just scored until it separates.
6. With a tube cutter, cut inlet tube approximately one (1) inch (25 mm) from filter-drier.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* one (1) inch (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *When installing the replacement filter-drier, insert the capillary tube until it touches the screen, then pull the capillary tube approximately 3/8" (9.5 mm) away from the screen before brazing (See Figure 7-83). When installing a new filter-drier, be sure to thoroughly clean the tubing before brazing.*

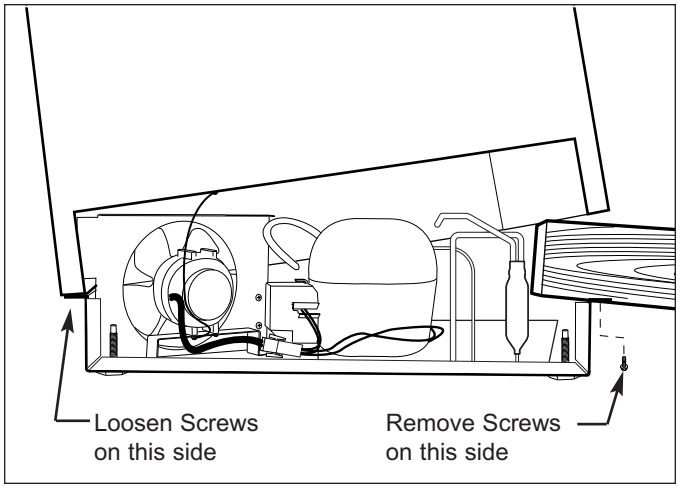


Figure 7-81. Unit Tray Component Access

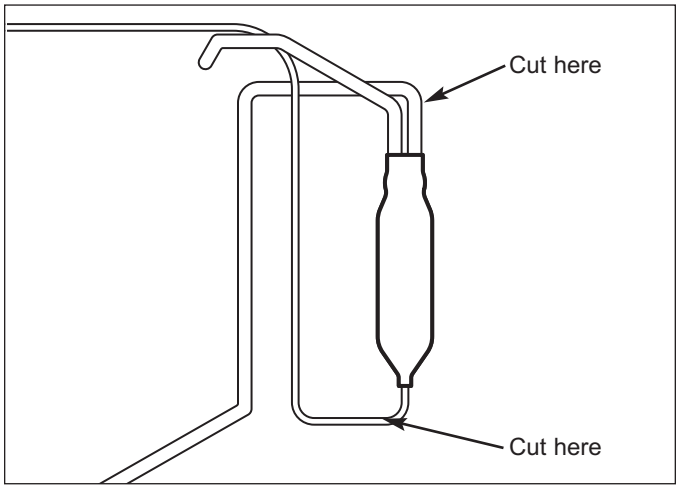


Figure 7-82. Drier Removal

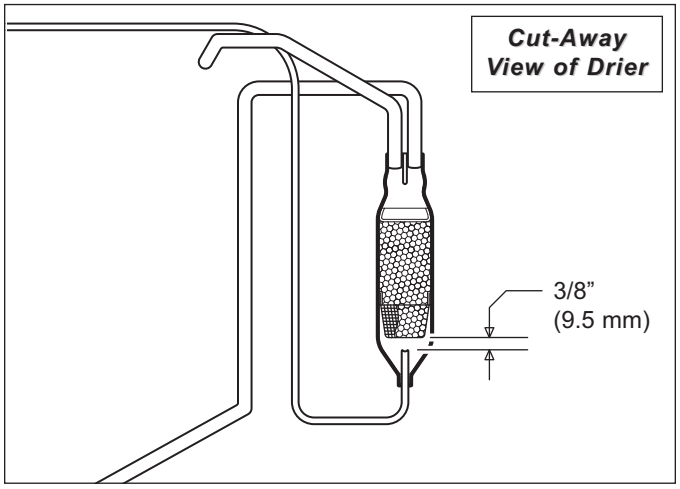


Figure 7-83. Drier Installation

Evaporator (Models UC-24R, UC-24RO)

The evaporator is attached to the rear wall with screws, behind the evaporator cover.

NOTE: *When removing the evaporator, the evaporator thermistor must be pulled from evaporator and reused in new evaporator.*

To Remove the evaporator (See Figures 7-84):

1. Extract screws which hold evaporator to rear wall.
2. Pull bottom of evaporator up and rotate heat exchanger out.
3. With a file, score a line around capillary tube, 1” (25 mm) or less from evaporator inlet, then fatigue capillary tube at this line until it separates.
4. With a tube-cutter, cut evaporator outlet 1” (25 mm) or less from suction line connection point.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system and could cause a solder restriction in the capillary tube.*

NOTE: *Check the end of the remaining capillary tube for internal burrs. If burrs exist, rescore a line around the capillary tube approximately* 1” (25 mm) *from the end and fatigue the capillary tube at this new line until it separates.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

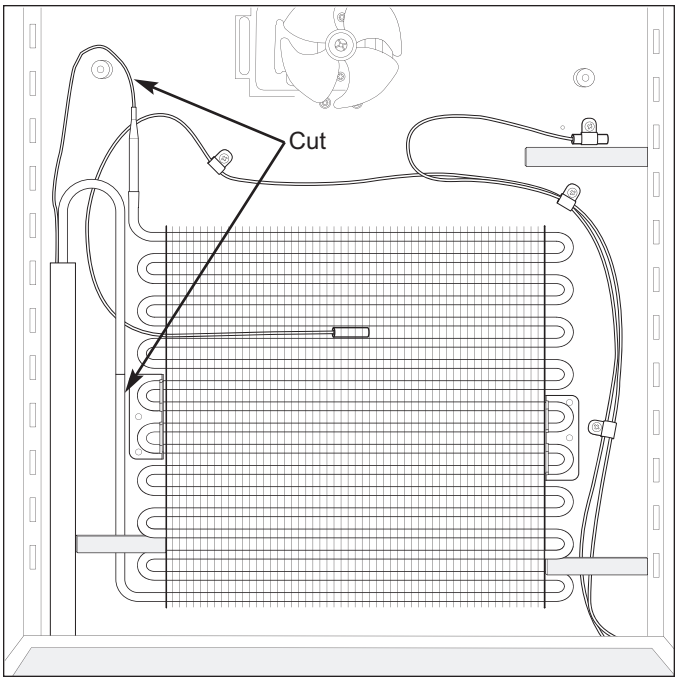


Figure 7-84. Evaporator Removal

Compressor (Models UC-24R, UC-24RO)

The compressor is located at the back of the unit tray.

To Remove the compressor (See Figures 7-85 & 7-86):

1. Remove access panel from bottom back of unit and door closer from bottom front corner.
2. Extract screws securing unit tray to cabinet on the left side, and loosen screws on right side.
3. Separate cabinet from unit tray by leaning cabinet to the right, then insert a spacer between cabinet and unit tray *(a piece of 2x4 lumber works well).*
4. Disconnect compressor electricals.
5. With a tube-cutter, cut suction tube and discharge tube approximately 1-1/2" (38 mm) from compressor.
6. Remove nuts from compressor mounting studs and lift compressor off of mounting studs.

NOTE: *Sweating the joints apart is not recommended as this may induce moisture into the sealed system.*

NOTE: *Always replace the high-side filter-drier when servicing the sealed system.*

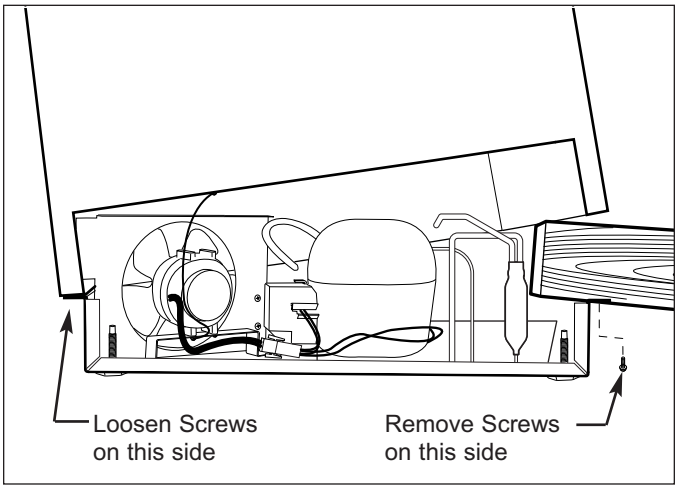


Figure 7-85. Unit Tray Component Access

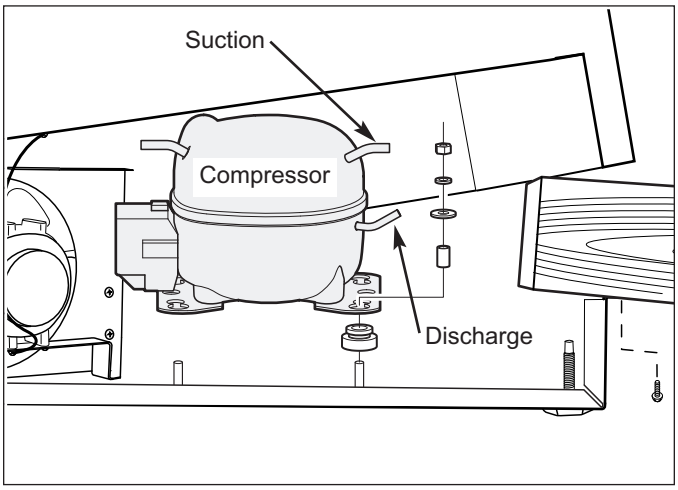


Figure 7-86. Compressor Removal

TROUBLESHOOTING GUIDES

This section of the manual contains:

- The Error Code Table and the Error Code Troubleshooting Guide.
- The General Troubleshooting Guide, which covers all problems that a UC-24 Series unit may experience.
- The Membrane Switch/Ribbon Cable Test Procedures, used to determine if a control panel assembly is defective.

HOW TO USE THE ERROR CODE TROUBLESHOOTING GUIDE

Error Codes indicate problems registered by specific components. If error codes are registered, they will appear before temperature readings while in Diagnostic Mode.

NOTE: *If Error Codes appear with a flashing "SERVICE" annunciator prior to initiating Diagnostic Mode, the unit experienced excessive compressor run condition that may or may not be associated with the Error Codes displayed.*

To initiate Diagnostic Mode, press and hold either COLDER key, then press the POWER key, then release both keys. Now, check to see if Error Codes are present, being sure to toggle through all error and temperature readings by pressing either COLDER key or either WARMER key. (See Error Code Table Below)

If Error Codes appear during Diagnostic Mode, follow the Error Code Troubleshooting Guide on the following page. The left column of the troubleshooting guide lists the error codes. The information in the right column explains what tests to perform and/or what action to take to correct the error.

NOTE: *If error codes are observed in diagnostic mode, a non-flashing SERVICE annunciator will appear on the LCD when Diagnostic Mode ends, indicating error codes are still stored. Error Codes must be cleared from the electronic control memory manually. To clear the non-flashing SERVICE annunciator and the error codes, the problem must be corrected and the unit must be ON, then:*

- ***On a model UC-24C:*** *Press the Freezer WARMER and COLDER keys for fifteen (15) seconds.*
- ***On a model UC-24B, UC-24R, or UC-24RO:*** *Press the Refrigerator WARMER and COLDER keys for fifteen (15) seconds.*

Error Code Table	
CODE	**INDICATION**
05	***Refrig. cabinet thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp's***
06	***Refrig. evaporator thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp's***
07	***Freezer cabinet thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp's***
08	***Freezer evaporator thermistor read open or shorted for 10+ seconds, or repeatedly read erratic temp's***
20	***Defrost under-heat with no voltage feedback through Gray/White wire at defrost start***
21	***Defrost overheat***
22	***No voltage feedback through Gray/White wire at defrost start***
23	***Defrost overheat with no voltage feedback through Gray/White wire at defrost start***
24	***Defrost under-heat***
30	***NA***
40	***Excessive Freezer Compressor Run***
50	***Excessive Refrigerator Compressor Run***

ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
05	A. If "EE" for refrigerator compartment was displayed and "SERVICE" flashing, check the following: 1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. B. If "EE" for refrigerator compartment was NOT displayed, problem is intermittent thermistor error: 1. Door not closing properly. Correct door closing problem. 2. Check light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair. 4. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. C. If "EC 05" and "SERVICE" were flashing before initiating diagnostic mode, unit also experienced excessive compressor run condition that may or may not be associated with the "05" Error Code. See Error Code 50 Test/Actions.
06	A. Initiate Diagnostic Mode. If "EE" is displayed for refrigerator evaporator thermistor, check the following: 1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. B. Initiate Diagnostic Mode. If "EE" is NOT displayed for refrigerator evaporator thermistor, problem is intermittent: 1. Door not closing properly. Correct door closing problem. 2. Check light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair. 4. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. C. If "EC 06" and "SERVICE" were flashing before initiating diagnostic mode, unit also experienced excessive compressor run condition that may or may not be associated with the "06" Error Code. See Error Code 50 Test/Actions.
07	A. If "EE" for freezer compartment was displayed and "SERVICE" flashing, check the following: 1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. B. If "EE" for freezer compartment was NOT displayed, problem is intermittent thermistor error or caused by over-heating (above 116°F), check the following: 1. Door not closing properly. Correct door closing problem. 2. Check light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Check for proper mounting and location of freezer compartment thermistor. Remount correctly. 4. Check electrical connections and operation of defrost terminator - Cut-in 30°F (-1°C) /Cut-out 55°F (13°C). Reconnect / repair or replace terminator. 5. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair. 6. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. C. If "EC 07" and "SERVICE" were flashing before initiating diagnostic mode, unit also experienced excessive compressor run condition that may or may not be associated with the "07" Error Code. See Error Code 40 Test/Actions.
08	A. Initiate Diagnostic Mode. If "EE" is displayed for freezer evaporator thermistor, check the following: 1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. B. Initiate Diagnostic Mode. If "EE" is NOT displayed for freezer evaporator thermistor, problem is intermittent thermistor error or caused by over-heating (above 116°F), check the following: 1. Door not closing properly. Correct door closing problem. 2. Check light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Check for proper mounting and location of freezer evaporator thermistor. Remount correctly. 4. Check electrical connections and operation of defrost terminator - Cut-in 30°F (-1°C) /Cut-out 55°F (13°C). Reconnect / repair or replace terminator. 5. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 6. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. C. If "EC 08" and "SERVICE" were flashing before initiating diagnostic mode, unit also experienced excessive compressor run condition that may or may not be associated with the "08" Error Code. See Error Code 40 Test/Actions.

NOTE: *Always clear Error Codes after repairs are complete.*

ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
20	A. With cold evap. (< 10°F / -12°C), initiate Manual Defrost, then initiate Diagnostic Mode (press POWER key every 20 seconds to keep in Diagnostic Mode) and observe evap. temp. If temperature exceeds 45°F (7°C) and defrost lasts longer then 5 minutes, error code is false. Clear error code. If error code is not false: 1. Check continuity of Grey/White wire from defrost heater to J2 on control board. Reconnect / repair Grey/White wire. 2. While in defrost, check for AC power at P2 on control board. If no voltage, replace board. 3. Check continuity of Blue wire from defrost terminator to P2 on control board. Reconnect / repair Blue wire. 4. Check resistance of defrost heater (see wire diagram for proper resistance). Replace heater if defective. 5. Check electrical connections and operation of defrost terminator - Cut-in 30°F (-1°C) /Cut-out 55°F (13°C). Reconnect / repair or replace terminator. 6. Reference wiring diagram to identify components in same White wire circuit as defrost heater. Check all White wire electrical connections and continuity from defrost heater to P4 on control board.
21	A. With cold evap. (< 10°F / -12°C), initiate Manual Defrost, then initiate Diagnostic Mode (press POWER key every 20 seconds to keep in Diagnostic Mode) and observe evap. temp. If temperature does <u>not</u> exceed 105°F (40.5°C), error code is false. Clear error code. If error code is not false: 1. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly. 2. Check Grey/White wire connection at control board (J2-3). if connected wrong or bad connection, reconnect / repair. 3. Check for proper mounting & location of evap. thermistor, defrost heater & terminator. Remount correctly. 4. Check for electrical short of Blue wire to another circuit. Repair Blue wire &/or electrical connections. 5. Check operation of defrost terminator - Cut-in 30°F (-1°C) /Cut-out 55°F (13°C). Replace if defective.
22	A. With cold evap. (< 10°F / -12°C), initiate Manual Defrost. If compressor starts 5 minutes after defrost is initiated, check Grey/White wire and continuity from defrost heater to J2-3 on control board. Reconnect / repair Grey/White wire.
23	A. With cold evap. (< 10°F / -12°C), initiate Manual Defrost. If compressor starts 5 minutes after defrost is initiated, check Grey/White wire connections and continuity from defrost heater to J2-3 on control board. Reconnect / repair Grey/White wire. B. Check for proper mounting and location of evap. thermistor, defrost heater & terminator. Remount correctly. C. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly. D Check for electrical short of Blue wire to another circuit. Repair Blue wire &/or electrical connections.
24	A. With cold evap. (< 10°F / -12°C), initiate Manual Defrost, then initiate Diagnostic Mode (press POWER key every 20 seconds to keep in Diagnostic Mode) and observe evap. temp. If temp. exceeds 45°F, error code is false. Clear error code. If error code is not false: 1. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly. 2. Verify proper location of Grey/White wire at control board (J2-3). if connected wrong or bad connection, reconnect / repair. 3. Check for proper mounting & location of evap. thermistor, defrost heater & terminator. Remount correctly.

NOTE: *Always clear Error Codes after repairs are complete.*

ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
40	A. If Error Code 07, 20, 21, 22, 23, or 24 is also displayed during Diagnostic Mode, see Test/Actions under that code. B. Check for obstructions to freezer door closing. Remove obstruction. C. Check cleanliness of condenser. Clean if needed. D. Check for obstruction to condenser fan blade or loose fan blade. Remove obstruction/Tighten Blade. E. With unit running, check for AC Power from compressor to condenser fan. Repair defective wiring or replace defective motor. F. Check resistance of freezer compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. G. Check evaporator fan blade position and for obstructions. Reposition if incorrect/Remove obstruction. H. With unit running and light switch depressed: 1. Check for AC Power form J3-7 to light switch. Repair wiring/Replace defective switch. 2. Check for AC Power form J3-1 to evaporator fan motor. Repair wiring/Replace defective motor. 3. Check for AC Power form P1 to compressor. Repair wiring if defective. I. Check sealed system for leaks, restrictions or inefficient compressor.
50	A. If Error Code 05 is also displayed during Diagnostic Mode, see Test/Actions under that code. B. Check for obstructions to refrigerator door closing. Remove obstruction. C. Check resistance of refrigerator compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. D. Check refrigerator compartment fan blade position and for obstructions. Reposition if incorrect/Remove obstruction. E. With unit running and light switch depressed: 1. Check for AC Power form J3-5 to evaporator fan motor. Repair wiring/Replace defective motor. F. Check air baffle control operation. Repair wiring/Replace if defective. G. Check sealed system for leaks, restrictions or inefficient compressor.

NOTE: *Always clear Error Codes after repairs are complete.*

HOW TO USE THE GENERAL TROUBLESHOOTING GUIDE

- The table on page 8-7 indicate how the General Trouble Shooting Guide is arranged.
- Identify the description of the problem that the unit is experiencing from the table.
- To the left of the problem description is a letter.
- Locate that letter in the left column of the General Troubleshooting Guide.
- The center column will identify the possible causes for the problem.
- The information in the right column explains the tests to perform and/or action to take to correct the problem.
- If the unit is experiencing temperature problems, refer to the instructions below before beginning troubleshooting.

For Temperature Problems

1. Begin troubleshooting by observing compartment set points.
2. If set-points are normal, initiate Diagnostic Mode by pressing and holding either COLDER key, then press POWER key, then release both keys.

   NOTE: *Diagnostic Mode will end twenty (20) seconds after last key stroke.*
3. When Diagnostic Mode is initiated, check to see if "Error Codes" are present, being sure to toggle through all error codes and temperature readings by pressing either COLDER key, or either WARMER key. (See Thermistor Location Code Tables below.)
4. If Error Codes are present, refer to Error Code Troubleshooting Guide, which starts on page 8-2.
5. If no Error Codes are observed, see General Troubleshooting Guide Table of Contents on following page.

NOTE: *If compartment and/or evaporator temperature history is needed to help diagnose problem, initiate Temperature Log Recall Mode. Begin with unit ON and in Diagnostic Mode.* While in Diagnostic Mode, toggle through readings until desired thermistor temperature is displayed on LCD. Now, press POWER key then either WARMER key simultaneously. *Toggle through indexes by pressing WARMER or COLDER key.*

THERMISTOR LOCATION CODE TABLES

Model UC-24B	
THERMISTOR LOCATION	**CODE**
Beverage Compartment	***r***
Evaporator	***E***

Model UC-24C	
THERMISTOR LOCATION	**CODE**
Freezer Compartment	***F***
Refrigerator Compartment	***r***
Evaporator	***E***

Models UC-24R, UC-24RO	
THERMISTOR LOCATION	**CODE**
Refrigerator Compartment	***r***
Evaporator	***E***

GENERAL TROUBLESHOOTING GUIDE TABLE OF CONTENTS

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
A. "EE" Displayed in place of Freezer Temperature with "SERVICE" Flashing	**Freezer Compartment Thermistor Disconnected, Shorted, or misread**	Check freezer compartment thermistor electrical connections from thermistor to control board. Reconnect / repair connections. Check resistance of freezer compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
B. "EE" Displayed in place of Refrigerator Temperature with "SERVICE" Flashing	**Refrigerator Compartment Thermistor Disconnected, Shorted, or misread**	Check refrigerator compartment thermistor electrical connections from thermistor to control board. Reconnect / repair connections. Check resistance of refrigerator compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
C. Warm or Normal Temperatures Displayed with "SERVICE" Alone Flashing	**Excessive Compressor or Evaporator Fan Run**	Initiate Diagnostic Mode and see Error Code Troubleshooting Guide
	Refrigerator Evaporator Thermistor Disconnected, Shorted, or misread	Check evaporator thermistor electrical connections from thermistor to control board. Reconnect / repair connections. Check resistance of evaporator thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
D. Warm or Normal Temperatures Displayed with non-flashing "SERVICE" Displayed	**Error Codes Observed in Diagnostic Mode, but not Cleared from Memory**	Enter diagnostic mode to observe error codes. See Error Code Troubleshooting Guide. Verify unit was repaired for error codes displayed. Press appropriate WARMER and COLDER keys for 15 seconds to clear error codes.
E. Erratic Temperatures with or without "SERVICE" Flashing	**Control Board Configured for Wrong Model**	*Initiate Manual Model Configuration Mode and reconfigure to correct model.*
F. Warm Refrigerator Temperatures, "SERVICE" <u>not</u> displayed or Flashing	**No Power to Unit**	Check power to unit, plug unit in or switch supply circuit breaker ON.
	Unit Switched OFF	Check for "OFF" displayed at LCD. If off, press POWER key.
	Unit in Show Room Mode	Switch unit to OFF, then press and hold WARMER & COLDER keys, and press POWER key.
	Control Set Too High	Check set-point. If high, adjust.
	Warm Food Load	Check contents of refrigerator for warm food load. Instruct customer.
	High Room Ambient	Instruct customer unit performs best between 60°F(16°C) and 90°F(32°C).
	Door Ajar a. Food Product Obstruction b. Door Closer Defective	 a. Move obstruction. b. Replace door closer.
	Faulty Light Switch	Check operation of light switch, lights off when switch is depressed. Replace switch if defective.

(Continued)

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **F. Warm Refrigerator Temperatures, "SERVICE" <u>not</u> displayed or Flashing**	**Evaporator Fan Fault** a. Fan blade obstructed or out of position b. Evaporator fan motor disconnected c. Power to Fan Fault, or Fan Motor Defective *(**NOTE:** Compressor must be running)*	 a. Move obstruction or reposition blade. b. Check electrical connections & continuity from control board to motor. Reconnect / repair bad connections. c. With light switch depressed, check for AC Voltage from control board to fan motor. Replace control board if defective, or Replace motor if defective.
	Compartment Thermistor Misread	Check resistance of refrigerator compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
	Air Baffle Control Fault (Model UC-24C ONLY) a. Baffle Control Stuck b. Baffle Control Disconnected, Defective, or not Receiving Signal from Control Board.	 a. Manually open / close air baffle control. If movement is not smooth, replace baffle control. b. With light switch depressed, initiate Manual Compartment Activation Mode for refrigerator compartment and observe baffle operation. If baffle does not open within 3 minutes: 1. Check electrical connections from baffle control to control board. Reconnect / repair bad connections. 2. If electrical connections and wiring are good, and baffle moves freely, replace control board. **⚠ CAUTION Low Voltage Circuit. Do NOT apply Line Voltage**
	Evaporator Heavily Frosted a. Door ajar b. Evaporator fan fault c. Compartment thermistor misread	 a. See Door Ajar above. b. See Evaporator Fan Fault above. c. See Thermistor Misread above
	Power to Compressor Fault	Check for AC Voltage at control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide
G. Refrigerator Temperatures Too Cold with or without "SERVICE" Flashing (Model UC-24C ONLY)	**See Air Baffle Control Fault above** (Under Problem F)	See Air Baffle Control Fault above (Under Problem F)

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
H. Warm Freezer Temperatures, "SERVICE" not displayed or Flashing	**No Power to Unit**	Check power to unit, plug unit in or switch supply circuit breaker ON.
	Unit Switched OFF	Check for "OFF" displayed at LCD. If off, press POWER key.
	Unit in Show Room Mode	Press POWER key to OFF, then press and hold WARMER& COLDER keys, and press POWER key.
	Control Set Too High	Check set-point. If high, adjust.
	Warm Food Load	Check contents of freezer for warm food load. Instruct customer.
	High Room Ambient	Instruct customer unit performs best between 60°F(16°C) and 90°F(32°C).
	Door Ajar a. Food Product Obstruction b. Door Closer Defective	 a. Move obstruction. b. Replace door closer.
	Condenser Air Flow a. Dirty condenser b. Condenser fan blade obstructed, loose, or defective c. Condenser fan motor disconnected d. Condenser fan motor defective	 a. Clean condenser. b. Remove obstruction, or tighten blade, or replace if defective. c. Check continuity from motor to compressor. Reconnect / repair wiring or connections. d. Check for AC Voltage to motor, replace if defective.
	Faulty Light Switch	Check operation of light switch, lights off when switch is depressed. Replace switch if defective.
	Evaporator Fan Fault a. Fan blade obstructed or out of position b. Evaporator fan motor disconnected c. Power to Fan Fault, or Fan Motor Defective *(**NOTE:** Compressor must be running)*	 a. Move obstruction or reposition blade. b. Check electrical connections & continuity from control board to motor. Reconnect / repair bad connections. c. With light switch depressed, check for AC Voltage from control board to fan motor. Replace control board if defective, or Replace motor if defective.
	Compartment Thermistor Misread	Check resistance of freezer compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **H. Warm Freezer Temperatures, "SERVICE" not displayed or Flashing**	**Evaporator Heavily Frosted** a. Door ajar b. Evaporator fan fault c. Compartment thermistor misread d. Defrost heater disconnected or faulty e. Defrost terminator disconnected or faulty. f. Defrost sense line disconnected. g. No power from control board to defrost circuit	 a. See Door Ajar above. b. See Evaporator Fan Fault above. c. See Thermistor Misread above d. Check electrical connections. Reconnect / repair bad connections. Check resistance of heater, 30-38 Ohms, replace if defective. e. Check electrical connections, Reconnect / repair connections or replace bad terminator. f. Manually initiate defrost - press ICE key for 10 seconds. If defrost lasts exactly 5 minutes, check all connections of gray/white wire from terminator to control board. Reconnect / repair bad connections. g. Manually initiate defrost - Press ICE key for 10 seconds. Check for AC Voltage at control board. Replace control board if defective.
	Power to Compressor Fault	Check for AC Voltage at control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide
I. Product Temperature 10° or More Colder than Displayed Temperature	**Compartment Thermistor Misread**	Check resistance of compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
J. 1. "Extremely" Cold Temperatures Displayed • ***1° to 7° in Refrigerator*** • ***-21° to -15° in Freezer*** **2. If outside US - "Extremely" Warm Temperatures Displayed** • ***34° to 45° in Refrigerator*** • ***-5° to 5° in Freezer***	**1. Control Set to Display Celsius** **2. If Outside US - Control Set to Display Fahrenheit**	1. Change temperature units of measure to Fahrenheit. 2. If Outside US - Change temperature units of measure to Celsius.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
K. No Ice	**No Water Supply to Unit**	Connect/turn on water supply.
	Unit Has Not Run Long Enough	Freezer must be 17°F (-8°C) for icemaker to operate, approximately 24 hours after unit installation. Instruct customer.
	Warm Freezer Temperatures *(**NOTE**: Freezer must be 17°F (-8°C) or colder for icemaker to function)*	See PROBLEM A, C, D, E, & G earlier in Troubleshooting Guide.
	Shut-off Arm Stuck in Up/Off Position	Check shut-off arm, if stuck in up/OFF position, correct problem.
	Disconnected or Defective Water Valve	Check electrical connections and water connections at water valve, Reconnect / repair connections. Check resistance of water valve, 160 ohms. Replace if defective.
	No Power to Icemaker	Check for power to icemaker. If no power repair / reconnect wiring.
	Frozen Fill Tube - Water Supply Problem	Check water supply pressure for "constant" 20-100 PSI. If not, instruct customer.
	Icemaker System Fault	Manually start icemaker with jumper between ports "T" & "H". Watch cycle of icemaker and see #1, #2 & #3 below.
		1. If icemaker motor starts and finishes cycle:
	a. Disconnected or damaged electrical connections at icemaker or water valve.	a. Check for 115V at valve during fill mode. If no 115V, inspect connections at icemaker and valve. Repair or replace connection.
	b. Defective icemaker	b. Check for 115V from icemaker during fill mode. If no power, replace icemaker.
		2. If icemaker motor starts but does not finish cycle:
	c. Defective icemaker	c. Replace icemaker.
		3. If icemaker motor does NOT start:
	d. Disconnected or damaged electrical connections at icemaker	d. Check for 115V to icemaker. If no power, repair electrical connection.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
L. Icemaker produces Too much ice	**Ice Level Arm/Linkage Bent or Broken**	Inspect ice level / shut-off arm. Replace defective parts.
	Icemaker Faulty	With ice level arm in UP/OFF position, manually start icemaker with jumper between ports “T” & “H”. If icemaker motor starts with arm in the UP/OFF position, replace icemaker.
M. Icemaker Produces Hollow Cubes	**Freezer Too Cold, Cycles Icemaker Too Soon**	See PROBLEM “H” earlier in Troubleshooting Guide.
	Not Enough Thermal-Mastic on Icemaker Thermostat	Inspect icemaker thermostat, apply more Thermal-Mastic to thermostat.
	Icemaker Thermostat Fault	Replace Thermostat.
N. Icemaker Produces Small cubes	**Water Supply Problem**	Check water supply pressure; must be constant 20-100 PSI. If not, instruct customer.
	Icemaker Not Level	Check level of icemaker, adjust if needed
	Low Fill Adjustment on Icemaker	Check for 100-110 cc. fill (3.5-3.75 oz.). If low, increase fill by turning adjusting screw counterclockwise.
O. Water or Clump of Ice in Ice Bucket	**Icemaker Not Level**	Check level of icemaker, level if needed.
	High Fill Adjustment on Icemaker	Check for 100-110 cc. fill (3.5-3.75 oz.). Turn adjusting screw clockwise to decrease.
	Water Valve Energized Too Long	• Check icemaker for jammed ice cube, clear jam if present. • Check icemaker levelness; level if needed. • Check position of fill cup. Reposition if in ice path. • Check water supply pressure; must be constant 20-100 PSI. If not, instruct customer. • Check water valve operation, opens when AC Voltage is applied, closes completely when AC Voltage is removed. Water valve Ohms = 160. Replace if defective.
	Intermittent Warm Freezer Temperatures	See PROBLEM A, C, D, E, & H earlier in Troubleshooting Guide.
P. No LCD	**Unit in Sabbath Mode**	Exit Sabbath Mode.
	Display Wire Harness Disconnected or Faulty	Check display wire harness and connections. Reconnect, repair, replace bad wiring.
	Control Panel Assembly Defective (OR) No Signal Read at Control Board	See Membrane Switch/Ribbon Cable Test Procedures. If membrane switch fails any test, replace entire control panel assembly. If switch passes all tests, replace control board.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
Q. No Lights	**No power to unit**	Check power to unit, plug unit in or switch supply circuit breaker ON.
	Unit switched OFF	Switch unit ON, press POWER key.
	Unit in Sabbath Mode	Exit Sabbath Mode.
	Defective or loose light bulb(s)	Install a known good light bulb.
	Light Switch Disconnected or Defective	Check wire connections at light switch. Reconnect/repair. Check for AC Voltage to and from light switch. Replace switch if defective.
	Lighting System Wiring Disconnected or Defective	Check continuity from light sockets to switch. Reconnect/repair or replace defective components.
	No Power From Control Board (***NOTE:*** *See Unit in Sabbath Mode above.)*	Check for AC Voltage from control board. Replace board if defective. (***NOTE:*** *See Unit in Sabbath Mode above.)*
R. Lights Stay ON when Door is Closed	**Accent Lights Switched ON (Model UC-24B ONLY)**	Switch Accent Lights OFF
	Door Ajar a. Food product obstruction b. Door Closer Defective	 a. Move obstruction. b. Replace door closer.
	Faulty Light Switch	Check operation of light switch, lights off when switch is depressed. Replace switch if defective.
S. Door Not Able to Close Completely	**Food Product Obstruction**	Move obstruction.
	Door Closer Defective	Replace door closer.
T. Door Uneven	**Unit Not Level**	Check levelness of unit. If un-level, turn leveling legs counterclockwise to raise unit or clockwise to lower it.

SEALED SYSTEM DIAGNOSTICS TABLES

NORMAL OPERATING PRESSURES TABLE NOTES:

- Only enter the sealed system to check pressures if the Error Code Troubleshooting Guide and General Troubleshooting Guide could not pinpoint the cause of the temperature problem.
- Always use solder-on process valves when entering the sealed system. Do NOT use bolt-on process valves as they are prone to leak.
- Whenever servicing the sealed system, the high-side filter-drier MUST be replaced.
- Pressures listed below are not indicative of initial pull down, but rather of a steadily running and properly functioning appliance.
- Pressures listed are for reference only, as actual pressure readings may vary because of one or more of the following reasons:
  1. Ambient temperatures (Pressures are based on a 70°F (21°C) Ambient).
  2. Temperature set-points (Pressures listed below are based on set-points of 0°F (-18°C) in freezers and 38°F (3°C) in refrigerators)
  3. Food load quantity and temperature.
  4. Condenser cleanliness.
  5. Whether or not one or both refrigeration systems are operating.
  6. Gauge calibration.

NORMAL OPERATING PRESSURES		
Model	**Normal Low-Side Pressures**	**Normal High-Side Pressures**
UC-24B	**0 - 12 psi to 30 - 42 psi**	**75 psi to 110 psi**
UC-24C	**5” Vac - 1 psi to 6 - 12 psi**	**75 psi to 120 psi**
UC-24R / UC-24RO	**0 - 12 psi to 30 - 42 psi**	**75 psi to 110 psi**

PRESSURE INDICATIONS		
If low-side pressure is	***& high-side pressure is***	***possible problem is***
NORMAL	*NORMAL*	*MECHANICAL* *(see General Troubleshooting Guide)*
LOW	*LOW*	*LEAK*
LOW	*HIGH*	*RESTRICTION*
HIGH	*LOW*	*INEFFICIENT COMPRESSOR*
HIGH	*HIGH*	*OVER CHARGE*

EVAPORATOR TEMPERATURE / SEALED SYSTEM LOW-SIDE PRESSURE CORRELATION

NOTE: *The temperature/pressure table at right is for reference only. A unit's temperature/pressure correlation may differ from those listed due to: variations in evaporator thermistor location, set-points, where the sealed system is in the refrigeration cycle, ambient temperature, etc.*
If a unit is experiencing temperature problems, it is recommended that you reference the General Troubleshooting Guide before accessing the sealed system. After all mechanical and electrical components have been ruled out, sealed system pressures can be checked by applying solder-on process valves and referencing the preceding page. Do NOT use bolt-on process valves as they are prone to leak.
This table should only be used as a last quick check before entering the sealed system.

Temperature	Pressure
-30°F (-34°C)	10” Vac
-25°F (-32°C)	7” Vac
-20°F (-29°C)	4” Vac
-15°F (-26°C)	0” Vac
-10°F (-23°C)	2 Psi
-5°F (-21°C)	4 Psi
0°F (-18°C)	7 Psi
5°F (-15°C)	9 Psi
10°F (-12°C)	12 Psi
15°F (-9°C)	15 Psi
20°F (-7°C)	18 Psi
25°F (-4°C)	22 Psi
30°F (-1°C)	26 Psi
35°F (2°C)	30 Psi
40°F (4°C)	35 Psi
45°F (7°C)	40 Psi
50°F (10°C)	45 Psi
55°F (13°C)	51 Psi
60°F (16°C)	57 Psi
65°F (18°C)	64 Psi
70°F (21°C)	71 Psi
75°F (24°C)	78 Psi

CONTROL PANEL MEMBRANE SWITCH / RIBBON CABLE TEST

If integrity of control panel assembly is suspect, perform continuity tests at membrane switch ribbon cable terminal housing. Begin by removing control panel assembly from unit and place it on solid surface, then disconnecting ribbon cable from control panel PC board.

Pin 1 Identification Procedure

The ribbon cable wires are exposed at the back-side of the terminal housing. Place ohm meter leads between 1st and 2nd pin from each end of the housing while pushing the Freezer WARMER key of a Model UC-24C, or the Refrigerator WARMER key of a Model UC-24B, UC-24R, or UC-24RO. When continuity is observed, pin 1 is at that end of the terminal housing.

Continuity Test Procedure

1. Without pressing any of the keys on the membrane switch, check for continuity across all pin combinations. With no keys pressed, there should be no continuity between any two pins.
2. Identify model number being serviced in left column of table below.
3. Press key listed at top of table.
4. Corresponding numbers to right of model number and below key being pressed are the pin numbers on terminal housing that should have continuity.

   NOTE: *If any continuity tests show failure, replace entire control panel assembly.*

MODEL	POWER KEY	FREEZER WARMER KEY	FREEZER COLDER KEY	REFRIG WARMER KEY	REFRIG COLDER KEY
UC-24B	3 - 4	NA	NA	4 - 5	1 - 3
UC-24C	3 - 4	1 - 2	1 - 5	4 - 5	1 - 3
UC-24R	3 - 4	NA	NA	4 - 5	1 - 3
UC-24RO	3 - 4	NA	NA	4 - 5	1 - 3

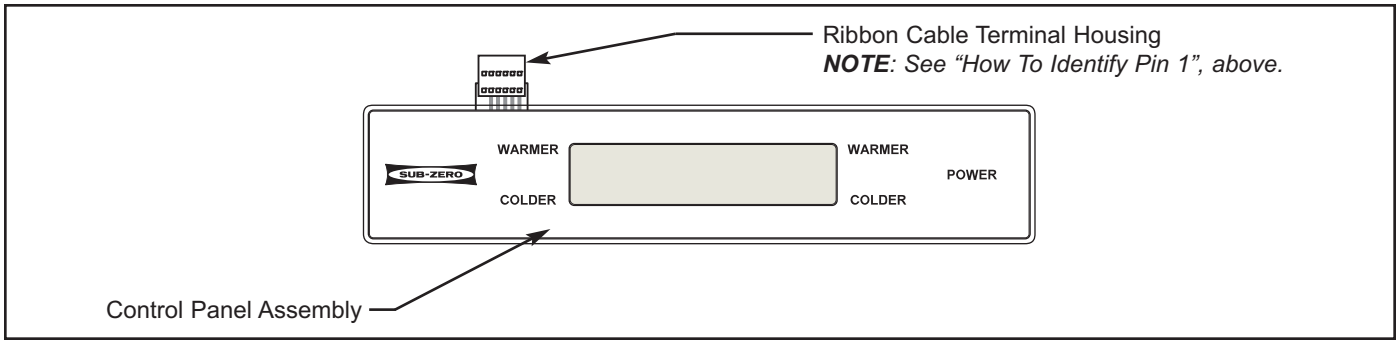


Figure 9-2. UC-24C Control Panel Assembly

Model UC-24B

	REFRIGERATOR
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	4.25 oz.
NORMAL OPERATING PRESSURES	
Low Side	0 - 12 psi to 30 - 42 psi
High Side	75 psi to 110 psi
COMPRESSOR ***NOTE:*** *Always check parts price list for possible substitutions.*	
Manufacturer	Embraco
Manufacturer Model Number	EM20HSC
Original/Service Compressor Amps	~ 0.8 / ~ 0.8
Original/Service Compressor BTU/H	215 / 215
DEFROST METHOD	"Fan Assisted Off-Cycle Defrost" Evap > 38°F (3°C) before Compressor ON.
THERMISTORS	
Resistance/Ohms at 32°F / 0°C	30000 - 33000

Model UC-24C

	FREEZER
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	4.5 oz.
NORMAL OPERATING PRESSURES Low Side High Side	 5” Vac - 1 psi to 6 - 12 psi 75 psi to 120 psi
COMPRESSOR ***NOTE:*** *Always check parts price list for possible substitutions.* Manufacturer Manufacturer Model Number Original/Service Compressor Amps Original/Service Compressor BTU/H	 Embraco EM2Y50 ~1.0 / ~1.0 517 / 517
DEFROST METHOD	“Adaptive Defrost” Defrost intervals and duration vary by unit use. 5 minute compressor delay after each defrost.
DEFROST TERMINATOR **⚠ CAUTION** **Never replace the defrost terminator with another having a cut-out limit above 55°F (13°C), as this will damage the appliance.** Cut-In Temp. Cut-Out Temp.	 30°F (-1°C) 55°F (13°C)
DEFROST HEATER Watts Amps Resistance/Ohms	 240 1.9 - 2.3 50 - 61
WATER VALVE Watts Amps Resistance/Ohms (Inductive)	 50 0.42 160
THERMISTORS Resistance/Ohms at 32°F / 0°C	 30000 - 33000

Model UC-24R / UC-24RO

	REFRIGERATOR
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	3.75 oz.
NORMAL OPERATING PRESSURES	
Low Side	0 - 12 psi to 30 - 42 psi
High Side	75 psi to 110 psi
COMPRESSOR ***NOTE:*** *Always check parts price list for possible substitutions.*	
Manufacturer	Embraco
Manufacturer Model Number	EMU45HSC
Original/Service Compressor Amps	~1.5 / ~1.5
Original/Service Compressor BTU/H	450 / 450
DEFROST METHOD	"Fan Assisted Off-Cycle Defrost" Evap > 38°F (3°C) before Compressor ON.
THERMISTORS	
Resistance/Ohms at 32°F / 0°C	30000 - 33000

LOKRING Fittings for UC-24B

LOKRING FITTINGS FOR UC-24B

LOKRING: UC-24B					
Component		Tubing Sizes	Quantity	LOKRING (Vulkan) Size	Vulkan Article (Part) Number
Evaporator		$^{3}/_{16}$" → $^{3}/_{16}$"	1	5 NK MS 00	L13000587
		$^{3}/_{16}$" → 0.070"	1	5/1,8 NR MS 00	L13000930
		$^{5}/_{16}$" → $^{1}/_{4}$"	1	8/6 NR MS 00	L13000654
		50 mm piece of 5 mm copper tube	1		
Compressor	Process line	0.3346" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
	Suction line	$^{5}/_{16}$" → .336"	1	8,5/8 NR MS 00	L13000675
	Discharge line	0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638
Condenser	All lines	$^{1}/_{4}$" → $^{3}/_{16}$"	2	6/5 NR MS 00	L13000630
Drier		.070" → $^{1}/_{4}$"	1	6/1,8 NR MS 00	L13002334
		$^{1}/_{4}$" → $^{3}/_{16}$"	1	6/5 NR MS 00	L13000630

LOKRING Fittings for UC-24C

LOKRING FITTINGS FOR UC-24C

LOKRING: UC-24C					
Component		**Tubing Sizes**	**Quantity**	**LOKRING (Vulkan) Size**	**Vulkan Article (Part) Number**
Evaporator		$^{3}/_{16}$" → $^{3}/_{16}$"	1	5 NK MS 00	L13000587
		$^{3}/_{16}$" → 0.070"	1	5/1,8 NR MS 00	L13000930
		$^{5}/_{16}$" → $^{1}/_{4}$"	1	8/6 NR MS 00	L13000654
		50 mm piece of 5 mm copper tube	1		
Compressor	Process line	0.3346" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
	Suction line	$^{5}/_{16}$" → .336"	1	10,5/8 NR MS 00	(part number not available)
	Discharge line	0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638
(Optional: extension of $^{3}/_{16}$" tube)		3" of $^{3}/_{16}$" copper tube	1		
Condenser	All lines	$^{1}/_{4}$" → $^{3}/_{16}$"	2	6/5 NR MS 00	L13000630
Drier		.070" → $^{1}/_{4}$"	1	6/1,8 NR MS 00	L13002334
		$^{1}/_{4}$" → $^{3}/_{16}$"	1	6/5 NR MS 00	L13000630

LOKRING Fittings for UC-24R

LOKRING FITTINGS FOR UC-24R

LOKRING: UC-24R					
Component		Tubing Sizes	Quantity	LOKRING (Vulkan) Size	Vulkan Article (Part) Number
Evaporator	Suction line	$^{5}/_{16}$" → $^{5}/_{16}$"	1	8 NK MS 00	L13000592
	Capillary tube	$^{5}/_{16}$" → 0.081"	1	8/2 NR MS 00	L13000651
Compressor	Process line	0.3346" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
	Suction line	$^{5}/_{16}$" → .336"	1	8,5/8 NR MS 00	L13000675
	Discharge line	0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638
Condenser	All lines	$^{1}/_{4}$" → $^{3}/_{16}$"	2	6/5 NR MS 00	L13000630
Drier		0.081" → $^{1}/_{4}$"	1	6/2 NR MS 00	L13000625
		$^{1}/_{4}$" → $^{3}/_{16}$"	1	6/5 NR MS 00	L13000630

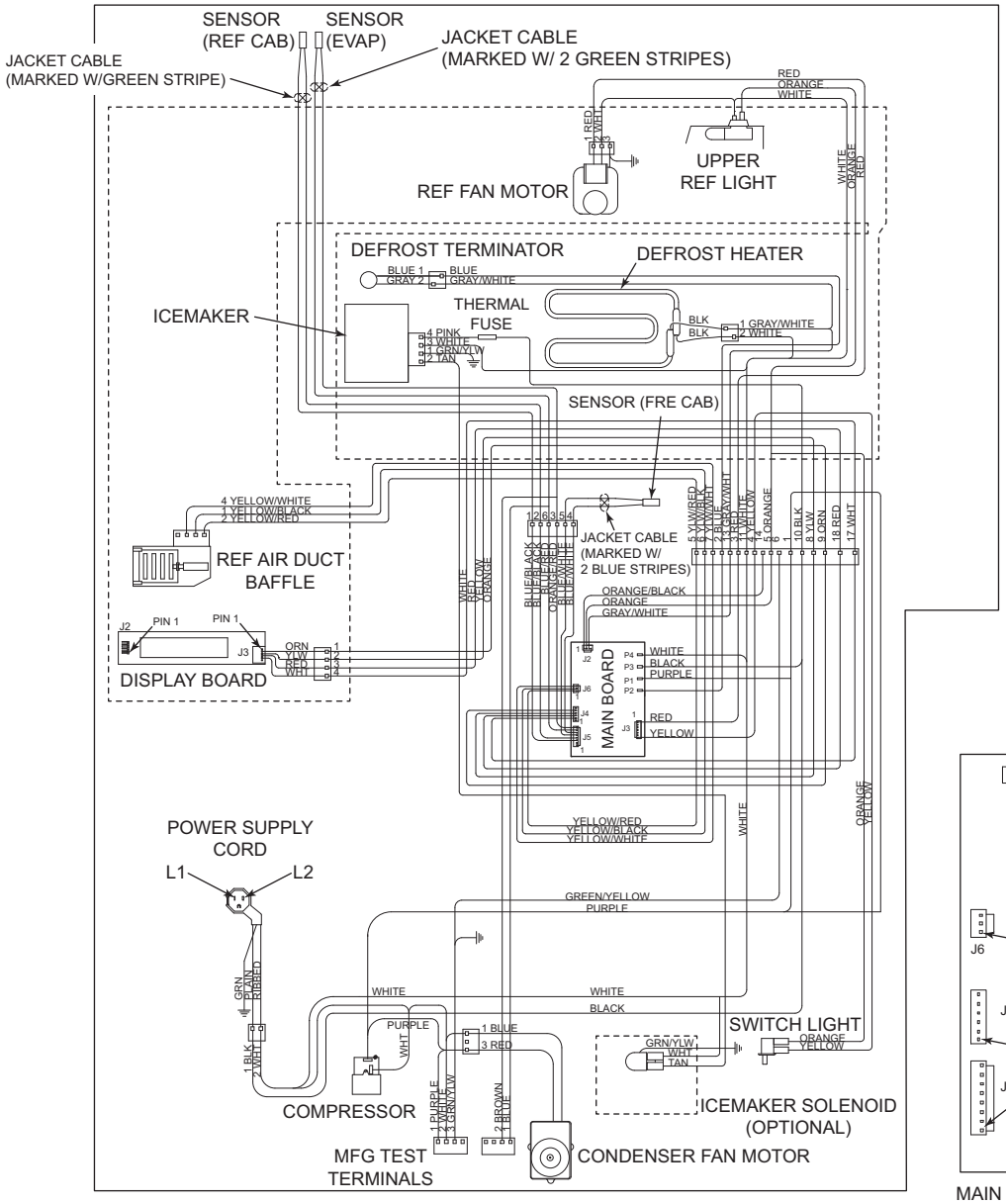
WIRING DIAGRAM
MODEL: UC-24C

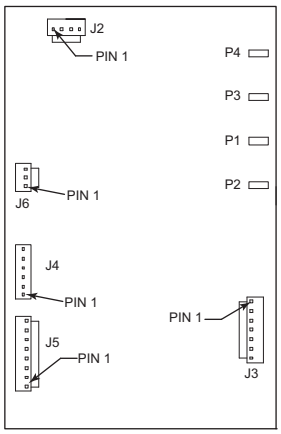
PART NUMBER 7026634 Rev A

PLACE IN WIRING DIAGRAM BAG FOR FUTURE REFERENCE

⚠ WARNING

- This wiring information is provided for use by qualified service personnel only.
- Disconnect appliance from electrical supply before begining service.
- Be sure all grounding devices are connected when service is complete.
- Failure to observe the above warnings may result in severe electrical shock.





MAIN CONTROL BOARD DETAIL

MAIN CONTROL BOARD SUMMARY

TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR	TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS					LOW VOLTAGE CIRCUITS				
P4	L2	NEUTRAL	NEUTRAL INTO BOARD	WHITE	J5-8	EVAP	EVAPORATOR	SENSES EVAP TEMP	BLUE/RED
P3	L1	POWER IN	POWER INTO BOARD	BLACK	J5-7	EVAP	EVAPORATOR	SENSES EVAP TEMP	ORANGE/RED
P1	COMPRESSOR	COMPRESSOR	POWERS COMPRESSOR AND COND. FAN	PURPLE	J5-6,5	NOT USED	NOT USED	NOT USED	--
P2	DEFROST	DEFROST HEATER	POWERS DEFROST CIRCUIT	--	J5-4,3	CAB	REF COMPARTMENT	SENSES REF CAB TEMP	BLUE/BLACK
J3-7	LIGHTS	LIGHTS	POWERS LIGHTS	YELLOW	J5-2,1	CAB	FRE COMPARTMENT	SENSES FRE CAB TEMP	BLUE/WHITE
J3-6	NOT USED	NOT USED	NOT USED	--	J6-1	N	BAFFLE NEUTRAL	BAFFLE NEUTRAL	YELLOW/RED
J3-5	NOT USED	NOT USED	NOT USED	--	J6-2	C	BAFFLE CLOSE	PULSED TO CLOSE NEUTRAL	YELLOW/BLACK
J3-4	NOT USED	NOT USED	NOT USED	--	J6-3	O	BAFFLE OPEN	PULSED TO OPEN NEUTRAL	YELLOW/WHITE
J3-3	NOT USED	NOT USED	NOT USED	--	J4-6	NOT USED	NOT USED	NOT USED	--
J3-2	NOT USED	NOT USED	NOT USED	--	J4-5	DISPLAY	DISPLAY WIRING	GROUND FOR DISPLAY BOARD POWER SUPPLY	ORANGE
J3-1	FAN 1	EVAP FAN	POWERS EVAP FAN	RED	J4-4	DISPLAY	DISPLAY WIRING	SERIAL DATA TRANSMIT	YELLOW
J2-4	NOT USED	NOT USED	NOT USED	--	J4-3	DISPLAY	DISPLAY WIRING	SERIAL DATA RECEIVE	RED
J2-3	DEF	DEFROST SENSOR	SENSES WHEN DEF HEATER SHUTS OFF	ORANGE	J4-2	DISPLAY	DISPLAY WIRING	12DC POWER SUPPLY FOR DISPLAY BOARD	WHITE
J2-2	R DOOR	REF DOOR LIGHT SENSE	SENSES IF LOWER DOOR OPEN	GRAY/WHITE	J4-1	NOT USED	NOT USED	NOT USED	--
J2-1	NOT USED	NOT USED	NOT USED	--					

WIRING SCHEMATIC
MODEL: UC-24C

PART NUMBER 7026634 Rev A

PLACE IN WIRING DIAGRAM BAG FOR FUTURE REFERENCE

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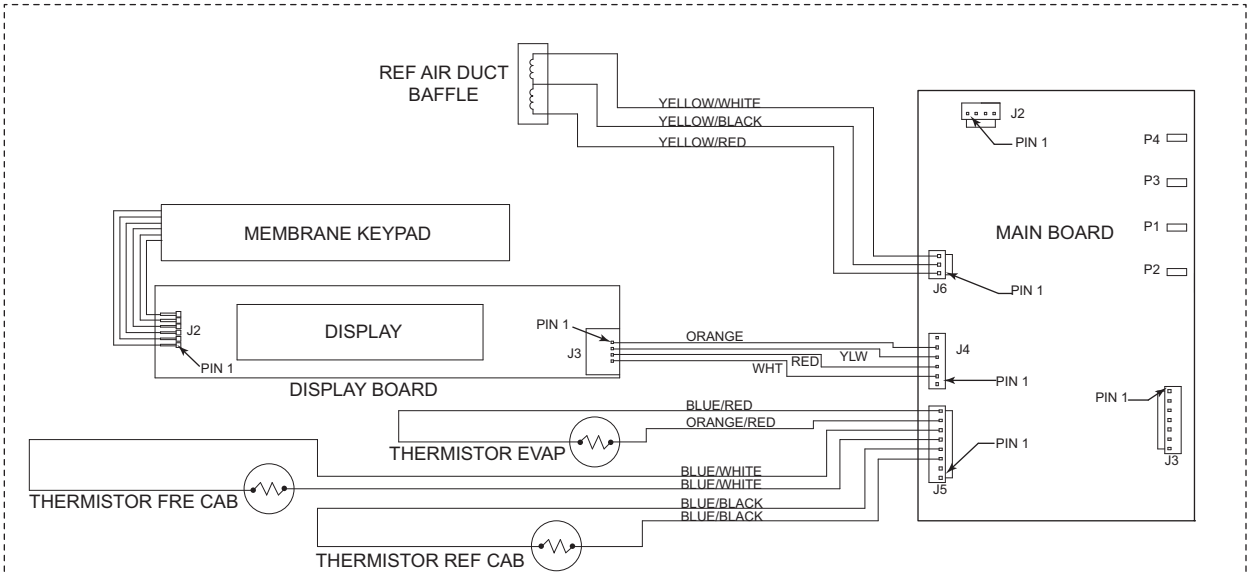
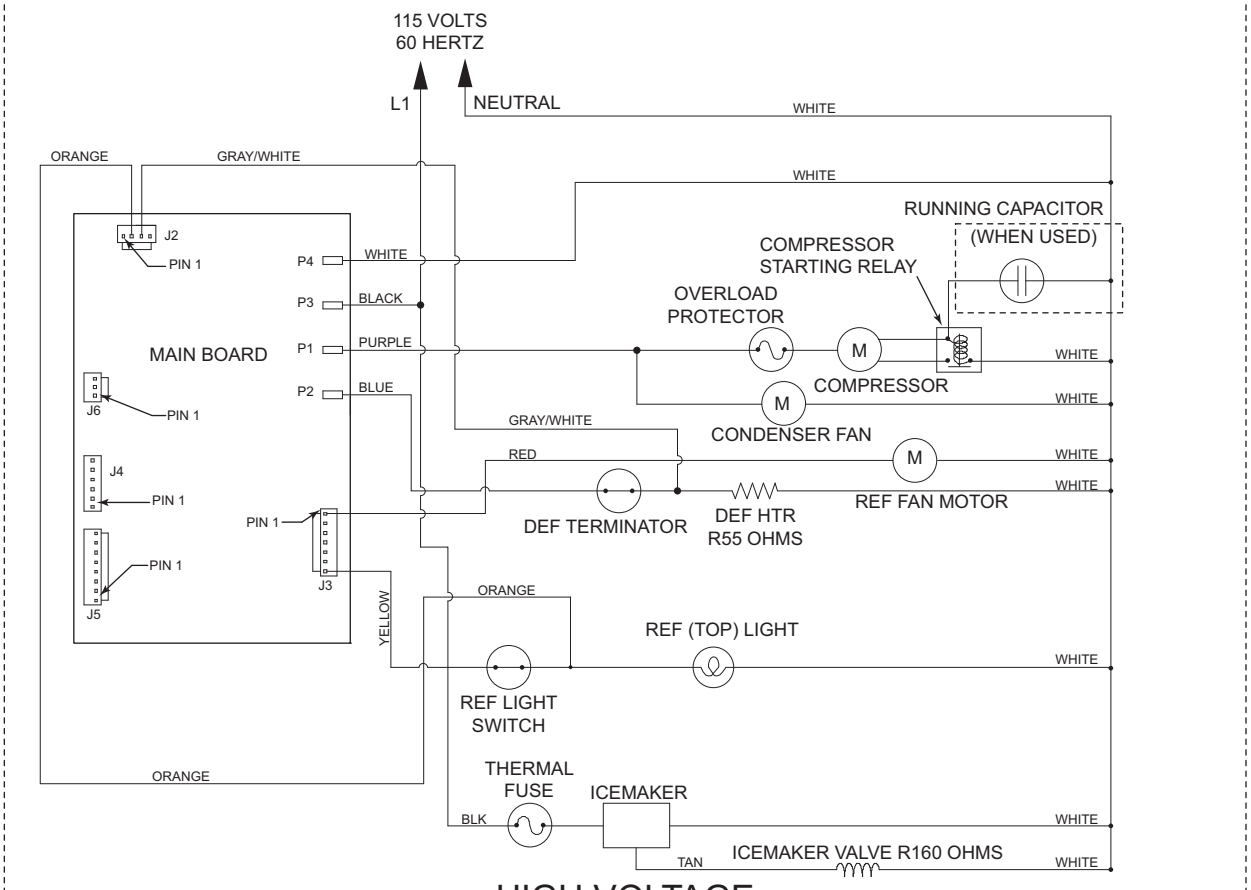


LOW VOLTAGE



HIGH VOLTAGE

WIRING DIAGRAM
MODELS: UC-24R/RO & UC-24B

PART NUMBER 7026638 Rev A

PLACE IN WIRING DIAGRAM BAG FOR FUTURE REFERENCE

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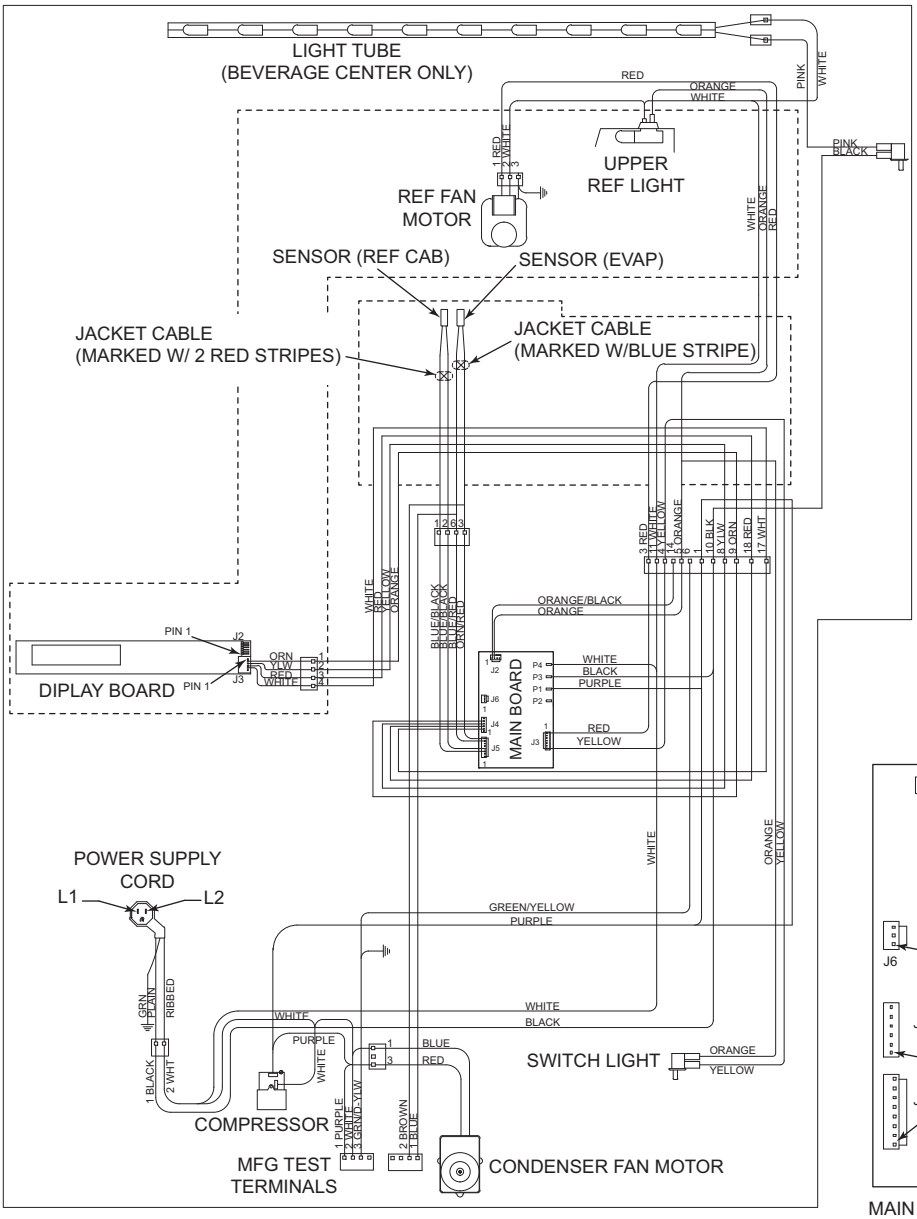

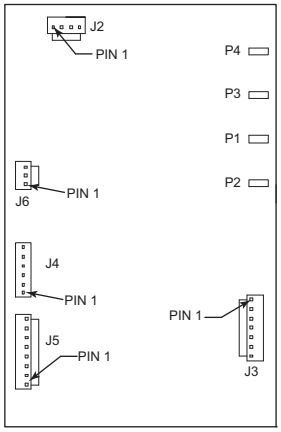

MAIN CONTROL BOARD DETAIL

MAIN CONTROL BOARD SUMMARY

TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR	TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS					LOW VOLTAGE CIRCUITS				
P4	L2	NEUTRAL	NEUTRAL INTO BOARD	WHITE	J5-8	EVAP	EVAPORATOR	SENSES EVAP TEMP	BLUE/RED
P3	L1	POWER IN	POWER INTO BOARD	BLACK	J5-7	EVAP	EVAPORATOR	SENSES EVAP TEMP	ORANGE/RED
P2	NOT USED	NOT USED	NOT USED	--	J5-6,5	NOT USED	NOT USED	NOT USED	--
P1	COMPRESSOR	COMPRESSOR	POWERS COMPRESSOR AND COND. FAN	PURPLE	J5-4,3	CAB	REF COMPARTMENT	SENSES REF CAB TEMP	BLUE/BLACK
J3-7	LIGHTS	LIGHTS	POWERS LIGHTS	YELLOW	J5-2,1	NOT USED	NOT USED	NOT USED	--
J3-6	NOT USED	NOT USED	NOT USED	--	J6-3	NOT USED	NOT USED	NOT USED	--
J3-5	NOT USED	NOT USED	NOT USED	--	J6-2	NOT USED	NOT USED	NOT USED	--
J3-4	NOT USED	NOT USED	NOT USED	--	J6-1	NOT USED	NOT USED	NOT USED	--
J3-3	NOT USED	NOT USED	NOT USED	--	J4-6	NOT USED	NOT USED	NOT USED	--
J3-2	NOT USED	NOT USED	NOT USED	--	J4-5	DISPLAY	DISPLAY WIRING	GROUND FOR DISPLAY BOARD POWER SUPPLY	ORANGE
J3-1	FAN 1	EVAP FAN	POWERS EVAP FAN	RED	J4-4	DISPLAY	DISPLAY WIRING	SERIAL DATA TRANSMIT	YELLOW
J2-4	NOT USED	NOT USED	NOT USED	--	J4-3	DISPLAY	DISPLAY WIRING	SERIAL DATA RECEIVE	RED
J2-3	NOT USED	NOT USED	NOT USED	--	J4-2	DISPLAY	DISPLAY WIRING	12DC POWER SUPPLY FOR DISPLAY BOARD	WHITE
J2-2	R DOOR	REF DOOR LIGHT SENSE	SENSES IF LOWER DOOR OPEN	ORANGE	J4-1	NOT USED	NOT USED	NOT USED	--
J2-1	NOT USED	NOT USED	NOT USED	--					

WIRING SCHEMATIC
MODELS: UC-24R/RO & UC-24B

PART NUMBER 7026638 Rev A

PLACE IN WIRING DIAGRAM BAG FOR FUTURE REFERENCE

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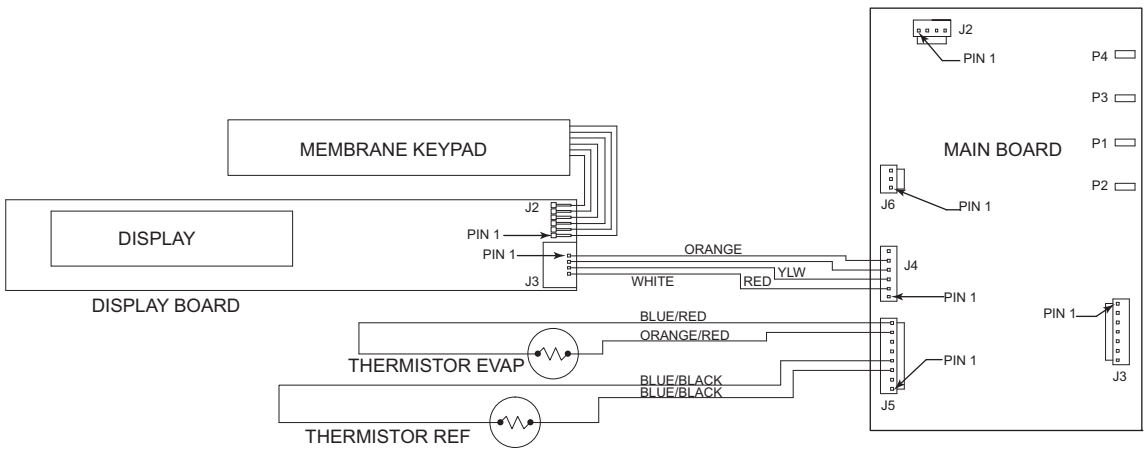
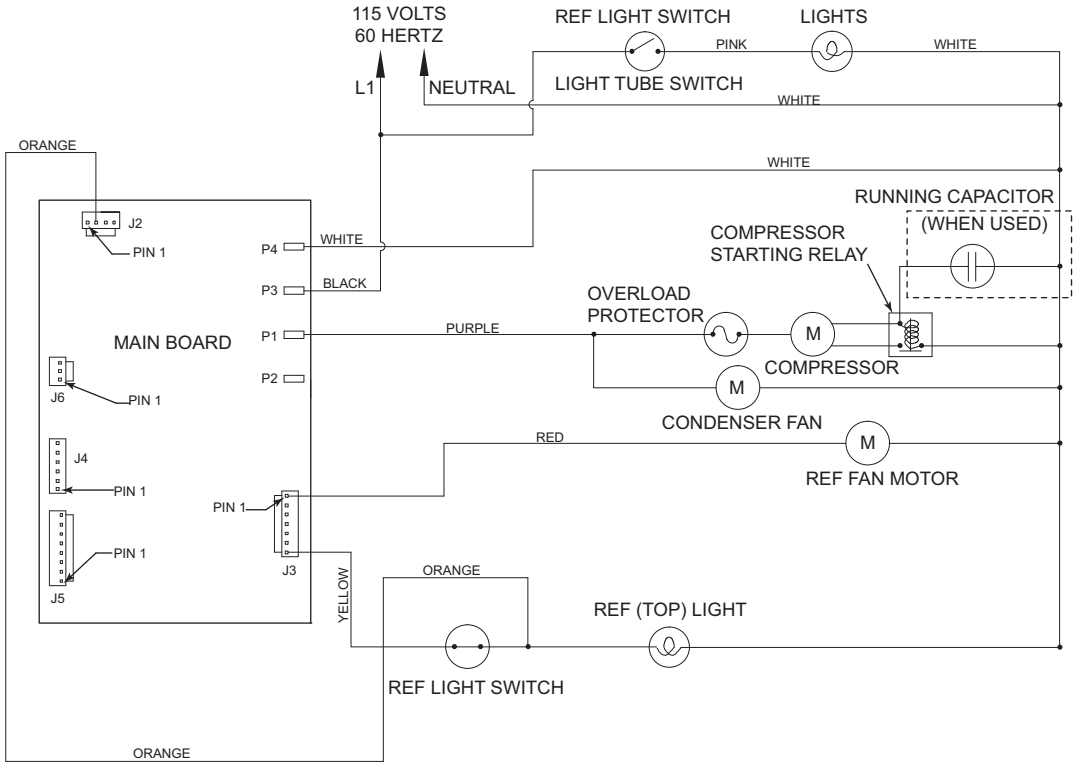


LOW VOLTAGE



HIGH VOLTAGE