

## SECTION 8

# TROUBLESHOOTING GUIDES

CODE	INDICATION
05	Refrig. cabinet thermostat read open or shorted for 10+ seconds, or repeatedly read erratic temp's
06	Refrig. evaporator thermostat read open or shorted for 10+ seconds, or repeatedly read erratic temp's
07	Freezer cabinet thermostat read open or shorted for 10+ seconds, or repeatedly read erratic temp's
08	Freezer evaporator thermostat read open or shorted for 10+ seconds, or repeatedly read erratic temp's
10	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



### 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.

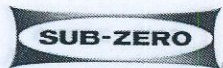
**NOTE:** If error codes are observed in diagnostic mode, a non-flashing SERVICE annunciator will appear on the LCD when Diagnostic Mode ends, indicating error codes are still stored. Error Codes must be cleared from the electronic control memory manually. To clear the non-flashing SERVICE annunciator 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	<p>A. If "EE" for refrigerator compartment was displayed and "SERVICE" flashing, check the following:</p> <ol style="list-style-type: none"><li>1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair.</li><li>2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>B. If "EE" for refrigerator compartment was <u>NOT</u> displayed, problem is intermittent thermistor error:</p> <ol style="list-style-type: none"><li>1. Door not closing properly. Correct door closing problem.</li><li>2. Check light switch, wiring &amp; electrical connections. Repair wiring / connections or replace switch.</li><li>3. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair.</li><li>4. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>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.</p>
06	<p>A. Initiate Diagnostic Mode. If "EE" is displayed for refrigerator evaporator thermistor, check the following:</p> <ol style="list-style-type: none"><li>1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair.</li><li>2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>B. Initiate Diagnostic Mode. If "EE" is <u>NOT</u> displayed for refrigerator evaporator thermistor, problem is intermittent:</p> <ol style="list-style-type: none"><li>1. Door not closing properly. Correct door closing problem.</li><li>2. Check light switch, wiring &amp; electrical connections. Repair wiring / connections or replace switch.</li><li>3. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair.</li><li>4. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>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.</p>
07	<p>A. If "EE" for freezer compartment was displayed and "SERVICE" flashing, check the following:</p> <ol style="list-style-type: none"><li>1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair.</li><li>2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>B. If "EE" for freezer compartment was <u>NOT</u> displayed, problem is intermittent thermistor error or caused by over-heating (above 116°F), check the following:</p> <ol style="list-style-type: none"><li>1. Door not closing properly. Correct door closing problem.</li><li>2. Check light switch, wiring &amp; electrical connections. Repair wiring / connections or replace switch.</li><li>3. Check for proper mounting and location of freezer compartment thermistor. Remount correctly.</li><li>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.</li><li>5. Check thermistor electrical connections and continuity at J5 on control board. Reconnect / repair.</li><li>6. Check resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>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.</p>
08	<p>A. Initiate Diagnostic Mode. If "EE" is displayed for freezer evaporator thermistor, check the following:</p> <ol style="list-style-type: none"><li>1. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair.</li><li>2. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>B. Initiate Diagnostic Mode. If "EE" is <u>NOT</u> displayed for freezer evaporator thermistor, problem is intermittent thermistor error or caused by over-heating (above 116°F), check the following:</p> <ol style="list-style-type: none"><li>1. Door not closing properly. Correct door closing problem.</li><li>2. Check light switch, wiring &amp; electrical connections. Repair wiring / connections or replace switch.</li><li>3. Check for proper mounting and location of freezer evaporator thermistor. Remount correctly.</li><li>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.</li><li>5. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair.</li><li>6. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</li></ol> <p>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.</p>

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

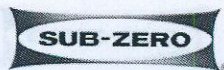


### ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
20	<p>A. With cold evap. (&lt; 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 than 5 minutes, error code is false. Clear error code. If error code is not false:</p> <ol style="list-style-type: none"> <li>1. Check continuity of Grey/White wire from defrost heater to J2 on control board. Reconnect / repair Grey/White wire.</li> <li>2. While in defrost, check for AC power at P2 on control board. If no voltage, replace board.</li> <li>3. Check continuity of Blue wire from defrost terminator to P2 on control board. Reconnect / repair Blue wire.</li> <li>4. Check resistance of defrost heater (see wire diagram for proper resistance). Replace heater if defective.</li> <li>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.</li> <li>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.</li> </ol>
21	<p>A. With cold evap. (&lt; 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:</p> <ol style="list-style-type: none"> <li>1. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly.</li> <li>2. Check Grey/White wire connection at control board (J2-3). If connected wrong or bad connection, reconnect / repair.</li> <li>3. Check for proper mounting &amp; location of evap. thermistor, defrost heater &amp; terminator. Remount correctly.</li> <li>4. Check for electrical short of Blue wire to another circuit. Repair Blue wire &amp;/or electrical connections.</li> <li>5. Check operation of defrost terminator - Cut-in 30°F (-1°C) / Cut-out 55°F (13°C). Replace if defective.</li> </ol>
22	<p>A. With cold evap. (&lt; 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.</p>
23	<p>A. With cold evap. (&lt; 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.</p> <p>B. Check for proper mounting and location of evap. thermistor, defrost heater &amp; terminator. Remount correctly.</p> <p>C. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly.</p> <p>D. Check for electrical short of Blue wire to another circuit. Repair Blue wire &amp;/or electrical connections.</p>
24	<p>A. With cold evap. (&lt; 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:</p> <ol style="list-style-type: none"> <li>1. Check Blue wire connection at control board (P2). If connected to wrong pin, connect correctly.</li> <li>2. Verify proper location of Grey/White wire at control board (J2-3). If connected wrong or bad connection, reconnect / repair.</li> <li>3. Check for proper mounting &amp; location of evap. thermistor, defrost heater &amp; terminator. Remount correctly.</li> </ol>

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





## ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
40	<p>A. If Error Code 07, 20, 21, 22, 23, or 24 is also displayed during Diagnostic Mode, see Test/Actions under that code.</p> <p>B. Check for obstructions to freezer door closing. Remove obstruction.</p> <p>C. Check cleanliness of condenser. Clean if needed.</p> <p>D. Check for obstruction to condenser fan blade or loose fan blade. Remove obstruction/Tighten Blade.</p> <p>E. With unit running, check for AC Power from compressor to condenser fan. Repair defective wiring or replace defective motor.</p> <p>F. Check resistance of freezer compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</p> <p>G. Check evaporator fan blade position and for obstructions. Reposition if incorrect/Remove obstruction.</p> <p>H. With unit running and light switch depressed:</p> <ol style="list-style-type: none"><li>1. Check for AC Power from J3-7 to light switch. Repair wiring/Replace defective switch.</li><li>2. Check for AC Power from J3-1 to evaporator fan motor. Repair wiring/Replace defective motor.</li><li>3. Check for AC Power from P1 to compressor. Repair wiring if defective.</li></ol> <p>I. Check sealed system for leaks, restrictions or inefficient compressor.</p>
50	<p>A. If Error Code 05 is also displayed during Diagnostic Mode, see Test/Actions under that code.</p> <p>B. Check for obstructions to refrigerator door closing. Remove obstruction.</p> <p>C. Check resistance of refrigerator compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.</p> <p>D. Check refrigerator compartment fan blade position and for obstructions. Reposition if incorrect/Remove obstruction.</p> <p>E. With unit running and light switch depressed:</p> <ol style="list-style-type: none"><li>1. Check for AC Power from J3-5 to evaporator fan motor. Repair wiring/Replace defective motor.</li></ol> <p>F. Check air baffle control operation. Repair wiring/Replace if defective.</p> <p>G. Check sealed system for leaks, restrictions or inefficient compressor.</p>

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

Model UC-24R UC-24RO		Model UC-24C		Model UC-24B	
CODE	THERMISTOR LOCATION	CODE	THERMISTOR LOCATION	CODE	THERMISTOR LOCATION
1	Refrigerator Compartment	2	Freezer Compartment	1	Beverage Compartment
2	Evaporator	1	Refrigerator Compartment	2	Evaporator
		2	Evaporator		



### 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

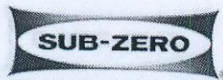
1. Begin troubleshooting by observing compartment set points.
2. If set-points are normal, initiate Diagnostic Mode by pressing and holding either COLDER key, then press POWER key, then release both keys.  
**NOTE:** Diagnostic Mode will end twenty (20) seconds after last key stroke.
3. When Diagnostic 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		Model UC-24C		Models UC-24R, UC-24RO	
THERMISTOR LOCATION	CODE	THERMISTOR LOCATION	CODE	THERMISTOR LOCATION	CODE
Beverage Compartment	r	Freezer Compartment	F	Refrigerator Compartment	r
Evaporator	E	Refrigerator Compartment	r	Evaporator	E
		Evaporator	E		

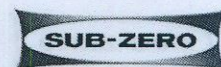




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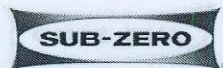
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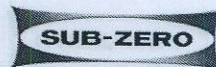
PROBLEM	POSSIBLE CAUSE	TEST / ACTION
A. "EE" Displayed in place of Freezer Temperature with "SERVICE" Flashing	Freezer Compartment Thermistor Disconnected, Shorted, or misread	Check freezer compartment thermistor electrical connections from thermistor to control board. Reconnect / repair connections. 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.
(Continued)	Faulty Light Switch	Check operation of light switch, lights off when switch is depressed. Replace switch if defective.





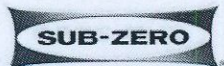
PROBLEM	POSSIBLE CAUSE	TEST / ACTION
<b>F. Warm Refrigerator Temperatures, "SERVICE" not displayed or Flashing</b>  (Continued)	<b>Evaporator Fan Fault</b> a. Fan blade obstructed or out of position b. Evaporator fan motor disconnected  c. Power to Fan Fault, or Fan Motor Defective (NOTE: Compressor 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.
	<b>Compartment Thermistor Misread</b>	Check resistance of refrigerator compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
	<b>Air Baffle Control Fault</b> (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.
		<div style="border: 1px solid black; padding: 5px;"> <b>⚠ CAUTION</b> Low Voltage Circuit. Do NOT apply Line Voltage         </div>
	<b>Evaporator Heavily Frosted</b> 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
	<b>Power to Compressor Fault</b>	Check for AC Voltage at control board. Replace control board if defective.
<b>G. Refrigerator Temperatures Too Cold with or without "SERVICE" Flashing</b> (Model UC-24C ONLY)	<b>Sealed System Fault</b> <ul style="list-style-type: none"> <li>Sealed System Leak</li> <li>Sealed System Restriction</li> <li>Inefficient Compressor</li> </ul>	See Sealed System Troubleshooting Guide
	<b>See Air Baffle Control Fault above</b> (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.



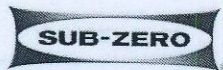


PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued)		
H. Warm Freezer Temperatures, "SERVICE" not displayed or Flashing	Evaporator Heavily Frosted	a. See Door Ajar above. b. See Evaporator Fan Fault above. c. See Thermistor Misread above d. Check electrical connections. Reconnect / repair bad connections. 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.
	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	
	Power to Compressor Fault	Check for AC Voltage at control board. Replace control board if defective.
I. Product Temperature 10° or More Colder than Displayed Temperature	Sealed System Fault	See Sealed System Troubleshooting Guide
	<ul style="list-style-type: none"><li>Sealed System Leak</li><li>Sealed System Restriction</li><li>Inefficient Compressor</li></ul>	
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.



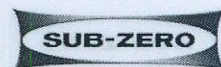
PROBLEM	POSSIBLE CAUSE	TEST / ACTION
K. No Ice	No Water Supply to Unit	Connect/turn on water supply.
	Unit Has Not Run Long Enough	Freezer must be 17°F (-8°C) for icemaker to operate, approximately 24 hours after unit installation. Instruct customer.
	Warm Freezer Temperatures (NOTE: Freezer must be 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. Check for 115V at valve during fill mode. If no 115V, inspect connections at icemaker and valve. Repair or replace connection. 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. Replace icemaker.  3. If icemaker motor does NOT start: d. Check for 115V to icemaker. If no power, repair electrical connection.





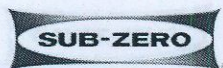
PROBLEM	POSSIBLE CAUSE	TEST / ACTION
L. Icemaker produces Too much ice	Ice Level Arm/Linkage Bent or Broken	Inspect ice level / shut-off arm. Replace defective parts.
	Icemaker Faulty	With ice level arm in UP/OFF position, manually start icemaker with jumper between ports "T" & "H". If icemaker motor 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	<ul style="list-style-type: none"> <li>• Check icemaker for jammed ice cube, clear jam if present.</li> <li>• Check icemaker levelness; level if needed.</li> <li>• Check position of fill cup. Reposition if in ice path.</li> <li>• Check water supply pressure; must be constant 20-100 PSI. If not, instruct customer.</li> <li>• Check water valve operation, opens when AC Voltage is applied, closes completely when AC Voltage is removed. Water valve Ohms = 160. Replace if defective.</li> </ul>
	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

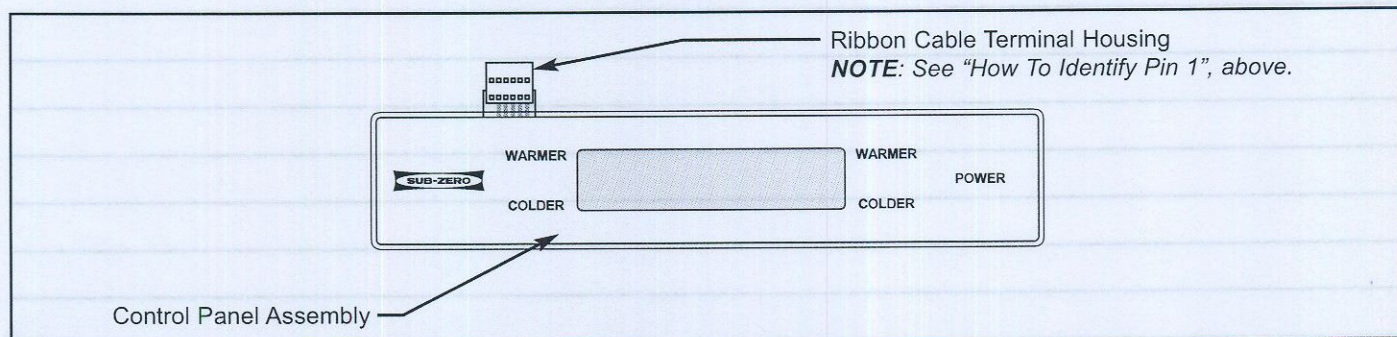


Figure 9-2. UC-24C Control Panel Assembly