

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 700-3 Series Base 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 UNIT ON/OFF 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, press and hold the Door Ajar Alarm Bell ON/OFF key for 15 seconds. The control will emit a short "beep" when the SERVICE annunciator and error codes are cleared.

Error Code Table	
CODE	INDICATION
05	Refrig. cabinet 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	Excessive Icemaker Water Valve Solenoid Activation (Exceeded 15 Seconds)
40	Excessive Freezer Compressor Run
50	Excessive Refrigerator Compressor Run (Model 700BCI) / Excessive Refrigerator Fan Run (Model 700BR)



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"> 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. Replace if defective. <p>B. If "EE" for refrigerator compartment was <u>NOT</u> displayed, problem is intermittent thermistor error:</p> <ol style="list-style-type: none"> 1. Door not closing properly. Correct door closing problem. 2. Fan switch, light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 4. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F. Replace if defective. <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 problem A in General Troubleshooting Guide.</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"> 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. Replace if defective. <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"> 1. Door not closing properly. Correct door closing problem. 2. Fan switch, light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 4. Resistance of thermistor - 30,000 to 33,000 ohms at 32°F. Replace if defective. <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 problem A in General Troubleshooting Guide.</p>
07	<p>A. If "EE" for freezer compartment was displayed and "SERVICE" flashing, check the following:</p> <ol style="list-style-type: none"> 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. Replace if defective. <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"> 1. Door not closing properly. Correct door closing problem. 2. Fan switch, light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Proper mounting and location of freezer compartment thermistor. Remount correctly. 4. Defrost terminator. Replace if defective. 5. Thermistor electrical connections and continuity from thermistor to J5 on control board. Reconnect / repair. 6. Resistance of thermistor -r 30,000 to 33,000 ohms at 32°F. Replace if defective. <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 problem A in General Troubleshooting Guide.</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"> 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. Replace if defective. <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"> 1. Door not closing properly. Correct door closing problem. 2. Fan switch, light switch, wiring & electrical connections. Repair wiring / connections or replace switch. 3. Proper mounting and location of freezer evaporator thermistor. Remount correctly. 4. Proper operation of defrost terminator (Cut-in 30°F/Cut-out 70°F). Replace if defective. 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. Replace if defective. <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 problem A in General Troubleshooting Guide.</p>

NOTE: After repairs, always clear Error Codes by pressing Bell ON/OFF key for 15 seconds.

ERROR CODE TROUBLESHOOTING GUIDE

EC	TEST / ACTION
20	<p>A. With cold evap. (< 10°F), initiate Manual Defrost, then initiate Diagnostic Mode (press UNIT ON/OFF key every 20 seconds to keep in Diagnostic Mode) and observe evap. temp. If temp. exceeds 45°F 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"> 1. Check continuity of Grey/White wire from defrost heater to J2-3 on control board. Reconnect / repair Grey/White wire. 2. While in defrost, check for 115V AC 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/Cut-out 70°F). 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	<p>A. With cold evap. (< 10°F), initiate Manual Defrost, then initiate Diagnostic Mode (press UNIT ON/OFF key every 20 seconds to keep in Diagnostic Mode) and observe evap. temp. If temp. does <u>not</u> exceed 105°F, error code is false. Clear error code. If error code is not false:</p> <ol style="list-style-type: none"> 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 / Cut-out 70°F). Replace if defective.
22	<p>A. With cold evap. (< 10°F), initiate Manual Defrost. If compressor starts 5 minutes (10 minutes in 700TF/I-2V) 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. (< 10°F), initiate Manual Defrost. If compressor starts 5 minutes (10 minutes in 700TF/I-2V) 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 & 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 &/or electrical connections.</p>
24	<p>A. With cold evap. (< 10°F), initiate Manual Defrost, then initiate Diagnostic Mode (press UNIT ON/OFF 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"> 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.
30	<p>A. Check for jammed cube in icemaker.</p> <p>B. Reference wiring diagram to identify components in same White wire circuit as water valve solenoid. Check all White wire electrical connections and continuity from water valve solenoid to P4 on control board.</p>

NOTE: After repairs, always clear Error Codes by pressing Bell ON/OFF key for 15 seconds.



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 drawer closing, including drawer closer position. Remove obstruction/Trip drawer closer forward.</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 115 V AC 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. 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 switches depressed:</p> <ol style="list-style-type: none">1. Check for 115 V AC form J3-7 to light switches. Repair wiring/Replace defective switch.2. Check for 115 V AC form J3-1 to evaporator fan motor. Repair wiring/Replace defective motor.3. Check for 115 V AC form P1 to compressor. Repair wiring if defective. <p>I. Check sealed system for leaks, restrictions or inefficient compressor.</p>
50	<p>A. If Error Code 07, 20, 21, 22, 23, 24 or 40 is also displayed during Diagnostic Mode, see Test/Actions under that code.</p> <p>B. Check for obstructions to refrigerator drawer closing, including drawer closer position. Remove obstruction/Trip drawer closer forward.</p> <p>C. Check resistance of refrigerator compartment thermistor - 30,000 to 33,000 ohms at 32°F. 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 switches depressed:</p> <ol style="list-style-type: none">1. Check for 115 V AC form J3-5 to evaporator fan motor. Repair wiring/Replace defective motor. <p>F. Check air baffle control operation (700BC/I-3 Only). Repair wiring/Replace if defective.</p> <p>G. Check sealed system for leaks, restrictions or inefficient compressor.</p>

NOTE: After repairs, always clear Error Codes by pressing Bell ON/OFF key for 15 seconds.

HOW TO USE THE GENERAL TROUBLESHOOTING GUIDE

- The table on page 8-6 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 UNIT ON/OFF key, then release both keys.
NOTE: *Diagnostic Mode will end twenty 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 on previous pages.
5. If no Error Codes, initiate Manual Component Activation Mode (which lasts for 5 minutes) by pressing and holding freezer COLDER and UNIT ON/OFF keys for 10 seconds, then observe evaporator temperatures.
6. After observing evaporator temperature as instructed above, take note of "Pointers" in first column of the troubleshooting guide under problems "A" through "D". The "Pointers" list what possible causes to check based on evaporator temperature observed.

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 UNIT ON/OFF key then either WARMER key simultaneously. Toggle through indexes by pressing WARMER or COLDER key.*

BC/I-3 Thermistor Code Table		BR-3 Thermistor Code Table		BF/I-3 Thermistor Code Table	
THERMISTOR LOCATION	CODE	THERMISTOR LOCATION	CODE	THERMISTOR LOCATION	CODE
<i>Freezer Compartment</i>	<i>F</i>	<i>Refrigerator Compartment</i>	<i>r</i>	<i>Freezer Compartment</i>	<i>F</i>
<i>Refrigerator Compartment</i>	<i>r</i>	<i>Evaporator</i>	<i>E</i>	<i>Evaporator</i>	<i>E</i>
<i>Evaporator</i>	<i>E</i>				



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2. If outside US - "Extremely" Warm Temperatures Displayed

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- -5° to 5° in Freezer

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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. 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. 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
	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. 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 and hold alarm key for 15 seconds to clear error codes.
E. Erratic Temperatures with or without "SERVICE" Flashing	Control Board Configured for Wrong Model	<i>Initiate Manual Model Configuration Mode and reconfigure to correct model.</i>
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 UNIT ON/OFF key.
	Unit in Show Room Mode	Press UNIT ON/OFF key to OFF, then press and hold WARMER& COLDER keys, and press UNIT ON/OFF 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 or Drawer Ajar a. Food product obstruction b. Drawer closer tripped backwards	a. Move obstruction. b. Trip drawer closer forward
	Faulty Light Switch	Check operation of light switches, lights off when switch is depressed. Replace switch if defective. (NOTE: Two light switches in unit)

(Continued)



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
<p>(Continued)</p> <p>F. Warm Refrigerator Temperatures, "SERVICE" not displayed or Flashing</p>	<p>Refrigerator Compartment Fan Fault</p> <ul style="list-style-type: none"> a. Fan blade obstructed or out of position b. Evaporator fan motor disconnected c. Power to Fan Fault, or Fan Motor Defective 	<ul style="list-style-type: none"> a. Move obstruction or reposition blade. b. Check electrical connections & continuity from control board to motor. Reconnect / repair bad connections. c. With light switches depressed, check for 115V AC from control board to fan motor. Replace control board if defective, or Replace motor if defective.
	<p>Compartment Thermistor Disconnected, Shorted, or misread</p>	<p>Check refrigerator evaporator thermistor electrical connections from thermistor to control board. Reconnect / repair connections. Check resistance of refrigerator evaporator thermistor for 30,000 to 33,000 ohms at 32°F. Replace if defective.</p>
	<p>Air Baffle Control Fault (700BCI-3 Only)</p> <ul style="list-style-type: none"> a. Baffle Control Stuck Closed b. Baffle Control Disconnected, Defective, or not Receiving Signal from Control Board. 	<ul style="list-style-type: none"> a. Manually open / close air baffle control. If movement is not smooth, replace baffle control. b. With light switches depressed, initiate Manual Compartment Activation Mode for refrigerator compartment and observe baffle operation. If baffle does not open within 3 minutes: <ol style="list-style-type: none"> 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; margin-top: 10px;"> <p>⚠ CAUTION Low Voltage Circuit. Do NOT apply 115V AC.</p> </div>



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
<p>G.) Warm Freezer Temperatures, "SERVICE" not displayed or Flashing</p> <p><i>Pointers:</i></p> <p><i>Compressor must be ON & unit not defrosting, then initiate Diagnostic Mode to observe evaporator temperature.</i></p> <p>1. "Sr" appears, see:</p> <ul style="list-style-type: none"> Unit in Showroom Mode <p>2. "EC" appears, see:</p> <ul style="list-style-type: none"> Error Code Troubleshooting Guide <p>3. Evap. temp. -20°F (-29°C) or lower, see:</p> <ul style="list-style-type: none"> Drawer ajar Lights switch fault Evaporator fan fault Compartment thermistor mis-read Evaporator heavily frosted Sealed system fault - leak or partial restriction <p>4. Evaporator Temp. between -19°F (-28°C) & 10°F (-12°C), see:</p> <ul style="list-style-type: none"> Warm food load High room ambient Drawer ajar Condenser Air Flow Compartment thermistor mis-read Sealed system fault, leak <p>5. Evap. Temp. 20°F (-29°C) or higher, see:</p> <ul style="list-style-type: none"> Power To Compressor fault Sealed system fault, leak restriction or inefficient compressor <p><i>(NOTE: "Pointers" do not apply to cabinet initial pulldown from ambient temperatures.)</i></p> <p><i>(Continued)</i></p>	<p>No Power to Unit</p>	<p>Check power to unit, plug unit in or switch supply circuit breaker ON.</p>
	<p>Unit Switched OFF</p>	<p>Check for "OFF" displayed at LCD. If off, press UNIT ON/OFF key.</p>
	<p>Unit in Show Room Mode</p>	<p>Press UNIT ON/OFF key to OFF, then press and hold WARMER & COLDER keys, and press UNIT ON/OFF key.</p>
	<p>Control Set Too High</p>	<p>Check set-point. If high, adjust.</p>
	<p>Warm Food Load</p>	<p>Check contents of freezer for warm food load. Instruct customer.</p>
	<p>High Room Ambient</p>	<p>Instruct customer unit performs best between 60°F (16°C) and 90°F (32°C).</p>
	<p>Drawer Ajar</p> <p>a. Food product obstruction b. Drawer closer tripped backwards</p>	<p>a. Move obstruction. b. Trip drawer closer forward</p>
	<p>Condenser Air Flow</p> <p>a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective</p>	<p>a. Clean condenser. b. Remove obstruction or tighten blade. c. Check continuity from motor to compressor. Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace if defective.</p>
	<p>Faulty Light Switch</p>	<p>Check operation of light switches, lights off when switch is depressed. Replace switch if defective. <i>(NOTE: Two light switches in unit)</i></p>
	<p>Evaporator Fan Fault</p> <p>a. Fan blade obstructed or out of position b. Evaporator fan motor disconnected c. Power to Fan Fault, or Fan Motor Defective <i>(NOTE: Compressor must be running)</i></p>	<p>a. Move obstruction or reposition blade. b. Check electrical connections & continuity from control board to motor. Reconnect / repair bad connections. c. With light switches depressed, check for 115V AC from control board to fan motor. Replace control board if defective, or Replace motor if defective.</p>
<p>Compartment Thermistor Misread</p>	<p>Check resistance of freezer compartment thermistor for 30,000 to 33,000 ohms at 32°F. Replace if defective.</p>	



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
<p>(Continued)</p> <p>G.) Warm Freezer Temperatures, "SERVICE" <u>not</u> displayed or Flashing</p> <p><i>Pointers:</i></p> <p><i>Compressor must be ON & unit not defrosting, then initiate Diagnostic Mode to observe evaporator temperature.</i></p> <p>1. "Sr" appears, see: <ul style="list-style-type: none"> • Unit in Showroom Mode </p> <p>2. "EC" appears, see: <ul style="list-style-type: none"> • Error Code Troubleshooting Guide </p> <p>3. Evaporator temp. -20°F (-29°C) or lower, see: <ul style="list-style-type: none"> • Drawer ajar • Lights switch fault • Evaporator fan fault • Compartment thermistor misread • Evaporator heavily frosted • Sealed system fault - leak or partial restriction </p> <p>4. Evaporator Temp. between -19°F (-28°C) & 10°F (-12°C), see: <ul style="list-style-type: none"> • Warm food load • High room ambient • Drawer ajar • Condenser Air Flow • Compartment thermistor misread • Sealed system fault, leak </p> <p>5. Evaporator Temp. 20°F (-29°C) or higher, see: <ul style="list-style-type: none"> • Power To Compressor fault • Sealed system fault, leak restriction or inefficient compressor </p> <p>(NOTE: "Pointers" do not apply to cabinet initial pulldown from ambient temperatures.)</p>	<p>Evaporator Heavily Frosted</p> <ul style="list-style-type: none"> a. Drawer 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 <p>Power to Compressor Fault</p> <p>Sealed System Fault</p> <ul style="list-style-type: none"> • Sealed System Leak • Sealed System Restriction • Inefficient Compressor 	<ul style="list-style-type: none"> a. See Drawer 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 115V AC at control board. Replace control board if defective. <p>Check for 115V AC at control board. Replace control board if defective.</p> <p>See Sealed System Troubleshooting Guide</p>



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
<p><i>(Continued)</i></p> <p>K. No Ice, "ICE" Displayed, but not Flashing</p> <p><i>(NOTE: The Icemaker system is disabled for 45 minutes after each harvest.)</i></p>	<p>Icemaker System Fault</p> <p>a. Disconnected or damaged electrical connections at icemaker or water valve.</p> <p>b. Defective icemaker</p> <p>c. Defective icemaker</p> <p>d. Disconnected or damaged electrical connections at icemaker</p> <p>e. Icemaker switch disconnected or faulty</p> <p>f. Electrical connection at control board or control board defect</p>	<p>Press ICE key to OFF, then to ON to bypass 45 minute dwell. Then, depress icemaker switch & manually start icemaker with jumper between ports "T" & "H". Watch cycle of icemaker and see #1, #2 & #3 below.</p> <p>1. If icemaker motor starts and finishes cycle:</p> <p>a. Check for 115V at valve during fill mode. If no 115V, inspect connections at icemaker and valve. Repair or replace connection.</p> <p>b. Check for 115V from icemaker during fill mode. If no power, replace icemaker.</p> <p>2. If icemaker motor starts but does not finish cycle:</p> <p>c. Replace icemaker.</p> <p>3. If icemaker motor does NOT start:</p> <p>d. Check for 115V to icemaker. If no power, repair electrical connection.</p> <p>e. Check power to/from icemaker switch. Repair connection, replace defective switch.</p> <p>f. Check for 115V at control board (J7-5). If no power, replace control board. If power, repair connection.</p>
<p>L. No Ice and "ICE" not Displayed</p>	<p>Icemaker System Not Energized</p>	<p>Press ICE key. "ICE" should appear on LCD.</p>
<p>M. Icemaker produces Too much ice</p>	<p>Ice Level Arm/Linkage Bent or Broken</p>	<p>Inspect ice level arm, shut-off arm and linkage. Replace defective parts.</p>
	<p>Icemaker Faulty</p>	<p>With ice level arm in UP/OFF position, Pressing ICE key to OFF, then ON to bypass 45 minute dwell. Then, depress icemaker switch & manually start icemaker with jumper between ports "T" & "H". If icemaker motor starts with arm in the UP/OFF position, replace icemaker.</p>
<p>N. Icemaker Produces Hollow Cubes</p>	<p>Freezer Too Cold, Cycles Icemaker Too Soon</p>	<p>See PROBLEM "H" earlier in Troubleshooting Guide.</p>
	<p>Not Enough Thermal-Mastic on Icemaker Thermostat</p>	<p>Inspect icemaker thermostat, apply more Thermal-Mastic to thermostat.</p>
	<p>Icemaker Thermostat Fault</p>	<p>Replace Thermostat.</p>
<p>O. Icemaker Produces Small cubes</p>	<p>Water Supply Problem</p>	<p>Check water supply pressure; must be constant 20-100 PSI. If not, instruct customer.</p>
	<p>Icemaker Not Level</p>	<p>Check level of icemaker, adjust if needed</p>
	<p>Low Fill Adjustment on Icemaker</p>	<p>Check for 100-110 cc. fill (3.5-3.75 oz.). If low, increase fill by turning adjusting screw counterclockwise.</p>



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
P. 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"> • 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 115V AC is applied, closes completely when 115V AC is removed. Water valve Ohms = 160. Replace if defective. <p>NOTE: Unit must be switched OFF, then ON to clear flashing ICE & SERVICE, then press alarm key for 15 seconds to clear error codes.</p>
	Intermittent Warm Freezer Temperatures	See PROBLEM A, B, D, E, F & G earlier in Troubleshooting Guide.
Q. No LCD	Unit in Sabbath Mode	Exit Sabbath Mode, press UNIT ON/OFF key.
	Display Wire Harness Disconnected or Faulty	Check display wire harness and connections, including wires behind refrigerator duct cover. 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.
R. 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 UNIT ON/OFF key.
	Unit in Sabbath Mode	Exit Sabbath Mode, press UNIT ON/OFF key.
	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 115V AC 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 115V AC from control board. Replace board if defective. (NOTE: See Unit in Sabbath Mode above.)



PROBLEM	POSSIBLE CAUSE	TEST / ACTION
S. Lights Stay ON when Drawers Closed - (May be Accompanied by /Drawer Ajar Alarm Bell)	Door or Drawer Ajar a. Food product obstruction b. Drawer closer tripped backwards	a. Move obstruction. b. Trip drawer closer forward
	Faulty Light Switch	Check operation of light switches, lights off when switch is depressed. Replace switch if defective. <i>(NOTE: Two light switches in unit)</i>
T. Drawers Not Able to Close Completely	Food Product Obstruction	Move obstruction.
	Drawer Closer Tripped Backwards	Trip drawer closer forward
U. Drawers Uneven	Improper Drawer Panel Installation	The drawers are non-adjustable. Instead, the drawer panels must be adjusted if there is an alignment problem. Refer to the Installation Manual and/or installation video for panel installation and adjustment.
	Unit Not Level	Check levelness of unit. If un-level, turn front leveling legs counterclockwise to raise front or clockwise to lower it. Rear levelers are adjusted from front of base by turning adjusting screw clockwise to raise rear or counterclockwise to lower it. Refer to the Installation Manual and/or installation video for complete installation and leveling instructions.

SEALED SYSTEM TROUBLESHOOTING / 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
700BC/I-3	5" Vac - 1 psi to 6 - 12 psi	75 psi to 120 psi
700BR-3	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
700BF/I-3	5" Vac - 1 psi to 6 - 12 psi	75 psi to 120 psi

PRESSURE INDICATIONS		
<i>If low-side pressure is</i>	<i>& high-side pressure is</i>	<i>possible problem is</i>
NORMAL	NORMAL	MECHANICAL <i>(see General Troubleshooting Guide)</i>
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, etc.

If a unit is experiencing temperature problems, it is recommended that you follow the "Pointers" in the first column of the General Troubleshooting Guide. 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 / -.69 Bar
-25°F / -32°C	7" Vac / -.48 Bar
-20°F / -29°C	4" Vac / -.28 Bar
-15°F / -26°C	0" Vac / 0 Bar
-10°F / -23°C	2 Psi / .14 Bar
-5°F / -21°C	4 Psi / .28 Bar
0°F / -18°C	7 Psi / .48 Bar
5°F / -15°C	9 Psi / .62 Bar
10°F / -12°C	12 Psi / .83 Bar
15°F / -9°C	15 Psi / 1.03 Bar
20°F / -7°C	18 Psi / 1.24 Bar
25°F / -4°C	22 Psi / 1.51 Bar
30°F / -1°C	26 Psi / 1.79 Bar
35°F / 2°C	30 Psi / 2.07 Bar
40°F / 4°C	35 Psi / 2.41 Bar
45°F / 7°C	40 Psi / 2.76 Bar
50°F / 10°C	45 Psi / 3.10 Bar
55°F / 13°C	51 Psi / 3.52 Bar
60°F / 16°C	57 Psi / 3.93 Bar
65°F / 18°C	64 Psi / 4.41 Bar
70°F / 21°C	71 Psi / 4.90 Bar
75°F / 24°C	78 Psi / 5.38 Bar



BASE UNIT 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 the control panel assembly from unit and place it on solid surface, then disconnect the ribbon cable from display control board.

Pin 1 Identification Procedure

The ribbon cable wires are exposed at the back-side of the terminal housing (see Figure 8-1). Pin 1 is labeled on the ribbon cable. If Pin 1 is not labeled and if:

1. Terminal housing is blue, then Pin 1 is indicated by the arrow on the housing.
2. Terminal housing is black, then:
 - a. Place ohm meter leads between second and fourth pin from each end of the housing while pushing Alarm Bell ON / OFF Key.
 - b. When continuity is observed, pin 1 will be adjacent to the pin second from the end that was just identified.

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	UNIT ON/OFF KEY	ALARM (Δ) ON/OFF KEY	ICE ON/OFF KEY	REFRIG WARMER KEY	REFRIG COLDER KEY	FREEZER WARMER KEY	FREEZER COLDER KEY
700BC/I-3	3 - 4	2 - 4	4 - 6	4 - 5	1 - 3	1 - 2	1 - 5
700BR-3	3 - 4	2 - 4	NA	4 - 5	1 - 3	NA	NA
700BF/I-3	3 - 4	2 - 4	4 - 5	NA	NA	1 - 2	1 - 5

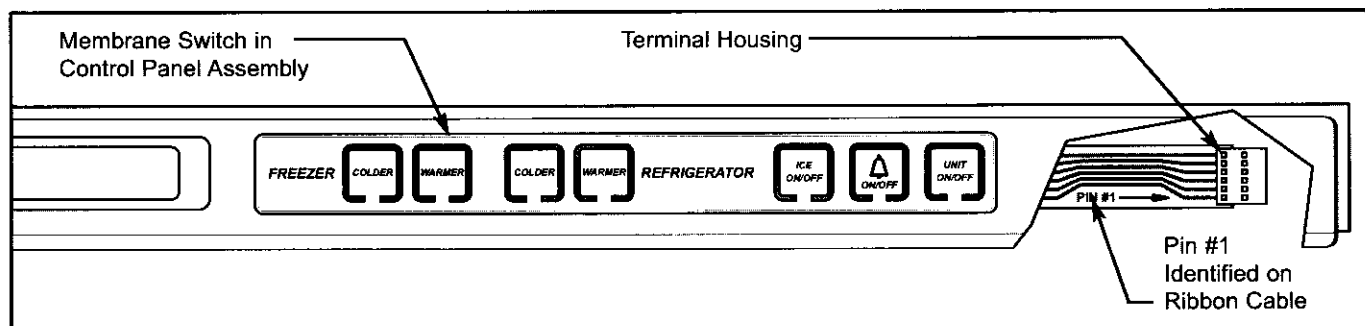


Figure 8-1. 700BCI-3 Control Panel Assembly with Cut-Away View to Show Ribbon Cable