700
Service Manual

INTRODUCTION

This Technical Service Manual has been compiled to provide the most recent service information for 700-3 Series Tall units. This information will enable the service technician to troubleshoot and diagnose malfunctions, perform necessary repairs, and return a unit to proper operational condition.

The service technician should read the complete instructions contained in this manual before initiating any repairs on a 700-3 Tall Series unit.

IMPORTANT SAFETY INFORMATION

Below are 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 of 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, and/or product damage, 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, Inc.
ATTN: Service Department
P.O. Box 44988
Madison, WI 53744-4988

Customer Service & Parts / Warranty Claims
Phone #: (800) 222 - 7820

Technical Assistance
Phone #: (800) 919 - 8324

Customer Service & Technical Assistance
Facsimile #: (608) 441 - 5887

Parts / Warranty Claims
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 Freezer Co., Inc. assumes no responsibility for any repairs made on Sub-Zero refrigeration units by anyone other than Authorized Service Technicians.

WARRANTY INFORMATION

This page summarizes the *2, 5 & 12 Year Residential Warranty* provided with every Sub-Zero, as well as two special warranties:

- *Non-Residential Warranty* - Applies to units installed in non-residential applications.
- *Display/Model Home Warranty* - Applies to distributor or dealer display units, and units in model homes, sold three years after date of manufacture.

Following the warranty summaries are details and notes about the warranties.

TWO, FIVE & TWELVE YEAR Warranty

- 2 year TOTAL PRODUCT, *parts and labor.
- 5 Year SEALED SYSTEM, **parts and labor.
- 6th - 12th year LIMITED SEALED SYSTEM, **parts only.

ONE & FIVE YEAR Non-Residential Warranty (Example: Office, Yacht, etc.)

- 1 Year TOTAL PRODUCT, *parts and labor.
- 5 Year SEALED SYSTEM, **parts only.

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

- 1 Year TOTAL PRODUCT, *parts and labor.
- 5 Year SEALED SYSTEM, **parts only.

Warranty Details:

* *Includes, but is not limited to the following:*

Electronic Control System Components, Fan & Light Switches, Fan Motors & Blades, Defrost & Drain Heaters, Defrost Terminator, Drain Pan, Drain Tubes, Wiring, Light sockets & bulbs, Icemaker, Water Valve, Door hinges, Door closers & Cams, Compressor Electricals, etc. . .

* *Stainless Steel (Classic, Platinum & Carbon) doors, panels and product frames are covered by a limited 60 day parts and labor warranty for cosmetic defects.*

** *Includes the following:*

Compressors, Condenser, 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 unit's initial installation date.*
- *All Warranty and Service information collected by Sub-Zero is arranged and stored under the unit serial number, and the customer's last name.*
  Sub-Zero requests that you have the model and serial number available whenever contacting the factory or parts distributor.
- *The serial tag is located on the left wall of the upper drawer compartment.*

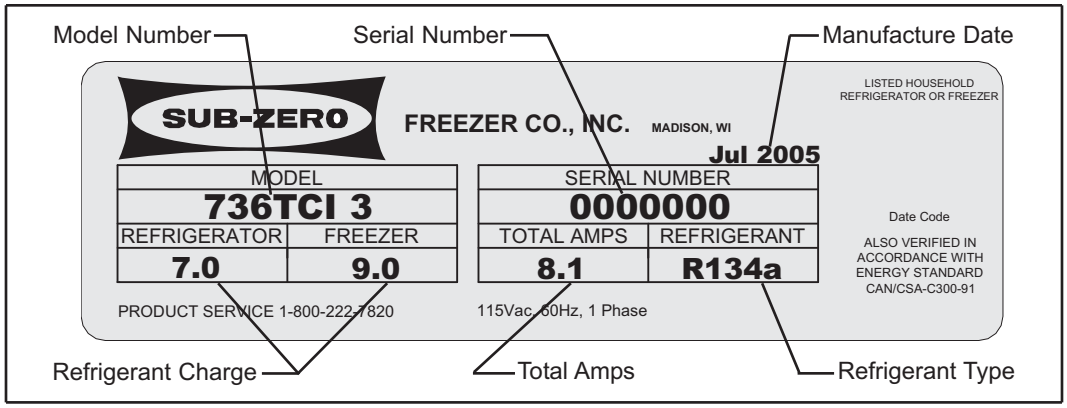


Figure 1-1. Serial Tag Layout
(*The serial number tag is located on the left side wall of the upper drawer compartment.)*

MODEL DESCRIPTIONS

This page briefly describes the models covered in this 700-3 Tall Unit Technical Service Manual.

MODEL	DESCRIPTION
700TC-3	**700** Series, 27" Wide **T**all **C**ombination Refrigerator/Freezer, **3**rd Design Build
700TCI-3	**700** Series, 27" Wide **T**all **C**ombination Refrigerator/Freezer, w/**I**cemaker, **3**rd Design Build

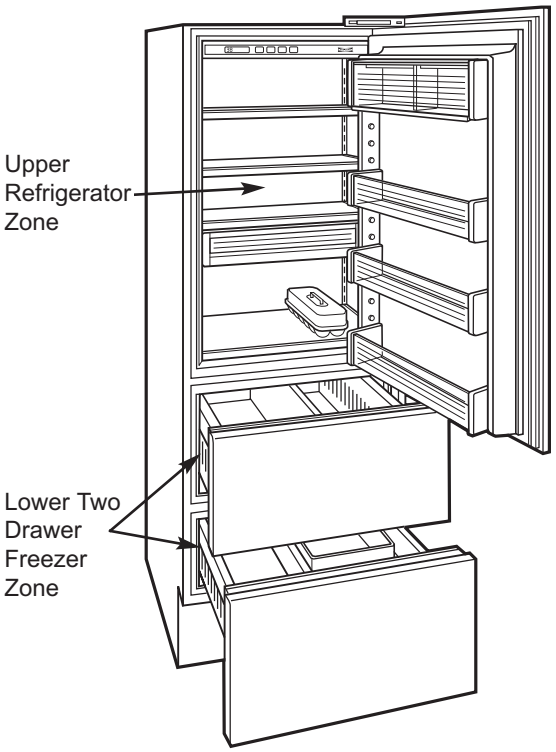


Figure 1-2. Model 700TC-3 & 700TCI-3

MODEL	DESCRIPTION
700TR-3	**700** Series, 27" Wide **T**all **R**efrigerator, **3**rd Design Build

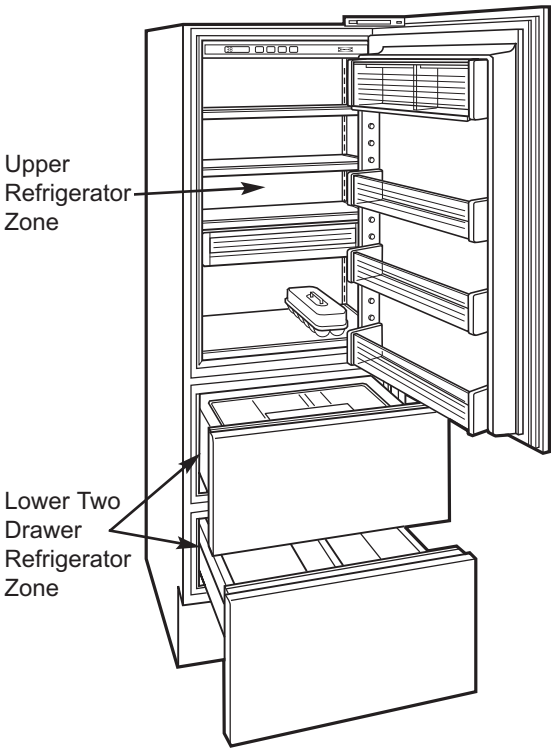


Figure 1-3. Model 700TR-3

MODEL	DESCRIPTION
700TF-3	**700** Series, 27" Wide **T**all **F**reezer, **3**rd Design Build, **V**ariable Speed Compressor
700TFI-3	**700** Series, 27" Wide **T**all **F**reezer, w/**I**cemaker, **3**rd Design Build, **V**ariable Speed Compressor

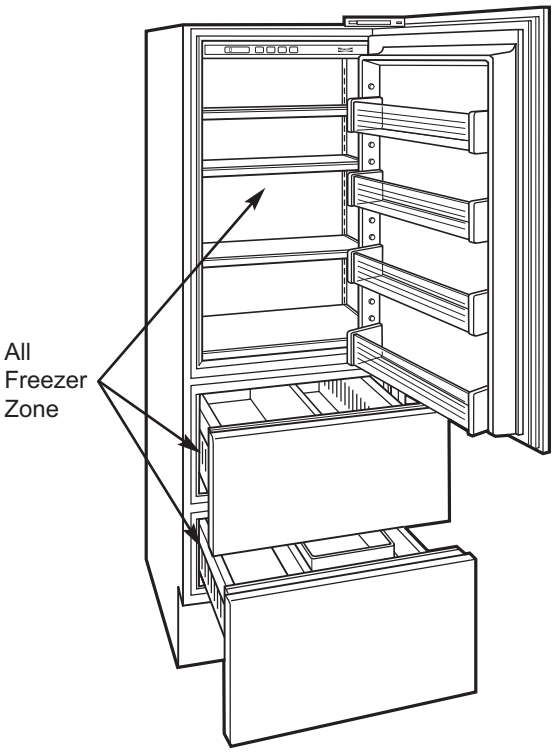


Figure 1-4. Model 700TF-3 & 700TFI-3

MODEL	DESCRIPTION
736TC-3	**7**00 Series, **36"** Wide **T**all **C**ombination Refrigerator/Freezer, **3**rd Design Build
736TCI-3	**7**00 Series, **36"** Wide **T**all **C**ombination Refrigerator/Freezer, w/**I**cemaker, **3**rd Design Build

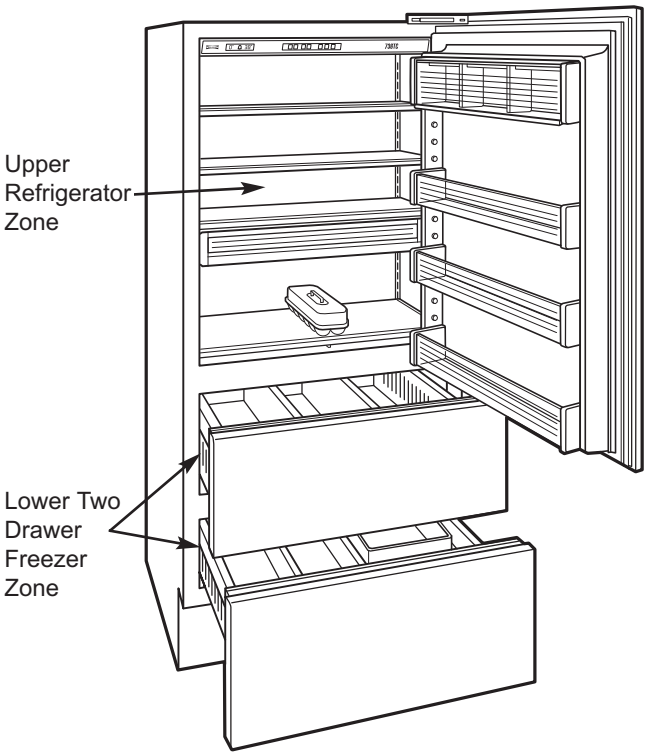


Figure 1-5. Model 736TC-3 & 736TCI-3

MODEL	DESCRIPTION
736TR-3	**7**00 Series, **36”** Wide **T**all **R**efrigerator, **3**rd Design Build

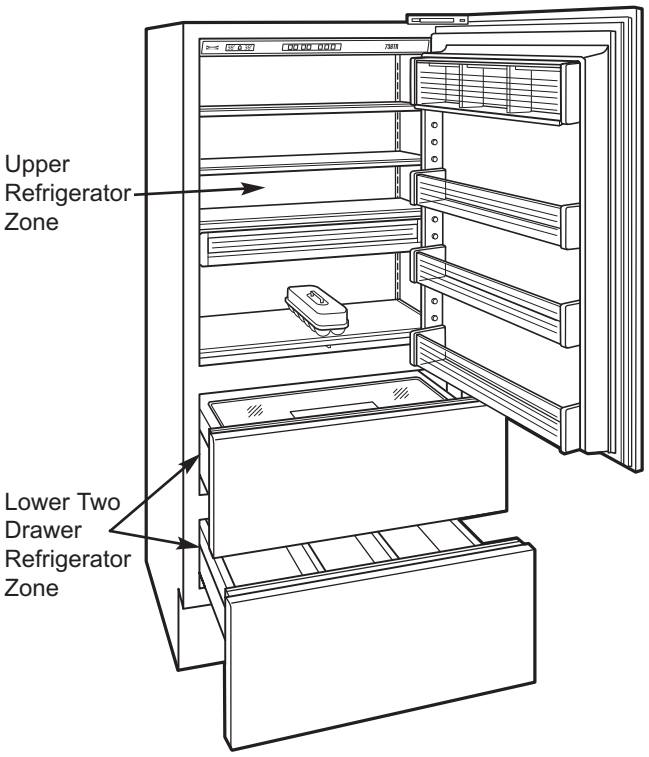


Figure 1-6. Model 736TR-3

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 customer placing a call for service. Installation related customer complaints could include, but are not limited to: Unit leveling, unit movement, door misalignment, doors and drawers not sealing, internal frost or condensation, warm compartment temperatures, exterior condensation, etc.. .

NOTE: *If additional installation information is needed, refer to the complete Installation Manual and/or installation video, or contact the Sub-Zero Technical Assistance Department.*

⚠ WARNING

UNIT COULD TIP FORWARD UNDER CERTAIN LOAD CONDITIONS. FAILURE TO INSTALL ANTI-TIP COMPONENTS AND EXTEND LEVELERS TO THE FLOOR ACCORDING TO INSTALLATION MANUAL COULD RESULT IN SERIOUS PERSONAL INJURY OR DEATH.

Unit Leveling

NOTE: *The kickplate/grille must be removed before leveling (See Figure 2-1). If the unit has already been anchored to the cabinets, the side molding strips must be removed and the anchor screws must be extracted from the unit to cabinet brackets before leveling (See Figure 2-2). These components must be reinstalled after leveling.*

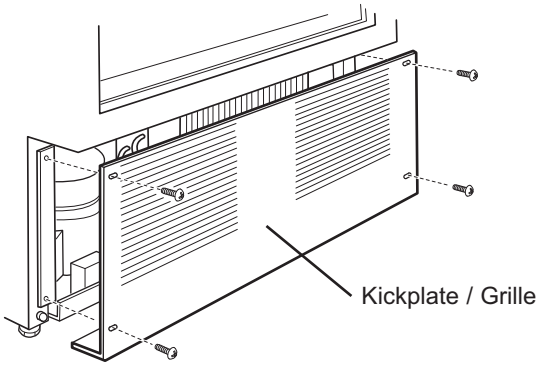


Figure 2-1. Kickplate/Grille Removal

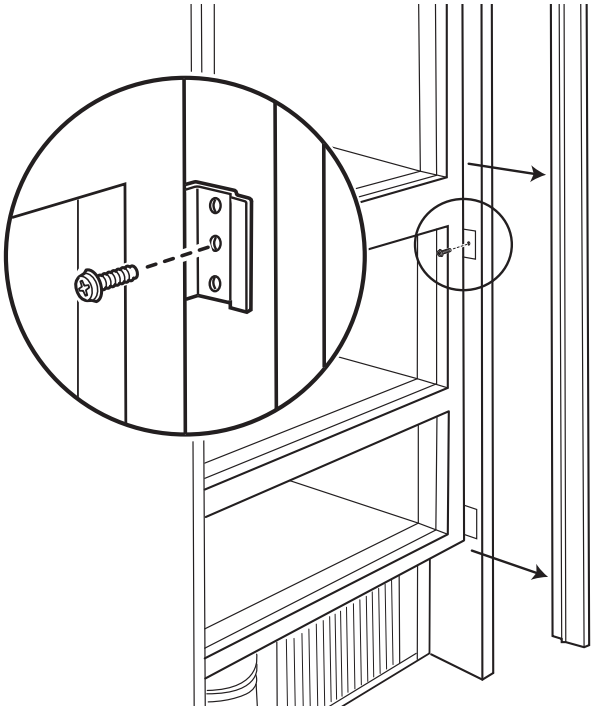


Figure 2-2. Side Molding & Bracket

To level the unit, turn the front leveling legs counterclockwise to raise the front or clockwise to lower it. To assist in turning the front leveling legs up or down, use a standard straight-blade screwdriver and place it in the foot of the front leg, then rotate the leveler foot in the desired direction (See Figure 2-3).

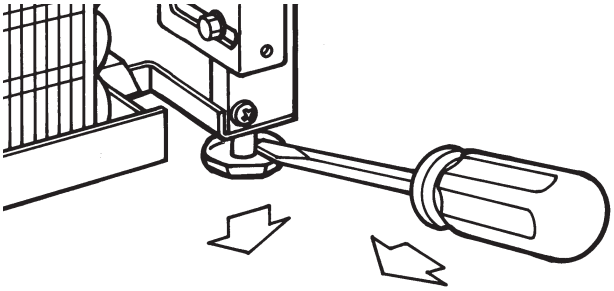


Figure 2-3. Adjusting Front Levelers

The rear levelers are adjusted from the front of the base by turning the Phillips head adjusting screw. The long adjusting screw reaches all the way to the rear leveler assembly. Turn the screw clockwise to raise the rear or counterclockwise to lower it (See Figure 2-4).

NOTE: *The rear leveling legs will only move 1/16" for every 18 revolutions of the Phillips head screw. Do not over torque. Use the lowest torque setting on any power screwdriver. Do not turn rear leveling legs by hand, doing so will damage the assembly.*

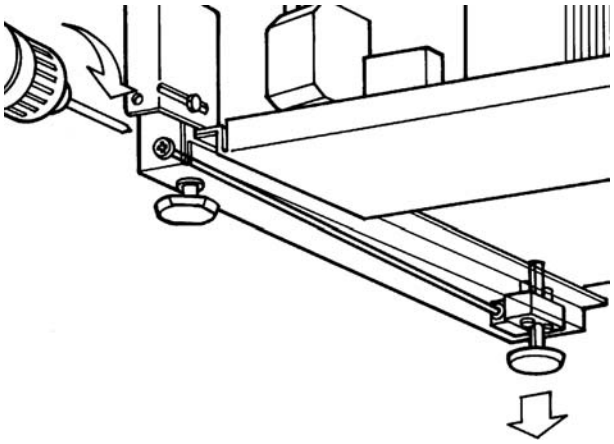


Figure 2-4. Adjusting Rear Levelers

Door and Drawer Adjustment

The doors and drawers are non-adjustable. Instead, the door and/or 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.

NOTE: *The unit must be level before attempting to adjust the door and drawer panels.*

NOTE: *If the door has problems closing, see Tall Unit Door Hinge Operation Test Procedures and Corrections at the end of the Troubleshooting Guide.*

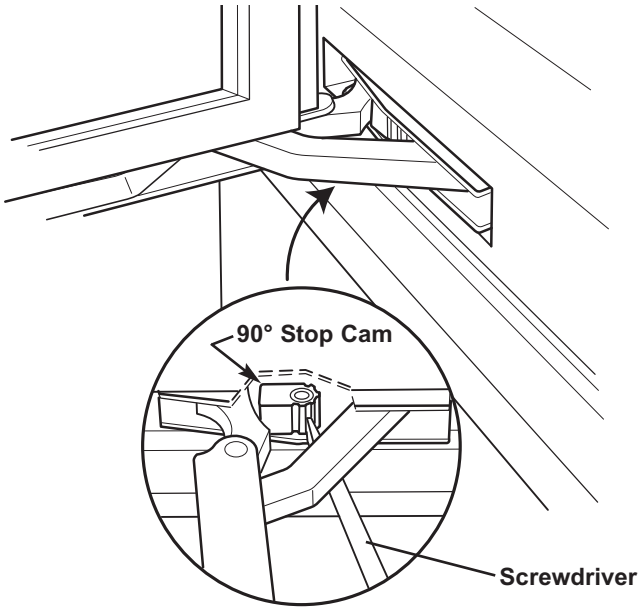


Figure 2-5. 90° Door Stop Cam

Door Stop Adjustment

700-2 Series tall units have a 90° door stop cam built into the hinge system. The 90° door stop cam is located in the center portion of each hinge. To adjust it, use a standard straight-blade screwdriver to rotate the cam until it reaches the stop point (See Figure 2-5).

NOTE: *You must make this adjustment at both bottom and top hinge.*

Dual Unit Installations

⚠ CAUTION

If two or more units are placed side by side and are 2" or less apart, a dual unit heater package must be applied to the left side of the right hand unit. Failure to install the dual unit heater package could result in exterior condensation between the units.

- If two Tall units are installed side by side and are 2" or less apart, part #TTDUAL should be utilized. (See Figure 2-6)
- If two Base units are installed side by side and are 2" or less apart, part #BBDUAL should be utilized
- If a Tall unit is installed next to a Base unit and they are 2" or less apart, part #BBDUAL should be utilized.

Complete installation instructions are supplied with the #BBDUAL and #TTDUAL packages.

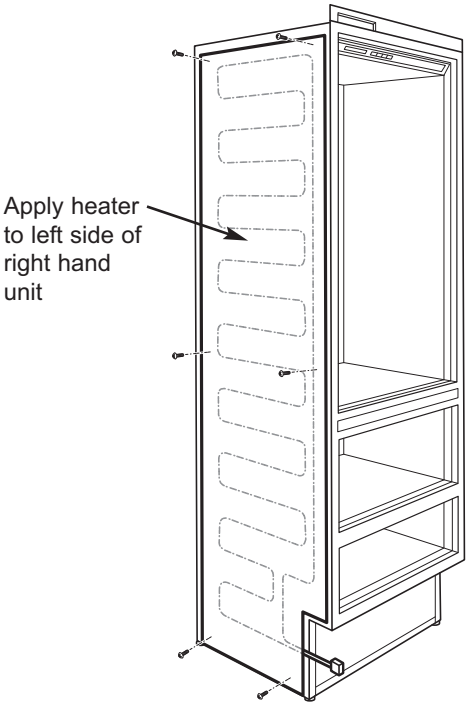


Figure 2-6. Dual Unit Heater (#TTDUAL Shown)

ELECTRONIC CONTROL TERMINOLOGY & COMPONENT DESCRIPTIONS

The electronic control system monitors, regulates and controls a variety of functions. It also displays temperature readings, ice maker system operational status, possible problems with the unit and door ajar alarm status. The table below defines some basic electronic control system terminology and describes some of the electronic control system components. An understanding of the following information is needed in order to comprehend the input operations and functions of the electronic control system.

Term/Component	Definition / Description
Control Board …….……..	The printed-circuit board (PC Board) contains the microprocessor, relays and electrical connections which control and monitor all functions and operations of the appliance.
Microprocessor ……..…...	An electrical component on the control board which receives electrical signals from other components, processes that information, then sends an electrical signal to the relays on the board to open or close, and other electronic components in the unit to switch on or off.
Relay ……..……	The electrical components on the control board which switch other components in the unit ON and OFF when instructed to do so by the microprocessor.
LCD (Liquid Crystal Display) …..….....	That part of the control board seen at the control panel which displays zone temperatures, service indicator, door ajar alarm bell & ice indicator.
Control Panel Assembly ……..……	The information input and read-out area of the electronic control system, located at the top of the upper Compartment.
Membrane Switch ……..……..	An integral part of the control panel assembly, which consists of the function keys used for all input operations to the electronic control system.
Keys (Function Keys) ……..……	The buttons on the Membrane switch used for input operations. (The keys are: UNIT ON/OFF, ALARM ON/OFF, ICE ON/OFF, WARMER, COLDER)
Indicators ...……..……...	The words and numbers that are displayed at the control panel assembly. (Example: Temperature displays, alarm bell indicator, SERVICE indicator, and ICE system indicator)
Error Codes ……..……...	The code numbers accompanied by the letters “EC” that appear on the LCD during diagnostic mode if the unit experienced specific problems related to electrical signals supplied by electrical components.
Display Units of Measure……..…...	Temperatures displayed at the LCD may be in fahrenheit units of measure (°F) or celsius units of measure (°C). A series of key strokes allows the temperature display units of measure to be switched to read as either °F or °C.
Set-Point ……..……..	The desired zone 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 (Temperature Sensor) ..…..	A resistor with which resistance changes as the temperature around it changes. For electronic control system purposes, the microprocessor measures this resistance and displays it as a temperature reading at the LCD.
Variable Speed Compressor ….....	A compressor that runs at varying speeds depending on the load detected by the compressor’s inverter.

BASIC ELECTRONIC CONTROL SYSTEM

Input operations for the electronic control system are performed at the control panel (located at the top of the upper compartment), with monitoring, regulating and controlling functions taking place at the control board (located directly behind the control panel). Temperatures and possible problems with the unit are illuminated in the control panel at the LCD. This page illustrates a basic 700 Series electronic control system (Model 700TCI-3 used, See Figure 3-1). The entire electronic control system is described in greater detail on the following pages.

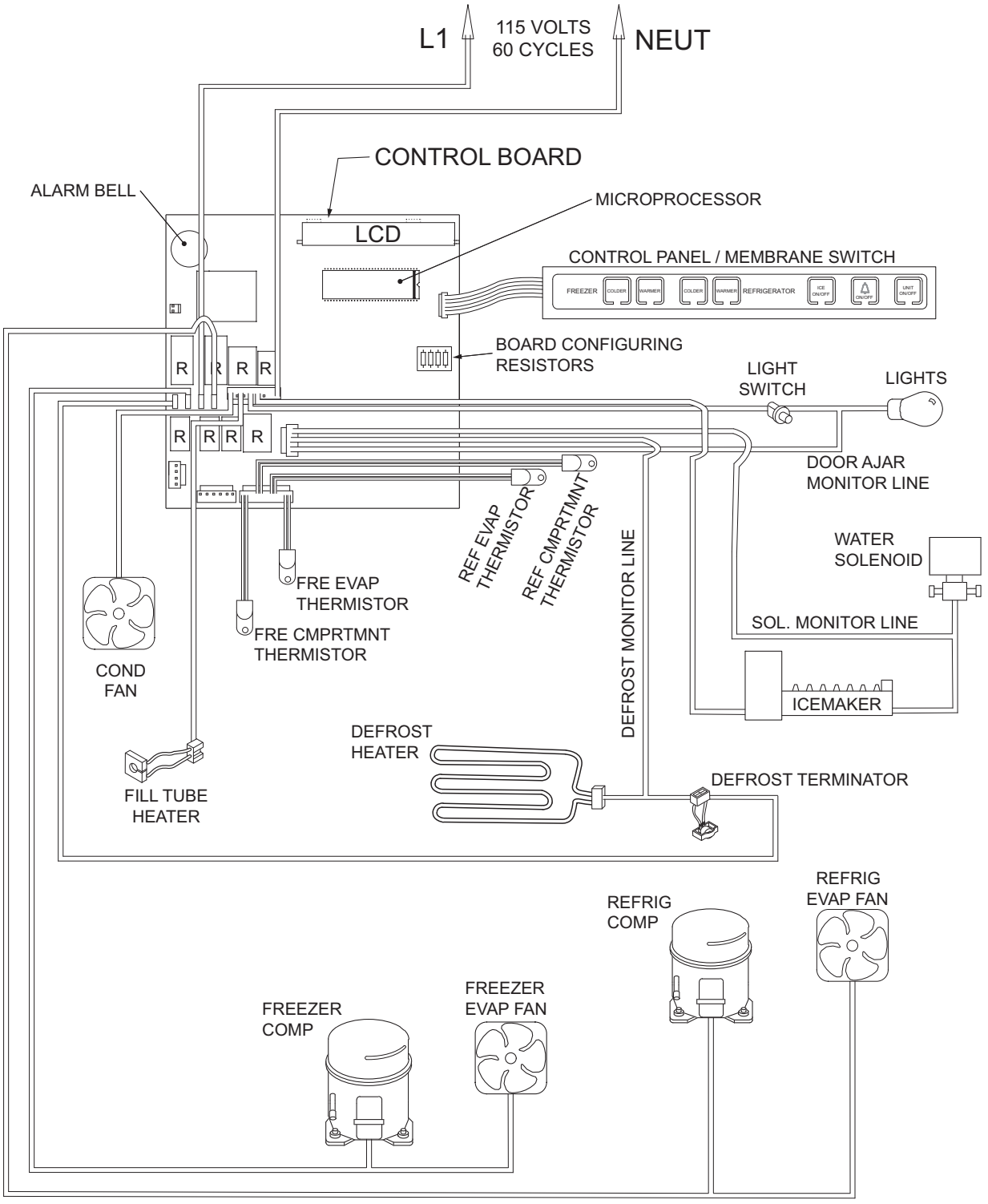


Figure 3-1. Basic 700TCI-3 Electronic Control System Diagram

CONTROL BOARD LAYOUT AND SUMMARY TABLE

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

NOTE: *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.*

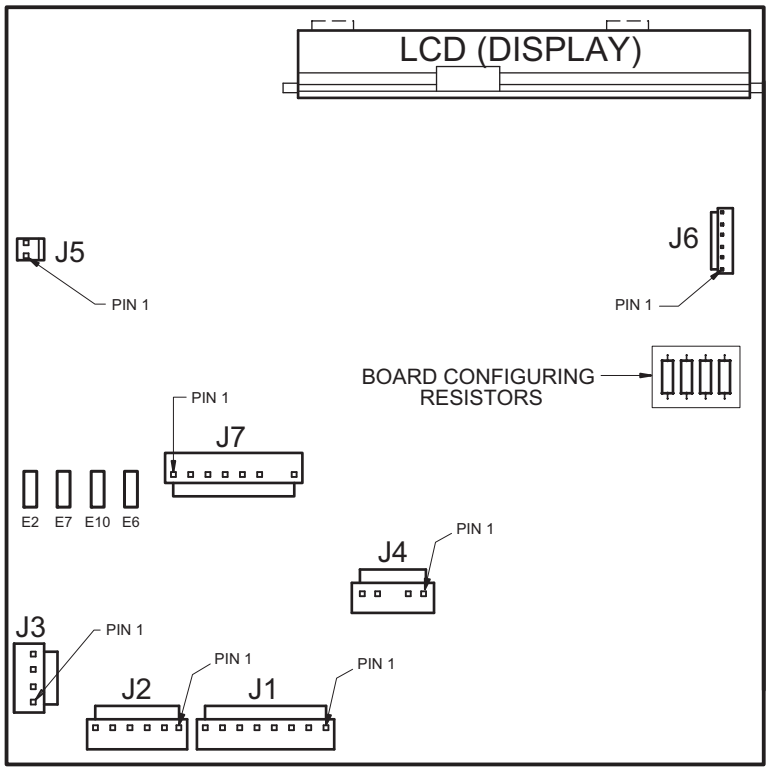


Figure 3-2. 700-3 Tall Unit Control Board Layout

CONTROL BOARD SUMMARY				
	CIRCUIT	*DESCRIPTION*	*FUNCTION*	*COLOR*
		120 VOLT CIRCUITS		
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	FCOMP	FRZ COMPRESSOR	POWERS FRZ COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6	RCOMP	REF COMPRESSOR	POWERS REF COMPRESSOR (DOOR)	GRAY
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J7-2	E FAN	NOT USED		
J7-3	IACC	ICE MAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	ICE	ICE MAKER	POWERS ICE MAKER	PINK
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		DEF SENSOR	SENSES WHEN DEF HEATER SHUTS OFF	GRAY/WHITE
J4-5		ICE MAKER VALVE SENSOR	SENSES WATER VALVE ACTIVATION	TAN
LOW VOLTAGE THERMISTOR CIRCUITS				
J1-1	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	ORANGE/RED
J1-2	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	BLUE/RED
J1-3	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	ORANGE/YEL
J1-4	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BLUE/YELLOW
J1-5	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-6	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-7	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK
J1-8	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK

Figure 3-3. 700-3 Tall Unit Control Board Summary Table (700TC/I-3 Summary Table Shown)

CONTROL PANEL LAYOUT

Please note that an illustration of the 700TC/I-3 control panel is used in most cases for this section. (See Fig. 3-4)

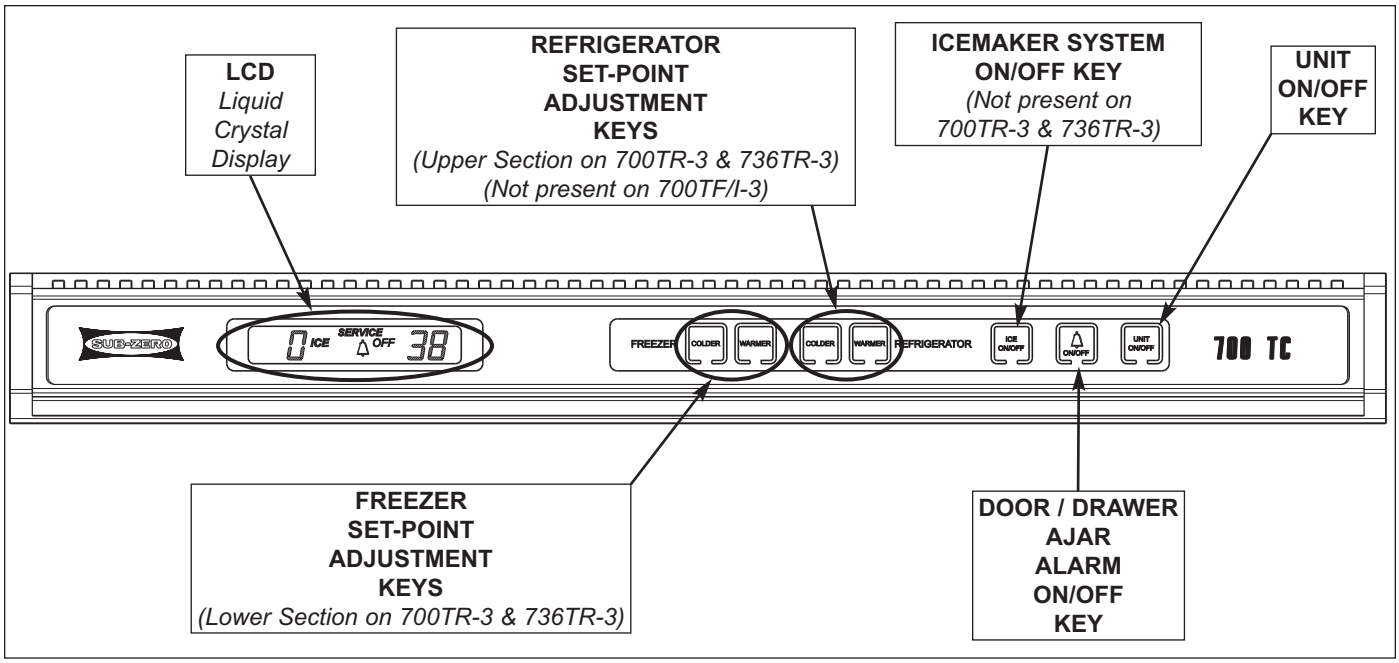


Figure 3-4. 700-3 Tall Unit Control Panel Layout *(700TC/I-3 Control Panel Shown)*

BASIC ELECTRONIC CONTROL INPUT OPERATIONS

Following are illustrations which show the basic input operations performed at the control panel. Switching the unit ON and OFF, adjusting the set-point (temperature adjustments), switching the ice maker system ON and OFF, and enabling and disabling the door ajar alarm feature will be explained. *Please note that an illustration of the 700TC/I-3 control panel is used for most articles in this section, and in most cases Fahrenheit readings are shown.*

Unit ON/OFF

All units are shipped in OFF Mode. When power is supplied to the unit, a trace of the word “OFF” is visible on the LCD. By pressing and releasing the UNIT ON/OFF key (See Figure 3-5), power is allowed past the control board to the rest of the unit. This is indicated by the unit’s lights energizing and LCD at the control panel illuminating with temperature readings.

NOTE: *Whenever the unit is switched OFF using the UNIT ON/OFF key, a trace of the word “OFF” will be visible on the LCD as long as there is power to the unit.*

⚠ WARNING

WHEN IN OFF MODE, 115 VOLTS AC IS STILL PRESENT AT CONTROL BOARD!

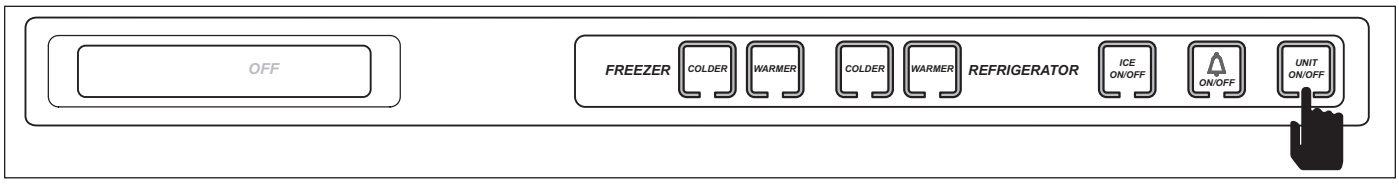


Figure 3-5. 700-3 Tall Unit ON/OFF, Press UNIT ON/OFF Key

Adjusting Set-Point (Temperature Adjustment)

To adjust set-points, press WARMER or COLDER key on control panel in multiple key strokes until desired set-point is achieved (See Figure 3-6). One key stroke equals one degree change.

NOTE: *The temperature range in a freezer zone is -5°F (-21°C) to +5°F (-15°C). The temperature range in a refrigerator zone is +34°F (+1°C) to +45°F (+7°C).*

NOTE: *The initial stroke of the WARMER or COLDER key will change the previous set-point by one degree.*

NOTE: *The set-point will be displayed on the LCD for 10 seconds after the last key stroke. After the 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 degree per minute.*

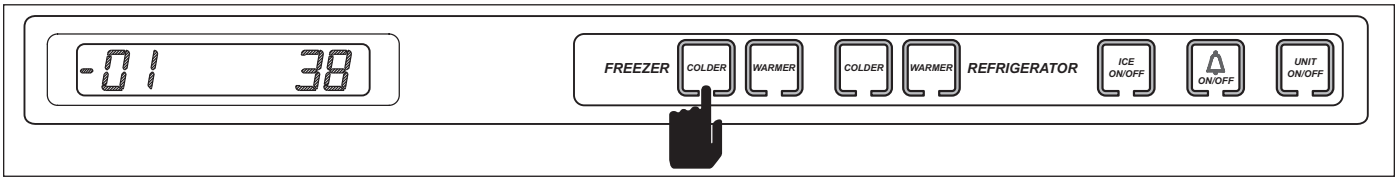


Figure 3-6. Adjusting Set-Point - Press WARMER or COLDER Key In Multiple Key Strokes

Icemaker System ON/OFF

When a unit first arrives in a home, the icemaker system is off. By pressing and releasing the ICE ON/OFF key, power is allowed to the icemaker system and "ICE" appears on the LCD (See Figure 3-7). To switch the icemaker system off, press and release the ICE ON/OFF key again and the "ICE" indicator disappears from the LCD, indicating the icemaker system is off.

NOTE: *When in "Sabbath Mode," the icemaker system is deactivated. Sabbath Mode will be explained later.*

NOTE: *To allow ice to freeze fully and reduce effects of low water pressure, power to the icemaker system is interrupted for 45 minutes after each ice harvest. This can be bypassed for service purposes by switching the icemaker system OFF, then back ON with the ICE ON/OFF key.*

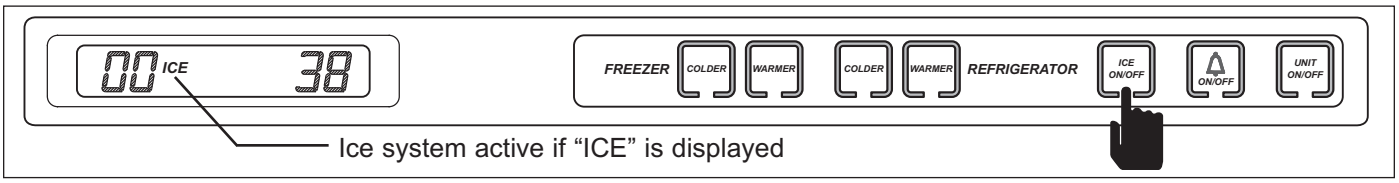


Figure 3-7. Icemaker System ON/OFF - Press ICE ON/OFF Key

Door Ajar Alarm Feature (🔔) ON/OFF

All units are equipped with a door ajar alarm feature. To enable the door ajar alarm, press and release the Alarm Bell ON/OFF key on the control panel (See Figure 3-8). The bell indicator appears on the LCD indicating the alarm feature is active. With the alarm enabled, the bell indicator will flash and an audible alarm will beep whenever the door is left open for more then thirty seconds. To disable the door ajar alarm, press the Alarm Bell ON/OFF key again and the bell indicator disappears from the LCD, indicating the alarm feature is inactive.

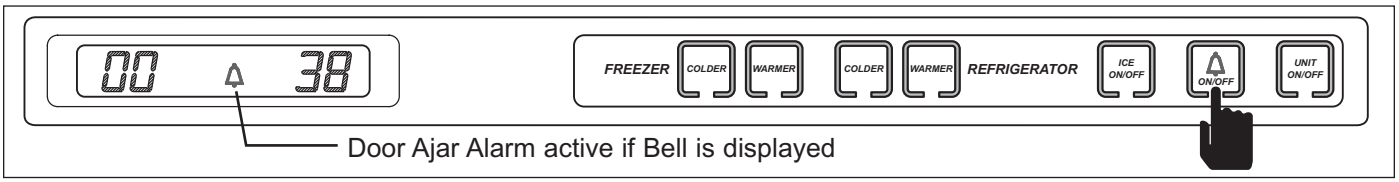


Figure 3-8. Switching Door Ajar Alarm ON or OFF - Press (🔔)ON/OFF Key

UNIQUE ELECTRONIC CONTROL INPUT OPERATIONS

The following pages illustrate unique input operations performed at the control panel that you would not expect a customer to perform every day. The input operations described are: Temperature Unit Selection Mode, Sabbath Mode, Showroom Mode, Manual Zone Disable Mode and Manual Freezer Evaporator Defrost.

Temperature Units Selection Mode *(Selecting Degrees Fahrenheit or Degrees Celsius Display)*

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 minute after switching the unit ON.*

To convert temperature units of measure from Fahrenheit (°F) to Celsius (°C) readings, press and hold the door ajar alarm bell ON/OFF key and the UNIT ON/OFF key simultaneously for five (5) seconds, then release the keys (See Figure 3-9). " °C " will appear on the LCD indicating that temperatures will now be displayed in Celsius units of measure. To convert back to Fahrenheit units of measure, repeat the steps above (See Figure 3-10).

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

NOTE: *Do <u>not</u> press and hold the UNIT ON/OFF key first, that will simply switch the unit OFF.*

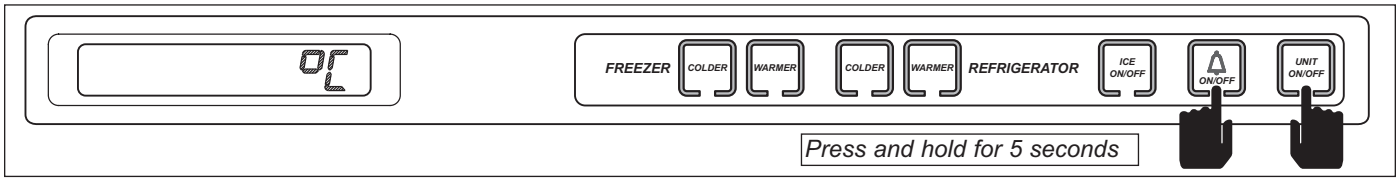


Figure 3-9. Converting to Celsius Units of Measure *(within first minute after switching unit ON)*
Press and Hold the Door Ajar Alarm Bell Key and The UNIT ON/OFF Keys for Five (5) Seconds

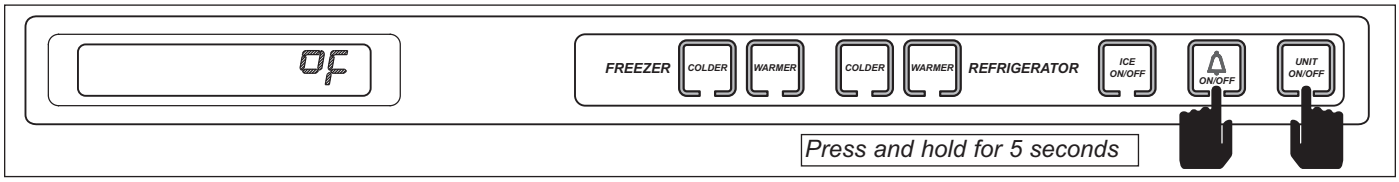


Figure 3-10. Converting Back to Fahrenheit Units of Measure
(within ten (10) seconds of previous key stroke and/or within first minute after switching unit ON)
Press and Hold the Door Ajar Alarm Bell Key and The UNIT ON/OFF Keys

Sabbath Mode

Sabbath Mode was incorporated into the electronic control system for the observance of certain religious days. Initiating Sabbath Mode disables the LCD, lighting system, ice making system and door ajar alarm feature.

To initiate Sabbath Mode, the unit must first be switched OFF using the UNIT ON/OFF key (See Figure 3-11), then press and hold the UNIT ON/OFF key until the LCD and lights switch OFF, approximately ten (10) seconds (See Figure 3-12). To return to normal operation, press and release the UNIT ON/OFF key.

NOTE: *During Sabbath Mode, the LCD is disabled and set-points cannot be changed.*

NOTE: *During Sabbath Mode, the compartment thermistors still control compressor operation, except when high offset is reached, there is a random fifteen (15) to twenty-five (25) second delay before compressors are energized.*

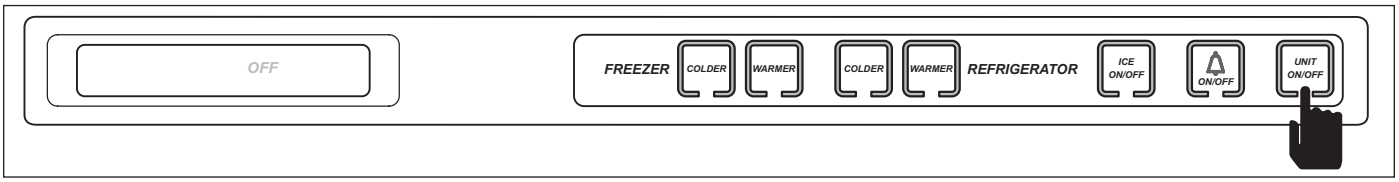


Figure 3-11. To Enter Sabbath Mode, Switch Unit OFF First

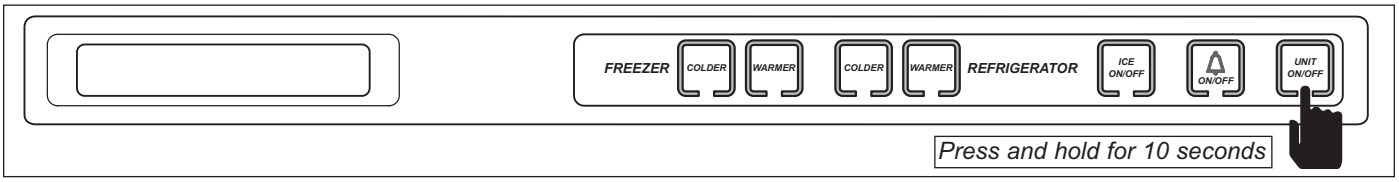


Figure 3-12. Then Press and Hold UNIT ON/OFF Key for 10 Seconds

Showroom Mode

Showroom Mode was incorporated into the electronic control system so that units could be displayed in a showroom setting. When in Showroom Mode, all cooling functions are disabled, but the lighting system remains active.

To initiate Showroom Mode, the unit must first be switched OFF using the UNIT ON/OFF key (See Figure 3-13), then press and hold either pair of WARMER and COLDER keys, then the UNIT ON/OFF key, then release all three keys (See Figure 3-14). To return the unit to normal operation, repeat the steps above.

NOTE: *Always check set-points after returning unit to normal operation.*

NOTE: *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.*

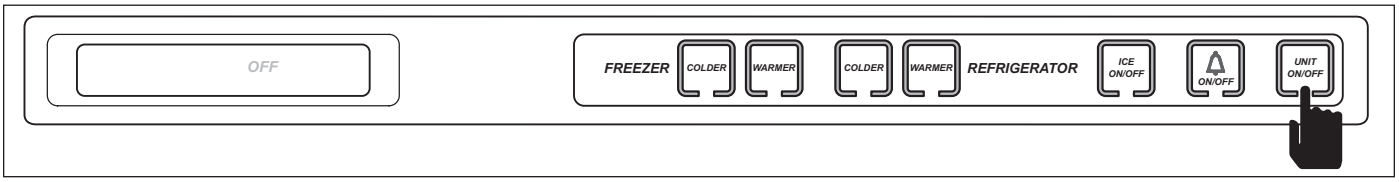


Figure 3-13. To Enter (or Exit) Showroom Mode, Switch Unit OFF First

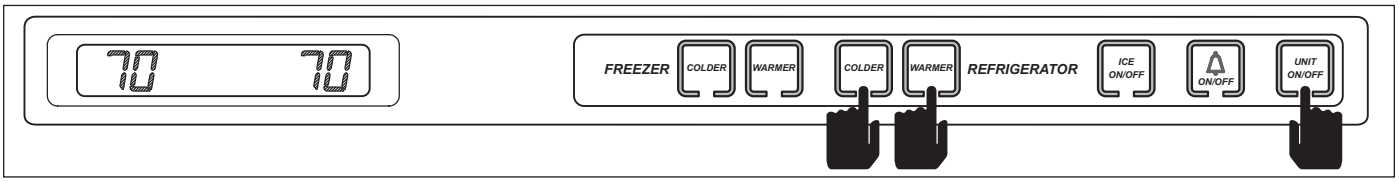


Figure 3-14. Then Press and Hold WARMER and COLDER Keys, Then the UNIT ON/OFF Key

Manual Zone Disable Mode

Manual Zone Disable Mode allows a customer or Service Technician to switch one zone off for interior cleaning, defrosting, or diagnostic purposes, while allowing the other zone to continue cooling.

To initiate Manual Zone Disable Mode, the unit must first be switched OFF using the UNIT ON/OFF key (See Figure 3-15), then press and hold the WARMER key for the zone being disabled, then the UNIT ON/OFF key, then release both keys (See Figure 3-16). The LCD will display "- -" (double dashes) in place of temperature readings for the zone chosen, indicating all cooling functions for that zone are disabled. To return the unit to normal operation, repeat the steps above, or press UNIT ON/OFF key.

NOTE: *Always check set-points after returning unit to normal operation.*

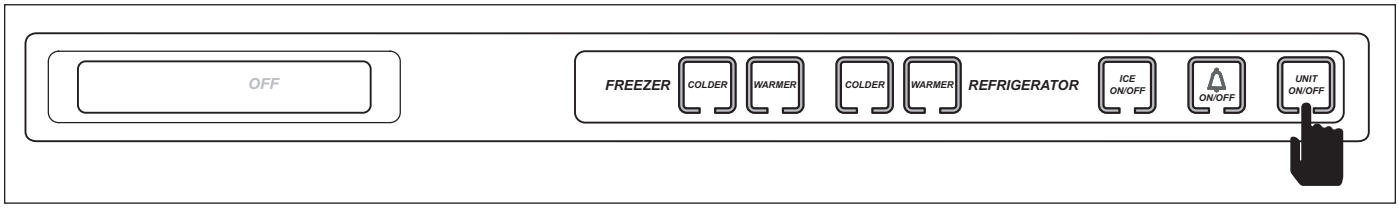


Figure 3-15. To Enter (or Exit) Manual Zone Disable Mode, Switch Unit OFF First

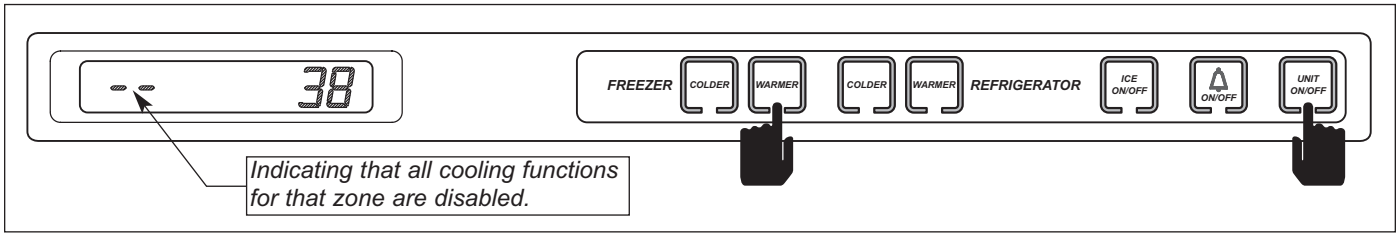


Figure 3-16. Then Press and Hold WARMER Key for Zone Being Disabled, Then the UNIT ON/OFF Key.

Manual Freezer Evaporator Defrost

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

To initiate manual freezer evaporator defrost, press and hold the ICE ON/OFF key for five (5) seconds, then release the key. (See Figure 3-17).

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

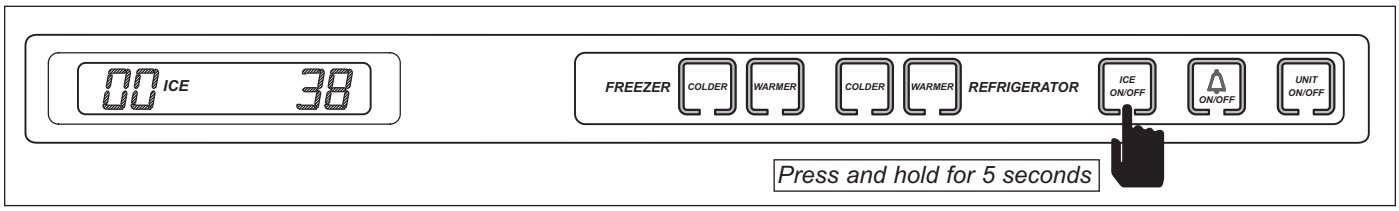


Figure 3-17. Initiate Manual Freezer Evaporator Defrost - Press and Hold ICE ON/OFF key for 5 Seconds

FUNCTIONS OF THE ELECTRONIC CONTROL SYSTEM

The following pages explain monitoring, regulating and controlling functions of the electronic control system. In most cases signal traces of a model 700TCI-3 wiring schematic are used to show current flow for functions being explained.

Supply Power to the Lighting System

115 Volts AC are supplied to the lighting system through the control board when the unit is switched ON by pressing the UNIT ON/OFF key. With the doors open, the light switches allows power to the lights (See Figure 3-18).

NOTE: *115 Volt AC signal to the lights is monitored by the microprocessor to control the door ajar alarm feature.*

NOTE: *If in Sabbath Mode, th lighting system is disabled. Sabbath Mode will be covered later.*

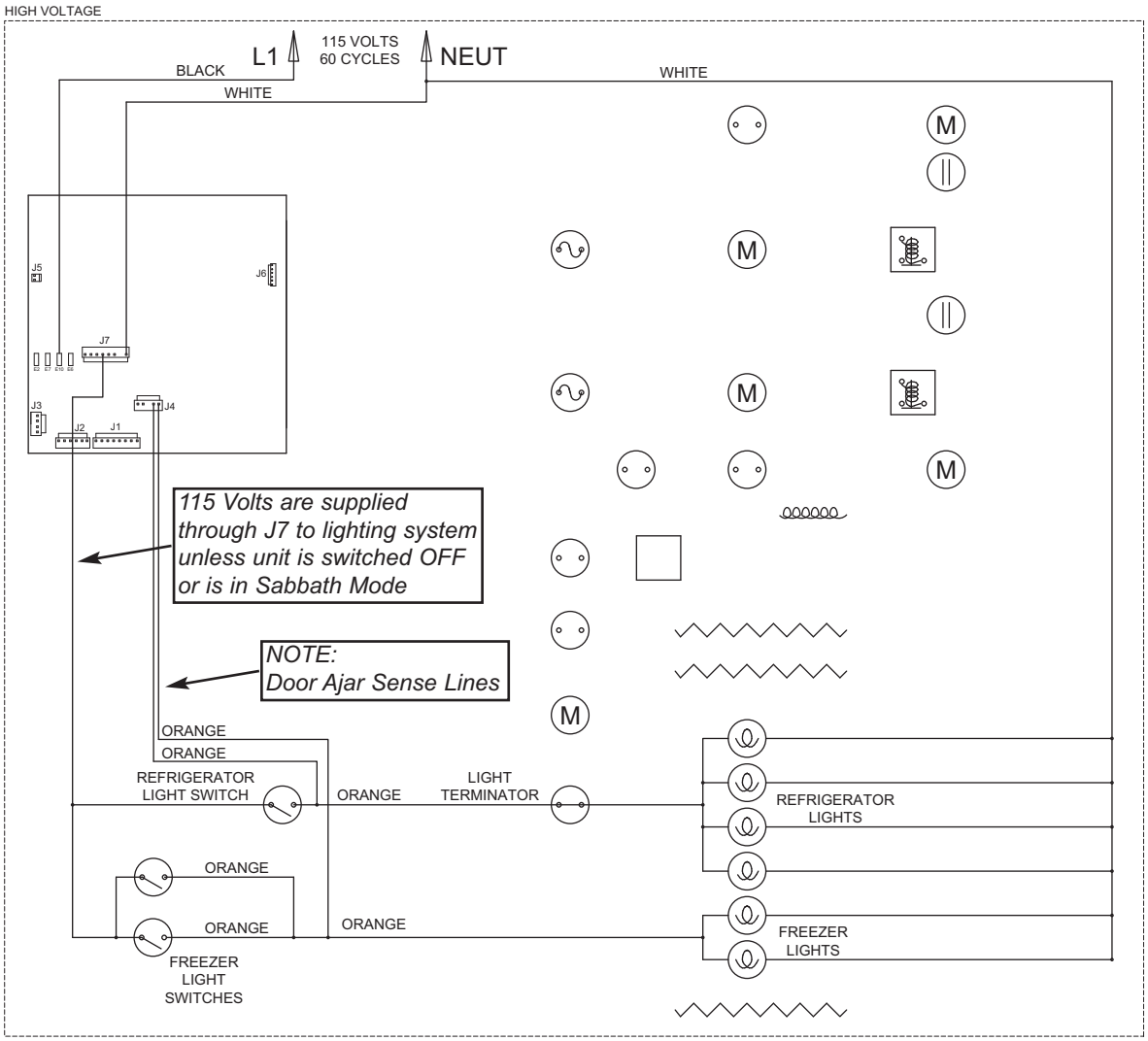


Figure 3-18. 700TC/I-3 Signal Trace Schematic of Lighting System

Monitor, Regulate and Display Compartment Temperatures

The temperature signal from the compartment thermistor is 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 3-19). When the compartment temperature reaches high offset, the microprocessor supplies power to the compressor and evaporator fan (See Figure 3-20). As the compressor and evaporator fan run, the compartment temperature drops. When the compartment temperature reaches low offset, the microprocessor interrupts power to the compressor and evaporator fan, cycling them off.

NOTE: *If the average compartment temperature changes, the temperature displayed on the LCD will change by one degree per minute.*

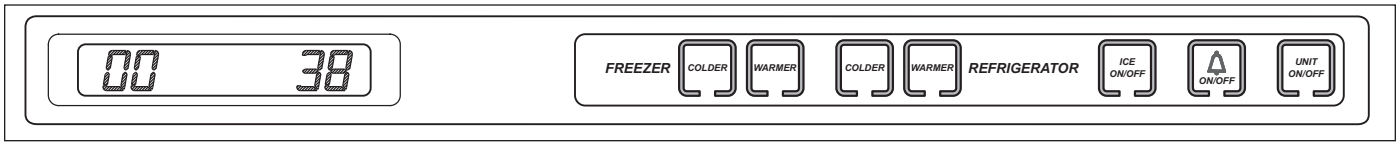


Figure 3-19. Average Compartment Temperature Displayed

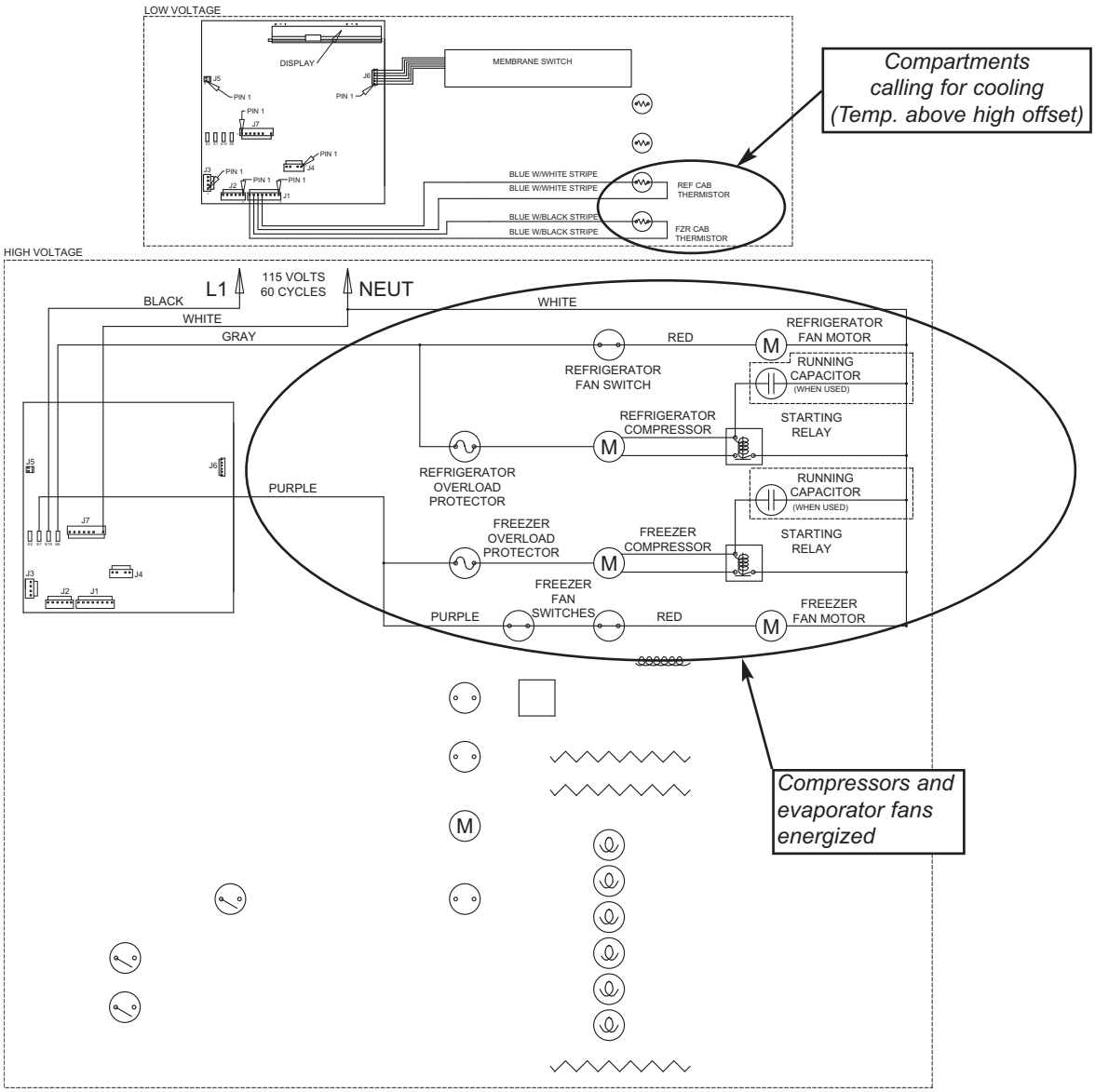


Figure 3-20. 700TC/I-3 Signal Trace Schematic (High & Low Voltage) of Regulating Temperatures

Assist in Control of Variable Speed Compressors (700TF/I-3 Only)

As mentioned on the previous page, temperature signals from the thermistors in the compartment are monitored by the microprocessor and then displayed on the LCD.

When the compartment reaches high-offset (calling for cooling), an “ON” signal is sent from the control board to the compressor’s inverter. The inverter (which is supplied with AC power at all times) then provide high DC voltage (3-phase, 50 - 150 Hz), outputs to the compressor. The inverter in turn senses the compressor load. If the compressor load is high, the speed command from the inverter will be for high speed compressor operation; if medium compressor load, speed command from the inverter will be for medium speed; if low compressor load, speed command from the inverter will be for low speed. If/when the compartment reaches low-offset, an “OFF” signal is sent to the inverter, which then cuts DC power to the compressor.

NOTE:

- *The variable speed compressor, evaporator fan and the condenser fan will run a great majority of the time. This is normal. These components will only cycle off during defrost and may also cycle off for short periods of time if the ambient temperature is low enough.*
- *Initial speed command from an inverter to a compressor are always for High speed.*

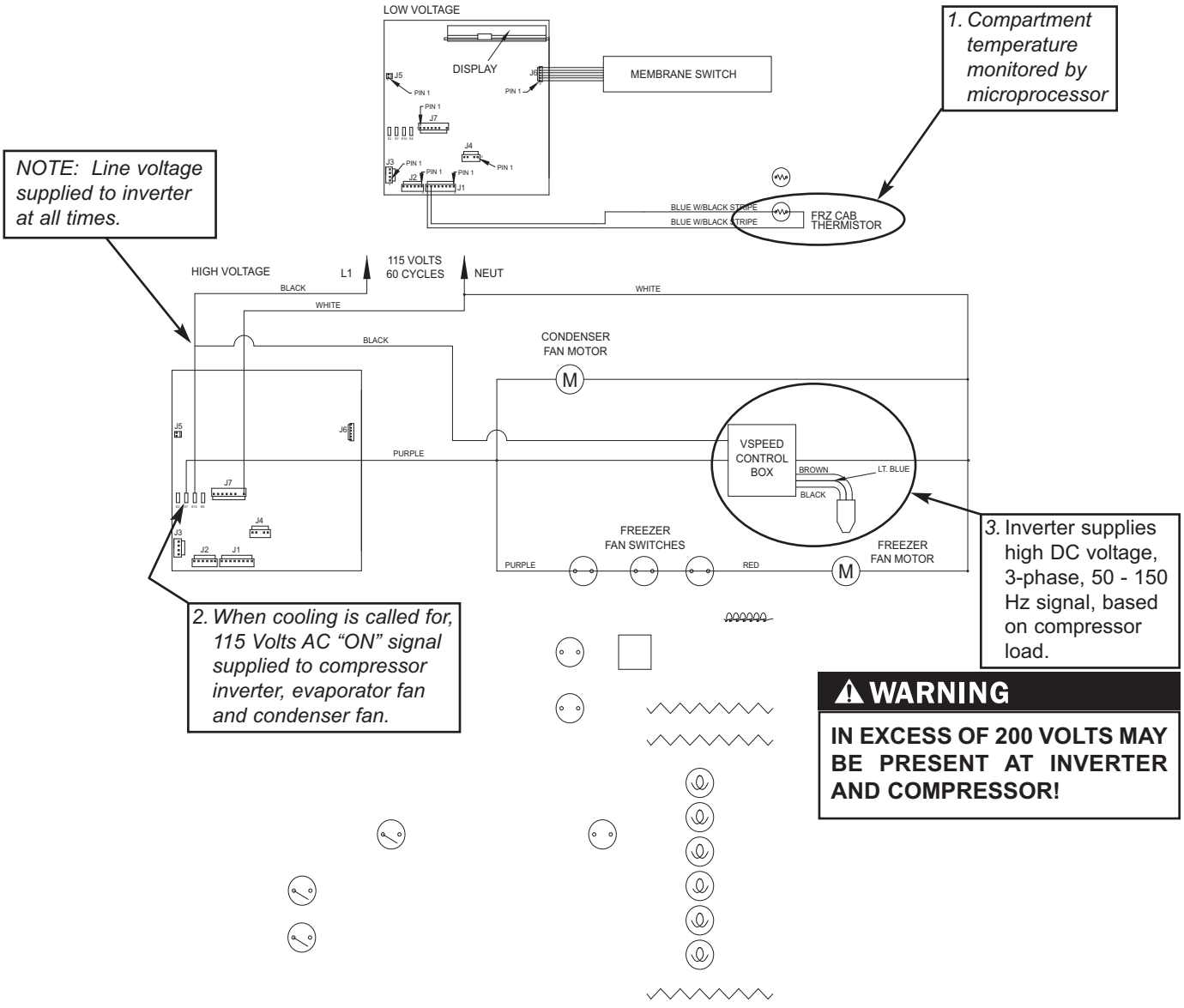


Figure 3-21. 700TF/I-3 Signal Trace Schematic of Variable Speed Compressor Operation

Control Condenser Fan Run

In all models except the 700TF/I-3, the microprocessor senses the 115 volt output supplied to both compressors. If either compressor is running, a signal is sent to the condenser fan relay on the control board to close, supplying power to the condenser fan. If both compressors are off, the condenser fan is off. (See Figure 3-22)

NOTE: *There is only one compressor on the model 700TF/I-3. The condenser fan cycles with this single compressor, which along with the evaporator fan, will cycle off during defrost and may also cycle off for short periods of time if the ambient temperature is low enough.*

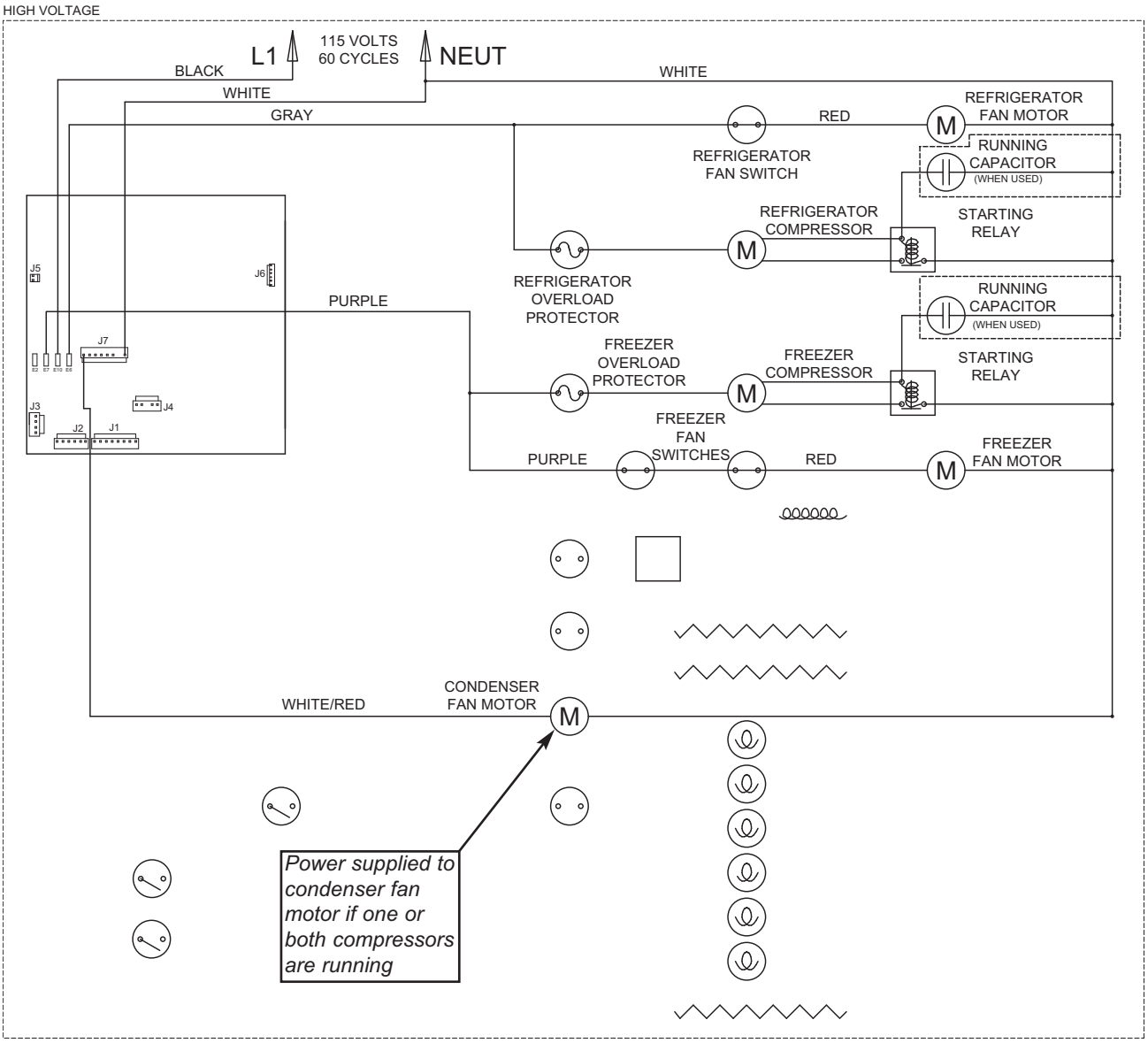


Figure 3-22. 700TC/I-3 Signal Trace Schematic (High Voltage) of Condenser Fan Operation

Monitor and Control Refrigerator "Fan-Assisted, Off-Cycle Defrost"

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

NOTE: *If refrigerator compartment thermistor is faulty, compressor operation defaults to 20 minutes ON, 40 minutes OFF cycling, EE appears in left of LCD, SERVICE will flash and Error Code 05 will be logged.*

NOTE: *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.*

NOTE: *When in Sabbath Mode, the refrigerator compartment thermistor still controls compressor operation, except there is a random 15 to 25 second delay before the compressor is energized.*

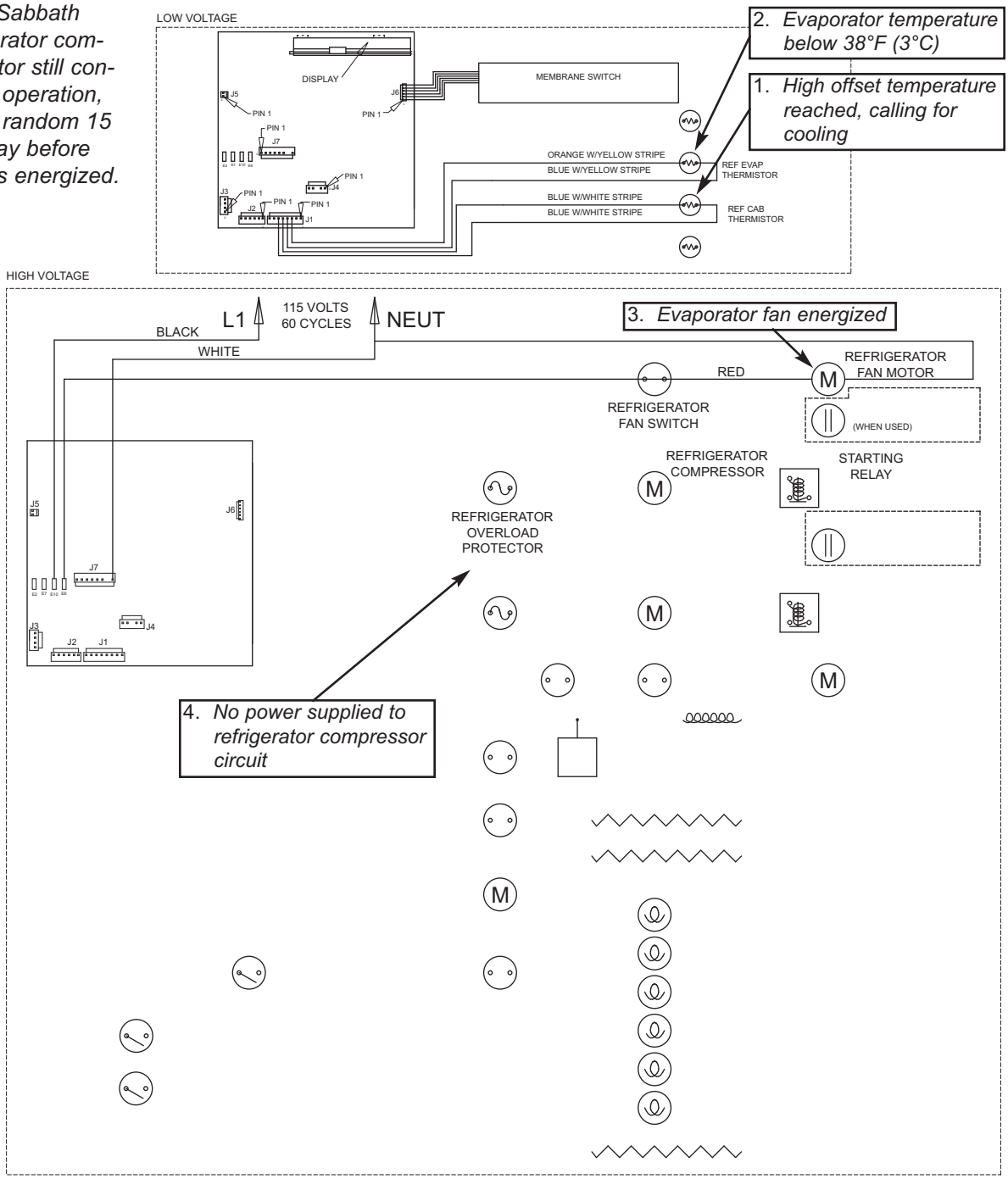


Figure 3-23. 700TC/I-3 Signal Trace Schematic (High & Low Voltage) of Refrigerator Off-Cycle Defrost

Monitor and Control Freezer "Adaptive Defrost"

Initially the freezer compressor will cycle-run for twelve hours (twenty-four hours in the model 700TF/I-3), after which the microprocessor sends the signal to the defrost relay on the control board to close. This supplies power to the defrost heater, and the compressor is switched off (See Figure 3-24). With the "Adaptive Defrost" technique, the length of time that the heater actually stays on to defrost the evaporator and satisfy the defrost terminator is observed by the microprocessor. 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. This is an ongoing process whereby the defrost time and the defrost interval will vary by unit use.

NOTE: *A five (5) minute time delay/dwell follows all defrosts, except in the model 700TF/I-3 where the delay/dwell is ten (10) minutes. The drain trough heater is energized during defrost and the delay/dwell period.*

NOTE: *The minimum defrost interval is six (6) hours; The maximum defrost interval is eighty (80) hours; the maximum defrost duration is twenty-five (25) minutes.*

NOTE: *If the defrost sensing line is open, defrost operation defaults to 25 minute defrost time / 6 hour build time, and Error Code 22 is logged. If the evaporator thermistor detects an under-heat or overheat situation at the same time, Error Codes 20 or 23 is logged, respectively.*

NOTE: *During defrost, the displayed temperature is locked.*

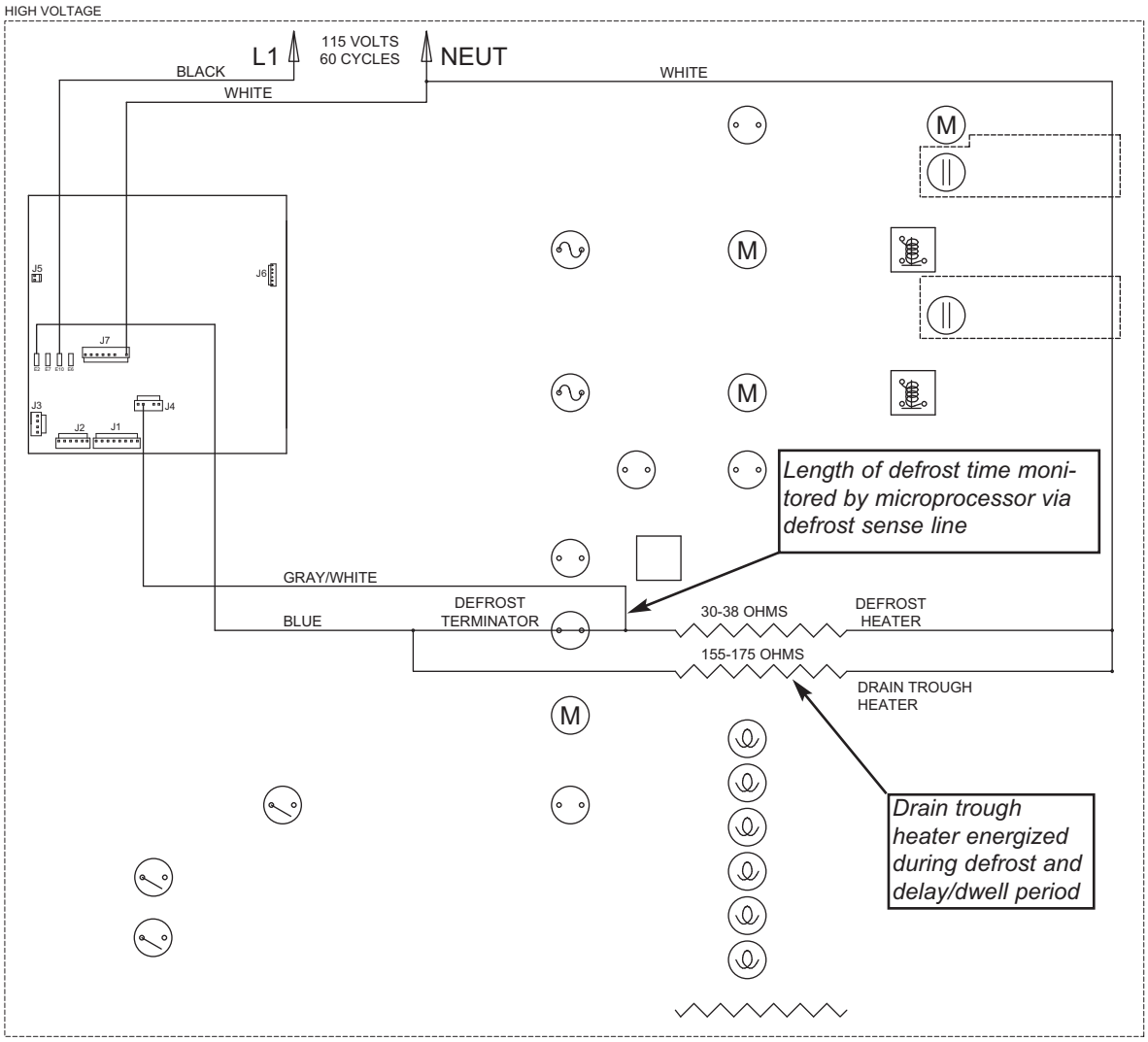


Figure 3-24. 700TC/I-3 Signal Trace Schematic (High Voltage) of Freezer Adaptive Defrost

Monitor Compressor Run Duration, Displays If Service is Needed

In all models except the 700TF/I-3, the microprocessor observes the changing state of the compressor relays to determine the length of compressor run time (See Figure 3-25). If a compressor runs 100% (Fre = 6 hours / Ref = 4 hours), an error code is logged (EC 40 / EC 50, respectively), and defrost is initiated, but SERVICE will not flash.

If several 100% run periods occur, and the compartment temperature does not fall to at least the set point / low offset temperature average (and the door is not opened during the last run period), then SERVICE will flash along with the error code (See Figure 3-26).

NOTE: *To clear a flashing SERVICE and EC, the problem must be corrected, then switch the unit off then back on and/or press the Bell ON/OFF key for 15 seconds. Failure to clear an error code will cause SERVICE to display constant once Diagnostic Mode is initiated.*

NOTE: *If the unit is ever switched OFF then back ON, the compressor will not energize for at least 3 minutes. This 3 minute minimum OFF time is used to protect the compressor and its electricals.*

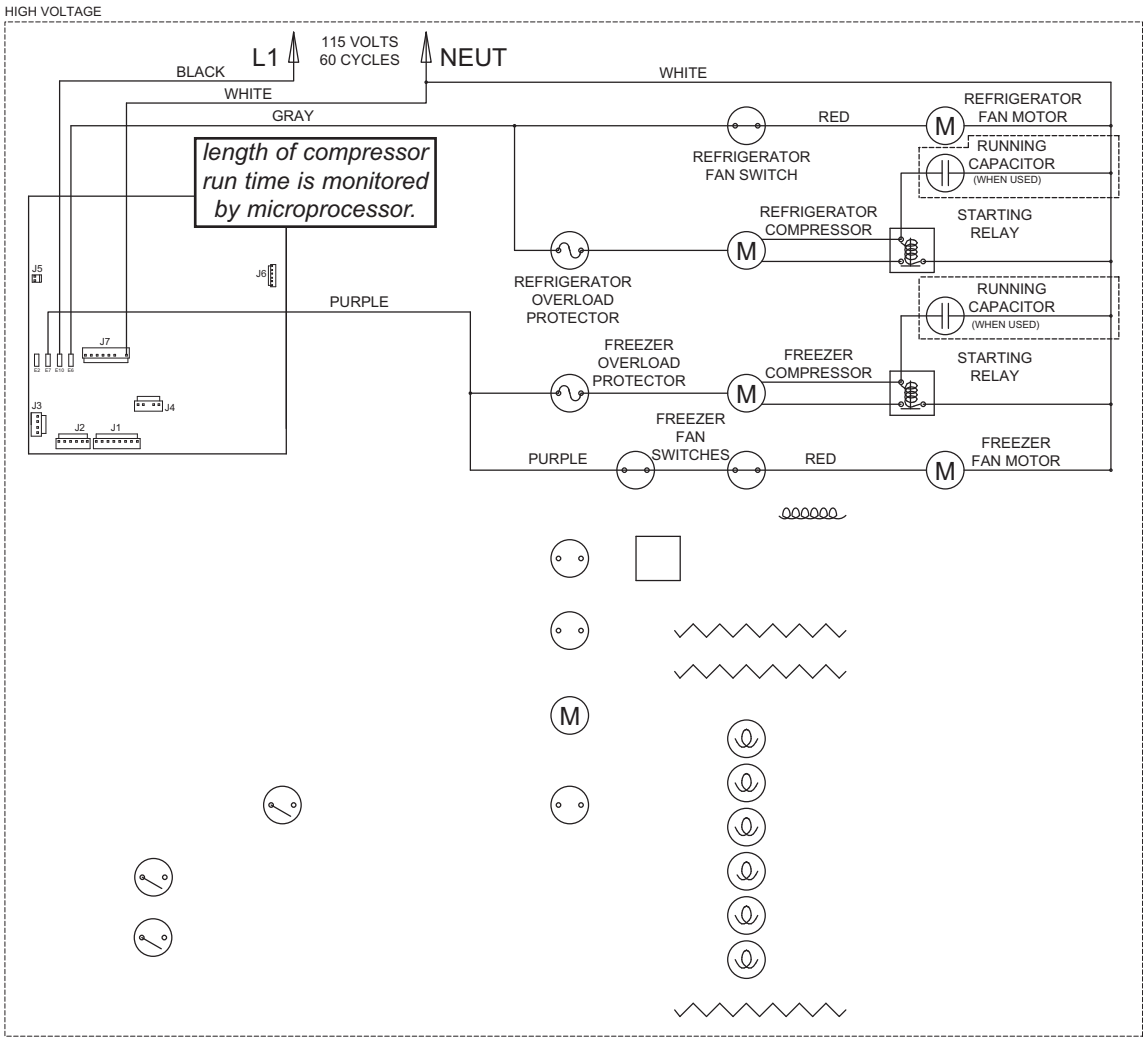


Figure 3-25. 700TC/I-3 Signal Trace Schematic (High Voltage) of Compressor Electrical System

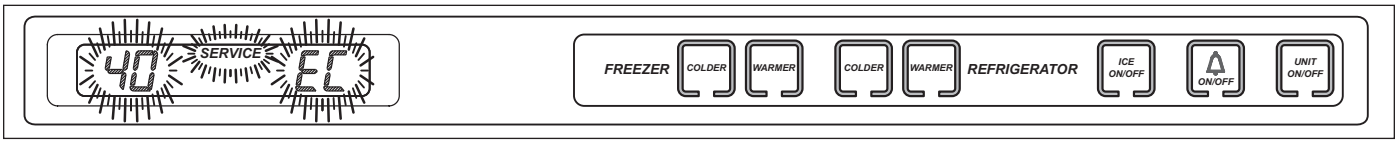


Figure 3-26. "SERVICE", "40" or "50" and "EC" Flashing = Several Excessive Compressor Run Periods

Monitor Icemaker System and Display If Service is Needed

The microprocessor observes the 115 Volts AC supplied to the icemaker water valve solenoid. If the solenoid is energized for more than 15 seconds, power to the icemaker system is disabled for 24 hours (See Figure 3-28), and an error code is logged (EC 30). If this happens five consecutive times, ICE and SERVICE on the LCD will flash (See Figure 3-29), and the ICE ON/OFF key will be disabled.

NOTE: *To clear the ICE and SERVICE error indicators, and reactivate the ICE ON/OFF key, the problem must be corrected, then the unit must be switched OFF and back ON, and the Alarm key must be pressed for 15 seconds to clear the Error Code.*

NOTE: *To allow ice to freeze fully and reduce effects of low water pressure, power to the icemaker system is interrupted for 45 minutes after each ice harvest. This can be bypassed for service purposes by switching the icemaker system OFF, then back ON using the ICE ON/OFF key.*

NOTE: *When in Sabbath Mode, the icemaker system is disabled. Sabbath Mode will be covered later.*

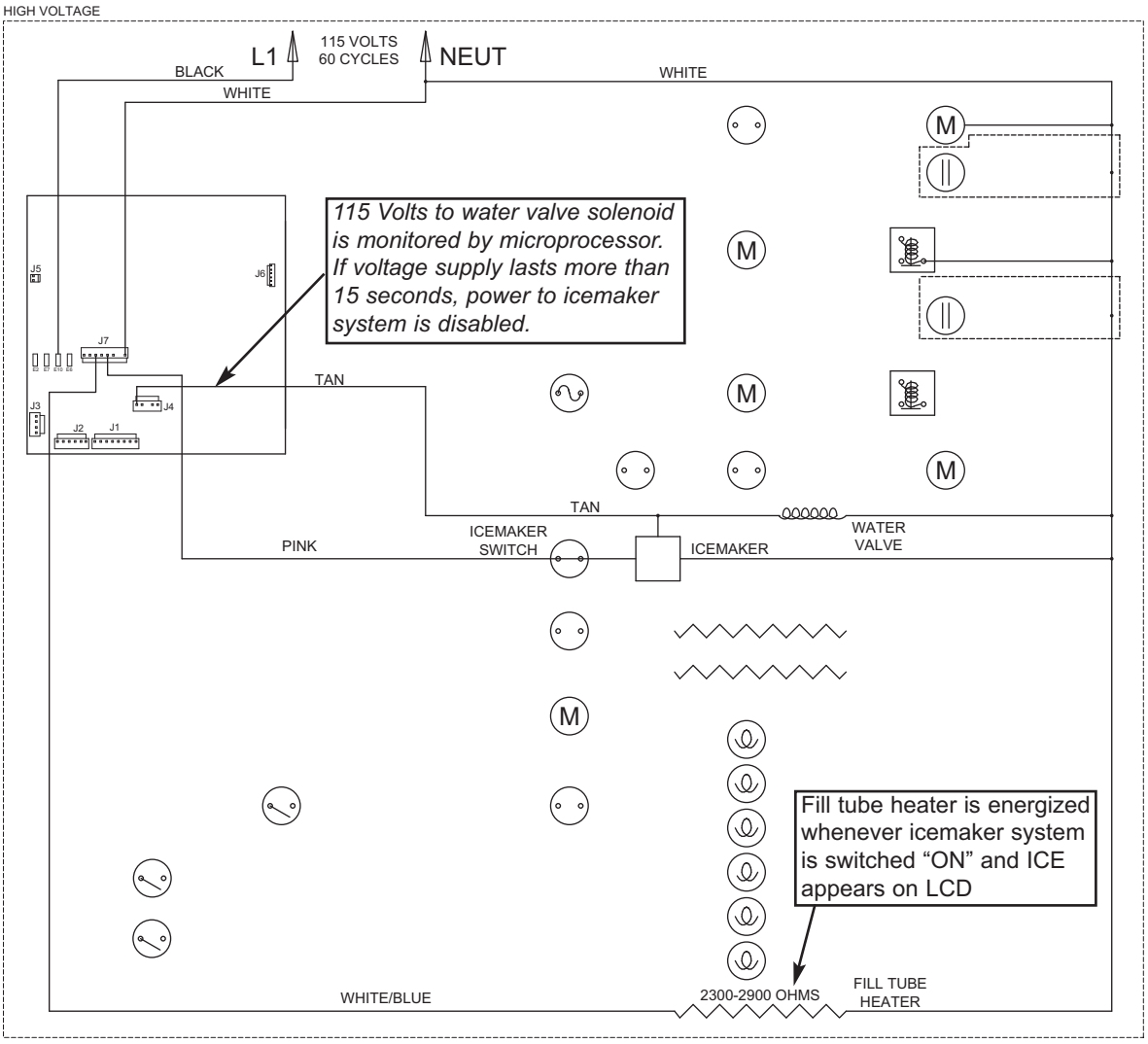


Figure 3-28. 700TC/I-3 Signal Trace Schematic (High Voltage) of Icemaker Electrical System

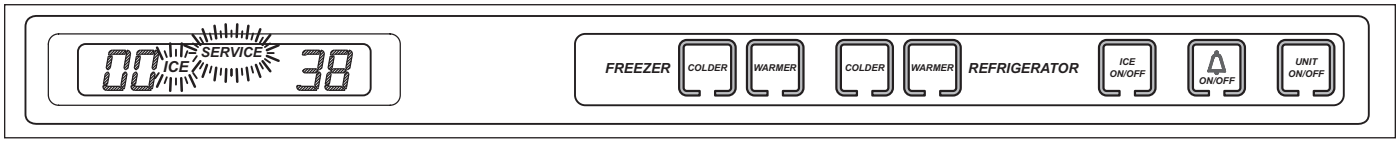


Figure 3-29. ICE & SERVICE Flashing = Solenoid Energized 15 sec., every 24 hrs., 5 consecutive times

POSSIBLE ERROR INDICATORS

These pages contain diagrams illustrating what a customer may see on the LCD if there is a problem with the unit.

NOTE: *To clear indicators and error codes, problem must be corrected then press Bell ON/OFF key for 15 seconds.*

NOTE: *For thermistor errors described below, thermistor can be tested by submersing it in a glass of ice water for 2 to 5 minutes, then check for 30,000 to 33,000 ohms.*

- For Models 700TC/I-3 and 736TC/I-3, See Figures 3-30 through 3-36
- For Model 700TR-3 and 736TR-3, See Figures 3-37 through 3-42
- For Model 700TF/I-3, See Figures 3-43 through 3-47

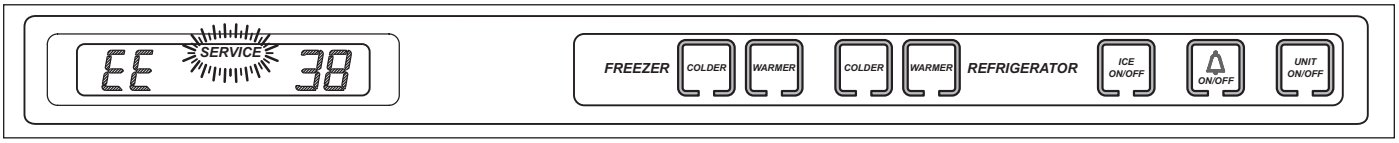


Figure 3-30. 700TC/I-3 & 736TC/I-3
"EE" at Left and "SERVICE" Flashing = Freezer Compartment Thermistor (or its Wiring) Fault

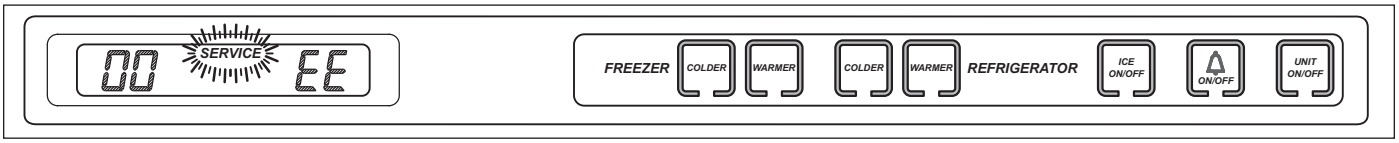


Figure 3-31. 700TC/I-3 & 736TC/I-3
"SERVICE" Flashing and "EE" at right = Refrig. Compartment Thermistor (or its wiring) Fault

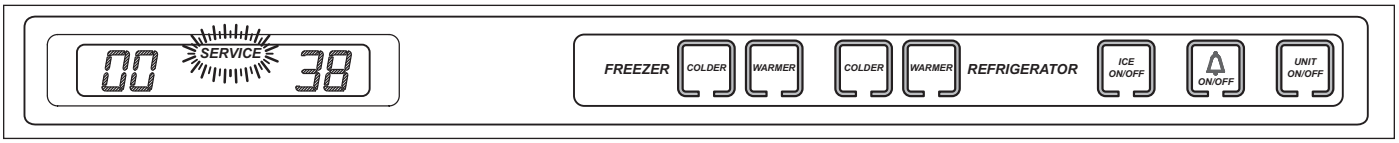


Figure 3-32. 700TC/I-3 & 736TC/I-3
"SERVICE" Alone Flashing = Refrig. Evap. Thermistor (or its Wiring) Fault

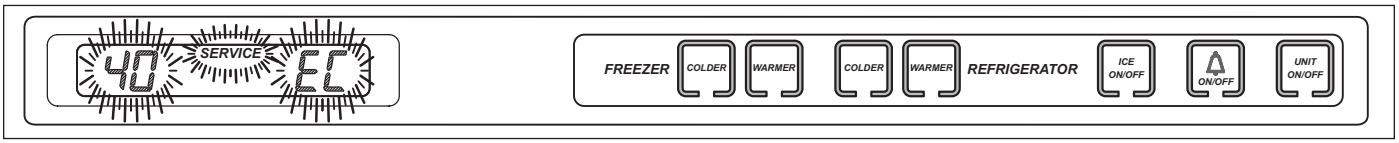


Figure 3-33. 700TC/I-3 & 736TC/I-3
"40", or "50" and "SERVICE" and "EC" Flashing = Excessive Compressor Run

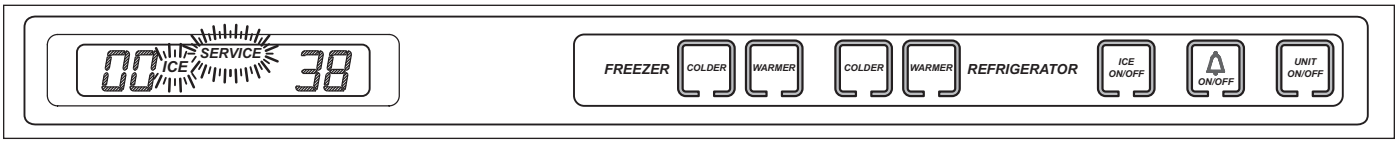


Figure 3-34. 700TC/I-3 & 736TC/I-3
"ICE" & "SERVICE" Flashing = Valve Solenoid energized > fifteen (15) Seconds, Icemaker System Disabled

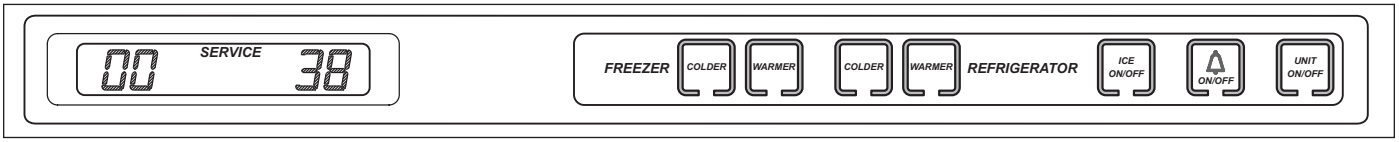


Figure 3-35. 700TC/I-3 & 736TC/I-3
"SERVICE" Steady, not Flashing = Error Codes Observed in Diagnostic Mode, but not Cleared

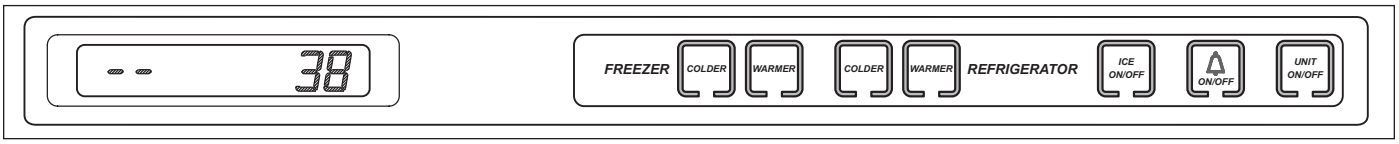


Figure 3-36. 700TC/I-3 & 736TC/I-3
" - - " (Double Dashes) Displayed = Compartment Manually Disabled

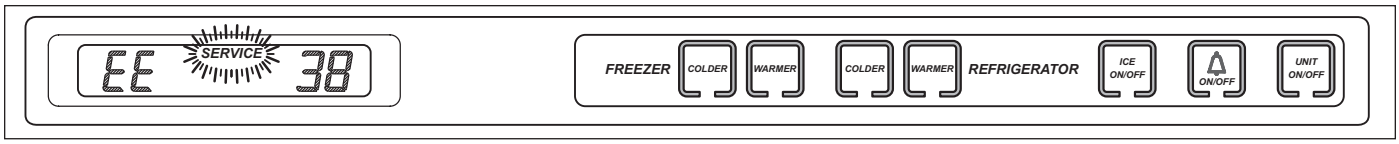


Figure 3-37. 700TR-3 & 736TR-3
"EE" at Left and "SERVICE" Flashing = Lower Compartment Thermistor (or its Wiring) Fault

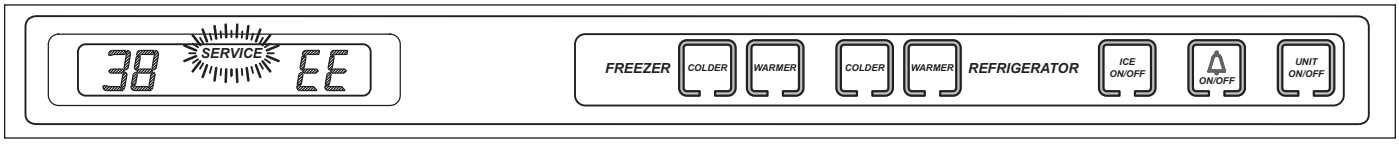


Figure 3-38. 700TR-3 & 736TR-3
"EE" at Right and "SERVICE" Flashing = Upper Compartment Thermistor (or its Wiring) Fault

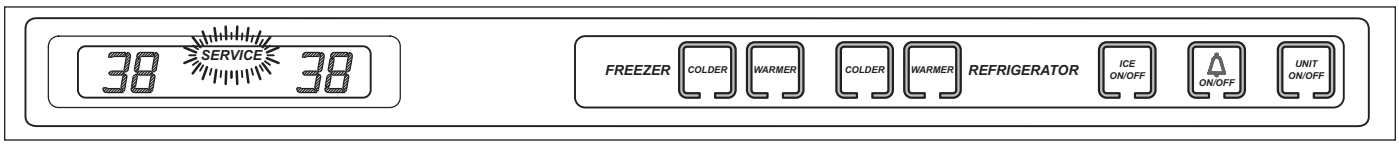


Figure 3-39. 700TR-3 & 736TR-3
"SERVICE" Alone Flashing = Refrig. Evap. Thermistor (or its Wiring) Fault

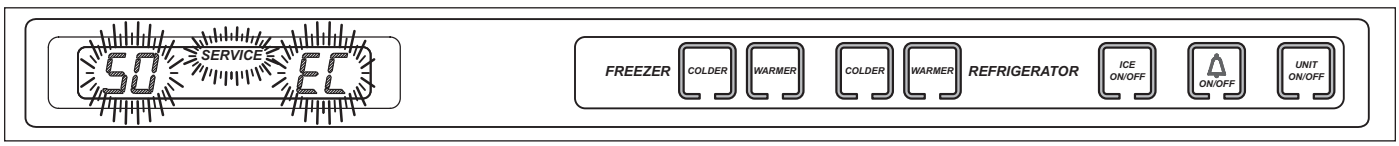


Figure 3-40. 700TR-3 & 736TR-3
"50", "SERVICE" and "EC" Flashing = Excessive Compressor Run

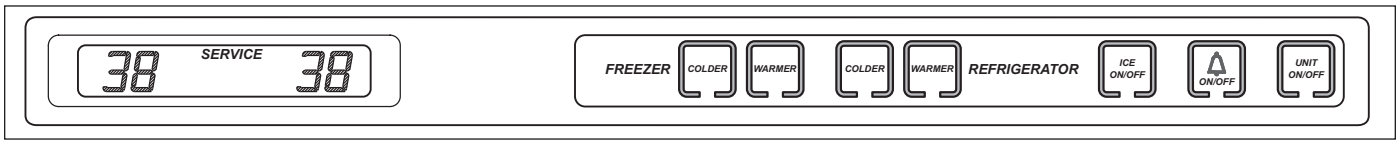


Figure 3-41. 700TR-3 & 736TR-3
"SERVICE" Steady, not Flashing = Error Codes Observed in Diagnostic Mode, but not Cleared

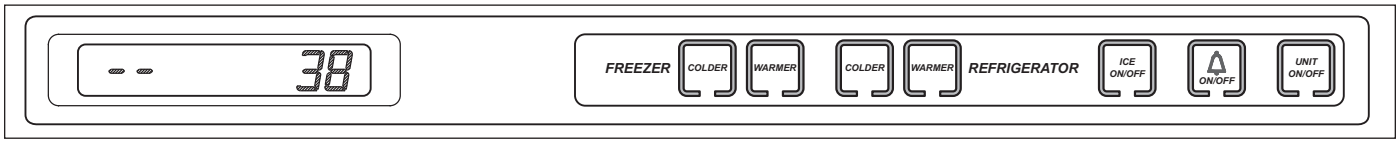


Figure 3-42. 700TR & 736TR-3
" - - " (Double Dashes) Displayed = Compartment Manually Disabled

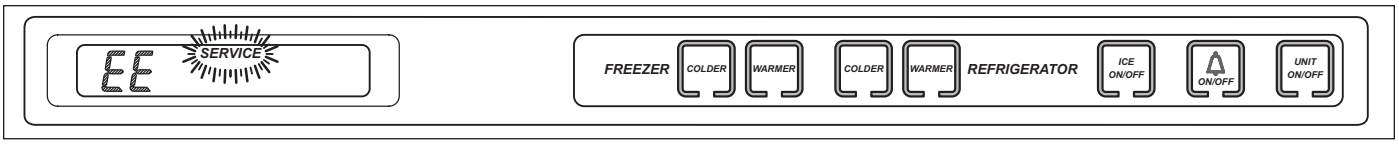


Figure 3-43. 700TF/I-3
"EE" at Left and "SERVICE" Flashing = Freezer Compartment Thermistor (or its Wiring) Fault

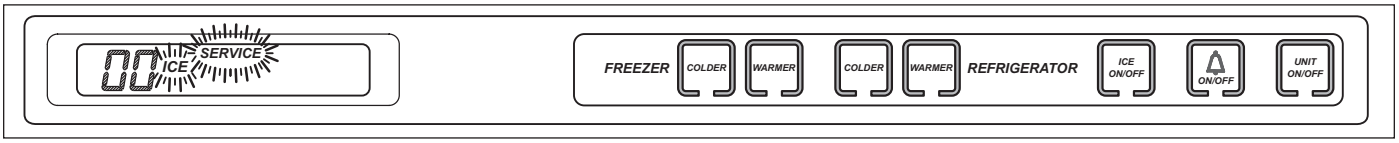


Figure 3-44. 700TF/I-3
"ICE" & "SERVICE" Flashing = Valve Solenoid energized > fifteen (15) Seconds, Icemaker System Disabled

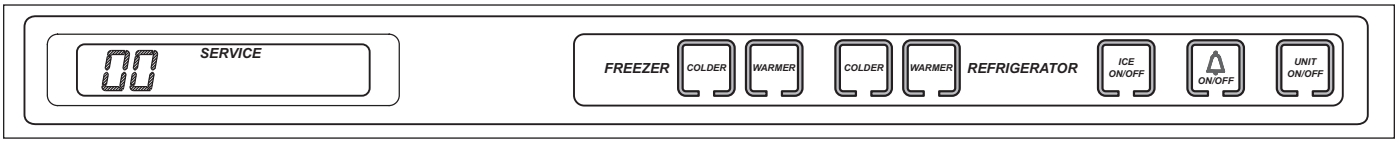


Figure 3-46. 700TF/I-3
"SERVICE" Steady, not Flashing = Error Codes Observed in Diagnostic Mode, but not Cleared

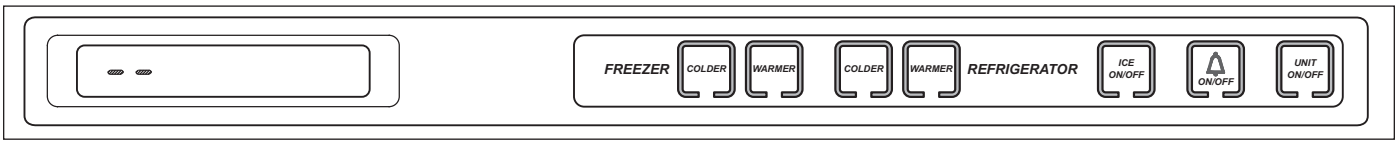


Figure 3-47. 700TF/I-3
" - - " (Double Dashes) Displayed = Compartment Manually Disabled

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

Initiating Diagnostic Mode allows the Service Technician to observe real-time temperature readings from all thermistors without temperature averaging. If errors were detected, "Error Codes" will also display during diagnostic mode.

NOTE: *The model 700TF/I-3 has only one compartment thermistor and one evaporator thermistor.*

NOTE: *Since Diagnostic Mode varies only slightly between the different models, a diagram of the 700TC/I-3 control panel is used to illustrate Diagnostic Mode key strokes.*

To initiate Diagnostic Mode, the unit must be ON, then press and hold either COLDER key, and press the UNIT ON/OFF key, then release both keys (See Figure 3-48). If no error codes are registered, the left display area will show 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 or either WARMER key while in Diagnostic Mode will toggle to the next or previous thermistor location, respectively. (See Figure 3-49, 3-50 and 3-51 and the Thermistor Location Code Tables on the next page)

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

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

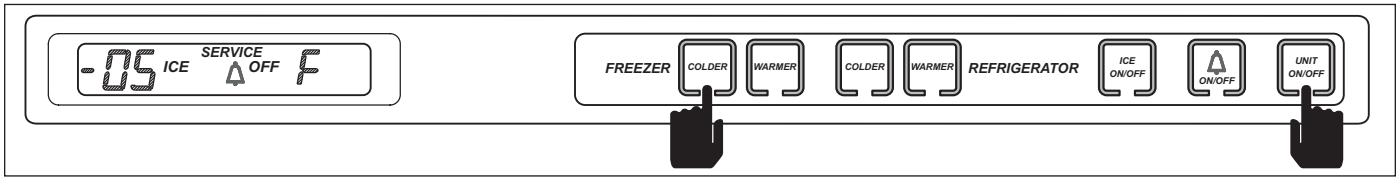


Figure 3-48. Initiate Diagnostic Mode - Press and Hold Either COLDER Key, Then the UNIT ON/OFF Key ("F" Indicates Freezer Compartment)

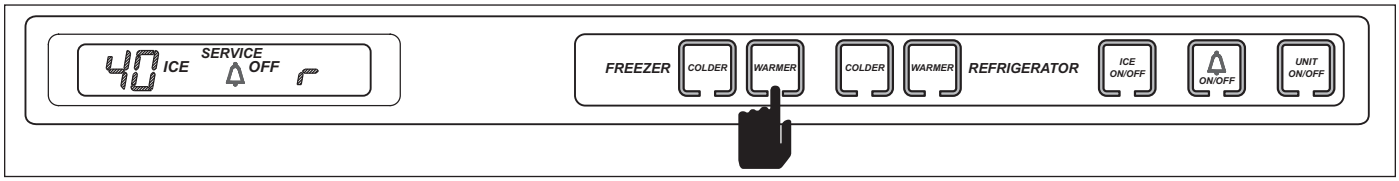


Figure 3-49. Toggle Through Temperature Readings - Press Either COLDER Key ("r" Indicates Refrigerator Compartment)

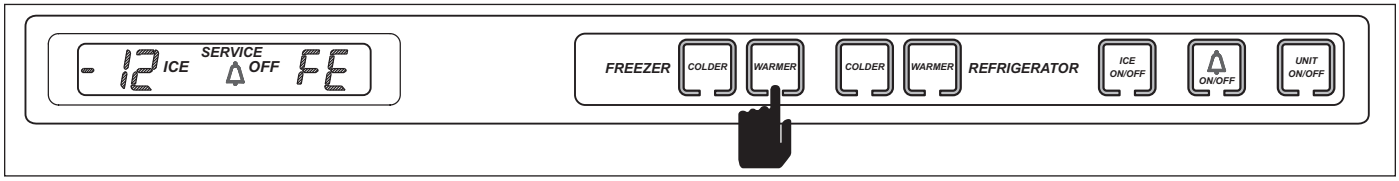


Figure 3-50. Toggle Through Temperature Readings - Press Either COLDER Key ("FE" Indicates Freezer Evaporator)

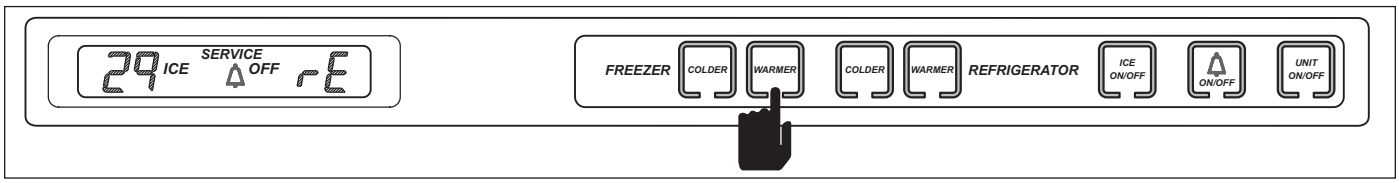


Figure 3-51. Toggle Through Temperature Readings - Press Either COLDER Key ("rE" Indicates Refrigerator Evaporator)

700TC/I-3 & 736TC/I-3	
THERMISTOR LOCATION	CODE
Freezer Compartment	***F***
Refrigerator Compartment	***r***
Freezer Evaporator	***FE***
Refrigerator Evaporator	***rE***

700TR-3 & 736TR-3	
THERMISTOR LOCATION	CODE
Lower Compartment	***L***
Upper Compartment	***U***
Lower Evaporator	***LE***
Upper Evaporator	***UE***

700TF/I-3	
THERMISTOR LOCATION	CODE
Freezer Compartment	***F***
Freezer Evaporator	***FE***

Diagnostic Mode Indicators

If “EE” is observed in the 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 3-52).

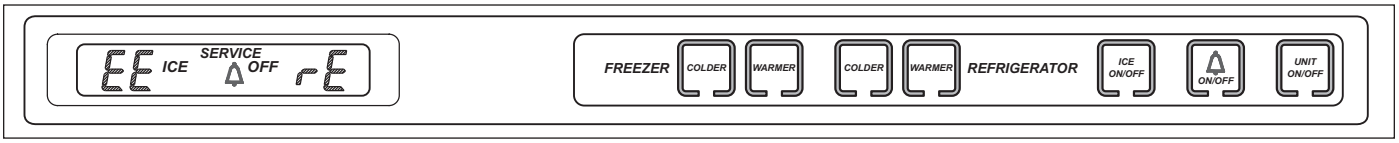


Figure 3-52. “EE” Observed in Diagnostic Mode = Thermistor Fault in Location Indicated by Code

If “Sr” is observed in the left display area when Diagnostic Mode is initiated, the unit is in Showroom Mode, which was explained earlier in this section (See Figure 3-53).

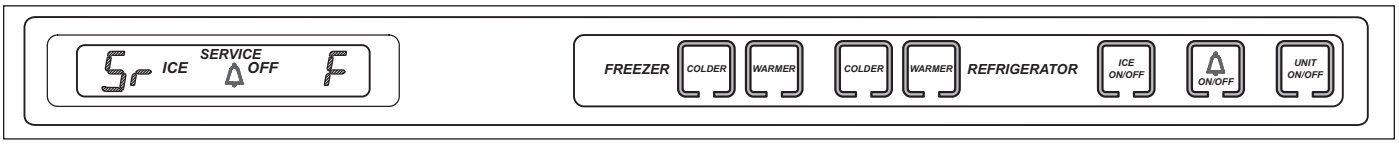


Figure 3-53. “Sr” Observed While in Diagnostic Mode = Unit is in Showroom Mode

If “EC” is observed in the right display area during Diagnostic Mode, the numbers at left are “Error Codes” (See Figure 3-55 and the Error Code Table on next page). 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.

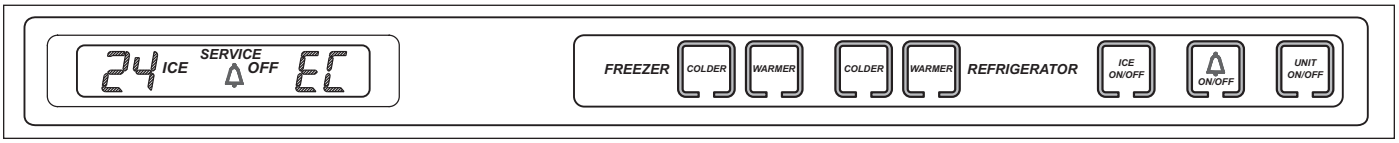


Figure 3-55. “EC” Observed While in Diagnostic Mode = Error Code (See Table on Following Page)

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	*Excessive Icemaker Water Valve Solenoid Activation (Exceeded 15 Seconds)*
40	*Excessive Freezer Compressor Run*
50	*Excessive Refrigerator Compressor Run*

NOTE: *The table above will be updated through addendums when subsequent software and electrical changes occur and more error codes are added.*

Clearing Error Codes

If error codes are observed during Diagnostic Mode, a non-flashing SERVICE annunciator will appear on the LCD when Diagnostic Mode ends, indicating error codes are still registered (See Figure 3-56). To clear a non-flashing SERVICE annunciator and the error codes, the problem must be corrected and the unit must be ON. Then, the Bell ON/OFF key must be pressed and held for fifteen (15) seconds. The control will emit a short "beep" when the SERVICE annunciator and error codes are cleared. (See Figure 3-57)

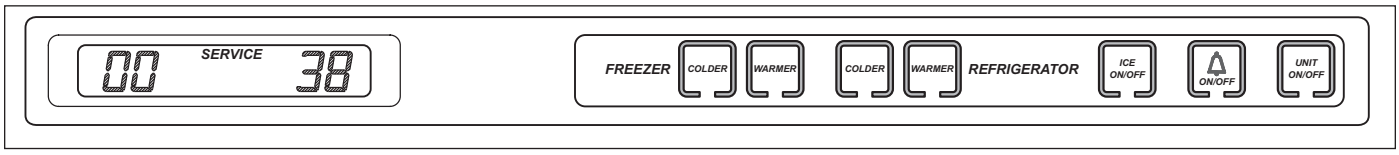


Figure 3-56. Non-flashing SERVICE Annunciator after Diagnostic Mode = Error Codes were Registered

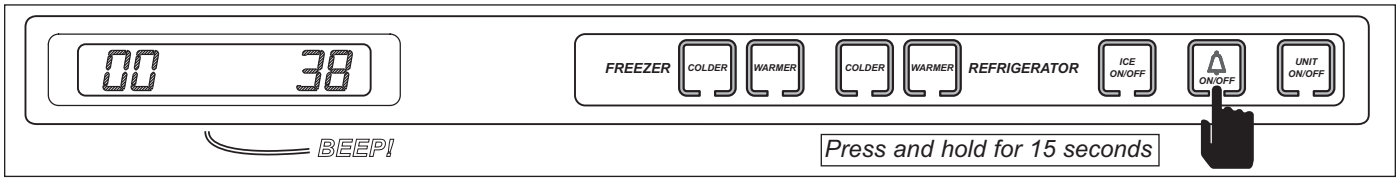


Figure 3-57. Clear Non-flashing SERVICE Annunciator - Press & Hold Bell ON/OFF Key for 15 Seconds

Manual Component Activation Mode

Manual Component Activation Mode allows a Service Technician to energize a cooling system for five minutes. When activated, the chosen zone's compressor and evaporator fan are energized along with the condenser fan. While in Component Activation Mode, the evaporator temperatures for that zone are displayed on the LCD. This also allows the Service Technician to check for proper voltage readings at the activated components without having to wait for the compartment to call for cooling.

To initiate Manual Component Activation Mode, the unit must be ON. With the unit ON, press and hold the desired zone COLDER key and the UNIT ON/OFF key for ten seconds (See Figure 3-58). The evaporator temperature for that compartment will be displayed in the left display area of the LCD and the right display area will show the thermistor location.

NOTE: *If the COLDER and UNIT ON/OFF keys are pressed and held for less then 10 seconds, Diagnostic Mode will be initiated.*

NOTE: *It is possible to toggle through the the other temperature readings as in Diagnostic Mode, but in this case the temperature readings will last for five minutes rather than twenty seconds.*

NOTE: *The compressor overload could prevent the compressor from energizing.*

NOTE: *Manual Component Activation Mode will end five minutes after it is initiated. It is possible to end this five minute run time and return to normal operation by switching the unit OFF then back ON. If this is done, note that the electronic control will observe a three minute minimum compressor OFF time when the unit is switched back ON. This is to protect the compressor and its electricals.*

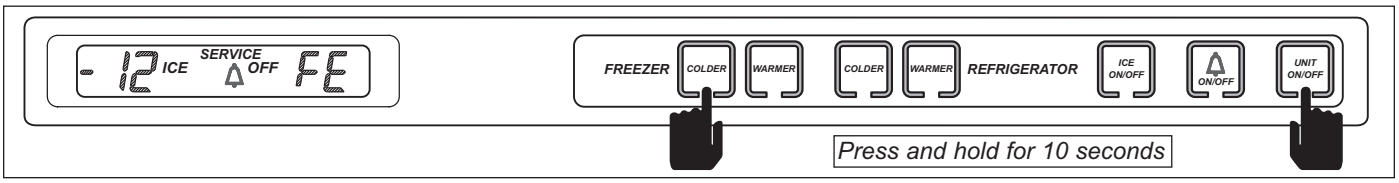


Figure 3-58. Initiate Manual Component Activation Mode - Press and Hold Desired COLDER Key and UNIT ON/OFF Key for 10 Seconds

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 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 UNIT ON/OFF key, then release both keys (See Figure 3-59). The left display area on the LCD will show average compartment thermistor 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 3-60).

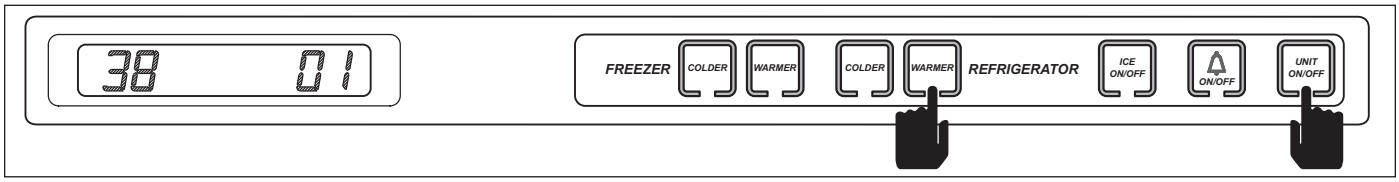


Figure 3-59. Initiate Temperature Log Recall Mode To View Compartment Temperature History Only - Press and Hold Desired WARMER Key, Then Press UNIT ON/OFF Key

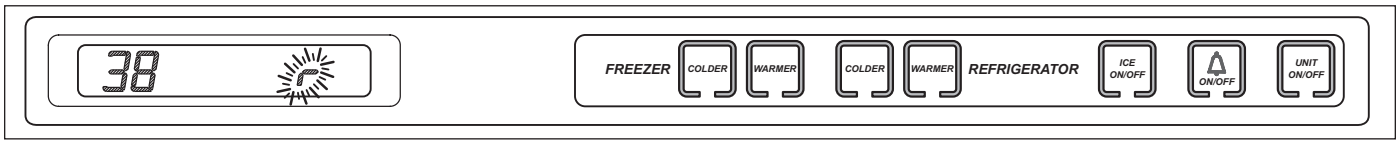


Figure 3-60. Thermistor Location Code Flashes Every Three Seconds

To toggle up through the indexes (from 1 to 168), press the same WARMER key in multiple key strokes (See Figure 3-61). To toggle down through the indexes (from 168 to 1), press the corresponding COLDER key in multiple key strokes (See Figure 3-62).

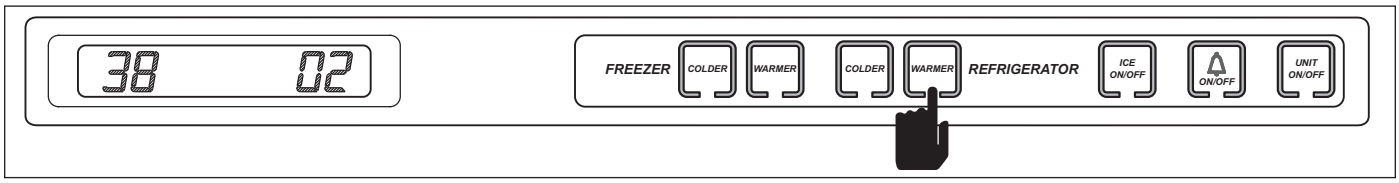


Figure 3-61. Toggle Up Through Indexes - Press WARMER Key in Consecutive Key Strokes

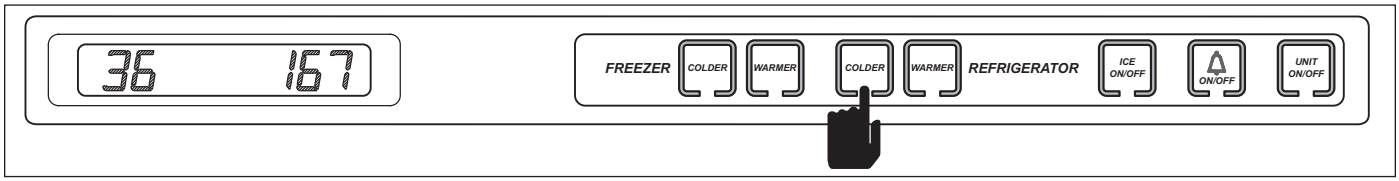


Figure 3-62. Toggle Down Through Indexes - Press COLDER Key in Consecutive Key Strokes

Initiate Temperature Log Recall Mode To View Compartment and Evaporator Temperature History - Begin with the unit ON and in Diagnostic Mode (See Figure 3-63). While in Diagnostic Mode, toggle through the readings until the desired thermistor temperature is displayed on the LCD (See Figure 3-64). Now, press the WARMER key for that compartment and the UNIT ON/OFF key simultaneously (See Figure 3-65). The left display area on the LCD will show average thermistor temperature and in the right display area will be the index number "1" indicating the most recent 2-hour temperature average (See Figure 3-65). The right display area will also flash the thermistor location code at three second intervals (See Figure 3-66).

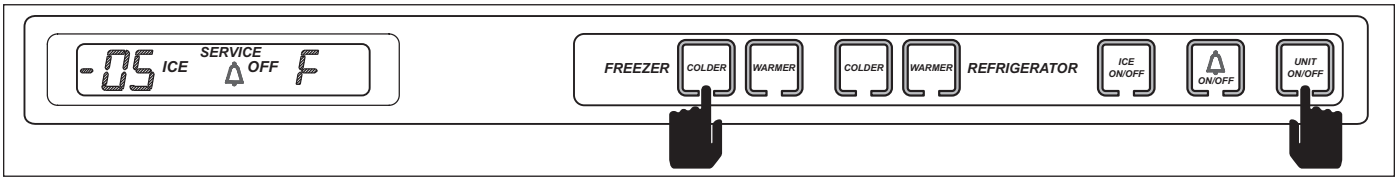


Figure 3-63. Initiate Diagnostic Mode - Press and Hold Either COLDER Key, then the UNIT ON/OFF Key

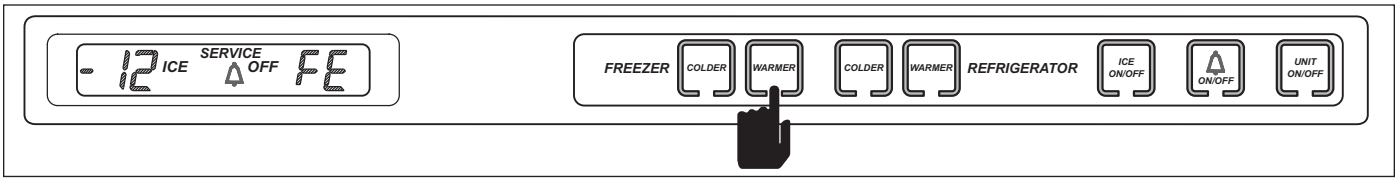


Figure 3-64. Toggle Through Temperature Readings - Press Either COLDER Key or Either WARMER Key Until Desired Thermistor Temperature is Displayed

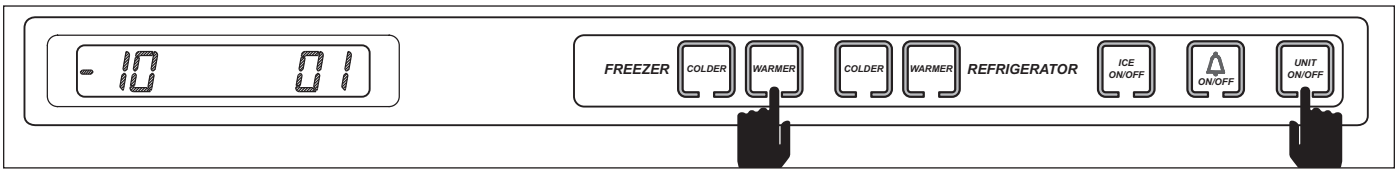


Figure 3-65. Initiate Temperature Log Recall Mode To View Temperature History - Press and Hold Desired WARMER Key and UNIT ON/OFF Key

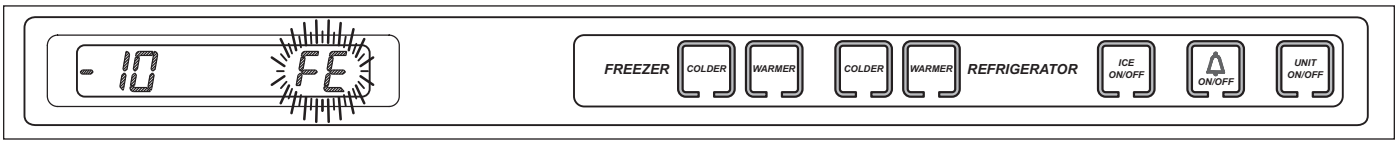


Figure 3-66. Thermistor Location Code Flashes Every Three Seconds

To toggle up through the indexes (from 1 to 168), press the same WARMER key in multiple key strokes (See Figure 3-67). To toggle down through the indexes (from 168 to 1), press the corresponding COLDER key in multiple key strokes (See Figure 3-68).

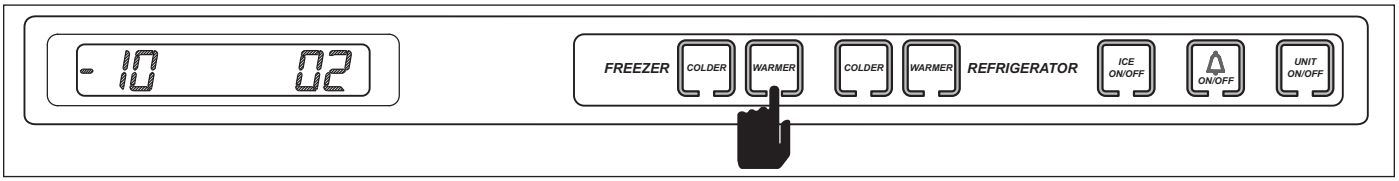


Figure 3-67. Toggle Up Through Indexes - Press WARMER Key in Consecutive Key Strokes

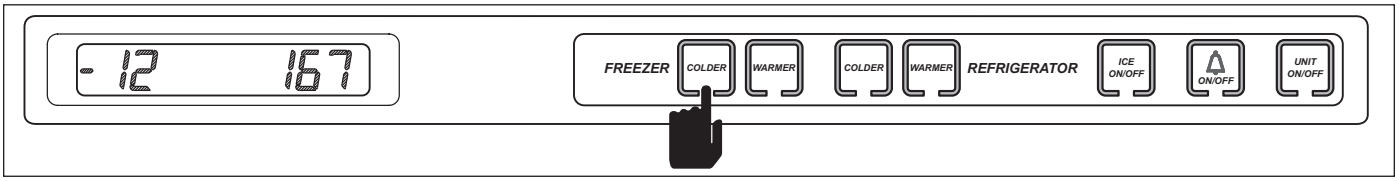


Figure 3-68. Toggle Down Through Indexes - Press COLDER Key in Consecutive Key Strokes

Possible Temperature Log Recall Mode Event Indicators

The diagrams below illustrate possible event indicators that may be observed while in Temperature Log Recall Mode. (See Figures 3-69 through 3-72)

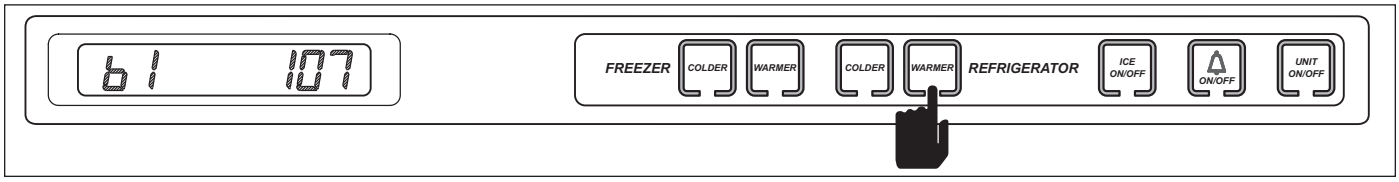


Figure 3-69. *"bl"* Indicates Index is "blank" - No Temperature has Been Logged Yet
(Only possible within first 14 days of unit operation, or after new control board is installed during service)

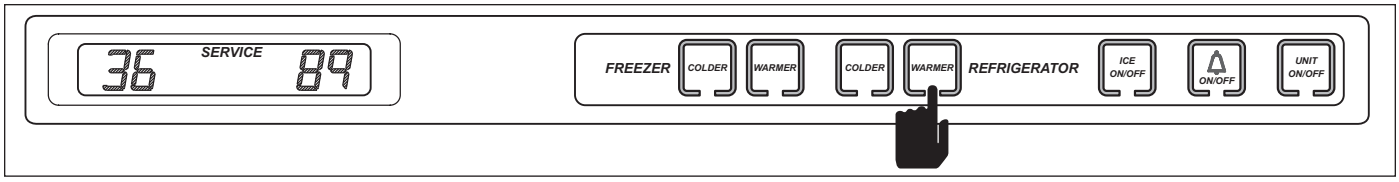


Figure 3-70. SERVICE Annunciator Illuminates - Indicates Unit was switched OFF During that Index Period by Pressing UNIT ON/OFF Key

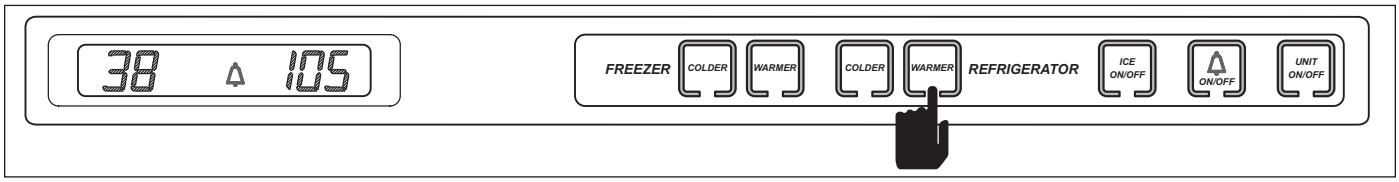


Figure 3-71. Bell Illuminates - Indicates Power Failure / Interruption During that Index Period

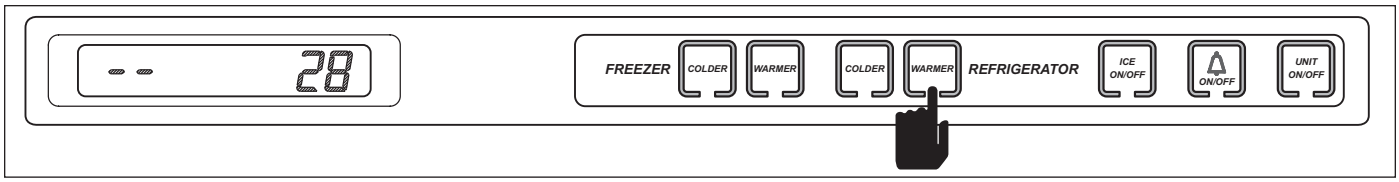


Figure 3-72. Double Dashes (- -) Displayed Instead of Temperature for Several Consecutive Index Periods - Indicates Bad EEPROM on Control Board. Board Must be Replaced

NOTE: *Double dashes will also be observed when in Manual Zone Disable Mode. Only when double dashes are observed in Temperature Log Recall Mode for several consecutive indexes should the control board be replaced.*

NOTE: *If Manual Zone Disable Mode has been activated during any of the 168 indexes, average temperatures will continue to be logged. No event indicator will appear with these temperatures.*

NOTE: *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.*

NOTE: *If the unit was switched OFF by pressing the UNIT ON/OFF key during any of the 168 indexes and there was still 115V AC supplied to the control board, the average temperatures will continue to be logged. This means temperatures would be expected to rise and the SERVICE annunciator would be present in all indexes in which the unit was OFF.*

NOTE: *Temperature Log Recall Mode will end 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)*

HFC-134a REFRIGERANT SERVICE INFORMATION

The 700-3 Series 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 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. ***NOTE:*** *These illustrations do not represent any specific 700-3 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 pushes this high-pressure/high-heat gas to the condenser.

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 heater loop, the high-pressure/warm liquid enters the high-side filter-drier.

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.

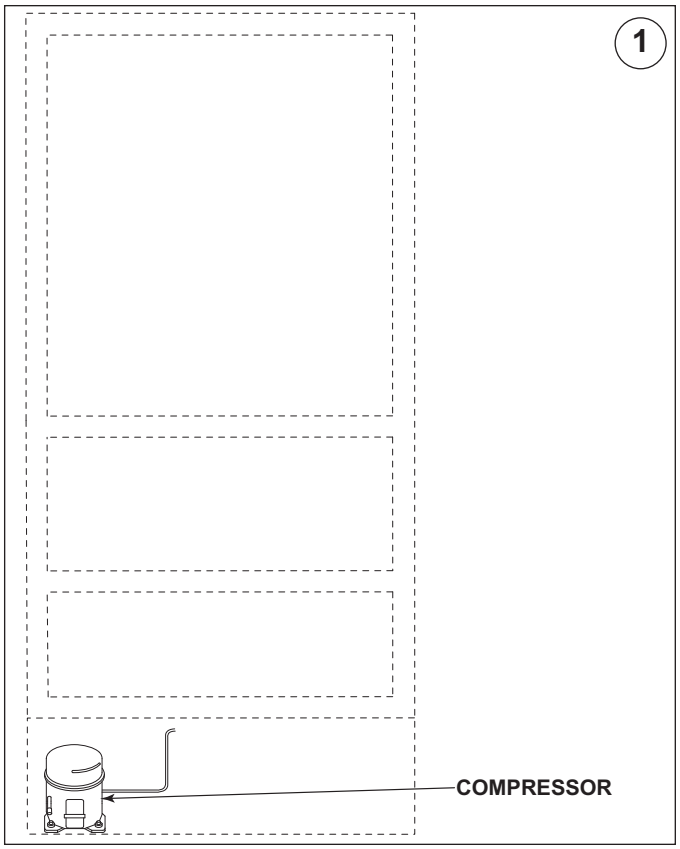


Figure 4-1. Compressor

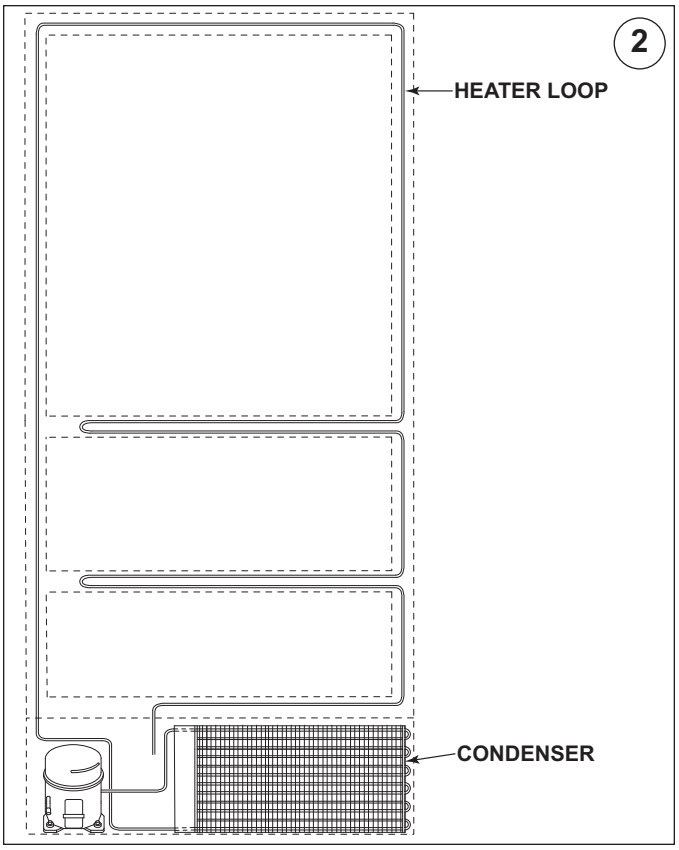


Figure 4-2. Condenser & Heater Loop

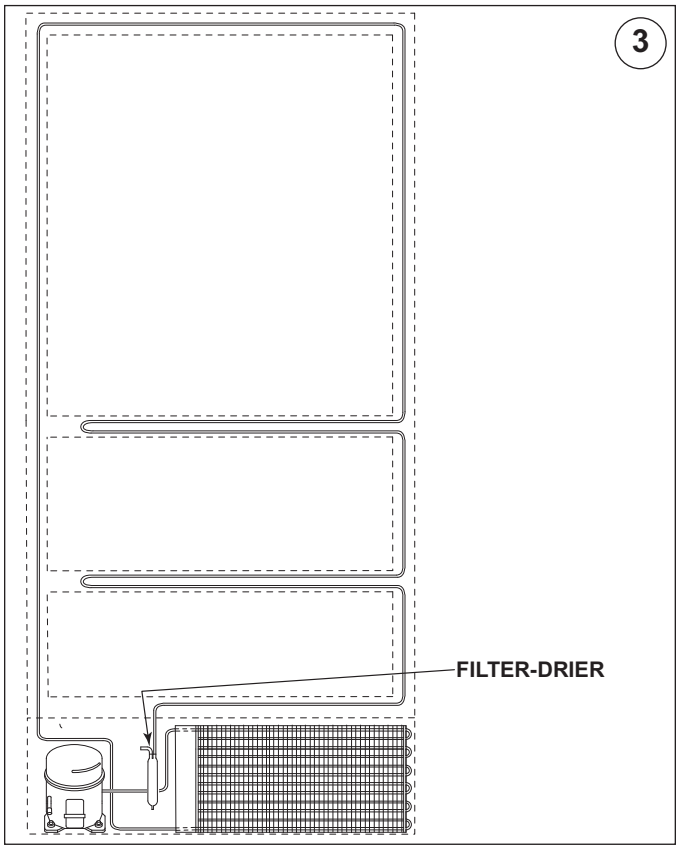


Figure 4-3. Filter-Drier

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.) 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.

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.

Suction Line (& 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.

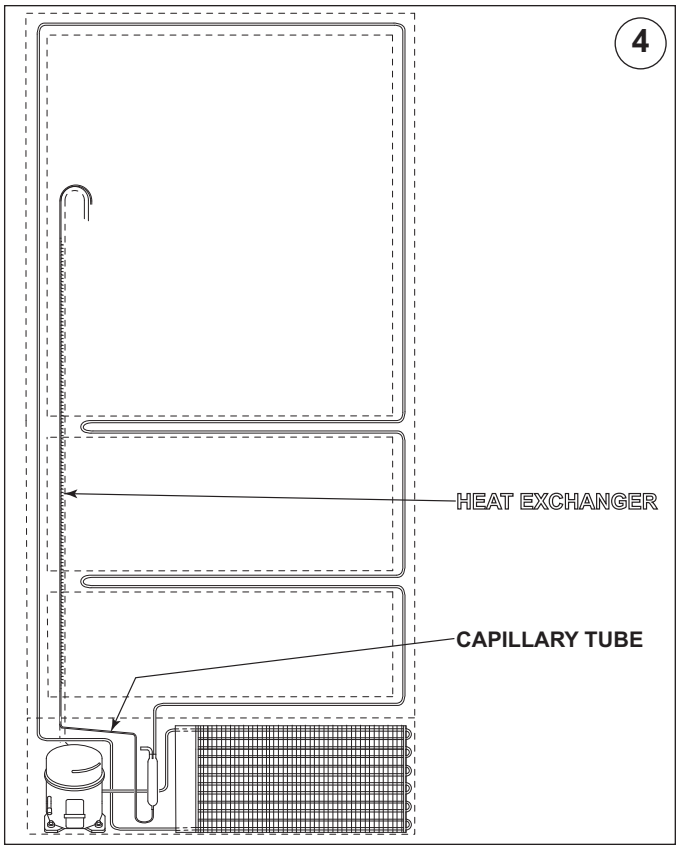


Figure 4-4. Capillary Tube (& Heat Exchanger)

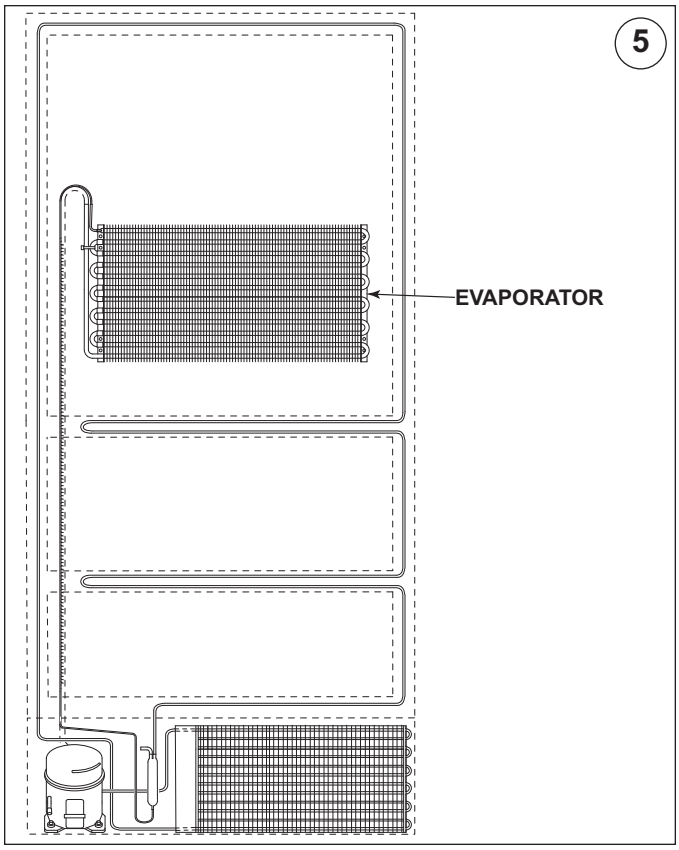


Figure 4-5. Evaporator

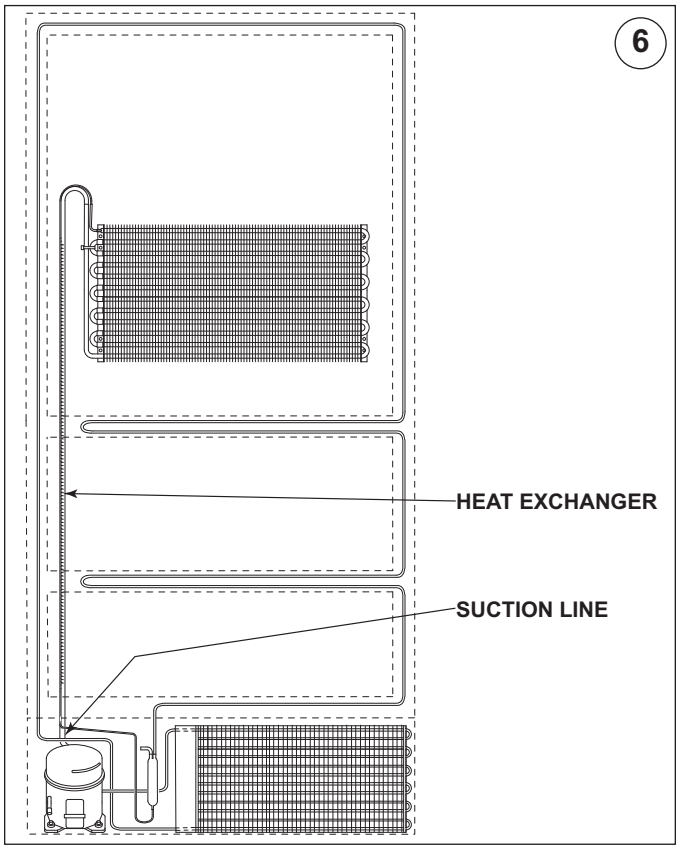


Figure 4-6. Suction Line & Heat Exchanger

SEALED SYSTEM REFRIGERANT FLOW DIAGRAMS

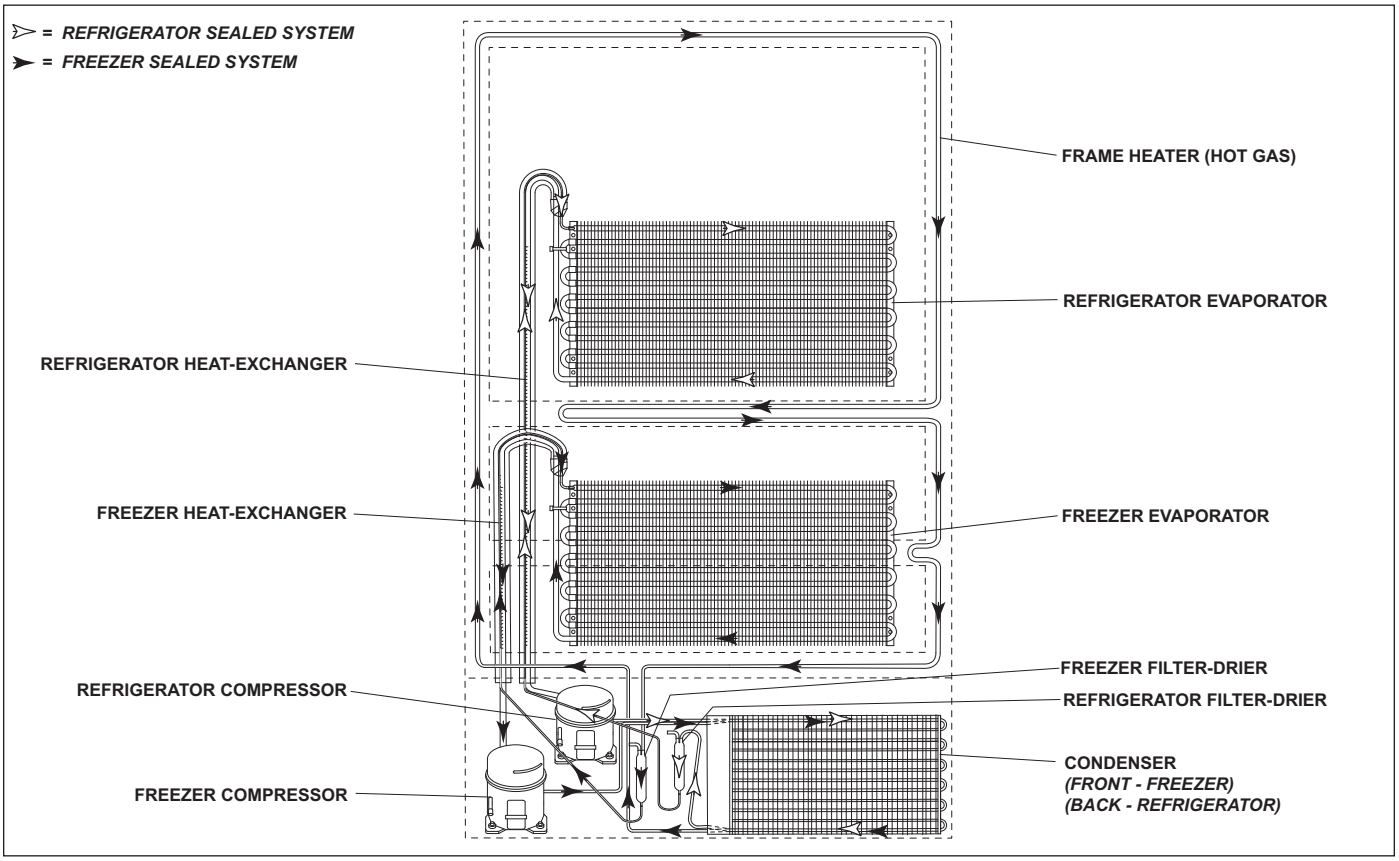


Figure 4-7. Models 700TC/I-3 and 736TC/I-3 Refrigerant Flow

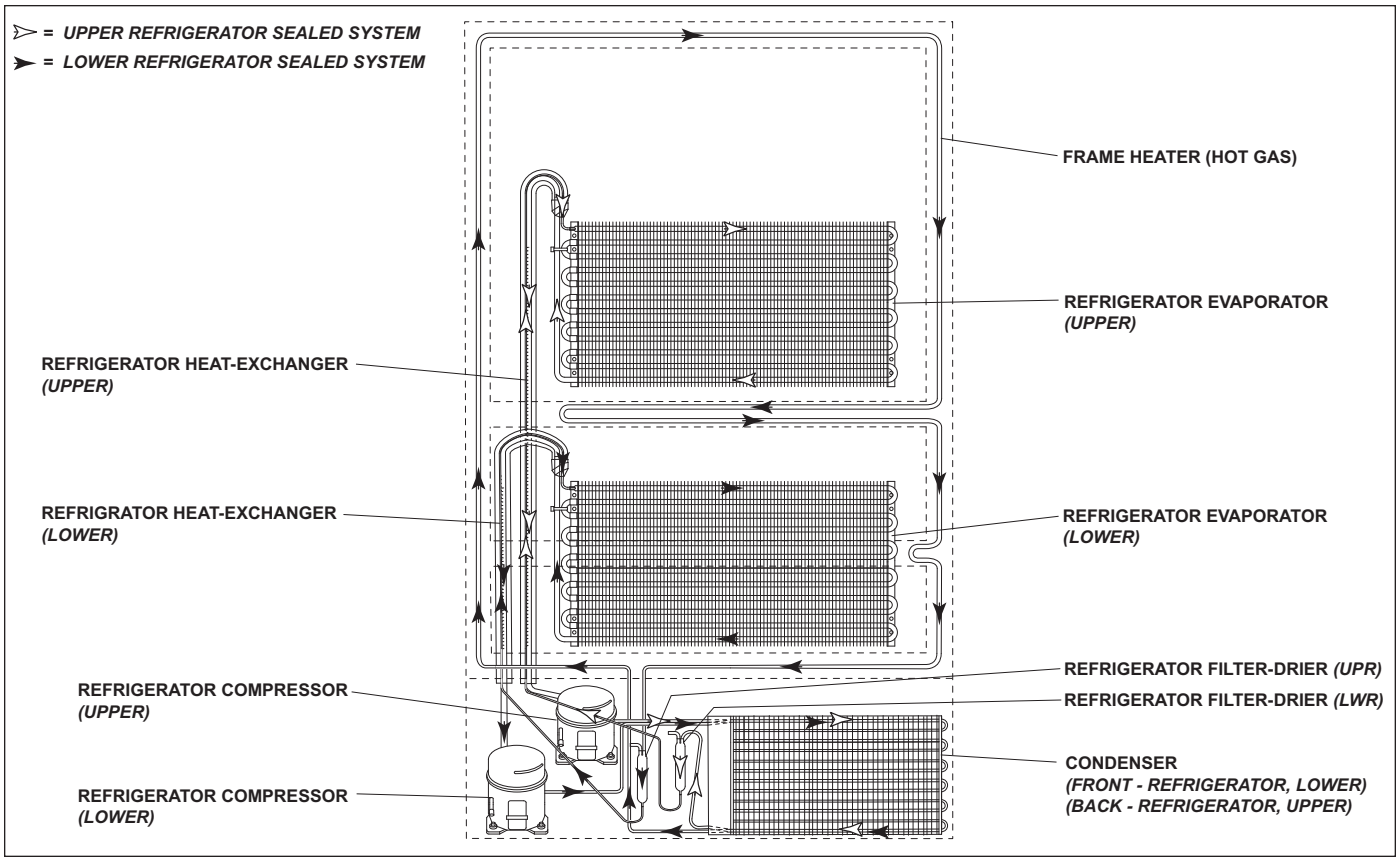


Figure 4-8. Model 700TR-3 and 736TR-3 Refrigerant Flow

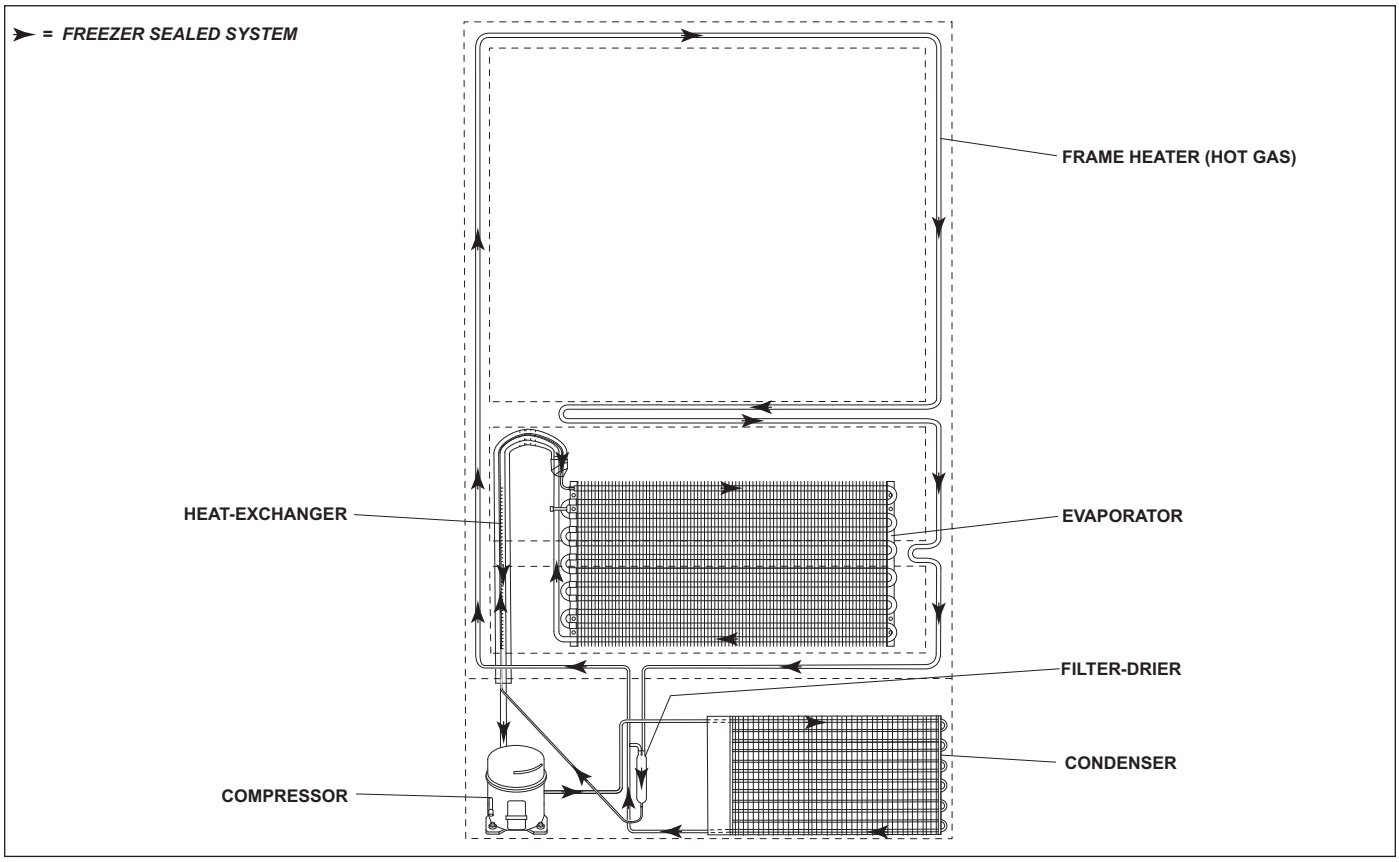


Figure 4-9. Model 700TF/I-3 Refrigerant Flow

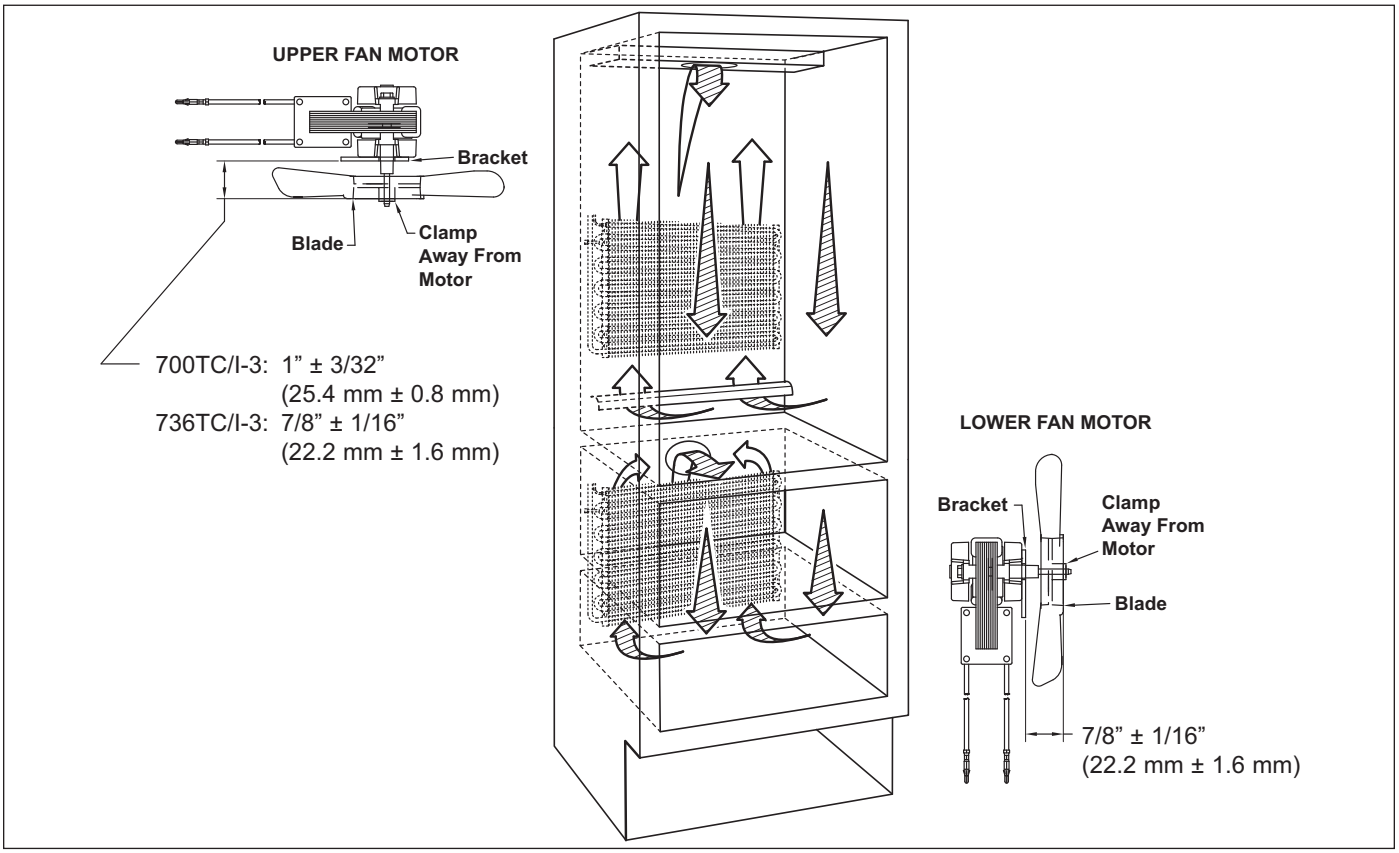


Figure 5-1. 700TC/I-3 and 736TC/I-3 Air Flow and Fan Blade Spacing

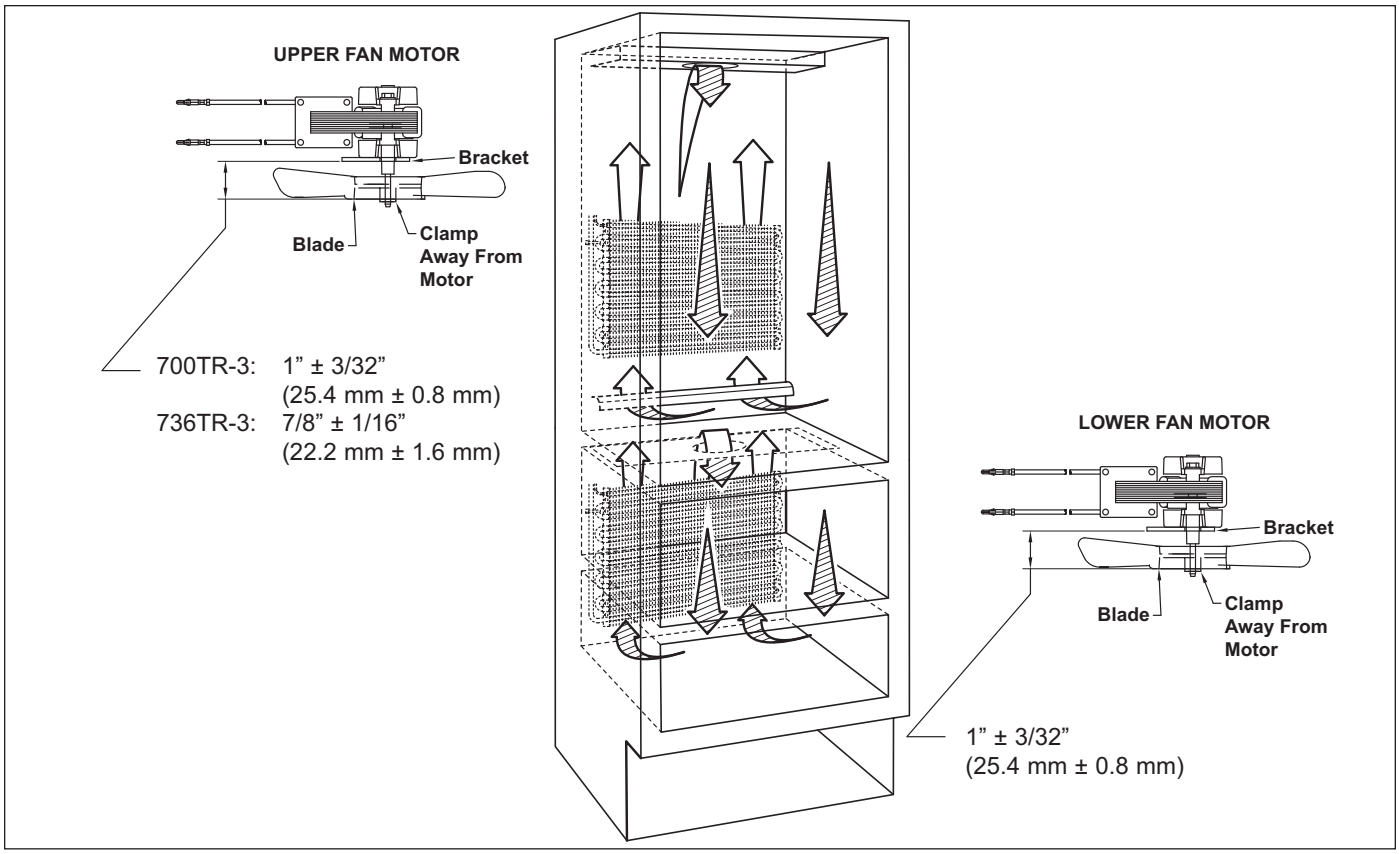


Figure 5-2. 700TR-3 and 736TR-3 Air Flow and Fan Blade Spacing

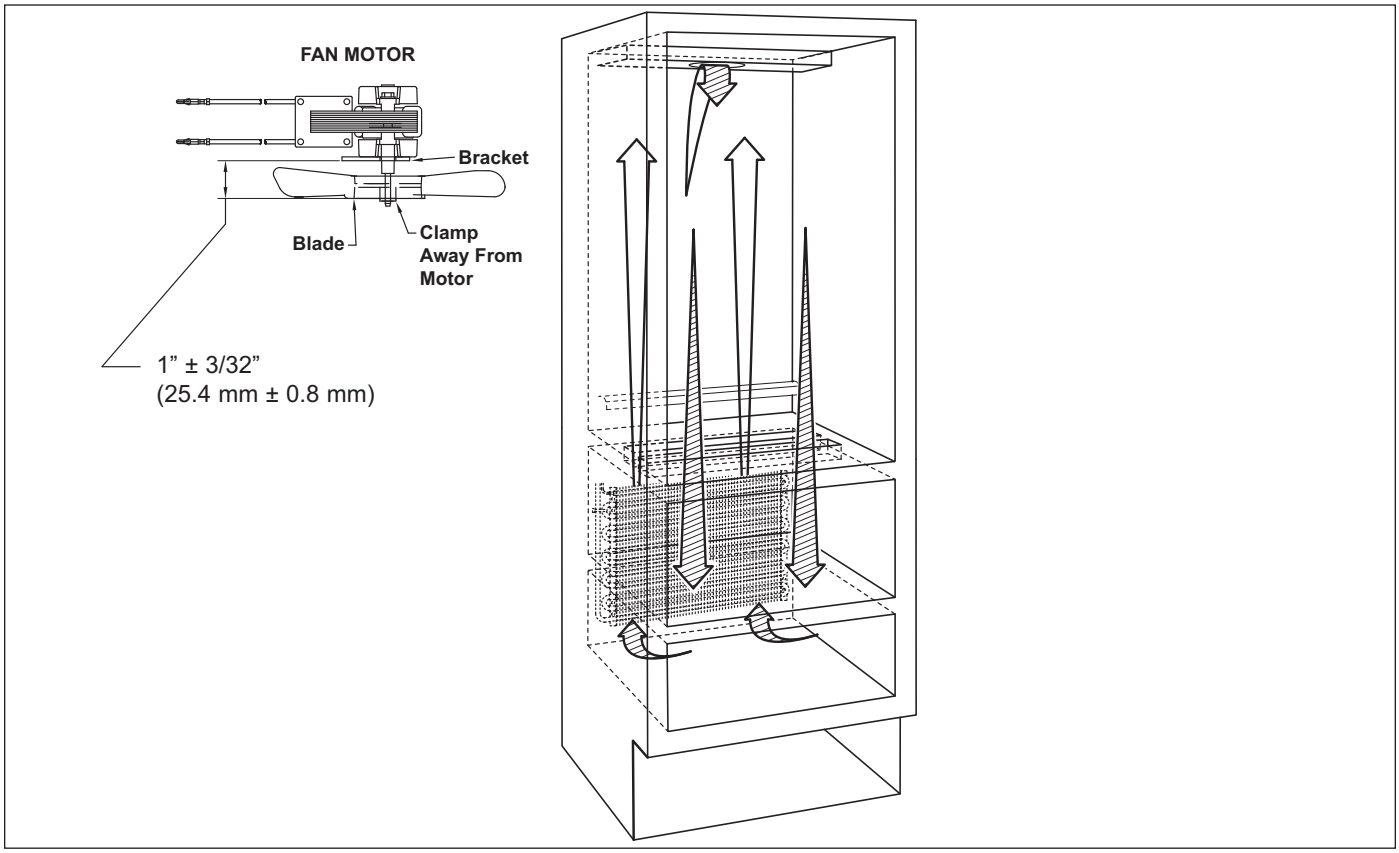


Figure 5-3. 700TF/I-3 Air Flow and Fan Blade Spacing

ICEMAKER SYSTEM INFORMATION

The model 700TFI-3 utilizes a Modular ® icemaker, while the models 700TCI-3 and 736TCI-3 utilize either a MidSouth ® Icemaker, or Japan-Servo ® Icemaker.

This section is divided in two parts

Additional Icemaker System Information

- *The ICE ON/OFF key at the control panel activates the icemaker system. If "ICE" is not displayed on the LCD, the icemaker system is OFF.*
- *To allow ice to freeze fully and reduce effects of low water pressure, the electronic control system disables the icemaker system for 45 minutes after each ice harvest. To bypass the 45 minute dwell, press the ICE key to switch the ice making system OFF, then press the ICE key again to cycle the ice making system back ON.*
- *The ice bucket activates a switch when in place. If the ice bucket is not in proper position, ice production will stop.*
- *The icemaker shut-off arm must be in the "down / on" position for the icemaker to operate.*
- *The icemaker relay on the control board also controls the fill tube heater and water valve.*

MODULAR ICEMAKER OPERATION (700TFI-3 ONLY)

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.

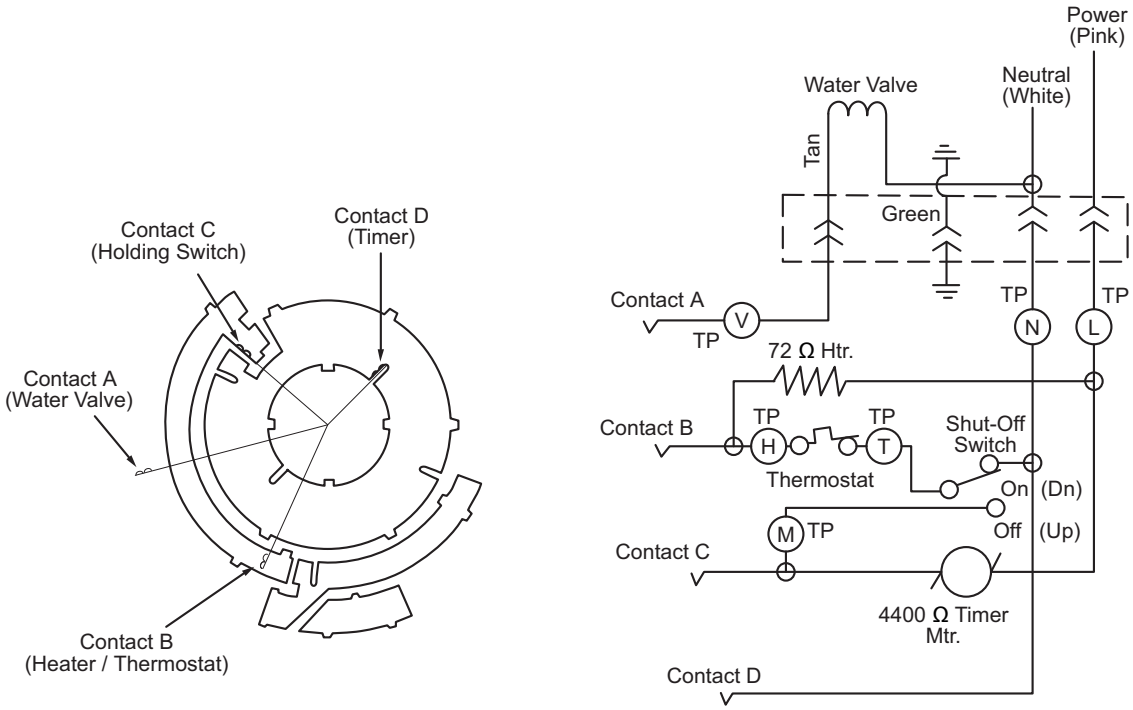


Figure 6-1. Modular Icemaker Electrical Schematic

What Happens During Modular Icemaker Ejector Blade Rotation (700TFI-3 ONLY)

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.

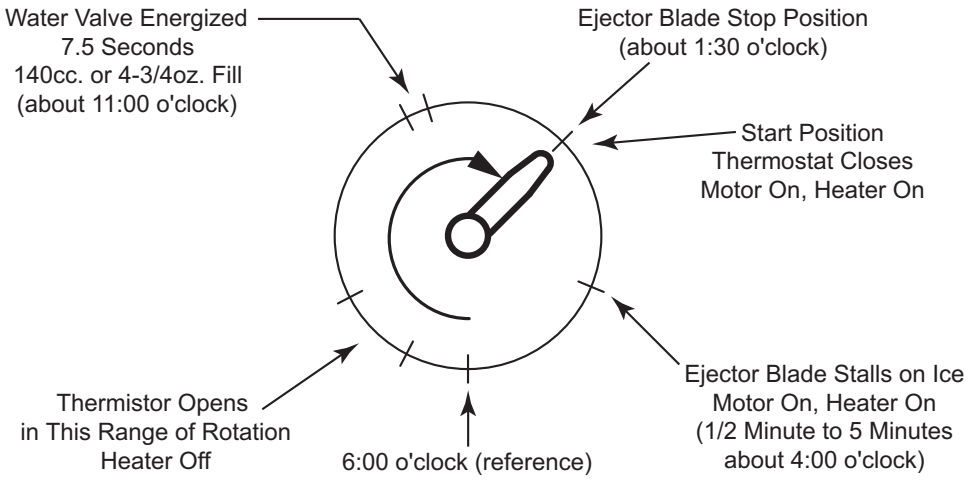


Figure 6-2. Ejector Blade Rotation Diagram

MODULAR ICEMAKER TEST PROCEDURES (700TFI-3 ONLY)

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 AC power supplied to the icemaker, so read the "WARNING" below and the "additional Ice Production Notes" on the previous page before proceeding.

⚠ WARNING

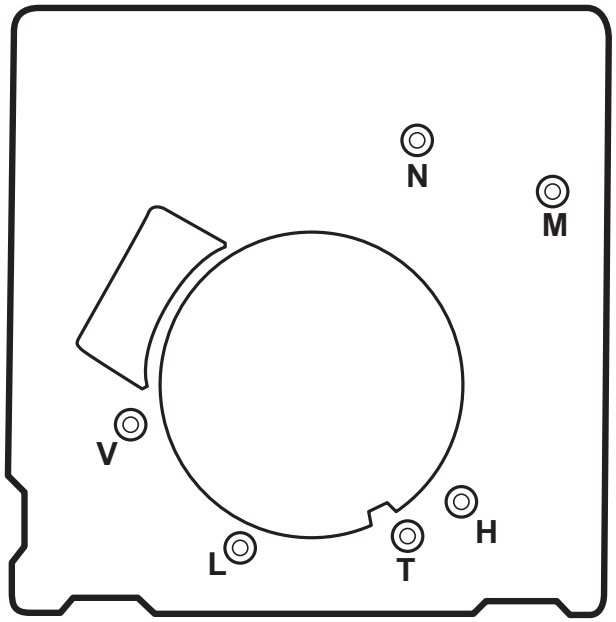
ELECTRIC SHOCK HAZARD! TESTS 1 THROUGH 5 BELOW ARE PERFORMED WITH POWER SUPPLIED TO THE ICEMAKER. CARE MUST BE TAKEN WHEN PERFORMING THESE TESTS TO AVOID SEVERE PERSONAL INJURY OR DEATH.

Voltage Tests

1. Check for 115 Volts AC 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 115V AC 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*

MODULAR ICEMAKER WATER FILL ADJUSTMENT (700TFI-3 ONLY)

The water valve should energize for approximately 7.5 seconds. This should supply 140cc. of water to the icemaker, or approximately 4.75oz. 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.

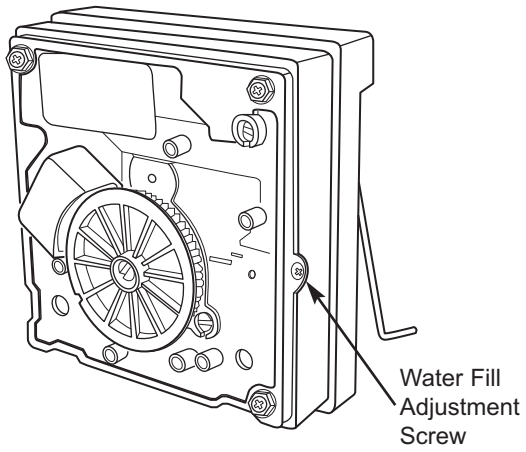


Figure 6-4. Water Fill Adjustment

MODULAR ICEMAKER DISASSEMBLY (700TFI-3 ONLY)

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)

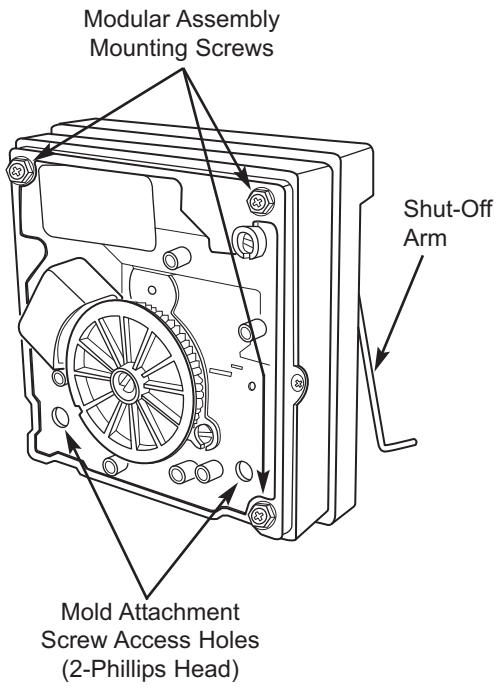


Figure 6-5. Icemaker Component Removal

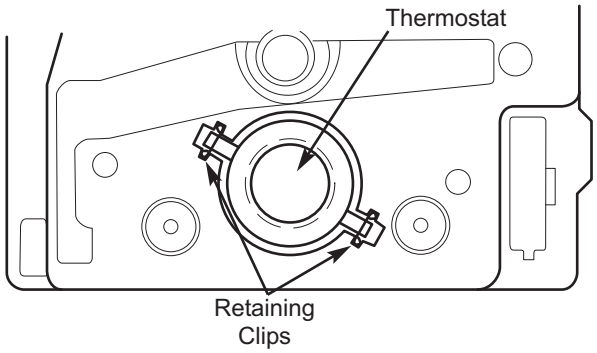


Figure 6-6. Thermostat Retaining Clips

MIDSOUTH AND JAPAN-SERVO ICEMAKER COMPONENTS (700TCI-3 AND 736TCI-3 ONLY)

Following are descriptions that explain the function of each icemaker component. The components are diagramed in Figure 6-7, below.

Support - The support is the housing around the electrical components and wire connections. The support is attached to the ice mold.

Mounting Plate - The drive motor, holding switch, water valve solenoid switch, timing gear, timing cam and water fill adjusting screw are attached to the metal mounting plate. The mounting plate is then attached to the support.

Drive Motor - 115 volts AC supplied to the drive motor causes the motor to operate. The motor has a single output shaft with a small gear. The motor gear drives/spins the timing gear.

Timing Gear - The timing gear is driven/spun by the drive motor gear and is attached to the timing cam.

Timing Cam - The timing cam is attached to the timing gear and the ice ejector is inserted into the center of the timing cam. As the timing cam rotates, high and low spots on the cam operate the water valve solenoid switch and the holding switch. The timing cam also moves the lever arm side to side and rotates the ice ejector.

Ice Mold - The ice mold is where the eight crescent shaped ice cubes are formed.

Mold Heater - The mold heater uses 165 watts to thaw the ice free from the mold.

Ice Ejector - The drive end of the ice ejector is “D” shaped to fit into the “D” shaped hole in the timing cam. It has eight blades which rotate and sweep the ice from the mold cavities during the ejection phase of the cycle.

Ice Stripper - The stripper is attached to the dumping side of the mold, serving as a decorative side cover and it also prevents ice from falling back into the mold.

Bearing / Inlet - The bearing / inlet is attached to the ice mold, opposite the support. Water enters the bearing / inlet and is directed to the ice mold. The bearing/inlet also supports the ice ejector at the end opposite the timing cam.

Thermostat - The thermostat is a single-pole, single-throw, bi-metal switch. At 15°F (-9°C) ± 3° it closes, starting the ice ejection phase.

Thermal-Mastic - A substance similar in appearance to grease that is applied between the thermostat and the ice mold. Its purpose is to increase thermal conductivity between the mold and the thermostat.

Lever Arm and Shut-off Arm - The lever arm is moved side to side by two revolutions of the timing cam. As it moves, it raises and lowers the shut-off arm and operates the shut-off switch to control the quantity of ice production. If the shut-off arm comes to rest on top of the ice in the storage bin during either revolution, the shut-off switch will remain open, stopping ice production at the end of that revolution.

Water Valve Solenoid Switch - A single-pole, double-throw type switch that allows electricity to the water valve solenoid, opening the valve, during the fill cycle.

Holding Switch - A single-pole, double-throw type switch that assures completion of a revolution once the icemaker has been energized.

Shut-off Switch - A single-pole, double-throw type switch that stops ice production when the ice bin is full.

TCO (Thermal Cut Out) - The TCO is thermal protection device in the wire harness that would open in the event of mechanical failure, thus protecting against over heating. (The TCO is not shown in diagram.)

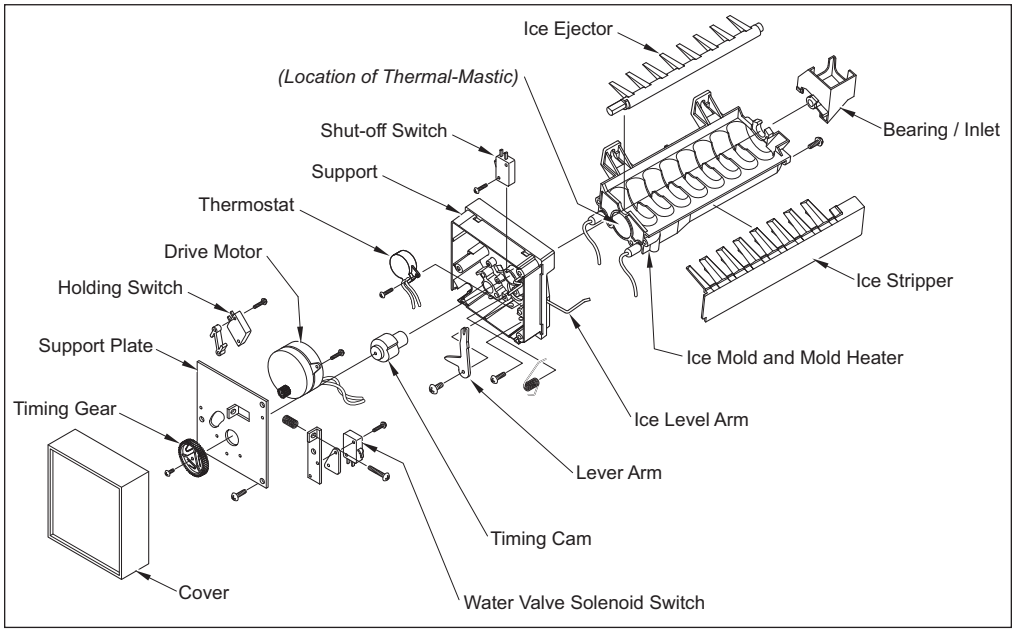


Figure 6-7. Diagram of Icemaker Components

MIDSOUTH AND JAPAN-SERVO ICEMAKER OPERATION (700TCI-3 AND 736TCI-3 ONLY)

The following series of electrical schematics illustrate a typical icemaker cycle of operation. Below each schematic is a diagram indicating the approximate location of the ice ejector and ice level arm during the phase the schematic indicates.

Freeze Phase of Ice Making Cycle (See Figure 6-8)

- The ice mold is filled with water.
- The thermostat is open.
- No icemaker components are energized.

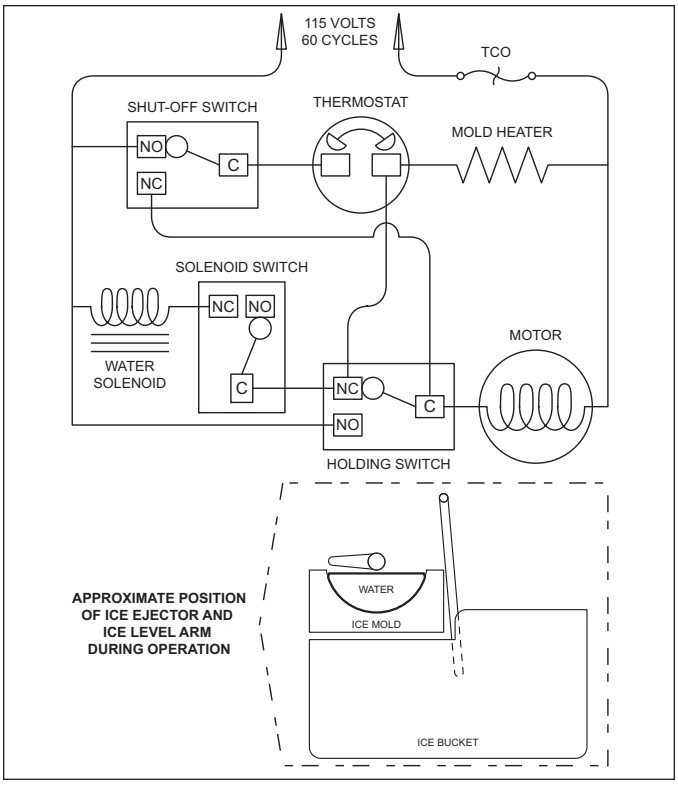


Figure 6-8. The Freeze Phase

Start of the First Revolution (See Figure 6-9)

- The water in the ice mold has turned to ice.
- At 15°F (-9°C) ± 3° the thermostat closes.
- The mold heater is energized through the thermostat.
- The drive motor is started through the thermostat and “normally closed” terminal of the holding switch.
- The ice ejector begins to turn and the shut-off arm begins to rise.

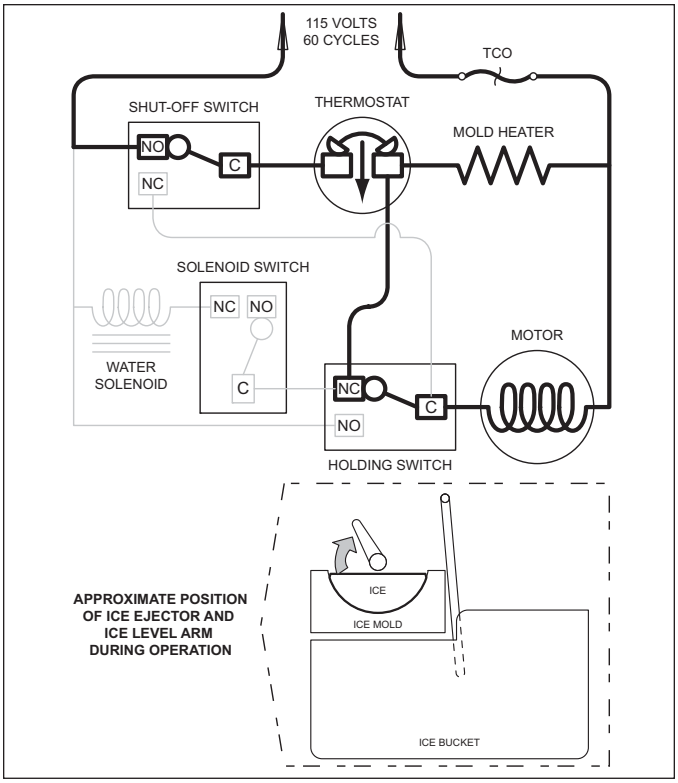


Figure 6-9. Start of First Revolution

First Revolution Continued (See Figure 6-10)

- The holding switch is tripped by the timing cam to “normally open” thus holding power to the motor.
- The mold heater remains energized through the thermostat.
- The shut-off arm begins to rise.

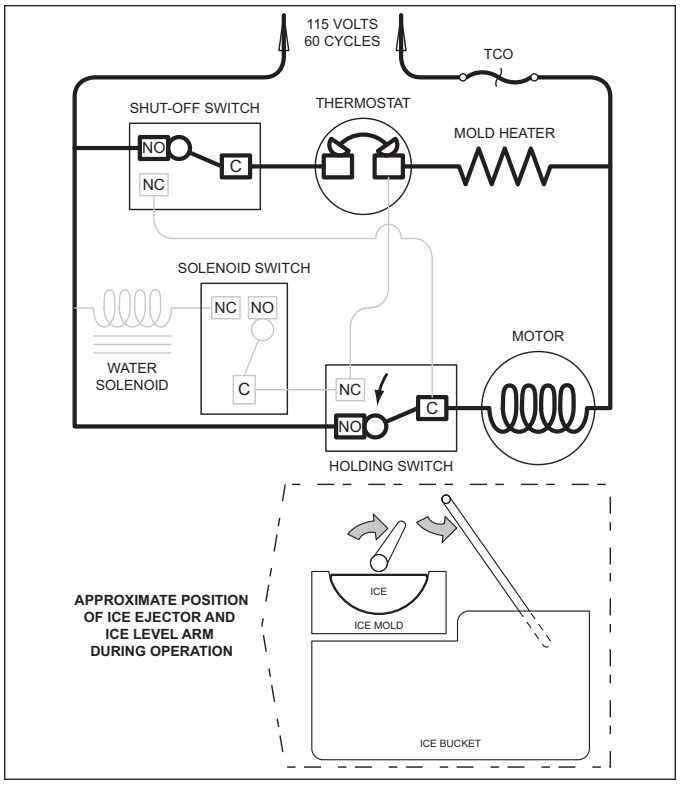


Figure 6-10. First Revolution Continued

First Revolution Continued (See Figure 6-11)

- The ice ejector reach the ice in the mold.
- The ice releases from the mold as the ejector blades begin to rotate the cubes out.
- The drive motor remains energized through the holding switch.
- The mold heater remains energized through the thermostat.
- As the shut-off arm rises, the shut off switch is tripped to “normally closed”, and then the shut-off arm begins to lower.

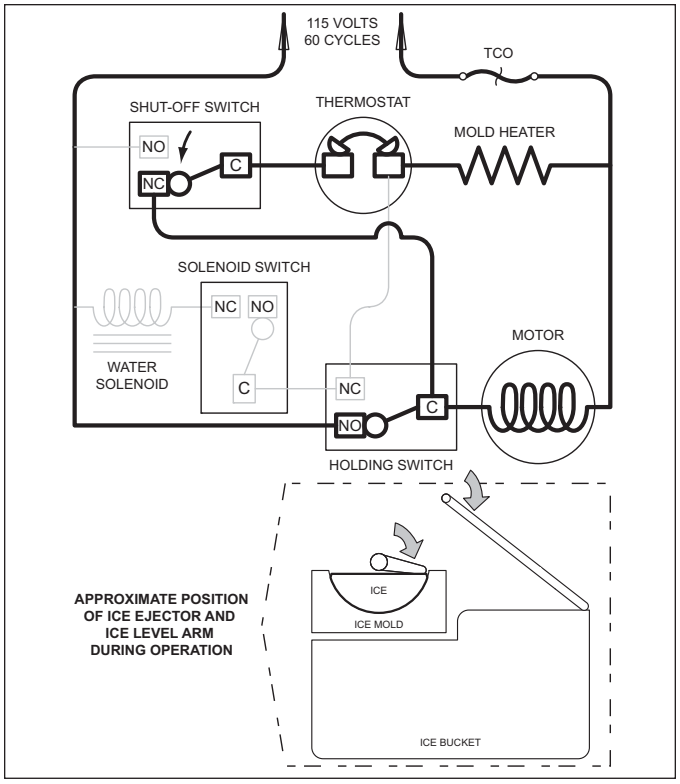


Figure 6-11. First Revolution Continued

First Revolution Continued (See Figure 6-12)

- The ice has released from the mold.
- The motor remains energized through the holding switch.
- The shut-off arm is lowered and the shut off switch is tripped to “normally open”.
- The water valve solenoid switch is tripped by the timing cam, but the solenoid is not energized because the thermostat is still closed and energizing the mold heater. (Electric current follows the path of least resistance.)

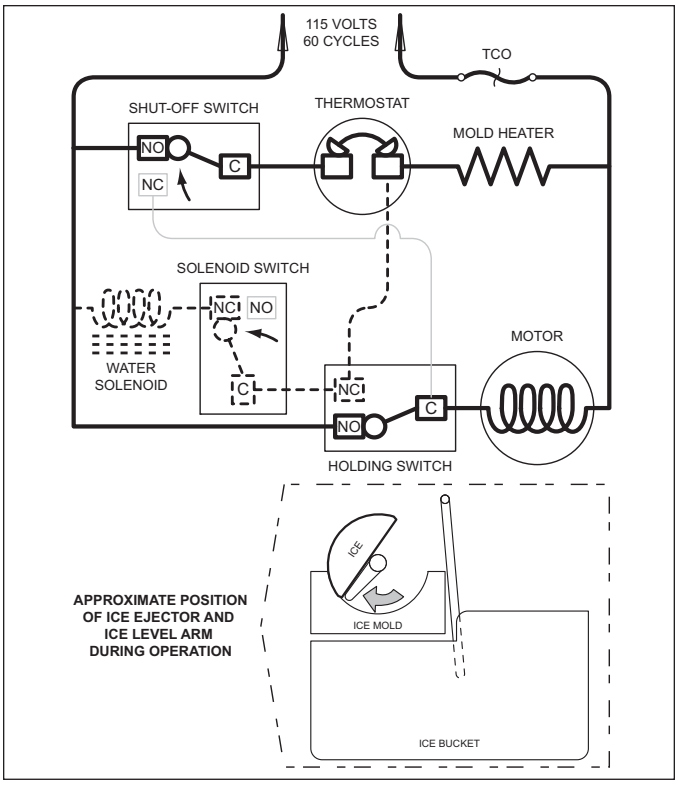


Figure 6-12. First Revolution Continued

End of First Revolution (See Figure 6-13)

- The water valve solenoid switch is tripped by the timing cam back to “normally open.”
- The timing cam trips the holding switch to “normally close,” which ends the first revolution, but the thermostat is still closed, so the motor is again started.
- The mold heater remains energized through the thermostat.

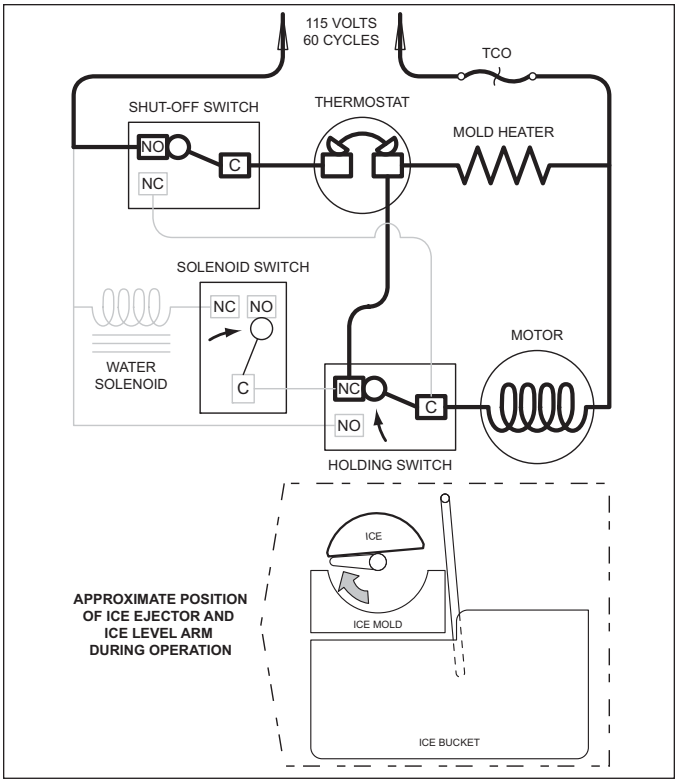


Figure 6-13. End of First Revolution

Start of Second Revolution (See Figure 6-14)

- The water valve solenoid switch is tripped by the timing cam back to “normally open.”
- The timing cam trips the holding switch to “normally close,” which ends the first revolution, but the thermostat is still closed, so the motor is again started.
- The mold heater remains energized through the thermostat.

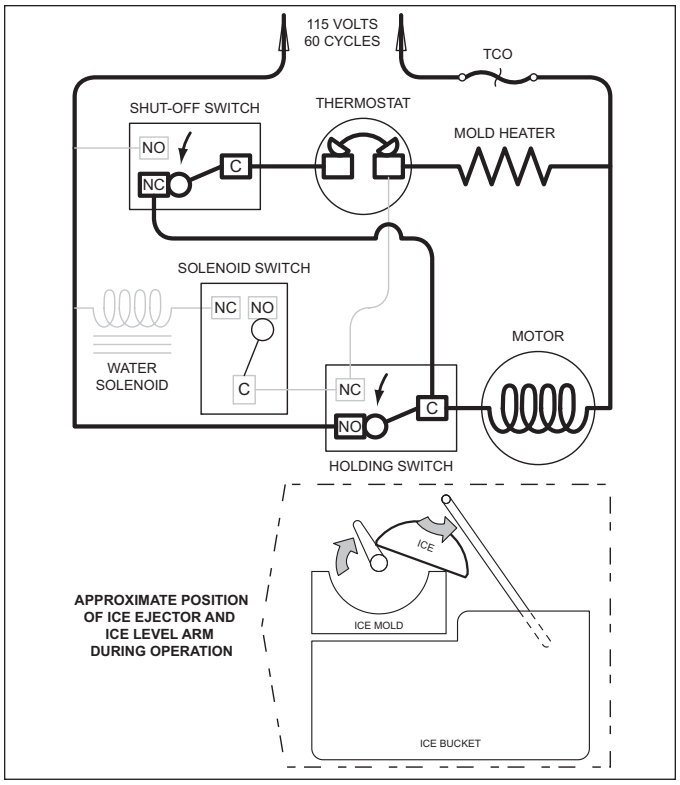


Figure 6-14. Start of Second Revolution

Second Revolution Continued (See Figure 6-15)

- The mold heater has warmed the thermostat, so the thermostat opens, and the mold heater is de-energized.
- If the shut-off arm comes to rest on top of the ice in the storage bin (as illustrated), so the shut-off switch will remain in the “normally closed” position.
- The motor remains energized through the holding switch.

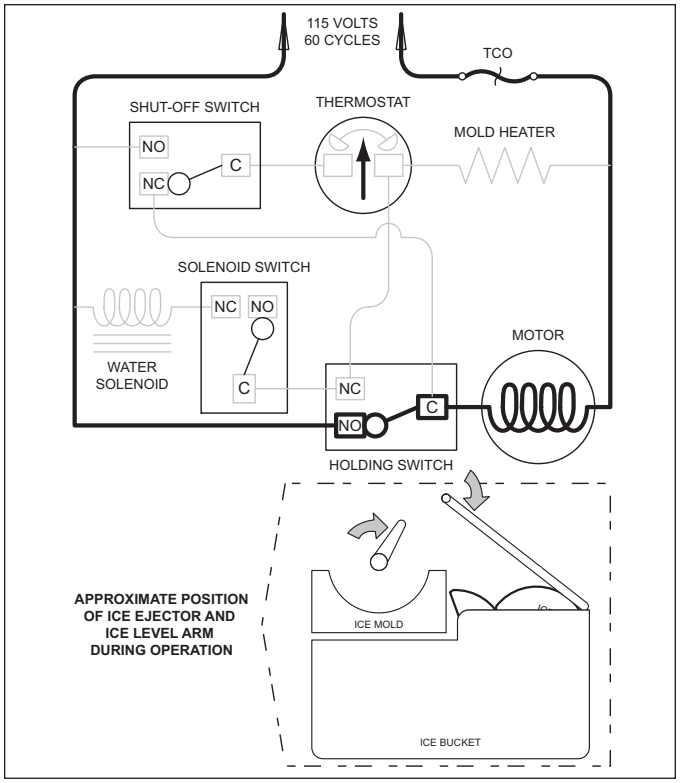


Figure 6-15. Second Revolution Continued

Second Revolution Continued (See Figure 6-16)

- The water valve solenoid switch is tripped by the timing cam. This time the solenoid is energized because the thermostat is open. The water solenoid is open for approximately seven seconds, filling the ice mold with water.
- the mold heater is energized through the solenoid switch and holding switch.

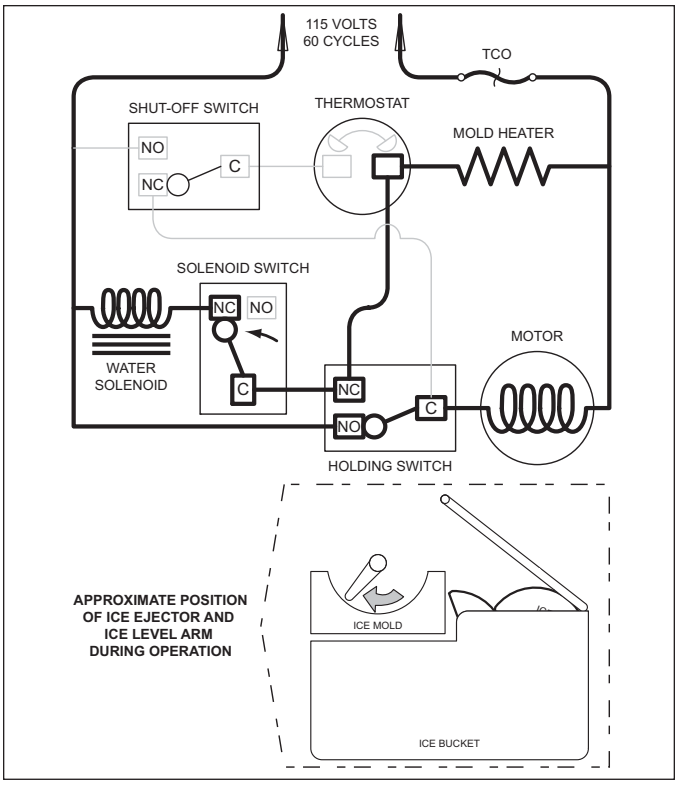


Figure 6-16. Second Revolution Continued

End of Ice making Cycle (See Figure 6-17)

- The water valve solenoid switch is tripped by the timing cam back to “normally open” ending the water fill.
- The timing cam trips the holding switch to “normally close,” which ends the second revolution.
- The thermostat is still open, so it does not start the drive motor.
- If the shut-off arm has come to rest on top of the ice in the storage bin (as illustrated), the shut-off switch remains in the “normally closed” position. This interrupts power from reaching the thermostat, until sufficient ice has been removed from the storage bin allowing the shut-off arm to lower.

NOTE: *To allow ice to freeze fully and reduce effects of low water pressure, the electronic control system disables the icemaker system for 45 minutes after each ice harvest.*

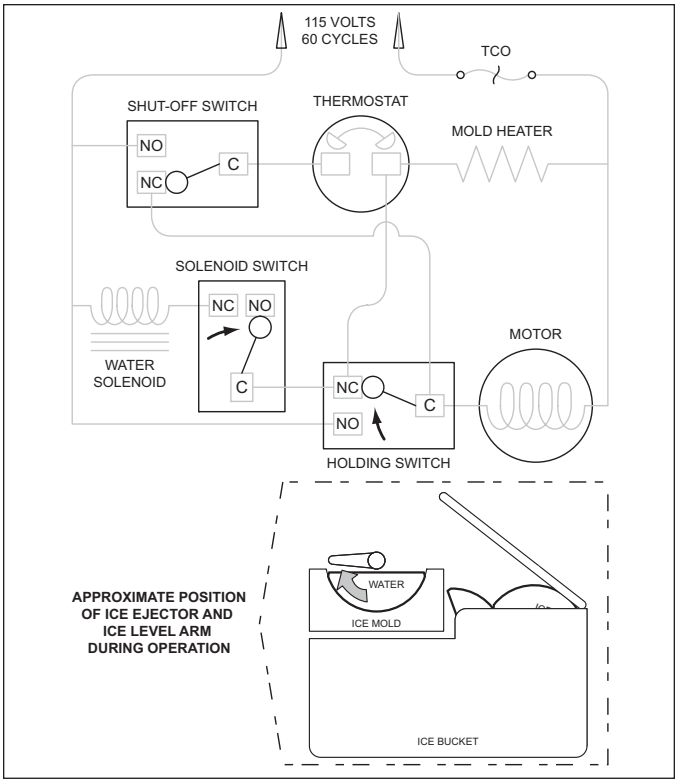


Figure 6-17. End of Ice Making Cycle

MANUALLY STOPPING ICE PRODUCTION

Ice production can be manually stopped three ways:

1. Press the ICE ON/OFF key on the control panel so that “ICE” is not displayed on the LCD.
2. Remove ice bucket so that icemaker switch behind the ice bucket is not being depressed. Also, make sure no food product is coming in contact with icemaker switch.
3. **Position the ice-level/shut-off arm in the up/OFF position (See Figure 6-18).**

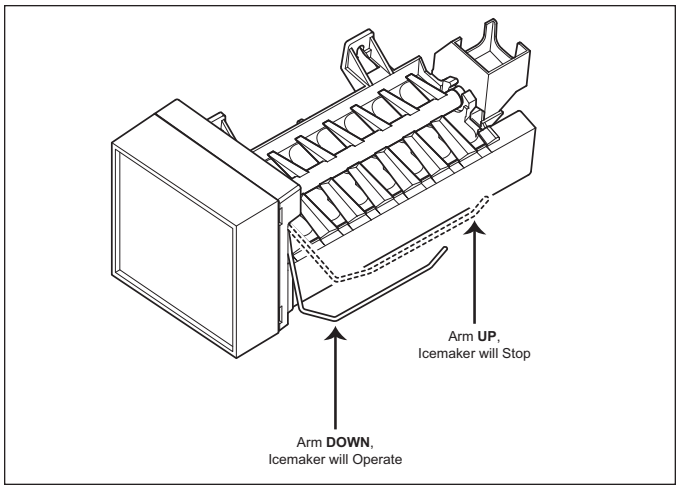


Figure 6-18. Stopping Icemaker

MANUALLY STARTING THE ICEMAKER

NOTE: *To allow ice to freeze fully and reduce effects of low water pressure, the electronic control disables the icemaker system for 45 minutes after each ice harvest. To bypass this 45 minute dwell for service purposes, press the the ICE ON/OFF key at the control panel.*

Manual Start Procedure:

1. Pry the icemaker front cover from the support using a flat-blade screwdriver or coin.
2. With a flat-blade screwdriver, turn the drive gear counterclockwise until the holding switch is activated, completing the circuit to the drive motor (this will be about a 1/8 turn). (See Figure 6-19) The icemaker will then complete its cycle automatically.

   NOTE: *If after 1/4 turn the icemaker is not running on its own, it may be in the 45 minute dwell period or there is an electrical or mechanical problem.*

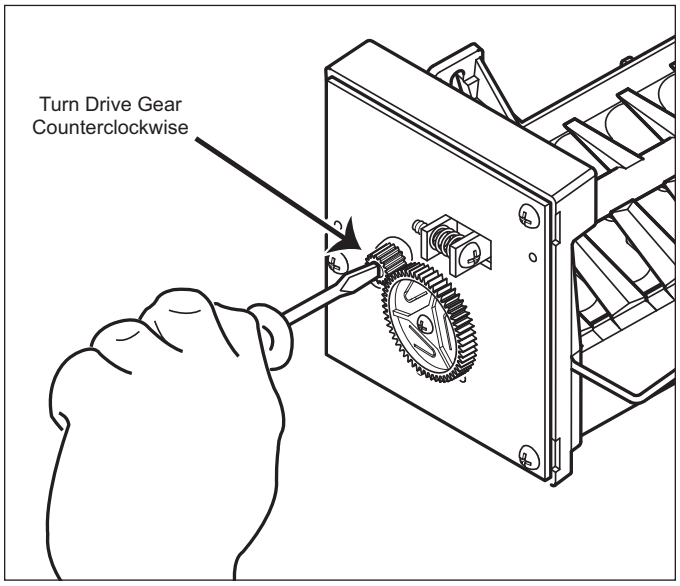


Figure 6-19. Manually Start Icemaker

ADJUSTING ICEMAKER WATER FILL LEVEL

Proper water fill level for a MidSouth icemaker is 100 - 110 cc’s (3.5 - 3.75 oz). If the fill level is checked and needs to be adjusted, turn the water fill adjusting screw clockwise to reduce fill level, or counterclockwise to increase fill level. One full turn of the screw equals 15 cc’s. (See Figure 6-20)

NOTE: *Always check fill level before making any adjustments of the water fill adjusting screw.*

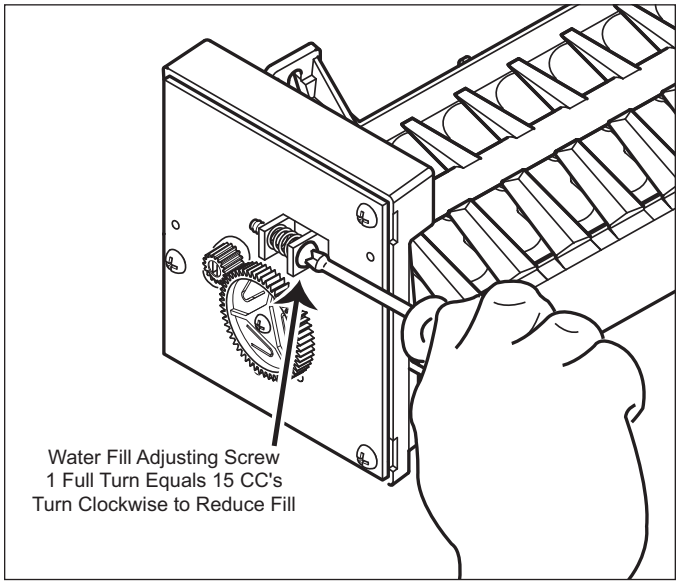


Figure 6-20. Adjust Water Fill Level

ICEMAKER FAULT TESTING

Bypass 45-minute dwell by pressing ICE ON/OFF key to OFF then ON. Then depress icemaker switch & manually start icemaker by turning driver gear counter-clockwise with screwdriver.

1 If icemaker starts & finishes cycle:
*(**NOTE:** If >15°F (-9°C), icemaker will only complete 1 revolution.)*
a. Visually inspect electrical connections at icemaker & valve. Repair if necessary.
b. Check valve operation with test cord, if doesn't open, replace.
c. Check thermostat. Open: 48° (9°C) ± 6°, Close: 15° (-9°C) ± 3°. Replace icemaker if defective.
d. With icemaker in park position, check solenoid switch terminals "C" & "NO" for continuity. With ejector between 8:00 & 10:00 position, check solenoid switch terminals "C" & "NC" for continuity. If no continuity for either terminal check, replace icemaker.

2. If icemaker starts but does not finish cycle:
a. With icemaker in park position check holding switch terminals "C" & "NC" for continuity. Then with icemaker ejector between 10:00 & 12:00, check holding switch terminals "C" & "NO" for continuity. If no continuity for either terminal check, replace icemaker. (Refer to enclosed wiring diagram)
b. With icemaker in park position check shut-off switch terminals "C" & "NO" for continuity. With ejector between 12:00 & 2:00 check shut-off switch terminals "C" & "NC" for continuity. If no continuity for either terminal check, replace icemaker.
c. Check mold heater for 75-85Ω. If outside range, replace icemaker.

3 If icemaker motor does NOT start:
a. Lower shutoff arm
b. Check motor operation with test cord. If motor doesn't run, replace icemaker.
c. Check power to & from icemaker switch. Reconnect or repair connection or replace icemaker as necessary.
d. Check for 115V AC from control board. If power is present check & repair connection. If no power, replace control board.

QUICK REFERENCE

- Water Fill Time - 6.3±.2 seconds
- Fill Tube Heater Ohm - 2850-3890Ω
- Mold Heater Ohm - 75-85Ω
- Water Valve Ohm - 160-165Ω
- Thermostat - Open: 48° (9°C) ± 6°, Close: 15° (-9°C) ± 3°.
- Water Pressure Needed - 20-100 psi constant

Possible Problems

No / Slow Ice Production
1 Ice maker system switched OFF. Switch ice system ON.
2 Shut off arm in up/OFF position. Move to ON position.
3 Freezer too warm. Check temp's & see troubleshooting guide in service manual.
4 Poor airflow over icemaker. Remove obstructions.
5 Ice cube jam. Remove ice & check water fill setting.
a. Water fill setting too low (< 6.5 sec's). Adjust setting.
b. Water fill setting too high (> 7 sec's). Adjust setting.
6 Water froze in inlet tube. Remove ice from tube. Check for 115VAC from control board; Fill tube heater = 2850-3890Ω.
7 Water supply not constant 20-100 psi. Instruct customer.
8 Water line to unit pinched/kinked. Repair water line.
9 Saddle valve not installed correctly to supply line. Reposition.
10 Saddle valve not fully open. Open valve fully.
11 Icemaker wire/connections loose/broken. Repair wiring.
12 Water valve wire/connections loose/broken. Repair wiring.
13 Defective water valve. Check valve (160-165Ω), Replace valve.
14 Thermostat wire/connections loose/broken. Repair wiring.
15 TCO overheat or short. Replace icemaker.
16 See Icemaker Fault Testing.

No Water Fill
1 Water supply switched OFF. Switch supply water line ON.
2 Water line to unit pinched/kinked. Repair water line.
3 Saddle valve not installed correctly to supply line. Reposition.
4 Water froze in inlet tube. Remove ice from tube. Check for 115VAC from control board; Fill tube heater = 2850-3890Ω.
5 Water valve wire/connections loose/broken. Repair wiring.
6 Defective water valve. Check valve (160-165Ω), Replace valve.

Overflows / Ice Block Forms in Bucket / Oversized Cubes
1 Icemaker not level. Level icemaker.
2 Unit not level. Level unit
3 Water supply not constant 20-100 psi. Instruct customer.
4 Water fill setting too high (> 7 sec's). Adjust setting.
5 Water fill setting too low (< 6.5 sec's). Adjust setting.
6 Defective water valve. Check valve (160-165Ω), Replace valve.

Ice Cubes Hollow or Small
1 Icemaker not level. Level icemaker.
2 Unit not level. Level unit
3 Water supply not constant 20-100 psi. Instruct customer.
4 Water fill setting too low (< 6.5 sec's). Adjust setting.
5 Too little thermalmastic on thermostat. Add thermalmastic.
6 Defective thermostat (Open: 48° (9°C) ± 6°, Close: 15° (-9°C) ± 3°. Replace icemaker if defective.

Too much Ice
1 Shut off arm/linkage bent/broken. Repair or replace arm/linkage.
2 If ejector blades rotate with arm in up/OFF position - Icemaker faulty. Replace icemaker.

COMPONENT ACCESS AND REMOVAL

This section explains how to remove components from 736 Series Units starting with serial # 2970000.

If different models have similar adjusting, accessing and/or removal procedures, they are grouped together under the appropriate heading. The units covered in the procedures are listed between brackets after the heading. This section is arranged as follows: Exterior cosmetic and mechanical components, followed by the internal cosmetic and mechanical components, unit tray mechanical components, with the sealed system components at the end. 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 UNIT ON/OFF KEY, POWER IS STILL PRESENT AT THE CONTROL BOARD.**

- **IF REMOVING A DOOR OR DRAWER FROM A UNIT, REMEMBER THAT DOORS AND DRAWERS ARE HEAVY. IF THEY WERE TO FALL, THEY COULD CAUSE SERIOUS PERSONAL INJURY.**

⚠ CAUTION

- **If removing or disconnecting door hinge assemblies, remember they are spring loaded and may recoil quickly when released.**

- **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.**

EXTERIOR COSMETIC AND MECHANICAL COMPONENTS

Kickplate/Grille Removal (All Models)

The kickplate/grille is attached by four screws passing through the kickplate into adjustable kickplate brackets.

NOTE: *Because drawer panels may extend down in front of the kickplate/grille, it may be necessary to remove the bottom drawer to gain access.*

To remove kickplate/grille, extract screws (two each side) and pull kickplate/grille forward. (See Figure 7-1)

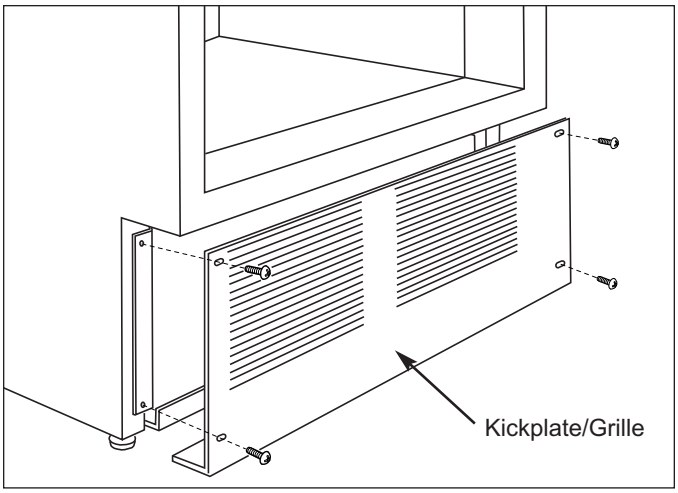


Figure 7-1. Kickplate/Grille Removal

Side Molding Strip Removal (All Models)

Side molding strips are held in place by four unit-to-cabinet brackets attached to the sides of the cabinet.

NOTE: *Remove drawers first to make this task easier.*

To remove the side trim molding strips (See Figure 7-2):

1. Place a straight-blade screwdriver in channel at bottom of molding. Gently pull molding forward until face-frame edge of molding is accessible.
2. Place another straight-blade screwdriver under face-frame edge and gently work molding away from face-frame, and off of unit-to-cabinet brackets.

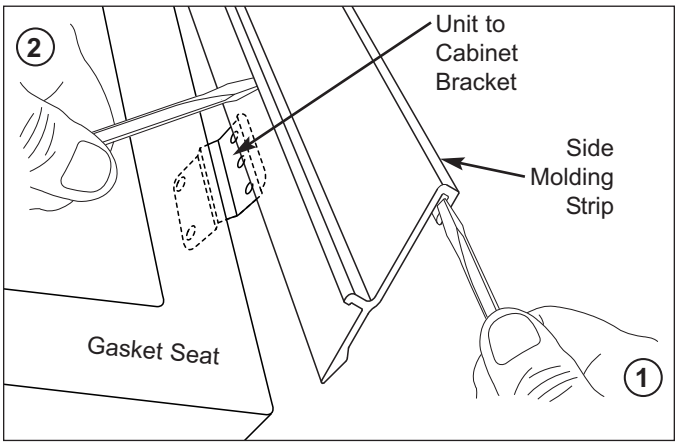


Figure 7-2. Side Molding Strip Removal

Upper Compartment Light Switch & Fan Switch Removal (All Models)

The upper door compartment light switch and fan switch protrude through the top trim molding, just above the door. Tabs on the switches hold switches in the switch bracket behind the top trim. The bracket is attached to the switch enclosure with screws.

NOTE: *The switch with white back is for the lights and the switch with black back is for the evaporator fan.*

To access and remove a light and/or fan switch (See Figure 7-3):

1. Remove side molding strips.
2. Pull top of top molding forward, then lift up.
3. Extract screws from switch bracket and pull bracket forward.
4. Disconnect electrical leads from switch being removed.
5. Depress tabs on side of switch and push switch out of bracket.

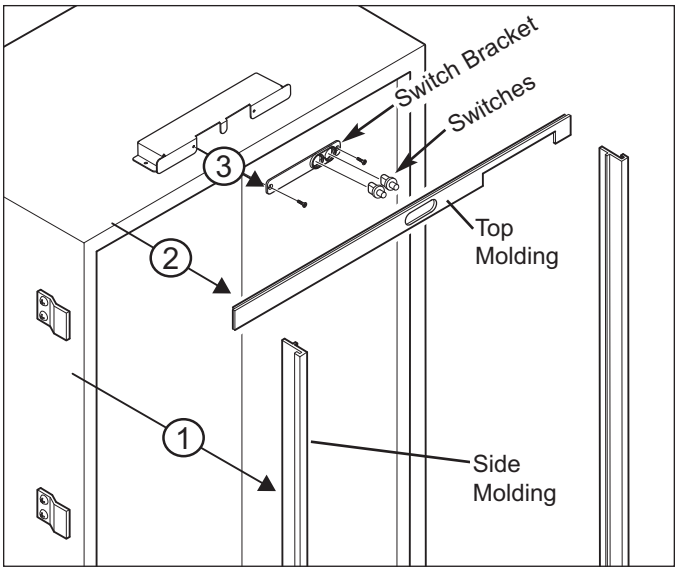


Figure 7-3. Upper Light Switch & Fan Switch

Drawer Assembly Removal (All Models)

There are inverted channels on both sides of the drawer tubs which rest on telescoping drawer slide assemblies. A pin at the front of each drawer slide fits into a hole in the inverted channel of each drawer tub, holding the drawer assembly in place.

To remove a drawer assembly (See Figure 7-4):

1. Pull drawer open. Lift front of drawer up and off of pins at front end of drawer slides.
2. Pull drawer assembly forward and off of drawer slides.
3. Push telescoping drawer slide assemblies back in.

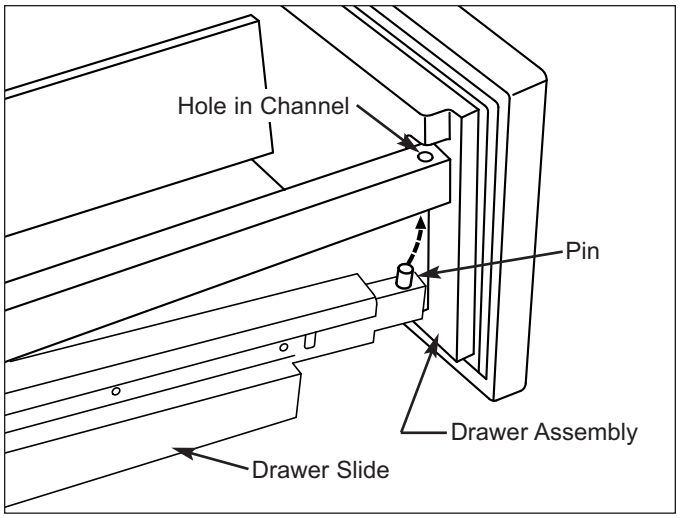


Figure 7-4. Drawer Assembly Removal

Door & Drawer Gasket Removal (All Models)

The door and drawer gaskets are pressed into retaining channels that are molded into door and drawer liners.

NOTE: *Drawer assemblies must be removed from the unit in order to remove and/or install their gaskets.*

To remove a door or drawer gasket, simply pull the gasket from the retaining channel. (See Figure 7-5)

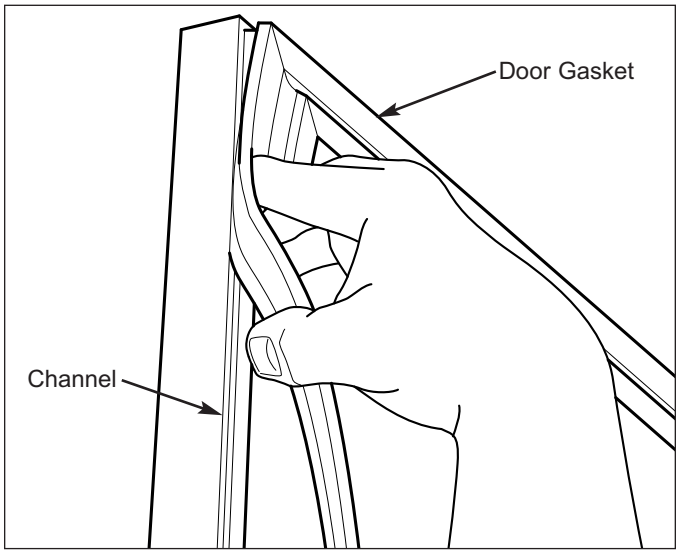


Figure 7-5. Gasket Removal

Door Assembly Removal (All Models)

The door assembly is held in place with Allen-head screws that pass down through the arm of the top hinge assembly and up through the arm of the bottom hinge assembly, then into the door. These mounting screws are concealed by a hinge cover on each hinge arm. The hinge covers are held in place by tabs that fit into notches in the hinge arms.

NOTE: *Removing the top drawer first will make this task easier.*

To remove a door assembly (See Figure 7-6):

1. Open door and removing both hinge covers.
2. With Allen-head wrench, extract the two inner-most door mounting screws from top and bottom hinge arms, leaving the two outer-most screws in place.
3. Close door and extract the outer-most door mounting screws from bottom hinge arm.
4. Extract the two outer-most door mounting screws from top hinge arm.
5. Lift door from unit.

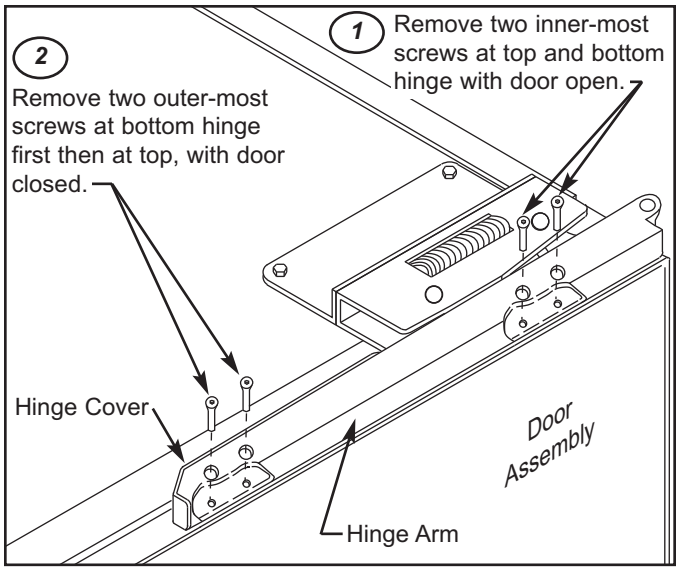


Figure 7-6. Door Assembly Removal

Upper and Lower Hinge Assembly Removal (All Models)

The hinge assemblies are attached to hinge mounting brackets with Allen-head bolts.

To remove a hinge assembly, you will need to remove the door assembly first. Then, extract the Allen-head bolts from the appropriate hinge mounting bracket and pull the hinge assembly from the unit. (See Figure 7-7)

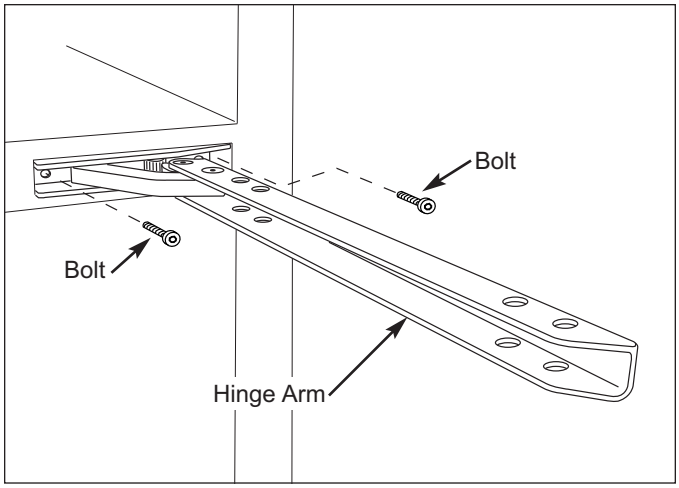


Figure 7-7. Hinge Assembly Removal

INTERIOR COSMETIC, MECHANICAL AND ELECTRICAL COMPONENTS

Door Shelf and Dairy Compartment Adjustment / Removal (All Models)

There are “L” shaped grooves in the end caps of the door shelves and dairy compartment, and there are knobs formed in the dikes of the door liner. (See Figure 7-8) The door shelves and dairy compartment are hung on the door by lining up the “L” shaped grooves with the knobs.

Push in and down to install a door shelf. Pull up and out to remove a door shelf.

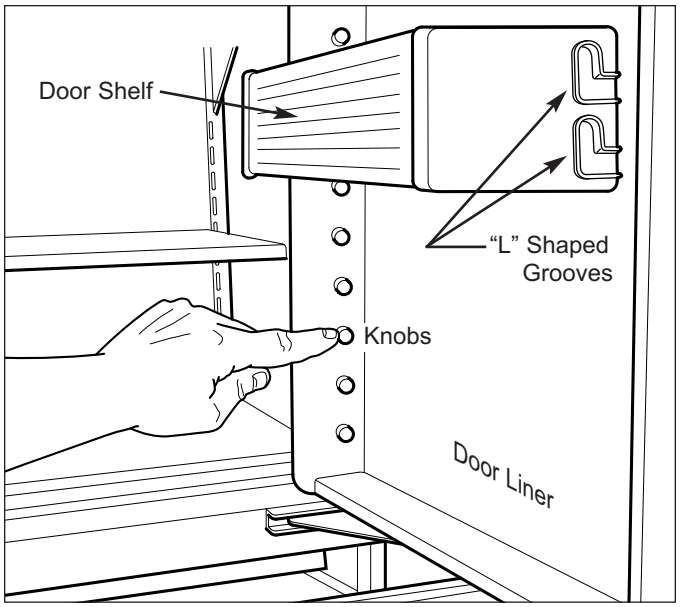


Figure 7-8. Door Shelf

Compartment Shelf Adjustment / Removal (All Models)

Compartment shelf side rails have hooks at the back that allow the shelves to be hung from shelf ladders.

To remove a compartment shelf, tilt the front of the shelf up, then lift the back of the shelf up to disengage the hooks from the shelf ladders and pull the shelf from the unit. (See Figure 7-9)

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

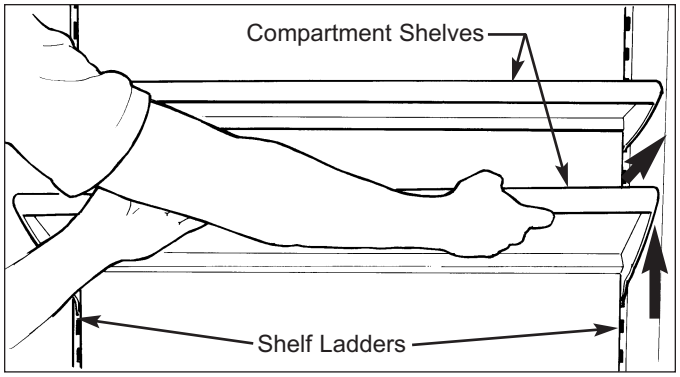


Figure 7-9. Compartment Shelf Removal

Upper Light Diffuser Removal (All Models)

The side frames of the upper light diffuser have four inverted “T” shaped slots (two each side) which fit over pegs protruding from the side walls of the upper compartment. Retaining clips at the rear slots secure the diffuser to the rear pegs.

To remove the light diffuser (See Figure 7-10):

1. Slide a finger over the top of each retainer clip flange and rotate the retainer clip down and back.
2. With clips open, lift the diffuser up and slide it towards the rear of unit until center of the “T” slots line up with the pegs.
3. Lower diffuser down and pull forward from the unit. (See Figure 7-11)

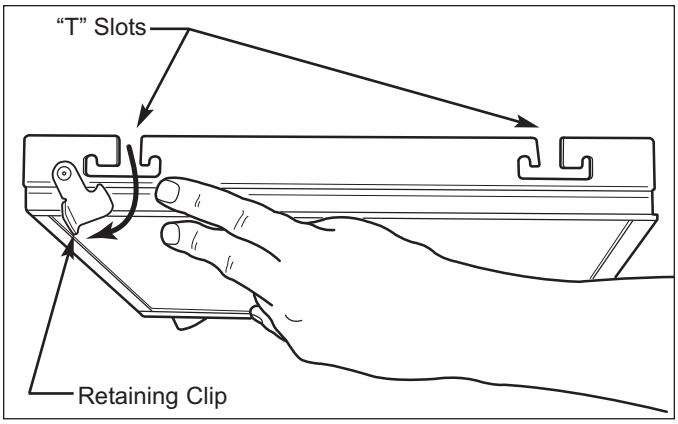


Figure 7-10. Upper Light Diffuser Removal

Light Bulb Removal (All Models)

To access the upper light bulbs, the light diffuser must be removed first. With the diffuser removed, screw the bulb counterclockwise to remove it and clockwise to install it. (See Figure 7-12)

The light bulbs in the drawer area are not covered by light diffusers. Screw the bulb counterclockwise to remove and clockwise to install. (See Figure 7-12)

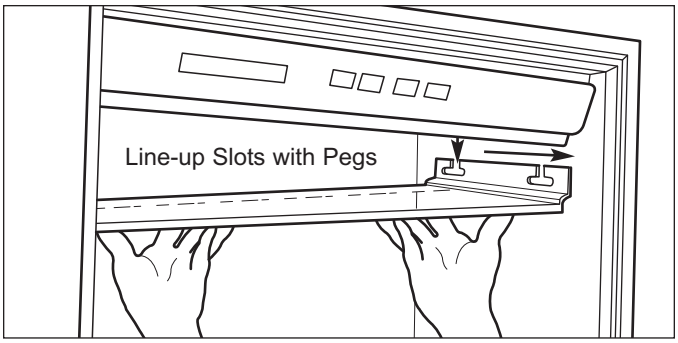


Figure 7-11. Upper Light Diffuser Removal

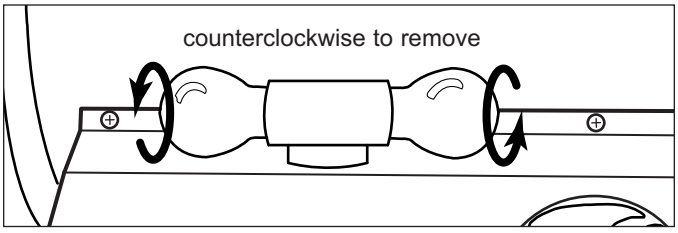


Figure 7-12. Light Bulb Removal

Control Board Removal (All Models)

The control board is held in position by two sets of tabs behind the left side of the control panel. The two forward tabs position the LCD in the control panel window, while the other two tabs secure the middle of the control board. The control board is then shielded by a control enclosure and concealed by the light diffuser.

To access and remove control board, the light diffuser must be removed first, then (See Figures 7-13 & 7-14):

1. Extract screws securing control enclosure to ceiling of the compartment. Lower the back of enclosure while pulling it toward rear of unit.
2. Disconnect all electrical leads from control board.
3. Expand the two tabs at middle of control board outward while pulling the back of board down slightly. Then, expand the two forward tabs that hold the LCD in position outward. Now, pull control board down and toward rear of unit.

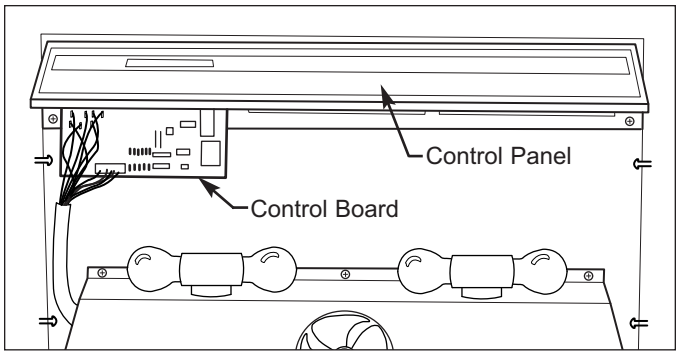


Figure 7-13. Control Board And Control Panel

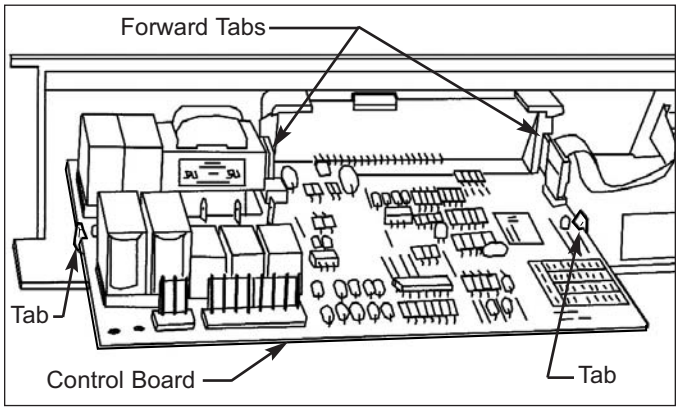


Figure 7-14. Control Board Removal

Control Panel Assembly Removal (All Models)

The control panel is held in place with two rows of screws. The front row of screws go through spacers that fit into key-hole slots at the front of the panel. The rear screws secure the assembly to the ceiling.

To access and remove the control panel, the light diffuser and control enclosure must be removed first.

NOTE: *It is recommended but not necessary to remove the control board in order to remove the control panel. If leaving the control board secured to the control panel, all electrical leads attached to the control board must be disconnected.*

1. Extract rear mounting screws from control panel.
2. Push panel toward rear of unit to release the front screws from key-hole slots, then lower panel down and pull out of unit. (See Figure 7-15)

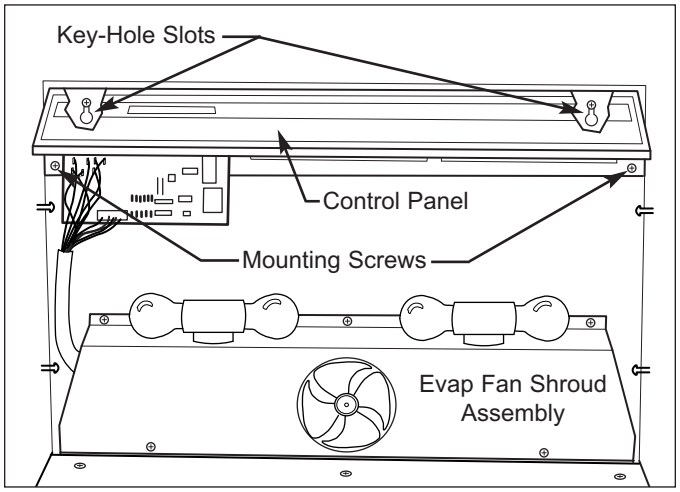


Figure 7-15. Control Panel Removal

Upper Evaporator Cover / Air Duct Removal (All Models)

The bottom of the upper evaporator cover sets into a channel at the bottom of the upper compartment. At the top, screws hold the evaporator cover to the evaporator fan shroud.

To access and remove the evaporator cover, the light diffuser must first be removed, then (See Figure 7-16):

1. Extract screws at top of evaporator cover.
2. Tilt cover forward and lift out of unit.

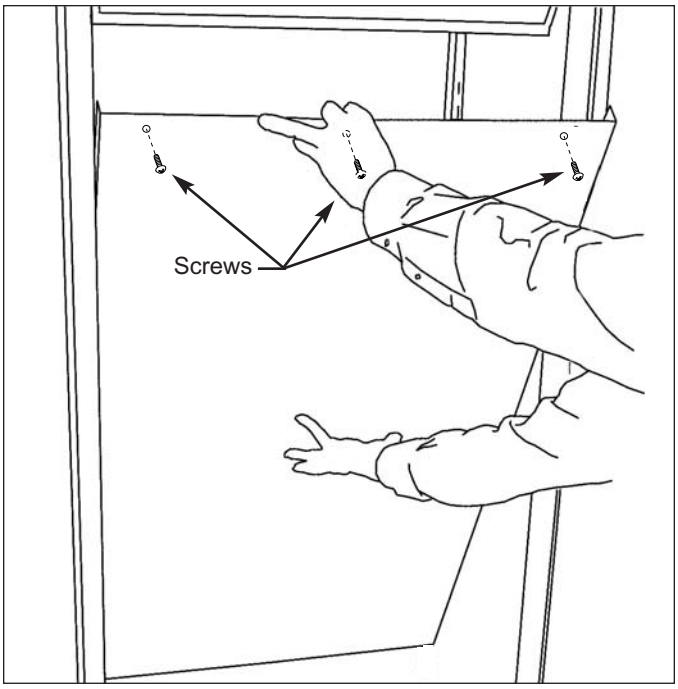


Figure 7-16. Upper Evaporator Cover Removal

Upper Evaporator Fan Shroud Assembly Removal (All Models)

The evaporator fan shroud assembly, which holds the upper compartment lighting components, is secured to the ceiling with screws.

To access and remove the evaporator fan shroud assembly, first remove the light diffuser and evaporator cover, then (See Figure 7-17):

1. Extract the mounting screws which secure fan shroud assembly to ceiling of compartment.
2. Lower the assembly and disconnect wire harness.

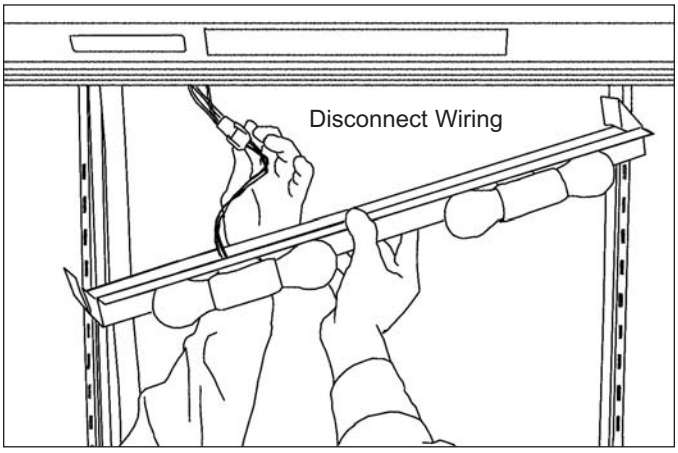


Figure 7-17. Upper Evaporator Fan Shroud Assy

Upper Compartment Evaporator Fan Assembly Removal (All Models)

The upper evaporator fan assembly sets in a pocket in the ceiling of the upper compartment and is secured to the ceiling with screws.

To access and remove the evaporator fan assembly, first remove light diffuser, evaporator cover, and evaporator fan shroud assembly, then (See Figure 7-18):

1. Disconnect fan motor wire leads from wire harness.
2. Extract fan assembly mounting screws and remove from unit.
3. The evaporator fan blade is pressed onto the shaft of the fan motor and can be removed by simply pulling it away from the motor.

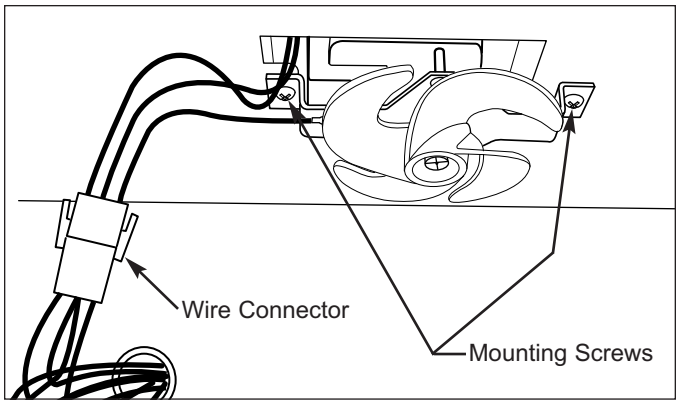


Figure 7-18. Upper Evap Fan Assy

Upper Compartment Thermistor Removal (All Models)

The upper compartment thermistor is behind the evaporator cover, attached to the back wall with a screw.

To access and remove the upper compartment thermistor, first remove the light diffuser and evaporator cover, then (See Figure 7-19):

1. Extract thermistor mounting screw.
2. Cut thermistor's wire leads six (6) to twelve (12) inches from the back wall, then pull thermistor from compartment.

Upper Evaporator Thermistor Removal (All Models except 736TFI)

The upper evaporator thermistor is inserted into the third opening in the evaporator fins from the top, approximately to the center of the evaporator.

To access and remove the upper evaporator thermistor, first remove light diffuser and evaporator cover, then (See Figure 7-19):

1. Cut thermistor's wire leads six (6) to twelve (12) inches from the back wall.
2. Pull thermistor from evaporator fins.

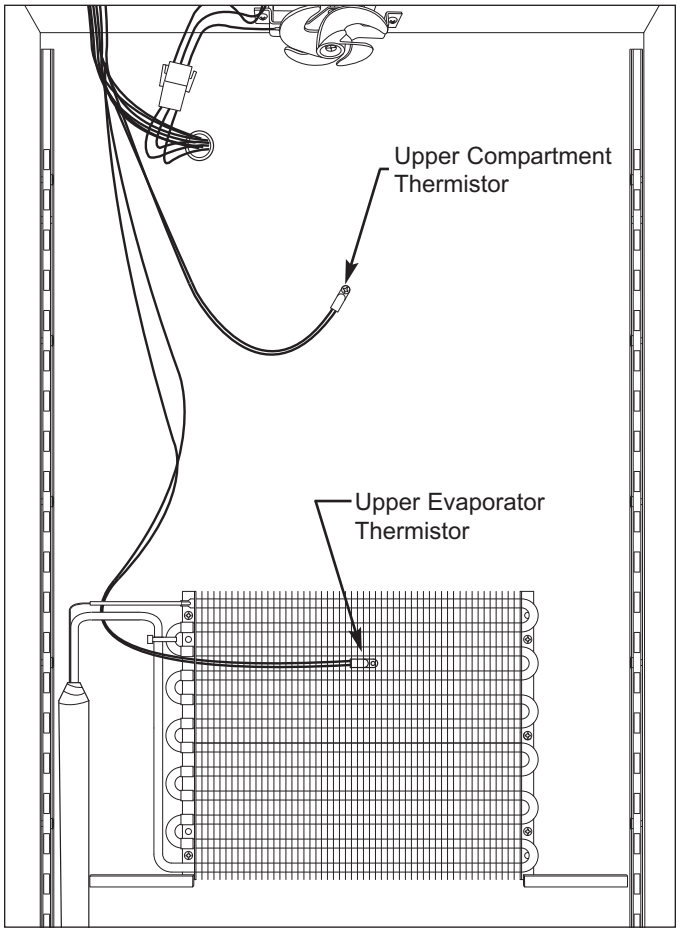


Figure 7-19. Upper Compartment and Evaporator Thermistors

Drawer Closer Assembly Removal (All Models)

The drawer closer assemblies are located on the right side wall, towards the front of the two drawer areas. Screws secure each drawer closer to the wall.

To access and remove a drawer closer assembly, first remove the appropriate drawer. Then, extract the screws that secure the drawer closer to the wall. (See Figure 7-20)

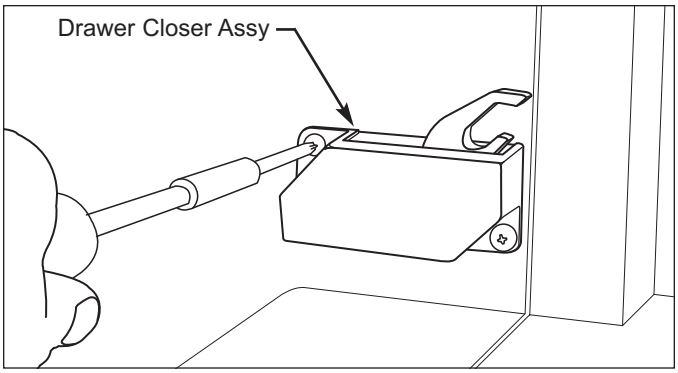


Figure 7-20. Drawer Closer Assembly Removal

Drawer Slide Assembly Removal (All Models)

The four drawer slide assemblies are attached to the side walls with Allen-head screws passing through the drawer slide bracket into blind threaded inserts.

To access and remove a drawer slide assembly, first remove the drawer. Then, extract the drawer slide mounting screws with a 5/32" Allen-head wrench, and pull the drawer slide assembly away from the wall. (See Figure 7-21)

NOTE: *The pins at front end of the drawer slides are replaceable. Screw pins counterclockwise to remove them. (See Figure 7-22)*

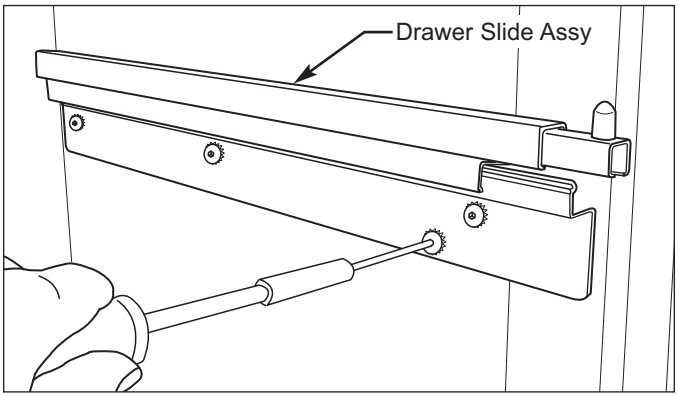


Figure 7-21. Drawer Slide Assembly Removal

Icemaker Assembly Removal (All Models with Icemakers)

The icemaker is attached to a support plate with screws that pass up through the plate into the bottom of the icemaker. The ice level arm is also attached to the support plate using two P-clamps and two screws. The P-clamps fit around rods at the back of the ice level arm. Screws passing through the P-clamps secure them to the support plate at the rear. At the front, a connecting rod is used to attach the ice level arm to the icemaker shut-off arm. This whole assembly is attached to the evaporator cover with three mounting screws, two at the top and one at the bottom.

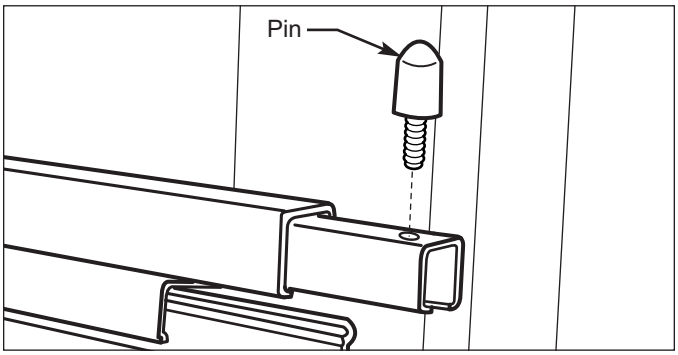


Figure 7-22. Pin Replacement

To access and remove the icemaker assembly, first remove the bottom drawer, then (See Figure 7-23):

1. Extract mounting screw at bottom and two top mounting screws.
2. Lower the icemaker assembly down and disconnect wire harness from back left of icemaker.
3. The icemaker can now be removed from the support plate by sliding the connecting rod off of the shut-off arm, then extracting the screws from bottom of icemaker.

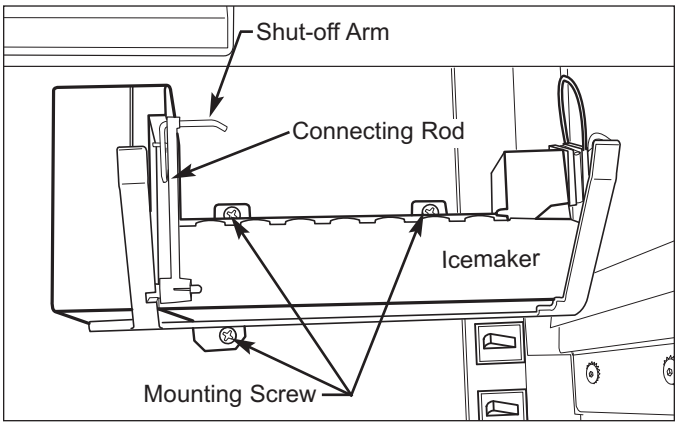


Figure 7-23. Icemaker Assy

Heat Exchanger Cover Removal (All Models)

The heat exchanger cover is held in the back left corner of the lower compartment with screws that go through the cover and into stand-offs. (See Figure 7-24)

To access and remove the heat exchanger cover, the drawers and the left side drawer slides will need to be removed first. Then, extract the mounting screws and pull the cover from the unit.

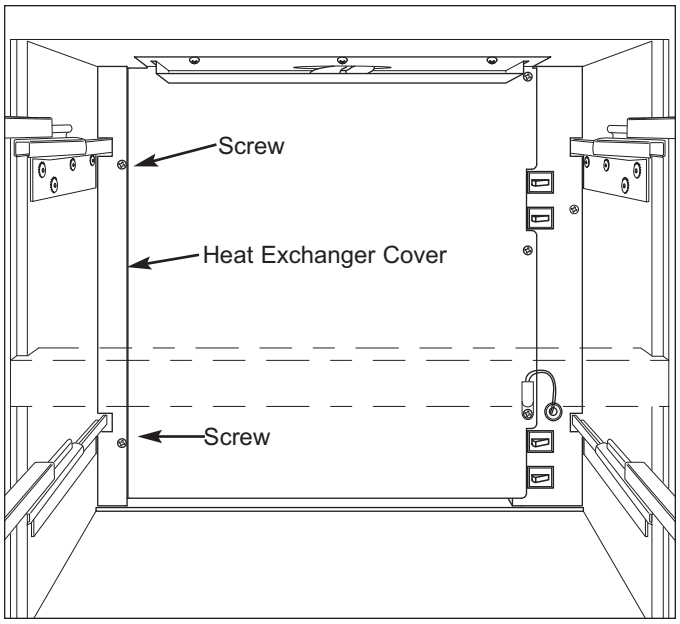


Figure 7-24. Heat Exchanger Cover Removal

Lower Evaporator Cover Assembly Removal (Models 736TR)

NOTE: *In these models, the evaporator fan assembly is attached to the lower evaporator cover assembly.*

The lower evaporator cover assembly is held in place with screws. The left side mounting screws will be visible after the heat-exchanger cover is removed. Screws on the right side secure the assembly to the switch enclosure, and screws at top secure the assembly to the ceiling of the lower compartment. (See Figure 7-25)

To access and remove lower evaporator cover assembly, first remove drawers, left drawer slides, and heat exchanger cover, then (See Figure 7-25):

1. Extract left side mounting screws.
2. Extract screws from top and right side of assembly.

NOTE: *Bottom screw on right side also secures the compartment thermistor.*

3. Pull right top front of assembly down slightly and disconnect evaporator fan electrical leads, then pull assembly out through upper drawer opening.

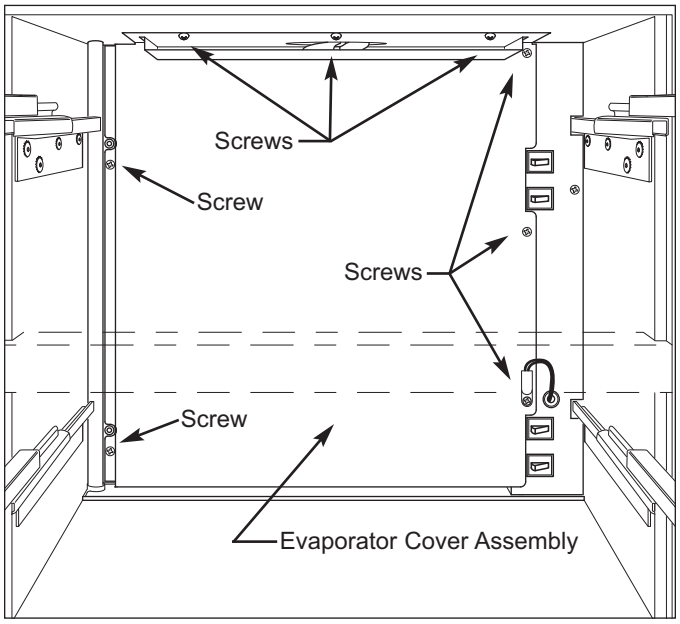


Figure 7-25. Evaporator Cover Removal, 736TR

Lower Evaporator Fan Assembly Removal (Models 736TR)

The lower evaporator fan assembly is held in place by bolts passing through access holes in the evaporator fan shroud, then through the top flange of the evaporator cover and into well-nuts in the fan bracket.

To access and remove the lower evaporator fan assembly, first remove drawers, left side drawer slides, heat exchanger cover and evaporator cover assembly. Then, extract the bolts from the well-nuts (See Figure 7-26).

The evaporator fan blade is pressed onto the shaft of the fan motor and can be removed by simply pulling it away from the motor.

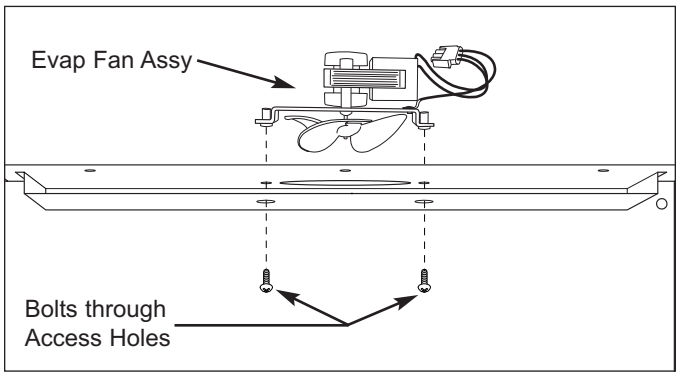


Figure 7-26. Evaporator Fan Removal, 736TR

Lower Compartment Thermistor Removal (Models 736TR)

The lower compartment thermistor in these models is attached at front of the switch enclosure with a screw.

To access and remove the lower compartment thermistor, first remove drawers, left side drawer slides, heat exchanger cover and lower evaporator cover, then (See Figure 7-27):

1. The screw securing compartment thermistor to switch enclosure will be removed when evaporator cover is removed.
2. Extract switch enclosure mounting screws and pull enclosure away from back wall.
3. Cut thermistor's wire leads six (6) to twelve (12) inches from back wall.

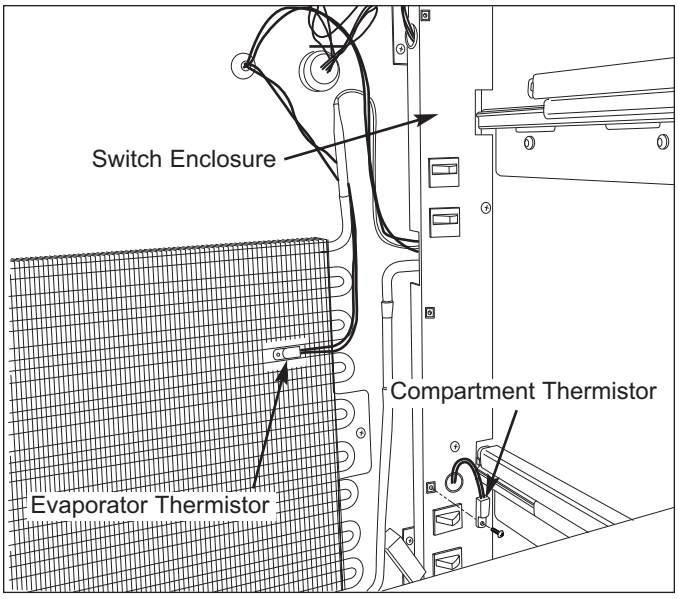


Figure 7-27. Lower Thermistors, 736TR

Lower Evaporator Thermistor Removal (Models 736TR)

The lower evaporator thermistor in these models is inserted into the third opening in the evaporator fins from the top, approximately to the center of the evaporator.

To access and remove the lower evaporator thermistor, first remove drawers, left side drawer slides, heat exchanger cover and lower evaporator cover assembly, then (See Figure 7-27):

1. Cut thermistor's wire leads six (6) to twelve (12) inches from the back wall.
2. Pull thermistor from evaporator fins.

Lower Evaporator Cover Assembly Removal (Models 736TFI, 736TCI)

The lower evaporator cover in these models is held in place with screws and a locating peg. The left side mounting screws are hidden by the heat-exchanger cover; screws at top secure evaporator cover to ceiling of lower compartment; a peg protruding from the bottom left side of switch enclosure fits into a hole at bottom right side of evaporator cover.

To access and remove the lower evaporator cover, first remove drawers, left side drawer slides, and heat exchanger cover, as well as icemaker, if applicable, then (See Figure 7-28):

1. Extract left side and top mounting screws.
2. Pull evaporator cover toward left wall to disengage peg from hole at bottom right, then pull assembly out through upper drawer opening.

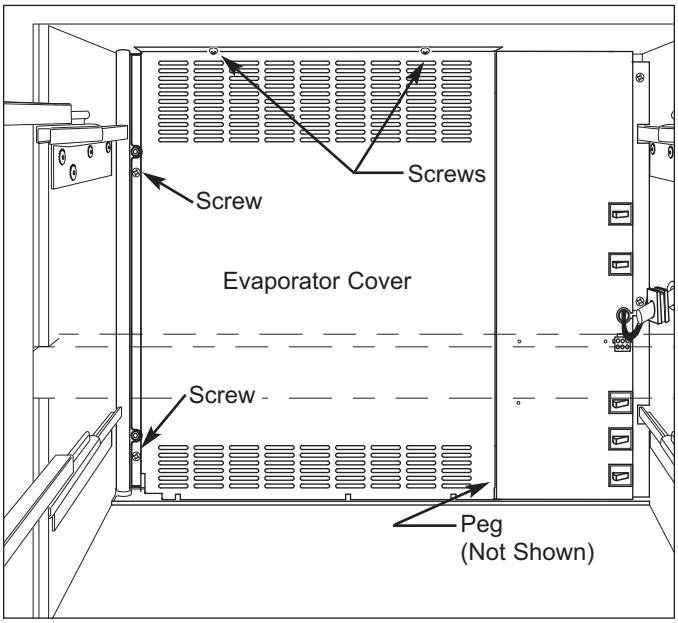


Figure 7-28. Evaporator Cover Removal, Model 736TCI Shown

Drain Trough Heater Removal (Models 736TF/I, 736TCI)

The drain trough heater in the lower compartment is positioned just above the drain trough and held in place by three heater brackets.

To access and remove the drain trough heater, first remove drawers, left side drawer slides, heat exchanger cover and the evaporator cover, then (See Figure 7-29):

1. Pull heater up and out of notches in the side brackets, and down and out of notches in middle bracket.
2. Pull heater toward left until electrical connections emerge from behind switch enclosure, then disconnect electrical leads.

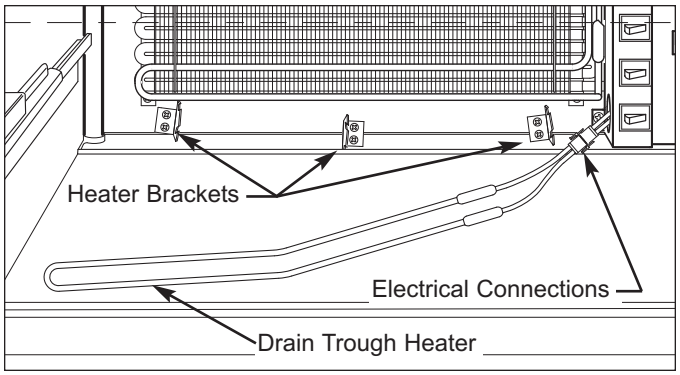


Figure 7-29. Drain Trough Heater

Lower Evaporator Fan Shroud Removal (736TFI & 736TCI)

The lower evaporator fan shroud is attached to the evaporator fan bracket assembly with two screws.

To access and remove the lower evaporator fan shroud, first remove drawers, left side drawer slides, heat exchanger cover and the evaporator cover. Then, extract the screws that pass through the fan shroud into the evaporator fan bracket. (See Figure 7-30)

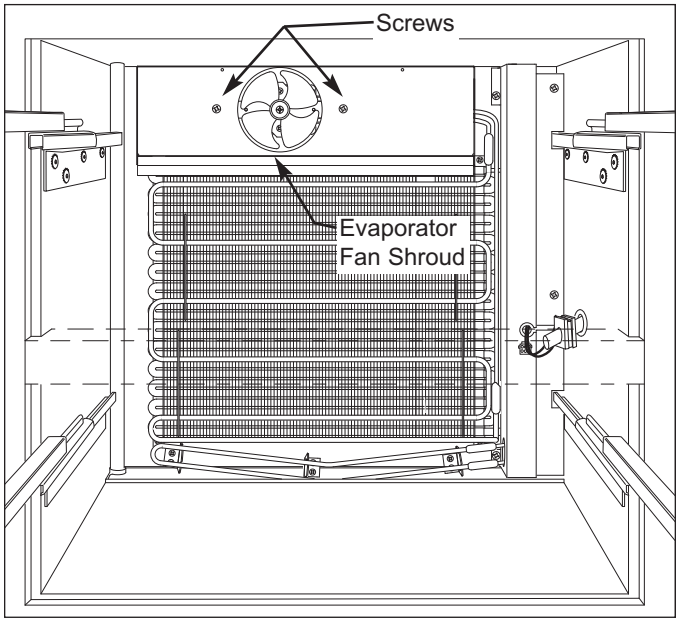


Figure 7-30. Evap Fan Shroud, 736TCI

Lower Evaporator Fan Assembly Removal (736TFI & 736TCI)

The lower evaporator fan assembly in these models is attached to the upper back wall of the lower compartment with screws.

To access and remove the lower evaporator fan assembly, first remove drawers, left side drawer slides, heat exchanger cover, evaporator cover and the evaporator fan shroud, then (See Figure 7-31):

1. Disconnect fan wire leads from wire harness.
2. Extract fan assembly mounting screws from back wall and pull fan assembly from unit.

   NOTE: *The evaporator fan blade is pressed onto the shaft of the fan motor and can be removed by simply pulling it away from the motor.*

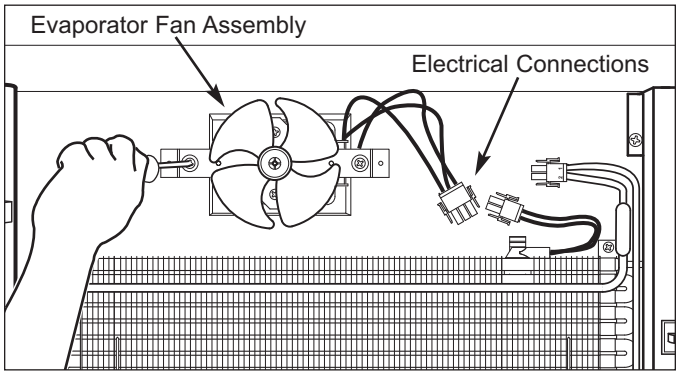


Figure 7-31. Fan Assy Removal, 736TCI

Defrost Terminator Removal (736TFI & 736TCI)

The defrost terminator is attached to the second tubing pass from the top of the evaporator.

To access and remove the defrost terminator, first remove drawers, left side drawer slides, heat exchanger cover, evaporator cover and the evaporator fan shroud, then (See Figure 7-32):

1. Extract screws from top of evaporator, then pull top of the evaporator forward slightly.
2. Disconnect defrost terminator electrical leads.
3. Pull terminator toward back of unit so that clip disengages from evaporator tubing.

NOTE: *When reinstalling the defrost terminator, it must be attached to the second tubing pass of the evaporator. Installing terminator on the first pass will place it too close to the defrost heater, causing shortened defrost times which will lead to incomplete defrost.*

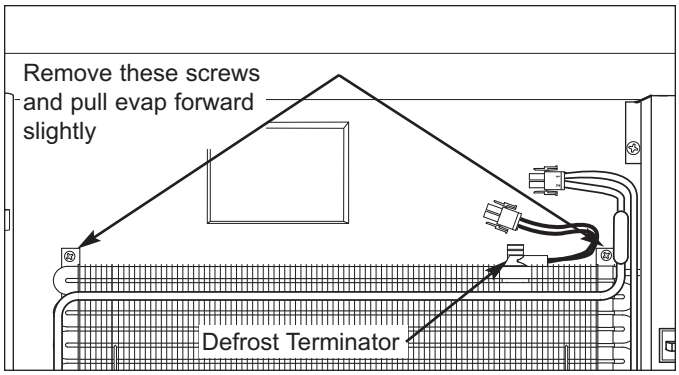


Figure 7-32. Defrost Terminator, TC/I-3, TF/I-3

Defrost Heater Removal (73600TFI & 736TCI)

The defrost heater is pressed into the evaporator fins at the front. Heater clips are then hooked from one evaporator tube to another, over the heater.

To access and remove the defrost heater, first remove drawers, left side drawer slides, heat exchanger cover, evaporator cover and the evaporator fan shroud, then (See Figure 7-33):

1. Disconnect defrost heater electrical leads.
2. Grab the return bend of heater clips with a needle-nose pliers and pull that end of clip away from evaporator. Unhook other end of heater clip from evaporator tubing.
3. Cut heater wire near electrical connector and pull heater from evaporator.

NOTE: *When installing replacement heater, do not place heater clips over top heater pass. Doing so will interfere with evaporator fan shroud.*

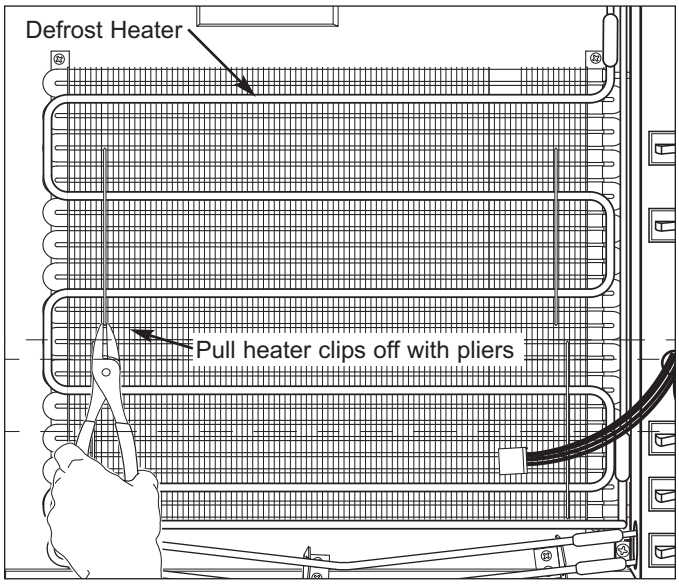


Figure 7-33. Defrost Heater, TC/I-3, TF/I-3

Switch Enclosure Assembly Removal (All Models)

Lower switch enclosure assemblies are held at the back right corner of the compartment with screws at the top and bottom left corners, and depending on the model, one or two along the right side.

To access and remove the switch enclosure assembly, first remove drawers, left side drawer slides, heat exchanger cover, evaporator cover, as well as the drain trough heater on applicable models, then (See Figure 7-34):

1. Disconnect all electrical leads at the top left side of enclosure.
2. On applicable models, the fill tube and fill tube heater assembly will need to be pulled from the right wall.
3. Extract the switch enclosure mounting screws and pull the assembly from back wall.

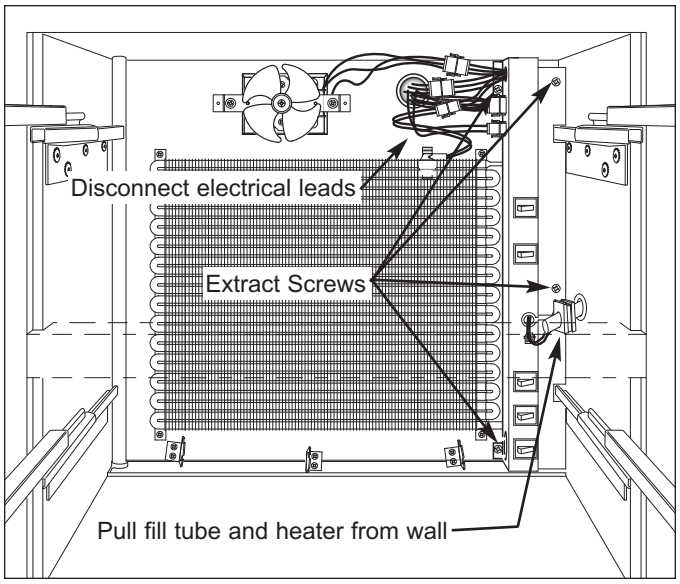


Figure 7-34. Switch Enclosure Removal TC/I-3, TF/I-3

Lower Evaporator Thermistor Removal (736TFI & 736TCI)

A screw secures the lower evaporator thermistor to the right side of the evaporator, just behind the top tubing passes.

To access and remove the lower evaporator thermistor, first remove drawers, left side drawer slides, heat exchanger cover, lower evaporator cover and the switch enclosure, then (See Figure 7-35):

1. Extract screw from clamp holding thermistor to the right evaporator bracket.
2. Cut thermistor's wire leads six (6) to twelve (12) inches from the back wall, then pull thermistor from compartment.

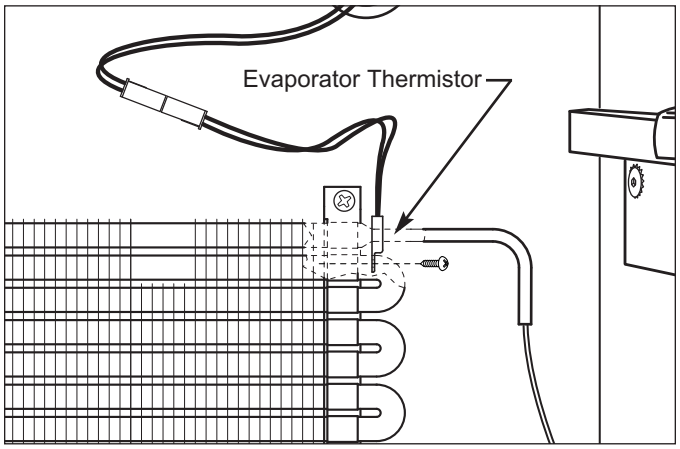


Figure 7-35. Evaporator Thermistor, TC/I-3, TF/I-3,

Lower Compartment Thermistor Removal (736TFI & 736TCI)

The lower compartment thermistor in these models is attached to the back wall with a screw.

To access and remove the lower compartment thermistor, first remove drawers, left side drawer slides, heat exchanger cover, lower evaporator cover and the switch enclosure, then (See Figure 7-36):

1. Extract screw from clamp holding thermistor to the back wall.
2. Cut thermistor's wire leads six (6) to twelve (12) inches from the back wall, then pull thermistor from compartment.

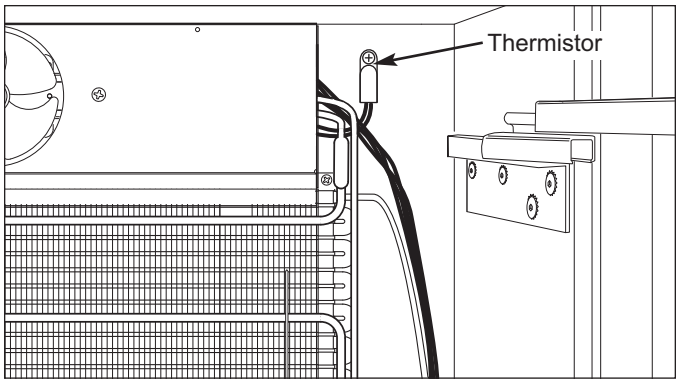


Figure 7-36. Lower Compartment Thermistor TC/I-3, TF/I-3

Fill Tube Heater Removal (736TFI & 736TCI)

The fill tube heater wraps around the fill tube. The heater electrical connections are behind the switch enclosure.

To access and remove the fill tube heater, first remove drawers, left side drawer slides, heat exchanger cover, lower evaporator cover and the switch enclosure, then (See Figure 7-37)

1. Disconnect the heater's electrical leads.
2. Push the wire grommet from hole in switch enclosure and pull heater wiring through slot in side of switch enclosure.
3. Pull heater off of fill tube.

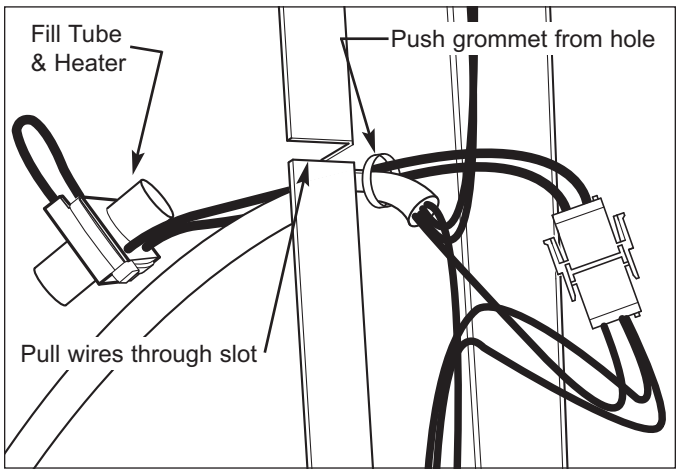


Figure 7-37. Fill Tube Heater, TC/I-3, TF/I-3

Lower Compartment Light / Fan / Icemaker Switch Removal (All Models)

The light switches, fan switches and icemaker switch in the lower compartment are mounted to the switch enclosure. The switches are held in place by tabs on the sides of the switches.

To access and remove a switch, first remove drawers, left side drawer slides, heat exchanger cover, lower evaporator cover and the switch enclosure, then (See Figure 7-38):

1. Disconnect electrical leads from switch being removed.
2. Depress tab on side of switch and push switch out from enclosure.

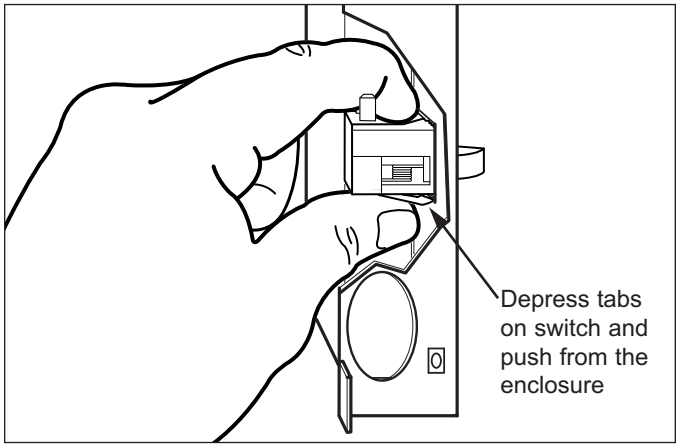


Figure 7-38. Lower Compartment Switch Removal

COMPRESSOR AREA ELECTRICAL AND MECHANICAL COMPONENTS

Icemaker Water Valve Removal (736TFI & 736TCI)

The icemaker water valve assembly is located at the right side of the compressor area next to the condenser, and is attached to the valve bracket with screws.

NOTE: *Before accessing the icemaker water valve, turn off water supply to the unit.*

To remove the water valve, the kickplate/grill will need to be removed first and the unit tray slid out. To slide the unit tray out, extract the two screws that secure the tray to the unit, located at the front right and left corners. Grab the front flange of the tray and pull forward. (See Figure 7-39), then (See Figure 7-40):

1. Disconnect inlet water tube from the valve inlet by pushing collar around tube toward valve, while pulling inlet water tube away from valve.
2. With a Phillips screwdriver, remove screws from valve bracket.
3. Lower valve and pull forward.
4. Disconnect valve electrical leads.
5. Disconnect outlet tube from the valve outlet by pushing collar around tube toward valve, while pulling outlet water tube away from valve.

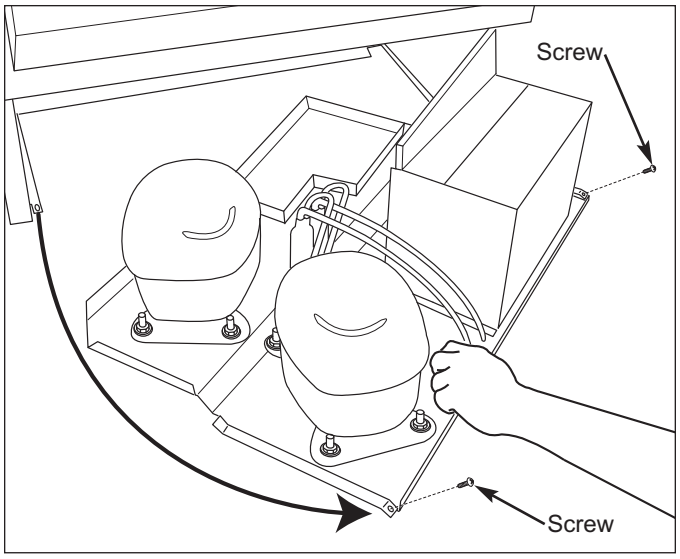


Figure 7-39. Sliding Unit Tray Out

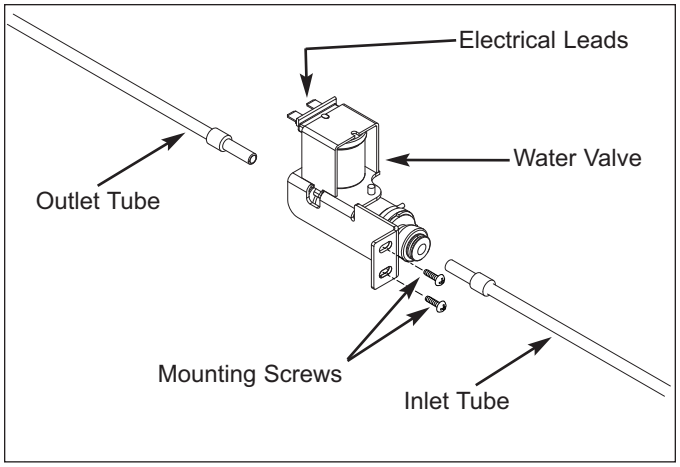


Figure 7-40. Water Valve Removal, TC/I-3,TF/I-3

Condenser Fan Assembly Removal

The condenser fan shroud sets on top of two pegs protruding from the unit tray and two screws at the top of the shroud secure it to the condenser. The condenser fan is mounted to the condenser fan shroud. Three fan mounting brackets are hooked into grommeted holes in the fan shroud. Screws passing through these brackets secure the fan motor to the brackets. The condenser fan blade is held onto the fan motor shaft with a nut.

To access and remove the condenser fan assembly, the kickplate/grille will need to be removed first and the unit tray will need to be slid out. To slide the unit tray out, extract the two screws that secure the tray to the unit, located at the front right and left corners. Grab the front flange of the tray and pull forward. (See Figure 7-41)

NOTE: *It may be necessary to disconnect the compressor electrical leads in order to pull the tray out far enough to access the condenser fan assembly.*

1. Disconnect condenser fan motor electrical leads. (See Figure 7-42)
2. Extract screws at the top of the fan shroud and lift the shroud with motor, up off of the pegs located on unit tray. (See Figure 7-42)
3. Remove condenser fan from shroud by extracting the screws securing the motor to the brackets. The brackets will unhook from the grommeted holes in the condenser fan shroud after the screws are removed. (See Figure 7-43)
4. To remove fan blade from the fan motor, grab the blade and motor while turning the nut counterclockwise. Then pull the blade from motor shaft. (See Figure 7-43)

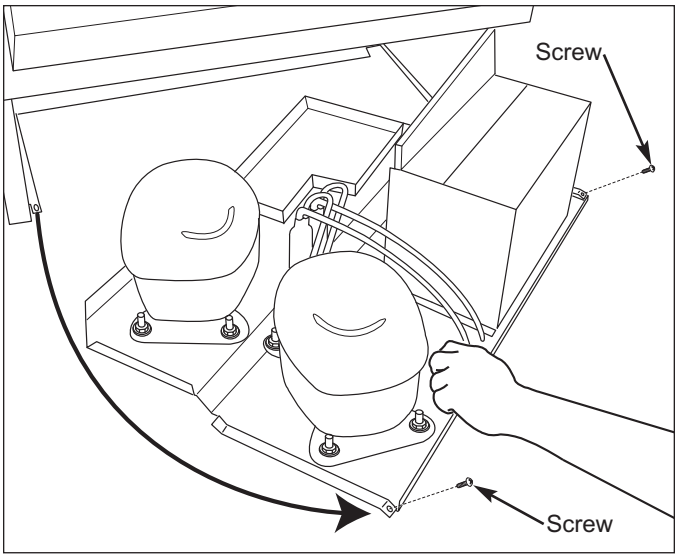


Figure 7-41. Sliding Unit Tray Out

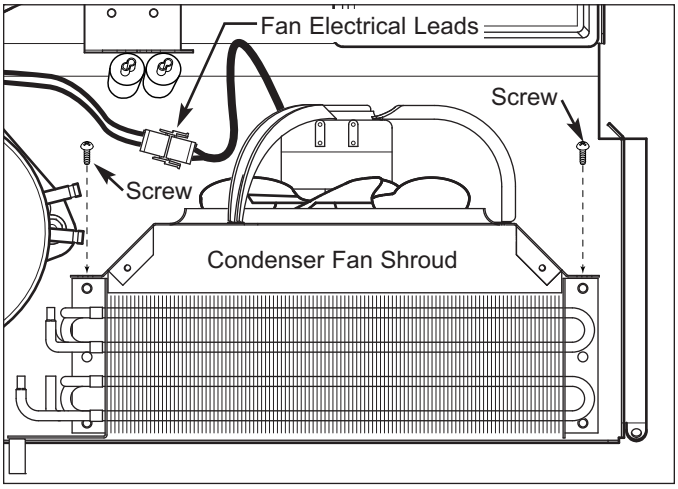


Figure 7-42. Condenser Fan Shroud Removal

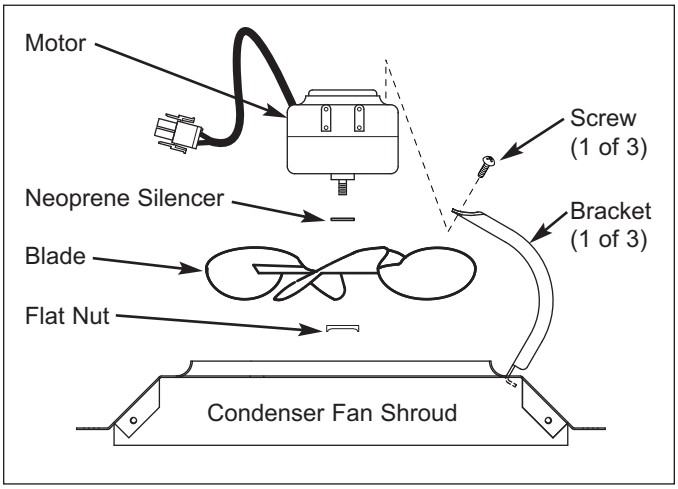


Figure 7-43. Condenser Fan Assembly

SEALED SYSTEM COMPONENTS

Upper Refrigerator Compartment Evaporator Removal (All Models except 736TFI)

The upper evaporator is attached to the back wall with screws.

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

To access and remove the upper evaporator, first remove the light diffuser and evaporator cover, then (See Figure 7-44):

1. Extract screws securing evaporator to the back wall.
2. With a tube cutter, cut inlet tube approximately one inch from the end and cut the outlet tube approximately two inches from the end.

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: *When installing a new evaporator, be sure to thoroughly clean the tubing before brazing. After brazing and inspecting the joint for leaks, it is recommended to apply an acrylic-based paint to the joints to protect the exposed metals from oxidation.*

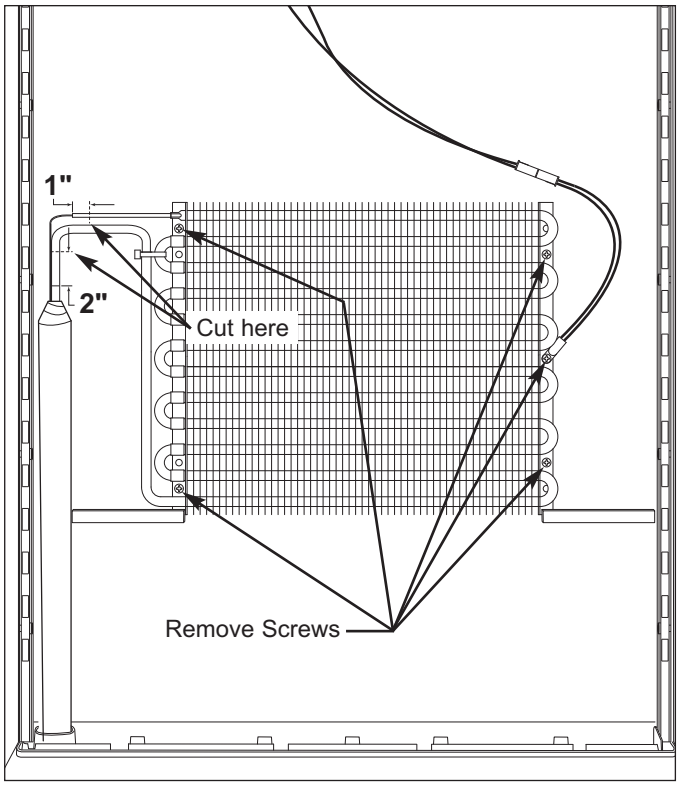


Figure 7-44. Upper Evaporator Removal

Lower Compartment Evaporator Removal

The lower evaporator is attached to the back wall with screws.

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

To access and remove the lower evaporator, first remove the heat exchanger cover, evaporator cover and switch enclosure. In the model 736TCI, the evaporator fan shroud will also need to be removed, then (See Figure 7-45):

1. Extract screws securing evaporator to back wall.
2. With a tube cutter, cut the inlet tube approximately one inch from the end and cut the outlet tube approximately two inches from the end.

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: *If reusing the existing defrost heater, defrost terminator and evaporator thermistor, they can be removed from the evaporator after it is removed from the unit.*

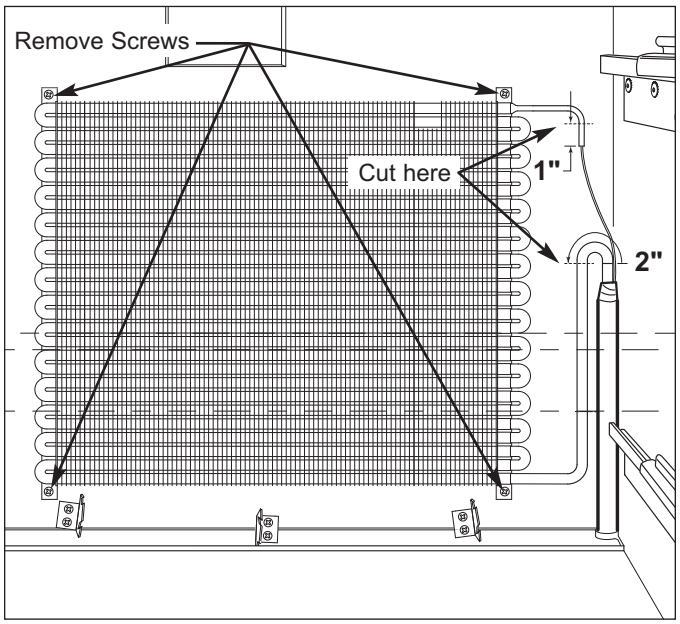


Figure 7-45. Lower Evaporator Removal

High-Side Filter-Drier Removal

The high-side filter-driers are located in the center of the unit tray, behind the condenser and are attached to the drier bracket with a cable tie.

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

To access and remove a high-side filter-drier, the kick-plate/grille will need to be removed first and the unit tray will need to be slid out. To slide the unit tray out, extract the two screws that secure the tray to the unit, located at the front right and left corners. Grab the front flange of the tray and pull forward. (See Figure 7-46)

NOTE: *It may be necessary to disconnect the compressor electrical leads in order to pull the tray out far enough to access the filter-driers.*

1. Remove a filter-drier by cutting the cable tie which secures filter-driers to the bracket. (See Figure 7-47)
2. With file edge, score a line around capillary tube approximately one inch from filter-drier outlet, then fatigue capillary tube at this line until it separates.
3. With a tube cutter, cut the inlet tube approximately one inch 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, re-score a line around the capillary tube (approximately one inch 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" away from the screen before brazing. (See Figure 7-48) When installing a new filter-drier, be sure to thoroughly clean the tubing before brazing.*

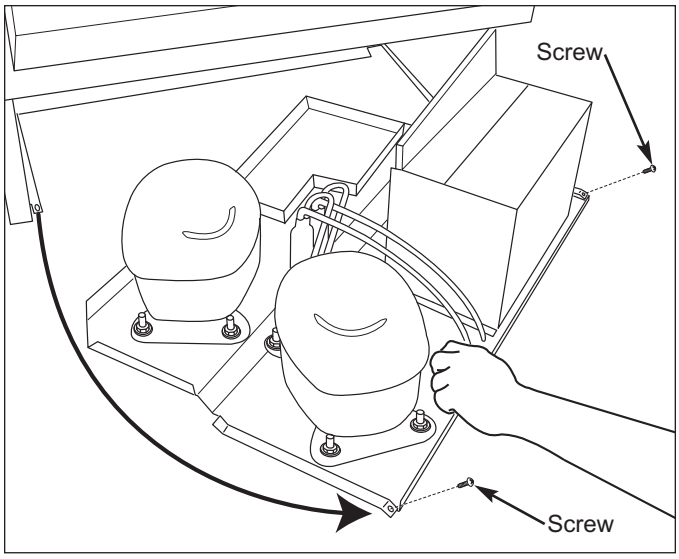


Figure 7-46. Sliding Unit Tray Out

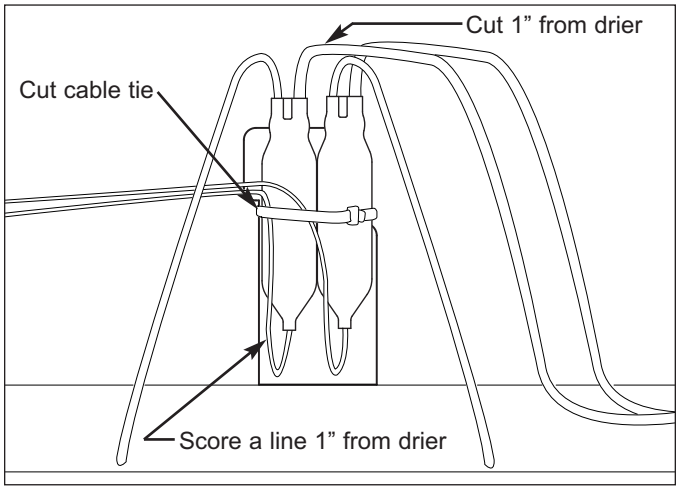


Figure 7-47. Filter-Drier Removal

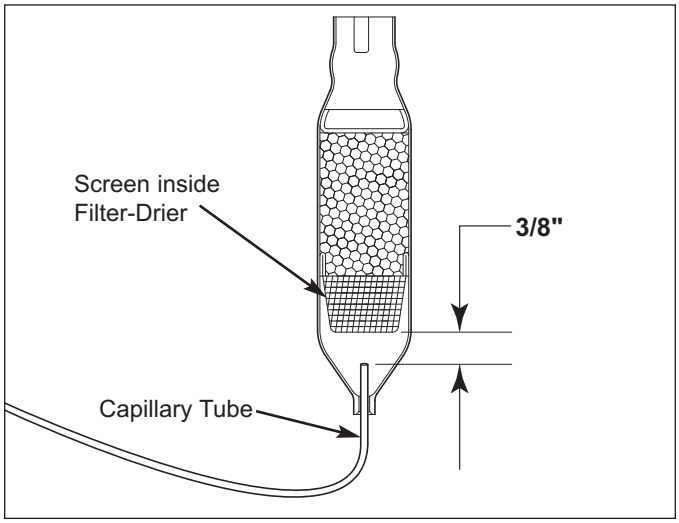


Figure 7-48. Filter-Drier Cut-Away View

Compressor Removal

The compressors have four rubber compressor grommets inserted into their base. Cylindrical metal spacers are placed over threaded studs that are pressed into the unit tray. The compressor grommets fit over the spacers and a washer sets on top of the grommet and spacer. A nut is then installed on the threaded stud and tightened down on the washer and spacer.

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

To access and remove a compressor, the kickplate/grille will need to be removed first and the unit tray will need to be slid out. To slide the unit tray out, extract the two screws that secure tray to the unit, located at the front right and left corners. Grab the front flange of tray and pull forward.

1. Use a flat-blade screwdriver to remove compressor electrical cover.
2. Disconnect electrical leads from compressor. (See Figure 7-49)
3. Remove compressor by cutting the inlet and outlet tubing with a tube cutter, approximately one inch from the compressor ports. (See Figure 7-50)
4. Extract nuts and washers from the threaded studs, then lift compressor off of studs. (See Figure 7-50)

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

NOTE: *The high-side filter-drier must be replaced whenever servicing the sealed system.*

NOTE: *When installing a compressor, be sure to thoroughly clean the tubing before brazing.*

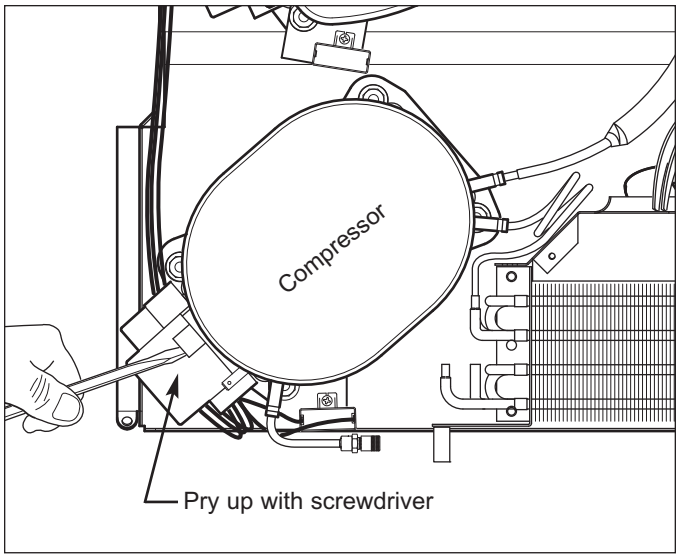


Figure 7-49. Removing Compressor Electrical Cap

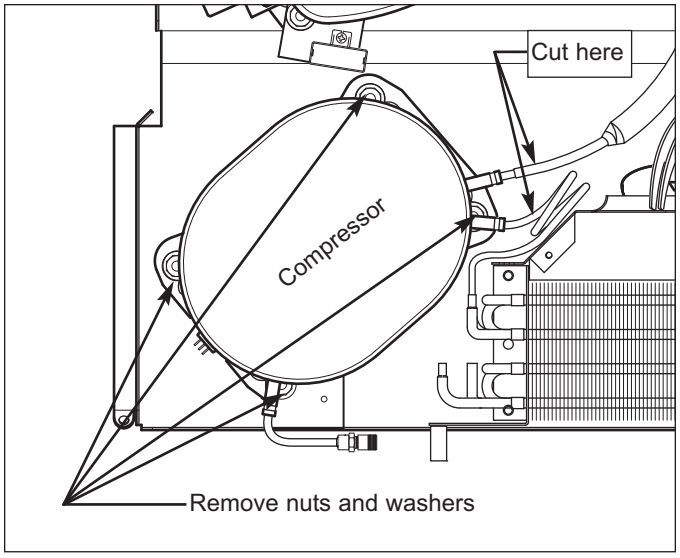


Figure 7-50. Compressor Removal

Condenser Removal

The condenser is secured to the unit tray by four rivets that pass up through the unit tray into the condenser side brackets.

NOTE: *Before attempting to remove the condenser, evacuate the refrigerant from the sealed system(s).*

To access the condenser, the kickplate/grille will need to be removed first and the unit tray will need to be slid out. To slide the unit tray out, extract the two screws that secure tray to the unit, located at the front right and left corners. Grab the front flange of tray and pull forward. (See Figure 7-51)

NOTE: *It will be necessary to disconnect compressor electrical leads in order to pull the tray out far enough to remove the condenser.*

1. Remove condenser by cutting the inlet and outlet tubes to and from the condenser, approximately one inch from the weld joints.
2. Prop front of the unit tray up and drill out the rivets securing condenser to unit tray. (See Figure 7-52)

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

NOTE: *The high-side filter-drier(s) must be replaced whenever replacing the condenser.*

NOTE: *To reattach the condenser to the unit tray, use #10-24 X 3/8" bolts (#6200020) passing up through the unit tray and condenser brackets with #10-24 Hex nuts (#6150030) tightened down on top.*

NOTE: *When installing the replacement condenser, be sure to thoroughly clean the tubing before brazing.*

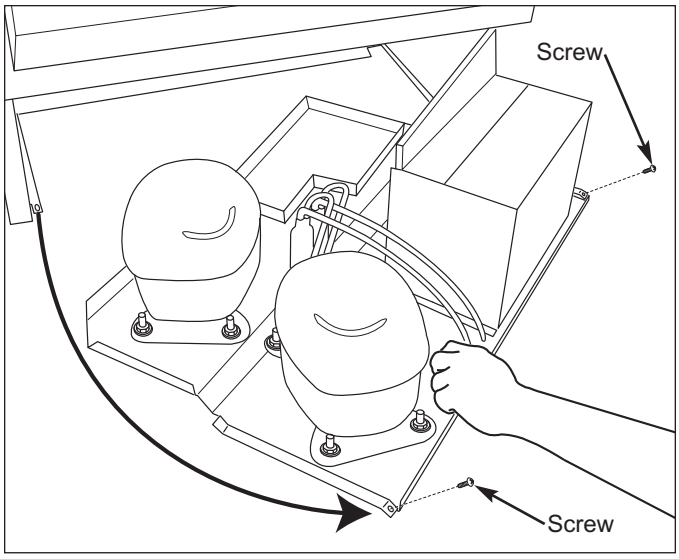


Figure 7-51. Sliding Unit Tray Out

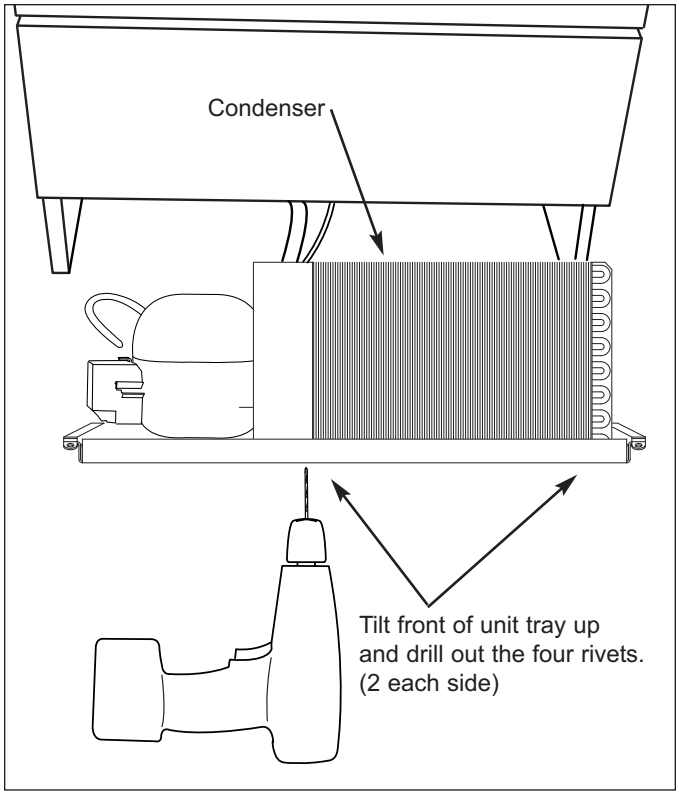


Figure 7-52. Condenser Removal

Upper Compartment Heat Exchanger Removal

The upper compartment heat exchanger passes down through a hole in the back left corner of the mullion. The heat exchanger then passes down through the lower compartment behind the heat exchanger cover, and through a hole in the back left corner of lower compartment floor.

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

To access and remove the upper compartment heat exchanger, the following components must first be removed: the upper light diffuser, upper evaporator cover, both drawer assemblies, left side drawer slides, heat exchanger cover in the lower compartment and the kickplate/grille. The unit tray will also need to be slid out.

NOTE: *It will be necessary to disconnect the compressor electrical leads in order to pull the tray out far enough to access and remove the heat exchanger.*

1. Begin removing heat exchanger by cutting the inlet and outlet tubes at evaporator. (See Figure 7-53)
2. Cut suction line approximately two inches from compressor. (See Figure 7-54)
3. Since the filter-drier will be replaced at the same time, cut drier inlet tube approximately one inch from drier, leaving capillary tube attached. (See Figure 7-55)
4. The heat exchanger will be scrapped, so use a tin snips or similar tool to cut heat exchanger near hole in mullion and hole in floor of the lower compartment. (See Figure 7-53)
5. Pull the pieces of heat exchanger out and clear the Hot-Melt away from holes.

NOTE: *To avoid damaging the unit from the brazing torch flame, remove the evaporator from the compartment and attach the new heat exchanger to the evaporator outside of the unit.*

NOTE: *Applying dish soap on the tubing insulation of the heat exchanger and around the holes in the mullion and lower compartment floor, will assist in working the heat exchanger through the holes.*

NOTE: *When installing replacement heat exchanger, be sure to thoroughly clean the tubing before brazing.*

NOTE: *Apply a bead of silicone around the heat exchanger where it passes through the holes in the mullion and lower compartment.*

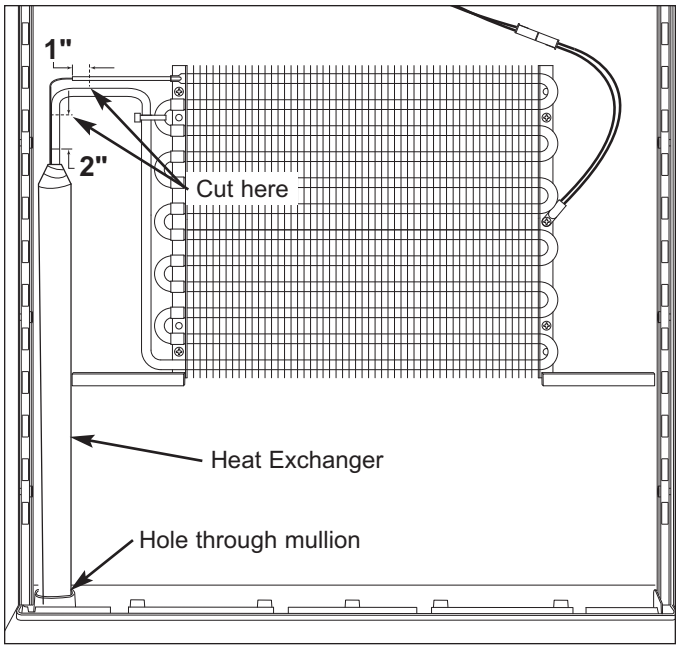


Figure 7-53. Cut Inlet and Outlet at Evaporator

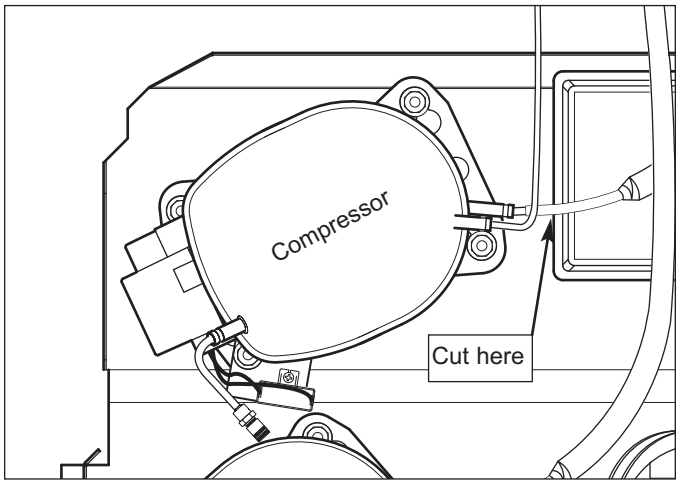


Figure 7-54. Cut Suction line at compressor

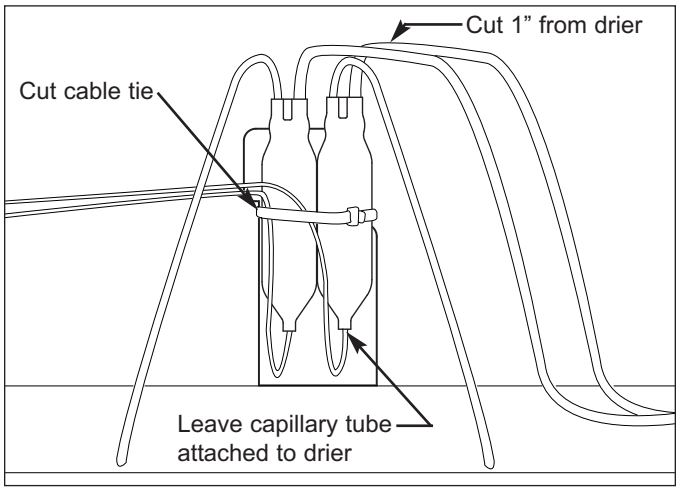


Figure 7-55. Cut Inlet to Filter-Drier

Lower Compartment Heat Exchanger Removal

The lower compartment heat exchanger is behind the switch enclosure and passes down through a hole in the back right corner of the lower compartment floor.

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

To access and remove the lower compartment heat exchanger, the following components must first be removed: both drawer assemblies, left side drawer slides, heat exchanger cover, lower evaporator cover, switch enclosure and the kickplate/grille. The unit tray will also need to be slid out.

NOTE: *It will be necessary to disconnect the compressor electrical leads in order to pull the tray out far enough to access and remove the heat exchanger.*

1. Begin removing heat exchanger by cutting the inlet and outlet tubes at evaporator. (See Figure 7-56)
2. Cut the suction line approximately two inches from compressor. (See Figure 7-57)
3. Since the filter-drier will be replaced at the same time, cut drier inlet tube approximately one inch from drier, leaving capillary tube attached. (See Figure 7-58)
4. The heat exchanger will be scrapped, so use a tin snips or similar tool to cut heat exchanger near hole in floor of the lower compartment.
5. Pull the pieces of heat exchanger out and clear the Hot-Melt away from hole.

NOTE: *To avoid damaging the unit from the brazing torch flame, remove the evaporator from the compartment and attach the new heat exchanger to the evaporator outside of the unit.*

NOTE: *Applying dish soap on the tubing insulation of the heat exchanger and around the holes in the lower compartment floor will assist in working the heat exchanger through the hole.*

NOTE: *When installing replacement heat exchanger, be sure to thoroughly clean the tubing before brazing.*

NOTE: *Apply a bead of silicone around the heat exchanger where it passes through the hole in the lower compartment.*

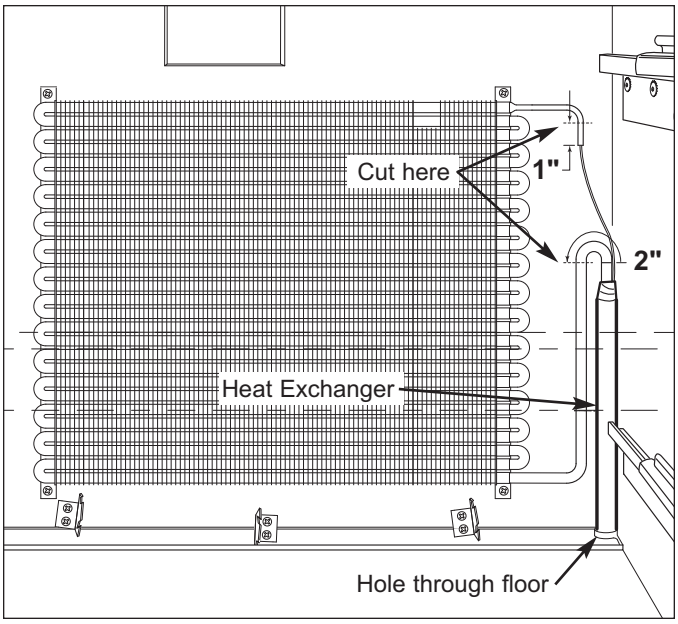


Figure 7-56. Cut Inlet and Outlet at Evaporator

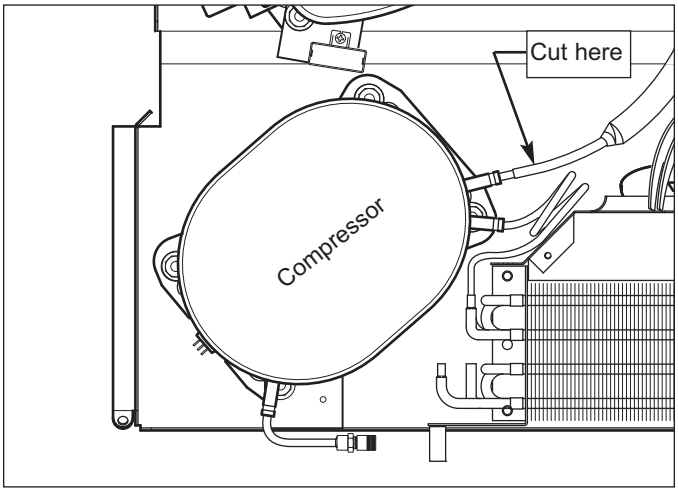


Figure 7-57. Cut Suction line at compressor

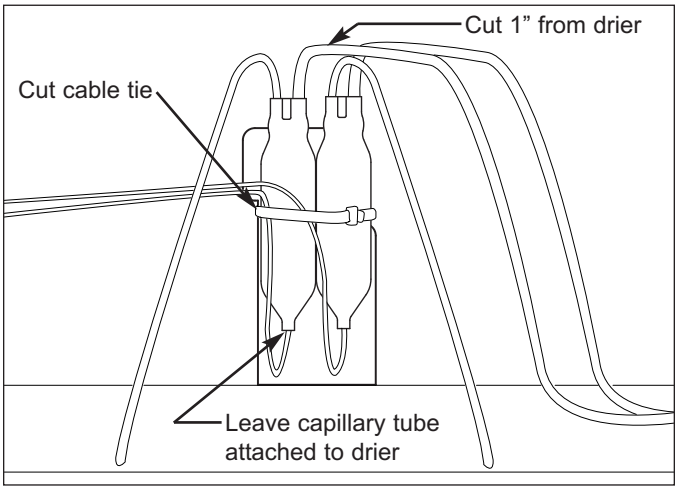


Figure 7-58. Cut Inlet at Filter-Drier

TROUBLESHOOTING GUIDES

This section of the manual contains:

- The Error Code Table and Error Code Troubleshooting Guide.
- The General Troubleshooting Guide, which covers all problems that a 700-3 Series unit may experience.
- The Membrane Switch/Ribbon Cable Test Procedures, used to determine if a control panel assembly is defective.
- The Door Hinge Test Procedures and Corrections explain how to test and correct door closing problems.

HOW TO USE THE ERROR CODE TROUBLESHOOTING GUIDE

Error Codes are logged for thermistor errors, and/or defrost system errors. A model 700TF/I-3 may also log error codes for variable speed compressor control system errors. If Error Codes are logged, they will appear when Diagnostic Mode is initiated.

NOTE: *If Error Codes appear with a flashing "SERVICE" indicator 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, 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 indicator will appear on the LCD when Diagnostic Mode ends indicating error codes are still stored. Error Codes must be manually cleared from the electronic control memory. To clear the non-flashing SERVICE indicator 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 fifteen (15) seconds. The control will emit a short "beep" when the SERVICE indicator 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***
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	***Excessive Icemaker Water Valve Solenoid Activation (Exceeded 15 Seconds)***
40	***Excessive Freezer Compressor Run***
50	***Excessive Refrigerator Compressor Run***

ERROR CODE TROUBLESHOOTING GUIDE

ERROR CODE	TEST / ACTION
05	a. Check refrigerator compartment thermistor electrical connections and continuity from thermistor to J1 on control board. Reconnect / repair connections. b. Check resistance of refrigerator compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
06	a. Check refrigerator evaporator thermistor electrical connections and continuity from thermistor to J1 on control board. Reconnect / repair connections. b. Check resistance of refrigerator evaporator thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
07	a. Check freezer compartment thermistor electrical connections and continuity from thermistor to J1 on control board. Reconnect / repair connections. b. Check resistance of freezer compartment thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
08	a. Check freezer evaporator thermistor electrical connections and continuity from thermistor to J1 on control board. Reconnect / repair connections. b. Check resistance of freezer evaporator thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
20	a. With a cold evaporator (< 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 J4-4 on control board. Reconnect / repair Grey/White wire &/or electrical connections. b. Check for proper ohm readings of defrost heater. Replace heater if defective. c. Check defrost terminator and its electrical connections, Reconnect / repair bad connections or replace terminator if defective. d. Initiate Manual Defrost, check for 115V AC at E2 on control board. If no voltage, replace board. e. Initiate Manual Defrost, check for 115V AC from E2 (Blue Wire) on control board to defrost terminator. Reconnect / repair blue wire &/or electrical connections. f. 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 J7-8 on control board.
21	a. Check for proper mounting and location of freezer evaporator thermistor and defrost heater. Remount correctly. b. Check for correct wire connection at control board, Blue wire at E2 on control board. If connected to wrong pin, reconnect correctly. c Check for electrical short of Blue wire to another circuit. Repair Blue wire &/or electrical connections. d. Check for proper operation of defrost terminator: Cut-in 30°F (-1°C) / Cut-out 70°F (21°C). Replace if defective.
22	a. Initiate Manual Defrost. If compressor starts 5 minutes after defrost is initiated, check Grey/White wire connections and continuity from defrost heater to J4-4 on control board. Reconnect / repair Grey/White wire &/or electrical connections.
23	a. Check for proper mounting and location of freezer evaporator thermistor and defrost heater. Remount correctly. b. Check for correct wire connection at control board, Blue wire at E2 on control board. If connected to wrong pin, reconnect correctly. c Check for electrical short of Blue wire to another circuit. Repair Blue wire &/or electrical connections. d. Initiate Manual Defrost. If compressor starts 5 minutes after defrost is initiated, check Grey/White wire connections and continuity from defrost heater to J4-4 on control board. Reconnect / repair Grey/White wire &/or electrical connections.
24	a. Check for proper ohm readings of defrost heater. Replace heater if defective. b. Check for proper mounting and location of freezer evaporator thermistor and defrost heater. Remount correctly.

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

ERROR CODE TROUBLESHOOTING GUIDE

ERROR CODE	TEST / ACTION
30	A. Check for jammed cube in icemaker. 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 J7-8 on control board.
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/drawer 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. Check evaporator fan blade position and for obstructions. Reposition if incorrect/Remove obstruction. F. Check resistance of freezer compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. G. With unit on, check to see if lights shut off when light switch is depressed. Repair defective wiring or replace defective switch. H. With freezer compressor running: 1. (Model 700TF/I Only) Check for 115 V AC from compressor to condenser fan. Repair defective wiring or replace defective motor. 2. (All Models Except 700TF/I) Check for 115 V AC from control board to condenser fan. Repair defective wiring, or replace defective motor, or replace defective board. I. With freezer compressor running and fan switches depressed, check for 115 V AC from compressor to evaporator fan motor. Repair wiring, or replace defective switch, or replace defective fan motor. J. Check sealed system for leaks, restrictions or inefficient compressor.
50	A. If Error Code 05, or 06 is also displayed during Diagnostic Mode, see Test/Actions under that code. B. Check for obstructions to refrigerator 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. Check evaporator fan blade position and for obstructions. Reposition if incorrect/Remove obstruction. F. Check resistance of refrigerator compartment thermistor - 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective. G. With unit on, check to see if lights shut off when light switch is depressed. Repair defective wiring or replace defective switch. H. With refrigerator compressor running (All models except 700TF/I) check for 115 V AC from control board to condenser fan. Repair defective wiring, or replace defective motor, or replace defective board. I. With refrigerator compressor running and fan switches depressed (All Models Except 700TF/I), check for 115 V AC from compressor to evaporator fan motor. Repair wiring, or replace defective switch, or replace defective fan motor. J. Check sealed system for leaks, restrictions or inefficient compressor.

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

HOW TO USE GENERAL TROUBLESHOOTING GUIDE

The General Troubleshooting Guide Table of Contents on the following page indicates how the General Trouble Shooting Guide is arranged. Match the description of the problem the unit is experiencing with those in the table. To the left of the problem description is a letter. Locate that letter in the left column of the Troubleshooting Guide. The information in the center column of the Troubleshooting Guide identifies possible causes for the problem. The information in the right column explains the tests to perform and/or what action to take to correct the problem.

For Problems "A" through "N":

1. Begin troubleshooting by observing the compartment set points.
2. If the set-points are normal, initiate Diagnostic Mode by pressing and holding either COLDER key, then press the UNIT ON/OFF key, then release both keys.
3. When Diagnostic Mode is initiated, check to see if "Error Codes" are present, being sure to toggle through all the error 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 there are no Error Codes, initiate Manual Component Activation Mode (which lasts five (5) minutes), by pressing and holding the desired compartment COLDER and UNIT ON/OFF keys for ten (10) seconds, then observe the evaporator temperatures.

   NOTE: *Verify that the compressor is operating before observing evaporator temperatures. If the problem is in the refrigerator section, the refrigerator door must be left open for five (5) minutes with the compressor running.*
6. After observing the evaporator temperatures as instructed above, take note of the *"Pointers"* in the first column of the troubleshooting guide under problems "A" through "D". The *"Pointers"* list what possible causes to check based on the evaporator temperatures observed.

For All Problems:

If the unit's temperature history is needed to help diagnose the problem, initiate Temperature Log Recall Mode as described below. This allows the preceding fourteen days of the unit's temperature history to be observed.

a. *To View Compartment Temperature History Only:* Begin with the unit ON. Now, press and hold the desired compartment WARMER key, then press the UNIT ON/OFF key, then release both keys.

b. *To View Compartment or Evaporator Temperature History:* Begin with the unit on and in Diagnostic Mode. While in Diagnostic Mode, toggle through the readings until the desired thermistor temperature is displayed on the LCD. Now, press the WARMER key for that compartment and the UNIT ON/OFF key simultaneously.

700TC/I-3 & 736TC/I-3	
THERMISTOR LOCATION	**CODE**
Freezer Compartment	***F***
Refrigerator Compartment	***r***
Freezer Evaporator	***FE***
Refrigerator Evaporator	***rE***

700TR-3 & 736TR-3	
THERMISTOR LOCATION	**CODE**
Lower Compartment	***L***
Upper Compartment	***U***
Lower Evaporator	***LE***
Upper Evaporator	***UE***

700TF/I-3	
THERMISTOR LOCATION	**CODE**
Freezer Compartment	***F***
Freezer Evaporator	***FE***

GENERAL TROUBLESHOOTING GUIDE TABLE OF CONTENTS

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
A. Error Codes & "SERVICE" Flashing	**Unit Experienced Temperature Problems**	See Error Code Troubleshooting Guide
B. "EE" Displayed in Place of Freezer Temperature with "SERVICE" Flashing	**Freezer Compartment Thermistor Disconnected, Shorted, or Misread**	Check wiring from thermistor to control board. Reconnect/repair connections. Resistance of thermistor = 30,000-33,000 ohms at 32°F (0°C). Replace if defective.
C. "EE" Displayed in place of Refrigerator Temperature with "SERVICE" Flashing	**Refrigerator Compartment Thermistor Disconnected, Shorted, or Misread**	Check wiring from thermistor to control board. Reconnect/repair connections. Resistance of thermistor = 30,000-33,000 ohms at 32°F (0°C). Replace if defective.
D. Warm or Normal Temp's Displayed with "SERVICE" Alone Flashing	**Unit Experienced Temperature Problems**	See Error Code Troubleshooting Guide
	Refrigerator Evaporator Thermistor Disconnected, Shorted, or Misread	Check wiring from thermistor to control board. Reconnect/repair connections. Resistance of thermistor = 30,000-33,000 ohms at 32°F (0°C). Replace if defective.
E. 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.
F. Erratic Temperatures with or without "SERVICE" Flashing	**Control Board Configured for Wrong Model**	*If possible, reconfigure to correct model. If not possible, replace control board.*
G. Warm Freezer Temperature with "SERVICE" Flashing ***Pointers:*** *1. Evap Temp -20°F (-29°C) or lower, see:* • *Door ajar* • *Lights ON w/door closed* • *Evaporator fan fault* • *Compartment thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *2. Evap Temp between -19°F (-28°C) and 0°F (-17°C), see:* • *Condenser Air Flow* • *Compartment thermistor misread* • *Sealed system fault: leak* *3. Evaporator Temp higher than 0°F (-17°C), see:* • *Power to compressor fault* • *Sealed system Fault: leak, restriction, inefficient compressor* *(Continued)* *(See **NOTES** on next page)*	**Door or Drawer Ajar** a. Food product obstruction b. Door/cabinet hinge problem c. Drawer closer tripped backwards	 a. Move obstruction. b. See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective. c. Trip drawer closer forward
	Condenser Air Flow a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective e. Power from control board fault (700TC/I-3 & 700TR-3 only) f. Power from compressor controller fault (700TF/I-3 only)	 a. Clean condenser. b. Remove obstruction or tighten nut on motor shaft. c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3. Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace motor if defective. e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective. f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **G. Warm Freezer Temperature with "SERVICE" Flashing** ***Pointers:*** 1. *Evap Temp -20°F (-29°C) or lower, see:* • *Door ajar* • *Lights ON w/door closed* • *Evaporator fan fault* • *Compartment thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* 2. *Evap Temp between -19°F (-28°C) and 0°F (-17°C), see:* • *Condenser Air Flow* • *Compartment thermistor misread* • *Sealed system fault: leak* 3. *Evaporator Temp 0°F (-17°C) or higher, see:* • *Power to compressor fault* • *Sealed system Fault: leak, restriction, inefficient compressor* ***NOTE:*** *"Pointers" do not apply to cabinet initial pulldown from ambient temperatures.* ***NOTE:*** *To clear flashing SERVICE indicator after repairs, power OFF, then back ON.* ***NOTE:*** *To clear non-flashing SERVICE indicator after repairs, press door ajar alarm bell ON/OFF key for 15 seconds.*	**Light ON with Door/ Drawers Closed** a. Top hinge cover missing, not depressing light switch b. Faulty light switch	 a. Replace hinge cover. b. Check operation of light switches, lights off when switch is depressed. Replace switch if defective. *(**NOTE:** there are two light switches in the drawer area)*
	Evaporator Fan Fault a. Top hinge cover missing, not depressing fan switch b. Fan blade obstructed or out of position c. Faulty fan switch *(**NOTE:** A compressor must be running)* d. Evaporator. fan motor disconnected e. Evaporator fan motor defective *(**NOTE:** Compressor must be running)*	 a. Install hinge cover. b. Move obstruction or reposition blade. c. Check for 115V AC to fan switch, depress fan switch and check for 115V AC from fan switch. Replace switch if defective. *(**NOTE:** there are two fan switches in the drawer area)* d. Check electrical connections of motor. Reconnect / repair bad connections. e. Check for 115V AC at fan motor with fan switch depressed. 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.
	Evaporator Heavily Frosted a. Door or 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	 a. See Door or Drawer Ajar on previous page. b. See Evaporator Fan Fault on previous page. c. See Compartment Thermistor Misread on previous page. d. Check electrical connections. Reconnect / repair bad connections. Check resistance of heater, 30-38 Ohms, replace if defective. e. Check electrical connections, Reconnect / repair bad connections or replace terminator if defective. f. Manually initiate defrost by pressing ICE key for 10 seconds. If defrost lasts exactly 5 minutes, check all connections of gray/white wire from terminator to J4-4 on control board. Reconnect / repair bad connections. g. Manually initiate defrost by pressing ICE key for 10 seconds. Check for 115V AC at E2 on control board. Replace control board if defective.
	Power to Compressor Fault ***NOTE:*** *For 700TF/I-3, see Error Code Troubleshooting Guide*	Check for 115V AC at E7 on control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
H. Warm Freezer Temperatures <u>without</u> "SERVICE" Flashing ***Pointers:*** *1. "Sr" appears during Diagnostic Mode, see:* • *Unit in Showroom Mode* *2. Evap Temp -20°F (-29°C) or lower, see:* • *Door ajar* • *Lights ON w/door closed* • *Evaporator fan fault* • *Compartment thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *3. Evap Temp between -19°F (-28°C) and 0°F (-17°C), see:* • *Warm food load* • *High room ambient* • *Door ajar* • *Condenser Air Flow* • *Compartment thermistor misread* • *Sealed system fault: leak* *4. Evaporator Temp 0°F (-17°C) or higher, see:* • *Power to compressor fault* • *Sealed system Fault: leak, restriction, inefficient compressor* ***NOTE:** "Pointers" do not apply to cabinet initial pulldown from ambient temperatures.* ***NOTE:** To clear non-flashing SERVICE indicator after repairs, press door ajar alarm bell ON/OFF key for 15 seconds.* *(Continued)*	**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. Door/cabinet hinge problem c. Drawer closer tripped backwards	 a. Move obstruction. b. See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective. c. Trip drawer closer forward
	Condenser Air Flow a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective e. Power from control board fault (700TC/I-3 & 700TR-3 only) f. Power from compressor controller fault (700TF/I-3 only)	 a. Clean condenser. b. Remove obstruction or tighten nut on motor shaft. c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3. Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace motor if defective. e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective. f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.
	Lights ON with Door/ Drawers Closed a. Top hinge cover missing, not depressing light switch b. Faulty light switch	 a. Replace hinge cover. b. Check operation of light switches, lights off when switch is depressed. Replace switch if defective. *(**NOTE:** there are two light switches in the drawer area)*

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **H. Warm Freezer Temperatures <u>without</u> "SERVICE" Flashing** ***Pointers:*** *1. "Sr" appears during Diagnostic Mode, see:* • *Unit in Showroom Mode* *2. Evap Temp -20°F (-29°C) or lower, see:* • *Door ajar* • *Lights ON w/door closed* • *Evaporator fan fault* • *Compartment thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *3. Evap Temp between -19°F (-28°C) and 0°F (-17°C), see:* • *Warm food load* • *High room ambient* • *Door ajar* • *Condenser Air Flow* • *Compartment thermistor misread* • *Sealed system fault: leak* *4. Evaporator Temp 0°F (-17°C) or higher, see:* • *Power to compressor fault* • *Sealed system Fault: leak, restriction, inefficient compressor* ***NOTE:** "Pointers" do not apply to cabinet initial pulldown from ambient temperatures.* ***NOTE:** To clear non-flashing SERVICE indicator after repairs, press door ajar alarm bell ON/OFF key for 15 seconds.*	**Evaporator Fan Fault** a. Top hinge cover missing, not depressing fan switch b. Fan blade obstructed or out of position c. Faulty fan switch *(**NOTE:** A compressor must be running)* d. Evaporator. fan motor disconnected e. Evaporator fan motor defective *(**NOTE:** Compressor must be running)*	 a. Replace hinge cover. b. Move obstruction or reposition blade. c. Check for 115V AC to fan switch, depress fan switch and check for 115V AC from fan switch. Replace switch if defective. *(**NOTE:** there are two fan switches in the drawer area)* d. Check electrical connections of motor. Reconnect / repair bad connections. e. Check for 115V AC at fan motor with fan switch depressed. 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.
	Evaporator Heavily Frosted a. Door or 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	 a. See Door or Drawer Ajar on previous page. b. See Evaporator Fan Fault above. c. See Compartment 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 bad connections or replace terminator if defective. f. Manually initiate defrost by pressing ICE key for 10 seconds. If defrost lasts exactly 5 minutes, check all connections of gray/white wire from terminator to J4-4 on control board. Reconnect / repair bad connections. g. Manually initiate defrost by pressing ICE key for 10 seconds. Check for 115V AC at E2 on control board. Replace control board if defective.
	Power to Compressor Fault ***NOTE:** For 700TF/I-3, see Error Code Troubleshooting Guide*	Check for 115V AC at E7 on control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
I. Warm Refrigerator Temperatures with "SERVICE" Flashing ***Pointers:*** *Refrigerator door must be open and compressor running for <u>five minutes</u>.* *1. "EE" appears in place of refrigerator evap. temperature, see:* • *Evaporator thermistor disconnected or shorted* *2. Evaporator Temp 15°F (-9°C) or lower within 5 minutes w/door open, see:* • *Door ajar* • *Lights stay ON* • *Evaporator fan fault* • *Compartment or evaporator thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *3. Evaporator Temp cannot pull below 30°F (-1°C) within 5 minutes w/door open, see:* • *Condenser Air Flow* • *Compartment or evaporator thermistor misread* • *Sealed system fault: leak or inefficient compressor* 4. Evaporator Temp 35°F (2°C) or higher after 5 minutes w/door open, see: • *Condenser Air Flow* • *Power to compressor fault* • *Sealed system fault: leak, restriction or inefficient compressor* ***NOTE:*** *"Pointers" do not apply to cabinet initial pulldown from ambient temperatures.* ***NOTE:*** *To clear flashing SERVICE indicator after repairs, power OFF, then back ON.* ***NOTE:*** *To clear non-flashing SERVICE indicator after repairs, press door ajar alarm bell ON/OFF key for 15 seconds.* *(Continued)*	**Door or Drawer Ajar** a. Food product obstruction b. Door/cabinet hinge problem c. Drawer closer tripped backwards	 a. Move obstruction. b. See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective. c. Trip drawer closer forward
	Condenser Air Flow a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective e. Power from control board fault (700TC/I-3 & 700TR-3 only) f. Power from compressor controller fault (700TF/I-3 only)	 a. Clean condenser. b. Remove obstruction or tighten nut on motor shaft. c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3. Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace motor if defective. e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective. f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.
	Light ON with Door/ Drawers Closed a. Top hinge cover missing light switch b. Faulty light switch	 a. Replace hinge cover. b. Check operation of light switches, lights off when switch is depressed. Replace switch if defective. *(**NOTE:** there are two light switches in the drawer area)*
	Evaporator Fan Fault a. Top hinge cover missing fan switch b. Fan blade obstructed or out of position c. Faulty fan switch *(**NOTE:** A compressor must be running)* d. Evaporator. fan motor disconnected e. Evaporator fan motor defective *(**NOTE:** A compressor must be running)*	 a. Replace hinge cover. b. Move obstruction or reposition blade. c. Check for 115V AC to fan switch, depress fan switch and check for 115V AC from fan switch. Replace switch if defective. *(**NOTE:** there are two fan switches in the drawer area)* d. Check electrical connections of motor. Reconnect / repair bad connections. e. Check for 115V AC at fan motor. Replace motor if defective.
	Evaporator Thermistor Disconnected or Shorted	Check refrigerator evaporator thermistor electrical connections from thermistor to J1 on control board. Reconnect / repair connections. Check resistance of refrigerator evaporator thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
	Compartment or Evaporator Thermistor Misread	Check resistance of refrigerator compartment and evaporator thermistors for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **I. Warm Refrigerator Temperatures with "SERVICE" Flashing** *(See Pointers on previous page)*	**Evaporator Heavily Frosted** a. Door or drawer ajar b. Evaporator fan fault c. Thermistor misread	 a. See Door or Drawer Ajar above. b. See Evaporator Fan Fault above. c. See Thermistor Misread above.
	Power to Compressor Fault ***NOTE:*** *For 700TF/I-3, see Error Code Troubleshooting Guide*	Check for 115V AC at E7 and/or E6 on control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide
J. Warm Refrigerator Temperatures <u>without</u> "SERVICE" Flashing ***Pointers:*** *Refrigerator door must be open and compressor running for <u>five minutes</u>.* *1. "Sr" appears during Diagnostic Mode, see:* • *Unit in Showroom Mode* *2. Evaporator Temp 15°F (-9°C) or lower within 5 minutes w/door open, see:* • *Door ajar* • *Lights stay ON* • *Evaporator fan fault* • *Compartment or evaporator thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *3. Evaporator Temp cannot pull below 30°F (-1°C) within 5 minutes w/door open, see:* • *Warm food load* • *High room ambient* • *Door ajar* • *Condenser Air Flow* • *Compartment or evaporator thermistor misread* • *Sealed system fault: leak or inefficient compressor* *4.* Evaporator Temp 35°F (2°C) or higher after 5 minutes w/door open, see: • *Condenser Air Flow* • *Power to compressor fault* • *Sealed system fault: leak, restriction or inefficient compressor* *(Continued)* *(See **NOTES** on next page)*	**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. Door/cabinet hinge problem c. Drawer closer tripped backwards	 a. Move obstruction. b. See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective. c. Trip drawer closer forward
	Condenser Air Flow a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective e. Power from control board fault (700TC/I-3 & 700TR-3 only) f. Power from compressor controller fault (700TF/I-3 only)	 a. Clean condenser. b. Remove obstruction or tighten nut on motor shaft. c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3. Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace motor if defective. e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective. f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **J. Warm Refrigerator Temperatures <u>without</u> "SERVICE" Flashing** ***Pointers:*** *Refrigerator door must be open and compressor running for <u>five minutes</u>.* *1. "Sr" appears during Diagnostic Mode, see:* • *Unit in Showroom Mode* *2. Evaporator Temp 15°F (-9°C) or lower within 5 minutes w/door open, see:* • *Door ajar* • *Lights stay ON* • *Evaporator fan fault* • *Compartment or evaporator thermistor misread* • *Evaporator heavily frosted* • *Sealed system fault: leak or partial restriction* *3. Evaporator Temp cannot pull below 30°F (-1°C) within 5 minutes w/door open, see:* • *Warm food load* • *High room ambient* • *Door ajar* • *Condenser Air Flow* • *Compartment or evaporator thermistor misread* • *Sealed system fault: leak or inefficient compressor* *4.* Evaporator Temp 35°F (2°C) or higher after 5 minutes w/door open, see: • *Condenser Air Flow* • *Power to compressor fault* • *Sealed system fault: leak, restriction or inefficient compressor* ***NOTE:** "Pointers" do not apply to cabinet initial pulldown from ambient temperatures.* ***NOTE:** To clear non-flashing SERVICE indicator after repairs, press door ajar alarm bell ON/OFF key for 15 seconds.*	**Lights ON with Door/ Drawers Closed** a. Top hinge cover missing, not depressing light switch b. Faulty light switch	 a. Replace hinge cover. b. Check operation of light switches, lights off when switch is depressed. Replace switch if defective. *(**NOTE:** there are two light switches in the drawer area)*
	Evaporator Fan fault a. Top hinge cover missing fan switch b. Fan blade obstructed or out of position c. Faulty fan switch *(**NOTE:** A compressor must be running)* d. Evaporator. fan motor disconnected e. Evaporator fan motor defective *(**NOTE:** Compressor must be running)*	 a. Replace hinge cover. b. Move obstruction or reposition blade. c. Check for 115V AC to fan switch, depress fan switch and check for 115V AC from fan switch. Replace switch if defective. *(**NOTE:** there are two fan switches in the drawer area)* d. Check electrical connections of motor. Reconnect / repair bad connections. e. Check for 115V AC at fan motor with fan switch depressed. Replace motor if defective.
	Compartment or Evaporator Thermistor Misread	Check resistance of refrigerator compartment and evaporator thermistors for 30,000 to 33,000 ohms at 32°F (0°C). Replace thermistor if defective.
	Evaporator Heavily Frosted a. Door or drawer ajar b. Evaporator fan fault c. Thermistor misread	 a. See Door or Drawer Ajar on previous page. b. See Evaporator Fan Fault above. c. See Compartment & Evaporator Thermistor Misread above.
	Power to Compressor Fault ***NOTE:** For 700TF/I-3, see Error Code Troubleshooting Guide*	Check for 115V AC at E7 and/or E6 on control board. Replace control board if defective.
	Sealed System Fault • Sealed System Leak • Sealed System Restriction • Inefficient Compressor	See Sealed System Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
K. Warm or Normal Temperatures in Both Compartments with "SERVICE" Flashing	**High Room Ambient**	Instruct customer unit performs best between 60°F(16°C) and 90°F(32°C).
	Condenser Air Flow	
	a. Dirty condenser	a. Clean condenser.
	b. Condenser fan blade obstructed or loose	b. Remove obstruction or tighten nut on motor shaft.
	c. Condenser fan motor disconnected	c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3. Reconnect / repair wiring or connections.
	d. Condenser fan motor defective	d. Check for 115V AC to motor, replace motor if defective.
	e. Power from control board fault (700TC/I-3 & 700TR-3 only)	e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective.
	f. Power from compressor controller fault (700TF/I-3 only)	f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.
	Refrigerator Evaporator Thermistor Disconnected or Shorted	Initiate Diagnostic Mode. If "EE" appears in place of refrigerator evap temp, check refrigerator evaporator thermistor electrical connections from thermistor to J1 on control board. Reconnect / repair connections. Check resistance of refrigerator evaporator thermistor for 30,000 to 33,000 ohms at 32°F (0°C). Replace if defective.
L. Warm Temperatures in Both Compartments without "SERVICE" 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 Showroom 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 Ajar	
	a. Food product obstruction	a. Move obstruction.
	b. Door/cabinet hinge problem	b. See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective.
	c. Drawer closer tripped backwards	c. Trip drawer closer forward

(Continued)

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
(Continued) **L. Warm Temperatures in Both Compartments <u>without</u> "SERVICE" Flashing**	**Condenser Air Flow** a. Dirty condenser b. Condenser fan blade obstructed or loose c. Condenser fan motor disconnected d. Condenser fan motor defective e. Power from control board fault (700TC/I-3 & 700TR-3 only) f. Power from compressor controller fault (700TF/I-3 only)	 a. Clean condenser. b. Remove obstruction or tighten nut on motor shaft. c. Check continuity from motor to control board (J7-1) on 700TC/I-3 & 700TR-3, from motor to compressor controller on 700TF/I-3 . Reconnect / repair wiring or connections. d. Check for 115V AC to motor, replace motor if defective. e. With compressor running, check for 115V AC at control board (J7-1 on 700TC/I-3 & 700TR-3). Replace board if defective. f. With compressor running, check for 115V AC from controller (700TF/I-3 only). Replace compressor controller if defective.
M. 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.
N. 1. "Extremely" Cold Temperatures Displayed ***(1° to 7° in Refrigerator and -21° to -15° in Freezer)*** **2. If outside US - "Extremely" Warm Temperatures Displayed** ***(34° to 45° in Refrigerator and -5° to 5° in Freezer)***	**1. Control Set to Display Celsius but Customer Thought it Was Fahrenheit**	1. Switch unit OFF, then ON, then press & hold Bell key and UNIT ON/OFF key for 10 seconds.
	2. If Outside US - Control Set to Display Fahrenheit but Customer Thought it Was Celsius	2. Switch unit OFF, then ON, then press & hold Bell key and UNIT ON/OFF key for 10 seconds.
O. "ICE" and "SERVICE" Flashing on LCD	**Water Valve Energized Longer then Fifteen Seconds**	Check icemaker area for jammed ice cube, clear jam if present. Check levelness of icemaker, 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.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
P. No Ice, "ICE" Displayed on LCD, but not Flashing **(NOTE:** *The Icemaker system is disabled for 45 minutes after each harvest.)*	**Unit Has Not Run Long Enough**	Freezer must be 17°F for icemaker to operate, approximately 24 hours after unit installation. Instruct customer.
	Warm Freezer Temperatures *(**NOTE**: Freezer must be 17°F or colder for icemaker to function)*	See PROBLEM B, D, F, G, H, K & L 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.
	Frozen Fill Tube a. Water Supply Problem b. Disconnected or defective fill tube heater c. No power from control board to fill tube heater	 a. Check water supply pressure; must be constant 20-100 PSI. If not, instruct customer. b. Check electrical connections at fill tube heater. Reconnect / repair connections. Check resistance of fill tube heater, 2300 - 2900 Ohms. Replace if defective. c. Check for 115V AC at J7-3 on control board. Replace board if defective.
	Icemaker System Fault a. Disconnected or damaged electrical connections at icemaker or water valve. b. Defective icemaker c. Defective icemaker d. Disconnected or damaged electrical connections at icemaker e. Icemaker switch disconnected or faulty f. Electrical connection at control board or control board defect	Pressing 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. 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. e. Check power to/from icemaker switch. Repair connection, replace defective switch. f. Check for 115V at control board (J7-5). If no power, replace control board. If power, repair connection.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
Q. No Ice and "ICE" Not Displayed on LCD	**Icemaker System Not Energized**	Press ICE key. " ICE" should appear on LCD.
R. Icemaker produces Too much ice	**Ice Level Arm/Linkage Bent or Broken**	Inspect ice level arm, shut-off arm and linkage. Replace defective parts.
	Icemaker Faulty	With the ice level arm in the UP/OFF position, Pressing 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". If icemaker motor starts with arm in the UP/OFF position, replace icemaker.
S. Icemaker Produces Hollow Cubes	**Freezer Too Cold, Cycles Icemaker Too Soon**	See PROBLEM B & F earlier in Troubleshooting Guide.
	Not Enough Thermal-Mastic on Icemaker Thermostat	Inspect icemaker thermostat, apply more Thermal-Mastic to thermostat.
	Icemaker Defective	Replace Icemaker
T. 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.
U. Water in Ice Bucket / 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 for jammed cube, clear jam. Check level of icemaker, level if needed. Check position of fill cup. reposition if in ice path. Check water supply pressure for constant 20-100 PSI. If not, instruct customer. Check water valve operation, opens when 115V AC applied, closes completely when 115V AC removed. valve solenoid ohms = 160. Replace if defective.
	Intermittent Warm Freezer Temperatures	See PROBLEM B, D, F, G, H, K & L earlier in Troubleshooting Guide.

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
V. Membrane Switch on Control Board Malfunctioning	**Control Panel Ribbon Cable Disconnected or Connected Incorrectly**	Check control panel ribbon cable. All Pins on board should be in ribbon cable terminal housing. See Membrane Switch/Ribbon Cable Test Procedures for terminal housing Pin 1 identification.
	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.
W. No Lights	**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 Sabbath Mode	Press UNIT ON/OFF key to OFF.
	Defective or loose light bulb(s)	Install a known good light bulb.
	Light Terminator Interrupt / Door Ajar	Check for proper door closing. If door is open too long, lighting system is interrupted by terminator. If door is obstructed, move obstruction. If door does not close properly, see Door Hinge Operation Test Procedures later in this section. Replace hinge if defective.
	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 control board (J7-4). Reconnect/repair or replace defective components.
	No Power From Control Board (***NOTE:*** *See Unit in Sabbath Mode above.)*	Check for 115V AC at J7-4 on control board. Replace board if defective. (***NOTE:*** *See Unit in Sabbath Mode above.)*

PROBLEM	POSSIBLE CAUSE	TEST / ACTION
X. Lights Stay ON when Door &/or Drawers are Closed - (May be Accompanied by Door/Drawer Ajar Alarm Bell)	**Door or Drawer Ajar** a. Food product obstruction b. Door/cabinet hinge problem c. Drawer closer tripped backwards	 a. Move obstruction. b. See hinge adjustment procedures at end of troubleshooting guides. Replace hinge if defective. c. Trip drawer closer forward
	Top Hinge Cover Missing	Install hinge cover
	Light Switch Defective	Check for 115V AC to and from light switch. Replace switch if defective.
	Wiring to Light Switch and Fan Switch Crossed	Check operation of light switch and fan switch, lights OFF when light switch depressed, fan ON when fan switch depressed. If crossed, reconnect wiring correctly.
Y. Door or Drawers Not Able to Close Completely	**Food Product Obstruction**	Move obstruction.
	Door/Cabinet Hinge Problem	See Door Hinge Operation Test Procedures later in this section. Replace hinge if defective.
	Drawer Closer Tripped Backwards	Trip drawer closer forward
Z. Door or Drawers Uneven	**Improper Door or Drawer Panel Installation**	The doors and drawers are non-adjustable. Instead, the door and/or 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**
700TC/I-3	Refrigerator	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
	Freezer	5” Vac - 1 psi to 6 - 12 psi	75 psi to 120 psi
700TR-3	Upr Refrig.	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
	Lwr Refrig.	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
700TF/I-3		5” Vac - 1 psi to 6 - 12 psi	75 psi to 120 psi
736TC/I-3	Refrigerator	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
	Freezer	5” Vac - 1 psi to 6 - 12 psi	75 psi to 120 psi
736TR-3	Upr Refrig.	0 - 12 psi to 30 - 42 psi	75 psi to 110 psi
	Lwr Refrig.	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, 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

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 disconnecting ribbon cable from control board. Disengage control board from control panel. Remove control panel assembly from unit and place it on solid surface.

Pin 1 Identification Procedure

The ribbon cable wires are exposed at the back-side of the terminal housing. Pin 1 is labeled on the ribbon cable (see Figure 8-1). 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 place ohm meter leads between 1st and 2nd pin from each end of the housing while pushing UNIT ON / OFF Key. When continuity is observed, pin 1 is at that end.

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 (🔔) ON/OFF KEY	ICE ON/OFF KEY	REFRIG (UPPER) WARMER KEY	REFRIG (UPPER) COLDER KEY	FREEZER (RERIG LOWER) WARMER KEY	FREEZER (RERIG LOWER) COLDER KEY
700TC/-3	1 - 2	2 - 5	2 - 3	1 - 6	5 - 6	3 - 4	4 - 5
700TR-3	1 - 2	2 - 5	NA	1 - 6	5 - 6	3 - 4	4 - 5
700TFI-3	1 - 2	2 - 5	2 - 3	NA	NA	3 - 4	4 - 5
736TCI-3	1 - 2	2 - 5	2 - 3	1 - 6	5 - 6	3 - 4	4 - 5
736TR-3	1 - 2	2 - 5	NA	1 - 6	5 - 6	3 - 4	4 - 5

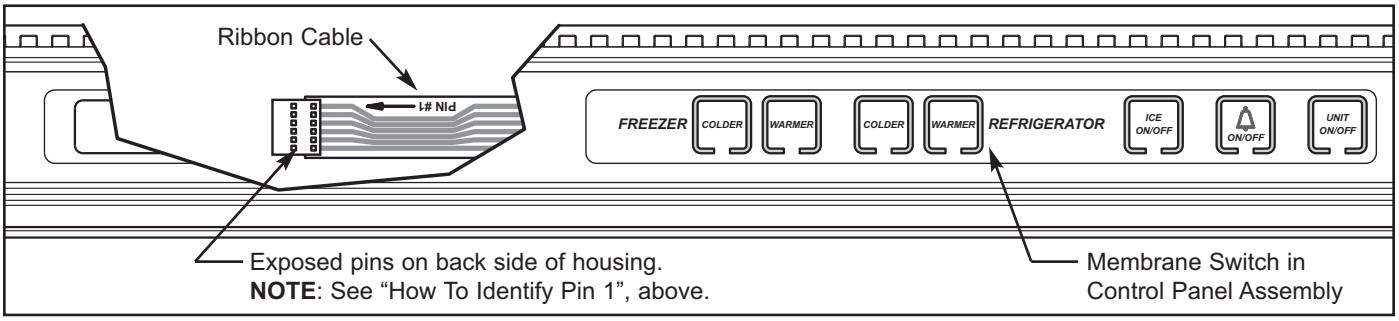


Figure 8-1. Control Panel Assy with Cut-Away View to Show Ribbon Cable *(700TCI-3 Shown)*

TALL UNIT DOOR HINGE OPERATION TEST PROCEDURES AND CORRECTIONS

1. If the door of a 700-3 tall unit will not close properly, first check for obstructions.
2. If there are no obstructions, open the door approximately 1" and let it go to see if it closes on its own. Repeat this three times.
3. If the door fails to close, remove the door gasket and repeat opening the door approximately 1", then let go. If the door does not close past parallel with the gasket seat, go to step #4 below. If the door does close past parallel with the gasket seat, this may indicate that the door gasket was binding on the hinge side. If so, the door hinges can be shimmed out slightly.

   To shim a hinge out, remove the door from the unit. Then, extract the hinge mounting bolts and pull the hinges from the unit. Place washers (part #6240360) behind the hinges. Reinstall the hinges and hinge mounting bolts. (See Figure 8-2) Replace the door gasket and reattach the door, then retest the door closing operation.

   NOTE: *Placing too many washers behind the hinges may cause air leaks. Check for air leaks after reattaching the door.*

4. If the door did not close past parallel with the gasket off, remove the top hinge cover and extract the one top door hinge screw closest to the pivot point of the hinge. Loosen the three remaining top hinge screws almost all the way out. Now, open the door approximately " and let go to see if it closes on its own.

   If door closes, install the 700 Series Hinge Shims Package, part #4202290. (See Figure 8-3) If the door fails to close, remove the three remaining screws from the top door hinge and check the closing action of the hinge on its own. If it seems weak, replace it. If it does not seem weak, reinstall the top door hinge screws and go to step #5 below.

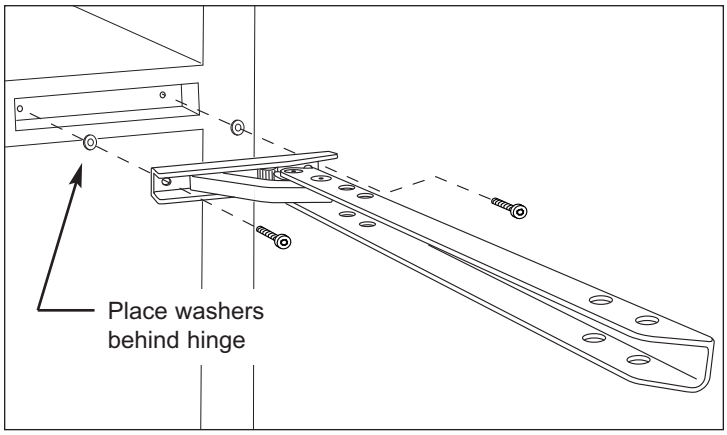


Figure 8-2. Shimming Hinge Out

5. If the door passed the test in step #4 above, remove the bottom hinge cover and extract the one bottom door hinge screw closest to the pivot point of the hinge. Loosen the three remaining bottom hinge screws almost all the way out. Now, open the door approximately 1" and let go to see if it closes on its own.

   If door closes, install 700 Series Hinge Shims Package, part #4202290. If door fails to close, remove the three remaining screws from the bottom door hinge and check the closing action of the hinge on its own. If it seems weak, replace it.

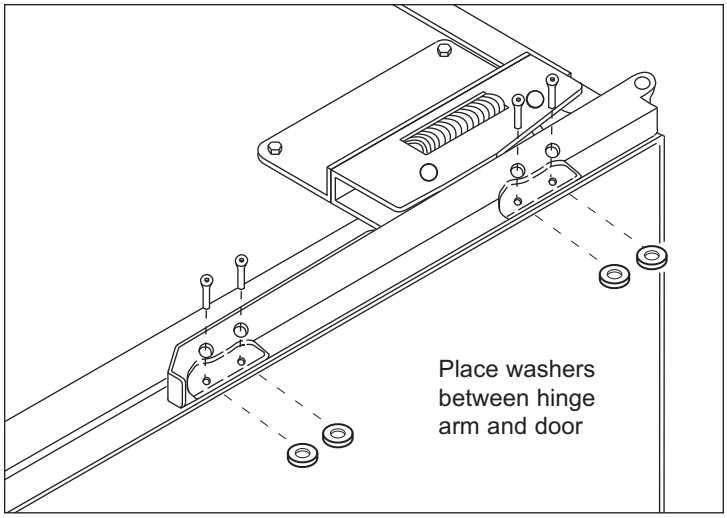


Figure 8-3. #4202290 Hinge Shim Package

Model 700TC/I-3

	REFRIGERATOR	FREEZER
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	4.5 oz.	8.0 oz.
NORMAL OPERATING PRESSURES		
Low Side	0-12 psi to 30-42 psi	5"-1 psi to 8-15 psi
High Side	75 psi to 110 psi	75 psi to 120 psi
COMPRESSOR ***NOTE:*** *Always check current parts price list for possible substitutions.*		
Service Part No.	4201880	4201860
Manufacturer	Embraco	Embraco
Mfg. Model No.	EMI30HER	FGS70 A
Original Compressor/Service Compressor Amps	~1.0 / ~1.0	~1.2 / ~1.2
Original Compressor/Service Compressor BTU/H	345 / 280	710 / 715
DEFROST METHOD	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset	"Adaptive Defrost" Defrost intervals and duration vary by unit use. 5 minute compressor delay after each defrost.
DEFROST TERMINATOR		
Cut-In Temp.	-------	30°F / -1°C
Cut-Out Temp.	-------	70°F / 21°C
DEFROST HEATER		
Watts	-------	400
Amps	-------	3.48
Resistance/Ohms	-------	30 - 38
DRAIN TROUGH HEATER		
Watts	-------	80
Amps	-------	0.70
Resistance/Ohms	-------	155 - 175
FILL TUBE HEATER		
Watts	-------	4.2
Amps	-------	.037
Resistance/Ohms	-------	2830 - 3470
WATER VALVE		
Watts	-------	50
Amps	-------	0.42
Resistance/Ohms (Inductive)	-------	160
THERMISTORS (Evap & Compartment) Resistance/Ohms at 32°F / 0°C	30000 - 33000	30000 - 33000

Model 700TR-3

	REFRIG. *(Upper)*	REFRIG. *(Lower)*
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	3.25 oz.	3.75 oz.
NORMAL OPERATING PRESSURES		
Low Side	0-12 psi to 30-42 psi	0-12 psi to 30-42 psi
High Side	75 psi to 110 psi	75 psi to 110 psi
COMPRESSOR ***NOTE:*** *Always check current parts price list for possible substitutions.*		
Service Part No.	4201880	4201880
Manufacturer	Embraco	Embraco
Mfg. Model No.	EMI30HER	EMI30HER
Original Compressor/Service Compressor Amps	~1.0 / ~1.0	~1.0 / ~1.0
Original Compressor/Service Compressor BTU/H	345 / 280	345 / 280
DEFROST METHOD	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset
DEFROST TERMINATOR		
Cut-In Temp.	-------	-------
Cut-Out Temp.	-------	-------
DEFROST HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
DRAIN TROUGH HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
FILL TUBE HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
WATER VALVE		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms (Inductive)	-------	-------
THERMISTORS (Evap & Compartment) Resistance/Ohms at 32°F / 0°C	30000 - 33000	30000 - 33000

Model 700TF/I-3

	FREEZER
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	9.5 oz.
NORMAL OPERATING PRESSURES	
Low Side (at Max Speed)	5"-1 psi to 8-15 psi
High Side (at Max Speed)	75 psi to 120 psi
COMPRESSOR ***NOTE:*** *Always check current parts price list for possible substitutions.*	
Service Part No.	4203760
Manufacturer	Embraco
Mfg. Model No.	VEGT-7H
Original/Service Compressor Amps (at Max Speed)	~2.0 / ~2.0
Original/Service Compressor BTU/H (at Max Speed)	850 / 850
DEFROST METHOD	"Adaptive Defrost" Defrost intervals and duration vary by unit use. 10 minute compressor delay after each defrost.
DEFROST TERMINATOR	
Cut-In Temp.	30°F / -1°C
Cut-Out Temp.	70°F / 21°C
DEFROST HEATER	
Watts	400
Amps	3.48
Resistance/Ohms	30 - 38
DRAIN TROUGH HEATER	
Watts	80
Amps	0.70
Resistance/Ohms	155 - 175
FILL TUBE HEATER	
Watts	4.2
Amps	.037
Resistance/Ohms	2830 - 3470
WATER VALVE	
Watts	50
Amps	0.42
Resistance/Ohms (Inductive)	160
THERMISTORS (Evap & Compartment) Resistance/Ohms at 32°F / 0°C	30000 - 33000

Model 736TC/I-3

	REFRIGERATOR	FREEZER
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	4.5 oz.	8.0 oz.
NORMAL OPERATING PRESSURES		
Low Side	0-12 psi to 30-42 psi	5"-1 psi to 8-15 psi
High Side	75 psi to 110 psi	75 psi to 120 psi
COMPRESSOR ***NOTE:*** *Always check current parts price list for possible substitutions.*		
Service Part No.	4201880	4201860
Manufacturer	Embraco	Embraco
Mfg. Model No.	EMI30HER	FGS70 A
Original Compressor/Service Compressor Amps	~1.0 / ~1.0	~1.2 / ~1.2
Original Compressor/Service Compressor BTU/H	310 / 280	710 / 715
DEFROST METHOD	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset	"Adaptive Defrost" Defrost intervals and duration vary by unit use. 5 minute compressor delay after each defrost.
DEFROST TERMINATOR		
Cut-In Temp.	-------	30°F / -1°C
Cut-Out Temp.	-------	70°F / 21°C
DEFROST HEATER		
Watts	-------	400
Amps	-------	3.48
Resistance/Ohms	-------	30 - 38
DRAIN TROUGH HEATER		
Watts	-------	80
Amps	-------	0.70
Resistance/Ohms	-------	155 - 175
FILL TUBE HEATER		
Watts	-------	4.2
Amps	-------	.037
Resistance/Ohms	-------	2830 - 3470
WATER VALVE		
Watts	-------	50
Amps	-------	0.42
Resistance/Ohms (Inductive)	-------	160
THERMISTORS (Evap & Compartment) Resistance/Ohms at 32°F / 0°C	30000 - 33000	30000 - 33000

Model 736TR-3

	REFRIG. *(Upper)*	REFRIG. *(Lower)*
CHARGE (R-134a Refrigerant) ***NOTE:*** *Always check serial tag for exact charge*	4.5 oz.	5.5 oz.
NORMAL OPERATING PRESSURES		
Low Side	0-12 psi to 30-42 psi	0-12 psi to 30-42 psi
High Side	75 psi to 110 psi	75 psi to 110 psi
COMPRESSOR ***NOTE:*** *Always check current parts price list for possible substitutions.*		
Service Part No.	4201880	4201880
Manufacturer	Embraco	Embraco
Mfg. Model No.	EMI30HER	EMI30HER
Original Compressor/Service Compressor Amps	~1.0 / ~1.0	~1.0 / ~1.0
Original Compressor/Service Compressor BTU/H	310 / 280	310 / 280
DEFROST METHOD	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset	"Fan Assisted Off Cycle Defrost" Evap > 38°F before Compressor ON; Fan ON at high offset
DEFROST TERMINATOR		
Cut-In Temp.	-------	-------
Cut-Out Temp.	-------	-------
DEFROST HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
DRAIN TROUGH HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
FILL TUBE HEATER		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms	-------	-------
WATER VALVE		
Watts	-------	-------
Amps	-------	-------
Resistance/Ohms (Inductive)	-------	-------
THERMISTORS (Evap & Compartment) Resistance/Ohms at 32°F / 0°C	30000 - 33000	30000 - 33000

LOKRING Fittings for Model 700TC

LOKRING FITTINGS FOR MODEL 700TC

LOKRING: MODEL 700TC					
Component		**Tubing Sizes**	**Quantity**	**LOKRING (Vulkan) Size**	**Vulkan Article (Part) Number**
Refrigerator evaporator		$^{5}/_{16}$" → 0.081"	1	8/2 NR MS 00	L13000651
		$^{5}/_{16}$" → $^{5}/_{16}$"	1	8 NK MS 00	L13000592
Freezer evaporator		$^{5}/_{32}$" → $^{5}/_{64}$"	1	4/2 NR MS 00	L13000616
		$^{3}/_{8}$" → $^{5}/_{16}$"	1	9,53/8 NR MS 00	L13000686
Refrigerator compressor		0.336" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
		0.336" → $^{5}/_{16}$"	1	8,5/8 NR MS 00	L13000675
Embraco # EMU 30HSC		0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638
Condenser	All lines	$^{3}/_{16}$" → $^{1}/_{4}$"	4	6/5 NR MS 00	L13000630
Drier		0.081" → $^{1}/_{4}$"	1	6/2 NR MS 00	L13000625
		$^{3}/_{16}$" → $^{1}/_{4}$"	1	6/5 NR MS 00	L13000630
Freezer compressor Embraco # EGU 70HLC		$^{1}/_{4}$" → .336"	1	8,5/6 NR MS 00	L13000674
		0.394" → $^{5}/_{16}$"	1	10/8 NR MS 00	L13000696
		$^{3}/_{16}$" → .274"	1	7/5 NR MS 00	L13000638
Freezer compressor Sub-Zero # 7002026		0.336" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
		0.394" → $^{5}/_{16}$"	1	10/8 NR MS 00	L13000696
		0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638

LOKRING Fittings for Model 736TC

LOKRING FITTINGS FOR MODEL 736TC

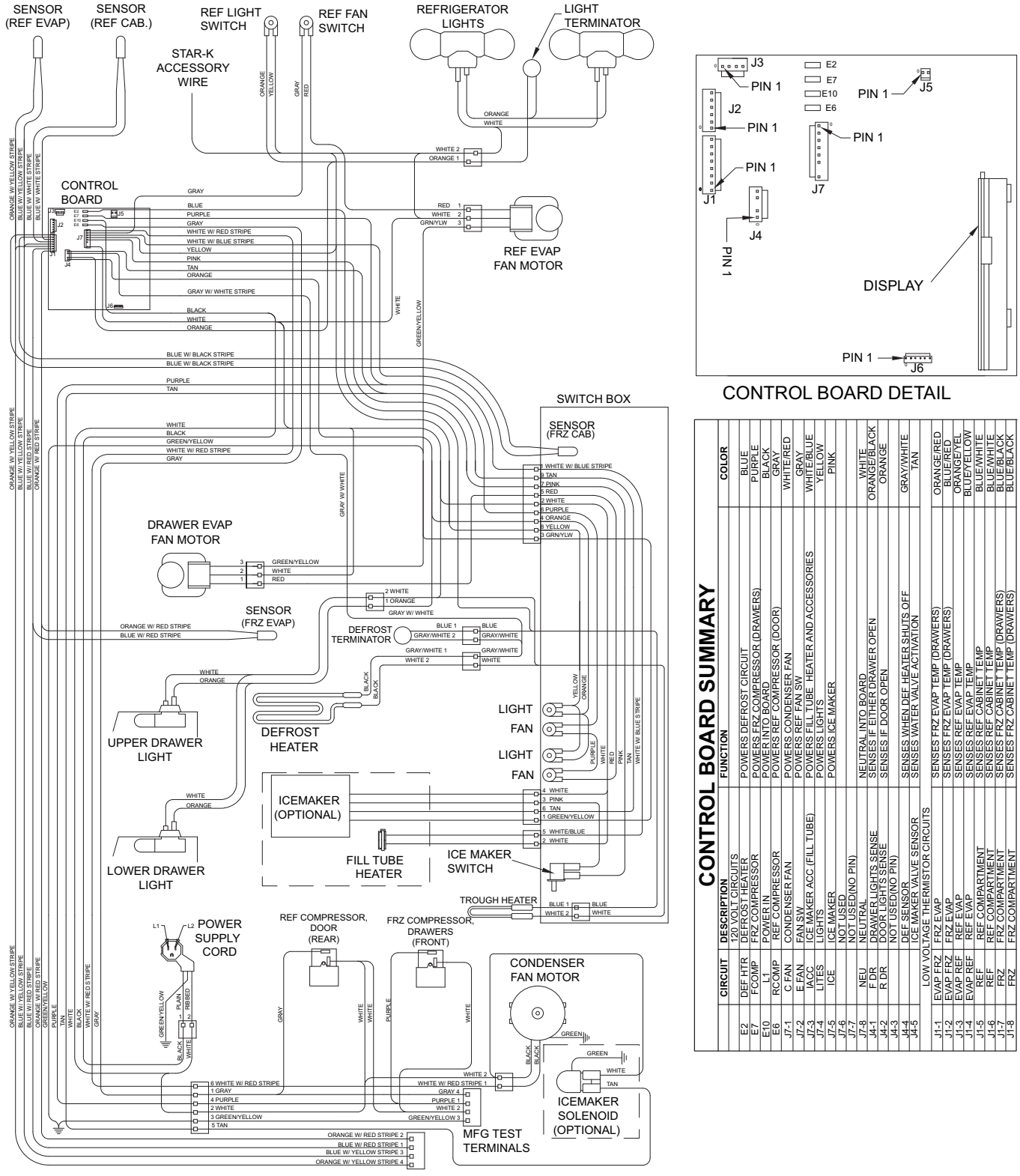
LOKRING: MODEL 736TC				
Component	**Tubing Sizes**	**Quantity**	**LOKRING (Vulkan) Size**	**Vulkan Article (Part) Number**
Refrigerator evaporator	$^{5}/_{16}$" → 0.081"	1	8/2 NR MS 00	L13000651
	$^{5}/_{16}$" → $^{5}/_{16}$"	1	8 NK MS 00	L13000592
Freezer evaporator	$^{5}/_{32}$" → $^{5}/_{64}$"	1	4/2 NR MS 00	L13000616
	$^{3}/_{8}$" → $^{5}/_{16}$"	1	9,53/8 NR MS 00	L13000686
Extension option	3" of 4 mm copper tube	1	N/A	N/A
	$^{5}/_{32}$" → $^{5}/_{32}$"	1	4 NK MS 00	L13000584
Refrigerator compressor Embraco # EMT 30HER	0.336" → $^{1}/_{4}$"		8,5/6 NR MS 00	L13000674
	0.336" → $^{5}/_{16}$"		8,5/8 NR MS 00	L13000675
	0.274" → $^{3}/_{16}$"		7/5 NR MS 00	L13000638
Condenser	$^{1}/_{4}$" → $^{3}/_{16}$"	4	6/5 NR MS 00	L13000630
Drier	0.081" → $^{1}/_{4}$"	1	6/2 NR MS 00	L13000625
	$^{3}/_{16}$" → $^{1}/_{4}$"	1	6/5 NR MS 00	L13000630
Freezer compressor Sub-Zero # 7002026	0.336" → $^{1}/_{4}$"	1	8,5/6 NR MS 00	L13000674
	0.394" → $^{5}/_{16}$"	1	10/8 NR MS 00	L13000696
	0.274" → $^{3}/_{16}$"	1	7/5 NR MS 00	L13000638

PART NUMBER 3758574 REV B

WIRING DIAGRAM
MODEL: 700TC-3
PRIOR TO SERIAL NUMBER 3156295

⚠ WARNING

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



CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

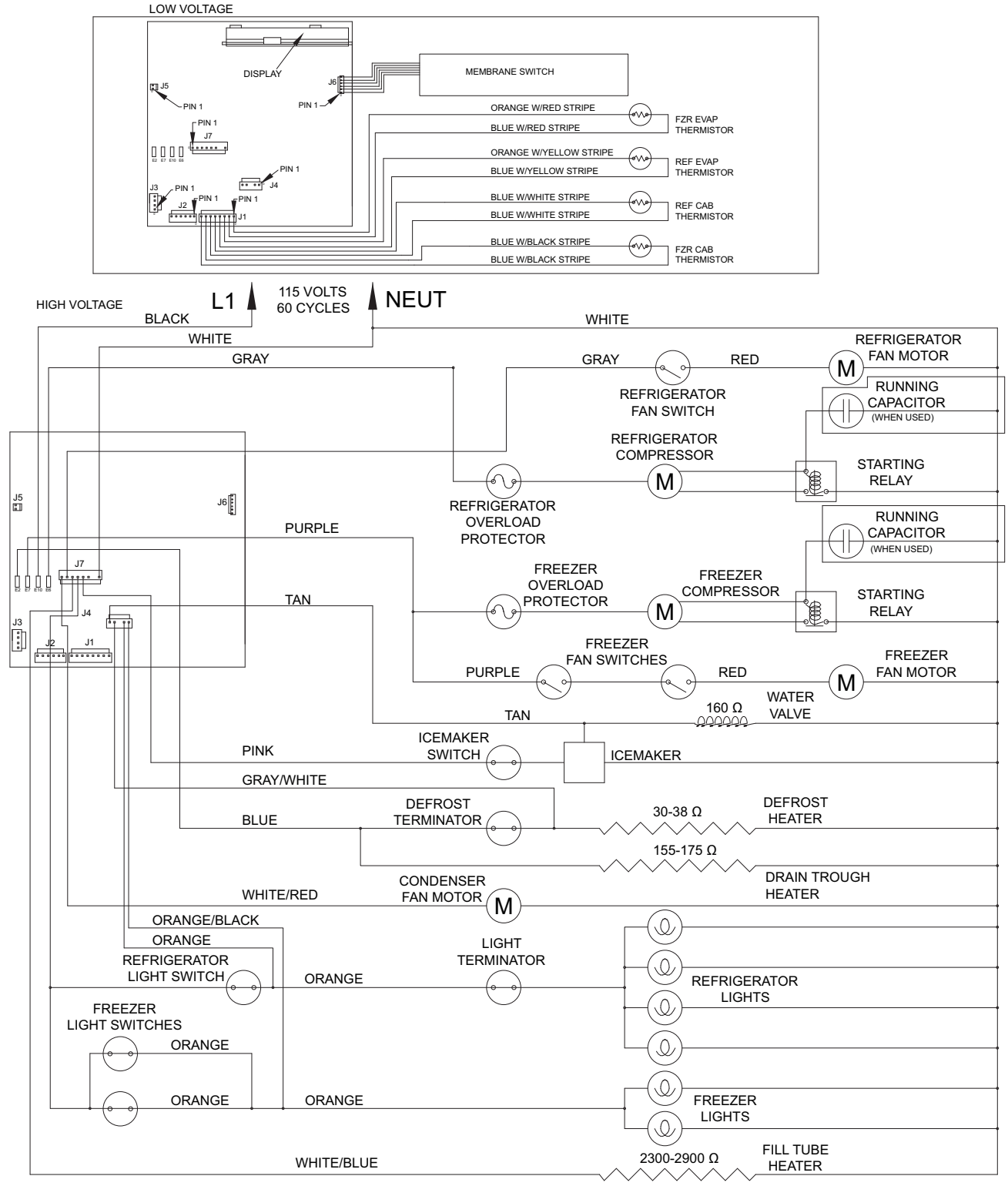
	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
		120 VOLT CIRCUITS		
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	FCOMP	FRZ COMPRESSOR	POWERS FRZ COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6	RCOMP	REF COMPRESSOR	POWERS REF COMPRESSOR (DOOR)	GRAY
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J7-2	E FAN	FAN SW	POWERS REF FAN SW	GRAY
J7-3	IACC	ICE MAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	ICE	ICE MAKER	POWERS ICE MAKER	PINK
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		DEF SENSOR	SENSES WHEN DEF HEATER SHUTS OFF	GRAY/WHITE
J4-5		ICE MAKER VALVE SENSOR	SENSES WATER VALVE ACTIVATION	TAN
		LOW VOLTAGE THERMISTOR CIRCUITS		
J1-1	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	ORANGE/RED
J1-2	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	BLUE/RED
J1-3	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	ORANGE/YELLOW
J1-4	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BLUE/YELLOW
J1-5	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-6	REF	REF COMPARTMENT	SENSES REF CABINET TEMP (DRAWERS)	BLUE/BLACK
J1-7	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK
J1-8	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK

PART NUMBER 3758574 REV B

WIRING SCHEMATIC
MODEL: 700TC-3
PRIOR TO SERIAL NUMBER 3156295

⚠ WARNING

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



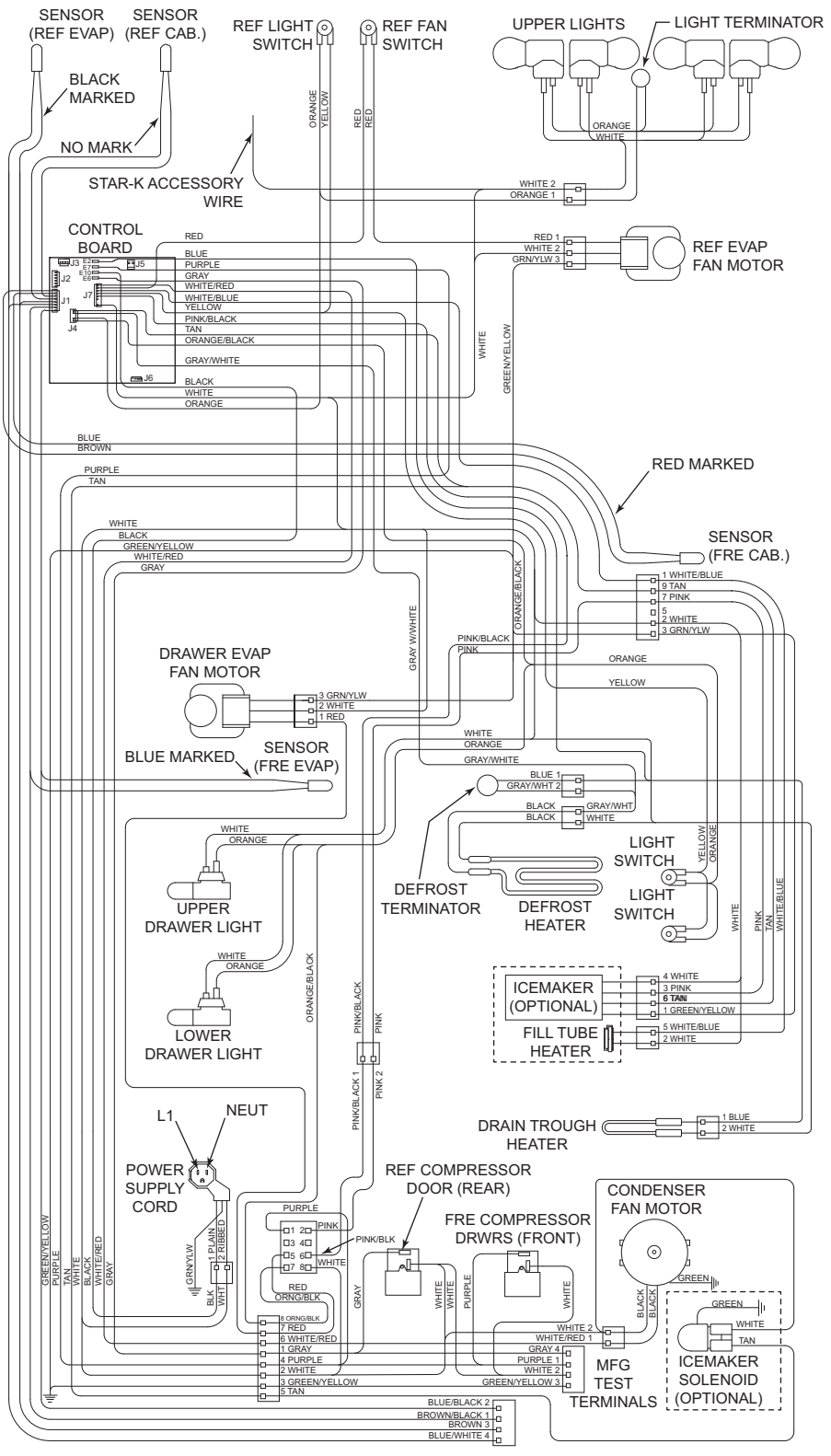
WIRING DIAGRAM
MODEL: 700TC/I

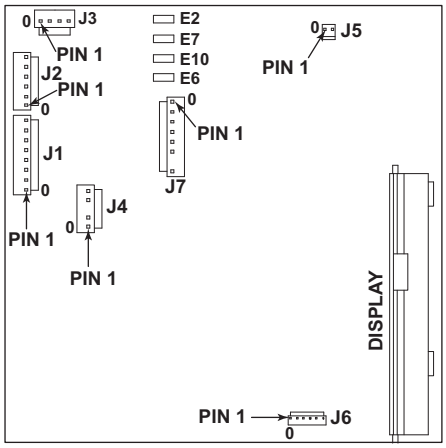
PART NUMBER 7024165 Rev A

STARTING WITH SERIAL NUMBER 3156295

⚠ 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.





CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS				
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	F COMP	FRE COMPRESSOR	POWERS FRE COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWERS INTO BOARD	BLACK
E6	R COMP	REF COMPRESSOR	POWERS REF COMPRESSOR (DOOR)	GRAY
J7-7	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J7-8		NOT USED (NO PIN)		
J7-6		NOT USED		
J7-5	ICE	ICEMAKER	POWERS ICEMAKER	PINK
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-3	IACC	ICEMAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-2	E FAN	FAN SW	POWERS REF FAN SW	RED
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J4-5		ICEMAKER VALVE SENSOR	SENSES WATER VALVE ACTIVATION	TAN
J4-4		DEF SENSOR	SENSES DEF HEATER SHUTS OFF	GRAY/WHITE
J4-4		NOT USED (NO PIN)		
J4-3	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-2	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
LOW VOLTAGE CIRCUITS				
J1-8	FRE	FRE COMPARTMENT	SENSES FRE CABINET TEMP (DRAWERS)	BROWN
J1-7	FRE	FRE COMPARTMENT	SENSES FRE CABINET TEMP (DRAWERS)	BLUE
J1-6	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BROWN
J-5	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE
J1-4	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BROWN
J1-3	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BLUE/WHITE
J1-2	EVAP FRE	FRE EVAP	SENSES FRE EVAP TEMP (DRAWERS)	BROWN/BLACK
J1-1	EVAP FRE	FRE EVAP	SENSES FRE EVAP TEMP (DRAWERS)	BLUE/BLACK

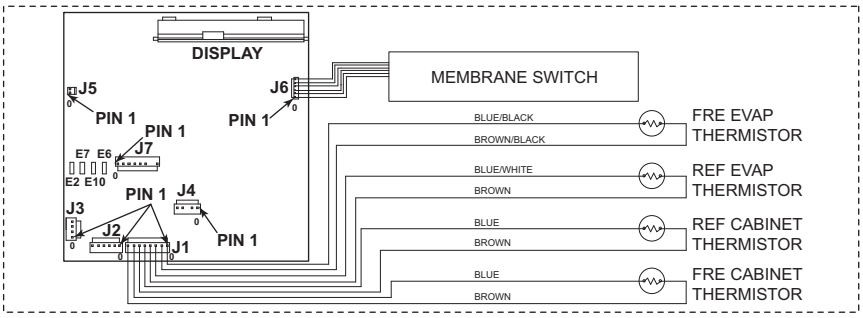
WIRING SCHEMATIC
MODEL: 700TC/I

PART NUMBER 7024165 Rev A
STARTING WITH SERIAL NUMBER 3156295

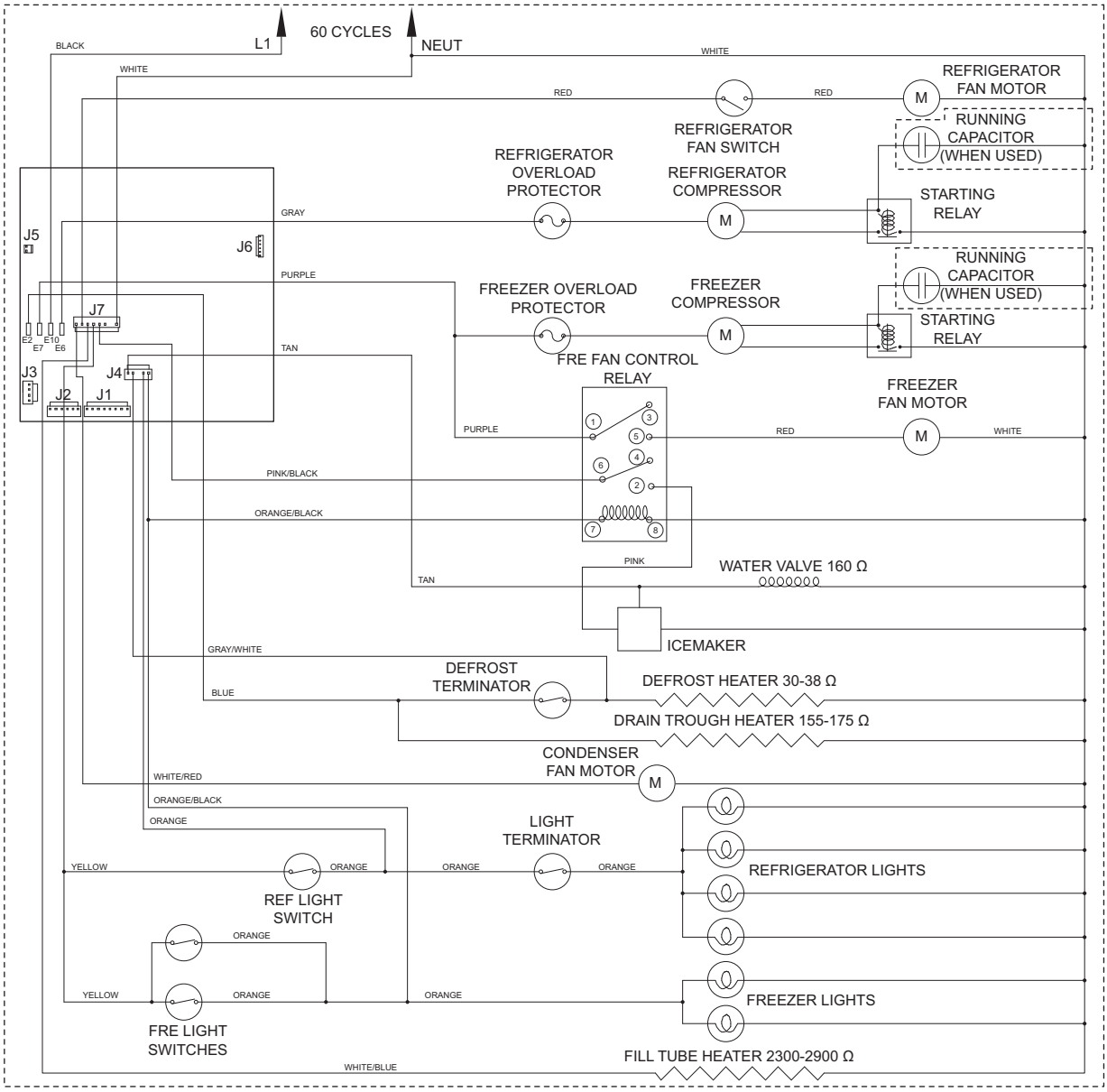
⚠ WARNING

- 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.

LOW VOLTAGE



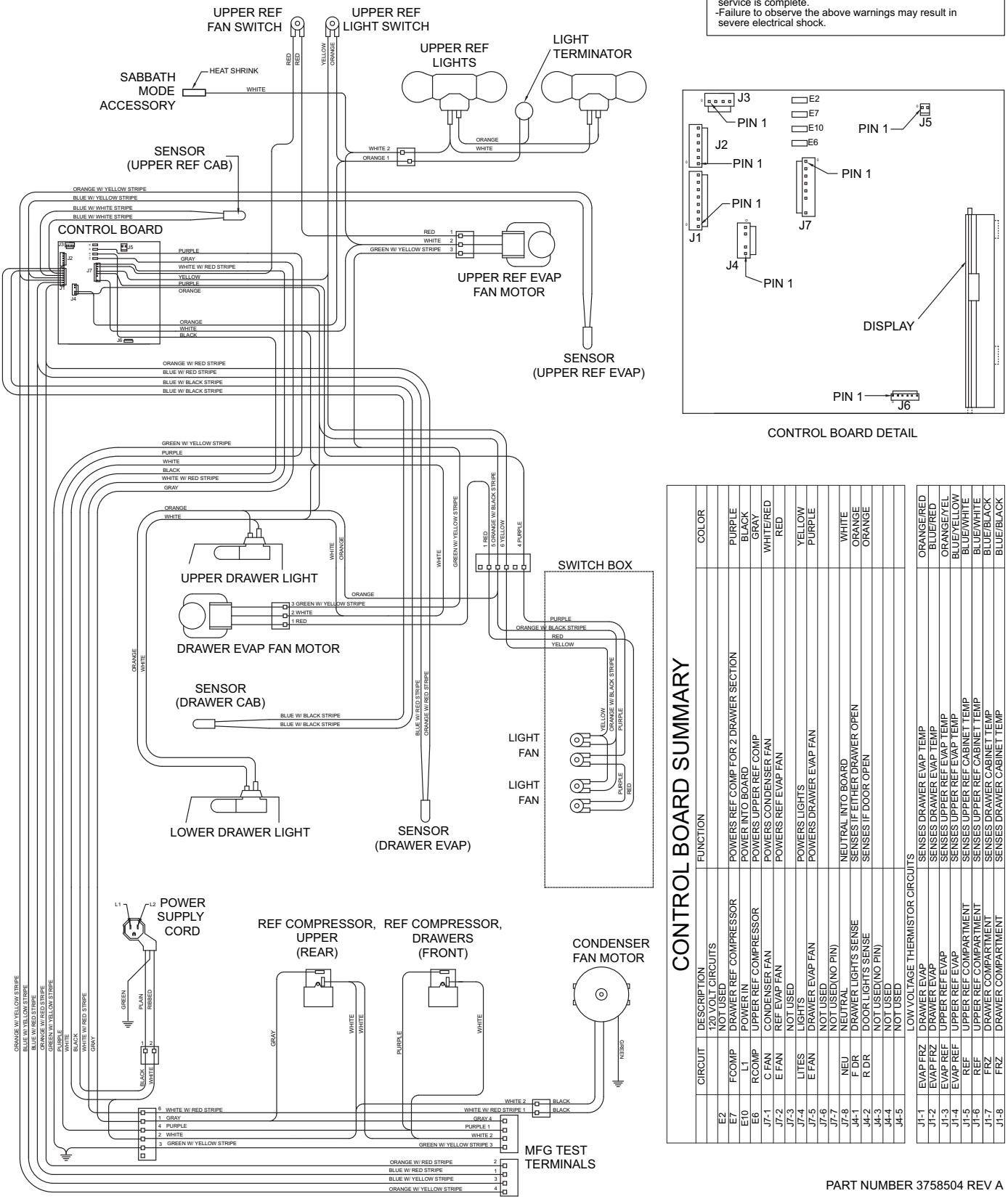
HIGH VOLTAGE



WIRING DIAGRAM
MODEL: 700TR-3
PRIOR TO SERIAL NUMBER 3156295

⚠ WARNING

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



CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
		120 VOLT CIRCUITS		
E2		NOT USED		
E7	FCOMP	DRAWER REF COMPRESSOR	POWERS REF COMP FOR 2 DRAWER SECTION	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6	RCOMP	UPPER REF COMPRESSOR	POWERS UPPER REF COMP	GRAY
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J7-2	E FAN	REF EVAP FAN	POWERS REF EVAP FAN	RED
J7-3		NOT USED		
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	E FAN	DRAWER EVAP FAN	POWERS DRAWER EVAP FAN	PURPLE
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		NOT USED		
J4-5		NOT USED		
		LOW VOLTAGE THERMISTOR CIRCUITS		
J1-1	EVAP FRZ	DRAWER EVAP	SENSES DRAWER EVAP TEMP	ORANGE/RED
J1-2	EVAP FRZ	DRAWER EVAP	SENSES DRAWER EVAP TEMP	BLUE/RED
J1-3	EVAP REF	UPPER REF EVAP	SENSES UPPER REF EVAP TEMP	ORANGE/YEL
J1-4	EVAP REF	UPPER REF EVAP	SENSES UPPER REF EVAP TEMP	BLUE/YELLOW
J1-5	REF	UPPER REF COMPARTMENT	SENSES UPPER REF CABINET TEMP	BLUE/WHITE
J1-6	REF	UPPER REF COMPARTMENT	SENSES UPPER REF CABINET TEMP	BLUE/WHITE
J1-7	FRZ	DRAWER COMPARTMENT	SENSES DRAWER CABINET TEMP	BLUE/BLACK
J1-8	FRZ	DRAWER COMPARTMENT	SENSES DRAWER CABINET TEMP	BLUE/BLACK

PART NUMBER 3758504 REV A

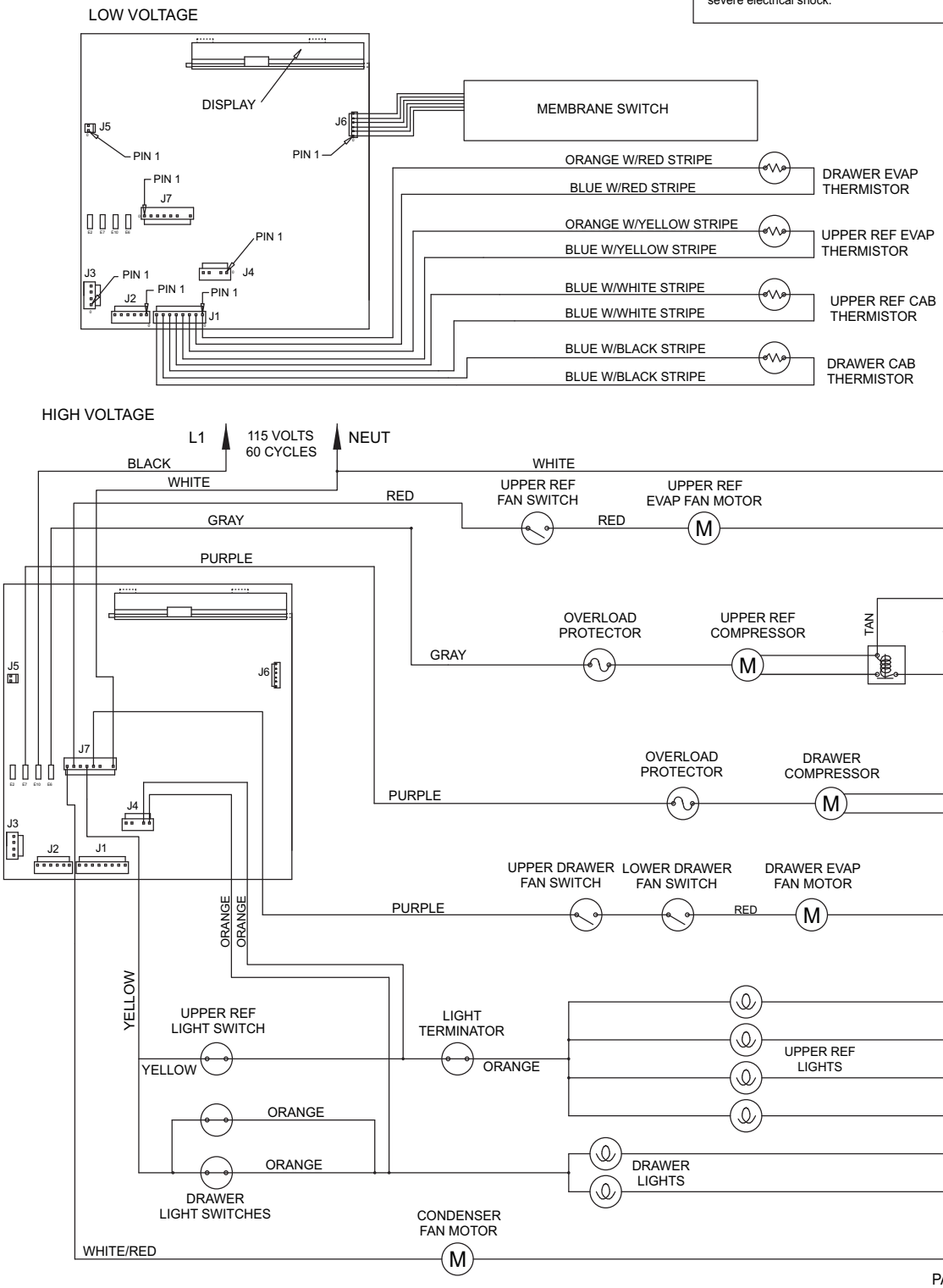
WIRING SCHEMATIC

MODEL: 700TR-3

PRIOR TO SERIAL NUMBER 3156295

WARNING

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



PART NUMBER 3758504 REV A

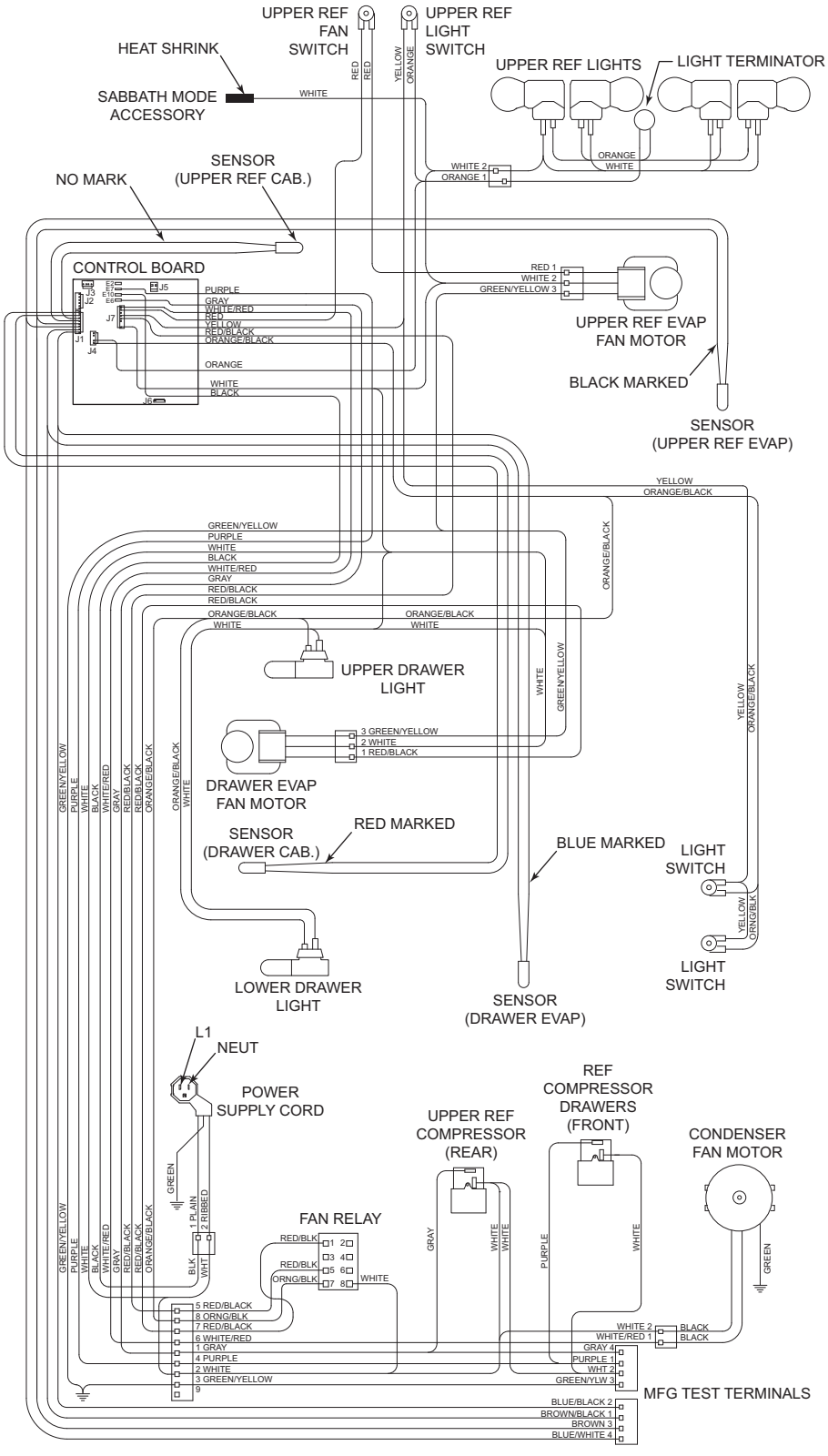
WIRING DIAGRAM
MODEL: 700TR

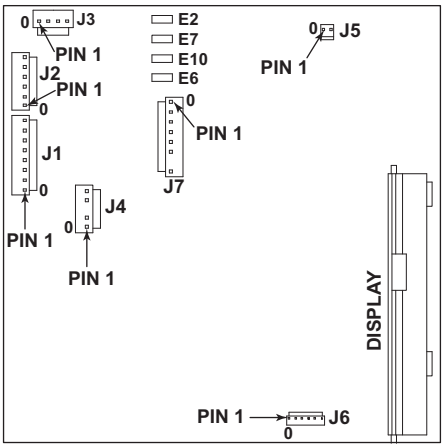
PART NUMBER 7024169 Rev A

STARTING WITH SERIAL NUMBER 3156295

⚠ 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.





CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS				
E2		NOT USED		
E7	F COMP	DRAWER REF COMPRESSOR	POWERS REF COMP FOR 2 DRAWER SECTION	PURPLE
E10	L1	POWER IN	POWERS INTO BOARD	BLACK
E6	R COMP	UPPER REF COMPRESSOR	POWERS UPPER REF COMPRESSOR	GRAY
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J7-7		NOT USED (NO PIN)		
J7-6		NOT USED		
J7-5	E FAN	DRAWER EVAP FAN	POWERS DRAWER EVAP FAN	PURPLE
J7-4	LIGHTS	LIGHTS	POWERS LIGHTS	YELLOW
J7-3		NOT USED		
J7-2	E FAN	REF EVAP FAN	POWERS REF EVAP FAN	RED
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J4-5		NOT USED		
J4-4		NOT USED		
J4-3		NOT USED (NO PIN)		
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
LOW VOLTAGE CIRCUITS				
J1-8	FRE	DRAWER COMPARTMENT	SENSES DRAWER CABINET TEMP	BROWN
J1-7	FRE	DRAWER COMPARTMENT	SENSES DRAWER CABINET TEMP	BLUE
J1-6	REF	UPPER REF COMPARTMENT	SENSES UPPER REF CABINET TEMP	BROWN
J1-5	REF	UPPER REF COMPARTMENT	SENSES UPPER REF CABINET TEMP	BLUE
J1-4	EVAP REF	UPPER REF EVAP	SENSES UPPER REF EVAP TEMP	BROWN
J1-3	EVAP REF	UPPER REF EVAP	SENSES UPPER REF EVAP TEMP	BLUE/WHITE
J1-2	EVAP FRE	DRAWER EVAP	SENSES DRAWER EVAP TEMP	BROWN/BLACK
J1-1	EVAP FRE	DRAWER EVAP	SENSES DRAWER EVAP TEMP	BLUE/BLACK

WIRING SCHEMATIC
MODEL: 700TR

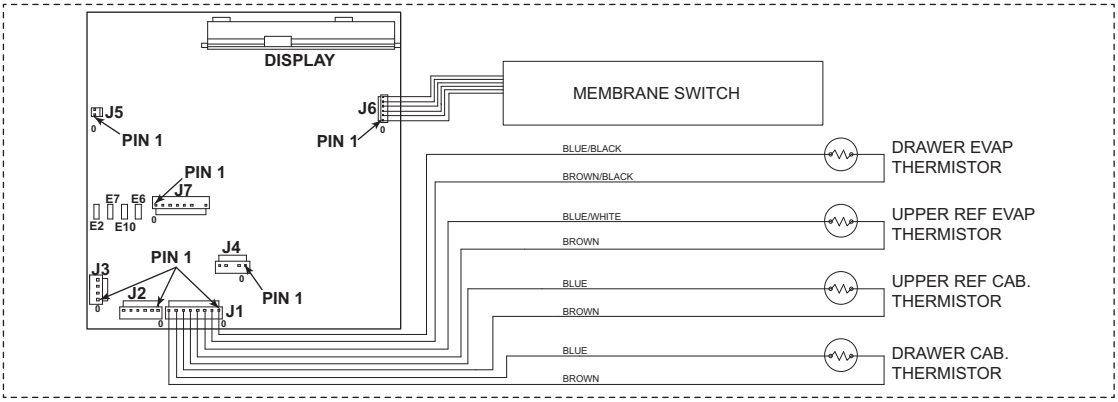
PART NUMBER 7024169 Rev A

STARTING WITH SERIAL NUMBER 3156295

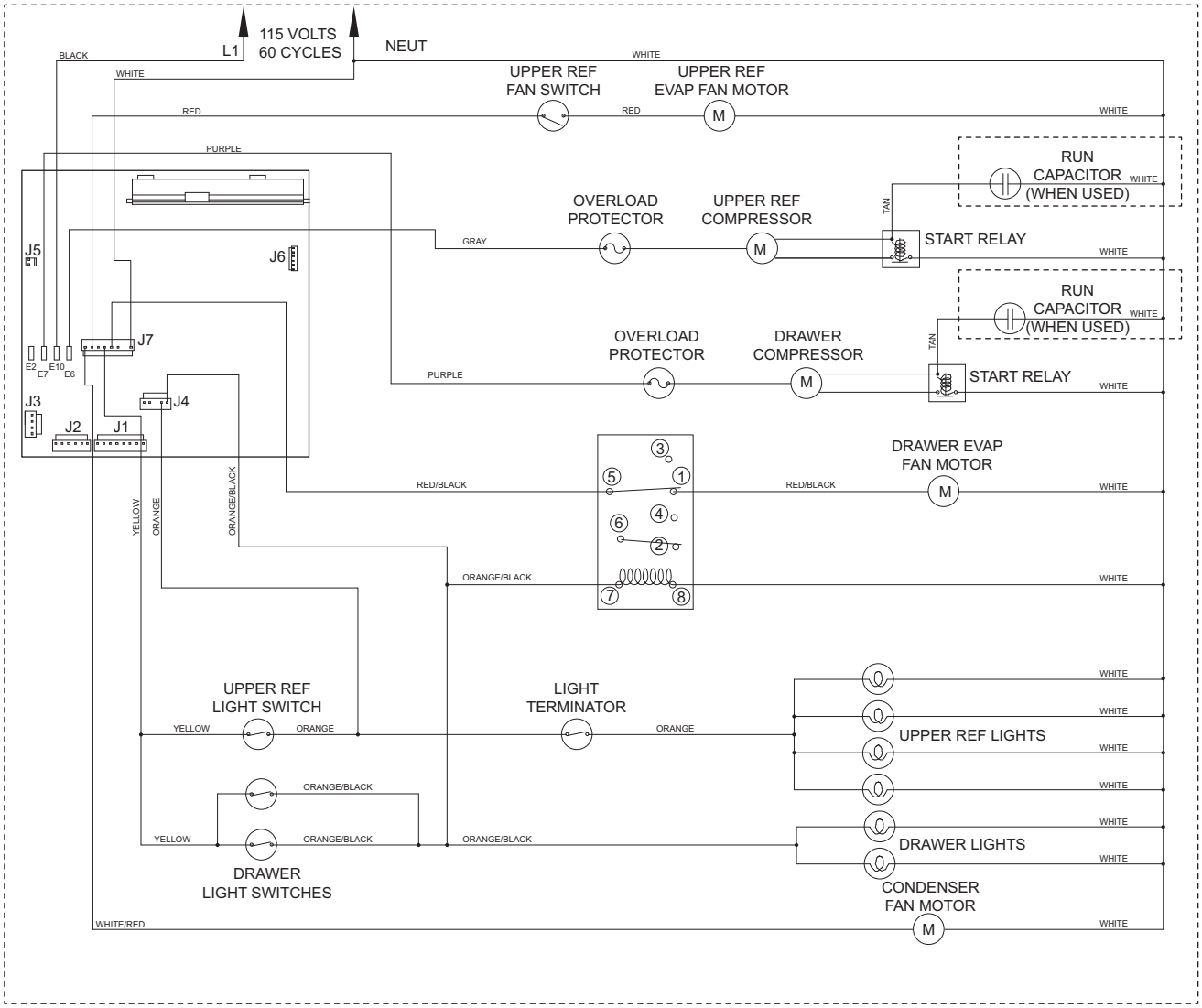
⚠ WARNING

- 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.

LOW VOLTAGE



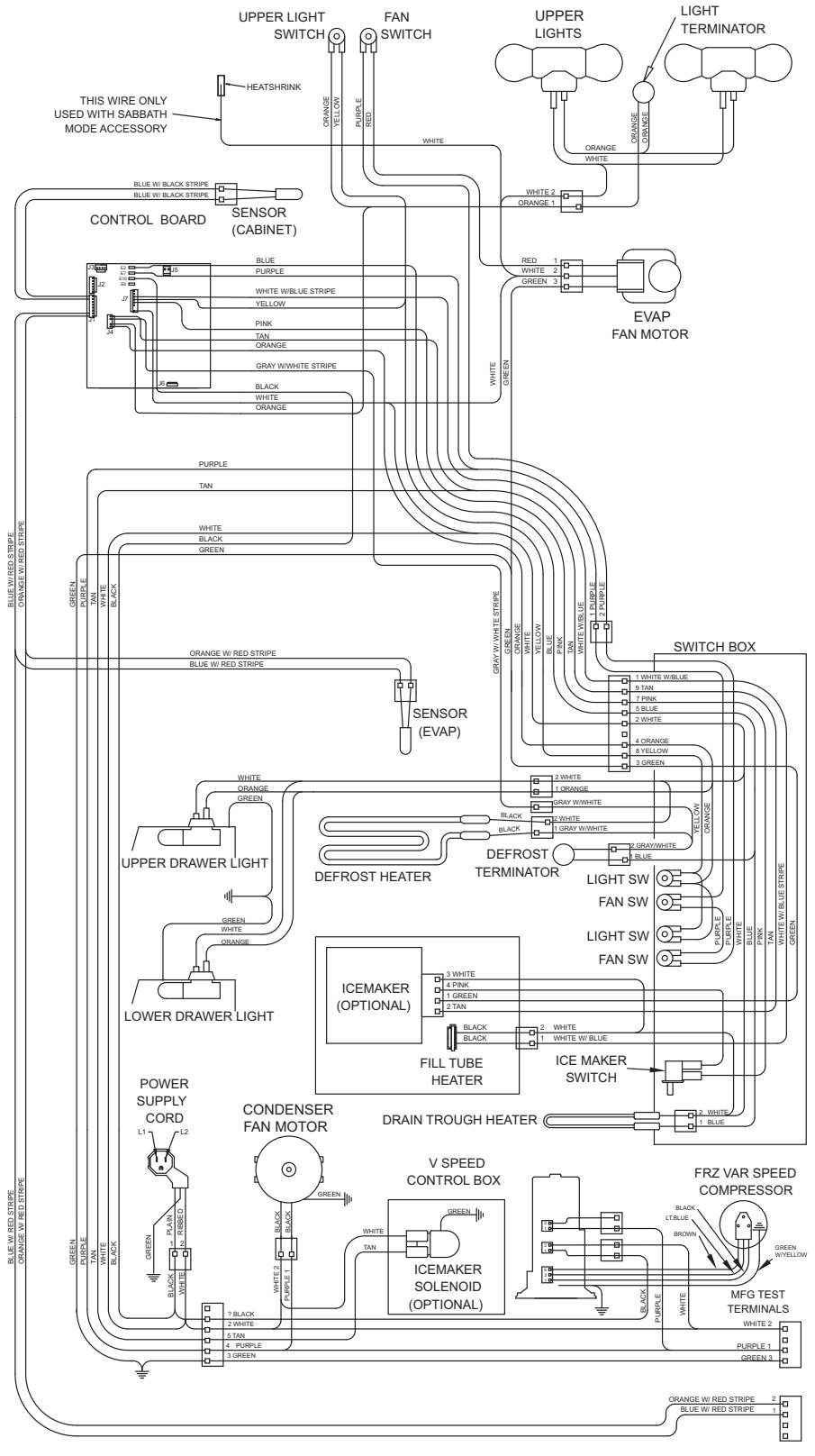
HIGH VOLTAGE

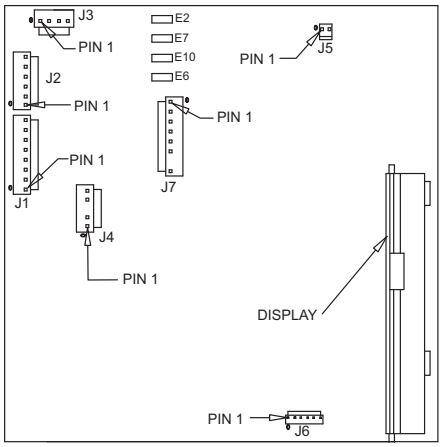


WIRING DIAGRAM
MODEL: 700 TF/I-3
PRIOR TO SERIAL NUMBER 3156295

⚠ WARNING

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





CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

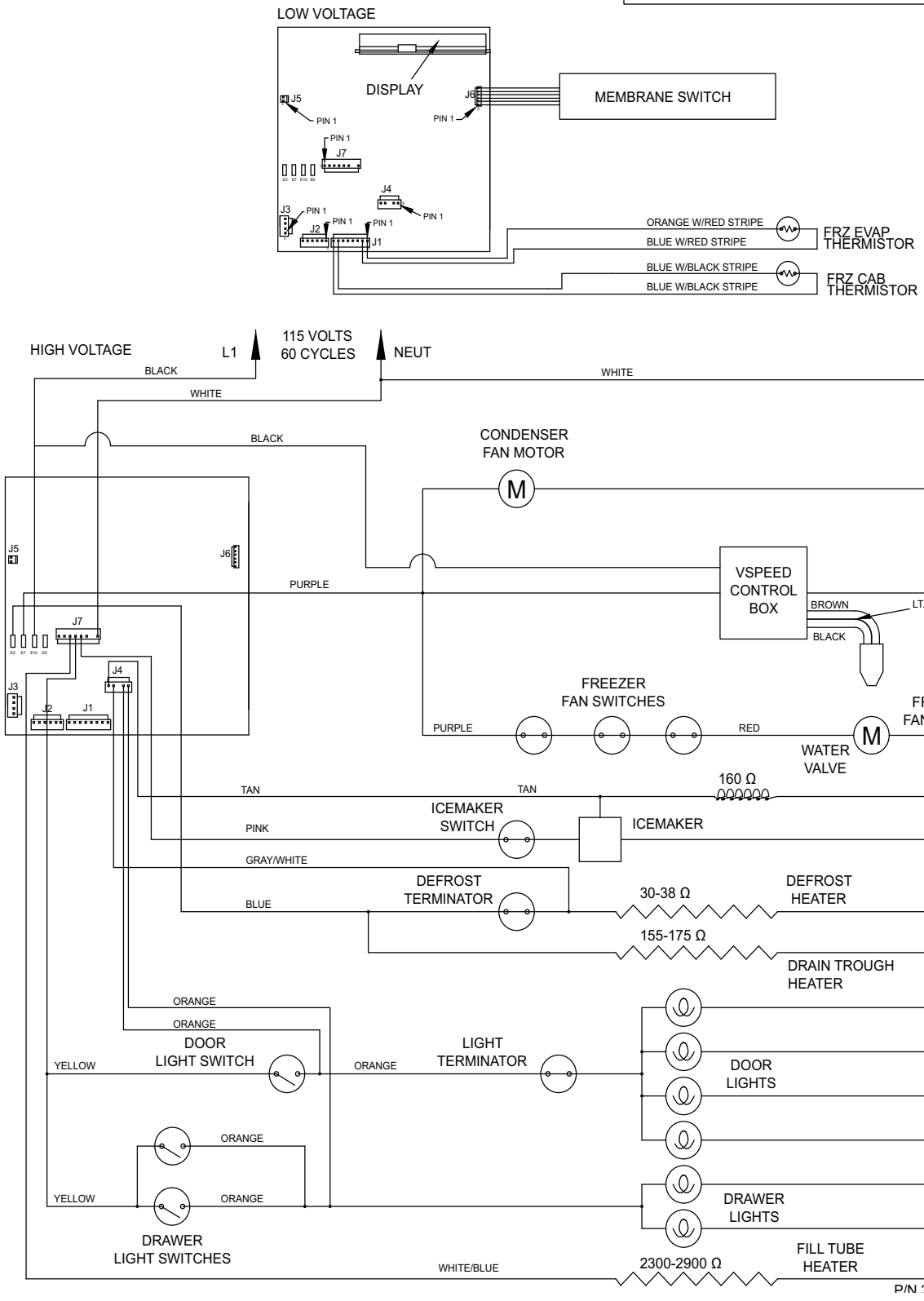
	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
		120 VOLT CIRCUITS		
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	FCOMP	COMPRESSOR	POWERS COMPRESSOR	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6		NOT USED		GRAY
J7-1		NOT USED		WHITE/RED
J7-2		NOT USED		
J7-3	IACC	ICE MAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	ICE	ICE MAKER	POWERS ICE MAKER	PINK
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		DEFROST HEATER SENSOR	SENSES IF DEFROST HEATER IS ON OR OFF	GRAY/WHITE
J4-5		ICE MAKER VALVE SENSOR	SENSES IF WATER VALVE IS ON OR OFF	TAN
		LOW VOLTAGE CIRCUITS		
J1-1	EVAP FRZ	EVAP SENSOR	SENSES FRZ EVAP TEMP	ORANGE/RED
J1-2	EVAP FRZ	EVAP SENSOR	SENSES FRZ EVAP TEMP	BLUE/RED
J1-3 THRU 6		NOT USED		
J1-7 & 8	FRZ	CABINET SENSOR	SENSES FRZ CABINET TEMP	BLUE/BLACK

P/N 3758594 REV E

WIRING SCHEMATIC
MODEL: 700 TF/I-3
PRIOR TO SERIAL NUMBER 3156295

⚠ WARNING

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



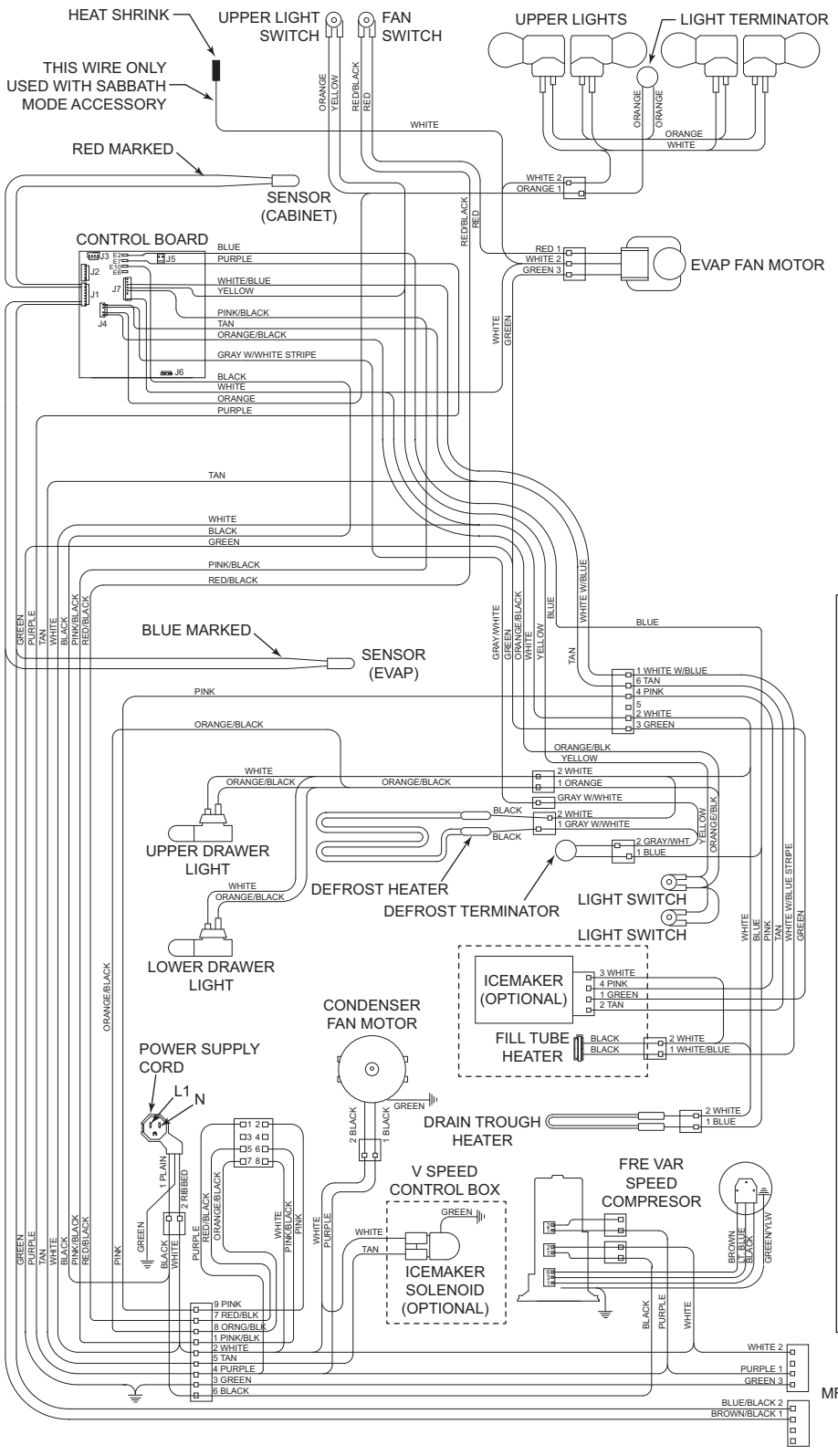
WIRING DIAGRAM
MODEL: 700TF/I

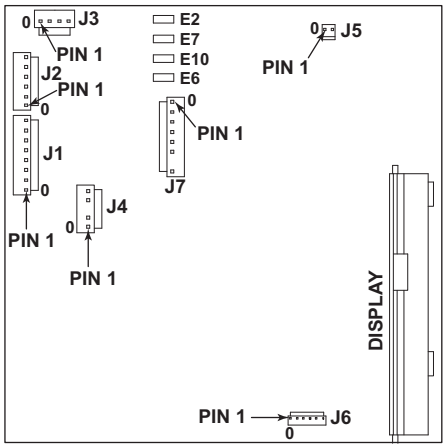
PART NUMBER 7024167 Rev A

STARTING WITH SERIAL NUMBER 3156295

⚠ 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.





CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

TERMINAL	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
120 VOLT CIRCUITS				
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	F COMP	FRE COMPRESSOR	POWERS FRE COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWERS INTO BOARD	BLACK
E6	R COMP	NOT USED		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J7-7		NOT USED (NO PIN)		
J7-6		NOT USED		
J7-5	ICE	ICEMAKER	POWERS ICEMAKER	PINK/BLACK
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-3	IACC	ICEMAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-2		UPPER EVAP FAN	FREEZER FAN MOTOR	RED
J7-1		NOT USED		
J4-5		ICEMAKER VALVE SENSOR	SENSES WATER VALVE ON OR OFF	TAN
J4-4		DEF SENSOR	SENSES DEF HEATER ON OR OFF	GRAY/WHITE
J4-3		NOT USED (NO PIN)		
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
LOW VOLTAGE CIRCUITS				
J1-8	FRE	CABINET SENSOR	SENSES FRE CABINET TEMP	BROWN
J1-7	FRE	CABINET SENSOR	SENSES FRE CABINET TEMP	BLUE
J1-6-3		NOT USED		
J1-2	EVAP FRE	EVAP SENSOR	SENSES FRE EVAP TEMP	BROWN/BLACK
J1-1	EVAP FRE	EVAP SENSOR	SENSES FRE EVAP TEMP	BLUE/BLACK

MFG TEST TERMINALS

WIRING SCHEMATIC
MODEL: 700TF/I

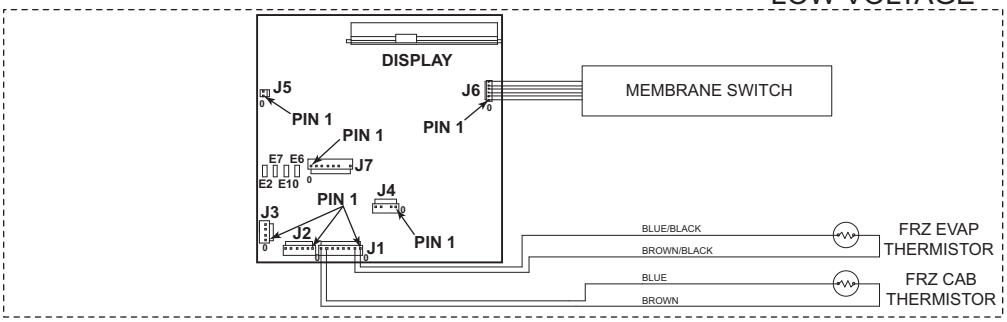
PART NUMBER 7024167 Rev A

STARTING WITH SERIAL NUMBER 3156295

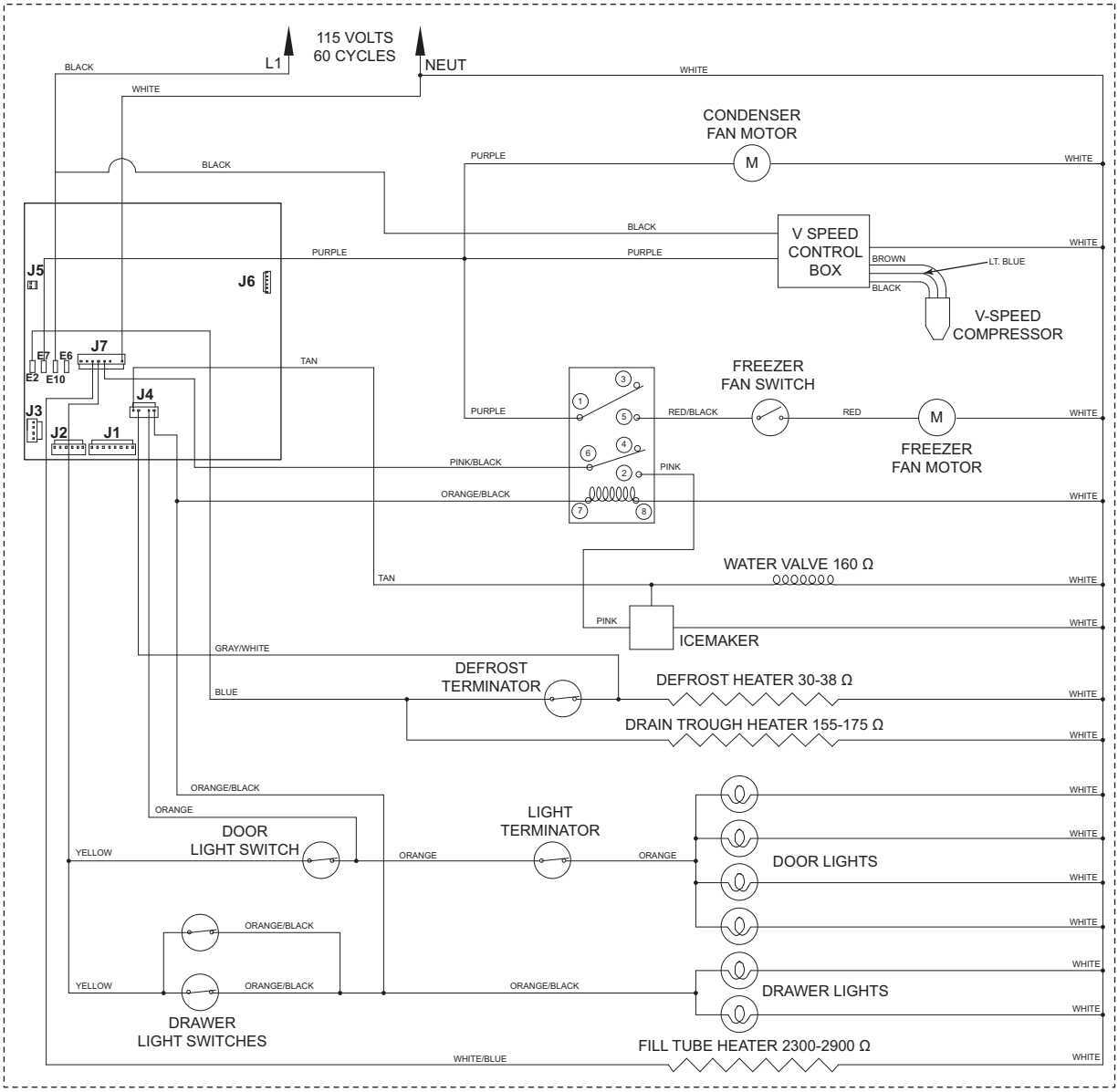
⚠ WARNING

- 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.

LOW VOLTAGE



HIGH VOLTAGE

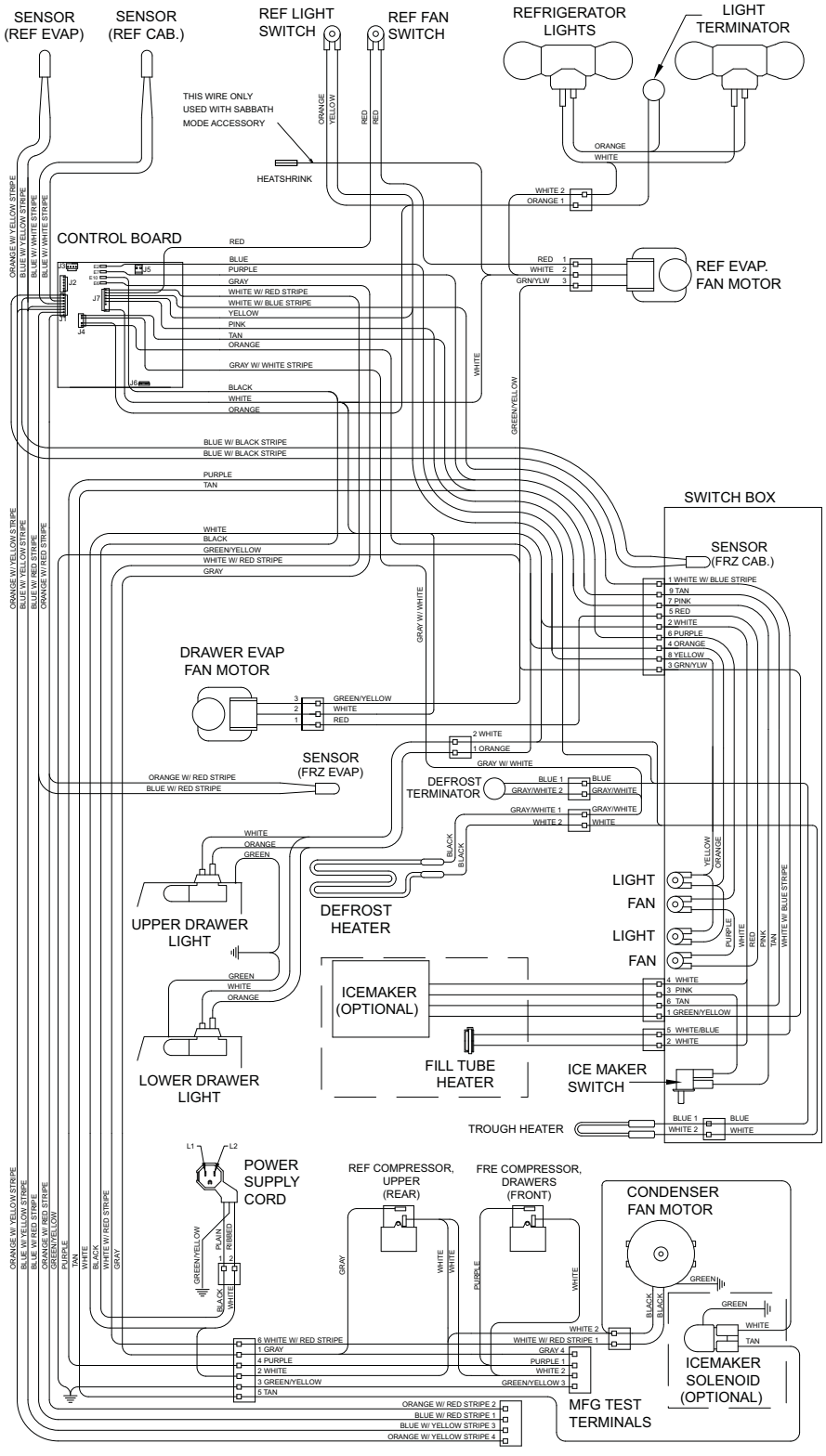


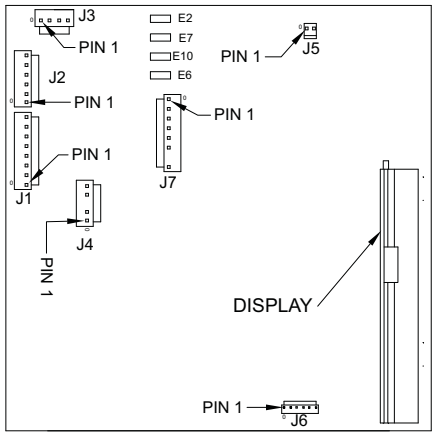
PART NUMBER 3758578 REV C

WIRING DIAGRAM
MODEL: 736TC/I-3
PRIOR TO SERIAL NUMBER 2970000

⚠ WARNING

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





CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

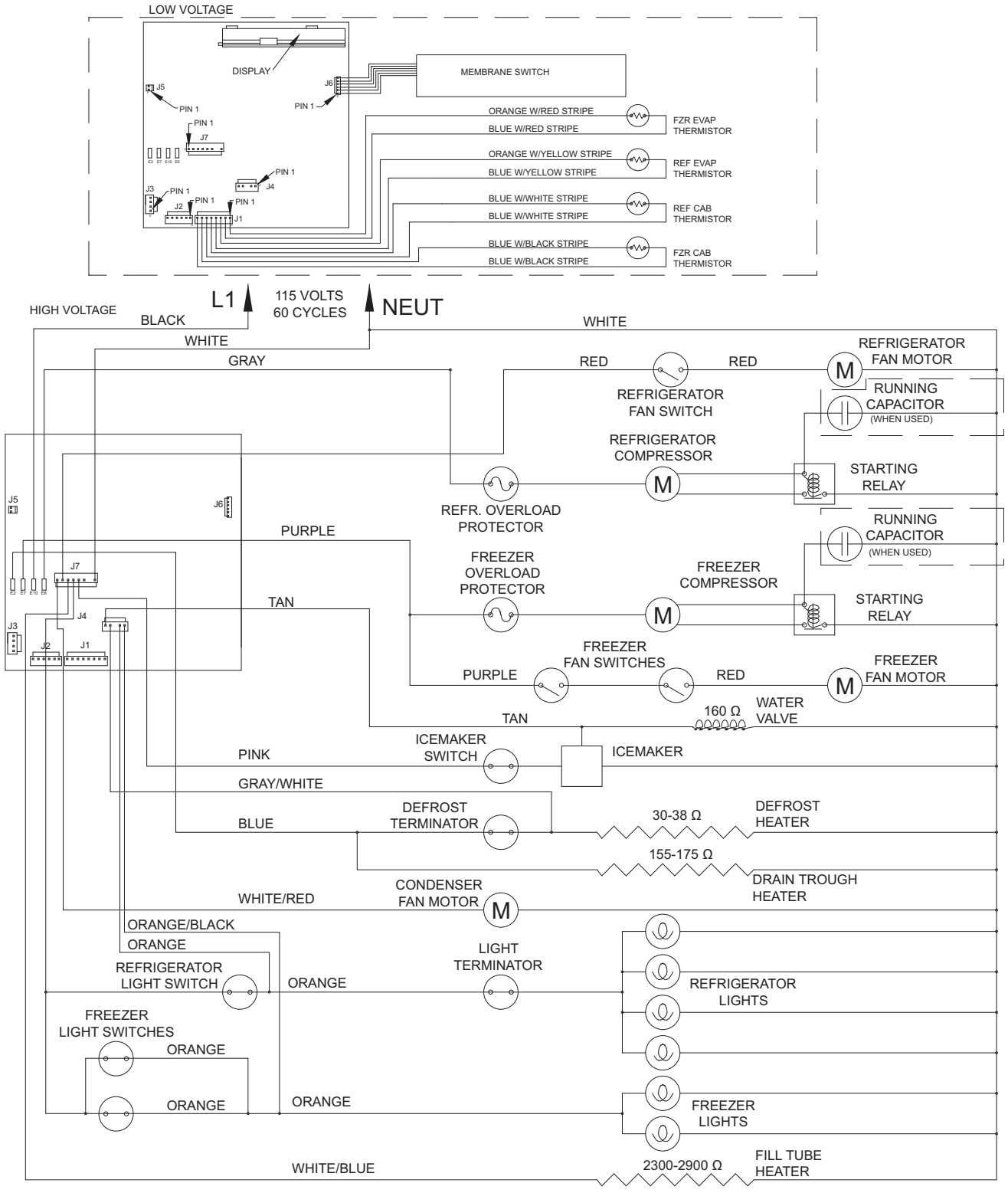
	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
	120 VOLT CIRCUITS			
E2	DEF HTR	DEFROST HEATER	POWERS DEFROST CIRCUIT	BLUE
E7	FCOMP	FRZ COMPRESSOR	POWERS FRZ COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6	RCOMP	REF COMPRESSOR	POWERS REF COMPRESSOR (DOOR)	GRAY
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J7-2	E FAN	FAN SW	POWERS REF FAN SW	RED
J7-3	IACC	ICE MAKER ACC (FILL TUBE)	POWERS FILL TUBE HEATER AND ACCESSORIES	WHITE/BLUE
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	ICE	ICE MAKER	POWERS ICE MAKER	PINK
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		DEF SENSOR	SENSES WHEN DEF HEATER SHUTS OFF	GRAY/WHITE
J4-5		ICE MAKER VALVE SENSOR	SENSES WATER VALVE ACTIVATION	TAN
	LOW VOLTAGE THERMISTOR CIRCUITS			
J1-1	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	ORANGE/RED
J1-2	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	BLUE/RED
J1-3	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	ORANGE/YEL
J1-4	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BLUE/YELLOW
J1-5	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-6	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-7	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK
J1-8	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK

PART NUMBER 3758578 REV C

WIRING SCEMATIC
MODEL: 736TC/I-3
PRIOR TO SERIAL NUMBER 2970000

⚠ WARNING

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

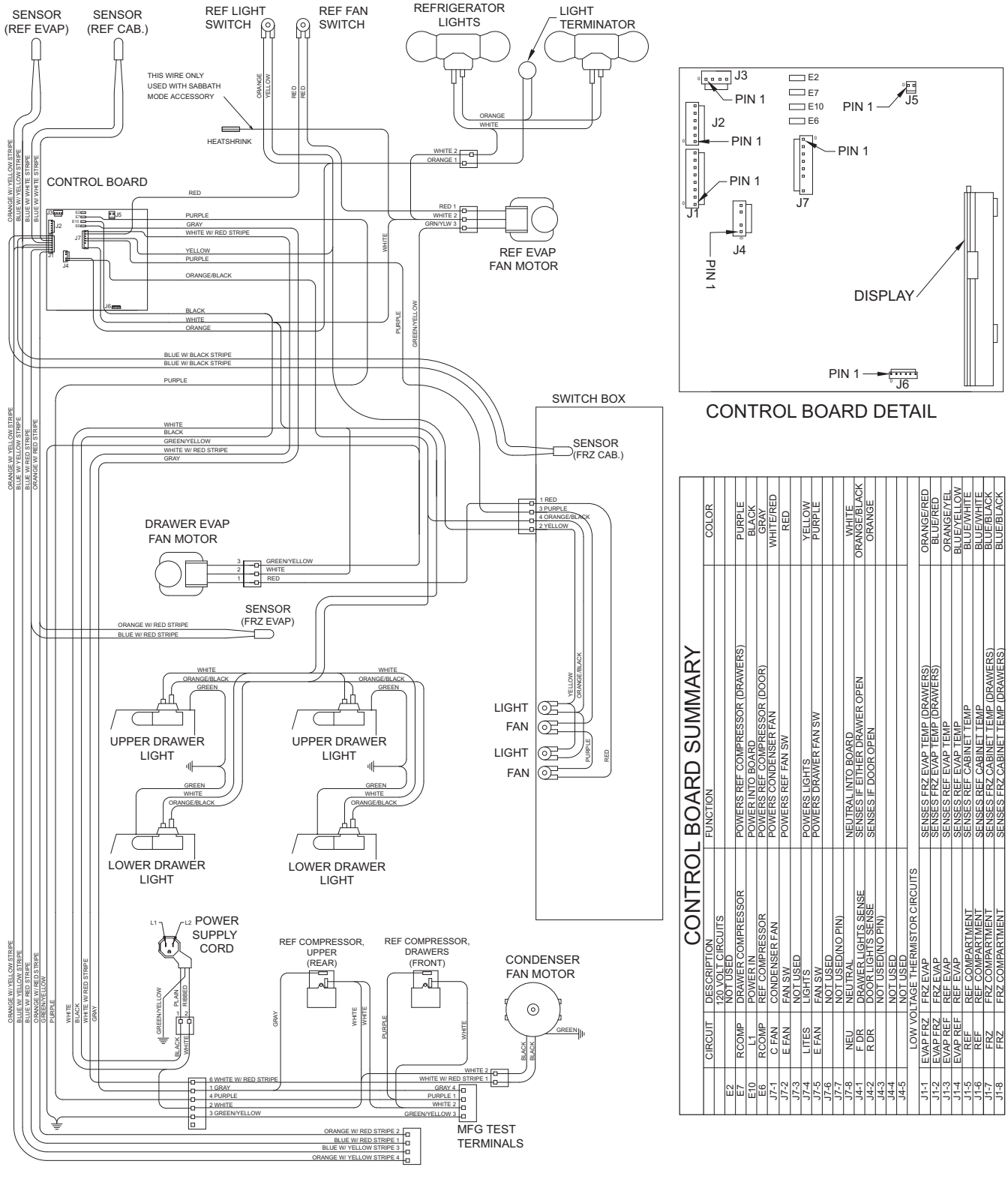


PART NUMBER 7000922 REV A

WIRING DIAGRAM
MODEL: 736TR-3
PRIOR TO SERIAL NUMBER 2970000

⚠ WARNING

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



CONTROL BOARD DETAIL

CONTROL BOARD SUMMARY

	CIRCUIT	DESCRIPTION	FUNCTION	COLOR
		120 VOLT CIRCUITS		
E2		NOT USED		
E7	RCOMP	DRAWER COMPRESSOR	POWERS REF COMPRESSOR (DRAWERS)	PURPLE
E10	L1	POWER IN	POWER INTO BOARD	BLACK
E6	RCOMP	REF COMPRESSOR	POWERS REF COMPRESSOR (DOOR)	GRAY
J7-1	C FAN	CONDENSER FAN	POWERS CONDENSER FAN	WHITE/RED
J7-2	E FAN	FAN SW	POWERS REF FAN SW	RED
J7-3		NOT USED		
J7-4	LITES	LIGHTS	POWERS LIGHTS	YELLOW
J7-5	E FAN	FAN SW	POWERS DRAWER FAN SW	PURPLE
J7-6		NOT USED		
J7-7		NOT USED(NO PIN)		
J7-8	NEU	NEUTRAL	NEUTRAL INTO BOARD	WHITE
J4-1	F DR	DRAWER LIGHTS SENSE	SENSES IF EITHER DRAWER OPEN	ORANGE/BLACK
J4-2	R DR	DOOR LIGHTS SENSE	SENSES IF DOOR OPEN	ORANGE
J4-3		NOT USED(NO PIN)		
J4-4		NOT USED		
J4-5		NOT USED		
		LOW VOLTAGE THERMISTOR CIRCUITS		
J1-1	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	ORANGE/RED
J1-2	EVAP FRZ	FRZ EVAP	SENSES FRZ EVAP TEMP (DRAWERS)	BLUE/RED
J1-3	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	ORANGE/YEL
J1-4	EVAP REF	REF EVAP	SENSES REF EVAP TEMP	BLUE/YELLOW
J1-5	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-6	REF	REF COMPARTMENT	SENSES REF CABINET TEMP	BLUE/WHITE
J1-7	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK
J1-8	FRZ	FRZ COMPARTMENT	SENSES FRZ CABINET TEMP (DRAWERS)	BLUE/BLACK

PART NUMBER 7000922 REV A

WIRING SCHEMATIC
MODEL: 736TR-3
PRIOR TO SERIAL NUMBER 2970000

⚠ WARNING

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