

Under the Counter Ice Maker Service Manual

Models: E15IM55GS, E15IM60GSS, and E15IM60GPS



 **Electrolux**

SAFE SERVICING PRACTICES - ALL APPLIANCES

To avoid personal injury and/or property damage, it is important that **Safe Servicing Practices** be observed. The following are some limited examples of safe practices:

1. **DO NOT** attempt a product repair if you have any doubts as to your ability to complete it in a safe and satisfactory manner.
2. Before servicing or moving an appliance:
 - Remove the power cord from the electrical outlet, trip the circuit breaker to the OFF position, or remove the fuse.
 - Turn off the gas supply.
 - Turn off the water supply.
3. Never interfere with the proper operation of any safety device.
4. **USE ONLY REPLACEMENT PARTS CATALOGED FOR THIS APPLIANCE. SUBSTITUTIONS MAY DEFEAT COMPLIANCE WITH SAFETY STANDARDS SET FOR HOME APPLIANCES.**
5. **GROUNDING:** The standard color coding for safety ground wires is **GREEN**, or **GREEN** with **YELLOW STRIPES**. Ground leads are not to be used as current carrying conductors. It is **EXTREMELY** important that the service technician reestablish all safety grounds prior to completion of service. Failure to do so will create a hazard.
6. Prior to returning the product to service, ensure that:
 - All electrical connections are correct and secure
 - All electrical leads are properly dressed and secured away from sharp edges, high-temperature components, and moving parts
 - All non-insulated electrical terminals, connectors, heaters, etc. are adequately spaced away from all metal parts and panels
 - All safety grounds (both internal and external) are correctly and securely connected
 - All panels are properly and securely reassembled

ATTENTION!!!

This service manual is intended for use by persons having electrical and mechanical training and a level of knowledge of these subjects generally considered acceptable in the appliance repair trade. Electrolux Home Products cannot be responsible, nor assume any liability, for injury or damage of any kind arising from the use of this manual.

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4 Installation

Leveling

It is extremely important that the unit is level for maximum protection.

If it is not:

- Doors and/or drawers will not work properly.
- Uneven sized cubes will be formed. Ice production will be reduced and water spilling into the storage area can occur, causing the ice in the bin to melt prematurely. **See Figure 1.**

Remember, floors surrounding a drain have a tendency to slope toward the drain.

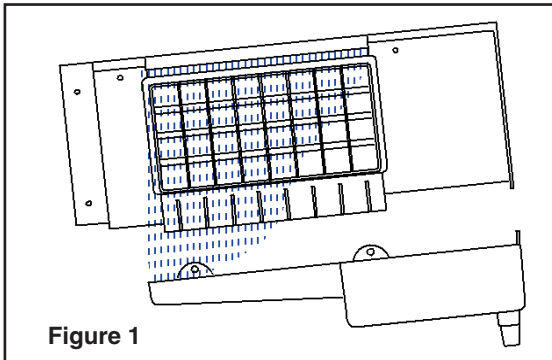


Figure 1

1. Use a level to check the unit from front to back and from side to side. **See Figure 2.**

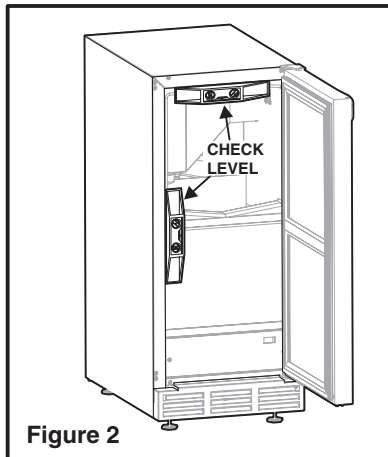


Figure 2

2. If the unit is not level, adjust the feet on the corner as necessary. **See Figure 3.** Rotating the feet clockwise raises the unit.

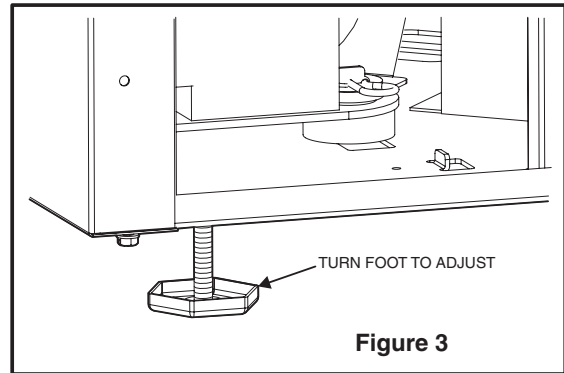


Figure 3

3. Check after each adjustment. Repeat the previous steps as necessary until the unit is level.

Adjusting Door

Checking Door Alignment

The unit's door is aligned at the factory before shipment. However, its alignment could have been disturbed during shipment or during door panel installation.

▶ IMPORTANT

Properly aligned, the door should be 1/8" below the top of the unit's cabinet, NOT flush with the top. **See Figure 4.**

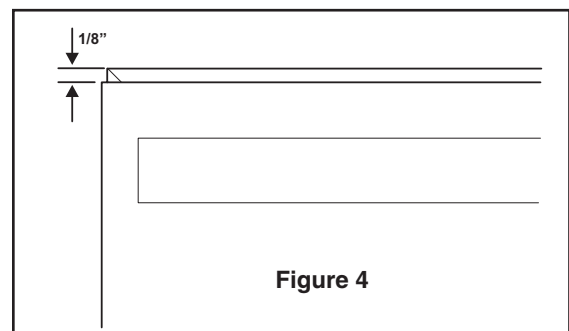
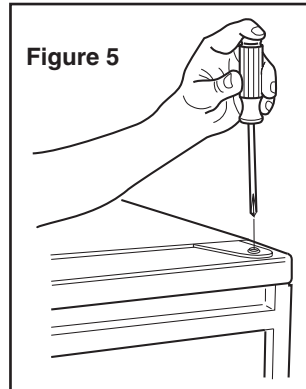


Figure 4

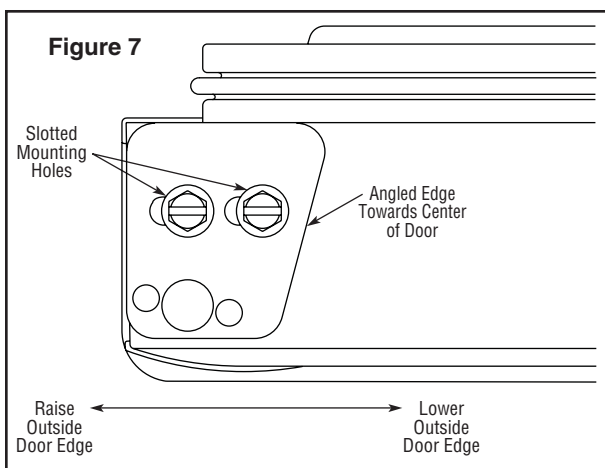
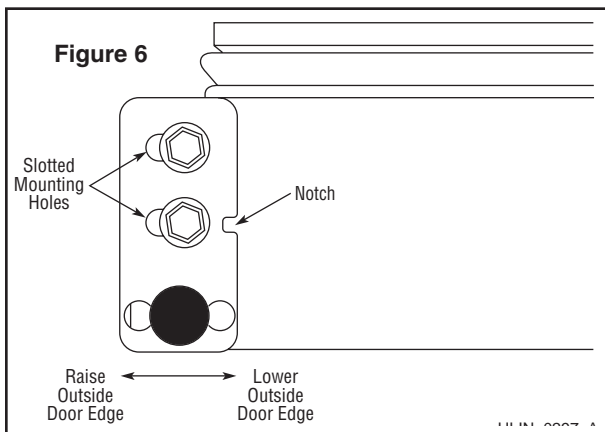
- 1 Compare the top edge of the door to the top edge of the cabinet.
- 2 If the door edge is 1/8 inch below and parallel to the top of the cabinet, it is adjusted correctly. If it is not, note whether the side opposite the hinge needs to be moved UP or DOWN, and use the following procedure:

Adjusting Door Alignment

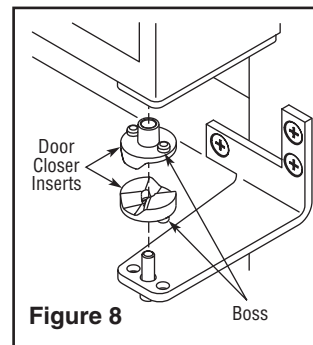
- 1 Remove top hinge screw pin using a Phillips serewdriver (**Figure 5**). Remove door by tilting forward and lifting off bottom hinge pin.



- 2 With door upside down, loosen but do not remove the two screws on the door's bottom hinge plate.
- 3 See **Figures 6 and 7**. If the top far edge of the door needs to move UP, move the hinge plate toward the outside of the door, then retighten screws. If the top far edge of the door needs to move DOWN, move the hinge plate toward the inside of the dood, then retighten screws.



- 4 Mount the door to recheck alignment and repeat steps 2 and 3 if further adjustment is necessary.
- 5 When top edge of door is parallel to top edge of cabinet, remove the door and ensure the two screws are secure.
- 6 Remove the door closers from the bottom hinge, clean thoroughly and lubricate the mating surfaces with petroleum jelly.
- 7 Reinstall the closers, lining up the bosses with holes in hinge and hinge plate (**Figure 8**).



- 8 Mount the door and install top hinge pivot pin.

Checking Door Alignment

The unit's door is aligned at the factory before shipment. However, its alignment could have been disturbed during shipment or during door panel installation.

➔ IMPORTANT

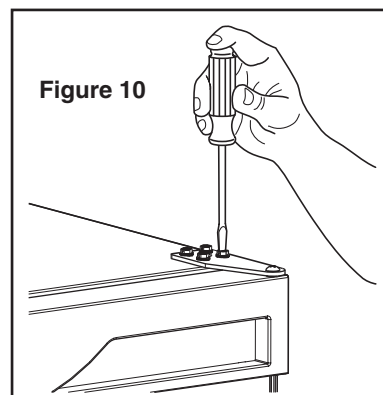
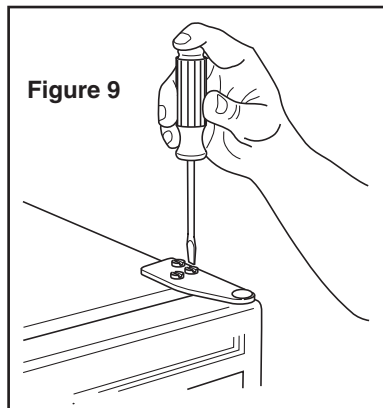
Properly aligned, the door's gasket should be firmly in contact with the cabinet all the way around the door (no gaps).

- 1 Carefully examine the door's gasket to ensure that it is firmly in contact with the cabinet.
- 2 If the door is properly aligned, no further adjustment is necessary. If it is not, use the following procedure:

6 Installation / General Instructions

Adjusting Door Alignment

1. Loosen (do not remove) top and bottom hinge screws (Figures 9 and 10).



2. Align door squarely with cabinet. Make sure gasket is firmly in contact with cabinet all the way around the door (no gaps).
3. Tighten bottom hinge screws.
4. Tighten top hinge screws.

Keypad Options

WARNING

Electrocution can cause death or serious injury. Take precautions when touching a bare circuit board. Wear an anti-static wrist strap and ground it to an electrical ground or grounded water pipe. Handle circuit boards carefully and avoid touching components.

When touching key combinations in which you hold one key and press another key three times, it is important to carefully follow this procedure:

1. Hold the desired key ensuring the light above the key is lit.
2. Press the other key three times, ensuring it lights up each time.
3. Release the held key only after releasing the pressed key for the third time.

Except as noted, these functions are available on all models.

ON/OFF

The ON/OFF mode allows the unit to be turned on and off via the keypad. To do this, hold the key for approximately 10 seconds until the “F” begins to flash. Release the key and the unit will switch modes.

This mode does not disconnect power from the circuit board so it is still “LIVE”. Turning the unit off while in **Clean**, **Ice Maker Off**, **Forced Harvest**, or **Forced Defrost** will cancel those modes. If this mode is entered while the unit is in an ice-making harvest mode, it will continue its cycle and flash “OFF” until completed.

Showroom Mode

This mode is designed to show units in a display environment. When in this mode the only functions will be the controls and cabinet lights. The compressor, fans, etc. will not operate. To enter this mode, hold the down arrow and press the LIGHT button three times. When entered, the unit will beep once and the degree symbol will be to flash. When the degree symbol is flashing the unit will allow the use of the control for demonstrations. After not touching the unit for one minute the display will begin to “snake” around. This is meant to alert you the unit is in showroom mode. The unit can be left in this mode indefinitely. If you again want to demo

the control, touch any key and the degree symbol will begin to flash

To exit this mode: If using software version 2.8, this mode will exit automatically when the unit is unplugged. If using software version 2.9, this mode needs to be exited by the same key combination as used to enter the mode.

Service Mode

This mode has 27 different options available for service diagnostics. To enter the mode hold the WARMER key and press the LIGHT button three times. The display will show "0" and the board will beep once. When in this mode the WARMER and COLDER keys will act as up and down arrows to select the desired option. The LIGHT key is the ENTER key and will enter a function. To exit the Service Mode, scroll to option 99 and press the LIGHT key. After five minutes of not touching any keys the mode will also exit automatically.

Blackout / Sabbath Mode

This mode allows for observation of holidays on which lights cannot be activated. Hold the LIGHT key for 10 seconds until the °F starts flashing. When released, the unit will beep once and the display and cabinet light will shut off. To cancel this mode, hold the LIGHT key again for about 10-12 seconds.

Clean Cycle

To enter the self cleaning cycle, hold the ON/OFF key and press the LIGHT button three times. The unit will beep once and the display will show CL. Follow the cleaning instructions. At the conclusion of this mode (1 hour), the display will revert to setpoint and the unit will resume normal operation. To cancel this mode, turn the unit off via the keypad.

Ice Maker Off Mode (not available)

Force Harvest

This mode can be used to force ice to harvest from the mold. To enter this mode, hold the LIGHT key and press the UP arrow three times. The unit will initiate an ice harvest. There is no audible tone when entering this mode.

Forced Defrost

This will allow the unit to defrost quickly. For R and WC units, this is just an off cycle. For units with hot gas defrost, the unit will enter a hot gas defrost per the specification. Hold the LIGHT key and press ON/OFF three times. The unit will beep once when entering this mode. To exit this mode, either do the same key combination or turn the unit off via the keypad.

Ice Thickness Adjust

This will allow addition or subtraction of up to five minutes from the ice-making cycle. To enter this mode, hold the UP arrow and press the DOWN arrow three times. The unit will beep once and display the current ice thickness. Use the arrows to adjust up or down. Press LIGHT key when completed. Please refer to the ice thickness section of the manual to view proper cube sizes and recommendations.

Temporary Shutdown / Office Mode

In some cases it may be requested for the unit to be shut down for short periods, during meetings for example. To do this hold the DOWN arrow and press the UP arrow three times. The unit will beep once and display OFF on the display. This mode can be canceled by removing power from the unit or turning it on via the display. The mode will automatically be changed back to ON after three hours.

Relay Status

To see which relays are operating, hold the DOWN arrow and hit ON/OFF three times. The unit will scroll through all relays and display whether they are on or off. See specific unit section for explanation.

8 Service Information

Service Menu

Enter the Service Menu by holding UP arrow and pressing LIGHT key three times. Select option 1 to 27 with the up and down arrows. To enter the option, press LIGHT key.

When entering Service Mode all other modes are cancelled and the unit will stop operating. When exiting the Service Mode, the unit will begin to operate normally. However, the four minute compressor off cycle still applies.

- 1 Light all LED segments**
This will illuminate all the LED's on the board to ensure they work properly.
- 2 Thermistor 1 status - Temperature, E1, or E2**
This will show the pure thermistor reading with no offsets taken into account. When placed in ice water, this thermistor should read 32° F in this menu option. (Some models)
- 3 Error Log**
A list of the errors in the order they occurred will scroll once on the display. Repeat if desired. Once viewed, perform Option 12 to clear the errors from memory.
- 4 Defrost Information**
Displays the number of defrosts that have occurred in the past 24 hours.
- 5 Compressor runtime based on last cycle**
This will show the number of minutes the compressor has run in the prior cycle (or current cycle if the compressor was running when Service Mode was entered).
- 6 Defrost length adjust min - 99 minutes**
The length of the defrost can be adjusted up to 99 minutes long (for every six hours). The other defrost parameters will apply. Lengthening a defrost may cause higher than normal temperatures in the refrigeration section. (Some models.)
- 7 Light switch 1 status - 0 to 1**
This will tell if the light should turn off with the door switch or not. At the "0" reading the light should be off with the door closed and on with the door open. At the "1" reading the light always stays on.

- 8 Display toggle status - 0 or 1**
This will tell if the display should turn off with the door switch or not. At the "0" reading the light should be off with the door closed and on with the door open. At the "1" reading the light always stays on.
- 9 Restore factory defaults**
This will restore the factory default setpoint, defrost and offset values.
- 11 Data download**
Along with the separate ESPY software you can download the rolling data file.
- 12 Clear error log**
Perform this operation after checking the errors.
- 13 Clear download memory**
Clears the rolling data file, if desired.
- 14 Model number displayed**
Displays the two digit model number of the specific unit
- 16 Adjust Thermister 2 offset**
This allows calibration of the sensor to cabinet for abnormal operations. By adjusting the number colder you can change the average cabinet temperature to a colder value.
- 22 Automatic toggle through relays switch on and off**
See specific unit section for description
- 23 Defrost interval adjust - 3 to 24 hours**
This will adjust the intervals between defrosts from 3 to 24 hours. Adjusting from the factory settings may cause undesired temperature in the refrigerator section.

Error Codes

- E1** Thermostor 1 is open.
- E2** Thermistor 1 is shorted.
- E3** Main door or bottom drawer is open longer than 20 minutes.
- E4** Compressor has 100% runtime between two defrost cycles. **Does not show on display - only in error log.**
- E5** Thermister 1 out of range +10° F for more than 12 hours.
- E6** Thermister 1 out of range -10° F for more than 12 hours.
- E7** Thermister 2 open or shorted
- E8** Thermister 3 open or shorted.


- E9** Thermister 4 open or shorted.
- E11** EE Memory error.
- P1** Pump circuit open.

All errors or combination show up as ER alternating with SP. P1 will alternate with SP and ICE for models 67/68. E3 and E10 both have audible alarms. P1 does not have an audible alarm.

Board Components

EI151M55GS						
Pin 7	Pin 6	Pin 5	Pin 4	Pin 3	Pin 2	Pin 1
C_Fan	Lights		H_H2O	C_Pump	R_Valve	BP_Valve
Relay 1	Relay 2	Relay 3	Relay 4	Relay 5	Relay 6	Relay 7

EI151M55GS						
Model	Thermistor 1	Thermistor 2	Thermistor 3	Thermistor 4	Door Switch 1	Door Switch 2
EI151M55GS	N/A	IB	N/A	CON	N/A	P60






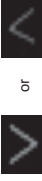









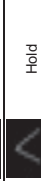

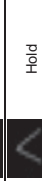
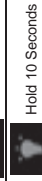
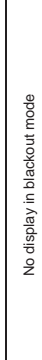
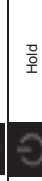





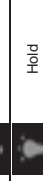
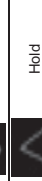

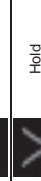

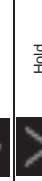




Error Code	Description (alternates with setpoint display)	
E1	Thermistor #1 open	
E2	Thermistor #1 shorted	
E3	Door #1 open longer than 20 minutes	
E5	Thermistor #1 out of range (+10) for more than 12 hours	
E6	Thermistor #1 out of range (-10) for more than 12 hours	
E7	Thermistor #2 open or shorted	
E8	Thermistor #3 open or shorted	
E9	Thermistor #4 open or shorted	
E10	Door #2 (drawer) open longer than 20 minutes	
E11	EE Memory Error	
P1	Pump circuit open due to high water level in ice bin	

Service Menu Options

#	Description	#	Description
1	Light all LED Segments	15	Adjust thermistor #1 differential
2	Thermistor #1 status (Temp, E1 or E2)	16	Adjust thermistor #2 offset
3	Error log	17	Adjust thermistor #3 offset
4	Defrost info	18	Adjust thermistor #4 offset
5	Compressor runtime (based on last cycle)	19	View thermistor #2 status
6	Defrost Length (adjustment - up to 99 minutes)	20	View thermistor #3 status
7	Light switch status (0 or 1)	21	View thermistor #4 status
8	Display toggle status (0 or 1)	22	Automatic toggle through relays (switch on and off)
9	Restore factory defaults	23	Defrost interval adjust (3 to 24 hours)
10	Adjust thermistor #1 offset (-10 to +10)	24	Adjust thermistor #2 setpoint
11	Data download	25	Adjust thermistor #3 setpoint
12	Clear error log	26	Adjust thermistor #4 setpoint
13	Clear download memory	27	Display software version
14	Model number display	99	Exit

10 Service Information

Electronic Control Quick Guide

	Task	Touch	Touch	Display	Comments
1	On/Off		Hold 10 Seconds		
2	Toggle Lights				
3	Adjust Set-point	 or 			Touch once to get into set mode, then touch to adjust.
4	View Actual Temperature (T1)		Hold 5 Seconds		WC will scroll top/middle/bottom temperatures.
5	View Actual Temperature (T2-T4)		Hold 5 Seconds		
6	Toggle F - C		Hold		
7	Toggle Showroom Mode		Hold		
8	Service Mode		Hold		Use up or down arrows to scroll. Must scroll up to 99 and touch LIGHT to exit.
9	Display Toggle		Hold		Display control LEDs while door is closed (glass door models only)
10	Blackout Mode		Hold 10 Seconds		
11	Clean Cycle		Hold		
12	Icemaker Off Mode		Hold		
14	Forced Harvest		Hold		Audible alert when entering this mode
15	Forced Refrigerator Defrost		Hold		Audible alert when entering this mode
16	Ice Thickness Adjustment		Hold		Use WARMER/COLDER to scroll.
17	Temporary Shutdown (Office Mode)		Hold		Icemaker will automatically turn back on in three hours.
18	Relay Status		Hold		Relay Number with 1 or 0 to indicate on or off. Relay 3 is off in this example.
19	Change Model Number (with jumper)		 Hold		CLRCO2175 displayed in this example

Keypad Options



WARNING

Electrocution can cause death or serious injury. Burns from hot or cold surfaces can cause serious injury. Take precautions when servicing this unit.

- Disconnect the power source.
- Do not stand in standing water when working around electrical appliances.
- Make sure the surfaces you touch are not hot or cold.
- Do not touch a bare circuit board unless you are wearing an anti-static wriststrap that is grounded to an electrical ground or grounded water pipe.
- Handle circuit boards carefully and avoid touching components.

When touching key combinations in which you hold one key and press another key three times, it is important to carefully follow this procedure:

1. Hold the desired key ensuring the light above the key is lit.
2. Press the other key three times, ensuring it lights up each time.
3. Release the held key only after releasing the pressed key for the third time.

Except as noted, these functions are available on all models.

ON/OFF

The ON/OFF mode allows the unit to be turned on and off via the keypad. To do this, hold the key for approximately 10 seconds until the “F” begins to flash. Release the key and the unit will switch modes.

This mode does not disconnect power from the circuit board so it is still “LIVE”.

Viewing Actual Temperature

In viewing temperature in these modes any offsets are taken into account. This means that if you place a thermistor in a known temperature, ice water for example, it may not read 32° F that you would assume. If the control offset was preset at -3° F while you placed the thermistor in an ice bath, the actual thermistor reading when viewing

actual temperature would read 35° F. In the unit this would cause the cabinet to push itself 3° cooler. To view pure thermistor readings you must go into the Service Menu and choose the correct option.

To view the thermistor temperature, hold the WARMER key for approximately five seconds until the “F” flashes. Release and the display will show the corrected refrigerator temperature. For Wine Cooler models, the display will cycle through all three zones. These temperatures are approximate and calibrated for a cabinet in normal ambient temperatures with some product load. Checking a completely unloaded cabinet may result in other temperatures.

Changing from Fahrenheit to Celsius

To change the displayed temperature from °F to °C, hold the LIGHT key and press COLDER three times. This will change all values to °C. When the key combination is accepted the control will change values.

Showroom Mode

This mode is designed to show units in a display environment. When in this mode the only functions will be the controls and cabinet lights. The compressor, fans, etc. will not operate. To enter this mode, hold the COLDER key and press the LIGHT button three times. When entered, the degree symbol will begin to flash. When the degree symbol is flashing the unit will allow the use of the control for demonstrations. After not touching the unit for one minute the display will begin to “snake” around. This is meant to alert you the unit is in showroom mode. The unit can be left in this mode indefinitely. If you again want to demo the control, touch any key and the degree symbol will begin to flash. **To exit this mode:** this mode needs to be exited by the same key combination as used to enter the mode.

Service Mode

This mode has 16 different options available for service diagnostics. To enter the mode hold the WARMER key and press the LIGHT button three times. The display will show “0”. When in this mode the WARMER and COLDER keys will act as up and down arrows to select the desired option. The LIGHT key is the ENTER key and will enter a function. To exit the Service Mode, scroll to option 99 and press the LIGHT key. After five minutes of not touching any keys the mode will also exit automatically.

Blackout / Sabbath Mode

This mode allows for observation of holidays on which lights cannot be activated. Hold the LIGHT key for 10 seconds until the °F starts flashing. When released, the unit will beep once and the display and cabinet light will shut off. It will stay off for 36 hours, at which time it will automatically turn back on. If desired, you can manually cancel this mode by touching the LIGHT key. Release and the unit will automatically start normal operation.

Model Number Change

Model Selection:

- 1 Ensure board is not plugged in.
- 2 Hold down ON/OFF key and plug in unit.
- 3 Release ON/OFF key.
- 4 Press and release LIGHT key.
- 5 Use WARMER / COLDER to select the model.
- 6 Press and release LIGHT key.
- 7 Wait for display to stop.
- 8 Unplug unit and wait 5 seconds.
- 9 Plug unit back in.

Service Menu

Enter the Service Menu by holding WARMER and pressing LIGHT key three times. Select option 1 to 16 with the WARMER and COLDER keys. To enter the option, press LIGHT key.

When entering Service Mode all other modes are cancelled and the unit will stop operating. When exiting the Service Mode, the unit will begin to operate normally. However, the four minute compressor off cycle still applies.

- 1 Light all LED segments**
This will illuminate all the LED's on the board to ensure they work properly.
- 2 Thermistor 1 status - Temperature, E1, or E2**
This will show the pure thermistor reading with no offsets taken into account. When placed in ice water, this thermistor should read 32° F in this menu option.
- 3 Error Log**
A list of the errors in the order they occurred will scroll once on the display. Repeat if desired. Once viewed, perform Option 12 to clear the errors from memory.

4 Defrost Information

Displays the number of defrosts that have occurred in the past 24 hours.

5 Compressor runtime based on last cycle

This will show the number of minutes the compressor has run in the prior cycle (or current cycle if the compressor was running when Service Mode was entered).

6 Defrost length adjust min - 99 minutes

The length of the defrost can be adjusted up to 99 minutes long (for every six hours). The other defrost parameters will apply. Lengthening a defrost may cause higher than normal temperatures in the refrigeration section.

7 Light switch 1 status - 0 to 1

This will tell if the light should turn off with the door switch or not. At the "0" reading the light should be off with the door closed and on with the door open. At the "1" reading the light always stays on.

8 Display toggle status - 0 or 1

This will tell if the display should turn off with the door switch or not. At the "0" reading the light should be off with the door closed and on with the door open. At the "1" reading the light always stays on.

9 Restore factory defaults

This will restore the factory default setpoint, defrost and offset values.

10 Adjust Thermistor 1 offset - 10 to +10°F

This allows calibration of the sensor to the cabinet for abnormal operations. By adjusting the number colder you can change the average temperature to a colder value.

11 Data download

Along with the separate ESPY software you can download the rolling data file.

12 Clear error log

Perform this operation after checking the errors.

13 Clear download memory

Clears the rolling data file, if desired.

14 Model number displayed

Displays the two digit model number of the specific unit

15 Adjust Thermistor 1 differential

This number should not be adjusted.

16 Software number





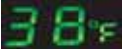




























This will show the software on the board.

Error Codes

- E1** Thermostor 1 is open.
- E2** Thermistor 1 is shorted.
- E3** Main door or bottom drawer is open longer than 20 minutes.
- E4** Compressor has 100% runtime between two defrost cycles.
- E5** Thermister 1 out of range +10° F for more than 12 hours.
- E6** Thermister 1 out of range -10° F for more than 12 hours.

All errors show up on display alternating between SP and ER#.

Electronic Control Quick Guide

	Task	Touch	Touch	Display	Comment
	Adjust Setpoint	 or 	 or 		Touch once to get into set mode, then touch to adjust
	View Actual Temp	 Hold 5 seconds			WC will scroll Top/Mid/Bot temperatures.
1	Change F/C	 Hold	  		
2	Service Mode	 Hold	  		Times out after 5 minutes. Use warmer or colder to scroll, light button to view.
3	Show Room Mode Toggle	 Hold	  		Degree symbol flashes at first, then display snakes all LEDS after one minute of inactivity. Same key combination to remove.
4	Display Toggle		  		Display control LEDS while door is closed. (Glass Door Models Only)
5	Blackout Mode	 Hold 10 seconds			Stays off 36 hours or use light button to restore lights and display
6	Change Model	 Hold while plugging in			
7	Turn ON/OFF	 Hold 10 seconds			
8	Cabinet Light	 Touch & Release			Light normally goes on/off with door opening. Pressing light button will turn interior light on for 4 hours then it will turn off.

Service Mode Listing

- 01 Light all LED segments
- 02 Thermistor Status
- 03 Error Log
- 04 Defrost Info (# in past 24 hours)
- 05 Comp on time since last cycle
- 06 Defrost Length
- 07 Light Switch Status (0-toggle w/door 1-on always)
- 08 Display Status (0-toggle w/door 1-on always)
- 09 Restore Defaults (includes logs)
- 10 Adjust Offset
- 11 Data Download
- 12 Clear Error Log
- 13 Clear Download Memory
- 14 Display Model Number
- 15 Adjust Differential (use light & on/off key)
- 16 Display Software version
- 99 Exit Service Mode

Error Codes

- E1 - Thermistor open
- E2 - Thermistor shorted
- E3 - Door open longer than 20 minutes
- E4 - # of defrost intervals with 100% run
- E5 - Actual temp 10 degrees over setpoint for more than 6 hours
- E6 - Actual temp 10 degrees under setpoint for more than 6 hours

14 Service Information

Thermistor Types

Type 1 (Black)

Resistance at 77°F = 10,000 ohms ± 5%

Operating range is 185,000 to 650 ohms.
Resistance goes down as temperature increases.
Type 1 does not need to be calibrated and can be changed without changing other wires or board.

Type 2 (White)

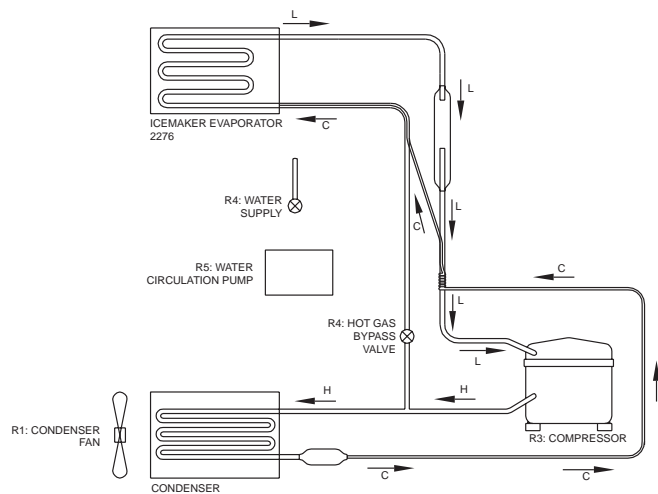
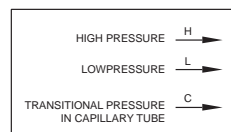
Resistance at 77°F = 5,000 ohms ± 5%

Operating range is 180,000 to 550 ohms.
Resistance goes down as temperature increases.
Type 2 does not need to be calibrated and can be changed without changing other wires or board.

Refrigeration System Diagnosis Guide

System Condition	Suction Pressure	Suction Line	Compressor Discharge	Condenser	Capillary Tube	Evaporator	Wattage
Normal	Normal	Slightly below room temperature	Very hot	Very hot	Warm	Cold	Normal
Overcharge	Higher than normal	Very cold - may frost heavily	Slightly warm to hot	Hot to warm	Cool	Cold	Higher than normal
Undercharge	Lower than normal	Warm - near room temperature	Hot	Warm	Warm	Extremely cold near inlet - outlet below room temperature	Lower than normal
Partial Restriction	Somewhat lower than normal - in vacuum	Warm - near room temperature	Very hot	Top passes warm - lower passes cool (near room temperature due to liquid)	Room temperature (cool) or colder	Extremely cold near inlet - outlet below room temperature backing up	Lower than normal
Complete Restriction	In deep vacuum	Room temperature (cool)	Room temperature (cool)	Room temperature (cool)	Room temperature (cool)	No refrigeration	Lower than normal
No Gas	0 PSIG to 25"	Room temperature (cool)	Cool to hot	Room temperature (cool)	Room temperature (cool)	No refrigeration	Lower than normal

Operation



Filter-Drier Installation

Any time the sealed system is opened and the refrigerant charge is removed, the liquid line filter-drier must be replaced and the system thoroughly evacuated before recharging.

CAUTION

DO NOT unbrazed the old filter-drier from the system. This will vaporize and drive moisture from the desiccant back into the system. The old filter-drier should be cut out of the system.

CAUTION

Use only a 15 gram XH9 liquid line filter-drier (part number 5303305677) when servicing refrigerator and freezer systems. This filter-drier is compatible with either R-12 or R-134a refrigerant.

1. Disconnect unit from source of power.
2. Recover refrigerant by using an EPA approved recovery system.
3. Using a 3 cornered file, score a groove around capillary tube as close to old filter-drier as possible. Break capillary tube along score mark from filter-drier.
4. Cut condenser outlet tube at filter-drier. Discard filter-drier.
5. Thoroughly clean condenser outlet tube and capillary tube.
6. Place inlet connection of filter-drier over condenser tube approximately 1/4" and solder.
7. Insert capillary tube input end into filter-drier outlet. Do not allow tube to bottom against screen. Solder carefully so that solder does not plug capillary tube.
8. Install process tube adaptor to filter-drier.
9. Evacuate and charge system using the recommended procedure described under Evacuating and Recharging.
10. Reassemble unit.

Evacuating and Recharging

CAUTION

Check the serial plate for the correct refrigerant type. It is extremely important to verify the type of refrigerant in the system before starting any sealed system repairs.

With the possible exception of the vacuum pump, all service equipment that comes in contact with R-134a during evacuation and recharging must be dedicated. Accordingly, R-134a will require a dedicated charging cylinder, manifold gauge set, process tube adaptors, and hoses. Any residual mineral oil on other tools (tubing cutter, etc.) must be thoroughly cleaned off before using on R-134a/Ester oil systems. It will be necessary to check with the manufacturer of your vacuum pump for refrigerant and oil compatibility issues.

If you use a vacuum pump with mineral oil to evacuate an R-134a system, it is ABSOLUTELY ESSENTIAL to have a shut-off valve between the pump and your manifold gauge set as shown on page 18. The hand valve must be closed during all times when the vacuum pump is not operating. This will prevent the migration of mineral oil vapor into the R134a/ Ester oil system. If the vacuum pump should stop during evacuation for any reason, the hand pump shut-off valve must be closed immediately.

Insure that your refrigeration hoses are specified for use with R-134a refrigerant. Research has shown that compounds in standard refrigeration hoses may enter sealed systems and ultimately restrict the cap tube in an R-134a system.

Equipment Needed for Evacuation & Recharging:

- Heated charging cylinder
- Standard 3-port manifold gauge set:
 - 4 charging hoses
 - Tee fitting with valve core stem removed (Robinair No. 40396)
 - Hand shut-off valve (Robinair No.40380)
- Two stage vacuum pump
- Process tube adapter kit (Robinair No. 12458)
- Tubing cutter
- Pinch-off tool capable of making leak proof seal
- Complete brazing torch set
- Small 3-corner file
- Grit cloth or Scotch-Brite
- 45% silver solder and flux
- Heat Gun

Installing Evacuation and Recharging Equipment

1. Disconnect refrigerator from electrical supply.
2. If compressor was replaced, install correct sized process tube adaptor on process tube. If compressor was not replaced, cut process tube with tubing cutter leaving as much tube as possible and install correct size process tube adaptor.
3. Install correct sized process tube adaptor on high-side process tube.
4. Attach refrigeration service gauge manifold to system in following order:
 - Low-side (compound gauge) hose to suction side process tube adaptor.
 - High-side (pressure gauge) hose to high-side process tube adaptor.
 - Center port manifold hose before hand shut-off valve to charging cylinder.
 - Center port manifold hose after hand shut-off valve to vacuum pump.

Evacuating System

WARNING

R-134a systems are particularly susceptible to moisture contamination which can only be prevented by evacuating the system for a minimum of 30 minutes to attain a minimum 29.9 inch (500 micron or lower) vacuum.

To achieve the required levels of evacuation, a properly maintained two stage vacuum pump in good condition is required. It is absolutely essential to maintain your vacuum pump according to the manufacturer's instructions including required oil changes at the recommended intervals. Vacuum pump oil should always be changed after evacuating a contaminated system.

Vacuum pump performance should be checked periodically with a micron gauge.

1. Make certain that charging cylinder valve, hand shut-off valve, and manifold gauge valves are closed.
2. Start vacuum pump.
3. Open hand shut-off valve and slowly open both manifold valves, turning counterclockwise, for two full rotations.

CAUTION

If high vacuum equipment is used, just crack both manifold valves for a few minutes and then open slowly for the two full turns counterclockwise. This will prevent the compressor oil from foaming and being drawn into the vacuum pump.

4. Operate the vacuum pump for a minimum of 30 minutes to a minimum of 29.9" (500 micron) vacuum.

NOTE

On products with Low side leaks you must heat the crankcase area of the compressor though out the 30 minutes you are running your vacuum pump to pull a vacuum on the system. Every 4 to 5 minutes while you are running your vacuum pump and heating the crankcase area shake the compressor. By heating the crankcase you are heating the oil in the compressor. This will drive the moisture out of the oil. By shaking the compressor this will allow the moisture to come to the top of the oil faster so the vacuum pump can remove the moisture from the system.

5. Close hand shut-off valve to vacuum pump. Watch compound gauge for several minutes. If reading rises, there is a leak in the system, go to step 6. If no leak is indicated, stop vacuum pump. System is now ready for charging.
6. If a leak is indicated, stop vacuum pump and introduce a small charge of refrigerant into system by cracking valve on bottom of charging cylinder until system is pressurized to 40 or 50 lbs psig.
7. Leak test low-side. Close compound gauge. Run compressor for a few minutes and leak test high-side. When leak is found, recapture refrigerant using EPA approved recovery system Repair and go back to step 1.
7. Allow system to sit for five minutes.
8. Turn on refrigerator compressor. Run compressor for a few minutes and monitor system pressures.
9. When satisfied that the unit is operating correctly, clamp the high-side process tube with the pinch-off tool while the unit is still running.
10. Slowly open the high-side manifold gauge valve to allow the compressor to remove any refrigerant trapped in the high-side hose and the process fitting.
11. Close both of the manifold gauge valves. If the high-side gauge reading rises, the pinch-off must be corrected before proceeding.
12. Remove the high-side process tube adaptor and solder the process tube closed.
13. Clamp the low-side process tube with the pinch-off tool while the unit is running. Remove the low-side process tube adaptor and solder the process tube closed.
14. Check the process tubes for refrigerant leaks.

Charging The System



CAUTION

Check the serial plate for the correct refrigerant type. It is extremely important to verify the type of refrigerant in the system before starting any sealed system repairs.

After charging the system with liquid be certain to wait at least 5 minutes before starting the compressor to give the refrigerant a chance to disperse throughout the system. Otherwise the compressor could be damaged by attempting to pump excessive quantities of liquid.

Preparing The Charging Cylinder:

1. Make certain that hand shut-off valve to vacuum pump is closed.
2. Close high-side manifold gauge valve.
3. Set charging cylinder scale to pressure indicated on cylinder pressure gauge.
4. Observe refrigerant level in sight glass. Subtract amount to be charged into system and note shut off point.
5. Open charging cylinder valve slowly and allow proper charge to enter system.
6. As soon as refrigerant in sight glass has gone down to predetermined level, close charging cylinder valve.



WARNING

Disconnect the charging cylinder heater at this time to prevent the cylinder pressure from exceeding its maximum limits.



NOTE

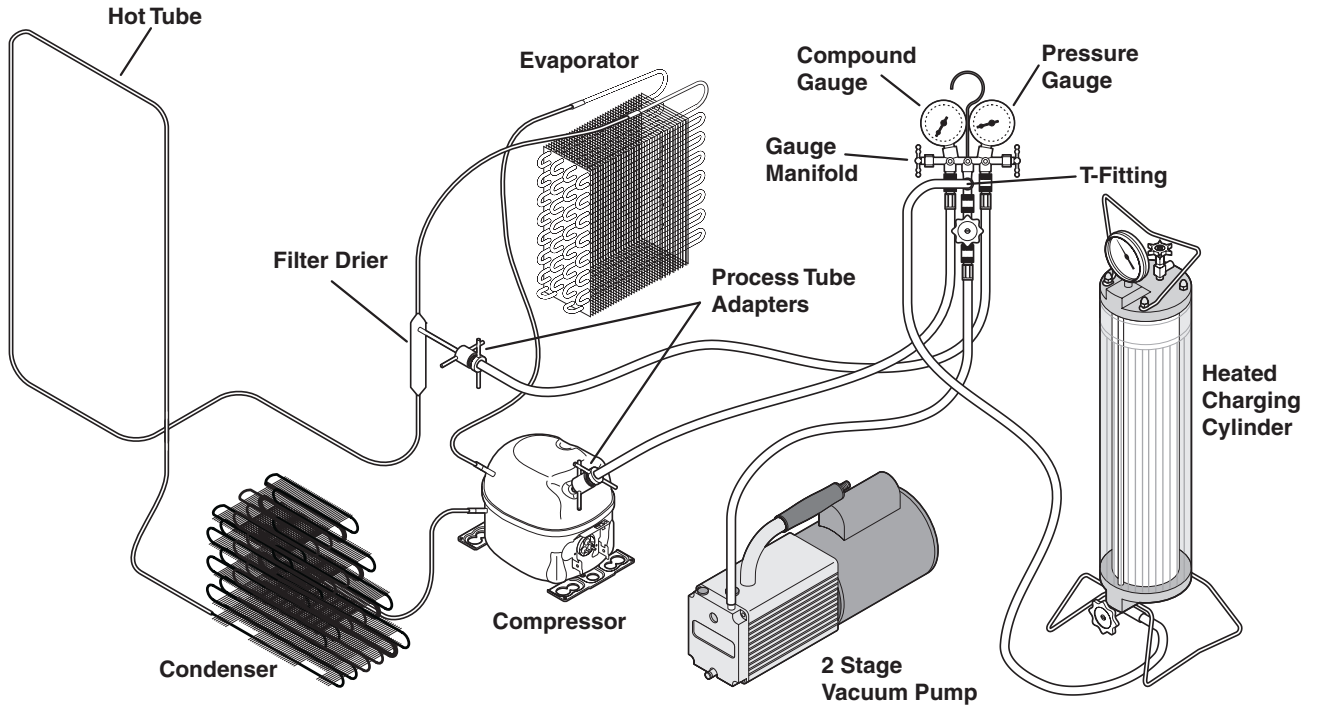
Process valves are not to be left on the tubing in any application, except the valve on EMA Service drier part # 5303918288.

Final Leak Test

1. With the refrigerator turned OFF leak test all low-side system components.
2. Turn the unit ON and run until the condenser is warm. Leak test the high-side system components.

18 Service Information

Evacuating and Recharging Connections





NOTICE

Instructions given here are furnished as a guide. Persons attempting to use these instructions to make repairs to the sealed refrigeration system should have a working knowledge of refrigeration and previous training on sealed system repair.

Verify Refrigerant Type In The System



CAUTION

R-134a and R-12 are completely incompatible. Before starting any sealed system repair, it is extremely important to check serial plate of product to verify the type of refrigerant in the system.

Dedicated Equipment

R-134a must not be mixed with other types of refrigerants. R-134a must be recovered in dedicated and properly identified recovery bags and tanks.

It will be necessary to check with the manufacturer of your recovery equipment to determine R-134a compatibility. Some recovery equipment manufacturers have changeover instructions for switching between refrigerant types. Protect yourself and your equipment by following all manufacturer guidelines.

Also, ensure that your refrigeration hoses are specified for use with R-134a refrigerant. Research has shown that compounds in standard refrigeration hoses may enter sealed systems and ultimately restrict the cap tube in an R-134a system.

R-134a Refrigeration Systems

The sealed refrigeration system will consist of the same basic components being utilized in the R-12 systems.

There is a 10% to 15% discharge pressure increase using R-134a, with a 5% to 10% decrease in suction pressure when compared to the same product with an R-12 system operating at 90°F (32°C) ambient temperature conditions. Lower suction pressures result from the lower density of R-134a refrigerant which effects refrigerant flow rate. R-134a systems commonly operate in a 1"-2" vacuum on the suction side.

Products using R-134a refrigerant will generally have a longer capillary tube to maintain a similar flow rate and some models will have a larger condenser to reduce the discharge pressures and lower start-up sound transmission.

Miscibility of R-134a and Ester Oil

A special synthetic oil known as Ester oil is used as a lubricant in refrigeration systems operating on R-134a. Ester oils are produced from alcohols and fatty acids and are available in several different variants. Ester oils have a pleasant aroma reminiscent of fruit.

Ester oils generally include various types of additives for improving certain properties such as viscosity, temperature sensitivity, etc. These additives are often aggressive, and skin contact with Ester oils should therefore be avoided.

One of the most important requirements made on a refrigerant system is that the oil mix with the refrigerant. Since mineral oil and ordinary synthetic oil DO NOT mix with R-134a, Ester oil is used for lubrication. Ester oil dissolves in R-134a.

Ester oil is broken down by chlorine and cannot be used with R-12 (R-12 contains chlorine) or any other compound containing chlorine. Therefore, R-134a refrigeration systems have virtually no tolerance for chlorine molecules from CFC refrigerants (R-134a is an HFC and contains no chlorine).



CAUTION

During R-134a service, it is extremely important to avoid using equipment that may contain residual amounts of mineral oil, CFC's or HCFC's which could enter and contaminate the sealed system.

For example, hoses that were used for a refrigeration system operating on R-12 may contain small quantities of mineral oil which can block the capillary tube in a system operating on R-134a. As little as one milligram may be sufficient to cause a blockage. In addition, sealed system components that have been used with CFC systems must not be used with R-134a systems. These components may contain residual amounts of refrigerant and oil which could damage an R-134a system.

At the earliest stage of development work on R-134a, tests were carried out on a different type of synthetic oil known as Poly-Alkaline Glycol (PAG). This oil is also used in certain air conditioning systems for cars. PAG and Ester oil DO NOT mix with one another. Service equipment used for R-134a / Ester oil must not come into contact with PAG.

Water In The Refrigeration System

Even in very small quantities, water in any refrigeration system can cause the following problems:

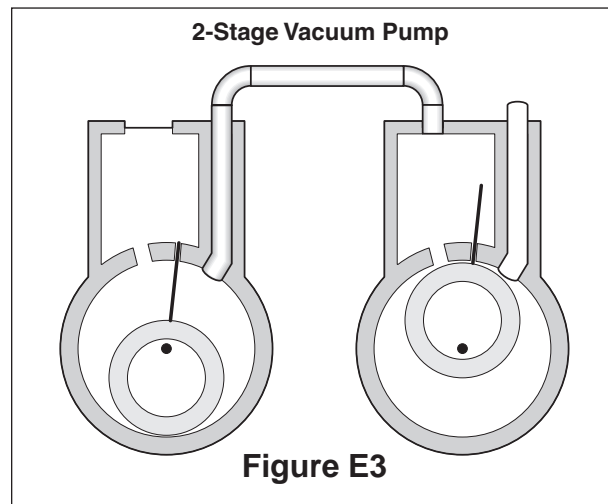
- Ice plugs in capillary tubes.
- Copper plating in compressor.
- Reactions with organic materials in systems.
- Corrosion of metals.

R-134a and Ester oil will aggravate the problem of water in the refrigeration system. Ester oil may react with water vapor and is hygroscopic (it will absorb water if it comes in contact with humid air). Water is also more soluble in R-134a than R-12.

To minimize the water content whenever service work is performed, the refrigeration system should always be thoroughly evacuated through process tube adaptors on both the high and low sides of the system. Evacuation must be for a minimum of 30 minutes to at least a 29.9 inch (500 micron) vacuum.

VACUUM CHART		
Vacuum Inches Hg.	Microns	Boiling Point of Water °F
28.940	25000	77.9
29.530	10000	52.0
29.832	4600	32.0
29.882	1000	1.0
29.901	500	-11.2
29.915	150	-32.8
29.917	100	-38.2
29.919	50	-49.0

To achieve the required 29.9 inch (500 micron) vacuum, a properly maintained two-stage vacuum pump in good condition is required. A two stage pump can reach a deeper vacuum than a single stage because the exhaust from the first pumping stage is discharged into the second pumping stage. This means the second stage begins pumping at a lower pressure so a lower ultimate vacuum can be achieved (See 2-Stage Vacuum Pump, Figure E3).



Vacuum Pump Maintenance

It is absolutely essential to maintain your vacuum pump according to the manufacturer's instructions including required oil changes at the recommended intervals. Vacuum pump oil should always be changed after evacuating a contaminated system. Vacuum pump performance should be checked periodically with a micron gauge.

Vacuum pump suppliers may or may not recommend changing the vacuum pump oil to the same type that's in the system being evacuated. Some manufacturers may recommend a vacuum pump that's dedicated to R-134a systems.

Robinair has stated that their current and discontinued vacuum pump models, using mineral oil currently specified for use in their vacuum pumps, can be used to evacuate R-134a/Ester oil systems. Robinair also states that it is acceptable to alternate between evacuating R-12/mineral oil and R-134a/Ester oil systems without adversely effecting the vacuum pump's performance.

For other brands of vacuum pumps, check with the manufacturer for restrictions and guidelines when using with R-134a.

 **CAUTION**

If you use a vacuum pump with mineral oil to evacuate an R-134a system, it is **ABSOLUTELY ESSENTIAL** to have a shut-off valve between pump and your manifold gauge set as shown in Figure E2. The hand valve must be closed during all times when vacuum pump is not operating. This will prevent migration of mineral oil vapor into R134a/Ester oil system. If vacuum pump should stop during evacuation for any reason, the hand pump shut-off valve must be closed immediately.

Refrigerant Leaks

A system with R-134a and Ester oil will become saturated with moisture much faster than a system with R-12 and mineral oil. If your leak was in the low side of the refrigeration system when the compressor is running the pressure in the low side will go into a vacuum. As additional refrigerant leaks out the system will go deeper into a vacuum. The system running in this vacuum will allow air and moisture to be pulled into the sealed system. The moisture pulled in can then be mixed in to the Ester oil in the compressor.

If the product has had a low side leak you will need to install the two stage service dryer filter part number 5303918288. You must heat the crankcase area of the compressor using a heat gun on the high heat setting though out the 30 minutes you are running your vacuum pump to pull a vacuum on the system. Every 4 to 5 minutes while you are running your vacuum pump and heating the crankcase area shake the compressor. By heating the crank- case you are heating the oil in the compressor. This will drive the moisture out of the oil. By shaking the compressor this will allow the moisture to come to the top of the oil faster so the vacuum pump can remove the moisture from the system.

Electrolux Home products does not approve the use of the Sweep Charge for sealed system repair. This method of servicing sealed systems we know is often used to repair products in the field. The Sweep Charge does not adequately remove the moisture from the oil in the compressor. In a R-134a system you will need to replaced the compressor if the product has had a low side leak and you are servicing with the Sweep Charge procedure.

R-134a refrigerant molecules are smaller than

R-12 molecules. This means that R-134a will pass more minor leaks and the rate of flow will be greater than for R-12. Therefore, it is now more important than ever to follow good brazing practices. Use a good grade of silver solder. 45% silver solder is recommended.

Leak Detection

R-134a system leaks can be pinpointed by means of an electronic leak detector or by bubble solution.

Electronic leak detectors for R-134a service are currently available from several manufacturers. The least expensive models are non-selective detectors that will detect any type of emission or vapor present, regardless of its chemical composition. Some non-selective detectors designed for use with R-12 may have a much lower sensitivity when used with R-134a. However, newly designed detectors with good R-134a sensitivity are now available. Be sure to consult with the manufacturer before selecting or using a non-selective detector with R-134a.

Halogen-specific detectors use a specialized sensor that allows detection of compounds containing chlorine, fluorine, bromine, and iodine without being activated by other species. The major advantage of this type of detector is a reduction in the number of "nuisance alarms". Halogen-specific detectors are generally more expensive than non-selective detectors but feature higher sensitivity.

HFC-134a, CFC-12 Pressure Temperature Chart

°F	°C	HFC-134a	CFC-12		°F	°C	HFC-134a	CFC-12
-60	-51.1	21.8*	19.0*		55	12.8	51.1	52.0
-55	-48.3	20.4*	17.3*		60	15.6	57.3	57.7
-50	-45.6	18.7*	15.4*		65	18.3	63.9	63.8
-45	-42.8	16.9*	13.3*		70	21.1	70.9	70.2
-40	-40.0	14.8*	11.0*		75	23.9	78.4	77.0
-35	-37.2	12.5*	8.4*		80	26.7	86.4	84.2
-30	-34.4	9.8*	5.5*		85	29.4	94.9	91.8
-25	-31.7	6.9*	2.3*		90	32.2	103.9	99.8
-20	-28.9	3.7*	0.6		95	35.0	113.5	108.3
-15	-26.1	0.0	2.4		100	37.8	123.6	117.2
-10	-23.3	1.9	4.5		105	40.6	134.3	126.6
-5	-20.6	4.1	6.7		110	43.3	145.6	136.4
0	-17.8	6.5	9.2		115	46.1	157.6	146.8
5	-15.0	9.1	11.8		120	48.9	170.3	157.7
10	-12.2	12.0	14.6		125	51.7	183.6	169.1
15	-9.4	15.0	17.7		130	54.4	197.6	181.0
20	-6.7	18.4	21.0		135	57.2	212.4	193.5
25	-3.9	22.1	24.6		140	60.0	227.9	206.6
30	-1.1	26.1	28.5		145	62.8	244.3	220.3
35	1.7	30.4	32.6		150	65.6	261.4	234.6
40	4.4	35.0	37.0		155	68.3	279.5	249.5
45	7.2	40.0	41.7		160	71.1	298.4	265.1
50	10.0	45.3	46.7		165	73.9	318.3	281.4

Inhalation Toxicity

HFC-134a poses no acute or chronic hazard when it is handled in accordance with DuPont recommendations and when exposures are maintained at or below the DuPont Acceptable Exposure Limit (AEL) of 1,000 ppm (8 and 12 hour Time-Weighted Average or TWA).

An AEL is an airborne exposure limit established by DuPont scientists that specifies time-weighted average (TWA) airborne concentrations to which nearly all workers may be repeatedly exposed without adverse effects. The AEL for HFC-134a has the same value as the Threshold Limit Values (TLVs) established for CFC-12 and HCFC-22. TLVs are established by the American Conference of Governmental and Industrial Hygienists (ACGIH).

However, inhaling high concentrations of HFC-134a vapor may cause temporary central nervous system depression with narcosis, lethargy and anesthetic effects. Other effects that may occur include dizziness, a feeling of intoxication and a loss of coordination. Continued breathing of high concentrations of HFC-134a vapors may produce cardiac irregularities (cardiac sensitization), unconsciousness, and with gross overexposure, death. Intentional misuse or deliberate inhalation of HFC-134a may cause death without warning. This practice is **extremely dangerous**.

If you experience any of the initial symptoms, move to fresh air and seek medical attention.

Cardiac Sensitization

If vapors are inhaled at a concentration of 75,000 ppm, which is well above the AEL, the heart may become sensitized to adrenaline, leading to cardiac irregularities and, possibly, to cardiac arrest. The likelihood of these cardiac problems increases if you are under physical or emotional stress.

Medical attention must be given immediately if exposed to high concentrations of HFC-134a. **DO NOT** treat with adrenaline (epinephrine) or similar drugs. These drugs may increase the risk of cardiac arrhythmias and cardiac arrest. If the person is having difficulty breathing, administer oxygen. If breathing has stopped, give artificial respiration.

Spills or Leaks

If a large release of vapor occurs, such as from a large spill or leak, the vapors may concentrate near the floor or low spots and displace the oxygen available for breathing, causing suffocation.

Evacuate everyone until the area has been ventilated. Use blowers or fans to circulate the air at floor level. **DO NOT** reenter the affected area unless you are equipped with a self-contained breathing apparatus or unless an area monitor indicates that the concentration of HFC-134a vapors in the area is below the AEL.

Always use self-contained breathing apparatus or an air-line mask when entering tanks or other areas where vapors might exist. Use the buddy system and a lifeline. Refer to the Material Safety Data Sheet (MSDS) for HFC-134a for more information.

HFC-134a vapors have a slightly sweet odor that can be difficult to detect. Therefore, frequent leak checks and the installation of permanent area monitors may be necessary in enclosed spaces. Refer to ASHRAE Standards 15 and 34 for refrigeration machinery rooms.

To ensure safety when working with HFC-134a in enclosed areas:

1. Route relief and purge vent piping (if present) outdoors, away from air intakes.
2. Make certain area is well ventilated, using auxiliary ventilation, if necessary, to move vapors.
3. Make sure area is clear of vapors prior to beginning work.
4. Install air monitoring equipment to detect leaks.

Skin and Eye Contact

At room temperature, HFC-134a vapors have little or no effect on the skin or eyes. However, in liquid form, HFC-134a can freeze skin or eyes on contact, causing frostbite. Following contact, soak the exposed area in lukewarm water, not cold or hot. If medical treatment cannot begin immediately, apply a light coat of a nonmedicated ointment, such as petroleum jelly. If the exposed area is in a location where the presence of the ointment would be awkward, such as on the eye, apply a light bandage. In all cases of frostbite, seek medical attention as soon as possible.

Always wear protective clothing when there is a risk of exposure to liquid HFC-134a. Where splashing is possible, **always** wear eye protection and a face shield.

Combustibility of HFC-134a

HFC-134a is nonflammable at ambient temperatures and atmospheric pressure. However, tests have shown HFC-134a to be combustible at pressures as low as 5.5 psig (139.3 kPa absolute) at 177°C (350°F) when mixed with air at concentrations generally greater than 60% volume air. At lower temperatures, higher pressures are required for combustibility. (HCFC-22 is also combustible at pressures above atmospheric in the presence of high air concentrations). Test results and calculations have shown:

- At ambient temperature, all concentrations of HFC-134a in air are nonflammable at pressures below 15 psig (205 kPa absolute).
- Combustible mixtures of air and HFC-134a will not form when liquid HFC-134a is pumped into closed vessel if initial air pressure in vessel is limited to one atmosphere absolute and final pressure is limited to 300 psig (2,170 kPa absolute). If initial air pressure is greater than one atmosphere, combustible mixtures may form as tank is filled.

Based on above information, the following operating practices are recommended:

Leak Testing

- Equipment should **NEVER** be leak tested with a pressurized mixture of HFC-134a and air. HFC-134a may be safely pressured with dry nitrogen.

Bulk Delivery and Storage

- Tanks should normally be evacuated at start of filling, and should never be filled while under positive air pressure.
- Tank pressure should never be allowed to exceed 300 psig (2,170 kPa) when filling with HFC-134a. Relief devices on either tanks or HFC-134a supply system usually prevent this.
- Tank pressures should be monitored routinely.
- Air lines should never be connected to storage tanks.

Filling and Charging Operations

- Before evacuating cylinders or refrigeration equipment, any remaining refrigerant should be removed by recovery system.
- Vacuum pump discharge lines should be free of restrictions that could increase discharge pressures above 15 psig (205 kPa) and result in formation of combustible mixtures.
- Cylinders or refrigeration equipment should normally be evacuated at start of filling, and should never be filled while under positive air pressure.
- Final pressures should not exceed 300 psig (2,170 kPa).
- Filled cylinders should periodically be analyzed for air (nonabsorbable gas or NAG).

Refrigerant Recovery Systems

Efficient recovery of refrigerant from equipment or containers requires evacuation at the end of the recovery cycle. Suction lines to a recovery compressor should be periodically checked for leaks to prevent compressing air into the recovery cylinder during evacuation. In addition, the recovery cylinder pressure should be monitored, and evacuation stopped in the event of a rapid pressure rise indicating the presence of noncondensable air. The recovery cylinder contents should then be analyzed for NAG, and the recovery system leak checked if air is present. **DO NOT** continue to evacuate a refrigeration system that has a major leak.

Thermal Decomposition

HFC-134a vapors will decompose when exposed to high temperatures from flames or electric resistance heaters. Decomposition may produce toxic and irritating compounds, such as hydrogen fluoride. The pungent odors released will irritate the nose and throat and generally force people to evacuate the area. Therefore, it is important to prevent decomposition by avoiding exposure to high temperatures.

Ice Cube Thickness Adjustment

Interval - As Required

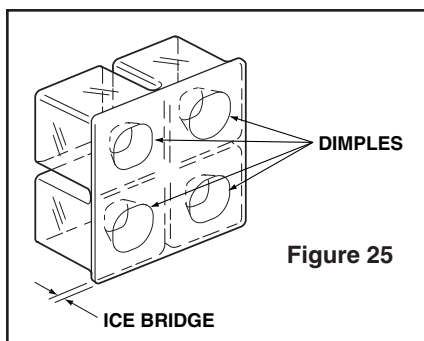
Ice thickness adjustments are made using the control panel as follows:

1. To enter the thickness adjustment mode:
 - a. Touch and hold the UP ARROW button.
 - b. Touch and release the DOWN ARROW button three times, then release the UP ARROW button.
 - c. The display will switch to "0," to confirm the thickness adjustment mode has been selected.
2. The factory setting is "0," and the total range of adjustment is -5 to +5. Use the UP ARROW button to raise the setting and thicken the ice bridge, or the DOWN ARROW button to lower the setting to thin the ice bridge.

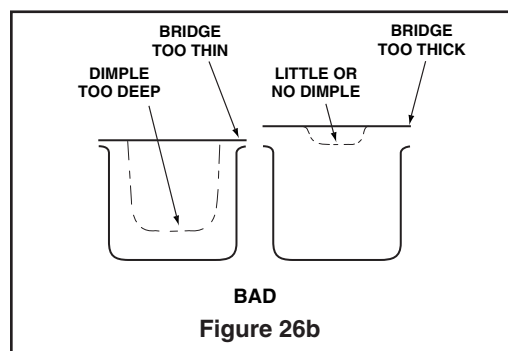
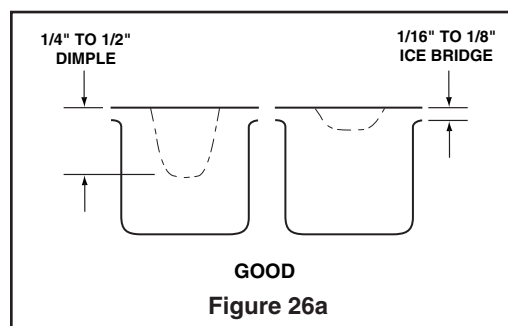
→ IMPORTANT

Ice thickness adjustment should only be made one increment at a time. Allow ice maker production to stabilize for 24 hours before rechecking ice thickness.

3. Touch and release the LIGHT button key to exit the ice thickness adjustment mode.
4. Remove all ice from the storage bin.
5. Ice cubes in any given batch will vary, so it is necessary to choose cubes from the sample area (Figure 25) for comparison when making adjustments. If further adjustments are desired, repeat steps 1 through 4.



The ice cube thickness control is factory set for best overall performance. The factory setting is designed to maintain an ice bridge of approximately 1/16" to 1/8" under normal conditions resulting in a dimple of approximately 1/4" to 1/2" in depth (see Figure 26a and 26b). A fuller cube with less of a dimple results in a thicker ice bridge. As the ice bridge becomes thicker, the tendency for the cubes to stay together as a slab increases. A bridge thicker than 1/8" may cause cubes to over-fill the ice bucket.



Operating Environmental/Climate Control Requirements

Many product models are designed to operate in harsh outdoor/marine environments. Special considerations include the following:

- The units are designed to operate between 50°F (10°C) and 110°F (40°C). High ambient temperatures (110°F or higher) may reduce the unit's ability to reach low temperatures and may also reduce the ice production rate for those models with ice makers.
- If the ambient temperature is expected to drop below 45°F, drain all water from the unit to prevent freezing damage not covered by the warranty.
- For best performance, keep the unit out of direct sunlight and away from heat generating equipment.
- For best performance and life outdoors, place under a counter or provide shelter of some kind.
- In climates where high humidity and dew points are present, condensation may appear on outside surfaces. This is considered normal. The condensation will disappear when the humidity drops.

Specifications

	FF7.5HBK	EMY70HER
Voltage	115.0	115-127
Frequency	60.0	60.0
LRA	25.0	26.5
FLA	4.0	2.7
Start Winding	11.2	8.1
Run Winding	2.2	3.2
Capacitor	N/A	N/A

Water Valve	275 Ohms
Bypass Coil	300 Ohms
Pump Motor	72 Ohms

Model EI151M55GS

Defrost Information

Hours between Defrost Time (Runtime): 6

Length/min: 90

Stop Point: 42°

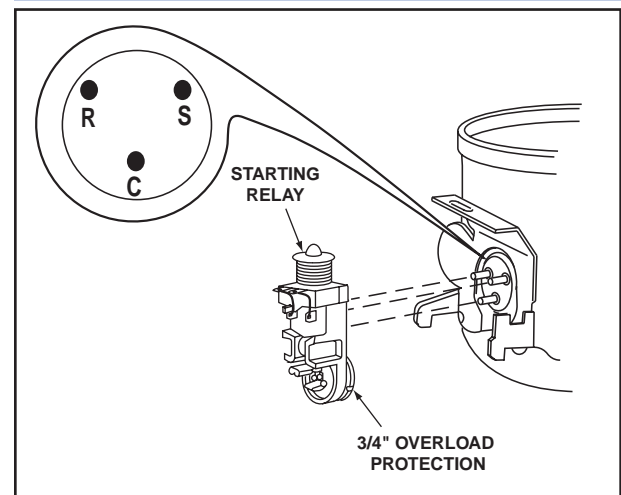
Compressor / Coil Specifications



WARNING

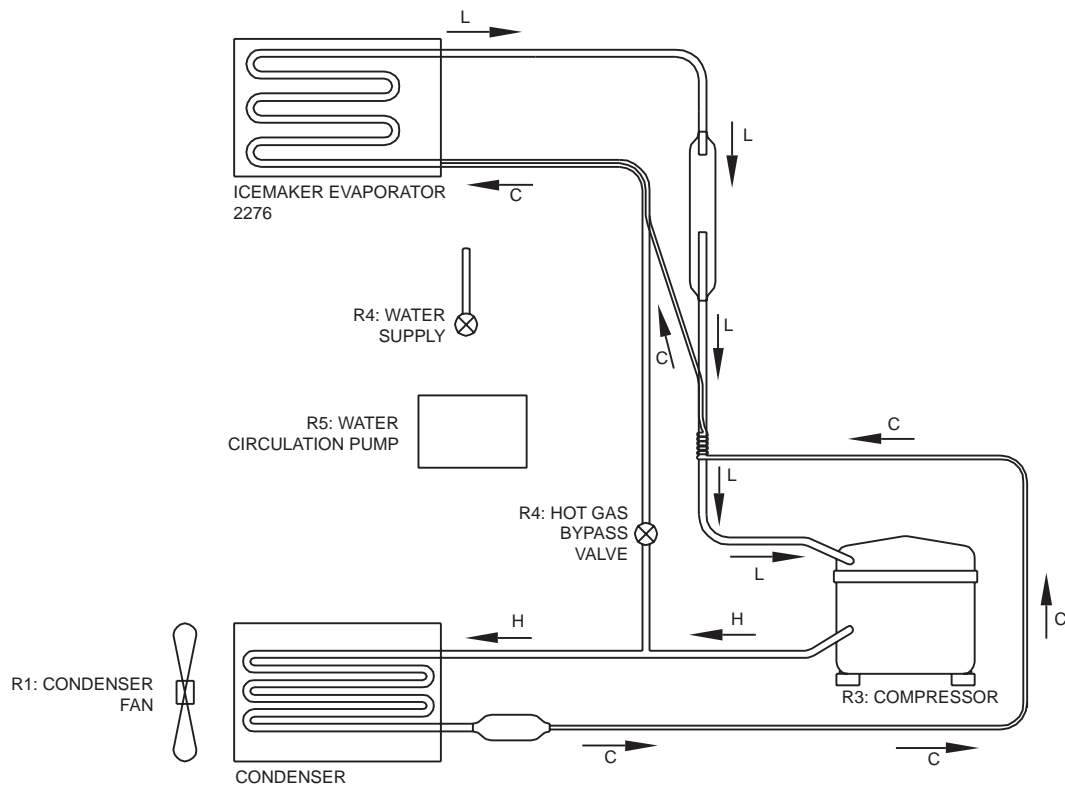
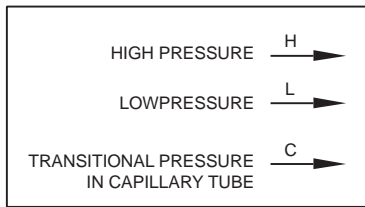
Electrocution can cause death or serious injury. Burns from hot or cold surfaces can cause serious injury. Take precautions when servicing this unit.

- Disconnect the power source.
- Do not stand in standing water when working around electrical appliances.
- Make sure the surfaces you touch are not hot or cold.
- Do not touch a bare circuit board unless you are wearing an anti-static wriststrap that is grounded to an electrical ground or grounded water pipe.
- Handle circuit boards carefully and avoid touching components.



- To measure the start winding resistance, measure across the C and S pins.
- To measure the run winding resistance, measure across the C and R pins.
- Also check S to R and you should get the sum of the run and start windings.
- To ensure the windings are not shorted, check check the S and R pins to ground.

Operation



RELAY	R1	R3	R4	R5
FUNCTION	FAN	COMP	HOT GAS / WATER IN	CIRC PUMP
Mode 1: Ice Making	ON	ON	OFF	ON
Mode 2: Ice Harvest	ON	ON	ON	OFF
Mode 3: Off	OFF	OFF	OFF	OFF
Mode 4: Cleaning	OFF	OFF	ON/OFF	ON/OFF
Mode 5: Water Fill & Initial Start-Up	OFF	OFF	ON*	OFF

* Normal Start-Up lasts 3 minutes

Note: R2, R6 and R7 not used

Upon initial startup, this unit will enter mode number 5 which is a three-minute water fill regardless of the thermistor temperatures. This only occurs when the initial startup is caused by a power-up of the main board.

Following the three-minute water fill, the unit moves into mode 1 which is the freezing mode. In this mode the water is pumped from the sump trough over the ice maker grid by the circulation pump. This mode typically lasts 10-20 minutes and is regulated by the temperature of the thermistor mounted near the dryer (thermistor 4).

At the conclusion of the freeze cycle the unit will enter mode 2 which is the ice harvest. This harvest can last up to three minutes. During this mode the water trough also refills.

Before the next cycle begins, the custom electronic board determines whether the bin is full. A temperature below 34°F, or a temperature below 35°F for at least one hour will stop the unit from producing ice. The ice-making will always stop at the conclusion of a harvest cycle. It will never stop in the middle of a cycle.

The custom electronic board continuously monitors the optional EIMP60 pump to ensure the drain line is not becoming restricted. In the event of a drain line obstruction, the display interface will show "P1." If the drain remains restricted the unit will stop ice production until the drain clears. In the event of a partially restricted drain, reduced ice rate will be noticed as the unit continuously turns on and off to eliminate any chances of overfilling the unit with water. If no pump is used the pink jumper needs to be connected to the power cord in its place.

A cleaning mode is available through the user interface by using the key sequence described in the Controls Section. The cleaning mode lasts about 45 minutes, at which point the unit will sit idle for another 15 minutes. During this time the display will show "CL." At the conclusion of the cycle the unit will automatically turn back on.

Thermistor Outage:

In the event that a thermistor fails, the unit will stop all functions and display "ER" on the user interface. The exact error can be accessed via the service mode.

Service:

The E151M model uses four relays and two thermistors. There is a variety of built-in servicing features to aid in diagnosing the root problem associated with a unit.

To check to see which relays are currently operating, hold the COLDER key and press the ON/OFF key three times. When entering the sequence, keep the COLDER key pressed until you completely release the ON/OFF key for the third time. The display will cycle through a series of numbers to tell which relays are energized. For example, if the unit was in ice-making mode the display would show 11 20 31 40 51 60 70. The first number is the relay number. In the second number, "1" means on and "0"

means off. The relay information can be found in the Control Section.

Each relay can also be turned on and off individually to determine whether or not the board and component are operating. If a board is suspected of not operating correctly you can run through this sequence to ensure each component is turning on and off through the board correctly. Go into service mode and choose option #22. This will cycle every relay on and off showing 10 11 20 21 If a component fails to turn on when the relay does, you can verify if there is voltage present by using a voltmeter to check the board output.

To view the actual thermistor readings, hold the WARMER and COLDER keys for about five seconds. The display will cycle through the three thermistors and their temperatures. If a thermistor is unused in a unit it will show a "0" reading. The E151M uses thermistors 2 and 4. For thermistor 4 the display will only show up to "99." In the event the temperature is higher than this the display will show a flashing "99."

Troubleshooting:

Display shows ER or P1

- E1, E2, E9 Bad thermistor errors. Replace thermistor. Check for thermistor errors by accessing "View thermistor # status (19, 20, or 21)." If the error code is repeated, the thermistor is open or shorted. If a temperature is displayed, the thermistor is not defective.
- P1 Pump circuit is detecting a drain problem. Consult a plumber to resolve the issue. If unit does not have a P60 installed, then the jumper wire is missing in place of the pump.

Any other error messages will not affect the operation of the E151M model.

After checking the errors be sure to clear the error log by performing service option 12.

No ice

Check the ice bin temperature. If the temperature is in the 34-35°F range, the unit is shut down due to low temperature inside. This could be caused by low ambient temperatures or running the unit without a water supply attached.

If the ice bin temperature is above 35°F, the unit should be producing ice. Check to ensure the water trough is full and the pump is operating. If the components are not operating, see the service section above.

Too much ice

Ensure there is Permagum around the thermistor hole. If there is, proceed to the next step.

The control board is equipped with an adjustment to adjust the level of ice in the bin for customer preference or when used in abnormal installations. With ice stacked to the desired level, check the bin temperature by holding

WARMER and COLDER for five seconds. We'll assume the display showed 38°F for this example. Go to service mode #24 and adjust the setting to that number. This will allow the bin to shut off at this ice level. This temperature needs to be checked after the door has been closed for at least 10 minutes in order for the thermistor temperature to stabilize.

Too little ice

If this is a recurring issue, try adjusting service option #24 warmer in 1 or 2° increments until the desired level of ice is achieved.

Ice not sized to customer satisfaction

The thickness of the cubes can be adjusted per the ice thickness section of the manual.

Noise

Some noise from this unit is normal. You may hear the sound of ice dropping into the bin, especially when it is empty. The harvesting processes involves flowing refrigerant and water through valves which may produce a rushing type sound during the harvest. The fan and compressor will produce a continuous low motor noise. If installed, the P60 pump will produce noise at regular intervals as it empties water from the unit. If any of these is objectionable, the unit has an Office mode which can be entered for three hours at a time. During this mode the unit will not produce ice; however, the drain pump will continue to operate.

No water in trough

Ensure the standpipe is fully inserted into the trough.

Check the water valve to see if it is filling the unit.

Watch the water flow over the mold to see if excess water is being splashed out of the trough. This could be the result of improper leveling.

Ice does not release from evaporator

This could be caused by improper leveling or the unit is in need of cleaning.

Poor ice quality

This can be caused by poor incoming water quality. The EI51M is designed to produce clear ice in most water; however, abnormal water conditions may result in the need for further filtering.

Water in ice bin

A defect in the drain from the unit will cause water to stop draining from the unit.

Display is showing something other than "Ice," "ER" or "CL."

Push one of the keys to see if the display is reset.

Turn unit on and off via the display pad.

Unplug unit, wait one minute and plug back in. If any of these steps return the unit to operation the unit was probably accidentally entered into a service mode.

Display is showing a random snaking of characters or a degree symbol is flashing.

The unit is in a special showroom mode. Hold the COLDER key and press the LIGHT key three times to exit.

Display not illuminating but unit operating

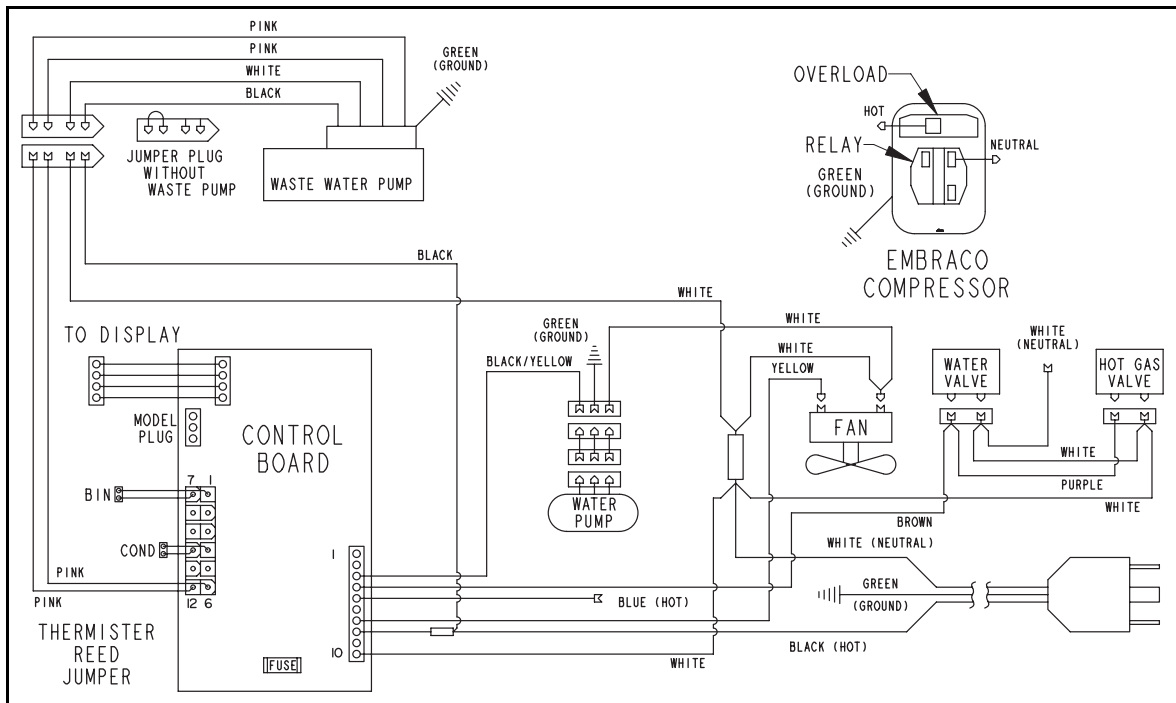
First try to plug and unplug the unit. If the display still does not illuminate, there is a four-wire pin connector running from the main board in the base to the display board. One of the wires is disconnected or damaged.

Unit is not operating—no cooling—no fans.

Unplug unit and plug back in. If main board beeps when plugging in the unit then this is most likely a system problem not a board issue.

If board does not beep when plugging in the unit, check the power supply to ensure the outlet is working. Also, check the fuse on the circuit board.

Wiring Diagram



Ice Production Rates

Ambient Temp/Water Temp °F	Approximate Ice Production (lbs/day)
50/50	60
60/50	60
70/50	58
80/50	54
90/70	47
100/70	40

NOTE: These characteristics will vary depending on operating conditions, condenser cleanliness, installation and application.

Prepare Plumbing

⚠ CAUTION

Plumbing installation must observe all state and local codes. All water and drain connections **MUST BE** made by a licensed/qualified plumbing contractor. Failure to follow recommendations and instructions may result in damage and/or harm.

Drain Connection

IMPORTANT

Drain can **NOT** be located directly below unit. Unit has a solid base that will not allow unit to drain below itself.

The E151M can be installed using a gravity drain, a factory-installed drain pump (EIMP60) or a locally installed drain pump. Drain lines must have a 5/8" inside diameter. The floor drain must be large enough to accommodate drainage from all attached drains.

Follow these guidelines when installing drain lines to prevent water from flowing back into the ice maker storage bin and/or potentially flowing onto the floor, causing water damage:

Gravity Drain

A Gravity Drain may be used if:

- Drain line has at least a 1" drop per 48" of run (1/4" per foot).
- Drain line does not create traps or created traps are vented (**Figure 2**).

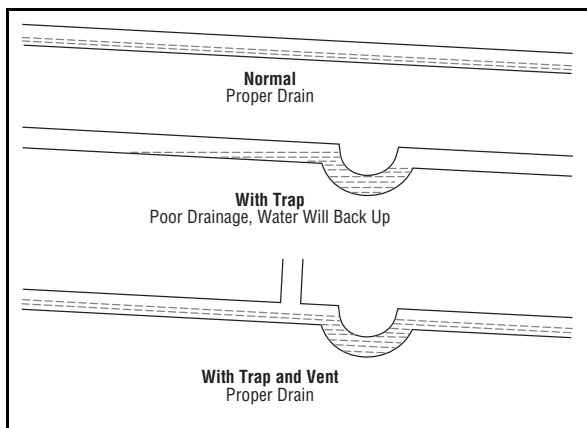


Figure 2

See **Figure 3** for a typical gravity drain installation.

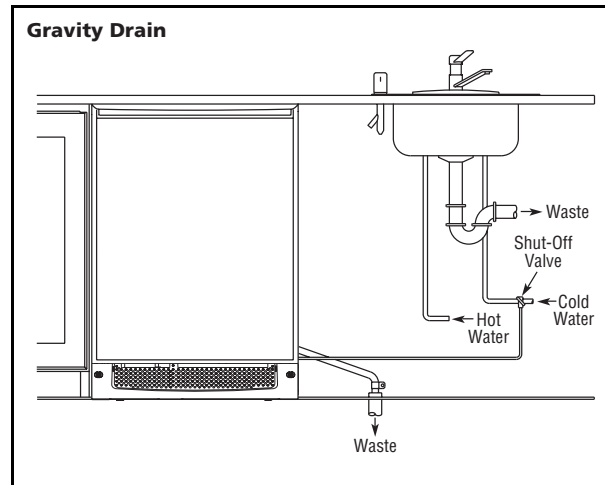


Figure 3

If using a gravity drain:

1. Attach the 5/8" ID drain connection on the back of the unit to a 5/8" OD rigid tube, using a worm clamp.
2. Attach the other end of the rigid tube to your 5/8" ID drain line with a worm clamp.
3. Insulate the drain line, if necessary, to prevent condensation.

Factory-Installed Drain Pump

If your drain line will run up to a stand pipe, disposal assembly or spigot assembly or does not otherwise meet the requirements for a gravity drain, you may have ordered the E151M with a EIMP60 drain pump. See **Figure 4**, **Figure 5** and **Figure 6** for typical installations requiring a drain pump. If you need to install a drain pump into your unit, see **Locally-Installed Drain Pump** on page 33.

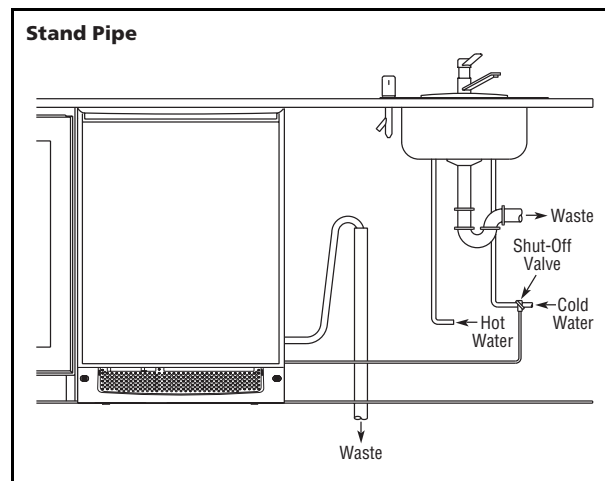


Figure 4

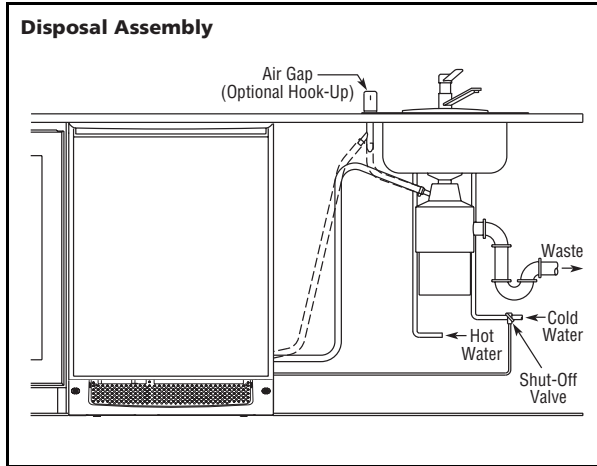


Figure 5

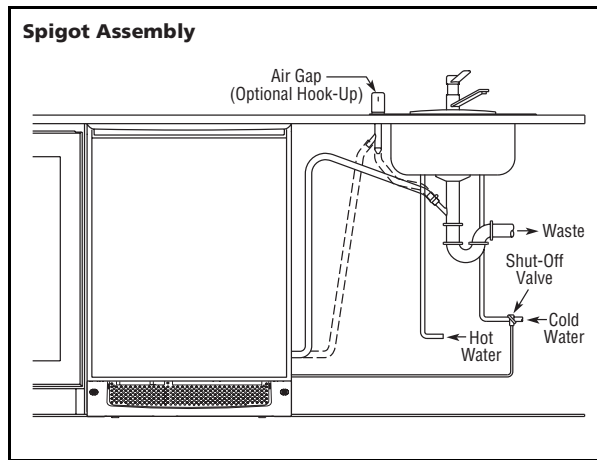


Figure 6

IMPORTANT

Before installing your E151M with factory-installed pump, EIMP60, it is extremely important to check and test all hose connections at the drain pump. There is a possibility that hose connections may have loosened during shipment.

WARNING

To prevent accidental electrocution, make certain that the floor surfaces surrounding the unit are dry whenever power is removed from, or applied to, the unit.

To check and test hose connections:

1. Make certain the unit is not plugged into an electrical outlet.
2. Carefully push the power cord grommet through the hole in the back panel (Figure 7).

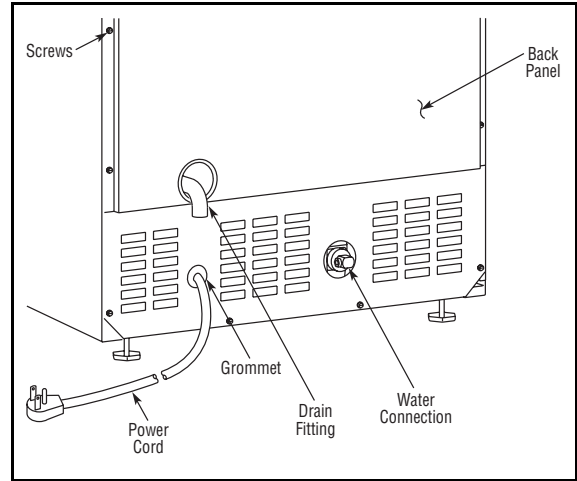


Figure 7

3. Remove 12 screws and back panel.

WARNING

Back panel serves as a guard. DO NOT put your hands inside the ice maker cabinet or attempt to touch any components except the discharge tube during testing. Failure to follow this warning could result in serious personal injury or death.

4. Check that the clamps and hose connections are tight at the following areas (Figure 8):

- Discharge tube (A)
- Drain tube (B)
- Vent tube (C)

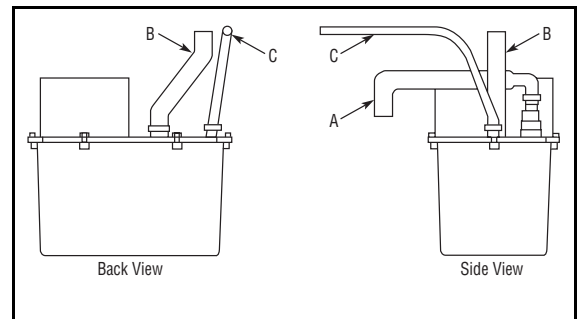


Figure 8

5. Place a suitable container beneath the pump's discharge tube. (The bucket must be able to hold a minimum of one gallon.)
6. Plug the ice maker power cord into a properly grounded, polarized electrical outlet.
7. Verify pump operation by pouring one gallon of water into the ice storage bin of the ice maker. The pump should energize and pump the water into the container.
8. At this time, verify that all tube and clamp connections are tight and leak free.

9. Unplug unit power cord from electrical outlet.
10. Reinstall back panel.

To connect to drain:

1. Attach the 5/8" ID drain connection on the back of the unit to a 5/8" OD rigid tube, using a worm clamp.
2. Attach the other end of the rigid tube to your 5/8" ID drain line with a worm clamp.
3. Insulate the drain line, if necessary, to prevent condensation.

Locally-Installed Drain Pump

If a gravity drain connection is not possible and you have not purchased a model with factory-installed pump, we strongly recommend the use of the EIMP60 drain pump. The EIMP60 drain pump is available through your dealer. If a pump other than the EIMP60 is to be used, it must meet the following specifications:

- It must be UL listed and have a UL listed, 120 VAC, 3-wire grounded power cord.
- It must have overall maximum outside dimensions of 8-3/4" wide x 5-3/4" deep x 7-3/4" high.
- It must have a minimum flow rate of 15 gallons per hour at 10 feet of lift.
- It must have a sealed sump which does not allow water leakage in the case of a power outage, restricted drain or pump failure.
- It must have a check valve in the discharge line to prevent waste water return to the pump.
- It must have an overflow protection control which will shut off power to the ice maker in the event of a pump failure.
- It must have an operating temperature range of 50°F to 110°F (10°C to 40°C).

Tools Required:

- 1/4" Nut driver or flat 5/16" screwdriver
- Side cutter
- Copper tubing cutter
- 12" Level
- 9/16" Open end wrench
- 7/16" Open end wrench
- Pliers

Materials Required:

- (10' or more depending on water supply location) 1/4" O.D. soft copper tubing
- *(10' or more depending on drain location) 5/8" I.D. braid reinforced PVC drain tubing

- *(3) 11/16" to 1-1/4" Clamp range worm drive hose clamps
- *(1) Brass garden hose fitting (supplied with product)
- *(1) Nylon barbed coupling for 5/8" ID hose
- *(1) 5/8" to 7/8" adapter

NOTE: These instructions are based on recommendations and common industry practice. You must consult your local plumbing codes to ensure compliance. Copper tubing is recommended for the cold water supply connection. Plastic tubing should not be used.

1. Locate the desired cold water supply location. Attach a 1/4" copper line to this location and route the tubing to the appliance. Leave approximately 8' of water line to be coiled behind the appliance as shown (**Figure 9**). This water line should be looped into 2 coils. This will allow the line to flex when moving the appliance in and out of the opening.

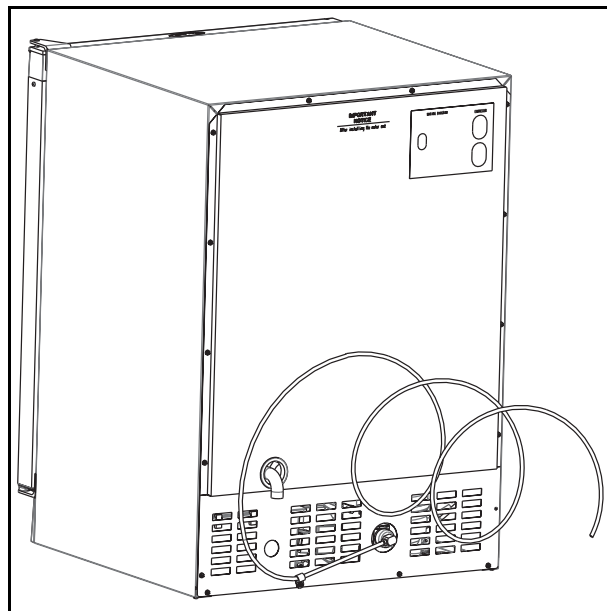


Figure 9

2. Locate the supplied garden hose fitting. Ensure the end of the copper tubing has been cut straight and is free of burrs. Slide the compression nut and ferrule onto the copper tubing as shown (**Figure 10**). Push the assembly completely into the garden hose fitting and tighten using the two wrenches. Wait to connect this assembly to the appliance until the drain connection is ready.

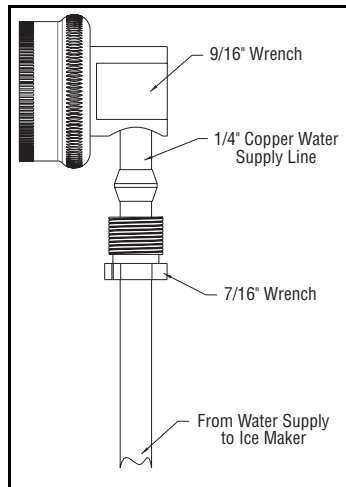


Figure 10

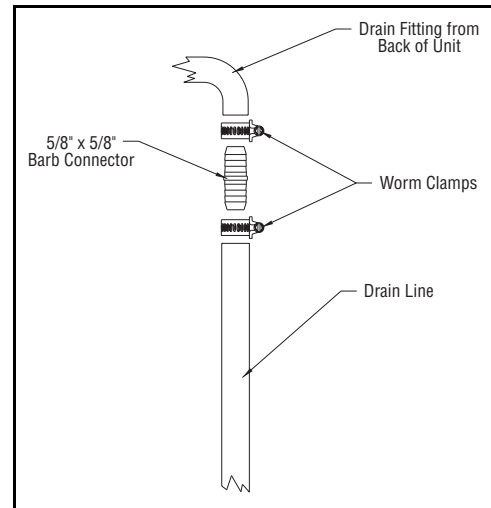


Figure 12

3. Your icemaker requires a drain connection. This unit can be purchased with or without a factory-installed drain pump. **If a pump is not installed in the appliance you must use the gravity drain style installation** OR install a pump per the installation instructions found on www.U-Line.com.
4. Slide two hose clamps onto the drain connection on the rear of the appliance. Insert the barbed fitting half-way into this connection. On the other end of the barbed fitting attach the 5/8" braided tubing. Slide a clamp onto each side of the barbed fitting as shown (**Figures 11 and 12**).

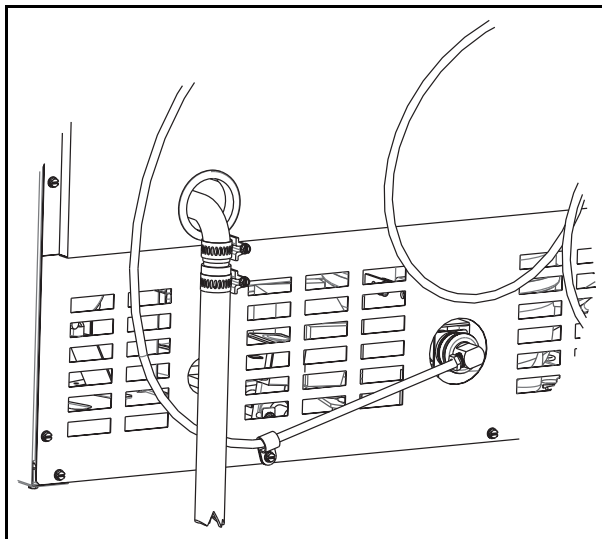


Figure 11

5. Determine the location of your drain and begin to route the drain tubing in that direction. If using the gravity drain option you must provide 1/4" drop every foot of line. For drain pump application you must not go higher than 10 feet of lift. The lift should be made vertically at the beginning of the drain line. After the lift try and provide 1/4" drop every foot of line to the drain location.
6. Connect the water supply fitting by screwing the brass garden hose fitting to the water valve in the rear of the unit. Tighten this fitting with a pliers. Do not use Teflon tape or joint compound on the fitting. The rubber washer provides an adequate seal. Other materials could cause blockage of the valve. The copper water line should now be clamped to the rear of the unit to prevent rotation when sliding in. Remove the clamp from the unit, slide the tube into it and reattach using the 1/4" nut driver as shown (**Figures 11 and 12**).
7. Plug in the unit and put the unit into OFF mode by holding the power key for 10 seconds. Not doing this will cause the unit to fill with water for three minutes.
8. Turn on the water supply and ensure the connections are free of leaks.
9. Begin to push the appliance into the desired cabinet opening. The copper tubing should remain in two coils behind the unit. While pushing the unit into the opening continuously reroute the drain tube to avoid kinks. The most common installation pulls the slack into an adjacent cabinet or basement area. Again, if installing a gravity drain, ensure you provide proper slope.
10. Once pushed completely into the opening finish routing the drain tubing to the desired location. Common installations use a floor drain, standpipe, garbage disposal, or Y-branch tailpiece-type drain connection (**Figures 13-16**). After the installation is complete, check the unit to ensure it is level both side to side and

front to back. For disposal connections an optional adapter may be required (included with the kit) to adapt from the 7/8" connection.

11. For the gravity/floor drain or the standpipe drains it is important to secure the drain tubing to those items to prevent it from coming loose. For the disposal or Y-branch tailpiece connections press the drain tube over the barbed end on the connector. Make sure the knockout inside the tailpiece has been removed for both types of connections. Attach these two with a worm drive hose clamp. Depending on the size of the Y-branch or disposer fitting an adapter may be needed to interface between the 5/8" hose and connection.
12. After all connections have been completed turn the unit to the ON position. Pour one gallon of water into the ice bin and check all drain connections for leaks. During this time also ensure that the water flows from the bin. If the water does not flow from the bin there may be a problem with the drain connection such as kinks or improper slope. If your unit has a drain pump an indicator of P1 on the display will alert to a slow or clogged drain. If any problems are found, retrace the drain connection, correct the issue and retest with water.

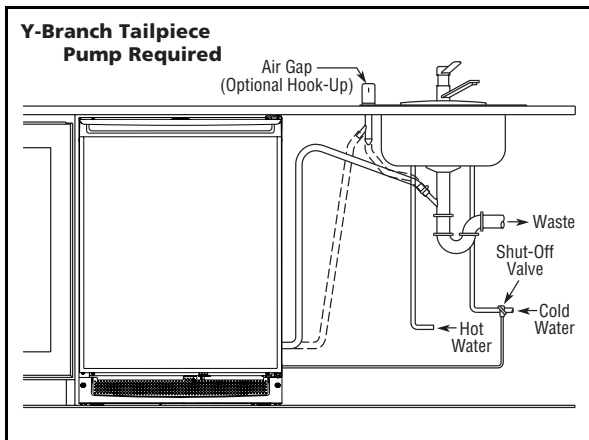


Figure 13

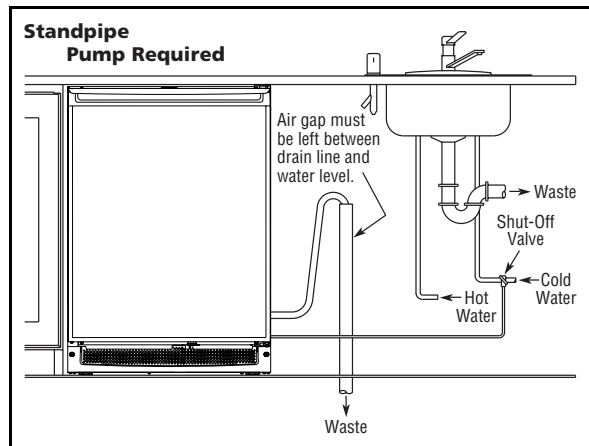


Figure 14

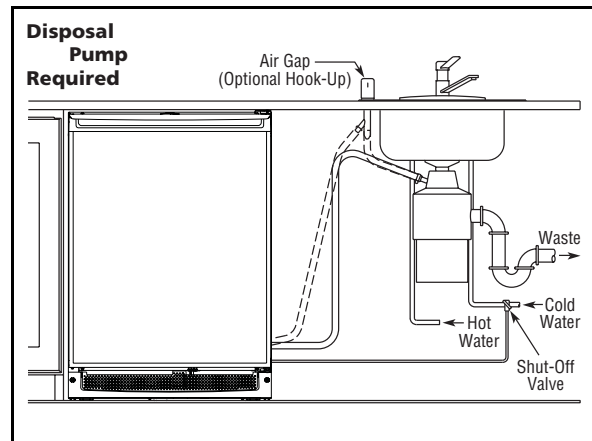


Figure 15

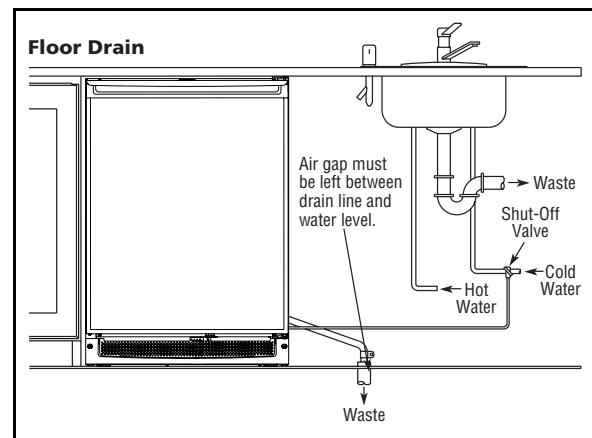


Figure 16

Self-Cleaning Cycle Instructions

To maintain operational efficiency, clean unit every six months. (Depending on water conditions, more or less frequent cleaning may be necessary.) If the ice maker requires more frequent cleaning, consult a qualified plumber to test the water quality and recommend appropriate treatment.

CAUTION

Use only Electrolux ice machine cleaner EIM41978. **It is a violation of federal law to use this solution in a manner inconsistent with its labeling. Use of any other cleaner can ruin the finish of the evaporator and will void the warranty. Read and understand all labels printed on the package before use. Ice machine cleaner is used to remove lime scale and other mineral deposits. Refer to the following steps for mineral deposit removal.**

1. Remove all ice from the storage bin.
2. Remove inside front cover by gently pulling away from sidewall (**Figure 19**).

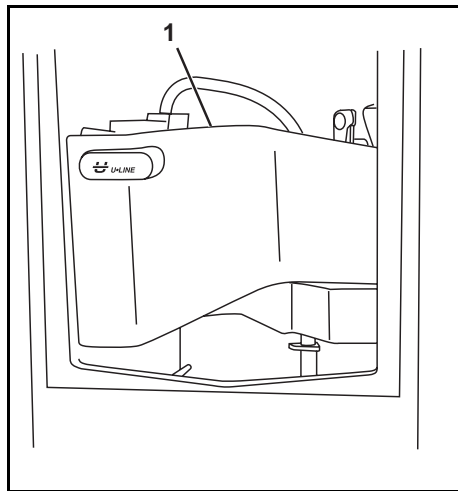


Figure 19

3. Remove the overflow tube by lifting it up while using a slight back and forth motion to loosen it from the drain hole (**Figure 20**). The water in the reservoir will flow down the drain.

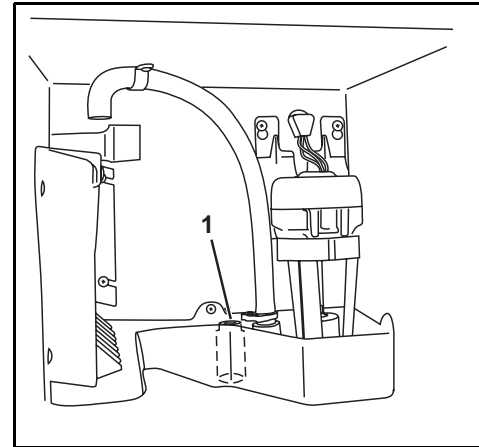


Figure 20

4. Replace the overflow tube after all the water has been drained from the reservoir.
5. Hold down the ON/OFF key and press LIGHT three times to enter cleaning mode.
6. When water begins to flow over the evaporator, approximately three minutes, add one packet of U-Line Ice Machine Cleaner to the reservoir.
7. Reinstall inside front cover.
8. When the self-cleaning process stops, approximately 45 minutes, it may be desirable to clean the storage bin. See **Interior Storage Bin Cleaning**.
9. After one hour the display will change from "CL" back to showing "ICE." At this time the unit will automatically begin normal operation.

Interior Storage Bin Cleaning

1. Disconnect power from the ice maker.
2. Remove any ice from the storage bin.
3. Wipe down the storage bin with a solution of non-abrasive mild soap or detergent and warm water. Rinse with clean water. Sanitize the bin with a solution of one tablespoon of bleach and one gallon of water. Rinse thoroughly with clean water.
4. Check that all drain connections are in place.
5. Reconnect power to the unit.
6. Make sure the drain system is working properly and the drain hose is not pinched or kinked. Pour one gallon of cool, fresh water into the ice bin. The water should drain freely. If your E151M is equipped with a drain pump, the pump should drain the ice bin.

EI151M55GS Parts Section

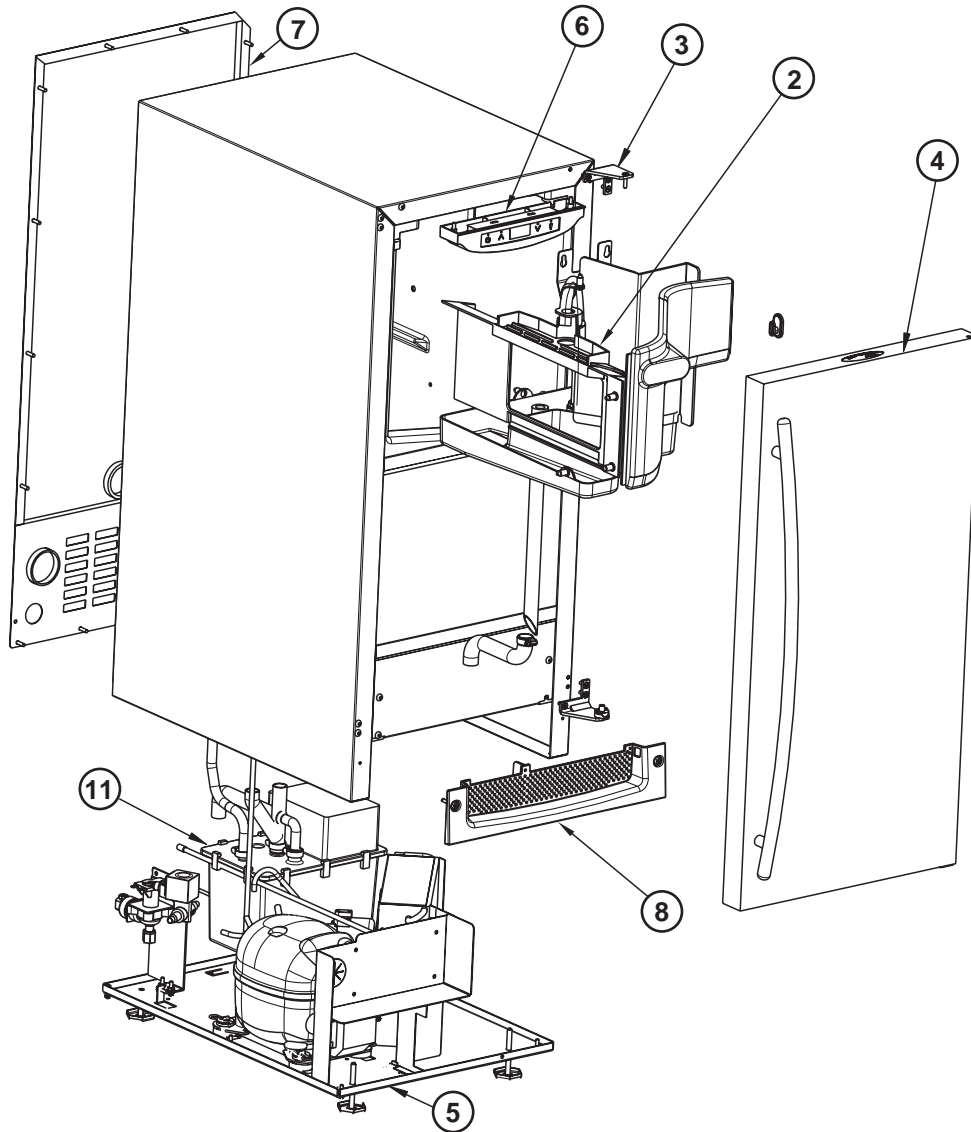


Figure 21

Item	Description
2	INTERIOR, CLR2160
3	HINGE COMP
4	DOOR COMPONENTS
5	BASE ASSY, CLR2160
6	CONTROL COMPONENTS
7	BACK PANEL, CLR2160
8	GRILLE ASSY
11	WASTE WATER PUMP ASSY
	DRAIN INSTALLATION KIT (U-CLRDRAINKIT) (not shown)

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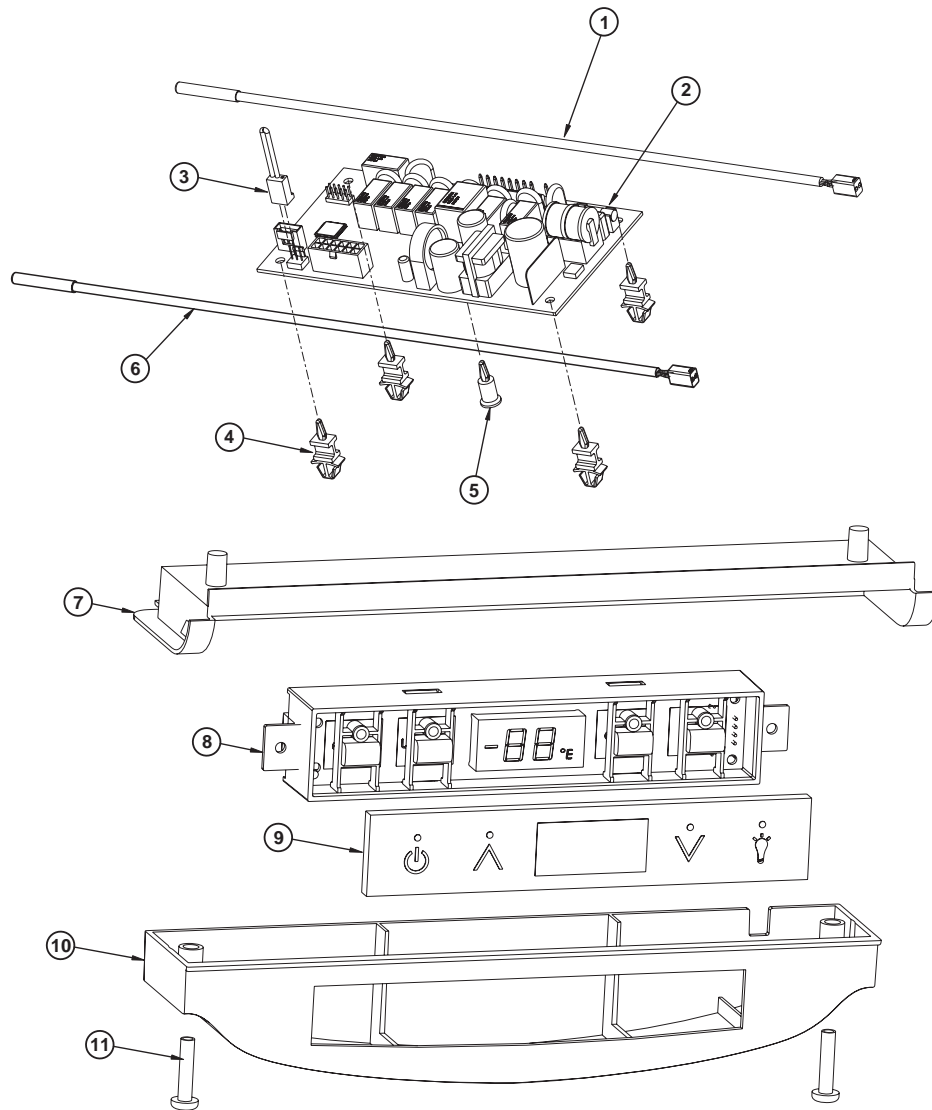


Figure 22

Item	Description
1	THERMISTOR (quick connect white)
2	CIRCUIT BOARD ASSEMBLY
3	SWITCH JUMPER (included with 68072-S)
4	CIRCUIT BOARD SUPPORTS (included with 68072-S)
5	CIRCUIT BOARD SUPPORT (included with 68072-S)
6	LIQUID LINE THERMISTOR (quick connect black)
7	BASEPLATE, LINER
8	DISPLAY ASSY, ECHELON
9	DISPLAY GLASS, ECHELON CONTROL
10	HOUSING, DISPLAY
11	SCR 8-18X. 75 PLASTITE PAN

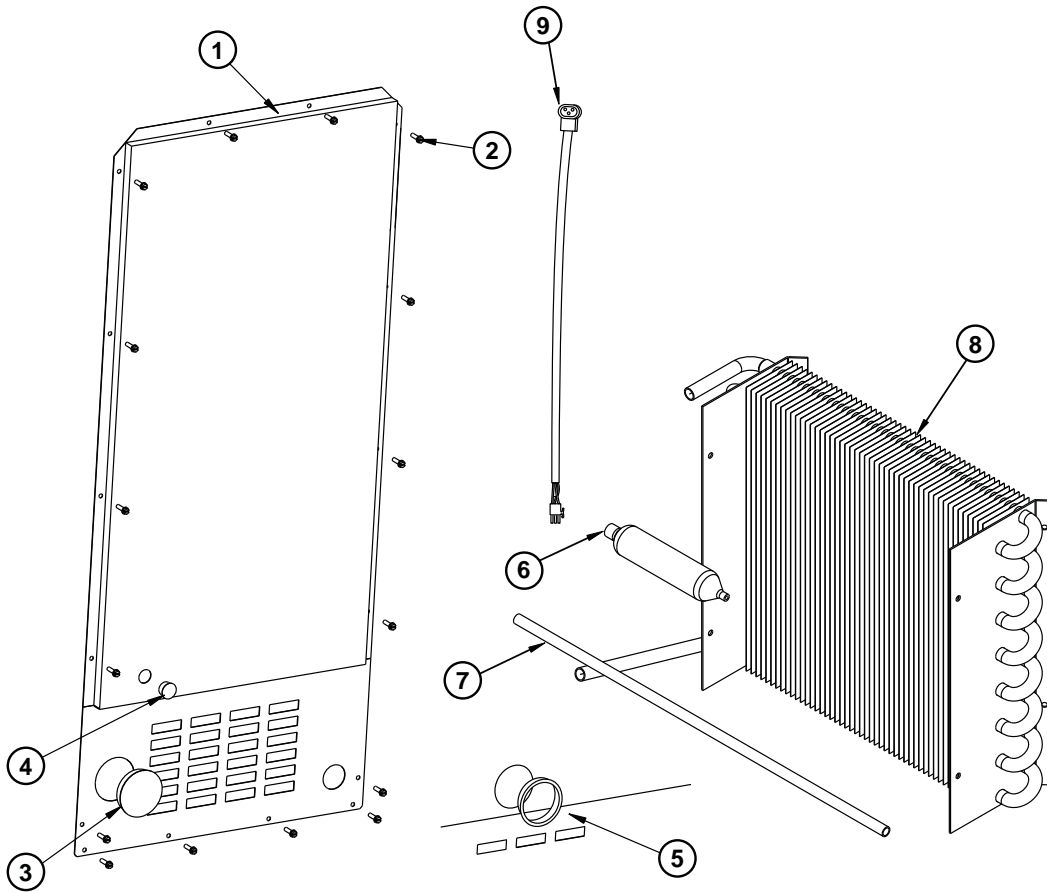


Figure 23

Item	Description
1	BACK PANEL
2	BACK PANEL SCREWS
3	SOLID HOLE COVER
4	PERFORATED HOLE COVER
5	BLACK BUSHING
6	DRYER (included with 2269-S)
7	PROCESS TUBE (included with 2269-S)
8	CONDENSER ASSEMBLY
9	WIRE ASSEMBLY PUMP TO POWER CORD

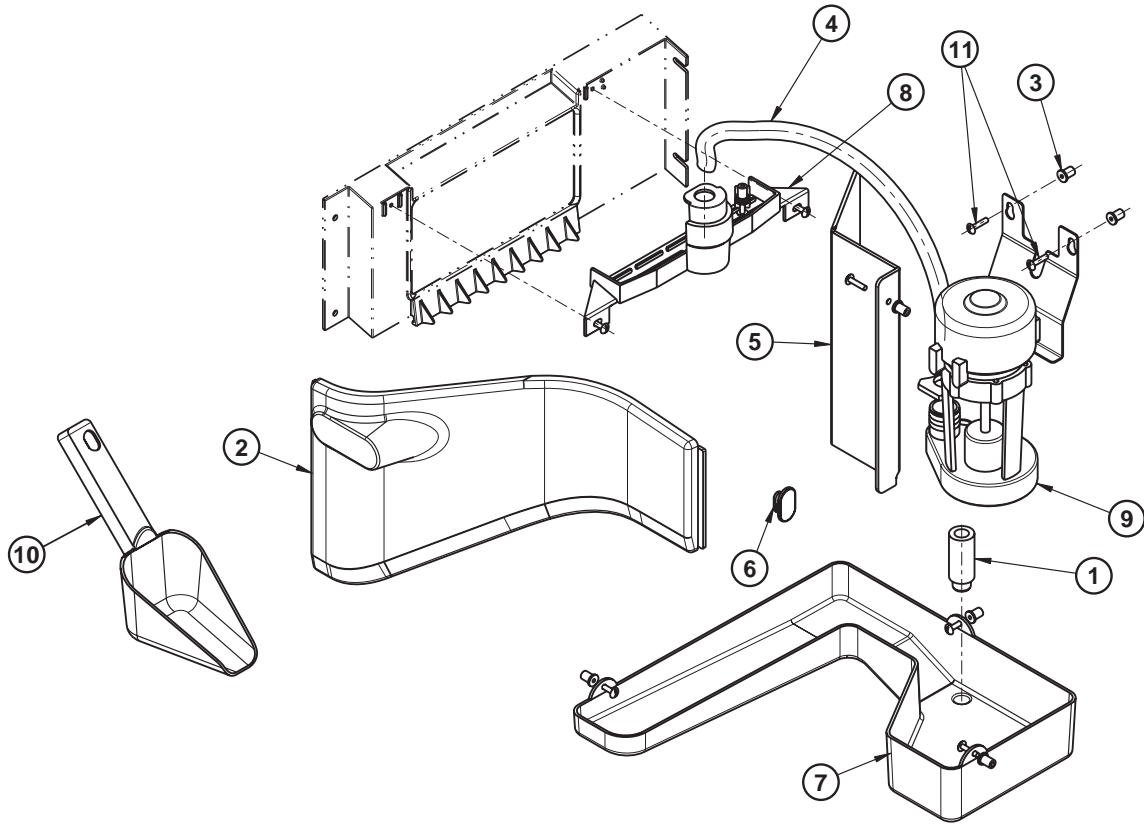


Figure 24

Item	Description
1	STAND PIPE
2	FRONT COVER
3	WELL NUT (included with 31613-5)
4	PRE-FORMED WHITE TUBE
5	CIRCULATION PUMP COVER
6	ICE SCOOP HANGER
7	WATER TROUGH WITH DRAIN TUBE
8	WATER DISPERSION RECEPTACLE
9	CIRCULATION PUMP ASSEMBLY
10	ICE SCOOP
11	SCREWS (included with 31613-5)

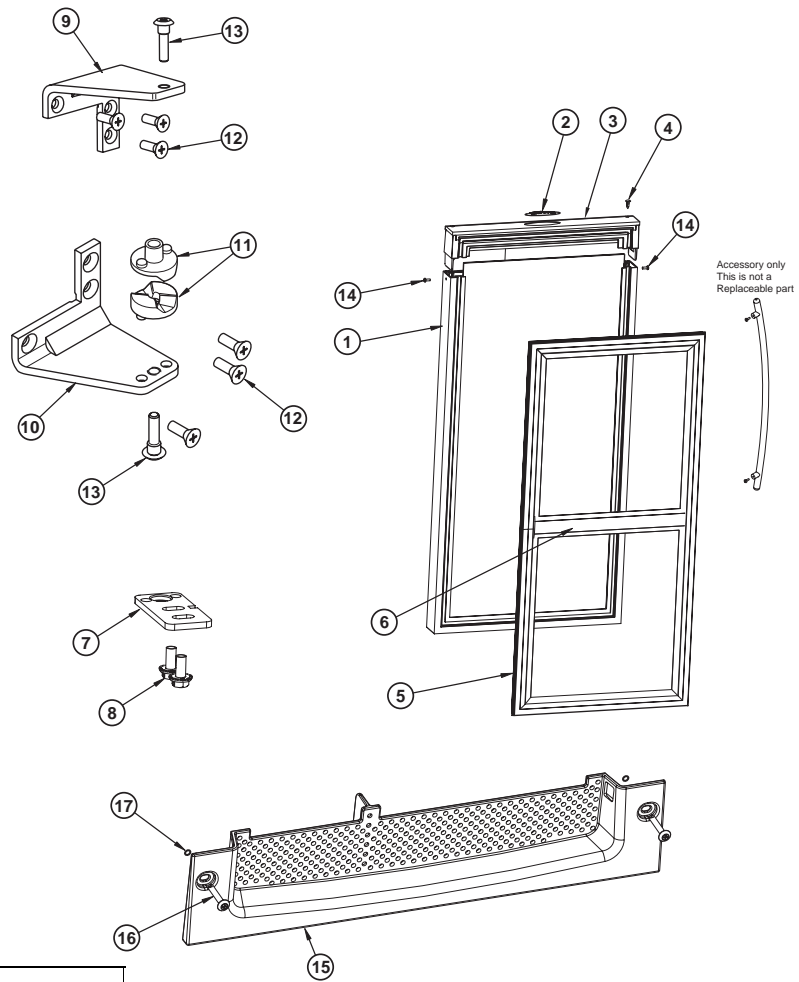


Figure 25

Item	Description
1	DOOR ASSEMBLY Right Hand Left Hand
2	NAMEPLATE
3	HANDLE ASSEMBLY
4	HOLE PLUG (included with handle assembly)
5	DOOR GASKET
6	GASKET CENTER (included with gasket assembly)
7	PIVOT PLATE
8	SCREWS (included with 11901-1-BLK-5)
9	HINGE ASSEMBLY TOP
10	HINGE ASSEMBLY BOTTOM
11	DOOR CLOSER ASSEMBLY
12	HINGE SCREWS (included with hinge assemblies)
13	PIVOT POST (included with hinge assemblies)
14	HANDLE SCREWS (included with handle assembly)
15	GRILLE
16	SCREW (included with grille)
17	O-RING (included with grille)
	TOWEL BAR HANDLE ASSEMBLY
	TOP PIVOT POST BUSHING (not shown)

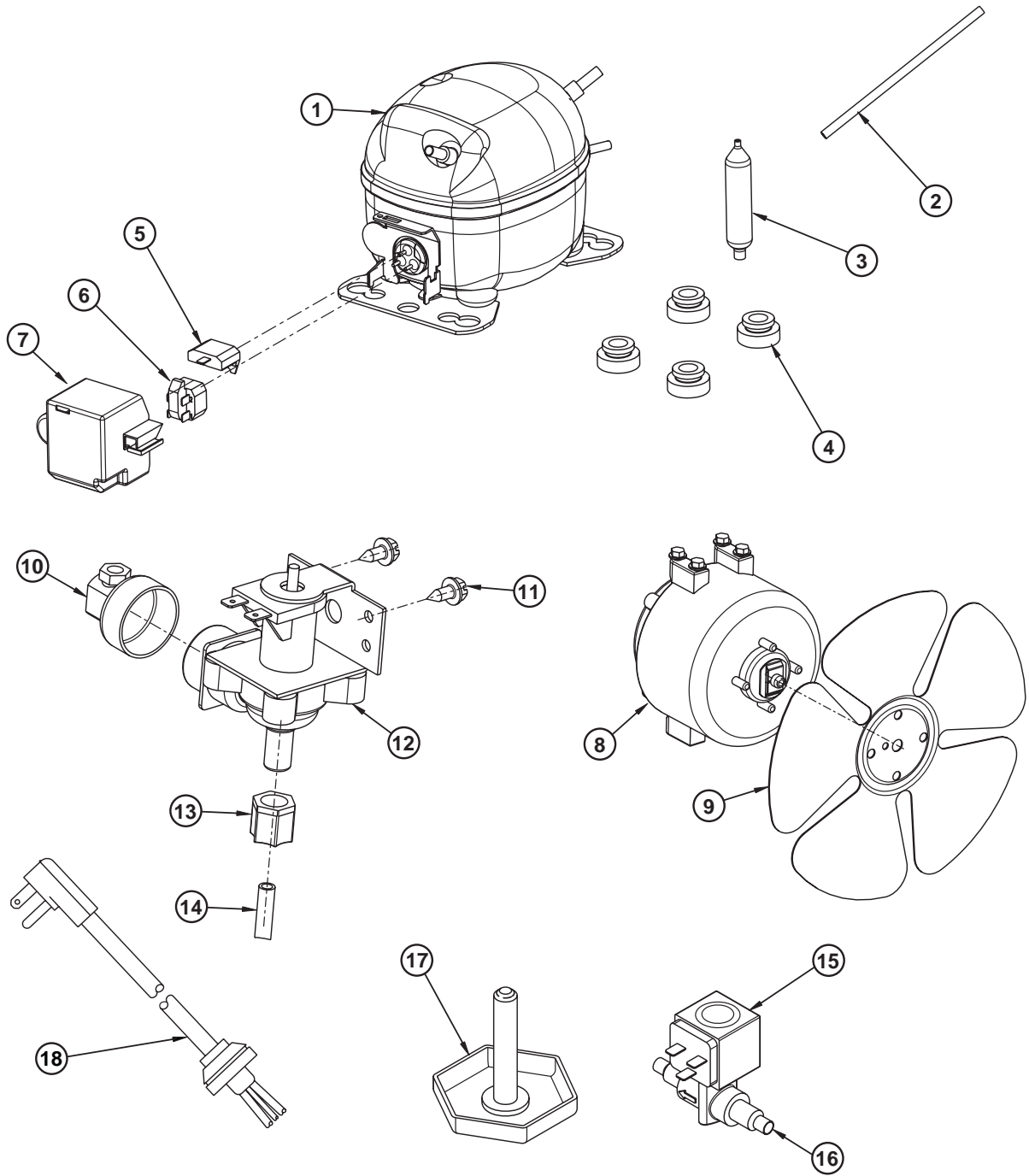


Figure 26

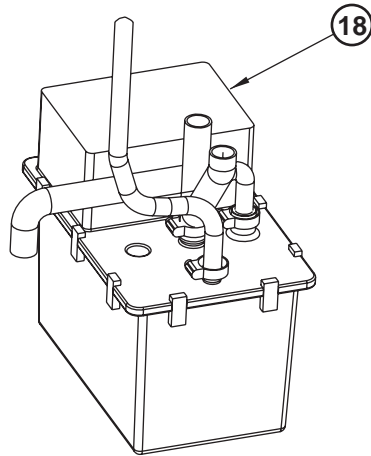


Figure 27

Figure 26

Item	Description
1	COMPRESSOR EMY70HER
2	PROCESS TUBE (included with 70081-S)
3	DRYER (included with 70081-S)
4	GROMMET (included with 70081-S)
5	OVERLOAD (included with 70081-S)
6	RELAY (included with 70081-S)
7	COVER (included with 70081-S)
8	CONDENSER FAN MOTOR
9	CONDENSER FAN BLADE
10	90 DEGREE WATER LINE CONNECTOR
11	WATER VALVE MOUNTING SCREWS
12	WATER VALVE
13	COMPRESSION NUT (included with 404-clr60)
14	WATER LINE
15	COIL ONLY DANFOSS
16	HOT GAS BYPASS ASSEMBLY (includes dryer and process tube)
17	FOOT LEVELER 1/4-20
18	POWER CORD

Figure 27

Item	Description
18	WASTE WATER PUMP KIT

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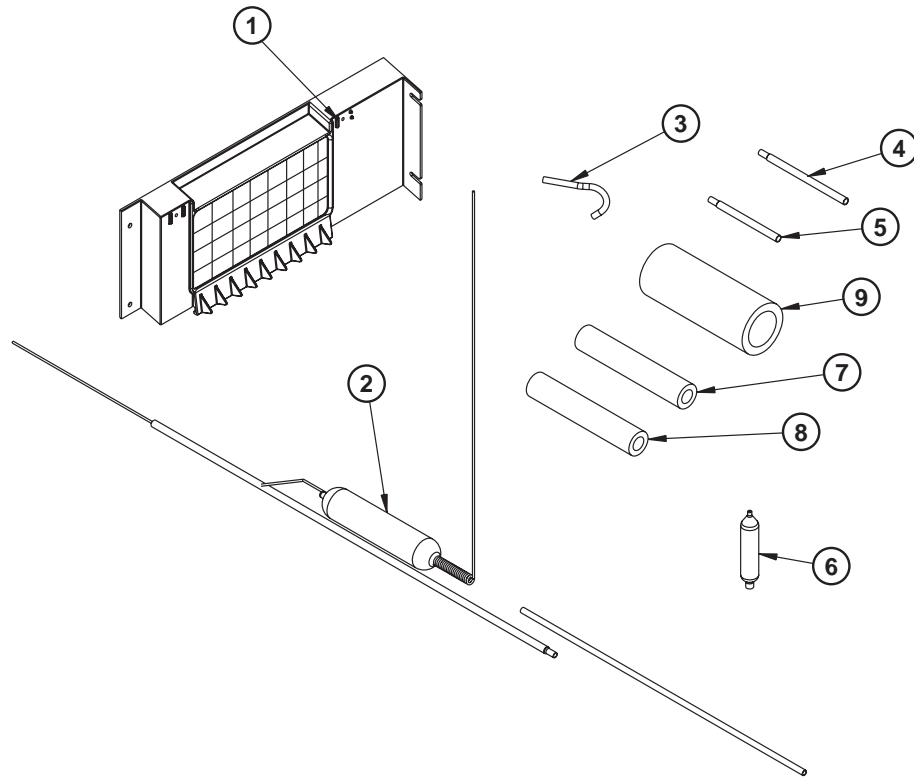


Figure 28

Item	Description
1	EVAPORATOR ASSEMBLY
2	HEAT EXCHANGER (included with 2276-S)
3	PROCESS TUBE (included with 2276-S)
4	BYPASS TUBE (included with 2276-S)
5	SUCTION TUBE (included with 2276-S)
6	DRYER (included with 2276-S)
7	ARMAFLEX 3/8 ID (included with 2276-S)
8	ARMAFLEX 5/8 ID (included with 2276-S)
9	ARMAFLEX 1 - 5/8 ID (included with 2276-S)

The warranty does not cover customer education calls. It has been reported that as high as 50% of all service calls performed are customer education calls. The following guide that been developed to help answer frequently asked questions. It can be used by persons scheduling service calls. Things to consider before scheduling a service call:

Concern	Response
<p>The unit is not cold enough! (All models)</p>	<p>Are you familiar with the factory temperature specifications for your unit? Many factors can cause these temperatures to vary; ambient temperature, application, amount of use (number of times and length of time the door or drawers are opened or closed), etc.</p> <p>Is the door or drawers sealing properly? If the door or drawer is not sealed properly, it allows heat in the unit.</p> <p>Has the door or drawers been left open?</p> <p>Is the condenser clean?</p> <p>Is the unit behind closed doors or the vent restricted? The front grille must be free of obstruction.</p> <p>Is the unit in an application of heavy usage? Heavy usage or high ambient temperature will cause a unit to frost up.</p> <p>Did you try adjusting the temperature to a colder level/ Be sure to allow 24 hours between temperature control adjustments.</p>
<p>Temperature is too cold! (All models)</p>	<p>Check actual temperature versus setpoint.</p>
<p>The unit is frosting up! (All models)</p>	<p>Are you familiar with the defrost technology of your unit?</p> <p>Is the door or drawers sealing properly? If the door or drawer is not sealed properly, it allows heat/humidity into the unit.</p> <p>Has the door or drawers been left open?</p> <p>Is the unit in an application of heavy usage? Heavy usage or high ambient temperature will cause a unit to frost up.</p>
<p>Water is leaking out of the unit!</p>	<p>Have you checked the water connection to the unit? The warranty does not cover installation adjustments.</p>
<p>No ice or not enough ice! (All models)</p>	<p>Are you aware of the factory specifications for ice production.</p> <p>Is the door or drawers sealing properly?</p> <p>Has the ice maker been turned off at the display?</p>
<p>My cubes are wet!</p>	<p>The storage bin that holds the ice is not refrigerated. The cubes in the bin are slowly melting down. The bin will maintain a temperature of 32°F to 34°F.</p>
<p>The floor is very wet if front of the unit.</p>	<p>The unit is designed for a built-in application, so warm air will vent through the front grille, below the door. There is a safety feature built into the control board that will shut down the unit if the warm air can't vent or is restricted.</p>
<p>No ice, but water pours into the trough and down into the drain.</p>	<p>The standpipe needs to be inserted into the drain hole of the water trough to maintain proper level of water inside the trough</p>

Concern	Response
When I turn the unit on, all I get is water fill.	Once the unit is turned on, there will be a three minute water fill. This ensures a fresh batch of water has filled the trough. If water flows more than three minutes, a service call will be required.
My ice does not come out in a perfect cube shape.	When the ice is made, a small hole or “dimple” will appear on the front or top of the cube. Increasing or decreasing the time of the freeze cycle will adjust the size of the dimple.
The cubes do not fall into the bin as individual cubes.	This is normal. You can use the scoop to break the cubes apart.
Not enough ice is stored in the bin.	Make sure the unit is full.

 **Electrolux**

