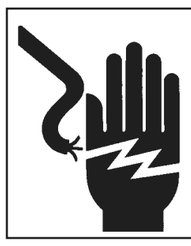
Bottom Mount Refrigerator---Technical Information



⚠ WARNING

Electrical Shock Hazard
Disconnect power before servicing.
Replace all parts and panels before operation.
Failure to do so can result in death or electrical shock.

No-Load Performance, Controls in Normal Position						
	Kw/24 hr ±0.4	Percent Run Time ±10%	Cycles/24 hr ±25%	Refrigerator Center Compartment Average Food Temperature ±3°F	Freezer Compartment Average Food Temperature ±3°F	Ice Maker Compartment Average Temperature ±5°F
Ambient °F	70° 90° 110°	70° 90° 110°	70° 90° 110°	70° 90° 110°	70° 90° 110°	70° 90° 110°
20 / 25 cu ft	1.2 2.0 2.6	38 55 80	25 22 25	38 38 38	0 0 0	15 15 15
22 cu ft	1.1 1.9 3.0	33 58 89	22 27 10	38 38 38	0 0 0	15 15 15

Temperature Relationship Test Chart						
	Evaporator Outlet ±3°F	Evaporator Inlet ±3°F	Suction Line ±7°F	Average Total Wattage ±10%	Suction Pressure ±2 PSIG	Head Pressure ± 5 PSIG
Ambient °F	70° 90°	70° 90°	70° 90°	70° 90°	70° 90°	70° 90°
20 / 25 cu ft	-20 -17	-20 -17	85 105	145 150	0 0	83 135
22 cu ft	-20 -17	-20 -17	85 105	128 132	0 0	83 135

Component Specifications

Component	Specifications all parts 115VAC/60HZ unless noted	22 cubic foot	20 / 25 cubic foot
Compressor run capacitor	Volt	180 VAC	210 VAC
	Capacitance	12 µfd ± 10%	15 µfd ± 10%
Compressor		EGX70HLC	TPG1370YXA
	BTUH	695 BTUH	730 BTUH
	Watt	60 Hz / 113 watts	60 Hz / 153 watts
	Current Lock rotor	10.0 amps± 15%	19 amps± 15%
	Current Full load	1.6 amps± 15%	1.09 amps± 15%
	Resistance Run windings	4.4 ohms± 15%	3.3 ohms± 15%
	Resistance Start windings	6.25 ohms± 15%	4.28 ohms± 15%
Electric damper control	Maximum closing time	8 seconds	
	Temperature Rating	20°F- 110°F	
	RPM	4.2	
Thermistor	Temperature	Resistance	
	77°F	10,000 ohms± 1.8%	
	36°F	29,500 ohms± 1.0%	
	0°F	86,300 ohms± 1.8%	
Condenser motor	Rotation (facing end opposite shaft)	Clockwise	
	RPM	1120 RPM	
	Watt	3.4 watts±15%@115VAC	
	Current	0.085 amps± 15%@115VAC	
Evaporator fan motor	Rotation (facing end opposite shaft)	Clockwise	
	RPM	3000 RPM	
	Watt	5.5 .9±15% watts@12 VDC	
	Note: Fan blade must be fully seated on shaft to achieve proper airflow.		
Overload/Relay	Ult. trip amps @ 158°F (70°C)	2.74 amps± 15%	
	Close temperature	142°F ±16°	140°F ±18°
	Open temperature	248°F ±9°	230°F ±9°
	Short time trip (seconds)	10 seconds ±5	
	Short time trip (amps @77°F (25°C)	12 amps ±2amps	
Thermostat (Defrost)	Volt	120/240 VAC	
	Watt	495 watts	
	Current	5.8/3.75 amps	
	Resistance across terminals:	56 K ohms	
	Above 42°F ±5°	Open	
	Below 12°F ±7°	Closed	
Evaporator heater	Volt	115 VAC	
	Wattage	435 ±5% watts @ 115VAC	470 ±5% watts @ 115VAC
	Resistance	30.4 ±5% ohms	29.0 ±5% ohms
Control board	Volt	120VAC, 60 HZ See Control board troubleshooting section	
Dual Water Valve	Watts	Blue side 35w,Yellow side 20w	
Ice Box Fan	Rotation (facing end opposite shaft)	Clockwise	
	RPM	3000 RPM	
	Watt	5.5 .9±15% watts@12 VDC	
	Note: Fan blade must be fully seated on shaft to achieve proper airflow.		
Light switch	Type	SPDT NO/NC	
	Volt	125/250 VAC	
	Current	5.0 amps	

Service Specifications

Programming Mode:
NOTE: The Program Code is located on the Serial Plate on this unit after the word Code.

1. Press and hold the Door Alarm Keypad (Door Alarm) .
2. Press and hold Freezer Temperature Down Keypad (—) .
3. Release the Door Alarm Keypad (Door Alarm) and wait 3 seconds.
4. The control will display PE to indicate the programming mode.
5. Entry is confirmed by pressing the Freezer Temperature Down Keypad (—) once more.
6. The control will display the current Program CODE. This value should be validated with the Program CODE printed on the unit serial plate.

NOTE: If the Program CODE is correct, the Programming Mode is exited by pressing Door Alarm Keypad for 3 seconds.

7. Press the Refrigerator Temperature Up Keypad (+) or Refrigerator Down Keypad (—) to change the digit value with each key press.
8. The decimal point indicates the selected digit. Press the Freezer Temperature Up Keypad (+) to select the next digit.
9. Once the desired Program CODE is entered, press and hold the Freezer Temperature Down Keypad (—) until the Program CODE begins flashing indicating it has been saved.

NOTE: If you attempt to enter an invalid Program CODE the control will not save the new code, but will beep. (The unit will NOT run with a Program CODE of 0000).Once the Program CODE has been saved the Programming Mode is exited by pressing any key. If the new code is incorrect this process should be repeated.
The Programming mode can be exited at any time by pressing Door Alarm key for 3 seconds or will exit if unattended for four minutes.

Defrost Operation:
The Control Board adapts the compressor run time between defrosts to achieve optimum defrost intervals by monitoring the length of time the defrost heater is on. After initial power up, defrost interval is 4 hours compressor run time. Defrost occurs immediately after the 4 hours.

Forced Defrost Mode:
The forced defrost function is performed using the Freezer display and Refrigerator keypad. Enter the Forced Defrost Mode by performing the following sequence of events:

1. Press and hold the Door Alarm Keypad (Door Alarm).
2. Press and hold Refrigerator Temperature Down Keypad (—) .
3. Release the Door Alarm Keypad (Door Alarm) and wait 3 seconds. Fd appears in Freezer display.
4. Press the Refrigerator Down Keypad (—) again. Sh appears in right display.
5. Press again to force defrost Fd and Sh will flash in display indicating unit is in defrost.

Service Test Mode:
The service test functions are performed using the refrigerator display and keypad. Enter the Service Test Mode by performing the following sequence of events:

1. Press and hold the Door Alarm Keypad (Door Alarm) .
2. Press and hold Refrigerator Temperature Up Keypad (+) .
3. Release the Door Alarm Keypad (Door Alarm) and wait 3 seconds.
4. The Freezer display will display SE confirming entry in the Service Mode.
5. Press the Refrigerator Up Keypad (+) again to confirm entry in the Service Mode.
6. Display will show 101 in left display and numeric or dashes in right display.
7. Press Freezer Up Keypad (+) and Freezer Down Keypad (—) to toggle through Service Test numbers.
8. To exit service test mode, open and close refrigerator door or hold door alarm for 3 seconds.

Service Test - 101 Defrost Heater & Defrost Circuit
Press the Refrigerator Up keypad (+) and Refrigerator Down keypad (—) to energize or de-energize the Defrost circuit. The display will read OFF when de-energized, OP when energized with open defrost thermostat and CL when energized with closed defrost thermostat.

Service Test - 102 Compressor / Condenser Fan
Press the Refrigerator Up keypad (+) and Refrigerator Down keypad (—) to toggle Compressor/Condenser fan On and Off.

Service Test – 112 Freezer Fan
- Press the Refrigerator Up keypad (+) and Refrigerator Down keypad (—) to toggle Freezer Fan On High speed, Low speed and Off.

NOTE: Display will show state 0.0 for OFF, 11.0-14.0 volts for High speed or 7.75- 8.25 volts for Low speed.

Service Test – 113 Ice Compartment Fan
- Press the Refrigerator Up keypad (+) and Refrigerator Down keypad (—) to toggle Ice compartment Fan On High speed, Low speed and Off.

NOTE: Display will show state 0.0 for OFF, 11.0-14.0 volts for High speed or 7.75- 8.25 volts for Low speed.

Service Test – 121 Damper Operation
- Press the Refrigerator Up keypad (+) and Down keypad (—) to toggle Damper (OP) open and (CL) closed.

NOTE: If damper is opening or closing it will not allow you to toggle damper and beep. Display will show state –CL or –OP if Damper is in the process of closing or opening.

Service Test – 131 Mullion Heater
- Press the Refrigerator Up Keypad (+) and Refrigerator Down Keypad (—) to toggle Mullion Heater Off and On.

Service Test – 141 Fresh Food Thermistor
- Will Show Fresh Food Temperature or OP for open thermistor or SH for shorted thermistor.

Service Test – 142 Freezer Thermistor
- Will Show Freezer Temperature or OP for open thermistor or SH for shorted thermistor.

Service Test – 144 Ambient Thermistor
- Will Show AmbientTemperature or, OP open thermistor or SH shorted thermistor.

Service Test – 145 Ice Box Thermistor
- Will Show Ice BoxTemperature or, OP open thermistor or SH shorted thermistor.

Service Test – 151 Fresh Food Door State
- Will show state of Fresh Food Door. OP (open) CL (closed).

NOTE: By pushing either fresh food door switches you can toggle state from OP (open) to CL (closed).

Service Test – 152 Freezer Food Door State
- Will show state of Freezer Door. OP (open) CL (closed).

NOTE: By pushing freezer door switch you can toggle state from OP (open) to CL (closed).

Service Test – 153 Disable Internal Lights
- Press the Refrigerator Up keypad (+) and Down keypad (—) to toggle Enable (En) and Disable (dIS) internal lights.

(continues on page 3)

Service Specification (continued)

Service Test - 163 Water Dispenser
- Display shows the state of the Water Dispenser Valve (On or OFF).

NOTE: By pushing Actuator pad or Front Fill you can control state of Water Dispenser Valve.

Service Test - 164 External Ice Chute Door
- Display shows the state of the External Ice Chute Door CL (closed) or OP (open).

NOTE: By pushing Actuator pad you can control state of External Ice Chute Door.

Service Test - 165 Dispenser Lamp
- Display shows the state of the Dispenser Lamp (On or OFF).

NOTE: By pushing Actuator pad or Front Fill you can control state of dispenser lamp.

Service Test - 167 Cavity Heater Test (On some models)
- Toggles the state of the Cavity Heater On or OFF.

NOTE: Pushing refrigerator (+)/(—) keypads toggles the cavity heaters state to On or OFF

Service Test - 168 Cube Dispenser and Internal Ice Chute Door Operation
- Display shows the state of the ice auger motor and the internal ice chute door. (On or OFF)

NOTE: By pushing actuator pad you can control state of the Ice auger motor and the internal ice chute door.

Service Test - 171 Actuator Pad
- Display shows the state of the Actuator Pad (On or OFF).

Service Test - 172 Front Fill (On some models)
- Display shows the state of the Front Fill (On or OFF).

Service Test - 173 Ambient Light
- Display shows light sensor measurement (Hi or Lo). Night light will turn on when light sensor measures Lo.
  By changing the sensor's exposure to ambient light you can control the sensor measurement.

Service Test - 175 Dispenser Line
- Display shows the state of the Dispenser Line (On or OFF).

NOTE: By pushing Actuator pad or Front Fill you can change state of Dispenser Line.

Service Test - 182 LED Indicator Operation
- Press the Refrigerator Up Keypad (+) or Refrigerator Down Keypad (—) to show operation of LED Indicators. All LED Indicators will flash.
  Press again and LED will stop flashing.

Service Test - 183 Keypad Operation
- Display shows a numeric or letter display indicating the last key pressed.

NOTE: Refrigerator Up/Down keypads have no effect when pressed and Freezer Up/Down keypads remain operational.

Service Test - 192 Ice Maker State Test
- Display shows “dr” if left fresh food door switch is in the door open position.
- Display shows “OFF” if ice maker power switch is in the off position and door closed.
- Display shows “On” if the ice maker power switch is in the on position and the door closed and heater is off.
- Display shows “OnH” if icemaker power switch is in the on position and harvest heater is on and door closed.

Service Test - 193 Ice Maker Relay
- Press the Refrigerator Up Keypad (+) or Refrigerator Down Keypad (—) to toggle the ice maker relay On and OFF.

NOTE: Service tests **201-213** modifies factory settings to suit customers needs.

Service Test - 201 Mullion Heater Override
- Press the Refrigerator Up Keypad (+) or Refrigerator Down Keypad (—) to change Mullion Heater from cycling on with compressor (OFF position) to 100% operation (On Position).

NOTE: If present, the Humidity Control Button toggles between the selected Mullion Heater Function and 0% operation.

Service Test - 202 Default Defrost Operation
- Press the Refrigerator Up Keypad (+) or Refrigerator Down Keypad (—) to change Defrost Operation from normal adaptive defrost (Off position) to minimum time between defrosts (On position).

Service Test - 203 Show Temperature Set points
- Press the Refrigerator Up Keypad (+) or Refrigerator Down Keypad (—) to change from showing actual temperature (Off position) to show temperature set points only (On position).

Service Test - 211 Fresh Food Temperature Adjustment
- Press the Refrigerator Up Keypad (+) or Down Keypad (—) to change calibration of Fresh Food Temperature plus or minus in 1°F increments up to 6°F.

NOTE: Temperature will read in Fahrenheit regardless of what current temperature scale is being used.

Service Test - 212 Freezer Temperature Adjustment
- Press the Refrigerator Up Keypad (+) or Down Keypad (—) to change calibration of Freezer Temperature plus or minus 1°F in increments up to 6°F.

NOTE: Temperature will read in Fahrenheit regardless of what current temperature scale is being used.

Service Test - 213 Ice Compartment Temperature Adjustment
- Press the Refrigerator Up Keypad (+) or Down Keypad (—) to change calibration of Ice Compartment Temperature plus or minus 1°F in increments up to + 0 / + 8°F.

NOTE: Temperature will read in Fahrenheit regardless of what current temperature scale is being used.

Service Test - 221 Reset Default Settings
- Press the Refrigerator Up Keypad (+) or Down Keypad (—) to reset to factory default settings (dEF).

Service Test - 231 Water Filter Usage
- Display shows the percent water filter consumption since water filter was reset. 100% indicates the filter should be replaced.

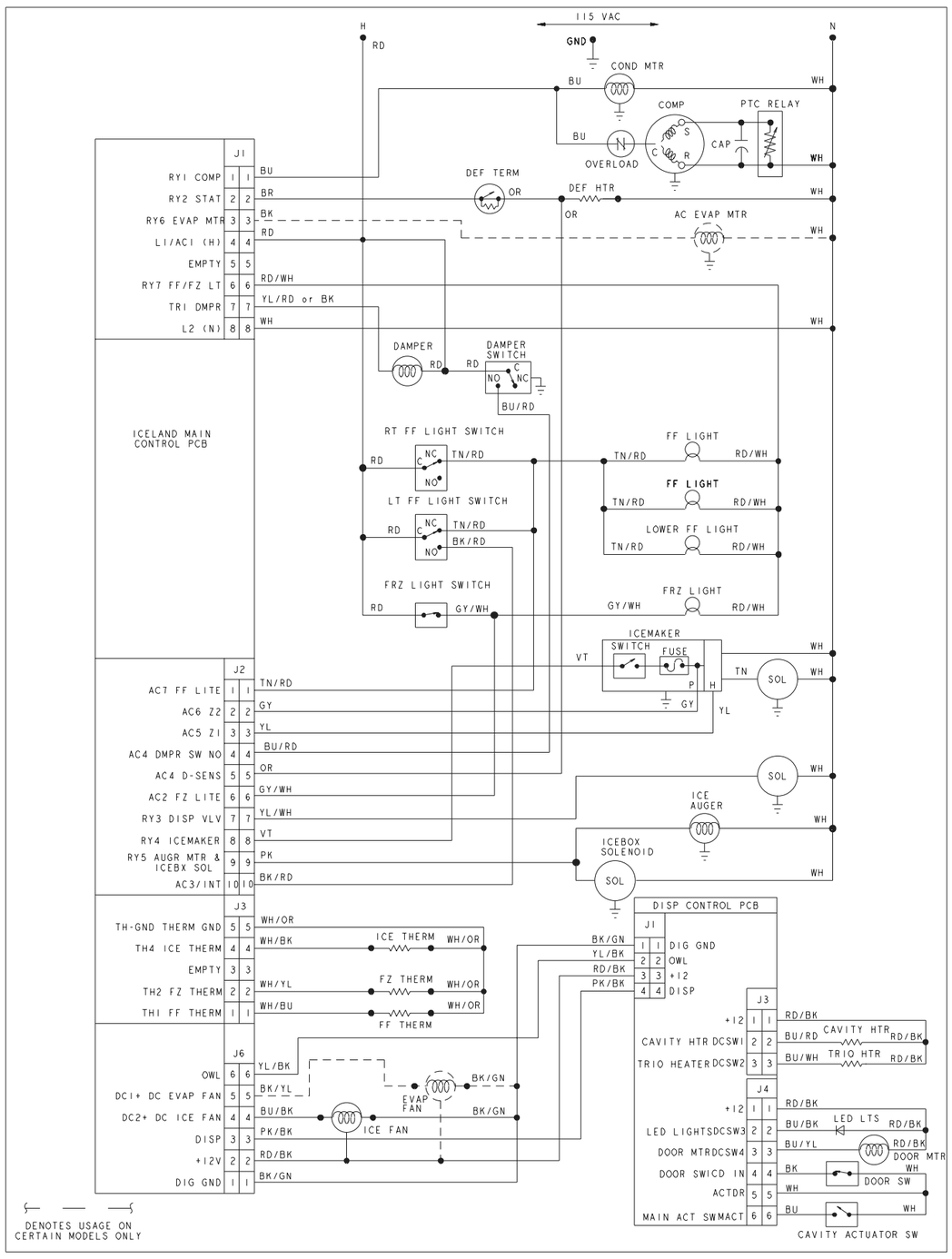
Service Test - 232 Water Filter Days In Use
- Display shows the number of days since the water filter was reset.

Service Test - 241 Software Revision Main Control Board
- Display shows the Software revision of the Main Control Board).

Service Test - 244 Software Revision Display Board
- Display shows the Software revision of the Display Board).

NOTE: Service tests 3XX and above are Reserved for Engineering Use Only.

Schematic



Wiring Diagram