

DIAGNOSTICS & TROUBLESHOOTING

DIAGNOSTICS

OPTICS DIAGNOSTICS MODE

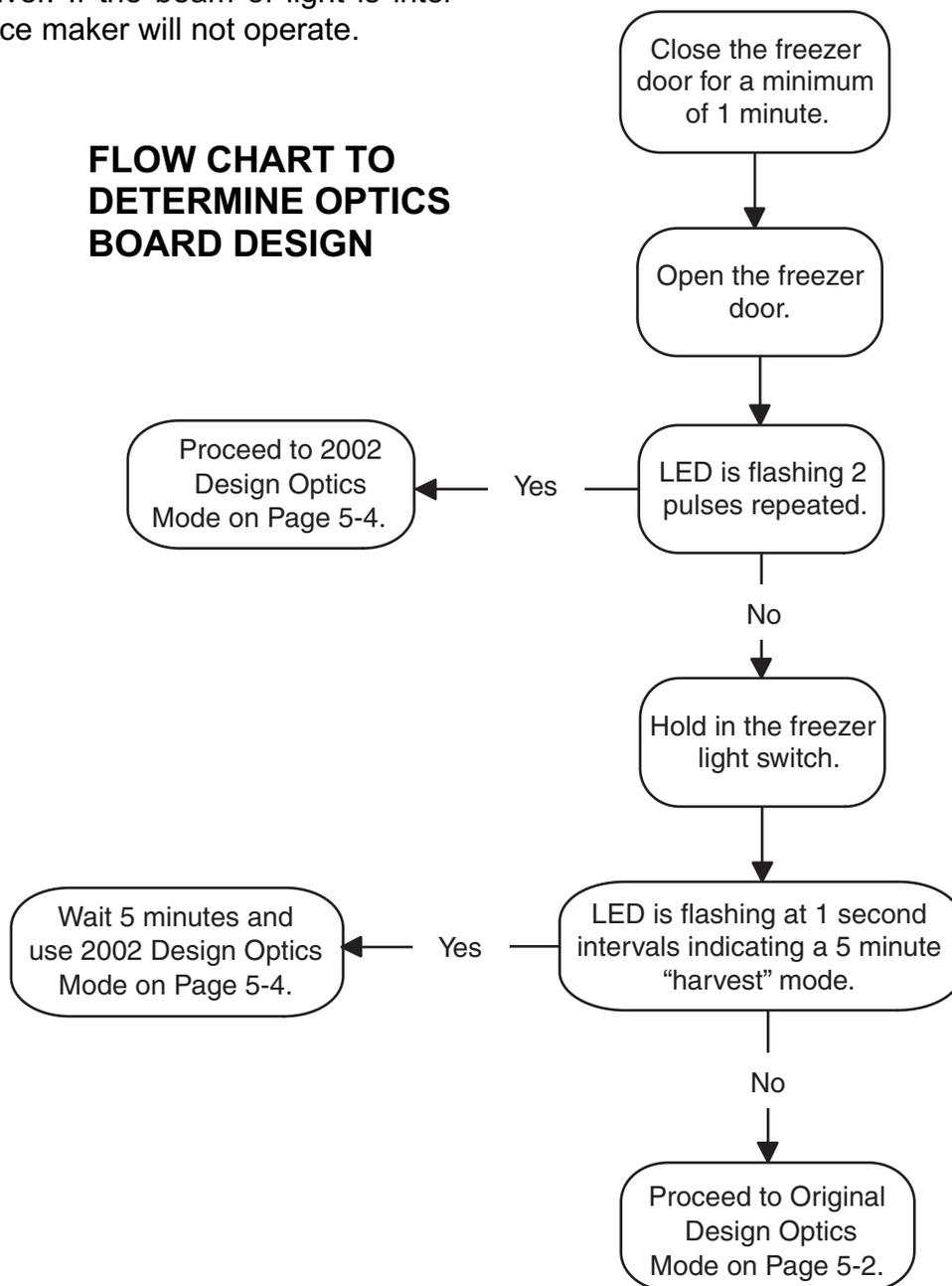
Diagnostics are used to determine whether the optics circuits are operating properly. If the optics circuits are malfunctioning, the ice maker will not operate.

The optics system consists of an emitter board and a receiver board. The emitter board transmits a beam of infrared light that is detected by the receiver. If the beam of light is interrupted, the ice maker will not operate.

The optics system can have one of two types of optics board designs installed: the original design, or the 2002 design.

Use the following flow chart to determine which of the board designs are installed. Once this is determined, you will be directed to perform the appropriate optics diagnostics procedure.

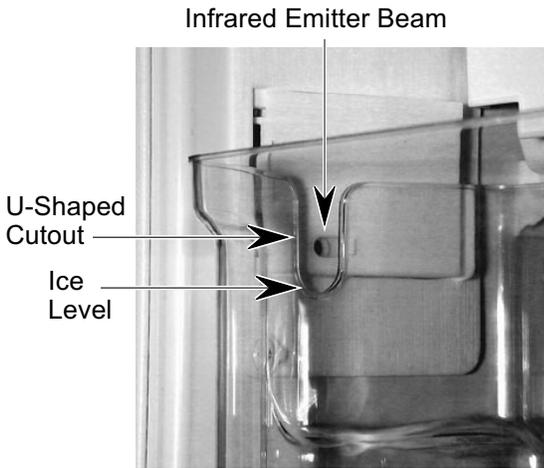
FLOW CHART TO DETERMINE OPTICS BOARD DESIGN



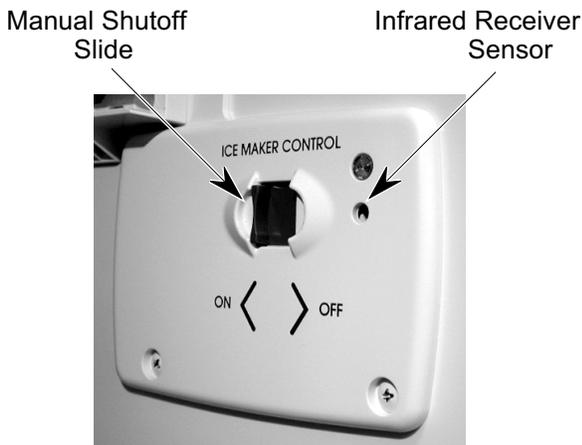
**OPTICS DIAGNOSTICS FOR ORIGINAL DESIGN BOARDS
KIT #4388635 SUBS TO #4389102
EMITTER—PART #2198585
RECEIVER—PART #2198586**

To initiate an optics check, perform the following steps:

1. Open the freezer door.
2. Remove enough ice from the ice bin so that the ice level is at least one inch below the U-shaped cutouts in the bin.

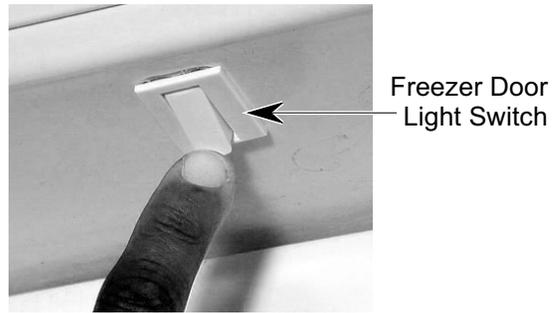


3. Make sure the ice maker manual shutoff slide is in the "ON" (open) position on the infrared receiver module.

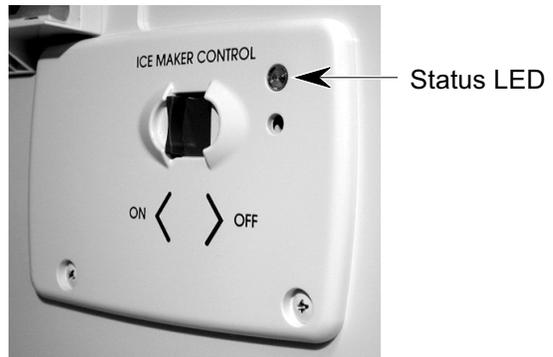


4. Close the freezer door for a minimum of 10 seconds.

5. Open the freezer door and activate the freezer door switch 3 times. **NOTE:** This step must be completed within 10 seconds of opening the freezer door.



6. Close the freezer door within 20 seconds of completing step 5.
7. Wait for a minimum of 5 seconds, and a maximum of 50 seconds, then open the freezer door and view the status LED on the infrared receiver module for the error code. **NOTE:** You will have 60 seconds to open the freezer door, and 2 seconds from then to view the LED output code.



If you observe two LED pulses (flashes), perform the following steps.

1. Open the freezer door and remove the ice bin from the door.
2. Make sure the ice maker manual shutoff slide is in the "on" (open) position.
3. Tape the spring-loaded emitter door to the emitter cover in the "down" position.
4. Close the freezer door for at least 10 seconds.

5. Open the freezer door and actuate the freezer door switch 3 times. NOTE: This step must be completed within 10 seconds of opening the freezer door.
6. Close the freezer door within 20 seconds of completing step 5.
7. Wait for a minimum of 5 seconds, and a maximum of 50 seconds, then open the freezer door, and view the status LED on the infrared receiver module for the error code. NOTE: You will have 60 seconds to open the freezer door, and 2 seconds from then to view the LED output code.

If the LED still flashes twice, there could be dirt or frost on the optics, something could be blocking the infrared beam path, or the optics may be defective. Clean the optic elements and repeat the previous test.

If the LED does not flash, the ice maker may have been in a harvest, preventing the diagnostics from being performed. Look at the ice maker to make sure the ejector is at the home position. If it is, wait 3 minutes, and try running test again. If the LED still does not flash, the optics boards may be defective.

**OPTICS DIAGNOSTICS FOR
2002 DESIGN BOARDS
KIT #4389102
EMITTER—PART #2220398
RECEIVER—PART #2220402**

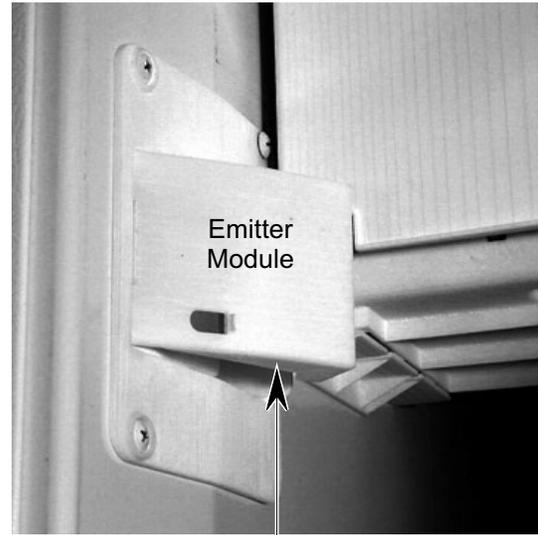
To initiate an optics check, perform the following steps:

1. Open the freezer door.
2. View the status LED. It should flash twice, pause for 1 second, and repeat the cycle for as long as the door is open.

NOTES:

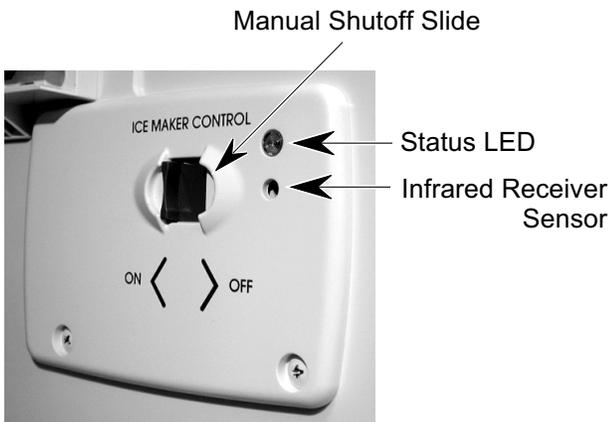
- If the LED is not flashing, the ice maker may be in the 5 minute “harvest” mode. If so, push in on the freezer door switch with your finger, and observe the LED. It should begin to flash at 1 second intervals, and continue to flash for as long as you hold the door switch.
 - If the LED does not flash, as described above, the original style optics boards may be installed. Perform the steps, shown in Chart A, on page 5-6.
3. Check the ice maker manual shutoff slide and make sure that it is in the “ON” (open) position on the infrared receiver module.

4. Close the flapper door on the emitter module so that the infrared beam has a clear path to the receiver board.



Door Shown In The Open Position

5. Make sure that the door switch is not pushed in, and view the status LED. With the flapper door on the emitter module held closed, and the ice maker not in the 5 minute “harvest” mode, the status LED should be on steady. This indicates that the optics circuits are operating properly. If the status LED continues to flash, refer to the “Troubleshooting Chart” on page 5-9.



COMPONENT DIAGNOSTICS MODE

⚠ WARNING



Electrical Shock Hazard
Voltage is present during these tests.

NOTE: The optics must be working properly to test the ice maker. If the optics test fails, you will not be able to force a harvest and check the ice maker. Refer to the Troubleshooting Chart on page 5-10 for additional servicing information.

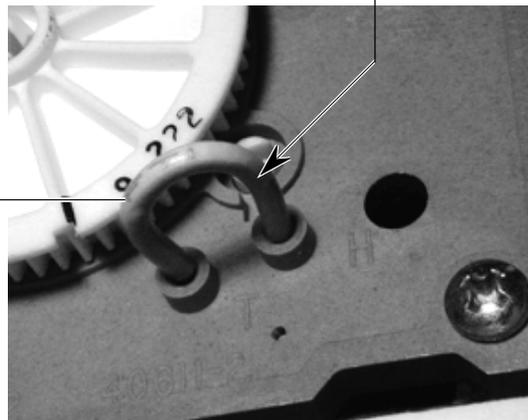
IMPORTANT: If the freezer temperature is not cold enough to allow the ice maker bi-metal to close, a jumper must be installed on the ice maker at test points T and H, and the test rerun.

1. Run an optics check as described in the previous section.
2. Disconnect power to the unit.

3. Slide the ice maker out of the mounting rails and leave the wiring harness connected.
4. Jumper the thermostat, as shown below.
5. Connect power to the unit.
6. Remount the ice maker, making sure that the water fill tube is inside the fill cup.
7. Make sure there is a clear path across the bin for the infrared beam to travel to the receiver sensor.
8. Close the freezer door and wait 5 seconds to allow the optics relay to close.
9. Open the freezer door and you will see the ejector bar moving. Remove the thermostat jumper prior to the ejector blades reaching the 10:00 position, or else you will not see the water fill. The mold should be warm due to the heater operation.
10. Disconnect the power immediately after the water fill.
11. With the freezer door closed, reconnect the power.
12. Wait for a minimum of 5 seconds, and a maximum of 50 seconds, then open the freezer door, and view the status LED for the output codes, as shown in Chart C, on page 5-7.



Motor Jumper (Points T and H)



OPTICS DIAGNOSTICS MODE CHARTS

NOTES:

1. Optics Diagnostics will not respond:
 - For 5 minutes after the ice maker begins a “harvest” cycle. To reset the control, wait until the ice maker “parks,” then unplug the refrigerator for 5 seconds, and repeat the test.
 - While the control board is running self-checks. Reset the control, as above.
2. The ice maker control must be in the “ON” position.
3. The ice bin must be on the door and the ice level below the notched openings.

— Chart A —

Diagnostics Chart For Original Design Optics Boards

OPTICS DIAGNOSTICS PROCEDURE FOR ORIGINAL DESIGN BOARDS			
STEP #	STATUS LED	POSSIBLE CAUSES	ACTION
1. Open the freezer door (make sure that the freezer door has been closed for a minimum of 10 seconds prior to opening the door).	2 pulses , repeated once, indicates the optics are blocked, or defective. Clear the optics path, and repeat the “Optics Diagnostics Procedure.” Replace both boards, if necessary.	A steady light that is ON for 5 seconds indicates that both of the optics boards are good. Continue with the “Component Diagnostics Mode.”	If there is no light , unplug the refrigerator for 5 seconds, and repeat the test. If there is still no light, replace both optics boards.
2. Activate the door switch 3 times. Push the button in completely for 1 second each time.			
3. Close the freezer door for a minimum of 5 seconds for a maximum of 50 seconds.			
4. Open the freezer door and immediately view the diagnostics “status” LED.			

— Chart B —

Diagnostics Chart For 2002 Design Optics Boards

OPTICS DIAGNOSTICS PROCEDURE FOR 2002 DESIGN BOARDS			
STEP #	STATUS LED	POSSIBLE CAUSES	ACTION
1. Open the freezer door.	Two (2) pulses followed by a one (1) second delay (repeated).	The flapper door on the emitter is blocking the beam.	Go to Step 2.
		The optics are faulty.	Go to Step 2.
	No lamp.	Ice maker is in the “harvest” mode. The harvest mode consists of a five (5) minute period that starts when the bimetal closes, and the ice maker begins to run.	To confirm, press in and hold the freezer door switch. If in the “harvest” mode, the Status LED will flash once every second.
		Faulty Status LED, or original style boards are installed.	Replace the receiver and emitter boards, or perform the steps in Chart A.
2. Press in the emitter flapper door to unblock the optics beam.	Two (2) pulses followed by a one (1) second delay (repeated).	The Optics are faulty.	Replace the emitter and receiver boards.
	LED is on steadily.	The Optics are working properly.	Close the freezer door.

COMPONENT DIAGNOSTICS MODE CHART

— Chart C — Component Diagnostics Mode For Original & 2002 Design Boards

COMPONENT DIAGNOSTICS MODE (RUN OPTICS DIAGNOSTICS PROCEDURE FIRST)
1. Disconnect the power supply.
2. Slide the ice maker out and remove the cover.
3. Jumper holes "T" and "H" to bypass the bimetal and start a harvest.
4. Reconnect the power supply.
5. Close the freezer door to align the optics and a harvest cycle will begin in 5 seconds.
6. Open the freezer door and observe the ice maker. A "harvest" should be in progress.
NOTE: If holes "T" and "H" are properly jumpered and the ice maker will not run, stop the test, and check the ice maker.
7. Remove the jumper before the fingers reach 10:00. Reinstall the ice maker, or be prepared to catch the water fill during step 8.
8. Disconnect power immediately after the water fill.
9. With the freezer door closed, reconnect the power supply.
10. Wait 5 seconds, to a maximum of 50 seconds, then open the freezer door, and watch the Status LED for one of the following codes.
Status LED Output Codes
4 PULSES , repeated once, indicates the relay is defective. Replace both the emitter and receiver boards.
3 PULSES , repeated once, indicates the optics and relay are okay, but the ice maker is not being sensed, or will not operate. If this happens:
<ul style="list-style-type: none"> • Check the bail arm switch to make sure it is On. • Check the ice maker circuit and the connections back to the receiver board and neutral. • Check the ice maker components.
2 PULSES , repeated once, indicates the optics are blocked, or defective. Clear the optics path, and repeat the "Optics Diagnostics Procedure." Replace both boards, if necessary.
STEADY LIGHT for 5 seconds indicates the relay and optics are okay, and the receiver senses the ice maker.
NO LIGHT : Unplug the refrigerator for 5 seconds, and repeat the test.

TROUBLESHOOTING CHART A

Original Optics Design

TEST	RESULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Optics Diagnostic Mode (optics test only)	2 LED pulses, repeated.	Ice maker slide control turned OFF (closed).	Move ice maker slide control to ON (open).
		Dirt on optics.	Clean dirt from optics.
		Misaligned ice bin.	Realign ice bin cutouts with optics path.
		Ice in bin blocking optics path.	Remove enough ice from bin to clear path.
		Frost on optics lenses.	Clean frost from lenses.
		Ice bin not closing optics emitter door properly.	Tape emitter door closed and retest. If optics tests okay, the ice bin and/or its mounting are at fault.
		Freezer door not completely closed during Optics Test.	Close freezer door and retest.
		Failed optics.	Replace emitter and receiver boards and retest.
		Ice maker is in "harvest" cycle.	Wait 5 minutes until "harvest" cycle is complete and retest.
		LED was not viewed within 2 seconds of opening freezer door.	Retest and view LED within 2 seconds of opening freezer door.
No LED pulses.	Freezer door was not closed for a minimum of 5 seconds before starting test.	Close freezer door, wait for at least 5 seconds, and retest.	
	Incorrect wiring at emitter or receiver board.	Correct wiring and retest.	
	Optics performing self-tests (will not perform diagnostic tests during this time).	Make sure ice maker is "parked." Unplug refrigerator for 5 seconds to reset optics control and retest.	
	LED is defective.	Replace emitter and receiver boards and retest.	
	Ice maker control circuit is functioning normally.	None required.	
5 second LED on steady.	5 second LED on steady.		

TROUBLESHOOTING CHART B

2002 Optics Design

TEST	RESULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Optics Diagnostic Mode (optics test only)	2 LED pulses, repeated.	Ice maker slide control turned OFF (closed).	Move ice maker slide control to ON (open).
		Dirt on optics.	Clean dirt from optics.
		Frost on optics lenses.	Clean frost from lenses.
		Flapper door is open and is blocking the emitter beam.	Hold the emitter door closed, and the status LED should be on steady.
		Failed optics.	Replace emitter and receiver boards and retest.
	No LED pulses.	Ice maker is in 5 minute "harvest" cycle.	To verify, press in on door switch. Status LED should flash at 1 second intervals.
		Incorrect wiring at emitter or receiver board.	Correct wiring and retest.
		Optics performing self-tests (will not perform diagnostic tests during this time).	Make sure ice maker is "parked." Unplug refrigerator for 5 seconds to reset optics control and retest.
		LED is defective.	Replace emitter and receiver boards and retest.
		Flapper door is held closed.	Normal with flapper door closed.
5 second LED on steady.			

TROUBLESHOOTING CHART C

Component Diagnostics Mode

TEST	RESULT	POSSIBLE CAUSE	CORRECTIVE ACTION
Ice Maker Control Circuit	4 LED pulses, repeated once.	Defective emitter relay.	Replace emitter and receiver boards and retest.
		Ice maker in "home" position and bimetal is open.	Install jumper in ice maker holes "T" and "H" and retest.
	3 LED pulses, repeated.	Ice maker bail arm switch in OFF position.	Bail arm not used in these models but switch must be ON.
		Ice maker is unplugged.	Plug in ice maker and retest.
		Thermal fuse in ice maker harness is open.	Replace ice maker harness and retest.
		Incorrect wiring at emitter or receiver board.	Correct wiring and retest.
	2 LED pulses.	Problem with ice maker.	See "Ice Maker Checks."
		Optics boards defective.	Replace emitter and receiver boards and retest.
		Ice maker control circuit is functioning normally.	None required.
		Optics performing self-tests (will not perform diagnostic tests during this time).	Make sure ice maker is "parked." Unplug refrigerator for 5 seconds to reset optics control and retest.
Ice Maker Checks	No LED pulses.	Optics check not run before testing ice maker.	Run optics test and recheck ice maker.
		Freezer door not closed after Optics test.	Close freezer door to start harvest.
		Optics path not clear.	Clear optics path.
		Optics test failure.	Replace emitter and receiver boards and retest.
		Ice maker is unplugged.	Plug ice maker in.
		Thermal fuse in ice maker harness is open.	Replace ice maker harness.
		Wiring harness or door switch problem.	Check continuity in wiring harness and door switch.
		Motor has failed.	Replace ice maker module.
		Thermostat jumper not making contact.	Reposition jumper.
		Heater has failed.	Replace ice maker.
Ice Maker Checks	Ejector bar does not move.	Thermostat jumper was left installed past 11:00 position.	Remove jumper by 10:00 position of ejector bar.
		Water valve is unplugged.	Connect harness to valve.
		Customer's water supply is problem.	Check for proper water supply.
		Frozen water fill tube.	Defrost the water fill tube and check for seeping valve.
		Water valve has failed.	Replace water valve.
Ice Maker Checks	Heater is not on.	Thermostat jumper not removed.	Remove thermostat jumper.
		Ejector bar does not stop at "home" position.	