

FACTORY AUTHORIZED SERVICE 2010 Service Training







Liability Claims

- Important we receive part(s) back related to any potential liability claim with damage to a customer's home or if you think there is a possibility for damages
 - Leaking water, food loss, wine loss, injury, etc...
- Even if you are unsure the customer will file a claim, or if customer doesn't mention anything but <u>you</u> notice there is damage, we need the part(s) returned
- Contact Michelle Disch at <u>insuranceclaims@subzero.com</u>, or via Customer Service Line at 800-222-7820 x 7871, or via fax at 608-204-6303 for a return label.

-	SUB-ZERO	HOLF
	-	and the second se

Liability Claims

- When you return part(s), <u>please</u> be sure you label properly
 - Tape label onto part(s) to include
 - Name of customer
 - Model and serial number
 - Date of the loss or service
 - Include copy of service invoice / NARD

• EXEPTION TO THE RULE:

If customer insists on keeping part(s) in their possession, be sure to have them sign the service invoice stating they have retained the part(s) and keep that signed copy on file. It is very important to have this clear record to show there is no doubt the part(s) was/were left with customer.











BI Units - Service Control Boards

- Model Configuration no longer uses the model codes when configuring the service control boards.
- You will now toggle through code numbers.

MODEL CODE TABLE													
CODE		MODEL	CODE		MODEL	CODE		MODEL	CODE		MODEL		
dE	FL	* DEFAULT	00	7	BI-42S	20	2	ICBBI-48SD	20	9	ICBBI-36S		
00	1	BI-36U	00	8	BI-42SD	20	Э	ICBBI-48S	21	0	ICBBI-36UG		
00	2	BI-48SD	00	9	BI-36S	20	Ч	ICBBI-36R	15	1	ICBBI-36RG		
00	3	BI-48S	01	0	BI-36UG	20	5	ICBBI-36F	15	2	ICBBI-30UG		
00	4	BI-36R	01	1	BI-36RG	20	6	ICBBI-30U					
00	5	BI-36F	01	2	BI-30UG	20	7	ICBBI-42S	* DEFAULT SETTING; MUST BE CONFIGURED.				
00	6	BI-30U	20	1	ICBBI-36U	20	8	ICBBI-42SD					



Damaged Observed on Impeller



Possible Cause of Failure

- Believed damaged was due to handling and installation of fan into application.
- <u>1kg force pressure</u> applied on the impeller can cause damage to shaft welding joints.
- Please do not touch impeller during unpacking of fan and during assembly process.

Do not handle the fan motor this way.



Proper Handling of Fan Motor

SUB-ZERO

SUB-ZERO

- The Crisper Service Fan Motor is provided w/the housing. There should be no need to remove it from the housing by a technician unless to carefully inspect it.
- If the customer complaint is noisy fans
 - Isolate which fans are noisy by Manual Component Activation Mode
 - <u>"If"</u> the crisper fans are the source of the noise, carefully inspect the Impeller Assembly for weld cracks, replace Fan/Motor Assembly if defective



Handle impeller from sides for inspection





Flow Meter & Flow Restrictors







Dispenser Connections

SUB-ZERO

- Dispenser Control Panel not functioning
 - Make sure connection on ribbon cable to Control Panel is plugged in all the way.



Updates – Sub-Zero BI Units • Air Flow

- Reverse Air Flow
- Evaporator Location
- Elimination of Crisper Fans
- Baffle
- Evaporator Cover
- Diverter
 - Must be in place to prevent freezing in crispers



Updates - Sub-Zero BI Units

- Ice Maker
 - Mold Heater
 - Old Heater 165 Watts
 - New Heater 110 Watts
 - Reasons for Changing
 - Ice Production
 - · Heater was too hot
 - False Error Codes



Updates - Sub-Zero BI Units

SUB-ZERO

- Water Filter/Manifold
 - Make sure filter is properly mounted
 - Check for leaks after repairing/replacing
 - Please wait 2 minutes and recheck for leaks



Updates – Sub-Zero 700 Series

- New Parts
 - Switch on Side Wall
 - Sensing Switch for Both -Lights and Fans
 - Whiter/Brighter
 Lighting
 - White Control Panel



Updates – Sub-Zero 736 Energy Star

- Addition of 736TF
 - New Parts
 - Dual Closures in Front
 - Switch on Side Wall
 - Sensing Switch for Both Lights and Fans
 - No Ice Maker Switch



Updates – Sub-Zero & Wolf SKU Reductions

- All Sub-Zero framed built-in models, but framed accessories will be made available to convert overlay models to framed models.
- · All Sub-Zero/Wolf curved handled models and related sales accessories
- All Sub-Zero/Wolf carbon and platinum models and related sales accessories
- All Sub-Zero integrated tall non-ice maker models
- All Sub-Zero solid door wine storage models and related sales accessories
- All Sub-Zero free-standing 424 wine storage models except for 424FS/TH-RH
- All 427 and 427R sales accessory panels with locks except for 80" panels with tubular handles and a 4" toekick

SUB-ZERO

- All Wolf ventilation models with rails
- Two LP and Natural gas rangetops with Frenchtop











Dual Fuel Temperature Selection Change

- Changes made to programming of Dual Fuel Control
 - Once cooking mode selected "- -" will appear in selector knob
 - Customer then rotates knob to right or left
 - Display will then show predetermined temperature for mode
 - Customer chooses predetermined temperature or selects desired temperature
 - This allows for two step on feature
 - Tone will sound to signify cooking mode has begun





Turn Control Knob Bezel Counter Clockwise to BAKE "- -" Will Appear

Turn Knob to Right for Preset Temperature or to Select Desired Temperature



Dual Fuel Temperature Selection Change

HOLE

- Changes made to programming of Dual Fuel Control
 - Serial number breaks for this change:
 - DF30 17159076
 - DF36 17159778
 - DF48 17159800
 - DF60 17159878
 - This change will also occur when new control boards are replaced on units with serial numbers above 16000000. The boards with the new programming are:
 - DF30 807048
 - DF36 807049
 - DF48 807050
 - DF60 807051









New Products - Wolf Cooktop Low-Profile Wall Hood Recommended for use with Wolf... Induction Cooktops Electric Cooktops Gas Cooktops



Cooktop Low-Profile Hoods

- Classic stainless steel with black glass front panel
- Multi-speed blowers
 - Wall hood only
- Available in three widths
 - Wall hood only



Cooktop Low-Profile Wall Hood

HOLE

- Wall Hood Models
 - CTEWH30I
 - CTEWH36
 - CTEWH36I
 - CTEWH45
 - CTEWH45I



Cooktop Low-Profile Island Hood

- Island Hood Model
 - CTEIH42



Cooktop Low-Profile Hoods

- Wall Hood Blower Options
 - 500 CFM internal blower
 - Included with CTEWH30I, CTEWH36I and CTEWH45I
 - 600 or 1100 CFM in-line blower for CTEWH36 or CTEWH45
 - 600, 900, 1200 or 1500 CFM remote blower for CTEWH36 or CTEWH45



Cooktop Low-Profile Hoods

- Island Hood Blower
 - 500 CFM internal blower



HOLF

Cooktop Low-Profile Wall Hood

- Accessories Wall Hood
 - 30" high classic stainless steel wall shield in 30" and 36" widths
 - Recirculation kit for non-ducted installations
 - Replacement charcoal filters



Cooktop Low-Profile Island Hood

- Accessories Island Hood
 - Recirculation kit for non-ducted installations
 - Replacement charcoal filters



Cooktop Low-Profile Hoods

HOLF

- Features
 - Heavy-duty stainless steel with classic stainless finish
 - Telescopic flue fits 8' to 9' ceilings
 - Front-mounted electronic controls
 - Sealed halogen lighting with three settings
 - Internal, in-line and remote blower options for wall hoods



Cooktop Low-Profile Hoods

- Features cont'd
 - Internal blowers Island Hood includes internal blower
 - Used in a non-ducted application using an accessory charcoal filter
 - Heat Sentry
 - Automatically turns unit on when heat is sensed
 - · Automatically adjusts blower speed



Cooktop Low-Profile Hoods

HOLF

- Features cont'd
 - Delay-off mode
 - Automatically turns unit off
 - Stainless steel filter cover with dishwasher safe aluminum mesh filter
 - Filter clean indicator
 - · Indicates when filter needs cleaning
 - · Transition with backdraft damper included

Cooktop Low-Profile Hoods

 Filter and Blower Access





Drawer Microwave Oven - Features

- Classic stainless steel finish
- Trim style matches E-Series Oven
- · Can be installed standard or flush
- 950 Watts
- 1 cubic ft. interior space
- Accommodate 9" x 13" pan



Drawer Microwave Oven - Features

HOLF

LUOLE

- 11 programmable power levels
- Sensor cooking
- Warm feature to keep food warm for 30 minutes
- Interactive display
- Window in drawer to view inside
- One touch key pad to open and close drawer
- Control panel can be deactivated or locked



Drawer Microwave Oven – Drawer Gear Removal

(This procedure requires a 14" or greater phillips screwdriver)

- 1. Disengage any power going to the unit.
- 2. Open the drawer and keep it open.
- 3. Remove the top cover and right side cabinet.
- 4. Disconnect wiring to Auto Drawer Gear.
- 5. Remove bottom screw below Auto Drawer Gear
- 6. Remove the (4) screws holding the auto drawer gear to the bottom cavity angle.
- Disengage (pull) Auto Drawer Gear from rack gear and slide to the right (toward the rear), then turn motor 90° and slip out along rear of drawer.
- 8. Then tilt Auto Gear Motor 20 $^\circ\,$ to extract the assembly out. The Auto Drawer Gear is now free.























Outdoor Grill Accessories

Stand Alone Option

- Burner Module (BM)
- Easy Access for Side Mount or Stand Alone









Undercounter Icemaker

- Outsourced from Manitowoc
- Improved performance and features
- Same integrated panel size and door hinge as 315I
 - Door opening can be reversed
- 2 to 3 times higher ice production – lbs. per day
- Time to fill bin reduced by 50%



Undercounter Icemaker

SUB-ZERO

SUB-ZERO

- Features
 - Water filter
 - Bin light
 - Electronic control
 - Power button
 - Delay start 2/4/8 hours
 - "Clean" button
 - Replace filter light



Undercounter Icemaker

- Integrated polycarbonate ice scoop on door
 - Anti-microbial plastic
- Stainless steel wraper
 - Side panels not removable
- New improved ice shape
- Improved serviceability



Undercounter Icemaker

SUB-ZERO

- 16 cube evaporator vs.
 - 8 cube evaporator
 - Approximately 2 times more production in 24Hr period



Undercounter Icemaker

- <u>Tin Coated</u> Evaporator Plate
- New Cleaner P/N 7013400 and Sanitizer P/N 7013401
 - Made by Manitowoc
 - Recommend cleaning every 6 months
- <u>DO NOT</u> use Scotsman cleaner P/N 19034306
 - Cleaner will eat through tin coating on evaporator



Undercounter Icemaker

SUB-ZERO

SUB-ZERO

ACAUTION

Damage to the ice machine evaporator caused by incorrect chemical usage is not covered by the warranty.

Use <u>ONLY</u> Sub-Zero approved ice machine cleaner (7013400) and sanitizer (7013401).








UC15I - Objectives

- Installation
- Door Swing Reversal
- Removal of parts for Cleaning and Sanitation
- Top 8 Operational Checks
- Sequence of operation
 - Electrical troubleshooting
- Refrigeration
- Diagnosing an ice machine that will not run
- Diagnosing an ice machine that will not freeze
- Diagnosing an ice machine that will not harvest

Model/Serial Number Location







Installation

- The location must be free of airborne and other contaminants.
- Do Not place unit within 18" of a trash compactor or trash/recycling container.
- The air temperature must be at least 50 $^\circ\,$ F, but must not exceed 100 $^\circ\,$ F for models UC15I & UC15IP.
- The air temperature must be at least 50 $^\circ\,$ F, but must not exceed 110 $^\circ\,$ F for models UC15IO & UC15IPO.
- The location must not be near heat-generating equipment.
- The location must not obstruct air flow through the condenser (airflow is in and out the front of the ice machine).

SUB-ZERO

• The location must allow enough clearance for water, drain and electrical connections at the rear of the ice machine.



Door Swing Reversal

- 1. Remove four screws that secure door hinges to ice machine
- Note: Make sure to remove shim located between cabinet and bottom hinge and transfer to other side
- 2. & 3. Remove hinges from door







Door Swing Reversal

- 6. Remove four screws from the front top rail.
- Pivot top rail end for end to expose the two left hand top hinge screw holes and expose left hand hinge mounting holes.
- 8. Remove two screws from bottom trim plate and slide to cover right hand hinge holes.
- 9. Install door





Reversing Top Rail

Repositioning Slide Rail

Cleaning/Sanitizing

SUB-ZERO

ICE MAKER CLEANING & MAINTENANCE

Cleaning and maintenance should be performed a minimum of every six months (see the Recommended Cleaning / Maintenance Schedule below). Basic cleaning and maintenance of the ice machine will increase its reliability, enhance its performance, and help save on water and power consumption.

NOTES:

Some water conditions will dictate more frequent cleaning of the ice making section, just as some carpets and pets
will dictate more frequent cleaning of the condenser.

To ensure efficient operation, Sub-Zero recommends an annual cleaning be performed by a qualified service technician in which the ice machine is partially disassembled for a more thorough cleaning and sanitizing.

RECOMMENDED CLEANING / MAINTENANCE SCHEDULE

M aintenance Event	Weekly	Semi-Annually (every 6 months)	After Prolonged Shutdown	At Start-up
Clean cabinet exterior	YES	YES	YES	YES
Clean and sanitize interior		YES	YES	YES
Replace water filter*		YES	YES	
Clean condenser coil		YES	YES	
Check ice quality	YES	YES	YES	YES



Undercounter Icemaker

- New Cleaner P/N 7013400 and Sanitizer P/N 7013401
 - Made by Manitowoc
 - Recommend cleaning every 6 months
- <u>DO NOT</u> use Scotsman cleaner P/N 19034306
 - Cleaner will eat through tin coating on evaporator



Water shutters

- Top Cover will need to be removed
- Grasp one end of the water shutter and lift up.
- Pivot water shutter and disengage remaining end.
- To re-install into ice machine, grasp one end of the water shutters, install one end, pivot the opposite end and pull down into position.
- Make sure tabs are secure in grooves



Ice chute

- Grab protruding spray hole on one end and lift up and remove.
- To re-install ice chute, grasp protruding spray hole and position over Water
 Distribution Assembly. Make sure rear supports are over spray bar, and front edge is inside of water trough.



Spray Bar

- Grasp one end of the spray bar, lift up and remove from seat formed in evaporator bucket.
- Remove clamp on water inlet tubing by grasping both ears on clip and separating.
- Apply food grade lubricant to ease reassembly of spray bar components when necessary.
- To re-install spray bar, position water inlet tubing on inlet ports, and squeeze clips until tight.
- · Reposition assembly on water trough seat.



Sump Drain Overflow Tube

- Remove clamp.
- Pull down to remove overflow tube and tubing as an assembly. The sump trough water will drain into the bin.
- Remove overflow tube from vinyl tubing by pulling.



Water Trough and Pump

- Depress tabs on right and left side of the water trough.
- Allow front of water trough to drop as you pull forward to disengage the rear pins.
- Grasp pump and pull straight down until water pump disengages and electrical connector is visible.
- Disconnect the electrical connector
- Remove the water pump from ice machine.
- Remove clamp from hose to remove from pump.



Undercounter Icemaker











Bin Thermostat Adjustment

- The bin thermostat stops the ice machine when the bin is full.
- Turn the thermostat to the left to decrease the level of ice in bin or to the right to increase the level of ice in bin.
- Factory Setting = fully counter-clockwise and one click clockwise.



- 1. Water Inlet Valve
- 2. Bin Thermostat Adjustment
- 3. Power Button (Green)

	Power	Buttor	ו (Gree	n)
 Pressi machi a secc 	ng the "Power' ne and green F ond time will de	' button once Power light. -energize th	e will energize Pressing the "P le ice machine.	the ice Power" button
POWER	ICE DELAY 2 4 8	CLEAN	REPLACE FILTER	SUB-ZERO
		SUB-ZERO		

- 1. Water Inlet Valve
- 2. Bin Thermostat Adjustment
- 3. Power Button (Green)
- 4. Automatic Ice Making Light (Blue)

Automatic Ice Making Light (Blue)

- This light is (on) energized when the ice machine is the ice making position.
- The light is off when the ice machine is in the clean

POWER ICE	DELAY 2 4 8	CLEAN	REPLACE FILTER	SUB-ZERO
I OTTER IDE	Meanin & 7 U	OLLAN	There is Note 1 that halls	COD LENO

- 1. Water Inlet Valve
- 2. Bin Thermostat Adjustment
- 3. Power Button (Green)
- 4. Automatic Ice Making Light (Blue)
- 5. Delay Start

Pre unti •	ssing the "Delay Start" button will initiate a delay cycle. The ice machine will not run I the delay time expires. Pressing the button once will energize the 2 hour light and initiate a two hour delay period.	
•	Pressing the button a second time will energize the 4 hour light and initiate a four hour delay period.	
•	Pressing the button a fourth time will cancel the delay cycle.	_

- 1. Water Inlet Valve
- 2. Bin Thermostat Adjustment
- 3. Power Button (Green)
- 4. Automatic Ice Making Light (Blue)
- 5. Delay Start
- 6. Clean (Green)

Pressing		an (G	reen)	activate the "lca
light.		i wiii iiiiiiate a		
The water	system will ente	r a fill/flush mo	de for approximatel	y (90) seconds.
After wh	ich the clean light w	ill flash to indicat	e time to add ice macl	nine cleaner or
Samuzer				
POWER ICE	DELAY 2 4 8	CLEAN	REPLACE FILTER	SUB-ZERO

Undercounter Icemaker





 When the ice machin will energize to indicate 	e completes 800	er (Red <u>0 freeze/harvest</u> s replacement.	cycles the light
 Depressing the "Clear and de-energize the 	in" button for <u>6 se</u> light.	econds will reset	the counter
POWER ICE DELAY 2 4	8 CLEAN	REPLACE FILTER	SUB-ZERO
POWER INC. DEERI 2 4	U. ULLAN		SUBJERO
	BUB-ZERO		



Safety Timers

The control board has the following

non-adjustable safety timers:

- Initial cycle is 5 minutes longer than subsequent cycles.
- The ice machine is locked into the freeze cycle for 10 minutes (<u>15 minutes initial cycle</u>) before a harvest cycle can be initiated.
- The maximum freeze time is 120 minutes at which time the control board automatically initiates a harvest cycle (step 4 of sequence of operation).
- The maximum harvest time is 5 minutes at which time the control board automatically starts a freeze cycle.



SEQUENCE OF OPERATION						
SEQUENCE (EVENT)	Water Pump	Water Inlet Valve	Hot Gas (Harvest) Valve	Compressor	Fan Motor	Duration
(RELAY)	(4)	(5)	(2)	(1)	(3)	
Initial Start-up / Start-up after Automatic Shut-off	ON	ON	ON	OFF	OFF	175 Seconds
Refrigeration System Start-up	ON	ON	ON	ON	ON	5 Seconds
Freeze Cycle	ON	OFF	OFF	ON	ON	* Automatically Determined at Beginning of Freeze Cycle
Harvest Cycle	OFF	ON	ON	ON	ON or OFF	** Automatically Determined During Last Minute of Freeze Cycle
Automatic Shut-off	OFF	OFF	OFF	OFF	OFF	Until Bin Thermosta Re-closes







Refrigerat	ion System Start Up
#2Initial StartRefrigeration System Start Up1755 Seconds	
•Water Pump •Water Inlet Valve •Hot Gas Solenoid •Compressor •Fan Motor	<image/>





















Refrigeration Operation Pressures

- <u>Critically charged refrigeration system</u>
- <u>5.6 oz</u>
- <u>R-134A / CAP TUBE</u>
- Use short stubby gauge hoses

Operating Pressures

Air Temp.	Freeze	Cycle	Harvest	Cycle	100
Entering Condenser °F/°C	Discharge Pressure PSIG	Suction Pressure PSIG	Discharge Pressure P S IG	Suction Pressure PSIG	C
50/10	125-70	18-0	50-75	20-55	111
70/21	135-95	18-0	65-85	35-60	11
80/27	165-115	19-2	75-100	40-70	
90/32	195-135	20-3	85-120	40-70	
100/38	235-165	24-5	100-135	50-80	
110/43	255-185	28-7	110-155	50-90	
Suction pressur	e drops gradu	ally througho	ut the freeze c	ycle	





 Verify primary voltage is supplied to ice machine.





Verify control board fuse is OK.



- 1. Verify primary voltage is supplied to ice machine.
- 2. Verify control board fuse is OK.
- 3. Verify the transformer is supplying power to the control board.

SUB-ZERO

Verify the transformer is supplying power to the control board.

- If the interior light functions or the red control board light is energized the transformer is OK.
- If the transformer is supplying power to the control board and the red control board light will not energize, replace the control board.



- 1. Verify primary voltage is supplied to ice machine.
- 2. Verify control board fuse is OK.
- 3. Verify the transformer is supplying power to the control board.

SUB-ZERO

4. Verify the "Power" botton functions properly.

Verify the "Power" button functions properly.

- If the red control board light is energized and depressing the "Power" button (on the user display) does not energize the green "Power" light,
 - check the interconnecting wire for proper connection and 17VDC 15VDC,
 - if correct voltage present, then replace the interface board.



- 1. Verify primary voltage is supplied to ice machine.
- 2. Verify control board fuse is OK.
- 3. Verify the transformer is supplying power to the control board.

SUB-ZERO

- 4. Verify the "Power" button functions properly.
- 5. Verify the bin thermostat functions properly.

Verify the bin thermostat functions properly

- Bin Thermostat is functioning correctly if –
 - When three ice cubes are placed on the thermostat tube for 5 minutes, the ice machine stops.
 - The ice machine should restart 5 minutes after the ice cubes are removed.
 - If the ice machine stops before the bin is full or runs after the bin is full, ambient temperatures are probably high or low and the bin thermostat can be adjusted.



- 1. Verify primary voltage is supplied to ice machine.
- 2. Verify control board fuse is OK.
- 3. Verify the transformer is supplying power to the control board.
- 4. Verify the "Power" button functions properly.
- 5. Verify the bin thermostat functions properly.
- 6. Check control board light to see if ice machine shutdown on over temperature limit (control board light will flash rapidly).

SUB-ZERO

Observe control board light:

- Steady light indicates thermistor operation is normal.
- Slow flash indicates a thermistor problem (open or disconnected). Verify liquid line thermistor is connected to control board and is securely attached to liquid line and insulated. Refer to <u>Resistance chart and Ohm thermistor</u>.
- Rapid flash indicates liquid line temperature exceeded 170° F (refer to "<u>Discharge Pressure</u> <u>High Checklist</u>").
- If unable to determine cause, refer to Resistance chart and Ohm thermistor.



T	hermi	ister	Diagr	nostics

Temperature	of Thermistor	Resistance	
°C	°F	K Ohms (x 1000)	Vor
15.6° - 21.1°	60° - 70°	15.31 - 11.88	ver
21.1° - 26.7°	70° - 80°	11.88 - 9.29	acc
26.7° - 32.2°	80° - 90°	9.29 - 7.33	
32.2° - 37.8°	90° - 100°	7.33 - 5.82	and
37.8° - 43.3°	100° - 110°	5.82 - 4.66	
43.3° - 48.9°	110° - 120°	4.66 - 3.75	
48.9° - 54.4°	120° - 130°	3.75 - 3.05	1 0
54.4° - 60.0°	130° - 140°	3.05 - 2.49	
60.0° - 65.6°	140° - 150°	2.49 - 2.04	† boar
65.6° - 71.1°	150° - 160°	2.04 - 1.68	thor
71.1° - 76.7°	160° - 170°	1.68 - 1.40	
76.7° - 82.2°	170° - 180°	1.40 - 1.17	
82.2° - 87.8°	180° - 190°	1.17 - 0.98	214
87.8° - 93.3°	190° - 200°	0.98 - 0.82	2.0
93.3° - 98.9°	200° - 210°	0.82 - 0.70	† takir
100°	212°	0.72 0.02	atta
(boiling w	ater bath)	0.73 - 0.62	anat
104.4° - 110.0°	220° - 230°	0.59 - 0.51	i next
110.0° - 115.6°	230° - 240°	0.51 - 0.43	I
115.6° - 121.1°	240° - 250°	0.43 - 0.37	Ī
121.1° - 126.7°	250° - 260°	0.37 - 0.33	
	•		SUB-ZERO -

Verify that the thermistor resistance is accurate and corresponds to the high and low temperature ranges.

1. Disconnect the thermistor at the control board. Connect the ohmmeter to the isolated thermistor wire leads.

2. Using a temperature meter capable of taking readings on curved copper lines, attach the temperature probe to the liquid line next to the thermistor aluminum block.

Discharge Pressure High Checklist

- Improper Installation
- Refer to "Installation and Visual Inspection Checklist"
- Restricted Condenser Air Flow
- High inlet air temperature
- Condenser discharge air re-circulation
- Dirty condenser fins
- Defective fan motor

- Improper Refrigerant Charge
- Overcharged
- Non-condensable in system
- Wrong type of refrigerant
- Other
- Non-Sub-Zero components in system
- High side refrigerant lines/component restricted (before mid-condenser)

- 1. Verify primary voltage is supplied to ice machine.
- 2. Verify control board fuse is OK.
- 3. Verify the transformer is supplying power to the control board.
- 4. Verify the "Power" button functions properly.
- 5. Verify the bin thermostat functions properly.
- 6. Check control board light to see if ice machine shutdown on over temperature limit (control board light will flash rapidly).
- 7. Replace the control board.

• Be sure Steps 1-6 were followed thoroughly. Intermittent problems are not usually related to the control board.

SUB-ZERO

ICE MACHINE RUNS AND NO ICE IS PRODUCED

- 1. No Water to ice machine
 - Correct water supply (Cold water only?)
- 2. Incorrect incoming water pressure
 - Water pressure must be 20-80 psi (Clogged water filter?)
- 3. Spray nozzle is blocked with mineral buildup
 - Clean and sanitize the ice machine
- 4. Ambient temperature is too high or low
 - Ambient temperature must be between 50° 110° F. (Dirty Condenser?)

- 5. Thermistor Disconnected or Open
 - Refer to Thermistor Diagnostics

	Resistance	of Thermistor	Temperature
Ve	K Ohms (x 1000)	°F	°C
<u>vc</u>	15.31 - 11.88	60° - 70°	15.6° - 21.1°
ac	11.88 - 9.29	70° - 80°	21.1° - 26.7°
	9.29 - 7.33	80° - 90°	26.7° - 32.2°
ar	7.33 - 5.82	90° - 100°	32.2° - 37.8°
	5.82 - 4.66	100° - 110°	37.8° - 43.3°
	4.66 - 3.75	110° - 120°	43.3° - 48.9°
1	3.75 - 3.05	120° - 130°	48.9° - 54.4°
	3.05 - 2.49	130° - 140°	54.4° - 60.0°
bo	2.49 - 2.04	140° - 150°	60.0° - 65.6°
the	2.04 - 1.68	150° - 160°	65.6° - 71.1°
	1.68 - 1.40	160° - 170°	71.1° - 76.7°
	1.40 - 1.17	170° - 180°	76.7° - 82.2°
2	1.17 - 0.98	180° - 190°	82.2° - 87.8°
۷.	0.98 - 0.82	190° - 200°	87.8° - 93.3°
tal	0.82 - 0.70	200° - 210°	93.3° - 98.9°
att	0.72 0.62	212°	100°
an	0.75 - 0.62	ater bath)	(boiling w
ne	0.59 - 0.51	220° - 230°	104.4° - 110.0°
[0.51 - 0.43	230° - 240°	110.0° - 115.6°
	0.43 - 0.37	240° - 250°	115.6° - 121.1°
-	0.37 - 0.33	250° - 260°	121.1° - 126.7°

hermistor Diagnostics

Verify that the thermistor resistance is accurate and corresponds to the high and low temperature ranges.

1. Disconnect the thermistor at the control board. Connect the ohmmeter to the isolated thermistor wire leads.

2. Using a temperature meter capable of taking readings on curved copper lines, attach the temperature probe to the liquid line next to the thermistor aluminum block.

DIAGNOSING AN ICE MACHINE THAT WILL NOT HARVEST

1. Verify cubes are present in evaporator and freeze time doesn't exceed freeze chart cycle time.
Verify cubes and freeze time doesn't exceed freeze chart cycle time.



Cycle Times

Freeze Time + Harvest Time = Total Cycle Time

Air Temp.	Freeze Time			Harvest Time
Entering Condenser	Water Temperature °F/°C			
°F/°C	50/10	70/21	90/32	
70/21	15.6-17.8	15.3-17.4	15.6-17.8	
80/27	16.6-18.9	17.0-19.4	17.4-19.8	
90/32	17.4-19.8	19.1-21.7	18.2-20.7	1.0-3.5
100/38	19.2-22.1	19.8-22.7	22.4-25.4	
110/43	24.9-28.2	25.7-29.1	31.4-35.5	
Times in minutes				

- Initial freeze cycle after resetting "Power" button will be 5 minutes longer than chart time (refer to "Sequence of Operation")
- Verify control board is not set for additional freeze time to fill out the ice cubes, see <u>"Cube</u> <u>Weight Adjustment"</u>

Cube Weight Adjustment

<u>The cube weight can be increased from the factory</u> <u>setting by adjusting the finish time.</u>

Adjust in 1-minute increments and allow the ice machine to run several freeze/harvest cycles, and then inspect the ice cubes. If a heavier cube weight is desired add another minute of freeze time and repeat the process.

- 1. Press and hold the power button.
- Press and release the clean button once for each additional minute of freeze cycle time desired. Five minutes
 is the maximum additional freeze time that can be added. Pressing the clean button 6 times will reset the
 finishing time to zero additional minutes.

- Verify cubes are present in evaporator and freeze time doesn't exceed freeze chart cycle time.
- 2. Observe control board light

Observe control board light:

- Steady light indicates thermistor operation is normal.
- Slow flash indicates a thermistor problem (open or disconnected). Verify liquid line thermistor is connected to control board, securely attached to liquid line and insulated. Refer to Resistance chart and Ohm thermistor.
- Rapid flash indicates liquid line temperature exceeded 170° F (refer to "Discharge Pressure High Checklist"). If unable to determine cause, refer to Resistance chart and Ohm thermistor.



 Verify cubes are present in evaporator and freeze time doesn't exceed freeze chart cycle time.

- 2. Observe control board light
- 3. Reset ice machine.



- 1. Verify cubes are present in evaporator and freeze time doesn't exceed freeze chart cycle time.
- 2. Observe control board light
- 3. Reset ice machine.
- 4. Verify the water inlet valve is energized during the entire harvest cycle and water flow is normal.



- 1. Verify cubes are present in evaporator and freeze time doesn't exceed freeze chart cycle time.
- 2. Observe control board light
- 3. Reset ice machine.
- 4. Verify the water inlet valve is energized during the entire harvest cycle and water flow is normal.

SUB-ZERO

5. Check for power at the hot gas solenoid

Check for power at the hot gas valve

- Power is present replace coil/valve.
- No power at hot gas valve check for power at circuit board connector, replace control board if no power is present









- Both over 16 cu ft of storage
- Bright interior lighting
- Soft-Close storage drawers with dedicated lighting
- Crisper drawer
- User reference card (like BI Units)
- Dual install w/ any other integrated product
 - Note: Columns Units are 81" tall vs. 80" tall for all other tall integrated products



New Product – Sub-Zero

SUB-ZERO

- Control Panel
 - Top of compartment



New Product – <u>Sub-Zero</u>

- Interior Features
 - Similar to Built-In Units

New Product – Sub-Zero

SUB-ZERO

- Interior Features
 - New Door Shelves
 - Top & Lower non-interchangeable
 - Bottom Door Shelve







New Product – Sub-Zero

- Serial Tag
 - Located on Handle side of unit under top rail



SUB-ZERO

- Interior IC-27R
 - Evaporator Fan
 - Control Board
 - Evaporator Access
 - Cabinet Thermistor
 - Foam Block must be in place for proper sensing



New Product – Sub-Zero

- Interior IC-27F
 - Access
 - Ice maker
 - Evaporator Fan
 - Evaporator Assembly



- Unit Tray Assembly
 - Remove 4 screws from condenser
 - Remove top trim piece
 - Remove two screws securing unit tray and carefully pull out



New Product – Sub-Zero

- Unit Tray Assembly
 - Condenser Fan/Motor



Purpose: These instructions explain the procedure for installing air diverters and new burner rings on a Wolf Pro Series Gas Range to improve flame quality.

🛦 WARNING

い し L F "

BOTH GAS AND ELECTRICAL SUPPLY MUST BE TURNED OFF TO THE UNIT BEFORE ATTEMPTING THIS PROCEDURE.

A CAUTION

BE CAREFUL WHEN HANDLING SHEET METAL PARTS. THERE MAY BE SHARP EDGES.

Kit Contents:

	Kit #	
	813806	813807
Part Description	Qty	Qty
Air - Burner Diverter	4	2
Burner - Flame Quality Cap	4	2

Directions:

NOTE: Before installing kit, verify gas pressure is at the recommended level (See chart below). Low pressure can cause flame issues that will not be remedied by this kit.

	Gas Type		
Pressure Required	Natural	LP	
Supply	Maximum 14" WC Minimum 7" WC	Maximum 14" WC Minimum 11" WC	
Static Manifold (No burners on)	Approximately Supply Pressure	Approximately Supply Pressure	
Dynamic Manifold (At least one burner on)	5" WC ± .5" WC	10" WC ± .5" WC	

- 1. Remove grates and black pressed steel tops from the range.
- 2. Remove burner rings and caps from the burners.
- 3. Remove screws holding down the burners. (Picture 1)
- 4. Install the air diverters on each burner and reinstall screws. (Picture 3)
- 5. Install burner rings and new burner caps. (Picture 4)
- 6. Install the press steel tops and grates.
- 7. Turn electricity and gas supplies back on and check the unit for functionality.



Picture 1 Burner Screws



Picture 2 Diverter



Picture 3 Diverter Installed



Picture 4 Burner Cap

Madison, WI 53744 www.wolfappliance.com 813808 - Rev. A - 12 /23 / 2008



Black Ring Location on Wolf Pro-Series Surface Igniters

Purpose: We have received reports from the field of spark inconsistency during ignition and missed spark on Pro-Series surface burners. It has been determined that black ring location can be the determining factor. Please see the directions and diagram below showing the recommended location for the black ring.

Ring Location:

Use a pliers or flat blade screwdriver to push the ring down on the igniter. (See Figure 1 for ring position.)

NOTE: Do <u>NOT</u> push black ring down far enough to touch the simmer base; this <u>will</u> cause further spark issues!



Figure 1. Black Ring Location



IM15/S and ICBIM15/S - Intermittent Flames at Low Setting (Natural Gas Only)

SYMPTOM:

Intermittent flames at ports of multi-function inner burner ring on models IM15/S and ICBIM15/S (natural gas only), when unit is at lowest setting.

SOLUTION:

Change the natural gas multi-function valve orifice bypass screw to a longer bypass screw stamped "75" (See Figure 1).

NOTE: To acquire this orifice bypass screw you must contact Wolf Technical Assistance by phoning (800) 919 - 8324, or (608) 271 - 2233, and referencing this memo.



Figure 1. Valve Bypass Screw Comparison

PROCEDURE:

- 1. Remove control knob.
- Insert a small blade flat head screwdriver through opening in glass to extract and replace valve bypass screw. If needed, use a needle nose pliers to grab and lift existing bypass screw after unthreading it with the screwdriver, and to insert new bypass screw before tightening with screwdriver (See Figure 2 or 2A).



Figure 2. Valve Bypass Screw (Domestic)



Figure 2A. Valve Bypass Screw (International)