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**HOSHIZAKI
MODULAR FLAKER**

**MODEL
F-450MAF(-C)**

INSTRUCTION MANUAL

FOREWORD

IMPORTANT

Only qualified service technicians should attempt to install, service or maintain this icemaker. No installation, service or maintenance should be undertaken until the technician has thoroughly read this Instruction Manual. Likewise, the owner/manager should not proceed to operate the icemaker until the installer has instructed them on its proper operation.

HOSHIZAKI provides this manual primarily to assist qualified service technicians in the installation, maintenance and service of the icemaker.

Should the reader have any questions or concerns which have not been satisfactorily addressed, please call or write to the HOSHIZAKI Technical Support Department for assistance.

HOSHIZAKI AMERICA, INC.
618 Highway 74 South
Peachtree City, GA 30269

Attn: HOSHIZAKI Technical Support Department

Phone: 1-800-233-1940 Technical Service
(770) 487-2331
Fax: (770) 487-3360

NOTE: To expedite assistance, all correspondence/communication **MUST** include the following information:

- Model Number
- Serial Number
- Complete and detailed explanation of the problem

- Please review this manual. It should be read carefully before the icemaker is installed and operated. Only qualified service technicians should install, service and maintain the icemaker. This manual should be made available to the technician prior to installation, maintenance or service.
- Keep this manual with the icemaker for later reference.

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I. SPECIFICATIONS

1. NAMEPLATE RATING

[a] F-450MAF, F-450MAF-C

HOSHIZAKI ICE MAKER			
MODEL NUMBER	F-450MAF		
SERIAL NUMBER			
AC SUPPLY VOLTAGE	115/60/1		
COMPRESSOR	120V	8.5RLA	51LRA
GEAR MOTOR	120V	1.6FLA	1/6HP
FAN MOTOR	120V	.85FLA	50W
OTHER	120V	0.03A	
MAXIMUM FUSE USE	20 AMPS		
MAX. HACR BREAKER (USA ONLY)	20 AMPS		
MAX. CIRC. BREAKER (CANADA ONLY)	20 AMPS		
MINIMUM CIRCUIT AMPACITY	20 AMPS		
DESIGN PRESSURE	HI-427PSI LO-230PSI		
REFRIGERANT 404A	1 lb.		
MOTOR-COMPRESSOR THERMALLY PROTECTED			
NOT INTENDED FOR OUTDOOR USE			

HOSHIZAKI AMERICA, INC.
Peachtree City, GA

 LISTED ICE MAKER WITHOUT STORAGE MEANS 946Z   COMPONENT 

See the Nameplate for electrical and refrigeration specifications. This Nameplate is located on the upper right hand side of rear panel.

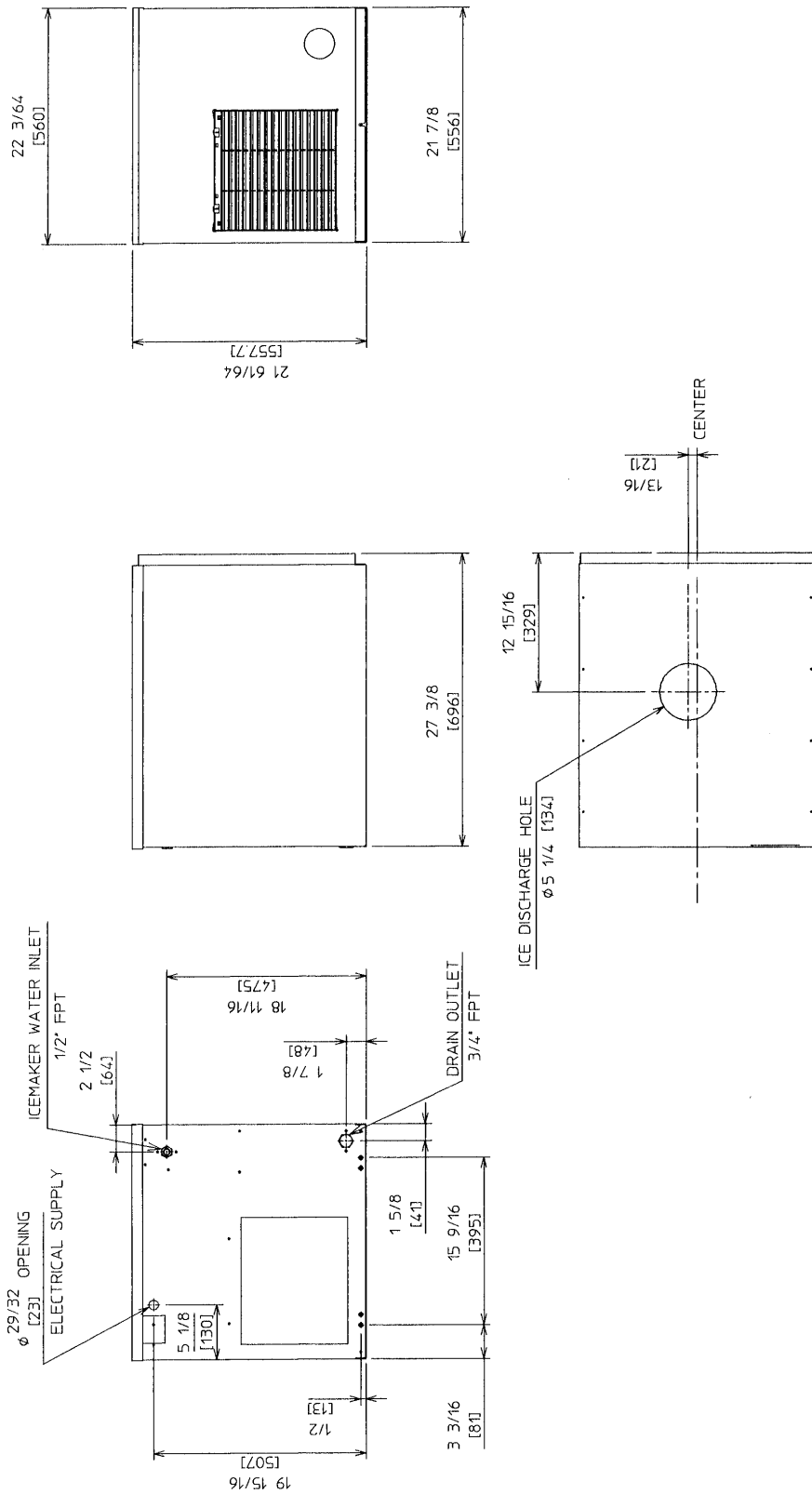
We reserve the right to make changes in specifications and design without prior notice.

NOTE: Only the “MODEL NUMBER” is replaced for F-450MAF-C.

2. DIMENSIONS/CONNECTIONS

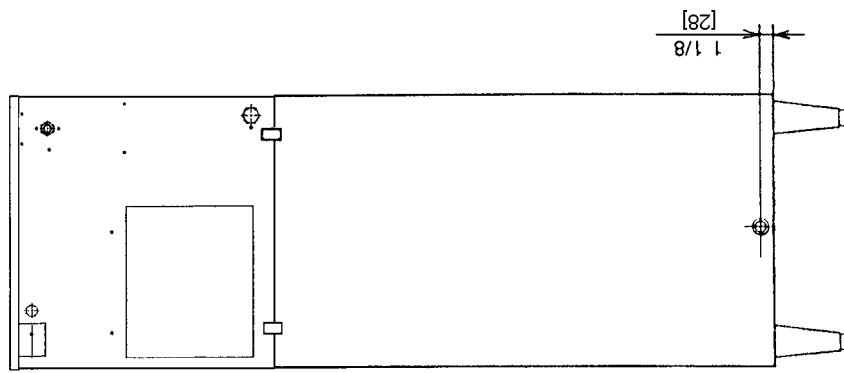
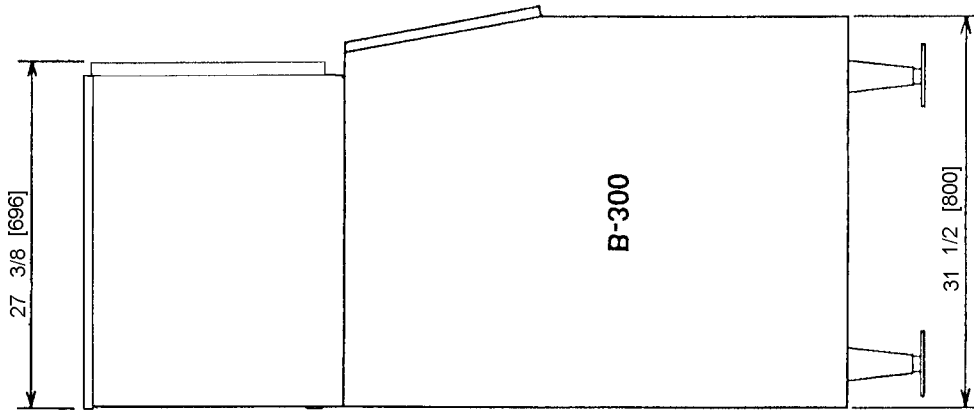
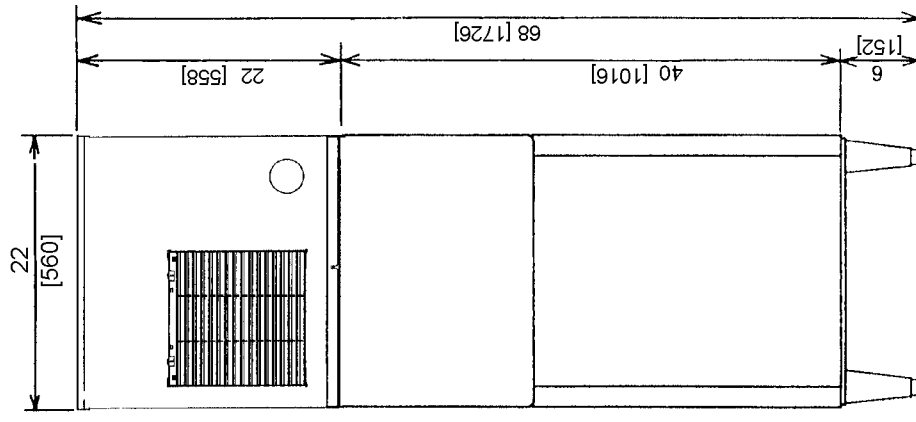
[a] F-450MAF, F-450MAF-C

Unit = inches [mm.]



[c] WITH STORAGE BIN

Unit = inches [mm.]



II. INSTALLATION AND OPERATING INSTRUCTIONS

1. CHECKS BEFORE INSTALLATION

WARNING

Remove shipping carton, tape(s) and packing. If packing material is left in the icemaker, it will not work properly.

- 1) Remove the Front, Top and Side Panels to prevent damage when installing the icemaker. (See “2. HOW TO REMOVE PANELS.”)
- 2) Remove the package containing the accessories from inside the icemaker.
- 3) Remove the protective plastic film from the panels. If the icemaker is exposed to the sun or to heat, remove the film after the icemaker cools.
- 4) Check that the refrigerant lines do not rub or touch lines or other surfaces, and that the fan blade turns freely.
- 5) Check that the Compressor is snug on all mounting pads.
- 6) See the Nameplate on the Rear Panel, and check that your voltage supplied corresponds with the voltage specified on the Nameplate.
- 7) This icemaker needs a storage bin or ice dispenser. The recommended storage bin is HOSHIZAKI ICE STORAGE BIN, Model B-300 series. The recommended ice dispenser is HOSHIZAKI ICE DISPENSER, Model DM-90 (for -C model only).

2. HOW TO REMOVE PANELS - See Fig. 1

- a) Front Panel Remove the screw.
Lift up and pull toward you.
- b) Top Panel Lift up front, push away,
and then lift off.
- c) Side Panel Remove the screw.
Pull slightly toward you, and
lift off.

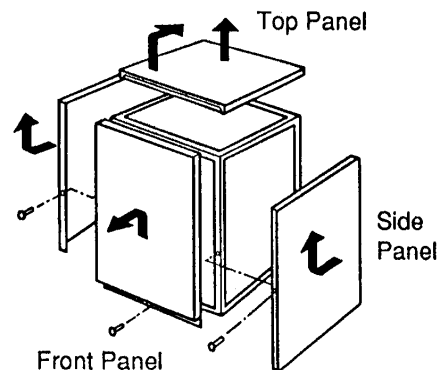


Fig. 1

3. LOCATION

WARNING

This icemaker is not intended for outdoor use. Normal operating ambient temperature should be within +45°F to +100°F; Normal operating water temperature should be within +45°F to +90°F. Operation of the icemaker, for extended periods, outside of these normal temperature ranges may affect production capacity.

For best operating results:

- Icemaker should not be located next to ovens, grills or other high heat producing equipment.
- Location should provide a firm and level foundation for the equipment.
- Allow 6" clearance at rear and sides for proper air circulation and ease of maintenance and /or service should they be required. Allow 24" clearance at top to allow for removal of the Auger.

4. SET UP

- 1) Unpack the Storage Bin, and attach the four adjustable legs provided (bin accessory) to the bottom of the Storage Bin.
- 2) Position the Storage Bin in the selected permanent position.
- 3) Place the icemaker on the top of the Storage Bin.
- 4) Secure the icemaker to the Storage Bin, by using the two universal braces and two bolts provided. See Fig. 2.
- 5) Seal the seam between the icemaker and the Storage Bin.
- 6) Level the icemaker/Storage Bin in both the left-to-right and front-to-rear directions. Adjust the Ice Bin Legs to make the icemaker level.

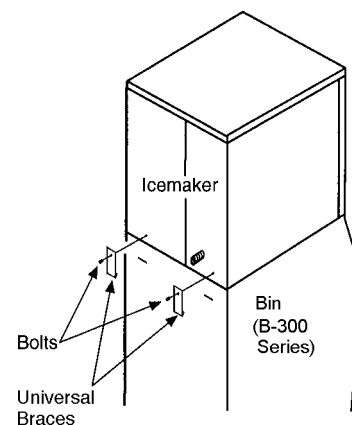


Fig. 2

- 7) Replace the Top Panel and the Front Panel in their correct position, and secure the Front Panel by a screw.

5. ELECTRICAL CONNECTION

WARNING

1. Electrical connection must be made in accordance with the instructions on a "WARNING" tag provided with the pig tail leads in the Junction Box.
2. This icemaker requires a ground that meets the national and local electrical code requirements. To prevent possible electrical shock to individuals or extensive damage to the equipment, install a proper ground wire to the icemaker.

- The white lead must be connected to the neutral conductor of the power source. Miswiring results in severe damage to the icemaker. See Fig. 3.
- This icemaker must have a separate power supply or receptacle of proper capacity. See the Nameplate.
- The opening for the power supply connection is 7/8" DIA to fit a 1/2" trade size conduit.
- Usually an electrical permit and services of a licensed electrician are required.

WARNING

ELECTRICAL CONNECTION

The white lead must be connected to the neutral conductor of the power source. Miswiring results in severe damage to the icemaker. (See Fig. below.)

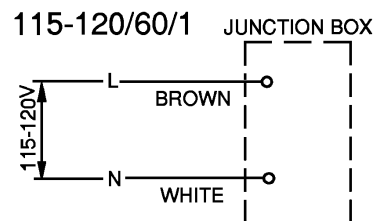
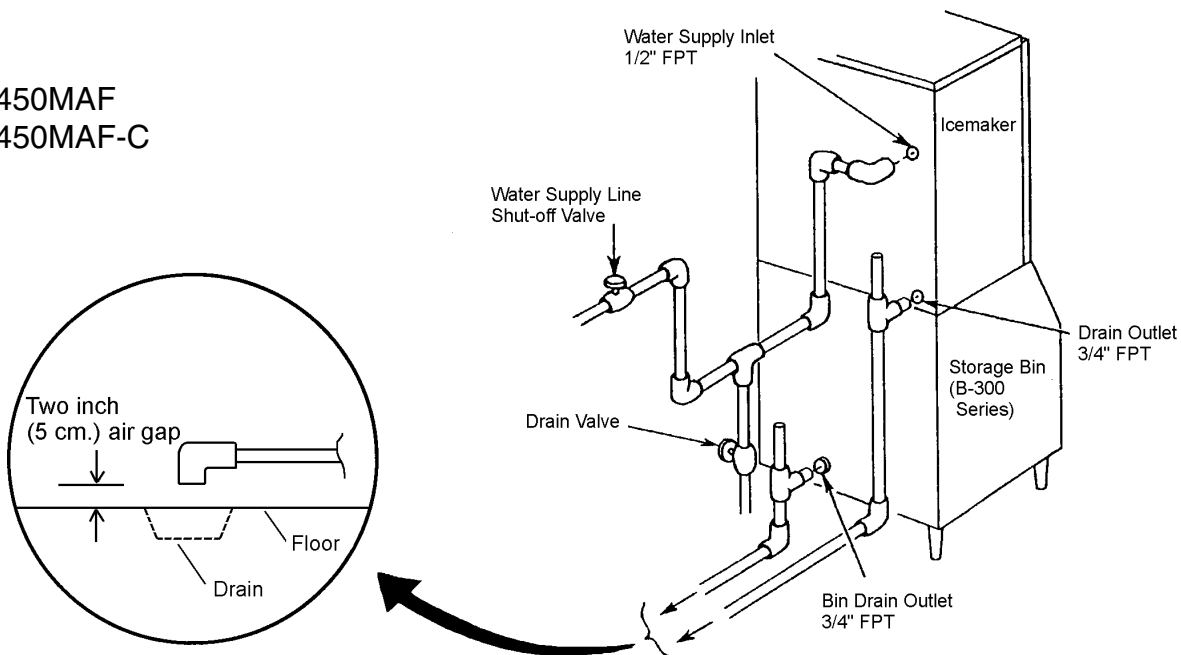


Fig. 3

6. WATER SUPPLY AND DRAIN CONNECTIONS - See Fig. 4

- External filters, strainers or softeners may be required depending on the water quality.
- Water supply inlet is 1/2" female pipe thread (FPT).
- A water supply line shut-off valve and drain valve should be installed. A minimum of 3/8" OD copper tubing is recommended for the water supply lines.
- Water supply pressure should be a minimum of 10 PSIG and a maximum of 113 PSIG. If the pressure exceeds 113 PSIG, the use of a pressure reducing valve is required.
- Drain outlet for icemaking is 3/4" FPT. The icemaker drain and the condenser drain piping connections must be made separately from the bin drain.
- The drains must have 1/4" fall per foot on horizontal runs to get a good flow.
- The drains should not be piped directly to the sewer system. An air gap of a minimum of 2 vertical inches should be between the end of the drain pipe from the icemaker or the ice bin and the floor drain.
- A plumbing permit and services of a licensed plumber may be required in some areas.
- In some areas, a back flow preventer may be required in the cooling water circuit.

F-450MAF
F-450MAF-C



- Separate piping to approved drain. Leave a two-inch (5 cm.) vertical air gap between the end of each pipe and the drain.
- 1/4" fall per foot on horizontal run.

Fig. 4

7. FINAL CHECK LIST

- 1) Is the icemaker level?
- 2) Is the icemaker in a site where the ambient temperature is within +45°F to +100°F and the water temperature within +45°F to +90°F all year around?
- 3) Is there at least 6" clearance at rear and sides and 24" at top for maintenance or service?
- 4) Have all shipping carton, tape(s) and packing been removed from the icemaker?
- 5) Have all electrical and piping connections been made?
- 6) Has the power supply voltage been checked or tested against the nameplate rating and the correct voltage selected? And has a proper ground been installed in the icemaker?
- 7) Are the Water Supply Line Shut-off Valve and Drain Valve installed? Has the water supply pressure been checked to ensure a minimum of 10 PSIG and a maximum of 113 PSIG?

Note: The icemaker may stop running when the water supply is OFF, or if the pressure is below 10 PSIG. When the proper water pressure is reached, the icemaker automatically starts running again.
- 8) Have the compressor hold-down bolts and refrigerant lines been checked against vibration and possible failure?
- 9) Has the Bin Control Switch (F-450MAF) or Sensor (F-450MAF-C) been checked for correct operation? The Compressor should stop in 6 seconds, and the Gear Motor in 6 seconds.
- 10) Has the end user been given the instruction manual, and instructed on how to operate the icemaker and the importance of the recommended periodic maintenance?
- 11) Has the end user been given the name and telephone number of an authorized service agent?
- 12) Has the warranty tag been filled out and forwarded to the factory for warranty registration?

8. START UP

WARNING

1. All parts are factory-adjusted. Improper adjustments may result in failure.
2. If the unit is turned off, wait for at least 3 minutes before restarting the icemaker to prevent damage to the Compressor.

- 1) Clean the Storage Bin. (See “III. 2. MAINTENANCE.”)
- 2) Open the Water Supply Line Shut-off Valve.
- 3) Move the Flush Switch on the Control Box to the “ICE” position.
- 4) Turn on the Power Switch on the Control Box.
- 5) Replace the Side, Top and Front Panels in their correct position.
- 6) Turn on the power supply.

9. PREPARING THE ICEMAKER FOR LONG STORAGE - See Fig. 5

WARNING

When shutting off the icemaker for an extended time, drain out all water from the water line and remove the ice from the Storage Bin. The Storage Bin should be cleaned and dried. Drain the icemaker to prevent damage to the water supply line at subfreezing temperatures, using air or carbon dioxide. Shut off the icemaker until the proper ambient temperature is resumed.

- 1) Run the icemaker with the Water Supply Line Shut-off Valve closed.
- 2) Open the Drain Valve and blow out the water inlet line by using air pressure.
- 3) Turn off the power supply.
- 4) Remove the Front Panel.
- 5) Move the Flush Switch on the Control Box to the "FLUSH" position.
- 6) Turn on the power supply, and then drain out all water from the water line.
- 7) Turn off the power supply.
- 8) Turn off the Power Switch on the Control Box.
- 9) Replace the Front Panel in its correct position.
- 10) Close the Drain Valve.
- 11) Remove all ice from the Storage Bin, and clean the bin.

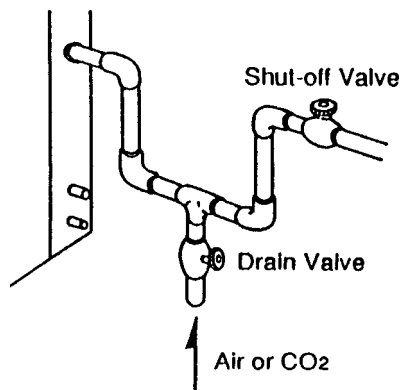


Fig. 5

III. CLEANING AND MAINTENANCE INSTRUCTIONS

1. CLEANING INSTRUCTIONS

WARNING

1. HOSHIZAKI recommends cleaning this unit at least once a year. More frequent cleaning, however, may be required in some existing water conditions.
2. To prevent injury to individuals and damage to the icemaker, do not use ammonia type cleaners.
3. Always wear liquid-proof gloves for safe handling of the cleaning and sanitizing solution. This will prevent irritation in case the solution comes into contact with skin.

<STEP 1>

Dilute the solution with water as follows.

Cleaning solution: 4.8 fl. oz. of recommended cleaner Hoshizaki "Scale Away" or "LIME-A-WAY" (Economics Laboratory, Inc.) with 0.8 gal. of water. This is a minimum amount. Make more solution, if necessary.

Sanitizing solution: 2.5 fl. oz. of IMS-II Sanitizer or a 5.25 % sodium hypochlorite solution with 5 gal. of water.

Note: IMS-II Sanitizer, Part #SA0004, is available through your Hoshizaki Dealer.

IMPORTANT

For safety and maximum effectiveness, use the solution immediately after dilution.

<STEP 2>

Use the cleaning solution to remove lime deposits in the water system.

- 1) Turn off the power supply.
- 2) Close the Water Supply Line Shut-off Valve.

- 3) Remove all ice from the Storage Bin.
- 4) Remove the Front Panel and the Top Panel.
- 5) Move the Flush Switch to the "FLUSH" position.
- 6) Turn on the power supply and drain out all water from the water line.
- 7) Turn off the power supply.
- 8) Remove the Control Water Valve by releasing the Fitting Nut. Do not lose the Packing.
- 9) Remove the Cover of the Reservoir.
- 10) Fill the Reservoir with the cleaning solution.
- 11) Replace the Cover of the Reservoir and the Control Water Valve in their correct position.

Note: This unit is designed to start operating when the Reservoir is filled with water.

- 12) Move the Flush Switch to the "ICE" position.
- 13) Replace the Top Panel and the Front Panel in their correct position.
- 14) Allow the icemaker to sit for about 10 minutes before the operation. Then, turn on the power supply, and make ice using the solution until the icemaker stops icemaking.
- 15) Remove the Front Panel.
- 16) Move the Flush Switch to the "FLUSH" position to drain the cleaning solution.
- 17) Move the Flush Switch to the "ICE" position.
- 18) Replace the Front Panel in its correct position.
- 19) Open the Water Supply Line Shut-off Valve, and supply water to the Reservoir.
- 20) Turn off the power supply when the Gear Motor starts.
- 21) Drain out all water from the water line. See 4) through 7).

<STEP 3>

Use 3/4 gal. of the sanitizing solution to sanitize the icemaker.

- 1) Close the Water Supply Line Shut-off Valve.

- 2) Remove the Control Water Valve by releasing the Fitting Nut.
- 3) Remove the Cover of the Reservoir.
- 4) Fill the Reservoir with the sanitizing solution.
- 5) Replace the Cover of the Reservoir and the Control Water Valve in their correct position.
- 6) Move the Flush Switch to the “ICE” position.
- 7) Replace the Top Panel and the Front Panel in their correct position.
- 8) Allow the icemaker to sit for about 10 minutes before the operation. Then, turn on the power supply, and make ice using the solution until the icemaker stops icemaking.
- 9) Remove the Front Panel.
- 10) Move the Flush Switch to the “FLUSH” position to drain the sanitizing solution.
- 11) Move the Flush Switch to the “ICE” position.
- 12) Replace the Front Panel in its correct position.
- 13) Open the Water Supply Line Shut-off Valve, and supply water to the Reservoir.
- 14) Turn off the power supply when the Gear Motor starts.
- 15) Drain out all water from the water line. See 4) through 7) in STEP 2.
- 16) Move the Flush Switch to the “ICE” position.

<STEP 4>

Use the sanitizing solution to sanitize removed parts.

- 1) Remove the Band connecting the Spout with the Chute Assembly.
- 2) Remove the three Ties and the Insulation off the Chute.

IMPORTANT

On the cubelet (-C) model, there is an Infrared Sensor housing at the bottom of the Chute, wired to the Control Box. Slide the housing out of the Chute, and then remove the Chute from the machine.

Note: Step 3) through 6) are for the F-450MAF only. The parts mentioned in these steps are not included on the cubelet model (F-450MAF-C).

- 3) Remove the Thumbscrews securing the Bin Control Switch on the Chute Assembly. Take the Chute Assembly out of the machine.
- 4) Remove the six Wing Nuts and the two Baffles.

IMPORTANT

When reinstalling the Baffles, make sure that the bent surface (the one without the studs) faces the Activator so that the bent surface can guide the ice to the center of the Activator.

- 5) Remove the two Thumbscrews, the Plate, and the Gasket at the top of the Ice Chute, and then remove the Bin Control Assembly by sliding it slightly toward the Spout and lifting it off.
- 6) Disassemble the Bin Control Assembly by removing the two Snap Pins, Shaft and Activator.
- 7) Remove the gasket at the bottom of the Ice Chute and another at the Spout.
- 8) Remove the three Thumbscrews and the Spout.
- 9) Remove the Rubber O-ring and Nylon O-ring at the top of the cylinder.
- 10) Soak or wipe the removed parts.
- 11) Rinse these parts thoroughly.

IMPORTANT

If the solution is left on these parts, they will rust.

Note: Steps 12) and 13) are for the cubelet model only (F-450MAF-C).

- 12) Remove the two screws attaching the Infrared Bin Control Sensor to its plastic housing and remove the Sensor.
- 13) Clean the red surface of the Sensor with a soft cloth.
- 14) Replace the removed parts and the panels in their correct positions.

- 15) Turn on the power supply and run the icemaker.
- 16) Turn off the power supply after 30 minutes.
- 17) Pour warm water into the Storage Bin to melt all ice, and then clean the Bin Liner with the solution.
- 18) Flush out any solution from the Storage Bin.
- 19) Turn on the power supply and start the automatic icemaking process.

IMPORTANT

1. After cleaning, do not use ice made from the sanitizing solution. Be careful not to leave any solution in the Storage Bin.
2. Follow carefully any instructions provided with the bottles of cleaning or sanitizing solution.
3. Never run the icemaker when the Reservoir is empty.

2. MAINTENANCE INSTRUCTIONS

IMPORTANT

1. This icemaker must be maintained individually, referring to the instruction manual and labels provided with the icemaker.
2. To have the optimum performance of this icemaker, the following consumable parts need periodic inspection, maintenance and replacement:

Extruding Head
Housing
Gear Motor
Auger
Mechanical Seal

These parts should be inspected at least once a year or every 10,000 hours of operation. Their service life, however, depends on water quality and environment. More frequent inspection and maintenance are recommended.

Consult with your local distributor about inspection and maintenance service. To obtain the name and phone number of your local distributor, call Hoshizaki Technical Support at 1-800-233-1940 in the USA.

1) Stainless Steel Exterior

To prevent corrosion, wipe the exterior occasionally with a clean and soft cloth. Use a damp cloth containing a neutral cleaner to wipe off oil or dirt build up.

2) Storage Bin and Scoop

- Wash your hands before removing ice. Use the plastic scoop provided (Accessory).
- The Storage Bin is for ice use only. Do not store anything else in the bin.
- Keep the Scoop clean. Clean using a neutral cleaner and rinse thoroughly.
- Clean the Bin Liner using a neutral cleaner. Rinse thoroughly after cleaning.

3) Air Filter

A plastic mesh air filter removes dirt or dust from the air, and keeps the Condenser from getting clogged. As the filter gets clogged, the icemaker's performance will be reduced. Check the filter at least twice a month. When clogged, use warm water and a neutral cleaner to wash the filter.

4) Condenser

Check the Condenser once a year, and clean if required by using a brush or vacuum cleaner. More frequent cleaning may be required depending on the location of the icemaker.

5) Infrared Sensor (-C model only)

The Infrared Sensor inside the Ice Chute can be accessed by opening the Bin Door and reaching into the Chute from below the ice machine. Clean the Sensor using a neutral cleaner on a clean soft cloth at least twice a month.

HOSHIZAKI

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