

MODULAR CRESCENT CUBER

KMD-410MAH KMD-410MWH

# **INSTRUCTION MANUAL**

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Only qualified service technicians should install, service and maintain the product. 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 product until the installer has instructed them on its proper operation. Failure to install, operate, and maintain the equipment in accordance with this manual may adversely affect safety, performance, component life, and warranty coverage.

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

Should the reader have any questions or concerns which have not been satisfactorily addressed, please call, write, or send an e-mail message to the Hoshizaki Technical Support Department for assistance.

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Web Site: www.hoshizaki.com

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

* Model Number	
* Serial Number	

\* Complete and detailed explanation of the problem.

#### **IMPORTANT** -

This manual should be read carefully before the product is installed and operated. Only qualified service technicians should install, service, and maintain the product. Read the warnings contained in this booklet carefully as they give important information regarding safety. Please retain this booklet for any further reference that may be necessary.

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## I. Specifications

## A. Nameplate Rating

#### 1. KMD-410MAH (air-cooled)



See the nameplate for electrical and refrigeration specifications. This nameplate is located on the rear panel.

Since this nameplate is located on the rear panel of the icemaker, it cannot be read when the back of the icemaker is against a wall or against another piece of kitchen equipment. Therefore, the necessary electrical and refrigeration information is also on the rating label, which can be easily seen by removing only the front panel of the icemaker.

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

#### 2. KMD-410MWH (water-cooled)

#### HOSHIZAKI ICE MAKER

MODEL NUMBER KMD-410MWH

**SERIAL NUMBER** 

AC SUPPLY VOLTAGE 115/60/1

COMPRESSOR 115V-120V 5.1RLA 50.0LRA PUMP 120V 0.42FLA 23W

FAN -

OTHER 115V-120V 0.15A

MAXIMUM FUSE SIZE 20 AMPS MAX. HACR BREAKER (USA ONLY) 20 AMPS

MAX. CIRC. BREAKER (CANADA ONLY) 20 AMPS MINIMUM CIRCUIT AMPACITY 20 AMPS

DESIGN PRESSURE HI-467PSI LO-206PSI REFRIGERANT R404A 14.1oz.

MOTOR-COMPRESSOR THERMALLY PROTECTED, NOT INTENDED FOR OUTDOOR USE!

HOSHIZAKI ELECTRIC CO., LTD.

MADE IN SUZHOU, CHINA



CONFORMS TO UL STD UL563 CERTIFIED TO CSA-C22.2 NO,120-M91





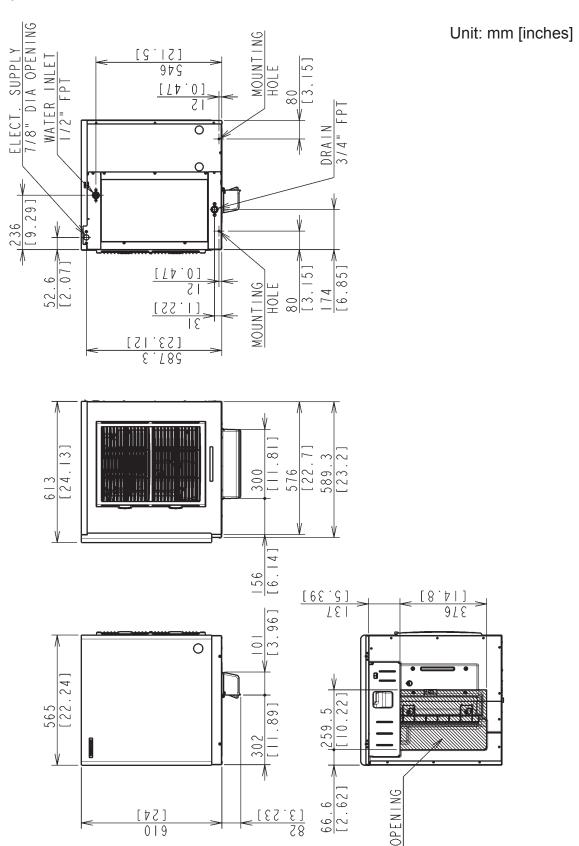
See the nameplate for electrical and refrigeration specifications. This nameplate is located on the rear panel.

Since this nameplate is located on the rear panel of the icemaker, it cannot be read when the back of the icemaker is against a wall or against another piece of kitchen equipment. Therefore, the necessary electrical and refrigeration information is also on the rating label, which can be easily seen by removing only the front panel of the icemaker.

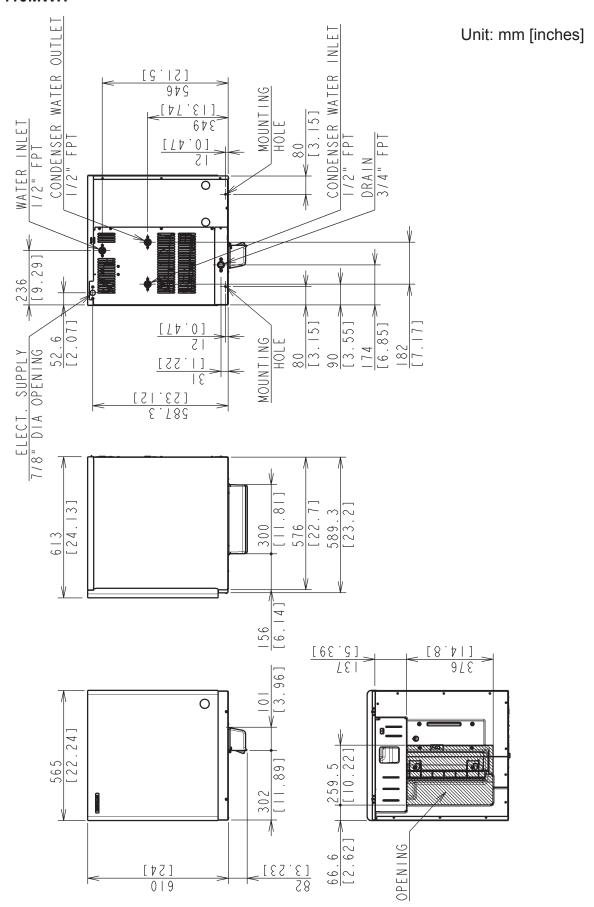
We reserve the right to make changes in specifications and design without prior notice.

## **B. Dimensions/Connections**

## 1. KMD-410MAH



### 2. KMD-410MWH



## **II. Installation and Operating Instructions**

#### A. Checks Before Installation

#### **IMPORTANT**

- 1. Install in accordance with all applicable national, state, and local regulations.
- 2. Remove all shipping cartons, tape, and packing material. If any are left in the icemaker, it will not work properly.
- 3. Ensure all components, fasteners, and thumbscrews are securely in place after installation.
- 1) Remove the panels to prevent damage when installing the icemaker. (See "B. How to Remove Panels.")
- 2) Remove the package containing the accessories.
- 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 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 can be installed on a storage bin or dispenser unit 22" wide or wider. If using a storage bin, HOSHIZAKI STORAGE BIN, Model B-300 series is recommended.

## B. How to Remove Panels - See Fig. 1

\* Front Panel: Loosen the screws. Lift up and towards you.

\* Top Panel: Lift up at front slightly, push rearward and lift off.

\* Side Panel (R): Remove the screw. Slide forward slightly and lift off.

\* Front Insulation: Lift up slightly, and pull towards you.

\* Top Insulation: Push up at front corner, and pop off.

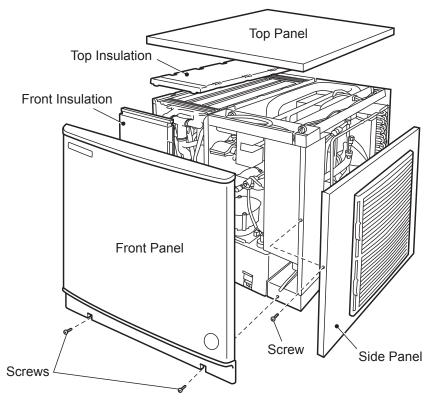


Fig. 1

#### C. Location

#### CAUTION

- 1. This icemaker is not intended for outdoor use. Normal operating ambient temperature should be within +45°F to +100°F (+7°C to +38°C); Normal operating water temperature should be within +45°F to +90°F (+7°C to +32°C). Operation of the icemaker, for extended periods, outside of these normal temperature ranges may affect icemaker performance.
- 2. This icemaker will not work at sub-freezing temperatures. To prevent damage to the water supply line, drain the icemaker when the air temperature is below 32°F (0°C). See "III. C. Preparing the Icemaker for Long Storage."

#### For best operating results:

- \* Icemaker should not be located next to ovens, grills, or other high heat producing equipment.
- \* Avoid choosing a site where no dripping is allowed.

- \* Allow 6" (15 cm) clearance at rear, left side, and top and 12" (30 cm) clearance at right side for proper air circulation and ease of maintenance and/or service should they be required.
- \* Location should provide a firm and level foundation for the equipment.

## D. Setup



Do not use the side frame to lift the icemaker. See Fig. 1. Lift the icemaker from the base.

- 1) If mounting the unit on top of a storage bin, unpack the storage bin, and attach the four adjustable legs provided (bin accessory) to the bottom of the storage bin. If mounting the unit on top of a dispenser, follow the dispenser's setup procedure.
- 2) Position the storage bin/dispenser unit in the selected permanent location.
- 3) Place the icemaker on top of the storage bin/dispenser unit by holding the bottom.
- 4) Secure the icemaker to the storage bin/dispenser unit using the two mounting brackets and the bolts provided. See Fig. 2.
- 5) Level the icemaker and storage bin/dispenser unit in both the left-to-right and front-torear directions. If using a storage bin, adjust the storage bin legs to make the icemaker level.
- 6) Replace the panels in their correct positions.

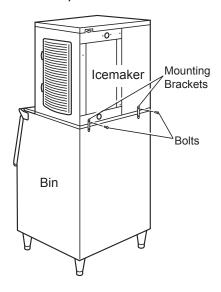


Fig. 2

### **E. Bin Control Installation**

- 1) Remove the front panel, then remove the front insulation.
- 2) Loosen the two thumbscrews securing the pump motor bracket. See Fig. 3.

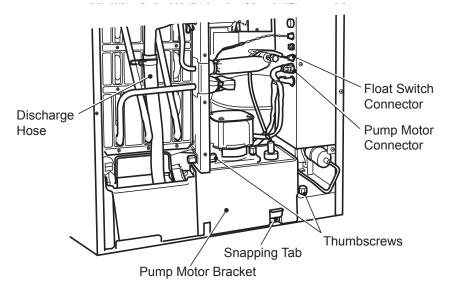


Fig. 3

- 3) Disconnect the discharge hose.
- 4) Disconnect the pump motor connector and float switch connector from the side of the control box.
- 5) Keep pushing up the snapping tab at the right side of the pump motor bracket.
- 6) Pull out the water tank, cube guide, pump motor bracket, pump motor and float switch together. See Fig. 4.

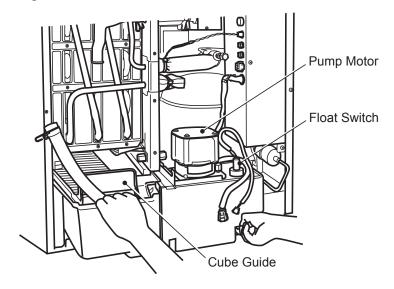


Fig. 4

- 7) Pass the bin control connector through the hole from the bottom to the top of the unit.
- 8) While pulling up the bin control lead, hook the bin control on the right side interior wall. Then push the bin control up against the bottom of the unit, and slide to the back until it snaps in place. Make sure the slotted holes at the right side of the bin control are securely placed on the collars at the bottom of the unit. See Fig. 5.

#### CAUTION

Make sure the bin control is securely in place. Otherwise, ice may get between gaps and damage the bin control.

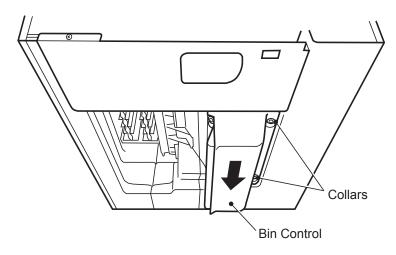


Fig. 5

- 9) Connect the bin control connector to the side of the control box.
- 10) Replace the water tank, cube guide, pump motor bracket, pump motor and float switch in their correct positions until they snap in place.

#### CAUTION

Be sure to let the Discharge Hose pass behind the copper tube and connect it securely in position. See Fig. 3. Otherwise, the Discharge Hose may be caught in the Front Insulation, leading to improper results.

- 11) Secure the pump motor bracket with the two thumbscrews.
- 12) Reconnect the pump motor connector and float switch connector.
- 13) Replace the front insulation and front panel in their correct positions.

#### F. Electrical Connection

#### WARNING

- 1. Electrical connection must be made in accordance with the instructions on the "WARNING" tag, provided with the pig tail leads in the junction box.
- Electrical connections must meet national, state, and local electrical code requirements. Failure to meet these code requirements could cause severe injury to individuals or extensive damage to equipment.
- 3. Be sure to install a proper ground to the icemaker.
- \* Electrical connections must be installed in accordance with applicable national, state, and local regulations.
- \* The icemaker requires an independent power supply. See the nameplate for proper voltage and breaker/fuse size.
- \* The maximum allowable voltage variation is ±10 percent of the nameplate rating.
- \* The white lead must be connected to the neutral conductor of the power source. Miswiring results in severe damage to the icemaker. See Fig. 6.
- \* 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.)

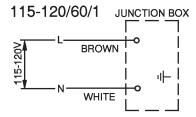


Fig. 6

## G. Water Supply and Drain Connections - See Fig. 7

#### CAUTION -

To prevent damage to equipment, do not operate this icemaker when the water supply is off, or if the pressure is below 10 PSIG. Do not run the icemaker until the proper water pressure is reached.

\* Water supply inlet is 1/2" female pipe thread (FPT).

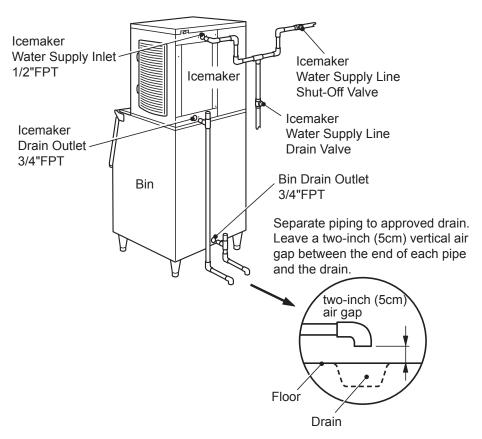
Note: On water-cooled model, two water supply inlets are provided. One is for the icemaker, and the other (1/2" FPT) is for the water-cooled condenser.

- \* 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.
- \* Icemaker drain outlet is 3/4" FPT. The icemaker drain line must be run separately from the storage bin/dispenser unit drain line.

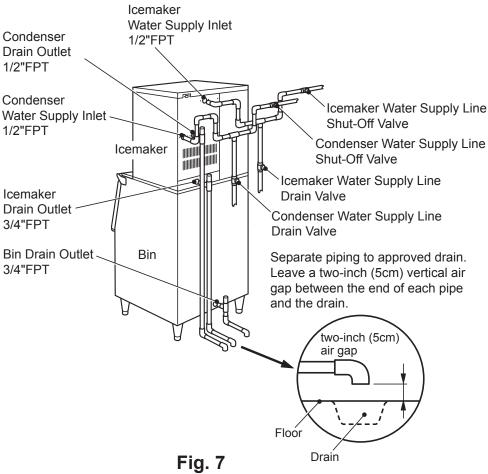
Note: Water-cooled model also has a 1/2" FPT condenser drain outlet. Drain line must be run separately.

- \* Drain lines must have 1/4" fall per foot (2 cm per 1 m) on horizontal runs to get good flow. A vented tee connection is also required for proper flow.
- \* Drain lines should not be piped directly to the sewer system. An air gap of a minimum of 2 vertical inches (5 cm) should be between the end of the drain pipes from the icemaker, the storage bin/dispenser unit, and the water-cooled condenser (if applicable) and the floor drain.
- \* This icemaker must be installed in accordance with applicable national, state and local regulations.
- \* A plumbing permit and services of a licensed plumber may be required in some areas.
- \* Water-Cooled Model Only: In some areas, a back flow preventer may be required in the cooling water circuit.

#### KMD-410MAH



#### KMD-410MWH



#### H. Final Checklist

- 1) Is the icemaker level?
- 2) Is the icemaker in a site where the ambient temperature is within +45°F to +100°F (+7° C to +38°C) and the water temperature within +45°F to +90°F (+7°C to +32°C) all year around?
- 3) Is there at least 6" (15 cm) clearance at rear, left side, and top and 12" (30 cm) clearance at right side for proper air circulation and maintenance or service?
- 4) Have all shipping cartons, tape, and packing material been removed from the icemaker? Is the cube guide in its correct position?
- 5) Are all components, fasteners and thumbscrews securely in place?
- 6) Have all electrical and piping connections been made?
- 7) Has the power supply voltage been checked or tested against the nameplate rating? Has a proper ground been installed to the icemaker?
- 8) 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.
- 9) Are the compressor hold-down bolts snug? Have the refrigerant lines been checked to make sure they do not rub or touch other lines or surfaces?
- 10) Has the bin control switch been checked for correct operation? To confirm bin control operation, press the bin control's actuator paddle during the first 5 minutes of the freeze cycle. The compressor and fan motor should de-energize within 15 seconds, then the drain valve should energize until the water tank empties. After the water tank empties, the pump motor and drain valve should de-energize.
- 11) 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?
- 12) Has the end user been given the name and telephone number of an authorized service agent?
- 13) Has the warranty card been filled out and forwarded to the factory for warranty registration?

## I. Startup

#### **CAUTION**

- 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.
- 3. To prevent damage to the water pump, do not leave the control switch in the "SERVICE" position for extended periods of time when the water tank is empty.
- 1) Open the water supply line shut-off valve.
- 2) Remove the front panel.
- 3) Move the control switch on the control box to the "ICE" position.
- 4) Replace the front panel in its correct position.
- 5) Turn on the power supply and allow the icemaker to operate for 5 minutes to fill up the water tank.
- 6) Remove the front panel and move the control switch to the "SERVICE" position. Move the service switch to the "WASH" position.
- 7) Replace the front panel in its correct position and allow the icemaker to run for 5 minutes.
- 8) Remove the front panel and move the service switch to the "DRAIN" position.
- 9) Replace the front panel in its correct position and allow the icemaker to drain for 2 minutes.
- 10) Turn off the power supply.
- 11) Remove the front panel and move the control switch to the "ICE" position.
- 12) Replace the front panel in its correct position.
- 13) Clean the storage bin/dispenser unit liner using a neutral cleaner. Rinse thoroughly after cleaning.
- 14) Turn on the power supply to start the automatic icemaking process.

## **III. Cleaning and Maintenance Instructions**

IM	P	OR	TΔ	NT

Ensure all components, fasteners and thumbscrews are securely in place after any maintenance or cleaning is done to the equipment.

## A. Cleaning

#### WARNING -

- 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. Carefully follow any instructions provided with the bottles of cleaning and sanitizing solution.
- 4. Always wear liquid-proof gloves to prevent the cleaning and sanitizing solutions from coming into contact with skin.
- 5. To prevent damage to the water pump, do not leave the control switch in the "SERVICE" position for extended periods of time when the water tank is empty.

#### 1. Cleaning Procedure

- 1) Dilute approximately 9.5 fl. oz. (281 ml) of recommended cleaner Hoshizaki "Scale Away" or "LIME-A-WAY" (Economics Laboratory, Inc.) with 1.8 gallon (6.8 lit.) of water.
- 2) Remove all ice from the evaporator and the storage bin/dispenser unit.

Note: To remove cubes on the evaporator, turn off the power supply and turn it on after 3 minutes. The harvest cycle starts and the cubes will be removed from the evaporator.

- 3) Turn off the power supply.
- 4) Remove the front panel and move the control switch to the "SERVICE" position. Move the service switch to the "DRAIN" position.

- 5) Replace the front panel in its correct position and turn on the power supply for 2 minutes.
- 6) Turn off the power supply.
- 7) Remove the front panel then remove the front insulation (the large insulation panel in front of the evaporator) by lifting up the panel slightly and pulling it towards you.
- 8) In bad or severe water conditions, clean the float switch as described below. Otherwise, continue to step 9.
  - a. Loosen the two thumbscrews securing the pump motor bracket. See Fig. 8.
  - b. Disconnect the discharge hose.
  - c. Disconnect the pump motor connector and the float switch connector from the side of the control box.
  - d. Keep pushing up the snapping tab at the right side of the pump motor bracket.
  - e. Pull out the water tank, cube guide, pump motor bracket, pump motor and float switch together. See Fig. 9.
  - f. Remove the pump motor bracket securing the pump motor and the float switch. Remove the float switch from the pump motor bracket.
  - g. Wipe down the float switch housing, shaft and float with cleaning solution. Rinse the parts thoroughly with clean water.
  - h. Replace the float switch in its correct position.
  - i. Replace the removed parts in the reverse order of which they were removed.

#### CAUTION

Be sure to let the Discharge Hose pass behind the copper tube and connect it securely in position. See Fig. 8. Otherwise, the Discharge Hose may be caught in the Front Insulation, leading to improper results.

- 9) Pour the cleaning solution into the water tank.
- 10) Move the service switch to the "WASH" position.
- 11) Replace the front insulation and the front panel in their correct positions.
- 12) Turn on the power supply to start the washing process.

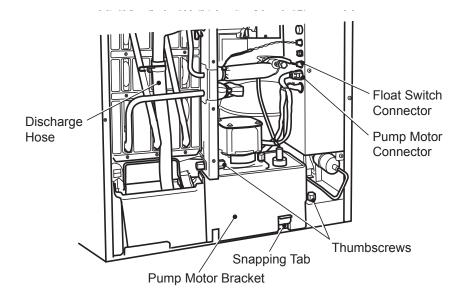


Fig. 8

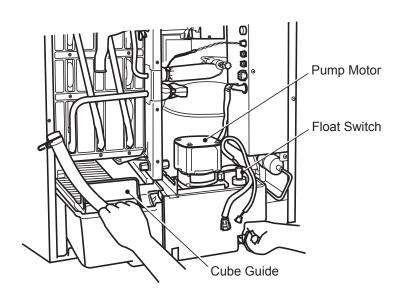


Fig. 9

- 13) Turn off the power supply after 30 minutes.
- 14) Remove the front panel.
- 15) Move the service switch to the "DRAIN" position.
- 16) Replace the front panel in its correct position and turn on the power supply for 2 minutes.
- 17) Turn off the power supply and remove the front panel.

- 18) Move the control switch to the "ICE" position.
- 19) Replace the front panel in its correct position.
- 20) Turn on the power supply to fill the water tank with water.
- 21) Turn off the power supply after 3 minutes.
- 22) Remove the front panel.
- 23) Move the control switch to the "SERVICE" position. Move the service switch to the "WASH" position.
- 24) Replace the front panel in its correct position.
- 25) Turn on the power supply to rinse off the cleaning solution.
- 26) Turn off the power supply after 5 minutes.
- 27) Remove the front panel.
- 28) Move the service switch to the "DRAIN" position.
- 29) Replace the front panel in its correct position and turn on the power supply for 2 minutes.
- 30) Turn off the power supply.
- 31) Remove the front panel.
- 32) Repeat steps 18 through 31 three more times to rinse thoroughly.

Note: If you do not sanitize the icemaker, go to step 14 in "Sanitizing Procedure."

#### 2. Sanitizing Procedure - Following Cleaning Procedure

- 1) Dilute a 5.25% sodium hypochlorite solution (chlorine bleach) with water (add approximately 0.9 fl. oz. (27 ml) to 1.8 gal. (6.8 lit.) of water).
- 2) Remove the front insulation.
- 3) Pour the sanitizing solution into the water tank.
- 4) Move the service switch to the "WASH" position.
- 5) Replace the front insulation and the front panel in their correct positions.

- 6) Turn on the power supply to start the sanitizing process.
- 7) Turn off the power supply after 15 minutes.
- 8) Remove the front panel.
- 9) Move the service switch to the "DRAIN" position.
- 10) Replace the front panel in its correct position and turn on the power supply for 2 minutes.
- 11) Turn off the power supply.
- 12) Remove the front panel.
- 13) Repeat steps 18 through 31 in "1. Cleaning Procedure" two times to rinse thoroughly.
- 14) Move the control switch to the "ICE" position.
- 15) Replace the front panel in its correct position.
- 16) Clean the storage bin/dispenser unit liner using a neutral cleaner. Rinse thoroughly after cleaning.
- 17) Turn on the power supply to start the automatic icemaking process.

#### **B.** Maintenance

#### — IMPORTANT -

This icemaker must be maintained individually, referring to the instruction manual and labels provided with the icemaker.

#### 1. Stainless Steel Exterior

To prevent corrosion, wipe the exterior occasionally with a clean, 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 (bin accessory).
- \* The storage bin/dispenser unit is for ice use only. Do not store anything else in the storage bin/dispenser unit.

\* Clean the scoop and the storage bin/dispenser unit liner using a neutral cleaner. Rinse thoroughly after cleaning.

#### 3. Air Filters (air-cooled model only)

Plastic mesh air filters remove dirt and dust from the air, and keep the condenser from getting clogged. As the filters get clogged, the icemaker's performance will be reduced. Check the filters at least twice a month. When clogged, use warm water and a neutral cleaner to wash the filters.

## 4. Condenser (air-cooled model only)

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.

## C. Preparing the Icemaker for Long Storage

#### CAUTION -

- 1. 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/dispenser unit. The storage bin/dispenser unit should be cleaned and dried. Drain the icemaker to prevent damage to the water supply line at sub-freezing temperatures, using air or carbon dioxide. Shut off the icemaker until the proper ambient temperature is resumed.
- To prevent damage to the water pump, do not leave the control switch in the "SERVICE" position for extended periods of time when the water tank is empty.

When the icemaker is not used for two or three days, it is sufficient to only move the control switch to the "OFF" position, unless the icemaker will be at sub-freezing temperatures.

## 1. On water-cooled model only, first remove the water from the water-cooled condenser:

- 1) Turn off the power supply and remove the front panel.
- 2) Move the control switch on the control box to the "OFF" position.
- 3) Wait 3 minutes.

- 4) Move the control switch to the "ICE" position.
- 5) Replace the front panel in its correct position and turn on the power supply.
- 6) Allow 5 minutes for the icemaker to fill with water and the water pump to start operating.
- 7) Close the condenser water supply line shut-off valve. See Fig. 7.
- 8) Open the condenser water supply line drain valve.
- 9) Allow the line to drain by gravity.
- 10) Attach compressed air or carbon dioxide supply to the condenser water supply line drain valve.
- 11) Blow the condenser out using compressed air or carbon dioxide until water stops coming out.
- 12) Close the condenser water supply line drain valve.

#### 2. Remove the water from the icemaker water supply line:

- 1) Turn off the power supply and remove the front panel.
- 2) Move the control switch on the control box to the "OFF" position.
- 3) Close the icemaker water supply line shut-off valve and open the icemaker water supply line drain valve. See Fig. 7.
- 4) Allow the line to drain by gravity.
- 5) Attach compressed air or carbon dioxide supply to the icemaker water supply line drain valve.
- 6) Move the control switch to the "ICE" position.
- 7) Replace the front panel in its correct position and turn on the power supply.
- 8) Blow the icemaker water supply line out using compressed air or carbon dioxide.

#### 3. Drain the water tank:

1) Turn off the power supply and remove the front panel.

- 2) Move the control switch to the "SERVICE" position and move the service switch to the "DRAIN" position.
- 3) Replace the front panel in its correct position and turn on the power supply for 2 minutes.
- 4) Turn off the power supply and remove the front panel.
- 5) Move the control switch to the "OFF" position.
- 6) Replace the front panel in its correct position.
- 7) Remove all ice from the storage bin/dispenser unit, and clean the storage bin/dispenser unit.
- 8) Close the icemaker water supply line drain valve.