CD200 Service Manual

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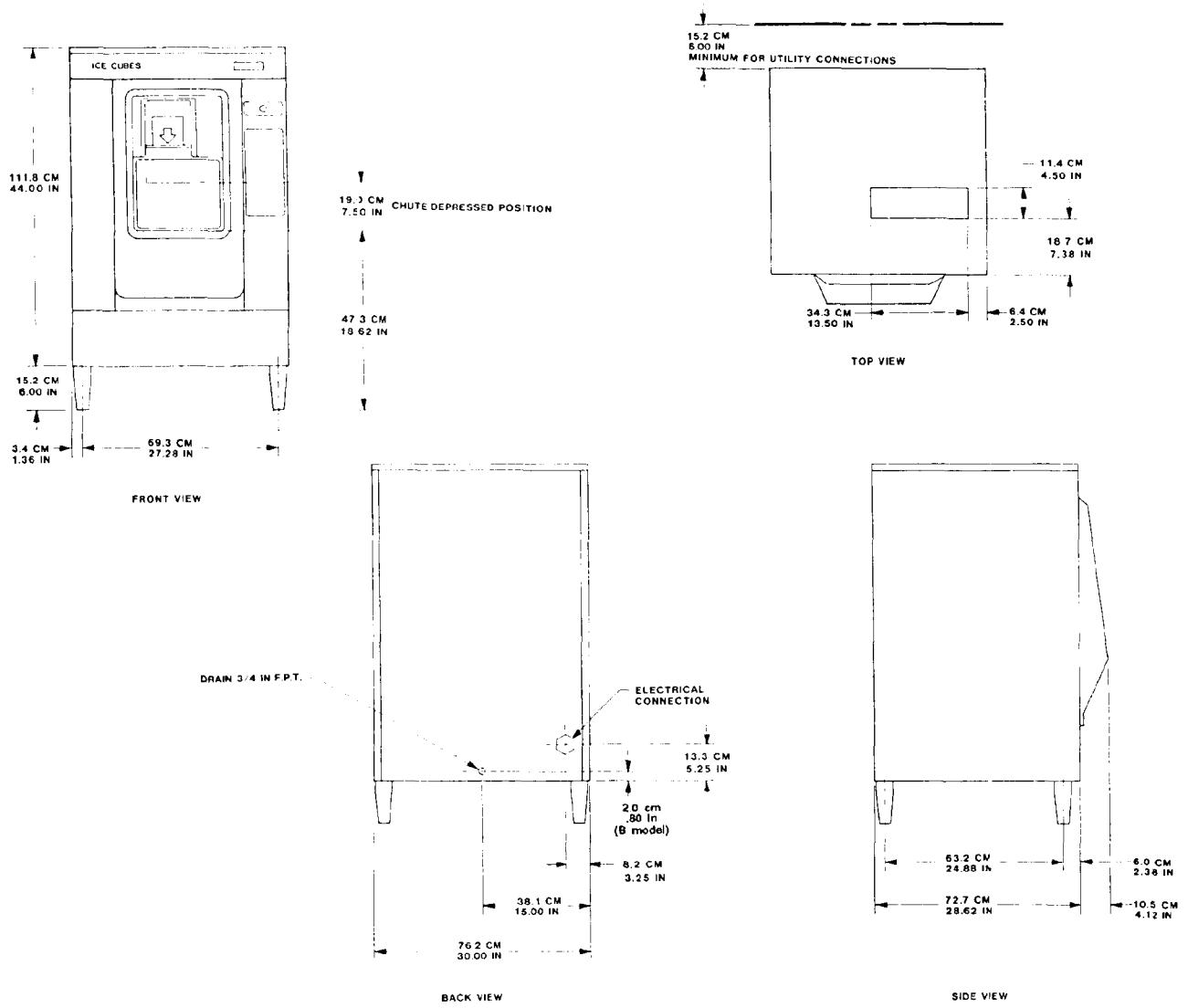
CD200 FOR THE INSTALLER



We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.

MODEL NUMBER	(Height w/o legs) DIMENSIONS H" x W" x D"	BASIC ELECTRICAL	BIN CAPACITY (ARI Standard)	MINIMUM CIRCUIT AMPACITY+	MAXIMUM FUSE SIZE
CD200E-1B	44 x 30 x 32-3/4	115/60/1	230	2.25	15

The Standard Finish is Enamel Sandalwood
† Use this value to determine minimum wire size as per National Electric Code Standards.

INSTALLATION LIMITATIONS:

Temperature: Same as the ice machine; must be indoors, where the air temp does not exceed 100° F., or drop below 50° F.

Voltage: Must not vary 10% + or − from nameplate voltage. See nameplate location, page 3.

OPTIONAL EQUIPMENT

KCM200 - Converts unit to basic coin vending.

KKM200 - Converts unit to key vending.

KMA200 - Allows unit to use Coin Mechanism Inc., coin mechanism purchased seperately.

FOR THE INSTALLER

LOCATION

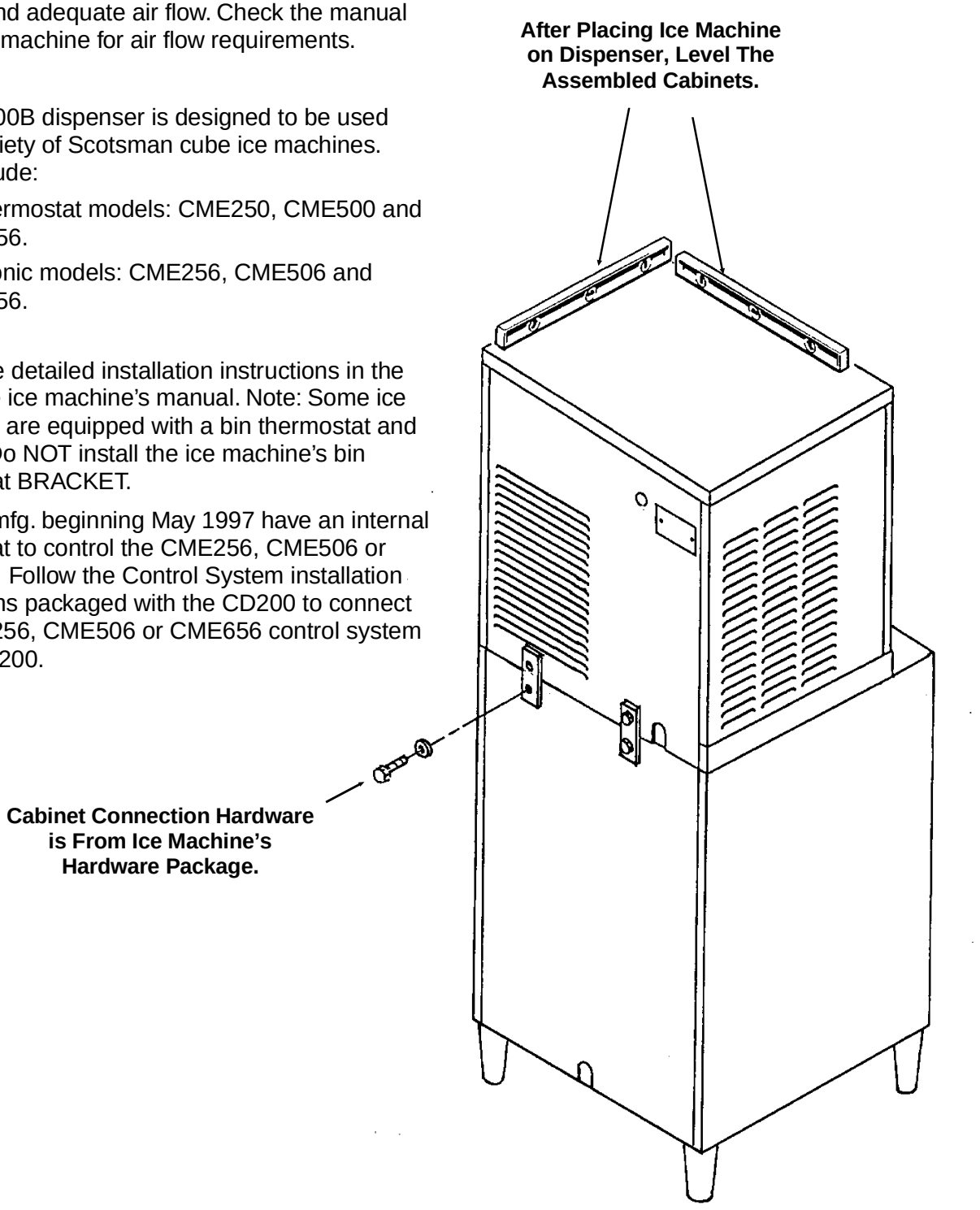
Select a location that allows the ice machine that will be placed on top of the dispenser access for service and adequate air flow. Check the manual of the ice machine for air flow requirements.

The CD200B dispenser is designed to be used with a variety of Scotsman cube ice machines. They include:

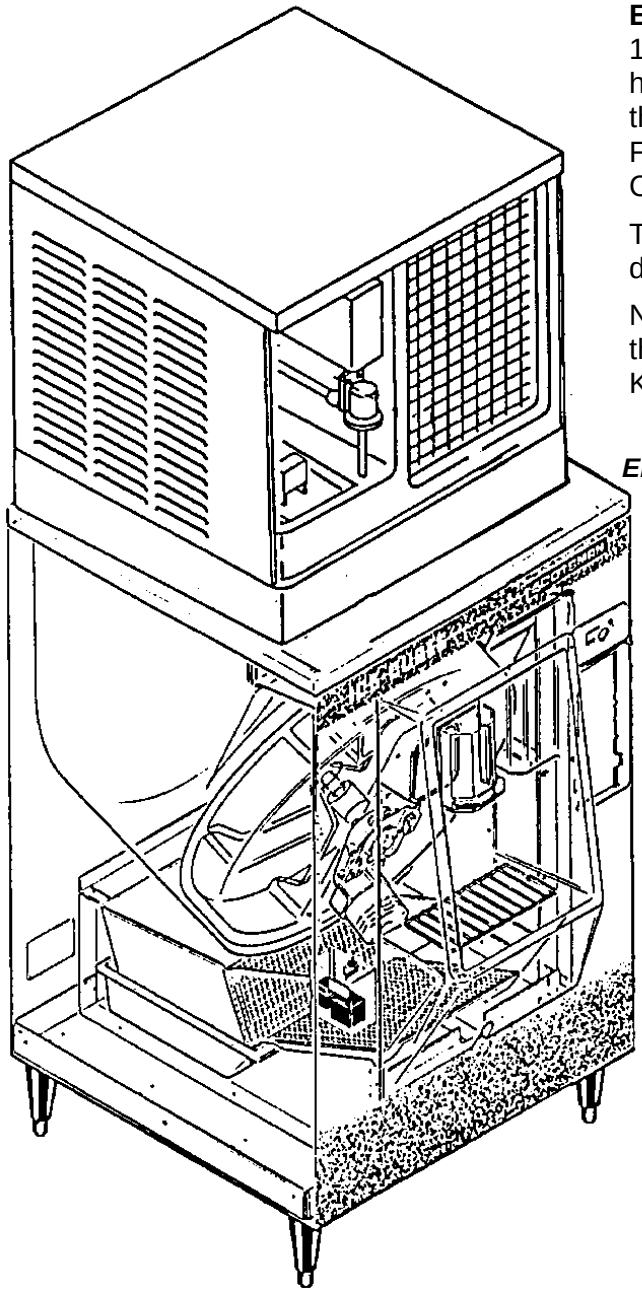
- Bin thermostat models: CME250, CME500 and CME656.
- Electronic models: CME256, CME506 and CME656.

Follow the detailed installation instructions in the text of the ice machine's manual. Note: Some ice machines are equipped with a bin thermostat and bracket. Do NOT install the ice machine's bin thermostat BRACKET.

CD200s mfg. beginning May 1997 have an internal thermostat to control the CME256, CME506 or CME656. Follow the Control System installation instructions packaged with the CD200 to connect the CME256, CME506 or CME656 control system to the CD200.



Cabinet Assembly



Electronic Cuber Model Shown

BIN CONTROL

Bin Thermostat Models: A bin thermostat bracket is built into the top of the CD200. After the ice machine has been placed on the top of the CD200, route the bin thermostat capillary tube from the control box of the ice machine, thru the routing hole at the back of the ice machine's water reservoir, and into the tubular bracket in the top of the CD200. Check to be sure that the bin thermostat's capillary tube is IN the bracket and that it stops at the end of the tube.

Electronic Models: CD200s mfg. beginning May 1997 have an internal thermostat with wiring harness. The wiring harness must be routed from the CD200 to the CME256, CME506 or CME656. Follow instructions supplied separately on the CD200.

The Baffle and Thermostat bracket were discontinued beginning with May 1997 production.

Note: Prior CD200s without the removable bin thermostat plate must be retrofitted with kit, KBTCD200.

Electrical Connections

DISPENSER

Connect the electrical power to the junction box at the rear of the dispenser cabinet.

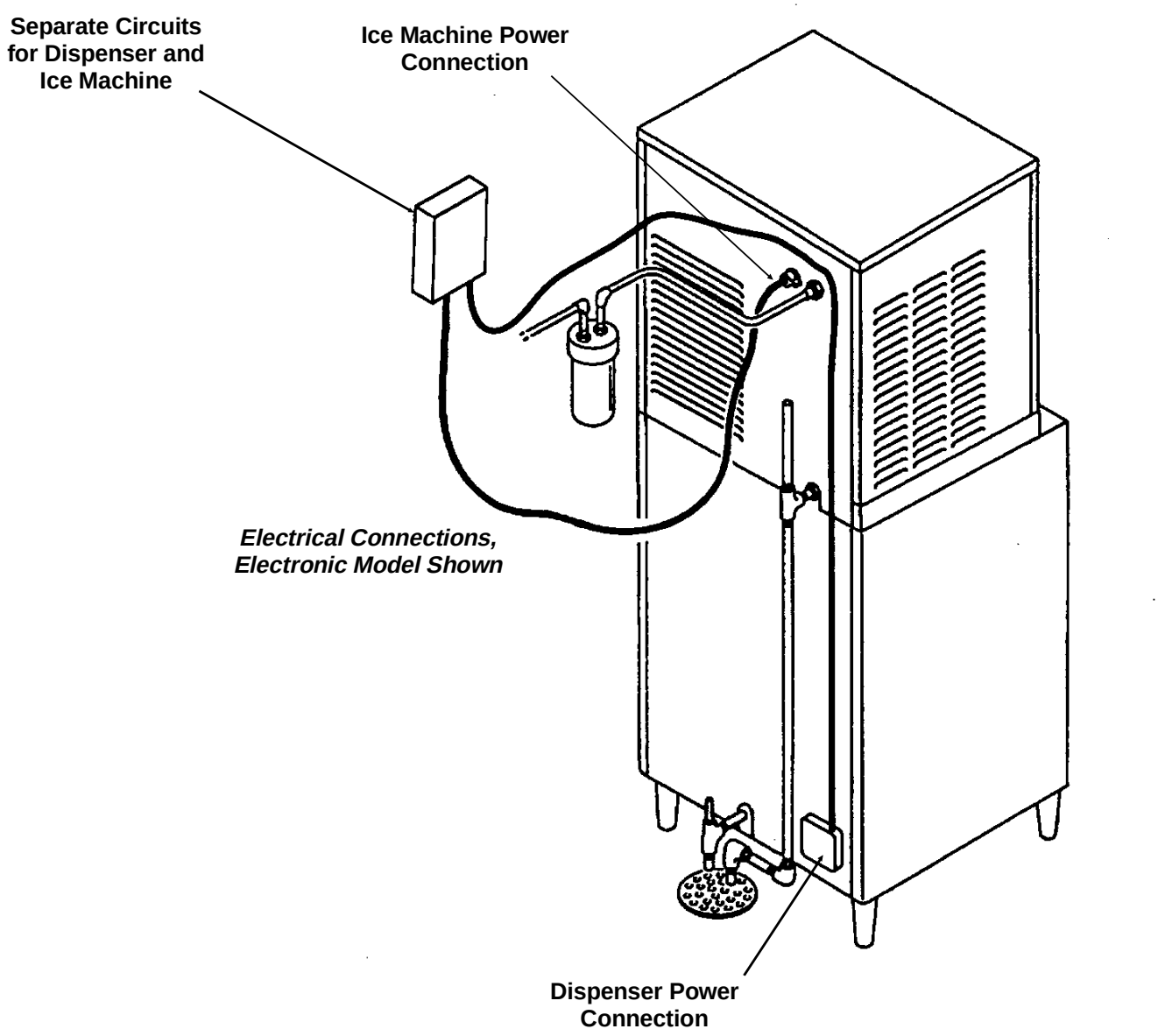
See the dispenser's nameplate (located on the back) for the electrical voltage, minimum circuit ampacity and maximum fuse size. The unit requires a solid chassis to earth ground wire. See the wiring diagram.

The dispenser should be connected to a separate circuit. Voltage variation must not exceed ten percent above or below the nameplate voltage at any time.

FOLLOW ALL LOCAL, STATE and NATIONAL CODES.

ICE MACHINE

Connect the electrical power to the junction box at the back of the ice machine. Follow the directions in the ice machine's manual.



Electrical Connections, Electronic Model Shown

Plumbing

DISPENSER

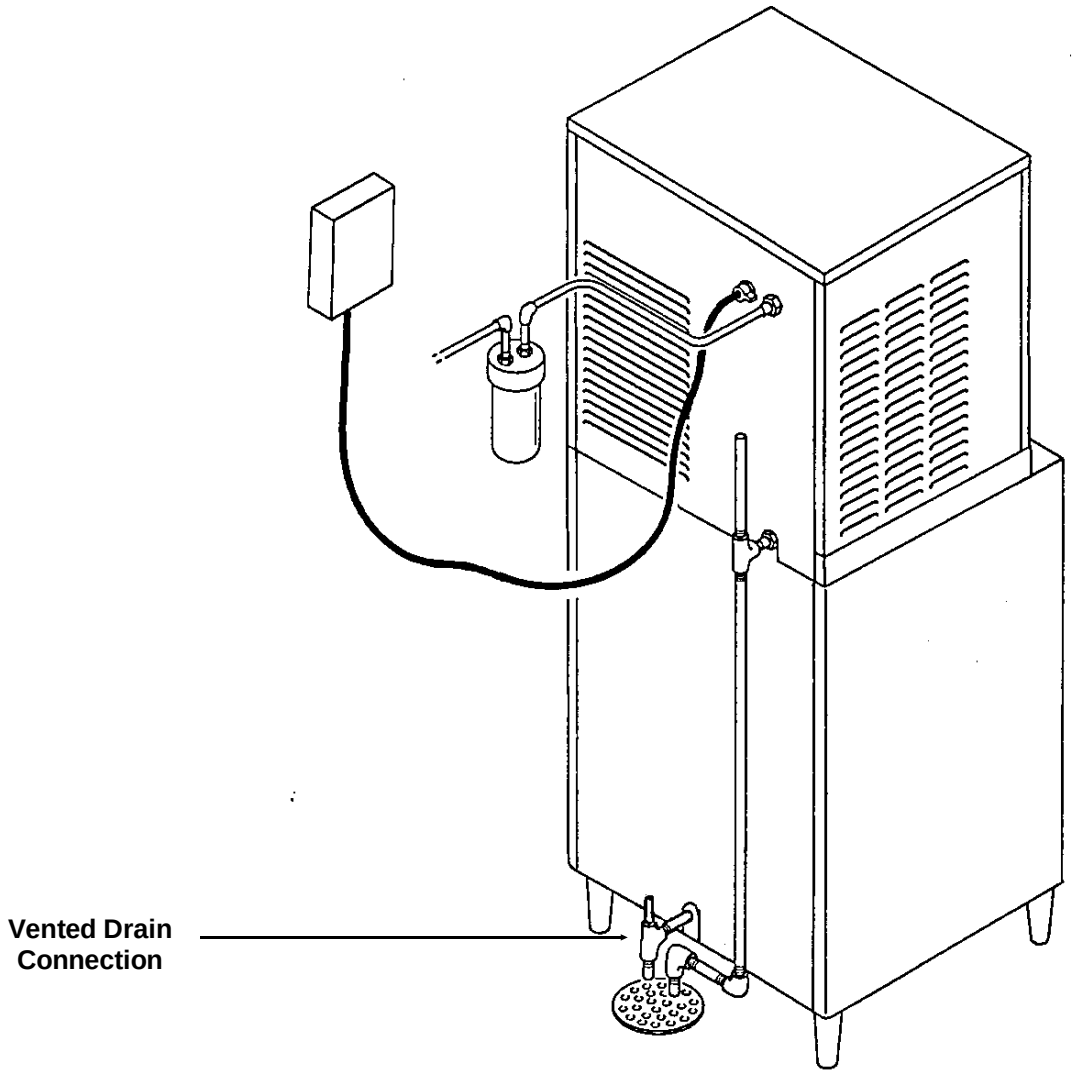
The only plumbing connection required for the CD200 is the base drain, it is a 3/4" FPT connection located at the bottom back of the cabinet.

Be certain to route this drain separately from any other, and to vent the drain tube.

ICE MACHINE

Follow the detailed plumbing installation instructions in the service or product manual packed with the specific ice machine.

CONFORM TO ALL APPLICABLE CODES



CD200 FOR THE INSTALLER - OPTIONAL KITS

WARNING

Disconnect electrical power before beginning kit instructions.

COIN MECHANISM INSTALLATION

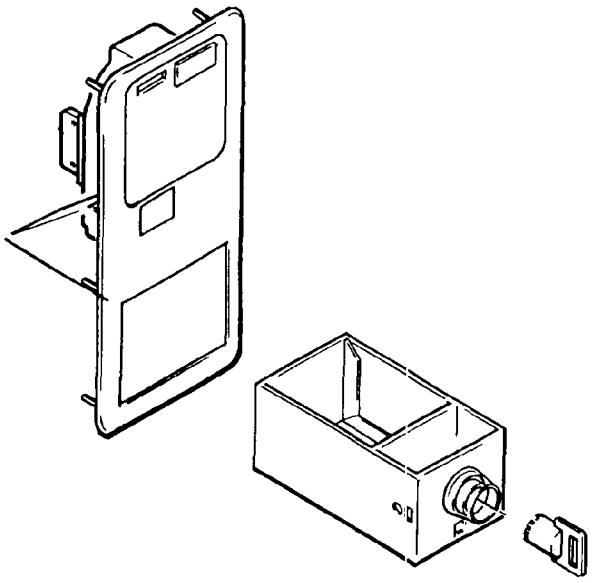
1. Remove sink assembly.
2. Remove face plate below vend switch button.
3. Install coin mechanism body, (either Scotsman or Coin Mech's Inc.) in hole where face plate was. Secure with nuts provided.
4. Install relay box assembly, on right side of sink. Plug wires onto coin switch per wiring diagram. Plug in wire harness.
5. Install cam switch #2, on the left side of the gearmotor, with the cam follower riding the cam closest to the ice bin.
6. Remove orange jumper wire from terminal block, plug relay kit wires into terminal block as shown in the wiring diagram.
7. Install sink and test coin vending.

KEY MECHANISM INSTALLATION

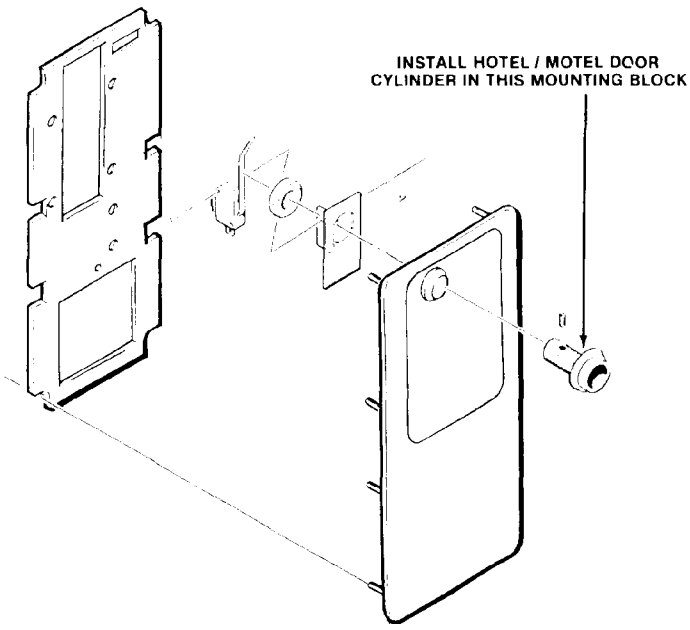
The Key Mechanism Kit consists of a coverplate, graphic label, controls, relays, switches and directions to convert to key operation. The user must supply cylinders that fit into the kit cylinder mount, and keys that fit the cylinders. Field supplied cylinders should be identical to the one used at the Motel/Hotel where the CD200 is installed. Room key insertion activates the vending sequence.

After the cylinder has been installed in the cylinder mount, and mounted with the microswitch to the faceplate, the installation is the same as for the coin mechanism.

COIN MECHANISM



KEY MECHANISM

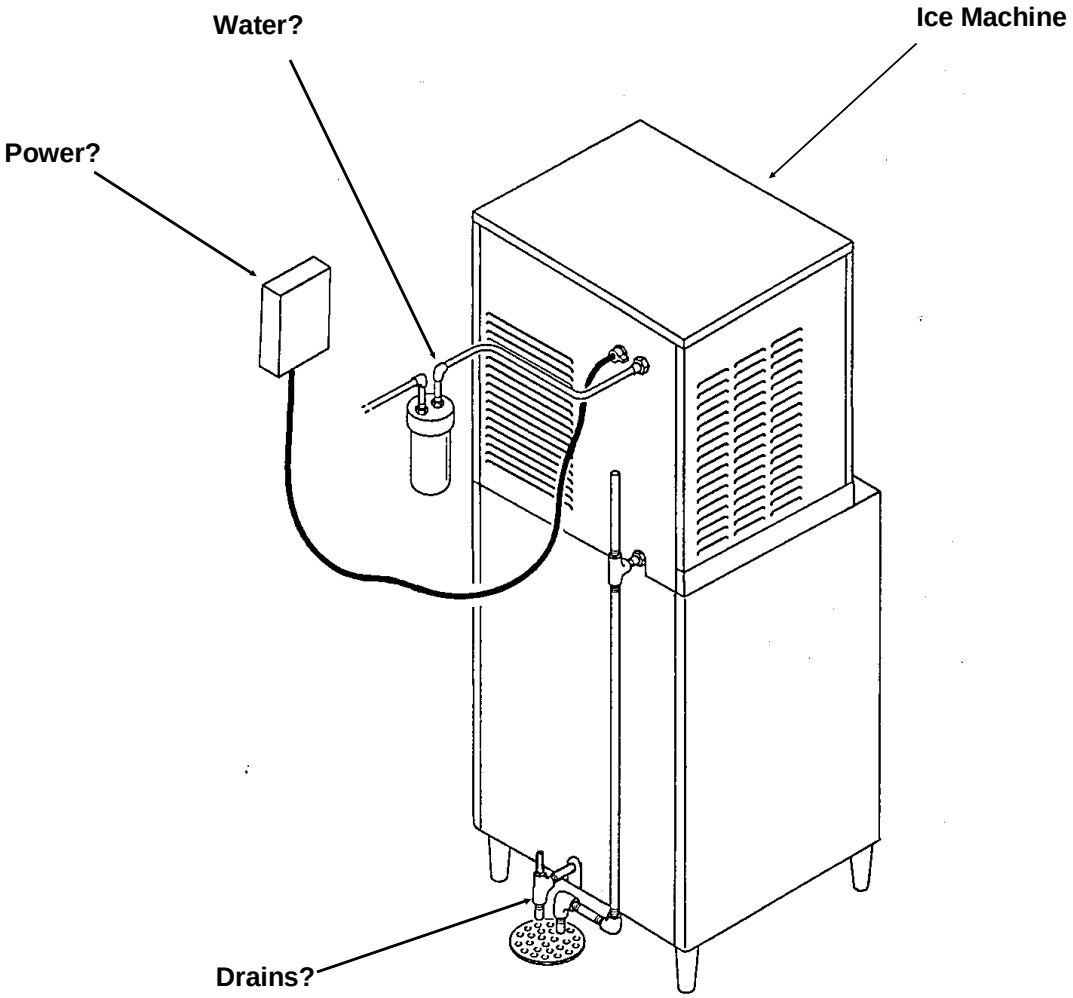


CD200

Final Check List

Dispenser

1. Is the ice machine properly installed?
2. Is the unit level?
3. Has the water been connected to the ice machine?
4. Has the electrical power been provided to the ice machine and dispenser?
5. Have the drain lines been run?
6. Fill out the warranty registration and mail it.



Start Up

Always check the installation before beginning a start up. Do not start up a machine until it has been properly installed.

1. Start up the ice machine, following the directions given in the manual packed with the ice machine.

2. Allow the ice machine to make several batches of ice, so the dispensing mechanism can be tested.

3. Locate the sink key, and remove the sink assembly by pulling the bottom away from the dispenser, then pulling the sink down.

4. Check that the ON-OFF switch is in the ON position.

5. Return the sink assembly to its normal, locked position.

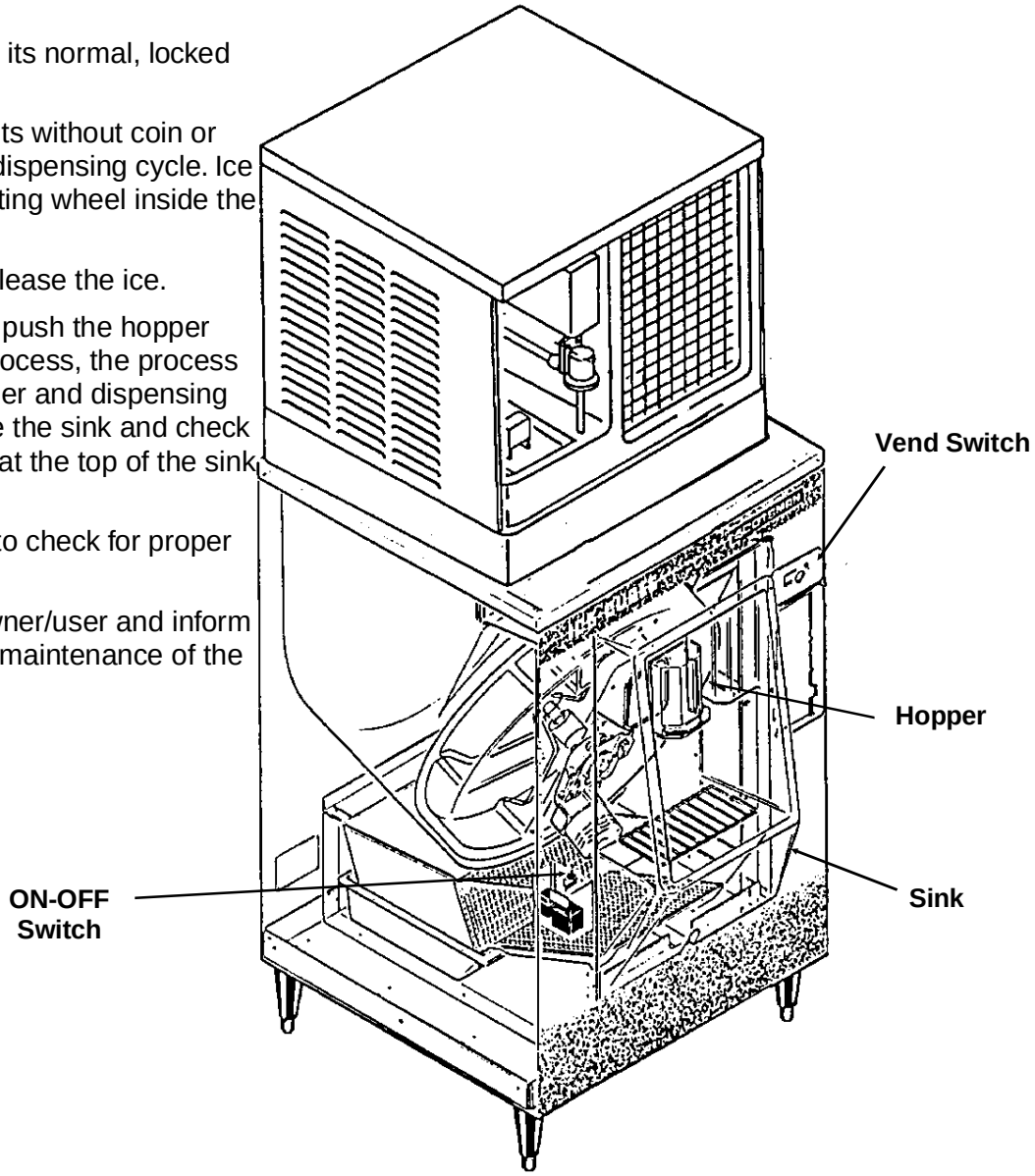
6. Push the vend switch in (units without coin or key mechanisms) to start the dispensing cycle. Ice will fill the hopper and the rotating wheel inside the dispenser will stop.

7. Push the hopper down to release the ice.

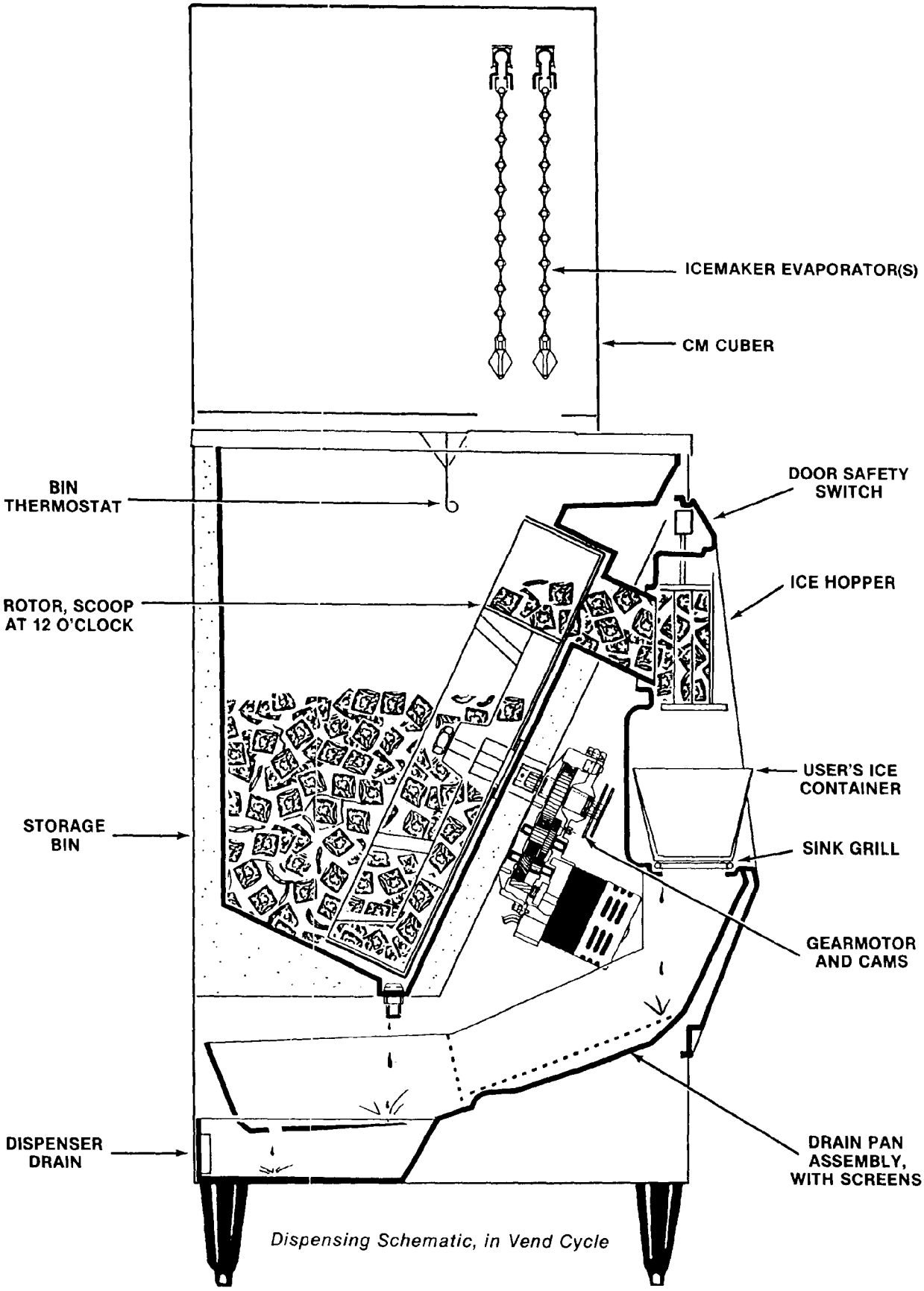
8. Repeat step 6, but this time push the hopper down during the dispensing process, the process should stop. Release the hopper and dispensing should continue. If not, remove the sink and check the action of the safety switch at the top of the sink assembly.

9. Pour water in the sink area to check for proper drainage.

10. Give the sink key to the owner/user and inform them about the operation and maintenance of the machine.



CD200 OPERATION



Dispensing Schematic, in Vend Cycle

CD200 OPERATION

GENERAL

The CD200 is an ice dispenser, designed to fit together with a Scotsman 30" wide "D" model contour cuber. The ice machine drops ice into the insulated plastic storage bin, and shuts off when the bin thermostat senses a full ice bin.

The dispensing action is initiated by the user either a) by pushing the dispense switch; or b) with the optional coin mechanism, putting a coin into it; or c) with the optional key mechanism, putting a key into it.

STANDARD "A" Model

If no key or coin mechanism is on the unit, pushing the vend switch closes a 24 volt circuit to relay C, and relay C contacts 6-2 power a gearmotor. The gearmotor turns a dispensing rotor within the bin. The rotor has a scoop on it, it scoops up ice, and when the rotor gets to the top of the bin, the ice falls through the chute located there, and into the clear plastic hopper. As the rotor turns, a cam on the output shaft also turns, with a micro switch lever riding on the cam.

At rest, the microswitch is open, but after the rotor/gearmotor begins to turn the switch closes, holding on relay C, keeping the gearmotor going even if the pushbutton is released.

As the rotor scoop passes the chute and the ice falls out, the dispense can be terminated. The timing of the termination should be such that when the rotor stops, the scoop is near the bottom of the bin. The microswitch cam can be loosened and turned for the adjustment. When the microswitch lever drops onto the lower portion of the cam, the switch opens, releasing relay C, and terminating the vending.

OPTIONAL "A" Model

Using a coin, or key mechanism: As soon as the key or coin is used, relay D is energized, and contacts 4-7 hold relay D on. Contacts 6-9 bypass the vend switch, and energize relay C. The dispensing sequence remains the same, except that another cam switch is added, cam switch 2. When it opens (after cam switch 1 has closed) relay D is de-energized. Cam switch 1 keeps the dispense going as described earlier.

STANDARD - "B" Model

If there is no key or coin mechanism on the unit, pushing in the vend switch will cause the unit to vend ice for one cycle.

When the vend switch is pushed in it makes a circuit to the coil of relay C, closing contacts 7-4. This causes power to be connected to the gearmotor, which begins to turn the ice bin rotor.

The rotor, located at the front of the bin, has a scoop or it; and as it turns it scoops up the ice. When the scoop passes the very top of the bin, it crosses an open area to the front: this is the ice chute. All of the ice in the scoop falls through the opening into the ice chute and fills the clear plastic hopper.

As the rotor turns, a cam on the same shaft as the roto also turns. The cam has a microswitch riding on it, ar this microswitch controls the vend cycle.

At rest the microswitch is closed (high part of the top cam), and when relay C is energized, contacts 9-6 close, making another circuit to the coil of relay C, holding it on.

As the rotor scoop passes the chute and the ice falls out, the dispense will be terminated. The timing should be that when the rotor stops, the scoop is near the bottom of the bin. The microswitch cam can be loosened and turned for adjustment.

When the microswitch lever drops onto the notch in the cam, the switch opens, breaking the circuit to the coil of relay C, relay C is de-energized and the gearmotor looses power, stopping the vend cycle. The cam will coast a bit, and the microswitch will ride up out of the notch. It will then be closed, but because relay C lost power, contacts 9-6 opened and there is no circuit to relay C.

OPTIONAL - "B" Model

Using a coin or key mechanism: As soon as the key or coin is used, relay D is energized and contacts 4-7 hold relay D on.

Contacts 6-9 bypass the vend switch, making a circuit to the coil of relay C. The dispensing sequence rema the same as above, except that another cam switch been added. When it (cam switch 2) opens, relay D is de-energized. Cam switch 1 controls the balance of the vend cycle as in the Standard mode.

CD200B ELECTRICAL SEQUENCE

There are three different CD200s: The "A" mdoel, the "B" model up thru serial number date coce 03K and the current "B" model.

Each one has a slighty different electrical sequence.

"A" models without coin or key mechanism:

At standby, the Door Safety Switch, the Master Switch and the Free Vend Switch are CLOSED. The only active load is the transformer.

To begin dispensing, the Vend Switch is closed and manually held in. This connects power tc Relay C's coil. Relay C contacts 6-2 close and connect power to the gearmotor. The gearmotor turns and rotates the cam which has Cam Switch #1 riding on it. After a portion of the rotation, Cam Switch #1 will close, holding in Relay C. After that the Vend Switch may be released and the unit will complete the dispense cycle.

The dispense cycle terminates when Cam Switch # 1 opens and Relay C' coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop.

"A" model with a coin or key mechanism:

At standby, the door safety switch, the master switch and Cam Switch #2 are CLOSED. The only active load is the transformer.

When a coin or key causes the Microswitch on the coin or key mechanism to close, Relay D will become engergized. Contacts 4-7 close to hold in Relay D, and contacts 6-9 close to connect power to the coil of Relay C. When Relay C is engergized, power s supplied to the gearmotor.

The rotor will turn and Cam Switch #1 will close, connecting another circuit to Relay C's coil. After that, Cam Switch #2 will open, and Relay D will loose power, disarming the coin or key mechanism circuit.

The dispense cycle terminates when Cam Switch # 1 opens and Relay C's coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop.

"B" models up thru serial number date code: 03K

Units without coin or key mechanisms:

At standby, the Door Safety Switch, the Master Switch, Cam Switch #1, and the free Vend Switch are CLOSED. The only active load is the transformer. Note: The door safety switch is now in the 115 volt circuit.

To begin dispensing, the Vend Switch is pushed in and closes. This connects power to Relay C's coil. Relay C contacts 7-4 close and connect power to the gearmotor; contacts 9-6 close and hold in Relay C. The gearmotor turns and rotates the cam which has Cam Switch #1 riding on it. The Vend Switch may be released at any time and the unit will complete the dispense cycle.

The dispense cycle terminates when Cam Switch # 1 opens and Relay C coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop. Cam Switch #1 will re-close during the coasting portion and be ready for the next cycle.

"B" model with a coin or key mechanism:

At standby, the Door Safety Switch, the Master Switch and Cam Switch #2 are CLOSED. The only active load is the transformer.

When a coin or key causes the microswitch on the coin or key mechanism to Close, Relay D will become engergized. Contacts 4-7 close to hold in Relay D, and contacts 6-9 close to connect power to the coil of Relay C. When Relay C is engergized, power is supplied to the gearmotor.

The rotor will turn and cam switch number 2 will open, and Relay D will loose power, disarming the coin or key mechanism circuit.

The dispense cycle terminates when Cam Switch # 1 opens and Relay C' coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop.

CD200B ELECTRICAL SEQUENCE

"B" models beginning with serial number date code: 04K.

Units without coin or key mechanisms:

At standby, the Door Safety Switch, the Master Switch, Cam Switch #1, contacts 7-1 of Relay C, and the Free Vend Switch are CLOSED. The only active loads are the transformer, and the recycling timer. Note: Relay E and the Recycling Timer were added to the circuit.

To begin dispensing, the Vend Switch is pushed in and closes. This connects power to Relay C's coil. Relay C contacts 7-4 close and connect power to the gearmotor; contacts 9-6 close and hold in Relay C; contacts 7-1 open and reset the timer. The gearmotor turns and rotates the cam which has Cam Switch #1 riding on it. The Vend Switch may be released at any time and the unit will complete the dispense cycle.

The dispense cycle terminates when Cam Switch # 1 opens and Relay C coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop. Cam Switch #1 will re-close during the coasting portion and be ready for the next cycle.

"B" model with a coin or key mechanism:

At standby, the Door Safety Switch, the Master Switch, Cam Switch #1, contacts 7-1 of Relay C and Cam Switch #2 are CLOSED. The only active loads are the transformer and the recycling timer.

When a coin or key causes the microswitch on the coin or key mechanism to Close, Relay D will become engergized. Contacts 4-7 close to hold in Relay D, and contacts 6-9 close to connect power to the coil of Relay C. When Relay C is engergized, power is supplied to the gearmotor; a by-pass circuit to the coil of Relay C is established through contacts 7-4; and contacts 7-1 open to reset the timer.

The rotor will turn and cam switch number 2 will open, and Relay D will loose power, disarming the coin or key mechanism circuit..

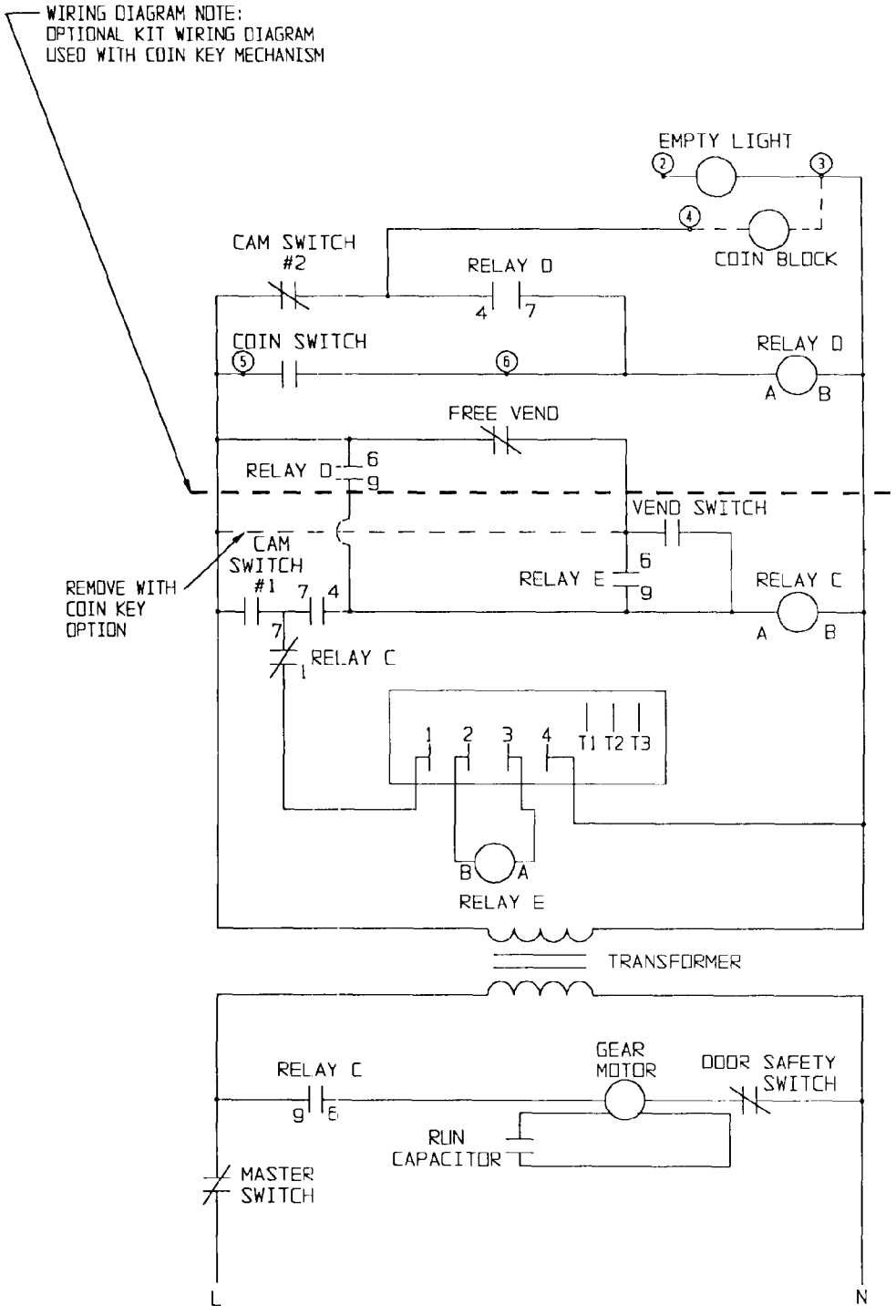
The dispense cycle terminates when Cam Switch # 1 opens and Relay C' coil looses power. This breaks the connection to the gearmotor and the gearmotor coasts to a stop.

Off Cycle Agitation:

The Recycling Timer will close its contacts after 24 hours of continuous power. The timer's contacts connect power to the coil of Relay E. When Relay E has power, its contacts 6-9 close, causing the unit to go through one dispense cycle as described above.

CD200B ELECTRICAL SEQUENCE

Wiring Diagram, current "B" Models, Began With Serial Number Date Code: 04K



CD200 MAINTENANCE & CLEANING INSTRUCTIONS

A Scotsman Ice System represents a sizable investment of time and money in any company's business. In order to receive the best return for that investment, it MUST receive periodic maintenance.

It is the USER'S RESPONSIBILITY to see that the unit is properly maintained. It is always preferable; and less costly in the long run, to avoid possible down time by keeping it clean, adjusting it as needed and by replacing worn parts before they can cause failure. The following is a list of recommended maintenance that will help keep your machine running with a minimum of problems.

Maintenance and Cleaning should be scheduled at a MINIMUM of twice per year.

ICEMAKER

FOLLOW THE INSTRUCTIONS IN THE ICEMAKER SERVICE MANUAL.

DISPENSER: The only maintenance required is the periodic cleaning of the drain pans and screens, and sanitizing of the bin.

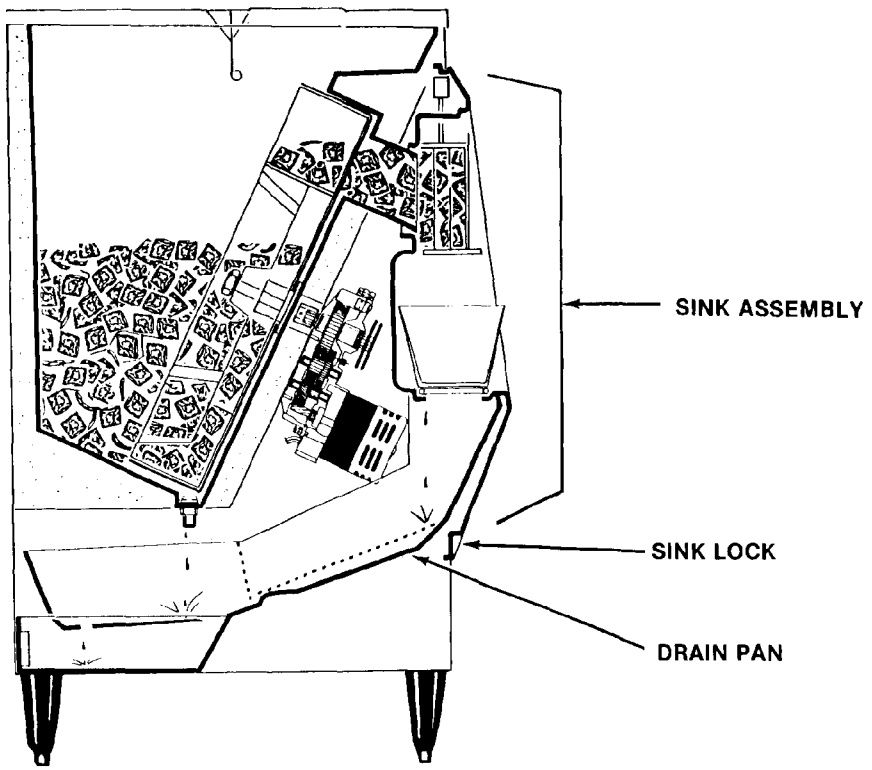
WARNING

Disconnect electrical power supply before removal procedures.

To sanitize the bin, mix a sanitizing solution approved of by the local health department. Vend all ice out of the machine, disconnect electrical power to icemaker and dispenser. Remove icemaker front panel, remove icemaker evaporator cover, remove icemaker water trough by twisting and pushing it back on the right side, thus pulling it away from the evaporator, then slide it out to the left.

Reach in with a scrub brush/sponge with sanitizing solution and coat the interior with the solution. Allow to dry, then rinse with cold water. Replace parts removed and re-supply unit with electrical power.

To clean screens, use the key to remove door mechanism, then lift up, and pull out drain pan assembly, clean as required.



CD200 COMPONENT DESCRIPTION

This section covers the dispenser components only.

VEND SWITCH

Pushing this starts the vending sequences.

HOPPER

Holds 1 dispense of ice, when pushed down, releases the ice into the users container.

SINK ASSEMBLY

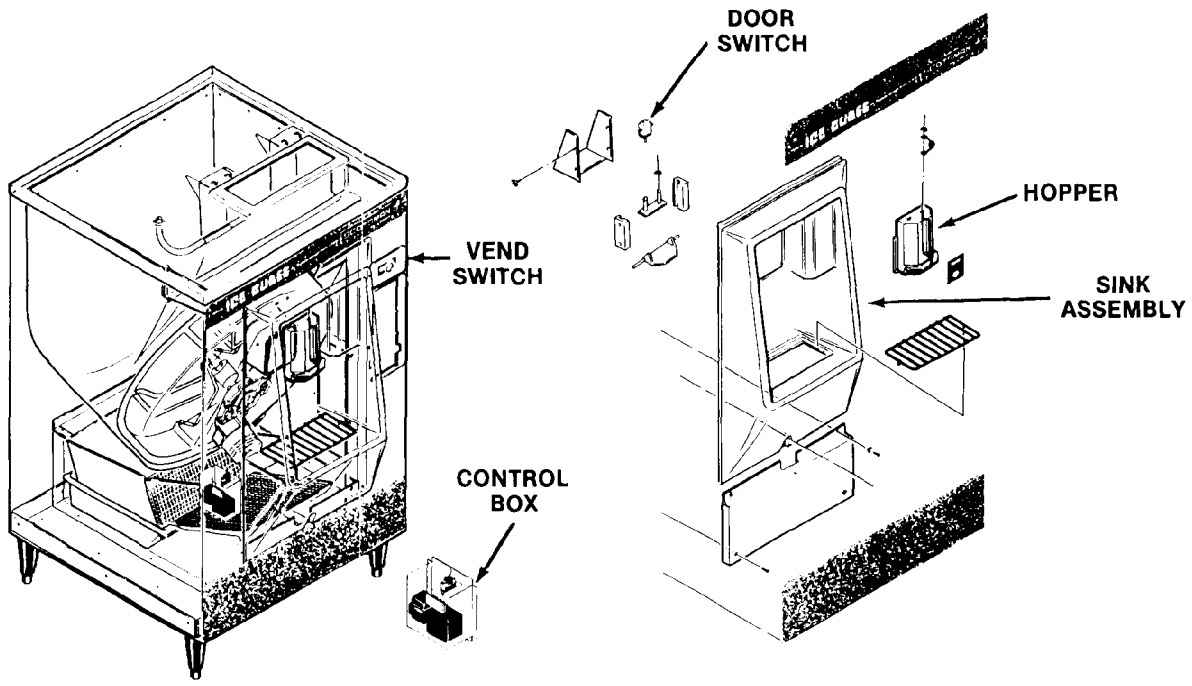
Key locked into place, easily removed for service, or cleaning of the drains. A switch opens when the sink is removed to prevent vending.

CONTROL BOX

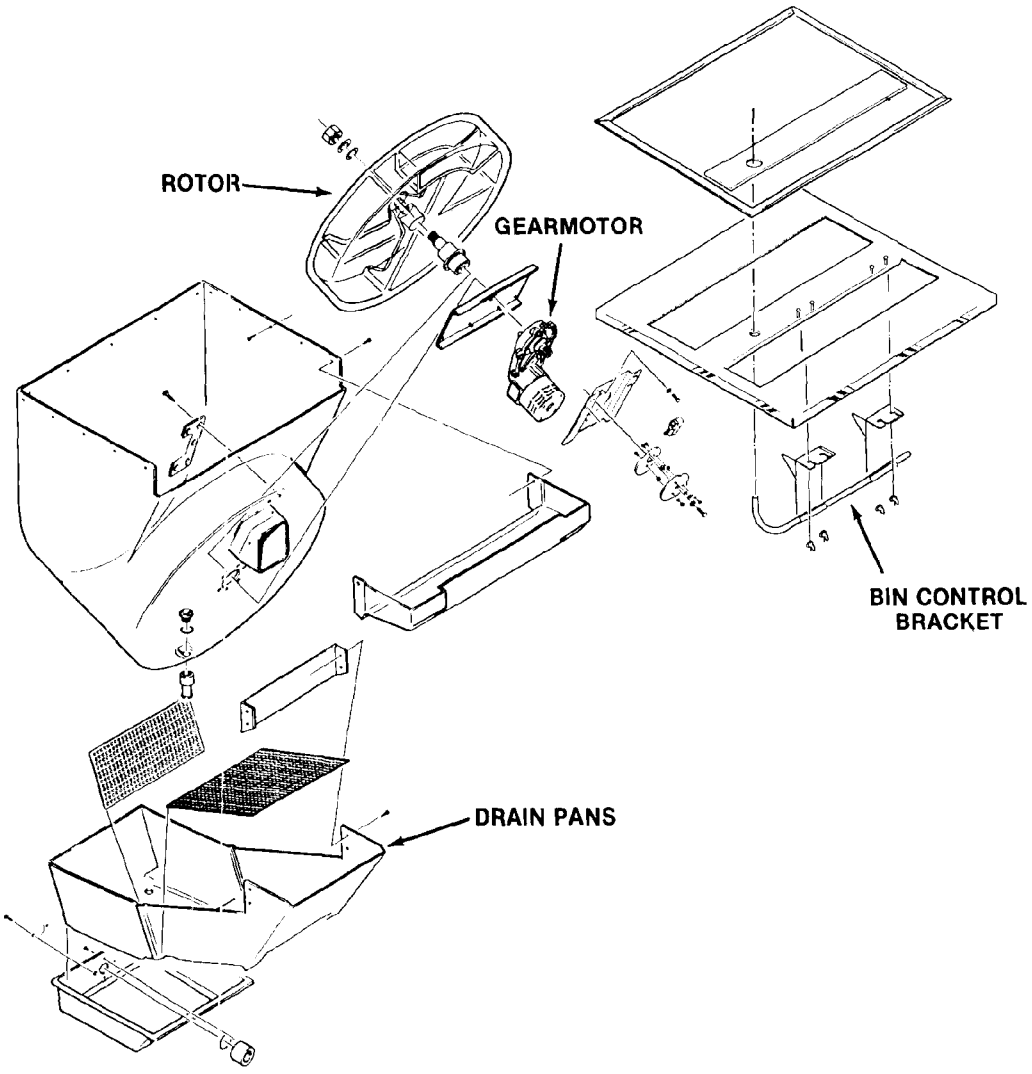
Contains the transformer, master switch, relay, and terminal block.

DOOR SWITCH

No dispensing when sink is off, or hopper is down.



CD200 COMPONENT DESCRIPTION



GEARMOTOR

The gearmotor drives a connecting shaft that, in turn, drives a large rotor inside the bin.

ROTOR

Inside, the bin scoops ice when turned by the gearmotor, as it passes the top, ice falls out into the hopper.

DRAIN PANS

Collect melted ice and directs it to the dispenser drain. Removable for cleaning.

BIN CONTROL BRACKET

A stainless steel tube, within which the icemaker bin thermostat capillary tube is routed. When ice is against this tube, the icemaker will shut off at the end of the next harvest cycle.

CD200 SERVICE DIAGNOSIS

The table below is intended as a quick reference to aid the Service Agent in determining the cause of a particular type of malfunction, as well as the recommended repair. It is not intended to be an exclusive list.

Reference to other portions of th s manual, including wiring diagrams, instal ation, and operation are recommended to better determine the cause of a problem.

DISPENSER ONLY

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Will not dispense.	Open circuit.	Check/replace door switch, vend switch, hopper switch, transformer, gear reducer motor.
	Mechanical break.	Driveshaft.
Leaks water.	Drain pan plugged.	Clean drains.
Rotor starts and stops.	Cam switch adjustment.	Adjust cam switch and cam.
Rotor will not stop.	Cam switch.	Adjust/replace cam switch.

CD200 REMOVAL AND REPLACEMENT PROCEDURES

WARNING

Be sure the electrical power supply and the water supply are OFF, BEFORE starting any of the following REMOVAL AND REPLACEMENT procedures as a precaution to prevent possible personal injury or damage to equipment.

GEARMOTOR ASSEMBLY

1. Remove sink assembly by unlocking, pulling out and down.
2. Disconnect electrical wires from motor at the control box.
3. The gear motor plate is secured to the dispenser panel with four nuts, remove them, and pull the gearmotor out of the dispenser. Remove gear motor from mounting plate. Reverse to reassemble.

DOOR SWITCH

1. Remove sink.
2. There is a small slot next to the switch body, insert a small screwdriver in the slot, and pry out the switch. There is enough wire to pull the switch out far enough to remove the wires easily.
3. Attach the new switch to the wires, and insert into place.
4. Replace sink.

ROTOR

The ice machine must be removed from the top of the dispenser to replace the rotor.

1. Remove ice machine.
2. Remove top panel of CD200 by lifting up.
3. Unscrew brass nut.
4. Pull out, and remove rotor.

Reverse to reassemble.

ROTOR AND BEARING HOUSING

BEARING HOUSING

The bearing housing can be removed from the dispenser **without** removing the ice machine.

NOTE: *All ice must be out of the bin.*

1. Remove ice machine front panel.
2. Remove eqaporator trough from the bottom of the icemaker evaporator by twisting back and pushing back on the right side of the evaporator trough; pull it out through the sump area.
3. Reach in through the cube chute opening, and remove the brass nut securing the rotor to the shaft. Push the rotor back, away from the shaft.
4. Follow the steps to remove the gearmotor.
5. Remove the 6 cap screws holding the housing to the panel.
6. Reach in through the cube chute, grasp the bearing housing and pull it out of its location. Pull it up through the ice machine cube chute, and out of the machine.
7. Repair the bearing housing, and reverse to reassemble.