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GENERAL DESCRIPTION

This unit is a counter top or wall suspended type of dispenser which contains a complete flaked ice dispenser, storage bin, and automatic dispensing mechanism.

The primary purpose of this machine is to fill glasses with water and ice or just ice by actuating a control arm with the glass.

Scotsman Model K-44D is designed as a companion piece to be added to this machine providing four flavors of soft drinks. The drink valves mount on the right hand side over the sink. The K-44D cabinet mounts under the FD2 series machine and contains a complete refrigeration and carbonation system for soft drinks.

Variable portion or continuous flow of ice can be obtained by rotating the ice control switch. By pushing a water switch to "On", water will be dispensed with the ice as long as the glass actuator arm is depressed. Ice dispensing will stop automatically when the pre-selected portion of ice has been dispensed.

The drain grate is vinyl-coated steel wire allowing spilled ice to pass through freely.

The cabinet is stainless steel or steel with baked-on enamel. Enamel models have a wood grain upper front panel, blue control panel, stainless steel splash panel and remaining cabinet enclosure in a textured color.

The complete machine has been designed with sanitation and ease of cleaning emphasized. The storage bin is sealed, and the ice spout is automatically closed when ice is not being dispensed. The dispensing mechanism, storage bin, and parts requiring cleaning are accessible without tools.

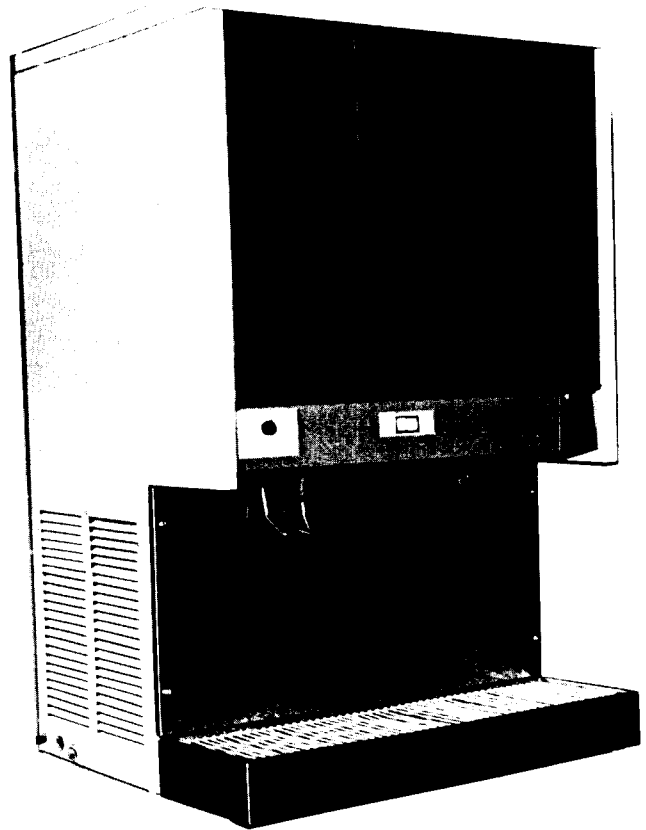
All components are accessible through the top or front panels. On air cooled machines, there is a special removable section of the condenser shroud to facilitate cleaning of condenser.

A concealed On-Off switch is accessible at front of machine below the ice portion control and concealed by the control panel.

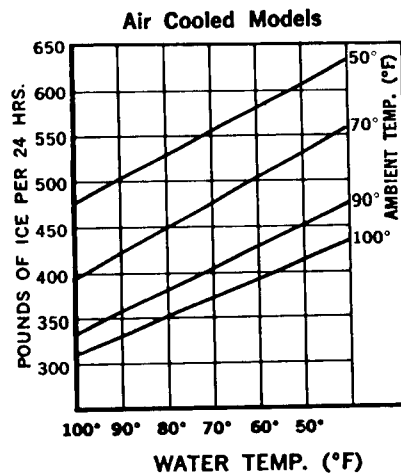
The bin control is a mechanical arm controlling a switch. This is backed up by a manual re-set switch to prevent damage by failure of bin controls.

SCOTSMAN

FD-1 SERIES ICEMAKER- DISPENSERS



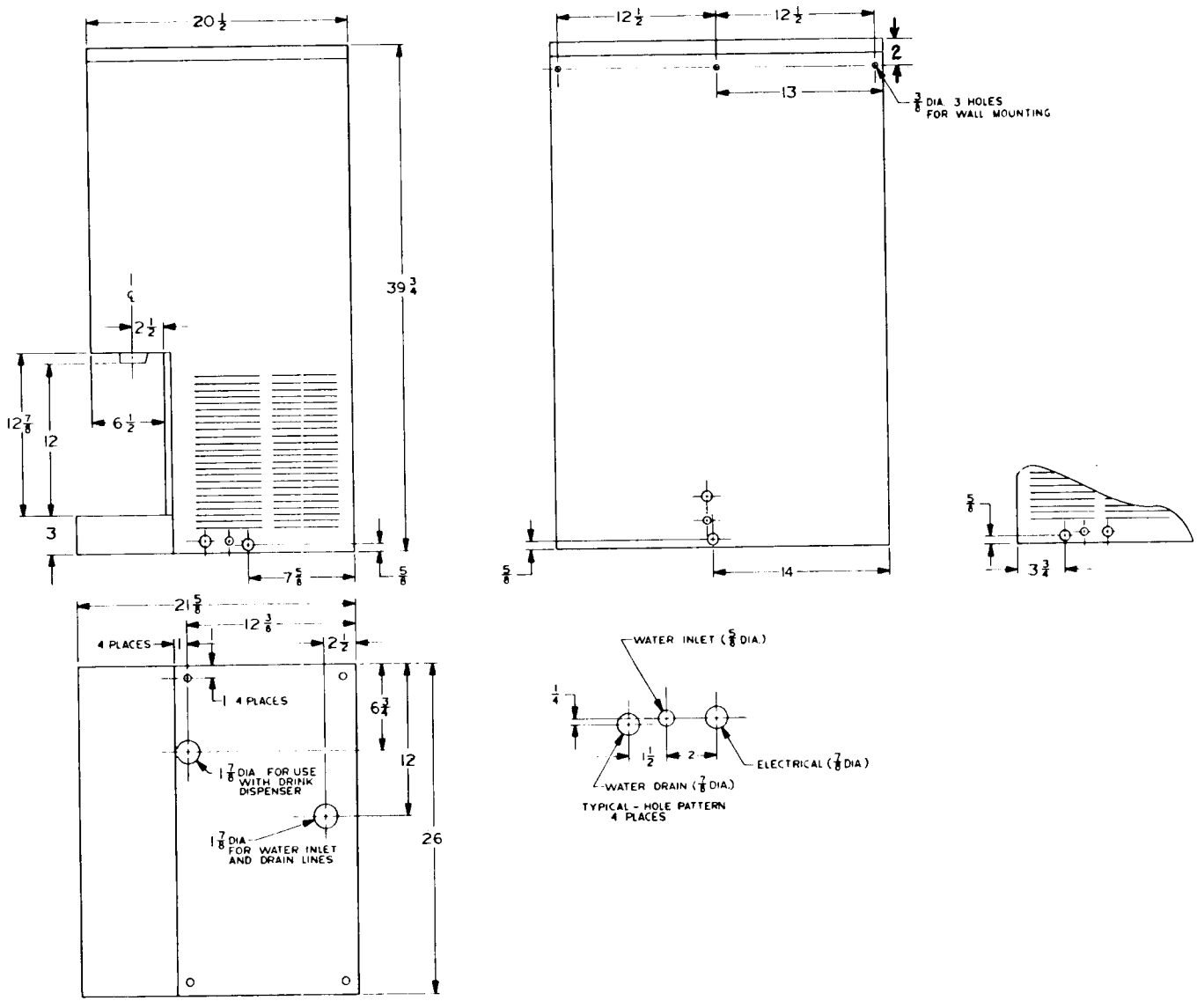
ice making capacity



SPECIFICATIONS

PERFORMANCE DATA:

- Ice Production - See Chart
- Ice Storage - Approximately 20 lbs.
- Ice Portion - Portion is variable from approx. 1 to 5 oz. per vend or may be positioned to continuous vend.
- Vend Rate - Approximately 2.0 oz./sec.
- Water Control - Water may be dispensed with all ice portion control settings.



SPECIFICATIONS

Electrical

Power Supply	-	115 \pm 10% Volts 60 Cy 1 Phase
Minimum Wire Size	-	#12 AWG
Maximum Fuse Size	-	20 Amp Time Delay

Plumbing

Water Inlet	-	1/4" SAE Male Flare Fitting
Water Outlet	-	Plastic Tube Accepts 5/8" O. D. Tube

Temperature Limits

100° F Maximum	-	50° F Minimum
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Water Limits

100° F Maximum	-	125 PSIG Maximum
40° F Minimum	-	20 PSIG Minimum

Compressor

Copelaweld	-	RSF2-0050-IAA-207 115 V 60 Cy 11.2 FLA 51.0 LRA 1/2 H. P.
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Gear Motor (Freezer Drive)

Queen Products	-	A18380-1 115 V 60 Cy 4.0 FLA 1/10 H. P.
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Gear Motor (Ice Dispensing)

Merkle-Korff	-	S-418 115 V 60 Cy 3.7 FLA 200 Watt
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Refrigerant Charge

Frost Line	-	6 - 8 Inches From Compressor
Approximate Charge	-	24 Oz. R12

Normal Operating Pressures

140 PSIG High Side
14.5 PSIG Low Side

INSTALLATION INSTRUCTIONS

1. Machine should have both sides open to free air for air movement in and out of the machine (air cooled models). Avoid locations with high temperatures and dirty air, such as found next to grills or in kitchens.
2. Machine may be placed on a solid countertop, other equipment manufactured by Scotsman or fastened to a wall. When wall mounting is desired, use the three mounting holes provided across the reinforcement strip on upper back of cabinet.
3. Remove cabinet top (push up on front edge), remove upper front panel (pull out along top edge) and lower front splash panel (remove 4 screws.)
4. Electrical connections and plumbing - connections may enter cabinet through the sides, back or base, whichever is convenient.

Electrical - Terminate at control box - See wiring diagram for wire and fuse size - Voltage must be within - 10% of nameplate rating during start-up and normal running conditions. Wiring must conform to national and local Codes.

Plumbing (water In) - Inlet fitting is 1/4" SAE male and has fasteners provided on fitting to attach to cabinet sides. Use 1/4" O. D. copper tube with separate hand shut-off valve. If local conditions warrant, install water regulator and water strainer between machine and valve.

Plumbing (Water Out) - 5/8" O.D. drain tube must be used and connected to plastic tube inside cabinet. Drain must run to an open drain such as a floor drain or sink. Allow ample slope to assure proper drainage of machine.

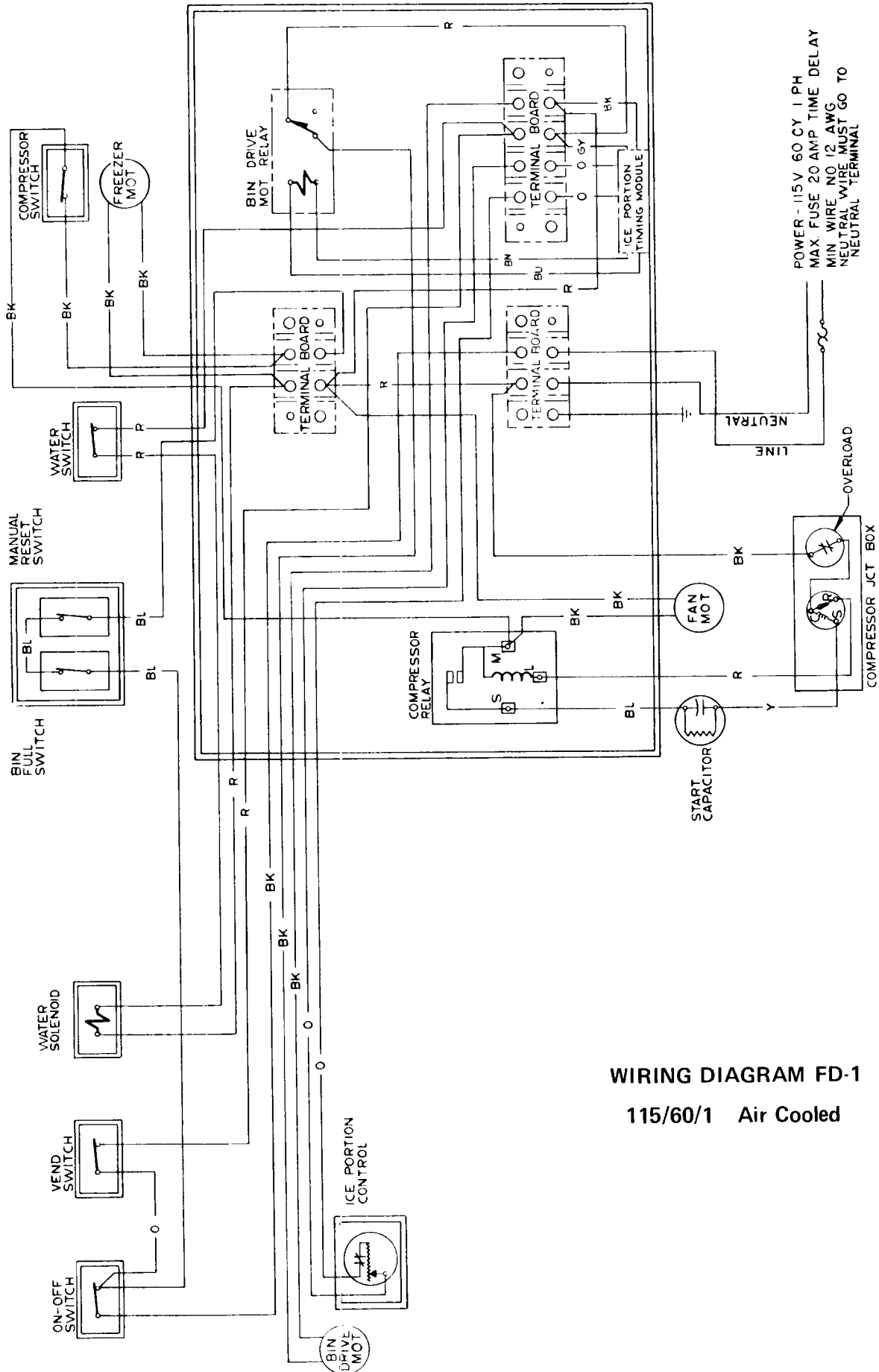
5. Remove sink and grill from packaging and mount in place--fasteners are provided with sink. Place drain tube on sink drain fitting and secure with clamp. Clamp is shipped in place on drain tube.
6. Replace panels, turn on water and electrical supply, and set On-Off switch to On position.
7. Thirty minutes after the unit has been started ice can be dispensed.

CLEANING INSTRUCTIONS FOR SCOTSMAN
ICE MACHINE SERIES FD1

1. Set selector switch to continuous ice and vend until bin is empty.
2. Set On-Off switch to Off position.
3. Remove cabinet top panel and front panel.
4. Remove storage bin cover and spout extension.
5. Remove inner bin and bin bottom, wash and sanitize these parts and inside of bin.
6. Turn Off water supply or block float. Drain reservoir by disconnecting tube between reservoir and freezer. After draining, reconnect tubing.
7. Set On-Off switch to On and pour cleaning fluid into reservoir. (Use 4 oz. of Scotsman cleaner and 1 qt. of hot water). Do not fill above overflow tube. Do not allow unit to operate with less than 1" of solution in reservoir.
8. While waiting for step #7 to complete, wash and sanitize sink, drain grate, glass filler lever and surrounding area in accordance with local Health Department regulations.
9. When cleaning fluid has been depleted #7, turn on water supply and let unit run for at least 15 minutes to flush out any cleaning fluid. Check ice for acid taste - run unit until ice tastes sweet.
10. Set On-Off switch to Off and melt ice in storage bin with hot water to remove ice and rinse bin parts.
11. Re-assemble all parts - unit is ready for normal operation.

MAINTENANCE INSTRUCTIONS
(Perform every 6 months)

1. Clean condenser surface of any accumulated materials.
2. Check water supply by depressing reservoir float and inspect for full stream of water, clean water strainer in supply line.
3. Oil freezer drive motor (top bearing only), bin drive motor (bottom bearing only) and condenser fan motor. Use SAE 20 oil only - Caution - do not use other types of oils, many will do more damage than good.



POWER - 115V 60 CY 1 PH
MAX. FUSE 20 AMP TIME DELAY
MIN. WIRE NO 12 AWG
NEUTRAL WIRE MUST GO TO
NEUTRAL TERMINAL

THIS UNIT MUST BE GROUNDED

WIRING DIAGRAM FD-1
115/60/1 Air Cooled

A22095-1 REV. B

BIN CONTROL SYSTEM

There are two switches mounted in the enclosure on the bin top. One switch is actuated by the lever which is moved by the incoming ice-- this switch has a large differential.

In the event this switch fails to stop the ice maker, then the incoming ice forces the lever which in turn pushes the bin switch back into the manual re-set switch. The ice maker will not start until this switch is re-set.

Continual operation of the re-set switch will result if the bin full switch is defective. If nuisance tripping of this switch occurs, the bin full switch may be moved away from the re-set switch by use of its mounting nuts. Major adjustment can be made by bending the lever to increase or decrease its angle.

The spout of the freezer has an extension that slides over the fixed spout. This removable extension has two small ears on the side. It is necessary when replacing the cover on the bin to slide this extension as far back on the freezer spout as possible. Be sure the small ears of the extension are on the outside of the cover.. When the cover has been fitted over the bin and before it is bolted down, this extension should be slid toward the cover until the ears rest against it.

To further control the compressor and to avoid the freezing and stoppage of the auger in the freezer, a control is incorporated on the gear motor drive for the freezer.

The bin controls do not energize the compressor, but only the gear motor. In turn, the gear motor operates the compressor.

A speed sensing switch mounted on top of the motor of the gear unit will stop the compressor when the RPM of the motor is less than 900. At 1200 RPM it will start the compressor.

Should the auger begin to freeze, the speed of the gear motor is reduced due to excessive load. At 900 RPM it opens the circuit to the compressor and thereby stopping the freezing. As the gear unit, only, continues to run, it will clear the auger; and when the motor speed reaches 1200 RPM, the compressor is turned on.

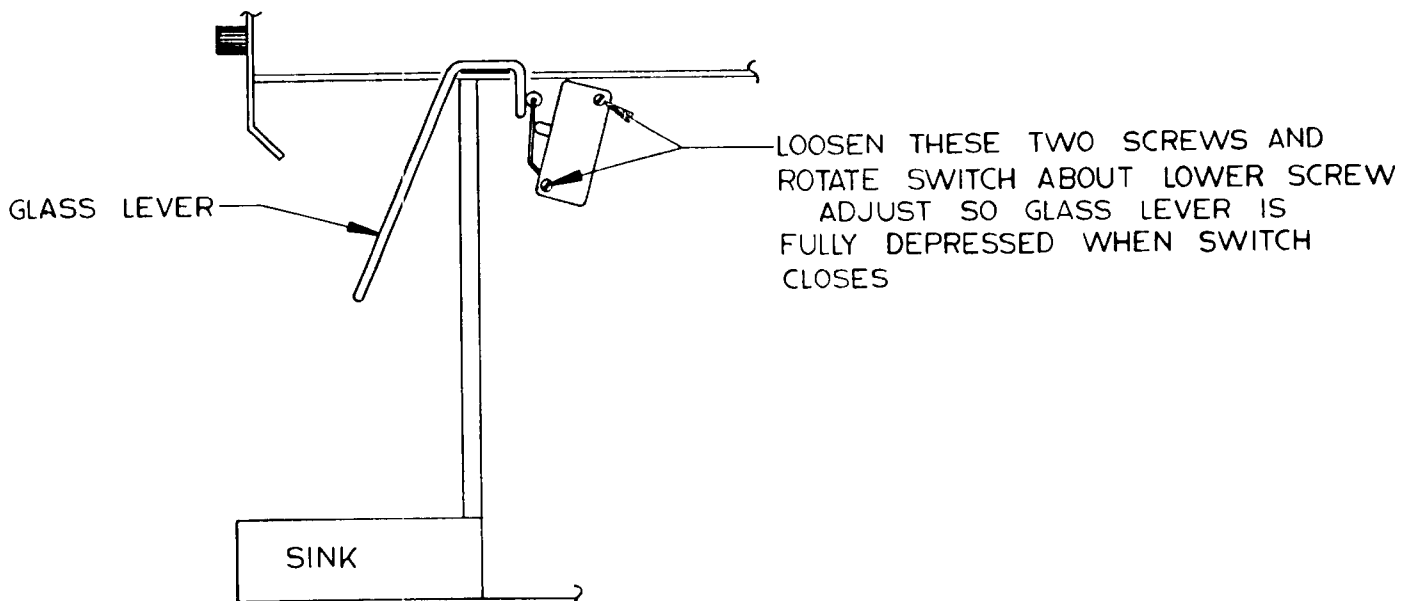
Any freeze-ups are thereby automatically cleared by the unit.

If the water should be shut off when the unit is running, the inlet water line will freeze shut. The control mentioned above will have no control over such a situation.

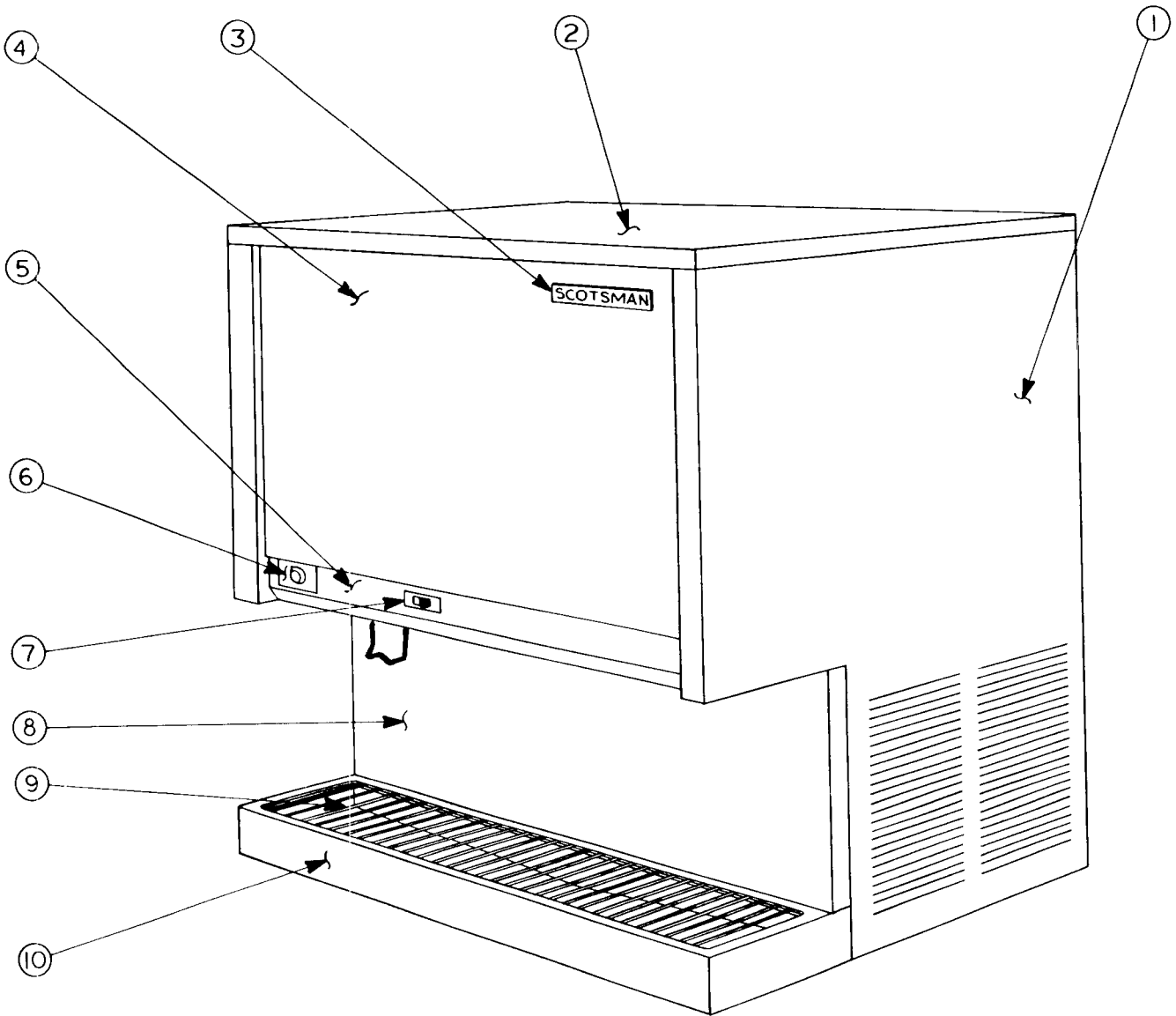
ICE DISPENSER CONTROL SYSTEM

Depressing the glass filler opens the spout and closes the vend switch. The vend switch closes the circuit to the water switch and to the water solenoid valve, if water switch is positioned to "with water". Also, the vend switch closes a circuit to the ice portion control and its timing module located in the control box. If ice control is positioned to continuous, then ice will be dispensed as long as the glass lever is depressed. If ice control is in a portion position, then only that quantity of ice will be dispensed until the glass lever is actuated another time. The portion control and timing module regulate the time period the bin drive motor is engaged. When this time period has lapsed then the normal closed relay is energized, opening the circuit to the drive motor and stopping the dispensing action. The vend switch mounting position is adjustable and must be positioned so glass lever is fully depressed before closing vend switch. This is to insure the ice spout is fully opened.

VEND SWITCH ADJUSTMENT



EXTERNAL CABINET PARTS

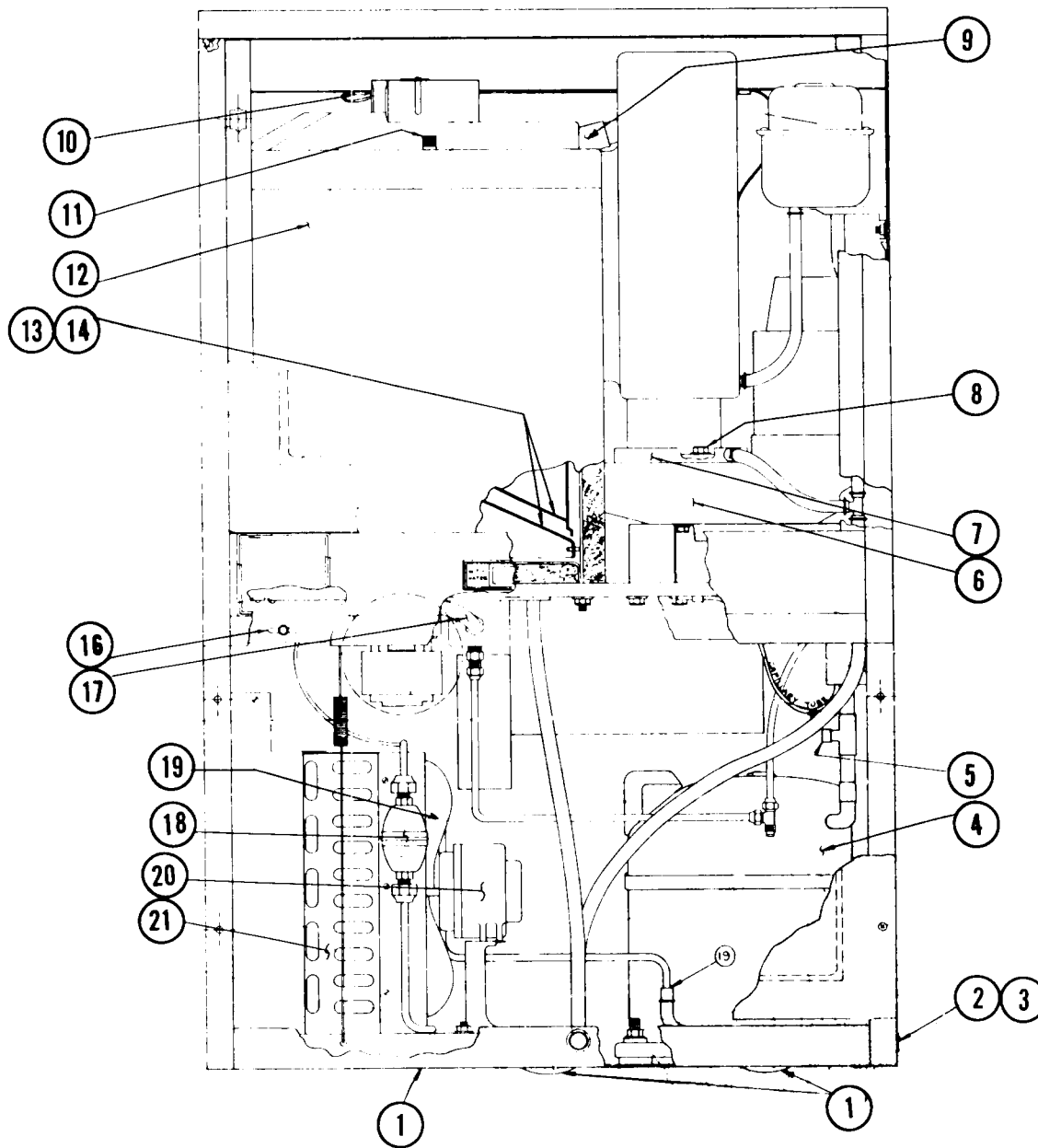


ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	A19945	Cabinet Painted	6	2-1810	Knob Portion Control
	A19945-1	Cabinet SS	7	15-518	Decal Switch
2	A20192	Top Panel Painted		12-1337-1	Switch Water
	A20192-1	Top Panel SS	8	A19339	Splash Panel
3	15-156	Emblem Scotsman		3-1418-25	Screws Panel
	3-271	Speed Nut	9	2-1858	Grill
4	A21273	Front Panel Wood Grain	10	A23212	Sink
	A21273-1	Front Panel SS			
5	A20500	Control Panel Painted			
	A20500-1	Control Panel SS			
6	15-521	Decal Portion Control			
	12-1557	Portion Control			

PANEL FASTENERS

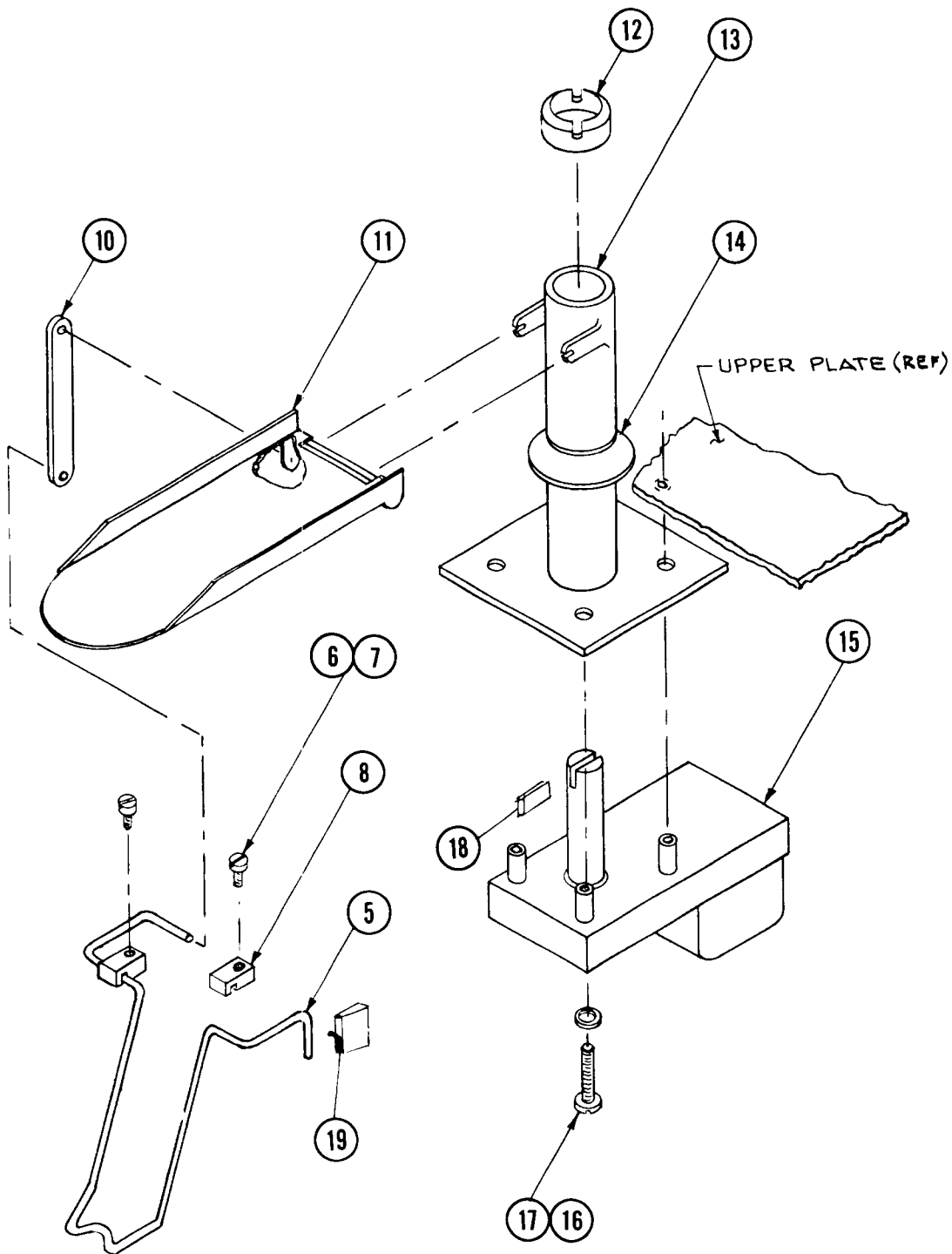
15-411	Strike
3-1406-4	Nut
2-836	Catch

INTERNAL PARTS VIEW



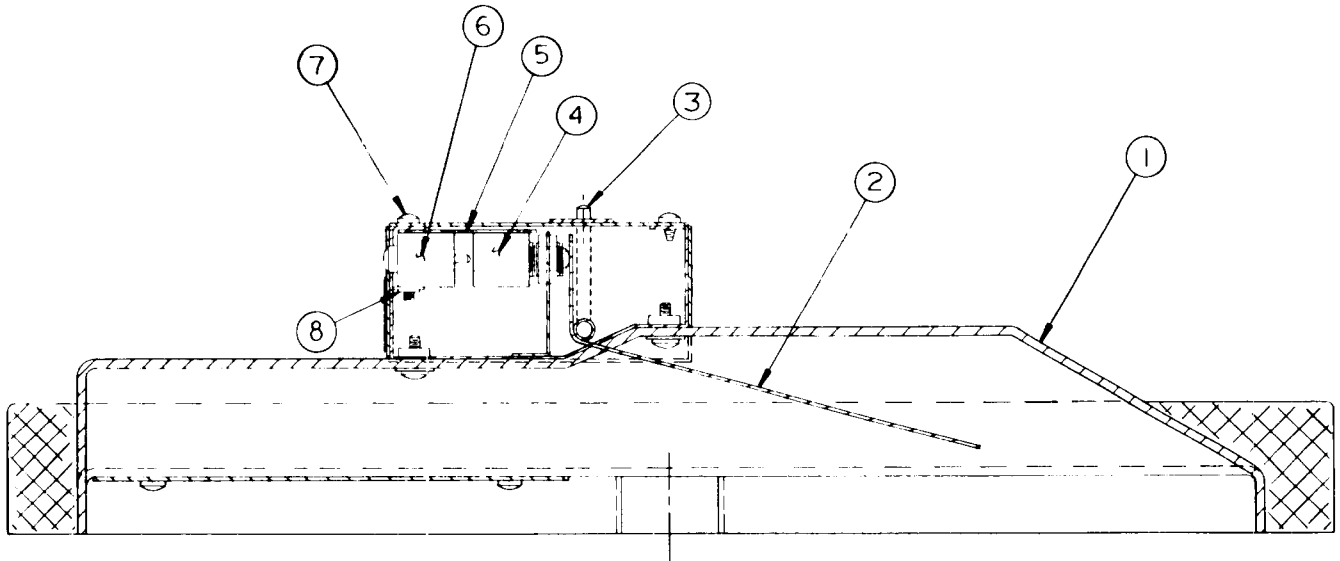
ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	A22349	Plug Button	11	A21983	Nut
2	2-1875-7	Plug Button (small)	12	A21386	Bin Assembly
3	2-1875-11	Plug Button (large)	13	A19349	Inner Bin Fab Assy
4	18-2200-1	Compressor	14	A19343	Inner Bin Bottom
5	16-560	Valve Core	16	A22063	Switch Plate Assy.
	16-563	Brass Cap		3-1403-16	Screw
6	A18380-1	Gear Motor	17	A23315-1	Solenoid Assembly
7	A18153	Drip Pan Assy.	18	2-1752-1	Filter Drier
	13-628	Gasket	19	18-137-1	Fan Blade
8	3-1420-1	Screw	20	12-1576-1	Fan Motor
	3-1408-2	Washer	21	18-1927	Condenser
9	A16151	Spout Extension			
10	3-1230	Tin Clip			

Section
FD1
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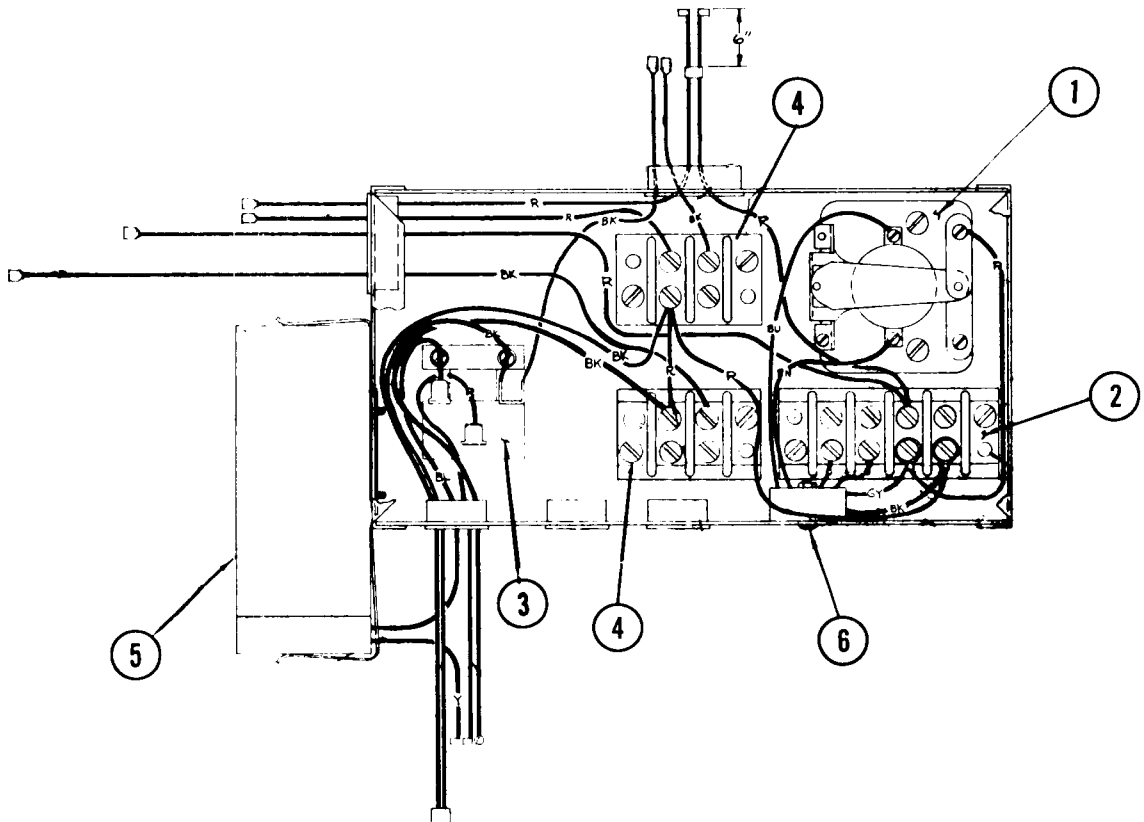
ITEM	PART NO.	DESCRIPTION
5	2-1823	Glass Filler
6	3-1403-6	Screw
7	3-1417-1	Lockwasher
8	2-1969	Linkage Clamp
10	2-1967	Linkage Connector
11	2-1970	Ice Chute
12	2-1976	Retaining Collar
13	2-1971	Bracket Gear Motor
14	13-747	Water Shed
15	12-1561	Gear Motor
16	3-1410-2	Lockwasher
17	3-1403-36	Screw
18	A20472	Slot Pin
19	12-1642	Vend Switch

BIN TOP PARTS

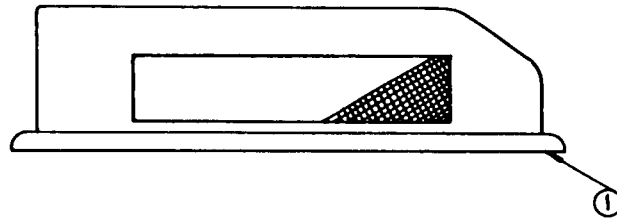


ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	A20486	Top Foam Assy.	5	A21997	Electrical Insulation
2	A21995	Actuator Arm	6	12-1664	Reset Switch
3	A21982	Pin	7	3-1403-8	Screw
4	12-1018-2	Bin Full Switch	8	3-886	Twin Nut

CONTROL BOX PARTS

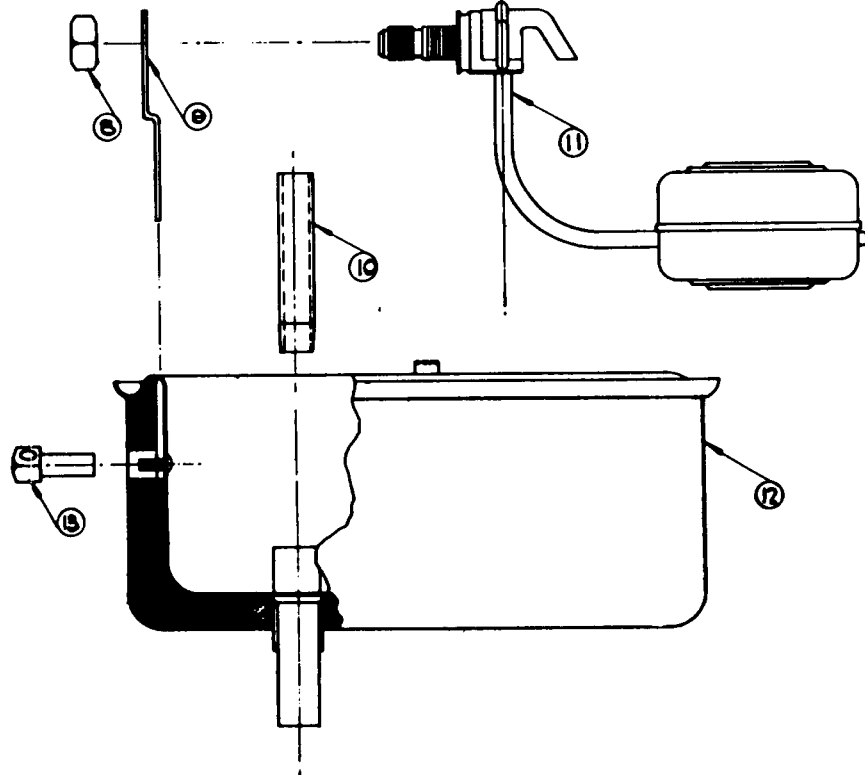
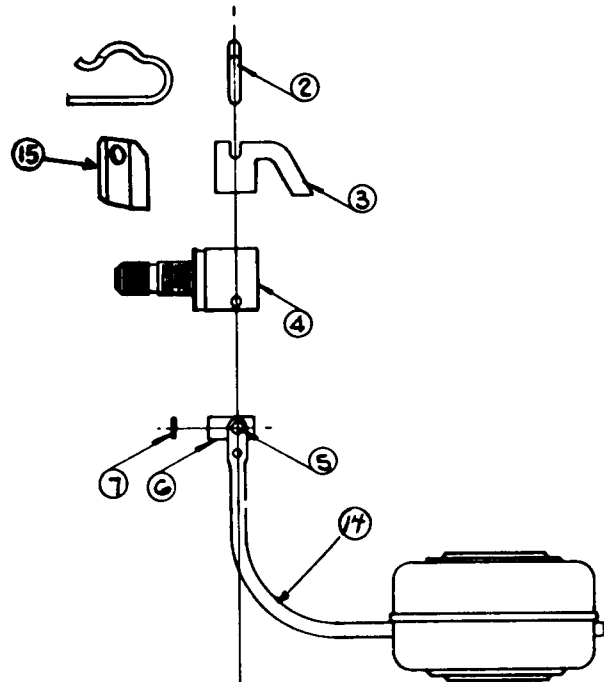


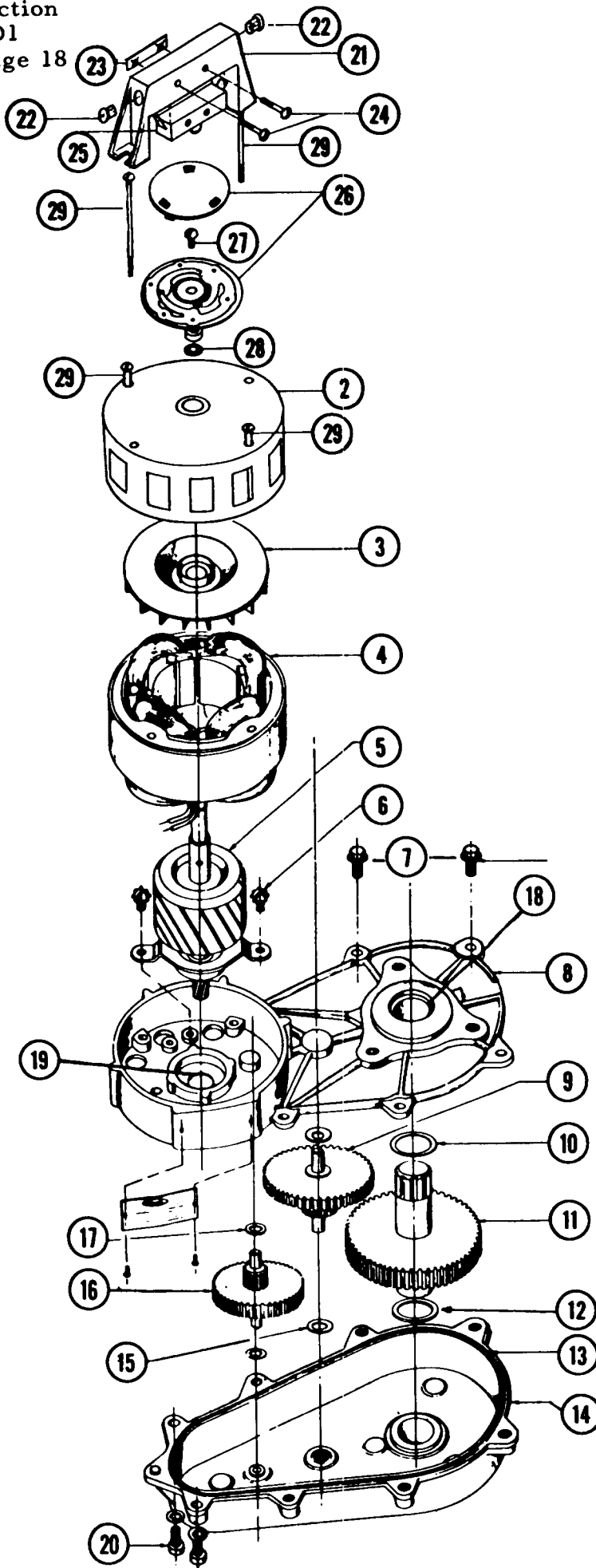
ITEM	PART NO.	DESCRIPTION	ITEM	PART NO.	DESCRIPTION
1	12-1558	Relay	4	12-813-4	Terminal Board
2	12-813-1	Terminal Board	5	18-2200-29	Compressor Capacitor (start)
3	18-220-26	Compressor Relay	6	12-1559	Timing Module



FD-1 RESERVOIR ASSEMBLY
Part No. A23410-4

ITEM	PART NO.	DESCRIPTION
1	A16012	Reservoir Cover
2	2-1259	Valve Pin
3	2-1320	Deflector
4	S8770	Inlet Valve
5	3-1001	Rivet
6	A5777	Valve Seat Holder
7	S6947	Valve Seat
8	3-1394	Nut
9	A12869	Bracket
10	S6715	Stand Pipe
11	S8138	Inlet Valve Ass'y
12	A23500	Reservoir Body
13	A8055	Bracket Nut
14	A12067	Float and Arm Ass'y
15	A18418-1	Water Deflector
	A23501	Complete (less cover)





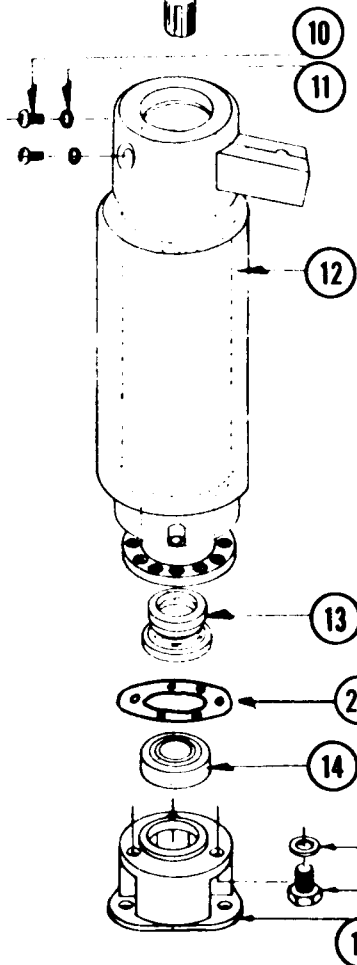
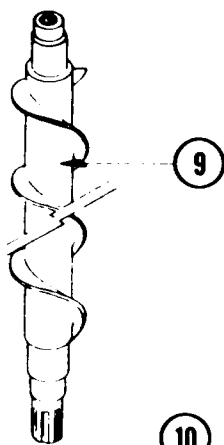
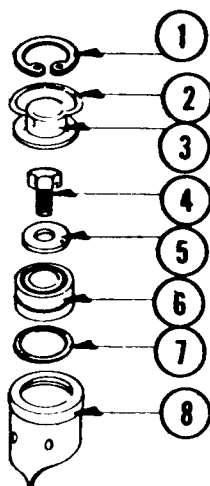
GEAR MOTOR ASSY.

ITEM	PART NO.	DESCRIPTION
2.	A-17047	Motor Housing
3.	A-16915	Cooling Fan
4.	12-1400-1	Stator Assy.
5.	A-19884-2	Rotor Assy.
6.	3-1245	Screws
7.	3-1251	Flange Screws
8.	A-16920	Gear Case Cover
9.	2-1521	Gear & Pinion
10.	3-1408-5	Washer
11.	2-1513	Gear & Output Shaft
12.	3-1408-4	Washer
13.	2-1505	"O" Ring
14.	A-16919	Gear Case Assy.
15.	3-1408-6	Washer
16.	2-1520	1st Gear & Pinion
17.	3-1408-7	Washer
18.	2-1503	Grease Seal
19.	2-1504	Grease Seal
20.	3-1252	Screw
21.	8-579	Switch Bracket
22.	12-1213-3	Snap Bushings
23.	3-886	Twin Speed Nut
24.	3-1403-10	Screws
25.	12-1644	Switch
26.	A19898	Synchro Snap Assy.
27.	3-1248-1	Screw
28.	3-1417-6	Washer
29.	3-1403-43	Motor Bolts

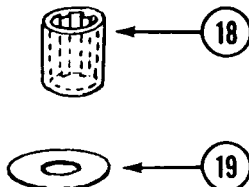
A-18380-1 Gear Motor Assy. Complete

Output Shaft turns at 10 RPM.

FREEZER ASSY.



ITEM	PART NO.	DESCRIPTION
1.	3-553	Retainer Ring
2.	A-8162	Cap Hook
3.	A-7701	Cap
4.	3-758	Screw
5.	A-7699	Washer
6.	2-1412	Top Bearing-Matched set
7.	13-617-16	"O" Ring
8.	A-14591	Breaker
9.	2-1538	Auger
10.	3-1403-46	Screw
11.	3-1417-7	Washer
12.	A-20551	Evaporator Shell Includes Suction Line, No internal parts.
13.	A-18945	Water Seal
14.	2-417	Bearing, Lower
15.	3-1408-3	Washer (3 reqd)
16.	3-1405-42	Cap Screw (3 reqd)
17.	A-23073	Adapter-Amaloy
18.	2-1913	Spline Drive Coupling
19.	13-709-1	Shaft Drip Shield - rubber
20.	3-1505	Gasket
21.	A-20552	Freezer Complete with Suction Line



SERVICE ANALYSIS
ICE MAKER SECTION FD1

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Water Leaks	Defective water seal Gravity feed line leaking Water level in reservoir too high	Replace. Check hose clamps. Adjust water level to 1/4 inch below reservoir overflow, then raise reservoir until water comes out freezer spout, then lower 3/4 inch.
Excessive noise or chattering	Mineral or scale deposit on auger and inner freezing chamber walls. Low suction Intermittent water supply Water level in reservoir too low Motor compressor not solid on rubber mounts	Clean per cleaning instructions with Scotsman Ice Machine Cleaner - for severe deposits remove auger and clean freezer parts manually. Add gas to raise suction pressure. Check and clean water strainer. Check gravity feed line for air lock. Remove air lock. See "Corrections" under "Symptom" water leaks. Repair or replace rubber mounts.
Gearmotor noise	Low on oil	Remove case cover to check for proper oil level. Top of gears should be covered. U Sun Oil Company, Prestige 50-EP, Scotsman #19-472

SERVICE ANALYSIS
ICE MAKER SECTION FDI

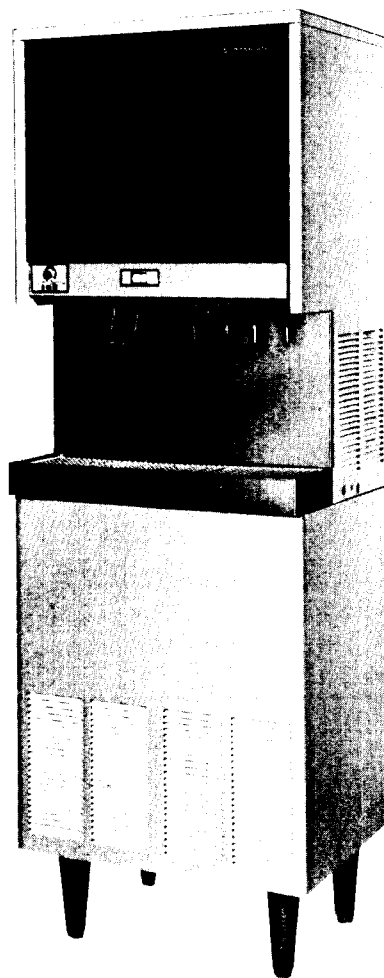
SYMPTOM	POSSIBLE CAUSE	CORRECTION
Unit will not run	<p>Bin Reset Switch</p> <p>Blown fuse</p> <p>Loose electrical connection</p> <p>Inoperative master switch</p>	<p>Push to reset - continue operation - replace bin full switch.</p> <p>Replace fuse and check for cause of blown fuse.</p> <p>Check wiring.</p> <p>Replace switch.</p>
Compressor cycles intermittently	<p>High or low voltage.</p> <p>Dirty condenser</p> <p>Air circulation blocked</p> <p>Inoperative condenser motor</p> <p>Non-condensable gases in system</p>	<p>Check for overloading.</p> <p>Clean.</p> <p>Remove cause or move unit to correct.</p> <p>Replace.</p> <p>Check for leaks, evacuate and recharge.</p>
Making wet ice	<p>Surrounding air temperature very high.</p> <p>Under or over-charge of refrigerant</p> <p>Faulty compressor</p>	<p>Correct or move unit</p> <p>Recharge with the proper amount.</p> <p>Replace or repair.</p>
Low ice production	<p>Loss of refrigerant, under or over-charge of refrigerant.</p> <p>Dirty or plugged condenser</p> <p>Water level in water reservoir.</p> <p>Partial restriction in capillary tube or drier</p> <p>Inlet water strainer partially plugged.</p> <p>Corroded or stained worm shaft due to water condition</p>	<p>Check and recharge with proper amount of refrigerant</p> <p>Clean condenser</p> <p>See "Corrections" under "Symptoms" water leaks.</p> <p>Moisture in system. Overcharge of oil in system. Remove charge and drier. Replace and recharge system.</p> <p>Remove screen and clean.</p> <p>Remove worm shaft and clean.</p>
Machine runs but makes no ice	<p>Loss or under-charge of refrigerant</p> <p>Water not entering freezing chamber</p> <p>Moisture in system</p> <p>Water seal leaking</p> <p>Water turned off while unit was operating</p>	<p>Check for leaks and recharge</p> <p>Plugged strainer or supply line Check and clean. Air lock in gravity feed line. Check and remove air lock.</p> <p>Check and remove charge and drier. Replace and recharge.</p> <p>Replace seal.</p> <p>Inlet water line froze shut. Unit must be turned off and defrosted.</p>

SERVICE ANALYSIS
DISPENSING MECHANISM FD1

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Will not dispense	Power off	Check master switch, fuses and electrical supply to machine. Check symptoms - bin drive motor runs, bin drive motor stopped.
Bin drive motor runs (will not dispense)	<p>Plugged spout.</p> <p>Vend switch adjustment</p> <p>Gear Motor</p> <p>Inner bin does not rotate</p>	<p>Operator held full glass under spout forcing ice to jam, clear spout and instruct personnel using machine.</p> <p>Check linkage for broken or out of place parts preventing ice chute from opening 100% when glass lever is depressed.</p> <p>Vend switch must be positioned so it will close only when glass lever is completely depressed to prevent vending when ice chute is only partially open.</p> <p>Check if output shaft turns if not, replace gearmotor.</p> <p>Check keyed coupling to gear motor. Key is soft soldered in place and may be replaced.</p>

SERVICE ANALYSIS (Continued)

<p>Bin drive motor stopped</p>	<p>Drive motor burned out</p> <p>Inner bin jammed</p> <p>Vend switch</p> <p>Relay (relay has 240V holding coil - 115V coil will not work with timing module.)</p>	<p>Replace</p> <p>Check assembly of inner bin bottom, may NOT be down and locked in place .</p> <p>Faulty - replace</p> <p>Out of adjustment - readjust</p> <p>Relay is normally closed, may open too quickly if ice portion control or timing module is faulty.</p>
<p>Will not portion ice, runs continuous</p>	<p>Ice portion control timing module.</p>	<p>If components fail to open machine will vend continuously when glass lever is depressed. The timing module and ice portion control stop the vend cycle by energizing the relay which opens the circuit to the bin drive motor.</p> <p>It is recommended to service these two components by substitution.</p>



FD1

K44D

GENERAL DESCRIPTION

The K44D is a post-mix drink dispenser designed to be added under the FD1 series of ice dispensers. This converts the FD1 ice dispenser into an ice and soft drink dispenser.

This unit consists of a complete refrigeration system, carbonation system, and cooling circuits for sweet water, soda water, and four syrup flavors. A dispensing valve assembly consisting of four electric post-mix valves and connecting tubing is also available under part number KV-4E Faucet Kit.

K-44D ONLY

Textured White Exterior	
Height with legs	38 1/2"
Width	26"
Depth	19"
Approx. Ship. Weight	205 lbs.