

TABLE OF CONTENTS

Table of Contents	1
Mechanical Specifications	2
Specifications — with Storage	3-4
Specifications	5
Preparation for Installation	6
Installation Limitations	7
Selecting Location	8
Installation	9-10
Wiring Diagram — Water Cooled	13
Wiring Diagram — Air Cooled	14
Final Check List	15
Service:	
Starting Machine	16
Refrigerent Charge	16
Water System	17
Electrical System	17
Disassembly Procedures:	
Cabinet Assy	18
Water Reservoir	18
Freezer Assy	
Disassembly Procedures:	
Cabinet Assy	18
Water Reservoir	18
Freezer Assy	19
Freezer Worm Shaft	19
Water Seal	19
Electrical Components	20
Freezer Gearmotor	20
Compressor	20
Parts Breakdown	
Control Box	21
Reservoir Assy	22
Gear Motor Assy	23
Freezer Assy	24
Chassis Assy - Water Cooled	25
Chassis Assy - Air Cooled	26
Case Assy With Storage - Scotsman	27
Case Assy With Storage PH-2, CC2A	28-29
Service Analysis	30-31
Maintenance Instructions	32

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

MECHANICAL SPECIFICATIONS

	SF-2A	SF-2WA
Compressor	3/4 HP	3/4 HP
Condenser	Air Cooled	Water Cooled
Refrigerant	27 oz. R-12	23 oz. R-12
Refrigerant Control	Capillary Tube	Capillary Tube
Power Consumption - Amps.	19.45	18.60 Voltage - Std. Unit
Voltage-Std Unit	115V - 60 Hertz	115V - 60 Hertz
Gear Drive Motor	1/4 HP	1/4 HP

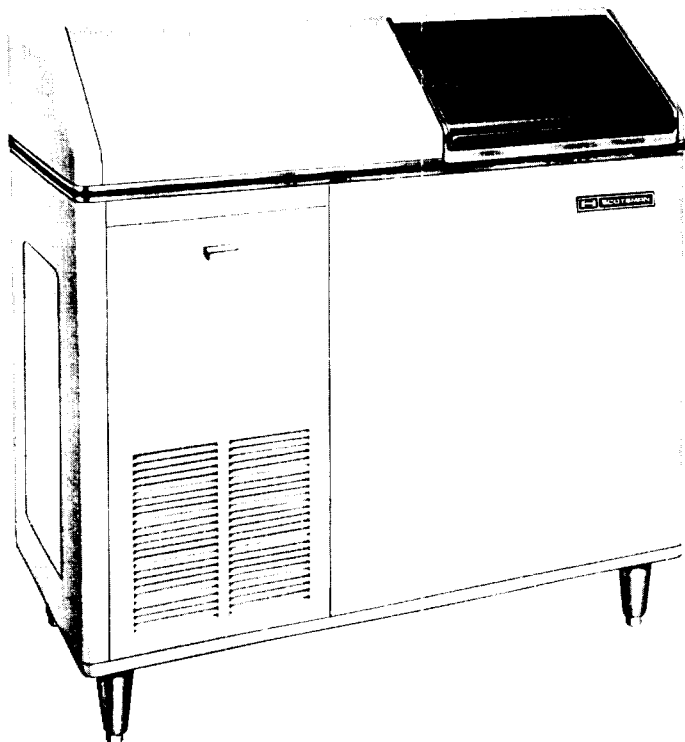
*Copelaweld model No. RSL2-0075-1AA-218

DIMENSIONS

	SF-2WSA
Width	49-1/4"
Depth	24-1/2"
Height less legs	43-1/2"
Height w/legs	49-1/2 to 50-1/4"
Shipping Weight	415 lbs.



SF 2 series flaker with storage



(Leg Kit Optional)

If you need volume ice production and storage in a single unit, the Scotsman SF2 Series Flaker will provide both. Available with either air or water cooled condensers to meet your installation requirements. The SF2 produces flake ice made by Scotsman's unique freezing method. Where sparkle and clean refreshing color are necessary, as in a salad bar, Scotsman dry, hard bits of ice are a perfect solution. They melt slowly, last a long time in food displays and present an attractive setting. Access to ice is convenient through the large bin opening. The access door slides up, out of the way, and closes to a tight seal. A sensitive thermostat inside the bin shuts the machine off when bin is full and re-starts it automatically when ice is removed.

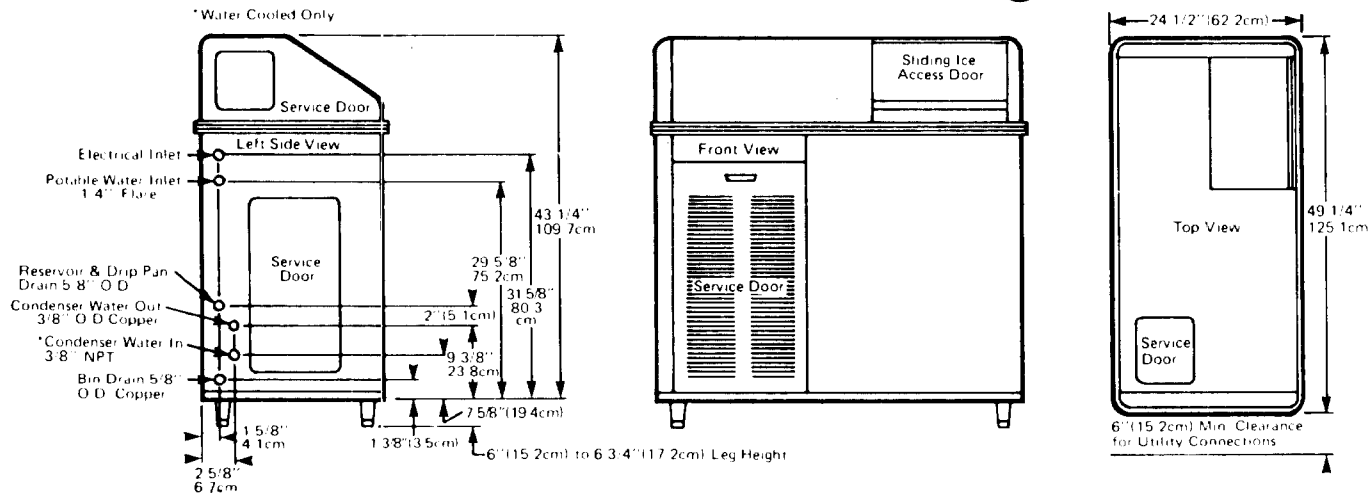
Scotsman is the largest manufacturer of ice making equipment . . . furnishing dependable, efficient and economical ice systems around the world.

ice making capacity

Daily Ice Capacity is directly related to condenser air inlet temperature, water temperature, and age of machine.

NOTE: To keep your SCOTSMAN FLAKER performing at it's maximum capacity, it is necessary to perform periodic maintenance as outlined in this manual.

SF 2 series flaker with storage



Storage Bin: 350 lbs. (159 kg)
Height: 43-1/4" (109.7 cm) w/o legs
Width: 49-1/4" (125.1 cm) **Depth:** 24-1/2" (62.2 cm)
Shipping Wt: 388 lbs. (175 kg)

OPTIONAL LEG KIT

Four metal legs screw into mounting plates on cabinet base. Provide 6" minimum height including adjustable leveling foot. N.S.F. approved.

KLP2E: Black enamel finish. Recommended for enamel cabinets.

KLP2S: Nickel plated, brushed metal finish with stainless steel foot. Recommended for stainless steel cabinets.

IMPORTANT OPERATING REQUIREMENTS

Electrical Voltage: Machine requires voltage indicated on rating name plate. Failure caused by improper voltage are not considered factory defect.

Ambient Temperature: Machine is not designed for outdoor installation. Machine will not operate when air temperature is below 50° F or above 100° F.

Water Pressure & Temperature: Requires 20-lbs. flowing water pressure, without interruption. Machine will not operate when water supply temperature is below 40° F or above 100° F.

Model Number	Condensing Unit	Compressor Horsepower	Finish*	Shp. Wt. lbs./kgs.
SF2WSA	Air	3/4	Enamel	388/175
SF2WSASS	Air	3/4	Stainless Steel	388/175
SF2WWSA	Water	3/4	Enamel	388/175
SF2WWSASS	Water	3/4	Stainless Steel	388/175

*Sandalwood baked enamel finish or all heavy gauge stainless steel.

Basic Electricals	Max. Oper. Amps	No. of Wires	Max. Fuse Size
Air-Cooled:	115/60/1	19.5	2 30
Water-Cooled:	115/60/1	18.6	2 30

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

SPECIFICATIONS

SCOTSMAN Flakers are designed for restaurants, super markets, soda fountains, hospitals, bakeries, fish markets, poultry stores, packing plants, etc. It is the finest Ice Maker on the market today. It will work 24 hours a day for you, or only as needed. It produces the highest quality ice available at any price.

SCOTSMAN Flakers are easily installed requiring only standard water, drain and electrical connections.

ATTRACTIVE COMPACT CABINET. Sandlewood or stainless steel finish with chrome trim, rounded corners, and removable panels for easy access to mechanical parts. Adjustable and removable legs are under cabinet.

SEALED REFRIGERATION SYSTEM. Provides quiet, efficient operation of the machine. Compressor motor is internally spring mounted for quiet operation. Compressor motor is covered by a limited 5-Year Warranty.

HOW IT WORKS. An exclusive patented ice-making system, wherein water in the constant level float reservoir is fed to the bottom end of the freezing cylinder and turns to ice on the inside of this cylinder. Ice from the refrigerated walls of this cylinder is extruded past the ice breaker at the top of the cylinder through a side opening by means of a stainless steel auger driven by a gearmotor drive.

All SCOTSMAN Models SF2A are completely automatic. A manual switch in control box starts the machine, and from then on, produces flakes automatically. When the storage bin fills, the machine automatically shuts off and starts up again when ice is taken from the storage compartment.

INSTALLATION INSTRUCTIONS

The following installation instructions were written for use by an authorized tradesman only, not the user or customer. We suggest you call your local authorized Scotsman Service Agency for hook-up, start-up, and check out. He's listed under "Ice Making Machinery & Equipment" in your telephone book, yellow pages.

*Standard Models SF-2 do not include legs. Sales department carries leg package under accessory items.

PREPARATION FOR INSTALLATION

1. UNCRATING

The entire unit comes in one carton. Upon delivery a visual inspection of the carton should be made and any severe damage noted should be reported to the delivering carrier and a concealed damage claim filed subject to internal inspection with carrier representative present. Remove carton by cutting through sides of carton into the bottom skid. Next remove (4) four bolts from underside of skid which connect to complete unit base. Unit now free.

2. Remove all service doors and panels.
3. Remove water reservoir cover and take out paper packing around float ball.
4. If optional legs are used, install at this time being sure to properly level unit using adjustable leg levelers.
5. Remove water strainer from storage bin for installation on unit or in water supply line feeding unit.
7. Open electrical control box and prepare for hook up, use knock outs, cord connectors etc. Then check unit nameplate voltage against building source voltage and make sure they correspond. Caution - Improper voltage supplied to units will void your warranty protection.
8. Select unit location prior to hook up of water drain and electricals in accordance with local and national codes. Minimum room temperatures is 50° Fahrenheit. On air cooled models, select well ventilated location.
9. Remove Users manual from storage bin, then wipe bin clean with damp cloth.
10. Fill out registration card completely including model and serial numbers as taken from serial plate found behind front service panel and forward to Scotsman Factory using self mailing card.

INSTALLATION LIMITATIONS

ELECTRICAL

1. Scotsman, like most manufacturers, purchases electrical motors that are rated to operate within 10% variance above or below nameplate ratings.
2. Improper voltages applied to Scotsman equipment can cause premature failures and burnouts. Failures of this type are not considered as factory fault or defect.

AMBIENT

WARNING — This machine is not designed for outdoor installations. This machine will not operate when air temperatures are below 50° F. or above 100° F.

This unit was not fabricated nor intended to be installed outdoors.

WATER

3. Scotsman Ice Systems require 20 pounds flowing water pressure to operate satisfactorily. Pressures lower than 20 pounds or interruptions in the water supply can cause serious mechanical damage to this product.

This machine will not operate when water supply temperatures are below 40° F. or above 100° F.

SELECTING LOCATION

UNDER BAR INSTALLATIONS: Locate, if possible, so left end panel is accessible. Locate so proper circulation can be attained around the unit and behind it at least four inches.

KITCHEN INSTALLATIONS: As a rule, the kitchen is not the most practical place to install an air-cooled condensing unit, as grease is almost always present and makes cleaning of the condensing unit difficult. So not locate near range or steam table or other heating devices that may be used in the kitchen.

STOREROOM INSTALLATIONS: Be sure storeroom is of adequate size and properly ventilated. A small, poorly ventilated room will greatly impair the efficiency of the unit. the storeroom must be kept above 50 degrees in the winter months.

BASEMENT INSTALLATIONS: Locate machine in the coolest place. Locate machine in a dry place. Keep away from furnace and boiler room. Keep away from service chutes and runways; also coal or other dust of any kind. If the machine is set over a floor drain, block the machine up enough to level it. If there is any chance of basement flooding, block the machine up enough to eliminate any possible damage to the machine.

WATER SUPPLY: The recommended water supply line is 1/4 inch I.D. copper tubing for SF-2. Connect to cold water supply line and machine. A water strainer must be installed with the unit and mounted with clean-out plug down. Locate the strainer next to the machine with the arrow in the direction of the flow. Most plumbing codes also call for double check valves in the supply water line, particularly for water-cooled models.

On air-cooled models the water supply line connects to the 1/4 inch flare fitting on the machine. On water-cooled models connections are made to a 3/8 inch male pipe nipple inside of the machine compartment. Incoming water goes through the water regulating valve first and then to the water-cooled condenser. Observe arrow on water regulating valve. Water supply must be installed to conform with local code. In some cases a licensed plumber and/or a plumbing permit will be required.

DRAIN: The recommended drain from the bin is 5/8 inch OD copper tubing. Must be run to an open trapped and vented drain. If drain is a long run, allow 1/4 inch pitch per foot. Drain must be installed to conform with local code. Run separate line for condenser discharge water on water-cooled models.

INSTALLATION

ELECTRICAL CONNECTIONS:

SF2A
115 Volts, 60 Hertz, 1 Phase
30 Amp. Circuit

Suitable wire should be used for electrical hook-up. Conductors with a solid ground wire are desirable.

Be certain that the ice system is on its own circuit and individually fused. The maximum allowable voltage variation should not exceed 10 per cent of the nameplate rating even under starting conditions. Low voltage can cause erratic operation and may be responsible for serious damage to the overload switch and motor windings.

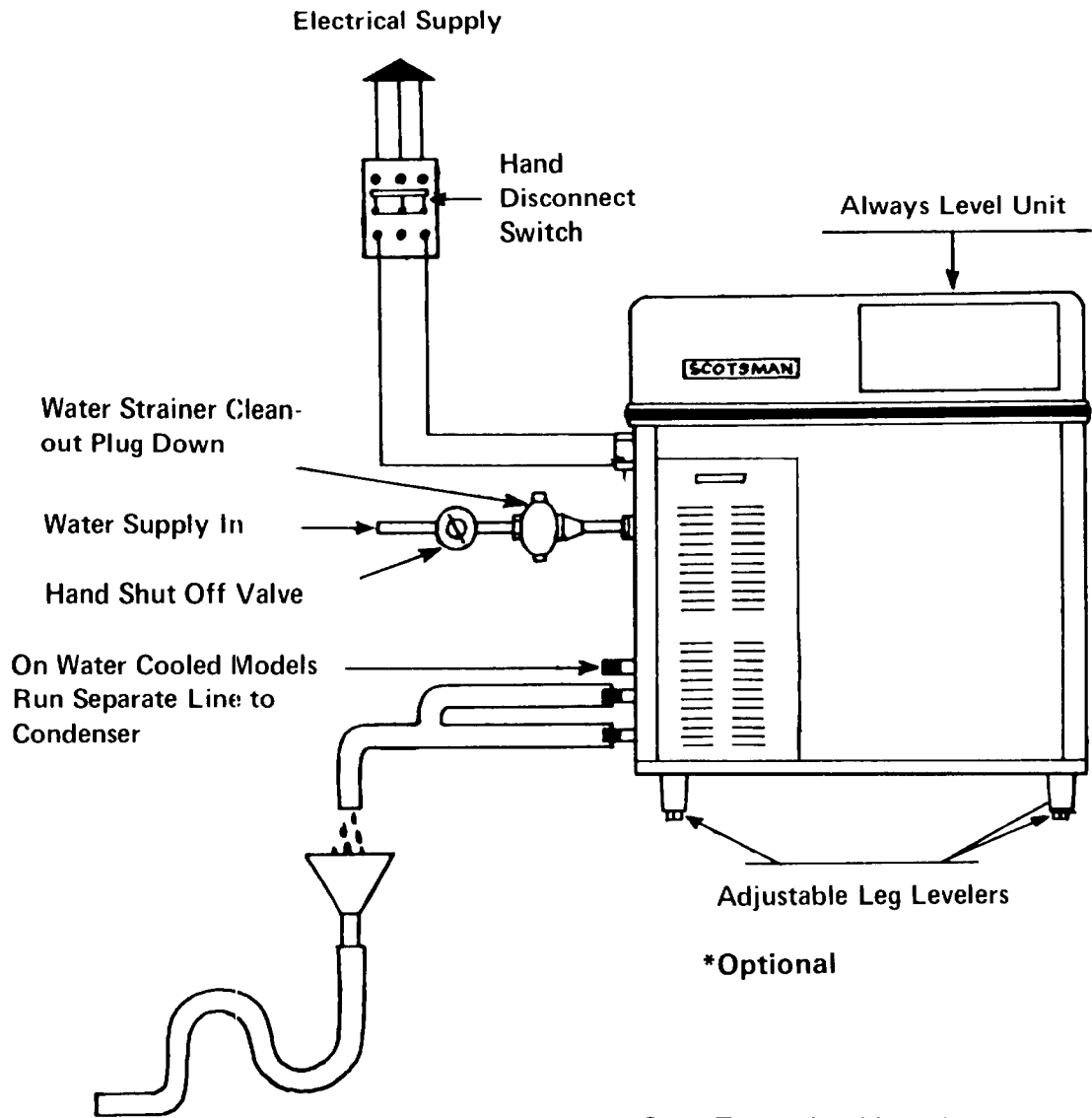
All external wiring should conform to the National Underwriters and local Electrical Code requirements. Usually an electrical permit and the services of a licensed electrician will be required.

ELECTRICAL INSTALLATION:

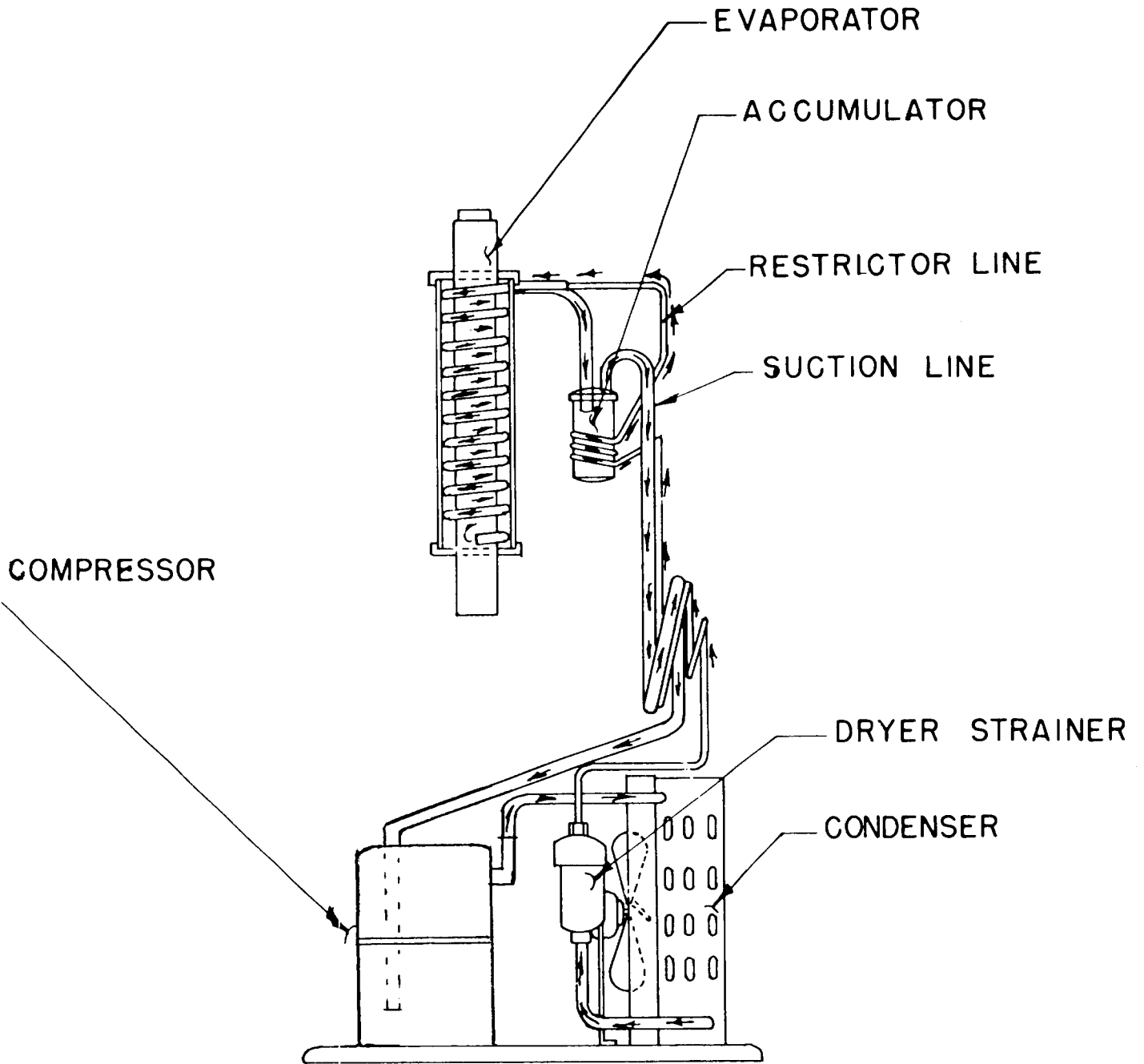
SF2A

Compressor	3/4 HP	Copelaweld: RSL2-0075- 1AA-233
		2 pole, 3500 RPM
	Voltage	115
	Amp. rating F.L.A.	14.0
	Hertz	60
	Phase	Single
Gear Drive Motor	1/4 HP	Queen Products
	Voltage	115
	Amp. Rating	4.6
	Hertz	60
	Phase	Single
		Thermally Protected

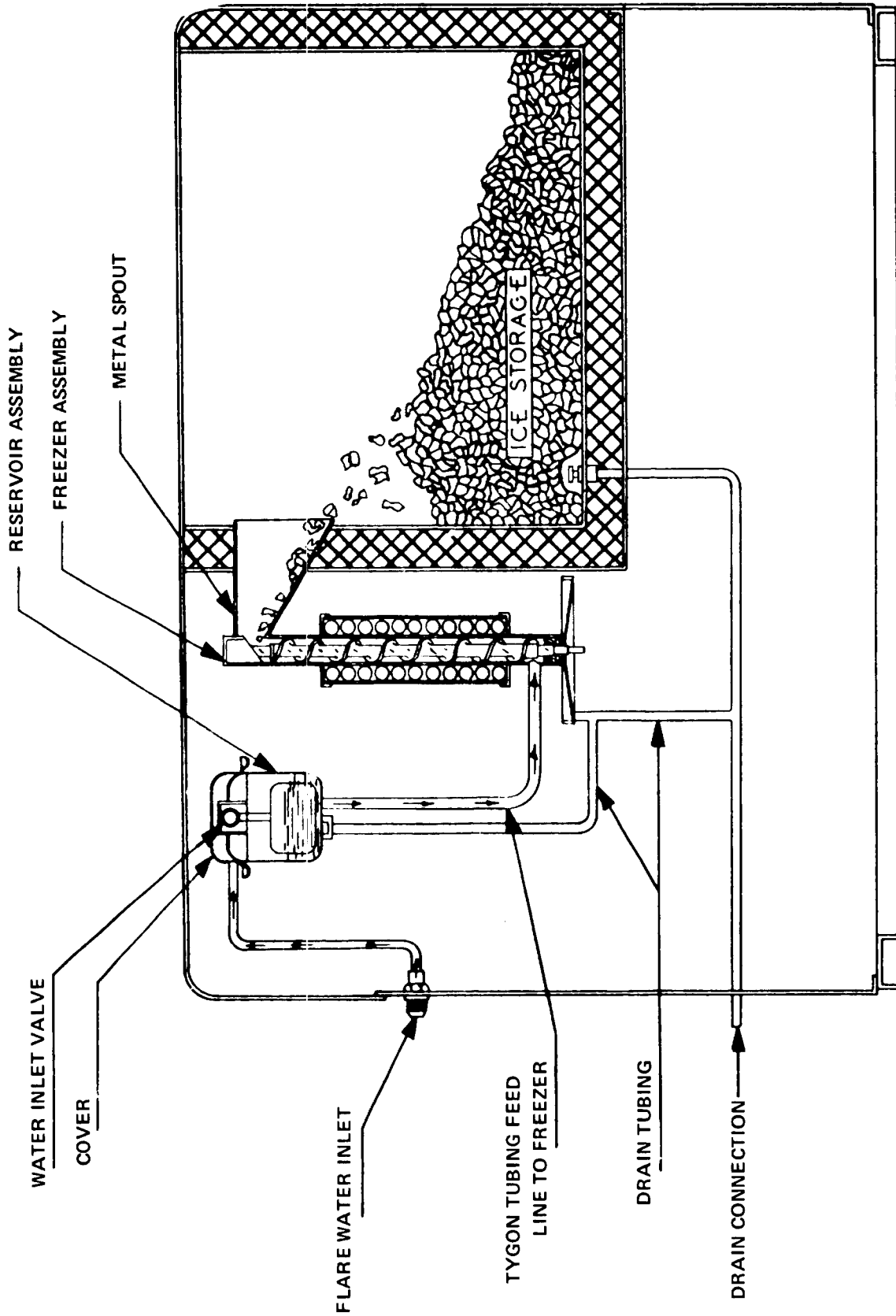
INSTALLATION PRACTICE



Open Trapped or Vented Drain. Recommend 1/4 Fall per foot of run on drain lines.

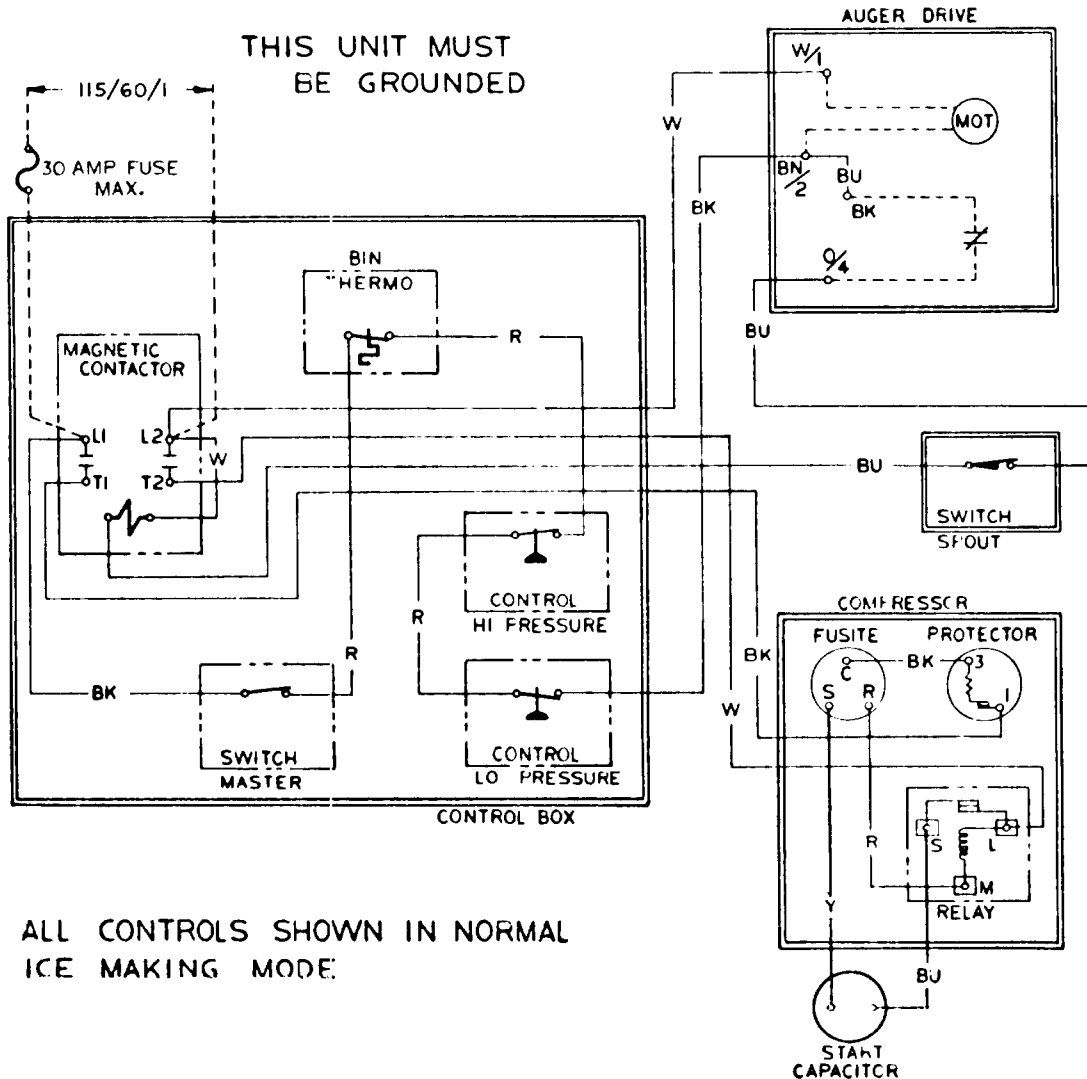


REFRIGERATION CYCLE SF-2 ALL MODELS

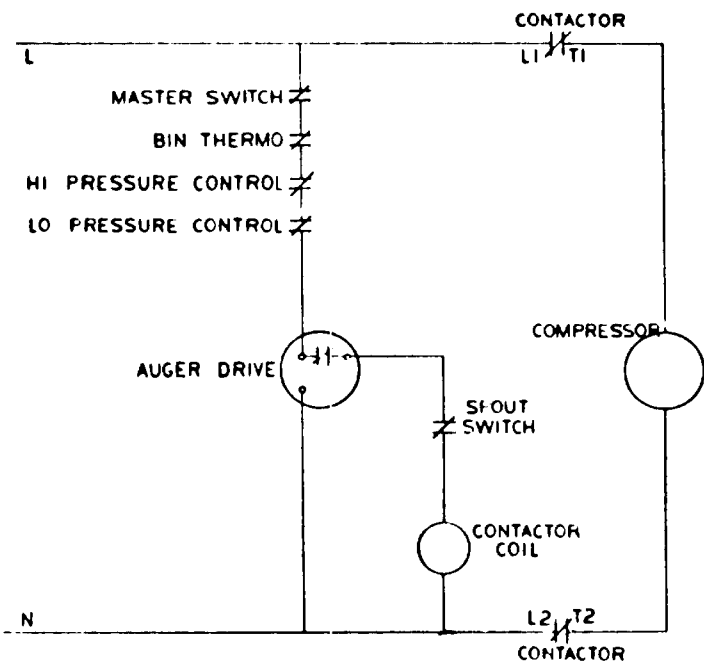


WATER SCHEMATIC
SF-2WSA

WIRING DIAGRAM SF2A - Water Cooled

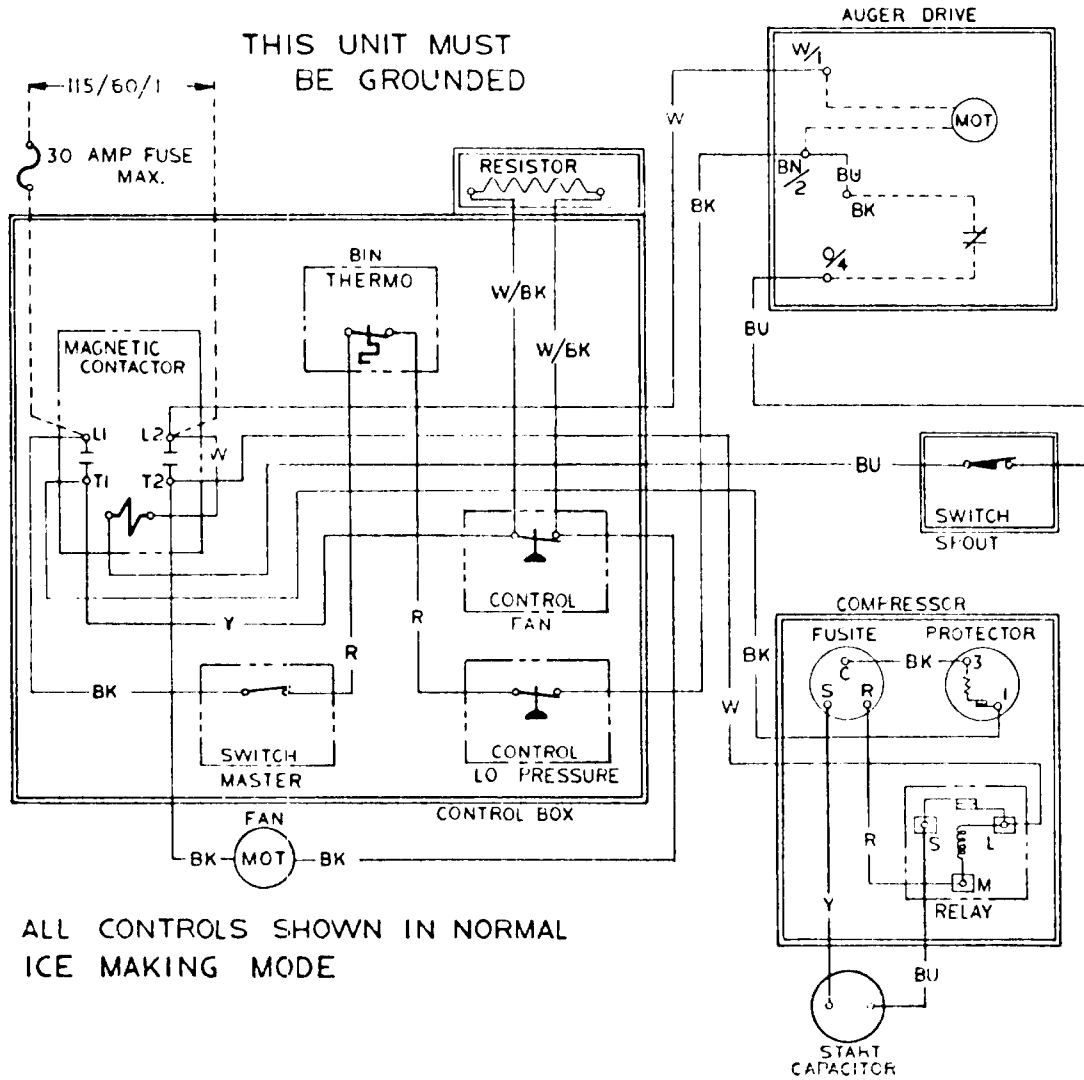


ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE.

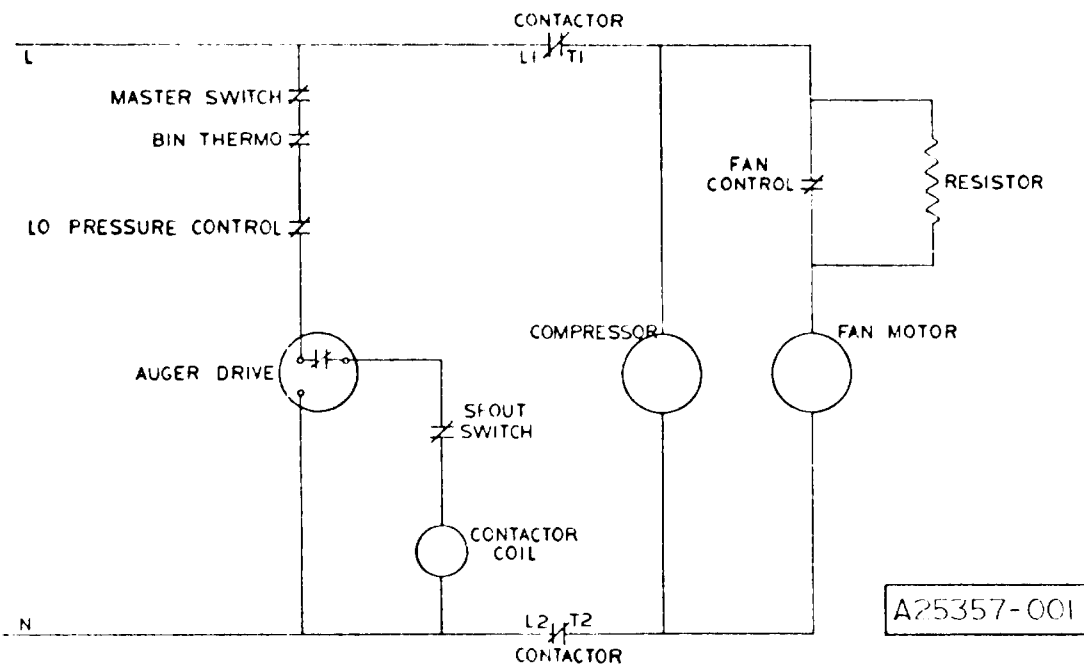


A25358-001

WIRING DIAGRAM SF2A - Air Cooled



ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE



A25357-001

FINAL CHECK LIST

1. It is the unit level? (IMPORTANT)
2. Have all electrical and piping connections been made?
3. Has the voltage been tested and checked against the nameplate rating?
4. Is the water supply valve open and the electric power on?
5. Is the water reservoir filled and shut off?
6. Have unit and bin been wiped clean?
7. Has owner been given the users manual, and has he been instructed on how to operate the machine?
8. Have the installation and warranty cards been filled out and mailed to the factory?
9. Check all refrigerant and conduit lines to guard against vibration and possible failure.
10. Installed in a well ventilated room where ambient temperatures do not fall below 50° Fahrenheit.
11. Is unit installed with a minimum 4" air space around sides and back?
12. Has water supply pressure been checked to insure at least a minimum pressure of 20 pounds?

SERVICE

STARTING THE MACHINE: When the machine is placed and inspected as per instructions and all plumbing and electrical connections are completed and tested, turn on the water supply. Be sure the float cover is removed to check on the float operation and water level in the water reservoir. Be sure the water reservoir is filled before starting the machine. Water level should be 1/4 inch below the reservoir overflow.

When this is completed, turn on the manual switch on the front of the cabinet and the machine is in automatic operation. In two to three minutes ice will start dropping off the worm shaft and out the ice chute. Let the machine operate for at least 20 minutes and check for any excess noise other than the normal compressor noise. Test the ice storage control bulb by holding a handful of ice around the bulb until the machine shuts off. One minute should be normal for the control to function. Within minutes after the ice is removed, the bulb will warm up and the machine will automatically start up. The control is factory set and should not be reset until this test is made. Normal setting of this control should be approximately 35 degrees cut-out and 45 degrees cut-in.

Check pressure settings at the time of start-up. On the water-cooled models set the head pressure at 135 PSI. On the air-cooled models the head pressure will vary between 130 and 145 PSI head pressure. The frost line should extend out of the accumulator if properly charged with refrigerant and suction pressure will range between 14 and 16 PSI with 50° F inlet water.

Check the hand reset low pressure control setting. This safety device should be set at approximately 5 PSI below normal operating suction pressure and should cut off in case of interruption in water supply, shortage of refrigerant, low ambient or any other cause of abnormally low suction pressure.

Explain the machine to the owner, showing him how the machine works and go over the owner's instruction sheet with him. Answer all the owner's questions about the machine, and do not leave with any doubt in the owner's mind about the machine, how to operate it or where to reach you should he need service on the machine. Call back the next day to check the machine again and answer any other questions the owner may have.

Service gauge connections are available on both high and low side service valves.

To install gauges to any of these connections, use lines with tire type service valve adapter. Purge free of any non-condensable gases before starting any test operation.

REFRIGERANT CHARGE: The below refrigerant charge is approximate. when charging, set at 135 PSI head pressure and charge so that the frost line extends out of the evaporator and into the accumulator after fifteen minutes of operation.

Model	Freon Charge
Air-Cooled	27 oz. R-12
Water-Cooled	23 oz. R-12

SERVICE

WATER SYSTEM: A water level is maintained in the water reservoir by a float operated valve. Water is piped from the water reservoir to the freezing chamber by a gravity feed line maintaining an equal water level.

The water reservoir is equipped with an air gap to prevent back siphoning and meet all health codes.

The water level in the water reservoir is adjusted by bending float arm. The water level should be set 1/4 inch below the moulded in overflow well.

A water strainer must be installed in the supply line. Use strainer sent with machine.

ELECTRICAL SYSTEM: The electrical circuit consists of condensing unit, gear motor, hand reset combination or low pressure cut-out, storage bin thermostat, on and off switch, micro (safety) switches and head pressure control.

A. Condensing Unit. The compressor terminal box houses the motor compressor terminal block, and the overload Klixon. To gain access to the terminal box, remove the two screws holding the beveled metal cover. The starting capacitors, running capacitors and starting relays are housed and fastened to the unit chassis frame.

B. Gear Motor. All Model SF2A series flakers are equipped with a direct drive gear-motor to freezer shaft. 1/4 Horsepower motors are split phase, output shaft turns at 10 R.P.M. manufactured by Queen Products.

C. High Pressure Cut-Out. (Manual reset on water cooled models only.) Factory settings 250 PSI on high pressure. This control prevents operation at abnormal pressures.

D. Low Pressure Cut-Out. (Hand reset on all air cooled models.) Control is located in the control box. Factory settings cut-out at 4 PSI. Safety device to cut off machine and keep it off in case of water supply failure, loss of refrigerant, low ambient temperature or other causes of low pressure.

E. Storage Bin Thermostat. Control located on frame assembly. Factory settings 35° cut-out, 45° cut-in. This control shuts off complete machine when ice in storage bin builds up to control.

F. Micro Safety Switch. The micro switch is located in the top of the ice chute. The switch is operated by a plate in top of the ice chute by the ice backing up in the chute should the thermostat fail. Micro switch will shut off the condensing unit only, when operated.

G. ON-OFF SWITCH: A manual on-off switch is located in control box.

Air cooled Models

H. Head pressure Control Kit. A reverse acting high pressure control is used and connected electrically to the fan motor. As the head pressure drops below the cut-out setting, the control opens allowing the current to pass entirely through a resistor in the line feeding the fan motor. This slows the shaded pole motor down to approximately 1/4 speed thus increasing the head pressure. When the control cuts in the full voltage again flows directly to the fan motor allowing it to operate at full speed. This feature protects unit against low ambient conditions.

REMOVAL & INSTALLATION OF PARTS

CABINET TOP (HOOD)

1. Remove two back end screws of chrome strip.
2. Pull out tape concealing screws.
3. Remove balance of screws in chrome strip.
4. Lift off hood.

HOOD SERVICE DOOR TOP

1. Remove screws from edges.
2. Lift out door.

CABINET SIDE SERVICE DOOR

1. Remove four screws on edges.
2. Lift out door.

CABINET FRONT SERVICE DOOR

1. Remove 2 screws on edges.

CABINET REAR SERVICE DOOR

1. Remove four screws on corners of rear service door.
2. Pull door out.

ICE STORAGE DOOR

1. Lift door up, slide back 6". Remove thumb screw that attaches safety lanyard to back of door.
2. Door will now slide out. Lift front edge slightly to clear hood lip.

ICE STORAGE DOOR FRAME

1. Remove six screws at bottom and sides.
2. Remove screw in frame back.
3. Frame will now lift out.

WATER RESERVOIR

1. Remove service panel in cabinet hood.
2. Turn off water supply and drain reservoir.
3. Remove 1/4 inch copper inlet water line.
4. Remove 1/2 inch plastic feed line to freezer.
5. Remove two screws holding reservoir bracket to wall.
6. Lift out reservoir.
7. To replace, reverse procedure.

SERVICE

FREEZER ASSEMBLY

1. Remove cabinet top (Hood). (See Removing and Installing Cabinet Parts.)
2. Shut off water supply to unit, remove top and left side service panels.
3. Disconnect water inlet line at reservoir. Remove water supply tube at freezer and drain freezer.
4. Purge off refrigerant, unsweat suction line, disconnect capillary line at drier. Cap off all lines so no moisture can enter system.
5. Remove insulation pieces around spout, also the spout proper.
6. Remove 3 bolts holding fiber adaptor base to gearmotor top cover, lift freezer out of cabinet.
7. Remove fiber adaptor, spout front and back plates from old freezer and install on new replacement.
8. Re-install in reverse of above.

FREEZER WORM SHAFT

1. Turn unit off, before removing worm shaft.
2. Shut off water supply to unit.
3. Remove hood service doors.
4. Remove top and bottom straps around spout insulation pieces, remove pieces.
5. Remove two slotted head screws which fit through top chamber wall into ice breaker.
6. Tap drive coupling loose on bottom end of freezer worm shaft.
7. Complete worm shaft with ice breaker attached will now come out by lifting up on freezer cap pull ring. NOTE: Top half of water seal will come with worm shaft.
8. To remove ice breaker from shaft, first remove retainer ring in top of ice breaker.
9. Remove freezer cap and pull ring from ice breaker.
10. Remove cap screw holding shaft through bearing and pull worm shaft free from ice breaker and bearing.
11. If shaft is defective, remove water seal top half and put on new worm shaft before reassembling — when reassembling, by reversing above, put a small amount of Vaseline on shaft end. This will allow shaft to slide smoothly through rubber bottom half of water seal without tearing it.

WATER SEAL

1. To replace water seal, follow steps 1 through 7 under Worm Shaft Removal.
2. Remove 3 bolts holding freezer to fiber mounting adapter.
3. Lift freezer off adapter just high enough to allow bottom bearing and bottom half of water seal to be removed from bottom of freezer tube.
4. Lightly grease bottom half of new water seal and insert face up approximately 1/2" in bottom of freezer tube.
5. Insert bottom bearing in bottom of freezer tube, force approximately 1/8" past bottom tube end. This will allow the positioning ring on fiber adaptor to properly position freezer tube when tightening up the three mounting bolts.
6. After securing mounting bolts, put new top half of water seal on worm shaft the same way as the old seal was removed.
7. Carefully insert worm shaft assembly in freezer tube and into drive coupling on bottom.
8. Replace ice breaker screws, insulation pieces and unit is ready to resume operation.

STORAGE BIN THERMOSTAT:

1. Disconnect electrical supply.
2. Remove bin thermostat bulb from bin location along with its capillary tube.
3. Remove control box cover.
4. Disconnect two spade type electrical leads.
5. Loosen two screws in control mounting bracket.
6. Replace with new control and reassemble in reverse of above.
7. CAUTION: Always check new control power element charge before installation to assure receiving an operative control. A handful of ice on bulb will register an audible 'click' at cut off.

MICRO SWITCH IN SPOUT

1. Remove hood service panel.
2. Remove insulation pieces around freezer spout.
3. Remove micro box cover, loosen two screws at rear of box holding switch in place, lift up.
4. Disconnect electric leads.
5. Reassemble with new micro switch.

MANUAL ON AND OFF SWITCH

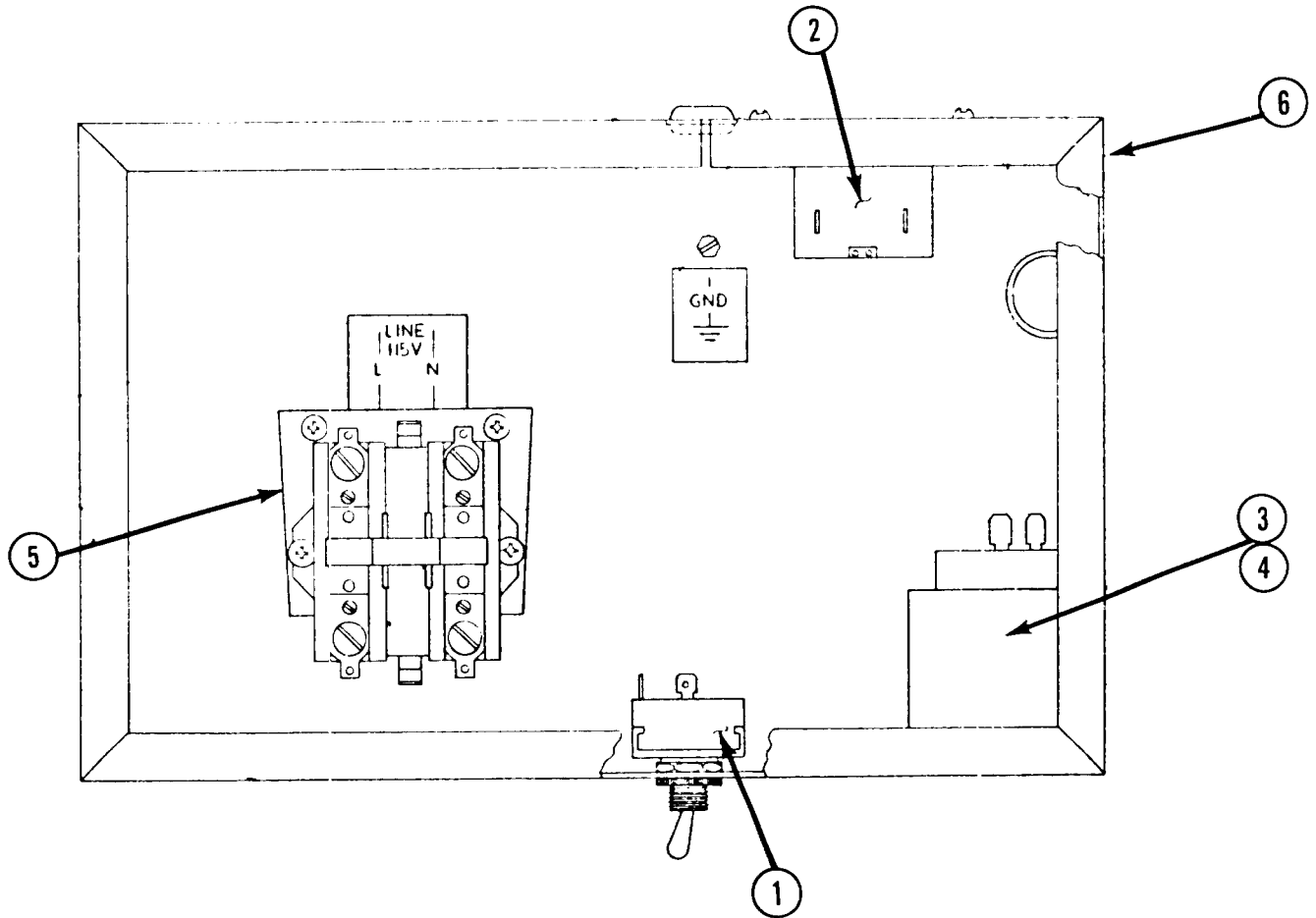
1. Remove front service door.
2. Remove two screws holding switch to bracket.
3. Disconnect electrical leads from switch.
4. Remove switch.
5. To replace, reverse procedure.

FREEZER GEARMOTOR

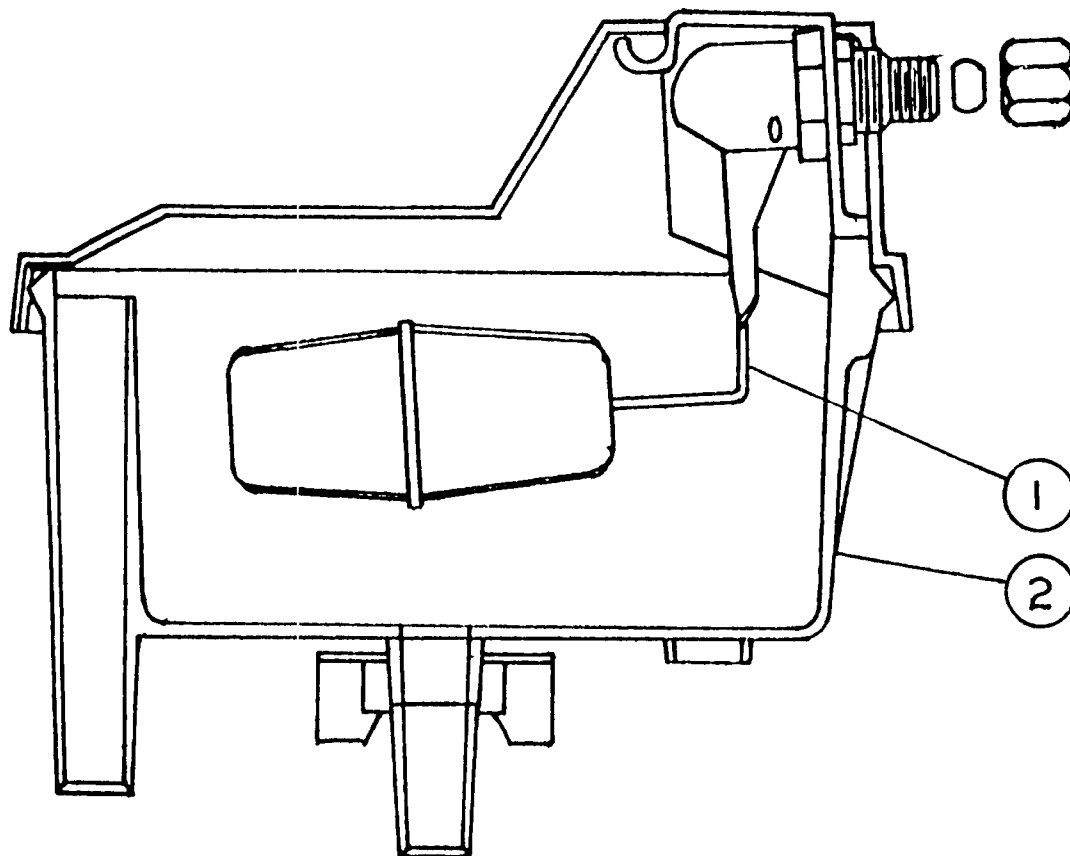
1. The easiest way to change the gearmotor is to remove complete cabinet hood as explained earlier in this section. If necessary because of location you can change by removing top service panel.
2. Pull off left side service panel and look up on underside of left side cabinet panel: 4 screws secure this gearmotor to frame.
3. Remove the four wire leads (2 on micro switch on top of motor, 2 from motor into control box.)
4. Remove 3 bolts thru fiber adapter into gearmotor cover and the 4 bolts holding gearmotor to mounting base.
5. Lift freezer adapter assembly off gearmotor and pull gearmotor out thru left side.

MOTOR COMPRESSOR

1. Remove gas charge.
2. Disconnect wiring from the compressor.
3. Loosen suction and discharge lines and cap off.
4. Remove the compressor hold-down nuts and lift compressor out of the unit.
5. Reverse steps 1 through 4 in replacing compressor.



ITEM NO.	PART NO.	DESCRIPTION
1.	12-0426-01	Switch — On-Off
2.	11-0354-00	Bin Thermostat
3.	11-0362-01	Fan Speed Control (Air Cooled Only)
3.	11-0388-02	High Pressure Control(Water Cooled Only)
4.	11-0358-01	Low Pressure Control
5.	12-0820-01	115/60/1 Contactor
6.	12-0474-00	Resistor - Fan Speed 115/60/1 — Air Cooled Only
	12-0562-00	Resistor - Fan Speed 230/60/1



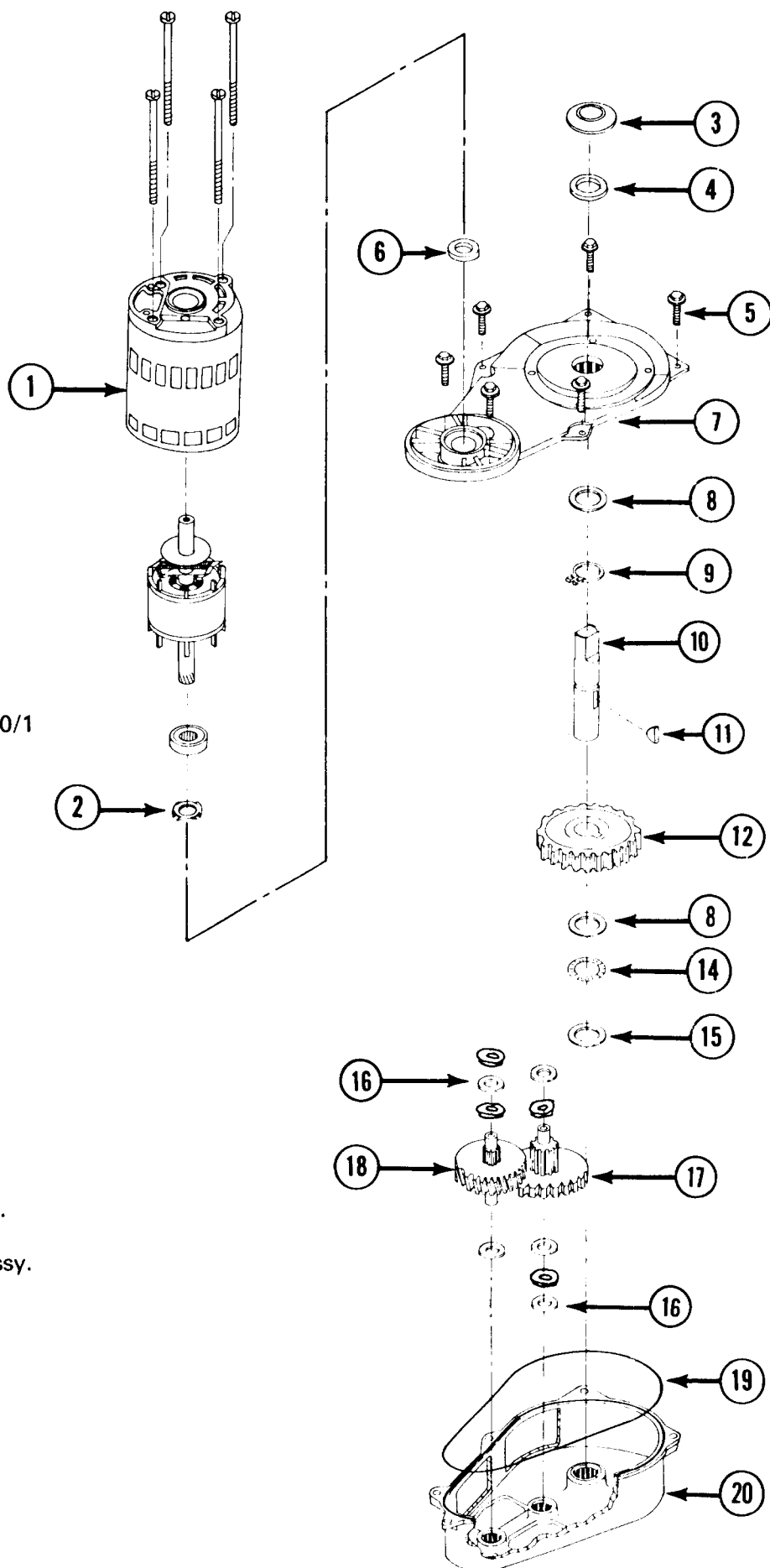
RESERVOIR ASSEMBLY

ITEM NO.	PART NO.	DESCRIPTION
1.	02-2217-02	Valve Assy.
2.	02-2217-01	Reservoir Complete

A22750-021
GEAR MOTOR ASSEMBLY
 1/4 HP
 OUTPUT SHAFT TURNS
 AT 10 RPM

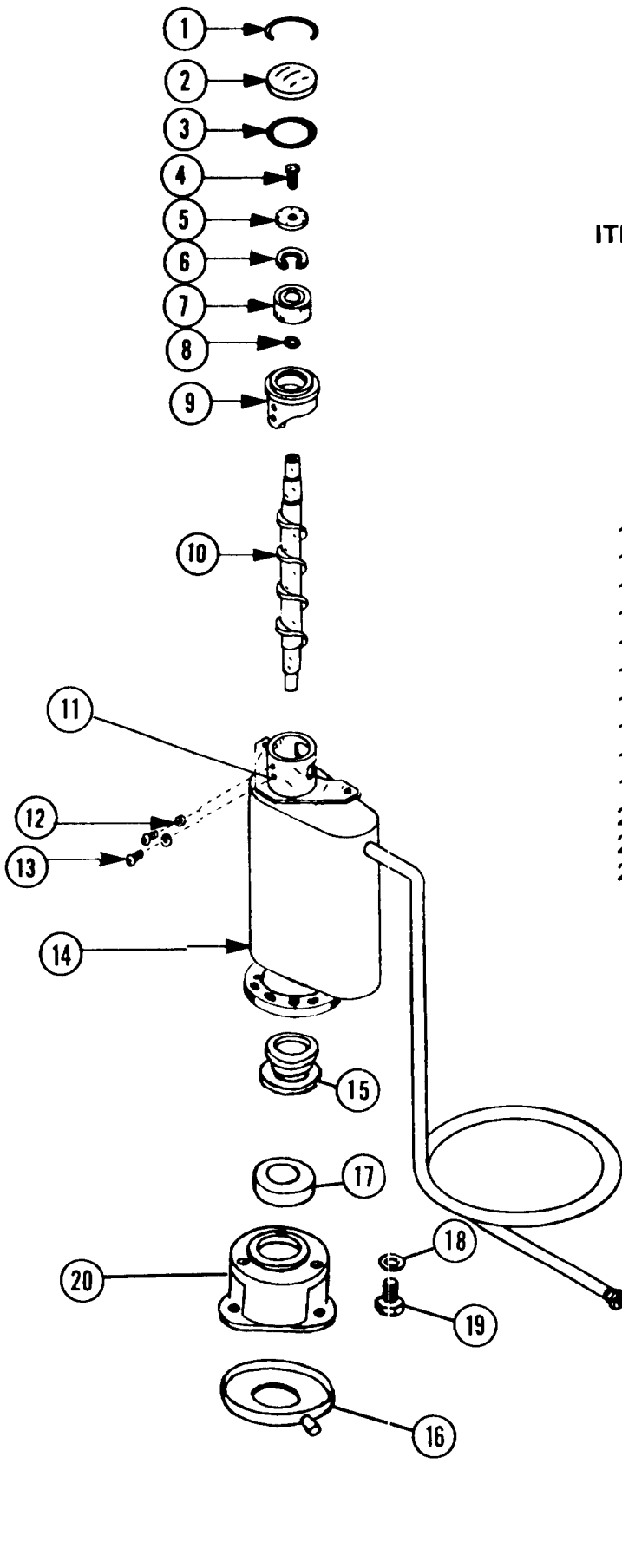
ITEM NO. PART NO. DESCRIPTION

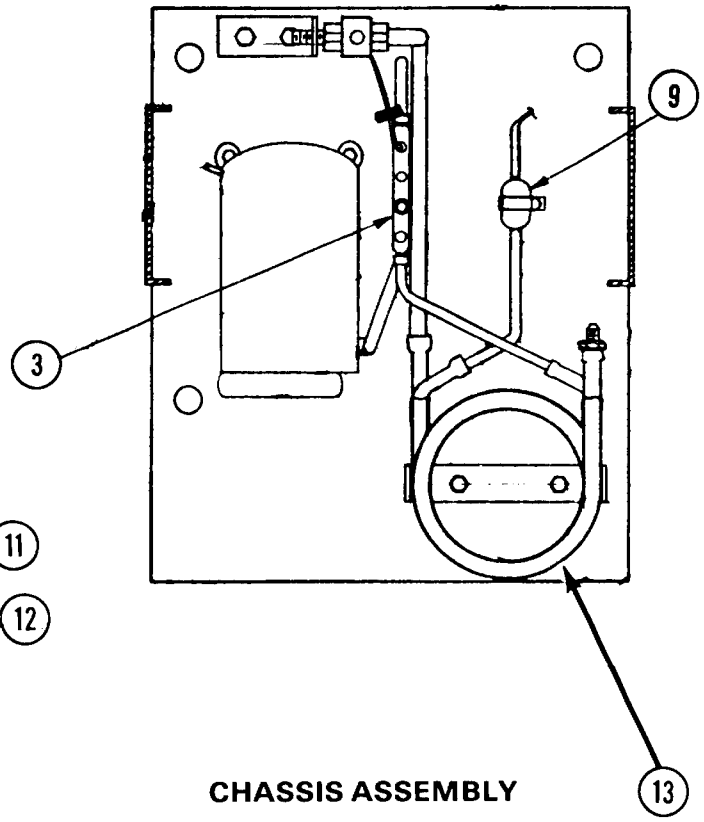
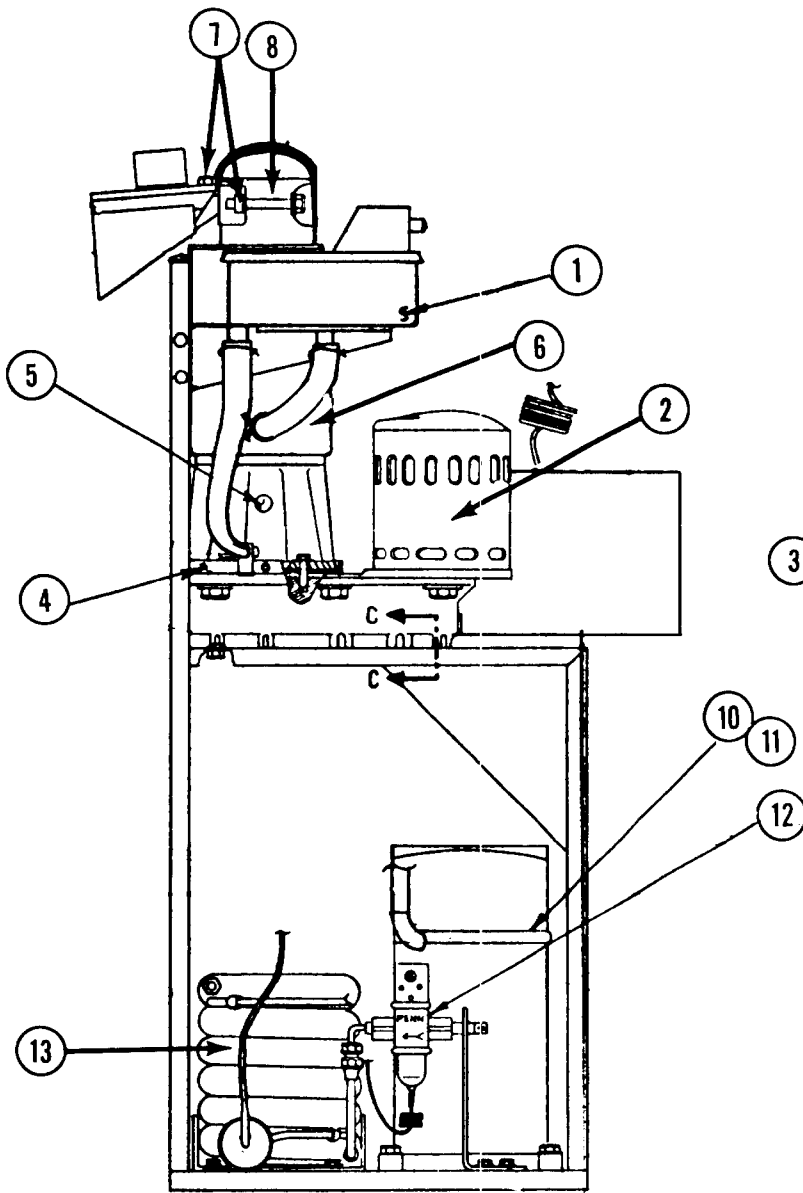
1.	A26455-001	Drive Motor 115/60/1
2.		
3.	13-0709-02	Water Shed
4.	02-1607-00	Oil Seal
5.	03-1251-01	Screws (6 Req'd)
6.	02-1606-00	Oil Seal
7.	A22200-000	Gear Case Cover Assembly
8.	02-1681-00	Thrust Race (2)
9.	03-1363-00	Retaining Ring
10.	02-1652-00	Output Shaft:
11.	03-1364-00	Key
12.	02-1653-00	Output Gear
13.		
14.	02-1680-00	Bearing
15.	02-1679-00	Thrust Race
16.	03-1408-24	Washer (9 Req'd)
17.	02-1604-00	Second Gear and Third Pinion Assy.
18.	02-1603-00	First Gear and Second Pinion Assy.
19.	A26103-001	"O" Ring
20.	A22199-000	Gear Case Assy.



**FREEZER ASSEMBLY
SF2A**

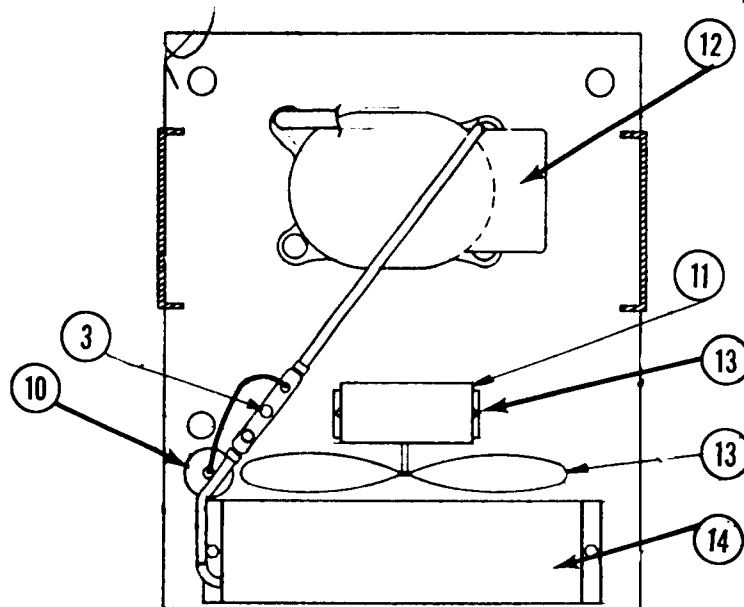
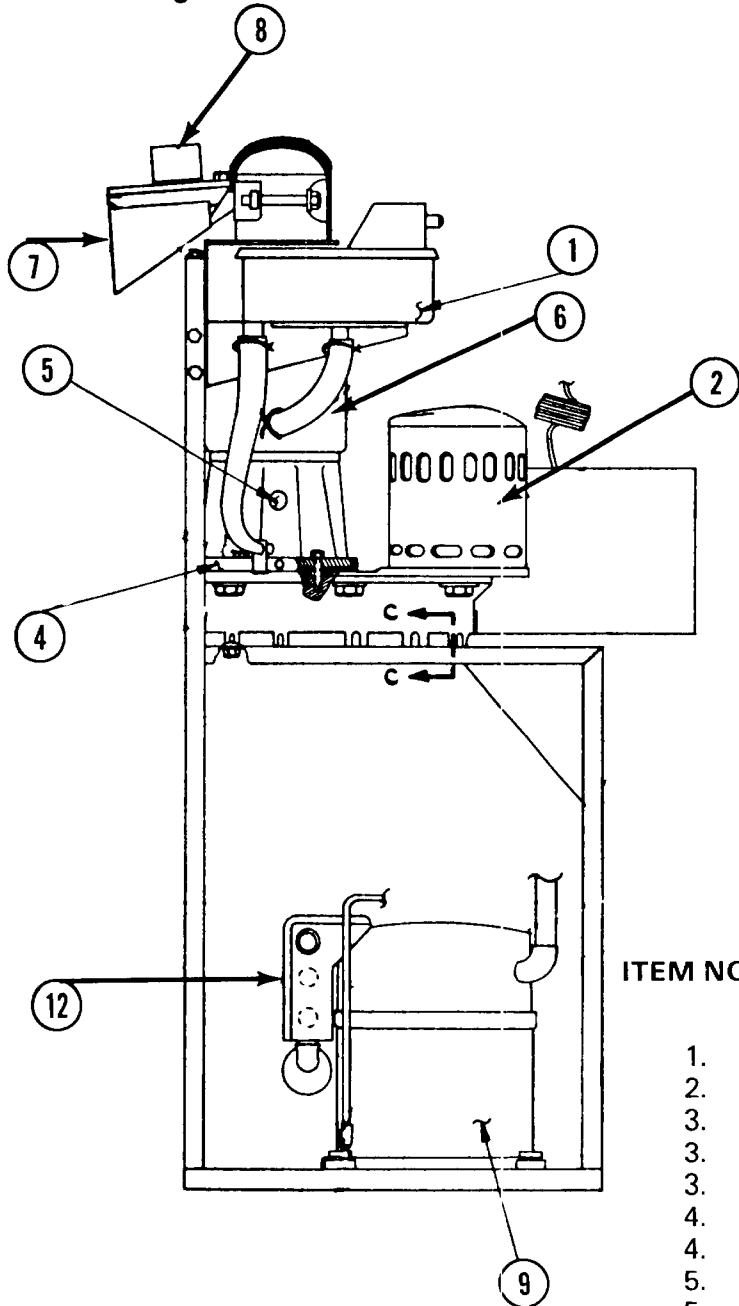
ITEM NO.	PART NO.	DESCRIPTION
1.	A08582-000	Cap Hook
2.	A08581-000	Cap
3.	13-0617-20	"O" Ring
4.	03-1405-36	Cap Screw
5.	A06273-000	Washer
6.	03-1558-04	Snap Ring
7.	02-0646-000	Bearing
8.	13-0617-15	"O" Ring
9.	A26704-001	Breaker with Bearing
10.	02-0617-00	Auger
11.	A18431-000	Spout Plate
12.	A26679-001	Worm Tube — Suction Line
13.	03-1410-03	Washer
14.	03-1403-48	Screw
15.	A22569-000	Water Seal
16.	A24156-001	Drip Pan
17.	02-0619-00	Lower Bearing
18.	03-1410-4	Washer
19.	03-1405-41	Screw
20.	02-1629-00	Adapter
21.	15-0573-01	Drive Coupling
22.	13-0709-02	Shaft Drip Shield Rubber





CHASSIS ASSEMBLY
SF2A WATER COOLED

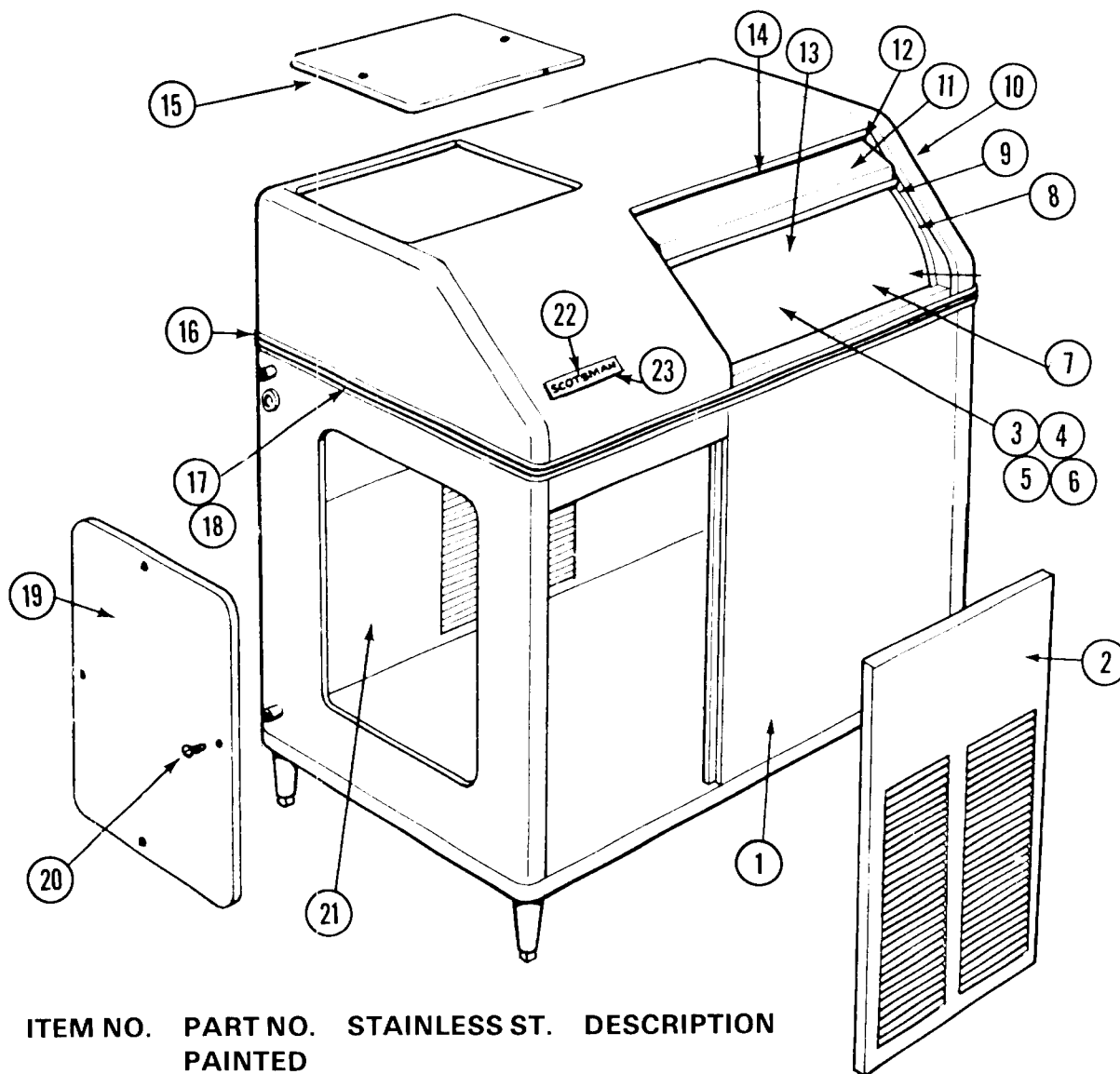
ITEM NO.	PART NO.	DESCRIPTION
1.	02-2217-01	Water Reservoir
2.	A22750-021	Gear Motor Assy.
3.	16-0673-08	Process Header
3.	16-563-00	Brass Cap
3.	16-0560-00	Valve Core
4.	A24156-001	Drip Pan
4.	13-0704-00	Gasket
5.	02-1629-00	Fiber Adapter
5.	15-0573-01	Coupling
5.	03-1405-41	Screws Into Gear Motor (4)
5.	03-1417-13	Lockwashers For Above
6.	See Breakdown	Freezer Assy.
7.	A14256-000	Knurled Nut
7.	A14269-000	Front Spout Casting
8.	03-1403-55	Screws Thru Casting Halves
9.	02-0544-01	Drier
10.	18-1900-01	Compressor
11.	18-2400-25	Overload
11.	18-2410-00	Relay
11.	18-2420	Start Capacitor
12.	11-0198-02	Water Regulating Valve
13.	18-3305-02	Condenser



CHASSIS ASSEMBLY

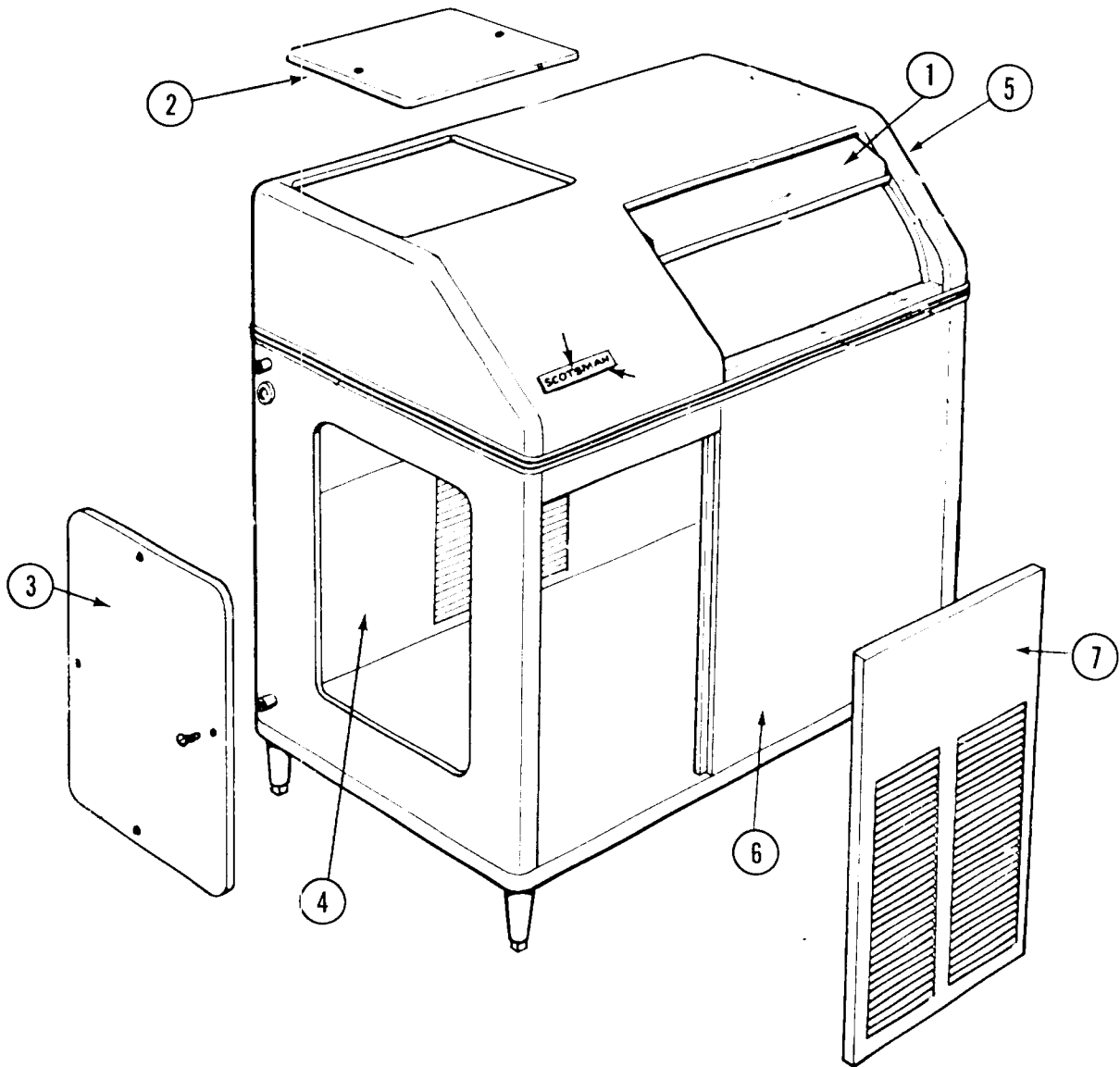
SF2A AIR COOLED

ITEM NO.	PART NO.	DESCRIPTION
1.	02-2217-01	Water Reservoir
2.	A22750-021	Gear Motor Assy.
3.	16-0673-04	Process Header
3.	16-0563-00	Brass Cap
3.	16-0560-00	Valve Core
4.	A24156-001	Drip Pan
4.	13-0704-00	Gasket
5.	02-1629-00	Fiber Adapter
5.	15-0573-01	Coupling Assembly
5.	03-1405-41	Screws Into Gear Motor (4 ea.)
5.	03-1417-13	Lock Washer For Above
6.	See Breakdown	Freezer Assy.
7.	A16350-000	Spout
8.	12-1018-00	Spout Micro Switch
9.	18-3900-01	Compressor 115/60/1
9.	18-3900-02	Compressor 208/230/60/1
10.	02-544-01	Drier
11.	12-1576-01	Fan Motor
12.	18-2420-00	Capacitor 115V
12.	18-2421-00	Capacitor 208-230V
12.	18-2410-00	Relay 115V
12.	18-2200-34	Relay 208-230V
12.	18-2400-25	Overload (115V)
12.	2400-26	Overload 208-230V
13.	18-0363-00	Fan Blade
13.	A25548-001	Motor Mount
14.	18-0396-01	Condenser
14.	A23825-001	Condenser Shoud



ITEM NO.	PART NO.	STAINLESS ST.	DESCRIPTION
2.	A20288-008	A20288-001	Case Assy.
2.	A15793-008	A15793-002	Front Door
3.			Drain Assy
4.	13-0617-11		O-Ring
5.	02-1741-00		Drain Top
6.	02-1742-00		Drain (Bottom)
7.	A19736-000		Storage Bin. Assy.
8.	A16208-000		Door Glides (Door)
9.	03-1195-00		Door Glides (Hood)
10.	A20992-008,	A20992-001	Case Hood Assy.
11.	02-1735-01.	A15559-001	Sliding Door
12.	A16208		Door Track
13.	03-1415-00		Bulb Holder
14.	02-1736-00		Door Stop
15.	A07676-005,	A07676-00S	Top Door
16.	A05829-000		Rear Trim Strip
17.	15-0324-00		Plastic Moulding Strip
18.	S06413-000		Front Moulding Strip
19.	S06713-008,	S06713-00S	Side Door
20.	03-1419-09		Screw S.S.
21.	A08741-008,	A08741-00S	Rear Door
22.	15-0156-00		Emblem
23.	03-0271-00		Speednut

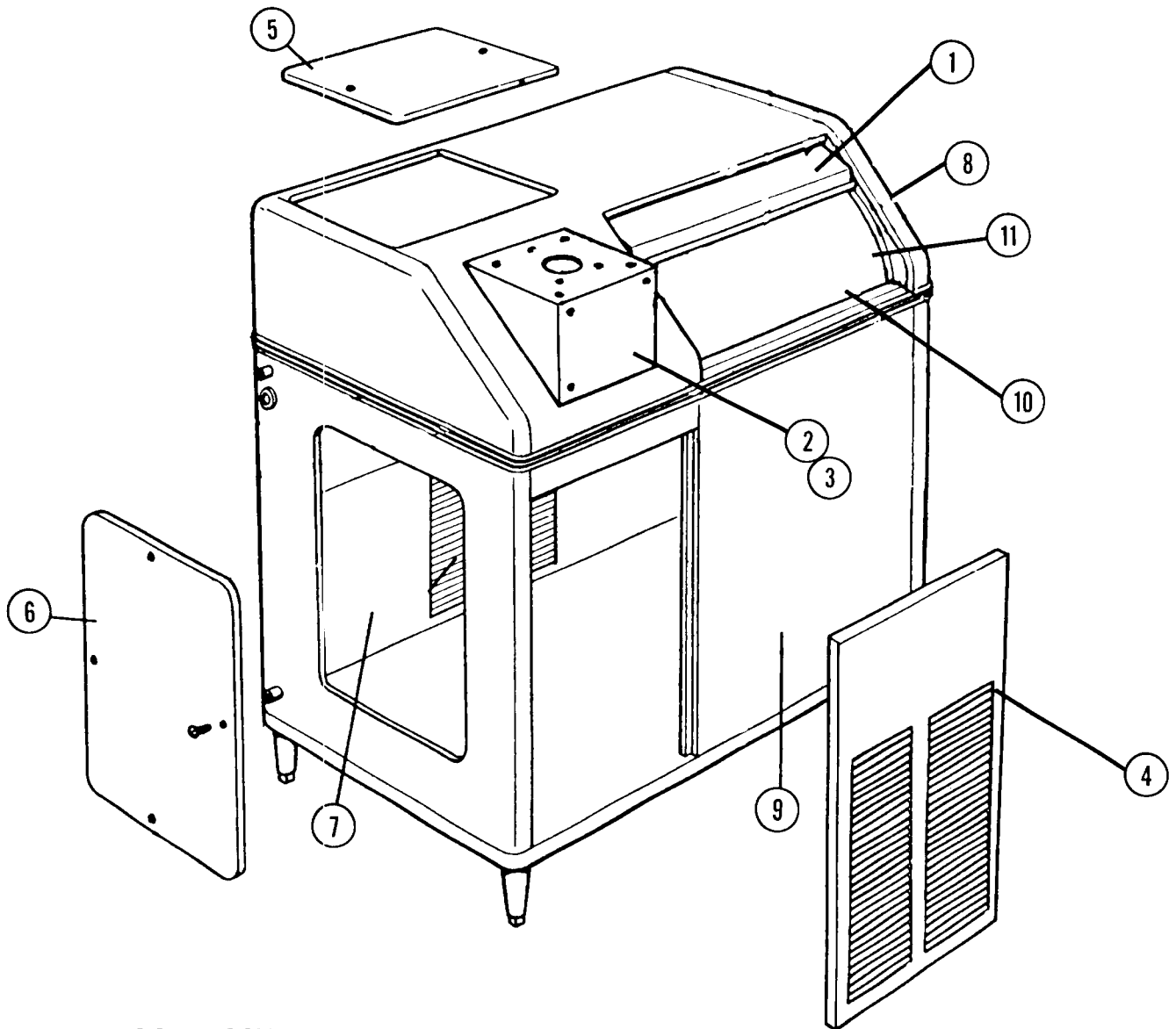
PH2-A CASE & HOOD ASSY.



ITEM NO.	PART NO.	DESCRIPTION
1.	02-1735-01	Ice Access Door
2.	A07676-005	Top Service Door
3.	S06713-008	Side Door
4.	A08741-008	Rear Door
5.	A20992-008	Case Hood Assy.
6.	A20288-010	Case Fab Assy.
7.	A21250-008	Front Door Panel

*All other parts are common to SF2A Model Flaker.

Model PH2A is for Pizza Hut units.



CC2-A CASE HOOD ASSY

ITEM NO.	PART NO.	DESCRIPTION
1.	A15559-000	Ice Access Door
2.	A17497-000	Cover
3.	A18001-000	Top Mounting Plate
4.	A21250-001	Front Door Panel
5.	A07676-002	Top Service Door
6.	S06713-001	Side Door
7.	A08741-001	Rear Door
8.	A20994-000	Case Hood Ass'y.
9.	A20288-002	Case Fab Ass'y.
10.	A18207-000	Cold Plate Support
11.	A19738-000	Storage Bin

Model CC2A is for Coca Cola units - Red Painted Cabinet

SERVICE ANALYSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Unit will not run	Blown Fuse Thermostat set too high Loose electrical connection Switch in OFF position Inoperative master switch	Replace fuse and check for cause of blown fuse. Adjust thermostat. 35° cut-out and 45° cut-in. Check wiring. Turn switch to ON. Replace switch.
Compressor cycles intermittently	Low voltage Dirty Condenser Air circulation blocked Inoperative condenser motor Non-condensable gases in system	Check for overloading. Clean. Move unit to correct. Replace. Purge off.
Making wet ice	Surrounding air temperature Under or over-charge of refrigerant High water level in water reservoir Faulty compressor	Correct or move unit to cooler location. Recharge with the proper amount. Lower to ¼ inch below overflow pipe. Repair or replace.
Low ice production	Loss of refrigerant, under or over-charge of refrigerant. Dirty or plugged condenser Low water level in water reservoir Partial restriction in capillary tube or drier Inlet water strainer partially plugged. Corroded or stained worm shaft due to water condition.	Check and recharge with proper amount of refrigerant. Clean condenser Adjust to ¼ inch below overflow pipe. Moisture in system. Overcharge of oil in system. Remove charge and drier. Replace and recharge system. Remove screen and clean. Remove worm shaft and clean
Machine runs but makes no ice	Loss or under-charge of refrigerant Drive gearmotor or drive coupling stripped. Water not entering freezing chamber Moisture in system Water seal leaking Water supply to unit off	Check for leaks and recharge Check. Repair and/or replace. Plugged strainer or supply line. Check and clean. Air lock in gravity feed line. Check and remove air lock. Check and remove charge and drier. Replace and recharge. Replace seal Restore water supply to icemaker.

SERVICE ANALYSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Water Leaks	Defective water seal Gravity feed line leaking 'O' ring in spout casting leaking Storage bin drain & connecting fittings leaking. Water level in reservoir too high	Replace. Check hose clamps Remove spout casting and install new 'O' ring. Check and repair. Adjust to ¼ inch below overflow pipe.
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. Gear motor loose on frame Gearmotor end-play or worn bearings.	Remove and manually polish auger, polish inner chamber walls of freezer barrel. For lighter concentrations use Scotsman Ice Machine Cleaner periodically. Add gas to raise suction pressure. Check & clean water strainer. Check gravity feed line for air lock. Remove air lock Adjust to ¼ inch below overflow pipe. Tighten Repair or replace.
Machine continues to run with full storage bin	Storage bin thermostat not properly set.	Reset or replace. 35° cut-out, 45° cut-in Check operation with handful of ice.
Gearmotor noise	Low on oil	Remove case cover to check for proper oil level. Top of gears should be covered. Use Sun Oil Co. Prestige 50 EP.

MAINTENANCE INSTRUCTIONS — FLAKERS

THE FOLLOWING MAINTENANCE SHOULD BE SCHEDULED THREE TIMES PER YEAR ON ALL SCOTSMAN FLAKERS. CALL YOUR AUTHORIZED SCOTSMAN SERVICE DEPARTMENT.

1. Check and clean water strainers and float valve. Depress float valve to insure full stream of water.
2. Check water level and machine level, keep water level below overflow, but as high as possible and still not run out of spout opening with machine off. Water droplets come out of spout with ice at all times. Adjust as required.
3. Clean reservoir and interior of freezer using SCOTSMAN Ice Machine Cleaner.
 - A. If machine has been cleaned regularly and no problems such as dry ice or chatter are noticed, clean as per the following instructions:
 - a. Set main switch to OFF.
 - b. Remove all ice from storage bin.
 - c. Turn off water supply or block float. Drain reservoir.
 - d. Set main switch to ON and pour cleaning solution into reservoir. Do not fill above overflow tube.

Use 6 oz. of Scotsman cleaner and 1-1/2 qt. hot water.
 - e. Continue to make ice on solution until the solution is used up and reservoir is empty.
 - f. Set main switch to Off. Wash and rinse reservoir, turn water on or remove float block.
 - g. Turn MAIN SWITCH to ON. Let unit run for at least (15) minutes to flush out any cleaning fluid. Check ice for acid taste. — run until ice tastes sweet.
 - h. Turn MAIN SWITCH to OFF. Add hot water to ice bin, using this melt water, thoroughly wash and rinse all surfaces within the storage bin.
 - i. Turn MAIN SWITCH to ON. Replace Service Door. Unit is ready for normal operation.

NOTE: Cleaning requirements vary according to local water conditions. Visual inspection of the auger before and after cleaning will indicate best procedure to be followed in local areas.

4. Check high and low side pressures. On air-cooled models head pressures range between 130 and 145 PSI. Suction pressure should be above 12 PSI and will range up to 15 PSI depending upon water and ambient temperatures.
5. Check gearmotor operation. Normal running temperatures are in the area of 160° Fahrenheit, which is hot to the touch.
6. Check top bearing of freezing tube. Remove retainer ring around edge of stamped brass cap. If moisture is around bearing, wipe up and remove grease. Add new grease. Replace cap and retainer ring.
7. Clean air-cooled condenser. Inform customer to clean frequently. Always shut off machine when cleaning.
8. Oil condenser fan motor when possible.
9. Check for refrigerant leaks and proper frost line. Should frost out of accumulator at least one-half way to compressor, and in some areas back to service valve.
10. Check for water leaks. Tighten drain line connections. Run water down bin drain line to make sure it is open.
11. Check quality of ice. Ice should be wet when formed, but will cure rapidly to normal hardness in bin.
12. Check thermostat and pressure plate cut off in spout. Microswitch cuts off only compressor. Bin thermostat should be set at 10° differential = 35° cut out, 45° cut in.

CARE OF STAINLESS STEEL STORAGE BIN LINERS

All commercial grades of stainless steel will corrode or rust when in contact with certain chemicals or salts. **One element that attacks stainless readily, is chlorine**, and most compounds of chlorine, such as hydrochloric acid, and certain salts containing chlorine. The "speed" with which this corrosion takes place depends on the concentration of the chlorine, and the length of time it is left in contact with the stainless steel.

ICE BIN LINER RUSTING

In many ice bin applications, **a rust stain, or brown deposit, will appear at the top of the side and rear walls of the bin liner, and also on any exposed stainless parts inside the bin, which do not normally get covered with ice; such as stainless steel door back pans.** The lower portions of the liner walls usually stay clean if the bin is being used regularly, due to the "washing" action of the ice and meltage water draining down these walls. This brown staining on the liner may appear more rapidly in some installation than other, depending on the way the ice is being made in the ice machine, and the water conditions.

This staining or rusting, can come from basically two sources:

- 1. Foreign materials** — For example, many ice machine casings are made of painted steel. If this steel should be exposed at the joint where the ice machine sits on the bin, it could rust, and the rust stain could "drip" down the liner walls. Also, particles of plain steel could fall down into the bin and, in turn, start rusting.
- 2. Materials expelled during ice making** — Practically all icemakers produce clear ice by "freezing out the impurities" normally found in tap water. Chlorine gas, other gases and solids, are expelled during the making of ice. Being heavier than air, these foreign materials drop down into the bin through the same opening that the ice enters the bin. (This oftentimes explains why this staining is more noticeable on an installation where the opening on the bottom of the ice machine is quite large). **The chlorine gas will combine with water vapor and condense on the liner walls as a mild hydrochloric acid.** Above the normal ice level, this never gets removed by the action of the ice, and will eventually form a brown stain.

CLEANING OF A STAINLESS STEEL BIN LINER

Because the brown staining or rusting is due to expelled material during ice-making, **every bin liner should be cleaned periodically**, to prevent this staining from causing pitting of the stainless steel. The time between cleanings will depend on the water conditions, type of ice machine, etc. **It may be necessary only every 3 to 6 months.**

1. **General Cleaning** — When the staining is light, it can usually be removed by washing with ordinary cleaning powder, such as Bon-Ami, or Copper-Glo, and water. (Do not use cleaners that contain bleaching agents, as most of these are compounds of chlorine.) After cleaning, rinse thoroughly with clear water.

It may be necessary to use a stainless steel wool to remove bad stains. **DO NOT USE plain steel wool**, as the steel particles will get imbedded in the liner and cause more serious rusting.

2. **Cleaning of heavy deposits** — If the liner has not been cleaned for a long time, and heavy deposits and pitting have occurred, a chemical cleaner may be necessary. Several of these are as follows:

Oakite No. 33, Oakite Products, Inc., 19 Rector St., New York, N.Y. Texo No. 12, and Texo-NY, Texo Corp., 2200 Dana Ave. Cincinnati 7, Ohio. Metalprep No. 10, Nelson chem. Co., 6564 Benson St., Detroit 7, Mich, Dilac, Diversey Corp., 1820 Roscoe St., Chicago 13, Illinois.

A solution of one part cleaner and two parts water is used. First, wash the bin liner thoroughly with water and soap as described above. Then simply swab the solution on the area to be cleaned, and allow to stand for about 20 minutes. Rinse with clear water. If this doesn't completely remove the deposit, repeat the procedure.

Synthetic rubber gloves should be used by the operator, and goggles and aprons are advisable even though the solution is relatively nonhazardous.

These cleaners may possibly harm paint, wood, or fabrics. They will probably cause a dull grey color on galvanized steel and should not be allowed to remain long in contact with rubber. Therefore, provision should be made to avoid contact with such materials when cleaning stainless.

3. **Protection of Stainless Steel against further staining** — After the stainless steel has been cleaned, installations where the staining is recurring so frequently, the surface should be rejuvenated. This process restores the characteristic to the surface of the stainless, that best prevents corrosion.

First, be sure that the liner is clean and is thoroughly rinsed with water. Then use a nitric acid solution of two parts water to one part nitric acid (by volume). Swab this on the liner and allow to stand for about 30 minutes. Rinse the liner with clean water. This will then provide maximum corrosion resistance.