

# TABLE OF CONTENTS

## SF-8 MANUAL

FOREWORD	Page
TABLE OF CONTENTS	
SPECIFICATIONS	
How the SF-8 Flaker Works	1
Mechanical Specifications	2
Ice Capacity Chart and Photos	3-4
INSTALLATION	
Uncrating	5
Location	5
Bin Selection	6
Stands	6
Erection	6
Plumbing	7
Tower Application	7
Electrical Specifications	8
Wiring Diagram SF-8 (fig. #3)	9
Wiring Diagram SF-8 (fig. #4)	10
Check List	11
SERVICE	
Starting Machine	12
General	13
Refrigeration System	13
Refrigerant Charge	14
Water System	14
Electrical	15-16
Refrigeration Cycle SF-8 (fig. #5)	17
Water Cycle (fig. #6)	18
Water Cycle (water tower application) (fig. #7)	19
MAINTENANCE	
Freezer Assembly	20
Chassis Front View	21
Chassis Side View	22
Reservoir Assembly	23
Gear Reducer	24
Flexible Coupling Assembly	25
Case Assembly	26
Reducer Grease Substitute Chart	27
Service Analysis	28-29
Maintenance Instructions	30
Parts List	31-33

## MECHANICAL SPECIFICATIONS

Input voltage	230/60/1	208 <del>220</del> /60/3
Compressor	5 HP Suction Cooled	5 HP Suction Cooled
Condensor	Water Cooled	Water Cooled
Refrigerant	R-12	R-12
Refrigerant Control	Twin Capillary Tube	Twin Capillary Tube
Compressor Motor	230/60/1	208 <del>220</del> /60/3
Worm Drive Motor	230/60/1	208/60/1
Amperage Rating		
Compressor Motor	19.5 Amps	15.00 Amps.
Worm Drive Motor	2.5 Amps	2.5 Amps.
Reducer Drive Motors	1/3 HP	1/3 HP
Freezer-Auger Speed	4 RPM	4 RPM
Water Consumption to produce ice used by condensor	22 gallons--1 hour Up to 8 gal. per minute	22 gallons--1 hour Up to 8 gal. per minute
Ice Capacity	See chart	See chart
Storage Capacity	Use remote bin	Use remote bin
Approximate water pressure drop* condensor	Flow rate Psi-Press. In GPM      Drop	
	1.0          2.5	Same
	3            8.5	Same
	4.5        17.1	Same
	6           28.0	Same
3/4" Water regu- lating valve	1.5	Same
	3            2.0	Same
	4.5        4.6	Same
	6           10.0	Same
Complete Unit wt.	1050 lbs.	Same
Shipping weight	1150 lbs.	Same

\*NOTE: Above Pressure Drops for standard hook-up. Pressure Drop can be reduced by splitting circuits through condensor and compressor.

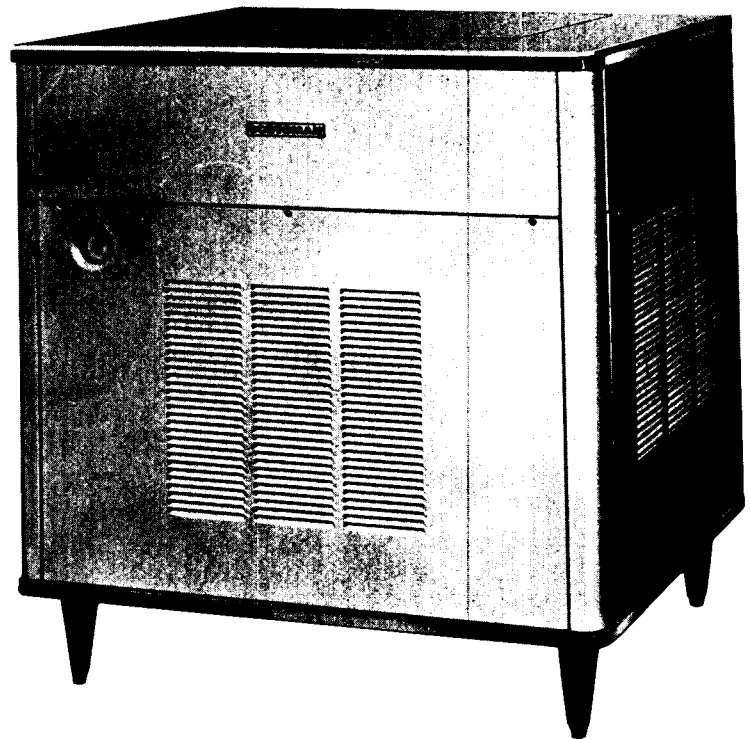
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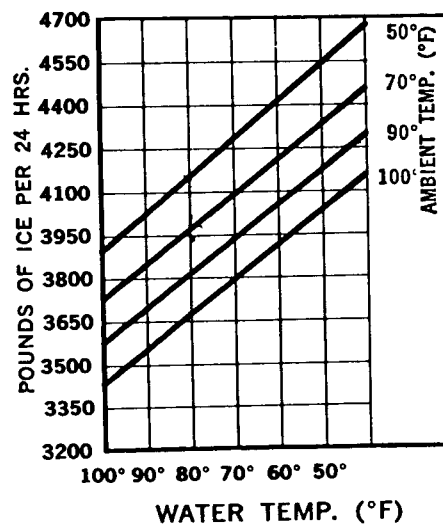
# SCOTSMAN®

## SUPER FLAKER SF-8 SERIES Continuous Flow



ice making capacity

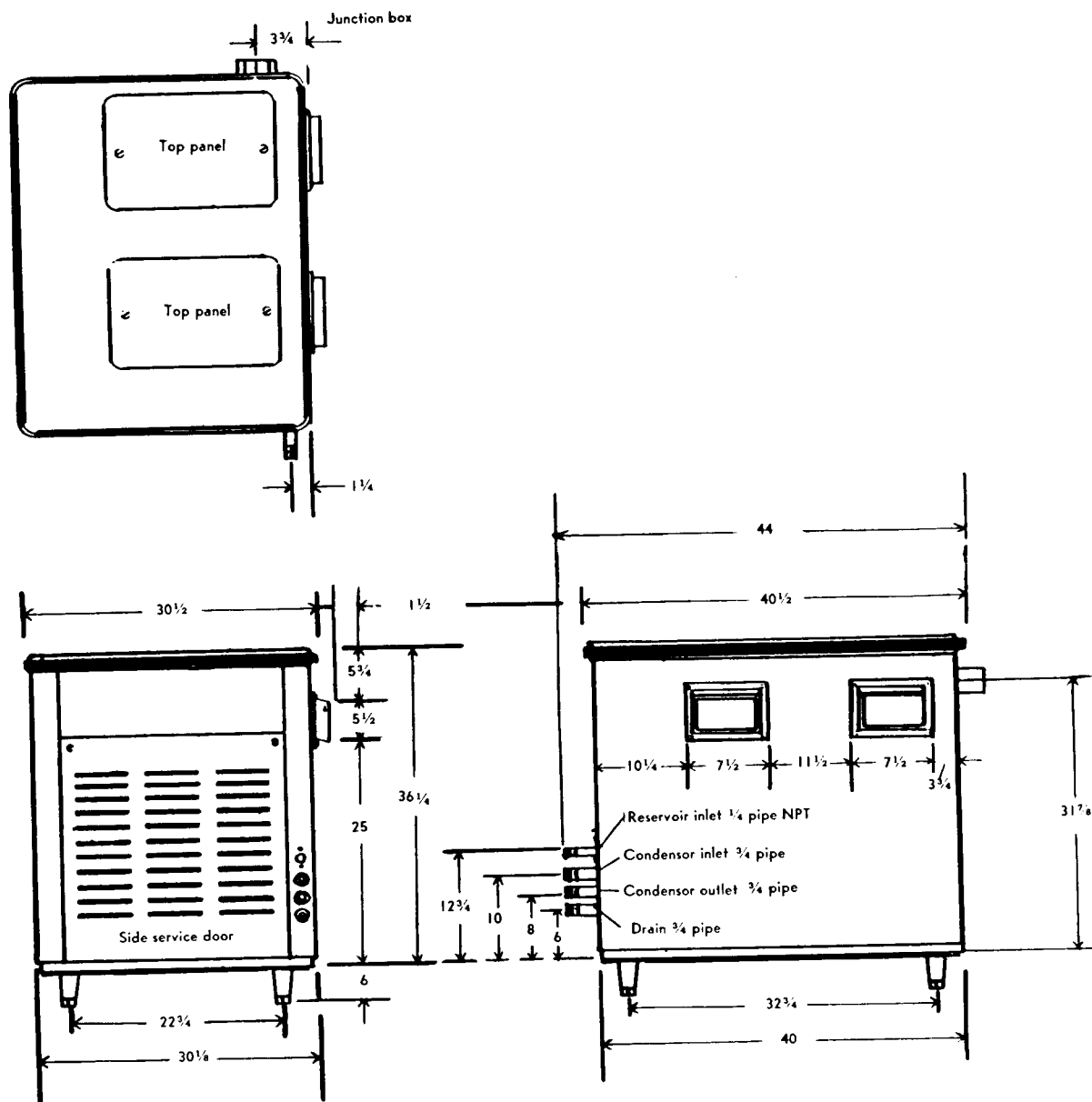
Water Cooled Models



# SPECIFICATIONS

## SUPER FLAKER SF-8 SERIES (Cont. Flow)

	MODEL SF-8WH	MODEL SF-8WH-SS
Daily capacity up to 4,500 lbs.	X	X
Water cooled condenser	X	X
Heavy duty 5 HP. Compressor	X	X
Heavy duty 1/3 HP. drive motors (2)	X	X
Standard 208-220 V, 60 cy, 3 ph	X	X
1/4" water inlet, reservoir NPT	X	X
3/4" water inlet, condenser NPT	X	X
3/4" condensate drain NPT	X	X
3/4" water outlet NPT	X	X
Stainless Steel Exterior		X
Hammerloid grey exterior	X	
42 1/4" height (with legs)	X	X
36 1/4" height (without legs)	X	X
44" width	X	X
32" depth	X	X
Approximate shipping weight	1050	1050



## INSTALLATION

### UNCRATING OF MACHINE

1. The complete machine comes in one crate. After the crate is removed, inspect for concealed damage. Remove the bottom skid by removing all bolts. Then cut all wires holding support packing from refrigerant line. Then loosen shipping bolts on the compressor. Be sure the compressor is floating free on spring mounts. Then check all refrigerant lines for rubbing or touching other surfaces. Also check for possible transportation damage.
2. Remove all service doors and panels.
3. Remove water reservoir cover and take out paper packing around float ball. Make sure plastic overflow standpipe is securely in place.
4. Remove leg packages in compartment base and install 4 legs in unit base sockets. Level unit with adjustable legs.
5. Loosen motor compressor hold down nuts until motor compressor rides freely on mounting springs.
6. Remove water strainer from storage package for installation 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.
9. Remove warranty card and service manual from storage bin. Fill out warranty card completely including model and serial numbers as taken from aluminum plate found behind front service panel and forward to Scotsman Factory, using self-mailing card.

## INSTALLATION

1. Bins. Care should be exercised in proper bin selection. Too small a bin will give unsatisfactory performance. A bin should have a minimum of 1/2 of machines capacity per day, when the machine shuts off on thermostat. Make sure that users demands are met, by proper bin as well as by proper machine selection. Plan relative location of the machine, so as to enter the bin as close to the top as possible. An upper and a lower access door should be provided in all bins. Bins should also be higher than their width and length dimensions, so that the maximum ice can be stored in the minimum cubic feet of space. A bin designed in this fashion, will be the most convenient to the user. Too large a bin can also cause trouble. Excessive melting of ice will occur if the bin is larger than required. Proper bin selection is important to the success of the ice machine installation.
2. Stands. A special stand should be built if the machine is located beside the bin. Care should be exercised in making the stand strong enough to support the weight. In designing the stand, plan for servicing of the machine from front, top and sides. It is also possible to locate the machine on top of the bin. Care should be used in selecting a bin that has been specially reinforced. Standard bins are usually not sufficiently reinforced for this purpose. An unsteady platform will cause excessive vibration. Specially built bins can provide proper support and allow for a servicing platform.
3. Erection. For elevations in excess of four feet, or in close quarters, chain falls should be used. Three men will usually be necessary, unless an easy installation is encountered. For locations under four feet the use of skid boards and rollers is practical.
4. Bin Thermostat. Locate the thermostat bulb as high as possible in the bin and still allow the machine to cut off before ice builds up in the chute. If this occurs, ice can stick in the chute, keeping the machine off, after there is a need for ice production. The capillary can usually enter through the chute opening. Keep the bulb and the capillary line away from shovels.
5. Ice Chutes. If the outlet of the machine is remote from the bin, a chute will be required. Stainless steel is an excellent material for this purpose where its cost is not prohibitive. Angles or ledges of less than 45° should not be used. Ice will cling to this surface and either melt excessively or jam in the chute. The sharper the drop the better. If straight down, do not insulate, unless necessary.

FOR INSTRUCTIONS TO REMOTE AIR COOLED CONDENSOR, CONTACT SERVICE DEPT. --QUEEN PRODUCTS DIV. KING-SEELY THERMOS CO. ALBERT LEA, MINNESOTA.

## INSTALLATION

### WATER SUPPLY

Separate water supplies are recommended.

A. Freezer or ice making supply water should be run through a hand shut off valve before entering unit. Freezer supply water connection is top connection in drain and hook up assembly. Has a 1/4" N.P.T. female pipe casting. This line also has factory installed water strainer internally mounted.

Connect to a good cold water supply with minimum 1/2" O.D. copper line for short run, 5/8" O.D. copper line for long runs. A check valve on this line will be required in some cities depending on local plumbing codes.

B. The condensor water supply line connects to the 3/4" female pipe casting on machine. Use care in connecting water line to the machine. Incoming water goes through the water regulating valve first and then to the water cooled condensor. 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.

If tower is used several precautions should be observed.

1. Leave water regulating valve in the system.
2. Separate the make-up water for the reservoir from the tower water. Only city water should be used for ice making.
3. Use 3/4" tower water lines or larger, depending on the length of run. Over 30 feet -- use 1" OD lines.
4. Notice: A tower can freeze in the wintertime and the Scotsman flaker will be in operation 12 months per year. An indoor tower and pump can be used with outdoor air ducted in and out, if the fan cycles on water temperature to prevent freezing. An indoor sump can be used. An auxiliary tower and city water hook-up will prove satisfactory in some climates. City water in the winter and tower water during the summer. Consult your tower and pump manufacturers for proper sizing. In no event should less than a nominal 3 to 4 ton tower, or less than a 3/4 HP high pressure tower pump be used.

### DRAIN (when not re-used)

The recommended condensor waste is 3/4" OD copper tubing. Must be run to an open, trapped vented drain. If drain is a long run, allow a 1/4" pitch per foot. Drain must be installed to conform with local code. Condensor drain is a low pressure drain.





## ELECTRICAL SPECIFICATIONS

### ELECTRICAL INSTALLATION:

		<u>SF-8</u>	<u>SF-8-3</u>
Compressor	H.P.	5	5
	Voltage	230	208-220
	Amp. Rating	19.5	15.0
	Cycle	60	60
	Phase	Single	Three
Drive Motor	H.P.	1/3	1/3
	Voltage	230	208
	Amp. Rating	2.5	2.5
	Cycle	60	60
	Phase	Single	Single

### ELECTRICAL CONNECTIONS:

<u>SF-8</u>	<u>SF-8-3</u>
230 Volts	208 Volts
60 Cycle, 1 Phase	60 Cycle, 3 Phase
30 Amp. Circuit	30 Amp. Circuit

Be certain that the Super Flakers are on their 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 windings.

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

Special voltage requirements are available on special order. Therefore, always check nameplate for this information before checking electrical current.

# WIRING DIAGRAM SF-8

230/60/1

THIS UNIT MUST  
BE GROUNDED

50 AMP FUSES  
MAX

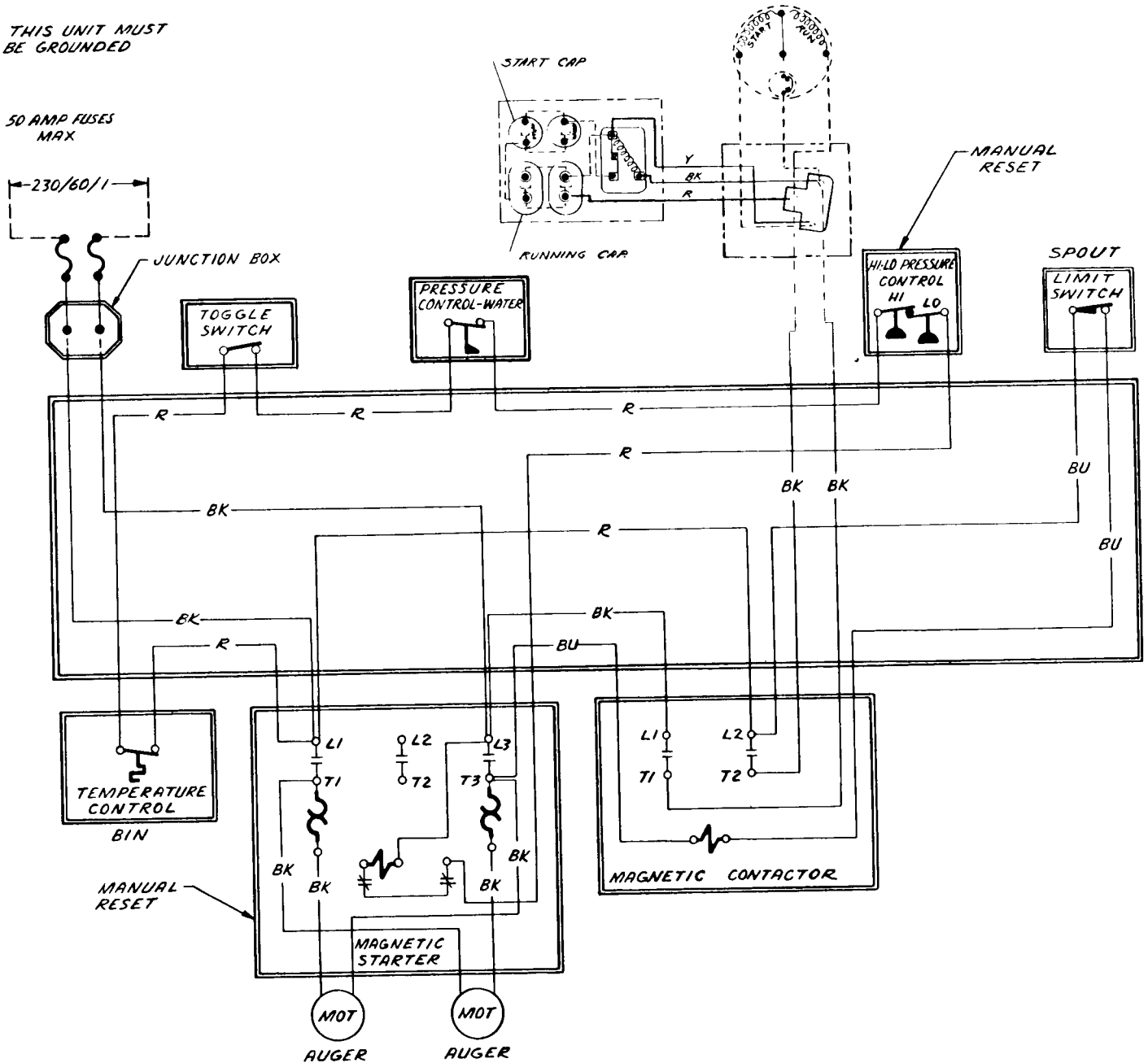


FIGURE # 3

# WIRING DIAGRAM SF-8.

208  
220 /60/3

THIS UNIT MUST  
BE GROUNDED

AC AMP FUSES  
MAX

208-220/60/3

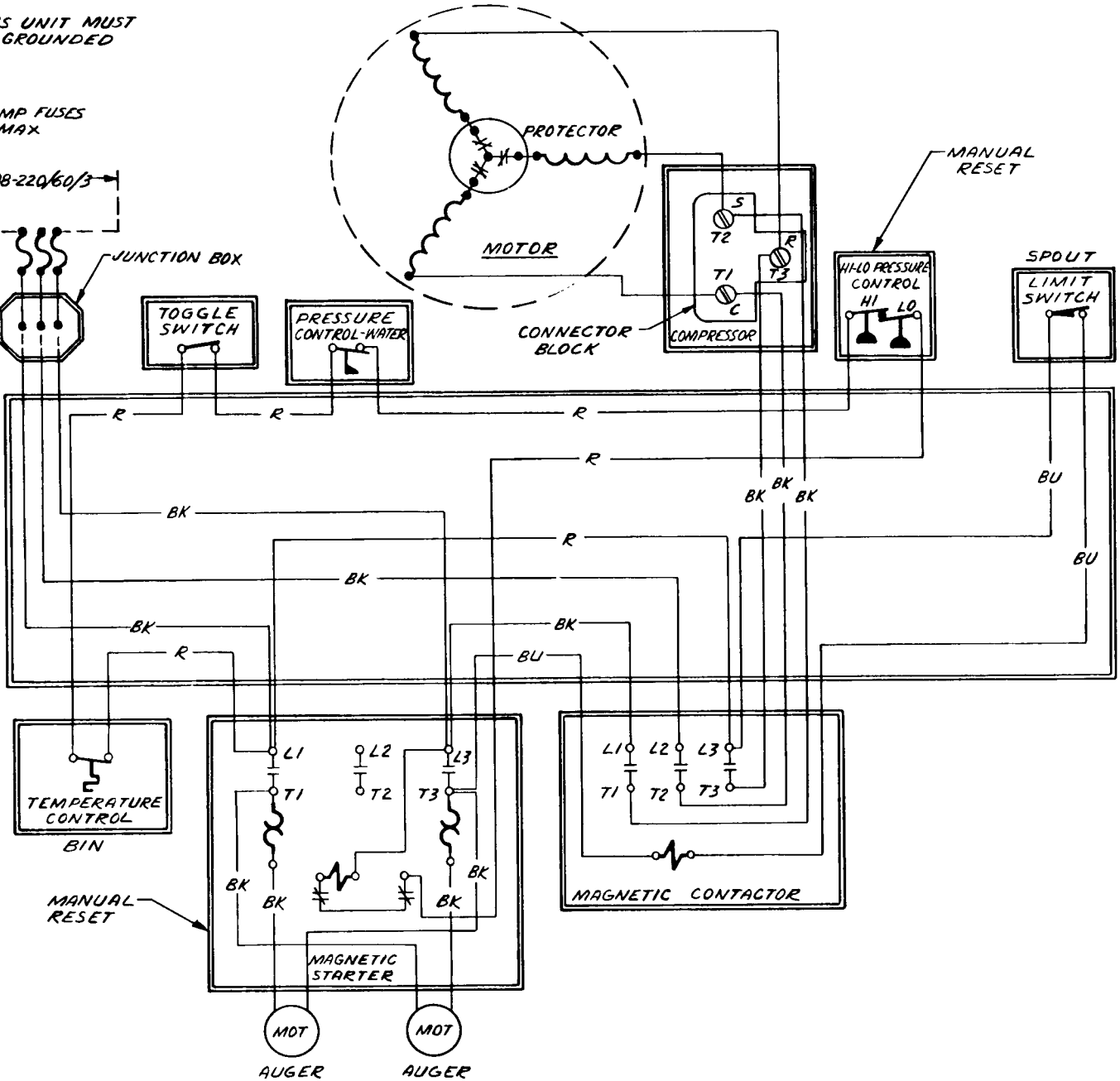


FIGURE # 4



## INSTALLATION

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### FINAL CHECK LIST

1. 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. Have the compressor hold-down bolts been loosened so the compressor rides freely on its mounting springs.
5. Is the water supply valve open and the electric power on?
6. Is the water reservoir filled and shut off?
7. Is the unit clean?
8. Has the owner been given the operating manual, and has he been instructed on how to operate the machine?
9. Have the installation and warranty cards been filled out? This is the owner's protection as well as the sellers.
10. Check all refrigerant and conduit lines to guard against vibration and possible failure.
11. Have you left your Business name and phone number in case of emergency calls?

## SERVICE

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### 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 pipe.

When this is completed, turn on the manual switch on the front of the cabinet and the machine is in automatic operation. In two or three minutes ice will start dropping off the worm shafts and out the ice chute. Let machine operate for at least 30 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 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 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 time of start-up. Set head pressure at 135 psi. Frost line should extend approximately 18" out of evaporators if properly charged with refrigerant and suction pressure will be near 14 psi with 70° F. inlet water.

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

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The Scotsman Super Flakers are well designed, ruggedly constructed, automatic Ice Machines. The Scotsman Super Flaker incorporates the simplest ice making principle ever developed and have proved to give years of trouble free service. However, like any refrigeration equipment, the better user and serviceman understand it, the better the machine will perform. This section of the manual is devoted to service.

### GENERAL INFORMATION

All models of the Super Flaker work on the same principle. The vertical freezing chambers are kept full of water by gravity feed lines from the water reservoir located in the machine compartment. A constant water level is maintained in the water reservoir by a float operated inlet valve. The freezing chambers are refrigerated around the outside by copper wound evaporator coil fed by a capillary tube refrigeration system. Inside the freezing chambers are stainless steel augers driven by a motor through a gear reducer. Connected by couplings, augers revolve at 4 RPM, carrying ice from the inner section of the freezing chambers, and extrudes the ice upward thru the top of the chamber for deposit in the storage compartment.

### REFRIGERATION SYSTEM (figure 5)

The Super Flaker model SF-8 is equipped with twin freezers and capillary tube systems, and is designed to operate at approximately 14 pounds suction pressure, 135 psi head pressure.

The freezing chambers on all models consist of an inner tube wrapped with a copper coil and enclosed by an outer shell. Refrigerant is fed in the wound evaporator at the top, traveling down through the coil, and out the bottom. The suction line is attached to the other tube and is not connected to the evaporator coil. The refrigerant travels back up the tube on the outside of the coil to the suction port, creating a highly efficient evaporator.

## SERVICE

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

To install gauges to any of these connections, replace 1/8 inch IP plug with 1/8 inch MPT x 1/4 inch flare half union. Purge free of any non-condensable gases before attaching gauges.

### REFRIGERANT CHARGE

The below refrigerant charge is approximate. When charging, set at 135 psi head pressure and charge so that frost line extends out of evaporators one half way to compressor after fifteen minutes of operation.

<u>Model</u>	<u>Refrigerant Charge</u>	<u>Oil Level</u>
SF-8	6 lb. R-12	Oil level should be kept at 1/3 way up sight glass. Do not fill over 1/2.

### WATER SYSTEM (Figures 6 and 7)

All models incorporate water failure switches in case of interrupted water supply to freezer assemblies.

The water system consists of a water reservoir installed in the top front side of the machine between the twin freezer assemblies. A water level is maintained in the water reservoir by a float operated valve. The water is piped from water reservoir to the freezing chamber by a gravity feed line maintaining an equal water level. A removable overflow pipe is installed in the water reservoir for cleaning the reservoir as well as preventing damage should the inlet water valve fail.

The water reservoir is equipped with a 2 inch air gap to prevent back siphoning and meet all health codes.

The water level in the water reservoir is adjusted by bending float rod linkage adjustment. The water level should be set 1/4 inch below the overflow pipe.

A water strainer is internally mounted by the factory.

## SERVICE

---

### ELECTRICAL SYSTEM

The electrical circuit consists of condensing unit, drive motor, hi-low pressure cut-out, storage bin thermostat, "on" and "off" switch, micro (safety) switches, water failure switch and starter switches.

#### A. Condensing Unit.

The compressor terminal box houses the motor compressor terminal block, and the motor overload Klixon. To gain access to the terminal box, remove the two screws holding the bevelled metal cover. On the single phase models the starting capacitors, running capacitors and starting relays are housed and fastened to the unit base.

#### B. Drive Motors .

Model SF-8 Flakers are equipped with standard 5/8 inch shaft, 1/3 HP, capacitor start, induction motors. These motors turn counter clockwise and may be replaced with any standard make motor corresponding to the nameplate rating. (Be sure motor runs counter clockwise viewed from the shaft end.)

#### C. High-Low Pressure Cut-Out. Hand Reset.

Ranco control is located on the frame assembly. Factory settings cut-out 2 lbs.--cut in-27 lbs. on low pressure and 180 psi on high pressure. This control prevents operation at low refrigerant pressures. Shuts off entire unit in case of water failure to condensor.

#### D. Storage Bin Thermostat.

Bin control is located on frame assembly. Factory settings 35<sup>o</sup> cut-out--45<sup>o</sup> cut-in. This control shuts off complete machine when ice in storage bin builds up to control bulb.



## SERVICE

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### E. Micro Safety Switch.

The micro switches are located in the top of the ice chutes. The switches are operated by a plate in top of the ice chute by the ice backing up in the chute should the storage bin thermostat fail. Either switch will shut off the condensing unit only, when operated.

### F. Magnetic Starters.

One Allen Bradley three phase starter and one contactor are used on both the SF-8 and the SF-8-3 phase models. The contactor serves the motor compressor and the starter is used for the drive motor. Using 3 phase starters on the single phase motors allows for an extra set of contacts and relays to facilitate field repairs and helps with the stocking problem when both 3 phase and single phase units are used.

### G. Couplings--Drive Motor to Gear Reducer.

Plastic high-speed couplings.

### H. Water Failure Switch (Reverse Acting).

This switch used as a safety device when low or interrupted supply water conditions are encountered. Operates on pressure between supply line and feed line to water reservoir. Range is 12# on, 5# off. Cuts off complete unit.

### I. Gear Reducers.

Winsmith Series (5) C.V.D. Double reduction-Overall reduction 44:1. Primary reduction 24.5 to 1--Secondary reduction 18 to 1/4 RPM on output shaft. Input (Hi speed) shaft size 5/8" with Keyway. Output (Slow speed) shaft size 1 1/4" with Keyway.

### J. Water Cooled Condensor.

Halstead & Mitchell. Two section, 3 HP rating. Cleanable. Tube in tube counter flow design. Available with tower plates.

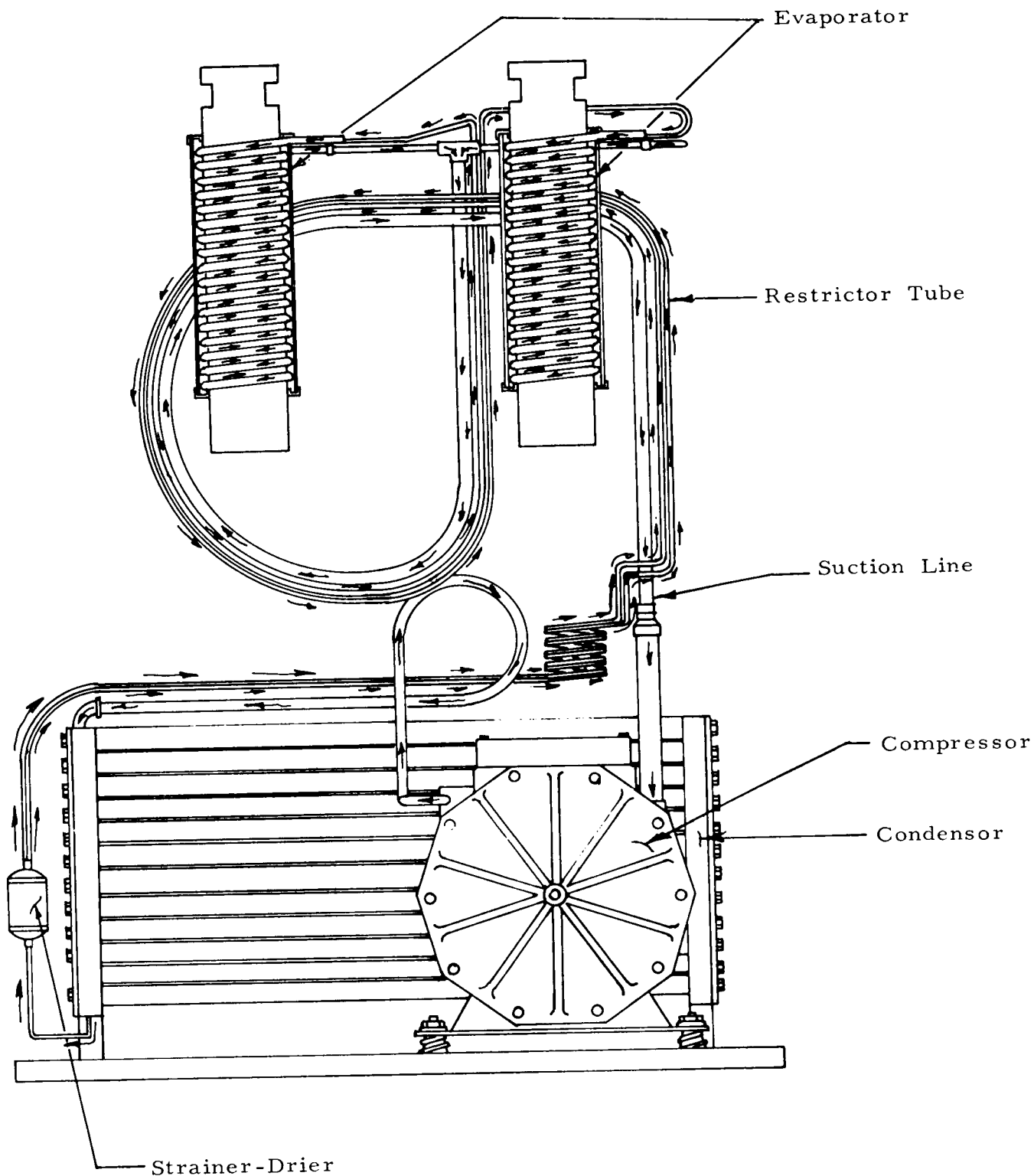
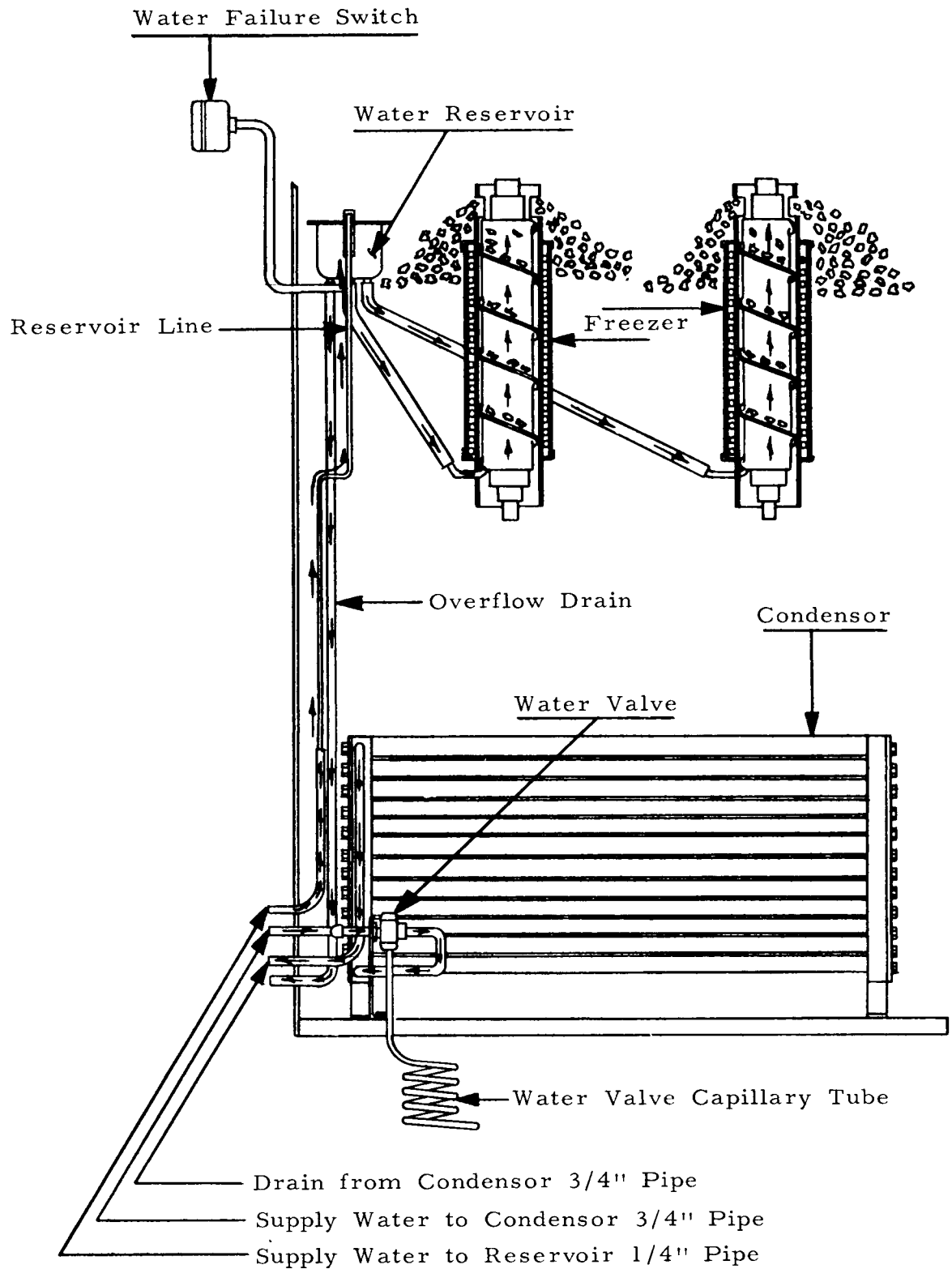
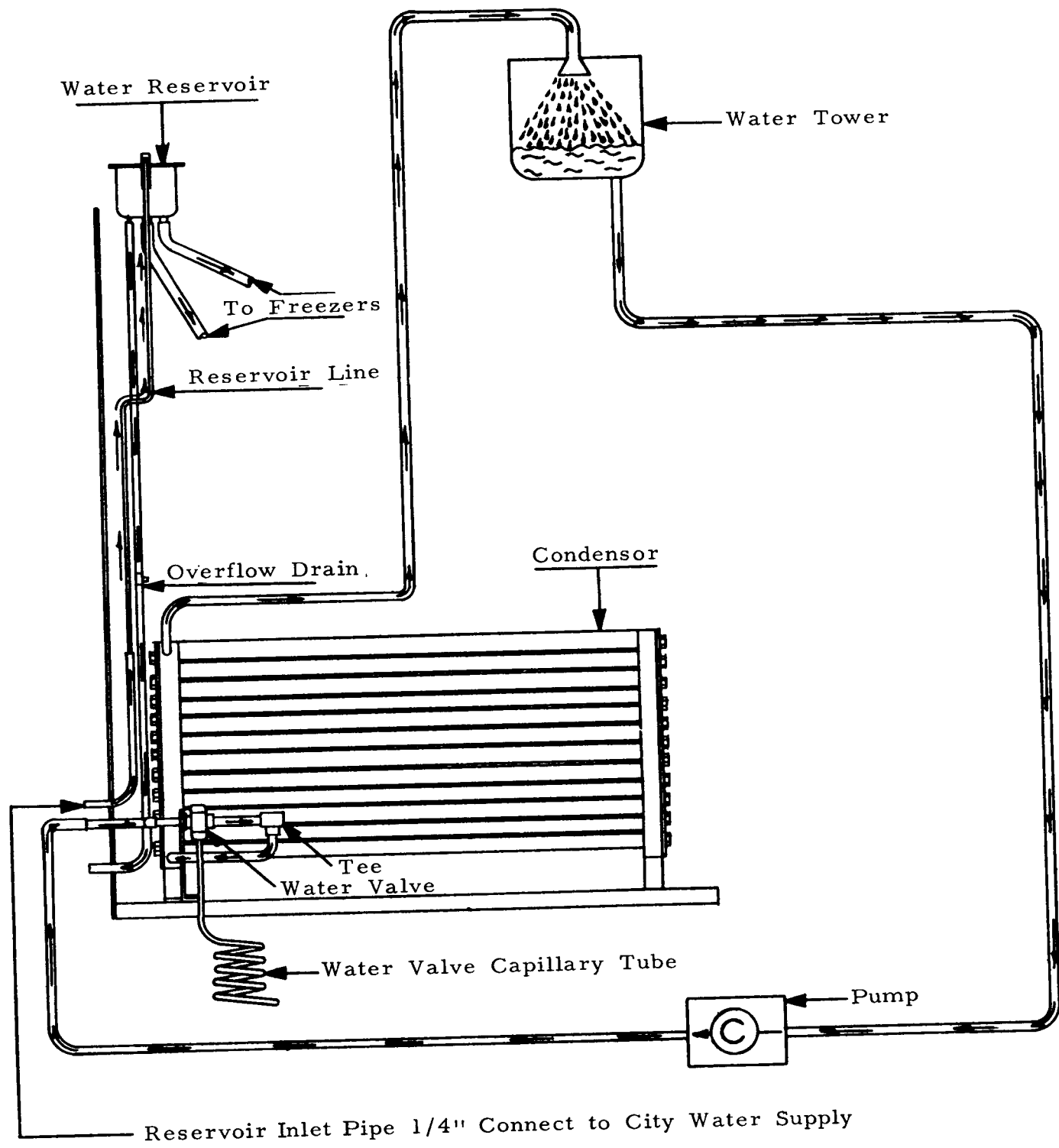


Figure 5.  
REFRIGERATION CYCLE  
SF-8



**Figure 6.**  
**WATER CYCLE**  
**SF-8**



**Figure 7.**  
**SUGGESTED WATER CYCLE WITH TOWER**  
**SF-8**



Water Seal installation:

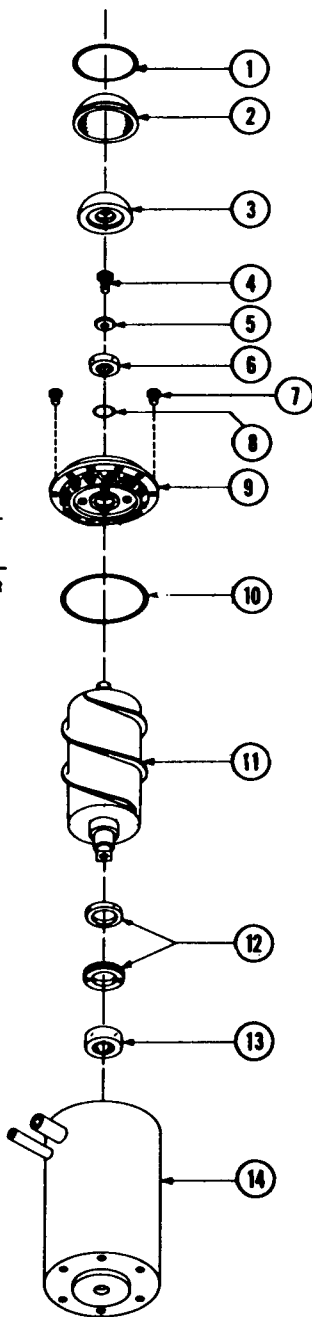
Dull Brass up  
shiny side down  
Against RUBBER

# FREEZER ASSEMBLY

SF-8

NOTE: ICE BREAKER HAS TEN HOLES AROUND CIRCUMFERENCE, SIX OF THESE ARE USED TO SECURE BREAKER TO FREEZER BARREL. THE FOUR REMAINING HOLES ARE THREADED AND ARE USED TO LIFT BREAKER AND WORM SHAFT UP. YOU REMOVE THE SIX HOLDING SCREWS, RE-INSERT (4) SCREWS INTO LIFTER OR THREADED HOLES. THESE HAVE NO BOTTOM ON BARREL AND BY EVENLY DRAWING THEM DOWN, ICE BREAKER AND WORM IS LIFTED UP.

NOTE: LOWER BEARING OR WATER SEAL CANNOT BE CHANGED FROM BOTTOM MUST BE PULLED OUT FROM ON TOP.

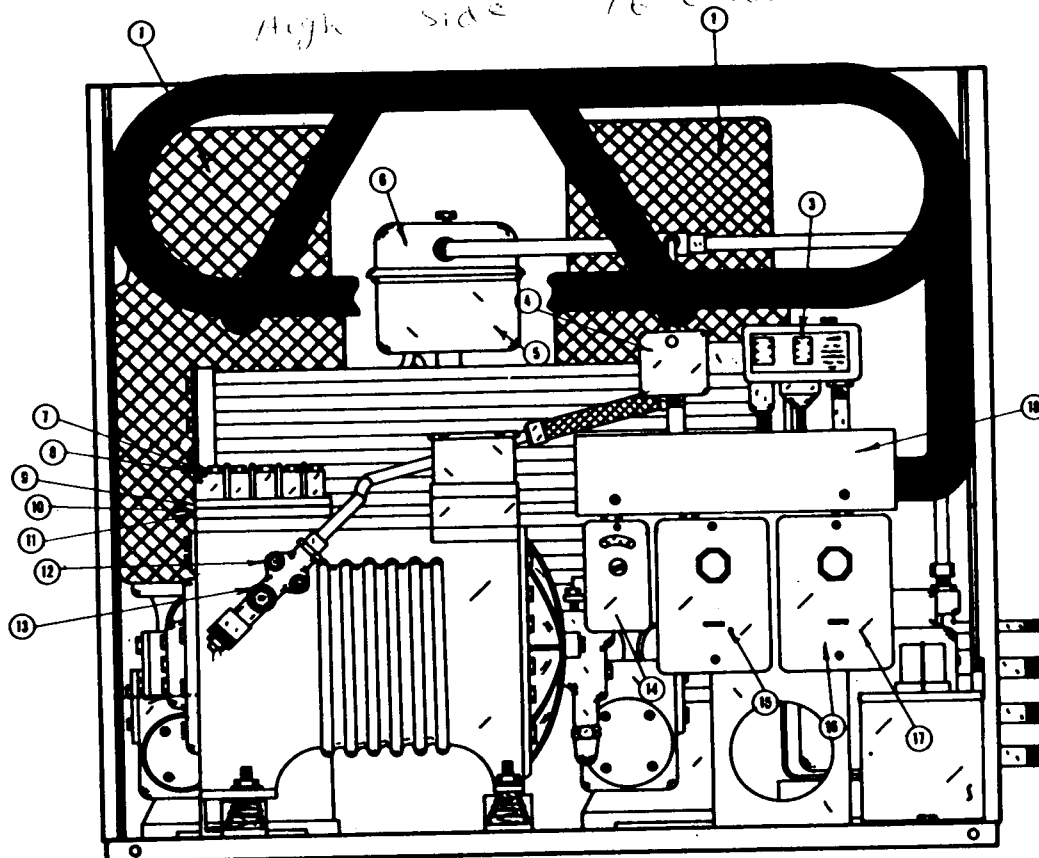


ITEM NO.	PART NO.	NAME
1.	2-991	'O' Ring 13-0017-18
2.	13-231	Rubber Cap
3.	A-9047	Styrofoam Cap
4.	3-715	Screw
5.	A-6273	Washer
6.	2-619	Top Bearing
7.	3-785	Screws ( 6 required )
8.	2-643	'O' Ring 13-0017-15
9.	A-8818	Ice Breaker
	A-11351	Ice Breaker (with bearing)
10.	2-778	'O' Ring 13-0017-17
11.	A-9006	Worm Shaft Assembly
12.	2-776	Water Seal
13.	2-775	Lower Bearing
14.	A-8858	Freezer Worm Tube
	A-8853	Complete Freezer Ass'y (all above parts assembled)
*	A-8818-1	Ice Breaker (large chunk)

*Handwritten notes:*  
05-0-17-18  
02-0-17-15

### SF-8 CHASSIS FRONT VIEW

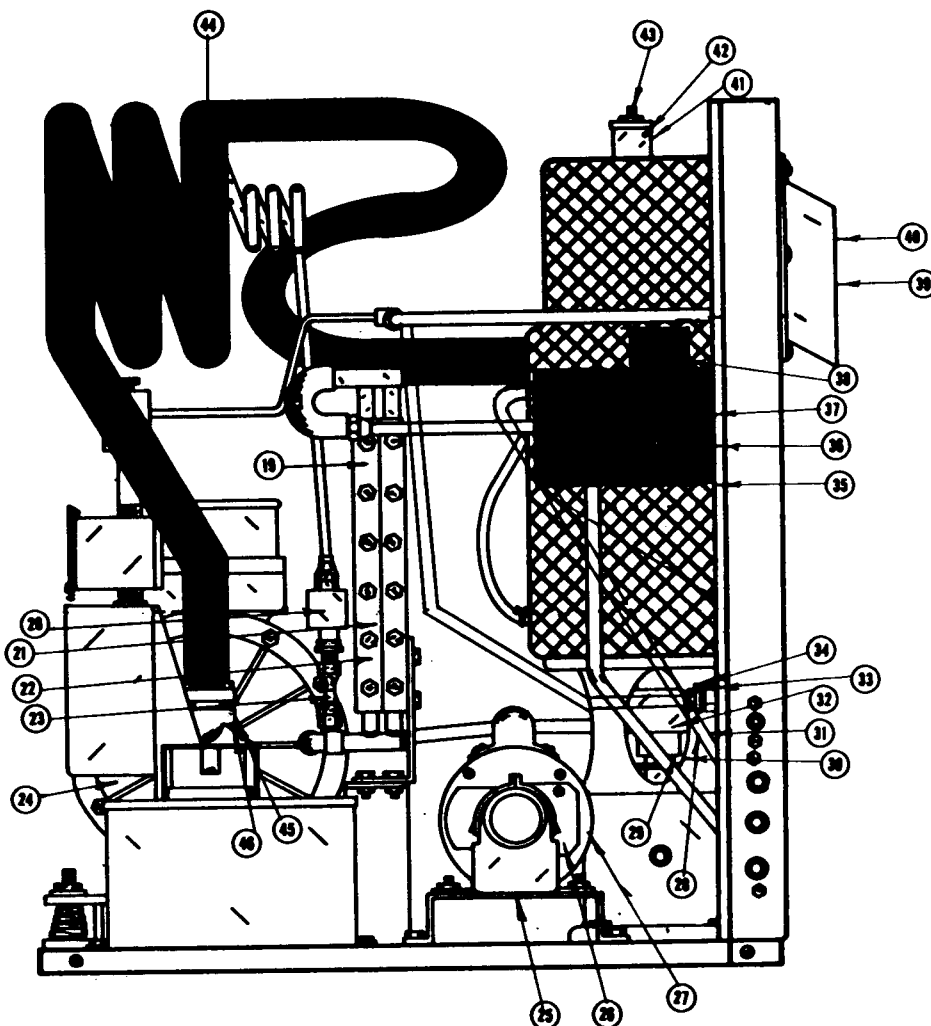
*vibration eliminators*  
*suction side 16-0266 cc*  
*high side 16-0260 cc*



ITEM NO.	PART NO.	NAME	ITEM NO.	PART NO.	NAME
1.	A-16668	Spout Ass'y, less switch and press. plate.	11.	18-831	Suction Valve Reed
3.	11-286	High-Low Pressure Control	12.	18-732	Discharge Service Valve
4.	11-296	Water Failure Switch	13.	18-736	Discharge Service Valve Gasket
5.	A-8868	Reservoir Assembly	14.	11-99	Bin Control
6.	A-12870	Cover Assembly	15.	12-468-28	Starter 230/60/1
7.	18-827	Valve Plate & Gasket Kit Assembly		12-468	Starter 208/220/60/3
8.	18-830	Cylinder Head	16.	12-831-2	Contactors 230-/60/1
9.	18-828	Gasket, Cylinder Head		12-739-2	Contactors 208/220/60/3
10.	18-829	Gasket, Valve Plate to Body	17.	12-707	Heater (**)
			18.	A-7667	Junction Box Cover

\*\* State motor manuf. when ordering 12-707 overloads.

### SF-8 CHASSIS SIDE VIEW

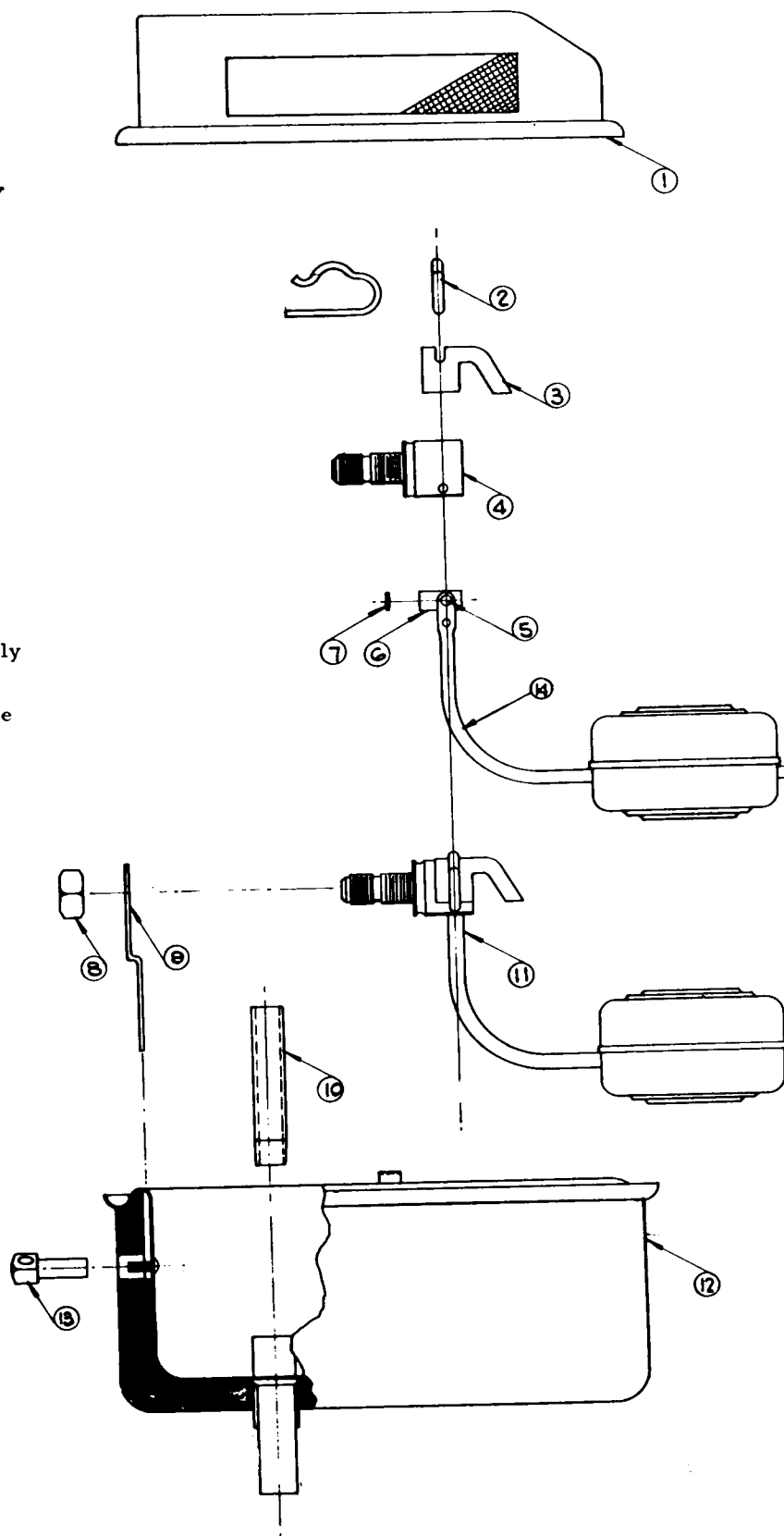


ITEM NO.	PART NO.	NAME	ITEM NO.	PART NO.	NAME
19.	<del>48-821</del>	Condenser	32.	A-6166	Coupling Key (*)
20.	2-822	Drier	33.	16-162-1	Strainer
21.	18-740	Condenser Gasket (6-hole) (*)	34.	11-295	Water Pressure Reg. (*)
22.	18-741	Condenser Gasket Manifold (5-hole) (*)	35.	A-14252-30	Relay Bracket
23.	16-338	Connector	36.	18-1901-20	Starting Capacitor (2 in parallel) (*)
24.	18-823	Motor Compressor 230/60/1	37.	18-1902-28	Running Capacitor (2 in parallel) (*)
25.	18-822	Motor Compressor 208/220/60/3	38.	18-1903-28	Relay 230/60/1
25.	A-8893	Motor Mount Ass'y (2 per unit)	39.	A-16670	Pressure Plate, Spout (*)
26.	12-649-2	Drive Motor 230/60/1 (use 12-649-7 on 208/220/60/3)	40.	2-1321	Spring
27.	A-18341	Flexible Coupling (motor to reducer) (*) Plastic	41.	A-14241	Cover, Micro Box
28.	A-8895	Coupling Ass'y (reducer to worm shaft)	42.	3-173	Screws (2 per unit)
29.	3-385	Set Screw (coupling)	43.	12-1018	Micro Switch
30.	13-152	Rubber Shield	44.	A-8862	Suction Line Ass'y
31.	2-768	Gear Reducer	45.	18-835	Suction Valve Gasket
			46.	18-832	Suction Service Valve

(\*) Not Shown

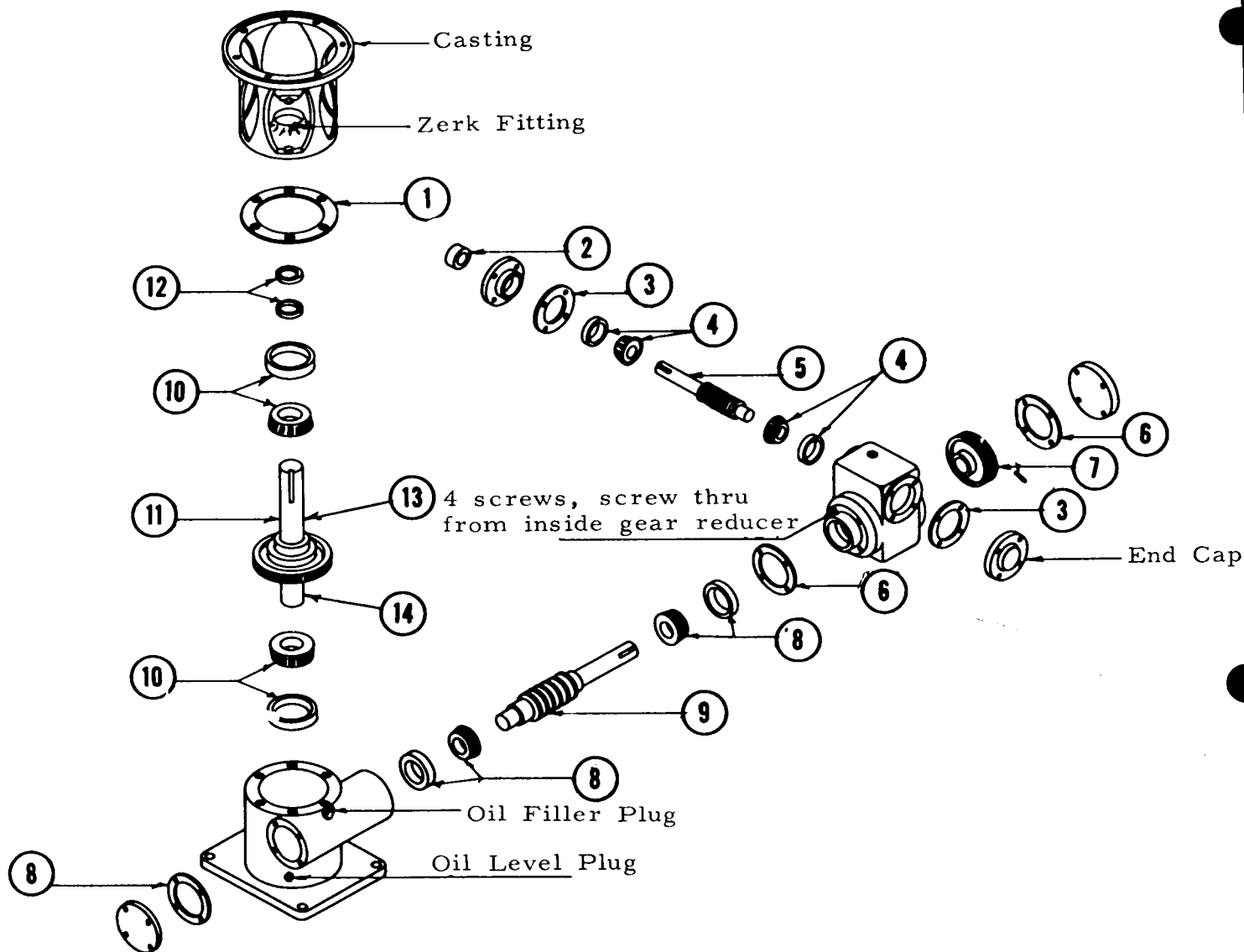
## RESERVOIR ASSEMBLY SF-8

ITEM NO.	PART NO.	NAME
1.	A-12870	Reservoir Cover
2.	2-1259	Valve Pin
3.	2-1320	Deflector
4.	A-8217	Inlet Valve
5.	3-1001	Rivet
6.	A-8054	Valve Seat Holder
7.	S-6947	Valve Seat
8.	S-7044	Nut
9.	A-12869	Bracket
10.	S-6715	Stand Pipe
11.	A-9101	Inlet Valve Assembly
12.	A-13413	Reservoir Body
13.	A-8055	Bracket Nut
	A-8868	Reservoir Complete (Less Cover)
14.	A-12073	Float Assy.





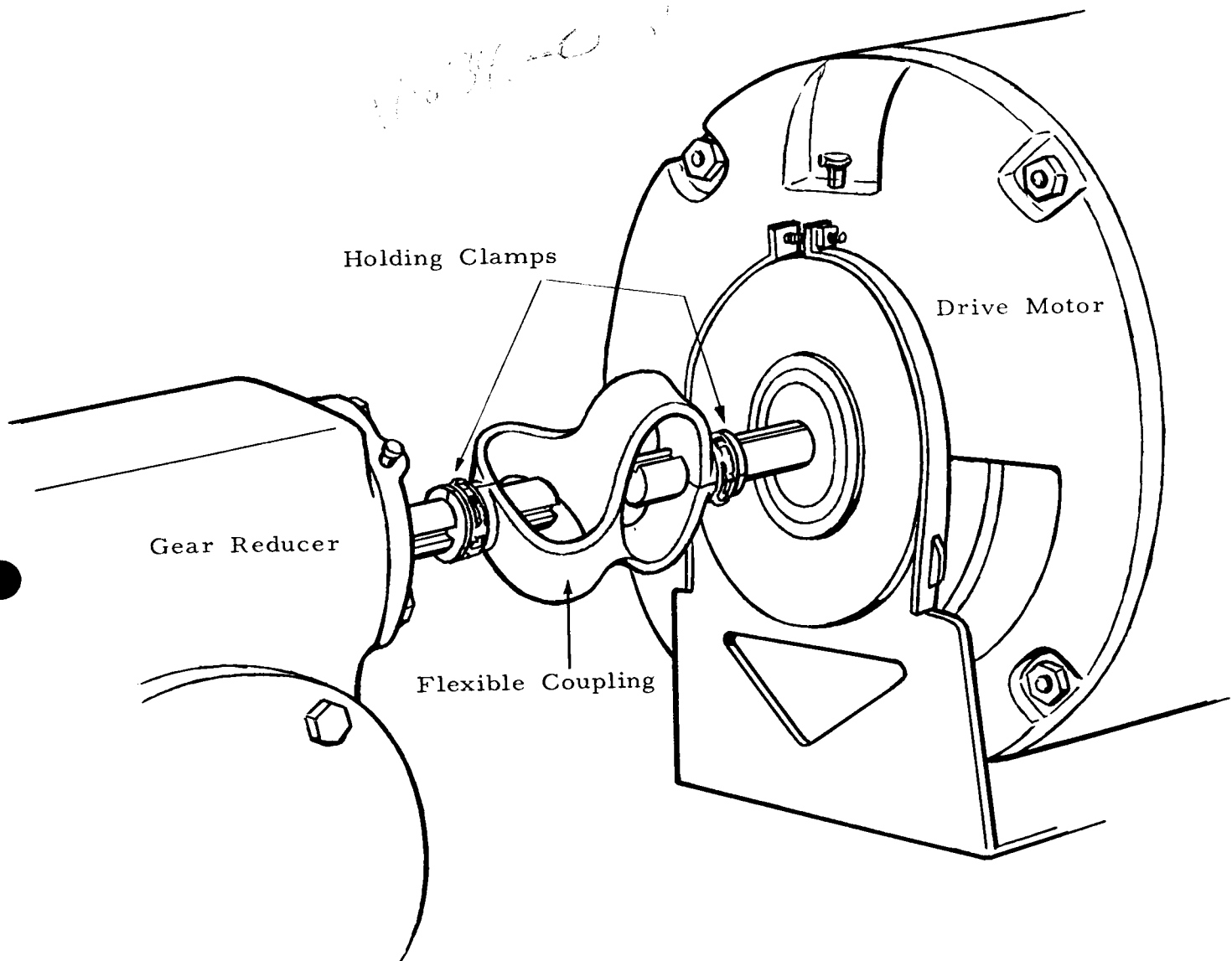
## GEAR REDUCER SF-8



ITEM NO.	PART NO.	NAME
1.	2-768-28	Slow-Speed Cover Gasket
2.	2-768-20	High-Speed Oil Seal
3.	2-768-25	High-Speed Gasket
4.	2-768-24	High-Speed Bearing
5.	2-768-32	High-Speed Worm & Shaft, Integral
6.	2-768-27	Intermediate Gasket
7.	2-768-33	High-Speed Gear
8.	2-768-23	Intermediate Roller Bearing
9.	2-768-31	Intermediate Worm & Shaft, Integral
10.	2-768-22	Slow-Speed Bearing
11.	2-768-36	Slow-Speed Gear & Shaft Assembly
12.	2-768-21	Slow-Speed Oil Seal
13.	2-768-29	Slow-Speed Spacer (short)
14.	2-768-30	Slow-Speed Spacer (long)
	2-768	Complete Reducer

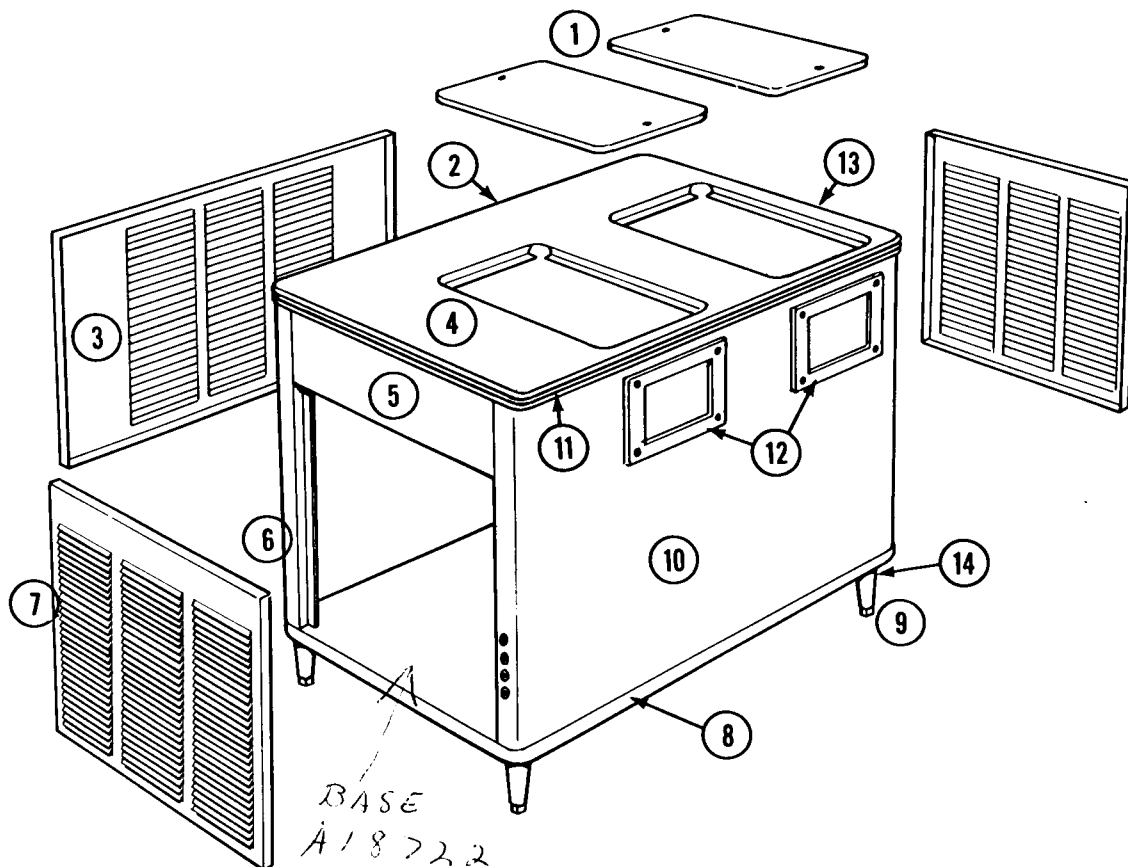
## SF-8 — FLEXIBLE COUPLING ASSEMBLY

2 per unit, part #A-18341



Flexible coupling allows larger tolerance of mis-alignment between drive motor and gear reducer shafts. Flexible coupling assembly is completely interchangeable with former metal coupling.

### SF-8 CASE ASSEMBLY



ITEM NO.	PART NO.	NAME
1.	S-6713	Door Panel, Top (2 reqd.)
2.	A-8909	Cab. Front Panel Ass'y (*)
3.	A-8912	Front Door Assembly
4.	A-17056	Cab. Top Assembly
5.	A-8904	Right Panel
6.	A-8916	Case Corner Assembly (2)
7.	A-8914	Side Door Ass'y (2 reqd.)
8.	A-8902-12	Bottom Trim (2 reqd.)
9.	A-15803	Leg (4 reqd.)
10.	A-8905	Cab. Back Panel Ass'y
11.	A-8902-11	Top Trim Strip
12.	13-591-1	Spout Frame (2 reqd.)
13.	A-17069	Left Panel (*)
14.	8-522-1	Levelers (4 reqd.)

\* Not Shown

In answer to many field requests, we are pleased to release the following chart showing the companies whose products are acceptable substitutes for the 600W supplies by Winsmith as factory recommended.

Note the third column which most accurately represents the normal temperature operating range. Also the Alemite or Zerk fitting to bearing is greased with Mobilgrease BRB No. 1, or any good grade ball bearing grease as obtained from local service stations.

600W oils and equivalents are classified as industrial oils and most likely will be found in bulk plants rather than local service stations.

WORM GEAR REDUCERS

CB-CT-CV-CBD-CVD-CBX-CTX-CVX-DBI-TSR

Ambient Temperature °F	-30 to 15	'16 to 50	51 to 110	111 to 165
Maximum Operating Temperature °F	150	185	225	225
Viscosity @ 210°F, SUS	40 to 90	90 to 125	125 to 190	190 to 350
Compounded with	(Optional)	3 to 10% Acidless Tallow or E.P. Base	3 to 10% Acidless Tallow or E.P. Base	3 to 10% Acidless Tallow or E.P. Base
AGMA Lubricant		#7 Compound	#8 Compound	
Cities Service Oil Co.	Pacemaker Oil #5	Optimus Oil #10	Optimus Oil #6	Optimus Oil #12
Fiske Bros. Refining Co.	#3Lubriplate	#8Lubriplate	#8Lubriplate	APG Lubriplate
Gulf Oil Corporation	Multipurpose Gear Lubricant	E.P. Lubricant #115	E.P. Lubricant #145	E.P. Lubricant #250
Shell Oil Company	Vitrea Oil 71	Valvata Oil #J 78	Valvata Oil #J 78	Valvata Oil #J 83
Sinclair Refining Co.	Duro Oil 160	#87 Heavy Duty Oil	#101 Super-Heat Valve Oil	#212 Super-Heat Valve Oil
Standard Oil Co.	Stanogear Compound #1	Stanogear Compound #4	Standard Worm Gear Oil	Calumet SH Cyclinder Oil
Sun Oil Company	Sunep 70	Sunep #110	Sunep #150	HV Cyl. Oil
Socony Mobil Oil Co., Inc.	Vactra Oil #1	Mobil Compound DD	Mobil Cylinder Oil #600W	Mobil Cylinder Oil #600W
The Texas Company	Meropa Lub. #1	Meropa Lub. #3	Meropa Lub. #6	Meropa Lub. #6



## 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 OFF on the hand reset low pressure control OFF on water failure switch	Replace fuse and check for cause of blown fuse.  Adjust thermostat. Set between 35° - 45°.  Check wiring Turn switch to ON Replace switch  Push hand reset.  Check water supply
Compressor cycles intermittently	Low voltage Dirty condensor Air circulation blocked Non-condensable gases in system	Check for overloading.  Clean.  Move unit to correct.  Purge off.
Making wet ice	Surrounding air temperature above 100° F.  Under or over-charge of refrigerant.  High water level in water reservoir Faulty compressor valve plate	Correct or move unit to cooler location.  Recharge with proper amount.  Lower to 1/4 inch below overflow pipe. Repair or replace.
Low ice production	Loss of refrigerant, under or over-charge of refrigerant  Dirty or plugged condensor  Low water level in water reservoir.  Overcharge of oil in system  Partial restriction in capillary tube or drier  Inlet water strainer partially plugged  Corroded or stained worm shafts due to water condition.	Check and recharge with proper amount of refrigerant.  Clean condensor  Adjust to 1/4 inch below overflow.  Check at oil sight glass. Lower to 1/2 sight glass.  Moisture in system. Over-charge of oil in system. Remove charge and drier. Replace and recharge system.  Remove screen and clean  Remove worm shafts and clean.

## SERVICE ANALYSIS

SYMPTOM	POSSIBLE CAUSE	CORRECTION
Machine runs but makes no ice	Loss or under-charge of refrigerant	Check for leaks and recharge.
	Drive motor, gear reducer or drive coupling inoperative	Check. Repair or replace.
	Water not entering freezing chamber	Plugged strainer or supply line. Check and clean, Air lock in gravity feed line. Check and remove air lock.
	Moisture in system	Check and remove charge and drier. Replace and recharge.
	Water seal leaking	Replace seal.
	Defective manual overload switch	Replace switch
Water leaks	Defective water seal	Replace
	Gravity feed line leaking	Check hose clamps.
	Water level in reservoir too high	Adjust to 1/4 inch below overflow pipe.
Excessive noise or chattering	Mineral or scale deposit on auger and inner freezing chamber walls	Remove and manually polish auger, sand inner chamber walls of freezer barrel with approx. 100 grit paper. Use vertical strokes. For lighter concentrations use Scotsman Ice Machine Cleaner periodically.
	Low suction pressure	Add gas to raise suction pressure. Raise head pressure control setting.
	Intermittent water supply	Check and clean water strainer Check gravity feed line for air lock. Remove air lock.
	Water level in reservoir too low	Adjust to 1/4 inch below overflow pipe.
	Misaligned drive coupling	Repair or replace
	Gear reducer low on oil charge	Check oil level and refill to oil level plug.
	Gear reducer loose on frame	Tighten
	Drive motor end-play or worn bearings	Repair or replace
	Motor compressor not floating on springs	Loosen hold-down bolts.
Machine continues to run with full storage bin	Storage bin thermostat not properly set	Reset or replace, 45° in, 35° out.

## MAINTENANCE INSTRUCTIONS — FLAKERS

THE FOLLOWING MAINTENANCE SHOULD BE ACCOMPLISHED TWO TIMES PER YEAR.

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 below overflow, but as high as possible and still not run out of spout opening with machine off. Water droplets should come out of spout with ice at all times. Adjust as required.
3. Clean reservoir and interior of freezer assembly using SCOTSMAN Ice Machine Cleaner. One cleaning per year should be a manual cleaning: Stainless steel augers should be pulled and buffed to a mirror-like finish. Use buffing wheel and jewelers rouge. Inner freezer barrels should be sanded using vertical strokes. Use 100 grit paper.

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 water cooled models, set pressure at 135 psi. Suction pressure should be above 12 psi and will range up to 16 psi depending upon water and ambient temperatures.
5. Set hand reset low pressure control to cut off in event of water supply interruption or low ambient temperature at approximately 5 psi.
6. Change oil in gear reducer. Use Mobiloil 600W or equivalent good grade of gear oil with a viscosity of 125 to 190. For unit with grease fittings use Mobilgrease BRB No. 1 or any good grade ball bearing grease. Particularly important when there is evidence that water has gotten into gear housing. Remove gear reducer to facilitate.
7. Oil drive motors. Use SAE #10 oil.
8. Check top bearing on freezers. Remove rubber 'O' Ring, rubber cap and styrofoam cap. If moisture is around bearing, wipe up and remove grease. Add new grease. Use beacon No. 325 or equivalent.
9. Check and adjust drive motor couplings.
10. 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.
11. Check for water leaks. Tighten drain line connections.
12. Check quality of ice. Ice should be wet when formed, but will cure rapidly to normal hardness in the bin.
13. Check thermostat and pressure plate cut off. Micro switch cuts off only compressor. Bin thermostat should be set at 10° differential and should keep entire machine off at least twenty minutes in high ambients (longer in low) during normal operation.

## PARTS LIST

### SF-8

CABINET PARTS	SF - 8
Cabinet Top Assembly	A-17056
Large Hood Top Doors	S-6713
Right Side Door	A-8914
Left Side Door	A-8914
Front Door	A-8912
Moulding Strip Top	A-8902-11
Moulding Strip Bottom	A-8902-12
SCOTSMAN Emblem	15-156
Legs for Raising Base	A-15803
Levelers	8-522-1
Plywood Crate	1-652
WATER CIRCUIT	
Water Reservoir Assembly, less cover	A-8868
Water Inlet Valve	A-9101
Rubber Valve Seat	S-6947
Float Arm and Float Assy.	A-12073
Valve Pin	2-1259
Plastic Water Deflector	2-1320
Standpipe	S-6715
Reservoir Cover Assembly	A-12870
Water Strainer, Supply Line	16-162-1
DRIVE CIRCUIT	
Gear Reducer	2-768
Gear Reducer Coupling to Drive Motor	A-18341
Gear Reducer Coupling (one piece) to freezer	A-8895
Coupling Key	A-6166
Allen Set Screw	3-385
Rubber Drip Shield--Gear Reducer Shaft	13-152
1/3 HP Drive Motor 230/60/1	12-649-2
208/60/1	12-649-7



**PARTS LIST**  
**SF-8**

<b>FREEZER ASSEMBLY, 2 Per Unit, One Side</b>	<b>A-8853</b>
Screws--Ice Breaker--St. Steel	3-785
Ice Breaker	A-8818
Ice Breaker Cap--Rubber	13-231
'O' Ring--Cap	2-991
'O' Ring--Breaker	2-778
Top Bearing	2-619
'O' Ring Below Top Bearing	2-643
Styrofoam Cap	A-9047
Locking Cap Screw 1/2-20-1 Stainless	3-715
Washer--Brass	A-6273
Worm Shaft	A-9006
Water Seal	2-776
Lower Bearing	2-775
Suction Line Assembly	A-8862
Suction Line Vibration Eliminator 1 1/8"	16-326
Refrigerant Drier	2-822
Freezer, Worm Tube Only	A-8858
<b>SPOUT ASSEMBLY</b>	
Spout Assembly Less Switch and Press Plate	A-16668
Spout Pressure Plate	A-16670
Screws Stainless Steel Spout Hold Down	3-794
Spring for Spout Pressure Plate	2-1321

## PARTS LIST

### SF-8

#### ELECTRICAL COMPONENTS

Contactora, compressor 230/60/1		12-831-2
Bin Thermostat		11-99
A & B Starter		12-468
A & B Holding Coil only		12-466-5
Contactora, compressor 208-230/60/30		12-739-2
Overload Heater Drive Motor, state motor manuf. and voltage.		12-707
Water Failure Switch		11-296
Micro Switch for spout		12-1018
On-Off Toggle Switch		12-426

#### CONDENSING UNITS

SF-8

SF-8-3

Motor Compressor Only 5 HP	18-823	18-822
Valve Plate & Gasket Kit	18-827	18-827
Cylinder Head	18-830	18-830
Relay	18-1903-28	
Starting Capacitor (2 per unit)	18-1901-20	
Running Capacitor ( per unit--2)	18-1902-28	
Condenser--Water Cooled	18-821	18-821
Terminal Assembly	18-834	18-834
Service Valve Gasket (Suction)	18-835	18-835
Service Valve Gasket (Discharge)	18-736	18-736
Plain Gasket--Water-cooled condenser	18-740	18-740
Manifold Gasket--Water-cooled condenser	18-741	18-741
Water Regulating Valve, Penn 3/4" NPT	11-295	11-295
Dual Pressure Control--Hand Reset	11-286	11-286
Vibration Eliminator 7/8" Discharge Line	16-260	16-260

#### MISCELLANEOUS

Ice Scoop		2-540
Ice Machine Cleaner--8 oz. bottle		19-343
Grey Spray-on Touch-up Paint		10-153
Upper Bearing Grease--Freezer Assy.--Pt. cans only		19-309
600W Gear Reducer Transmission Oil--Pt. cans only		19-359
Tygon Tubing (1/2" ID x 3/4" OD) Per Ft.		5-186
Rubber Tubing (3/8" ID) Per Ft. Black		13-79