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MODULAR FLAKER

MF3-C

SERIES

Continuous Flow

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 MODULAR FLAKER performing at its maximum capacity, it is necessary to perform periodic maintenance as outlined on page 32 of this manual.
SPECIFICATIONS:

- Capacity: Refer to Ice Making Capacity chart.
  - Storage Bin: B20, B40, B60, B80, B90, B500, B750 and extensions.

- Height: 21 1/2" (54.6 cm)
- Width: 21" (53.3 cm)
- Depth: 22" (55.9 cm)

**SPKMF3C:** Separate Stainless Steel Panel Kit.
- Not factory installed.

**OPTIONAL LEG KITS**
- **KLP2E:** 6" adjustable Black Enamel Legs.
- **KLP2S:** 6" adjustable Nickel Plated Legs.

**IMPORTANT OPERATING REQUIREMENTS:**
- **Electrical Voltage:** Machine requires voltage indicated on rating nameplate. Failures caused by improper voltage are not considered factory defects.
- **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.

**MF3C MACHINE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Condensing Unit</th>
<th>Compressor Horsepower</th>
<th>Finish*</th>
<th>Ship.Wt. lbs./kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF3C AE</td>
<td>Air</td>
<td>1/2</td>
<td>Enamel or Stainless Steel</td>
<td>175/75</td>
</tr>
<tr>
<td>MF3C WE</td>
<td>Water</td>
<td>1/2</td>
<td>Enamel or Stainless Steel</td>
<td>175/75</td>
</tr>
</tbody>
</table>

*Sandalwood baked enamel finish or SPKMF3C Stainless Steel Panel Kit.

<table>
<thead>
<tr>
<th>Basic Electricals</th>
<th>Max. Oper. Amps</th>
<th>No. of Wires</th>
<th>Min. Circuit Ampacity</th>
<th>Max. Fuse Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-Cooled:</td>
<td>115/60/1</td>
<td>16.1</td>
<td>2</td>
<td>18.9</td>
</tr>
<tr>
<td></td>
<td>230/60/1</td>
<td>6.3</td>
<td>2</td>
<td>7.4</td>
</tr>
<tr>
<td>Water-Cooled:</td>
<td>115/60/1</td>
<td>15.2</td>
<td>2</td>
<td>18.0</td>
</tr>
<tr>
<td></td>
<td>230/60/1</td>
<td>5.7</td>
<td>2</td>
<td>.8</td>
</tr>
</tbody>
</table>

**Use this value to determine minimum wire size required to meet National Electric Code Standards.**

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

**TWO YEAR PARTS WARRANTY**

**MANUFACTURER'S LIMITED WARRANTY**

Scotsman warrants to the original purchaser/user that any commercial product of its manufacture bearing the name Scotsman will be free from defects in material and/or workmanship, and that if properly installed and serviced in accordance with the User Manual furnished with the product, it will perform adequately under normal use.

This product warranty shall be effective for a period of two years from the date of original installation if such installation is reported on Scotsman's warranty registration form returned to the factory at the time of installation, or for a period of 27 months from the date of shipment from the factory if the warranty registration form has not been returned (provided the foregoing warranty periods will be extended for an additional three years as to the motor compressor part). This warranty is applicable only in the United States and Canada.

Should the product fail during this warranty period due to manufacturing defects in material and/or workmanship as defined above, Scotsman will have the option of repairing or replacing the product with a new or reconditioned unit, upon receipt of product return at the factory transportation charges prepaid. The decision rests in the sole discretion of Scotsman.

Scotsman assumes no liability for incidental or consequential damages of any kind or for any damages resulting in whole or in part from misuse or inadequate maintenance of the product or any part thereof.

**THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR GUARANTIES OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**
DESCRIPTION

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

ATTRACTIVE COMPACT CABINET. Sandlewood or stainless steel removable panels makes for easy access to mechanical parts.

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 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.

Model No. MF-3 is a continuous flow type machine, and is manually started by an OFF and ON switch located inside the cabinet. Since the MF3 does not have its own attached bin, it is necessary to use an auxiliary bin such as the MODEL SB-500 SCOTSMAN Bin for ice storage. A bin thermostat is mounted in each continuous flow type machine for the purpose of mounting control bulb from machine to bin.

The MF Series Flakers are also designed for remote type installations, whereby, ice can be transported from the flaker via plastic tubing to a bin located several feet away.
NOTE:
On Water Cooled Models.
Run Separate Line to Condenser

Open trapped or vented drain. Recommend 1/4 inch fall per foot of run on drain lines.

*Adjustable Leg Levelers

*Bin Legs Optional
INSTALLATION INSTRUCTIONS

MODULAR FLAKER
ICE DISCHARGE TUBE
MF3 SERIES

SPOUT ASSY AND SWITCH

HOSE CLAMP 02-0179-02
(LOCATED IN EnVELOPE)

FREEZER

INSTALL NYLOBRADE TUBING
FLUSH WITH TOP OF
COLLAR ON BRASS
ICE DISCHARGE TUBE

NYLOBRADE TUBING 17”
(STRAPPED TO FLAKER FRAME)
A-26537-003

13-0806-01 SEALING PAD
(LOCATED IN ENVELOPE)

A-26541-001
USING THERMO BRACKET STRAPPED
TO FLAKER SUCTION LINE AS TEMPLATE,
WITH TWO LARGE HOLES AS GUIDE,
DRILL (4) 1/8” DIA. HOLES FOR MOUNTING
SCREWS (LOCATED IN ENVELOPE)

CAP TUBE GROMMET
(LOCATED IN ENVELOPE)

3-1404-10 SCREWS
4/UNIT

BIN THERMOSTAT
CAPILLARY TUBE

6.00
INSTALLATION LIMITATIONS

ELECTRICAL

1. Scotsman 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.

WARNING

This machine is not designed for outdoor installations or installations where air temperatures are below 50° F or above 100° F and the water temperature is below 40° F or above 100° F. Extended periods of operation at temperatures exceeding these limitations will constitute misuse under the terms of the Scotsman manufacturers limited warranty resulting in a loss of warranty coverage.
1. 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.

**SCOTSMAN MODULAR FLAKERS**

**PREPARATION FOR INSTALLATION**

1. Select unit location prior to hook up of water drain and electrical in accordance with local and national codes. Minimum room temperatures is 50°F Fahrenheit, maximum room temperature 100°F Fahrenheit. On air cooled models, select well ventilated location.

2. Install bin for use with modular flaker in its permanent location following instructions included with the storage bin.

3. Level bin with adjustable legs and wipe storage bin liner clean with damp cloth.

4. After uncrating modular flaker, remove front, side and top panels and inspect for any concealed damage. Notify carrier of any concealed damage claims.

5. Before placing flaker unit on bin, holes in rubber gasket on bin top must be cut to allow passage of ice discharge tube and bin thermostat control tube into bin. This can be done by using holes in bin top as a template.

6. Remove rubber grommet from miscellaneous parts package and insert into place. A good seal must be made between grommet and base panel and between grommet and inner bin. See page 7 cutaway drawing.

7. The flaker unit may now be placed on the bin. Insure that the holes in the base panel line up with the holes in the bin top.

8. Position ice discharge tube assembly, through large grommet in base & attach to spout. See page 7.

9. Attach bulb holder to ice discharge tube in direction shown on page 7. Route bin control tube through smaller grommet then insert tube into tube holder as shown.

10. Thru cabinet top, locate water reservoir. Remove water reservoir cover and check for free action of float ball.

11. Check motor compressor hold down nuts to insure motor compressor rides snug on mounting pads.

12. Remove water strainer from envelope for installation in water supply line feeding unit.

13. Open electrical control box cover and check unit nameplate voltage against building source voltage and make sure they correspond. **Caution** - Improper voltage supplied to units will void your parts replacement program.

14. Locate and tear out registration card from front of owner's guide and fill out card completely including model and serial numbers as taken from aluminum plate found behind front service panel. Forward to Scotsman factory using self mailing card, for your personal registration certificate.
INSTALLATION
ELECTRICAL CONNECTIONS:
MF3AE-1
115 Volts, 60 Hertz, 1 Phase
20 Amp. Circuit

Code sized wire should be used for electrical hook-up. All Scotsman Modular Flakers require a solid earth ground wire.

Be certain that the Flaker 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, State and local Electrical Code requirements. Usually an electrical permit and the services of a licensed electrician will be required.

ELECTRICAL INSTALLATION
MF3AE-1C

<table>
<thead>
<tr>
<th>Compressor</th>
<th>1/2 HP</th>
<th>Copelaweld: RSF2-0050-1AA-207</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>115</td>
<td>2 pole, 3500 RPM</td>
</tr>
<tr>
<td>Amp. rating F.L.A.</td>
<td>10.0</td>
<td></td>
</tr>
<tr>
<td>Hertz</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Single</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gear Drive Motor</th>
<th>1/10 HP</th>
<th>Queen Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>115</td>
<td></td>
</tr>
<tr>
<td>Amp. Rating</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Hertz</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Single</td>
<td>Thermally Protected</td>
</tr>
</tbody>
</table>

WATER SUPPLY: The recommended water supply line is 1/4 inch I.D. copper tubing for the MF3. Connect to cold water supply line with regular plumbing fittings, with a shut-off valve installed in an accessible place between 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.

WARNING: This machine must not be allowed to operate when the water supply is shut off, or at below recommended water pressure. Turn master switch to ‘OFF’ position when water supply is off, or when water pressure is below recommended operating pressure.

DRAIN: The recommended drain from the bin is 1/2” N.P.T. pipe nipple. 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.
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 located behind front panel 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 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 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 12 and 14 PSI with 50°F inlet water.

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.

<table>
<thead>
<tr>
<th>Model</th>
<th>Refrigerant Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air-Cooled</td>
<td>23 oz. R-12</td>
</tr>
<tr>
<td>Water Cooled</td>
<td>20 oz. R-12</td>
</tr>
</tbody>
</table>

WARNING: THIS MACHINE MUST NOT BE ALLOWED TO OPERATE WHEN THE WATER SUPPLY IS SHUT OFF, OR AT BELOW RECOMMENDED WATER PRESSURE. TURN MASTER SWITCH TO "OFF" POSITION WHEN WATER SUPPLY IS OFF, OR WHEN WATER PRESSURE IS BELOW RECOMMENDED OPERATING PRESSURE.
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. 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 registration cards been filled out? This is the owner's protection.
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. Bin thermostat operation and proper shut off level checked?
13. Drain lines checked and open?
REFRIGERATION CYCLE
WATER SCHEMATIC

- Water Inlet Valve
- Reservoir Assembly
- Freezer Assembly
- Ice Discharge Tube
- Water Inlet
- Reservoir Drain Line
- Water Feed Line To Freezer
- Storage Bin
WIRING DIAGRAM
A27045-001
WATER COOLED

ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE

NOTE:
This diagram depicts models which **DO NOT** incorporate a gearmotor centrifugal switch. Refer to pages 33 - 36 for new model information.
WIRING DIAGRAM
A27044-001
AIR COOLED

ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE

NOTE:
This diagram depicts models which DO NOT incorporate a gearmotor centrifugal switch. Refer to pages 33 - 36 for new model information.
## SERVICE ANALYSIS

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSE</th>
<th>CORRECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit will not run</td>
<td>Blown Fuse</td>
<td>Replace fuse and check for cause of blown fuse.</td>
</tr>
<tr>
<td></td>
<td>Thermostat set too high</td>
<td>Adjust thermostat. 35° cut-out and 45° cut-in.</td>
</tr>
<tr>
<td></td>
<td>Loose electrical connection</td>
<td>Check wiring.</td>
</tr>
<tr>
<td></td>
<td>Switch in OFF position</td>
<td>Turn switch to ON.</td>
</tr>
<tr>
<td></td>
<td>Inoperative master switch</td>
<td>Replace switch.</td>
</tr>
<tr>
<td>Compressor cycles intermittently</td>
<td>Low voltage</td>
<td>Check for overloading.</td>
</tr>
<tr>
<td></td>
<td>Dirty Condenser</td>
<td>Clean.</td>
</tr>
<tr>
<td></td>
<td>Air circulation blocked</td>
<td>Move unit to correct</td>
</tr>
<tr>
<td></td>
<td>Inoperative condenser motor</td>
<td>Replace.</td>
</tr>
<tr>
<td></td>
<td>Non-condensable gases in system</td>
<td>Purge off.</td>
</tr>
<tr>
<td>Making wet ice</td>
<td>Surrounding air temperature</td>
<td>Correct or move unit to cooler location.</td>
</tr>
<tr>
<td></td>
<td>Under or over-charge of refrigerant</td>
<td>Recharge with the proper amount.</td>
</tr>
<tr>
<td></td>
<td>High water level in water reservoir</td>
<td>Lower to 1/4 inch below overflow pipe.</td>
</tr>
<tr>
<td></td>
<td>Faulty compressor</td>
<td>Repair or replace.</td>
</tr>
<tr>
<td>Low ice production</td>
<td>Loss of refrigerant, under or over-charge of refrigerant</td>
<td>Check and recharge with proper amount of refrigerant.</td>
</tr>
<tr>
<td></td>
<td>Dirty or plugged condenser</td>
<td>Clean condenser.</td>
</tr>
<tr>
<td></td>
<td>Low water level in water reservoir</td>
<td>Adjust to 1/4 inch below overflow pipe.</td>
</tr>
<tr>
<td></td>
<td>Partial restriction in capillary tube or drier</td>
<td>Moisture in system. Overcharge of oil in System. Remove charge and drier.</td>
</tr>
<tr>
<td></td>
<td>Inlet water strainer partially plugged</td>
<td>Replace and recharge system.</td>
</tr>
<tr>
<td></td>
<td>Corroded or stained worm shaft due to water condition</td>
<td>Remove screen and clean.</td>
</tr>
<tr>
<td>Machine runs but makes no ice</td>
<td>Loss or under-charge of refrigerant</td>
<td>Remove worm shaft and clean.</td>
</tr>
<tr>
<td></td>
<td>Drive gearmotor or drive coupling stripped</td>
<td>Check for leaks and recharge</td>
</tr>
<tr>
<td></td>
<td>Water not entering freezing chamber</td>
<td>Check. Repair and/or replace.</td>
</tr>
<tr>
<td></td>
<td>Moisture in system</td>
<td>Plugged strainer or supply line. Check and clean. Air lock in gravity feed</td>
</tr>
<tr>
<td></td>
<td>Water seal leaking</td>
<td>line. Check and remove air lock.</td>
</tr>
<tr>
<td></td>
<td>Water supply to unit off</td>
<td>Check and remove charge and drier.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Replace seal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Restore water supply to icemaker.</td>
</tr>
<tr>
<td>SYMPTOM</td>
<td>POSSIBLE CAUSE</td>
<td>CORRECTION</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Water Leaks</td>
<td>Defective water seal</td>
<td>Replace</td>
</tr>
<tr>
<td></td>
<td>Gravity feed line leaking</td>
<td>Check hose clamps</td>
</tr>
<tr>
<td></td>
<td>&quot;O” ring in spout casting leaking</td>
<td>Remove spout casting and install new &quot;O” ring.</td>
</tr>
<tr>
<td></td>
<td>Storage bin drain &amp; connecting fittings leaking</td>
<td>Check and repair.</td>
</tr>
<tr>
<td></td>
<td>Water level in reservoir too high</td>
<td>Adjust to 1/4 inch below overflow pipe</td>
</tr>
<tr>
<td>Excessive noise or chattering</td>
<td>Mineral or scale deposit on auger and inner freezing chamber walls.</td>
<td>Remove and manually polish auger, polish inner chamber walls of freezer barrel.</td>
</tr>
<tr>
<td></td>
<td>Low suction</td>
<td>For lighter concentrations use Scotsman Ice Machine Cleaner periodically.</td>
</tr>
<tr>
<td></td>
<td>Intermittent water supply</td>
<td>Add gas to raise suction pressure.</td>
</tr>
<tr>
<td></td>
<td>Water level in reservoir too low</td>
<td>Check &amp; clean water strainer. Check gravity feed line for air lock.</td>
</tr>
<tr>
<td></td>
<td>Gearmotor loose on frame</td>
<td>Remove air lock.</td>
</tr>
<tr>
<td></td>
<td>Gearmotor end-play or worn bearings</td>
<td>Adjust to 1/4 inch below overflow pipe.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tighten.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repair or replace.</td>
</tr>
<tr>
<td>Machine continues to run with full storage bin</td>
<td>Storage bin thermostat not properly set.</td>
<td>Reset or replace.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35° cut-out, 45° cut-in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check operation with handful of ice.</td>
</tr>
<tr>
<td>Gearmotor noise</td>
<td>Low on oil</td>
<td>Remove case cover to check for proper oil level. Top of gears should be covered. Use Sun Oil Co. Prestige 50 EP, or 600 W Oil.</td>
</tr>
<tr>
<td>Gearmotor Off, Compressor On.</td>
<td>Micro switch on gearmotor sticking or defective.</td>
<td>Check - Insure centrifugal switch plate activates switch.</td>
</tr>
</tbody>
</table>
AIR COOLED CHASSIS ASSY.

1. 18-3717-01 Condensor
2. A24385-001 Shroud (Fan)
3. 02-2217-01 Reservoir Water
4. A26542-001 Spout Assy
5. 11-0396-01 Low Pressure Switch
6. 16-0560-00 Valve Core
7. 16-0563-00 Brass Cap
8. 02-0831-00 Dryer
9. 18-4500-01 Compressor
10. 16-0673-02 Process Header
11. 18-0422-00 Fan Mounting Bracket
12. 12-1576-01 Fan Motor
13. 18-3309-01 Fan Blade
14. 16-0673-04 Process Header (Low Side)
15. 13-0815-01 Freezer Cap.
WATER COOLED CHASSIS ASSY

1. 18-3303-02  Condensor
2. 02-2217-01  Reservoir
3. 11-0397-01  High Pressure Switch
4. A26542-001  Spout Assy
5. 11-0396-01  Low Pressure Switch
6. 16-0560-00  Valve Core
7. 16-0563-00  Brass Cap
8. 16-0673-04  Process Header (Low Side)
9. 02-0831-00  Dryer
10. 18-4500-01  Compressor
11. 11-0198-00  Water regulator
12. 16-0673-02  Process Header
13. 16-0560-00  Valve Core
14. 16-0563-00  Brass Cap
15. 13-0815-01  Freezer Cap
FREEZER ASSEMBLY - EXPLODED VIEW - MODEL — MF3

ITEM NO.  PART NO.  DESCRIPTION
1.    A08162-000  Cap Hook
2.    A07701-000  Cap
3.    03-0758-00  Cap Screw
4.    A07699-000  Washer
5.    03-1558-03  Retaining Ring
6.    02-0695-00  Bearing
7.    13-0617-16  "O" Ring
8.    A26707-001  Bearing Retainer w/Bearing
9.    13-0617-29  "O" Ring
10.   02-2046-01  Auger
11.   A27127-020  Worm Tube
12.   A18945-000  Water Seal
13.   02-0417-00  Lower Bearing
14.   03-1505-00  Adapter Gasket
15.   08-0595-01  Adapter
16.   03-1410-04  Washer
17.   03-1405-42  Screw
18.   A18153-000  Drip Pan
19.   13-0209-01  Drip Pan Gasket
20.   15-0575-01  Drive Coupling
A25995-021
GEAR MOTOR ASSEMBLY
1/10 H.P.
115/60/1
11.5 RPM At Out Put Shaft

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>03-1246-00</td>
<td>Set Screw (2)</td>
</tr>
<tr>
<td>2.</td>
<td>A17047-000</td>
<td>Motor Housing</td>
</tr>
<tr>
<td>3.</td>
<td>A16915-000</td>
<td>Cooling Fan</td>
</tr>
<tr>
<td>4.</td>
<td>12-1400-01</td>
<td>Stator Assy.</td>
</tr>
<tr>
<td>5.</td>
<td>A26454-001</td>
<td>Rotor &amp; 1st Gear Kit</td>
</tr>
<tr>
<td>6.</td>
<td>03-1245-00</td>
<td>Screws (2)</td>
</tr>
<tr>
<td>7.</td>
<td>03-1251-00</td>
<td>Flange Screws (2)</td>
</tr>
<tr>
<td>8.</td>
<td>A16920-021</td>
<td>Gear Case Cover</td>
</tr>
<tr>
<td>9.</td>
<td>02-1521-00</td>
<td>Gear and Pinion</td>
</tr>
<tr>
<td>10.</td>
<td>03-1403-43</td>
<td>Motor Bolts (4)</td>
</tr>
<tr>
<td>11.</td>
<td>A26650-01</td>
<td>Gear and Output Shaft</td>
</tr>
<tr>
<td>12.</td>
<td>03-1408-21</td>
<td>Washer (2)</td>
</tr>
<tr>
<td>13.</td>
<td>02-1505-00</td>
<td>&quot;O&quot; Ring</td>
</tr>
<tr>
<td>14.</td>
<td>A24184-001</td>
<td>Gear Case Kit</td>
</tr>
<tr>
<td>15.</td>
<td>03-1408-06</td>
<td>Washer (3)</td>
</tr>
<tr>
<td>16.</td>
<td>02-2224-01</td>
<td>1st Gear and Pinion</td>
</tr>
<tr>
<td>17.</td>
<td>03-1408-19</td>
<td>Washer (2)</td>
</tr>
<tr>
<td>18.</td>
<td>02-1503-00</td>
<td>Grease Seal</td>
</tr>
<tr>
<td>19.</td>
<td>02-1504-00</td>
<td>Grease Seal</td>
</tr>
<tr>
<td>20.</td>
<td>03-1252-00</td>
<td>Screw (2)</td>
</tr>
<tr>
<td>21.</td>
<td>13-0709-01</td>
<td>Water Shed</td>
</tr>
<tr>
<td>22.</td>
<td>03-1475-01</td>
<td>Key</td>
</tr>
<tr>
<td>23.</td>
<td>03-1408-20</td>
<td>Washer (2)</td>
</tr>
<tr>
<td>24.</td>
<td>13-0617-04</td>
<td>Slinger Ring</td>
</tr>
<tr>
<td>25.</td>
<td>02-1501-00</td>
<td>Rotor Bearing</td>
</tr>
</tbody>
</table>

1. Cover comes with grease seals items 18 & 19.
2. Fiber gear (item 16) and rotor bearing (item 25) are in the rotor kit.
3. Includes items: 8, 13, 15, 17, 18, 19, 23 plus can of oil.

NOTE:
Refer also to pages 33 - 36 for additional information concerning gearmotor centrifugal switch.
COMPRESSOR 115/60/1

ITEM NO. | PART NO. | DESCRIPTION
---|---|---
1. | 18-4500-01 | Compressor
2. | 18-1901-33 | Capacitor
3. | 18-2200-26 | Relay
4. | 18-2200-25 | Overload
5. | 18-2200-27 | Sleeve (4)
6. | 18-2200-28 | Grommet (4)
7. | 03-1405-40 | Screw (4)
8. | 03-1417-12 | Washer (4)
9. | 03-1408-02 | Washer (4)

*Not Shown
CONTROL BOX ASSEMBLY
WATER AND AIR COOLED

1. Master Switch 12-0426-01
2. Temperature 11-0354-00
3. Terminal Board 12-0813-04
RESERVOIR ASSEMBLY

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>02-2217-02</td>
<td>Valve Assy.</td>
</tr>
<tr>
<td>2.</td>
<td>02-2217-01</td>
<td>Reservoir Complete</td>
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</tbody>
</table>
CABINET PARTS

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
<th>ENAMEL</th>
<th>STAINLESS STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Panel Top</td>
<td>A26625-001</td>
<td>A26625-002</td>
</tr>
<tr>
<td>2.</td>
<td>Cabinet Base</td>
<td>A27103-001</td>
<td>Same</td>
</tr>
<tr>
<td>3.</td>
<td>Panel, Right Side</td>
<td>A26624-001</td>
<td>A26624-002</td>
</tr>
<tr>
<td>4.</td>
<td>Panel, Front</td>
<td>A27111-001</td>
<td>A27111-002</td>
</tr>
<tr>
<td>5.</td>
<td>Panel, Left Side</td>
<td>A26623-001</td>
<td>A26623-002</td>
</tr>
<tr>
<td>6.</td>
<td>Panel, Rear</td>
<td>A26622-001</td>
<td>A26622-002</td>
</tr>
<tr>
<td>*</td>
<td>Mounting Screws</td>
<td>03-1414-09</td>
<td>Same 4/Panel</td>
</tr>
<tr>
<td>*</td>
<td>Aerosol Paint (micromatte)</td>
<td>10-0314-01</td>
<td></td>
</tr>
</tbody>
</table>

*Items not illustrated*
ITEM NO. | PART NO. | DESCRIPTION
---|---|---
1. | 02-0179-02 | Screw Cap
2. | A26537-003 | Nylobraid Tube
3. | A26542-001 | Spout Assy.
4. | A24934-001 | Spout/Breaker
5. | 13-0617-41 | "O" Ring
6. | 13-0679-00 | Spout Gasket
7. | A24930-001 | Switch Actuator
8. | A25305-001 | Shoulder Screw
9. | 02-2139-01 | Stand Off
10. | 12-1664-00 | Switch
11. | 03-1449-01 | Nylon Screw
12. | 03-1409-14 | Rubber Washer
13. | A18430-002 | Spout Plate
14. | 03-1417-07 | Lockwasher (4)
15. | 03-1544-03 | Socket Head Screw (4)
16. | 03-1506-01 | Screw
17. | 13-0806-01 | Sealing Pad

NOTE:

⚠️ Tighten carefully, small thread & brass
⚠️ A light coating of petro-jel required on "O" Ring & Spring
Description of the Function of the Texas Instruments Low Pressure Control Switch When Used on 1/10 H.P. Gear Motors

On all Scotsman units using a 1/10 H.P. gear motor, the centrifugal switch mechanism, mounted on top of the motor, was removed and replaced, in the system, with a low pressure control switch. This is a single pole double throw (SPDT) switch manufactured by Texas Instruments. (Queen Products Part No. 11-0396-01*).

*Refer to a typical wiring diagram, showing contacts, for description of switch function.

On all Queen Products wiring diagrams, the controls are shown in the ice making mode. Thus, the 1-3 contacts are shown as closed. On machine start up the 1-3 contacts are open and the 1-2 contacts are closed. As the unit begins to run, the low side pressure starts to fall from the stabilized or “at rest” pressure. As soon as the pressure drops to 20 Psig, the 1-2 contacts open and the 1-3 contacts close. This removes the operating controls, such as the bin thermostat, from the “gear motor circuit”. If one of the operating controls opens, it will shut off the “compressor circuit”. The gear motor will run until the low side pressure rises to 32 Psig. At this point the 1-3 contacts open and turns the gear motor off. This usually takes 1-3 minutes depending on ambient conditions. This length of time allows the auger to transport all the ice out of the freezing chamber. Consequently, when called on to start up again, there is no load to start up against. On start up, again, the 1-3 contacts are open and the 1-2 contacts closed.

*Function 11-0396-01 Low Pressure Control Switch

1-3 Contacts - Open on Pressure Rise
Opens at 32 Psig
Closes at 20 Psig

1-2 Contacts - Open on Pressure Fall
Opens at 20 Psig
Closes at 32 Psig

ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE

NOTE: Refer also to Pages 33 - 36 for additional information concerning Gearmotor Centrifugal Switch.
TO REPLACE: FREEZER GEAR MOTOR

1. Remove top, front and side panels.
2. Shut off water supply and disconnect electrical power to unit.
3. Remove electrical leads from motor to control box.
4. Remove slip nut attaching ice discharge tube to freezer spout casting.
5. Next remove 3 bolts securing base adapter to gear motor cover and the 4 bolts holding the gear motor bracket to the cabinet base.

FREEZER ASSEMBLY

TO REPLACE:
1. To remove freezer first remove cabinet top, front and side panels.
2. Shut off water supply and disconnect electrical power to unit.
3. Drain reservoir and freezer of water by removing tygon tubing entering base of freezer.
4. Remove slip nut attaching ice discharge tube to freezer spout casting.
5. Purge off refrigerant and unsweat suction line. Disconnect capillary line at drier. Cap off all lines so no moisture can enter system.
6. Remove the 3 bolts securing freezer base adapter to top of gear motor cover.
7. Freezer assembly now can be lifted off gear motor and out of cabinet.
8. To re-install reverse procedure. Refer to section “Specifications” for proper refrigerant charge and to page 11 for Head and Back pressure settings.

FREEZER WORM SHAFT (AUGER)

TO REPLACE:
1. Disconnect electrical supply and shut off water to unit.
2. Remove top and front panel of cabinet.
3. Drain reservoir and freezer of water by removing tygon tubing entering base of freezer.
4. Next remove slip nut attaching ice discharge tube to freezer spout casting and insulation covering top of freezer chamber.
5. Remove the 4 bolts attaching the freezer spout casting to the spout bracket and remove spout casting. Also remove bracket by removing the stainless steel screw which secures the bracket to the freezer chamber.
6. By lifting up on the freezer cap pull ring, the complete worm shaft and bearing retainer can be removed from freezer chamber. NOTE: Top half of water seal is attached to the lower end of the worm shaft.
FREEZER ASSEMBLY TOP BEARING

TO REPLACE:
1. Follow steps 1 thru 6, freezer worm shaft removal.
2. To remove bearing and retainer from worm shaft, first remove retaining ring in top of bearing retainer.
3. Remove freezer cap and pull ring from bearing retainer.
4. Unscrew cap screw holding shaft to inner race of bearing and pull worm shaft free from bearing and retainer.
5. When replacing with a new bearing add new grease (Beacon No. 325) to top of bearing.

FREEZER ASSEMBLY BOTTOM BEARING AND WATER SEAL

TO REPLACE:
1. To replace, follow steps 1 through 6 under Worm Shaft Removal.
2. Remove 3 bolts holding freezer to 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 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. When reassembling, 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.
7. Carefully insert worm shaft assembly in freezer tube and into spline coupling on bottom.
8. Replace spout casting, screws, insulation pieces and unit is ready to resume operation.

BIN THERMOSTAT:

Thermostat control body is located in electrical control box. The thermostat sensing tube is threaded into the ice storage bin where it automatically stops the icemaker when ice bin fills to sensing tube level and restarts icemaker when ice is removed. Factory settings are 35° cut out, 45° cut in.

Altitude correction begins at 2,000 feet, cut in and cut out screws should be adjusted equally, not more than 1/4 turn at a time.

IMPORTANT — Refer to page 7 for proper location of bin control capillary.

TO REPLACE:
1. Disconnect electrical supply.
2. Remove bin thermostat capillary tube from bin location.
3. Remove front panel and 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.
HEAD PRESSURE CONTROL (WATER COOLED MODELS)

The head pressure safety control is factory preset at 250 lb. PSIG. This is a manual reset control. The control is placed in the system as a safety precaution, to terminate power to the unit should loss of water occur to the water cooled condenser.

WATER REGULATING VALVE (Water Cooled Models Only)

The Water Regulating Valve is designed to maintain a constant head pressure by regulating the amount of incoming water flow through the water cooled condenser. This valve is operated by high side pressure and may be adjusted by the adjusting screw on top of the valve to raise or lower the operating head pressure.

TO REPLACE:
1. Shut off water supply to machine and disconnect electrical power.
2. Disconnect old valve from water supply line and install new valve.
   NOTE: Be sure arrow on side of valve points in direction of water flow.
3. Purge off refrigerant and disconnect valve capillary line from high side fitting and immediately attach capillary from new valve.
4. Recharge system. Refer to page 11 for proper refrigerant charge and head and pressure settings.

WATER RESERVOIR

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 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 arm. The water level should be set 1/4 inch below the overflow standpipe.

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

TO REPLACE:
1. Remove cabinet top and side panel.
2. Turn off water supply and drain reservoir.
3. Remove 1/4 inch inlet water line.
4. Remove plastic feed line to freezer.
5. Remove two screws holding reservoir bracket to wall.
6. Lift out reservoir.
7. To replace, reverse procedure.
MAINTENANCE INSTRUCTIONS – FLAKERS

THE FOLLOWING MAINTENANCE SHOULD BE SCHEDULED THREE TIMES PER YEAR ON ALL SCOTSMAN MODULAR 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.
   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 by disconnecting tube between reservoir and freezer. After draining, reconnect tubing.
   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 qts. 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. Remove overflow tube, wash and rinse reservoir, replace overflow tube, 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 the 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 gear motor operation. Normal running temperatures are in the area of 160°F 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. Use Beacon No. 325. Replace cap and retainer ring.
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. Bin thermostat should be set at 10° Differential 35° cut out, 45° cut in.
New style centrifugal switch started with MF3"C" models. Approximate serial number starting usage is: 317613-7C.

MF3 models prior to above may be converted to current standard using Kit Part #A27494-01 shown on next page.
CENTRIFUGAL SWITCH KIT INSTALLATION INSTRUCTIONS

In order to replace an existing centrifugal mechanism or just adding this new centrifugal mechanism into your unit, the installation procedure is the same.

REMOVAL

1. Remove all existing hardware from the top of the drive motor so that all that is visible on the top of the motor is the shaft of the motor and the four holes left vacant by the motor support screws. Do not remove motor housing cover.

   NOTE: These four screws (approximately 5" long) will be reused to assemble the new mechanism.

   You are now ready to install the new mechanism.

INSTALLATION

1. Install Item 1 centrifugal actuator to motor shaft with Item 2 #10-32 screw and Item 3 small flat washer. A small amount of Loctite should be used on the screw threads to prevent screw from backing out.

   NOTE: The shaft extension shown has been factory installed into the centrifugal actuator for your convenience.

2. Install Item 4 switch case using four 5" long screws previously removed when disassembling unit.

   NOTE: Switch has been factory installed for your convenience.

3. Make any necessary adjustments noted in sketch above.

4. As the purpose of this mechanism is to turn the compressor off when the gear motor slows down, the switch in this mechanism should be wired into the neutral line of the compressor.

   NOTE: Two white wires Items 5 and 6 have been furnished with this kit to ease your assembly. The insulated terminals should terminate at the centrifugal switch. The remaining ends of these wires will connect at the terminals vacated when the neutral wire from the compressor is removed.

5. After wiring has been completed, install Item 7 cover, with Item 8 thread forming screw.

   This unit is now optional.

   NOTE: The intent of this mechanism is not in any way related to the function of the Texas instrument low pressure switch installed in certain models.

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>PART NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>12-2060-01</td>
<td>Centrifugal Actuator</td>
</tr>
<tr>
<td>2.</td>
<td>03-1403-77</td>
<td>Screw</td>
</tr>
<tr>
<td>3.</td>
<td>03-1408-36</td>
<td>Washer</td>
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<tr>
<td>4.</td>
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<td>Case</td>
</tr>
<tr>
<td>5.</td>
<td>03-0886-00</td>
<td>Twin Speed Nut</td>
</tr>
<tr>
<td>6.</td>
<td>12-2059-01</td>
<td>Switch</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td>Case Cover</td>
</tr>
<tr>
<td>8.</td>
<td>03-1404-05</td>
<td>Screw</td>
</tr>
<tr>
<td>9.</td>
<td>03-1403-09</td>
<td>Screws 2/Unit</td>
</tr>
</tbody>
</table>

KIT PART #A27494-01

*Items 4 and 7 Supplied in Kit A27895-001.
WIRING DIAGRAM
115/60/1
Water Cooled

ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE

THIS UNIT MUST BE GROUNDED
WIRING DIAGRAM
115/60/1
Air Cooled

ALL CONTROLS SHOWN IN NORMAL ICE MAKING MODE

THIS UNIT MUST BE GROUNDED