

Flake & Nugget Machines

RFF/UFF/RNF/UNF Models

Technician's Handbook



Safety Notices

As you work on Welbilt equipment, be sure to pay close attention to the safety notices in this handbook. Disregarding the notices may lead to serious injury and/or damage to the equipment.

Throughout this handbook, you will see the following types of safety notices:

Warning

Text in a Warning box alerts you to a potential personal injury situation. Be sure to read the Warning statement before proceeding, and work carefully.

Caution

Text in a Caution box alerts you to a situation in which you could damage the equipment. Be sure to read the Caution statement before proceeding, and work carefully.

Procedural Notices

As you work on Welbilt equipment, be sure to read the procedural notices in this handbook. These notices supply helpful information which may assist you as you work.

Throughout this handbook, you will see the following types of procedural notices:

Important

Text in an Important box provides you with information that may help you perform a procedure more efficiently. Disregarding this information will not cause damage or injury, but it may slow you down as you work.

NOTE: Text set off as a Note provides you with simple, but useful, extra information about the procedure you are performing.

Read These Before Proceeding:

Caution

Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your Manitowoc equipment. If you encounter problems not covered by this manual, do not proceed, contact Welbilt. We will be happy to provide assistance.

Caution

Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your equipment. Visit our website www.welbilt.com for manual updates, translations, or contact information for service agents in your area.

Important

Routine adjustments and maintenance procedures outlined in this handbook are not covered by the warranty.

Warning

Read this manual thoroughly before operating, installing or performing maintenance on the equipment. Failure to follow instructions in this manual can cause property damage, injury or death.

⚠ Warning

Do not use electrical appliances or accessories other than those supplied by Welbilt for your ice machine model.

⚠ Warning

Two or more people or a lifting device are required to lift this appliance.

⚠ Warning

This equipment contains high voltage electricity and refrigerant charge. Installation and repairs are to be performed by properly trained technicians aware of the dangers of dealing with high voltage electricity and refrigerant under pressure. The technician must also be certified in proper refrigerant handling and servicing procedures. All lockout and tag out procedures must be followed when working on this equipment.

⚠ Warning

Do not damage the refrigeration circuit when installing, maintaining or servicing the unit.

 Warning

Do not operate equipment that has been misused, abused, neglected, damaged, or altered/modified from that of original manufactured specifications. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision concerning use of the appliance by a person responsible for their safety. Do not allow children to play with this appliance.

 Warning

All covers and access panels must be in place and properly secured, before operating this equipment.

 Warning

Do not obstruct machine vents or openings.

 Warning

Do not store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance.

 Warning

Do not clean with water jet.

⚠ Warning

It is the responsibility of the equipment owner to perform a Personal Protective Equipment Hazard Assessment to ensure adequate protection during maintenance procedures.

⚠ Warning

Two or more people are required to move this equipment to prevent tipping.

Warning

When using electric appliances, basic precautions must always be followed, including the following:

- a. Read all the instructions before using the appliance.
- b. To reduce the risk of injury, close supervision is necessary when an appliance is used near children.
- c. Do not contact moving parts.
- d. Only use attachments recommended or sold by the manufacturer.
- e. Do not use outdoors.
- f. For a cord-connected appliance, the following must be included:
 - Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
 - Unplug from outlet when not in use and before servicing or cleaning.
 - Do not operate any appliance with a damaged cord or plug, or after the appliance malfunctions or is dropped or damaged in any manner. Contact the nearest authorized service facility for examination, repair, or electrical or mechanical adjustment.
- g. Follow applicable lock out tag out procedures before working on equipment.
- h. Connect to a properly grounded outlet only.

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Table of Contents

General Information

| | |
|---|----|
| Model Numbers | 15 |
| Flake Air & Water-Cooled Models | 15 |
| Nugget Air & Water-Cooled Models | 15 |
| QuietQube Models with Remote Condensing Unit | 16 |
| Model/Serial Number | 16 |
| Manitowoc Cleaner and Sanitizer | 16 |
| Ice Machine Warranty Information | 16 |
| Ice Machine Heat of Rejection | 17 |

Installation

| | |
|---|----|
| Installation Requirements | 19 |
| Potable Water Requirements | 20 |
| Drain Connections | 20 |
| Ice Machine Clearance Requirements | 21 |
| Cooling Tower Applications | 21 |
| Electrical Service | 22 |
| Voltage | 22 |
| Fuse/Circuit Breaker | 22 |
| Ground Fault Interrupter Circuit (GFI) | 22 |
| Maximum Breaker/Minimum Circuit Amperage Chart | 23 |
| RFF/RNF/UFF/UNF Air-cooled Models | 23 |
| RFF/UFF Water-cooled Models | 23 |
| RFF/RNF QuietQube Models | 24 |

Maintenance

| | |
|---|----|
| Cleaning and Sanitizing | 25 |
| Exterior Cleaning | 25 |
| RF/RFS/RNS Models Cleaning/Sanitizing Procedures | 25 |
| Parts removal for Cleaning/Sanitizing | 31 |
| Ice Chute Removal - RFF & RNF Models | 32 |
| Cleaning the Air filter and Condenser | 33 |
| Removal from Service/Winterization | 34 |

Sequence of Operation

| | |
|---|----|
| Ice Making Sequence of Operation | 35 |
| UFF0200/UFF0350/UNF0200/UNF0300 Operation | 35 |
| RFF0320 & RNF0320 Operation..... | 35 |
| RNF0620/RFF0620/RNF1100/RFF1300/RFF2500 Operation | 36 |
| RNF1020C/RFF1220C/RFF2200C..... | 37 |
| Thermostat Settings | 39 |

Troubleshooting

UFF0200/UFF0350/UNF0200/UNF0300

| | |
|------------------------------|----|
| Troubleshooting | 41 |
|------------------------------|----|

| | |
|---------------------------------|----|
| Self-Contained Air-Cooled | 41 |
|---------------------------------|----|

| | |
|--|----|
| RFF0320/RNF0320 Troubleshooting | 47 |
|--|----|

| | |
|---------------------------------|----|
| Self-Contained Air-Cooled | 47 |
|---------------------------------|----|

RFF0620/RNF0620/RNF1100/RFF1300

| | |
|------------------------------|----|
| Troubleshooting | 53 |
|------------------------------|----|

| | |
|---------------------------------|----|
| Self-Contained Air-Cooled | 53 |
|---------------------------------|----|

| | |
|--------------------------------|----|
| Rotation Sensor Operation..... | 53 |
|--------------------------------|----|

| | |
|--|----|
| RNF1020C/RFF1220C Troubleshooting | 59 |
|--|----|

| | |
|--|----|
| QuietQube Remote Air-cooled Models with Remote Condensing Unit | 59 |
|--|----|

| | |
|--------------------------------------|----|
| RFF2500 Troubleshooting | 66 |
|--------------------------------------|----|

| | |
|---------------------------------|----|
| Self-Contained Air-Cooled | 66 |
|---------------------------------|----|

| | |
|--------------------------------|----|
| Rotation Sensor Operation..... | 66 |
|--------------------------------|----|

| | |
|---------------------------------------|----|
| RFF2200C Troubleshooting | 73 |
|---------------------------------------|----|

| | |
|--|----|
| QuietQube Remote Air-cooled Models with Remote Condensing Unit | 73 |
|--|----|

| | |
|--|----|
| Refrigeration Troubleshooting | 81 |
|--|----|

| | |
|-----------------------------|----|
| Capillary Tube Models | 81 |
|-----------------------------|----|

Component Specifications

| | |
|--|----|
| Bin Thermostat | 83 |
| Low Temperature Thermostat Evaporator safety thermostat). | 83 |
| High Pressure Cutout (HPCO) Control | 83 |
| Rotation Sensor. | 84 |
| Low Pressure Cutout (LPCO) Control. | 84 |
| Fan Cycle Control | 84 |
| Total System Refrigerant Charge | 85 |
| Filter-Driers | 86 |
| Suction Cleanup Filter-Drier. | 86 |

Charts

| | |
|--|-----|
| Total System Refrigerant Charge | 87 |
| Ice Production & Refrigerant Pressure | 87 |
| Flake Models | 88 |
| UFF200A | 88 |
| RFF0320A. | 89 |
| UFF0350. | 90 |
| RFF0620A. | 91 |
| RFF0620W | 92 |
| RFF1220C With RCUF1200. | 93 |
| RFF1300A. | 94 |
| RFF1300W | 95 |
| RFF2200C With RCUF2200. | 96 |
| RFF2500A. | 97 |
| RNS Nugget Models | 98 |
| UNF0200A | 98 |
| UNF0300A | 99 |
| RNF0320A | 100 |
| RNF0620A | 101 |
| RNF0320W | 102 |
| RNF1100A | 103 |
| RNF1000W | 104 |
| RNF1020C With RCUF1000 | 105 |

Diagrams

| | |
|---|-----|
| Wiring Diagrams | 107 |
| Flake Models | 108 |
| UFF0200/UFF350 Air-Cooled | 108 |
| RFF0320 Air-Cooled | 110 |
| RFF0620 Air-Cooled | 112 |
| RFF1300A Air-Cooled | 114 |
| RFF1300 Water-Cooled | 116 |
| RFF1220C QuietQube Head Section | 118 |
| RFF2500 Air-Cooled | 120 |
| RFF2200C QuietQube Head Section | 122 |
| Condensing Units | 124 |
| RCUF Condensing Unit 1ph | 124 |
| RCUF Condensing Unit 3ph | 126 |
| Nugget Models | 128 |
| UNF0200/UNF0300 Air-Cooled | 128 |
| RNF0320 Air-Cooled | 130 |
| RNF0620 Air-Cooled | 132 |
| RNF0620 Water-Cooled | 134 |
| RNF1100 Air-Cooled | 136 |
| RNF1100 Water-cooled | 138 |
| RNF1020C | 140 |
| Refrigeration Tubing Schematics | 142 |
| Flake Models | 142 |
| RFF0200/RFF0350/RFF0320/RFF0620 | 142 |
| RFF1300 AIR-COOLED | 143 |
| RFF2500 Air-cooled | 144 |
| RFF1220C QuietQube Head Section & RCUF1000 Condensing Unit | 146 |
| RFF2200 QuietQube Head Section & RCUF2200 Condensing Unit | 148 |
| Nugget Models | 150 |
| UNF0200/UNF0300 | 150 |
| RNF0320/RNF0620/RNF1100 | 151 |
| RNF1020C QuietQube Head Section & RCUF1000 Condensing Unit | 152 |

General Information

Model Numbers

FLAKE AIR & WATER-COOLED MODELS

| Flake Models | | | |
|-------------------------|---------------------------|--------------------|----------------------|
| Self Storage Air-Cooled | Self Storage Water-Cooled | Modular Air-Cooled | Modular Water-Cooled |
| UFF0200A | – | – | – |
| UFF0350A | – | – | – |
| | | RFF0320A | |
| – | – | RFF0620A | RFF0620W |
| – | – | RFF1300A | RFF1300W |
| – | – | RFF2500A | – |

NUGGET AIR & WATER-COOLED MODELS

| Self Storage Air-Cooled | Self Storage Water-Cooled | Modular Air-Cooled | Modular Water-Cooled |
|-------------------------|---------------------------|--------------------|----------------------|
| UNF0200A | – | – | – |
| UNF0300A | – | – | – |
| UNF0300A | – | – | – |
| | | RNF0320A | |
| – | – | RNF0620A | RNF0620W |
| – | – | RNF1100A | RNF1100W |

QUIETQUBE MODELS WITH REMOTE CONDENSING UNIT

| Flake Models | |
|----------------|-----------------------------|
| QuietQube Head | RCUF Remote Condensing Unit |
| RFF1220C | RCUF1200 |
| RFF2200C | RCUF2200 |
| Nugget Models | |
| QuietQube Head | RCUF Remote Condensing Unit |
| RNF1020C | RCUF1000 |

Model/Serial Number

These numbers are required when requesting information from your local Manitowoc Distributor, or Manitowoc Ice. The model and serial number are listed on the MODEL/SERIAL NUMBER DECAL affixed to the ice machine.

Manitowoc Cleaner and Sanitizer

Manitowoc Ice Machine Cleaner and Sanitizer are available in 16 oz. (473 ml) bottles. These are the only cleaner and sanitizer approved for use with Manitowoc products.

| Cleaner Part Number | | Sanitizer Part Number | |
|---------------------|-----------|-----------------------|---------|
| 16 oz. | 000000084 | 16 oz. | 9405653 |
| 1 gal | N/A | 1 gal. | 9405813 |

Ice Machine Warranty Information

Warranty information for all ice machine models is available on our website at www.manitowocice.com.

Ice Machine Heat of Rejection

| Ice Machine Heat of Rejection | | |
|----------------------------------|-------------------|-------|
| Series Ice Machine | Heat of Rejection | |
| | Air Conditioning* | Peak |
| RFF and UFF Flake Models | | |
| UFF0200 | 2400 | 5000 |
| RFF0320 | 2400 | 5000 |
| RFF0620 | 5200 | 7700 |
| RFF1300 | 7500 | 14000 |
| RFF2500 | 17000 | 29500 |
| RNF and UNF Nugget Models | | |
| UNF0200 | 2400 | 5000 |
| UNF0300 | 5200 | 5000 |
| RNF0320 | 3075 | 4100 |
| RNF0620 | 5200 | 7700 |
| RNF1100 | 7500 | 10900 |
| RNF1100 | 11300 | 12800 |

*BTU/Hour

NOTE: Because the heat of rejection varies during the ice making cycle, the figure shown is an average.

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Installation

Installation Requirements

The location selected for the ice machine must meet the following criteria. If any of these criteria are not met, select another location.

- Air temperature - Minimum 50°F (10°C), Maximum 110°F (43°C)
- The location must be free of airborne and other contaminants.
- The location must not be near heat-generating equipment or in direct sunlight.
- The location must be capable of supporting the weight of the ice machine and a full bin of ice.
- The location must allow enough clearance for water, drain and electrical connections in the rear of the ice machine.
- The location must not obstruct airflow through or around the ice machine.
- The ice machine and bin must be level.
- Routine adjustments and maintenance procedures outlined in this manual are not covered by the warranty.

Potable Water Requirements

- Plumbing must conform to local codes.
- Water temperature: Minimum 37°F (3°C), Maximum 90°F (32°C).
- Do not connect the ice machine to a hot water supply. Be sure all hot water restrictors installed for other equipment are working. (Check valves on sink faucets, dishwashers, etc.)
- If water pressure exceeds maximum pressure (80 psig [552 kPa]) obtain a water pressure regulator.
- A water shut-off valve is required to clean the ice machine.
- A union for both the ice making and condenser water lines is required.
- Water inlet lines require insulation to prevent condensation.
- When local code requires, a back flow preventer must be installed on the water inlet line.

Drain Connections

- Drain lines must have a 1.5 inch drop per 5 feet of run (2.5 cm per meter), and must not create traps.
- The floor drain must be large enough to accommodate drainage from all drains.
- Bin drain termination must have an air gap.
- Separate insulated bin and water-cooled condenser drain lines are required.
- The bin and ice machine drains must be run separately.

Ice Machine Clearance Requirements

| Head Sections | Self-Contained Air-Cooled | Self-Contained Water-Cooled* | QuietQube Air-Cooled |
|---------------|---------------------------|------------------------------|----------------------|
| Back | 5" (12.7 cm) | 5" (12.7 cm) | 5" (12.7 cm) |
| Sides/Top | 8" (20.3 cm) | 8" (20.3 cm) | 8" (20.3 cm) |

| RCUF Units | Remote Condensing Unit* |
|------------|-------------------------|
| Front/Back | 24" (61.0 cm) |
| Sides/Top | 6" (15.2 cm)* |

NOTE: Allowance must be made for removal when the ice machine is built-in. Removal of the top panel is required for cleaning and sanitizing.

Cooling Tower Applications

A water cooling tower installation does not require modification of the ice machine. The water regulator valve for the condenser continues to control the refrigeration discharge pressure.

It is necessary to know the amount of heat rejection, and pressure drop through the condenser and water valves (inlet and outlet) when using a cooling tower on an ice machine.

- Water entering the condenser must not be lower than 37°F (3°C) or exceed 90°F (32°C).
- Water flow through the condenser must not exceed 5 gal. (19 L) per minute.
- Allow for a pressure drop of 7 psi (48 kPa) between the condenser water inlet and the outlet of the ice machine.
- Water exiting the condenser must not exceed 110°F (43°C).

Electrical Service

Warning

All wiring must conform to local, state and national codes.

VOLTAGE

The maximum allowable voltage variation is $\pm 10\%$ of the rated voltage on the ice machine model/serial number plate at compressor start-up.

FUSE/CIRCUIT BREAKER

A separate fuse/circuit breaker must be provided for each ice machine. Circuit breakers must be H.A.C.R. rated (does not apply in Canada).

Warning

The ice machine must be grounded in accordance with national and local electrical codes.

GROUND FAULT INTERRUPTER CIRCUIT (GFCI)

A GFCI/GFI circuit protection is not recommended with our equipment. If a GFCI/GFI is required by code a GFCI/GFI breaker rather than outlet must be used to avoid intermittent nuisance trips.

Maximum Breaker/Minimum Circuit Amperage Chart

NOTE: Due to continuous improvements, this information is for reference only. Please refer to the ice machine serial number tag to verify electrical data. Model/Serial tag information overrides information listed on these pages.

RFF/RNF/UFF/UNF AIR-COOLED MODELS

| Series Ice Machine | Voltage Phase Cycle | Air-Cooled | | |
|--------------------|---------------------|------------------------------|------------------|--------------------|
| | | Max Fuse/ Circuit Breaker | Min Circuit Amps | Total Circuit Amps |
| Series Ice Machine | Voltage Phase Cycle | Max Fuse/ Circuit Breaker | Min Circuit Amps | Total Circuit Amps |
| UNF0200 | 115/1/60 | 15 Amp | N/A | 7.5 |
| UFF0200 | 115/1/60 | 15 Amp | N/A | 7.5 |
| UFF0350 | 115/1/60 | 15 Amp | N/A | 10.0 |
| UNF0300 | 115/1/60 | 15 Amp | N/A | 10.0 |
| RNF0320 | 115/1/60 | 20 Amp | 12.8 | — |
| RFF0320 | 115/1/60 | 20 Amp | 12.8 | — |
| RNF0620 | 115/1/60 | 25 Amp | 16.3 | — |
| RFF0620 | 115/1/60 | 25 Amp | 16.3 | — |
| | 208-230/1/60 | 15 Amp | 8.7 | — |
| RNF1100 | 208-230/1/60 | 20 Amp | 14.2 | — |
| RFF1300 | 208-230/1/60 | 20 Amp | 12.5 | — |
| RFF2500 | 208-230/3/60 | 20 Amp | 15.0 | — |

RFF/UFF WATER-COOLED MODELS

| Series Ice Machine | Voltage Phase Cycle | Water-Cooled | |
|--------------------|---------------------|------------------------------|------------------|
| | | Max Fuse/ Circuit Breaker | Min Circuit Amps |
| RNF0620 | 115/1/60 | 25 Amp | 15.4 |
| RFF0620 | 115/1/60 | 25 Amp | 15.4 |
| | 208-230/1/60 | 15 Amp | 8.2 |
| RNF1100 | 208-230/1/60 | 20 Amp | 13.7 |
| RFF1300 | 208-230/1/60 | 20 Amp | 12.5 |

RFF/RNF QUIETQUBE MODELS

| Series Ice Machine | Voltage Phase Cycle | Remote Air-Cooled | |
|--------------------|---------------------|------------------------------|------------------|
| | | Max Fuse/ Circuit Breaker | Min Circuit Amps |
| RNF1100 | 115/1/60 | 15 Amp | 2.9 |
| RFF1300 | 208-230/1/60 | 15 Amp | 1.4 |

Maintenance

Cleaning and Sanitizing

Maintenance procedures covered in this manual are not covered by the warranty.

Caution

Use only Manitowoc approved Ice Machine Cleaner (part number 000000084) and Sanitizer (part number 9405653). Do not mix Cleaner and Sanitizer solutions together. It is a violation of Federal law to use these solutions in a manner inconsistent with their labeling. Read and understand all labels printed on bottles before use.

Warning

Wear rubber gloves and safety goggles (and/or face shield) when handling ice machine Cleaner or Sanitizer.

EXTERIOR CLEANING

Remove dust and dirt off exterior surfaces with mild household dish-washing detergent and warm water. Wipe dry with a clean, soft cloth.

RF/RFS/RNS MODELS CLEANING/SANITIZING PROCEDURES

Cleaning/Sanitizing Procedure

This procedure must be performed once every month.

- All ice must be removed from the bin
- The ice machine and bin must be disassembled cleaned and sanitized
- The ice machine produces ice with the cleaner and sanitizer solutions
- All ice produced during the cleaning and sanitizing procedure must be discarded

Procedure to Clean/Sanitize

Use Ice Machine Cleaner part number 000000084.

Use Ice Machine Sanitizer part number 9405653.

Step 1 Remove front and top covers and set the toggle switch to the OFF position.

Step 2 Remove all ice from the bin.

Step 3 Turn off the ice making water supply and drain water from evaporator and reservoir.

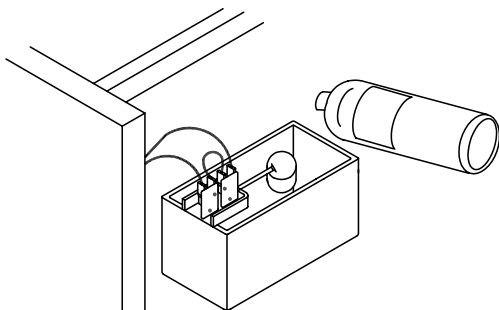
Step 4 Remove the top cover from water reservoir.

Step 5 Follow the chart and premix cleaner and water.

| Amount of Water | Amount of Cleaner Part Number 000000084 |
|---------------------|--|
| 1 gallon (4 Liters) | 3 ounces (90 ml) |

Step 6 Fill the evaporator and reservoir with cleaning solution.

Prop Float Up to Prevent Low Water Level Shutdown



Step 7 Move the toggle switch to the ON position. The ice machine will make ice with the cleaning solution and deposit the ice in the bin. Add the remaining cleaner/water solution as the water level in the reservoir drops.

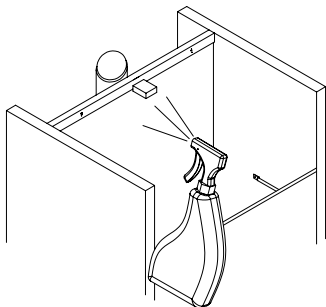
NOTE: Do not allow the cleaner/water level to drop below the minimum water level. The ice machine will discontinue the cleaning cycle if the water float switch opens.

Step 8 After all of the cleaner/water solution has been added turn on the ice making water supply. Continue the freeze cycle for 10 minutes to remove the cleaning solution from the water circuit.

Step 9 Place the toggle switch in the OFF position.

Step 10 Refer to disassembly for cleaning/sanitizing and remove parts for hand cleaning/sanitizing.

- Hand clean all parts
- Rinse all parts with clear potable water
- Sanitize all parts - do not rinse after sanitizing
- Spray all interior bin surfaces with sanitizer (do not rinse sanitized areas).
- Spray evaporator discharge spout



Step 11 Reassemble ice machine.

Step 12 Turn off the ice making water supply.

Step 13 Refer to chart and premix water and sanitizer.

| Amount of Water | Amount of Sanitizer |
|-----------------------|---------------------|
| 1 Gallons (4 L) Water | 1/2 ounce (15 ml) |

Step 14 Fill the evaporator and reservoir with sanitizer/water solution.

Step 15 Move the toggle switch to the ON position. The ice machine will make ice with the sanitizer/water solution and deposit the ice in the bin. Add the remaining sanitizer/water solution when the water level in the reservoir drops.

NOTE: Do not allow the sanitizer/water level to drop below the minimum water level. The ice machine will discontinue the cleaning cycle if the water float switch opens.

Step 16 After all of the sanitizer/water solution has been added to the reservoir, turn on the ice making water supply.

Step 17 Continue the freeze cycle for 30 minutes and then discard all ice produced.

Heavily Scaled Cleaning Procedure

Perform this procedure if you have some or all of these symptoms.

- Excessive grinding, popping or squealing noises from the evaporator
- Grinding noise from gearbox
- Ice machine trips speed sensor

NOTE: A Cleaning/Sanitizing Procedure must be performed after this procedure.

Procedure to Clean Heavily Scaled Flake Ice Machines

Step 1 Remove front and top covers and set the toggle switch to the OFF position.

Step 2 Remove all ice from the bin.

Step 3 Turn off the ice making water supply.

Step 4 Remove the top cover from water reservoir.

Step 5 Refer to chart and premix cleaner with lukewarm water in a non-metallic container.

| Model | Water Reservoir Capacity | Mix Cleaner and Water Use Ice machine nickel safe cleaner, part number 000000084 only | |
|--|--------------------------|--|----------------|
| | | Cleaner | Water |
| UNF0200 UFF0200 UFF0350 UNF0300 | 14 oz (400 ml) | 9 oz (266 ml) | 5 oz (148 ml) |
| RNF0320 RFF0320 RNF0620 RFF0620 | 17 oz (500 ml) | 11 oz (325 ml) | 6 oz (177 ml) |
| RNF1100 RFF1300 | 34 oz (1 L) | 23 oz (680 ml) | 11 oz (325 ml) |
| RFF2500 | 68 oz (2 L) | 46 oz (1.3 L) | 22 oz (650 ml) |

Step 6 Remove all water from the evaporator and water reservoir. Add the entire cleaner/water solution and re-install the reservoir cover.

Leave the cleaner/water solution in the evaporator for a minimum of 4 hours.

Step 7 Remove all cleaner/water from the evaporator and water reservoir.

Step 8 Follow the standard cleaning and sanitizing procedures.

PARTS REMOVAL FOR CLEANING/SANITIZING

Warning

Disconnect electric power to the ice machine at the electric switch box and wear rubber gloves and safety goggles (or face shield) while handling cleaner or sanitizer.

NOTE: Do not mix Cleaner and Sanitizer solutions together. It is a violation of Federal law to use these solutions in a manner inconsistent with their labeling.

1. Turn off the water supply to the ice machine at the water service valve.
2. Remove the components listed on the following pages for cleaning and sanitizing.
3. Soak the removed part(s) in a properly mixed solution of cleaner and water.

| Solution Type | Water | Mixed With |
|----------------------|--------------|---|
| Cleaner | 1 gal. (4 L) | 16 oz (500 ml) cleaner Part Number 000000084 |

4. Use a soft-bristle brush or sponge (NOT a wire brush) to carefully clean the parts.
5. Use the solution and a brush or sponge to clean all disassembled components and the inside of the bin.
6. Rinse all cleaned parts with clear water.
7. Mix a solution of sanitizer and water.

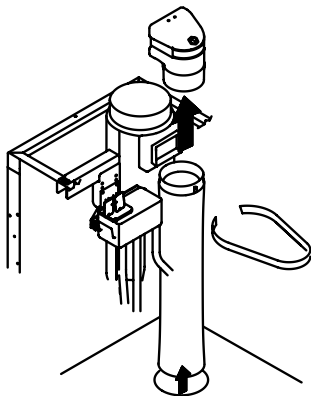
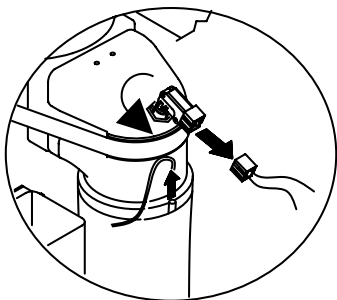
| Solution Type | Water | Mixed With |
|----------------------|---------------|---|
| Sanitizer | 3 gal. (11 L) | 2 oz (60 ml) sanitizer Part Number 94-0565-3 |

8. Soak the parts in the sanitizer/water solution for 10 minutes. Use the sanitizer/water solution and a sponge to sanitize all removed components and the inside of the bin. Do not rinse the sanitized parts.
9. Continue with step 11 of the cleaning/sanitizing procedure.

ICE CHUTE REMOVAL - RFF & RNF MODELS

RFF0320/RNF0620/RFF0620/RNF1100/RFF1300/RFF2500

1. Place the toggle switch in the OFF position, turn off the water supply and disconnect electrical power to the ice machine.
2. Disconnect water supply.
3. Remove water reservoir cover.
4. Remove microswitch and bin thermostat from the ice chute.
5. Remove retainer, ice chute elbow and ice chute.



CLEANING THE AIR FILTER AND CONDENSER

Warning

Disconnect electric power to the ice machine at the electric service switch before cleaning the condenser. The condenser fins are sharp. Use care when cleaning them.

Air-Cooled Condenser

Clean the condenser at least every six months. Follow the steps below.

1. Some models have a washable filter. Clean the filter with a mild soap and water solution.
2. Shine a flashlight through the condenser to check for dirt between the fins. Blow compressed air through the condenser fins from the inside or use a commercial condenser coil cleaner. Follow the directions and cautions supplied with the cleaner.
3. Straighten any bent condenser fins with a fin comb.
4. Carefully wipe off the fan blades and motor with a soft cloth. Do not bend the fan blades. If the fan blades are excessively dirty, wash with warm, soapy water and rinse thoroughly.

Warning

If you are cleaning the condenser fan blades with water, cover the fan motor to prevent water damage.

Removal from Service/Winterization

 **Caution**

If water is allowed to remain in the ice machine in freezing temperatures, severe damage to some components could result. Damage of this nature is not covered by the warranty.

Follow the procedure below.

1. Disconnect the electric power at the circuit breaker or the electric service switch.
2. Turn off the water supply.
3. Disconnect and drain the incoming ice-making water line at the rear of the ice machine.
4. Disconnect drain tubing and drain water into container and discard.
5. Make sure water is not trapped in any of the water or drain lines.
6. Water cooled - Use compressed air to remove all water from the condenser.

Sequence of Operation

Ice Making Sequence of Operation

NOTE: Flake ice machines use an auger to remove ice from the evaporator. Occasional noises (creaks, groans, squeaks, or pops) are a normal part of the ice making process.

UFF0200/UFF0350/UNF0200/UNF0300 OPERATION

The ice machine will not start until:

- A. The rocker switch is moved to “ON”.
- B. Ice does not contact the bin thermostat bulb.
- C. The water reservoir is full of water.

Placing the toggle switch in the ON position starts the gear motor and refrigeration system. The float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine will restart when ice no longer contacts the bin thermostat.

RFF0320 & RNF0320 OPERATION

When the toggle switch is placed in the “ON” position the following controls must be in the closed position before the ice machine will start:

- A. Bin Thermostat
- B. Ice Chute Safety Switch
- C. Low Water Level Switch
- D. High Pressure Cut-out Switch
- E. Low Pressure Cut-Out Switch

Placing the toggle switch in the ON position starts the gear motor and a 10 minute compressor time delay. The compressor starts and the float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

RNF0620/RFF0620/RNF1100/RFF1300/RFF2500 OPERATION

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation, the time delay ends and the compressor starts. The ice machine will continue to make ice until ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

RNF1020C/RFF1220C/RFF2200C

Remote Air-cooled Condensing Unit Models

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation the time delay ends and the liquid line solenoid valve opens.

- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.
- The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

- The refrigerant pressure drops and the fan cycling pressure control opens stopping the condenser fan motor.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor stops.

The ice machine remains off until ice no longer contacts the bin thermostat.

Ice Production/Quality Check

QUALITY CHECK

Ice quality varies with ambient and water temperatures, and is measured by the amount of water in the ice.

Generally speaking, higher incoming water temperature results in lower ice quality. Lower water temperature results in higher ice quality.

ICE PRODUCTION CHECK

NOTE: Ice production checks that are within 10% of the charted capacity are considered normal due to variances in air and water temperatures. Actual temperatures will seldom match the chart exactly.

1. Run the ice machine a minimum of 10 minutes to allow the system to stabilize.
2. Catch the ice in a non-perforated container for 7 minutes and 12 seconds or for more accuracy 14 minutes and 24 seconds.
3. Weigh the container and ice, then deduct the weight of the container.
4. Convert ounces to pounds.
5. Example: 3 lbs. 12 oz. converts to 3.75 lbs.
6. $(12 \text{ oz.} \div 16 \text{ oz.} = .75 \text{ lb.})$
7. Determine the 24-hour ice production capacity.
 - A. 7 minutes 12 seconds = Multiply the total ice weight by 200.
 - B. 14 minutes 24 seconds = Multiply the total ice weight by 100.

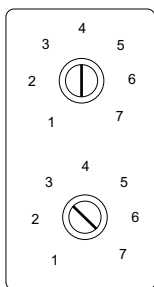
Thermostat Settings

Bin Thermostat:

The bin thermostat sensing bulb is located in the ice chute on modular models and in the bin thermostat holder on the right side of the bin on self storage models. The bin thermostat turns the ice machine on and off as the level of ice in the bin changes. Use the indicator on the ice machine label as the initial setting and adjust as required.

Evaporator Low Temperature Safety Thermostat:

The evaporator low temperature safety thermostat protects the ice machine if the evaporator temperature is too cold. Refer to chart for correct setting.



Bin Thermostat

Small Numbers = Less ice in bin
Large Numbers = More ice in bin
Start at Chart Setting, then adjust
as required

Evaporator Low Temperature Safety Thermostat

Refer to chart for setting
Incorrect settings will cause ice
machine to shut off prematurely

Thermostat Setting Chart

NOTE: Settings are for reference only. Factory setting is indicated on control label and overrides information listed on this page.

| Model | Bin Thermostat Setting | Evaporator Thermostat Setting |
|----------|------------------------|-------------------------------|
| UNF0200 | 5 | 5 |
| UFF0200 | 5 | 5 |
| UNF0300 | 5 | 7 |
| RFF0320 | 4 | 7 |
| RNF0320 | 3 | 6 |
| UFF0350 | 5 | 7 |
| RNF0620 | 3 | -- |
| RFF0620 | 3 | -- |
| RNF1020C | 3 | -- |
| RNF1100 | 3 | -- |
| RFF1220C | 3 | -- |
| RFF1300 | 5 | -- |
| RFF2200C | 3 | -- |
| RFF2500 | 3 | -- |

Troubleshooting

Diagnostic troubleshooting for the ice machine involves following flowcharts that are dependent on symptoms of the failed machine.

Follow the flowcharts for the failure symptom and model you are working on.

NOTE: Refer to the sequence of operation to determine where in the sequence the ice machine has failed. An example would be an ice machine that energizes the gear motor, but the compressor does not energize. Following the electrical flowchart will quickly and easily eliminate non issues.

UFF0200/UFF0350/UNF0200/UNF0300 Troubleshooting

SELF-CONTAINED AIR-COOLED

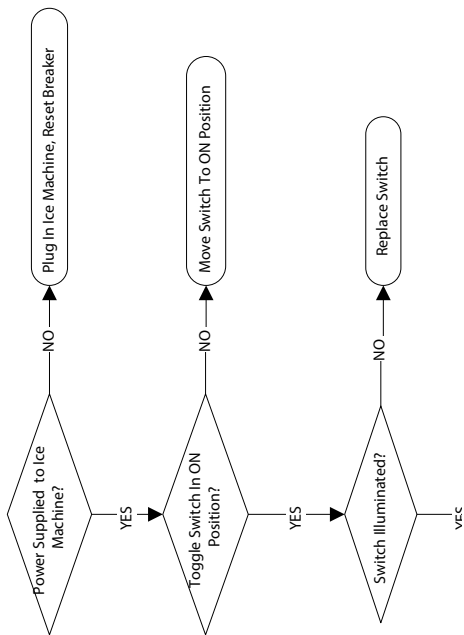
Normal Operation

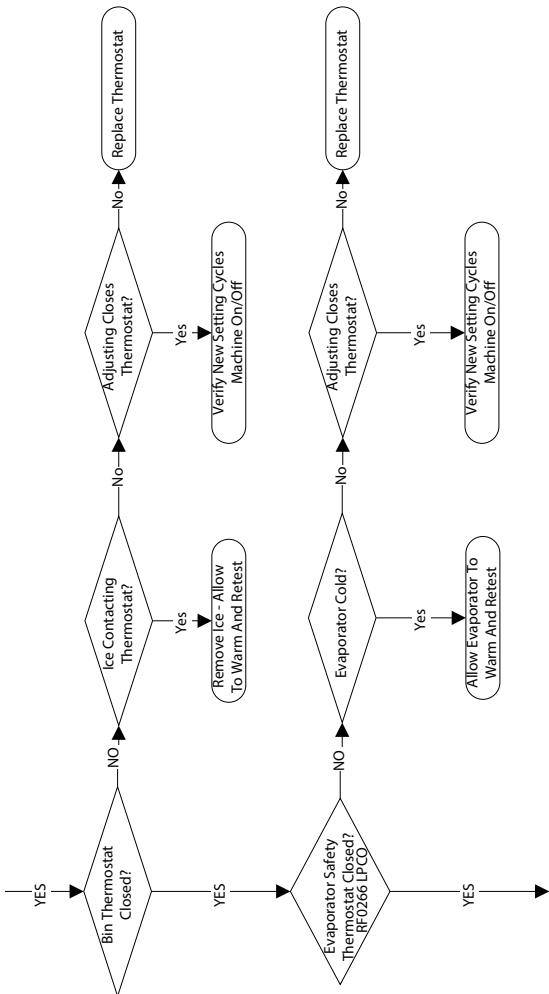
When the toggle switch is placed in the “ON” position the following controls must be in the closed position before the ice machine will start:

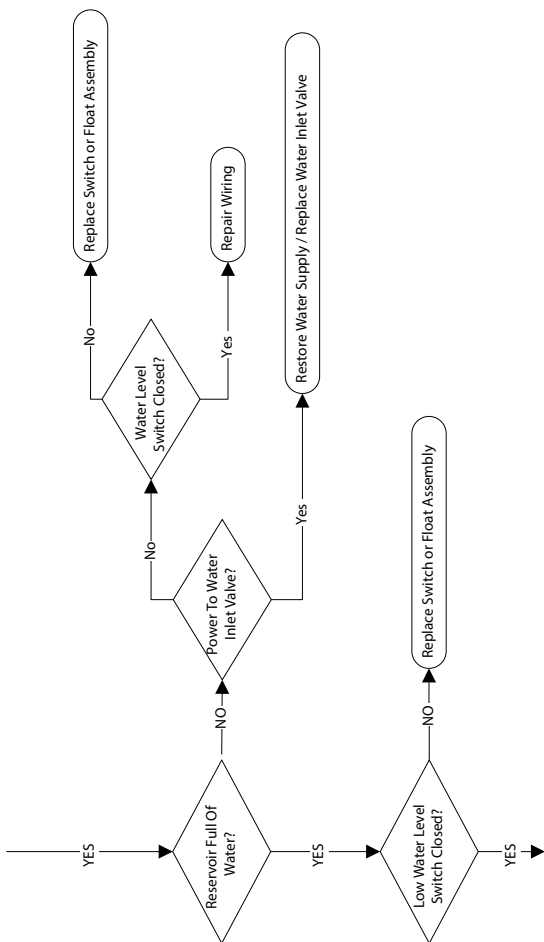
- A. Bin Thermostat
- B. Low Evaporator Temperature Thermostat
- C. Low Water Level Switch

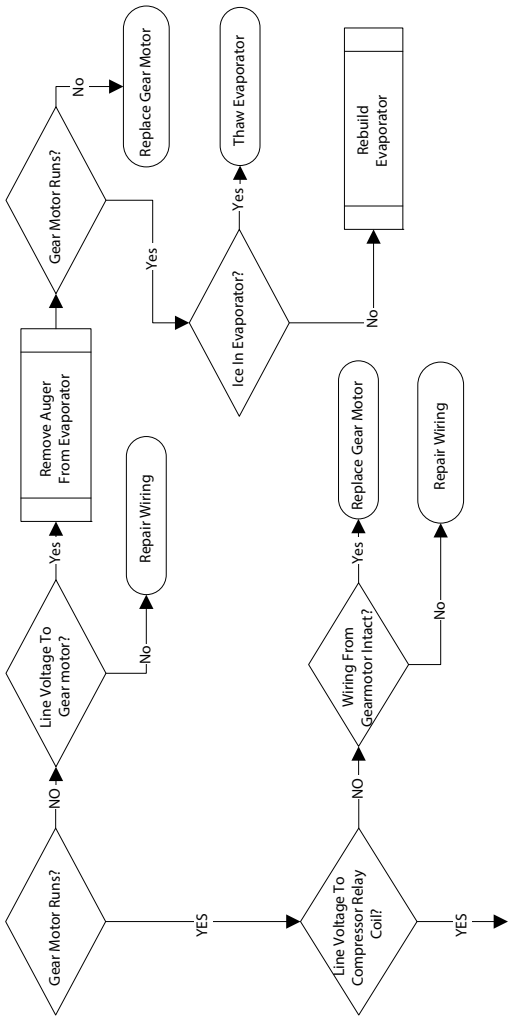
NOTE: Placing the toggle switch in the ON position starts the gear motor and refrigeration system. The float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine will restart when ice no longer contacts the bin thermostat.

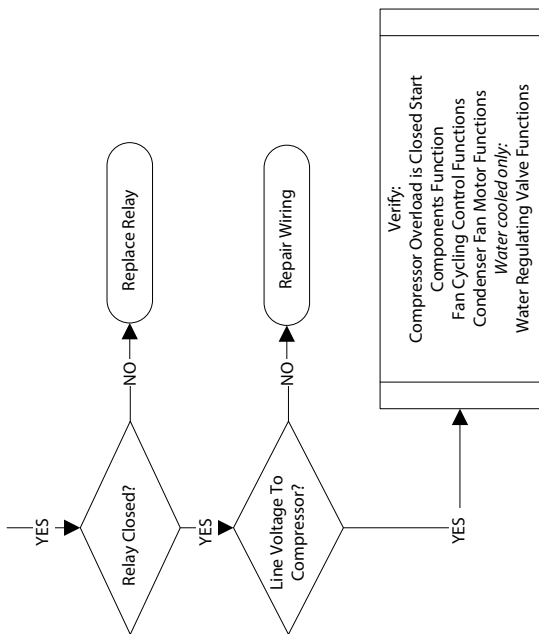
Electrical Flowchart - UFF0200/UFF0350/UNF0200/UNF0300 AIR & WATER











RFF0320/RNF0320 Troubleshooting

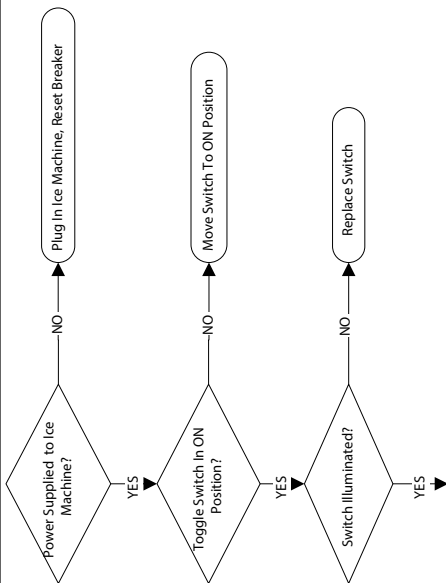
SELF-CONTAINED AIR-COOLED

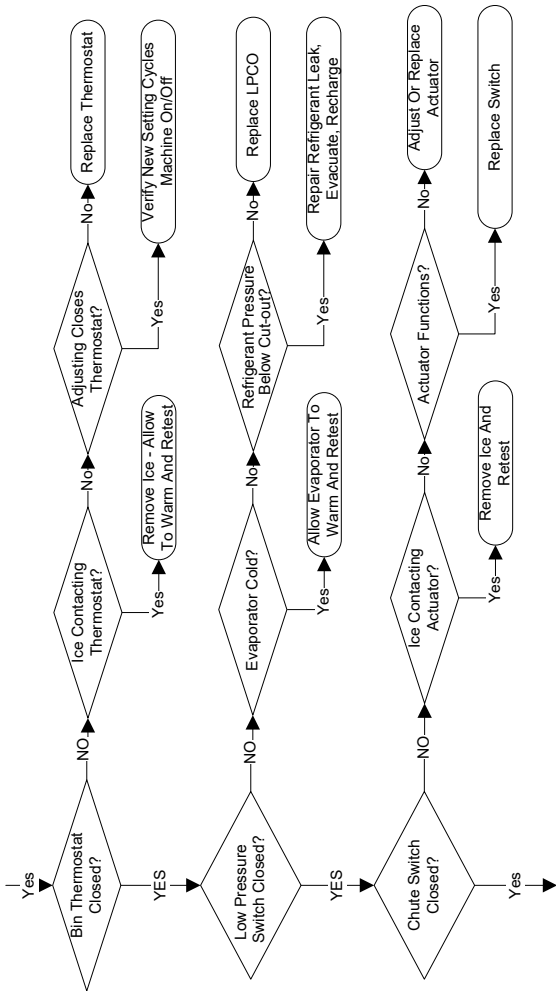
When the toggle switch is placed in the “ON” position the following controls must be in the closed position before the ice machine will start:

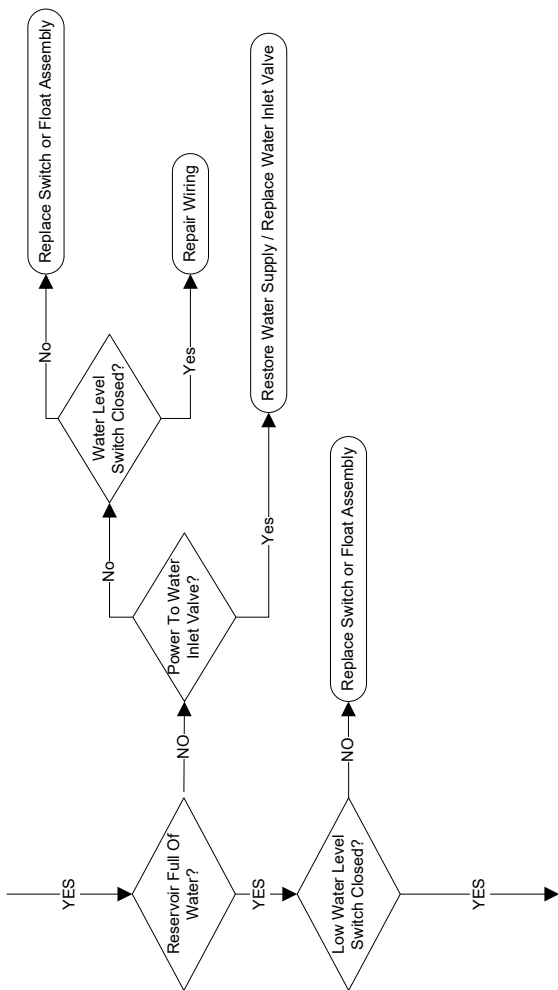
- A. Bin Thermostat
- B. Ice Chute Safety Switch
- C. Low Water Level Switch
- D. High Pressure Cut-out Switch
- E. Low Pressure Cut-Out Switch

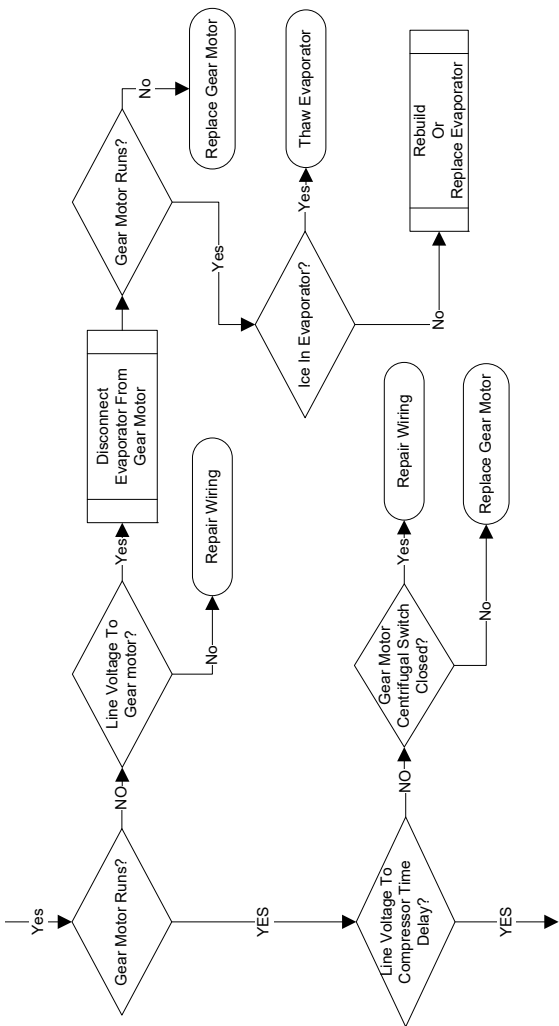
Placing the toggle switch in the ON position starts the gear motor and a 10 minute compressor time delay. The compressor starts and the float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

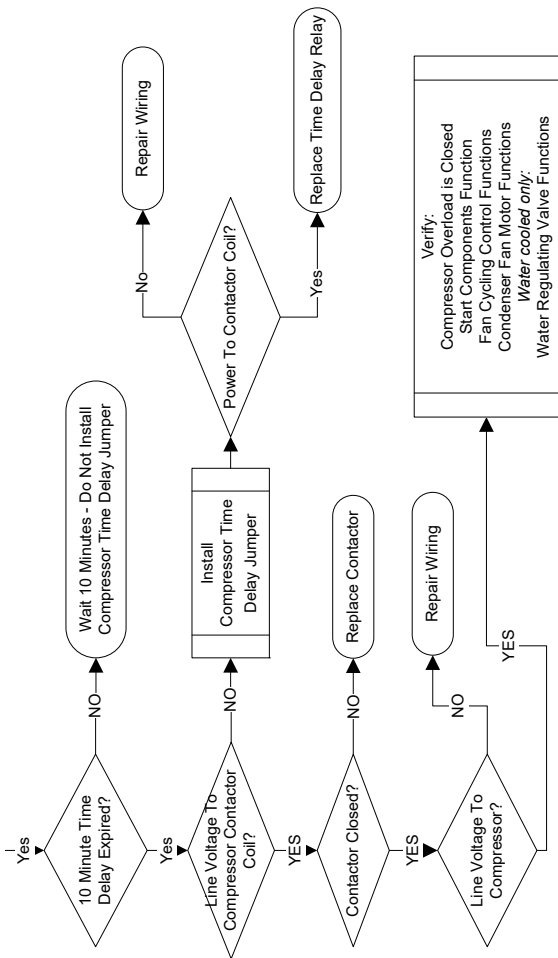
Electrical Flowchart - RFF0320/RNF0320











RFF0620/RNF0620/RNF1100/RFF1300

Troubleshooting

SELF-CONTAINED AIR-COOLED

Normal Operation

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

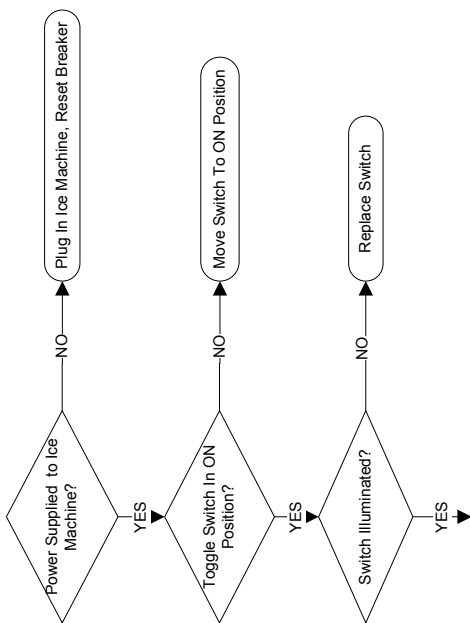
- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

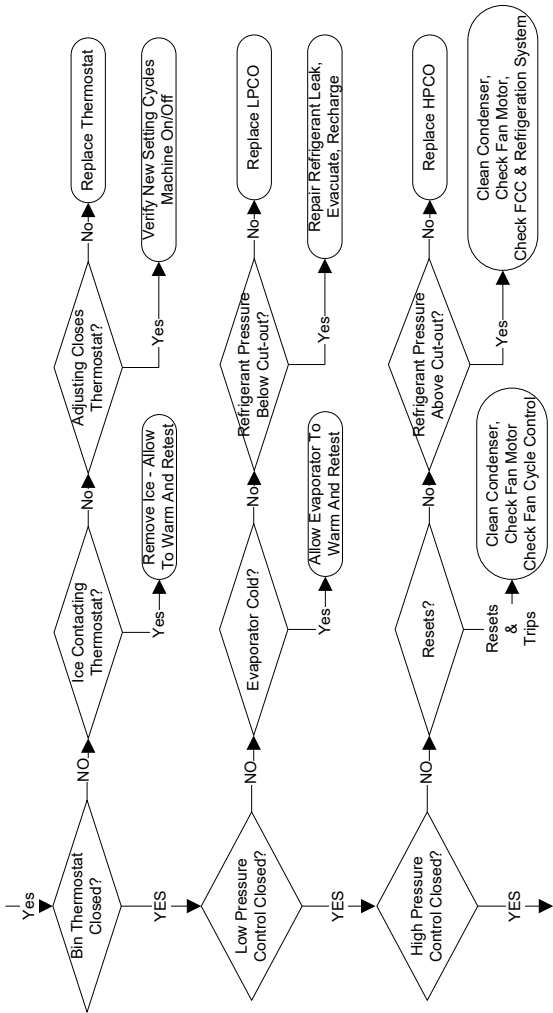
NOTE: Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation the time delay ends and the compressor starts. The ice machine will continue to make ice until ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

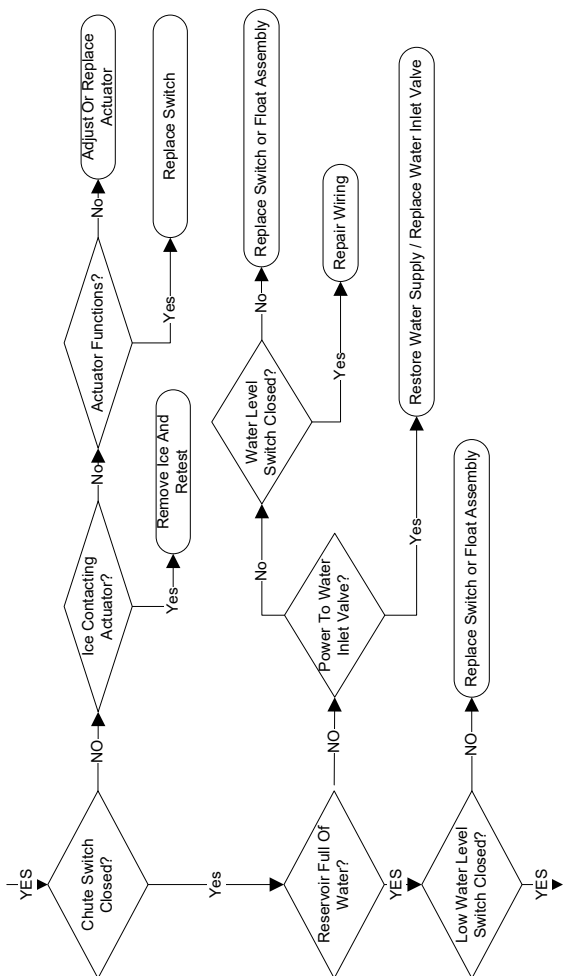
ROTATION SENSOR OPERATION

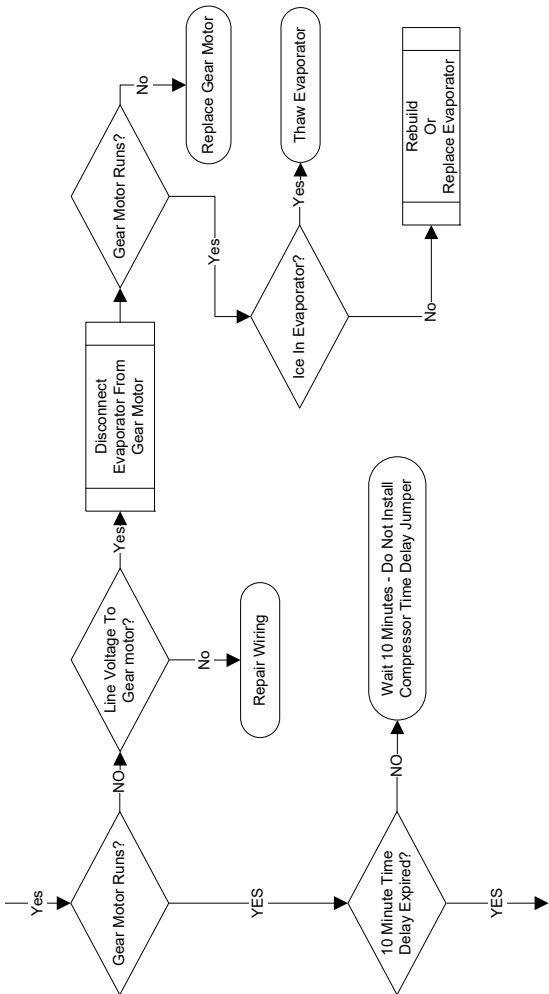
| Light | Definition |
|-----------------------------------|--|
| Yellow Blinking | Time Delay Period |
| Yellow Solid | Normal Operation Sensing |
| Red Blinking 2 Flashes Per Second | Time Delay Period - First 1 To 7 Faults |
| Red Solid | Lockout - 8 Consecutive Faults Due To A Speed Fault Remove/Restore Power To Reset |
| Red Blinking Slowly | Lockout - 8 Consecutive Faults Due To A Short Circuit |

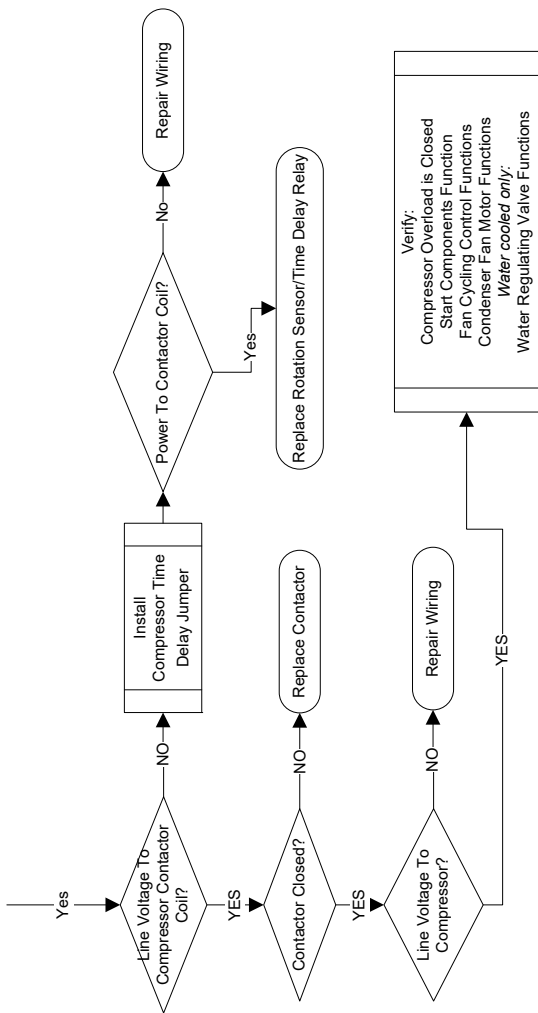
Electrical Flowchart – RNF0620/RFF0620/RNF1100/RFF1300 AIR & WATER











RNF1020C/RFF1220C Troubleshooting

QUIETQUBE REMOTE AIR-COOLED MODELS WITH REMOTE CONDENSING UNIT

Normal Operation

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation the time delay ends and the liquid line solenoid valve opens.

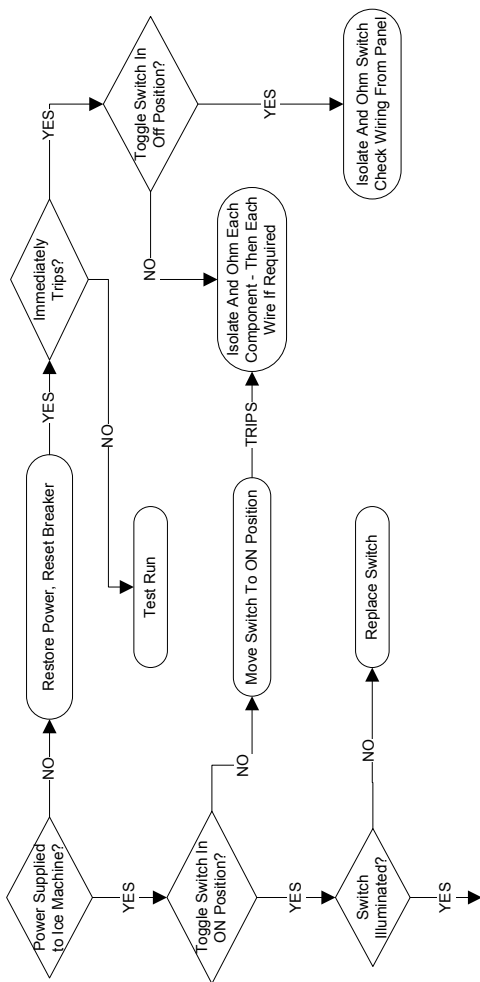
- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.
- The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

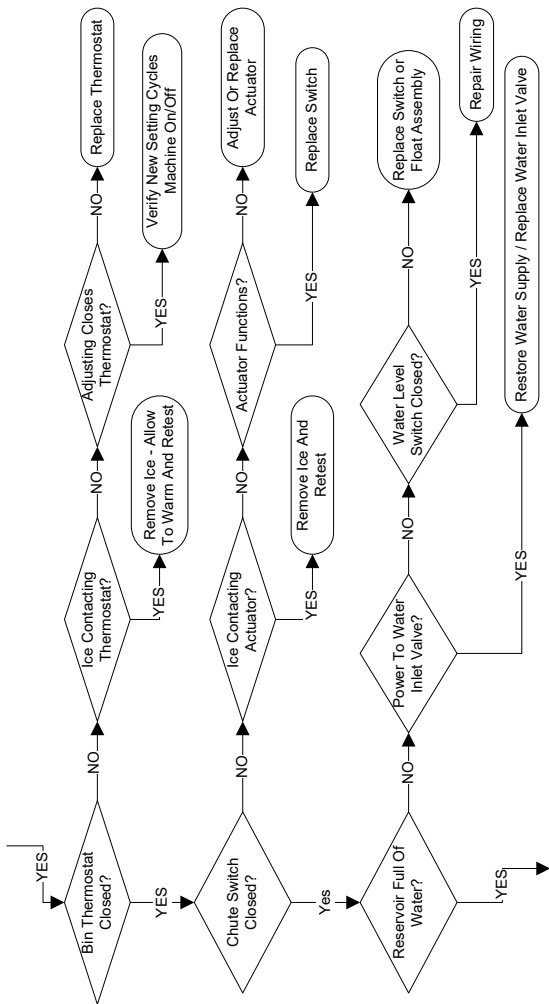
The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

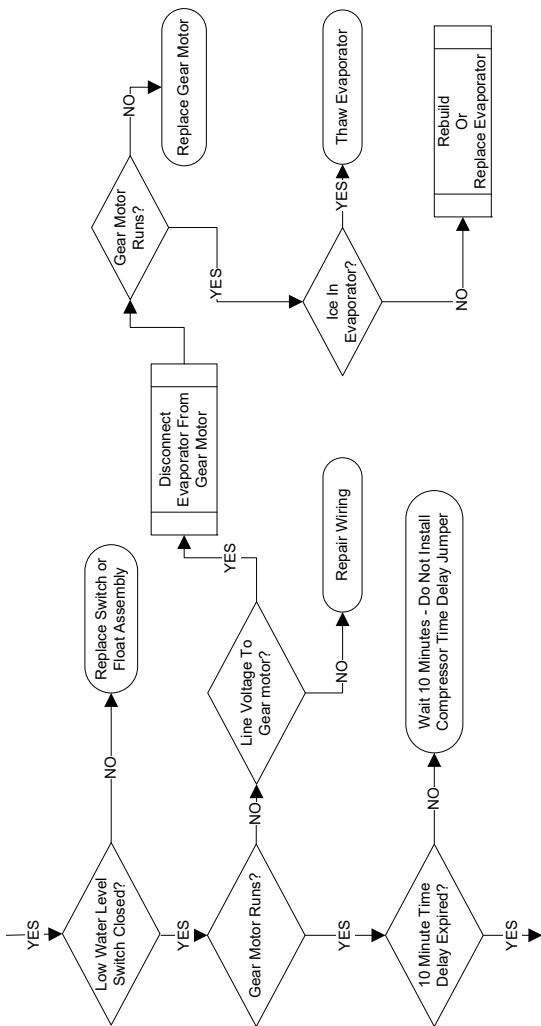
- The refrigerant pressure drops and the fan cycling pressure control opens stopping the condenser fan motor.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor stops.

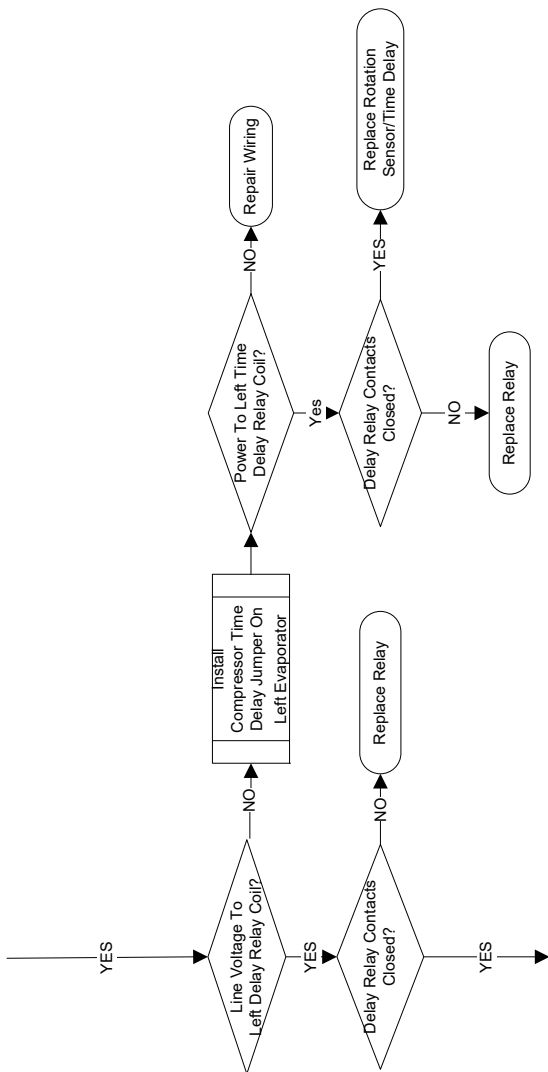
NOTE: The ice machine remains off until ice no longer contacts the bin thermostat.

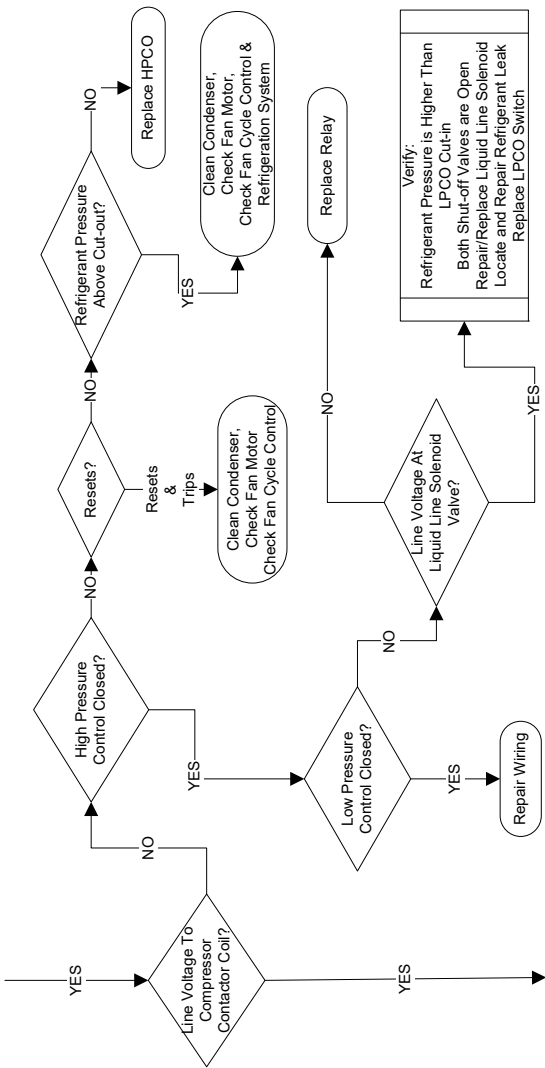
Electrical Flowchart - RNF1020C/RFF1220C QuietQube

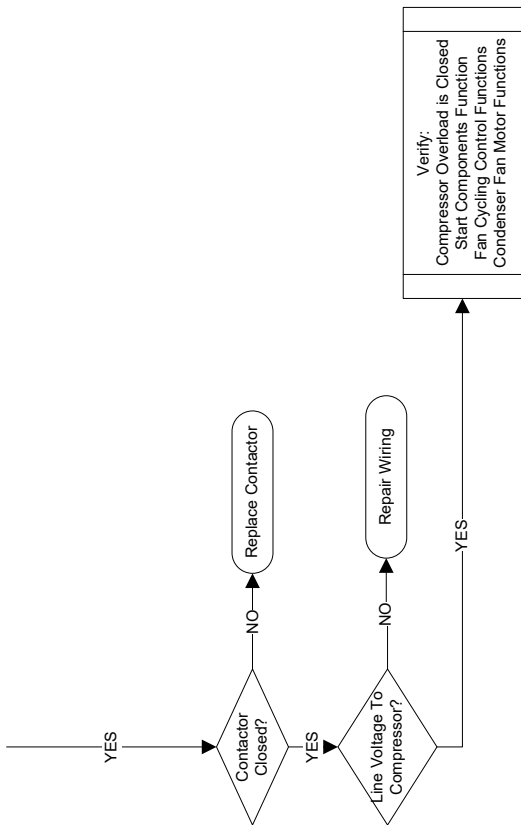












RFF2500 Troubleshooting

SELF-CONTAINED AIR-COOLED

Normal Operation

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

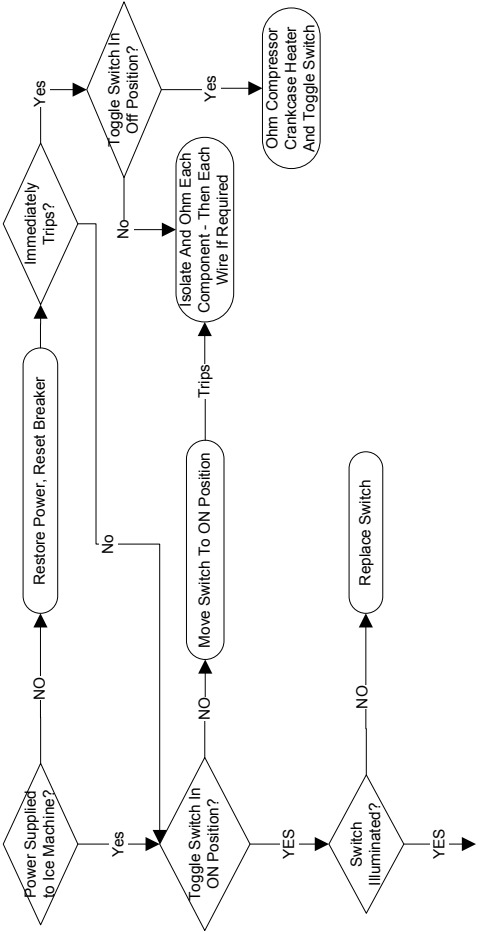
- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

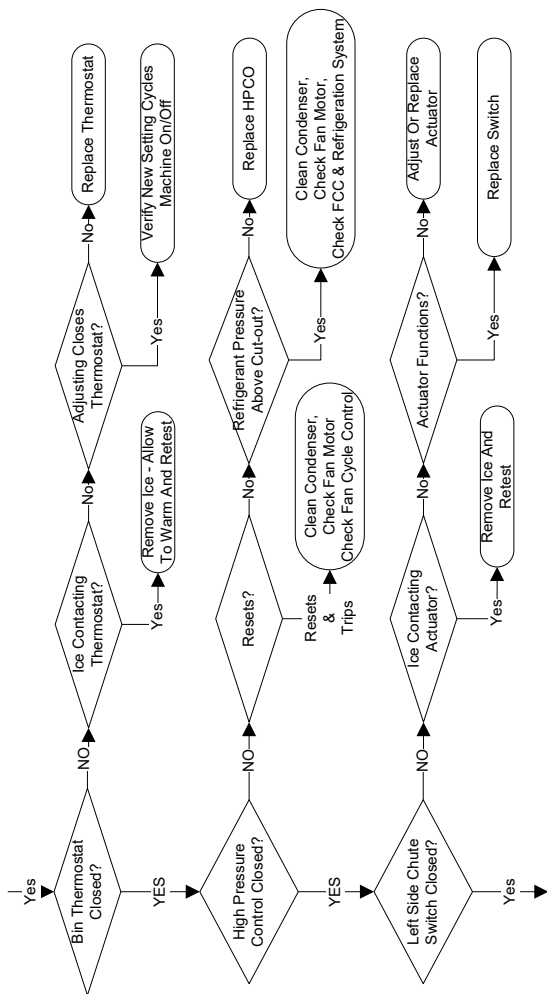
Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation the time delay ends and the compressor starts. The ice machine will continue to make ice until ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

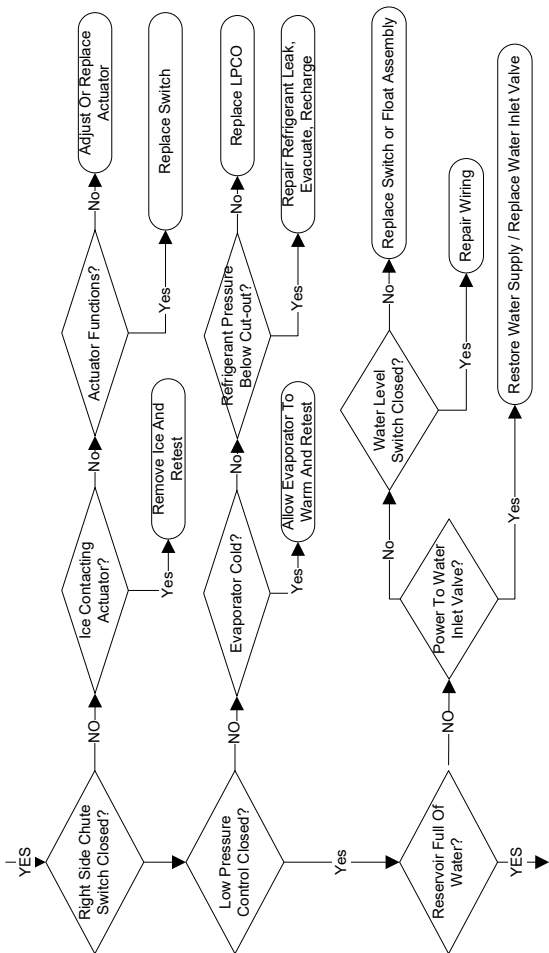
ROTATION SENSOR OPERATION

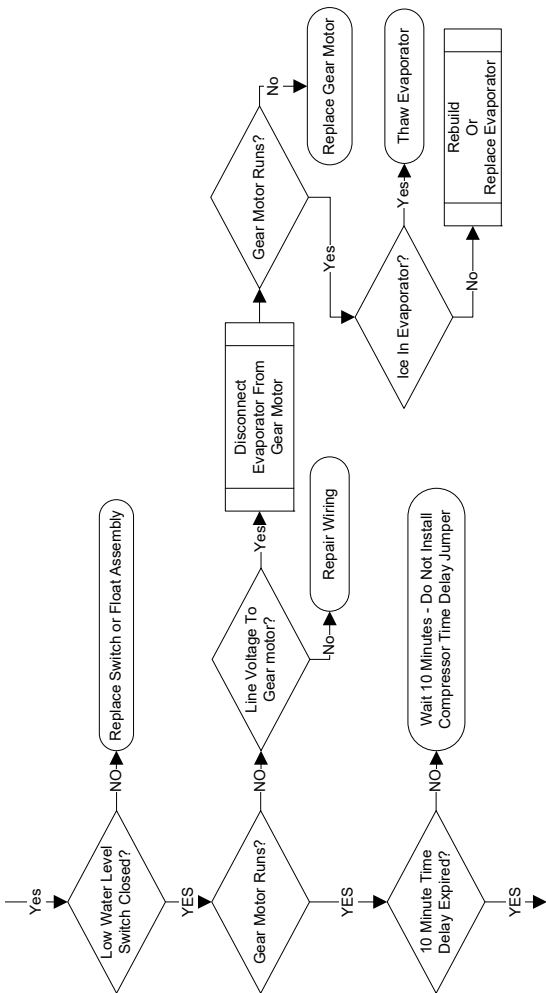
| Light | Definition |
|-----------------|---|
| Yellow Blinking | Time Delay Period |
| Yellow Solid | Normal Operation Sensing |
| Red Blinking | Fault Time Delay Period |
| Red Solid | Lockout - 8 Consecutive Faults Remove/Restore Power To Reset |

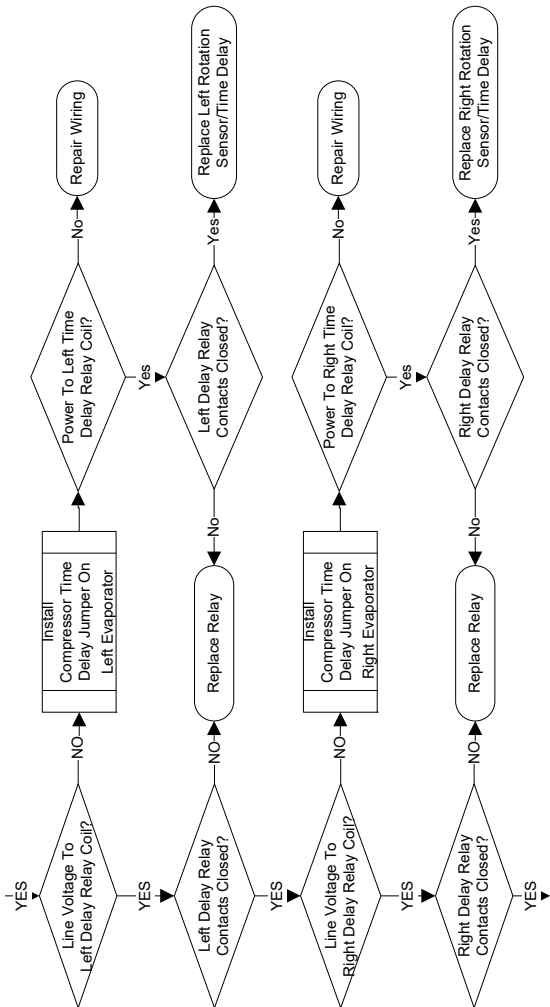
Electrical Flowchart – RF2500 Air-cooled

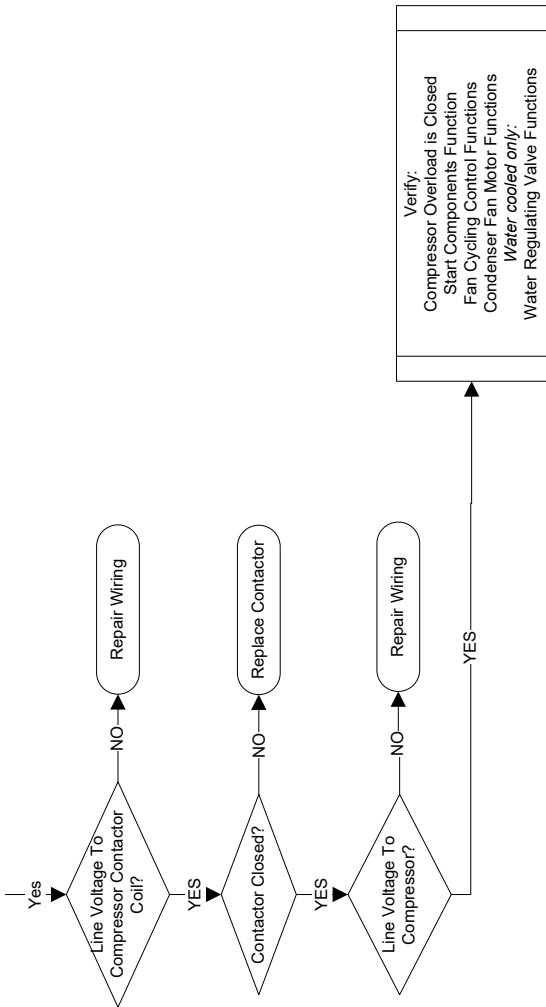












RFF2200C Troubleshooting

QUIETQUBE REMOTE AIR-COOLED MODELS WITH REMOTE CONDENSING UNIT

Normal Operation

When the toggle switch is placed in the ON position the following controls must be in the closed position before the ice machine will start:

- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 10 minutes of correct rotation the time delay ends and the liquid line solenoid valve opens.

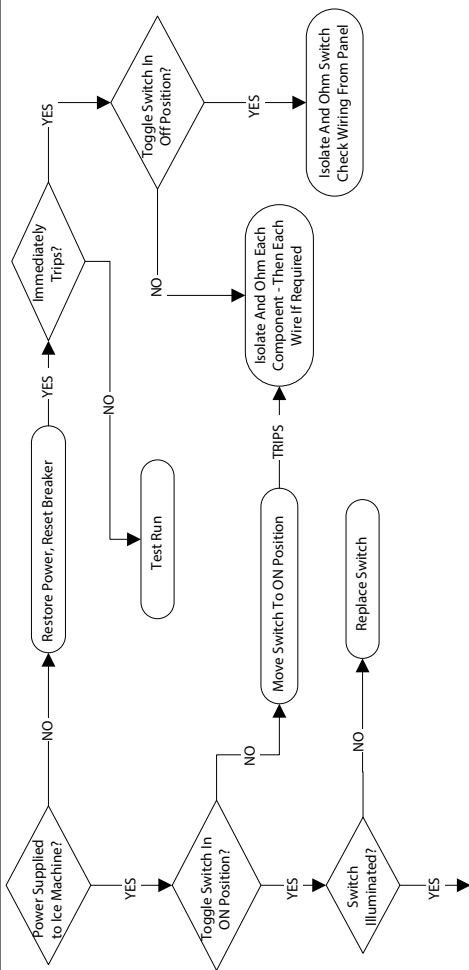
- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.
- The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

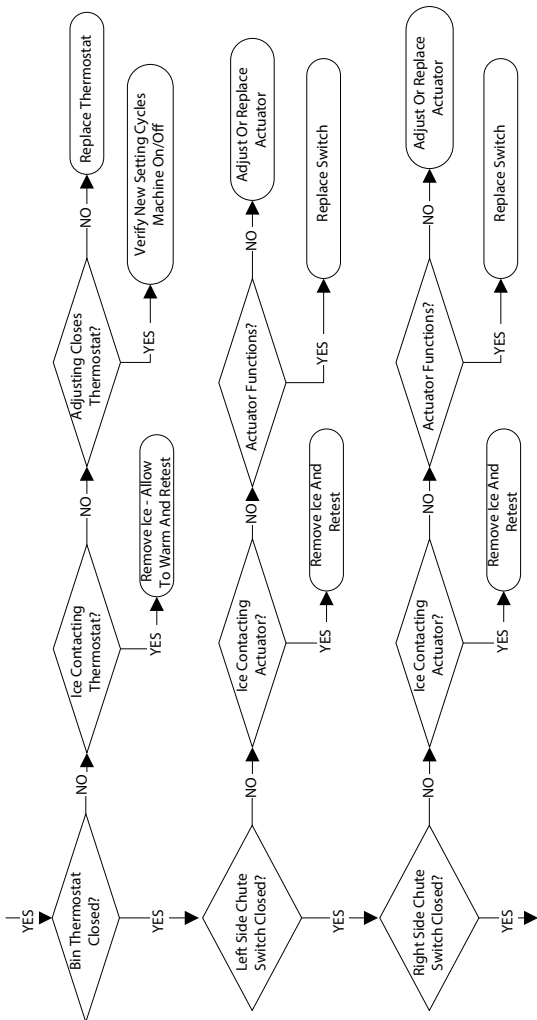
The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

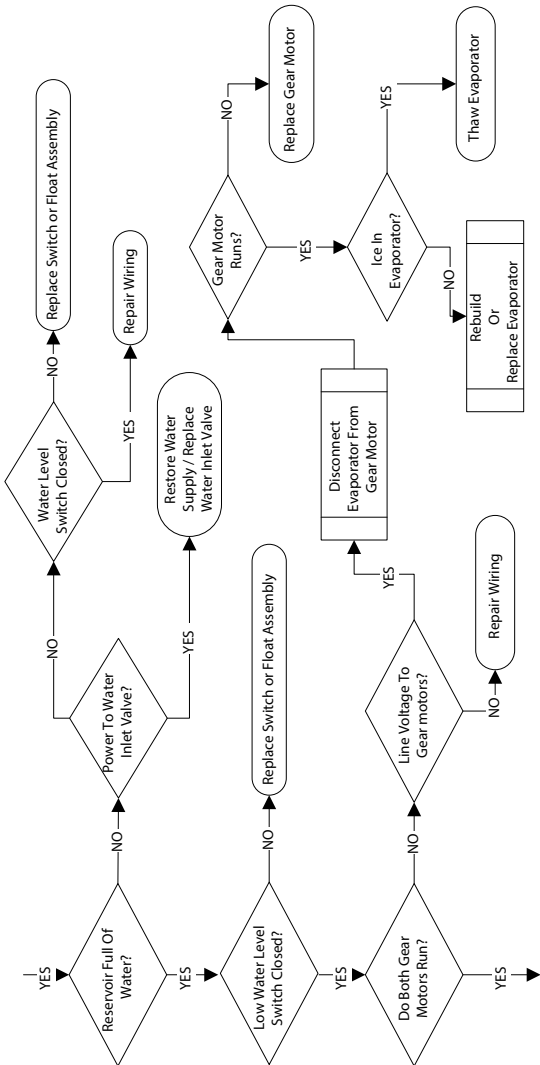
- The refrigerant pressure drops and the fan cycling pressure control opens stopping the condenser fan motor.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor stops.

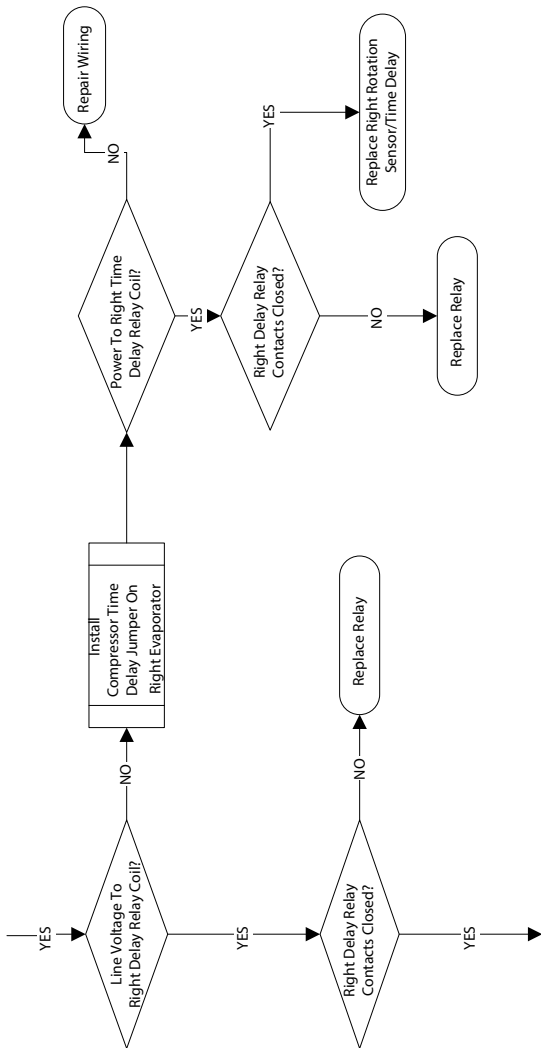
NOTE: The ice machine remains off until ice no longer contacts the bin thermostat.

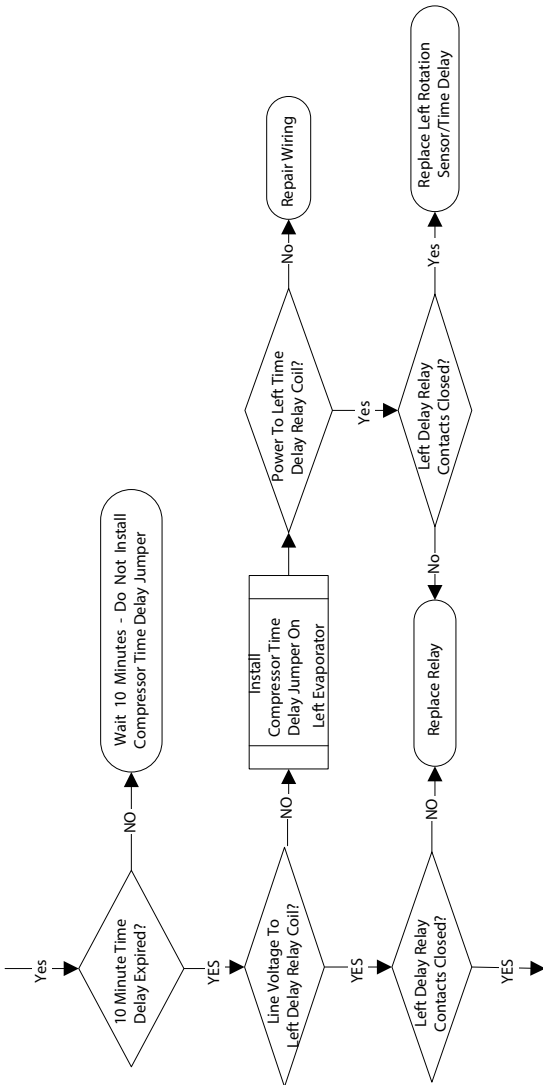
Electrical Flowchart - RFF2200C QuietQube

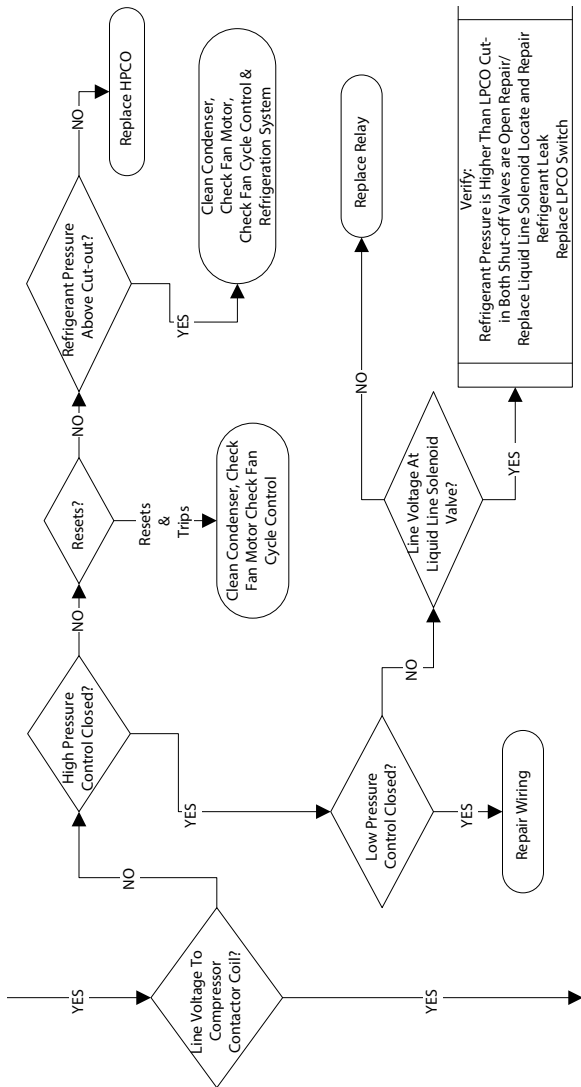


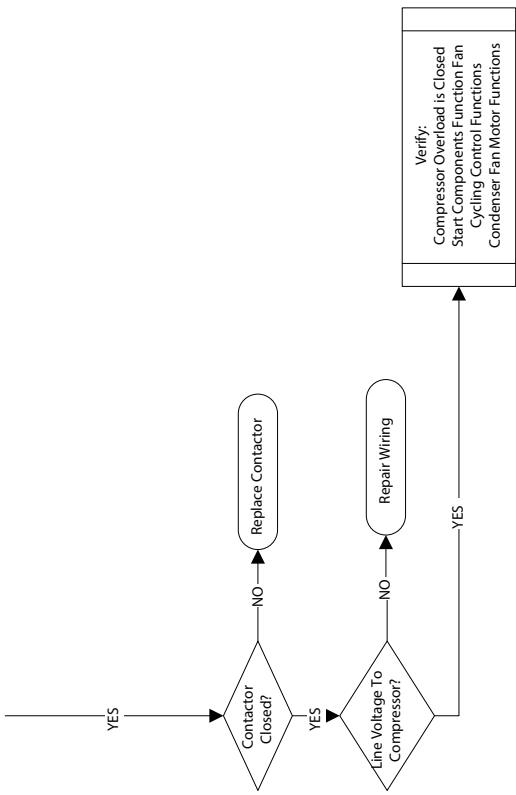












Refrigeration Troubleshooting

CAPILLARY TUBE MODELS

| If the gear motor and/or compressor are not energized refer to Electrical Troubleshooting Refer to Operational Pressure Charts for normal pressures and temperatures | | | | |
|--|---------------------------------|---------------------------|---------------------------------|---------------------------------|
| | Low on Refrigerant | Overcharge of Refrigerant | Non Condensibles in System | Restricted Capillary Tube |
| Discharge Pressure | Low | High | High | Low |
| Suction Pressure | Low | High | High | Low |
| Evaporator Inlet Temperature | Normal | Low | High | Low |
| Evaporator Outlet Temperature | High | Normal | High | Low |
| Compressor Discharge Line Temperature Normal Range = > 165° @ 70° - 210° @ 110° > 74°C @ 21°C - 99°C @ 43°C) | High Increases with run time | Normal | High Increases with run time | High Increases with run time |

THERMOSTATIC EXPANSION VALVE MODELS

| If the gear motor and/or compressor are not energized refer to Electrical Troubleshooting Refer to Operational Pressure Charts for normal pressures and temperatures | | | | | | |
|--|--------------------|---------------------------|---------------------------|--|--|--|
| | Low on Refrigerant | Overcharge of Refrigerant | Non Condensable In System | Liquid Line Restriction, Suction Line Restriction, Or Expansion Valve Starving | Flooding Expansion Valve or Loose Sensing Bulb (when used) | |
| Discharge Pressure | Low | High | High | Low | High | |
| Suction Pressure | Low | High | High | Low | High | |
| Evaporator Inlet Temperature | Normal | Normal or Low | High | Normal | Normal or High | |
| Evaporator Outlet Temperature | High | Normal | High | High > 12° Differential between Inlet and Outlet | < 10° Differential between Inlet and Outlet | |
| Discharge Line Temperature | High | Normal | High | High | Decreases With Run Time | |

Component Specifications

BIN THERMOSTAT

| Model | Setting | Cut-Out | Cut-In |
|---|---------|----------------------|----------------------|
| UFF0200 / UNF0200 UNF0300 / UFF0350 RFF1220 / RFF1300 | 5 | 37°F ±1 3°C ±.1 | 43°F ±1 6°C ±.1 |
| RFF0320 / RFF0620 RNF0620 / RNF0320 RNF1100 / RNF1020 | 4 | 36°F ±1 2.2°C ±.1 | 42°F ±1 5.6°C ±.1 |

LOW TEMPERATURE THERMOSTAT

Evaporator safety thermostat)

| Model | Setting | Cut-Out | Cut-In |
|------------------------------|---------|------------------------|----------------------|
| UFF0200 / UNF0200 UNF0300 | 5 | -9°F ±1 -23°C ±.1 | 10°F ±1 -12°C ±.1 |
| RFF0320 / RNF0320 UFF0350 | 7 | -11°F ±.1 -24°C ±.1 | 7 °F±.1 -14°C ±.1 |

HIGH PRESSURE CUTOUT (HPCO) CONTROL

| Model | Cut-Out | Cut-In |
|---|---|--|
| RNF0320 / RFF0620 RFF1300 / RNF0320 RNF0620 / RNF1100 | 325 psig ±10 (2250 kPa ±69) 22.5 bar ±.69 | 200 psig ±10 (1379 kPa ±69) 13.79 bar ±.69 Auto Reset |
| RFF2500 | 435 psig ±10 (3000 kPa ±69) 30 bar ±.69 | Manual Reset |
| RNF1020C / RCUF1000 RFF1220C / RCUF1200 RFF2200C / RCUF2200 | 450 psig ±10 (3100 kPa ±69) 31 bar ±.69 | 300 psig ±10 (2068 kPa ±69) 20 bar ±20.68 Auto Reset |

ROTATION SENSOR

RFF0620 / RNF0620 / RNF1000 / RNF1020 / RFF1300
RFF2500

| Light | Definition |
|-----------------------------------|--|
| Yellow Blinking | Time Delay Period |
| Yellow Solid | Normal Operation Sensing |
| Red Blinking 2 Flashes Per Second | Time Delay Period - First 1 To 7 Faults |
| Red Solid | Lockout - 8 Consecutive Faults Due To A Speed Fault Remove/Restore Power To Reset |
| Red Blinking Slowly | Lockout - 8 Consecutive Faults Due To A Short Circuit |

LOW PRESSURE CUTOUT (LPCO) CONTROL

| Model | Cut-Out | Cut-In |
|--|--------------------------------------|---------------------------------------|
| UFF0200 / RNF0320 RNF0620 / RFF0620 RNF1100 / RFF1300 RFF2200C / RCUF2200 | 7 psig \pm 2 (.5 bar \pm .2) | 36 psig \pm 2 (2.5 bar \pm .2) |
| RFF2500 | 12 psig \pm 2 (.8 bar \pm .2) | Manual Reset |

FAN CYCLE CONTROL

| Model | Cut-Out (Open) | Cut-In (Close) |
|--|--------------------------------------|--------------------------------------|
| UFF0200 / RNF0320 RFF0320 / UFF0350 RNF0620 / RFF0620 RFF1300 / RFF2500 | 200 \pm 5 (15.17 bar \pm .34) | 250 \pm 5 (17.23 bar \pm .34) |
| UNF0200 / UNF0300 RNF0320 / UFF0350 RFF0620 / RNF1100 RFF1300 / RFF2500 | 225 \pm 5 (15.51 bar \pm .34) | 275 \pm 5 (18.96 bar \pm .34) |

TOTAL SYSTEM REFRIGERANT CHARGE

This information is for reference only. Model/Serial plate information overrides information listed in this table.

| Model | Refrigerant Charge |
|----------------------|--------------------|
| Flake Models | |
| UFF0200A | 7.5 oz / 210 g |
| UFF0350A | 11.25 oz / 320 g |
| RFF0320A | 11.25 oz / 320 g |
| RFF0620A | 19.5 oz / 550 g |
| RFF0620W | 15.5 oz / 439 g |
| RFF1300A | 24.75 oz / 700 g |
| RFF1220C | 156 oz / 4.42 kg |
| RFF2200C | 240 oz / 6.08 kg |
| RFF2500A | 63.5 oz / 1800 g |
| Nugget Models | |
| UNF0200A | 7.5 oz / 210 g |
| UNF0300A | 11.25 oz / 320 g |
| RNF0620A | 18.34 oz / 520 g |
| RNF0620W | 16.9 oz / 479 g |
| RNF1100A | 23.3 oz / 660 g |
| RNF1100W | 18.0 oz / 510 g |
| RNF1020C | 160.0 oz / 4.54 kg |

| Model | Additional refrigerant required for 51' to 100' (15.5 to 30.5 m) line sets |
|----------|---|
| RFF1220C | 0 lbs 0 kgs |
| RFF2200C | 0 lbs 0 kgs |
| RNF1020C | 2 lbs 907g |

FILTER-DRIERS

The size of the filter-drier is important. The refrigerant charge is critical. Using an improperly sized filter-drier will cause the ice machine to be improperly charged with refrigerant.

Important

Driers are covered as a warranty part. The drier must be replaced any time the system is opened for repairs.

SUCTION CLEANUP FILTER-DRIER

Contaminated systems must have a suction line filter-drier installed to remove contaminations. An access valve must be installed on the inlet side of the suction filter to allow pressure drop readings to be obtained.

| Suction Line Clean-Up Filter | | |
|-------------------------------------|-------------------|----------------------------|
| Model | Drier Size | End Connection Size |
| All Models | UK-165S | 5/8 in. |

Charts

Total System Refrigerant Charge

Important

This information is for reference only. Refer to the ice machine serial number tag to verify the system charge. Serial plate information overrides information listed on this page.

Ice Production & Refrigerant Pressure

These charts are used as guidelines to verify correct ice machine operation.

Accurate collection of data is essential to obtain the correct diagnosis.

- Zero out manifold gauge set before obtaining pressure readings to avoid mis-diagnosis.
- Discharge and suction pressure are highest at the beginning of the cycle. Allow system to stabilize for a minimum of 10 minutes, then verify the pressures are within the range indicated.
- Water temperature will affect suction and discharge pressure - 50°F (10°C) water temperature will result in pressures on the lower end of the ranges specified. 90°F (32°C) water temperatures will result in pressures on the upper end of the range specified.

Flake Models

UFF200A

SELF CONTAINED AIR-COOLED

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 182 lbs 82 kgs |
| 90°F/70°F 32°C/21°C | 151 lbs 68 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 220-250 1517-1724 | 38-40 262-276 |
| 90°F PSIG 32°C kPa | 300-320 2068-2206 | 45-51 310-352 |
| 110°F PSIG 43°C kPa | 360-390 2482-2689 | 49-55 338-379 |

RFF0320A**SELF CONTAINED AIR-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 384 lbs 174 kgs |
| 90°F/70°F 32°C/21°C | 286 lbs 130 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 240-275 1792-1896 | 28-31 193-214 |
| 90°F PSIG 32°C kPa | 260-280 1792-1930 | 30-36 207-248 |
| 110°F PSIG 43°C kPa | 325-350 2240-2413 | 32-38 221-262 |

UFF0350**SELF CONTAINED AIR-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 329 lbs 149 kgs |
| 90°F/70°F 32°C/21°C | 273 lbs 124 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 243-270 1675-1862 | 31-36 214-248 |
| 90°F PSIG 32°C kPa | 273-315 1882-2172 | 34-39 234-269 |
| 110°F PSIG 43°C kPa | 348-380 2399-2620 | 38-43 262-296 |

RFF0620A**SELF CONTAINED AIR-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 747 lbs 339 kgs |
| 90°F/70°F 32°C/21°C | 540 lbs 245kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 240-265 1655-1827 | 33-35 228-241 |
| 90°F PSIG 32°C kPa | 280-300 1930-2068 | 34-40 235-276 |
| 110°F PSIG 43°C kPa | 340-370 2344-2551 | 40-46 275-318 |

RFF0620W**SELF CONTAINED WATER-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 740 lbs 335 kgs |
| 90°F/70°F 32°C/21°C | 596 lbs 270 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 270-280 1724-1793 | 32-35 221-241 |
| 90°F PSIG 32°C kPa | 270-285 1758-1827 | 33-36 228-248 |
| 110°F PSIG 43°C kPa | 275-290 1827-1896 | 35-37 241-255 |
| Water regulating valve set to 270 psi (1862 kPa) | | |

RFF1220C WITH RCUF1200

QUIETQUBE REMOTE AIR COOLED

Characteristics vary depending on operating conditions

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| -20°F/50°F -29°C/10°C | 1413 lbs 641 kgs |
| 70°F/50°F 21°C/10°C | 1092 lbs 495 kgs |
| 90°F/70°F 32°C/21°C | 958 lbs 435 kgs |
| 120°F/70°F 49°C/21°C | 603 lbs 274 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|---|----------------------|------------------|
| Air Temperature Entering Condenser °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 50°F PSIG 10°C kPa | 185-200 1276-1379 | 23-28 159-193 |
| 70°F PSIG 21°C kPa | 225-255 1551-1758 | 30-35 207-241 |
| 80°F PSIG 27°C kPa | 230-280 1586-1931 | 31-36 214-248 |
| 90°F PSIG 32°C kPa | 243-305 1675-2103 | 33-38 228-262 |
| 120°F PSIG 49°C kPa | 355-400 2448-2758 | 38-43 262-296 |

RFF1300A

SELF CONTAINED AIR-COOLED

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 1202 lbs 545 kgs |
| 90°F/70°F 32°C/21°C | 874 lbs 396 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 255-280 1755-1930 | 32-34 220-234 |
| 90°F PSIG 32°C kPa | 325-350 2240-2413 | 36-42 248-290 |
| 110°F PSIG 43°C kPa | 400-425 2758-2930 | 45-51 310-352 |

RFF1300W

SELF CONTAINED AIR-COOLED

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 1339 lbs 607 kgs |
| 90°F/70°F 32°C/21°C | 1128 lbs 512 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 255-265 1758-1827 | 29-31 200-214 |
| 90°F PSIG 32°C kPa | 260-275 1793-1896 | 29-35 200-241 |
| 110°F PSIG 43°C kPa | 270-285 1862-1965 | 30-36 207-248 |

Water regulating valve set to maintain 260 psi (1793 kPa)

| Condenser Water Consumption @ 90°F/70°F | |
|---|-------------------------|
| 118 | Gallons/100 lbs. of Ice |
| 447 | Liters/45 kgs. of Ice |

RFF2200C WITH RCUF2200

QUIETQUBE REMOTE AIR COOLED

Characteristics vary depending on operating conditions

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| -20°F/50°F -29°C/10°C | 2403 lbs 1090 kgs |
| 70°F/50°F 21°C/10°C | 2063 lbs 936 kgs |
| 90°F/70°F 32°C/21°C | 1702 lbs 772 kgs |
| 120°F/70°F 49°C/21°C | 1073 lbs 487 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 50°F PSIG 16°C kPa | 175-200 1207-1379 | 26-31 176-214 |
| 70°F PSIG 21°C kPa | 220-250 1517-1724 | 31-36 214-248 |
| 80°F PSIG 27°C kPa | 225-275 1551-1896 | 32-37 221-255 |
| 90°F PSIG 32°C kPa | 250-310 1724-2137 | 33-38 228-262 |
| 120°F PSIG 49°C kPa | 365-410 2517-2827 | 38-43 262-296 |

RFF2500A**SELF CONTAINED AIR-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 2301 lbs 1044 kgs |
| 90°F/70°F 32°C/21°C | 1665 lbs 755 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 290-310 1999-2137 | 35-38 241-262 |
| 90°F PSIG 32°C kPa | 350-380 2413-2620 | 38-43 262-296 |
| 110°F PSIG 43°C kPa | 410-430 2827-2965 | 43-49 296-338 |

RNS Nugget Models

UNF0200A

SELF STORAGE AIR-COOLED

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 155 lbs 70 kgs |
| 90°F/70°F 32°C/21°C | 105 lbs 48 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 220-250 1517-1724 | 38-40 262-276 |
| 90°F PSIG 32°C kPa | 300-320 2068-2206 | 45-51 310-352 |
| 110°F PSIG 43°C kPa | 360-390 2482-2689 | 49-55 338-379 |

UNF0300A

SELF STORAGE AIR-COOLED

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 270 lbs 122 kgs |
| 90°F/70°F 32°C/21°C | 223 lbs 101 kgs |

| OPERATING PRESSURES PSIG & kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 243-270 1675-1862 | 31-36 214-248 |
| 90°F PSIG 32°C kPa | 273-315 1882-2172 | 34-39 234-269 |
| 110°F PSIG 43°C kPa | 348-380 2399-2620 | 38-43 262-296 |

RNF0320A**SELF CONTAINED AIR-COOLED**

Characteristics vary depending on operating conditions.

| ICE PRODUCTION | |
|--|-----------------------------------|
| Air Temperature Water Temperature | 24 hour Ice Production |
| 70°F/50°F 21°C/10°C | 315 lbs 143 kgs |
| 90°F/70°F 32°C/21°C | 251 lbs 114 kgs |
| * Indicates Preliminary Data | |

| OPERATING PRESSURES PSIG & kPa | | |
|---|-------------------------------|-----------------------------|
| Air Temperature Entering Condenser | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 260-275 1792-1896 | 28-31 193-214 |
| 90°F PSIG 32°C kPa | 260-280 1792-1930 | 30-36 207-248 |
| 110°F PSIG 43°C kPa | 325-350 2240-2413 | 32-38 221-262 |

RNF0620A

WATER-COOLED

Characteristics will vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| 70°F/50°F 21°C/10°C | 591 lbs 268 kgs |
| 90°F/70°F 32°C/21°C | 451 lbs 204 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 215-225 1483-1551 | 27-29 186-200 |
| 90°F PSIG 32°C kPa | 280-290 1931-2000 | 29-31 200-214 |
| 110°F PSIG 43°C kPa | 360-370 2482-2551 | 32-34 221-234 |

RNF0320W

WATER-COOLED

Characteristics will vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| 70°F/50°F 21°C/10°C | 613 lbs 278 kgs |
| 90°F/70°F 32°C/21°C | 508 lbs 230 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 235-245 1670-1689 | 27-29 186-199 |
| 90°F PSIG 32°C kPa | 235-245 1670-1689 | 27-29 186-199 |
| 110°F PSIG 43°C kPa | 240-260 1655-1793 | 28-32 193-220 |

| Condenser Water Consumption @ 80°F/70°F | |
|---|-------------------------|
| 109 | Gallons/100 lbs. of Ice |
| 413 | Liters/45 kgs. of Ice |

Water regulating valve set to maintain 240 PSIG - 1655 kPa

RNF1100A

AIR-COOLED

Characteristics vary depending on operating conditions

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| 70°F/50°F 21°C/10°C | 1078 lbs 489 kgs |
| 90°F/70°F 32°C/21°C | 825 lbs 374 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|---|----------------------|------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 220-240 1517-1655 | 30-32 207-221 |
| 90°F PSIG 32°C kPa | 275-310 1896-2137 | 33-35 228-241 |
| 110°F PSIG 43°C kPa | 370-390 2551-2689 | 38-40 262-276 |

RNF1000W

WATER-COOLED

Characteristics will vary depending on operating conditions.

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| 70°F/50°F 21°C/10°C | 1158 lbs 525 kgs |
| 90°F/70°F 32°C/21°C | 960 lbs 435 kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|--|-----------------------|---------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 70°F PSIG 21°C kPa | 235-245 1670-1689 | 29-31 200-214 |
| 90°F PSIG 32°C kPa | 235-245 1670-1689 | 29-31 200-214 |
| 110°F PSIG 43°C kPa | 240-260 1655-1793 | 30-36 207-248 |

| Condenser Water Consumption @ 80°F/70°F | |
|---|-------------------------|
| 131 | Gallons/100 lbs. of Ice |
| 496 | Liters/45 kgs. of Ice |

Water regulating valve set to maintain 240 PSIG - 1655 kPa

RNF1020C WITH RCUF1000

QUIETQUBE REMOTE AIR COOLED

Characteristics vary depending on operating conditions

| ICE PRODUCTION | |
|--------------------------------------|---------------------------|
| Air Temperature Water Temperature | 24 Hour Ice Production |
| -20°F/50°F -29°C/10°C | 1131 lbs 513 kgs |
| 70°F/50°F 21°C/10°C | 1131 lbs 513 kgs |
| 90°F/70°F 32°C/21°C | 900 lbs 408 kgs |
| 120°F/70°F 49°C/21°C | 490 lbs 222kgs |

| OPERATING PRESSURES PSIG/kPa | | |
|---|----------------------|------------------|
| Air Temperature Around Ice Machine °F/°C | Freeze Cycle | |
| | Discharge Pressure | Suction Pressure |
| 60°F PSIG 16°C kPa | 240-250 1655-1724 | 33-35 227-241 |
| 70°F PSIG 21°C kPa | 245-265 1689-1827 | 35-38 241-262 |
| 80°F PSIG 27°C kPa | 245-270 1689-1862 | 36-39 248-269 |
| 90°F PSIG 32°C kPa | 250-270 1724-1862 | 37-40 255-276 |
| 120°F PSIG 49°C kPa | 360-400 2482-2758 | 45-49 310-338 |

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Diagrams

Wiring Diagrams

The following pages contain electrical wiring diagrams. Be sure you are referring to the correct diagram for the ice machine you are servicing.

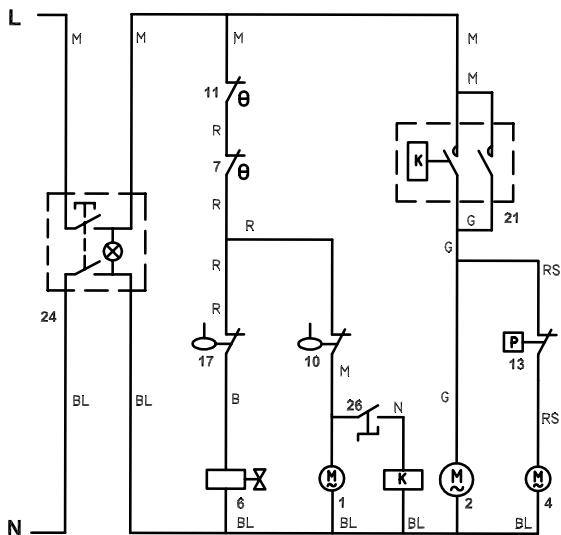
Warning

Always disconnect power before working on electrical circuitry.

Flake Models

UFF0200/UFF350 AIR-COOLED

Refer to Nameplate for Voltage Rating

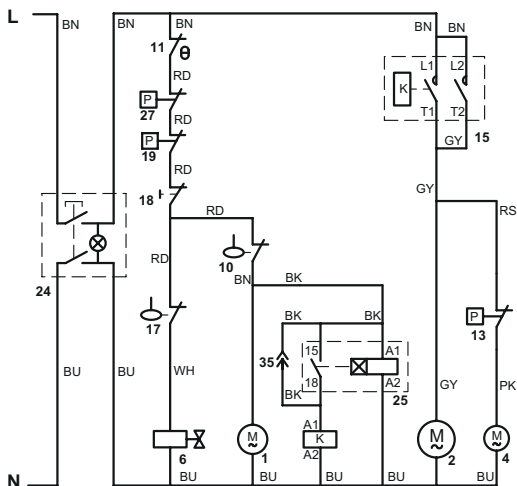


Wiring Diagram Legend UFF0200/UFF0350 Air-cooled

| | |
|-------------------------------|--|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water Inlet valve |
| 7 | Evaporator low temperature safety or Low pressure control |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 12 | High temperature limit (snap disc) |
| 13 | Fan cycle control |
| 17 | Water level switch |
| 21 | Compressor relay |
| 24 | On/Off switch |
| 26 | Gear motor centrifugal switch |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RFF0320 AIR-COOLED

Refer to Nameplate for Voltage Rating

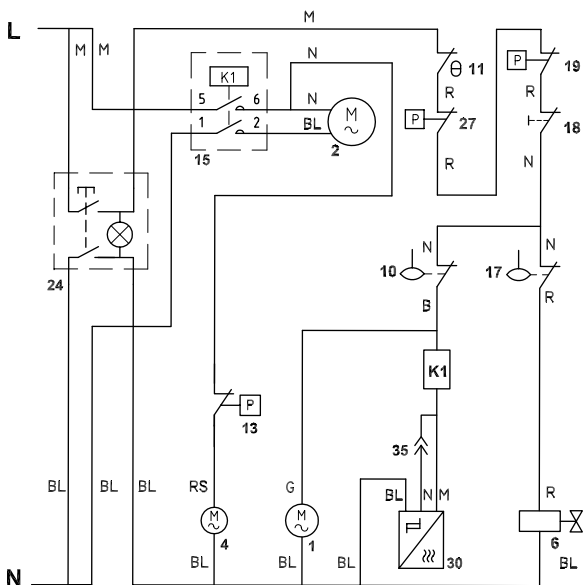


Wiring Diagram Legend RFF0320 Air-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Fan motor |
| 6 | Water inlet valve |
| 10 | Low water level switch |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 17 | Water level switch |
| 18 | Chute safety switch |
| 19 | High Pressure Safety Switch |
| 24 | On/Off switch |
| 25 | Compressor delay timer |
| 27 | Low Pressure Safety Switch |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| WH | White |
| BU | Blue |
| GY | Grey |
| BN | Brown |
| BK | Black |
| RD | Red |
| PK | Pink |

RFF0620 AIR-COOLED

Refer to Nameplate for Voltage Rating

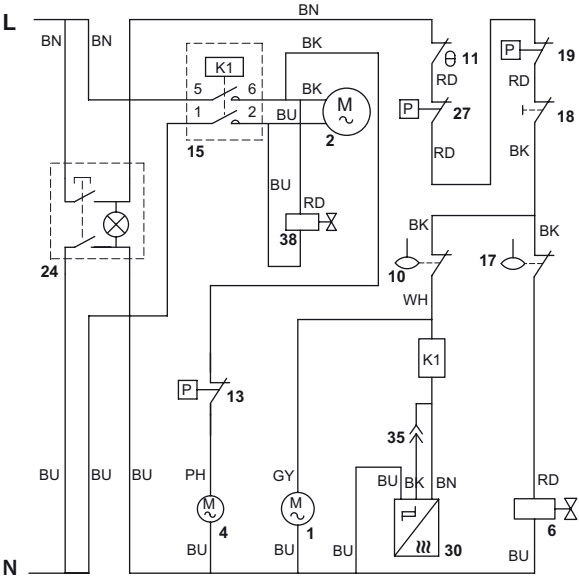


Wiring Diagram Legend RFF0620 Air-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactor |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 19 | High pressure cut out |
| 21 | Compressor relay |
| 24 | On/Off switch |
| 25 | Compressor time delay |
| 27 | Low pressure cut out |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RFF1300A AIR-COOLED

Refer to Nameplate for Voltage Rating

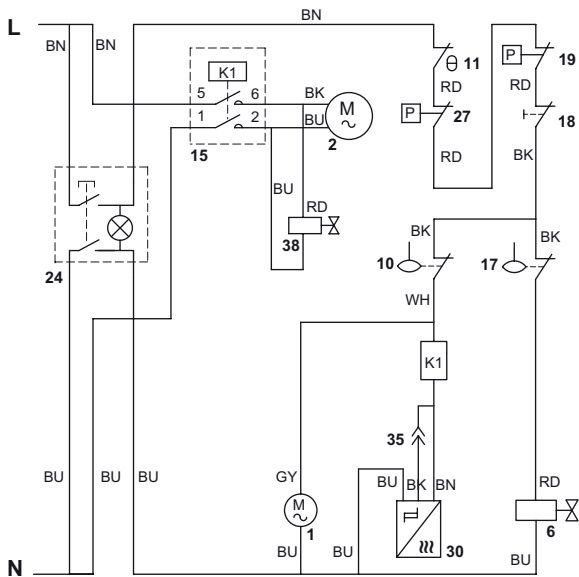


Wiring Diagram Legend RFF1300A Air-cooled

| | |
|-------------------------------|------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Fan motor |
| 6 | Water inlet valve |
| 10 | Low water level switch |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactor |
| 17 | Water level switch |
| 18 | Chute safety switch |
| 19 | High pressure safety switch |
| 24 | On/Off switch |
| 27 | Low pressure safety switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay bypass |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| GY | Grey |
| WH | White |
| BU | Blue |
| BN | Brown |
| BK | Black |
| RD | Red |
| PH | Pink |

RFF1300 WATER-COOLED

Refer to Nameplate for Voltage Rating



Wiring Diagram Legend RFF1300W Water-cooled

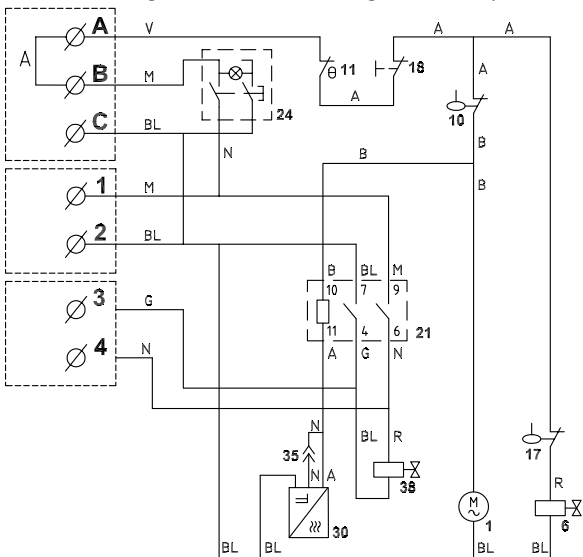
| | |
|-------------------------------|------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Fan motor |
| 6 | Water inlet valve |
| 10 | Low water level switch |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactor |
| 17 | Water level switch |
| 18 | Chute safety switch |
| 19 | High pressure safety switch |
| 24 | On/Off switch |
| 27 | Low pressure safety switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay bypass |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| GY | Grey |
| WH | White |
| BU | Blue |
| BN | Brown |
| BK | Black |
| RD | Red |
| PH | Pink |

RFF1220C QUIETQUBE HEAD SECTION

Refer to Nameplate for Voltage Rating

Connections

- A, B, & C connect to a remote panel when used - Jumper must be removed when remote panel is used
- 1 & 2 connect to line voltage
- 3 & 4 energize remote condensing unit - 2 Amp max



Wiring Diagram Legend RFF1220C Head Section

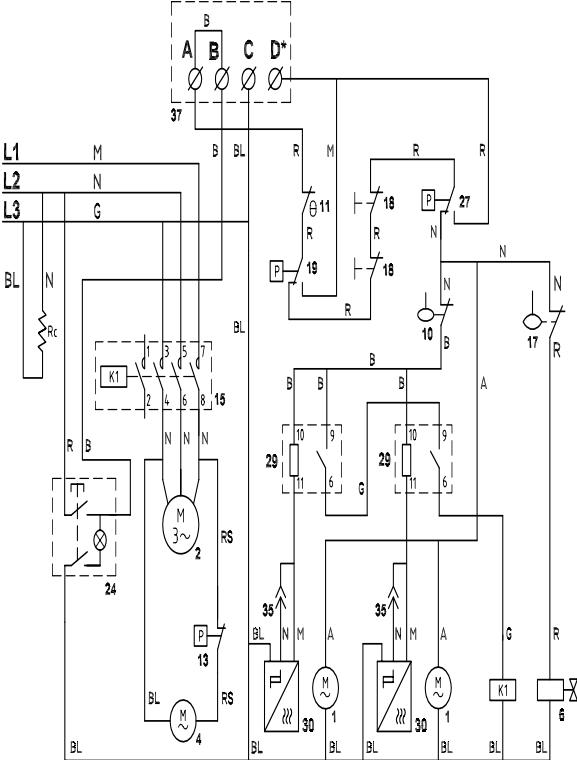
| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 21 | Compressor Relay |
| 24 | On/Off switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| V | Violet |
| A | Orange |

RFF2500 AIR-COOLED

Refer to Nameplate for Voltage Rating

Connections

- A & B connect to a remote panel when used - Jumper must be removed when remote panel is used
- C & D energize a remote alarm indication when used



Wiring Diagram Legend RFF2500 Air-Cooled

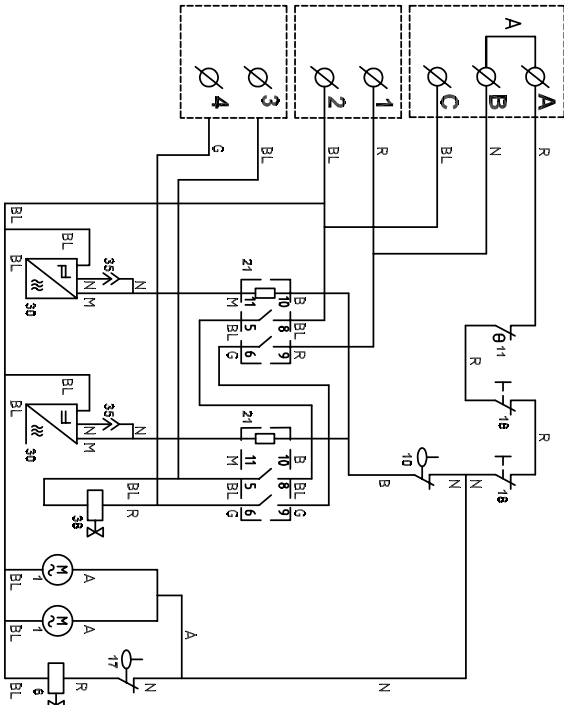
| | |
|-------------------------------|----------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactator |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 19 | High pressure cut out |
| 24 | On/Off switch |
| 25 | Compressor time delay |
| 27 | Low pressure cut out |
| 29 | Compressor time delay relay |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| 37 | Remote indicator panel terminals |
| Rc | Compressor crankcase heater |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |
| A | Orange |

RFF2200C QUIETQUBE HEAD SECTION

Refer to Nameplate for Voltage Rating

Connections

- A, B, & C connect to a remote panel when used - Jumper must be removed when remote panel is used
- 1 & 2 connect to line voltage
- 3 & 4 energize remote condensing unit - 2 Amp max



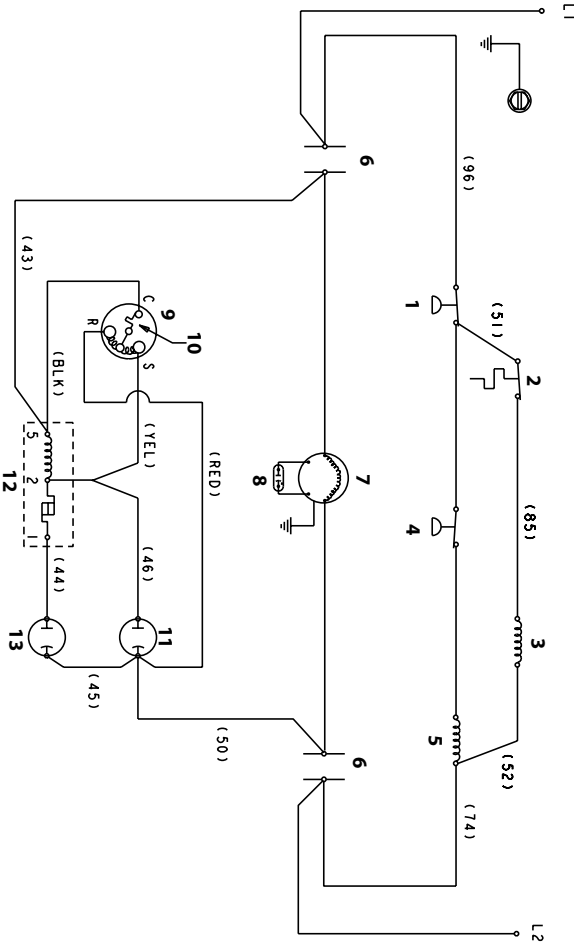
Wiring Diagram Legend RFF2200C Head Section

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 21 | Compressor Relay |
| 24 | On/Off switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| A | Orange |

Condensing Units

RCUF CONDENSING UNIT 1PH

Refer to Nameplate for Voltage Rating

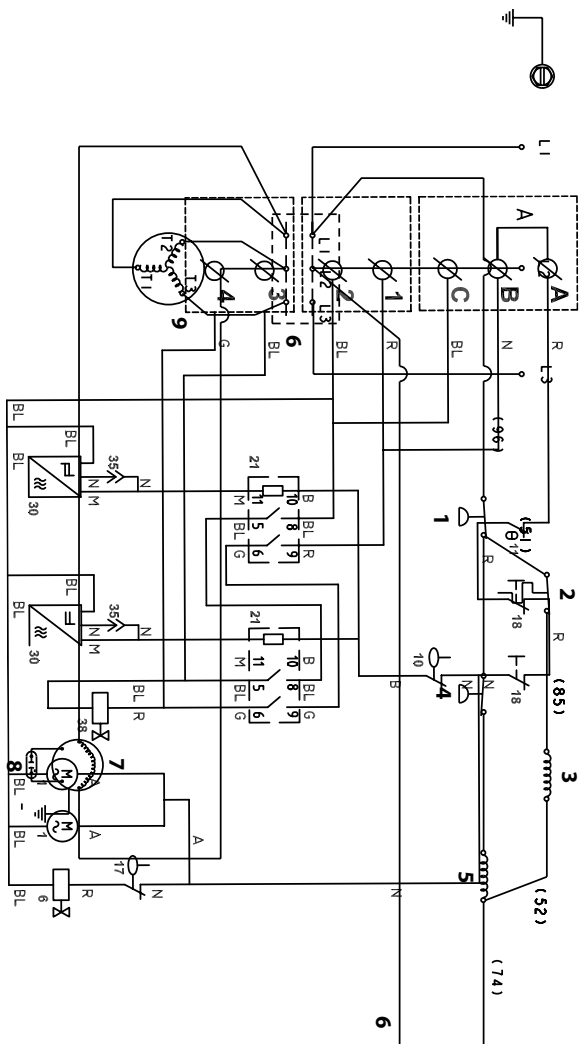


Wiring Diagram Legend RCUF Condensing Unit

| | |
|-------------------------------|-----------------------------------|
| 1 | High Pressure Cutout Control |
| 2 | Thermostat - Receiver Heater |
| 3 | Receiver Heater |
| 4 | Low Pressure Cutout Control |
| 5 | Contactator Coil |
| 6 | Contactator Contacts |
| 7 | Condenser Fan Motor |
| 8 | Condenser Fan Motor Run Capacitor |
| 9 | Compressor |
| 10 | Compressor Overload |
| 11 | Compressor Run Capacitor |
| 12 | Compressor Relay |
| 13 | Compressor Start Capacitor |
| Wire Color Designation | |
| BLK | Black |
| YEL | Yellow |
| RED | Red |
| Compressor Windings | |
| C | Common Winding |
| S | Start Winding |
| R | Run Winding |

RCUF CONDENSING UNIT 3PH

Refer to Nameplate for Voltage Rating



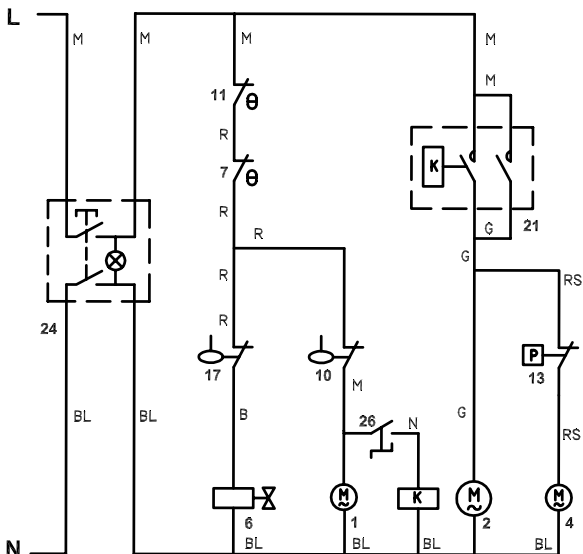
Wiring Diagram Legend RCUF Condensing Unit

| | |
|---|-----------------------------------|
| 1 | High Pressure Cutout Control |
| 2 | Thermostat - Receiver Heater |
| 3 | Receiver Heater |
| 4 | Low Pressure Cutout Control |
| 5 | Contactora Coil |
| 6 | Contactora Contacts |
| 7 | Condenser Fan Motor |
| 8 | Condenser Fan Motor Run Capacitor |
| 9 | Compressor |

Nugget Models

UNF0200/UNF0300 AIR-COOLED

Refer to Nameplate for Voltage Rating

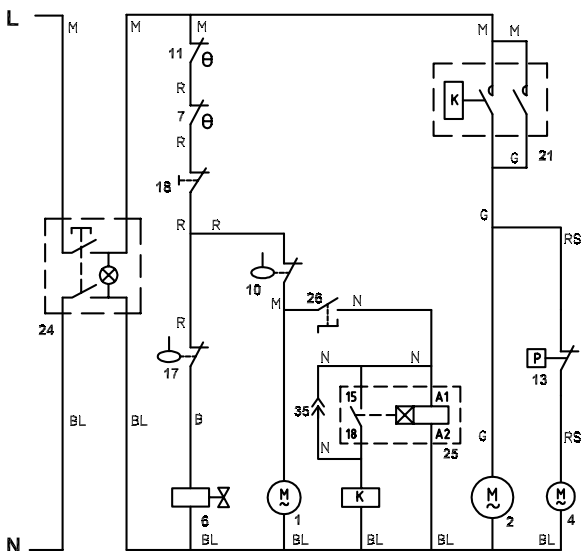


Wiring Diagram Legend UNF0200/UNF0300 Air-cooled

| | |
|-------------------------------|--|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water Inlet valve |
| 7 | Evaporator low temperature safety or Low pressure control |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 12 | High temperature limit (snap disc) |
| 13 | Fan cycle control |
| 17 | Water level switch |
| 21 | Compressor relay |
| 24 | On/Off switch |
| 26 | Gear motor centrifugal switch |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RNF0320 AIR-COOLED

Refer to Nameplate for Voltage Rating

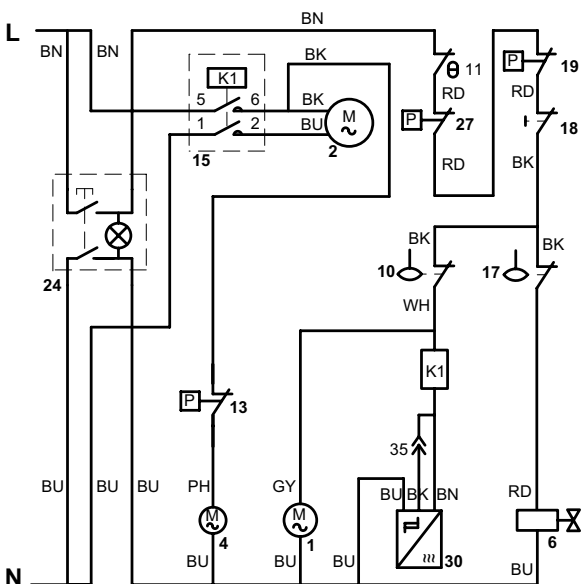


Wiring Diagram Legend RNF0320 Air-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water inlet valve |
| 7 | Low pressure control |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 21 | Compressor relay |
| 24 | On/Off switch |
| 25 | Compressor time delay |
| 26 | Gear motor centrifugal switch |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RNF0620 AIR-COOLED

Refer to Nameplate for Voltage Rating

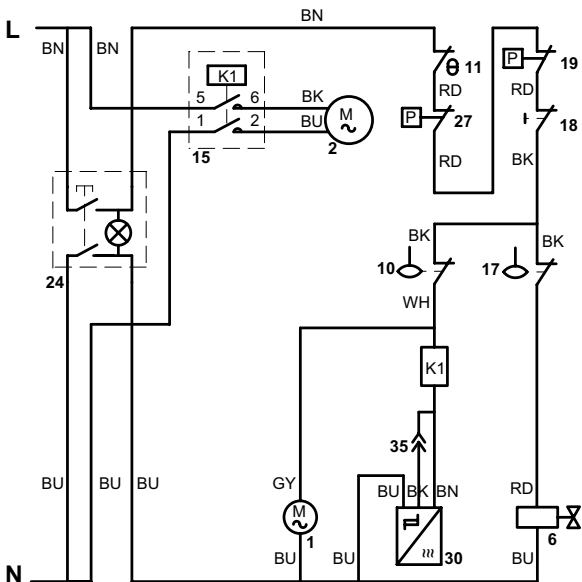


Wiring Diagram Legend RNF0620 Air-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactora |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 19 | High pressure cut out |
| 24 | On/Off switch |
| 27 | Low pressure cut out |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| WH | White |
| BU | Blue |
| GY | Grey |
| BN | Brown |
| BK | Black |
| RD | Red |
| PH | Pink |

RNF0620 WATER-COOLED

Refer to Nameplate for Voltage Rating

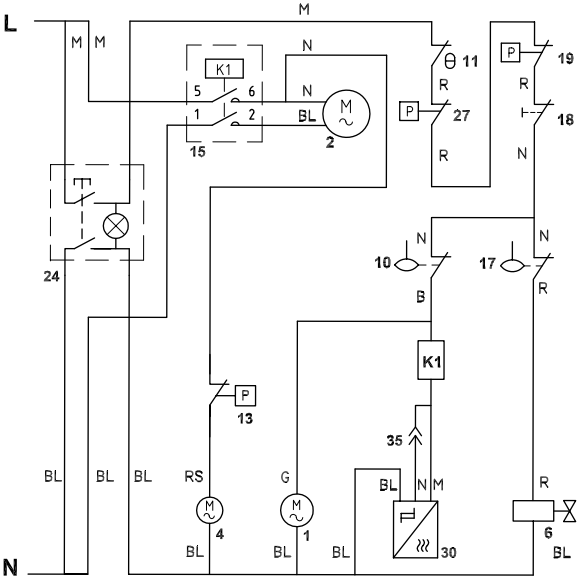


Wiring Diagram Legend RNF0620 Water-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 15 | Contactator |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 19 | High pressure cut out |
| 24 | On/Off switch |
| 27 | Low pressure cut out |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| WH | White |
| BU | Blue |
| GY | Grey |
| BN | Brown |
| BK | Black |
| RD | Red |

RNF1100 AIR-COOLED

Refer to Nameplate for Voltage Rating

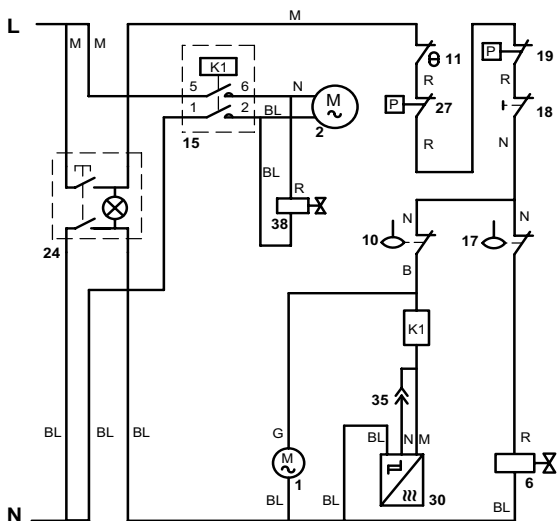


Wiring Diagram Legend RNF1100 Air-cooled

| | |
|-------------------------------|-------------------------------|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Condenser fan motor |
| 6 | Water inlet valve |
| 10 | Low water level safety |
| 11 | Bin thermostat |
| 13 | Fan cycle control |
| 15 | Contactora |
| 17 | Water level switch |
| 18 | Ice chute safety switch |
| 19 | High pressure cut out |
| 21 | Compressor relay |
| 24 | On/Off switch |
| 25 | Compressor time delay |
| 27 | Low pressure cut out |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RNF1100 WATER-COOLED

Refer to Nameplate for Voltage Rating



Wiring Diagram Legend RNF1100 Water-Cooled

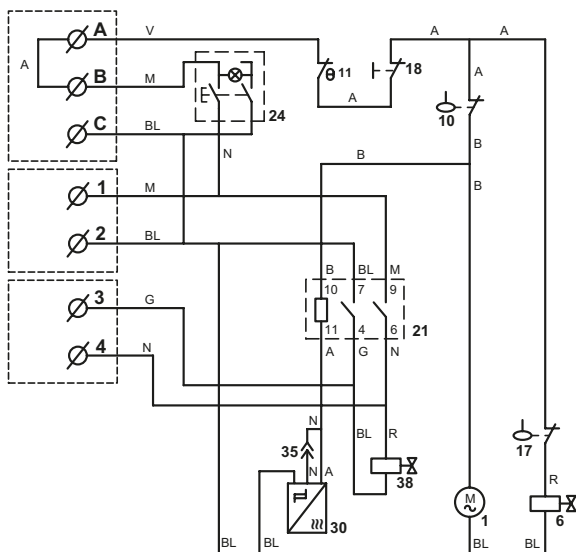
| | |
|-------------------------------|--|
| 1 | Gear Motor |
| 2 | Compressor |
| 4 | Fan Motor |
| 6 | Water inlet Valve |
| 10 | Low Water Level Switch |
| 11 | Bin Thermostat |
| 13 | Fan cycle control |
| 15 | Contactor |
| 17 | Water level switch |
| 18 | Chute safety switch |
| 19 | High pressure safety switch |
| 24 | On/Off switch |
| 27 | Low pressure safety switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass (Service staff only) |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| RS | Pink |

RNF1020C

Refer to Nameplate for Voltage Rating

Connections

- A, B, & C connect to a remote panel when used - Jumper must be removed when remote panel is used
- 1 & 2 connect to line voltage
- 3 & 4 energizes remote refrigeration - 2 Amp max



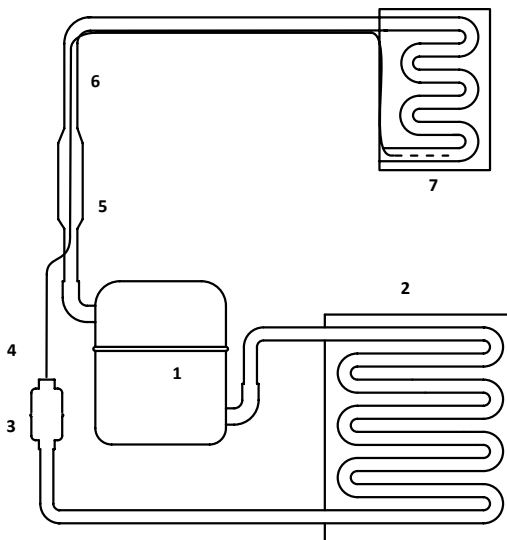
Wiring Diagram Legend RNF1020C Head Section

| | |
|-------------------------------|--|
| 1 | Gear Motor |
| 6 | Water inlet valve |
| 10 | Low water level switch |
| 11 | Bin thermostat |
| 17 | Water level switch |
| 18 | Chute safety switch |
| 21 | Relay |
| 24 | On/Off switch |
| 30 | Rotation sensor |
| 35 | Compressor time delay by-pass (Service Staff only) |
| 38 | Solenoid Valve |
| Wire Color Designation | |
| A | Orange |
| B | White |
| BL | Blue |
| G | Grey |
| M | Brown |
| N | Black |
| R | Red |
| V | Violet |

Refrigeration Tubing Schematics

Flake Models

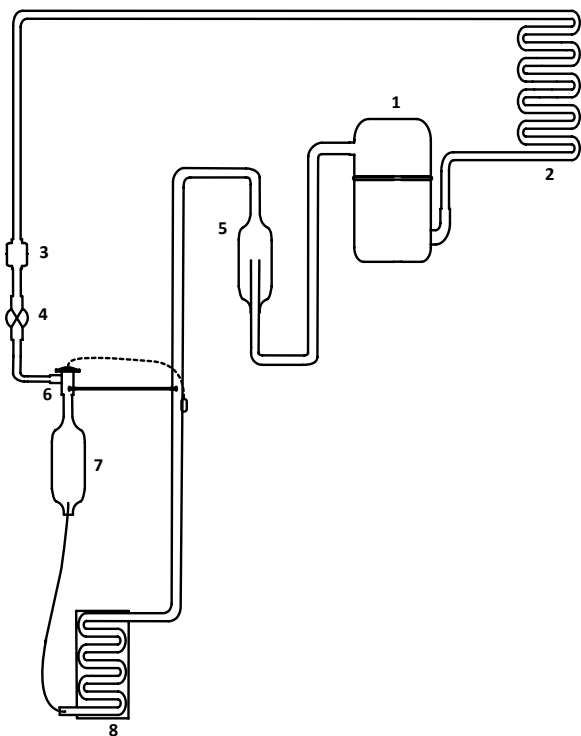
RFF0200/RFF0350/RFF0320/RFF0620



Tubing Diagram Legend

| | |
|---|-------------------|
| 1 | Compressor |
| 2 | Condenser |
| 3 | Liquid Line Drier |
| 4 | Capillary tube |
| 5 | Accumulator |
| 6 | Heat Exchanger |
| 7 | Evaporator |

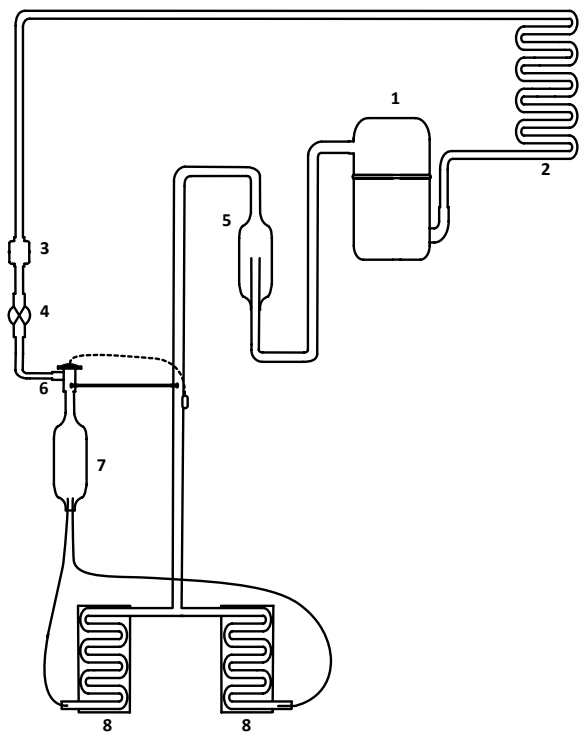
RFF1300 AIR-COOLED



Tubing Diagram Legend

| | |
|---|------------------------------|
| 1 | Compressor |
| 2 | Condenser |
| 3 | Liquid Line Drier |
| 4 | Liquid Line Solenoid Valve |
| 5 | Suction Accumulator |
| 6 | Thermostatic Expansion Valve |
| 7 | Liquid Accumulator |
| 8 | Evaporator |

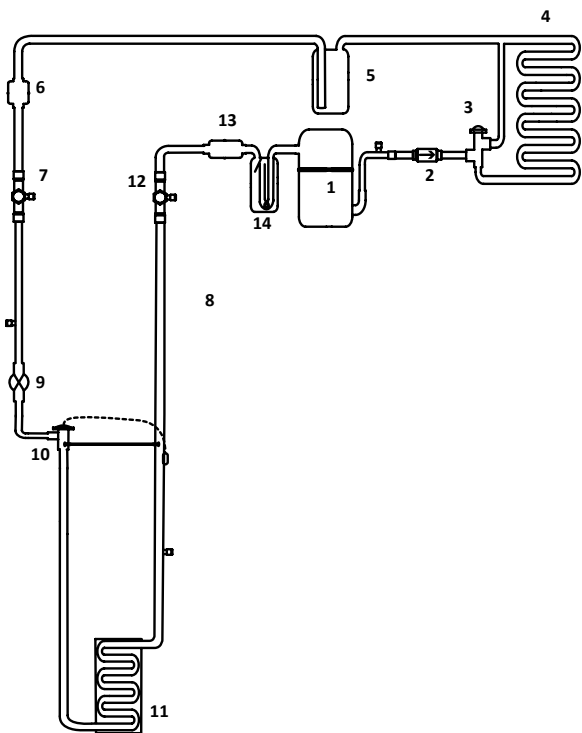
RFF2500 AIR-COOLED



Tubing Diagram Legend

| | |
|---|------------------------------|
| 1 | Compressor |
| 2 | Condenser |
| 3 | Liquid Line Drier |
| 4 | Liquid Line Solenoid Valve |
| 5 | Suction Accumulator |
| 6 | Thermostatic Expansion Valve |
| 7 | Liquid Accumulator |
| 8 | Evaporator |

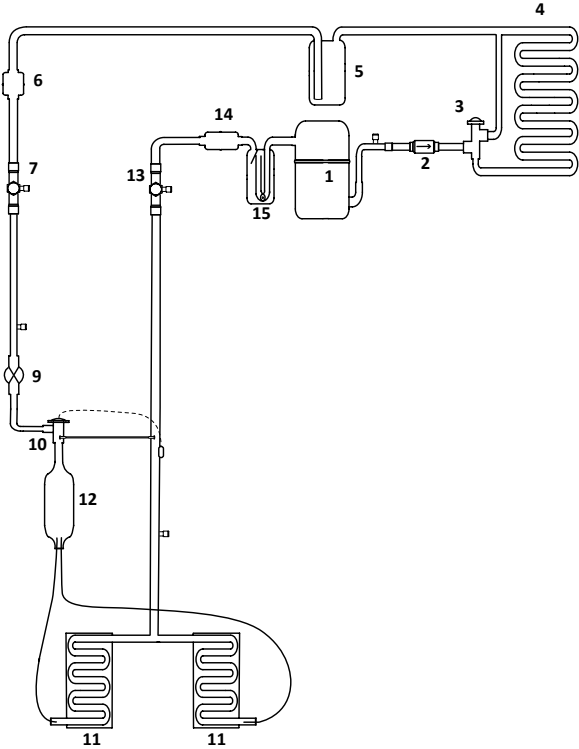
RFF1220C QUIETQUBE HEAD SECTION & RCUF1000 CONDENSING UNIT



Tubing Diagram Legend

| | |
|----|-----------------------------------|
| 1 | Compressor |
| 2 | Check Valve |
| 3 | Head Pressure Control Valve |
| 4 | Condenser (air or water cooled) |
| 5 | Receiver |
| 6 | Condensing unit Liquid Line Drier |
| 7 | Liquid Line Shut-off Valve |
| 8 | Ice Machine Liquid Line Drier |
| 9 | Liquid Line Solenoid Valve |
| 10 | Thermostatic Expansion Valve |
| 11 | Evaporator |
| 12 | Suction Line Shut-off Valve |
| 13 | Suction Line Filter |
| 14 | Suction Accumulator |

**RFF2200 QUIETQUBE HEAD SECTION & RCUF2200
CONDENSING UNIT**



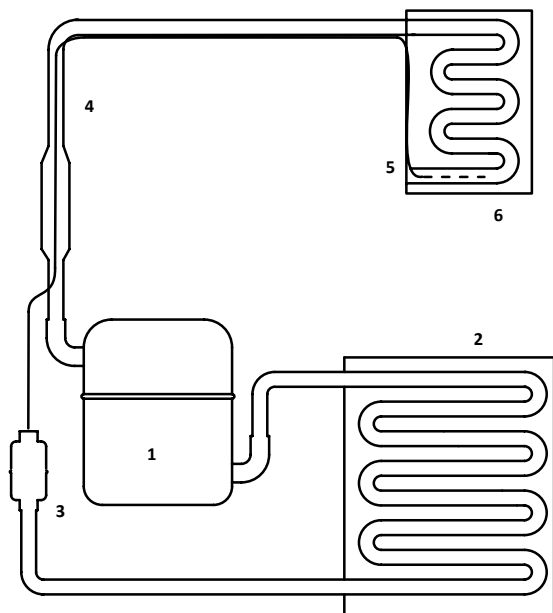
Tubing Diagram Legend

| | |
|----|-----------------------------------|
| 1 | Compressor |
| 2 | Check Valve |
| 3 | Head Pressure Control Valve |
| 4 | Condenser (air or water cooled) |
| 5 | Receiver |
| 6 | Condensing unit Liquid Line Drier |
| 7 | Liquid Line Shut-off Valve |
| 8 | Ice Machine Liquid Line Drier |
| 9 | Liquid Line Solenoid Valve |
| 10 | Thermostatic Expansion Valve |
| 11 | Evaporator |
| 12 | Liquid Accumulator |
| 13 | Suction Line Shut-off Valve |
| 14 | Suction Line Filter |
| 15 | Suction Accumulator |

Nugget Models

UNF0200/UNF0300

Air & Water-cooled

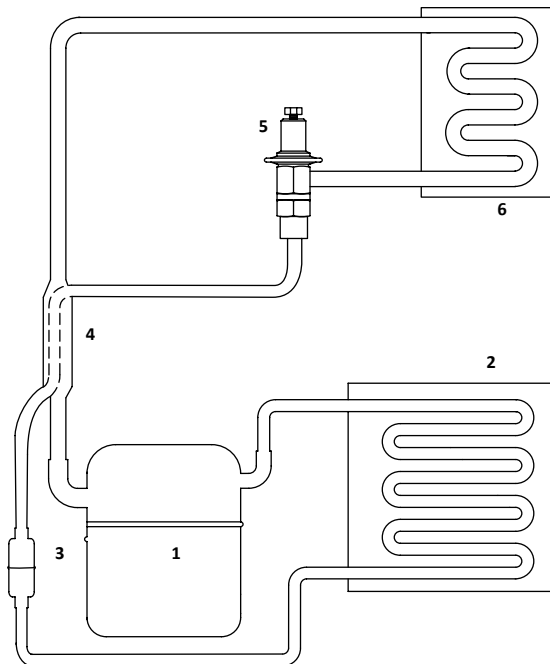


TUBING DIAGRAM LEGEND

| | |
|---|---------------------------------|
| 1 | Compressor |
| 2 | Condenser (air or water cooled) |
| 3 | Liquid Line Drier |
| 4 | Heat Exchanger |
| 5 | Capillary Tube |
| 6 | Evaporator |

RNF0320/RNF0620/RNF1100

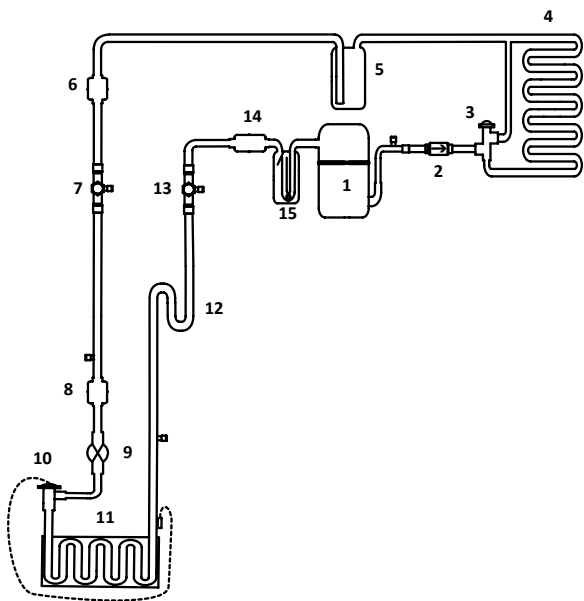
Air & Water-cooled



TUBING DIAGRAM LEGEND

| | |
|---|---------------------------------|
| 1 | Compressor |
| 2 | Condenser (air or water cooled) |
| 3 | Liquid Line Drier |
| 4 | Heat Exchanger |
| 5 | Automatic Expansion Valve |
| 6 | Evaporator |

RNF1020C QUIETQUBE HEAD SECTION & RCUF1000 CONDENSING UNIT



Tubing Diagram Legend

| | |
|----|-----------------------------------|
| 1 | Compressor |
| 2 | Check Valve |
| 3 | Head Pressure Control Valve |
| 4 | Condenser (air or water cooled) |
| 5 | Receiver |
| 6 | Condensing unit Liquid Line Drier |
| 7 | Liquid Line Shut-off Valve |
| 8 | Ice Machine Liquid Line Drier |
| 9 | Liquid Line Solenoid Valve |
| 10 | Thermostatic Expansion Valve |
| 11 | Evaporator |
| 12 | S Trap (20' + Rise Only) |
| 13 | Suction Line Shut-off Valve |
| 14 | Suction Line Filter |
| 15 | Suction Accumulator |

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