Manitowoc

Flake & Nugget Models
RFF/UFF/RNF/UNF Ice Machines

Technician's Handbook

Part Number 000015433_05 3/21

Manitowoc

Safety Notices

Read these precautions to prevent personal injury:

- 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.
- Routine adjustments and maintenance procedures outlined in this manual are not covered by the warranty.
- Proper installation, care and maintenance are essential for maximum performance and trouble-free operation of your equipment.
- Visit our website www.manitowocice.com for manual updates, translations, or contact information for service agents in your area.
- 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.
- This equipment is intended for indoor use only. Do not install or operate this equipment in outdoor areas.
- As you work on this 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.

⚠ Warning

Follow these electrical requirements during installation of this equipment.

- All field wiring must conform to all applicable codes of the authority having jurisdiction. It is the responsibility of the end user to provide the disconnect means to satisfy local codes. Refer to rating plate for proper voltage.
- This appliance must be grounded.
- This equipment must be positioned so that the plug is accessible unless other means for disconnection from the power supply (e.g., circuit breaker or disconnect switch) is provided.
- Check all wiring connections, including factory terminals, before operation. Connections can become loose during shipment and installation.

⚠ Warning

Follow these precautions to prevent personal injury during installation of this equipment:

- Installation must comply with all applicable equipment fire and health codes with the authority having jurisdiction.
- To avoid instability the installation area must be capable of supporting the combined weight of the equipment and product. Additionally the equipment must be level side to side and front to back.
- Remove all removable panels before lifting and installing and use appropriate safety equipment during installation and servicing. Two or more people are required to lift or move this appliance to prevent tipping and/or injury.
- Do not damage the refrigeration circuit when installing, maintaining or servicing the unit.
- Connect to a potable water supply only.
- This equipment contains refrigerant charge.

⚠ Warning

Follow these precautions to prevent personal injury while operating or maintaining this equipment.

- Refer to nameplate to identify the type of refrigerant in your equipment.
- Only trained and qualified personnel aware of the dangers are allowed to work on the equipment.
- 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.
- Crush/Pinch Hazard. Keep hands clear of moving components. Components can move without warning unless power is disconnected and all potential energy is removed.
- Moisture collecting on the floor will create a slippery surface. Clean up any water on the floor immediately to prevent a slip hazard.

⚠ Warning

Follow these precautions to prevent personal injury while operating or maintaining this equipment.

- Objects placed or dropped in the bin can affect human health and safety. Locate and remove any objects immediately.
- Never use sharp objects or tools to remove ice or frost.
- Do not use mechanical devices or other means to accelerate the defrosting process.
- When using cleaning fluids or chemicals, rubber gloves and eye protection (and/or face shield) must be worn.

⚠ DANGER

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, clean or maintain this appliance without proper supervision.

⚠ Warning

Follow these precautions to prevent personal injury during use and maintenance of this equipment:

- It is the responsibility of the equipment owner to perform a Personal Protective Equipment Hazard Assessment to ensure adequate protection during maintenance procedures.
- Do Not Store Or Use Gasoline Or Other Flammable Vapors Or Liquids In The Vicinity Of This Or Any Other Appliance. Never use flammable oil soaked cloths or combustible cleaning solutions for cleaning.
- All covers and access panels must be in place and properly secured when operating this equipment.
- Risk of fire/shock. All minimum clearances must be maintained. Do not obstruct vents or openings.
- Failure to disconnect power at the main power supply disconnect could result in serious injury or death. The power switch DOES NOT disconnect all incoming power.
- All utility connections and fixtures must be maintained in accordance with the authority having jurisdiction.
- Turn off and lockout all utilities (gas, electric, water) according to approved practices during maintenance or servicing.

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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
RNF2000C	RCUF2200

Ice Machine Heat of Rejection

Series Ice Machine	Heat of Rejection BTU/Hour
UFF0200 - RFF0320	2400
UNF0200	2800
UNF0300 - UFF0350	5000
RNF0320	3075
RFF0620 - RNF0620	5200
RNF1100 - RFF1300	7500
RFF2500	17000

Ice Machine Warranty Information

For warranty information visit: www.manitowocice.com/Service/Warranty

- Warranty Coverage Information
- Warranty Registration
- Warranty Verification

Warranty coverage begins the day the ice machine is installed.

WARRANTY REGISTRATION & CLAIM PROCEDURES

Scan the QR code with your smart device or enter the link in a web browser to access:

- Warranty registration
- Warranty information
- Warranty labor claim form

WWW.MANITOWOCICE.COM/SERVICE/WARRANTY#WARRANTY-REGISTRATION

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/Descaler and Sanitizer

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

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

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

All Models Clearance Requirements	
Back	5” (12.7 cm)
Sides/Top	8” (20.3 cm)

RCUF Units	Remote Condensing Unit
Front/Back	24” (61.0 cm)
Sides/Top	6” (15.2 cm) 24 inches clearance on top and sides is recommended for serviceability

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).
- Water entering the condenser must not exceed 150 psi (10 bar).

Electrical Service

⚠ Warning

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

VOLTAGE

The maximum allowable voltage variation is ± 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 (GFIC)

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**	**Air-Cooled**		
		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	—
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/RNF 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
RNF1100	208-230/1/60	20 Amp	13.7
RFF1300	208-230/1/60	20 Amp	12.5

RFF/RNF QUIETQUBE MODEL HEAD SECTIONS

Series Ice Machine	Voltage Phase Cycle	Remote Air-Cooled	
		Max Fuse/ Circuit Breaker	Total Circuit Amps
RNF1020C	115/1/60	15 Amp	2.9
RFF1220C	208-230/1/60	15 Amp	1.4
RNF2000C	208-230/1/60	15 AMP	3.2
RFF2200C	208-230/1/60	15 Amp	3.2

RCUF QUIETQUBE MODEL CONDENSING UNITS

Condensing Unit	Voltage Phase Cycle	Remote Air-Cooled	
		Max Fuse/ Circuit Breaker	Total Circuit Amps
RCUF1000	208-230/1/60 208-230/3/60	15	15
RCUF1200	208-230/1/60 208-230/3/60	15	15
RCUF2200	208-230/3/60	15	15

Cleaning and Sanitizing

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

⚠ Caution

Use only Manitowoc approved Ice Machine Cleaner/Descaler (part number 000000084) and Sanitizer (part number 9405653). Do not mix Cleaner/Descaler 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.

DETAILED DESCALING AND SANITIZING PROCEDURE

This procedure must be performed once every 6 months.

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

Detailed Descaling and Sanitizing Procedure

Use Ice Machine Cleaner/Descaler 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.

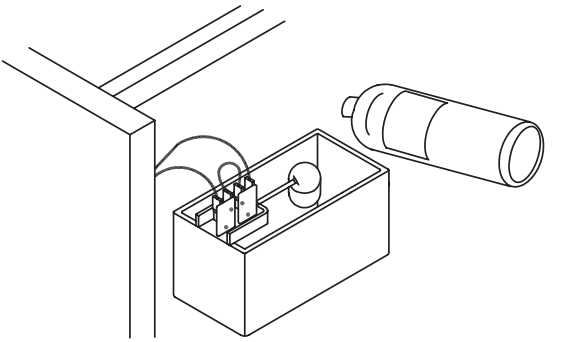
Step 5 Follow the chart and premix cleaner and water.

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

Step 6 Fill the evaporator and reservoir with descaling solution.

Important

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 descaling solution and deposit the ice in the bin. Add the remaining descaler/water solution as the water level in the reservoir drops.

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

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

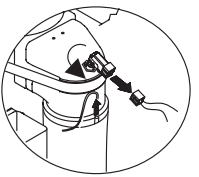
Step 9 Place the toggle switch in the OFF position and turn off the ice making water supply.

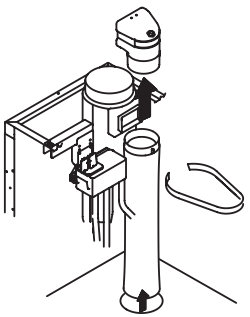
Step 10 Remove the following components for hand descaling and sanitizing for RFF and RNF models.

A. Remove water reservoir cover.

B. Remove microswitch and bin thermostat from the ice chute.

C. Remove retainer, ice chute elbow and ice chute.





D. Hand descale the removed part(s) in a properly mixed solution of descaler and water.

Solution Type	Water	Mixed With
Descaling	1 gal. (4 L)	16 oz (500 ml) Cleaner/Descaler Part Number 000000084

E. Use a soft-bristle brush or sponge (NOT a wire brush) to carefully clean the parts.

F. Use the solution and a brush or sponge to clean all disassembled components and the inside of the bin.

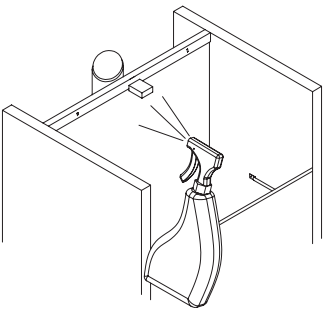
G. Rinse all cleaned parts with clear potable water.

H. 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

I. 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.

NOTE: Descale, rinse and spray sanitizer on all interior and exterior areas of the evaporator discharge spout on UFF and UNF models.



Step 11 Reassemble all components removed in step 10 into the ice machine.

Step 12 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 13 Fill the evaporator and reservoir with sanitizer/water solution.

Important

Prop Float Up to Prevent Low Water Level Shutdown

Step 14 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 cycle if the water float switch opens.

Step 15 After all of the sanitizer/water solution has been added to the reservoir, turn on the ice making water supply.

Step 16 Continue the freeze cycle for 30 minutes and then discard all ice produced.

Remedial Cleaning Procedure for Heavily Scaled Ice Machines

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/descaler with lukewarm water in a non-metallic container.

Model	Water Reservoir Capacity	Mix Cleaner/Descaler and Water Use Ice machine cleaner/ descaler, 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)
RNF1020C RNF1100 RFF1220C RFF1300	34 oz (1 L)	23 oz (680 ml)	11 oz (325 ml)
RNF2000C RFF2200C 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 descaler/water solution and re-install the reservoir cover.

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

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

Step 8 Perform the detailed descaling and sanitizing procedure.

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.

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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 an 8 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 8 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/RNF2000C/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 8 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 and 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.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor and condenser fan motor stop.

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 oz. ÷ 16 oz. =.75 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.

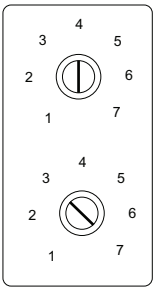
Thermostat Settings

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	6
UFF0200	5	5
UNF0300	5	6
RFF0320	3	7
RNF0320	5	6
UFF0350	5	7
RNF0620	2	--
RFF0620	3	--
RNF1020C	3	--
RNF1100	3	--
RFF1220C	3	--
RFF1300	3	--
RNF2000C	3	--
RFF2200C	3	--
RFF2500	3	--

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:

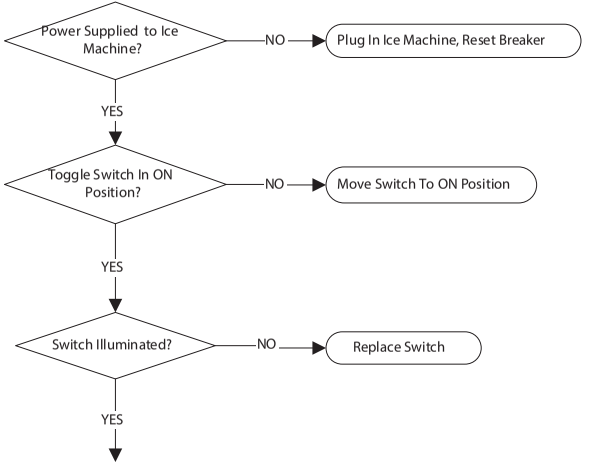
A. Bin Thermostat

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



YES
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
Yes
Remove Ice - Allow To Warm And Retest
No
Adjusting Closes Thermostat?
Yes
Verify New Setting Cycles Machine On/Off
No
Replace Thermostat
YES
Evaporator Safety Thermostat Closed? RF0266 LPCO
NO
Evaporator Cold?
Yes
Allow Evaporator To Warm And Retest
No
Adjusting Closes Thermostat?
Yes
Verify New Setting Cycles Machine On/Off
No
Replace Thermostat
YES

YES
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve
YES
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES

Gear Motor Runs?
NO
YES
Line Voltage To Gear motor?
Yes
No
Repair Wiring
Remove Auger From Evaporator
Gear Motor Runs?
No
Replace Gear Motor
Yes
Ice In Evaporator?
Yes
Thaw Evaporator
No
Rebuild Evaporator
Line Voltage To Compressor Relay Coil?
NO
YES
Wiring From Gearmotor Intact?
Yes
Replace Gear Motor
No
Repair Wiring

YES
Relay Closed?
NO
Replace Relay
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

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

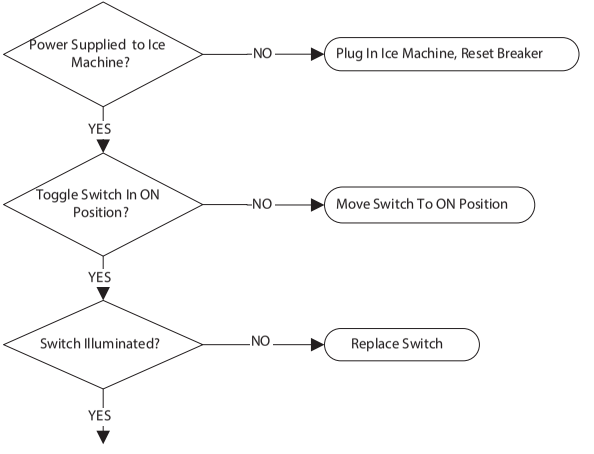
C. Low Water Level Switch

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 an 8 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



Yes
Bin Thermostat Closed?
NO
YES
Ice Contacting Thermostat?
No
Yes
Remove Ice - Allow To Warm And Retest
Adjusting Closes Thermostat?
No
Replace Thermostat
Yes
Verify New Setting Cycles Machine On/Off
Low Pressure Switch Closed?
NO
YES
Evaporator Cold?
No
Yes
Allow Evaporator To Warm And Retest
Refrigerant Pressure Below Cut-out?
No
Replace LPCO
Yes
Repair Refrigerant Leak, Evacuate, Recharge
Chute Switch Closed?
NO
Yes
Ice Contacting Actuator?
No
Yes
Remove Ice And Retest
Actuator Functions?
No
Adjust Or Replace Actuator
Yes
Replace Switch

YES
Reservoir Full Of Water?
NO
YES
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve

Yes
Gear Motor Runs?
YES
NO
Line Voltage To Gear motor?
Yes
No
Repair Wiring
Disconnect Evaporator From Gear Motor
Gear Motor Runs?
No
Replace Gear Motor
Yes
Ice In Evaporator?
Yes
Thaw Evaporator
No
Rebuild Or Replace Evaporator
Line Voltage To Compressor Time Delay?
YES
NO
Gear Motor Centrifugal Switch Closed?
Yes
Repair Wiring
No
Replace Gear Motor

Yes
10 Minute Time Delay Expired?
NO
Wait 8 Minutes - Do Not Install Compressor Time Delay Jumper
Yes
Line Voltage To Compressor Contactor Coil?
NO
Install Compressor Time Delay Jumper
YES
Contactor Closed?
NO
Replace Contactor
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Power To Contactor Coil?
No
Repair Wiring
Yes
Replace Time Delay Relay
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

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

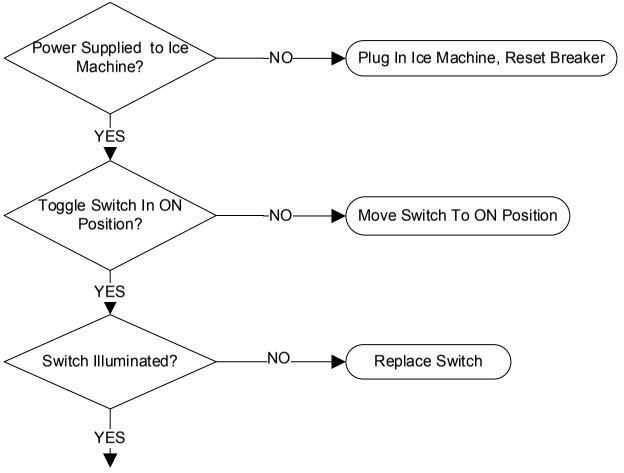
E. Low Water Level Switch

NOTE: Placing the toggle switch in the ON position starts the gear motor. After 8 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
See “Rotation Sensor” on page 85 for sequence of operation	

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



Yes
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
No
Adjusting Closes Thermostat?
No
Replace Thermostat
Yes
Verify New Setting Cycles Machine On/Off
Yes
Remove Ice - Allow To Warm And Retest
YES
Low Pressure Control Closed?
NO
Evaporator Cold?
No
Refrigerant Pressure Below Cut-out?
No
Replace LPCO
Yes
Repair Refrigerant Leak, Evacuate, Recharge
Yes
Allow Evaporator To Warm And Retest
YES
High Pressure Control Closed?
NO
Resets?
No
Refrigerant Pressure Above Cut-out?
No
Replace HPCO
Resets & Trips
Clean Condenser, Check Fan Motor Check Fan Cycle Control
Yes
Clean Condenser, Check Fan Motor, Check FCC & Refrigeration System
YES

YES
Chute Switch Closed?
NO
Ice Contacting Actuator?
Yes
Remove Ice And Retest
No
Actuator Functions?
Yes
Replace Switch
No
Adjust Or Replace Actuator
Yes
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
Yes
Restore Water Supply / Replace Water Inlet Valve
YES
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES

Yes
Gear Motor Runs?
YES
8 Minute Time Delay Expired?
YES
NO
Wait 10 Minutes - Do Not Install Compressor Time Delay Jumper
NO
Line Voltage To Gear motor?
Yes
Repair Wiring
No
Disconnect Evaporator From Gear Motor
Gear Motor Runs?
No
Replace Gear Motor
Yes
Ice In Evaporator?
Yes
Thaw Evaporator
No
Rebuild Or Replace Evaporator

Yes
Line Voltage To Compressor Contactor Coil?
NO
Install Compressor Time Delay Jumper
YES
Contactor Closed?
NO
Replace Contactor
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Power To Contactor Coil?
No
Repair Wiring
Yes
Replace Rotation Sensor/Time Delay Relay
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

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 8 minutes of correct rotation the time delay ends and the liquid line solenoid valve opens.

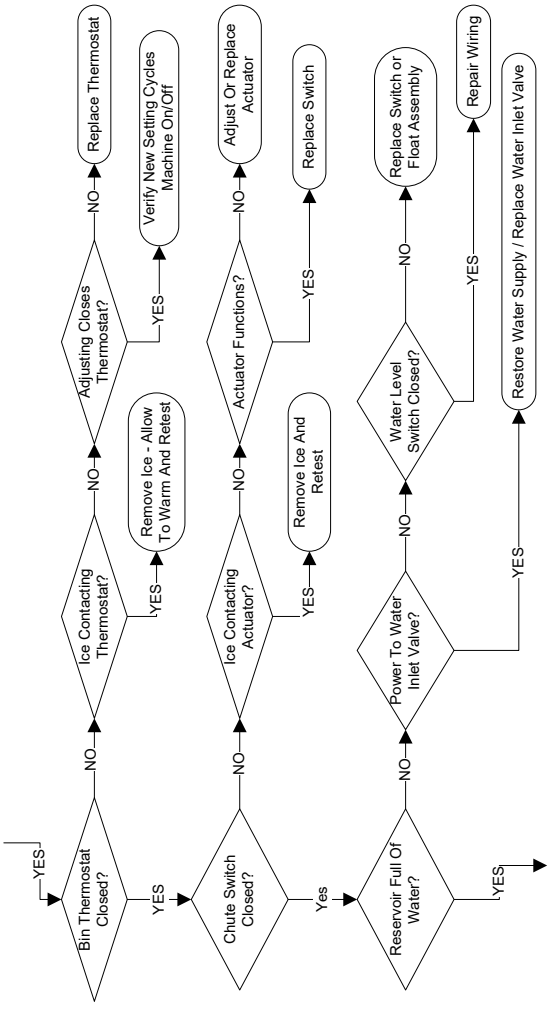
The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

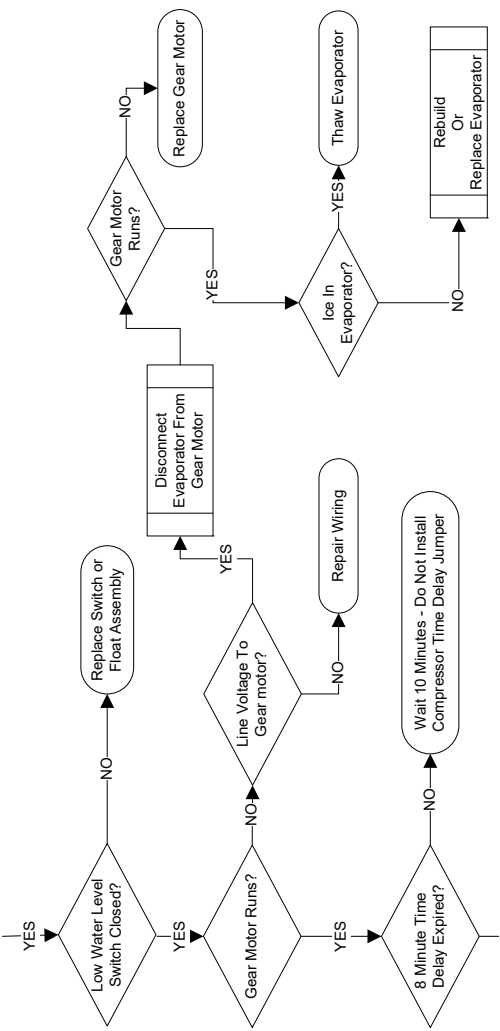
The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

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


YES
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
YES
Remove Ice - Allow To Warm And Retest
NO
Adjusting Closes Thermostat?
YES
Verify New Setting Cycles Machine On/Off
NO
Replace Thermostat
YES
Chute Switch Closed?
NO
Ice Contacting Actuator?
YES
Remove Ice And Retest
NO
Actuator Functions?
YES
Replace Switch
NO
Adjust Or Replace Actuator
Yes
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
NO
Water Level Switch Closed?
YES
Repair Wiring
NO
Replace Switch or Float Assembly
YES
YES
Restore Water Supply / Replace Water Inlet Valve


YES
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Gear Motor Runs?
NO
Line Voltage To Gear motor?
NO
Repair Wiring
YES
Disconnect Evaporator From Gear Motor
YES
8 Minute Time Delay Expired?
NO
Wait 10 Minutes - Do Not Install Compressor Time Delay Jumper
YES
Gear Motor Runs?
NO
Replace Gear Motor
YES
Ice In Evaporator?
YES
Thaw Evaporator
NO
Rebuild Or Replace Evaporator

YES
Line Voltage To Left Delay Relay Coil?
NO
YES
Delay Relay Contacts Closed?
NO
YES
Install Compressor Time Delay Jumper On Left Evaporator
Replace Relay
Power To Left Time Delay Relay Coil?
NO
Repair Wiring
Yes
Delay Relay Contacts Closed?
YES
Replace Rotation Sensor/Time Delay
NO
Replace Relay

YES
Line Voltage To Compressor Contactor Coil?
NO
YES
High Pressure Control Closed?
NO
YES
Resets?
Resets & Trips
Clean Condenser, Check Fan Motor Check Fan Cycle Control
NO
Refrigerant Pressure Above Cut-out?
NO
Replace HPCO
YES
Clean Condenser, Check Fan Motor, Check Fan Cycle Control & Refrigeration System
Low Pressure Control Closed?
YES
Repair Wiring
NO
Line Voltage At Liquid Line Solenoid Valve?
NO
Replace Relay
YES
Verify:
Refrigerant Pressure is Higher Than LPCO Cut-in
Both Shut-off Valves are Open
Repair/Replace Liquid Line Solenoid
Locate and Repair Refrigerant Leak
Replace LPCO Switch

YES
Contactor Closed?
NO
Replace Contactor
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions

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

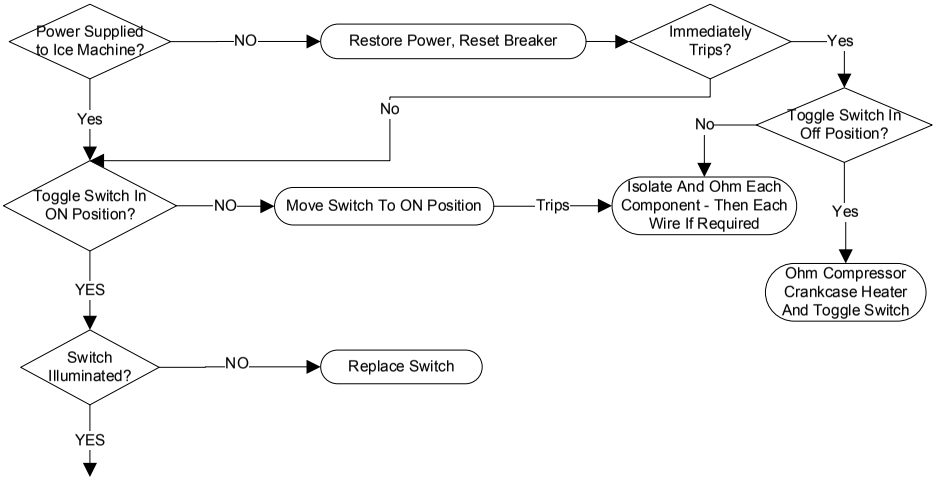
E. Low Water Level Switch

Placing the toggle switch in the ON position starts the gear motor. After 8 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.

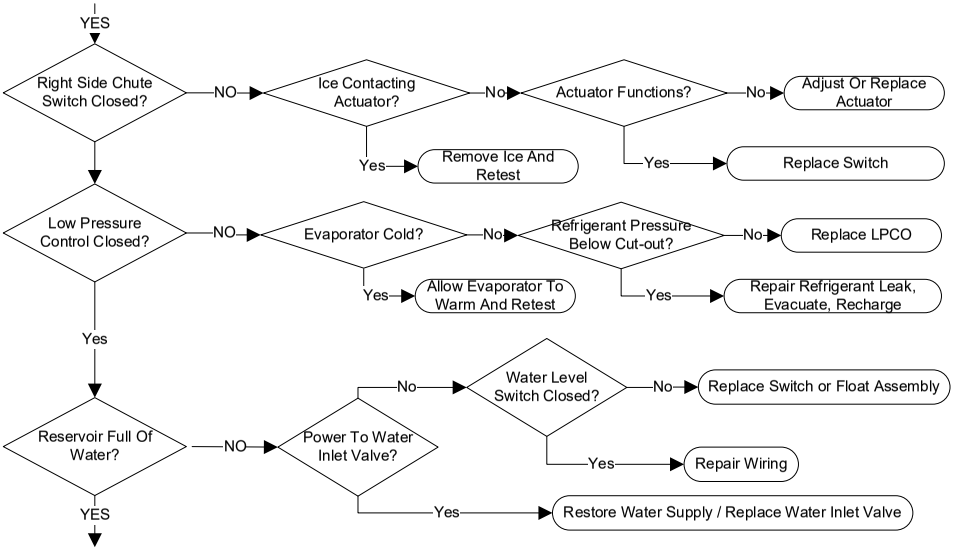
ROTATION SENSOR OPERATION

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
See “Rotation Sensor” on page 85 for sequence of operation	

Electrical Flowchart – RF2500 Air-cooled



Yes
Bin Thermostat Closed?
NO
Ice Contacting Thermostat?
Yes
Remove Ice - Allow To Warm And Retest
No
Adjusting Closes Thermostat?
Yes
Verify New Setting Cycles Machine On/Off
No
Replace Thermostat
YES
High Pressure Control Closed?
NO
Resets?
Resets & Trips
Clean Condenser, Check Fan Motor Check Fan Cycle Control
No
Refrigerant Pressure Above Cut-out?
Yes
Clean Condenser, Check Fan Motor, Check FCC & Refrigeration System
No
Replace HPCO
YES
Left Side Chute Switch Closed?
NO
Ice Contacting Actuator?
Yes
Remove Ice And Retest
No
Actuator Functions?
Yes
Replace Switch
No
Adjust Or Replace Actuator
Yes


YES
Right Side Chute Switch Closed?
NO
Ice Contacting Actuator?
No
Actuator Functions?
No
Adjust Or Replace Actuator
Yes
Remove Ice And Retest
Yes
Replace Switch
Low Pressure Control Closed?
NO
Evaporator Cold?
No
Refrigerant Pressure Below Cut-out?
No
Replace LPCO
Yes
Allow Evaporator To Warm And Retest
Yes
Repair Refrigerant Leak, Evacuate, Recharge
Yes
Reservoir Full Of Water?
NO
Power To Water Inlet Valve?
No
Water Level Switch Closed?
No
Replace Switch or Float Assembly
Yes
Repair Wiring
YES
Yes
Restore Water Supply / Replace Water Inlet Valve

Yes
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Gear Motor Runs?
NO
Line Voltage To Gear motor?
Yes
Disconnect Evaporator From Gear Motor
Gear Motor Runs?
No
Replace Gear Motor
Yes
Ice In Evaporator?
Yes
Thaw Evaporator
No
Rebuild Or Replace Evaporator
No
Repair Wiring
YES
8 Minute Time Delay Expired?
NO
Wait 10 Minutes - Do Not Install Compressor Time Delay Jumper
YES

YES
Line Voltage To Left Delay Relay Coil?
NO
Install Compressor Time Delay Jumper On Left Evaporator
Power To Left Time Delay Relay Coil?
No
Repair Wiring
Yes
YES
Left Delay Relay Contacts Closed?
NO
Replace Relay
No
Left Delay Relay Contacts Closed?
Yes
Replace Left Rotation Sensor/Time Delay
YES
Line Voltage To Right Delay Relay Coil?
NO
Install Compressor Time Delay Jumper On Right Evaporator
Power To Right Time Delay Relay Coil?
No
Repair Wiring
Yes
YES
Right Delay Relay Contacts Closed?
NO
Replace Relay
No
Right Delay Relay Contacts Closed?
Yes
Replace Right Rotation Sensor/Time Delay
YES

Yes
Line Voltage To Compressor Contactor Coil?
NO
Repair Wiring
YES
Contactor Closed?
NO
Replace Contactor
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function
Fan Cycling Control Functions
Condenser Fan Motor Functions
Water cooled only:
Water Regulating Valve Functions

RNF2000C/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 8 minutes of correct rotation the time delay ends and the liquid line solenoid valve opens.

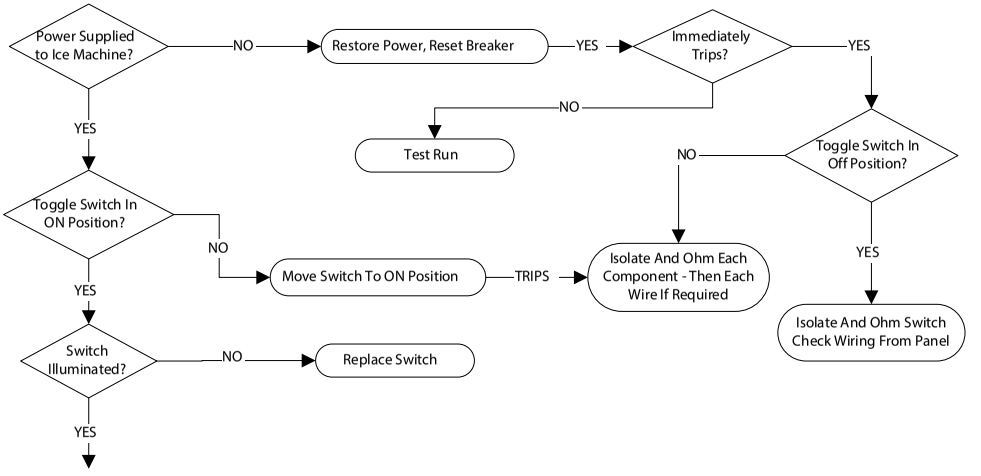
- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.

THE 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.

- 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

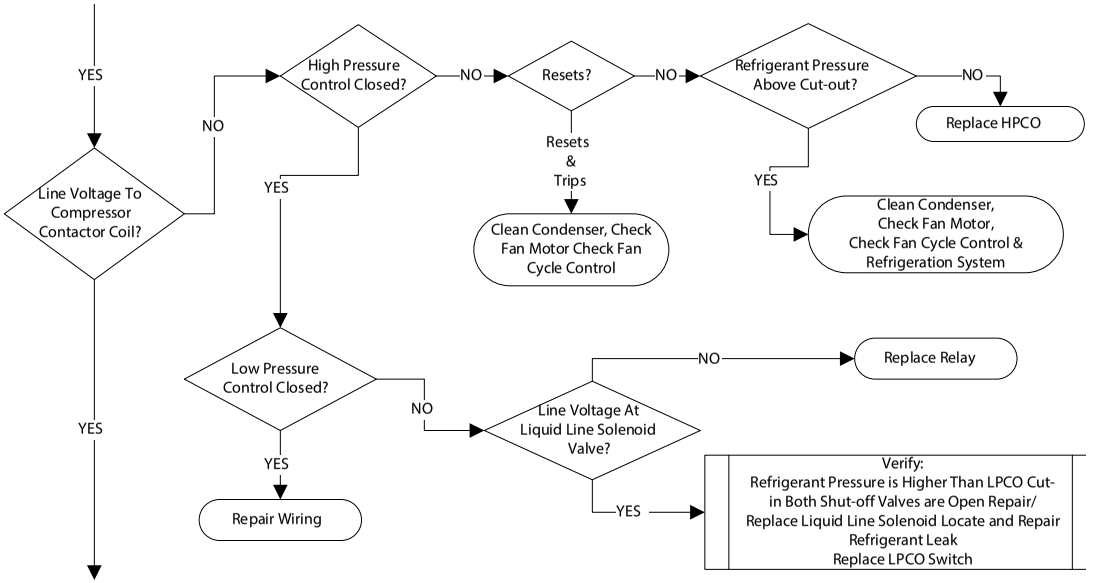


YES
Bin Thermostat Closed?
NO
YES
Ice Contacting Thermostat?
NO
YES
Remove Ice - Allow To Warm And Retest
Adjusting Closes Thermostat?
NO
Replace Thermostat
YES
Verify New Setting Cycles Machine On/Off
Left Side Chute Switch Closed?
NO
YES
Ice Contacting Actuator?
NO
YES
Remove Ice And Retest
Actuator Functions?
NO
Adjust Or Replace Actuator
YES
Replace Switch
Right Side Chute Switch Closed?
NO
YES
Ice Contacting Actuator?
NO
YES
Remove Ice And Retest
Actuator Functions?
NO
Adjust Or Replace Actuator
YES
Replace Switch

YES
Reservoir Full Of Water?
YES
NO
Power To Water Inlet Valve?
YES
Restore Water Supply / Replace Water Inlet Valve
NO
Water Level Switch Closed?
YES
Repair Wiring
NO
Replace Switch or Float Assembly
YES
Low Water Level Switch Closed?
NO
Replace Switch or Float Assembly
YES
Do Both Gear Motors Run?
NO
Line Voltage To Gear motors?
YES
Disconnect Evaporator From Gear Motor
NO
Repair Wiring
YES
Gear Motor Runs?
NO
Replace Gear Motor
YES
Ice In Evaporator?
YES
Thaw Evaporator
NO
Rebuild Or Replace Evaporator

YES
Line Voltage To Right Delay Relay Coil?
NO
YES
Right Delay Relay Contacts Closed?
NO
Replace Relay
YES
Install Compressor Time Delay Jumper On Right Evaporator
Power To Right Time Delay Relay Coil?
NO
Repair Wiring
YES
Right Delay Relay Contacts Closed?
YES
Replace Right Rotation Sensor/Time Delay
NO
Replace Relay

Yes
8 Minute Time Delay Expired?
NO
Wait 10 Minutes - Do Not Install Compressor Time Delay Jumper
YES
Line Voltage To Left Delay Relay Coil?
NO
Install Compressor Time Delay Jumper On Left Evaporator
YES
Power To Left Time Delay Relay Coil?
No
Repair Wiring
Yes
Left Delay Relay Contacts Closed?
Yes
Replace Left Rotation Sensor/Time Delay
No
Left Delay Relay Contacts Closed?
NO
Replace Relay
YES


Line Voltage To Compressor Contactor Coil?
NO
YES
High Pressure Control Closed?
NO
YES
Resets?
NO
Resets & Trips
Clean Condenser, Check Fan Motor Check Fan Cycle Control
Refrigerant Pressure Above Cut-out?
NO
Replace HPCO
YES
Clean Condenser, Check Fan Motor, Check Fan Cycle Control & Refrigeration System
Low Pressure Control Closed?
NO
YES
Repair Wiring
Line Voltage At Liquid Line Solenoid Valve?
NO
Replace Relay
YES
Verify:
Refrigerant Pressure is Higher Than LPCO Cut-in Both Shut-off Valves are Open Repair/
Replace Liquid Line Solenoid Locate and Repair Refrigerant Leak
Replace LPCO Switch

YES
Contactor Closed?
NO
Replace Contactor
YES
Line Voltage To Compressor?
NO
Repair Wiring
YES
Verify:
Compressor Overload is Closed
Start Components Function Fan Cycling Control Functions
Condenser Fan Motor Functions

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 Condensible 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 Condensible 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 Increases With Run Time	High Increases With Run Time	Low Decreases With Run Time

Component Specifications

BIN THERMOSTAT

Model	Setting	Cut-Out	Cut-In
UFF0200 / UNF0200 UNF0300 / UFF0350	5	37°F ±1 3°C ±.1	43°F ±1 6°C ±.1
RFF0320 / RNF0320 RFF0620 / RNF0620 RNF1100 / RNF1020C RFF1300 / RFF1220C RNF2000C / RFF2200C RFF2500	3	35°F ±1 1.6°C ±.1	41°F ±1 5.0°C ±.1

LOW TEMPERATURE THERMOSTAT
EVAPORATOR SAFETY THERMOSTAT

Model	Setting	Cut-Out	Cut-In
UFF0200 / UNF0300	5	-1°F ±1 -17.2°C ±.1	39°F ±1 4°C ±.1
UNF0200 / UNF0300 RNF0320	6	-3°F ±1 -19.5°C ±.1	39°F±.1 4°C ±.1
RFF0320 / UFF0350	7	-8°F ±.1 -22°C ±.1	39°F±.1 4°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 RNF2000C / RCUF2200 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 / RNF1100 / RNF1020C / RFF1300
RNF2000C / 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

Operation:

1. At start up, the sensor starts an 8 minute compressor time delay period.
2. After 8 minutes the sensor energizes the compressor contactor and ignores rotation for 20 seconds.
3. After 8-minutes, 20 seconds the auger rotation must not fall below 4 rpm or exceed 13 rpm; normal rotation is 9-10 RPM. When the auger rotation is less than 4 rpm or more than 13 rpm the sensor de-energizes the compressor contactor, starts an 8 minute time delay period and flashes the red led. When the 8 minute delay period ends the compressor will restart.
4. If the rotation sensor detects 8 consecutive RPM out of range failures the sensor locks out the compressor contactor and energizes the red led. The rotation sensor must be reset by cycling power off/on.

NOTE: Verify all electrical connections are secure and free of corrosion whenever rotation sensor lockouts exist.

LOW PRESSURE CUTOUT (LPCO) CONTROL

Model	Cut-Out	Cut-In
UFF0200 / RNF0320 RNF0620 / RFF0620 RNF1100 / RFF1300	7 psig ±2 (.5 bar ±.2)	36 psig ±2 (2.5 bar ±.2)
RNF1020C / RFF1220C RNF2000C / RFF2200C Control is located in remote condensing unit	12 psig ±2 (.8 bar ±.2)	35 psig ±5 (2.4 bar ±.3)
RFF2500	12 psig ±2 (.8 bar ±.2)	Manual Reset

FAN CYCLE CONTROL

Model	Cut-Out (Open)	Cut-In (Close)
UFF0200 / UNF0200 UNF0300 / RNF0320 RFF0320 / UFF0350 RNF0620 / RFF0620 RNF1100 / RFF1300 RFF1300 / RFF2500	215 ±5 (14.8 bar ±.3)	232 ±5 (16 bar ±.3)
Remote condensing units do not have a fan cycle control.		

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	9.3 oz / 265 g
UFF0350A	11.3 oz / 320 g
RFF0320A	13.9 oz / 395 g
RFF0620A	20.8 oz / 590 g
RFF0620W	16.9 oz / 480 g
RFF1300A	21.9 oz / 620 g
RFF1300W	18.0 oz / 510 g
RFF1220C w/RCUF1200	156 oz / 4.42 kg
RFF2200C w/RCUF2200	240 oz / 6.08 kg
RFF2500A	67 oz / 1900 g
Nugget Models	
UNF0200A	8.5 oz / 240 g
UNF0300A	14.5 oz / 410 g
RNF0320	15.5 oz / 440 g
RNF0620A	18.3 oz / 520 g
RNF0620W	16.9 oz / 480 g
RNF1100A	23.3 oz / 660 g
RNF1100W	18.0 oz / 510 g
RNF1020C w/RCUF1000	160.0 oz / 4.54 kg
RNF2000C w/RCUF2200	240.0 oz / 6.08 kg

Model	Additional refrigerant required for 51' to 100' (15.5 to 30.5 m) line sets
RFF1220C	0 lbs 0 kg
RFF2200C	0 lbs 0 kg
RNF1020C	2 lbs 907g
RNF2000C	0 lbs 0 kg

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

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	257 lbs 116 kgs
90°F/70°F 32°C/21°C	198 lbs 90 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	370 lbs 168 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	210-255 1448-1758	29-33 200-228
90°F PSIG 32°C kPa	280-325 1930-2241	30-35 207-241
110°F PSIG 43°C kPa	360-395 2482-2723	33-36 228-248

UFF0350A

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	398 lbs 181 kgs
90°F/70°F 32°C/21°C	328 lbs 149 kgs

OPERATING PRESSURES PSIG & kPa		
Air Temperature Entering Condenser	**Freeze Cycle**	
	Discharge Pressure	**Suction Pressure**
70°F PSIG 21°C kPa	225-270 1551-1862	26-30 179-207
90°F PSIG 32°C kPa	273-315 1882-2172	27-32 186-221
110°F PSIG 43°C kPa	348-380 2399-2620	33-41 228-283

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	506 lbs 230kgs

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 230 psi (1586 kPa)		

RFF1220C WITH RCUF1200

QUIETQUBE REMOTE CONDENSER 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	1264 lbs 573 kgs
90°F/70°F 32°C/21°C	950 lbs 431 kgs

OPERATING PRESSURES PSIG & kPa		
Air Temperature Entering Condenser	**Freeze Cycle**	
	Discharge Pressure	**Suction Pressure**
70°F PSIG 21°C kPa	240-280 1655-1930	30-34 207-234
90°F PSIG 32°C kPa	300-350 2068-2413	32-37 221-255
110°F PSIG 43°C kPa	380-425 2620-2930	35-39 241-269

RFF1300W

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	1365 lbs 619 kgs
90°F/70°F 32°C/21°C	1116 lbs 506 kgs

OPERATING PRESSURES PSIG & kPa		
Air Temperature Entering Condenser	**Freeze Cycle**	
	Discharge Pressure	**Suction Pressure**
70°F PSIG 21°C kPa	230-250 1586-1724	29-32 200-221
90°F PSIG 32°C kPa	230-250 1586-1724	30-32 207-221
110°F PSIG 43°C kPa	230-250 1586-1724	30-32 207-221
Water regulating valve set to maintain 240 psi (1655 kPa)		

Condenser Water Consumption @ 90°F/70°F	
116	Gallons/100 lbs. of Ice
439	Liters/45 kgs. of Ice

RFF2200C WITH RCUF2200

QUIETQUBE REMOTE CONDENSER 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

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	231 lbs 97 kgs
90°F/70°F 32°C/21°C	164 lbs 74 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	330 lbs 150 kgs
90°F/70°F 32°C/21°C	275 lbs 125 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	308 lbs 140 kgs
90°F/70°F 32°C/21°C	236 lbs 107 kgs

OPERATING PRESSURES PSIG & kPa		
Air Temperature Entering Condenser	**Freeze Cycle**	
	Discharge Pressure	**Suction Pressure**
70°F PSIG 21°C kPa	210-255 1448-1758	28-32 193-220
90°F PSIG 32°C kPa	280-320 1931-2206	30-33 207-228
110°F PSIG 43°C kPa	370-405 2551-2792	32-36 220-248

RNF0620A

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	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

RNF0620W

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	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 @ 89°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

RNF1020C WITH RCUF1000

QUIETQUBE REMOTE CONDENSER 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	1282 lbs 582 kgs
70°F/50°F 21°C/10°C	1116 lbs 506 kgs
90°F/70°F 32°C/21°C	900 lbs 408 kgs
110°F/90°F 43°C/32°C	693 lbs 314 kgs

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
110°F PSIG 43°C kPa	360-400 2482-2758	45-49 310-338

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

RNF1100W

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	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.

RNF2000C WITH RCUF2200

QUIETQUBE REMOTE CONDENSER 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	2300 lbs 1043 kgs
70°F/50°F 21°C/10°C	1915 lbs 869 kgs
90°F/70°F 32°C/21°C	1476 lbs 670 kgs
120°F/70°F 49°C/21°C	810 lbs 367 kgs

OPERATING PRESSURES PSIG & kPa		
Air Temperature Around Ice Machine °F/°C	**Freeze Cycle**	
	Discharge Pressure	**Suction Pressure**
-20°F/50°F -29°C/10°C	160-180	24-34
70°F PSIG 21°C kPa	200-215	28-36
80°F PSIG 27°C kPa	225-250	30-37
90°F PSIG 32°C kPa	250-270	32-38
120°F PSIG 49°C kPa	380-400	40-45

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.

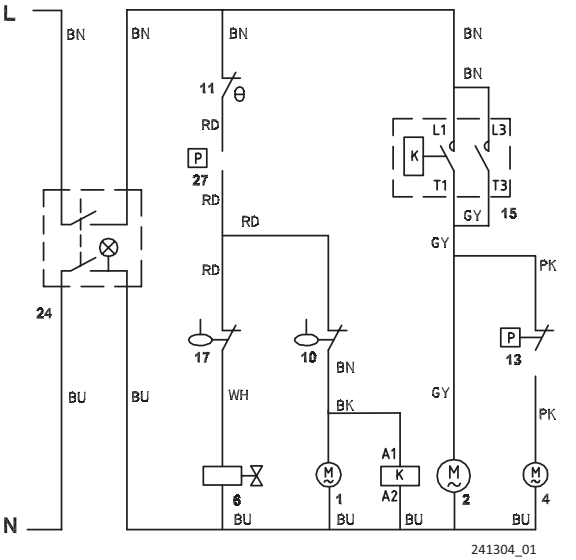
⚠Warning

Always disconnect power before working on electrical circuitry.

Flake Models

UFF0200A/UFF350A AIR-COOLED

Refer to Nameplate for Voltage Rating



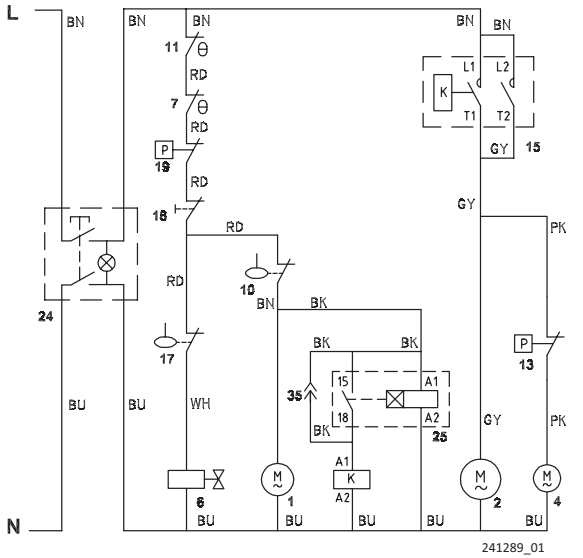
See page 144 for compressor start component wiring.

Wiring Diagram Legend UFF0200A/UFF0350A Air-cooled

1	Gear motor
2	Compressor
4	Condenser fan motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
12	High temperature limit (snap disc)
13	Fan cycle control
15	Contactor
17	Water level switch
24	On/Off switch
27	Low pressure safety switch
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RFF0320A AIR-COOLED

Refer to Nameplate for Voltage Rating



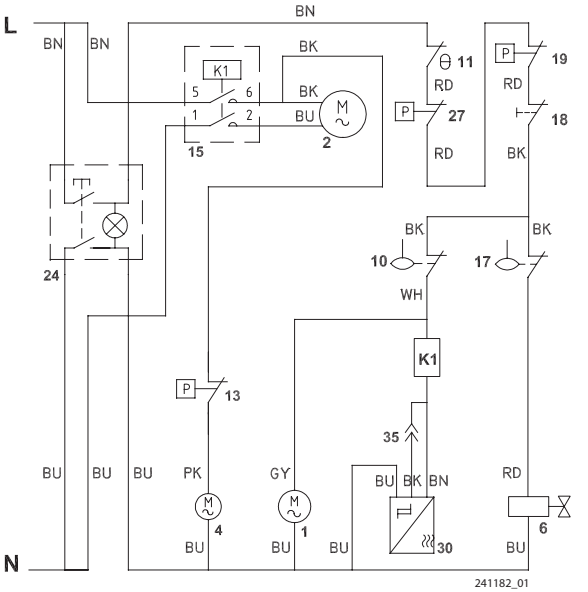
See page 144 for compressor start component wiring.

Wiring Diagram Legend RFF0320A Air-cooled

1	Gear motor
2	Compressor
4	Fan motor
6	Water inlet valve
7	Evaporator Safety Thermostat
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
25	Compressor time delay
35	Compressor time delay by-pass
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RFF0620A AIR-COOLED

Refer to Nameplate for Voltage Rating



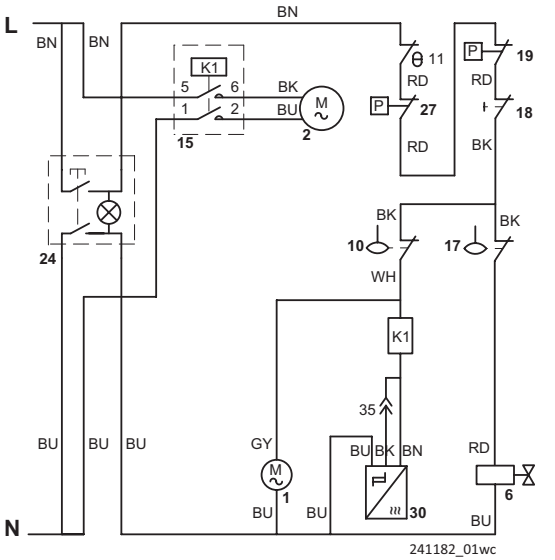
See page 144 for compressor start component wiring.

Wiring Diagram Legend RFF0620A 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 by-pass
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RFF0620W WATER-COOLED

Refer to Nameplate for Voltage Rating



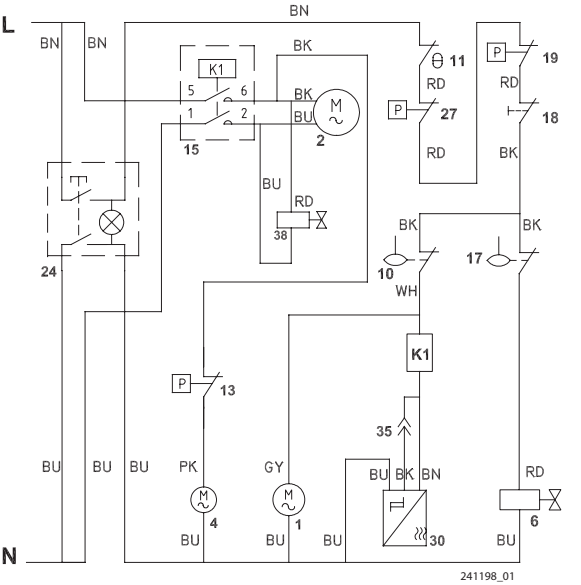
See page 144 for compressor start component wiring.

Wiring Diagram Legend RFF0620W Water-cooled

1	Gear motor
2	Compressor
6	Water inlet valve
10	Low water level switch
11	Bin thermostat
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
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RFF1300A AIR-COOLED

Refer to Nameplate for Voltage Rating



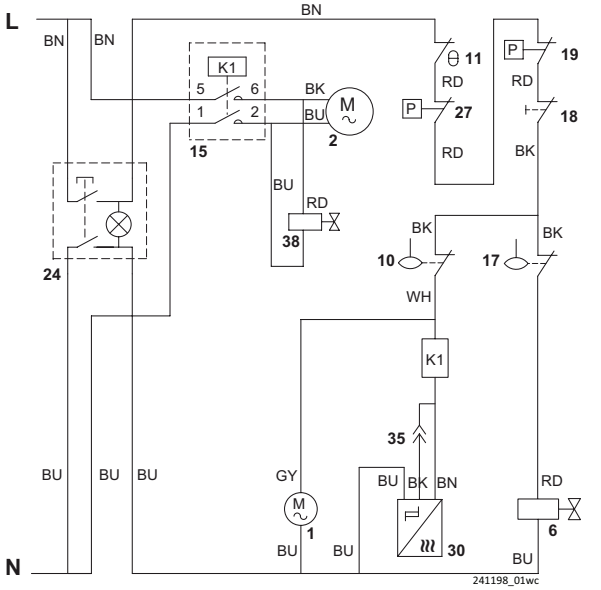
See page 144 for compressor start component wiring.

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

RFF1300W WATER-COOLED

Refer to Nameplate for Voltage Rating



See page 144 for compressor start component wiring.

Wiring Diagram Legend RFF1300W Water-cooled

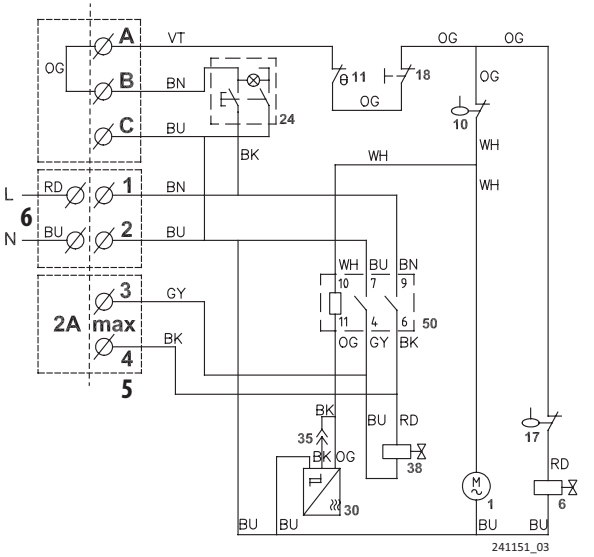
1	Gear motor
2	Compressor
6	Water inlet valve
10	Low water level switch
11	Bin thermostat
15	Contactor
17	Water level switch
18	Chute safety switch
19	High pressure safety switch
24	On/Off switch
27	Low pressure safety switch
30	Rotation sensor
35	Compressor time delay bypass
38	Solenoid valve
Wire Color 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 energizes remote condensing unit (RCU) refrigeration - 2 Amp max
- 5 terminal or junction block located on top of the junction box.
- 6 junction box at rear of ice machine



See page 146 for condensing unit wiring diagram.

Wiring Diagram Legend RFF1220C Head Section

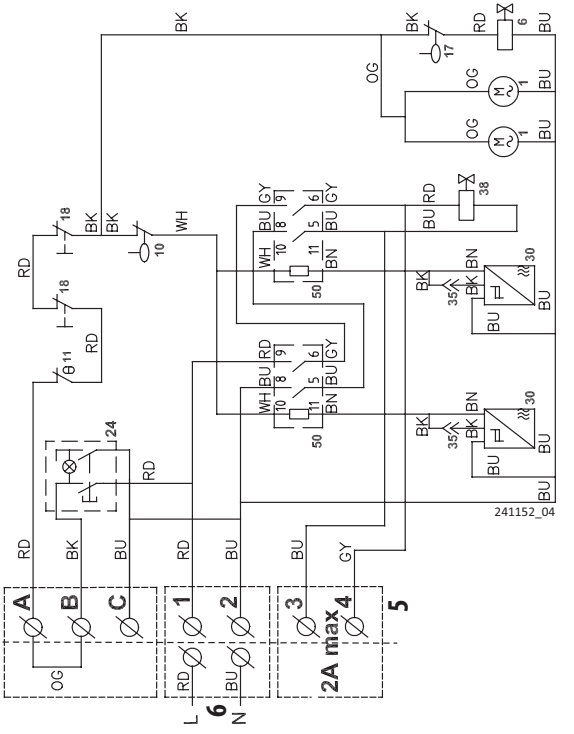
1	Gear motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid valve
50	Relay
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
VT	Violet
OG	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 energizes remote condensing unit (RCU) refrigeration - 2 Amp max
- 5 terminal or junction block located on top of the junction box.
- 6 junction box at rear of ice machine



See page 146 for condensing unit wiring diagram.

Wiring Diagram Legend RFF2200C Head Section

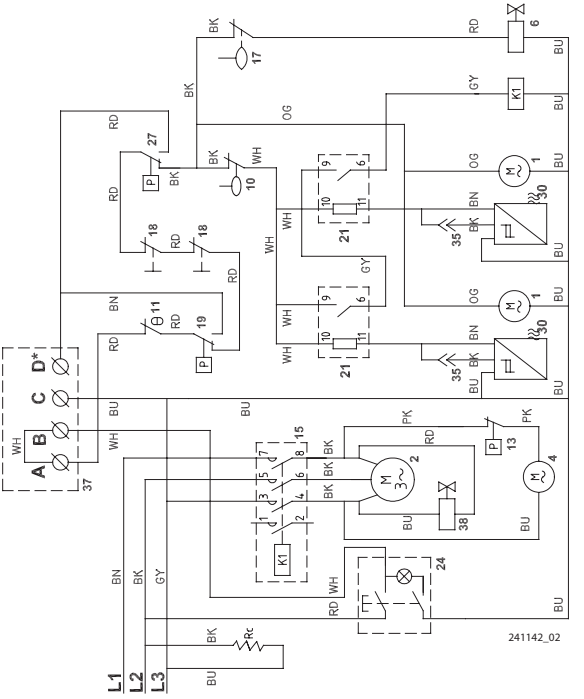
1	Gear motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid valve
50	Relay
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
OG	Orange

RFF2500A 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



See page 144 for compressor start component wiring.

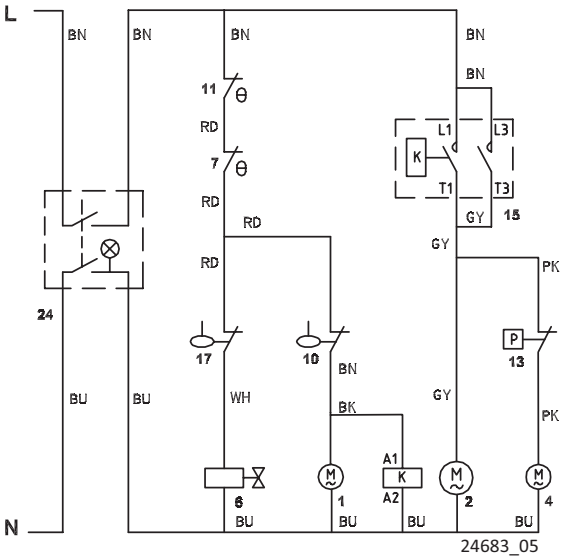
Wiring Diagram Legend RFF2500A Air-Cooled

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 safety switch
21	Compressor relay
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
38	Solenoid valve
Rc	Compressor crankcase heater
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

Nugget Models

UNF0200A/UNF0300A AIR-COOLED

Refer to Nameplate for Voltage Rating



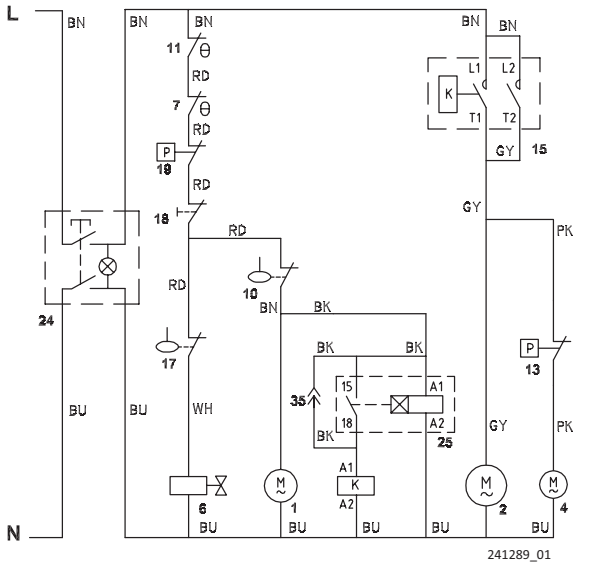
See page 144 for compressor start component wiring.

Wiring Diagram Legend UNF0200A/UNF0300A Air-cooled

1	Gear Motor
2	Compressor
4	Condenser fan motor
6	Water Inlet valve
7	Evaporator low temperature safety thermostat
10	Low water level safety
11	Bin thermostat
12	High temperature limit (snap disc)
13	Fan cycle control
15	Contactor
17	Water level switch
21	Compressor relay
24	On/Off switch
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RNF0320A AIR-COOLED

Refer to Nameplate for Voltage Rating



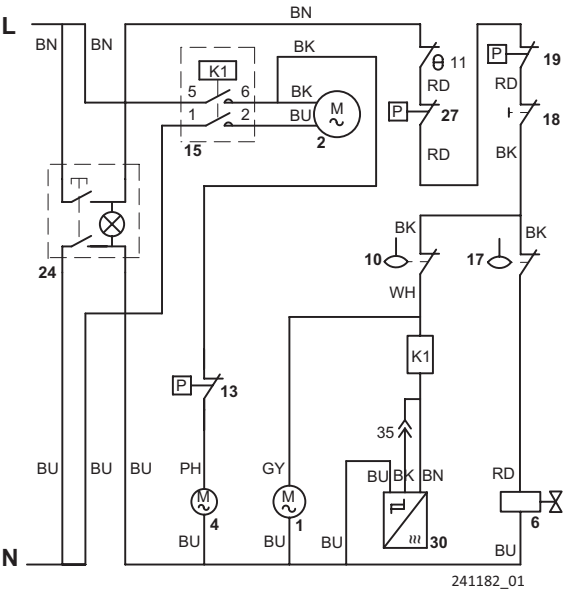
See page 144 for compressor start component wiring.

Wiring Diagram Legend RNF0320A Air-cooled

1	Gear Motor
2	Compressor
4	Condenser fan motor
6	Water inlet valve
7	Evaporator low temperature safety thermostat
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
24	On/Off switch
25	Compressor time delay
35	Compressor time delay by-pass
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RNF0620A AIR-COOLED

Refer to Nameplate for Voltage Rating



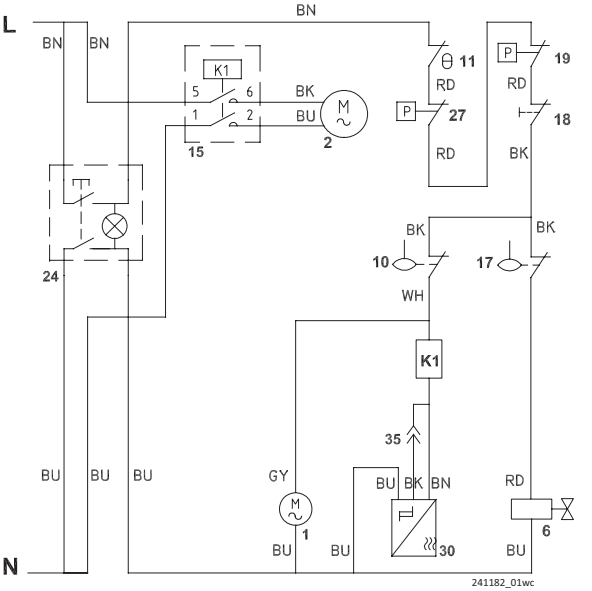
See page 144 for compressor start component wiring.

Wiring Diagram Legend RNF0620A Air-cooled

1	Gear Motor
2	Compressor
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
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

RNF0620W WATER-COOLED

Refer to Nameplate for Voltage Rating



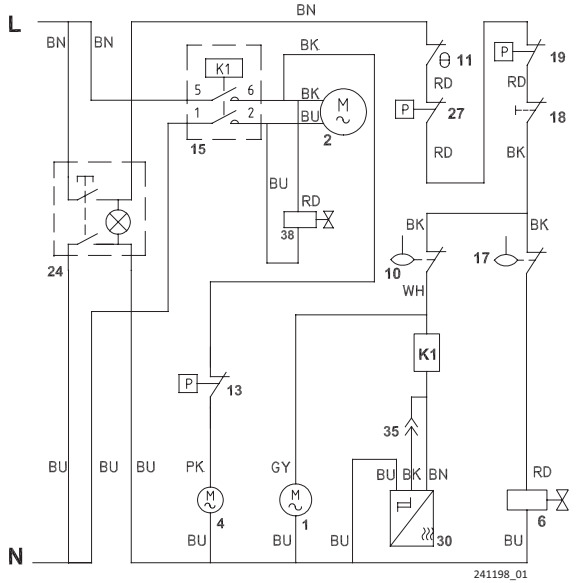
See page 144 for compressor start component wiring.

Wiring Diagram Legend RNF0620W Water-cooled

1	Gear Motor
2	Compressor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
15	Contactor
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
PK	Pink

RNF1100A AIR-COOLED

Refer to Nameplate for Voltage Rating



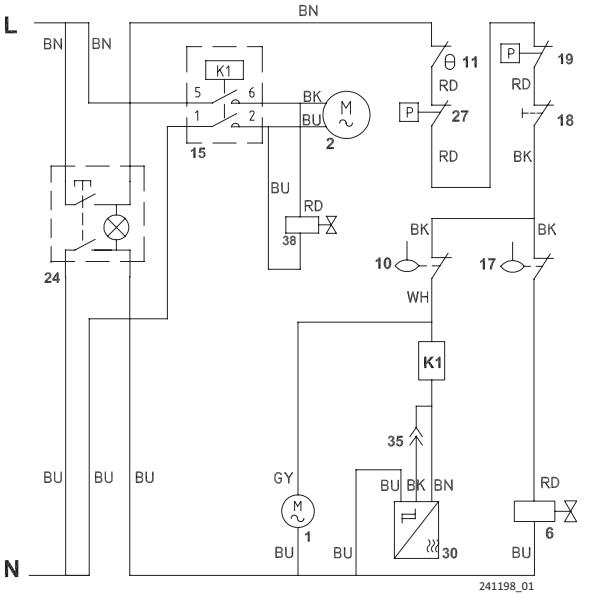
See page 144 for compressor start component wiring.

Wiring Diagram Legend RNF1100A 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
24	On/Off switch
27	Low pressure cut out
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid
Wire Color Designation	
B	White
BL	Blue
G	Grey
M	Brown
N	Black
R	Red
RS	Pink

RNF1100W WATER-COOLED

Refer to Nameplate for Voltage Rating



See page 144 for compressor start component wiring.

Wiring Diagram Legend RNF1100W Water-Cooled

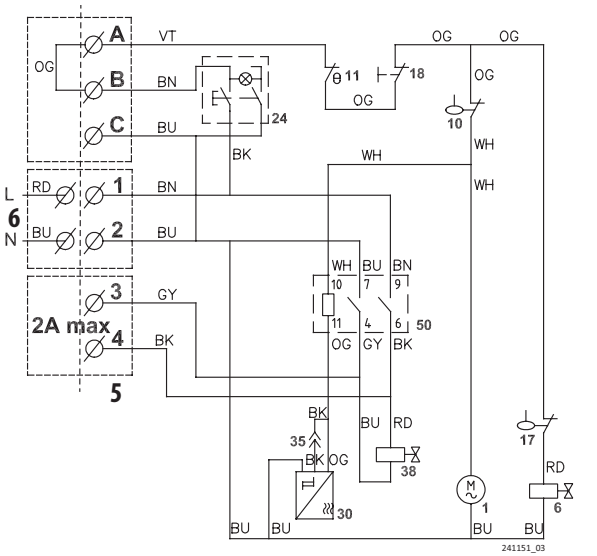
1	Gear Motor
2	Compressor
6	Water inlet Valve
10	Low Water Level Switch
11	Bin Thermostat
15	Contactor
17	Water level switch
18	Chute safety switch
19	High pressure safety switch
24	On/Off switch
27	Low pressure safety switch
30	Rotation sensor
35	Compressor time delay by-pass (Service staff only)
38	Solenoid Valve
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
PK	Pink

RNF1020C 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 energizes remote condensing unit (RCU) refrigeration - 2 Amp max
- 5 terminal or junction block located on top of the junction box.
- 6 junction box at rear of ice machine



See page 146 for condensing unit wiring diagram.

Wiring Diagram Legend RNF1020C Head Section

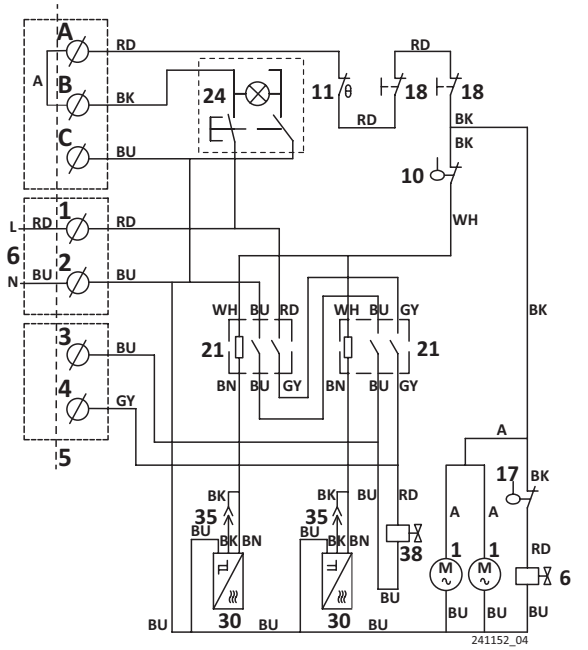
1	Gear Motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid Valve
50	Relay
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red
OG	Orange
VT	Violet

RNF2000C 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 energizes remote condensing unit (RCU) refrigeration - 2 Amp max
- 5 terminal or junction block located on top of the junction box.
- 6 junction box at rear of ice machine



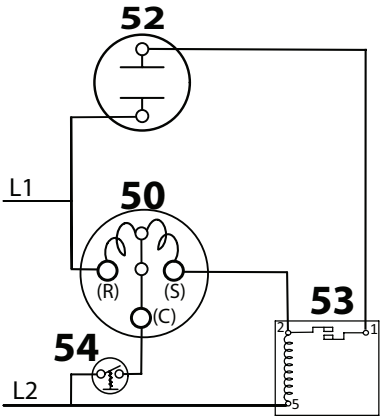
See page 146 for condensing unit wiring diagram.

Wiring Diagram Legend RNF2000C Head Section

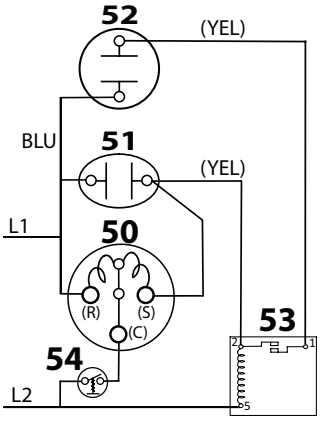
1	Gear Motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid Valve
50	Relay
Wire Color Designation	
WH	White
BU	Blue
GY	Grey
BN	Brown
BK	Black
RD	Red

Compressor Start Component Wiring

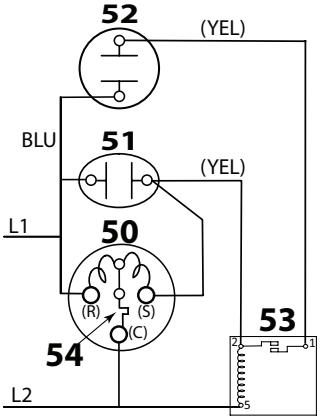
UFF0200/UNF0200



UNF0300/RFF0320/UFF0350/UNF0350/RFF0620

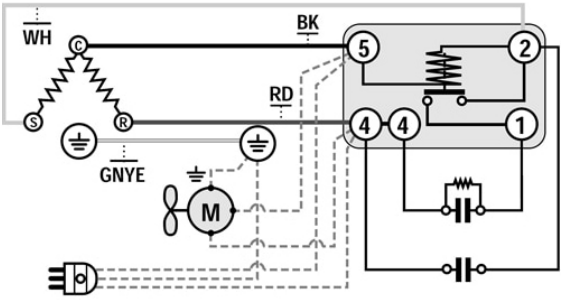


RFF1300/RFF2500



Compressor Wiring Legend	
50	Compressor
51	Run Capacitor
52	Start Capacitor
53	Relay
54	Overload

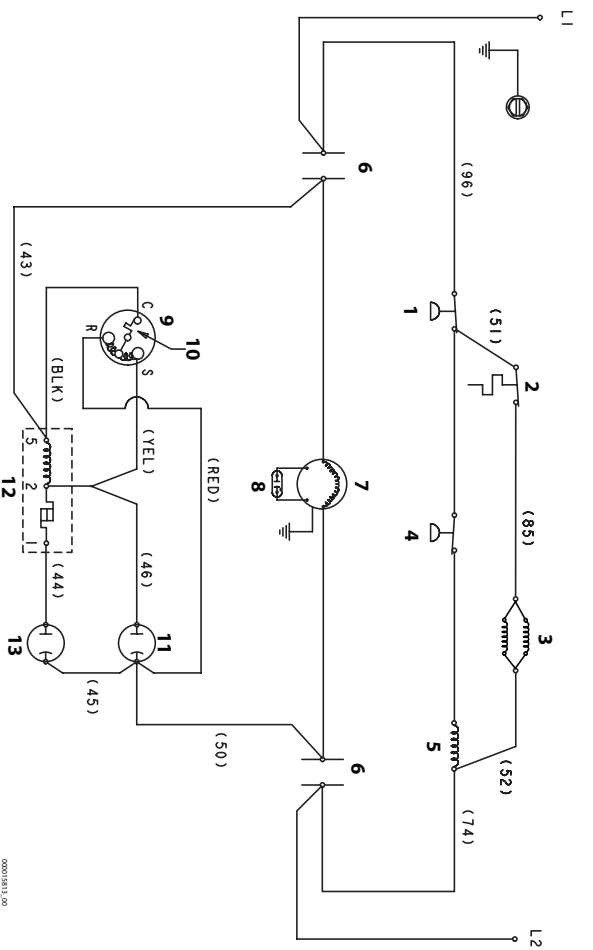
RFF0620/RNF0620/RNF1100



Remote Condensing Units

RCUF CONDENSING UNIT 1PH

Refer to Nameplate for Voltage Rating

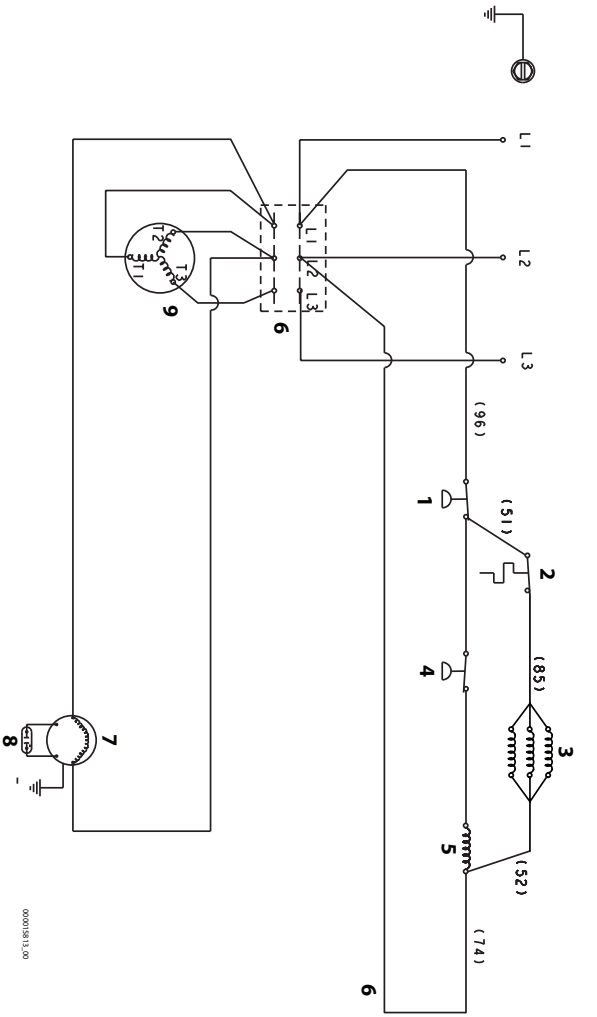


Wiring Diagram Legend RCUF Condensing Unit

1	High pressure cutout control
2	Thermostat - Receiver heater
3	Receiver heater RCUF1200 1 heater - RCUF1000 2 heaters
4	Low pressure cutout control
5	Contactor coil
6	Contactor 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

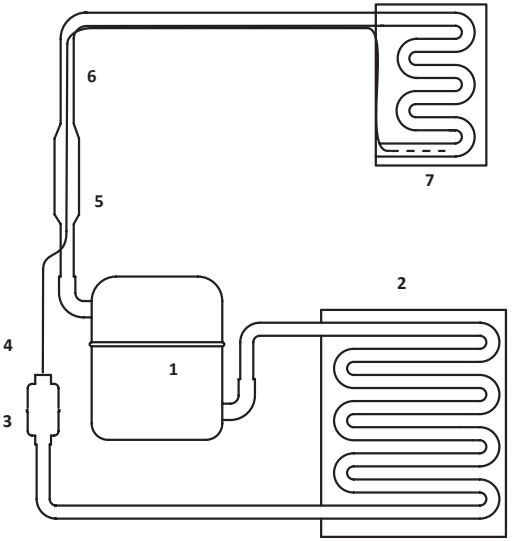


Wiring Diagram Legend RCUF Condensing Unit

1	High pressure cutout control
2	Thermostat - Receiver heater
3	Receiver heater
4	Low pressure cutout control
5	Contactor coil
6	Contactor contacts
7	Condenser fan motor
8	Condenser fan motor run capacitor
9	Compressor

Refrigeration Tubing Schematics

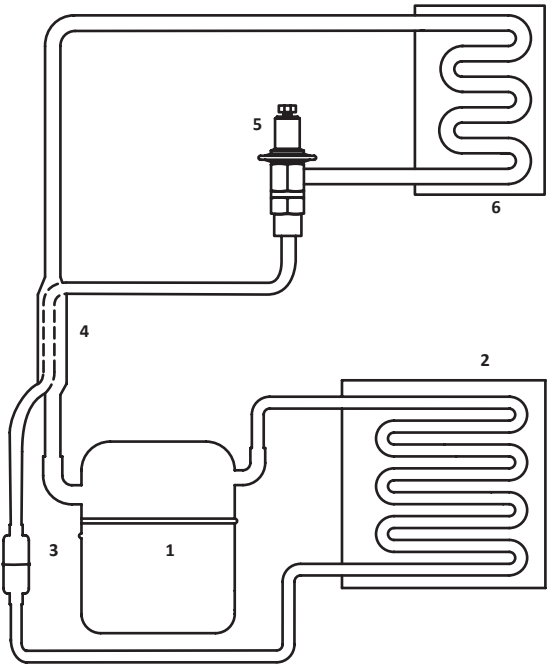
UNF0200/UFF0350 AIR-COOLED



Tubing Diagram Legend

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

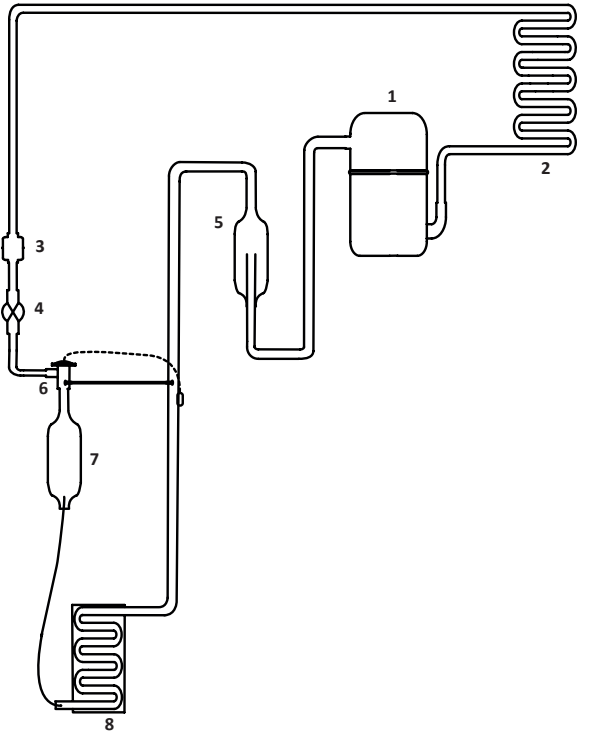
RFF0320 AIR-COOLED



Tubing Diagram Legend

1	Compressor
2	Condenser
3	Liquid Line Drier
4	Heat Exchanger
5	Automatic Expansion Valve
6	Evaporator

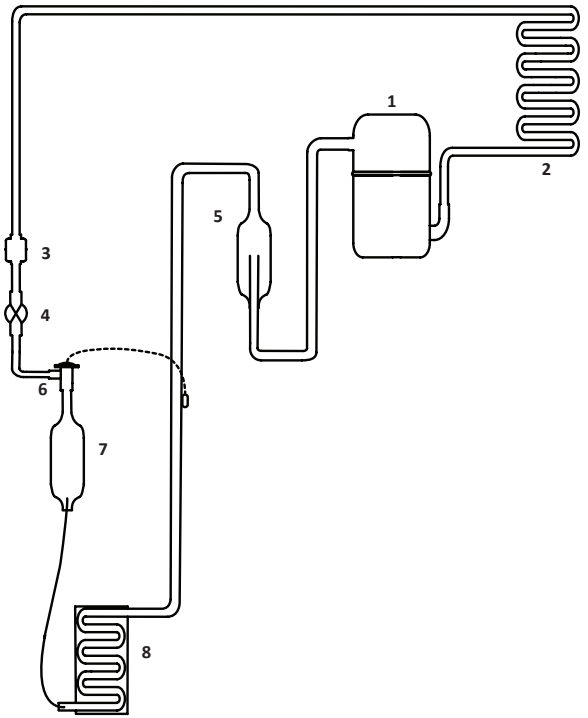
RFF0620 AIR AND WATER-COOLED



Tubing Diagram Legend

1	Compressor
2	Condenser (Air or Water-cooled)
3	Liquid Line Drier
4	Liquid Line Solenoid Valve
5	Suction Accumulator
6	Thermostatic Expansion Valve
7	Liquid Accumulator
8	Evaporator

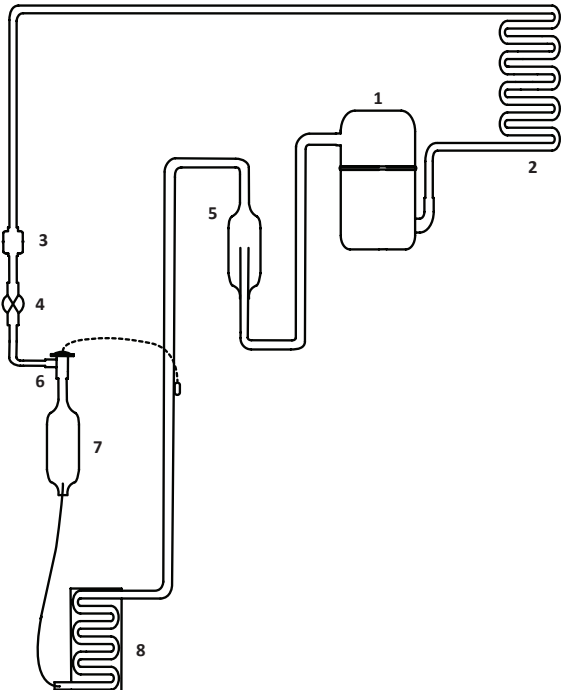
RNF1100 AIR AND WATER-COOLED



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

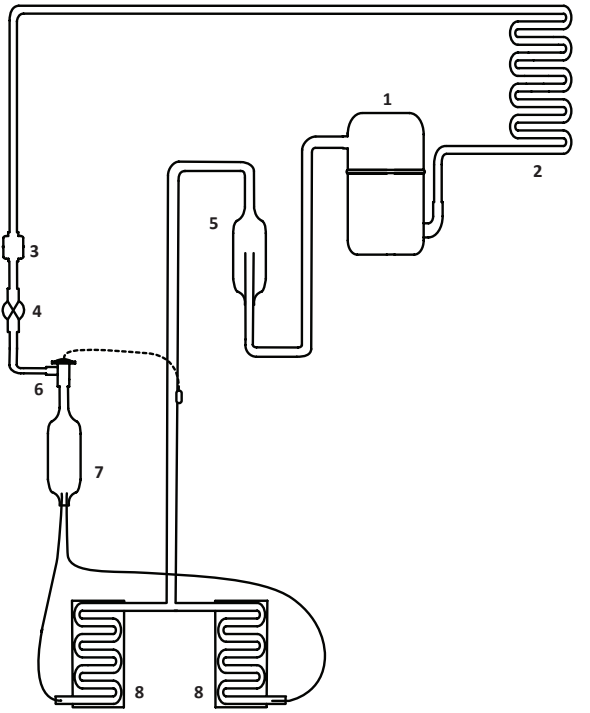
RFF1300 AIR AND WATER-COOLED



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

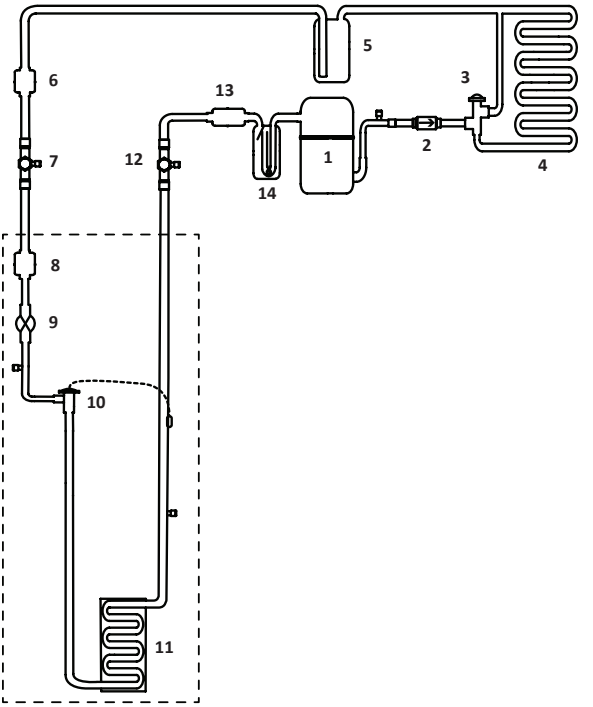


Tubing Diagram Legend

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

Remote Condensing Unit Models

RFF1220C AND RCUF1200 CONDENSING UNIT

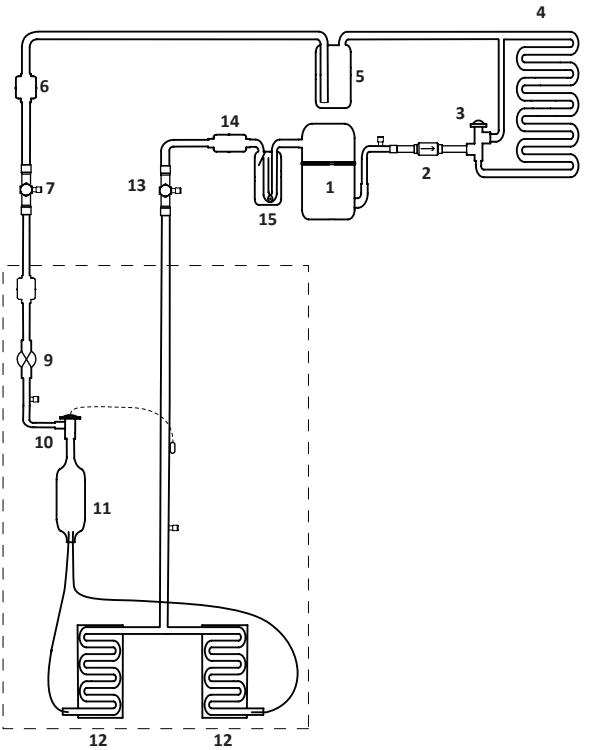


Tubing Diagram Legend

1	Compressor
2	Check Valve
3	Head Pressure Control Valve
4	Condenser
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

NOTE: Dotted rectangle indicates ice machine head section.

RFF2200C QUIETQUBE HEAD SECTION AND RCUF2200 CONDENSING UNIT

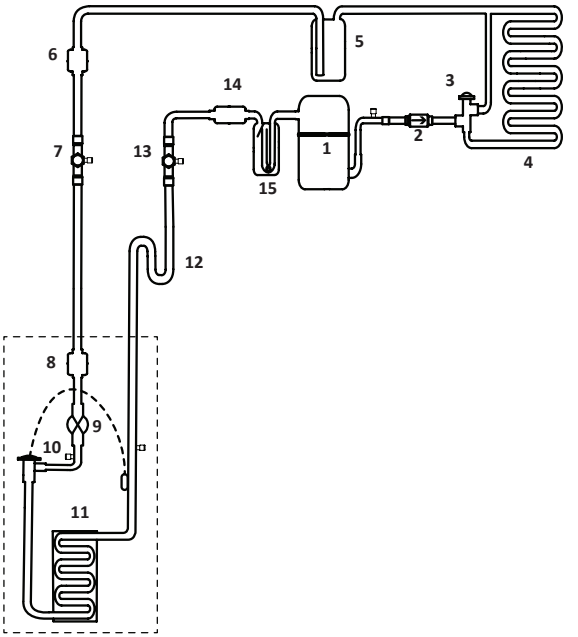


Tubing Diagram Legend

1	Compressor
2	Check Valve
3	Head Pressure Control Valve
4	Condenser
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	Liquid Accumulator
12	Evaporator
13	Suction Line Shut-off Valve
14	Suction Line Filter
15	Suction Accumulator

NOTE: Dotted rectangle indicates ice machine head section.

RNF1020C QUIETQUBE HEAD SECTION AND RCUF1000 CONDENSING UNIT

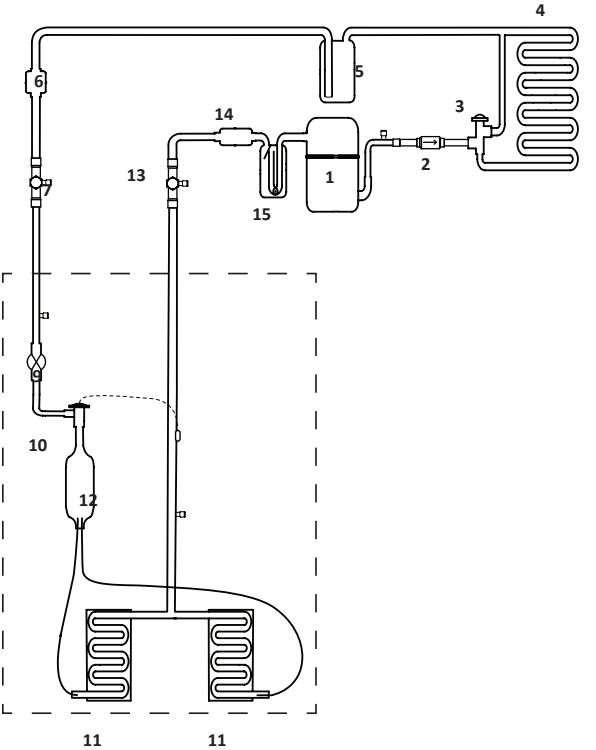


Tubing Diagram Legend

1	Compressor
2	Check Valve
3	Head Pressure Control Valve
4	Condenser
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

NOTE: Dotted rectangle indicates ice machine head section.

RNF2000C QUIETQUBE HEAD SECTION AND RCUF2200 CONDENSING UNIT



Tubing Diagram Legend

1	Compressor
2	Check Valve
3	Head Pressure Control Valve
4	Condenser
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

NOTE: Dotted rectangle indicates ice machine head section.

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