

Flake & Nugget Machines

RFF/UFF/RNF/UNF Models

Technician's Handbook



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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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
RNF2000C	RCUF2200

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

Series Ice Machine	Heat of Rejection BTU/Hour
RFF and UFF Flake Models	
UFF0200 - RFF0320	2400
UFF0350	5000
RFF0620	5200
RFF1300	7500
RFF2500	17000
RNF and UNF Nugget Models	
UNF0200	2800
UNF0300	5000
RNF0320	3075
RNF0620	5200
RNF1100	7500

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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)*
*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).

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 MODEL HEAD SECTIONS

Series Ice Machine	Voltage Phase Cycle	Remote Air-Cooled	
		Max Fuse/ Circuit Breaker	Total Circuit Amps
RNF1100 RNF1020	115/1/60	15 Amp	2.9
RFF1300	208-230/1/60	15 Amp	1.4
RNF2000 RFF2200	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

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.

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.

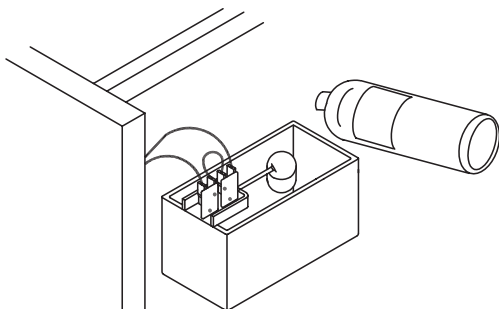
Step 4 Remove the top cover from water reservoir.

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.

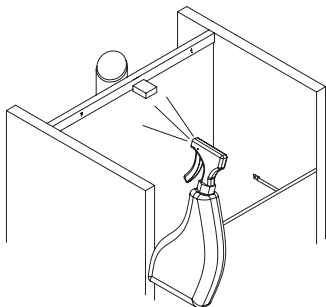
NOTE: Do not allow the cleaner/water level to drop below the minimum water level. The ice machine will discontinue the cleaning cycle if the water float switch opens.

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 RFF1200 RFF1300	34 oz (1 L)	23 oz (680 ml)	11 oz (325 ml)
RNF2000 RFF2200 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.

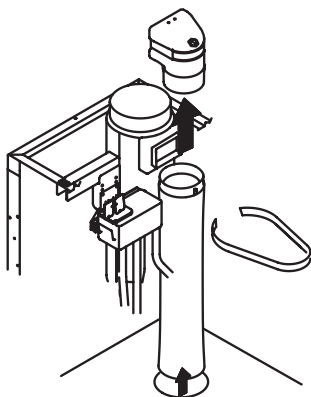
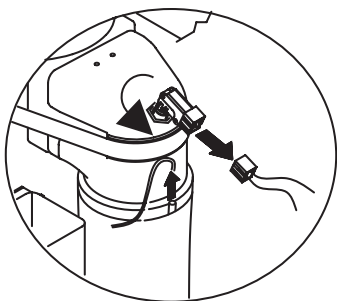
Solution Type	Water	Mixed With
Sanitizer	3 gal. (11 L)	2 oz (60 ml) sanitizer Part Number 94-0565-3

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/RFF1200/RFF1300/
RNF2000/RFF2200/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/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 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.

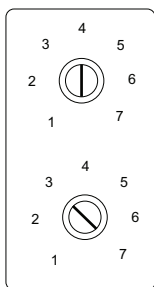
Thermostat Settings

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

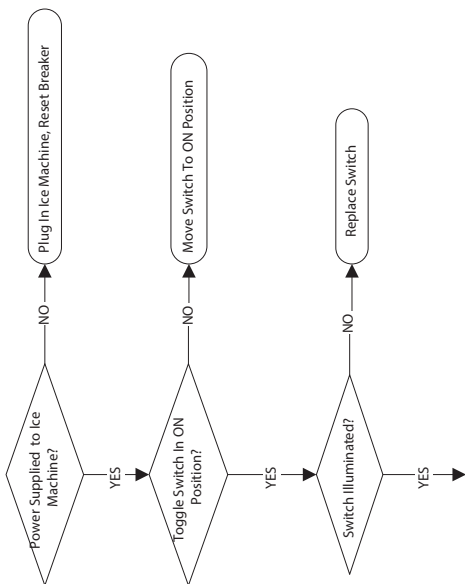
Normal Operation

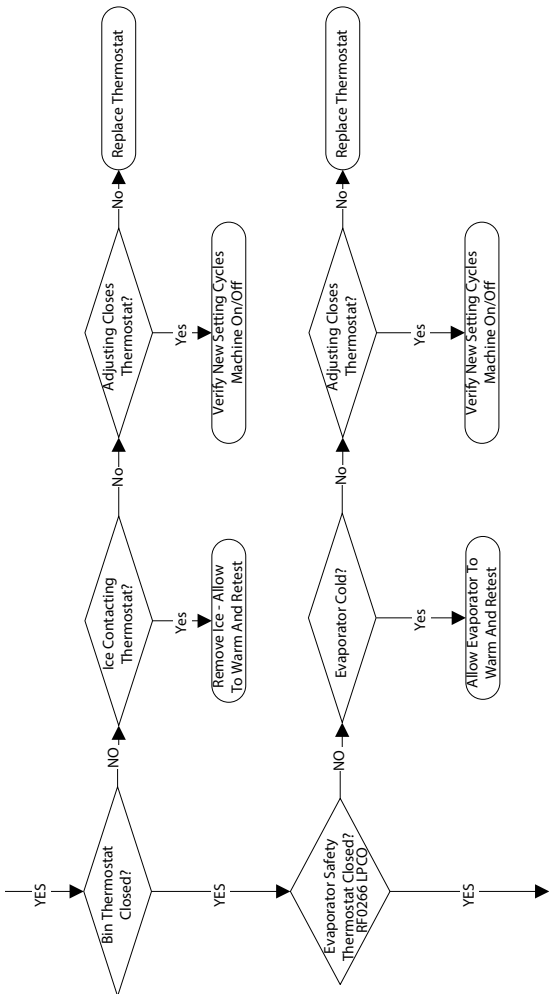
When the toggle switch is placed in the “ON” position the following controls must be in the closed position before the ice machine will start:

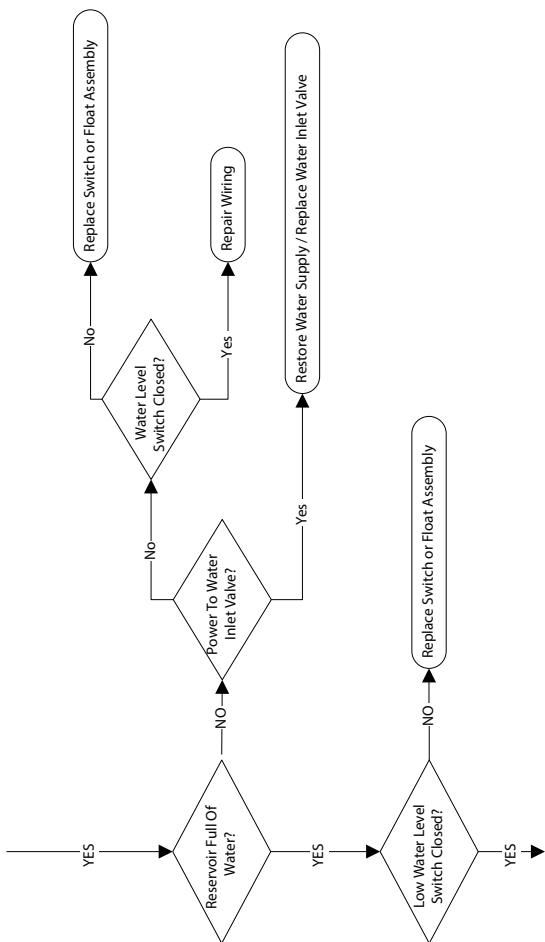
- A. Bin Thermostat
- B. Low Evaporator Temperature Thermostat
- C. Low Water Level Switch

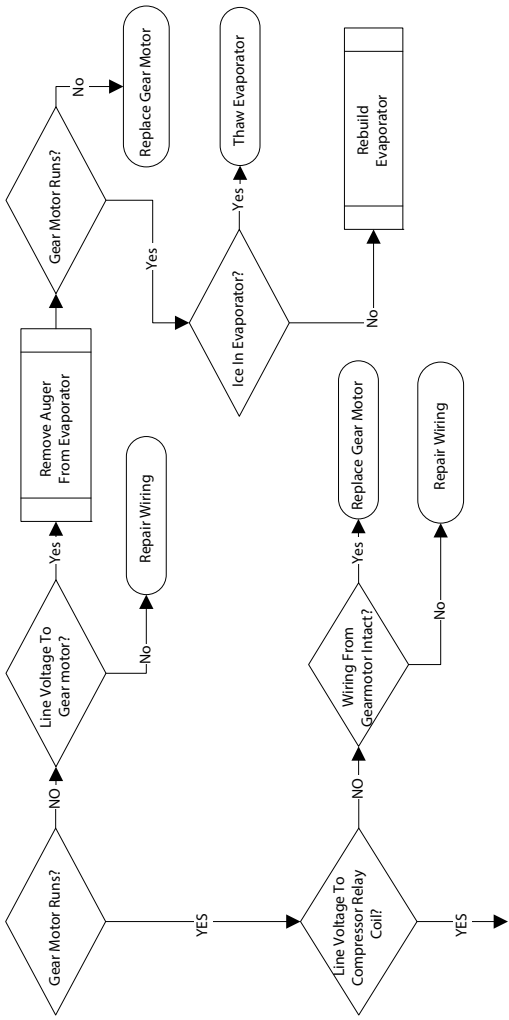
NOTE: Placing the toggle switch in the ON position starts the gear motor and refrigeration system. The float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine will restart when ice no longer contacts the bin thermostat.

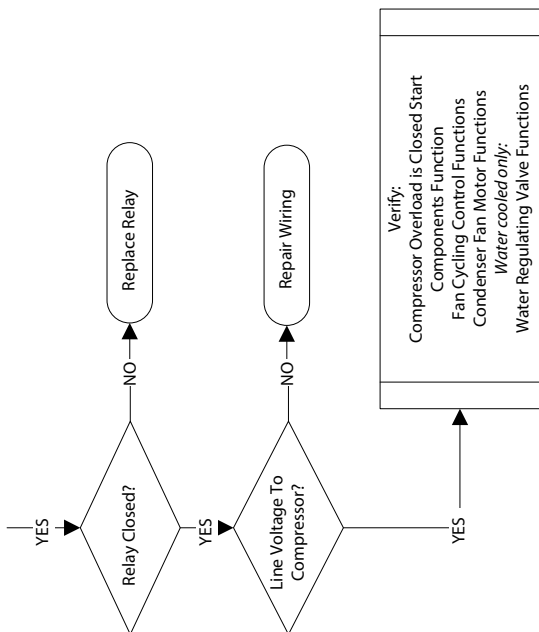
Electrical Flowchart - UFF0200/UFF0350/UNF0200/UNF0300 AIR & WATER











RFF0320/RNF0320 Troubleshooting

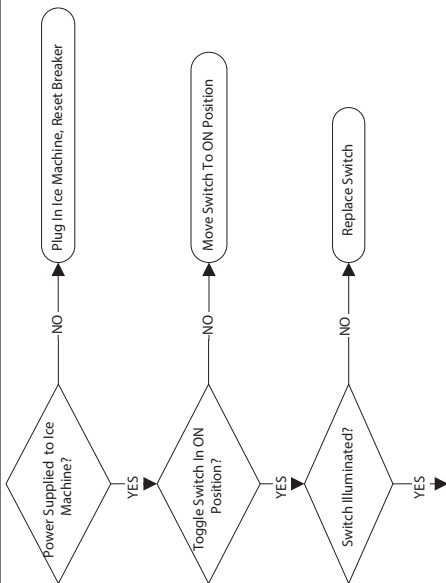
SELF-CONTAINED AIR-COOLED

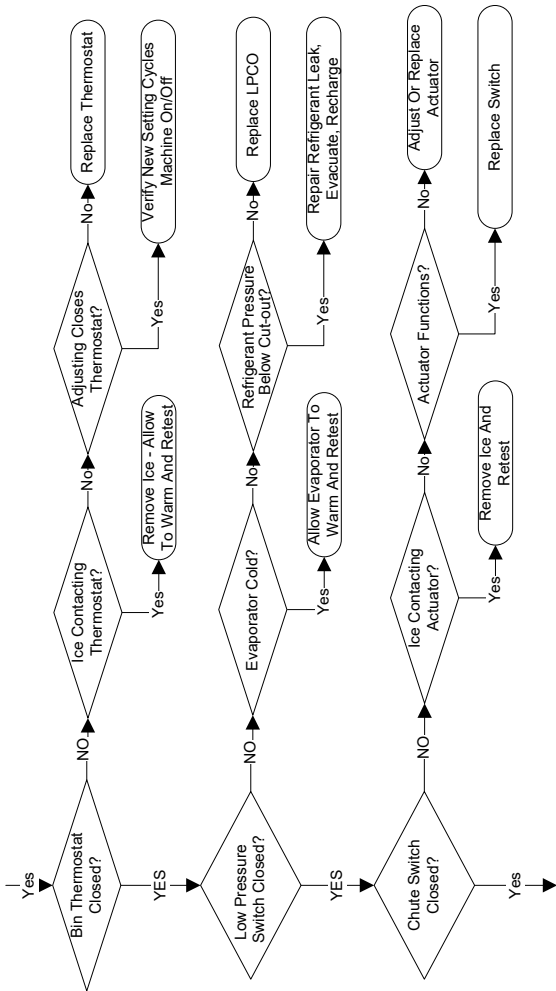
When the toggle switch is placed in the “ON” position the following controls must be in the closed position before the ice machine will start:

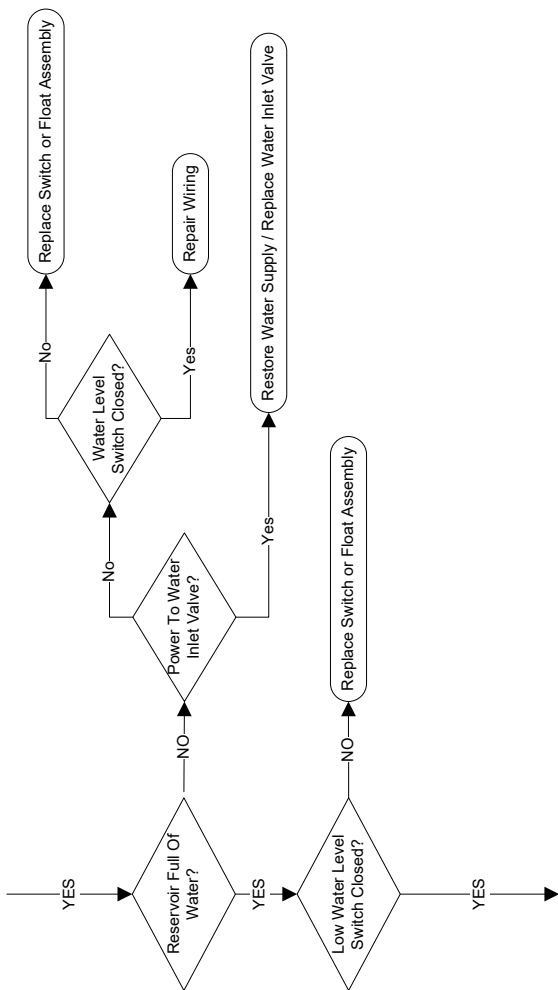
- A. Bin Thermostat
- B. Ice Chute Safety Switch
- C. Low Water Level Switch
- D. High Pressure Cut-out Switch
- E. Low Pressure Cut-Out Switch

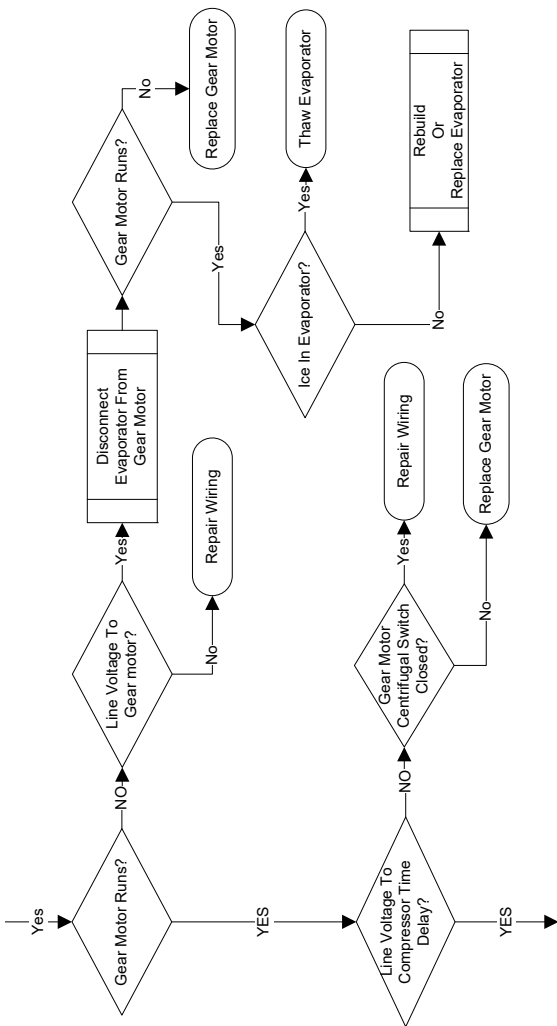
Placing the toggle switch in the ON position starts the gear motor and a 10 minute compressor time delay. The compressor starts and the float valve controls the water inlet valve and water level. The freeze cycle ends when ice contacts the bin thermostat. The ice machine remains off until ice no longer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

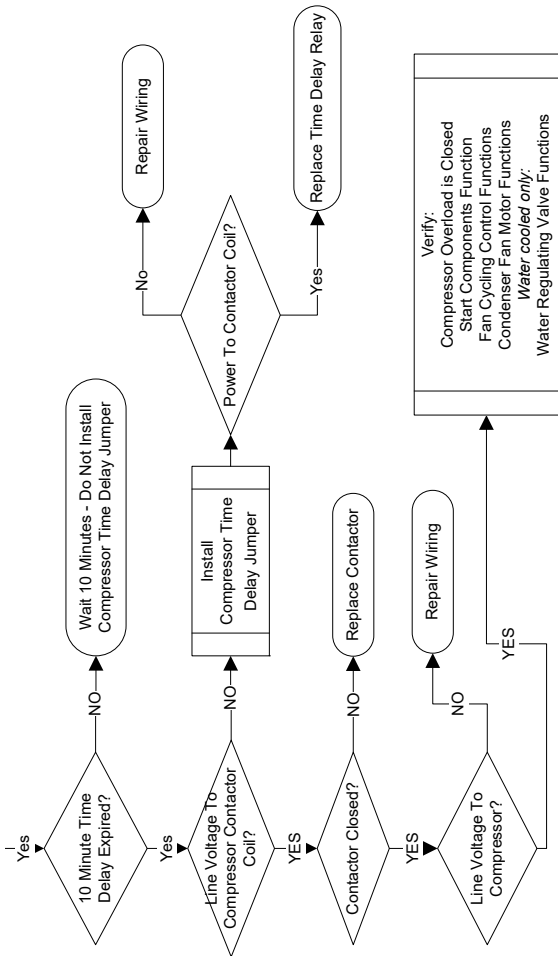
Electrical Flowchart - RFF0320/RNF0320











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:

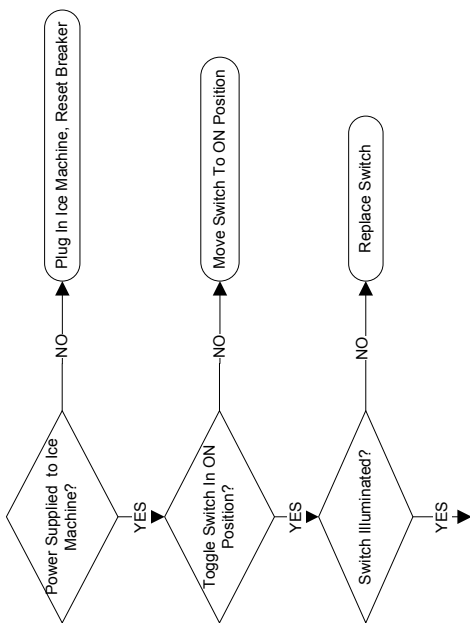
- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

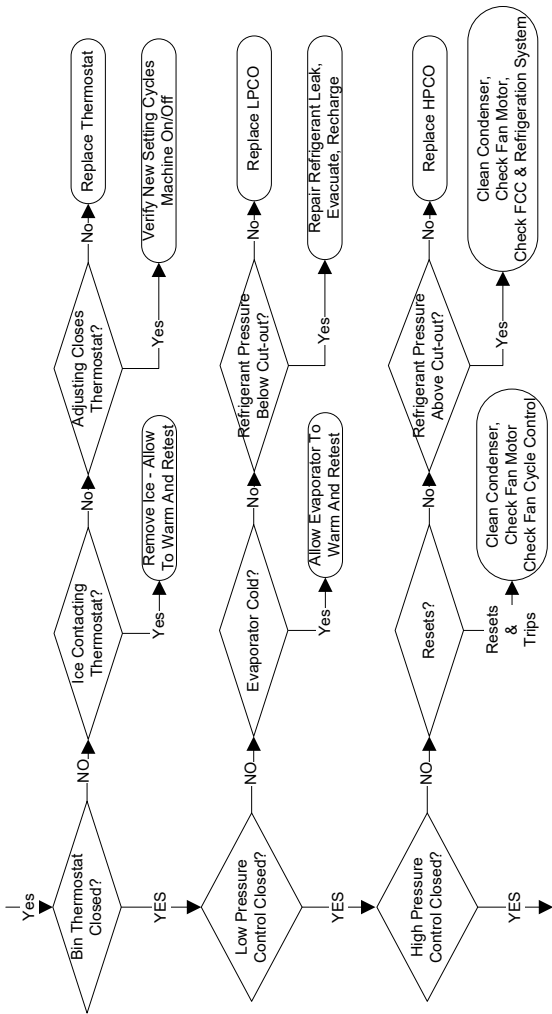
NOTE: Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 8 minutes of correct rotation the time delay ends and the compressor starts. The ice machine will continue to make ice until ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

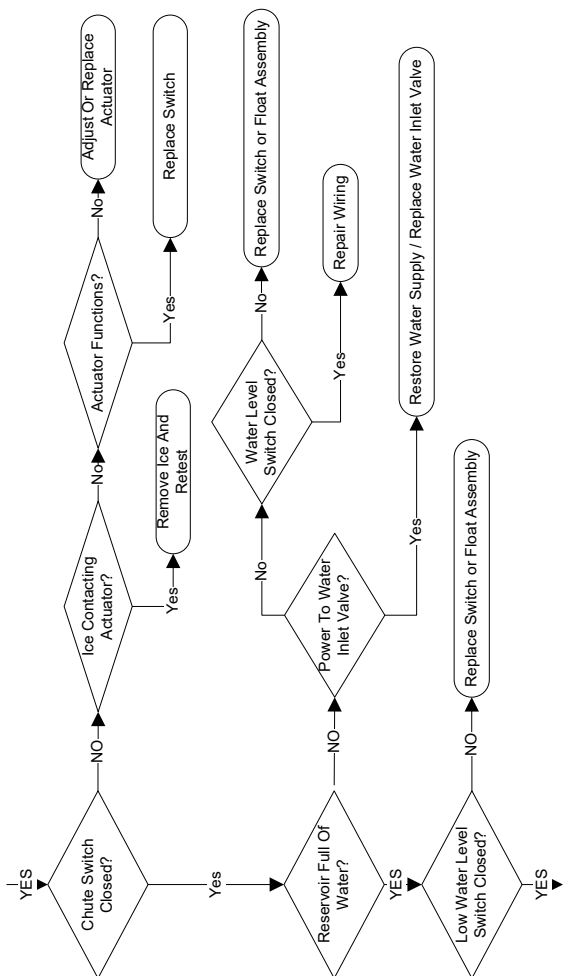
ROTATION SENSOR OPERATION

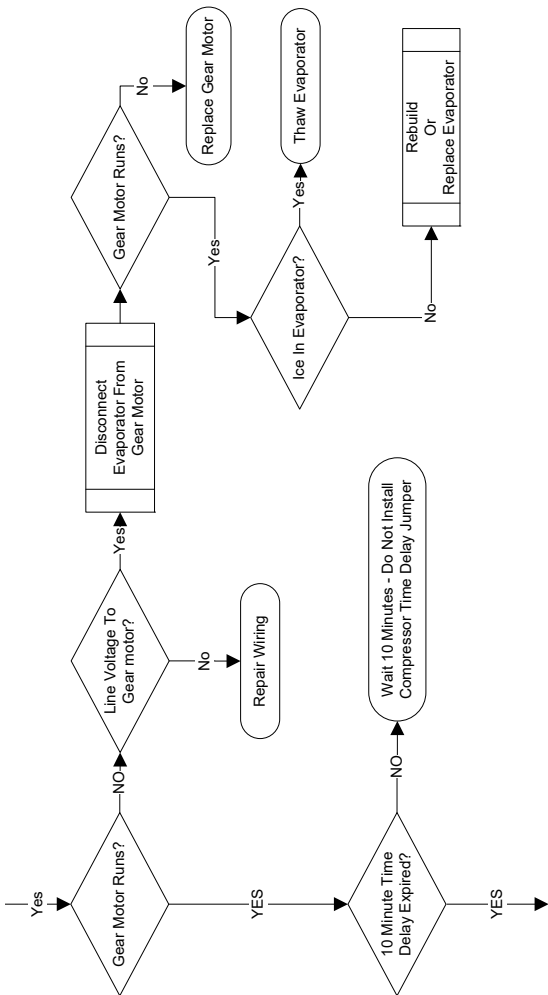
Light	Definition
Yellow Blinking	Time Delay Period
Yellow Solid	Normal Operation Sensing
Red Blinking 2 Flashes Per Second	Time Delay Period - First 1 To 7 Faults
Red Solid	Lockout - 8 Consecutive Faults Due To A Speed Fault Remove/Restore Power To Reset
Red Blinking Slowly	Lockout - 8 Consecutive Faults Due To A Short Circuit
See "Rotation Sensor" on page 84 for sequence of operation	

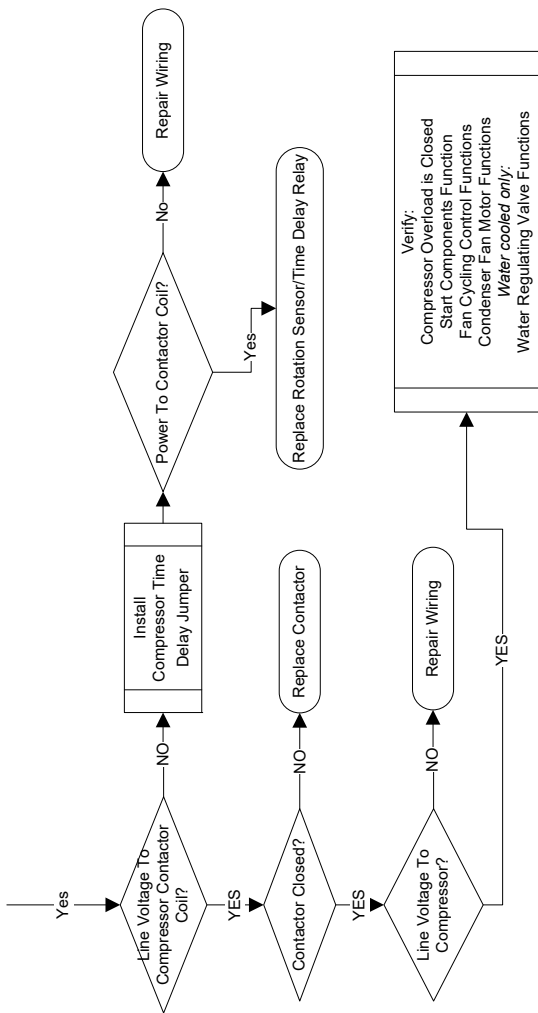
Electrical Flowchart – RNF0620/RFF0620/RNF1100/RFF1300 AIR & WATER











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.

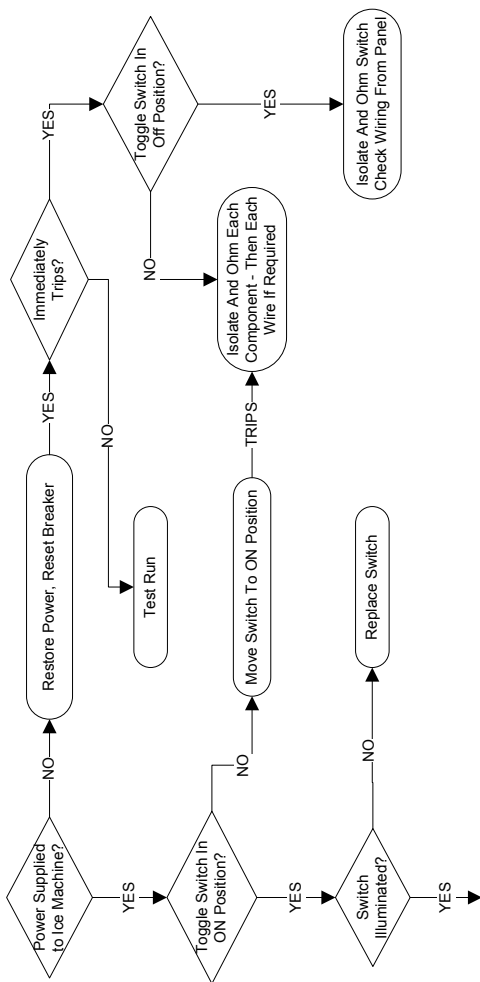
- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.
- The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

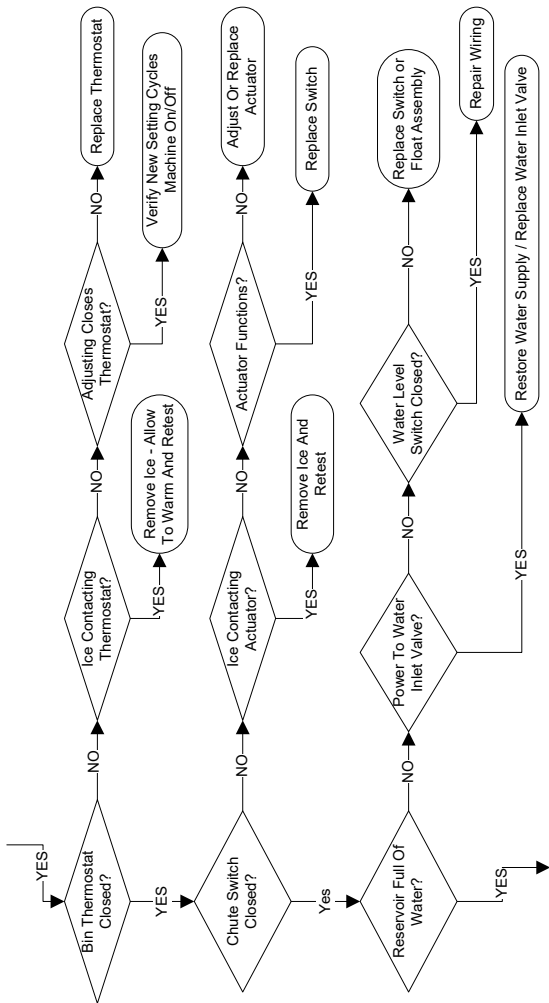
The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

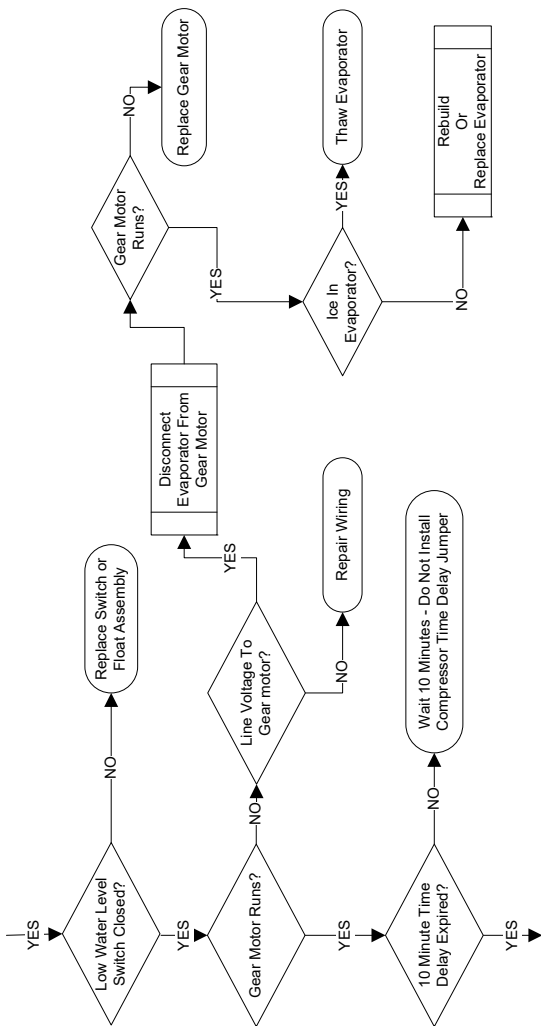
- The refrigerant pressure drops and the fan cycling pressure control opens stopping the condenser fan motor.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor stops.

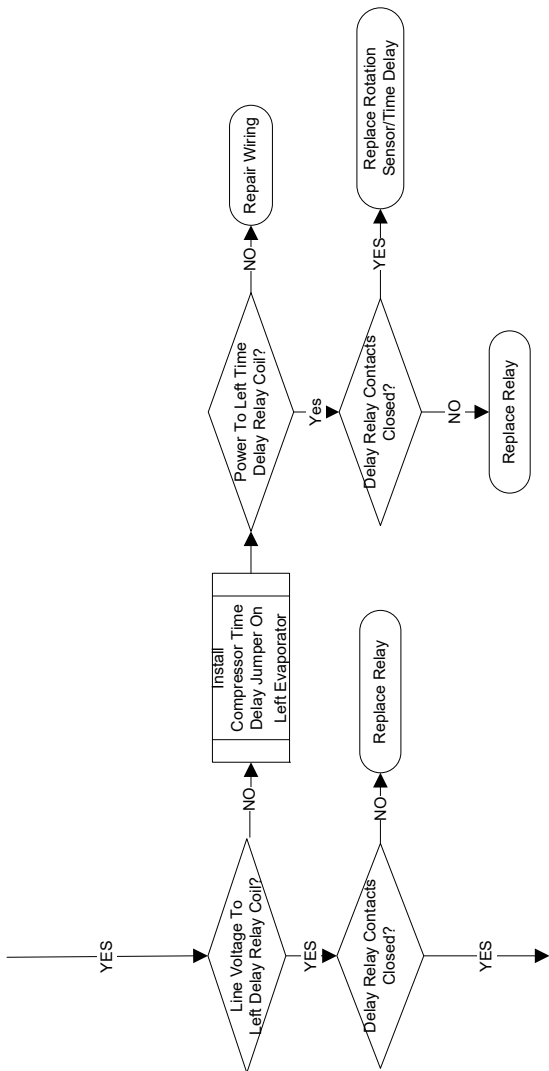
NOTE: The ice machine remains off until ice no longer contacts the bin thermostat.

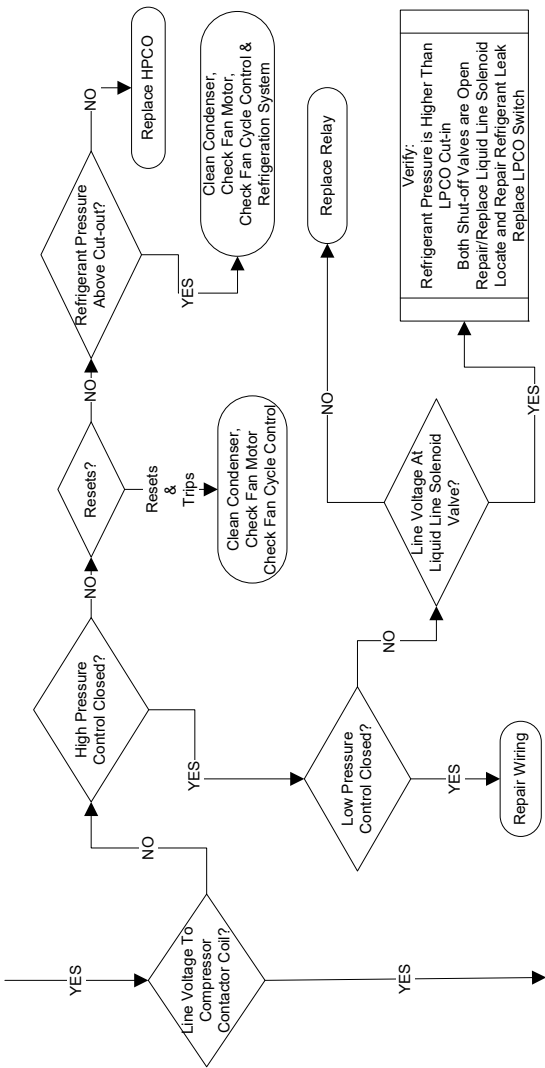
Electrical Flowchart - RNF1020C/RFF1220C QuietQube

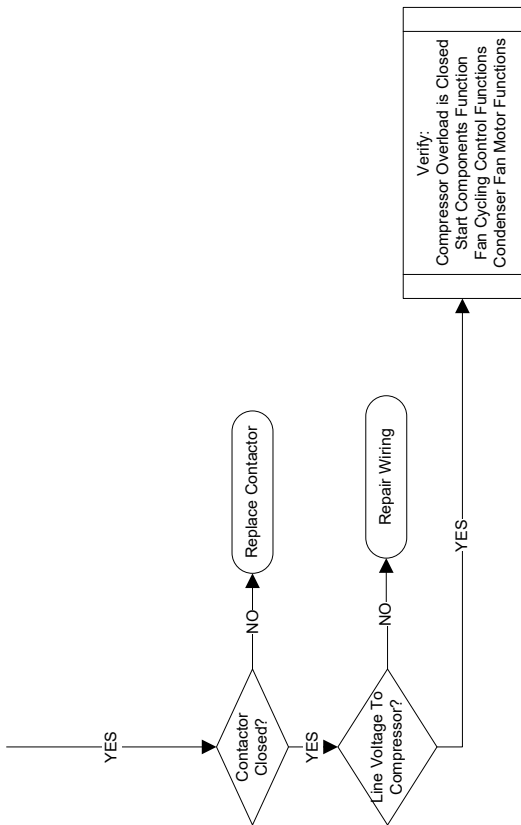












RFF2500 Troubleshooting

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:

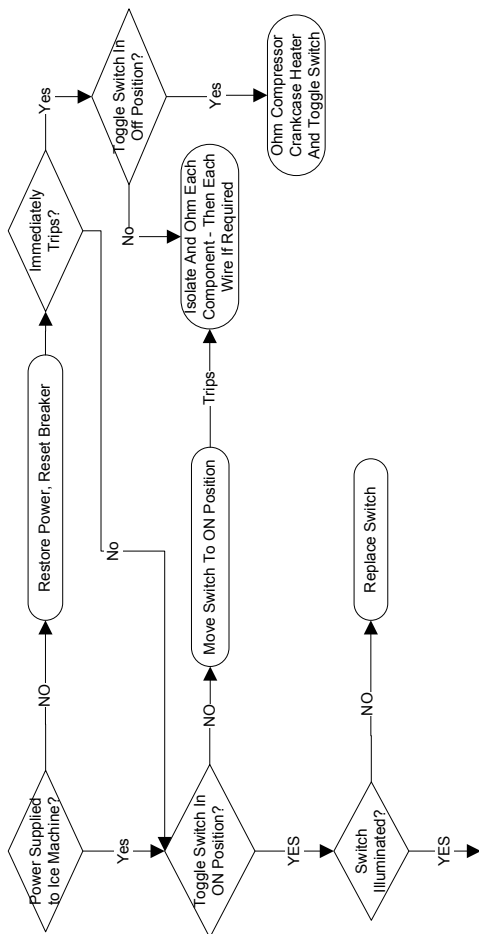
- A. Bin Thermostat
- B. High Pressure Cut-out Switch
- C. Ice Chute Safety Switch
- D. Low Pressure Switch
- E. Low Water Level Switch

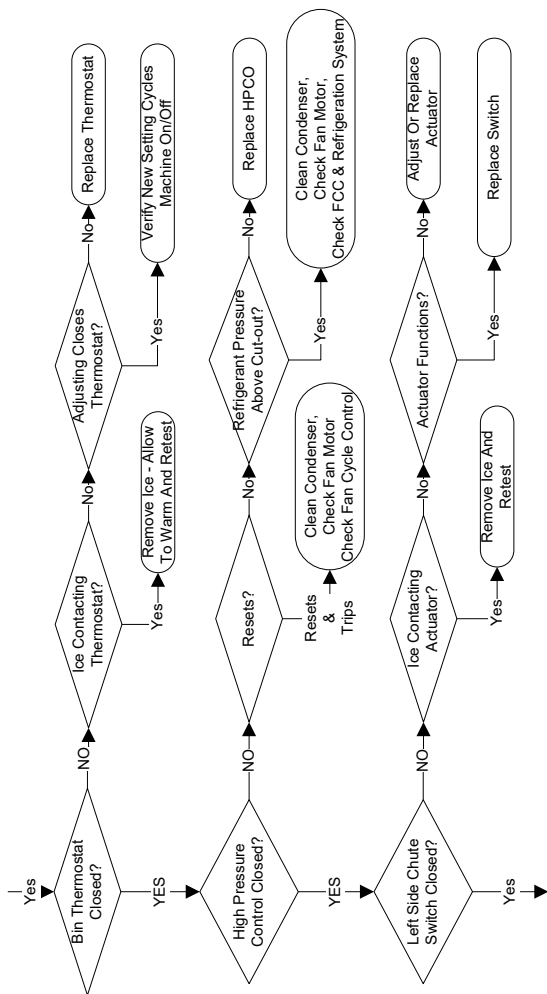
Placing the toggle switch in the ON position starts the gear motor. After the rotation speed sensor verifies 8 minutes of correct rotation the time delay ends and the compressor starts. The ice machine will continue to make ice until ice contacts the bin thermostat. The ice machine remains off until ice no longer contacts the bin thermostat.

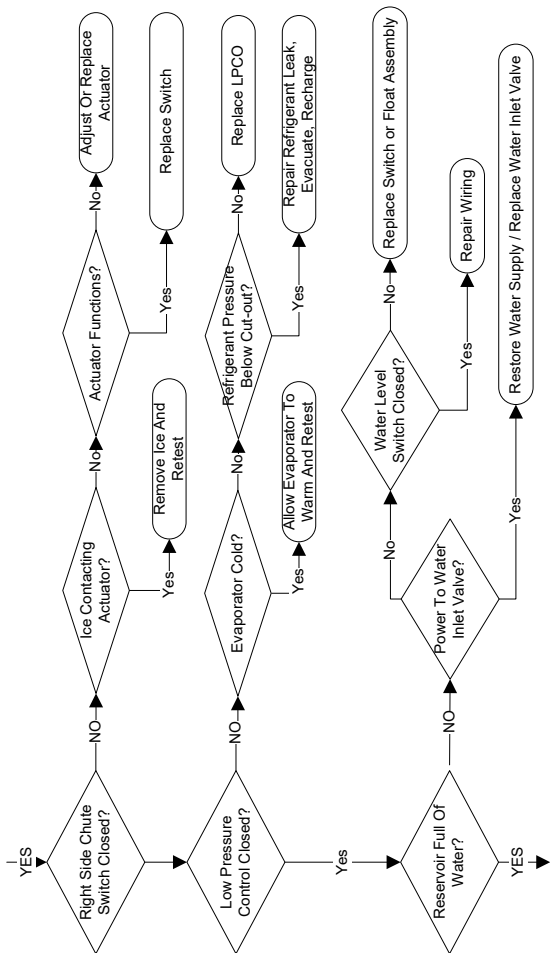
ROTATION SENSOR OPERATION

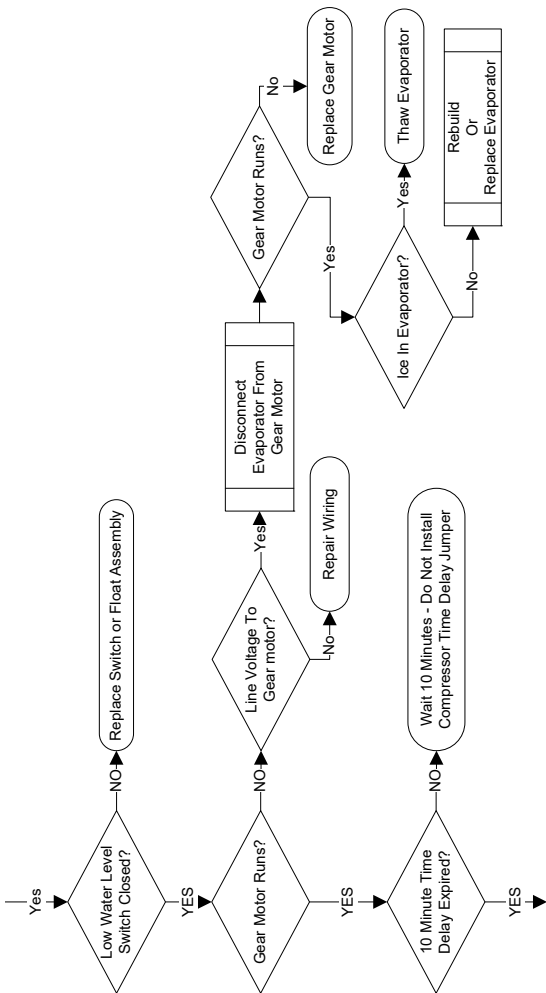
Light	Definition
Yellow Blinking	Time Delay Period
Yellow Solid	Normal Operation Sensing
Red Blinking	Fault Time Delay Period
Red Solid	Lockout - 8 Consecutive Faults Remove/Restore Power To Reset
See "Rotation Sensor" on page 84 for sequence of operation	

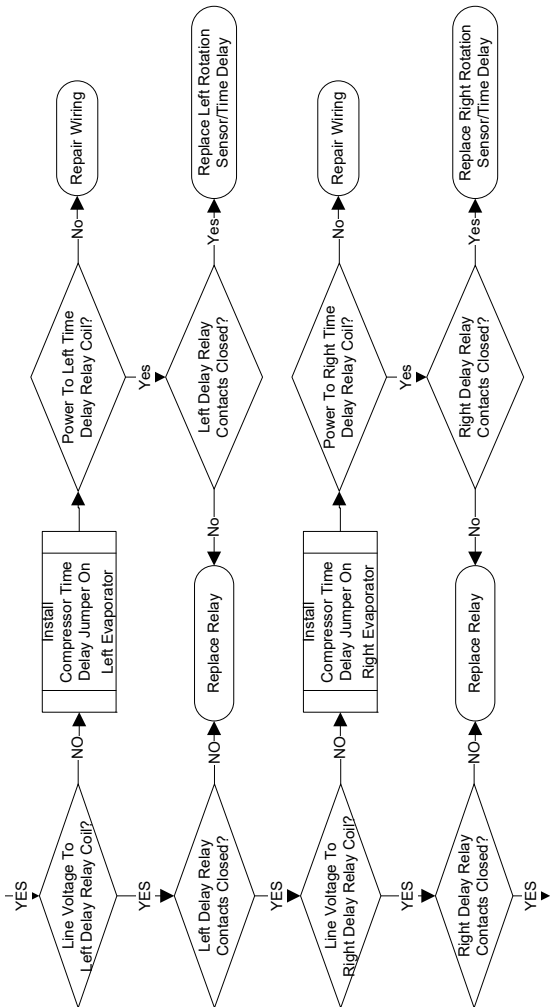
Electrical Flowchart – RF2500 Air-cooled

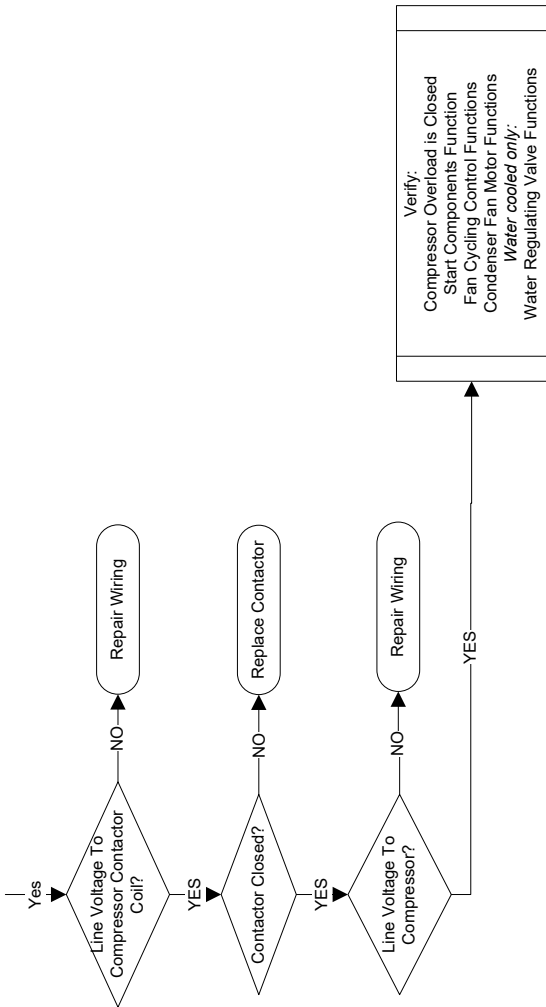












RNF2000C/RFF2200C Troubleshooting

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

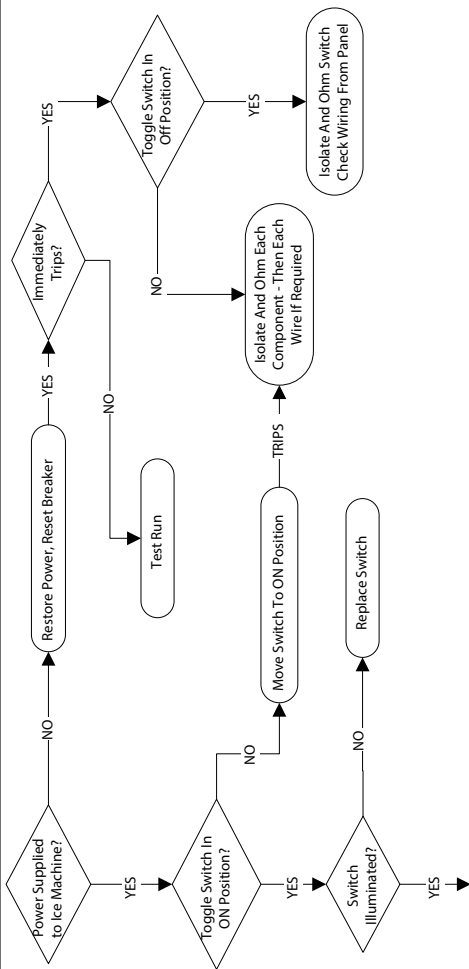
- When the refrigerant pressure is high enough to close the low-pressure control the contactor coil energizes and the compressor starts.
- The refrigerant pressure will increase and close the fan cycling pressure control and the condenser fan motor starts.

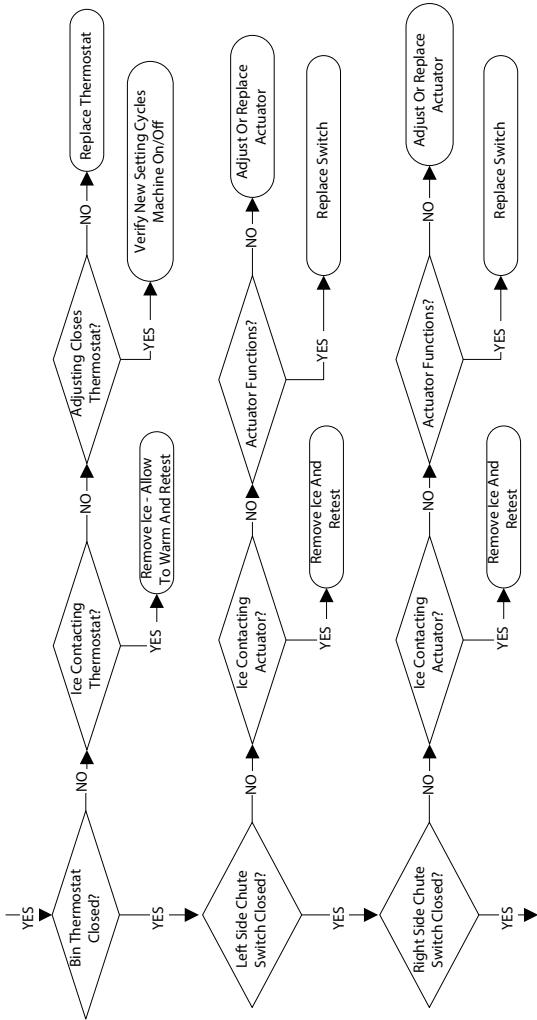
The ice machine will continue to make ice until ice contacts the bin thermostat and the liquid line solenoid valve closes and the refrigeration system pumps down.

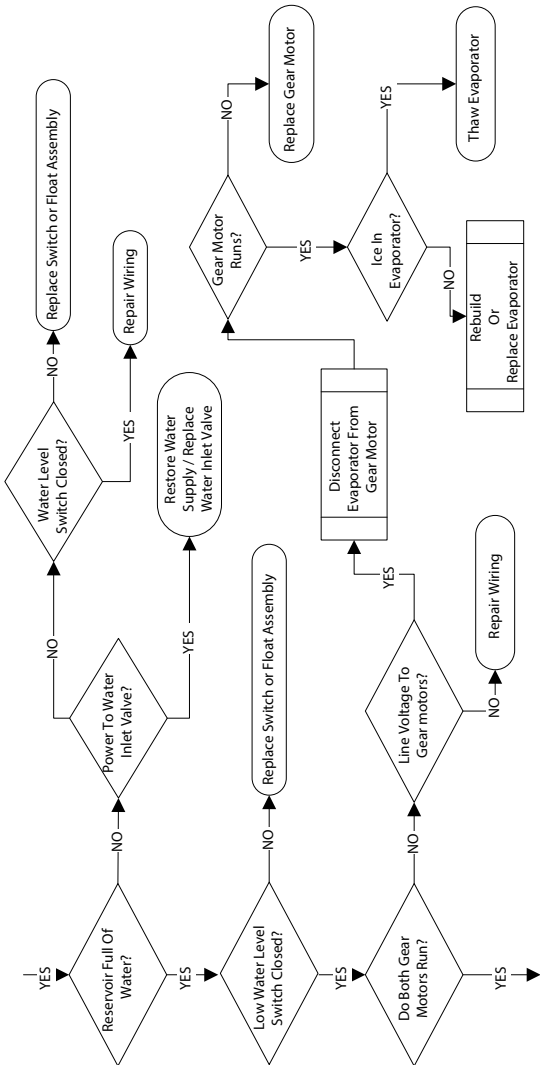
- The refrigerant pressure drops and the fan cycling pressure control opens stopping the condenser fan motor.
- When the refrigerant pressure is low enough to open the low pressure control, the contactor coil is de-energized and the compressor stops.

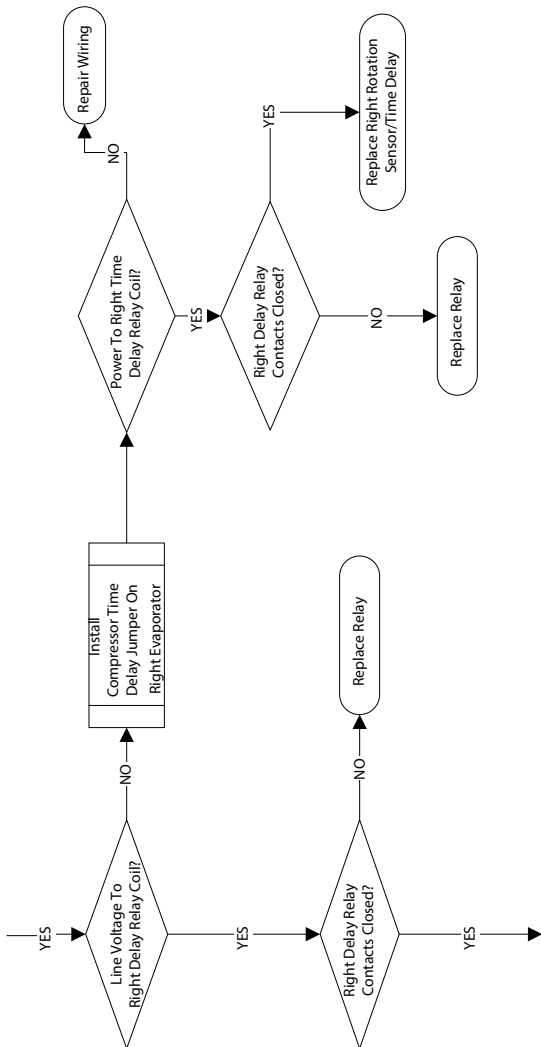
NOTE: The ice machine remains off until ice no longer contacts the bin thermostat.

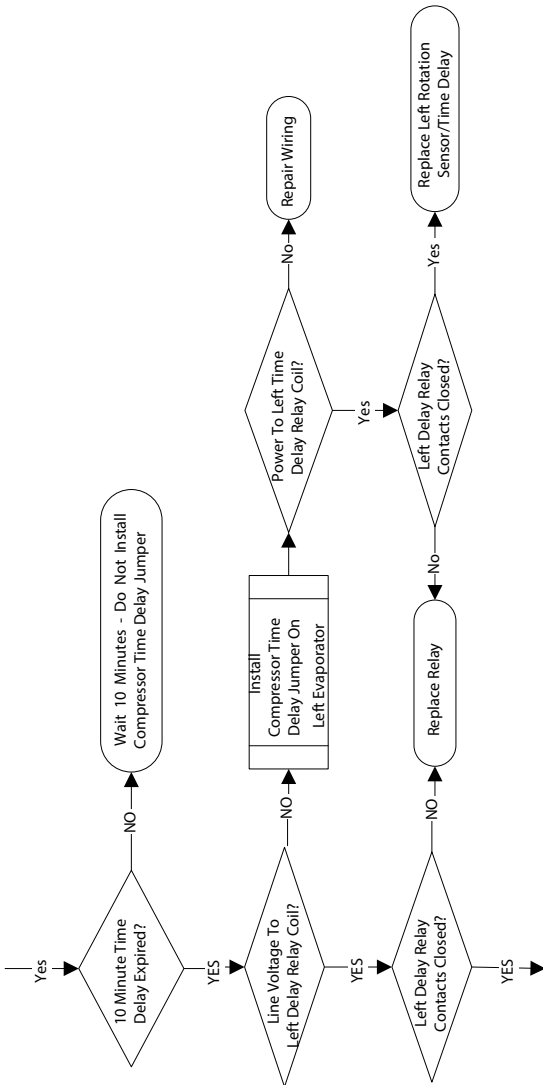
Electrical Flowchart - RFF2200C QuietQube

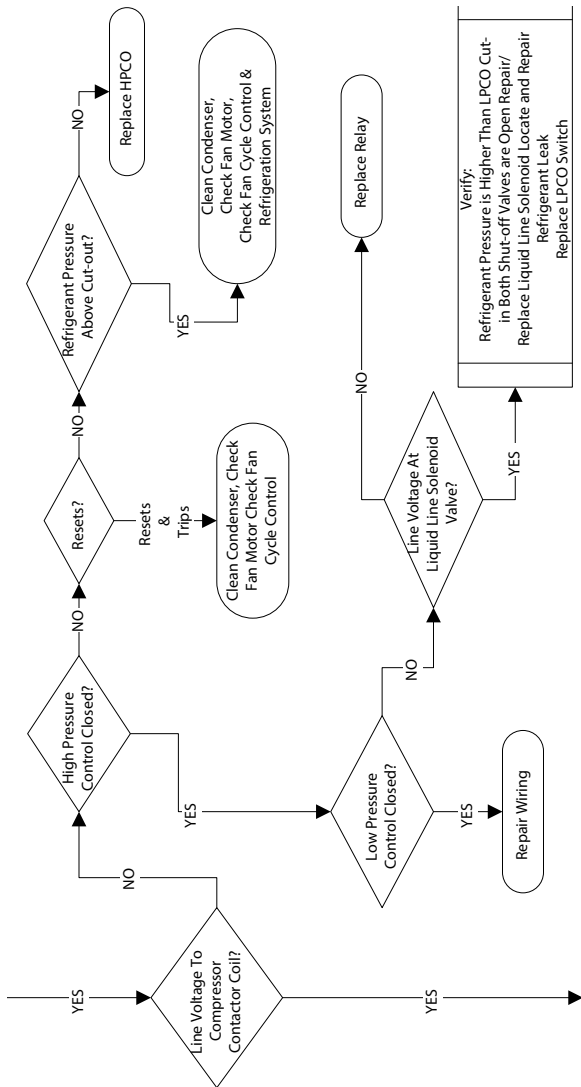


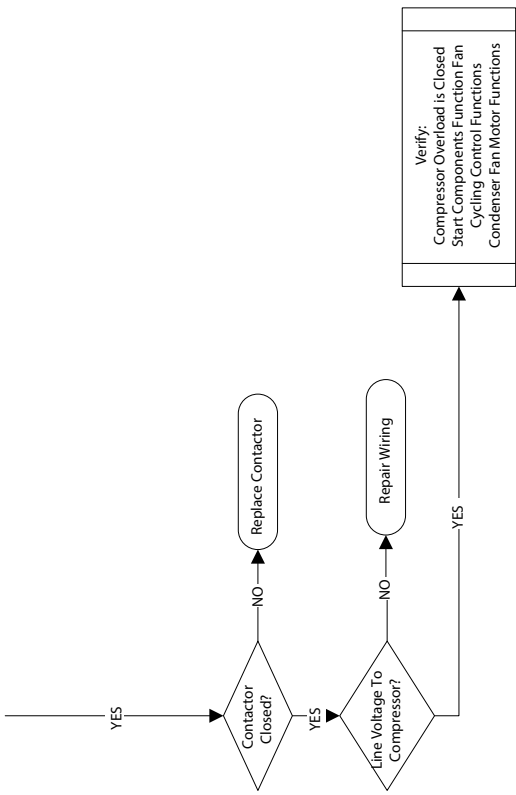












Refrigeration Troubleshooting

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	Low	
			Increases With Run Time	Increases With Run Time	Decreases With Run Time	

Component Specifications

BIN THERMOSTAT

Model	Setting	Cut-Out	Cut-In
UFF0200 / UNF0200 UNF0300 / UFF0350 RFF1300	5	37°F ±1 3°C ±.1	43°F ±1 6°C ±.1
RFF0320 / RFF0620 RNF1100 / RNF1020 RFF1220C / RNF2000C RFF2200C / RFF2500	3	35°F ±1 1.6°C ±.1	41°F ±1 5.0°C ±.1
RNF0620	2	34°F ±1 1.1°C ±.1	40°F ±1 4.4°C ±.1

LOW TEMPERATURE THERMOSTAT

(Evaporator safety thermostat)

Model	Setting	Cut-Out	Cut-In
UFF0200 / UNF0300	5	-9°F ±1 -23°C ±.1	10°F ±1 -12°C ±.1
UNF0200	6	-10°F ±1 -23°C ±.1	8°F ±.1 -13°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 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 / RNF1020 / 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 ice machine 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.

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
RNF2000C	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.

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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

RFF0320ASELF 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 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	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 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	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

RNF1100W

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 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	1360 lbs 617 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

RNF2000C

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

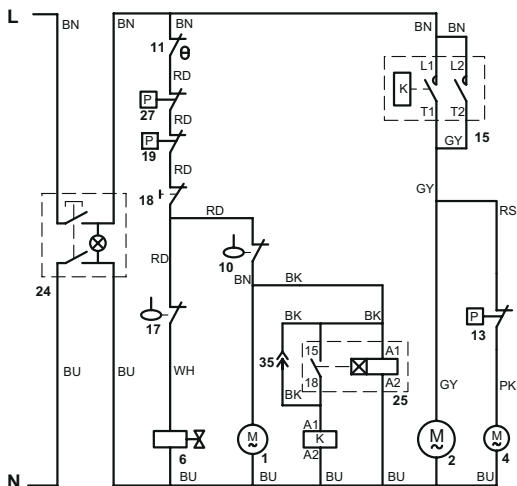
Always disconnect power before working on electrical circuitry.

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



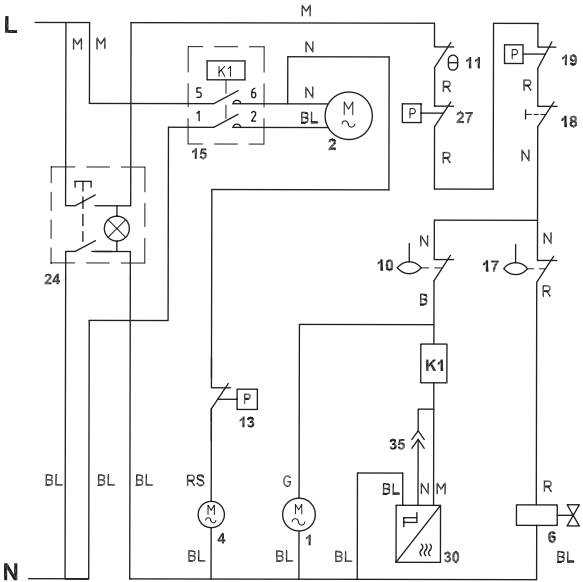
See page 146 for compressor start component wiring.

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
YEL	Yellow

RFF0620 AIR-COOLED

Refer to Nameplate for Voltage Rating



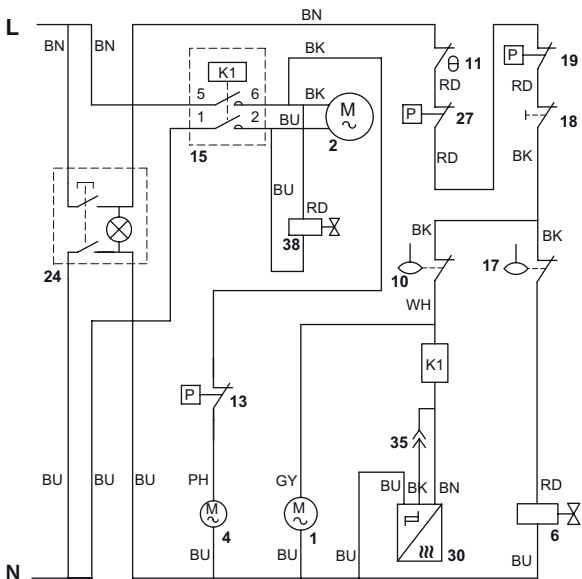
See page 146 for compressor start component wiring.

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



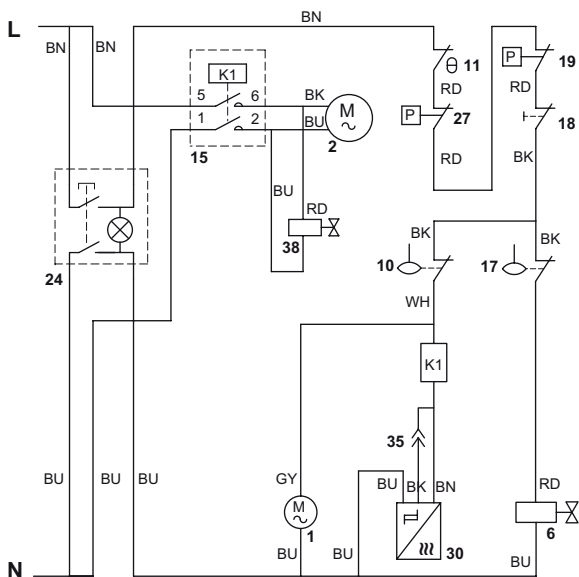
See page 147 for compressor start component wiring.

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

RFF1300 WATER-COOLED

Refer to Nameplate for Voltage Rating



See page 147 for compressor start component wiring.

Wiring Diagram Legend RFF1300W Water-cooled

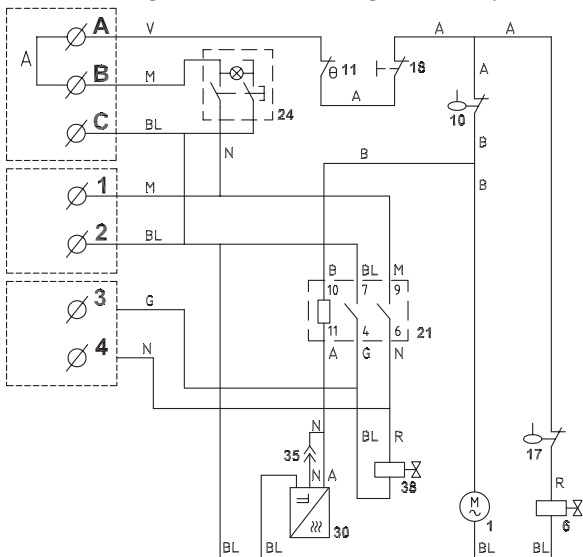
1	Gear Motor
2	Compressor
4	Fan motor
6	Water inlet valve
10	Low water level switch
11	Bin thermostat
13	Fan cycle control
15	Contactor
17	Water level switch
18	Chute safety switch
19	High pressure safety switch
24	On/Off switch
27	Low pressure safety switch
30	Rotation sensor
35	Compressor time delay 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



See page 126 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
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

Wiring Diagram Legend RFF2500 Air-Cooled

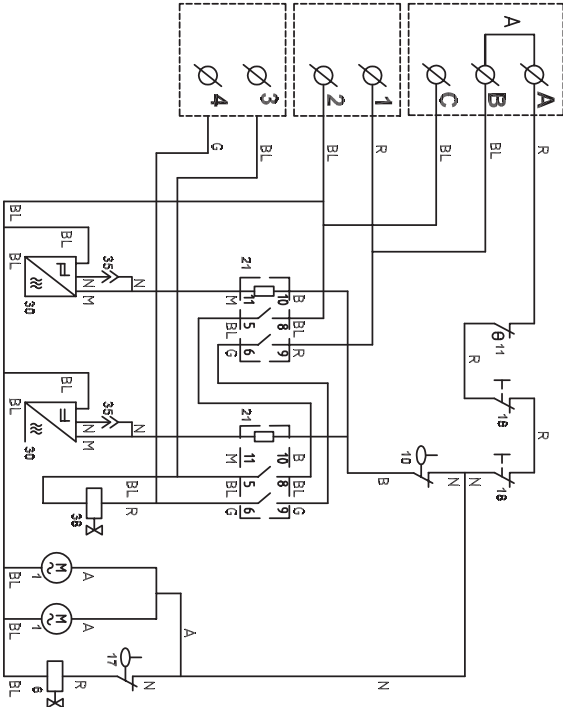
1	Gear Motor
2	Compressor
4	Condenser fan motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
13	Fan cycle control
15	Contactors
17	Water level switch
18	Ice chute safety switch
19	High pressure cut out
24	On/Off switch
25	Compressor time delay
27	Low pressure cut out
29	Compressor 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



See page 126 for condensing unit wiring diagram.

Wiring Diagram Legend RFF2200C Head Section

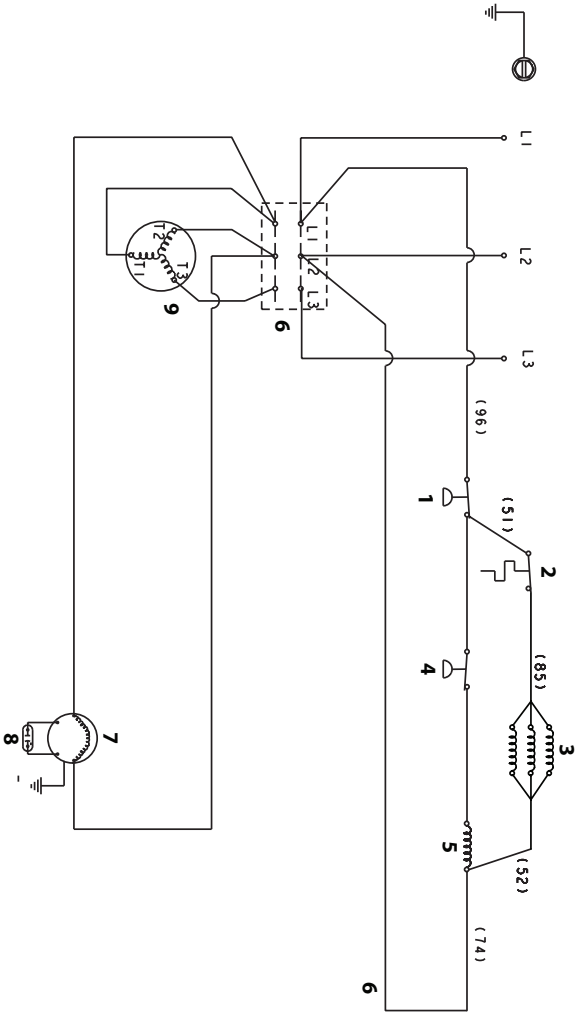
1	Gear Motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
21	Compressor Relay
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid Valve
Wire Color Designation	
B	White
BL	Blue
G	Grey
M	Brown
N	Black
R	Red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

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	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



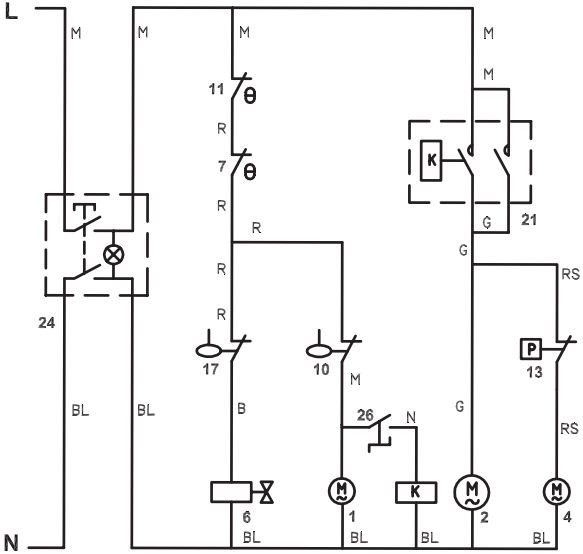
Wiring Diagram Legend RCUF Condensing Unit

1	High Pressure Cutout Control
2	Thermostat - Receiver Heater
3	Receiver Heater
4	Low Pressure Cutout Control
5	Contactator Coil
6	Contactator 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



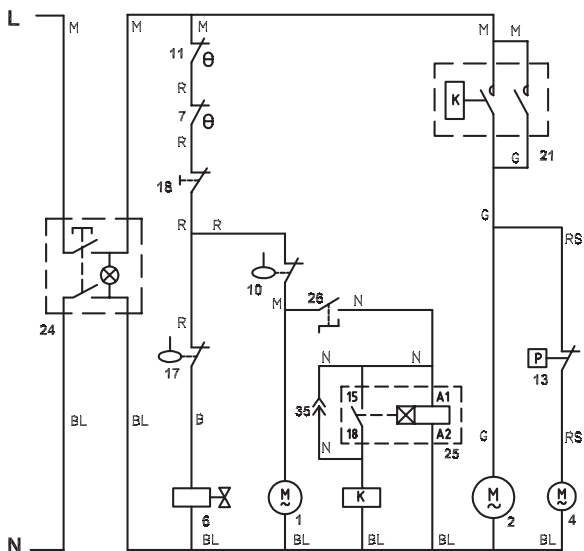
See page 146 for compressor start component wiring.

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



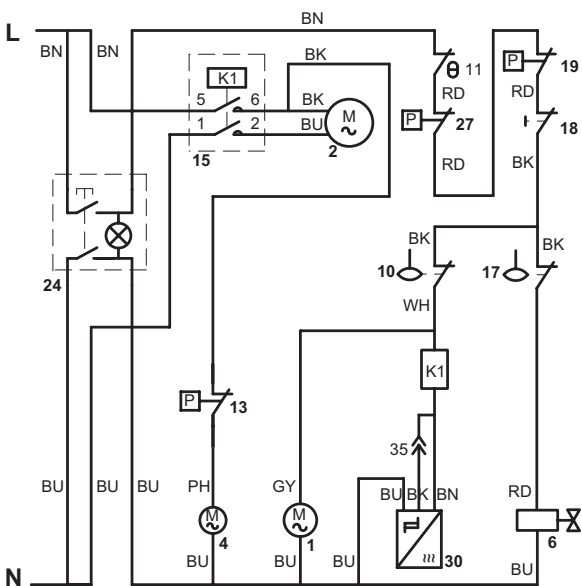
See page 146 for compressor start component wiring.

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



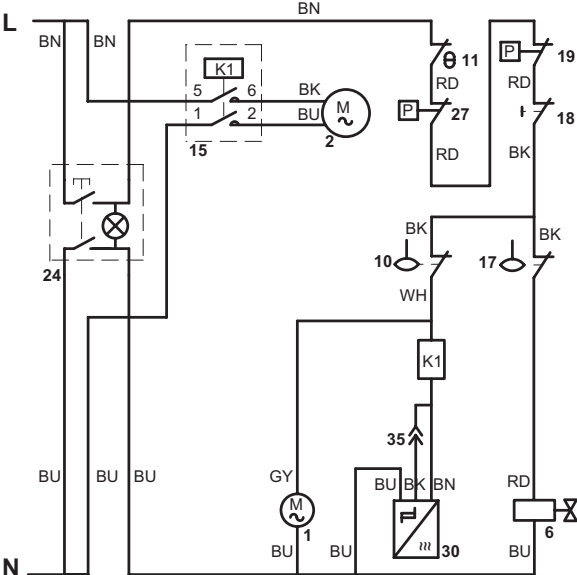
See page 146 for compressor start component wiring.

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



See page 146 for compressor start component wiring.

Wiring Diagram Legend RNF0620 Water-cooled

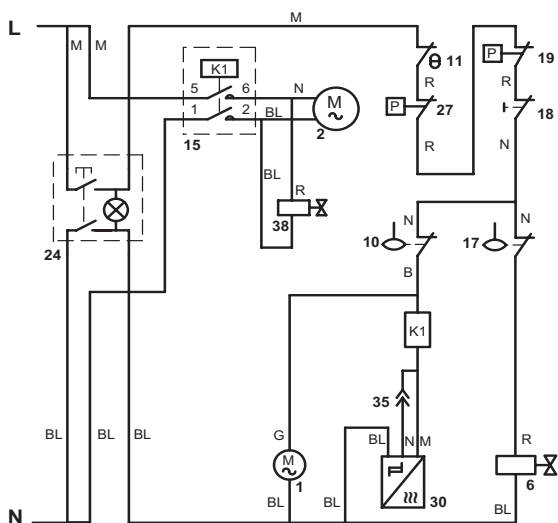
1	Gear Motor
2	Compressor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
15	Contactator
17	Water level switch
18	Ice chute safety switch
19	High pressure cut out
24	On/Off switch
27	Low pressure cut out
30	Rotation sensor
35	Compressor time delay by-pass
Wire Color Designation	
WH	White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

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



See page 146 for compressor start component wiring.

Wiring Diagram Legend RNF1100 Water-Cooled

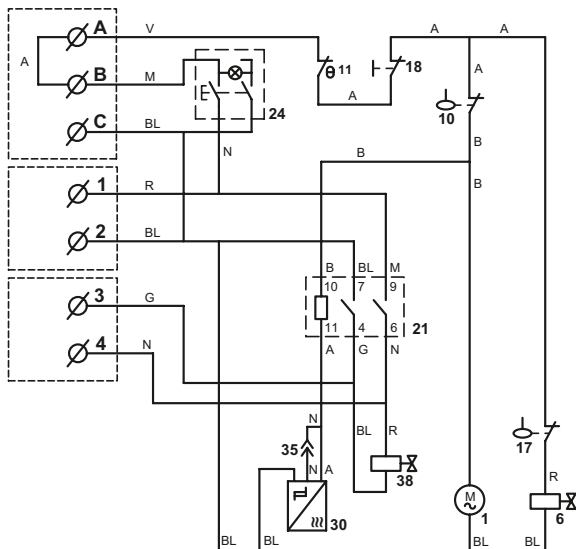
1	Gear Motor
2	Compressor
4	Fan Motor
6	Water inlet Valve
10	Low Water Level Switch
11	Bin Thermostat
13	Fan cycle control
15	Contactors
17	Water level switch
18	Chute safety switch
19	High pressure safety switch
24	On/Off switch
27	Low pressure safety switch
30	Rotation sensor
35	Compressor time delay 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



See page 126 for condensing unit wiring diagram.

Wiring Diagram Legend RNF1020C Head Section

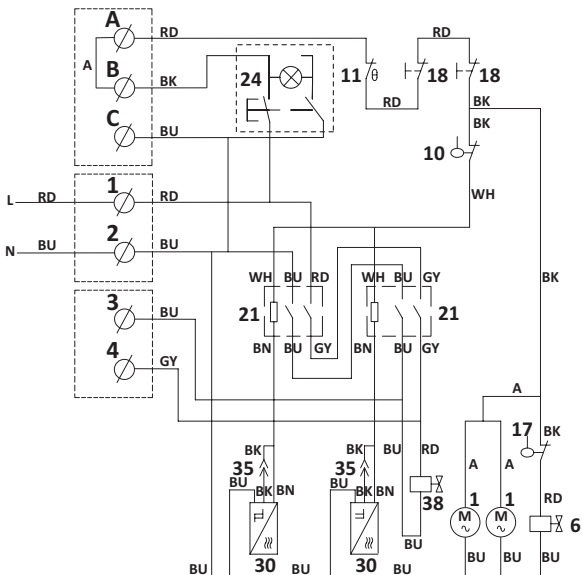
1	Gear Motor
6	Water inlet valve
10	Low water level switch
11	Bin thermostat
17	Water level switch
18	Chute safety switch
21	Relay
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass (Service Staff only)
38	Solenoid Valve
Wire Color Designation	
A	Orange
B	White
BL	Blue
G	Grey
M	Brown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

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 energize remote condensing unit - 2 Amp max



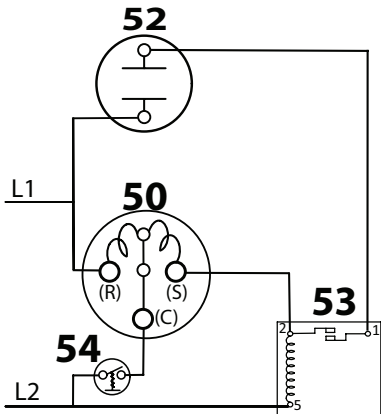
See page 126 for condensing unit wiring diagram.

Wiring Diagram Legend RNF2000C Head Section

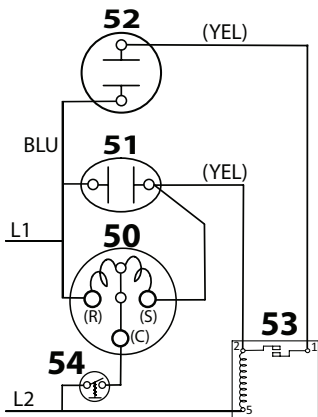
1	Gear Motor
6	Water inlet valve
10	Low water level safety
11	Bin thermostat
17	Water level switch
18	Ice chute safety switch
21	Compressor Relay
24	On/Off switch
30	Rotation sensor
35	Compressor time delay by-pass
38	Solenoid Valve
Wire Color Designation	
B	White
BL	Blue
G	Grey
M	Brown
N	Black
R	Red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

Self-Contained Model Compressor Start Component Wiring

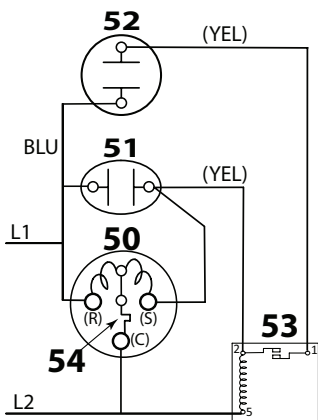
UFF0200/UNF0200



UNF0300/RFF0320/UFF0350/UNF0350/RFF0620



RFF1300/RFF2500

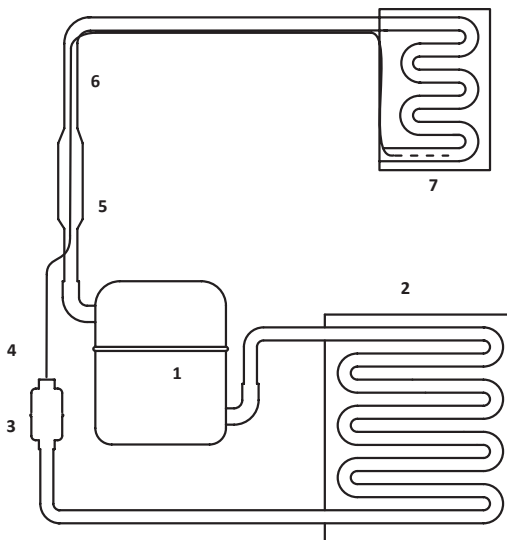


Compressor Wiring Legend	
50	Compressor
51	Run Capacitor
52	Start Capacitor
53	Relay
54	Overload

Refrigeration Tubing Schematics

Flake Models

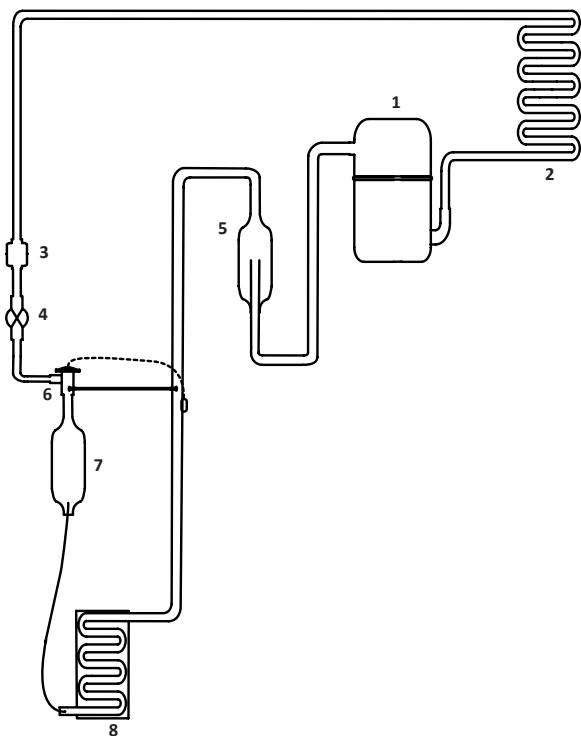
RFF0200/RFF0350/RFF0320/RFF0620



Tubing Diagram Legend

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

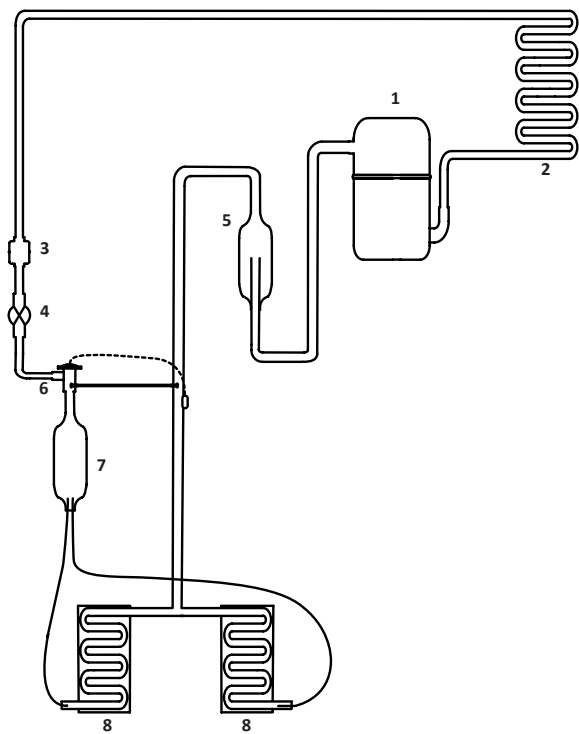
RFF1300 AIR-COOLED



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

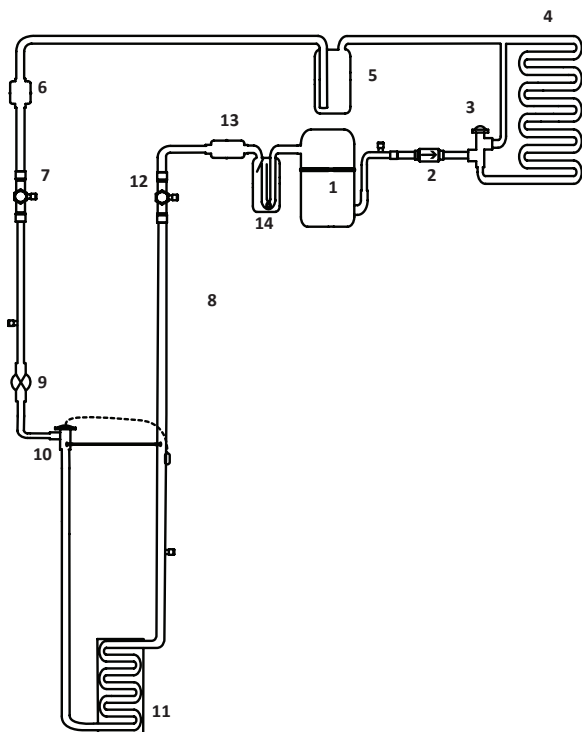
RFF2500 AIR-COOLED



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

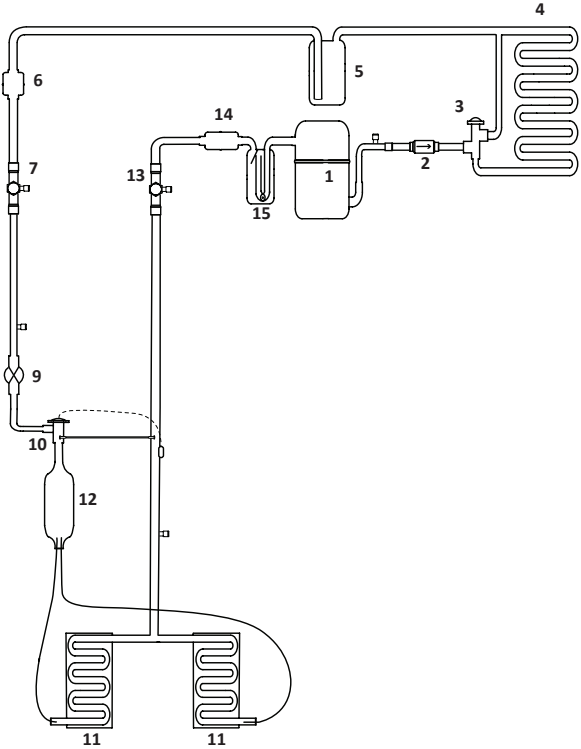
RFF1220C QUIETQUBE HEAD SECTION & RCUF1000 CONDENSING UNIT



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

**RFF2200C QUIETQUBE HEAD SECTION & RCUF2200
CONDENSING UNIT**



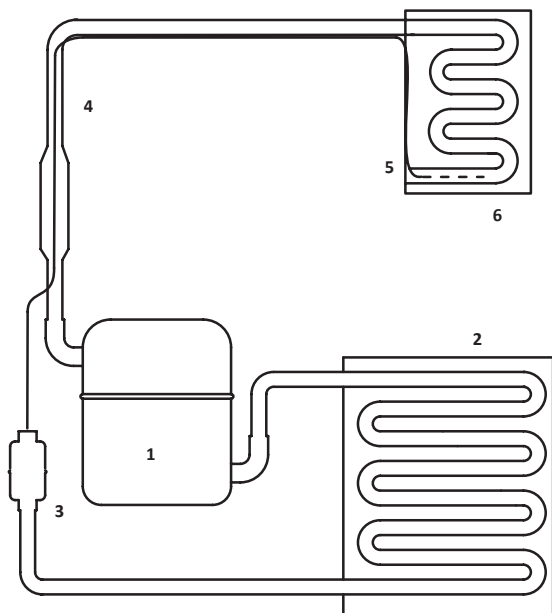
Tubing Diagram Legend

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

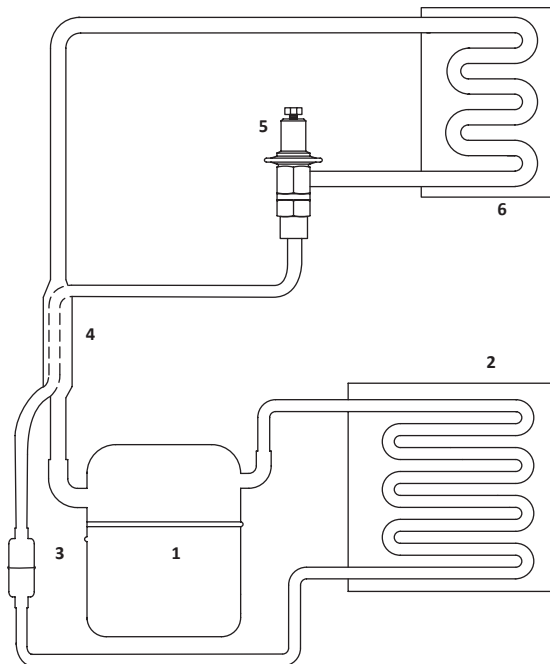


TUBING DIAGRAM LEGEND

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

RNF0320/RNF0620/RNF1100

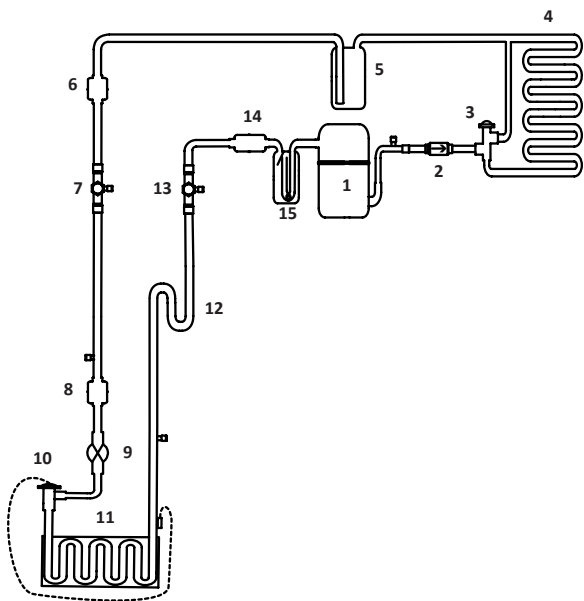
Air & Water-cooled



TUBING DIAGRAM LEGEND

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

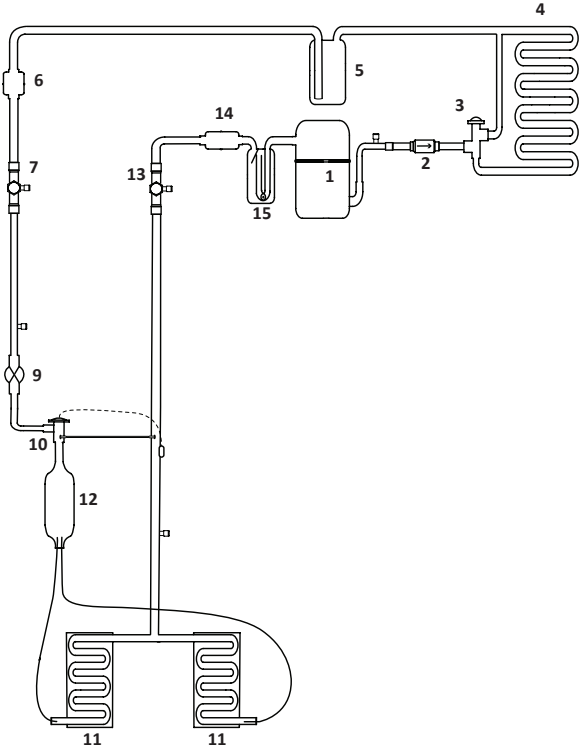
RNF1020C QUIETQUBE HEAD SECTION & RCUF1000 CONDENSING UNIT



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

**RNF2000C 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

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