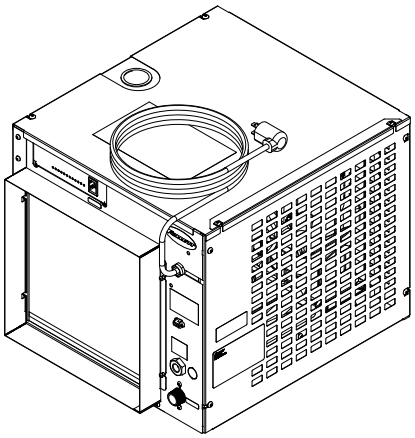
MC_414A, MF_414A Ice Machines
R290, 230 V 50 Hz

Installation, Operation and Service Manual

Please visit *https://www.follettice.com/technicaldocuments*
for the Operation and Service manual for your unit.



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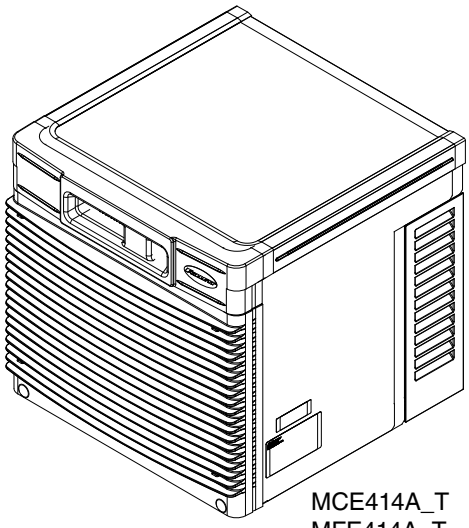

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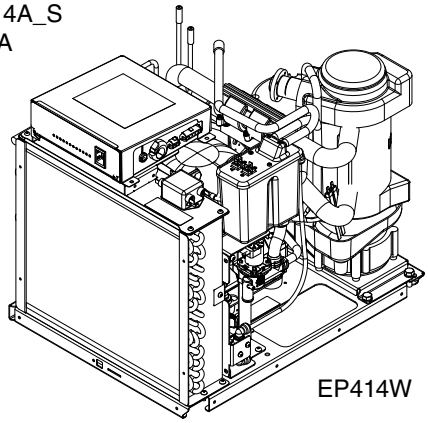

EP414W

Welcome to Follett

Follett equipment enjoys a well-deserved reputation for excellent performance, long-term reliability and outstanding after-the-sale support. To ensure that this equipment delivers that same degree of service, review this guide carefully before you begin your installation.

Should you have need technical help, please call our Technical Service group at (877) 612-5086 or (610) 252-7301.

Please have your model number, serial number and complete and detailed explanation of the problem when contacting Technical Service.

Getting Started

After uncrating and removing all packing material. Inspect the equipment for concealed shipping damage. All freight is to be inspected upon delivery. If visible signs of damage exist, please refuse delivery or sign your delivery receipt "damaged." Follett Customer Service must be notified within 48 hours. Wherever possible, please include detailed photos of the damage with the original packaging so that we may start the freight claim process.

801 Church Lane • Easton, PA 18040, USA
Toll free (877) 612-5086 • +1 (610) 252-7301
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Installation and Service Videos:
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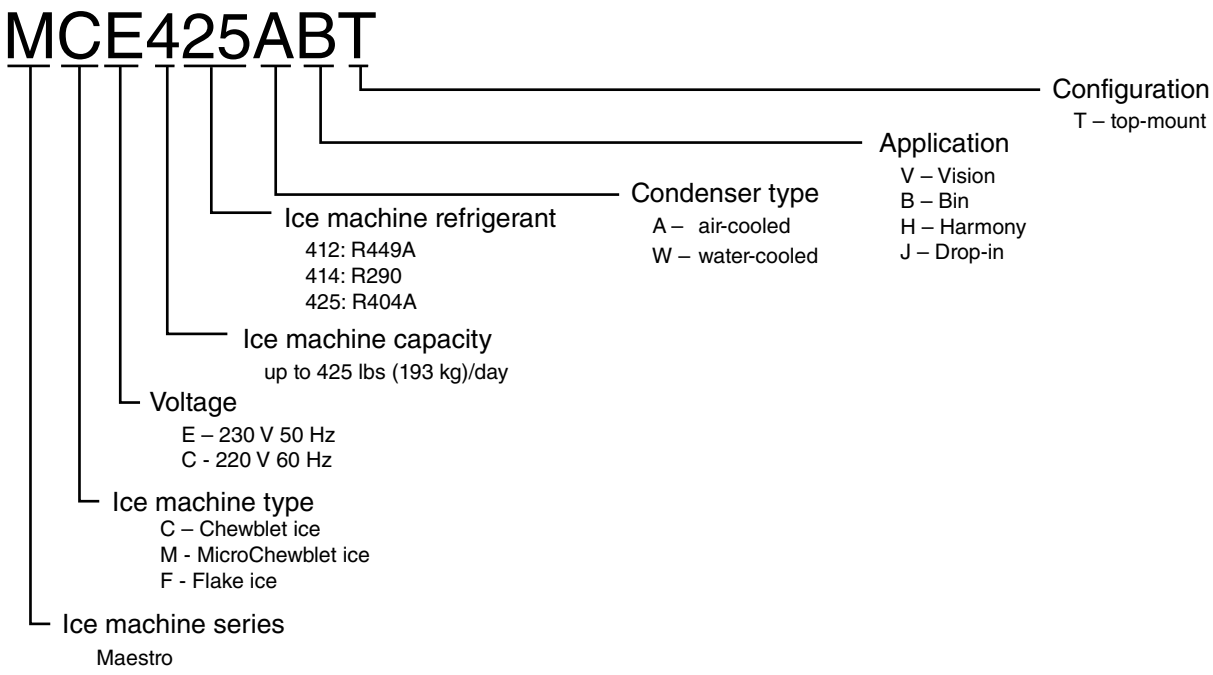

WARNING! Risk of fire or explosion. Flammable refrigerant used. Follow handling instruction carefully. To be repaired only by trained service Personnel.

WARNING! Do not puncture Refrigerant Tubing. Do not use this product with flammable gases or flammable solvents.

WARNING! Do not store flammable gases, flammable liquids or flammable solids in these units. Do not use FLAME to check for gas leak.

WARNING! Do not under any circumstances try to modify or repair valves, regulator, connectors, controls or any other appliance. Doing so creates the risk of a gas leak.

WARNING! Keep ventilaton openings clear of obstruction.

WARNING! Do not damage the refrigerant circuit.

WARNING! Connect to potable water supply only.

WARNING!

- Read this manual thoroughly before operating, installing or performing maintenance on the equipment. Failure to follow instructions in this manual can cause property damage, injury or death.
- The ice machine contains R290 (propane) refrigerant. R290 (propane) is flammable in concentrations of air between approximately 2.1% and 9.5% by volume. R290 (propane) may burn if exposed to a heat source above 470 °C.
- When servicing this equipment, be sure to lock the circuit breaker, and display an in-service notice.
- 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.
- Repair on R290 systems must always be done in a well-ventilated area.
- Because R290 is highly flammable, a combustible gas leak detector is required when servicing R290 systems.
- Only use parts recommended or provided by the manufacturer.
- Routine adjustments and maintenance procedures outlined in this manual are not covered by the warranty.
- This equipment is intended for indoor use only. Do not install or operate this equipment in outdoor areas.
- We reserve the right to make product improvements at any time. Specifications and design are subject to change without notice.
- Do not tilt unit further than 30° off vertical during uncrating or installation.
- This appliance is not suitable for installation in an area where a water jet could be used.
- This appliance must not be cleaned by a water jet.
- User maintence should not be done by children.
- Follett recommends a Follett water filter system be installed in the ice machine inlet water line (standard capacity #00130229, high capacity #00978957, carbonless high capacity #01050442).
- Do not block air intake or exhaust.
- This appliance should be permanently connected by a qualified person in accordance with application codes.
- A qualified person shall provide a readily accessible disconnect device incorporated into the fixed wiring.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- This appliance can be used by children aged 8 years and above and persons with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children should be supervised to ensure that they do not play with the appliance.
- This appliance is designed for commercial use.
- WARNING! To avoid a hazard due to instability of the appliance, it must be fixed in accordance with the instructions.
- Warranty does not cover exterior or outside installations.
- To reduce risk of shock, disconnect power before servicing.
- Connect to potable water supply only.
- Ice is slippery. Maintain counters and floors around dispenser in a clean and ice-free condition.
- Ice is food. Follow recommended cleaning instructions to maintain cleanliness of delivered ice.

Specifications

Electrical

- Each ice machine and dispenser requires a separate circuit with electrical disconnect within 10 ft (6 m).
- Equipment ground required.
- Standard electrical – 230 V, 50 Hz, 1 phase
- Connect to a dedicated circuit.
- Maximum ice machine amperage – 5.5A.
- Cord provided on ice machine.

Plumbing

- 3/8" FPT water inlet
- 3/4" MPT drain

Notes:

- Slope to drain of 1/4" per foot (20 mm per 1 m run) with a 1/2" min. is recommended.
- Water shut-off recommended within 10 feet (3 m), drain to be hard piped and insulated.
- Follett recommends a Follett water filter system be installed in the ice machine inlet water line (standard capacity #00130229, high capacity #00978957, carbonless high capacity #01050442).

Ambient

Air temperature*	100 F/38 C max.	50 F/10 C min. (best performance below 80 F/27 C)
Water temperature†	90 F/32 C max.	45 F/10 C min. (best performance below 70 F/21 C)
Water pressure	70 PSIG max. (482 kPA)	10 PSIG min. (68 kPA)

* Ambient air temperature is measured at the air-cooled condenser coil inlet.
† Ambient water temperature is measured in the ice machine reservoir.

Shipping weight

73 kg (160 lb)

Technical specifications

- Ice machines are marked climate class T indicating certification conducted at 43 C test room ambient.

Refrigeration pressure data

- Readings within 10% of table values should be considered normal.

Compressor data

Air-cooled				
Ambient air temperature	**50 F/10 C**	**70 F/21.1 C**	**90 F/32.2 C**	**110 F/43.3C**
Amperage	2.25	2.36	2.46	2.57
High-side pressure (PSIG)	105	142	190	245
Low-side pressure (PSIG)	18.5	21	25	27

Locked rotor amps 230 V: 18.2A

Gearmotor data	**230 V/50 Hz**
Gearmotor current	1.3A (nominal)

Refrigeration system

Important: All service on refrigeration system must be performed in accordance with all federal, state and local laws that pertain to the use of refrigerants. It is the responsibility of the technician to ensure that these requirements are met.

Ice machine charge specifications

Model	**Charge**	**Refrigerant type**
E414 230 V, 50 Hz air-cooled	3.5 oz (100 grams)	R290

Dimensions and clearances

- Entire front of ice machine must be clear of obstructions/connections to allow removal.
- 12" (30.5 cm) clearance above ice machine for service.
- 6" (15.3 cm) minimum clearance between exhaust side of ice machine and any adjacent equipment.
- MCE414A – 18" (45.7 cm) minimum, 10 ft (3 m) maximum clearance between discharge and air intake grilles.

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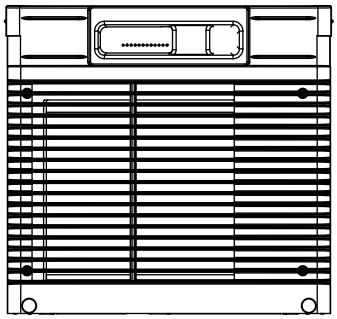
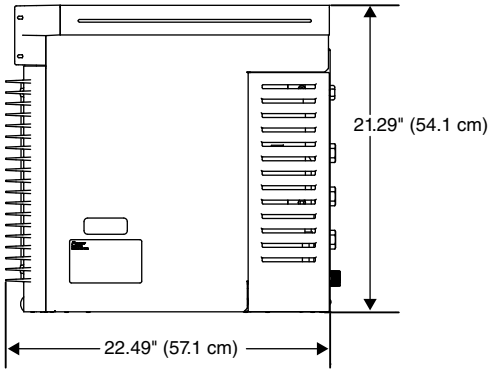
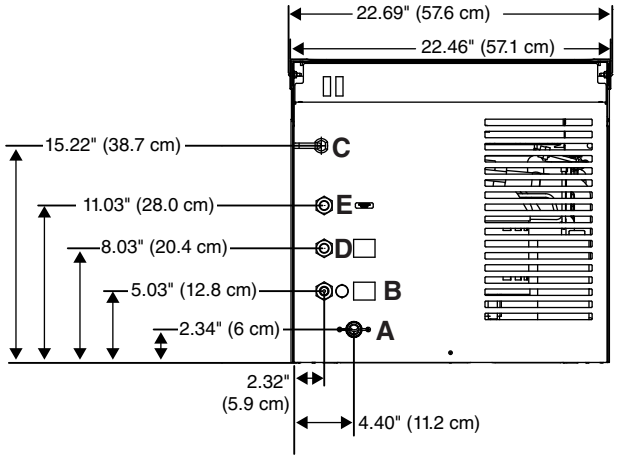
Front view — top mount



Side view — top mount



Back view — top mount



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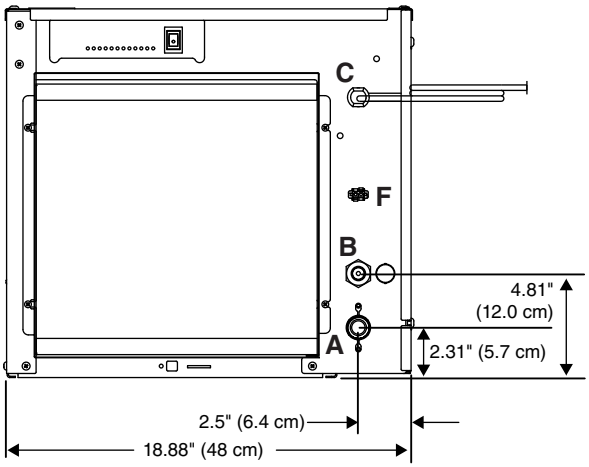
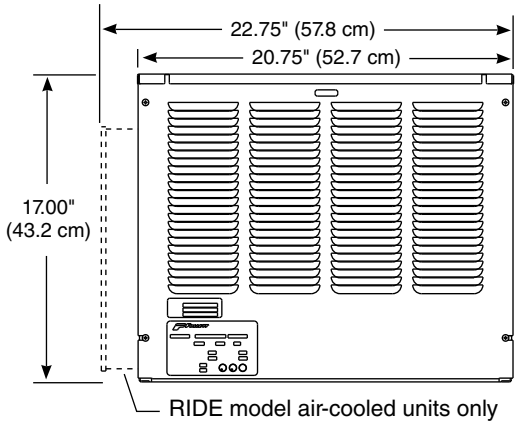
Front view — air-cooled



Side view — air-cooled



A – 3/4" MPT drain
B – 3/8" FPT water inlet
C – Electrical cord
D – NA
E – NA
F – Bin signal connection (DO NOT APPLY VOLTAGE!)

Cleaning

Follett ice machines and dispensers, and their associated cleaning and sanitizing procedures, are designed for use with potable water sources. The presence, or suspected presence, of infectious agents may call for additional measures, including the replacement of components and more comprehensive disinfection measures. Follett recommends that these cleaning and sanitizing procedures be reviewed with the appropriate infectious agent subject matter experts to assure complete remediation.

Periodic cleaning of Follett's ice machine system is required to ensure peak performance and delivery of clean, sanitary ice. The recommended cleaning procedures that follow should be performed at least as frequently as recommended and more often if environmental conditions dictate.

Cleaning of the condenser can usually be performed by facility personnel. Cleaning of the ice machine system should be performed by your facility's trained maintenance staff or a Follett authorized service agent. Regardless of who performs the cleaning, it is the operator's responsibility to see that this cleaning is performed according to the schedule below. Service problems resulting from lack of preventive maintenance will not be covered under the Follett warranty.

Recommended cleaning intervals*

Maestro Plus	Frequency
Drain Line	weekly
Drain Pan/Drip Pan	weekly
Exterior, Water Station Tube	as needed
Condenser	monthly (air-cooled only)
Ice Machine	semi-annually
Transport Tube	semi-annually

* Ice machine must be cleaned prior to start-up.

Weekly

The exterior may be cleaned with a stainless cleaner such as 3M™ Stainless Steel Cleaner & Polish or equivalent.

Monthly

Condenser (air-cooled ice machine only)

1. Use a vacuum cleaner or stiff brush to carefully clean condenser coils of lint and debris to ensure optimal performance.
2. When reinstalling counter panels in front of RIDE® model ice machines, be sure that ventilation louvers line up with condenser air duct.

Semi-Annually (more often if conditions dictate)

- A cleaning procedure should always include both the ice machine and bin/dispenser.
- Icemaking system can be cleaned in place.

Cleaning Tool Checklist

- (1) 1.5 gallon (or larger) plastic bucket
- (2) clean cloths
- Sanitary gloves
- Safety glasses
- SafeCLEAN™ Plus ice machine cleaner
- (2) SaniSponge™ (PN 00131524 - single sponge)

CAUTION!

- Wear rubber gloves and safety goggles (or face shield) when handling SafeCLEAN Plus solution.
- Use only Follett approved cleaners.
- Do not use solvents, abrasive cleaners, metal scrapers or sharp objects to clean any part of the dispenser.

SafeCLEAN Plus Solution: Follow the directions on the SafeCLEAN Plus packaging to mix 1 gal. (3.8 L) of Follett SafeCLEAN Plus solution. Use 100 F (38 C) water.

Cleaning Procedure

Note: Check drains and drain cup to ensure they are open and flowing freely.

1. If ice machine was running recently, ensure that the evaporator is completely free of ice before proceeding. If there is ice in the evaporator, complete steps 2-7 using only hot water to remove the ice, then begin Cleaning Procedure again.
2. Remove front or top cover.
3. Disconnect bin signal cable from ice machine electrical box.
4. Press **CLEAN** switch. The **MAINTENANCE** light will turn on and the machine will drain. Wait for the **LOW WATER** light to turn on.
5. Remove lid from cleaning cup and fill (about 1 quart) until SafeCLEAN Plus solution completely fills the reservoir. Place lid back on cup.
6. **CLEANER FULL** light will turn on and machine will start cleaning cycle then rinse three times; this process takes approximately 15 minutes.
7. When machine is finished cleaning, the **MAINTENANCE** light will turn off.
8. Remove top bearing insulation. Loosen Phillips-head screw on nozzle connected to evaporator. Remove nozzle from evaporator side only, leave other side of nozzle connected to transport tube.
9. Soak one SaniSponge in remaining SafeCLEAN Plus solution.
10. Insert the sponge soaked in SafeCLEAN Plus solution into nozzle then insert a dry sponge into the nozzle.
11. Replace nozzle onto evaporator and tighten screw. Ensure drain is connected to reservoir and vent tubes are connected to evaporator drain pan. Replace top bearing insulation.
12. Reconnect bin signal cable. Wait for ice to push sponges through transport tube.
13. Collect sponges from ice storage bin.
14. Replace front or top cover.
15. After 10 minutes, dispense all ice and discard.
16. Clean the dispenser/bin.

Exterior Cabinet

Clean stainless steel panels with stainless steel cleaner.

Service

Ice machine Operation (all models)

Follett's ice machine consists of four distinct functional systems:

- Harvesting system
- Refrigeration system
- Water system
- Electrical control system

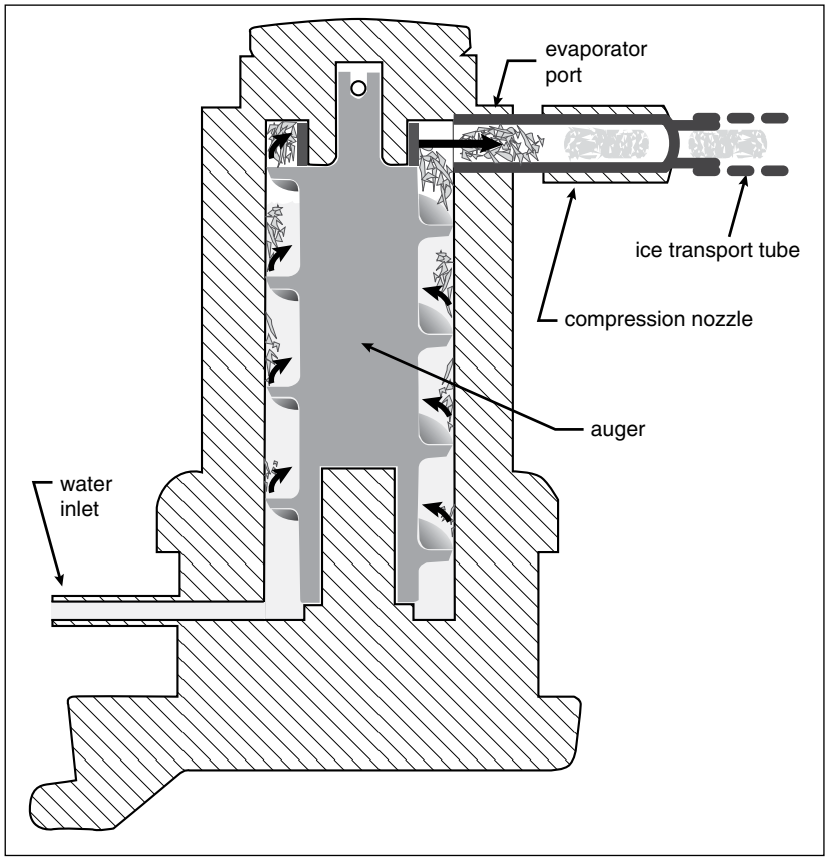
These four systems work together to accomplish the production and harvesting of ice. A problem in any one of these systems will result in improper operation of the entire ice production cycle. When troubleshooting the ice machine, it is important to analyze the entire system operation to determine which system is not functioning properly, then pinpoint the component within that system that is malfunctioning. Determine what corrective action must be taken before making any adjustments or replacing any components.

The icemaking process

The Maestro Plus ice machine uses a stainless steel jacketed evaporator and operates on a continuous freezing cycle. Water is supplied to the evaporator from the water reservoir where the water level is controlled by a float valve. This valve also shuts off the water supply when the ice machine is not running.

When the ice machine is running, a layer of ice forms on the interior surface of the evaporator. This ice is continuously removed by a slowly rotating (10 RPM) auger. The auger carries the ice upward into the cavity formed by the top bearing housing and the compression loop, where it is compressed to remove excess water. When the ice reaches the desired hardness it rotates within the cavity and is forced through a discharge port and compression nozzle and into the ice transport tube. The discharge tube and compression nozzle are slightly restricted to further compress the ice and produce the desired hardness.

A solid state control board located in the electrical box of the ice machine controls the normal operation of the ice machine and monitors gearmotor torque. This control board will shut down the ice machine should an over-torque condition occur. It is very important that you familiarize yourself with the operational sequences detailed in this manual before attempting to service the ice machine.



Water system

The water level in the evaporator is controlled by a fill solenoid **(Fig 1)** and level detecting sensors. Water sensing rods **(Fig. 2)** extend down into the reservoir at the end of the evaporator assembly. The system works via electrical conductivity as follows:

One of the longest probes is a common. When water is between any of the other probes and the common, the PC board will sense the activation. During normal operation, the water level rises and falls between the Normal High and Normal Low sensors. As water is consumed to make ice, the level will fall until the Normal Low sensor is exposed, triggering the water feed solenoid on. Water will fill until the Normal High sensor is activated.

Note: The potable water dissolved solids content must be greater than 10 ppm for the water control system to function properly. If using reverse osmosis water filtration system, ensure T.D.S level is greater than 10 ppm.

Fig. 1 Water system diagram

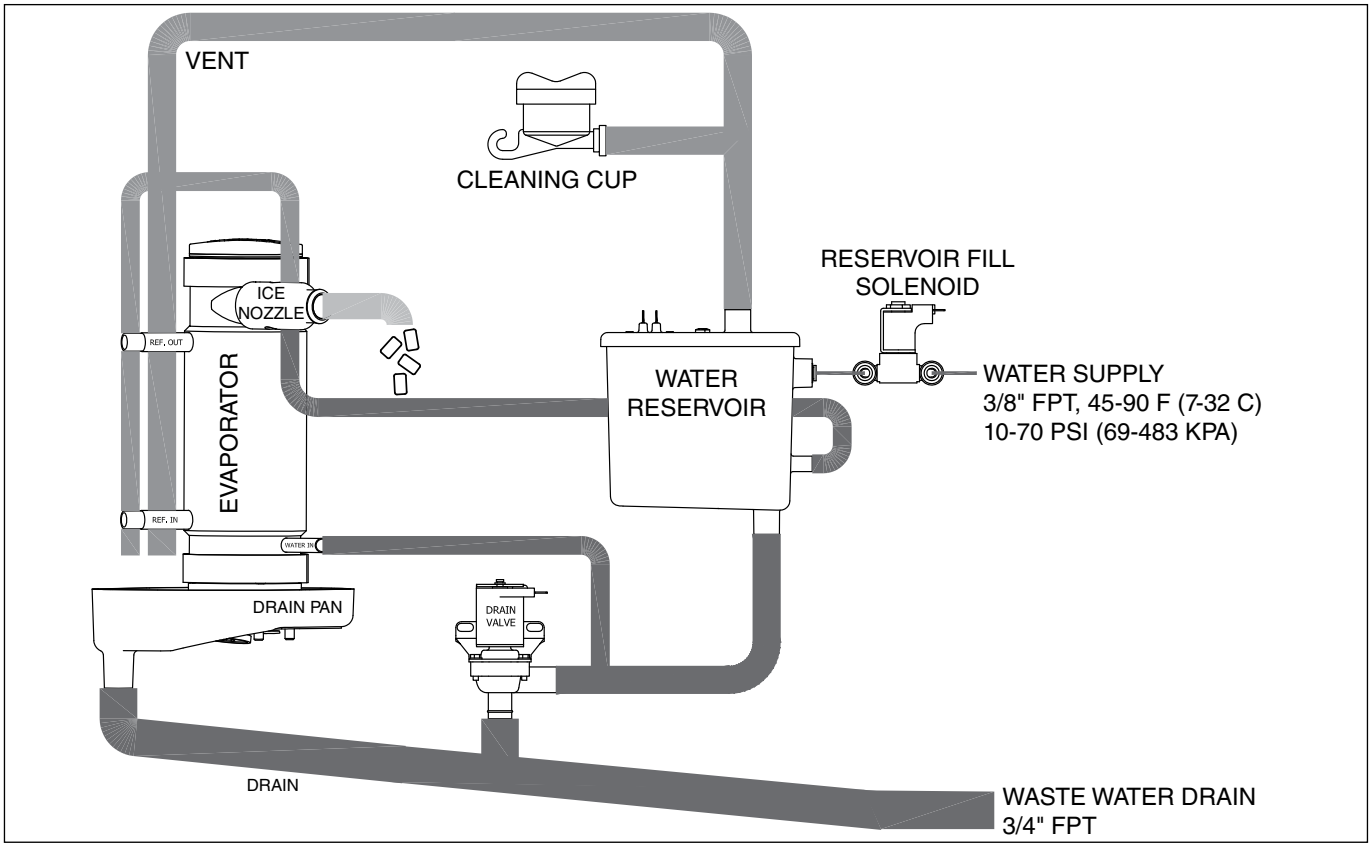
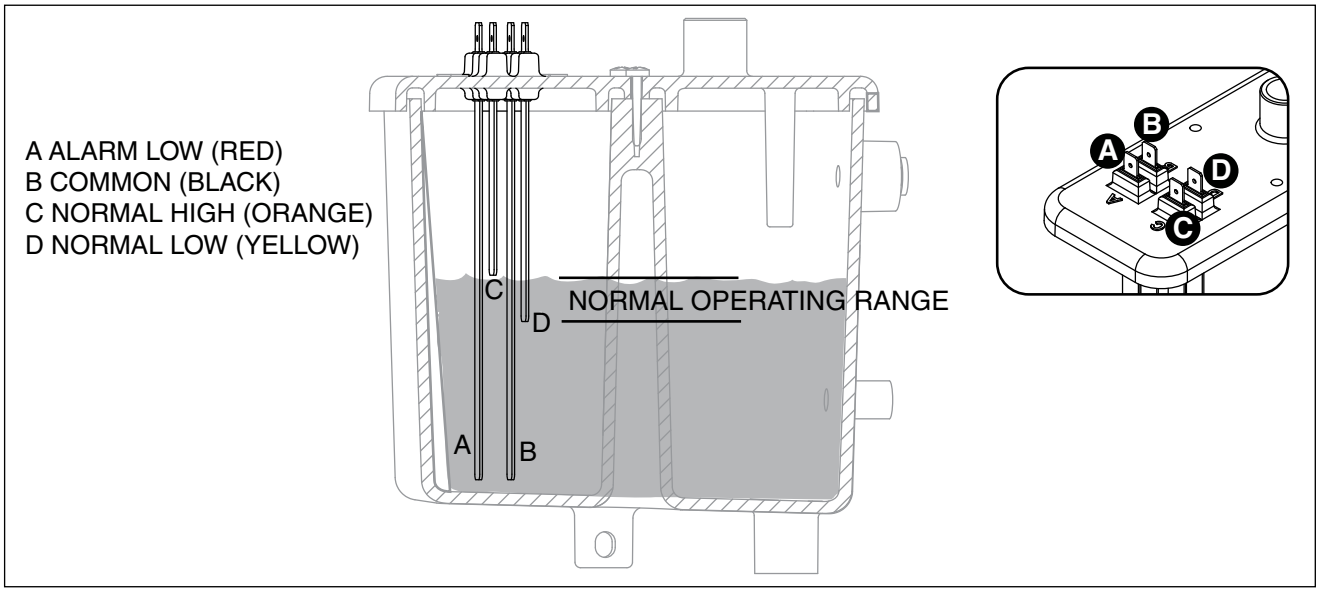


Fig. 2 Water level diagram



Electrical system

ATTENTION!

To prevent circuit breaker overload, wait 15 minutes before restarting this unit. This allows the compressor to equalize and the evaporator to thaw.

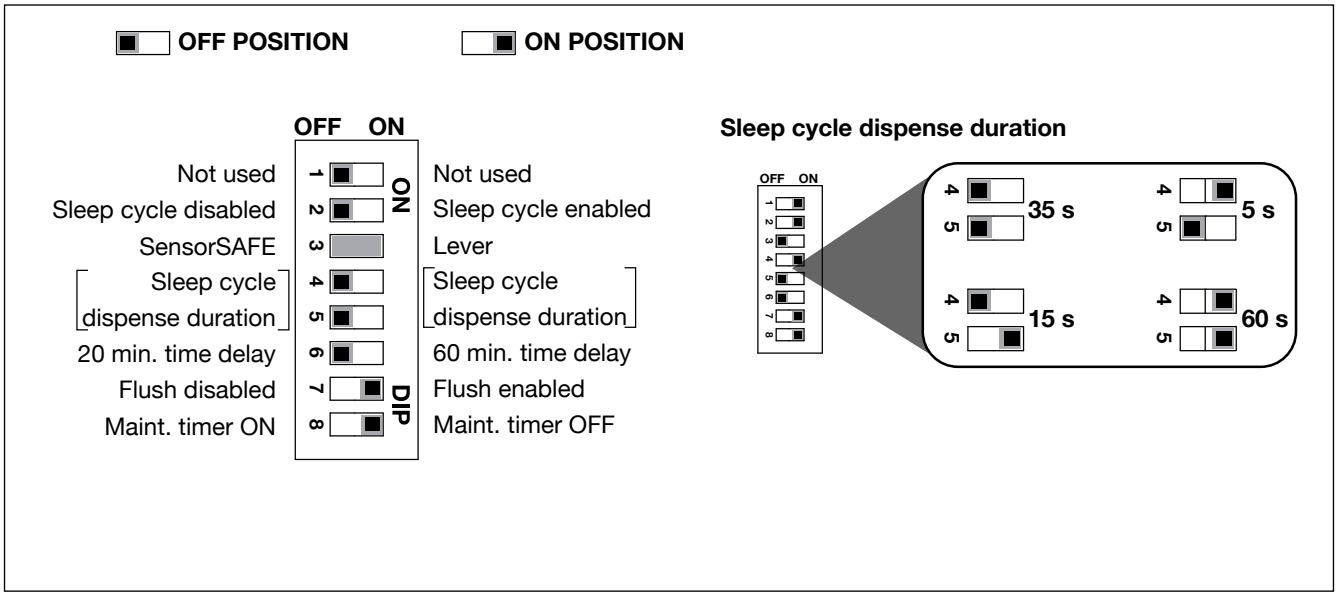
Normal control board operation

The PC board indicator lights provide all the information necessary to determine the machine's status. Green indicator lights generally represent “go” or normal operation; Yellow indicators represent normal off conditions; Red indicators generally represent alarm conditions, some of which will lock the machine off.

A flashing green light labeled POWER indicates power to the machine. All other normal operation status indicators are covered as follows:

Ice machine disposition	Operating conditions
Legend: ● ON ○ OFF ◐ ON or OFF ⊠ FLASHING	
1. Ice machine is making ice. CLEANER FULL ○ · DRAIN CLOG ○ · HI PRESS ○ · HI AMPS ○ · SERVICE ○ · MAINT/CLEAN ○ · LOW WATER ○ · TIME DELAY ○ · SLEEP CYCLE ○ · MAKING ICE ● · LOW BIN ● · POWER ON ⊠	1. **Normal running.**
2. Ice machine is not making ice. CLEANER FULL ○ · DRAIN CLOG ○ · HI PRESS ○ · HI AMPS ○ · SERVICE ○ · MAINT/CLEAN ○ · LOW WATER ○ · TIME DELAY ● · SLEEP CYCLE ○ · MAKING ICE ○ · LOW BIN ◐ · POWER ON ⊠	2. **Normal time delay.** When the bin fills with ice, the LOW BIN light goes out momentarily and the refrigeration and auger drive systems immediately shut down. (**Note:** The fan motor will continue to run for 10 minutes to cool condenser) The TIME DELAY light comes on, initiating the time delay period. When the time delay expires, the machine will restart provided that the LOW BIN light is on.

DIP Switch Settings



Relay/triac output indication
Each relay on the board has an indicator light associated with its output. For example, when the relay for the water feed solenoid is energized, the adjacent indicator light glows green.

Flushing logic
Off cycle: At the completion of off-cycle time delay, the machine checks for a cumulative one (1) hour of ice making time since the last off-cycle flush. If the cumulative ice making time exceeds one (1) hour, the machine will open the drain valve for 60 seconds to drain the evaporator in its entirety. It will then refill with water, flush again and refill, and begin making ice. If the ice making time is less than 1 hour, the machine will start and begin making ice without draining the evaporator.

Error faults
The Maestro Plus PC board monitors various operating parameters including high pressure, auger gearmotor amperage limits, clogged drain, and low water alarm conditions. There are two types of errors namely “hard” or “soft.” A hard error is one that shuts the machine off and will not allow restart until the reset button is pressed. Even cycling power will not reset a hard error. A soft error can either be automatically reset should the condition rectify, or if power is cycled. Should an error occur, consult the troubleshooting guide in this manual or a Follett service technician.

Soft errors:
Note: For all soft errors, the ice machine will remain off for 1 hour.

LO WATER: During operation, the water level cycles between the normal low and normal high sensors. Should the water be shut off to a running machine, a soft error will occur. The error sequence is as follows: During operation, the water level falls to the normal low sensor, and when it does the water feed solenoid is energized. If water is not detected at the normal low sensor within 10 seconds, a soft error will occur. The machine will shut down and TIME DELAY and LOW WATER LEDs will be lit. After time delay, the solenoid will energize and remain energized until the water level is sufficient for restart.

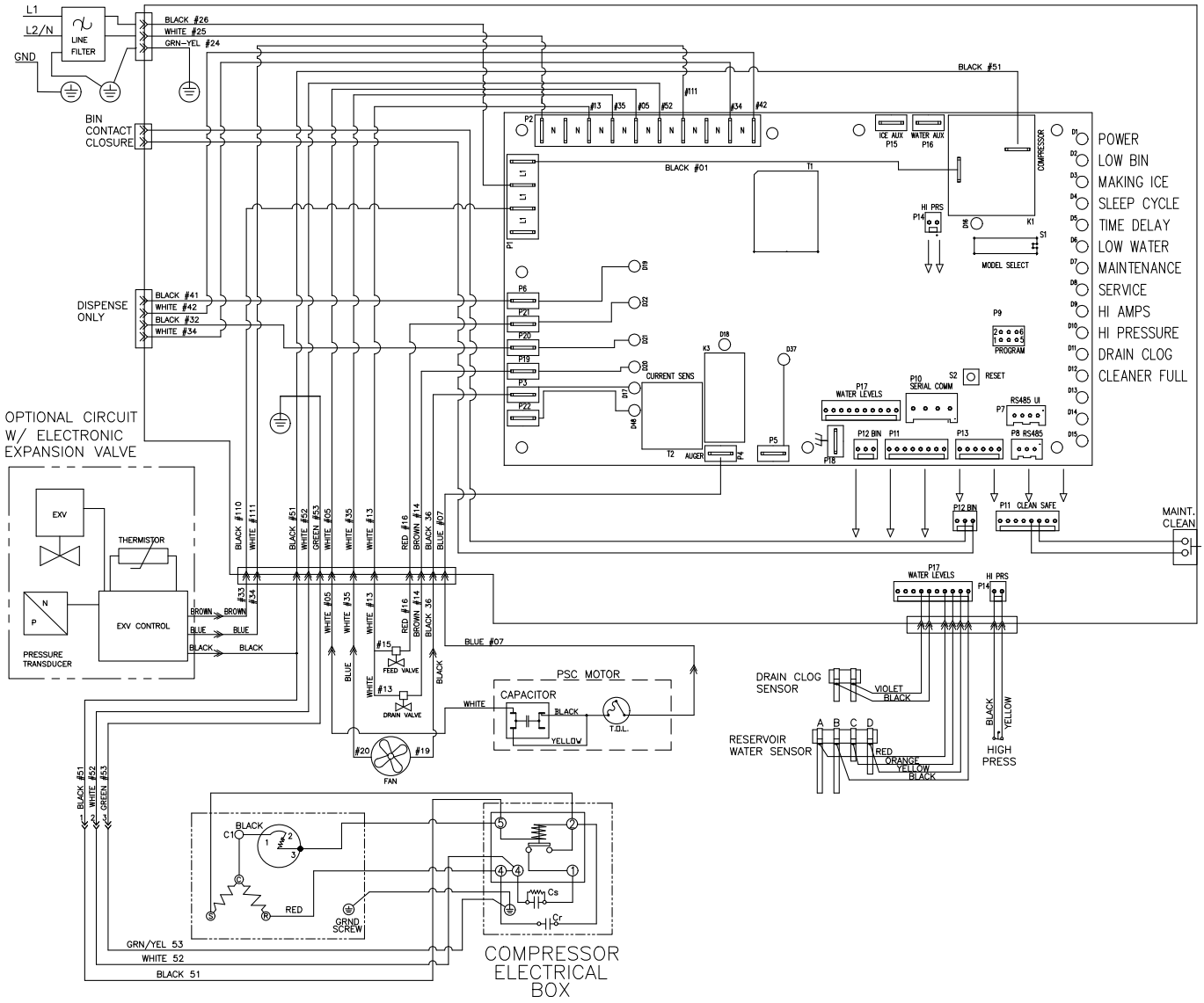
HI PRESSURE: Should the refrigeration pressure rise above 425 PSIG, the machine will shut down and the TIME DELAY and HIGH PRESSURE will be illuminated. After the time delay, and if the pressure has fallen back below the reset point of 295 PSIG, the machine will restart and the TIME DELAY and HIGH PRESSURE will clear.

HI AMPS: The PC board monitors the amperage of the auger motor. Should the gear motor experience current draw above the allowable 1.8A limit or no current draw (0A), the machine will shut down and the TIME DELAY and HI AMP will be illuminated. After the time delay the machine will restart and the TIME DELAY and HI AMP will clear.

Hard error:
HI AMPS: If a second hi-amp error occurs within 1 hour of the initial hi-amp error, the ice machine will shut off and the reset on the board must be pressed to clear the error. If a second hi-amp has occurred, the HI AMP LED only will be illuminated.

DRAIN CLOG: The drain clog sensor, located in the evaporator drain pan will detect the presence of water just below the top edge of the pan. If water does not properly flow out of the internal or external drain lines it will backup into the drain pan (especially during a self-flushing purge cycle). Pressing the reset button will restart the ice machine.

Electrical control system schematic - 230 V 50 Hz



Electrical control system operation

The wiring diagrams that follow illustrate the circuitry of these Follett ice machines used with ice dispensers. Both normal operation of the ice machine (Stages 1–6) and non-normal diagnostic sequences showing torque-out (Stages 7–10) for use in troubleshooting ice machine problems are shown.

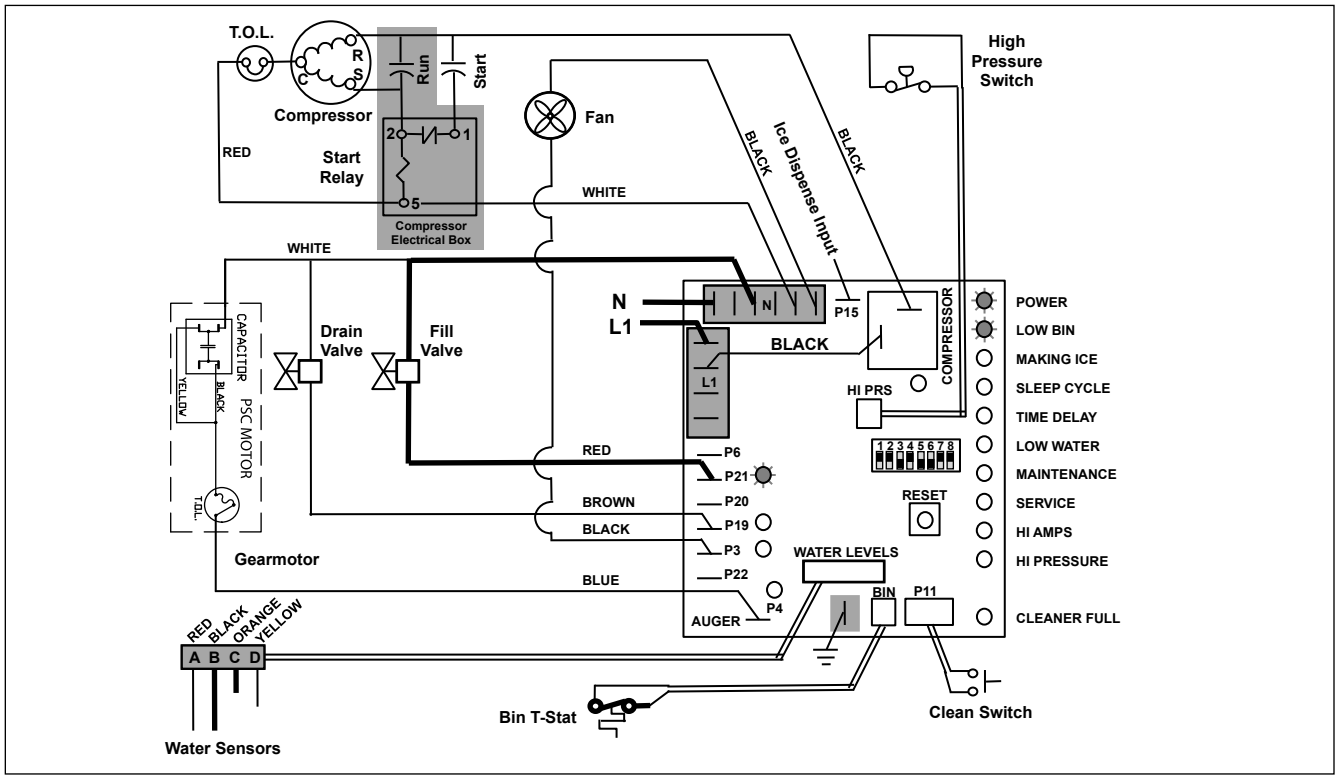
Circuitry notes

When the ice machine is used with a dispenser it receives power from the main power supply. Disconnect the power source before performing service. When performing electrical service, always use a meter to determine whether or not the components being serviced are energized.

- High pressure cutout opens at 425 PSIG (2930.3 kPA) and closes at 287 PSIG (1978.8 kPA)(auto reset).
- The bin signal input to the control board in the 414A ice machine must only be initiated by contact closure. Do not supply power. To run the ice machine in the workshop, use the bin signal jumper (P/N 01069095).

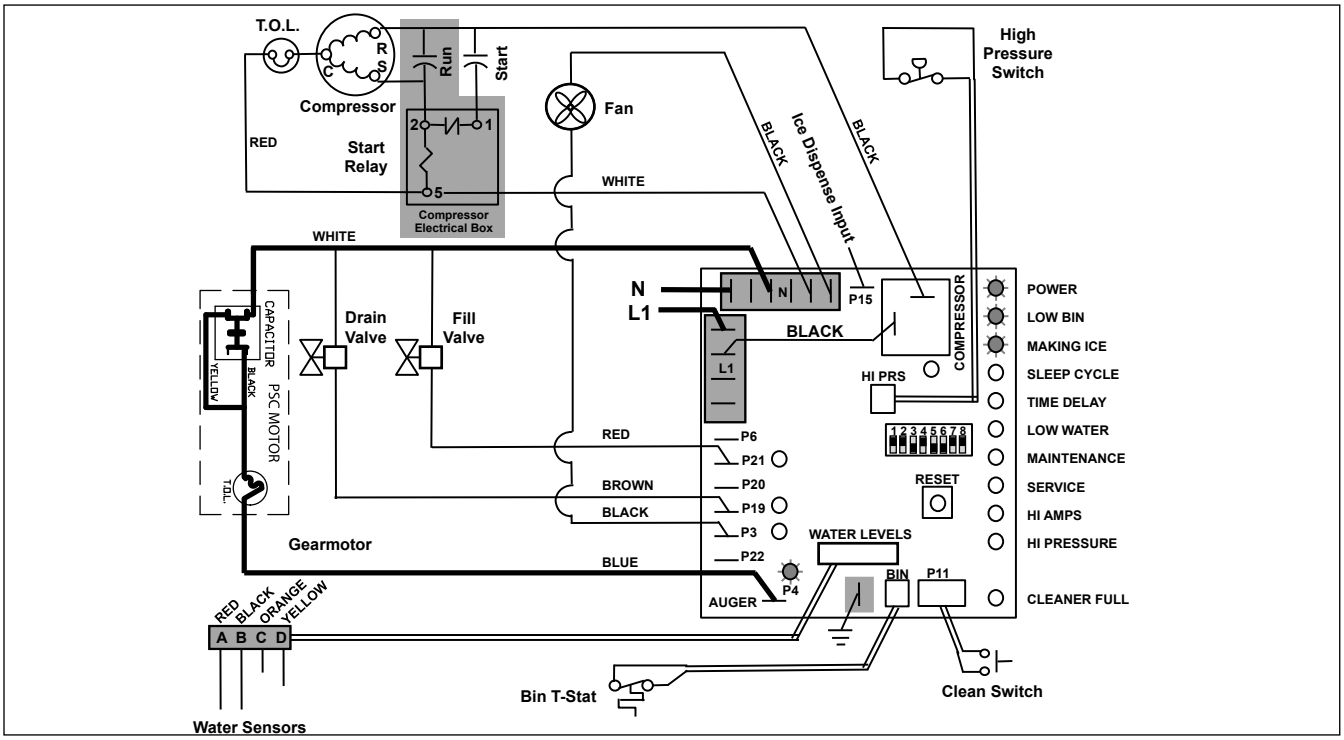
Normal operation – Stage 1 - 230V 50 Hz

Power is supplied to L1 of the control board, the **POWER** LED light begins flashing. The ice level bin thermostat in the dispenser is closed and calling for ice, supplying contact closure to the control board. The **LOW BIN** LED will be on. The control board will now go through the start-up sequence. The board checks the water sensors (located in the reservoir) for continuity between the common probe (B) and the high probe (C). If continuity is not sensed, the water fill valve (P21) is energized.



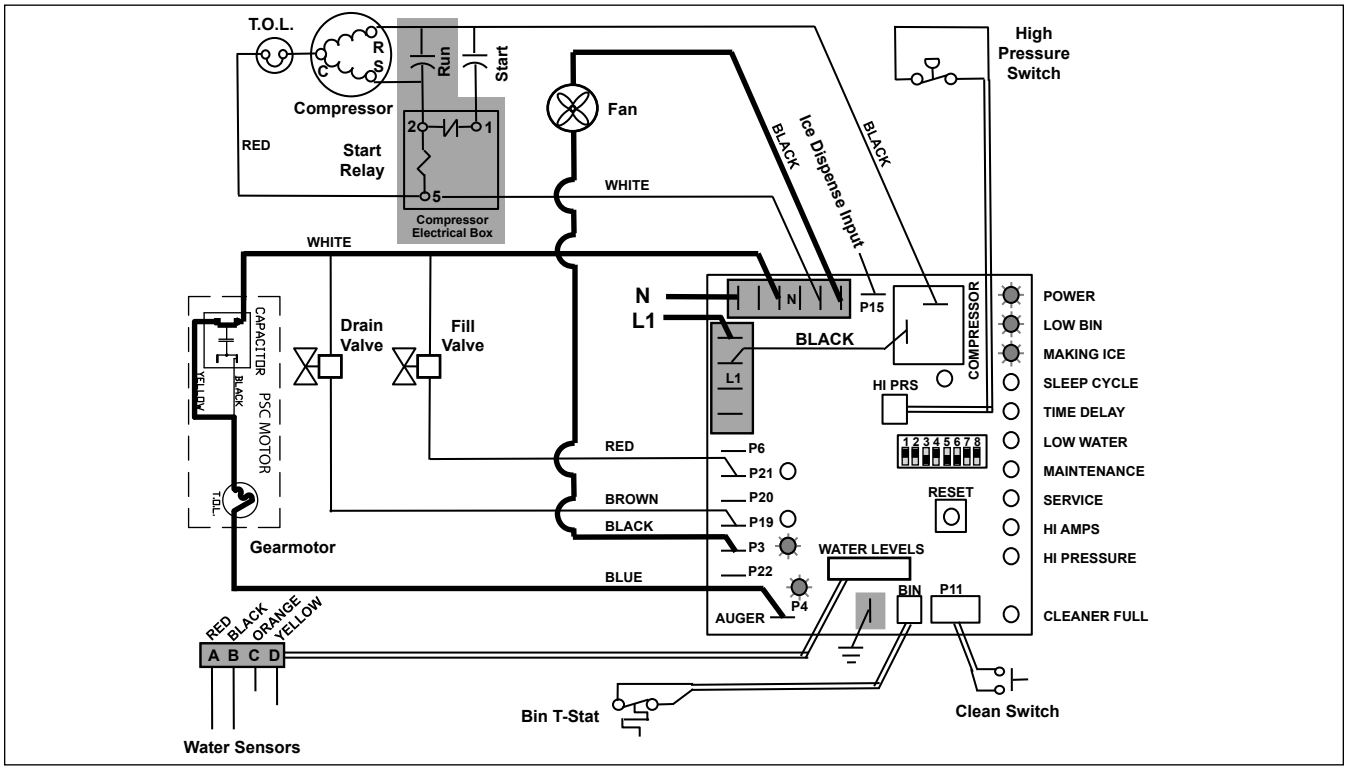
Normal operation – Stage 2

When continuity is seen between B and C, the water valve de-energizes, the AUGER output (P4) comes on along with the **MAKING ICE** LED. The auger gearmotor's start windings are energized through a run capacitor that is pulled in by the initial high current draw of the gearmotor.



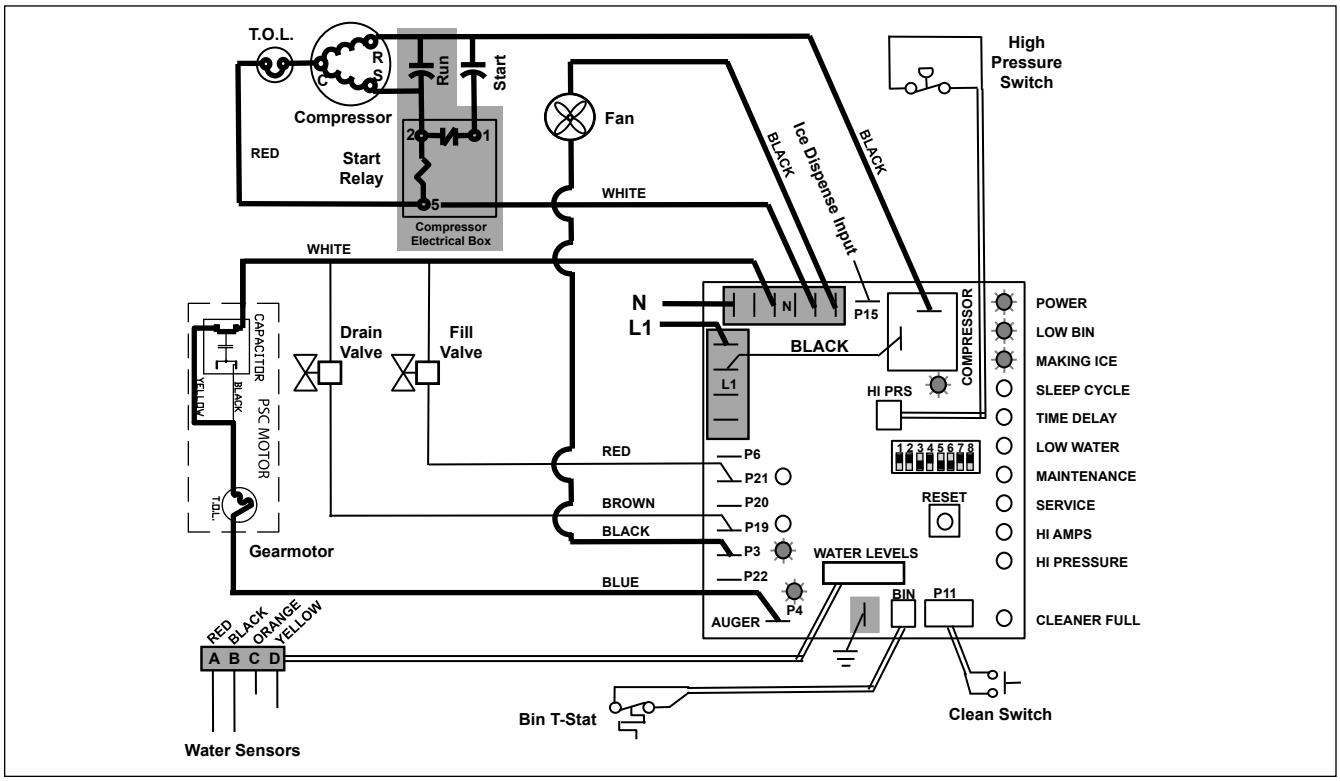
Normal operation – Stage 3

After the initial high current draw drops off, the gearmotor start start windings stay energized. The condenser fan output (P3) comes on 0.5 seconds later.



Normal operation – Stage 4

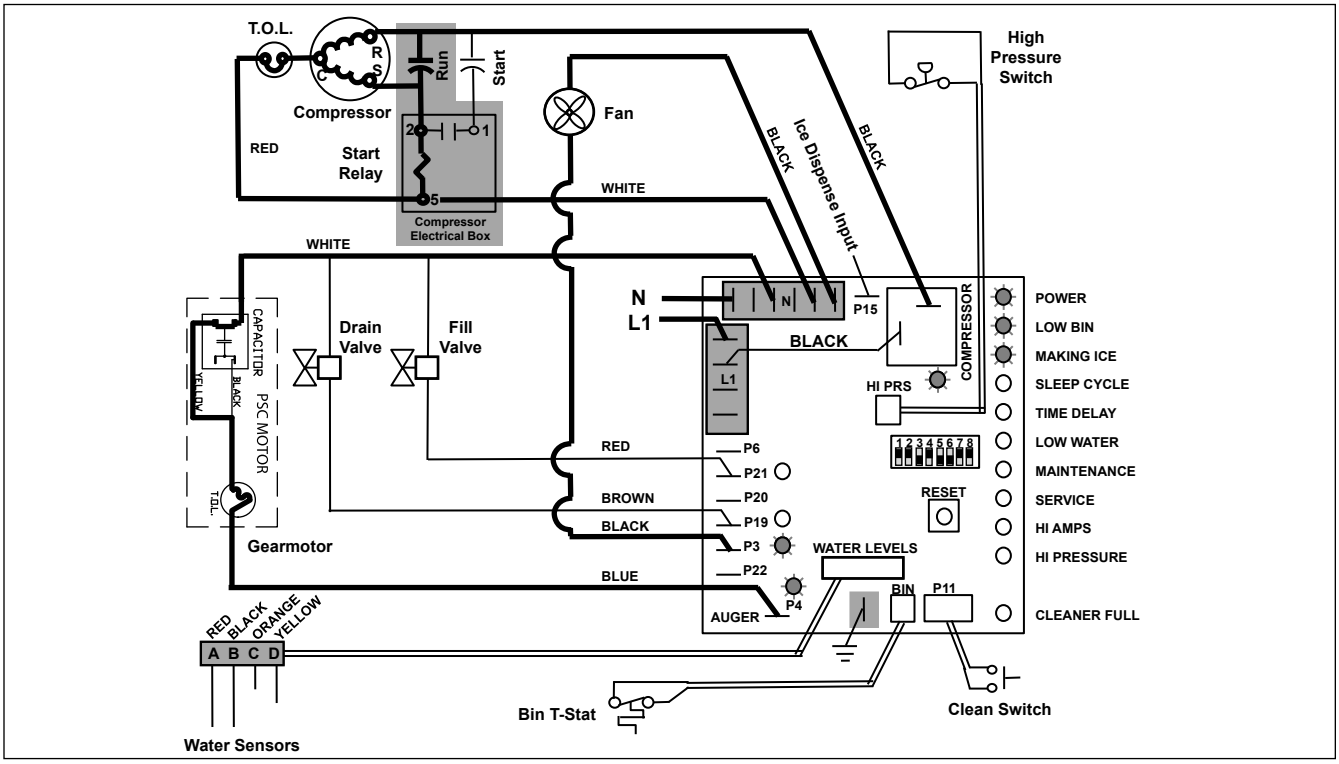
One second (1 s) after the fan comes on, the **COMPRESSOR** output comes on. The compressor circuit uses both run and start capacitors along with a potential start relay. The start capacitor in energized through the normally closed contacts of the start relay.



Normal operation – Stage 5

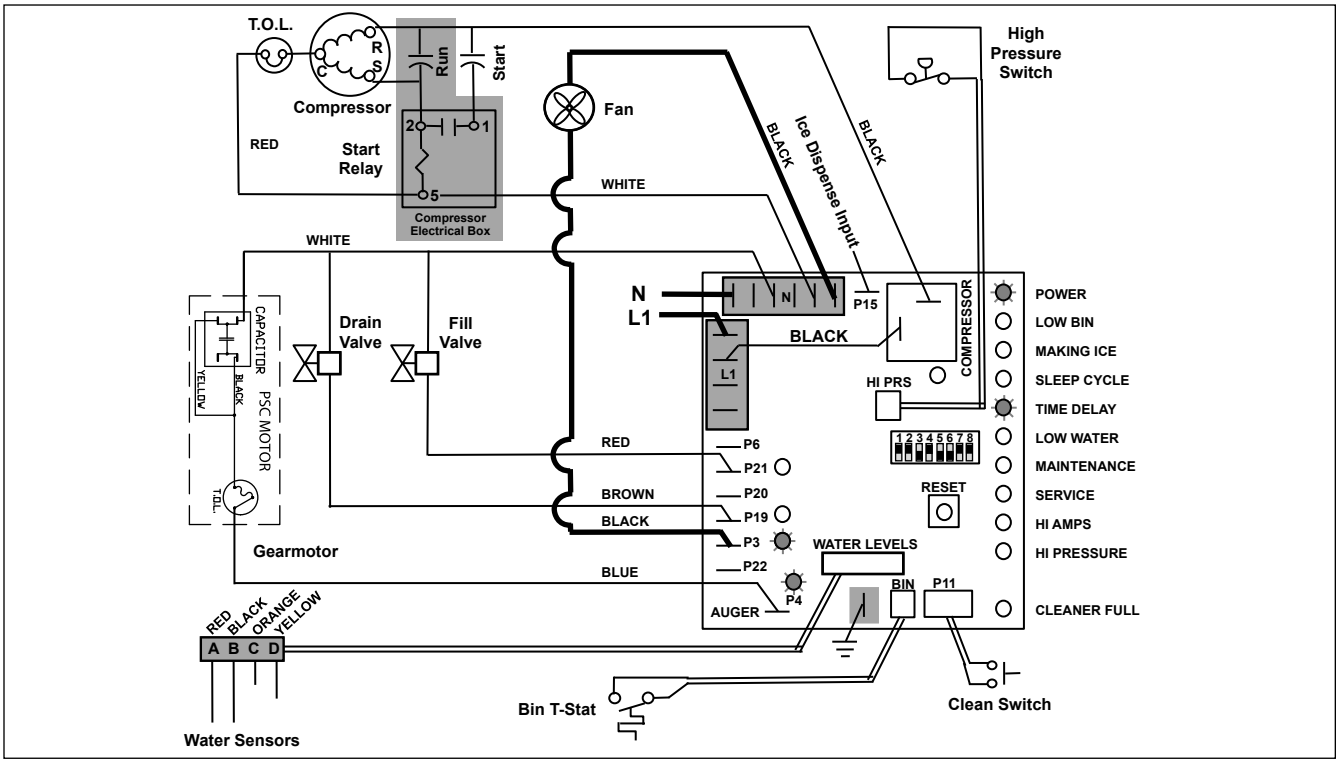
As the compressor comes up to normal running speed, its start winding generates a voltage potential across the relay's coil. This energizes the coil to open the contact and drop out the start capacitor.

The ice machine is now in a normal ice making mode. The ice machine will produce ice until the bin level control in the ice dispenser is satisfied.



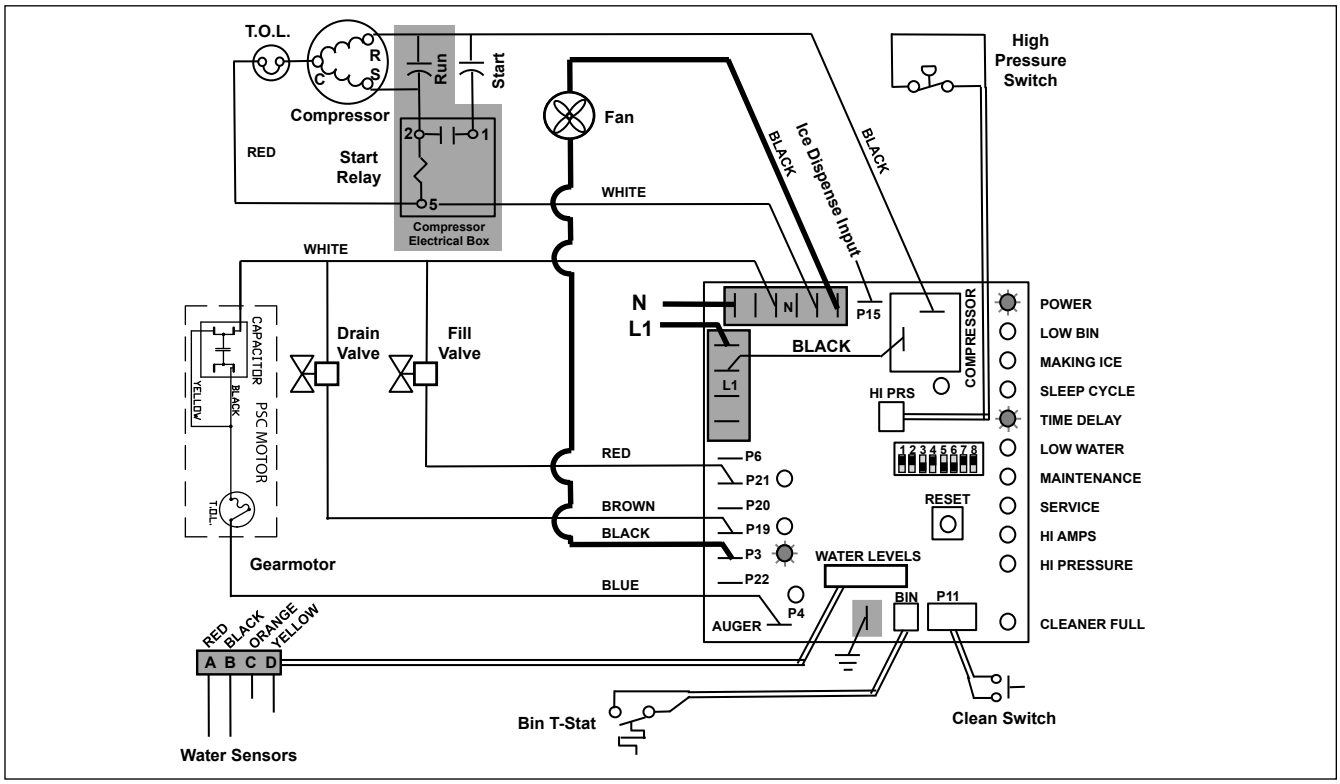
Normal operation – Stage 6

Once the bin thermostat control opens, the **LOW BIN** LED goes out. The compressor and gear motor outputs turn off, the **MAKING ICE** LED goes out and the **TIME DELAY** LED comes on. .



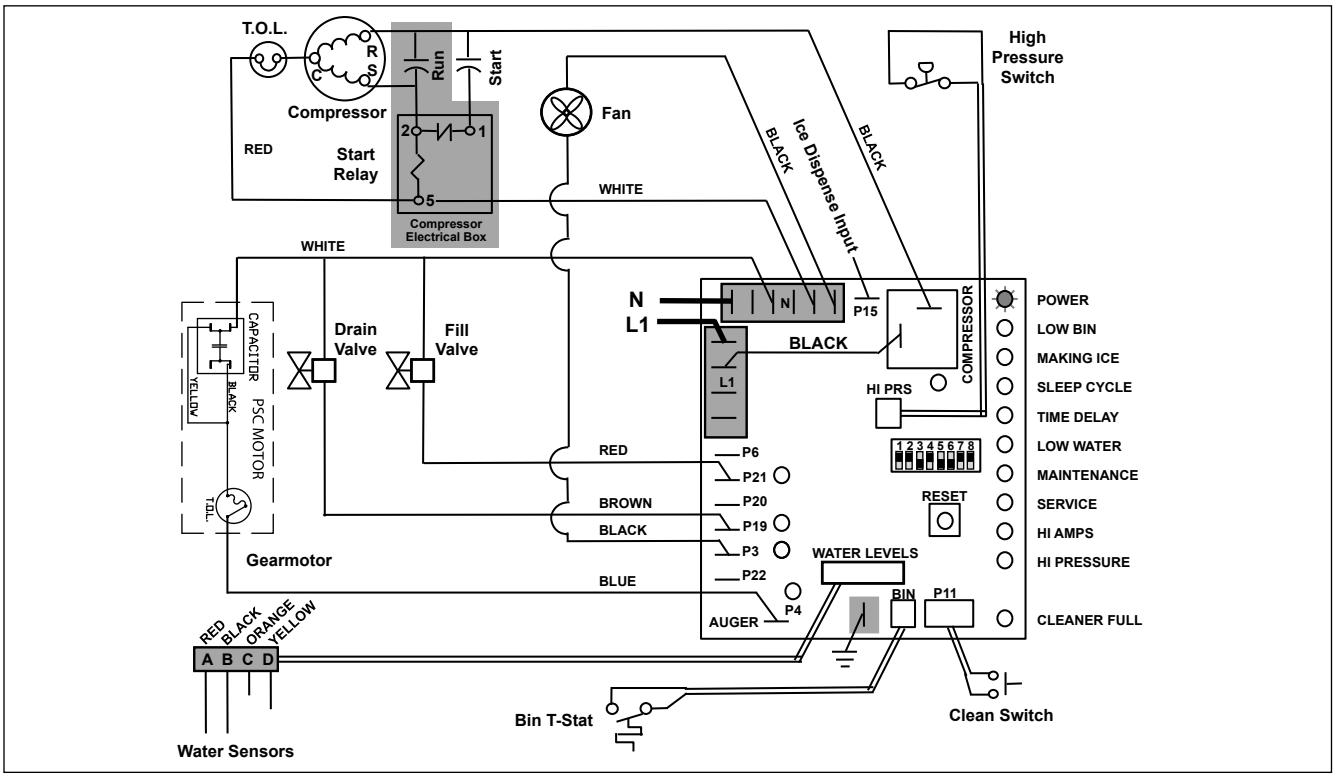
Normal operation – Stage 7

The fan motor continues for 10 minutes before shutting off. The **TIME DELAY** LED remains on for 20 minutes. The ice machine will not start while the **TIME DELAY** LED is on. To restart the ice machine for troubleshooting purposes, depress the reset button to clear the control board.



Normal operation – Stage 8

When the dwell time of 20 minutes has expired, the **TIME DELAY** LED goes off. If 5 seconds of ice has been dispensed and the **SLEEP CYCLE** LED is off, the ice machine will go through the normal start-up sequence when the bin level control signals the control board for ice.

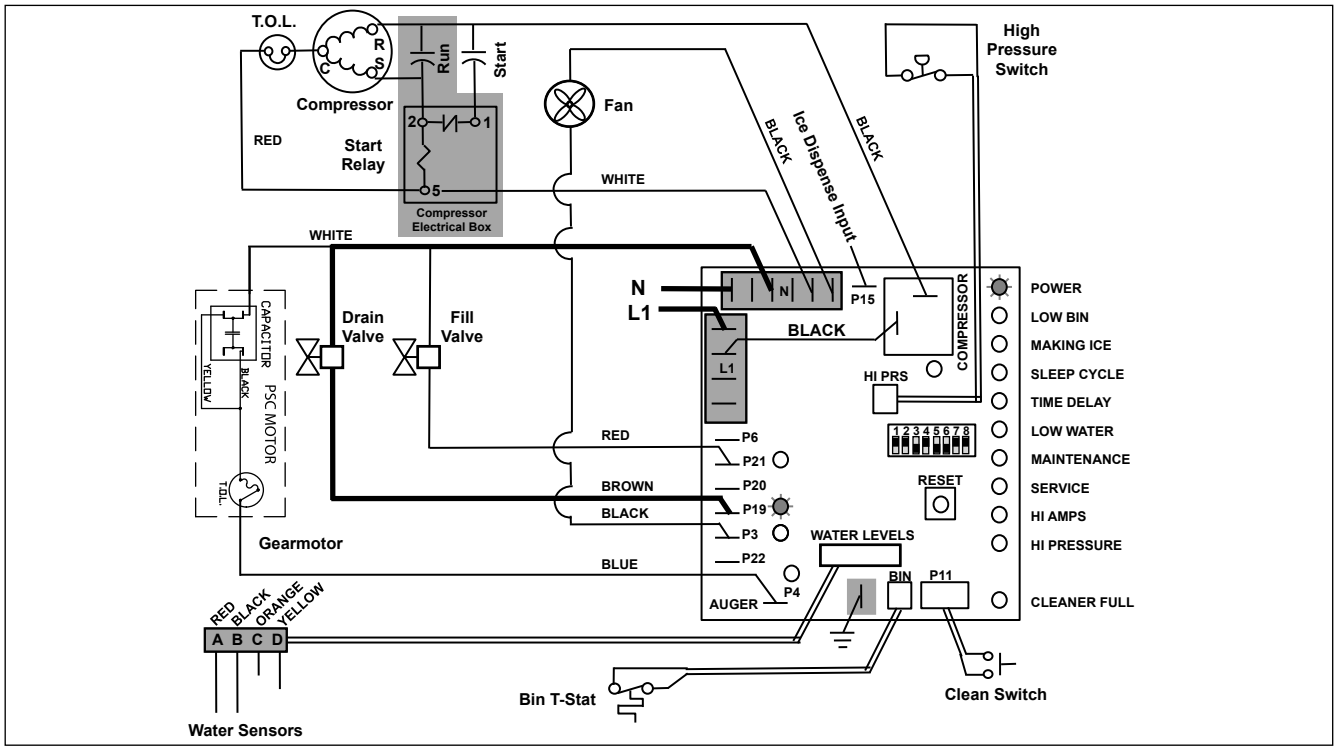


Quiet Night/Sleep cycle

The board monitors ice dispensing through a line voltage input to P15. If the ice dispense has not be initiated for more than 5 seconds during the 20 minute time delay, the **SLEEP CYCLE** LED comes on. The machine will stay off for 12 hours unless 5 seconds of dispensing is seen. After 12 hours, the **SLEEP CYCLE** LED goes out and the ice making will resume if the bin thermostat is closed. The sleep cycle dispense duration is adjustable using the DIP switches on the control board.

Self-flushing

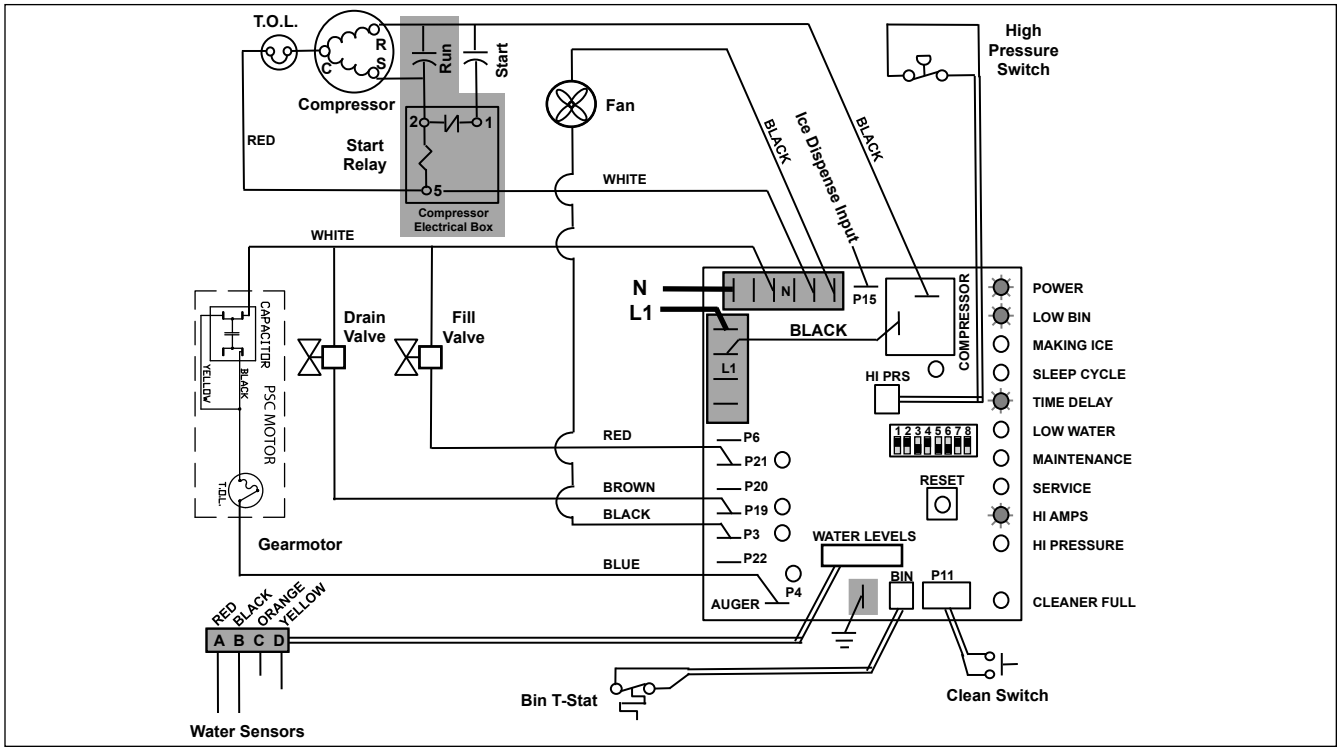
At the completion of the 20 minute time delay, the machine checks for a cumulative one hour of ice making time since the last off-cycle flush. If the cumulative ice making time exceeds one hour, the machine will energize the drain valve P19 for 60 seconds to drain the evaporator. It will then refill with water, flush again, refill and begin making ice if the **LOW BIN** LED is on. If the ice making time is less than 1 hour, the machine will start and begin making ice without draining the evaporator.



Diagnostic Stages

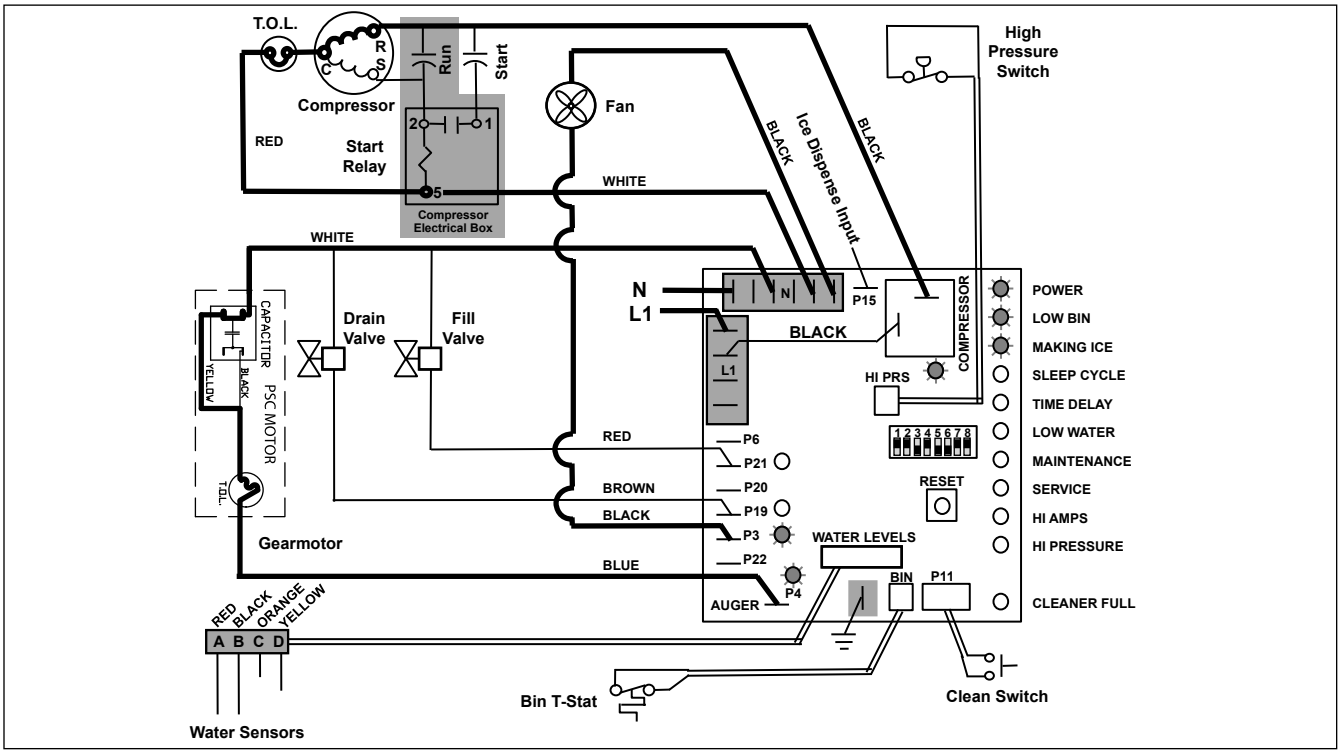
High gearmotor amps – Stage 1

The **HI AMPS** error and **TIME DELAY** LEDs are on indicating that the control board has sensed an over-torque condition at the P4 terminal (more than 1.8A from the gearmotor) or no current draw (0A) and shut the ice machine down (strike one). The **HI AMPS** and **TIME DELAY** LEDs will remain on for 60 minutes after an over-torque condition has occurred. The ice machine will remain off as long as these two LEDs are on. After the 60 minute time delay, these LED lights turn off, and the control board will try to go through a normal start-up sequence.



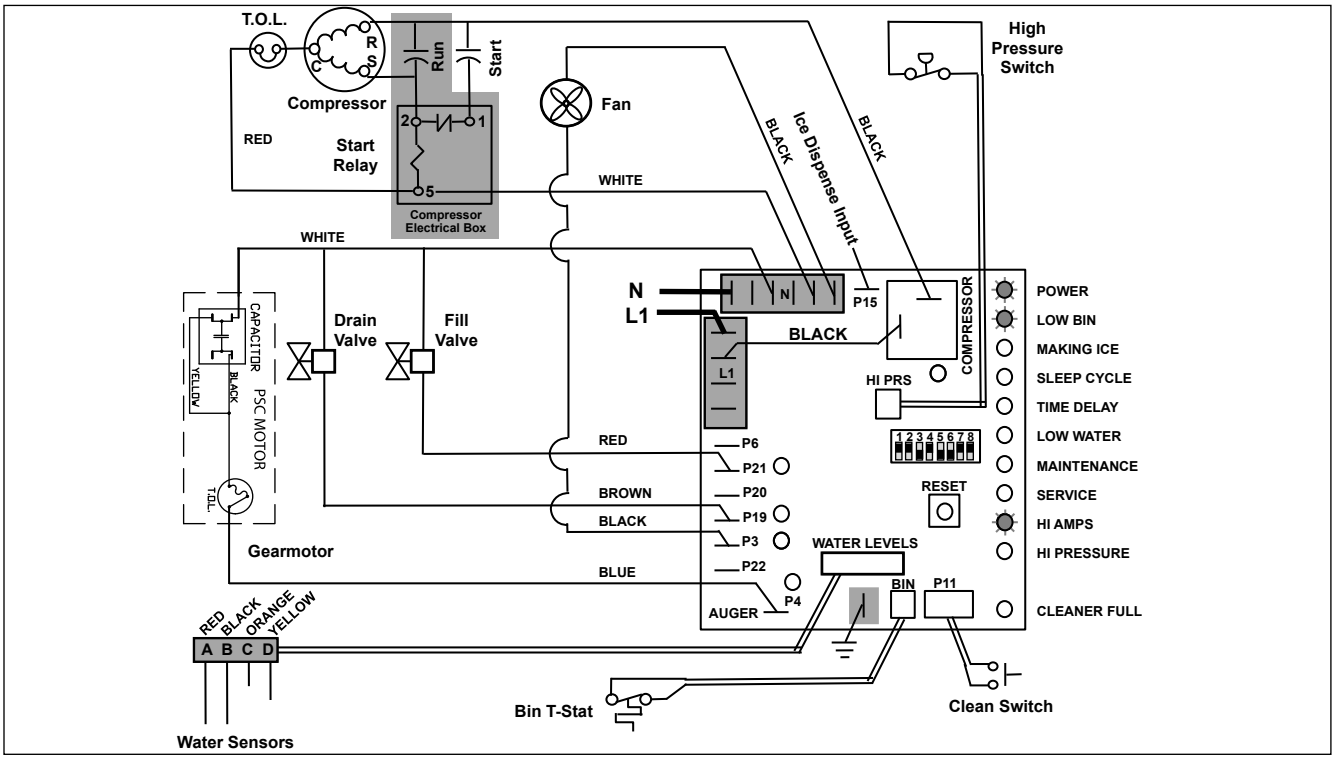
High gearmotor amps – Stage 2

If the restart is successful the board will continue to monitor the current draw on P4 for 60 minutes looking for a second high amps (above 1.8A) or no current draw (0A) occurrence. If the ice machine runs without problems for 60 minutes and no additional torque errors occur, the ice machine will continue normal operation.



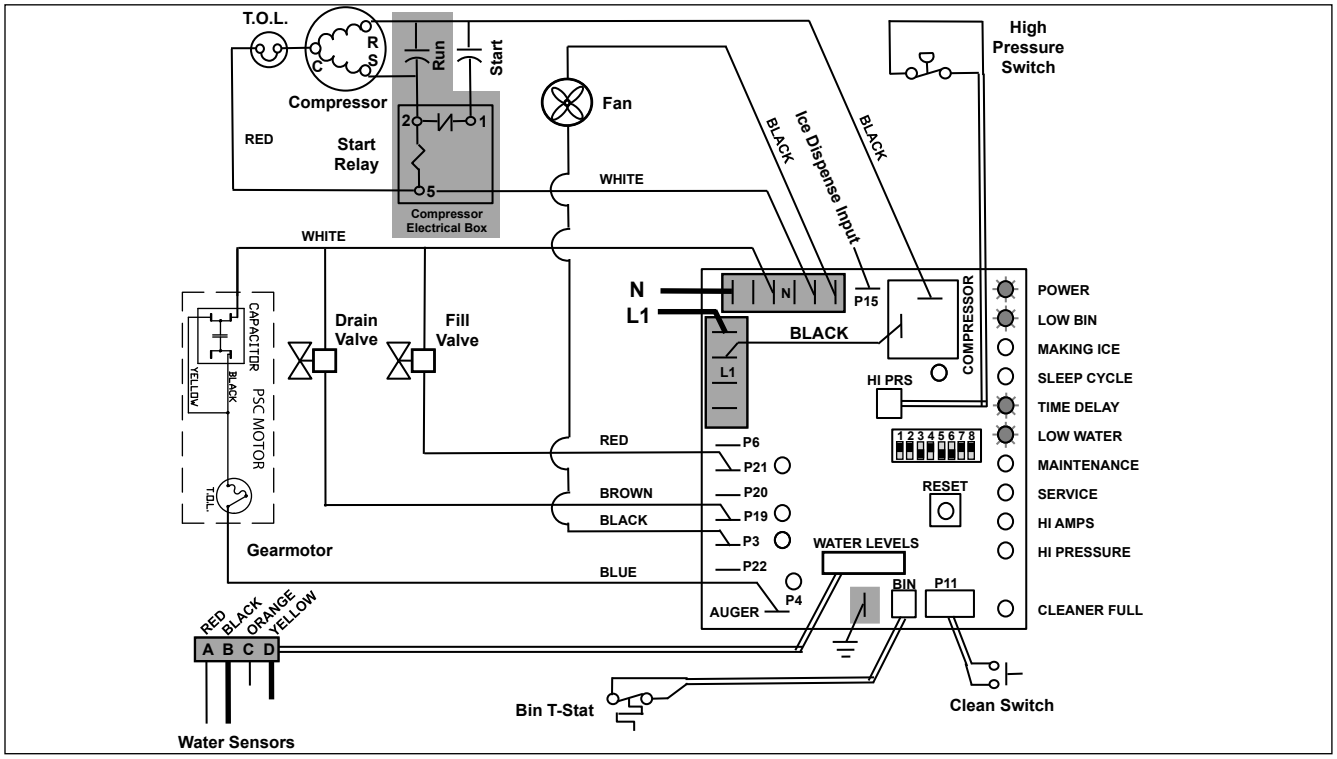
High gearmotor amps – Stage 3

If a second occurrence happens during the 60 minute monitoring period, the **HI AMPS** LED will come on again and shut the machine down (strike two). The **HI AMPS** LED (wihout the **TIME DELAY** LED) will indicate to the technician that two consecutive over-torque situations have occurred. The ice machine is shut down at this time and locked out. It will not restart unless the manual reset button is depressed while power is on.



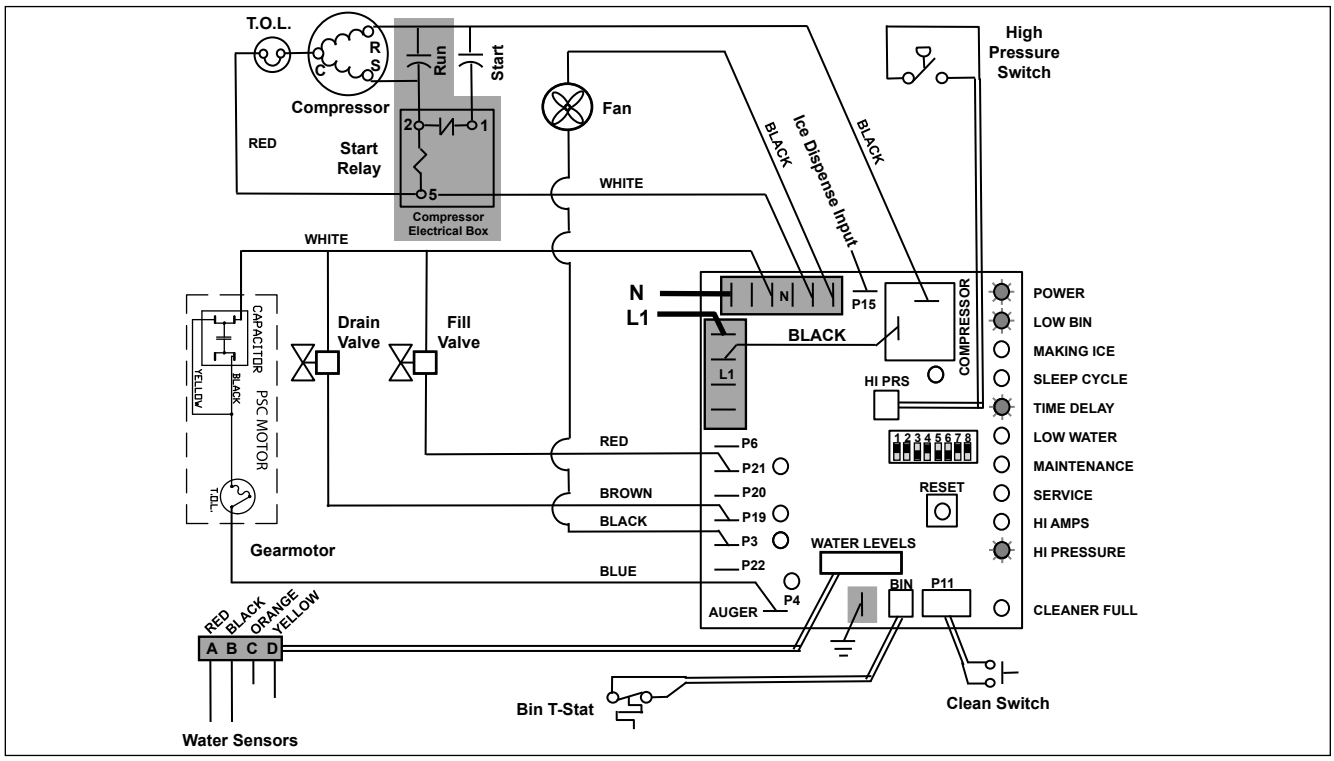
Loss of water

During operation, the water level cycles between the normal low (D) and normal high (C) water probes - the fill valve (P21) cycling on and off. If continuity is not detected between the common probe (B) and normal low (D) within 10 seconds, the **LOW WATER** and **TIME DELAY** LEDs will come on and the machine will shut down for the one hour time delay period. After the time delay, the fill valve will re-energize and wait for continuity between the common probe and normal high before restarting. **LOW WATER** LED will remain ON until the water level is satisfied.



High refrigerant pressure

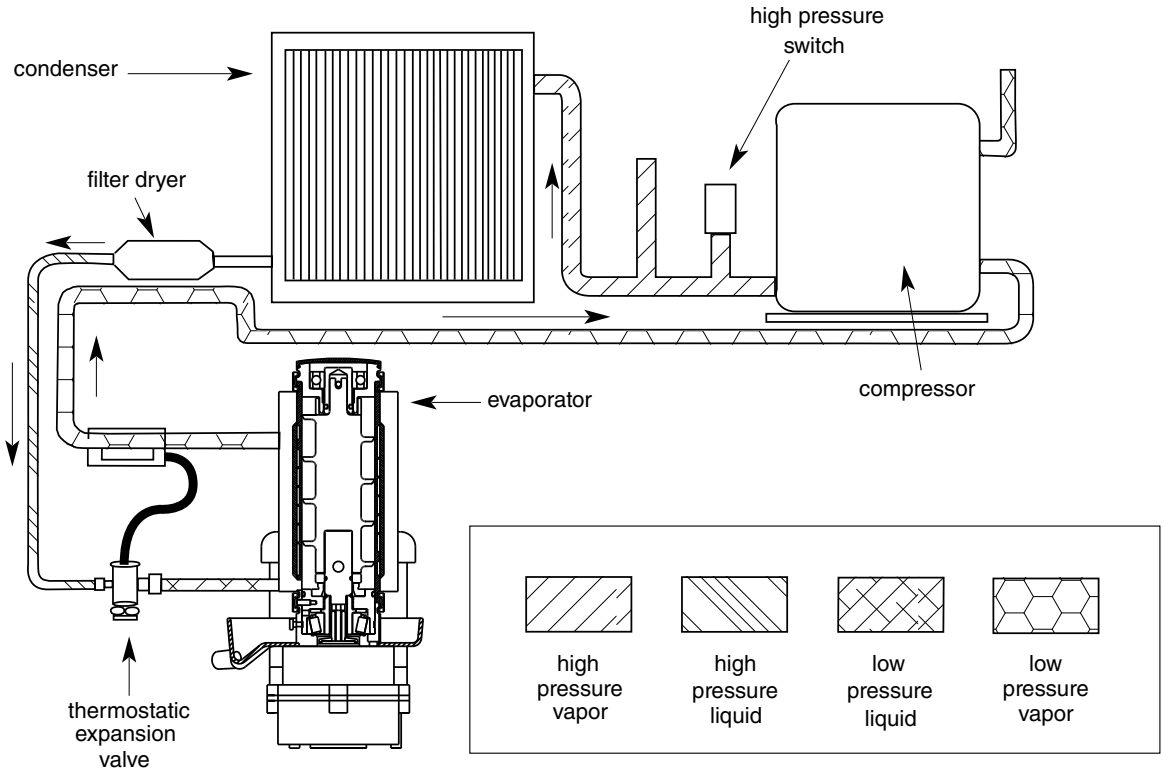
Should the refrigeration pressure rise above 425 PSIG (2930.3 kPA), the high pressure switch contacts will open. The board sees the open circuit and the **HIGH PRESSURE** and **TIME DELAY** LEDs will come on, the machine shuts down. After the one hour time delay, the machine will attempt to restart. If the pressure has fallen below the reset point of 295 PSIG (2034.0 kPA) and the board see the contacts closed, the machine will resume normal operation. If the contacts are still open after the restart, the board will again go into **HIGH PRESSURE** and **TIME DELAY**, cycling until contact closure is seen.



Refrigeration system (all models)

All service on refrigeration systems must be performed in accordance with all federal, state and local laws. It is the responsibility of the technician to ensure that these requirements are met. Recharging ice machine to other than factory specifications will void the warranty.

Refrigeration system diagram



Air-Cooled ice machine capacity/24hrs. - 230 V/50 Hz (R290 refrigerant)

Ambient Air Temperature F/C

Inlet Water Temperature F/C							
	F	**60**	**70**	**80**	**90**	**100**	
	C	**16**	**21**	**27**	**32**	**38**	
	50	460	425	390	355	320	lbs.
	10	208	193	177	161	145	kg.
	60	437.5	405	372.5	340	307.5	lbs.
	16	198	184	169	154	139	kg.
	70	415	385	355	325	295	lbs.
	21	188	175	161	147	134	kg.
	80	405	375	345	315	285	lbs.
	27	184	170	156	142	129	kg.
	90	395	365	335	305	275	lbs.
	32	179	166	152	138	125	kg.

Note: Nominal values - actual production may vary by ±10%.

Refrigeration system

Important: All service on refrigeration system must be performed in accordance with all federal, state and local laws that pertain to the use of refrigerants. It is the responsibility of the technician to ensure that these requirements are met.

R414 ice machine charge specifications

Model	Charge	Refrigerant type
E414 230 V, 50 Hz air-cooled	3.5 oz (100 grams)	R290

Refrigerant replacement requirements

1. Non-contaminated refrigerant removed from any Follett refrigeration system can be recycled and returned to the same system after completing repairs. Recycled refrigerant must be stored in a clean, approved storage container. If additional refrigerant is required, virgin or reclaimed refrigerant that meets AHRI standard 700-2016 must be used.
2. In the event of system contamination (for example, a compressor burn out, refrigerant leak, presence of non-condensibles or moisture), the system must be repaired, evacuated and recharged using virgin or reclaimed refrigerant that meets AHRI standard 700-2016.
3. Follett LLC does not approve of recovered refrigerants. Improper refrigeration servicing procedures will void the factory warranty.

Evacuation

Evacuate the system to a level of 500 microns. When the 500 micron level is reached, close valves and both manifold and shut down the vacuum pump. Allow the system to sit for approximately 20 minutes. During this period the system pressure should not rise. If the system pressure rises and stabilizes there is moisture in the system and further evacuation is needed. If the pressure continues to rise check the system for leaks.

Ice capacity test

Ice machine production capacity can only be determined by weighing ice produced in a specific time period.

Replace all panels on ice machine.

1. Run ice machine for at least 15 minutes.
2. Weigh and record weight of container used to catch ice.
3. Catch ice for 15 or 20 minutes.
4. Weigh harvested ice and record total weight.
5. Subtract weight of container from total weight.
6. Convert fractions of pounds to decimal equivalents (ex. 6 lb 8 oz. = 6.5 lb).
7. Calculate production using following formula:

$$\frac{\text{1440 min. x wt. of ice produced}}{\text{Total test time in minutes}} = \text{Production capacity/24 hr. period}$$

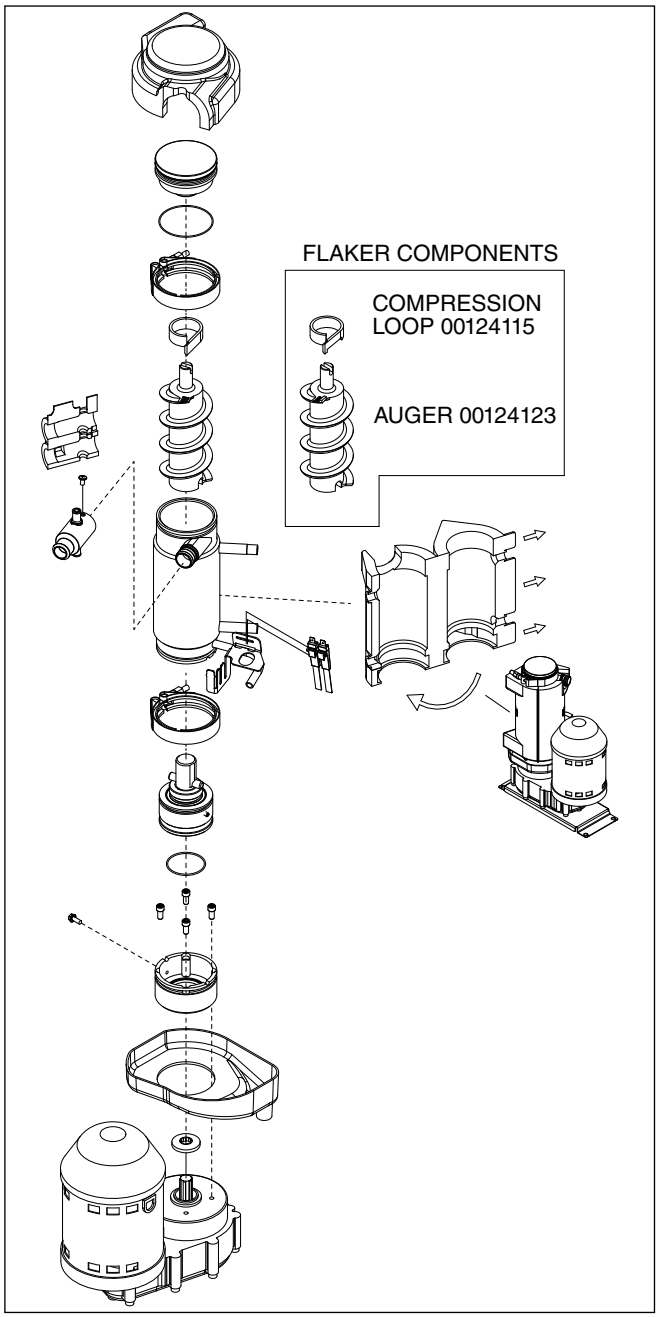
8. Calculated amount per 24 hours should be checked against rated capacity for same ambient and water temperatures in Ice Production Tables.

Evaporator disassembly

Note: The upper bearing, lower bearing and auger assemblies must be replaced as assemblies. The bottom and top bearing assemblies cannot be field assembled to factory specifications.

1. Press CLEAN switch.
2. Wait for LOW WATER light to illuminate.
3. Turn OFF power.
4. Remove top bearing insulation and compression nozzle insulation.
5. Disconnect vent and drain tube from nozzle.
6. Disconnect compression nozzle from evaporator.
7. Disconnect evaporator water feed line.
8. Remove nut and upper vee band coupling from top of evaporator.
9. Lift top bearing assembly straight up with a slight rotating motion and remove.
10. Remove ice compression loop located at top of auger.
11. Lift auger straight up and out of evaporator.
12. Remove nut and lower vee band coupling from bottom of evaporator.
13. Lift evaporator to clear bottom bearing assembly.
14. Loosen hex head bolt in side of mounting base with 5/16 wrench and lift lower bearing assembly.
15. Remove condensate shield.
16. Remove 4 Allen head machine screws holding mounting base to gearbox.

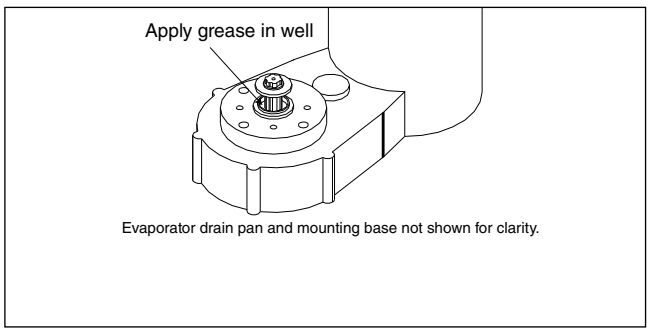
Fig. 3



Evaporator reassembly

1. Clean gearmotor boss, output shaft and shaft well.
2. Install drain pan and evaporator mounting base.
3. Fill gear motor shaft well with food grade grease **(Fig. 4)**.
4. Install condensate shield and seat against gear motor boss.
5. Install bearing O ring in groove in evaporator mounting base.

Fig. 4



6. Lower bottom bearing assembly into evaporator mounting base.
7. *While maintaining firm downward pressure on bottom bearing assembly*, tighten hex head bolt with a 5/16 wrench.
8. Position evaporator over lower bearing assembly and align grooves with pins in bearing assembly.
9. Install vee band clamp and nut to 70 in/lb. **(Fig. 5)**.
   Note: Clamp **must be oriented as shown** in order for the insulation to be placed properly.
10. Place auger in center of evaporator and rotate to mate with drive pin.
11. Install ice compression loop, orienting loop.
12. Install upper bearing and seal assembly, rotating bearing to slip pin into auger slot.
13. Install upper vee band clamp and nut to 70 in/lb.
14. Install evaporator insulation.
15. Install compression nozzle and tubing.
16. Secure ice transport tube with clamp **(Fig. 6.1)**.
    Note: Clamp **must be oriented as shown** in order for the insulation to be placed properly.
17. Install compression nozzle insulation **(Fig. 6.2)**.
18. Install vent and drain tube **(Fig. 6.3)**.
19. Install top bearing insulation **(Fig. 6.4)**.

Gearmotor replacement

1. Disassemble evaporator.
2. Disconnect the wire connectors.
3. Remove 4 screws holding gear motor mounting plate to base of ice machine and lift gearbox and motor clear of ice machine.
4. Remove machine screws holding mounting plate to motor.
5. Install new motor in reverse order.

Fig. 5

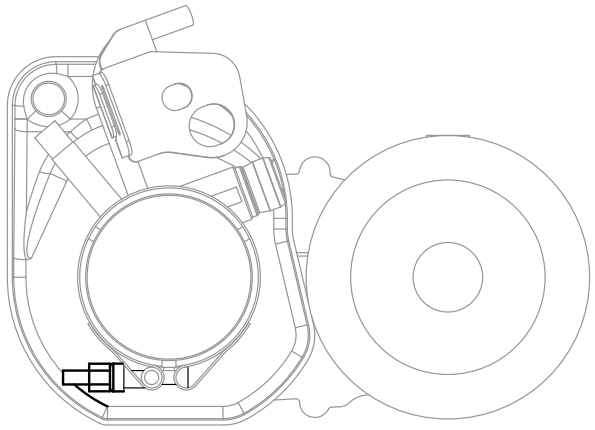
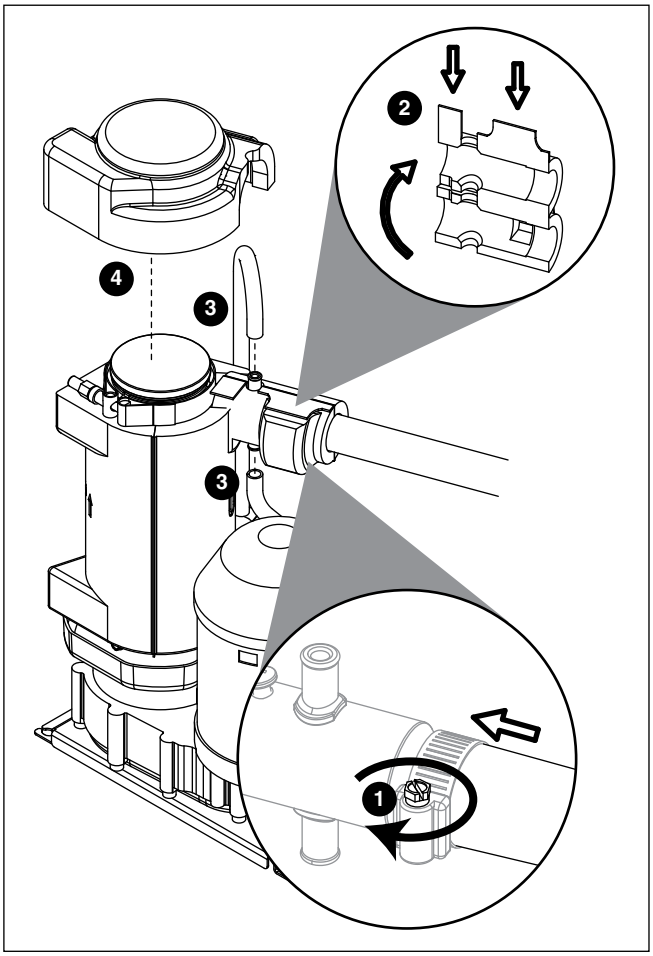
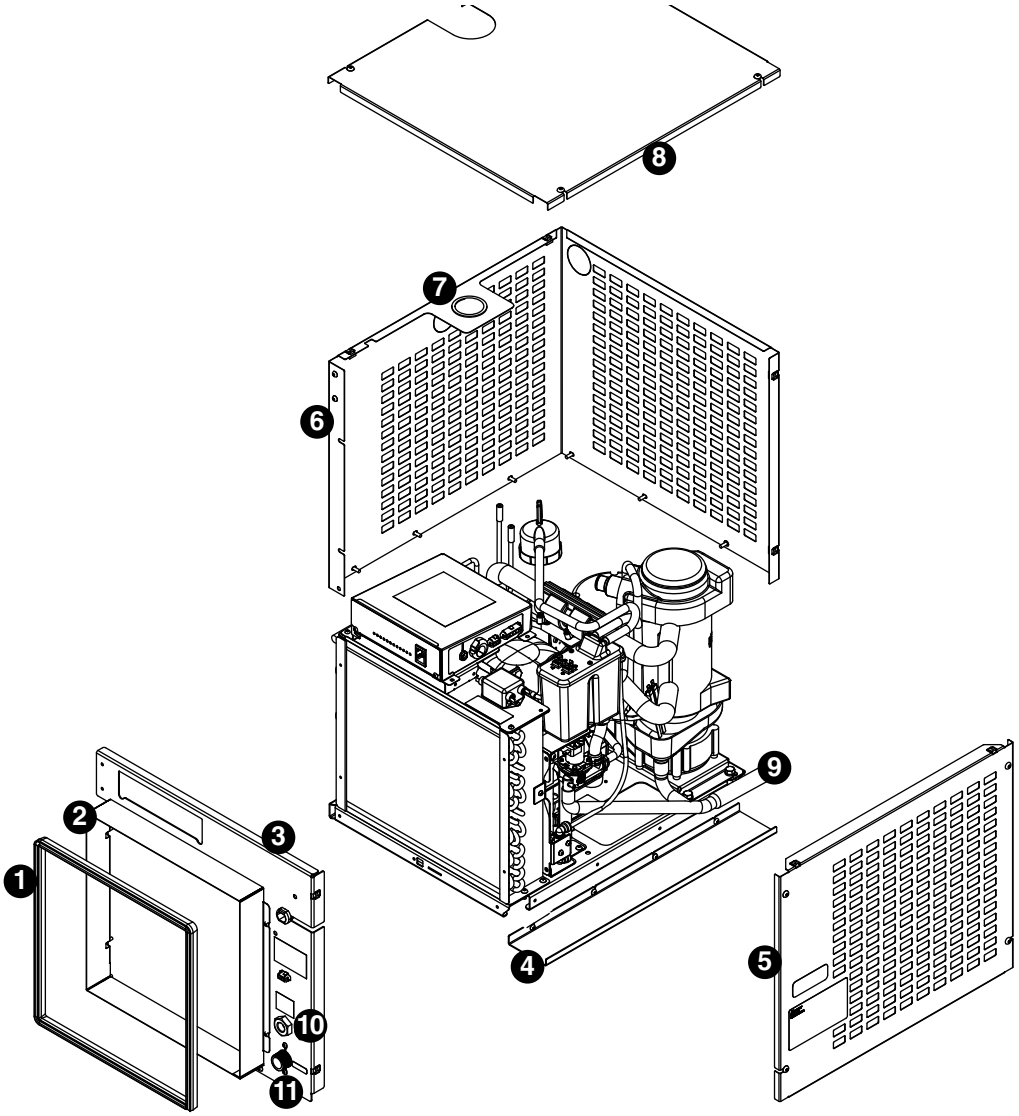


Fig. 6



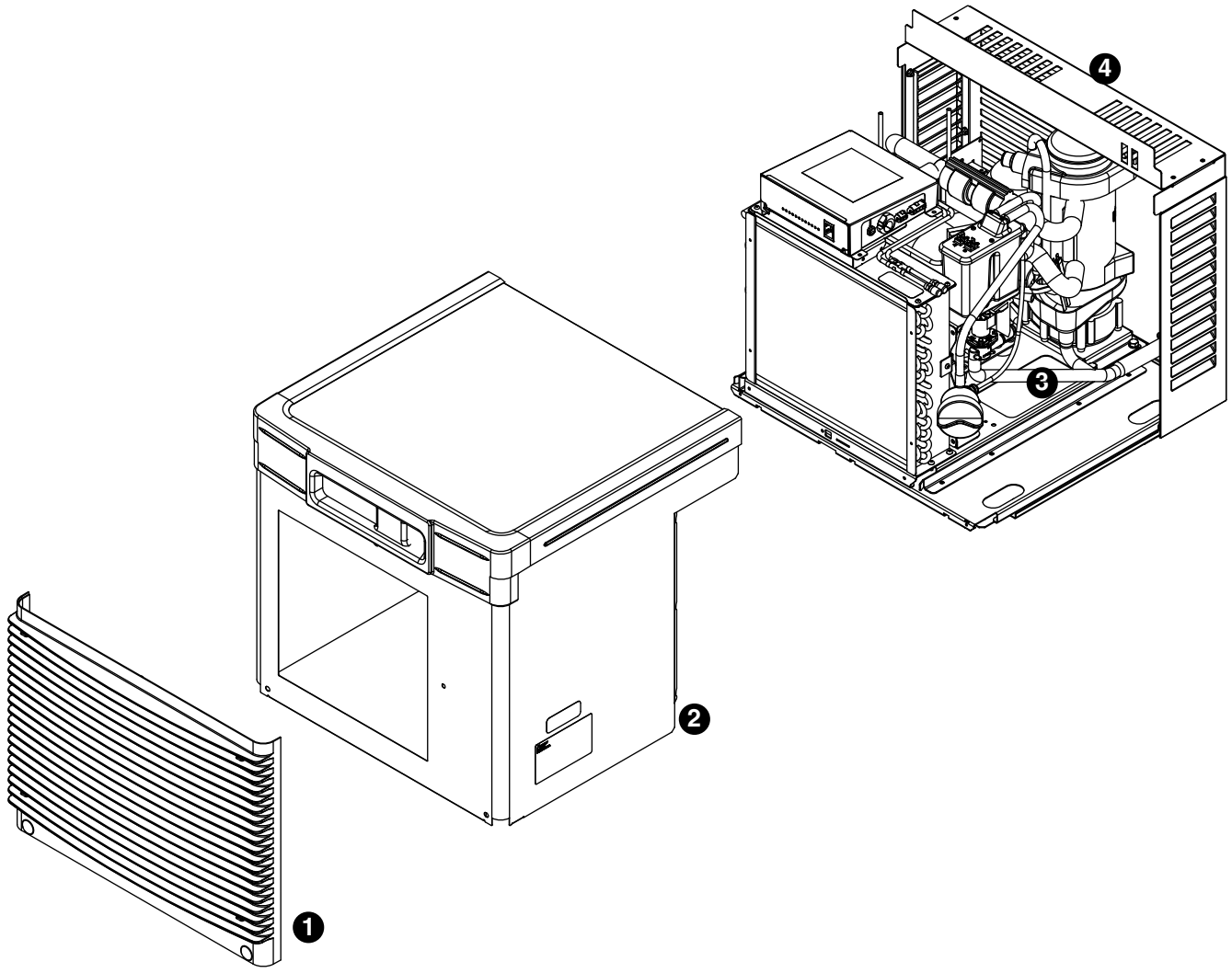
Replacement parts

Air-cooled skins assembly (MCE414A_S)



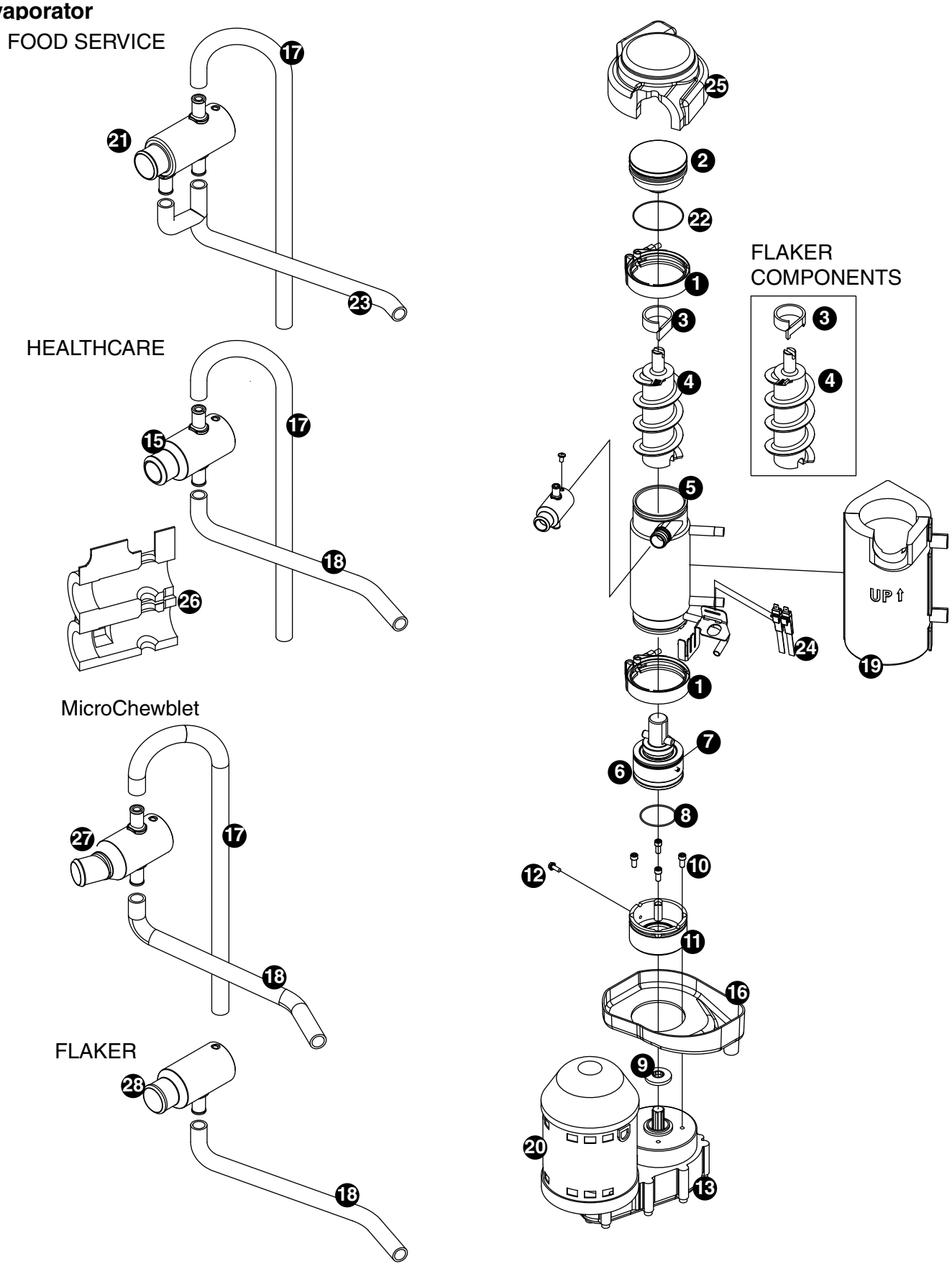
Reference #	Description	Part #
1	Gasket, duct	502781
2	Duct (including gasket)	01068188
3	Front panel	01068204
4	Spacer, base	01068220
5	Panel, right side	01068238
6	Panel, left side and rear (1 piece)	01068246
7	Bushing	01026152
8	Panel, top	01068253
9	Tube, drain	01016948
10	Fitting, water	01065275
11	Fitting, drain	00109728
Not shown	Power, cord	01111673
Not shown	Tubing, ice transport (per foot)	01148642
Not shown	Insulation, ice tube (per foot)	501176

Louvered docking station (MCE414A_T)



Reference #	Description	Part #
1	Louver, front	01006154
2	Cover, front	01068279
3	Tube, drain	01055185
4	Louvered docking station	01068287
Not shown	Power, cord	01111673

Evaporator


FOOD SERVICE
HEALTHCARE
MicroChewblet
FLAKER
FLAKER COMPONENTS
UP ⇧

Evaporator

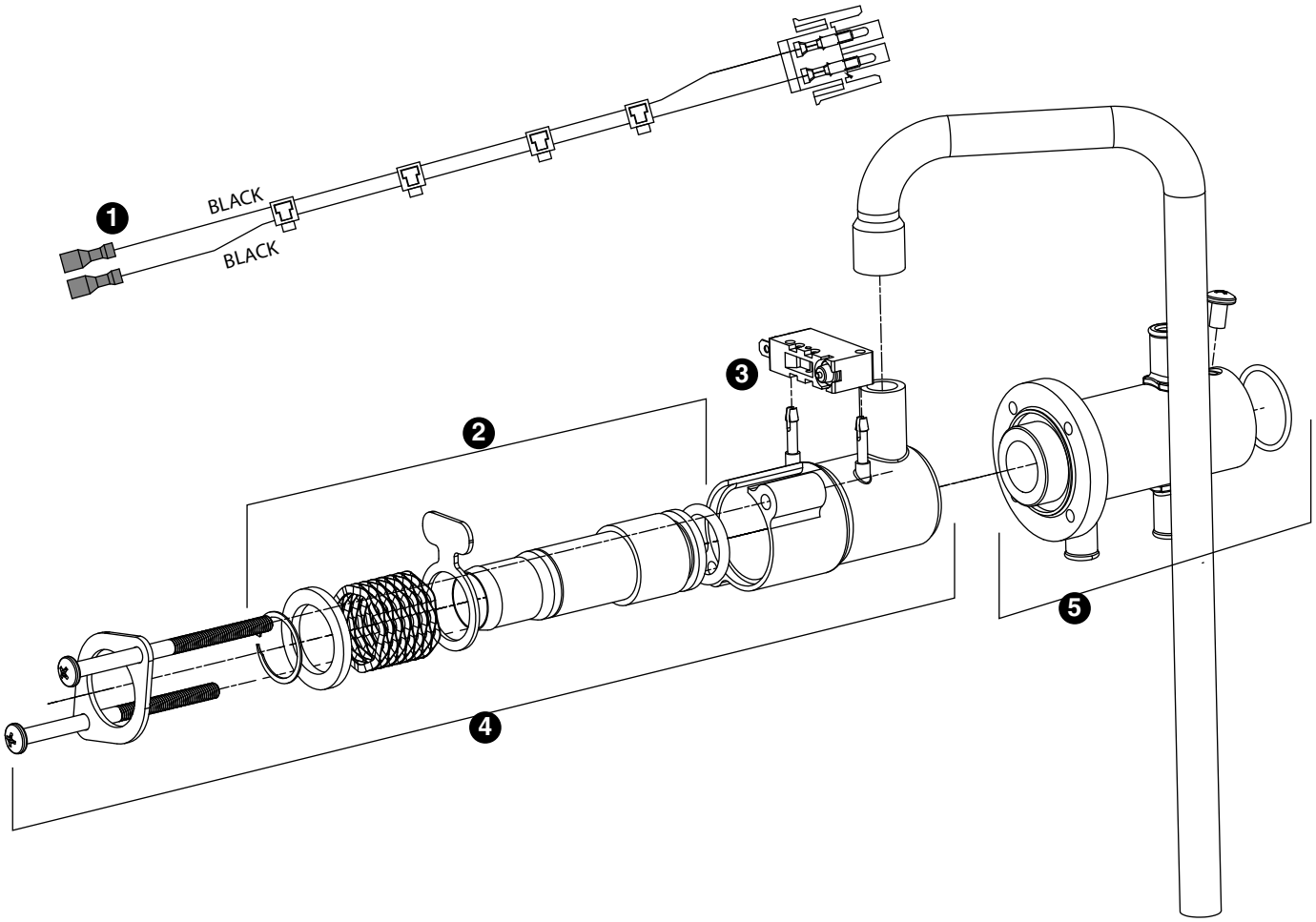
Reference #	Description	Part #
1	Coupling, vee band, includes nut	502735
2	Bearing assembly, top	502736
3	Loop, ice compression, beveled (see below for Flaker-specific components)	502110
4	Auger (see below for Flaker-specific components)	502737
5	Evaporator (includes insulation jacket, 502740)	01064658
6	O ring, bearing housing	500496
7	Bearing assembly, bottom (includes O rings and condensate shield)	502738
8	O ring, mounting base	501063
9	Shield, condensate	500744
10	Screw, Allen 1/4 20 x 1/2 (set of 4)	501080
11	Mounting base, evap. (includes 501063)	502733
12	Bolt, mounting base	502227
13	Gearbox & motor	502832
Not shown	Mounting base, gearbox	01067693
15	Compression nozzle, with single drain	01064674
16	Drain pan, evaporator	00181990
17	Tube, compression nozzle vent	01148691
18	Tube, compression nozzle, single drain	01148675
Not shown	Grease, Chevron SRI-2, 14 oz	501111
19	Insulation jacket, evaporator	01049592
20	Capacitor, gearmotor, 230 V	01543537
21	Nozzle, compression, dual drain	01067446
22	O ring, top bearing	01064963
23	Tube, compression nozzle, dual drain	01148683
24	Sensor, overflow	01039783
25	Insulation, top bearing	01049600
26	Insulation, compression nozzle, single drain	01049584
27	Nozzle, compression, MicroChewblet	01148543

Flaker-specific components

Reference #	Description	Part #
3	Loop, compression, notched	00124115
4	Auger (with paddle)	00124123
29	Compression nozzle, flaker	01067453
18	Tube, compression nozzle, single drain	01148675

Shuttle Assembly

Standard on MCE414AHS, MCE414AVS, MME414ABS, MCE414AJS, MCE414ABS, MME414AJS Models only



Evaporator

Reference #	Description	Part #
1	Cable, bin signal, shuttle	01374222
2	Cartridge assembly, shuttle spring	01118033
3	Switch, shuttle	01006261
4	Switch, spring and cartridge assembly	01374230
5	Shuttle nozzle assembly	01374214
Not Shown	Complete shuttle assembly	01374404

Replacement ice machine ordering matrix

Dispenser models	Replacement ice machine model
Dispensers with RIDE ice machines	
All EU150/VU155 series with air-cooled ice machines (230 V)	MC_414AVS
All EVU300 series with air-cooled ice machines (230 V)	MC_414AVS
Freestanding dispensers with ice machines in the base	
E110FB414A	EP414A
E110FB414W	EP414W
Chewblet ice machine on top of bin	
MC_414ABT	MC_414ABT*
MC_414WBT	MC_414WBT*
Chewblet ice machine RIDE fill drop-in bin	
MC_414AJS	MC_414AJS
MC_414WJS	MC_414WJS
Flake ice machine on top of bin	
MFE414ABT	MFE414ABT*
MFE414WBT	MFE414WBT*
Dispensers with integral ice machines	
E25CI414A (230 V)	EP414A
E50CI414A (230 V)	EP414W
MicroChewblet ice machine on top of bin	
MM_414ABT	MM_414ABT*
MM_414WBT	MM_414WBT*
MicroChewblet ice machine RIDE fill bin	
MM_414ABS	MM_414ABS
MM_414WBS	MM_414WBS
MicroChewblet ice machine RIDE fill drop-in bin	
MM_414AJS	MM_414AJS
MM_414WJS	MM_414WJS

* New bin top required when replacing Maestro 400 top-mount machines.

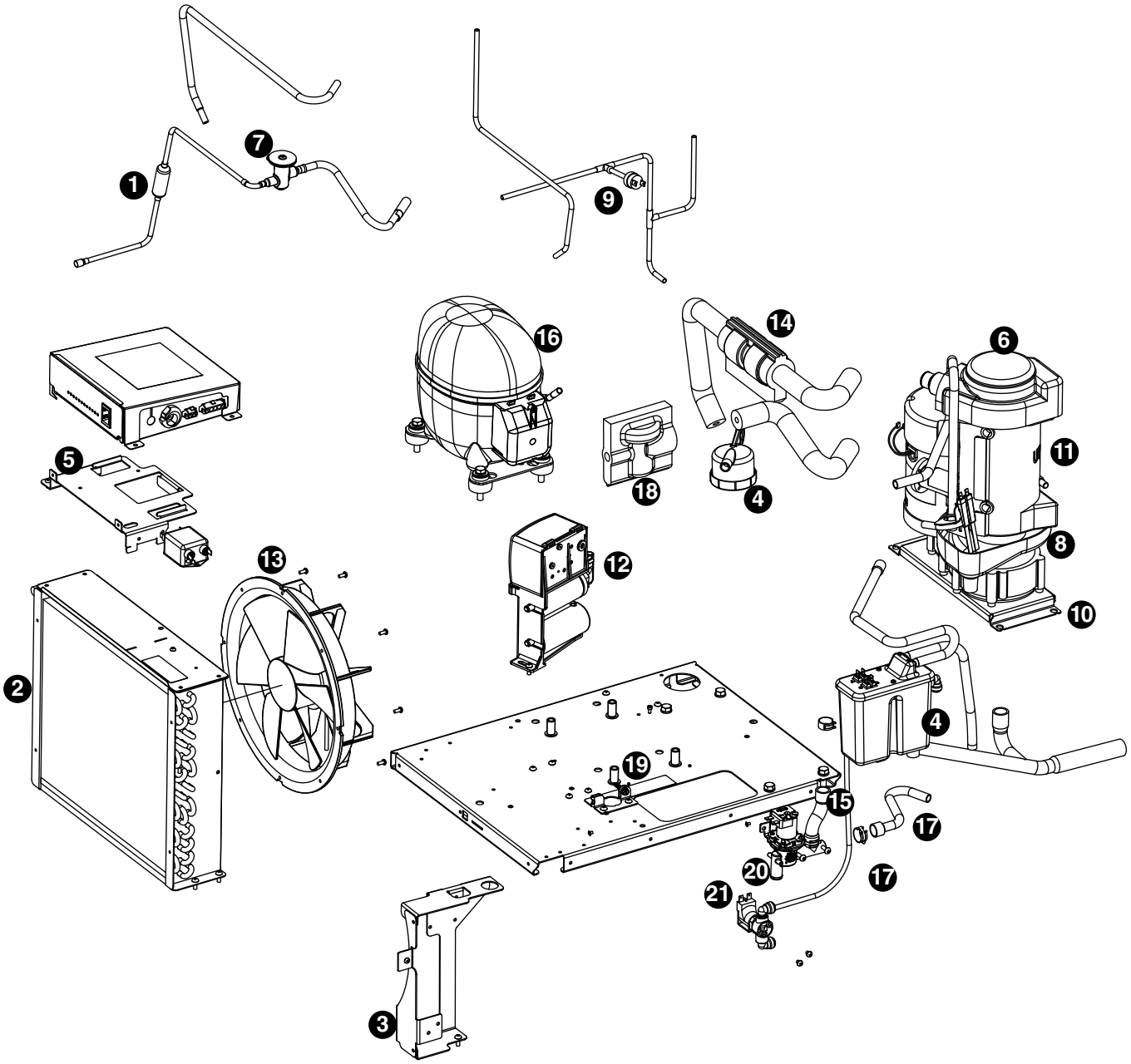
Ice machine cleaner/descaler

01149954	SafeClean Plus liquid, case of 6
01149962	SafeClean Plus liquid, case of 24
00131524	Sponge, sanitary, each

Miscellaneous

501111	Grease, Mobile FM 222, 14 oz tube
500377	Clamp, ice tube
501425	Grille
01075431	Sponge, sanitary, pack of 24

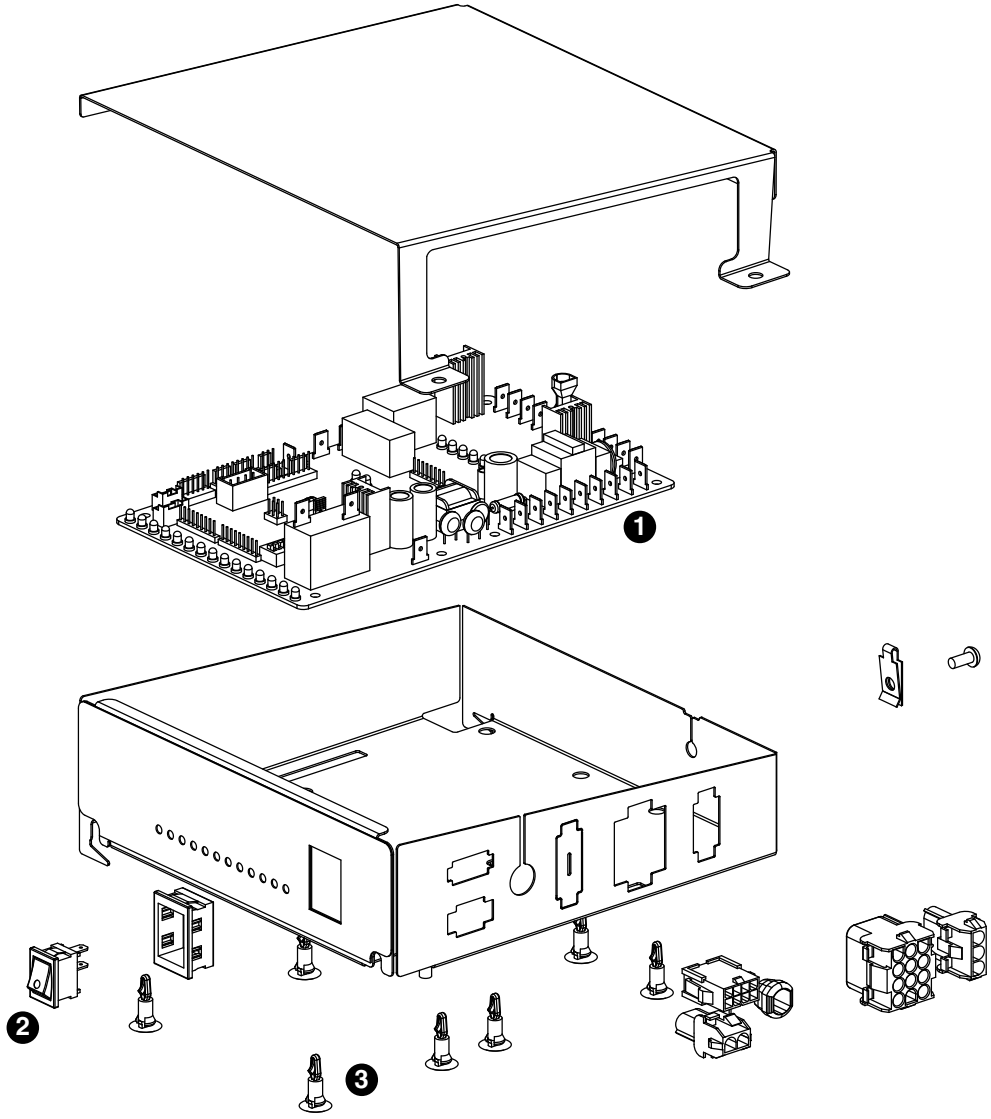
Air-cooled ice machines - 230 V 50 Hz



Air-cooled ice machines - 230 V 50 Hz

Reference #	Description	Part #
1	Drier	01468750
2	Condenser coil, A/C	01468776
3	Reservoir mounting bracket	01375609
4	Reservoir (includes lid, gasket, fasteners, clean and vent tubing, cleaning cup)	01230622
5	Bracket, electrical box	01068170
6	Evaporator (see page 34 and 35 for complete breakdown)	—
Not shown	Tubing, polypropylene, reservoir supply (sold by foot)	502079
7	Valve, expansion, thermal	01468768
8	Drain pan, evaporator	00181990
9	High pressure cutout	00117077
10	Mounting bracket, gearbox	01067693
11	Gearbox & motor, 230 V, 50 Hz (includes 307192)	502832
12	Capacitor and end cap, compressor overload, run capacitor, and start relay	01471606
13	Fan blade, bracket and motor 230 V, 50 Hz	01325725
14	Jacket, insulation, TXV bulb	00106534
15	Clamp, hose (each)	01281450
16	Compressor, 230 V, 50 Hz	01468792
17	Tube, fill/purge - reservoir-solenoid-evaporator feed (includes 3 hose clamps)	01261544
Not shown	Water inlet fitting, brass	01065275
Not shown	Fitting, reservoir, plastic 1/4" stem x 1/4" push-in	00121699
18	Jacket, insulation, TXV	01165604
19	Bracket, ice tube entry	01067644
20	Solenoid, purge	01261528
21	Solenoid, fill	01398981
Not shown	Tube, drain, MCE414AxT	01055185
Not shown	Tube, drain, MCE414AxS	01016948
Not shown	Tube, ice transport, MCE414AxT	01003532
Not shown	Gasket, reservoir	01148766
Not shown	Valve, check, 1/4"	01122381
Not shown	7 μF capacitor, gear motor 230 V	01543529

Electrical components



Reference #	Description	Part #
1	Board, control circuit, 230 V, 50 Hz and 220 V, 60 Hz	01111657
2	Switch, clean	01229418
3	Stand offs, board (8 required)	00903005
Not shown	Bin thermostat (MCE414ABT, MCE414AHT, MFE414ABT and MFE414AHT only)	500514
Not shown	Relay, bin signal (power to contact closure)	01020734
Not shown	Jumper, bin signal	01069095
Not shown	Power, cord	01111673

Water treatment accessories for Symphony ice and water dispensers

Reference #	Description	Part #
Standard capacity filter system		
Not shown	Follett QC4-FL4S water filter system (includes FL4S primary cartridge and head, coarse pre-filter and head, pressure gauge, flushing valve; assembled and installed on mounting bracket), one per ice machine	00130229
Not shown	Follett FL4S primary replacement cartridge	00130245
Not shown	Water filter cartridge – primary, carton of 6	00954297
Not shown	Everpure coarse pre-filter cartridge	00130211
Not shown	Water pre-filter cartridge – pre-filter, carton of 12	00954305
High capacity filter system		
Not shown	High capacity water filter system (one per ice machine)	00978957
Not shown	High capacity water filter cartridge – primary, single	00978965
Not shown	High capacity water filter cartridge – primary, carton of 6	00978973
Not shown	Water pre-filter cartridge – pre-filter, single	00130211
Not shown	Water pre-filter cartridge – pre-filter, carton of 12	00954305
Carbonless high capacity filter system		
Not shown	Carbonless high capacity water filter system (one per ice machine) – Horizon™ and MaestroPlus series ice machines	01050442
Not shown	Carbonless high capacity water filter cartridge – primary, single	01050426
Not shown	Carbonless high capacity water filter cartridge – primary, carton of 6	01050434
Not shown	Water pre-filter cartridge – pre-filter, single	00130211
Not shown	Water pre-filter cartridge – pre-filter, carton of 12	00954305
Other filtration		
Not shown	Claris hardness removal filtration system	00986059
Not shown	Replacement filter for Claris system	00985127
Not shown	Reverse osmosis system, 200 gallons per day	00986034
Not shown	Replacement reverse osmosis cartridge	00985085
Not shown	Replacement reverse osmosis pre-filter	00985077
Not shown	Cleaning plug for reverse osmosis system	00985119
Not shown	Cleaning cartridge for reverse osmosis system	00985101
Water pressure		
Not shown	Water pressure regulator (25 PSIG)	501781

Reference #	Description	Part #
Not shown	Kit, integration, universal Ride - MCC/MCE414	01151943
Not shown	Kit, integration, Vision (transport tube **not** included)	01067156
Not shown	Kit, integration, Drop-in	01140110

Warranty Registration and Equipment Evaluation

Thank you for purchasing Follett® equipment. Our goal is to deliver high value products and services that earn your complete satisfaction by delivering high-value products and services backed by outstanding customer and technical support.

Please review the installation instructions thoroughly. It is important that the installation be performed to factory specifications so your equipment operates at its maximum efficiency.

Follett LLC will not be liable for any consequential damages, expenses, connecting or disconnecting charges, or any losses resulting from a defect of the machine. For full warranty details, visit our website www.follettice.com/productwarranties.

Registering your equipments helps Follett track your equipment's service history should you need to contact us for technical support, and your feedback helps us improve our products and services. Please visit www.follettice.com/support to complete the Warranty Registration form.

Should you have any questions, please contact Follett's technical support group at (877) 612-5086 or (610) 252-7301 and we will be happy to assist you.

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