

Operation Manual



Model 1500 Model 2500











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ABOUT THIS MANUAL

This booklet is an integral and essential part of the product and should be handed over to the operator after the installation for future reference. Please read carefully the guidelines and warnings contained herein as they are intended to provide the user with essential information for the continued safe use and maintenance of the product. In addition, it provides **GUIDANCE ONLY** to the user on the correct services and site location of the unit.

BEFORE GETTING STARTED

Each unit is tested under operating conditions and is thoroughly inspected before shipment. At the time of shipment, the carrier accepts responsibility for the unit. Upon receiving the unit, carefully inspect the carton for visible damage. If damage exists, have the carrier note the damage on the freight bill and file a claim with carrier. Responsibility for damage to the chiller lies with the carrier.

The installation or relocation of this product must be carried out by qualified personnel with up-to-date safety and hygiene knowledge and practical experience, in accordance with current regulations.

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IMPORTANT SAFETY INSTRUCTIONS

READ ALL SAFETY INSTRUCTIONS BEFORE USING THIS UNIT.

This manual contains important safety information and all applicable safety precautions must be observed. To reduce the risk of fire, electric shock, damage to the equipment or personal injury when using this unit all instructions/warnings on the product being used must be followed. Be sure to read all Warning, Caution, Attention, and Note statements before proceeding with the installation.

Text following the Warning signal indicates a hazardous situation, which if not avoided, will result in death or serious injury.

⚠ CAUTION -

Text following the Caution signal indicates a hazardous situation, which if not avoided, could result in death or serious injury.

ATTENTION -

Text following the Attention signal addresses a situation that if not followed could potentially damage the equipment.

NOTE -

Text following the Note signal provides you with information that may help you more effectively perform the installation procedures within this manual. Disregarding information will not cause damage or injury, however it may limit the performance of the chiller.

⚠ Intended Use

- The chiller is for indoor use only and must be installed and serviced by a professional.
- This appliance is intended to be used in commercial applications such as restaurants or similar.
- This appliance should not be used by children or infirm persons without supervision.
- This appliance is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or have been given instructions concerning the use of the appliance by a person responsible for their safety. Children aged 8 years and above can use the appliance under supervision or if they've been given instruction concerning the safe use of the appliance and understand the hazards involved.
- Cleaning and user maintenance shall not be performed by children without supervision.
- The min/max ambient operating temperature for the chiller is 40°F to 90°F (4°C to 32°C).
- Do not operate unit below minimum or above maximum ambient operation conditions.
- Should freezing occur, cease operation of the unit and contact an authorized service technician.
- The maximum tilt for safe operation is 5°.
- This unit is not a toy and children should be advised not to play with the appliance.
- This appliance must be installed and serviced by a professional.

▲ Carbon Dioxide (CO₂) Warning

- Carbon Dioxide (CO₂) is a colorless, noncombustible gas with a light pungent odor. High percentages of CO₂ may displace oxygen in the blood.
- Prolonged exposure to CO₂ can be harmful. Personnel exposed to high concentrations of CO₂ gas will experience tremors which are followed by a loss of consciousness and suffocation.
- If a CO₂ gas leak is suspected, immediately ventilate the contaminated area before attempting to repair the leak.
- Strict attention must be observed in the prevention of CO₂ gas leaks in the entire CO₂ and soft drink system.

A Electrical Warning

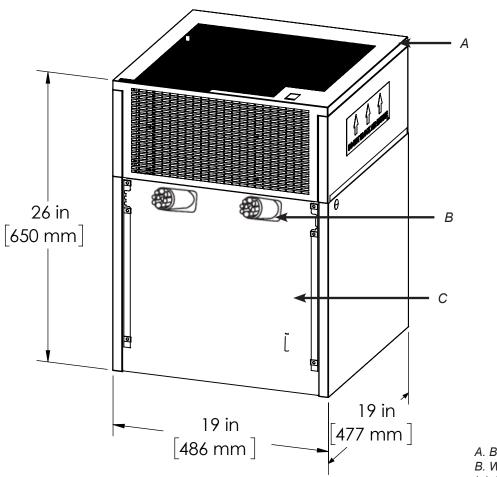
- Follow all local electrical codes when making connections.
- Check the chiller nameplate label, located behind the splash plate, for the correct electrical requirements of unit. DO NOT plug into a wall electrical outlet unless the current shown on the serial number plate agrees with local current available.
- · Each unit must have a dedicated electrical circuit.
- . DO NOT use extension cords with this unit.
- DO NOT 'gang' together with other electrical devices on the same outlet.
- DO NOT locate multiple portable socket-outlets or portable power supplies at the rear of the appliance.
- WARNING: Always disconnect electrical power to the unit to prevent personal injury before attempting any internal maintenance.
- Only qualified personnel should service internal components of electrical control housing.
- WARNING: Make sure that all water lines are tight and units are dry before making any electrical connections.
- If this chiller is installed in an area that is susceptible to more than 10% variation of the nominal line voltage, consider installing a surge protector or similar protection device.

⚠ Water Notice

- Provide an adequate, potable water supply. Water pipe connections and fixtures directly connected to a potable water supply must be sized, installed, and maintained according to federal, state, and local codes.
- The water supply line must be at least a 3/8 inches (9.5 mm) pipe with a minimum of 25 psi (0.172 MPa) line pressure. Water pressure below 25 psi (0.172 MPa) will require the use of a water booster (MC-163172).
- Use a filter in the water line to avoid equipment damage and beverage off-taste. Check the water filter periodically, as required by local conditions.
- CAUTION: The water supply must be protected by means of an air gap, a backflow prevention device (located upstream of the CO₂ injection system) or another approved method to comply with NSF standards. A leaking inlet water check valve will allow carbonated water to flow back through the pump when it is shut off and contaminate the water supply.
- CAUTION: Ensure the backflow prevention device complies with ASSE and local standards. It is the responsibility of the installer to ensure compliance.

SPECIFICATIONS AND FEATURES

1500 Specifications



A. Bonnet B. Water and Syrup Inlets & Outlets C. Front Plate

DIMENSIONS

Width: 19 inches (486 mm) Depth: 19 inches (477 mm) Height: 26 inches (650 mm)

WEIGHT

Shipping: 150 lbs (68 kg)

Operating: 261 lbs (118 kg)

ELECTRICAL

115 VAC, 60 Hz, 7.8 Amps 230 VAC, 50 Hz, 4.5 Amps

WATER SUPPLY

Min Inlet Pressure: 25 psi (0.172 MPa)
Max Static Pressure: 70 psi (0.483 MPA)

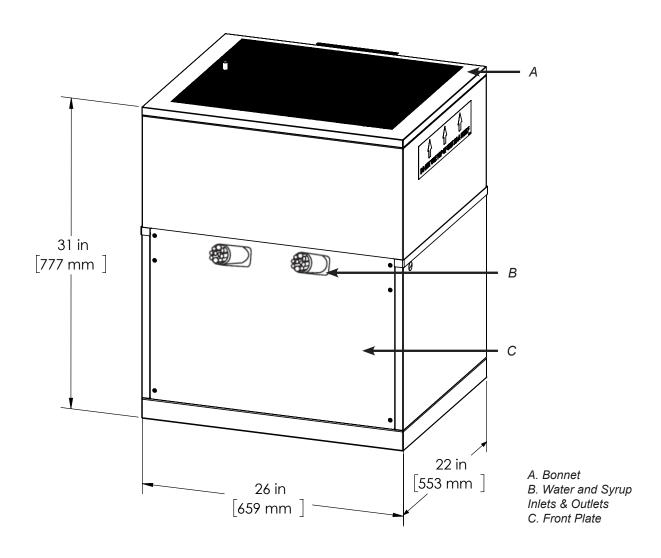
FITTINGS AT UNIT

Inlets: 3/8 inch barb Outlets: 3/8 inch barb

This unit emits a sound pressure level below 70 dB.

Max Altitude: 16,400 ft (5,000 m)

2500 Specifications



DIMENSIONS

Width: 26 inches (659 mm)

Depth: 22 inches (553 mm)

Height: 31 inches (777 mm)

WEIGHT

Shipping: 300 lbs (136 kg) Operating: 479 lbs (217 kg)

ELECTRICAL

115 VAC, 60 Hz, 16 Amps 230 VAC, 50 Hz, 7.5 Amps

WATER SUPPLY

Min Inlet Pressure: 25 psi (0.172 MPa)
Max Static Pressure: 70 psi (0.483 MPA)

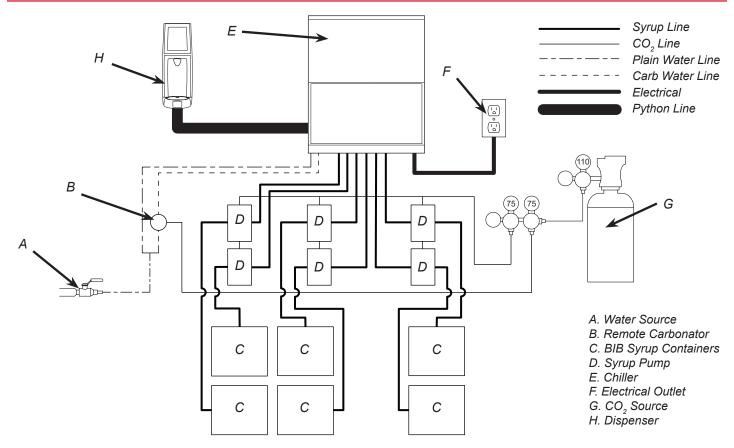
FITTINGS AT UNIT

Inlets: 3/8 inch barb Outlets: 3/8 inch barb

This unit emits a sound pressure level below 70 dB.

Max Altitude: 16,400 ft (5,000 m)

General System Overview - Remote Syrup Pumps



PRE-INSTALLATION CHECKLIST

TOO	LS REQUIRED:	POS	ST MIX ACCESSORIES:	COI	NSIDER THE FOLLOWING
	Oetiker Pliers		High Pressure CO ₂ Regulator	BEF	FORE INSTALLATION:
	Tubing Cutters	$\overline{}$	Low Pressure CO ₂ Regulator		Location of Water Supply Lines
	Wrench		Manifold		Location of Electrical Outlet
	Slotted Screwdriver		CO ₂ Supply		Location of Heating and Air Conditioning Ducts
	Phillips Screwdriver		Chain for CO ₂ Tank		Do you have enough space to
			Beverage Tubing	_	install the chiller?
Ш	Drill		Oetiker Clamp Fittings		Is countertop level?
BAG	-IN-BOX (BIB) SYSTEM:		Water Booster		Can the countertop support the
	BIB Rack	Ш	(Lancer PN: MC-163172)	ш	weight of the chiller?
	BIB Syrup Boxes		Water Regulator (recommended)		Is chiller located away from direct sunlight or overhead
	BIB Regulator Set				lighting?
	BIB Connectors				Not in area where water jet could be used.

INSTALLATION

Read This Manual

This manual was developed by Lancer Worldwide as a reference guide for the owner/operator and installer of this unit. Please read this manual before installation and operation of this unit. Please see pages 10-12 for troubleshooting or service assistance. If this does not resolve the issue and you need additional assistance, please call your Service Agent or Lancer Customer Service. Always have your model and serial number available when you call.

Unpacking the Chiller

- 1. Remove top portion of carton by lifting up.
- 2. Remove top inner carton pad and corners.
- Lift unit up by plywood shipping base and remove lower portion of carton.

NOTE -

Inspect unit for concealed damage. If evident, notify delivering carrier and file a claim against the same.

 Remove plywood shipping base from unit by moving unit so that one side is off the countertop or table allowing access to screws on the bottom of the plywood shipping base.

NOTE -

If unit is to be transported, it is advisable to leave the unit secured to the plywood shipping base.

ATTENTION -

DO NOT LAY UNIT ON ITS SIDE OR BACK.

Selecting/Preparing a Counter Location

NOTE -

The chiller should only be installed in a location where it can be overseen by trained personnel.

- The chiller is designed to sit on a flat, supported surface capable of supporting a minimum weight of 500 lbs (227 kg). Select a location that is in close proximity to a properly grounded electrical outlet that meets the requirements shown in the Specifications section found on pages 4-5.
- Select a location for the syrup pumps, CO₂ tank, syrup containers, water filter (recommended), and remote carbonator. Please see General System Overview on page 6 for reference.
- When the chiller is to be permanently bolted to the countertop, use sealant to seal chiller base to countertop.

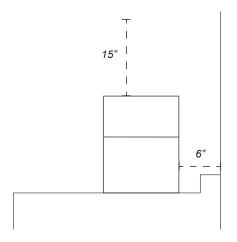
NOTE -

NSF listed units must be sealed to the counter.

⚠ ATTENTION -

Failure to maintain specified clearance will cause the compressor to overheat and will result in compressor failure.

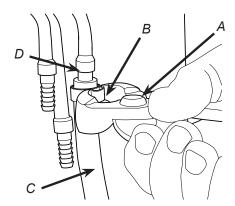
4. Condenser air is drawn in from the back grill located on the bonnet and discharged out the top of the bonnet. A minimum clearance of 15 inches (380 mm) over the top and a 6 inches (152 mm) behind the unit must be maintained to provide for proper air flow and circulation.



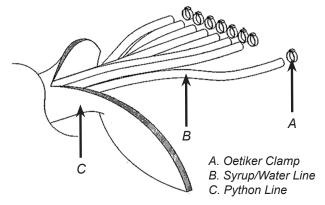
To mount the chiller in the designated location, cut the necessary holes in the countertop.

Chiller Installation

- 1. Install the unit onto the counter.
- 2. Remove the bonnet from the chiller by lifting up.
- 3. Route power cord from control box to outlet.
- 4. Route appropriate tubing from syrup pump location to inlets according to the plumbing diagram located on page 16.
- Connect tubing to inlet using Oetiker pliers and clamps. Repeat for all connections.



- A. Oetiker Pliers
- B. Fitting
- C. Tubing
- D. Syrup/Water Inlet
- Route and connect insulated tubing from chiller outlets to dispenser.



NOTE

Make sure the overflow tube is not covered to allow water from the water bath tank to escape as needed.

7. Remove cap from fill hole and insert a funnel into the fill hole.

ATTENTION

Carefully read this before filling the water bath tank. In order to optimize the maximum performance of the chiller, the following steps and warnings MUST be adhered to.

To ensure proper function of the electronic ice bank control a total dissolved solids (TDS) of 100-300 ppm or an E.C. measurement between 156 and 468 $\mu\text{S/cm}$ is required. Below 100 ppm or 156 $\mu\text{S/cm}$, the compressor will not work properly and above 300 ppm or 468 $\mu\text{S/cm}$ could cause the lines to freeze.

The necessary TDS may be achieved using tap water; however, Lancer recommends using a mixture of 1 tbsp of baking soda for every 5 gals. (19 L) of distilled water.

- 8. Carefully pour water into the water bath tank until water flows out of the overflow tube at the front of the unit, then replace the cap.
- 9. Plug unit power cord into a grounded electrical outlet to power on and begin building an ice bank.

ATTENTION

The water bath compartment must be filled with water before connecting the unit, otherwise the compressor fan may not operate properly. DO NOT use Reverse Osmosis (RO) or purified water.

⚠ WARNING -

Never energize the machine if there is any trace of damage. Contact Lancer Customer Service for assistance.

⚠ WARNING

The chiller must be properly electrically grounded to avoid serious injury or fatal electrical shock. The power cord has a three-prong grounded plug. If a three-hole grounded electrical outlet is not available, use an approved method to ground the unit. Follow all local electrical codes when making connections. Each chiller must have a separate electrical circuit. Do not use extension cords. Do not connect multiple electrical devices on the same outlet.

CLEANING AND SANITIZING

General Information

GENERAL INFORMATION

Lancer equipment (new or reconditioned) is shipped from the factory cleaned and sanitized in accordance with National Sanitation Foundation (NSF) guidelines. The operator of the equipment must provide continuous maintenance as required by this manual and/or state and local health department guidelines to ensure proper operation and sanitation requirements are maintained.

The cleaning procedures provided herein pertain to the Lancer equipment identified by this manual. If other equipment is being cleaned, follow the guidelines established by the manufacturer for that equipment.

Cleaning should be accomplished only by trained personnel. Sanitary gloves are to be used during cleaning operations. Applicable safety precautions must be observed. Instruction warnings on the product being used must be followed.

ATTENTION

- Use sanitary gloves when cleaning the unit and observe all applicable safety precautions.
- DO NOT use a water jet to clean or sanitize the unit.
- DO NOT disconnect water lines when cleaning and sanitizing syrup lines to avoid contamination.
- DO NOT use strong bleaches or detergents; these can discolor and corrode various materials.
- DO NOT use metal scrapers, sharp objects, steel wool, scouring pads, abrasives, or solvents on the chiller.
- DO NOT use hot water above 140° F (60° C). This can damage the chiller.
- DO NOT spill sanitizing solution on any circuit boards. Ensure all sanitizing solution is removed from the system.

Cleaning and Sanitizing Solutions

Cleaning Solution

Mix a mild, non-abrasive detergent (e.g. Sodium Laureth Sulfate, dish soap) with clean, potable water at a temperature of 90°F to 110°F (32°C to 43°C). The mixture ratio is one ounce of cleaner to two gallons of water. Prepare a minimum of five gallons of cleaning solution. Do not use abrasive cleaners or solvents because they can cause permanent damage to the unit. Ensure rinsing is thorough using clean, potable water at a temperature of 90°F to 110°F. Extended lengths of product lines may require additional cleaning solution.

Sanitizing Solution

Prepare the sanitizing solution in accordance with the manufacturer's written recommendations and safety guidelines. The type and concentration of sanitizing agent recommended in the instructions by the manufacturer shall comply with 40 CFR §180.940. The solution must provide 100 parts per million (PPM) chlorine (e.g. Sodium Hypochlorite or bleach) and a minimum of five gallons of sanitizing solution should be prepared.

Cleaning and Sanitizing Syrup Lines

- Disconnect syrup lines from BIB's.
- Place syrup lines, with BIB connectors, in a bucket of warm water.
- Activate each valve to fill the lines with warm water and flush out syrup remaining in the lines.
- Prepare cleaning solution as described in the Cleaning and Sanitizing Solutions section.
- Place syrup lines, with BIB connectors, into cleaning solution.
- Activate each valve until lines are filled with cleaning solution then let stand for ten (10) minutes.
- Flush out cleaning solution from the syrup lines using clean, warm water.

- Prepare sanitizing solution as described in the Cleaning and Sanitizing Solutions section.
- Place syrup lines into sanitizing solution and activate each valve to fill lines with sanitizer. Let sit for ten (10) minutes.
- Reconnect syrup lines to BIB's and draw drinks to flush solution from the chiller.
- 11. Taste the drink to verify that there is no off-taste. If off-taste is found, flush syrup system again.

⚠ CAUTION

Residual sanitizing solution left in the system creates a health hazard. To comply with NSF requirements, following sanitization, do not use a fresh water rinse, instead rinse with end-use product until there is no aftertaste.

MAINTENANCE

Scheduled Maintenance

As Needed	Keep exterior surfaces of chiller clean using a clean, damp cloth.
Daily	With a clean cloth and warm water, wipe off all of the unit's exterior surfaces. DO NOT USE ABRASIVE SOAPS OR STRONG DETERGENTS.
Weekly	Taste each product for off-tastes.
Monthly	 Unplug the chiller from the power source. Remove the bonnet and clean the dirt from the condenser using a soft brush. Replace the bonnet and plug in the unit.
Every Six Months	Clean and sanitize the unit using the appropriate procedures outlined in the Cleaning and Sanitizing section of this manual.
Yearly	 Clean water bath interior, including evaporator coils and refrigeration components. Clean the entire exterior of the unit.

TROUBLESHOOTING

Unit Troubleshooting

TROUBLE	CAUSE	REMEDY
Insufficient water flow.	Insufficient incoming water supply pressure. Foreign debris in water line.	Verify incoming water supply pressure is a minimum of 25 PSI (0.172 MPA). Clean out any foreign material to ensure smooth, free water movement.
Insufficient syrup flow.	 Insufficent CO₂ pressure to BIB pumps. Out of CO₂. Foreign debris in syrup line. Bad syrup pump. 	 Adjust CO₂ pressure to 80 PSI (0.550 MPA) [minimum 70 PSI (0.480 MPA)] for BIB pumps. Replace CO₂ tank/refill. Clean out any foreign material to ensure smooth free syrup movement. Replace BIB pump.

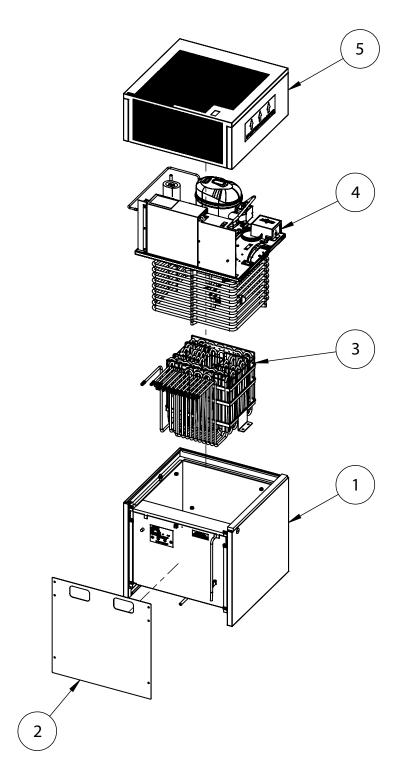
TROUBLE	CAUSE	REMEDY
Compressor starts and continues to run until freeze and will not cut off.	 PCB malfunctioning or faulty ice bank probe. Ice bank probe positioned improperly. Ice bank probe shorted to ground. 	 Have the unit repaired by a qualified service technician. Check positioning of ice bank probe and replace if needed. Replace ice bank probe.
Warm drinks.	 Restricted airflow. Chiller connected to hot water supply. Refrigeration system not running. Refrigerant leak. Condenser fan motor not working. Dirty condenser. Chiller capacity exceeded. 	 Check clearances around sides, top, and inlet of unit. Remove objects blocking airflow through grill. Switch to cold water supply. The incorrect relay will cause compressor failure (see page 15 for electrical wiring diagram). Repair and recharge. Replace condenser fan motor. Clean condenser. Replace with larger chiller.
Compressor does not start (no hum), gas cooler fan does not run, and no ice bank.	 There is a five (5) minute compressor and condenser fan delay. Ice bank probe not completely submerged. Circuit breaker or fuse tripped. Inadequate voltage. PCB malfunctioning. Incorrect wiring. Faulty ice bank probe. Transformer failure. Ice bank probe not connected properly to PCB. 	 Allow for five (5) minute delay to lapse. Fill water reservoir until water flows from overflow tube. Reset breaker or replace fuse. If problem persists, verify if electrical circuit overloaded and if so switch to another circuit or determine the reason and correct. Measure voltage across common and run terminal on compressor. Voltage must not drop below 90% of rated voltage. Have the unit repaired by a qualified service technician. Refer to wiring diagram and correct. Replace ice bank probe. Reset transformer circuit breaker. Connect ice bank probe to PCB.

TROUBLE	CAUSE	REMEDY
Compressor does not start (no hum), but gas cooler fan motor runs.	 Compressor relay capacitors or overload malfunctioning. Inadequate voltage. Incorrect wiring. Compressor malfunctioning. 	 Replace compressor relay capacitors or overload. Measure voltage across common and run terminal on compressor. Voltage must not drop below 90% of rated voltage. Refer to wiring diagram and correct. Have the unit repaired by a qualified service technician.
Compressor does not start but hums.	 Inadequate voltage. Incorrect wiring. Starting relay capacitors malfunctioning. Compressor malfunctioning. 	 Measure voltage across common and run terminal on compressor. Voltage must not drop below 90% of rated voltage. Refer to wiring diagram and correct. Replace starting relay or capacitors. Be sure to use correct rating. Failure to use correct rating will cause compressor failure. Have the unit repaired by a qualified service technician.
Compressor starts but does not switch off start winding (will run for only a few seconds before internal overload switches compressor off).	 Inadequate voltage. Incorrect wiring. Starting relay malfunctioning. 	Measure voltage across common and run terminal on compressor. Voltage must not drop below 90% of rated voltage. Refer to wiring diagram and correct. Replace starting relay. Be sure to use correct relay. Failure to use correct relay will cause compressor failure.
Compressor starts and runs a short time but shuts off on overload.	 Dirty condenser. Insufficient or blocked air flow. Inadequate voltage. Incorrect wiring. Defective condenser fan motor. 	 Clean the condenser. Remove all obstruction and allow for minimum clearances of 15 inches (203 mm) over top. Measure voltage across common and run terminal on compressor. Voltage must not drop below 90% of rated voltage. Refer to wiring diagram and correct. Have the unit repaired by a qualified service technician.
Compressor runs normally, but water line is frozen.	 Low water level in water bath. Syrup in water bath. Water cage is out of position. Low refrigerant charge or slow refrigerant leak. 	Add water to water bath until water runs out of overflow into drip tray. Drain water from water bath and refill with clean water. Reposition water cage. Find and repair leak. Recharge system.
Compressor cycles on and off frequently during the initial pulldown and/or normal operations.	 PCB malfunctioning. Defective probe. Weak overload or pressure switch. 	Have the unit repaired by a qualified service technician. Replace probe. Have the unit repaired by a qualified service technician.

ILLUSTRATIONS AND PART LISTINGS

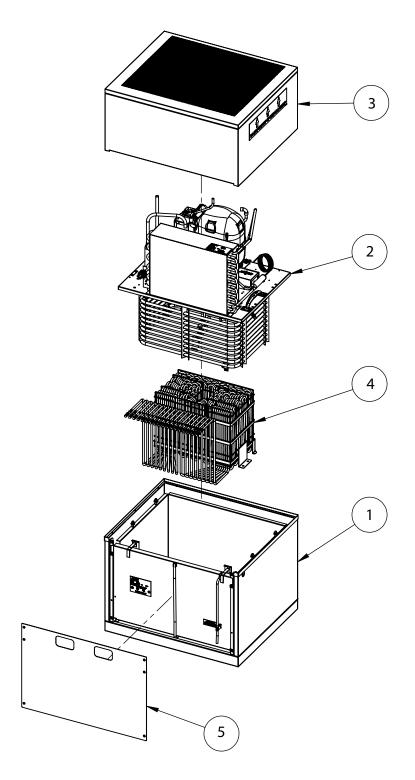
1500 Cabinet Assembly

<u>ltem</u>	Part No.	<u>Description</u>
1	82-1207	CAB ASSY,LWR,1500E,CHILLER
2	30-5535	FRONT PLATE,1500E CHILLER
3	23-0760/01	CAGE ASSY,LG1500Y,6&1&1
4	82-2668/01	DCK ASY,RF,1/3,115/60,EIBC,NT
5	23-1776	BONNET ASSY,SS,1500



2500 Cabinet Assembly

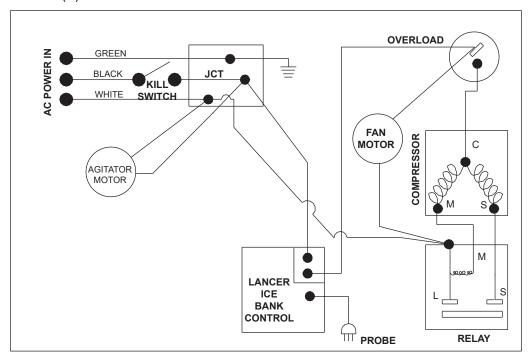
<u>ltem</u>	Part No.	<u>Description</u>
1	82-0820	CAB ASSY,LWR,2500,CHILLER
2	82-2670	DCK ASY,RF,3/4,115/60,EIBC,NT
3	23-0650	BONNET ASSY,2500Y,SST
4	23-0798/01	CAGE ASSY,2500 REF,6&2&1
5	30-5218	FRONT PLATE,2500 REF



Model 1500

IMPORTANT

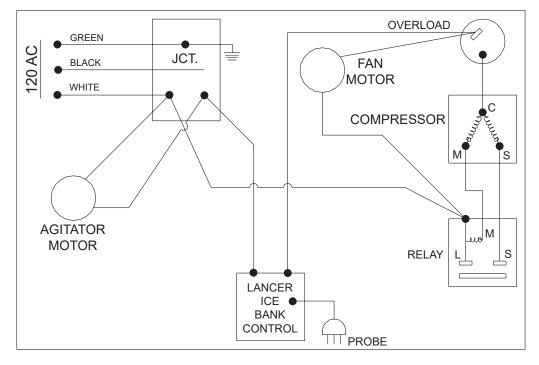
WHEN STARTING UNIT OR IF CURRENT IS INTERRUPTED, THERE IS A FIVE (5) MINUTE DELAY BEFORE THE COMPRESSOR/FAN STARTS.



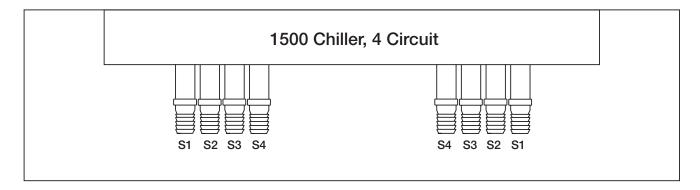
Model 2500

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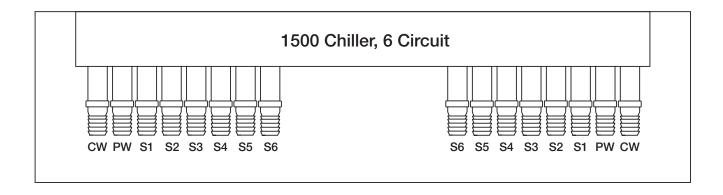
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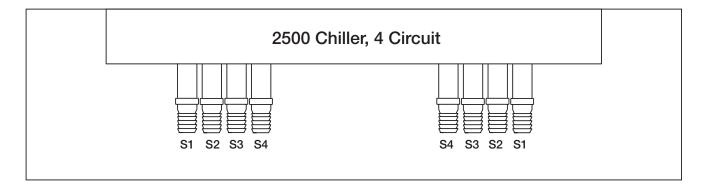
Model 1500 - 23-0910 Cage Assembly, 4 Circuit



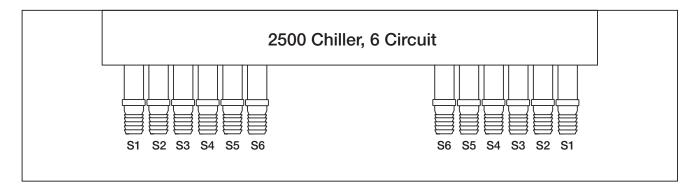
Model 1500 - 23-0760 Cage Assembly, 6 Circuit



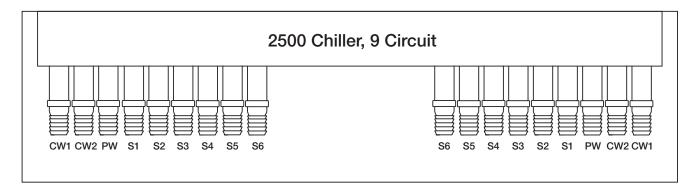
Model 2500 - 23-0919 Cage Assembly, 4 Circuit



Model 2500 - 23-1359 Cage Assembly, 6 Circuit



Model 2500 - 23-0798 Cage Assembly, 9 Circuit





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