

***LANCER*** | BEER SYSTEMS

**Polaris Beer Superchiller™**

**SPK2-11 LION**

230V / 50Hz

**Installation, Operation &  
Service Manual**



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# 1. Introduction

Thank you for purchasing this quality Lancer product. All Lancer products are constructed using the highest quality materials and components. They are designed to the highest possible standards, therefore offering our customers endless hours of optimum performance.

# 2. The Company

Hoshizaki Lancer is a wholly owned subsidiary of Lancer Corporation, a world leader in the supply of Beverage Dispensing Equipment based in San Antonio, Texas. Lancer has manufacturing bases and distribution networks in 97 countries. Lancer is in turn ultimately owned by Hoshizaki Electric Co Ltd of Nagoya, Japan. Hoshizaki is a global leader in food service equipment.

Hoshizaki Lancer's head office and manufacturing base is located in Adelaide (SA), with branch offices and warehousing facilities in Sydney (NSW), Melbourne (VIC), Brisbane (QLD), Perth (WA) and Auckland (New Zealand).

# 3. Our Products

Hoshizaki Lancer specialises in the design, engineering, manufacture, and marketing of beverage dispensing equipment in two core categories:

## **Soft Drink Equipment**

Mechanically cooled and ice cooled soft drink dispensers, frozen beverage dispensers, dispensing valves, carbonators and an extensive line of beverage dispensing parts and accessories.

## **Beer Equipment**

Hoshizaki Lancer manufactures and markets beer dispensing and chilling equipment, and related accessories. Products include founts, chillers, chillerplates, drip trays, taps, handles, beer line cleaning equipment and an extensive line of beverage dispensing parts and accessories.

# 4. Product Details

## **4.1 Product Features**

The Lancer Polaris chiller is a refrigerated unit designed to maintain a liquid product temperature through the python and dispenser.

## 4.2 Specifications

<b>Version</b>	<b>SPK2-11</b>
<b>Voltage</b>	240 Volts
<b>Frequency</b>	50 Hz
<b>Max Current Draw</b>	7.0 Amps
<b>Ambient Temperature</b>	2 - 40°C
<b>Control</b>	IR33
<b>Dimensions</b>	
Width	880 mm
Depth	505 mm
Height with 150mm legs	1005 mm
<b>Weight</b>	
Shipping	114 kg
Empty	109 kg
Operating	179 kg
<b>Refrigerant</b>	800 Grams R134a
<b>Tank</b>	72 litres
<b>Glycol type only</b>	30% Glycol/water mixture
<b>Construction</b>	Stainless Steel

## 4.3 Models

S4E POLARIS SPK2-11	Chiller with SPK2-11 Pump.
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## 4.4 Options

- Legs are standard; Optional casters

## 5. Chiller Safety Information

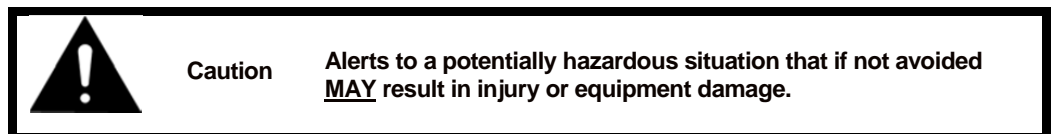
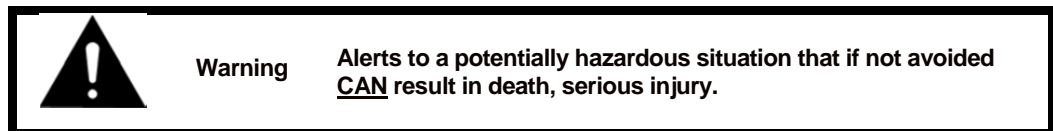
### 5.1 Safety Instructions

For your personal safety, and that of others working around you please read, understand, and follow thoroughly all safety instructions included in this manual and on the Chiller.

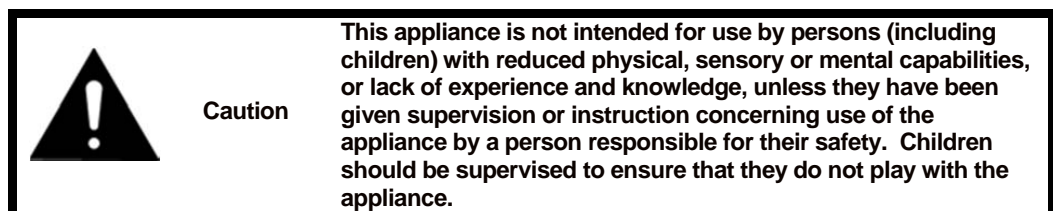
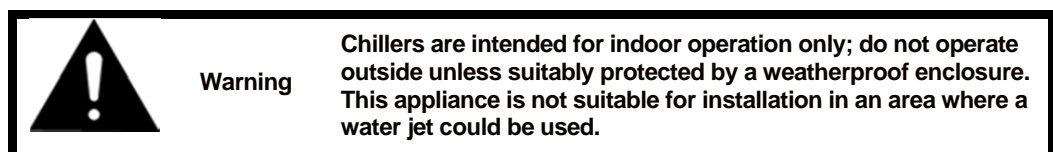
- Review all applicable OSH (Occupational Safety & Health) regulations.
- Review all applicable Beverage Dispensing Gas Standards
- Learn how to operate the Chiller and use the controls properly.
- Do not allow untrained personnel to operate the machine.
- Ensure that the Chiller is maintained according to service manual instructions.
- Do not allow any unauthorised modifications to the machine.

### 5.2 Recognise Safety Alert Symbols

The safety alert symbol precedes **Warning** and **Caution** notes throughout this manual. To prevent personal injury or damage to the machine these alerts must be strictly adhered to.



### 5.3 Operating



### 5.4 Service & Maintenance



**Warning****ALL WIRING AND PLUMBING MUST CONFORM TO LOCAL AND NATIONAL CODES.****Warning****CHILLER MUST BE ISOLATED FROM ELECTRICAL SUPPLY BEFORE COMMENCING ANY SERVICE OR MAINTENANCE WORK.**

## 6. Installation

**Warning****To avoid personal injury or damage, do not attempt to lift a Chiller without help. Use of a mechanical lift is recommended.**

### 6.1 Receiving

Each unit is completely tested under operating conditions and thoroughly inspected before shipment. At time of shipment, the carrier accepts the unit and any claim for damage(s) must be made with the carrier. Upon receiving units from the delivering carrier, carefully inspect shipping crate for visible indication(s) of damage. If damage exists, have carrier note damage on bill of landing and file a claim with the carrier.

### 6.2 Unpacking

**Caution****The use of gloves is recommended to protect hands from potential injury from sharp edges. The Chiller must always be handled in a vertical position.**

Carefully unpack the Lancer Polaris Chiller from the shipping carton, remove the wooden base.

If appropriate, assemble legs to unit by carefully tilting (tilt should not be more than 45°).

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

### 6.3 Selecting a Location

**Warning****Chillers are intended for indoor operation only; do not operate outside unless suitably protected by a weatherproof enclosure. This appliance is not suitable for installation in an area where a water jet could be used.**

**Caution**

**The Chiller is not suitable for use in subfreezing temperatures. To prevent damage to the supply lines, turn off and drain unit when air temperature is below zero.**

- The Chiller should be located in a well-ventilated, firm, level location close to dispenser, water and electrical supplies, with easy access for servicing
- SPK2-11 version chillers are intended for use in a non temp controlled storage area.
- Ensure sufficient clearance around Chiller to allow good fresh air circulation through the condenser – allow at least 200mm at rear, sides and top, with the front unobstructed.
- Installation should only be performed by a qualified and competent technician.

## 6.4 Mounting Chiller

- Install on a flat, level surface using adjustable legs or casters (Optional).

**Caution**

**Chiller operational weight is 179kg; ensure that all supporting structures are certified for this loading by a registered Mechanical Engineer. Supporting structure must be securely fixed to floors or walls.**

## 6.5 Connecting Python

Connect Python to Chiller and Dispenser.

**Caution**

**NOTE: The Chiller is rated to operate with a maximum of 30m of python connected. Exceeding manufacturer's ratings may cause damage to the Chiller and void warranty.**

### Python Details

Recirculation Lines ½" Dia Glycol tubing

## 6.6 Plumbing the Drain

The 19mm overflow drain tube exiting from the RH Pump Panel of the unit should be plumbed to a suitable drain, installation in accordance with AS/NZS 3500.1 and AS/NZS 3500.2.

## 6.7 Filling Unit

**Glycol** - Remove Chiller lid and fill the tank with glycol/water mixture of 30% (refer to chart on page 11 for details) until mixture flows out overflow tube.

## 6.8 Electrical Connection

- This unit is connected to the supply via a flexible cord fitted with a 3 pin plug.
- Check the name plate on the machine for electrical supply requirements. Use only the power supply specified on the name plate.



**Warning**

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.

**Warning**

To avoid possible fatal electric shock or serious injury the Chiller must be electrically grounded. Electrical Connection Must Be Made In Accordance With The Appropriate Local Codes And Regulations. Use of an RCD is recommended.

## 6.9 Commissioning

- Connect chiller power supply lead to an appropriate 3 pin socket outlet and switch on. Compressor, condenser fans and pump/agi motor should all operate.
- On initial start up, remove the pump plug to allow the tank temperature to reduce without the unit cutting out on overload. If the unit cuts out during pull down, turn off at mains socket to reset then continue to pull down as before.
- Once the unit is cycling normally, the pump plug should be replaced, ensure the pump is running.
- Allow lines to fill. Ensure liquid level does not drop below pump intake during initial filling of the python.
- As required top up the unit.
- Check all connections for leaks.
- Fully insulate all chilled lines and ensure air tight at all connections.
- Before running unit, sanitise product lines using beer line cleaner.
- **Glycol Only Unit:**
  - Check water / glycol mixture with refractometer (refer to chart on page 11 for details).
  - Check the set point of the controller (reset per 6.11)
  - Monitor the indicated temperature on the thermostat and ensure temperature reduces to the set point.

## 6.10 Purge System

- Progressively activate each fount connected to the Chiller systems to achieve an uninterrupted flow of product.

## 7. Thermostat – Carel IR33 – Thermostat Parameters



### 7.1 Thermostat Settings

Parameter	Type	Def	Description
St	Set point	-2.0	Refrigeration will turn off when glycol reaches this temperature.
rd	F	1.0	Temperature differential, glycol temperature will increase from the cut out point by this value before the refrigeration turns on.
ALF	F	-5.0	Antifreeze alarm set point. If the evaporator suction line reaches this temperature the control will stop the refrigeration system and will require a manual reset. Antifreeze alarm can be reset by holding "UP" and "DOWN" keys for 5 seconds. In case of probe 2 failure, the antifreeze alarm function is inhibited and regulation is still performed. If "AF parameter is set to its minimum value the alarm function is inhibited.
rt	F	**	Time (in hours) of max/min temperatures logging.
rH	F	**	Highest/ maximum recorded temperature.
rL	F	**	Lowest/ minimum recorded temperature.
AH	F	20.0	High temperature alarm (relative to set point).
AL	F	4.0	Low temperature alarm (relative to set point).
c2	F	3 mins	Minimum time in mins after turning off before the control will give an output to the refrigeration solenoid (short cycle protection).
r4	F	7.0	Value to increase the set point in ECO mode.
r2	F	5.0	Maximum allowed set point.
r1	F	-5.0	Minimum allowed set point.

**Note:** hard reset will not return to factory settings

### 7.2 Programming Instructions

#### 7.2.1 Set Point

Push and hold the "SET" key, "st" is displayed then the current set point is displayed and flashes, release "SET" key to change the set point value.

Push the "UP" or "DOWN" arrow keys to change the set point value.

To accept the new value press the “SET” key or wait 60 seconds without pressing any keys for the unit to time out.

### 7.2.2 Other Parameters

#### Setting “F” (frequent) Parameters

Push and hold the “PRG” key for more than 5 seconds.

- Select the required parameter to change using the “UP” or “DOWN” arrow keys then press the “SET” key to display its value.
- Press the “UP” or “DOWN” key to change its value.
- Press the “SET” key to store the new value and move to the next parameter.

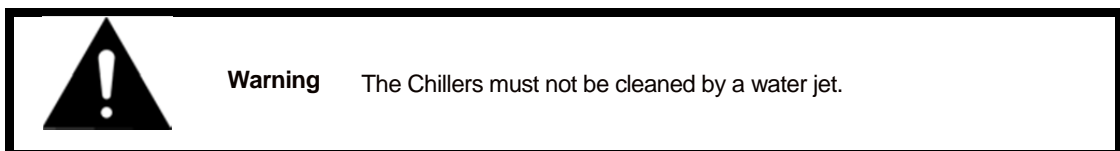
To exit from programming mode press the “PRG” key for 5 seconds or wait 60 seconds without pressing any keys for the unit to time out.

### 7.2.3 Alarm Signals

When an alarm is activated, the display shows the corresponding message that flashes alternating with the temperature.

Message	Cause	Reset
“E0”	Glycol Probe Failure	Automatic
“E1”	Refrigeration Line Probe Failure	Automatic
“LO”	Low Temperature Alarm	Automatic
“HI”	High Temperature Alarm	Automatic
“AF”	Antifreeze Alarm	Manual Antifreeze alarm can be reset by holding “UP” and “DOWN” keys for 5 seconds.

## 8. Scheduled Maintenance



The following Chiller routine maintenance should be performed at the intervals listed.

### 8.1 Weekly

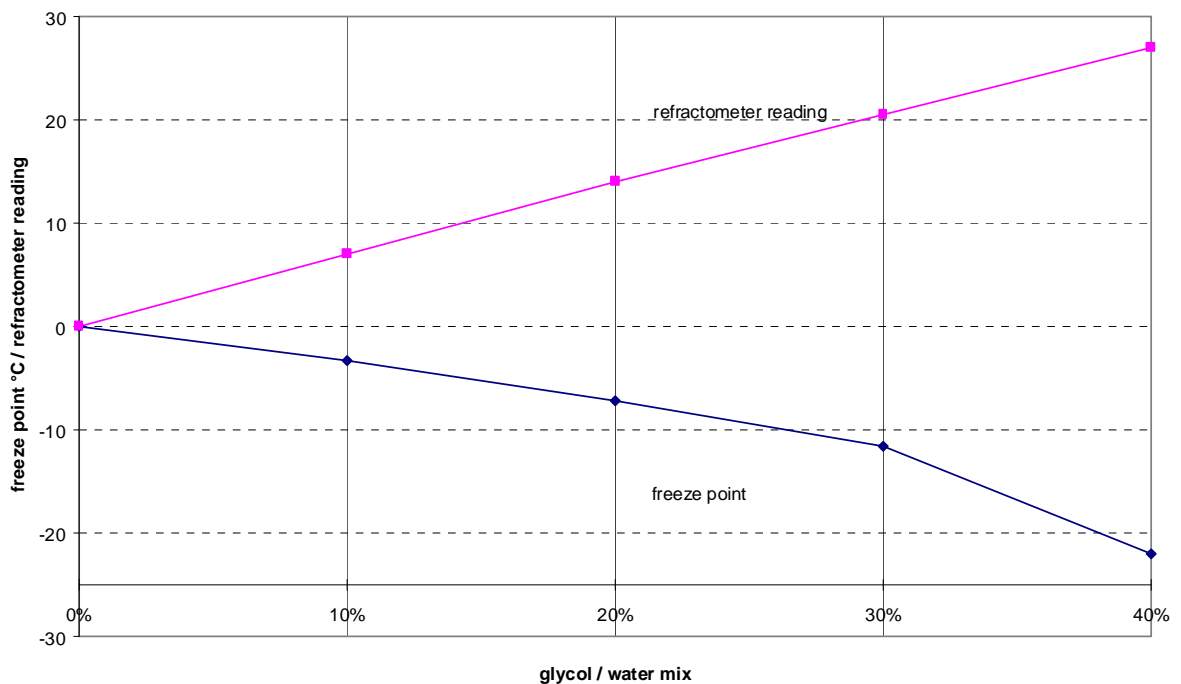
- As per brewery instructions, ensure weekly sanitisation of the whole beer system is carried out, including keg couplers, beer lines, chiller coils, pythons, founts and taps.

### 8.2 Monthly

- Disconnect the machine from the power supply.
- Remove the condenser filter and rinse in warm soapy water.

- Re-install the condenser filter.
- Check the tank level. Fill if necessary.
- Check operation of pump.
- Check for beer leaks.
- Inspect and if contaminated replace with 30% Glycol and 70% Water mix.
- Check concentration with a refractometer. (see chart below)
- Reconnect the machine to the power supply.

Relative freeze points and refractometer readings for propylene glycol / water mix

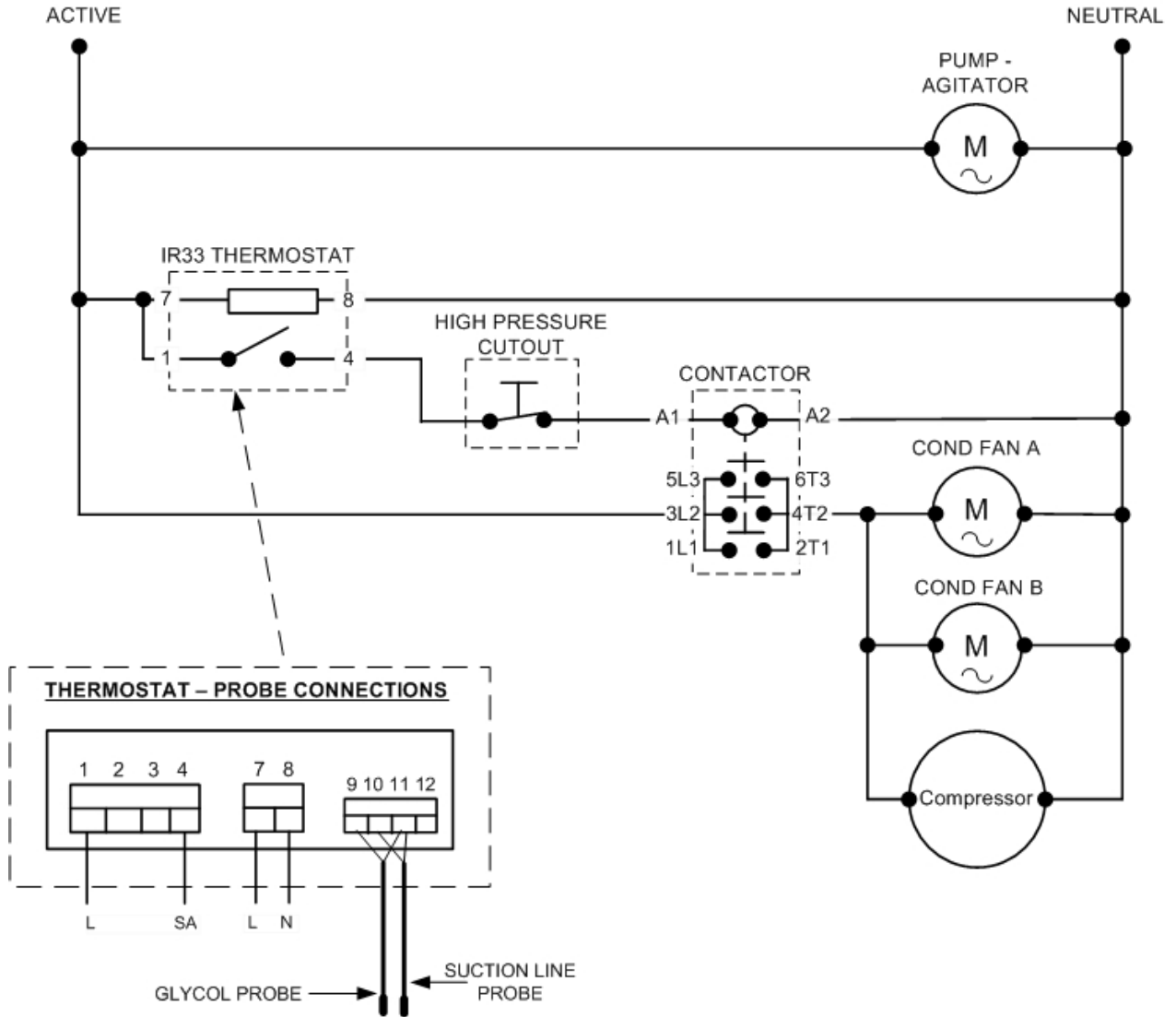


### 8.3 Yearly

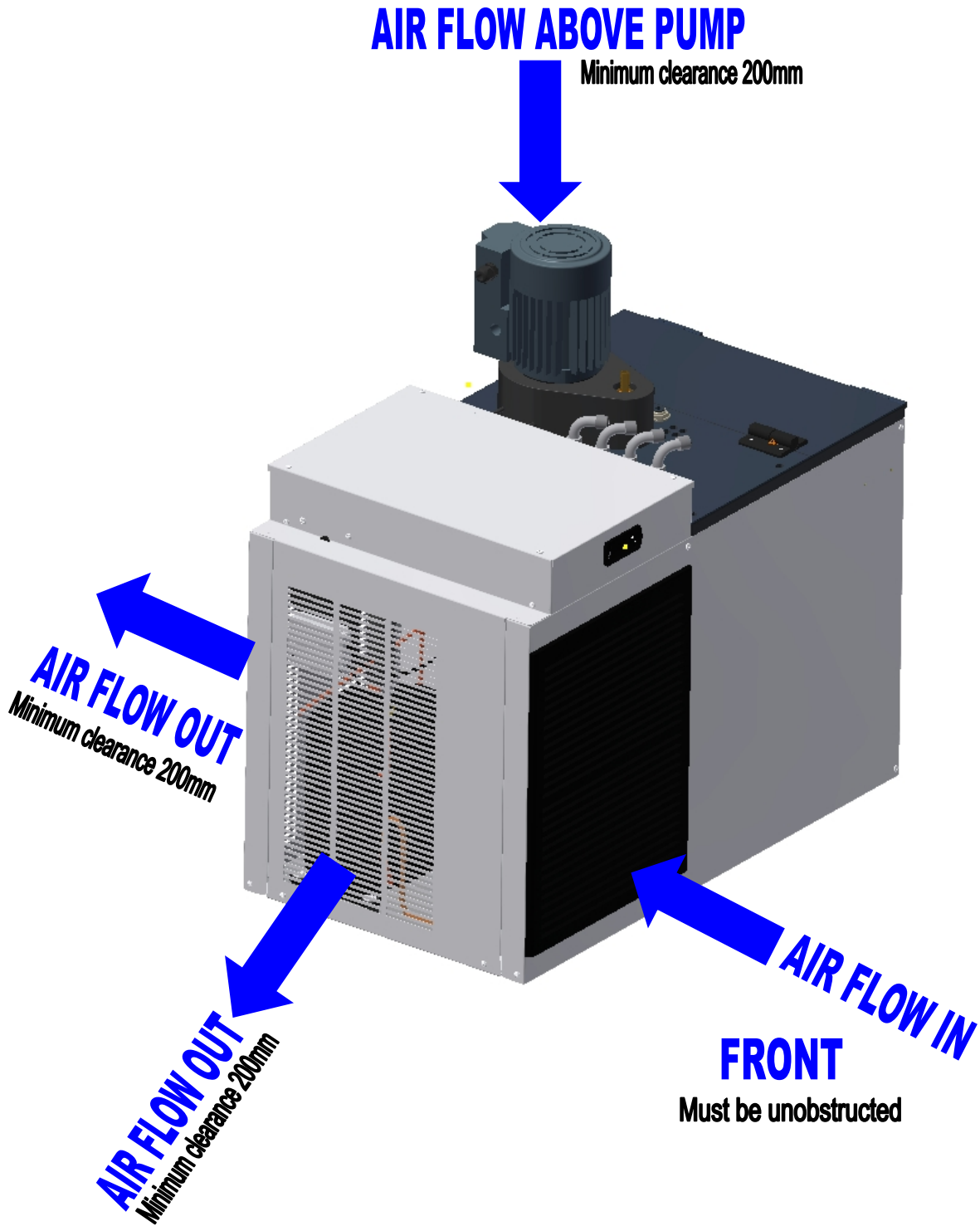
- Disconnect the machine from the power supply.
- Check interior of the tank, clean product coils and evaporator if necessary to remove any accumulated deposits.
- Check pump operation
- Inspect agitator blade for deposits and wear.
- Reinsert overflow tube and re-fill tank with Glycol/water mix per above.
- Reconnect power supply and start machine.

# 9. Electrical Circuit Diagram

## ELECTRICAL CIRCUIT DIAGRAM



# 10. Airflow Diagram



# 11. Trouble Shooting

## 11.1. Refrigeration

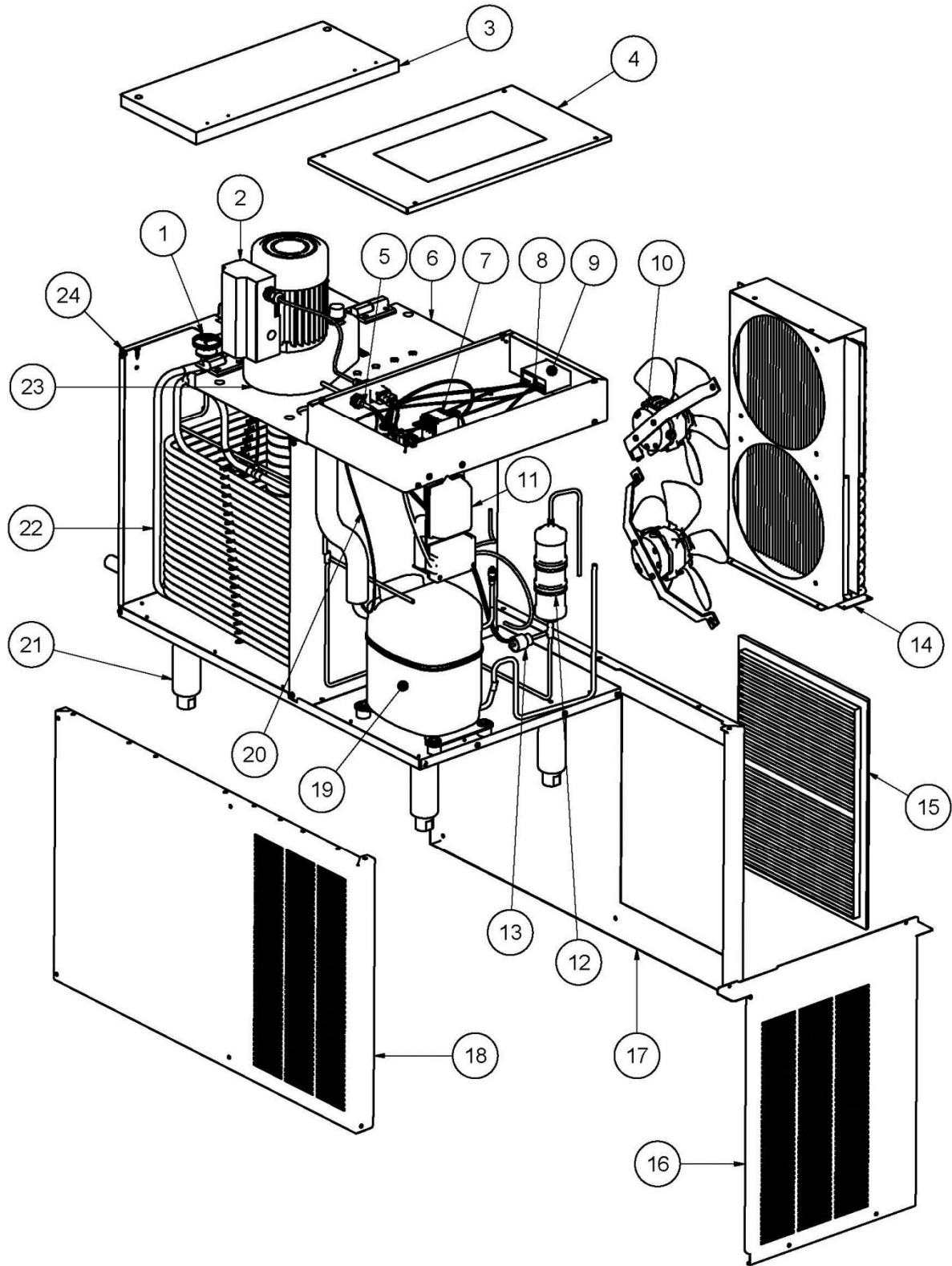
TROUBLE	CAUSE	REMEDY
<b>Compressor will not start.</b>	<p>Power Failure.</p> <p>High Pressure cutout switch activated.</p> <p>Check compressor start mechanism components.</p> <p>Thermal overload faulty, open, circuit compressor seized, contactor faulty.</p>	<p>Check for blown fuse, supply cord pulled out or supply outlet turned off.</p> <p>Push red button on high pressure switch to reset.</p> <p>If faulty, replace e.g. capacitors, start relays.</p> <p>Replace compressor, check condenser, check power supply, evacuate system and if necessary fit burnout drier to industry standards.</p>
<b>Compressor short cycling on thermal overload (frequent starting and stopping of the compressor while control contacts remain closed).</b>	<p>Dirty condenser.</p> <p>Restricted air flow over unit.</p> <p>Low supply voltage.</p> <p>Defective thermal overload.</p> <p>Check wiring connections.</p> <p>Fan motor bearings tight or seized.</p>	<p>Clean condenser of all lint and dirt.</p> <p>Check for air restriction to condenser.</p> <p>Check with voltmeter.</p> <p>Replace compressor.</p> <p>Tighten if loose.</p> <p>Replace motor(s)</p>
<b>Product too warm</b>	<p>Control defective (permanently open circuit).</p> <p>Low refrigerant charge.</p> <p>Check agitator motor, seized or fused.</p>	<p>Check Carel control using procedure on pages 9 and 10. Replace control or probe if defective.</p> <p>Leak check, repair leak, charge with correct amount of refrigerant.</p> <p>Replace if not working.</p>
<b>Compressor runs too long or doesn't cycle.</b>	<p>Location too hot.</p> <p>Chiller overloaded.</p> <p>Loss of refrigerant.</p> <p>Condenser clogged.</p> <p>Fan not operating.</p> <p>Inefficient compressor</p>	<p>Relocate or improve ventilation.</p> <p>Use larger model, or reduce python length.</p> <p>Leak check and repair.</p> <p>Clean off dust, line, grease, etc.</p> <p>Remove obstruction or replace motor.</p> <p>Replace</p>

## 12. Refrigeration & Body Assembly Parts List

Ref.	Parts No.	Description
1	83000114	TX VALVE
2	78000049	SPK2-11 HARD WIRED ASSY
3	85000103	LID POLARIS OPENING 240 50
4	61000433	ELECTRICAL BOX LID POLARIS
5	83000220	LEAD POWER SUPPLY
6	85000101	LID POLARIS SPK 240 50
7	83600811	MINI CONTACTOR
8	83000091	PROBE NTC (BULB END)
9	83000371	IR33 CONTROL KIT
10	80000119	CONDENSER FAN ASSY
11	83000282	COMPRESSOR CONTROL BOX
12	87000102	RECEIVER DRIER
13	83600270	HP CONTROL MANUAL CC29B 18 BAR
14	84000017	CONDENSOR
15	95000642	LOUVRE KMD-0201AA
15a	95000641	FILTER (TWO PER UNIT)
16	61000247	GRILL END PANEL S4E
17	61000319	FRONT PANEL S4E
18	61000323	BACK PANEL S4E
19	83000073	COMPRESSOR (WITH CONTROL BOX)
20	83000209	PROBE NTC (STRAP ON)
21	79232218	LEG
22	62000105	EVAP ASSY S4E
23	79000808	PUMP INSULATOR SPK POLY SIB
24	61000320	RH PANEL BLANK S4E



### 12.1. Assembly Diagram



## 13. Certificate of Warranty

It is the policy of Hoshizaki to provide to its current customers, warranty for all equipment supplied and installation work performed within a specified period.

### **Parts and Equipment**

Lancer provides a warranty period of twelve (12) months from the date of original invoice for all manufactured parts and the associated labour. Repair or replace of defective parts will be at the sole discretion of Lancer.

Changeover parts will be invoiced to the customer at the customers normal purchase cost and upon return of the warranty item and validation of the claim, the invoice will be credited.

### **Installations**

Lancer provides a warranty period of twelve (12) months from the date of final invoice for workmanship after the completion of any installation work, provided the parts and labour are completed by Lancer or its subcontractor.

### **Labour**

Lancer will not normally cover any labour costs associated with a warranty claim. Subject to the approval of the Divisional Sales Manager, Lancer may choose to reimburse the customer for some or all labour costs associated with a warranty claim. Any claim for labour costs must be authorized by Lancer prior to the work being undertaken.

### **Exclusions**

Lancer will not accept any liability or cost associated with any consequential losses (such as loss of syrup or beer), loss of profit or damage to property as a result of faulty product.

Warranty shall not apply:

- a) If in the opinion of Lancer, the equipment has been used in a situation the equipment has not been designed for;
- b) If in the opinion of Lancer, the equipment has been subject to abuse, negligence or accident;
- c) If connected to improper, inadequate or faulty power, water or drainage service or operated using incorrect, insufficient or contaminated lubricants, coolants, refrigerants or additives;
- d) Where the product is installed, maintained or operated otherwise than in accordance with the instructions supplied by Lancer;
- e) Where the product has been damaged by foreign objects;
- f) Where the product has been serviced, repaired, altered or moved otherwise than by Lancer or its nominees or using other than Lancer approved replacement parts.

# 14. Manufacturer's Checklist

Checked by ..... Date .....

Gas Charge ..... Icebank Probe fitted .....

Electrically tested by ..... Refrigeration tested by .....

TAG No. ....

- High temperature probe located on liquid line between coil and receiver / dryer
- Compressor wiring connections label affixed, wiring checked and label signed
- Refrigeration system final check. Ensure evaporator fully frosts.
- Check all tube work for rubbing e.g. discharge line, liquid line, TX capillary.
- Condenser not touching divider panel or grille.
- Agitator blades tight and not touching coils cradle.
- Overflow pipe correct height and positioned straight.
- All motors and pumps secured and mounted correctly.
- Check icebank and temp probe position and tightness.
- Chiller sticker correctly positioned and straight.
- Attention sticker fitted and correctly positioned.
- Clean exterior of unit including power cords.
- Warning sticker applied
- Check air filters are insulated
- Check body for sharp edges.
- Check lid for cleanliness and rough edges. Fit and secure.
- Copy checklist & file, put manual/checklist in plastic bag & place in the tank area.
- Customer asset No.

W/O .....

