LANCER | BEER SYSTEMS

Glycol Beer Reticulation System

Operation Manual

GLOBAL & GREEN
THINK THE EARTH

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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.

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

Lancer specialises in the design, engineering, manufacture, and marketing of beverage dispensing and Food Service equipment in 4 core categories:

Beer Equipment

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

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.

Wine Dispensing Equipment

"By the Glass" wine dispensers from the Modular 2 bottle units up to 16 bottle wood grain units.

Wine on Tap Reticulated Systems.

Ice & Refrigeration Equipment

Hoshizaki Lancer are a world leader in Ice Machines and professional food service Refrigeration units.

4. Overview of your Glycol Beer Reticulation Systems

Glycol Beer Reticulation Systems were developed as the next generation of Beer Dispensing Equipment and Lancer was at the forefront of design & engineering. The beer is kept at conditions close to those in the cold room from the moment it leaves the keg room, through to the beer tap. The result is excellent beer presentation, with absolutely minimum waste.

INDIVIDUALLY TAILORED SYSTEMS

Your installation has been based on the information provided on the number of dispense points, python lengths, site conditions, keg turnover, and tapping temperature. This ensures a balanced reticulation system capable of handling your maximum expected volume of trade.

Along with this manual we have supplied a ***Cellar Log Book***. A maintenance program should be in place and a log book kept covering cleaning schedule & all other activities relevant to draught beer. Doing so will result in excellent beer presentation, with absolutely minimum waste. A hygienic system & cellar is a MUST!!

Included at the back of this manual are your

- Installation Checklist
- Commissioning Sheet.
- Certificate of Compliance.
- Outlet Risk Assessment.

4.1 Cool room Tapping Boards

- The tapping board is the distribution board and controls the flow of beer from the keg to each tap by using beer manifolds, connected to FOB Monitors and fed by the beer pumps.
- The keg is tapped by connecting the coupler to the keg. The drop lead, attached to the FOB monitor, is connected to the coupler which is then engaged. Beer is drawn up the lead to the FOB monitor by the beer pump and sent through to the beer manifold where it is distributed to the correct tap via the Beer Python.
- 100% CO2 is supplied to each keg, marginally above equilibrium pressure, to maintain the correct CO2 percentage in the beer.

4.2 Beer Pumps

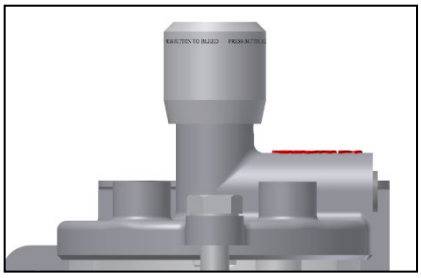
- The Beer Pump supplies the energy required to move the beer through the system. The pumps are driven by an oil less Air Compressor, with CO2 backup in case of compressor failure.

4.3 FOB Detectors

FOB Detectors are used to eliminate wastage, which costs time and money. They prevent the beer lines from emptying by stopping the flow of beer to the tap when the keg runs out. The beer at the tap will simply stop.

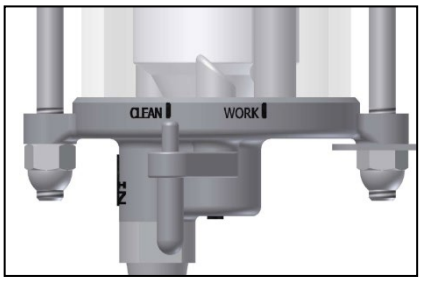
4.3.1 Changing the Keg

Once a FOB Detector has shut off the flow of beer, it is then a simple matter of changing the keg and bleeding the beer through from the keg to the FOB Detector. Once it is full of beer the float may be disengaged and trade can continue.

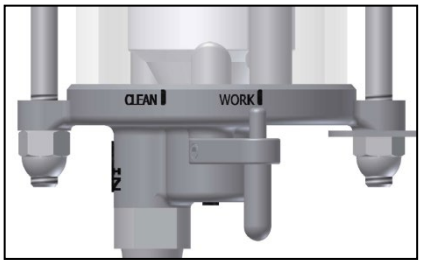


Step 1. Disconnect empty keg and tap new keg

Step 2. Open vent button until chamber is full of clear beer

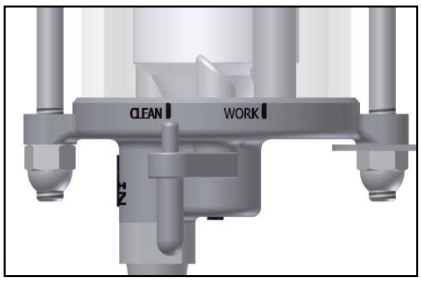


Step 3. Turn to clean position until float reaches the top of the chamber



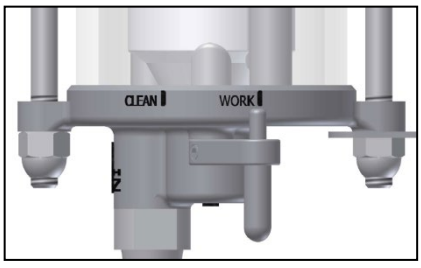
Step 4. Turn to work position, you are now ready to pour beer

4.3.2 Cleaning the Beer Lines



Step 1. Turn to clean position

Clean beer lines as per brewery recommendations



Step 2. Once cleaning is complete and you are ready to reconnect beer, turn to work position and repeat Steps 1-4 as per “Changing the Keg”

⚠	**IMPORTANT**	During cleaning, the FOB must have the detergent run through the FOB drain line to ensure the system is completely bacteria free. Be sure to flush adequately with water when cleaning.

4.4 Beer Pythons

The Beer Pythons are manufactured to suit each individual installation. The multi layered nylon beer lines are bound in cling wrap with the 12.7mm LDPE glycol reticulation lines to form a vapour seal, then covered with insulation and wrapped in tape to protect the integrity of the insulation. As the efficiency of the refrigeration system is governed by heat loss, we use a variety of insulation thickness (from 19mm up to 32mm) depending on the ambient conditions of the region. Where the python is to be run under slabs or through inaccessible areas, it is installed in a 225 mm P.V.C. Pipe. This allows for easy replacement of the python in the future, should the need arise.

4.5 Chiller Plates

The Chiller Plates are heat exchangers that chill the beer to the final dispense temperature. They have no moving parts to service and are reticulated with the chilled glycol (-2.5° C). They can be positioned in the Keg Room or directly under the fount.

4.6 Glycol Manifolds

Each Chiller Plate, Python & Fount is connected to the Glycol side of the system via Glycol manifolds. They are equipped with ½" ball valves, enabling individual dispense points to be isolated for cleaning or service work.

4.7 Founts

Beer Founts are available in a variety of shapes and sizes. The heat load on each fount varies according to its size. The riser lines are banded to and insulated with the Glycol recirculation lines to the fount to ensure correct dispense temperature.

4.8 Glycol Tank

The heart of the system is the Glycol Tank, located in the keg room. High volume stainless pumps recirculate the glycol mixture from the glycol tank, through the glycol manifolds, chiller plates, beer python, and fonts before returning to the tank for re cooling.

4.9 Temperature Control

- The temperature of the glycol tank is controlled by an electronic thermostat.
- The thermostat has 2 parameters:
  1. **Differential:** The differential setting is 1.0°C.
  2. **Cut Out Temperature:** The "cut out" temperature is set at around -2.5°C as any lower may result in frozen beer.
- At these settings the refrigeration condensing unit will switch off when the temperature is down to -2.5°C, and with a 1.0°C differential, start cooling again at -1.5°C.
- The Actual temperature of the bath is displayed on the thermostat at all times.

4.10 Refrigeration

- The condensing unit will refrigerate the glycol in the tank, python's, plates, and fonts until the desired cut out temperature is reached. When this is achieved, the thermostat stops supplying power to the solenoid valve on the tank. This stops refrigerant from entering the glycol tank. The condensing unit will run until all the refrigerant downstream of the solenoid has evaporated, and then cycle off on a pressure switch. Normal trading increases the temperature to the cut in setting on the thermostat, the thermostat engages and supplies power to the solenoid valve thus allowing refrigerant to enter the bath again. The refrigeration system will then cycle on and cool the bath down to the pre-set temperature again.
- As altering ambient conditions and keg temperatures have a dramatic effect on the cooling capabilities of the system, we allow extra tolerance when calculating "Heat Loads". That said, there is no substitute for good stock control. Minimum 48hrs cooling will ensure most of the heat should have been removed by the cool room, with your kegs down to temperature (2.0°C) prior to hook up. This is crucial if the system is to offer maximum performance through the most extreme conditions.

For any issues not covered in this manual please contact Hoshizaki Lancer on 1300 551 361

5. Basic Cellar Procedures

5.1 Changing a Keg

1. Disengage the handle of the Keg Coupler on empty keg.
2. Disengage the Drop Lead from Keg Coupler.
3. Remove the Coupler from the Keg.
4. Check the integrity of the keg seal and spray with sanitizer
5. Place Keg Coupler on the new keg and fit the Drop Lead.
6. Engage the Handle.
7. Vent the bleeder valve on top of the FOB detector until it is completely full of beer. (refer to 4.3 above for more detailed FOB information)
8. When the FOB is full of beer, use the plunger pin to disengage the float. This will allow the beer to flow through to the tap. The float should then rise to the top of the chamber. Please ensure the lever on the FOB is in the trade position to ensure correct operation of the FOB detector.

5.2 Beer Banks

BREAK THE CYCLE - Each bank should be completely run out at least weekly as part of a planned routine. The Lancer Log Book assists in keeping track of clean & service.

- FOB detectors help to run out your banks with minimal inconvenience, as changing a keg should only take a couple of minutes. By doing this it will ensure you are selling fresh beer.

- Banking Beer should be avoided. “Fresh is Best”

5.3 End of Trade Procedures

- Disengage keg couplers handles on kegs.
- Leave drop leads connected to keg coupler.
- Turn off CO2 supply.

5.4 Gas System

- This Gas System meets AS5034 and your Certificate of Compliance is completed on Appendix C in this manual.
- The system is set up for a regulator to supply 100% CO2 into the keg, marginally above equilibrium pressure. The purpose of the CO2 is to provide a blanket of CO2 on top of the beer in the keg. Brewers balance CO2 % with flavour so to keep the correct percentage of CO2 in the beer is crucial.
- The beer pump (driven by an oil less air compressor) physically transports the beer through the System.
- For Nitrogenous Beers and Stouts a separate Regulator will supply a Stout mix which is70% N2/ 30% CO2 - blend. Nitrogenous Beers when dispensed through a restrictor plate in the tap will produce the tight thick head associated with Stouts.

5.5 Recommended Maintenance Schedule

Lancer offers a Preventative Maintenance Program for all Quarterly, 6 month & 12 month checks. Please contact the National Service Centre on 1300 551 361 to obtain a quote. Check over all the cellar equipment on a weekly basis. Worn O-rings and check valves can be easily replaced and will stop costly leaks or frustration with using equipment.

Spare Parts can be ordered by:

- phoning 1300 551 361
- emailed Lancerservice@lancerworldwide.com
- website www.lancerbeverage.com

Daily

- Check gas system for leaks
- Check beer system for leaks
- Check operation of beer taps
- Inspect and replace as necessary all visible O-rings

Weekly

- Chemically clean beer lines and equipment as required
- Rinse any external residues from taps, couplers and fittings with hot water
- Check temperature of dispensed beer (.5ºC - 3ºC is acceptable)
- Check operations of glass cleaning equipment

Quarterly

- Service beer taps, keg couplers, manifolds, FOB monitors and other dispense equipment.

- Glycol and other systems as per manufacturers recommendations
- Check glycol concentration in tank

Half yearly

- Have the gas system inspected as per AS5034

Annually

- Have the refrigeration system serviced
- Have the gas system inspected as per AS5034

6. Typical Service Issues

6.1 Beer is Pouring Heady

- **Faulty Keg Coupler** - If the seal on the shaft of the coupler fails it will allow CO2 past and into the droplead, filling the FOB with CO2.
- **Lack of temperature** - check the Glycol Bath Temperature immediately. – Refer page 18 - Trouble Shooting - Glycol Bath temperature increase.
- **Hot Keg in Peak Demand** - The system is designed to operate with the temperature of the product in the kegs @ between 2 - 5° C. If a keg with a temperature greater than 10° C is tapped, you will experience heady beer as the pressure settings of the regulators are set for cold product. Replace with a keg pre chilled to 2°C.
- **Over Carbonated Beer** – Check CO2 pressures are as per settings recorded on the Commissioning Sheet. The keg may have also been tapped for too long.

6.2 Beer is not Pouring

- **Keg Coupler is not engaged** - check the keg coupler in the cool-room to see if the coupler handle is fully engaged. Damaged handle pivots sometimes prevent this..
- **F.O.B. Detector not reset -** engaged and bled. (refer to 4.3 above for more detailed FOB information)
- **Gas System turned OFF** - check if the bottle is turned on and ensure there is CO2 in the bottle.
- **Beer Frozen in Chiller Plate** (if applicable) – Check the temperature of the Glycol tank and if it is below the set point, turn off the condensing unit and call your refrigeration mechanic. .

6.3 Beer is Pouring Flat

- **Beer temperature is too cold -** Indicated by having to really work the beer to form a head. If beer temperature in the glass is too cold, the CO2 will want to stay in solution. Warm system up marginally as per instructions - Refer to setting *Glycol Tank Temperature*.
- **Beer glasses are too cold** - The beer glasses are being kept in sub zero conditions - Increase temperature of the Glass Chillers.
- **Beer glasses are dirty** - The beer pours into the glass fine but the head does not last very long - check your cleaning procedure of glasses.
- **Faulty Keg** – The seal on the keg has let all CO2 out and the beer in the keg is flat.

6.4 Beer is Pouring Slow

- **Air Compressor is turned OFF** – check power supply and Output Gauge. Isolator valve may be off.
- **Gas System is turned OFF** - check to see if the bottle is turned on.
- **Gas Bottle Empty**. - Confirm there is adequate pressure in the bottle.
- **Beer may be starting to freeze** - usually only happens with the Low Alcohol Beers with ice crystals forming. Glycol Bath temperature may need adjusting if this problem has previously occurred. - Refer to setting Glycol Tank Temperature.

6.5 Loss of Ice on the Founts

- **Glycol Tank has increased in Temperature** - Check the digital display on the Glycol Tank. The Temperature should be within the set range. If temperature is above this range, check the following :
  1. If the Snowflake Symbol on the Thermostat has a red light next to it & the Glycol Tank is not below 0°C, there is a refrigeration problem - **contact your Refrigeration Mechanic immediately.**
  2. Pump has been Turned Off - check to see if pump is running on the Glycol Tank. If the pump is not working & pump is turned on - contact Lancer Service on 1300 551 361 immediately.
- **Change of Environment in the Bar area** - Changing weather conditions effect the formation of ice. Warm breezes have a deteriorating effect on the ice formation.
- **Dirty / greasy font** - If dirty hands have been rubbing the font it will have trouble in forming ice. Clean with a dry clean cotton cloth to remove any dirt or grease.

6.6 Glycol Tank – Temperature Increase

- No power to Tank/Thermostat.
- Incorrect glycol percentage in solution causing heat exchanger to freeze.
- Compressor light is on in top left hand corner of thermostat and the tank temperature is continuing to increase - **contact your Refrigeration Mechanic immediately**.
- Tank has recently been filled with warm glycol/water.

6.7 Using Excessive Amounts of Gas

- **Gas leak on system** - Check over gas system as per Weekly Checks/ Gas Leaks
- Higher than usual turnover of kegs - this is to be expected.

7. Cleaning the System

As per the recommended Maintanence Schedule, your system should be cleaned weekly. All beer lines must be emptied of beer prior to Washout. The only cost efficient way to empty your beer lines is to trade them out. Please ensure correct PPE is worn whilst handling the class 8 chemical.

There are 3 systems used to clean lines.

- Automatic Dosing System
- Beer Pump Cleaning System
- Drum and Spear Cleaning System

7.1 Automatic Dosing System

1. Turn off the glycol chiller unit.
2. Lift Handles on all couplers, disengage from the kegs & connect to bypass cups.
3. Push FOB Lever to “Clean” . (refer to 4.3 above for more detailed FOB information)
4. Engage Coupler handles.
5. Connect the Washout Line Check Valve to Water Supply crosshead on washout board.
6. Turn Water ON to the washout board.
7. Fill the lines with water, ensuring all beer is flushed.
8. Disconnect the washout BLCV from the Water Supply crosshead on washout board and connect to outlet of the Automatic Dosing System.
9. Connect Dosing Pumps lead to the Water Supply.
10. Open Taps until detergent comes through to the taps and shut taps off.

	**IMPORTANT**	**Ensure cleaning in progress safety sign is hung over tap handles.**

11. Turn Water OFF and leave Beer Line Cleaner in the lines for minimum of 2 hrs.
12. Disconnect the washout BLCV from the Automatic Dosing System and connect to the Water Supply crosshead on washout board .
13. Turn water back ON - Flush fresh water through each tap - purging all traces of Beer Line Cleaner. Check water with PH strips provided. Remove “cleaning in process” sign from taps and return to cleaning area.
14. Turn Water OFF. Remove Washout Line Check Valve from Water Supply.
15. Remove Couplers from Bypass Cups and engage handles to clear water. Disengage couplers.
16. Connect Couplers to Kegs, gas to couplers and engage.
17. Pull Beer through taps.
18. Push FOB Lever to “Work”. (refer to 4.3 above for more detailed FOB information)
19. Switch Tank back to run. Alternate pumps in association with line clean.

7.2 Beer Pump Cleaning System – Used on under counter systems & icebanks – normally without FOB’s

1. Turn off the glycol chiller unit.
2. Connect required beer lines to the manifold on the wash out system.

3. Make up solution as per directions on beer line cleaner and fill bucket. Place the pump supply line into the filled bucket.
4. Connect the gas to the pump. Pull the beer line cleaner through and leave to soak for the recommended time by the chemical manufacturer
5. Fill the Bucket with water and let lines rinse through the beer taps for at least 20 litres per Tap.
6. Connect Beer Lines to Kegs
7. Pull Beer through.
8. Once beer has reached the tap, switch the Tank back to on.
9. Allow the system to settle for 15 minutes.
10. Check that all beer taps have clean beer i.e. no froth. If they don't, draw off beer until they run clear.
11. You are now ready for trading.

⚠	**IMPORTANT**	**It is recommended to flush water through the Flojet Pump after the line clean as beer line cleaner is corrosive and will affect the santoprene diaphrams.**

7.3 Drum and Spear Cleaning System - Using the Beer Pumps on the system to draw the chemicals through the lines.

1. Turn off the glycol chiller unit.
2. Connect required drop leads to the washout line on the tapping board.
3. Make up solution as per directions on beer line cleaner and fill the washout drum.
4. Connect the washout BLCV to water crosshead on washout board.
5. Adjust the lever on FOB to "Clean"
6. Turn Water ON at the washout board.
7. Fill the lines with water, ensuring all beer is flushed.
8. Connect the Washout BLCV to the spear in the Drum
9. Open Taps and the beer pumps will pull the detergent from the drum, through to the taps. Once filled with detergent - shut taps off.

⚠	**IMPORTANT**	**Ensure cleaning in progress safety sign is hung over tap handles.**

10. Leave Beer Line Cleaner in the lines for minimum of 2 hrs.
11. Remove Washout BLCV from Spear & Drum and connect to water crosshead on washout board.
12. Flush 20 litres of fresh water through each tap - purging all traces of Beer Line Cleaner.
13. Remove cleaning in process sign from taps and return to cleaning area.
14. Connect Couplers to Kegs and gas leads to couplers & engage.

15. Pull Beer through taps. Ensure Lever on FOB is returned to “Work”.
16. Turn on Glycol Chiller unit.
17. Allow the system to settle for 15 minutes.
18. Check that all beer taps have clean beer i.e. no froth. If they don’t, draw off beer until they run clear.
19. You are now ready for trading.

8. Propylene Glycol (USP)

Propylene Glycol is used in a wide variety of key markets including Food, Pharmaceuticals, Personal Care, Hard Surface Cleaners, and in anti-freeze/coolant applications.

Propylene Glycol is available in Two Grades:

1. Propylene Glycol Industrial Grade (PGI)
2. Propylene Glycol – US Pharmacopeias /Food Grade (PG USP).

⚠	**NOTE**	**Propylene Glycol (PG USP) is the ONLY glycol to be used in the Beer Reticulation System**

Propylene Glycol is mixed with water to allow the System to run at conditions below the freezing point of Water. The correct percentage of glycol to operate the System should be around 20% but not more than 30%. It is important to regularly monitor the glycol percentage to ensure maximum efficiency, particularly in hot weather and in peak demand. Lancers Preventative Maintanence Program will ensure so.

8.1 Checking Glycol Level

The heat exchanger, which is clearly visible when the lid of the Glycol Tank is lifted, should be covered by the solution.

8.2 Checking Glycol %

- This needs to be done at least every 3 months by a service technician.
- Using a refractometer, he will take a sample of glycol from the tank and place on the glass pane. The refractometer will give a reading and the appropriate amount of glycol will be added until the correct percentage is achieved.

9. GAS SYSTEM

9.1 Safety with CO2:

⚠	**IMPORTANT**	**Gas Equipment should be serviced by Authorized Personnel Only**

CAUTION

- **Advise someone of your intention to enter an area where CO2 is used.**
- **Remember the symptoms of excessive CO2 intake.**
- **CO2 in a confined space can kill.**
- **Never degas in a confined area.**
- **Practice team lifting when manoeuvring cylinders.**
- **When connecting up new cylinders always check that the seal is in place on the ezifit handle**
- **Use safety chains on all cylinders.**
- **Never tighten or adjust any equipment on the gas board with the gas bottle/ bulk gas turned on.**

CAUTION

Always employ safe working procedures when handling Gas and Gas Equipment.

WARNING

CO2 (Carbon Dioxide) supply. CO2 is a heavier than air, colourless, non-combustible gas with a faintly pungent odour.

Personnel exposed to high concentrations of CO2 gas will experience tremors, which are followed rapidly by loss of consciousness and suffocation.

All Non Naturally Ventilated Area's (keg Coolroom) are required to have a CO2 monitor as per AS5034.

9.2 Leak Detection

This section outlines the procedure you should follow when checking for gas leaks on all gas dispensing systems.

9.2.1 Drop Test

1. Lift all the keg tap handles to the 'off' position.
2. Disconnect the gas valves from all the kegs.
3. Turn the gas cylinder on and record the dispense pressure on the gauge at the position indicated by the needle. This is the pressure in the system.
4. Turn the gas cylinder off and wait for 30 minutes. Check the position of the gauge needle.
5. If the needle has held its position, there is no leak in the isolated gas system (from the cylinder, through the gas regulators to the gas valves).
6. If the needle drops away from the marked point, there is a leak in this part of the system.

7. If no leaks are found in the tested system, this indicates that the gas leak may be outside the tested area. Refer to the next section: "Finding the Leak"

9.2.2 Finding the leak

1. Ensure the gas cylinder has been turned on.
2. Leaks can be easily found using a concentrated soapy solution (10:1 water to detergent). Use a brush or atomiser spray to apply the solution.
3. To check gas valves, immerse them in a jug of water, any bubbles will indicate a leak.
4. To check the keg coupler, fit a washout cup, immerse the engaged coupler in a bucket of water with the product and gas lines connected. Any continuous bubbles will indicate a leak.

NOTE

Gas boards and gas equipment can be very dangerous when under pressure. When adjusting or tightening any components ensure that the bottles are turned off and all pressure released from the system for safety.

If this process fails to detect the leak, please contact Lancer Service on 1300 551 361 for assistance.

For repairs - please contact Lancer Service on 1300 551 361 for assistance.

10. Gas Types

IMPORTANT **REMEMBER SAFETY FIRST**

10.1 Carbon Dioxide (CO2)

The purpose of CO2 is to provide a blanket of gas on the surface of the beer in the keg at a slightly higher pressure than the equilibrium pressure. This prevents the CO2 percentage in the beer from changing, which would alter the taste and appearance of the beer from that intended by the brewer.

10.2 Mixed Gases (CO2/N2)

These gases are a mixture of Carbon Dioxide and Nitrogen (N2) in varying proportions. They should be used on high pressure systems to help prevent over carbonation. Stout mix is a 70%N2/30%CO2 mix required to dispense Nitrogenised Beverages.

10.3 Cylinder Pressure

The pressure in a cylinder of C02 is approximately 5-6,000kPa (800psi)

The pressure in a cylinder of mixed gas approximately 12-13,000kPa (1700psi).

	**CAUTION**	**Always employ safe working procedures when handling Gas and Gas Equipment.**

11. AS5034 CO2 Safety Equipment

All cool rooms that have a CO2 system in them require a CO2 monitor and alarm. Our “Site Risk Assessment” (Appendix D) will have highlighted and addressed any issues.

11.1 Carbon Dioxide (CO2)

	**DANGER**	**CO2 in a confined space can be lethal. In high enough concentrations it can paralyse the respiratory centre, which could result in death. Some symptoms of CO2 exposure can be shortness of Breath, rapid heartbeat, nausea, and dizziness.**

11.2 Properties

	**NOTE**	**CO2 is a colourless, odourless and tasteless gas. It is non-combustible and heavier than air. Because it is heavier than air it will be concentrated and therefore most dangerous at ground level.**

12. Thermostat – Carel Pjeasy Thermostat Parameters

NOTE:

The Thermostat may not be energised unless a pump switch is turned on.

12.1 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.
AF	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.

Controls programmed during manufacture.

All other non-used parameters are hidden to avoid confusion.

12.2 Programming Instructions

12.2.1 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.

12.2.2 Other Parameters

Push and hold the “SET” key, until “rd” is displayed.

- 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 “SET” key for 3 seconds or wait 60 seconds without pressing any keys for the unit to time out.

12.2.3 Eco Mode

In the ECO mode an offset is added to the Set point: “St” + “r4”.

To set the ECO mode press and hold the “UP” key, “on” or “off” is displayed showing how ECO mode will be changed, when “on” or “off” disappears release key. In ECO mode “Ec” is displayed alternated to probe 1, Glycol temperature actual value.

12.3 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.

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

Hoshizaki 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 Hoshizaki 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

Hoshizaki 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 Hoshizaki Lancer or its sub-contractor.

Labour

Hoshizaki Lancer will not normally cover any labour costs associated with a warranty claim. Subject to the approval of the Divisional Sales Manager, Hoshizaki 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 Hoshizaki Lancer prior to the work being undertaken

Exclusions

Hoshizaki 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 Hoshizaki Lancer, the equipment has been used in a situation the equipment has not been designed for;
b. If in the opinion of Hoshizaki 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 Hoshizaki 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 Hoshizaki Lancer or its nominees or using other than Hoshizaki Lancer approved replacement parts.

14. Install Technicians Checklist

BAR AREA	YES
Silicone around all Drip Trays.	
Core Holes filled with foam, trimmed and silicone	
Checked for Beer leaks and Glycol Leaks prior to insulating	
All Glycol and Beer Lines insulated	
Flow rate tested to 5 secs per 285ml glass	
All beer taps pouring correctly	
Temperature of 3rd Beer taken and within range of .5 – 3 degrees C	
COOLROOM	
Silicone around all boards	
All Coolroom penetrations filled with foam, trimmed & silicone	
All labelling completed - Bath, Boards, Gas, Fonts, Wash out	
All cellar equipment greased - transfer leads, keg couplers, adaptors, dropleads	
All cellar equipment tightened - transfer leads, keg couplers, adaptors.	
Each Beer Line tested for correct position and leaks	
Pythons have adequate saddles and supports	
Both pumps run (if applicable)	
Differential on Tank Thermostat set	
Glycol Bath full	
Glycol % - 20-25%	
Tank down to set temperature in normal operational time	
Tank temperature reads same as thermostat temp read	
WASH OUT SYSTEM	
Check for leaks on Washout loops, crossheads, pump.	
Dosatron Pump set - run & tested	
Detergent Lid drilled and lead fitted	
A Line Clean completed prior to pulling up Beer.	
GAS SYSTEM	
Gas System AS5034 Compliant	
Completed Certificate of Compliance.	
Are the regulators set to the correct pressure for style of system	
Correct gas being used for System	
Risk Assessment Completed	
MISCELLANEOUS	
Has the complete JOB AREA been cleared of Rubbish	
All Boards wiped down	
Glycol Tank Cleaned	
Does any other work need to be completed to obtain sign off	
Training Given	
Customer asked if anything else you can do?	
Commissioning Sheet filled in	

15. Commissioning Sheet

OUTLET
INSTALLED BY
COMMISSIONED BY

Flow Rate For 285ml Glass Of Beer	
Coolroom	
Coolroom Temperature	
Glycol Tank Cut In Setting	
Glycol Tank Differential Setting	
Glycol Percentage	
Gas System Settings	
Regulator 1	
Regulator 2	
Regulator 3	
Air Compressor Settings	
Regulator 1	
Regulator 2	
Miscellaneous	
Training & Manual Given	

Installer_____ Signed_____ Date_____

Installation has been completed to my satisfaction and is fully operational

Customer _____ Signed_____ Date_____

16. Compliance Certificate

Installation and Use of Inert Gases for Beverage Dispense (AS5034)

Lancer Technician Name: _____

Date of Compliance: _____

Venue Name: _____

Suburb: _____

Description of work:

_____

_____

_____

_____

Scope of Compliance:

☐ New Beer Gas Distribution System
☐ Addition or alteration to existing system
☐ New Beer Gas Board
☐ Repair to existing system

	Gas Distribution Board	Gas Distribution Tubing									
		Line 1	Line 2	Line 3	Line 4	Line 5	Line 6	Line 7	Line 8	Line 9	Line 10
Proof Test		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Drop Test	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
No of Points	___	___	___	___	___	___	___	___	___	___	___

17. AS5034 Onsite Risk Assessment

AS5034 Onsite Risk Assessment

To be completed by competent person

Version1.3 May 2013

LANCER | BEER SYSTEMS

Venue Name:	Customer No:
Venue Address:	Site Contact Name:
	Site Contact Number:
Location Assessed:	
Assessed By:	Date of Assessment -

LOCATION

	Yes	No
Is the equipment being installed in a "Naturally Ventilated Area"?		
If yes, proceed to section 2 of risk assessment		
Are the CO_2 gas cylinders and postmix equipment in the same location ?		
If not, each location must be assessed on a separate form.		

Assessment Form ____ of ____

Room Dimensions Height ____ m x Width ____ m x Depth ____ m = $_{(tv)}$ ____ m3

Maximum Height Allowed 2.4m

Allowance $_{(al)}$ - approx % area of goods stored $_{(al)}$ ____ Vol Room $_{(vr)}$ = ____ m3

Note: Volume Room $_{(vr)}$ equates to free airspace less stored goods at time of inspection / survey (vr = tv - al)

GAS

1. Carbon Dioxide (CO_2) 2 Cyl x CO_2 Gas ____ kg X 0.54 = Vol Gas $_{(vg)}$ ____ m3 Result

Multiply existing qty of gas in use x 2

CO_2 Gas Concentration % = (vg / vr) x 100 = CO_2 Concentration ____ % 1

Oxygen Level %=((vr-vg)/vr)x21 = Oxygen Level ____ % 3

2. Mixed Gases 2 Cyl x Mixed Gas ____ kg X = Vol Gas $_{(vg)}$ ____ m3

Multiply existing qty of gas in use x 2 (Vol X .75)X .543) + (Vol X 0.25) X .683) =

Note: Volume of gas $_{(vg)}$ refers to any gas present Eg: Argon, Nitrogen, or a mix such as Cellarmix.

CO_2 Gas Concentration % = (vg / vr) x 100 = CO_2 Concentration ____ % 2

Vol Room $_{(vr)}$ ____ Vol Gas $_{(vg)}$ ____ Oxygen Level ____ % 4

Oxygen Level % = ((vr - vg) / vr) x 21

If result 1 or 2 are above 3% CO_2 Concentration = Fail ____

If result 3 or 4 are below 19% Oxygen Level = Fail ____

SITE CLASSIFICATION

Would the quantity of gas stored / used in the area raise the gas concentration levels above the short term exposure limit (STEL) of 3% or reduce oxygen below accepted level of 19% in the event of a total gas leak ?	Yes		No	
Note: When Bulk Gas Vessels are used the answer is Yes		8		0
In the event of a gas leak or a problem, is there potential for gas to pool or otherwise become trapped and remain in area ?		8		0
Is the area in question an enclosed space, cramped, have limited natural air circulation or have limited access ? (eg: cellar, cool room or other form of storage area)		6		0
Are cylinders or gas equipment located in an area which (by definition) is NOT considered a primary place of work, even though on occasion a person may enter the area to carry out a range of tasks ?		2		0
Are cylinders / supply or gas equipment (regulator boards, postmix or FCB machines) located in an area that is outside or has equivalent natural ventilation ?		1		0

Site Classification Score ____

GENERAL AREA

	Yes	No
Are all relevant warning signs and labelling in place ?		
Is lighting sufficient to clearly read warning signs, operating instructions, equipment and gas ?		
Are all CO_2 gas bottles secured to prevent them falling over ?		

CONTROLS

	Yes		No	
Staff trained in hazards and procedures associated with gas equipment ?		6		0
Are appropriate emergency procedures in place ?		2		0
Are there appropriate means of dispersing gas leak (eg: door) ?		2		0
Is gas detection monitoring equipment installed ?		8		0
Is there an appropriate safe system of entry and work ?		2		0
Are safety relief valves pipelined to discharge to a safe area ?		2		0
Is there mechanical ventilation present ?		4		0

Control Score ____

Risk Score Assessment

To be completed by competent person

Step 1 - Determine Site Classification Category

Based on information from Onsite Risk Assessment, determine Site Classification Category from table below.

Score	Category	Consequence
20 or above	A	Major
16 - 19	B	Moderate
7 - 15	C	Minor
6 or less	D	Insignificant

Score

Category

Consequence

Step 2 - Determine Likelihood Category

Based on information from Onsite Risk Assessment, determine Likelihood of injury happening Category from table below.

Circumstances of Likelihood	Likelihood
Is expected to occur in most circumstances	Almost Certain
Will probably occur in most circumstances	Likely
Might occur at some time	Possible
Could occur at some time	Unlikely
May occur only in exceptional circumstances	Rare

Likelihood

Step 3 - Determine inherent Risk Rating

Using information from Site Classification and Likelihood Categories above, plot into matrix below to determine Inherent Risk Rating

Consequence / Likelihood	D Insignificant	C Minor	B Moderate	A Major
Almost Certain	Moderate	High	High	Extreme
Likely	Moderate	Moderate	High	High
Possible	Low	Moderate	High	High
Unlikely	Low	Low	Moderate	Moderate
Rare	Low	Low	Moderate	Moderate

Inherent Risk Rating

Step 4 - Determine Existing Controls Rating

Based on Controls Score from Onsite Risk Assessment, determine Control Rating using table below.

Score	Existing Control Rating
20 or above	Excellent
10 - 19	Good
7 - 9	Poor
6 or less	Not satisfactory

Existing Controls Score

Existing Controls Rating

Step 5 - Determine the Residual Risk

Using the below matrix, determine the Residual Risk Rating, using the Inherent Risk Rating from Step 3 and the Existing Controls Rating determined in Step 4.

	Inherent Risk Rating			
Existing Control Rating	Low	Moderate	High	Extreme
Not Satisfactory	Low	Moderate	High	Extreme
Poor	Low	Moderate	High	Extreme
Good	Low	Low	Moderate	High
Excellent	Low	Low	Low	Moderate

Residual Risk Rating

Comments *(please note any site specific comments or discussions held with site contact)*

Please retain records of completed sheets