

INSTALLATION, OPERATION  
&  
MAINTENANCE MANUAL



BERG B-AR, B-W SERIES SHELL-ICE MAKER

BERG

For 24 hour service inquiries, Please call  
(416) 755 – 2226

## BERG SERIES SHELL-ICE MAKER OPERATION & MAINTENANCE MANUAL

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## 1.0.0 INTRODUCTION

Your BERG chilling system has been carefully assembled and engineered to give trouble free service with a minimum of maintenance.

1.1.0 The simplicity of operation and maintenance of the SHELL ICE MAKER ICE MACHINE is its unique feature. Any mechanic with the basic knowledge of refrigeration cycles will be able to keep it operating at peak efficiency.

1.2.0 Before leaving our plant, each machine is tested, operated, and capacity checked. For air cooled models, refrigerant is pumped down into receiver and valves are closed before shipment.

Occasionally, minor adjustments during start-up and operation are necessary to compensate for such differences as water pressure, water temperatures or ambient temperatures.

1.3.0 Shipped inside the electrical panel door, you will find:

- Our service manual
- Electrical diagram
- Piping and Instrumentation Diagram

1.4.0 Before you begin to install and start your unit, we urge you to carefully read through and digest this literature to familiarize yourself with its contents.

1.5.0 This service manual describes the following type of ice machine:

- (a) Shell Ice Maker with a water cooled condenser.
- (b) Shell Ice Maker with an air cooled condenser.

1.6.0 On the next few pages, you will see sketches and drawings showing major components, details of site connections, water piping, and refrigeration piping. The main frame size, number of evaporator tubes and condenser fans may, however, vary with models.

1.7.0 In line with our CONTINUOUS IMPROVEMENT policy, other models are added to the existing standard models and regularly updated product catalogues are available. Inquiries can be made on special requirements to come up with custom made products.

## 2.0.0 INSTALLATION AND START-UP INSTRUCTIONS

2.1.0 Un-crate the unit, being careful not to damage external panels.

2.2.0 Set unit in permanent location in level position with bottom channel of unit frame as reference.

Anchoring of this unit to concrete or wooden floor is not necessary. However, rubber isolations are recommended if the unit is mounted directly on steel structure.

Set remote air cooled condenser in permanent location at an elevated position, at least five feet (1.52 meters) over and above the height of the refrigerant return line. See attached diagram at end of manual for visual reference.

2.3.0 For preventing any possible damage to evaporator tubes during shipment, precut polyethylene cushions are inserted between tubes and spaces between end tubes and ice making section end walls.

2.4.0 Site Connections Required

Water drains necessary are;

- One 1" (25mm) drain from sump

Suggested drain routing is shown on enclosed drawing for site connection.

Pipe water supply for ice making to the ½" (13mm) line.

NOTE: On models producing 7 tons of ice and above per day, a low water pressure control is incorporated to prevent the compressor from operating when the water pressure is inadequate (12 psig 85 KPa min.). On small models, a float switch is incorporated with the circulating pump to prevent the system from operating with critically low water level inside the water tank.

### **For Remote Cooled Models**

Make refrigerant line connections between main unit and the remote condenser (see enclosed drawing on remote air cooled units).

2.5.0 Electrical Connections Required

Open electrical panel door by releasing the door latches for lock screws. Make electrical connections through conduit where shown. Feed wire size required for the machine should be suitable for K.V.A. connected load rating indicated on nameplate.

### For Remote Air Cooled Models

Make electrical connections between the electrical panel on main unit and the remote condenser fan or condensing unit.

Make electrical connection for power supply to the remote condenser fan or condensing unit.

Voltage required and furnished should be checked at this time.

Follow recommendations as per wiring diagram, and local electrical code applicable in your area.

- 2.6.0 Open suction and discharge valves on compressor, and also open inlet and outlet valves on receiver (air cooled models), or condenser (water cooled models).
- 2.7.0 Check system for refrigeration leaks.
- 2.8.0 Turn main circuit breaker to "ON" position to energize crankcase heater on the compressor. **This heater should be left on for at least 24 hours before starting up the compressor.** Inside electrical panel turn screw drive switch and water pump switch to "manual" position. Check water flowing down on inside and outside surfaces of evaporator tubes. A ball valve is provided on the pump discharge so that water spray from outer ring and inside nozzle can be adjusted, and over-spray (higher than the outer ring and nozzle horizontal levels) can be avoided: water should be streaming evenly down the tube and covering all tube surfaces. Check the rotation of the auger: auger should turn clockwise. Turn screw drive switch and water pump switch to "automatic" position.
- 2.9.0 Make sure that water supply valve is fully open. Make sure that water tank fills, and water fill valve shuts off automatically.
- 2.10.0 Check to see that oil level is 1/3 to 1/2 up on compressor sight glass.
- 2.11.0 To operate machine please see Schneider Controller.
- NOTE: Final thickness adjustments are done at the site.
- 2.12.0 During freeze cycle, the liquid solenoid valve will open, and during harvest cycle, the hot gas solenoid valve will open, thereby energizing one of the two indicating lights located on the electrical panel door.
- 2.13.0 The ice machine is fitted with a water tank water level control, adjust water level with respect to the type of control it is fitted with as follows:

The water fill valve (see enclosures) measures water level by means of a diaphragm that responds to water head. Diaphragm movement drives a servo type main valve which controls the flow of water into the tank. The adjusting knob is factory set to maintain 5" (125mm) water level in the tank. Turning the knob clockwise or counter-clockwise raises or lowers the level; minimum water level is 4" (102mm) above the fill valve centerline.

The water level in the tank should be maintained at approximately 1" (25mm) below overflow stand-pipe for normal water conditions during freeze cycle.

2.14.0 Re-check oil level and check oil pressure which should be 12 to 18psi (85 to 130 KPa) above suction pressure. Always confirm oil pressure and oil level on manufacturer's manual of compressor package.

2.15.0 Check the voltage and current being drawn by the machine at electrical supply. Compare it with the total running amps indicated on the panel nameplate. Also check running amps of various components on the machine and compare with those mentioned on the shop test sheet. A considerable difference may suggest a problem and should be corrected before proceeding further.

2.16.0 On normal operation, if desired that, the compressor and the system will be stopped, turn selector switch to "OFF" position.

NOTE: To stop the machine anywhere in the cycle because of a problem, an emergency stop push button is provided. After the "E-Stop" push button is pressed, for additional safety turn to "OFF" selector switch.

2.17.0 If compressor is shut off by lube-oil safety switch, or if control circuit breaker is opened, reset button(s) must be pushed before compressor can be restarted.

Do not reset safety controls more than once before determining cause of shut-down.

NOTE: If compressor package shuts down due to low oil, use a REFRIGERANT RECOVERY UNIT to withdraw refrigerant inside the package and transfer it back to the liquid receiver, before adding oil. The procedure will facilitate easy start up after sufficient amount of oil has been added. For where to add oil, please consult manufacturer's manual of the compressor.

2.19.0 If ice machine is one of the many related machines in the ice plant system, carefully read instructions how it coordinates with the whole system, instruction on electrical coordinates are usually found stated under NOTES of electrical schematic. Usually an ICE PLANT SYSTEM manual is provided, explaining the coordinated operation of the ice machine with the other related machineries.

### 3.0.0 VARIOUS POSITIONS AND SETTINGS

#### 3.1.0 **Normal Valve Positions**

##### 3.1.1 Open

- Compressor suction and discharge service shut-off valves.
- Receiver or condenser inlet and outlet valves for refrigerant
- Make up water supply valve.
- Cooling water inlet and outlet valves on condenser (water cooled models only).

##### 3.1.2 Closed

- Compressor oil drain valve closed and capped.
- Accumulator oil drain valve closed and capped.
- Refrigerant charge valve closed and capped.

#### 3.2.0 **Normal Control Settings**

(a) LP switch (factory set) – **DO NOT CHANGE**

(b) OFS Oil failure control (factory set) – **DO NOT CHANGE**

(c) Thermostatic expansion valves set for 8°F (14.4°C) degree superheat.

(c) Water pressure control set for 12 psig (85 KPa).

NOTE: Always consult manufacturer's manual of compressor package on safety control settings.

#### 3.3.0 **Normal Operating Pressures**

During the operation of the ice machine, the compressor is set to operate at approximately 260 psig (1790 Kpa) head pressure during the freeze cycle.

At start of harvest, the head pressure will drop to approximately 175 psig (1210 KPa) and will rise to approximately 205 psig (1410 KPa).

Suction pressure during freeze cycle should be approximately 50 psig (345 Kpa), and at the time the ice drops, rises to 70 to 80 psig (480 to 550 KPa). Immediately after harvest it will drop gradually to approximately 50 psig (360 KPa) and will then level out at approximately 40 psig (330 KPa).

#### 3.4.0 **Bin Limit Control Operation (If system is fitted with one).**

As ice is discharged to the ice bin, ice will start to pile up inside the bin. A bin limit control is installed to stop the ice machine when the ice pile reaches the desired maximum level. A lighted red indicating light (ice limit control) on the electrical panel box will indicate that the bin is full.

Make sure that the “ice limit control” light is off when restarting the ice machine. Follow procedure 2.11.0, on start-up of the machine.

NOTE: When “Ice limit control” light stays on despite that the bin ice level had already lowered, check the proximity probe and make sure that there are no solids within ten inches (250mm) in front of it.

When Ice bin is with a RAKE ASSEMBLY SYSTEM, when full bin limit is reached, an input signal to the controller will initiate an output relay to cut off the ice machine main control circuit and stops the ice machine.

#### 4.0.0 SCHNEIDER CONTROLLER

This model Ice Machine uses adjustable timers to control the ice making, harvest and ice sub-cooling time.

##### 4.1.0 FEATURES

The Schneider Controller provides comprehensive monitoring and alarm features covering compressor operation, freeze cycle, harvest cycle, water tank level, auger drive operation, and ice-bin level (optional).

It features four timers, all with adjustable pre-sets (within set limits) to customize the operation of the ice machine:

| TIMER NAME          | TIMER RANGE    | FUNCTION                                                                                                                                                                       |
|---------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ice Thickness       | 3 - 30 minutes | Controls the thickness of the ice (6 min. corresponds to ¼" thickness)                                                                                                         |
| Harvest Termination | 0 - 10 minutes | Trips an alarm if the harvest cycle fails to terminate before the set time                                                                                                     |
| Sub-cool            | 0 - 30 seconds | Used to produce colder, dryer ice: Shuts off the water pump but remains in freezing mode for the set time. This reduces the temperature of the ice making it colder and dryer. |
| Condenser           |                | Delays start of compressor until water flows through the condenser                                                                                                             |

### 5.0.0      ENCLOSED INFORMATION

- Water pump
- Low water pressure control
- Lube oil Protection control
- Refrigeration HLP control
- Thermostatic expansion valve
- Liquid solenoid valve
- Hot gas solenoid valve
- Filter drier
- Water fill valve
- Programmable logic controller
- Pressure regulators
- Compressor manual and parts list

**6.0.0      ICE MACHINE FIELD START UP REPORT**

MODEL NO: \_\_\_\_\_

DATE: \_\_\_\_\_

UNIT SERIAL NO. \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

SITE ADDRESS: \_\_\_\_\_

**POWER SOURCE:**

VOLTS: \_\_\_\_\_

PHASE: \_\_\_\_\_

CYCLE: \_\_\_\_\_

**START UP MADE BY:**

COMPANY: \_\_\_\_\_

MECHANIC: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

| START UP AND FINAL ADJUSTMENTS |                                                                                                                                                                                                                                                                    |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ITEM NO                        | (READINGS TAKEN AFTER FINAL ADJUSTMENTS AND AFTER THREE COMPLETE CYCLES – FREEZING & HARVEST)                                                                                                                                                                      |
| 1                              | AMPS DURING FREEZE CYCLE AT MAIN DISCONNECT<br>L1_____ L2_____ L3_____                                                                                                                                                                                             |
| 2                              | SUCTION PRESSURE AT END OF FREEZE CYCLE _____<br>PSI/KPa SUCTION                                                                                                                                                                                                   |
| 3                              | PRESSURE AT END OF HARVEST CYCLE _____ PSI/KPa DISCHARGE<br>PRESSURE                                                                                                                                                                                               |
| 4                              | DURING FREEZE CYCLE _____ PSI/KPa                                                                                                                                                                                                                                  |
| 5                              | AT RECEIVER:<br>PRESSURE TAKEN AT OUTLET VALVE DURING FREEZE CYCLE<br>_____ PSI/KPa                                                                                                                                                                                |
|                                | OUTSIDE AMBIENT TEMPERATURE _____ deg F/deg C                                                                                                                                                                                                                      |
|                                | WATER SUPPLY TEMPERATURE _____ deg F/deg C                                                                                                                                                                                                                         |
| 6                              | WATER TANK TEMPERATURE _____ deg F/deg C                                                                                                                                                                                                                           |
| 7                              | MIN. _____ SEC                                                                                                                                                                                                                                                     |
| 8                              | ICE HARVEST CYCLE: _____ MIN. _____ SEC.                                                                                                                                                                                                                           |
| 9                              | ADJUSTMENTS MADE: (INCLUDE ONLY IF ORIGINAL SETTINGS<br>WERE CHANGED)<br>HIGH PRESSURE SWITCH SETTING _____ PSI/KPa<br>LOW PRESSURE SWITCH SETTING _____ PSI/KPa<br>WATER LEVEL AT WATER TANK DURING FREEZE CYCLE FROM END<br>OF OVERFLOW STANDPIPE: _____ INCH/MM |

# Caution

For Ice Machines:

Damage, Failures or poor performance associated with the following conditions are not covered by warranty.

- Freight Damage
  - Lack of proper maintenance
  - Misapplied, unstable or imbalanced power supply
  - Incorrect or loose electrical connections
  - Blown fuses
  - Incorrect phasing or rotation of fans, pumps, motors or compressors
  - Unauthorized adjustments
  - Tampering with valves or control settings
  - Leaks
  - Failure of components due to over pressurization
  - Improper refrigerant charge
  - Failure to initiate power, 12 hours prior to start-up of the ice machine
  - By-passing of any safety devices or pressure controls
  - Dirty supply water
  - Failure to provide adequate bleed off
  - Fouling or plugging of components
  - Operating the system with dirty evaporator tubes
  - Operating the system with dirty condenser
  - Operating the equipment outside of the original design specifications
- 
- Poor refrigerant piping practices
  - Locating the condenser below the elevation of the ice machine return connection
  - Locating a remote condenser in excess of 40 linear feet from the ice machine without consulting with the factory
  - Improper refrigerant line size(s) to or from rooftop condensers
  - Improper or poor rooftop condenser location
  - Improper evacuation of refrigerant lines prior to installation of refrigerant and start up

Note: All consumable items are not covered by warranty.  
Example: Oil, filters, fuses, fan belts, refrigerant.

## SERIAL PLATE & EQUIPMENT IDENTIFICATION

A serial plate like the SAMPLE shown below has been affixed to the apparatus, and it gives the following information:

|                                                                                     |                  |
|-------------------------------------------------------------------------------------|------------------|
| <b>SERVICE &amp; PARTS</b>                                                          |                  |
| (416) 755-2221                                                                      | Business hours   |
| (416) 755-2226                                                                      | After hours      |
| (416) 755-6022                                                                      | FAX service      |
| email: service@berg-group.com                                                       |                  |
| <b>24 HOURS / 7 DAYS</b>                                                            |                  |
| MODEL NO.                                                                           | WCS-90-3/1       |
| SERIAL NO.                                                                          | W01033A-AH1-1002 |
| <b>CENTRAL CHILLER</b>                                                              |                  |
| 65 55 46 0257 07.5 105 085                                                          |                  |
| V / Ph / Hz                                                                         | 5/5/3/60         |
| AMPS                                                                                | 121              |
| HP                                                                                  | 120              |
| KW                                                                                  | .1               |
| VA = 1.73 x Volts x Amps                                                            |                  |
| Suitable for use on a circuit capable of                                            |                  |
| delivering not more than 100,000 <sub>rms</sub>                                     |                  |
| symmetrical amperes, 600 volts maximum                                              |                  |
| <b>BERG</b>                                                                         |                  |
| BERG CHILLING SYSTEMS INC.                                                          |                  |
| 51 NANTUCKET BLVD., SCARBOROUGH                                                     |                  |
| ONTARIO, CANADA, M1P 2N5                                                            |                  |
|  |                  |

(example of Serial Plate)

- Whenever using this manual, check first that the serial number on the inside cover is identical to that on the serial plate of the equipment.
- In all correspondence with BERG, please refer to the manufacturing serial number, for true identification of the equipment.
- Whenever contacting BERG, be sure to state the manufacturing serial no.(s), and model no.(s).

## 7.0.0 Limited Warranty

Berg Chilling Systems Inc. ("Berg") warrants to Buyer that upon delivery to Buyer the Products purchased hereunder shall conform to the applicable Seller's specifications as provided in the quotation. Except as are contained herein, Berg makes no warranties, conditions, guarantees or representations relating to the Products, express or implied, statutory or otherwise. The Seller warrants all Products it manufactures to be free from defects in workmanship and material when used under conditions recommended by us. The Seller's obligation under the warranty is limited to repair or replace or otherwise make good, at our factory, any parts which, within one year after date of shipment of equipment of our manufacture to the original purchaser, after being returned to us with transportation prepaid, and upon our examination, shall disclose to our satisfaction to have been defective. The Seller neither assures, nor authorizes any other persons to assume for us, any liability in connection with the sales of our equipment except under the conditions of this warranty. The warranty does not cover any field (on site) labour charges for replacement of parts, adjustment, repairs, or any other work done. This warranty shall not apply to any Product or apparatus which in our opinion has been subject to misuse, negligence, or pressures in excess of limits recommended by us, or which have been repaired or altered outside Berg's factory or which have had the serial number(s) removed or defaced. This warranty does not cover refrigerant gas, nor does it cover any apparatus damaged from freezing of water or heat transfer fluid. Replacement or repair of defective material will be EX WORKS our factory, and will assume any used portion of this warranty. All defective parts become the property of Berg and must be returned within fifteen (15) days of the replacement date, transportation prepaid, as advised by Berg, to become eligible for replacement under this warranty. Warranty Claim Forms, found in the Product Owner's Manual, must accompany all warranty claims and parts returns or this warranty shall not apply. Berg is not responsible for any sales, use, excise, duty or any other applicable taxes associated with the replacement of parts under this warranty. This warranty is only effective with all the terms and conditions of the Product quote being met, and it is understood that time is of the essence in this agreement. Repair or replacement of products not of our manufacture will be limited to the warranty of the manufacturers of such products. Seller shall transfer to Buyer whatever transferable warranties and indemnities Seller receives from the manufacturers of any subcomponents of the Products, if any, including any transferable warranties and indemnities in respect of patent infringement. See the Product Service Labour Policies in your Product Owner's Manual for possible extensions to this Warranty.

This is an expressed warranty of merchantability and or fitness for a particular purpose; all other implied warranties and any liabilities not based upon contract are hereby disclaimed and excluded by this warranty.

In accordance with Section 7 of our Standard Terms and Conditions of Sale, under no circumstances shall Berg Chilling Systems Inc. be liable for loss of prospective or speculative profits, or special, indirect, incidental, or consequential damages.

This warranty is a part of the Standard Terms and Conditions of Sale of Berg Chilling Systems Inc.

## Service Labour Policy

Berg's Service Labour Policy extends the One (1) Year Limited Warranty to include labour on a limited basis, to the original purchaser only (see the Limited Labour Allowance Schedule in your Product Owner's Manual for allowable service hours). Berg will provide a Service Technician or reimburse the Buyer in accordance with this Policy, to diagnose the problem, repair or replace or otherwise make good, any part of equipment of our manufacture, which within one year after the date of shipment to a destination within Canada or continental United States of America ("the Territory"), and upon our examination, shall disclose to our satisfaction to have been defective. If the Product or equipment is located outside "the Territory", our limited warranty only, ex works our factory, shall apply for one year from the date of shipping (see Standard Terms and Conditions of Sale). Berg neither assures, nor authorizes any other persons to assume for us, any liability in connection with the sale of our equipment except under the conditions of this Policy. This Service Labour Policy does not apply to Temperature Control Units (TCU's).

The Service Labour Policy does not cover any field (on site) labour charges during overtime hours (5:00pm to 8:00am or during weekends and holidays) nor does it cover charges, labour or otherwise, associated with travel and accommodation, adjustments and maintenance, or work done outside of Canada and continental USA. Any cost differential for overtime labour charges will be the responsibility of the Buyer. Service Labour rates applied to the Limited Labour Allowance Schedule, will be the mean rate, as determined by Berg, of the equipment destination service area.

This Policy is voided and shall not apply if in our opinion, the Product has been subject to misuse, negligence, or pressures in excess of limits recommended by Berg, or which have been repaired or altered outside Berg's factory or authorization or which have had the serial number(s) removed or defaced. This Policy does not cover refrigerant gas or any labour associated with its evacuation or replacement nor does it cover any Product or apparatus maintenance or any apparatus damaged from freezing of water or heat transfer fluid. Any work determined to be associated with the above will be the responsibility of the Buyer.

Berg is not responsible for any sales, use, excise, duty or any other applicable taxes associated with the replacement of parts or labour under this Policy. This Policy is only effective with all the terms and conditions of our quote being met, and it is understood that time is of the essence in this agreement. This Policy is not transferable.

All Service Policy Labour must be authorized by Berg prior to any work being performed and must have a Berg Purchase Order issued specifically for the work. Warranty and Service Labour Claim Forms, found in the Product Owner's Manual, must accompany all Service and Warranty claims and parts returns or this Policy shall not apply. All defective parts become the property of Berg and must be returned within fifteen (15) days of the failure, transportation prepaid, as advised by Berg, to become eligible for replacement under this policy.

Products not of our manufacture do not qualify for this Service Labour Policy, and will be limited to the warranty of the manufacturers of such Products.

This Policy is a part of the Standard Terms and Conditions of Sale of Berg Chilling Systems Inc.

## Warranty Claim Procedure

Labour warranty, will only be allowed in those situations where defects have occurred as a direct result of factory workmanship or defects in materials.

### Claim Procedures:

- Consult the Factory immediately of any problems you are having with your equipment. Phone 416-755-2221 or fax 416-755-6022.
- If required Berg will supply contact information for the local authorized Berg Service Contractor in your area; or if you wish you can use your own contractor, provided he is licensed and qualified as required by local governing authorities and it is agreed upon by Berg.
- After the contractor has arrived on site and determined the cause of the problem; the contractor must consult with the factory before proceeding with any repairs.
- Once you have had your equipment repaired, complete the "Warranty Claim Form." All claims must be submitted on the *Warranty Claim Form* found in the owners manual.
- A signed service report from the Contractor detailing all work performed and an invoice copy must accompany the "Warranty Claim Form."
- Claims must be faxed to "Berg Service Department" @ 416-755-6022 no later than 15 days after the failure has occurred.
- Claims in excess of the "Limited Labour Allowance Schedule" may not be processed.
- Berg reserves the right to adjust and/or refuse any claims that appear excessive or fails to meet the Claims Procedure.
- No claims will be processed if defective parts are not returned to Berg prepaid.

Use the "Limited Labour Allowance Schedule"[found in the owner's manual] as a guide to calculate the amount Berg will reimburse for required repairs on equipment found to be defective. The schedule shows the maximum man-hours, which will be reimbursed at the normal hourly rate of \$54.00/Hr.

Berg will not pay for:

- Labour at overtime or premium rates
- Labour in excess of the "Limited Labour Schedule"
- Service charges, mileage, travel expenses of any kind
- Miscellaneous materials
- Freight
- Taxes or any special fees

## LIMITED LABOUR ALLOWANCE SCHEDULE

| DESCRIPTION OF<br>FAILED COMPONENT              | SIZE IN HP | MAX. ALLOWANCE MAN HOURS |         |
|-------------------------------------------------|------------|--------------------------|---------|
|                                                 |            | REPAIR                   | REPLACE |
| Compressor                                      | 3-10 HP    | 1                        | 4       |
|                                                 | 15-25 HP   | 2                        | 6       |
|                                                 | 30-40 HP   | 2                        | 8       |
|                                                 | Over 40 HP | 4                        | 10      |
| Leaks                                           | All        | 2                        | 2       |
| Electrical Wiring, Controls,<br>Microprocessors | All        | 1                        | 2       |
| Refrigerant Valves or<br>Components             | All        | 1                        | 2       |
| Motors                                          | 1-10       | 1                        | 2 1/2   |
|                                                 | 10 and Up  | 2                        | 4       |
| Pumps                                           | All        | 2                        | 3       |

## MAX. ALLOWABLE MAN HOURS

|               |   |
|---------------|---|
| Diagnostic    | 1 |
| Miscellaneous | 1 |

## Service Labour Claim Procedures

Using the “Limited Labour Allowance Schedule” [above] as a guide to calculate the amount Berg will reimburse for required repairs to equipment found to be defective.

This schedule shows the maximum man-hours, which will be reimbursed at the normal hourly rate of \$54.00/Hr.

Labour warranty, will only be allowed in those situations where defects have occurred as a direct result of factory workmanship or materials.

### **Claim Procedures:**

All claims must be submitted on Berg's “*Warranty Claim Form*.”

Claim forms are found in the equipment owner's manual or can be supplied upon request.

If a contractor is used to make the repairs, a signed service report and a company invoice must accompany the “Warranty Claim Form.”

Claims must be faxed to “Berg Service Department” @ 416-755-6022 no later than 15 days after the failure has occurred.

Claims in excess of the “Limited Labour Allowance Schedule” will not be processed.

## Warranty Claim Form

|                                            |          |       |
|--------------------------------------------|----------|-------|
| Fax to: Berg Service Dept.<br>416-755-6022 | Claim #: | Date: |
|--------------------------------------------|----------|-------|

|                                                                                                                                                |                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| Claim Submitted By: _____<br>Company: _____<br>Address: _____<br>_____<br>Phone #: _____<br>Fax #: _____<br>Berg Model #: _____ Voltage: _____ | Job Name: _____<br>Address: _____<br>_____<br>Phone #: _____<br>Fax #: _____<br>Serial #: _____ |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|

|                  |                            |
|------------------|----------------------------|
| Date of Failure: | Date of Original Start-Up: |
|------------------|----------------------------|

### Details of Failure

| Describe the nature of the failure. | Part Number(s)<br>[if applicable] | Quantity | Cost for Repairs |
|-------------------------------------|-----------------------------------|----------|------------------|
|                                     |                                   |          |                  |
|                                     |                                   |          |                  |

|                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |  |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Requesting:    Repair _____<br>Replace _____<br>Reimbursement _____<br>Other _____ | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 100px; padding: 5px;">Total:</td> <td style="width: 150px;"></td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">           To qualify for Limited Labour Warranty, you must include a signed service report and a copy of the contractor's invoice.<br/>           Attached:    Yes:            No:         </div> | Total: |  |
| Total:                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                     |        |  |

Do not write below this line.

Date Form Received: \_\_\_\_\_

Warranty Claim Form Being Handled By: \_\_\_\_\_

**Note:** All defective parts must be returned prepaid and within 15 days of the failure date.  
 No credit will be issued if the defective parts are not returned prepaid and within the specified time allowed.

## 8.0.0 Spare Parts List

**9.0.0 COMPONENT SPECIFICATIONS**

Please see the following pages for major equipment specifications.