POLAR BEAR WATER DISTILLERS

MFG. CO. LTD.

MODEL 100-L

INSTRUCTION MANUAL

Includes:

Part #:	**Series #:**
107001	**0006**

PLEASE READ THIS MANUAL THOROUGHLY BEFORE ASSEMBLING AND USING DISTILLER.

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DISTILLER INFORMATION

Model: **100-L**

Series Number: _____

Serial Number: _____

Purchase Date: _____

Purchased From: _____

Installation Date: _____

Installed By: _____

Pump Serial Number: _____

Purchase Date: _____

Auto Drain Serial Number: _____

Purchase Date: _____

*To obtain the optimum performance capability engineered into your **Polar Bear** water distiller, please follow instructions and guidelines carefully. Please keep this manual in a safe place for your reference.*

SECTION 1 - INTRODUCTION

Congratulations! You are now the owner of one of many fine products manufactured by **Polar Bear Water Distillers Mfg. Co. Ltd.,** a world leader in the pure water industry. We take pride in our solid reputation for product quality and industry-proven performance.

This product has been carefully inspected to comply with rigid factory quality control standards, as well as those of the Canadian Standards Association (CSA), Underwriters Laboratories (UL)*, and National Sanitation Foundation International (NSF)** before shipment to you. We are sure that, with reasonable care, it will provide you with years of reliable performance.

We at Polar Bear Water Distillers - compliment you on your choice - and know you will enjoy the purest and healthiest water available ...because "***We care about the water you drink!".***

** Note: The physiological effects of the operation of this appliance, beneficial or otherwise have not been investigated by Underwriters Laboratories Inc.*

*** Note: The National Sanitation Foundation International has only tested for reduction of certain chemicals in accordance with Standard 62, Drinking Water Distillation Systems.*

SECTION 2 - DISTILLATION USES, BENEFITS AND PROCESS

Uses:

- Provides the *purest drinking water* - reduction of certain chemicals, impurities, pollutants and bad taste.
- *Clear ice cubes* - not only are they more shiny due to the absence of impurities in the water, but they are also harder. Distilled water freezes quicker than tap water because there are no impurities to lower the freezing point.
- Better tasting *tea and coffee* - and economical. Using distilled water to make coffee or tea requires approximately 1/3 less grounds or tea leaves. There will be somewhat light color, but just as rich flavor, as well as a less-bitter taste. For better juices and drinks - distilled water provides a taste much closer to the fresh product. Normally, you may add about 25% more water and because the distilled water is free from chlorine, there will be no interaction between the chlorine and the Vitamin C.
- Use it for all *cooking and baking,* for standard results from favorite recipes. Flavors come through naturally, and because distilled water absorbs slightly more flour than tap water, baked goods have a better texture. *Pasta products* will absorb more distilled water than tap water, producing better texture and flavor, as well as less tendency to cling together. Because distilled water boils at a lower temperature than tap water, there is also a saving of time and energy costs. *Canning fruits* and vegetables - not only do they retain a more natural color, but the flavor is better. There is more success in the sealing of jars and a much lower spoilage rate due to the fact that the water is sterile. *Do not use distilled water in aluminum pots,* as it will "leech" the aluminum into the food.
- Eliminates scale buildup on pots, tea kettles, coffee pots, humidifiers, vaporizers, steam irons, etc. Any appliance that requires water will last longer.
- Use it for all *infant care* and formulas.
- Promote growth for seeds - a higher degree of germination and quicker. Sprouts may then grow free of contamination and retain their crispness for a longer period of time. Use for *watering plants* to eliminate chemical buildup in the soil. Distilled water leaves no spots when they are sprayed or misted.
- Use it for all *personal hygiene - final rinse* for softer hair, *rinsing the face* before applying makeup, *brushing teeth,* as well as a *mouthwash* and for gargling. Perfect for *feminine hygiene.* Distilled water is also used for *contact lens care.*
- *Wine making or mixing drinks* - less alcohol can be used to achieve the same flavor. Chlorinated tap water can react with alcohol to form dangerous by-products.

- Excellent *drinking water* for *pets* and for *topping off aquariums.*
- Use it for all *medical needs* - cleaning cuts and abrasions, dialysis machine, sterilizers, respirators, vaporizers and humidifiers.
- Automobile care - for batteries, as well as windshield washers - leaves no spotting.
- Photographic equipment and laboratories.

Benefits:

Distillers are more effective than reverse osmosis in contaminant reduction, even on very high levels of contaminants such as nitrates, sodium, bacteria, pesticides and herbicides. Independent laboratory testing has proven **Polar Bear** water distillers remove more than 99% of harmful contaminants from water. The distillation process does not rely on physical barriers which can break down or fail and let contaminants through without the user realizing it, nor does it require a complicated disinfecting process when used on water containing bacteria. The prolonged boiling process of water distillers is critical for killing and eliminating bacteria and viruses. No other process is as effective or as reliable.

Our distillers are highly effective on low or varying water pressures, temperatures and pH, without optional costly equipment. Consistent, high quality water will be produced for the life of the appliance and this quality of water will not decline with use. **Polar Bear** water distillers are extremely durable, trouble-free appliances that require a minimum of service and maintenance for efficient and complete operation.

Process:

The process of distillation duplicates Nature's hydrologic cycle. In nature, the heat of the sun vaporizes the water and draws it from the earth's surface into the atmosphere, leaving the impurities behind. As the vapor cools, it condenses and falls back to earth as rain, snow and other forms of precipitation, Unfortunately, as it falls back towards earth again, it picks up many forms of contamination.

Distillers are designed to duplicate Nature's hydrological cycle, but they take it a step further by producing high purity water in a chamber, essentially free from pollution. Distillers boil the feed water, creating steam. The steam rises, leaving virtually all impurities behind in the feed water chamber. The steam is collected and condensed as clean, distilled water. The impurities that remain in the feed water chamber are expelled to a drain.

Distillation is the only water treatment process that does not rely on physical barriers to separate good, clean water from contaminants. Provided the instruction manual is followed, our distillers will reject contaminants just as effectively ten years after installation as they do the day they are purchased.

Our distillers also include a charcoal filter, designed to handle the contaminants that boil at lower temperatures very close to the boiling point of water. These need to be changed on a routine basis.

Our water distillers do not require constant monitoring. The process itself is so simple, little can go wrong. All units are constructed from high-grade stainless steel for assured purity.

SECTION 3 - ANSWERS TO FREQUENT QUESTIONS

Question: **Is tap water really safe for drinking?**

Answer: Many tap water suppliers are, for the most part, safe in terms of being free of disease-causing bacteria. However, tests of water supplies throughout the world now show varying degrees of contamination by modern chemical pollutants. In many cases, the chlorine used to rid water supplies of bacteria is now interacting with these chemicals, creating additional pollutants. Water supplies may also be contaminated by asbestos, copper, cadmium and lead from water pipes.

Drinking water from wells can be very dangerous, particularly when located on ½ - acre plots where it is almost impossible to keep seepage from the cesspool or septic tank out of the well.

Question: **Why is distilled water the safest water to drink?**

Answer: Distillation is more effective than any other purification system in removing bacteria, chemicals or inorganic minerals from the water, including toxic compounds which may be present. Test results show a greater than 99% efficiency removal of *contaminants,* such as *chlorine, nitrate* and *sodium,* when *water is distilled using a* **Polar Bear** *water distiller.* Distilled water is virtually pure H_2O and the safest of all drinking water.

Question: **Does distillation remove minerals from water that our bodies need?**

Answer: Distillation does remove minerals from water, however these minerals are *inorganic* and cannot be used by the body. The body assimilates the *organic* minerals found abundantly in the foods we eat, not *inorganic* minerals found in water.

Question: **Are water softeners considered water purifiers?**

Answer: No, not in any sense of the word. The public has been misled into thinking water softeners are purifiers. It has been proven that water softeners do not kill bacteria or take out minerals impurities, but add salts to the water, as treatment is based on a salt-operated unit. No one on a sodium (salt) restricted or sodium-free diet should drink "soft water."

Question: **What are some of the fringe benefits of distilled water?**

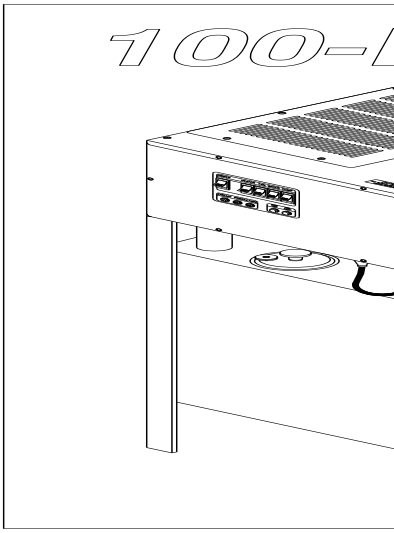
Answer: Tea has more flavor. Coffee requires 1/3 less granules, ice cubes are crystal clear, food digests much better and distilled water enhance the flow of nutrients into the blood stream. A glass of cold, distilled water tastes "clean." Everything remains pure, as there is nothing left in the water to interfere with or change the original natural flavor.

SECTION 4 - FEATURES OF OPERATION

* Energy saving system - The 100-L is the most efficient model yet in the **Polar Bear** distiller line. A new and more effective water preheating system recycles up to 15% of the energy in the distillation process.
* Automatic start/ stop of the distiller maintains water reserves in the storage tank.
* Evaporation tower and baffle system require higher steam rise therefore providing purer water.
* 'V' shaped boiling chamber is sloped in two directions for more effective cleaning and draining of impurities.
* Large lid openings with polished edges for easier cleaning.
* All pure water contact parts are surgical stainless steel or food grade gasket materials.
* All parts required for automatic water feed are included.
* Almost all electrical servicing may be done from the front of the distiller.
* Control lights and status indicators show you what your distiller is doing.
* Optional pump can be running while machine is off-line for cleaning or maintenance.
* Safety switch for overheating.
* Safety switch turns off pump if there is insufficient water in the holding tank.
* Quick connect fitting on water feed inlet allows for ease in removing feed line when moving machine and fast hookups when setting up.
* Preheater and tower can be easily removed and disassembled for regular cleaning.
* Multiple 100-L distillers may be connected in parallel to one water service line output.

* One year parts and labour warranty - please see warranty notice at the end of this manual.
* Sight gauge on holding tank.

SECTION 5 - SPECIFICATIONS



* Height: 74.5 in. 189 cm.
*

Voltage	Current	Power
220	15A	3300W

Power required is Single Phase 2 Wire plus Ground.
Check with your local electrical standards or electrician to determine appropriate ratings and connection.

* Distills up to 94 Litres (25 U.S. Gallons) in 24 hours.
* Storage tank holds approximately 151 Litres (40 U.S. Gallons).

SECTION 6 - ASSEMBLY INSTRUCTIONS

The model 100-L is shipped in one box. A second box may be included if a pump kit was ordered.

1. First unpack the box and inspect for shipping damage. Save everything until the distiller is in operation. It is a good idea to save the boxes should the distiller someday require factory servicing.
2. Confirm the contents of the boxes is as follows:
   - Distiller head
   - Holding tank
   - 24" of sterilization drip tube
   - Saddle valve kit
   - Charcoal filter (Round stainless type or CL-6 type)
   - Plain lid for boiling tank
   - 1/4" Direct feed water line
   - **Polar Bear** cleaner and descaler sample
   - **Polar Bear** activated coconut charcoal (crushed)
   - Boiling tank drain extension, ball valve, and drain tube barb
   - 3 ft. 3/4" drain tubing

Note: Distiller installation must comply with all local and state regulations.

Assembling the Holding Tank:

1. Remove the plastic from the holding tank and tape from the float arm inside the tank. Be careful not to bend the float arm.
2. Wash the inside of the holding tank with hot soapy water, and rinse thoroughly.

Assembling the Distiller Head:

1. Remove plugs from tower exits on top of distiller head. Also remove plug from drain exit..
2. Place tower on one side of the tower exit and connect it as shown in **Figure 1**. Do not over tighten the clamp. Connect other side of tower in the same manner. When both sides are in place with the clamp properly positioned, tighten clamps to firmly hold tower in place.
3. Remove paper from inside of boiling tank. Check that float is free to move up and down.
4. Distiller head may now be placed on top of holding tank. (This is best done with two people since weight and height can be awkward.)
5. Connect holding tank switch box cable to the matching 7 pin connector on the distiller head (see diagram - 100-L Parts).

6. Clean and fill charcoal filter (See 'Changing the Coconut Charcoal Filter' in section 8 - Maintenance & Cleaning.) Insert charcoal filter between distiller head and holding tank.

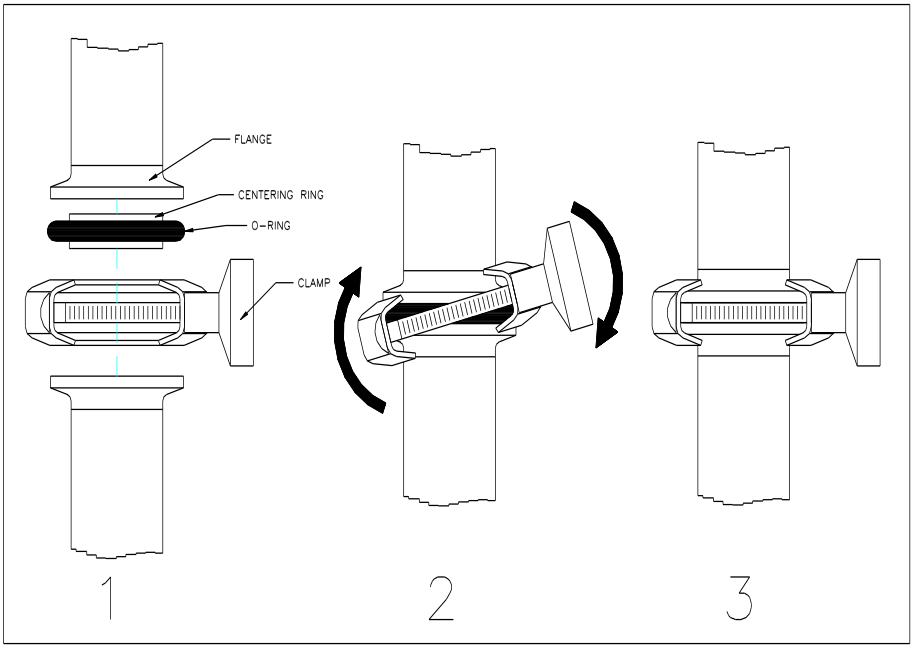


Figure 1

Clamp Connection:

•Place two flanges together with centering ring and o-ring between them. Also have the loosened clamp located to one side of a flange.

•While holding the flanges together, lift the clamp up and twist it on as shown in **Figure 1 #2**.

•When the clamp is in place, tighten it to firmly hold the two flanges in place.

Drain Line Connection:

- Wrap Teflon tape on the threads of the boiling tank drain extension and hose barb fitting.
- Tighten the 3/4" ball valve onto the drain extension making sure that the handle is opposite of the flange as shown in **Figure 2**. Tighten barb fitting into valves other side.
- Place complete drain assemble onto boiling tank drain using the clamping technique shown in **Figure 1**. Be sure to place drain pointing downwards and parallel with holding tank as shown in **Figure 2**.
- Place the clear 3/4" drain tubing on the barb fitting to direct flow towards a waste water drain.

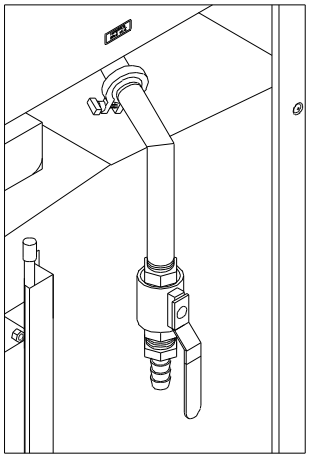


Figure 2

Connection to Water Line:

Make sure all switches on front of distiller are 'OFF' (down), and plug distiller into suitable approved power receptacle. If you are not sure, check with a local certified electrician.

The water feed connection for Model 100-L is located on the rear back panel.

- Teflon quick connect elbow and tighten into brass reducer. Tighten 1" brass reducer nut with hose washer snugly onto solenoid valve at the back of the machine. At the time of unpacking parts may be cold, and therefore should be warmed in water so that the tightening of the nut and the sealing of the washer will be easy.

- Take the white direct feed line and push one end into the distiller's water feed quick connect elbow as far as it will go. Place safety lock clip on fitting as shown in **Figure 3**. The water feed line must be cut square so it makes a good seal.
- Connect saddle valve onto direct feed line. **(Figure 3)**
- Connect saddle valve to the cold water supply. *If you have a soft water unit in your home, you may use the cold water line from the water softening unit. Make sure the boiling tank drain valve is closed before proceeding.*
- Check for leaks. Should any occur, tighten all connections. Areas where leaks may occur are where the saddle valve connects to the direct feed line; where saddle valve is attached to existing water line; where direct feed line attaches to water feed connector on the distiller; or the nut around the valve stem on the saddle valve.

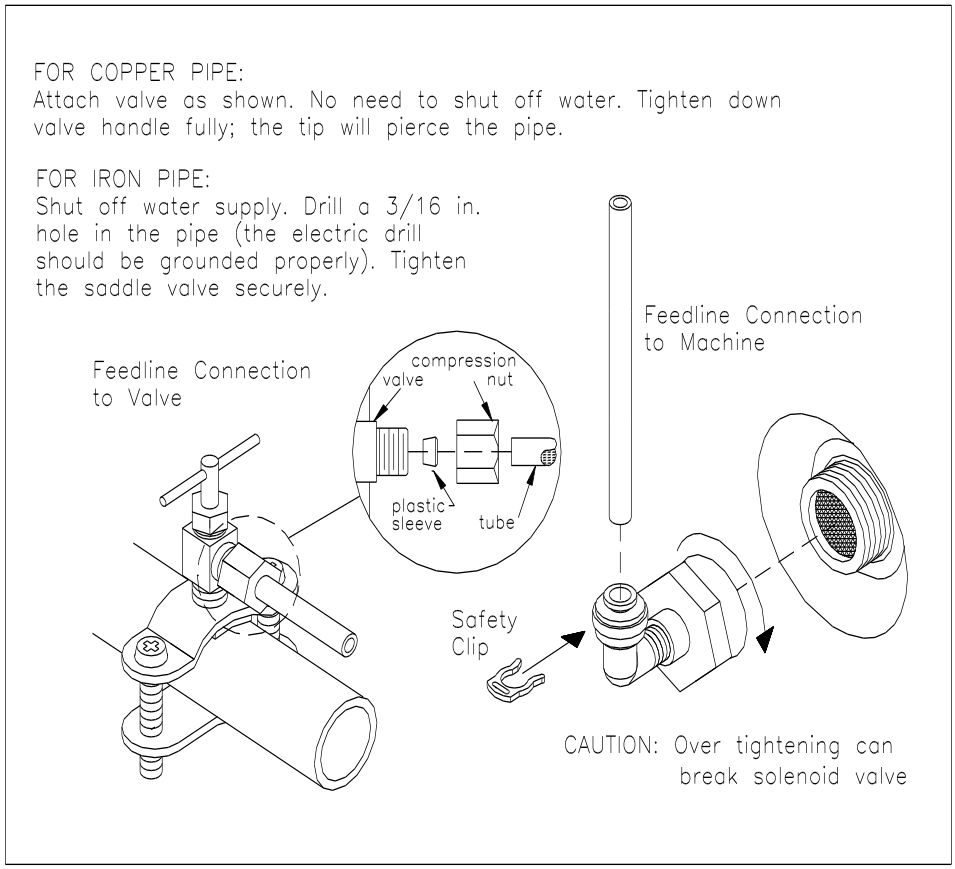


Figure 3

SECTION 7 - OPERATION

General Notes:

1. It is important to fill out and return the warranty card in this manual. The information is necessary should parts or repairs be needed during the warranty period.
2. Each distiller is checked at the factory for leaks, proper working procedure, etc. Therefore, the distiller may have a water ring inside the boiling tank. Testing is done by the actual running of the unit.
3. Proper cleaning is important! Keep the distiller clean at all times to ensure pure water.
4. The boiling tank is TIG (Tungsten Inert Gas) welded and as water is distilled the mineral contact may cling to the TIG weld, *appearing as rust. This* does ***NOT*** *affect the quality of the water!* As the boiling tank is manufactured from stainless steel, the discoloration on welded seams in the tank is caused by the heat needed to fuse the two metals together.
5. Distilled water may have a different taste. This is not a "taste", but a lack of taste. You will become accustomed to this the same way you did to the water in your area.

6- Initial operation of the 100-L may last for up to 48 hours, if required, in order to fill the holding tank. It may also take many hours before the water level is noticeable in the holding tank sight tube.

Sterilization:

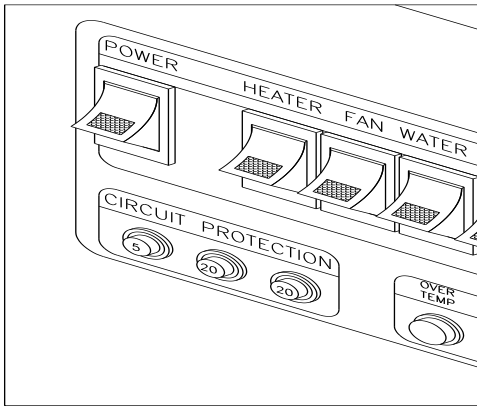
The first operation with a new distiller is sterilization. This will remove any dust, cleaning solutions, etc. from the distiller head. After this is accomplished, the distiller may be put into service.

1. Turn **Power** switch to 'ON'.
2. Turn **Water** switch to 'Automatic.' Distiller should immediately begin filling with water.
3. Remove Charcoal filter from distiller and attach sterilization drip tube to cooling coil outlet. Place end of tube into pail to collect any condensate.
4. Distiller should stop filling when boiler is 1/3 to 1/2 full.
5. Turn **Heater Switch** to 'ON'. Make sure **Fan** switch is 'OFF' and boiler lid is secure on boiler.
6. Allow distiller to run for about one hour. After a few minutes of steam has escaped from the drip tube, the **Over Temp**erature indicator should illuminate. Check all connections for leaks and re-tighten if necessary.
7. Turn off distiller, and when cool, replace sterilization drip tube with charcoal filter. See **Replacement of Charcoal in Filter** for how to add charcoal to the canister.

After initial sterilization, the process should be repeated periodically to ensure that the cooling coil remains sterile.

Running the Distiller:

The distiller is now ready for water production.



During normal operation, the control panel should be set as follows:

Power:	ON
Heater:	ON
Fan:	ON
Water:	ON
Pump:	ON (if using pump option)
Over Temp Light:	OFF (not illuminated)
Tank Empty Light:	Dependent on holding tank water level.

A description of the control panel and their associated circuits follows:

Main Power Switch:

This switch is the main power control for the entire distiller. When this switch is on, power may be applied through the other switches and functions.

Turning off this switch will immediately cut all functions of the distiller off, INCLUDING THE WATER PUMP.

The light on this switch should come on whenever this switch is in the 'ON' position.

Heater Switch:

This switch controls power to the heaters in the boiling tank. It does not directly affect operation of the fan or automatic water feed. The heaters will only turn on when there is sufficient water in the boiling tank.

The light on this switch will come on ONLY when the distiller is heating or boiling water.

Fan Switch:

This switch controls power to the fan motor in the distiller. When this switch is 'ON', and if the heater light is on, the fan will operate.

The light on this switch will operate ONLY when the fan is operating.

Water Switch:

Turning this switch on will allow the automatic water feed to work.

In order for the distiller to fill the boiling tank the:

- Water switch must be 'ON'.
- Boiling tank must require additional water.
- Holding tank must require additional distilled water, i.e. holding tank is not full.

The light on this switch will operate only when water is being fed into the boiling tank.

Pump Switch:

This switch controls the mode of operation of the water pump.

Dispenser mode is used when an optional commercial water dispenser is connected to the distiller. In this mode the pump is shut off.

Pressure mode is used when no dispenser connection is used and the pressure switch on the pump is then utilized for pump control.

In pressure mode the pump switch light is always on. Pump power is applied according to the pump pressure switch on the pump, and when there is sufficient water in the holding tank.

Circuit Protection:

There are two 20 Amp and one 5 Amp circuit breakers on the front of the control panel to protect the distiller.

All of these should be pressed in. Should any one of these breakers pop out, distiller operation will cease. In this event, the cause of the breaker trip out should be determined before resetting and resuming operation.

Over Temp(erature) Indicator:

Should the water exiting the cooling coils become hot due to a problem with the distiller, or insufficient cooling, this warning light will illuminate. This situation should be corrected to assure high quality water.

Note that this light will illuminate during the sterilization process.

This light may come on due to extremely warm weather, confinement of distiller, or dust plugging the cooling coils.

Tank Empty Indicator:

This light will illuminate whenever there is insufficient water in the holding tank to activate the water pump.

SECTION 8 - MAINTENANCE AND CLEANING

Proper cleaning and maintenance is very important!

The boiling tank should be drained every 24 hours of operation, unless an optional Auto-Drain system is installed.

Clean the boiling tank whenever there is a noticeable amount of mineral build up. Failure to clean the boiling tank often enough will shorten the life of the distiller and particularly the heating elements and reduce the distilling capacity.

For cleaning, we suggest that our industrial food-grade cleaner, **P.B.W.D. Cleaner & Descaler** be used. *Do not use an abrasive cleaner or steel wool cleaning pads.* Plastic pads may be used. The sample of the descaler enclosed with the distiller should last for approximately three cleanings.

To reduce the risk of injury, this distiller should be unplugged from the power source BEFORE any maintenance is attempted.

<u>Cleaning the Boiling Tank:</u>

1. Turn off **Heater Switch**.
2. Remove boiling tank lid and charcoal filter.
3. Install Sterilization drip tube.

4. Drain the boiling tank and remove any loose scale buildup or mineral deposits from inside the boiling tank.
5. Fill the boiling tank with water (preferably hot) to just above the water line. BE SURE NOT TO OVERFILL THE BOILING TANK.
6. Add 5-6 tablespoons of **Polar Bear** Cleaner and descaler to Boiling tank. Mix well to dissolve the cleaner.
7. Let stand overnight or until mineral deposits have softened. Leave boiling tank lid off during this operation to prevent cleaner from entering cooling coils.
8. Drain boiling tank and inspect. Repeat cleaning if necessary.
9. Rinse out boiling tank thoroughly several times before restoring distiller to service.
10. At this time it is recommended to run the distiller through a sterilization cycle (Section 7).

Cleaning the Preheater and Tower:

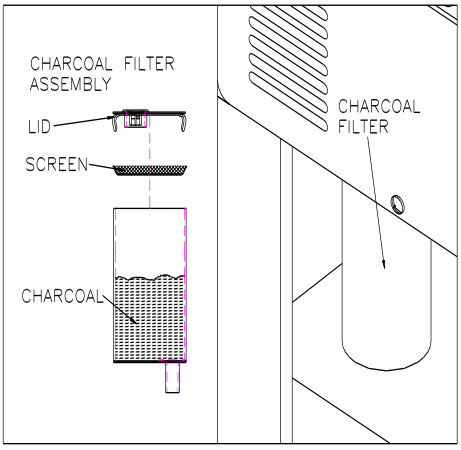
The preheater and tower should be checked for scale buildup at least once a year.

1. Turn off machine and disconnect from power source. Disconnect water source from the back of the machine. Allow machine to cool down before continuing.
2. Remove tower, top cover, and rear cover. Disconnect preheater from condenser coils by undoing the quick connect clamp on that end.
3. Disconnect braided hoses to preheater from solenoid and boiling tank. The preheater can now be removed from the machine.
4. Undo six bolts holding the preheater flanges together and pull preheater apart.
5. Inspect inside the tower (especially boiler exit side), inside the outer preheater tube, and outside of the inner preheater tube for scale buildup. If buildup is excessive, they should be cleaned. If not, the machine can be reassembled.
6. To clean, first fill a corrosive resistant container with water. Be sure that all the parts can be submerged in the water and add approximately 1 tablespoon of **Polar Bear** cleaner/descaler for ever gallon (4 Liters) of water used. Mix solution well.
7. Remove insulation and gaskets from all parts to be cleaned. Scrape off loose and large flakes and place parts in container and let them sit over night or until deposits have softened.
8. Drain container and rinse parts thoroughly with fresh water. Replace insulation on tower and reassemble preheater. Replace worn gaskets or preheater may not seal properly. Put preheater into machine and connect it to the two braided hoses and condenser coils.
9. Put tower back on with two clamps. Reconnect water supply and power source. Run machine through steam sterilization cycle to clean out system and check for leaks.
10. If no leaks occur, disconnect from power supply and replace top and rear covers. The machine is now ready to start distilling again.

Changing the Coconut Charcoal in the Filter:

This should be done every month or 4000 Litres/ 1000 Gallons.

1. Remove Charcoal filter from distiller.
2. Over a sink or suitable area, remove filter cap.
3. Remove stainless steel screen and empty used charcoal into garbage.
4. Clean and refill 2/3 full with activated charcoal.
5. Replace screen and flush with 2 cups of distilled water or until water runs clear.
6. Reinstall filter into distiller.



Water Quality:

The model 100-L is designed to provide many years of high quality water. However, like all machinery, there exists the possibility of problems. Some of the problems can lead to degraded water quality.

It is recommended that a distiller operating in a commercial environment, or in other areas where high quality water is especially important, that the operator own a T.D.S. meter (Total Dissolved Solids) to detect any such problems early.

T.D.S. meters are relatively inexpensive, and can assure owners and customers that the product is superior. They also serve well to compare the 'before' water (or customer samples) to show the sometimes extreme mineral content of modern water supplies.

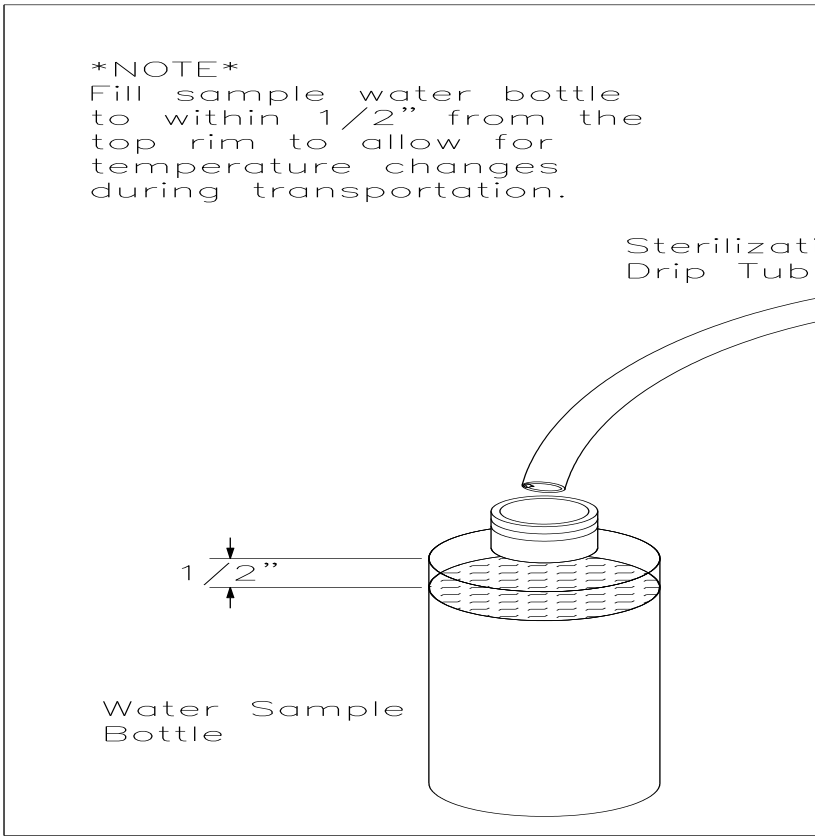
Water Testing Program

In a continuing effort to provide the purest drinking water possible, Polar Bear is proud to offer you a water testing program. Choosing to be part of this program will ensure your investment runs trouble free and you receive the quality of water promised. The Polar Bear testing program is available through all of our distributors across Canada and the USA and where all products are sold Internationally. By sending a distilled water sample in at least every six months for analysis, Polar Bear can determine whether your machine is operating properly or if it may require cleaning or repair.

A water sample bottle is enclosed with your Polar Bear Water Distiller as well as a bubble-pack envelope.

Please follow the following procedure:

1. Ensure sample bottle is clean and free of debris as well as structurally intact (no holes or leaks).
2. The charcoal filter must first be removed. (see owners manual; use **caution** as canister may be hot) Attach sterilization drip tube to nipple. Run the tube into the small water bottle until 3/4 full. Do not completely fill the bottle. Leave some room in bottle for water expansion in case of freezing temperatures during shipping.(see illustration on next page) Place charcoal filter back on unit following procedure.
3. Firmly screw top on sample bottle and place bottle in bubble pack envelope.
4. Send package to your local authorized Polar Bear Dealer, Polar Bear head office or Polar Bear USA. Please ensure that a return name and address is clearly marked so that the test results and a new Water sample kit can be sent to you. Enclose appropriate payment and send package prepaid by mail or courier.
5. Results of the water test will be sent to you within approximately three weeks. Along with the results, a new water sample kit will arrive in the mail. If you would like your water sample analysis to be sent via fax then please indicate on form with kit.



Note: This service is in accordance with NSF (National Sanitation Foundation) Standard 62, Drinking Water Distillation Systems, and must be completed at least once every six months.

SECTION 9 - TROUBLESHOOTING

There are three float systems in the 100-L distiller. One is located in the boiling tank in the distiller head. This operates the heaters and water solenoid. Another float in the holding tank activates the distiller when it is not full. The third float is also in the holding tank, at the bottom, and this controls the water pump. (The switch for this lower float is on top of the holding tank in the switch box.) ALL FLOAT SWITCHES ARE PRESET AT THE FACTORY AND SHOULD NOT REQUIRE ADJUSTMENT.

Caution: Distiller parts become very hot during operation and may remain hot for up to 10 hours after distillation stops. Use caution when working on or troubleshooting distiller problems.

Problem:	Boiling tank will not fill with water.
Cause/Solution:	- Water switch in 'OFF' position.
	- Ensure saddle Valve is on. If the distiller has been running for some time, make sure that the feed line is not plugged.
	- Check for kinks in the feed line.
	- Float in the boiling tank may be stuck.
	- Water solenoid valve may be damaged.
Problem:	Fan does not operate automatically.
Cause/Solution:	- Fan switch may be 'OFF.'
	- Fan motor may have seized.
Problem:	No Boiling or very little heat.
Cause/Solution:	- Heater switch may be 'OFF'.
	- Heating element may be defective.
	- Defective Relay, Reset switch, Breaker.
Problem:	Distiller will not operate
Cause/Solution:	- Check main power connection.
	- Check power light is 'ON'.
	- Reset button needs to be reset. To do this UNPLUG DISTILLER and wait to cool. This button is for safety and may indicate that the float levels may need to be set. Remove front cover and locate reset switch between heater elements at bottom of boiler tank. Depress red button; if it 'clicks' in, it was tripped and needed resetting.
	- Storage tank full or storage tank float jammed.
	- Float in storage tank may still be taped in its shipping position.

Should problems arise that are not covered here, please refer to a qualified service person.

SECTION 10 - ACCESSORIES & SUPPLIES

- **P.B.W.D. CLEANER & DESCALER**

  Dissolve minerals in water distillers, coffee pots, dishwashers, humidifiers and most metal products where water scale is a problem. Two to three tablespoons per gallon of water does the job! More descaler may be used if scale buildup is excessive. Available in 600 gram or 1.2 Kg. jars.

- **POLAR BRITE STAINLESS STEEL POLISH**

  An odorless liquid polish for stainless steel. May also be used on laminated plastics, porcelain and wood.

- **REPLACEMENT COCONUT CHARCOAL**

  Activated coconut charcoal has the ability to absorb over 50% its own weight in gases and odors. Non-toxic. It may be taken internally without any ill effect. The coconut charcoal will not breed bacteria, as only distilled water passes through the filter. Made from 100% pure coconut shells. *Do not use aquarium charcoal!* Available in 250 gram and 500 gram jars.

- **AUTO-DRAIN KIT**

  An electronic Auto-drain unit mounts easily to the side of your distiller and provides trouble free automatic drainage of your boiling tank. Can be set to drain in 3, 6, 12, or 24 hour intervals depending on the total dissolved solids content in your particular source water.

- **PUMP AND FAUCET KIT (PK 4)**

  This electronic pump kit can be mounted on the wall beside your distiller using the factory supplied screws and when connected to the application desired, provides for a convenient source of fresh distilled water directly from the holding tank of your distiller. This can be especially useful when connecting the unit to a water dispenser or ice machine.

- **PRESSURE TANK KIT (PT 1)**

  The pressure tank should be used on all optional pump hookups to extend the life of the pump. It is a bladder type precharged hydro-pneumatic tank for residential and commercial water distillation systems, and is designed to deliver water under pressure between pump cycles while providing sufficient flow to meet demands. The water is contained in a butyl bladder and the exterior has a blue epoxy finish.

SECTION 11 - HOW TO ORDER REPAIR PARTS

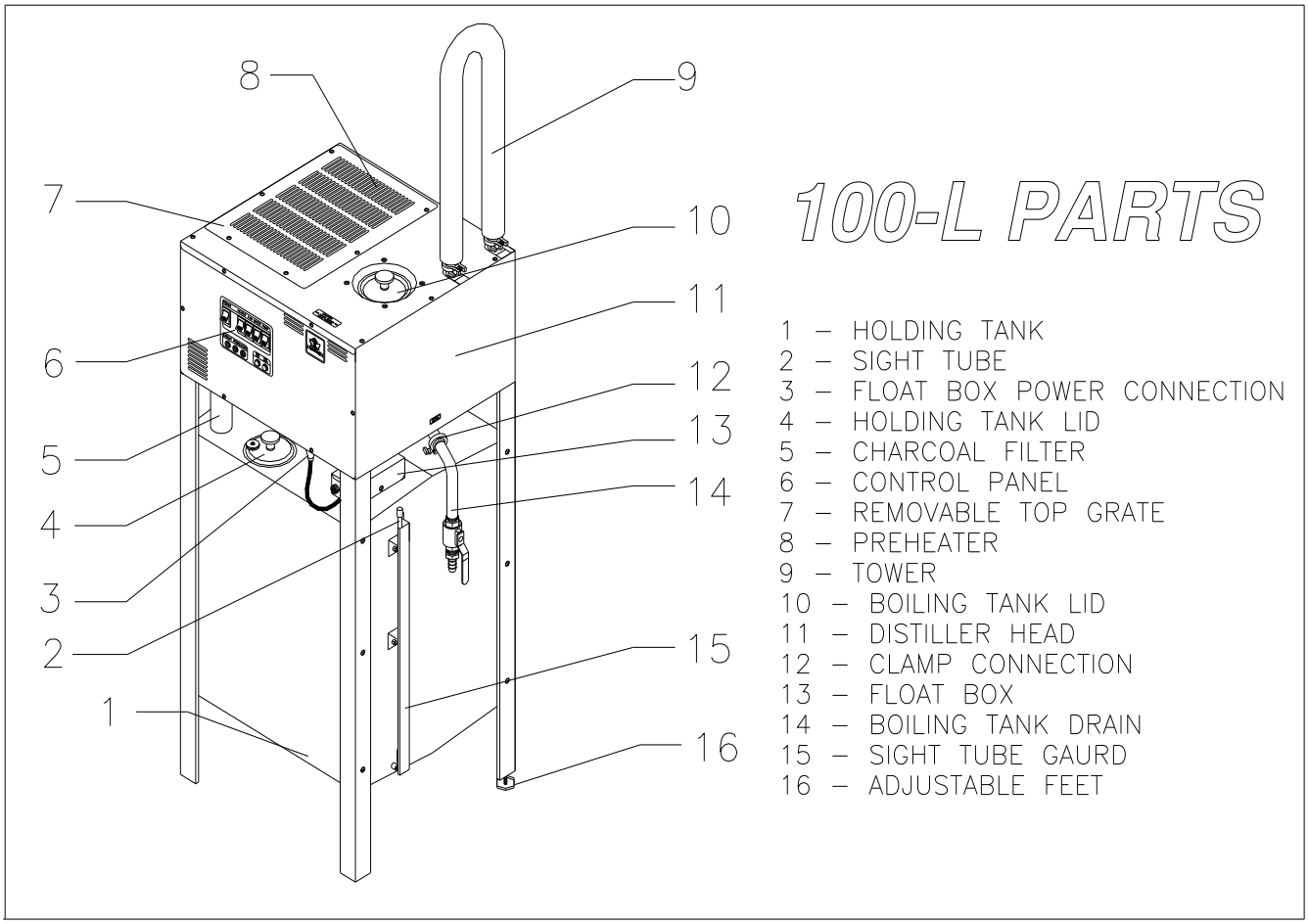
Distiller repair parts may be ordered by contacting your Polar Bear Water Distiller representative, your Polar Bear Water Distiller area dealer, or the manufacturing plant.

Be sure to include the Model Number, Serial Number, Series number and a brief description of the problem.

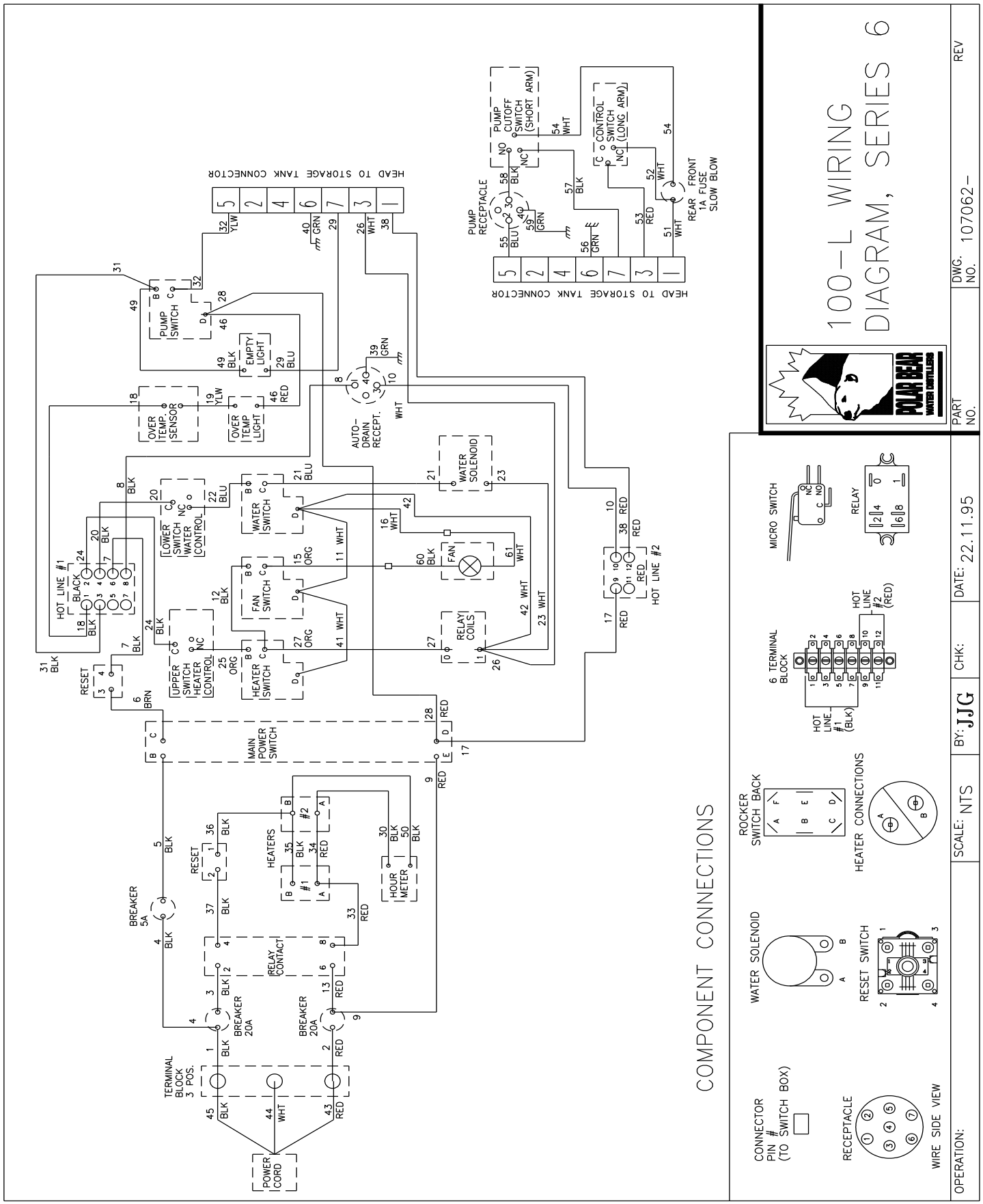
Please refer to the warranty on the back page for coverage by the manufacturer.

SECTION 12 - TECHNICAL INFORMATION

Distiller Parts:



Schematic:


100-L WIRING DIAGRAM, SERIES 6
POLAR BEAR WATER DISTILLERS
PART NO.
DWG. NO. 107062-
REV
DATE: 22.11.95
CHK:
BY: JJG
SCALE: NTS
OPERATION:
COMPONENT CONNECTIONS
HEAD TO STORAGE TANK CONNECTOR
PUMP RECEPTACLE
PUMP CUTOFF SWITCH (SHORT ARM)
CONTROL SWITCH (LONG ARM)
REAR FRONT 1A FUSE SLOW BLOW
HOT LINE #1 BLACK
HOT LINE #2 RED
OVER TEMP. SENSOR
OVER TEMP LIGHT
EMPTY LIGHT
PUMP SWITCH
AUTO-DRAIN RECEPT.
WATER SOLENOID
LOWER SWITCH WATER CONTROL
WATER SWITCH
FAN SWITCH
FAN
UPPER SWITCH HEATER CONTROL
HEATER SWITCH
RELAY COILS
RESET
MAIN POWER SWITCH
BREAKER 5A
BREAKER 20A
BREAKER 20A
RELAY CONTACT
HEATERS
HOUR METER
TERMINAL BLOCK 3 POS.
POWER CORD
MICRO SWITCH
RELAY
6 TERMINAL BLOCK
HOT LINE #1 (BLK)
HOT LINE #2 (RED)
ROCKER SWITCH BACK
HEATER CONNECTIONS
WATER SOLENOID
RESET SWITCH
CONNECTOR PIN # (TO SWITCH BOX)
RECEPTACLE
WIRE SIDE VIEW

100L Series 6 Wiring List

107063- Subject to 100Ls6 (107062A) Schematic 1 February 1996

#	GA.	Length	Part #	Color	Terminal 1	Terminal 2	From	To
1	10	31	107064	Black	RING	RING	term block-3	20A breaker
2	10	32	107065	Red	RING	RING	term block-3	20A breaker
3	10	11.5	102236	Black	RING	Y F250	20A breaker	main relay 2
4	16	3.5	102237	Black	RING	RING	20A breaker	5A breaker
5	16	8	102238	Black	RING	FLAG	5A breaker	power sw B
6	16	22	102239	Brown	F250	SPADE	power sw c	reset 3
7	16	12	102251	Black	SPADE	F250	reset 4	hot line #1
8	16	18	102241	Black	F250	FPIN	hot line #1	autodrain plug #1
9	16	7	102242	Red	RING	F250	20A breaker	power sw E
10	16	17.5	102243	Red	F250	FPIN	hot line #2	autodrain plug #3
11	16	3.5	102474	White	PIGGI	PIGGI	fan sw D	water sw D
12	16	4	102244	Black	F250	PIGGI	fan sw B	heater sw B
13	10	13	102246	Red	RING	Y F250	20 A breaker	main relay 6
14		N/A						
15	16	20	102497	Orange	F250	M250	fan sw C	wire # 60
16	16	20	102498	White	M250	F250	wire # 61	water sw D
17	16	12.5	100249	Red	F250	F250	power sw D	hot line #2
18	16	22	102245	Black	F250	F250	hot line #1	water sensor
19	16	16	102252	Yellow	F250	MF250	over temp sensor	over temp lite
20	16	16	102253	Black	F250	F175	hot line #1	over temp sensor
21	16	49	107066	Blue	F250	F250	water sw C	water solenoid
22	16	34.5	102255	Blue	FLAG	F175	water sw B	water cntrl NC
23	16	32	107067	White	F250	F250	water solenoid	main relay 1
24	16	18	102257	Black	F250	F175	hot line #1	heat cntrl C
25	16	29.5	102258	Orange	F175	FLAG	heat cntrl NC	heater sw B
26	16	10.5	102259	White	PIGGI	FPIN	main relay 1	HT socket 3
27	16	18	102260	Orange	F250	F250	heater sw C	main relay 0
28	16	8	102250	Red	PIGGI	F250	power sw D	pump sw D
29	16	32	102262	Blue	MF250	FPIN	empty light	HT socket 7
30	16	7	107068	Black	SPADE	F250	heater #2 A	hour meter
31	16	20.5	102264	Black	F250	FLAG	hot line #1	pump sw B
32	16	33	102265	Yellow	F250	FPIN	pump sw C	HT socket 5
33	10	11	102266	Red	Y F250	RING	main relay 8	heater #1 A
34	10	6.5	102267	Red	RING	RING	heater #1 A	heater #2 A
35	10	8	102270	Black	RING	RING	heater #1 B	heater #2 B
36	10	4.5	102269	Black	RING	RING	heater #2 B	reset 1
37	10	13	102248	Black	Y F250	RING	main relay 4	reset 2
38	16	14.5	102279	Red	F250	FPIN	hot line #2	HT socket 1
39	16	3.5	102271	Green	LG RING	FPIN	chassis	autodrain plug #4
40	16	3.5	102271	Green	LG RING	FPIN	chassis	HT socket 6
41	16	3.5	102291	White	F250	PIGGI	fan sw D	heater sw D
42	16	20	102274	White	Y F250	F250	main relay 1	water sw D
43	10	4.5	102289	Red	RING	-	term block - 3	cord
44	10	4.5	102289	White	RING	-	term block - 3	cord
45	10	4.5	102289	Black	RING	-	term block - 3f	cord
46	18	5	102288	Red	PIGGY	-	pump sw D	hot light
47	18	5	102288	Red	-	F250	empty light	wire #29
48	18	5	102288	Black	-	F250	hot light	wire #19
49	18	5	102288	Black	PIGGI	-	pump sw B	empty light
50	16	7	107069	Black	SPADE	F250	heater #2 B	hour meter
51	18	4.5	102285	White	F250	MPIN	fuse, rear con.	head plug 1
52	16	4.5	102263	White	FLAG	PIGGI	long sw NC	fuse, rear con.
53	18	4	102285	Red	F250	MPIN	long sw C	head plug 3
54	16	9	102283	White	F175	F250	cut off sw C	fuse, front con.
55	18	4	102285	Blue	FPIN	MPIN	pump recep. #2	head plug 5
56	18	3.5	102285	Green	LG RING	MPIN	chassis	head plug 6
57	18	8	102285	Black	F175	MPIN	pump sw NC	head plug 7
58	16	7	102287	Black	F175	FPIN	pump sw NO	pump recep. #3
59	18	3.5	102271	Green	LG RING	FPIN	chassis	pump recep. #4
60	16	16	102499	Black	F250	Bare	wire # 15	fan motor # L
61	16	16	102500	White	F250	Bare	wire # 16	fan motor # N

SECTION 13 - POLAR BEAR DISTILLER WARRANTY

POLAR BEAR DISTILLER WARRANTY

POLAR BEAR WATER DISTILLERS MFG. CO. LTD. warrants to the original purchaser, their products against defects in materials for a period of one (1) full year on all electrical components, other parts and labor, and one (1) year on all stainless steel parts.

If the unit is found to have defective stainless steel components within the first year or electrically defective parts within the first year, the parts will be repaired or replaced at no cost to the customer. If the unit is found to have been consumer damaged or abused, the warranty does not obligate POLAR BEAR WATER DISTILLERS MFG. CO. LTD. to bear any transportation charges in connection with the repair or replacement of defective parts.

This warranty is invalid if the damage of defect is caused by accident, Act of God, customer abuse, unauthorized alteration or repair, vandalism or misuse.

This warranty is made in lieu of any other express warranty and except for the foregoing warranty which is exclusive, there is no other express warranty being made.

The purchaser is responsible for all shipping charges to and from the service center. The manufacturer, dealer or service center is not responsible for damages incurred during shipping.

POLAR BEAR WATER DISTILLER MFG. CO. LTD.

P.O. BOX 113, Pickardville, Alberta

TOG 1W0

Canada

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Fax:(403) 349-5904