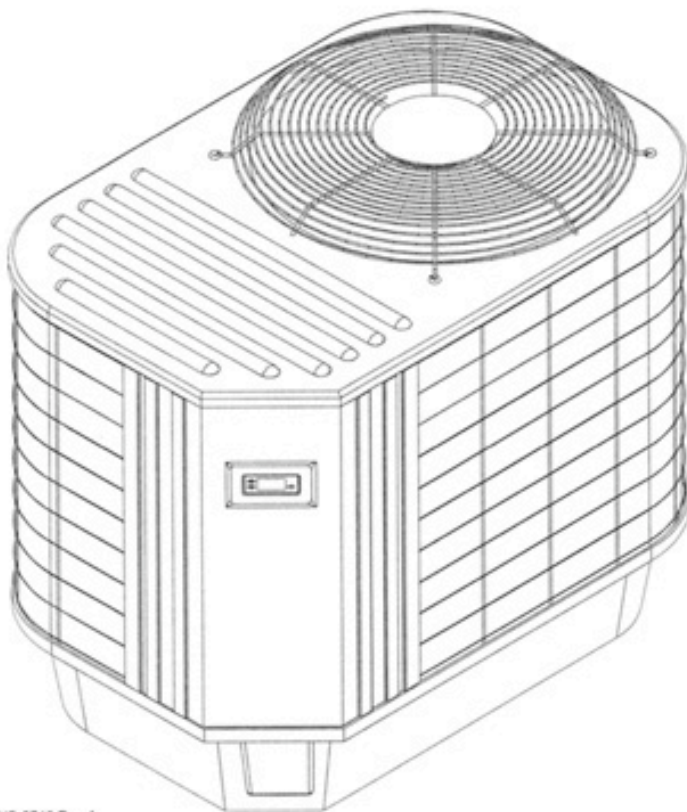


Installation instructions and homeowners manual



DNS-0746 Rev.A

HEAT PUMP POOL HEATER



Save these instructions for future reference.

Models:

M1-ADVANCED/BASIC
M2-ADVANCED/BASIC
M3-ADVANCED/BASIC
M4-ADVANCED/BASIC
M5-ADVANCED/BASIC

sol liquid

684 Pl. Transcanada,
Longueuil, Quebec
J4G 1P1 Canada

Caution: Do not Tamper with
the unit or its controls.
Call a qualified service
technician

PART 1

INSTALLATION

IMPORTANT NOTICE

A QUALIFIED TECHNICIAN MUST INSTALL YOUR SWIMMING POOL HEATER

1) DELIVERY

Check your SWIMMING POOL HEATER carefully upon delivery for any evidence of damage that may have occurred during shipping and handling. Any claims for damages or lost parts must be made with the Transport Company.

2) INSTALLATION

Your unit must be installed according to regulations set down by competent authorities. The swimming pool heater should be located where water will not accumulate at any period of the year. It should be installed on a solid, stable and leveled concrete base having appropriate dimensions depending on the heat pump model. The consequences of the heater going off level due to frost heaving must be addressed. The installer is responsible for taking action to prevent water from accumulating at the appliance location, at any period of the year, by means of adequate drainage, by heightened ground level at its base location or any other adequate actions.

It is recommended that your swimming pool heater is located at least 3 meters (10 ft) from the nearest swimming pool wall. A ground fault current interrupter protection (class A) must be installed if the pool heater is located at less than 3 meters (10 ft) from the nearest swimming pool wall and not adequately separate from the pool area by a wall, a fence or an other permanent barrier.

The location of the unit must respect the clearance specified in the table 1. The unit cannot be installed indoors (ex: sheds, garage, etc.).

TABLE 1

Lateral clearance around the appliance	1m. min.
Clearance, top of the appliance	2m. min.

Electrical connections (see Figure 4 and 5)

3) WATER PIPING CONNECTION

Although not essential for the proper operation of the heat pump, the installation of a derivation valve system (by-pass) is strongly recommended. This installation allows for easier service maintenance of the unit or the pool water. However, the derivation system must not be used during normal operation of the pool water heater. All the water supply by the pump must pass through the heat pump.

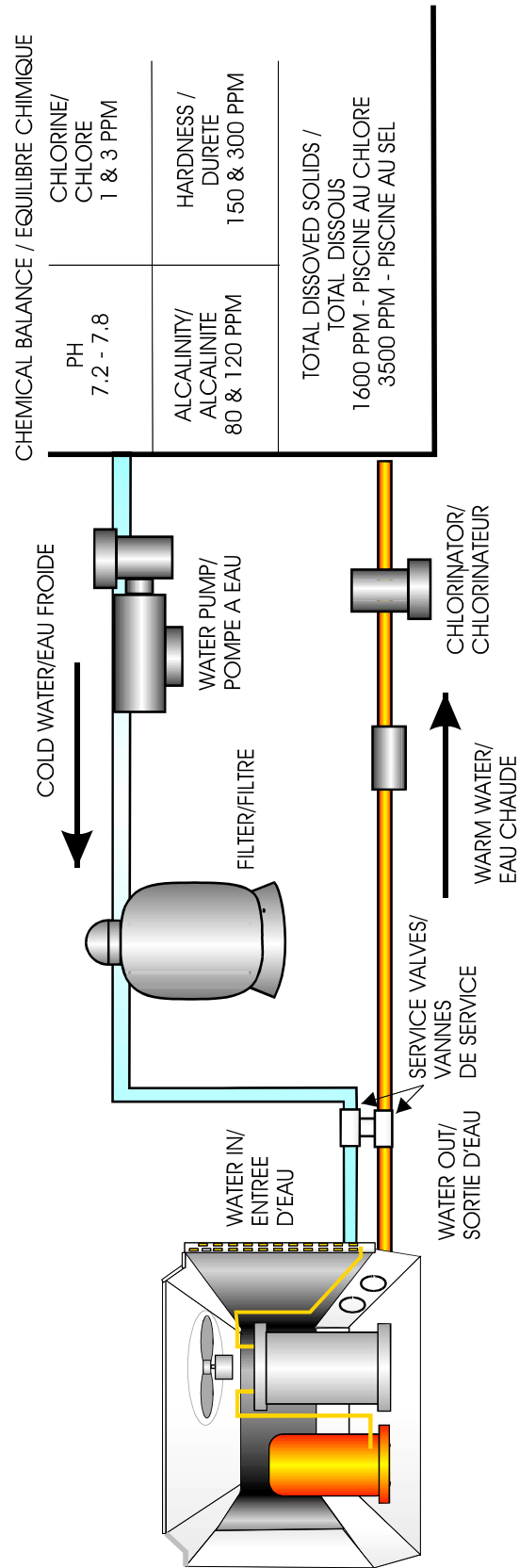
IMPORTANT

Never install the heat pump before the filter, always after this one. A chlorinator must be installed after the heat pump. Never add chemical product to pool water by skimmer. Refer to figure 1.

DANGER

For safety purposes and to insure adequate performance of the unit connections must be performed by a qualified electrician and done according to national and local codes

FIGURE 1 WATER PIPING CONNECTION AND WATER QUALITY



PART 2 OPERATION

4) GENERAL

In order to reduce the cost of operations, we strongly recommend the use of a solar blanket. Particularly on cooler days, overnight, and at the beginning and end of each season. In reducing the heat losses of your pool to a minimum, you will minimize your heating expenses.

Depending on the capacity of your heat pump, utilization of a solar blanket can be essential at 60°F (15°C) and below to compensate for water heat loss.

Our unit offers a wide surface coil that allows a maximum heat extraction from the air subsequently transferred to your pool water content. This heating process provides substantial energy savings as compared to devices such as oil and gas.

Depending on the outside ambient temperature, the heat pump can operate during long periods of time to increase the pool water temperature.

See figure 2 for the principle of operation. Refer to the wiring diagram on figure 4 and 5 for more details.

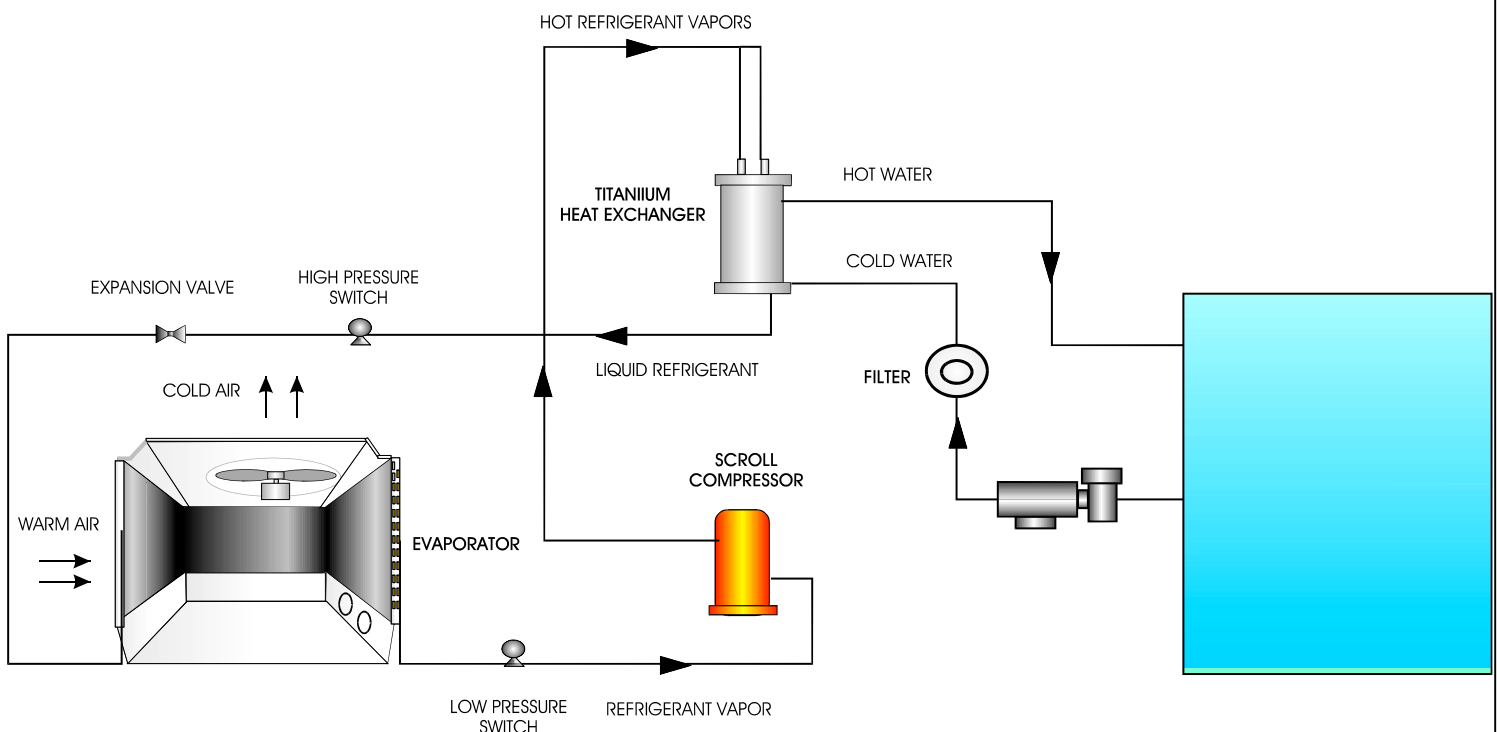
CAUTION

This unit won't operate below ambient air temperature of 40° F (4° C).

5) FLOW SWITCH CONTROL

The heat pump is equipped with a flow (pressure) switch that stops the ventilator motor and compressor from operating if no water pressure is detected. (if the water pump is turned off manually or with a timer for example) You can verify the operation of this control by stopping the circulating water pump. The ventilator motor and compressor of the heat pump will stop their operation. The normal adjustment of this control is 2 psi (adjustments can be made if necessary by a qualified technician).

FIGURE 2 PRINCIPLE OF OPERATION



6) MECHANICAL CONTROL

Once the unit is connected to the pool return line, and power is applied, turn on the pool filtration system pump, on.

Turn the temperature control knob to position MAX. The fan will now operate. After a delay of 3 to 5 minutes the compressor will begin to operate. Please note that it is often normal for the unit to function continuously during the beginning of a season.

Once the desired water temperature has been achieved, slowly bring back the temperature control knob toward position 'LOW' until unit stops. At that moment, the thermostat will be adjusted to the desired temperature.

To increase water temperature, turn the temperature control knob towards position 'HIGH' and inversely to the position 'LOW' to decrease water heating temperature

FIGURE 3



7) DIGITAL CONTROL OPERATION

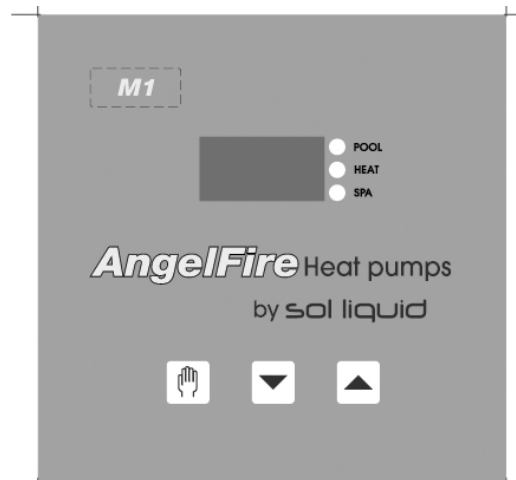
7.1) To select temperature in °C or °F Press and depress the 'HAND' key until you see F_C, then by pressing the UP or DOWN key you can switch to °C or °F. To program simply release your finger off the button and it will register the temp setting you have chosen. Once the temperature display mode that you desire has been programmed it will be displayed for approximately 5 seconds, then the digital display will return to the actual pool water temperature in the mode that you have chosen.

7.2) To Raise or lower desired water temperature (Pool mode)

The temperature displayed in the viewfinder in standby mode is always the temperature of the water in the pool.

Press the UP or DOWN arrow once –the programmed temperature will be displayed. Press the UP or DOWN arrow to increase or decrease the temperature setting one degree at a time. Once the control has been programmed to the desired pool water temperature, the programmed temperature will be displayed for approximately 5 seconds, then the digital display will return to the actual pool water temperature.

IMPORTANT: do not push and hold the UP and DOWN ^ buttons at the same time for more than 4 seconds. Otherwise, both the control setting and the temperature differential might be modified.



MEANING OF CODES

- HP** Insufficient water flow from circulation pump or defective high pressure control.
- LP** Insufficient gas or defective low pressure control.
- FS** Outside temperature low (Unit in defrost mode).
- dPs** Suction probe circuit is shorted.
- dPo** Suction probe circuit is open.
- Ps** Water probe circuit is shorted.
- Po** Water probe circuit is open.
- Flo** No water circulation or defective flow switch.
- OFF** Temperature setpoint is below 60°F.

OPERATION

Press Set Key to Select

- POL** - Pool temperature setting ▼▲
- SPA** - Spa Temperature setting ▼▲
- P_S** - Select Pool or Spa mode ▼▲
- FIL** - Select filter running hours per day (optional)
▼ OFF ▲ 2 - 23 hours ON
- C_F** - Select C° ▲ or F° ▼

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7.3) Optional: To select Pool or Spa Mode Please note: by default the SPA mode selection is set to OFF from the factory. In order to access this feature your technician must install your heat pump in configuration for this specific feature to function. Do not proceed with settings below if you do not heat your spa with the heat pump.

Two different program temperature settings can be memorized by the digital control. Pool Temperature setting—to a maximum setting of 35°C (95°F), and Spa temperature setting— to a maximum setting of 40°C (104°F). The Spa mode feature has to be turned on in order to set a desired temperature for the Spa.

Press the “hand” button key down for a few seconds release button when you see “DEL”. Press hand button once and you will see “SPA” use “UP” arrow you will see “NO” select “UP” arrow again to select “YES” then release all buttons and Spa mode function will be turned on after a couple of seconds.

To select the Spa Mode press and depress “hand” button key several times until you see “P_S” then press the “UP” arrow twice for “SPA” or “DOWN” arrow key twice to switch to POL. You will notice a red indicator light on next to the mode you have selected. Once Pool or Spa mode has been chosen, set the temperature setting as per point **3.2**

NOTE: To set the temperature of the Pool Mode while in SPA mode, you must enter Pool mode to do so.

Once the heating mode has been programmed it will be displayed for approximately 5 seconds, then the digital display will return to the actual pool water temperature. The lights on the right side of the display indicated the chosen heating mode.

See Figure 3

IMPORTANT NOTICE

WHENEVER A COMMAND IS GIVEN TO THE MACHINE YOU HAVE TO WAIT 4 SECONDS TO REESTABLISH THE SYSTEM

7.4) Optional: If your heat pump is installed to command filtration system on/off Please note: by default this selection is set to OFF from the factory. In order to access this feature your technician must install your heat pump in configuration for this specific feature to function.

Press the “hand” button key down for a few seconds release button when you see “DEL”. Press and depress hand button until you see “FIL” use “UP” arrow you will see “NO” select “UP” arrow again to select “YES” then release all buttons and FIL mode function will be turned on after a couple of seconds.

Press and Depress the “hand” key button until you see FIL (filter running hours per day) with the UP arrow select option ON—the filter pump will work 24 hours/day or to set a specific running time for your filter pump select the UP or DOWN arrows to set the time from 2 to 23 hours.

IMPORTANT: When using this feature, several variables will affect heating performance. The number of hours of the filtration system must be set in consequence of the number of hours needed for your heat pump to raise the pool water temperature to the desired water temperature. It is therefore advisable to disable this function until desired pool water temperature is reached, and then setting the running filter time to maintain the desired water temperature.

8) COMPRESSOR TIME DELAY RELAY AND DEFROST CYCLE

The heat pump is equipped with a time delay relay that delay's the compressor from starting 5 minutes after a heat demand is requested. This control prevents the compressor from having a very short cycle that can damage it prematurely. Also, it allows the unit to have a sufficient defrost time delay when the defrost thermostat detect a cold temperature on the evaporator surface (frost risk). Adjust the delay to a higher value if necessary. (only by a qualified service technician)

9) OTHER PROTECTION FEATURES

9.1) Low-pressure switch: stops the compressor (not the ventilator) if the refrigerant pressure is too low.

9.2) High-pressure switch: stops the compressor (not the ventilator) if the refrigerant pressure is too high.

9.3) Integrated high temperature protection for compressor and ventilator motor.

NOTE: A delay can occur before the compressor starts, even if an electrical current is applied on the compressor (the refrigerant pressure between high and low side must be stabilized). If this happens, increase the compressor time delay to 5 minutes approximately. (by a qualified technician only)

10)NORMAL SEQUENCE OF OPERATION

After a demand for heat is requested, the ventilator (blower) will start immediately. The compressor will start after the preset time delay of 5 minutes. If all system requirements are met the heat pump will operate until the heat demand is satisfied.

However in the event of frost formation on the evaporator, the heat pump will enter a defrost cycle. Meaning, the compressor will stop and the ventilator will continue to run until the frost melts.

Note: Refer to electrical diagram (figure 4 & 5)

11)WATER QUALITY

The durability and proper operation of the heat pump depends directly on the pool water quality. A regular verification of certain chemical products contain in pool water is essential for your comfort and proper operation of the unit. Refer to figure 1 to know the acceptable concentration of these products.

IMPORTANT:

Avoid high concentration of chemical products into the heat pump. Do not add chemical products directly into the skimmer. An automatic sanitizer system (chlorine, bromine) integrated to the system must be installed downstream (after) the heat pump. During high chlorination treatment, the derivation (by-pass) system must be use to avoid high chlorine concentration into the heat pump.

Section 3 MAINTENANCE

CAUTION

There is a risk of electrical shock hazard. TURN OFF the electric supply to the unit before any disassembly or servicing. Failure to do so can result in property damage, bodily injury and/or death.

12) POOL FILTER CLEANING

For the optimum performance of the heat pump, the water flow into it must be as high as possible. Refer to table 2 for the minimum acceptable water flow for a proper operation of the pool heater. It is recommended to clean periodically the pool filter and skimmer. In addition, to reduce the heat pump performance, a low water flow can activate the unit protection system like the flow switch control and the high-pressure switch. Refer to the Operation part of this Manual.

13) EVAPORATOR CLEANING

Avoid grass, pollen or leaf accumulation on the evaporator. To obtain the maximum performance of the unit, the evaporator must be cleaned when required. Use a water jet to remove the residues that can stop air passage through the evaporator. Give an angle to the water jet to avoid introduction of the residues inside the unit.

14) WINTERIZING THE HEAT PUMP

Before winter arrives where the air temperature reaches freezing point, winterize the unit as follows:

- a) Turn off the breaker for the unit.
- b) Disconnect the inlet and outlet pipe off the heat pump. The water inside the condenser will flow out by gravity.
- c) To prevent corrosion inside the condenser, it is important to rinse it with aqueduct water (without chlorine or corrosive product). **Method:** wrap a piece of cloth around a garden hose and connect it to the "water entry" of the heat pump (the piece of cloth allows you to have a tight joint). Fill the condenser with water and let water flow out by the "water evacuation" during 2 minutes. Remove the garden hose and let the water flow out.
- d) After all the water flows out the condenser, block the water "entry" and "evacuation" to avoid vermin infestation. Use 1 ½" NPT caps to plug.
- e) Ideally, cover up the appliance with a waterproof canvas to protect it.

15) CABINET CLEANING

Use a soft soap (dishwasher type) to clean your heat pump cabinet. Never use a solvent or a product with bleach or abrasive.

SECTION 4 LIMITED WARRANTY

CONDENSOR AND EVAPORATOR

5 years

The General Warranty

Sol Liquid, subject to the limitations described in this Equipment Warranty Policy Certificate, warrants each and every appliance, under normal use, to be free of defect in material and workmanship for a specified period from the date of original installation (as described in the "Summary of Warranty Programs" section below). Also this warranty covers the cost of labor during the first 2 years of use.

This warranty covers the appliance only and does **not** include the cost of labour (except during the first 2 years of use), freight, sales taxes and other taxes or other incidental expenses involved in servicing or replacing parts.

Summary of Warranty Programs PRODUCT PARTS

Heat pump Pool/ heater

M SERIES 2 years Parts & Labor

Lifetime warranty heat exchanger part only.

Limitations

This warranty does not cover defects or damages on equipment without serial number or where the serial number has been erased or modified.

A) Consumable Items: This warranty does not apply to fan belts, filters, oil nozzles or other materials which must be replaced in the course of routine maintenance.

B) Corrosive Atmosphere: The operation of a heat exchanger in the presence of corrosive elements such as acids, chlorine, fluorine or other damaging chemicals voids this warranty.

C) External Factors: This warranty does not apply to damage to the product caused by misuse, failure to provide proper maintenance, accidents, Acts of God, improper gas, inadequate electrical supply.

D) Unauthorized Alteration: Unauthorized alteration or repair of the appliance affecting product reliability or performance voids this warranty.

E) Qualified Installation: The product must be installed by a competent qualified installer in accordance with the Sol Liquid

installation instructions, applicable local and national codes and with guidelines prescribed by industry trade and professional organizations such as the Heating, Refrigeration and Air Conditioning Institute of Canada and The Air Conditioning Contractors of America. Failure to do so voids this warranty.

F) Unauthorized Installation of Accessory Equipment: Sol Liquid authorizes the

application of accessory equipment to operate in conjunction with its products provided that the following conditions are met:

i.) The function or performance of the Sol Liquid appliance is not altered.

ii.) The accessory is installed in accordance with its manufacturer's installation instructions.

iii.) The intended operating environment for the Sol Liquid appliance is not altered.

G) Lost or Stolen Products: This warranty does not apply to products reported as lost or stolen.

H) Original Installation Site: This warranty does not apply to products no longer at the site of original installation.

I) Improper Application: This warranty does not include damages caused by improper matching or application of the product or product's components.

J) Routine Maintenance: The warranty is subject to the equipment being serviced and maintained, as outlined in the Installation and Operating Instructions, on an annual basis. Failure to do so may void any and all warranties, at Sol Liquid's discretion.

Consequential Damages

Sol Liquid shall not be responsible for any consequential damages caused by any defect in the product.

Sole Warranty

This warranty is the only warranty made by Sol Liquid. All other representations, warranties, conditions or guarantees, expressed, implied or tacit, statutory or otherwise are hereby excluded.

Warranty Commencement

If an original sales invoice can not be furnished to establish the date of original installation, the warranty is determined to be in effect three (3) months after the date of shipment from the Sol Liquid Factory.

Replacement Parts Warranties

All authorized replacement parts obtained directly

from Sol Liquid and used in servicing Sol Liquid products are warranted for a period of twelve months from the date of repair. Proof of said repair may be requested at Sol Liquid's discretion and must be furnished before credit is issued if so requested. In the event Sol Liquid is not able to provide a replacement heat exchanger, Sol Liquid may,

at its discretion, provide a replacement appliance at a cost based on current list price schedules. Sol Liquid will make the parts available and will ship them. Should we request that the defective parts or components be shipped back for further investigation, a return authorization number will be issued and return freight arrangements will be specified by Sol Liquid.

Warranty Performance

Sol Liquid shall not be liable for any default or delay in performance under this warranty caused by any contingency beyond our control, including war, government restrictions or restraint, strikes, fire, floods or a short or reduced supply of raw material.