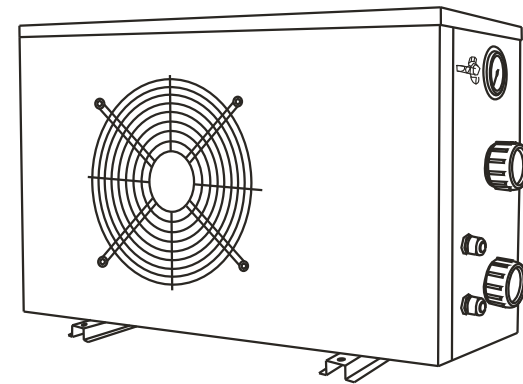
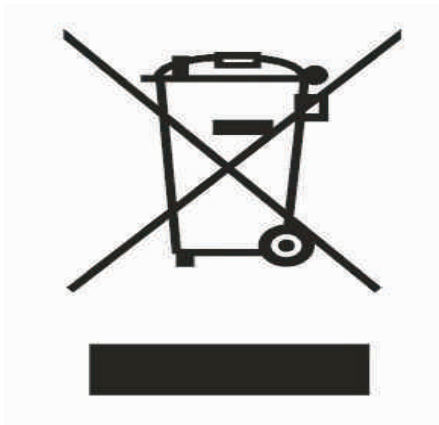


SWIMMING POOL HEAT PUMP UNIT

Installation & Instruction Manual

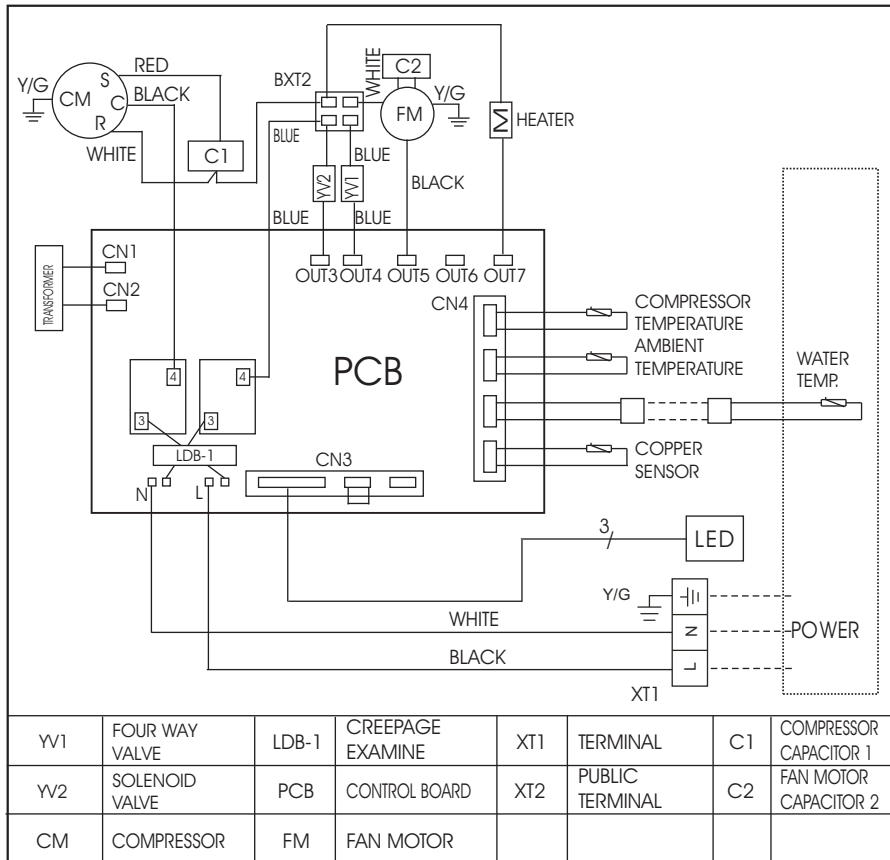


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6. APPENDIX

6.1 Connection of protection PCB illustration



1. PREFACE

•In order to provide our customers with quality, reliability and versatility, this product has been made to strict production standards. This manual includes all the necessary information about installation, debugging, discharging and maintenance. Please read this manual carefully before you open or maintain the unit. The manufacture of this product will not be held responsible if someone is injured or the unit is damaged, as a result of improper installation, debugging, or unnecessary maintenance. It is vital that the instructions within this manual are adhered to at all times. The unit must be installed by qualified personnel.

- The unit can only be repaired by qualified installer centre personnel or an authorised dealer.
- Maintenance and operation must be carried out according to the recommended time and frequency, as stated in this manual.
- Use genuine standard spare parts only.
Failure to comply with these recommendations will invalidate the warranty.
- Swimming Pool Heat Pump Unit heats the swimming pool water and keeps the temperature constant.

This type of pump has the following characteristics:

1 Durable

The heat exchanger is made of PVC & titanium tube which can withstand prolonged exposure to corrosives such as chlorine.

2 Installation flexibility

The unit can be installed outdoors or indoors.

3 Quiet operation

The unit comprises an efficient rotary/ scroll compressor and a low-noise fan motor, which guarantees its quiet operation.

4 Advanced controlling

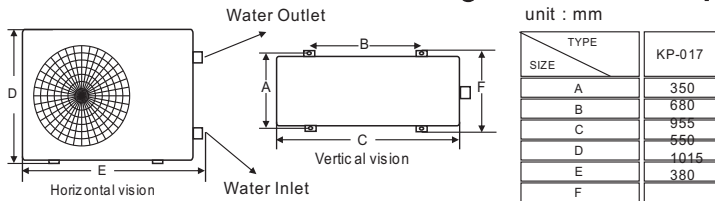
The unit includes micro-computer controlling, allowing all operation parameters to be set. Operation status can be displayed on the wire controller.

2. SPECIFICATION

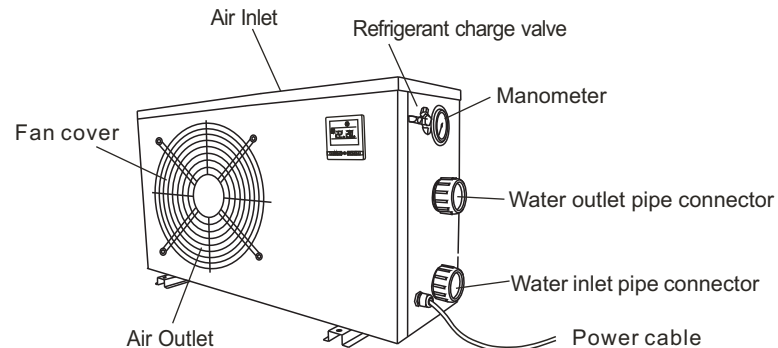
2.1 Performance data of Swimming Pool Heat Pump Unit

UNIT	Model	KP-017
Heating Capacity	kW	6.5
	BTU/h	22000
Heating Power Input	kW	1.7
Running Current	A	8.5
Power Supply	V/Ph/Hz	220-240-1/50
Compressor Quantity		1
Compressor		rotary
Fan Quantity		50
Fan Power Input	W	850
Fan Rotate Speed	RPM	horizontal
Fan Direction		47
Noise	dB(A)	50
Water Connection	mm	1.5
Water Flow Volume	m ³ /h	6
Water Pressure Drop(max)	kPa	955/305/550
Unit Net Dimensions(L/W/H)	mm	1015/330/610
Unit Shipping Dimensions(L/W/H)	mm	53/58
Net Weight/ Shipping Weight	kg	

2.2 The dimensions for Swimming Pool Heat Pump Unit



2.3 Discription of parts:



5. MAINTENANCE AND INSPECTION

5.1 Maintenance

- Check the water supply device and the release often. You should avoid the condition of no water or air entering into system, as this will influence unit's performance and reliability. You should clear the pool/spa filter regularly to avoid damage to the unit as a result of the dirty or clogged filter.
- The area around the unit should be dry, clean and well ventilated. Clean the side heating exchanger regularly to maintain good heat exchange as conserve energy.
- The operation pressure of the refrigerant system should only be serviced by a certified technician.
- Check the power supply and cable connection often, should the unit begin to operate abnormally, switch it off and contact your certified Pollrite technician.
- Discharge all water in the water pump and water system, so that freezing of the water in the pump or water system does not occur. You should discharge the water at the bottom of water pump if the unit will not be used for an extended period of time. You should check the unit thoroughly and fill the system with water fully before using it for the first time after a prolonged period of no usage.

5.2 Trouble Shooting Guide

Malfunction	LCD Controller	Reason	Resolution
Water temp. Sensor failure	E 1	The sensor is open or short circuit	Check or change the sensor
Ambient temp. Sensor failure	E 2	The sensor is open or short circuit	Check or change the sensor
Compressor Exhaust temp. sensor failure	E 3	The sensor is open or short circuit	Check or change the sensor
Condenser temp. sensor failure	E 4	The sensor is open or short circuit	Check or change the sensor
Compressor over-current	E 5	Compressor is over-load	
Compressor over-heat	E 6	Compressor exhaust temp is too high	Refrigerant is leakage. The refrigerant system is block. Ambient temperature is too high.
Creepage	E 7	Compressor, motor, solenoid valve, four way valve, capacitor, condenser heater, or electrical cable are defective.	Check the electrical parts and cable.
Wire controller communication error	E 8	signal cable of wire controller is loose. wire controller is defective.	Check signal cable of wire controller, or change the wire controller
refrigerant low pressure, high pressure protection	E 9	refrigerant pressure is too low or too high	Check refrigerant system.

4. USAGE AND OPERATION

4.4 Operation data setting

The unit's operation data can be set on the wire controller when the unit is on OFF mode.

Please set according the below table:

Digit	meaning	Range	default	Adjust(yes/no)	factory setting
0*	Max. setting water temp.	0/1 (20~45/60°C)	0	yes	0 (20~45°C)
1	Defrosting start temp.	-20~-10°C	-7°C	yes	-7°C
2	Defrost exit temp.	5~45°C	25°C	yes	15°C
3	Turnround of defrosting under heating mode	30~150min	45min	yes	F0 (150min)
4	time of exit defrost under heating mode	3~15min	3min	yes	3min
5	Compressor protection exhaust temp.	70~110°C	95°C	yes	95°C
6	Temp. Of solenoid o valve switch on	0~25°C	7°C	yes	7°C
7*	Water pump mode	0/1	1	yes	1
8	Automatic restarting	0-1 0(no) 1(yes)	1	yes	1
9	Mode(heating only/cooling & heating/cooling only)	0/1/2	1	yes	1

***Remark:**

All parameter can be set when the unit is OFF mode.

Press **M** 3 seconds to enter into setting.

Press **▲▼** to change parameter.

All parameter can be review when the unit is ON mode, but can not change.

Parameter 0:

0: temperature setting range: 20~45°C.

1: temperature setting range: 20~60°C.

Parameter 7:

0: always open.

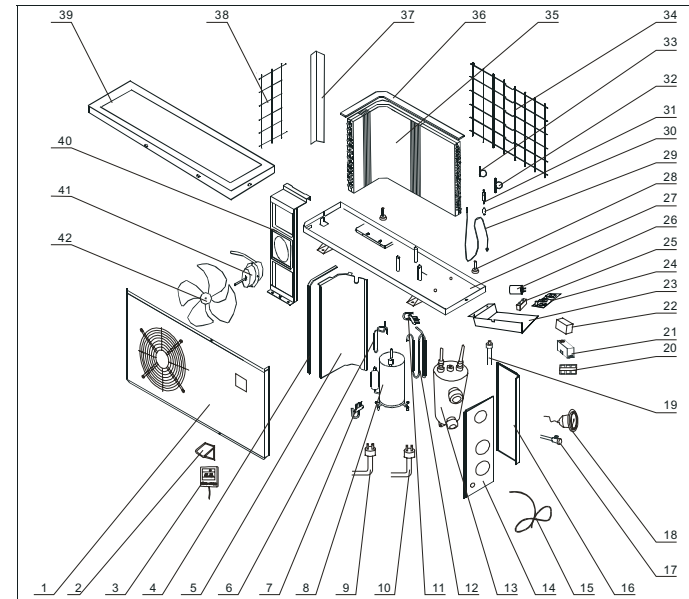
1: 30 seconds start before compressors starting.

30 seconds stop after compressors stopping.

water pump stops when water temperature = setting temperature.

2.SPECIFICATION

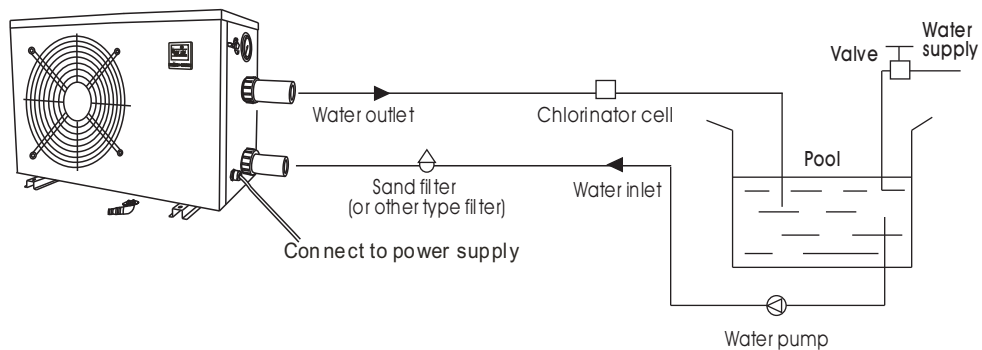
2.3 Explored view



1	Front panel	15	Power cord	29	Defrost sensor
2	Control panel cover	16	Right rear board	30	Filter
3	Wire controller	17	Refrigerant charge valve	31	One way valve
4	Verge board polyfoam	18	Pressue manometer	32	Auxilliary capillary
5	Verge board	19	Mouth of injecting gas	33	Capillary
6	Exhaust pipe	20	Terminal	34	Rear net
7	Solenoid valve	21	AC contactor	35	Condenser
8	Compressor	22	Creepage switch	36	Condenser top polyfoam
9	High pressure interruptor (optional)	23	Electrical Box	37	Left carriage
10	Low pressure interruptor (optional)	24	Circuit Board	38	Left net
11	Four way valve	25	Motor Capacitor	39	Top cover
12	Gas returning pipe	26	Compressor capacitor	40	Motor bracket
13	Titanium heat exchanger	27	Frame	41	Fan motor
14	Right size board	28	Feet	42	Fan

3. INSTALLATION AND CONNECTION

3.1 Installation illustration



Installation items:

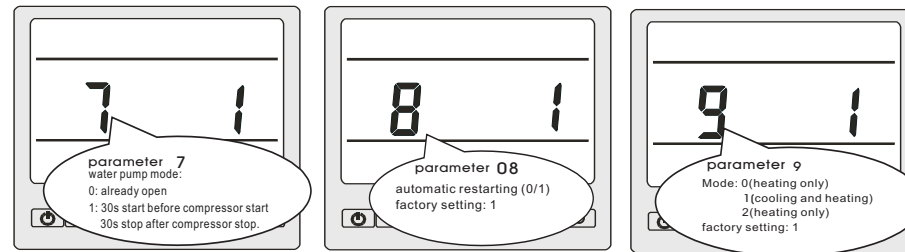
The factory only provides the main unit and the water unit; the other items in the illustration are necessary spare parts for the water system, that provided by users or the installer.

Attention:

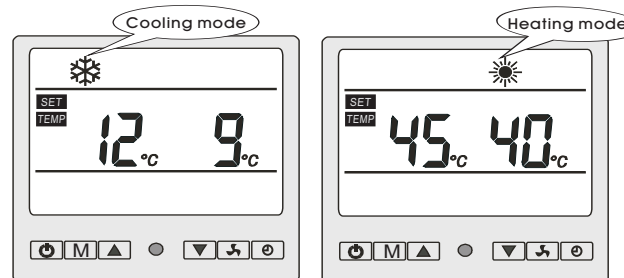
Please follow these steps when using for the first time

1. Open valve and charge water.
2. Make sure that the pump and the water-in pipe have been filled with water.
3. Close the valve and start the unit.

4. USAGE AND OPERATION

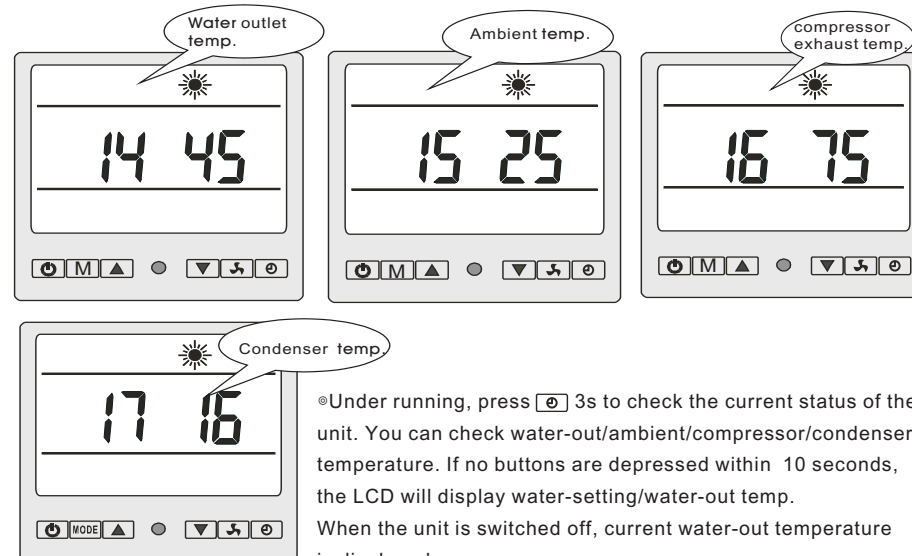


4.3 How to choose Mode



- ⊙ Press " M " to choose mode(mode can be changed under running)
- ⊙ Press " ⏻ " to power on unit. Under running, the LCD displays the water setting temp, water-out temp and current mode.
- ⊙ Press ▲ to set temp. 1 degree higher, press ▼ to set temp. 1 degree lower.

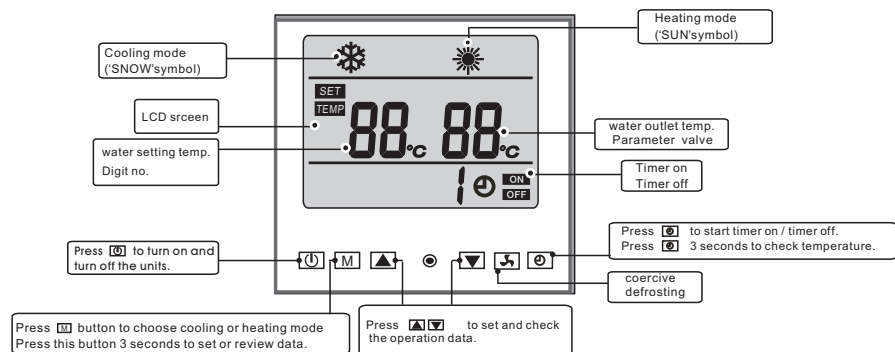
4.4 How to know the current status?



⊙ Under running, press [⏻] 3s to check the current status of the unit. You can check water-out/ambient/compressor/condenser temperature. If no buttons are depressed within 10 seconds, the LCD will display water-setting/water-out temp. When the unit is switched off, current water-out temperature is displayed.

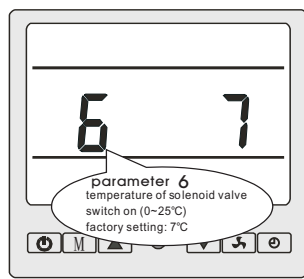
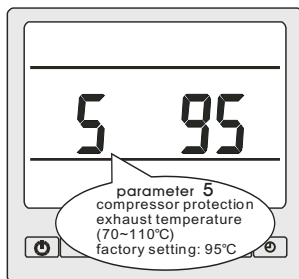
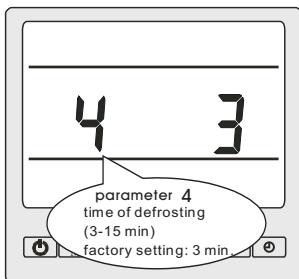
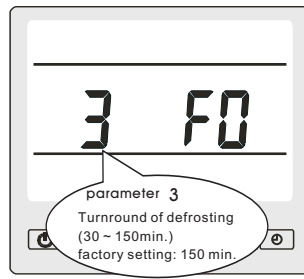
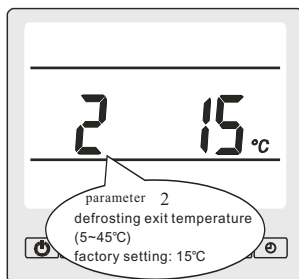
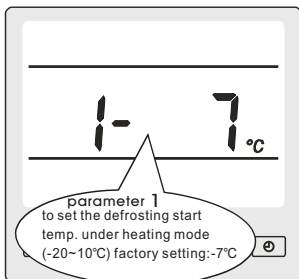
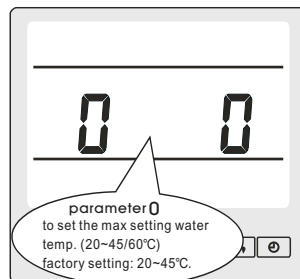
4. USAGE AND OPERATION

4.1 The Functions of the LCD Controller



4.2 How to set operation parameter

- Standby status-press "[M]" button 3s to enter operation parameter setting interface.
- Press "[M]" again to start setting(parameter from 0-9, see Operation Parameter Table).
- Under parameter setting, press "[▲]" or "[▼]" to set data for parameter from 0-9.
- No press in 10s, the LCD will display water-setting/water temperature (under running)or water temperature (unit stops).
- Whilst running, you can press "[M]" 3s to check current parameter, but data can't be changed.



3.INSTALLATION AND CONNECTION

3.2 Swimming Pool Heat Pumps Location

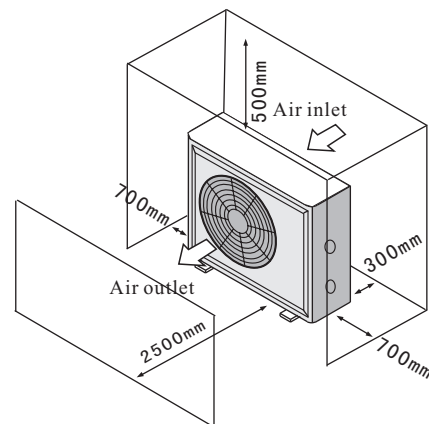
The unit will perform well in any outdoor location provided that the following three factors are present -

1. Fresh Air - 2. Electricity - 3. Pool filter piping

The unit may be installed virtually anywhere outdoors. For indoor pools consult the supplier. Unlike a gas heater, it has no draft or pilot light problem in a windy area.

DO NOT place the unit in an enclosed area with a limited air volume, where the units

discharge air will be re-circulated. DO NOT place the unit to shrubs which can block air inlet. These locations deny the unit of a continuous source of fresh air which reduces it efficiency and may prevent adequate heat delivery.



3.3 How Close To Your Pool?

Normally, the pool heat pump is installed within 7.5 metres of the pool. The longer the distance from the pool, the greater the heat loss from the piping. For the most part, the piping is buried. Therefore, the heat loss is minimal for runs of up to 15 metres (15 metres to and from the pump = 30 metres total), unless the ground is wet or the water table is high. A very rough estimate of heat loss per 30 metres is 0.6 Kw-hour, (2000BTU) for every 5 difference in temperature between the pool water and the ground surrounding the pipe, which translates to about 3% to 5% increase in run time.

3.INSTALLATION AND CONNECTION

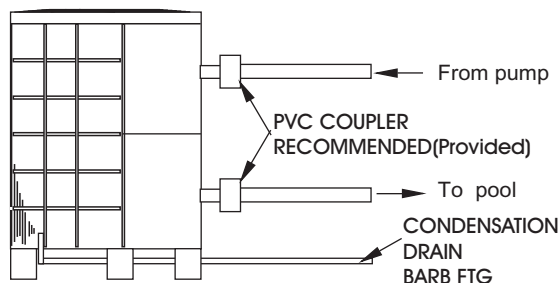
3.4 Swimming Pool Heat Pumps Plumbing

The Swimming Pool Heat Pumps exclusive full flow titanium heat exchanger requires no special plumbing arrangements or bypass. The water pressure drop is less than 10kPa at max. Flow rate. Since there is no residual heat or flame temperatures, The unit does not need copper heat sink piping. PVC pipe can be run straight into the unit.

Location: Connect the unit in the pool pump discharge (return) line downstream of all filter and pool pumps, and upstream of any chlorinators, ozonators or chemical pumps.

Standard model have slip glue fittings which accept 40mm NB PVC pipe for connection to the pool or spa filtration piping. By using a 50 NB to 40NB you can plumb 50NB PVC piping straight into the unit.

Give serious consideration to adding a quick coupler fitting at the unit inlet and outlet to allow easy draining of unit for winterizing and to provide easier access should servicing be required.



Condensation: Since the Heat pump cools down the air about 4 -5°C, water may condense on the fins of the horseshoe shaped evaporator. If the relative humidity is very high, this could be as much as several litres an hour. The water will run down the fins into the basepan and drain out through the barbed plastic condensation drain fitting on the side of the basepan. This fitting is designed to accept 3/4" clear vinyl tubing which can be pushed on by hand and run to a suitable drain. It is easy to mistake the condensation for a water leak inside the unit.

NB: A quick way to verify that the water is condensation is to shut off the unit and keep the pool pump running. If the water stops running out of the basepan, it is condensation. AN EVEN QUICKER WAY IS TO TEST THE DRAIN WATER FOR CHLORINE - If there is no chlorine present, then it's condensation.

3.INSTALLATION AND CONNECTION

3.5 Swimming Pool Heat Pumps Electrical Wiring

NOTE: Although the unit heat exchanger is electrically isolated from the rest of the unit, it simply prevents the flow of electricity to or from the pool water. Grounding the unit is still required to protect you against short circuits inside the unit. Bonding is also required.

The unit has a separate molded-in junction box with a standard electrical conduit nipple already in place. Just remove the screws and the front panel, feed your supply lines in through the conduit nipple and wire-nut the electric supply wires to the three connections already in the junction box (four connections if three phase). To complete electrical hookup, connect Heat Pump by electrical conduit, UF cable or other suitable means as specified (as permitted by local electrical authorities) to a dedicated AC power supply branch circuit equipped with the proper circuit breaker, disconnect or time delay fuse protection.

Disconnect - A disconnect means (circuit breaker, fused or un-fused switch) should be located within sight of and readily accessible from the unit. This is common practice on commercial and residential air conditioners and heat pumps. It prevents remotely-energizing unattended equipment and permits turning off power at the unit while the unit is being serviced.

3.6 Initial startup of the Unit

NOTE- In order for the unit to heat the pool or spa, the filter pump must be running to circulate water through the heat exchanger.

Start up Procedure - After installation is completed, you should follow these steps:

1. Turn on your filter pump. Check for water leaks and verify flow to and from the pool.
2. Turn on the electrical power supply to the unit, then press the key ON/OFF of wire controller, it should start in several seconds.
3. After running a few minutes make sure the air leaving the top(side) of the unit is cooler (Between 5-10 °C)
4. With the unit operating turn the filter pump off. The unit should also turn off automatically,
5. Allow the unit and pool pump to run 24 hours per day until desired pool water temperature is reached. When the water-in temperature reach setting, The unit just shuts off. The unit will now automatically restart (as long as your pool pump is running) when the pool temperature drops more than 2°C below set temperature.

Water Flow Switch - the unit is equipped with a flow switch that turns it on when the pool pump is running and shuts it off when the pump shuts off. This switch is the same type used in all gas pool heaters and is factory adjusted for normal pool installations. If the pool water level is more than a few feet above or below the thermostat knob of the unit, your dealer may need to adjust it at initial startup.

Time Delay- The unit is equipped with a 3 minute built-in solid state restart delay included to protect control circuit components and to eliminate restart cycling and contactor chatter. This time delay will automatically restart the unit approximately 3 minutes after each control circuit interruption. Even a brief power interruption will activate the solid state 3 minute restart delay and prevent the unit from starting until the 5 minute countdown is completed. Power interruptions during the delay period will have no effect on the 3 minute countdown.