

# Sunbather Solar Pool Heating Installation Instructions



Updated April 2018

## Suitable for:

- Flat Loop systems with Made to Headers
- Kwik Lok Headers and 30m Rolls

**Do not distribute or copy this material**

## Introduction:

Sunbather prides itself on the precision & perfection of their work, so spend the extra 15 minutes a day to ensure pipes are straight, cable tie any loose wires, get the solar collector flat & straight, and walk away from a job you are proud of. Otherwise you may be asked to return to the job and fix your shortcuts.

It is assumed that the person using this installation guide has sufficient trades experience to enable completion of the job in a workmanlike fashion.

***\*\* Call-backs cost everyone valuable time & money, so do it right the first time! \*\****



## Tools & Equipment:

A Sunbather system has been designed so no specialised tools are necessary, however the following tools & equipment are required:

Hammer, Pliers, Tin snips, Screwdrivers, Hacksaw - Handheld glue gun - Tape measure - Battery drill - Electric drill (with hammer function & masonry bits) - 2 Storey ladder - Screws - Green screw plugs - Cable ties - Ladder - Kwik Lok tool is optional for regular Kwik Lok header installers.

## Purchaser/Installer Responsibilities:

Sunbather will not be liable or responsible for the repairs, replacement, loss or damage of any kind arising from a breach or otherwise or:

1. Arising from any defect in any component beyond the period specified above.
2. For any damage or failure of equipment caused directly or indirectly from any work done on the system by a person not authorised by Sunbather.
3. Damage caused by incorrect installation according to this manual. It is the Purchasers/Dealers responsibility to warrant the installation labour and to bear the responsibility for its own actions.
4. For any damage to metal roofs or gutters or drinking water storages caused by water leakage from the system, or for any other consequential damage caused by chemically treated water flowing through or from the system or from rainwater ingress caused by blocked gutters or obstructed watercourses. It is the owners responsibility to keep the roof & waterways clear of debris which may cause rainwater storm damage
5. Direct or indirect damage resulting from storm and tempest or any other Act of God, animal life, or accidental damage of any kind.

Sunbather's liability is limited to the supply only of components. Visit [www.sunbather.com.au](http://www.sunbather.com.au) for warranty information.

## Safety Disclaimer:

Installing a solar pool heating kit may be dangerous while working at heights. By purchasing this solar kit, the purchaser accepts all responsibility to take their own safety precautions while installing this solar kit.

Sunbather does not take any responsibility for any injuries or death whilst installing this product.

For information on working safely in your respective state visit your state worksafe website.

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# 1.0 Installing the Manifold Trays

## 1.1 Fixing the manifold trays to Roof

The manifold trays fix the manifolds in position and keep them straight and neat. Ensure that when using more than one tray that they run in a straight line with no more than a 1m gap between trays. You must use at least two screws per tray.

### Tiles:

Use a masonry drill to drill holes in the tiles at high points only, and self-tapping screws to screw through the tray into the anchor plugs.

**Screws and penetrations should be further sealed with silicone. Never penetrate roof valleys.**

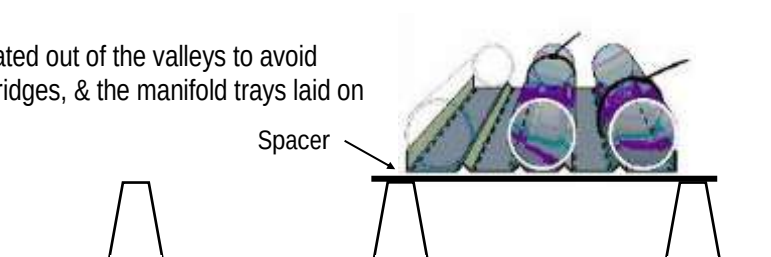


### Corrugated Iron:

A corrugated iron roof installation is basically the same as a tiled roof. Manifold trays and plumbing configuration are the same. When fixing trays always fasten with tekscrews or rivets only to the high points of the profile, **never** in the valleys and use a neutral cure silicone to seal penetrations or provide additional bonding to the roof.

### Metal Deck:

When installing on a metal deck roof, the headers should be elevated out of the valleys to avoid blocking water flow. A form of spacer must be placed in between ridges, & the manifold trays laid on top.



# 2.0 Assembling Manifolds in Trays

## 2.0 Fixing the manifold pipes to manifold trays

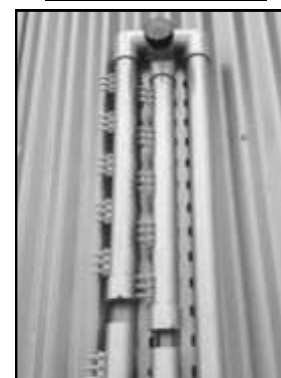
Before starting, make sure you have the solar collector strip lengths in order. Place the first bundle at the top of the tray, (for Made to Header systems, strip 1 is to go at the top of the roof) and cable tie at 700mm apart. When tightening cable ties, ensure they are not touching solar tubing. Unroll the top solar strip to ensure the length is OK before progressing.



## 2.1 Made to Header Manifolds - Connect the solar modules together

Once the top module is in place, connect the remaining modules together by placing the pipes in the tray and glue with a coupling. All pipes & fittings MUST BE PRIMED & be thorough when gluing: coat both fitting and pipe surfaces and rotate them a little while engaging to ensure that the glue spreads.

**NO LEAKS WHEN GLUING!!** If a leak occurs in the pipework it is the responsibility of the installer.



## 2.2 Kwik Lok Manifolds - Straight Header Systems

Sunbather's Kwik-Lok headers have been designed for quick & simple installation.

DO NOT USE PRIMER OR EXCESSIVE GLUE ON KWIK LOK MANIFOLDS

Simply glue the Kwik-Lok headers together until you have your desired number of solar connections. Lay the Kwik-Lok into the header trays & cable tie.



Can be cut at these two points to shorten

If you do not require all barbs on a header, they can be cut in 2 points to shorten.



## 2.0 Assembling Manifolds in Trays cont...

### 2.3 Kwik Lok Headers - Angled Header Systems & Blanking Caps

#### Tin Roof or Tiles:

Angled header systems are just as easy as a straight system. Once your header trays are in place, lay the kwik-lok headers into the tray & glue together as previously described.

**DO NOT USE PRIMER OR EXCESSIVE GLUE ON KWIK LOK MANIFOLDS**

**Note: You will use more headers on an angled system, and don't get confused if you have more header connections than you have solar strips. You simply blank off the ones you don't need with the special 'Blanking Caps'.**

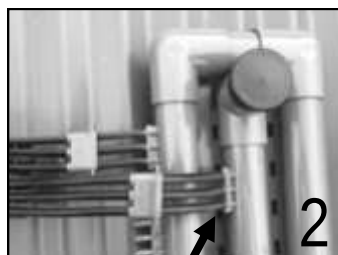
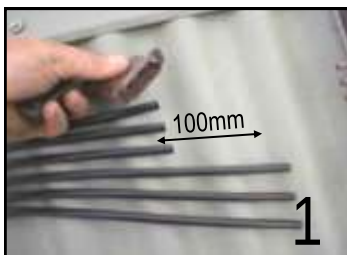
1. Slide the blanking caps onto unused barbs
2. Use retainers to slide over the caps and seal the unused barbs. Lubricate this step first.



## 3.0 Installing the Solar Collector

### 3.1 Connecting HiPEC Solar to Kwik-Lok Headers

1. Trim the solar length to match the headers, 3 long, 3 short as shown in Pic 1.
2. Slide the retainers onto the solar tubes. Make sure tube is just over 2nd Rib on barb (pic 2) and ensure you do not squash the tube hard against the manifold. This will prevent retainers being difficult to slide on.
3. Slide the tubes onto the barbs (pic 2) - *Do not use lubricant at this step*
4. Now lubricate the tubes, & clip the retainers down onto the headers (pic 3)



Lubricate here

### 3.2 Installing 30m Rolls

When installing rolls, the connection to the manifolds is the same. Roll out the collector to the desired length, loop around and roll back. To join the rolls use the barbs & sleeves provided. Strip back the collector webbing as shown in Pic 2, slide the sleeves over & insert the barbs as in Pic 3.

If you wish to minimise the visual aspect of looped ends, simply fold over on itself as shown in Pic 1, or strip out the webbing.



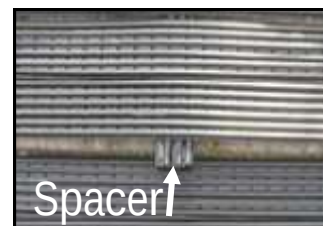
## 3.0 Installing the Solar Collector cont...

**NOTE:** All care must be taken to install the solar collector so it does not affect the natural flow of rainwater off the roof.

### Warning: Flat Profile Tiles!

A spacer should be used on flat profile tiles in-between glue lines to raise off the roof. This will allow water to pass underneath. A folded piece of 300mm long solar is fine.

**Pipes running 'along' flat profile tiled roofs should be raised so water can pass underneath using Stand Off Clips, see page 13.**



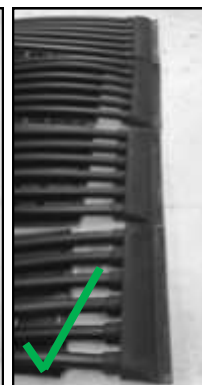
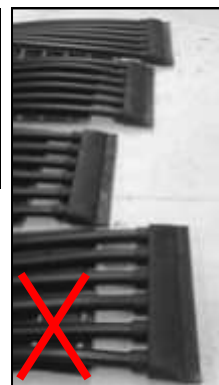
### 3.3 Gluing the solar to the roof

If tiled, there will generally be 3 strips per tile. Take special care in laying the strips exactly where they need to be glued.

Glue spacing should be no more than 600mm apart to obtain a firm fix to the roof.

A generous bead of glue should span the width of each strip and be pushed down firmly so the glue mushrooms up through the holes (see right).

Ensure all ends are straight & the same length.



### 3.4 Gluing of valves

All valves must be disassembled for priming & gluing to ensure that no glue can leak down into the moving parts of the valve & cause blockages or valves to be stuck in one position.



### 3.5 Installing the roof (hot) sensor

When installing the solar, it is recommended that you fit the Hot Sensor at the same time as fitting the manifold pipes.

- The placement of the hot sensor must be where it receives the *same* sun as the solar collector itself.
- Push the hot sensor into a tube on the sensor pad provided & glue the sensor pad in place (see right). Do not glue sensor onto solar collector with water flowing through it as it gives a false reading & causes the solar to continually cycle.
- Cable tie the sensor lead to the nearest pipe and neatly run and cable tie it along the pipework back to the solar controller.



**If the sensor & sensor pad is placed in the shade, or where shade will occur at some time in the day, this will prevent the system from operating during this time.**

### 3.6 Installing the pool (cold) sensor

Identify where you will install the cold sensor well according to the diagram on page 9, 10, or 11 depending on which type of plumbing setup you have. Drill a 14mm hole in the pipe and de-burr the hole of any swarf. Insert the rubber grommet. You may need to lubricate it to get it in.

Insert the cold sensor pocket, again you may wish to lubricate the pocket. Place the sensor in the pocket & cable tie or silicon over the top of sensor pocket so it doesn't fall out.

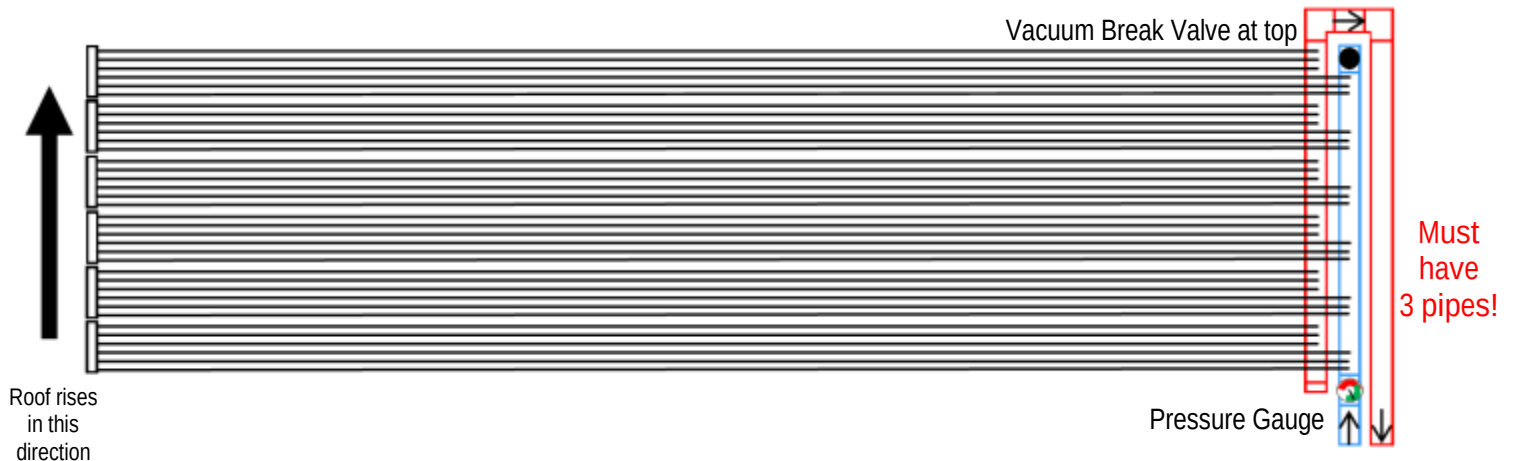
If you elect to use the threaded sensor pocket, you will need a faucet Tee available from Sunbather. Ensure you use Teflon tape on the thread for a seal.

## 3.0 Installing the Solar Collector cont...

### 3.7 Correct Manifold Pipe Layout: Bottom Feed Solar

The correct way to connect any Sunbather system is as shown below. Water flow in the two manifolds should be in a direction moving up the roof with **supply water** entering at the bottom of the inlet manifold and **return (heated)** water leaving from the top of the return manifold. This will result in three pipes (including the return to pool line) running together.

This not only expels air but creates a hydraulic equilibrium & water flow throughout the collector.



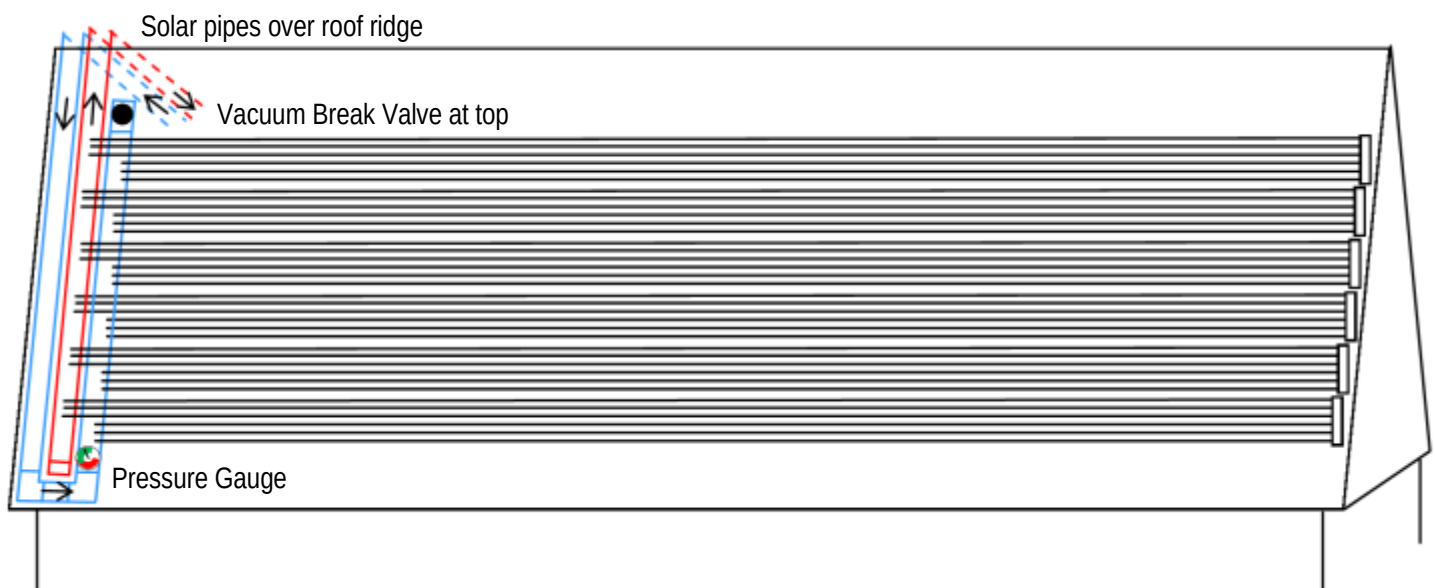
**2 Pipes Only = Incorrect Connection! Refer to Australian Standards.**

### 3.7 Top Feed Solar System

Occasionally pipe work may have to be brought up, over a ridge, then down into the solar system. This configuration is shown below and once again ensures swift air expulsion and even flow throughout the system.

The vacuum break valve should be installed at the highest point of the system in the flow pipe

Note that although a top feed system, there is still 3 manifold pipes to achieve even water flow.



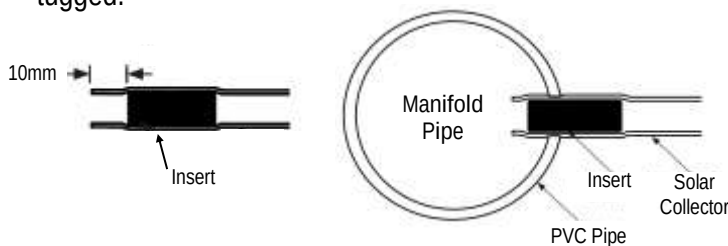
## 3.0 Installing the Solar Collector cont...

### 3.8a Butterfly Manifold Setup

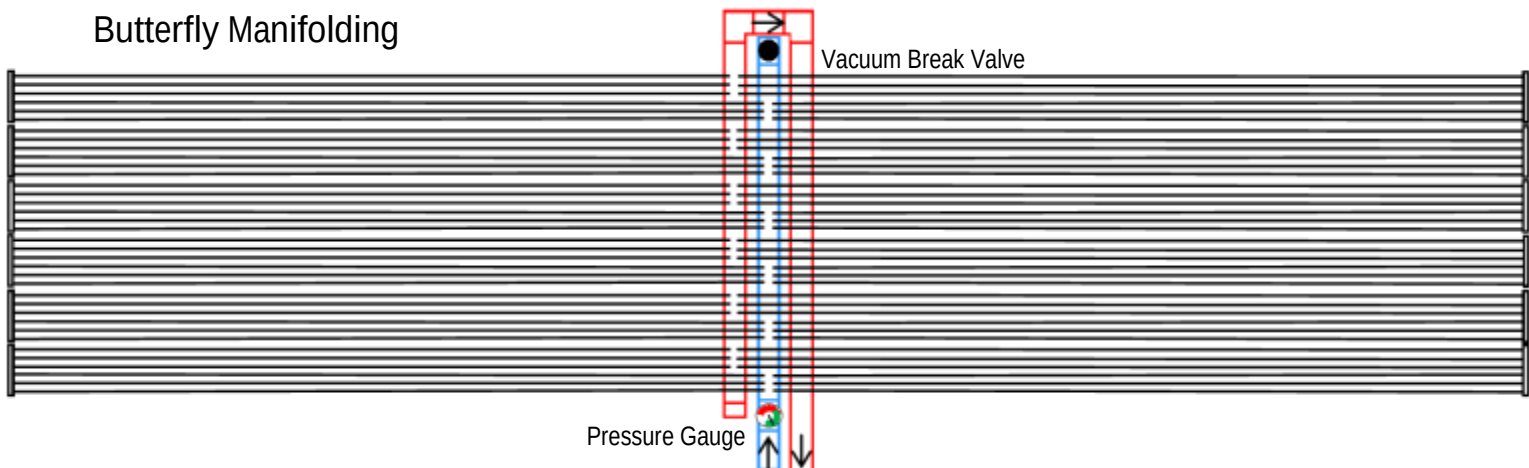
On long thin roofs, a butterfly system is likely to be appropriate (see diagram below) to keep strip lengths less than say 12m in length. The manifold pipework is the same but only one half of the collector will be supplied connected to the manifolds. This means that some “plugging in” on-site of solar strips is required. To complete this task, some special tools are necessary (see right). These are called an ‘insert’ and ‘plug-in tool’.

When plugging in the solar strips make sure of the following:

- an insert is in each tube and positioned correctly (as seen below left)
- the final tube connection to the manifold should not be twisted.
- ensure that the connection is tight in the manifold pipe, and does not come out if firmly tugged.

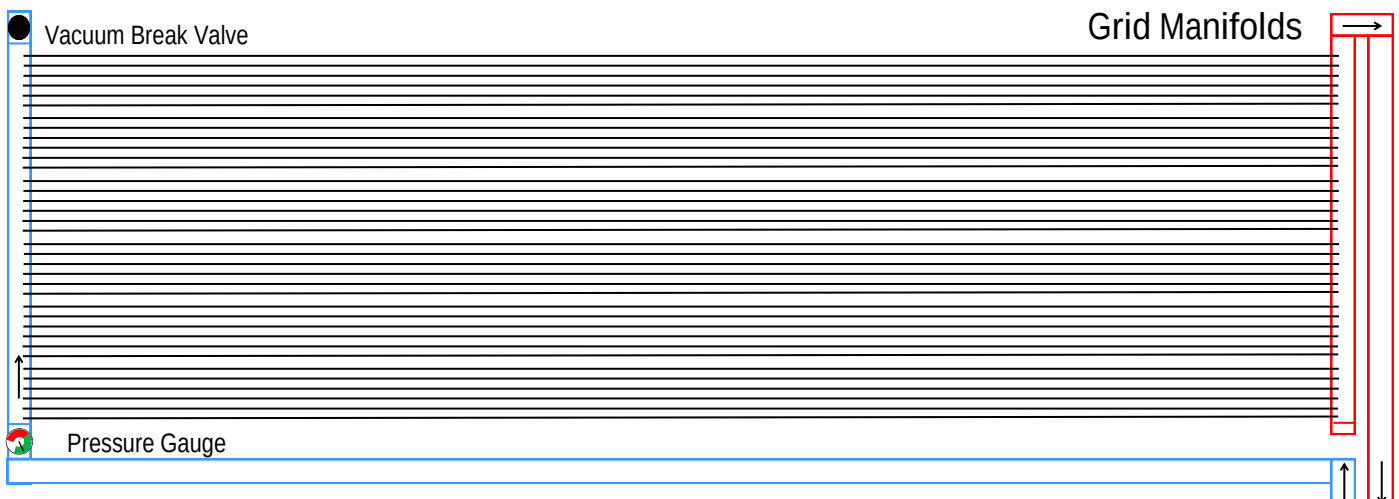


### Butterfly Manifolding



### 3.8b Grid Manifold Setup

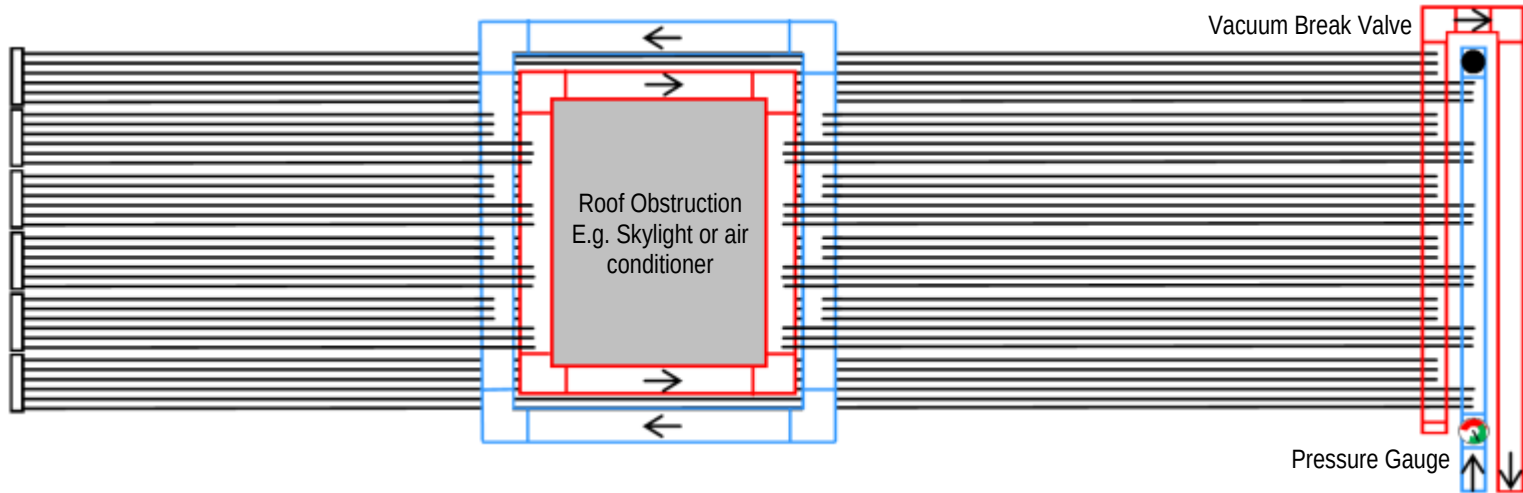
The alternative to a butterfly system is a grid system, this is again to keep strip lengths less than say 12m in length. The manifold pipework is the same, but only one half of the collector will be supplied connected to the manifolds. This means that some “plugging in” on-site of solar strips is required as described above.



## 3.0 Installing the Solar Collector cont...

### 3.9 Installation around roof obstacles

- Use Kwik Lok Headers to get around obstacles or skylights
- Cut and strip out the solar strips in their standard 3 & 3 arrangement
- Fasten the manifold pipes to the roof with saddle clamps
- Avoid resting the manifolds on the skylight or air-con unit



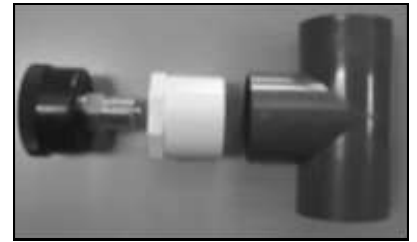
## 4.0 Pressure Gauge, Vacuum Break Valve & Opti Valves

### 4.1 Installation of the pressure gauge (*item 6 on opposite page*)

The gauge must be installed in a faucet tee in the cold flow pipe, just below or close to the bottom collector strip. This is the point in the solar collector where pressure is the highest. See “Troubleshooting” on page 20 if pressure gauge is in the **red**.

When screwing the gauge into the faucet tee, ensure you use ample teflon tape, and a smear of silicone to ensure no leaks. Screw the gauge in, applying torque to the brass shank (not the gauge face) using a spanner. Do not overtighten as this can snap the fitting.

The gauge should read in the **green** under normal conditions and low is good. Separate circuits independent of the filtration system will generally read **green** and may only register 0-10 kPa.



### 4.2 Installation of the Vacuum Break Valve (VBV) (*item 7 on opposite page*)

The VBV should always be installed in the flow line to allow swift release of the vacuum in the system and close to the collector manifolds.

The VBV should be installed at the highest point of the solar system for best results and in a 90° elbow fitting at the top of the flow line as shown opposite.

It should not be positioned remote from the solar collector.  
The VBV can be disassembled to clean.



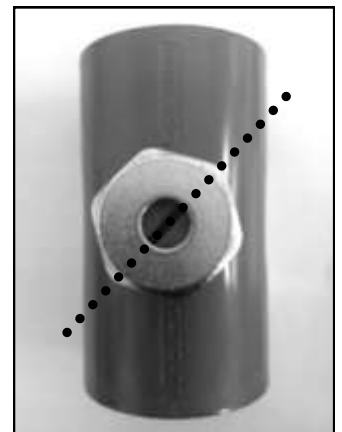
### 4.3 Installation of Sunbather Opti Valve (*item 8 on opposite page*)

The Opti Valve is Sunbather's unique valve for setting optimum pressure and water flow.

Always install on the return line close to ground level. If a simultaneous system, you may need to install one on the flow line after startup if the pressure is too high. Adjust accordingly.

When fitting, DO NOT remove nut or inner butterfly flap. It's impossible to put back together once installed.

When starting a solar system, the Opti valve on the return line is used to slow water flow down off the roof so the pump can keep up. When adjusting the valve always loosen the metal nut first and adjust the valve using a screw driver. The internal valve is in line with the screwdriver head as shown right. See *commissioning* on page 18.



### 4.4 Installation of Check Valve (*item 5 on opposite page*)

Connect discharge line to pump discharge port with an external check valve if the pump in question has no integral check valve.

Drill a 3-4mm hole in this check valve as shown here. A check valve with a hole in it will still stop the big gush of water from the roof when the pump turns off, whilst continuing to allow the line to drain slowly making it easier for the pump to start up next time.

Ensure the valve is disassembled for gluing.

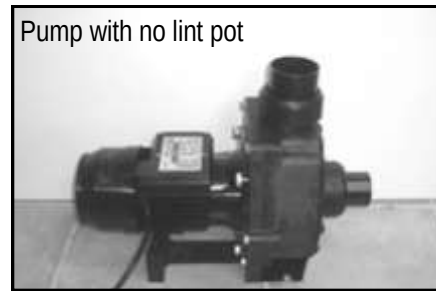


# Plumbing Setups

1. Separate suction and return (solar pipework completely separate form filtration system)
2. Simultaneous (solar heating is connected into the filtration system with solar pump (no lint pot))
3. Diverter Valve (solar heating is connected into the filtration system without solar pump)

## Pump Selection:

|               | Separate Circuit      | Simultaneous               |
|---------------|-----------------------|----------------------------|
| Single Storey | 3/4 hp, with lint pot | 1/2 hp, No lint pot        |
| Double Storey | 1 hp, with lint pot   | 1/2 or 3/4 hp, No lint pot |



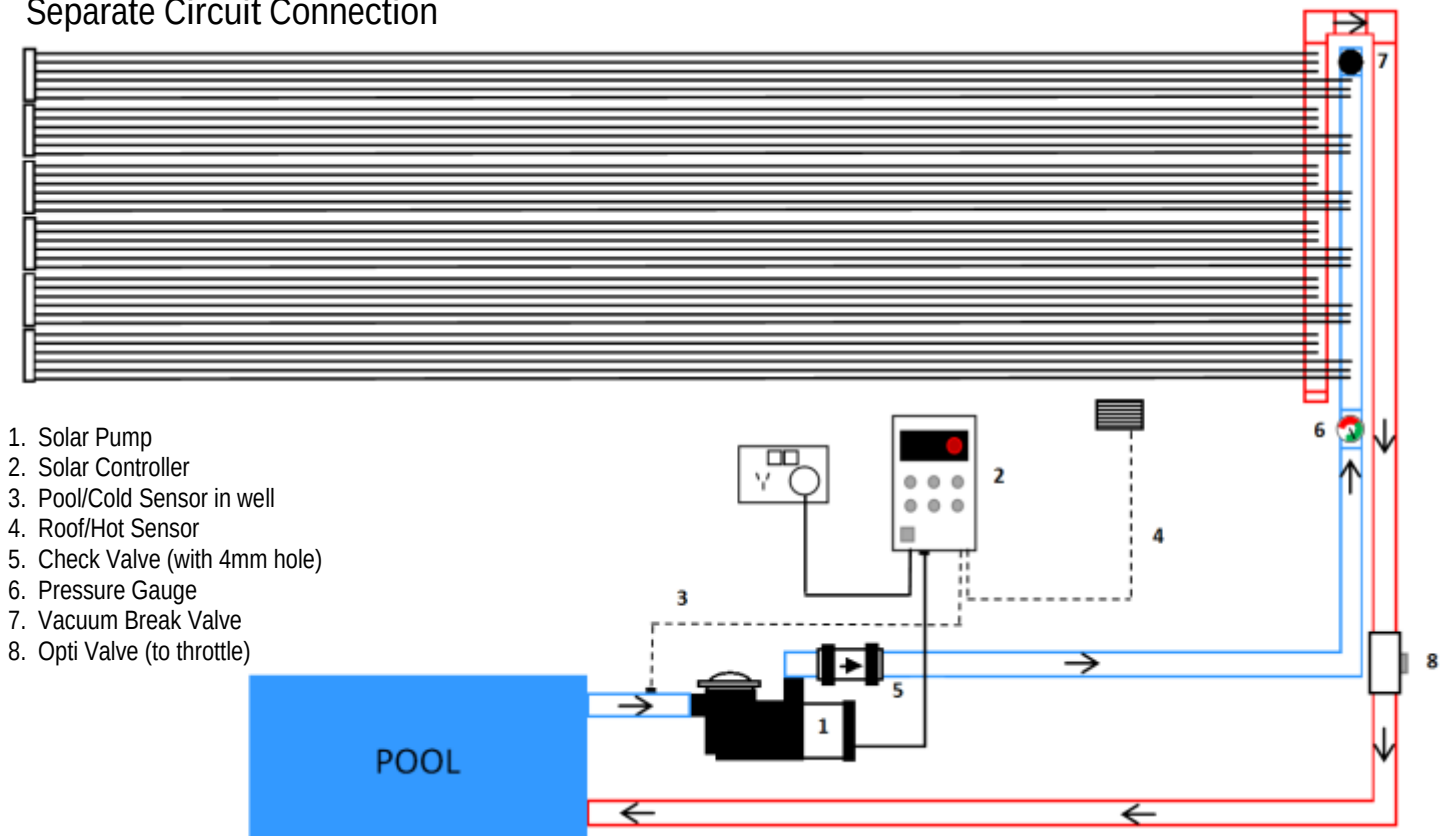
## 5.0 Separate System Setup

### 5.1 Separate suction & return setup

When advising on solar connection to a new pool always recommend that separate flow and return lines be provided by the pool builder. This eliminates any issues that may arise due to the operation of the filtration system and all of its associated equipment: pool cleaners, chlorinators, heaters etc.

Connect the various circuit components as shown in the diagram below & as described on opposite page.

### Separate Circuit Connection



## 6.0 Simultaneous Setup

A simultaneous connection is used when there are no separate solar pipes provided. This would generally be applicable to an existing pool and means that the solar connection must be made into the filtered water return to pool line.

### 6.1 Running Simultaneously

With simultaneous operation the solar computer must be connected to the same power supply as the filter pump. This means that the solar pump can only run when the filter pump is running and only if the solar computer allows it to, due to favorable solar conditions (i.e 9am - 5pm). Filter pumps generally operate on a timer. The solar computer must be plugged into this timer for the 2 pumps to operate simultaneously.

### 6.2 Tapping into existing pipes

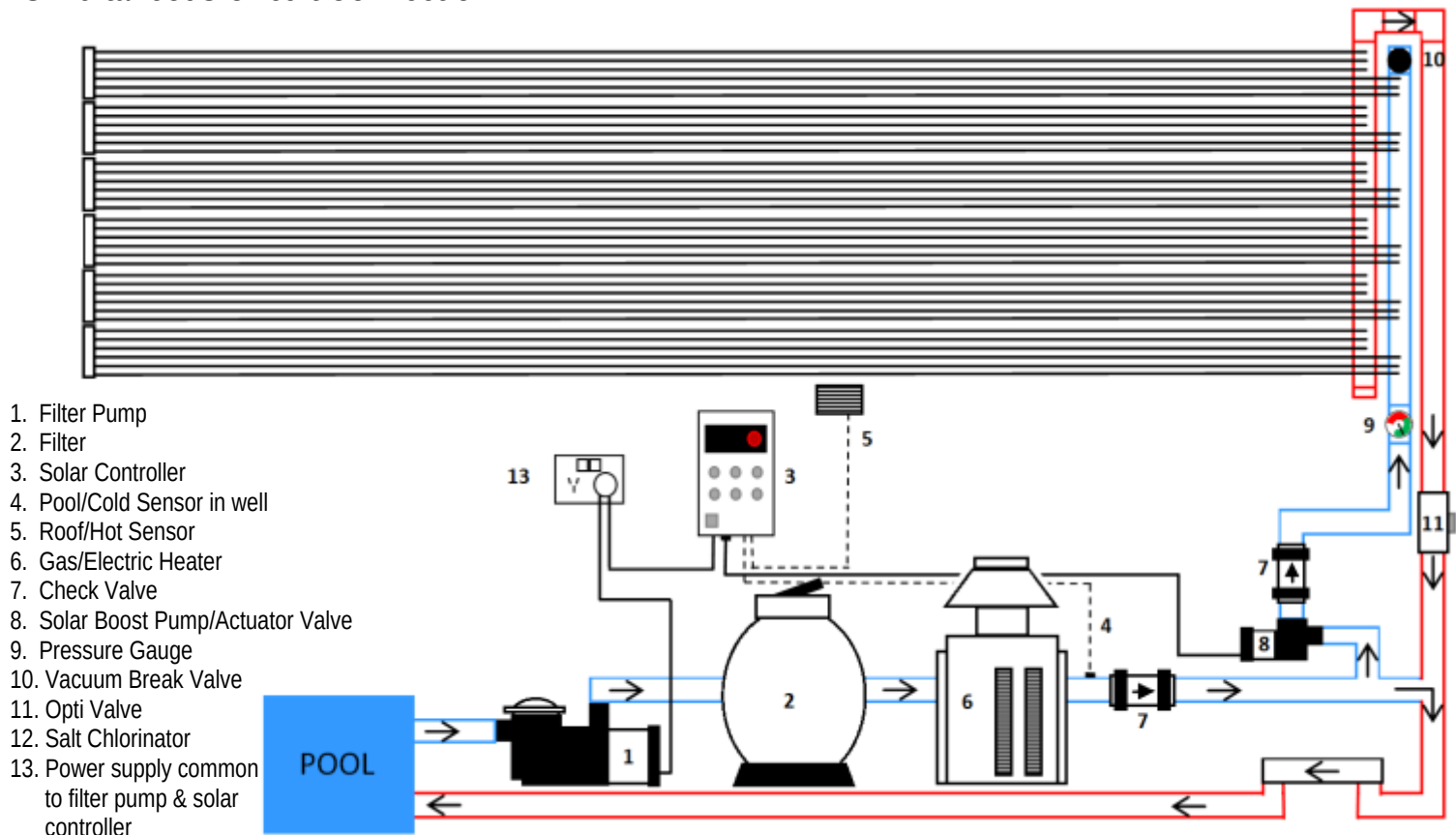
The existing filter pump will generally be a high powered pump. As a result, always connect the solar downstream of the filter and gas heater/heat pump, as shown in the diagram .

- Make sure that a check valve (item 7 in diagram), is included in the line upstream of the solar connections you are about to make: this prevents back flushing debris out of the filter when the solar pump stops and water rushes down the return line.
- Always connect before a salt chlorinator (item 12 in diagram) to prevent chlorine concentrates from entering the solar collector. **Never plumb across a salt chlorinator**, that is, solar suction on one side and solar return on the other side of the chlorinator. This will reduce water flow through the chlorinator and may effect its operation.
- An Opti Valve should always be installed in the return line (item 11) Even if you don't adjust it.
- Ensure you install the cold sensor as shown where it receives constant water flow, even when the solar is off.

### 6.3 Gas Heaters/Heat Pumps & Simultaneous Setups

It is standard practice to install solar pipes after a gas heater or heat pump. Old gas heaters can sometimes impose significant backpressure on the solar collector if located downstream of the solar connections.

## Simultaneous Circuit Connection



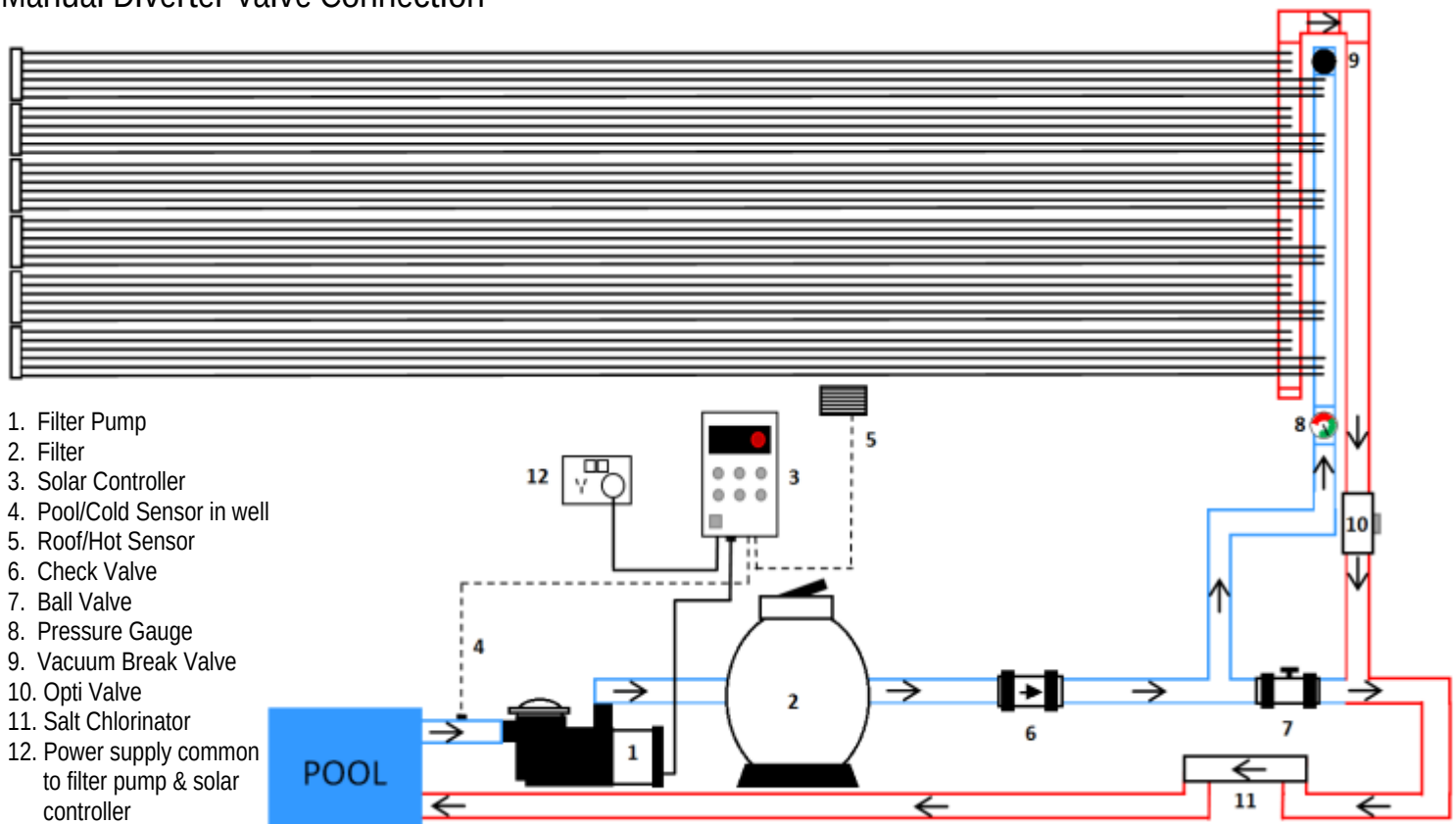
## 7.0 Manual Diverter Valve Setup

### 7.1 Manual Diverter Valve Setup

Use of a manual diverter valve as shown below is not generally recommended unless no other option is available:

- The additional back pressure imposed on the filtration pump reduces water turnover especially on a two storey lift.
- This back pressure can also be detrimental to the filter.
- Running the filter pump connected to the solar computer may result in inadequate filtration during periods of marginal solar weather.
- Valve 7 shown below is the diverter valve. When fully closed all water will divert through the solar collector. When partially closed a portion of the water will pass through the collector and the balance direct to the pool. Partial closure may be advantageous to reduce the problems described in the first two points above but be sure that the collector has adequate water flow: it must run cool to the touch after initial pump start up.

### Manual Diverter Valve Connection



## 8.0 Split System Setup

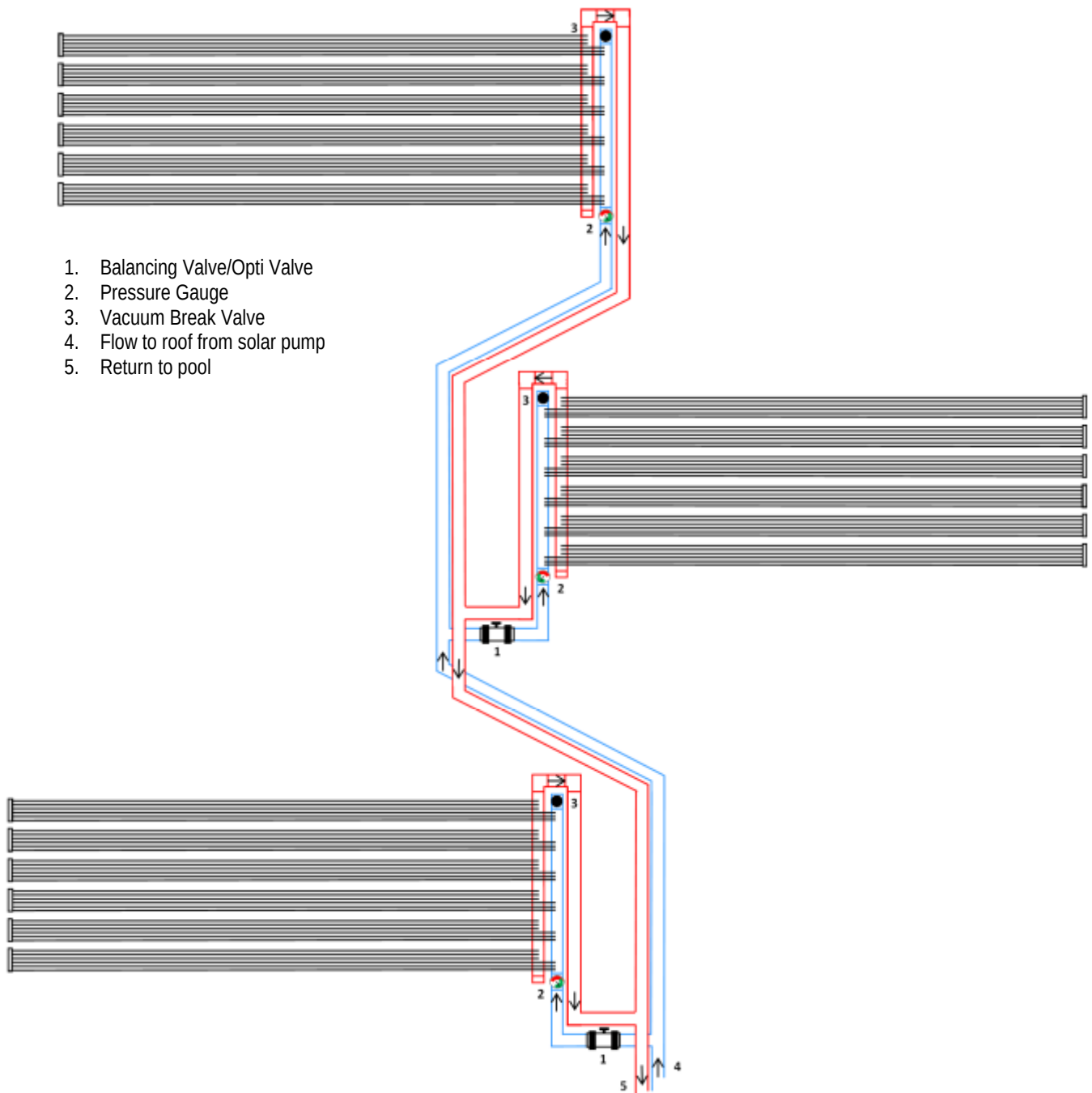
### 8.1 Split System Setup

A split system is when a solar system needs to be split onto multiple roof sections

- The fundamentals of installation method remain the same. Plumbing consists of a **main flow** and **return line** with each individual solar collector branching from this main line: the flow to the first collector will branch (tee), a balancing valve connected (usually a ball valve or opti valve, item 1 in diagram) and then the connection to the inlet manifold made. The **hot water** from the return manifold will then travel back to join (tee into) the main return line.
- This procedure will apply to the next “sub-system” and the last system (generally the most distant) will simply be an extension of the main flow and return lines and may also require a balancing valve.
- The resultant system is one of *parallel* connected sub-systems. Series connection is not recommended.
- A vacuum break valve should be installed at the top of each system in the **flow line**, as indicated in the diagram, item 3.
- A pressure gauge should be installed in the flow line of each separate system in the position marked on the diagram, item 2.

#### Balancing the Systems:

- Open all valves. Solar collectors which are lowest will naturally receive most water, reading the highest pressure, and so the balancing valve on the lowest system will need to be restricted first to enable water to be pushed to higher roofs.
- When the process of restricting valves is finished all collectors should run cool to the touch (i.e. water is taking the heat from the collector) and the top most collector should have an open valve.
- Ensure all gauges are operating in the **green** area.



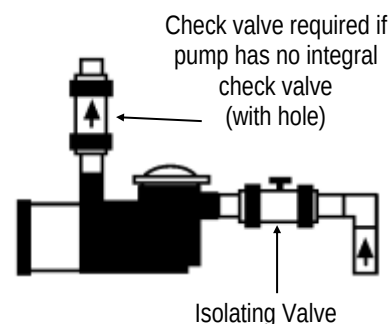
## 9.0 Pumps Above or Below water Level

### 9.1 Installing a pump below water level

#### Separate suction and return

Any pump located below water level should be isolated from the pool with a shut off valve so that pump maintenance can be carried out. A solar pump is no different and in this case regular cleaning of the filter pot will need to be undertaken so isolation from the pool is an important inclusion.

*It is important to remind the owner that the valve should be closed prior to cleaning and re-opened after cleaning to avoid pump damage.*



#### Simultaneous system

There is no requirement to provide isolating valves on the solar circuit in this case, as they should already be provided on the filtration circuit which will enable isolation of the entire circuit for maintenance.

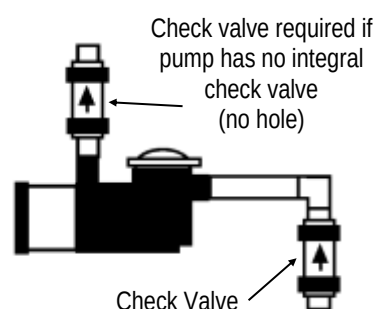
### 9.2 Installing a pump above water level

#### Separate suction and return

Solar Pumps should never be installed more than 1m above water level as this will invariably lead to priming problems with the potential for pump damage. From time to time this does occur.

The only possible cure is to install a check valve as close to the pool as possible to hold prime. Often the valve will have to be close to the solar pump by necessity.

*Never bury the valve underground as future service by people unfamiliar with the site will not know.*



#### Simultaneous system

Not required as it will never lose prime due to the filter pump.

## 10.0 Sensor Cable, Pipe Work & Trenching

### 10.1 Joining sensor cables

- Care must be taken to exclude moisture from each of the two joins
- Ensure the joiner is completely sealed with silicon to protect from moisture
- *Do not join sensor cables underground! Use a sensor cable long enough!*



### 10.2 Saddle Clamping Pipes

- Saddle Clamps should be no more than 2m apart on the vertical wall
- Always use 2 clamps & 3 screws as shown right (unless not physically possible due to space)
- Always clamp under eaves
- When running pipes along a roof, saddle clamp one pipe at a minimum of 2m spacing, and then lay the second pipe on the high side affixing with cable ties
- For foam walls, you must use suitable foam or plaster screws as shown right
- Pre drill render surface for a better fixation and to avoid render chips



#### **WARNING: Flat Profile Tiles & Stand Off Clips:**

To avoid leaking roofs, pipes that run horizontal along a roof with flat profile tiles should be elevated to allow water & debris to pass underneath. Sunbather has 'Stand Off Pipe Clips' available as shown right.



### 10.3 Trenching

When running pipes underground, the trench should be a minimum of 300mm. The sensor cable (2-core figure 8) should be in conduit, or cable tied underneath a pipe to protect it from any future damage shovels may cause.

# 11.0 Sunswitch Controller - Standard Wired

Refer to [www.sunbather.com.au](http://www.sunbather.com.au) for download of these instructions.



## SECONDARY FUNCTIONS:

### MANUAL:

Press MAN to run the solar pump (flashing status light indicates Manual mode). Press AUTO to exit Manual mode or wait 30 minutes for unit to revert back to Auto. For continuous Manual operation, hold the MAN button down for 10 seconds. CO will appear in the display. Press AUTO to revert back to Auto mode.

### WINTER MODE:

Press ON/OFF for 5 seconds ("W" will appear in the display) and the solar pump will run for 10 minutes each day, from the time of setting. Press ON/OFF again to exit winter mode.

### ROOF TEMPERATURE:

Press and hold the Up Arrow for 3 seconds to display the roof sensor temperature for 5 seconds.

### HEAT & COOL MODE:

Press AUTO for 10 seconds (display pulses continuously when in Heat & Cool mode). Push AUTO again to revert to normal operation.

## SERVICE FUNCTIONS:

### Start-up Diagnostic:

All lights, displays and non-volatile memory are checked on start-up. "EE" will flash in the display if a fault is found.

### Sensor Fault Diagnosis:

A flashing "Er" display indicates a faulty roof sensor. A non-flashing "Er" display indicates a faulty pool sensor. Both sensors are non-polar 4.7K Ohm at 25°C thermistors with these temp/resistance ohm readings: 10°C - 953 $\Omega$ , 20°C - 5902, 30°C - 3770, 40°C - 2480, 50°C - 1673, 60°C - 1156

### Electrical Specifications:

$\Delta T$  on 6°C.  $\Delta T$  off at 2°C. Maximum relay overload 230V - 10A

### Readout Calibration:

To fine tune the temperature readings hold TEMP SET button down for 10 seconds until the display flashes. Pressing the up or down arrow buttons will change the units base settings one degree each press.

While in standby, the display reads the last recorded temperature.

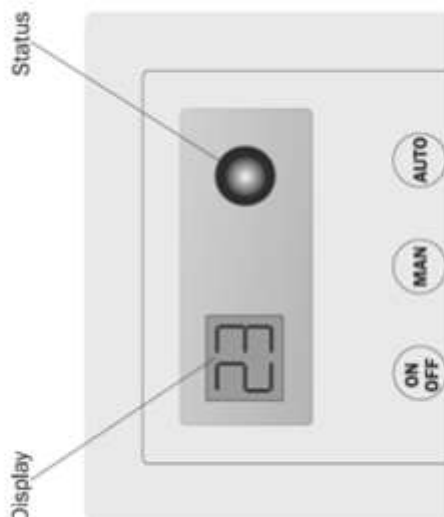
### Service Lock-Out Mode:

Hold AUTO & MAN buttons down for 10 seconds (LO appears in display). Controller will remain in Lock-Out for 2 hours before reverting to normal automatic operation.

### SUNBATHER POOL TECHNOLOGIES

P.O. BOX 107 HASTINGS, VICTORIA AUSTRALIA 3915  
Ph: 03 5979 5777 Fx: 03 5979 3577 [www.sunbather.com.au](http://www.sunbather.com.au)

## PRIMARY FUNCTIONS



### To Switch ON:

Push the ON/OFF button once to switch the unit ON (pool temperature reading will then display).

### For Automatic Operation:

Press the AUTO button once for fully automatic operation (status light will then display).

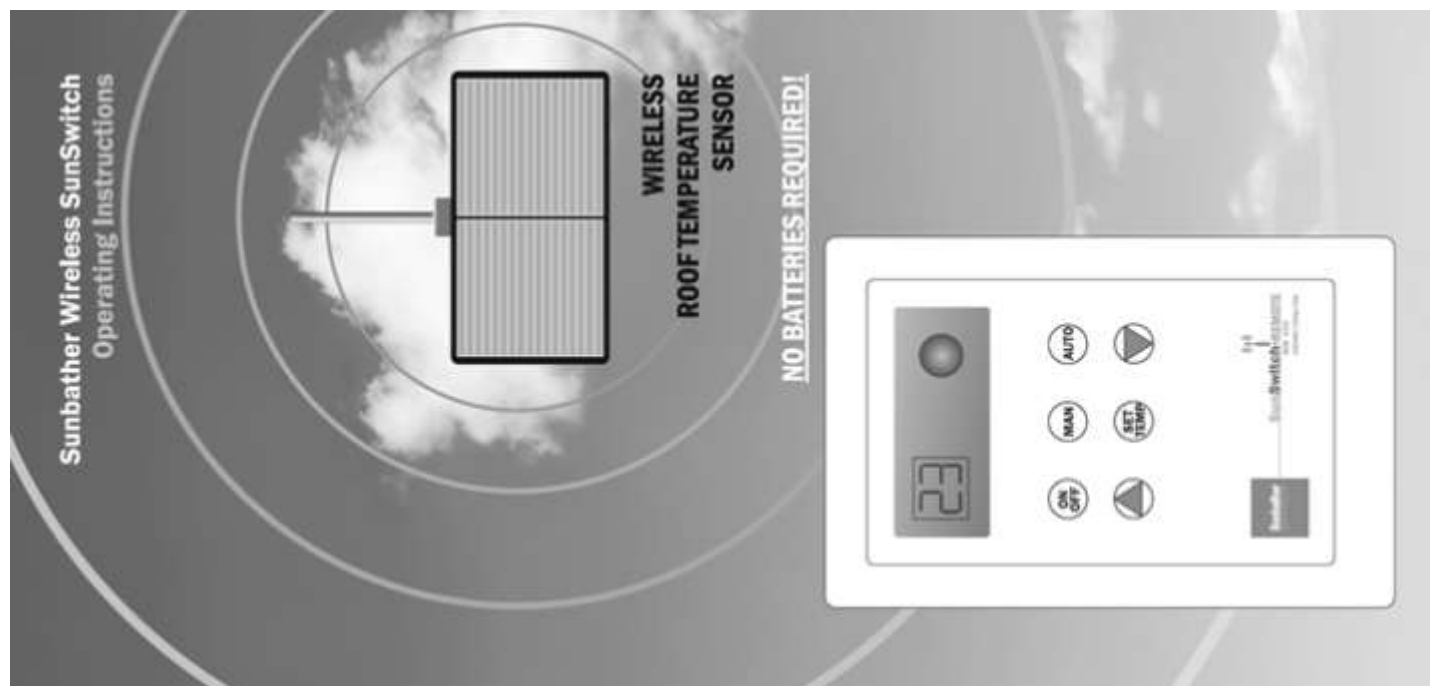
In this mode the controller automatically switches the solar pump to heat the pool when weather conditions are favourable.

The status light pulses when the pump is on standby and remains on when the pump is running.



# 11.0 Sunswitch Controller - Wireless

Refer to [www.sunbather.com.au](http://www.sunbather.com.au) for download of these instructions.



## SECONDARY FUNCTIONS:

### MANUAL:

Press MAN to run the solar pump (flashing status light indicates Manual mode). Unit will not run on Manual if no roof transmission has been received.

Press AUTO to exit Manual mode or wait 30 minutes for unit to revert back to Auto. For continuous Manual operation, hold the MAN button down for 10 seconds. CO will appear in the display. Press AUTO to revert back to Auto mode.

### WINTER MODE:

Press ON/OFF for 10 seconds ("W" will appear in the display) and the solar pump will run for 10 minutes each day, from the time of setting.

Press ON/OFF again to exit winter mode.

### ROOF/POOL TEMPERATURE:

Press and hold the Up Arrow for 3 seconds to display the roof sensor temperature for 5 seconds. The display will show "00" if no roof temperature signal is received.

Press and hold the Down Arrow for 3 seconds to display the pool sensor temperature for 5 seconds.

### SERVICE FUNCTIONS:

#### Start-up Diagnostic:

All lights, displays and non-volatile memory are checked on start-up. "EE" will flash in the display if a fault is found.

#### Pool Sensor Fault Diagnosis:

"Er" display indicates a faulty pool sensor. Cold sensor is non-polar 4.7K Ohm at 25°C thermistor with these temp/resistance ohm readings: 10°C - 9535, 20°C - 5902, 30°C - 3770, 40°C - 2480.

#### Electrical Specifications:

$\Delta T$  on 6°C,  $\Delta T$  off at 2°C. Max relay overload 230V - 10A

#### Readout Calibration:

To fine tune the temperature readings hold TEMP SET button down for 10 seconds until the display flashes. Pressing the up or down arrow buttons will change the units base settings one degree each press. While in standby, the display reads the last recorded temperature.

#### Service Lock-Out Mode:

Hold AUTO & MAN buttons down for 10 seconds (LO appears in display). Controller will remain in Lock-Out for 2 hours before reverting to normal automatic operation.

### SUNBATHER POOL TECHNOLOGIES

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[www.sunbather.com.au](http://www.sunbather.com.au)

## PRIMARY FUNCTIONS

### To Switch ON:

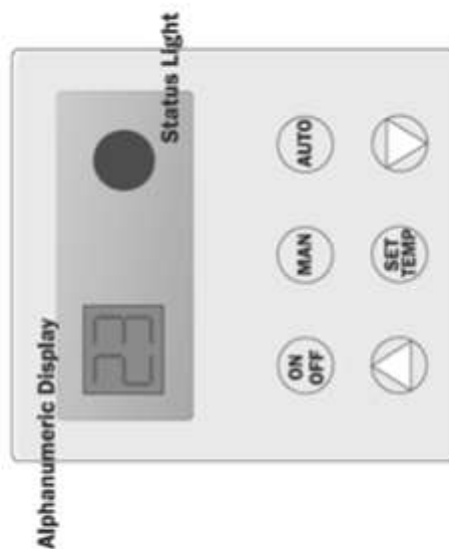
Push the ON/OFF button once to switch the unit ON (pool temperature reading will then display).

### For Automatic Operation:

Press the AUTO button once for fully automatic operation (status light will then display).

In this mode the controller automatically switches the solar pump to heat the pool when weather conditions are favourable.

The status light pulses when the pump is on standby and remains on when the pump is running.



## SETTING THE TEMPERATURE.

### Select The Desired Temperature:

Press the SET TEMP button down and scroll up or down with the arrow buttons until the desired pool temperature is displayed.

The display reverts back to reading the pool water temperature after 5 seconds.

The pool set temperature can be read anytime by pressing the SET TEMP button.

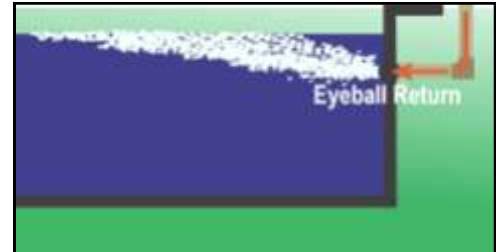


## 12.0 Commissioning the Solar System

Commissioning is the most important task of the installation. Commissioning should pick up any leaks, un-glued fittings, and check and set water flow and pressure.

### 12.1 Separate suction and return

- Fill the pump lint pot with water. Turn the Sunswitch on, and switch to “manual” to make the pump run.
- It may take a few minutes for the pump to initially prime. *If not, refer to ‘Troubleshooting page 19’.* Air will purge from the system, and back into the pool. This should only last for a short period of time.
- If bubbles continue endlessly this may well be due to the vacuum break valve experiencing continual vacuum at roof level (sucking air), slowly adjust the Opti Valve clockwise to apply back pressure until the vacuum break valve closes: the bubbles should cease.
- Air bubbles on start up are normal and do not damage the system or affect performance.



### 12.2 Simultaneous connection

- Turn on the filtration system and allow it to run until the filter runs at a steady pressure.
- Then Turn the solar computer on and switch to “manual” to make the solar pump run. Air will purge from the system, and back into the pool. This should only last for a short period of time .
- If bubbles continue endlessly this may well be due to the vacuum break valve experiencing continual vacuum at roof level (sucking air), slowly adjust the Opti valve clockwise to apply back pressure until the vacuum break valve closes: the bubbles should cease.
- Air bubbles on start up are normal and do not damage the system or affect performance.

### 12.3 Check for leaks

- Survey all pipework and the roof for any leaks. A solar collector leak may be able to be repaired without turning the pump off; a glued joint will require system shut down.

### 12.4 Setting the pressure

- Once running for several minutes the pressure gauge should operate in the **green** range. If the gauge is reading zero, adjust the Opti-Valve to obtain a small positive pressure reading.
- Systems connected into the filtration system (simultaneous) are far more likely to read in the **red** especially if the solar collector is on a single storey roof. This is due to the existence of pressure in the filtration line due to any one of a number of causes. *(If operating in the Red range, refer to troubleshooting on page 20)*

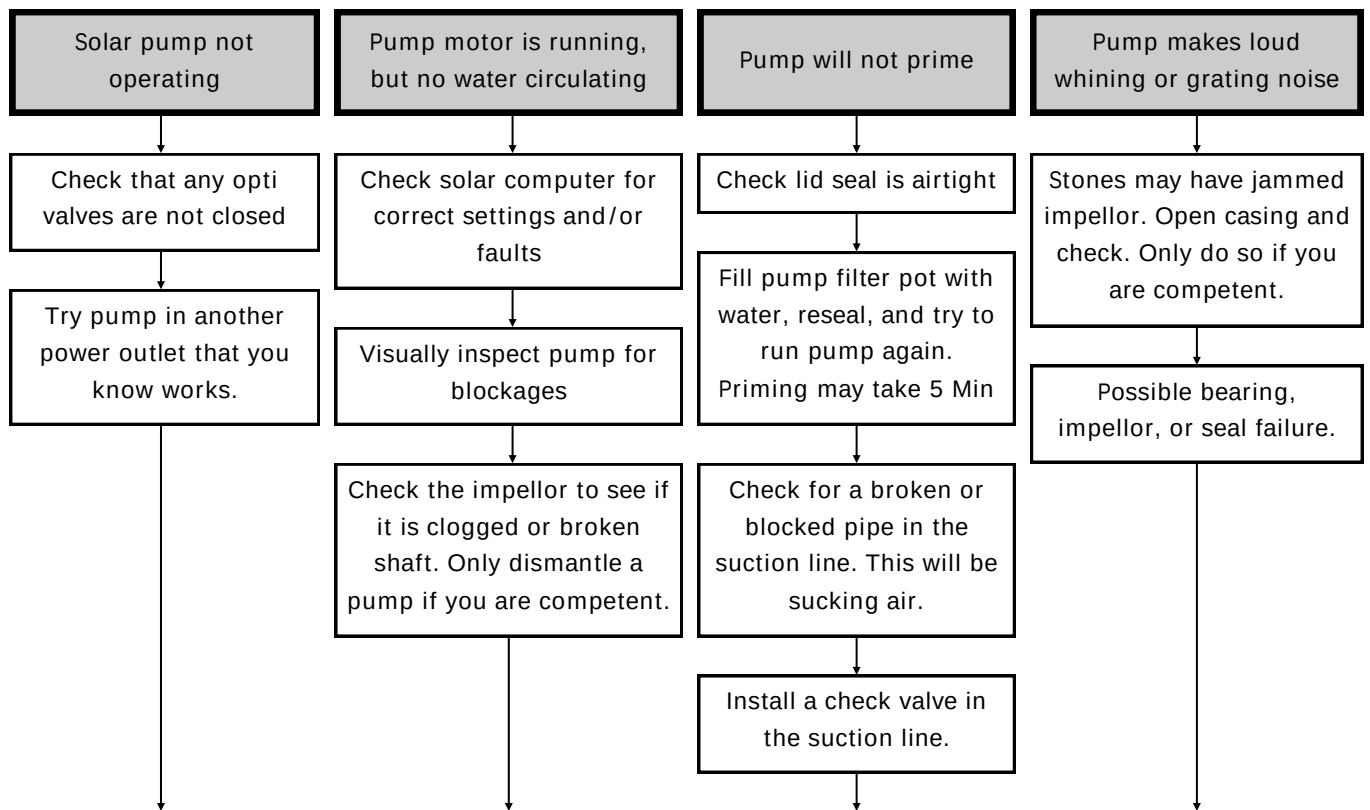
### 12.5 Check vacuum break valve function

- Turn the system off, and listen for the vacuum break valve sucking air in, but better still observe the solar collector while this occurs. *(If it does not break vacuum, refer to Troubleshooting on page 20)*

### 12.6 Set the Sunswitch Controller

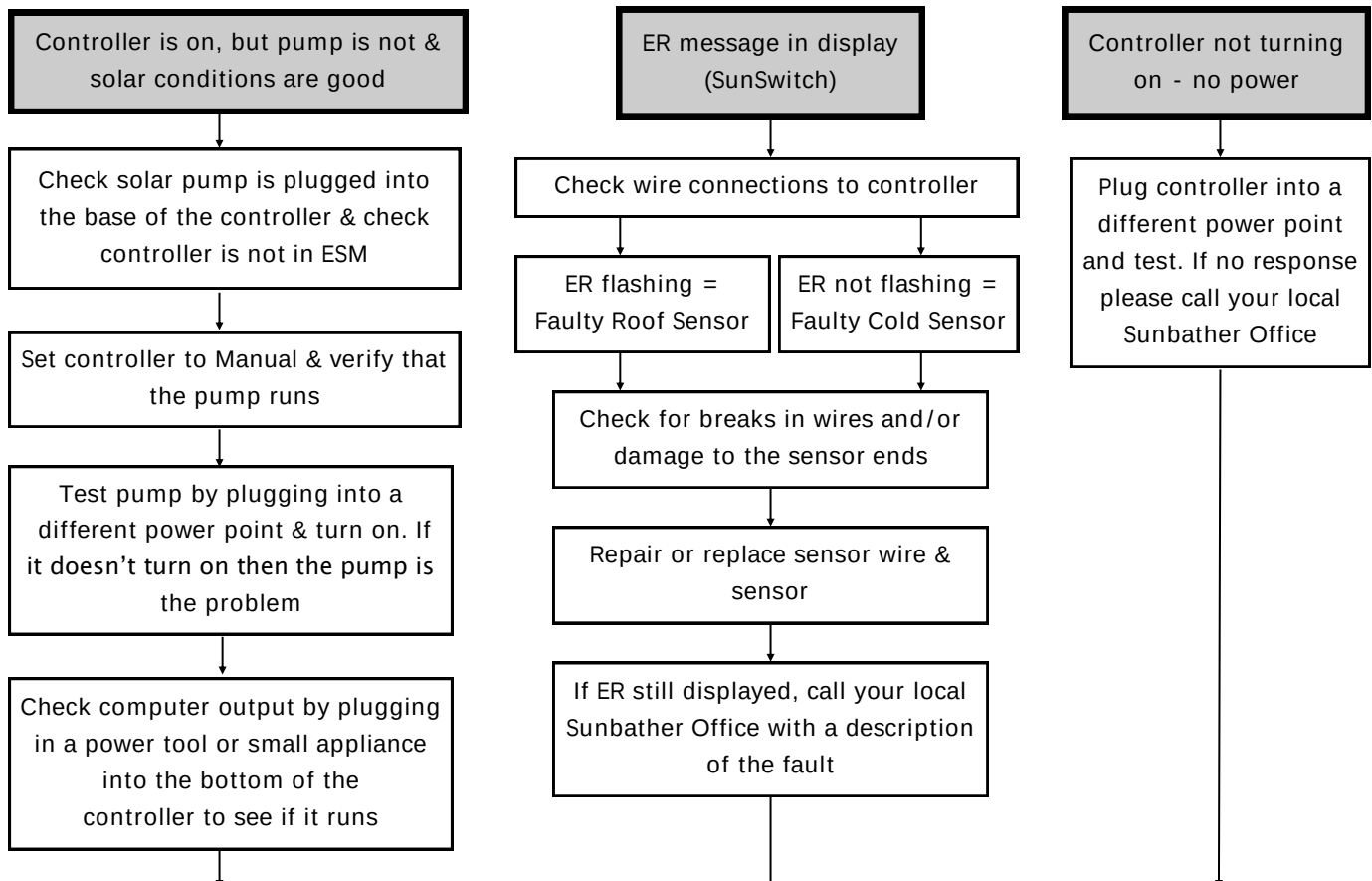
- Refer page 14-17 for instructions

## 13.1 Troubleshooting: Solar Pump not Working



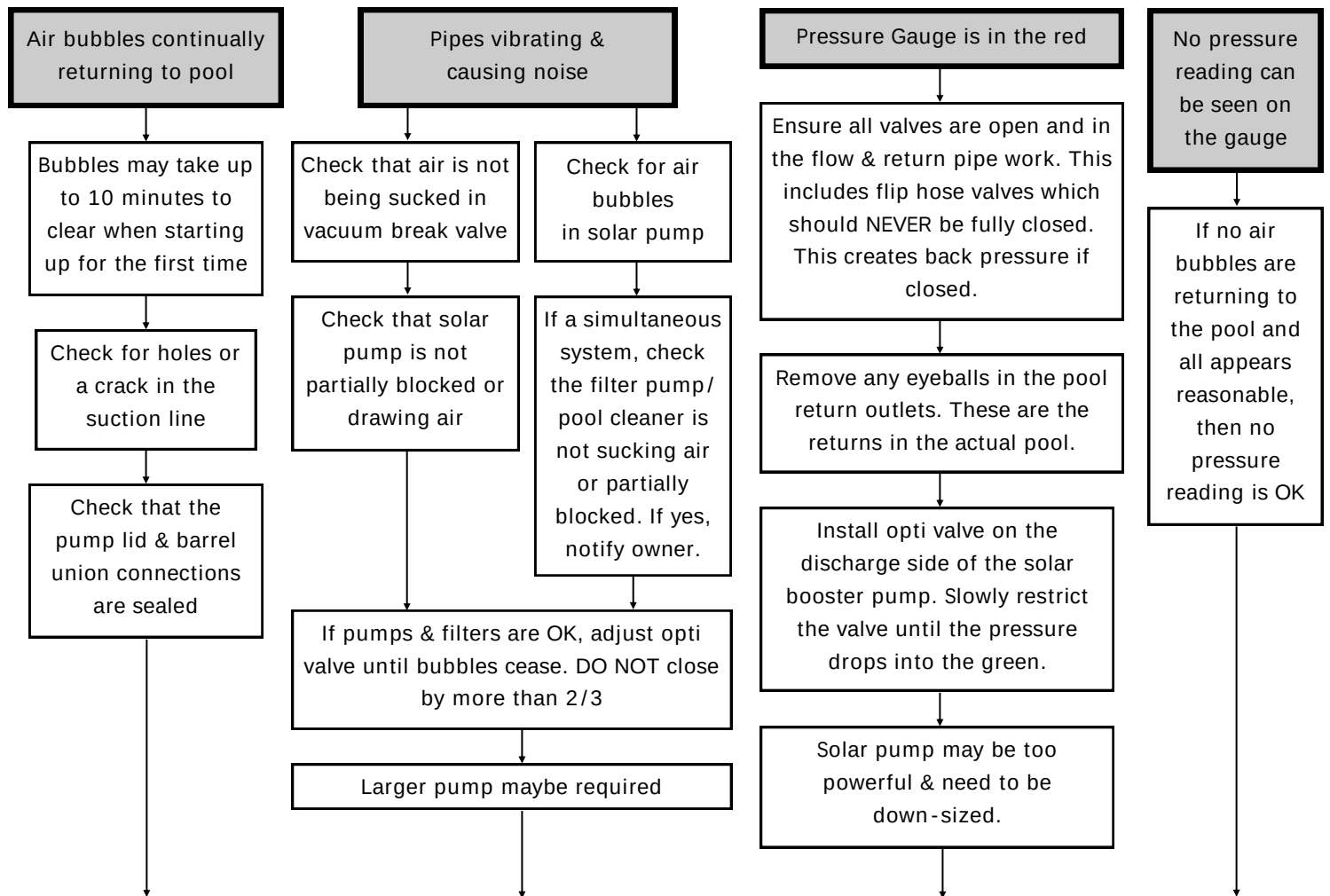
Contact Sunbather - [service@sunbather.com.au](mailto:service@sunbather.com.au)

## 13.2 Solar Computer not working



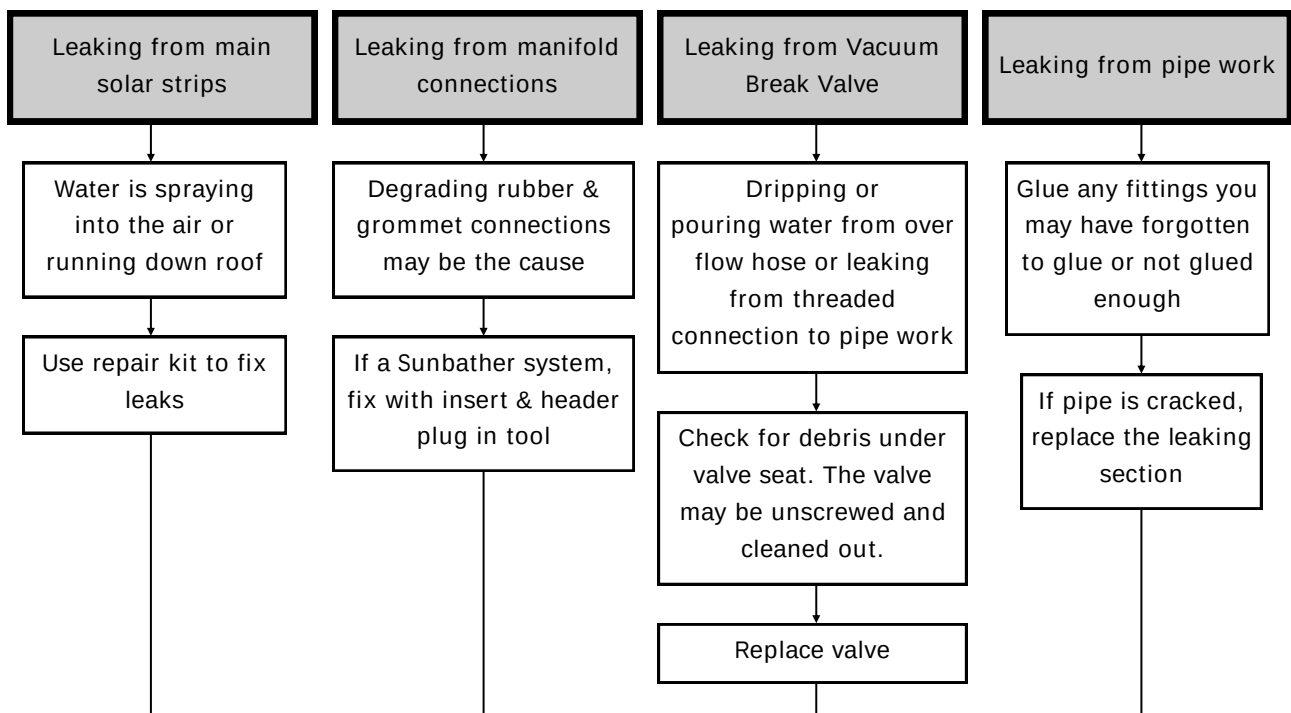
Contact Sunbather - [service@sunbather.com.au](mailto:service@sunbather.com.au)

## 13.3 Air Bubbles / Noise / Pressure Gauge in Red



Contact Sunbather - [service@sunbather.com.au](mailto:service@sunbather.com.au)

## 13.4 Leak on Roof



Contact Sunbather - [service@sunbather.com.au](mailto:service@sunbather.com.au)