

INSTRUCTION BOOK

Bionizer™ Chlorine-Free Freshwater Pools

pH BOSS™



Always use diluted Acid.

Refer to page 6 for Acid safety and dilution information.

Always use the Buffer Delay function after adding Alkalinity Increaser / Sodium Bicarbonate to the pool. Refer to page 11.



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Please read before you call us for advice.



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Automatic Pool pH Control System

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INTRODUCTION

PLEASE TAKE THE TIME TO READ THESE INSTRUCTIONS CAREFULLY AND NOTE HOW THEY APPLY TO YOUR PARTICULAR POOL AND EQUIPMENT.

IMPORTANT : ALWAYS USE DILUTED ACID. SEE SAFETY & WARRANTY SECTION.

IMPORTANT : ALWAYS USE THE BUFFER DELAY FUNCTION WHEN ADDING BUFFER (ALKALINITY INCREASER / SODIUM BICARBONATE). THIS WILL REDUCE THE CONSUMPTION OF BOTH ACID AND BUFFER. SEE PAGE 11.

pH level is one of the most important pool balance parameters for any type of pool. Whether the pool is ionized, ozone, salt water chlorinated (including salt chlorinators that use alternative salts such as magnesium and potassium), liquid chlorine etc, the pH must be maintained at the correct level for optimum water quality and algae control.

The pH BOSS takes the hassle out of controlling pH, by doing the job for you. Whenever the pool filtration pump is running, the pH BOSS will add small, frequent doses of diluted hydrochloric acid to ensure correct pH at all times.

This not only saves you time, but it also takes the guesswork out of colour matching with pH tests and reduces chemical usage. In particular, the small doses will not reduce total alkalinity as quickly as adding a larger amount of undiluted acid every week or two.

So the pH BOSS saves you time, frustration AND money!

Before installing the pH BOSS, the pool water should be correctly balanced, particularly total alkalinity. The pH BOSS can be safely used on brand new pools, including those pools which have high acid demand for the first few weeks, months and years of operation.

Take note of the few “do’s and don’ts” and you will have a simple and trouble free start up.

Bionizer is committed to creating a more healthy environment... the pH BOSS is one integral component of our ongoing journey in this direction.

Other components to advance ourselves along the path back to a toxic free world include the original Bionizer Bio-effective ionic pool and spa purifier, and also the Eco-Oxidizer chemical free pool oxidizer.

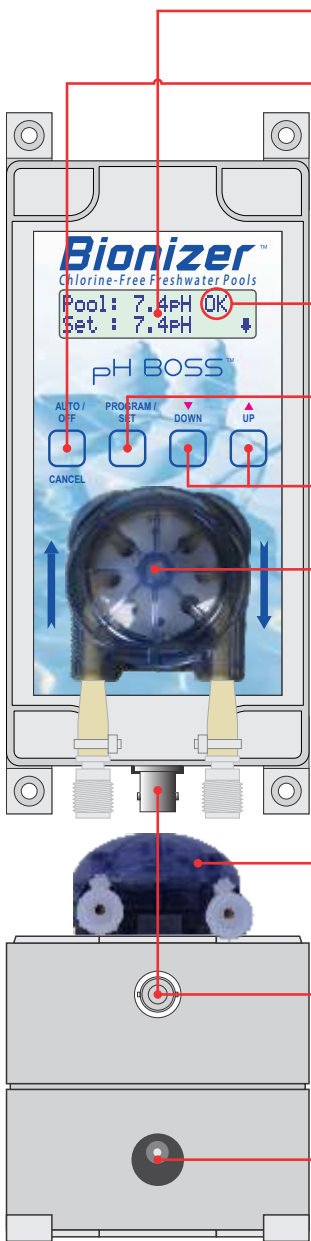
Now for the first time pools are able to stay healthy and clear without any toxic substances polluting your swimming environment or your lifestyle. You are removed from all but the most simple tasks required for pool care.

If you use a pool care service you can reduce the time they visit... they are now almost redundant. Let them visit once a month and sweep the pool, check the skimmer and add some acid to the pH reservoir and you do no pool care whatsoever.

This is the Bionizer “Ultimate Solution” to Pool Care...

and your commitment to help us all return to a toxic free Planet for your children to enjoy.

pH BOSS ILLUSTRATION



DISPLAY

16 x 2 Line alphanumeric LCD with LED backlight.

AUTO / OFF

Press to select:

Auto Normal automatic pH control

Buffer Delay Buffer Delay function : Unit will not add acid for 24 hours, then return to Auto mode. **Always use this function when adding buffer to the pool.**

OFF Unit will not add any acid automatically.

Press this button to cancel without saving changes when adjusting settings in the programming menus.

STATUS INDICATOR

Indicates the current status of the pH BOSS, for example if it is adding chemical, or waiting for the added chemical to mix in the pool.

See page 5 for full information.

PROGRAM / SET

Press to scroll through the six user setting menus.
Press to save changes when adjusting settings.

UP & DOWN SETTING ADJUSTMENT

Press to makes changes to user settings.

PERISTALTIC DOSING PUMP

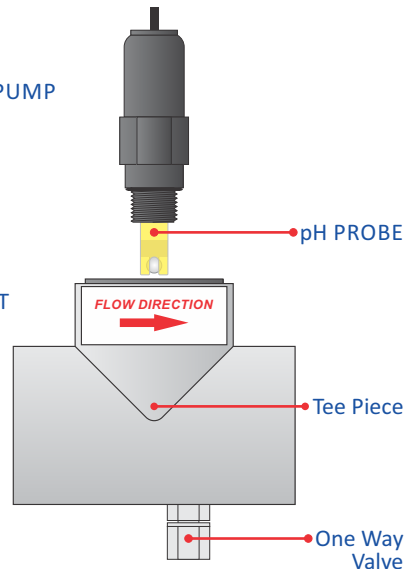
Precision, high quality dosing pump.
160mL/min flow rate while running.

BNC pH PROBE SOCKET

Connect pH Probe by pushing on, then clockwise 1/4 turn to lock into place.

DC POWER SOCKET

Use only genuine power adaptor or cable supplied by Bionizer to avoid damage to your pH BOSS.

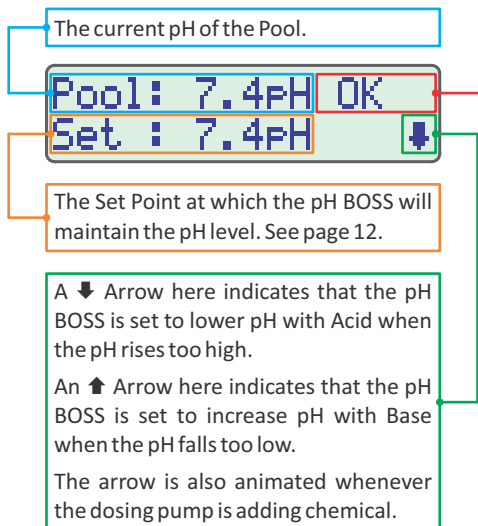


Tee Piece, pH Probe and one way valve

pH BOSS DISPLAY INFORMATION

The 32 character display in your pH BOSS provides all the information you need to help ensure that the unit is maintaining the pH of your pool accurately, and that you know when it is time to carry out some basic maintenance. Additionally, the pH BOSS will warn you when it detects that something is not working as it should. This page is a summary of the information that your pH BOSS may display at various times.

Main pH BOSS Display



Status Indicator

- OK**pH BOSS is in Auto mode, and reading is within the Set Point. No action required at this time.
- Add**pH BOSS is in Auto mode, reading is outside the Set Point, and dosing pump is adding chemical.
- Wait**pH BOSS is waiting for added chemical to mix into the pool before adding more, if required.
“Wait” is also displayed at start-up while the system is waiting for the pH to stabilise.
- Cool**.....pH BOSS has switched dosing pump off for 1 minute to cool the squeeze tube.
- Bffr**.....pH BOSS is in Buffer Delay mode. No chemical will be added for 24 hours. See page 11.
- Off**.....pH BOSS dosing pump is switched off. No chemical will be added, regardless of reading. See page 11.
- Alrm**.....pH has exceeded the Set Point for 4 continuous hours of operation, without ever reaching the Set Point. See page 12.

Alarm and Reminder Messages

Alarm
Reset: Auto/Off

When the pH reading has been outside the Set Point for 4 hours, the display alternates between the alarm screen, and “Alrm” in the status, and the beeper sounds. See page 12 for how to reset the alarm and rectify the cause.

Tube Age: 0:00Hr
Cal Age: 0 days

Tube Age displays how many hours the peristaltic dosing pump has pumped acid or base with the current squeeze tube.

Cal Age is the number of days since the last successful pH probe calibration.

Change Squeeze
Tube

When the peristaltic dosing pump has operated for a total of 50 hours, the pH BOSS will show the squeeze tube reminder.

See page 15 for instructions on how to lubricate or change the Squeeze Tube.

Calibrate pH
Probe

The pH BOSS will show the pH Probe calibration reminder, 6 months after the last successful calibration.

See page 13 for pH Probe calibration instructions.

SAFETY INSTRUCTIONS - READ

IMPORTANT :

It is important to follow basic safety precautions when installing and using this electrical equipment, including the following :

1. Ensure you read and follow all instructions.
2. **WARNING** - ALWAYS USE DILUTED ACID AT A RATIO OF NOT LESS THAN 4 PARTS WATER TO 1 PART ACID.
3. **WARNING** - Do not allow children to use this product unless they are closely supervised at all times. This is to prevent accidental injury.
4. Keep all cables and tubes visible and do not bury them. Also, position them so that they do not get damaged by lawn mowers, hedge trimmers and other equipment.
5. **WARNING** - To prevent electrical shock, acid spillage or incorrect dosing, replace damaged cords or tubes immediately.
6. Read these instructions and keep the instruction manual in a safe place.

CAUTION :

Your warranty could become invalid should you fail to observe the following :

1. The pH BOSS must be installed and operated as specified.
2. Damage due to using undiluted or insufficiently diluted acid is not covered by warranty.
3. Turn off the power to the pH BOSS before replacing the peristaltic dosing pump squeeze tube.
4. The life of the unit will be extended (as with most other pool equipment) if it is placed indoors or in an enclosed structure. This is recommended as sunlight can damage the Liquid Crystal Display on the face of the control unit. The LCD is covered within the warranty on a pro-rata basis.
5. Always power the pH BOSS from a genuine Bionizer power adaptor. An incorrect adaptor could damage the pH BOSS and will void your warranty.

ACID SAFETY

PLEASE FOLLOW THESE IMPORTANT ACID SAFETY INSTRUCTIONS.

ALWAYS ADD THE ACID TO WATER ALREADY IN THE DRUM. NEVER ADD WATER TO ACID.



3. Top off the drum with more water.

2. Add 4 Litres only of Hydrochloric Acid.

1. e.g. Add water to a 20 Litre acid drum to approx 1/2 full.

In case of a larger drum, add 1 part acid to 4 parts water to be mixed as above

For pools of 30,000L (8,000 Ga) and under, dilute 8 parts water to 1 part acid. So add 2 Litres of acid for the 20 Litre drum in the example above.

1. **WARNING** - always use diluted acid at 1 part acid to 4 or more parts water with pH BOSS.
2. **ALWAYS** add acid to a larger volume of water. **NEVER** add water to acid.
3. **ALWAYS** wear safety glasses and gloves.
4. **ALWAYS** dilute acid in a well ventilated area, preferably outdoors.
5. **ALWAYS** have a source of fresh water nearby, such as a hose, so you can wash down accidental spillages.
6. **ALWAYS** ensure that the acid drum is BELOW the level of the pH BOSS Tee, to ensure that the acid cannot syphon from the drum to the pool.
7. In case of acid spillage onto clothing, eyes, skin, concrete etc, wash down with large amounts of fresh water immediately. SEEK MEDICAL ADVICE IF NECESSARY.

pH BOSS INSTALLATION

READ THE DO'S AND DON'TS AND TAKE THE TIME TO INSTALL CORRECTLY.

The pH BOSS can be installed onto a new pool or an existing pool with minimal pool preparation. Ensure that the pool is correctly balanced, in particular the Total Alkalinity.

1. Installing your pH BOSS takes around 30 minutes.

NOTE: Turn off all valves prior to fitting the T-piece (avoid leaks), and turn them back on again before switching pool pump back on.

2. Alternatively engage a competent person to do the job.

3. If installing it yourself you will need :

- PVC pressure glue and primer.
- A fine tooth saw.

4. The Probe/Injection Tee must be fitted on the pipe that sends water back to the pool after it has been filtered (the "Return Line").

- If a Bionizer and/or Eco-Oxidizer is installed, fit the pH BOSS tee BEFORE the Eco-Oxidizer and Bionizer Ionizing Pods.

- If a Salt Chlorinator is installed, fit the pH BOSS tee BEFORE the Salt Chlorinator cell. The acid will help to keep the expensive Chlorinator cells clean.

- If a liquid Chlorine injection system is fitted, install the tee BEFORE the Chlorine injection point. The acid will help prevent the Chlorine injector becoming clogged with calcium.

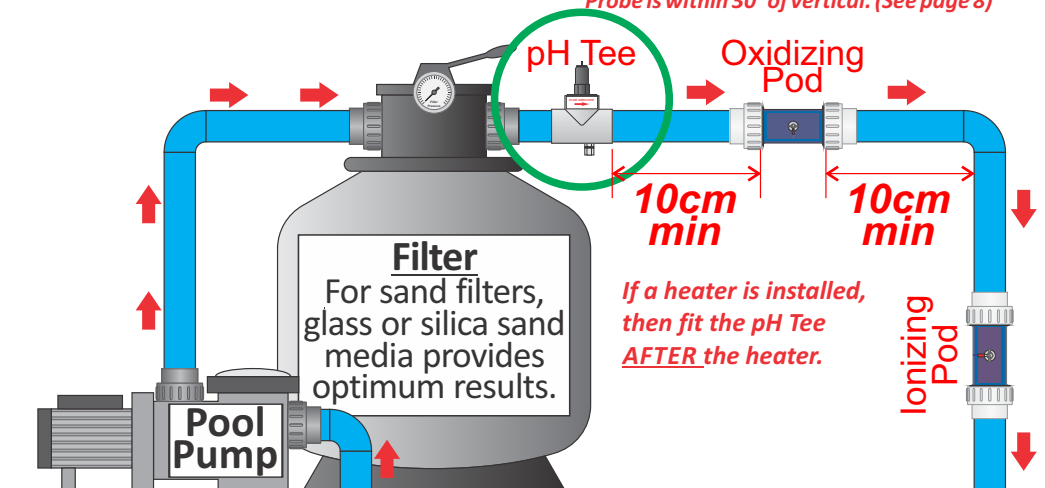
TEE PIECE INSTALLATION

1. For 50mm (2") pipe, cut out a 6cm (2.5") section of pipe sufficient for the Probe/Injection Tee piece. For 40mm (1.5") pipe, where the reducing bushes will be used, cut out a 7cm (2.75") section of pipe.

2. If the Tee piece diameter is larger than the pipe then use the 50mm to 40mm reducing bushes provided by glueing them in place in the Tee piece before fitting. The pipe should now fit snugly into the Tee piece.

3. **Be sure to install the Tee piece in the correct direction of the water flow, as per the arrow on the Tee.**

The Tee piece should be installed so that the pH Probe is within 30° of vertical. (See page 8)



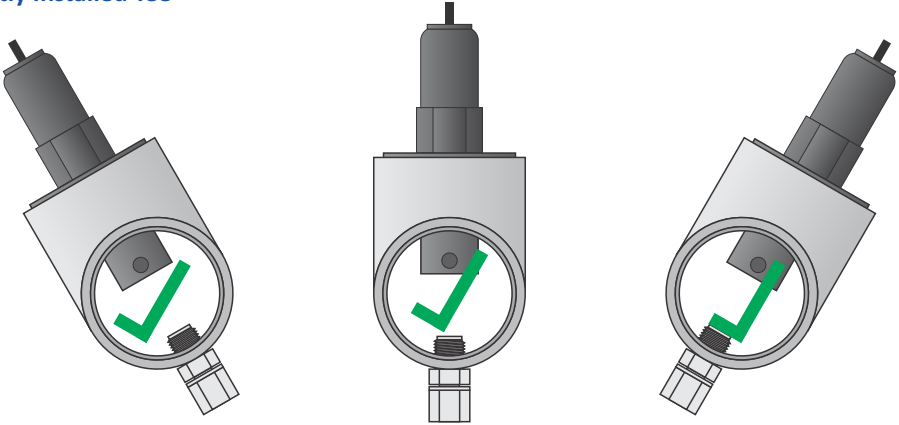
NOTE THAT THE 10cm SPACINGS SHOWN ABOVE ARE FROM THE EDGES OF THE PODS, NOT THE CENTRE OF THE PODS.

pH PROBE ORIENTATION

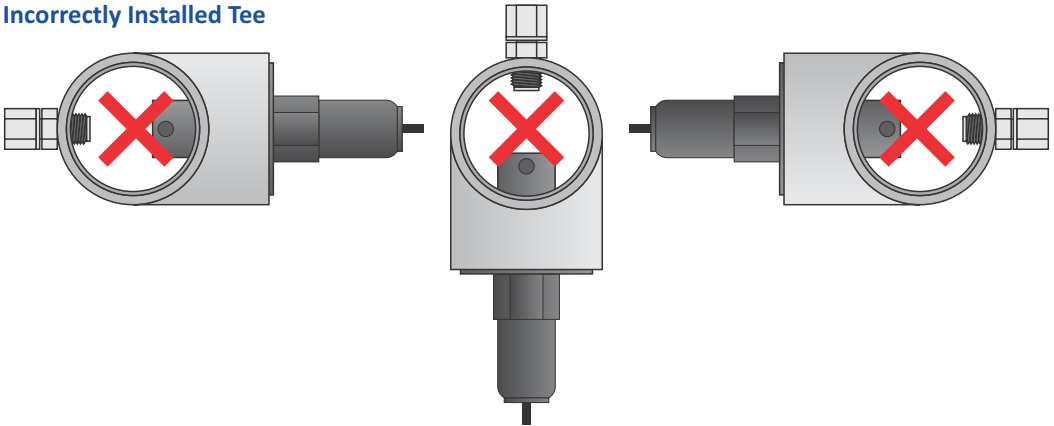
When installing the pH BOSS Tee, it is critical that the probe be within 30° from vertical.

DO NOT FIT THE TEE TO A VERTICAL PIPE, AS THIS WILL MAKE THE pH PROBE HORIZONTAL, WHICH WILL RENDER THE pH PROBE INOPERABLE.

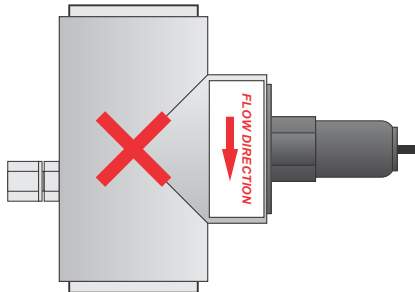
Correctly Installed Tee



Incorrectly Installed Tee



Do not mount on vertical section of pipe, which makes the probe horizontal :



CONTROL BOX INSTALLATION

*The control box **MUST** be mounted vertically, with the cables at the bottom, in order to be weather resistant. Any water ingress due to the unit being incorrectly mounted is not covered by warranty.*

1. Choose a position that will allow you to see the pH BOSS Display easily. Fix the control box in position using screws at each corner of the box.

NOTE: Make sure that the pH BOSS is positioned near enough to a power outlet and to the T-piece and acid drum to allow the power connecting and sensor cables to reach without straining.

2. Make sure that the unit is undercover and that the Display is not in direct sunlight as it is not covered by warranty if it is damaged by sunlight.

3. The pH BOSS should only be powered on when the pool pump is running. This can be done in 3 ways :

- 1) Connect the short DC to DC adaptor lead from

one of the Bionizer DC outlet sockets to the pH BOSS DC Power Socket.

- 2) Plug the optional AC/DC power adaptor into one of the two mains power outlets provided on the Bionizer unit.

- 3) When connecting to a pool control system, connect the AC/DC adaptor to a suitable power outlet on the control system, if available.

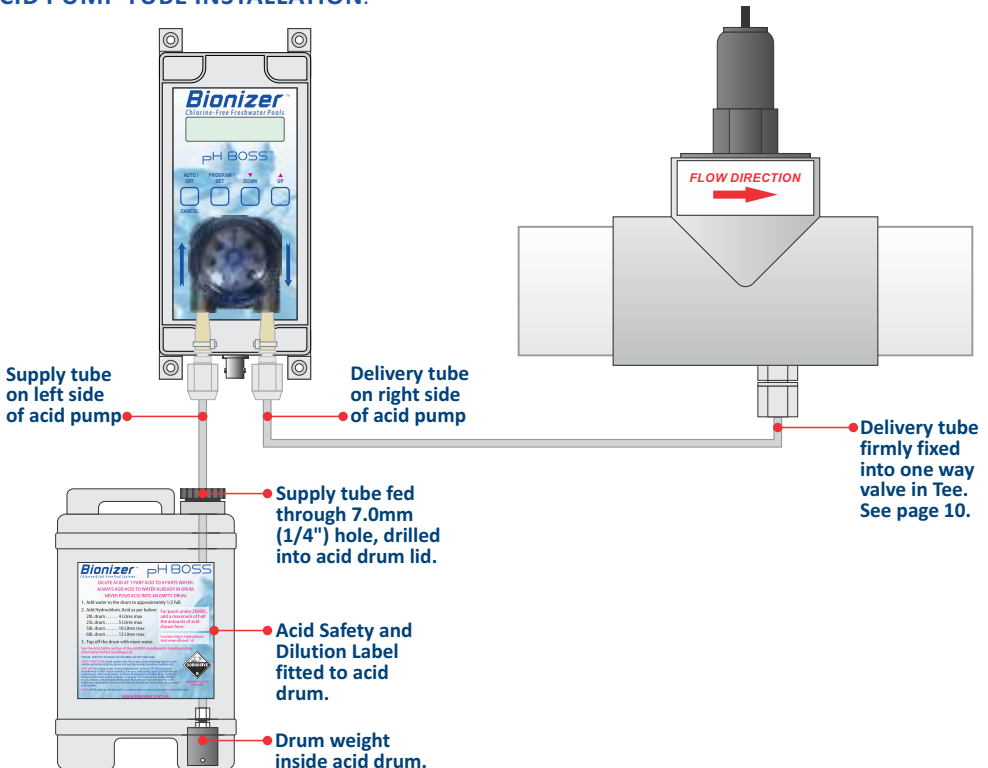
For USA installations, when there is no spare outlet socket, cut the 110V plug off the AC/DC adaptor cable, and hard wire to the control system terminals.

SET THE TIMER FOR THIS OUTLET TO THE SAME SETTING AS THE POOL PUMP OUTLET.

4. Connect the low voltage plug to the pH BOSS DC Power Socket (see Page 4). Use only a genuine Bionizer power adaptor or warranty may be void.

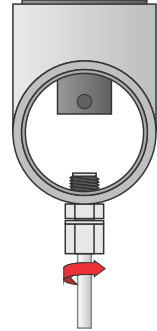
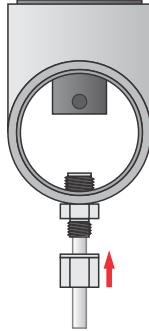
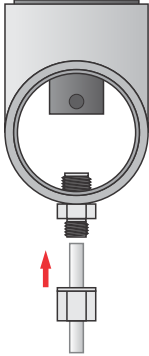
DO NOT SWITCH THE POWER ON UNTIL INSTALLATION HAS BEEN COMPLETED.

ACID PUMP TUBE INSTALLATION.



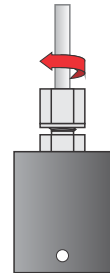
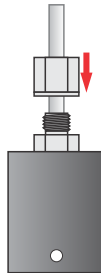
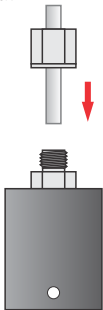
TEE PIECE HOSE INSTALLATION

1. Remove the nut from the one way valve fitting on the Tee piece.
2. Slip the Nut over the hose.
3. Push the hose firmly onto the tube fitting.
4. Tighten the nut over the hose. Tighten firmly with fingers. **DO NOT USE A TOOL.**



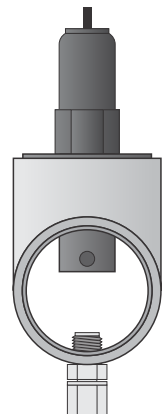
DRUM WEIGHT HOSE INSTALLATION

1. Remove the lid from the acid drum that you will use.
2. Drill a 7.0mm or 1/4 inch hole into the top of the drum lid.
3. Push the end of the drum weight hose through the drum lid.
4. Fit the hose onto the drum weight tube fitting in the same way as described in the **Tee Piece Hose Installation** section above and illustration below.



pH PROBE INSTALLATION

1. Fit Teflon tape onto the thread of the pH Probe. Carefully remove the protective cap from the tip of the probe.
2. Screw the pH Probe into the Tee piece thread. Tighten firmly by hand. **DO NOT OVER-TIGHTEN. DO NOT USE A TOOL.**
3. After the pH Probe is installed in the Tee piece, connect plug on the pH Probe cable into the probe socket on the pH BOSS. Push the plug into place and 1/4 turn clockwise to lock it into place. See the BNC pH Probe socket diagram, Page 4.



AFTER ALL HOSE FITTINGS ARE COMPLETED, AND THE PROBE IS FITTED, TEST THE SYSTEM WITH FRESH WATER, USING THE MANUAL DOSE FUNCTION (PAGE 12). CHECK CAREFULLY FOR ANY LEAKS AND CORRECT AS NEEDED.

PROGRAMMING YOUR pH BOSS

- Press the **PROGRAM / SET** button to move through each of the six user settings.
- If no button has been pressed for 30 seconds, the unit will return to the normal readout display. Any changes will not be saved.
- Use the **↑** and **↓** keys to change settings.
- When changing a setting, press **PROGRAM / SET** after the desired setting is programmed to save the changes and return to the normal readout display.
- To quit any screen without saving changes, press **AUTO / OFF** to cancel.

AUTO / OFF BUTTON

Press to alternatively select Auto, Off or Buffer Delay:

Pump is now
in Auto mode.

AUTO: Unit will dose acid when pH is outside the set point.

Pump is now
in Buffer Delay.

Buffer Delay: This function will stop the unit dosing acid for 24 hours.

ALWAYS USE THIS FUNCTION AFTER ADDING BUFFER (ALKALINITY INCREASER / SODIUM BICARBONATE) TO THE POOL, TO REDUCE THE AMOUNT OF BOTH ACID AND BUFFER USED.

Pump is now
OFF.

OFF: Unit will not dose any acid again until this setting is changed.

AUTO / OFF is also the “**CANCEL**” button to exit without saving changes in programming screens.

DOSE SETTING

Dose Setting: 5
(Minutes) **↑↓**

This range of this setting is 2 to 25 minutes.

- Use the **▲** and **▼** buttons to enter setting 2 to 25.
- Press **PROGRAM / SET** save the new setting.

Alternatively, press **AUTO / OFF** to cancel without saving.

The dose setting is used to set the acid pump addition and waiting times, and are related to how quickly the pool turns over the water. This is related to both pool size, and pump/pipe setup.

In general, a smaller pool would use a lower Dose Setting than a large pool. However other factors can affect this, such as pool turnover time.

As a guide, use the following setting as a **STARTING** point when the unit is first installed :

- 2....Up to 30,000 L / 8,000 Gallons
- 5....30,000 to 75,000 L / 8,000 to 20,000 Gallons
- 10...75,000 to 150,000 L / 20,000 to 40,000 Gallons
- 15..150,000 to 250,000 L / 40,000 to 65,000 Gallons
- 20..250,000 to 500,000 L / 65,000 to 130,000 Gallons
- 25...>500,000 L / 130,000 Gallons

For pools under 30,000 L (8,000 Gallons), be sure to dilute the acid at 8 parts water to 1 part acid (page 6).

For pools with a wet edge and balance tank, use a setting of 1 lower than listed for the pool size.

If the pH BOSS does not keep up with acid demand, and the Alarm sounds, increase the dose setting by one step and check in 2 days.

If the alarm is tripped due to low pH, reduce the dose setting by one step and check in 2 days.

NOTE ABOUT DOSE SETTING FOR NEW POOLS

New concrete/pebblecrete, marblesheen and quartzon pools can have very high pH level for the first 1 to 3 months of operation. Readings of pH10 or even higher are possible. Even when the pH is brought down to the correct pH7.4, the pH reading will drift back up over the following hours or days.

The acid demand during the initial period could be as high as 1 Litre (1 Quart) of acid per 10,000L (2,500Ga) of pool water per day. This acid demand will gradually reduce over the first 1 to 3 months.

If the pH BOSS is not able to maintain pH at the pH7.4 set point, please increase the Dose Rate setting to a higher value. This will add more acid in each dosing cycle, and therefore be able to control the pH during this high acid demand period of time.

MANUAL DOSE



The range of this setting is from 0 to 5 Litres.

Use this function to add a measured dose of diluted acid.


- Use the ▲ and ▼ buttons to enter 1 to 5 Litres.
- Press **PROGRAM / SET** to start pumping.
- Please note that the litres are the total litres of liquid being pumped, and does not take into account the dilution ratio of the acid. 1 Litre equals 200mL of acid when the acid is diluted 1 part acid to 4 parts water. Take care when using this function, to not overdose the pool with acid.

ALARM FUNCTION

When the Alarm is set to ON, the pH BOSS will sound the beeper and disable the acid pump when the pH is above or below the set point for more than 4 hours.

When the Alarm is set to OFF, the alarm will never be triggered, regardless of the pH reading. Only advanced users should set the alarm to OFF, and only temporarily while the cause of the alarm beeping is being rectified.

Use **PROGRAM / SET** to select Alarm.



- Use the Use the ▲ and ▼ buttons to select On or Off.
- Press **PROGRAM / SET** to save.
- Press **AUTO / OFF** to quit without saving changes.

When the alarm has been triggered, the pH BOSS will sound the beeper and also display will alternative between an alarm screen and “Alarm” in the status



THE ACID PUMP WILL BE DISABLED AND THE pH BOSS WILL NOT PUMP MORE DILUTED ACID UNTIL THE ALARM HAS BEEN RESET.

You must press **AUTO / OFF** to reset the alarm and return to normal operation.

CHANGING THE pH SET POINT



- Use the Use the ▲ and ▼ buttons to enter a new Set Point value.
- Press **PROGRAM / SET** to save. Alternatively, press **AUTO / OFF** to quit without saving changes.

Please note that the pH BOSS factory preset default Set Point is pH7.4. This is most likely to be the best setting for your pool, so changing the Set Point is only recommended for experienced users.

The reason for the alarm being triggered should be found and rectified too. It could be due to any of the following:

Problem ...Very high acid demand in new concrete, marblesheen or quartzon pool.

Fix.....Increase the Dose Setting to a higher value (page 11) and set the Alarm function to OFF for the first 2 to 3 months until the acid demand settles to normal amounts.

Problem ...Acid drum is empty.

Fix.....Make up a new drum of diluted acid. Dilution ratio should be at least 4 parts water to 1 part acid. See page 6.

Problem ...Dose Setting is too low or too high.

Fix.....See page 11 for information on how to change the Dose Setting.

Problem ...pH Reading is incorrect

Fix.....Re-calibrate the pH Probe. See page 13.

Problem ...pH Probe is broken or faulty.

Fix.....If re-calibration is not possible, then replace the pH Probe.

A replacement pH Probe can be ordered online at bionizer.com.au

Problem ...Pump is not pumping acid correctly.

Fix.....Check all tube and hose fittings for leakage. Re-fit or replace as necessary.

Check squeeze tube inside pump for leakage and replace if necessary. See page 15.

A replacement Squeeze Tube can be ordered at bionizer.com.au

MAINTENANCE

A LITTLE PREVENTATIVE MAINTENANCE WILL HELP YOU GET THE MOST FROM YOUR pH BOSS

pH PROBE CALIBRATION

The pH BOSS will display a reminder to calibrate the pH Probe approximately every 6 months:



Calibrate pH
Probe

The pH Probe should be calibrated to ensure that the readout is correct. Calibration is simply the process of placing the pH Probe into a solution of known pH, and adjusting the readout to that value.

The pH BOSS can be calibrated in one of two ways:

1. Inline Calibration

This is done by obtaining an accurate pH measurement of the pool water and adjusting the readout to that value.

2. pH7.0 Buffer Calibration

This involves removing the pH probe from the tee piece, placing it into a pH7.0 Buffer solution, and adjusting the readout to 7.0.

Inline Calibration

1. Measure the pH of the Pool

Set the pH BOSS to Buffer Delay or OFF mode an hour or more before measuring the pH of the pool. Do not change back to Auto mode until after pH calibration is completed. See page 11.

Ensure that the pool filtration pump has been running and no acid has been added for at least 1 hour prior to doing an Inline Calibration. This is to ensure that the pH level is stable throughout the whole pool.

Measure the pH of the pool with a good quality, calibrated pH meter. Alternatively, take a sample of pool water to a pool shop which has an electronic pool balance measurement system. A standard pool pH test kit is NOT accurate enough to be relied upon for pH calibration.

2. Calibration Procedure

- The pH BOSS should already be switched on, and the pool pump running as per step 1.
- Press the **PROGRAM / SET** button until the pH Calibration screen is displayed, as per the example below. The “**Current**” reading may be 7.4 or another value, depending on the condition of the pH Probe and current pH of the pool water.



Current: 7.4 pH
Cal pH: 7.3 X↑↓

- Adjust the “**Cal pH**” value to the pH of the pool, as measured in step 1. The flashing “**X**”, indicates that the reading is not yet stable. DO NOT calibrate until the “**X**” changes to a “**✓**”.



Current: 7.4 pH
Cal pH: 7.3 ✓↑↓

- When the reading is stable and the “**✓**” is displayed, press **PROGRAM / SET** to calibrate the pH BOSS.
- Set the pH BOSS back to Auto mode. See page 11.

Calibration Failure

If pH calibration fails, the pH BOSS will display this message:



Calibrate Failed
Check Handbook

Clean the pH probe as per the troubleshooting section on page 17, then retry calibration.

If the calibration failure persists, the pH probe will most likely need to be replaced. This can be purchased online at bionizer.com.au.

[pH7.0 Buffer Calibration is on the next page.](#)

pH7.0 Buffer Calibration

1. Prepare the pH BOSS for Calibration

- If you are using a Bionizer to control the power to your pool pump and pH BOSS, unplug the pool pump from the Bionizer Control Unit.
- Leave the pH BOSS connected to the Bionizer.
- If you are powering the pH BOSS and Pool Pump from an external power source, please ensure that the pool pump is switched off and unplugged during the entire calibration procedure. Connect the pH BOSS to a power outlet socket, but do not switch on yet.

2. Prepare pH7.0 Calibration Buffer

- There are TWO bags of salt crystals inside the pH7.0 Sachet. Empty BOTH bags of those crystals into the calibration jar (see picture on the right).



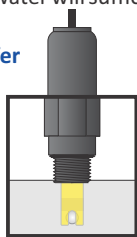
- Fill the Buffer Jar to the 250mL mark with distilled water. Filtered tap water can also be used.
- Replace both the seal and the lid, then shake well for 1 minute to ensure that the salts are fully dissolved.

3. Remove the pH Probe from the Tee

- Unplug the pH Probe from the pH BOSS first. (This will avoid the cable getting twisted when the pH Probe is unscrewed.) Unscrew the probe completely from the Tee.
- Reconnect the pH Probe to the pH BOSS.
- Rinse the probe well in clean water. De-ionized or distilled water is ideal, but tap water will suffice.

4. Place pH Probe into pH7.0 Buffer

- Place the pH Probe into pH7.0 Buffer, immersing to a depth of at least 25mm, to the threaded section of the main body.



5. Calibration Procedure

- Switch the pH BOSS power on. If it is connected to a Bionizer, set the Bionizer to Manual:On mode to switch on the power outlet.
- Press the **PROGRAM / SET** button twice to bypass the start-up screen delay.
- Press the **PROGRAM / SET** button until the pH Calibration screen is displayed, as per the example below. The “**Current**” reading may be 7.0 or another value, depending on the condition of the pH Probe and current calibration setting.

```
Current: 7.0 pH
Cal pH : 7.0 X↑↓
```

- Adjust the “**Cal pH**” value to exactly 7.0. The flashing “**X**”, indicates that the reading is not yet stable. DO NOT calibrate until the “**X**” changes to a “**✓**”.

```
Current: 7.0 pH
Cal pH : 7.0 ✓↑↓
```

- When the reading is stable and the “**✓**” is displayed, press **PROGRAM / SET** to calibrate.

6. Re-fit pH Probe and Power Connections

- Disconnect the pH Probe from pH BOSS (to prevent twisting the cable) and re-fit into the Tee. Re-connect the pH Probe to pH BOSS when done.
- Re-connect the pool pump to the Bionizer power outlet, or the power output to which it was connected before starting this procedure.
- Switch your pool equipment back on.
- If using a Bionizer, ensure that it is set to “Auto” mode.

Calibration Failure

If pH calibration fails, the pH BOSS will display this message:

```
Calibrate Failed
Check Handbook
```

Clean the pH probe as per the troubleshooting section on page 17, then retry calibration.

If the calibration failure persists, the pH probe will most likely need to be replaced. This can be purchased online at bionizer.com.au.

PUMP SQUEEZE TUBE LUBRICATION AND REPLACEMENT

The pH BOSS monitors the running time of the dosing pump and will display a reminder to replace the squeeze tube when this time exceeds 50 hours.

Change Squeeze Tube

At this time, the peristaltic pump squeeze tube either needs to be lubricated or replaced as per the instructions below.

- Switch off the pH BOSS and ensure that the pool pump is also off.
- Remove and inspect the squeeze tube. If it is round and not flattened, and shows no visible signs of wear, then it can simply be lubricated as per the instructions in this section.

If the squeeze tube appears a little flattened and has wear marks, then it is best to replace it. A new squeeze tube can be ordered at bionizer.com.au.

Damage caused by acid leaking from a broken squeeze tube is not covered by the warranty, so it is your responsibility to check and replace it as necessary.

Removing the Squeeze Tube



Hold the top and bottom of the pump cover.



Lift up the pump cover from the bottom side.



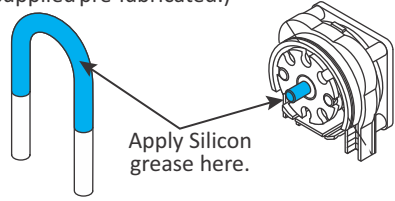
Pull off the pump cover.



Remove the Squeeze tube. The rotor may come out, but can be pushed back in place.

Lubricating the Squeeze Tube

(Skip this step when replacing squeeze tube, as these are supplied pre-lubricated.)

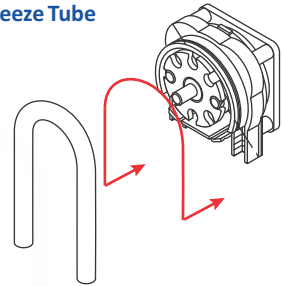


Apply a **THIN SMEAR** of Silicon grease to the squeeze tube and pump rotor shaft as shown above.

DO NOT over-lubricate, as this will attract dirt and grit, which will cause premature wear of the squeeze tube and rollers.

WARNING : Use only silicon grease. Petroleum gel and other oil-based lubricants may cause the squeeze tube to break down, resulting in corrosive diluted acid spillage.

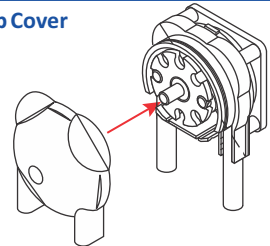
Refitting the Squeeze Tube



Pull out the pump rotor a little, and place the squeeze tube between the pump body and the two rollers.

Push the squeeze tube and rotor into the pump body. Ensure that the inlet and outlet are seated in the guides on each side of the pump body.

Refitting the Pump Cover

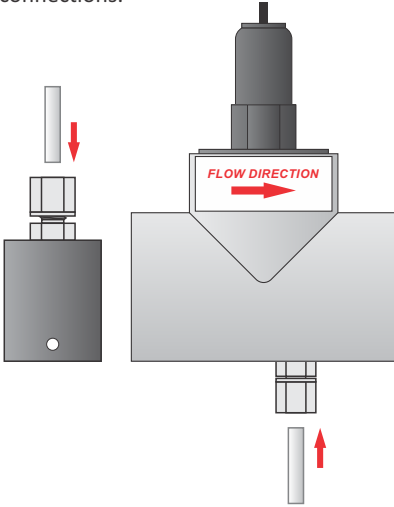


Re-fit the pump cover until it clips into place. There should be no gaps anywhere between the pump body and cover. Ensure that the squeeze tube is not pinched on either side, after the cover is replaced.

Fitting New Supply and Delivery Tubes

Replacement Squeeze Tubes are supplied with new Supply and Delivery tubes pre-fitted for your convenience. It will be necessary to connect these to the drum weight and to the one-way valve in the Tee piece.

See page 10 for full instructions on making these tube connections.



Resetting the Squeeze Tube Reminder

Once the Squeeze Tube has been either lubricated or replaced, the last step is to reset the Squeeze Tube reminder to zero.

- Press the **PROGRAM / SET** button until the Tube Change screen is displayed, as per the example below. The Tube Hours reading is the total number of hours that the dosing pump has actually been running.

```
Tube Change?: No  
50.00 of 50 Hrs
```

- Press **▲** button to select "Yes". Press **PROGRAM / SET** to reset the Tube Hours back to zero.

```
Tube Change?: Yes  
50.00 of 50 Hrs
```


TROUBLESHOOTING

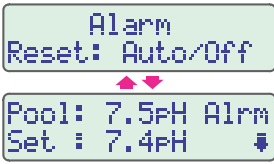




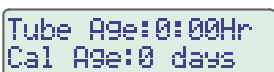


CHECK THIS SECTION BEFORE CALLING OR SENDING YOUR pH BOSS FOR SERVICE.

Symptom	Possible Causes and Remedies
Unstable or inaccurate pH readings	<p>pH Probe is dirty.</p> <ul style="list-style-type: none"> • Disconnect probe BNC connector from the pH BOSS, then unscrew probe from the pipe. • Wipe the glass bulb with a soft tissue soaked with methylated spirits. • Soak the tip of the probe in diluted Hydrochloric acid (for example, from your pH BOSS diluted acid drum). • Rinse the pH Probe thoroughly in clean water. • Screw probe back into pipe and re-connect probe BNC connector.
	<p>pH Probe needs to be re-calibrated.</p> <ul style="list-style-type: none"> • Clean pH Probe as per procedure above. • Re-calibrate pH Probe as per details on pages 13 and 14.
	<p>Pool water is very pure and has low conductivity.</p> <ul style="list-style-type: none"> • Add one bag of pool salt per 50,000 Litres (13,000 Gallons) of pool water.
pH reading cannot be calibrated	<p>pH Probe is dirty.</p> <ul style="list-style-type: none"> • Follow the pH Probe cleaning procedure above.
	<p>pH Probe is faulty.</p> <ul style="list-style-type: none"> • Replace pH Probe. Please contact your distributor or Bionizer.
pH reads around pH7 without changing	<p>Short circuit in pH Probe BNC Plug or Socket</p> <ul style="list-style-type: none"> • Disconnect pH Probe plug from socket. Dry out with a hair dryer or allow to air dry. Reconnect and re-check. • If problem persists, return pH Probe to have connector replaced, or replace the pH probe. Please contact your distributor or Bionizer.
pH reads around pH4 to 5 without changing	<p>Glass bulb or internal stem of pH Probe is cracked.</p> <ul style="list-style-type: none"> • Replace pH Probe. Please contact your distributor or Bionizer.
Unit does not power up	<p>Faulty AC/DC power adaptor</p> <ul style="list-style-type: none"> • Replace power adaptor. Please contact your distributor or Bionizer. • Faulty pH BOSS main unit. Return to Bionizer for repair.
Unit is not adding acid when dosing pump is operating	<ul style="list-style-type: none"> • Check that the pH BOSS diluted acid drum is not empty. • Check that all suction and output hoses are fitted correctly, with no leakage. • Check that squeeze tube inside pump is not leaking. <p>WARNING : IF ANY DILUTED ACID HAS LEAKED OUT OF HOSES, WASH DOWN THE AREA WITH FRESH WATER IMMEDIATELY. TAKE THE LID OFF THE PUMP, REMOVE SQUEEZE TUBE AND WASH OUT WITH FRESH WATER IF SQUEEZE TUBE WAS LEAKING.</p>
Alarm sounds due to pH being too low	<p>Dose Setting is set too high</p> <ul style="list-style-type: none"> • Reduce the Dose Setting by one level and check in 2 days.
Acid Pump turns, but acid is not flowing.	<p>Leaking or worn squeeze tube and/or rollers.</p> <ul style="list-style-type: none"> • Tighten Acid Pump fittings further or replace fittings. • Replace squeeze tube and/or rollers as needed (see page 15).

IF YOU NEED TO RETURN YOUR pH BOSS FOR SERVICE OR REPAIRS AT ANY TIME, PLEASE USE THE MANUAL DOSE FUNCTION (PAGE 12) TO DOSE 1 LITRE (1 QUART) OF FRESH WATER THROUGH THE SYSTEM BEFORE SENDING BACK. THIS WILL STOP DILUTED ACID LEAKING FROM THE PUMP DURING TRANSPORT (WHICH WOULD DAMAGE YOUR UNIT OR THE PACKAGING, VOIDING WARRANTY), AND IS ALSO A SAFETY HAZARD FOR OUR TECHNICIANS.

TROUBLESHOOTING

pH BOSS ALERTS AND GENERAL MESSAGES.

Alert Messages	Possible Causes and Remedies
	<p>pH reading has been outside of Set Point for more than 4 hours of operation.</p> <ul style="list-style-type: none"> • Please refer to page 12 for a complete list of possible causes and remedies when the Alarm message is flashing. • The pH BOSS will not attempt any further acid addition until the alarm is cleared. Press AUTO / OFF to clear the alarm after rectifying the issue.
	<p>pH reading is above pH12 or below pH2.</p> <ul style="list-style-type: none"> • This alert is displayed immediately if the pH reading goes outside the range of pH2 to pH12. A beeper also sounds. This alert can only be cleared when the pH returns to normal range. • Check the actual pH of the pool with an independent test. • Attempt to calibrate the pH BOSS (see pages 13 and 14). • If calibration fails and the issue persists, the pH probe may require replacement. This can be ordered online at bionizer.com.au.
Reminder Messages	Action Required
	<ul style="list-style-type: none"> • This reminder is displayed 6 months after the last successful pH Calibration. • Calibrate the pH Probe as per pages 13 and 14.
	<ul style="list-style-type: none"> • This reminder is displayed when the peristaltic dosing pump has exceeded 50 hours of operation since the last time the Squeeze Tube was lubricated or changed. • Lubricate or change the Squeeze Tube as per page 15.
General Messages	Explanation of Message
	<ul style="list-style-type: none"> • This message is displayed each time the pH BOSS is switched on. • If you need to contact Bionizer for technical support, we may ask you the software version number ("v2.1" in this example).
	<ul style="list-style-type: none"> • This message is displayed each time the pH BOSS is switched on, after the version screen above. • On this screen, the pH BOSS displays the accumulated pump Squeeze Tube time, and the number of days since the last pH probe calibration.
Hardware Failure Messages	Explanation of Message
	<ul style="list-style-type: none"> • The pH BOSS has not been able to obtain data from the internal clock chip. • Switch the pH BOSS off for 5 seconds, then back on again. If the problem persists, return the pH BOSS to Bionizer for repair.
	<ul style="list-style-type: none"> • This message can be error number 1 to 9. • Switch the pH BOSS off for 5 seconds, then back on again. If the problem persists, return the pH BOSS to Bionizer for repair.

Bionizer Pool Supplements



Ionlife+ Copper Ion Stabilizer

- ✔ Reduces Copper Ion loss from various environmental stressors.
- ✔ Helps to maintain crystal clear pool water.
- ✔ May extend the life of Copper Ionizer Anodes.
- ✔ Ideal for less diligent pool owners who wish to spend less time maintaining their pools.
- ✔ Use a double dose of Ionlife+ when going away for extended holidays to help ensure that you return to a pristine pool.



Bionizer Blue Pool Water Clarifier

- ✔ Returns cloudy pool water to sparkling clarity.
- ✔ Compatible with all Ionized, Salt Chlorinated and Chlorine Pools.
- ✔ Does not affect overall pool balance.
- ✔ Highly concentrated, can be used without pre-mixing.



Bionizer PFP Phosphate Free Pool

- ✔ Super concentrated Phosphate Remover. 550g Jar is equivalent to 3.5 Litres of liquid Phosphate Remover sold in pool shops.
- ✔ Phosphates are food for algae. Bionizer PFP quickly and safely removes Phosphates from your pool.
- ✔ Use less costly and harmful chemicals to maintain your pool.

To order any of the Bionizer Pool Supplements, visit the Bionizer online store at bionizer.com.au

Bionizer™

Chlorine-Free Freshwater Pools

SAVE THE ENVIRONMENT
SAVE TIME & MONEY
SAVE YOUR LONG-TERM HEALTH



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INSTRUCTION BOOK