

ULTRAZONE®

For Sparkling, Crystal Clear, Water

Technical Manual & Servicing Guide

ULTRAZONE UV/Ozone Sanitiser

Given the increasing number of ULTRAZONE UV/Ozone Sanitising Systems sold throughout Australasia, we have prepared this bulletin to help Service Technicians and Dealers better understand these units and how to service them should they encounter service issues. Most potential issues with this product are easily repaired infield, with many not even requiring the spa to be emptied. **It is rare the unit would need to be replaced outright.**

ULTRAZONE features AOP (Advance Oxidisation Process) technology to help deliver incredibly crystal clear, clean & healthy spa water with minimal chemical odor or associated eye, skin and respiratory irritation.

ULTRAZONE helps clarify spa water by generating a powerful hydroxyl free radical that oxidises dissolved solids in the water making them insoluble so the filter can catch them, it then quickly converts back to oxygen leaving no chemical residual or off gassing odors. ULTRAZONE uses Ozone generation AND UV-C sterilisation to kill 99.95% of all bacteria and virus material that pass through the ULTRAZONE Unit. ULTRAZONE also breaks down and removes chloramines which are the byproduct of chlorine which causes the skin, eye and respiratory irritation typically associated with chlorine.

This process makes the task of managing the quality of spa water much easier. It leaves you with much clearer water, significantly reduced need for chemical sanitisers, and greatly reduced chemical odors. ULTRAZONE also significantly increases the length of time between the need to change the spa water.

AS GREAT AS ALL THIS IS, ULTRAZONE DOES NOT ELIMINATE THE NEED FOR RESPONSIBLE WATER MAINTAINENCE. SOME BASIC WATER CARE IS STILL REQUIRED. We strongly suggest you refer to our Chemical Maintenance Guide if you require further information on this. It can be found and downloaded at www.csnglobal.com.au

The following information can be used to troubleshoot and rectify any issues you may encounter in the field with this unit.

How do I know the ULTRAZONE is working?

If a customer is having difficulties maintaining water quality, this does not necessarily mean the ULTRAZONE is not working. The ULTRAZONE will treat the water that passes through it but does not put residual sanitiser into the water. Therefore, it cannot treat and eliminate biofilms or other material developing on the walls, inside the pipes and in the filter. That is why a chemical regime is still required (all be it much less chemical and less hassle).

To check that the ULTRAZONE is working:

- Make sure there is a steady stream of fine bubbles returning back into the spa from the UV/Ozone Outlets located in the footwell.
- Make sure the two LED's on the front panel of the unit are shining GREEN.

If you have the above, the ULTRAZONE is WORKING. Any water quality issues will be chemical maintenance related (see chemical guide).

If I establish the ULTRAZONE is not working, how do I troubleshoot the cause?

- **No bubbles coming back into spa:**

This will either be flow related or a blockage in the ozone line that runs from an air intake at the left-hand side of the unit and into the white UV Chamber that houses the UV Lamp.

Flow issues will be either a lack of sufficient flow to engage the built-in venturi or a flow restriction downstream of the unit causing back pressure. Typically, a flow restriction causing the problem will be seen from day one. Check that there are no restrictive fittings downstream of the unit causing back pressure. If the unit had been operating fine previously, this is unlikely to be the issue.

The problem may be lack of flow. Try removing the cartridge elements and running the system without them. If that resolves the issue, it may be time to clean or replace the filters.

A blockage in the ozone line running through the unit could be due to one or more of the following:

1. Dirty Air Intake filter (located left hand side of the unit). Remove and clean. Use a needle through the intake hole to ensure its clear.
2. Blocked or seized check valve. Replace all check valves (see "check valve failure" section).
3. Kink in the ozone tubing. Remove front cowl and check for kinks in the tubing. Open up again using a cable tie or sleeve.

- **RED LED for Ozone:**

If a red LED is shining for Ozone, the ozone unit has failed. Replace ozone unit.

- **RED LED for UV:**

If a red LED is shining for UV, this means one of the following will be the issue:

1. Loose connection between UV Lamp and the Black Rubber Connector. Remove two right hand side saddle clamps and slide black connector and lamp out around 80mm. Do not touch the glass of the lamp, just the white end. Wedge the edge of the white end against the side of the opening that the lamp slides into and push the rubber connector firmly to ensure the lamp electrical pins are fully engaged into the connector.
2. Lamp has blown. Replace lamp.
3. Lamp Ballast has failed. Replace Lamp Ballast.
4. If you have a red LED for UV but the UV lamp is indeed lighting up, then this indicates a PCB fault. Replace the PCB.

YELLOW Flashing LED for UV:

If there is a yellow flashing LED for UV, it means it is time to change the UV Lamp. The lamp may still be functional, but it has passed its recommended operating life of 9,000 hours. Its effectiveness will have diminished, so it should be replaced. Follow instructions on how to access lamp in text above relating to RED LED for UV .

Once lamp has been replaced, press and hold down reset button on the top of the unit. Hold until both LED's begin to flash, then release. This will reset the lamp timer to track the operating hours on your new lamp.

I have no LED lights at all:

This would indicate there is no power to the unit. Check relevant spa control pack outlet for power. Check program settings in the spa control pack for when the unit is scheduled to run.

If you are still not sure, plug the ULTRAZONE into another outlet you know has power (such as blower output) then check to see if it powers up OK on this outlet. If the problem is indeed with the ULTRAZONE itself, replace internal circuit board.

GENERAL MAINTENACE & CONSUMBALE ITEMS

There are 3 main items on the ULTRAZONE that may require replacing over time. The UV Lamp will indeed require replacing after a maximum 9,000 hours operation. The internal check valves (given the highly corrosive environment of ozone and associated nitric acid) will also require replacing after a period of time. The check valves should last 1 to 2 years. The lamp ballast may also need replacing after 2 years, but this event is rare.

The ULTRAZONE unit appears to be leaking. How do I fix this?

- **Check Valve Failure**

The root cause of 95% of all leaks on a ULTRAZONE is the result of a failed check valve. These check valves operate in a highly corrosive environment impacted with extremely high doses of ozone and associated nitric acid. Over time they may fail. CSN uses the most reliable check valves available in the world today, but they are still not 100% infallible. Check Valve failures will occur from time to time. More recent models of the ULTRAZONE feature THREE independent check valves. This is to provide a back up should one or two valves fail. These units have a much lower probability of seeing a leak as the result of a check valve failure. Earlier units only had two check valves fitted. These are more likely to see a leak as a result of a failed check valve.

We have **Check Valve Replacement Kits** to deal with any issues associated with failed check valves, such as leaks and blockages. These are quick and easy to install if you encounter a leak or blockage resulting from a failed check valve. They come with easy to follow instructions and there is no need to empty the spa. These kits feature the third check valve and the instructions explain how to add this to the earlier two check valve models. **It is important ALL the check valves provided in the kit are used.** All the old ones must be replaced. These check valve kits are used to resolve not only leaks, but blockages as well (see no bubbles note above).

How do I know it's the check valves causing the leak and not something else?

This is easy to establish. Turn the filtration pump (or other pump connected to the ULTRAZONE) on and check to see if the leak stops. Leaks resulting from Check Valve failure will only be present when the associated pump is NOT running. In many cases it may appear that the leak is coming from somewhere else, however, if it slows and stops when the pump is running, it is definitely check valve related.

What if the leak remains the same or gets worse when the pump is running?

This type of leak is very rare. It will be one of the following:

- Loose screws holding the Chamber Cap to the UV Chamber. This is the four screws on the right-hand side of the unit securing the cap that incorporates the inlet barb fitting. Ensure these screws are tight.
- Pinched O'Ring at Chamber Cap. Check to make sure this O'Ring is not pinched. If so, replace the O'Ring.
- Cracked or Broken Quartz Tube. Remove the two right hand saddle clamps, disconnect lamp and slide out entirely (do not touch lamp glass). Check internal glass quartz sleeve for cracks or breakage. If broken or cracked, undo retaining nut and replace quartz tube. Take care when tightening retaining nut back up, light pressure is all that is required to seal it. Too much pressure may break the new tube.
- Pinched or damaged Quartz Tube Seals. Replace seals making sure the thin plastic washer is installed between the seals and the retaining nut.
- Loose Quartz Tube retaining nut. Retighten applying light pressure only.
- Loose Cable Tie where ozone tubing attaches to barb fitting at top of Chamber Cap. Replace cable tie and tighten. On later model units ties have been replaced with spring loaded metal clamps.

We hope the above information is useful to you and provides a better understanding on how the ULTRAZONE works and how to service it should you encounter any infield issues. ULTRAZONE was designed with serviceability in mind. Most issues are easily resolved on site. It is very rare the unit needs to be replaced outright.

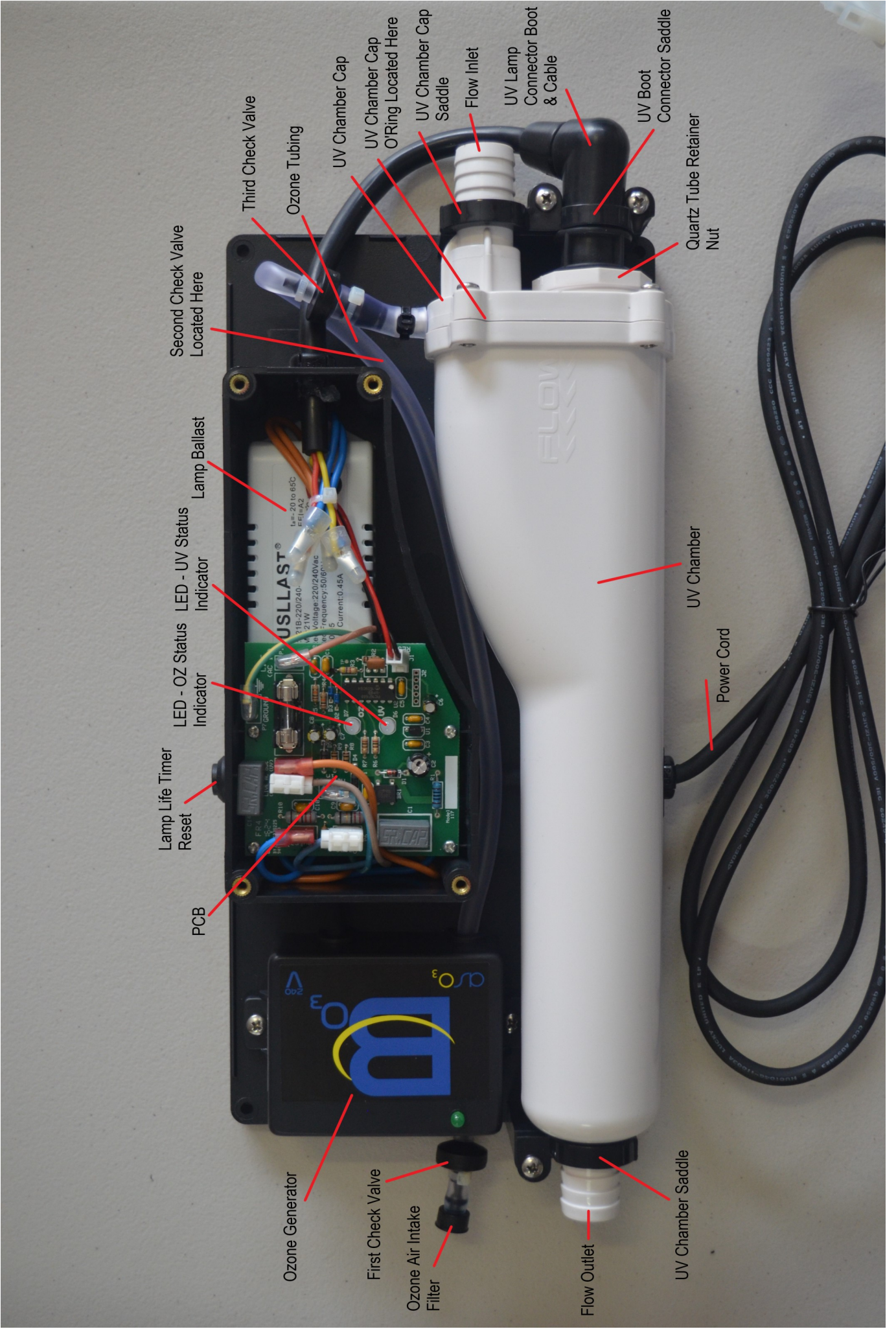
It is unlikely you will ever encounter most of the potential issues covered in this bulletin, however, should you do so, we hope this provides good guidance on how to deal with them.

The most common occurrence you are likely to see will be check valve related leaks. Whilst the occurrence of these is quite low (particularly since moving to the three-check valve configuration), this is the most likely problem you will encounter. The check valves will require replacing over time given the environment they must work in. Wear and tear on this item is to be expected.

The UV Lamp will also require replacing after 9,000 hours usage as it loses its brightness and efficiency.

Thank you for choosing ULTRAZONE. We are confident your customers will very much enjoy the many benefits this system brings to their spa water quality.

CSN Global Pty Ltd



- Ozone Generator
- First Check Valve
- Ozone Air Intake Filter
- Flow Outlet
- UV Chamber Saddle
- UV Chamber
- Power Cord
- UV Chamber Cap
- UV Chamber Cap O'Ring Located Here
- UV Chamber Saddle
- Flow Inlet
- UV Lamp Connector Boot & Cable
- UV Boot Connector Saddle
- Quartz Tube Retainer Nut
- UV Chamber Cap
- Ozone Tubing
- Third Check Valve
- Second Check Valve Located Here
- Lamp Life Timer
- LED - OZ Status Indicator
- LED - UV Status Indicator
- Lamp Ballast
- PCB

Ozone Generator

First Check Valve

Ozone Air Intake Filter

Flow Outlet

UV Chamber Saddle

UV Chamber

Power Cord

UV Chamber Cap

UV Chamber Cap O'Ring Located Here

UV Chamber Saddle

Flow Inlet

UV Lamp Connector Boot & Cable

UV Boot Connector Saddle

Quartz Tube Retainer Nut

Third Check Valve

Ozone Tubing

Second Check Valve Located Here

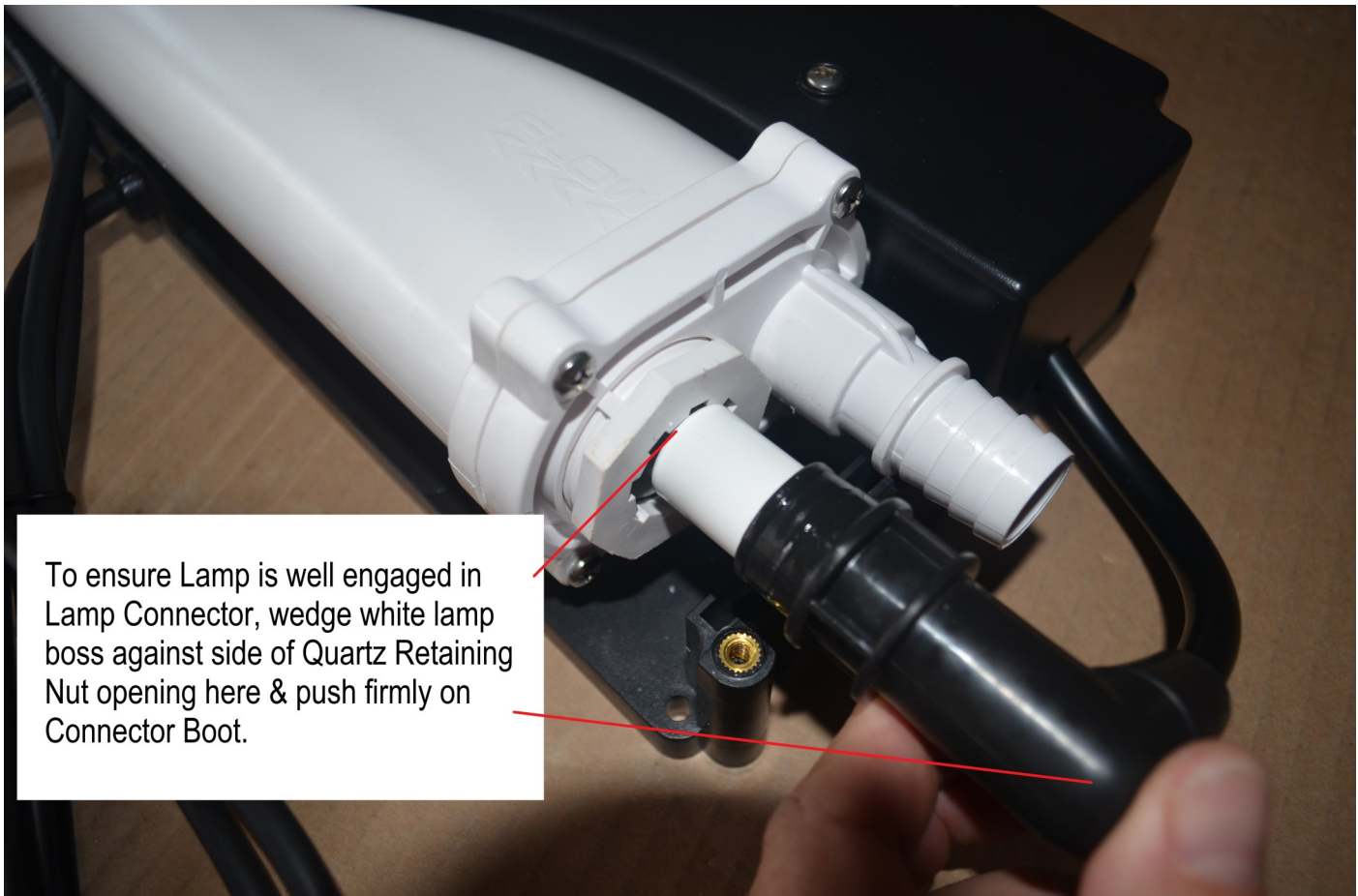
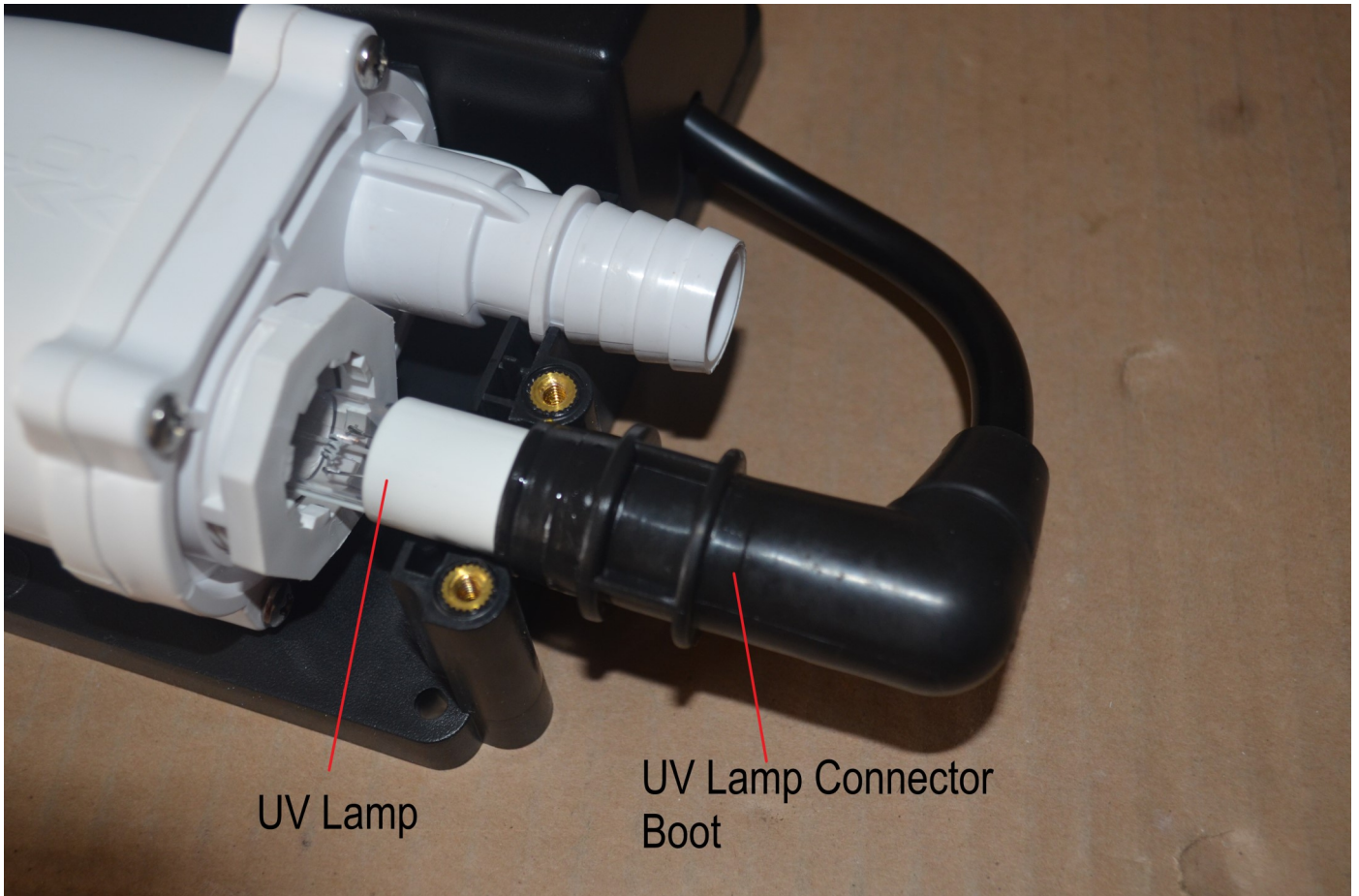
Lamp Life Timer

LED - OZ Status Indicator

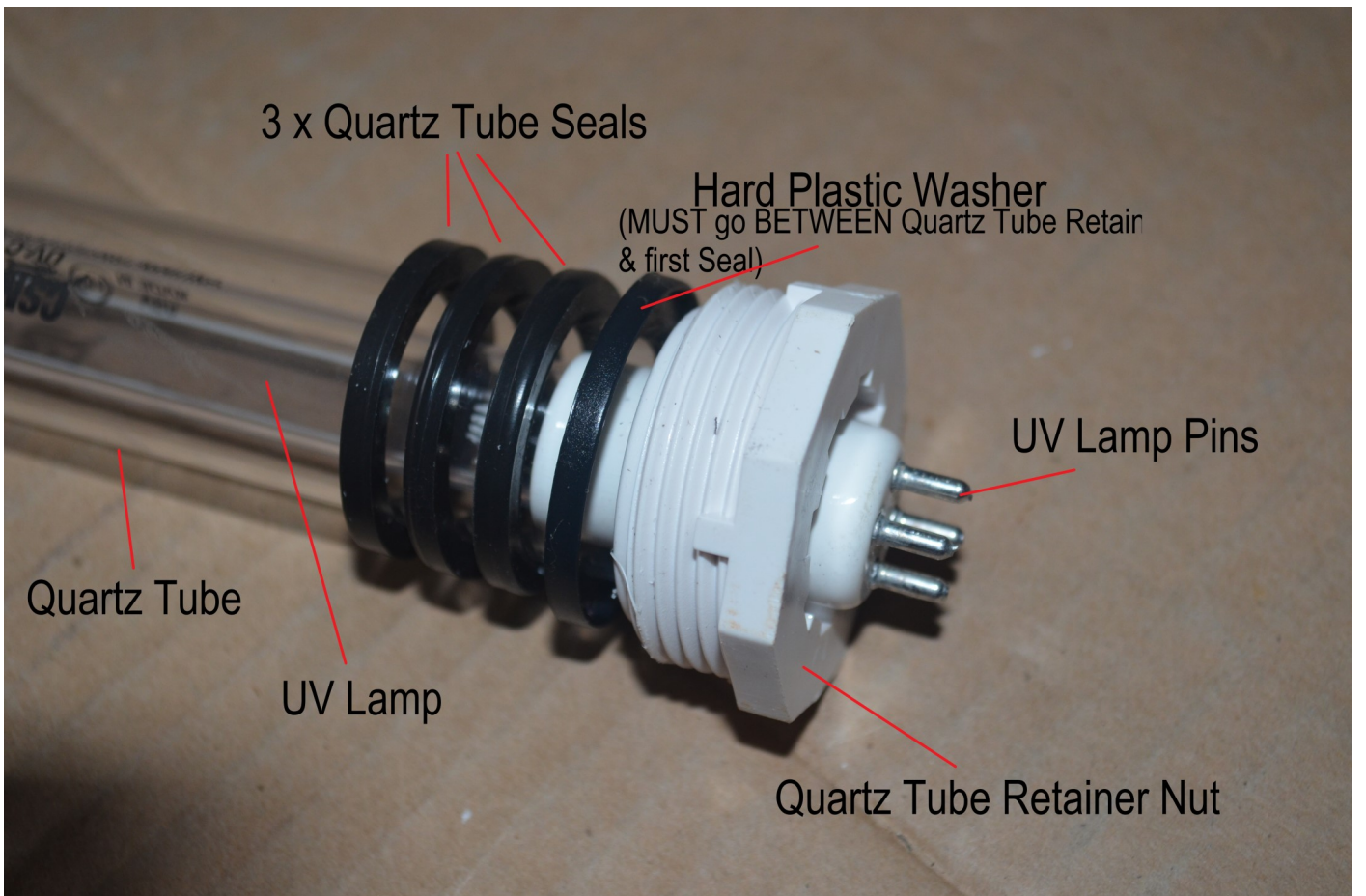
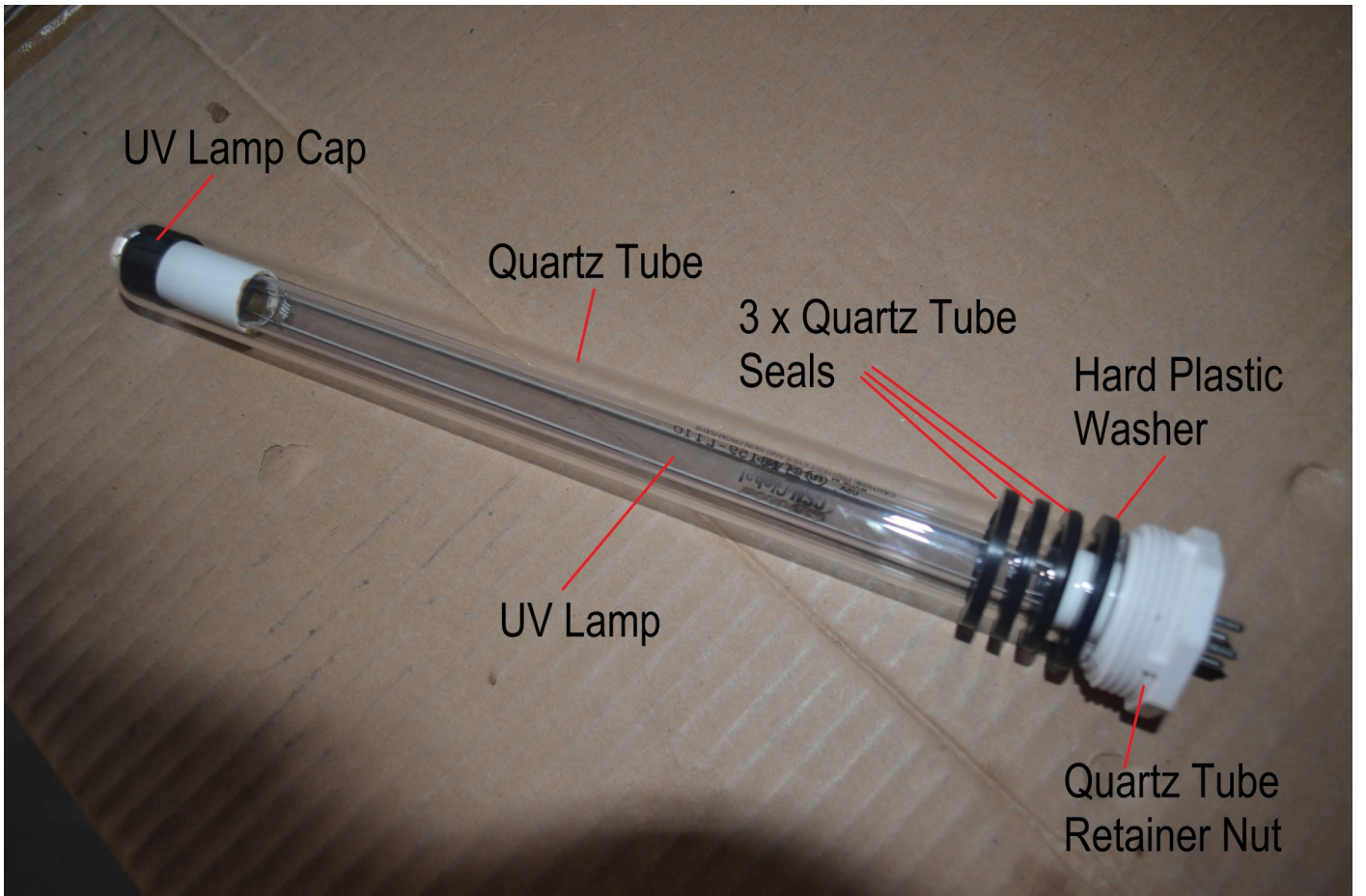
LED - UV Status Indicator

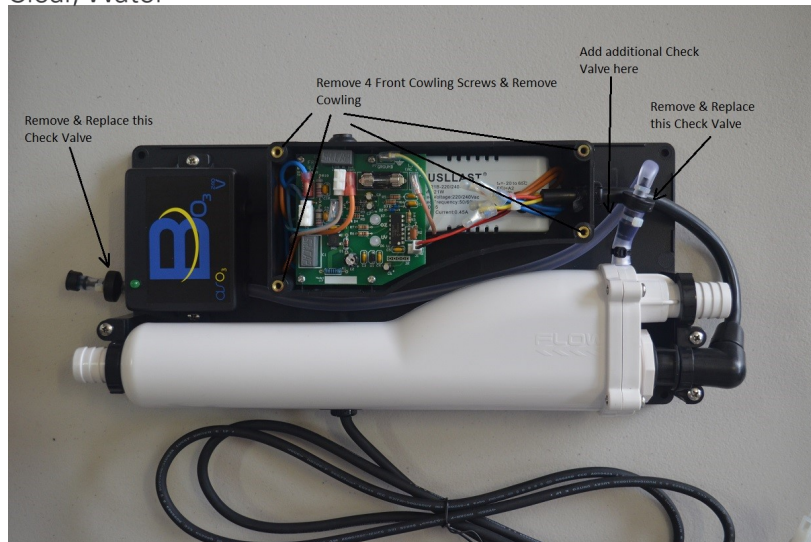
Lamp Ballast

PCB



To ensure Lamp is well engaged in Lamp Connector, wedge white lamp boss against side of Quartz Retaining Nut opening here & push firmly on Connector Boot.

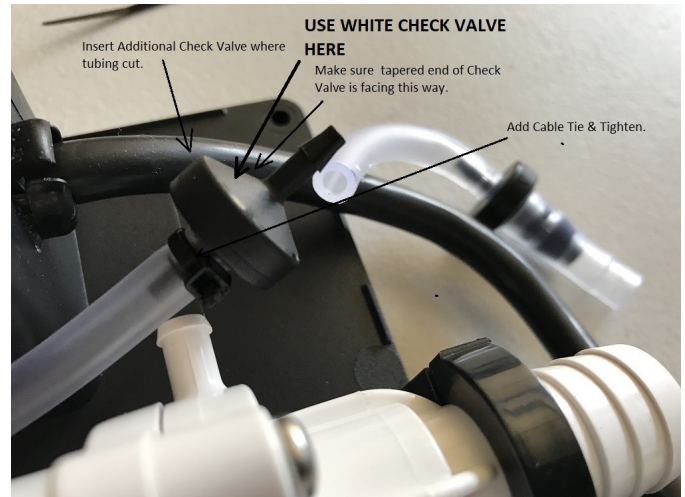




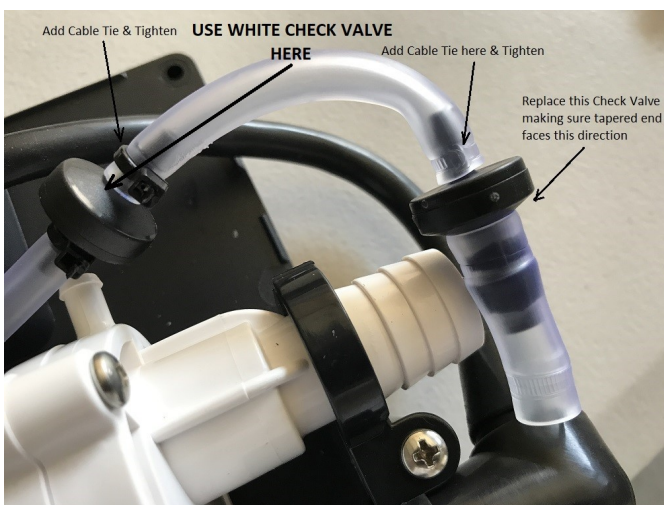
DISCONNECT POWER cord to UV/Ozone Unit and leave filtration pump RUNNING (this will prevent water leaking from the unit while the tubing is disconnected). Undo 4 Cowling Screws & Remove Cowling. Replace Check Valve on left hand side. Replace internal check valve and add additional back up check valve as follows:



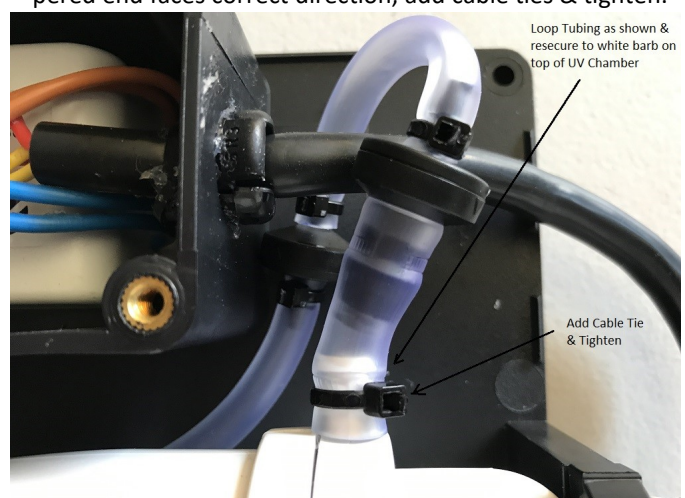
Remove Tubing end from white UV Chamber Barbs & cut Tubing 75mm back from existing check valve as shown.



Fit new Check Valve to cut end as shown. Make sure tapered end faces correct direction, add cable ties & tighten.



Replace existing Check Valve with new one making sure tapered end faces correct direction. Add cable ties & tighten.



Loop tubing as shown & reconnect to white UV Chamber Barbs. Add cable tie. **MAKE SURE CABLE TIE IS TIGHT.**

With Filtration Pump on, place finger over air intake on left side. Feel for a slight suction. Turn pump off and check for leaks.