Series 5
Ultraviolet Sanitizer / Clarifier System
OWNERS MANUAL

INSTALLATION INSTRUCTIONS

⚠️ IMPORTANT SAFETY INSTRUCTIONS
SAVE THESE INSTRUCTIONS
READ AND FOLLOW ALL INSTRUCTIONS

⚠️ WARNING
FOR YOUR SAFETY — This product should be installed by a professional service technician or similar person, qualified in electrical equipment installation. Improper installation and/or operation could cause serious injury, property damage or death. Improper installation and/or operation will void the Limited Warranty.
SAVE THESE INSTRUCTIONS

INSTRUCTIONS PERTAINING TO RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSON

WARNING — When using this unit, basic precautions should always be taken, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. DANGER: To avoid possible electrical shock, special care should be taken since water is employed in the use of this equipment. For each of the following situation, do not attempt repairs yourself; return the appliance to an authorized service facility or the manufacturer for service or discard the appliance.
   A. If the appliance falls into the water, DO NOT reach for it! First unplug it and then retrieve it. If electrical components get wet (not the electrical housings, but the components themselves), unplug the appliance immediately.
   B. Do not operate any appliance if it has a damaged cord or plug, or if it is malfunctioning or if it is dropped or damaged in any manner.
3. Always unplug an appliance from an outlet when not in use, before putting on or taking off parts and before cleaning. Never yank the cord to pull the plug from the outlet. Grasp the plug and pull it to disconnect it.
4. Do not use an appliance for anything other than its intended use. The use of attachments not recommended or sold by the appliance manufacturer may cause an unsafe condition.
5. This unit contains an ultraviolet bulb that can cause discomfort or irritation to the eyes if viewing while operating. Prolonged exposure to the eyes can cause blindness. DO NOT VIEW UV BULB WHILE OPERATING OR DURING MAINTENANCE.
6. Read and observe all of the important notices in these instructions and on the appliance.
7. If an extension cord is necessary, a cord with a proper rating and suitable for outdoor use should be used. A cord rated for less amperes or watts than the appliance's rating may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled loose.
8. This product shall only be connected to a power supply receptacle or connection protected by a Ground Fault Circuit Interrupter (GFCI).
9. Protect this unit from direct prolonged sunlight exposure.
10. ENVIRONMENTAL NOTICE - Hg-Lamp CONTAINS MERCURY. Manage in accordance with disposal laws. See: www.lamprecycle.org

INSTALLATION INSTRUCTIONS

WARNING

When using electrical products, basic precautions should always be followed, including the following:

1. DANGER: RISK OF ELECTRIC SHOCK. Connect only to a circuit protected by a Ground Fault Circuit Interrupter, if required and available in your country.
2. Electrical grounding is required. If in doubt as how to accomplish this, the unit should be installed and grounded by a qualified electrical installer, in compliance with the electrical code of your country.
3. Install to permit access for servicing.

IMPORTANT: Follow the instructions EXACTLY and IN THE ORDER LISTED. Once installed, your UV unit will provide years of successful operation.
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1.0 Welcome – The Trident Series 5 UV Unit is designed for use in swimming pools, in-ground and portable spas, fountains, water features, waterfalls, fish ponds, and the like. It is not designed for use in potable (drinking) water installations. Use of this product in applications other than those indicated above will void your warranty and could be harmful to your health or the health of others. Note that the Series 5 unit is provided in a vertical mounting configuration (most common) as well as a horizontal mounting configuration. This manual will always refer to the vertical mounting configuration, unless the reference to a horizontal mounting configuration is noted.

2.0 General Product Information – Within the Trident UV Series 5 UV unit’s (which we will refer to throughout this manual as SER 5), wet chambers (reactors) are one or two high intensity electrically energized Ultraviolet (UV-C) Lamps. These UV Lamps gives off Ultraviolet light wave emissions when lit. The Lamp’s operating emission range is within the UV-C light wave spectrum for disinfection (253.7 nm of wavelength. This wavelength is such that when bacteria, algae spores, protozoa, viruses, or other single celled waterborne microorganisms located in the incoming water flow are exposed to the light waves of the UV Lamps for a proper period of time, the DNA of the microorganisms are altered or disrupted and this eradicates these unwanted contaminates and renders them harmless. Your SER 5 unit has been sized to produce these important UV rays in the same intensity as is required for Class A potable drinking water, which is 30,000 microwatts/cm2. (30 mJ)

While you may see lesser competitive units with lower reactor or Lamp size claiming to work on larger ponds or pools, you will find that these units do not operate at the same high intensity as does the SER 5 unit and are unable to obtain the same level of killing power as the SER 5 unit. You should confirm the size unit your application needs by using the Sizing Charts shown in this manual, to obtain the proper maximum system killing power.

The filtered water to be treated, containing these unwanted contaminates, enters the SER 5 unit’s reactors and is exposed to the light rays generated by the UV Lamp. The SER 5 unit has been designed to make allowance for some turbidity in the water, as turbidity will reduce the UV light wave transmission capability. Therefore, all SER 5 units are sized to allow for possible turbidity in the water and the reduction in the killing power of the UV Lamp(s) when they near the end of their useful life (EOL). When the incoming water flow is exposed to the Lamp(s) for the proper duration and intensity, the water exiting the unit will be near drinking water biological quality.

CAUTION: THIS UNIT IS FOR USE ONLY ON VESSELS NOTED ABOVE. DO NOT USE THIS UNIT FOR POTABLE (DRINKING) WATER SANITATION.

3.0 UV System Sizing – In order to ensure that your SER 5 unit functions with the proper water exposure time to achieve the desired water sanitization, it is important to provide the proper water flow rate through the SER 5 unit. If water passes through the unit too quickly, the microorganism’s exposure time to the UV Lamp(s) produced rays to the will not be sufficient to obtain the desired kill rate. The water flow rate through the UV unit is governed by the piping of your water vessel and the size and output of your circulation pump. There also needs to be consideration to the application for the UV unit. Fish ponds, as an example, have different requirements than do swimming pools, spas, water features, fountains, or waterfalls, as noted elsewhere in this manual.

4.0 Pond Sizing Considerations – Most fish pond experts agree that there is no simple or set formula for the sizing of circulation pumps and UV systems for ponds. The size of the pond, its depth, the amount of plant coverage, the amount of sun exposure or shade, the ambient temperature, and the number of fish in the pond all contribute to determining what the circulation flow rate for a pond should be. The best advice is to consult a pond expert to determine what the flow rate for your pond should be. This is the best method of ensuring that your pond is being circulated properly. But absent of that, a general rule of thumb that can be used for ponds is that the water volume of the pond should be passed through the filter system every two hours or so. Thus, if you take the volume of your pond (in Gallons or Cubic Meters) and divide that by 120 (the number of minutes in 2 hours) you will have an approximate desired flow rate for your pond. Then, you select a pump and filter system that works properly at that flow rate. As an example, a 6000 gallon pond would have a desired flow rate of 50 gallons per minute (GPM) calculated at 6000 / 120 = 50. To calculate the same pond in cubic meters (m3) capacity, you would have a 22,72 m3 pond, and the flow rate would be 11,36 m3/hr.
4.1 Pond Sizing Chart

<table>
<thead>
<tr>
<th>Trident Model</th>
<th>Maximum Flow Rate (GPM)</th>
<th>Maximum Flow Rate (m3/hr)</th>
<th>Max Pond Volume 2 Hr. Turnover (Gallons)</th>
<th>Max Pond Volume 2 Hr. Turnover (m3)</th>
<th>Max Pond Volume 3 Hr. Turnover (Gallons)</th>
<th>Max Pond Volume 3 Hr. Turnover (m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5-11/S5-21</td>
<td>44</td>
<td>10.0</td>
<td>5280</td>
<td>20.0</td>
<td>7920</td>
<td>30.0</td>
</tr>
<tr>
<td>S5-12/S5-22</td>
<td>84</td>
<td>19.1</td>
<td>10080</td>
<td>38.2</td>
<td>15120</td>
<td>57.3</td>
</tr>
</tbody>
</table>

All capacities and flow rates are nominal

Note: Multiple SER 5 units can be used for flow rates beyond those specified herein. (See Sec. 17.7)

5.0 Pool, Spa, Fountain, Water Feature, Water Fall Sizing Considerations - Swimming pools and similar water vessels are somewhat simpler than ponds to calculate for flow rates. In the case of swimming pools, most residential pools are designed to have the capacity of the pool turned over less than every 12 hours (maximum). Semi-commercial pools are normally designed for a 6 to 8 hour turnover flow rate. Check with your local jurisdiction for the required flow rate for your type of pool to be sure. Thus, as an example, using the same formula as above, a 20,000 gallon residential pool will need to have a pump capable of a minimum of 28 GPM flow rate (most pool pumps have larger flow rates) and a 25,000 gallon Semi-commercial pool will need to have a pump capable of 52 GPM to accomplish an 8 hour turnover. (This same mathematical formula shown above applies when using cubic meters for your calculations)

Using the same method used when selecting filters for pools and ponds, the SER 5 unit needs to be properly sized by flow rate. Moving the water through the SER 5 unit’s reactors too fast will not allow enough exposure time of the water to be exposed to the UV Lamp rays for the required exposure time. The following chart shows the desired and maximum flow rates for your SER 5 unit. Make sure the flow rate of your circulation pump does not exceed the maximum allowable flow rate of the UV unit you have selected. (Consult your supplier, the pump manufacturer, or the Internet for the pump’s GPM or m3/hr rating if you are in doubt). If the pump output exceeds the maximum flow rate of the SER 5 unit you have selected, select an SER 5 model with a higher flow rate capacity rating or consider a multiple unit installation. The SER 5 system has the capability of being upgraded in the field to a larger flow rating should the pump output be more than expected, and this is accomplished by adding up to three more UV lamps, quartz sleeves, and ballast. (See Sec. 7.3)

5.1 Pool, Spa, Fountain, Water Feature, Water Fall Sizing Chart

<table>
<thead>
<tr>
<th>Trident Model</th>
<th>Maximum Flow Rate (GPM)</th>
<th>Maximum Flow Rate (m3/hr)</th>
<th>Max Pool Volume 12 Hr. Turnover (Gallons)</th>
<th>Max Pool Volume 12 Hr. Turnover (m3)</th>
<th>Max Pool Volume 8 Hr. Turnover (Gallons)</th>
<th>Max Pool Volume 8 Hr. Turnover (m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S5-11/S5-21</td>
<td>44</td>
<td>10.0</td>
<td>31680</td>
<td>120.0</td>
<td>21120</td>
<td>80.0</td>
</tr>
<tr>
<td>S5-12/S5-22</td>
<td>84</td>
<td>19.1</td>
<td>60480</td>
<td>229.2</td>
<td>40320</td>
<td>152.8</td>
</tr>
</tbody>
</table>

All capacities and flow rates are nominal

Note: Multiple SER 5 units can be used for flow rates beyond those specified herein. (See Sec. 17.7)

6.0 Step 1 In Starting Your Installation – Before starting the installation of your system, PLEASE read this manual from cover to cover! A few moments spent initially becoming totally familiar with the SER 5 unit and its installation requirements will save a great deal of time (and possible additional expense) later. If you have questions that are not answered once you have completed the reading of this manual, contact your supplier, Trident’s website or Trident Customer Service. We are ready to assist you at anytime and we want your installation to go smoothly and to have your system working properly.
6.1 **Locating The Series 5 Unit** – Once you have confirmed the sizing of your pond, spa, fountain, water feature vessel, or pool and compared that information against the flow requirements of your SER 5 unit by using the charts above, it is now time to install your unit. The SER 5 unit comes with all internal components fully assembled and ready for installation. Only the Inlet/Outlet unions need to be glued into the SER 5 unit to ready your unit for installation. All exterior exposed parts of the SER 5 units are UV inhibited polymeric material and a decorative wrapper covers the unit’s exterior. Thus, the unit can be installed indoors or outdoors. Installing the SER 5 unit indoors or inside a covered area is preferred however, to keep your unit looking new.

Locating the SER 5 unit for electrical connection should also be considered. Check the silver product label on the SER 5 unit. Depending upon your countries electrical requirement, the SER 5 unit is manufactured to operate on one of two different electrical power sources. The SER 5 unit is not a dual voltage device and should only be connected to the voltage supply shown on the silver product label on the system. This means that the SER 5 unit will need to be powered from either a 120V/15A/50/60Hz or 230 V/15A/50/60Hz electrical circuit. (Which MUST match the unit power requirement noted on the silver product label on the SER 5 unit) **DO NOT CONNECT TO ELECTRICAL POWER NOT SPECIFIED FOR YOUR UNIT.** If the plug-in electrical outlet that your unit plugs into is outdoors and open to the weather, it will need to be an Outdoor type receptacle. The SER 5 unit comes with an eight foot (244 cm) long power cord. Do not use an extension cord unless it is at least a 16/3 size conductor waterproof type and is no more than twenty-five feet (7.5 meters) long. Be sure to route the power cord exiting the unit through the base indent that accommodates the power cord.

6.2 **Installing Inlet/Outlet Unions** – The SER 5 unit comes with socket Inlet and Outlet openings. The top opening is the Outlet opening and the bottom opening is the Inlet opening. Packed with your SER 5 unit are two identical Inlet and Outlet PVC unions with 2 in. socket fittings to accept your PVC circulation piping. Also packed with your SER 5 unit are two 63 mm union socket fittings, should you be using metric piping. To change the socket fittings from 2 in. to 63 mm, disassemble the unions by unscrewing the two halves from the securing nut. Replace the 2 in. socket piece with the 63 mm socket piece and now the unions will fit your metric pipe. To install the unions on to the SER 5 unit, insert the spigot union end into the SER 5 body by gluing with a suitable ABS-PVC pipe glue. Once the glued-in parts are secure, hand tighten the union nuts holding the socket tail pieces, until snug. **DO NOT OVERTIGHTEN.** Hand tightening is sufficient. Over tightening may break the molded plastic parts of the unions. Once you are confident that you have installed the Inlet and Outlet union halves successfully, you will be ready to glue your plumbing into the union sockets once the SER 5 unit is mounted to the mounting surface.

6.3 **Mounting The UV Unit Vertically On A Solid Base** – The next step is to secure the SER 5 unit to a concrete or wood base. If you are going to mount this SER 5 unit in a horizontal position use the horizontal mounting kit provided for horizontally mounted SER 5 units. (Mostly used for portable spas.) Four mounting legs are attached to the bottom of the SER 5 unit. These individual legs have holes to accommodate ¼ inch diameter size screws or bolts to mount the SER 5 unit in place. **FAILURE TO PROPERLY SECURE THE UNIT MAY CAUSE NOISE DUE TO VIBRATION DUE TO WATER PASSING RAPIDLY THROUGH THE REACTOR.** Secure the SER 5 unit (using bolts and anchors (not supplied) where necessary and appropriate for your installation. When the SER 5 unit is secured in place, the piping of the unit can begin.

6.4 **Mounting The UV Unit Using The Horizontal Mounting Kit** – The SER 5 unit has been designed to accommodate mounting the unit in a horizontal position. The SER 5 unit is marked: “Horizontal Mount”, can be identified by its two identical domed ends opposite ends of the unit and comes with its own horizontal mounting kit. If your SER 5 unit includes 4 mounting feet at one end, it is not suitable for horizontal mounting. Follow the instructions packaged with the horizontal mounting kit.

6.5 **Plumbing The Series 5 Unit** – Your SER 5 unit will need to be plumbed into your vessel’s circulation system. The Fig. 1 diagram below shows how the unit is to be plumbed. Note that the water is to be piped from the pressure side of the pump and after the filter, in and out of the SER 5 unit. The inlet for the water is at the bottom plumbing opening of the SER 5 unit, and the outlet is at the top plumbing opening of the SER 5 unit. Inlet and Outlet openings are marked on the reactor surface. If your pump exceeds the maximum flow rate of the SER 5 unit you have selected, installation of a plumbing bypass will be necessary to bypass some of the pump’s flow around the SER 5 unit so the maximum allowable design flow rate that the SER 5 unit can accommodate will not be exceeded. A typical bypass arrangement is shown in Fig. 2.
6.6  **Gluing Piping To The UV Unit** – As noted earlier, two Inlet/Outlet PVC unions are supplied to accommodate either 63 mm or 2” PVC pipe, depending on your country’s custom. Select the union size that fits your piping and discard the second tail piece set. Your PVC supply piping should be glued into the PVC union tail pieces using an appropriate PVC primer and PVC cement, as recommended by your supplier. Inlet piping should be supported and should not rest solely upon the unions, to avoid stressing or breaking the unions. The installation of valves on the inlet and outlet lines attached to the UV unit is recommended. If the SER 5 unit is located with any portion of the unit below the surface of the pond or pool, then **INLET AND OUTLET VALVES ARE MANDATORY**, so you may winterize or remove the SER 5 unit without having to drain the water vessel. When you have completed the piping installation (including bypass if necessary), the final step is to plug the unit into its power source.

6.7  **Providing Electrical Power To The Series 5 Unit** – The electrical power rating for your SER 5 unit is shown on the silver label located on the outside of the unit. Check the label on your SER 5 unit for its power requirement before proceeding and make sure the supplied power meets the unit’s electrical requirements. Connection to any power source other than that listed on the rating label will VOID your Limited Warranty. The SER 5 unit comes with a cord connected ballast enclosure that should be mounted using the mounting holes provided, in a location out of the way of any operators or service personnel.

If the electrical household power for your country is customarily 120V/50/60 Hz, then your unit’s electrical plate should so indicate this voltage. At 230V, the power draw is only 0.65 Amps maximum for a two lamp system. This low power consumption makes operating your SER 5 unit very economical. Therefore, you will need a 15 Amp 120V or 230V receptacle for your SER 5 unit to plug into. Your SER 5 unit is supplied with a eight foot (244 cm) long weatherproof power cord terminating in either a 3-prong grounded NEMA plug, the plug customary in your country, or a blunt cut cord. It is recommended that a ground fault circuit interrupter (GFCI) be installed in the electrical outlet or in the breaker panel serving the SER 5 unit (subject to the electrical codes of your country). Note: Should the electrical power cord of your SER 5 unit become frayed or damaged in the future, unplug it from the power receptacle and replace it immediately. Note: Some countries do not allow cord connection of these types of appliances. Check your countries electrical code. If hard wiring is required, then this work is best done by a licensed electrical service person.

If your country requires 230V/50/60Hz electrical household power, than your unit should indicate 230V/50/60Hz supply power on the electrical plate on the front of the unit. In some instances, your unit will be supplied with the electrical plug on the power cord that is common to your country, or with a blunt cut power cord. Use the plug supplied where plug-in appliances are allowed, or cut the plug or use the blunt cut cord to hard wire your 230V unit. Remember, you CANNOT operate your SER 5 unit on any power supply other than that indicated on the unit’s electrical plate.

6.8  **Electrical Bonding (Grounding)** – As no metallic components are present in the SER 5 unit, no electrical bonding is required. Grounding of the electrical components in your SER 5 system will be accomplished by the ground wire in the power supply cord, which is already connected internally. The electrical installation is now complete.

**DANGER - RISK OF ELECTRICAL SHOCK - RISK OF INJURY OR DEATH**
**IF ELECTRICAL INSTALLATION IS NOT DONE PROPERLY.**

If you are in doubt, have this important work done by a Licensed Electrical Technician!
6.9 Electrical Interlock Of Pump/Series 5 Unit – The SER 5 unit is equipped with a safety pressure switch that does not allow the UV Lamp(s) inside the unit to light unless there is at least 5 PSI (0.35 Bar) operating pressure inside the UV reactor chamber. This is to ensure that the Lamp(s) will not create excessive heat when the SER 5 unit is empty or water is not flowing through the reactor. Such excessive heat can shorten the life of the UV Lamp(s). Therefore, only when the pump is pumping water through the SER 5 unit’s reactor will you be able to see the glow ring brighten on the top of the SER 5 reactor body, which will confirm that the lamp(s) is/are ON.

**Note:** Without the circulation pump operating properly, you will not see the glow of the lamps through the plastic glow ring just by plugging the SER 5 unit into its electrical outlet. Once the pump is pumping water through the SER 5 unit, as confirmed by the flow of water back to the vessel, the Lamp(s) will light only if there is at least 5 PSI of operating pressure. To confirm that the Lamp(s) is/are indeed ON, you should check the Lamp plastic glow ring on the top of the unit. You should not attempt to view the actual individual lamp(s) by viewing the lit lamps by removing the electrical enclosure, as looking at the lit UV Lamp(s) directly when lit can cause eye damage or possible blindness if viewed for more than 15 seconds. If the glow ring is not brightly lit after the pump is running, check the Troubleshooting section at the end of this manual.

7.0 System Start-Up – Once you have completed all the preceding steps, it is important that you check and verify that the unit has no leaks anywhere, including checking for the possibility of a broken quartz tube damaged during transit. If no leaks are present, you are ready to place your unit into operation. Start-up is performed as noted below.

7.1 Circulation Pump Start Up – Once the pump is ON, be sure to drain all air from your plumbing system through the air relief valve on the filter, if so equipped. Once the pump is pumping consistently, make one final check for leaks in your piping, accessories, and under the unit’s electrical enclosure cover. If any water leakage under the SER 5 unit’s electrical enclosure cover is suspected (water dripping from the under side of cover or from the unit anywhere else), disconnect the SER 5 unit immediately, remove the cover (See Sec. 8.2) and verify that there is either (a) leakage at the quartz tube(s) or (b) leakage at the quartz tube gaskets. If quartz tube leakage is encountered, follow the instructions in Sections 8.1 through 8.6 to remedy the situation before applying electrical power again to your SER 5 unit.

7.2 Water Chemical Balance – If you have installed your SER 5 unit on any water vessel other than fish ponds or ponds with live plants, it is important that you check the chemical balance of the water and adjust the chemical balance as per your chemical supplier’s instructions. Remember, the SER 5 unit dramatically reduces the need for chemical sanitizers, but does not eliminate the need for proper chemical balance if such was need existed prior to the installation of your SER 5 unit.

7.3 Upgrading The Output Of The Series 5 Unit – One of the exclusive features of the SER 5 system is the ability to increase the UV output of a one Lamp unit by adding a second lamp in the field. Only one additional Lamp can be added to a single lamp system. This is accomplished easily by adding a Lamp and changing the ballast assembly. Consult Sec.16.0 to determine the proper ballast(s) to use, based upon your voltage requirement and number of Lamps. Ballast change or replacement can easily be accomplished due to the SER 5 plug-in ballast design. Follow instructions in Sec. 9.0, 9.1 and 10.2 regarding additional Lamp and ballast installation.

8.0 Routine Maintenance – The SER 5 unit requires very little routine maintenance during the year. The UV Lamp(s) in the SER 5 unit is/are placed inside individual quartz tubes (one per Lamp) to protect the Lamp from contact with the water in the SER 5 unit’s wet reactor. A quartz tube can have its ability to transmit the UV rays from the Lamp through the quartz tube diminished if the quartz tube becomes dirty or laden with deposits. The quartz tube(s) should be removed from the reactor every six (6) months and inspected to make sure they are clean and that deposits are not attached to the quartz tube(s). To remove a quartz tube, you should follow the following steps shown below.

8.1 Quartz Tube Maintenance or Replacement – Before proceeding, you must first unplug the SER 5 unit from its power receptacle or power source and then turn OFF the circulation pump so that no water is flowing in or out of the SER 5 unit. Once the pump is turned OFF, verify that the filter’s pressure gauge located on the filter is indicating ZERO pressure in the circulation system. If any pressure is indicated on the pressure gauge, do not go to the next step until the pressure gauge shows ZERO. If you show any pressure on the pressure gauge, but feel that there is no pressure present inside the SER 5 unit, simply unscrew the top union nut 1-2 turns. This will relieve any pressure inside the reactor. When you are absolutely sure that there remains no pressure inside the SER 5’s wet chamber, you can proceed to the next step. Note: If your SER 5 unit is installed below water level, the bypass valves must all be CLOSED to prevent water from draining into the open SER 5 unit when a quartz tube is removed.
8.2 Remove The Plastic Electrical Enclosure Cover – NEVER REMOVE THE ELECTRICAL ENCLOSURE COVER WITHOUT FIRST UNPLUGGING THE SER 5 UNIT FROM ITS POWER SOURCE – DO NOT OPERATE THE SER 5 UNIT WITH THE COVER REMOVED – The electrical enclosure cover is removed by unscrewing the mounting screw that hold the cover to the SER 5 unit. This screw is located at the power end of the reactor, just above the plastic glow ring.

8.3 Remove The UV Lamp – Do not handle a hot UV Lamp with your bare hands. First allow the Lamp to cool before handling, to avoid burning your skin. With the electrical enclosure cover removed, unplug the UV Lamp by grasping the white Lamp connector plug that is attached to the ballast wires and gently pull the plug from the Lamp. With the electrical plug removed from the Lamp, slowly pull the UV Lamp out of the quartz tube by grasping the Lamp at the white ceramic prong end. DO NOT TOUCH THE UV LAMP GLASS WITH YOUR BARE HANDS! Use a soft clean cotton cloth or clean cotton gloves to handle the UV Lamp. Skin oils on your hands can attach to the Lamp glass and can cause hot spots on the Lamp, which can shorten the Lamp life. Note that there are two small O-Rings (P/N UV44-100202) on the top of the Lamp white ceramic, and a black Lamp Cushion (P/N UV86-002020) which are visible when the Lamp is removed. Leaving the Lamp Cushion and O-Rings on the lamp, carefully place the removed Lamp in a clean, dry, an safe location where the Lamp will not fall while cleaning the quartz tube(s). Repeat this process until all Lamps are removed. The quartz tube is now ready to be removed from the SER 5 unit for cleaning.

8.4 Remove The Quartz Tube Sealing Nut – Using your hands, or a wrench, remove the plastic compression nut (Part # UV86-021030) sealing the quartz tube within the quartz tube mounting gland, along with the sealing Quad Ring (Part # UV44-021301) located around the quartz tube that seals the quartz tube to the mounting gland. Inspect the Quad Ring for nicks or hardness and the compression washer for cracks and replace if necessary.

8.5 Remove And Clean The Quartz Tube – Do not handle a quartz tube until it cools. Grasp the quartz tube on the inside of the tube, and pull straight up to remove it from the SER 5 unit’s reactor. The quartz tube can now be easily cleaned. The quartz tube exterior can normally be cleaned by mixing a mild solution of muriatic acid (available at all pool supply stores) with water in a ratio of four parts water to one part acid (4:1). CAUTION: Follow the directions for use and handling of muriatic acid on the acid bottle label, being careful to protect your eyes, wear rubber gloves, and avoid breathing acid fumes. DO NOT USE ABRASIVE CLEANERS as they can scratch the high quality quartz glass. If lime or hard water calcium deposits are encountered, household tub and shower lime removal products that are available in grocery stores can be used. These products will not harm the hard glass surface of the quartz tube. Complete the cleaning of the quartz tube, then wash it off and wipe it dry. Also, make sure the inside of the quartz tube is dry before placing the UV Lamp(s) back inside the quartz tube(s).

Lastly, carefully inspect the cleaned quartz tube for cracks. If any cracks in the quartz tube are found, the tube should be replaced (Part # UV58-601000) A broken quartz tube will allow water to enter the dry electrical chamber and attack the electrical components of the unit, which will cause them to fail and need to be replaced. BROKEN QUARTZ TUBES, OR WATER DAMAGE CAUSED BY BROKEN QUARTZ TUBES, ARE NOT COVERED UNDER YOUR LIMITED WARRANTY.

8.6 Quartz Tube Installation – The process of re-installing the quartz tube is just the reverse of the removal process. Place the quartz tube sealing Quad Ring on to the quartz tube 3/8 in. (9.5 mm) from the open end of the quartz tube. Insert the quartz tube into the SER 5’s reactor by carefully inserting it into the quartz tube sealing gland. Carefully seat the quartz tube down into the receptor at the bottom of the reactor. The quartz tube will not go all the way down into the reactor unless the rounded end of the quartz tube is seated in the receptor at the bottom of the reactor. Note that there is a spring in the receptor at the bottom of the reactor that the quartz tube rests against. Pressing the quartz tube downward and then seeing it raise slightly back upwards confirms that the quartz tube is properly seated against the spring in the quartz tube receptor at the bottom of the reactor.

8.7 Compression Washer And Sealing Nut Installation – Place the compression washer down onto the quartz tube. Screw the compression nut into the threads of the sealing gland, being careful not to cross thread the plastic nut. Tighten the compression nut with your bare hands. DO NOT OVERTIGHTEN. Over tightening could crack the sealing nut or the quartz tube, and the rubber Quad Ring will not seal the quartz tube properly. You must next check your installation for leaks. To do so, turn the circulation pump ON and check the quartz tube seal for leaks. Correct any leak found by carefully tightening the quartz tube sealing nut turn. If the leak persists, remove the sealing nut, the compression washer and the Lamp sealing Quad Ring. Inspect the Lamp sealing Quad Ring and replace if necessary. Follow previous procedures for installing the sealing nut, compression washer, and sealing Quad Ring and recheck the SER 5 unit for leaks again. Turn the circulation pump OFF once you have confirmed that the quartz tube is not leaking.
9.0 Re-installing The UV Lamp(s) – DO NOT TOUCH THE UV LAMP GLASS WITH YOUR BARE HANDS. Oils on your hands transfer to the Lamp glass and cause hot spots on the Lamp surface. If you have touched the Lamp with your bare hands, you must wipe the Lamp glass off with Denatured Alcohol using a clean soft cotton cloth before inserting the Lamp back into the quartz tube. Slowly lower the Lamp down into the quartz tube until the bottom of the lamp comes to rest inside the quartz tube to the bottom of the tube. CAUTION: DO NOT INSTALL THE ELECTRICAL SOCKET FROM THE BALLAST TO THE FOUR PINS ON THE END OF THE LAMP AT THIS TIME. DOING SO NOW WILL CAUSE THE LAMP TO LIGHT WHEN THE PUMP IS TURNED ON AND EXTENDED VIEWING OF THE LIT LAMP(S) WHILE THE ELECTRICAL COVER IS REMOVED CAN CAUSE EYE INJURY OR BLINDNESS. DO NOT LOOK DIRECTLY AT A LIT UV LAMP AT ANY TIME.

9.1 Making Electrical Connection To Lamp(s) – Once you have verified that the quartz tube seal is not leaking, TURN OFF YOUR PUMP IF YOU HAVE NOT DONE SO PREVIOUSLY. Then, WITH THE PUMP OFF, connect the electrical socket from the ballast to the four pins on the Lamp by pushing the socket down on to the pins. NOTE: The socket will only install on the Lamp pins in one of the two opposite orientations. The pins are not equally spaced in both directions, so check the pin alignment before pushing down on the electrical socket. Once you are sure that the socket openings mate up to the pins, you can push the socket down onto the pins. DO NOT force the socket onto the pins. If force is needed, it means you have not aligned the pins to the socket.

Once the electrical connector has been installed onto the Lamp pins, you must install the plastic electrical cover on the top of the SER 5 unit and secure the cover to the reactor base utilizing the screw previously removed. Tighten the screws using a Phillips screwdriver. Lightly tighten the screw as over tightening can strip the threads. Turn the circulation pump ON and verify that the Lamp(s) is/are ON by viewing the Lamp ON glow ring on the top of the unit. The system is now ready for service.

NOTE: The Lamp(s) will not light until the pump is turned back ON due to the pressure switch remaining open until pump pressure inside the reactor is sensed, This sensing verifies the presence of water flowing through the SER 5 reactor.

10.0 Scheduled UV Lamp(s) Replacement – In addition to cleaning the quartz tube every six (6) months, periodic replacement of the UV Lamp(s) is required. The High Output Long Life UV Lamps have a useful life of approximately 13,000 hours of operation, which is about eighteen (18) months of continual use. **13,000 HOUR LAMP REPLACEMENT IS MANDATORY** (Part # UV70-114100) Even though the Lamp(s) may be glowing after 13,000 hours of operation, do not operate your SER 5 unit longer without replacing the Lamp(s), as the Lamp(s) will have reached the end of its/their useful life and will no longer be able to provide the necessary sanitizing dose due to the diminished power output at the end of the useful Lamp life. Lamp replacement is best done at the same time as quartz tube cleaning (every third quartz tube cleaning) to minimize your maintenance efforts. This can be accomplished more easily with a little advanced planning. You should schedule every third quartz tube cleaning to take place at the required 13,000 hour (18 months) Lamp replacement time.

NOTE: If you start and stop your circulation pump frequently, such as by multiple daily time clock operations, you will cause the Lamp to be more susceptible to burning out more quickly than if used continually. (Two to three daily ON/OFF cycles will not shorten Lamp life). This shortened life is caused by the same phenomenon you see when you turn on a lamp and it flashes and burns out. The momentary inrush of billions of electrons that occurs when a lamp is first energized has a detrimental effect on the filament of all lamps, thus the cause for a potentially shorter Lamp life. The worse thing you can do is to turn the system ON and OFF rapidly and repeatedly, which will dramatically shorten your Lamp(s) useful life.

10.1 Lamp Replacement Reminder – It is recommended that you mark your calendar for Lamp replacement fourteen or fifteen months from the initial date of installation of your SER 5 UV unit. This will give you ample time to obtain new Lamp(s) from your supplier before re-lamping is required. If your application is critical, as in a Koi pond where you absolutely do not want to have your SER 5 unit out of service for any period of time, it is suggested that a spare set of Lamp(s) (either 1 or 2 Lamps depending upon your particular system) be kept on site so you can change out the Lamp(s) immediately in the future when replacement is needed. Lamp replacement is accomplished as indicated below.

10.2 Lamp Replacement Procedure – First, disconnect your SER 5 unit from its power source. This is a MUST before you remove the electrical enclosure cover for any reason. Follow the instructions in Sec. 8.2 for electrical enclosure cover removal. With the cover removed, follow the steps noted for Lamp removal and replacement during quartz tube removal (Sec. 8.3) and installation (Sec 10.2) to remove the old Lamp and completing the installation of a new Lamp.
**11.0 Additional Series 5 System Maintenance** – While not required for the function of your SER 5 unit, you can keep your SER 5 unit looking new by periodically applying a light coat of car wax or fiberglass cleaner to the exterior of the unit at initial installation, then periodically thereafter as required. Be careful not to damage the silver product identification label or to use any cleaner that is not suitable for contact with plastic, as any SER 5 units returned for service with missing or mutilated labels will not be warranted. All other components not mentioned previously do not require any preventive maintenance. Should any component ever be needed, you can identify the component part number in Sec. 16 of this manual and obtain it from your original supplier.

**12.0 Results To Expect From Your Series 5 System** – Ponds, Swimming Pools, Spas, Fountains, Waterfalls and Water Features have different disinfection and clarification needs than fishponds. The SER 5 unit provides those needs in the same manner equally effectively, for all types of water environments specified herein. When installed on properly sized and installed pond installations, you can expect to correct green water condition in 3-5 days of continuous operation after start-up. Remember, only water that enters the SER 5 reactor is exposed to the UV rays of the Lamp, so algae that clings to the sides and bottom of a pond will not be affected by installing an SER 5 unit. This is normal and the retention of biologicals outside the SER 5 unit and is desired for proper bio-filtration. Thus, the SER 5 unit will not harm your bio-filtration, fish population or pond ecosystem.

In the case of SER 5 installation on properly sized and installed Swimming Pools, Spas, Fountains, Water Features and ponds, you will see a significant improvement to the water clarity and the “chlorine odor” should disappear in 2-4 days of continual operation after start-up. Remember, as noted before, the SER 5 unit will dramatically reduce the reliance on sanitizers and algae control products, but will not eliminate them completely. Many users of UV units report a 70%-85% of continual operation after start-up. Remember, only water that enters the SER 5 will be reactor exposed to the UV rays of the Lamp, so algae that clings to the sides and bottom of a pond will not be affected by installing an SER 5 unit. This is normal and the retention of biologicals outside the SER 5 unit and is desired for proper bio-filtration. Thus, the SER 5 unit will not harm your bio-filtration, fish population or pond ecosystem.

**13.0 Winter Operation Of Your Series 5 Unit** – Your SER 5 unit can be damaged if it is allowed to freeze. The substantial pressure inside the reactor can be caused by ice forming inside the reactor can break the glass quartz tube as well as the reactor vessel itself. Therefore, you must protect your SER 5 unit from freezing. Damage due to freezing, including breakage of glass components, the reactor, or water damage to other components or surrounding areas caused by freezing or water loss due to freeze damage is not covered under your Limited Warranty.

Freeze damage can be avoided by keeping the water flowing through the SER 5 reactor at a minimum of 5 PSI (0.35 Bar) pressure (as noted on the filter’s pressure gauge) at all times, without interruption during freezing temperatures. All time clocks must be placed in “Continuous Run” mode so the circulation pump will run without interruption. Freeze damage can also be avoided if the pump and SER 5 unit are maintained inside a warm non-freezing enclosure.

If you do not plan to operate your SER 5 unit during freezing temperatures, you must take precautions to make sure all water is removed from inside the SER 5 reactors so water does not freeze inside the reactors and damage the SER 5 unit or its components. Protection from freeze damage can be accomplished by first closing any valves on lines in the plumbing system and then opening the Inlet union at the bottom of the SER 5 unit so that the water is drained out from inside the reactor tank. A safe precaution is to remove the SER 5 unit from the circulation piping and place the SER 5 unit in a warm location during freezing temperature times of the year. **CAUTION:** A drain valve and piping to carry water away from the SER 5 unit must be installed in the supply piping if drainage of the SER 5 unit will cause water damage to the area surrounding the SER 5 installation.

**14.0 Continued Use Of Chemicals** – Your SER 5 unit does not add any chemicals to the water being treated. The SER 5 unit’s task is to kill bacteria, parasites, microorganisms and algae that come into contact with the UV rays inside the SER 5 unit’s reactor. While it is important to maintain a chemical regiment as directed by your builder or chemical supplier, in addition to the SER 5 unit, you will notice a dramatic decrease in chemical usage. This is one of the side benefits of the SER 5 unit as it attacks the mono-chloramines that form in chlorinated water when sanitizing chemicals are inadequate or when bathing loads are heavy.

**15.0 How To Obtain Product Support** – In the unlikelihood that technical assistance or parts are required, you should first contact your supplier and the supplier can advise the best method of providing the services you need. In some instances, the supplier will handle the required service themselves, including the ability to supply any necessary parts. In other instances, the supplier may chose to refer you to Trident Customer Service, who can assist you as well. Please read the Limited Warranty in this manual for your SER 5 unit. It explains fully what is and what is not covered under the Limited Warranty and the warranty periods.
16.0 Series 5 System Exploded View – The following diagram shows all replaceable components of your SER 5 unit.

17.0 Common Questions – Here are a number of FAQ's that will answer some of the most common questions.

17.1 Is the Series 5 UV Unit Designed For Use In Salt Water Applications? – The sanitation ability of the SER 5 unit is not affected by salt water (sea water). The all plastic Series 5 is fully compatible with all salt water (sea water) environments.

NOTE: In swimming pool applications where a salt chlorination generation system is present, the SER 5 system can also be used with no problem, but the quartz tube may be more susceptible to fouling due to the salt content of the water. The SER 5 unit enhances the ability of a salt chlorination generation system to function better, with less salt required, and with longer salt generator component life.

17.2 Do I Need To Turn My Series 5 Unit OFF When I Clean My Filter? – No, the flow sensing pressure switch that is part of your SER 5 unit will automatically shut the UV Lamp(s) OFF until proper water flow inside the SER 5 reactors is re-established. Should you need to turn your unit OFF for any reason, this is accomplished by simply unplugging the SER 5 unit from its power outlet, or turning OFF the electrical breaker serving the SER 5 unit.
17.3 Will A Time Clock On My Pool Shorten My Lamp Life? – Some shortening of the Lamp life can be expected when the SER 5 unit is turned off and back on frequently. Two or three daily on/off cycles will not create a major Lamp life issue, however frequent on/off cycles within a short period should be avoided.

17.4 Is There Any Residual Effect From UV? – No, UV light is used for bacteria control and is applied only to the water that passes inside the SER 5 reactor in visual contact with the UV light wave transmission from the UV Lamp. Nothing is imparted into the water and transported out of the reactor vessel.

17.5 Can The Series 5 Unit Be Mounted Horizontally? – Normally, vertical mounting is required to maintain the weatherproof integrity of the electrical enclosure cover. However, a horizontal version of the SER 5 is available which is designed specifically for horizontal mounting and is ideal for installation inside a portable spa skirt as an example. Contact your supplier before unpacking your SER 5 unit if you require a horizontal mounting.

17.6 Can The Series 5 Unit Be Installed Below The Vessels Waterline? – The SER 5 unit has a pressure switch that controls the ON/OFF cycle of the UV Lamp(s) when the pump stops or starts. If the SER 5 unit is installed below the vessel waterline, (example, in a vault below the waterline of a pond or pool), a static head of water pressure may be sufficient to cause the pressure switch to remain closed, which means that the UV Lamp(s) will remain ON at all times while the SER 5 unit is plugged into its power source. To check your pressure switch to see if it functions properly, or to allow for below waterline installations, follow the instructions given in Sec. 9.1.

17.7 Can Multiple Units Be Used Together For Larger Installations? – Yes, you can add any number of SER 5 units to a plumbing bypass manifold system to allow for larger outputs and flow rates beyond the capacity of a single Series 5 two lamp unit. Contact your supplier or Trident UV to obtain a drawing showing the proper method of plumbing multiple SER 5 units for larger applications. Note: Trident Ultraviolet also manufactures two larger capacity commercial UV systems, the Series 1 and Series 2 UV Systems. Visit the Trident website www.tridentuv.com for information on these larger commercial systems, as they may be better choices for your installation.

17.8 Must I Use A GFCI (Ground Fault Circuit Interrupter) With My UV Unit? – Yes, in some countries it is required. You should check your country's electrical code to determine if this is called for in your country's electrical code. However, if your country's electrical code requires GFCI devices, a GFCI must be used. You can install a GFCI in the electrical receptacle that is used to power your SER 5 unit in some countries, or possibly you can install it in the electrical panel (GFCI breaker) that services the electrical circuit of your SER 5 unit.

18.0 Identifying and Correcting System Problems – The list below will help guide you through any problems you may have at time of initial installation or in the future. For additional assistance, contact your supplier or Trident UV at the address, or by E-mail, fax or phone as shown at the end of this manual.

18.1 The UV Lamp(s) Will Not Come ON – If this occurs upon initial start-up, the problem could be caused by a number of issues.

   a. The pressure switch is open. This is caused by low pressure in your system. Make sure the pump is ON (the UV Lamp(s) will only light when there is 5 PSI (0.35 Bar) water pressure inside your SER 5 unit’s reactor). Verify that the pressure gauge on your filter reads 5 PSI or more. If it does not read at least 5 PSI, reduce the flow exiting the SER 5 unit by partially closing the valve on the discharge piping exiting the SER 5 unit. This will increase the pressure inside the SER 5 reactor. To check the pressure switch operation, turn the SER 5 unit OFF, view the Lamp(s) ON plastic glow band near the top of the unit. The light should be OFF. Then, turn the SER 5 unit back ON and check the Lamp(s) again to confirm that they are ON. They will be visible through the glow band.

   b. The UV Lamp(s) has/have become disconnected from the Lamp connector(s). Disconnect the power servicing the SER 5 unit, open the electrical enclosure cover and confirm the Lamp connector(s) is/are firmly in place on the end of the Lamp(s). At the same time, check all exposed wires for a possible loose connections. Plug the electrical cord back into the electrical outlet ONLY after the electrical enclosure cover has been re-installed on the SER 5 unit.

   c. Verify that the electrical cord is plugged into an energized electrical outlet or properly connected to the power source. Test the electrical outlet. You should confirm the availability of the same power as indicated on the electrical label on your SER 5 unit.
d. Make sure you have not plugged your unit into any power source other than that specified on your unit’s electrical label. If you have done so in error, the ballast(s) has/have been damaged and need(s) to be replaced. Contact your supplier for the correct replacement ballast(s). (Not warranted)

18.2 The UV Lamp(s) Is/Are No Longer ON – If this occurs after the unit has been operating successfully for a period of time.

a. One or more Lamps have burned out. Replace the UV Lamp(s).

b. A ballast has burned out. Contact your supplier or Trident UV for assistance in obtaining a new ballast.

c. Verify that the electrical outlet where the SER 5 unit is plugged into has the proper voltage and the cord is securely plugged into the outlet or connected to the power source.

d. Verify that the GFCI has not tripped. To verify the operating state of the GFCI, trip the GFCI manually and reset it manually. The GFCI should reset. If it does not, it indicates a fault to ground in the electrical circuit or the SER 5 unit itself. Contact your supplier for assistance.

18.3 The UV Lamp(s) Stays ON When The Pump Is OFF – The SER 5 unit is equipped with a safety pressure switch that turns the UV Lamp(s) OFF when the pump is turned OFF. This function guards against having the Lamp(s) lit accidentally when the electrical enclosure cover is removed and the electrical power to the SER 5 unit is still ON. This also serves to ensure that there is water flowing in the SER 5 unit’s reactor chamber to cool the Lamp(s) and extend Lamp life, before the Lamp(s) is/are turned ON.

a. If the SER 5 unit is located below the water level of the pond or pool, there is a static head of water that causes pressure to be found inside the wet chamber. This static head of pressure closes the pressure switch and the Lamp(s) stays lit even when the pump is OFF. In this instance, you need not utilize the pressure switch, as the Lamp(s) will always be operating with the reactor full of water. The pressure switch may be jumpered by first unplugging the SER 5 unit from electrical power, removing the electrical enclosure cover, then moving one of the two pressure switch wires to the brass tab on the pressure switch where the other pressure switch. This then bypasses the pressure switch and the Lamp(s) stay lit whenever power is applied to the SER 5 unit, whether or not water is present or flowing inside the SER 5 reactor. Power can be restored to the SER 5 unit once the electrical cover is reinstalled on the unit. CAUTION: With the pressure switch removed from the electrical circuit, only remove the electrical enclosure AFTER the power has been removed from the SER 5 unit, as the Lamp(s) will remain ON until electrical power is removed from the SER 5 unit.

b. If the SER 5 unit is located above the water level of the pool or pond and the Lamp(s) stay(s) lit when the pump is OFF, replace the pressure switch. (Part # UV70-023040)

18.4 The Water Is Green – Green water is an indication that the UV rays generated by the SER 5 unit are not effective or are not being generated by the UV Lamp(s).

a. Check the Lamp(s) to make sure all Lamps in your system are ON. If all Lamps are not ON, follow the procedures above regarding the UV Lamp not lighting.

b. Run your unit longer. If your unit is operating on a time clock, run the circulation pump longer to allow the SER 5 unit to function fully.

c. Clean the quartz tube(s).

d. Replace the UV Lamp(s) nearing the 13,000 hour useful Lamp life. At 13,000 hours of operation, the UV Lamp(s) are only 80% as effective as when new. This is normal for all Long Life low-pressure type UV Lamps, which are the longest useful life Lamps available for this type of application.

e. If your SER 5 unit is installed on a swimming pool, shock the pool with the sanitizing chemical you normally use and balance the pool water as per your chemical manufacturer’s specifications.
18.5 **The GFCI Has Tripped** – If you have installed a GFCI on your SER 5 application, the GFCI will protect the SER 5 unit and any other equipment on the same electrical circuit from any fault to ground, the same as the electrical breaker protects the total electrical circuit from a short. When the GFCI trips, it is an indication that there is an electrical problem that must be corrected to provide a safe operating environment for your installation. Follow the instructions of the GFCI manufacturer for more information on correcting the issue if the problem is with the GFCI.

a. If you suspect that the problem is with the SER 5 unit, disconnect the SER 5 unit from the electrical receptacle. Reset the GFCI at the breaker panel or at the receptacle. If the GFCI does not reset, replace the GFCI. If the GFCI does reset, first run the circulation pump, and if no GFCI trip is encountered, plug the SER 5 unit into the electrical receptacle and make sure the pump is ON. If the GFCI trips, it is an indication that there is a ground fault inside the SER 5 unit. Follow the instructions previously given for opening the electrical enclosure cover and inspecting the SER 5 unit.

b. If water is present inside the electrical enclosure cover at the top of the SER 5 reactor, it will trip the GFCI. Following instructions given previously to remove the quartz tube(s), inspect for quartz tube cracks or breakage or for a bad quartz tube seal. Re-seal the quartz tube.

c. If the SER 5 unit trips when performing the test noted in Sec. 18.5(a) above, you can check to determine if a UV Lamp is the GFCI trip cause by unplugging the individual Lamp from the Lamp connector, then place the electrical enclosure cover back on the SER 5 unit and power up the circulation pump. If the GFCI does not reset, then the problem is either with the remaining Lamp or with a Ballast. Remove all the Lamp connectors and reset the GFCI after replacing the electrical enclosure. If the GFCI still trips, unplug the ballasts. If the GFCI resets, then plug in the ballast. If the ballast trips the GFCI, then replace that ballast. Refer to Sec. 16 for the proper ballast part number.

d. Reset the GFCI and if it does not trip, attach the electrical plug to a UV Lamp. (one at a time if multiple Lamps are present in your SER 5 unit) If it trips with the lamp lit, it indicates that a UV Lamp is causing the fault to ground. Replace the UV Lamp.

18.6 **The Series 5 Unit Makes Noise When Operating** – This is an indication of the SER 5 unit not being properly attached a firm mounting base of wood or concrete using bolts (not supplied) placed through the mounting holes in the SER 5 unit mounting feet at the unit’s base. Attach the SER 5 unit correctly to a firm base as described in Sec. 6.3 and 6.4

18.7 **Water Is Dripping From The Electrical Enclosure Cover** – Water exiting the unit through the electrical enclosure cover can be attributed to either (a) a bad quartz tube seal, or (b) a broken or cracked quartz tube. Check the quartz tube seal and quartz tube as instructed in Sec. 8.5 through 8.7

19.0 **Specifications** – Due to Trident’s commitment to continual product improvement, all product descriptions or specifications noted herein are subject to change without notice.

20.0 **Limited Warranty** – Trident’s Ultraviolet Systems are covered under a generous Limited Warranty. See page 16 for full SER 5 system limited warranty details.
TRIDENT ULTRAVIOLET CORPORATION
SERIES 5 UV SANITIZING SYSTEM
LIMITED WARRANTY

Trident Ultraviolet Corporation (Trident) warrants to every original Purchaser of Trident’s Series 5 Ultraviolet system, that the product will be free from defects, as defined herein, for a period of eighteen (18) months. If at any time during the Limited Warranty period, any defect, as defined herein, prevents the product from performing correctly in an application for which it was designed, Trident will repair or replace the product (at Trident’s option) as outlined herein:

COVERED PRODUCT LIMITED WARRANTY ITEMS:
This Limited Warranty DOES cover the UV unit, its components, and defects thereof against:
- Manufacturing Defects
- Material Defects
- Plastic Component Degradation
- Lamp Failure (pre rated)

NON-COVERED PRODUCT ITEMS:
This Limited Warranty DOES NOT cover the following UV unit defects or component failure when caused by any of the following:
- Mechanical Abuse
- Glass Component Breakage
- Improper Installation
- Lamp Failure After 18 Months Of Operation
- Acts of War or God
- Improper Operating Voltage
- Freeze Damage
- Operation At Pressures Greater Than 45 PSI (3 Bar)
- Any Failure Not Indicated As “Covered Warranty Item” Herein

Note 1: During the duration of this Limited Warranty, should any failure occur, the unit should be inspected at the site to determine the cause of failure, and if that failure is shown to be a covered item, the Original End User (User) must request a written Return Goods Authorization (RGA) from Trident prior to any product return. Any returned unit is to be accompanied by Trident’s RGA and is to be returned freight prepaid to Trident for Limited Warranty evaluation. The User is responsible for any freight damage associated with such return. Unit failures, or components thereof, found to be covered under this Limited Warranty will be repaired or replaced (at Trident’s option) without cost to the User and will be returned to the User via UPS Surface Freight or other Surface Freight carrier (at Trident’s option), at the User’s expense. Trident shall be the sole judge in determining the cause of failure of any UV unit. Units arriving in broken condition will not be warranted.

The term “Original End User” (User) shall mean the person or company that was in possession of the physical location where the UV unit was originally installed, at the time of first installation, as evidenced by an original invoice from the selling company to the User at the location where the unit is to be returned. A photo copy of said original invoice must accompany the UV unit RGA paperwork. UV units received unaccompanied by the required documentation will not be accepted by Trident for Warranty evaluation and will be returned to the User in the same condition as received, freight collect (COD) if the User fails to provide the required documentation within ten (10) days from date of notification of missing documentation from Trident. Any unit returned to Trident COD or freight collect will be rejected when received from the freight carrier.

Note 2: This Warranty is Limited in that it does not cover any monetary reimbursement for freight charges, for removal and/or installation labor, or any other incurred costs by any other person(s) or firm(s), including (but not limited to) any consequential damage or loss of use that might be claimed. The Limited Warranty period shall commence upon the date of sale to the User, but in all cases no later than one hundred twenty (120) days after the date of manufacture of the UV unit, as shown on the Trident date code located on the product identification label, whichever occurs first. UV units received with factory identification missing, mutilated or altered, or units received containing components not supplied by Trident or modified in any way, will not be warranted under this Limited Warranty and are subject to the laws of the United States of America, state of California. Any legal proceedings to enforce any provision of this Limited Warranty shall be brought in the California State Superior court in Los Angeles County.

OTHER RIGHTS - This Limited Warranty supersedes any and all previous Limited Warranties for this product, gives you specific legal rights, and you may have other rights which vary from state to state.