95.06.06

TERMINATOR(R) ULTRA-VIOLET WATER SYSTEM MODEL TC75

To assist in Controlling Bacteria and Algae Growth

This device will augment bactericidal and algicidal activity of primary disinfectants such as chlorine, bromine, etc. in swimming pools. A minimum of 0.6 PPM of available chlorine or equivalent bromine must be maintained. In the case of regulated pools, Provincial/Municipal regulations must be followed.

COMMERCIAL

READ THE LABEL AND USER'S GUIDE BEFORE OPERATING THIS UNIT

REGISTRATION NO. 24105
PEST CONTROL PRODUCTS ACT

MAX. FLOW RATE = 341 LITRES PER MINUTE

TERMINATOR WATER PRODUCTS INC.
#4, 11 Calkin Drive
PO Box 606
Kentville, NS
Canada
B4N 3X7
Tel: 902-678-1044
Fax: 902-678-0445

((USER'S GUIDE))

TERMINATOR Trademark

BACTERIA

TERMINATOR Pool Disinfecting Incorporated
Swimming Pool Disinfecting Unit
Model Number: T55

DATE ISSUED: January 1994

IMPORTANT REMINDERS FOR OPTIMUM OPERATION

Reminder #1: Ensure the Terminator(R) System is connected in combination with the pump and that if the pump is shut off that the TERMINATOR (R) System is also shut off. This will improve the reliability of the TERMINATOR (R) System.

Reminder #2: Check the flow rate of your pump (see section 4.1.2). The ideal flow rate is 60 gallons per minute. More than this and the water passes the UV lamp too quickly, reducing kill rate. Less than this under utilizes the TERMINATOR (R) System's efficiency as pool water is not recirculated at its optimum.

Reminder #3: If your pool water is dirty or contains many minerals (hard water), be sure to use a precipitator (see section 5.2.6).

Reminder #4: Clean and backwash your filters at least twice weekly.

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1.2. INTRODUCTION

1.2.1. Thank you for choosing the Terminator(R) System for disinfecting your swimming pool. Our product are designed to deliver years of safe and reliable operation. Your Terminator(R) System comes complete with mounting straps and a detailed user's guide. Please write the model number and the serial number of this TERMINATOR (R) System in the blank spaces below and keep these numbers for future reference. These numbers can be found on the CSA identification sticker located on the front panel of the TERMINATOR (R) System.

Model Number: Serial Number:

1.2.2 The results of a laboratory study by NSF International which Terminator Pool Disinfecting Incorporated commissioned, suggests that an ultraviolet intensity of 20,000 u W-sec/cm^2 when used with a residual chlorine concentration of 0.4 mg/L is capable of disinfecting representative swimming pool water containing organic chemicals and bacteria's)P. Aeruginosa, E. Faecium). An official report of the study with complete results is available from NSF International upon request. The TERMINATOR (R) System generates a worst-case ultra-violet intensity level of 20,000 u W-sec/cm^2.

1.2.3 Oxidants, such as chlorine, are required to remove organic compounds which accumulate in your swimming pool, however, the levels which are normally required are very high (between 2.0 and 4.0 ppm). Both the increased quantities of bacteria's associated with large bather loads and algae growth associated with photosynthesis need to be controlled. The TERMINATOR (R) system reduces the bacteria's and algaecide levels to within safe limits while the organic compounds are controlled with a reduced chlorine residual of only 4.0 ppm. This dramatic decrease in chlorine usage (of up to 90%) translates into significant cost savings.

1.2.4 Using 90% less chlorine means: (a) elimination of that annoying chlorine smell; (b) elimination of skin and eye irritations; (c) elimination of dry or damaged hair; and (d) elimination of constant chlorine spraying, to name just a few advantages of the TERMINATOR (R) System!

1.2.5 Any form of chlorine will work to maintain the 0.4 ppm residual. For example: you could add one Trichlor tablet to the floater every 10 days, then check the floater and test the chlorine level in the swimming pool occasionally. We suggest that you check the chlorine level daily, however, more often in hot weather because chlorine is easily dissipated by sunlight, heat and bather load.

1.2.6 The TERMINATOR (R) System has some unique features which differentiate it from other water disinfecting systems:

Reliable: The TERMINATOR (R) System comprises a tough polyvinyl chloride (PVC) material which resists corrosion. Tests have shown that the inside of the PVC chamber is relatively unaffected by UV light after years of usage.

Affordable: The TERMINATOR (R) System costs considerably less than other models not to mention the added savings in chemicals and maintenance.

Simple: The TERMINATOR (R) System connects easily between the filter and the swimming pool. Just install it, plug it in and go!

Safe: The TERMINATOR (R) System does not expose harmful UV rays to the user. All TERMINATOR (R) Systems have received safety approvals from both the Canadian (CSA) and American (NRTL) regulatory agencies. The electrical box which houses the electronics is weather-proof and contains GFCI for safety.

2.0 CAUTION AND SAFETY

2.1 The following cautions are for the safety of the user:

(1) Read all instructions in the User's Guide before operating the Terminator(R) System;

(2) To protect against electrical hazards, do not immerse the electrical cord or the Terminator(R) System in pool water or other liquids;

(3) Close supervision is necessary when any electrical device is used near children;

(4) Remove power from the Terminator(R) System when not in use for extended periods of time and before periodic maintenance and cleaning operations;

(5) Allow the Ultraviolet lamp to cool before handling;

(6) Do not operate the Terminator(R) System if the power cord is damaged. Contact your local Terminator Dealer for examination, repair or adjustment;

(7) Do not use the Terminator(R) System for other than its intended purpose;

(8) Do not puncture the PVC chamber of the Terminator(R) System;

(9) The UV inspection eye is designed to be child-proof and should only be checked for proper operation by an adult. NEVER look directly into the UV lamp when the unit is being operated.

(10) In case of an electrical short, a Ground Fault Circuit Interrupter (GFCI) has been installed and will shut the Terminator(R) System down immediately; protecting bathers from electrical shock.

(11) The TERMINATOR (R) System is both NRTL/C and CSA approved, and designed to protect against any conceivable electrical hazards.

(12) For the UV lamp to work efficiently, pool water must be kept clean. Therefore, it is important to clean your pool filters at least twice weekly.

3.0 DESCRIPTION AND OPERATION

3.1 DESCRIPTION

3.1.2 A New Product; Tested Technology.

3.1.2.1 The UV light disinfecting process has been used for many years in breweries, dairies and hospitals. The TERMINATOR (R) System is the first designed specifically for swimming pools. It has the advantages of simplicity, reliability and low cost.

3.1.3 Not an Ozonator.

3.1.3.1 UV lights are also used in ozone purifiers to create ozone from air, which itself is a great disinfectant. However, low-priced ozonators usually are too small to reliably disinfect large pools without considerable use of chemicals.

3.1.4 Not an Ionizer.

3.1.4.1 Ionization units also reduce the need for chemicals to disinfect swimming pool water, however, they have a

disadvantage in that they are relatively expensive to purchase and maintain compared to the TERMINATOR (R) System. An ion/chemical imbalance in the water has been known to change water colour and cause pool stain. The TERMINATOR (R) System utilizes an ultra-violet light disinfecting process which does not add anything to the pool water, and is also alkaline and pH neutral; hence pool stain is unknown.

3.1.5 Disinfecting by Chlorine.

3.1.5.1 By far, the most common method for treatment of swimming pool water is the use of chlorine (or substitutes such as bromine which are just as effective, but more expensive). Chlorine use can be hazardous when used for pool disinfection. It is considered a pesticide and as such is subject to specific regulations of the U.S. Environmental Protection Agency (EPA).

3.1.5.2 For chlorine to be an effective disinfectant it is important that the pH balance of the water be maintained at a level of between 7.2 and 7.8. At a high pH level, chlorine will not work efficiently and the water tends to become turbid (cloudy) and promote scaling. At a low pH level, chlorine will dissipate easily and water acidity will tend to corrode plaster and concrete walls, vinyl liners, metal pipes and heaters. Both high and low pH levels can also cause eye irritation.

3.1.5.3 In general, proper pool maintenance is an exhaustive task (see Section 5.0). Poor maintenance usually means cloudy water, eye and/or skin irritation, as well as “wear and tear” on equipment. At worst, a pool may require a complete “shock” treatment with costly chemicals before use can be recommenced. This waiting period can last from 12 hours to several weeks depending on the shock dosage.

3.1.5.4. With chemical treatment, cost can be measured in time and convenience, as well as the costs of chemicals. Improper treatment may cost much more, in both time and money. This is without consideration to concerns regarding the effect of chlorine and chlorine compounds on the environment. Included with these potential health risks is a growing concern within the medical community that chlorine, and in particular, the trihalomethanes that are produced, may be a major cause of many forms of cancers.

3.1.5.5 Environmental and health concerns aside, the fact that

the market has been looking for a cost competitive alternative to chlorine use, which would facilitate convenience in pool maintenance, is demonstrated by the TERMINATOR (R) System.

3.1.6 Disinfecting by Ultra-Violet (UV).

3.1.6.1 UV light is one of the most practical means of destroying harmful micro-organisms and algae in the water. UV disinfection does not require the use of heat or harsh chemicals and does not affect the taste, odour, or the pH balance of water. Moreover, it has no harmful effects to humans as it does not add anything to the water.

3.1.6.2 This method of disinfection offers the consumers peace of mind because there is very little maintenance involved, little possibility that the user could make a mistake and jeopardize the system, and it is an environmentally friendly process.

3.1.6.3 The UV disinfection process is based on the principal that varying wave lengths can produce different levels of intensity that are powerful enough to eliminate various strains of bacteria's, viruses, and algae. The UV light is able to penetrate into the core of bacteria's cells and affect the DNA matter so that they are unable to reproduce. The actual UV dose received by the organism depends on a number of factors, such as: the intensity of the UV lamp, the flow rate of the water through the UV system, the transmission efficiency of the water and quartz tubing, and the geometry of the UV radiation chamber.

3.1.6.4 The TERMINATOR (R) System basically consists of a UV lamp which is enclosed in a quartz tubing and packaged in a PVC chamber with an opening at either end. The TERMINATOR (R) System also contains a ballast and ground fault circuit interrupter, both located in an electrical box, to power the UV lamp. UV light occurs naturally from sunlight but short wave UV light is filtered by the atmosphere. It is this short wave UV light which achieves maximum germicidal effect in a wave-length region of 2537 angstrom units that is produced by the UV lamp.

3.1.6.5 The TERMINATOR (R) system is installed in the water circulation system, after the pump and filter and before the swimming pool. In this way, the water is clear from debris and impurities that could refract the light rays and inhibit the disinfection process. The water is treated as it passes through the length of the chamber at a relatively high flow rate, this allows the entire contents of the swimming pool water to be

disinfected several times a day.

3.1.7 The TERMINATOR (R) system

3.1.7.1 The TERMINATOR (R) System is a water disinfecting device which is designed to kill algae, bacteria's and viruses and leaves your pool water crystal clear. The TERMINATOR (R) system is approximately 36" long, 5" in diameter and weighs about 28 pounds. As the water is pumped through the filter and cleaned, it enters the UV chamber where it is exposed to UV energy from a 55 watt, high-output, lamp. Based on a 60 gallon per minute flow rate, the UV intensity of the TERMINATOR (R) System produces a worst-case dosage of 20,000 $uW\text{-}sec/cm^2$. Furthermore, based on this flow rate, the TERMINATOR (R) System will recirculate the entire contents of an average-sized pool (about 22,000 U.S. gallons), four times per day with the pump constantly engaged.

3.1.7.3 The TERMINATOR (R) System has a built-in, child-proof, inspection eye for quickly checking the UV lamp on a daily basis. In order to inspect the UV lamps operation, the user must lift slightly the compression spring washer seated on the filtered eye. The UV light will escape from the sides of the washer and confirm proper UV lamp operation.

3.2 OPERATION

3.21 Principal of Germicidal Action

3.2.1.1 Ultraviolet (UV) radiation in the 200-300 nanometer (NM) range is extremely effective in killing micro-organisms such as bacteria's, viruses, yeasts and molds. Germicidal lamps are extensively used in air and water purification, sewage treatment, protection of food and beverages, and other disinfection applications.

3.2.2 UV Lamp: Germicidal

3.2.2.1 A low-pressure, mercury-arc germicidal lamp emits about 90% of its radiated energy at 253.7 nm. By coincidence, this is very close to the peak of the Germicidal Effectiveness Curve, 265 nm, the most lethal wavelength to micro-organisms. TERMINATOR (R) Pool Disinfecting Inc. uses a high output, ozone-free type germicidal lamp with a special quartz glass which absorbs all radiation below 240 nm. The rated useful life of the UV lamp in the TERMINATOR (R) System is 8000 hours. The lamp operation should be quickly checked daily using the filtered inspection eye.

3.2.3 Magnetic Ballast

3.2.3.1 The UV lamp is powered by a high output, high power factor, indoor/outdoor, magnetic ballast which provides the necessary drive circuitry and thermal dissipation properties to allow sure starts and reliable performance in the harshest of conditions.

3.2.4 Ground Fault Circuit Interrupter (GFCI)

3.2.4.1 The GFCI provides protection against ground fault leakage and shock for outlets and equipment in susceptible applications. The Pilot light indicates power to the system, the Test button manually cuts power from the system, and the Reset button manually applies power to the system. Two (2) available outlets also allow the user to operate other equipments, up to a maximum load of 12 Amps.

3.2.5 PVC Materials

3.2.5.1 Materials used in the Terminator(R) System are made of a rigid polyvinyl chloride (PVC) material, capable of withstanding pressures of up to 190 PSI (at 73'F). PVC will not rust and is very tolerant to rough handling and high temperature variations.

3.2.6 Connections

3.2.6.1 All electrical connections have been performed using CSA approved connectors and ratcheting equipment which guarantee consistently strong, reliable connections.

3.2.7 Testing

3.2.7.1 Each TERMINATOR (R) System undergoes a high-pot (di-electric strength) test which involves the application of 1500 Vac for 1 second between live parts and exposed non-current-carrying metal parts. Furthermore, an air pressure leak test is performed, which involves applying a minimum of 20 PSI to the entire system and detecting whether leaks are present prior to final packaging.

4.0 INSTALLATION AND REMOVAL

4.1 INSTALLATION

4.1.1 The Terminator(R) System is to be installed using the mounting straps supplied and in a vertical position with the drain plug at the bottom. The mounting surface should be a solid, flat surface, such as wood, concrete or gyprock. Priority should be given to mounting the Terminator(R) System in a sheltered

environment, although this is not mandatory.

4.1.2 The location of the Terminator(R) System should be as close to the pump as possible and, for best results, the flow rate of the water should not exceed 60 U.S. gallons/minute. The flow rate is dependent on the horsepower of the pump and distance between the pool skimmer and the pump, as follows (based on an average pool of approximately 23,000 gallons):

Distance to Pool (in feet)							
	20	25	30	35	40	45	50
H.P. of Pump	Flow Rate of Water (in U.S. Gallons/Minute)						
0.5	65	63	59	54	50	44	38
0.75	86	81	76	70	64	58	51
1.0	100	96	91	86	81	76	71
1.5	128	123	118	111	105	98	91
2.0	134	129	124	119	114	109	103

4.1.3 Should you have a flow rate exceeding 60 U.S. gallons/minute, you should install a reducer valve, available at most hardware stores, between the sand filter and the Terminator(R) System. This will allow you to regulate the flow rate. NOTE: Most Swimming pools have over powered pumps which is totally unnecessary.

4.1.4 Suggestions for above-ground pools

4.1.4.1 To reduce the build-up of algaecide with those pools which have a straight jet on the water return into the swimming pool either at the surface or just below, we recommend that the user install an elbow such that the water return is directed towards the centre line of the water level.

4.1.5 The output of the pump and filter should be connected to the inlet hose barb of the TERMINATOR (R) System. The outlet hose barb of the TERMINATOR (R) System should be connected to the inlet of the swimming pool.

4.1.6 Plug in the Terminator(R) System, check the UV lamp operation, turn on the pump and enjoy chlorine reduced swimming.

4.2 REMOVAL

4.2.1 To remove the Terminator(R) System, turn off the pump, remove power from the Terminator(R) System and open the drain valve until the water stops. Remove the mounting straps and service the TERMINATOR(R) System as required.

5.0 MAINTENANCE OF UNIT AND POOL

5.1 MAINTENANCE OF UNIT

5.1.1 Exterior Cleaning

5.1.1.1 The Terminator(R) System should only be cleaned using a damp sponge and mild soap water. Never use a harsh detergent or try to remove the labels and decals because this would void the warranty.

5.1.2 UV Lamp Replacement

5.1.2.1 The UV lamp should be checked daily using the filtered inspection eye, however, the UV lamp will eventually require replacement. To replace UV lamp follow these steps.

(a) Turn off the pump and remove power from the Terminator(R) System;

(b) Open the drain valve until all of the water is removed;

(c) Remove the TERMINATOR (R) System from the mounting straps;

(d) With the System laying flat loosen the strain relief connectors (grey) on each end;

(e) Unscrew the PVC end connectors and unplug the UV lamp holders;

(f) Remove the metal washers and carefully pull-out the UV lamp;

(g) Replace the UV lamp with parts available from your local TERMINATOR (R) Dealer;

5.1.2.2 To re-assemble the TERMINATOR (R) System just reverse steps (a) to (g) in Section 5.1.2.1 above.

5.1.3 Care of Quartz Tubing

5.1.3.1 The quartz tubing should be cleaned at the end of each season. First follow the steps (a) to (g) in section 5.1.2.1 above and then follow these steps:

(a) Once the UV lamp is removed, carefully remove the rubber seals inside the unit;

(b) Gently remove the quartz tubing and do not bang it against the sides of the chamber;

(c) Soak the quartz tubing in a mild, soapy bath. Rinse and let air dry;

5.1.3.2 To re-assemble the TERMINATOR (R) System just reverse steps (a) to (c) in Section 5.1.3.1 and steps (a) to (g) in Section 5.1.2.1 above.

5.1.4 Routine Inspections

5.1.4.1 It is important to inspect your Terminator(R) System thoroughly each week to ensure that there is no visible damage marks. If so, please bring your Terminator(R) System to your local Terminator(R) Dealer for a detailed inspection. Never try to repair the terminator(r) system yourself because ultraviolet (UV) lamp exposure is very dangerous to your health.

5.2 MAINTENANCE OF POOL

5.2.1 Vacuuming Your Pool

5.2.1.1 Any kind of material will accumulate at the bottom of a pool: leaves, dead skin, hair, sand, dust, etc. These materials harbour dangerous bacteria’s and it is important to clean both pool and filters on a continuing basis; at least twice a week.

5.2.1.2 Organic materials may build up faster in some pools than others. This depends on:
(a) the area in which the pool is situated, and
(b) the bather load (the amount of persons in the pool at any given time).

5.2.1.3 It is up to the owner to ensure the bottom of the pool is always kept clean and free of debris. Vacuuming could be necessary up to once a day, however, in most cases, twice a week should be sufficient. Moreover, there are vacuums available which continuously clean the floor and walls of the swimming pool.

5.2.1.4 Back washing after vacuuming is also highly recommended because it cleans out the sand filter from whatever has been pulled in by the vacuuming process. This very

important step is often forgotten.

5.2.2 Filters

5.2.2.1 At the end of a season it is certain you are left with dead organisms in the filter. This is a bacterial breeding ground after the pool is drained. To start off a new season, it is highly recommended that the sand be replaced. In warmer climates with 6, 9, or 12 month seasons, sand should be changed between 2 to 4 times a season as growth of bacteria’s and algae are faster.

5.2.3 Shocking Your Pool

5.2.3.1 It is recommended to “shock treat” your swimming pool at the start-up of each pool season. This will disinfect all piping, inlets, outlets, filters etc. and stabilize city or well water. To maintain a chlorine residual of 0.4 ppm we suggest that you “shock treat” your swimming pool with the alternative oxidizer potassium peroxymonosulfate at the rate of 1 pound per 10,000 gallons of water. If the number of swimmers (bather load) is consistently high and/or the weather is consistently hot, the water may tend to become cloudy. It is recommended that you "shock treat" your swimming pool if this occurs.

5.2.4 pH

5.2.4.1 pH control is critical to maintaining water quality. Water that is too acidic is corrosive, irritation and staining. Water that is too alkaline is staining, irritating, cloudy and may cause scale to form. Ideally, your swimming pool's pH should be 7.5. to 7.8 is acceptable. To make the water more alkaline, add a pH increaser. To make the water more acidic, add a pH decreaser. We suggest that you check your pH level on a daily basis, however unlike chlorine, your Terminator(R) System will work fine in both high and low pH water; as long as the water is clean.

5.2.5 Alkalinity

5.2.5.1 If total alkalinity is too high, water becomes cloudy and scale may form. If total alkalinity is too low, water is corrosive. In both cases, pH is difficult to control. To lower total alkalinity, add acid. To raise total alkalinity, add sodium bicarbonate. If you have a plaster pool, keep the total alkalinity between 80 PPM and 120 PPM. If you have a vinyl, painted or Fibreglass pool, keep the total alkalinity between 100 PPM and 140 PPM. This range will let your pool adjust itself to things like acid rain without

experiencing wild pH swings. We suggest that you check the alkalinity on a weekly basis.

5.2.6 Turbidity

5.2.6.1 Cloudy conditions of water. This is generally due to high alkalinity, pH or water hardness. A small amount of chemical additive (such as pH or water softener) will usually balance this off for a season. To avoid scaling of the UV lamps due to high water hardness, it is suggested that the pool water be treated with a Chitosan-based precipitator which is a natural polymer and sells under various commercial trade names, such as Sequestrant.

6.0 WARRANTY

6.1 PRODUCT WARRANTY

6.1.1 We appreciate your purchase your purchase of a TERMINATOR (R) system. We take pride in the quality of our products and have manufactured your Terminator(R) System to exacting quality standards.

6.1.2 Terminator Products are warranted against manufacturing defects in material and workmanship in normal use, for a period of one year for the cost of labour, two years for the cost of parts (excluding UV lamp and ballast), and five years for the PVC materials, from the date of purchase by the original retail purchaser. This warranty is conditional upon the TERMINATOR (R) System being installed and operated as directed in this user’s guide. This warranty becomes void in the event of rental use. Transportation to and from our authorized TERMINATOR (R) Dealer is the responsibility of the purchaser.

6.1.3 Terminator (R) Pool Disinfecting Inc.'s obligation under this warranty shall be limited to the repair or, at our option, the exchange of any Terminator (R) System which shows evidence of a manufacturing defect within the warranty period. Replacement parts furnished in connection with this warranty shall be warranted for a period equal to the unexpired portion of the original warranty.

6.2 WARRANTY EXCLUSIONS

6.2.1 This warranty shall not apply to appearance or accessory items including, but not limited to, damages due to handling, transportation, unpacking, set-up, installation, repair or replacement of parts supplied by other than an authorized Terminator(R) dealer, improper maintenance, incorrect line voltage,

modifications or repair by the purchaser, abuse, misuse, neglect, fire, flood, or other Acts of God.

6.2.2 This TERMINATOR (R) System is only warranted to the original retail purchaser. This warranty becomes void in the event serial numbers are altered, defaced or removed.

6.2.3 Terminator (R) Pool Disinfecting Inc. reserves the right to make changes in design or to make additions or improvements to this product without incurring any obligation to install the same on products previously manufactured or sold. The foregoing is in lieu of all other warranties expressed or implied. In no event shall Terminator (R) Pool Disinfecting Inc. be liable for special or consequential damage arising from the use of this product, or for any delay in the performance of this warranty due to causes beyond the company's control.

6.3 PURCHASER OBLIGATIONS

6.3.1 The Dealer’s original dated bill-of-sale should be retained as proof of purchase date and must be presented together with this warranty page to the authorized TERMINATOR (R) Dealer when this product is to be serviced under the provisions of this warranty.

6.4 HOW TO OBTAIN WARRANTY SERVICE

6.4.1 Should this product require servicing, you may obtain specific information on how to obtain service by contacting the TERMINATOR (R) Dealer from whom this product was purchased or you may contact TERMINATOR (R) Pool Disinfecting Inc. Directly at:

TERMINATOR (R) Pool Disinfecting Inc.
P.O. Box 848
Kentville, Nova Scotia
B4N 4H8
Tel: (902) 582-1223
Fax: (902) 582-1398

7.0. REPLACEMENT PARTS AND PRODUCT SPECIFICATIONS

7.1 The following specifications comprise the Terminator(R) System, replacement should only be performed by an authorized TERMINATOR (R) Dealer. Please use the following TERMINATOR (R) part numbers for ordering:

Part #	Description	Part #	Description
T55-001	Enclosure, White, Metal	T55-015	PVC Piping
T55-002	Ground Fault Circuit Interrupter	T55-016	PVC End Reducer
T55-003	GFCI Cover	T55-017	PVC Mounting Block
T55-004	Hex Head Nut, #8	T55-018	PVC Hose Barb
T55-005	Lock Washer, #8	T55-019	Eye Plexi-glass Rod
T55-006	Power Cord	T55-020	Eye Washer, Small
T55-007	Strain Relief	T55-021	Eye Washer, Large
T55-008	Butt Splice Crimp	T55-022	Eye Lag Screw
T55-009	Fork Terminal	T55-023	Eye Spring
T55-010	Ultra-Violet (UV) Lamp, 55 Watt	T55-024	PVC Drain Plug
T55-011	UV Lamp Holder	T55-025	Large Flat Washer
T55-012	Interconnect Cable	T55-026	PVC End Connector
T55-013	Quartz Tubing	T55-027	Mounting Strap
T55-014	Rubber Seal	T55-028	Ballast

7.2 PRODUCT SPECIFICATIONS

7.2.1 The following specifications are applicable for your TERMINATOR (R) System, Model #T55:

DESCRIPTION	SPECIFICATION
Maximum Flow Rate	60 U.S. gallons/minute
Ultra-violet Dosage	20,000 u W-sec/cm^2 maximum

Electrical Requirements	120 V @ 60Hz, 13A Maximum
Number of Germicidal Lamps	1 @ 55 Watts, High Output
Number of Ballasts	1 @ 100 Watts
Water Temperature Range	36' F Minimum, 104'F Maximum
Operating Temperature Range	36' F Minimum, 104'F Maximum
Water Pressure	60 PSI Maximum
Materials, UV Chamber	PVC Schedule 40
Rated UV Lamp Life	8000 Hours, typical
Overall Weight	28 Pounds
Inlet and Outlet Hose Barbs	1.5" Inner Diameter
Dimensions of UV Chamber	Approx. 36" Long x 5" Diameter
Power Cable Length	6 Feet Minimum
Controls (on GFCI)	Reset = On; Test = Off; Pilot = Pwr. Indicator

8.0 TROUBLESHOOTING AND SERVICE DIRECTORY

8.1 TROUBLESHOOTING

8.1.1 If, after you have installed your new TERMINATOR (R) System in accordance with Section 4.0 of this user's guide, and the UV lamp is not lit, or other problems exist, please return your TERMINATOR (R) System, with your warranty page and bill-of-sale, to your local TERMINATOR (R) Dealer or contact us directly. Refer to Section 8.2 of this user's guide.

8.1.2 Our TERMINATOR (R) products are fully tested and inspected and are designed to work first time every time.

8.2 SERVICE DIRECTORY

8.2.1 For qualified service please contact either your authorized Terminator(R) Dealer or Head Office located at:

Terminator Pool Disinfecting Incorporated
1353 Saxon Street
Hillaton, Nova Scotia
B0P 1T0

Telephone: (902) 582-1223

Facsimile: (902) 582-1398

ATTENTION: CUSTOMER SERVICE DEPARTMENT

If you would like to send mail, please address it to:

Terminator Pool Disinfecting Incorporated
P.O. Box 848
Kentville, Nova Scotia
B4N 4H8

Attention: Customer Service Department

9.0 GLOSSARY OF TERMS AND TABLE OF CONVERSIONS

9.1 GLOSSARY OF TERMS

9.1.1 ALGAE: Microscopic, plant-like organisms that contain chlorophyll. Algae are nourished by sunlight (carrying out photosynthesis). They are introduced by rain or wind and grow in colonies, producing nuisance masses. These organisms include green, blue-green or black, brown, and yellow-green (mustard) algae. Pink/red coloured algae-like organisms exist but are bacteria's and not algae. There are over 21,000 known species of algae.

9.1.2 ALGAECIDE: A natural or synthetic substance used for killing, destroying or controlling algae.

9.1.3 ALKALINITY: The amount of bicarbonate, carbonate or hydroxide compounds present in water solution.

9.1.4 BACTERIA'S: Single-celled microorganisms of various forms, some of which can cause infections or disease.

9.1.5 BATHER LOAD The number of persons in the pool/spa area at any given moment, or during any stated period of time.

9.1.6 CHLORAMINE: A compound formed when chlorine combines with nitrogen or ammonia, which causes eye and skin irritation and has a strong, objectionable odour.

9.1.7 CHLORINE: A chemical element that exists as a gas in its elemental form or as a part of a chemical compound which is an oxidant and a biocidal agent used in pool or spa water disinfection.

9.1.8 CIRCULATION SYSTEM: An arrangement of mechanical equipment or components, connected by piping to a pool or spa in a closed circuit. The function of a circulation system is to direct water from the pool or spa, causing it to flow through the various system components for purposes of clarifying, heating, purifying and returning the water back to the original body of water.

9.1.9 DISINFECTANT An agent that frees from infection.

9.1.10 FILTRATION RATE: The rate of filtration of water flowing through a filter during the filter cycle expressed in U.S. gallons per minute per square foot of effective filter area.

9.1.11 HYDROCHLORIC ACID: Also called Muriatic Acid when diluted. A very strong acid used in pools or spas for pH control and for specific cleaning needs.

9.1.12 NON-TOXIC: Meaning that a given substance has no adverse physiological effect on human beings or other living organisms.

9.1.13 OZONE: A gaseous molecule composed of three (3) atoms of oxygen that is generated on site and used for oxidation of water contaminates.

9.1.14 pH: A value expressing the relative acidity or basicity of a substance, such as water, as indicated by the hydrogen ion concentration. pH is expressed as a number on the scale of 0 to 14,0 being most acidic, 1 to 7 being acidic, 7 being neutral, 7 to 14 being basic and 14 being basic.

9.1.15 ppm: An abbreviation for parts per million. The unit of measurement used in chemical testing which indicates the parts by weight in relation to one million parts by weight of water. It is essentially identical to the term milligrams per litre (mg/L).

9.1.16 PUMP: A mechanical device, usually powered by an electric motor, which causes hydraulic flow and pressure for the purpose of filtration, heating and circulation of pool and spa water.

9.1.17 RATE OF

	FLOW:	The quantity of water flowing past a designated point within a specified time, such as the number of gallons flowing in one minute (gpm).
9.1.18	SANITIZED	To make sanitary by cleaning or by sterilization.
9.1.19	SCALE:	The precipitate that forms on surfaces in contact with water when the calcium hardness, pH or total alkalinity levels are too high.
9.1.20	SHOCK TREATMENT:	The practice of adding significant amounts of an oxidizing chemical to water to destroy ammonia and nitrogenous and organic contaminates in water.
9.1.21	TURBIDITY:	Cloudy condition of water du to the presence of extremely fine particulate materials in suspension that interfere with the passage of light.
9.1.22	TURNOVER RATE:	The period of time (usually in hours) required to circulate a volume of water equal to the pool or spa capacity.

9.2 TABLE OF CONVERSIONS

9.21 1 Imperial Gallon = 4.54 Litres = 160 Ounces

1 U.S. Gallon = 133 Imperial Ounces = 0.83 Imperial Gallons

1 Cubic Foot of Water = 62.5 Pounds

1 Horsepower hour = 0.7457 Kilo-watt Hours

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