

# INSTALLATION AND MAINTENANCE MANUAL

## Ozone Water Treatment System

### Model TWTS-101

#### IMPORTANT SAFETY INSTRUCTIONS

#### READ AND FOLLOW ALL INSTRUCTIONS

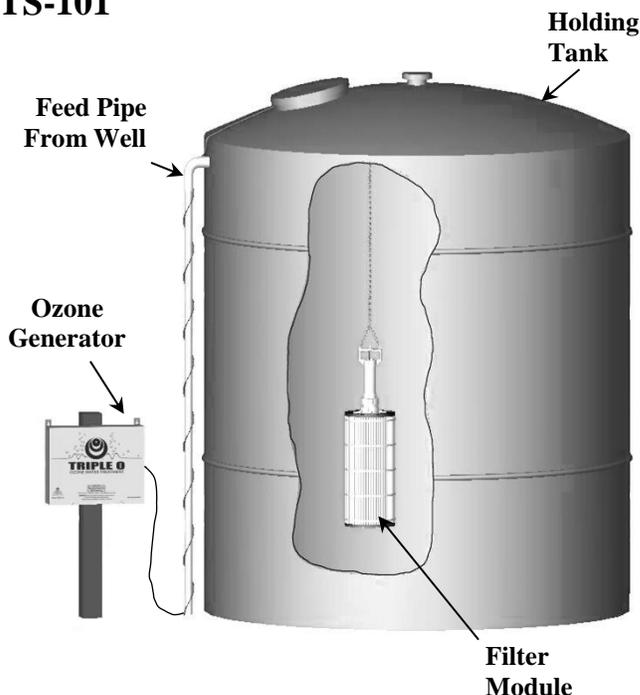
When installing this electrical equipment, basic safety precautions should be followed, including:

1. **Do not breathe the ozone gas** that exits the ozone generator for an extended period of time.
2. **Do not breathe the accumulated ozone gas** within the water holding tank for an extended period of time. Before working inside tank, turn off ozone generator and fully ventilate tank (about 1 hour). Note: Ozone is heavier than air and will revert back to oxygen in about 1 hour.
3. For 120 Volt cord connected ozone generators:
  - A. Connect the ozone generator to a properly grounded, grounding type receptacle only.
  - B. Do not bury power cord nor allow cord to be in contact with standing water.
  - C. **WARNING** - To reduce the risk of electrical shock, replace power supply cord immediately if it should become damaged.
4. **WARNING** - To reduce the risk of electrical shock, disconnect power supply before servicing ozone generator.
5. The ozone generator must be mounted vertically.
6. The ozone generator creates heat and must be installed with adequate ventilation.
7. Install this unit in compliance with all national and local codes.

#### SAVE THESE INSTRUCTION

#### INTRODUCTION

CONGRATULATIONS!! Your new ozone water treatment system is the latest in clean water technology. The system will continuously ozonate (oxidize), circulate and filter the entire contents of your holding tank, providing you with fresh, clean water for your entire home. The system is designed to remove iron, manganese, hydrogen sulfide (rotten egg odor), and raise a slightly acid Ph to the non-acidic (neutral) range. It will also remove color, bad taste, odor and make your water feel softer. In addition, this ozone system will increase the dissolved oxygen content of your water.



#### OZONE: WHAT IS IT?

Ozone ( $O_3$ ), one of nature's basic elements, is a very powerful disinfecting and deodorizing gas consisting of oxygen ( $O_2$ ) with an extra oxygen atom attached, therefore becoming ozone ( $O_3$ ). When oxygen in the air is exposed to high intensity ultraviolet rays, ozone is created (such as our sun creating the ozone layer surrounding the earth). When ozone does its job, it oxidizes by giving up and attaching its extra oxygen atom to anything that can be oxidized. Once this process occurs, the ozone molecule becomes pure oxygen. In fact, ozone reverts to oxygen quite naturally and rapidly: The half-life of ozone in air is on the order of hours and on the order of minutes when dissolved in water. Additionally, ozone dissolves over 12 times more readily into water than pure oxygen, then reverts to oxygen, providing hundreds of times more dissolved oxygen in your water than could otherwise be possible.

#### HOW THE OZONE SYSTEM WORKS

The system consists of two major components: Ozone generator and filter module. The ozone generator either plugs into a standard receptacle (120v-60hz model) or is hardwired (230v-60hz model). It has an air pump which provides compressed air to an ultraviolet ozone producing lamp, thus producing compressed ozone. The filter module hangs below the water surface inside your

holding tank includes a 100 or 50 square foot filter, a lift pipe and a diffuser (bubble maker). The ozone gas is fed to the filter module diffuser, which makes millions of tiny ozone saturated bubbles that rise up the filter module lift pipe, mixing the ozone with the tank water and drawing the water through the filter at the rate of about 10 gallons per minute. As the ozone saturated bubbles exit the lift pipe, the bubbles rise up through your holding tank water, continuing the ozone/water adsorption process and circulating the contents of your holding tank.

## HOLDING TANK SIZE

One TWTS-101 system with the 100 sq. ft. filter is designed to purify the water in a tank of up to 10,000 gallons with normal contaminant levels. Larger tanks or extremely high contaminant loads may require multiple systems. For tanks shorter than 6 feet tall and lower contaminant levels, it is recommended to use the 50 sq. ft. filter module to allow for proper ozonation and circulation of the tank water.

As a general rule, the maximum water usage should not exceed 25% of the tank capacity in a 24 hour period. A typical family of 4 uses about 350 gallons per day and should therefore have a minimum 1500 gallon tank.

3. Connect the Norprene hose (dull black rubber like hose) to the barb located on top of the filter module handle. Using the black wire ties provided, gently tie the Norprene hose at one foot intervals to the stainless steel chain. Do not over tighten the wire ties as this will crush the hose, reducing ozone flow and put undue backpressure on the air pump.

## PREPARE THE TANK FOR INSTALLATION OF THE FILTER MODULE:

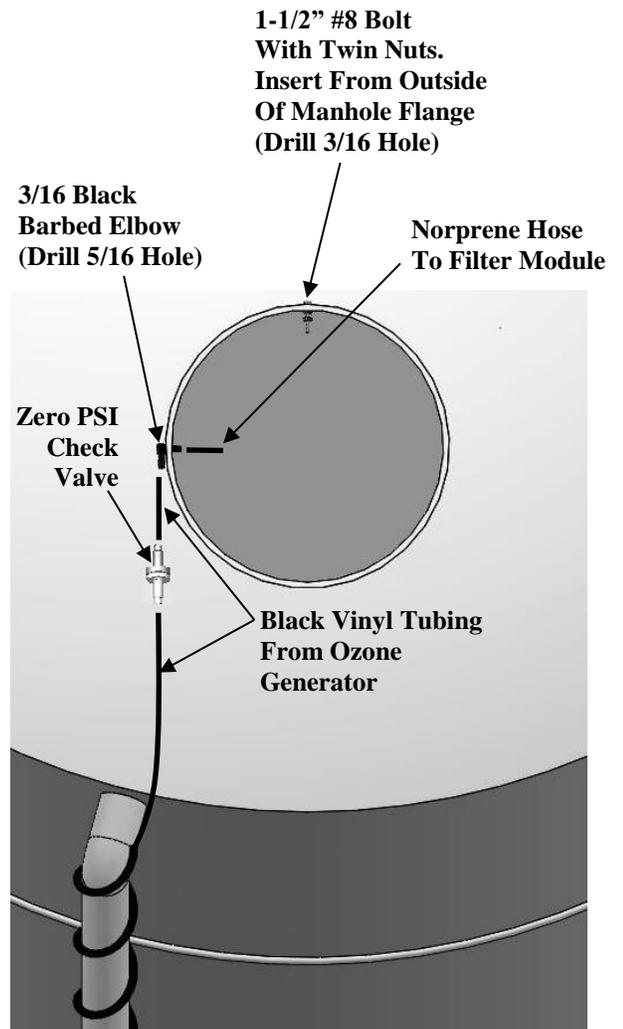
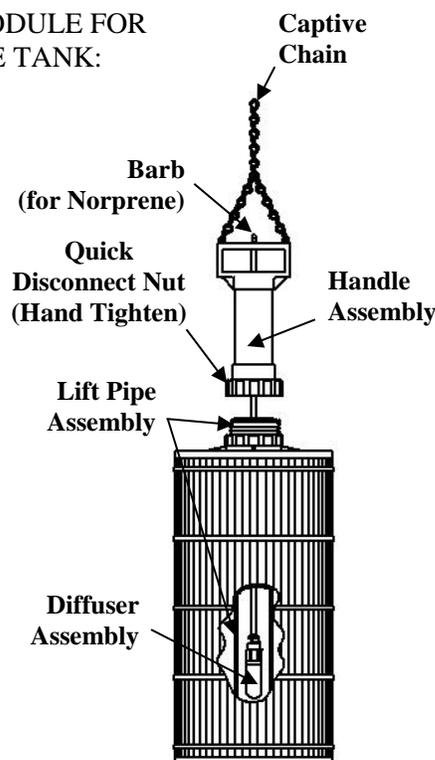
1. Drill a 3/16 inch hole through the manhole flange nearest the center of the tank.
2. Insert the provided #8 bolt through the manhole flange from the outside of the manhole and secure in place with one of the #8 nuts provided. **Do not discard second #8 nut**, this will be used later.
3. On the side of the manhole flange, at the 9 o'clock or 3 o'clock position (12 o'clock is the side of the manhole closest to the center of the tank as viewed from the top), drill a 5/16 inch hole through the manhole flange.

## INSTALLATION

### FILTER MODULE INSTALLATION

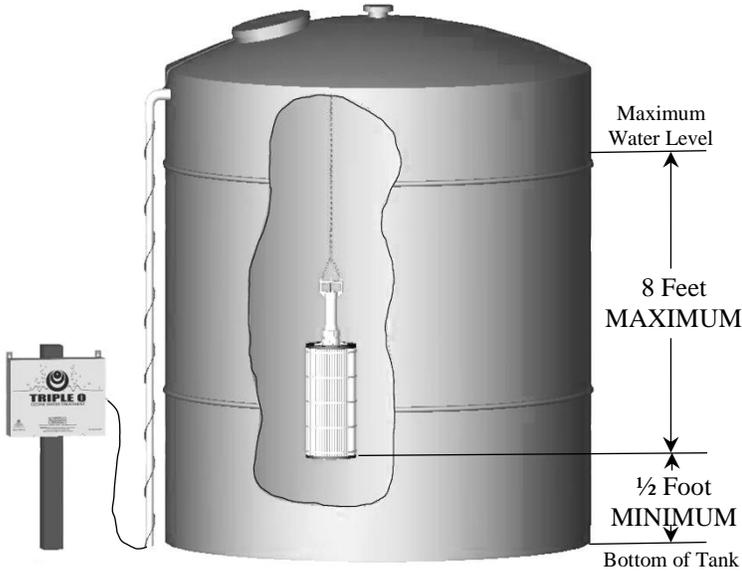
PREPARE THE FILTER MODULE FOR INSTALLATION INTO THE TANK:

1. Attach the Handle Assembly with Diffuser to the filter top by feeding the diffuser and hose down into the filter module lift pipe and hand tightening the quick disconnect nut.
2. Attach the stainless steel chain to the captive chain on the Handle by crimping the end link onto the top link of the handle chain.



INSTALL THE FILTER MODULE IN THE TANK:

**IMPORTANT: THE BOTTOM OF THE FILTER MODULE SHOULD BE AT A MAXIMUM DEPTH OF 8 FEET BELOW THE HIGHEST TANK WATER LEVEL, BUT NOT CLOSER THAN 1/2 FOOT FROM THE BOTTOM OF THE TANK TO PREVENT STIRRING UP SEDIMENT.**



1. Slowly lower the filter module down into the water. For deep tanks (water depths of 9 feet or more), position the bottom of the filter module 8 feet below the highest water level. For shallow tanks (water depth less than about 8-1/2 feet), lower the filter module down into the tank until it touches bottom, pull back up 1/2 foot.
2. Remove excess chain and attach chain to the #8 bolt with second #8 nut.

Insert the 90 degree hose barb fitting through the 5/16 inch hole in the side of the manhole flange from the outside of the manhole, and attach the 3/16 inch black Norprene hose (inside tank) to the barb, cutting off excess Norprene hose as appropriate.

### 0 PSI CHECK VALVE & TUBING INSTALLATION

Note: If you have purchased the optional mixer, skip this step and proceed to the mixer Installation.

1. Using the glossy black vinyl tubing (50 ft. coil supplied), route the tubing from the 3/16 inch barb fitting in the manhole to the gray side of the 0 psi (white/gray) check valve situated so that the check valve is outside the tank but above the highest water level in the tank.

2. Continue tubing from white side of the 0 psi check valve down side of tank, wrapping the vinyl tubing around the water feed pipe, for a neat installation. NOTE: If it is cold outside, heating the vinyl hose slightly with a match will make it easier to slip onto the barb fittings.
3. Continue vinyl tubing from water feed pipe to the generator location. Ensure tubing will not kink or get crushed. If needed, the tubing can be run in conduit or PVC pipe using sweep 90 turns to run under ground.

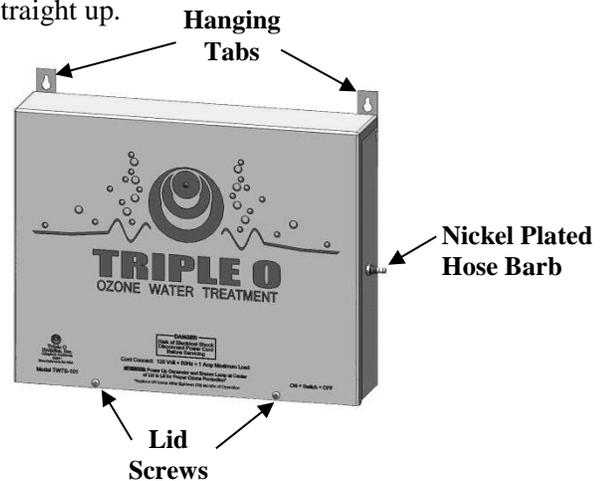
NOTE: As an added precaution to possible water backup, a double Hartford Loop of tubing may be created at the top of the tank after the 0 psi check valve by looping the tubing twice in an 18" circle and attaching that loop to the side of the tank so the middle of the loop is at the highest water level inside the tank. This creates secondary check valve.

### OZONE GENERATOR INSTALLATION

The ozone generator can be mounted up to 150 feet from the holding tank; 50 feet of black vinyl hose is supplied which is more than adequate for most installations. Consult factory if additional hose and connectors are needed.

The generator construction is rain tight and can be mounted indoors or outdoors. Good ventilation is required since the generator creates heat.

1. Remove generator can lid by removing the two screws at the bottom of the lid and lifting the lid straight up.



2. Mount the can to a solid vertical surface (wall, etc.) with the 3 screws supplied. Two screws are used to mount the can hanging tabs, and one screw is used to attach the can back to the

- mounting surface through the 1/4 inch hole provided in the back of the can.
3. Write installation date on sticker located on the inside of the can lid.
  4. Route the 3/16 black vinyl hose from the water feed pipe and connect it to the generator nickel plated hose barb on the right side of the generator. Be sure to route the hose so it will not become accidentally damaged.
  5. If your generator is cord connected, plug the ozone generator into a properly grounded, grounding type receptacle. Use a waterproof receptacle/plug cover if installed outdoors. If your generator is the 230v hard wired version, wire according to local and national codes.

## STARTING UP YOUR SYSTEM

Recheck your installation to verify that it is correct. Turn ON the ozone generator. You should hear a faint hum - this is the air pump. A faint blue-green glow should be visible through the lens near the top center of the generator can - this indicates the UV lamp is ON and the system is producing ozone. NOTE: The UV lamp may not fire up immediately if the ambient temperature is below 40 degrees F, and may never fire in extreme cold. However, once lit, the lamp will stay lit in extreme cold. Proceed to the tank manhole - you should see a full pattern (about 1 foot in diameter at the water surface) of bubbles rising up from the filter module. This may take a few seconds to develop since the entire ozone hose system must be pressurized.

## HELPFUL INFORMATION

Once your holding tank has stabilized, you will start enjoying good water. If you have been living with poor water in your home for some time, it is very likely that your plumbing has accumulated deposits of the contaminants that are now being removed from your water supply. These deposits will be removed from your plumbing over time.

**Iron:** As your pipes are cleaned out, you may notice “spurts” of iron colored water when your taps are first opened. This is especially true for taps that are not used regularly. Cleaning out your toilet tanks will remove any accumulated iron and help eliminate continued toilet staining.

**Odor/Taste:** These problems are similar to iron in that you may notice “spurts” of bad taste or odor when a water tap is first opened.

**Calcium/Hardness:** Your new Triple O system, through the use of ozone/polarization technology, will make your water appear softer. Your water will suds and act like soft water without any sodium being added. You may still notice some hard water deposits on your fixtures, but these deposits can be more readily removed because they will not bond strongly. For extreme hard water, you may wish to treat your water with an available water softener.

## LIMITED WARRANTY

TRIPLE O SYSTEMS, INC. warrants to the original owner it's water treatment system Model No. TWTW-101 to be free from defects in material and workmanship for a period of 1 year from the date of purchase, so long as the water treatment system has been installed in accordance with these installation instructions.

To get a defective part replaced, call your dealer and explain the problem:

1. Have the dealer service the unit (he will charge a nominal labor charge which you are responsible to pay).
2. Take the defective part to your dealer for exchange.
3. You may obtain your defective part replacement from Triple O Systems (TOS) by shipping the part to TOS, prepaid, along with complete information (copy of original sales receipt, description of the problem, name, address, daytime phone number and evening phone number). TOS will repair or replace the failed part and ship via UPS prepaid within 5 days after receipt of the defective part.

As the owner's exclusive remedy, any defective part or assembly will be repaired or replaced at the sole discretion of TOS. Field service labor is specifically excluded from the terms of this warranty.

*Except as set forth above, there shall be no other guarantees, warranty or liability either expressed, implied, oral or statutory and in no event shall Triple O Systems, Inc., its agents or employees be liable for injury or damage to any person or property whatsoever, or for any special, indirect, contingent, secondary or consequential damage of any nature however so arising. Triple O Systems, Inc. does not warrant the Triple O Water Treatment System to be merchantable or fit for a particular use.*

Your specific legal rights under this limited warranty may vary from state to state.