



OZONE KIT **INSTALLATION INSTRUCTIONS** **&** **OPERATION GUIDE**

READ AND FOLLOW ALL INSTRUCTIONS

DANGER

High voltage. Risk of electric shock. Do not attempt to disassemble unit. There are no user serviceable parts. To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

WARNINGS:



Nitric acid “crystals” accumulate in the air lines of the ozonator and injector. Nitric acid will cause chemical burns if direct skin contact is made, so always wear protective gloves, glasses, and clothing when working on the ozonator and/or injector air lines. To prevent inhaling or ingesting the nitric acid **DO NOT** blow in any of the adapters, fittings, or tubing of the ozonator or injector air lines.



To reduce the risk of electrical shock, replace the entire unit. Install in accordance with the installation instructions provided. Install only inside the spa equipment compartment as directed. Do not operate with cover off, ozone tubing disconnected, or with bonding wire disconnected. Do not breathe the concentrated ozone output generated by this unit since exposure can be hazardous or fatal. Replace damaged tubing immediately.

Disconnect power to spa prior to any servicing. Improper installation of this ozone generator that leads to a component failure will void the component warranty. If the power cord of this unit is damaged, the entire ozone generator needs to be replaced and can be obtained from an Authorized Service Dealer or Watkins Manufacturing (Watkins).

SAVE THESE INSTRUCTIONS

HOW THE SYSTEM WORKS:

Ozone is produced from the "free" air surrounding the Ozone Generator by exposing the oxygen (in the air) to a special encapsulated corona discharge unit located inside the cabinet. Air movement through the corona discharge chamber (CD chamber) is produced via a specially designed ozone injector installed inline with the heater/filter. As water passes through the injector, a vacuum is created within the ozone supply hose. This vacuum draws air to inside the

Ozone Generator where the ozone is produced. Next, the ozone travels down the supply tubing, through the injector, and into the spa water. Ozone helps reduce harmful microorganisms, neutralize viruses, and oxidize water impurities such as detergents, lotions, perfumes, and body oils, thereby keeping your spa water clear, fresh and inviting.

OPERATION NOTE:

Condensation of vapor may occur within the supply tubing after severe temperature changes or in high humidity situations. If this condition occurs, ozone flow will be reduced (as indicated by fewer bubbles emerging from the ozone jet). The condensation will eventually evaporate as temperatures stabilize and ozone flow will resume. Maintain recommended Free Available Chlorine residual to ensure water sanitation during these periods.

PRIOR TO INSTALLATION:

Before your system is installed, a water analysis should be completed to optimize performance and make certain the system will operate within ideal conditions. For best results, follow these guidelines:

pH	7.2 - 7.8
Total Alkalinity	80 - 120 ppm
Calcium hardness	100 - 250 ppm

If spa water contains minerals, a sequestering agent should be used prior to start-up. Refer to Water Quality and Maintenance section in your spa Owner's Manual. *NOTE: Failure to remove minerals may cause staining of the spa surface. Because of the oxidizing effects of ozone on the minerals, stains can generally be removed with spa surface cleaning agents or baking soda.*

FILTRATION & SKIMMING ACTION:

As an oxidizing agent, ozone has a 50% higher oxidizing potential than chlorine. For this reason, ozone will oxidize more organic wastes and contamination than conventional spa chemicals. However, these oxidized materials do not disappear into thin air! They are reduced to their lowest elements and generally float to the water surface where they are filtered through the filter skimmer and captured by the filter. Therefore, you will notice that your spa filter will get dirty faster, but will be easier to clean. This is because of the higher level of filtration and oxidizing of body oils that accumulate on the surface of the filter cartridge. (Clean the filters at least once a month by spraying with a garden hose, and every other month with a filter degreaser, as well as any time you are refilling the spa for optimum results.

OZONE & CHLORINE TO ELIMINATE CHLORAMINES:

Free Available Chlorine (FAC) is an excellent disinfectant. However, Combined Chlorine (CC), or chloramines, are poor sanitizers and contribute to odors, burning eyes and skin irritations caused by spa water. The use of ozone along with chlorine (Watkins Manufacturing only recommends sodium dichloro-s-triazinetriene, i.e. Dichlor) prevents chloramines from forming, as ozone reacts with organics which are responsible for chloramine development.

OZONE & CHLORINE COMPLEMENT ONE ANOTHER:

Ozone and chlorine are an ideal combination in residential spas because they complement one another. Ozone is a very effective oxidizing agent that has a very short life span and does not maintain a residual sanitizing effect. Chlorine, however, is not as effective as an oxidizing agent as ozone but has a much longer lifespan and will maintain a residual sanitizing effect. For these reasons, ozone and chlorine work synergistically for excellent results, using ozone for its "oxidizing power" and chlorine for a "back up" chemical residual. For best results with ozone in residential spas, test water and administer chemicals on a daily basis.

SHOCK TREATMENTS:

After heavy usage, chemical shock treatments are recommended to immediately correct spa water conditions. Use Chlorine (Dichlor) or potassium monopersulfate (MPS).

CHLORINE TEST KITS:

Watkins recommends the use of a standard DPD chlorine test kit or test strips for testing your spa water. Maintaining a residual of the recommended residual of Free Available Chlorine, combined with ozone, should keep your spa water crystal-clear and sanitized. Contact your local Authorized Spa Dealer to purchase a DPD test kit or test strips.

SAFETY:

Our Ozone System has been designed and tested for safety, in both application and use. When properly installed in a Watkins spa model, the ozone system exhibits many important safety features, including the following:

- The Ozone Generator is protected electrically by the GFCI
- The Ozone performs its oxidizing duty and dissociates before any affect of off-gassing

WARNING: Unit should be installed and serviced by qualified personnel only. Before servicing, disconnect electrical power to spa. Do not operate unit with ozone supply hose unattached.

Installation Instructions on next page...

INSTALLATION INSTRUCTIONS

TOOLS REQUIRED:

Cordless drill w/Phillips bit	Knife or hose cutter
2 Hose clamping pliers	Flathead screwdriver

OZONE KIT COMPONENTS:

The following components are provided to be used in your ozone system:

Ozone generator w/Check Valve (1)	Tie wraps (2)
Ozone injector(1)	Tygon/Kynar Tubing (5.16')
Hose clamps (2)	Installation instructions

Read all instructions before beginning actual installation. Contact your Authorized Spa Dealer or Watkins for additional information.

OZONE INJECTOR INSTALLATION

1. Disconnect power to spa.
2. Remove the equipment and pump compartment door.
3. Locate the label on the vinyl tubing on the discharge side of the heater that reads "PRE-PLUMBED FOR A WATKINS MANUFACTURING OZONE PURIFICATION SYSTEM".
4. Clamp the vinyl tubing on both sides of the label using the hose clamp pliers. *NOTE: If the spa does not have water in it, skip this step.*
5. Using the hose cutter or knife, cut the vinyl tubing at the locations indicated by the label. This will remove approximately 4" of vinyl tubing.
6. Place one of the hose clamps (supplied with kit) onto each end of the vinyl tubing. Move the clamps down the tubing to the point where the injector can be installed into the tubing without interference from the hose clamps.
7. Position the injector with the connection fitting (air barb) pointing "up" if possible.
8. Install the injector (the check valve and tubing should be in place). The flow arrow on the injector must point in the same direction as the water flow (the direction of flow is from the heater toward the spa).
9. Remove the hose clamp pliers from the vinyl tubing. *NOTE: Skip this step if the spa does not have water in it.*
10. Leave the end of the tubing (connected to the injector) hanging free at this point.

OZONE GENERATOR INSTALLATION

1. Slide 1 Zip Tie through one pre-drilled hole in upper left door flange, then match up eyelets of Ozone Unit with pre-drilled holes in door flange, with back of Ozone Unit against the inside of upper left door flange, and feed Zip Tie through eyelet and tighten (if there are no holes use 3/16 drill bit and space the holes out 4" on center). Repeat step for other hole and eyelet.



CONNECTING TUBING AND OZONE GENERATOR

1. The tubing may be longer than needed. Using very sharp cutters (to prevent crushing tubing) cut to length required.
2. Push loose end of tubing onto ozone outlet check valve.

CONNECTING OZONE GENERATOR TO CONTROL BOX

1. Connect the Ozone generator's electrical flags as follows: Black wire to P23, and White wire to P19 located at the bottom of the PC board in the control box.
2. Reinstall the equipment and pump compartment door.
3. Connect power to the spa.

SPA MONITORING:

Use of the Ozone System significantly enhances the quality of your spa water. However, to provide a hygienic and pleasant environment, Watkins Manufacturing recommends following the “WATER CHEMISTRY GUIDELINES” contained in the *ADDING START-UP CHEMICALS* section of your spa Owner's Manual.

IMPORTANT:

Refer to the water chemistry section of the spa Owner's Manual for detailed instruction on chemical application procedures and cautions. Remember that a high pH water condition allows only 20% of the total chlorine to be available for sanitizing. Balanced pH, on the other hand, allows 80% of total chlorine to be available for sanitizing.

WARRANTY SERVICE:

All warranty service must be performed by an Authorized Dealer. If you are unable to locate an authorized dealer, contact Watkins Customer Service Department at (888) 961-7727, Monday through Friday, 9 am to 4 pm Pacific Standard Time, or e-mail ahsservice@watkinsmfg.com.

NOTE: Your authorized dealer may request a bill of sale before performing any warranty service work.