

CD Ozone (oxidation)

Ozone is produced with a high voltage electrical discharge called a “corona discharge” or “CD”.

The idea is to actually create a small, controlled lightning storm, which involves producing a constant, controlled spark (corona) across a gap through which air is passed.

The electrical discharge splits the oxygen molecules, nitrogen molecules are also being split, forming several species of nitrogen oxides.

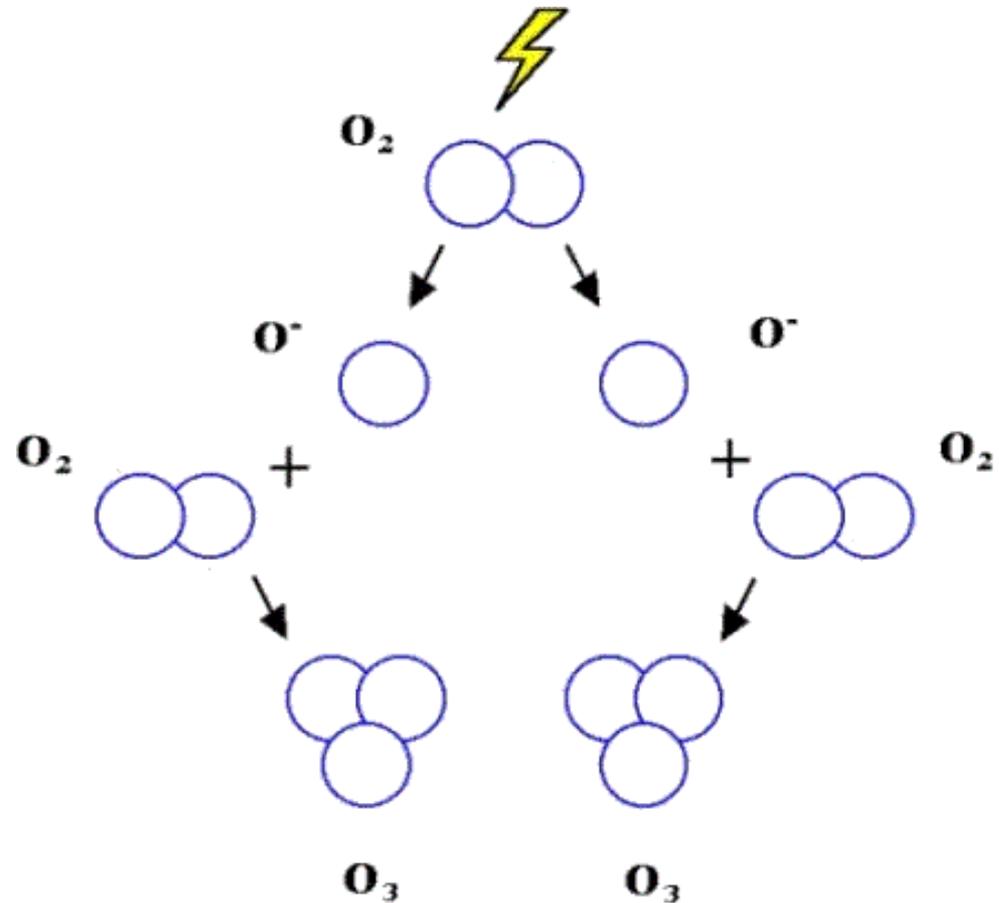


CD Ozone (oxidation)

These oxides form a very corrosive substance called nitric acid.

Ozone is a much more powerful oxidizer than chlorine. Ozone will reduce most organic compounds to carbon dioxide, water and a little heat.

As ozone sheds the atom of oxygen causing it's molecular instability during the oxidation process, it becomes oxygen again.



CD Ozone (oxidation)

The glowing green / Purple light in the window shows if the CD ozonator is producing O3 Ozone

The small rectangle viewing window has a lighted strip (bright green/purple) that will be about $\frac{3}{4}$ " long on start up. The strip will slowly become smaller as the unit runs.

Once the strip has disappeared it is time to replace the chip or ozonator.

Make sure to confirm the spa pack is supplying power to the unit before replacing it.



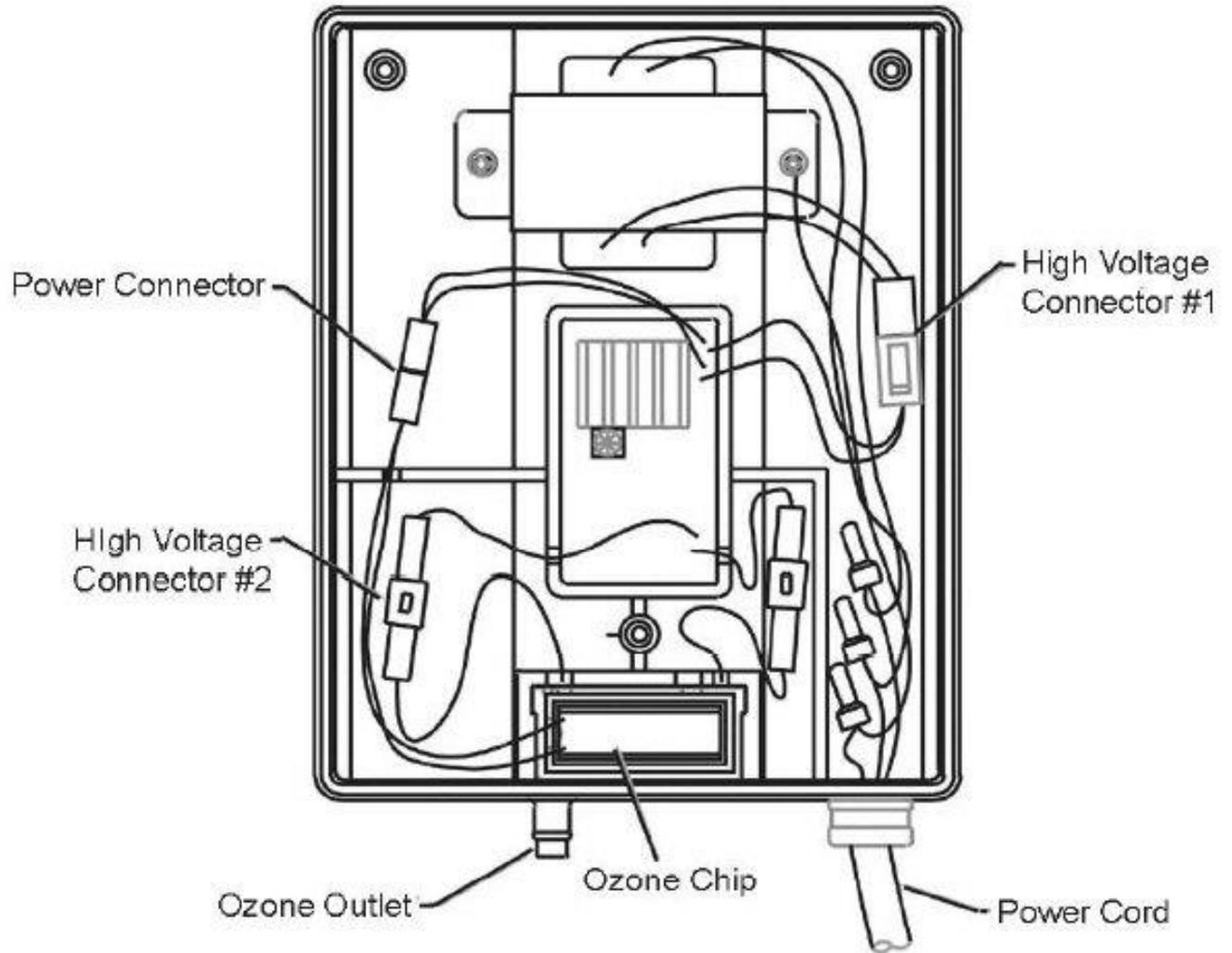
This should only be performed by a qualified spa technician.

CD Ozone – Inside View



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CD Ozone - Detailed View



CD Ozone (Chip Replacement)

To change the chip inside the ozonator power OFF the ozonator and remove the front face plate.

Now unplug the three connectors (white wires) connected to the ozone chip. Connect the new chip, replace the cover and power up the ozonator.

The lighted strip should be illuminated in the viewing window on the front of the ozonator.

The glowing green / purple light in the window shows if the CD ozonator is producing ozone.

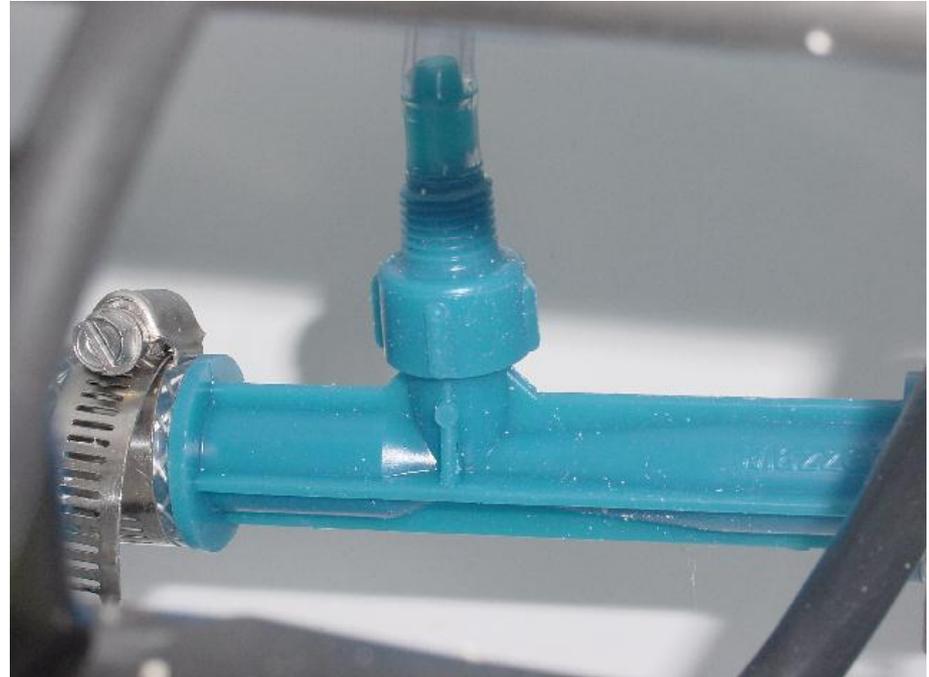


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CD Ozone (oxidation)

Ozone needs to be injected in to the water. Pacific Spas uses a Mazzei / Venturi injector to inject the Ozone into the water.

The ozone travels through a 15 ft contact chamber to allow the ozone to perform its function before it reaches the spa water surface. The ozone only has about a 40 to 50 second life span until it converts back to oxygen.

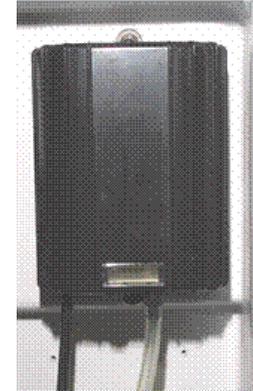


CD Ozone (Installation)

The ozonator is mounted at the highest possible point in the cabinet.

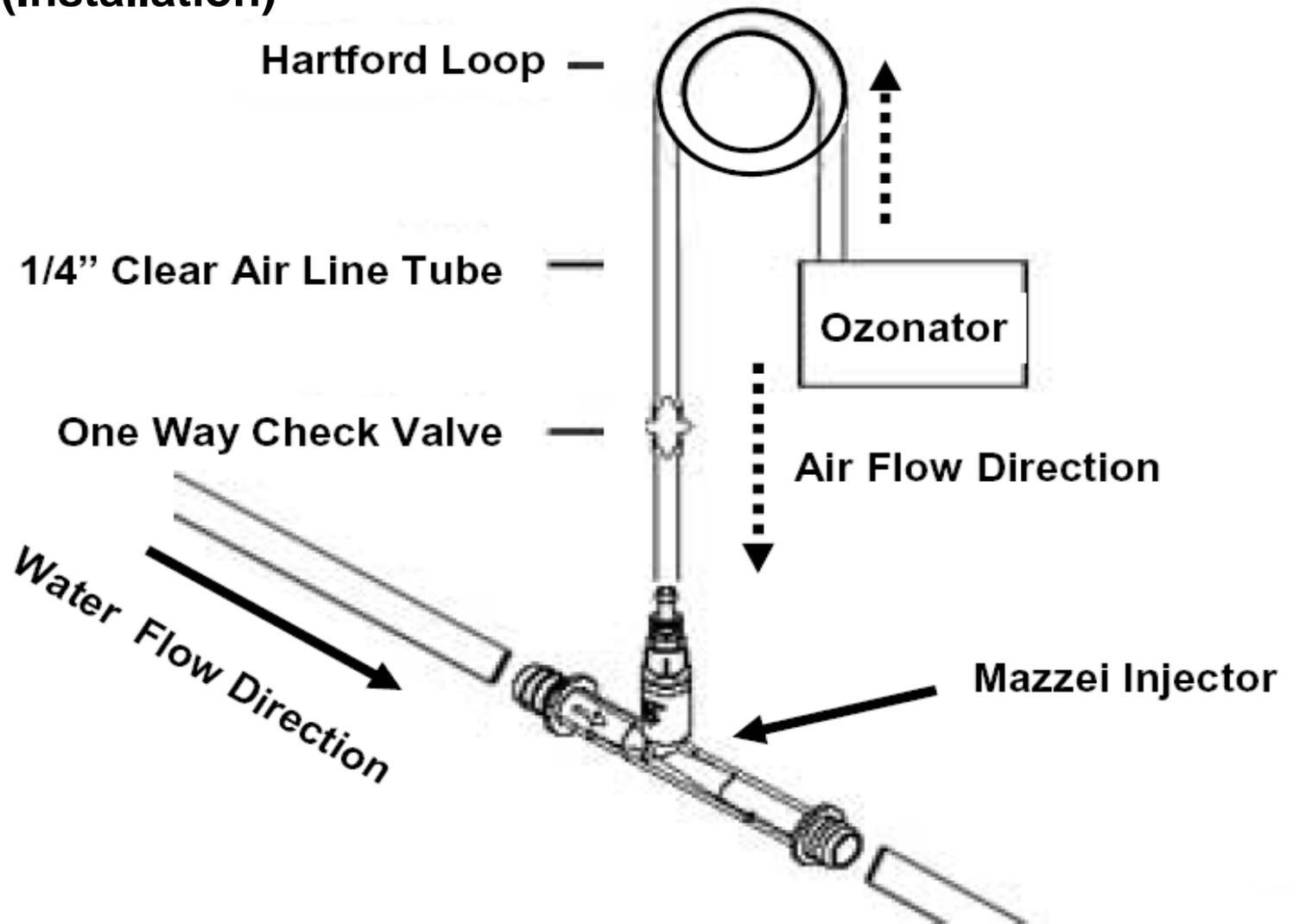
In the equipment cabinet, locate the clear tubing (3/4" reinforced threaded hose). It will have an arrow on the hose indicating the direction of the water flow.

The clear 3/8" tubing is connected from the ozonator to the mazzei injector. Always ensure that the one-way check valve is in place in the tubing. Always ensure that the check valve is placed going in the right direction (water should bubble if check valve is correct). Always ensure ozonator is plugged in and that the connection is firm.



Ozone Tube with Directional Arrows

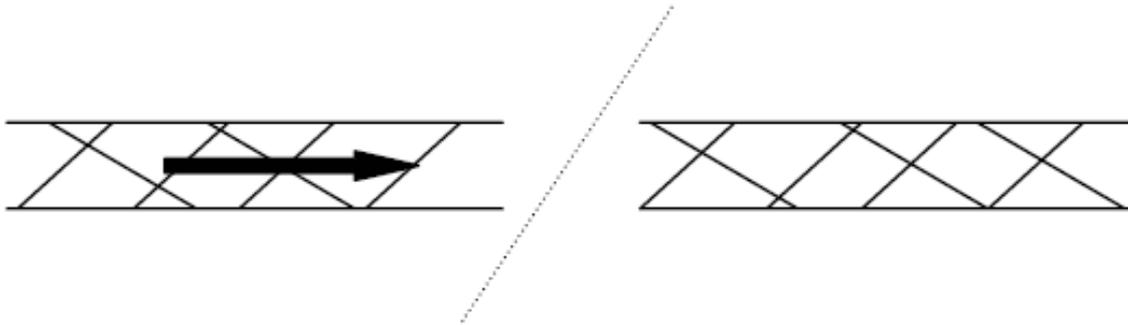
CD Ozone (Installation)



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CD Ozone (Installation)

For all spas not ozone ready.



Cut the hose in the middle and insert the mazzei/venturi injector with arrow pointing in the same direction as water flow. Clamp securely each end of the mazzei injector with stainless steel clamps.



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CD Ozone (Electrical Connection)

Connecting the electrical is easy with Gecko's XM and IN.XE systems with a pre-wired plug for your ozonator on the equipment pack.

Look for a female plug-in that is labeled for an ozonator. If your spa has a plug-in to accept an ozonator, you need to determine the voltage of the ozonator plug. Confirm if the ozonator is 230 volts or 110 Volts as required by the spa pack.

Check the output voltage of the ozone plug on the pack with your voltmeter.

You will now need to match the correct male plug to the spa pack female ozone plug.



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CD Ozone (Electrical Connection)

Always confirm the voltage out from the ozone plug. Check with Pacific Spa's for the required voltage if you can not determine the voltage with a electrical meter.

The ozonator will be wired through the pack plug so it comes on when your low speed pump is on, or when the circulation pump is running.

Pacific Spa's **Balboa** Spa packs will not disengage the ozonator when the spa is in use

2006-2008 (**XM/SSPA/MSPA**) Pacific systems will power off the ozone for forty minutes if any button on the topside is pushed. To restart the ozonator before the forty minutes have elapsed you will need to power the GFCI OFF then ON again, rebooting the system.



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CD Ozone (Troubleshooting)

SYMPTOM: *No blue light glowing in chip or lamp cartridge*

PROBABLE CAUSE

1. No power to unit
2. Broken or defective chip or lamp cartridge
3. Defective power supply cartridge (ZO-300/302)

CORRECTIVE ACTION

- 1A. Check power source and cord
- 2A. Replace chip or lamp cartridge
- 3A. Return to dealer for warranty replacement



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CD Ozone (Troubleshooting)

SYMPTOM: System on/off – water backing into ozonator

When your system is in its “on” cycle a suction of air is being pulled through the tubing from the ozonator to the return line. As the air passes by the ozone chip or the ozone lamp, the oxygen in the air is converted to ozone. This ozonated air is introduced to the water via the venturi on your return line.

When the system is in its “off” cycle water tends to flow back in the tubing towards the ozonator. Therefore, mounting your ozone unit as high as possible in relation to the spa water level is important. There is also a one-way check valve provided to prevent the back flow of water from reaching the ozonator. As a secondary precaution, a Hartford loop in the tubing, also hanging above water level, will help prevent water damage to the ozonator.

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