

SONOZAIRE ODOR NEUTRALIZER

Service Instruction Section

TROUBLE-SHOOTING

Troubleshooting the Sonozaire models require a familiarity with the machines, as well as general electrical troubleshooting and electrical safety skills. Testing can be done with a volt-ohmmeter, and some troubleshooting can even be done without electrical meters. However, do not attempt to do any troubleshooting until you are familiar with the function and components of the equipment. Do not attempt testing if any test or procedure is not fully understood. All grounding and bonding connections are to be properly reinstalled if items are replaced.

Refer to the appropriate model's internal layout to follow operation and troubleshooting steps. Item numbers in bold will follow the descriptors below.

The Sonozaire units use a blower (**18**) to draw air in through the air filter (**20**) at the bottom of the cabinet (**1**). Air is drawn into the open end of the glass tube(s) (**6**), into the plenum (**35**) on the 330A/630A, into the blower (**18**), and out the top of the cabinet (**1**). The glass tube(s) (**6**) with inner and outer electrode(s) (**4&7**) is the location where the ozone is created. A high voltage field between the inner and outer electrode(s) (**4&7**) generates ozone. The voltage level to the generator is adjusted by the level control on the side of the Sonozaire. On model 115A, a rheostat (**19**), and on models 330A/630A, a variable transformer (**19**) is used to adjust the voltage to the high voltage transformer (**16**). Additional controls are the on-off selector switch (**22**) or the optional timer (**22B**), which controls the blower as well as power to the level control. There is also an optional control configuration that is referred to as the ventilation timer on some models. In this configuration, the ventilation timer controls only the time period that ozone is generated, and has no control over the blower.

Begin by removing the front cover (**2**) and looking inside the Sonozaire. Check for things that seem abnormal such as excessive dirt or film on cabinet, or any components. If a machine is stored for an extended period of time, moisture or humidity can cause a film to develop on some of the electrical components, such as where the brush (wiper) touches the windings on the variable transformer (**19**). Examine items that appear to need cleaning, such as the generator section (glass and electrodes). Look especially for components that appear to have heated or arced. These items can often determine what the cause of the problem is, and how to prevent it in the future.

On a following page is a list of symptoms, probable causes, and solutions to the problems. Please refer to this page for a starting point in troubleshooting the Sonozaire models. After extended service of the machine, any component can fail. However, the most common failures come from a lack of cleaning and maintenance.

MOST COMMON ELECTRICAL TROUBLESHOOTING PROCEDURE

If the Sonozaire blower will operate, but no ozone is detected, the first step is to check to see if the unit needs cleaning. Unplug the unit before removing the front cover (**2**) to inspect the electrode(s) (**4&7**), and glass tube(s) (**6**). If they appear dirty or chalky, remove and clean as instructed under Routine Maintenance section of this manual. If the glass tube(s) is not up against the gasket(s) (**39**) on the blower (**18**), or the plenum (**35**), push it up against the gasket(s) firmly. Check the transformer fuse(s) (**34**) on the side of the newer cabinet, or located next to the transformer in the older style cabinets (**16**). Use an ohmmeter to verify the fuse is good. Fuses can look good, but be open in the end region that is not visible. If the fuse is good, place it back in the fuse holder (**25** in new cabinets or **33** in older cabinets). If the fuse is bad, replace it with the correct size and type.

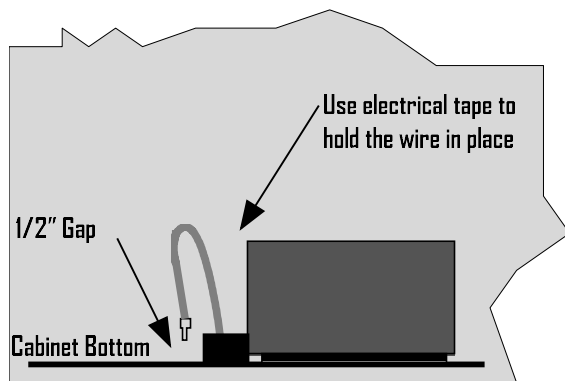
If everything above appears to be correct, test the unit while the door is removed. This can be accomplished by being careful to keep hands out of the inside of the cabinet. Turn down the ozone level control (**19**) to zero, plug in the unit, press in the door safety switch (**21**), and turn on the selector switch or timer (**22** or **22B**). When the blower (**18**) comes on, turn up the ozone level control slowly. Listen for the distinctive "ionization" sound. It should intensify as the level increases. Verify that no arcing or sparking occurs. If an arc occurs, verify its location, turn off and unplug the machine. Determine the reason for the arc and correct it. Typical problems are dirty glass and electrodes, moisture in the glass, misalignment of electrodes, cracked glass, etc. If problem is not located, it is recommended that the high voltage transformer circuit be tested.

Proper testing of high voltage transformer (**16**) requires an AC voltmeter that will measure approximately 15KV. Actual voltage should be between 10KV and 14KV. If a HV test meter is unavailable, then an "arc" or "spark" test can be performed to determine if high voltage is available. Note that on a model 630A the transformer fuse on the transformer not being tested is to be removed, to prevent it from being energizing while the other HV transformer is tested. With the unit unplugged, disconnect the transformer (**16**) high voltage wire from the inner electrode(s) (**4**). Loop the high voltage wire down in front of the transformer and form it or tape it to the side of the transformer so that the wire is approximately ½ inch from the bottom of the cabinet. Do not hold the wire or use a screwdriver to hold it in place. With the door off, turn the ozone level knob (**19**) to zero, plug the unit in, hold down the door safety switch (**21**) and turn the selector switch or timer (**22** or **22B**) on. The blower should turn on. To "arc" test: raise the ozone level knob (**19**) gradually toward the maximum setting.

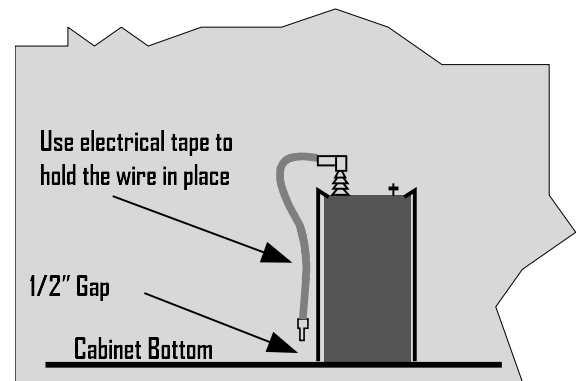
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When the knob approaches the maximum output, an arc should occur from the high voltage wire to the bottom of the cabinet. The arc should be a strong arc, but should not damage the cabinet, other than minor etching to the paint. If a strong arc occurs, then the high voltage and control circuits are good. The problem is in the electrode-glass assembly and can be fixed by cleaning or replacing electrodes or glass.



ARC TEST FOR TRANSFORMER



If the arc does not occur or is very weak, the transformer could be bad. Also, the voltage coming into the transformer might not be present or high enough. Repeat test for second transformer on model 630A. If voltage coming into the HV transformer is suspected not to be correct then a 150VAC voltmeter is required to test the primary voltage coming into the high voltage transformer.

Testing Voltage into HV Transformer on Model 115A

On the model 115A, begin by verifying that the unit is unplugged. Check that the transformer fuse is good as instructed above. Connect a 150VAC voltmeter from the left side (transformer side) of the brown resistor (30) located in the center of the cabinet and attached to the rear, near the bottom. Connect the other voltmeter probe to the cabinet ground. If possible, connect the voltmeter to the resistor with a jumper or alligator clip to hold it in place. If the probe must be held onto the resistor by hand, be very careful not to come near, or in contact with the high voltage transformer lead, or the inner electrode (4) to the left. This may have extremely high voltage present. Plug in the model 115A, set the ozone level control (19) to zero, turn on the selector switch (22), and press in the door safety switch (21). The voltmeter should read approximately 50 volts. Adjust the ozone level knob to mid-scale, and the voltmeter should read approximately 60-65 volts. Adjust the ozone level knob to maximum, and the voltmeter should read approximately 95-100 volts. If these readings are observed, then the rheostat (19) is good. If the rheostat appears to be bad unplug the 115A, then place a temporary jumper between the two terminals on the rheostat (19) that have wires. This will bypass the rheostat, and the unit will be at full output. Plug in the unit, turn on the selector switch, press in the door safety switch, and the unit should come on at full output. If the "arc" test is being checked, it should produce a hot arc. If a hot arc occurs then the transformer (16) is good and the rheostat (19) is bad. If a hot arc is not seen, then the transformer is bad and should be replaced.

Testing Voltage into HV Transformer(s) on Models 330A and 630A

On the 330A/630A begin by verifying that the unit is unplugged and then remove the fuse(s) to the transformer(s). Check that the transformer fuse(s) is good as instructed above. With the transformer fuse(s) removed, there will be no voltage above 120VAC in the cabinet. Next, the voltage at the line side of the transformer fuse holder should be measured. To do this, connect the 150VAC voltmeter from the line-side of the fuse holder(s) (33) and the cabinet ground, or test between terminals 3 and 4 on the level control variable transformer (19). Plug in the unit's cord, turn the selector switch on, press in the door interlock switch, and turn up the level control knob to mid-scale (50%). The voltmeter should read approximately 60 volts. Turn up the level control knob to maximum (100%), and the voltmeter should read approximately 120 volts. If readings are correct, then the variable transformer (19) is good. If readings are much lower or erratic, then the variable transformer wiper, or variable transformer, is dirty or bad. Clean the area that the wiper (brush) contacts the variable transformer windings with a rubber eraser or electrical contact cleaner. Also, clean the wiper to remove film buildup. If this does not correct, replace the bad component. If the variable transformer (19) tests good, and the HV transformer (16) does not produce a strong arc, then the transformer is bad. Replace the transformer and verify that the unit performs correctly.

Replace all components with factory-approved components only. Failure to replace with factory-approved components could result in damage to equipment or injury to personnel. Do not attempt to repair the machines unless you have a complete understanding of the procedure, and the proper test equipment is used. Call your local distributor for parts and assistance. Call the factory direct if a local distributor is unavailable or unknown. Additionally check the website www.sonozaire.com for additional instructions, photos, instruction videos, etc.

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TROUBLE-SHOOTING LIST

Note: Before beginning troubleshooting problems, always refer to all diagrams and manual instructions. These units have high voltages in excess of 10KV.

Symptom	Probable Cause	Solution
Machine not working.	Power to the receptacle off.	Check receptacle for power or tripped GFI.
	Cover not on good enough to close the door limit switch.	Tighten or adjust the cover.
	Main fuse blown.	Replace the main fuse with spare fuse.
	Failure of on-off switch or timer.	Replace on-off switch, contacts, or timer.
	Failure of door limit switch.	Replace the limit switch.
	Failure of blower motor.	Verify that blower motor will rotate and has not failed. If oil type motor, then lubricate or replace if necessary.
No Ozone or Low Output	Glass tube(s) not up against the gasket(s) on the blower or the plenum.	Push the glass tube(s) up against the gasket(s) to prevent air from bypassing the generator.
	Ozone level setting too low.	Increase the setting.
	Dirty or oxidized glass tube(s) and electrodes.	Clean the glass and electrodes, or replace them.
	Cracked glass insulator(s).	Replace the glass insulator tube(s).
	Blown HV transformer fuse.	Verify fuse is blown and replace. Check glass.
	HV transformer failed.	Test transformer and replace if required.
	Dirty, worn, or broken variable transformer wiper (brush).	Clean or replace the variable transformer wiper.
	Variable transformer, rheostat or resistor failed.	Test and replace components if required.
	No air movement (blower not operating).	Clean filter. Free the blower from obstructions and oil motor with 20W oil. Replace motor, if necessary.
Main Fuses Blown	Shorted variable transformer or rheostat.	Replace the component.
	Shorted blower motor.	Replace the blower motor.
Transformer Fuses Blown	Transformer shorted.	Replace the transformer.
	Glass insulator tube is very dirty, has excessive moisture in it, or is cracked.	Clean the glass and electrodes, or replace the glass tube(s) and electrode(s).
	Wire insulation breakdown.	Locate the wire failure and replace.