

# SONOZAIRE ODOR NEUTRALIZER

## Service Instruction Section

### ROUTINE MAINTENANCE

The Sonozaire model 5G requires only routine maintenance for years of service. This occasional maintenance requires only minor cleaning and will take only a few minutes. Failing to routinely clean the unit will reduce the ozone output and require longer times for treatment. A complete failure to perform maintenance can cause a total failure of ozone output and a possible failure of Sonozaire components, which voids the warranty.

The amount of time between cleaning will depend upon a few variables. The harder the service, the more often the maintenance is required. Model 5G is designed for indoor use only, and should be cleaned every 3-6 months. Dirt (from electrostatic action) coupled with moisture (humidity) can foul the electrodes, causing dirt to adhere to the electrodes. For fire restoration applications, check after every few of jobs to determine if cleaning is necessary. Dry cleaners, hotels, motels, and vehicle applications should require cleaning approximately every 2-3 months if used often. These cleaning suggestions are averages. Check your equipment more often initially to determine if you need to go longer or shorter periods between cleanings. Below is a list of important operating factors that increase the frequency for cleaning:

- ✓ Unit operated 24 hours a day
- ✓ Unit operated in a high moisture or humidity environment
- ✓ Unit operated 365 days a year
- ✓ Unit operated in an area of excessive dust or dirt.

An easy way to determine if your machine is dirty is to listen to it. The blower will come on, and it has a high volume fan sound. You will also hear the sound of corona formation which is the result of a high voltage causing the air to ionize. The sound is a low tone hissing or buzzing. A really dirty unit may have no corona sound, or if a unit has too much moisture in it, a snapping or arcing sound occurs. Please shutdown the unit and perform the necessary cleaning.

Routine maintenance consists of cleaning the air filter, cleaning the cabinet interior, cleaning of glass electrode, and checking the blower motor. The Sonozaire can be cleaned in the shop or on the job site. Cleaning supplies consist of clean water, a mild soapy cleaner for the air filter, glass cleaner and cleaning cloths or pads.

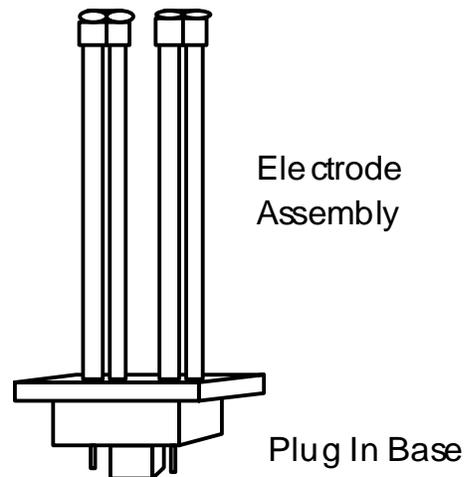
☒ Unplug the Sonozaire, remove the air filter cover and filter on the rear of the 5G and clean it. The filter is of a polypropylene mesh type material that can be cleaned by washing it out with water and cleansing soap. Wash it out thoroughly and dry it before reinstalling in the unit. The filter can also have some of the dirt blown with air hose, but be careful not to damage the filter media. Replace filter if necessary.

- Remove the top cover by removing retaining screws and pulling up on the cover. Look at the inside of the cabinet and compare it to the internal drawings of the 5G in this manual. Identify the major components: the electronic module, the high voltage transformer, the electrode assembly, and the blower motor. Wipe off the blades of the blower if they are dirty with a mild cleaner or moist cloth.

☒ Clean the electrode assembly in place if possible. Begin by using a moist cloth to wipe off and between the glass cylinders removing any dirt or contaminates. Next dry with soft, dry cloth that is lint free. Be careful not to break the glass insulator tubes. If necessary the electrode assembly can be removed via the two screws holding it to the base of the HV transformer module. Try not to handle the electrodes with bare hands to prevent oils from coming in contact with glass. Dry the tubes by wiping down before re-installing.

- Use a damp cloth to wipe out the interior of the cabinet to remove dust, dirt, etc. If a cleanser is required, use one that does not have an alcohol or hydrocarbon base that might be flammable. Excessively scrubbing the cabinet's exterior or interior might destroy the paint. Wipe the interior out with a clean, dry cloth.
- Replace the cover and test the unit. Test by plugging in the unit and turning it on. Determine if the corona sound occurs and the smell of ozone is present. The unit should be ready to put back into operation.

After cleaning, if no ozone is detected, or corona sound is heard, unplug the unit, remove the top and refer to the troubleshooting section of this manual for directions.



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### TROUBLE-SHOOTING

Troubleshooting the SON 5G requires machine and component familiarity, and general electrical troubleshooting and electrical safety skills. Most testing can be done with a digital volt-ohmmeter, and visual inspection. However, do not attempt repair if you do not feel qualified. Refer to the appropriate model's internal layout to follow operation and troubleshooting steps. Item numbers in bold will follow the descriptors below.

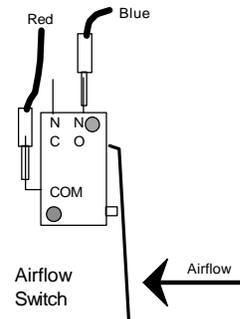
When the SON 5G is properly operating it draws air in through the air filter (20) in the rear of the cabinet (1). It passes by the airflow switch (28), through the air baffle (35), the electrode assembly (6), the blower (18), and out the front of the cabinet (1). The electrode assembly (6) is the location where the ozone is created in the high voltage electrical field between the electrode(s). Operation control is supplied by the 12-hr timer (22A), which turns on the blower. Turn the timer knob counterclockwise from the zero position for continuous operation. If the blower (18) is operating adequately the airflow switch (28) will energize power on light (24), the electronic module (4), and the high voltage transformer module (16).

After extended service of the machine, any component can fail, but most failures come from a lack of maintenance. Attached is a list of symptoms, probable causes, and solutions to the SON 5G problems

### Model 5G

#### Blower Operating But No "Power On" Light and No Ozone Output

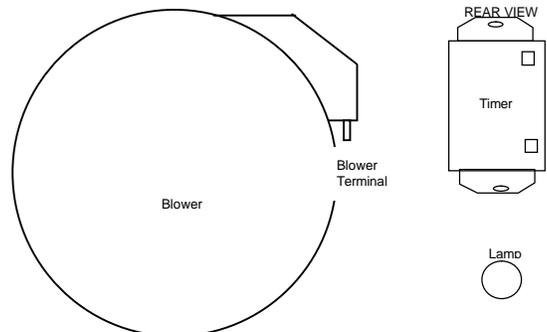
If the unit is blowing but not making ozone and the "Power On" light (24) is not on, then the airflow switch is not activated. Unplug the unit (8) and remove the top cover (2). Inspect the airflow switch (28) to see what is preventing it from operating. Clogged filter (20) is most common problem. Manually push the paddle on the switch towards the opening in the baffle plate to see if you can hear the switch click. Use an ohmmeter to test the switch contacts by removing the blue wire from the switch and testing between the terminal that had the blue wire on it and the terminal with the red wire on it. The contacts should read closed when the airflow paddle is pushed toward the baffle plate. If the contacts are bad, replace the airflow switch (28). If they are good, then replace the wire and plug the 5G power cord (8) back into an outlet. At this point be careful not to come near the electrode section due to high voltage. Press in the top safety switch (21), turn on the timer, and use a wooden pencil or non-conducting rod to push the paddle of the airflow switch toward the baffle plate. The power on light (24) should come on and the electrode assembly (6) should energize and make ozone. Note that the airflow switch will not activate on its own with the top off, as airflow will not be directed across it unless the air comes through the rear air filter.



#### Nothing Operating

If the model 5G will not operate at all begin by unplugging the power cord (8) and removing the top cover (2). Check for abnormal things, such as excessive dirt or film on components. Examine items that appear to need cleaning, such as the electrode section or blower. Look especially for components that appear to have heated or arced. Look over the wiring and equipment to see if anything mechanically seems wrong, such as loose wires, broken components, etc. Remove the fuse (26) and check it with an ohmmeter (do not depend on visual inspection) to see if it has blown. Check the safety switch (21) on the top edge and verify it clicks when it is depressed. Verify that the timer (22A) is operational and it should have a ticking sound when it is wound up for setting in hours. Operate the airflow switch and verify that it clicks when depressed. Test further if necessary.

Disconnect the molded connector plug between the electronic module (4) and the HV transformer (16). See this on the next page. This will prevent the production of high voltage and ozone in the unit. Connect a 250VAC voltmeter probe to the cabinet ground. Alternately the probe can be placed on the blower terminal with the white wire or the white wire bundle. Both are neutrals points of the supply. Plug in the power cord (8), and use the other voltmeter probe to check voltage on the safety switch (21) terminal with the red wire. If line voltage (120VAC or 240VAC) is present then the fuse (26) and fuseholder (25) are good. Now place the voltmeter probe on the safety switch's other terminal with the blue wire and press down the lever. Line voltage should now be present on both wires and this will verify that the safety limit switch is good. Next, test for voltage through the timer (22A) and to the blower (18). Connect the voltmeter probe to the terminal with the red wire on the airflow switch (28).



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### CONT'D (TROUBLE- SHOOTING)

Plug in the model 5G, press in the safety switch (21) and turn on the timer (22A). The voltmeter should read line voltage, and the blower (18) should come on. If voltage isn't present, then the timer (22A) is bad. If voltage is present and the blower (18) doesn't come on, check the wiring, but the blower is most likely bad. Also try spinning the blower fan blades to see if it is stuck.

Replace any necessary components to make the unit work properly up to this point. If the unit works properly up to this point, then move on to testing the electronic module and the high voltage transformer.

### ELECTRONIC MODULE

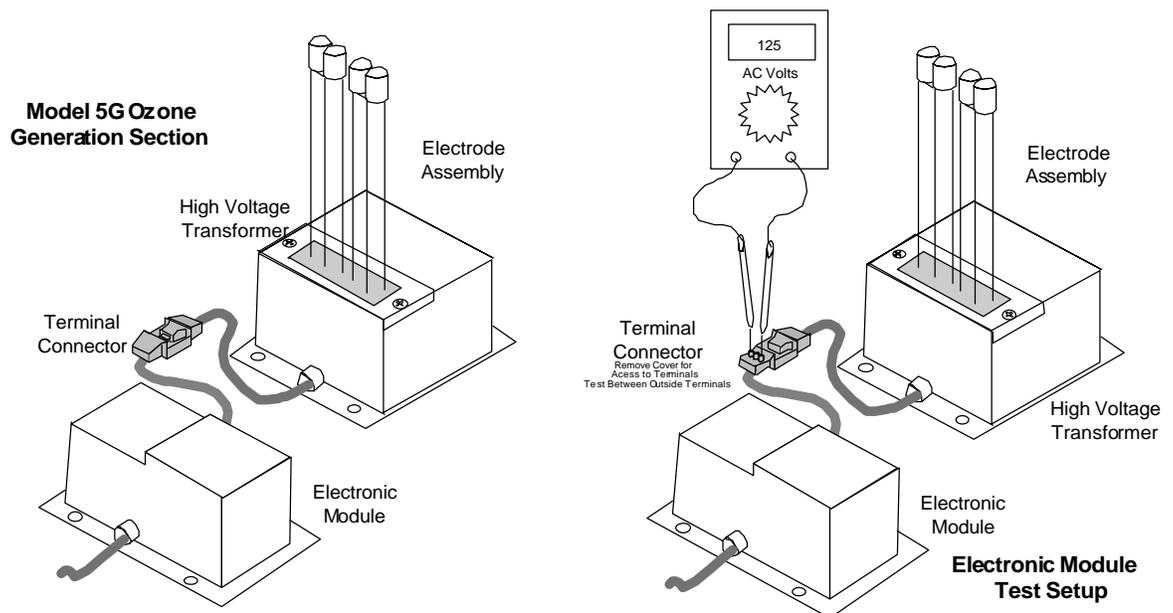
If the Sonozaire blower will operate, but no ozone is detected, the first step is to check to see if the electrode assembly needs cleaning. Unplug the unit before removing the top cover (2) to inspect the electrodes (6). If it appears dirty or contaminated, remove and clean as instructed under Routine Maintenance section of this manual. If everything above appears to be correct, and the unit has been tested up to the blower, then testing the electronic module is next step.

Be careful to keep hands out of the inside of the cabinet while it is energized. Plug in the power cord (8), press in the safety switch (21) located on the top edge of the cabinet, and then turn on the timer (22A). The blower (18) should come on. Next activate the airflow switch (28) with non-conducting rod and you should hear and see the distinctive "ionization" sound coming from the electrode section (6). Verify that no arcing or sparking occurs outside of the gap between the electrodes. If unusual arcing occurs around the electrodes or HV module, then turn off the unit, and unplug the machine. Determine the reason for the arc, and correct. Typical problems can be dirty glass and electrodes, moisture on the electrode assembly, a cracked glass, etc. If problem is not located or if no corona is being formed between the glass electrodes, it is recommended that the high voltage transformer and electronic module be circuit be tested.

Unplug the power cord for the 5G. Field testing of the electronic module will require a digital voltmeter with ranges of minimum 300VAC. Initially verify that the electronic module (4) is getting power to it. Use an AC voltmeter to read the voltage on the airflow switch (28) with the blue wire. With the unit operating, activate the airflow switch and the blue wire terminal voltage should be line voltage (120VAC or 240VAC) according to the voltage level of the unit.

Next locate the terminal connector that connects the electronic module (4) to the HV transformer (16). Remove the cover from the terminal connector which has 3 terminals. The two outside terminals are used and the center terminal is not used. Prepare to make a voltmeter reading to the two outside terminals.

Plug the 5G power cord back in, press in the safety switch (21), turn on the timer (22A), and activate the airflow switch (28). The voltage on the two outside terminals should read approximately 125VAC. If the level is zero or much lower, then replace the electronic module.



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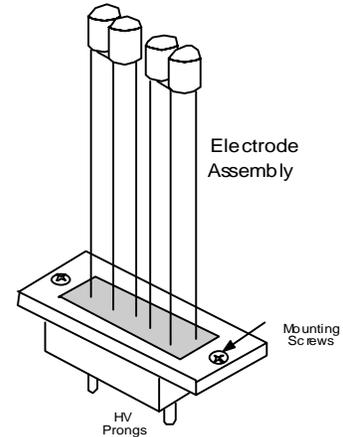
## Service Instruction Section

### CONT'D (TROUBLE- SHOOTING)

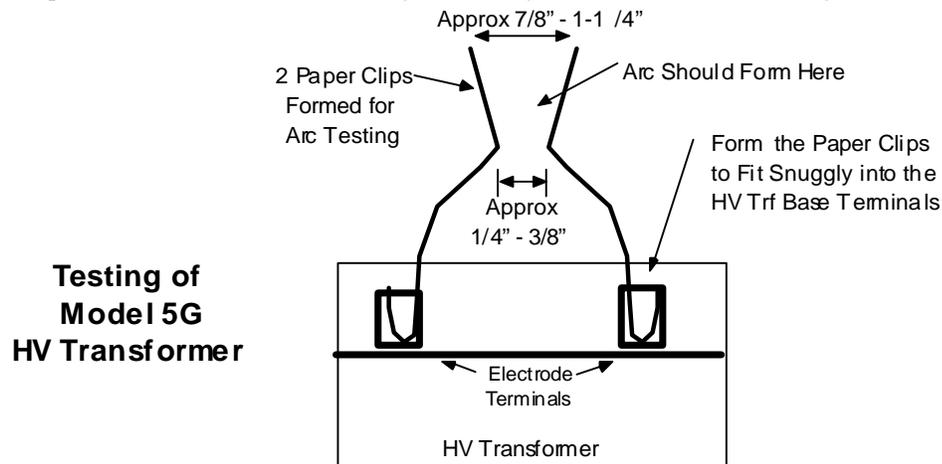
#### High Voltage Transformer/Electrode Assembly

Field testing of the high voltage transformer (16) cannot be done with most meters. Actual voltage is in excess of 6KV, but is of a high frequency. Notice that the HV transformer operates with a high voltage level between the two ungrounded output terminals in which the electrode assembly (6) plugs. Do not touch the electrode assembly with hands, or other materials while it is operational or under test. Also do not touch or connect any conductive materials between the electrode assembly and the grounded cabinet.

With the unit unplugged, remove the electrode assembly (6) by removing the two screws holding it to the HV transformer (16). Use a flat blade screwdriver to separate the bottom of the electrode from the HV transformer and do not pull up on the glass electrodes or you may break them.



Once the electrode assembly has been removed then a method of arc testing the HV transformer's (16) output can be devised. See the following arc test diagram and the method of making a test arc device.



Remember, do not place touch or place materials in contact with test device due to the high voltage that will be present. After the HV test device is installed, plug the unit in, hold down the door safety switch (21) turn the timer (22B) on, and activate the airflow switch (28). The blower and light should come on and an arc should be produced between the two HV test prongs. Formation of an arc indicates high voltage of significant level to form ozone. If an arc forms, then the electrode assembly is most likely the problem. However, if an arc doesn't form and the electronic module has been tested and found to be good, then replace the HV transformer (16). If the blower is causing the arc to extinguish, either block off some of the air flow, or disconnect the red wire from the blower terminal to disconnect the blower.

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.

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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 6KV and are high frequency.

Symptom	Probable Cause	Solution
Machine not working.	Power to the receptacle off.	Check receptacle for power.
	Not plugged into receptacle.	Plug in the unit.
	Cover not on good enough to close the cover limit switch.	Tighten or adjust the cover.
	Main fuse blown.	Replace the main fuse on the rear of the cabinet.
	Failure of 12-hour timer.	Tap on timer knob in case it is stuck. Replace timer if necessary.
	Failure of door limit switch.	Replace the limit switch.
	Failure of blower motor.	Verify that blower motor will rotate and has not failed. Replace if necessary.
Power light is off but blower is on	Unit is not level	Level the unit so the airflow switch will operate.
	Airflow switch is not activated	Clean air filter and blower blades. Check for airflow obstructions. Check airflow switch.
	Failure of airflow switch	Replace the airflow switch
	Failure of Power On Light	Replace the Light.
No Ozone or Low Ozone Output	Dirty or oxidized glass electrodes.	Clean the glass electrodes.
	Cracked electrode tube.	Replace the electrode.
	Electronic module failed.	Test electronic module and replace, if required.
	HV transformer failed.	Test transformer and replace, if required.
	Low or no air movement	Clean filter. Free the blower from obstructions. Replace blower, if necessary.
Main Fuse Blown	Shorted blower motor.	Replace the blower.
	Shorted electronics module	Replace the electronics module
	HV Transformer shorted.	Replace the HV transformer.
	Glass electrode is very dirty, has excessive moisture on it, or is cracked.	Clean the glass electrodes, or replace the electrodes, if broken.
	Wire insulation breakdown.	Locate the wire failure and replace.

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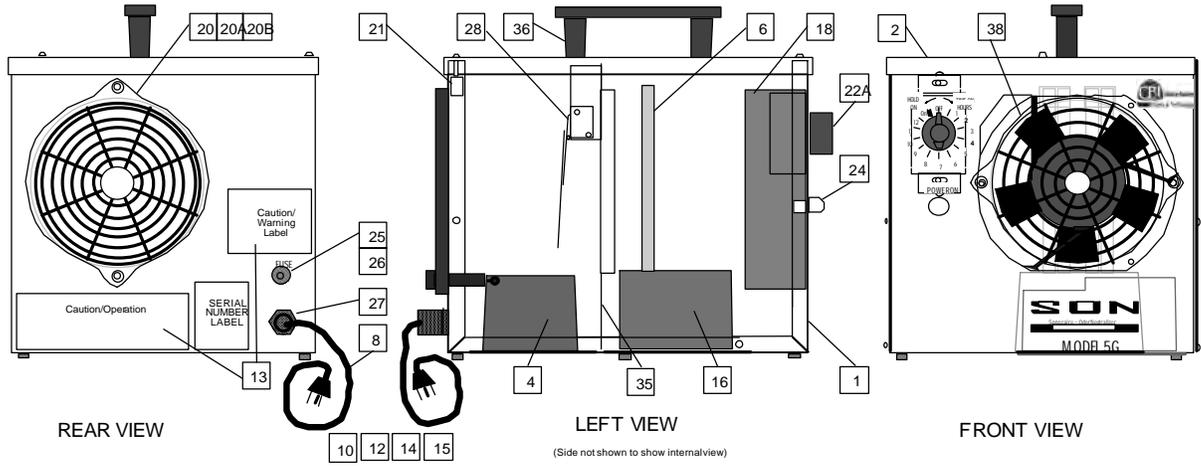
### PARTS LIST

ITEM #	SONOZAIRE PARTS DESCRIPTION	MODEL5G PARTS #
1	Base Enclosure Assembly	CAB50B
2	Top Cover Assembly	CAB50T
3		
4	Electronic Module	5GEM-120
5		
6	Electrode Assembly	5GEL-2
7		
8	Line Cord, 16/3	W2
9		
10	Term Lug No. 8	S4166S
11		
12	Wire Nut 16-18AWG	NP5115
13	Instruction Decals, Set of 2	LBCAU50, LBOP50
14	Cable Ties	ELAM
15	Cable Anchor	AAABMM
16	Transformer (HV) Step-up	5GHVTF-1
17		
18	Blower Motor	BL50
19		
20	Air Filter	AF50
20A	Air Filter Cover	AF50C
20B	Air Filter Base	AF50B
21	Micro Switch (Door Safety)	S10
22A	Timer, 12 Hour w/Hold	TM1
23		
24	Lamp, White	DS2
25	Fuseholder, Panelmount	XF1
26	Fuses, Main	F50 (MDL 2)
27	Bushing, Strain Relief	8103-375
28	Airflow Switch	FSW50
29		
30		
31		
32		
33		
34		
35	Air Flow Baffle	AFB50
36	Handle	HDL10
37		
38	Blower Discharge Screen	BDSC50
39		
40		
41		
42		
43		
44		
45		
4A	Electronics Module, 240VAC	5GEM-240
8A	Line Cord, 1.0mm	W2A
18A	Blower Motor, 240VAC	BL50A
24A	Lamp, Red, 240VAC	DS1A
26A	Fuse, Main for 240V, 50Hz	F50A (MDL1-1/4)

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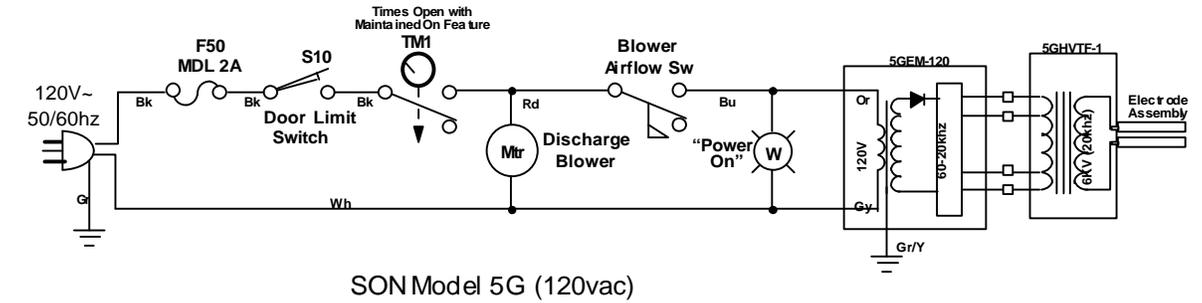
## Service Instruction Section

### Model 5G Drawing and Parts

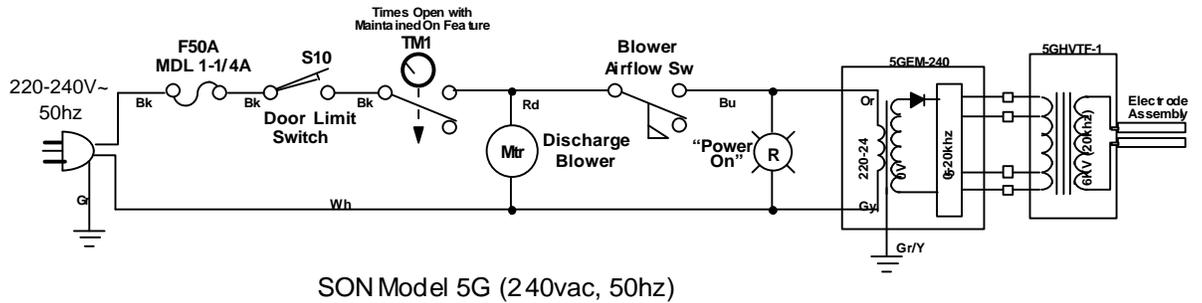


SONOZAIRE MODEL 5G

### Model 5G Schematic



SON Model 5G (120vac)



SON Model 5G (240vac, 50hz)