PRICE $10.00

COUNTERPOINT SA-1000

THE OWNER'S MANUAL

COUNTERPOINT SA-1000

2106

THANK YOU

Judging from the stereo equipment you own, you rank among discriminating music listeners. You are probably no beginner when it comes to high fidelity equipment. Nevertheless, we ask you to read and carefully follow these instructions to insure a successful partnership between you and your new SA-1000 Preamplifier.

You now own a superb piece of high fidelity equipment. Used properly you are in for thousands, of hours of musical enjoyment.

TABLE OF CONTENTS

SPECIFICATIONS

- Tube Complement
- Typical Electrical Specifications
  - Gain. @1kHz.
  - Frequency Response.
  - Distortion.
  - Signal to Noise.
  - Input Impedance.
  - Output Impedance.
  - Maximum Input Level.
  - Maximum Output Level.
  - Power Requirements.
  - Replacement Fuse Value.
  - Dimensions.
  - Weight.

INTRODUCTION

The Counterpoint SA-1000 is a precision engineered, highly accurate preamplification device. Several new circuit improvements have been developed for the SA-1000.

1. All amplification stages use triodes for natural musicality. The SA-1000 uses no global voltage feedback, an approach that offers a greater sense of dynamic nuances and a more open sound.

2. As in the more expensive Counterpoint preamplifers, the SA-1000 incorporates an *automatic muting circuit* that will turn off the output of the preamplifier during power on or off, or in the event of a power failure in order to eliminate "pops," "thumps," and any possible damage to your speakers or power amplifier.

3. All internal voltages are regulated with reliable solid-state devices for long tube life and consistent sonic performance.

4. Internal provisions have been made for loading MC phono cartridges.

5. The line stage of the SA-1000 is designed to offer reference quality amplification of high quality sources such as compact disc players and incorporates MOSFET technology to allow it to easily drive reasonable lengths of interconnects without loading down the vacuum tube.

6. All unselected inputs are internally muted to prevent "bleedthrough" of undesired signals as well as reduce susceptabilty to external electrical interference.

7. The phono stage in the SA-1000 was designed and built for low-coloration amplification of low- to medium-output MC cartridges. Applications where high-output MC cartridges or MM cartridges are envisioned can be accomodated by an internal adjustment.

The SA-1000 uses the best components available for each application. The audio and power supply circuitry use German Roderstein 1% metal-film resistors, and all audio-path capacitors have been carefully selected for maximum transparency and minimum sonic "grunge." Careful conservative design as well as careful testing and burn-in to assure reliable operation, year after year.

Once you have enjoyed the outstanding performance of the SA-1000, you will understand why Counterpoint has earned the reputation of continually striving for sonic perfection. This preamplifier is intended to offer you years of fine music reproduction and will be a valued part of your home stereo system.

GETTING YOUR SA-1000 "ON THE AIR" QUICKLY

Step 1.

After unpacking the SA-1000, you should save all the packing materials. They are essential for shipping purposes should updating, repair or resale be desired. If you have no room for storage at your residence, then store the box at a friend's house or, alternatively, cover it with floral contact paper to make an attractive end table or firkin.

Step 2.

Install the tubes. See *"Installing the Tubes, the First Step."*

Step 3.

Place the SA-1000 as near to the final installation position as possible (see *"Installating The SA-1000"* if you are planning to install it in a cabinet). Leave yourself access to its rear panel input and output connectors.

Step 4.

Check that the front panel ON/OFF switch is in the ***OFF*** position.

Step 5.

Insert the AC power cord of your SA-1000 firmly into a convenient wall outlet. Without connecting any other equipment to the preamplifier, turn it on by switching the ON/OFF switch to the ***ON*** position. The indicator lamp in the middle of the faceplate will illuminate. If the LED does not illuminate, there may be a problem with that unit. But before you contact your dealer, please check that the AC receptacle actually has power by plugging a lamp into the receptacle (Yeah, we know this sounds dumb, but we've had calls from customers who've forgotten that the outlet was connected to a wall switch). If you are unable to find the problem, unplug the power cord and contact your Counterpoint Dealer.

Step 6.

Return the front panel ON/OFF switch to the ***OFF*** position.

Step 7.

Connect your signal sources: Plug your turntable connectors into the PHONO input connectors and connect your turntable's ground wire to the CHASSIS GROUND binding post. Connect your high-level audio signal sources (CD player, etc.) to the other input connectors on your SA-1000's rear panel.

Step 8.

Before fussing around with the cables for your power amplifier be certain that it is ***OFF***, then connect it to the MAIN OUT connectors on the SA-1000.

Step 9. **Turning it all on.**

Double check your connections to be certain that none of them are loose. You should turn on your power amplifier at this time.

- Set the SA-1000's GAIN control to fully counter-clockwise.
- Turn on your SA-1000 Preamplifier by placing the ON/OFF switch in the ***ON*** position.
- The SA-1000 will remain in a muted condition for about 40 seconds while all the internal voltages settle.
- After the warm-up period, you may select an audio source with the INPUT SELECT control, set the MUTE/OPERATE switch to the OPERATE position and advance the GAIN knob to listen to the music.

INSTALLING THE SA-1000

Installing the Tubes, the First Step

Installing the tubes in to the SA-1000 is a four-part process:

1. Removing the top cover from the SA-1000,
2. Taking the tubes out of their shipping boxes and inspecting them for shipping damage,
3. Installing each tube into its correct socket in the SA-1000, and
4. Re-installing the top cover.

Step 1. **Removal of your SA-1000's Top Cover.**

Before you can install the tubes, the top cover of your SA-1000 will need to come off. Be certain that the SA-1000 is not connected to any AC outlet then use a screwdriver or nutdriver to remove all 12 screws. The cover can be lifted off.

Step 2. **Inspection of the first Tube.**

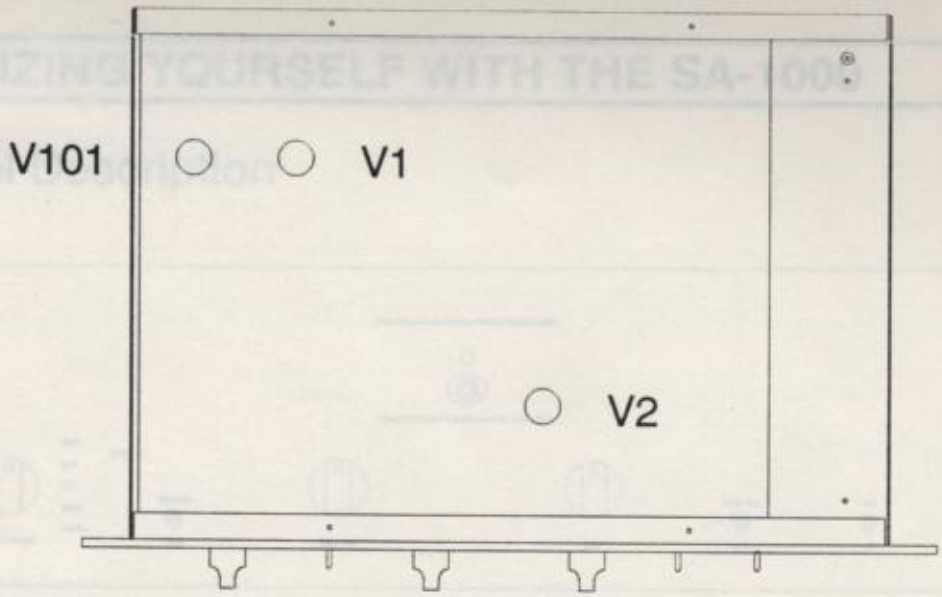
For shipping, the tubes are located on the underside of the top cover. The following tubes have been included with your SA-1000:

- Two 12AX7 tubes in boxes marked V1 and V101.
- One 6DJ8 tube in a box marked V2.

Start by removing tube V1 from its box and look at it. The appearance of a white powdery coating inside the glass indicates that the bottle is broken. **Do not use this tube.** Contact your Counterpoint dealer for another. Check that the pins on the bottom of the tube are straight.

Step 3. **Installing the first Tube**

Refer to the diagram on the next page to locate where tube V1 goes and carefully install it into its socket. If it does not fit easily, re-check your alignment and check that you have not bent one of the pins on the tube. Use caution in installing the tubes, as there is only one correct way that a tube will fit into the socket. Repeat this process for the other two tubes.



Step 4. **Closing the Top Cover.**
After you've installed all the tubes you should replace the top cover before attempting to use the SA-1000.

Locating Your SA-1000 And Cooling Considerations

Two important factors must be considered when selecting the location for your Counterpoint SA-1000: Sufficient clearance for ventilation and proximity to other associated products.

Cooling Considerations

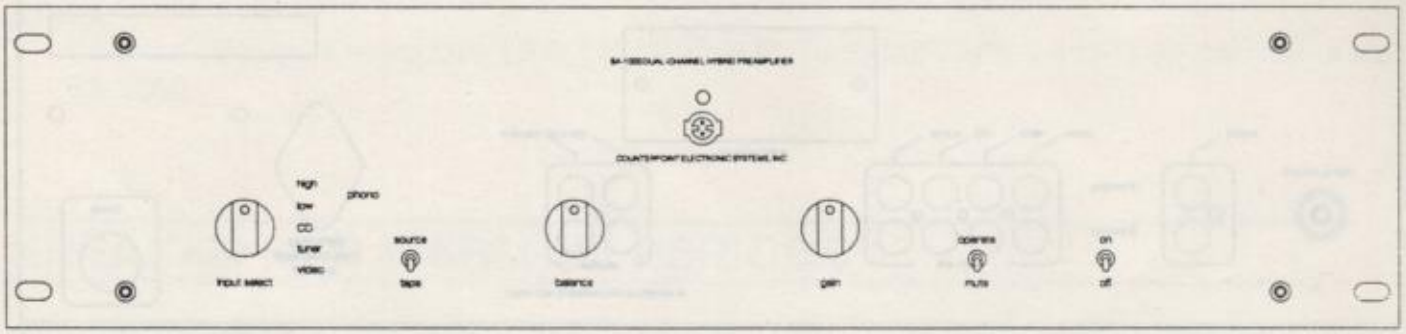
If your preamplifier is to be enclosed in any sort of cabinet or rack, that enclosure should have adequate openings to insure that the preamplifier will not recirculate heated air. The feet provided on the SA-1000's bottom will allow adequate clearance beneath for proper air circulation. *Allow at least 2 inches of unobstructed space above the chassis to effectively dissipate sufficient heat during normal operation of SA-1000. Since the rear panel of the SA-1000 is used to dissipate heat, any enclosure used should have an open back.*

NOTE TO INSTALLERS: Anything that reduces the ability of heated air to vent out of the top openings or reduces the convective cooling of the rear panel (used as a heatsink) will cause premature aging and failure of the unit. Forced-air can be used if the above requirements are kept in mind.

NEVER SUBJECT YOUR SA-1000 TO MECHANICAL JARRING OR SHOCKS WHILE IT IS PLUGGED IN!

FAMILIARIZING YOURSELF WITH THE SA-1000

Front Panel Description



Input Select. Use this control to select the program source to which you wish to listen. The source selected is amplified by the SA-1000's line section, after first passing through the GAIN and BALANCE controls. This control also selects the source which is sent to the TAPE OUT connectors. As shipped, the PHONO LOW position is not active, and you will not hear your turntable when you select this position. In order to avoid degrading the phono signal only one of the PHONO positions may be active at one time. If the signal from your turntable is unacceptably loud, see the instructions contained in *"Setting the Phono Section to the Low Gain Mode"* (See *"Internal Adjustments"*).

Source/Tape. This switch performs a tape monitor function by allowing you to listen to whatever signal source is connected to the TAPE IN connectors without disturbing the signal being fed to the TAPE OUT connectors.

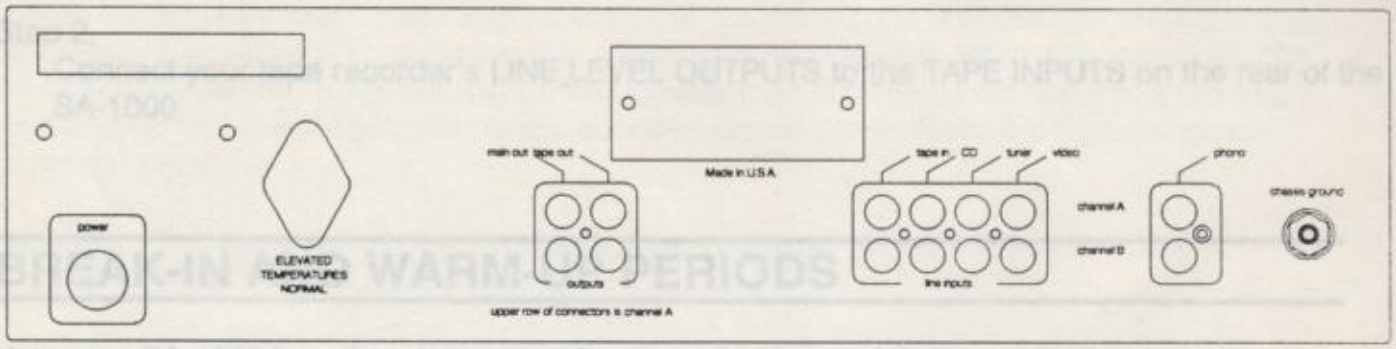
Balance. This control is used to center the stereo image.

Gain. A formal name for the **volume control.** Use this knob to increase or decrease the volume of the music to suit your preference.

Mute/Operate. A handy means of shutting off the signal feed to your power amplifier. It is not necessary to use this switch to prevent turn-on and turn-off thumps, as the SA-1000 handles on/off muting automatically.

On/Off Switch. This switch is used to turn the SA-1000 on and off. We recommend leaving this switch in the ***ON*** position to conserve tube life.

Back Panel Description



Chassis Ground. Attach your turntable's ground wire to this terminal.

Audio Inputs.

Phono. Connect your turntable to the set of input connectors marked PHONO after first removing the two shorting pins installed in the connectors. If you are not intending to use a turntable with the SA-1000, leave the shorting pins in the PHONO INPUTS to reduce the susceptability to Radio Frequency Interference.

High Level. The SA-1000 has facilities for connecting four high level (LINE LEVEL) signal sources such as an FM tuner, CD player, the audio feed from your VCR, or any other high level audio sources. We have tried to anticipate the standard audio sources you are likely to have, and have labeled the connectors accordingly. However, if we missed one of your favorites (like a second CD player) you can use any of the line inputs as they all have the same sensitivity and frequency response. The TAPE INPUT connectors, while primarily designed for use for monitoring a recording in progress, are also standard high level inputs and may be used with any high level audio source.

Audio Outputs.

Tape Out. These connectors are intended to be connected to the LINE LEVEL inputs of a tape recorder.

Main Out. Connect your SA-1000 to your power amplifier using these connectors.

CONNECTING YOUR TAPE MACHINE

Step 1.

Connect the LINE LEVEL (not microphone) inputs of your tape recorder to the TAPE OUTPUT connectors on the rear of the SA-1000.

Step 2.

Connect your tape recorder's LINE LEVEL OUTPUTS to the TAPE INPUTS on the rear of the SA-1000.

BREAK-IN AND WARM-UP PERIODS

Your new SA-1000 has already been on for over 100 hours while it was burning-in at the factory. Even so, like all high quality audio components, it will require several hours of actually playing music before it sounds its best. Each time you turn on your SA-1000, it will be ready to play music once the 40 second initializing period is over, but it has not really settled into its final, optimum, condition until at least 10 minutes has passed. This is a side effect of some very long time constants in the circuitry.

INTERNAL ADJUSTMENTS

MC Cartridge Loading

Many listeners feel that the traditional 47,000 ohm input resistance used for phono inputs is too high for optimum sound when using a MC cartridge. Inside the SA-1000 are two sets of sockets into which resistors may be inserted to lower the input resistance of the phono stage. You will need to remove the top cover of the SA-1000 after making certain that the preamplifier is disconnected from its AC Outlet.

LETHAL VOLTAGES WITHIN! BE ABSOLUTELY CERTAIN THAT THE SA-1000 IS DISCONNECTED FROM THE WALL OUTLET.

The MC LOAD sockets are near the rear edge of the circuit board, behind tubes V1 and V101. You may insert any resistor with standard 0.025" diameter leads into these sockets. The sockets are about 0.10" deep. Push the resistor leads straight into the sockets until they reach the "bottom".

PLEASE DO NOT SOLDER THE RESISTORS INTO THE SOCKETS.

The sockets' three internal gripping springs are tin-plated in order to form a good metal-to-metal with similar metals. Most resistor leads are tin-plated.

Determining the Correct Value of Loading for a MC Cartridge.

First off, loading an MC cartridge does change its sound. Recommendations abound, so we may as well offer our own: When used with no loading (with no resistors inserted into the MC LOAD sockets), most typical MC cartridges will present their most dynamic, "loudest" signal. But the tonal balance will be too bright, and may sound unacceptably edgy. As loading is applied, the brightness and edginess can be tamed, but too much loading will darken the sound unrealistically and constrict the dynamic range until the sound begins to flatten out. It is our recommendation that a loading range between 68 to 100 ohms will offer the best compromise. Less loading (values greater than 100 ohms) will result in a too-bright sound while more loading (values under about 68 ohms) compresses the signal's dynamic range too much.

Remember that the above recommendation is based upon our experience with typical low-output MC cartridges (0.3 to 0.5mV).

If your cartridge is of a different design you may wish to **consult your dealer or the manufacturer of the cartridge** for advice ***(please don't call us: the chances that we are currently using the same cartridge as you are quite slim)***. Or try some actual experimentation. Try the cartridge unloaded, with maybe 30 ohms then with maybe 100 ohms. As you listen, be aware that the more a cartridge is loaded, the less "loud" its signal is going to be and adjust the volume control accordingly. If you have several duplications in your CD and LP collection you can use them to compare against while listening to the effect of the loading.

Setting the Phono Section to the Low Gain Mode

As mentioned in the description of the INPUT SELECT control, the SA-1000 is shipped with the phono stage in the High Gain mode. This suits the intended use of the SA-1000 with low- to medium-output MC cartridges with moderate amounts of loading. During the design of the SA-1000 it was determined that having both High and Low Gain modes active at the same time resulted in unacceptable degradation of the sound quality. As a result, you have to make a choice whether you wish to use the High Gain or Low Gain mode, based upon the output level of your cartridge. If you discover that the High Gain mode has too much gain, follow the steps below to activate the Low Gain mode.

Step 1.

After unplugging the SA-1000 from its AC Outlet, remove the top cover.

Step 2.

Behind the INPUT SELECT switch are two "headers" on the circuit board. They resemble small plastic strips with four gold pins sticking out and are labled "H1" and "H101."

Step 3.

On each header is a plastic "shunt" that connects pins 3 and 4 together. This is the High Gain Active mode. Pull each shunt straight up off its pins and re-install it back on over pins 1 and 2. This will activate the Low Gain mode. Returning each shunt back to pins 3 and 4 will reverse the process.

Step 4.

Re-install the top cover.

TUBE REPLACEMENT

The average tube life expectancy for the SA-1000 is 2 to 3 years. When replacing a tube in your SA-1000, be certain that you replace it with an exact type as indicated in the *Specifications* section of this Owner's Manual. Unless you know exactly what you are doing, **any attempt to replace a tube with a type other than specified will void your warranty.**

How We Choose Our Tubes.

We get numerous suggestions from many people about different brands or types of tubes to use. You may have found what you consider to be an excellent tube. FYI, these are the things we look for when we buy tubes:

1. Large quantities available.
2. Good sound.
3. Excellent yield, (a large percentage are quiet enough for use in audio electronics).
4. Reliable operation.

It is very difficult to satisfy all four points. Some brands have great sound and large quantities available, but only 1-2% are useful to us due to high microphonics or noise level. Some others are quiet and sound good, but we can only find 200 of them (we purchase about 18,000 to 20,000 tubes each year). Some brands are plentiful, have good sound and a high yield at first, but only last about 1 to 6 months before they become noisy, and since we have about 6500 preamplifiers and amplifiers being used by customers at this time of writing, long life is very, very important to us. Any brand of tube that meets all four criteria will be considered for use in Counterpoint products.

How We Test Our Tubes.

New tubes are aged for 160 hours. Then they are plugged into an Audio Precision™ computer-aided tester and measured. At this point we are checking for noise, noise stability, and microphonics (*"ringing"*). A Pascal program with over 2,500 lines of code sorts them into seven categories ranging from very, very good to garbage. The very, very good tubes are possible candidates for phono sections, the next five categories may be used in less critical applications, and the garbage tubes are good for nothing. Too light for paperweights.

These tubes are then installed into new Counterpoint products and the noise is re-checked, the microphonics are re-checked, and distortion and signal amplification are measured. A large percentage of tubes are rejected again. We then age the entire product, with its new tubes, for 48 hours (in a very hot room) and then everything is checked again. Then, after the top cover, front face panel and knobs have been assembled onto the product, it is listened to and checked for sound quality, noise and microphonics again. All together, by the time you have received a Counterpoint product, its tubes have had over 200 hours of use and have undergone 35 individual tests and measurements.

Where to Obtain Replacement Tubes.

There are a number of sources for the tubes used in the SA-1000. However, most of the different makes of tube typically range from fair to poor. We have evaluated a broad sampling of the tubes manufactured in, or imported into, the U.S., and feel that the brand of tube we use gives the best sonic performance. If you wish to preserve the sonic characteristics of the SA-1000, be certain to have your dealer contact Counterpoint, or contact Counterpoint directly, and obtain your tubes from us. We will be certain that your replacement tubes operate perfectly in an SA-1000 by testing them in an SA-1000. Other suppliers of tubes do not offer this service.

When requesting replacements, please specify where the tube is located in your SA-1000 (V1, V101 or V2). V1 and V101 are the PHONO tubes, V2 is the LINE tube. These designations are printed on the unit's tube board, beside the tube sockets.

Tube Life.

The SA-1000 has been conservatively designed. Therefore, you should get thousands of hours of use before tube replacement becomes necessary. Some indicators of failing tubes are a loss of highs or lows, inadequate gain, excessive noise or an increased amount of distortion.

BEFORE REMOVING TUBES FROM YOUR SA-1000, BE CERTAIN THAT IT HAS BEEN DISCONNECTED FROM THE AC WALL RECEPTACLE FOR AT LEAST TEN MINUTES TO ENSURE THAT INTERNAL HIGH VOLTAGES HAVE DRAINED TO A SAFE LEVEL.

Before inserting a tube into its associated socket, be certain the tube pins are completely straightened. This will prevent possible damage to either the tube or the socket. Be very careful during this procedure as there is only one way a tube can be inserted into its socket without causing damage.

GETTING TO KNOW TUBES AND YOUR SA-1000

Short and Long Term Reliability.

Sometimes people expect too much from these complex, fragile little devices. Every time power is applied to a tube it heats up. Filaments reach 1200 degrees K. Internal parts heat and shift, sometimes causing bits of cathode material to crack loose. When the tube is

turned OFF, everything shifts again. High noise levels can be due to impurities on the grid wires or cathode plating. Sometimes, after a tube has been used for some time, impurities can be "uncovered", and cause the noise level to increase. Like a loose shingle on a house, a flake of cathode material can lift in the electron "wind" and cause noise instability (sputter).

Some of these events can come and go, or only occur during the first 30 minutes after the tube has been switched on. Others may get worse as time goes on. At Counterpoint, we age the tubes before we test them. This puts a few hours onto the tube, but there is no way we can predict what they will do a week or a year after they leave the factory. And if we do a lifetime aging process (maybe 3 years?) we couldn't sell the tube because it would then be an old tube.

Why Are Some Tubes Bad by the Time You Receive Them?

You've just brought your SA-1000 home, and the first time you listened to it you noticed that you had a noisy tube. Why? It's a new unit, Counterpoint won't ship anything until it has been measured and listened to, and yet you have a noisy tube. The reason is shipping vibration, plain and simple. While we do all that we can to protect a tube from shocks and breakage, there is very little that can be done to keep truck and airplane vibrations from shaking the tube for hours. A stray particle of cathode coating material can shake loose and cause noise instability. The grid wires (which are thinner than human hair) can shift and become microphonic (like a guitar string). The next time you have a damaged tube, break it open (in an old towel) and see how it is constructed. Dissect it and notice how fragile all the parts are. These are the simple facts of tube construction and there is nothing you, we, or the military can do about it.

A tube's insides are far more fragile than the insides of a light bulb. In a light bulb, all the manufacturer has to worry about is long life and good light output. It doesn't matter if the filament wire is leaning to one side, or if the coating of the filament has some loose flakes, the bulb will work. But a tube has about 1,000 times the requirements to operate satisfactorily. Everybody knows that if you shake a light bulb briskly for about 10 minutes there is a good chance that the filament might break, making the bulb useless. The same concept applies to a tube used for audio, but to a far larger extent.

Dealing With Tube Problems, and the Secret to a Happy Life With Tubes.

Problem 1: Tube noise when the unit is first turned on. Tubes need a chance to warm up, to stabilize, so that they can settle down and perform the way that they did at Counterpoint. To eliminate this problem and for greater tube stability we recommend that the SA-1000 be left in the ON position at all times. If you are the type of person who will be annoyed with tube noise you really should just leave the unit ON.

Problem 2: Tube noise later in life. It's going to happen. But, the longer a tube stays quiet, the longer it is likely to stay quiet. If one tube goes sour in an SA-1000, that's two out of the three tubes inside an SA-1000 that are proving themselves trustworthy. Replace the bad tube.

It really boils down to education about tubes in an audio application. Equanimity. Poise and tranquility. If a tube becomes noisy or microphonic, it is not a failure of the electronics! Don't get upset, just replace the tube. A bad tube does not indicate that the unit is defective, it simply indicates that the tube is bad.

There are times when it is appropriate to have an entire appliance replaced . . . and times when a simple plug-in parts replacement is all that is needed. People won't send a lamp back to the factory simply because the light bulb burned out. There is no reason to do so with tube audio product.

Understanding about noisy tubes, microphonic tubes and tubes with noise instability (sputter) will make troubleshooting vacuum tube electronics much easier.

Some folks expect tubes to behave like transistors. *They will not.* Guaranteed. They need to be worked with. Attention, patience and knowledge are important qualities when dealing with vacuum tubes.

Tubes are not perfect, *but they **DO sound great***.

CARE

Be careful not to allow foreign materials to enter the SA-1000 through the ventilation openings on the top. Do not insert an implement of any nature into these openings. To avoid potential electrical shock, do not operate the SA-1000 in a damp, rainy or moisture-filled environment and never operate the SA-1000 with its top cover removed.

Remember, the faceplate of your SA-1000 is manufactured from an aluminum alloy which is an extremely soft metal. It cannot withstand the careless use of tools during installation into a cabinet or rack.

When cleaning the exterior of your SA-1000, the direct use of dusting sprays, abrasive cleaners and particularly alcohol should not be used. At Counterpoint, detail cleaning of all metal surfaces is done using Windex™ spray glass cleaner or diluted ammonia solution. However, because the formulas for cleaners of this type vary, or change without notice, ***Counterpoint will not assume responsibility for the results obtained with any particular product.***

FUSES

A.C. Mains Fuse. This fuse is located inside the SA-1000, on the front right hand corner of the circuit board, directly behind the ON/OFF switch. If this fuse "blows" it is most likely an

indication of a fault in the SA-1000. However, it is possible that the fuse itself may have been faulty, so you may wish to try a new one before you call you dealer.

CAUTION! HAZARDOUS VOLTAGES!

Before replacing this fuse, be certain that the SA-1000 is disconnected from the A.C. receptacle. The replacement value of this fuse is 1 Amp "Fast Blow". Use of a larger or slower fuse can void your warranty.

WARRANTY INFORMATION. READ ME.

Your Counterpoint SA-1000 Preamplifier was engineered and built by dedicated people, with manufacturing techniques designed to achieve the highest standards available in the industry. In addition, each Counterpoint SA-1000 receives 100 hours of tube burn in and tubes match-up, for proper operation. Each Counterpoint SA-1000 Preamplifier undergoes rigorous testing procedure and has been checked twice by Audio Precision™ Computer-Aided Testing equipment, to catch any failure-prone devices, or components not up to spec which may have not revealed themselves during the breakdown tests. As a final step, each and every unit is listened to before it is shipped out from Counterpoint.

The Standard 90 Day Warranty

We Stand Behind Our Products With The Following Warranty.

Counterpoint hereby warrants that it will repair or replace, at its option, any part of the SA-1000 Preamplifier with which this warranty is enclosed which proves defective by reason of improper workmanship and/or material, without charge for parts, labor, and tubes for a period of 90 Days. This warranty period commences on the date of original purchase by the buyer.

When Warranty Service Is Needed.

To obtain service under this warranty you must return your Counterpoint SA-1000, properly packaged in its original container, to the nearest authorized Counterpoint dealer from whom the product was purchased. Any postage, insurance and shipping costs incurred in presenting or sending your Counterpoint SA-1000 for service are your responsibility. However, Counterpoint will return the product via prepaid, insured freight. Method and carrier to be determined solely by Counterpoint Electronic Systems, Inc.

The Dealer's original bill of sale or other satisfactory proof of the date of the original buyer of your Counterpoint SA-1000 must be made available to obtain service under this warranty.

The warranty applies only if your Counterpoint SA-1000 fails to function properly under normal use and within the manufacturers's specification.

Under no circumstances will the following be included as warranty coverage:

- 1. Any Counterpoint SA-1000 Preamplifier not operated in agreement with the instructions contained in the owner's manual.
- 2. Any resulting damage of any nature.
- 3. Any Counterpoint SA-1000 Preamplifier which, in our strict judgement, has been repaired, altered or modified by any facility or personnel not authorized by Counterpoint Electronic Systems, Inc.
- 4. Any Counterpoint SA-1000 Preamplifier which, in our strict judgement has been subject to neglect, abuse, accident, tampering, or has had its serial number removed or defaced.

This warranty gives you detailed legal rights. You may also have other rights which are inherent within your own state.

Direct shipments to the factory will not be accepted without a Counterpoint Return Authorization Number ("RA").

Be Prepared! Counterpoint will need the following information for warranty authorization:

1. The Model Number.
2. The Serial Number.
3. Your Name, Address, and a daytime phone number.

If your SA-1000 is returned for warranty repair or general repair and Counterpoint finds it to be not defective, it will be returned with **a handling fee of $65.00**, plus return shipping charges. **Therefore, be very certain that any problem you may be experiencing is actually due to a failure of the preamplifier.** If there are unusual circumstances surrounding the failure, please describe them clearly in an ***accompanying note*** so we may more easily duplicate the conditions.

If an SA-1000 Preamplifier is shipped to the factory for repair or update and is found to be packed in other than the original shipping materials, Counterpoint will re-package the unit in a factory carton for return shipping. ***You will be charged a nominal fee for the new material.***

It is Counterpoint's policy to defer to the consumer whenever a reasonable doubt exists. However, freight charges and handling fees will be billed for any units or parts returned under warranty and found by Counterpoint to be operating in accordance with their specifications.

Warranty Service Outside The U.S.A.

To those Counterpoint products whose customer purchase was made outside the United States and its territories, warranty conditions will be extended by the importing distributor, which may be different from those warranty conditions specified above. Warranty service, if needed, is the sole responsibility of the importing distributor or foreign dealer.

If a Counterpoint product is removed from the country in which the consumer purchase was made, Counterpoint distributors and/or authorized dealers in any subsequent country are not obligated by the terms of this warranty. Any repairs under the terms of this warranty will be made at the discretion of the distributor or dealers.

The Three Year Extended Warranty

How To Extend The Limited Warranty To A Three Year Warranty.

The SA-1000 automatically comes with a 90-day Warranty. You can extend this to a three-year period by simply mailing us a photocopy of the Dealer's original bill of sale or other satisfactory proof of the date of the original buyer purchase of your Counterpoint SA-1000. This will firmly establish authorized dealer, model number, serial number and ownership.

Please send a photocopy of the sales receipt to the following address:

Counterpoint Electronic Systems, Inc.
2610 Commerce Drive
Vista, CA. 92083
Atten: Warranty Registration

You will receive, via return mail, the Optional Three Year Warranty certificate for your records.

The Optional Three Year Warranty covers all parts and labor. It excludes vacuum tubes. The vacuum tubes are covered under the Standard 90 Day guarantee.

Transfer Of Warranty

- If the original owner established warranty for your Counterpoint SA-1000, you will need to provide the following paperwork:

1. A bill of sale from the seller to the new owner will firmly establish a transfer of ownership.

- If the original owner did not establish warranty and you wish to establish a warranty for your Counterpoint SA-1000, you will need to provide the following paperwork:

1. The original bill of sale from the Audio Dealership to the first owner.
2. Any and all subsequent bill(s) of sale from owner to owner.

All transfer of ownership paperwork should be sent to the following address:

Counterpoint Electronic Systems, Inc.
2610 Commerce Drive
Vista, CA. 92083
Atten: Warranty Transfer

You will receive, via return mail, an Optional Three Year Warranty certificate for your records.

Notification Of Product Improvements

Because Counterpoint always strives to improve existing products through ongoing research into new technology and materials, we reserve the right to incorporate design refinements without notice or obligation. For this reason, any current Counterpoint product may differ in some respects from its published description but it will always equal or exceed the performance of the original design.

Whenever possible, these design modifications will be incorporated in prior units. All owners will be notified, through the mail service, of the modification via their product warranty registration. Design modifications will be made through any authorized Counterpoint dealer or through Counterpoint, for a reasonable charge.

Warranty Extension Program

Counterpoint offers a warranty extension program to all owners with warranty on file. Once the Three Year Warranty has expired, you will be notified of your option to purchase (at a reasonable cost) an additional Three Year Parts and Labor Warranty (excluding tubes).

BEFORE YOU CALL YOUR DEALER OR THE FACTORY: TROUBLE-SHOOTING.

Important!

If your SA-1000 is returned for warranty repair or general repair and Counterpoint finds it to be not defective, it will be returned with **a handling fee of $65.00**, plus return shipping charges. So be thorough and careful with your system set up and troubleshooting.

Assistance From Your Local Dealer Or Dealer Of Purchase.

Your Counterpoint Authorized Dealer is your best source of assistance — he is in a much better position to help because he knows you, your needs and your system. In addition, your Dealer is backed up by the special support resources within Counterpoint.

Trouble-Shooting. A Quick Check Of The Obvious.

- Is the AC power cord properly attached?
- Are the tubes inserted properly into the respective tube sockets?
- Is the power switch in the ON position?
- Is the MUTE/OPERATE in the OPERATE position?

Trouble-Shooting. A Check Of The Not-So-Obvious.

SYMPTOMS	REMEDIES
Tubes light but the LED does not.	Broken LED, broken wire or bad connection to the circuit board, replace or correct as necessary.
No Sound. Tubes and LED do not light.	Check to see if the fuse has blown. Replace fuse with exact fuse value.
Hum only with the Phono input.	Check the connection of your turntable's ground wire to the CHASSIS GROUND binding post on the rear of the SA-1000.
"Pinging" or "Ringing" sound when you change a switch or tap the front panel.	All tubes are microphonic to some extent. If you feel that the level of microphonics is unacceptable, or it is steadily getting worse, you should contact your Counterpoint dealer to obtain a new tube. But first ascertain which tube is the culprit. 1. If the microphonics occur on all inputs, regardless of volume control setting, tube V2 (the line tube) is at fault. 2. If the problem occurs only on phono listening, and goes away when the volume control is reduced to fully off, the problem is one of the phono tubes. The easiest way to determine the ringing tube is to remove the top cover and, while listening, use the eraser end of a pencil to gently tap tube V1 then V101. You will be able to determine which tube is at fault. Contact your Counterpoint Dealer to obtain a replacement tube, and be certain to tell him which tube you need.
The SA-1000 "turns itself off" and the front LED lamp goes dark.	Check that the rear panel of the SA-1000 has adequate cooling. The filament regulator is designed to shut itself off if it overheats.

SYMPTOMS	REMEDIES
Rushing, Hissing or Rumbling Noise.	Possibly a bad tube. 1. In most cases, leaving the unit ***ON*** will eliminate the noise. 2. If time doesn't cure the problem, replace the bad tube. If the noise is audible in one PHONO channel only, swap tubes V1 & V101 (see tube chart for proper location). If the problem goes away, you've taken all the corrective action that needs to be done. If the problem travels to other channel you need to determine which tube is the noisy one (use the eraser end of a pencil to gently tap V1 then V101 to determine which tube is feeding which speaker. If the right speaker has the tube noise, and you hear the tapping from the right speaker when you tap (for example) V1, then V1 is the culprit. 3. If the noise is located in the line section section only (audible with all sources, and even with the volume control at minumum), the problem tube is V2. 4. If the noise does not go away when you mute the SA-1000, the problem most likely is in your power amplifier since the mute switch shorts the output of the SA-1000 to ground. ***BE CERTAIN THAT YOU PUT THE TUBES BACK INTO THEIR ORIGINAL LOCATION.*** Contact your Counterpoint Dealer and tell him which tube (V1, V101 or V2) you're having trouble with. He can obtain a new one for you.
Hum emanating from the Transformer.	1. All transformers vibrate. The noise from the transformer can usually be heard from within a foot of the chassis. If the hum is much, much louder, there may be a problem with your SA-1000, but first be certain that the unit is not resting on a surface that might amplify the noise, such as a wooden shelf. A piece of carpeting under the chassis can help. You also may be in an extremely quiet location. 2. If the transformer hum is excessive and can be heard from several feet away, you may possibly be experiencing a failure of the transformer or rectifiers. Contact your dealer to obtain an R.A. from Counterpoint so it can be shipped to the factory for repair.

SYMPTOMS	REMEDIES
Hum in all inputs.	1. Check for electrical ground loop. Only one component in your system should be 3-prong grounded to the AC receptacle. Use "ground cheaters" to lift all but one component from AC ground. 2. Disconnect all source components (FM Tuner, turntable, etc.). If hum is eliminated, connect the components back to the SA-1000 one at a time until the problem re-occurs. Contact the manufacturer of the component and inform them of your problem and troubleshooting technique. 3. If the hum remains, use the MUTE/OPERATE switch to mute the output of the SA-1000. If the hum is gone then the cause of the hum is within the SA-1000. 4. If the hum remains, with the SA-1000 muted, then the hum is being generated after the output of the SA-1000. Check the cables between the SA-1000 and your power amplifier; it is possible that they are running parallel to an AC Mains line. Hum may also be induced into the input of your power amplifier if the two stereo input cables do not follow the same path to the amplifier. Route the cables right next to each other and see if the hum vanishes. Finally, if you still have a hum, turn off your power amplifier and removed the cables from its input. Replace the cables with shorting plugs at the amplifier input. If, after you turn on the amp, the hum is still present, the problem lies in your power amplifier. You will need to contact your power amplifier's manufacturer. In short, when the SA-1000 is connected to your amplifier, and the SA-1000's inputs are all shorted and you hear a hum ONLY if it is unmuted, the hum is generated within the SA-1000. If this is the case, contact your dealer to obtain a Return Authorization Number from Counterpoint.
Degraded sound caused by tape recorder.	The inputs of some solid-state tape recorders can degrade the sound quality of your SA-1000, especially when the tape machine is turned off. This is because which ever audio source you are listening to is also connected to the TAPE OUT connectors and the input to an unbiased transistor can act like a diode and cause considerable distortion. The solution is to leave your tape recorder turned on whenever you wish to listen. We have also seen some cases where the input of a tape machine's electronics are so poorly designed that they can add a noticeable degree of shrillness, edginess or just plain irritation to music even when turned on. The solution here is just to disconnect the darn thing except when you actually desire to record something.

SYMPTOMS	REMEDIES
A new SA-1000 that sounds different than the one you heard in a dealer's showroom.	A new SA-1000 will not give the same sonic performance as one that had signals sent through it and has been burned in, so please give the SA-1000 a little more time. Connect it to play music and let it play for 24 to 48 hours. We can suggest turning off your power amplifier and connecting an FM tuner to the phono jacks, selecting PHONO with the INPUT SELECT control and setting the GAIN control to about 9:00. Be careful not to turn on your power amplifier until you have disconnected the tuner, since the output of a tuner is a high-level source hundreds of times louder than a phono cartridge. This high amplitude signal will speed the "forming" of the various capacitors and components. If you also upgraded your interconnects at the same time as your preamplifier, the above break-in applies to them as well: We've experienced some highly-regarded cables that had no bass until they were broken in. Honest.

TECHNICAL DESCRIPTION

Gain Devices.

All voltage gain stages in the SA-1000 utilize vacuum tubes. The phono stages use the venerable 12AX7 dual triode. Line stage voltage gain is performed by a 6DJ8 dual triode, and a MOSFET is used to supply current gain.

Phono Stage.

The signal from the RIAA connectors is capacitively coupled through C1 and C101 to the grid of 1/2 of the phono stage tube (V1, V101). Since the triode is biased with the self-bias technique, the small negative voltage developed at the grid requires capacitive coupling to prevent this voltage from flowing through the phono cartridge. The unequalized, amplified signal at the plate of the first stage is coupled through C3, C103 to the passive RIAA deemphasis network, consisting of C4 (C104), C5 (C105), R4 (R104) and R5 (R105). All components of the RIAA deemphasis network are 1% tolerance. The output of the RIAA network is connected to the grid of the second half of the phono stage tube, which is cathode biased through R17 (R117) and "gain trim" rheostats VR1 and VR101. The equalized, amplified final signal is taken from the plate of the second stage, decoupled through C6 (C106), and fed to the signal selector switches. The source impedance of this second stage is sufficiently low to drive the balance and volume controls, so no further buffering is required.

Line Stage.

Input selection is performed by RS1, the INPUT SELECT rotary switch. This switch is configured so that unselected inputs are shorted to ground to prevent unwanted signal "bleedthrough."

The line amplifier uses the two halves of V2, one per channel. This stage is biased by cathode resistor R10 (R110). MOSFET Q1 (Q101), operated in common-drain configuration, acts as a buffer for V2. Capacitor C8 (C108) prevents direct current from the source of the MOSFET from reaching the power amplifier.

Power Supply.

There are two power supplies in the SA-1000: high-voltage and filament. The high voltage winding of the transformer is full-wave rectified with D201 through D204, 1N4007 rectifiers. The output of the rectifier is smoothed by C201 and regulated by pass device Q201, the base of which is referenced by zener string D205 through D208. The output of the regulator is RC coupled into C204,205,206 and 207, which form the main storage elements for the four main amplifier stages (R and L PHONO, R and L LINE).

Filament voltage is supplied by the low voltage winding of the transformer, which is full-wave rectified by diodes D209 through D212 (1N5404), filtered with C206 then regulated by an LM350K regulator U201 to 12 VDC for the 12AX7 tubes and muting circuitry. R402 is used to drop the 12 VDC down to approximately 6 VDC for V2. Automatic muting is accomplished by a 555 timer circuit (U300) and relay (K300). The RC components of the timer have a time constant of about 60 seconds, after which the relay coil is pulled down through the 555, opening the normally-closed contacts. The contacts, when closed, shunt the output of the SA-1000 to ground. The output of the SA-1000 can also be manually shorted by changing the MUTE/OPERATE switch to MUTE.

SPECIFICATIONS

Tube Complement

2-12AX7, Audio Amplification. V1 & V101.
1-6DJ8, Audio Amplification. V2.

Typical Electrical Specifications

Gain. @ 1kHz.

High Gain Phono to Main Out: 70dB.
Low Gain Phono to Main Out: 58dB.
Line Input to Main Out: 25dB.

Frequency Response.
Line Stage: +0.0/-3.0dB: <2Hz to 170kHz;
+0.0/-0.1dB: 20Hz to 25kHz.
Phono Stage: +0.1/-3dB: <2Hz to 20kHz

Distortion.
Line Stage: 0.065% Max. T.H.D. per EIA.
Phono Stage: <0 .08% Max. T.H.D., 1kHz to 20kHz;
<0.1% Max. T.H.D., 1kHz to 20kHz @ 0.5mV input level;
1% T.H.D. @ 20mV/1kHz.

Signal to Noise.
Line Stage: 83dB (ref. 0.5V, EIA-weighted noise: 38uV, 10 to 500kHz).
Phono Stage: 81dB (ref. 5.0mV, EIA-weighted noise: 54uV, 10 to 500kHz).
61dB (ref. 0.5mV, EIA-weighted noise: 54uV, 10 to 500kHz).

Input Impedance.
Line and Tape Inputs: 30k Ohms.
Phono Input: 47k, internal provisions for lower resistances.

Output Impedance.
Main Outputs: 2.3k Ohms

Maximum Input Levels.
Line Inputs: 100V r.m.s.
Phono Input: 1V r.m.s.

Maximum Output Level.
120V p-p @ 1% T.H.D.

Power Requirements.
22 Watts, 96 to 125 Volts, 50 to 60Hz (Domestic version).

Replacement Fuse Value.
100V., 117V., 220V., & 240V. Versions: Use 1 Amp AGC Fast Blow type fuse.

Dimensions.
Front Panel: 19 inches (480 cm) wide, 4.46 inches (11.3 cm) tall.
Front-to-rear dimension: 12.68 inches (32.2 cm), including connectors.

Weight.
20 Lbs.