

A202/A502

DUAL HIGH RESOLUTION POWER AMPLIFIER

SAE

OWNERS
MANUAL

SCIENTIFIC AUDIO ELECTRONICS, INC.

TABLE OF CONTENTS

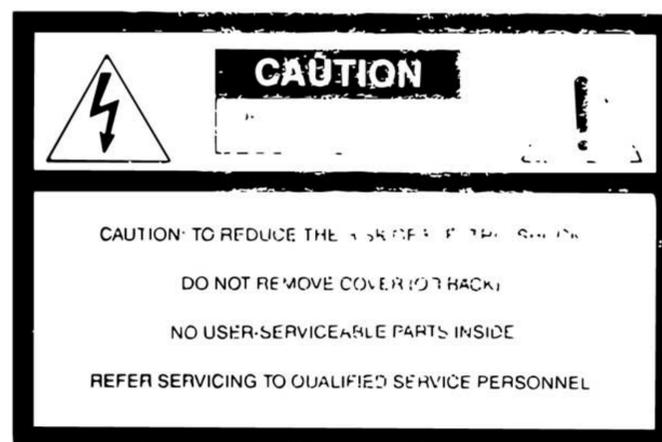
CONGRATULATIONS	2
UNPACKING	2
INSTALLATION.....	2
A NOTE ABOUT HEAT	2
A SHORT STORY ABOUT AMPLIFIERS	3
CONNECTIONS	3
Input	3
Output	3
Speaker Wire	5
Phasing	5
AC Power	5
Standby	5
OPERATION	6
Power Switch	6
Protection Circuits	6
RF Detection	6
Special Cautions.....	7
Fast Response/Standby	7
Spkr 1/Spkr 2	7
Display	7
BRIDGING OF THE A502	8
Philosophy	8
Mono/Bridged Operation.....	8
TROUBLE SHOOTING GUIDE	10
PRODUCT RECORD	10
SERVICE/SERVICE COVERAGE.....	11
WARRANTY	11
SPECIFICATIONS-A202	12
SPECIFICATIONS-A502	12
WIRING DIAGRAM FOR VOLTAGE	
CONVERSION-A202	13
-A502	14

Caution: Do not block ventilation openings or stack other equipment on top.

Attention: Ne pas bloquer les conduits d'aération ou entasser d'autre équipement dessus.

LIST OF ILLUSTRATIONS

FIGURE 1. Typical Hookup	4
FIGURE 2. A502 Bridged Mono Hookup Diagram	9



This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" with the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Caution: To prevent electric shock do not use this (polarized) plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.

Attention: Pour prévenir les chocs électriques ne pas utiliser cette fiche polarisée avec un prolongateur, une prise de courant ou une autre sortie de courant, sauf si les lames peuvent être insérées à fond sans en laisser aucune partie à découvert.

WARNING

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

CONGRATULATIONS

You now own one of the finest stereo power amplifiers presently available. Your high resolution amplifier is the end result of many years of painstaking research and development by SAE's engineering and design team. The high caliber of our design staff and SAE's dedication to precise engineering and production standards make your amplifier, as it has made other SAE products, known around the world as a truly "state-of-the-art" component.

This manual has been carefully written to provide the maximum amount of information about the proper operation and use of your amplifier. Since the A202 and A502 use the same basic design philosophy and offer the same sonic performance but at different power levels, the recommendations, warnings, and suggestions included in this manual apply to both models. Any variance in features or graphics will be noted when and where they apply for individual models.

Please read this manual thoroughly before operation of your amplifier. This will ensure the maximum performance and enjoyment of your new SAE component. If you have any questions concerning use or maintenance that are not covered by this manual, please contact your dealer or the SAE Customer Service Department, 1734 Gage Road, Montebello, CA. 90640.

UNPACKING

Personal Inspection-Before leaving the factory, your amplifier was carefully inspected for physical imperfections as a routine part of our systematic quality control to ensure a flawless product.

The shipping container for your amplifier was carefully designed to minimize the possibility of any transportation damage.

We recommend that the container be saved, should you ever wish to move or ship the product to another location.

After you have unpacked your amplifier, inspect it for any physical damage. In the unlikely event that damage has occurred, immediately notify your dealer and request the name of the carrier so that a written claim to cover the damage can be initiated.

THE RIGHT TO ANY CLAIM AGAINST A PUBLIC CARRIER CAN BE FORFEITED IF THE CARRIER IS NOT NOTIFIED PROMPTLY, AND IF THE SHIPPING CARTON AND PACKING MATERIALS ARE NOT AVAILABLE FOR INSPECTION BY THE CARRIER. SAVE ALL PACKING MATERIALS UNTIL THE CLAIM HAS BEEN SETTLED.

INSTALLATION

All SAE amplifiers come equipped with standard EIA mounting configurations. The A202 is 3 1/2 inches high (2 rack spaces) and the A502 is 5 1/4 inches high (3 rack spaces). To mount, remove the four rubber feet located on the underside of the unit. Install in a suitable rack mount cabinet, securing the front of the unit with either 10-32 or 10-24 flat or oval head screws and nylon cup washers (Available at your dealer). The '02' amplifiers are convection cooled and require at least 3/4" to 1" of air space above and below the unit. Providing proper air flow to the unit insures reliability and long life.

If the '02' series amplifiers are to be used in portable applications, they must be rear or bottom supported. Contact your local professional sound dealer for the necessary supports and installation suggestion.

A NOTE ABOUT HEAT

Heat is the single most consistent killer of electronic equipment. Whether audio or video type equipment, keeping the unit cool will have a direct bearing on its life and operation. In the case of power amplifiers this is an even more important consideration. The hotter the amplifier runs the less reserve power is available at any given time. Your SAE amplifier was designed to operate under extreme but not impossible conditions. It has an automatic thermal shut-off which will power-down the amplifier and let it cool off if it has been overheated and insufficiently ventilated. Should shut down due to over heating occur, the amplifier will act as if unplugged from the power line. It will slowly cool down at which time it will power itself back up again. If intended operation is for unusual conditions, extended high output levels, or with low impedance speakers at high current levels we suggest you consider a cooling fan. However, none of these circumstances is likely to occur with normal use.

A SHORT STORY ABOUT AMPLIFIERS

Traditionally power amplifiers have been AC coupled devices only. That is, we limited the low end response of the amplifier to exclude Direct Current (DC) as, by definition, there is no audio information in a DC signal. We have this tradition for two reasons:

A) Originally audio amplifiers were constructed from tube amplifying devices and were transformer coupled to the speaker. Transformer/tube combinations will not pass a DC signal to the speaker.

B) In order to protect the customer's loudspeakers we make every effort to assure that no DC can be present in the output. DC appearing in the output of a power amplifier will be passed on to the loudspeaker just like an AC audio signal, but loudspeakers will not produce sound when a DC signal appears as there is no audio content in a DC signal. Yet electrical power is still there as there is a voltage and a load. The power is then dissipated in the form of heat rather than sound. A small DC potential across the speaker will eventually cause the drivers to both heat up (possibly melting the adhesive used to hold the voice coil to the cone) and also slowly demagnetize the speaker magnet. The basic fact is that DC on a loudspeaker can do absolutely no good and will usually cause the loudspeaker system to deteriorate in quality, often to the point of failure.

There is a fair chance that you may have noted that the HI-FI business is rather susceptible to fads and timely trends to keep the market stimulated. Certain manufacturers over the years have failed to understand (A cost consideration) the real significance of the demands of low end response. In an effort to build low cost equipment they employed low end cut-off techniques which caused a rather gross deterioration of the bass material in the musical program. Under severe criticism from reviewers, those manufacturers went to the opposite extreme and removed any DC blocking devices and invested extensive energy in promoting this approach. The SAE position on this matter is basic. A well designed amplifier from the start should not pass DC. The ability to keep the audio information in phase (an argument for DC) is not a problem in our amplifiers. Should your preamplifier or equalizer leak DC to a DC power amplifier, there will be damage to the loudspeaker.

Because this type of speaker/amplifier problem was rather rare until the advent of the DC amplifier, it is not usually considered when the HI—FI system begins to perform poorly and is easy to overlook until the speakers are damaged. One further comment on the DC craze. The RIAA organization, the people who set the recording curves and standards specify a roll-off of

6B/oct. below 20Hz. This means that the record process is definitely not DC. Further more, anytime you engage your rumble or warp filter in your pre-amplifier you are adding another filter whose job is to “un-DC” the hi-fi system. We submit that for the best long-term quality and reliability from your system follow the philosophy of the AC configuration.

CONNECTIONS

All connection facilities are located on the rear panel of your amplifier. Any suitable program source such as a preamplifier, tuner with variable output level control, tape deck with variable output level control or compact disc player with an output level control may be connected directly to the amplifier inputs. However, the most common connection made to these jacks will be from one pair of the preamplifier main output jacks.

ALL COMPONENT CONNECTIONS MUST BE MADE WITH THE AC POWER OF ALL COMPONENTS SWITCHED OFF.

A502: Your unit is equipped with a pair of stereo/mono slide switches located at each corner of the rear panel. These switches are set in the STEREO mode at the factory and are secured with a locking plate. Be sure that when making all connections, that these switches are in the STEREO position, unless of course you have purchased two A502 amplifiers and plan to operate them in the BRIDGED MONO mode.

INPUT — All input signal connections must be made with high quality shielded cables. The left channel is labeled LEFT and the right channel input as RIGHT. The input jacks are standard two-conductor RCA phontotype (unbalanced) terminals. They are terminated with 50K ohms resistance.

The inputs provide full bandwidth frequency response from the power amplifier. Both the A202 and A502 are capable of responding from below 1Hz to well over 50kHz.

OUTPUT — The '02' amplifiers employ 1/4 turn-quick-connects which are capable of accepting most commercially available high quality speaker cable directly without the need for special end pins or plugs. To use, strip the cable insulation back at least one inch and insert the cable to the proper terminals. (Red is +, Black is -).

Then twist the connector clockwise to secure the bare wire in the terminal. It is highly recommended that a heavy gauge speaker wire be used, at least of 16 ga. to 12 ga. cable should provide sufficient contact and provide for high current flow to your loudspeakers.

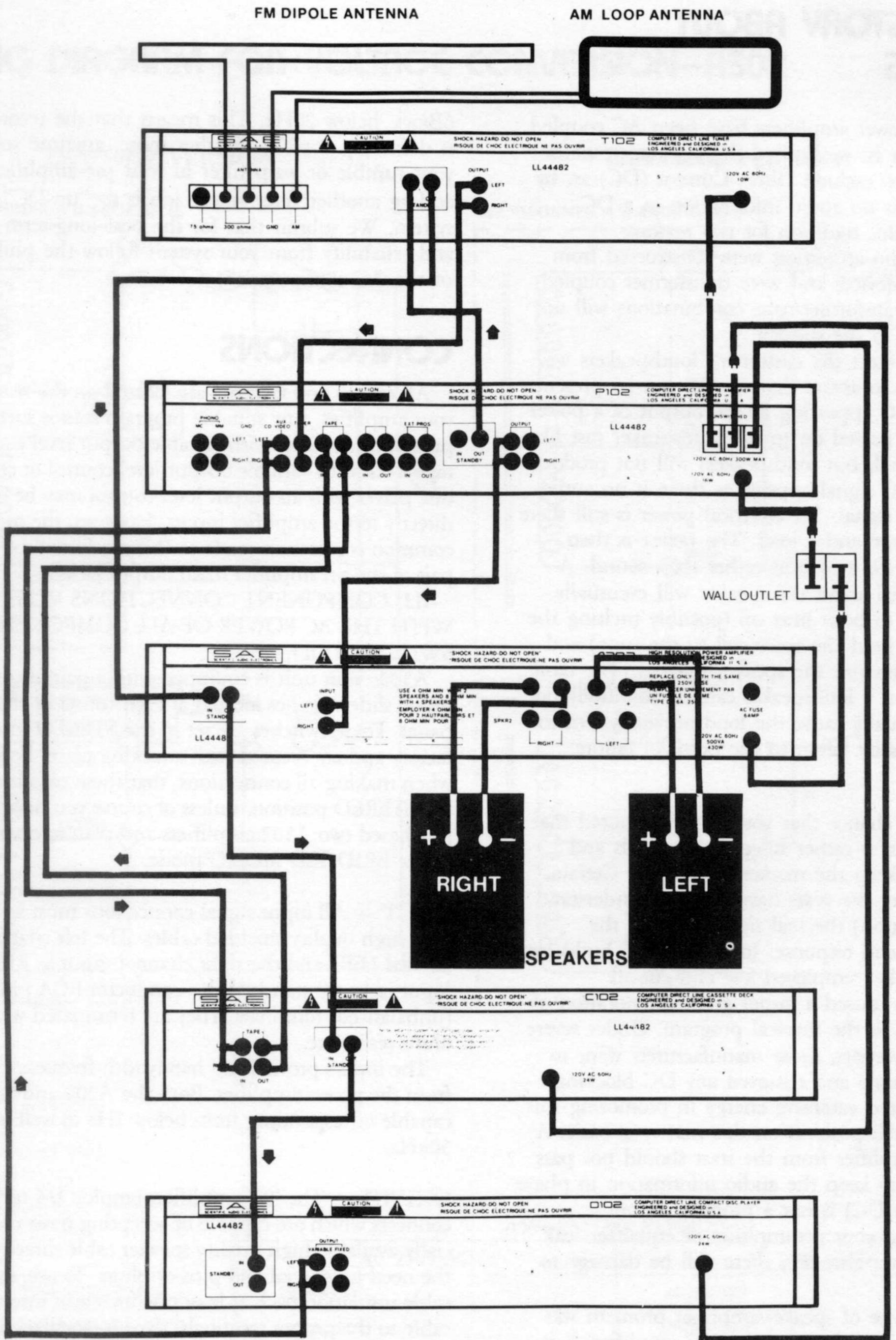


FIGURE 1. Typical Hook up

SPEAKER WIRE—The interconnection between an amplifier and a loudspeaker is critical. Make sure your connections are tight, clean and secure. Use the heaviest gauge wire possible (i.e. the smallest number) and only as much as you need. The reason for this is to insure sonic quality. Using small size hookup wire (higher gauge number) or excessive lengths will cause attenuation of high frequency response, degradation in mid frequency performance and loss of woofer control (overshoot, etc.). The table below will aid you in selecting the right wire gauge for your application.

LOAD	DISTANCE FROM AMP		
	5—10'	10—25'	OVER 25'
8 OHMS	16	16	14
6 OHMS	16	14	12
4 OHMS	14	12	12

PHASING—Proper phasing occurs when both speakers in a stereo pair move in and out in unison (in-phase) on mono program material. Speakers connected in-phase ensure proper stereo imaging (placement of instrument and vocalists) while an out-of-phase connection causes indistinct or confused stereo imaging. The simplest way to effect proper phasing is to closely inspect the wire being used for speaker connection. Some form of coding is always employed, whether a rib or groove on one side of the cable or one lead being tinned while the other is not or a strand of fabric being included with the lead on one side. The marked side should be attached to the positive terminals of the amplifier and also attached to the positive terminal of the loudspeaker. By following this procedure for both speakers of a stereo pair, proper phasing is ensured. Should there be some questions, an alternate method may be employed for verification of phasing. Place the two speakers very close together, switch the mode switch on the preamplifier to mono and listen carefully to the program source. Now, shut off the system and reverse one set of speaker leads to one speaker. Then replay the same music and compare the level of bass. If the level of bass is now greater, the speaker wire should be left as it is. If it is now less, the wiring should be changed back. This will verify proper phasing of the speakers.

AC POWER—Because of the logic controlled front panel switches, it is recommended that the amplifier be plugged into an uninterruptable AC power source (preamp 'unswitched' outlet or non-switch controlled wall socket). The A202 requires 6 amps continuous current, the A502 requires 12 amps continuous current.

STANDBY — The A202 and A502 can be turned on or off via the P102 preamplifier. Connect a cable from the STANDBY OUT on the P102 to the STANDBY IN on the amplifier. There will now be a STANDBY OUT jack remaining open on the amp and another cable may be connected in a "daisy chain" manner from the A202/A502 STANDBY OUT to the STANDBY IN of another '02' component. Only the P102 can control the other components power up process but the order in which the system components are linked may be altered. Simply remember to make a "loop" from the STANDBY OUT of one component to the next component's STANDBY IN. The front panel STANDBY LED will not illuminate when the A202/A502 is properly connected to the P102 STANDBY jacks. This indicates a "remote" standby status, that is, the component is ready to be powered up via the P102.

OPERATION

Once the system has been properly connected, and all precautions about wiring have been observed, the system may be turned on. Basic power amplifiers require no additional controls, and since these controls may adversely effect the sonic performance of the system, SAE has made every effort to remove any superfluous gain or speaker switching controls from the power amplifier. Because of their solid state design, the SAE amplifiers are ready to operate almost instantaneously from turn on (except for the short period of turn on delay covered under amplifier protection in this section of the manual). The amplifier should be allowed to stabilize for approximately one hour before any critical listening tests are done.

POWER SWITCH—This switch controls the AC power to the amplifier. If the amplifier is connected to a pre-amplifier capable of handling the power demand, the switch may be left on all the time. However, if the unit is connected to the wall socket instead, we recommend that the amplifier be the last unit turned on in the system and the first turned off.

PROTECTION CIRCUITS—Your amplifier is equipped with a fail-safe relay protection circuit which will not only protect your loudspeakers from possible damage, but will also protect itself even under the severest load conditions. If, under any circumstances, D.C. or subsonic frequencies appear at the amplifier output, the amplifier will disconnect itself from the load (loudspeaker) and will remain disconnected until the problem has been rectified. The sensitivity and slope of the protection circuit is adjusted so that a “thumping” tuner muting circuit, “flicking” the stylus clean, or dropping the stylus on the record will disconnect the loudspeakers momentarily thus preventing damage. In this case, the amplifier will not entirely shut off, but will allow a very low level signal to be heard. If this signal is heard, it indicates that the amplifier is still operational but that some input source has caused a temporary malfunction, and the amplifier is responding to that malfunction. Part of the unique relay design is a contact diode prevention circuit. This circuit overcomes the problems commonly encountered with relay protection circuits. That is, the oxidation forming on the relay leads causing a slight diode effect at high frequencies.

NOTE: Part of the relay circuit design is a momentary delay at turn-on of 3-5 seconds. This delay allows the amplifier to stabilize before delivering signal to the speaker outputs. At the time of turn off the relay is automatically shut down so that none of the turn off transients of the preamplifier or the power amplifier are delivered to the speakers. The amplifier is further protected by a very low impedance electronic sensing circuit which will limit the output only under the severest load conditions. Because of the tremendous output current capability of the products, none of the conventional current limiting circuits are employed. The result is a much cleaner overload characteristic and much broader dynamic range. Some care should be taken in fusing your speakers to protect them from possible damage because of the high power available in the amplifiers. Please observe recommendations made in your speaker’s owners manual or contact your dealer for further information about speaker protection.

RF DETECTION—CAUTION: BURNOUT OF THE OUTPUT STAGE BECAUSE OF FAILURE TO OBSERVE THE FOLLOWING PRECAUTIONS WILL VOID THE WARRANTY.

There is no such thing as absolute reliability or protection when amplifiers are abused. While the amplifiers, as well as all other SAE products, have been designed to be impervious to most kinds of abuse, there is one condition which must be avoided. This condition is called RF Detection and will almost certainly cause failure of the output devices if initiated. Because all SAE amplifiers have an extremely wide bandwidth, it is almost impossible to protect against burnout if abused. The following acts cause RF Detection and must be avoided:

- 1) Connecting the inputs or outputs while the amplifier is on.
- 2) Using the “thumb test.” It is a dangerous habit to connect cables to the inputs and touch the other end of the cable while the level is up. This may not only cause amplifier failure but may also destroy your loudspeakers due to the high power of the amplifier.

SPECIAL CAUTIONS

WHEN MAKING LOUDSPEAKER CONNECTIONS, CARE MUST BE TAKEN TO AVOID SHORT CIRCUITS WHICH WILL CAUSE IMPROPER OPERATION OF THE AMPLIFIER.

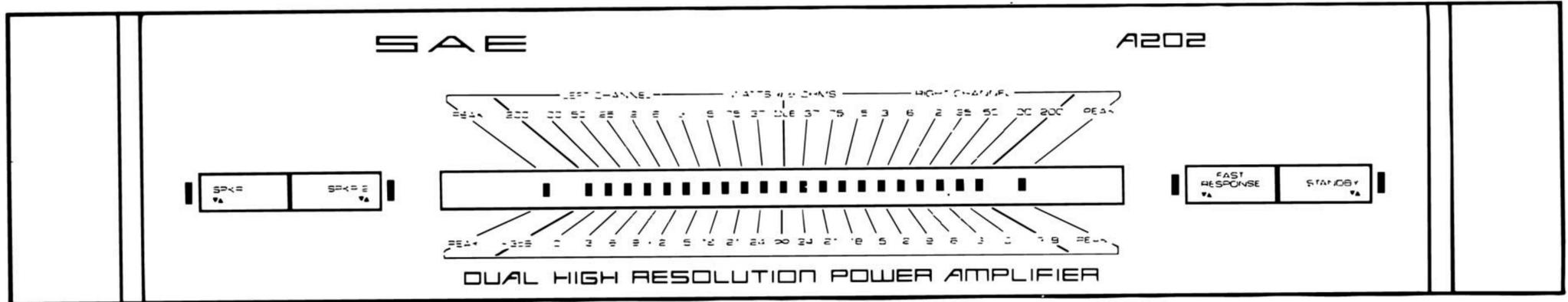
IMPORTANT: SAE CANNOT BE RESPONSIBLE FOR DAMAGE RENDERED TO SPEAKERS DUE TO MISUSE OF THE AMPLIFIER'S HIGH POWER.

INVESTIGATE THE SPEAKER MANUFACTURER'S

SPECIFICATION FOR POWER HANDLING CAPABILITY BEFORE ATTEMPTING THEIR USE WITH THE "02" SERIES AMPLIFIERS.

A502: IN MONO/BRIDGED MODE. IT IS NOT POSSIBLE TO SELECT MORE THAN ONE PAIR OF LOUDSPEAKERS AT A TIME WHILE IN THIS CONFIGURATION.

OPERATION OF CONTROLS



FUNCTION



OPERATION

This switch activates the AC power relay (logic controlled) which completes the circuit to the power transformer. Push on, push off.

This control increases the LED Power/dB display's sensitivity. The power average is normally displayed. Push on, push off.

Selects speaker 1 output terminal. Push on, push off.

Selects speaker 2 output terminal. Push on, push off.

Note: Both sets of speakers may be used simultaneously, provided the total load is 4 ohms or greater, except when bridged mono mode is selected on A502.

DISPLAY—The front panel display incorporates a 10 segment LED power/dB level display and a peak indicator for each channel. The 10 segment LED display shows relative power either in average response or fast response modes. The peak indicator displays instantaneous peak excursions in the program material.

BRIDGING OF THE A502

PHILOSOPHY

Bridging offers you a new world of dynamics and clarity for your music listening.

When the A502 is used in a bridged mode, the two stereo channels are connected to form a mono amp. One channel drives the positive terminal of the loudspeaker and the other is phase inverted and drives the negative terminal of the amp. This push-pull approach allows the amplifier to offer a dramatic increase in power to the speakers. This can greatly improve the amplifier's ability to drive the speaker under dynamic signal conditions without distortion-producing clipping. This bridged configuration also allows the amplifier to control the positive and negative inputs independently. Since the amplifier now has separate feedback loops, it can more carefully respond to speaker errors. The result of increased power output and more precise feedback control is a large improvement in dynamic response from your speakers and better amplifier control for enhanced special imaging and clarity, aided by an improved slew rate and damping factor. Don't forget you need two bridged amps to achieve the above in stereo mode.

As noted above, the A502, when bridged, can produce a substantial increase in power output. This large power increase comes with the following constraints:

- 1) Since each channel of the amplifier now "sees" only half of the speaker's impedance, it must be able to drive the lower load (for example when a bridged amp drives an 8 ohm loudspeaker, each channel will "see" only 4 ohms). For this reason, the A502 is designed to electrically disallow the selection of more than 1 speaker at a time while in this configuration (SPKR 1 only).
- 2) DO NOT USE ANY NEGATIVE SPEAKER OUTPUTS ON THE POWER AMPLIFIERS.
- 3) While all audio components generate heat, there is a thermal point at which even the best components may go into their protection mode. If proper ventilation is achieved, the heat generated by a bridged amplifier should not affect its operation.
- 4) Heavy gauge, insulated speaker cable is essential in a bridged system. As well as improving the sonic clarity of your system (especially yielding more powerful bass), heavy gauge cable offers less resistance to your amplifier's output stages. With the high output of a bridged amp, thin cable will tend to "choke" on the current overload, potentially leading to amplifier shutdown.
- 5) Utilizing equal length speaker leads from both amps to their respective speakers will aid in reducing phase anomalies.
- 6) Carefully monitor your volume levels. Even with the greater dynamic headroom and high clipping rate

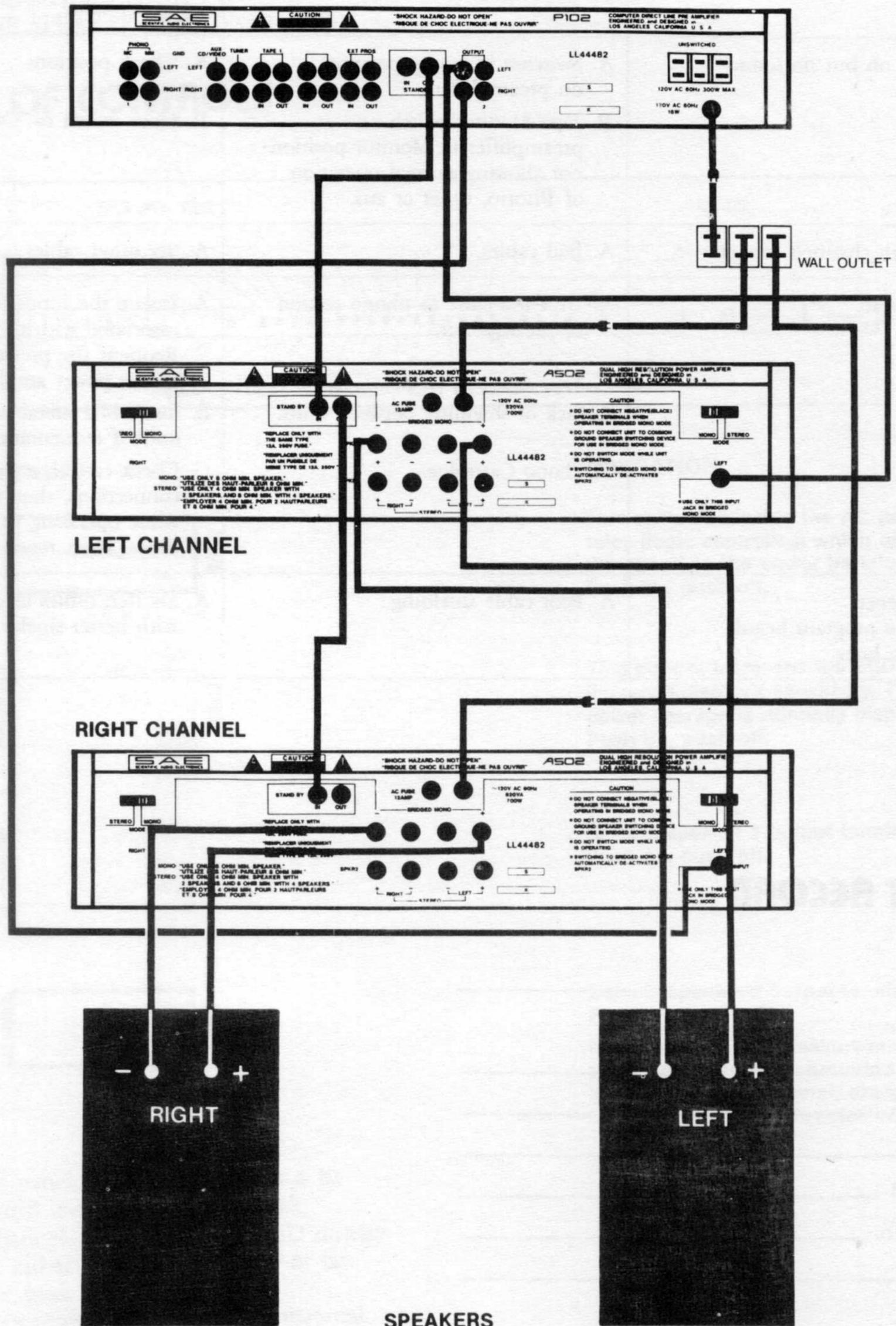
achieved by bridging, your loudspeakers are still susceptible to damage produced by high power.

- 7) Two identical amplifiers must be paired together to form a properly bridged system.

MONO/BRIDGED OPERATION: (A502 only) To utilize this feature it is necessary to have (2) amplifiers for stereo operation. To use, first, release Stereo/Mono switch locking devices on each amplifier. Move switches to "Mono" side, and relock safety plates.

Next, connect preamp output LEFT to left (Mono) input of the 1st A502: Connect preamp output RIGHT to left (Mono) input of the 2nd A502. To hook up your left speaker to the 1st A502, connect positive terminal (plus or red) to left plus terminal of "SPEAKER 1" output of the 1st A502 (That is, the A502 that is connected to the LEFT preamp output): connect the negative terminal (Minus or Black) of the same speaker, to the right, bridged, minus (Red) terminal of SPEAKER 1 output of the 1st A502. Repeat above procedure for the right speaker and the 2nd A502. Also see figure 2 for connection diagram.

FIGURE 2. A502 BRIDGED MONO OPERATION HOOK UP DIAGRAM



TROUBLE SHOOTING GUIDE

SYMPTOM	PROBABLE CAUSE	POSSIBLE REMEDY
1. Unit will not turn on.	A. Not plugged into AC outlet. B. Blown AC Fuse.	A. Connect AC line cord to outlet or try different outlet. B. Refer to General Maintenance section and replace fuse with proper value.
2. Unit turns on but no sound is heard.	A. Switches in wrong position on preamplifier. B. Tape Monitor switch on preamplifier in Monitor position not allowing normal operation of Phono, tuner or aux.	A. Check positions. B. Move switch to 'Out' position.
3. One or both channels inoperative.	A. Bad cables.	A. Try other cables (or interchange).
4. Hum in audio.	A. Unit too close to phono section of preamplifier. B. Lack of shielding between units. C. Phono Cartridge.	A. Isolate the input function associated with the problem. Reorient the preamp in relation to the power amplifier. B. Insert MU metal shield between units if reorientation is impossible. C. Check cartridge ground connections, then move tone arm while operating to see if hum level varies. If so, reorient turntable.
5. RF Interference. Radio: radio program heard, TV: rasping buzz.	A. Poor cable shielding.	A. Shorten cables or obtain cable with better shielding.

PRODUCT RECORD

Serial No. _____

Purchased From:

Name _____

Address _____

Date Purchased _____

Sales Invoice No. _____

Salesman _____

SERVICE

SAE has a Customer Service Department to answer all questions pertinent to the installation and operation of your unit. Please feel free to write us at any time and we shall endeavor to offer prompt and complete advice regarding your unit. If a problem arises which cannot be resolved through our combined efforts, we will refer you to a local authorized repair agency or the factory. To aid us in selecting a service station convenient to you, please indicate which major city is closest to your home.

Please address inquiries to:

Customer Service Department
SAE Inc.
1734 Gage Rd.
Montebello, CA 90640

Be sure to include the model number and the serial number of your unit. In the event your unit must be returned, an authorization **MUST BE OBTAINED** from SAE prior to its return.

UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO THE FACTORY WITHOUT PRIOR AUTHORIZATION.

If the original shipping carton has been lost or discarded, or if the carton is not in good condition, a duplicate carton may be obtained from our Service Department for a minimal charge.

Always ship via recognized freight carriers. Suggested carriers will be given in SAE's Customer Service Department's reply. Do not ship via Parcel Post. **ALL PARCEL POST SHIPMENTS WILL BE REFUSED.**

SERVICE COVERAGE

U.S. (ONLY)

SAE is proud to offer you a two year limited warranty on your component. In order to receive this valuable protection, please observe the following:

1) **RETAIN YOUR BILL OF SALE OR OTHER PROOF OF PURCHASE**

In the unlikely circumstance that your unit should require service, the bill-of-sale will act as your proof of ownership and effective date of warranty.

2) **READ THE WARRANTY**

SAE has offered you certain rights under the warranty, AND required certain conditions be met by you. Please read the warranty to understand it thoroughly.

3) **FILL OUT THE PRODUCT RECORD**

In this manual is a product record. Please fill it out. It will provide a convenient reference for future needs.

INTERNATIONAL

As stated above, the SAE |two year|limited warranty is valid only in the United States. Service in other countries will be provided by the exclusive SAE representative or his agents. Because of varying governmental regulations and conditions, the service period may differ from country to country. However, in every instance, the service agreement can be honored only in the country where the unit was purchased. In the event that there is no SAE representative in your country, please contact SAE

LIMITED TWO YEAR WARRANTY

This SAE product is warranted against defects in materials and workmanship for two years from the date of purchase by the original owner presenting a Scientific Audio Electronics Customer Service Facility the original or a copy of the original purchase receipt or sales slip showing from whom the product was purchased, the date of purchase and the purchase price of the unit. In the event proof of purchase cannot be established as stated in the preceding sentence, the warranty period shall commence to run on the date of shipment from SAE, provided the serial number on the unit has not been altered in any manner. This warranty shall apply only to the original purchasers and shall not apply to purchases solely for commercial or industrial use.

During the warranty period, Scientific Audio Electronics will repair or, at its option, replace at no charge components that prove to be defective, provided the product is returned in accordance with the shipping instructions which are contained with the unit, shipping prepaid, to Scientific Audio Electronics Customer Service Facility. (Refer to shipping instructions) This warranty does not apply if the unit has been damaged by accident or misuse, or as a result of service or modification by other than a Scientific Audio Electronics Customer Service Facility authorized to service the product.

SCIENTIFIC AUDIO ELECTRONICS SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

THERE ARE NO WARRANTIES GIVEN BY SCIENTIFIC AUDIO ELECTRONICS WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. ALL IMPLIED WARRANTIES OF FITNESS FOR PURPOSE SOLD, MERCHANTABILITY, DESCRIPTION, QUALITY, PRODUCTIVENESS OR ANY OTHER MATTERS ARE LIMITED TO THE TWO YEAR TERM OF THE EXPRESS WARRANTY HEREIN STATED.

Some states do not allow limitations on how long an implied warranty may last, so the above limitation may not apply to you.

Obligation To Make Changes

Products are sold on the basis of specification applicable at the time of sale, Scientific Audio Electronics shall have no obligation to modify or update products once sold. This warranty gives you specific rights, and you may also have other rights which vary from state to state.

SPECIFICATIONS

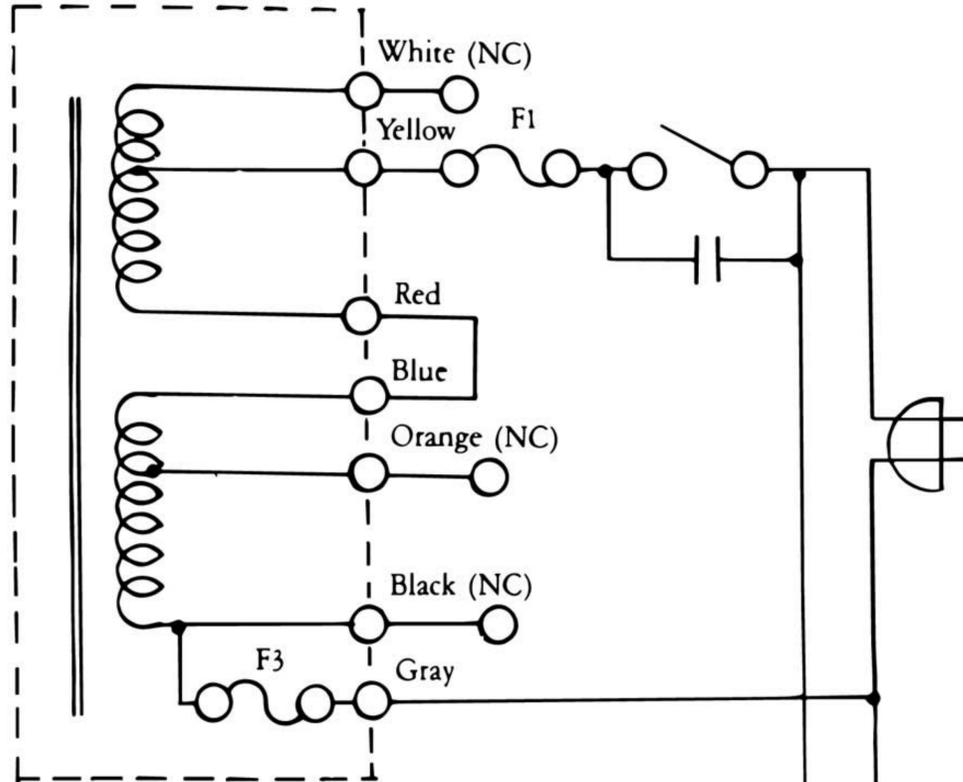
		A202	A502
Minimum continuous RMS power per channel, both channels driven at no more than 0.025% THD, 20Hz-20kHz	@8 ohms	100 Watts	200 Watts
	@4 ohms	150 Watts	300 Watts
	Bridged Mono	N/A	600 Watts
Intermodulation Distortion from 250mV to rated power, 20Hz-20kHz		0.025%	0.025%
Headroom		1.2dB	1.4dB
Damping Factor @8 ohms	@50Hz	105	155
	20Hz-20kHz	83	125
Slew Factor @8 ohms		2.5	3.0
Frequency Response at rated power, 20Hz-20kHz @1 Watt, 10Hz-100kHz		+0dB, -0.5dB +0dB, -3dB	+0dB, -0.5dB +0dB, -3dB
Signal-To-Noise Ratio Rated Power (wideband) Rated Power (IHF-A) @1 Watt		-110dB	-110dB
		-125dB	-125dB
		-100dB	-100dB
Channel Separation	@1kHz	85dB	85dB
	20Hz-20kHz	68dB	68dB
Input Sensitivity, rated output		1 Volt	1 Volt
Dimensions (W×H×D)		19" × 3.5" × 13"	19" × 5.25" × 13"
Shipping Weight		31 lbs.	48 lbs.

WIRING DIAGRAM FOR VOLTAGE CONVERSION—A202

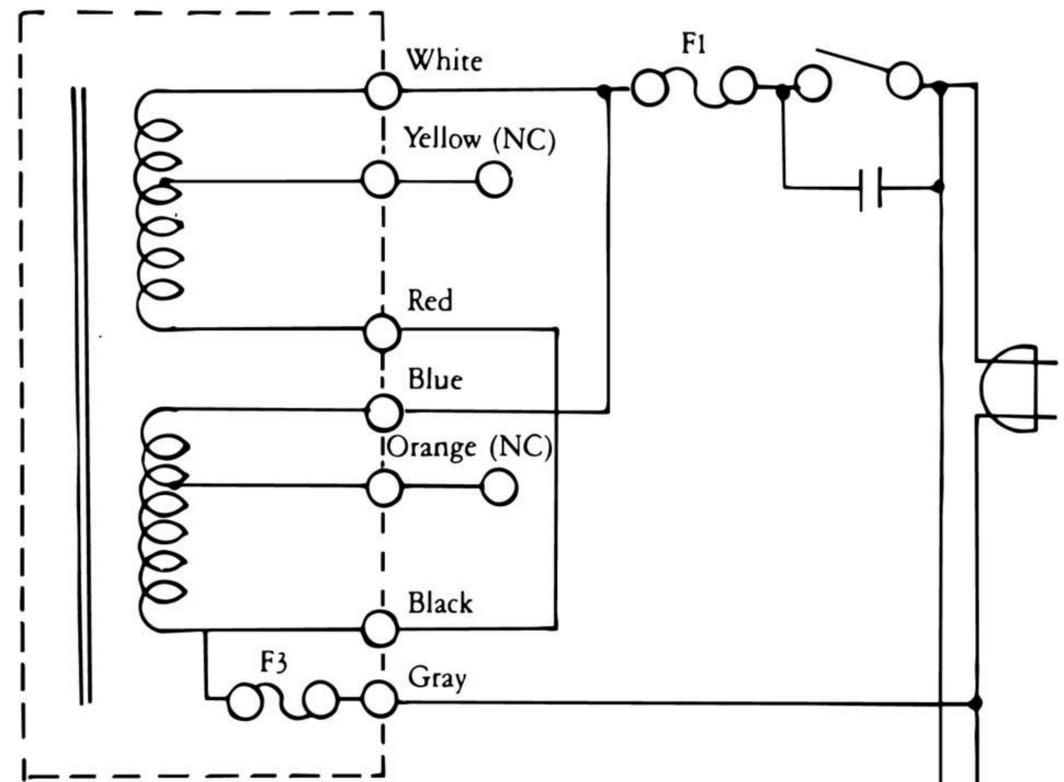
220V/50HZ VERSION

120V/60HZ VERSION

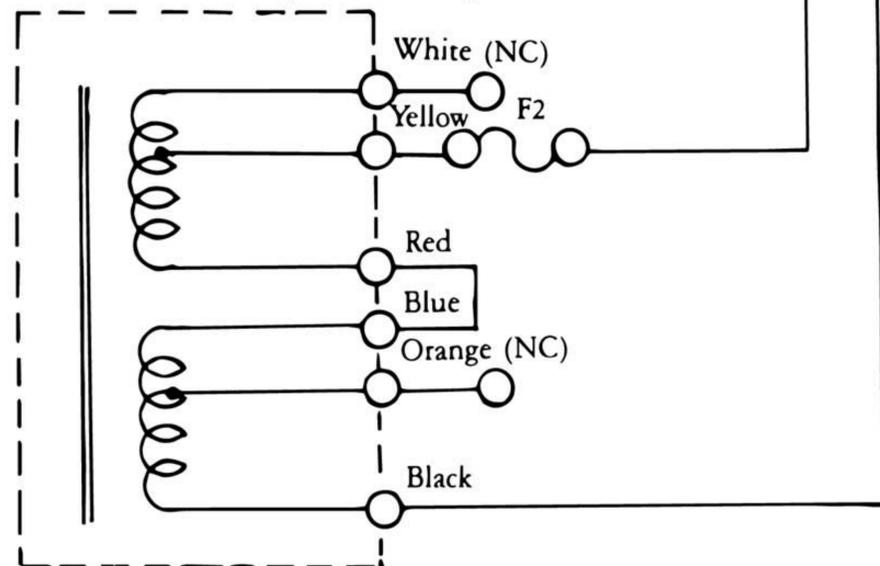
TRANSFORMER A (LARGE SIZE)



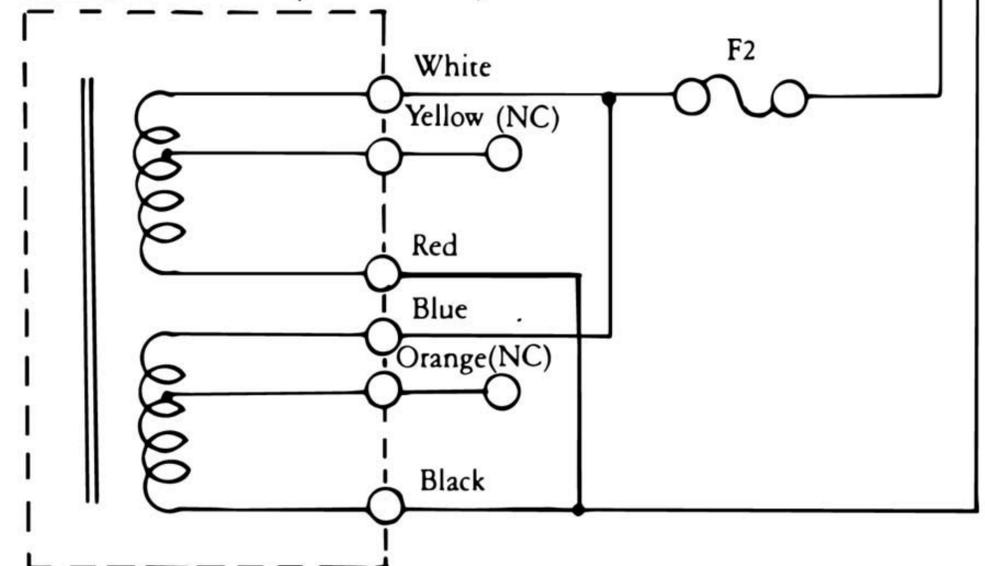
TRANSFORMER A (LARGE SIZE)



TRANSFORMER B (SMALL SIZE)



TRANSFORMER B (SMALL SIZE)



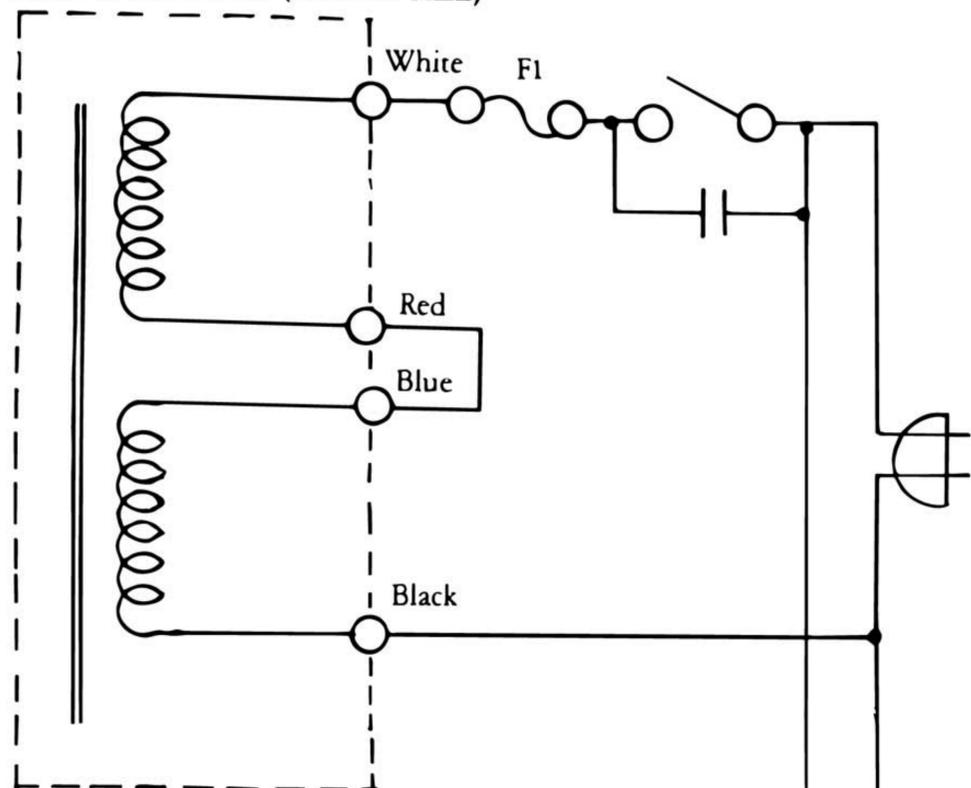
	A202	
	AC 220V 50Hz	AC 120V 60Hz
TRANSFORMER A	2828037801	2828037801
TRANSFORMER B	2828034911	2828034911
FUSE, F1	F4A	SB. 6A 250V
FUSE, F2	T630mA	SB. 0.15A 250V
FUSE, F3	THERMO FUSE (MELTING POINT: 169°C) BUILT-IN TRANSFORMER A	

WIRING DIAGRAM FOR VOLTAGE CONVERSION-A502

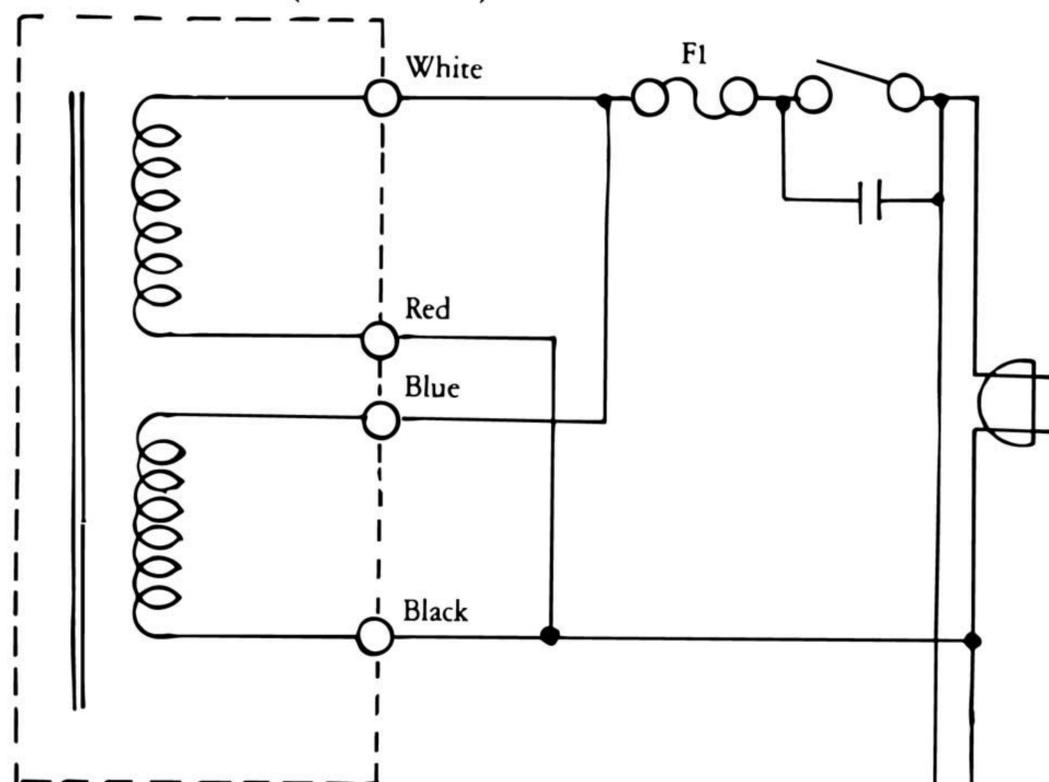
230V/50HZ VERSION

120V/60HZ VERSION

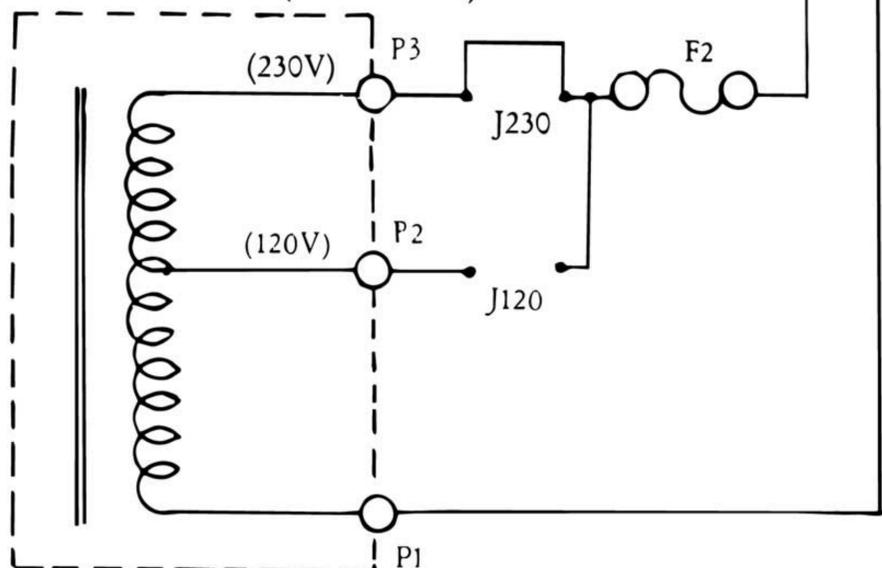
TRANSFORMER A (LARGE SIZE)



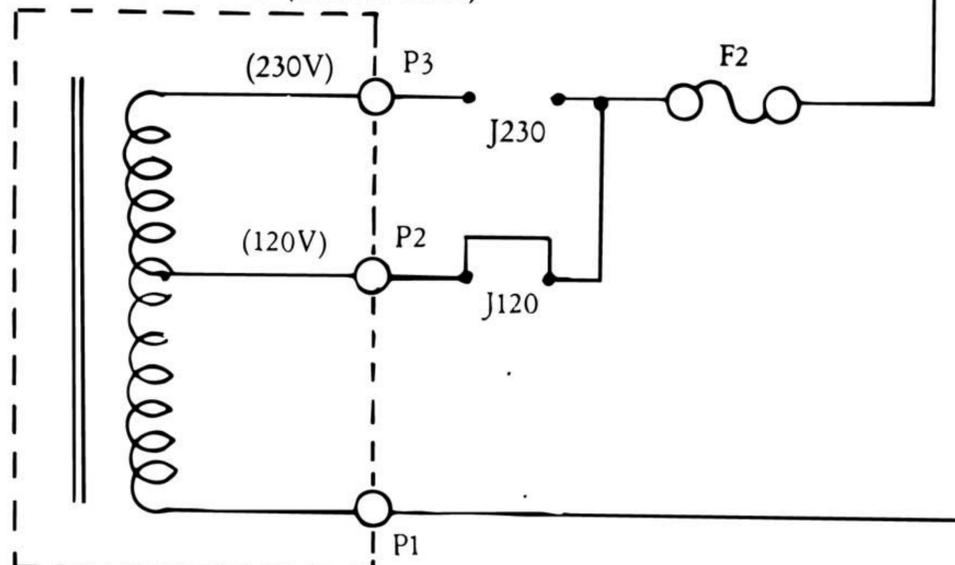
TRANSFORMER A (LARGE SIZE)



TRANSFORMER B (SMALL SIZE)



TRANSFORMER B (SMALL SIZE)



	A502 EXPORT VERSION	
	AC 230V 50Hz	AC 120V 60Hz
TRANSFORMER A	2828047801	2828047801
TRANSFORMER B	2828047901	2828047901
FUSE, F1	SB. 7A 250V	STD12A 250V
FUSE, F2	S.B 0.15A 250V	SB. 0.15A 250V

NOTE: Above modifications are available only for the export version.

For USA and Canada versions, the part No. of the transformer A and B are 2828047801 and 2828047901 respectively, and are fixed as AC120V/60Hz only.

Main office: SCIENTIFIC AUDIO ELECTRONICS, INC.

P.O. Box 60271, Terminal Annex, Los Angeles, California 90060. Tlx: 188-138 SAE LSA

In Canada: Tri-Tel Associates, 105 Sparks Avenue, Willowdale, Ontario, Canada, M2H 2S5.

9007010625