

harman

kardon

The Award Series



A 500

INTEGRATED STEREOPHONIC AMPLIFIER

TECHNICAL SPECIFICATIONS

Circuit:	Two 7355 tubes per channel, self-biased, tetrode connected in Class AB ₁ operation. D.C. on preamplifier and voltage amplifier filaments.
Music Power Output:	25 watts per channel.
Continuous Power Output:	20 watts per channel at less than 0.5% distortion. 5 watts at less than 0.2% distortion.
Peak Power Output:	50 watts per channel.
Frequency Response:	$\pm\frac{1}{2}$ db 12-35,000 cycles per second at normal listening level.
Minimum Volume Hum:	85 db below rated output.
Tone Control Range:	± 10 db at 50 and 10,000 cycles per second. Individual tone controls for each channel.
Input Sensitivities:	High Level: 200 mv. for rated output. Low Level: Phono (RIAA) 4 mv. Tape (NARTB) 2.5 mv.
Stereo Inputs:	2 Magnetic Phono (RIAA), 2 Tape Head (NARTB), 2 Crystal Phono, 2 Tuner, 2 Tape Amplifier, 2 Auxiliary, 2 Tape Monitor.
Outputs:	2 Tape Outputs, 1 Third Channel Output controlled by front panel Ambiance Control, Stereo Headphone Output on front panel and 1 A.C. convenience receptacle (switched).
Front Panel Controls:	Speaker Phasing Switch, Tape Monitor Switch, Hi-cut Switch, Lo-cut Switch, Contour Switch, Stereo Reverse Switch, Stereo Headphone Jack, Ambiance Control, Illuminated Push-Button On/Off Switch, Stereo/Mono/Blend Indicator Lamps, Individual Bass and Treble Tone Controls for each channel, Balance Control, Blend Control, Loudness Control and Function Selector Switch.
Chassis Controls:	Tube balance control for each channel.
Special Features:	Ambiance gain control for center channel system or gain to feed any reverberation unit. Blend control with lamps to indicate exact degree of blend. Stereo Headphone Jack on front panel which automatically disengages speakers when headphones are plugged in. Illuminated Push-Button On/Off Switch.
Fuse:	Externally accessible.
Tubes:	(Total 9) 4-7355, 1-12AU7, 4-12AX7/ECC83.
Power Consumption:	125 watts.
Dimensions:	15 $\frac{1}{4}$ " wide x 5 $\frac{7}{16}$ " high x 12" deep. (Excludes knobs.)
Shipping Weight:	32 lbs.
Finish:	Brushed gold front panel.

INTRODUCTION

The new Harman-Kardon Award Series represents the culmination of extensive research and experimentation in high fidelity component design. These magnificent instruments will satisfy the aspirations of those who insist on nothing short of perfection itself. They also anticipate any of the new developments in high fidelity by including features never before found in high quality components. The keynote in the Award Series is unparalleled performance and no compromise has been made in the design of these superb units.

It is essential you read this instruction manual carefully before installing your A500 integrated amplifier. You have invested in a high quality electronic instrument and a few moments taken now to read this manual may save considerable time and effort later on. This booklet has been written in simple, non-technical language and by following the recommendations made in the manual you should be able to obtain optimum performance from your stereophonic system.

KEEP THIS INSTRUCTION MANUAL AVAILABLE AT ALL TIMES. IT CONTAINS INDISPENSIBLE TECHNICAL AND SERVICE INFORMATION.

UNPACKING

After unpacking the A500, inspect it carefully for signs of transit damage. The amplifier was subjected to numerous rigid quality control inspections and therefore should be in perfect operating condition. If damage is visible, notify your dealer at once. If the amplifier was shipped to you, notify the transportation company. Harman-Kardon will cooperate with you in such instances, but please note that only you can recover from the carrier for damages incurred during shipment.

Check the folds of the carton and packing material before discarding. Your package should contain the following items:

- 1 Award Series, Model A500 Integrated Amplifier.
- 1 Instruction Manual.
- 1 Warranty Card.
- 1 Mounting Template.

WARRANTY POLICY

We urge you to fill in your warranty card and mail it to the factory without delay to protect your rights under warranty. The Harman-Kardon warranty is not valid unless we have your card on file.

WARRANTY

We warrant each A500 to be free from defects in material and workmanship under normal use and service, and in accordance with the conditions herein below set forth, for a period of 1 year from date of delivery to the original purchaser, and agree to replace or repair any part or parts, with the exception of tubes which are under the manufacturer's 90 days warranty, returned to us within said 1 year, with transportation prepaid and which our examination shall disclose to our satisfaction to have been thus defective. This warranty does not include free labor, nor is it applicable to any instrument which shall have been repaired or altered in any way so as in our judgment to affect its stability or reliability nor which has been subject to neglect, misuse, abuse, negligence or accident nor which has had the serial number altered, effaced, or removed. Neither shall this warranty apply to any instrument which has been connected otherwise than in accordance with instructions furnished by us.

This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liability on our part, and we neither assume nor authorize any representative or other person to assume for us any other liability in connection with the sale of this instrument.

SERVICE POLICY

Harman-Kardon has established a special consumer division to answer all questions pertinent to the installation and operation of your unit. Please feel free to write us at any time and we will endeavor to offer prompt and complete advice.

If your problem cannot be resolved through our combined efforts then we may wish to refer you to one of our authorized warranty stations. The unit must be then shipped via Railway Express, Prepaid to the station designated, accompanied by a brief note describing the exact nature of the difficulty. Under no circumstances should the set be shipped directly to the factory without prior authorization.

INSTALLATION PROCEDURE

Ventilation:

The unit is well ventilated in itself, but sufficient space must be allowed around it to permit proper air flow. Install the amplifier in a manner to allow for unrestricted circulation. Do not place books or other objects on the cage or in the immediate vicinity of the instrument. Reducing the air flow will result in sharply reduced component and tube life. Allow at least 4 inches above the unit for cabinet installation.

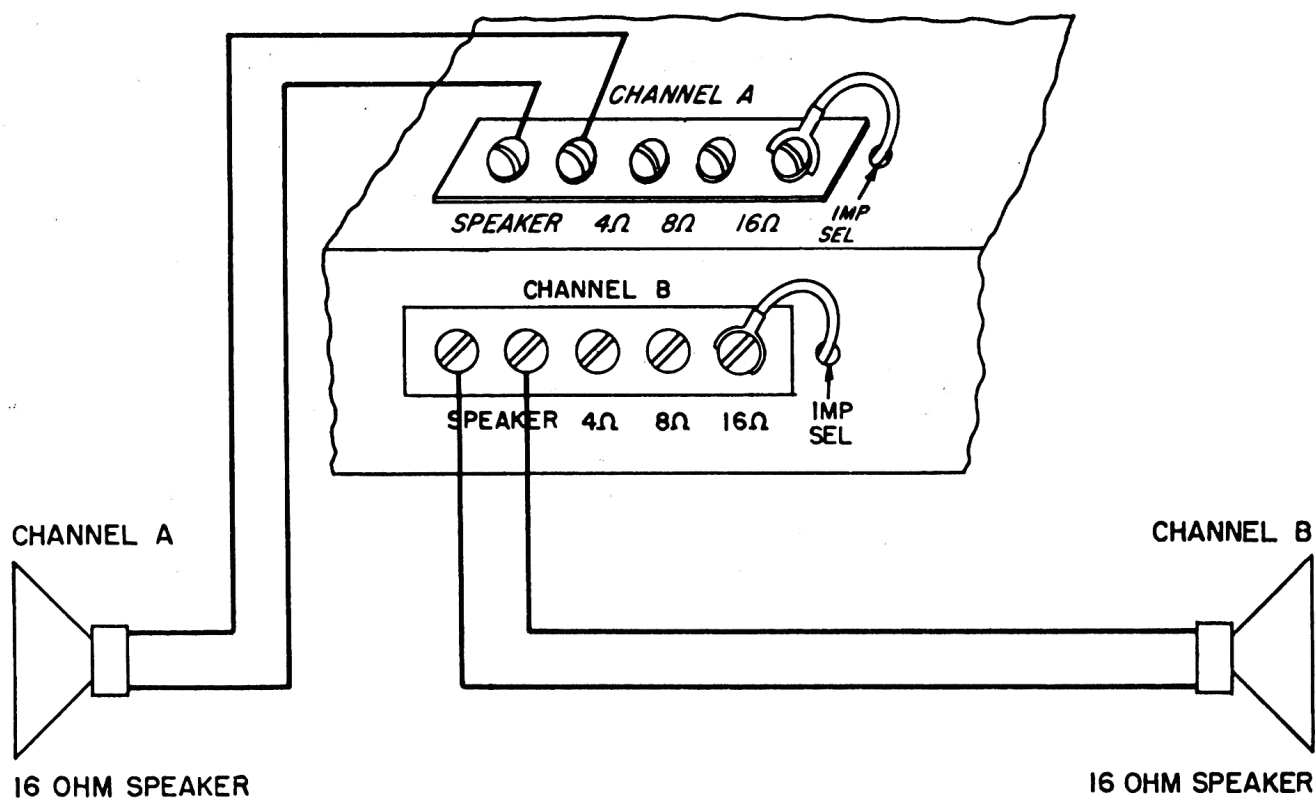
Power Requirements:

Plug the AC line cord into any outlet furnishing 117 volts 50 or 60 cycle AC current. The voltage may vary between 105 and 125 volts. An AC convenience receptacle is located on the rear of the amplifier. Any auxiliary equipment may be plugged into this outlet and will be controlled by the push button on/off switch on the front panel. The current rating of this equipment should not exceed 1 ampere.

Stereo Speaker Connections:

Your two speakers should be identical if possible to obtain optimum results. Experts agree that a perfectly matched system offers the best stereophonic reproduction. The speakers should be placed along the same wall (or if the Citation X speakers are used, facing one another) approximately 8 to 15 feet apart depending upon room size and furniture placement. It may be necessary to experiment with speaker placement until best results are obtained.

Use regular lamp cord or any high quality grade of heavy wire to connect the speakers to the A500. Be careful not to drive staples or tacks through the



Note: Speakers connected to terminals marked "speaker". Impedance selector wire connected to 16 ohm terminal to match speaker impedance.

center of the wire as this may short out the two sections causing decreased volume, distortion or a complete short, cutting out the speaker entirely. It is permissible to use approximately 100 feet of speaker connecting wire (not less than #18 ga.) for each speaker without loss of volume.

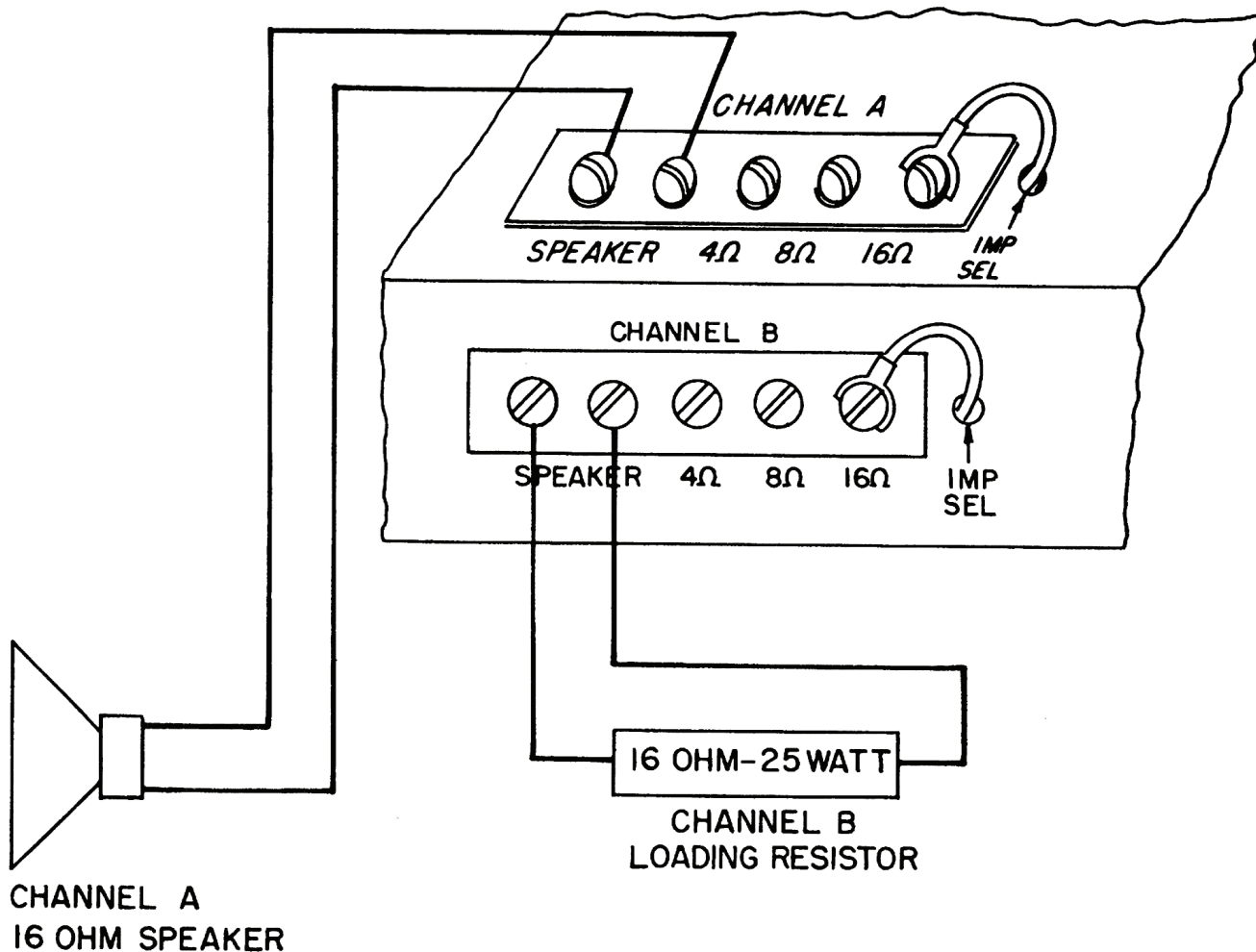
Connect one length of wire to one speaker and attach the other end to the CHANNEL A speaker terminal strip located on the rear of the A500 chassis. (These are the two terminals on the left-hand side of the terminal strip marked "SPEAKER".) Similarly connect another length of wire to your other speaker and attach the other end to the CHANNEL B speaker terminal strip on the rear panel. (These are the two terminals on the left-hand side of the lower terminal strip marked "SPEAKER".) Your speakers are now connected to the amplifier. Refer to Diagram A.

If your speakers have an impedance of 3-5 ohms, connect the IMPEDANCE SELECTOR wires to the 4 ohm terminals on the rear speaker terminal strips. If your speakers have an impedance of 6-10 ohms, connect the IMPEDANCE SELECTOR wires to the 8 ohm terminals. If your speakers have an impedance of 12-20 ohms, connect the IMPEDANCE SELECTOR wires to the 16 ohm terminals.

Carefully dress the speaker leads away from audio input cables and power lines. Keep the wiring neat and away from transformers and tubes to reduce hum pickup.

Monophonic Speaker Connection:

When the A500 is used for monophonic operation and stereo is to be added at a later date, it is essential that both speaker output terminals are terminated into speakers or into a speaker and resistive load. For example, if you have only



MONOPHONIC OPERATION
DIAGRAM B

one speaker, attach it to the CHANNEL A speaker output terminals and set the proper impedance with the IMPEDANCE SELECTOR wire. Attach a 4, 8 or 16 ohm 25 watt wirewound resistor to the CHANNEL B speaker terminals and set the IMPEDANCE SELECTOR wire accordingly. This will assure proper loading of the output stage and will prevent damage to the output tubes and transformer. Refer to Diagram B.

Stereo Headphone Output Jack:

A unique feature of the A500 is a special jack located on the front panel for plugging in a set of stereo headphones. When the headphones are plugged in, the speakers are automatically disconnected. This jack will accept headphones with the same impedances as are available for speakers. Simply connect the speaker IMPEDANCE SELECTOR wires to the 4, 8 or 16 ohm terminals in accordance with the impedance rating of your phones.

The headphone plug required for this jack is the Switchcraft 230F, or equivalent. It is important to use the correct plug for proper operation.

Third Channel Output Connection:

Another feature of this versatile amplifier is a THIRD CHANNEL OUTPUT jack located on the rear panel. This output offers a mixed signal (Channel A+B) which can be used to drive a remote monophonic basic amplifier-speaker system for monophonic listening in another room, or as a true center channel output for a basic amplifier-speaker system along with your regular stereo installation. In the latter arrangement it serves to eliminate especially troublesome hole-in-the-middle problems due to acoustic difficulties.

The THIRD CHANNEL OUTPUT jack delivers one volt to feed any high quality basic power amplifier. Use up to 25 feet of shielded lead equipped with standard phono plugs to connect the jack to your power amplifier. Since the third channel signal is a blend of both channels, all controls on the A500 with the exception of the STEREO REVERSE switch will affect the output of this jack.

The output of the THIRD CHANNEL OUTPUT jack is controlled by the AMBIANCE control located on the left front panel. This will enable you to balance the volume of the center channel against Channel A and B to allow for room acoustics, and sensitivity of the center channel amplifier and speaker.

Connecting Your Stereo Record Player:

A stereophonic cartridge uses two output plugs. Provision has been made on the A500 to accommodate any of the three types of phono pickups available.

MAGNETIC CARTRIDGE: Connect the two output leads of your stereo magnetic cartridge to the Channel A and B PHONO LO input receptacles on the rear of the amplifier.

CERAMIC CARTRIDGE: Connect the two output leads of your stereo ceramic cartridge to the Channel A and B PHONO HI input receptacles on the rear of the amplifier. There are several stereo ceramic cartridges available which offer low output and are to be plugged into the PHONO LO input receptacles instead of the usual PHONO HI receptacles. Follow your cartridge manufacturer's recommendations.

CRYSTAL CARTRIDGE: Connect the two output leads of your stereo crystal cartridge to the Channel A and B PHONO HI input receptacles on the rear of the amplifier.

CHANNEL A

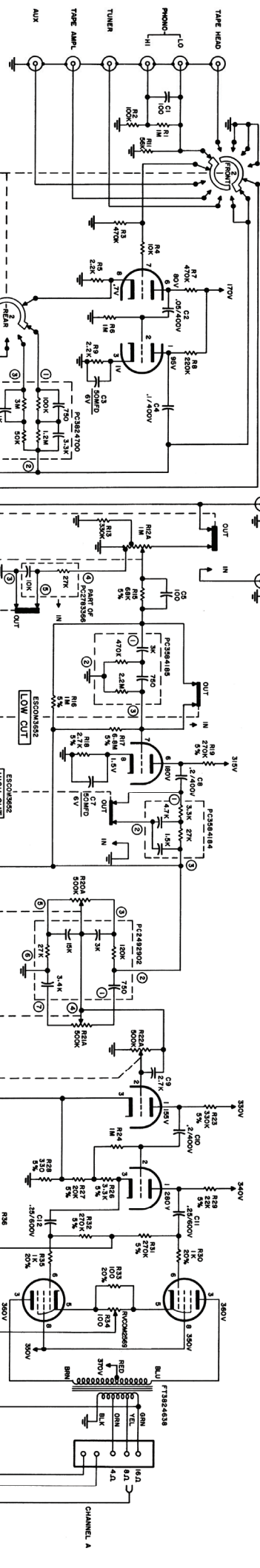
12AX7/ECC83

12AX7/ECC83

12AX7/ECC83

12AU7/ECC82

7355



CHANNEL B

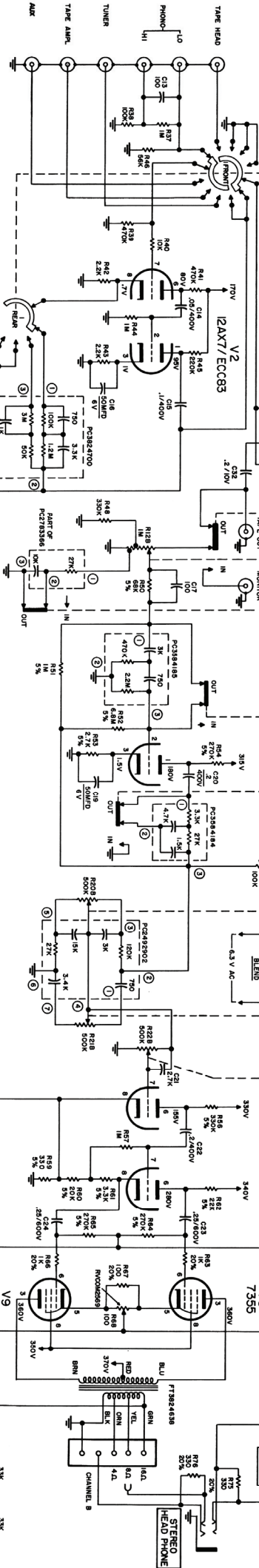
12AX7/ECC83

12AX7/ECC83

12AX7/ECC83

12AU7/ECC82

7355



RESISTANCE READINGS

ITEM	TUBE	PN 1	PN 2	PN 3	PN 4	PN 5	PN 6	PN 7	PN 8	PN 9
V1	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V2	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V3	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V4	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V5	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V6	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V7	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V8	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V9	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K
V10	12AX7	1M	1M	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K	2.2K

- NOTES
- 1- UNLESS OTHERWISE SPECIFIED -
 - 2- ALL RESISTANCE VALUES - OHMS $\pm 10\%$.
 - 3- ALL CAPACITORS WITH DECIMAL VALUES IN MFD.
 - 4- ALL CAPACITORS WITH DECIMAL VALUES IN MMF.
 - 5- ALL VOLTAGES ARE DC & MAY VARY $\pm 20\%$.

Connecting A Monophonic Record Player:

Since a monophonic cartridge uses only one connecting lead, it may be connected to either the Channel A or B input receptacle. If your cartridge is a magnetic type, connect it to the PHONO LO input. If it is a ceramic or crystal type, connect it to the PHONO HI input.

Connecting Your Stereo Tape Deck:

A stereophonic tape playback deck utilizes two playback heads usually contained within one head assembly. Each head has its own output plug. Connect both plugs from your deck to the Channel A and B TAPE HD input receptacles. These are extremely sensitive receptacles and offer 2.5 mv gain.

Connecting Your Monophonic Tape Deck:

A monophonic tape deck has only one shielded lead coming from the single tape playback head. Attach this lead to either the Channel A or B TAPE HD input receptacle.

Connecting Your Stereophonic Tape Recorder:

Since most stereo tape recorders have their own recording and playback preamplifiers, it is not desirable to connect the output of the recorder into the low level TAPE HD input receptacles. This could result in overloading of the input stage and cause distortion.

Connect one tape recorder output lead to the Channel A TAPE AMP input and the other output lead to the Channel B TAPE AMP input receptacle.

These connections will enable you to play back your stereo tapes. To make a stereo recording connect your recorder as follows: Connect one input of your tape recorder to the Channel A TAPE OUT receptacle. Similarly connect the other input of your tape recorder to the Channel B TAPE OUT receptacle. This will enable you to make a stereophonic recording with the proper recording equalization as determined by your recorder, while simultaneously monitoring the program with the proper tone control, contour and loudness setting. The program material you wish to record is selected by the FUNCTION SELECTOR switch on the front panel.

The recording signal from the TAPE OUT receptacles is one half volt and is unaffected by the loudness controls to assure a "flat" recording signal.

Connecting Your Monophonic Tape Recorder:

If you are using a monophonic tape recorder with the A500, connect the recorder output to either the Channel A or B TAPE AMP input receptacle. This will enable you to play back your monophonic tapes.

If your tape recorder is a stereo playback-monophonic record, connect the output as described in the previous paragraph, but connect the input as described below.

Connect the input of your monophonic tape recorder to either the Channel A or B TAPE OUT receptacle on the rear of the amplifier chassis. This will enable you to make a monophonic recording with the proper equalization as determined by your recorder.

To Monitor Your Tapes While Recording:

Connect the monitoring head of your tape recorder to the TAPE MON receptacles on the rear of the amplifier chassis. Connect in accordance with the instructions supplied by the recorder manufacturer.

OPERATING THE A500 STEREOPHONIC AMPLIFIER

Since a stereophonic amplifier is actually two separate amplifiers in one, the number of operating controls would normally be doubled. This would make operation unnecessarily cumbersome. For convenience several of the duplicate controls are mechanically tied together, or ganged, to be operated by one knob.

Individual Bass and Treble Tone Controls:

The BASS and TREBLE tone controls on the A500 provide the full range of tone adjustment necessary for stereo listening. The tone control range is considerable and can adjust the low and high frequencies in accordance with your listening preference, speaker characteristics and room acoustics. The controls are flat when placed in the vertical position.

Loudness Control:

The LOUDNESS CONTROL is a mechanically ganged control and controls both channels simultaneously. It adjusts the volume level of any program material fed into the A500 amplifier. Its effect can be modified by the CONTOUR switch.

Contour Switch:

One of the limitations of human hearing is its tendency to lose sensitivity to the very low pitched sounds, as the program sound level is reduced. It is this characteristic (known as the Fletcher-Munson effect) which causes one to play music programs at high listening level in order to experience the full rich tone available from fine modern recordings. The Harman-Kardon CONTOUR switch compensates for the Fletcher-Munson effect thus eliminating high listening levels as a requisite for full enjoyment of reproduced music.

For low level listening throw the CONTOUR switch to the "IN" position. You will note that the low frequencies become more apparent while the volume level remains unchanged.

Balance Control:

The nature of stereo reproduction is such that it requires two identical channels to attain the highest degree of faithfulness and spatial distribution. Any variation in the efficiency of one channel as compared to the other will disturb this relationship. Since there may be slight differences between the two speakers, tape heads, etc., the A500 includes a control to balance one channel against the other. Sufficient range is covered by this control to permit rebalancing of the overall system even in cases where major unbalance exists. THIS CONTROL MAY BE SET ANYWHERE WITHIN ITS RANGE TO ATTAIN SYSTEM BALANCE AND DOES NOT HAVE TO BE IN THE EXACT VERTICAL POSITION TO INSURE PROPER BALANCE.

When the BALANCE control is properly set, the apparent sound source will lie in a broad area between the two speakers. When the BALANCE control is rotated to the right, the sound will move to the right and when the control is rotated to the left, the sound will move to the left.

On/Off Switch:

The push-button ON/OFF switch is located on the front panel of the A500. To turn the amplifier on, depress the switch. The switch will glow indicating the amplifier is receiving current and is operative. To turn the amplifier off, depress the switch and the light will go out.

There is a great advantage to this type of ON/OFF switch since the amplifier may be turned on and off without upsetting the other controls.

Function Switch:

The FUNCTION SWITCH selects the desired program source and has FIVE positions. PHONO selects either the LO or HI PHONO source depending upon which one is used. TAPE HD selects your tape deck and includes NARTB equalization. The TUNER position selects your tuner for operation. TAPE AMP selects your tape recorder and AUX selects any high impedance device connected to the AUX receptacles on the rear panel.

Stereo Reverse:

At this writing, all newly recorded stereo discs follow the established industry standard, so that your left speaker will reproduce the program picked up by the left recording microphone and the right speaker reproduces the program picked up by the right recording microphone when the STEREO REV switch is in the NORMAL position. However, this was not so for older stereo recordings. While one label may present the orchestra with the basses on the right and the violins on the left, another recording company may reverse this procedure. Some of us prefer to listen to an orchestra in the same relative orientation as in the concert hall. The STEREO REV switch serves to reverse the apparent locations of instruments in an orchestra to duplicate the original setting where necessary.

For those who do not have matched speakers for stereo reproduction, the REVERSE position on the STEREO REVERSE switch serves an additional function. In "Ping-Pong" stereo recordings, the bass is sometimes favored on one side, while the higher string instruments may appear on the other channel. By experimenting with the STEREO REVERSE switch it is possible to channel the low frequencies through the speaker system having the best bass response. Merely throw the switch back and forth until the low frequencies are reproduced by the speaker with the better low frequency response.

High and Low Cut Switches:

At times record changers, turntables and even some FM stations produce an objectionable low frequency signal that is strong enough to be introduced into the playback system. Known as "rumble" this undesirable signal can be eliminated by the special LOW CUT switch on the front panel of the A500. If rumble is present, throw the switch to "IN".

In the event of an objectionable high frequency scratch from worn or defective records and tapes, throw the HIGH CUT switch located on the front panel to "IN".

Phasing Switch:

When more than one speaker is used in any music reproducing system they must be connected in a manner as to aid each other, rather than to work against one another. Since it is necessary to use two speakers for stereophonic reproduction, this caution applies. Checking for phase and correcting if necessary is quite simple.

Place the BLEND CONTROL in the Monophonic position. Play a monophonic record with readily apparent bass and listen carefully to the strength and clarity of the bass tones while throwing the speaker PHASING switch back and forth between 0 and 180°. Select the position which gives maximum bass reproduction.

Improper phasing will decrease low frequency response and can also create what is commonly referred to as the “hole-in-the-middle” effect. At times improper phasing will actually shift or eliminate certain instruments from their true perspective in the orchestra.

Tape Monitor Switch:

If your tape recorder has a special monitoring head, throwing this switch to the “IN” position will enable you to listen to your tapes a second after they are recorded. When not in use this switch must be in the “OUT” position.

Blend Control:

The BLEND CONTROL on the A500 amplifier operates in conjunction with the front panel indicator lamps and serves two functions. It selects between monophonic and stereophonic operation when rotated to the extreme clockwise and counterclockwise positions and also controls the amount of crosstalk between Channel A and B to fill in the hole in the middle between the two speakers if it is present.

To operate the amplifier monophonically, turn the BLEND CONTROL to the extreme clockwise position. You will note that the monophonic indicator lamp now glows brightly while the stereophonic lamp is turned off completely.

To operate the amplifier stereophonically, turn the BLEND CONTROL to the extreme counterclockwise position. The stereo indicator lamp will now glow brightly and the monophonic lamp will be turned off completely.

If center fill is required due to speaker placement, room acoustics or to the type of recording you are using, rotating the BLEND CONTROL from stereophonic toward monophonic (clockwise) introduces blend. The degree of rotation determines the amount of blend and as this control approaches the extreme clockwise position, maximum blend is attained (monophonic).

It is important to point out that in certain instances, proper blending will occur when the two lamps are NOT exactly the same intensity. Allowances must be made for room acoustics, speaker efficiency and type of program material and it is therefore virtually impossible to expect every source of program material to blend at the same rotation of the control. The indicator lamps merely act as guides to help locate a setting of the BLEND CONTROL and to indicate the degree of blend.

Ambiance Control:

The AMBIANCE CONTROL is located on the extreme left of the front panel and serves two functions. It is a third channel gain control if a center amplifier and speaker are used and it also acts as a gain control to feed any reverb or time delay network.

ADJUSTMENTS

Output Tube Balance Controls:

There are two OUTPUT TUBE BALANCE CONTROLS located between the 7355 output tubes. They are easily accessible from the top of the chassis when the cage or cabinet is removed.

These controls are factory adjusted and should not be touched unless it is necessary to change output tubes. If adjustment is necessary follow the procedure listed below:

1. Set the loudness control to minimum volume.
2. Turn off all auxiliary equipment connected to the amplifier.
3. Set tone controls to flat and disengage the Contour, Tape Monitor, High and Low filters.
4. Slowly rotate the output tube balance control for minimum hum.
5. If it is not possible to hear hum in your speakers, set the control to the mid-position of its rotation.

For absolute perfection this adjustment should be done by a competent service technician who will adjust the controls with an intermodulation distortion analyzer for minimum IM.

MAINTENANCE AND REPAIRS

Fuse:

The Model A500 is protected by a 3 ampere- 3 AG fuse located on the top rear of the chassis. If this fuse is blown, replace only with one of the same rating. Replacing with a fuse of a higher rating will not protect the amplifier and may result in severe damage, which will not be covered by a factory guarantee.

Repair:

Only the most qualified service technician should be employed, as special equipment and training is required to service a high fidelity unit.

In the event of failure during the warranty period, refer to the section in this manual entitled WARRANTY.

Hum:

There has been some difficulty encountered when connecting a stereo record player to an amplifier. The conventional form of hookup usually results in one or more ground loops causing excessive hum. The following procedure will reduce hum pickup to a minimum.

A stereophonic record player may be subdivided into three electrically separate systems. These are: 1. The left pickup coil of the stereo cartridge, 2. The right pickup coil and 3. The turntable chassis in combination with the tone arm and motor.

The left pickup coil of the stereo cartridge has two output terminals. These terminals should be brought through a coaxial, shielded and insulated cable to the respective input receptable on the stereo amplifier. Extreme caution must

be exercised to make sure that the ground side of the shielded cable does not make contact with either the turntable chassis or the other pickup coil.

The right pickup coil should be brought to its respective amplifier input receptacle in a similar manner, again making sure it is completely isolated electrically from the left pickup coil and the turntable chassis. It may be advantageous to twist the two shielded cables to prevent hum pickup from a radiation source as a power transformer or turntable motor.

The turntable chassis is ordinarily connected through a flexible lead with the motor shell. However, the tone arm is usually NOT electrically connected to the turntable chassis other than through its bearings. Since this is an unreliable connection, it is suggested that a small hole be drilled into the tone arm (near the bearing) and a solder lug fastened with a sheet metal screw be driven into the hole. A flexible wire forming a loop should be connected from tone arm to the turntable chassis. If this does not appear practical, a second and less satisfactory method may be suggested. The lubricant should be removed from the tone arm bearings and replaced by graphite. After the turntable motor and tone arm have been electrically secured to the turntable chassis, a cable should be connected from the chassis to the amplifier ground.

This method applies to cartridges with four output terminals and in this manner the three systems are isolated from each other and all are returned to their proper ground. This will avoid hum caused by ground loops.

In cases of magnetic pickups carrying only three output terminals, and tone arms which are supplied with three-prong plugs, the following modifications of the procedure will have to be effected.

If the pickup is of the four terminal type, but is used in conjunction with a three-prong tone arm head, the two ground outputs of the pickup coils must be tied together.

The left pickup coil is then connected to a shielded lead with the ground side of the coil connected to the shield leading to the appropriate receptacle on the amplifier in the same manner as outlined in the above procedure. The "hot" output of the right pickup coil will be connected with another insulated shielded lead to its receptacle on the amplifier. However, the shield is to be grounded ONLY at the amplifier end, and left floating at the record player end. The record player chassis is treated in the identical manner as described in the previous paragraphs.

In any high fidelity system hum and noise may also be caused by other factors. A common cause of hum may be the interconnection of a record player, tuner and amplifier, as a result of the cables and different ground potentials. If hum is experienced and it cannot be traced to improper grounding of the phono cartridge or turntable, disconnect everything but the speaker from the A500. If hum persists, reverse the AC line cord in the socket. Also perform the hum balancing adjustment outlined in the next paragraph. Plug in the record player and if hum appears, reverse the record player AC line cord. Connect your other devices in a similar manner. CAUTION: Hum may be also induced by defective interconnecting cables or by running these cables too close to strong AC fields.

MODEL A500 PARTS REPLACEMENT LIST

PART NO.	DESCRIPTION	PRICE
ESCOM3652	Slide Switch, Gray	.50
HJCOM5034	Stereo Headphone Jack	.85
FT3824925	Power Transformer	18.25
FT3824638	Output Transformer	19.50
JE3584176	Electrolytic Capacitor w/Sleeve: 150 UF/200V	2.25
JE3824675	Electrolytic Capacitor: 50-50-50 UF/350V	3.50
JE3824926	Electrolytic Capacitor: 400 UF/50V, 50-50 UF/400V	3.90
JE3584255	Electrolytic Capacitor: 50 UF/6V	.50
RVCOM2569	Balance Adjustment	.70
ER3824677	Function Switch	3.50
EP3424603	AC On-Off Power Switch	.70
RV3824678	Loudness Control	2.50
RV3824943	Blend Control	4.05
RV3824953	Balance Control	2.00
RV3824952	Tone Control, Single Bass or Treble	1.00
RV3824964	Ambiance Control	1.00
KB1142117	Pilot Lamp, Type No. 1847	.25
ZCOM4735	Silicon Diode, Type SD95A, 500 PIV	3.80
PC2492902	PC Plate, Tone	1.00
PC3584184	PC Plate, High Cut Filter	.75
PC3584185	PC Plate, Low Cut Filter	.75
PC3824700	PC Plate, Equalization	.75
PC2783366	PC Plate, Contour	.75
B3824658	Escutcheon	6.50
P3825094	Jewel, On-Off Pilot Lamp	.25
P3824999	Jewel, Mono or Stereo Pilot Lamp	.25
PCOM3584	Spring, Power Switch	.10
P3824983	Knob, 1 $\frac{1}{8}$ " (4 used)	1.25
P3824984	Knob, 2 $\frac{9}{32}$ " (4 used)	1.25
P3825004	Knob, 1 $\frac{1}{8}$ ", with Indicator Mark (1 used)	1.25
KQ6-16SC	Mtg. Screw, #6 x 1" (Set of Four)	.05
KW6-SC	Mtg. Washer, #6 x $\frac{3}{8}$ " O.D. (Set of Four)	.05
L3824739	This Instruction Book, Additional Copies	1.00

NOTE: To speed handling of your order be sure to include both the model and serial numbers which appear at the back of the chassis, in addition to the quantity, part number and part description of the items ordered. Orders from independent dealers, independent servicemen, and retail customers will be shipped on a C.O.D. basis except for orders \$1.00 or less, for which remittance should be enclosed. Prices subject to change without notice. Harman-Kardon reserves the right to substitute equivalent parts for those originally installed in this chassis.