

harman kardon



Trend II

MODEL A-1040

CUSTOM HIGH FIDELITY AMPLIFIER

OPERATION AND SERVICE INSTRUCTIONS

IMPORTANT

It is essential you read this instruction book carefully before setting up your Harman-Kardon system. You have invested in a fine instrument into which many excellent engineering developments have been incorporated. Each is important for the proper operation of your system. This book has been written in simple nontechnical language and if you will take the time to read it first before doing anything else you will find it simple to obtain optimum performance from your Trend II.

We especially call your attention to **UNDER THE CHASSIS CONTROLS**, pages 5 and 6 with special emphasis to the following paragraphs.

Variable Speaker Damping Control.
Hum Bucking Control.

These controls must be properly adjusted prior to permanent installation of the instrument!

UNPACKING

After unpacking the Trend II, inspect it carefully for signs of damage in transit. Your unit was

subjected to many inspections and tests prior to packing. If damage is visible, notify your dealer immediately. If the unit was shipped to you, notify the transportation company at once.

Check the contents of the carton carefully. Be sure to inspect the folds of the packing material before discarding it. Your package should contain:

- 1 Trend II, Model A-1040
- 1 Instruction Booklet
- 1 Warranty Card
- 1 Template and Cabinet Installation Instructions
- 1 Package Mounting Hardware

It is strongly urged that the warranty card be completed and mailed without delay, to protect your rights under warranty. If you should require repair service or information on the use of your high fidelity instrument, we will be able to identify your unit immediately, and respond quickly. **NOTE:** To expedite service, when necessary, please contact Harman-Kardon first. We will suggest a warranty station in your area and give you the proper procedure and authorization for shipping.

INSTALLATION

The Trend II amplifier may be installed on an open shelf, table, bookcase or high fidelity equipment cabinet. For cabinet mounting, refer to the template supplied with this instruction book.

Ventilation:

All electric equipment generates heat which must be allowed to escape. Although the Trend II is well ventilated in itself, sufficient space should be allowed around it to permit free air flow. If it is placed in a bookcase, it should be located well toward the front, to provide as much clearance as possible at the rear. DO NOT place books or other objects on top of the unit. Covering the perforated metal cage will prevent proper air flow and will result in sharply reduced component and tube life.

POWER REQUIREMENTS

Plug the AC power cord into any outlet furnishing 117 volts, 50 or 60 cycles house current. The exact voltage is relatively unimportant and may vary between 105 and 125 volts. Be sure, however, that you have a 50 or 60 cycle AC power source. The Trend II has several convenience outlets on the bottom of the chassis. The proper use of these outlets is described in the section under Electrical Connections.

ELECTRICAL CONNECTIONS

All connections to the amplifier are made at the sloping panel located underneath the unit. This connecting panel is easily accessible by tilting the amplifier up on one end. Sufficient clearance space is provided for bringing out all connecting wires. This arrangement simplifies connections to the amplifier, particularly in those cases where the back of the unit is inaccessible.

Speaker Connections

A unique method of connecting one or two loudspeakers is incorporated in the Trend II in order that you may derive maximum enjoyment from this superlative instrument with any of today's fine speaker systems.

Connecting One Loudspeaker:

Connect one of the two speaker leads to terminal "G" and the other lead to "A" on the three screw Terminal Strip at the rear of the chassis marked "SPEAKER." For speakers with an impedance of 12 to 24 ohms place the Impedance Selector Switch located on the bottom of the chassis in the 16 ohm position. For speakers with an impedance of 4 to 12 ohms, place the Impedance Selector Switch in the 8 ohm position. The front panel Speaker Selector Switch should then be placed in the "A" position.

CAUTION:

A jumper is connected between "A" and "B" terminals on the Speaker Terminal Strip on the bottom of this instrument. When only one loudspeaker is used, this jumper must be connected at all times. It should be removed only when two separate speakers are connected. This precaution will prevent the set from appearing to be inoperative when only one speaker is connected, and the Speaker Selector Switch is improperly set.

Connecting Two Loudspeakers:

If you wish to operate two loudspeakers with the Trend II and use either one or both together, connect the second speaker to terminals "G" and "B" on the Speaker Terminal Strip. For best operation, both speakers should have the same impedance, although a slight mismatch will not disturb the overall response.

To select speaker A, slide the front panel Speaker Selector Switch to position "A." To select speaker B slide the switch to position "B." To activate both speakers simultaneously slide the front panel Speaker Selector Switch to the position marked "AB."

Tuner Connection:

An input jack marked "TUNER" will be found on the Trend II. A shielded cable may be connected between this receptacle and the output receptacle of any tuner rated for at least 1/2 volt output.

The tuner output impedance will determine the maximum practical length of this cable. It is suggested that not more than 3 or 4 feet be used if the tuner has a high impedance output. If the tuner has a low impedance cathode-follower output any length up to 100 feet may be used.

Phonograph Connection:

Any type of record player will operate with the Trend II amplifier. To derive maximum enjoyment from this instrument it is suggested that a high quality pickup cartridge and a rumble-free turntable be used. Two classes of phonograph cartridges are in general use today: Magnetic (GE, Audak, ESL, Fairchild, Pickering and Recoton) and Crystal (including the ceramics).

All magnetic cartridges should be connected to the jack on the bottom of the chassis marked "PHONO." Connect crystal or ceramic cartridges to the jack marked "AUX" also located on the bottom of the chassis.

A word of advice: The purchase of a diamond needle is a worthwhile investment. It has extremely long life and will not only protect your records, but will insure maximum tone quality.

It is sometimes advisable to ground the phonograph chassis to the receiver in order to reduce hum and other unwanted noise. Attach a wire to the metal framework of the changer and connect the other end to the "G" Terminal of the Antenna or Speaker Terminal Strips.

The power cord of the record changer or turntable may be plugged into either AC convenience outlet located on the bottom of the Trend II. NOTE that directly below the "Phono" input jack there is a Cartridge Selector Switch. If you are using a low level cartridge as the Fairchild, the switch must be in the "Fair" position. For medium level cartridges use the "G.E." position and for high level magnetic cartridges place the switch in the "Pick" position. This switch should be set after connecting the magnetic cartridge.

Auxiliary Input

The Trend II incorporates two "AUX" inputs located on the sloped bottom plate of the amplifier. Plug all high level equipment, such as a tape recorder or television tuner, into either jack. If you are using a ceramic or crystal phonograph cartridge make certain to connect it to the "AUX" jack. This position is con-

trolled by the Function Selector Switch on the front panel. Located below the two "AUX" jacks are two black "AUX" level controls. These may be set to balance the tuner and phonograph level into the amplifier.

Tape Input:

This jack is located on the sloped bottom panel next to the "Phono" jack. The Trend II amplifier is packed with a shorting plug inserted into this jack which acts as a "muting" switch to reduce hum and switching transients when the Function Selector Switch is thrown. This shorting plug must be removed to connect a tape recorder.

Program material from a tape recorder or tape deck may be connected into the Trend II in two different ways. If the tape mechanism has a preamplifier or amplifier stage, it should be connected to either "AUX" jack. If the tape mechanism has no preamplifier, or if its amplifier is not of top quality, the tape head may be connected to the "TAPE INPUT" jack. Setting the Function Selector Knob at the position marked with the appropriate speed (15, 7.5 or 3.75) will then provide the equalization recommended by the manufacturers of prerecorded tape.

Tape Output:

A receptacle marked "TAPE OUT" is located on the bottom of the Trend II chassis. This will provide program material to a tape recorder or other auxiliary equipment. In other words, any program material appearing at the speaker terminals also appears at the "TAPE OUT" jack, but unmodified by the volume or tone controls. This makes it possible to record a program with the proper recording equalization as determined by your tape recorder, while simultaneously monitoring the program with the proper tone control, contour and loudness (volume) setting.

The "TAPE OUT" jack is taken from a low impedance cathode follower. This permits the use of long leads between the Trend II amplifier and the tape recorder input without attenuation of signal or loss of high frequencies.

Convenience Outlets:

The Trend II incorporates two AC convenience outlets located on the sloped bottom plate. Auxiliary high fidelity equipment (tape recorder, T.V. tuner or record changer) may be connected to these outlets and will then be controlled by the on/off switch on the Trend II. Never load these two AC convenience outlets with more than a total of 2 amperes.

OPERATION

In general, every control on a well designed, honestly considered high fidelity instrument has a specific useful function, related to each of the other controls. Although this cannot be a treatise on the subject, an explanatory note on the relationship of the various front panel controls will doubtless prove useful in organizing and clarifying them for the user.

Your Trend II amplifier incorporates the following operating controls located on the front panel. Viewing the instrument from left to right you will find a Function Selector Switch, Bass Control, Treble Control, Loudness Control (on/off switch is incorporated into this control), and the Dynamic Contour Control. In the upper middle

portion of the amplifier there is a Rumble Filter Switch and Speaker Selector Switch.

To operate, turn the Function Selector Switch to the RIAA position (this setting will be clarified in a following paragraph), set the Bass and Treble Tone controls so that the white lines on the knobs point straight up. This will assure a "flat" uncompensated response. Turn the set on by rotating the Loudness Control in a clockwise position; now set this control at approximately 1/3 volume. The Contour Control should remain on zero at this time. Place a record on your phonograph and proceed to play it.

Now adjust the volume level so that the program is played at a comfortable level. Adjust the Bass and Treble Tone controls to correct for the electromechanical characteristics of the loudspeaker you are using and the acoustic characteristics of the room in which you are listening. Modify each control until settings are chosen which in your opinion create the proper sense of aural balance and evenness.

Now reduce the Loudness (Volume) Control setting to a level somewhat lower than normal listening level in your room. You will note that the full bodied lifelike quality you experienced at high listening level has disappeared (this because of the Fletcher-Munson effect described in the paragraph on the H/K Dynamic Loudness Contour). With all other controls unchanged, select the best contour setting for you. Do this by switching quickly through the several positions until you find the one which most nearly duplicates the full bodied sound you enjoyed at high level. Now turn the Loudness Control up to the level at which you wish to listen (perhaps the maximum level you can permit in your home). You'll find that there is automatic compensation of contour wherever you set the Loudness Control thereafter. In fact, under normal circumstances you should not find it necessary to re-adjust the tone controls or the contour selector once having chosen the correct settings for you, your room and your system.

TECHNICAL EXPLANATION OF THE CONTROLS

The Function Selector Switch has nine positions: EUR, RIAA, LP, TAPE 15, TAPE 7.5, TAPE 3.75, TUNER, AUX, 1, AUX, 2. Its use is to select the desired type of program. Listed below is the explanation of the various functions.

Record Equalization:

In order to assure good reproduction of the wide range of frequencies in music and to make necessary adjustments for the limitations of the recording technique, record manufacturers have found it necessary to modify the actual frequency response of the music while it is being recorded. Thus, to avoid overcutting and consequent distortion, a measured and deliberate reduction is effected in low frequency response by selecting a "turnover frequency" and by recording attenuated response below that point. To assure optimum signal-to-noise at the high frequency end when the record is played at home, the highs are deliberately exaggerated during the recording process. A measured and deliberate boost is effected above a certain frequency. This combination of deliberate exaggeration at the low and high ends of the frequency response can be expressed in a "recording curve." When the record

is played a mirror image of that curve should be available so that the ideal "flat" response may be achieved. Since several different recording curves have been used in the past (differing with respect to the turnover points and the degree of emphasis or de-emphasis) a choice of playback curves is provided in Harman-Kardon instruments.

The three record equalization positions compensate for the characteristics of over 30 recording labels. LP: Most American long-playing records made before 1954 and some European LP's, Labels include: Columbia, London, Mercury, Oceanic, Remington, Tempo, Urania, Vanguard-Bach Guild, Vox, Westminster, RCA Victor (older), Atlantic, Decca, Polyphonic, Cetra-Soria, Esoteric, Haydn Society, MGM, Angel.

RIAA: Most American records made after 1954, all records cut to standards of Audio Engineering Society, NAB, new RCA Victor Ortho, and newly standardized RIAA. Labels include RCA Victor (newer), Extended Play 45, Blue Note Jazz, Canyon, Capital, Good Time Jazz, Mercury, some London, Bartok, Caedmon, Capitol-Cetra, Philharmonic, EMS.

EUR: Most European Long-playing, some American LP's and most 78 RPM discs.

The above listed equalization positions are the recommended settings for almost all recordings made, however, it should be noted that it is not compulsory to adhere strictly to the recommendation. For example: Capital records are recommended to be played on the "RIAA" equalization curve, but if for some reason (room acoustics, speaker location, type of program source) the sound is not quite satisfactory, it is permissible to change the equalization control setting to "EUR" or "LP." If the overall sound quality pleases you more, leave it that way. Your hearing should be the final judge as to the exact equalization setting.

Loudness Control:

This control is used to adjust the volume level of any program material. Its effect is selectively varied by the Contour Control.

Dynamic Contour Control:

One of the limitations of human hearing is its tendency to lose sensitivity to the very low and very high pitched sounds, as the sound level is reduced. It is this characteristic (known as the Fletcher-Munson effect) which causes one to play music programs at high level in order to experience the fullness of tone available from fine modern recordings and identified with "live" listening. The Harman-Kardon Dynamic Loudness Contour Control compensates for the Fletcher-Munson effect, eliminating high reproduction level as a requisite for full enjoyment of reproduced music. Six positions of compensation are provided, to allow the selection of the one most suited to your hearing.

Each position (0-5) causes the Loudness (Volume) control to perform with a different degree of compensation, the amount increasing with each clockwise setting. Position 0 is uncompensated. Positions 1 and 2 provide somewhat less compensation than that required to match the Fletcher-Munson curves. Posi-

tion 3 matches the Fletcher-Munson curves. Positions 4 and 5 provide greater amounts of compensation than the curves suggest. Since hearing characteristics vary from person to person (some require more and others less compensation) the great flexibility provided in these controls can be appreciated.

In operation, the proper choice of contour is easily made, by switching through the several loudness contour positions and selecting the one which sounds best to you.

Bass and Treble Controls:

Separate Bass and Treble controls are incorporated to provide the full range of tonal adjustment required for maximum high fidelity performance. These controls can either boost or cut the Bass and Treble tones of this instrument. The controls should be set in accordance with your hearing preference, speaker characteristics and room acoustics.

Variable Speaker Damping Control:

In a musical instrument, resonance is necessary and, in fact, is basic in determining the very character of the instrument's tone. In a speaker, the function of which is to reproduce rather than create sound, resonances are a form of distortion. Resonance in a speaker can be reduced to a minimum by having the proper load presented to the speaker by the amplifier. The proper load in each case is a function of the particular speaker being used, and is termed the "critical damping point" by engineers. The Harman-Kardon Trend II incorporates a Variable Damping Factor Control which, when set at the appropriate point in its range (from 0.1 to 20), causes the amplifier to present the "critical damping" load to the particular speaker being used. The range of this control is sufficient to either under-damp, over-damp or critically-damp the speaker, as required to provide the smooth, clean bass response essential to high fidelity reproduction.

The damping effect of the amplifier on a speaker is analogous to the effect of shock absorbers on the springs of a car. In a car with jammed shock absorbers, the ride is hard and rough because the springs are not allowed to perform their function. This would correspond to over-damping of a speaker, which results in reduced speaker efficiency at low frequencies, and generally "colder" tone.

In a car without shock absorbers, any undulation in the road causes uncontrolled bobbing and weaving. This corresponds to under-damping of a speaker, which results in boominess. In electrical equipment it is possible to exaggerate under-damping to the point where it becomes negative. This frequently results in undesirable hangover effects, where every sound is followed by a shadow and the general tone is muddy. To insure against this possibility, the Trend II Variable Damping Control is deliberately limited at its low end to 0.1.

In a car with proper shock absorbers, slow or fast undulations or even potholes in the road are followed closely by the wheels, while the passengers experience a smooth even ride. This corresponds to "critical damping" in an audio system, where the speaker is free to follow subtle or gross electrical impulses, and yet introduces no gyrations of its own.

Theoretically, selection of the critical damping factor for any individual speaker is a procedure which can be performed only in the laboratory. However, since the enjoyment of music is, in the final analysis, a subjective experience, an entirely satisfactory setting is easily found by ear, as follows:

Set the Damping Factor control at "1", select a program material with fairly heavy bass drum content, and set all controls for most pleasing tone at medium high volume. Now vary the Damping Factor Control to find the highest setting at which the drumbeats sound separate and distinct.

Note that the total range of the control has been held within useful limits, so that it is actually not possible to select a bad setting.

Rumble Filter Switch:

Often, records, record changers and even some turntables produce an objectionable low frequency signal that is strong enough to be picked up by the sensitive phonograph cartridge and introduced into the playback system. Known as "rumble" this undesirable signal can be eliminated by the special Rumble Filter incorporated in the Trend II. Located on the front panel, this three position slide switch effectively "rolls off" the very low frequencies and eliminates rumble.

In position 0 the Rumble Filter is not connected and the overall frequency response of the instrument is essentially flat to 20 c.p.s. When the switch is placed in position 1 the response is slowly attenuated and at 20 c.p.s. is reduced by 6 db. Frequency response is reduced by 12 db. at 20 c.p.s. when the switch is placed in position 2.

Position 1 will be most useful where a minimum amount of rumble appears in the system while position 2 gives additional low frequency attenuation which will be most helpful in cases of heavy rumble.

UNDER THE CHASSIS CONTROLS

Hum Bucking Control:

A Hum Bucking Control is incorporated in the amplifier circuit and is accessible through a small hole in the bottom grill directly behind the Tape Output jack.

Set the Function Selector Switch for the RIAA phono position and the Loudness Control slightly above normal. Now adjust the Hum Bucking Control slowly for minimum hum.

In some installations where a record-player, tape recorder, or other auxiliary AC operated equipment is used, hum may be encountered due to voltage differences between the various units. This may be eliminated by reversing one or all of the AC power plugs. Simply reverse one at a time until improvement is experienced.

Bias Adjustment:

A Bias Adjustment Control is located on the bottom of the Trend II amplifier. Remove the perforated shield and directly underneath the Speaker Terminal Strip you will find the Bias Adjustment Potentiometer. An approximate setting may be made by first turning the Loudness Control to minimum, and then adjusting the Bias Control for minimum hum. This adjustment should be made only by a competent service technician when the tubes are changed.

Drive Balance Control:

This control is located on the end of the printed circuit board accessible through the bottom of the unit only when the bottom plate is removed. (It may also be adjusted through the top of the unit when the cage is removed.)

It should be adjusted for minimum intermodulation distortion as indicated on an IM meter. NOTE: Only a competent service technician should perform this adjustment.

Fuse Replacement:

The fuse is located on the bottom panel. It must be replaced, if needed, by the same size used (2 amp slow-blow).

MAINTENANCE AND REPAIR

Due to the conservative design and high quality components of the Trend II, no routine maintenance other than yearly tube-checking is required. Should trouble develop, however, only the most qualified service man should be employed, as special equipment and training is required to properly service a high fidelity amplifier.

WARRANTY

We warrant each Trend II, Model A-1040 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 one year from date of delivery to the original purchaser, and agree to replace or repair any part or parts, except tubes which are under the manufacturer's 90 day warranty, returned to us within said one 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 the instruction furnished by us.

This warranty is expressly in lieu of all other warranties, express or implied, and of all other obligations or liabilities 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 the Model A-1040, Trend II.

SERVICE NOTES

Servicing printed circuits is a simple matter and is no more complicated than servicing conventionally wired circuits.

Printed circuit receivers, can be more easily repaired, if certain precautions are observed. Standard components are used throughout and can be removed and replaced by any serviceman. No special tools or skills are necessary. However, some parts which have special mounting and connection lugs should be replaced with exact duplicate parts.

Avoid Damage to Copper Foil

Be careful when removing components from the board. However, if the copper foil wiring is damaged

a piece of wire can be used to replace the damaged foil. Small breaks can be "jumped" with molten solder. Larger breaks can be repaired with ordinary hook up wire. It is unnecessary to replace the entire board because of foil breakage.

Avoid Damage to Printed Circuit Board

Do not apply excessive pressure to the printed circuit board or components. This is especially important to note when changing tubes. Although the board is sturdy in construction and mounting, it may crack or break if proper care is not taken when servicing. In case the board is to be removed from the chassis, remove the mounting screws around the edges and unsolder the few leads that connect between the board and the chassis. If this is done, a vise with protected jaws should be used to hold the board while servicing and care should be taken not to exert excessive pressure against the board.

Avoid Excessive Deposits of Solder

In some areas on the printed circuit board, the wiring is very closely spaced. When resoldering a new component avoid excessive deposits of solder. Excessive solder may cause a short or an intermittent trouble to occur later which may be difficult to locate.

Avoid Overheating

When using the soldering iron (35 watts or less), do not overheat the component terminals or the copper foil. Excessive heat (applying soldering iron longer than necessary, using a higher wattage soldering iron than recommended, or using a solder gun) may cause the bond between the board and foil to break. This will necessitate replacement or repair of the foil connection.

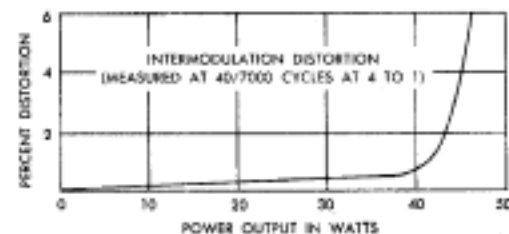
Tools and Materials Required

- (1) Low wattage soldering iron with a small point or wedge (rating should not exceed 35 watts).
- (2) Small wire brush.
- (3) 60% tin, 40% lead, low temperature rosin core solder.
- (4) Thin bladed knife.
- (5) Small wire pick, or soldering aid.

REPLACING COMPONENTS

Soldering Replacement Component to Old Leads

Cut the leads where they enter the defective component. Clean off the ends of the leads, leaving as much of the leads as possible. Make a small loop in each lead of the replacement component and slide the loops over the remaining leads of the old component. Caution should be taken not to overheat the connection since the copper foil may peel or the original component lead may fall out of the board. This is possible due to heat transfer through the leads. The lead length of the replacement part should be kept reasonably short to provide some mechanical rigidity.



6 Intermodulation distortion characteristics

Unsoldering and Resoldering Components

To test a component or if the component is mounted in such a manner that the above method can not be used (such as vertically mounted capacitors, etc.) the component can be replaced by unsoldering it. This procedure should be used whenever it is necessary to unsolder any connections to replace defective components.

(a) Heat the connection on the wiring side of the board with a small soldering iron. When the solder melts, brush away the solder. Do not overheat the connection. In the process of removing the solder, caution must be taken to prevent excessive heating. Therefore, do not leave the iron on the connection while brushing away the solder. Melt the solder, remove the iron and quickly brush away the solder. It may require more than one heating and brushing process to completely remove the solder.

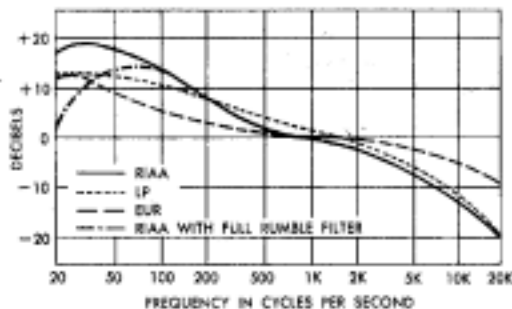
(b) Insert a knife blade between the wiring foil and the "bent-over" component lead and bend the lead perpendicular to the board. (It may be necessary to apply the soldering iron to the connection while performing this step as it is sometimes difficult to completely break the connection by brushing.) Do not overheat the connection.

(c) While applying the soldering iron to the connections, "wiggle" the component until it is removed.

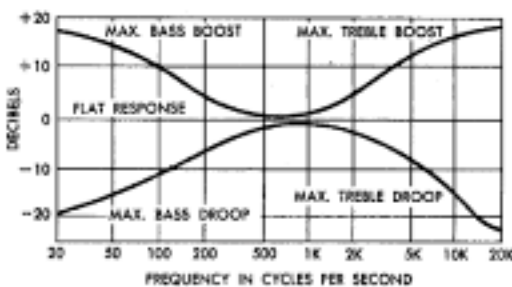
(d) Remove any small particles of solder using a clean cloth dipped in solvent.

(e) A thin film of solder may remain over the hole through the board after removing the component. Pierce the film with the lead from the new component after heating the solder film with the soldering iron.

(f) Insert the leads of the new component through the holes provided. Cut to desired length and bend over the ends against the copper foil. Resolder the connection with 60/40 low temperature solder.



Phonograph equalization characteristics



Tone control and frequency response characteristics

CABINET INSTALLATION

*Model A-1040***VENTILATION**

While the appearance and construction of all Harman-Kardon equipment encourage its use exposed to view on a table or shelf, installation in a cabinet is quite simple. The only precaution to be observed consists of allowing sufficient ventilation. Installation in a completely closed cabinet will reduce the ample ventilation designed into the equipment and result in sharply reduced component and tube life.

Observe these precautions:

- 1 - Leave the back of the cabinet open. If this is not possible, provide several large holes or slots as low down and as high up in the cabinet back as possible. As an alternate, holes may be provided in the sides, bottom or top of the cabinet. Remember that really effective ventilation requires provision for cool air to enter at the bottom and leave at the top.
- 2 - Isolate any accessories which might interfere with ventilation or be affected by heat. For example, do not drape plastic or rubber covered interconnecting cables over the equipment.
- 3 - In some cases, it might be advisable to provide insulation (such as sheet asbestos) between the equipment and any other heat sensitive or heat producing device.

INSTALLATION

- 1 - Remove 4 screws holding cage and slide cage off.
- 2 - Remove screw from rear of each runner.
- 3 - Remove front bottom plate and remove screw holding front of each runner. Replace bottom plate.
- 4 - Remove the knobs.
- 5 - Remove the 4 screws holding the display panel and remove the display panel.
- 6 - Remove escutcheon from display panel by removing hex nuts and washers holding it to display panel.
- 7 - Fasten escutcheon to cabinet as per mounting template using hex nuts and washers removed in step 6.
- 8 - Remove screws holding slide switches to chassis and remount with four 9/16" long spacers and four No. 6-32 x 3/4 machine screws furnished in hardware package.
- 9 - Install amplifier from rear of cabinet and replace knobs.
- 10 - Insert four No. 6 x 1/2 screws (furnished in hardware package) into bottom plate through shelf.