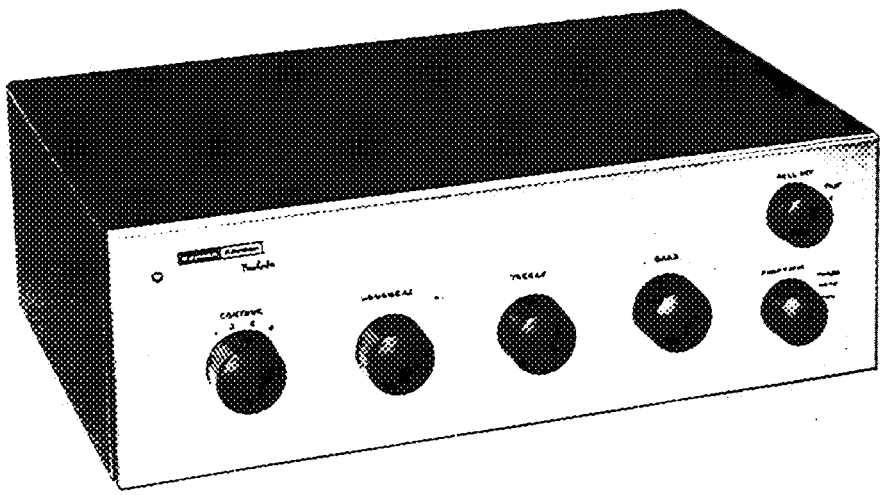
harman kardon



Prelude II

Model A-12

HIGH FIDELITY 12 WATT 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 Prelude II.

We especially call your attention to the paragraph describing the proper adjustment of the Hum Bucking Control. This control should be adjusted prior to permanent installation of the instrument.

UNPACKING

After unpacking the Prelude II, inspect it carefully for signs of damage in transit. Your unit was subjected to many inspections and tests prior to final packing. If damage is visible, notify your dealer immediately. If the unit was shipped to you, notify the transportation company at once.

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

1 Prelude II, Model A-12 amplifier.
1 Instruction Booklet.
1 Warranty Card.
1 Mounting Template and Cabinet Installation Instructions.

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 this 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

Your 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 book.

Ventilation:

All electrical equipment generates heat which must be allowed to escape. Although the Prelude 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 Prelude II. Covering the perforated metal cage will prevent proper air flow and will result in sharply reduced component and tube life. For custom installation into a cabinet the cage must be removed to assure maximum ventilation.

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 Prelude II has a convenience outlet on the rear of the chassis. The proper use of this outlet is described in the section under Electrical Connections.

ELECTRICAL CONNECTIONS

Phonograph Connections:

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

All magnetic cartridges should be connected to the jack on the rear of the chassis marked "PHONO." Connect crystal or ceramic cartridges to the jack marked "AUX" also located on the rear 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 amplifier 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 Speaker Terminal Strip.

The power cord of the record changer or turntable may be plugged into the AC convenience outlet located on the rear of the chassis.

Tuner Input:

A coaxial connector marked "Tuner" will be found on the rear of the Prelude 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. A longer lead (up to 50 feet) can be used without hum pickup or high frequency attenuation if the tuner uses a cathode follower output. This position is controlled by the Function Selector Switch located on the front panel.

Auxiliary Inputs:

The Prelude II incorporates an "AUX" input located at the rear of the unit. Plug all high level equipment into this jack. (Tape recorder or TV tuner.) If you are using a ceramic or crystal phono cartridge make certain to connect your phonograph to the "AUX" jack. The "AUX" position is controlled by the Function Selector Switch on the front panel.

Tape Input:

This jack is located on the rear of the chassis. Program material from a tape recorder or tape deck may be connected to the amplifier in two different ways. If the tape player has a preamplifier or amplifier stage, it should be connected to the "AUX" jack. If the tape player has no preamplifier the tape head may be connected directly to the "Tape" jack. Setting the Function Selector Switch at the position marked "TAPE HEAD" will then activate the "TAPE" jack and provide the proper equalization.

Tape Output:

A jack marked "TAPE OUT" is located on the rear of the Prelude 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 setting.

Convenience Outlets:

The Prelude II incorporates an AC convenience outlet located at the rear of the unit. Auxiliary high fidelity equipment (tape recorder, television tuner or phonograph) may be connected to this outlet and will then be controlled by the on/off switch on the Prelude II. Never load this AC convenience outlet with more than a total of 2 amps.

Speaker Connections:

A unique method of connecting one or two loudspeakers is incorporated in the Prelude 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

TERMINALS." For speakers with an impedance of 12 to 24 ohms place the Impedance Selector Jumper located near the speaker Terminal strip so that the center terminal is connected to the terminal marked 16. For speakers with an impedance of 4 to 12 ohms place the Impedance Selector Jumper so that the center terminal is connected to the terminal marked 8. 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 rear 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 Prelude 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, rotate the front panel Speaker Selector Switch to position "A." To select speaker B rotate the switch to position "B." To activate both speakers simultaneously rotate the front panel Speaker Selector Switch to the position marked "AB."

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 Prelude II 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, and Loudness Control (on/off switch is incorporated into this control). Located in the lower right hand corner you will find a Contour Selector Control, and directly above this control is the Speaker Selector Switch.

To operate, turn the Function Selector Switch to the RIAA position, and place a recording on your turntable or changer. Turn the amplifier on by rotating the Loudness Control in a clockwise position; now set this Loudness Control at 1/3 volume. Set the Bass and Treble Controls so that the white lines on the knobs point straight up. This will assure a flat response. The Contour Control should remain on zero at this time. Now activate the changer or turntable and play the recording. (If you do not own a changer, a tuner may be used. Merely turn the Function Selector Switch to the "Tuner" position and operate as above.) Now adjust the volume so that the music is played at a comfortable level. Adjust the Bass and Treble tone controls to correct for the electro-acoustical 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 total system create the proper sense of aural balance and evenness.

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 readjust 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 7 positions: Tuner, Aux, RIAA-Rumble, RIAA, LP, EUR, and Tape Head. Its use is to select the desired type of program. Listed below is the explanation of the various functions:

Tuner:

This position on the Function Selector Switch activates the Tuner jack located on the rear of the chassis. Previously explained under "Tuner Input" section.

Aux:

This position on the Function Selector Switch activates the AUX jack located on the rear of the chassis. Previously explained under "Auxiliary Input" section.

RIAA Rumble:

Often, records, record changers and even some turntables produce an objectional 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 into the unit. Located on the Function Selector Switch and designated as "RIAA-Rumble" this position effectively "rolls off" the very low frequencies and eliminates rumble. The Rumble Filter is used in conjunction with the RIAA playback curve and the "roll off" is 10 db at 20 cycles.

Record Equalization: (RIAA, LP, Eur)

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, Capitol, 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 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: Capitol 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. You hearing should be the final judge as to the exact equalization control setting.

Tape Head:

If you are using a tape deck without its own preamplifier in conjunction with this amplifier, connect the tape recorder head to the jack on the rear panel marked "Tape." This will allow the A-12 to act as the preamplifier for the tape recorder and will automatically compensate for the NARTB 7-1/2 IPS playback curve when the Function Selector Switch is placed in the "Tape Head" position. This was thoroughly covered in the paragraph entitled "Tape Input."

Bass and Treble Controls:

Separate Bass and Treble controls are incorporated to provide the full range of tone 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.

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. Four positions of compensation are provided to allow the selection of the one most suited to your hearing. Each position (0-3) causes the Loudness (Volume) control to perform with a different degree of compensation, the amount increasing with each clockwise setting. Position 0 is uncompensated. Position 1 provides somewhat less compensation than that required to match the Fletcher-Munson curves. Position 2 matches the Fletcher-Munson curves. Position 3 provides a greater amount 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.

Speaker Selector Switch:

Operation of this switch was previously discussed in Speaker Connections section.

ADJUSTMENT CONTROLS

Hum Bucking Control:

The Hum Bucking Control is accessible at the rear of the chassis. Adjust this control for minimum hum after setting controls for Phono (RIAA) operation and the volume level slightly above normal.

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.

MAINTENANCE AND REPAIR

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

WARRANTY

We warrant each Prelude II, Model A-12 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, with the exception of tubes which are covered by 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 instructions 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-12, Prelude 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 hookup 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.

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.

Harman-Kardon high fidelity instruments incorporate advanced production techniques as well as advanced circuit features. They reflect the highest state of the art of fine audio equipment. We hope your unit provides you with many hours of listening enjoyment.

Our Customer Service Department is maintained to answer your correspondence about High Fidelity and to make recommendation of appropriate companion accessories. Please feel free to write without obligation.

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