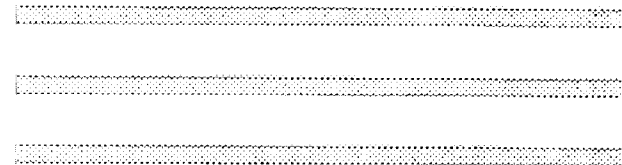
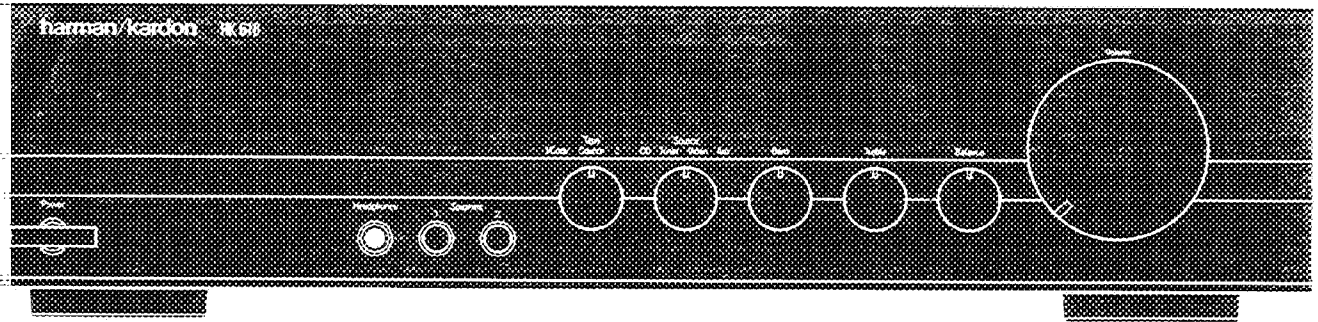


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HK610



harman/kardon

Integrated Amplifier

OWNER'S MANUAL

HK610 OWNER'S MANUAL

Congratulations on your choice of the Harman Kardon Integrated Amplifier.

In order to obtain the best performance from this integrated amplifier, please be sure to read this owner's manual and use your integrated amplifier only in accordance with its instructions.

The special features of this unit include:

HCC (High Instantaneous Current Capability)

The amplifier sections react rapidly to musical transients, providing the instantaneous current necessary to precisely drive and control nearly any loudspeaker system.

Ultrawide Bandwidth

The bandwidth of this unit is exceptionally wide and is independent of negative feedback. This improves transient accuracy and phase linearity.

Low Negative Feedback

This unit has been designed to have low distortion and wide bandwidth without high negative feedback. This further improves its dynamic accuracy.

Discrete Component Circuitry

In order to achieve the above goals, all discrete electronic circuitry has been employed. No available integrated circuits could provide this high level of performance.

Sophisticated Electronic Protection Circuitry

Harman Kardon's unique protection circuitry guards the amplifier from short-circuited or damaged speakers and wires, without impairing sound quality by the use of current limiting or output relays.

GENERAL INSTRUCTIONS

Use the Correct AC Voltage

Connecting the unit to an outlet supplying a higher voltage may create a fire hazard.

Handle the Power Cord Gently

Do not disconnect the plug from the AC outlet by pulling the cord; always pull the plug itself. Pulling the cord may damage it. If you do not intend to use your unit for any considerable length of time,

disconnect the plug from the AC outlet. Do not place furniture or other heavy objects on the cord, and try to avoid dropping heavy objects upon it. Also do not make a knot in the power cord. Not only may the cord be damaged, it can also cause a short circuit with a consequent fire hazard.

Place of Installation

Place the unit on a firm and level surface. Avoid installing your unit under the following conditions:

- Moist or humid places.
- Places exposed to direct sunlight or close to heating equipment.
- Extremely cold locations.
- Places subject to excessive vibration or dust.
- Poorly ventilated places.

Do not obstruct the ventilation slots on the top surface of the unit by placing objects over them.

Otherwise, the temperature inside the unit may rise, possibly affecting its long-term reliability.

In Case of Moving the Unit

Before moving the unit, be sure to pull out the power cord from the AC outlet and disconnect the interconnection cords with other units.

Do Not Open the Cabinet

To prevent shock hazard, do not tamper with internal components for inspection or maintenance. Harman Kardon does not guarantee against performance degradation resulting from any modification. If water, a hairpin or wire accidentally enters the unit, immediately extract the plug from the AC outlet to prevent shock and consult an authorized Harman Kardon service station. If you use the unit under this condition, it may cause a fire or shock hazard.

Cleaning

If the unit gets dirty, wipe it with a soft dry cloth. If necessary, wipe it with a soft cloth dampened with mild soapy water and then with a dry cloth. Never use benzene, thinner, alcohol or other volatile agent, and avoid spraying an insecticide near the unit.

Abnormal Smells

If you detect an abnormal smell or smoke, immediately turn the amplifier off and unplug the power cord. Contact your dealer or nearest Harman Kardon service center.

Packaging

Save all packing material. It is essential for shipping should you move, or in the event the unit ever needs repair.

CONNECTIONS

Connecting Other Components

1. Make sure your amplifier and other components are turned off.
2. Connect each component's Output jacks to the corresponding Input jacks on the back of your amplifier. Use the white, black or gray plugs to connect Left channel jacks; use the red plugs for Right jacks.
3. To use a 3-head tape deck that allows monitoring of the actual recording while it is in process, connect it to TAPE 2 jacks.

For Customers with a Turntable:
To connect a turntable, an optional Phono board must be installed. This board can be set to MM or MC. With the Phono board installed, however, you cannot use the AUX input. If you want to have the Phono board installed, consult your authorized Harman Kardon service center.

Connecting Speakers

1. For best performance, use high quality speaker cables. However, ordinary copper wire can be used if the gauge meets the following requirements:

Wire Length	Gauge
Up to 2.5 meter	18 AWG
Up to 4 meter	16 AWG
Up to 6 meter	14 AWG
Over 6 meter	10-12 AWG custom speaker cable

2. Avoid coiling excess wire with or near line level hook-up cords.

IMPORTANT: When connecting two pairs of speakers, determine the impedance of each pair by looking on the back of the speakers, or in your owner's manual, or by contacting your dealer or manufacturer. Then refer to the following chart to see if both sets may be played simultaneously.

If impedance of the two pairs is:	Can both pairs be played simultaneously?
8Ω/8Ω	YES
8Ω/6Ω	NO
8Ω/4Ω	NO
6Ω/6Ω	NO
6Ω/4Ω	NO
4Ω/4Ω	NO

WARNING: Do not play both sets of speakers simultaneously except as recommended above. Amplifier may overheat.

AC Power

Plug the cord into a wall socket. (AC 230V)

For Customers in the UK

Your unit is supplied with the flex which will have either two or three wires, so the following items should be observed to guarantee safety:


THREE CORE FLEX

WARNING: THIS APPARATUS MUST BE EARTHED.

IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

Green-and-yellow	: Earth
Blue	: Neutral
Brown	: Live

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol  or coloured green or green-and-yellow.

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

TWO CORE FLEX

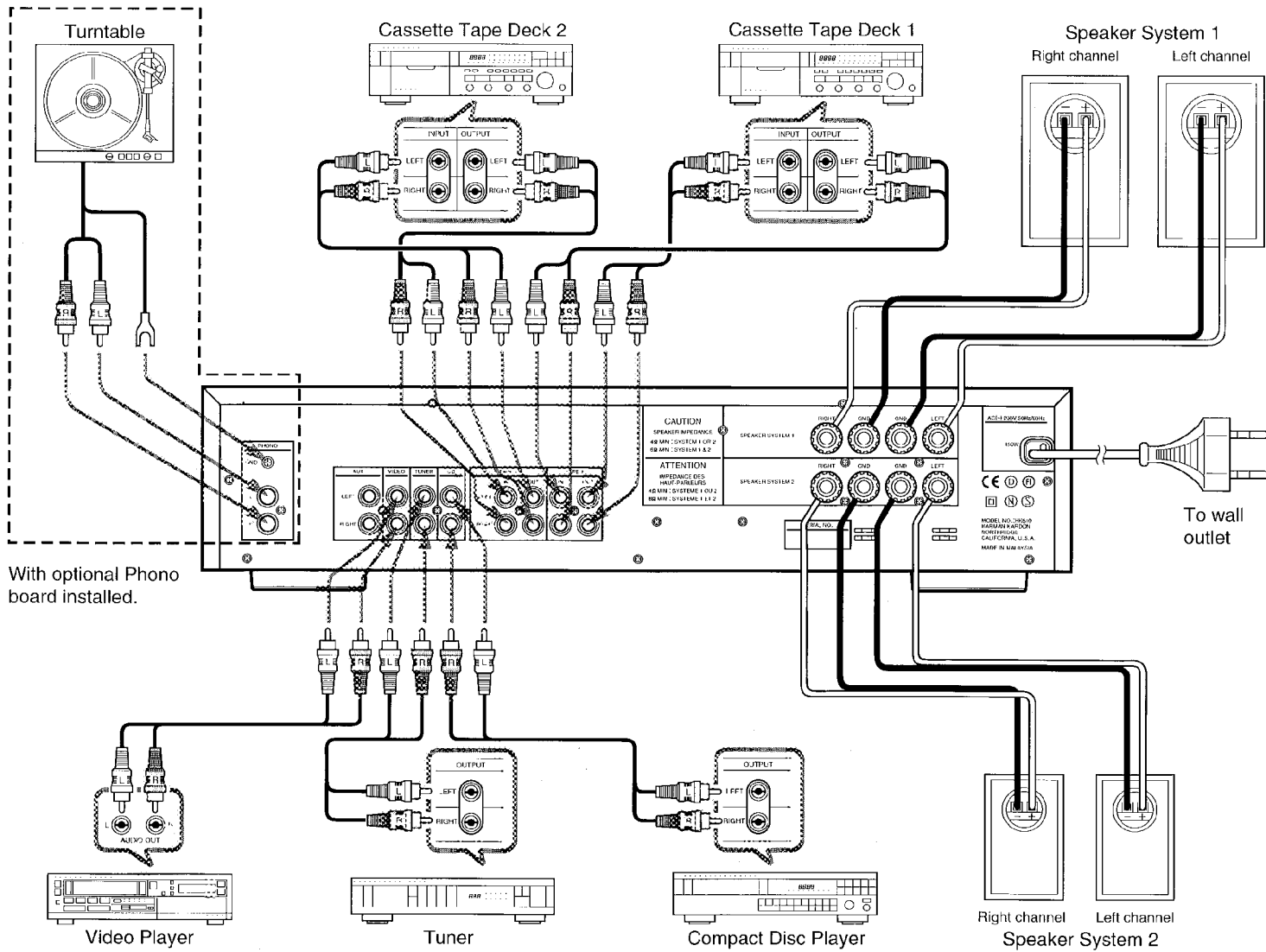
IMPORTANT. The wires in this mains lead are coloured in accordance with the following code:

Blue	: Neutral
Brown	: Live

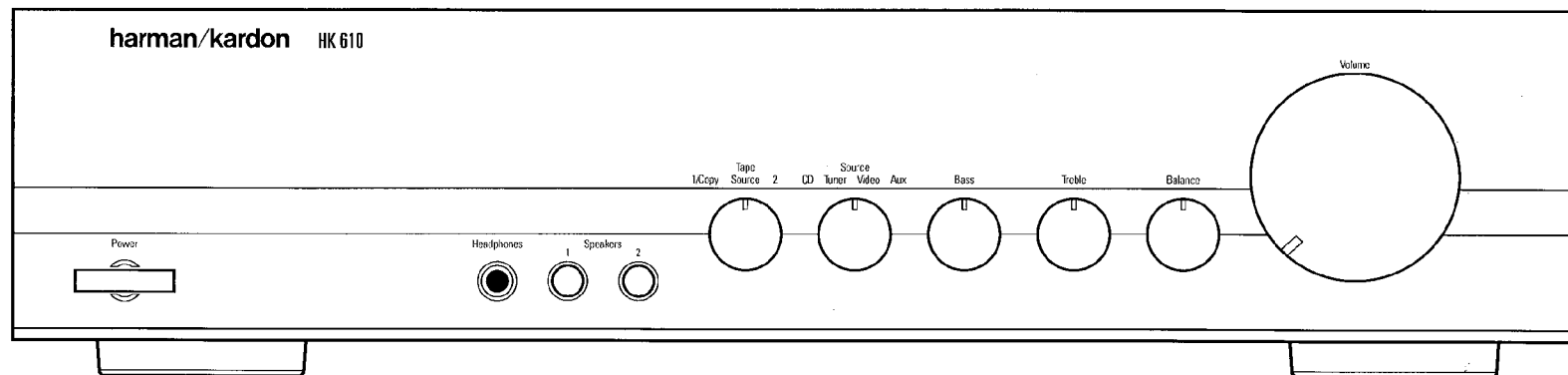
As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:

The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.



CONTROLS and FUNCTIONS



Power Switch

Press to turn the unit on and off.

Power Indicator

Indicates that the unit is switched on.

Headphone Jack

Plug in headphones if desired. (With both Speakers 1 and 2 switches in Off position, output is supplied only to headphones.)

Speakers Switches

Push in to select either of two sets of speakers, or both, or neither (headphone output only).

Tape Monitor Selector

This selector is used when playing a tape deck, or monitoring during recording.

1/Copy: Select this position to play a tape on the tape deck connected to the TAPE 1 jacks. This is also the position to use to copy a tape from Tape 1 to Tape 2.

Source: Select this position to listen to a program source other than a tape.

2: Select this position to play a tape, or to monitor during recording on the tape deck connected to the TAPE 2 jacks.

Source Selector

This selector is used to select a program source other than a tape.

CD: Select this position to listen to a CD player connected to the CD jacks.

Tuner: Select this position to listen to a Tuner connected to the TUNER jacks.

Video: Select this position to listen to the sound of a TV, VCR or Laserdisc player connected to the VIDEO jacks.

Aux: Select this position to listen to a source connected to the AUX jacks.

Bass Control

Turn to increase or decrease the proportion of low frequency sound.

Treble Control

Turn to increase or decrease the proportion of high frequency sound.

Balance Control

Turn to adjust relative output level of left and right speakers.

Volume Control

Turn to raise or lower output volume.

OPERATING INSTRUCTIONS

Listening to your CD player, tape deck, tuner or other component sound source

1. Turn Volume control to minimum level and press the Power switch to turn on the amplifier. The power indicator lights up.
2. Set the Speakers switches to play speakers 1, 2, both or neither (for headphone use).
3. Set the Tape Monitor selector to the Source position.
4. Set the Source selector corresponding to the component you wish to hear.
5. Begin playing the desired components.
6. Adjust the Volume control to the desired level.
7. Adjust Bass, Treble and Balance controls as desired.

NOTE: If you have the optional Phono board installed, set the Source selector to the Aux position to listen to the turntable.

Tape Recording

Recording from a program source (compact disc player, FM/AM broadcast or components connected to the VIDEO or AUX jacks) on a tape deck connected to the TAPE 1 and/or TAPE 2 jacks:

1. Turn the Volume control to the minimum level and press the Power switch. The power indicator lights up.
2. Select the desired program source with the Source selector.
3. Set the Tape Monitor selector to the Source position.
4. Advance the Volume control to a comfortable level.
5. Start recording by activating the tape deck(s) connected to the TAPE 1 and/or TAPE 2 jacks. The source sound can be listened to from the speakers or headphone.
6. To monitor the sound being recorded, set the Tape Monitor selector to the 2 position if a 3-head tape deck is connected to the TAPE 2 jacks.

NOTE: The record output signal is carried directly from the program source without being influenced by the Volume, Bass, Treble or Balance control.

Tape Dubbing

Two tape decks can be connected to this unit and dubbing can be done from the tape in the tape deck connected to the TAPE 1 jacks onto the tape in the tape deck connected to the TAPE 2 jacks.

1. Turn the Volume control to the minimum level and press the Power switch. The power indicator lights up.
2. Set the Tape Monitor selector to the 1/Copy position.
3. After setting the tape deck connected to the TAPE 1 jacks for playback, and the tape deck connected to the TAPE 2 jacks for recording, dubbing will begin.

Declaration of Conformity



We, Harman Marketing Europe a/s
Kongevejen 194B
DK-3460 Birkerød
DENMARK

declare in own responsibility, that the product described in this owners manual is in compliance with technical standards:

EN 55013/6.1990, EN 55020/6.1988,
EN 55022/4.1987

Accredited test laboratory:
MIKES PRODUCT SERVICE GmbH
Ohmstrasse 2-4
D-94342 Strasskirchen

Birkerød, DENMARK, Aug. 26. 1994

Steen Michaelsen

harman marketing europe a/s

The appliance conforms with EEC directive 87/308/EEC regarding interference suppression .

TROUBLESHOOTING

This unit is designed for trouble-free operation; most problems users encounter are due to operating errors. So if you have a problem, first check this list for a possible solution. If the problem persists, consult your authorized Harman Kardon service center.

If the problem is:

Make sure that:

No lights illuminate when the Power switch is pressed.

- The unit is plugged into a live outlet.

No sound is heard.

- Press the Speakers switches corresponding to the desired speakers.
- The Source selector has been made properly.
- The Tape Monitor selector is in the Source position.
- Volume is turned up.
- Speaker wires are connected properly.
- Hook-up wires to source component are connected properly.

Sound is not heard from the speaker system on one side.

- The speaker wires and connection wires are connected correctly.
- The balance control knob is set to the center.

When listening to stereo sound, the left and right sounds are reversed.

- The speaker wires are connected correctly.
- The wires between components are connected correctly.

Intermittent or continuous buzzing or hissing.

- The unit is away from fluorescent lights, TVs, motors and other electrical appliances.

Phono sound is too faint, has hum, ringing, or "howl."

- Ground wire from turntable has been connected to ground terminal on amplifier.
- Cable from turntable is away from power cords and speaker cables.
- Turntable is away from speakers.
- Turntable is on stable surface.

Note: The optional phono board is required to play a turntable.

SPECIFICATIONS

Continuous Average Power Per Channel (FTC) 20Hz - 20kHz, Both Channels Driven	8 Ohms:	30 Watts @ <0.09%THD
	4 Ohms:	45 Watts @ <0.3%THD
Dynamic Power (IHF, 1kHz tone burst)	8 Ohms:	45 Watts
	4 Ohms:	65 Watts
	2 Ohms:	90 Watts
High Instantaneous Current Capability (HCC):		±30 Amps
Power Bandwidth @ half-rated output, 8Ω:		<10Hz - 100kHz
Frequency Response @ 1W (+0/-3dB):		0.5Hz - 100kHz
Damping Factor:		120
Signal-to-Noise Ratio (reference rated power output, A-Wtd.)	Tuner/CD:	98dB
	Option Phono (MM):	80dB
	Option Phono (MC):	75dB
Input Sensitivity/Impedance	Tuner/CD:	135mV/22kΩ
	Option Phono (MM):	2.2mV/47kΩ, 125pf
	Option Phono (MC):	120 μV/56 Ohms
Phono-Overload:	Option Phono (MM):	100mV
	Option Phono (MC):	5mV
Tone Control Range, Bass @ 50Hz/Treble @ 10kHz:		±10dB/+10dB
Power Supply:		AC 230V, 50/60Hz
Power Consumption:		150W
Dimensions (Width × Height × Depth):		443 × 104 × 359mm
Weight:		6.5kg

All features and specifications are subject to change without notice.