harman/kardon
DIGITAL SYNTHESIZED
QUARTZ-LOCKED STEREO RECEIVER

hk1680
owner's manual

Turntable

Speaker System 1
Right

Speaker System 1
Left

Speaker System 2
Right

Speaker System 2
Left

Dipole Antenna

Output

Input

Tape Deck 1

Wall Outlet

Output

Input

Tape Deck 2

Other Equipment
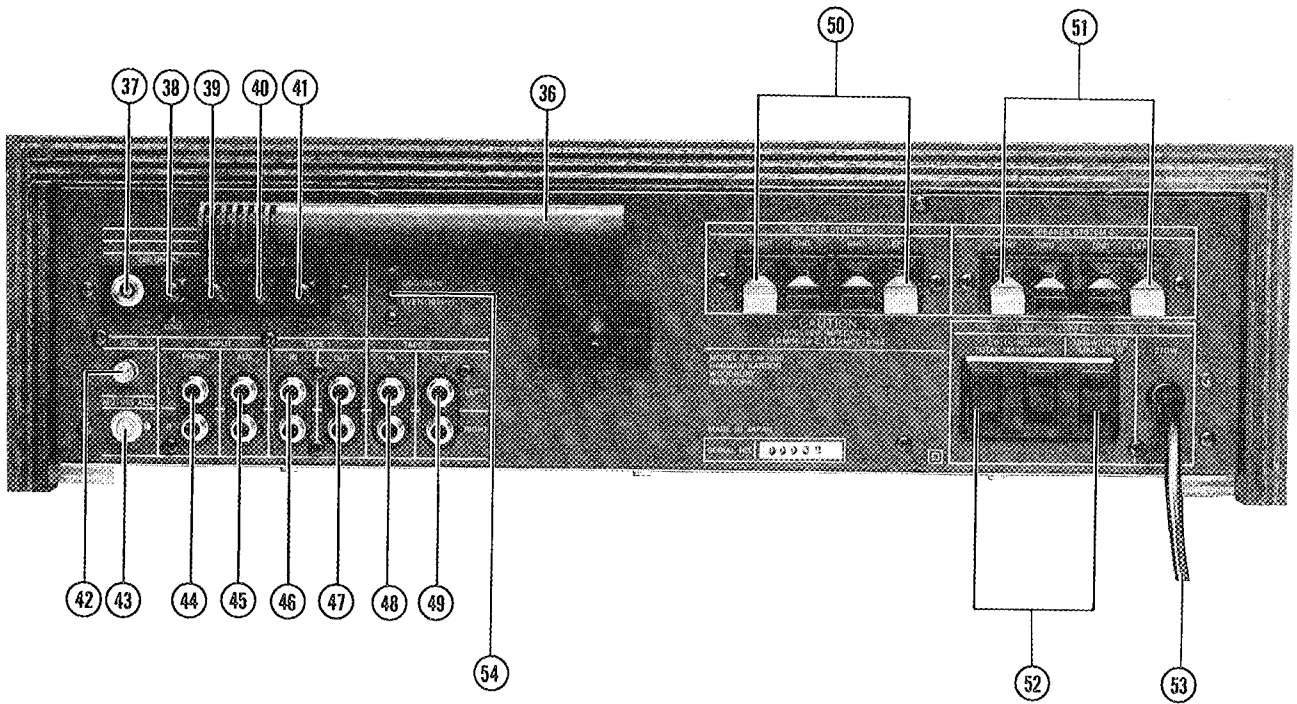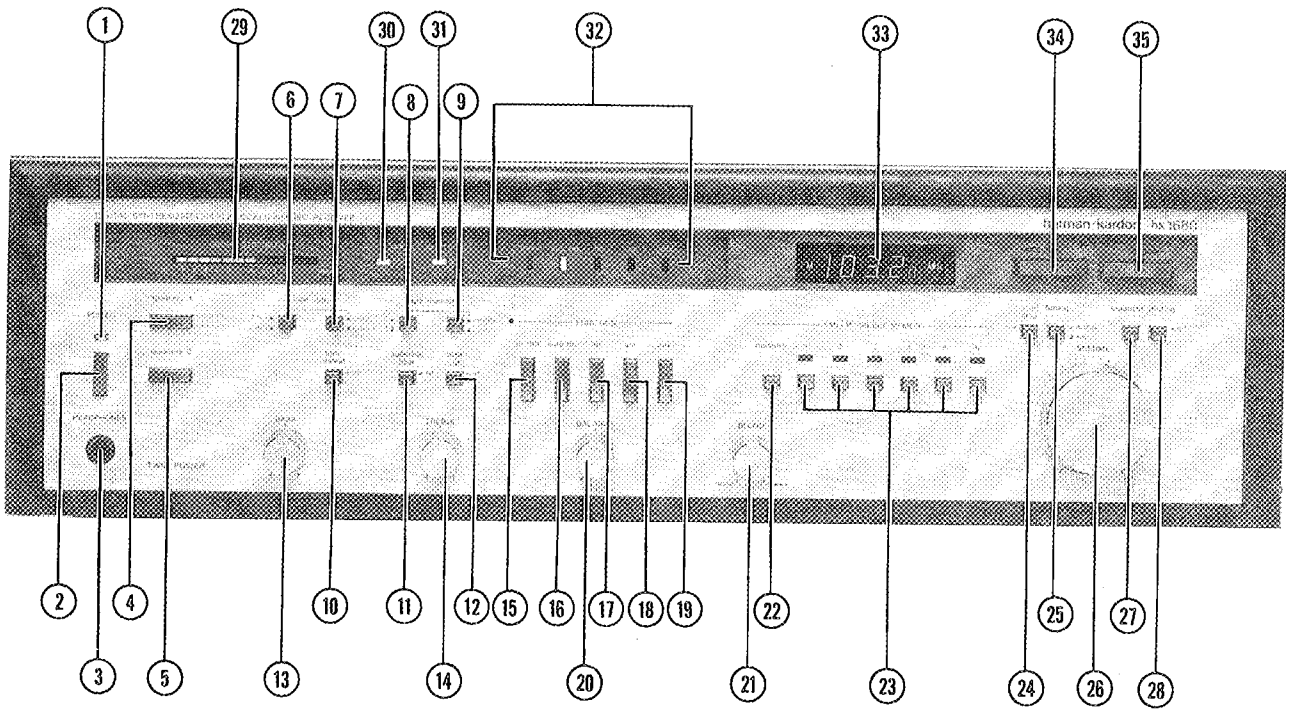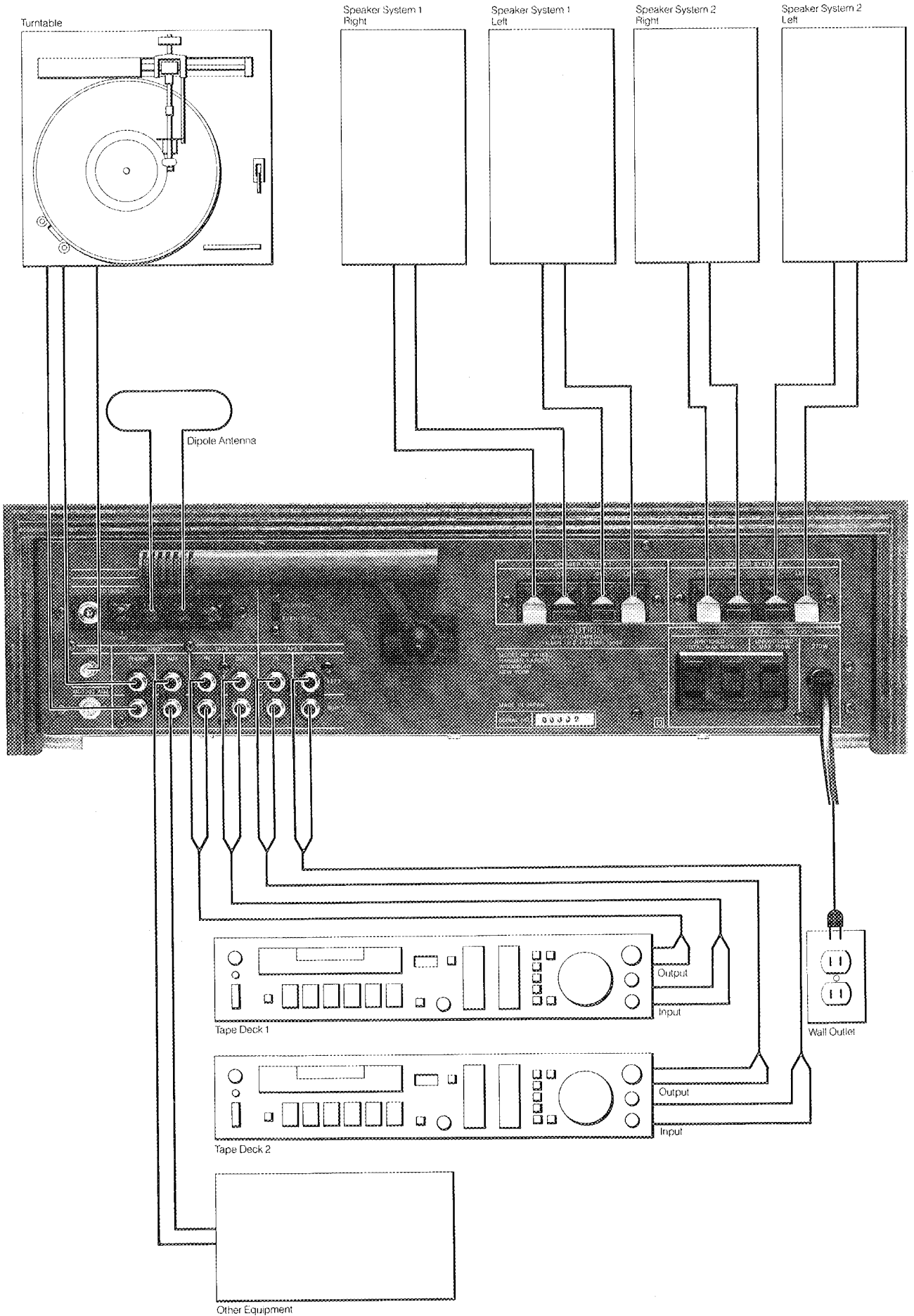
Owner's manual hk1680

Your investment in a component high fidelity system indicates you have a more than average interest in music. The fact that your investment includes a Harman Kardon Digital Synthesized Quartz-Locked Stereo Receiver shows us your appreciation of uncompromised reproduction of the music you enjoy. Throughout the design and manufacture of this unit, we made every effort to assure it will meet all of your expectations.

To ensure continuing high performance, read this manual carefully before you connect and operate your hk1680.

Warning

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

Do not mistake the ferrite loopstick AM antenna for a handle. Its bracket cannot support the unit.

Do not place other components or objects on top of the hk1680.

Connections

For the moment, leave the POWER LINE CORD (53) of the hk1680 unconnected. Put the unit on the shelf or table where it will be installed. Leave enough working space so you can make all connections easily.

The hk1680 requires adequate ventilation. It should not be installed on a cushion or rug, and a minimum of two inches (5 cm) clearance should be provided above and behind.

Like most stereo equipment, your hk1680 is fitted with pin type RCA connectors to accept standard pin type RCA patch cords. If these are not compatible with your other equipment, consult your audio dealer for patch cords with proper adaptors.

Connecting your turntable to the hk1680

Turntables are supplied with their own signal cables. Consult the owner's manual and determine which cable is for the left channel and which is for the right channel. Insert the left channel cable into the left PHONO INPUT connector (44) on your hk1680. Insert the right channel cable into the right PHONO INPUT connector (44). Push the plugs in all the way so they are firmly seated, making good electrical contact.

If your turntable has a separate ground wire, connect it to the knurled thumbscrew on the receiver marked GND (42).

Connecting your tape decks to the hk1680

To connect a tape deck, connect the left output connector of your tape deck to the left TAPE 1 INPUT connector (46) on your hk1680. Now connect the right output connector of your deck to the right TAPE 1 INPUT connector (46) on your hk1680.

Using a second pair of patch cords, connect the left input connector of your deck to the left TAPE 1 OUTPUT connector (47) on your hk1680. Now connect the right input connector of your deck to the right TAPE 1 OUTPUT connector (47) on your hk1680. Push the plugs in all the way so they are firmly seated, making good electrical contact.

A second tape deck may be connected similarly using the TAPE 2 INPUT and OUTPUT connectors (48) (49).

Connecting other equipment to the hk1680

A pair of AUXILIARY INPUTS (45) is available at the rear of the hk1680 for the connection of any "high level" output equipment. A special tuner for long wave, marine, aircraft or citizen's bands, etc., may be connected. Or you may choose to connect the output of the audio section of a television receiver. Any number of choices are available. Consult your audio dealer for information as to what equipment is compatible with your hk1680.

Connecting speakers

Use two-conductor stranded wire to connect your speakers to the receiver. Eighteen gauge lamp cord (zip cord) is satisfactory, but a heavier gauge (16 or 14 gauge) is preferable, especially for distances over 25 feet.

Cut two segments of wire long enough to reach each speaker. Separate the conductors at each end of the wire segments for a length of two or three inches. Then carefully remove about one-quarter inch of insulation from each free end. Twist the strands of each conductor so they are smooth and tight with no loose strands.

Lamp cord usually provides a "code" that differentiates the two conductors. A conductor may be coded by a rib, sharp corner, or indentations molded along the length of the insulation. In some cases, a thin colored thread is molded inside the insulation of each conductor. In others, one conductor is darker than the other, or the insulation of each conductor is of a different color. Connect the bare ends of one segment of lamp cord to your right speaker as follows: Connect the coded conductor to the speaker's positive ("+") terminal, and the uncoded conductor to negative ("−"). The "+" and "−" markings are in general use, although some speakers use other labeling systems, such as "1" and "2", "A" and "B" and so on.

Find the appropriate row of speaker connectors on the receiver marked SPEAKER SYSTEM 1 (50). Push in on the red plastic head of the connector marked RIGHT to reveal an opening beneath. Insert the bare end of the coded conductor into the opening. Release the connector. The conductor should now be locked firmly into place. Insert the uncoded conductor into the adjacent black connector marked GND.

Repeat the procedure for the left speaker, taking care to observe the coding of the conductors as described for the right speaker. If the code is followed as described, your speakers will be connected "in phase", which is important for solid bass and precise lateral location of the sound source. To connect a second pair of speakers, repeat the procedure for the right and left speakers of the second pair, using the receiver terminals marked SYSTEM 2 (51).

Connecting an AM antenna

A ferrite loopstick type AM ANTENNA (36) is provided and can be rotated to improve reception. If an external AM antenna is used, connect it to the terminal marked AM (41).

Connecting FM antennas

If no outdoor antenna is available, connect the lugs of the dipole (supplied with the unit) to the FM300Ω BAL terminals (39) and (40). The dipole can then be tacked or taped to a wall or the back of a shelf.

However, reception will be greatly improved if the receiver is connected to an outdoor FM antenna system. If you live in a fringe reception area, or if your house is situated among obstructions (such as mountains or tall buildings), you may need a more powerful, directional FM antenna.

To connect 300Ω (ohm) outdoor antenna wire, attach as described in the preceding paragraph. However, if your cable is 75 ohm, as is the case with many outdoor antennas, it will be a cable with either two protruding wires or a coaxial connector. If the cable ends in bare wires, connect the wire that forms the outer mesh braid to the terminal marked FM 75Ω UNBAL GND (38). Connect the solid, copper-colored wire protruding from the center of the cable to the FM 300Ω BAL terminal (39). If your 75Ω cable has a coaxial connector, connect it to the 75Ω antenna receptacle (37).

AC convenience outlets

Three AC outlets (52) on the rear panel of the hk1680 provide power connections for turntables, tape decks or other equipment. One is marked UNSWITCHED and provides power whether the receiver is turned on or not. Those marked SWITCHED provide power only when the receiver is turned on.

If you have completed the connections above, you are now ready to place the hk1680 in its permanent position and plug the POWER LINE CORD (53) into an AC outlet. To turn the unit on and off, press the POWER switch (2). When power is on, the POWER indicator (1) will light.

To operate your hk1680

Speaker selection and headphones

The SPEAKER 1 (4) and SPEAKER 2 (5) switches select the pair of speakers to be played. When either switch is depressed, the corresponding pair of speakers is activated.

The front panel HEADPHONES jack (3) accepts headphones for personal listening. Headphones may be used simultaneously with speakers if desired.

To play records

Depress the PHONO pushbutton (15), activate your turntable, and advance the VOLUME control (26) clockwise to a comfortable level.

If you hear a hum at average listening levels, turn the POWER switch (2) off and check to see that phono and ground connections are secure.

To listen to broadcasts

To tune to an FM station manually, press the FM or AUTO FM pushbutton (17) (16) and place the TUNING button (25) in its MANUAL position (in). To scan to higher frequencies, press the TUNING UP button (35), releasing it when the desired frequency has been found. To scan to lower frequencies, press the TUNING DOWN button (34). During scanning, no sound will be audible at any time, even as you pass frequencies that contain broadcasts. This feature protects your audio system and loudspeakers from sudden high level signals. As you scan, the SIGNAL STRENGTH display (29) will help you locate broadcasts. To tune to an AM station, press the AM pushbutton (18), and follow the same procedure. The QUARTZ LOCK indicator (30) will light any time the receiver is properly tuned to any station. To scan automatically, place the TUNING button (25) in its AUTO position (out). When you press the TUNING UP button (34) or TUNING DOWN button (35), the hk1680 will automatically scan in the desired direction, stopping at each station to play several seconds of music, If the system is not disengaged by placing the SCAN STOP button (24) in its "on" position (in), the hk1680 will continue scanning and sampling until disengaged.

In its "on" position (out) the MUTING button (28) will automatically reject weak or distant stations that would give poor reception. To receive these stations, press the MUTING button (28) to its "off" position (in). When the TUNING button (25) is in its AUTO position (out), the muting function is enabled regardless of the MUTING button position.

You can adjust the action of the muting circuit in your hk1680 by using the MUTE ADJUST control (43) on the rear panel. The mute adjust is set at the factory so that you can receive the maximum number of stations. You may wish to alter the setting to mute some of the weaker and noisier FM stations by adjusting the MUTE ADJUST control (43) clockwise. When the MUTE ADJUST control (43) is turned fully clockwise, all but the strongest FM stations are muted. During adjustment of the MUTE ADJUST control (43) make sure the TUNING button (25) is in its MANUAL position (in).

When the AUTO FM button (16) is selected, the hk1680 will automatically shift into the mono mode when the signal is too weak for good stereo reception. To receive weak stations in mono (and reduce noise), press the FM button (17) instead.

FM/AM preset memory

Each of the FM/AM PRESET MEMORY buttons (23) on the hk1680 can store one AM station and one FM station in memory for easy recall. Once registered in memory, these stations may be recalled simply by selecting either the AM or FM band with the function selector buttons, then depressing the proper FM/AM PRESET MEMORY button (23).

To register a station in memory, first locate the station as described earlier, and press the SCAN STOP button (24). Then press the MEMORY button (22) and the word MEMORY will appear at the right hand side of the frequency display (33). Within 5 seconds after pressing the MEMORY button (22) press any of the 6 AM/FM PRESET MEMORY buttons (23) to store a station in memory.

To recall a station from the memory at any time, simply select the proper function (FM or AM) and press the appropriate FM/AM PRESET MEMORY button (23). Any time any of the FM/AM PRESET MEMORY buttons (23) is pressed, and the MEMORY button (22) is also pressed, the previously registered station will automatically be cancelled and the new one registered. Whenever the receiver is turned on, it will automatically tune to the last station you listened to, regardless of whether that station was registered in memory or not.

When recalling stations from the memory, the FM/AM PRESET MEMORY push buttons should not be pushed in rapid succession. There should be at least a 1 second interval between the selection of each station.

Note: If power to hk1680 is cut for any reason, a battery backup system will activate to prevent preset stations from being cancelled from the memory. Momentary power cuts will not affect the memory. However we recommend that you do not connect the hk1680 to an outlet that may inadvertently be turned off. Otherwise excessive battery drain may occur.

ODD (9kHz)/EVEN (10kHz) selector

The ODD (9kHz)/EVEN (10kHz) SELECTOR (54) is used for matching the tuning step of your hk1680 with the frequency step of the AM/FM stations in your area.

With the selector placed in the ODD (9kHz) position, tuning step of the hk1680 is set to 9kHz for AM broadcasting; it also sets tuning step for FM broadcasting to 50kHz automatically. Setting it in the EVEN (10kHz) position sets the tuning step to 10kHz for AM and 200kHz for FM broadcasting.

Auxiliary equipment

If you have connected other equipment to the AUXILIARY INPUT connectors (45), you may listen to this program source by pressing the AUXILIARY pushbutton (19).

To play tapes

The TAPE MONITOR pushbuttons (8) (9) admit programs from tape decks connected to TAPE 1 INPUT connectors (46) and TAPE 2 INPUT connectors (48). When you wish to play a tape or program source connected to the TAPE 1 INPUT connectors (46), depress the TAPE MONITOR SOURCE/MONITOR pushbutton (9) to its MONITOR position (in) and place the TAPE MONITOR 1/2 pushbutton (8) in its TAPE 1 position (out). To play a tape or program from the TAPE 2 INPUT connectors (48), place the TAPE MONITOR SOURCE/MONITOR pushbutton (9) in the MONITOR position (in) and depress the TAPE MONITOR 1/2 pushbutton (8) to its TAPE 2 position (in).

To record tapes

The hk1680 allows you to record programmed materials from any source selected by the function control pushbuttons (15) (16) (17) (18) (19).

Leave the TAPE COPY SOURCE/COPY pushbutton (7) in its SOURCE position (out). Activate the program source and place tape deck 1, tape deck 2 or both in record mode.

To listen to the original program, place the TAPE MONITOR SOURCE/MONITOR pushbutton (9) in its SOURCE position (out). To monitor the new recordings as they are being made, press the TAPE MONITOR SOURCE/MONITOR pushbutton (9) to its MONITOR position (in) and select the tape deck to be monitored with the TAPE MONITOR 1/2 pushbutton (1-out, 2-in) (8).

The VOLUME control (26), BALANCE control (20), and the various tone controls do not affect the signal at the TAPE OUTPUT connectors (47) (49). Hence you may change the settings of these controls without altering a tape recording in progress.

To copy tapes

When copying material from one tape deck to another, the TAPE COPY SOURCE/COPY pushbutton (7) should be pressed to the COPY position (in). To copy material from tape deck 1 onto tape deck 2, the TAPE COPY (1 to 2)/(2 to 1) pushbutton (6) should be in the "1 to 2" position (out). Put tape deck 1 in the play mode and tape deck 2 in the record mode.

To copy material from tape deck 2 onto tape deck 1, press the TAPE COPY (1 to 2)/(2 to 1) pushbutton (6) to the "2 to 1" position (in). Put tape deck 2 in the play mode and tape deck 1 in the record mode.

While copying material from one tape deck to another, you may listen to the original tape, the new recording, or any other program source selected by the function control pushbuttons (15) (16) (17) (18) (19). To listen to either tape deck, press the TAPE MONITOR SOURCE/MONITOR pusubutton (9) to its MONITOR position (in) and select the tape deck you wish to hear with the TAPE MONITOR 1/2 pushbutton (8). To listen to other program sources, leave the TAPE MONITOR SOURCE/MONITOR pushbutton (9) in its SOURCE position (out) and select the program source using the function control pushbuttons (15) (16) (17) (18) (19).

Volume, balance, loudness and tone controls

To increase the volume, turn the VOLUME control (26) clockwise. The BALANCE control (20) shifts the sound to one speaker or the other.

The BASS and TREBLE controls (13) (14) affect the frequency balance of the program material. Their neutral positions are at 12 o'clock. Turning the TREBLE control (14) clockwise increases the high frequencies. The BASS control (13) has the same effect on low frequencies.

When the LOUDNESS button (27) is in its "on" position (in), very high and very low frequencies are boosted at low settings of the VOLUME control (26). This compensates for the ear's relative insensitivity to extreme frequencies at low volume levels. The LOUDNESS button (27) has very little effect at volume settings beyond 12 o'clock.

Mono/stereo blend

The MONO/STEREO BLEND control (21) allows you to compensate for a variety of speaker placements. Ideally, the distance between the speakers should be about the same as the distance from the listener to a point midway between the speakers. Under these conditions, the MONO/STEREO BLEND control (21) should be in its full stereo position (full clockwise). If the distance between the speakers is substantially greater than the distance to the listener, stereo imaging may be improved by rotating the MONO/STEREO BLEND control (21) counterclockwise toward the mono setting.

Filters and tone defeat

The hk1680 also incorporates three additional controls, a SUBSONIC FILTER (11), a TONE DEFEAT (10) and a HIGH CUT filter (12). Placing the TONE DEFEAT button (10) in its "on" position (in) eliminates the action of the BASS and TREBLE controls (13) (14) to allow for critical evaluation of their effect. Placing the SUBSONIC FILTER button (11) in its "on" position (in) engages a filter to protect your speakers from inaudible low frequency signals caused by severe record warp, acoustic feedback or tonearm resonance. Placing the HIGH CUT filter button (12) in its "on" position (in) minimizes "hiss" and other high frequency noises.

Selection of power supply voltage and FM de-emphasis

The hk1680 is factory-set to operate at 120 volts before shipment. If you move after purchasing it or present it as a gift to your friend living in an area where the voltage is different from the set voltage, select the correct voltage position on the voltage selection device according to the following procedure.

Bring this manual with hk1680 to your Harman Kardon service station; necessary setting should be performed by our authorized engineer.

Disconnect the power plug from the AC outlet, then remove the bottom panel and three wood frames by loosening the thirteen screws fixing the bottom panel and three wood frames in position (Fig. 1). Remove the fuseholder with out of the VOLTAGE SELECTOR knob by rotating it counterclockwise with a phillips screwdriver (Fig. 2). The VOLTAGE SELECTOR knob can now be removed from the VOLTAGE SELECTOR indication plate (Fig. 2). Insert it again onto the VOLTAGE SELECTOR indication plate with its notch placed at the correct voltage indication; 110-120-220-240 V.
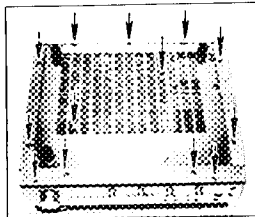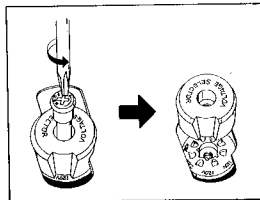

Fig. 1

Fig. 2

Also, on the hk1680, time constant of FM de-emphasis is factory-set to 50μ sec. It will be necessary to use hk1680 in the countries where the time constant of FM pre-emphasis is different from the set value. This setting can be changed with the switch shown Fig. 3.

Remove the wood panel after loosening the four screws on both side of it, then you will find the de-emphasis switch (50μ sec./ 75μ sec.) on the circuit board (Fig. 3). Set the switch to position meeting the time constant of FM pre-emphasis in your area.
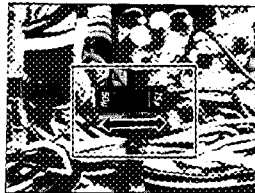

Fig. 3

Maintaining appearance

Clean the wood panel with a soft cloth without using detergent. Never use a abrasive cleaner.

Remove dust or smudges from the acrylic front window with diluted glass cleaner applied with a soft cloth. Do not use a strong solvent-type cleaner or ammonia.

The hk1680 is a high quality precision instrument. If the instructions in this manual are followed thoughtfully, the receiver should provide many years of musical pleasure.