

The Harman/Kardon Model HK 1000

Professional stereo tape
cassette deck
with Dolby Noise Reduction
System

harman/kardon

THE MUSIC COMPANY

Instruction Manual

INTRODUCTION

You are now the owner of one of the most advanced and versatile professional stereo cassette tape decks ever designed for home use.

The HK 1000 with the Dolby Noise Reduction System* has been engineered expressly for the recording enthusiast with professional features and performance that are on a par with, or exceed, the most versatile reel to reel recorders.

Perhaps no other electronic concept in recent years has caused so much talk, or has been so well received as the Dolby noise reduction system. The Dolby system has been commercially available for a number of years and it is presently being used by every major recording company in the world. This system has permitted recording engineers to broaden the limits of signal-to-noise range in tape by another 10 to 15 decibels.

Up to now it has been difficult to achieve noise-free recordings and playback from a tape cassette because of special inherent problems. During the past year, several new low-noise cassettes have appeared which have helped achieve better noise figures, but even with these new uniform oxide and higher saturation tapes, noise still persists as a problem.

This is why the Dolby noise reduction system is such a remarkable achievement and a definite asset to recording enthusiasts. It permits a greater dynamic range giving the sound greater impact and clarity.

Dolby's system is essentially a compression-expansion configuration, which compresses the signal during its initial phase and expands it to match the initial compression during the second phase, but it accomplishes all this without any apparent effect on the signal.

*The word "Dolby" is a trademark of Dolby Laboratories, Inc.

The Dolby B system employed in our Harman/Kardon HK 1000 operates on both record and playback. It boosts low-level, high frequency signals prior to recording, then attenuates these same signals in a precisely equalized mirror image during playback. When this is accomplished, all of the additional noise that may have been added by the cassette recorder is eliminated or reduced to an inaudible level.

The HK 1000 enables the recording enthusiast to make cassette recordings with a tremendous gain in signal-to-noise ratio . . . as much as 10 db! It also gives him the ability to dub tapes over and over again with no increase in noise. It takes only a few minutes of listening to a Dolby processed tape on the HK 1000 to sense the incredible clarity and naturalness of sound. It is not simply the absence of tape hiss during the quieter passages, but the absence of all types of effects, inaudible or unidentifiable in themselves, that contribute to this cleaner sound.

The versatility of the HK 1000 makes it completely compatible for use with Dolby or non-Dolby tapes. You may record tapes without the Dolby system for use with standard cassette recorders or you may playback tapes made on a standard cassette recorder.

We know you are eager to install and use your tape recorder but we sincerely urge you to read this instruction book. The few minutes that it will take to familiarize yourself with the proper techniques for using this fine tape recorder will prove rewarding and will ensure many years of uninterrupted enjoyment with it.

WARRANTY AND SERVICE POLICY

POLICY

We warrant each unit to be free from defects in material and workmanship under normal use and service, and in accordance with the conditions set forth below. Should a defect occur within the period specified, and provided that the unit is returned to either HARMAN/KARDON or an authorized HARMAN/KARDON warranty station, transportation prepaid, and which our examination shall disclose to our satisfaction to be defective, we will for a period of 1 year from date of purchase either replace or repair and install any defective parts of the cassette tape recorder free of charge.

REGISTRATION

To obtain service under the terms of this policy, it is necessary for you to retain your ORIGINAL BILL of SALE. The enclosed registration card will NOT be considered proof of purchase.

In the event your equipment requires service during the warranty period, only presentation of your original bill of sale to either a factory-authorized repair agency or the factory, itself, will insure your rights under the policy, as outlined in this manual.

EXCEPTIONS

This warranty does not include any obligation as to:

- a) repair or replacement of the enclosure due to damage incurred after initial delivery;
- b) transportation charges to and from the factory or an authorized warranty station.

This warranty is not 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 or has been subject to neglect, misuse, abuse, negligence, or accident; or which has had the serial number altered, effaced or removed. Neither shall this warranty apply to any instrument which has been connected other than in accordance with instructions furnished by us.

SERVICE

HARMAN/KARDON has a special customer service division to answer all questions pertinent to the installation and operation of your unit. Please feel free to write to us at any time and we shall endeavor to offer prompt and complete advice.

If your problem cannot be resolved through our combined efforts, we may wish to refer you to a local authorized repair agency or we may prefer to authorize the return of your unit to the factory. In the event it must be returned, an authorization form and proper packing instructions will be forwarded to you. This authorization form, MUST BE RETURNED with your unit.

UNDER NO CIRCUMSTANCES SHOULD YOUR UNIT BE SHIPPED TO THE FACTORY WITHOUT PRIOR AUTHORIZATION.

This warranty is in lieu of all warranties, expressed 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 this instrument.

INSTALLATION

POWER REQUIREMENTS

Connect the AC line cord to any outlet supplying 117 volt, 50 or 60 Hz AC current. The voltage may vary between 105 and 125 volts.

FUSING

A fuse is a safety device used for protection against possible damage due to overload or short circuits. The AC fuse on the HK 1000 labeled 0.2A-3AG is used to protect the power supply of the system.

In the event of fuse failure, replace **ONLY** with the same fuse type used. **NEVER** replace with a fuse of higher rating. To do so will **NOT** protect your player/recorder and could result in severe damage which is not covered under the warranty policy.

AUDIO CONNECTIONS

PLAYBACK — Connect the **LEFT** and **RIGHT OUTPUT** jacks on the HK 1000 to the auxiliary or tape monitoring jacks on your amplifier or receiver.

RECORD — The HK 1000 has two sets of line inputs. The **LEFT** and **RIGHT INPUT-LOW** jacks will be the proper input jacks to use in most cases. They should be connected to the **TAPE OUT** jacks on your amplifier or receiver. If, however, you wish to record from a tuner or another tape recorder, both of which usually have a relatively high output, you should then connect this equipment to the **LEFT** and **RIGHT INPUT-HIGH** jacks. If there is any doubt as to which inputs to use, connect your equipment to the **INPUT-HIGH** jacks first. Refer to the paragraph entitled "RECORDING PROCEDURE" and make an experimental recording. If you have no problem reaching the proper recording level, as indicated by the VU meters, the connections may remain as is. If, on the other hand, you cannot reach the proper recording level, it will be necessary to reconnect the outputs from your equipment to the **INPUT-LOW** jacks on the HK 1000.

MICROPHONES — If you wish to use a microphone, it **MUST** be a **LOW IMPEDANCE** type.

CABLES — The cables supplied with the HK 1000 are of sufficient length for most installations. However, it may be necessary to use longer cables. In such cases a maximum of six feet of high-quality, low-capacitance, shielded audio cable may be used for each connection.

SPEED ADJUST

This control located on the rear panel has been carefully adjusted at the factory for the correct operating speed. It should **NEVER** be adjusted unless proper instrumentation is available.

OPERATION

STEREO-MONO SWITCH

This switch must be placed in the **STEREO** position when making a stereophonic recording. When placed in the **MONO** position while recording, the switch will allow the inputs to either or both channels to be recorded simultaneously on both tape tracks. The result will be a monaural recording of all inputs to the HK 1000. The **STEREO-MONO** switch has no effect during playback.

TAPE SWITCH

You may use either standard, low noise or chromium dioxide (CrO_2) tape with the HK 1000. When making a recording be sure to place the **TAPE** switch, in the position corresponding to the type of tape being used. During playback, the position of this switch should also correspond to the type of tape being used.

MEMORY SWITCH/TAPE COUNTER

The three-digit tape counter is provided as a means of relocating any given point on a tape once it has been recorded. When a recording is being made, simply log the reading on the counter at the beginning of each selection. You will then be able to wind the tape to the same point at any future date. The pushbutton allows you to reset the counter to zero so that you will always be able to use the same frame of reference.

The memory switch is used in conjunction with the tape counter. This will enable the tape to return to any given point selected as follows:

At any time during operation of the tape, when the memory switch is placed in the "ON" position and the tape counter is reset to zero, this now becomes the new zero reference point.

Once this new zero reference is established, and the rewind button is depressed, the tape will only return to this new reference point and not rewind completely.

In order to defeat the memory circuit, simply turn the switch "OFF." However, this memory circuit is retained and can be used again until you reset the tape counter to a new zero point with the memory "ON".

An example of the use of this switch is as follows:

1. With memory switch **OFF**, place a tape in the machine and play one selection from this tape.
2. Now place memory switch "ON", and reset counter to zero.
3. Continue and play next selection on the tape.
4. At any time during or after any subsequent selection, when you press the rewind button, the machine will return to the beginning of the 2nd selection (approximately 1 digit prior to the new zero reference). It will not return to the very beginning of the tape.

RECORD BUTTON

This button is used to activate the record mechanism and must be depressed simultaneously with the PLAY button in order to start the tape in motion when recording. Refer to paragraph "ACCIDENTAL ERASURE PROTECTION".

REWIND BUTTON (◀◀)

In this mode of operation, with the memory switch "OFF", the recorder will rapidly wind tape from the take-up reel onto the supply reel until all the tape is on the supply reel or until the STOP or EJECT buttons are depressed.

EJECT BUTTON

This button is used to open the trap door for insertion or removal of a cassette. It also serves a dual function. In the play or record mode only, it can be used to stop tape motion and to eject the cassette. The first time this button is depressed, the tape will stop. To eject the tape, depress again.

In the FAST FORWARD or REWIND positions, when the EJECT button is depressed half way, the tape will STOP and return all other buttons (with the exception of PAUSE) to their unused positions. Depression of this button all the way, will both STOP and EJECT the tape.

STOP BUTTON

This button, when depressed stops tape motion in all functions.

PLAY BUTTON (▶)

This button is used to record when depressed in conjunction with the RECORD button and to play a previously recorded tape when depressed by itself.

FAST FORWARD BUTTON (▶▶)

In this mode of operation the recorder will rapidly wind tape from the supply reel on to the take up reel until all the tape is on the take up reel, or until the "STOP" or "EJECT" buttons are depressed.

PAUSE BUTTON

This button is used in conjunction with the PLAY or RECORD buttons. When depressed, the PAUSE button will interrupt the motion of the tape while playing or recording without affecting the position of the PLAY or RECORD buttons. Push again to release.

LEVEL METERS

In the playback mode of operation the level meters provide visual indication of the signal being fed to the OUTPUT jacks. In the record mode the level meters are used to monitor the level of the signal being recorded on the tape. They should be used along with the RECORD LEVEL controls to maintain the proper recording level. (See "Recommended Recording Techniques.")

TEST BUTTON

This button is used to provide a test signal for Dolby record adjustments. Refer to paragraph "DOLBY RECORD CALIBRATE".

CAUTION: If this button is depressed during any recording it will interrupt the recording with a test tone.

STEREO HEADPHONE RECEPTACLE

The stereo headphone receptacle located on the front panel will accept any stereo headphone with any impedance rating. The headphone receptacle is "on" at all times.

MIC LEVEL CONTROLS

The input level for each microphone can be adjusted by the MIC LEVEL controls.

RECORD LEVEL CONTROLS

These controls are used to adjust the level of the incoming program material connected to the REAR PANEL INPUT receptacles while recording. When recording from microphones, these controls MUST be used in conjunction with the MIC LEVEL controls in order to establish the proper recording level.

The position of each control can be read on the accompanying scale. When the control is moved to a higher setting, the signal being fed to the tape will also reach a higher level and vice versa.

PLAYBACK LEVEL CONTROLS

These controls are used to adjust the level of the program material at the output jacks.

They may be used to adjust the output level to match the level of other sources in your system.

POWER SWITCH

The power for the HK 1000 is delivered through this switch. It must be placed in the ON position in order to operate the recorder.

AUTOMATIC SHUTOFF

To protect the HK 1000 motor and drive mechanism against unnecessary wear an automatic shutoff device has been built into the mechanism. When the supply hub stops for any reason the motor and drive mechanism will automatically shut off after a short period of time. NOTE: Since the automatic shutoff device does not affect the electronic portion of the HK 1000, it will still be necessary to turn off the entire recorder using the POWER switch.

DOLBY NR SWITCH

When placed in the IN position this switch activates the Dolby system in both the record and playback mode. Before using this switch please refer to the paragraph "DOLBY ADJUSTMENTS".

INDICATOR LIGHTS

There are three indicator lights on the front panel of your HK 1000. When lit, these lights give a visual indication of the following:

1. **RECORD** — The HK 1000 is in the process of making a recording.
2. **DOLBY NR** — The Dolby NR system is ON.
3. **POWER** — The HK 1000 is operative.

THE CASSETTE

Cassette is French for cartridge. It is a self-contained reel-to-reel tape housed in a plastic enclosure for easy handling and storage. Most record album manufacturers are presently duplicating their albums on cassette tape. Blank cassettes containing 30, 45, 60, 90 and 120 minutes of recording times are also available for making your own recordings. The HK 1000 has been designed to give optimum performance with high quality 30, 45, 60 and 90 minute cassettes. Tape tension and capstan tolerance have been carefully adjusted to the specific tape thickness of C-30, C-45, C-60 and C-90 tapes. It is for this reason that we do not recommend the use of C-120 cassettes.

ACCIDENTAL ERASURE PROTECTION

The cassette is provided with a recording safety feature which protects your prerecorded cassette, or one you may have just recorded, against accidental erasure.

The safety feature employed consists of two removable tabs, one for each side of the tape, appearing in the rear of the cassette housing. These tabs will have been removed on any prerecorded tapes you may have purchased and evidence of their removal will be the two, small square indentations appearing on either side of the rear of the plastic housing.

Once you have made your own recording on a blank cassette, and you wish to protect against accidental erasure, it will be necessary for you to remove one or both of these tabs to protect either or both sides of your recorded cassette against accidental erasure, as follows:

- 1) If both sides have been recorded, merely insert a fine screwdriver in the opening around each tab and gently pry the tab off. Be sure the tab falls free from the cassette.
- 2) If one side only has been recorded, place the cassette on a table as removed from the recorder, with the side just recorded facing up and the exposed tape area facing you. The correct tab to be removed will be in the lefthand corner of the cassette.

NOTE: If at some future date you wish to make a recording over a previously protected tape, simply place a piece of adhesive tape over the tab opening. This will permit you to make a new recording. Removal of the adhesive tape following the recording will again insure against accidental erasure.

CASSETTE STORAGE

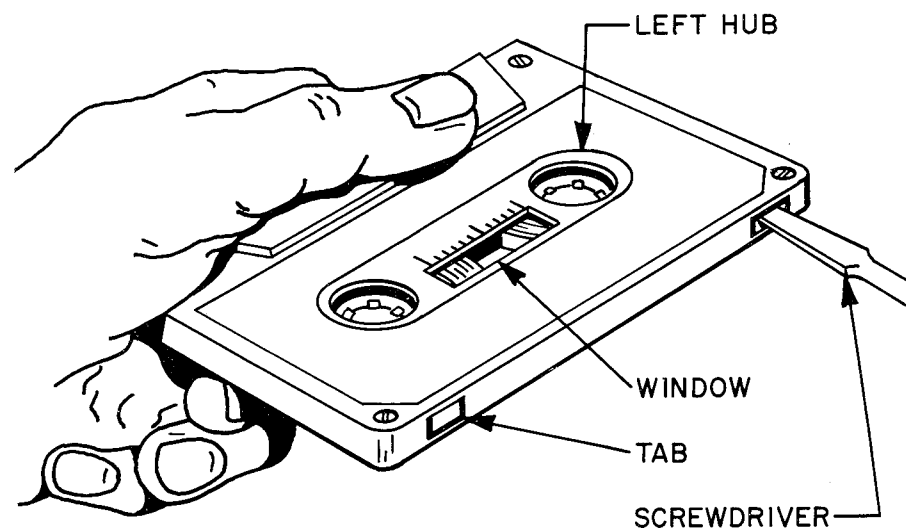
The plastic storage container in which the cassette is purchased is dust-proof and will provide ample protection for the cassette. Store the cassette at room temperature, away from any source of heat, and away from any magnetic fields (e.g., speaker magnets, transformers, or electric motors).

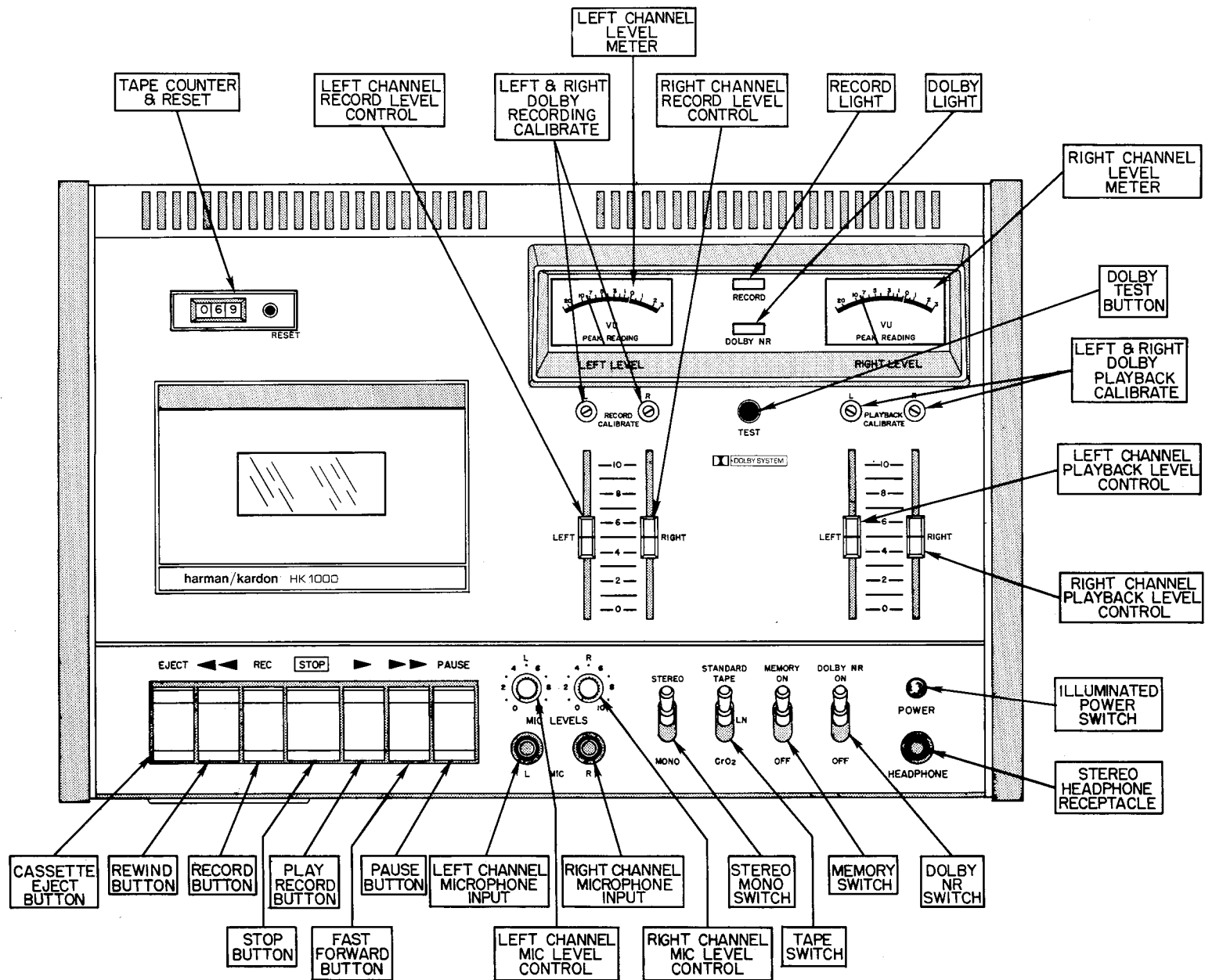
CASSETTE INSERTION AND REMOVAL

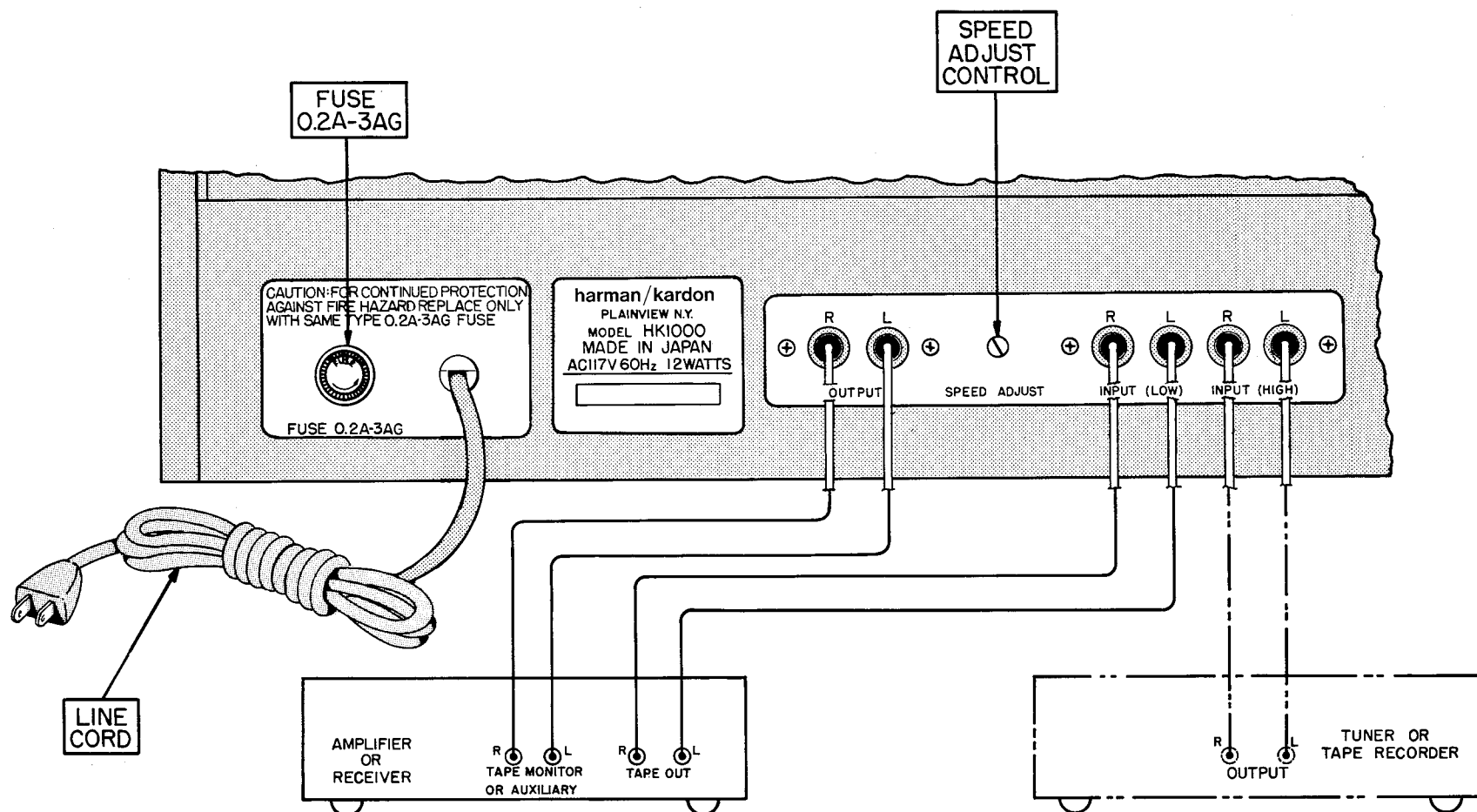
To load a tape cassette into the recorder, depress the EJECT button all the way down. This will open the trap door and raise the loading platform to the correct loading height. Remove the cassette from its container and position it so that the front (exposed tape area) is facing you and the full hub of tape, as viewed through the cassette window, is on your left. Deposit the cassette as far back on the loading platform as possible and push the trap door down until it clicks shut.

IMPORTANT: The trap door **MUST** be closed to insure proper seating of the cassette.

To remove the cassette from the HK 1000 depress the EJECT button all the way down and remove the cassette from the loading platform.







IMPORTANT! See paragraph entitled AUDIO CONNECTIONS before making these connections

RECOMMENDED RECORDING TECHNIQUES

Before making any recordings there are a number of useful hints and techniques we would like to recommend to insure the best possible quality of recording.

- 1) Whenever purchasing a new tape, either blank or prerecorded there is a possibility that long storage on a dealer's shelf could have caused the tape to adhere to itself. This would produce "tight spots" in the tape which could introduce fluctuations in the feed process thus affecting the wow and flutter. We therefore suggest that before using any tape which has been stored for a period of time, that you insert it into your cassette recorder and depress the FAST FORWARD button allowing the tape to wind completely in the forward direction. When it is completely wound, repeat the process using the REWIND button. This will now assure a uniform wind on the tape and will have eliminated any possible tight spots.
- 2) If you plan to record a specific broadcast or record, we suggest that you practice the recording technique, in advance of your final recording session. This will allow you to establish the proper operating levels for the program material to insure that your final recording will be of the highest quality.
- 3) For good high quality recordings, particularly with the Dolby system, the peak excursion of the level meters should not exceed -2dB . It is very possible that during the recording of very low passages the level meters may appear as though they were not recording, however the meters could read as low as -20dB and yet this will still result in a good quality recording.
- 4) All cassettes when manufactured, contain a short section of leader tape. When making a recording from the start of a tape, always make allowances for this leader.

RECORDING PROCEDURE

1) Carefully check the cassette you plan to use for recording to be certain that the tabs provided on the rear to protect against accidental erasure are present or that you have placed a piece of adhesive tape in their place in instances where you plan to record over a prerecorded tape.

- 2) Insert the cassette into the recorder.
- 3) Locate the point on the tape at which you wish to begin the recording.
- 4) Prepare your tuner, receiver, amplifier, turntable, etc., for recording.

NOTE: If you are using microphones, be sure they are properly inserted into the MICROPHONE receptacles. You must also be sure that your speaker volume is low enough to prevent the microphones from picking up the sound while recording. You may also choose to record using a microphone as the program source for one channel and the equipment connected to one of the RECORD IN receptacles as the program source for the other channel. This is known as sound-with-sound recording.

5) Select the appropriate position of the STEREO-MONO, DOLBY and TAPE switches.

- 6) Place the POWER switch in the ON position.
- 7) Depress the PAUSE button. This will keep the tape in the proper position while the other controls are being set to record.
- 8) Simultaneously depress the RECORD and PLAY buttons. If both buttons fail to depress easily, refer to step 1 again.
- 9) Move the RECORD LEVEL controls from the O position toward the higher numbered positions until the meter pointers read as high as -2dB on their peak excursions.
- 10) When the controls are properly set and the program material is ready for recording, depress the PAUSE button once again.

11) The HK 1000 is now in the process of recording. Keep a close watch on the level meters during recording and make any necessary adjustments to insure the highest possible quality of recording.

12) If you wish to interrupt the recording process to avoid unwanted program material, the PAUSE button may be used without upsetting the other controls.

13) When the recording is complete depress the STOP button to stop the recording process.

PLAYBACK PROCEDURE

- 1) Prepare your amplifier or receiver for tape playback.
- 2) Place the POWER switch of the HK 1000 in the ON position.
- 3) If the tape you are playing was recorded with the Dolby system, the Dolby switch should be placed in the ON position. If it is a non-Dolby tape, the Dolby switch should be OFF. It should be noted that a dolbyized tape played on a non-Dolby system will sound somewhat brighter but otherwise is completely compatible.
- 4) Insert the cassette into the recorder.
- 5) Depress the PLAY button to begin playback.

NOTE: The position of the RECORD LEVEL controls will have no effect during playback.

6) If you wish to interrupt the playback of a cassette for a short time, simply depress the PAUSE button. To resume playing, depress the PAUSE button again.

7) Once the tape has finished playing or if you wish to stop the tape at a point other than the end, depress the STOP and EJECT buttons. Remove the cassette from the recorder and place it in its container.

DOLBY ADJUSTMENTS

In order to achieve optimum performance from the Dolby system it may be necessary to adjust the RECORD and PLAYBACK levels of the Dolby system. If this is required we have provided two RECORD CALIBRATE CONTROLS (left and right) and two PLAYBACK CALIBRATE CONTROLS (left and right) on the front panel of the HK 1000.

DOLBY PLAYBACK CALIBRATE

These controls have been preset at the factory and under normal conditions should never have to be readjusted. If, however, you should desire to check these playback levels it will be necessary to obtain a special Dolby level set tape. These controls should never be adjusted unless using the Dolby level set tape. If they are accidentally misadjusted, it will severely affect performance. This tape may be purchased direct from Harman/Kardon at a cost of \$5.95 plus \$0.50 for shipping and handling. Please address your inquiry together with a check for the amount indicated to: Harman/Kardon Inc.

55 Ames Court
Plainview, N.Y. 11803
Att: Customer Service Dept.

and ask for Dolby level set tape. Complete instructions for the use of this level set tape will be included.

DOLBY RECORD CALIBRATE

Due to the differences in tape from manufacturer to manufacturer, the Record Calibration controls may have to be adjusted to assure optimum performance of the Dolby system with the tape of your choice. After these adjustments have been made, it should not be necessary to readjust unless another brand of tape is used.

The RECORD CALIBRATE controls in the HK 1000 have been adjusted for use with low noise type tape. If any other type is used the following procedure should be followed.

- 1) Insert a blank tape cassette.
- 2) Turn on the POWER switch.

3) Turn off the DOLBY switch located on the front panel and place the STEREO-MONO switch in the STEREO position.

4) Select the position of the Tape switch on the front panel which corresponds to the type of tape being used.

5) Set the tape counter to its zero position.

6) Simultaneously depress the RECORD and PLAY buttons. The HK 1000 will then be recording.

7) Push in the TEST button located on the front panel and hold it in this position for approximately 30 seconds.

NOTE: The position of the RECORD LEVEL controls have no effect while the DOLBY TEST button is used. They may be left in any position.

8) Release the TEST button and depress the STOP button.

9) Rewind the tape until the zero position is reached on the tape counter.

10) Depress the PLAY button and play back the tone you have just recorded.

11) Observe the position of the left and right level meters during playback. The optimum level is "0 VU". If some level other than "0 VU" is indicated by the meters, adjustment is necessary.

12) To make this adjustment, it will be necessary to insert a very small screwdriver into the corresponding LEFT or RIGHT RECORD CALIBRATE openings on the front panel.

13) If, during step 11, the VU meter indicates less than "0 VU", rotate the control slightly clockwise, or if the VU meter indicates more than "0 VU", rotate the control slightly counterclockwise. NOTE: You will NOT observe any change in the meter reading during this adjustment.

14) In order to determine if the adjustment has been made correctly, repeat the entire procedure, steps 6 thru 10, until a reading of "0 VU" is obtained in step #11.

15) The HK 1000 is now adjusted for optimum performance of the Dolby system.

16) Note: This procedure should be repeated each time you change types or brands of tape.

MAINTENANCE

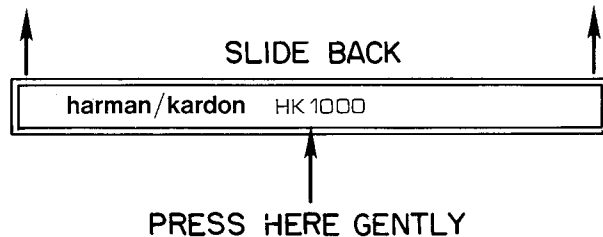
CLEANING

In any tape recorder as the tape passes over the tape heads, capstan, pressure roller and tape guides, small particles of tape oxide are deposited on these parts. After a period of time the tape oxide and other dust particles build up to the point where they become detrimental to the operation and fidelity of the recorder.

Due to the extremely wideband frequency response of this recorder, the gap in the heads used in this machine is infinitesimally small as compared to those used in reel-to-reel machines.

We cannot emphasize strongly enough the importance of keeping the erase head, playback head and capstan clean. The most frequent cause of failure to record in one or both channels, or weak, distorted sound in one or both channels, is DIRTY HEADS, even though the VU meters show proper recording levels. The procedure to clean is as follows:

1. A removable access panel (see drawing below) has been provided to expose all surfaces for cleaning and demagnetizing. To remove, GENTLY press down on the center of the access panel and push toward rear of unit.



2. Using a "Q" tip, which has been dipped in ordinary rubbing alcohol, or a commercial type liquid tape head cleaner, thoroughly wipe the front surface of the heads (those areas which come in contact with the tape when the machine is in operation).
3. Wipe the capstan — the long, thin shaft projecting upward from the mechanism in the lower, righthand corner of your cassette well. This is the shaft which physically comes in contact with the black pressure roller.

CAUTION: This is the ONLY way to clean the HK 1000! DO NOT use any other types of alcohol, cleaning fluids, tools, or tape head cleaning cassettes. They may seriously damage the heads or the associated drive mechanisms.

DEMAGNETIZING

The tape heads, capstan, and tape guides build up a residual magnetic field due to the magnetic field in the tape that passes over them. When the level of magnetism reaches a certain point it will adversely affect your tapes. A demagnetizer may be purchased at a moderate cost from any electronic supplier carrying tape recording accessories.

DEMAGNETIZING is a procedure which should follow cleaning, but need not take place as often as cleaning. We recommend that after approximately 20 to 30 hours of use the heads be demagnetized. Below is the procedure to follow:

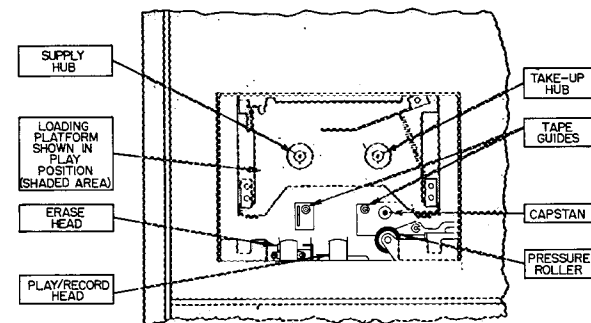
1. Plug the demagnetizer into a power outlet, taking care the device is nowhere near the tape deck.
2. Open the trap door, remove the access panel. Remove tape cassette if in the unit.
3. Slowly approach the heads with the demagnetizer while the deck is turned OFF.
4. Carefully apply the tip of the demagnetizer to the erase head, stroking lightly in an up and down motion for a second or two.
5. Slowly retract and repeat the procedure for the playback head and capstan.
6. When all parts have been demagnetized, slowly remove the demagnetizer away from the deck and pull its plug from the outlet. **NEVER HOLD THE DEMAGNETIZER NEAR THE TAPE DECK WHEN PLUGGING IT INTO ITS POWER SOURCE OR REMOVING IT FROM ITS POWER SOURCE.**

LUBRICATION

The HK 1000 has been fully lubricated at the factory. No other lubrication should be necessary for some time. If lubrication should become necessary at some future date, be sure to have this done by a qualified technician only.

HUM

In any high fidelity installation, hum may be caused by interconnecting associated equipment. If the addition of the HK 1000 to your system is accompanied by previously nonexistent hum, reverse the AC line plug in its socket. If this does not help, you may have defective interconnecting cables or the cables may be located too near a strong AC field, such as a television, power transformer, AC motor, or power lines.



NOTE: SHOWN WITH TRAP DOOR AND ACCESS PANEL REMOVED

MAINTENANCE RECORD

In order to keep an accurate record of the maintenance of your HK 1000 we have provided this log sheet. Simply note the date and approximate hours of use each time your HK 1000 is cleaned or demagnetized.

Date	Approximate Hours of Use	Cleaned	Demagnetized		Date	Approximate Hours of Use	Cleaned	Demagnetized