

Studio Standard Series

K-5

STEREO CASSETTE DECK

A high performance deck with provisions
for use of metal particle tapes.

Pure Sendust Alloy heads ensures high quality tape reproduction.



LUX CORPORATION, JAPAN

OWNER'S MANUAL

Thank you for purchasing the K-5

To cope with the advent of metal particle tape which permits an unprecedented high level of recording, the K-5 is provided with exclusive "METAL" positions, enabling you to ensure real high fidelity reproduction with wide dynamic range and superb S/N ratio. A pure Sendust record and playback head is employed to handle the latest fine metal tape, which makes it possible not only to offer good frequency response and wear characteristics but to provide outstanding sound quality in combination with a DC amp in the playback circuit. For use of fine metal tape, a specially designed large erase head is provided having high erasure capability.

In addition to the 3-point bias selector switch, the bias fine adjuster is provided, which makes it possible to obtain the optimum bias point for the cassette tape you use.

Highly reliable mechanical key operation, VU level meter, rec mute function, etc., are featured, which contribute to make pleasant recording/playback of cassette tape.

We recommend that you choose other Hi-Fi components to be used in combination with care and go through the contents of this owner's manual to make the most of the potential of the K-5.

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WARNING: TO PREVENT FIRE OR SHOCK HAZARD
DO NOT EXPOSE THIS APPLIANCE TO
RAIN OR MOISTURE.

Before operating the K-5

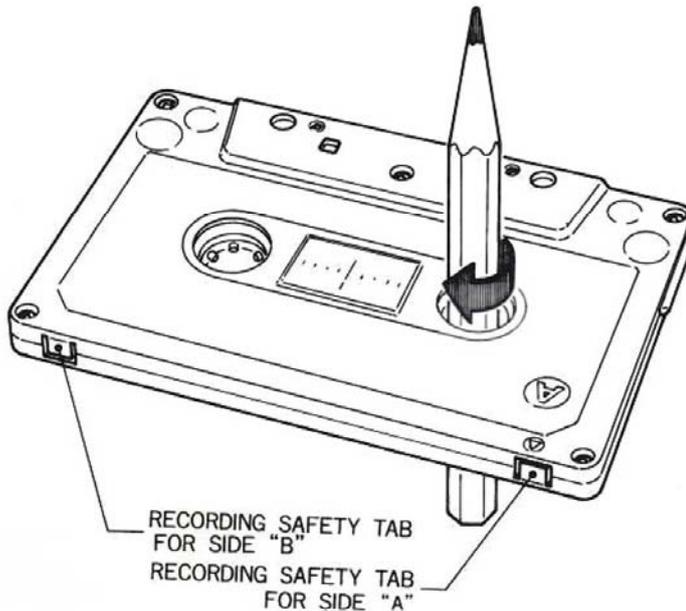
Before Using this Cassette Deck

* Power Supply Source

Check that the AC voltage of this deck is adjusted to correspond to that of your listening room. You need not worry about the cycle (50Hz or 60Hz) as DC motors are employed in this unit.

* Location

When placing the unit, avoid such locations having high temperature caused by direct sun-beams or heaters, and high humidity as well as excessive dust. Do not cover the ventilation holes with furnitures, books etc. Also keep this unit away from noise-generating apparatus such as cleaner, hair-dryer, buzzer, etc.



Cassette Tape

Various types of cassette tapes available in the marketplace (such as normal tape, CrO₂ tape, FeCr tape and Fine Metal Tape etc.) offer different characteristics from type to type. This deck is so designed as to deal with all these tapes, but care is needed to derive the optimum performance.

- * Set correctly the bias and equalization of the deck to match the characteristics of the tape to be used. Mismatch may cause not only deterioration of performance but insufficient erasure in the case of metal particle tape. For details refer to the section "Correlation between BIAS/EQ Positions and Cassette Tapes".
- * Avoid to use the C-120 type tape, as a slight misuse may cause this tape tangled or rolled up in the tape transport mechanism.
- * For safety in recording and playback of important program, follow the instruction of the cassette tape you use. Especially a slack of tape in the cassette case may impair your precious tape, and wind up the tape by a pencil or the like before use as per the drawing.
- * The cassette tape is provided with 2 recording safety tabs for the "A" and "B" sides as depicted in the drawing. To protect your valuable recording from an accidental erasure, break the tab from the cassette tape by a screwdriver and the anti-erasure function of the deck is put into operation. If recording is desired into such tape with the tabs already broken, cover the hole by a piece of masking tape or fill it with erasure rubber etc.

Loading of Cassette Tape

Press the Cassette Eject Button (13) to open the Cassette Lid (14) and insert a cassette tape with the tape exposed side facing downward and the side to be played or recorded facing front. Now, depress the Cassette Lid (14) until it is locked.

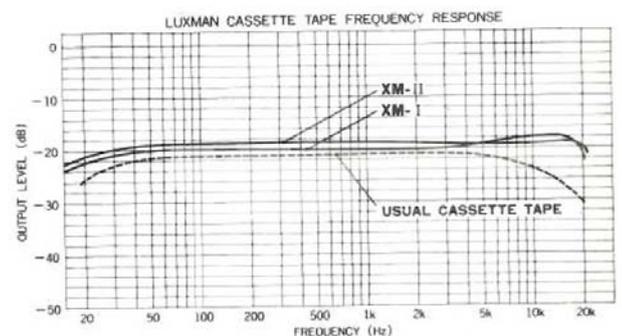
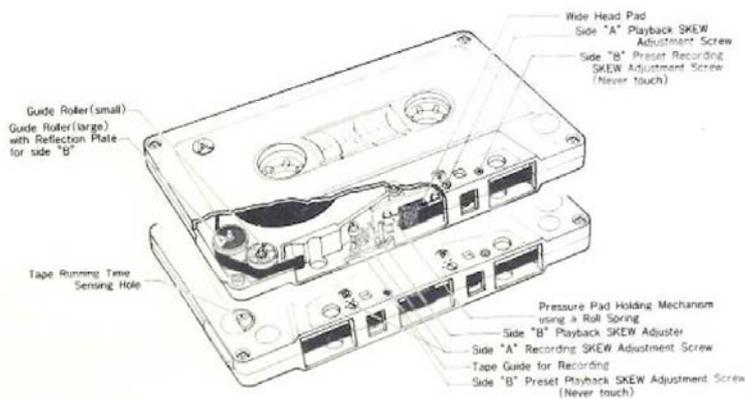
LUX's Exclusive Cassette Tape

The development of magnetic tape has been marking remarkable progress of late, and nowadays high quality tape is made available for Hi-Fi use. Various problems have been brought to light as the quality of deck is improved, in the mechanism of tape especially in correlation between deck and cassette tape. To solve such problems, LUX prepared an exclusive cassette tape having many unique features.

- * SKEW Adjustment Facility
This device prevents deterioration of tonal quality caused by deviation of the azimuth, improving the frequency response while maintaining the proper volume and phase balance between 2 channels.
- * Wide Pad and New Holding Mechanism
A wide pad (7 mm) is employed to perfectly cover the record and playback heads of a combination head. The new holding mechanism using a roll spring gives constant pressure

to the tape, ensuring stable frequency response and phase characteristics.

- * 4-Guideroller System
A new 4-guideroller system is adopted placing additional rollers in lieu of conventional plastic guide-pins, which not only prevents torque loss caused by fixed pins but offers constant back-tension.
- * Sensing Roller for Tape Transport Time
To sense the tape running time optically, a high precision roller is featured with a reflection plate, which makes it possible to read the real time used for recording or playback with LUX decks Models 5K50 and K-12.
- * Quality and Kinds of Tape
Top grade tape is selected for the cassette, which remarkably reduces dropouts. To ensure the supreme performance, material of high precision make is used as shell (hub) as well as other internal components.



XM-I: LUXMAN normal position tape
XM-II: LUXMAN CrO₂ position tape

Switches & Controls

(1) Cassette Lid

A press of the Eject & Stop Button (2) from the "stop" mode opens the cassette lid. Then load a cassette tape in it, and press the cassette lid quietly for operation. Keep this lid closed even when this deck is not used, as dust, etc. may deteriorates the recording/playback condition.

(2) Eject & Stop Button

Depress this button, and the tape transport ceases. Next press of the button opens the cassette lid (1). To load or unload a cassette tape, use this button.

(3) Record Button

Recording starts once both this button and the "Play" button (5) are pressed simultaneously. To put the deck into the "Record Pause" mode, first depress the "Pause" button (7) and then press the "Record" and "Play" buttons. In this case, further press on the "Pause" button commences recording.

(4) Rewind Button

This is to rewind the tape rapidly from the right reel to the left. Auto-stop mechanism functions at the end of tape providing no load to tape or tape transport mechanism.

(5) Play Button

The deck is put into the "Play" mode when this button is depressed. For recording, both the "Record" and "Play" buttons have to be depressed simultaneously. At the end of tape, the tape movement automatically ceases.

(6) Fast Forward Button

This allows to forward the tape quickly from the left to the right. The movement stops automatically at the end of tape.

(7) Pause Button

When this button is depressed, the movement of the tape transport

mechanism is temporarily halted during playback or recording. The next press resumes playback or recording. Caution: Do not use this button at the time of the "Fast Forward" or "Rewind" mode.

(8) Record Indicator

This lamp lights up during the "Record" mode.

(9) Peak Indicator

This lamp lights up when the recording peak level exceeds +6dB for the normal and CrO₂ tapes and +10dB for the metal-particle tape, to warn the excessive high recording level.

(10) Tape Counter

This is a 3-digit mechanical counter useful to locate the outset of a music selection, etc.

(11) Counter Reset Button

Press this button, and the tape counter indicates [000]. This is useful when you start recording or use the counter memory function.

(12) Counter Memory Button

Press the "Memory" button, and the tape rewinding will automatically stop in the vicinity of the [999] indication at the counter. If the Reset Button (11) is depressed. You can repeat playback of your favorite portion of music when the tape rewinding end. The next press releases the counter memory function.

(13) VU Meter

The easy-to-read VU meter makes it possible to set up an appropriate recording level. 0dB corresponds to 160 nWb/m. Read the scale provided below when the metal particle tape is used.

(14) Power Switch

Depress this button to turn on or off the power supply. The illumination lamp in the cassette holder will light up when the power is turned on.

(15) Headphone Jack

Connect the headphone for private listening or monitoring of the program source. The output is 1mW into 8-ohm loads.

(16) Bias Selector Switch

The proper bias amount for recording can be selected according to the tape you use.

[normal] : Normal music tapes such LUX's XM-I or conventional low-noise tapes

[CrO₂] : CrO₂ tapes such LUX's XM-II

[metal] : Pure metal tape

This switch relates to recording only, but set it to the "metal" position for playback of metal particle tapes, as otherwise the VU Meter will swing excessively.

(17) Bias Fine Control

This allows subtle adjustment of the bias amount selected by the Bias Selector (16). The peak bias can be obtained at the center click point. The endmost counter-clockwise position provides 10% under-bias, while the endmost clockwise position means 10% over-bias point. Usually set this control at the center click point. For further details refer to the section "Bias Fine Control".

(18) EQ Selector Switch

You can select the proper recording and playback equalization for various types of tape.

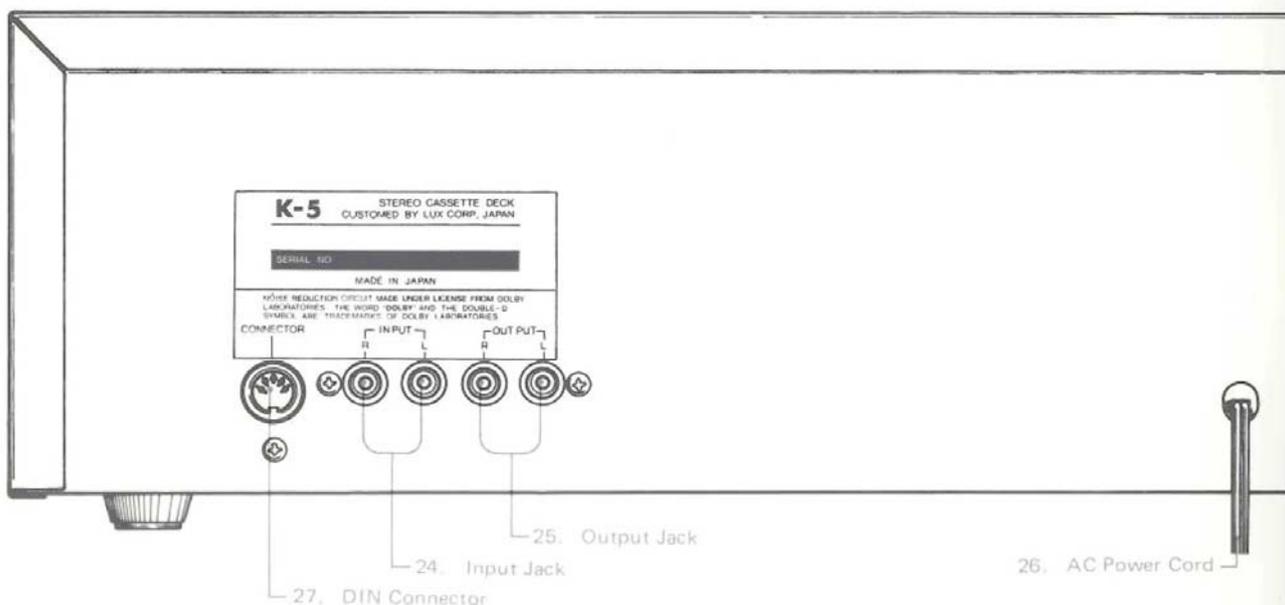
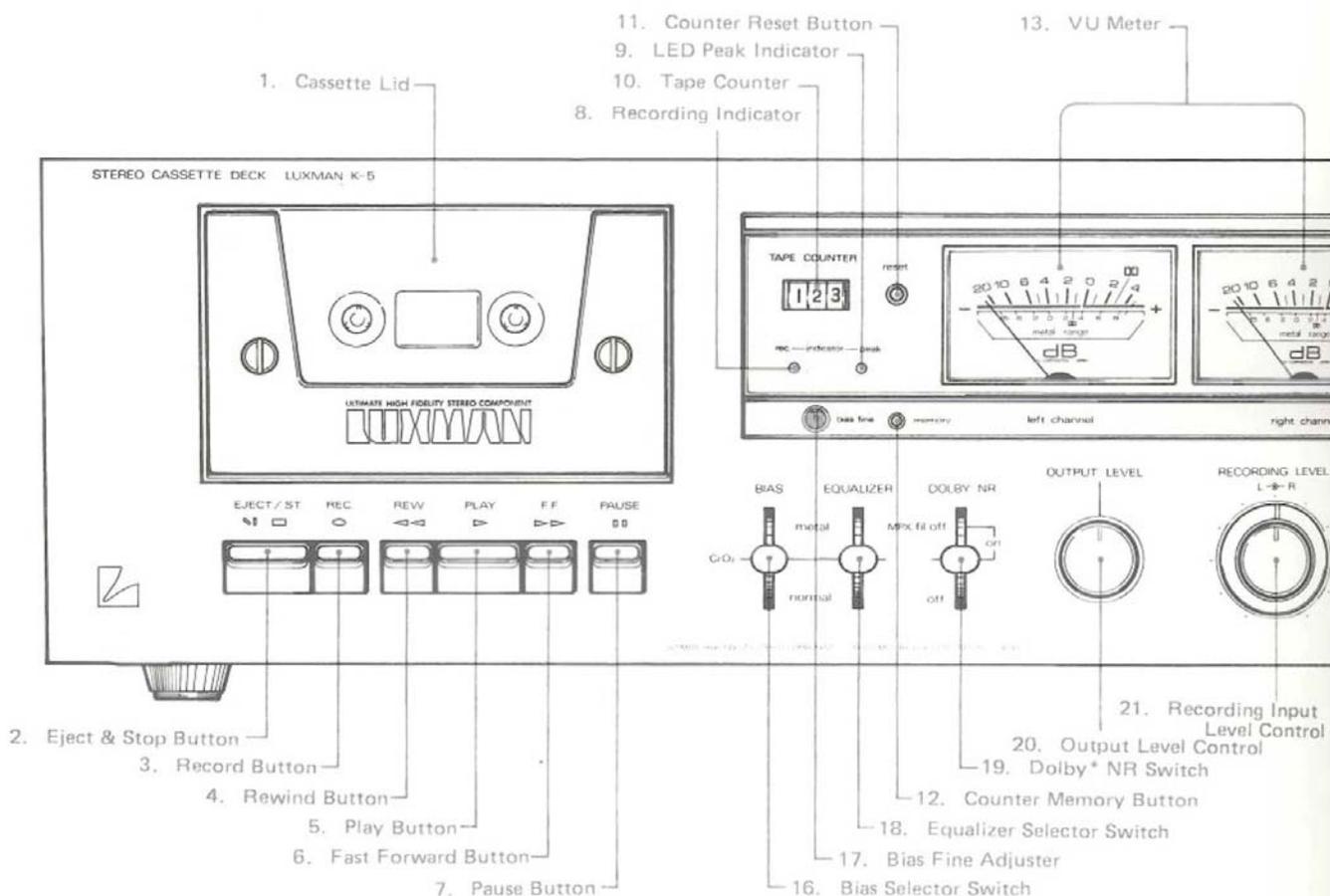
[normal] : For recording and playback on the normal tape such as LUX's XM-I, etc.

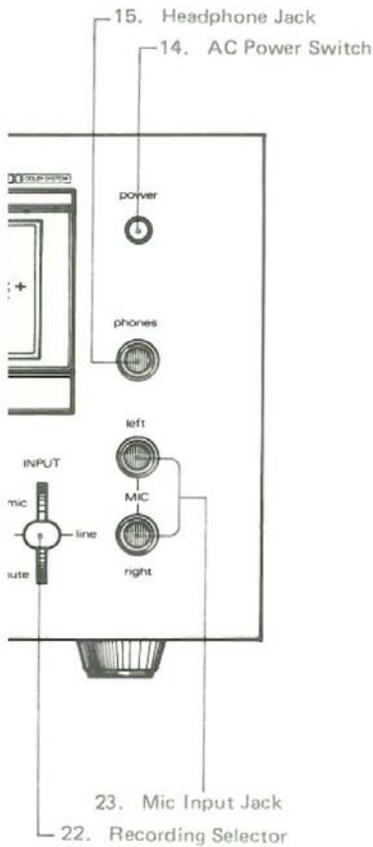
(EQ time-constant 3,180+120 μ sec.)
[CrO₂] : For recording and playback on the CrO₂ tape such as LUX's XM-II, etc.

(EQ time-constant 3,180+70 μ sec.)
[metal] : For use of metal-particle tape

(EQ time-constant 3,180+70 μ sec.)
Note that this switch should be set properly for both recording and playback according to the type of the tape you use.

Switches & Controls





(19) Dolby NR & MPX Filter Switch

3 positions are provided, namely, "off", "on" and "on & MPX fil. off". Use the "off" position for normal recording without Dolby NR. The "on" position is useful to remove 19 kHz carrier leakage when recorded with Dolby NR from FM broadcasting. At the "on & MPX fil. off" position, only the Dolby NR circuit is activated to reduce tape hiss.

(20) Output Level Control

This potentiometer controls the output volume level at the Output Jacks (25) and the Headphone Jack (15), but the movement of the VU meter (13) has nothing to do with the output level.

(21) Recording Level Control

The recording level from the line input and microphone input can be controlled. The separate control is possible for the right and left channels. The inner knob is for the left channel and the outer one is for the right. Normally, these 2 knobs rotate simultaneously.

(22) Recording Input Selector

This is to select the input source for recording.

[mic.] : For recording of microphone input.

[line] : For recording of input from amp and tuner.

[rec. mute] : For recording without signal. This position is convenient to remove from recording such unwanted sources as the noise at the time of stylus contact to disc or the commercials in FM broadcasting, etc. Recording without signal is possible while this level is kept depressed. This does not function at the time of playback.

(23) Mike Input Jacks

Plug in the microphones for recording. The input sensitivity is 0.45mV. Independent use of either of the right

and left channels is possible. It is recommended to use the microphone whose impedance ranges from 600 ohms to 10k ohms.

(24) Line Input Jacks

These jacks are to be connected to the output of tuner or amp used as a recording source.

(25) Output Jacks

Connect these jacks to the monitor terminals of audio amp for playback. The output voltage is 580mV, and the

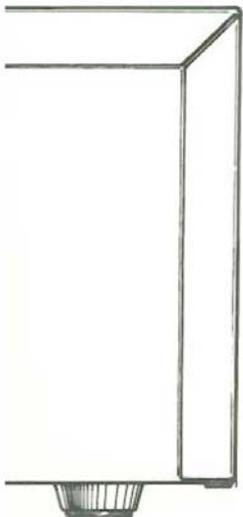
output can be controlled by the Output Level Control (20).

(26) DIN Connector

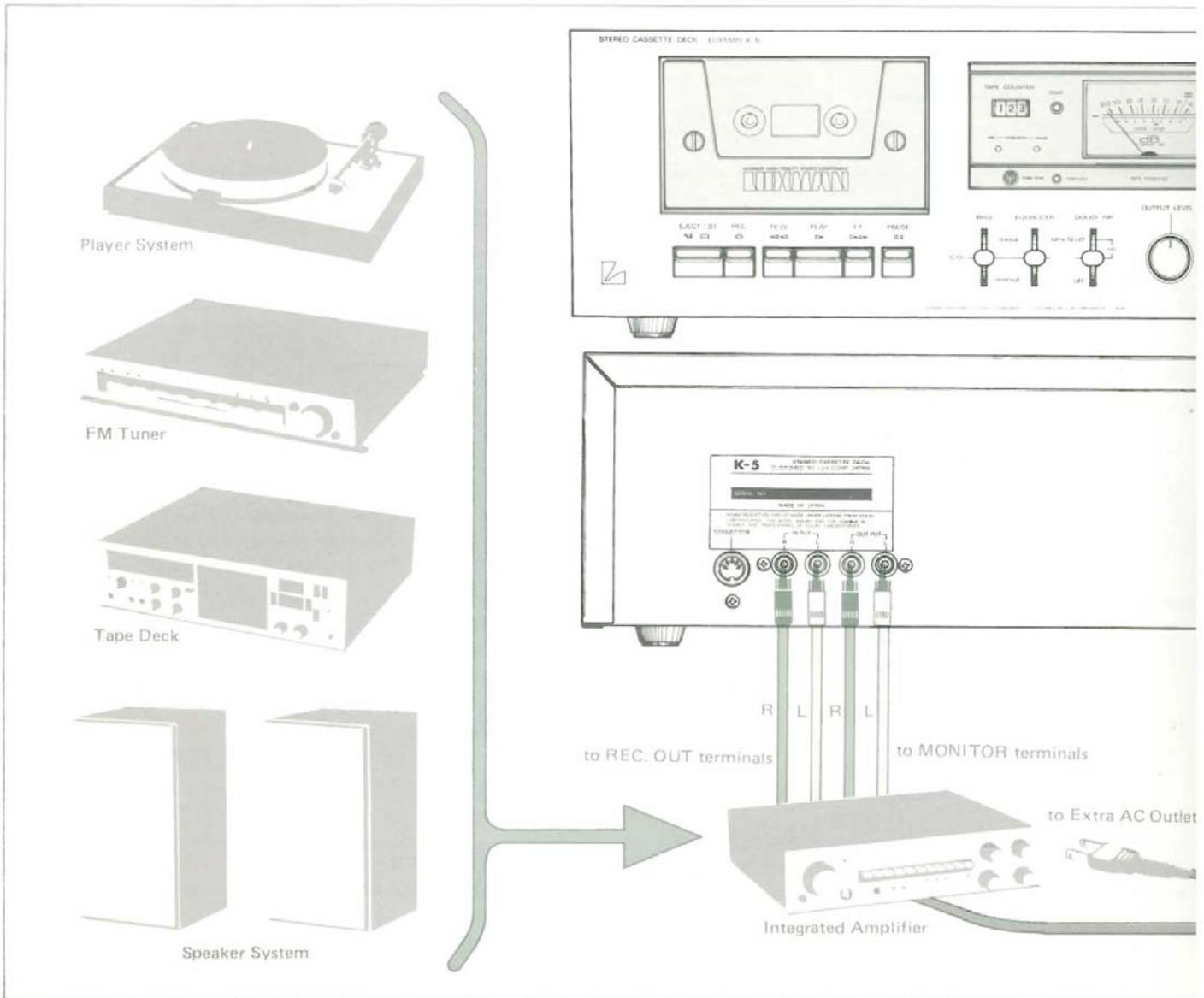
Connection for recording and playback is possible with a single patch cable if the same DIN connector is provided at the amp to be used together. Note that this connector is provided at the version for Europe only.

(27) AC Power Cord

Connect this cord to the power supply source.



Connection Procedure



Connection to Audio Amplifier

Connect the Line Input Jacks (24) to the REC. OUT terminals and the Output Jacks (25) to the Monitor terminals of an audio amplifier using the pin plug cord provided. During this procedure, be sure to keep the power switch turned off.

A DIN connector is provided, and a single patch cord ensures connection of the input side and output at the same time, if the DIN connector is provided to the amplifier used together. In this case, recording level adjustment is made by the Recording

Level Control (21).

NOTE:

- Do not connect both of the pin-plug cord and DIN connector to the audio amplifier at the same time. The performance by means of the pin-plug cord is superior.
- The output of a tuner can be connected to the Line Input Jacks (24) directly, but that of the record player cannot be connected directly: Be sure to connect it through an audio amplifier.

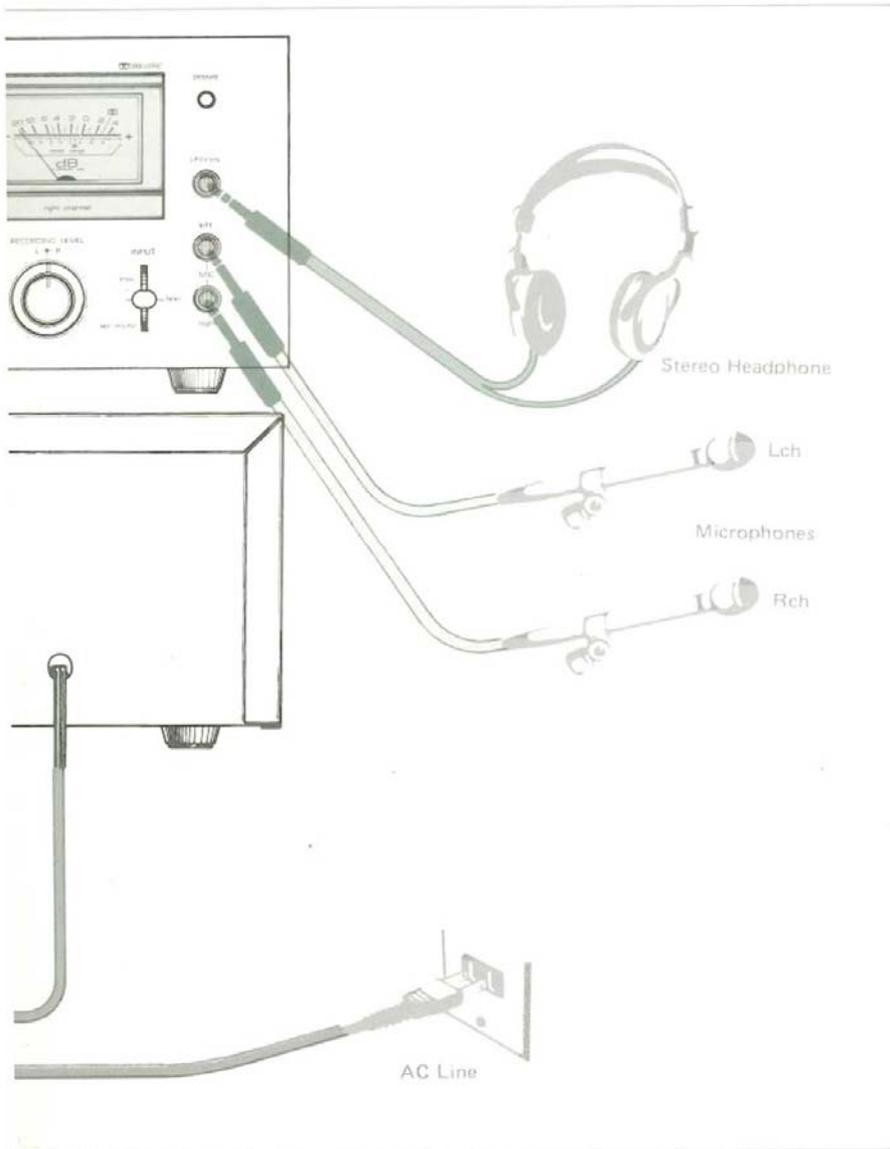
Connection of Microphones

Connect the plugs of microphone to the Mic Input Jacks (23). The indication "left" is for the left channel and the "right" is for the right channel. Use the microphone whose impedance ranges from 600 to 10k ohms.

Connection to Power Supply

Connect the plug at the end of the Power Cord (27) to the power supply source in your listening room. When an extra AC outlet (SWITCHED) is available with your audio amplifier, it is recommended to use this outlet

Connection Procedure



Connection Cable (Pin-plug Cord)

For connection of record players, tuners and tape recorders, shielded wires are used to avoid possible influence from external noise or inductance noise. Usually, the shielded wire has capacitance of approximately 200pF per meter (3.3 feet) or has 35 ~ 100pF capacitance per meter at low level.

Adoption of a connection cord gives the same effect as that of insertion of a capacitor in parallel with input sources or output load equipment, which composes a kind of high cut filter circuit and causes an unnecessary attenuation of high frequency range. Of late output impedance for tuner/tape recorder has been so designed as to be sufficiently low, and there is almost no problem as in this case parallel composite impedance becomes lower and cut-off frequency will be shifted out of audible range. In any case, select connection cable of good quality and use them as short as possible.

since the ON/OFF operation of the power switch of the amplifier is common to that of the K-5.

Connection for Tape Dubbing Operation

Most of the current audio amplifiers are provided with the tape dubbing circuitry, which enables tape reprinting among two or three tape decks. Tape reprinting can be done easily without changing the connection when this function is utilized.

However, in case you want to make tape reprinting directly between the

K-5 and another deck, connect the Line Input Jacks (24) to the Output terminals of another one, and another one is reprinted on the K-5. When the Output Jacks (25) is connected to the Line Input terminals of another deck, reprinting from the K-5 is possible to another deck.

Recording/Playback/Erase

STEREOPHONIC RECORDING

1. Load a cassette tape into the Cassette Lid (1). Then set each switch and knob as depicted.
2. In case you are to record such programs as discs or FM broadcastings, set the input selector of an audio amplifier to the corresponding input which you are going to record, then set the tape monitor switch to the "monitor" position. For recording by microphone, connect the microphone plugs to the Mic. Input Jacks (23).
3. First, press the Pause Button (7) then press the Record Button (3) and the Play Button (5) simultaneously, and the machine is put into recording mode with the Recording Indicator (8) lighting up. For recording from line input, set the Recording Input Selector (22) at the "line" position, while for recording from microphone set it at the "mic." position. Now as the

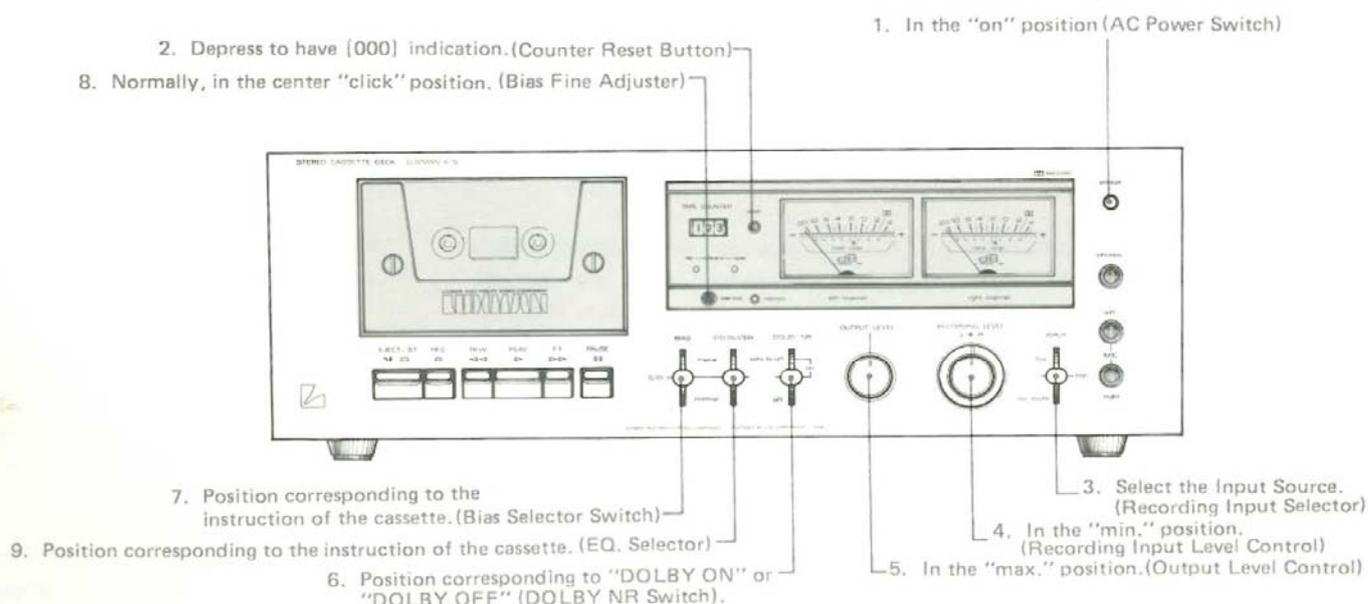
- Recording Level Control (21) is turned clockwise, the VU meter (13) starts to swing. Set the recording level as high as possible without illumination of the Peak Indicator (9) within the range not exceeding 0dB.
4. Depress the Pause Button (7) again, and the tape begins to run to record the input signals.
 5. When the recording ends, press the Stop Button (2) to cease the tape movement. In case you want to stop the recording temporarily, press the Pause Button (7), and the next press resumes the recording. When you want to cut announcements or commercials from the recording of FM broadcasting, press down the Recording Input Selector (22) to the "rec. mute" position. While you keep pressing this lever, the deck is put into the mode of recording without signals.

To Set Recording Level

To obtain the optimum condition for recording the input level of the program source has to be adjusted. When the level is set too low, the playback sound becomes jarring, while on the contrary if too high, the playback sound will be distorted. Therefore, this setting is important to realize the least distortion and the excellent signal-to-noise characteristic.

With the K-5, setting of the recording level is done by watching the VU Meter (13) and Peak Indicator (9) after the deck is put into the "REC" mode (refer to the section "Stereo Recording"). Note that the maximum peak level should be set up within the range where the Peak Indicator (9) does not light up and the VU Meter (13) does not swing over the 0dB position (55 position in the case of Dolby* NR recording).

Discs, FM broadcastings, pre-recorded tapes, and live sound from



Correlation among BIAS and EQ Positions and Cassette Tapes

microphones are mainly available as program source of recording. The peak levels in these program sources except the microphones are generally suppressed by the limiter in the course of production process, therefore, satisfactory recording is possible if the basic setting procedure is observed. In the case of live recording by microphones, however, the peak level is usually very high, and further it is not audibly equivalent to the actual sound level. Thus, when you are too sensitive about clipping at the peak, the average level is apt to be set rather low, thus inducing deterioration of the signal-to-noise ratio. Therefore, to realize good live recording using microphone, it is important to attend to such opportunity as much as possible, and get your own auditory feeling to what extent such clipping is allowed.

Bias Fine Control

The K-5 features the bias fine control within $\pm 10\%$ from the peak bias point. This is because the change of the bias current provides a subtle difference in tonal quality. For instance, at the "under-bias" point the treble response is extended, while at the "over-bias" point the bass distortion is improved. Naturally, within the range of this fine-tune control no deterioration takes place in any characteristics. Make free selection of your favorite point to augment your pleasure of recording.

At the time of playback of cassette tape, set the EQ Selector Switch (18) to an appropriate position according to the list specifying the kinds of tapes. In the case of playback of a metal particle tape, set both of the Bias and EQ Selectors to the "metal" position.

While when recording, both of the "EQ" and "BIAS" selectors have to be set to the corresponding positions

specified in the list.

Incidentally when both selectors are set to the "metal" positions, the 0dB point is automatically shifted to -4dB position at the VU Meter (13) showing small swing. In this case, read the peak level at the "metal" scale provided at the lower part of the VU Meter.

SW. POSITION		CASSETTE TAPE	
BIAS	EQ.	BRANDS	MODELS
normal	normal (120 μs .)	LUXMAN	XM-I·XR-I
		TDK	AD
			ED
		MAXELL	UD-XLI
			UD
		SCOTCH	MASTER (120 μs .)
			CRYSTAL
			*CLASSIC
		SONY	AHF
			HG
			*DUAD
		DENON	DX3
FUJI	RANGE-4 (FX-I)		
	*RANGE-6		
BASF	SLH-I		
	FCR		
normal	CrO ₂	DENON	*DX-5
CrO ₂	CrO ₂ (70 μs .)	LUXMAN	XM-II·XR-II
		TDK	SA
		MAXELL	UD-XLII
		SCOTCH	MASTER (70 μs .)
		SONY	JHF
		FUJI	RANGE-4X (FX-II)
		BASF	SCR
metal	metal (70 μs .)	LUXMAN	METAL
		SCOTCH	METAFINE
		TDK	METAL
		MAXELL	METAL TAPE
		SONY	ALLOY
		FUJI	SUPER
			RANGE

* FeCr tapes. If you feel treble range is too strong, adjust it by the tone control of your audio amplifier.

STEREOPHONIC PLAYBACK

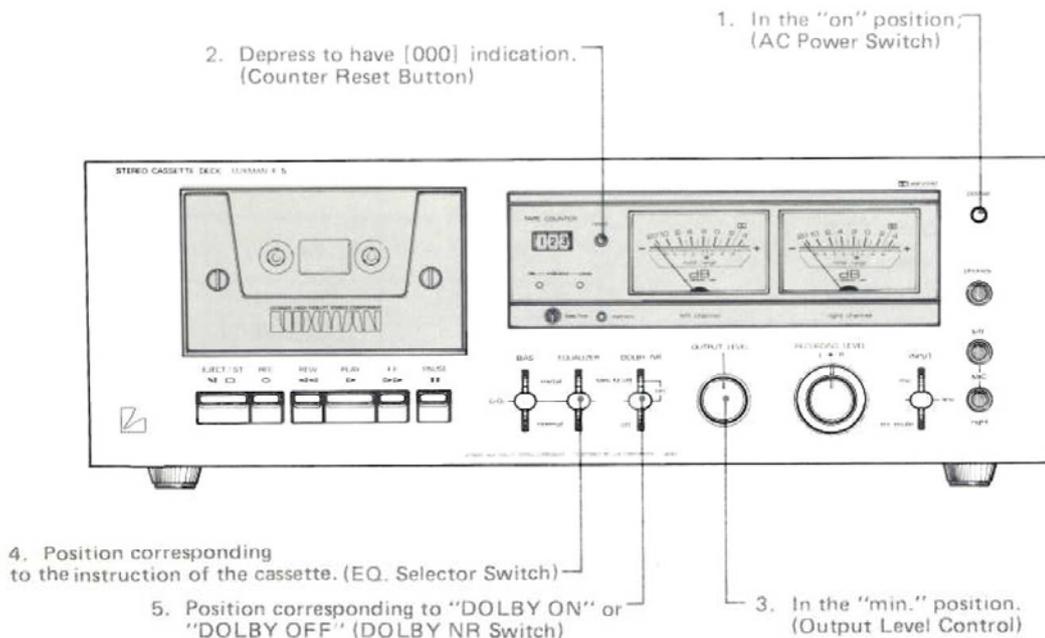
1. Load a pre-recorded tape into the Cassette Lid (1), and set each switch and knob in such an order as illustrated.
2. Set the tape switch of an audio amp to the "monitor" position.
3. Press the "Play" Button (5), and the deck is put into the "PLAY" mode.
4. As the Output Level Control (20) is turned clockwise, the output of this deck gradually increases. Normally the output level control has to be set at the endmost clockwise (max.) position. Incidentally, the swing of

the VU Meter (13) has nothing to do with the position of the output level control.

5. Set the volume of the audio amp at an appropriate level, and enjoy superb reproduction sound of this deck.
6. When tape playback finishes, press the "Stop" Button (2) to halt the tape transport. At the end of the tape, the "auto-stop" function is put into operation, providing no load to the tape and tape transport mechanism.

ERASURE

When recording is made the erase head functions, and it is not necessary to erase the pre-recorded contents beforehand. If only erasure is needed, press both the "REC" and "PLAY" buttons while setting the Recording Level Control (21) at the minimum level. The bulk eraser is useful to erase the pre-recorded contents in a short time, which is optionally available in the marketplace.

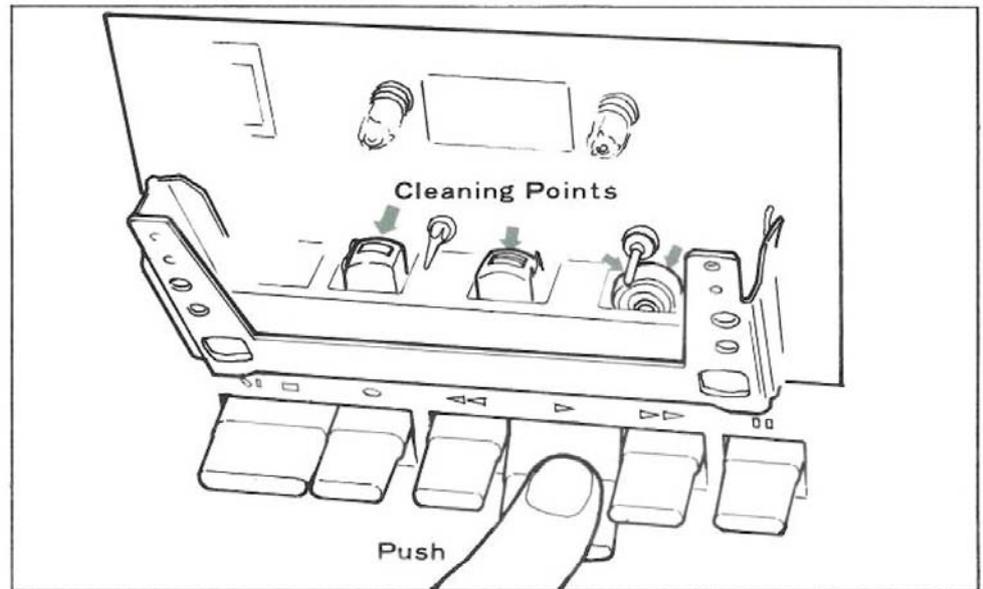


Maintenance

Head Cleaning

Residue built up from the constant contact of tape to capstan and head is unavoidable. The tape heads and capstan should be cleaned about once a month or after every 50 hours of operation. If a loss of brilliance in high frequency response is noticed, the tape heads probably require cleaning.

A cotton swab moistened with head-cleaning fluid should be inserted into the cassette slot, and rubbed across the surface of the heads and capstan. Care should be taken not to scratch the head surface. To clean the heads, take off the glass lid by removing 2 bits by means of coins etc. As an alternative, a special head-cleaning cassette is available at most dealers.



Demagnetization

If lack of high frequency remains even after cleaning the heads, the heads may require degaussing. Though with LUX's cassette decks degaussing is less frequently needed than most other decks, it is recommended to demagnetize heads and capstan once every 50 hours' use. Demagnetizer is available in the marketplace. Select a good one and perform degaussing carefully.

Before Consulting a Service Shop

It may be possible that some knobs or switches are accidentally operated, and that some connections are imperfect. In some cases, they are mistaken for defects. Therefore, it is advisable to make fundamental check by use of the "Trouble Shooting" listed below. When you find the trouble is not cured by this procedure, contact your nearest service shop.

	SYMPTOM	CAUSE	MEASURES
TAPE TRANSPORT	Power supply is not possible even when AC Power Switch is depressed.	AC plug is not connected to the AC socket, or may be loose at the socket.	Connect AC cord firmly to the AC power supply point.
	No function of tape transport mechanism.	The Pause Button is depressed.	Reset the Pause Button.
PLAYBACK OF TAPE	No sound playback.	Connection is wrong.	Check the connection and correct it.
		The Output Level Control is in the extreme counter-clockwise position (min.).	Turn the Output Level Control clockwise to an appropriate position.
		Operation of the amp to which the deck is connected is wrong. (Volume Control, Monitor SW.)	Increase volume control of the amp, or correct the position of Monitor Switch etc.
	Tonal quality is not good.	Heads are dirty.	Clean the heads.
		Pre-recorded tape is bad.	Change the tape.
		Heads are magnetized.	Use a head-eraser to demagnetize.
	Hum noise at recording or playback.	Deck is placed near hum-generating source.	Keep away from transformer, amp, fluorescent lamp etc.
		Ground-side of output cable is broken.	Use a new one.
	Unsteady sound, or drop-outs are frequent.	Pinch-roller is dirty, and its contact to capstan is insufficient.	Clean the pinch-roller and capstan.
		Heads are dirty.	Clean the heads.
Tape is deteriorated.		Change the tape.	
RECORDING ON TAPE	Recording is not possible.	Misconnection of input equipment.	Check the connection, and correct it.
		Recording safety tab is removed.	Use adhesive tape etc. to cover the hole.
		Recording Input Level Control is in the extreme counter-clockwise position (min.).	Turn the control clockwise to an appropriate position.
	Playback sound is small, or its quality is bad.	Heads are dirty.	Clean the heads.
		Tape is deteriorated.	Change the tape.
		Recording input level is low.	Turn the Recording Input Level Control clockwise.
		Heads are magnetized.	Use head-eraser to demagnetize.
		Position of the Bias, or EQ selector is wrong.	Set it to the correct position.

Specifications

Heads:	2 heads (sendust) Record/Playback Head x 1 Erase Head x 1
Wow & Flutter:	no more than 0.06% (W.R.M.S.)
Signal-to-Noise Ratio:	better than 58dB (DOLBY* OFF) ... metal tape better than 65dB (DOLBY* ON) ... metal tape better than 56dB (DOLBY* OFF) ... CrO ₂ tape better than 63dB (DOLBY* ON) ... CrO ₂ tape better than 50dB (DOLBY* OFF) ... LH tape better than 60dB (DOLBY* ON) ... LH tape
Frequency Response:	30 - 20,000Hz (metal tape) 30 - 18,000Hz (CrO ₂ tape) 30 - 16,000Hz (LH tape)
Overall Distortion:	no more than 1.5% (LH tape, 1kHz, 0dB)
Real Analyzed Distortion:	no more than 0.7% (LH tape, 1kHz, 0dB)
Input Sensitivity:	line in; 100mV mic.; 0.45mV (recommended microphone impedance: 600~10k ohms) DIN.; 2mV/1k ohms
Output Level:	line in; 580mV headphone 1mW (8 ohms load)
Additional Features:	REC. MUTE function, Bias Fine Adjuster, 3-position Bias/Equalizer Selector (CrO ₂ , normal, metal), Peak Indi- cator, VU Meter, Memory Counter, Dolby* Noise Reduc- tion system, Headphone Jack
Power Consumption:	20W
Dimensions:	438(W) x 264(D) x 150(H) (17-1/4" x 10-3/8" x 5-29/32") (including Legs, Rear Protrusions & Knobs)
Weight:	Net 5.8 kgs (12.8 lbs.) Gross 6.8 kgs (15.0 lbs.)

Specifications and appearance design subject to change without notice.

* NOISE REDUCTION CIRCUIT MADE UNDER LICENCE FROM DOLBY LABO-
RATORIES. THE WORD "DOLBY" AND THE DOUBLE-D SYMBOL ARE THE
TRADE MARKS OF DOLBY LABORATORIES.

LUX CORPORATION, JAPAN

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