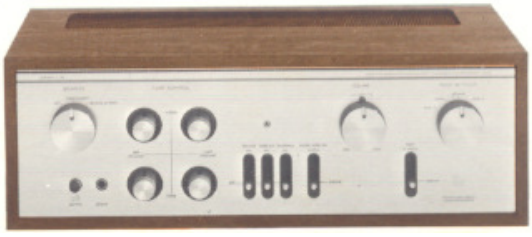
LUXMAN L30

OPERATION MANUAL

SOLID STATE INTEGRATED AMPLIFIER Model L30



Control & Connectors

Switches & Controls

1. Speaker Selector Switch (SPEAKERS)
This amplifier offers convenient use of 2 speaker systems, Main and Remote. You can choose independent driving of 2 systems as per the indication of the front panel. At the OFF position, the speakers are disconnected from the amplifier, and you can enjoy private listening by headphone.

2. Mains Switch (POWER)
Press alternately for ON or OFF.

3. Headphone Jack (PHONE)
Connection of a stereophonic headphone to this jack allows private listening. Output signal is always available regardless of the position of the Speaker Selector Switch (1). For private listening, however, set the Speaker Selector Switch at the OFF position.

4. Bass Level Control (BASS)
A clockwise turn of the control boosts the bass response, and a counter-clockwise turn decreases the bass. It yields a flat frequency response when set at the center of rotation. These level controls are independent, and permit separate control of both left and right channels. The left one for left channel. This is convenient for adjustment of different levels between both channels due to differences in the speaker systems.

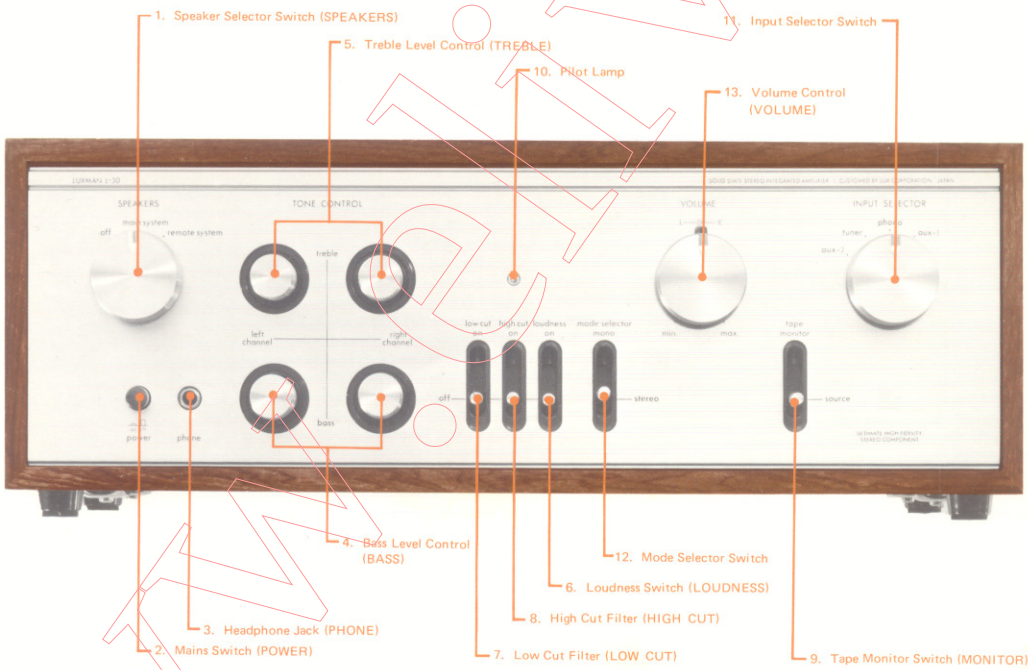
5. Treble Level Control (TREBLE)
A clockwise turn of this knob boosts the treble response, while a counter-clockwise turn decreases the treble. This control is of the same construction as that of the Bass Level Control, and its operation corresponds to that described in (4).

6. Loudness Switch (LOUDNESS)
This switch has 2 positions offering flat frequency response and loudness control. Refer to the "Operation of Loudness".

7. Low Cut Filter (LOW CUT)
OFF at the down position. When moved up to the "on" position, a bass roll-off occurs at 70Hz at the rate of 6dB/Oct. For further details, refer to Low Cut Filter (Page 6).

8. High Cut Filter (HIGH CUT)
OFF at the down position. When moved up to the "on" position, the amount of high frequencies is reduced sharply at the rate of 6dB/Oct. For further details, refer to High Cut Filter (Page 6).

9. Tape Monitor Switch (MONITOR)
When this switch is lifted up to the "tape monitor" position playback from "TAPE DECK" is possible. The tape connector (15) is also functionable when the switch is set at the "ON" position, i.e. it functions in parallel with "MONI".



In case of 3-head tape recorder which has a separate playback head for playback in the course of recording simultaneous playback monitoring is then possible while recording. In this case this amplifier receives the playback signals from MONI, or tape connector while feeding the recording signals to REC. OUT and tape connector. Caution: if this switch is at the "OFF" position, no playback is possible from tape recorder.

10. Pilot Lamp
This lamp indicates that the Mains Switch (2) and the electric current are ON.

11. Input Selector Switch
This switch permits proper selection of desired programme sources (Phono, Tuner, Aux-1, Aux-2).

12. Mode Selector Switch
Use this switch for selecting reproduction modes such as Stereophonic or Monaural. For further details, refer to Mode Selection (Page 6).

13. Volume Control (VOLUME)
This knob controls volume. Clockwise turn boosts volume, while counter-clockwise decreases until it is inaudible.

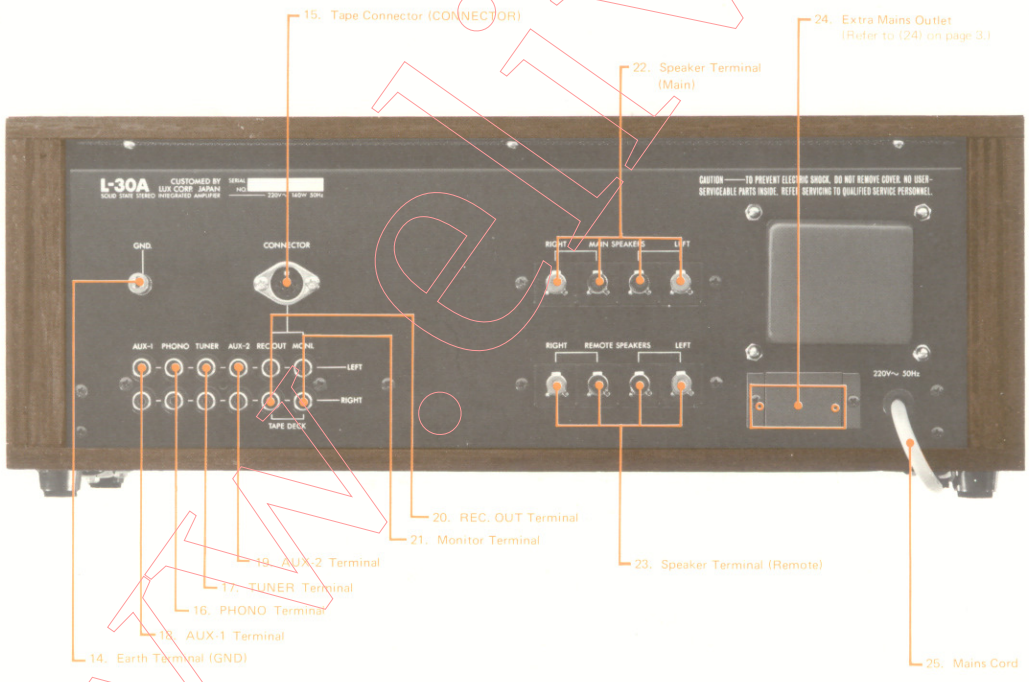
Input & Output Terminals

14. Earth Terminal (GND)
Connect the earth lead wire of the record player (from motor or pick-up arm) to ground the amplifier.

15. Tape Connector (CONNECTOR)
This connector is of DIN standard. With the recording output terminal (REC. OUT) and the tape monitor terminal in it, connection for recording and playback is feasible with a single lead-wire with DIN plug — providing the tape recorder has the same connector. For playback through this connector, the Monitor Switch (9) must be at the "tape monitor" position. Recording output signal is always available from this connector.

16. PHONO Terminal
For playback through magnetic cartridge (MM, MI, MC type). Input sensitivity, 2.6mV. Input impedance is 50Kohms. Except for very low output MC type cartridge (output voltage, 0.01mV — 0.1mV), almost all cartridges can be used. For such MC type cartridges of very low output level, it is necessary to boost voltage up to the specified level by use of step-up transformers or a head-amplifier.

17. TUNER Terminal
For reproduction of tuner (AM/FM/LW/SW). Input sensitivity, 150mV.



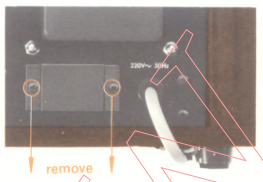
18. 19. AUX-1, 2 Terminals
These are auxiliary input terminals for playback of flat frequency response such as AM/FM stereo-tuner, line output of a tape recorder, or the audio output of a television receiver. Input sensitivity, 150mV.

20. REC. OUT Terminal (Recording Output Terminal)
A signal for recording is taken out from this terminal (always available when an input signal is given to any of the input terminals).

21. Monitor Terminal
Playback of the line output of a tape recorder is possible from this terminal. It is put into operation when the Monitor Switch is set at the "tape monitor" position. In case a 3-head tape recorder is used, simultaneous playback monitoring is possible.

22. 23. Speaker Terminals (Main and Remote)
The speaker systems should be connected to these terminals. Press the cap of the terminal and insert the bare speaker cord into the terminal hole, then release it. Firm connection is now made. These terminals are coupled with the speaker switches, and the speaker switch must be set at the position corresponding to the terminal to which the speaker systems are connected. (22) is for the main speaker, and (23) is for the remote speaker. The red terminal is for (+) and the black for (−). For further details, refer to Connection of Speakers.

24. Extra Mains Outlet
Convenient for supplying mains power to other equipment such as AM/FM tuner or record player. The terminal is coupled with the mains switch. The supply of the mains power depends on the mains switch. The rated capacity for this terminals is 100W.
Please note that in Switzerland, W. Germany, Austria and Scandinavian countries, it is prohibited to make use of the extra mains outlet. Therefore the cover should not be removed when at use.
In the other countries, it is possible to use the extra mains outlet by removing the 2 screws affixed to the cover.



25. Mains Cord
The plug at the end of this mains cord should be connected to the mains power supply.

Connection Procedure

Basic Connection:
This amplifier is composed of a pre-amplifier section, which controls playback equipment, and a power amplifier section, which amplifies the signal to the extent that it drives the speaker systems. It functions as the stereophonic reproduction system when the player, tuner, etc. are connected to the input terminals and the speakers or headphone to the output terminals. Thus it is basically necessary to connect this amplifier with the input source, output loads and naturally, the mains current.

Connection to Input Terminals:
Connect the outputs of player, tuner, or tape-recorder to the relevant input terminals of this amplifier. As to the details see the sections on Playback of Disc, Tuner and Tape-recorder.

Connection Cable (Cord Wire):
For connection of the record-player, tuner, and tape recorder, shield wire is used for protection from external noise or induced noise. Usually, this shield wire has the capacitance of approx. 300pF/M, i.e., the adoption of a connection cable gives the same effect as that of the insertion of a capacitor in parallel with input sources or output load equipment (which composes a simple kind of high-cut filter circuit). For instance, 2 meters of this shield wire has 600pF capacitance, and if this cord is used at the point where parallel composite value of input and output impedance is 50Kohms, it means an insertion of a high-cut filter with cut-off frequency at about 10KHz, which causes an unnecessary attenuation of the high frequency range. Use of the shortest wire is, therefore, recommended, especially for high impedance equipment.
Choose a shield wire of good quality and make it as short as possible for connection of this amplifier (at PHONO, AUX, Tape-monitor, tape jacks etc.) with the high impedance equipment. In case input or output impedance is sufficiently low, the effect is not much, since parallel composite impedance becomes lower and cut-off frequency will be shifted out of the audible range. It does not matter if relatively long cable is used for the pre-amplifier output and recording output (REC.OUT) terminals, since their impedances are so designed as to be sufficiently low (approx. 100ohms).

Connection of Speakers:
Stereophonic playback is made with a pair of speaker systems for right and left channels. This amplifier is provided with 2-channel terminals for main and remote speakers. Connection can be made in the same manner. The right speaker system should be connected to the Right speaker terminals, and the left speaker system to the Left terminals.
Note that perfect sound reproduction cannot be expected if the phase is not matched between both channels. To match the phase is to connect the (+) terminal of the right speaker to the (+) terminal (red cap) in the right channel

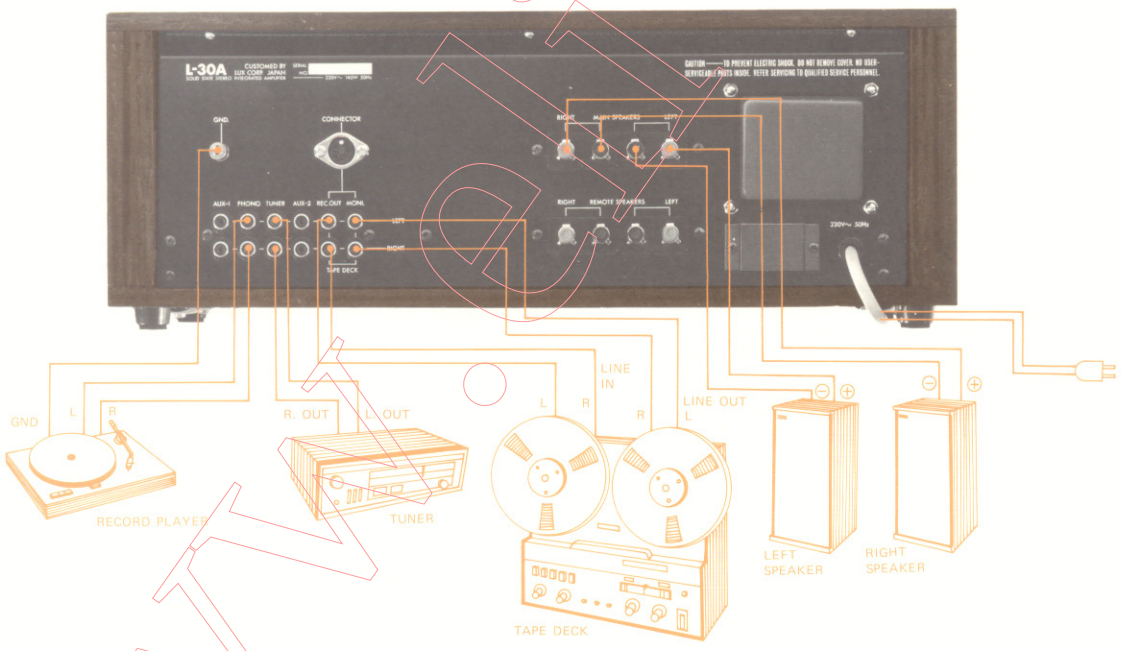
of this amplifier, and the (—) terminal to the (—) one (black cap). Do the same with the left speaker. If mismatched for some reason (e.g., misconnection of speakers), the low frequency range is subdued and stable playback cannot be realized.

Connection of Mains Power Supply Source:
As the final step of preparation, connect the amplifier to the mains power supply source. The end of the mains power cord should be plugged into the power supply outlet. Then press the power switch.
The power for other audio equipment used in combination with this amplifier can be obtained from the extra power outlet (SWITCHED) of the amplifier. In this case, on/off switching of the amplifier is common to other annexed audio equipment, i.e., if the power switch of the amplifier is switched on, the power switch of the other audio unit works simultaneously.

Record Player

Connections:
The player has 2 cords with pin plugs at their ends for both right and left channels. Connect the pin plugs to the input terminals of this amplifier (PHONO). The players' earth lead can be connected to the GND terminal (14). The player's power flex can be connected to the extra power outlet of the amplifier.

Signal Paths:
First, the signals fed to the amplifier through PHONO terminals are brought to the equalizer section, where recorded signals are restored to the original frequency curve. Incidentally, this equalizer curve has been standardized to the RIAA curve. The equalized signals are then fed to the input selector switch (function switch). If this switch is not set at PHONO position, the signals are blocked here and no amplification is possible.
After equalization, the signals are divided into two lines, one goes to the REC. OUT terminals, and the other to the tape monitor switch. If the monitor switch is set at the "SOURCE" position, the signals are sent to the mode selector switch, and volume controls, but if at the "tape monitor" position, the signals are stopped at the tape monitor switch. Therefore, except during tape playback, the monitor switch must be kept at the "SOURCE" position. But when the input signals are fed to PHONO or AUX terminals, recording output is always obtainable at the REC. OUT terminals regardless of the position of



the monitor switch. Then the signals are sent to the volume control via Low-cut filter, High-cut filter and Loudness. Such controls as Low-cut filter, High-cut filter, Loudness, and Tone controls are for flexible and diversified adjustment of playback sound and do not block the signals completely.

Playback:
Put a disc on the turn-table for playback. As the volume control is turned clockwise, playback sound comes from the speakers. As explained above, playback is possible regardless of the position of the Mode Selector. Input Selector Switch (11), Monitor Switch (9), Speaker Switch (1) and Volume Control (13) should be set at the correct positions. After all preparations are completed, check if the volume levels on both right and left speakers are identical. For Stereophonic playback, set the Mode Selector Switch to the STEREO position.

CARTRIDGES

Types
There are various types of cartridges: magnetic type, photo-electric type, electrostatic type and piezo-electric type. Most predominant is the magnetic type which includes the MM (Moving Magnet), the IM (Induced Magnet), the MI (Moving Iron) and the MC (Moving Coil). The PHONO terminals of this amplifier are designed to match with these types of magnetic cartridges, but a cartridge of low output level (output voltage 0.01 to 0.1mV) cannot be directly connected.
If using the photo-electric or electrostatic type cartridge, choose appropriate input terminals according to the explanation sheet of the cartridge. Among the piezo-electric types, there are crystal types and ceramic types. Generally, these types can be connected to the AUX terminals, but the equalizer characteristic will be incorrect (further equalization will be needed). For this reason, they are seldom used in high class units.

Tape Deck

Playback from Tape Monitor Terminals:
Almost all tape recorders and tape-decks currently marketed include an audio amplifier in their circuitry, and some tape-players are made exclusively for playback.
Connect the output terminal (LINE OUT) to the Tape Monitor terminals (21). Then set the Monitor Switch at the "tape monitor" position, and the playback from tape is possible.
This amplifier can be divided into two sections; one before the Recording Output terminals (REC.OUT) and the other after the Tape Monitor Switch. A 3-head tape recorder makes it feasible to make recordings with the former section and simultaneously make playback with the latter section.

Playback from AUX Terminals:
Playback of tape is possible if the line output of the tape-recorder or tape-deck is connected to the AUX terminals of this amplifier by use of a pin-jack lead, and the Input Selector Switch is set at the position corresponding to the AUX terminals. All operations in this case are the same as those for the playback from tuner (Page 6).
Note that when tape playback is made through the AUX terminals, the line input or AUX input terminals of the tape should be kept free. If connected to the Recording Output terminals (REC. OUT) of the amplifier, there will be possible oscillation by feed-back of signals.

Playback from Tape Connector:
This is a DIN connector and is convenient for simple connection with a patch cord between the tape recorder and recording/playback connectors of this amplifier. Playback from the Tape connector is possible if the Monitor Switch is set at the "tape monitor" position.

Recording on Tape:
In case of playback of various programme sources through input terminals of this amplifier, the same signals as those reproduced in the speakers are always available at the REC. OUT terminals and the Tape Connector. By connecting these terminals to the input terminals (AUX or LINE IN) of the tape recorder, you can enjoy simultaneous recording and playback. These recording signals are taken out before the tape monitoring stage, and there is no influence on the Filters, Volume or Tone Controls, etc., as far as the quality of the recorded signals is concerned.

Simultaneous Playback Monitoring:
A 3-head tape recorder ensures simultaneous playback monitoring and recording. In this case, recording on tape and playback of the recorded sound is done at the same time, and connections must be made for both functions. It is necessary to connect the REC. OUT terminals (20) to the line input terminals (AUX Input) of the tape recorder, and the Tape Monitor terminals (21) to the output terminals (LINE OUT) of the tape recorder.
Repetition of switching between "tape monitor" and

"source" makes it feasible to compare the original sound with recorded one. Thus possible recording error can be prevented in case of 3-head tape recorder. Incidentally note that reproduction of recorded sound becomes a little bit delayed as compared with that of original sound since there is a gap between recording head and playback head. Simultaneous playback monitoring can be made through the Tape connector (15) as well. A single DIN patch cord ensures connection for recording and playback.

Playback from Other Sources:
The signals of flat frequency response from such sources as TV receivers do not need equalization. For playback of such audio equipment, either of the AUX terminals or the TUNER terminals can be used. Connection and operation is the same as that of a tuner.

Tuner

Playback from Tuner:
Connect the tuner's output terminals (left and right) to the Tuner terminals (17) or to either of the amplifier's AUX terminals (18, 19). The Input Selector Switch (11) must be set at the corresponding position. As shown in the block diagramme, the input signals from the tuner are fed directly to the input selector circuit. Afterwards, the signals trace the same blocks as are explained in the TAPE DECK section and are reproduced from the speaker systems. Both for FM stereophonic and monaural broadcasting, the Mode Selector Switch should be set at the STEREO position, for such accommodation to the input source can be made in the tuner.
Modulation hum in the AM programme can be eliminated by varying the distance and angle of those components.

Operation of Controls

Mode Selector:
This amplifier is for stereophonic reproduction and incorporates independent amplifiers for two channels (right and left). Without the Mode Selector, the signals fed to the right channel terminal are reproduced at the right channel speaker only. The Mode Selector is placed between the two amplifiers to change the mode of reproduction.

Volume Control:
This knob controls volume. Clockwise turn boosts volume, while counter-clockwise decreases until it is inaudible. This knob is a dual friction type and plays the role of balancer as well offering separate control of right and left channels. The outer one is for the right channel, while the inner for left. Usually this knob controls volume of both channels simultaneously. To control either of both channels you may turn the control for your desired channel, at the same time holding the other by hand. When the sound level on both channels is balanced monaural reproduced sound appears to come from between both the right and the left speakers.
Normally this amplifier is delivered from the factory well balanced in volume.

Tone Controls:
The ultimate purpose of the audio system is to make high fidelity reproduction of programme sources. The reproduction and acoustic conditions do not always match with recording conditions, and it is impossible to reproduce the same sound as the original. Also, there is no objective standard to judge a good sound from an inferior one. The only possible solution is for every listener to create his favorite sound according to his own taste. It is therefore very important that the audio system offers a facility to permit flexible controls for creation of the best sound.

This amplifier is equipped with tone controls for subtle and minute control of the reproduced sound such as Bass Level Control (4) and Treble Level Control (5). Bass Level Control is a tone control on frequency response of low frequency range. It is designed so that response flat at the electric center point, and a clockwise turn of the knob intensifies low frequency range while counter-clockwise turn yields attenuation.

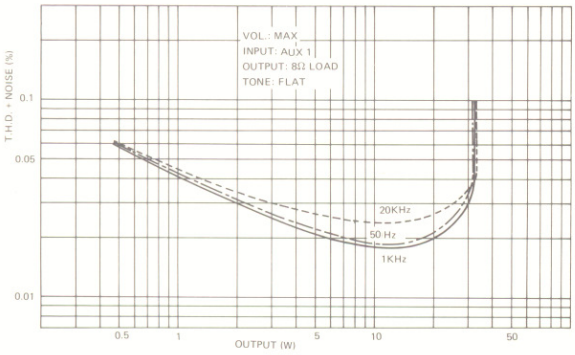
Low Cut Filter:
When this filter (7) is switched on the amount of low frequencies you hear is reduced sharply at the attenuation rate of 6dB/oct. below 70Hz. Useful for removal of low frequency noise such as rumbling of phono motor. Also this can be used as an auxiliary control for Bass Level Control.

High Cut Filter:
When this filter (8) is switched on the amount of high frequency range over 7KHz is cut off at the attenuation rate of 6dB/oct. Useful for removal of scratch noise, hissing noise of tape etc. Also this can be used as an auxiliary control for Treble Level Control.

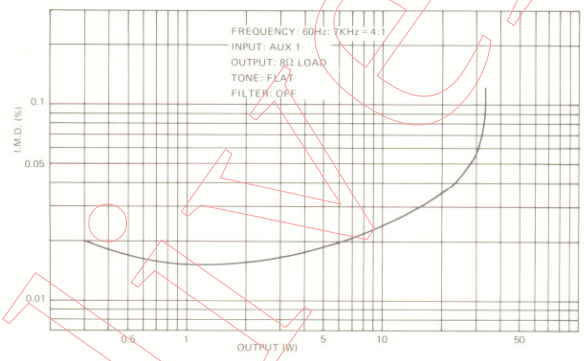
Operation of Loudness:
Because loudspeakers and ears generally respond less to extreme high and low (treble and bass) frequencies as volume levels are reduced, the Loudness switch is included to boost these frequencies and thereby provides tonal compensation. Whether or not you use this switch depends upon the levels at which you generally listen, the kind of speakers you have, the room acoustics and a number of other variables. Experimentation is the best guide to using the Loudness switch.

Standard Curves

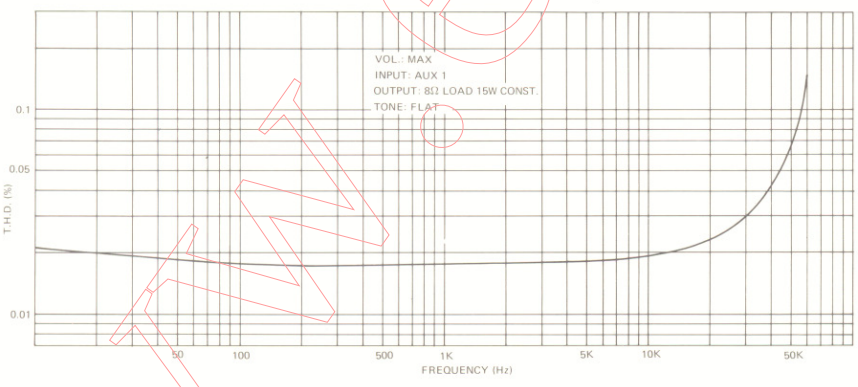
POWER T.H.D. (BOTH CH. DRIVEN)



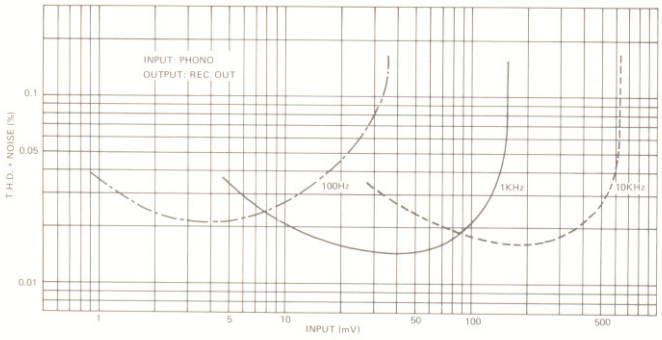
POWER I.M.D. (BOTH CH. DRIVEN)



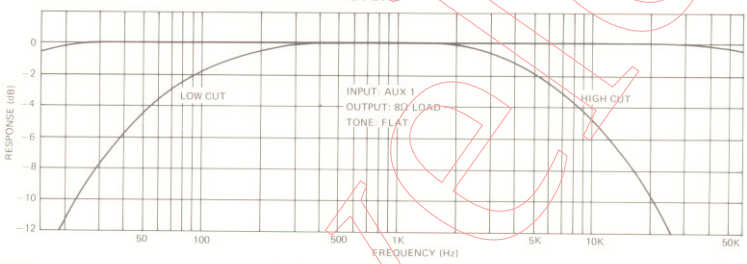
FREQUENCY T.H.D. (BOTH CH. DRIVEN)



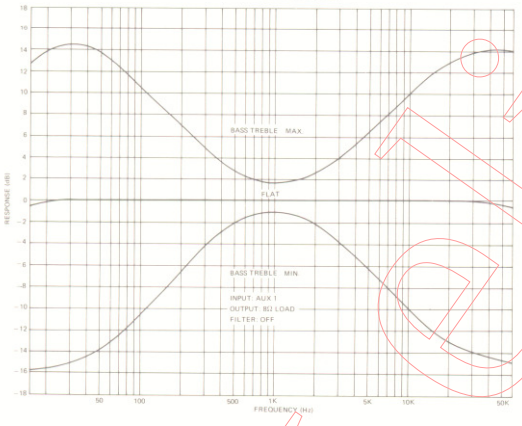
PHONO OVERLOAD



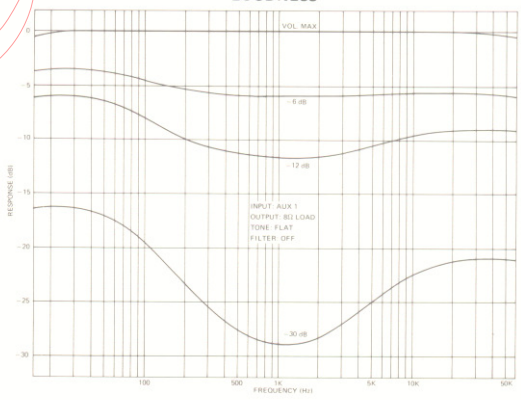
FILTERS



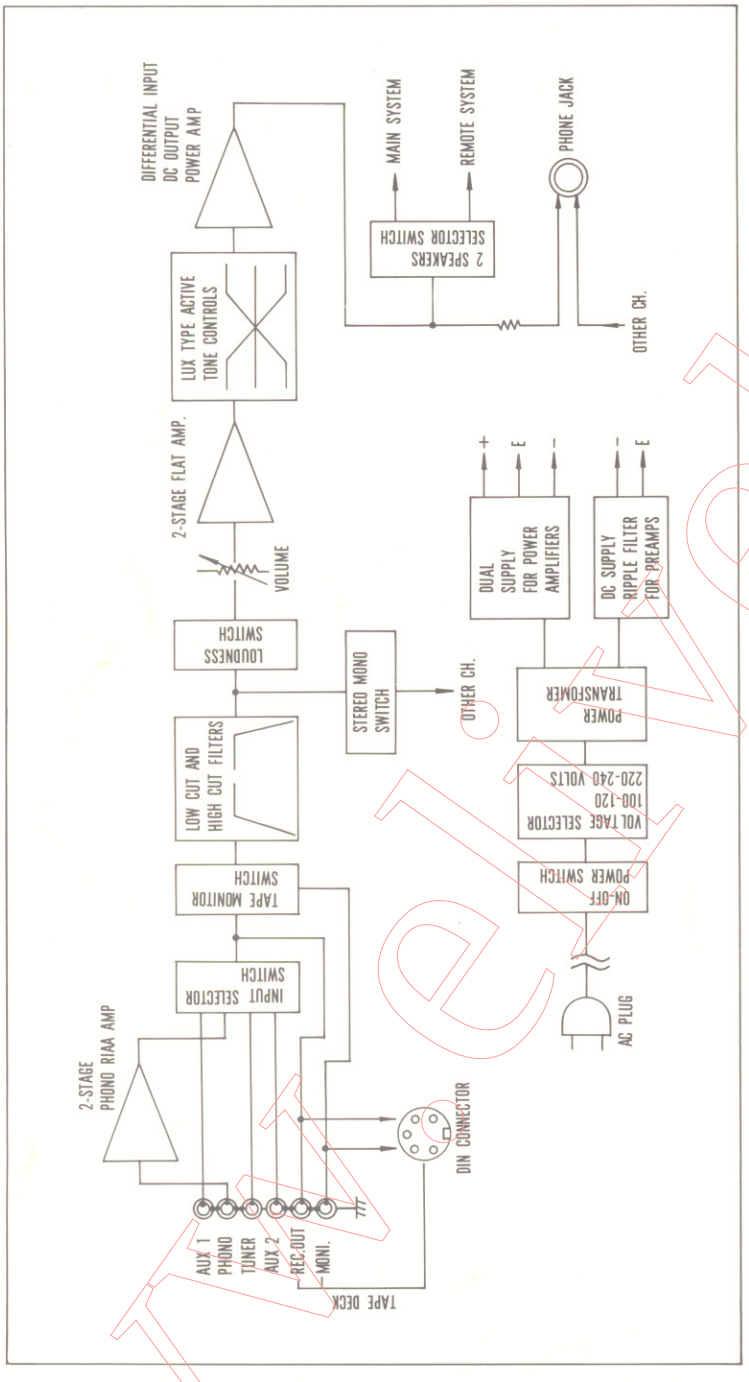
TONE CONTROL



LOUDNESS



Block Diagram



SPECIFICATIONS

RMS OUTPUT POWER:	32W/32W (8Ω both channels driven) 37W/37W (4Ω both channels driven)	
T.H.D.:	less than 0.05% (8Ω 32W)	
I.M.D.:	less than 0.1% (8Ω 32W)	
POWER BANDWIDTH:	10 ~ 50KHz (−3dB less than 0.1%)	
FREQUENCY RESPONSE:	15 ~ 50KHz (less than −1dB)	
INPUT SENSITIVITY:	PHONO	2.6mV
	TUNER	150mV
	AUX 1	150mV
	AUX 2	150mV
INPUT IMPEDANCE:	PHONO	50KΩ
	TUNER	more than 60KΩ
	AUX 1, 2	more than 60KΩ
	MONITOR	more than 60KΩ
SN RATIO:	PHONO	more than 64dB
	TUNER	more than 83dB
	AUX 1, 2	more than 83dB
	MONITOR	more than 83dB
RESIDUAL NOISE:	−87dB	
TONE CONTROL:	LUX type NF tone Control	
FILTER:	High Cut 7KHz −6dB/oct. Low Cut 70Hz −6dB/oct.	
DAMPING FACTOR:	more than 90 (8Ω)	
ACCESSORIES:	Tape Monitor Switch, Tone Control Mode Selector Switch, Volume Control, Speaker Selector Switch, DIN Connector	
TRANSISTORS & DIODES:	TRANSISTORS (27) DIODES (8) ZENER DIODES (2) LED (1)	
POWER CONSUMPTION:	140W (8Ω, max. output, both channel driven) 90W (CSA, UL rated)	
POWER REQUIREMENT:	100−120−220−240V, 50/60Hz	
DIMENSIONS:	440mm W(17-3/8") 160mm H (6-5/16") 225mm D(8-7/8")	
WEIGHT:	7Kgs (15.4lbs)	

Specification and appearance design subject to possible change without notice.

LUX CORPORATION, JAPAN

HEAD OFFICE & FACTORY 1-8-31 NAGAHASHI, NISHINARI-KU, OSAKA
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