HiFi ENGINE®

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CONTROLS & CONNECTORS

1. Speaker Selector Switch (SPEAKERS)
Convenient use of 2 pairs of speaker systems is available, namely, Main and Remote.
You can choose independent or simultaneous driving of 1 or 2 pairs of speaker systems as per indication on the front panel.
When both Main and Remote speakers are used, make sure that the overall impedance is not less than 4Ω.
At the "off" position the speakers are disconnected from the amplifier, and you can enjoy private listening by headphone.

2. Mains Switch (power)
Lift up the lever switch to the "on" position and the mains current is on, while when pressed down to the "off" position the mains current is cut off.

3. Subsonic Filter
This filter is provided to prevent deterioration of transient response caused by ultra bass signals, and the cut-off frequency is 13 Hz and the attenuation ratio is −12dB/oct. Press alternately for ON and OFF. When this switch is kept unpressed at the "off" position this filter is completely disconnected from the amplifier.

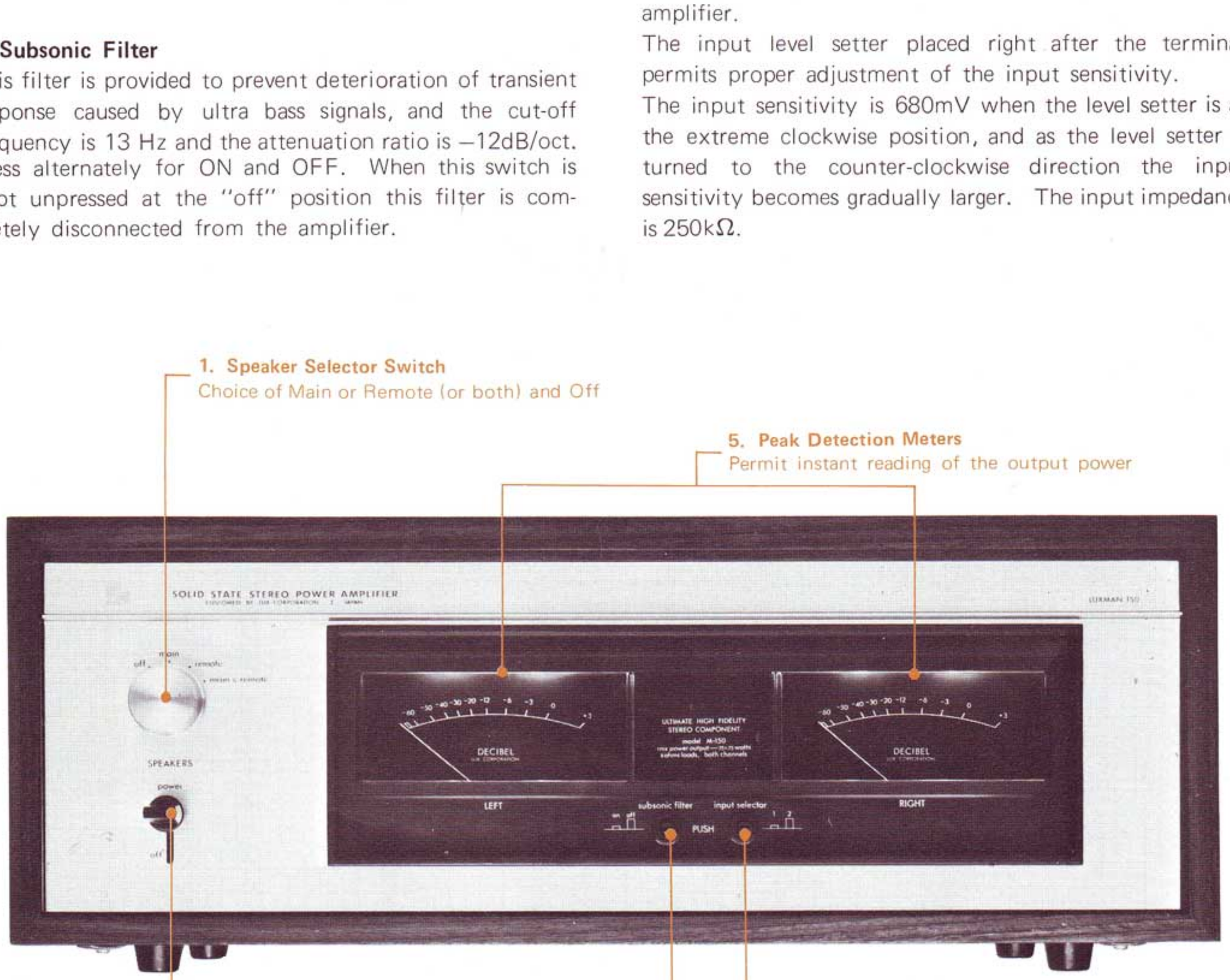
4. Input Selector
This amplifier offers convenient use of 2 input sources. In case you have 2 pre-amplifiers both can be connected to this amplifier. Press alternately for connection of "INPUT-1" and "INPUT-2" terminals.

5. Peak Detection Meters
This meter shows the exact output power from the minimum to the maximum in the logarithmic large scale. You can instantly see the dynamic range of programme sources, which can not be expected on a conventional VU meter.

6. INPUT-1 Terminal
This terminal has to be connected to the output terminal of the pre amplifier to be used in combination with this amplifier.
The input level setter placed right after the terminal permits proper adjustment of the input sensitivity.
The input sensitivity is 680mV when the level setter is at the extreme clockwise position, and as the level setter is turned to the counter-clockwise direction the input sensitivity becomes gradually larger. The input impedance is 250kΩ.

1. Speaker Selector Switch
Choice of Main or Remote (or both) and Off

5. Peak Detection Meters
Permit instant reading of the output power



2. Mains Switch

3. Subsonic Filter
For prevention of deterioration in transient response: −12dB at 13Hz

4. Input Selector
Selectable between 2 pre amps

7.8. Input Level Setter

These knobs are volume controls for adjustment of the input sensitivity of the INPUT-1 terminal.
Adjust the input level when the output voltage of the pre amplifier used in combination is higher than 680mV. (7) is for the right channel, and (8) is for the left channel.
This amplifier is delivered with the volume set at the extreme clockwise position, i.e., input sensitivity 680mV.

9. INPUT-2 Terminal

Same as INPUT-1 Terminal except that the input level setter is not provided and that the input sensitivity is fixed at 680mV.
The input impedance is 250kΩ. If you have another amplifier connect the output terminal to this terminal.

10.11. Speaker Terminals

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, and release it. Now they are firmly connected.
These terminals are coupled with the speaker switch, and the speaker switch must be set at the position corresponding to the terminal to which the speaker systems are connected.
(10) is for the main speaker and (11) is for the remote speakers.
The red terminal is for (+) and the black for (–). Be careful about phase matching. For further details, refer to connection of speakers.

12. Extra Mains Outlet (UNSWITCHED)

Convenient for supply of mains power to other audio equipments to be used in combination.
This terminal is independent of the mains switch of the amplifier.
The rated capicity is 300W.

13. Mains Line Fuse

A 5A (100-125V) or 2.5A (200-250V) fuse should be inserted in the mains power circuit of this amplifier. If the fuse blows out, replace it after ascertaining the cause and applying an appropriate remedy.
Replace the fuse by turning the cap with a (+) driver towards the arrow mark.
Be sure that the mains power cord is desconnected.

14. Mains Connector

One end of the attached mains cord should be connected to this point, while the other end with the plug should be connected to the mains power supply source.

6. INPUT-1 Terminal

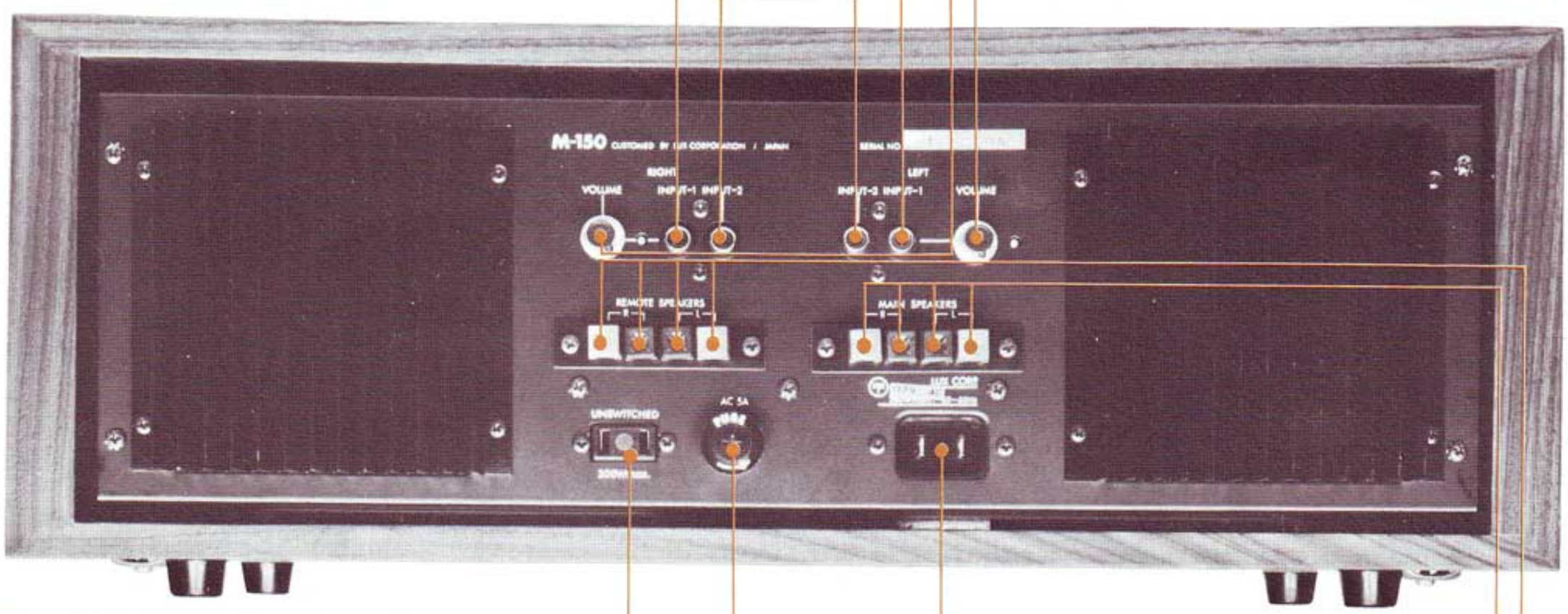
For connection of pre amp output: input sensitivity adjustable

9. INPUT-2 Terminal

For connection of pre amp and input sensitivity is fixed

7.8. Input Level Setter

Check the output of pre amp and adjust the input level



12. Extra Mains Outlets (Unswitched)

Two extra outlets for AC current. Power is always available

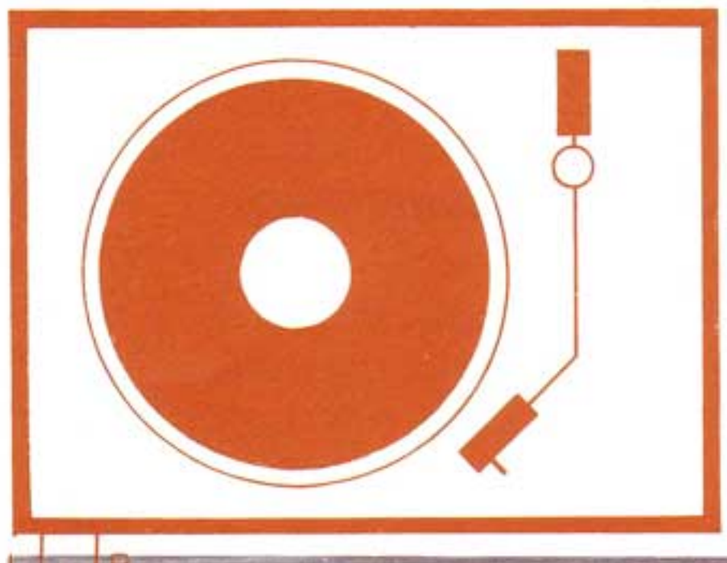
13. Mains Line Fuse

14. Mains Power Input

10.11. Speaker Terminals

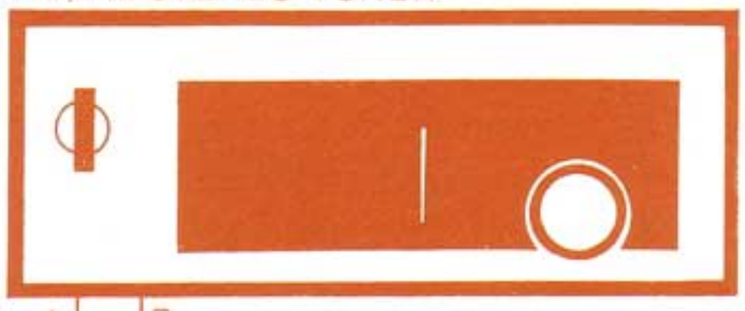
Main Speaker
Red terminals are positive(+); black terminals are negative(–)
Remote Speaker
Red terminals are positive(+); black terminals are negative(–)

CONNECTION PROCEDURE



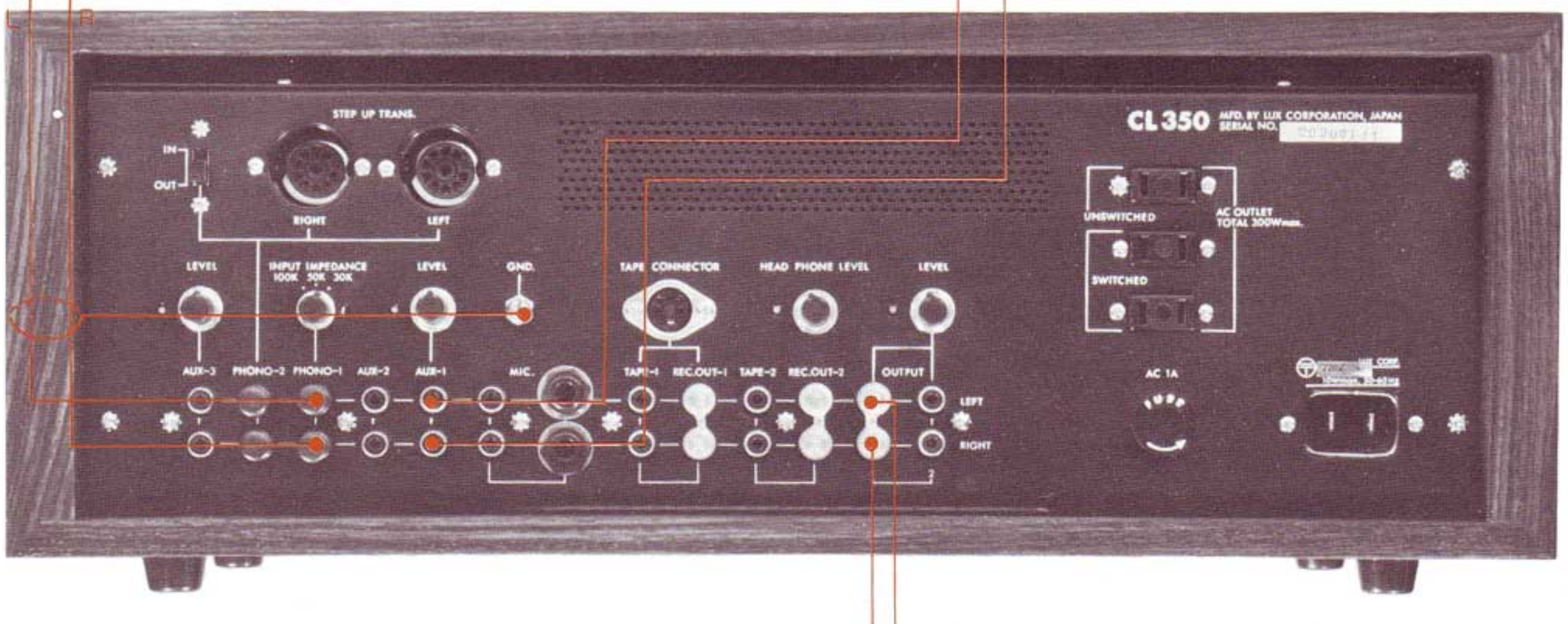
RECORD PLAYER

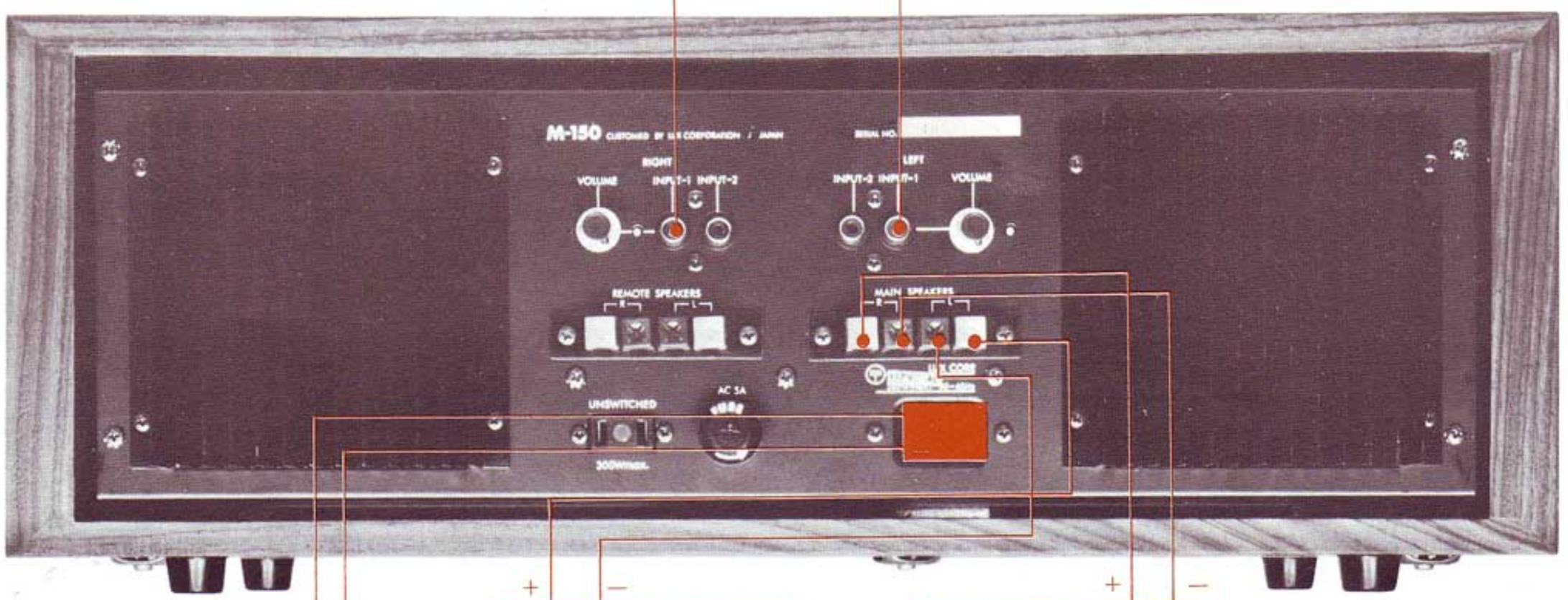
AM/FM STEREO TUNER



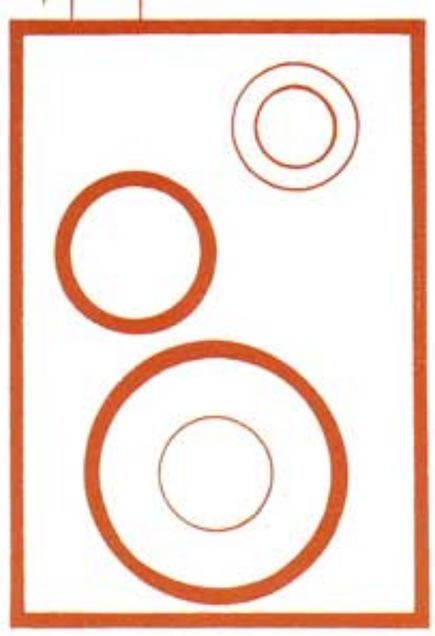
L R

L R

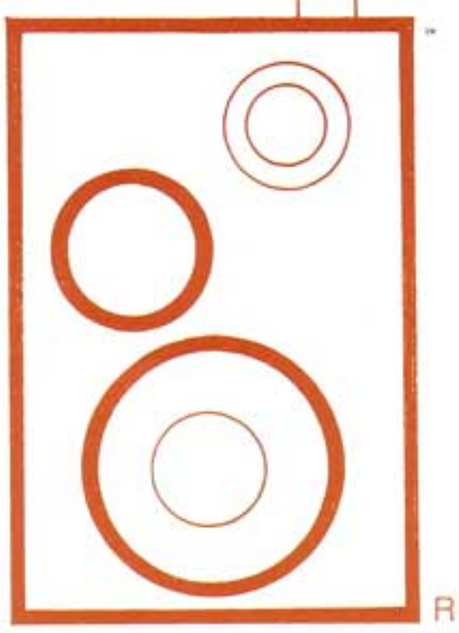




MAINS
POWER
SOURCE



LEFT SPEAKER



RIGHT SPEAKER

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 for both speaker systems.

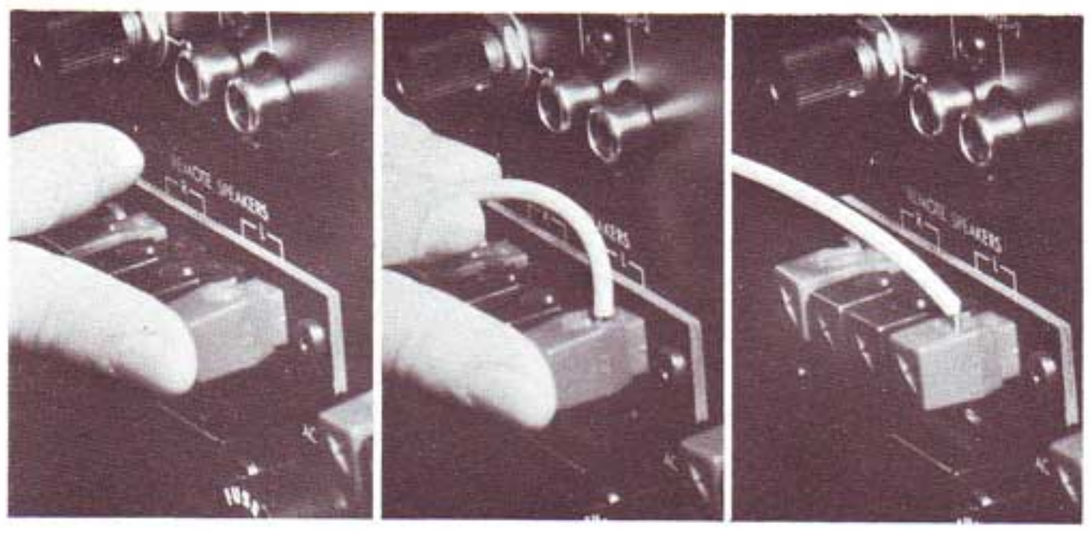
The right speaker system should be connected to the right speaker terminal, and the left speaker system to the left terminal.

Note that perfect sound reproduction cannot be expected if the phase is not matched between the right and left 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 same reason (e.g, misconnection of speakers), the low frequency range is subdued and stable playback cannot be realized.

To connect firmly the speaker terminals, strip off the end of the shield wire by about 10mm and insert it into the terminal hole by pressing the terminal cap, and then release it.

After connection of the speakers, set the speaker selector switch so that 2 pairs (main and remote) of the speaker systems can be simultaneously or independently driven.



CONNECTION BETWEEN INPUT TERMINALS AND PRE AMPLIFIERS

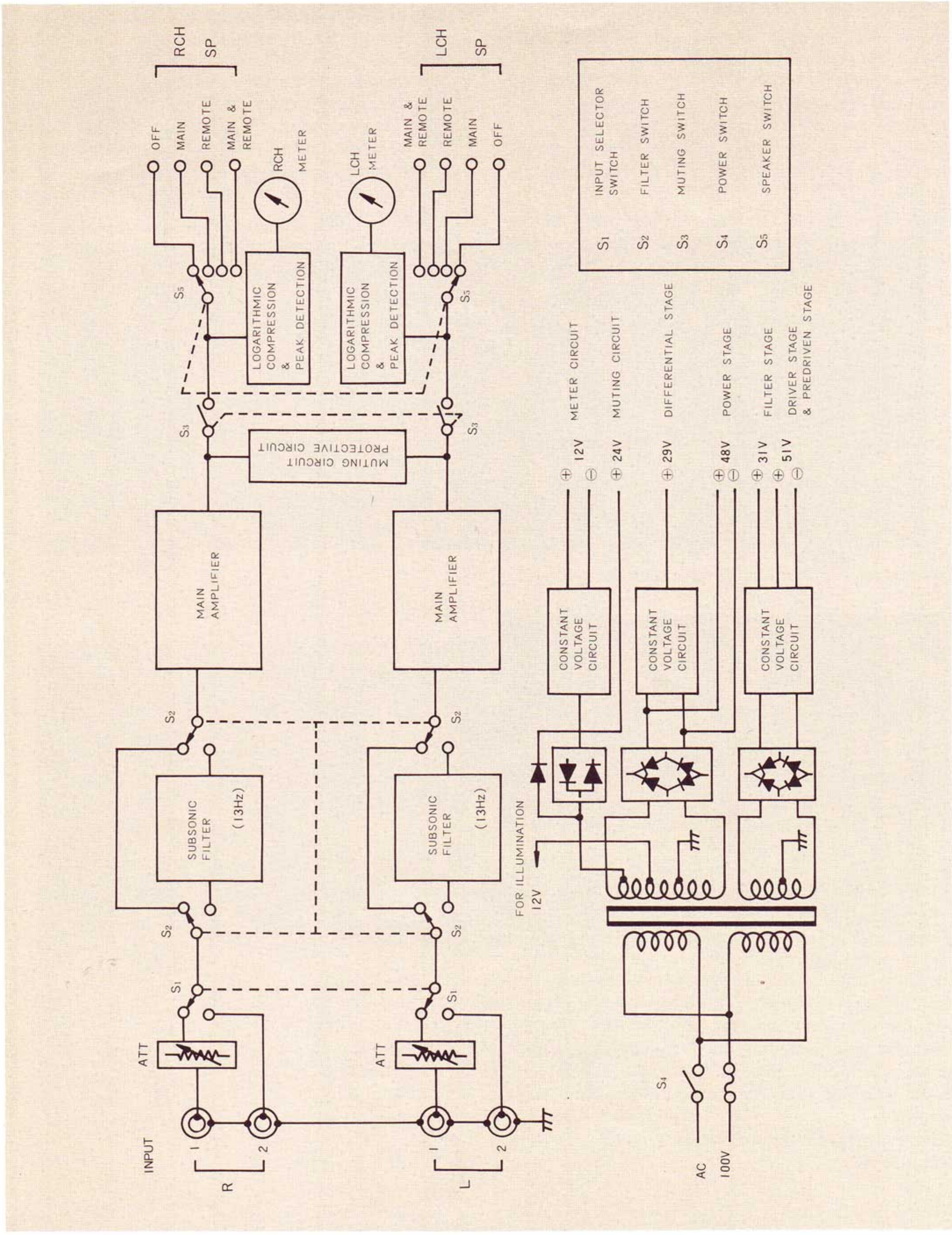
Connect with a pin plug cord the output terminals of your pre amplifier (control amplifier) to either of the input terminals (INPUT-1 or INPUT-2) of this amplifier. This amplifier is provided with 2 pairs of input terminals and you can utilize whichever you like. But the "INPUT-1" terminals have the level control so that appropriate adjustment of the input voltage can be made if necessary, and it is recommended to use this terminal if you have one pre amplifier.

Those who have 2 pre amplifiers may utilize both of the input terminals.

CONNECTION OF MAINS POWER SUPPLY SOURCE

As the final step of preparation, connect the amplifier to the mains power supply source. First one end of the flex should be connected to the mains receptacle on the amplifier, and the other end should be plugged into the power supply outlet. Then lift up the power switch. The illumination lamps in the meter light on, and the relay in the muting and speaker protection circuit will be put into operation in about 5-10 seconds and the amplifier will be in function.

BLOCK DIAGRAM

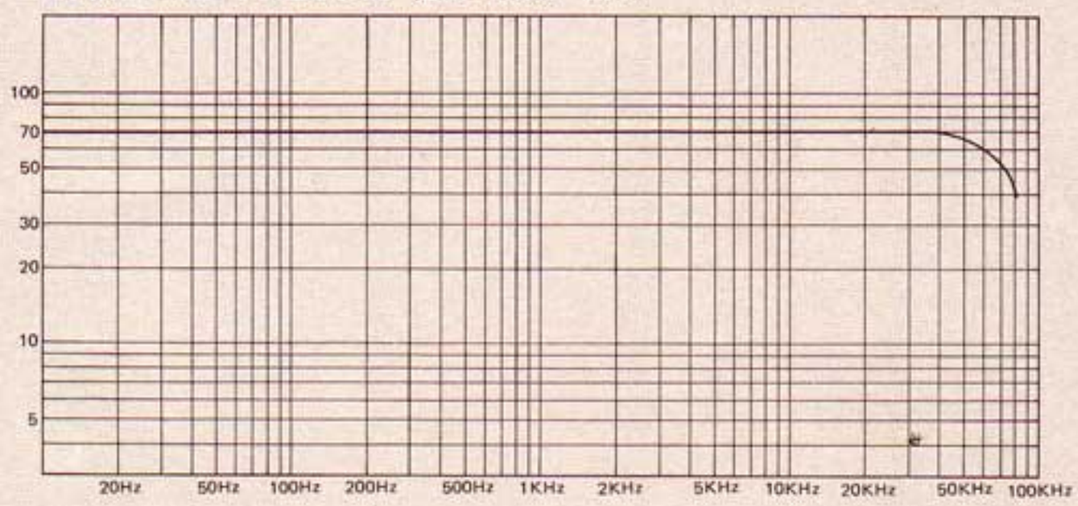


SPECIFICATIONS

CIRCUIT:	Fully complementary direct coupled D.C. output amp utilising dual rail power supply
POWER OUTPUT:	RMS. 75W+75W (8Ω both channels driven)
	RMS. 90W+90W (8Ω single channel driven)
POWER BANDWIDTH:	10Hz – 50KHz (0.05%, –3dB)
FREQUENCY RESPONSE:	$^{+0}_{-0.1}$ dB 20Hz – 50KHz
	$^{+0}_{-1}$ dB 7Hz – 100KHz
T.H.D.:	< 0.03% (8Ω 75W)
I.M.D.:	< 0.03% (8Ω 75W 70Hz : 7KHz = 4 : 1)
RESIDUAL NOISE:	< 0.5mV (94dB)
CROSSTALK:	> –70dB
INPUT SENSITIVITY:	680mV
INPUT IMPEDANCE:	Fixed 270KΩ + 180pF
	Variable 80KΩ – 100KΩ + 180pF
SLEW RATE:	20 volts/μ sec.
PHASE SHIFT:	Leading 90° at 4Hz
	Lagging 90° at 100KHz
	Less than 20° at 20Hz – 20KHz
DAMPING FACTOR:	70 (8Ω 1W up to 40 KHz)
POWER CONSUMPTION:	30 – 280 W
FEATURE:	Peak indicating logarithmic V.U. meter
	–60dB +3dB Attack time 2 milli seconds
	Fall time 1 second
	0dB corresponds to 75 watts each channel
SUBSONIC FILTER:	12dB/oct 13Hz
MAINS VOLTAGES:	100/117/220/240V
DIMENSIONS:	(W) 476mm (18-3/4") x (D) 244mm (9-5/8") x (H) 182mm (7-3/16")
WEIGHT:	15.5Kgs (34 Lbs)
OTHER ACCESSORIES:	2-channel speaker selector
	2-channel input pin jack switchable, input 1 with level control
	Extra mains output (unswitched)

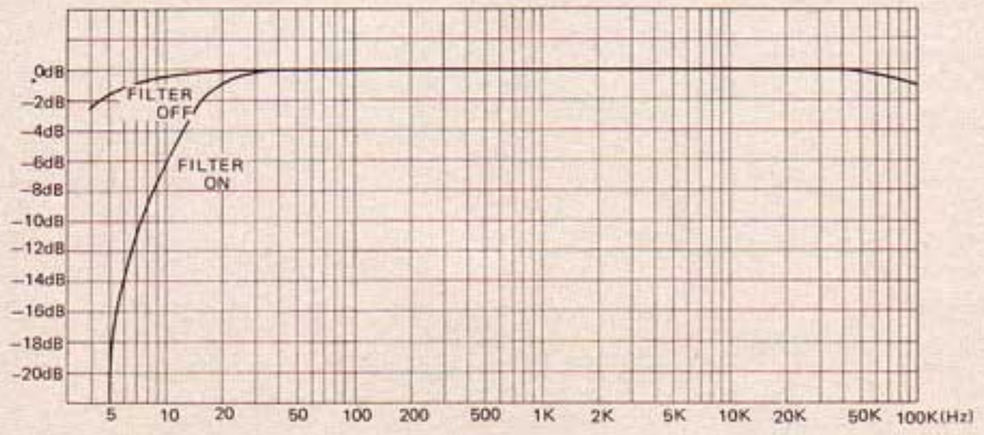
STANDARD CURVES

DAMPING FACTOR (8Ω load 1W)



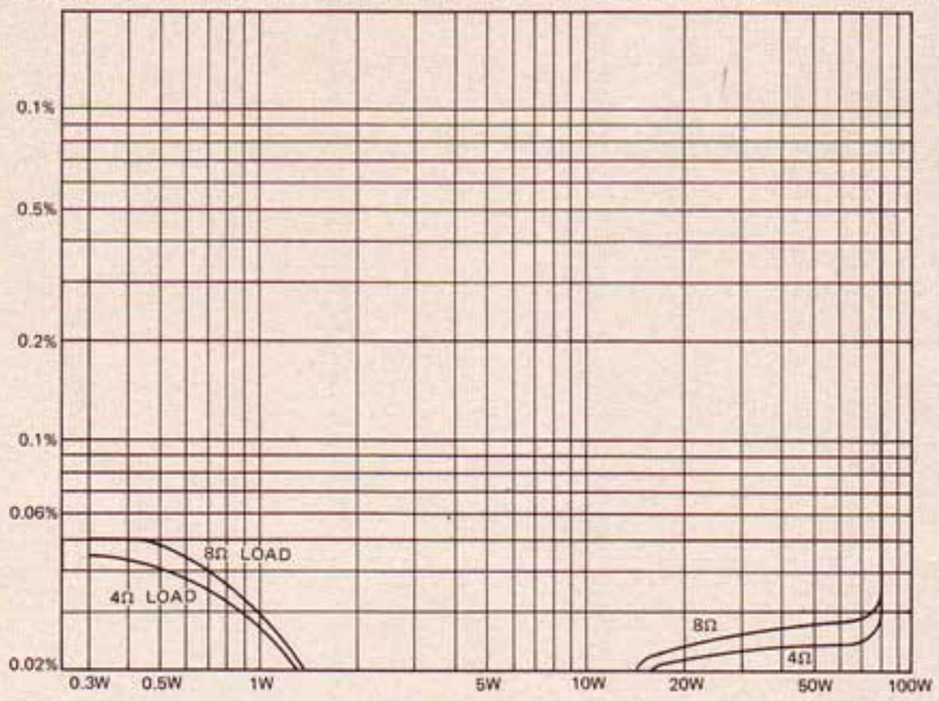
FREQUENCY RESPONSE AND FILTER

(0dB = 10V 8Ω load)

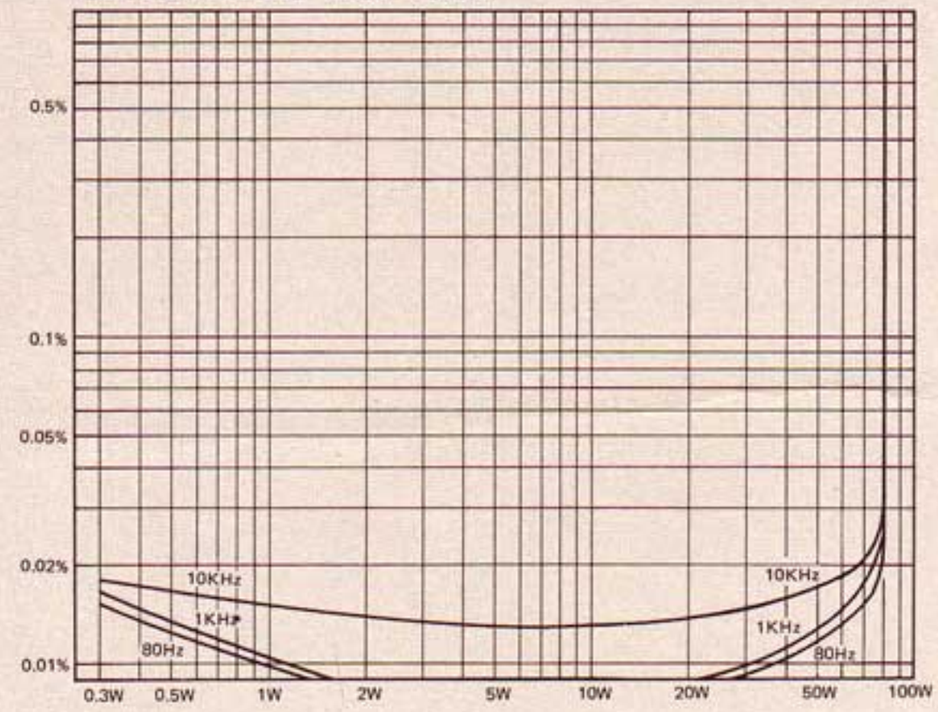


I.M.D.

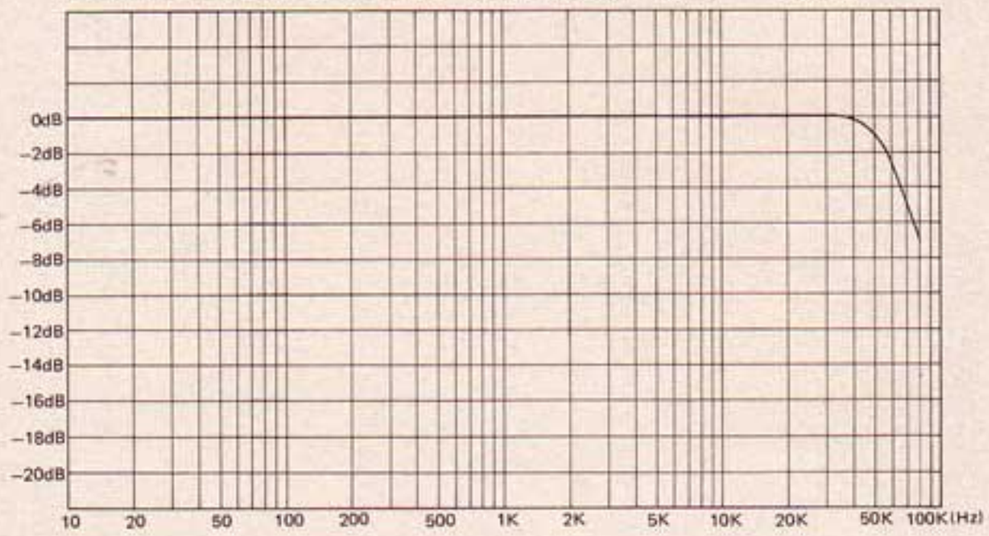
(Frequency and Modulation ratio 70Hz : 7KHz = 4 : 1)



DISTORTION (8Ω load)



POWER BANDWIDTH (8Ω load 0dB = 75W)



FEATURES

TECHNICAL FEATURES

- **Generous Heatsinks** to assist in giving a reliable 75 watts per channel RMS into 8 ohms in any climate and under the worst conditions.
- **A Special Hermetically Sealed "C" Core Power Transformer** to deliver cool power with negligible losses and stray hum, so the M 150 can be positioned anywhere - even next to a turntable.
- **Giant Computor Grade** electrolytic capacitors will provide a lifetime of unconditionally stable performance and fidelity from the power amplifiers.
- **Stabilised** power for the input stages ensuring stable performance regardless of mains power fluctuations.
- **High Speed** power transistors combined with good biasing ensure very low distortion at all audio frequencies up to 20KHz (0.03%).
- **Dual Rail Supply** is the ultimate answer for low noise and full power clean bass.
- **Fully-Complementary Symmetry Direct Coupled Power Output to the Loudspeaker** ensures good tight bass response PLUS our guaranteed 0.05% distortion at all audio frequencies and powers, especially removing notching distortion at treble range.
- **250,000 Ohm Input Impedance** ensures that our power amplifier can be driven by any pre-amp that can deliver 0.68 volts.
- **A Subsonic Filter Switch** is added with a cut off of 12db/oct at 13Hz in order to eliminate power wastage in such cases as turntable rumble.
- **A choice of 2 inputs** is possible with the input selector switch, one direct and the other via the level controls on the rear panel.
- **Two Speaker Systems** can be selected by the switch on the front panel with four positions: Off; A speakers; B speakers and A Plus B.
- **Logarithmic VU Meters**
  Because conventional VU meters give a reading only from –20 dB to +3 dB and are so slow that it is impossible to read the immediate power output at any instant, Lux have designed special PEAK INDICATING LOGARITHMIC VU METERS.
  These meters are designed to read from –60 dB to +3 dB with a rise time of 1/300 of a second. They display power outputs from an incredible 75 microwatts to 75 watts at 8 ohms.
- **Speaker Muting Circuits** remove unwanted switch-on thumps from the loudspeakers, and at the same time safeguard your loudspeakers from accidental damage.

MECHANICAL

- **A Bronze Anodised Brushed Aluminium Front Panel** is set into an elegant Rosewood cabinet.
  The front panel has the two VU meters centred above the subsonic filter switch, the input selector switch and – to the left of the panel – the power switch and speaker selector switch.
  The back panel features input and speaker terminals, level controls and mains power sockets. A voltage selector is fitted internally. The cabinet is styled to match the LUXMAN CL350 per-amp and WL 500 series tuner.

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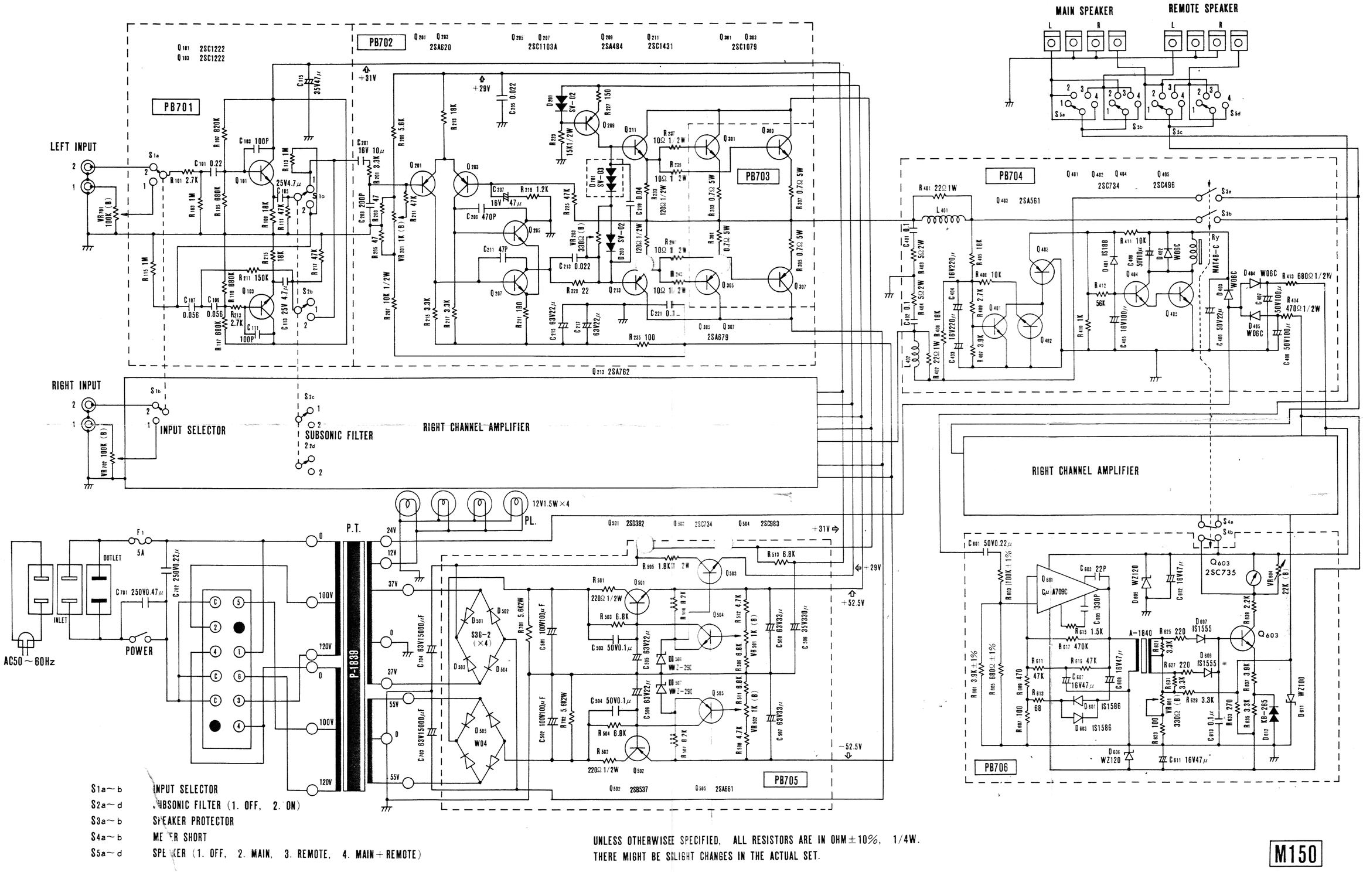

UNLESS OTHERWISE SPECIFIED, ALL RESISTORS ARE IN OHM±10%, 1/4W.
THERE MIGHT BE SLIGHT CHANGES IN THE ACTUAL SET.

M150