

ULTIMATE HIGH FIDELITY STEREO COMPONENT

MODEL M-4000

LUXMAN 4000

SOLID STATE INTEGRATED AMPLIFIER

To broaden our range of high powered amplifiers LUXMAN now introduces market another high powered model M-4000 following the prestige M-6000 (300W/ch)

*© beim Hersteller
Archiv Michael-Otto*



The best cost performance is sought in this unit, utilizing the same engineering concepts employed for the model M-6000.

A huge output of 180W/ch is available into 8ohms loads with both channels driven simultaneously with no more than 0.05% total harmonic distortion at any frequency from 20 – 20,000Hz.

CIRCUIT DESCRIPTION

The main amp section employs a 2-stage differential amplification triple push-pull OCL pure complementary circuitry.

An emitter-follower circuit is placed between the differential amplification stage of "class A" operation and the output stage of "class B" operation so that the former stage is kept free of influence by the latter.

The differential amp stage is driven by constant current to realize extremely low distortion.

The powering circuit is a dual power supply.

An independent output stage is used for both right and left channels with 2 separate transformers and 4 huge electrolytic capacitors, and the

Driver Stage Printed Circuit Board (L-ch)

6 Power Transistors are used per channel for triple push-pull stages.

Power Board (L-ch)

Exclusive



Muting Circuit Printed Circuit Board

Peak Meter Circuit Printed Circuit Board

Huge Power Trans

same power (180W) is obtained whether single or both channels are driven.

Power supply to the driver stage is realized from other windings than those for the output stage under constant voltage, which suppresses ripple current and improves stability.

Perfect counter-measure is taken against surge current at the time of switch-on.

Speaker protection circuitry is provided by means of sensing abnormal DC potential at the output, not to speak of complex Amplifier Protection Circuits by means of over temperature power limiting and over current sensors.

At the input circuit a precision 1dB/step detent pot is used as an input level setter, which eliminates input errors between right and left channel.

An emitter-follower circuit is provided to minimize deterioration of characteristics caused by wiring etc.

Power output can be monitored in 2 ways — the average power is read by 2 VU meters, while the equivalent Peak instantaneous power by L.E.D.'s. Sensitivity can be selected between 0dB and -10dB by push button.

Overall sophisticated exterior design gives a precision unit feel — sculptured 3-dimensional presentation of bronze anodized brushed aluminium front panel bearing large easy-to-read V.U. meters, delicate treatment of L.E.D. displays, 1dB step level setters and other control buttons plus exclusive "Honey Comb" heat sink featured at the rear panel — all housed in an elegant rosewood case.

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Giant Heat Sink

Power Board (R-ch)

Driver Stage Printed Circuit Board (R-ch)

Computer-grade giant electrolytic capacitors of 15,000 μ F are mounted for the power supply filtering to the output stage.

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Selector Switch for Meter Sensitivity

When the meter sensitivity is set at 0dB indication for maximum output of 180W/ch, the V.U. meter will not move at low output level, nor will the peak indicator light up. Therefore, this set is equipped with a sensitivity selector switch so that both of the indicators may be utilized even at low output level by increasing only the meter sensitivity by 10dB independently of the gain of the power amp circuitry itself. When this switch is set at the "off" position 0dB indication is equivalent to 180W/ch, while at "on" position 0dB is equivalent to 18W/ch.

Stand-by Lamp

Switch-on of the mains power switch makes this stand-by lamp begin to blink and will go out in about 7 seconds, and the meter lamp lights up at the same time, when all the circuitry is in perfect operational condition. This lamp will also begin to blink when even one of the four protection circuits is operated. In case the lamp blinks over 1 minute, a certain accident may possibly happen.

Input Level Setter

A precision detent-volume control of metalized film type offers smooth and accurate adjustment. Adjustable range is between 0dB and -20dB with 1dB decrement and further the position is provided.

Protection Circuits

The M-4000 is equipped with 4 protection circuits. One is for protection of speaker systems, and the other three are for protection of the amplifier.

DC-DRIFT SENSING

This protects the speaker system by cutting off the output when some $\pm 3V$ is detected at the speaker terminals. This also operates as the muting circuitry which protects the speaker system from transient phenomena caused by the mains being turned on.

POWER TRANSISTOR FAILURE SENSING

This shuts off the mains power when even one fuse of any power transistors is ruptured.

ABNORMAL HIGH TEMPERATURE SENSING

This shuts off the mains power when the temperature at the heat sink is over 80°C under hard driving for a long time.

OVER-CURRENT SENSING

When excessive current, which may break the power transistors, appears, the current is once restrained electronically to keep the operation of the power transistors in the S.O.A. (Safe Operation Area). And in case the restraint time lasts over the certain time, the mains power is shut off by fuses.

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To obtain better tonal quality

In designing the M-4000 meticulous care has been paid to various supplementary data not to speak of the standard characteristics. The main target items are: Reduction of Notch Distortion over 5KHz, Reduction of Transient Distortion, Linear Phase Characteristic and Reinforcement of Power Supply Section etc.

As for the transient distortion, for example, an amplifier compensated with large amount of negative feedback tends to produce more transient distortion due to its poor inherent characteristics. This is because negative feedback amount shows much difference between low frequency and high frequency range, since each transistor, capacitor or resistor has different frequency response. Lux paid special attention to the relation between negative feedback and damping factor, and pioneered a quite new measurement on the damping factor, which made it possible to discriminate good transient distortion from bad one. Therefore the new measurement has been adopted for the M-4000 to improve its inherent characteristics and to give suitable amount of negative feedback. Thus the M-4000 is made up with high-grade techniques and unique ideas to obtain better tonal quality with minute investigation of each component.

We know the true measurements of minimum performance standards of a quality amplifier must be of a very high level.

However, these figures are not the only requirements.

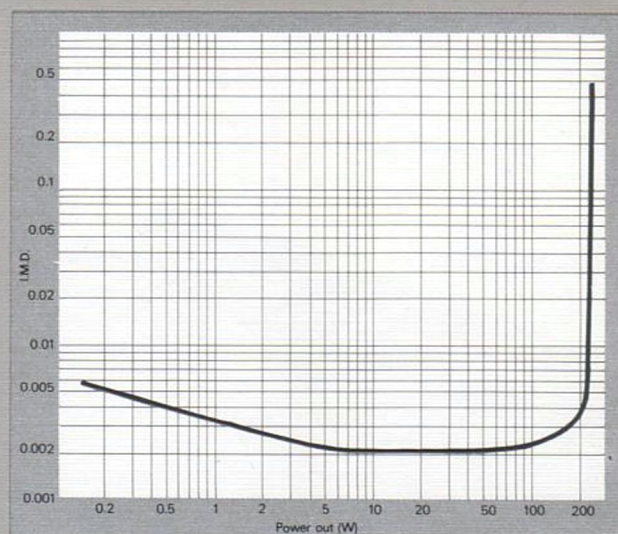
Despite every effort to make amplifier design a pure science one amplifier among many with similar absolute specifications can still have, relatively, far better sound quality.

The reason: there are more comprehensive theories of amplifier design which account for such problems as harmonic intermodulation, and notch distortion; stability, filters, and equalization as they relate to statements of power.

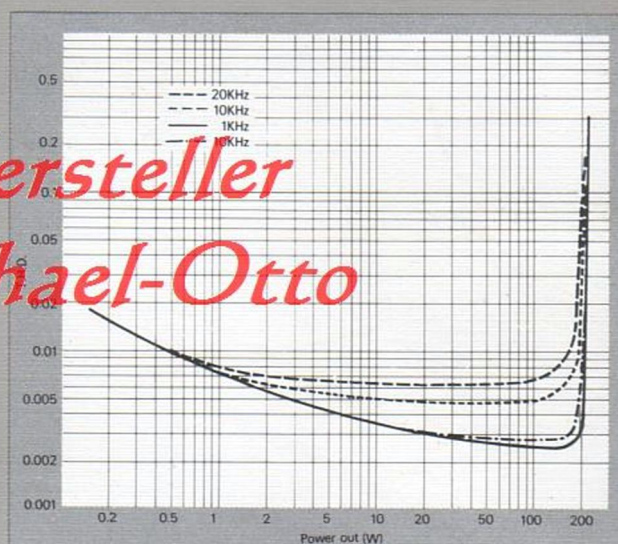
Whatever the scientific theory, LUX conducts the most detailed listening test with engineers and musicians in different fields to ensure that LUX amplifiers sound best apart from what is considered good in brochures.

To LUX, sound is not only a science but an art. Listen to the ultimate difference at your nearest audio shop.

I.M. DISTORTION (Output: 8-ohm loads, both channels driven)



TOTAL HARMONIC DISTORTION (Output: 8-ohm loads, both channels driven)



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SPECIFICATIONS

Power Output:	180 watts minimum continuous per channel, both channels driven into 8-ohm loads, from 20Hz to 20,000Hz, at no more than 0.05% total harmonic distortion
Rated I.M.:	No more than 0.05% (8-ohms, 180W/ch., 60Hz: 7KHz = 4 : 1)
Frequency Response:	3 – 100,000Hz
Input Sensitivity:	1V (8-ohms, 180W/ch., 1KHz)
Input Impedance:	50 Kohms
Residual Hum & Noise:	Better than 108dB
Crosstalk:	Better than 90dB (vol. max. 1KHz) Better than 70dB (vol. max. 20KHz)
Damping Factor:	100 (8-ohm loads)
Dimensions:	485(W) x 390(D) x 175(H)mm (19-1/8" x 15-3/8" x 6-7/8")
Weight:	Net. 28kgs (62 lbs.) Gross 31kgs (68 lbs.)

Specifications and appearance design subject to possible change without notice.

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