

input of 0 dBW (1 watt) of pink noise, 250 to 6,000 Hz, produces an average sound pressure level of only 81½ dB at 1 meter, so system efficiency is on the low side.

Power handling and freedom from distortion are first-class. Driven with a steady tone at 300 Hz, the Ohm accepts 20 dBW (100 watts) without audible complaint—producing, in the bargain, an SPL of 105 dB at 1 meter on axis. With pulses at the same frequency, the speaker sucks the test amp dry and produces a peak SPL of 113½ dB from a peak power of just under 28½ dBW (686 watts). At a power input capable of driving the system to an output of 100 dB SPL at 300 Hz, second harmonic distortion is below 3% virtually from 50 Hz to 10 kHz, with third harmonic distortion lower still across the same range. Rarely does either harmonic exceed 1% with a 0-dBW (1-watt) input. Generally, the third harmonic predominates up to about 1 kHz, the second taking over above that.

At first glance, the impedance rating of the Ohm L seems conservative. The nominal impedance measured by the lab is 5.25 ohms, as contrasted with the manufacturer's rated 4 ohms. From 20 Hz to about 7 kHz the impedance remains above its nominal value—with some marked excursions upward. From 7 kHz up, the curve falls and reaches a low of 3.6 ohms or so between 15 and 20 kHz. This high-frequency dip could give some amps a problem with one speaker per channel, particularly in the event (admittedly somewhat unlikely) that the program material has a lot of energy in this range. That being the case, we advise against operation of paralleled Ohm L pairs.

The omnidirectional anechoic frequency response of the Model L is generally smooth and is characterized by a broad dip of roughly 7 dB centered at about 1,200 Hz. Whether or not by design, the slopes of the curve toward this midrange dip are well matched to the contours achievable via normal tone controls, which means that a judicious cut in both bass and treble will just about eliminate the dip. The three-position switch controlling the

high-frequency level is an aid in this respect as well. It is most effective in the range of 7 to 12 kHz, where the rated 3 dB per step is met.

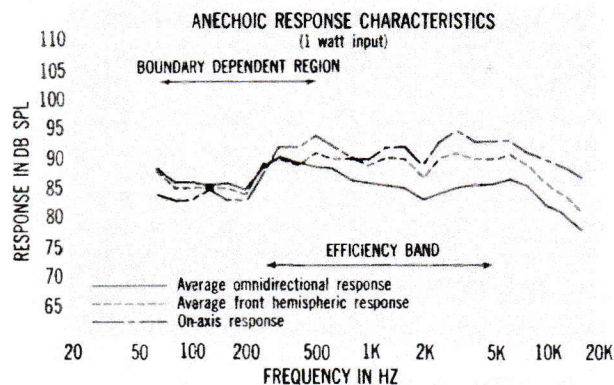
The front hemisphere curve generally parallels the omnidirectional, indicating that, while the tweeter is "hot" in the forward direction, dispersion at positions moderately off axis remains good. The irregularity of the on-axis curve above 1 kHz suggests that some roughness may be noticed by listeners seated precisely along this line.

In listening tests, the Ohm L's aspirations exceeded those expected of its price class by a notable margin. The overall sound is solid, yet transparent and detailed. Deep bass is tight and well controlled, with a sense of ease that is maintained to relatively high listening levels. The dip in the midrange seems to impart a slight hollowness to lower strings and male voices in particular, but not disturbingly so. Female voices sound incisive, while remaining safely short of edgy. Transients are sharp and crisp.

The rising high-end response and the tweeter's tendency to become beamy as it approaches the limit of the audio band can make the highs seem overbright, especially if one is seated on axis and the program material is loaded with high-frequency content. A touch of treble cut cures this handily, although it subdues the off-axis highs just a bit. Stereo imaging is excellent—to the point where the sound seems almost totally detached from the speakers.

Offering a big, high-quality sound in a fairly small, moderately priced package, the Ohm L strikes us as a particularly attractive speaker system. To be sure, it seems happiest with somewhat more power than is available in budget systems. But the speaker repays the few extra dB of drive it demands with impressive performance, and it is quite suitable for most types of music. Its idiosyncrasies are, moreover, easy to live with. From where we sit, Ohm appears to have another winner.

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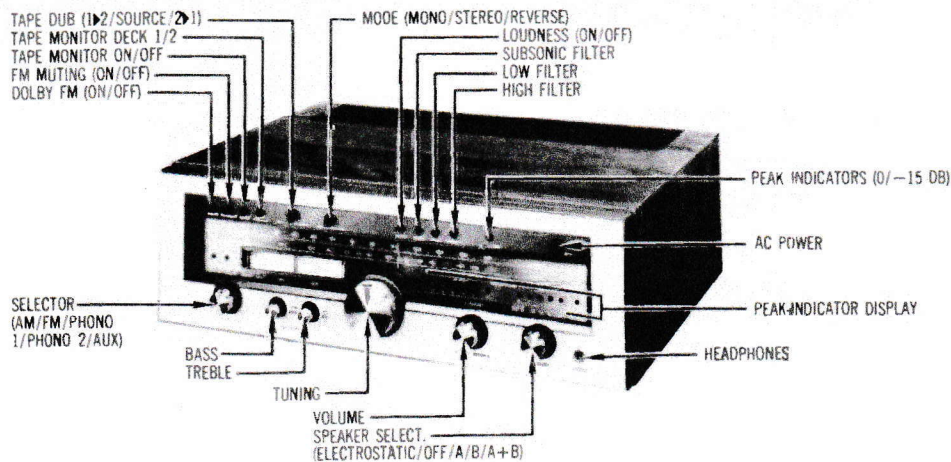
Luxman's "Tuner-Amp"—Getting It All Together

The Equipment: Luxman R-1120, a stereo FM/AM receiver in rosewood case. Dimensions: 19½ by 6¾ inches (front), 16½ inches deep. Convenience outlets: one switched (100 watts), one unswitched (100 watts). Price: \$895. Warranty: "limited," three years parts and labor. Manufacturer: Lux Audio, Japan; U.S. distributor: Lux Audio of America, 160 Dupont St., Plainview, N.Y. 11803.

Comment: When a company that has made its mark with

quality separates offers its first receivers, what does it call them? Lux Audio has chosen to avoid the term "receiver" and refers to its new products as "AM/FM stereo tuner-amplifiers" in the European style. The Luxman R-1120, at 20¾ dBW (120 watts) per channel, perches at the top of the new group and, like the Lux line in general, is as beautiful to behold as to hear.

Provision is made for two phono inputs and an auxiliary, as well as for two tape decks, and tape dubbing in either



direction is possible independent of the program being presented to the loudspeakers. Besides pin jacks for each tape recorder, a DIN in/out jack is available for the Deck 1 connections. Three speaker pairs may be wired to color-coded, spring-loaded terminals. (Interestingly, the third set of speaker terminals is designated exclusively for electrostatic panels.) A five-position rotary switch selects the electrostatic pair, either (or both) of the dynamic speakers, or no speakers at all. A six-LED array indicates the peak output power of each channel: -18, -15, -12, -9, -6 and 0 dB, referenced to either 20 $\frac{3}{4}$ dBW or 8 $\frac{3}{4}$ dBW (7.6 watts) into 8-ohm speakers. A back-panel slide switch quenches the display.

In addition to the 75- and 300-ohm FM antenna connections, there is one for an external long wire AM antenna. The AM bar antenna pivots well out and away from the chassis and delivers much better than average AM reception in our locale. A rear-panel slide switch attenuates the FM signal to prevent overload in extremely strong signal areas, but with the dual-gate MOS-FET front end, it's unlikely you'll ever need it.

In lab tests, the FM tuner is impressive, to say the least. Stereo quieting is pushed to 60 dB by only 45 $\frac{1}{2}$ dBf of input, which promises enjoyable listening in all but the deepest fringe areas. Selectivity should prove fine even for relatively crowded portions of the band. IM distortion is gratifyingly low, and THD (in the stereo mode especially) is excellent—much better than one might expect, considering the R-1120's selectivity. Surprisingly, the midband THD is even lower in stereo than in mono. The capture ratio is not quite as good as in less selective tuners—an almost inevitable compromise; frequency response and separation are very fine.

The power amp section, rated at 20 $\frac{3}{4}$ dBW per channel, seems somewhat more powerful on the bench. Clipping does not occur until 22 $\frac{1}{2}$ dBW (170 watts) and IM distortion stays low up to 23 $\frac{1}{2}$ dBW (228 watts). More than the 8-ohm rated power is available even into 16-ohm loads. THD remains below 0.05% throughout the audio band at any of our standard output levels. The adequate damping factor (47) stops short of the overkill found in some designs, and frequency response is down less than a decibel at 20 Hz and 100 kHz.

There are three filters, two at the low and one at the high end, all of them commendably sharp in their rolloff. The subsonic filter is useful in cutting record warp signals down to size and robs music of nothing; a second low-cut filter reduces the distraction caused by the rumble so many discs contain. (We doubt that anyone would mate a rumble-laden turntable with this excellent receiver.)

The phono preamp combines high sensitivity with a more than adequate overload point and low noise. Phono equalization is quite accurate, and signal-to-noise ratio, re-

ferred to a 10-millivolt input signal, is almost 91 $\frac{1}{2}$ dB on an unweighted basis.

The tone controls provide adequate range and reasonable flexibility—and then some. Two turnover frequencies are available on each control—200 or 400 Hz in the bass, and 2 or 4 kHz in the treble. The treble and bass themselves are rotary controls with center detents; the knob either pulls out or presses in to select the turnover frequency. At 100 Hz, the bass control offers a ± 6 dB or ± 11 dB range depending upon the choice; at 20 Hz, the range is about the same with either turnover (approximately ± 14 dB). The treble control delivers a ± 8 dB or ± 13 dB spread at 10 kHz. The loudness contour, however, struck us as bass heavy.

The phono preamp cooperated with our medium-impedance, high-output magnetic cartridge to produce a very clean, bright high end with excellent transients, depth, and center imaging. No signs of overload were detected on any disc we played, nor did we experience any lack of power capability. Larger-than-life sound levels were easily achieved with our medium-efficiency 8-ohm speakers without activating the 0-dB LED and without any audible sign of distress.

The FM tuner sounds as good as it looked on the test bench. The tuning action is smooth and somewhat light to the touch but with a tactile sense that the knob is going to spring back slightly when released. The dial is relatively long (8 $\frac{1}{2}$ inches), but its FM scale, with 1 MHz between divisions, is somewhat coarse, and on our sample the calibration was in error by almost 0.4 MHz in midband and more at the high end. Tuning and signal-strength meters are quite sensitive and, as far as we can tell, accurate.

Though the low switching threshold permits the R-1120 to enter the stereo mode on stations that are too weak for quiet reception, a threshold that is too low is better, in our view, than one that is too high—you can always switch manually to mono. The mute is effective (though on strong stations it releases with a mild thump). A Dolby-FM switch is on the front panel, but an optional Dolby-FM board (\$55) must be added to make use of this feature. Our only reservations concerning the human engineering of the R-1120 involve the array of buttons and switches above the dial: They are very small and not as well marked as we would like. We'd also prefer more legible graphics on the selector switch.

For such a powerful receiver, the R-1120 is compact and lightweight and remarkably cool in operation. There is an effortless quality to the sound that just radiates class, and the appearance of the product and its thoughtful constellation of features reinforce this impression. Here is a receiver—sorry, a tuner-amplifier—that the discerning listener will surely enjoy.

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Additional data on next page

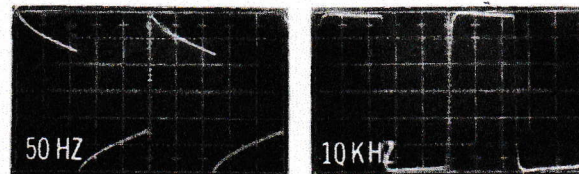
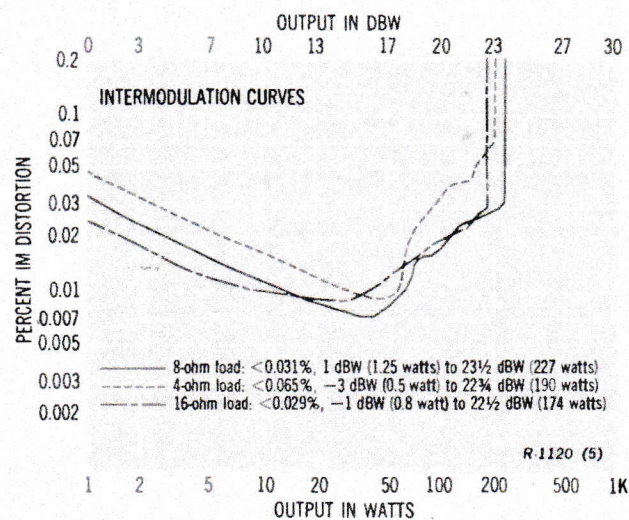
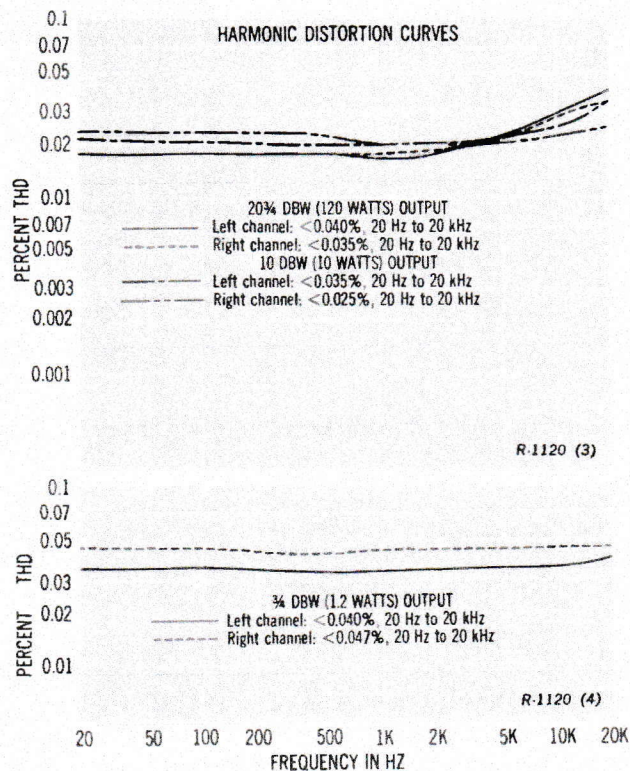
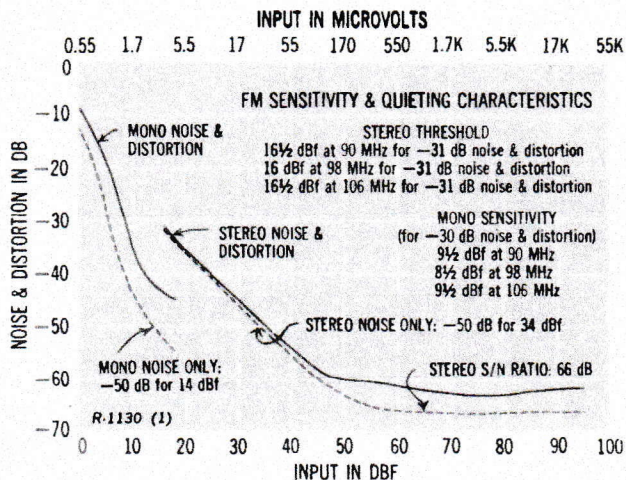
Luxman R-1120 Receiver Additional Data

Tuner Section

Capture ratio	1½ dB		
Alternate-channel selectivity	84 dB		
S/N ratio (mono, 65 dBf)	72 dB		
THD	Mono	L ch	R ch
80 Hz	0.21%	0.29%	0.30%
1 kHz	0.16%	0.065%	0.065%
10 kHz	0.19%	0.30%	0.32%
IM distortion	0.14%		
19-kHz pilot	-66½ dB		
38-kHz subcarrier	-68½ dB		
Frequency response			
mono	+ ½, -2¼ dB, 20 Hz to 15 kHz		
L ch	+ ¼, -2¼ dB, 20 Hz to 15 kHz		
R ch	+ ¾, -2 dB, 20 Hz to 15 kHz		
Channel separation	>45 dB, 120 Hz to 1.8 kHz		
	>35 dB, 20 Hz to 7 kHz		

Amplifier Section

Power output at clipping (channels driven simultaneously)			
L ch	22¼ dBW (170 watts)		
R ch	22¼ dBW (170 watts)		
Frequency response	+ ¼, -¾ dB, 20 Hz to 100 kHz		
	+ ¼, -1 dB, 10 Hz to beyond 100 kHz		
RIAA equalization	± ¾ dB, 20 Hz to 20 kHz		
Input characteristics (for rated output at full gain)			
	Sensitivity	Noise	S/N ratio
phono 1, 2	1.7 mV	-55¼ dBW	76 dB
aux	110 mV	-61¼ dBW	82½ dB
tape 1, 2	110 mV	-66¼ dBW	87½ dB
Phono overload (clipping point)	200 mV at 1 kHz		
Damping factor at 1 kHz	47		
Subsonic filter	-3 dB at 15 Hz; 6 dB/oct.		
Low filter	-3 dB at 80 Hz; 12 dB/oct.		
High filter	-3 dB at 7 kHz; 12 dB/oct.		



For more reports on equipment, see BACKBEAT.