Marantz Stereo Preamp and Amplifier

SPECIFICATIONS (furnished by manufacturer): The Model 7 preamplifier is a self-powered stereo unit providing complete versatility, with selector positions for microphone as well as two separate magnetic phono cartridges and tape head. The mode switch permits paralleling the two halves of a stereo cartridge for monophonic records. **Frequency response:** ±0.5 db 20 to 20,000 cycles. **Noise:** 80 db below 10 mv phono input in audible range. **Price:** $249.; cabinet $24.

The Model 5 power amplifier is conservatively rated at 30 watts ultra-linear operation; 60 watts peak. **Sensitivity:** 1.3 volts for 30 watts output. **Frequency response:** at 30 watts, ±0.1 db 20 to 20,000 cycles. **IM distortion:** of a typical amplifier, 0.28% at 30 watts. **Feedback:** 20 db over-all. **Hum:** 90 db below 30 watts. **Price:** $147.; grille, $7.50. **MANUFACTURER:** Marantz Co., 25-14 Broadway, Long Island City 6, N. Y.

At a glance: The Marantz Model 7 Stereo Console, like the original Marantz monophonic control unit, is noteworthy for its extremely low distortion and noise level, and its superior construction.

The Model 5 Power Amplifier, like the well-known 40-watt Marantz power amplifier, has almost unmeasurably low distortion and noise levels, very conservative power ratings, and a caliber of construction which suggests that it can operate almost indefinitely without needing replacement or major service.

In detail: The Marantz Model 7 Stereo Console, although it has practically every operating feature which might be desired in a stereo control unit, is straightforward and easy to operate.

On the left side of the panel are the four basic controls: input selector, mode selector, volume, and balance. On the right side of the panel are the four tone controls, which are eleven-position switches instead of the usual continuously variable type. In the center are four lever type switches for rumble and hiss filters, record equalization, and tape playback monitor. A heavy-duty slide switch, rated at 15 amperes, controls power to the Model 7 (which has a built-in power supply), and to five of the six AC convenience outlets on the rear of the unit. The sixth outlet is permanently energized to connect to a turntable—which should, of course, be turned off with its own switch.

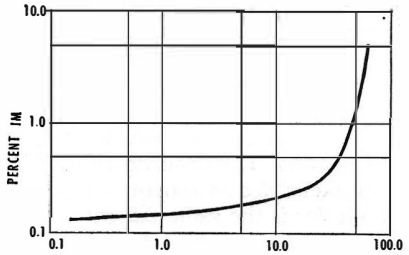
The selector switch has eight positions, for microphone, two magnetic phono cartridges, tape head, FM-AM tuner, FM multiplex input, TV sound, and AUXILIARY. Full stereo operation is possible on all inputs. Two parallel-connected amplifier outputs can be mixed to drive a third amplifier for center-fill. A third pair of outputs is taken off ahead of volume and tone controls to make tape recordings.

In addition to Stereo and Stereo Reverse, the MODE switch offers three monophonic modes of operation. Either channel A or channel B may be fed to both amplifiers, or their signals may be added in the A+B position, to eliminate vertical rumble when playing mono records.

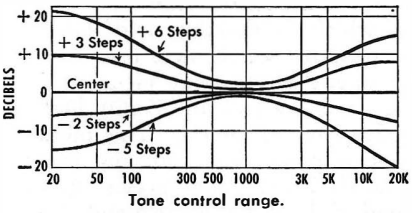
The balance control allows either channel to be completely cut off, at which time the level of the other channel is raised by 2.5 db. As a result, when the balance control is used there is no change of level to be heard, merely a shift of apparent sound source from left to right or vice versa.

The two sections of the ganged volume control are individually tested by Marantz for tracking, so that the balance does not change by more than 2 db down to 65 db attenuation.

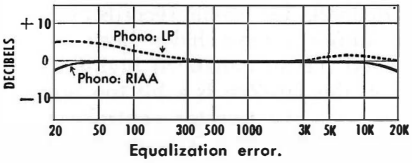
The rumble filter provides an OFF position and two positions of cutoff, at 50 and 100 cps. The hiss filter has an OFF position and two cutoff frequencies, 5 kc and 9 kc. The phono equalization is inherently RIAA, but one of the front-panel lever switches allows this to be changed to the old Columbia LP characteristic, or to one having little high-frequency rolloff, for early 78-rpm discs. In the tape head position of the input selector, NARTB tape playback equalization is used. Each channel has an adjustment on the rear of the unit to vary the tape playback equalization around the ideal NARTB curve for tape machines requiring such corrections.



IM distortion vs. output watts.

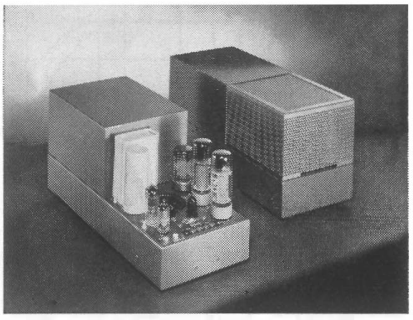


Tone control range.



Equalization error.

Each channel also has an output level adjustment on the rear of the preamplifier, to compensate for speaker systems of widely different efficiencies, or when very high-gain power amplifiers are used. These controls also reduce the noise level of the signal supplied to the power amplifiers, though this seems to be a rather academic consideration in view of the performance of the Model 7.


Marantz quality—still outstanding.

Finally, a binding post terminal is provided on the rear of the Model 7 for making all system ground connections. This is a vital consideration in stereo systems to reduce hum, yet so far as we know only Marantz has made it a simple matter to ground the turntable chassis, tone arm, etc. without additional soldering operations.

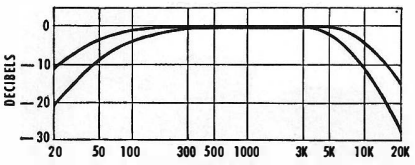
Test Results

The tone control characteristics are of the sliding inflection point type, which have relatively little effect on mid-frequencies when used in moderation. Marantz recommends the use of the tone controls for loudness compensation, and no ordinary loudness control is provided. The switch-type tone controls offer the advantage of complete re-settability, and the curves in the instruction booklet show the response for all positions of the controls. These curves agree perfectly with our measured data.

RIAA and NARTB equalization characteristics agree exactly, within the limits of measurement error, with the theoretical curves. The Columbia LP characteristic appeared to have slightly more response at very low frequencies than it should have. We were most impressed to find that all equalization characteristics were matched on the two channels to within 0.2 db at all frequencies.

The IM distortion was about 0.1% up to 3 volts output, which is close to the residual distortion in our measuring equipment. It rose gradually above this output level, becoming 0.2% at 10 volts. For all practical purposes, the Model 7 is distortionless.

We checked the volume control tracking down to −40 db, and the gains of the two channels never differed by more than 0.2 db. Here again, as has so often happened when we test Marantz equipment, we are limited by the normal errors inherent in test instruments.



Rumble and scratch filter(s) response.

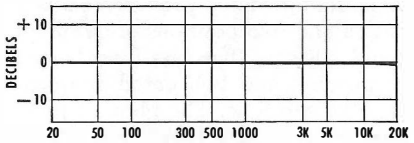
The gain of the Model 7 is extremely high, and only 50 millivolts are needed to develop 1 volt output from the AUX or other high-level inputs. On the phono input a 0.4 millivolt input develops 1 volt output. At full gain (which could not be used even with the lowest output magnetic cartridges), the hum and noise level on PHONO was about 50 db below 1 volt. This would be a respectably low hum level on almost any other preamplifier, but when the gain is reduced to a more practical level the hum falls to —78 db—which is totally inaudible under any listening conditions. On the high level inputs the hum is better than —80 db at any gain setting.

Model 5 Power Amplifier

The Model 5 is a basic power amplifier, with no controls other than screw-driver adjustments for bias on the output tubes (a pair of EL-34s). Two inputs are provided: one going directly to the grid of the input stage and the other through a filter which rolls off response below 20 cps to prevent speaker damage due to subsonic signals such as switching transients.

The outputs are for 4-, 8-, and 16-ohm loads, with a damping factor of 20. Instructions are given for making a simple change in the internal wiring to obtain damping factors of ½, 1, or 2 if this is desired.

As with the original Marantz 40-watt amplifier, a meter is built in so that the output tubes can be balanced as required. As with the older unit, one must be careful to avoid getting burned on the very hot output tubes, due to the location of the adjustments adjacent to the EL-34s. Fortunately this adjustment is not likely to be required very often. The oil-filled input filter capacitor and telephone-quality electrolytic filter capacitor which characterized the 40-watt amplifier are also in evidence on the Model 5, and they as well as the tubes are operated well below ratings. Their life should be practically indefinite.



Frequency response.

The frequency response of the Model 5, between 20 and 20,000 cps, is flat enough to be drawn with a straight edge. Less than 1 db of loss is introduced at 20 cps when going through the filtered input.

The power response is practically as flat as the frequency response. This means that the full steady stated power output of about 32 watts with no clipping of the waveform can be obtained down to below 20 cps and that the 30-watt rating is met at 20,000 cps as well. The power output of the Model 5 into a 3-mfd capacitive load (simulating a wide-range electrostatic speaker) was 20 watts at 10 kc. The fact that two-thirds of its rated power was available under these conditions is noteworthy, since few if any amplifiers we have tested will develop as much as one-half rated power under this admittedly stringent test.

Measuring distortion in a Marantz amplifier has always been a challenge and the Model 5 is no exception. At 1 kc the harmonic distortion is below the residual of our test equipment (0.06%) up to 30 watts, after which it rises sharply, reaching 0.3% at 40 watts. At 20 cps, our residual distortion was 0.1%, which was not exceeded until 7 watts output was reached. This, too, rose to 0.3% at 40 watts output. The IM distortion was measurable, but very low throughout the range of outputs up to 30 watts, where it reached 0.3%. At 50 watts output the IM was only 1%. Since many amplifiers are power-rated at 2% IM, one appreciates the conservatism of the Model 5's 30-watt rating.

The hum level was 88 db below 10 watts output with open circuited input, and better than 90 db below 10 watts with a low-impedance source driving the amplifier. The damping factor measured at 19. The amplifier was rock-stable under all conditions of capacitive loading. —H. H. Labs.

Z-400 Speaker System With Woofer and JansZen Electrostatic Tweeters

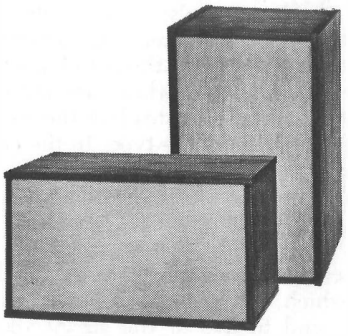
SPECIFICATIONS (furnished by manufacturer): a full-range bookshelf speaker system consisting of the JansZen two-radiator electrostatic tweeter and the Model 350 cone woofer, in a totally sealed enclosure. **Frequency range:** 30 cps to beyond 30,000 cps. **Crossover frequency:** 1,000 to 2,000 cps. **Type of network:** LRC high-pass filter for tweeter; mechanical rolloff on woofer. **High frequency dispersion:** 60 degrees. **Power consumption** (tweeter power supply): 2 watts. **Impedance:** 8 ohms. **Power capability:** 50 watts program. **Finish:** birch, mahogany, oil walnut, walnut, unfinished. **Price:** $134.50 to $149.50. **MANUFACTURER:** Neshaminy Electronic Corp., Neshaminy, Pa.

At a glance: The Z-400 provides the same wide-range, low-distortion output as JansZen's well-known Z-300, but is a more compact and versatile system. The Z-400 can be placed on a shelf or on the floor—either along a wall or in a corner. Two units, paired for stereo, provide fine quality at a reasonable price.

In detail: The Z-400 is a version of the Z-300 scaled down only in the physical sense; it has been reshaped to satisfy the current demand for bookshelf speakers. The acoustic aspects of the speaker's design remain the same. The interior is the same 2.2 cubic feet as the JansZen Z-300. The woofer is the same Model 350 long-excursion unit as in the Z-300. And the tweeter, for which Neshaminy and JansZen are perhaps best known, uses two of the square electrostatic elements.

On the low end, the Z-400, like its predecessor, is superb. The middle-range response is smooth and evenly blended. From 2,000 cycles up the sound of the Z-400 is crisp and sharply defined. On some records, where the upper ranges have been exaggerated for an enhanced high-fidelity effect, the JansZen is a bit too bright, even with the tweeter control set at minimum. But this is certainly not a fault of the speaker, and is a condition which usually can be corrected with tone controls.

On the most dependable of all source material—first generation tapes —the Z-400 sounds open, transparent, and crystalline throughout its range.


A well-balanced speaker system.

Considered as a whole, the Z-400, when fed properly equalized source material, is excellently balanced, and sounds full and natural.

MANUFACTURER'S COMMENT: Since the introduction of the first Model 130 tweeter in 1955, the JansZen Electrostatic has been designed and produced to deliver the full musical spectrum acoustically flat from 1,000 cycles to above 20,000 cycles with no attenuation and less than ½% distortion. In the Z-400, the same unusually wide, smooth range is obtained in a complete loudspeaker system selling for less than the original tweeter alone.