

MAC 1900  
SOLID STATE  
RECEIVER



# 1900

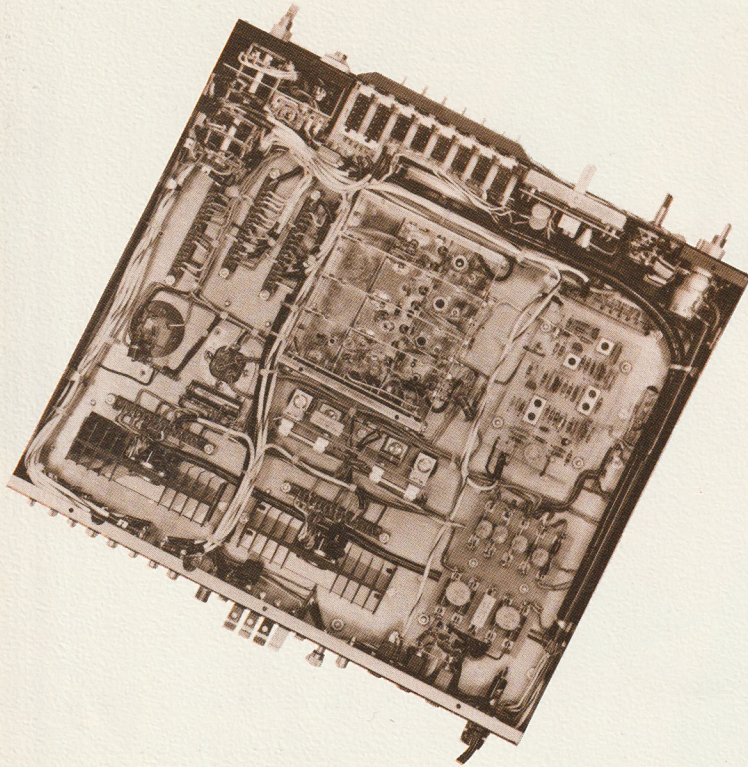
THE MAC 1900 SOLID STATE AM-FM/FM STEREO RECEIVER

THE McINTOSH  
**MAC 1900** is

THE BEST STEREO RECEIVER BECAUSE - - -

- you get more pure pleasure
- you get more value
- you get more protection from service costs
- you get more electronic protection
- you get more real power
- you get more useful flexibility
- you get more results from new technology





The continuous McIntosh research and development program leads to new, innovative, and exciting advances in contemporary stereo. The MAC 1900 is one of the products of this program. Many years of research and experimentation have finalized in a receiver that has many startling performance improvements - NEW FM circuits, NEW AM circuits, NEW flexibility in pre-amplifier and outstanding performance in a power amplifier.

#### **NEW FM CIRCUIT DESIGNS**

A dual insulated gate metal oxide silicon field effect transistor (MOS-FET) is used as the first and second RF amplifier. The MOS-FET greatly reduces the cross-modulation products over a wider dynamic range when compared with ordinary receivers. A wider dynamic range permits the input circuits to accept extremely strong signals without overload. Up to 12 RF volts can be fed to the antenna input without overload or increase in distortion! The McIntosh design results in a very stable RF amplifier circuit.

McIntosh has developed a special detecting circuit used in the multiplex section. A particular advantage of the circuit is the elimination of the critical adjustments necessary with commonly used matrixing circuits. The circuit detects the L-R sidebands, then automatically matrixes the recovered information with the L+R carrier signal. This yields the left and right program output with maximum separation.

Ultrasonic muting makes FM tuning easier. FM muting operates by detecting ultrasonic noise which is present when tuning between stations or when receiving a weak station. The muting circuit can be activated or defeated by the use of the muting button on the front panel.

#### **NEW AM CIRCUIT DESIGN**

Completely NEW, superb AM circuit design that has linear sensitivity and linear frequency response over the entire AM Band. The NEW AM circuits have been designed for high sensitivity and excellent dynamic range. The NEW AM circuit will not be overloaded by strong local stations yet has the sensitivity to receive distant and weak stations with minimum noise. Frequency response has been carefully tailored to receive the maximum quality with minimum noise from all stations regardless of location on the band.

The high quality, high sensitivity ferrite loopstick antenna is carefully tuned and trimmed to match each individual MAC 1900. After the individual matching process, the antenna is sealed to preserve the superior performance introduced by matching the antenna to each receiver. McIntosh engineers have revived the lost art of designing a superb AM circuit that really brings in the stations.

#### **NEW FLEXIBILITY IN A PREAMPLIFIER/POWER AMPLIFIER**

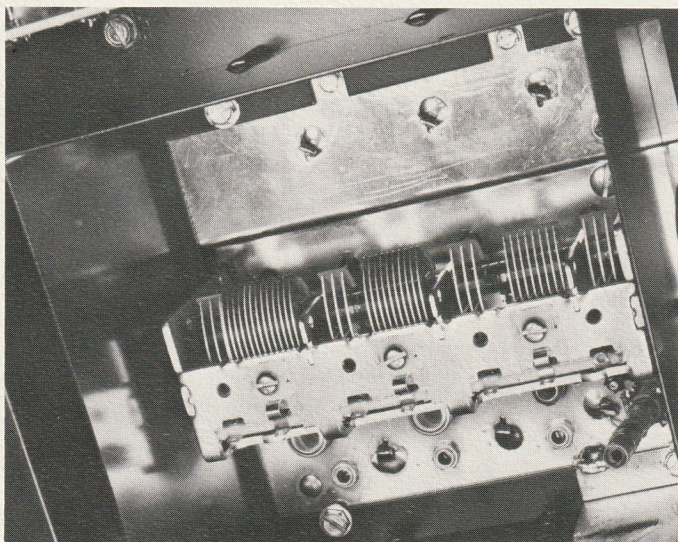
The preamplifier is an outstanding example of what the electronic designers have done to provide for highest quality with great flexibility in a space limited housing. It has unusually low noise and low distortion. The high gain will produce maximum results even from the lowest output phono cartridges. In spite of its excellent input sensitivity it is difficult to overload. Two millivolts at the phono input will drive the MAC 1900 to full output, yet 150 millivolts at the phono input will not overload the preamplifier stages.



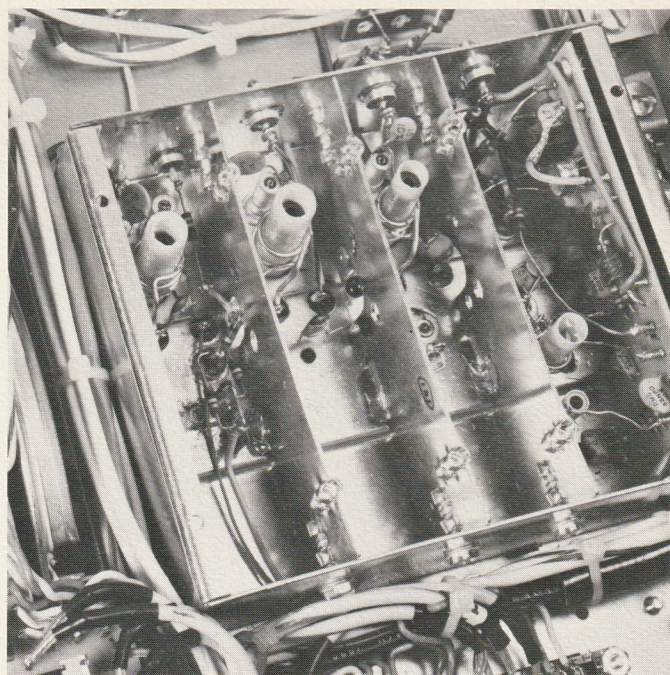
The flexibility of the MAC 1900 includes the ability to play or record, and monitor on two tape recorders. Two, 3-head tape recorders can be controlled for both recording and instantaneous monitor playback by using front panel pushbuttons. Slider bass and treble controls make it easy to adjust tone balance for the listening requirements of any particular room. A slight detent in the center position allows quick setting for flat response.

The low distortion and high stability of the MAC 1900 power amplifier circuit drives any type of dynamic or electrostatic speaker system to optimum performance. The McIntosh output circuit, with instantaneous current limiting protection, makes the MAC 1900 totally protected from output short circuits, open circuits and overloads. Additional protection is provided by temperature sensing devices on each output heat sink. The MAC 1900 will perform reliably under the most rigorous operating conditions. The reserve power and complete protection of the output circuit allows safe operation with as many as three pairs of speakers, individually or *all together*. The MAC 1900 has complete front panel switching for three stereo loudspeaker systems of any type --- dynamic or electrostatic!

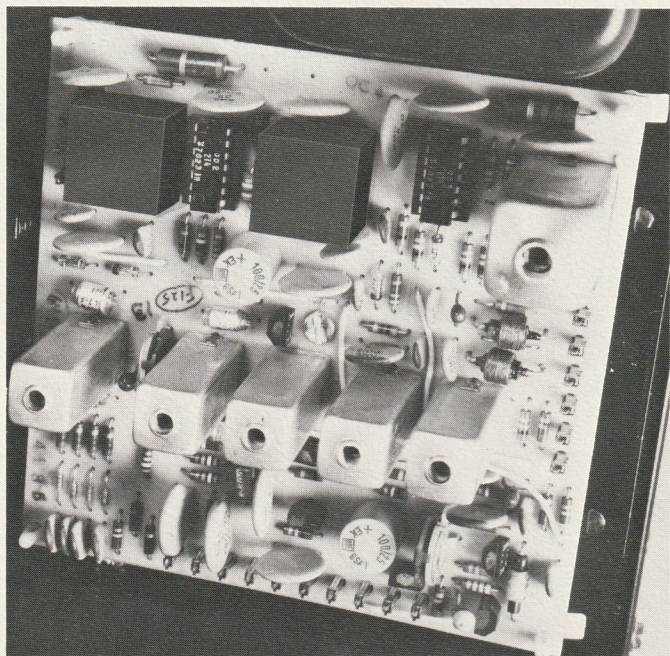
Then to make the value greater, when you buy a McIntosh Audio MAC 1900 you can get a free 2 YEAR FACTORY SERVICE CONTRACT! For two full years it will cost you absolutely nothing for parts or labor for any repair to your MAC 1900. The outstanding feature of a McIntosh Factory Service Contract is that it covers wear and tear as well as any manufacturing defect. You're always a winner when you buy McIntosh.



You can tune weak, distant stations that are next to strong local stations easier. The MAC 1900 uses a seven section variable capacitor as the heart of the RF section. Four sections of the variable capacitor are used for FM and three in the AM section. By interleaving the sections (FM-AM-FM-AM, etc.) spurious responses are significantly reduced and selectivity is substantially improved.

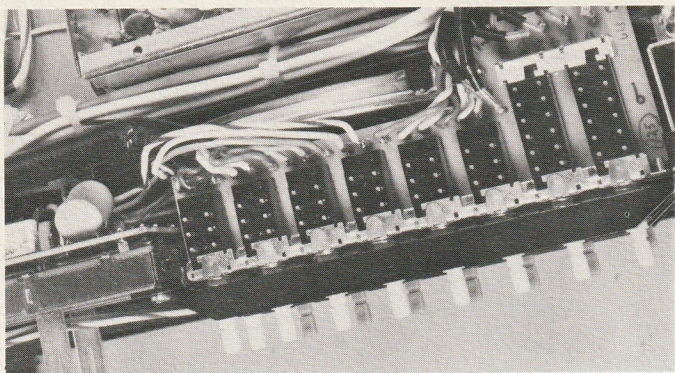


The RF circuits of the MAC 1900 exceed the FCC requirements for suppression of oscillator radiation. Within the metal module each RF section is separated by metal shielding. This extensive shielding protects against radiation or interferences.

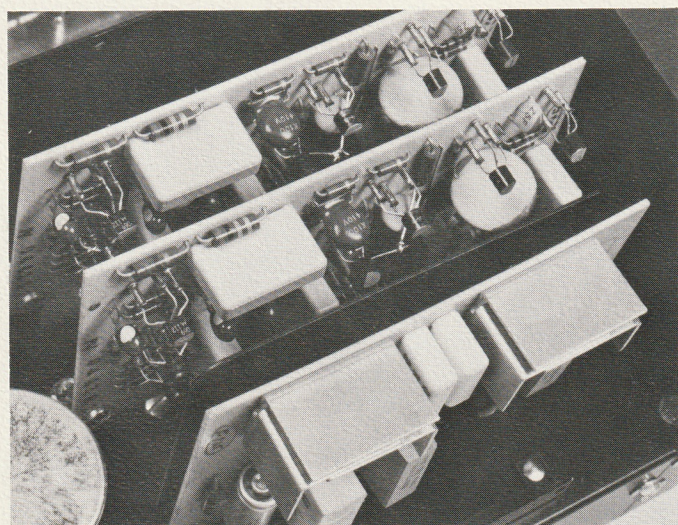


The QUAD-TUNED IF filter provides unusual adjacent channel selectivity and low distortion that's well below any receiver produced previous to this development. The QUAD-TUNED IF filter has equal time delay in its pass band region. Any error in time delay causes FM distortion. All other IF filters have delay distortion, some as much as 100% of the 10.7 MHz transit delay. The MAC 1900 has less than 1.0% delay distortion from antenna input to discriminator output! This makes possible the overall low distortion performance limit for the FM tuner and multiplex section.

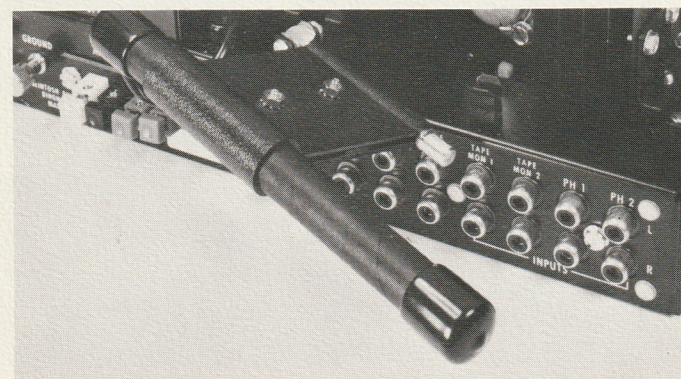




Excellent flexibility makes the MAC 1900 easier to set up! Selector pushbuttons make it simple. Use two tape recorders, 3 stereo speaker systems, choose from seven modes of operation plus loudness compensation, muting, high and low filters.

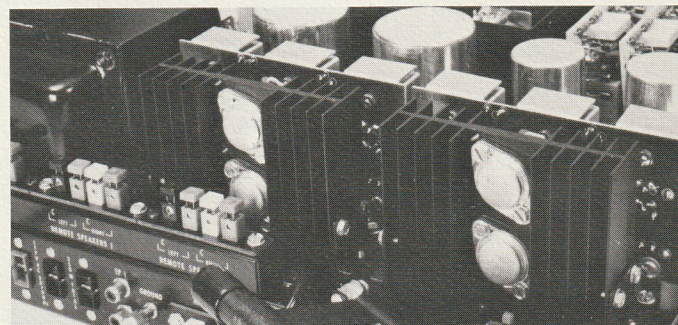


Each channel of the preamplifier is assembled on a single plug-in high grade, low noise printed circuit card. Each card has a phono, high level and filter amplifier. A large quantity of negative feedback reduces noise and distortion around the phono amplifier and provides precision RIAA frequency compensation for phonograph records.



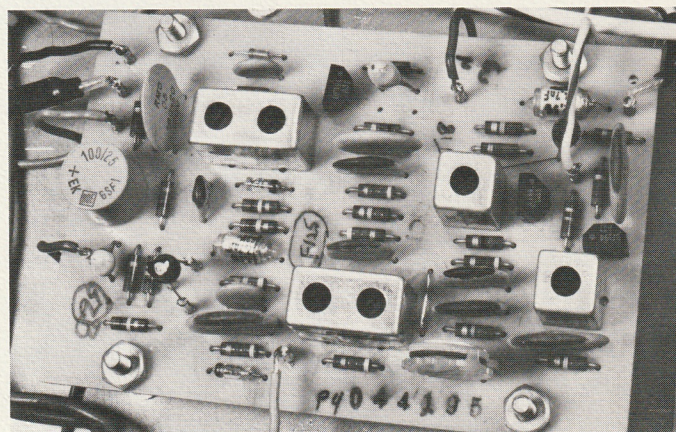
You use and hear AM as never before. In addition to completely new AM circuit design the MAC 1900 has a high-quality loopstick AM antenna. It can be rotated

for maximum performance, optimum signal rejection and minimum interference. In each MAC 1900 the loopsticks are individually tuned to each receiver for optimum performance. This custom matching of the loopstick to the AM-RF front end of each individual tuner maximizes the performance of the MAC 1900. You can mount the receiver in any position without the sacrifice of any of the sensitivity of the AM antenna.



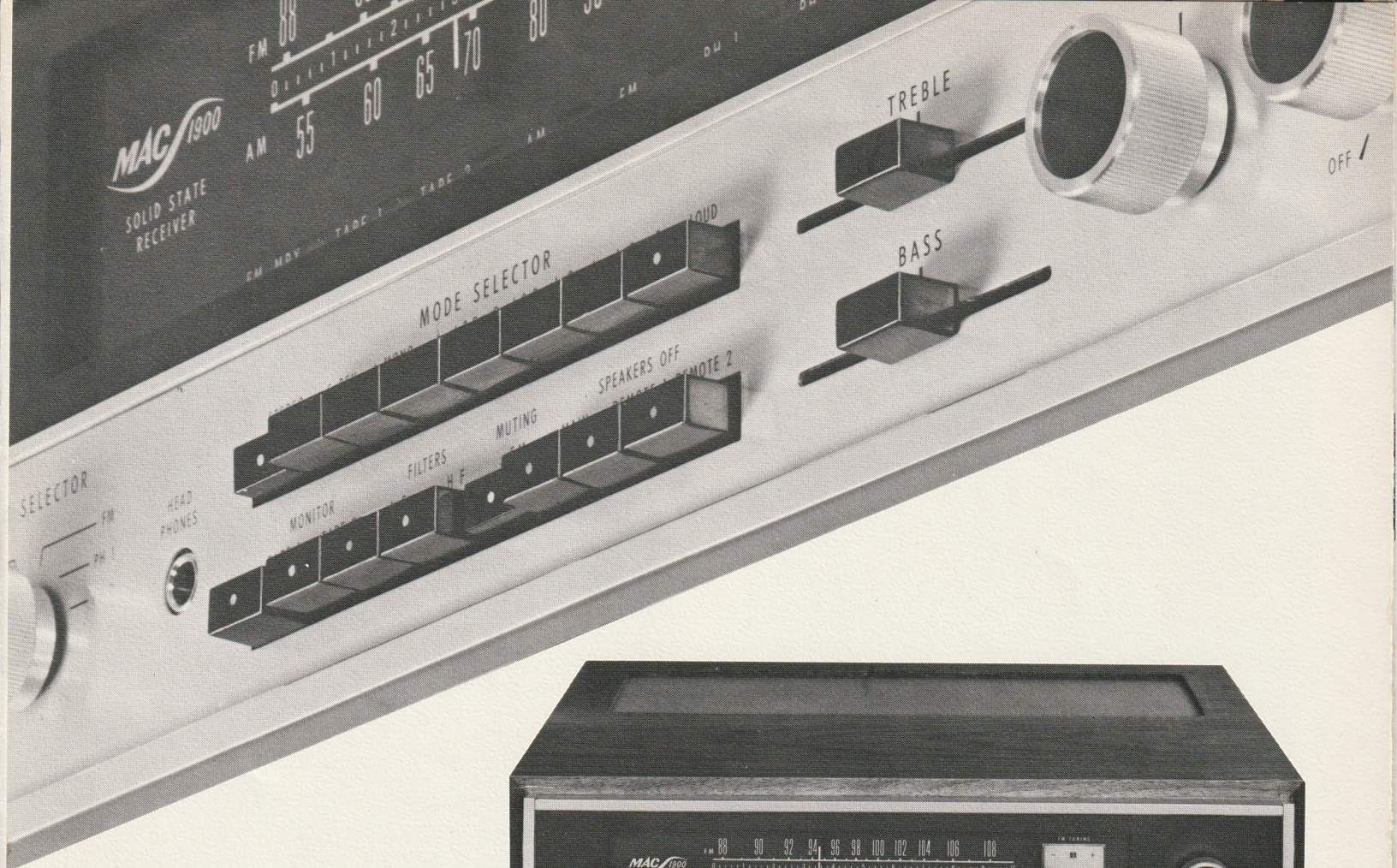
You have more real power and more protection in the MAC 1900. The power transistors are mounted on oversized black anodized heat sinks to assure that under normal operation the transistors will operate at low temperature. The power transistors used in the output circuits are selected for their high power dissipation capability, wide frequency response and large "safe operating area."

The excellent low noise characteristics of the MAC 1900 begin with the power supply. Hum and ripple reduction have been major design considerations on the MAC 1900 power supplies. Electronically regulated power supplies are low impedance series regulated transistor circuits using tight tolerance zener diodes as references.



Gone are the days of difficult tuning at the upper end of the AM band. A new McIntosh engineering development has produced a circuit that has *equal* sensitivity across the entire AM band. Low sensitivity at the low end of the band has been eliminated. The MAC 1900 has the same high order of selectivity image rejection from one end of the AM band to the other. McIntosh has submitted a patent application in this new and superior AM tuner circuit. It is completely unique in AM receiver design.





MAC 1900 \$799.00 Cabinet \$29.00

### FACILITIES AND FEATURES

**BASS:** Slide control with mechanical detent for flat response

**TREBLE:** Slide control with mechanical detent for flat response

**LOUDNESS:** Pushbutton. . .for loudness compensated or flat response

**BALANCE:** Natural balance at center position attenuation of left or right channel by rotating control

**VOLUME:** Precision "tracked" at all listening levels. (0 to -65 dB.) Does not change stereo balance as loudness is changed. The AC power ON/OFF switch is coupled with this control

**INPUT:** Six positions-TAPE 1, TAPE 2, AM, FM, PHONO 1, and PHONO 2

**MODE:** Pushbutton-Left channel only to both speakers. Right channel only to both speakers, Stereo Re-

verse, Stereo, Mono. L+R, L+R to right speaker only, and L+R to left speaker only

**TAPE MONITOR:** Two pushbutton switches. Either of two tape recorders can be monitored by selecting the TAPE MON. 1 pushbutton or TAPE MON. 2 pushbutton. They are mechanically interlocked to accept only one pushbutton at the IN position at one time

**SPEAKER:** MAIN-Switch the main loudspeaker system ON or OFF without affecting the performance of REMOTE speakers

REMOTE 1 - Switch one remote loudspeaker system ON or OFF without affecting the performance of the MAIN or REMOTE 2 speakers

REMOTE 2 - Switch a second remote loudspeaker system ON or OFF without affecting the performance of MAIN or REMOTE speakers

**HEADPHONE JACK:** For listening with low impedance dynamic stereo headphones



## PERFORMANCE LIMITS

**Performance Limits** are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that your MAC 1900 must be capable of performance at or exceeding these limits or you get your money back. McIntosh is the only manufacturer that makes this guarantee.

### FM

**USEABLE SENSITIVITY:** 2.5 microvolts at 100% modulation ( $\pm 75$  kHz deviation) for 3% total noise and harmonic distortion

**SIGNAL TO NOISE RATIO:** 70 dB below 100% modulation

**HARMONIC DISTORTION:** Mono: Does not exceed 0.3% at 100% modulation  $\pm 75$  kHz deviation

Stereo: Will not exceed 0.7%

**FREQUENCY RESPONSE:**  $\pm 1$  dB 20 Hz to 15,000 Hz with standard de-emphasis (75  $\mu$ s)

**CAPTURE RATIO:** 1.8 dB

**SELECTIVITY:** 55 dB alternate channel selectivity

**SPURIOUS REJECTION:** 90 dB

**IMAGE REJECTION:** 80 dB; 88 to 108 MHz (IHF)

**STEREO SEPARATION:** 34 dB at 1,000 Hz

**SCA FILTER:** 50 dB rejection from 67 kHz to 74 kHz, 275 dB per octave slope

### AM

**SENSITIVITY:** 75  $\mu$ V (external ant.)

**SIGNAL TO NOISE RATIO:** 45 dB minimum; 55 dB at 100% modulation

**HARMONIC DISTORTION:** Does not exceed 1% at 30% modulation

**FREQUENCY RESPONSE:** 3500 Hz at  $-6$  dB down

**ADJACENT CHANNEL SELECTIVITY:** 30 dB minimum IHF

**IMAGE REJECTION:** 65 dB minimum, 540 kHz-1600 kHz

### PREAMPLIFIER AND POWER AMPLIFIER

**POWER OUTPUT:** 55 Watts continuous, per channel, both channels operating which is:

14.8 volts RMS across 4 ohms

21.0 volts RMS across 8 ohms

or 30 watts continuous, per channel, both channels operating which is:

21.9 volts RMS across 16 ohms

**HARMONIC DISTORTION:** Will not exceed 0.25% at any power level up to rated power output from 20 Hz to 20,000 Hz with both channels operating. Typical performance is less than 0.1% at rated power. Distortion decreases as output power is reduced

**INTERMODULATION DISTORTION:** Will not exceed 0.25% if instantaneous peak power output is twice rated power or less per channel with both channels operating for any combination of frequencies 20 Hz to 20,000 Hz

**DAMPING FACTOR:** 50 with 8 ohm load

**FREQUENCY RESPONSE:**  $\pm 0.5$  dB 20 Hz through 20,000 Hz

**INPUT SENSITIVITY AND IMPEDANCE:** Power Amplifier: 2.5 volts, 100,000 ohms; Phono 1 and Phono 2: 2.0 mV, 47,000 ohms; Tape 1 and Tape 2: 250 mV, 250,000 ohms

**TOTAL NOISE:** Power Amplifier: 95 dB below rated output; Tape Input: 90 dB below rated output; Phono Input: 76 dB below 10mV input

**PREAMP OUTPUT:** 2.5 volts with rated input

**TAPE OUTPUT:** from Tuner: 1.0 volt; from Tape: 250 mV with rated input from low level inputs; from Phono: 1.2 volts with 10 mV input at 1,000 Hz

**BASS CONTROLS:**  $\pm 16$  dB at 20 Hz

**TREBLE CONTROLS:**  $\pm 16$  dB at 20,000 Hz

**L.F. FILTER:** Active filter, 12 dB per octave roll off below 50 Hz, down 18 dB at 20 Hz

**H.F. FILTER:** Active filter, 12 dB per octave roll off above 7,000 Hz, down 18 dB at 20,000 Hz

### GENERAL

**POWER REQUIREMENTS:** 120 volts, 50/60 Hz, 40 watts at zero signal output, 300 watts at rated output

**TRANSISTOR COMPLEMENT:** 53 silicon field effect or bipolar transistors, 39 diodes, 3 integrated circuits, 4 thyristors.

### MECHANICAL INFORMATION

**SIZE:** Front panel measures 16 inches wide (40.64 cm) by 5½ inches high (13.97 cm). Chassis measures 15 inches wide (38.1 cm) by 5½ inches high (13.02 cm) by 15 inches deep (38.1 cm) including back panel connectors. Knob clearance required is 1½ inches (3.81 cm) in front of the mounting panel

**FINISH:** Front panel is anodized gold with black

**WEIGHT:** 33 pounds (14.97 kg) net, 46 pounds (20.87 kg) in shipping carton

FRANCHISED DEALER

**McIntosh AUDIO DIVISION**

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038-705

**Ceretti**