

McIntosh[®]

THE GREAT AMERICAN POWERHOUSE

MC2000 TUBE POWER AMPLIFIER
NEW MILLENNIUM EDITION
• LIMITED PRODUCTION •



Designed by Sidney A. Corderman





The MC2000 New Millennium Edition Tube Power Amplifier is the crowning achievement of legendary McIntosh designer Sidney Corderman. Responsible for some of the world's greatest tube amplifiers, Mr. Corderman has saved his best for last.

Equal parts new and venerable technology, the MC2000 commemorates the 50th anniversary of McIntosh Laboratory. Behind its stunning facade, rich materials, and meticulous engineering is a powerful dual monoblock amplifier that delivers 130 watts per channel with extremely low distortion.

Every detail – the ceramic tube sockets with air-pipe cooling, the polyester capacitors, the “kid gloves” that protect the hand-rubbed gold finish – contributes to an ownership experience not likely to be surpassed.

A small plaque on the amplifier pays tribute to Mr. Corderman. After registering, owners receive a certificate of authenticity that indicates their model's production number and the total number of models produced.

The 21st century promises fundamental changes in technology and manufacturing. But as the MC2000 so emphatically states, McIntosh products will forever be distinguished by a completeness of design, implementation, and craftsmanship rivaled by no others.



Sidney A. Corderman

A BRIEF HISTORY

Frank McIntosh, Gordon Gow, and Maurice Painchaud formed the original McIntosh Engineering Laboratory. Their goal: produce the first High Fidelity audio power amplifier – one that would reproduce the entire audio range (20Hz-20kHz) with low distortion.

The McIntosh 50W1 made its debut in 1949. It would take competitors nearly 20 years to match its performance.

In 1951 the brilliant MIT engineer Sidney Corderman joined the company as Chief Engineer. He was directly involved with the

design of all McIntosh products until his retirement in 1993.

Mr. Corderman was coaxed out of retirement in 1997 and began designing what would become his finest achievement: The MC2000 Tube Power Amplifier.



A Corderman classic, the original MC275 of 1962 enjoyed a remarkable 12-year run. It was reissued as a commemorative edition in 1990 (pictured).



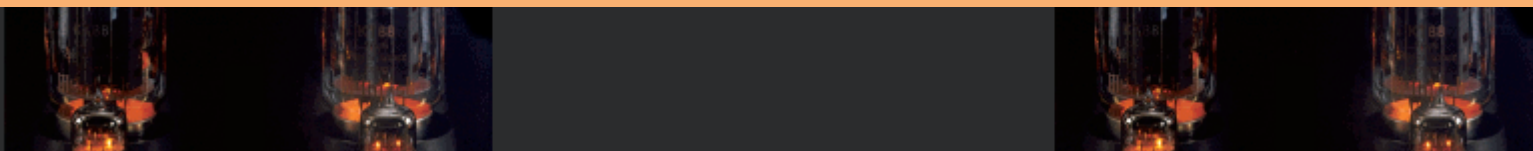
The styling of the MC2000 complements the look of current McIntosh components. The front window showcases the warm glow of the tubes.



The MC2000 includes a removable cage that protects the tubes as well as curious fingers. The amp is shipped with the cover off.



The supplied tubes are the same ones used to test the MC2000 prior to packing. They are placed in a specially designed case for transport.



TECHNICAL DESCRIPTION

Almost 50 years ago Frank McIntosh and Gordon Gow invented and patented the McIntosh Unity Coupled Output Circuit. Two features differentiate it from other designs. First, the output tubes deliver power from both their plates (anodes) and their cathodes, not from their plates alone as in conventional circuits. Second, the output transformer's two bifilar primary windings give it one-half the turns ratio of conventional transformers, equating to one-fourth the impedance ratio. This allows a close coupling of the primary and secondary windings, resulting in wide bandwidth, flat frequency response, and low distortion.

Overview

The MC2000 contains two identical channels with separate audio circuits, power supplies, and power transformers. Each channel has three amplification stages: input/phase inverter, driver, and output.

The MC2000 uses the famous Unity Coupled Output Circuit with eight KT88 output tubes (four per channel) in a push-pull parallel configuration. Large transformers with grain-oriented silicon steel cores allow full power output down to 17Hz.

As each channel is identical, the following description will address a single channel.

The Output Stage

The KT88s operate with fixed bias. Adjustments are needed only when the tubes have aged or been replaced. Because the tubes are additionally loaded in their cathodes they require a large drive signal (approximately 170V) for full output. This signal is provided by the 12AT7 driver. Boot-strapping the driver to the plate winding of the output transformer results in greater amplification than otherwise possible.



The Driver Stage

The driver stage is fed by the 12AX7A input/phase inverter. A resistance-capacitance step network couples these stages and minimizes low-frequency phase shift. The phase inverter has no coupling capacitors so no additional low-frequency phase shift is introduced. Emitter follower stages at the plates of the 12AX7A increase bandwidth.

The Input/Phase-Inverter Stage

Mode selectors at the rear of the chassis choose balanced or unbalanced inputs as well as input sensitivity (1.2V or 2.5V). The selectors operate Silent Electromagnetic Switches located adjacent to the input circuits. When the balanced input is used a second 12AX7A receives the balanced signal. One section of the driver tube is a cathode follower that passes the positive phase signal. The other section inverts the negative phase signal. The two outputs are combined and fed to the input/phase-inverter stage. Common mode rejection is greater than 60dB at middle frequencies.

The Feedback Circuit

Global negative feedback is taken from the output transformer secondary to the cathode of the input stage. Conventional wisdom cautions against using negative feedback, especially in tube amps where instability is a real concern. However, the MC2000 is designed in consideration of negative feedback, the many benefits of which are: lower distortion and noise, flatter frequency response, faster rise time, and higher damping factor. A common misconception is that the feedback signal is delayed and therefore introduces time distortion. This is not so in a properly designed amplifier. In fact, the time delay of the entire MC2000 circuit is less than 2 microseconds.

The Power Supplies

Each power transformer has two tapped primary and three secondary windings. The primary can be connected for 100V, 120V, or 230V. A thermistor cushions inrush current. A power MOS FET is used as an active filter to ensure extremely pure DC power. A medium-voltage secondary winding feeds the negative bias voltage supply and a low-voltage secondary feeds the filaments of the output tubes, the driver tube, and indicator lamps. This same winding feeds regulated DC power supplies for the meter circuit as well as the heaters of the 12AX7A input stages.

The Meters

Individual meters monitor the power output of each channel and include a hold mode that briefly indicates the highest power reading. The meters also serve as indicators when setting the bias for the output tubes.

WORDS OF PRAISE

Stereophile contributing editor Sam Tellig was the first critic to review the McIntosh MC2000. His review appears in the November 1999 "Sam's Space" column. These excerpts are used with permission.



"The MC2000 is breathtaking in the way it resolves a recording's most subtle details. This level of resolution matters – it makes listening much more involving when you can hear every nuance of a pianist's phrasing; the slow, natural decay of each note; every quiver of a soprano's vibrato. The MC2000's spatial resolution is stunning."

"Other amps...separate the great recordings from the good and the not-so-hot. But many tend to do so in a clinical way, as if the gear is some kind of machine for resolving detail rather than for re-creating music. The MC2000, to a remarkable degree, combines resolution and musicality."

"What the MC2000 offers, in addition to its sound, is spectacular styling and the satisfaction of owning what is surely the greatest McIntosh tube amplifier ever produced."

MC2000 TUBE POWER AMPLIFIER

FEATURES

Designed by Sidney A. Corderman
Limited-production model
Dual monoblock (2-channel stereo) amplifier
130 watts per channel (8/4/2 ohms)
8 KT88 output tubes
4 12AX7A input tubes
2 12AT7 driver tubes
Ceramic tube sockets with 24-ct. gold-plated contacts and air-pipe cooling at base
Patented Unity Coupled Circuit with bifilar-wound output transformers
Independent audio circuits, power supply, and transformer for each channel
Ultra-low distortion
Wide power bandwidth

Balanced and unbalanced inputs
24-ct. gold-plated input jacks
24-ct. gold-plated 200-ampere multi-way output binding posts
24-ct. gold-plated handles and knob trim rings
24-ct. gold-plated identification plaque
Illuminated peak-responding wattmeters with hold
Remote power control connection to McIntosh Control Centers and Preamplifiers
Removable cage cover for tubes
Stainless-steel chassis with titanium gold mirror finish
Glass front panel with illuminated nomenclature
Certificate of authenticity showing production number and total build quantity (sent by mail)



Rear view of connector panel. Metal arch serves as a handle.

SPECIFICATIONS

RMS Power Output (8/4/2 ohms)
130W min. sine wave continuous average power output per channel from 20Hz to 20kHz with both channels operating

Output Load Impedance
2, 4, or 8 ohms

Rated Power Band
20Hz to 20kHz

Total Harmonic Distortion
0.5% maximum at any level from 250mW to rated power per channel from 20Hz to 20kHz with both channels operating

Intermodulation Distortion
0.5% maximum if instantaneous peak power output does not exceed twice the output rating per channel with both channels operating, for any combination of frequencies from 20Hz to 20kHz

Frequency Response (@ 1W output)
20Hz to 20kHz, +0 / -0.25dB
10Hz to 100kHz, +0 / -3.0dB

Hum and Noise (A-Weighted)
100dB below rated output

Damping Factor
> 18

Input Impedance
Unbalanced: 20k ohms
Balanced: 40k ohms

Input Sensitivity (switchable)
2.5V or 1.2V for rated output
(1V for 100W output)

Output Meters (2)
Calibrated in Watts and Decibels;
mode switch for Hold and Lights Off

Tubes
8 KT88 output
4 12AX7A input
2 12AT7 driver

Power Requirements
120V 50/60Hz, 4.8A UL/CSA
(provision for 100V and 230V)

Dimensions (h x w x d)
inch: 11 x 17.75 x 18.75
cm: 27.94 x 45.08 x 47.62

Weight
135 lbs. (61.4kg) net

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