

McIntosh® **POWERFUL PERFECTION**

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Organ pipes photographed at Casadesus Recital Hall
State University of New York at Binghamton, N.Y.

McINTOSH QUALITY BEGINS WITH CAREFUL DESIGN FOR COOL OPERATION

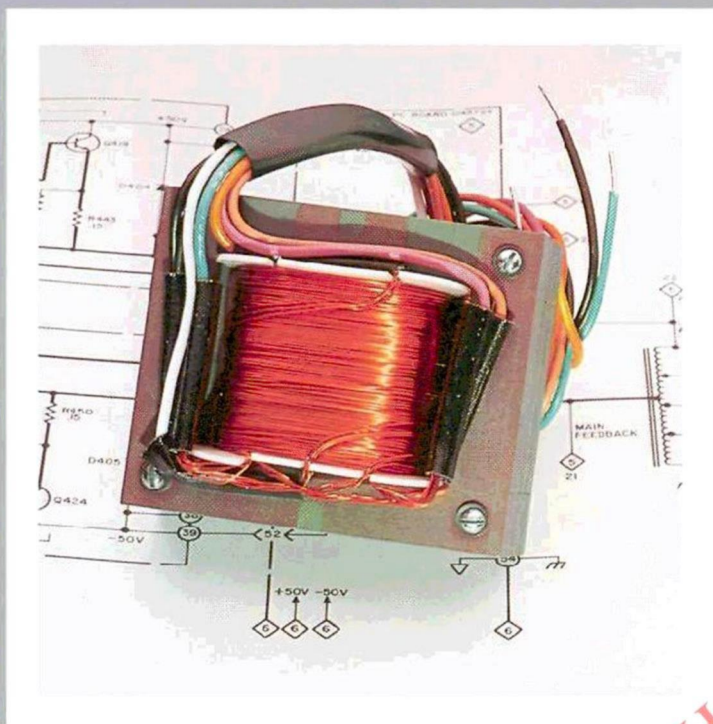
To achieve long trouble-free life in an amplifier it is essential to have cool operation. As little as one degree (centigrade) rise in temperature can reduce the operating life of the amplifier 10%. McIntosh has extended the life of its amplifiers by engineering for cool operation. Long life of a McIntosh is not just a claim. More than 80% of the McIntosh amplifiers produced since 1949 are still in service today.



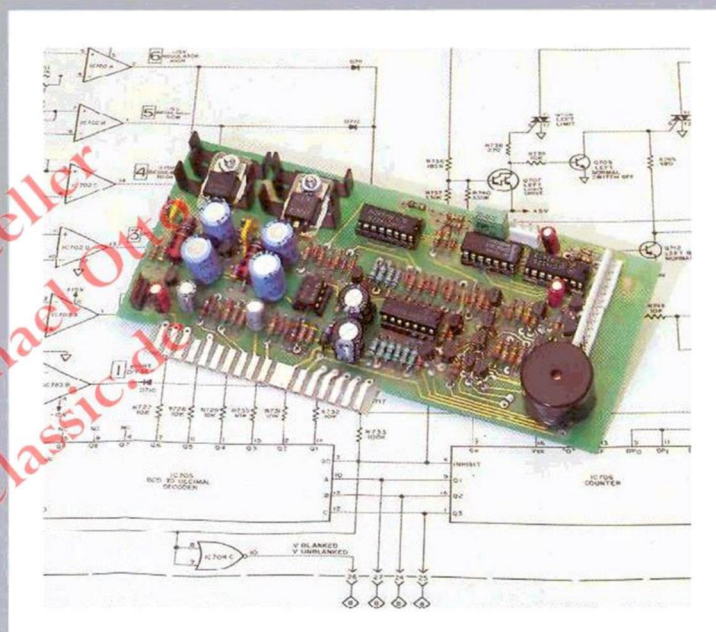
McIntosh cool operation requires a combination of careful design of the output circuit, containing the output circuit in a mechanical housing that permits the use of generous sized heat sinks to provide great heat dissipation capability along with chassis construction that permits adequate ventilation, then correctly matching the cool operating output circuit to the loudspeakers with a McIntosh designed and manufactured auto-transformer.

The McIntosh output circuit uses bipolar epitaxial output transistors in a cleverly inventive design that keeps the circuit components cool, extending the long trouble-free life of the components. The circuit has the ability to recognize the power demands of the program material and then to activate only as much of the output circuit as is needed to satisfy that demand. All this occurs without the crossover distortion found in conventional solid state output circuits. (The amplifier circuit is a patented McIntosh design U.S. patent #3526847.)

The McIntosh output stages are mounted on heat sinks that have maximum surface area of cooling capability, the largest for equivalent power in the industry. The super sized heat sinks are placed in an air tunnel chassis design that occupies the entire space from the bottom of the amplifier to the top. Cooling air, flowing through the air tunnel, easily dissipates any life limiting heat generated.



Here's a third benefit of the McIntosh autotransformer. It not only provides the output transistors an ideal load and is the path that conducts any DC away from the loudspeaker, it also contributes a flexibility in loudspeaker connecting capability not otherwise possible. For safe operation ordinary amplifier output circuits are usually restricted to operate into 4 or 8 ohms. In stereo, the McIntosh autotransformer perfectly matches the output circuit to 1, 2, 4 or 8 ohms. In mono, (McIntosh stereo amplifiers can be interconnected for mono and deliver twice the power) the autotransformers provide matching $\frac{1}{2}$, 1, 2, 4, 8 or 16 ohms. In addition, in either stereo or mono, the autotransformer provides a 25 volt output that may be used to feed multiple loudspeakers for background music and the like. Truly, the McIntosh autotransformer is an engineering marvel that enhances amplifier performance without any technical or performance drawbacks.



VERSATILE McINTOSH POWER AMPLIFIERS DELIVER FULL POWER ALWAYS

The superior McIntosh output circuit demands a superior method of coupling the amplifier output to the loudspeaker load. The McIntosh designed and manufactured autotransformer is a silent giant that insures better performance and protection and superior interaction between amplifier and speaker. Its use provides many unseen benefits. The autotransformer interconnection insures complete stability of the amplifier. Other amplifier circuits need additional component considerations to prevent instability with its subsequent threat to the life and performance of the amplifier. It is the ideal method of matching the output circuit to the loudspeakers. Transistors, used in amplifier output circuits, are designed to work into an optimum low impedance load. Frequently amplifier performance will be compromised by speaker impedance variations with frequency or by the use of multiple speakers which modify the impedance as seen by the output of the amplifier. Without the McIntosh autotransformer, variables, such as these, can cause restricted performance, output transistor heating and then circuit failure.

A second benefit of the McIntosh autotransformer is the protection provided in the event of a failure in the output circuit. Should any direct current component appear at the output, the autotransformer will conduct the speaker damaging DC directly to ground. Your expensive loudspeakers are protected from this potentially damaging circumstance.

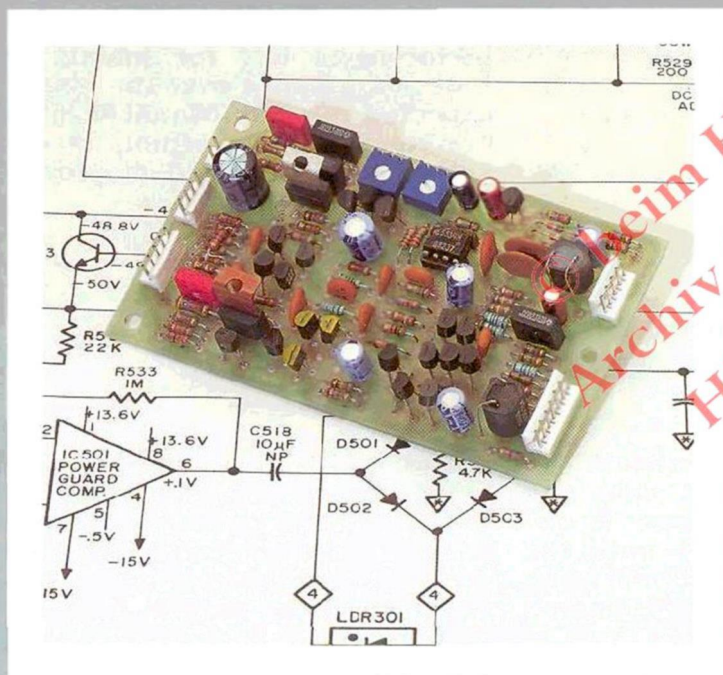
THE McINTOSH (EXCLUSIVE) POWER GUARD MUSIC PROTECTION CIRCUIT

Improved recordings and recording techniques have imposed higher power demands on today's amplifiers. Poorly designed amplifiers, of which there are many, can present music listeners with a form of harsh unpleasant distortion due to amplifier overload (hard clipping). Clipping, which looks and acts like non musical square waves, is caused when the amplifier is asked to produce more power output with low distortion than it is capable of or designed to deliver. Amplifiers, when driven to clipping, can deliver up to 40% harmonic distortion. Distortion decreases the pleasure and enjoyment of listening. This form of distortion (clipped signal) also produces extra heat energy which will damage most speakers. McIntosh leadership in engineering has developed the Power Guard circuit which—(1) dynamically prevents power amplifiers from being overdriven into hard clipping—(2) assures that the amplifier will produce its maximum output without increased distortion—(3) protects your speaker from excessive heating. Power Guard is a patented McIntosh design (U.S. patent #4048573).

MC 2155/MC 2255 USE McINTOSH POWER METERS

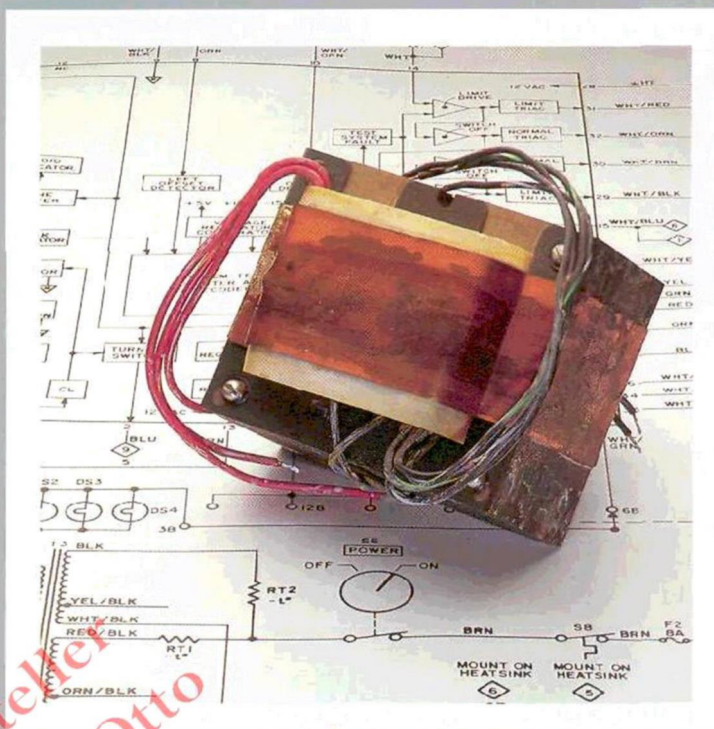
The lack of accurate performance in ordinary meters has presented difficult and complex problems. Ordinary meters are incapable of indicating the short interval information in a sound wave. Short interval information can have a duration of one-half of one thousandth of a second. Even if the meter were capable of such high velocity movement, the human eye could not perceive the information. McIntosh engineering solved both problems by developing new electronic circuits the meters will respond to with an accuracy of 98%! To permit the eye to see such high speed motion, the electronic circuits that drive the meter pointer are time stretched so the meter pointer position can register in the persistence of vision characteristics of the human eye. The peak-reading, peak-locking meter circuit is a patented McIntosh design (U.S. patent #4065682).

A variety of information can be displayed on the meters, power in watts, to lock and hold only the highest power indications, or three different peak-reading peak-locking decibel indications.



THE McINTOSH AUTOMATIC TEST SYSTEM

The McIntosh Automatic Test System provides performance protection and extends the long trouble-free life of an amplifier. Each time the amplifier is turned on, the Automatic Test System electronically measures and verifies accurate performance at seven critical points in the amplifier's circuits. The Automatic Test System verification assures operational readiness before operation starts and limits any damage should there be component malfunction. You are informed when each test is verified by an LED number indicator.



THE McINTOSH "ALWAYS IN STYLE"

The appearance of a McIntosh speaks eloquently of precision, quality, premier performance and long, trouble-free life. Consider the construction and materials used in the front panel and knobs. Each constituent part is selected for long, wear-resistant life and stable attractive styling. The panels are selected to be free from bubbles, flow marks and other faults. It is reverse silk screened with thermal setting epoxy screen inks which practically become a part of the glass. A brightly polished and anodized frame surrounds the glass. Knobs, meticulously machined of solid aluminum then anodized and thermally and electrically isolated, complement the overall appearance.

Anodizing is an electro-chemical process that leaves a color dyed and hardened surface that is impervious to attack from common household cleaning fluids, oils and acids from the skin and is highly wear resistant.

The aluminum "Pro-Panel" on the MC 2150 and MC 2250 is a combination of anodized gold and attractive baked enamel. Its versatility permits ease of custom installation, installation in the McIntosh furniture cabinet or can be easily converted to professional rack mounting with accessory adapters. The deletion of the meters and their associated controls and circuits are the only electrical differences between these high performance models.

This handsome combination of glass, anodized aluminum and epoxy requires very little maintenance to keep that, "Just new" appearance. The subtle yet sophisticated styling is designed to complement any decorative scheme and will remain in "good taste".



Since 1949, McIntosh has continuously expanded the boundaries of power amplifier technology and performance with the introduction of each new design. What is considered to be "State of the Art" has been the starting line for McIntosh research, research that responds to the demands for quality performance improvements. The U.S. Patent Office has granted McIntosh 30 patents which recognize these unique and pace setting electronic designs. Current McIntosh amplifiers use one or more of these U.S. Patents: 4065682; 4048573; 3526847; and 3526846.

But, patents only verify the engineering superiority and design integrity. *QUALITY* is expressed in performance promised—and performance delivered—over a long trouble-free life. The McIntosh reputation for

QUALITY is acknowledged world wide: *QUALITY* performance, *QUALITY* appearance, *QUALITY* manufacture, and *QUALITY* protection. Each component selected for use in a McIntosh is quality tested not only for

performance but for maintaining that performance over the long life expected of a McIntosh. At McIntosh, everyone and everything is dedicated to continuation of proven—*McINTOSH QUALITY*.

McINTOSH QUALITY assures you of long term enjoyment through PERFORMANCE PROTECTION

Protection

1. When ordinary amplifiers are asked to exceed their design maximum, or have an accidental short circuit across the output or a severe impedance mismatch, the operating temperature of the output stages can rise very rapidly, leading to cataclysmic failure. McIntosh engineers developed the Sentry Monitor Circuit which monitors operating conditions of the output stages of the amplifier. If a McIntosh amplifier is asked to exceed its design parameters, the Sentry Monitor Circuit is activated which protects the output transistors and helps to prevent failure. The Sentry Monitor Circuit has been granted a U.S. patent (#3526846). McIntosh protects your investment.

Protection

2. A heat sensing switch attached to the super sized heat sinks controls the AC power to the amplifier. As long as temperatures are normal it

does not function; but, should the temperature of the heat sinks rise above normal, the AC power is disconnected automatically until the temperature returns to normal when the AC power is restored. McIntosh protects your investment.

Protection

3. In ordinary solid state circuits failure in the output stage can cause damaging direct current components to flow to the loudspeakers. With the McIntosh autotransformer, matching the output circuits to the loudspeakers, any direct current component is shunted to ground. Your speakers are protected completely from this kind of amplifier failure. McIntosh protects your investment.

Protection

4. McIntosh gives you a moneyback performance guarantee. We promise you that when you purchase a new McIntosh from a McIntosh franchised

dealer, it will be capable of or can be made capable of performance at or exceeding its published performance limits or you can return the instrument and get your money back. McIntosh is the only manufacturer that makes this statement. McIntosh protects your listening and your investment.

Protection

5. To assure you of the McIntosh belief in design for long life, McIntosh goes beyond the ordinary guarantee. You are offered a McIntosh 3 Year Service Contract which protects you from the cost of repair for three full years. Should your McIntosh instrument fail, McIntosh will provide the service materials and labor needed to return the measured performance at the original performance limits. The SERVICE CONTRACT does not cover any shipping costs to and from the authorized service agency or the factory. McIntosh protects your investment.

PERFORMANCE LIMITS

PERFORMANCE GUARANTEE

Performance Limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that the amplifier you buy 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.

	MC2255	MC2250	MC 2155	MC 2150
POWER OUTPUT (Stereo, Both Channels Operating)	250 Watts Minimum Per Channel	250 Watts Minimum Per Channel	150 Watts Minimum Per Channel	150 Watts Minimum Per Channel
(Mono)	500 Watts Minimum	500 Watts Minimum	300 Watts Minimum	300 Watts Minimum
POWER BAND WIDTH	20 Hz to 20 kHz	20 Hz to 20 kHz	20 Hz to 20 kHz	20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION (250 mW to Rated Power, 20 Hz to 20 kHz)	0.02% Maximum	0.02% Maximum	0.02% Maximum	0.02% Maximum
OUTPUT LOAD IMPEDANCE Stereo Mono	1,2,4,8Ohm ½, 1, 2, 4, 8, 16 Ohm	1,2,4,8Ohm ½, 1, 2, 4, 8, 16 Ohm	1,2,4,8Ohm ½, 1, 2, 4, 8, 16 Ohm	1,2,4,8Ohm ½, 1, 2, 4, 16 Ohm
INTERMODULARON DISTORTION (250 mW to Rated Power)	0.02%	0.02%	0.02%	0.02%
FREQUENCY RESPONSE (20 Hz to 20 kHz, at 1 Watt)	+0, -0.25 dB	+0, -0.25 dB	+0, -0.25 dB	+0, -0.25 dB
NOISE AND HUM (Below Rated Output)	-95 dB	-95 dB	-95 dB	-95 dB
OUTPUT VOLTAGE (For Distribution Systems)	25 Volts	25 Volts	25 Volts	25 Volts
DAMPING FACTOR	greater than 30	greater than 30	greater than 30	greater than 30
INPUT IMPEDANCE	50,000 Ohm	50,000 Ohm	50,000 Ohm	50,000 Ohm
INPUT SENSITIVITY	0.75 or 2.5 Volts	0.75 or 2.5 Volts	0.75 or 2.5 Volts	0.75 or 2.5 Volts
POWER REQUIREMENT	120V, 50/60 Hz 0.7 to 12 Amp	120V, 50/60 Hz 0.7 to 12 Amp	120V, 50/60 Hz 0.7 to 6 Amp	120V, 50/60 Hz 0.7 to 6 Amp
SEMICONDUCTOR COMPLEMENT				
Transistors	85	76	81	72
Diodes	47	37	47	37
Integrated Circuits	14	2	14	9
DESIGNED AND ENGINEERED UNDER THESE U.S. PATENTS	4065682 4048573 3526847 3526846	4048573 3526847 3526846	4065682 4048573 3526847 3526846	4048573 3526847 3526846
SIZE				
Panel Height	7-1/8" (18.1cm)	6-31/32" (17.7cm)	5-7/16" (13.8cm)	5-7/32" (13.2cm)
Panel Width	16-3/16" (41.1cm)	16" (40.6cm)	16" (40.6cm)	16" (40.7cm)
Depth	14-1/2" (36.8cm)	14-1/2" (36.8cm)	14-1/2" (36.8cm)	14-9/16" (37cm)
FINISH	Black Glass Panel, Gold/Teal Nomenclature, Gold and Black Knobs	Gold Panel Gold and Black Knobs	Black Glass Panel, Gold/Teal Nomenclature, Gold and Black Knobs	Gold Panel Gold and Black Knobs
WEIGHT				
Net	82# (37.2kg)	80# (36.3kg)	65# (29.5kg)	58# (26.3kg)
In Carton	96# (43.5kg)	94# (42.6kg)	77# (35kg)	71# (32.2kg)
HEAT SINK AREA	1080 sq. in	1080 sq. in.	772 sq. in	772 sq. in

The continuous improvement of its products is the policy of McIntosh Laboratory Incorporated who reserve the right to improve design without notice.

Franchised Dealer:



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