



MC 2600

DIGITAL DYNAMIC STEREO POWER AMPLIFIER

McIntosh®
OWNERS MANUAL

IMPORTANT SAFETY INSTRUCTIONS

THESE INSTRUCTIONS ARE TO PROTECT YOU AND THE McINTOSH INSTRUMENT. BE SURE TO FAMILIARIZE YOURSELF WITH THEM.

1. Read all instructions - Read the safety and operating instructions before operating the instrument.
2. Retain Instructions - Retain the safety and operating instructions for future reference.
3. Heed warnings - Adhere to warnings and operating instructions.
4. Follow Instructions - Follow all operating and use instructions.
WARNING: TO REDUCE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS INSTRUMENT TO RAIN OR MOISTURE.
5. Power Sources - Connect the power supply only to the type described in the operating instructions or as marked on the unit.
6. Power-Cord Protection - Route power-supply cords so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the instrument.
7. Ventilation - Locate the instrument for proper ventilation. For example, the instrument should not be placed on a bed, sofa, rug, or similar surface that may block ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet, that may impede the flow of air through the ventilation openings.
8. Heat - Locate the instrument away from heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.
9. Wall or Cabinet Mounting - Mount the instrument in a wall or cabinet only as described in the owners manual.
10. Water and Moisture - Do not use the instrument near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
11. Cleaning - Clean the instrument by dusting with a dry cloth. Clean the panel with a cloth moistened with a window cleaner.
12. Object and Liquid Entry - Do not permit objects to fall and liquids to spill into the instrument through enclosure openings.

13. Nonuse Periods - Unplug the power cord from the AC power outlet when left unused for a long period of time.
14. Damage Requiring Service - **Service must be performed by qualified service personnel when:**
 - A. The power supply cord or the plug has been damaged; or
 - B. Objects have fallen, or liquid has been spilled into the instrument; or
 - C. The instrument has been exposed to rain; or
 - D. The instrument does not appear to operate normally or exhibits a marked change in performance; or
 - E. The instrument has been dropped, or the enclosure damaged.
15. Servicing - Do not attempt to service beyond that described in the operating instructions. All other service should be referred to qualified service personnel.
16. Grounding or Polarization - Do not defeat the inherent design features of the polarized plug. Non-polarized line cord adaptors will defeat the safety provided by the polarized AC plug.
17. **CAUTION: TO PREVENT ELECTRICAL SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

ATTENTION: POUR PREVENIR LES CHOCES ELECTRIQUES PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The serial number, purchase date, and McIntosh Laboratory Service Contract number are important to you for possible insurance claim or future service. Record this information here.

Serial Number

Purchase Date

Service Contract Number

Upon application, McIntosh Laboratory provides a Service Contract to the original purchaser. Your McIntosh Authorized Service Agency can expedite repairs when you provide the Service Contract with the instrument for repair.

Contents

INTRODUCTION	3
INSTALLATION	4
HOW TO CONNECT	5, 6, 7
FRONT PANEL	8, 9
REAR PANEL	10
PERFORMANCE LIMITS	11
PERFORMANCE CURVES	12, 13
TECHNICAL DESCRIPTION	14, 15, 16
BLOCK DIAGRAM	17

Your MC 2600 Power Amplifier will give you many years of satisfactory performance. If you have any questions, please contact,

CUSTOMER SERVICE

McIntosh Laboratory Inc.
2 Chambers Street
Binghamton, New York 13903-9990
Phone: 607-723-3512

Take Advantage of 3 Years of
Contract Service...
Fill in the Application NOW.

McINTOSH THREE YEAR SERVICE CONTRACT

An application for A THREE YEAR SERVICE CONTRACT is included with this manual.

The terms of the contract are:

1. If the instrument covered by this contract becomes defective, McIntosh will provide all parts, materials, and labor needed to return the measured performance of the instrument to the original performance limits free of any charge. The service contract does not cover any shipping costs to and from the authorized service agency or the factory.
2. Any McIntosh authorized service agency will repair all McIntosh instruments at normal service rates. To receive the free service under the terms of the service contract, the service contract certificate must accompany the instrument when taken to the service agency.
3. Always have service done by a McIntosh authorized service agency. *If the instrument is modified or damaged as a result of unauthorized repair the service contract will be cancelled.* Damage by improper use or mishandling is not covered by the service contract.
4. The service contract is issued to you as the original purchaser. To protect you from misrepresentation this contract cannot be transferred to a second owner.
5. Units in operation outside the United States and Canada are not covered by the McIntosh Factory Service Contract, irrespective of the place of purchase. Nor are units acquired outside the USA and Canada, the purchasers of which should consult with their dealer to ascertain what, if any, service contract or warranty may be available locally.

A NEW AMPLIFIER DESIGNED FOR A NEW AGE OF HOME ENTERTAINMENT.

The advanced design MC 2600 Stereo Power Amplifier is the product of more than 42 years of building the world's finest audio amplifiers. The following features describe the superior performance advantages of the McIntosh MC 2600.

1. 600 watts/channel stereo or 1200 watts mono continuous average power output—the most powerful amplifier ever built by McIntosh for home entertainment.
2. Less than 0.005% total harmonic distortion at any power level from 250 milliwatts to rated power from 20Hz to 20,000Hz—the lowest distortion rating McIntosh has guaranteed for any power amplifier.
3. 2200 watts/channel stereo or 4400 watts mono dynamic power output into low impedance loads (loads of 20% of the rated load impedance)—the greatest power margin ever obtained.
4. Over 100 amperes/channel stereo or 200 amperes mono output current (into 0.4 ohm loads stereo or 0.2 ohm load mono using dynamic power test method).
5. Automatic temperature controlled low noise fans provide complete cooling for continuous heavy duty use.
6. Large power output meters with voltage regulated illumination, indicate amplifier output in normal or peak hold mode.
7. The McIntosh patented exclusive POWER GUARD output circuit prevents amplifier clipping with its undesirable distortion.
8. Huge gold plated output terminals will accept speaker cables up to 0.25 inches in diameter.

The McIntosh MC 2600 is truly the finest amplifier produced by McIntosh.

Your investment in the McIntosh MC 2600 has been wisely made. You can depend on it for maximum enjoyment and performance over a long period of trouble-free time.

The MC 2600 can produce very high power output. The MC 2600 can also produce more than 70 volts stereo or 140 volts mono. (see page 6)

You will derive the greatest enjoyment and most satisfaction from your MC 2600 when you understand its operations and functions. Time invested now reading this manual will return added value to you and will allow you to get the best results from your amplifier.

INTRODUCTION 3

Installation of the MC 2600 requires careful consideration of four important factors:

1. Location with respect to input and output connections.
2. Electrical power to operate the unit.
3. Weight.
4. Heat generated when the MC 2600 is operating.

The amplifier should be located so that the cables connected to the amplifier input and output connectors are no longer than necessary. The input cable should be routed away from the output cables and from AC power wiring to prevent cross talk and hum pickup. The balanced input will provide the best method for feeding signal to the MC 2600 since this input provides more than 40 dB of common mode noise rejection.

The MC 2600 draws 12 amperes from the 120 volt power line when amplifying music or speech. Plug the AC power cord directly into a wall outlet that has at least 12 amperes capacity. Do not plug the MC 2600 into an auxiliary AC power outlet on a preamplifier or other source equipment, as this equipment generally cannot supply the needed 12 amperes of AC current. If remote power operation is desired, use an external power central relay like the McIntosh SCR 2A, SCR 3 or R612 relays. If an extension cord is required, it must be heavy duty with 14 gauge wire or heavier.

The amplifier weighs 130 pounds. Make certain that the structure on which it is to be mounted can support that weight.

Cool operation extends the trouble-free life of electronic instruments. It is generally found that each 10°C (18°F) rise in temperature reduces the life of electrical insulation by one half. Adequate ventilation is an inexpensive and effective means of preventing insulation breakdown that results from unnecessary high operating temperatures.

The heat generated in the operation of the MC 2600 is exhausted from the amplifier by two temperature controlled, low noise, long life fans. Cooling input air is drawn into the MC 2600 through ventilation holes on the sides and bottom of the amplifier. The air passes over the transformers, output heat sinks, and other components, and is blown out the back of the amplifier by the fans. It is recommended that at least 2 inches of clear space be provided on each side of the amplifier and that the mounting feet and aluminum side rack be left in place to allow air flow to the bottom of the unit. To

permit best fan operation, provide at least 5 inches of space at the rear. A source for input air and means to exhaust the heated air is necessary so that the heated air does not recirculate through the MC 2600.

RACK INSTALLATION

The MC 2600 may be mounted in a standard 19" rack by removing the aluminum side rails. A depth of 17 inches plus ventilation space is required. Vertical panel space is 10½ inches. Slide mounts can be used for rack mounting. Threaded holes are provided on both sides of the amplifier. These holes are positioned to attach Model CTS-116 slide mount assemblies made by:

General Device Co.
Chassis-Trak Div.
P.O. Box 39100
Indianapolis, IN 46239
Phone: 317-897-7000

4 INSTALLATION

INPUT

Use shielded cables to connect the signal from the preamplifier or signal source to the power amplifier. To minimize the possibility of hum, the shielded cables should be of parallel construction or loosely twisted together, located away from speaker connecting cables and AC power cords. Be certain to use good quality shielded cables for all interconnections. Your dealer can advise you on the kind and length of cable that will best suit your installation.

FOR STEREO OPERATION (UNBALANCED INPUT)

Using a single conductor shielded cable with RCA type plugs, plug the left output of the preamplifier into the UNBALANCED LEFT jack of the power amplifier. Plug the right output of the preamplifier into the UNBALANCED RIGHT/MONO input jack of the power amplifier.

Because the crosstalk between channels is almost nonexistent, each channel can be used as a separate amplifier. (Example; use one channel for mono background program in one area and the other channel for paging in a separate area.)

FOR STEREO OPERATION (BALANCED INPUT)

Modern technology has made it possible to build preamplifiers and power amplifiers with the high signal to noise ratio necessary to reproduce the sound quality of compact discs or any other wide dynamic range program source. Interconnecting cables can pickup electrical interference from other equipment or appliances. The balanced inputs on the MC 2600 provide a minimum of 40 dB more protection against such noise pickup. To help prevent this possibility, 2 conductor shielded cables can be used to connect between the preamplifier and the power amplifier balanced connectors.

When using 2 conductor shielded cable with XLR type connectors or shielded phone plugs, connect the left output of the preamplifier into the INPUT BALANCED LEFT XLR connector or phone jack. Connect the right output of the preamplifier into the INPUT BALANCED RIGHT XLR connector or phone jack.

Pin Configuration for the XLR INPUT connectors:

- PIN 1: Shield and ground.
- PIN 2: + Output.
- PIN 3: - Output.

In stereo installations where the amplifier and preamplifier are close to each other and require interconnecting cables of six feet or less, using quality unbalanced connecting cables is usually perfectly satisfactory. If the units are farther apart and require longer interconnecting cables, using balanced cables will give extra protection from noise or interference.

FOR MONOPHONIC BRIDGE OR SINGLE CHANNEL OPERATION

When the MC 2600 is used as a monophonic or single channel power amplifier, the two channels are added to produce output up to 1200 watts for monophonic operation.

Plug a shielded cable from the signal source or preamplifier into either the BALANCED or the UNBALANCED RIGHT/MONO input connector only. No connection is made to INPUT LEFT connector. Change the MODE switch on the back panel of the amplifier to the MONO bridge or MONO parallel position. See MONO operation under OUTPUT section below.

OUTPUT

The McIntosh MC 2600 amplifier can produce very high power output. Power that allows music to be reproduced with incredible realism. Because of the high power, you must use care when operating the MC 2600 in a music system.

If used improperly, such as attempting to play music beyond the power limit for the loudspeaker system, it is possible for an amplifier of this power to cause damage. McIntosh therefore cannot guarantee against possible damage to associated equipment or loudspeakers connected to this amplifier.

It is possible for the MC 2600 to produce more than 70 volts output in stereo mode and more than 140 volts in mono. Turn the AC power off and use caution when connecting to the output terminals. Always replace the output terminal protection covers after connecting.

The appropriate length and size of loudspeaker cable for your installation will help to preserve the quality of sound for which the loudspeakers have been designed. If undersize wire is used, resistance is added to the amplifier/loudspeaker combination which adversely affects the performance. Added resistance reduces the damping factor, modifies the frequency response and reduces the power output. Your dealer's advice will serve you best for your installation.

HOW TO CONNECT 5

The cables to and from the speaker should be of parallel construction or be loosely twisted together.

Chart A indicates the minimum wire gauge which will safely handle the maximum continuous output current producible by the amplifier. The chart also shows the maximum length of two conductor cables that can be used for the output conditions listed (stereo or mono and various impedances). These lengths limit the cable resistance to 2.5% of the amplifier output impedance.

Chart A

Mode Used	Output Impedance	Wire Gauge	Maximum Length
Stereo	2 ohms	12 ga.	16' (4.8m)
	4	14	20' (6.1m)
	8	16	25' (7.1m)
Mono	1	8	20' (6.1m)
	2	10	25' (7.1m)
	4	12	31' (9.5m)
	8	14	40' (12.2m)
	16	16	50' (15.2m)

If cables must be longer, the correct wire gauge can be determined using Chart B.

Chart B

Ratio of Cable Length to max. length from Chart A	Correction to wire size in Chart A
Less than 1	use gauge in Chart A
1 to 1.6	decrease 2 gauges
1.6 to 2.5	decrease 4 gauges
2.5 to 4.0	decrease 6 gauges
4.0 to 6.3	decrease 8 gauges

As the wire size (copper cross section) increases, the gauge size decreases. Here is an example of the use of Charts A and B: if stereo 8 ohm speakers are to be located with a cable 50' long between the MC 2600 and the speaker, Chart A says a 16 ga. cable will handle 25', but the length required (50') divided by the length from Chart A (25') equals 2. Chart B says the wire gauge must be decreased by 4 gauges from the gauge shown in Chart A, thus the required wire size is 16 - 4 = 12 gauge.

WARNING - do not use wire gauges smaller than listed in Chart A. The MC 2600 is capable of producing very high output current which can melt the insulation on small gauge wires or even fuse the

copper conductor. The gauges listed in Chart A will safely carry the currents produced by the MC 2600.

STEREO CONNECTIONS

To connect the left speaker, first check the impedance of the speaker which is usually identified on the speaker itself or in the speaker owner's manual. Connect one lead from the common terminal of the speaker to the LEFT OUTPUT terminal strip screw Common. Connect the other terminal of the speaker to the screw with the number corresponding to the speaker impedance on the LEFT OUTPUT terminal strip. The right channel speaker is connected in the same manner on the RIGHT OUTPUT terminal strip. Figure 1 shows the connections for stereo operation.

MODE	INPUT	LOAD (OHMS)	CONNECT LOAD TO:			
			LEFT OUTPUT		RIGHT OUTPUT	
STEREO	L & R	2	-	+	-	+
		4	LC	L4	RC	R4
		8	LC	L8	RC	R8

Figure 1

When multiple speakers are to be connected to either or both outputs, the combined load impedance must be calculated and the load connected to the appropriate impedance tap. The following Figure 2 will aid in selecting the correct impedance match.

Load impedance in Ohms	Connect to
0.8 to 1.6	1Ω*
1.6 to 3.2	2Ω
3.2 to 6.4	4Ω
6.4 to 12.8	8Ω
12.8 to 25.6	16Ω*

Figure 2 *Mono only

If the actual load impedance of a particular speaker drops below the specified impedance, particularly at certain parts of the frequency range, it will cause no problems. The extremely high current output of the MC 2600 will produce the extra current necessary to

6 HOW TO CONNECT

properly drive the speaker under these conditions. If the impedance extends above the specified number, no change in performance quality will occur. The available power output will simply be slightly lower.

MONOPHONIC CONNECTIONS

When the MC 2600 is used as a monophonic or single channel power amplifier, the two channels are combined to produce an output power of 1200 watts. The left and right outputs must be tied together at the appropriate load impedance taps. Figure 3 shows the connections for MONO BRIDGE operation.

MODE	INPUT	LOAD (OHMS)	CONNECT LOAD TO:	
			-	+
MONO-BRIDGE	R/MONO	4	L2	R2
		8	L4	R4
		16	L8	R8

Figure 3

Figure 4 shows the connections for MONO PARALLEL operation.

MODE	INPUT	LOAD (OHMS)	CONNECT LOAD TO:	
			-	+
MONO-PARALLEL	R/MONO	1	LC & RC	L2 & R2
		2	LC & RC	L4 & R4
		4	LC & RC	L8 & R8

Figure 4

AC POWER

The MC 2600 is designed to operate on 120 volts 50/60 Hz. Plug the AC power cord directly into a wall outlet. Make certain that the AC power outlet has at least a 12 ampere capacity with nothing else connected to the circuit. Do not plug the MC 2600 into an auxiliary AC power outlet on a preamplifier or other source equipment unless it is known there is adequate current capacity. If remote power operation is required, an external relay arrangement must be made. If an extension cord is used, make certain that it has 12 ampere current capacity.

The MC 2600 draws 12 amperes AC line current when amplifying music or speech at rated output on program peaks. The amplifier uses 2.1 amperes while idling at no output. The MC 2600 is designed for

continuous and reliable operation at any power level to its rated 600 watts continuous average power output per channel or 1200 watts as a mono amplifier.

METERS

Output power monitor meters indicate the output power of each channel. Each meter has two scales: WATTS and DECIBELS. The meters are calibrated to read average watts. The intermediate markings between the calibrations represent, beginning with 600 watts, 240 watts, 120 watts, the indicated 60 watts, 24 watts, 12 watts, the indicated 6 watts, 2.4 watts, 1.2 watt, the indicated 0.6 watt, 0.24 watt, 0.12 watt, the indicated 0.06 watt, 0.024 watt, 0.012 watt, the indicated 0.006 watt, 0.0024 watt and 0.0012 watt. Although the meter calibrations are in average watts for a sine wave signal, the meters electrically respond to signal peaks. The meters are voltage actuated and indicate power accurately when the amplifier is operated into rated output load impedances.

The meters respond to the peak output of each channel. Music program material regularly contains nearly instantaneous changes in level. Short interval information can have a duration as short as half a thousandth of a second. Typical meters lack the capability to accurately indicate power levels of this short a time period. The mass of the meter movement and pointer is too great to allow it to respond quickly enough. McIntosh has developed circuits that allow the meters to respond to short interval program material to an accuracy of 95%. The electrical pulses that drive the meters are time stretched sufficiently to allow the meter pointer to rise to the proper power level.

For MONO operation, the two meters will read the same power level and the output power is the sum of the readings.

LEFT GAIN

The LEFT GAIN control adjusts the volume in the left channel to the desired listening level. Turn the control clockwise to increase the volume.

RIGHT/MONO GAIN

The RIGHT/MONO GAIN control adjusts the volume in the right channel to the desired listening level. Turn the control clockwise to increase the volume. When the output of the MC 2600 is connected for monophonic operation and the rear panel MODE SWITCH is in the MONO position, the volume is controlled by the RIGHT/MONO GAIN control only.

METER RANGE

The METER RANGE switch has two positions.

WATTS

In the WATTS position, each meter's primary calibration is from .006 watts (six milliwatts), up to 600 watts, the rated power output of the MC 2600. The meter is calibrated for 1500 watts at the right hand end of the meter scale. While the MC 2600 cannot reach this power level continuously, it is possible for short interval peaks to exceed, considerably, the 600 watt continuous rating.

HOLD

In the HOLD position, each meter indicates WATTS and locks to the highest power peak in a sequence of peaks. The meter will be driven to maximum power and electronically held there until a higher peak passes through the amplifier. If no further peaks are reached, the meter needle will very slowly return to its rest position at a decay rate of 6dB per minute.

POWER GUARD

POWER GUARD assures that the MC 2600 cannot be overdriven, thus amplifier output clipping is eliminated. Clipping is caused when an amplifier is asked to produce more power output than it can deliver with low distortion. Amplifiers are capable of delivering large quantities of highly distorted power when they are driven to clipping. The extra energy content of the clipped signal will damage most speakers. McIntosh's Power Guard circuit protects your speakers from this kind of damage. The MC 2600 has a built-in "waveform comparator" that compares the wave shape of the output signal to the input signal. If the disparity between the two signals, due to overdrive, exceeds 0.5% (equivalent to 0.5% total harmonic distortion), an amber POWER GUARD indicator illuminates. With any further increase in distortion, the Power Guard circuit operates to limit the amplifier input dynamically so that the amplifier cannot be overdriven. Power Guard eliminates amplifier output clipping.

HEADPHONES

The output of the front panel HEADPHONES jack has been designed to feed low impedance dynamic stereo headphones.

The HEADPHONES output is not affected by the SPEAKERS switch.

8 FRONT PANEL

SPEAKERS

OFF: The loudspeakers are turned off when the SPEAKER switch is in the OFF position and the red speaker indicator is illuminated.

ON: Music will be heard through the loudspeakers. Use this as the normal listening position. A green speaker light indicates when the speakers are ON.

THE SPEAKER SWITCH MUST BE IN THE "ON" POSITION TO HEAR MUSIC FROM THE LOUDSPEAKERS.

POWER

The power switch turns the MC 2600 ON or OFF. The power switch is also a power input circuit breaker. If the power input to the amplifier exceeds a safe limit, the circuit breaker will trip off. To restore power, place the switch in the OFF position and then to the ON position.



FRONT PANEL 9

INPUT JACKS

Both LEFT and RIGHT UNBALANCED and BALANCED input connectors function in the stereo mode of operation. In the mono mode of operation, only the RIGHT/MONO UNBALANCED or BALANCED input accepts signal. In mono, the LEFT channel input connectors are disconnected.

Modern technology has made it possible to build preamps and amplifiers with the high signal-to-noise ratio necessary to reproduce the sound quality present on compact discs. The interconnecting cables can pick up electrical interference from other equipment or appliances. The balanced inputs on the MC 2600 provide a minimum of 40dB more protection against such noise pick-up.

INPUT SENSITIVITY

The input sensitivity of the MC 2600 is 1.4 volts or 2.5V depending on the position of the INPUT sensitivity switch. For the best signal-to-noise ratio when using McIntosh source equipment, place the INPUT sensitivity switch in the 2.5V position and the front panel LEFT GAIN and RIGHT/MONO GAIN controls in the fully clockwise position. If more gain is desired, the 1.4V position may be used. All McIntosh preamplifiers have been designed to deliver 2.5 volts output with rated input. For source equipment other than McIntosh, set the switch in the position nearest to the stated output rating of the source equipment.

MODE SWITCH

The MC 2600 will operate in three modes: Stereo, Mono Bridge, and Mono Parallel. The Mono modes differ in the loads they will drive and the connection sequence to the speaker terminals. A connection chart appears on the rear panel.

LEFT and RIGHT OUTPUT TERMINALS

For stereo operation, output impedances of 2, 4 and 8 ohms have been provided on a secure, screw-type barrier strip. For monophonic operation, proper interconnection provides 1, 2, 4, 8, and 16 ohms from the same barrier strips. See page 6 for connecting instructions.

FANS

Amplifier cooling is accomplished by means of two low noise fans at the rear of the amplifier. Fan operation is thermally controlled and automatic. When the amplifier is cool, as when the amplifier is first turned on, the fans do not operate. As heat

develops, the fans will automatically turn on to low speed operation. Adequate cooling will be provided for all normal operating conditions. If additional heating develops, the fans will then turn on to high speed operation. Amplifier reliability is enhanced by low operating temperatures.

Should the cooling air be blocked or should the amplifier operating temperature become too high, thermal cutouts within the amplifier will turn off the power to the amplifier. When the amplifier has cooled, it will automatically turn on again.

AC POWER

The MC 2600 draws 12 amperes from the 120 volt power line when amplifying music or speech. Plug the AC power cord directly into a wall outlet that has at least 12 amperes capacity. Do not plug the MC 2600 into an auxiliary AC power outlet on a preamplifier or other source equipment as this equipment generally cannot supply 12 amperes. If remote power operation is desired, use an external power control relay like the McIntosh SCR2A, SCR3 or R612 relays. If an extension cord is required, it must be heavy duty with 14 gauge wire or heavier.

The amplifier uses only 2 amperes while idling. If the amplifier is driven to rated output using sine wave signals, it will draw 22 amperes. The MC 2600 is designed for continuous and reliable operation at any power level to its rated 600 watts continuous average power output per channel or 1200 watts as a mono amplifier. For continuous sine wave operation, the AC source must be capable of supplying the required 22 amperes.

10 REAR PANEL

PERFORMANCE GUARANTEE

Performance Limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you the MC 2600 you buy must be capable of performance at or exceeding these limits or you get your money back.

POWER OUTPUT

STEREO

600 watts minimum sine wave continuous average power output per channel, both channels operating into 2 ohms, 4 ohms, or 8 ohms load impedance.

MONO

1200 watts minimum sine wave continuous average power output into 1 ohm, 2 ohms, 4 ohms, 8 ohms, or 16 ohms load impedance.

OUTPUT LOAD IMPEDANCE

STEREO

2 ohms, 4 ohms, or 8 ohms; separate terminals are provided for each impedance.

MONO-PARALLEL

1 ohm, 2 ohms, or 4 ohms; obtained by connecting in parallel the appropriate terminals of both channels.

MONO-BRIDGED

4 ohms, 8 ohms, or 16 ohms; obtained by connecting to the output terminals of both channels. The bridged output is balanced to ground. Neither side is grounded.

RATED POWER BAND

20 Hz to 20,000 Hz

TOTAL HARMONIC DISTORTION

STEREO

0.005% maximum harmonic distortion at any power level from 250 milliwatts to 600 watts per channel from 20 Hz to 20,000 Hz, both channels operating.

MONO

0.005% maximum harmonic distortion at any power level from 250 milliwatts to 1200 watts from 20 Hz to 20,000 Hz.

INTERMODULATION DISTORTION

STEREO

0.005% maximum if instantaneous peak power output is 1200 watts or less per channel with both channels operating for any combination of frequencies, 20 Hz to 20,000 Hz.

MONO

0.005% maximum if instantaneous peak power output is 2400 watts or less for any combination of frequencies, 20 Hz to 20,000 Hz.

FREQUENCY RESPONSE (at one watt output)

20 Hz to 20,000 Hz +0 -0.25dB

10 Hz to 100,000 Hz +0 -3dB

NOISE AND HUM

105dB below rated output (A weighted)

IHF DYNAMIC HEADROOM

1.7dB

RATINGS

DAMPING FACTOR

Greater than 40

INPUT IMPEDANCE

20,000 ohms UNBALANCED

40,000 ohms BALANCED

INPUT SENSITIVITY

Switchable for either 1.4 volt or 2.5 volt

POWER GUARD

Clipping is prevented and THD does not exceed 2% with up to 14dB overdrive at 1 kHz

GENERAL INFORMATION

POWER REQUIREMENTS

120 volts 50/60 Hz, 12 amps UL/CSA

SEMICONDUCTOR COMPLEMENT

100 silicon transistors

35 silicon rectifiers and diodes

7 integrated circuits

MECHANICAL INFORMATION

SIZE

Front panel measures 19 inches wide (48.3 cm) by 10½ inches high (26.7 cm). Chassis measures 17 inches wide (43.2 cm) by 10 inches high (25.4 cm) by 18 inches deep (45.7 cm), including connectors. Clearance in front of mounting panel including handles 1 3/4 inches (4.4 cm)

FINISH

Front panel is black. Handles and knobs are anodized gold. Chassis is black baked enamel.

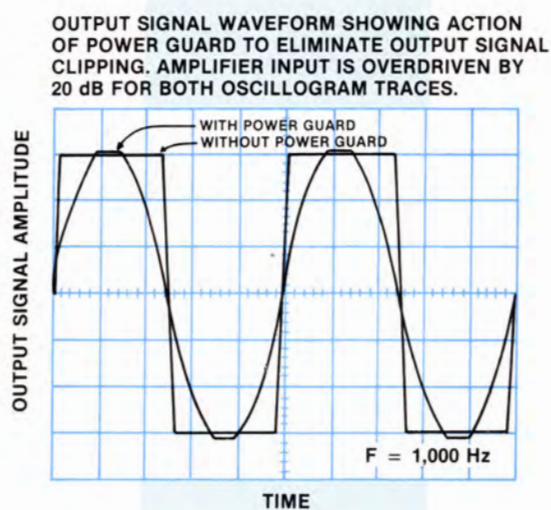
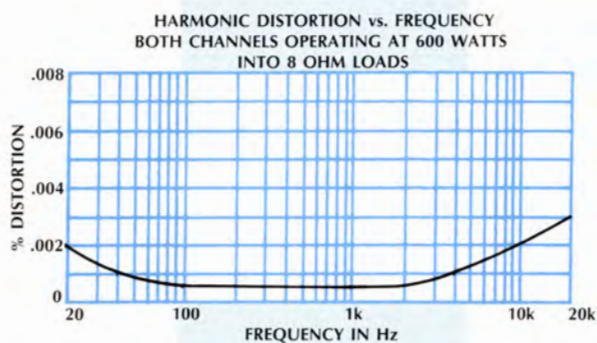
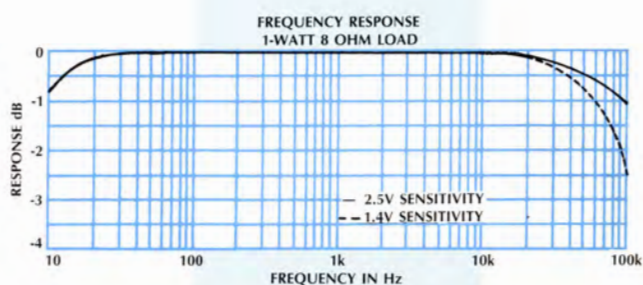
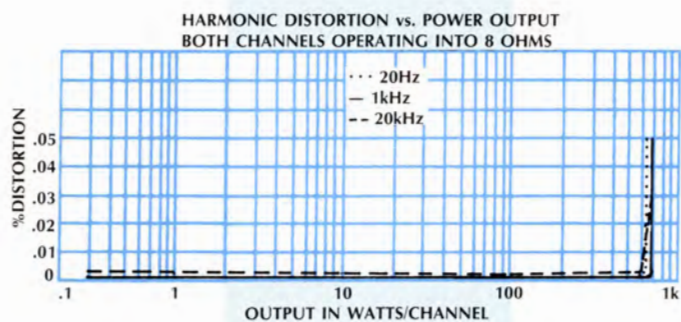
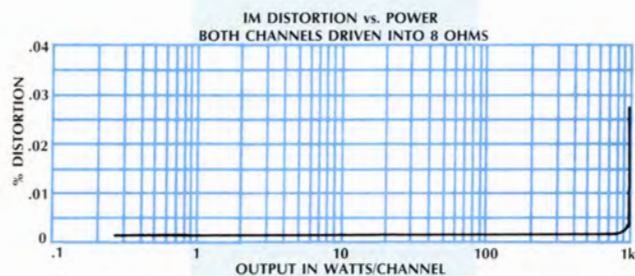
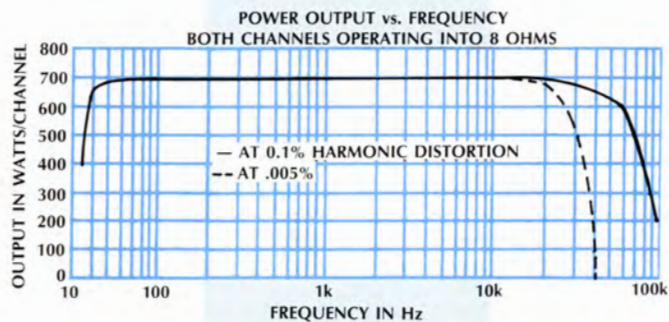
MOUNTING

Standard 19" (48.3 cm) rack mounting

WEIGHT

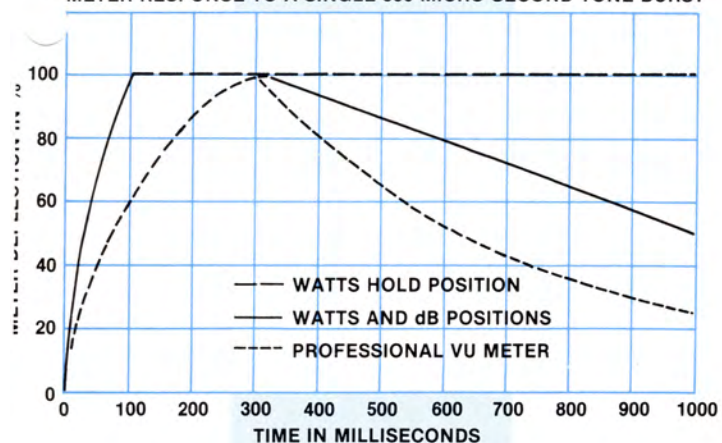
130 pounds (59 kg) net, 145 pounds (65.8 kg) in shipping carton

PERFORMANCE LIMITS 11

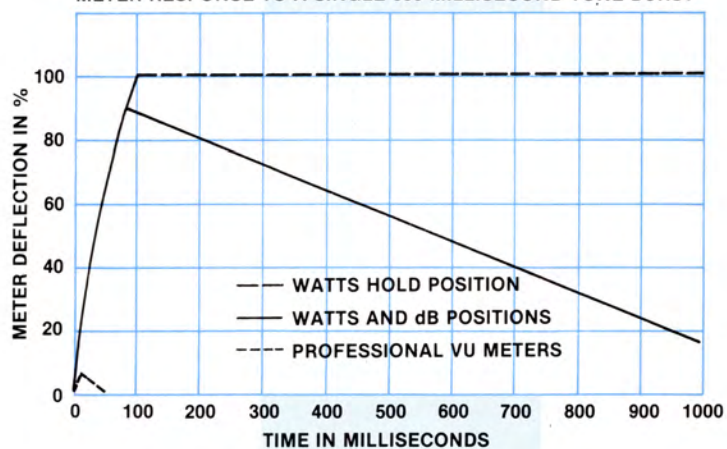


12 PERFORMANCE CURVES

METER RESPONSE TO A SINGLE 500 MICRO SECOND TONE BURST



METER RESPONSE TO A SINGLE 300 MILLISECOND TONE BURST



PERFORMANCE CURVES 13

The MC 2600 is a stereo power amplifier designed to operate with loudspeakers which have a nominal impedance of 2, 4 and 8 ohms in stereo and 1, 2, 4, 8 and 16 in mono.

It has a new circuit design that holds harmonic distortion so small that it is far below the amplifier's remarkably low noise floor. Only by using special spectrum analysis measuring techniques is the distortion measurable at all.

DESIGN PHILOSOPHY

The explanation of this performance will sound very simple, but it is more difficult to carry out than it may seem. The principle used in the design of the MC 2600 was to arrange every stage of voltage or current amplification to be as linear as possible.

Linear operation is accomplished by using several different techniques:

1. Each transistor is selected to have nearly constant current gain (Beta) over the entire range of currents at which the transistor must operate.
2. The load impedance presented to each amplification stage is made to be as uniform as possible for all signal levels.
3. The input impedance of stages is increased and linearized when possible by using emitter degeneration.
4. Resistors and capacitors in the signal path are carefully selected to have exceedingly low voltage coefficients (low change of resistance or reactance with applied voltage). Precision metal film resistors and low dielectric absorption film capacitors are used in all critical circuit locations.
5. Output transistors have matched uniform current gain, high current gain-bandwidth product, low output capacitance, and large active-region safe operating area. These characteristics and the automatic tracking bias system eliminates cross-over distortion. The distortion graphs show clearly that distortion does not increase as low power output levels.

HIGH OUTPUT CURRENT

It has greater than 102 amperes peak output current to drive uneven speaker loads. Some poor speaker designs have input impedances that dip to 1 or 2 ohms at various frequencies. The MC 2600 has the output current reserve to drive them over 102 amperes output per channel on tone bursts.

OVER 390 JOULES OF ENERGY STORAGE

Huge main filter capacitors are used to guarantee an excellent signal to noise ratio and the energy storage necessary for the wide dynamic range that "Digital Audio" demands.

HIGH CURRENT CAPABILITY

GOLD PLATED OUTPUT TERMINALS

An exclusive McIntosh gold plated output terminal is used to deliver full output power to speaker wires from 16GA to 4GA. 4GA wire is .204 inches in diameter, nearly 1/4 of an inch. You can connect directly to the wire. Special wire end terminators that can cause power loss are not required.

ILLUMINATED, PEAK RESPONDING OUTPUT METERS

The MC 2600 has output meters that respond 95% full scale to a single cycle tone burst at 2KHz. A professional VU meter responds only 10% of full scale to the same tone burst.

WATTS HOLD

The "Watts Hold" mode for the output meters records and displays the highest power output peak of the source material being amplified.

BALANCED INPUTS

Modern technology has made it possible to build preamplifiers and power amplifiers with the high signal to noise ratio necessary to properly reproduce compact discs or any other wide dynamic range program source. However, the interconnecting cables can pick-up electrical interference from other equipment or appliances. The balanced inputs on the MC 2600 provide a minimum of 40dB more protection against such noise pick-up.

OUTPUT AUTOFORMERS

The unequalled expertise of McIntosh in the design and manufacture of output transformers is legendary in the industry. In the MC 2600, they provide proper matching for 2, 4 and 8 ohm loads in stereo and 1, 3, 4, 8 and 16 ohms in mono. They protect your speakers from damage in the event of an output transistor failure, provide low distortion power transfer at frequencies well beyond human hearing and deliver peak output currents in excess of 102 amperes.

14 TECHNICAL DESCRIPTION

REGULATED ILLUMINATION

The tremendous peak output power capability of the MC 2600 has made the addition of a circuit that regulates the brilliance of the illumination necessary. When there are high power output demands, the line voltage may sag; however, this new circuit prevents the panel lights from dimming.

PROTECTION CIRCUITS

Some manufacturers of power amplifiers advertised that their products do not require or use protection circuits and that such circuits compromise performance. McIntosh Laboratory agrees that diligent measures are required to allow unrestricted performance, but we also insist that protection circuits are desirable and necessary to prevent amplifier or loudspeaker damage due to abnormal circumstance and that they actually enhance performance. The MC 2600 incorporates seven protection circuits to enhance its performance, assure its reliability and to protect loudspeakers driven by the MC 2600.

POWER GUARD

Power Guard, a unique feature of McIntosh amplifiers, assures that each channel of the MC 2600 will deliver full power free of clipping distortion. Clipping is caused when an amplifier is asked to produce more power output than its design is capable of delivering with low distortion. Amplifiers that are overdriven may deliver large quantities of power when they are clipping but they have more than 40% harmonic distortion. In this mode, the sound is grossly distorted and the extra energy content of the clipped signal will damage most loudspeakers. The McIntosh Power Guard circuit protects your ears and your speakers from this kind of damage.

The Power Guard circuit consists of a waveform comparator which monitors the wave shape of the amplifier input and output signals. Normally there is no disparity between these signals and the comparator produces no output. When the amplifier is driven beyond its maximum power capacity, a difference will develop. If the disparity exceeds 0.5% (equivalent to 0.5% total harmonic distortion), the comparator output causes the amber power guard indicator to light. If there is a further increase in the disparity, the comparator output controls an electronic attenuator at the amplifier input to reduce the amplifier gain, thus holding the amplifier output

to a low distortion value. Overdrive by 14dB is possible before the output distortion exceeds 2%.

SENTRY MONITOR

All power transistors have limits for the maximum amount of power they can handle. The MC 2600 output transistors and power supply have been designed to allow very high current flow into properly matched load impedances. If, however, a short circuit or very low value of load impedance is applied to the output of the MC 2600, destructive current levels could be reached if it was not controlled by the Sentry Monitor circuit. This circuit senses the dynamic operating time, voltage, and current of the amplifier output stage and controls the current flow confining it to nondestructive limits. Sentry Monitor does not limit the power output available from the amplifier.

THERMAL CONTROL

All power transistors have limits for the maximum amount of heat they can tolerate. The MC 2600 uses a highly efficient amplifying circuit which produces relatively little heat for the output power produced. The amplifier has 8 oversized heatsinks to dissipate transistor generated heat. Natural convection air flow is sufficient for cool operation under normal music conditions. When more power output is required and the heatsinks begin to warm, two large fans cool at low speed. If more strenuous conditions occur, such as improper loading, poor ventilation or continuous operation at full power, the fan speed increases to safely cool the amplifier. Should the cooling air be blocked or should the amplifier operating temperature become too high, thermal cutouts within the amplifier will turn off the power to the amplifier. When the amplifier has cooled, it will automatically turn on again.

TURN-ON DELAY

The MC 2600 has a turn-on delay circuit that delays amplifier operation for about 2 seconds after power turn-on. This prevents pops or thumps generated in other equipment from causing noises or damaging your loudspeakers.

DIRECT CURRENT FAILURE PROTECTION

The autotransformer protects speakers from damage in the event of amplifier failure. Should a direct current component appear in the output, it is shunted by the autotransformer and DC cannot damage the speaker.

TECHNICAL DESCRIPTION 15

POWER LINE INRUSH PROTECTION

Turn on inrush current is cushioned by thermistors in the power transformer primary circuit. A soft start is achieved that eliminates component stress during turn-on.

CIRCUIT OPERATION

The input stage is a precision balanced amplifier using 2 operational amplifiers in a feedback circuit. The unbalanced input is fed to the + input only. The input sensitivity switch controls the gain of the balanced amplifier for highest possible signal handling and lowest noise.

The audio then passes through the gain control to a preamplifier. The headphone output as well as the output amplifier is driven by the preamplifier.

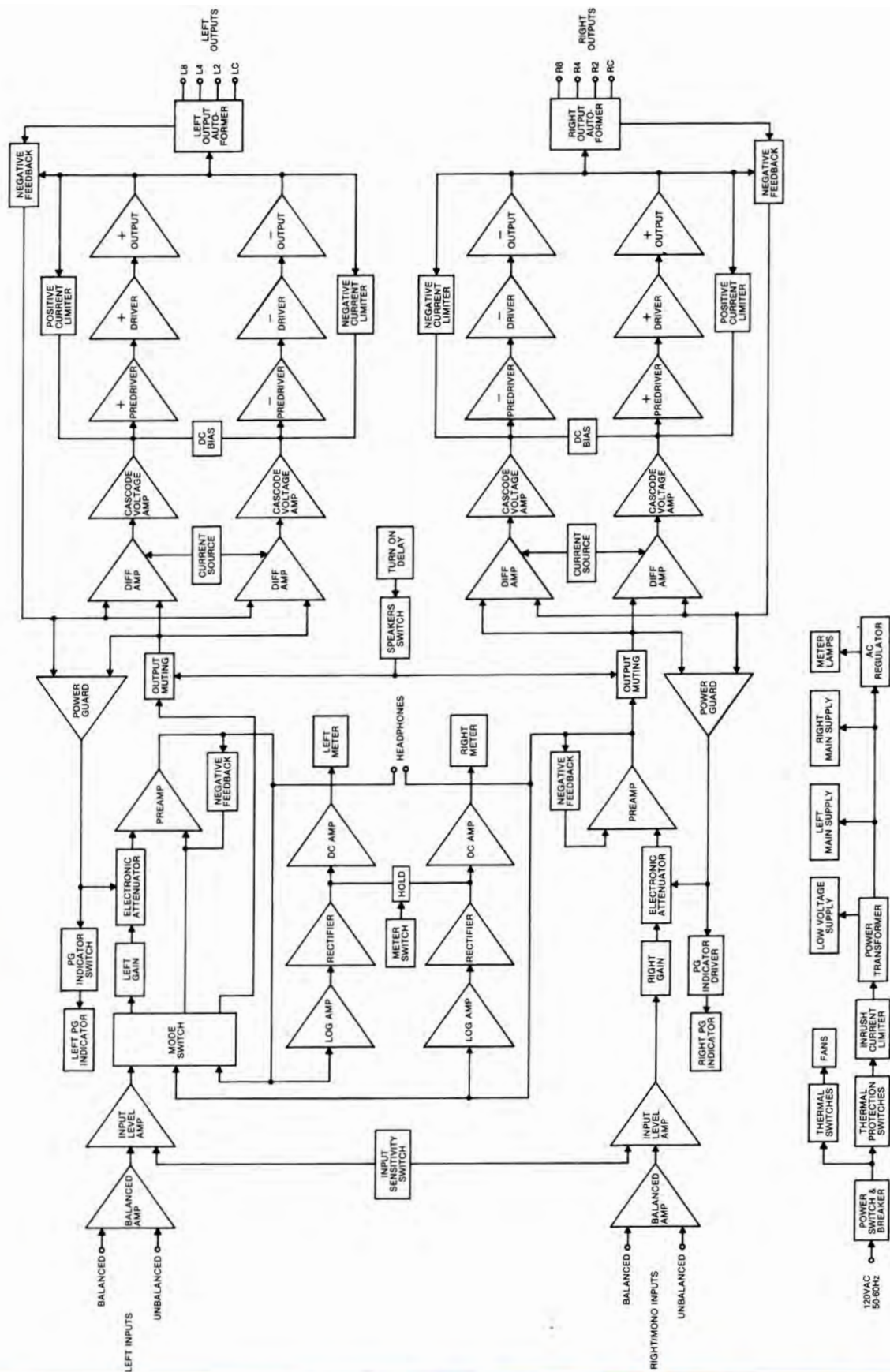
The power output amplifier uses two stages of voltage amplification followed by three stages of current amplification. All stages are complementary balanced. Even number harmonics are cancelled by the balanced circuits. This means that the amplifying stages have less total harmonic distortion and less negative feedback is required to achieve ultra low distortion.

The signal is fed to one input of the balanced differential stage. Feedback from the amplifier output is applied to the other input. The differential amplifiers drive a balanced cascode connected voltage amplifier stage. Current mirrors are also used to improve bandwidth and linearity.

The cascode voltage amplifier output feeds complementary Darlington connected driver transistors. These supply the signal to 18 complementary connected output transistors per channel. Ancillary components for Power Guard, Sentry Monitor, Power Output Meters and other protection circuits interconnect with the amplifier circuits. The power supply uses a massive power transformer, full wave bridge rectifiers and large filter capacitors having 390 joules of energy storage. Eight large heatsinks provide cooling for the 36 output power transistors.

The mechanical and electrical design of the MC 2600 is the result of the many years of engineering and manufacturing experience held by the staff at McIntosh. This "know how", the meticulous attention to design and production details, make the MC 2600 the finest amplifier produced by McIntosh Laboratory.

16 TECHNICAL DESCRIPTION





McIntosh®

McINTOSH LABORATORY INC.
2 CHAMBERS ST., BINGHAMTON, NY 13903-2699

The continuous improvement of its products is the policy of McIntosh Laboratory Incorporated who reserve the right to improve design without notice.
Printed in U.S.A.
039725