



**MC7106  
SIX CHANNEL  
POWER  
AMPLIFIER**

## 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 owner's 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 CHOCS 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.

**WARNING: THIS UNIT IS CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS. CONTINUED EXPOSURE TO HIGH SOUND PRESSURE LEVELS CAN CAUSE PERMANENT HEARING IMPAIRMENT OR LOSS. USER CAUTION IS ADVISED AND EAR PROTECTION IS RECOMMENDED WHEN PLAYING AT HIGH VOLUMES.**

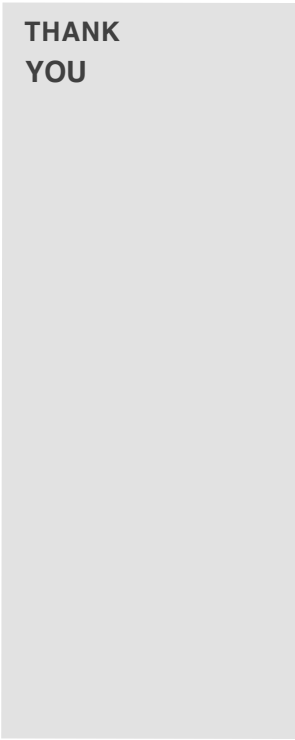
Your decision to own this piece of McIntosh Stereo Equipment ranks you at the very top among discriminating music listeners. You now have "The Best". The McIntosh dedication to "Quality", is assurance that you will receive thousands of hours of musical enjoyment from this unit.

Please take a short time to read the information in this manual. We want you to be as familiar as possible with all the features and functions of your new piece of McIntosh. This will ensure that you receive all the performance benefits this instrument can offer you, and that it will become a highly valued part of your home music system.

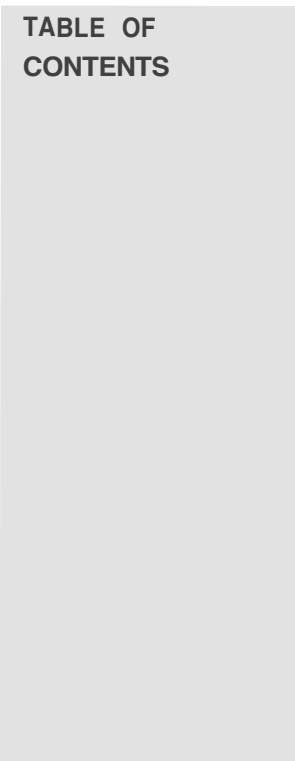
The serial number, purchase date, and McIntosh Laboratory Service Contract number are important to you for possible insurance claim or future service. Record this information here.

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.



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**McINTOSH  
THREE YEAR  
SERVICE  
CONTRACT**

TAKE ADVANTAGE OF 3 YEARS OF CONTRACT SERVICE. . .  
FILL IN THE APPLICATION NOW.

Your MC7106 Power Amplifier will give you many years of satisfactory performance. If you have any questions, please contact,

**McIntosh Laboratory Inc.**

2 Chambers Street  
Binghamton, New York 13903-2699  
Phone: 607-723-3512

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.

## INTRODUCTION

McIntosh Laboratory has earned a world wide reputation for its technical contributions to improved sound reproduction. The technical innovations in McIntosh products have integrity proven by time. The McIntosh "Classic" design is recognized as the most outstanding in the industry.

McIntosh products are designed to be maximum user friendly so anyone can enjoy using them. They are also designed for easy maintenance. The legendary reliability of McIntosh products has been a matter of record since 1949.

The MC7106, Six Channel Power Amplifier, is ideal for a "McIntosh Quality" Home Theater system. It can also be used in systems where multi amplifiers are needed for remote zones. All three pairs of stereo channels can be switched into Bridged configuration for 320 watts each. You have a choice of six 100 watt channels, (160 watts into 4 ohms), four 100/160 watt channels and one 320 watt channel, two 100/160 watt channels and two 320 watt channels or three 320 watt channels. The MC7106 configuration is perfect for a home theater system that will reproduce Dolby Surround™ soundtracks. The MC7106 has been Home THX® Audio licensed by Lucasfilm Ltd. to meet all the specialized THX requirements for reproducing Dolby Surround movie soundtracks. The MC7106 includes a rear panel 25 pin connector for a computer type cable to accept all six audio channels and AC power control information from a McIntosh C39 or MX 130 Audio/Video Control Center. The C39 and MX 130 include built-in Dolby Pro Logic™ decoding circuits, and can be converted to Home THX® Audio with the add-on McIntosh THX-M module. The Home THX® Audio System is a licensing program of Lucasfilm Ltd. which defines new technologies and quality standards for accuracy in home theaters.

Each of the six MC7106 direct coupled channels can deliver a Peak Output Current of 25 amperes, making it compatible with a wide variety of loudspeakers. All six channels incorporate the McIntosh POWER GUARD circuit which prevents output clipping with its harsh and damaging distortion.

There are front panel LED electronic power level indicators for all six channels which accurately read the percentage of maximum power output. The top LED for each channel display lights whenever the Power Guard circuit is activated. This indicates that the amplifier is being protected from overdrive and clipping. The output level where Power Guard acts will be well above the rated power due to conservative McIntosh design philosophy.

The LED power level displays will automatically dim as the room lights dim. A rear panel control allows you to adjust the LED illumination intensities when they are dimmed, or turn them off completely. The front panel is "Classic McIntosh", all glass, with lighted nomenclature.

*THX® is a registered trademark of Lucasfilm Ltd.*

*DOLBY SURROUND, PRO LOGIC and the Double "D" Symbol are registered trademarks of Dolby Laboratories Licensing Corporation,*

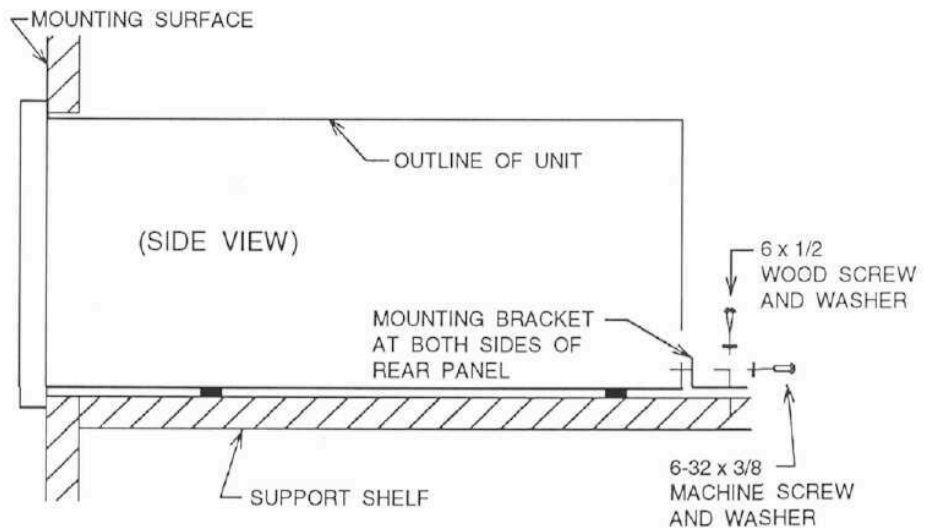
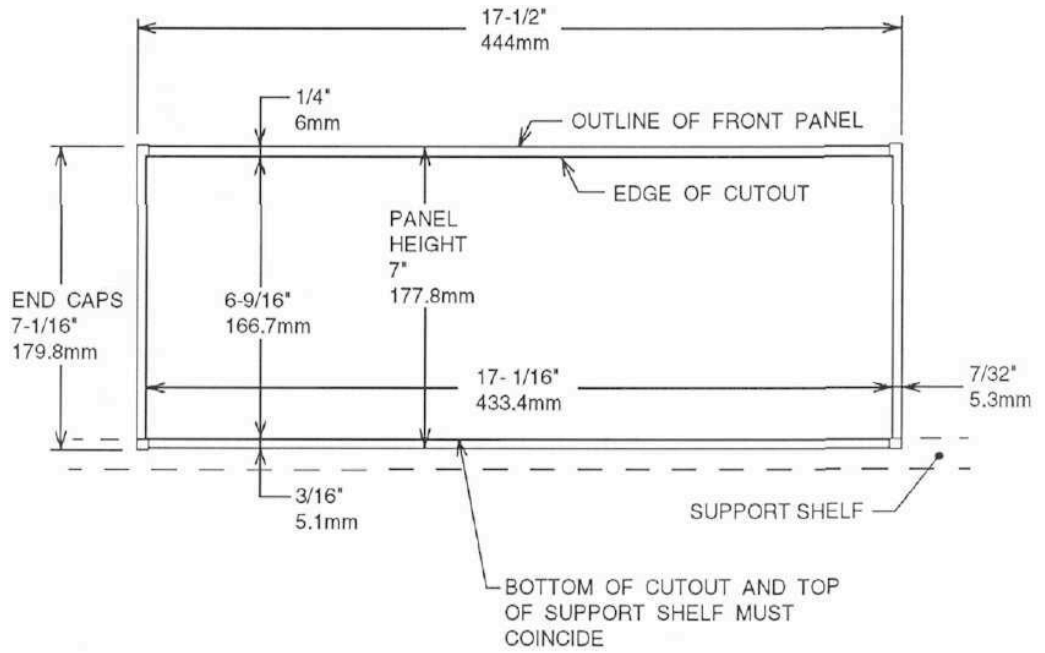
The MC7106 can be placed upright on a table or shelf, standing on its four plastic feet. The amplifier can also be custom installed in a cabinet of your choice. The mounting panel cutout and amplifier dimensions are shown in the diagrams found on Page 6 of this manual.

Always provide adequate ventilation for the amplifier. The trouble free life of any electronic instrument is greatly extended by providing sufficient ventilation for proper cooling.

Allow at least 1-1/2 inches (3.8cm) above the heat sink area to allow the free flow of air. The recommended minimum depth for mounting, including clearance for connectors, is 20 inches (51cm) behind the front mounting panel. Clearance required in front of the mounting panel surface is 1 inch (2.54cm).

## HOW TO INSTALL THE MC7106

**CUSTOM  
INSTALLATION  
DIAGRAM**



## **MC7106 OPERATING CONFIGURATIONS**

The versatile McIntosh MC7106 can be used in four different basic operating configurations.

1. Six separate 100 watt channels into 8 ohms, (160 watts into 4 ohms).
2. Four 100/160 watt channels and one 320 watt channel, bridged (8 ohms).
3. Two 100/160 watt channels and two 320 watt channels, bridged (8 ohms).
4. Three 320 watt channels, bridged (8 ohms).

The McIntosh HT, Home Theater Series loudspeakers are 4 ohm impedance. The McIntosh MC7106 will deliver a total of 960 watts of power into these six loudspeakers when used in a McIntosh Home Theater System.

The MC7106 is designed to directly interface with a McIntosh C39 or MX130 Audio/Video Control Center. The connection is through a shielded 25 conductor Subminiature "D" computer type cable connected from the McIntosh Control Center to the THX INPUT connector on the MC7106 rear panel. All six program signals as well as AC power control signals are sent to the amplifier through this cable. Individual discrete cables can also be used if desired.

The MC7106 also is an ideal amplifier for applications requiring multi zone amplifiers. For example, the MC7106 can supply power to a pair of speakers in three separate areas when it is used with the McIntosh CR10 Remote Control System.

Use high quality input and output connecting cables. Proper cables will ensure receiving the best possible performance from your McIntosh system. Your McIntosh dealer can advise you on the types and lengths of cables that will work best in your installation.

Refer to the hookup drawings for information on how to connect the inputs and outputs for each installation configuration. Pay special attention to the polarities of the speaker hookups.

The top RED speaker output terminals are positive, and the bottom BLACK terminals are negative or common. This configuration applies when the amplifier channels are used individually.

In BRIDGED configuration, only the Top RED terminals are used. Follow the plus and minus polarity indications marked above the RED terminals. When using a pair of channels in BRIDGED mode, set the rear panel MODE Switch for that pair of channels to the BRIDGED position. Use only speakers with an impedance of 8 ohms or higher with BRIDGED channels.

Refer to the numbers on the rear panel drawing for the descriptions of the MC7106 connections and controls.

### **1. POWER (ON, OFF/REMOTE)**

ON position turns the MC7106 AC power on. OFF/REMOTE allows the MC7106 AC power to be turned on by a control signal from a McIntosh Control Center through the 25 conductor THX connector. The amplifier can also be turned on by a control signal fed from a McIntosh Control Center POWER CONTROL Output to the MC7106 rear panel POWER CONTROL IN connector.

### **2. MODE (NORMAL/BRIDGED)**

Set this switch to NORMAL when channels 5 and 6 are being used separately. Set the switch to BRIDGED when the two channels are connected together for bridged operation.

### **3. INPUTS 5 and 6**

Connect cables from a preamplifier, control center or other accessory output- to these inputs.

## **REAR PANEL FEATURES AND CONNECTIONS**

## REAR PANEL FEATURES AND CONNECTIONS

### 4. LEVEL 5 and 6

Set the controls fully clockwise to the THX (1 volt) reference position when using the amplifier with a McIntosh C39 or MX130 Control Center adapted for the Home THX® Audio System. For use with other audio systems, set the controls as desired.

### 5. DISPLAY BRIGHTNESS (MAX/OFF)

*(Flush mounted screwdriver control)*

Adjust this control for the desired brightness of the front panel power level LED displays when the room is darkened. When the room lighting returns to normal, the displays will also return to their normal intensity. Turn the control fully counterclockwise to turn the displays completely off. The front panel teal nomenclature retains normal illumination at all times.

### 6. MODE (NORMAL/BRIDGED)

Set this switch to NORMAL when channels 3 and 4 are being used separately. Set the switch to BRIDGED when the two channels are connected together for bridged operation.

### 7. INPUTS 3 and 4

Connect cables from a preamplifier, control center or other accessory outputs to these inputs.

### 8. LEVEL 3 and 4

Set the controls fully clockwise to the THX (1 volt) reference position when using the amplifier with a McIntosh C39 or MX130 Control Center adapted for the Home THX® Audio System. For use with other audio systems, set the controls as desired.

### 9. THX® INPUT

Connect a shielded 25 conductor Subminiature "D" male-to-female computer type cable from the 6 channel output connector on a McIntosh C39 or MX130 to the MC7106 THX® input connector. This cable will supply all six output signals from the Control Center for surround sound operation. It also supplies the control signal to turn the MC7106 AC power on and off.

### 10. MODE (NORMAL/BRIDGED)

Set this switch to NORMAL when channels 1 and 2 are being used separately. Set the switch to BRIDGED when the two channels are connected together for bridged operation.

### 11. INPUTS 1 and 2

Connect cables from a preamplifier, Control Center or other accessory outputs to these inputs.

### 12. LEVELS 1 and 2

Set the controls fully clockwise to the THX (1 volt) reference position when using the amplifier with a McIntosh C39 or MX130 Control Center adapted for the Home THX® Audio System. For use with other audio systems, set the controls as desired.

### 13. OUTPUTS 1 and 2, and BRIDGED OUTPUT

For separate channel operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper terminal, and the Common lead to the - (Minus) BLACK lower terminal of each channel.

For BRIDGED operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper Channel 1, BRIDGED terminal, and the Common lead to the - (Minus) RED upper Channel 2, BRIDGED terminal.



## REAR PANEL FEATURES AND CONNECTIONS

### 14. OUTPUTS 3 and 4, and BRIDGED OUTPUT

For separate channel operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper terminal, and the Common lead to the - (Minus) BLACK lower terminal of each channel.

For BRIDGED operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper Channel 3, BRIDGED terminal, and the Common lead to the - (Minus) RED upper Channel 4, BRIDGED terminal.

### 15. POWER CONTROL, IN/OUT

The MC7106 AC power can be turned on and off by a control signal fed to the POWER CONTROL IN connector. This signal is available from a McIntosh C39 or MX130 Control Center through the 25 conductor computer type cable, or directly from a Control Center POWER CONTROL Output. The MC7106 POWER CONTROL OUT jack will feed the same AC power control signal out to another accessory component with a compatible Power Control input- The POWER CONTROL connectors are standard 1/8 inch mini phone plugs. Only the tip and sleeve are used for connections.

The MC7106 POWER switch must be in the OFF/REMOTE setting for the power control signals to properly operate the MC7106 AC power.

### 16. OUTPUTS 5 and 6, and BRIDGED OUTPUT

For separate channel operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper terminal, and the Common lead to the - (Minus) BLACK lower terminal of each channel.

For BRIDGED operation, connect the Hot lead of a loudspeaker to the + (Plus) RED upper Channel 5, BRIDGED terminal, and the Common lead to the - (Minus) RED upper Channel 6, BRIDGED terminal.

### 17. AC POWER CORD

Connect the MC7106 to a live 50/60Hz, 120 volt AC wall outlet. Do not connect the unit to an AC outlet on the rear panel of a Preamplifier or Control Center.

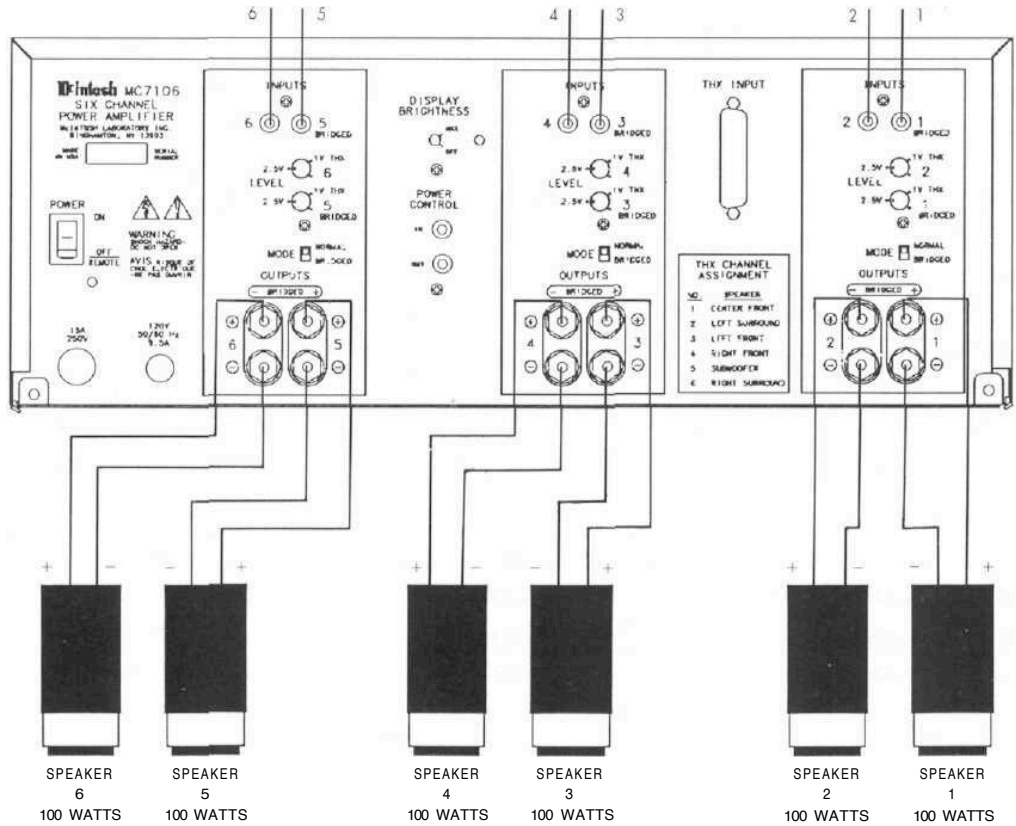
### 18. 15A 250V (Fuse)

CAUTION: For continued protection against fire hazard, replace only with the same type 15A-250V SLO BLO fuse.

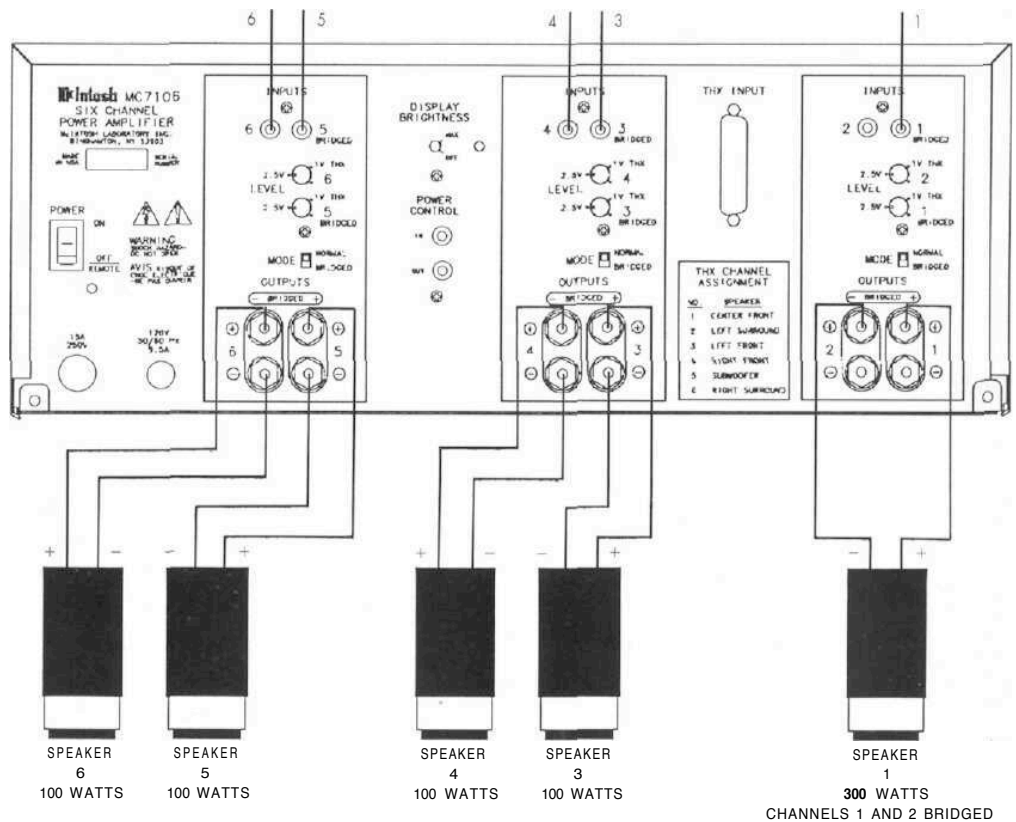
The following hookup diagrams show how to connect the six channels of the MC7106 in four different output configurations. The MC7106 has excellent channel separation, so the six channels can be used as six separate amplifiers, in mono or stereo, each with its dedicated input signal and speaker output. Any of the following operating configurations can be used for multi zone amplifier requirements.

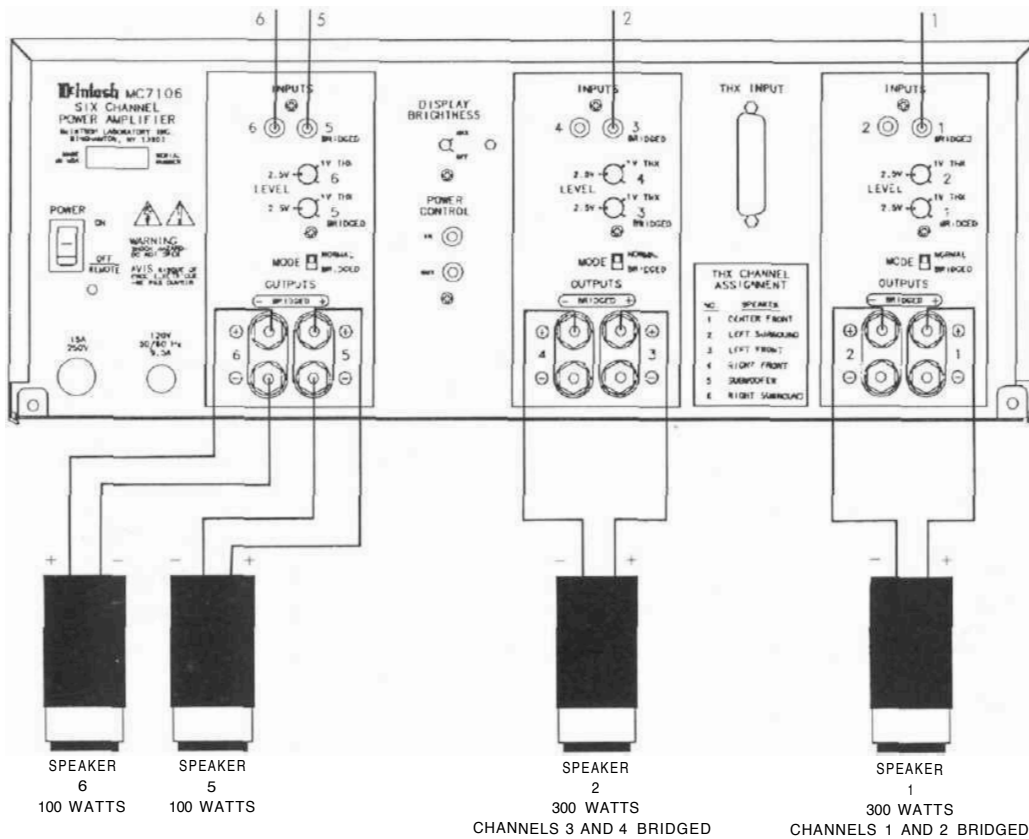
## AMPLIFIER/ SPEAKER CONFIGURATIONS

**SIX 100/160  
WATT  
CHANNELS**

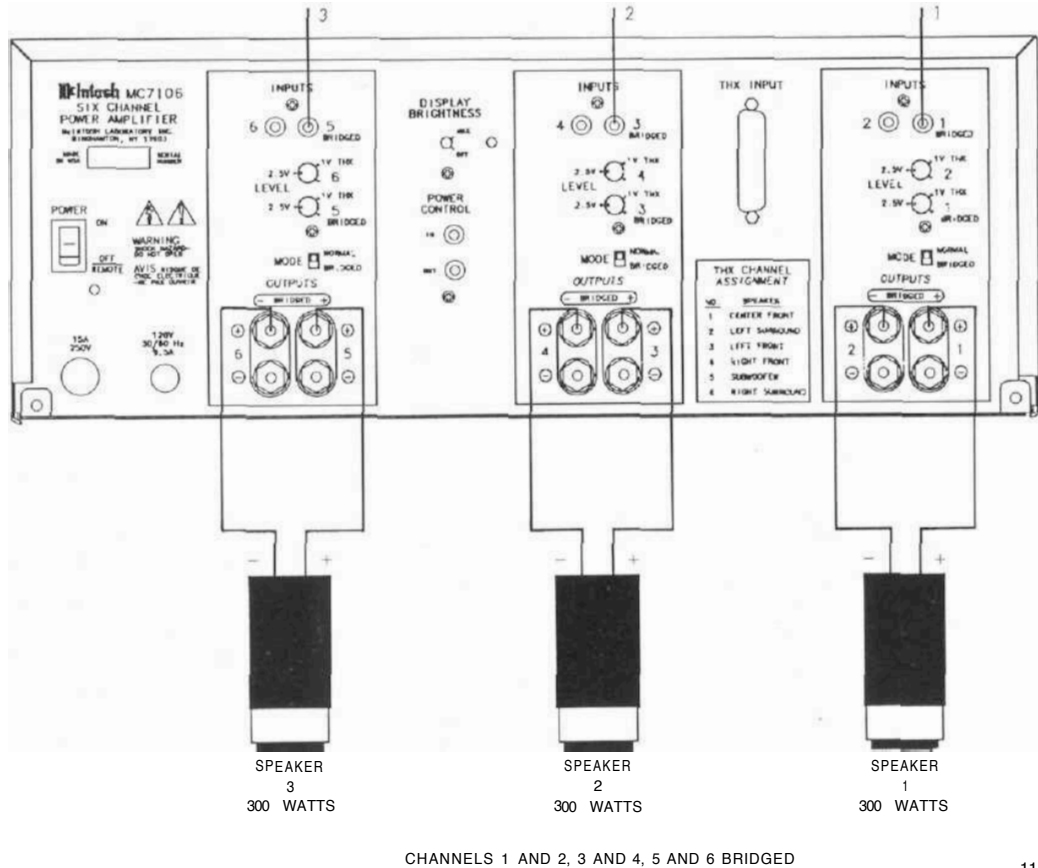


**FOUR 100/160  
WATT  
CHANNELS  
AND  
ONE 320 WATT  
CHANNEL,  
BRIDGED**





**TWO 100/160 WATT CHANNELS AND TWO 320 WATT CHANNELS, BRIDGED**



**THREE 320 WATT CHANNELS, BRIDGED**

**McINTOSH  
HOME THEATER  
AMPLIFIER/  
SPEAKER  
CONNECTIONS**

HOME THEATER SURROUND, USING SIX 100/160 WATT CHANNELS WITH A  
McINTOSH C39 OR MX130 AUDIO/VIDEO CONTROL CENTER

The McIntosh HT, Home Theater Series loudspeakers are 4 ohm impedance. The McIntosh MC7106 will deliver a total of 960 watts of power into these six loudspeakers when used in a McIntosh Home Theater System.

Program signals coming from a McIntosh C39 or MX 130 Control Center will be fed to the MC7106 inputs through the rear panel 25 pin THX INPUT connector. All six channels will receive signals when the Control Centers are used in the HALL, CINEMA 1, (Dolby Pro Logic) or CINEMA 2, (THX®Audio), MODES. AC power control for the MC7106 is also fed through the 25 pin connector. The MC7106 AC power cable must be connected to a live AC wall outlet at all times. Set the MC7106 rear panel POWER switch to the OFF/REMOTE position.

*Do not connect the MC7106 power cable to a Control Center rear panel AC outlet.*

The six separate Control Center rear panel RCA output jacks may also be used to connect to the MC7106 inputs instead of the 25 conductor cable. In this mode of connecting, to control the MC7106 AC power you also must connect a cable from the Control Center POWER CONTROL jack to the MC7106 POWER CONTROL IN jack. Connect the MC7106 power cable to a live AC wall outlet and set the POWER switch to the OFF/REMOTE position.

**OUTPUT CHANNEL ASSIGNMENT USING THE THX 25 PIN CONNECTOR**

A McIntosh C39 or MX130 used in the HALL, CINEMA 1, or CINEMA 2 Mode will feed the following surround sound signals to the six channels of the MC7106 through the 25 conductor THX connector.

CHANNEL 1: Center Front

CHANNEL 4: Right Front

CHANNEL 2: Left Surround

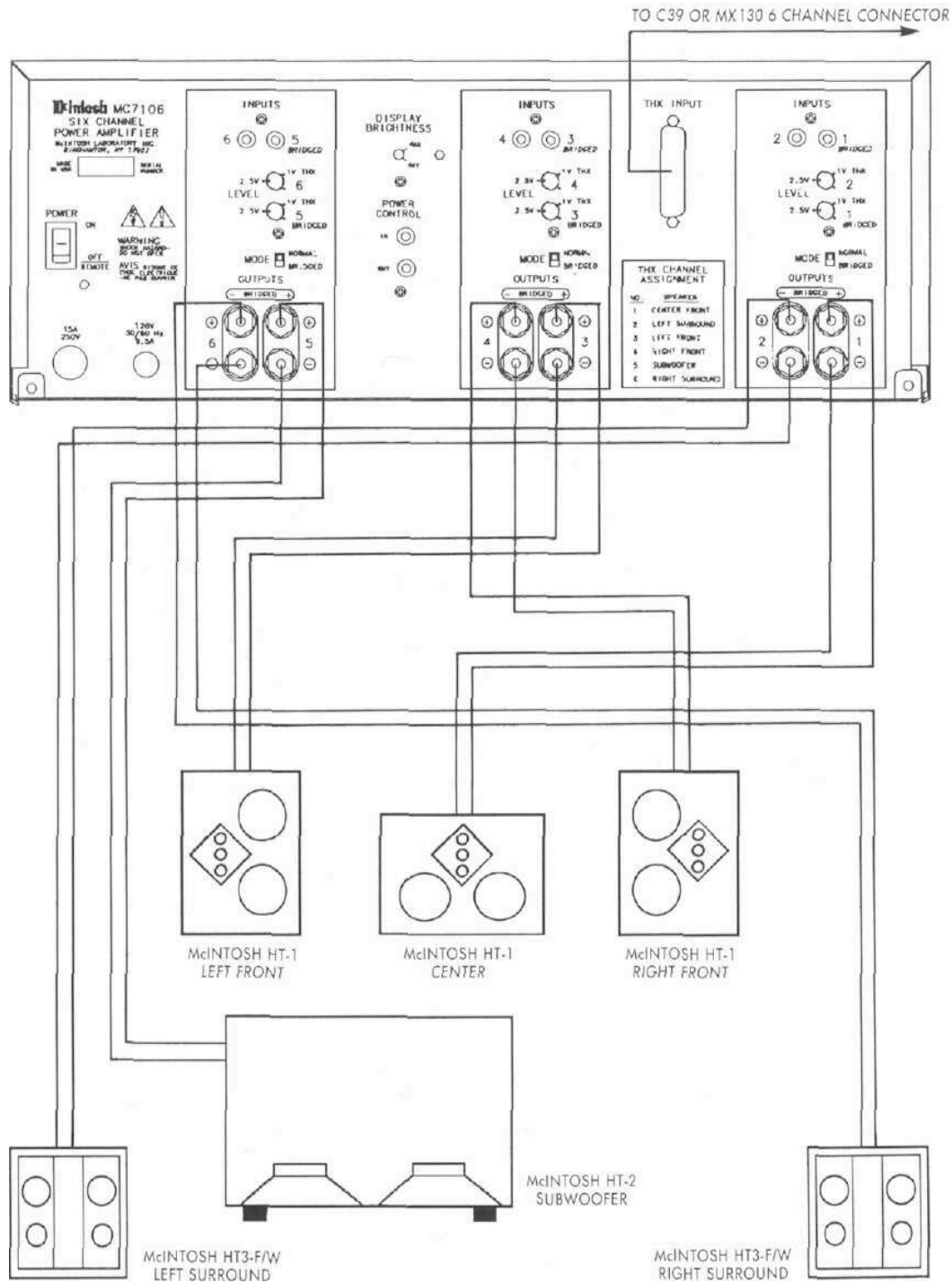
CHANNEL 5: Subwoofer

CHANNEL 3: Left Front

CHANNEL 6: Right Surround

*For further information on other operating modes of the C39 or MX 130, consult the applicable owner's manual.*

**McINTOSH  
HOME THEATER  
WITH SIX  
160 WATT  
CHANNELS**



## SPECIFICATIONS

### PERFORMANCE LIMITS

Performance limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that when you purchase an MC7106 from a McIntosh franchised dealer, it will be capable of performance at or better than these limits.

### POWER OUTPUT, SIX CHANNELS

100 watts per channel into 8 ohm loads, or 160 watts per channel into 4 ohm loads minimum sine wave continuous average power output per channel, all channels operating.

The output RMS voltage is:

28.3V across 8 ohms

25.2V across 4 ohms

### POWER OUTPUT, TWO CHANNELS BRIDGED

320 watts into an 8 ohm load, minimum sine wave continuous average power output.

The output RMS voltage is:

50.6V across 8 ohms

### OUTPUT LOAD IMPEDANCE

8 or 4 ohms, for all six separate channels  
8 ohms, Bridged operation

### RATED POWER BAND

20Hz to 20,000Hz

### TOTAL HARMONIC DISTORTION

0.005% maximum harmonic distortion at any power level from 250 mW to rated power output.

### IHF DYNAMIC HEADROOM

8 ohms, 1.8dB

4 ohms, 2.1dB

### FREQUENCY RESPONSE

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

+0, -3.0dB from 10Hz to 100,000Hz

### INPUT SENSITIVITY

1V, (2.5V with Level control at center detent)

### A-WEIGHTED SIGNAL-TO-NOISE RATIO

93dB (113dB below rated output)

### INTERMODULATION DISTORTION, SMPTE

0.005% maximum if instantaneous peak power does not exceed twice the output power rating.

### RATINGS

#### WIDE BAND DAMPING FACTOR

200 at 8 ohms

100 at 4 ohms

#### INPUT IMPEDANCE

20,000 ohms

#### POWER GUARD

Clipping is prevented and THD does not exceed 2% with up to 14dB overdrive at 1000Hz.

#### POWER REQUIREMENTS

120V, 50/60Hz, 12A UL/CSA

### MECHANICAL

#### SIZE

Front panel: 17 1/2 inches (44.5cm) wide, by 7 1/8 inches (18.1cm) high. Depth behind the front mounting panel is 20 inches (50.8cm) including clearance for connectors. Panel clearance required in front of mounting panel is 1 inch (2.54cm).

#### FINISH

Front panel is glass with gold/teal nomenclature illumination. Chassis and chassis cover are black.

#### WEIGHT

52 pounds (23.6Kg) net, 70 pounds (31.8Kg) in shipping carton.

#### DESIGN PHILOSOPHY

The MC7106 Six Channel power amplifier is designed to operate loudspeakers with a nominal impedance of 4 to 8 ohms. It features a new circuit design that keeps distortion levels so low it takes special test gear for accurate measurements.

The design philosophy incorporated in this outstanding amplifier involved many different techniques, all based on sound scientific logic. Every stage of voltage or current amplification was designed to be as linear as possible. Negative feedback is then utilized to enhance the performance. McIntosh engineers know how to properly design negative feedback circuits so they contribute to the extremely low distortion performance expected from a McIntosh amplifier. All transistors are selected to have nearly constant current gain (Beta) over the entire current range they must cover. Output transistors in particular, have matched uniform current gain, high current-bandwidth product and large active region safe operating area.

Resistors and capacitors in the signal path are carefully selected to have exceedingly low voltage coefficients, (change of resistance or reactance with applied voltage). Precision metal film resistors, low dielectric absorption film capacitors and premium audio grade electrolytics are used in all critical circuit locations.

#### PROTECTION CIRCUITS

Some manufacturers claim that their products do not need or use protection circuits and that such circuits compromise performance. McIntosh feels that protection circuits are desirable and necessary to prevent amplifier or loudspeaker damage due to abnormal circumstances. The genius of McIntosh engineering has resulted in protection circuits which have no effect or compromise on the normal performance of a power amplifier. The SENTRY MONITOR circuit is a good example. The MC7106 incorporates six specific protection circuits to enhance its performance, increase its reliability and protect loudspeakers.

#### SENTRY MONITOR CIRCUIT

All power transistors have limits for the maximum amount of power they can handle. The MC7106 output transistors and power supply have been designed to allow very high current flow into properly matched load impedances. However, if a short circuit or very low load impedance is connected to any of the MC7106 outputs, 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 output stage, and controls it to safe operating limits.

There is absolutely no compromise in sonic performance and it ensures safe operation of the amplifier under even the most extreme operating conditions.

#### THERMAL CONTROL

All power transistors have limits for the maximum amount of heat they can safely tolerate. The MC7106 uses highly efficient amplifying circuits which produce relatively little heat for the output power produced. The amplifier uses large area heat sinks to efficiently dissipate what heat it does generate. Natural convection air flow is sufficient for safe cool operation.

If the cooling air is blocked, or the amplifier operating temperature is forced too high, thermal cutout switches will turn off the speakers on one or more pairs of channels. Both POWER GUARD indicators will light continuously for the channels that are affected to show that thermal protection is operating. When the problem is corrected and the amplifier cools down to its normal operating temperature, the speakers will be turned back on.

## TECHNICAL DESCRIPTION

### DIRECT CURRENT FAILURE PROTECTION

A protection circuit is provided that turns off the speakers if for any reason a DC voltage should appear at the output terminals of any one of the six channels. The speakers will turn off only for the pair of channels that are affected. This safeguard prevents possible speaker damage.

### POWER GUARD\*

The MC7106 amplifier includes the unique patented McIntosh POWER GUARD circuit. POWER GUARD eliminates the possibility of ever overdriving the amplifier into clipping.

Clipping occurs when an amplifier is overdriven past its output design capabilities. An overdriven amplifier can produce both audible and ultrasonic distortion levels approaching 40%. The audible distortion is unpleasant to hear, but the ultrasonic distortion is also undesirable, since it can damage tweeter loudspeakers.

The POWER GUARD circuit acts as a waveform comparator, monitoring both the input and output waveforms. Under normal operating conditions there are no differences between these waveforms. If an amplifier channel is overdriven beyond its maximum distortion free output, there will be a difference between the two signal waveforms. When the difference exceeds 0.3% (equivalent to 0.3% harmonic distortion), the amber POWER GUARD indicator will light. If the difference continues to increase, the POWER GUARD circuit will control an electronic attenuator at the amplifier channel input to reduce the gain just enough to prevent any further increase in distortion. Distortion will not exceed 2% with as much as 14dB overdrive at 1000Hz.

A McIntosh power amplifier with POWER GUARD will always deliver its maximum distortion free output. This power is always well above its rated power due to the McIntosh philosophy of conservative design. You will never experience the harsh and damaging distortion due to clipping when using a McIntosh amplifier with POWER GUARD.

*POWER GUARD is protected by U.S. Patent No. 4048573.*



The letters and numbers correspond to the paragraphs on pages 7, 8, and 9.

