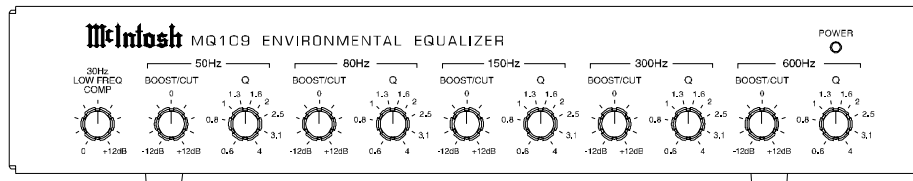




## Enviromental Equalizer



MQ109B



## Thank You, Please Take A Moment, Customer Service and Table of Contents

### Thank You

For your decision to own this McIntosh MQ109B Environmental Equalizer 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 many years 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 McIntosh MQ109B. This will ensure that you receive all the performance benefits this equipment can offer you, and that it will become a highly valued part of your home entertainment system.

### Please Take A Moment

The serial number, purchase date and McIntosh dealer name are important to you for possible insurance claim or future service. The serial number is located on the rear panel of the equipment. The spaces below have been provided for you to record that information:

#### Serial Number:

#### Purchase Date:

#### Dealer Name:

### Customer Service

If at any time you have questions about your MQ109B Environmental Equalizer, please contact:

McIntosh Laboratory, Inc.  
2 Chambers Street  
Binghamton, New York 13903  
Phone: 607-723-3512  
FAX: 607-724-0549

### Table of Contents

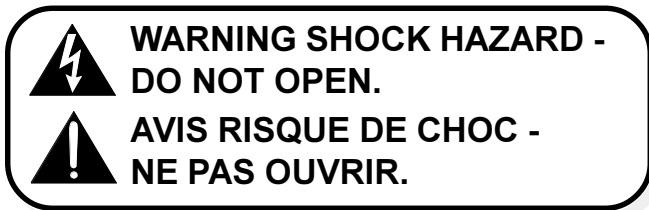
Thank You .....	2
Please Take a Moment .....	2
Customer Service .....	2
Table of Contents .....	2
Safety Instructions .....	3
Introduction .....	4
Performance Features .....	4
Installation .....	4
Side and Rear Panel Connections .....	5
How to Connect .....	6
Front and Panel Controls and Switches .....	7
How to Operate .....	8
Specifications .....	11
Packing Instruction .....	11

#### NOTES:

- Balanced and Unbalanced Outputs can be mixed. For example, you may also use Balanced and Unbalanced outputs simultaneously, connected to different power amplifiers.*

## IMPORTANT SAFETY INSTRUCTIONS!

PLEASE READ THEM BEFORE OPERATING THIS EQUIPMENT.



### General:

1. Read all the safety and operating instructions, contained in this owner's manual, before operating this equipment.
2. Retain this owner's manual for future reference about safety and operating instructions.
3. Adhere to all warnings and operating instructions.
4. Follow all operating and use instructions.
5. **Warning: To reduce risk of fire or electrical shock, do not expose this equipment to rain or moisture. 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.**
6. **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 un autre sortie de courant, sauf si les lames peuvent etre inserees afond ans en laisser aucune partie a decouvert.**
7. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning or power line surges.

8. Do not use attachments not recommended in this owner's manual as they may cause hazards.

### Installation:

9. Locate the equipment for proper ventilation. For example, the equipment 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.
10. Locate the equipment away from heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.
11. Mount the equipment in a wall or cabinet only as described in this owner's manual
12. Do not use this equipment near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement or near a swimming pool, etc.
13. Do not place this product on an unstable cart, stand, tripod, bracket, or table. The equipment may fall, causing serious injury to a person, and serious damage to the product.

### Connection:

14. Connect this equipment only to the type of AC power source as marked on the unit.
15. Route AC power 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.
16. Do not defeat the inherent design features of the polarized plug. Non-polarized line cord adapters will defeat the safety provided by the polarized AC plug. If the plug should fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
17. Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

### Care of Equipment:

18. Clean the instrument by dusting with a dry cloth. Unplug this equipment from the wall outlet and clean the panel with a cloth moistened with a window cleaner. Do not use liquid cleaners or aerosol cleaners.
19. Do not permit objects of any kind to be pushed and/or fall into the equipment through enclosure openings.



## Safety Instructions con't, Introduction, Performance Features and Installation

Never spill liquids into the equipment through enclosure openings.

20. Unplug the power cord from the AC power outlet when left unused for a long period of time.

### Repair of Equipment:

21. Unplug this equipment from the wall outlet and refer servicing to a qualified service personnel under the following conditions:
  - A. The AC power cord or the plug has been damaged,
  - B. Objects have fallen, or liquid has been spilled into the equipment,
  - C. The equipment has been exposed to rain or water,
  - D. The equipment does not operate normally by following the operating instructions contained within this owner's manual. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,
  - E. The equipment has been dropped or damaged in any way,
  - F. The equipment exhibits a distinct change in performance - this indicates a need for service.
22. Do not attempt to service beyond that described in the operating instructions. All other service should be referred to qualified service personnel.
23. When replacement parts are required, be sure the service technician has used replacement parts specified by McIntosh or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
24. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

### Introduction

The MQ109-B Environmental Equalizer provides an easy and convenient way to correct room acoustic conditions that can affect the performance of a quality loudspeaker system. Loudspeaker performance is affected by the listening room due to loudspeaker location, position of the listener, room dimensions, room surfaces, and reflections from furniture or substructures in the room. The acoustic characteristics of a typical listening room can affect loudspeaker performance

usually at frequencies of 1200Hz and lower, and can alter frequency response as much as  $\pm 30$ dB.

Standing waves or room resonances occur due to reflections of the sound from wall to wall, from floor to ceiling and from any other room structures. These frequency response variations are the greatest in a cube shape room, with equal dimensions from wall to wall and floor to ceiling. A high quality loudspeaker with the ability to radiate perfectly uniform frequency response can have its sound characteristics changed drastically by a room with severe standing waves. In most every case the change will degrade the listening. The most common effect is one or more peaks/dips in the bass frequency range.

### Performance Features

#### ● Low Frequency Compensation

Low Frequency Compensating Control centered at 30Hz allows bass centered at 30Hz to be boosted by up to 12dB.

#### ● Five Equalizer Bands

Five Equalization bands centered at 50Hz, 80Hz, 150Hz, 300Hz and 600Hz, provide adjustment for the five most significant frequency bands which are affected by room acoustics.

#### ● Variable Equalizer Controls

Five Boost and Cut Controls, one for each band. Each of the five frequency bands can be boosted or cut by up to 12dB.

#### ● Variable "Q" Controls

Five "Q" controls, one for each band. The "Q" or bandwidth of frequencies above and below the center frequencies can be adjusted from a narrow with "Q of 4" to a broad bandwidth with a "Q of 0.6".

#### ● Balanced and Unbalanced Connections

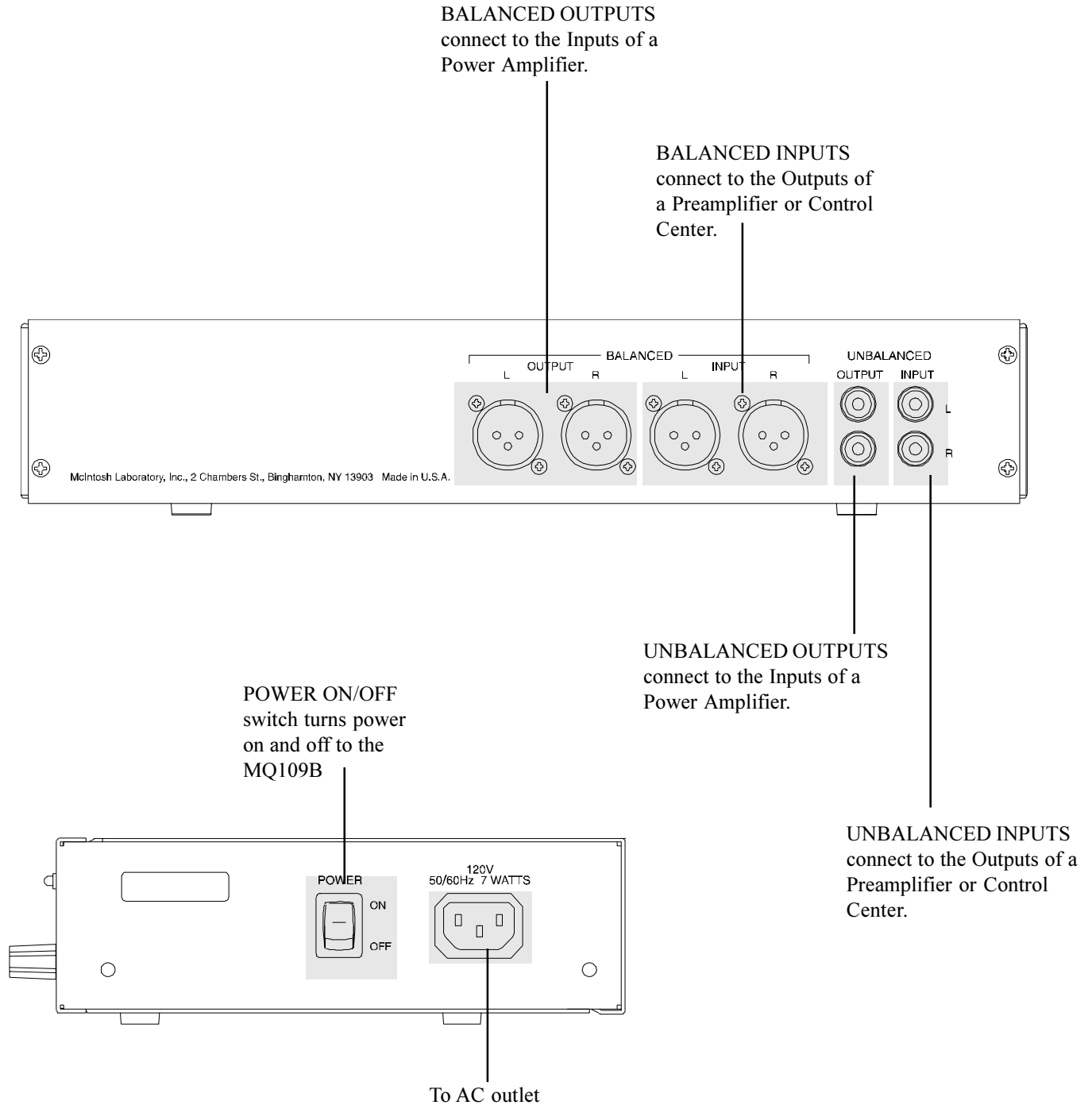
Both Balanced and Unbalanced Inputs and Outputs are provided.

### Installation

The MQ109B can be placed upright on a table or shelf. Cool operation ensures the longest possible operating life for any electronic instrument. Do not install the MQ109B directly above a heat generating component such as a high powered amplifier.

# MQ109B Rear and Side Panel Connections

## MQ109B Rear and Side Panel Connections





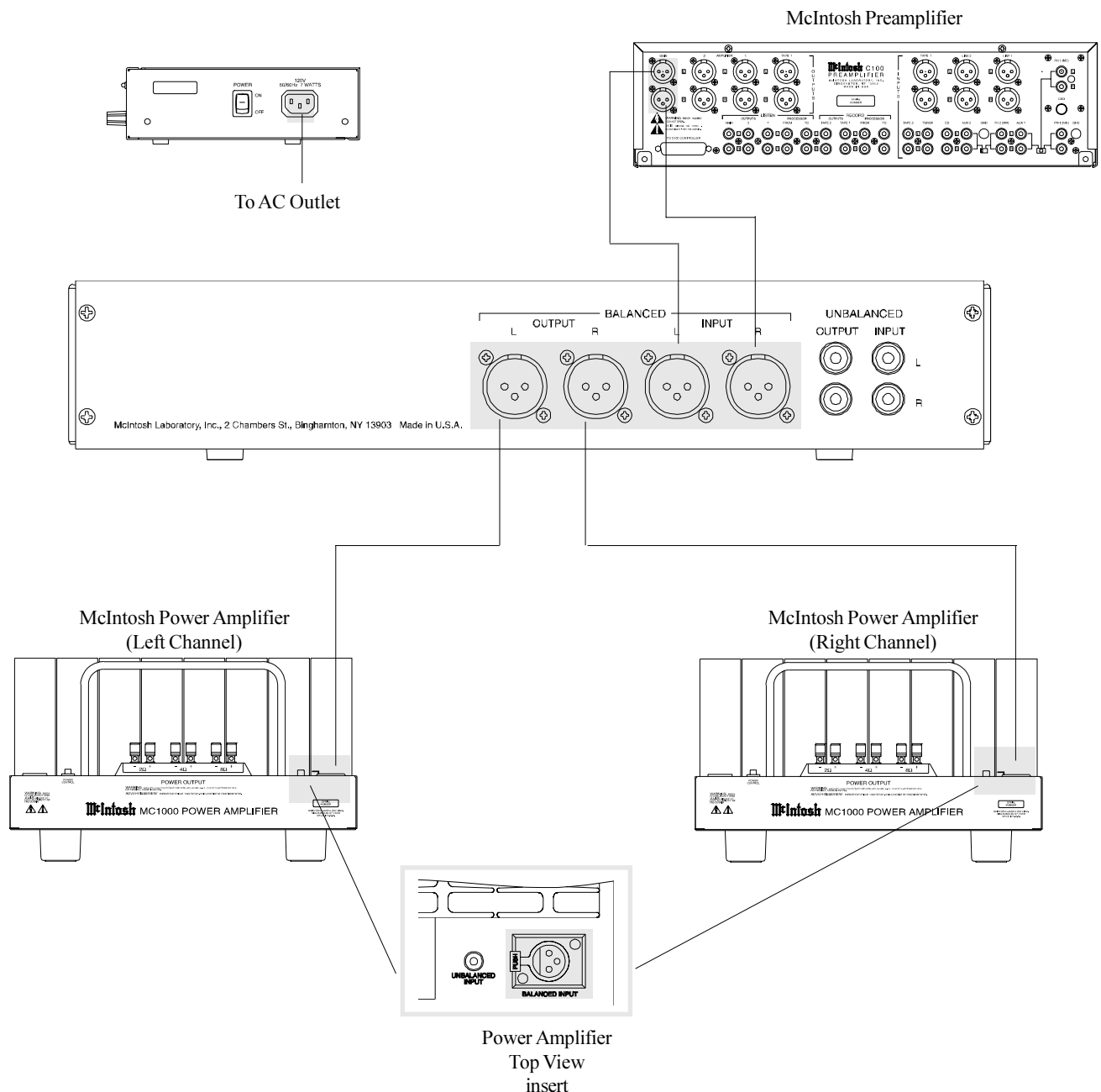
## How to Connect the MQ109B

1. Connect the AC power cord to a switched outlet on a Control Center, Preamplifier or Power Control unit. Refer to information on the MQ109-B side panel to determine the correct voltage for your unit.

*NOTE: Either Balanced or Unbalanced Inputs and Outputs can be used. You can intermix Balanced and Unbalanced connections. For example, use Unbalanced Inputs and Balanced Outputs.*

2. Connect the MQ109-B INPUTS to the Outputs of a Preamplifier or Control Center.
3. Connect the MQ109-B OUTPUTS to the inputs of a Power Amplifier.

*NOTE: Optional connecting methods are through a signal processor loop or tape monitor loop.*

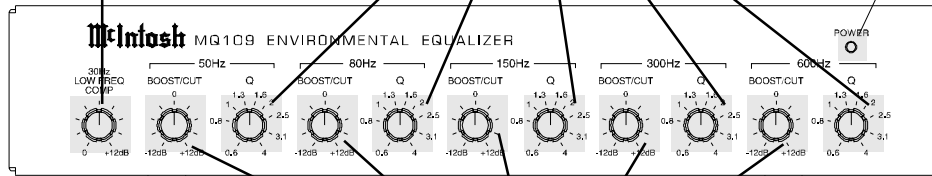


**MQ109B Front and Side Panel Controls and Switches**

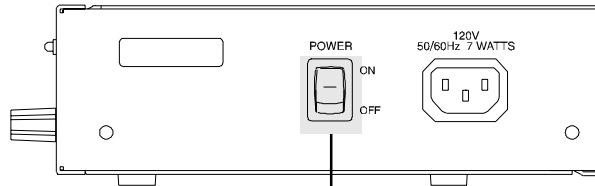
30Hz LOW FREQ COMP, (Low Frequency Compensation) boosts bass response centered at 30Hz as much as 12dB.

The Q controls can widen or narrow the bandwidth of each of the five frequency bands.

POWER ON LED



BOOST/CUT controls can increase or decrease the volume level of each of the five frequency bands by 12dB.



POWER switch turns all AC power completely ON or OFF.



### How to Operate the MQ109B

The most effective means for accurately setting the MQ109B controls is by use of a One Third Octave Pink Noise Generator and calibrated sound level pressure meter. A one third octave real time analyzer can also be used. The pink noise generator output is connected to the preamplifier or control center, (set for flat response), and on to the power amplifier and speakers. The sound level microphone should be located in the primary listening area.

1. Measure the background noise level in the room.
2. Adjust the output level of the pink noise generator until the output is at least 20dB above the background noise level in the room, as measured in step one.

NOTE: The Pink Noise Generator should be set to broad band noise.

3. Adjust the output of the pink noise generator for one third octave noise.
4. Sweep the frequency range of the pink noise generator from 20Hz to 10,000Hz.

The room sound level measurements will indicate the frequency response of the system and reveal the specific frequency ranges where corrective equalization is needed. The variation from the ideal may be either a peak or a dip in the response at more than one frequency. The variations can also be of different amplitudes, and may be broad or narrow in bandwidth..

NOTE: Do not try to adjust for a perfectly flat response from 20Hz to 20,000Hz as this will result in a totally unnatural sound quality. Rather adjust for a smooth response.

Select the MQ109B BOOST/CUT control that is closest to the frequency of each of the undesired peaks or dips in response and adjust them as needed to correct the amplitude deviations. Refer to figure 1.

5. Adjust the appropriate Q controls to compensate for the bandwidth of the peak or dip.
6. Adjust the LOW FREQ COMP control to achieve the best possible low frequency response.

NOTE: Figures 2 through 8 show the frequency range, bandwidth and amplitude characteristics of each of the MQ109B controls.

It will be necessary to repeat steps 4 through 6 as often as necessary to confirm that the equalization adjustments have corrected the response deviations.

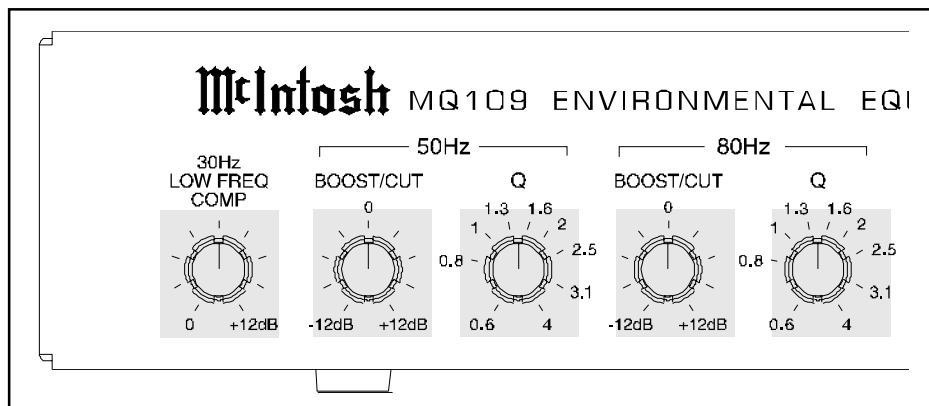
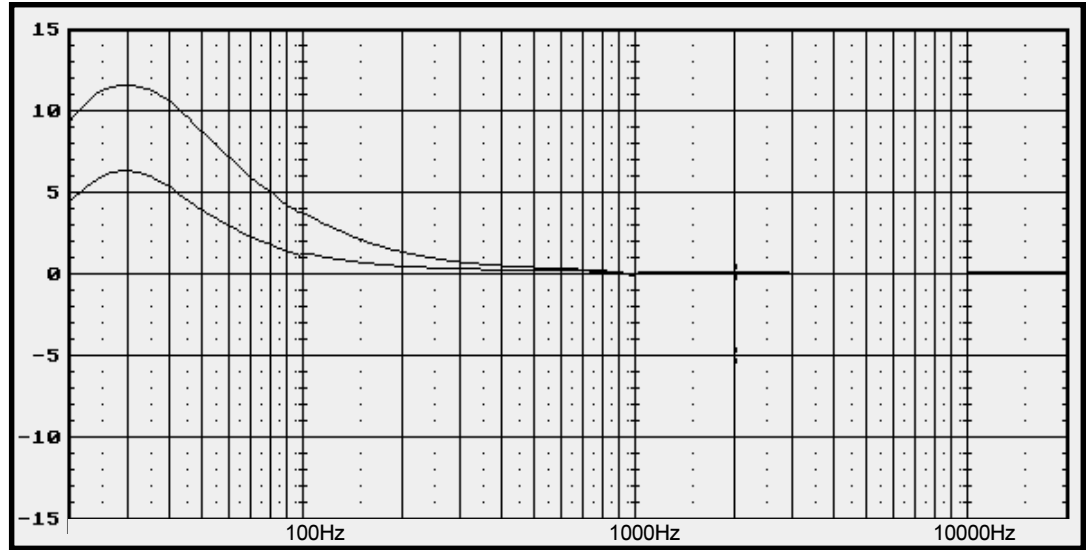


Figure 1



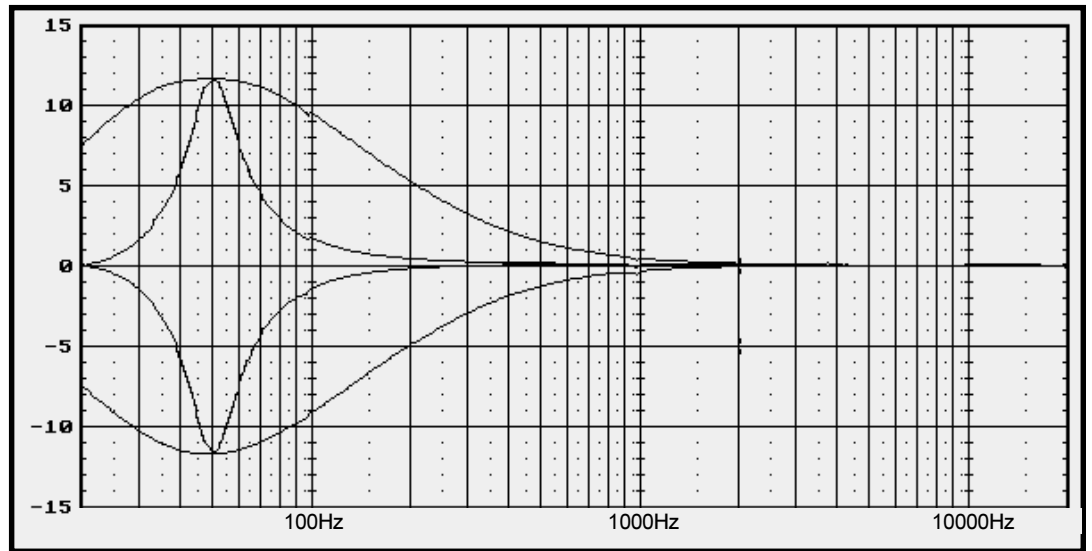
**Figure 2**

30 Hz Low Frequency Compensation



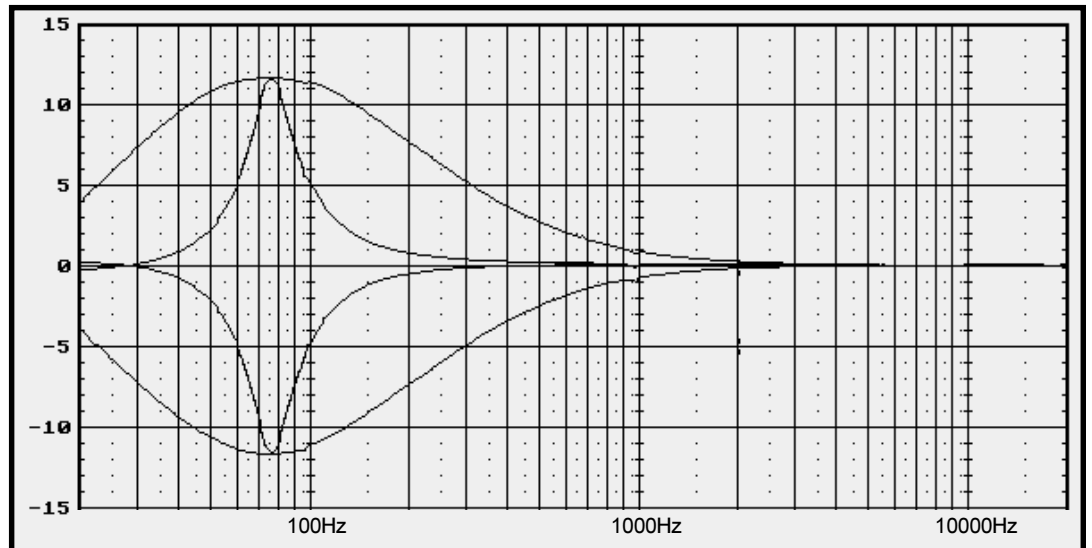
**Figure 3**

50Hz Maximum Boost/Cut  
50Hz Maximum "Q" and Minimum "Q"



**Figure 4**

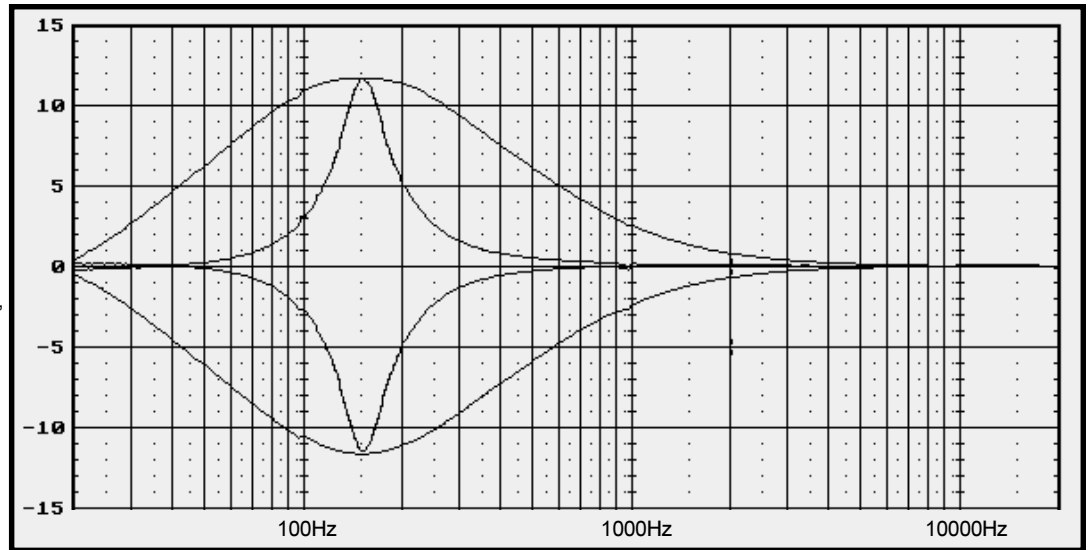
80Hz Maximum Boost/Cut  
80Hz Maximum "Q" and Minimum "Q"





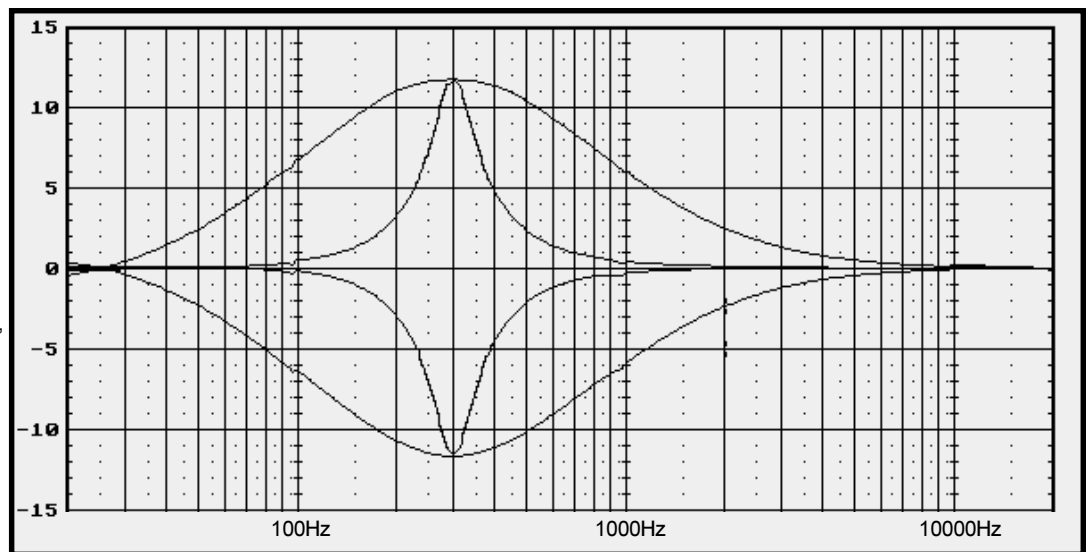
**Figure 5**

150Hz Maximum Boost/Cut  
150Hz Maximum "Q" and Minimum "Q"



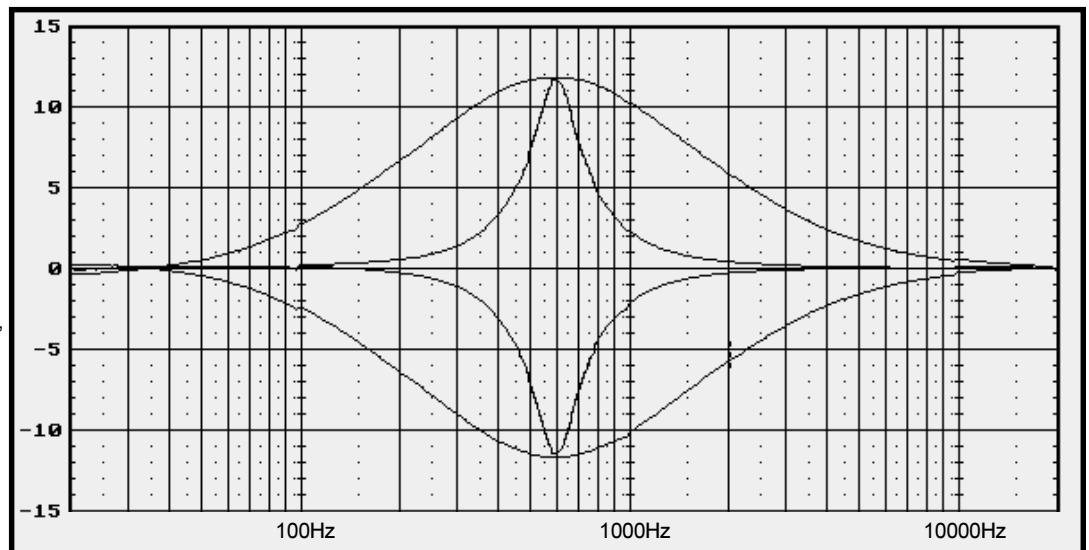
**Figure 6**

300Hz Maximum Boost/Cut  
300Hz Maximum "Q" and Minimum "Q"



**Figure 7**

600Hz Maximum Boost/Cut  
600Hz Maximum "Q" and Minimum "Q"



## Specifications and Packing Instructions

*NOTE: The following table may be used to record your adjustments for future reference.*

Control	Default Setting	New Setting
30Hz Low Freq Comp	0dB	
50Hz - Boost/Cut	0dB	
50Hz - Q	1.45	
80Hz - Boost/Cut	0dB	
80Hz - Q	1.45	
150Hz - Boost/Cut	0dB	
150Hz - Q	1.45	
300Hz - Boost/Cut	0dB	
300Hz - Q	1.45	
600Hz - Boost/Cut	0dB	
600Hz - Q	1.45	

### Specifications

#### Frequency Response

± 0.5dB from 20Hz to 20,000Hz (equalization set to flat)

#### Total Harmonic Distortion

0.004% From 20Hz to 20,000Hz (at rated output)

#### Signal To Noise Ratio, A-Weighted

100dB below rated output of 2.5V (equalization set to flat)

98dB below rated output of 2.5V (worst case setting)

#### Maximum Voltage Output

6.5V from 20Hz to 20,000Hz (balanced and unbalanced outputs)

#### Output Impedance

600 ohms (balanced and unbalanced outputs)

#### Sensitivity

2.5V for 2.5V rated output (equalization set to flat)

#### Input Impedance

47K ohms

#### Maximum Input Signal

2.5V

#### Low Frequency Compensation

+12dB maximum at 30Hz

#### Equalizer Center Frequencies

50Hz, 80Hz, 150Hz, 300Hz and 600Hz (± 5%)

#### Boost/Cut Range

± 12dB at center frequency (± 5%)

#### Q Control Range

0.6 to 4 (± 5%)

#### Power Requirements

100 Volts, 50/60Hz at 7 watts.

110 Volts, 50/60Hz at 7 watts.

120 Volts, 50/60Hz at 7 watts.

220 Volts, 50/60Hz at 7 watts.

230 Volts, 50/60Hz at 7 watts.

240 Volts, 50/60Hz at 7 watts.

*NOTE: Refer to the side panel of the MQ109B for the correct voltage*

#### Dimensions

12.4" (31.5cm) W, 7.3" (18.5cm) D, 2.3" (5.8cm) H

#### Weight

6 lbs net, 7 lbs in shipping carton

### Packing Instructions

In the event it is necessary to repack the equipment for shipment, use the original shipping carton and packing material only if they are in good serviceable condition. If a shipping carton or packing material are needed, please call or write Customer Service Department of McIntosh Laboratory and order the following:

<u>Quantity</u>	<u>Part Number</u>	<u>Description</u>
1	033939	Shipping carton
1	033085	Bubble Pack

**McIntosh<sup>®</sup>**

McIntosh Laboratory, Inc.  
2 Chambers Street  
Binghamton, NY 13903

McIntosh Part No. 04038201