

**C36**  
**AUDIO CONTROL**  
**CENTER**

Starting with Serial Number JK1001

**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 them with the Service Contract.

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**THANK  
YOU**

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## INTRODUCTION

McIntosh has earned world renown for its technical contributions to improved sound reproduction. When you bought McIntosh, you bought not only high technology, but also technological integrity proven by time. The McIntosh C36 Audio Control Center is another example of McIntosh engineering excellence.

McIntosh audio products have always been designed for the best sound and superior reliability. Dedication to achieving these goals since 1949 has earned McIntosh the reputation for creating the finest quality products in the stereo industry. The McIntosh "Classic" design has also been recognized as the most outstanding in the industry.

McIntosh products are designed to be maximum user friendly so anyone can easily enjoy using them. Another McIntosh design policy is to provide products that are easy to maintain.

The C36 Audio Control Center is simple, yet elegant. There are many useful features to enhance your listening enjoyment.

There are eight pairs of high level inputs to accommodate the traditional program sources as well as the most recent new sources. These include CD players, audio signals from laser disc players and audio from video recorders. A PHONO input is also provided for a record player with a magnetic phono cartridge.

DIGITAL LOGIC integrated circuits drive ELECTROMAGNETIC SWITCHES on all inputs and operating functions for the most reliable, lowest distortion switching available today.

Separate Record and Listen circuits allow for recording from one source while listening to another. A continuously variable Active Loudness control allows loudness compensation to be selected for any setting of the volume control. The Loudness control circuit elements are removed from the signal path when the control is in the flat or fully counterclockwise position.

Bass and Treble tone controls provide 12dB of boost or cut. At the center or detent position of the tone controls, all tone control circuits are removed from the signal path.

Two Signal Processor loops are provided, one for RECORD signals and one for LISTEN signals. Power supply voltage regulator circuits maintain stable operation even though the AC power line may vary. A double shielded power transformer completely isolates it from the audio circuits.

Front panel push buttons control two switched outputs as well as two pairs of speakers when the optional SCR3 switching relay is added. A pair of Balanced Outputs is also included to take advantage of the greater noise reduction capabilities of balanced cables.

The C36 can be placed on a table or shelf, standing on its own plastic feet. It also can be installed in an optional McIntosh L72 equipment cabinet. Follow the mounting instructions enclosed with the L72 cabinet.

The C36 also can be custom installed in a piece of furniture or cabinet of your choice. The required panel cutout and unit dimensions are shown on page 14 of this manual.

Always provide adequate ventilation for your C36, even though it develops very little heat. Cool operation insures the longest possible operating life for any electronic instrument. Do not install your C36 directly above a heat generating component such as a high powered amplifier. In a system stack, the power amplifier should always be at the top. If all the components are installed in a single cabinet, a quiet running ventilation fan can be a definite asset in maintaining all the system components at their coolest possible operating temperatures.

A custom cabinet installation should provide the following recommended minimum

## INSTALLATION

## INSTALLATION

spacing dimensions for cool operation. Allow at least 1-1/2 inches (3.8cm) above the unit so air flow is not obstructed. Allow 15-1/2 inches (39.4cm) depth behind the mounting panel, which includes clearance for connectors. Allow 1-1/8 inches (2.9cm) in front of the mounting panel for knob clearance.

## FRONT PANEL CONTROLS SWITCHES AND PUSHBUTTONS

*The last page of this manual folds out to show drawings of the front and rear panels of the C36. This will assist you in identifying and locating the front panel controls and switches as well as the rear panel connectors. The letters and numbers on the drawings refer to the paragraphs that follow.*

### A. BASS AND TREBLE

Provide 12dB boost and cut, with flat center detent position. In the center flat setting, all tone control circuit elements are removed from the signal path.

### B. RECORD

Selects the program signal that will feed to the TAPE 1, TAPE 2 and TAPE 3 OUTPUTS.

### C. LISTEN

Selects the program signals that feed the MAIN, BALANCED and SWITCHED 1 and 2 LISTEN OUTPUTS.

### D. VOLUME

Adjusts the volume level at the MAIN, BALANCED and SWITCHED 1 and 2 LISTEN OUTPUTS. The TAPE OUTPUTS are not affected by the VOLUME control settings.

**THE SIX PUSHBUTTONS ARE PRESS AND RELEASE, WITH LED INDICATORS THAT LIGHT WHEN THE SELECTED OPERATING FUNCTIONS ARE ACTIVE.**

### E. LIS PROC (Listen Processor)

Press this pushbutton to switch in or out, a signal processor connected to the rear panel LISTEN PROCESSOR jacks. A Red LED above the pushbutton will turn on to indicate when a signal processor is being used. If no cables are connected to the LISTEN PROCESSOR jacks, the LIS PROC switch does not function and the Red LED will not turn on.

### F. MONO (Monophonic)

Press the MONO pushbutton to add the left and right channel signals together for MONO signals at the LISTEN MAIN, SWITCHED 1 and SWITCHED 2 OUTPUTS. A Red LED above the pushbutton will turn on to indicate the MONO mode of operation. The MONO switch does not affect the TAPE outputs. They are always stereo.

### G. MUTE

Press the MUTE button to turn off the MAIN, BALANCED and SWITCHED 1 and 2 OUTPUTS. A Red LED above the pushbutton will turn on to indicate the MUTE condition. Press MUTE again to restore normal sound. The TAPE outputs are not affected by the MUTE pushbutton.

### H. HEADPHONES

Plug in a pair of low impedance dynamic headphones to this jack for headphone listening.

#### I. SPEAKERS 1 AND 2

Press SPEAKERS 1 to turn on the LISTEN SWITCHED OUTPUTS 1. These outputs allow you to switch the C36 signals to other power amplifiers or accessories. A Red LED above each pushbutton will indicate which SWITCHED OUTPUTS are turned on.

If the optional SCR3 Switching Relay is connected, the pair of speakers connected to the speaker 1 terminals will turn ON when SPEAKERS 1 is turned on. Press SPEAKERS 1 again to turn the speakers OFF.

Press SPEAKERS 2 to turn ON and OFF the LISTEN SWITCHED 2 OUTPUTS or speakers.

#### J. POWER

Press the red POWER button to turn the C36 system ON. Press again to turn it OFF.

#### K. and L. LOUDNESS and BALANCE (concentric controls)

The BALANCE control, (large outer knob), adjusts the volume of the channels relative to each other.

L, (left): Turn the control to the left to accent the left channel by reducing the volume of the right channel.

R, (right): Turn the right to accent the right channel by reducing the volume in the left channel.

The LOUDNESS control, (small inner knob), provides frequency response contoured to compensate for the behavior of the human ear at softer listening levels. At the fully counterclockwise detent position, the frequency response is perfectly flat and the loudness circuit components are removed from the signal path. Turn the control clockwise to increase frequency compensation in the correct proportion for proper listening at softer volume levels. The compensated frequency response is not affected by changes in the volume control settings. First adjust the volume for the desired listening level, then adjust the loudness control to the setting you prefer.

Use good quality shielded cables to interconnect the associated equipment used with the C36. The installation of high quality cables will insure the best possible performance from your stereo system. Your McIntosh dealer can advise you on the type and length of cables best suited for your installation.

#### 1. L and R BALANCED OUTPUTS

Connect cables with XLR type Balanced Connectors from the C36 L (Left) and R (Right) BALANCED OUTPUT jacks to the balanced input jacks of a stereo amplifier, or two mono amplifiers. Signals at the BALANCED jacks are the same signals as at the Unbalanced MAIN, and SWITCHED 1 and 2 OUTPUTS.

Using balanced connectors and cables can reduce noise and interference by as much as 40dB. This extra noise reduction can be a significant improvement, especially if the cables are quite long. If two separate mono power amplifiers are used with the C36, balanced cables can eliminate the possibility of hum pickup. If cable lengths between the C36 and the power amplifiers are one meter or less, you may find high quality unbalanced cables to be adequate.

## FRONT PANEL CONTROLS SWITCHES AND PUSHBUTTONS

## THE REAR PANEL AND HOW TO MAKE CONNECTIONS

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### Balanced Jack Pin Configuration:

- Pin 1. System Ground
- Pin 2. + Output
- Pin 3. - Output

### 2. SWITCHED 1 AND 2 OUTPUTS

Two additional power amplifiers or accessory components can be connected to the SWITCHED 1 and 2 LISTEN OUTPUTS. Connect in a manner similar to the MAIN outputs. Audio output signals are fed to these jacks only when the appropriate front panel SPEAKER 1 or 2 switches are pressed.

This switching capability is useful when additional power amplifiers are used to power remote listening areas.

### 3. MAIN OUTPUTS

Connect a cable from the C36 Left and Right LISTEN MAIN OUTPUTS to the Left and Right channel power amplifier inputs.

### 4. LISTEN PROCESSOR-FROM and TO

An external signal processor can be added to the C36 which will affect only the (LISTEN) MAIN, BALANCED and SWITCHED 1 and 2 outputs.

When no cables are connected to the processor jacks, all signals pass through in a normal manner. When cables are connected to the PROCESSOR-FROM jacks, a built-in switching relay opens the circuits to allow the signal processor to be used. When an external is properly connected, the program signals feed to the processor from the PROCESSOR-TO jacks, and return to the C36 at the PROCESSOR-FROM jacks. When a signal processor is connected to the LISTEN circuits, it can be switched in or out by use of the front panel LIS PROC pushbutton switch.

Connect a cable from the left channel external processor output to the C36 left channel PROCESSOR-FROM jack. Connect a cable from the right channel external processor output to the C36 right channel PROCESSOR-FROM jack.

Connect a cable from the C36 left channel PROCESSOR-TO jack to the signal processor left channel input. Connect a cable from the C36 right channel PROCESSOR-TO jack to the right channel signal processor input.

***WHEN AN EXTERNAL SIGNAL PROCESSOR IS CONNECTED TO THE C36 LISTEN PROCESSOR JACKS, THE PROCESSOR MUST BE TURNED ON AND OPERATING, OR IN BYPASS MODE, FOR A PROGRAM TO BE HEARD THROUGH THE SYSTEM.***

### 5. TAPE OUTPUTS 1, 2 and 3

These outputs provide signals to feed as many as three separate tape recorders. The program that appears at the tape outputs is determined by the setting of the front panel RECORD switch.

Connect a cable from the C36 left channel TAPE 1 OUTPUT to the left channel high level input of a tape recorder. Connect a cable from the C36 right channel TAPE 1 OUTPUT to the right channel high level input of a tape recorder. Connect a second and third tape recorder in a similar manner.

### 6. RECORD PROCESSOR-FROM AND TO

An external signal processor can be added to the C36 which will affect only the TAPE RECORD OUTPUT jacks.

The PROCESSOR-FROM jacks have built-in switching contacts to allow normal signals to

pass through when no cables are connected. When an external processor is properly connected, the program signals feed to the processor from the C36 PROCESSOR-TO jacks, and return to the C36 at the PROCESSOR-FROM jacks.

Connect a cable from the left channel processor output to the C36 left channel PROCESSOR-FROM jack. Connect a cable from the right channel processor output to the right channel PROCESSOR-FROM jack.

Connect a cable from the C36 left channel PROCESSOR-TO jack to the left channel processor input. Connect a cable from the C36 right channel PROCESSOR-TO jack to the processor right channel input.

**WHEN AN EXTERNAL SIGNAL PROCESSOR IS CONNECTED TO THE C36 RECORD PROCESSOR JACKS, THE PROCESSOR MUST BE TURNED ON AND OPERATING, OR IN BYPASS MODE, FOR A PROGRAM TO BE FED TO THE TAPE RECORD OUTPUTS.**

#### 7. VIDEO

Use these inputs for the audio signals from accessories such as a Laser Disc Player, VCR, or TV receiver.

Connect a cable from the left channel audio output of the video unit to the C36 L (Left) channel VIDEO INPUT. Connect a cable from the right channel output to the C36 R (Right) VIDEO INPUT.

#### 8. TAPE 1, 2 and 3

Connect a cable from the left channel output of a tape recorder to the C36 L (Left) channel TAPE 1 INPUT. Connect a cable from the right channel output to the C36 R (Right) TAPE 1 INPUT. Connect two additional recorders in a similar manner TAPE 2 and 3 INPUTS.

The Tape inputs can also be used for other accessory equipment with similar output levels.

**IF MORE THAN ONE TAPE RECORDER IS CONNECTED TO BOTH RECORD AND PLAY, MAKE CERTAIN THAT THE INPUTS AND OUTPUTS OF EACH RECORDER ARE CONNECTED TO THE SAME MATCHING NUMBERED JACKS.**

#### 9. TUNER

Connect a cable from the left channel output of a tuner to the C36 L (Left) TUNER INPUT. Connect a cable from the right channel output to the C36 R (Right) TUNER INPUT.

#### 10. CD1 and 2

Connect a cable from the left channel output of a CD player to the C36 L (Left) CD1 INPUT. Connect a cable from the right channel output to the C36 R (Right) CD1 INPUT. Connect a second CD player to the C36 CD2 inputs in a similar manner.

For example, CD1 inputs could be used for a single play CD player, and the CD2 inputs for a CD changer.

#### 11. and 12. AUX (Auxiliary)/PH (Phono)

Both the PHono and AUXiliary input jacks are selected by the same position on the front panel LISTEN and RECORD switches. One or the other pair of inputs can be used, but not both at the same time.

Connect the left channel high level output of any audio accessory unit to the C36 L (Left) Auxiliary INPUT. Connect the right channel accessory output to the C36 R (Right) Auxiliary INPUT. When cables are connected to the AUX input jacks, the PHono circuit is automatically bypassed.

## THE REAR PANEL AND HOW TO MAKE CONNECTIONS



## THE REAR PANEL AND HOW TO MAKE CONNECTIONS

*To connect a record player with a magnetic phono cartridge, FIRST, remove any connecting cables from the AUXiliary input jacks.*

Connect a cable from the left channel turntable output to the C36 L (Left) PHono INPUT. Connect a cable from the right channel to the C36 R (Right) PHono INPUT. The C36 phono input circuit is designed to accept the signals from a standard moving magnet phono cartridge.

### 13. GND (Ground)

If there is a separate ground wire from the turntable, connect it to the GND terminal.

### 14. AC POWER

Connect the AC Power cable to a 120 volt 60Hz AC outlet.

***The plug blades are polarized; so be certain the plug is fully inserted in the outlet to prevent blade exposure.***

***CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT CONNECT THE POLARIZED AC PLUG ON THIS UNIT TO AN EXTENSION CORD OR OTHER AC OUTLET THAT IS NOT DESIGNED TO ACCEPT POLARIZED PLUGS. THE PLUG MUST BE FULLY INSERTED TO PREVENT BLADE EXPOSURE AND MAINTAIN LINE POLARITY.***

### 15. UNSWITCHED AC RECEPTACLE

This AC receptacle will stay on at all times as long as the C36 power cord is connected to a live 120 volt, 50/60Hz power outlet. For example, this outlet could be used for a VCR that is programmed to record a TV show when the main stereo system is turned off.

### 16. SWITCHED AC RECEPTACLES

Eight AC receptacles are provided for accessory equipment. These receptacles turn on and off with the C36 Power switch.

***THE TOTAL POWER CONSUMPTION OF ALL THE ACCESSORIES CONNECTED TO THE C36 BACK PANEL OUTLETS MUST NOT EXCEED 11.6 AMPERES OR 1400 WATTS.***

### 17. POWER CONTROL

This connector supplies a Logic 1, 5 volt DC control signal that will turn on and off, the AC power of a compatible Accessory component. The POWER CONTROL connector accepts a standard 1/8 inch mini phone plug. Connections are to the tip and sleeve of the plug.

### 18. SCR (Speaker Control Relay SCR3, an Optional Accessory)

The SCR3 allows the switching of two pairs of speakers using the C36 front panel SPEAKERS pushbuttons.

The SCR3 also includes two high current AC receptacles are also provided with 1800 watts current capacity to supply other components such as large power amplifiers. These outlets turn on and off with the C36 power switch, and are to be used when the accessory components demand more current than the 1400 watt rating of the C36 power switch.

Plug the computer type connector on the cable coming from the SCR3 into the SCR socket on the C36 rear panel. Plug the heavy AC cable from the SCR3 into a wall outlet.

***DO NOT PLUG THE SCR3 HEAVY CABLE INTO ANY OF THE C36 REAR PANEL AC SOCKETS***

#### FREQUENCY RESPONSE

+0, -0.5dB from 20Hz to 20,000Hz

#### RATED OUTPUT

2.5V at MAIN, BALANCED and SWITCHED 1 and 2 Outputs

#### MAXIMUM VOLTAGE OUTPUT

8V from 20Hz to 20,000Hz at MAIN, BALANCED and SWITCHED 1 and 2 Outputs

#### TOTAL HARMONIC DISTORTION

0.002% maximum from 20Hz to 20,000Hz at rated output

#### SENSITIVITY

Phono: 2.5mV for 2.5V rated output, (0.5mV IHF)

High Level: 250mV for 2.5V rated output, (50mV IHF)

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

Phono: 90dB below 10mV input, (84dB IHF)

High Level: 105dB below rated output, (95dB IHF)

#### MAXIMUM INPUT SIGNAL

Phono: 90mV

High Level: 10V

#### INPUT IMPEDANCE

Phono: 47K ohms and 65pF Capacitance

High Level: 22K ohms

#### VOLTAGE GAIN

Phono To Tape: 40dB

Phono To Main: 60dB

High Level To Tape: 0dB

High Level To Main: 20dB

#### TONE CONTROLS

Bass and Treble variable 12dB boost to 12dB cut

#### AC POWER OUTLETS

8 switched and 1 unswitched

Total current capacity 11.6 amperes, (1400 watts)

#### POWER REQUIREMENTS

120 Volts, 50/60Hz, 25 watts

#### SIZE

Front Panel measures 17-1/2 inches (44.5cm) wide by 5-3/8 inches (13.7cm) high. Chassis depth behind the mounting panel, including clearance for connectors, is 15-1/2 inches (40cm). Knob clearance required in front of mounting panel is 1-1/8 inches (2.9cm).

#### FINISH

Front panel is glass with gold/teal nomenclature illumination. The chassis is black.

#### WEIGHT

18.5 pounds (8.4Kg) net, 33.5 pounds (15.2Kg) shipping

## SPECIFICATIONS

## TECHNICAL DESCRIPTION

### LOGIC DRIVEN CONTROL

All inputs, outputs and mode switching on the C36 are controlled by logic circuits that drive the electromagnetic switches. The front panel Record and Listen switches feed a pulse to a binary up-down counter, then to a binary decimal decoder, and finally to a transistor array that controls signals to the electromagnetic switches. The C36 pushbutton switches feed a momentary pulse to control the electromagnetic switches for their specific functions.

### ELECTRO-MAGNETIC SWITCHING

All signal switching in the C36 is done by ELECTRO-MAGNETIC methods. ELECTRO-MAGNETIC switching is an old and proven technology that has been upgraded with modern materials and manufacturing techniques.

Each switch consists of a sealed glass tube filled with an inert oxygen free atmosphere, with tiny leads protruding from either end. These leads are made from a ferrous material that is influenced by a magnetic field. They are first plated with gold as a base material, then with rhodium and ruthenium. Ruthenium is the best contact material known. The glass assembly is then placed in the center of a multi-layer coil of copper wire. The entire assembly is molded together in a tough shock absorbing plastic. The switch and coil connections extend from the bottom in the form of printed circuit board terminals.

When a DC voltage is applied to the coil, current flows and creates a magnetic field. The force of the field causes the leads to bend and contact one another inside the sealed glass tube. The inert oxygen free atmosphere eliminates corrosion of the contacts, insuring a low resistance, distortion free switch.

### PHONO PREAMPLIFIER

The phono preamplifier uses a high technology integrated circuit operational amplifier that has an extremely wide frequency range capability. Its differential input stage has been optimized for low noise and low distortion. The open loop gain for this circuit is 100,000. With high open loop gain, a large amount of negative feedback can be used around this preamplifier section to reduce noise and distortion to an extremely low value. The feedback network also provides precision RIAA frequency equalization which follows the required response curve very accurately throughout the entire audio range. The network uses 1% tolerance metal film resistors and 5% tolerance polypropylene capacitors.

To achieve low-noise performance, it is essential that the feedback network have very low impedance. A circuit design of this type acts as a small power amplifier. This preamplifier section will actually produce more than 100 milliwatts output power. This extra margin of performance results in a phono preamplifier with extremely low distortion and noise.

This preamplifier circuit has a very wide dynamic range. It will accept up to 90 millivolts of input signal without overload. This is far greater than the maximum output voltage capability of any current model magnetic phono cartridge.

The sensitivity of this circuit is 2.5 millivolts for 2.5 volts at the main output. The gain is 40dB at 1000Hz. A signal input of 10 millivolts results in 1 volt at the Tape Outputs. The Tape Output source impedance of the phono preamplifier is 100 ohms, and will drive a load impedance of 1000 ohms or higher.

### LOUDNESS AMPLIFIER

High level signals feed into the preamplifier past the input and mode switching, through the volume control and then into the loudness amplifier. The C36 uses an active loudness control circuit design. An integrated circuit operational amplifier is used with two separate feedback circuits. One feedback loop has flat frequency response, and the other loop has

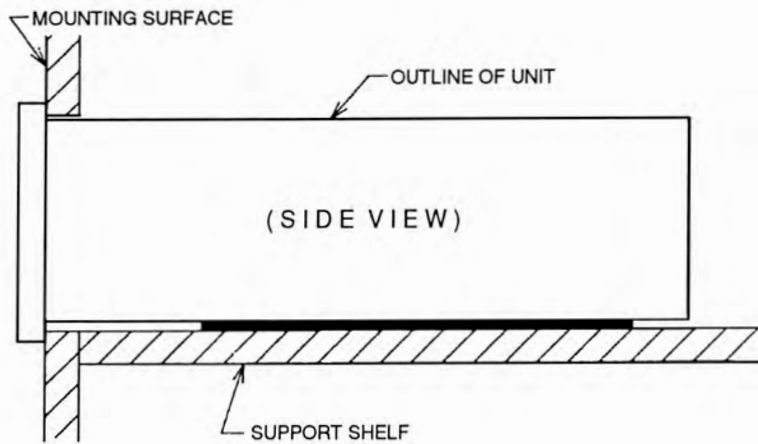
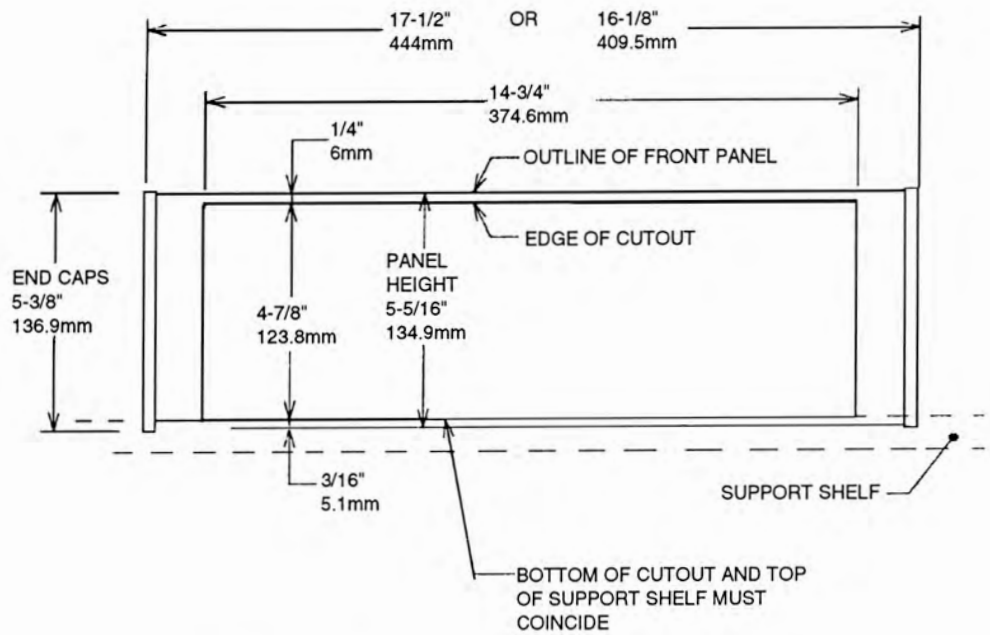
loudness compensation. A potentiometer placed between these two feedback loops makes it possible to select any degree of frequency response from flat, to full loudness compensation. The overall gain of the loudness circuit is 20dB, which remains constant at mid frequencies, regardless of the position of the loudness control. The frequency compensation increases from the reference gain, and the desired amount of loudness compensation can be selected at any volume control setting.

#### TONE CONTROL AMPLIFIER

The tone control amplifier uses high technology integrated circuit operational amplifiers. The output stages have been optimized for optimum transient performance and minimum distortion. Another set of operational amplifiers are arranged in a circuit configuration equivalent to series tuned circuits. The series tuned circuits can be inserted into either the input, or the feedback loop by means of a potentiometer. The proper choice of circuit components results in a 12dB boost or cut at the desired bass and treble frequencies. When the tone control potentiometers are at their center or detent positions, all tone control elements are removed from the signal path, and the frequency response is perfectly flat.

## TECHNICAL DESCRIPTION

**CUSTOM  
INSTALLATION  
DIAGRAM**



The letters and numbers refer to the paragraphs on pages 6 through 10.

