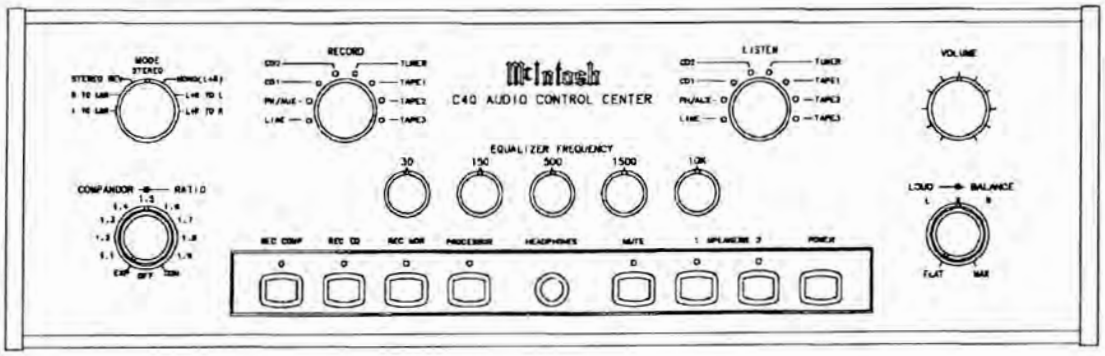

C40
AUDIO
CONTROL
CENTER

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 adapters 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 PEVENIR LES CHOCS ELECRIQUES 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.

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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-SERVICEABLE 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.

LIGHTNING - 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.

OVERLOADING - Do not overload wall outlets, extension cords or integral convenience receptacles as this can result in a risk of fire or electric shock.

IMPORTANT SAFETY INSTRUCTIONS

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

THANK YOU

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 and purchase date are important to you for possible insurance claim or future service. Record this information here.

Serial Number	Purchase Date

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INTRODUCTION

McIntosh Laboratory has earned a world wide reputation for the technical superiority of its contributions to high quality sound reproduction. The advanced level of McIntosh technical innovations has integrity proven by time. The legendary reliability of McIntosh products is a matter of record since 1949. The "Classic McIntosh" design is acknowledged as the most outstanding in the audio industry.

McIntosh products are designed to be maximum "User Friendly", so anyone can enjoy using them. Ease of maintenance is another McIntosh design philosophy that contributes to the long useful operating life of all McIntosh products.

The McIntosh Model C40 is the most sophisticated and finest performing Audio Control Center that has ever been created. For example, the distortion limit of less than 0.002% is so low, it requires special test equipment to make accurate measurements. This distortion limit is 100 times better than the same specification on the first McIntosh stereo preamplifier built in 1959. Noise levels are so low, they cease to be of any concern to the listener.

The wide range of performance features of the C40 allows the serious music listener to realize maximum performance and enjoyment from virtually any audio music source. These features are available without any compromise in sonic accuracy.

Balanced output connectors are provided to take advantage of the greater reduction of any possible noise or interference by using balanced cables. Three pairs of unbalanced output jacks, one main and two switched, are also available for conventional hookups. There are eight pairs of high level inputs to accommodate any conceivable source of high quality audio signals. A pair of high level Balanced Inputs is also included, labeled LINE INPUTS. PHONO Inputs for a moving magnet phono cartridge are available for use when no cables are connected to the AUXiliary input jacks.

Signal Processor Loops are included for both the Listen and the Record circuits. A front panel pushbutton allows you to switch the LISTEN Processor In or Out of the circuit. Other features include the McIntosh Five Band Frequency Equalizer and Active Variable Loudness Control. All circuit elements of these controls are removed from the circuit path when the controls are at their Flat or Detent position. A front panel pushbutton allows the Frequency Equalizer Controls to be used in either the LISTEN or RECORD circuits. The popular McIntosh seven position MODE Switch is also present.

The McIntosh Compandor is also included. When used as an Expander, it will increase the dynamic range of audio signals. A valuable use for the expander is to enhance the reproduction quality of valuable older vintage recordings that were originally created with compressed dynamic range.

When used as a Compressor, it reduces the dynamic range of audio signals. A front panel pushbutton allows you to place the Compandor in the Record as well as the Listen circuits. For example, you can compress a wide dynamic range signal source such as a compact disc to make a tape recording for use in a car stereo system. When the tape is played in the car, the soft passages can be heard above road noise, but the loud passages won't be excessive. Another example of compression is to reduce the dynamic range of classical music for background entertainment when pursuing other duties. You will still hear the solo violin, but the loud musical passages will not be distracting.

All switching functions in the C40 are done by Logic driven Electromagnetic switches. This type of switching is the lowest distortion, lowest noise and most reliable method of signal switching available.

A built-in 20 watt per channel Monitor Amplifier supplies signals to the front panel headphones jack as well as a pair of rear panel SPEAKER terminals. This amplifier includes the

INTRODUCTION

McIntosh POWER GUARD circuit, and has performance capabilities similar to any other McIntosh power amplifier. A rear panel switch allows you to feed the Monitor amplifier with signals from the LISTEN programs, RECORD programs or from a pair of rear panel EXTernal INPUT jacks.

A rear panel connector is provided for an optional McIntosh SCR-3 AC and Speaker Control Relay. The SCR-3 allows you to switch two pairs of speakers by means of the front panel SPEAKERS 1 and 2 pushbuttons.

The C40 "Classic McIntosh" all glass front panel has all control, switch and pushbutton nomenclature illuminated.

HOW TO INSTALL THE C40

The C40 can be placed upright on a table or shelf, standing on its own plastic feet. It can also be installed in an optional McIntosh L72 equipment cabinet. Follow the mounting instructions enclosed with the L72 cabinet.

The C40 can also be custom installed in a piece of furniture or cabinet of your choice. In this type of installation, the 1" plastic feet are removed from the bottom of the unit. It is then essential to provide a cutout in the mounting shelf for proper ventilation.

A custom cabinet installation should provide the following recommended minimum spacing dimensions for cool operation. Allow at least 1-1/2" (3.8cm) above the unit so airflow is not obstructed. Allow 17 " (43.2cm) depth behind the mounting panel, which includes clearance for connectors. Allow 1-1/8" (2.9cm) in front of the mounting panel for knob clearance.

Refer to the drawings on page 17 for mounting dimensions and dimensions for the ventilation cutout in the mounting shelf.

The trouble free life of any electronic instrument is greatly extended by providing sufficient ventilation for adequate cooling. Always provide adequate ventilation for your C40 even though it develops very little heat. Do not install your C40 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 the coolest possible temperatures.

FRONT PANEL CONTROLS, SWITCHES AND PUSHSBUTTONS

The back cover of this manual folds out to show drawings of the front and rear panels of the C40. Fold it out to assist you in identifying and locating the front panel controls, switches, pushbuttons, and the rear panel connectors. The letters and numbers on the drawings refer to the information that follows.

A. MODE

The MODE switch provides seven different combinations of stereo and mono signals.

1. L to L&R: Connects the Left inputs to both the Left and Right channels. Both outputs will be Mono Left channel signals.

2. R to L&R: Connects the Right inputs to both the Left and Right channels. Both outputs will be Mono Right channel signals.

3. STEREO REV (Reverse): Connects the Left inputs to the Right channel and the Right inputs to the Left channel. The outputs will be stereo with the channels reversed.

4. STEREO: Connects the Left inputs to the Left channel and the Right inputs to the Right channel for normal Stereo operation.

5. MONO (L+R): Combines both the Left and Right inputs together to create a Monophonic signal which is fed to both Left and Right outputs.

6. L+R to L: Combines both the Left and Right inputs together to create a Monophonic

signal which is fed ONLY to the Left outputs.

7. L+R to R: Combines both the Left and Right inputs together to create a Monophonic signal which is fed ONLY to the Right outputs.

B. RECORD

Selects the program signal that feeds the tape 1, 2 and 3 RECORD OUTPUTS.

C. EQUALIZER FREQUENCY CONTROLS

Each of the five EQUALIZER FREQUENCY controls will raise or lower by 12dB the amplitude of the band of frequencies marked above the control. Both left and right channels are affected. At the center detent or flat position of the controls, all equalizer circuit components are removed from the signal path.

The EQUALIZER FREQUENCY controls are to be used in any way you desire to modify the frequency balance of program material. It is often possible to greatly improve the sound quality of valuable early vintage recordings by careful use of these controls.

A front panel pushbutton marked REC EQUAL allows you to switch the EQUALIZER to the RECORD circuits to modify the program material being recorded. The EQUALIZER circuits will not affect the operation of the COMPANDOR.

D. LISTEN

Selects the program signal that is fed to the MAIN, SWITCHED 1 and 2 and BALANCED, LISTEN OUTPUTS.

E. VOLUME

Adjusts the volume level of the MAIN, SWITCHED 1 and 2 and BALANCED, LISTEN OUTPUTS. The VOLUME control also affects the level of the HEADPHONES jack when the rear panel MONITOR AMPLIFIER Selector Switch is set to LISTEN position. The TAPE RECORD OUTPUTS are not affected by the VOLUME Control.

F. COMPANDOR (Outer Knob)

Selects COMPANDOR functions of EXPAND, OFF or COMPRESS. When the COMPANDOR is being used in the RECORD circuits, a Red LED lights above the REC COMPAND pushbutton.

G. RATIO (Small Knob)

Adjusts the amount of expansion or compression. The numbers refer to the ratio of how much the expanded or compressed volume is related to the reference volume. In most cases a setting of 1.5 or less is most effective. The final Ratio setting will depend on your personal preference. For more information, refer to the section on COMPANDOR OPERATION on Page 12 of this manual.

H. REC COMP (RECord COMPand)

Switches the COMPANDOR into the RECORD circuits. A Red LED lights above the REC COMP pushbutton when this mode of the COMPANDOR is being used.

The COMPANDOR operation depends on the front panel settings as well as the setting of the rear panel COMPANDOR SPEED switch and LEVEL MATCH control. Information on how to use the COMPANDOR is included with the description of these rear panel functions.

I. REC EQ (RECord EQualizer)

Switches the five EQUALIZER FREQUENCY controls into the record circuits. A Red LED lights above the REC EQ pushbutton when this mode of the EQUALIZER is being used. This mode of operation allows you to modify the frequency response of signals feeding a tape recorder. For example, it is possible to improve the response balance of early vintage recordings which are being taped.

FRONT PANEL CONTROLS, SWITCHES AND PUSHBUTTONS

FRONT PANEL CONTROLS, SWITCHES AND PUSHBUTTONS

J. REC MON (RECord MONitor)

Switches the program signal selected by the RECORD switch to the LISTEN citcuits. This allows you to MONITOR the signal going from the TAPE OUTPUTS to the tape recorder inputs. A Red LED lights above the REC MON pushbutton when this mode of operation is being used.

To MONITOR the recorded signal from the outputs of a three head tape recorder, turn the REC MON Switch Off, and select the desired tape recorder playback signal with the Listen Selector switch.

K. PROCESSOR

Switches an external processor connected to the LISTEN PROCESSOR jacks in or out of the LISTEN circuit. If no external signal processor is connected to the LISTEN PROCESSOR jacks, the PROCESSOR pushbutton has no effect. When a signal processor is connected, a Red LED lights above the PROCESSOR pushbutton to indicate when the signal processor is switched into the LISTEN circuit.

L. HEADPHONES

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

M. MUTE

Press the MUTE pushbutton to silence the MAIN, SWITCHED 1 and 2 and BALANCED, LISTEN OUTPUTS. A Red LED will light above the MUTE pushbutton when the circuits are muted. Press MUTE again to restore normal sound. The TAPE OUTPUTS are not affected by the MUTE pushbutton.

N. SPEAKERS 1 and 2

Press SPEAKERS 1 to turn on the LISTEN SWITCHED 1 OUTPUTS. A Red LED above the SPEAKERS 1 pushbutton will light. These output jacks allow you to switch the C40 output signals to other amplifiers or accessories. If the optional SCR3 Control Relay is connected, a pair of speakers connected to the SPEAKERS 1 terminals also will turn on. Press SPEAKERS 1 again to turn the outputs and speakers off.

Press SPEAKERS 2 to turn on and off LISTEN SWITCHED OUTPUTS 2, and a second pair of speakers connected to an SCR3.

O. POWER

Press the POWER pushbutton to turn the C40 system ON. Press again to turn the system OFF. All front panel nomenclature is illuminated when the C40 is turned ON.

P. LOUD (LOUDNESS)

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 Control circuit components are removed from the signal path. Turn the control clockwise to modify the frequency response in the correct proportion for the softer listening level you desire. The compensated frequency response is not affected by changes in the volume control settings. First adjust the VOLUME Control for the desired listening level, then adjust the LOUDness Control to the setting you prefer.

The LOUDness Control affects only the MAIN, SWITCHED 1 and 2 and BALANCED, LISTEN OUTPUTS.

SPECIAL NOTE: The flat frequency response setting of the LOUDness Control is at the fully COUNTERCLOCKWISE position, not at the Center or 12 o'clock position where the BALANCE Control is neutral.

FRONT PANEL CONTROLS, SWITCHES AND PUSHBUTTONS

Q. BALANCE

The BALANCE Control, (large outer knob), adjusts the volume of the channels relative to each other. The BALANCE Control affects only the MAIN, SWITCHED 1 and 2 and BALANCED, LISTEN OUTPUTS.

L (Left): Turn the control to the Left to accent the Left channel by reducing the volume in the Right channel.

R (Right): Turn the control to the right to accent the Right channel by reducing the volume in the Left channel.

HOW TO MAKE CONNECTIONS ON THE REAR PANEL

Use high quality shielded cables to interconnect the accessory equipment used with the C40. This will ensure 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.

LISTEN FUNCTIONS

1. BALANCED OUTPUTS

Connect a cable with an XLR Balanced Connector from each of the C40 BALANCED OUTPUT jacks to the balanced input jacks of a power amplifier. The signal at the BALANCED jacks is present whenever the C40 is on and operating, and is the same signal as at the unbalanced SWITCHED 1 and 2 and MAIN LISTEN 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 in a stereo system, using balanced cables can eliminate the possibility of hum pickup. If cable lengths between the C40 and a stereo power amplifier are one meter or less, you may find high quality unbalanced cables to be perfectly adequate.

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 OUTPUTS. Audio signals are fed to these outputs only when the appropriate front panel SPEAKERS 1 or 2 pushbuttons are pressed. This feature is useful when additional power amplifiers are used to feed remote area speakers.

Connect a pair of shielded cables from either one or both pairs of SWITCHED OUTPUT jacks to either one or two power amplifiers.

3. MAIN OUTPUTS (Unbalanced)

Connect a pair of cables from the MAIN OUTPUTS to the inputs of a stereo amplifier. Signals are fed to the MAIN OUTPUTS whenever the C40 is on and operating.

4. (LISTEN) PROCESSOR FROM AND TO

An external signal processor can be added to the C40 which will affect only the (LISTEN) MAIN, SWITCHED 1 and 2 and BALANCED OUTPUTS. The PROCESSOR FROM jacks have built-in switching contacts that allow normal signals to pass through when no cables are connected. When an external processor is properly connected, the program signals will feed to

HOW TO MAKE CONNECTIONS ON THE REAR PANEL

the processor from the C40 PROCESSOR TO jacks, and return to the C40 at the PROCESSOR FROM jacks.

Connect a pair of cables from the external processor Output jacks to the C40 (LISTEN) PROCESSOR FROM jacks. Connect another pair of cables from the external processor Input jacks to the C40 (LISTEN) PROCESSOR TO jacks.

WHEN AN EXTERNAL SIGNAL PROCESSOR IS CONNECTED TO THE C40 LISTEN PROCESSOR JACKS, THE PROCESSOR MUST BE TURNED ON AND OPERATING, OR IN BYPASS MODE, FOR THE PROGRAM TO BE HEARD.

RECORD OUTPUT FUNCTIONS

5. TAPE OUTPUTS 1, 2 AND 3

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

Connect a pair of cables from the C40 TAPE 1 OUTPUTS to the high level inputs of a tape recorder. Connect cables to a second and third tape recorder in a similar manner from TAPE 2 and 3 OUTPUTS.

6. (RECORD) PROCESSOR FROM AND TO

An external signal processor can be added to the C40 which will affect only the TAPE RECORD OUTPUTS. The PROCESSOR FROM jacks have built-in switching contacts that allow normal signals to pass through to the TAPE OUTPUTS when no cables are connected. When an external signal processor is properly connected, the RECORD signals will feed to the processor from the C40 PROCESSOR TO jacks, and return to the C40 at the PROCESSOR FROM jacks.

Connect a pair of cables from the processor output jacks to the C40 (RECORD) PROCESSOR FROM jacks. Connect another pair of cables from the processor input jacks to the C40 (RECORD) PROCESSOR TO jacks.

WHEN AN EXTERNAL SIGNAL PROCESSOR IS CONNECTED TO THE C40 RECORD PROCESSOR JACKS, THE PROCESSOR MUST BE TURNED ON AND OPERATING, OR IN BYPASS MODE, FOR PROGRAM SIGNALS TO BE FED TO THE TAPE OUTPUTS.

AUDIO INPUTS

7. TAPE 1, 2, AND 3

A total of three tape recorders can be connected to the C40. The separate LISTEN and RECORD selector switches allow recording, and listening to the original signal, or monitoring the recorded signal from a three head tape recorder. The TAPE inputs can also be used for other accessory audio equipment with similar output levels.

The front panel RECord MONitor switch allows you to listen to the actual signal going to the tape recorders from the TAPE OUTPUTS.

Connect a pair of cables from the outputs of a tape recorder to the appropriate 1, 2 or 3, C40 TAPE INPUTS. (Connect the tape recorder outputs as explained in step 5 above.)

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

8. TUNER

Connect a pair of cables from the outputs of a tuner to the C40 TUNER inputs.

HOW TO MAKE CONNECTIONS ON THE REAR PANEL

9. CD1, CD2

Connect the outputs of a CD player to either pair of CD INPUTS. For example, CD1 inputs could be used for a single disc player, and CD2 inputs for a CD changer.

10 and 11. PH/AUX (PHono/AUXiliary)

Both the PHono and AUXiliary inputs are selected by the same position on the front panel LISTEN and RECORD selector switches. Either the PHono or AUXiliary inputs can be used, but not both at the same time. When a pair of cables is connected to the AUXiliary input jacks, the PHono section is automatically bypassed.

AUXiliary: Connect a pair of cables from the outputs of an accessory component to the AUX INPUTS.

To use the PHono inputs, FIRST remove any cables connected to the AUX inputs.

PHono: Connect a pair of cables from a record player with a moving magnet phono cartridge to the PH INPUTS.

12. GND (Ground)

If the phono player being used has a separate ground lead, connect it to the GND terminal.

13. LINE INPUTS (Balanced)

Connect a pair of cables with balanced XLR connectors from the balanced outputs of an accessory component to the C40 LINE INPUTS. The LINE INPUTS will accept signals from any accessory with normal high level output signals in the range of 250mV, such as a tuner or CD player.

Balanced Jack Pin Configuration:

Pin 1. System Ground
Pin 2. + Input
Pin 3. – Input

14. AC OUTLETS (Total of five)

An UNSWITCHED AC outlet stays on at all times when the C40 power cord is connected to a live AC wall outlet. This outlet can be used for an accessory that needs power at all times, such as a clock. This outlet can also be used for an automatic record changer that has its own automatic shutoff feature.

Four SWITCHED AC outlets turn on whenever the C40 is turned on, and can be used to power any accessory component used in the system. To expand the AC outlet capability of the C40, an optional Power Control relay such as the McIntosh R612 or PC-2 can be used.

TOTAL CURRENT CAPACITY OF C40 REAR PANEL AC OUTLETS IS 1400 WATTS.

15. SCR (Optional Speaker Control Relay)

The McIntosh SCR-3 SPEAKER CONTROL RELAY provides capability for switching two pairs of speakers by using the C40 front panel SPEAKERS 1 and 2 pushbuttons. The SCR-3 also includes two high current AC outlets with a total current capacity of 1800 watts, to operate accessory components such as large power amplifiers. These AC outlets turn on and off with the C40 power switch and can be used when the accessory components demand more current than the 1400 watt rating of the rear panel AC outlets.

Plug the nine pin computer type connector from the SCR-3 into the SCR socket on the C40 rear panel. Plug the heavy AC cable from the SCR-3 into a wall outlet.

DO NOT PLUG THE SCR-3 HEAVY AC CABLE INTO ANY OF THE C40 REAR PANEL AC OUTLETS

HOW TO MAKE CONNECTIONS ON THE REAR PANEL

MONITOR AMPLIFIER FUNCTIONS

16. SPEAKERS, LEFT AND RIGHT

The C40 built-in Monitor Amplifier output is rated at 20 watts per channel for 8 ohm loudspeakers, and includes the McIntosh Power Guard circuit. The Monitor Amplifier also feeds the front panel HEADPHONES jack as well as the rear panel speaker terminals. Use this amplifier to power small monitor speakers, surround sound speakers or speakers in a remote location. Program sources can be selected from the LISTEN signals, the RECORD signals or from a set of rear panel EXTernal INPUT jacks. When using the EXTernal INPUT jacks, the monitor amplifier performs as a completely separate amplifier and is not affected by any settings on the C40 except for AC power and the rear panel EXTernal INPUT volume controls.

Connect cables from a pair of 8 ohm loudspeakers to the left and right + and – SPEAKERS terminals. Maintain the same polarity connections for each speaker.

17. EXT, L AND R

Adjusts the volume level of each channel of the MONITOR amplifier.

18. RECord - LISTEN - EXTernal INPUT (Switch)

Adjust this slide switch to select MONITOR AMPLIFIER INPUT signals from the RECord programs, the LISTEN programs or a signal source connected to the EXTernal INPUT jacks.

19. EXTernal INPUT

Connect a pair of cables from any external high level program source, such as a preamplifier, tuner or CD player.

COMPANDOR OPERATION

The COMPANDOR can expand or compress the dynamic range of program signals. You can turn COMPANDOR on or off, and select expand or compress by the front panel COMPANDOR switch. The front panel RATIO control selects the degree of expansion or compression relative to the average volume level. The SPEED switch and LEVEL MATCH control also affect the COMPANDOR operation.

EXPAND

When the COMPANDOR is set to EXPand mode, the dynamic range of program signals is increased. The volume of the loud passages is increased, and the soft passages decreased.

Expansion is most valuable when used with program sources that were originally compressed, or were restricted in dynamic range due to limitations in the original recording process. The listening enjoyment of early vintage recordings can always be enhanced with a small amount of volume expansion to restore as much as possible of the original dynamics of the music. The listening quality of most FM broadcasts can also be improved through volume range expansion.

Recent recordings made in the digital format such as the compact disc, usually include the full dynamic range of the original performance and do not need expansion.

COMPRESS

Set the COMPANDOR to COMpress mode to decrease the dynamic range of program signals. The volume of the loud passages is reduced, and the soft passages increased.

Compression is useful when making tape recordings from wide dynamic range program sources such as a compact disc, especially for playback in a car stereo system. The soft passages are heard above the normal road noise and the loud passages will not distract the passengers. Compression can also be used with all types of music sources to provide background music when other activities are being pursued.

20. SPEED: FAST-NORMAL-SLOW

The SPEED switch determines how fast the COMPANDOR circuit reacts to the musical information.

FAST causes an almost instant change in volume level in response to the music. Percussion instruments such as piano, drums or guitars, usually sound best with FAST reaction speed.

NORMAL speed is the best setting for all general types of music.

SLOW speed may provide more realistic reproduction of voice.

The COMPANDOR SPEED switch setting selection is determined by what you feel is best for your own listening enjoyment.

21. LEVEL MATCH

1. Set the C40 volume control to the desired average listening level for the music program source desired.

2. Set the front panel RATIO CONTROL to approximately 1.3.

3. Turn the COMPANDOR to either EXPand or COMPress. If the volume rises slightly, reduce the level with the LEVEL MATCH control until it is the same as before switching on the COMPANDOR. If the volume lowers slightly, increase the level with the LEVEL MATCH control until it is the same as before switching on the COMPANDOR. You have now matched the volume levels and the COMPANDOR is ready for proper operation.

An expansion ratio up to 2 is provided, however, with most normal music, best results are usually realized with RATIO settings no higher than 1.5.

22. POWER CONTROL

This connector supplies a control signal to feed to a Power Control Input on a compatible accessory to turn on and off its AC power.

HOW TO MAKE CONNECTIONS ON THE REAR PANEL

SPECIFICATIONS

PERFORMANCE LIMITS

Performance limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that when you purchase a C40 from a McIntosh franchised Dealer, it will be capable of performance at or better than these limits.

PREAMPLIFIER SECTION

FREQUENCY RESPONSE

+0, −0.5dB from 20Hz to 20,000Hz

RATED OUTPUT

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

OUTPUT IMPEDANCE

600 ohms for MAIN, SWITCHED 1 and 2, and BALANCED Outputs

MAXIMUM OUTPUT VOLTAGE

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

EQUALIZER CONTROLS

Variable, 12dB boost or cut, at 30Hz, 150Hz, 500Hz, 1500Hz and 10,000Hz

MONITOR AMPLIFIER SECTION

POWER OUTPUT

20 watts into 8 ohm loads minimum sine wave continuous average power output per channel

Output RMS voltage, 12.6V across 8 ohms

RATED POWER BAND

20Hz to 20,000Hz

TOTAL HARMONIC DISTORTION

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

FREQUENCY RESPONSE

+0, −0.5dB from 20Hz to 20,000Hz

INPUT SENSITIVITY AND IMPEDANCE

750mV (170mV IHF) for rated output at 27K ohms

SIGNAL-TO-NOISE RATIO, A-WEIGHTED

100dB below rated output (87dB IHF)

AC POWER OUTLETS

1 Unswitched and 4 Switched for accessories

POWER REQUIREMENTS

120 volts, 50/60Hz, 25 to 85 watts

MECHANICAL

SIZE

Front Panel: 17 1/2 inches (44.5cm) wide, by 5 3/8 inches (13.7cm) high

Depth behind mounting panel including clearance for connectors is 17 inches (43.2cm).

Knob clearance required in front of Mounting Panel: 1 1/8 inches (2.9cm)

FINISH

Front Panel is glass, with gold/teal nomenclature illumination. Chassis is black.

WEIGHT

26 1/2 pounds (12Kg) net, 38 1/2 pounds (17.5Kg) shipping

LOGIC DRIVEN ELECTRO-MAGNETIC SWITCHING

All signal switching in the C40 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. There are tiny leads protruding from either end of the tube. These leads extend into the tube and overlap one another with a separation of a few thousandths of an inch. The 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. All switching control signals come from the C40 DIGITAL LOGIC circuits.

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 less than 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 C40 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

TECHNICAL DESCRIPTION

increases from the reference gain, and the desired amount of loudness compensation can be selected at any volume control setting.

LISTEN PROGRAM PATH

The program signals selected by the LISTEN input switch go directly to the COMPANDOR switching control. The COMPANDOR can be switched into either the Listen or Record path. The Listen signals go next to the LISTEN PROCESSOR jacks.

Next in the LISTEN signal path is the VOLUME control, which is a precision step attenuator. Left to right tracking error is less than 1dB throughout the entire range of the control. The LISTEN signals then feed on to the Balance control, the Loudness Amplifier and then to the low noise Equalizer operational amplifier which has flat response and unity gain.

The Equalizer consists of four operational amplifiers arranged in circuit configurations equivalent to four tuned circuits at 30Hz, 150Hz, 500Hz and 1500Hz. These series tuned circuits are inserted in the signal path by control potentiometers at either the input, or in the feedback circuit of the Equalizer amplifier. A boost or cut of 12dB is available, centered at each of the Equalizer frequencies. A passive circuit is used for the fifth, 10,000Hz frequency. A front panel pushbutton switch allows the Equalizer to be switched into either the Listen circuits or the Record circuits. The output from the Equalizer feeds to the MAIN, SWITCHED 1 and 2 and BALANCED outputs.

RECORD PROGRAM PATH

The program signals selected by the RECORD switch feed into a unity gain amplifier and then to the COMPANDOR switching control. The COMPANDOR can be switched into either the Record or Listen path. The Record signal then feeds to the RECORD PROCESSOR jacks. If desired, the Record signals can be switched through the five band Equalizer amplifier by means of a front panel switch.

The Equalizer amplifier output feeds through an electronic interlocking circuit that prevents a tape recorder output from ever feeding outputs back to its inputs which would result in feedback.

COMPANDOR

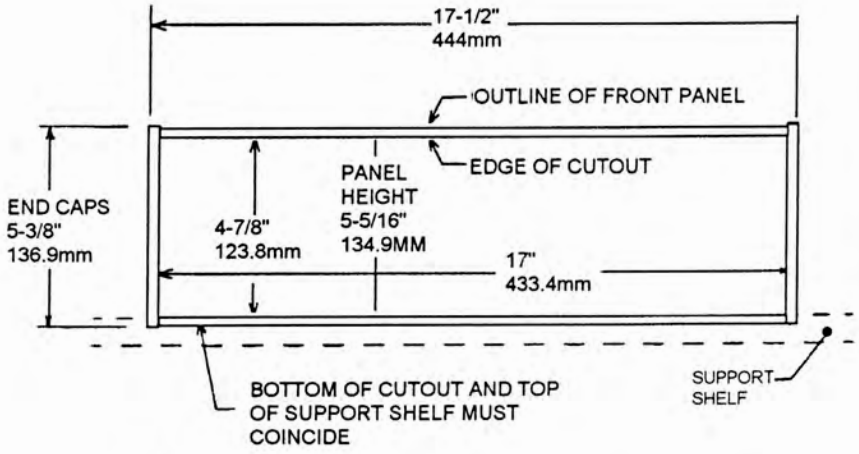
The COMPANDOR will expand or compress the dynamic range of the program material, and can be switched into either the Listen or Record signal paths. Input signals to the COMPANDOR are fed to a voltage controlled amplifier (VCA) which acts as a variable gain block. Control voltages for the VCA are developed from a sample taken from both the left and right channel input signals. The electronic signal processing includes band shaping, logarithmic conversion, full wave rectification, level setting, expansion or compression ratio regulation, attack timing and DC amplification. The resulting processed voltage controls the gain of the VCA to cause logarithmic gain expansion, or compression of the program signals.

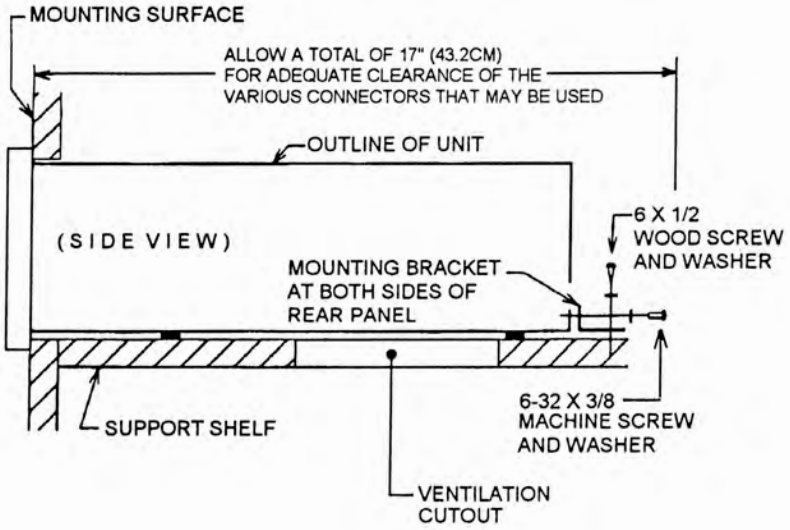
MONITOR POWER AMPLIFIER

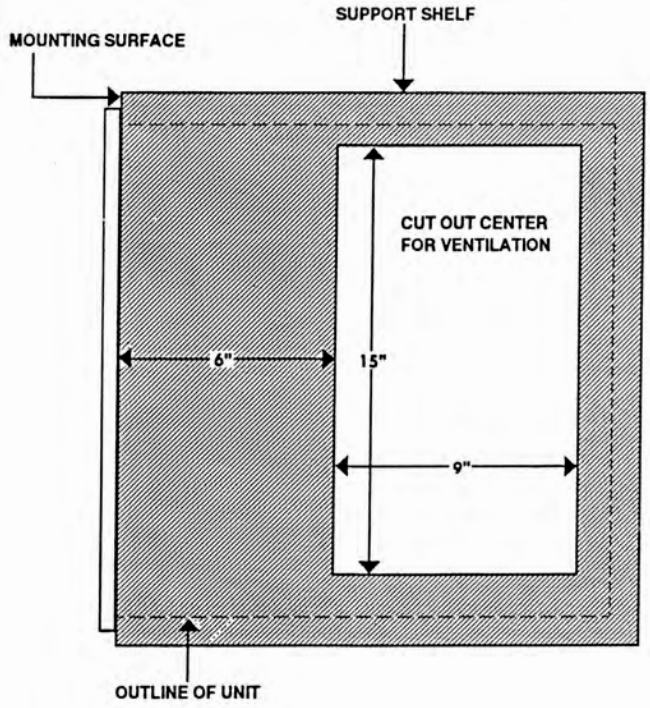
The C40 Monitor Amplifier produces 20 watts per channel with distortion levels of less than 0.005%. The Monitor Amplifier input switch can select Listen, or Record program signals, or signals from external input jacks.

The amplifier is a push pull complementary AB design which uses a differential input. The Monitor amplifier also includes the McIntosh Power Guard clipping protection circuit. The Power Guard circuit compares the amplifier output signal with the input signal. If there is a difference between the wave forms of these signals due to an amplifier overdrive, the Power Guard circuit instantly activates an electronic level attenuator at the amplifier input. This prevents any further increase in distortion. Power Guard makes it impossible to overdrive the amplifier into clipping, with its resulting harsh and speaker damaging distortion.

INSTALLATION DIAGRAM







The letters and numbers correspond to the paragraphs on pages 6 through 11.