

McIntosh

STEREO
PREAMPLIFIER

C 24

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OWNER'S MANUAL

ISSUE NO. 1 PRICE \$1.25

McIntosh
C 24

C 24 STEREO PREAMPLIFIER

THANK YOU

Judging from the stereo equipment you own, you rank high among discriminating music listeners. You are probably no freshman when it comes to stereo. Never-the-less we ask you to read and carefully follow these instructions to insure a successful partnership between you and your new stereo equipment.

You now have "THE BEST." Used properly you are in for thousands of hours of musical enjoyment.

If you are in a hurry read page 3 first. This gives you a brief outline of what each control and indicator does. Reading time for this manual is 30 minutes. This is time well spent.

GENERAL DESCRIPTION

Your C 24 passed forty-eight function tests, plus a complete check of its specifications before it was ready for your listening enjoyment. Each operation was checked. Every specification had to be met or exceeded. You now have the solid state stereo preamplifier that all other solid state stereo preamplifiers have tried to be. Testing and proof of performance takes time. McIntosh testing and proof of performance takes even longer.

One function of a stereo preamplifier is to reproduce records with full accuracy and sonic realism. Records are made with the bass cut and the highs boosted. This is to allow more musical information to be put on the record groove. Tapes are also recorded with the bass cut and the highs boosted. For true musical enjoyment the bass and the highs must be reintroduced following accurate and definite standards. Your C 24 does this with a degree of accuracy thought impossible just a few short years ago. Your records and tapes will sound alive and thrilling when you hear them through your C 24.

All sound systems are used in a different sound environment. The tonal balance of music is affected by variations in room size, furnishings and loudness level of the music. Your C 24

offers you complete control to match and enhance the sound qualities of your listening room. You can boost or cut bass and treble in each speaker system to suit your taste. You control the degree of loudness from each speaker. You are the conductor. Your interpretation of how it should sound, loud or soft, can be followed to the nth degree. You have professional control. You can make the music sound the way you want it to sound.

At low listening volumes the human ear becomes insensitive to certain frequencies. With the exclusive McIntosh variable loudness contour control you can control just the right amount of boost necessary to make the music come alive.

You can use any six program sources through your C 24 and be assured that you will hear all there is to hear.

Once you enjoy the outstanding performance of the C 24, you will know why McIntosh products have earned the reputation of being "THE BEST." Your McIntosh C 24 solid state stereophonic control preamplifier will give you hours of the finest possible performance, and will be a highly valued part of your home music system.

TECHNICAL DESCRIPTION

18 Silicon Planar transistors are used in the C 24. Silicon planar transistors are used because of high thermal stability, low leakage, low noise and superior high frequency response. The performance of the C 24 is unparalleled by any other preamplifier.

There are three transistors in each channel of the low level section of the C 24. The input transistor is a high gain amplifier. The output of this transistor feeds a pair of transistors in a high gain configuration. The output from this pair is fed back to the emitter of the first stage transistor. These transistors form a negative feedback loop. The feedback loop reduces noise and distortion. It provides precision frequency compensation for phono records and tape head playback. At 20 cycles, where gain is highest, negative feedback remains in effect. This insures low distortion over the entire frequency range.

McIntosh care in design assures you of accurate phono reproduction. The phono input impedance of 47,000 ohms matches most phono cartridges. Resistors may be added to match a cartridge which requires a different input impedance. Phono input signal overload is virtually impossible. For example, at 2,000 cycles the C 24 phono inputs can accept 200 millivolts of signal without overload.

Tape head input impedance is 1 megohm. This gives uniform high frequency response with typical tape deck playback heads. Tape outputs have sufficient level to feed a tape recorder. Ten millivolts at the tape head or phono inputs result in 1.2 volts at the tape outputs.

High level inputs feed through the Balance and Volume controls into a transistor connected as an emitter-follower. This is the first stage of the Tone control section. The input impedance of the high level inputs is 250,000 ohms. The emitter-follower provides the required high input impedance and low output impedance for feeding the tone control circuits. The last two stages of the tone control section are two transistors in a configuration similar to the phono preamplifier. The high gain of these stages is used to advantage for the tone control negative feedback circuits. Negative feedback in the tone control circuits assures low distortion and accurate shape of the tone control response curves. Negative feedback is maintained at all frequencies, even with the

tone controls turned to full boost. Overall distortion is low at all frequencies including frequencies where maximum boost occurs. Total distortion of the entire C 24 preamplifier circuit is actually less than 1/10 of 1% at 2.5 volts output.

A pair of highly selective filter networks are used in the C 24. They can be switched in or out. The high frequency filter network reduces treble response above 5,000 cycles at a rate of 12 db per octave. The low frequency filter network reduces bass response below 50 cycles at a rate of 12 db per octave. Twelve db per octave slope is used for maximum rejection of noise with a minimum loss of useable program material.

The output from the filter circuits are fed into two transistors connected in cascade for 14 db additional gain. Twenty-five db of negative feedback is applied around these two stages for minimum distortion at output levels as high as 10 volts or more. The C 24 is capable of driving any known power amplifier to maximum output.

The C 24 uses a four section volume control to insure the best signal-to-noise ratio at all volume levels. A separate silicon planar transistor is provided specifically for a monophonic left plus right output. A separate back panel left plus right volume control adjusts the level of the left plus right output jack to ± 6 db of the normal stereo output.

The C 24 power supply assures you of low hum and stable operation with a wide range of power line voltages. A full wave silicon diode rectifier is fed into a capacity-multiplier, series regulator transistor. The transistor regulator, base controlled by a zener diode, assures excellent voltage regulation and extremely low hum. The 10 volt DC supply is further stabilized by another zener diode.

A front panel stereo headphone jack is connected to a back panel terminal strip. The speaker outputs of the power amplifier being used are connected to this terminal strip for driving low impedance headphones. One-hundred ohm resistors are included in the headphone circuit for correct headphone listening level with respect to normal speaker level. 16 ohm load resistors in the C 24 are automatically switched across the power amplifier outputs when the speaker switch is turned off for headphone listening.

IF YOU ARE IN A HURRY

INPUT SELECTOR

AUX: for any device connected to the AUX inputs on back.

TAPE: for tape recorder with its own preamplifiers.

TUNER: for a FM/MPX tuner or FM/AM MPX tuner.

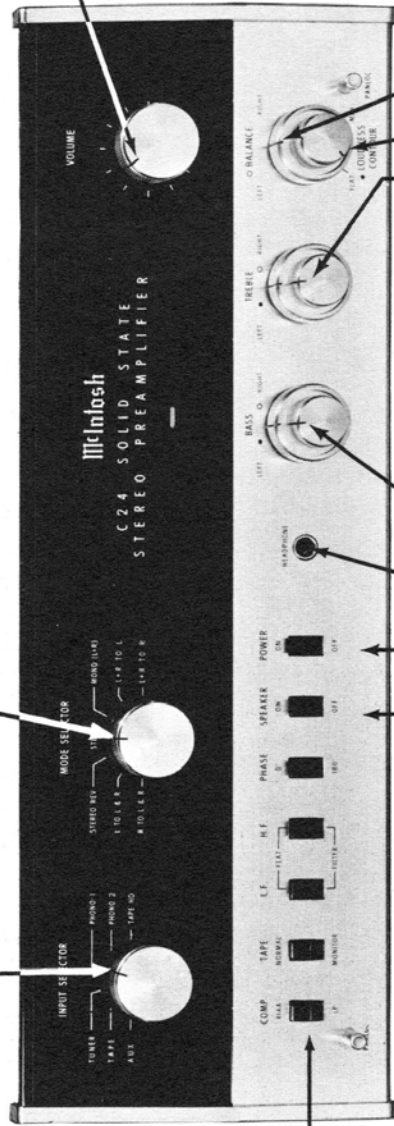
PHONO 1: for phonograph records.

PHONO 2: for phonograph records.

TAPE HD: for a tape playback unit without preamplifiers.

MODE SELECTOR

For all stereophonic program material, set to Stereo position. Other positions are for monophonic material, or for balancing the system.



VOLUME: makes the system louder or softer to suit your taste.

COMP: RIAA used with all stereo records. LP can be used with other mono recordings.

TAPE: monitor position used to monitor a recording when used with a tape recorder with separate playback and record heads.

LF: filter position reduces low frequency noises such as turntable rumble.

HF: filter position reduces high frequency noises such as record surface noise.

PHASE: allows you to control material that is recorded out of phase. Makes both speakers work together.

BASS: modifies low frequency sounds. Set to suit your taste.

HEADPHONE: to connect a set of low impedance stereo headphones.

POWER: turn the system on. Will also supply power to any device connected to switched AC outlets on the back.

SPEAKER: you can turn off the speakers if you want to use your headphones and not disturb others.

BALANCE: to make one speaker louder than the other. Permits you to adjust for unequal sounds caused by room acoustics or faulty program material.

LOUDNESS CONTOUR: turn clockwise to introduce a circuit that equalizes the extreme high notes and low notes for listening at low levels, and is out of operation when in the "flat" position.

TREBLE: modifies high frequency sounds. Set to suit your taste.

C 24 ELECTRICAL SPECIFICATIONS

FREQUENCY RESPONSE

+0—0.5db 20 cycles through 20,000.

DISTORTION

Less than .1 % at 2.5 volts. 20 to 20,000 cps

Less than .3 % at 10 volts. 20 to 20,000 cps

INPUT SENSITIVITY AND IMPEDANCE

Auxiliary, Tape, Tuner, and Tape Monitor .20 volts, 250,000 ohms for 2.5 volt output.

Phono 1 and Phono 2: 2 millivolts 47,000 ohms.

Tape Head: 2 millivolts, 1 megohm.

TOTAL NOISE

High level inputs: 110 db below rated output
Volume control counterclockwise, 75 db volume control clockwise.

Low level inputs: 60 db below rated output; or less than 4 microvolts at input terminals.

MAIN OUTPUTS

2.5 volts output with rated input.

TAPE OUTPUTS

.20 volts into 25,000 ohms with rated input; 1.2 volts with 10 millivolts at phono input.

LEFT PLUS RIGHT OUTPUT

2.5 volts from generator impedance of 10K ohms; controlled ± 6 db from normal stereo output level.

BASS CONTROLS

± 18 db at 20 cycles with friction for independent adjustment of each channel.

TREBLE CONTROLS

± 18 db at 20,000 cycles with friction clutch for independent adjustment of each channel.

COMP (Compensator) SWITCH

RIAA or LP phono equalization.

TAPE SWITCH

Normal or Tape Monitor.

LF FILTER

Flat, or 50 cycle cutoff, 12 db per octave.

HF FILTER

Flat, or 5,000 cycle cutoff, 12 db per octave.

PHASE SWITCH

Normal (0) or reverse (180).

SPEAKER SWITCH

Speakers connected through back panel terminals, ON or OFF. (25 watt load resistors automatically connected on power amplifier in OFF position).

HEADPHONE JACK

Stereo output from back panel terminals connected to power amplifier outputs.

INPUT SELECTOR

6 positions: AUX, TAPE, TUNER, PHONO 1, PHONO 2, Tape Head.

MODE SELECTOR

7 positions: L to L and R, R to L and R, STEREO REVERSE, STEREO, MONO (L+R), L+R to L, L+R to R.

LOUDNESS CONTOUR CONTROL

Flat response, or continuously variable bass and treble compensation as volume level is lowered.

SILICON-PLANAR TRANSISTOR COMPLEMENT

(18 total); 10-Q103, 7-Q101, 1-Q102.

POWER REQUIREMENTS

105-125 volts AC, 60 cycles, 8 watts.

MECHANICAL SPECIFICATIONS

SIZE

Front panel, 16 inches wide by $5\frac{7}{16}$ inches high; chassis 15 inches wide by 5 inches high by 11 inches deep, including connectors. Clearance in front of mounting panel including knobs, $1\frac{1}{2}$ inches.

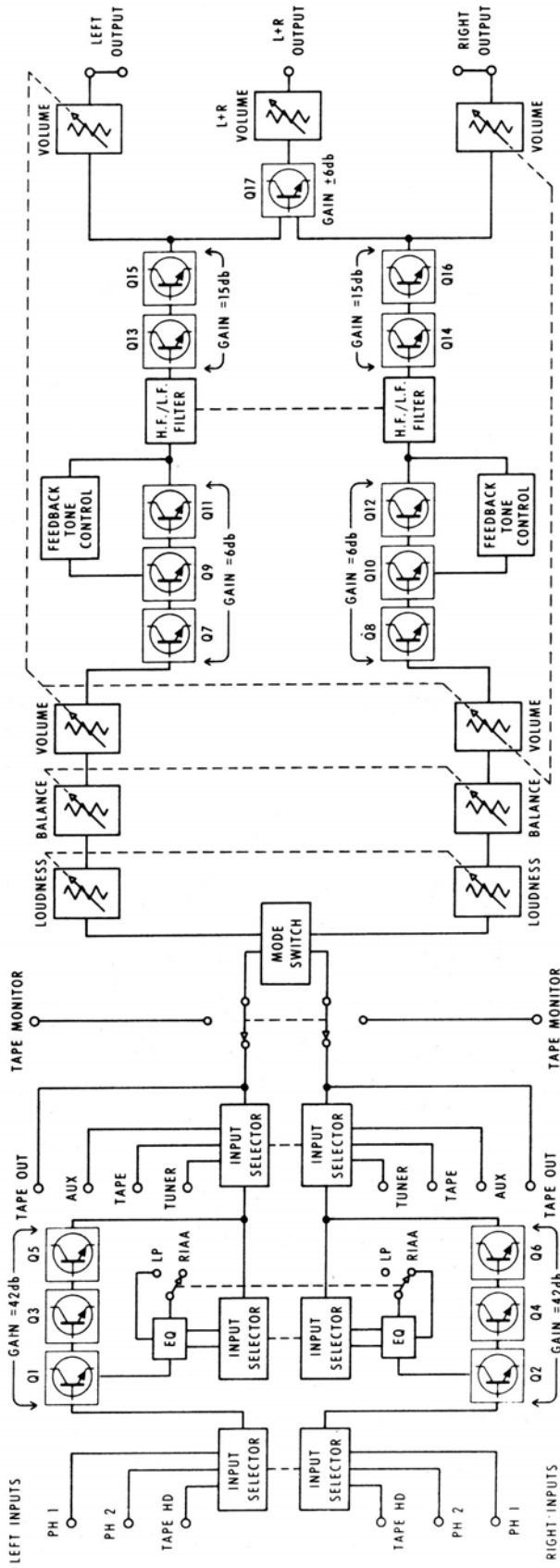
WEIGHT

17 pounds net, 25 pounds in shipping carton.

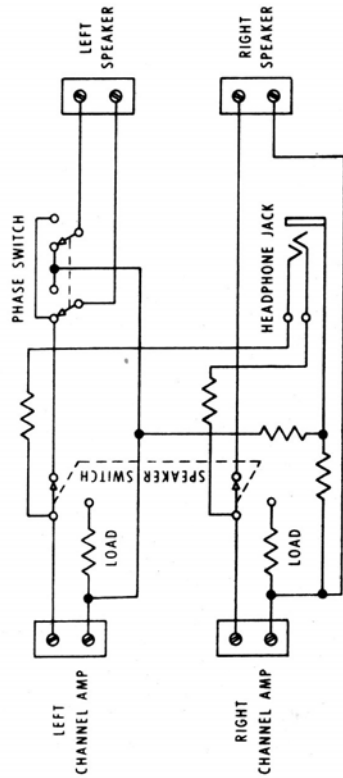
FINISH

Anodized gold and black (front panel).

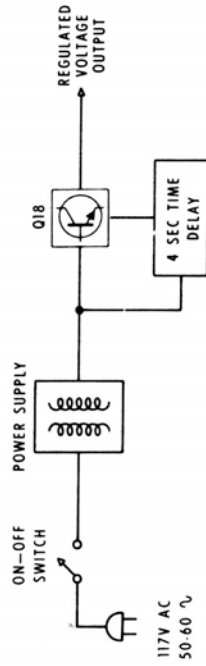
PREAMPLIFIER BLOCK DIAGRAM



HEADPHONE AND SPEAKER CIRCUIT



POWER SUPPLY DELAY CIRCUIT



INSTALLATION

The C 24 can be installed in conventional furniture cabinets, custom built installations or professional relay racks. If the unit is to be placed on a shelf or table top, it is recommended that it be housed in a McIntosh cabinet. The C 24 installs conveniently from the front of the cabinet by sliding into its PANLOC SHELF.

To support the weight of the C 24, the wood

panel used to mount it should be at least $\frac{1}{4}$ inch thick. The C 24 installation should allow approximately 14 inches behind the front panel to mount the PANLOC shelf and allow for connecting wires. To allow sufficient space for the circulating air, the desirable minimum internal cabinet dimensions should be 16 inches and $5\frac{1}{2}$ inches respectively.

CONNECTING THE C 24 TO A POWER AMPLIFIER

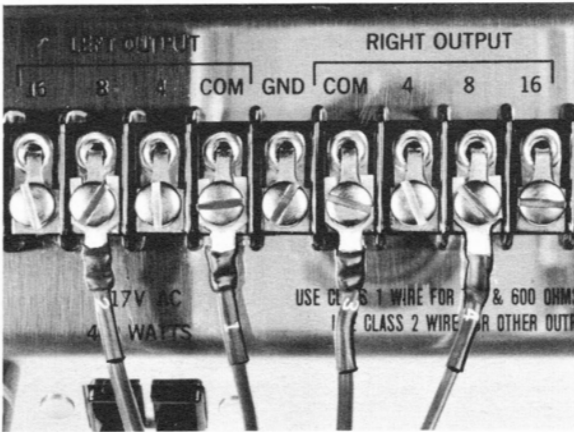


Fig. 1. Correct connections to a McIntosh MC 225

Connect the lead marked "1" to the "left" COM output of your power amplifier. Connect the lead marked "2" to the "left" output that matches your loudspeaker impedance.

Connect the lead marked "3" to the "right" COM output of your power amplifier. Connect the lead marked "4" to the "right" output that matches your loudspeaker impedance.

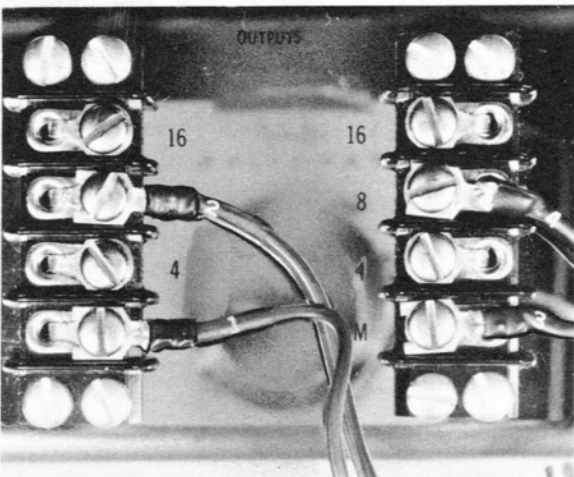


Fig. 2. Correct connections to a McIntosh MC 240 or MC 275

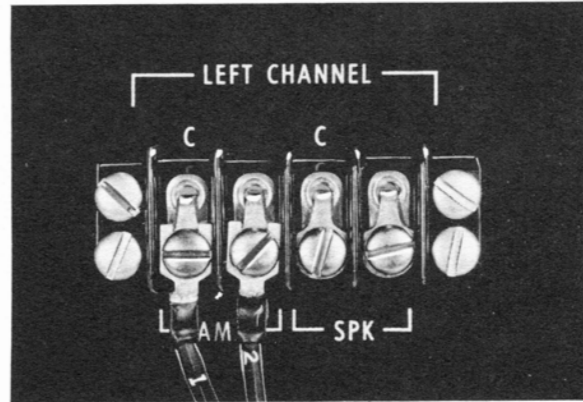


Fig. 3.

The pair of terminals marked "SPK" should be connected to the "left" loudspeaker.

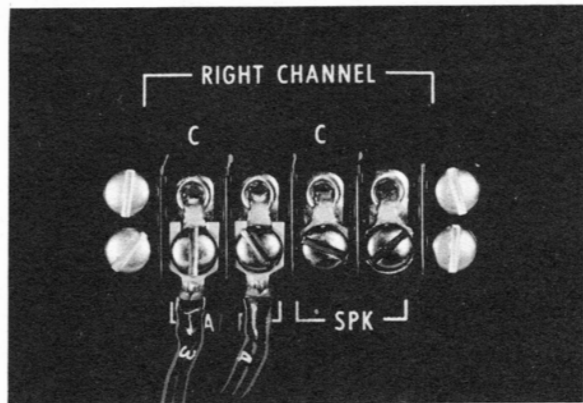


Fig. 4.

The pair of terminals marked "SPK" should be connected to the "right" loudspeaker.

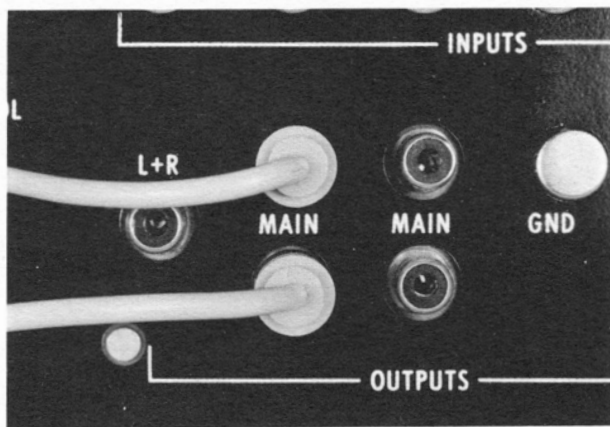


Fig. 5.

The MAIN OUTPUTS are connected to your power amplifier. Use the cables supplied. The "left" MAIN OUTPUT goes to the "left" channel INPUT of the power amplifier. The "right" MAIN OUTPUT goes to the "right" channel INPUT of the power amplifier.

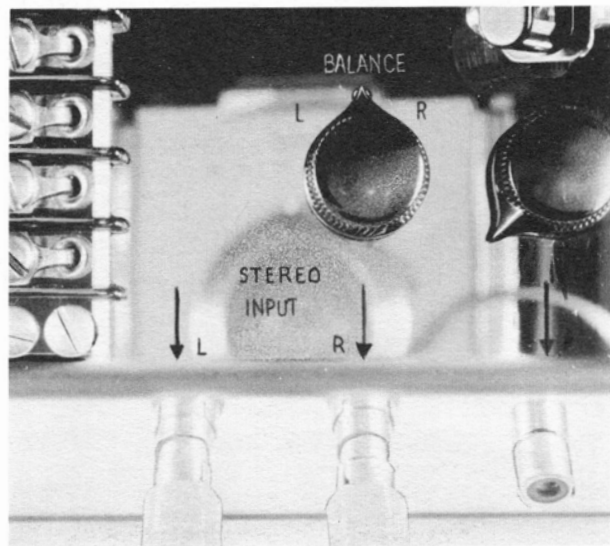


Fig. 7.

MAIN OUTPUTS of the C 24 connected to a McIntosh MC 240 or MC 275 inputs.

CONNECTING YOUR RECORD PLAYER TO A C 24.

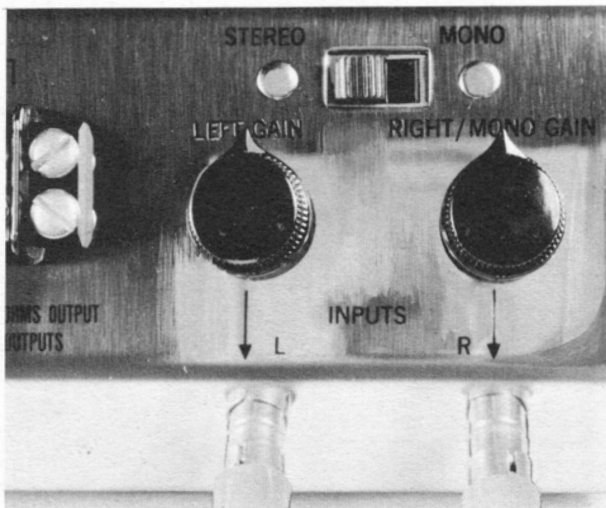


Fig. 6.

MAIN OUTPUTS of the C 24 connected to a McIntosh MC 225 inputs.

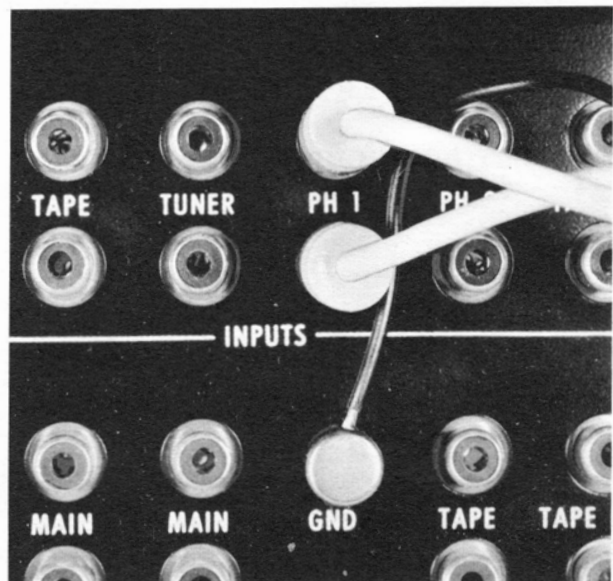


Fig. 8.

Use the Phono 1 position for your main record player. Connect the "left" channel to the "left" input of PH 1. Connect the "right" channel to the "right" input of PH 1. If your record player has a ground wire connect the ground wire to GND.

AC OUTLETS

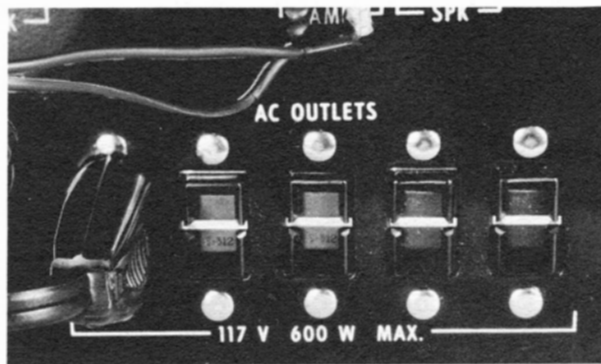


Fig. 9.

There are four BLACK AC outlets and one RED AC outlet. The power to the black AC outlets is controlled by the front panel POWER switch. Use these outlets for the power amplifier and accessories such as a tuner and tape recorder. The red receptacle is on at all times and is used for a turntable or record changer. The turntable is protected by this arrangement. It is necessary to turn off the turntable or record changer by its own AC switch. Connect the AC cord from your record player to the RED outlet. The position shown with the plug connected is the red outlet.

CONNECTING PHONO 2 POSITION

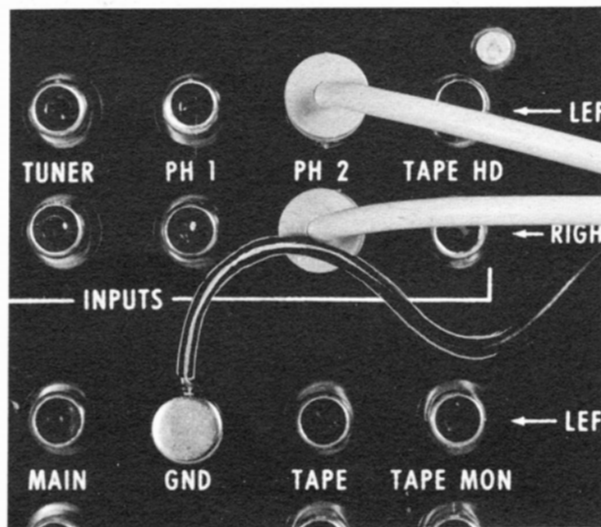


Fig. 10.

Phono 2 position can be used if two record players are used in a system. Connect the "left" channel to the "left" input of PH 2. Connect the "right" channel to the "right" input of PH 2.

CONNECTING TAPE PLAYER (no preamplifier in tape player)

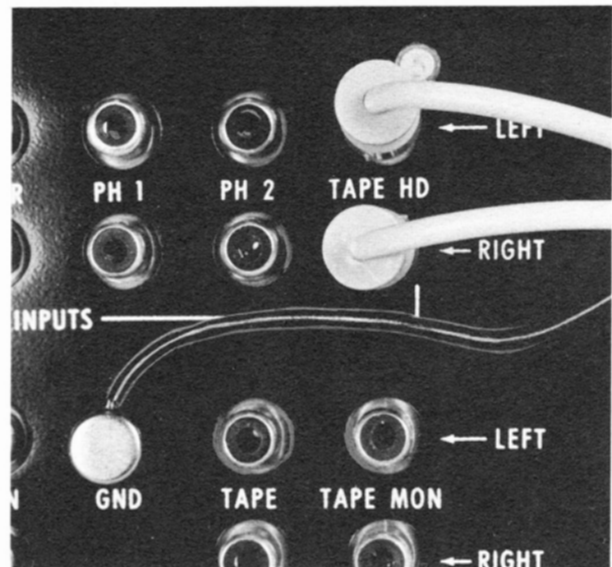


Fig. 11.

Use this position only for a tape deck with no electronics. Connect the "left" channel to the "left" input of TAPE HD. Connect the "right" channel to the "right" input of TAPE HD.

CONNECTING A TUNER

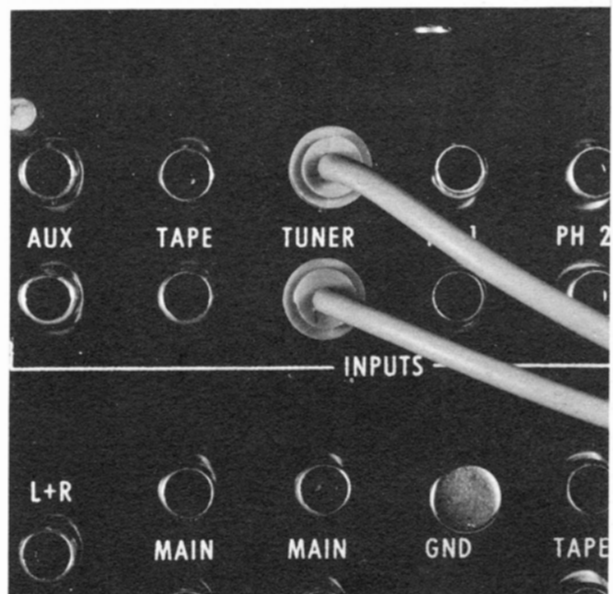


Fig. 12.

This position can be used for any tuner. Connect the "left" output of the tuner to the "left" TUNER input. Connect the "right" output of the tuner to the "right" TUNER input.

CONNECTING A TAPE PLAYER WITH ELECTRONICS OR A TAPE RECORDER

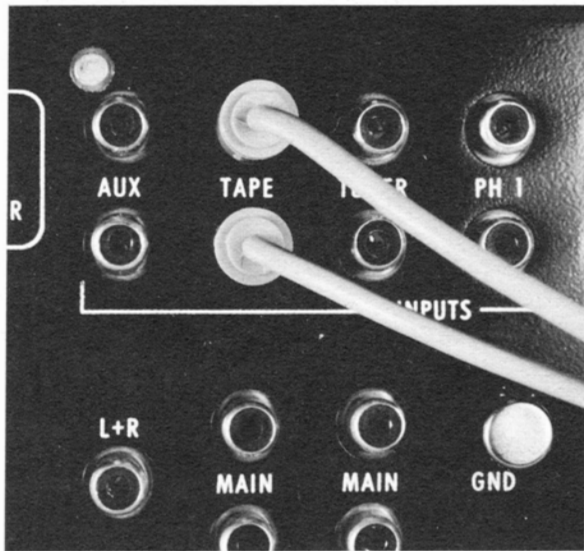


Fig. 13.

Connect the "left" channel of the tape player or tape recorder to the "left" channel TAPE input. Connect the "right" channel of the tape player or tape recorder to the "right" channel TAPE input.

CONNECTING A TAPE RECORDER WITH THREE HEADS

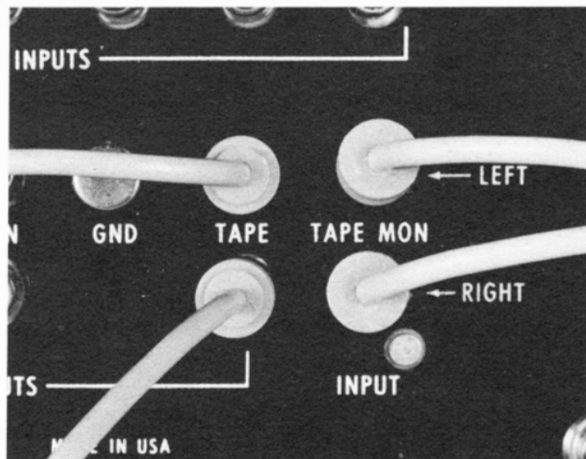


Fig. 14.

Connect the TAPE OUTPUTS to the inputs on the tape recorder. Connect the tape recorder outputs to the TAPE MON inputs. Use TAPE MONITOR for playback.

CONNECTING ANY OTHER HIGH LEVEL SOURCE

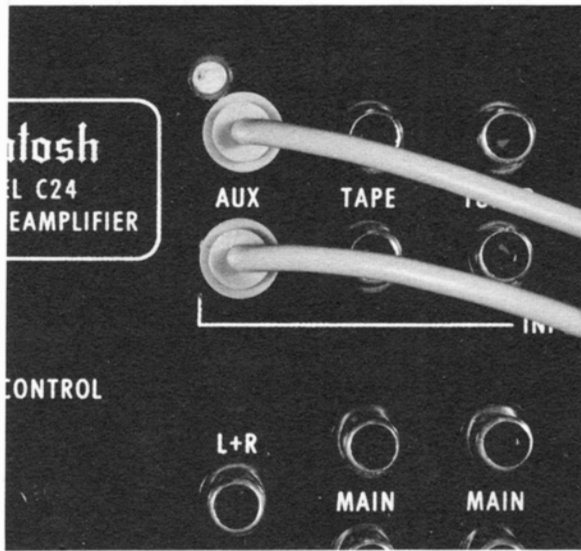


Fig. 15.

This position can be used for TV, tuner, or any other high level source. Connect as shown in photo.

L+R OUTPUT

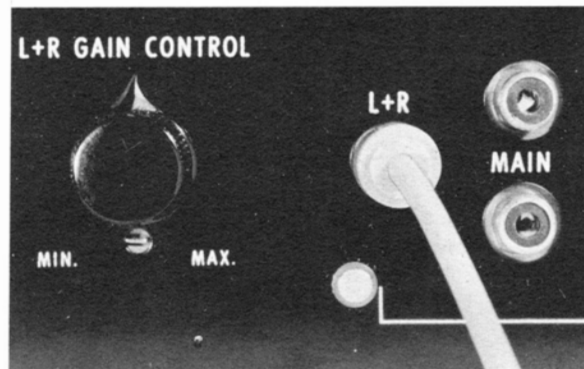
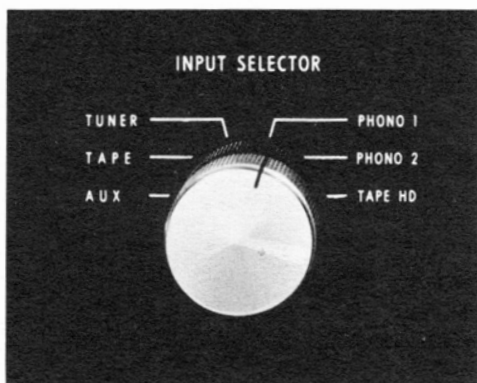


Fig. 16.

This is a monaural output. It can be used as a center channel output for stereo fill in or to supply background music to other rooms. It needs a separate power amplifier. Connect the L+R output to a monaural amplifier. Adjust the L+R gain control to the desired level. The front panel volume control does effect the volume of this output. The photo shows the same amount of volume as the main outputs. The "MIN" position is down 6 db from the main output. The "MAX" position gives a 6 db boost over the main volume. Adjust to suit your needs.

FRONT PANEL INFORMATION



INPUT SELECTOR

Select any one of six program sources with this switch:

AUX: Any auxiliary service requiring flat amplification, such as a television set, is connected to the C 24 through the AUX position.

TAPE: Any self-contained tape machine, tape machine having its own playback preamplifier is connected to the C 24 through the TAPE position.

TUNER: AM and FM or MPX FM outputs from a stereo tuner are connected to the C 24 through the TUNER position.

PHONO 1: Connects the C 24 for stereo and monophonic operation of records.

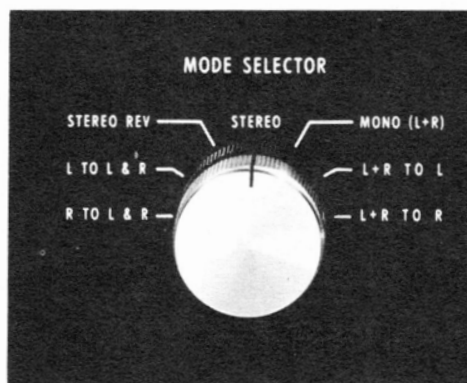
PHONO 2: Same as PHONO 1.

TAPE HD: A tape deck that does not contain its own playback preamplifier is connected to the C 24 through the TAPE HD position.



VOLUME

Use the VOLUME control to adjust volume to desired listening level. Turning the VOLUME control clockwise increases the volume level.



MODE SELECTOR

Select any one of the following modes to listen to program sources:

L TO L&R: Connects the "left" input to both loudspeakers.

R TO L&R: Connects the "right" input to both loudspeakers.

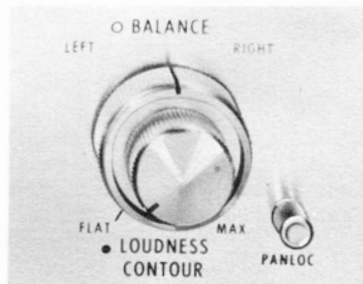
STEREO REV: Connects the "left" input to the "right" loudspeaker and the "right" input to the "left" loudspeaker.

STEREO: For all normal stereo listening.

MONO (L+R): Adds the "left" input and the "right" input and connects the L+R program to both amplifiers and loudspeakers.

L+R TO L: Connects the "left plus right" programs to the "left" loudspeaker only.

L+R TO R: Connects the "left plus right" programs to the "right" loudspeaker only.

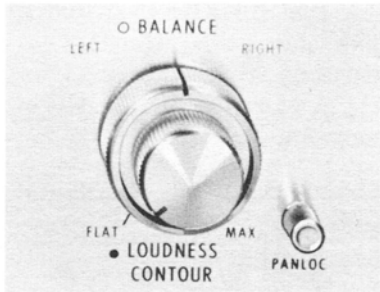


BALANCE CONTROL

Use the C 24 BALANCE control to balance unequal volume in the left and right channels.

LEFT . . . turning the control to the left accents the left channel by reducing the right channel output.

RIGHT . . . turning the control to the right accents the right channel by reducing the left channel output.



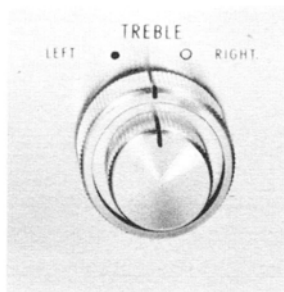
LOUDNESS CONTOUR

FLAT (maximum counterclockwise rotation) position: normal flat frequency response.

Use the **LOUDNESS CONTOUR** to listen at low volume and still hear full frequency range. When you turn down the volume, the music will lose much of its bass and some treble. The response of the human ear to bass and treble pitch decreases more rapidly than its response to notes centered in the mid range.

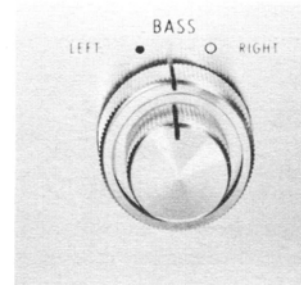
The C 24 **LOUDNESS CONTOUR** control automatically boosts the bass and treble as it turns down the listening volume. The bass and treble are then heard in correct proportion to the mid range.

Turning clockwise toward **MAX** position reduces the listening volume, while automatically boosting both bass and treble for full frequency listening at even the softest volume levels.



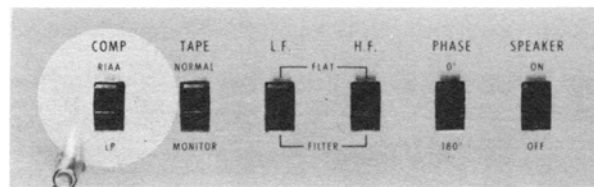
TREBLE

The **TREBLE** control is a dual control. The center or small knob controls the treble loudness in the left channel. The outer ring controls the treble loudness in the right channel. The two knobs are friction coupled, permitting them to be adjusted together or separately. Turning clockwise increases treble loudness. Turning counterclockwise decreases treble loudness.



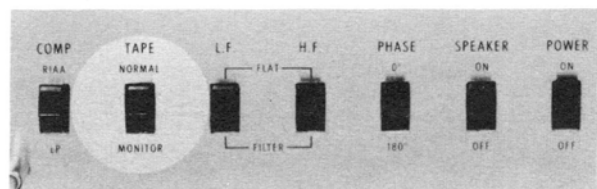
BASS

The **BASS** control is a dual control. The center or small knob controls the bass loudness in the left channel. The outer ring controls the bass loudness in the right channel. The two knobs are friction coupled, permitting them to be adjusted together or separately. Turning clockwise increases bass loudness. Turning counterclockwise decreases bass loudness.



COMP (compensation)

All phono recordings incorporate equalization introduced during the recording process. The **COMP** switch selects the correct equalization for the type of phono record being played. All current LP and stereo recordings use RIAA equalization. Some stereo and early mono recordings use LP equalization.

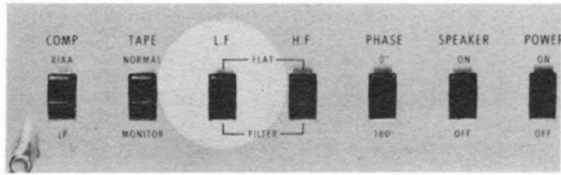


TAPE

The C 24 **TAPE** switch makes it possible to instantaneously compare recorded material with the source signal. Tape jacks on the back panel accept a signal from a tape recorder with a monitor head and preamplifier.

NORMAL . . . The program source is fed through the power amplifiers and the loudspeakers.

MONITOR . . . The signal source becomes the monitored program from the recorded tape and is fed through the power amplifiers and loudspeakers.

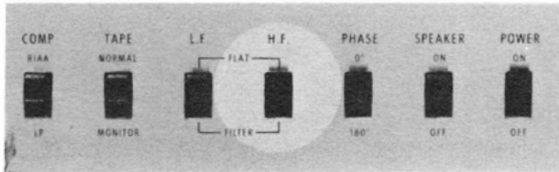


LF (low frequency) FILTER

Use the LF filter switch to reduce low frequency noise such as turntable rumble or acoustic feedback coupled from the speakers to the turntable.

FLAT . . . filter disconnected for normal flat frequency response.

FILTER . . . reduces low frequencies below 50 cycles.

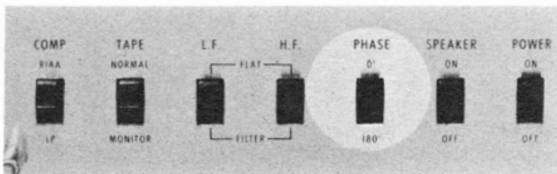


HF (high frequency) FILTER

Use the HF filter switch to reduce high frequency noise such as record scratch or noisy radio broadcast.

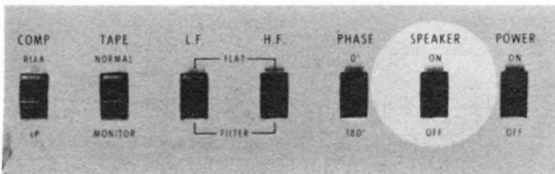
FLAT . . . filter disconnected for normal flat frequency response.

FILTER . . . reduces high frequencies above 5,000 cycles.



PHASE

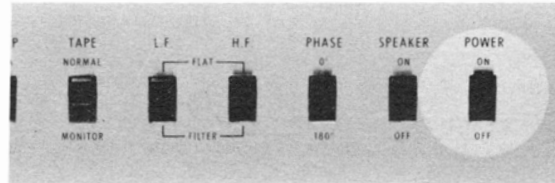
The PHASE switch corrects for loudspeaker or program phasing. Placing this switch in the 180 position reverses phase in the left channel. The speakers must be connected to the C 24 back panel terminals for the PHASE switch to operate.



SPEAKER

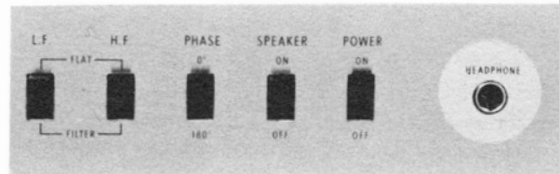
The SPEAKER switch turns off the stereo loudspeakers for listening to headphones. The speakers must be connected to the C 24 back panel

terminal for the SPEAKER switch to operate. Twenty five ohm power resistors in the C 24 are automatically switched across the power amplifier outputs when the SPEAKER switch is in the OFF position.



POWER

The POWER switch turns off the C 24 and the black back panel AC outlets.



HEADPHONE

The HEADPHONE jack is for use with low impedance headphones. The power amplifier must be connected to the C 24 back panel terminals for this jack to operate.

OPERATING INSTRUCTIONS

BALANCING A STEREO SYSTEM

The performance and enjoyment of your stereo system increases when the system is balanced. There are two factors in balancing. One is unequal program loudness on the left and right channels of the program source. The control marked BALANCE on the C 24 is used to balance unequal program loudness. The other factor requiring balancing is system balance. The balance of your stereo system is affected by many things; room acoustics, furniture placement, room shape, small differences in loudspeakers, etc. Balancing the system is done by adjusting the controls on the power amplifiers.

To balance the system, check the controls on the amplifier. If the amplifier is a McIntosh MC 225, set the input switch to STEREO. Turn both input level controls to the black dot at the 12 o'clock position of the control.

If the amplifier is a McIntosh MC 240 or MC 275 check to see that the cables from the C 24 are plugged into the STEREO INPUT jacks. Then set the lever switch to STEREO. Turn the BALANCE control to the "O". The amplifiers are now ready for the steps necessary to balance your system.

1. Play a familiar mono recording.
2. Turn the BALANCE control to the 12 o'clock position.
3. Turn LOUDNESS CONTOUR control to the 12 o'clock position.
4. Place the TAPE switch in the normal position.
5. Place the PHASE switch in the "O" position.
6. Place the L.F. and H.F. in the flat position.
7. Turn the MODE SELECTOR to the L+R position.
8. While the program is playing, switch the

MODE SELECTOR between the L+R to R and the L+R to L position. On the MC 225, adjust the gain controls until the loudspeakers are of equal loudness. On the MC 240 or the MC 275, turn the balance control until the loudspeakers are of equal loudness.

Your stereo system is now balanced. It will remain balanced through all modes of operation.

ADJUSTING PHASE

1. Set the MODE SELECTOR to MONO.
2. Turn the BASS and TREBLE controls to the straight up position. The dial indicators should now be centered between the panel markings L and R.

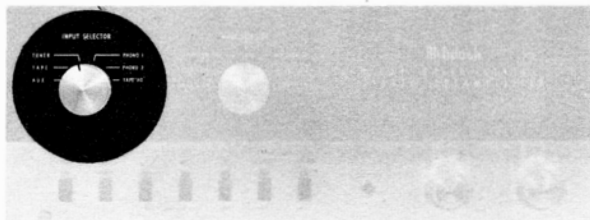
Stand about 10 feet in front of and midway between the loudspeakers. The sound should appear to be directly in front of you. Switch the PHASE switch between "0" and "180." If the sound is not directly in front of you in the "0" position, reverse the leads to one loudspeaker. The PHASE controls are used to correct phase in the source material.

ADJUSTING BALANCE CONTROL AFTER THE SYSTEM HAS BEEN BALANCED

When you complete these instructions the overall system is balanced and in phase. It is ready to deliver maximum pleasure and enjoyment.

You may hear differences in balance from one record to another, or from one tape to another. Some records or tapes may be recorded with a slight difference between channels. The differences can be corrected with the BALANCE control on the front panel. If the difference is heard on every record, then the cartridge may have a difference in output.

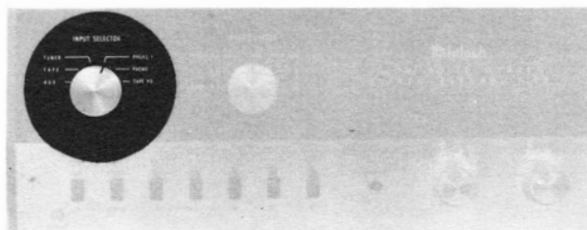
LISTENING TO A STEREO TUNER



1. Turn the INPUT SELECTOR to TUNER.
2. Turn the MODE SELECTOR to STEREO.
3. Adjust the VOLUME control to the desired volume.

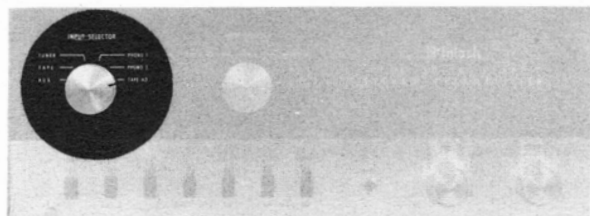
LISTENING TO A STEREO RECORD

1. Turn the INPUT SELECTOR to PHONO 1, PHONO 2, whichever is connected to the cartridge you wish to hear.
2. Set the MODE SELECTOR to STEREO.
3. Adjust the VOLUME control to the desired volume.



LISTENING TO MONOPHONIC RECORDS

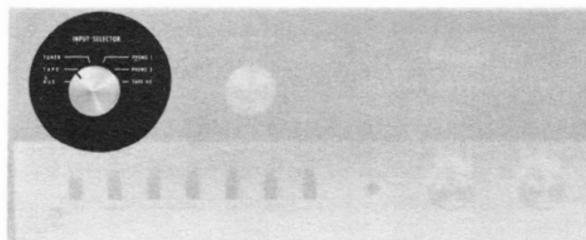
1. Turn the INPUT SELECTOR to PHONO 1, or PHONO 2, whichever is connected to the cartridge you wish to hear.
2. Turn the MODE SELECTOR to MONO (L+R).
3. Adjust the VOLUME control to the desired volume.



LISTENING TO TAPE DECKS

1. Turn the INPUT SELECTOR to TAPE HD.
2. Turn the MODE SELECTOR to STEREO or MONO (L+R), depending on the program on the tape.
3. Adjust the VOLUME control to the desired volume.

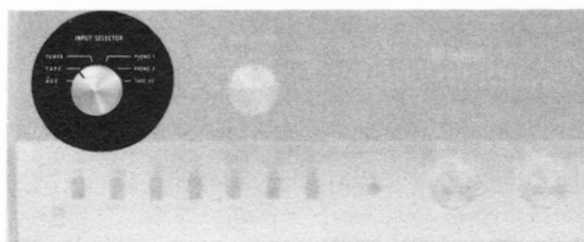
A stereo tape machine with its own playback pre-amplifiers should be plugged into the AUX, TAPE, or the TAPE MONITOR input—not the TAPE HD input.



LISTENING TO A STEREO TAPE MACHINE

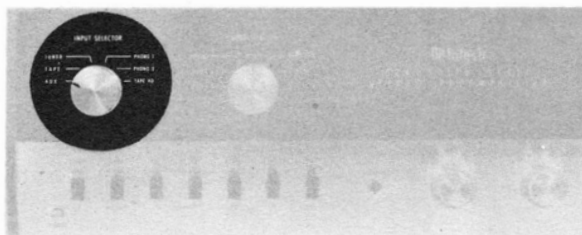
If the TAPE INPUT is used:

1. Turn the INPUT SELECTOR to TAPE.
2. Turn the MODE SELECTOR to STEREO or MONO (L+R), depending on the program on the tape.
3. Adjust the VOLUME control to the desired volume.



LISTENING TO A TAPE RECORDER (TWO HEADS ONLY)

1. Turn the INPUT SELECTOR to TAPE
2. Turn the MODE SELECTOR to STEREO.
3. Adjust the VOLUME control to the desired volume.



LISTENING TO AUX POSITION

1. Turn the INPUT SELECTOR to AUX.
2. Turn the MODE SELECTOR to STEREO.
3. Adjust the VOLUME control to the desired volume.

Your McIntosh C 24 tuner will give you many years of pleasant and satisfactory performance. If you have any questions concerning the operation or maintenance of this tuner please contact:

Customer Service
McIntosh Laboratory Inc.
2 Chambers Street
Binghamton, New York

Our telephone number is 723-5491.
The direct dial area code is 607.

GUARANTEE

McIntosh Laboratory Incorporated guarantees this equipment to perform as advertised. We also guarantee the mechanical and electrical workmanship and components of this equipment to be free of defects for a period of 90 days from date of

purchase. This guarantee does not extend to components damaged by improper use nor does it extend to damage incurred during transportation to and from McIntosh Laboratory, Inc.

3-YEAR FACTORY SERVICE CONTRACT

An application for a **FREE 3-YEAR FACTORY SERVICE CONTRACT** is included in the pocket in the back cover of this manual. The **FREE 3-YEAR FACTORY SERVICE CONTRACT** will be issued by McIntosh Laboratory upon receipt of the completely filled out application form. The term of this contract is defined in

the 3-year factory service contract. If the application is not mailed to McIntosh Laboratory, only the services offered under the standard 90-day guarantee will apply on this equipment. **TAKE ADVANTAGE OF 3 YEARS OF FREE FACTORY SERVICE BY FILLING IN THE APPLICATION NOW.**

NOTES

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Made in U.S.A.

Phone—Area Code 607-723-5491

Design subject to change without notice.