

McIntosh

Owner's Manual



PREAMPLIFIER-
POWER AMPLIFIER

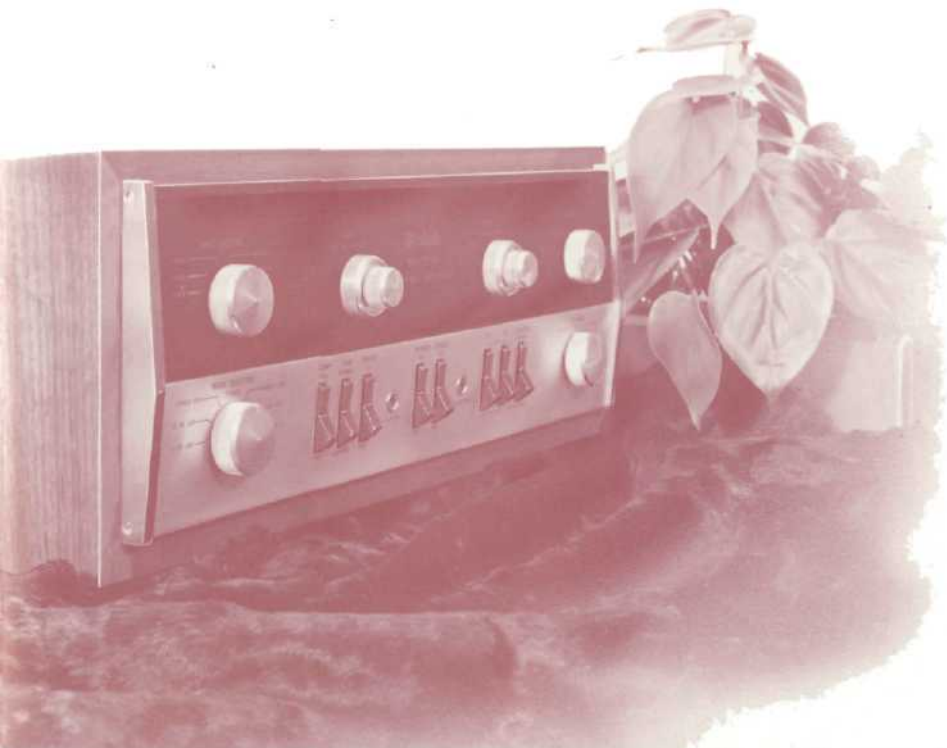
MA5100

STEREO

PRICE \$1.25

*McIntosh is the
Standard of Excellence because*

The McIntosh "will to perfection" requires that we probe constantly into the unknown to bring the performance of our electronic equipment closer to perfection than ever before. This requires a constant and relentless search for low noise, broad band conservative design with an ever lower distortion factor. This is not required of ordinary equipment of average designs. It is, for us, a costly but worthwhile scientific and engineering effort. Our continuing research benefits our customers with the almost complete lack of obsolescence and the most reliable equipment ever made. It also means the lowest long-range cost to you. Nearly all of the McIntosh equipment ever made is still useable, or in use, though it may have been made twenty years ago.



CONTENTS

GENERAL DESCRIPTION	2
TECHNICAL DESCRIPTION	3-4
BLOCK DIAGRAM	5
PERFORMANCE CHARTS	6
SPECIFICATIONS	7
INSTALLATION	8
IN A HURRY	9
TYPICAL CONNECTION	10
CONNECTING	11-12
BALANCING	12
LISTENING	13
FRONT PANEL CONTROLS	14-15
GUARANTEE	16

Thank You...

Your purchase of a McIntosh instrument shows that you are a careful discriminating buyer. One who is interested in quality performance, quality engineering, quality manufacturing, and long trouble-free equipment life. You can protect your investment by spending a few minutes reading this owner's manual.

When you bought a McIntosh, you bought countless hours of musical pleasure and superior performance. Enjoy it!

**PREAMPLIFIER-
POWER AMPLIFIER**

MA5100

STEREO

GENERAL DESCRIPTION

Conservative claims and specifications are traditional at McIntosh. "Rated with honesty and conservatism . . ." "impressive performance figures . . ." "Highest quality of components and construction . . ." are the words used by independent experts when writing of McIntosh. To assure you of highest performance every advertised claim is individually analyzed and verified by engineers using the most sophisticated and sensitive test instruments. Every unit is individually tested using internationally recognized test procedures. To assure you of greatest reliability every component part is carefully tested and evaluated by engineers before it is designed in a McIntosh. The MA5100 you have purchased passed more than 100 tests before it was ready for you. Each connection, wire, resistor, capacitor is checked and rechecked. All specifications are checked. McIntosh testing takes time. The extra investment in thorough testing assures you of greater musical enjoyment. The performance of your McIntosh MA 5100 is backed by a money back guarantee. Only McIntosh gives you a money back guarantee of performance. Your MA 5100 must be capable of meeting its published specifications or you get a refund of your purchase price. McIntosh promises performance. We either meet our promise or you get your money back.

Your MA 5100 can be protected by a free three year factory service contract. Take advantage of this service. Fill in the application card found in the owner's packet. The free three year factory service contract covers parts and labor. Under the terms of the contract all parts and labor necessary to repair the MA5100 will be supplied free of charge. Fill in the service contract application found in the owner's packet now.



TECHNICAL DESCRIPTION

PREAMPLIFIER SECTION

The phono and tape head preamplifier circuits in the MA5100 have three transistors in each channel. The input selector switch connects the input jacks to the first voltage gain stage of the preamplifier. The input stage has high voltage gain and very low noise. The next stage, an emitter follower, acts as an impedance converter that matches the input stage to the second voltage amplifier. The emitter follower is direct coupled to the second voltage amplifier.

Negative feedback is used around the low level section to reduce noise and distortion to an absolute minimum. The negative feedback also provides precise frequency compensation for magnetic phono cartridges and tape heads. The feedback remains in effect throughout the entire audio bandwidth, even at 20 Hz where gain is the highest. This kind of careful McIntosh engineering assures you of lowest distortion performance.

The tape head input impedance is 500,000 ohms. High tape head input impedance permits uniform high frequency performance from typical tape transport playback heads.

The MA 5100 is ideal for tape recording. With an input signal from a phono cartridge of 10 millivolts, there is 1.4 volts available at the tape output jacks.

Phono input signal overload is virtually impossible. At 1 KC the phono input will accept greater than 125 millivolts without overloading. This is more than 4 times the output from most phono cartridges when playing a low distortion phonograph record.

The phono input impedance is 47,000 ohms. This matches the impedance of magnetic phono cartridges.

The preamplifier output is connected by the input selector switch to the tape output, the tape monitor switch, the balance control, and the first section of the volume control. This arrangement permits recording of the program without interruption and has the ability to monitor the recorded tape.

The loudness compensation switch is also connected to the first section of the volume control.

The tone control stages are made up of a three stage amplifier. The first two transistors are emitter followers. The first emitter follower is driven from the output of the volume control. The second emitter follower is direct coupled to the third stage. The third stage is a high gain voltage amplifier.

Signals pass through the input emitter follower and then couple to the second and third tone control stages through the tone control network. The tone control contours are obtained by controlling the large negative feedback around the second and third transistors. This negative feedback is used to accurately shape the response. The large amount of negative feedback also makes possible low distortion from the tone control amplifier.

The output of the tone shaping amplifier drives the low frequency and high frequency filters and the second section of the volume control. The filters are designed to remove unwanted noises such as turntable rumble and record scratch. The filters remove the maximum amount of objectionable material and still have a minimum effect on the musical content of the program material.

The use of a two section volume control performs two important functions. First, the input section of the volume control increases the signal handling capability of the tone control amplifier. Use of this arrangement makes overdriving the tone control amplifier almost impossible. Second, the output volume control assures maximum signal to noise ratio regardless of the volume control position.

The output of the volume control is fed to a two stage voltage amplifier that has very low noise characteristics. Negative feedback is used to improve the signal to noise ratio and assure an absolute minimum of distortion.

The phase switch is part of the left channel circuitry. The switch selects from two sources that are "out of phase" to each other.

In the normal position the phase is the same in both channels. When the phase switch is in the 180° position the left channel is "out of phase" when compared to the right.

Out of phase program source material is easily corrected with the use of this switch.

POWER AMPLIFIER SECTION

There are 9 transistors in each power amplifier. The input stage is a pair of matched transistors arranged as an emitter coupled amplifier with two inputs and one output. The program from the preamplifier connects to one of the inputs, the second input is fed from the feedback loop that is around the power amplifier section. Both AC and DC feedback are used around the power amplifier section. Noise and distortion are reduced by the use of a large quantity of feedback.

The power transistors are mounted on oversized anodized heat sinks. The heat sinks assure that under normal operation the transistors will operate at a low temperature. If temperatures increase due to shorted speaker, or restricted ventilation, an automatic temperature sensing device turns off the MA5100. The device operates automatically at a preset temperature. The MA 5100 will turn on again when the temperature has decreased to normal operation. This additional feature gives your MA5100 complete reliability under the most extreme operating conditions.

To further insure reliability a special power output SENTRY MONITORING CIRCUIT prevents failure of the power output transistors due to abnormal mismatch of the output. When your MA5100 operates normally the SENTRY MONITORING CIRCUIT has no effect on signals passing through the power amplifier. If the power dissipation should rise above normal operation, the SENTRY MONITORING CIRCUIT restricts the drive to the output transistors. The action of the SENTRY MONITORING CIRCUIT is immediate for any input signal or load combination. This arrangement assures complete circuit reliability. Only McIntosh gives you this degree of protection.

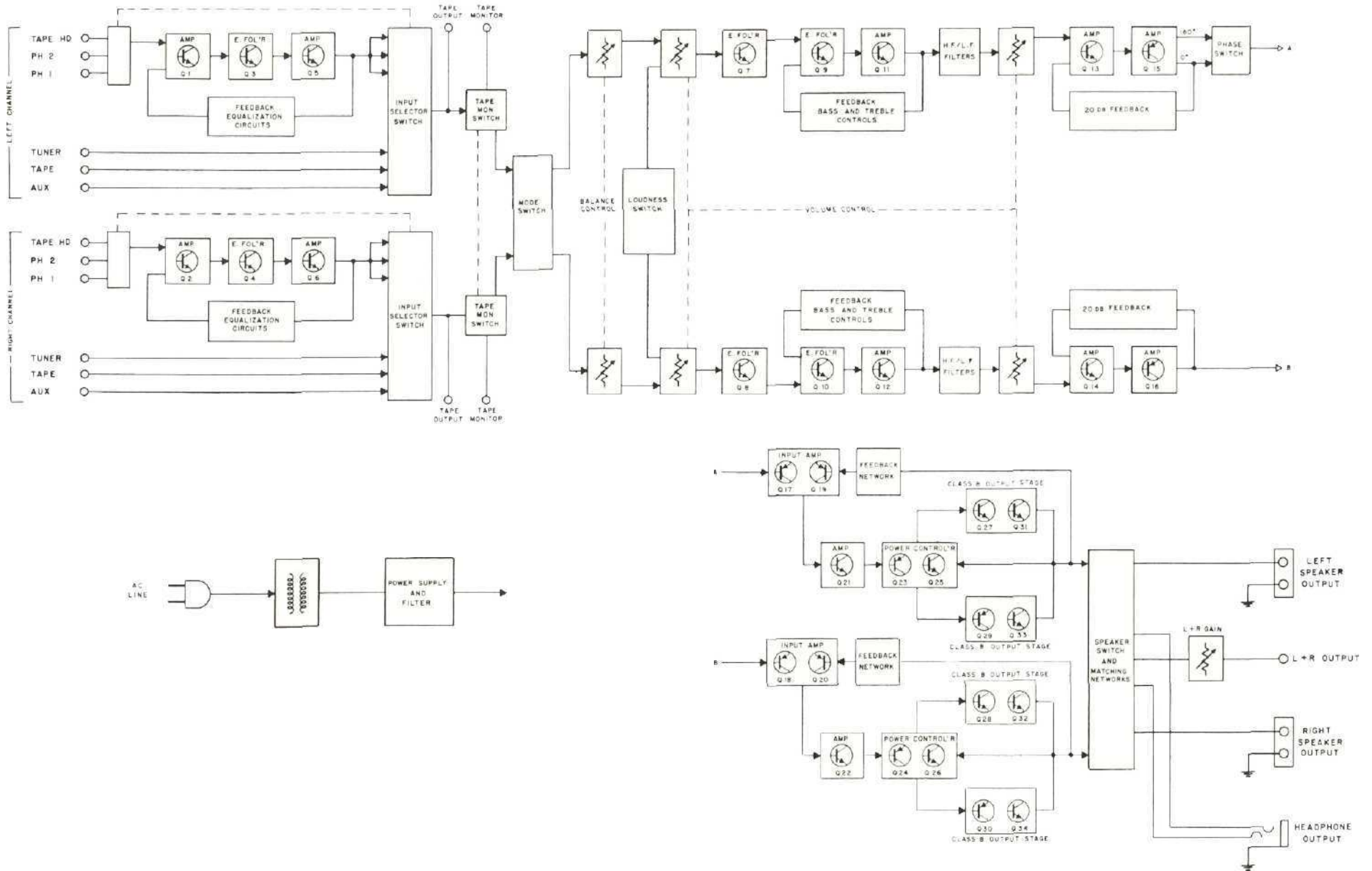
POWER SUPPLY SECTION

There are four separate power supply sections. One positive and one negative high current supply is used for the output stages. One positive and one negative low current supply is used for the preamplifier and power amplifier input stages. All supplies are full wave and use silicon rectifiers. Adequate filtering is used to assure an absolute minimum of output hum. The power output stage filter capacitors have very high capacity, which allows full power output below 20 Hz. The power transformer is generous in size and runs cool, even under heavy use.

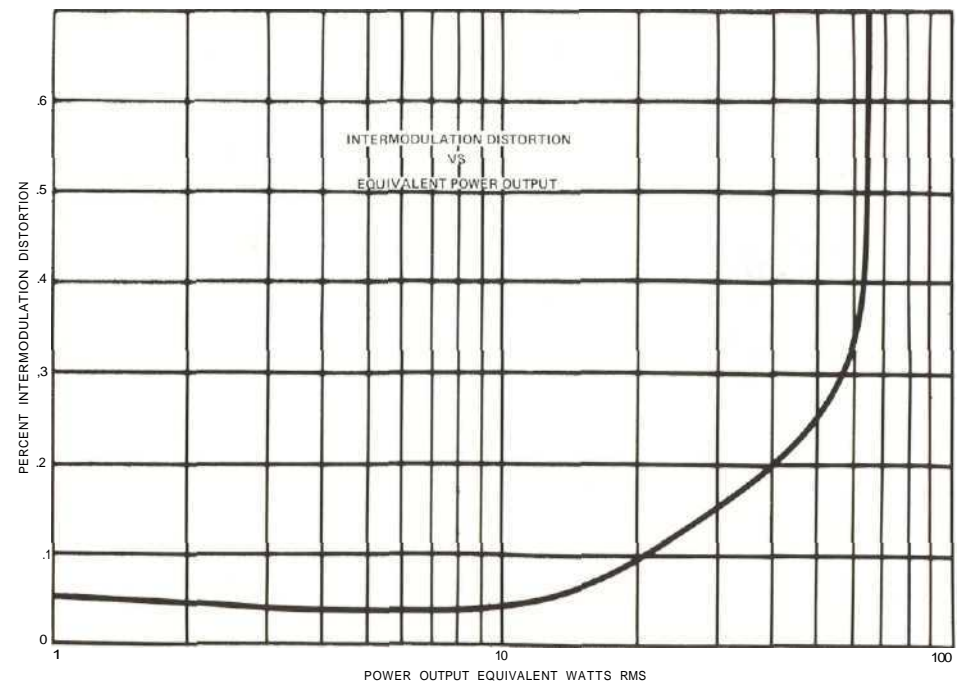
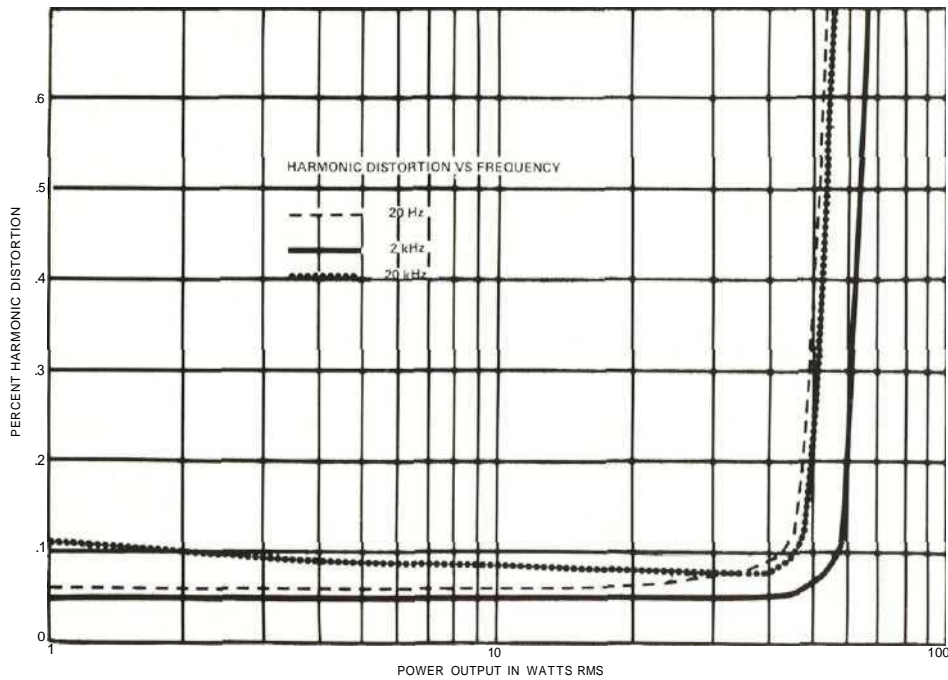
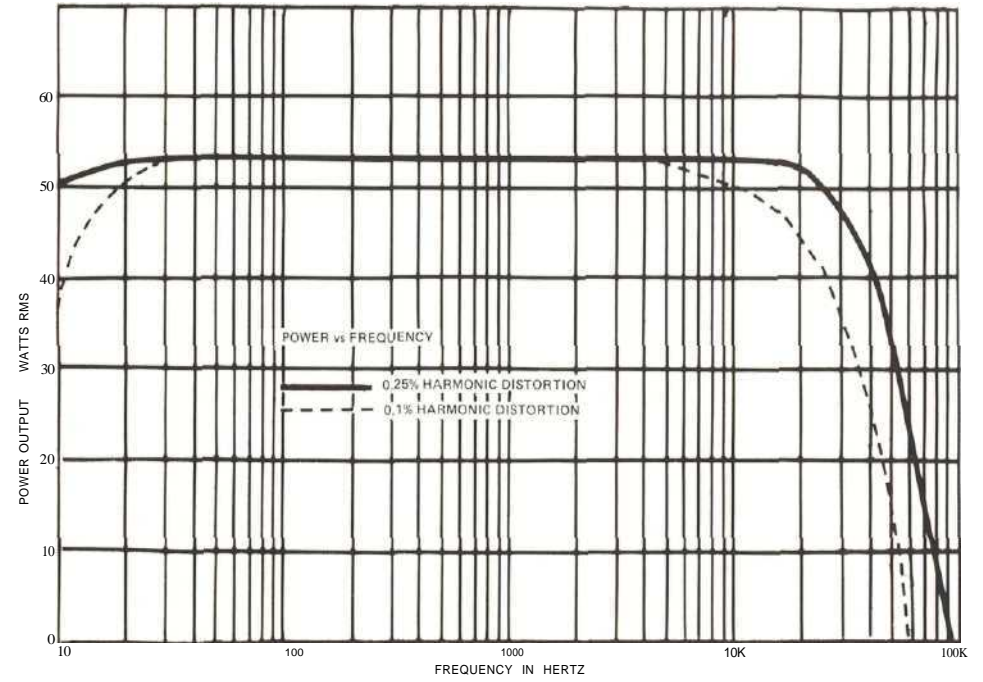
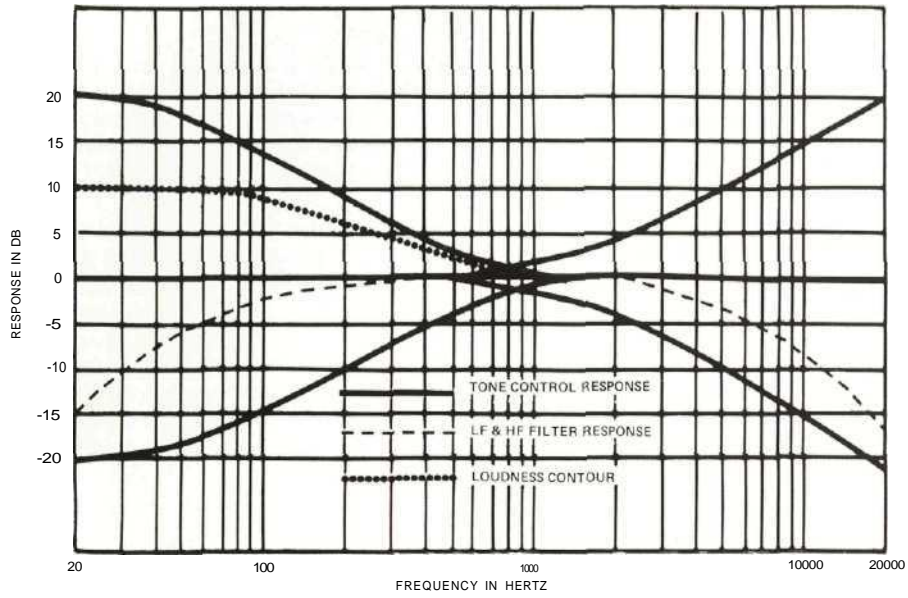


McIntosh MA 5100

BLOCK DIAGRAM



TYPICAL PERFORMANCE DATA



SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

POWER OUTPUT:

45 RMS watts continuous per channel into 4 ohms both channels operating.
45 RMS watts continuous per channel into 8 ohms both channels operating.
30 RMS watts continuous per channel into 16 ohms both channels operating.

HARMONIC DISTORTION:

Less than 0.25% at rated power output from 20 Hz to 20 kHz, both channels operating. Typical performance is less than 0.1% at rated power. Distortion decreases as output power is reduced.

INTERMODULATION DISTORTION:

Less than 0.25% if instantaneous peak power output is twice rated power or less per channel with both channels operating for any combination of frequencies 20 Hz to 20 kHz.

FREQUENCY RESPONSE:

10 Hz to 25 kHz + 0, -0.5 dB at rated power.
8 Hz to 50 kHz + 0, -3.0 dB at rated power.

TOTAL NOISE (INCLUDING POWER AMPLIFIER):

High Level Inputs: 75 dB below rated output
Low Level Inputs: 70 dB below 10 mV input; equivalent to less than 3 microvolts at input.

OUTPUT IMPEDANCE:

4, 8, or 16 ohms.

DAMPING FACTOR:

50 with 4 ohms load
100 with 8 ohms load
200 with 16 ohms load

INPUT IMPEDANCE:

AUXILIARY, TAPE, TUNER, and TAPE MONITOR:
250,000 ohms
PHONO 1 and PHONO 2: 47,000 ohms
TAPE HEAD: 500,000 ohms

INPUT SENSITIVITY:

AUXILIARY, TAPE, TUNER, and TAPE MONITOR:
300 mV
PHONO 1 and PHONO 2: 2 mV
TAPE HEAD: 2 mV

TAPE OUTPUT:

300 mV with rated input, 1.4 volts with 10 mV at phono input.

LEFT PLUS RIGHT OUTPUT:

Adjustable 0 to 6 volts from generator impedance of 5,000 ohms.

BASS CONTROLS:

±18 dB at 20 Hz, with friction clutch for independent adjustment of each channel.

TREBLE CONTROLS:

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

HF FILTER:

Flat, or 5,000 Hz cutoff. 12 dB per octave.

LF FILTER:

Flat, or 50 Hz cutoff. 12 dB per octave.

POWER REQUIREMENTS:

117 volts. AC. 50-60 Hz. 70 watts at zero signal output, 200 watts at rated output.

SPECIAL FEATURES

COMP (COMPENSATOR) SWITCH:

RIAA or LP phono equalization.

TAPE MONITOR SWITCH:

NORMAL or Tape MONITOR indicator lamp lights in MONITOR position.

PHASE SWITCH:

Electronic phase inverter. Normal (0°) or reverse (180°).

SPEAKER SWITCH:

Speakers ON or OFF for headphone listening, indicator lamp lights in SPEAKER OFF position.

LOUDNESS SWITCH:

NORMAL or COMPENSATED.

HEADPHONE JACKS:

Two, for two pairs of low impedance headphones.

INPUT SELECTOR:

6 positions: AUX. TAPE. TUNER, PHONO 1, PHONO 2, TAPE HD.

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.

SEMICONDUCTOR COMPLIMENT:

23 Silicon Rectifiers and Diodes
34 Silicon Transistors
2 Silicon Bilateral Switches
2 TRIAC

MECHANICAL SPECIFICATIONS

SIZE:

Front panel. 16 inches wide by $5\frac{7}{16}$ inches high; chassis. 15 inches wide by $4\frac{1}{2}$ inches high by $14\frac{1}{2}$ inches deep, including connectors. Clearance in front of mounting panel including knobs, $1\frac{1}{2}$ inches.

WEIGHT:

25 pounds net, 41 pounds in shipping carton.

FINISH:

Front Panel: Anodized gold and black.
Chassis: Chrome and black.

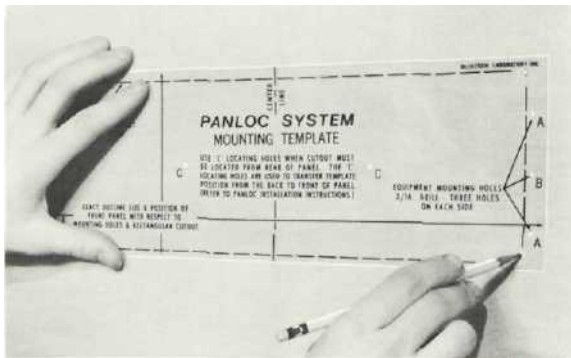
INSTALLATION IN A CABINET

To prepare the MA 5100 for installation remove the plastic protective covering. Turn the MA 5100 upside down so that it rests on its top on the shipping pallet. Remove the four plastic feet fastened to the bottom of the chassis.



Next place the mounting brackets, the parts bag and the mounting template for easy accessibility.

The professional mounting design eliminates the need for any shelf or bracket to support the MA 5100. It is completely supported by its own mounting brackets.



Position the plastic mounting template over the area of the cabinet panel to be cut out for installation.

The design of the mounting template allows you to position or locate the cutout from the front or rear of the panel to which the instrument is to be mounted.

If the cutout is to be located from the rear of the panel, the following steps will help you.

On the back of the cabinet panel, scribe a vertical centerline through the exact center of the area in which the cutout is to be made.

Place the template against the back of the panel and match the template centerline with the centerline on the cabinet panel.

Make sure that there is at least 1/4 inch clearance between the bottom of the dashed line of the cutout area on the template and any shelf or brace below the proposed cutout.

Mark the two locating holes ("C" holes on the mounting template).

Drill the two locating holes. Be certain the drill is perpendicular to the panel.

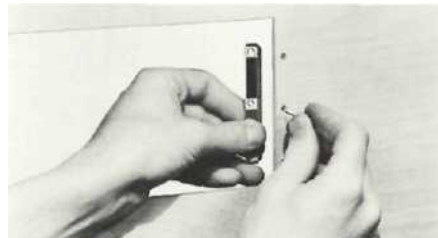
Now position the template on the front of the panel by aligning the "C" locating holes on the template with the drill holes.

With the template in place against the cabinet panel, mark the "A" and "B" drill holes and the four small holes that identify corners of the cutout. Join the corner marks with a pencil. The edge of the template can be used as a straight edge.

IMPORTANT: DRILL THE 6 HOLES BEFORE MAKING THE CUTOUT

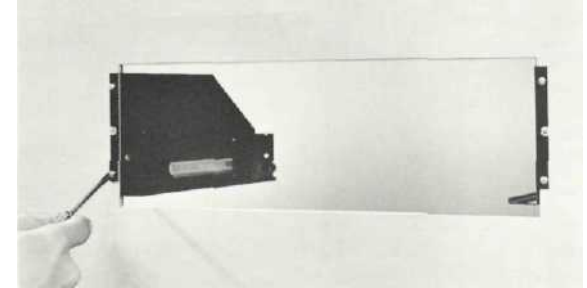
Accurately drill the three holes on each side of the cutout area with a 3/16 inch drill.

With the saw on the **INSIDE OF THE PENCIL LINES** carefully cut out the rectangular opening.

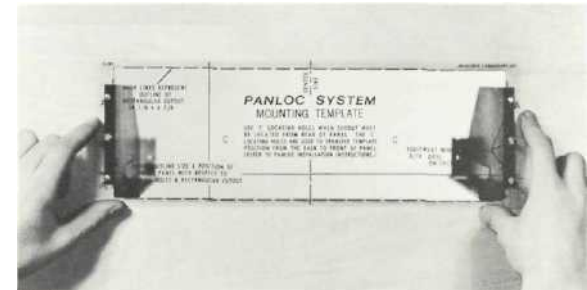


Secure the mounting strips to the rear of the cabinet panel using two screws from the hardware package.

Insert the screws in the center holes of the cabinet panel ("B" holes on the template) and tighten. The screw head should pull into the wood slightly. (Use two 3/4 inch long screws for panels under 1/2 inch, or two 1 1/4 inch long screws for panels 1/2 inch thick and larger.)



Attach the mounting brackets to the cabinet panel using four screws.



Place the template over the mounting screws. The mounting screws should be centered in the "A" and "B" holes on the template. The sides of the mounting brackets should match the vertical dash lines on the template. If necessary, loosen the screws and push the brackets into alignment and retighten.

Insert the power cord through the opening. Carefully slide the MA 5100 into the opening so the rails on the bottom of the equipment slide in the track of the mounting brackets. Continue to slide the instrument in until the front panel is against the cabinet panel.

Secure the instrument to the mounting brackets by inserting the two knurled headed screws (from the hardware package) into the back of the MA 5100 chassis. These screws pass through holes in the back flanges of the mounting brackets.

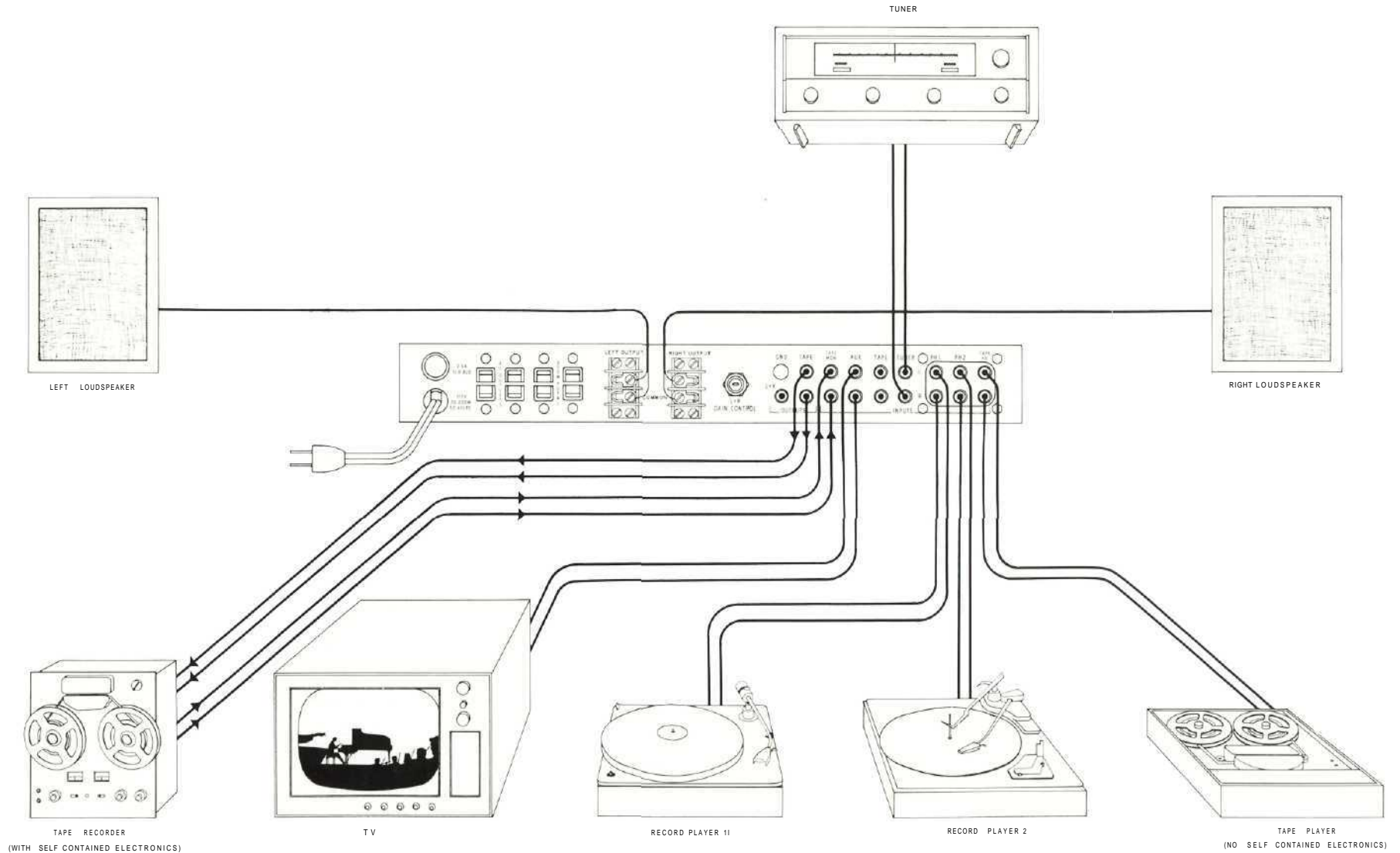
IF YOU'RE IN A HURRY



INPUT SELECTOR

- 1 **AUX** ... for any device connected to the AUX inputs on back.
- TAPE** ... for tape recorder with built-in electronics.
- TUNER** ... for FM stereo or AM/FM tuner.
- PHONO 1** ... for record player.
- PHONO 2** ... for record player.
- TAPE HD** ... for tape deck without electronics.
- 2 **BASS** . . . modifies low frequency sounds. Set to your taste.
- 3 **TREBLE** . . . modifies high frequency sounds. Set to your taste.
- 4 **VOLUME** . . . adjust to desired level.
- 5 **BALANCE** . . . make one speaker louder than the other. Permits the adjustment of unequal sound caused by room acoustics or program material.
- 6 **LOUDNESS** . . . compensate for low volume listening and still hear full frequency range.
- 7 **HF ... FILTER** in . . . reduces high frequency noise such as record surface noise.
- 8 **LF ... FILTER** in . . . reduces low frequency noise such as turntable rumble.
- 9 **HEADPHONE** ... to connect a set of low impedance stereo headphones.
- 10 **POWER** . . . turns system ON and OFF.
- 11 **SPEAKER** . . . turns speakers ON and OFF for headphone listening.
MUST BE ON FOR NORMAL LISTENING.
- 12 **PHASE** . . . correct for out of phase program source.
- 13 **TAPE MON** ... in MONITOR position hear the tape as it is being recorded, in NORMAL hear the program source.
MUST BE IN NORMAL POSITION TO HEAR ALL OTHER PROGRAM SOURCES.
- 14 **COMP** . . . use RIAA with most stereo records.
- 15 **MODE SELECTOR** for all stereo programs, set to STEREO position. Other positions are for monophonic programs or for balancing the system.

TYPICAL CONNECTION



CONNECTING A LOUDSPEAKER:

The MA5100 is designed for stereo operation only. Do not connect the MA5100 for monophonic operation. Damage to the loudspeaker may result.

Speakers are connected at the OUTPUT barrier strips on the back panel of the MA5100.

Connect the leads from the left loudspeaker to the LEFT OUTPUT barrier strip. Connect the leads from the right loudspeaker to the RIGHT OUTPUT barrier strip. Use lamp cord, bell wire, or wire with similar type of insulation to connect the speakers to the amplifier. For the normally short distances of under 50 feet between the amplifier and speaker, #18 wire or larger can be used. For distances over 50 feet between the amplifier and speaker use larger wire.

CONNECTING A RECORD PLAYER TO PHONO 1:

Connect the "left" channel to the "upper" PH 1 input jack.

Connect the "right" channel to the "lower" PH 1 input jack.

PHONO 2 position is used if two record players are used in a system. Connect the "left" channel to the "upper" PH 2 input jack. Connect the "right" channel to the "lower" PH 2 input jack.

CONNECTING A STEREO TUNER

Plug the cable from the "left" channel tuner output into the upper TUNER jack on the MA5100.

Plug the cable from the "right" channel tuner output into the lower TUNER jack on the MA5100.

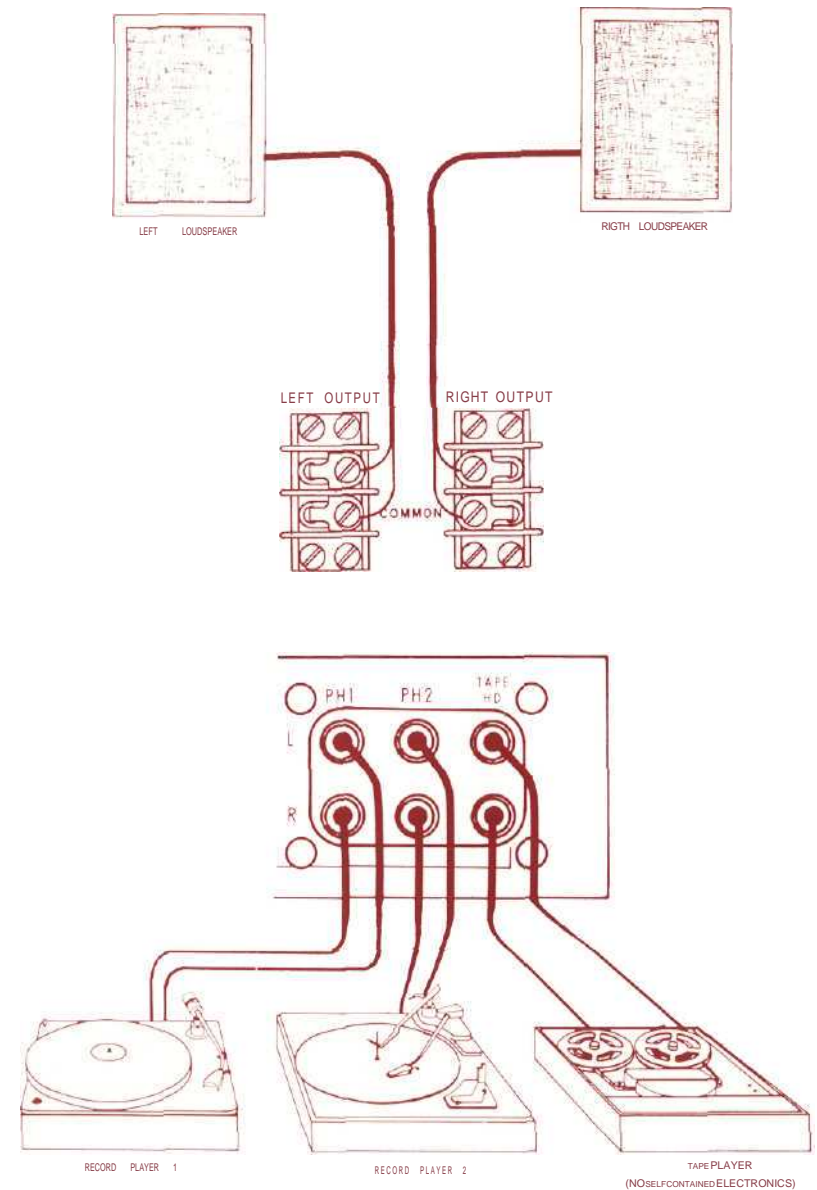
CONNECTING A TAPE RECORDER TO RECORD:

Connect the MA5100 TAPE output jacks to the high level inputs on the tape recorder.

CONNECTING A TAPE RECORDER FOR PLAYBACK:

Plug the cable from the "left" channel recorder output into the "upper" TAPE input jack on the MA5100.

Plug the cable from the "right" channel recorder output into the "lower" TAPE input jack on the MA5100.



CONNECTING THE TAPE PLAYER: (A tape transport without electronics.)

Plug the cable from the "left" tape head output on the tape transport into the upper TAPE HD jack on the MA 5100.

Plug the cable from the "right" tape head output on the tape transport into the lower TAPE HD jack on the MA 5100.

AC OUTLETS:

There are 3 black AC outlets and one red AC outlet. The power to the black AC outlets is controlled by the front panel switch. Use these outlets for a tuner, tape recorder, etc.

The red outlet is on at all times. Use the red outlet for a turntable or record changer.

The turntable is protected by this arrangement. It is necessary to turn off the turntable or record changer with its own AC switch.

GROUND CONNECTION:

A single ground post is provided. Grounds from turntables, record changers, tape decks, etc. should be connected to this post. Do not duplicate this ground circuit. Hum is likely to be heard if a duplicate ground return is used. The left and right program cables from each source should be wound or twisted in with the cables. To avoid hum, make sure the ground wire does not make any connections to the shields of the left and right channel cables.



BALANCING YOUR STEREO

The performance and enjoyment of a stereo system is greatly increased when the system is properly balanced. Three of the factors that effect proper stereo balance are:

- 1 Balance of the entire system.
- 2 Proper phase in both channels.
- 3 Equal program loudness.

TO ADJUST PHASE

- 1 Set the MODE SELECTOR to MONO.
- 2 Stand about 10 feet in front of and midway between the loudspeakers. The sound should appear to come from directly in front of you. Have someone switch the PHASE switch. If the sound is not directly in front of you with the PHASE switch in the 0 NORMAL position, reverse the leads on one loudspeaker. When the sound comes from the mid-point between the speakers they are in PHASE.

TO BALANCE LOUDNESS

- 1 Set the MODE SELECTOR to MONO.
- 2 Play a familiar recording.
- 3 Turn the BALANCE control to the 12 o'clock position.
- 4 While the program is playing, stand between the two loudspeakers. Listen to see if there is a difference in loudness from either speaker. If there is a difference, turn the control toward the speaker that is not as loud. Do this until you find that point where the sound is equally loud from both speakers.

LISTENING TO YOUR STEREO

LISTENING TO A STEREO RECORD

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

LISTENING TO MONOPHONIC RECORDS

- 1 Turn the INPUT SELECTOR to PHONO 1, or PHONO 2, whichever is connected to the record player you wish to hear.
- 2 Turn the MODE SELECTOR to MONO.
- 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.
- 3 Adjust the VOLUME control to the desired volume.

LISTENING TO A STEREO TAPE RECORDER

Use the TAPE input:

- 1 Turn the INPUT SELECTOR to TAPE.

- 2 Turn the MODE SELECTOR switch to STEREO or MONO, depending on the program on the tape.
- 3 Adjust the VOLUME control to the desired volume.

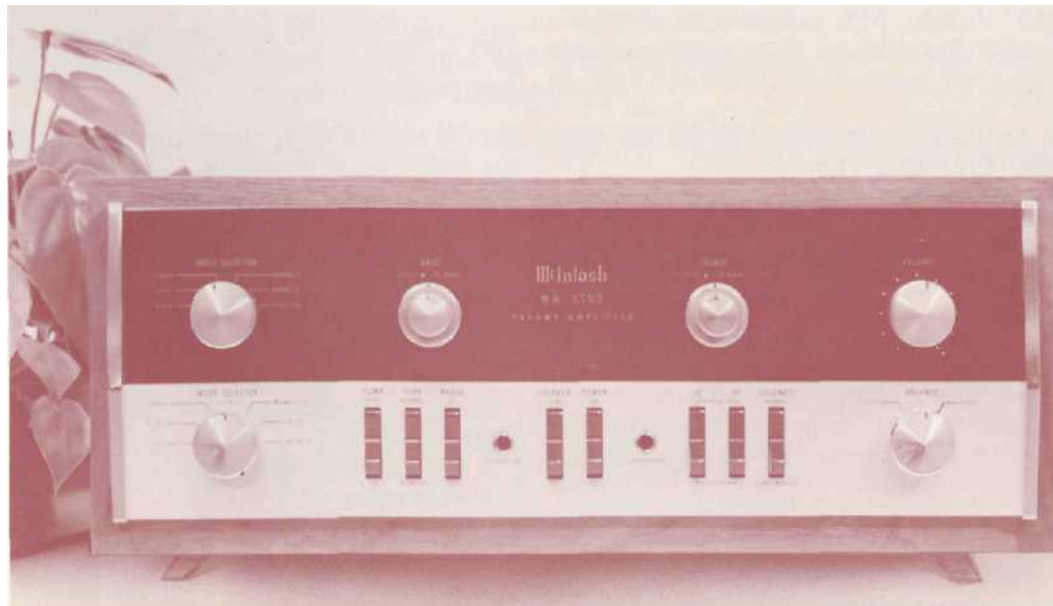
USING A TAPE RECORDER WITH THREE HEADS AND SEPARATE PLAYBACK PREAMPLIFIERS

To listen to tape connect your tape recorder to the TAPE MONITOR input on the rear of the MA5100.

- 1 Switch TAPE SWITCH to MONITOR.
- 2 Switch the MODE SELECTOR to STEREO or MONO depending on the program on the tape.
- 3 Adjust the VOLUME control to the desired volume.

TAPE MONITOR

To monitor while recording, the tape recorder must have separate record and playback heads. The TAPE MONITOR permits monitoring the quality of tape recordings made while in the process of recording. When the TAPE MONITOR switch is in the MONITOR position it will play the sound from the tape as it passes the playback head, a moment after it is recorded. The recording process continues as usual. When the TAPE MONITOR switch is in the NORMAL position the program being recorded is heard.



USING THE FRONT PANEL CONTROLS



INPUT SELECTOR: Selects any one of six program sources:

AUX: Any high level program source requiring flat amplification, such as a television set, is connected to the input stage of the MA5100 in the AUX position.

TAPE: Any self-contained tape machine (tape machine having its own playback preamplifier) is connected to the high level input stage of the MA 5100 in the TAPE position.

TUNER: AM and FM or MPX FM outputs from a stereo tuner are connected to the high level input stage of the MA5100 in the TUNER position.

PHONO 1: Any magnetic cartridge is connected to the low level input stages of the MA 5100 in this position.

PHONO 2: Same as PHONO 1.

TAPE HD: A tape deck that does not contain its own playback preamplifier is connected to the low level input stages of the MA5100 in the TAPE HD position.

BASS CONTROLS: Use the LEFT and RIGHT BASS controls to regulate bass loudness to the left and right speakers, respectively. Clockwise rotation increases bass loudness; counter-clockwise rotation decreases bass loudness. The large knob adjusts the bass in the right channel. The small knob adjusts the bass in the left channel.

TREBLE CONTROLS: Use the LEFT and RIGHT TREBLE controls to regulate treble loudness to the left and right speakers, respectively. Clockwise rotation increases treble loudness; counter-clockwise rotation increases treble loudness. The large knob adjusts the treble in the right channel. The small knob adjusts the treble in the left channel.

VOLUME: Use the VOLUME control to regulate the volume level of both channels. Turning the VOLUME control clockwise increases volume level.

MODE SELECTOR: Connects the program to the loudspeaker in the following seven ways:

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: connects the "left" input to the "left" loudspeaker and the "right" input to the "right" loudspeaker.

MONO (L + R): adds the "left" input and the "right" input and then 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.

COMP (COMPENSATION): Use the COMP switch to correct for phono equalization introduced in the recording process. All current stereo recordings use RIAA equalization. Some early stereo and mono recordings use LP equalization.

TAPE: The TAPE switch makes it possible to instantaneously compare recorded material with the signal source. 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 recorded tape and is fed through the power preamplifiers and loudspeakers.

When the switch is in the MONITOR position a triangle is lighted above the switch. **When the light is on only the tape can be heard.** To listen normally the light must be off.

PHASE: Electronically reverses phase in the left channel to correct "out of phase" program

sources.

SPEAKER: For private listening on headphones the loudspeakers can be turned off. When the switch is in the OFF position a triangle is lighted above the switch. **When the light is on sound will not be heard from the speakers.** Only the headphones will be heard.

POWER: The POWER switch controls the AC input power, It turns the MA5100 on and off. The switch also controls the three black AC outlets on the back panel.

L.F. (LOW FREQUENCY FILTER): Use the L.F. filter switch to reduce objectionable low-frequency noise created by a turntable or record changer and acoustically coupled feedback.

FLAT . . . filter disconnected.

FILTER ... low-frequency rumble and noise below 50 Hz are reduced when the switch is pushed to the FILTER position.

H.F. (HIGH-FREQUENCY FILTER): Use the H.F. filter switch to reduce objectionable high-frequency noise such as record scratch.

FLAT . . . filter disconnected.

FILTER . . . rolls off response sharply at 5 kHz.

LOUD: When the volume is reduced, the music will seem to lose much of its bass and some of its treble. This effect is due to the sensitivity characteristic of human hearing. The response of the human ear to bass and treble pitch decreases more rapidly than its response to notes centered in the mid-tonal range. The LOUD control automatically provides the correct amount of bass and treble boost required to compensate for this change in response of the human ear at low-loudness levels. When the "LOUD" switch is moved to the IN position, it converts the volume control to a loudness compensated control. Use the LOUD IN to listen at low volume and still hear full-frequency range.

BALANCE CONTROL: Use the BALANCE control to adjust both channels to equal loudness. The volume of each speaker system relative to the other can be varied, at the same time their combined volume level is maintained.

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.

McIntosh MA5100

GUARANTEE

McIntosh Laboratory Incorporated guarantees this instrument to be capable of performance as advertised. We also guarantee the mechanical and electrical workmanship and components to be free of defects for a period of 90 days from date of purchase. If such defects occur, McIntosh Laboratory or one of its authorized agencies will repair the defect at no cost to the purchaser. This guarantee does not extend to components damaged by improper use nor does it extend to transportation to and from the factory or service agency.

THREE YEAR FACTORY SERVICE CONTRACT

An application for a FREE THREE YEAR FACTORY SERVICE CONTRACT is included with this manual. The terms of the contract are:

For Three Years from date of purchase

1. McIntosh will provide all parts, materials and labor needed to return the measured performance of the instrument to the original factory specifications free of any charge. The SERVICE CONTRACT does not cover any shipping costs to and from the authorized service agency or the factory.
2. Any McIntosh authorized service agency will repair all McIntosh Instruments at normal service rates. To receive the free service under the terms of the SERVICE CONTRACT, the SERVICE CONTRACT CERTIFICATE must accompany the instrument when taken to the service agency.
3. Always have service done by a McIntosh authorized service agency. If the instrument is modified or damaged as a result of unauthorized repair the SERVICE CONTRACT will be cancelled.
4. The SERVICE CONTRACT is issued to you as the original purchaser. To protect you from misrepresentation this contract cannot be transferred to a second owner.
5. The SERVICE CONTRACT is given to the purchasers who live in the 50 United States or Canada only.
6. For your protection McIntosh selects its dealers carefully. The requirements are very strict. Only one dealer in seven applicants qualifies for a McIntosh franchise. To receive the SERVICE CONTRACT your purchase must be made from a McIntosh franchised dealer.
7. Your completely filled in application for a SERVICE CONTRACT must be postmarked within 30 days of the date of purchase of the instrument.
8. To receive the SERVICE CONTRACT all information on the application must be filled in. The SERVICE CONTRACT will be issued when the completely filled in application is received at McIntosh Laboratory Incorporated in Binghamton, New York. If the application is not received at McIntosh Laboratory, only the service offered under the 90-day guarantee will apply.

**TAKE ADVANTAGE OF
3 YEARS OF FREE FACTORY SERVICE
FILL IN THE APPLICATION NOW**

Your MA5100 stereo preamplifier/power amplifier will give you many years of pleasant and satisfactory performance. If you have any questions concerning operation or maintenance please contact the dealer from whom you purchased this instrument or:—

CUSTOMER SERVICE

**McIntosh Laboratory Inc.
2 Chambers Street
Binghamton, New York 13903
Our telephone number is 607-723-3512**

McIntosh

McINTOSH LABORATORY INC.

2 CHAMBERS ST., BINGHAMTON, N. Y. 13903

607-723-3512

Design subject to change without notice.

Printed in U.S.A.

038-329

BE032003