

McIntosh®

C 30 STEREO PREAMPLIFIER

VARIOUS REGULATORY AGENCIES
REQUIRE THAT WE BRING THE
FOLLOWING INFORMATION TO
YOUR ATTENTION. PLEASE READ IT
CAREFULLY.

WARNING: TO PREVENT FIRE OR SHOCK
HAZARD, DO NOT EXPOSE THIS UNIT TO
RAIN OR MOISTURE.

CAUTION: TO PREVENT ELECTRIC SHOCK
DO NOT USE THE (POLARIZED) PLUG ON
THIS UNIT WITH AN EXTENSION CORD,

Your C 30 Stereo Preamplifier will give you many years of pleasant and satisfactory performance. If you have any questions, please contact:

CUSTOMER SERVICE

McIntosh Laboratory Inc.
2 Chambers Street
Binghamton, New York 13903-9990
Phone: 607-723-3512

**Take Advantage of 3 years
of Contract Service...
Fill in the Application NOW.**

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An application for A THREE YEAR SERVICE CONTRACT is included with this manual.

- The terms of the contract are:
1. McIntosh will provide all parts, materials and labor needed to return the measured performance of the instrument to the original performance limits. 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 McIntosh instruments at normal service rates. To receive service under the terms of the SERVICE CONTRACT, the SERVICE CONTRACT CERTIFICATE must be presented when the instrument is taken to the service agency.
 3. Always have service done by a

Introduction

Why the C 30 costs more but its VALUE TRIPLES other preamplifiers.

The McIntosh C 30 is a superb quality, high performance stereo preamplifier. Its design has been governed by insistence on great flexibility, versatility and high performance with long life.

This outstanding preamplifier will serve you best when you understand its functions and what it is designed to do. Some time invested with this manual will be valuable in obtaining the most from your C 30.

The C 30 provides many features for your listening enjoyment. They include:

1. High level inputs to accommodate the traditional as well as all the latest audio sources such as compact disc players and the high quality audio from video recorders and laser video disc players.

2. A specially designed low noise switching system operates the inputs, the mode circuits and the tape monitor circuit. This system uses a pair of cascaded field effect transistors (FET). The input connecting leads are now very short, one twentieth (1/20) of their previous length. The advantages of this arrangement includes, source to source isolation, lower distortion, and freedom from hum, noise and high power TV and radar signals.

3. Any one of seven input sources can be selected using electronic switching. The seven input sources are turntable, tuner, compact disc player, laser video disc player, television audio, video tape recorder and one auxiliary.

4. Electronic tape monitor switches for two tape recorders allow either tape recorder to be heard from the main output.

5. A five band program equalizer permits the adjustment and improvement of the loudness contrast of the five most important frequency ranges. Musical balance of source material can be adjusted to compensate for room recording differences or listener preferences.

6. A precision main output volume control is electronically trimmed during manufacture to maintain channel balance accuracy to a fraction of a decibel (dB). This high order of accuracy assures continuing program balance as the listening volume is changed.

7. A precision headphone-line output volume control allows headphone-line volume to be adjusted independently of the main volume. The construction and performance of this control is identical to the main volume control.

8. An active circuit loudness control is electrically

independent of the volume control. Close conformity to the Fletcher-Munson equal loudness curves can be attained regardless of the main volume control position.

9. A band pass filter switch reduces high frequency noise and low frequency rumble at a 12dB per octave roll off rate.

10. Front panel tape recorder jacks allow simple plug-in of an additional tape recorder without disconnecting your regular system. This makes playback from or copying to a portable recorder very convenient.

11. An automatic AC power control circuit can conveniently turn off the entire stereo system when the turntable turns off.

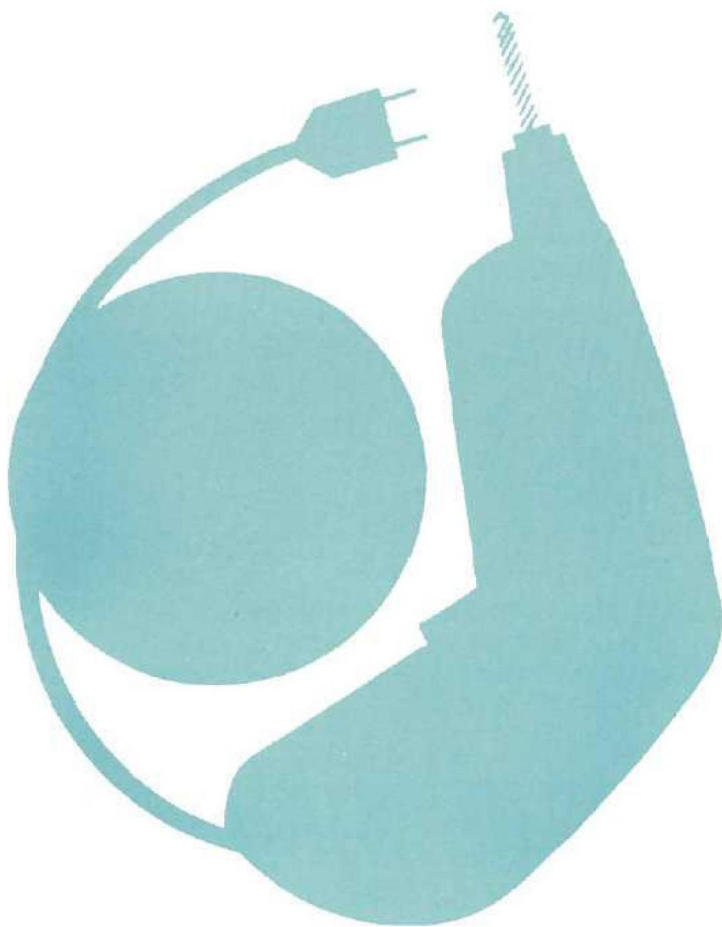
12. A built-in headphone amplifier, with two front panel jacks, powers two pairs of dynamic headphones.

13. Two speaker output pushbuttons control the operation of two sets of loudspeakers (when used with the optional SCR-2 speaker control relay) or two sets of power amplifiers connected to the rear panel 1 or 2 output jacks.

14. Electronically regulated power supplies maintain stable operation even during periods of low or changing line voltage.

15. Rear panel switching signal processing jacks for both tape out and main out. A noise reduction unit or other signal processing device can be connected to each section.

Installation



A study in convenience, simplicity and security.

The PANLOC system of installing equipment conveniently and securely, is a product of McIntosh research. By depressing the two PANLOC buttons on the front panel, the instrument can be locked firmly in place or it can be unlocked so that the chassis can slide forward, giving you easy access to the top and rear panels.

The trouble-free life of an electronic instrument is greatly extended by providing sufficient ventilation to prevent the build-up of high internal temperatures that cause deterioration of component parts. You should allow enough clearance so that cool air can enter at the bottom of the cabinet and be vented from the top. With adequate ventilation the instrument can be mounted in any position. The recommended minimum space for installation is 15 inches (38.1 cm) deep, 17 inches (43.2 cm) wide, and 6 inches (15.2 cm) high.

To install the instrument in a McIntosh cabinet, follow the instructions that are enclosed with the cabinet. For any other type of installation follow these instructions:

1. Unpack from Carton

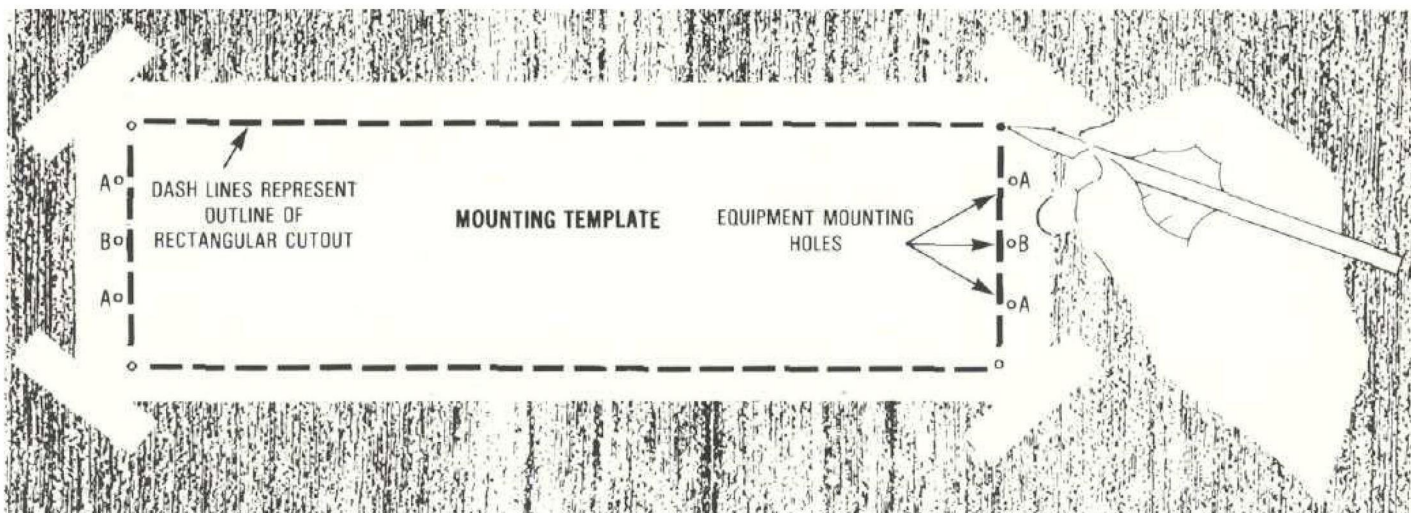
Open the carton and remove the PANLOC brackets, hardware package, and mounting template. Remove the unit from its plastic bag and place it upside down on the shipping pallet, then unscrew the four plastic feet from the bottom of the chassis.

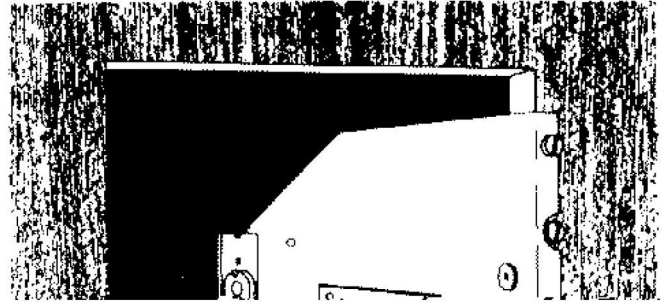
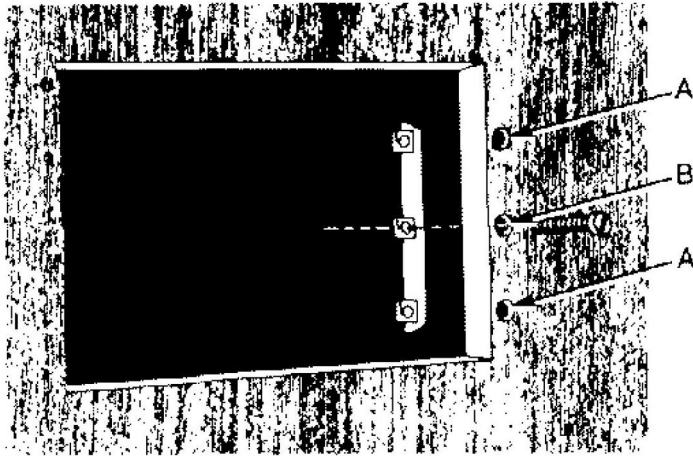
2. Mark the Cabinet Panel.

Place the mounting template in the position on the cabinet panel where the instrument is to be installed, and tape it in place. The broken lines that represent the outline of the rectangular cutout also represent the outside dimensions of the chassis. Make sure these lines clear shelves, partitions, or any equipment. With the template in place, first mark the six A and B holes and the four small holes that locate the corners of the cutout. Then, join the four corner markings with pencil lines, using the edge of the template as a straightedge.

3. Drill Holes

Use a drill with a 3/16 inch (5 mm) bit held perpendicular to the panel and drill the six A and B holes.





Then, using a drill bit slightly larger than the tip of your saw blade, drill one hole at each of two diagonally opposite corners. The holes should barely touch the inside edge of the penciled outline. **Before taking the next step, make sure that the six A and B holes have been drilled.**

4. Saw the Panel Cutout

Saw carefully on the inside of the penciled lines. First make the two long cuts and then the two short cuts. After the rectangular opening has been cut out, use a file to square the corners and smooth any irregularities in the cut edges.

5. Install the Mounting Strips

In the hardware package you will find two mounting strips, and two sets of machine screws. For panels that are less than 1/2 inch (12.7 mm) thick, use the 3/4 inch (19.1 mm) screws; for panels that are more than 1/2 inch (12.7 mm) thick, use the 1-1/4 inch (31.8 mm) screws.

Starting at the right-hand side of the panel, insert a screw of the proper length into the center hole in the panel, marked B on the template. On the back of the panel, align a mounting strip with the holes in the panel and tighten the screw until the screwhead is pulled into the wood.

Repeat this procedure to attach the mounting strip to the left side of the panel.

6. Attach the PANLOC Brackets

Using two screws of the proper length in the A holes on each side, attach the PANLOC brackets to the cabinet panel; the short flange is mounted against the front (face) of the cabinet panel. The screws pass through the PANLOC bracket flange, the cabinet panel, and then through the mounting strips previously mounted.

7. Install the Instrument

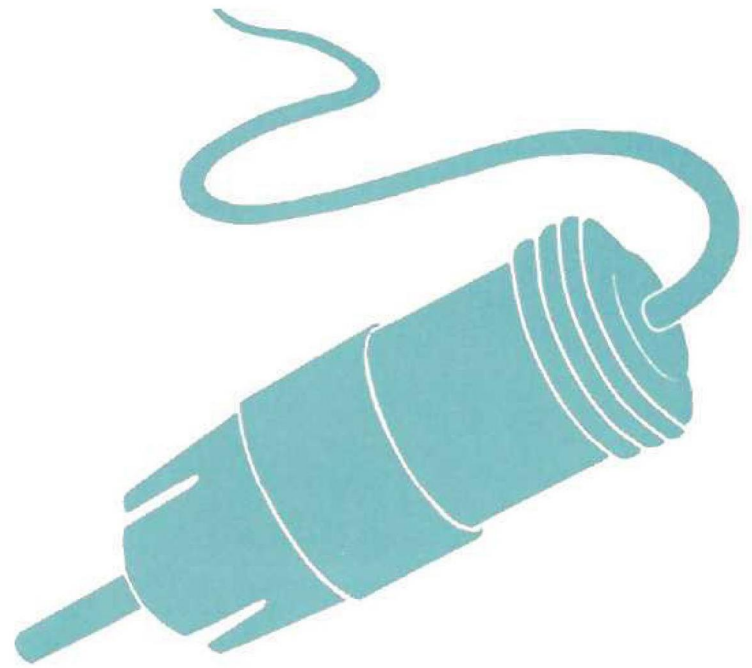
Guide the AC power cord through the panel opening to the back of the cabinet; then, slide the instrument into the opening carefully so that the rails on the bottom of each side of the chassis engage the tracks on the mounting brackets. Continue to slide the instrument into the cabinet until it is stopped by

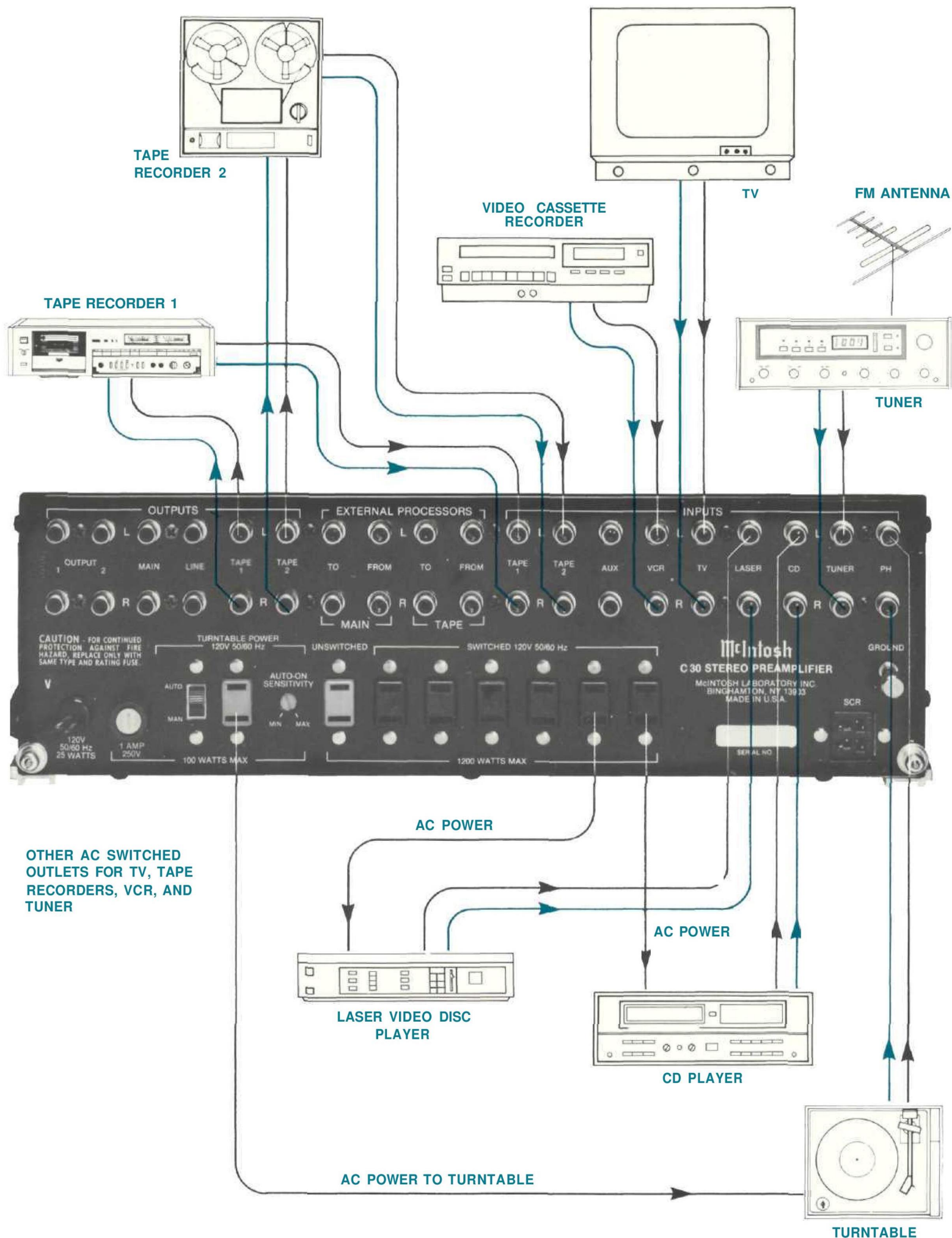
the intermediate position latches. Press the latches inward, this permits the instrument to slide into the cabinet until its front panel is flush with the cabinet panel. Depress the PANLOC buttons at the lower left and right corners of the instrument panel to lock the unit firmly in the cabinet. Depressing the PANLOC buttons again will unlock the instrument so that it can slide outward to the intermediate position; if you press inward on the intermediate position latches then you can remove the instrument from the cabinet.

How to Connect

Rear panel input jacks are provided for a stereo turntable, PH; a stereo tuner, TUNER; a compact disc player, CD; a laser video disc player, LASER; a TV receiver, TV; a video cassette recorder, VCR; an auxiliary high level source, AUX, and two stereo tape recorders, TAPE 1 and TAPE 2.

Rear panel output jacks are provided to feed two tape recorders, TAPE 1 and TAPE 2; three 2.5 volt main outputs, MAIN, OUTPUT 1, OUTPUT 2; and a line (headphone circuit)





CONNECTIONS FOR TURNTABLE AND HIGH LEVEL PROGRAM SOURCES

HOW TO CONNECT

EXTERNAL SIGNAL PROCESSORS:

There are two sets of EXTERNAL PROCESSOR jacks. One set is for the main listening circuits and the other set is for the tape record circuits. These jacks are used to connect to and from a noise reduction unit or to and from any other signal processing device.

Be sure to match left to left and right to right channels when connecting external processors.

When connections are made to an EXTERNAL PROCESSOR, the signal path is automatically broken by the C 30 switching jacks. The SIGNAL PROCESSOR MUST BE TURNED ON FOR THE PROGRAM TO PASS THROUGH THE PREAMPLIFIER CIRCUITS,

HOW TO CONNECT TO POWER AMPLIFIERS:

Connect a cable from the left C 30 MAIN OUTPUT jack to the left power amplifier INPUT jack.

Connect a cable from the right MAIN OUTPUT jack to the right power amplifier INPUT jack.

Two additional stereo power amplifiers may be connected in the same fashion to the OUTPUT 1 and OUTPUT 2 jacks. Audio output signal is supplied to these jacks only when the front panel pushbutton SPEAKER/OUTPUT No. 1 and/or No. 2 pushbuttons are pressed. This arrangement is useful for large systems where separate amplifiers and loudspeakers are used at remote locations.

Additional amplifiers can serve remote areas such as selected living areas, workshop or outdoor recreational facilities. Other devices can be controlled such as a rear channel reverberation unit.

SPEAKER CONTROL RELAY (an optional accessory)

The SPEAKER CONTROL RELAY, or SCR, is designed to provide both speaker control switching and high power switched AC outlets. To control loudspeakers, SPEAKERS 1 and 2 pushbuttons on the front panel must be used. When this is done, OUTPUT jacks 1 and 2 on the C 30 are normally not used. The operation of output jacks and speaker control will otherwise interfere with each other.

Plug the cable from the SCR into the C 30 back panel SPEAKER CONTROL RELAY receptacle. Connect the power amplifier output to the FROM POWER AMPLIFIER terminals on the SCR. Observe correct channel identification as well as correct polarity. The MAIN speakers (controlled by SPEAKER 1 pushbutton) are connected at the TO MAIN SPEAKER terminals. The REMOTE speakers (controlled by SPEAKER 2 pushbutton) are connected at the TO REMOTE SPEAKERS terminals. Again, observe correct channel identification and polarity.

SPEAKER 1 AND 2 USING THE SCR:

When pushbutton 1 is IN and pushbutton 2 is OUT, the main speakers will be connected to the power amplifier via the relays in the SCR. When pushbutton 1 is OUT and pushbutton 2 is IN, the remote speakers will be connected instead. When both pushbuttons 1 and 2 are IN, both sets of speakers will be connected.

CAUTION: When both sets of speakers are connected at the same time, their combined parallel impedance must not be too low to properly match the power amplifier output impedance. For example: if both sets of speakers are 8 ohms, connections to the power amplifier must be to the 4 ohm tap. If the amplifier does not have different impedance taps, it must be able to deliver power to a 4 ohm load as well as an 8 ohm load.

The SCR also has two AC power outlets that provide additional capacity of 2400 watts switched by the C 30. Use these outlets to supply AC power to amplifiers or other components whenever the total load to be switched by the C 30 exceeds the rating of 1200 watts. Plug the SCR heavy line cord directly into a wall outlet. When the C 30 is turned on, power from the C 30 will energize a relay in the SCR which connects the two SCR AC outlets directly to the wall outlet. Do not plug the C 30 power cord into the SCR as the preamplifier cannot function when so connected.

HOW TO CONNECT AC POWER:

Plug the preamplifier AC power cord into a 120 volt 60Hz wall outlet. A polarized attachment plug is used. Be certain that the plug blades can be fully inserted in the outlet to prevent blade exposure. See the caution notice on page 1.

Three types of AC power outlets are provided on the back panel of the C 30. Six are black, one is red and one is green.

The black outlets are switched on and off when the C 30 is turned on and off. These are intended for power amplifiers, CD players, equalizers and other accessories totaling up to 1200 watts capacity.

The red outlet is on at all times. For example, a VCR can be plugged into this outlet for recording a TV program when the main system is not turned on.

The green AC power outlet is on at all times and is for use only with a turntable. Do not use this outlet for any other purpose. The turntable can be used as a power switch as described in the following section.

HOW TO USE THE TURNTABLE AS A POWER SWITCH:

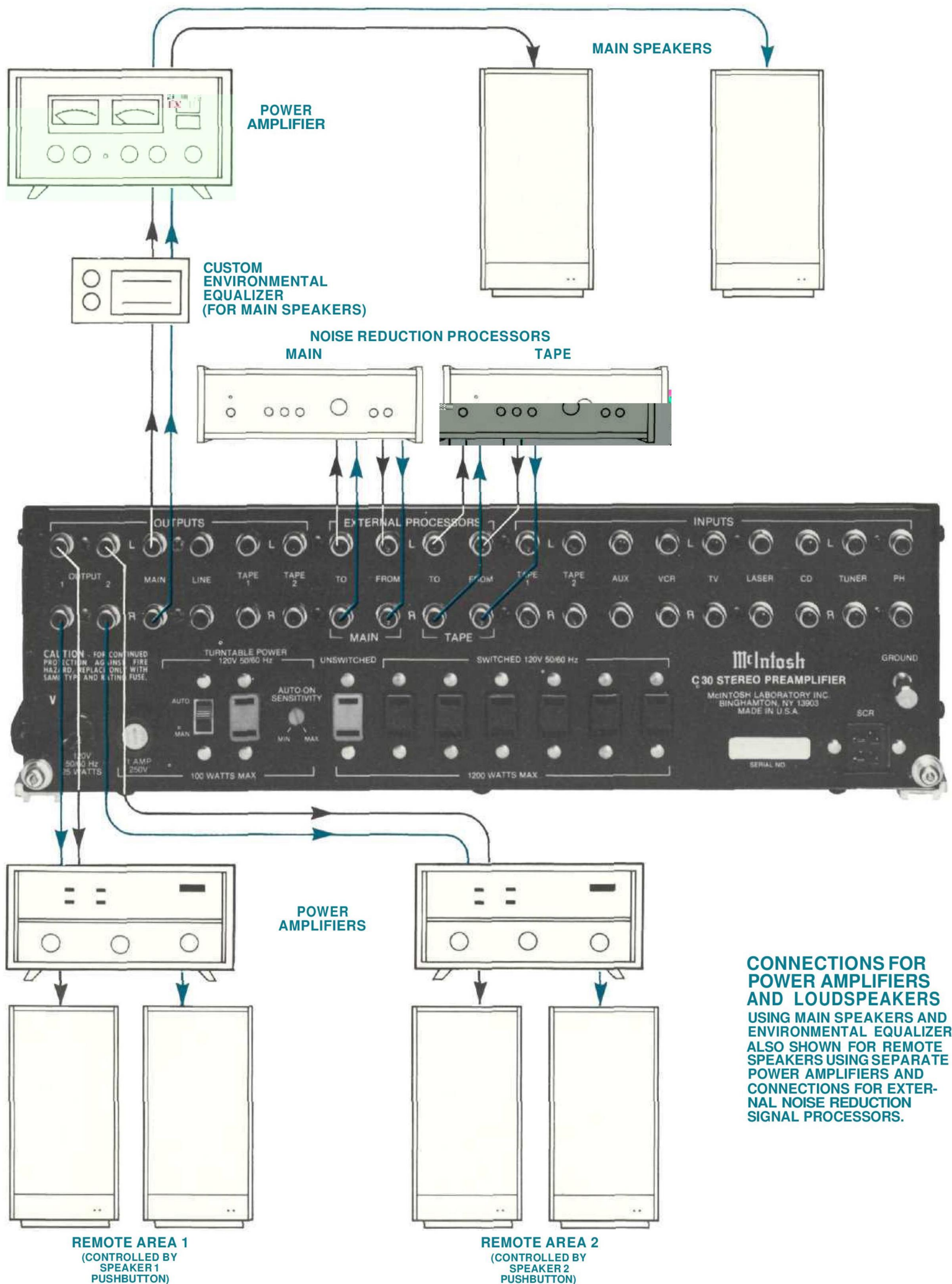
If a turntable is used with the C 30, it can be used to turn your entire system on and off. The turntable must be plugged into the green AC outlet at the rear of the C 30. The AUTO/MANUAL switch also at the rear must be in the AUTO position. When you switch on the power to the turntable, a special sensor circuit will detect the current drain of the turntable and will turn on the C 30 the same way the red POWER pushbutton does. The red pushbutton must be in the OFF or out position to do this. Read the section on AUTO-ON SENSITIVITY on page (14) before using this feature.

HOW TO CONNECT PROGRAM GROUNDS:

A GROUND post is provided to connect the grounds from record changers, tape decks, etc. To prevent hum pick-up, the left and right program cables and the ground wire from that source should be wound or twisted together. Make sure the ground wire does not make any connection to the shields of the left and right program cables as they run between the source and the input of the preamplifier.

FUSE:

A 1.0 AMP fuse protects the C 30 turntable current sensing circuits and the green AC turntable outlet. The fuse does not protect equipment connected to the black AC outlets. This fuse must be replaced with the same type and rating. A 1.0 AMP fast acting or SLO BLO fuse may be used.



The Front Panel Controls and How to Use Them



INPUT SELECTOR:

The INPUT selector switch is located at the upper left on the front panel. This switch selects the input desired for normal listening. The input program selected will also appear at the TAPE OUTPUT jacks.

MODE SELECTOR:

The MODE SELECTOR allows you to identify each stereo channel, create monophonic program material, and direct program material to one channel or the other. This switch controls the main outputs only, and not the tape outputs.

The switch controls the program in seven ways.

L TO L&R: Connects the left input to both left and right output circuits.

R TO L&R: Connects the right input to both left and right output circuits.

STEREO REV: Connects the left input to the right output circuit and the right input to the left output circuit.

STEREO: Connects the left input to the left output circuit and the right input to the right output circuit. Use this STEREO position for normal listening.

MONO (L+R): Adds the left and right inputs together to produce a monophonic program and connects to both output circuits.

L + R TO L: Connects the left plus right program to the left output circuit only.

L + R TO R: Connects the left plus right program to the right output circuit only.

EQUALIZER FREQUENCY CONTROLS:

Each of five EQUALIZER FREQUENCY controls raises or lowers the amplitude of a band of frequencies centered on the frequency marked above the control. Both left and right channels are affected. The center, or flat position of the control has a detent for easy reference. At detent, the equalizer band is removed from the preamp circuit.

Use the EQUALIZER FREQUENCY controls to modify the sound and balance of program material. Here are some suggestions from which to start.

ADJUSTMENT TO	EQUALIZER CORRECTION
Make a deep bass louder	Raise 30
Make all bass louder	Raise 30 and 150
Reinforce voices	Lower 150 and raise 500
Hum on program	Reduce 30 and 150
Brighten violins and trumpets	Raise 1500
Emphasize cymbals	Raise 10 K

HEADPHONE VOLUME:

This control allows independent adjustment of the headphone volume (as well as LINE OUTPUT) without affecting the main listen volume. The main volume control does affect headphone volume and must be turned up to a reasonable level prior to adjusting the headphone volume control.

VOLUME CONTROL:

The VOLUME control is a precision step control

manufactured for McIntosh Laboratory. It has 32 steps with a 70dB range, plus volume off. Left and right channel tracking are within a fraction of 1dB. This extreme accuracy is obtained through special electronically controlled resistance element trimming.

BALANCE AND LOUDNESS:

The BALANCE and LOUDNESS controls are concentric. The BALANCE control (large outer knob) adjusts the volume of the channels relative to each other.

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

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

LOUDNESS:

The LOUDNESS control (small center knob) provides a frequency response contour which compensates for the hearing characteristic of the human ear at lower listening levels. This contour is accurately modeled after the family of "equal loudness" curves identified by Fletcher and Munson. At the fully counterclockwise detented FLAT position, the loudness contour is electrically flat. As the control is turned clockwise, both bass and treble frequencies increase in the correct proportion. The contour is not affected by different settings of the VOLUME control. After setting the VOLUME control for the desired listening level, adjust the loudness control for the preferred compensation.

TAPE PUSHBUTTONS:

IMPORTANT: When the C 30 is operated with either MONITOR pushbutton at the IN position, the program heard will be that from the tape recorders only. Signal from any other source will not be heard from the loudspeakers. To hear any other source, make sure the MONITOR pushbuttons are OUT.

The MONITOR switches are mechanically interlocked to prevent simultaneous monitoring from two tape recorders. If one button is at the in position, it must be pushed again to release it to the out position before the other button can be pushed.

The C 30 is designed so that it may be used with two tape recorders. The four pushbuttons to the left, control the signal output of these recorders. They permit recordings to be monitored as they are being recorded, or copying of tapes from one recorder to another while listening to a separate program or the playback of either recorder.

MONITOR TAPE 1 pushbutton out: The program source as selected by the INPUT SELECTOR is fed to the power amplifiers and heard through the loudspeakers; pushbutton in: Signal from a tape recorder plugged into INPUT TAPE 1 is fed to the power amplifiers and heard through the loudspeakers.

MONITOR TAPE 2 pushbutton: Functions similarly to monitor Tape 1. It also controls the program

from a tape recorder plugged into the front panel TAPE IN and OUT jacks. When a tape recorder is plugged into the front jacks the TAPE 2 IN jacks on the rear panel are automatically disconnected. The TAPE 2 outputs are connected at both front and rear jacks.

TAPECOPYT1 → T2 pushbutton in: connects the output from tape recorder 1 to the input of tape recorder 2 without affecting the program being heard from the speakers. In this position a copy of the the program on tape recorder 1 can be made on tape recorder 2. To monitor the original, use MONITOR TAPE 1 pushbutton and to monitor the copy use MONITOR TAPE 2 pushbutton. When both MONITOR pushbuttons are out, you hear the program from the Input Selector.

TAPECOPYT2 → T1 pushbutton in: connects the output from tape recorder 2 to the input of tape recorder 1 without affecting the program being heard from the speakers. In this position a copy of the tape program on recorder 2 can be made on recorder 1. To monitor the original use MONITOR TAPE 2 pushbutton and to monitor the copy use MONITOR TAPE 1 pushbutton.

SPEAKER OUTPUT 1 AND 2:

The SPEAKER/OUTPUT 1 and 2 pushbuttons can be used to control either the OUTPUT jacks 1 and 2, or the main and remote speakers when the optional SPEAKER CONTROL RELAY (SCR) is connected. The SPEAKER/OUTPUT pushbuttons should not be used to control connections to the 1 and 2 jacks and an SCR for speaker switching at the same time. The operation of the output jacks and the speaker control will interfere with each other.

POWER ON:

The POWER ON pushbutton shares AC power control, through a current detecting switch circuit, with the AC power switch on a turntable. On the rear panel the TURNTABLE AUTO/MANUAL switch selects the mode of operation. When the switch is in the AUTO position and a turntable is plugged into the green AC power outlet, the AC power to the preamp and to the black AC power outlets can be controlled by the turntable on/off switch. When the turntable power switch is turned on, the preamplifier and the SWITCHED black AC power outlets are turned on. The system will remain on until the turntable is turned off. The POWER ON pushbutton switch parallels the automatic turntable power control feature. The POWER ON pushbutton is used to turn power on and off when the turntable is not used. The POWER ON pushbutton must be out or off for the turntable to control the AC power.

In the MANUAL position only the POWER ON pushbutton will turn power on or off to the preamplifier and the black AC power outlets.

FRONT PANEL PUSHBUTTON

INDICATOR LAMPS:

In all cases of use of C 30 front panel pushbuttons, the IN or ON position is indicated by a red lamp above the switch.

TAPE RECORDER FRONT PANEL CONNECTION:

Input and output facilities are available at the TAPE IN-OUT jacks on the front panel. These front panel jacks make connections without having to have access to the rear panel. When using the front panel jacks, the rear panel TAPE 2 INPUT jacks are disconnected automatically. A metal shielded 1/4 inch stereo phone plug is used for best shielding. Connections follow the industry standards and are tip: left signal, ring: right signal, and sleeve: common ground.

HEADPHONES:

The front panel HEADPHONE jack has been designed to feed low impedance dynamic headphones. Electrostatic headphones generally require higher power than dynamic headphones and are connected to the output terminals on the power amplifier.

Plug headphones into either front panel HEADPHONE jack. Adjust the front panel headphone VOLUME control for comfortable headphone listening.

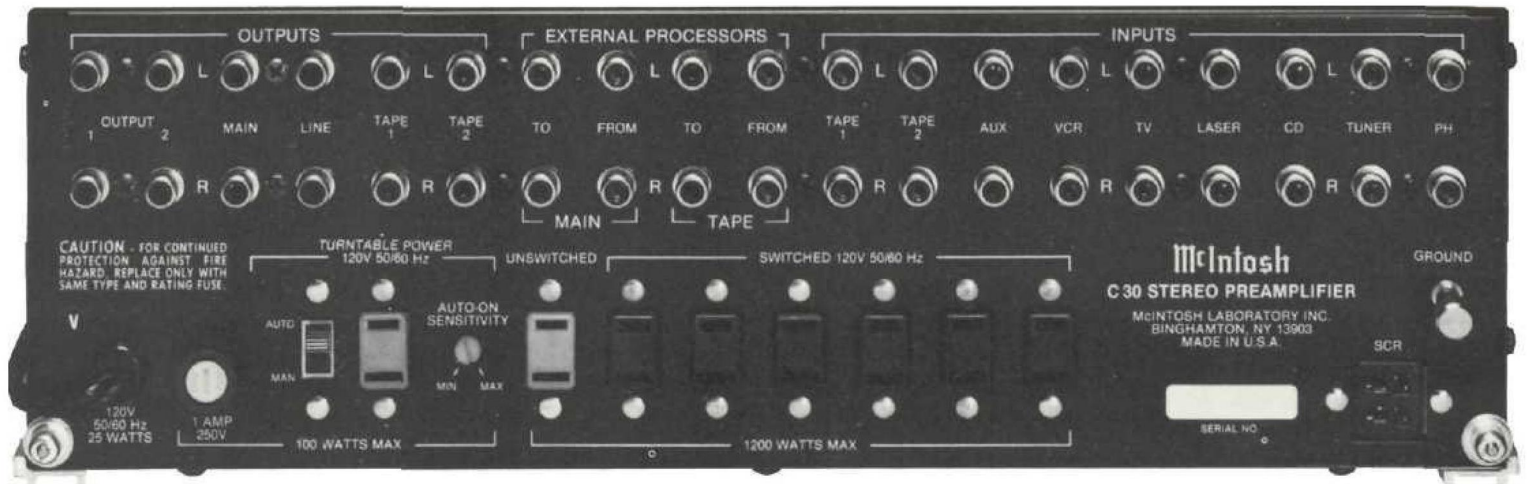
The main volume control also affects headphone volume and must be turned up to a reasonable level prior to adjusting the headphone volume control.

An amplifier in the C 30 provides the power that feeds both the HEADPHONE jacks on the front panel and the LINE OUTPUT jacks on the rear panel.

PANLOC:

McIntosh developed PANLOC mounting brings professional installation technique to home stereo systems. When the PANLOC brackets are installed in the cabinet, the unit slides easily in place to the intermediate position. Latches on the sides of the unit snap into position at this point. By pressing these spring latches inward, they release and allow the unit to slide completely into the cabinet. Then depress the front panel PANLOC buttons to their IN position to lock the unit into the cabinet. Depressing the PANLOC buttons again causes them to release to their OUT position, allowing the unit to be removed to the intermediate position. Press the intermediate latches again to allow the unit to be removed from the cabinet.

Rear Panel Controls



AUTO MANUAL SWITCH:

In the MANUAL position, the green AC outlet supplies normal line voltage at all times and the turntable operation has no effect on the C 30 operation.

In the AUTO position, when the turntable turns on and off, it will also cause the C 30 and the entire system to turn on and off.

AUTO-ON SENSITIVITY:

The AUTO-ON SENSITIVITY control is located on the right rear of the back panel. For normal operation with most turntables, the control can be left at mid-position. Some turntables, however, have electronic circuits that draw current whether they are turned "off" or not. The C 30 AUTO-ON SENSITIVITY control can be used to "fine tune" for the smaller difference between on and "off" currents.

If your turntable does not control the AUTO-ON feature of the C 30 correctly, use one of the following procedures:

1. Switch on the turntable. If the C 30 does not go on, or goes on but does not stay on, rotate the AUTO-ON SENSITIVITY control clockwise towards MAX until the C 30 goes on and stays on. Then check for proper operation.

2. Switch off the turntable. If the C 30 does not go off, rotate the AUTO-ON SENSITIVITY control counterclockwise towards MIN until it does go off. Check for proper operation.

If this doesn't correct the problem, your turntable probably has electronic circuits that draw the same or nearly the same current whether on or off. AUTO-ON control is not possible when using this turntable. The green AC outlet can still be used but the AUTO/MANUAL switch must be set in the MANUAL position. The red POWER pushbutton must be used instead.

Performance Limits and Ratings

PERFORMANCE LIMITS

Performance limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that when you purchase a new C 30 from a McIntosh franchised dealer, it will be capable of or can be made capable of performance at or exceeding these limits or you can return the unit and get your money back. McIntosh is the only manufacturer that makes this statement.

FREQUENCY RESPONSE

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

MAXIMUM VOLTAGE OUTPUT

Main and Tape Output- 10V from 20 to 20,000Hz

Line / Headphone Output- 9V (1.3V with 8 ohm headphones) from 20 to 20,000Hz

TOTAL HARMONIC DISTORTION

.007% maximum from 20 to 20,000Hz at 2.5V rated output

SENSITIVITY

Phono- 2mV for 2.5V rated output (0.4mV IHF)

High Level- 200mV for 2.5V rated output (40mV IHF)

SIGNAL TO NOISE RATIO, A-WEIGHTED

Phono- 90dB below 10mV input (84dB IHF)

High Level- 100dB below rated output (86dB IHF)

MAXIMUM INPUT SIGNAL

Phono- 100mV

High Level- 10V

INPUT IMPEDANCE

Phono- 47k ohms and 65pF capacitance

High Level- 22k ohms

VOLTAGE GAIN

Phono to Tape- 40dB

Phono to Main- 62dB

Phono to Headphone / Line- 68dB
(51dB with 8 ohm headphones)

High Level to Tape- 0dB

High Level to Main- 22dB

High Level to Headphone / Line- 28dB
(11dB with 8 ohm headphones)

EQUALIZATION CONTROL

Variable 12dB boost to 12dB cut at center frequencies of 30, 150, 500, 1500, 10kHz

LF-HF FILTER

Flat or roll-off at 12dB per octave below 50Hz and above 7,000Hz

General Information

SEMICONDUCTOR COMPLEMENT

28 Bipolar Transistors

66 Field Effect Transistors

15 Integrated Circuits

91 Diodes

1 Silicon Controlled Rectifier (SCR)

AC POWER OUTLETS

1 Turntable current-sensing, green, 100 watts

6 Switched, black, and 1 unswitched, red,
1200 watts total

POWER REQUIREMENTS

120 volts, 50/60Hz, 25 watts

Mechanical Information

SIZE

Front panel measures 16 inches wide (40.6 cm) by 5-7/16 inches high (13.8 cm). Depth of unit from mounting surface is 13 inches (33.0 cm) including PANLOC shelf and back panel connectors. Knob clearance required is 1-1/4 inches (3.2 cm) in front of the mounting panel.

FINISH

Front panel is anodized gold and black with special gold/teal nomenclature illumination. Chassis is black.

MOUNTING

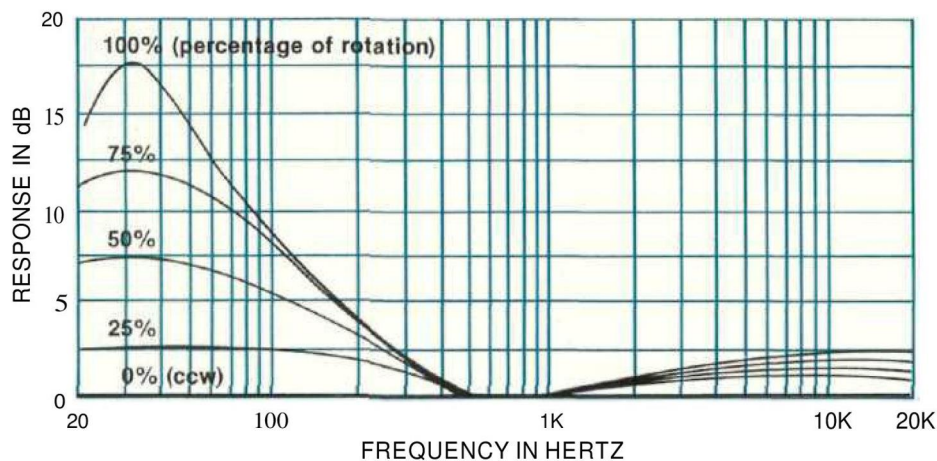
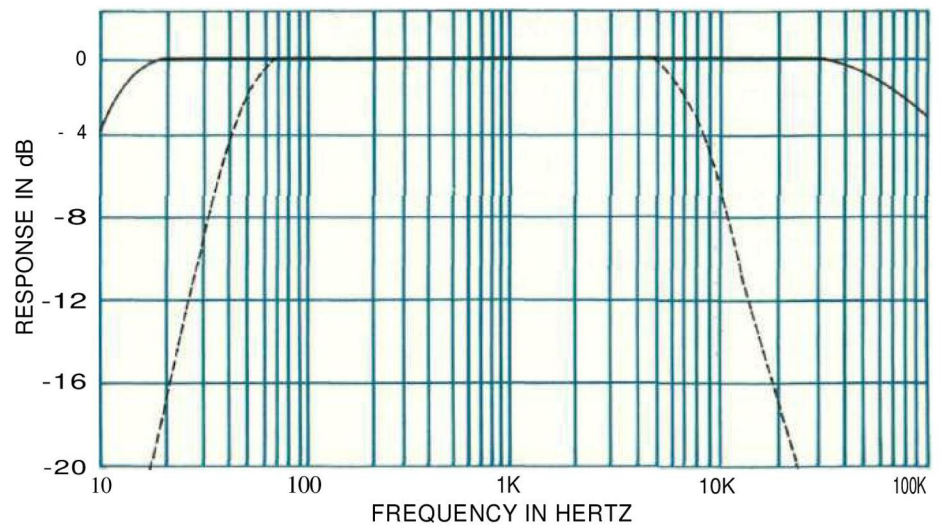
Exclusive McIntosh developed professional PANLOC

WEIGHT

18 pounds (8.2kg) net, 30 pounds (13.6kg) in shipping carton

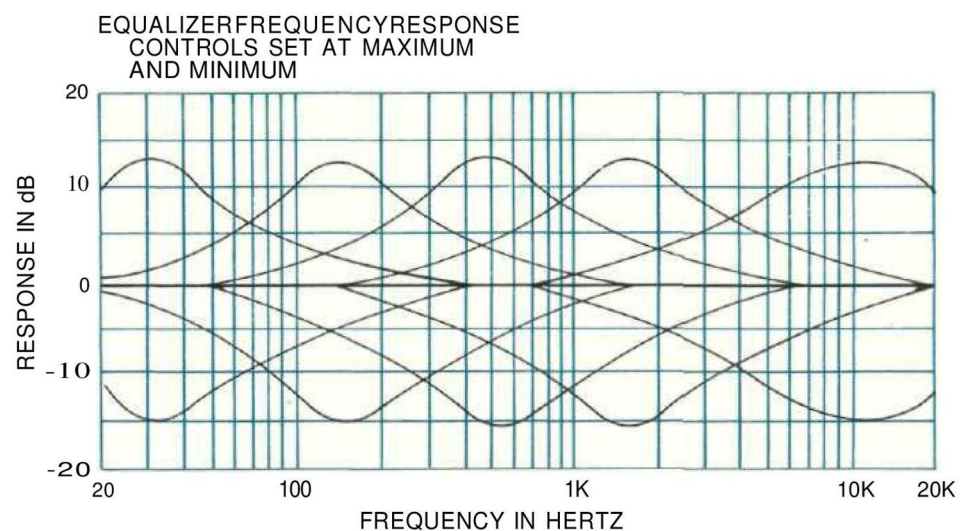
Performance Charts

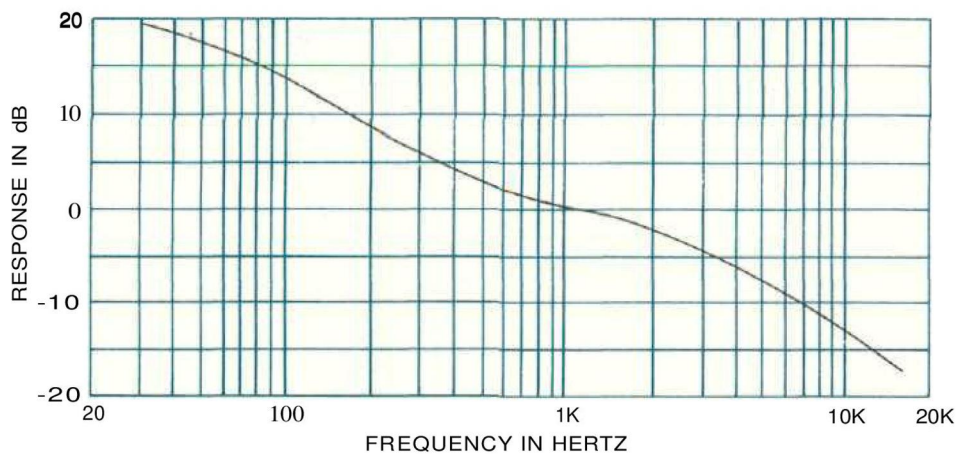
FREQUENCY RESPONSE
 — AUX IN TO MAIN OUT
 - - - LF AND HF FILTERS



**LOUDNESS CONTROL RESPONSE
 FOR VARIOUS CONTROL
 POSITIONS**

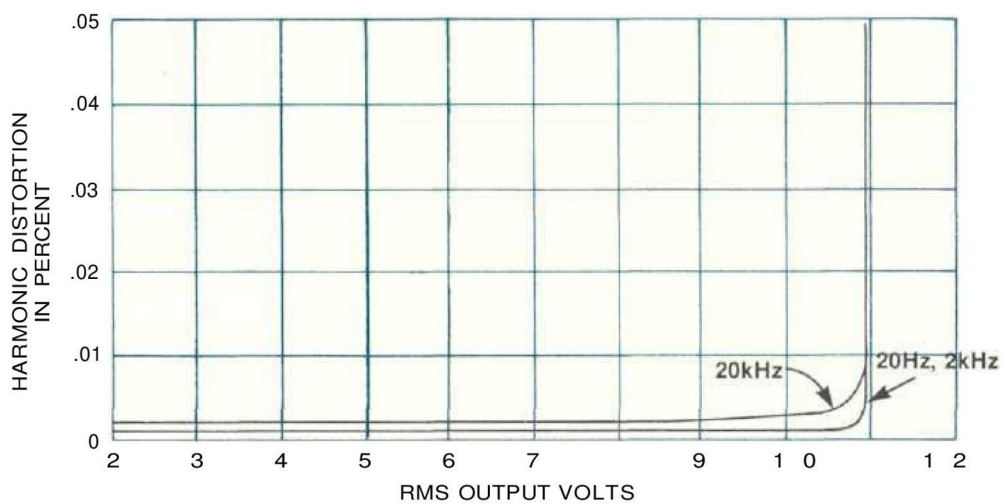
**EQUALIZER FREQUENCY RESPONSE
 CONTROLS SET AT MAXIMUM
 AND MINIMUM**





RIAA EQUALIZATION CURVE

HARMONIC DISTORTION
AUX IN TO MAIN OUT



Technical Description

FULL ELECTRONIC SWITCHING:

All input switching including tape, tape-to-tape and mode is done electronically using J-FET field effect analog switches. All the front panel switches control small amounts of DC voltage which turn the FET analog switches on and off. The critical audio signals are switched silently with instantaneous muting between switch positions. No transient switching noises or pops are present with this superior design.

PHONO AMPLIFIER:

The phono amplifier uses a high technology integrated circuit operational amplifier. Its differential input stage has been optimized for low noise and low distortion performance. Open loop gain of this integrated circuit is 100,000. With high open loop gain a large amount of negative feedback can be used around the phono amplifier to further reduce noise and distortion. The feedback network also provides precision RIAA frequency compensation. The network uses 1% metal film resistors and 5% poly film capacitors. To achieve low noise performance it is essential that the feedback network be very low impedance. As a consequence, the preamplifier must be capable of operating as a power amplifier to drive this impedance. The actual power output capability of this preamplifier stage is more than 100 milliwatts, a great margin beyond that which is required.

Input sensitivity of the phono amplifier is 2 millivolts. The gain of the amplifier is 40dB at 1000Hz. The phono amplifier has a very wide dynamic range. At 1000Hz the phono input circuit will accept 100 millivolts without overload, a voltage far greater than the output of any current magnetic phono cartridge. Phono input overload therefore is virtually impossible. A signal level of 10 millivolts at the phono input at 1000Hz will produce 1 volt at the tape output. The tape output has a source impedance of 200 ohms, designed to operate into a load impedance of 10,000 ohms or greater.

HIGH LEVEL AMPLIFIER:

At the input to the high level or loudness amplifier the signal passes through the mode switch matrix, then through the volume control, and into the amplifier. In the past loudness controls have typically used simple passive circuits connected to a tap on the volume control. As a consequence, compensation accuracy was dependent on many variables such as volume control position and differences in input level. The C 30 uses active circuitry. The same type of integrated circuit operational amplifier that is used in the phono amplifier is used here. It has

two feedback loops. One feedback loop has flat response. The other feedback loop conforms to the Fletcher-Munson equal loudness compensation. A potentiometer is placed between these two feedback loops making it possible to select any combination of the two from a flat response to full loudness compensation. The overall gain of the stage is 15dB and is not affected at mid frequencies by the position of the loudness control.

EQUALIZER AMPLIFIER:

The equalizer amplifier uses high technology integrated circuit operational amplifiers. Its output stage has been optimized for the best transient performance and minimum distortion. Five other operational amplifiers are each arranged in a circuit configuration that is the equivalent of series tuned circuits, one at each of the five center frequencies. Each series tuned circuit is inserted via the control potentiometer in either the input circuit or feedback circuit of the operational amplifier thereby providing a boost and cut capability of 12dB for each band of frequencies. The overall gain of the stage is 7dB.

FILTER AMPLIFIER:

The C 30 band-pass filter amplifier affects the frequency response at the two extremes of the audio range. Each channel of the filter amplifier uses the same type operational amplifier as in the phono stage and high level amplifier. The resistive and capacitive elements form a 12dB per octave active RC filter. High frequencies roll off above 7000Hz, and low frequencies below 50Hz. The non linear distortion of the active filter elements in the C 30 is very low, even at the cutoff frequencies.

HEADPHONE AMPLIFIER:

The C 30 headphone amplifier is capable of driving two pairs of dynamic headphones and the line output with less than .007% harmonic distortion. Maximum output is 9 volts at the line and headphone jacks, (1.3 volts with 8 ohm headphones). Internal impedance of the headphone amplifier is 47 ohms at each headphone output and 100 ohms at the line output. This feature allows the line outputs to be used with much longer than normal shielded connecting cables without adversely affecting the frequency response.

TURN ON DELAY:

The C 30 has a completely transient free turn on and off. The C 30 is electronically muted for approximately 2 seconds after the AC power is turned on. This circuit also has a very short turn off time constant, which mutes the output at turn off before the preamplifier's main power supply has a chance to

discharge. Another special feature of the on-off circuit is the instantaneous return to a 2 second delay, even if the AC pushbutton is pushed off and back on very quickly. On and off switching transients are never heard from the C 30.

AUTO TURN ON:

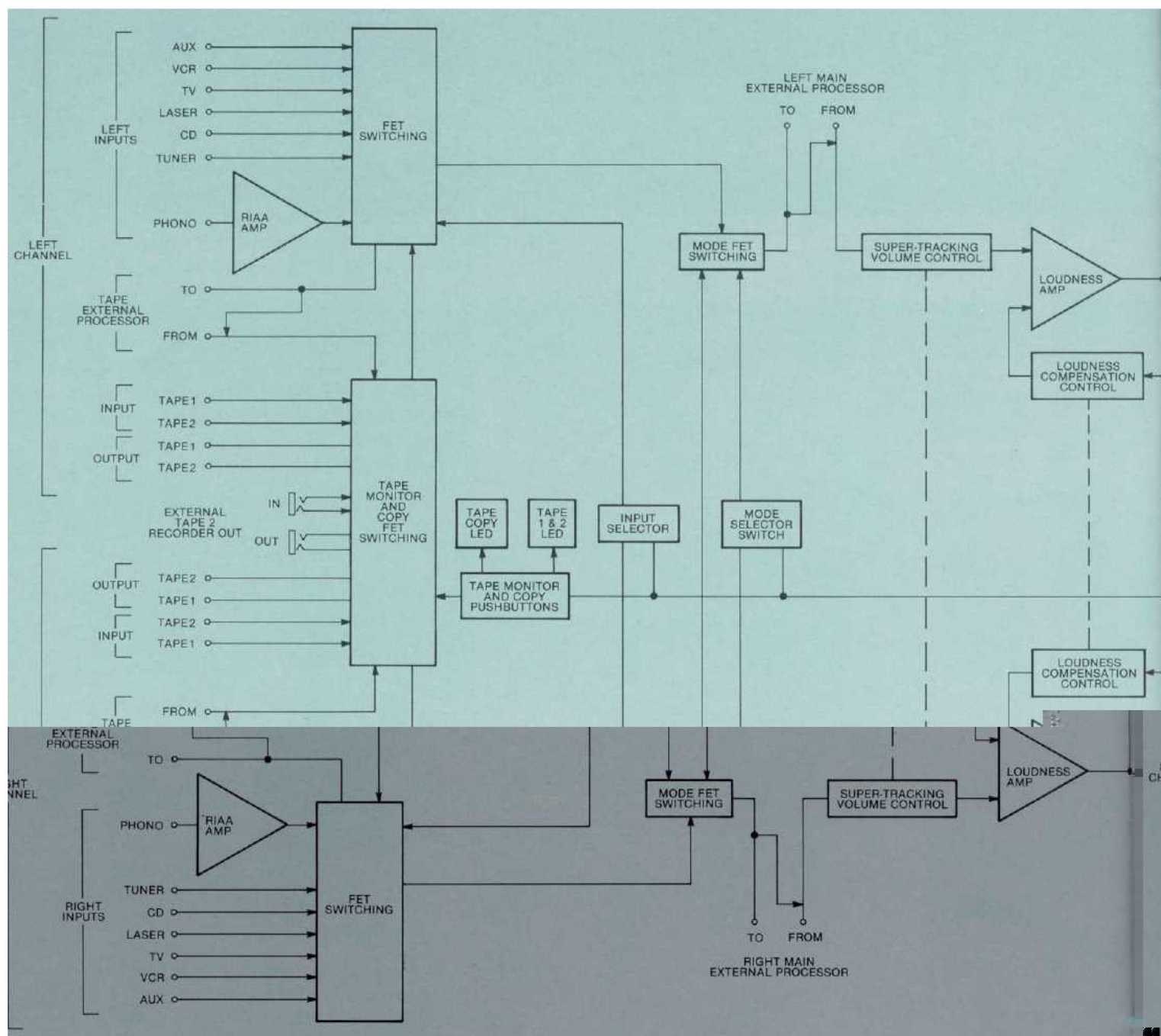
A turntable plugged into the green outlet at the rear of the C 30 can control the on-off operation of the C 30. Current flow to the turntable is sensed and controls a silicon control rectifier (SCR). When the SCR conducts a relay closes. This relay turns on power to the C 30 and to the black AC power outlets. A current sensing sensitivity control allows calibration of the Auto Turn-On circuit to the turntable. Power is also controlled by the C 30 Power On pushbutton. The Auto Turn-On circuit may be switched off for manual power control.

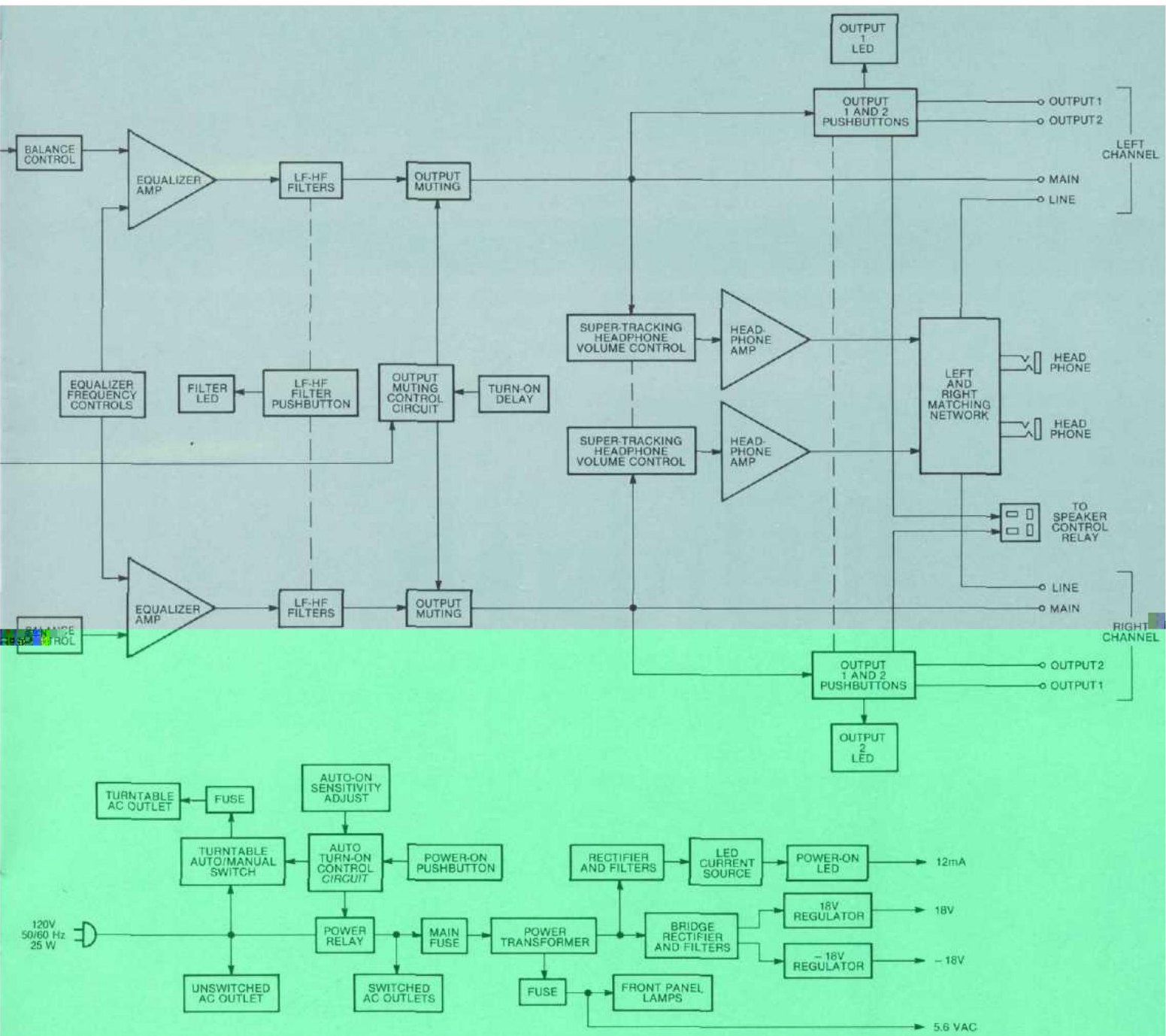
POWER SUPPLY:

To eliminate possibility of hum radiation, the power transformer is double shielded with a copper strap and steel end housings. The transformer main output voltage is fed to a full wave bridge rectifier. Filtering is done with two 3300 microfarad filter capacitors to provide the +30 volts and -30 volts DC. The plus and minus 18 volts needed for low level and operational stages is stabilized by integrated circuit voltage regulators.

See next page for
Block Diagram

Block Diagram





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