



# MR 7082

AM / FM  
TUNER

# McIntosh®

OWNERS MANUAL

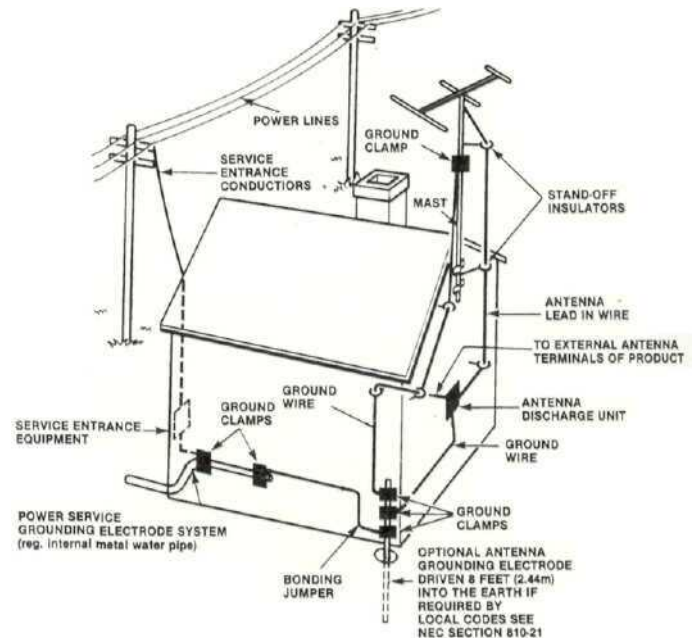
# IMPORTANT SAFETY INSTRUCTIONS

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

1. Read all instructions - Read the safety and operating instructions before operating the instrument.
2. Retain Instructions - Retain the safety and operating instructions for future reference.
3. Heed warnings - Adhere to warnings and operating instructions.
4. Follow Instructions - Follow all operating and use instructions.

**WARNING: TO REDUCE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS INSTRUMENT TO RAIN OR MOISTURE.**

5. Power Sources - Connect the power supply only to the type described in the operating instructions or as marked on the unit.
6. Power-Cord Protection - Route power-supply cords so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the instrument.
7. Ventilation - Locate the instrument for proper ventilation. For example, the instrument should not be placed on a bed, sofa, rug, or similar surface that may block ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet, that may impede the flow of air through the ventilation openings.
8. Heat - Locate the instrument away from heat sources such as radiators, heat registers, stoves, or other appliance (including amplifiers) that produce heat.
9. Wall or Cabinet Mounting - Mount the instrument in a wall or cabinet only as described in the owners manual.
10. Water and Moisture - Do not use the instrument near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.
11. Cleaning - Clean the instrument by dusting with a dry cloth. Clean the panel with a cloth moistened with a window cleaner.
12. Object and Liquid Entry - Do not permit objects to fall and liquids to spill into the instrument through enclosure openings.



13. Power Lines - Locate any outdoor antenna away from power lines.
14. Outdoor Antenna Grounding - If an outdoor antenna is connected to the antenna terminal, be sure the antenna system is grounded to provide some protection against voltage surges and built up static charge.  
In the U.S.A., section 810 of the National Electrical Code, ANSI/NFPA No. 70-1987, provides information on the proper ground for the mast and supporting structure, ground for the lead-in wire to an antenna discharge unit, and size of ground conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.  
For ground wire:
  - a) Use No. 10 AWG (5.3 mm<sup>2</sup>) copper No. 8 AWG (8.4 mm<sup>2</sup>) aluminum, No. 17 AWG (1.0 mm<sup>2</sup>) copper-clad steel, bronze wire, or larger as ground wire.
  - b) Secure antenna lead-in and ground wires to house with stand-off insulators spaced from 4 feet (1.22 meters) to 6 feet (1.83 meters) apart.
  - c) Mount antenna discharge unit as closely as possible to where lead-in enters house.
  - d) Use jumper wire not smaller than No. 6 AWG (13.3 mm<sup>2</sup>) copper or equivalent when separate antenna grounding electrode is used.

15. Nonuse Periods - Unplug the power cord from the AC power outlet when left unused for a long period of time.
16. Damage Requiring Service - **Service must be performed by qualified service personnel when:**
  - A. The power supply cord or the plug has been damaged; or
  - B. Objects have fallen, or liquid has been spilled into the instrument; or
  - C. The instrument has been exposed to rain; or
  - D. The instrument does not appear to operate normally or exhibits a marked change in performance; or
  - E. The instrument has been dropped, or the enclosure damaged.
17. Servicing - Do not attempt to service beyond that described in the operating instructions. All other service should be referred to qualified service personnel.
18. Grounding or Polarization - Do not defeat the inherent design features of the polarized plug. Non-polarized line cord adaptors will defeat the safety provided by the polarized AC plug.



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



**CAUTION: TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

19. **CAUTION: TO PREVENT ELECTRICAL SHOCK DO NOT USE THIS (POLARIZED) PLUG WITH AN EXTENSION CORD, RECEPTACLE OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

**ATTENTION: POUR PREVENIR LES CHOCS ELECTRIQUES PAS UTILISER CETTE FICHE POLARISEE AVEC UN PROLONGATEUR, UNE PRISE DE COURANT OU UNE AUTRE SORTIE DE COURANT, SAUF SI LES LAMES PEUVENT ETRE INSEREES A FOND SANS EN LAISSER AUCUNE PARTIE A DECOUVERT.**

The serial number, purchase date, and McIntosh Laboratory Service Contract number are important to you for possible insurance claim or future service. Record this information here.

Serial Number

Purchase Date

Service Contract Number

Upon application, McIntosh Laboratory provides a Service Contract to the original purchaser. Your McIntosh Authorized Service Agency can expedite repairs when you provide the Service Contract with the instrument for repair.

# Contents

INTRODUCTION	3
INSTALLATION	4, 5
HOW TO CONNECT	6, 7
HOOK-UP DIAGRAM	8
FRONT PANEL CONTROLS	9, 10
PERFORMANCE LIMITS	11
PERFORMANCE CHARTS	12
TECHNICAL DESCRIPTION	13, 14
BLOCK DIAGRAM	15
FM STATION LOG	16

Your MR 7082 FM/AM Tuner will give you many years of 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**

---

## McINTOSH THREE YEAR SERVICE CONTRACT

---

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

The terms of the contract are:

1. If the instrument covered by this contract becomes defective, McIntosh will provide all parts, materials, and labor needed to return the measured performance of the instrument to the original performance limits 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.* Damage by improper use or mishandling is not covered by the service contract.
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. Units in operation outside the United States and Canada are not covered by the McIntosh Factory Service Contract, irrespective of the place of purchase. Nor are units acquired outside the USA and Canada, the purchasers of which should consult with their dealer to ascertain what, if any, service contract or warranty may be available locally.

The McIntosh MR 7082 is a high quality FM/AM Tuner whose design has been governed by insistence on high performance with long life, great flexibility and sensitivity.

You will derive the greatest enjoyment and most satisfaction from your MR 7082 when you understand its operations and functions. Your time invested now will return added value to you because you will get the best results from your MR 7082.

McIntosh has earned world renown for its technological contributions for improved sound. When you bought McIntosh, you bought not only high technology, you bought technological integrity proven by time. The McIntosh MR 7082 Tuner is continuing evidence of McIntosh technological superiority and integrity.

Music reproducing instruments that carry the McIntosh name have always been designed for technological leadership and to maintain the McIntosh reputation for durability, long life, and best sound. McIntosh has had to earn the foremost reputation for quality performance. McIntosh has provided user-oriented facilities and appearance, and McIntosh design provides for ease of maintenance or repair. These fundamental elements are incorporated in the McIntosh MR 7082 FM/AM Tuner, the easiest to operate yet with extensive useful features.

Your McIntosh MR 7082, above all others, will deliver the best sound and the greatest ease of use with a high degree of flexibility.

Some of the features that set the MR 7082 apart from the ordinary are:

The advanced FM/AM tuner design of the MR 7082 displays the station frequencies digitally. Stations are selected easily in any one of these ways: A. use the manual tuning knob, B. use the SCAN up or down touchbuttons, C. use the preset station touchbuttons or, D. use the SEARCH which will preview the preset stations for 5 seconds each.

The sound enhancing MONOPLUS audio processor presents, on AM, an aural picture that is more 'stereo like' in quality and dimension. On noisy, weak FM stations, MONOPLUS provides reduced noise and retains a broad stereo-like sound.

SIGNAL LOCKED LOOP (SLL) guarantees center channel tuning at all times regardless of any variations of the frequency of the broadcast station.

Once tuned, AUTOMATIC FREQUENCY LOCK assures rock solid adherence to the center of the station's broadcasting frequency by tracking any variations that might occur on either FM or AM.

Virtually automatic tuning on AM. The ease of FM tuning has been extended to AM with a new, McIntosh exclusive, AM automatic center tuning circuit.

As in FM, when using the preset touchbuttons, the auto-tune circuit searches for the center of the AM broadcast frequency. When there, AM-AFL locks to that center point for drift-free, distortion-reducing, center channel tuning.

Tape record high quality FM broadcasts without the interference that stereo transmissions can cause. Carefully designed suppression circuits eliminate the potential for stereo carrier noise when making "off the air" tape recordings.

A unique Phase Locked Loop Multiplex decoder delivers STEREO FM with lower distortion, lower noise, and better separation.

The most useful and flexible AM antenna system will suit your particular installation. In noisy AM locations, a noise reducing, noise cancelling, shielded loop will provide ideal input signal. In a remote location, a conventional 'long wire' antenna can be used, and in strong signal areas, a simple short piece of wire (6' long) will be adequate.

A rear panel connector provides adaptability for complete remote control with the addition of a McIntosh infrared REMOTE CONTROL system.

All in all, your selection of the MR 7082 will be reinforced by your day-to-day use of this superb instrument. Good listening.

## LOCATION

The MR 7082 may be installed in a McIntosh cabinet or custom installed in furniture of your choice. Always provide adequate ventilation. Never place it above heat generating components such as high powered amplifiers. Provide 1 ½ inches (3 cm) of space above the tuner so as not to interfere with a cooling air flow.

## CONVENIENT, SIMPLE AND SECURE.

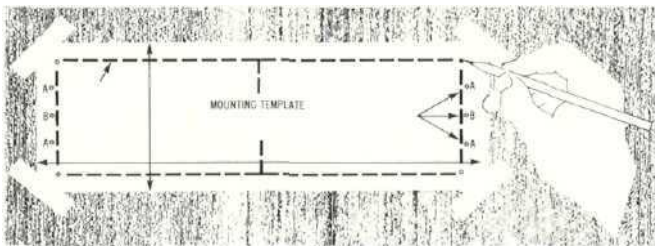
The PANLOC system of installing equipment conveniently and securely, is a product of McIntosh research. By depressing the two PANLOC buttons on the front panel, the instrument can be locked firmly in place or unlocked so that the chassis can slide forward, giving you easy access to the top and rear panels.

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. With adequate ventilation, the instrument can be mounted in any position. When not installed in a cabinet, the plastic feet must not be removed so that adequate air flow is provided through the bottom of the chassis. You should allow enough clearance so that cool air can enter at the bottom of the cabinet and be vented from the top. 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 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

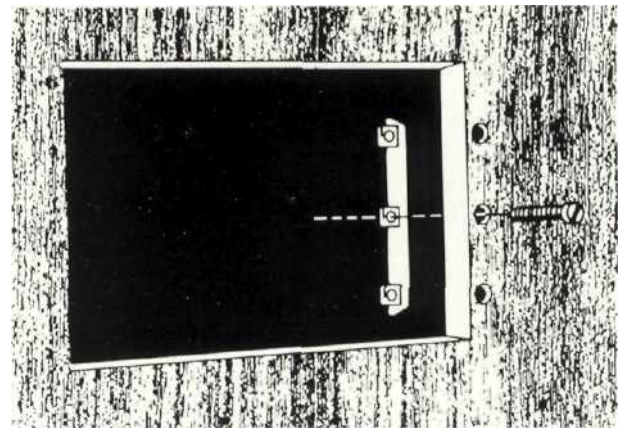
dimensions of the chassis. Make sure these lines clear shelves, partitions, or any equipment. With the template in place, first mark the six A and B holes and the four small holes that locate the corners of the cutout. Then, join the four corner markings with pencil lines, using the edge of the template 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.

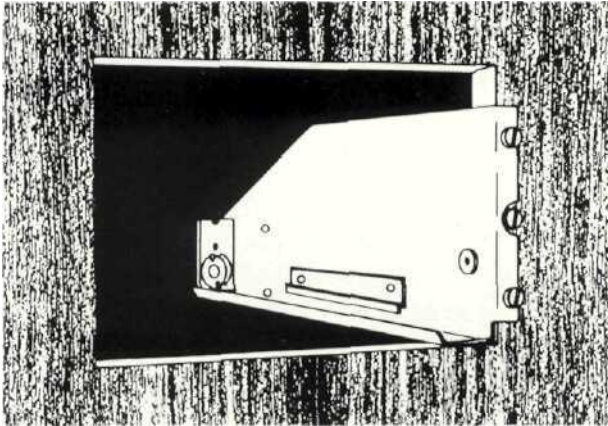
Starting at the right-hand side of the panel, insert a screw of the proper length into the center hole in the panel, marked B on the template. On the back of the panel, align a mounting strip with the holes in the panel and tighten the screw until the screwhead is pulled into the wood.

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

# 4 INSTALLATION

#### 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 adjust 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. Turn the PANLOC buttons at the lower left and right corners of the instrument panel clockwise to lock the unit firmly in the cabinet. Turn the PANLOC buttons counterclockwise to unlock the instrument. It can then slide outward to permit the removal of the instrument from the cabinet.

**Fold out the photographs on the inside of the back cover. They will assist you in connecting the MR 7082 to your system. The numbers on the photographs refer to the paragraphs that follow.**

The back panel of the MR 7082 has connectors labeled AUDIO OUTPUT, infrared REMOTE CONTROL, AM antenna, 75 OHM FM antenna, and AC power used to interconnect with associated equipment and the AC power line. Use shielded cables to connect the output signal to a preamplifier or power amplifier. To minimize the possibility of hum, the shielded cables should be of parallel construction or loosely twisted together and located away from the speaker connecting cables and AC power cords. Be certain to use good quality shielded cables for all interconnections. Your dealer can advise you on the kind and length of cables that will best suit your installation.

### 1. AUDIO OUTPUT

Use the AUDIO OUTPUT jacks on the rear panel to feed program to a stereo control preamplifier or other equipment which has its own volume control. The output level is a nominal 1 volt for 100% FM modulation. The low output impedance permits long audio cables to be used without a loss of high frequencies due to cable capacity.

### 2. REMOTE CONTROL

The REMOTE CONTROL connector is designed for use with the McIntosh infrared remote control systems. With these systems, you can, from a hand-held remote control, turn on the tuner and the system, select from seven preprogrammed stations on either FM or AM, search sequentially the programmed stations on FM or AM and scan the entire FM or AM band.

### 3. AM ANTenna

The AM antenna input on the MR 7082 is unusual in that it will accept almost any type of antenna. In a location of moderate signal strength and little interference (few fluorescent lights, motors, TV sets, etc.), a piece of wire as short as 3 feet will give good performance. In a rural area, an outdoor longwire might be desirable. The best overall performance will be obtained by using a shielded loop antenna.

A shielded loop antenna is made from a length of single conductor shielded wire; microphone cable, coaxial cable, etc., arranged in a single loop. For best reception, orient the loop vertically. It may be attached around the frame of a window behind a curtain, on the back of the equipment cabinet, or in

some similar way, Signal strength is proportional to the size of the loop; the larger the loop, the greater the received signal.

To prepare an antenna from the shielded cable, strip  $\frac{3}{4}$  of an inch of outer insulation from each of the cable ends. From one end, completely remove the exposed  $\frac{3}{4}$ " of mesh shielding. Then remove  $\frac{3}{8}$  of an inch of insulation from the center conductor.



Insert the exposed center conductor into the AM ANT push connector. Make sure the cut off mesh shield does not come in contact with anything. On the other end, leave the mesh shield intact and strip  $\frac{1}{2}$  of an inch of insulation from the center conductor. On this end only, twist the exposed center conductor and the mesh shield together.



Insert the twisted shield and center conductor into the ground (GND) push connector.

### 4. FM ANTenna

The antenna input impedance is 75 ohms designed to be fed by coaxial antenna cable. The input connector is a "Type F" which mates with cable company feed lines and coaxial cable. Interference rejection and low signal loss are among the benefits of coaxial cable.

Any one of four different FM antenna systems can be used with your MR 7082. 1) an outdoor FM antenna, 2) an all-channel (UHF-VHF-FM) antenna, 3) a cable input from your local cable company, or 4) the indoor dipole supplied.

A 75-ohm outdoor antenna designed for FM reception is recommended for optimum performance in all areas. In fringe areas, best results will be obtained with a highly directional FM antenna used with a rotator. Adjust the position of the antenna until the best reception is obtained.

A 75-ohm matched dipole antenna supplied with your MR 7082 may be used in urban or in high signal strength areas. The flexibility of the thin wire assembly permits it to be placed under a rug, tacked behind the stereo, or placed in any other convenient location. In some cases, it may be necessary to position the antenna for best signal reception. Avoid locating this antenna next to other wires or metal objects. An indoor antenna may not

---

# 6 HOW TO CONNECT



prove effective in houses having metal siding or metal insulation.

Although a 75-ohm coaxial feedline offers the best noise and multipath rejection, many antennas use 300-ohm twin lead. In this case, use a matching transformer (balun) to convert a 300-ohm antenna to the 75-ohm input impedance of the tuner.

## 5. AC POWER

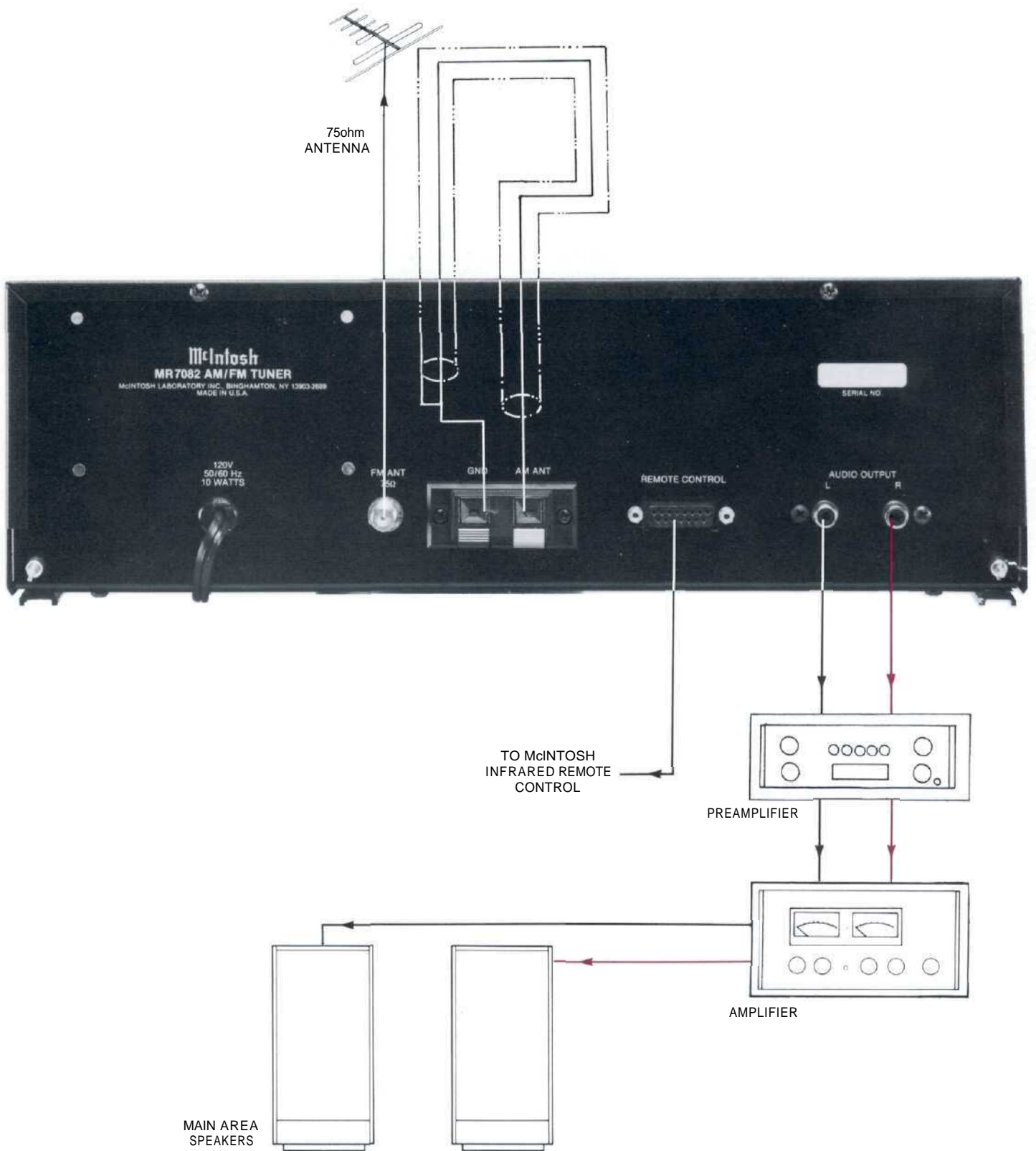
Plug the AC power cord into a 120 volt 50/60 Hz wall outlet. The plug blades are polarized so be certain the plug is fully inserted in the outlet to prevent blade exposure.

**CAUTION: TO PREVENT ELECTRIC SHOCK, DO NOT USE THE (POLARIZED) PLUG ON THIS UNIT WITH AN EXTENSION CORD, RECEPTACLE, OR OTHER OUTLET UNLESS THE BLADES CAN BE FULLY INSERTED TO PREVENT BLADE EXPOSURE.**

### **Charging The Electronic Memory Battery Power Supply**

A very long life, rechargeable battery power supply provides the energy to the electronic memory when the tuner is turned off. When first connected, it is wise to assume that the batteries have not been charged. The charge rate is dictated by the 'on' time of the tuner. To bring the batteries to full charge, operate the tuner for twenty four continuous hours. After the batteries are fully charged, using the tuner for approximately one hour per week, will maintain the batteries in a fully charged state. When fully charged, the batteries will provide the energy to retain the programmed instructions for more than six months with the tuner turned off. Battery life is dependent on usage, storage, temperature, and time.

Do not attempt to remove the batteries from the MR 7082. Battery replacement should only be done at a McIntosh authorized service agency.



## 8 HOOK-UP DIAGRAM

Fold out the photographs on the inside of the back cover. They will assist you in locating the controls and touchbuttons. The letters on the photographs refer to the paragraphs that follow.

Before operating your MR 7082 FM/AM Tuner, familiarize yourself with the controls and what they do. The lower half of the front panel is the operating control center. The field of 8 touchbuttons provides control of AC power, signal sources, and signal processing. The 10 touchbutton field controls the 7 FM and AM preset stations, the memory input, and station scan. The knob is the manual tuning control.

The upper half of the front panel is the display area. It shows the operating status, digitally displays the station frequency and indicates precise tuning as well as station signal strength.

#### A. SIGNAL (STRENGTH) INDICATOR

The SIGNAL indicator is at the right of the station display area. The horizontal row of five LED bar indicators, shows the relative strength of an FM or AM station being received. The greater the number of bars illuminated, the greater the received station's signal strength.

#### B. TUNING INDICATOR

Three LED's ► ● ◀, two horizontal arrows and a center dot, located above the SIGNAL indicator, make up the TUNING indicator. A station is precisely center channel tuned when the center dot LED, only, illuminates.

The exclusive McIntosh developed Automatic Frequency Lock (AFL) circuit makes precise tuning almost automatic. Because the AFL circuit locks to and prevents any departure from the precise center of the station, it must be turned off for SCAN, SEARCH, or MANUAL tuning. When using these tuning methods on FM, the AFL circuit is turned off until the center tuning dot lights and the horizontal arrows are off. Then the AFL circuit locks precisely to the broadcast station frequency preventing any detuning or drift. The locking action of the AFL circuit makes tuning easy. AFL turn off and on occurs automatically when in the SCAN mode or when using the preset touchbuttons for station selections. McIntosh AFL will give the best FM and AM reception with lowest background noise, lowest distortion, and highest FM stereo channel separation.

When tuning manually, the tuner can be tuned slightly off the station's frequency without degrading the program material. This "near" tuning can cause the station to be 'lost' when power is turned off and then turned on again. You can prevent this by

always rotating the MANUAL tuning knob until only the center tuning dot is lighted.

All FM stereo broadcasts will cause the FM MPX bar indicator to illuminate. It is located to the left of the SIGNAL and TUNING indicators.

#### C. STATION FREQUENCY DISPLAY

The  $\frac{3}{4}$ " high LED digital display of station frequency on both FM and AM provides a high degree of accuracy and is easy to read. In many receivers, only the odd numbered frequencies are tunable and displayed. This prevents center tuning on some cable system rebroadcasts or in the event of station inaccuracy. The MR 7082 tunes and displays all FM frequencies 88.0 to 108.0 MHz and all AM frequencies.

The mode of operation is indicated on the left of the display area. The title illuminated indicates the mode of operation in use.

#### D. POWER ON

The red touchbutton turns the AC power on or off. When the power is on, the display area, the mode of operation, the station frequency, and the TUNING and SIGNAL strength indicators illuminate. When turned on, the tuner returns to the last tuned station which has been automatically retained in the tuner's electronic memory.

#### E. MONO

The MONO touchbutton switches the audio output of the tuner to MONO and lights the MONO indicator in the display area. When in FM and tuned to a stereo broadcast, the program will be heard as mono.

#### F. MONOPLUS

The MONOPLUS touchbutton connects a McIntosh audio processor which influences both frequency distribution and phase relationships to provide enhanced special sound distribution. You will hear an enhanced sound in both AM and mono FM. When in MONOPLUS, the indicator in the display area illuminates.

#### G. STEREO

The STEREO touchbutton provides automatic, FM station activated, stereo/mono operation and lights the STEREO indicator in the display area.

#### H. FM

The FM touchbutton switches to the FM circuits of the tuner. The station display area will show the FM station frequency in megahertz.

#### I. AM

The AM touchbutton switches to the AM circuits of the tuner. The station display area will show the AM station frequency in kilohertz.

#### J. SEARCH

The SEARCH touchbutton causes the stations held in the memory for touchbuttons 1 thru 7 to be previewed for 5 seconds each. In the SEARCH mode, between-station noise is automatically muted.

#### K. MANUAL

The MANUAL touchbutton causes the manual tuning knob to be activated as indicated by the lighted green LED above the knob.

#### L. PRESET STATION SELECTING TOUCHBUTTONS

A momentary press on one of the touchbuttons marked 1 thru 7 will recall from the electronic memory the preset FM or AM station assigned to that touchbutton. The corresponding green indicator above the numbered touchbutton will light.

#### M. ENTER

The ENTER touchbutton and any one of the seven momentary touchbuttons is used to insert into the electronic memory the tuned FM or AM station. Seven FM and seven AM stations can be preset.

To enter a station in the memory, tune to the desired station with either the manual tuning knob or SCAN tuning. Then, while pressing the ENTER touchbutton, press touchbutton 1. Release both touchbuttons, and the station tuned will be recorded in the electronic memory for instantaneous recall when touchbutton 1 is pressed.

The preset memory circuits are maintained by a special long life battery power supply that is charged when the AC power is turned "ON". When the tuner is first connected, it is wise to assume that the batteries have not been charged. The charge rate is dictated by the time the tuner is turned 'on' without regard to the mode of operation. To bring the batteries to full charge, operate for twenty-four continuous hours. When fully charged and with the tuner turned off, the programmed instructions will be retained for more than six months. After the batteries are fully charged, approximately one hour per week use of the tuner will maintain the batteries in a fully charged state.

#### N. SCAN

Use the SCAN touchbutton to automatically tune to the next station either up or down the selected broadcast band. The arrow beside the touchbutton indicates the direction of scan. In the SCAN mode, between-station noise and distant, weak stations are automatically muted.

#### O. MANUAL

The MANUAL touchbutton activates the manual tuning knob and causes the green indicator above the knob to turn on. Rotate the tuning knob until the frequency of the desired station shows in the station display area.

A station is correctly tuned when only the center dot of the TUNING display lights. On each side of the center dot are horizontally display (▶◀) arrows. One of these will light as a station is approached to indicate tuning above or below the center frequency of the FM station. FM stations broadcasting in stereo light the FM MPX bar indicator. On AM, the TUNING display is not lighted.

A momentary press on any of the numbered touchbuttons, SEARCH, or SCAN in either direction activates that tuning method and deactivates the manual tuning knob.

## PERFORMANCE GUARANTEE

Performance Limits are the maximum deviation from perfection permitted for a McIntosh instrument. We promise you that your MR 7082 must be capable of performance at or exceeding these limits or you get your money back. McIntosh is the only manufacturer that makes this guarantee.

## FM SECTION

### USABLE SENSITIVITY

13dB which is 1.22  $\mu$ V across 75 ohms

### 50dB QUIETING SENSITIVITY

Mono—18dB which is 2.2  $\mu$ V across 75 ohms

Stereo—37dB which is 20  $\mu$ V across 75 ohms

### SIGNAL TO NOISE RATIO

Mono-80dB

Stereo-75dB

### FREQUENCY RESPONSE

Mono- + 0, - 1dB from 20 to 15,000Hz

Stereo- + 0, -1dB from 20 to 15,000Hz

### HARMONIC DISTORTION

Mono- 0.08% at 100Hz

0.08% at 1000Hz

0.08% at 10,000Hz

Stereo- 0.08% at 100Hz

0.08% at 1000Hz

0.08% at 10,000Hz\*

### INTERMODULATION DISTORTION

Mono—0.08%

Stereo—0.08%

### CAPTURE RATIO

1.5dB

### ALTERNATE CHANNEL SELECTIVITY

55dB

### SPURIOUS RESPONSE

100dB

### IMAGE RESPONSE

90dB

### AM SUPPRESSION

60dB

## AM SECTION

### SENSITIVITY

35  $\mu$ V IHF (50 ohm antenna input)

### SIGNAL TO NOISE RATIO

55dB at 30% modulation

65dB at 100% modulation

### HARMONIC DISTORTION

0.3% maximum at 30% modulation

### FREQUENCY RESPONSE

+ 0 -6dB 20Hz to 4500Hz

### ADJACENT CHANNEL SELECTIVITY

40dB minimum IHF

### IMAGEREJECTION

60dB minimum

## GENERAL INFORMATION

### SEMICONDUCTOR COMPLEMENT

Transistors 24

Integrated Circuits 21

Varactors 7

LEDs 15

Diodes 50

### POWER REQUIREMENT

120V 50/60Hz 10 watts

## MECHANICAL INFORMATION

### SIZE:

16-1/8 inches wide (40.6 cm) by 5-7/16 inches high (13.8 cm) by 13 inches deep (33 cm), from the mounting surface, 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 glass with special gold/teal nomenclature illumination and black with gold anodized aluminum. Chassis is black.

### MOUNTING:

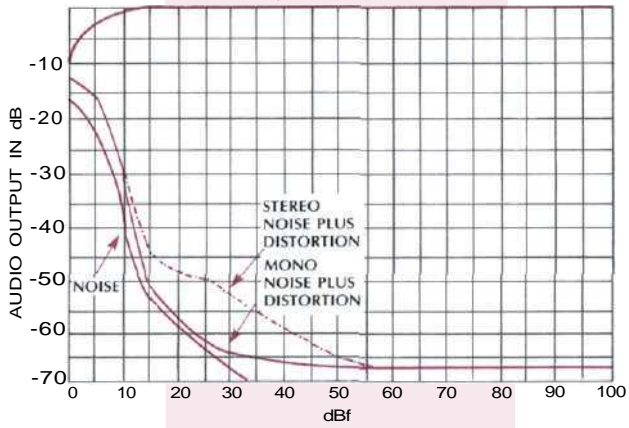
Exclusive McIntosh developed professional PANLOC

### WEIGHT:

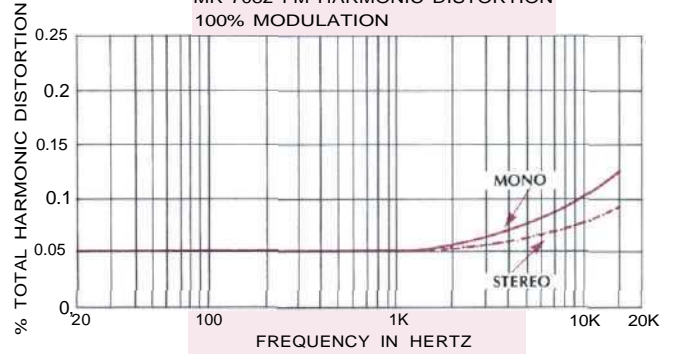
15 pounds (6.8 kg) net, 27 pounds (12.2 kg) in shipping carton

\*Spectrum analyzer required for measurement

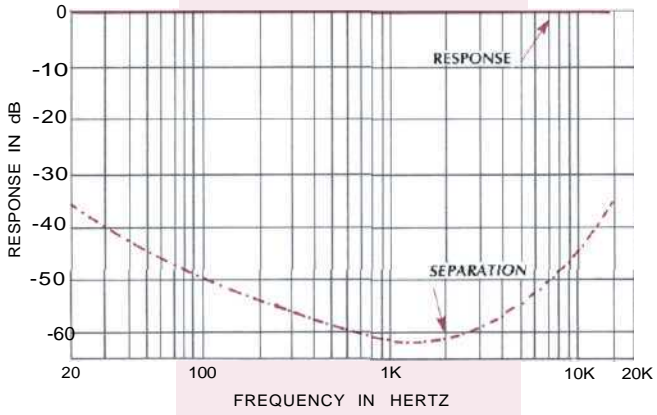
MR 7082 FM PERFORMANCE  
98 MHz, 1 KHz MODULATION



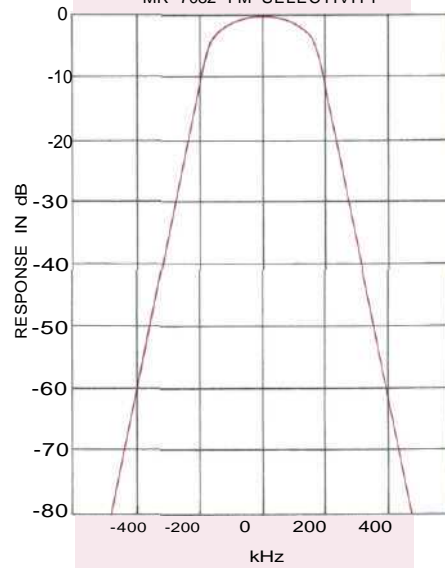
MR 7082 FM HARMONIC DISTORTION  
100% MODULATION



MR 7082 FM FREQUENCY RESPONSE  
AND STEREO SEPARATION



MR 7082 FM SELECTIVITY



# 12 PERFORMANCE CHARTS

## FM

A type F connector on the rear panel connects a 75-ohm antenna or cable system to the tuner's antenna matching circuit.

Following the antenna matching circuit is a RF tuner with exceptional performance. It uses a DMOSFET RF amplifier, a double balanced mixer, and circuits that are tuned by matched varactor diodes. This circuit arrangement provides great sensitivity, high spurious rejection, and high tuning voltage to eliminate RF intermodulation distortion caused by diode non-linearities.

The FM IF section uses 1 transistor, 2 linear phase piezoelectric filters, and 2 integrated circuits. They combine to provide over 120 dB of gain and a selectivity greater than 55 dB. Limiting, muting, signal strength drive, and FM detection are all functions of the last integrated circuit.

## TUNING SYSTEM

From today's FM electronic tuning systems McIntosh has selected the voltage Synthesizer, a Signal Locked Loop (SLL) System which locks the MR 7082 to the incoming signal of the FM station. With the tuner tuned to the station frequency and correction voltage being generated by the detector "zero" crossings, all parts of the tuner, mixer, local oscillator, IF, etc. are inside the tuning loop and accurate tuning is assured. As long as the station transmits within the tuning range of the MR 7082, regardless of frequency, the SLL system will lock on the station's transmitted frequency and remain center channel tuned.

The superiority of the Signal Locked Loop System made it the obvious choice for the demanding performance required of the MR 7082.

Three modes of tuning the MR 7082 are provided: MANUAL, SCAN, and seven programmable touch-buttons.

In the MANUAL mode, a regulated temperature compensated reference voltage is fed to the tuning potentiometer. A portion of this voltage, as selected by the position of the potentiometer, is fed to the controller integrated circuit (IC). It is then amplified, filtered, and applied to the tuning varactors. Proper tuning is always guaranteed since the output of the FM detector at zero crossing is referenced to 4.75 volts and is fed to the S curve input of the controller through a DC amplifier. If a deviation from the 4.75 volts is caused by a shift in tuning or station drift, the controller generates a correction voltage and

combines it with the voltage being fed to the tuning varactors to maintain proper tuning.

In the SCAN mode, a DC ramp tuning voltage is generated, rising in voltage for SCAN up, decaying for SCAN down. The ramp continues until the zero crossing of the detector S curve is sensed at the input of the controller. The tuning voltage ramp stops and is then maintained with any necessary correction voltage added.

While in SCAN, an output from the controller is used to lower the tuner sensitivity to prevent weak, noisy stations from being heard.

The tuning voltage present at the output of the controller may be stored in any of the seven programmable touch-buttons at any time. Pressing the ENTER button causes an analog-to-digital conversion of the tuning voltage to take place. The digitized data is inserted into the control memory when the ENTER button is pressed and pressing any one of the seven numbered buttons.

A touch on any numbered touch-button will instantaneously recall the station from the digital memory. The tuning voltage retained in the electronic memory is delivered to the output of the controller. To insure proper tuning, a search and fetch operation takes place. The tuning voltage is moved plus and minus its nominal value in increasing steps until the correct station zero crossing signal is received from the detector. The station frequency is then captured and once again the tuning voltage is maintained with any necessary correction added. Each time one of the seven touch-buttons is pressed, a muted pulse suppresses any noise that may occur during the tuning process.

An automatically recharged long life nickel cadmium battery provides the necessary voltage to the control memory to retain its instructions when AC power to the tuner is turned off. The stereo or mono mode and the station frequency last used before turn-off are retained in the memory. When the power is turned on, the tuner will automatically return to the mode and frequency last used.

## FM STEREO MULTIPLEX

The heart of the multiplex section is a new third generation phase locked loop (PLL) stereo decoder integrated circuit (IC). This PLL IC incorporates two special systems, an automatic variable separation control circuit to reduce background noise when receiving a weak stereo station, and tri-level digital waveform generation which eliminates interference

from SCA signals and from the sidebands of adjacent channel FM signals.

The variable separation control is operated from the IF amplifier's signal strength detector. A smooth transition is provided from mono to stereo or from stereo to mono at weak signal levels to provide the optimum signal-to-noise ratio and best stereo separation for the prevailing signal conditions. The circuit operates only during stereo reception. It switches automatically to monophonic if the 19 kHz pilot tone is absent.

Additional advantages of the phase locked loop stereo demodulation are the elimination of inductors to minimize drift, integral lamp driving capability to indicate the presence of the 19 kHz pilot carrier, excellent channel separation over the entire audio frequency range, extremely low distortion, low output impedance, and transient-free mono/stereo switching.

#### **19 AND 38 kHz FILTER**

An LC tuned notch filter is used to eliminate any beatnote interference with the bias oscillator in a tape recorder. This filter is driven from a filter buffer amplifier and terminated by the output operational amplifier. These amplifiers provide the necessary input and output impedances for proper phase response.

#### **DISPLAY FREQUENCY**

The station display is fed from a frequency counter which consists of two IC's. One is an Emitter Coupled Logic (ECL) buffer circuit and "divide by 100" prescaler. The other is a C-MOS LSI IC that contains the reference oscillator, various dividers, latches, and LED segment drivers for the display. The LED display is static not multiplexed which prevents RE interference. An adjustable IF offset is provided so that the display reads the tuned frequency accurately for the full span of IF filter tolerance.

#### **AM**

The unusual design of the AM RE input section makes effective use of almost any type of an antenna.

The first element in the input section is an untuned bandpass filter. It passes all the AM stations and rejects any signals outside the AM band. A JFET-Transistor cascode amplifier follows. This amplifier, with its JFET input stage, provides excellent sensitivity and superior spurious response rejection. It has a delayed ACC system that does not degrade the overload performance margin.

Two varactor tuned circuits, a second RF amplifier,

and a double balanced mixer are next. This type of mixer, as in the FM section, has excellent image and IF rejection.

The mixer's 455 kHz output feeds a matching transformer for the wide band linear phase piezoelectric 4-element lattice filter. Then there follows the IF amplifier, another transformer, and finally the signal is split to feed the AM detector and limiter. After the AM detector is the filter and the muting circuits.

The AM limiter drives a 455 kHz Ratio Detector to derive the zero crossing signal for the controller.

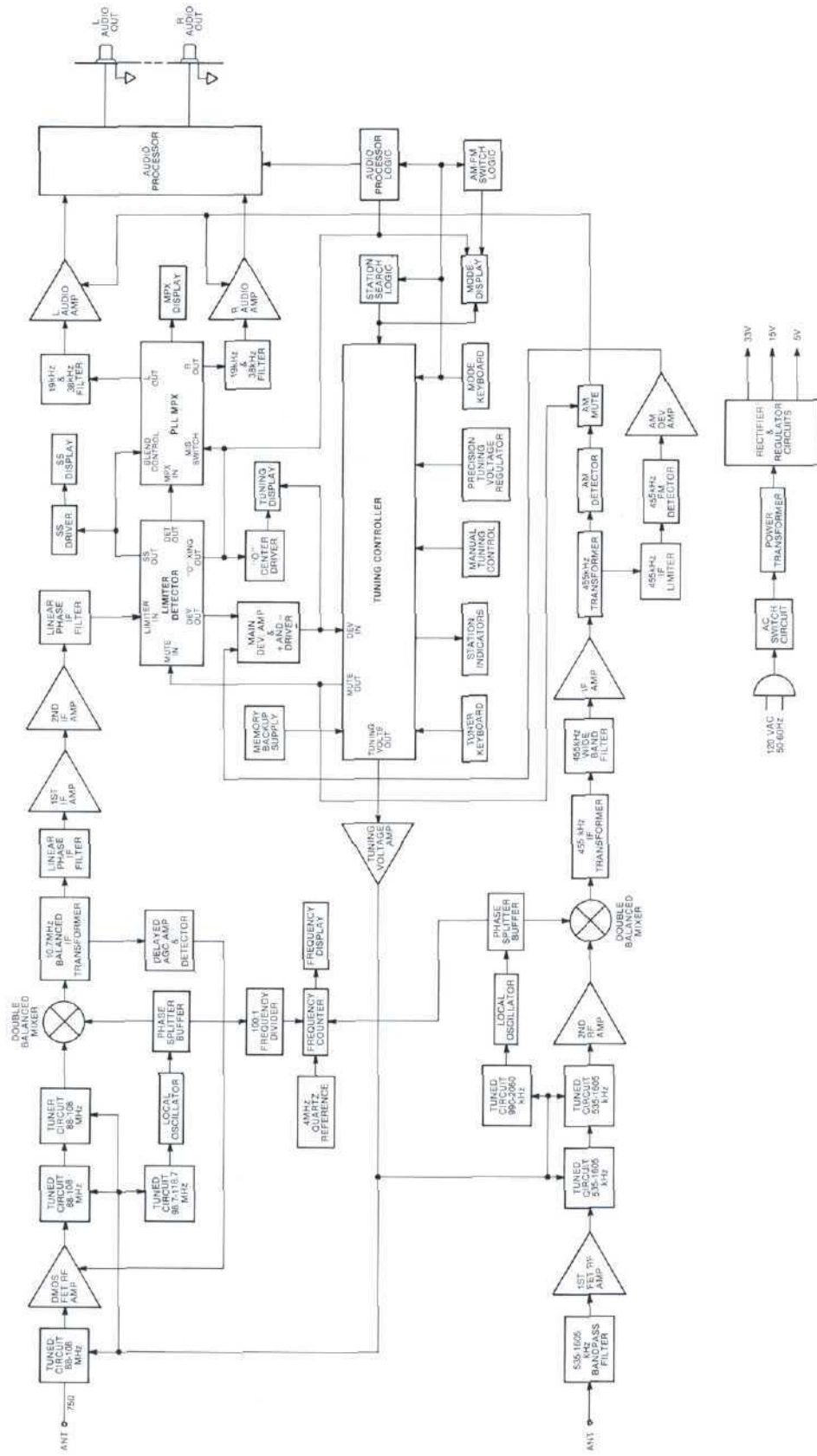
#### **POWER SUPPLY**

The +15 and +5 volt supplies use IC three terminal regulators while the +33 volt supply uses a zener diode regulator. This insures proper operation of the tuner even during periods of low AC line voltages.

---

# 14 TECHNICAL DESCRIPTION

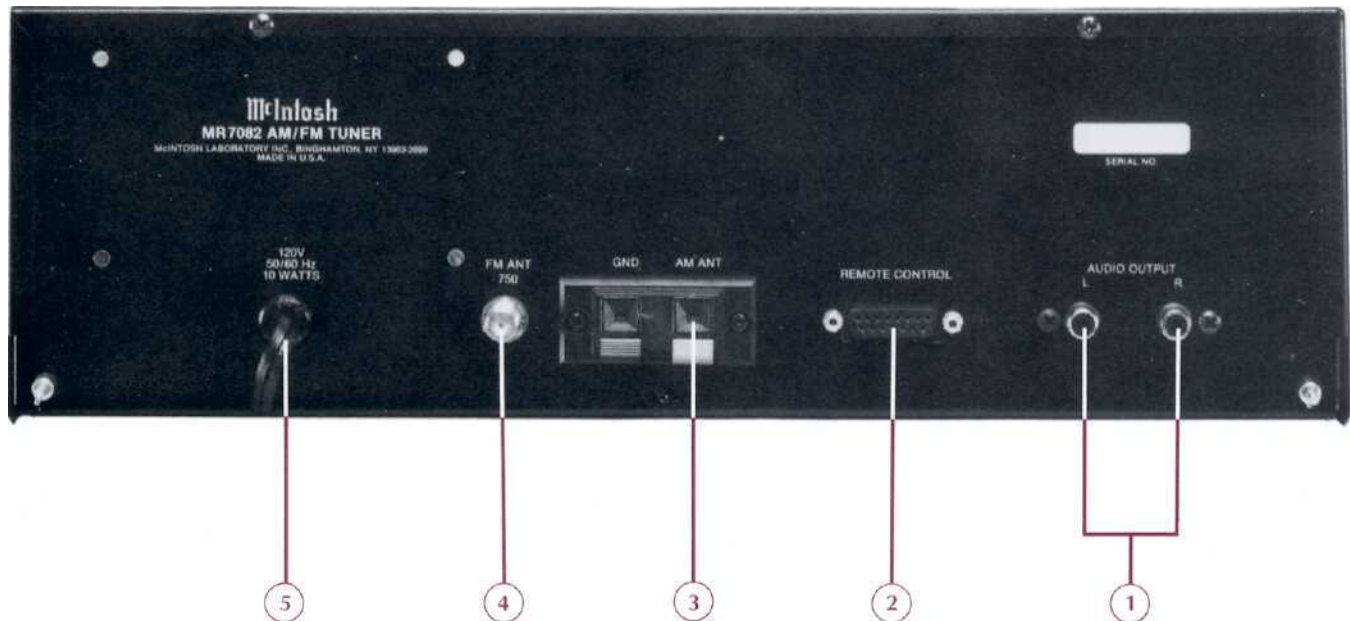
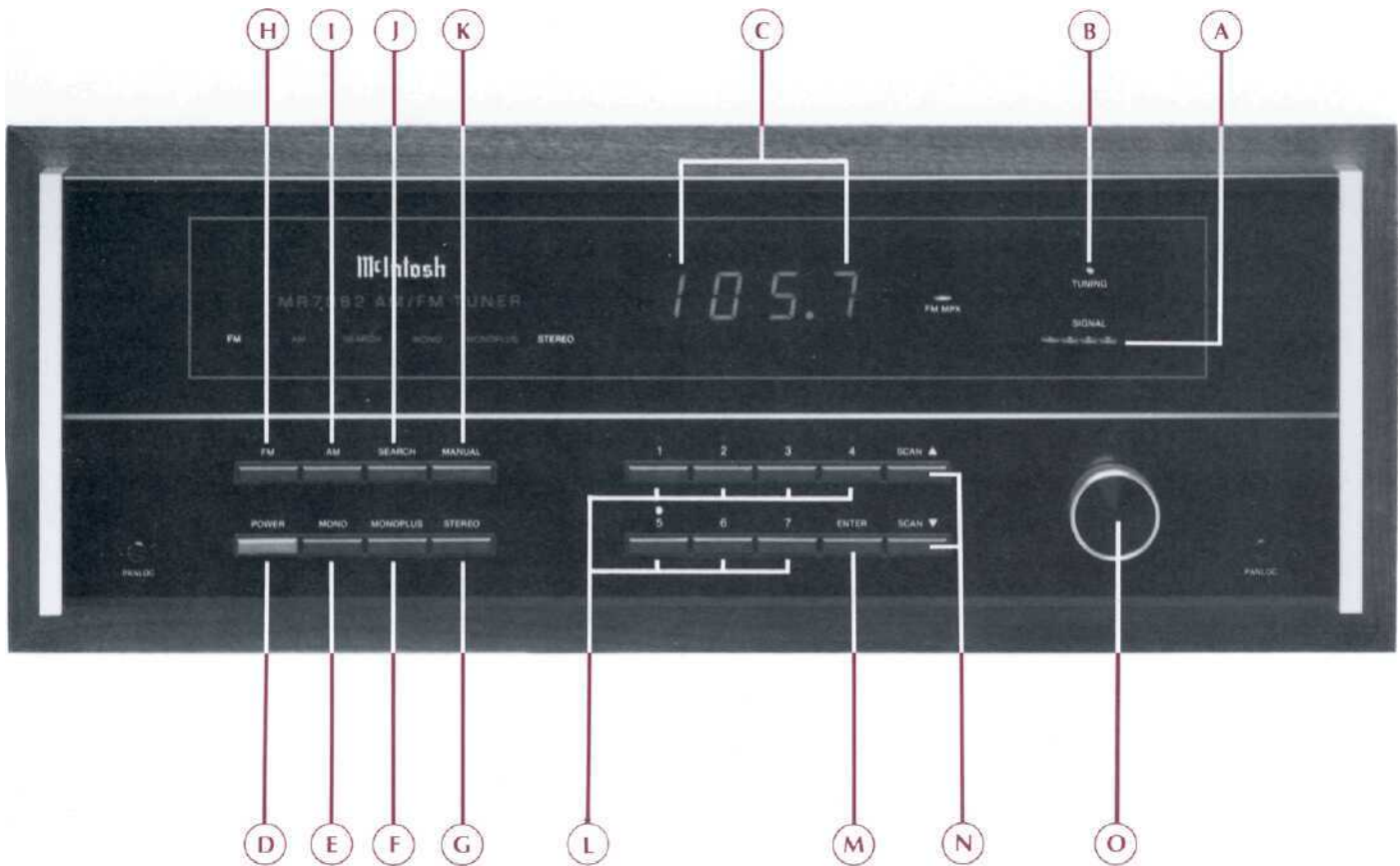






# THE LOCATION OF CONTROLS

The numbers and letters correspond to the paragraphs on pages 6, 7 and 9.



# McIntosh®

McINTOSH LABORATORY INC.  
2 CHAMBERS ST., BINGHAMTON, NY 13903-2699  
607-723-3512

The continuous improvement of its products is the policy of  
McIntosh Laboratory Incorporated who reserve the right  
to improve design without notice.  
Printed in U.S.A.

039660  
BE022003