

McIntosh

Owner's Manual



SOLID STATE
FM-AM TUNER

MR 73

STEREO

PRICE \$1.26

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 in use, or useable, though it may have been made twenty years ago.

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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!

**SOLID STATE
FM-AM TUNER**

MR 73

STEREO

INTRODUCTION

The McIntosh MR 73 is a precision engineered, highly sensitive solid state AM-FM tuner.

The research staff of McIntosh Laboratory, using the latest technology in solid state physics, has developed many circuit advances:

- Phase linear crystal shaped IF amplifiers
- Integrated Circuits that are the equivalent of 16 transistors, 3 zener diodes, 5 diodes, and 23 resistors
- Special multiplex (stereo) detecting circuits that eliminate critical adjustments
- Ultrasonic muting for complete silence between stations while tuning
- Automatic stereo-mono switching that is "clickless" and completely electronic
- Visual multipath indicator to help avoid multipath distortion showing as a visual indicator of correct antenna direction for minimum multipath reception.
- New D'Arsonval movement meters of increased sensitivity which do not need zero setting adjustments.
- A new computer designed filter to reduce noise from stations broadcasting subcarrier auxiliary music services. No other tuner uses such a filter.

Exclusive McIntosh PANLOC is used for installation. The PANLOC system gives you absolute ease of installation, operation, and maintenance.

PANLOC is the first professional installation technique to be used on stereo instruments.

In the PANLOC system a metal shelf is mounted first. The tuner slides into position on this shelf. Depressing the front panel PANLOC buttons, locks the tuner firmly into position against the mounting panel.

Once you have enjoyed the outstanding performance of the MR 73, you will understand why McIntosh products have earned their reputation as "THE BEST." Your McIntosh MR 73 tuner will give you years of the finest possible reception, and will be a valued part of your home music system.

TECHNICAL DESCRIPTION

F.M. SECTION: This is divided into two separate modular sections:

A. The 100 mHz Radio Frequency (RF) Section. This section houses the complete FM-RF front-end and part of the AM-RF circuits. A special, four section, variable tuning capacitor provides a high degree of RF selectivity and excellent spurious response rejection. The problem of image rejection has been greatly reduced in the RF section of the MR 73.

The two stage parallel-fed-cascode junction field effect transistor (JFET) RF amplifier gives better sensitivity and higher gain than conventional one-stage amplifiers. The use of JFET's helps to further reduce the problem of front end overload in strong signal areas.

A mixer using a JFET has been designed for high sensitivity and freedom from overload. Low temperature coefficient components have been designed into the FM local oscillator to prevent frequency drift. The frequency stability inherent in the local oscillator makes automatic frequency control (AFC) unnecessary. The rate of drift of the local oscillator is less than ten parts per million per degree centigrade.

Both the FM and AM-RF front ends have been designed in the same completely encased metal modules. This design gives protection against radiation or interference. The RF circuits of the MR 73 exceed the FCC requirements for suppression of oscillator radiation.

The MR 73 has antenna connections for either 300 ohm twin lead transmission line or 75 ohm coaxial cable. The normal input impedance of the first RF amplifier is 75 ohms. Impedance match to 300 ohms is provided by a McIntosh designed balun transformer which has negligible losses. Connections for a 300 ohm line are made with new push type terminals. No tools are required. A type F male connector is furnished for 75 ohm coaxial cable.

For greater signal transfer and lower distortion, a special matching transformer has been designed to interface the FM-RF to the FM-IF amplifier. This matching transformer considerably enhances the linear phase characteristics of the IF amplifier.

B. The FM-IF and Detector Section. The FM-IF and Detector design required extended engineering time and testing and uses the latest concepts in integrated circuits and crystal filters. The FM-IF consists of two integrated circuits and two phase linear crystal filters. They combine to give a total gain of over 120 dB (the signal is amplified to over 1,000,000 times its original level). The response

curve has a nearly flat top with linear phase characteristics. The skirts of the response curve are very steep. The maximum width is 240 kHz at -3.0dB and 400 kHz at -60dB. The response curve is symmetrical each side of the center frequency. The crystal filters are permanently sealed and do not require adjusting. The IF cannot drift nor vibrate out of adjustment.

Each of the two integrated circuits used in the FM-IF of the MR 73 contain 16 transistors, 3 zener diodes, 5 diodes and 23 resistors, all on a single monolithic silicon chip.

The exceptionally high gain of the two integrated circuits assumes "hard limiting" at very low levels of input signals.

A "phase" or "Foster Seeley" discriminator has been designed to complement the integrated circuit IF section. The IF section has exceptionally high gain and hard limiting characteristics, yet the capture ratio is quite low. The detected output signal of the discriminator is extremely low in distortion content.

De-emphasis of the discriminator output restores the frequency amplitude characteristics to the same level they were before transmission.

C. FM Stereo Multiplex Section. McIntosh Laboratory has developed a special detecting circuit in the multiplex section. A particular advantage of this circuit is the elimination of the critical adjustments necessary with commonly used matrixing circuits. The circuit detects the L-R sidebands, then automatically matrixes the recovered information with the L + R main carrier signal. This yields the left and right program output with maximum separation.

The 19kHz pilot signal is filtered from the composite stereo input signal, amplified by a special limiting amplifier, doubled to the 38kHz carrier frequency, and then amplified again by a limiting amplifier. The composite signal minus the 19kHz pilot is combined with the 38kHz carrier signal. The new combination of signals is fed to the special detector circuit mentioned above. Balanced full wave detectors are used to cancel the 38kHz components in the output.

The SCA (Subsidiary Communication Authorization) signal must be removed from the composite output. This is accomplished by the use of a new "Image Parameter" band elimination filter that has

been computer designed. The SCA filter rejects SCA signals without impairing stereo performance.

FM muting in the MR 73 operates by detecting ultra-sonic noise which is present when tuning between stations or when receiving a weak station. The muting circuit can be activated or defeated by the use of the muting switch on the front panel. The level of muting desired can be adjusted by the muting level control on the top panel. Varying the muting control adjusts the threshold at which the muting takes effect.

When the 19 kHz carrier of a stereo signal is received, the automatic FM stereo switching circuit activates the multiplex decoding circuit. This lights the stereo indicator. The circuit switching is all done electronically with no clicks. The automatic stereo switching can be defeated by turning the mode selector switch to FM MONO. (In this position the stereo indicator will still light to indicate the presence of a stereo signal.) On monophonic transmissions the stereo switching is inactive at all times, assuring a greater signal to noise ratio. The stereo switching circuit has been designed so that noise will not activate it.

AM SECTION:

The "state of the art" in electronic technology has been incorporated by McIntosh into the MR 73 with the use of metal oxide silicon field effect transistors (MOSFET's) in the AM section. An AM-RF amplifier circuit includes a three section variable tuning capacitor in the metal enclosed shielded module, which also houses the FM-RF front end. The AM-RF amplifier uses a dual-insulated gate MOSFET to obtain more overload protection against strong local stations than can be obtained with conventional bipolar transistors.

The AM-RF mixer is also a dual-insulated gate MOSFET. The use of MOSFET's in the RF amplifier and mixer provides the MR 73 with very little cross modulation (spurious response) and the image rejection is very good.

Three double tuned IF transformers are used to obtain a high degree of selectivity yet still allow good AM fidelity. A 10kHz whistle filter has been incorporated at the output of the AM detector. Its

purpose is to suppress heterodyning that occurs between adjacent AM carriers.

To increase the "pulling power" of the AM section of the MR 73, connect an external antenna at the rear apron of the unit by using a push connector. An internal transformer matches the external antenna to the input impedance of the AM front end. An optional highly sensitive loop stick antenna is also provided for local or strong stations. A switch on the back panel selects either loopstick or external antenna.

An AM sensitivity switch has been provided to decrease both the gain of the RF amplifier and the noise between stations.

AUDIO PREAMPLIFIER SECTION:

An audio amplifier has been incorporated in the MR 73. It increases the audio level from the AM or FM multiplex outputs to a level sufficient to drive a preamplifier or other accessory equipment. The audio amplifier consists of 2 separate amplifiers, each amplifier having three transistors. The design uses considerable negative feedback. Negative feedback helps to achieve low distortion, wide frequency response, and unexcelled stability. Each audio amplifier has two low impedance outputs. One is a fixed output set at 2.5 volts. The second output is variable by the volume control on the front panel.

By cross-coupling a small portion of one channel into the other in the audio amplifier, the residual alternate channel information can be cancelled, thereby further increasing the stereo channel separation.

Also included in the audio section is a STEREO FILTER switch. With the STEREO FILTER turned on and weak stations are being received, stereo noise is reduced, but still allows ample stereo listening performance.

POWER SUPPLY

Special design attention has been given to the power supply section of the MR 73. Two separate rectifier circuits are used in the MR 73.

The 16 volt regulator is the power heart of the MR 73. All signal stages throughout the unit are powered from this regulator. The 16 volt regulator is very elaborate in design, using a specially selected transistor and associated circuit. The regulator uses electronic filtering to insure the lowest possible background hum level, maximum stability and extremely good regulation.

A half wave rectifier and filter, supply the DC high voltage needed for the anode of the multipath indicator. The second power supply is a full wave rectifier which supplies DC to the multiplex indicator and to the voltage regulator.

IF YOU'RE IN A HURRY

MODE SELECTOR—Select from AM broadcast, stereo FM broadcast, or mono FM without automatic stereo/mono switching.

STEREO FILTER—Reduces noise on weak FM stereo broadcasts.

MUTING—Eliminates the usual noise between FM stations.

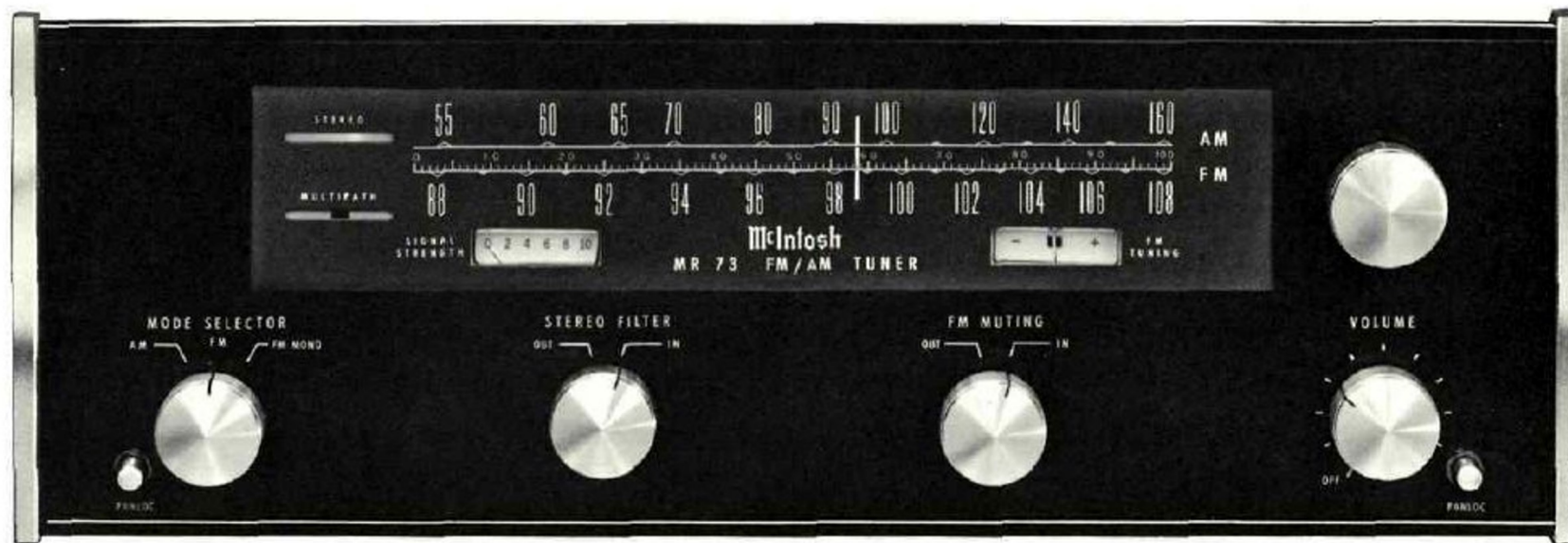
VOLUME/OFF—Turns the AC to the tuner on or off and adjusts volume to desired level.

STEREO INDICATOR—Lights when station is transmitting 19 kHz carrier for stereo broadcast.

MULTIPATH INDICATOR—Rotate antenna until electron ray edges are steady.

SIGNAL STRENGTH—Tune for maximum reading with a steady multipath indicator.

FM TUNING—Tune FM until the indicator is in the black area in the center of the meter face.



SPECIFICATIONS

FM

USEABLE SENSITIVITY: 2.5 microvolts at 100% modulation (± 75 kHz deviation) for less than 3% total noise and harmonic distortion in accordance with IHF standards.

AUDIO FREQUENCY RESPONSE: Flat from 20 Hz to 20 kHz with standard de-emphasis and 19 kHz pilot filter.

HARMONIC DISTORTION: Mono: Less than 0.3% at 100% modulation ± 75 kHz deviation. Stereo: Less than 0.7%.

CAPTURE RATIO: Better than 1.5% dB at 100% modulation.

MUTING: AF injected ultrasonic muting: at least 60 dB noise reduction between stations.

OSCILLATOR DRIFT: Less than 25 kHz.

IMAGE REJECTION: Better than 80 dB at 90 MHz; better than 70 dB at 100 MHz.

HUM: Better than 70 dB below 100% modulation.

OUTPUT: Approximately 2.5 volts; low impedance.

FM ANTENNA INPUTS: 300 ohms balanced; 75 ohms unbalanced.

AM ANTENNA INPUTS: Built-in loopstick or external antenna switch selected.

IF: Two ICs and two phase linear crystal filters.

RADIATION: Substantially below FCC requirements.

STEREO SEPARATION: Better than 35 dB at 1 kHz.

STEREO FILTER: Greater than 48 dB suppression of 38 kHz multiplex carrier.

STEREO INDICATOR: Front panel multiplex stereo light activated by 19 kHz carrier-only.

SCA FILTER: 50 dB down at 67 kHz to 74 kHz, 275 dB per octave slope.

AUTOMATIC MONO-STEREO SWITCH: McIntosh developed; all electronic automatic mono-stereo switching circuit.

SEMICONDUCTOR COMPLEMENT: 22 diodes, 24 Transistors, 2 Integrated Circuits, 1 Indicator Tube.

AM

SENSITIVITY: Better than 12 microvolts at 1000 kHz (using the external antenna input).

FREQUENCY RESPONSE: Down 6 dB at 5 kHz.

HARMONIC DISTORTION: Less than 1% at 30% modulation.

SELECTIVITY: -30 dB at 10 kHz.

IMAGE REJECTION: 60 dB or greater at 1000 kHz.

SIGNAL TO NOISE RATIO: Better than 55 dB.

POWER CONSUMPTION: 20 watts, 105 to 125 volts, 50 to 60 Hz.

MECHANICAL SPECIFICATIONS

SIZE: Front panel: 16 inches wide by 5 7/16 inches high; Chassis: 15 inches wide by 13 inches deep, including PANLOC shelf and back panel connectors; Knob Clearance: 1½ inches in front of mounting panel.

WEIGHT: 24 pounds net, 36 pounds in shipping carton.

FINISH: Front panel: Anodized gold and black with special gold/teal panel nomenclature illumination.

CHASSIS: Chrome and black.

MOUNTING: McIntosh developed professional PANLOC.

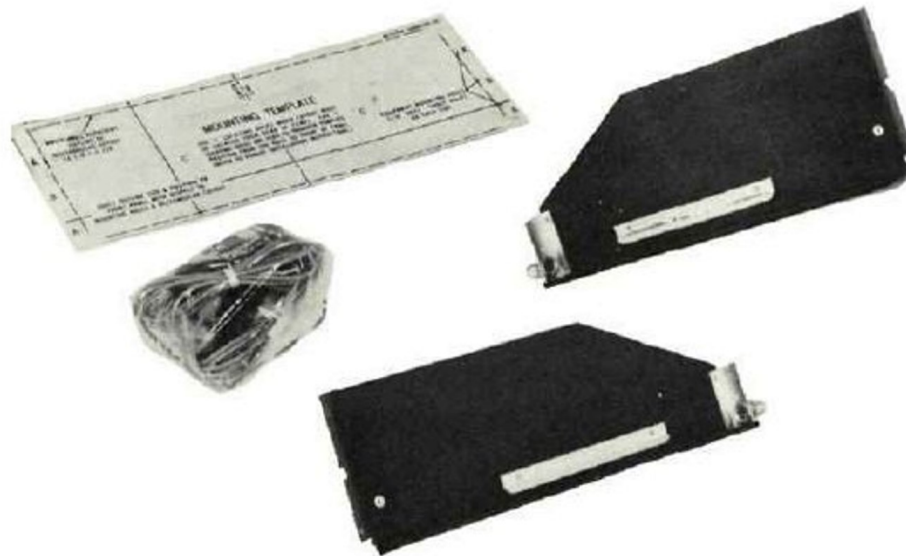
INSTALLATION

Adequate ventilation extends the trouble-free life of electronic instruments. It is generally found that each 10° centigrade (18° F) rise in temperature reduces the life of electrical insulation by one half. Adequate ventilation is an inexpensive and effective means of preventing insulation breakdown that results from unnecessarily high operating temperatures. The direct benefit of adequate ventilation is longer, trouble-free life.

The suggested minimum space for mounting the MR 73 is 15 inches deep x 17½ inches wide x 16 inches high. Always allow for air flow by either ventilation holes or space next to the bottom of the amplifier and a means for the warm air to escape at the top.

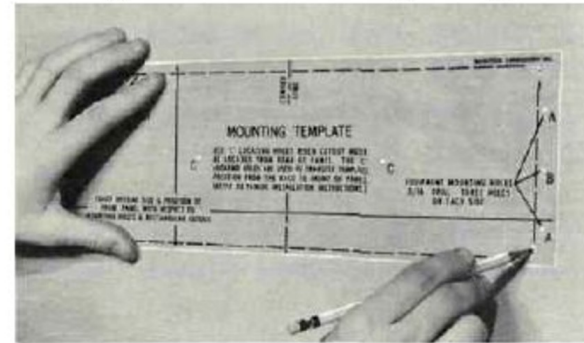
It is recommended that the MR 73 be mounted in a normal or horizontal position. However, with adequate ventilation the amplifier can be mounted in any position.

To prepare the MR 73 for installation remove the plastic protective covering. Turn the MR 73 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 MR 73. It is completely supported by its own mounting brackets.



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

Position the plastic mounting template over the area of the 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 ¼ 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.

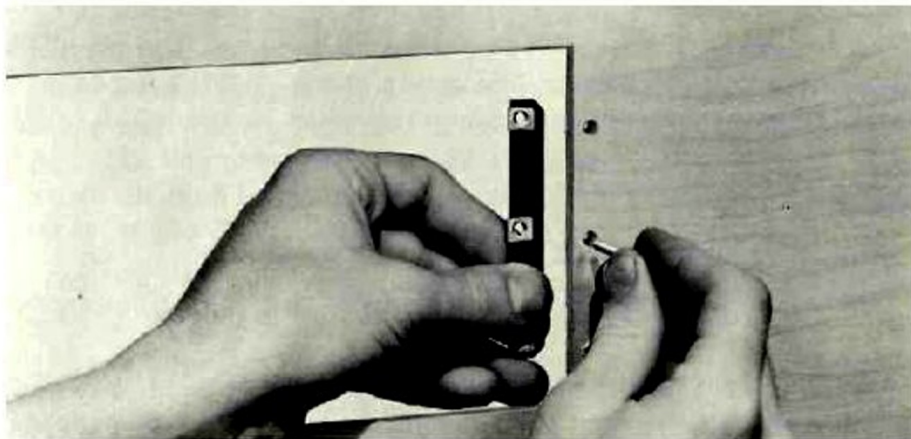
With the template in place against the cabinet panel, mark the "A" and "B" drill holes and the four small holes that identify the corners of the cutout. Join the corner marks with a pencil. The edge of the template can be used as a straight edge.

IMPORTANT: DRILL THE 6 HOLES BEFORE MAKING THE CUTOUT.

Accurately drill the three holes on each side of the cutout area with a $\frac{3}{16}$ 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 $\frac{3}{4}$ inch long screws for panels under $\frac{1}{2}$ inch, or two $1\frac{1}{4}$ inch long screws for panels $\frac{1}{2}$ 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 tem-

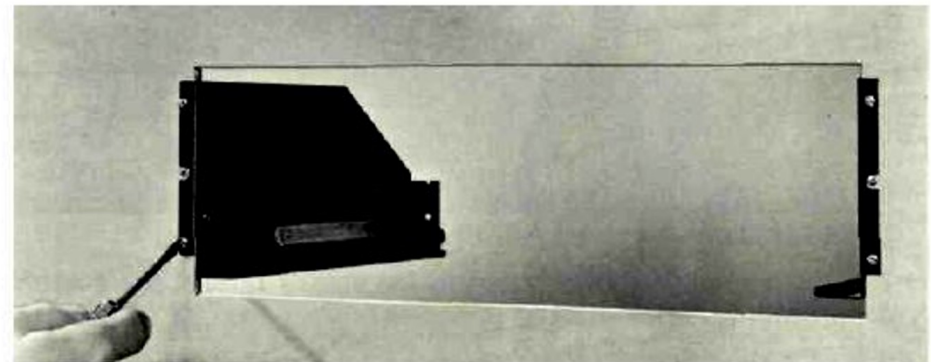


plate. The sides of the mounting brackets should match the vertical dash lines on the template. If necessary, loosen the screws and push the brackets into alignment and retighten.

Insert the power cord through the opening. Carefully slide the MR 73 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.

At the bottom front corners of the PANLOC instruments are the PANLOC buttons.

Depressing the PANLOC buttons will lock the instrument firmly in the installation.

Depressing the PANLOC buttons a second time (as with a ball-point pen) will release the instrument. You can then slide the instrument forward to the inspection-adjustment position.

Depressing the inspection-adjustment position latches will allow the instrument to be slid completely out of the installation.

VERTICAL INSTALLATION

In the hardware packet are two helical springs. Fasten the springs to the small flanges at the rear of the PANLOC brackets. The flange has a notch and a hole to mount the spring. The springs assist in the removal of vertically mounted PANLOC equipment.

DO NOT USE THE SPRINGS ON HORIZONTALLY MOUNTED EQUIPMENT.

FRONT PANEL INFORMATION

TUNING DIAL

The MR 73 has three dial scales:

1. AM —Marked 55 to 160 kHz
2. FM —Marked 88 to 108 MHz
3. Logging scale — Marked 0 to 100

The logging scale can be used to accurately retune any station. You may find it easier to keep a record of your favorite stations by use of the logging scale.

A small portion of dial pointer has been illuminated to increase the ease of tuning.

INDICATORS

The MR 73 has four indicators on the dial panel: STEREO indicator, MULTIPATH indicator, SIGNAL STRENGTH meter, and the TUNING meter.

STEREO INDICATOR

The STEREO indicator will light when the dial pointer crosses a station broadcasting the 19 kHz carrier for stereo. The special circuit used will light only when the 19 kHz multiplex carrier is present in the signal. The indicator will not light on noise pulses or interference.

MULTIPATH INDICATOR

The MULTIPATH indicator is an exclusive McIntosh development.

The proper use of the MULTIPATH indicator makes it possible to improve FM reception with precise FM antenna positioning.

An electron ray indicator is used to graphically show multipath reception. The electron ray indicator operates by movement of electron beams inside a vacuum tube. The multipath indicator shows when the antenna is rotated to the correct position for picking up only the desired signal. Multipath distortion causes the two beams on the indicator to fluctuate rapidly with the incoming signal. When the antenna is rotated to the correct position, the indicator beams

will remain steady. The directional antenna is then picking up only the desired signal and rejecting the reflected multipath signals. In certain locations it is possible for best reception to occur by picking up a strong reflected signal rather than the direct signal. Whenever tuned to a different station, the multipath indicator will show if multipath distortion is present. Multipath distortion is practically independent of signal strength.

SIGNAL STRENGTH METER

This meter indicates the strength of the received signal from the antenna. The higher the indication the stronger is the signal.

FM TUNING METER

An FM station is correctly tuned when the indicator is in the black area of the tuning indicator. The action of the TUNING indicator is independent of station signal strength.

MODE SELECTOR

Selects any one of three program sources:

AM — Connects the AM tuner section of the MR 73 to the output jacks.

FM — The FM position provides monophonic FM or FM stereo at the left and right channel audio output jacks automatically. With the MODE SELECTOR in the FM position a station broadcasting monophonic program will be heard in mono. When the station switches to stereo broadcast, the stereo indicator will light and the MR 73 will automatically switch to stereo operation. If mono broadcasting is resumed the MR 73 will automatically switch to mono.

FM — Mono — Connects the FM tuner sections of the MR 73 to the output jacks. In this position the automatic stereo switching is bypassed. The stereo indicator will light when a station is transmitting stereo. The output will be only mono.

STEREO FILTER

The STEREO FILTER reduces noise on weak stereo stations. Turn the switch to the IN position on noisy stereo stations.

FM MUTING

Muting suppresses the background noise and hiss normally heard between stations. Turn the control to the IN position for muting. Weak stations that may not override noise and interference are also suppressed by the muting.

In the OUT position, the muting is turned off. This allows conventional FM tuning with the noise and interference present. Use this position to tune weak or noisy stations.

VOLUME

This control adjusts the output volume level of the tuner at the back panel AUDIO OUTPUT jacks marked FRONT PANEL CONTROLLED. The other pair of jacks is marked FIXED OUTPUT. They are not affected by the volume control. Full tuner output is always present at the FIXED OUTPUT jacks.

The VOLUME control has been precision tracked throughout the listening range (0 to -65dB) for accurate stereo balance.

AC ON/OFF

The AC switch is part of the VOLUME control. Turning the VOLUME control totally counterclockwise turns the AC to the MR 73 OFF.

PANLOC BUTTONS

At the bottom of the front corners are the PANLOC buttons. After a tuner is installed on the PANLOC shelf, depressing the PANLOC buttons will lock the tuner firmly in position. Depressing the PANLOC buttons a second time (as with a ball-point pen) will release the tuner. The tuner can then be slid forward to the inspection and adjustment position. The PANLOC system gives you absolute ease of installation, operation and maintenance.



SECONDARY CONTROLS

On the top of the chassis behind the front panel are three secondary controls. They are MUTING adjust, AM SENSITIVITY, and DIAL SCALE INTENSITY.

MUTING

The MR 73 ultrasonic muting circuit suppresses all noise between stations. It suppresses all weaker stations not strong enough to override the background noise.

The muting threshold setting determines the strength of the signal which can be heard with muting in operation. The muting threshold is carefully adjusted to optimum at the factory using precision test instruments.

If it is found necessary to adjust the muting threshold, turn the MUTING ADJ to the RIGHT (clockwise) to lower the muting threshold. This allows weaker noisier stations to be heard at the MUTING IN setting. Turn the control to the left (counterclockwise) to raise the muting threshold. This allows only the more powerful stations to be heard at the MUTING IN setting.

AM SENSITIVITY

When the AM SENSITIVITY switch is in the LOW position the noise between stations is reduced. The RF gain is not as great in the low position.

DIAL SCALE INTENSITY

Adjust the brightness of the dial panel lights by means of this switch on the tuner back panel. Set the switch to BRIGHT for maximum panel light. Set the switch to DIM for less dial light and extended lamp life.

BACK PANEL INFORMATION

TP1 and TP2

Test point TP1 and TP2 is provided for tuner circuit alignment. It is also used in conjunction with the McIntosh MI 3, Maximum Performance Indicator.

AC OUTLET

Provides 117 volt AC power up to 350 watts for additional equipment such as turntables, or other equipment. This outlet is not fused. It turns on and off with the front panel AC switch on the VOLUME control.

AC POWER

Plug the AC power cord in 105 volt to 125 volt, 50 to 60 Hz power line. The power used by the MR 73 is 20 watts.

FUSE

A 0.5 AMP fuse protects the tuner circuits. This fuse does not protect additional equipment connected to the back panel AC outlet.

AM ANT SWITCH

Adjusts the MR 73 circuit to match the particular type of AM antenna used. EXT. position is for a conventional antenna, usually of the outdoor type, from 50 to 150 feet in length. LOOP position is for the built-in Ferrite Loopstick.

ANTENNA CONNECTION STRIP

Provides easy push type connectors for an AM antenna, a ground connection, and a 300 ohm FM antenna.

FM ANTENNA —75 OHM

Provides a type F connector for a 75 ohm unbalanced FM antenna.

AUDIO OUTPUTS

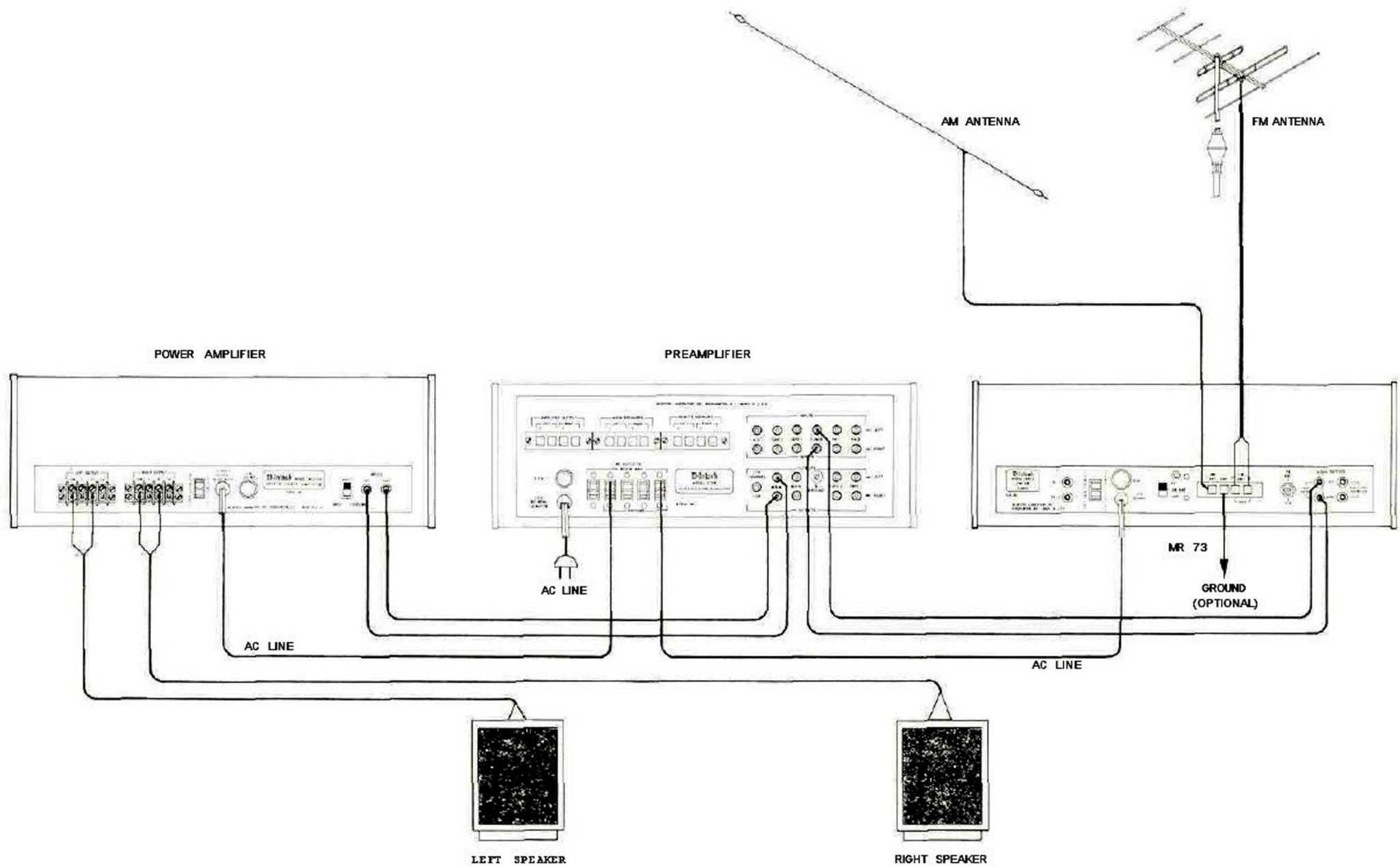
The left-hand pair of AUDIO OUTPUT jacks provides audio signals unaffected by the MR 73 front panel VOLUME control. Use these output jacks to connect the tuner to a stereo control preamplifier which has its own master volume control.

The right hand pair of AUDIO OUTPUT jacks provides audio signal controlled by the MR-73 front panel VOLUME control. Use these output jacks to connect to external power amplifier, tape recorders, or any equipment which requires continuous front panel control of tuner output volume.

McIntosh

MR 73

TYPICAL HOOK UP



CONNECTING THE MR 73

AUDIO OUTPUTS

Use the FIXED OUTPUT jacks to connect to a conventional control preamplifier which has its own volume control. Full tuner output is available at all times from the FIXED OUTPUT jacks.

Use the FRONT PANEL CONTROLLED jacks to connect to a conventional control preamplifier when continuous front panel control of tuner volume is desired. These jacks may be used to connect to external equipment such as power amplifiers or tape recorders where control of tuner volume is necessary. There is no difference in the signal quality or maximum output levels available at each pair of output jacks.

The output impedance at the outputs is ohms. Longer cables than are normally supplied can be used to interconnect the MR 73 with other equipment. The length of the cable is limited by the capacity of the cable.

The total capacity must not exceed 1000 pF. For instance: cables with a capacity of 25 pF per foot may be 40 feet long; 13.5 pF per foot cable may be 75 feet long. The input impedance of the other equipment should be 47,000 ohms or greater.

CONNECTING AN FM ANTENNA

Monophonic installations that are satisfactory on an indoor antenna may require the use of an outdoor antenna for equivalent stereo results. Satisfactory stereo requires about 10 times as much signal from the antenna.

One of three antenna systems can be used: (1) the indoor dipole supplied with the MR 73, (2) an outdoor FM antenna, or (3) a VHF-TV antenna. In fringe areas best results will probably be obtained with the use of an outdoor FM antenna. In many areas the indoor dipole antenna may be satisfactory. The use of a VHF-TV antenna is also effective in many installations.

CONNECTING AN INDOOR DIPOLE ANTENNA

The flexible folded dipole antenna (300 ohm) is for indoor use in urban or high strength signal areas.

Connect the two leads from the dipole to the terminals marked FM ANT (red). The flexibility of the thin flat 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. This should be done before it is permanently located.

CONNECTING AN OUTDOOR 300 OHM FM ANTENNA

An outdoor antenna is recommended for optimum performance in all areas. In fringe (outlying) areas, best results will be obtained with a highly directional FM antenna used in conjunction with a rotator. Rotate the antenna until the best reception is obtained. Connect the 300 ohm antenna to the terminals marked FM ANT (red).

CONNECTING A 75 OHM ANTENNA

An unbalanced 75 ohm antenna can be connected to the MR 73 with coaxial cable. A "type F" connector is used to couple the 75 ohm coaxial cable to the MR 73.

AM BUILT-IN ANTENNA

For most local and moderately distant AM reception the built in ferrite loopstick antenna may be used. Set the AM ANT. slide switch on the MR 73 back panel to the LOOP position.

AM OUTDOOR ANTENNA

For best long distance AM reception, use a copper antenna wire 50 to 150 feet in length. Suspend the wire in a straight line as high as possible. Attach the wire at each end with suitable glass or ceramic insulators. Connect a lead-in wire at any convenient point on the antenna. It is recommended that a lightning arrester be used with an outdoor AM antenna. The arrester should be well grounded to a suitable water pipe or copper or aluminum rod sunk into the ground.

Connect the lead-in wire to the AM ANT. push connector on the antenna terminal strip on the back panel. Set the AM ANT Slide Switch to the ANT position.

LISTENING TO THE MR 73

LISTENING TO AM

Turn the MODE SELECTOR switch to AM. Turn the tuning knob to the desired station. The SIGNAL STRENGTH meter will indicate the relative strength of the particular AM station being received.

Adjust the VOLUME control to the desired listening level.

LISTENING TO MONOPHONIC FM

Turn the MODE SELECTOR to FM MONO to listen only to monophonic FM.

If you wish to receive monophonic FM and have the MR 73 automatically switch to a stereo broadcast available on the same station set the MODE SELECTOR to FM.

Turn the STEREO-FILTER to OUT.

Turn the tuning knob to the desired station. The correct FM tuning point is reached when the FM TUNING meter pointer comes to rest anywhere in the black area of the meter scale. While tuning across the dial you may notice movement of the tuning meter, without hearing a station. This is caused by a station so weak or distant that it does not over-ride the background noise. With ultrasonic muting in operation a noisy station of this type is automatically rejected. To hear these weaker or distant stations, turn the MUTING switch to OUT. Usually the listening quality of a station of this type will be rather poor due to the weak signal and strong background noise.

Rotate the directional antenna for best reception as shown by the SIGNAL STRENGTH and MULTIPATH indicators.

Adjust the VOLUME control to desired listening level.

LISTENING TO STEREO FM

Turn the MODE SELECTOR to FM.

Turn MUTING to IN.

Turn the tuning knob to the desired station.

The TUNING meter pointer should be in the black area of the TUNING meter. When the STEREO indicator is lighted, the station is broadcasting a 19 kHz carrier for stereo. The MR 73 will automatically switch to stereo. If a station is broadcasting monophonic FM program, the STEREO indicator will remain off and the tuner will automatically switch to mono.

Adjust the volume control to desired listening level.

If the fixed AUDIO OUTPUT jacks are used, the tuner VOLUME control will not affect volume.



Your MR-73 FM-AM tuner 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, N. Y. 13903
Our telephone number is
607-723-3512

GUARANTEE

McIntosh Laboratory Incorporated guarantees this equipment to be capable of performance as advertised. We also guarantee the mechanical and electrical workmanship and components of this equipment to be free of defects for a period of 90 days from date of purchase. This guarantee does not extend to components damaged by improper use nor does it extend to transportation to and from the factory.

3 YEAR FACTORY SERVICE CONTRACT

An application for a FREE 3 YEAR FACTORY SERVICE CONTRACT is included in the pack with this manual. The FREE 3 YEAR FACTORY SERVICE CONTRACT will be issued by McIntosh Laboratory upon receipt of the completely filled out application form. The terms of the contract are:

1. Transportation charges are excluded.
2. This agreement is given to the original purchaser only and is not transferable.
3. The application for the contract must be filled out completely.
4. The 3 YEAR SERVICE CONTRACT is given to purchasers who live in the 50 United States or Canada only.
5. This agreement is given only if the equipment is purchased from a franchised McIntosh dealer.
6. If the instrument has been modified or damaged by unauthorized repair the contract will be cancelled.
7. To receive free service, the contract must be presented to the factory authorized service agency, when the equipment is presented for repair.

If the application is not received at McIntosh Laboratory, only the service offered under the standard 90 day guarantee will apply on this equipment.

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

McIntosh
MR 73

McIntosh

McINTOSH LABORATORY INC.

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

607-723-3512

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