

**OWNER'S MANUAL
MOTIF MC7
DUAL-MONAUURAL F.E.T. PREAMPLIFIER**

**conrad-johnson design, inc.
(703) 698-8581**

Congratulations. In the Motif MC7 you have acquired the most refined audio preamplifier presently available. This precision instrument is the result of nearly a decade of research by William Conrad and Lewis Johnson into the application of solid state devices to the reproduction of recorded music. The circuit design has been executed with the highest quality component parts and each unit has been painstakingly hand assembled by skilled assembly technicians. The completed instrument has been subjected to a rigorous quality inspection program entailing more than sixty performance measurements followed by a 100 hour "burn-in" period and re-inspection. Finally, the instrument is auditioned to assure conformity to our standards of accuracy in music reproduction.

Every effort has been made to provide you with an audio instrument capable of achieving a believable illusion of live music when listening to high quality recordings. This manual contains many important suggestions on how to realize the full potential of your MC7. Please take a few minutes to read it.

LIMITED WARRANTY FOR THE MOTIF MC7

1. conrad-johnson design, inc. warrants to the original purchaser that the Motif MC7 will perform to specifications as published in the owner's manual and that it will be free of defects in materials and workmanship for a period of three years from the date of original purchase.
2. conrad-johnson will repair defective units without charge for labor or parts subject to the following conditions:
 - a) The unit must not have been altered or damaged through misuse, abuse, negligence, accident, or improper operation.
 - b) The purchaser must provide evidence of purchase at the time service is requested.
 - c) All repairs must be undertaken at the factory or other service center designated by conrad-johnson design, inc. Units submitted for warranty repairs must be shipped in the factory packing carton to conrad-johnson design or its designated service center, freight and insurance prepaid by the owner, and will be returned to the owner, freight and insurance prepaid by conrad-johnson design. Replacement cartons are available from the factory for a nominal charge.
 - d) Normal wear and maintenance are not covered by this warranty.
3. The above warranty may be transferred to subsequent owners provided that the warranty registration card has been returned to conrad-johnson design, inc. within 30 days of the original purchase and that the registered owner provides the factory with a signed notice giving the new owner's name and address and the model and serial number of the unit.
4. Where permitted by law, conrad-johnson design's liability shall be limited to that set forth in this warranty. No other warranty of any kind, expressed or implied, is made by conrad-johnson design, inc., and all implied warranties, including merchantability and fitness for a particular "purpose", which exceed the obligations and time limits set forth herein are hereby disclaimed. conrad-johnson design, inc. shall not be liable for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you.
5. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Questions about warranty service should be addressed to:

Service Department
conrad-johnson design, inc.
2733 Merrilee Drive
Fairfax, Virginia 22031
(703) 698-8581

INSTALLATION

Because the MC7 dissipates very little heat (less than 10 watts) ventilation is not an important consideration, allowing great flexibility for custom or built-in installations. Of course, reasonable judgment must be exercised to see that the MC7 does not obstruct ventilation required by amplifiers or other equipment in the system. The MC7 front panel is designed to support the weight of the unit, allowing installation in standard 19" equipment racks. In custom installations, the unit may be mounted either horizontally or vertically.

To minimize hum pickup, the MC7 should be mounted well away from amplifier power transformers. The power supply for the MC7 should be located in a convenient place, away from the phono inputs. All ac power cords, and the MC7 dc power cables should be dressed away from input cables - especially phono cables.

The MC7 requires an ac power line providing between 90 and 130 volts at 50 to 60 Hz. Alternatively, the MC7 can be reconnected internally for operation on 220v power lines. Consult your dealer for details about the conversion.

Power supply: The MC7 remote power supply has two cables attached which supply approximately 90 volts dc to the audio circuits of each channel. Plug the SIR connectors which terminate these cables into the matching receptacles on each preamp chassis. Note that the connectors are keyed and will only fit the receptacles one way. Each supply line may be connected to either channel.

CONNECTION

Low-gain phono input: This input provides the amplification and equalization required by moving-magnet and high-output moving-coil cartridges. The input impedance is the industry standard 47,000 ohms shunted by approximately 100 picofarads capacitance. This is well suited to nearly all moving-magnet and many high output moving-coil cartridges. If necessary, the input impedance can be lowered by soldering a resistor across (from center pin to ground) the input jack. To achieve a desired input resistance of RD, use the following formula to compute the required additional resistance RA: $RA = 47000 * RD / (47000 - RD)$

Some moving magnet cartridges require higher capacitance for optimum performance. Decreasing the input capacitance may be achieved by soldering a suitable value capacitor across the phono input jack. Use polystyrene capacitors for this purpose.

High-gain phono input: This input provides the additional gain and improved signal to noise ratio required by most moving-coil cartridges. The input impedance is 2000 ohms. Our experience suggests that this value is well suited to many moving-coil cartridges. Lower resistance can be achieved as suggested above. If a higher value is required (some people recommend 47000 ohms for example) the MC7 may be fitted to your specification at the factory. There is no charge for this service. *Please take note that the high gain phono section is phase inverting and read the section that follows on absolute phase.*

Tuner input: This input provides for one high level source. It presents a 50 kohm load to the source. This input can be used with cd, tape, video or other high level sources instead of a tuner.

Tape input: This is electronically equivalent to the tuner input. If a tape recorder is used, connect its outputs to this input.

Record output: The record output connects the selected signal (phono or tuner) to your recorder or external processing loop (eg equalizer). The output signal is not affected by the level control. Connect "record out" to the input of your tape recorder.

Main output: Connect this output to the input of your amplifier (or crossover in a bi-amplified system). We recommend the use of an amplifier with an input impedance of 20 kohms or higher.

OPERATION

Turn-on/turn-off: When turned on or off, the MC7 produces a substantial transient signal. To prevent this signal from reaching your speakers, always turn the MC7 on a few moments before turning your amplifier on. Always turn the amplifier off before the MC7. Because the MC7 draws very little current (about that of a 10 watt bulb) we recommend that it be left on at all times, thereby avoiding these on/off surges as well as eliminating the need for a warm-up period.

Phono gain selector switch: The miniature toggle switch located on the back of each chassis selects between the high gain and low gain phono stages. Be sure that the position of this switch corresponds to the inputs to which you have connected your turntable. It is possible to connect two turntables, one to each input if one table is equipped with a high output cartridge, the other with a low output mc type. This switch may then be used to select between the two turntables.

Selector: The unique selector used on the MC7 provides tape monitoring without adding another switch. It simultaneously selects sources for the tape output and for the input to the line stage. The selector positions function as follows:

phono: The phono stage is connected to the record out jack and through the line stage to the main output.

phono monitor: The output of the phono stage is connected to the record out while the tape input is directed through the line stage to the main out.

mute: Both the tape out and the input to the line stage are shorted to ground.

tuner: The tuner is connected to the record out and through the line stage to the main out.

tuner monitor: The tuner is connected to the tape out and the tape input is directed through the line stage to the main out.

Level control: Each channel is equipped with its individual level control. These controls have been selected on the basis of sonic excellence and for accuracy in tracking. They have been preset to achieve channel balance when both are rotated the same number of degrees.

GETTING THE MOST FROM YOUR MC7

The Motif MC7 offers an unparalleled level of sophistication and refinement in music reproduction, but it cannot transform an inferior stereo system. Only the very best amplifiers and loudspeaker systems will be capable of fully revealing the capabilities of this precision instrument. On the other hand, the MC7 is ruthlessly revealing. For example, it can render unacceptable faults in the phono system which may be just discernable with a preamplifier of lower resolution.

Proper set-up is important in any high fidelity system, but with state of the art components, it is essential. Before attempting to evaluate the MC7, be sure that your phono system has been set up carefully according to manufacturer recommendations. Adjustment of the cartridge vertical tracking angle can be especially critical with modern stylus configurations.

Given a system of high quality components, there remain a number of important details which must be attended to.

ABSOLUTE PHASE

Musical notes are heard through the ear's response to waves of alternating rise and fall of air pressure. Musical transients are exclusively positive: that is, the initial effect is a rise in pressure. The ear is capable of distinguishing these positive transients from the musically unnatural alternative of a negative transient (an initial fall in air pressure). In terms of your stereo system, these transients are created by your loudspeakers. If the speakers respond to musical transients by first moving out, they are creating a rise in pressure, and the system is said to be "phase correct". If they respond by moving in, they create a fall in pressure and the system is said to be phase inverting. Each component in the stereo system is either phase correct or phase inverting (including the cartridge and speakers - these are normally phase correct). It is of no consequence if an individual component is phase inverting, as long as the system as a whole is phase correct. This will be the case as long as the number of phase inversions is even (or zero). When used with the low gain phono stage, the MC7 is phase correct. When used with the high gain stage, it is phase inverting. If your system has an odd number of inversions, for example if you are using the MC7 high gain phono stage and it is the only inverting piece in your system, then you must add one phase inversion. This is conveniently done by reversing the positive and

negative connections on *either* your cartridge or your speakers (be sure to reverse *both* channels).

If you are not sure about the phase of every piece in your system, you can establish correct absolute phase by careful listening. When the system is in correct phase, transients will be noticeably cleaner and more sharply defined. The effect is especially apparent on plucked string sounds. A final warning - not all records are phase correct (including some "audiophile" recordings), so listen to several before concluding your investigation of absolute phase.

AC LINE POLARITY

Each piece of electronic equipment in your system is subject to minute ac leakage currents to the chassis. Since the chassis of components in a system are usually connected via the ground side of the interconnect wires, these leakage currents are superimposed on the musical signals. It is possible to minimize these current flows by carefully selecting the way in which each component is plugged into the wall outlet. Because the power cord on the MC7 is not polarized, it can be plugged in two ways. It will normally sound better in one orientation than in the other. The same will be true of each electronic device in your system.

THE IMPORTANCE OF WIRES

Interconnect and speaker wires are an important element in your stereo system. Interconnects are available which will permit a reference quality system to blossom and fulfill its promise of musical reality. Others will strangle the system to the point that it becomes no better than average. To complicate matters, our experience suggests that the choice of interconnects will be system dependent - those that are ranked first on a given system may be a poor choice for a different system. Consult your Motif dealer for recommendations for your specific system.

A FEW TIPS

Warm up the MC7 before listening: The sonic performance of the MC7 improves noticeably as the unit warms up. The midrange becomes more lucid, the highs smoother, and the soundstage expands. The warm up period can be expected to last several hours. Consequently, we recommend that the MC7 be left on at all times. The low power consumption of the unit makes this practical.

Magnetic fields should be controlled: We recommend the use of one VPI "brick" placed on the top of the MC7's remote power supply.

Clean records sound better: The sonic differences achieved by merely cleaning a record are nothing short of remarkable. Even brand new records benefit from a thorough cleaning. Economical record cleaning machines are available from Nitty-Gritty and from VPI. Our own experience is with the VPI HW1 which we have found to be totally satisfactory.

Questions: If you have questions about the installation or function of your MC7 do not hesitate to call Customer Service at (703) 698-8581.

SPECIFICATIONS:

Gain: high gain phono stage: 54 dB
low gain phono stage : 35 dB
high level: 27 dB

Output: maximum 10v rated at .5v

Phase: high gain phono is phase inverting
low gain phono is phase correct
high level stage is phase correct

Phono overload: in excess of 150mv at 1kHz

Response: bandpass 5Hz to more than 100kHz

RIAA equalization to +/- .25 dB (20-20kHz)

Total hum and noise (20-20kHz): Phono inputs: 76 dB
High level: 86 dB

Distortion: THD less than .1%
IM less than .1%

Output impedance: Less than 200 ohms

Dimensions: 19 x 3 ½ x 12 ¼ "

SERVICE

In the event your Motif MC7 mono preamplifier requires service, repack it with the original packing material and ship via United Parcel Service (UPS) to:

Service Department
conrad-johnson design, inc.
2733 Merrilee Drive
Fairfax, VA 22031

Be sure to enclose a note explaining the problem you are having in as much detail as possible. If the problem is intermittent, please indicate. If you do not have the original packing material, replacements are available from conrad-johnson design at a nominal charge.