Price: $5.00

MODEL MCP33 PRE-PREAMLIFIER

OWNER'S MANUAL

10/1/86

audio research corporation
6801 SHINGLE CREEK PARKWAY
MINNEAPOLIS, MINNESOTA 55430

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1. INTRODUCTION

Please take the time to read this manual prior to attempting operational use or installation of this unit. Because it is not a conventional pre-preamplifier, there are several points regarding its use and operation that you need to understand prior to attempting its use.

2. DISCUSSION

Audio Research has had the desire for years to bring a vacuum tube pre-preamplifier to successful execution, because of the greater potential of vacuum tubes for high definition® music reproduction. However, because of the problems of stability and noise, all of our previous design efforts in this direction have indicated a product costing several thousands of dollars.

It is, therefore, with great satisfaction that we offer the MCP33, a vacuum tube design that fulfills most of the necessary criteria at a reasonable cost.

While the MCP33 is executed to the highest quality of electromechanical construction, and will indeed, when properly used, provide a new performance standard for pre-preamplifiers, there are some limitations and restrictions in using it in order to achieve its state-of-the-art performance. Be sure to read the rest of this manual to understand these requirements.

3. USE CAUTIONS

A. Please be certain to read this manual over to familiarize yourself with your new pre-preamplifier before placing it in service.

B. The power cord on your MCP33 is equipped with a standard three-prong grounding plug which provides a safe earth ground connection to the chassis. This procedure provides the maximum possible safety in use, but requires the following system discussion:

When a multi-component audio system is connected together, it is normal and automatic for "ground loops" to be established. This "ground loop" occurs because most components utilize (quite properly, for safety's sake) one form or another of connection to the power line for safety "grounding." Then when audio signal cables are (of obvious necessity) interconnected between the components, two "ground" or "common" signal paths are established between units. Since even minute signal voltages conform to "Ohms Law," some signal current flow occurs through each "common." The "common" to the powerline almost always has some small amount of current flow from the powerline because of small potential differences between units. This small potential difference is in series with that portion of signal "common" referred to above, with the result being a small residual "hum" or "buzz."

In order to minimize this problem it is usually best to keep the preamplifier "earth grounded" and to "float" the grounds of electronic crossovers, power amplifiers, tape recorders, tuners, etc. This can usually be accomplished by directly connecting the 3-prong plug of the preamplifier to the powerline and using "ground lifter" or "three-prong-to-two-prong" power plug adaptors. The MCP33 should always be connected directly to the 3-prong grounding socket without use of a "ground lifter." Special provision has been made internally to allow it to be directly grounded in addition to the normal preamplifier direct grounding. (A simple wire from the MCP33 ground post to the preamplifier ground post will normally be required for minimum hum.)

Two notes of caution are appropriate here: One relates to system safety and is addressed both at the end of this USE CAUTION section as well as elsewhere in this manual. The other continues to involve system "hum": Some preamplifiers and many tuners, TVs and tape machines do not have 3-prong grounding power plugs. Instead, they may utilize 2-prong plugs that are specially "polarized" so as to achieve individual component grounding and thereby reasonable "shock hazard" safety.

Unfortunately, if more than one of such products is used in a multi-component system, it becomes difficult to eliminate ground loop hum. If only one such product (say a tuner) is used in a given system, that component can be used as the "grounded" component and all other interconnected units can utilize "ground lifters." The audio interconnect cables will then keep the other components at safe "earth" or "ground" potential. It is important to remember, however, that any disconnect of audio cables can then potentially allow an unsafe operating condition. (All Audio Research vacuum tube components utilize isolating power transformers and off-chassis construction and do not normally have a shock hazard whether grounded or not. Audio Research, of course, does not ever recommend that a "system" should operate totally ungrounded, both for reasons of safety as well as system "hum.")

4. WARNING

A. To prevent fire or shock hazard, do not expose this equipment to rain or moisture.

B. This unit utilizes voltages and currents which potentially could cause fatal shock. Please do not operate this unit with its covers removed. Refer servicing to qualified personnel.

5. CAUTION

For continued protection against fire hazard, replace the fuses only with the same type and rating of fuses as specified at the fuse holder.

6. PACKAGING

Save all packaging. Your Audio Research pre-preamplifier is a precision electronic instrument and should be properly cartoned any time shipment is made. You may not have occasion to return it to the factory for service, but if that should prove necessary, or other occasion to ship it occurs, the original packaging may save your investment from unnecessary damage or delay.

7. PRODUCT DESCRIPTION

The MCP33 is a vacuum tube amplifying device designed for increasing the output of low impedance moving coil phonograph record pickup cartridges to a level sufficient for use with "conventional" preamplifiers (such as Audio Research models SP1, 2, 3, 4, 5, 6, 7, 8, 12). It is packaged with the same quality anodized aluminum chassis and front panel as other Audio Research products such as the SP8 preamplifier.

The MCP33 utilizes the most comprehensive electronic power supply regulation of all Audio Research products. Because of its location in the low-level signal path (ie: prior to the preamplifier) it becomes critical that any such active device not only be sonically superior to the components following it, but also it must be impeccably free from power supply disturbances. This has been accomplished in the MCP33 by electronically regulating first, all the vacuum tube heater voltages. This includes the heaters of the two vacuum tubes utilized in the high voltage regulator circuit. The high voltage regulator is a "double" regulator: ie, a high gain, wide

band, very wide dynamic range vacuum tube regulator circuit is employed ahead of an impedance converter type of solid-state regulator circuit. This combination provides the large "head room" of the vacuum tube circuit for best isolation from power line transients and fluctuations, together with the very low impedance of the solid state circuit. All active circuit parameter are thereby completely stabilized and constant over a very wide range of input voltages (USA units 90 to 135 volts; export units with an equivalent range around their appropriate nominal voltages.)

The active circuitry is newly developed by Audio Research exploiting to new performance levels the basic "cascode" circuit. A pending patent application applies to this circuit.

8. PRODUCT LIMITATIONS

There are two basic limitations in the use of the MCP33. One is the range of cartridge impedances that can be accommodated. While the front panel control provides 1, 3, 10, 30 and 100 ohms of direct switching, any "custom" impedance up to 100 ohms can be made available. The maximum input impedance is 100 ohms. This is so because of the nature of the special cathode-coupled input-cascode circuit. If you require more than 100 ohms for your cartridge, the MCP33 may not be suitable. However, many cartridges requiring more than 100 ohms can be used directly with the SP8 or more certainly with the SP10. Further, many if not most of the cartridges suitable for use with the MCP33 will indeed require an impedance between 1 and 100 ohms.

The other limitation relates to noise and preamplifier "interface." While the MCP33 has very low "equivalent input noise" for a vacuum tube device, it is not as quiet as several of the available solid-state units, including Audio Research's MCP2. It will, however, provide satisfactory low noise operation with cartridges having an output voltage between .2 millivolt and 2 millivolts at 5cm/sec recorded velocity.

It should perhaps be observed here, in view of the somewhat negative tone of the preceding statements, that the MCP33, properly used, will indeed provide a level of musicality -- including definition, accuracy, musical depth, stage width and depth, focus and imaging -- not otherwise available. The MCP33 is extremely revealing. Don't be surprised if it doesn't sound better in every respect at first listen. It usually reveals many minor "hidden" problems, such as cartridge VTA, interconnect brightness, etc., which must be dealt with to fully appreciate its sonic neutrality. Should the expected performance not be realized in actual use, it is suggested that you seek competent help from your dealer or our Customer Service Department to determine the cause.

9. USE INSTRUCTIONS

The front panel has a total of 2 controls, 2 toggle switches and one green "LED" indicator:

GAIN CONTROL: Has 3 positions, with choice of 16, 20 and 24dB gain. Should be set to allow - if possible - use of the preamplifier gain control at not less than "10:30 o'clock" but not more than "2:30 o'clock" for normal listening.

IMPEDANCE CONTROL: Should initially be set at or near the cartridge manufacturer's recommendation. It is suggested that the actual use impedance setting be determined empirically. A little experimentation will usually disclose the impedance to use for best sonic results. (Do not be misled by the change in gain that will occur from changing the loading on the cartridge. Adjust your preamplifier gain control to a similar level prior to judging sound quality.)

ON-OFF SWITCH: Turns AC power on and off. Allow a minimum of 2 minutes for circuit warmup and stabilization. For best sonic results, a 15 to 30 minute warmup period is recommended. Although all Audio Research vacuum tube products are designed for reliable, continuous use in commercial service, Audio Research does not recommend leaving vacuum tube equipment "on" for long periods when not in use because of the resultant shortened vacuum tube life.

LED INDICATOR: Indicates product "on" when lit.

MANUAL MUTE SWITCH: Provides "manual" muting of the output signal. Note that no form of "automatic" muting is provided by this device. It is not "practical" to automatically mute a pre-preamplifier because of the small signal levels involved. The power supply design of the MCP33 is such that it will continue to function normally with power line interruption levels greater than typical preamplifiers that will be used therewith, and will therefore not normally be the source of problem from power line interruption. It is, however, always good operating practice to manually mute the MCP33 (especially) during warmup and shutdown periods as well as during times of handling the tone-arm, changing records, etc. (If your preamplifier has manual muting, these later conditions can obviously be muted thereby instead.)

The rear panel has a power line cord, fuse, 2 inputs, 2 outputs and one ground post.

POWER LINE CORD: Should be connected to an appropriate power source. Please take note of the discussion regarding "ground loop" induced hum and buzz in Paragraph 5. AC convenience receptacles are deliberately not provided in order to assure minimum power line interference.

FUSE: Always use the same size and type as indicated on the rear of the chassis for safety. For best results Buss fuses are recommended.

OUTPUT CONNECTIONS: Connect to the preamplifier magnetic phono inputs, observing "left" and "right" polarity, and use only the highest quality interconnect cables available. At the signal levels involved, serious sonic degredation will occur at this point with many if not most of the available interconnect cables. Seek your dealer's help if you have any questions about this.

INPUT CONNECTIONS: Connect to the audio cables from the pickup system. Note that the cautions contained in the paragraph above apply to an even greater degree here. Many turntable systems need to be rewired to achieve results commensurate with the performance capability of the MCP33.

GROUND TERMINAL: To be used for "grounding" the associated turntable base and the tone-arm. A wire should also be connected from this ground post to the preamplifier ground post. Normally ground connections should not be made between this component and the other components except through the audio cables in order to minimize "ground loop" induced hum.

10. INSTALLATION CAUTIONS

Although the total heat from the MCP33 is minimal, because it is a vacuum tube device, some ventilation is required. It is, therefore, important for long trouble-free service that the unit have reasonable airflow. The following tips will be helpful for long, safe, trouble-free operation:

A. "Upright," or horizontal operation is recommended.

B. Do not "stack" the MCP33 against other units. This not only will inhibit proper ventilation but hum, buzz or other interference products will be introduced.

C. Do not place or operate the unit on a soft or irregular surface such as a rug. This will prevent it from having proper ventilation.

D. Do not operate the unit without the top and bottom covers installed. These are required both for safety as well as shielding from interference (except in service operations, obviously).

E. If rack mounting is employed, use Audio Research Rack Mount Ventilators (RMV-3) below and above the unit.

F. If the MCP33 is stacked in a wooden shelf type of "rack mount" with other components, allow a minimum of 5 inches between units for ventilation and hum-field isolation. (Up to 3 feet of spacing to preamplifiers and up to 5 feet of spacing to power amplifiers can be required to achieve minimum induced hum from external power transformer magnetic fields.)

11. SERVICING

First of all, a very serious caution: This unit contains over 400 volts of DC, with sufficient current available to cause fatal shock. So, please do not poke around inside the unit. Refer any needed service to a qualified technician. (Even with the unit turned off, a charge remains in the energy storage capacitor for some time.)

This unit is constructed to the highest of commercial standards and should normally require only routine service to maintain its high level of performance. The vacuum tubes furnished with the MCP33 are quality tubes and should not have to be changed for up to two thousand hours or more of use.

A schematic diagram is appended hereto which is fully annotated with operating voltages and component part values. Your service technician will require this information when working on your unit.

3-YEAR LIMITED WARRANTY TERMS AND CONDITIONS

1. LIMITED WARRANTY. Audio Research warrants the product designated herein to be free of manufacturing defects in material and workmanship, subject to the conditions hereinafter set forth, for a period of three (3) years from the date of purchase by the original purchaser or no later than five (5) years from the date of shipment to the authorized Audio Research dealer, whichever comes first, excepting vacuum tubes which are warranted for 90 days only (See 6).

2. CONDITIONS. This Warranty is subject to the following conditions and limitations. The Warranty is void and inapplicable if the product has been used or handled other than in accordance with the instructions in the owner's manual, abused or misused, damaged by accident or neglect or in being transported, or the defect is due to the product being repaired or tampered with by anyone other than Audio Research or an authorized Audio Research repair center. The product must be packed and returned to Audio Research or an authorized Audio Research repair center by the customer at his or her sole expense. Audio Research will pay return freight of its choice. A RETURNED PRODUCT MUST BE ACCOMPANIED BY A WRITTEN DESCRIPTION OF THE DEFECT AND A PHOTOCOPY OF THE ORIGINAL PURCHASE RECEIPT. This receipt must clearly list model and serial number, the date of purchase, the name and address of the purchaser and authorized dealer and the price paid by the purchaser. Audio Research reserves the right to modify the design of any product without obligation to purchasers of previously manufactured products and to change the prices or specifications of any product without notice or obligation to any person.

3. REMEDY. In the event the above product fails to meet the above Warranty and the above conditions have been met, the purchaser's sole remedy under this Limited Warranty shall be to return the product to Audio Research or an authorized Audio Research repair center where the defect will be rectified without charge for parts or labor, except vacuum tubes (See 6).

4. LIMITED TO ORIGINAL PURCHASER. This Warranty is for the sole benefit of the original purchaser of the covered product and shall not be transferred to a subsequent purchaser of the product.

5. DURATION OF WARRANTY. This Warranty expires on the third anniversary of the date of purchase or no later than the fifth anniversary of the date of shipment to the authorized Audio Research dealer, whichever comes first.

6. VACUUM TUBES. Vacuum tubes are warranted for the original 90-day period only.

7. DEMONSTRATION EQUIPMENT. Equipment used by an authorized dealer for demonstration purposes is warranted to be free of manufacturing defects in materials and workmanship for a period of three (3) years from the date of shipment to the dealer. Vacuum tubes are warranted for 90 days. Demo equipment needing warranty service must be packed and returned to Audio Research by the dealer at his sole expense. Audio Research will pay return freight of its choice. A returned product must be accompanied by a written description of the defect on an AUDIO RESEARCH RETURNED GOODS AUTHORIZATION form. Dealer-owned demonstration equipment sold at retail within three (3) years of date of shipment to the dealer is warranted to the first retail customer to be free of manufacturing defects in materials and workmanship for the duration of the 3-Year Limited Warranty remaining (as measured from the date of shipment of the equipment to the dealer). Vacuum tubes are not warranted for any period under these conditions of sale. In the event warranty service is needed under these conditions, the owner of

the equipment must provide a copy of his purchase receipt, fulfilling the requirements described under "2. Conditions" above. The product must be packed and returned to Audio Research or an authorized Audio Research repair center by the customer at his or her sole expense. Audio Research will pay return freight of its choice.

8. MISCELLANEOUS. ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THIS WARRANTY. THE WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO THE PURCHASER. Some states do not allow limitations on how long an implied warranty lasts or an exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

9. WARRANTOR. Inquiries regarding the above Limited Warranty may be sent to the following address:

Audio Research Corporation
6801 Shingle Creek Parkway
Minneapolis, MN 55430

WARRANTY OUTSIDE THE USA

Audio Research has formal distribution in many of the countries of the free world. In each country the Audio Research Importer has contractually accepted the responsibility for product warranty. Warranty should normally be obtained from the importing dealer or distributor from whom you obtain your product.

In the unlikely event of service need beyond the capability of the Importer, Audio Research does, of course, back up the warranty. Such product would need to be returned to Audio Research, together with a photostatic copy of the bill of sale.

MCP33 PRELIMINARY SPECIFICATIONS

Frequency Response: ±1dB, 20Hz to 50kHz (with 100 ohm source, 16dB gain, 50K chm load)
±3dB, 10Hz to 250kHz

Harmonic Distortion:
Less than .005% at 100 millivolts output. Distortion decreases with decreasing signal.

Intermodulation Distortion:
Less than .01% at 100 millivolts output.

Gain:
16, 20, 24dB. Front panel selectable

Input Impedance:
1, 3, 10, 30, 100 ohms. Front panel selectable.

Output Impedance:
150 ohms, designed to properly interface with magnetic phono preamplifier input of nominal 50K ohms input impedance.

Maximum Input (16dB gain position):
1.5 Volts, RMS.

Maximum Output
10 Volts, RMS.

Noise:
Approximately 0.2uV equivalent input noise, RMS above 1kHz RIAA equalized.

Tube Complement:
4 - LoNoise 6DJ8/ECC88
1 - 12AT7/ECC81
1 - 7044

Power Requirements:
(USA) 90 to 135 VAC 50-60Hz, 70 watts maximum. Export units have an equivalent operating voltage range.

Dimensions:
19" (48 cm) W x 5 1/4" (13.4 cm) H (standard rack panel) x 10 1/4" (26 cm) D. Handles extend 1 5/8" (4.1 cm) forward of front panel. Rear chassis fittings and connections typically will require 1 1/2" (3.8 cm) clearance behind the unit.

Weight:
14 pounds (6.4 kg) Net; 23 pounds (10.5 kg) Shipping.