audio research

HIGH DEFINITION®

Reference 330M

MONOBLOCK POWER AMPLIFIER

OWNERS MANUAL

Thank You

*Thank you for choosing the **Reference 330M** amplifiers to be part of your high-performance music listening system.*

Since 1970, our focus has remained the advancement of the state-of-the-art in music reproduction. Every Audio Research component is meticulously hand-crafted, thoroughly tested and personally auditioned before it leaves our factory. Our attention to detail, customer service and product support create an unprecedented value. An Audio Research component is more than a purchase, it's an investment.

We understand you are eager to begin listening; however, please take a few minutes to read through this guide for useful information concerning the installation and operation of your new amplifiers. Once installed, please allow an appropriate break-in period to
fully appreciate the benefits these amplifiers will provide for your music system.

*After reading this user guide, if you have further questions regarding your amplifiers, please contact your dealer or Audio Research customer support--they will be happy to help you make the most of your new **Reference 330M** amplifiers.*

Happy Listening!

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SAFETY INSTRUCTIONS

Important Safety Instructions

1. Read these instructions.

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. To prevent risk of fire or electrical shock, do not expose this amplifier to rain or moisture.

6. Do not use this amplifier near water.

7. Do not expose this amplifier to any objects that drip or splash liquids, such as beverage containers, vases or flowerpots.

8. Prevent pets from crawling on or lying on top of the amplifier. Pets can accidentally urinate into the amplifier, which can cause short circuits that will damage the amplifier.

9. Supervise small children who might play near this amplifier. The vacuum tubes used can cause severe burns if touched.

10. Clean only with a dry microfiber cloth.

11. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

12. Do not install near any heat source such as radiators, heat registers, stoves, or other apparatus (including other amplifiers) that produce heat.

13. Do not defeat the safety purpose of the provided grounding type plug. A grounding type of plug has two blades and a third ground prong. The third prong is provided for your safety by providing power line grounding of the enclosure, which provides absolute protection from electrical shock. If the provided plug does not fit into your electrical outlet, consult an electrician for replacement of the obsolete outlet.

14. Protect the power cord from being walked on or pinched, particularly at the plug and at the point where the IEC connector exits the amplifier.

15. Never place anything on top of the power cord, such as rugs or runners.

16. Unplug the amplifier from the AC power outlet during lightning storms, or when it will be unused for long periods of time.

17. To completely disconnect this amplifier from the AC mains, disconnect the power supply cord from the AC receptacle.

18. Use only accessories / attachments specified by the manufacturer.

19. The mains plug of the power supply cord must remain readily accessible.

20. This amplifier is very heavy and should never be installed on any cart or surface that is prone to tip-over. If a cart must be used to move the amplifier, extreme care must be exercised to prevent personal injury or amplifier damage due to tip-over.

21. Due to the extreme weight of the amplifier, it will be considered a two-person lift. To prevent injury, never attempt to lift or move the amplifier without an assistant.

The lightning flash with arrowhead symbol 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.

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

WARNINGS

1. To prevent fire or shock hazard, do not expose your Reference 330M amplifier to rain or moisture.

2. Never place any objects containing water or other liquids on top of the amplifier.

3. The Reference 330M, like all vacuum tube amplifiers, contains voltages which can cause serious injury or death. Do not operate amplifier with covers removed.

4. Refer all servicing to your authorized Audio Research dealer, or other qualified personnel.

5. The detachable IEC power cord supplied from the factory with your Reference 330M amplifier is a heavy gauge 3 conductor cable with standard 3 prong grounding power plug in North America. For absolute protection from electrical shock, do not defeat the power plug ground prong.

6. Reference 330M amplifiers sold outside North America will be supplied with the correct IEC power cord that complies with the local electrical safety requirements of the country in which the amplifiers are sold.

7. Should the original power cord become damaged or lost, please contact the Audio Research dealer from whom you purchased the amplifier or contact Audio Research customer support to obtain the correct power cord.

8. For continued protection against fire hazard, should you ever have reason to replace the AC power line fuse or any of the internal fuses contained within the Reference 330M chassis, use only the correctly labeled fuses supplied with the parts kit which accompanied your amplifiers.

Ensure the replacement fuse exactly matches with the same type and rating as specified at the fuse holder.

9. The power button on the faceplate of this Reference 330M **does not** disconnect all power from the amplifier; it is in standby mode when not turned on.

The AC power supply cord must be disconnected from the AC receptacle before installation or replacement of the vacuum tubes.

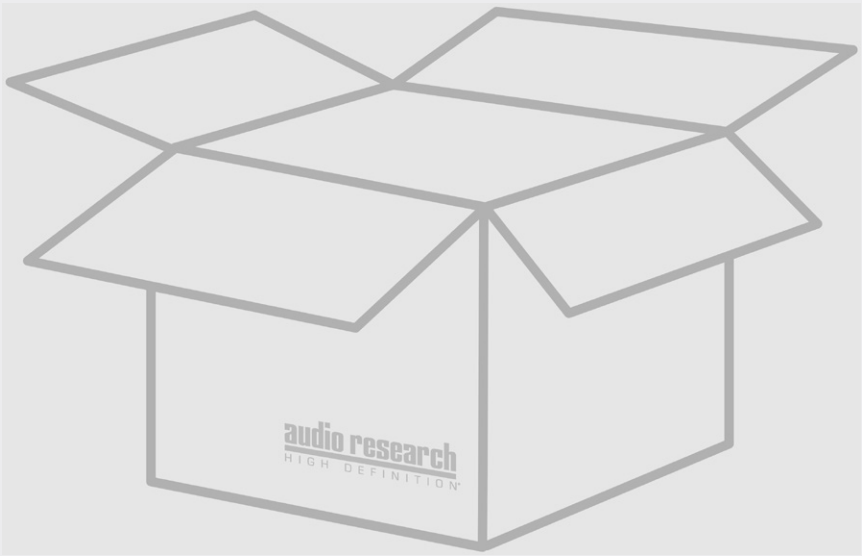
PACKAGING

A note about packaging...

Save all packaging in a dry place away from fire hazard.

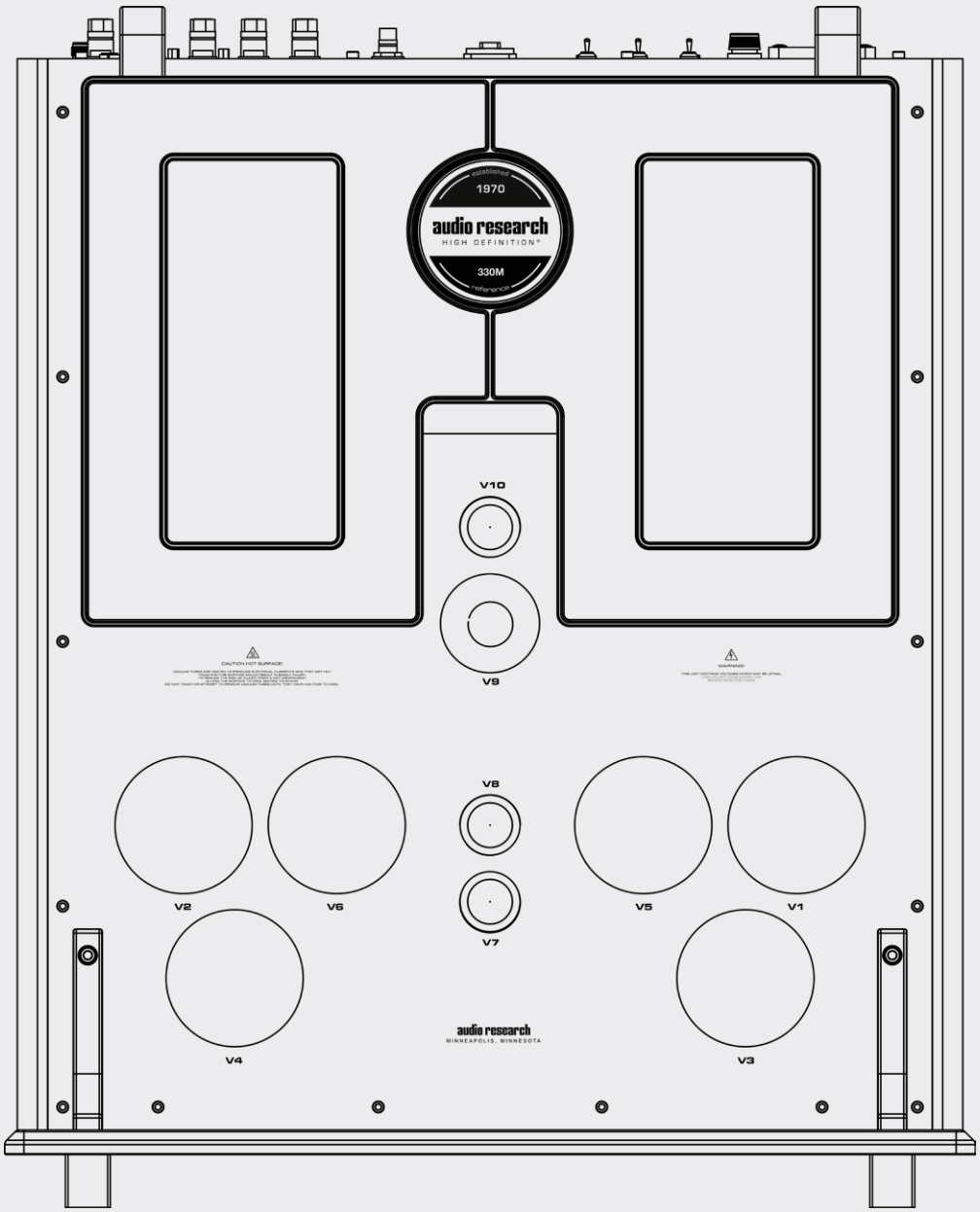
Your Reference 330M amplifier is a precision electronic instrument and should be properly cartoned any time shipment is made.

You may not have occasion to return your unit to the factory for service, but if that should prove necessary, or other occasion requiring shipment occurs, the original packaging will protect your Reference 330M from unnecessary damage or delay.



INSTALLATION

INSTALLATION



Before operating your Reference 330M

Your Reference 330M amplifier is shipped with the vacuum tubes packed inside specially designed foam-lined cartons. The vacuum tubes must be unpacked and installed in the correct V# tube sockets before you attempt to operate the amplifiers.

INSTALLATION

The factory-supplied vacuum tubes included with each Reference 330M are:

(6) Matched KT170 output tubes V1-V6.

(1) 6H30 dual triode driver tube V7.

(1) 12AX7/ECC83 dual triode input amplifier tube V8.

(1) 6550 regulator tube V9.

(1) 6H30 dual triode regulator driver tube V10.

Please use the supplied gloves to carefully unpack each vacuum tube from its protective carton and note the V # written at the base of each tube. Install each of the tubes in its matching socket as noted on the top plate of the Reference 330M. Take care to line up the key on the base of each V1-V6 KT170 and the V9 6550 to the keyway in each of the octal sockets. Gently push each of these large tubes straight down until it bottoms in its socket.

The V7, V8 and V10 miniature triode tubes do not have a key; you must note the orientation of the pins and line them up with each socket. Again, gently press straight down until each tube bottoms in its socket.

In your system

To ensure normal component life and safe operation, the Reference 330M must be installed and operated only in an upright position. Adequate airflow and proper cooling can occur only if there are no restrictions above, behind, and on either side of the amplifier.

The amplifier must always be installed on a stand or other hard surface that does not restrict airflow to the two cooling fans located on the bottom cover panel.

The special non-marring elastomer feet provide adequate spacing and stability only on a smooth, hard surface. They also assist in isolating the amplifier from spurious vibrations.

Never operate the Reference 330M while sitting on a soft surface such as a thick rug or carpet!

Due to its weight, each Reference 330M must be supported on a surface specifically rated for its load. Check with the manufacturer of your support system to ensure it is rated to support its weight.

While most owners will want to install their Reference 330M on a dedicated stand, if the amplifier needs to be installed in an equipment rack, closet or other restricted space, it is the obligation of the installer to ensure it is not starved for adequate ventilation. In any installation, there must be unimpeded airflow to the sides and rear of the amplifier. There must be a minimum of 8 inches of clearance above the top of the amplifier.

The ambient operating temperature should never exceed 86°F (30°C). Audio Research cannot overstress the importance of this point. Improper installation will cause premature vacuum tube and component failure, will shorten the service life of your valuable investment, and will affect your warranty coverage.

It is normal for a vacuum tube power amplifier to run quite warm, and if used for prolonged periods, hot to the touch. Provided the installation precautions noted above are strictly followed, all components are operated at safe, conservative levels and will not be improperly affected.

INSTALLATION

A note about Vacuum Tube Life Expectancy

The vacuum tubes in your Reference 330M have been specially selected, pretested, burned-in, and electrically matched to provide the best performance and reliability in your amplifiers. That said, vacuum tubes must be replaced at regular intervals to assure optimum sonics and reliability. Below is Audio Research's recommended replacement interval under typical use.

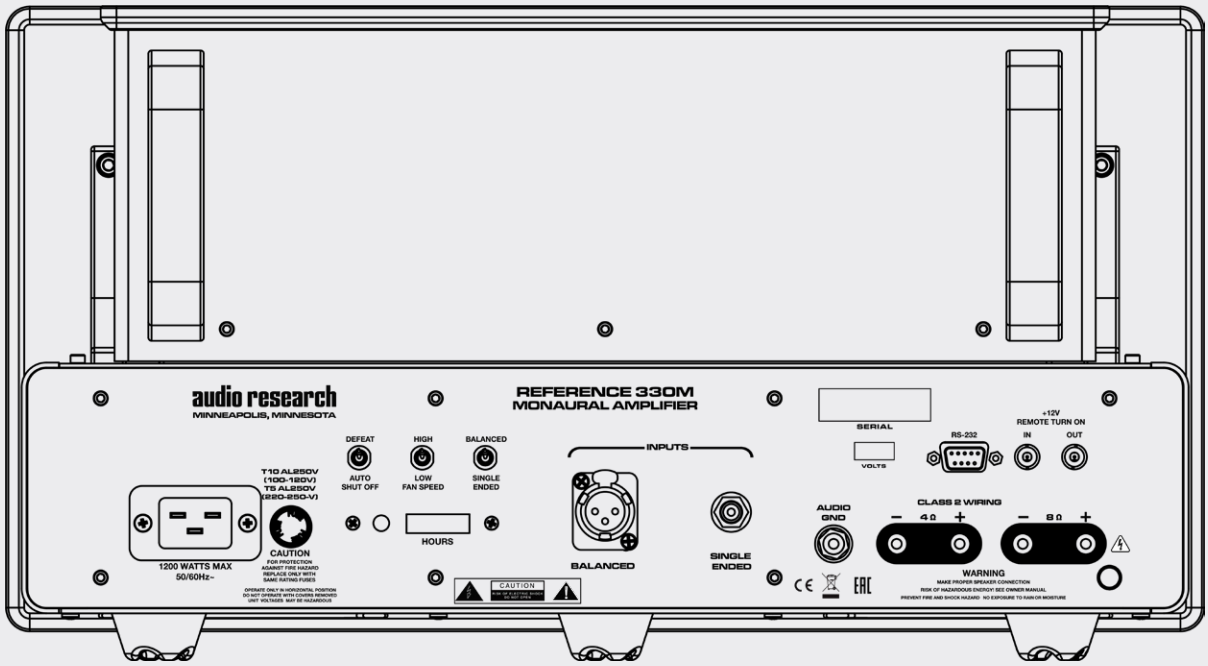
V1-V6	KT170 (matched set)	3000 hours
V7, V8, V10	6H30, 12AX7 / ECC83	4000 hours
V9	6550	1500 hours

The hour counter on the rear panel of the Reference 330M will keep track of tube usage and can be reset as needed upon replacement.

Should you have questions about vacuum tube replacement, please contact your authorized Audio Research dealer or Audio Research customer service.

CONNECTIONS

CONNECTIONS



Input Connectors

The Reference 330M uses a fully balanced circuit topology and has a balanced XLR input connector, as well as a singled-ended RCA input connector on the rear panel.

The rear panel toggle switch must be in the appropriate labeled position for either balanced or single-ended use.

The balanced XLR connector is wired Pin 1 Ground, Pin 2 Positive, Pin 3 Negative. This is industry standard for XLR connectors. Audio Research preamplifiers and source components are all wired to this standard, maintained throughout the signal path.

If you are connecting the Reference 330M to another brand of component, it is important to check whether that component is wired to industry standard, to ensure absolute polarity is maintained throughout the signal path.

Should your preamplifier or source component need to connect to the Reference 330M via its single-ended input, ensure the rear panel toggle switch is set accordingly.

Note that while single-ended input is provided for compatibility with other brands of components, Audio Research believes you will achieve optimum performance using the balanced XLR input.

Never connect both balanced XLR and single-ended RCA inputs at the same time--connect one or the other in the same way for both channels.

CONNECTIONS

Output Connectors

Heavy-duty output terminals are provided for 4- or 8-ohm speaker impedance loads. Use high-quality cables and securely fasten the (-) speaker lead to the appropriate (black) terminal, then the (+) lead to the matching (red) terminal.

It is important sonically that your entire system be connected so the audio signal arriving at the speakers has the correct “absolute” polarity (i.e. non-inverted).

Please note overtightening the output terminals can lead to broken terminals. The terminal labeled AUDIO GND is intended for use with powered subwoofer systems which require a ground connection. Do not use this terminal for normal speaker connections.

Use only a 7/16” hex driver and do not over-tighten the terminals!

Matching

It is important to select as close an impedance match between the amplifier and speaker as possible for optimum transfer of power to the speaker with minimum distortion. When selecting the correct impedance connections, It is important to note that loudspeaker impedance varies throughout the frequency range and best performance may not match the manufacturer’s published specification. Therefore determine the match empirically for best overall sonic results. Your Audio Research dealer may be able to offer expert advice with this process.

A Note About Cables...

Use the best available speaker cables and interconnects. Audio Research cannot emphasize this enough. As better components and systems are developed, the limitations of inferior system interconnects should be avoided.

Audio Research has found it best practice --when the system layout accommodates it-- to use as short a length of speaker cable as possible, and a longer, preferably balanced run of interconnect from the preamplifier or source component. Keep this in mind when setting up and placing system components.

Your Audio Research dealer, from whom you purchased your Reference 330M amplifiers will be the best resource to assist you in this process.

The Reference 330M provides the same output power whether the 4-ohm or 8-ohm terminals are used. Note also the amplifier will not be damaged if the “wrong” impedance for the speaker load is inadvertently selected; it simply will not provide its highest level of performance.

CONNECTIONS

Remote Turn-on

The Reference 330M has a built-in 12V DC remote turn on/off circuit for remote control when connected to the 12V output jack on some preamplifiers, or by a master control system in a large audio system or home theater.

Use a 3.5mm (.140") diameter mono or stereo mini plug to connect to the +12V REMOTE TURN ON "IN"jack on the rear of either Reference 330M. The tip of the mini plug is +12V and the sleeve is ground. Connect a second cable with mini plugs to the +12V REMOTE TURN ON "OUT" and connect it to the mate Reference 330M +12V REMOTE TURN ON "IN" jack.

The +12V IN jack must be connected to the +12V output of the preamplifier or master control system, using a continuous +12V signal at 12mA per Reference 330M for the duration of amplifier on-time. Do not use a momentary or data pulse control signal.

The +12V DC remote jack has polarity protection, which will not operate if a -12V DC signal is accidentally connected or if the control wires are reversed.

RS232 Control

The Reference 330M has an RS-232 connector on the back panel, in the event the amplifier is incorporated into an automated or two-way remote communication system.

Please see your dealer or contact Audio Research customer support to acquire the specific codes related to the RS-232 control.

AC Power Connection

The Reference 330M must be connected via the supplied 20-amp IEC 12-gauge power cord directly to a secure, dedicated AC power receptacle. Never connect the amplifier to convenience power receptacles on other equipment. Never connect the amplifier to a convenience power strip.

Use only the power button on the front of the Reference 330M for on/off control of the amplifier or use the 12V remote turn-on jack or RS-232 for remote installations.

The AC power source for the Reference 330M should be capable of supplying a minimum of 15 amperes for each amplifier in a pair for 100 or 120VAC units, or 10 amperes for each amplifier in a pair when used for 220-250VAC units.

For optimum performance in systems in North America, Audio Research strongly recommends each Reference 330M be connected to its own 20-amp breaker-protected circuit. In other locations, please consult a qualified electrician.

The preamplifier and other audio equipment should be connected to a different power circuit and breaker.

CONNECTIONS

The Reference 330M uses a grounding system that does not require a ground lifter adaptor plug on the AC power plug to minimize hum. The supplied power cord with the Reference 330M has a standard 3 prong plug with safety ground to provide maximum safety when connected to a properly wired grounded AC receptacle.

If there is any question regarding proper grounding in your installation, please seek help from a qualified electrician.

Like many large appliances, the Reference 330M turn-on inrush current may cause ground fault interrupter AC receptacles to nuisance trip, as they are not designed to support large appliances.

If your location has this type of AC receptacles in the room where the Reference 330M amplifiers are to be located, Audio Research recommends you consult a qualified electrician for assistance.

It's no surprise that many Reference 330M owners will have a favorite brand and model of aftermarket AC power cord they may wish to try.

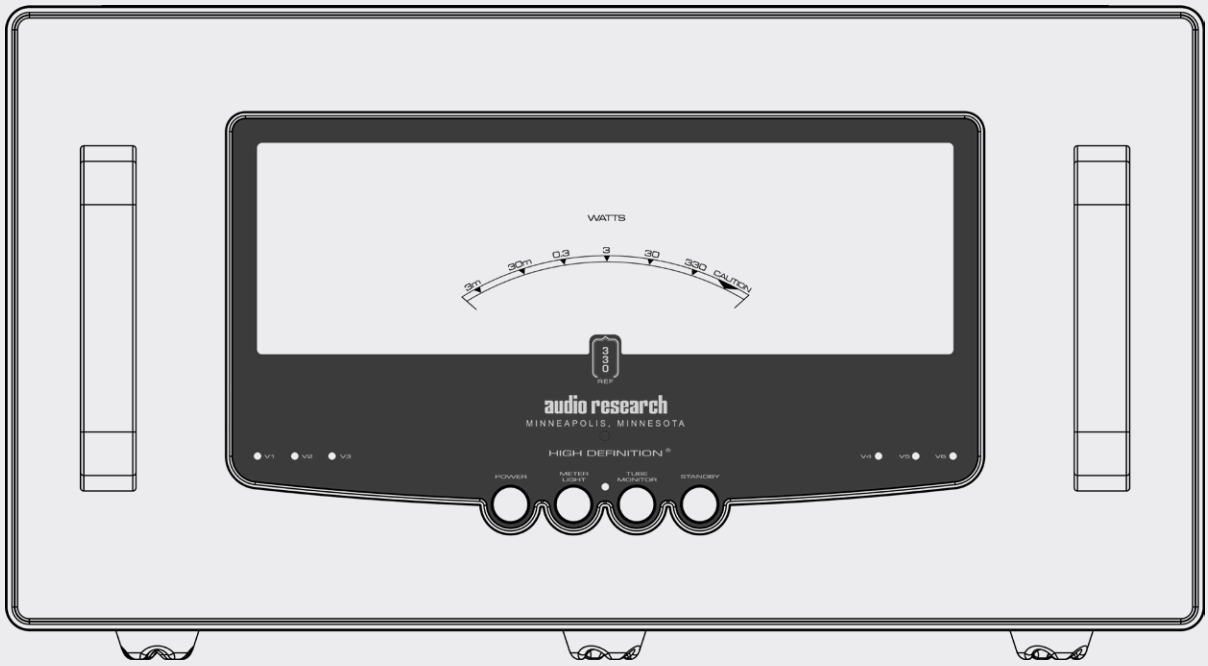
Remember the following before proceeding: The cord must contain at least 12 gauge (AWG 12) internal wiring, have a standard 20 amp IEC connector on the end which connects to the Reference 330M, and have a heavy duty 3 prong grounded plug for AC connection. Any aftermarket AC power cord must be used with caution, at the sole risk of the owner.

Use of a 20A to 15A adapter to fit a power cord not supplied with a 20A IEC connector is done at the sole risk of the owner.

WATTS
KT170
audio research
MINNEAPOLIS, MINNESOTA
REFERENCE 330M
HIGH DEFINITION
POWER
METER LIGHT
METER ACTION
TUBE MONITOR

OPERATION

OPERATION



Front Panel Button Function & Display

Power

Turns power to the Reference 330M on or off. When off, the vacuum tubes and audio power supplies are off, while the logic power supply remains active. This consumes less than 2 watts.

Note: The Reference 330M incorporates a “hot restart lockout” circuit which is designed to protect the amplifier from immediately turning on after being turned off. This allows the vacuum tubes to cool and power supplies to discharge before the amplifier can again be turned on. The hot restart lockout duration is approximately 3 minutes. When the lockout is in effect, if the power button is pressed, the power indicator LED will change from green to red.

Meter Light

Adjusts the Ghostmeter™ LEDs to three brightness levels and off. When first turned on, the meter LEDs will be at full brightness. Push the button once for each step of brightness reduction, followed by off. The logic circuit will save the brightness level when the amplifier is turned off and display the same level at next turn on.

Meter Action

Default action of the analog Ghostmeter™ sets the meter at full scale deflection that tracks output power of the Reference 330M into the speaker load. With music signals which have a low average power demand, the meter needle may hardly move. To disable meter movement, push the Meter Action button once. Push again to return to the default operation.

OPERATION

Tube Monitor

The Reference 330M employs a monitor circuit to verify that all six KT170 output tubes are operating correctly. Push and hold the Tube Monitor button and the six LEDs at the outside left and right sides of the front panel will illuminate green. The LEDs are numbered V1-V6. The amplifier is muted during this function.

If one or more LEDs do not light when the Tube Monitor button is pressed, contact your Dealer, Importing Distributor, or Audio Research customer support.

Rear Panel Control Functions

Auto Shut Off / Defeat

Allows selection of the auto shut-off feature. Defeat disables this feature.

The Reference 330M is equipped with a signal-sensing auto shut-off feature. If music is listened to at very low volume levels, the signal level may not be high enough for detection by the auto shut-off circuit. This may result in the amplifier turning itself off.

If this occurs, please toggle the switch to "DEFEAT".

Note: The auto shut-off circuit is not in the signal path and has no deleterious sonic effect on the Reference 330M's performance.

High/Low Fan Speed

This toggle switch adjusts the speed of the two internal cooling fans to either high or low speed setting. Low speed is normally adequate for most installations.

If any of the following conditions apply, the fans should be run on high:

- The Reference 330M is mounted inside an equipment rack, closet or other space where access to cool ambient air may be in question.
- The amplifier is tasked to drive low sensitivity speakers at very loud levels for an extended period.
- The ambient air where the Reference 330M is located is at or above 86°F (30°C).

Balanced / Single Ended

Set this toggle switch to correspond with the type of interconnect cable which connects to the preamplifier or other source component. Select BALANCED for an XLR cable, and SE for an RCA cable. Both Reference 330Ms must be similarly connected and operated. Never connect both types of cables simultaneously.

OPERATION

Hour Counter

The Reference 330M is equipped with a resettable LCD hour counter which records elapsed hours of operation. The hour counter aids the owner by displaying accumulated hours on the vacuum tube set, in order that the recommended vacuum tube replacement intervals (please see the Installation section) are adhered to.

The hour counter can be reset to zero by pressing the recessed button to the left of the LCD display while the Reference 330M is turned on.

Note that once the display has been zeroed, it is no longer possible to recall the previous hour count.

Auto Bias

The Reference 330M incorporates a sophisticated auto-bias circuit. Unlike older Audio Research or other vacuum tube amplifiers you may be familiar with, there are no user-adjustable bias controls. The auto-bias circuit continuously monitors and independently adjusts the idle current of each of the six KT170 output tubes to stay “locked in” at a conservative 65mA per tube.

Unlike manual bias setting or less sophisticated bias control circuits, the Reference 330M auto bias circuit is factory-set and never needs to be readjusted. The circuit continually compensates for tube aging and drift, so optimum sonic performance is presented throughout the life of the tube set.

The auto-bias circuit is designed to keep a matched sextet of KT170 tubes closely matched for maximum power and lowest distortion. Therefore, never install an unmatched set of tubes, as the adjustment range of the circuit presupposes starting with a matched set. It is NOT DESIGNED to compensate for extremely high or low plate current, worn or unmatched KT170s!

Audio Research-supplied vacuum tubes are specifically burned-in, tested, matched and graded for optimum performance and service life in your Reference 330M.

Use of aftermarket tubes may affect the sonic performance and service life of your Reference 330M and are not recommended. Should you have questions about vacuum tube selection for the Reference 330M, please contact Audio Research customer support for recommendations.

Break-In

All quality audio components benefit from a break-in period, during which time the various active and passive components, wiring and solder connections change as electrical signals pass through them.

While your Reference 330M will sound fantastic out of the carton, it will only improve with continued use. So many system variables are beyond Audio Research’s control that we cannot provide a hard -and -fast rule as to when your Reference 330M will be fully “broken-in”. Our expert listeners have found a component normally achieves full break-in between 100 to 800 hours.

MAINTENANCE

MAINTENANCE

Servicing

For decades Audio Research products have been renowned world-wide for their longevity and serviceability. The fact that we support products which founded the company in 1970 should provide owners assurance of the quality of the Reference 330M. Other than periodic replacement of vacuum tubes, no regular service is required for the Reference 330M. All components used are of the highest quality, selected both for sonics and reliability. All critical internal circuits are fuse-protected.

Note: We recommend during tube replacement accumulated dust should be blown out of the fans and chassis. Once the old tube set is removed, have an assistant help tip the amplifier on its side on a soft surface to expose the bottom cover. Use an air compressor or a can of air to blow the dust through the fans and out through the chassis tube openings.

Use of a vacuum cleaner to clear dust may generate static electricity which can damage internal components and is not recommended.

Vacuum Tubes

In the unlikely event of an KT170 output tube failure, internal PC board-mounted fuses are utilized to protect the amplifier from excessive current or arc-over. Should a single KT170 need to be replaced, please refer to the matching numbers written on the silver base at the bottom of the tube when placing an order. Recommended tube replacement intervals are listed in the Installation section on page 10.

The Reference 330M has internal DC voltages up to +420VDC. These voltages constitute a shock hazard and may cause serious injury or death! The voltage will be present for a time even after the amplifier has been turned off, due to the large amount of energy stored in the capacitor bank. Under no circumstances should any person unfamiliar with safe protocol around high voltage electronics attempt any internal service.

Please consult your Audio Research dealer, factory customer support, or a qualified electronic technician should service be required.

MAINTENANCE

Cleaning

To maintain the new appearance of the Reference 330M, first disconnect the amplifier from AC power, then wipe the chassis with a damp (not wet) microfiber cloth to remove dust and fingerprints. a small soft paintbrush is effective in cleaning around the vacuum tube sockets and other close areas.

Ghostmeter™

Your Audio Research amplifier is fitted with our unique Ghost Meter which allows for precise tracking of output power usage while maintaining a view of the vacuum tubes. These meters are precision instruments, and are assembled in a sterile, clean environment.

Use great care when cleaning the Ghostmeter™. The best method is to spray a small amount of coated eyewear cleaner on a clean microfiber cloth and gently wipe away any dust or smudges. Excessive wiping of the Ghostmeter™ may impart a static charge that will cause the meter needle to stick. If this occurs, discontinue wiping the meter. Allow a few hours and the static charge will dissipate, restoring normal meter operation.

Should the issue persists, the application of an anti-static gun (sold by most dealers or online among other audio accessories) will solve the issue. If you need further assistance please contact your Audio Research dealer for further assistance.

Disposal and Recycling Guidelines

We seriously doubt anyone will throw out a Reference 330M, but we are required to put this in:

To dispose of this electronic product, do not place in landfill. In accordance with the European Electrical and Electronic Equipment (WEEE) directive effective August 2005, this product may contain materials which upon disposal require special reuse and recycling processing.

Please contact your dealer or importing distributor for instructions on proper disposal of this product in your country. Please contact Audio Research customer support for the name of your importing distributor and how to contact them.

Packaging and shipping materials should be recycled or disposed of in accordance with local ordinances.

WARRANTY

Audio Research products are covered by a 3-Year Limited Warranty or a 90-Day Limited Warranty (vacuum tubes). This Limited Warranty initiates from the date of purchase and is limited to the original purchaser. In the case of demonstration equipment, the warranty is limited to the balance of warranty remaining after original shipment to the retailer or importer.

Outside the United States, the authorized importing retailer or distributor has accepted the responsibility for warranty of Audio Research products sold by them. The specific terms and remedies for fulfillment of the Limited Warranty may vary from country to country. Warranty service should normally be obtained from the importing retailer or distributor from whom the product was purchased.

In the unlikely event the technical service beyond the ability of the importer is required, Audio Research will fulfill the terms and conditions of the Limited Warranty.

Such product must be returned at the purchaser's expense along with a photocopy of the dated purchase receipt for the product, a written description of the problem(s) encountered, and any information necessary for return shipment. The cost of return shipment is the responsibility of the purchaser.

Audio Research does not warrant compatibility of Audio Research products with future operating systems and/or hardware of other manufacturers.

SPECIFICATIONS

Power Output	330W @ 1kHz 0.92% THD +N 10Hz - 80kHz Unweighted 1W @ 1kHz 0.013% THD+N 10Hz - 80kHz Unweighted
Frequency Response	-3dB points at 1W) 5Hz and 100kHz
Input Sensitivity	2.48V RMS Balanced for rated output; 1.23V RMS Single Ended for rated output 135mV RMS Balances for 1W output; 70mV RMS Single Ended for 1W output
Gain	26.3dB Balanced Input into 8 ohms 34dB Single Ended Input into 8 ohms
Input Impedance	168.5k ohms Balanced, 19.5k ohms Single Ended
Output Polarity	Non-inverting. Balanced input pin 2+ (IEC-268)
Output Tap	4 ohms, 8 ohms
Output Regulation	0.82dB 8-ohm load to open circuit
Output Impedance	0.812 ohms
Damping Factor	10 at 8 ohms
Noise	Input shorted. Noise level referenced to 1W into 8 ohms Balanced: -80dBV 10Hz-80kHz Unweighted; -91dBV A-weighted ; Single Ended: -75dBV 10Hz-80kHz Unweighted; -86.5dBV A-weighted
Power Requirements	105-130VAC 60Hz (210-250VAC 50Hz) 987w at rated output; 386w at idle, 1.1w power off
Vacuum Tubes Required	6 matched KT170 V1-V6 power output; 1 6H30 V7 gain stage; 1 12AX7/ECC83 V8 gain stage; 1 6550 and 1 6H30 V9, V10 voltage regulator
Dimensions	width 18.5" (47 cm) 19.0" (48.26 cm) inc faceplate height 10.5" (26 cm) depth 21.5" (54.6 cm) with handles & connectors 24.25" (61.6 cm)
Shipping Dimensions	31 x 27 x 20 (in). 787 x 686 x 508 (mm).
Weight	101 lbs 46 kg, Shipping 118 lbs, 54 kg (per monoblock).

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HIGH DEFINITION®

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