

 **VAC**
VALVE AMPLIFICATION COMPANY



**AVATAR INTEGRATED TUBE AMPLIFIER
& AVATAR SPECIAL EDITION**

INSTRUCTIONS

10 SEPTEMBER 2001

Please read carefully before installing

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WELCOME

Congratulations on your purchase of the VAC Avatar, and welcome to the family of VAC owners!

Your VAC is designed not to the latest fad but to substance, providing the highest quality of sound. Time spent familiarizing yourself with this manual will be well rewarded.

It is our goal to provide instruments of the highest quality, be informative to all of our customers, and to provide responsive, effective customer service.

Please feel free to contact us if we can be of assistance. We can be reached:

Telephone	941 359 2066
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Website	www.vac-amps.com

We look forward to being of service, even as you have many years of enjoyment from your Avatar.

Kevin M. Hayes
President, VAC

INTRODUCTION

In recent years, integrated amplifiers have become the fastest-growing product category in consumer audio electronics. Given this popularity, and the demand among audiophiles for higher performance integrations than were previously available, VAC proudly presents Avatar, the finest integrated amplifier ever created.

Rather than simply focusing upon the size and cost benefits inherent to the integrated amplifier, VAC took advantage of the performance advantages which are unique to the genre. By building a preamplifier and power amplifier on a single chassis, each component has been optimized to complement the other in a way not possible with separates. The result is a level of sound quality which only the largest and most costly amp/preamp combinations can approach. Ergonomically intuitive and functionally complete, Avatar has been designed to exceed the expectations of the most sophisticated music lovers.

GENERAL PRECAUTIONS & SAFETY NOTES

1. DO NOT REMOVE CHASSIS COVER UNTIL UNIT HAS BEEN SWITCHED OFF FOR 5 MINUTES. TUBES BECOME HOT IN USE, AND CAN CAUSE INJURY. DO NOT EXPOSE CHASSIS TO MOISTURE. DO NOT PLUG INTO AN AC SOURCE UNTIL ALL CONNECTIONS ARE COMPLETED.
2. Complete all signal (interconnect and speaker cable) connections *before* connecting the AC cord to the wall outlet and turning the unit on. Similarly, always turn the amplifier off and remove the AC power cord before detaching cabling. Failure to observe this sequence can result in damage to the amplifier, speakers or associated components.
3. At turn on, all volume controls should be full counter-clockwise and the mode switch should be set to "Mute". Allow one (1) minute for warm up before commencing playback. Note: Mute is automatically engaged when switching on Avatars equipped with the remote control option.
4. For protection of your speakers and power amplifier, always switch amplifier to "Mute" before switching the power off or on. Note: Mute is automatically engaged when switching on Avatars equipped with the remote control option.
5. THESE UNITS CONTAIN NO USER SERVICEABLE PARTS. DO NOT REMOVE THE BOTTOM COVER. LETHAL VOLTAGES ARE PRESENT WITHIN THE CHASSIS. DO NOT OPERATE THE UNITS IF THEY ARE WET.
6. VACUUM TUBES BECOME HOT ENOUGH TO CAUSE SERIOUS BURNS. NEVER TOUCH A TUBE WHEN THE UNIT IS ON. IT MAY TAKE SEVERAL MINUTES FOR THE TUBES TO COOL DOWN AFTER THE UNIT IS SWITCHED OFF. FOR THIS REASON THE TOP CAGE SHOULD ALWAYS BE LEFT SECURELY IN PLACE.
7. The Avatar is heavy. Please exercise caution in lifting the unit, and take care to install Avatar securely in a sturdy, well designed stand so that it will not fall or tip over (this could cause serious, possibly fatal injury).
8. DO NOT TURN THE SMALL PLASTIC SCREW ON THE METER. IF YOU DO, THE UNIT MUST BE RETURNED TO VAC FOR RECALIBRATION.

INSTALLING AVATAR

Physical requirements:

- 1) Provide Adequate Ventilation-Allow at least two inches of free air space above and to either side of Avatar.
- 2) Do not place Avatar in a completely enclosed cabinet. If equipment cabinet has a solid front door, a “boxer” fan will be necessary to ensure proper airflow.
- 3) Do not stack other components (or any objects which could impede proper ventilation) on top of Avatar.
- 4) Do not operate Avatar on carpet, or on any other surface that might restrict airflow.
- 5) Avatar’s chassis cover will become warm during normal use.
- 6) Avatar must be installed in a secure, sturdy, properly built (and ventilated) stand, cabinet or enclosure. Avatar is heavy, and could inflict serious injury or property damage if it falls, or if the stand upon which it is placed tips over. This concern is particularly important in households with small children who might try to climb furniture.

Basic Hookup:

- 1) Connect line level inputs (CD, Tuner, Tape, etc.) to the appropriate RCA input jacks on Avatar’s rear panel. Note: with the exception of Phono, all Avatar inputs are “line level”. Any non-phono source component may be connected to any input EXCEPT FOR phono.
- 2) Connect phono cables to the rear panel RCA input labeled “Phono.” Connect the ground wire from the turntable or phono cable to the “Ground” terminal provided on Avatar’s rear panel. (See “Phono Section” for cartridge types appropriate for use with Avatar)
- 3) Connect loudspeaker cables to the five-way binding posts on Avatar’s rear panel. Make sure that all connections are tight (Do NOT over tighten, or damage to amplifier or speaker cable may result), and that heavy or bulky cables are properly strain-relieved. You will notice that Avatar includes three posts for each of the two (i.e., left and right) amplifier channels. The negative or “common” cable lead is always attached to the center post, while the “hot” or positive lead may be connected to either of the other posts, which are labeled 4-Ohm and 8-Ohm. (See “Matching Avatar To Your Loudspeakers” for more information)

- 4) Connect the AC power cord to the IEC connector on Avatar's rear panel. ALWAYS connect power cord to component before plugging it into an AC outlet, and make sure that unit's power switch is set to the "off" position before making the final connection. For best performance, try to route the power cord away from signal cables.
- 5) Before turning Avatar's power switch to the "on" position, mute the unit by moving the "Mute" switch (found at the upper right-hand corner of faceplate) to its clockwise (i.e., muted) position, and set output level to zero by rotating the "Volume" control fully counterclockwise. Note: Mute is automatically engaged when switching on Avatars equipped with the remote control option.
- 6) Allow Avatar to warm up for a few minutes, then adjust output tube bias. (See "Output Tube Bias Adjustment", below)

As with all high performance audio products, the sonic characteristics of all VAC products will continue to improve during the first several hundred hours of use.

OPERATING AVATAR

Front Panel Controls:

Although most of Avatar's front panel controls (Volume, Power, Mute) are self explanatory, VAC has outfitted this unit with several advanced features which bear further description:

Phono Section: In addition to four line level inputs (CD, 1, 2, 3), Avatar includes a discrete, pure tube phono preamplifier, which is engaged by rotating the "Selector" switch (found at the upper left-hand corner of faceplate) fully counterclockwise to the "Phono" position. Avatar's phono preamplifier provides 37 dB of gain, suitable for use with MM (moving magnet) and many high-output MC (moving coil) cartridges. Your VAC dealer can recommend the proper phono cartridge(s) for use with Avatar.

Monitor: The small knob found at the lower left-hand corner of the faceplate switches between "Source" and "Tape". In the "Source" position, input selection is determined by the Source Selector Switch. In the "Tape" position, the Source Selector is overridden, and the Tape inputs are activated. Important: Avatar is outfitted with a full "tape loop", including a line level tape input and a fixed level recording output. In addition to driving the recording inputs of a tape deck, this output can supply signal to any typical line level input, enabling Avatar to control a second zone in multi room installations.

Home Theater Mode: Located immediately to the right of the bias meter, a rotary switch labeled "Input" provides access to Avatar's most unusual feature. When set in the "Selector"

position, input choice is governed by the Input Selector switch. This is the normal setting for Avatar, and enables the unit to be used as a typical integrated amplifier. Rotating the control clockwise to the “Home Theater” position separates the preamplifier and power amplifier sections, and enables the Avatar’s power amplifier to be driven by an external source, such as the front left- and right-channel outputs of a multichannel processor. In this case, the users’ analog stereo sources would be connected, as usual, to the Avatar’s line, phono and tape inputs. A/V inputs (DVD, Laserdisc, DSS, etc.) would be connected to the home theater processor, and the processor’s main outputs would be connected to the pair of rear panel RCA jacks labeled “Home Theater Direct”. When the “Input” control is set to the “Home Theater” position, Avatar functions as a power amplifier ONLY, and is controlled by the external processor, preamplifier, or other component connected to the “Home Theater Direct” inputs.

Mute: On units without remote control, this is a two position switch. In the “Mute” position, all input signal is blocked from Avatar’s power amplifier section. Note: Mute is automatically engaged when switching on Avatars equipped with the remote control option.

On units with remote control, this knob is spring loaded; moving the control clockwise will toggle Avatar between the “Mute” and “Operate” condition. When Avatar is muted, a red glow will be observed in the bias meter. On occasion Avatar may seem not to have responded to a turn of the “Mute” knob; this is due to “contact bounce” in the switch. Simply turn the knob again until the desired condition is attained.

AVATARS WITH REMOTE CONTROL

The optional remote control allows for wireless adjustment of “Mute” and “Volume”.

The remote wand is powered by two “AAA” batteries. These should be of the alkaline type. You will need to install them in the wand before using the remote. Since batteries can leak, they should be removed from the wand if it is not going to be used for an extended period of time.

Volume Up/Down: These buttons cause a motor to turn Avatar’s volume control. Motorized controls offer superior sound, as well as direct visual indication of volume setting. The front panel control may also be used directly in the conventional way.

Mute: Pressing either side of the “Mute” button will toggle Avatar between the “Mute” and “Operate” condition. When muted, a red glow will be observed in the bias meter. Mute is automatically engaged when switching on Avatars equipped with the remote control option.

OBTAINING THE BEST PERFORMANCE FROM AVATAR

Although surprisingly simple to use, Avatar is also remarkably versatile, and has been outfitted with an assortment of useful features that enable it to excel in a broad range of applications. Familiarity with these facilities will assure that Avatar performs optimally in your system.

Output Tube Bias Adjustment:

Your Avatar has been shipped with the output tube bias properly set. Nonetheless, it should be checked when you install your amplifier and approximately once every month thereafter. It must also be adjusted each time a tube is replaced.

Allow the amplifier to reach normal operating temperature (about ten minutes of warmup should be sufficient). Mute the amplifier and remove the small, gold-handled access panel (located below the bias meter) from the front of the unit. You will see a four pairs of buttons and knobs, each pair of which corresponds to one of the four EL34 output tubes (V8-V11, respectively). Press the button for V8 and observe the bias meter. Rotate the knob directly above and to the right of the button until the needle is centered on the small black dot near the top of the meter. Repeat for V9, V10 and V11 and then, because the adjustments can interact slightly, recheck all four tubes, starting once again with V8.

Output Tube Sentry Circuit

A unique circuit has been fitted individually to each of the output EL34 tubes. In the event that an EL34 enters a 'run away' condition and begins to draw excessive current, the Sentry circuit will engage and limit the current that the tube can draw to approximately 30 milliamperes (about 60% or normal).

If the Sentry circuit has engaged, you will note low bias meter readings for that tube, which will not increase even if you advance the bias control fully clockwise.

The Sentry circuit can trigger either due to a tube that needs to be replaced or due to misadjustment of the bias. To test this, turn the bias control fully counter-clockwise and turn the amplifier off. Wait 15 minutes, then restart the amplifier. Follow the normal bias adjustment procedure. If the tube can be biased normally and does not re-trigger the Sentry circuit, then all is fine. If the bias can not be adjusted to the normal value, or if the Sentry circuit is triggered again, then replace that EL34.

Matching Avatar To Your Loudspeakers:

Like many modern tube amplifiers, Avatar includes multiple “transformer taps” for the left- and right-channel outputs. The rear panel includes separate binding posts for each channel’s 4- and 8-Ohm taps. Do NOT assume that the tap which corresponds to your speakers’ published impedance specification will yield the best sound. Due to the various standards by which impedance can be measured, not to mention the fact that a speaker’s impedance varies with frequency, it is impossible to assert with certainty which output tap will yield the best sound. For this reason, VAC strongly suggests auditioning your speakers through both taps. In general, we find that a speaker’s minimum impedance is more important than its nominal (average) impedance when determining which tap is correct. A lack of bass response often indicates that a lower impedance tap should be tried.

Ultralinear Vs. Triode:

A small toggle switch located between Avatar’s transformers and output tubes provides a choice of partial-Triode (Ultralinear) and full Triode operation. Your unit is shipped in the Ultralinear mode, but can be easily changed to Triode by removing the top cover and moving the switch.

Sound: Ultralinear and Triode sound different, although the extent of these differences will largely depend upon your choice of speakers and ancillary components. Due to issues of system matching, universal recommendations do not exist, although Ultralinear mode generally provides more extension at the frequency extremes (low bass and upper trebles), while Triode Mode can offer a more natural midrange presentation. As with our discussion of transformer taps, VAC recommends auditioning Avatar in both modes.

Power: Compared with Triode mode, Avatar produces approximately twice as much power when used in Ultralinear operation. When used as a Triode amplifier, the decrease in power is offset by a 3 dB increase in dynamic headroom.

Precautions: Before removing cover, mute Avatar, turn power switch to “off” position and disconnect AC power cord. To avoid risk of injury from hot tubes, allow unit to cool before removing cover. To prevent loss, place cover screws in a small receptacle. To avoid the risk of shock or other injury, reinstall cover before turning the unit on.

MAINTENANCE

Chassis Care:

Although your VAC Avatar chassis and faceplate are extremely durable, its finish can be scratched, chipped or damaged if improperly treated. Cleaning with a soft, damp cloth while the amplifier is switched off and unplugged should restore the finish to its original lustre. Never clean Avatar with harsh or caustic cleansing agents.

When shipping your Avatar, be certain to wrap the amplifier in the cloth, tissue or plastic wrap in which it was originally packaged. Given the high gloss of the lacquered finish, make sure there are no ridges or sharp surfaces in those parts of the cloth which contact the faceplate. Use of a coarser cloth or failure to otherwise protect the faceplate may result in damage to the finish. VAC is not responsible for cosmetic damage resulting from improper care or packing.

Installing New Tubes:

Original Equipment Replacement tubes are available from VAC. These tubes ensure your Avatar will meet or exceed all factory performance specifications.

Before replacing tubes, all power must be off. Mute unit, place power switch in the “off” position and unplug power cord. Remove cover and old tubes **ONLY** after the unit has cooled down (In normal use, tubes become hot enough to cause serious burns. Allow several minutes for tubes to cool before attempting to remove or replace.) Install the new tubes fully firmly in their sockets, taking care to observe the direction of the locating ridge in the plastic center pin of the EL34 output tubes’ plastic base. With 9-pin miniature tubes (V1-V7), make sure that pin pattern corresponds to holes in tube socket.

When changing EL34 (V8-V11), turn the bias control corresponding to the new tube fully counterclockwise. After turning the unit on and allowing it to reach normal operating temperature, follow the normal biasing procedure.

In the event that trouble is encountered, switch power to the “off” position, check that all tubes are correctly seated in their sockets and check all signal, speaker and power connections. If possible, try another tube. If the problem persists, please consult your VAC dealer or contact the factory directly.

GENERAL INFORMATION ABOUT TUBES

It is a truth that each brand of tube sounds different in a particular high resolution circuit. This is because no two manufacturers make a tube type in quite the same way, and the central tendencies of the performance parameters will differ slightly with each maker.

This sonic variability may at first seem a liability, but further thought will reveal that it is an advantage. The owner of a tube amplifier can select those tubes which sound like the real thing in his/her specific system. VAC can recommend the best tubes for your amplifier.

Normally vacuum tubes should last for 4,000 to 12,000 hours of use, or two to ten years for most users. There are always occasional exceptions, long or short. If you have to replace a tube before, say, 3,000 hours, just replace the single tube. If you have to replace a tube at 8,000 hours, replace them all and keep those still functioning well as spares

VAC will be happy to test tubes for concerned customers.

WARRANTY

Your equipment is warranted for a period of thirty (30) days from the date of purchase.

In addition, if the registration form is received by VAC along with a copy of your sales receipt from an authorized VAC dealer within this thirty days, a service contract will be extended to cover your equipment for three (3) years (tubes excepted).

This warranty applies only to units sold in the United States of America through authorized VAC dealers. It covers factory service and standard return shipping. For warranty information outside of the U.S. contact the importer of VAC equipment for your country. Units sold outside of the U.S. should still be registered with VAC. It is the responsibility of the customer and dealer to determine the suitability of this unit for any particular application.

Your questions and comments are always welcome. Contact:

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Facsimile 941 359-2057
E-mail info@vac-amps.com

VAC AVATAR SPECIFICATIONS (typical)

Type: Integrated vacuum tube amplifier with MM phono stage and home theater (direct power amplifier) mode. Remote control for volume & mute.

Options: External MC step-up network (plugs into MM input)

Power amplifier (“Home Theater” direct mode):

Output matching: 4 or 8 ohms nominal
Power output: 60 watts/channel ultralinear; 27 watts/channel triode
Frequency response: 9 Hz - 35 kHz +0 / -0.5 dB; 3 Hz - 71 kHz +0 / -3.0 dB
Power bandwidth: 11 Hz - 63 kHz + 0 / -3.0 dB ref. 50 watts
Gain: 25 dB ultra-linear; 23 dB triode
Residual noise: 1.5 mV at 8 ohm output
Channel separation: -72 dB @ 1 kHz; -60 dB @ 10 kHz

Line stage preamplifier:

Gain: 24 dB
Maximum input signal: Infinite (attenuation precedes line stage)
Noise contribution: Approx. 0.1 mV at power amplifier output
THD contribution: Approx. .04%
Tape output: Unity gain from selector, non-inverting

Phono stage preamplifier:

Gain: 37 dB (measured at tape output)
Residual noise: 3 mV at output (S/N ratio approx. 69 dB)
Overload: 117 mV @ 1 kHz = 8 volts RMS output
460 mV @ 10 kHz
Frequency response: RIAA +/- .25 dB
Notes: Does not invert absolute phase.

Tube compliment:

2 x 12AX7 low noise (phono)	Identified on the chassis as V1, V2
2 x 12AX7 (line stage)	Identified on the chassis as V3, V4
3 x 12AU7/6189A (power amp)	Identified on the chassis as V5, V6, V7
4 x EL34 (power amplifier)	Identified on the chassis as V8, V9, V10, V11

Warranty: Up to three years parts and labor, excluding tubes.

AVATAR REGISTRATION FORM

MAIL TO VAC SOON AS POSSIBLE.

Name _____

Address _____

Telephone _____ / _____ - _____ E-Mail _____

Dealer name _____

" address _____

Purchase date _____ Serial Number _____

Salesperson _____

How did you first learn of VAC products?

What other brands and models did you consider?

What made you decide on the VAC?

Please provide any comments on VAC products or your dealer

What magazines do you read regularly?

What are your hobbies?

What are your favorite types of music?
