



VK-90t

WARRANTY REGISTRATION FORM

Unit Serial Number: _____

Customer Name: _____

Address: _____

Date of Purchase: _____

Purchased From:

Dealer Name: _____

Address: _____

IMPORTANT NOTE:

In order to receive the full five year product warranty, please mail this completed form together with a copy of your sales receipt to Balanced Audio Technology at the address below, within **thirty days** of purchase.

Failure to do so will result in the product being warrantied for **one year** from the date of manufacture.



VK-90t
Special Edition
Balanced Power Amplifier

Owner's Manual

Introduction

Thank you for your purchase of the Balanced Audio Technology VK-90T vacuum tube amplifier. Please read this owner's manual to obtain the full benefit of the VK-90T in your system. This manual provides you with necessary safety information and operating procedures for this exceptional unit.

WARNINGS:

To prevent the possibility of serious injury, electrical shock, or fire:

DO NOT operate with the bottom cover removed.

DO NOT expose to rain or moisture.

DO NOT defeat the ground Power-plug.

DO NOT replace fuses with anything other than the same type and rating as supplied by the factory.

Package Contents

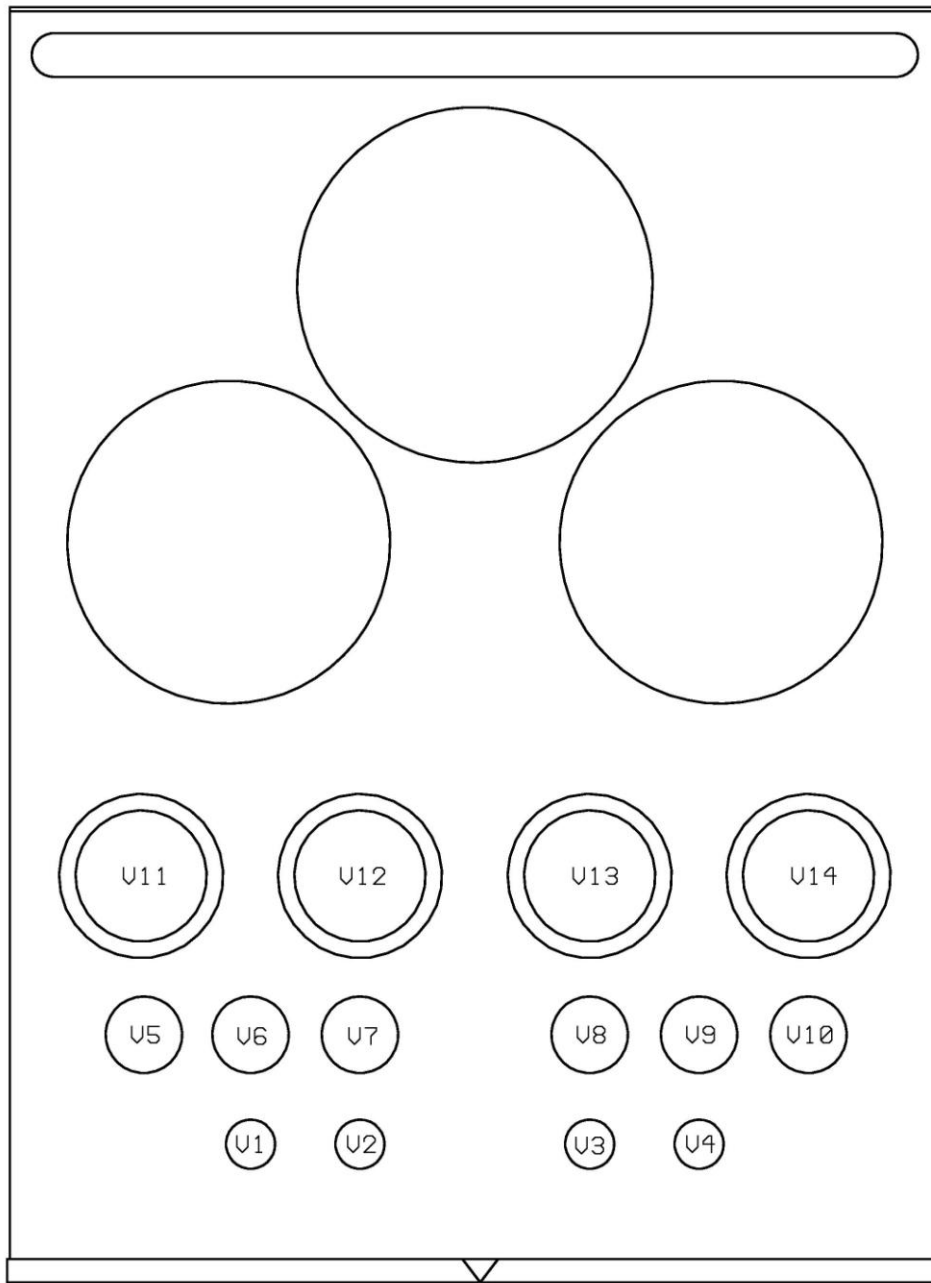
Included in the box should be the following:

Description	Quantity
VK-90t Amplifier	1
6C33C-B Output Tubes	4
6SN7 Signal Tubes	6
6H30 Super Tubes	4
Power Cord	1
Allen Hex Wrench	1
Spare Cover Screws	5
Spare Fuses	2
Owner's Manual	1

Save all the packaging materials in a safe dry area for the unlikely event that you need to return the VK-90t to the factory for service.

Installing Tubes

1. Install **6H30** tubes in positions V1 through V4
2. Install **6SN7** tubes in positions V5 through V10
3. Install **6C33** tubes in positions V11 through V14



NOTE: Care must be exercised when installing the 6C33 output tubes. While inserting the tubes, please use gentle circular motion in order to facilitate proper socket pin engagement. Do not use force, as doing this might damage the socket pins and/or tubes.

Physical Placement

It is recommended that you provide open space above the unit for proper ventilation, with no electronic components or shelves placed directly overhead.

Mount the unit on a hard surface with proper ventilation underneath. Avoid placing the unit directly on a carpeted floor, as doing so will block the ventilation slots in the unit's bottom cover.

Connecting the VK-90t to Your System

For Balanced Preamplifiers:

Use balanced XLR interconnects. The left and right channel input connectors are clearly marked on the back panel of the VK-90t.

Note: The VK-90T XLR inputs are wired as follows:

Pin 1:	common/shield
Pin 2:	positive
Pin 3:	negative

For Single-Ended Preamplifiers:

Single-ended preamplifiers have RCA connectors. The VK-90t power amplifier is designed to work with either balanced or single-ended preamplifiers connected to its inputs. All that is required to connect a single-ended preamplifier with RCA connectors to the VK-90t's inputs is the optional balanced to single-ended adapters. These adapters are available from Balanced Audio Technology.

For Speaker Connections:

The speaker connectors are clearly marked on the back panel of the VK-90t amplifier. There are three sets of output taps marked LOW, MEDIUM and HIGH for connecting a variety of speakers to the VK-90t output. Please note that some experimentation may be required. Try each output tap until you find the one that gives the most balanced performance in your system.

NOTE: Please refer to Figure 1 for proper connection and polarity.

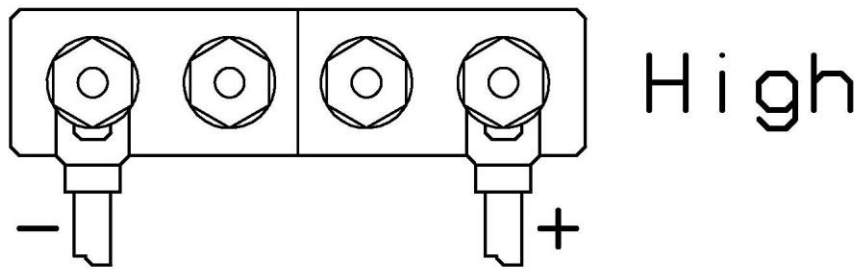
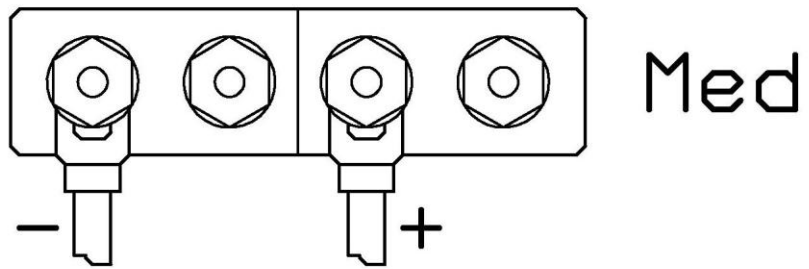
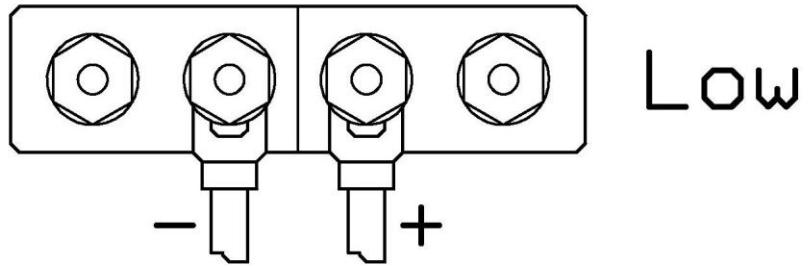


Figure 1
Output Connections

Operating the VK-90t

Normal operation of the VK-90t amplifier requires simply turning the unit on. There are no meters to connect, bias setpoints to remember, or drifting bias points to adjust. Please read the **Autobias Feature** section for more details.

Turning the VK-90T ON:

The main power switch is located at the rear of the unit. When you turn the unit on, it will go through a gentle power-on sequence. After about one minute, four LED's visible from the top of the chassis should light up. This indicates that full operating bias has been reached and the unit is now ready to play.

Turning the VK-90t OFF:

The unit can be turned Off at any time (even while playing). If needed, please wait at least 30 seconds before turning the unit ON again.

Autobias Feature:

The VK-90t implements a sophisticated autobias circuit that automatically compensates for tube aging and line voltage fluctuations, as well as marginal mismatching of tubes. The successful operation of the autobias circuit is noted by individual LED's that glow visibly next to each output tube when viewed from the top of the chassis. A total of four LED's should light up to indicate proper operation of the circuit. If one of the LED's fails to light up (after the unit is warm), there could be two reasons for this problem:

1. The particular output tube is defective. In this case replacing this tube with a known good one should turn the LED ON again.
2. The amplifier was overstressed and its thermal protection was activated. Simply turning it OFF and then ON again will clear that protection.

NOTE: For more details on the operation of the VK-90T protection circuit please see the corresponding chapter.

Protection Circuits

Your VK-90t amplifier is equipped with two types of sophisticated protection circuits.

Thermal Protection. Thermal protection circuits monitor power dissipation in each of the unit's four output tubes. Should the power dissipation in that part of the circuit exceed the preset value, the protection mechanism will disable that particular tube. The corresponding green LED will then go out.

When this happens, simply turn the unit OFF using the rear panel power switch, then turn it back ON after waiting a couple of minutes. That should clear the thermal protection mechanism.

Overcurrent Protection. There are four independent over-current protection circuits monitoring the currents flowing through each output tube. Should the current exceed the preset value, the protection circuit will disable that particular tube, and the green LED will go OFF.

To clear the fault one should simply power cycle the unit OFF and then back ON.

Understanding the Overcurrent Protection.

The VK-90tT can enter over-current protection mode if either of the following conditions take place:

1. The unit is being driven hard into a speaker that represents a particularly difficult load. At a point of peak demand the over-current protection may become activated. Power cycling the unit will restore its operation.
2. An over-current protection due to an intermittent internal discharge in one of the power tubes.

The internal discharge can take several forms. In some instances the weak spot in the tube will evaporate, and the tube will continue working normally for an extended period of time.

In other cases the tube might continue activating the protection circuit, indicating the need for replacement.

The standard recommendation is to ignore the first occurrence, and replace the tube following any further events.

What to do when the LED light goes out:

If you notice that one or more green LED's goes out, the first step should be to RECORD THEIR POSITIONS.

Then turn the unit OFF by using its main power switch, wait a couple of minutes and turn it back ON.

If the same tubes exhibit the same fault again, they should be replaced.

While it is always best to replace a matched pair of tubes, it is not always absolutely required. If your unit is fairly new, then you might consider replacing just one faulty tube. The factory can supply a tube with similar characteristics.

Replacing the Fuse:

WARNING: Please turn the unit OFF and disconnect the power cord before proceeding.

There are NO internal fuses in the VK-90t amplifier.

The main power fuse is Slow-Blow type, located on the amplifier's back panel, and should only be replaced with the same type and rating fuse:

100-120V	10A
200-240V	7A

If the unit still fails to operate properly, please contact the factory for professional service.

Factory supplied fuse should only be replaced with the same type and rating part.

Replacing Output Tubes:

In order to replace the 6C33C-B output tubes, please contact the factory and supply them with the unique identification number stamped on the side of the tube needing replacement. This information will be used by Balanced Audio Technology to provide an optimal replacement tube for your amplifier.

Please do not substitute any random tube as a replacement. Although the automatic bias circuit in the VK-90T will accept virtually any random set of output tubes, the unit will not be guaranteed to meet all of its performance specifications under such conditions.

Finally, the determination that a **single tube replacement** is prudent rests solely with the customer, based on actual hours of use for the particular set of tubes. The factory assumes no responsibility for any performance decrease under such conditions.

Servicing:

The Balanced Audio Technology VK-90t should require no service other than tube replacement to maintain its high performance. Please direct any further service inquiries to the factory.

Cleaning:

To remove dust, occasionally wipe the front and top surfaces of your VK-90t amplifier with a damp soft cloth. If fingerprints appear, you may use a mild, non-alkaline soap solution. Do not use abrasive cleaners, as they may damage the fine finish of the unit.

Specifications

Output Power (Stereo Model)	80W per channel
Output Power (Monoblock) (At less than 3 % THD)	160W
Frequency Response	5Hz to 200kHz
Input Impedance	215k Ω
Gain (nominal into 8 Ohms)	26dB
Power Dissipation at idle:	480W
At full powe:	900W
Tube Complement:	4 x 6H30, 2x6V6, 6x6SN7, 4x6C33
Dimensions	17" x 24" x 9"
Weight (net)	100lb

Producent:
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02-434 Warszawa
Polska
Tel: +48 22 594 83 83
e-mail: eic@eic.com.pl

VK-90t Five Year Limited Warranty

Terms and Conditions

1. Limited Warranty

Upon receipt of the attached warranty registration form, Balanced Audio Technology warrants the purchased product to be free from manufacturing, materials, and workmanship defects for **five years** from date of original purchase, excepting vacuum tubes, subject to the following conditions. **Failure to return the enclosed warranty registration form together with a copy of your sales receipt within 30 days from original purchase will result in a warranty period of one year from the date of manufacture.**

2. Vacuum Tubes

The 6SN7 and 6H30 vacuum tubes (including replacements under warranty) are warranted for one year from the date of the original VK-90T purchase. The output 6C33C-B vacuum tubes are warranted for ninety days.

3. Limited to Original Purchaser

This warranty is for the sole benefit of the original purchaser of the covered product, and may not be transferred to a subsequent purchaser of the product.

4. Conditions and Limitations

This warranty is subject to certain conditions and limitations, as follows. This warranty is void and inapplicable if the product has not been used in accordance with the instructions found elsewhere in this manual, or if it has been misused or abused, damaged by accident or neglect, or in transport once in possession of the purchaser. The warranty is also void if the product has been repaired, modified, or tampered with by anyone other than Balanced Audio Technology or its specifically authorized agents.

5. Remedy

If this product contains a materials, manufacturing, or workmanship defect that cannot be repaired at the dealership where the product was purchased, it must be packed in original packaging and returned to Balanced Audio Technology via insured freight, at the owners expense. If replacement packaging materials are required, they will be supplied by the factory at a nominal charge. **Returned products must be accompanied by a written description of the defect, and a return authorization number (available from the factory via phone or fax).** Upon receipt of defective product, Balanced Audio Technology agrees to repair the product without charge for parts (except vacuum tubes if the unit is more than one year old), or labor. The product will then be returned via prepaid, insured freight, with carrier at the sole determination of Balanced Audio Technology. This constitutes the purchasers sole remedy.

6. Design Changes

Balanced Audio Technology reserves the right to modify its products or change specifications at any time without obligation or liability to previous purchasers.

7. Miscellaneous

Any implied warranties relating to the above product shall be limited to the duration of this warranty. This warranty does not extend to any incidental or consequential costs or damages to the purchaser. This warranty gives you specific legal rights. You may also have other rights which vary from state to state.