



VK-P90

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-P90
Special Edition
Balanced Phono Stage

Owner's Manual

NOTE:

Your VK-P90 Phono Preamplifier was preset at the factory to the following configuration:

Input Mode:	Direct
Gain:	High
Input Resistive Loading:	47k Ω
Input Capacitive Loading:	None

Please refer to the chapter on configuration switch setting for information on optimizing the unit parameters.

Introduction

Thank you for your purchase of the Balanced Audio Technology **Special Edition** VK-P90 balanced phono stage. Please read this owner's manual to obtain the full benefit of the VK-P90 in your system. It will provide you with the needed 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 cover removed.

DO NOT expose to rain or moisture.

DO NOT defeat the ground power-plug.

DO NOT replace fuse 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-P90 Balanced phono stage	1
Power Cord	1
Spare Fuse (See Fuse Protection)	1
XLR Input Shorting Plugs	2
Socket Wrench	1
Spare Top Cover Screws	5
User's Manual	1

Save all the packaging material in a safe dry area for the unlikely event that you need to return the VK-P90 to the factory for service.

Reseating Tubes

Normally, reseating tubes upon delivery is not required. However, if any tubes have *noticeably* drifted out of position due to unusually high transportation stress, it will be advisable to reseat the tubes. Use the supplied Torx wrench to remove the top cover. Reseat the tubes in their sockets and reinstall the top cover.

NOTE: When using the Torx wrench, make sure it is fully inserted so that the screw head is not stripped.

Physical Placement

It is recommended that you provide for at least 6" of free space around the unit for proper ventilation.

Mount the unit on a hard surface with proper ventilation underneath.

Do not stack the VK-P90 phono stage on top of other units, nor vice versa.

General Description of VK-P90 Phono Preamplifier

The VK-P90 balanced all-tube phono stage is designed to provide the maximum possible performance while operating in conjunction with the wide variety of phono cartridges available today. The unit offers unmatched versatility in system configuration by providing the following features:

- Wide range of user-selectable gains from 44dB to 79dB (See **Specifications** section for choices)
- Built-in high-quality step-up transformers that can be used with very low output phono cartridges.
- Selectable cartridge loading for both resistance and capacitance
- Absolute polarity reversal switch

Please refer to the **Configuration Switches** section of this manual for information on how to configure the VK-P90 phono stage for optimal performance in your system.

Connecting the VK-P90 to Your System

Cartridge Input

The back panel of the VK-P90 phono stage is equipped with two sets of input connectors:

- RCA input connectors
- XLR input connectors

Either set can be used for connection. This gives the user the flexibility in connecting the phono cartridge cable to the VK-P90. Whenever possible, the balanced XLR inputs should be used. They provide the best possible performance. Please contact the factory regarding the best ways of connecting your tonarm to the VK-P90.

NOTE: Connecting to RCA Inputs:

When connecting your cartridge to the VK-P90 RCA inputs, it is necessary to install the supplied shorting plugs into the unused XLR inputs.

Output Connection

The VK-P90 is equipped with XLR output connectors. Any high quality set of balanced interconnects can be used to connect the VK-P90 to your balanced preamplifier.

Single-ended preamplifiers can be connected to the VK-P90 output through the use of XLR-to-RCA adapters, available from BAT.

Description of Controls

Power Switch

The power switch toggles between two positions: OFF and ON. Putting the unit in the OFF position (even for a short period of time) will reset the soft start and mute circuits.

The VK-P90 will then require about 45 seconds to return back to normal operation.

When you turn the unit ON, the VK-P90 will automatically go through a gentle power-on sequence. At the end of this sequence the unit will automatically unmute. However, since the source volume may be unknown at this time, it is advisable to turn the volume control on your preamplifier fully **counterclockwise** and place the mute switch in the "Mute" position before turning the VK-P90 ON.

Phase Switch

The Phase switch on the front panel of the VK-P90 allows the user to compensate for recordings made in inverted polarity. It toggles between two positions: 0° and 180° . The LED will light when the unit is put in its 180° state. With this switch in its 0° position, the VK-P90 performs as a non-inverting preamplifier. Switching into the 180° position will invert the absolute phase of the signal.

It is important to note, however, that in both 0° and 180° positions of the Polarity switch the signal passes through exactly the same signal path elements and components.

Output Muting

The output of the VK-P90 phono stage has a mute relay that disables it for about 45 seconds every time the unit is turned ON.

When the unit is powered up it automatically self-mutes until the proper operating points of the circuitry are reached. It will then go into normal play mode.

Changing the power switch position from ON to OFF even for short time, will make the unit reset its power sequencing circuit and mute its output. *It will then require about 45 seconds for the unit to become operational again.*

Configuration Switches

WARNINGS:

Please make sure that the VK-P90 is turned OFF and your preamplifier is in MUTE before changing the state of any internal configuration switches in VK-P90.

Hazardous voltages are present on the unit's printed circuit board. DO NOT operate the VK-P90 with its top cover removed.

This section describes the setting of internal configuration switches that are located inside the VK-P90 phono preamplifier. In order to access these switches, do the following:

1. Turn the VK-P90 OFF and disconnect the power cord from the power line receptacle.
2. Remove the top cover, using the supplied Allen hex wrench.

Figure 1 depicts the locations of the VK-P90 internal configuration switches. These include:

1. Left and right channel cartridge loading switches **S101** and **S201**
2. Direct/Step-Up input mode switches **S102** and **S202**
3. Gain switch **S2**

The following section describes the operation of these controls.

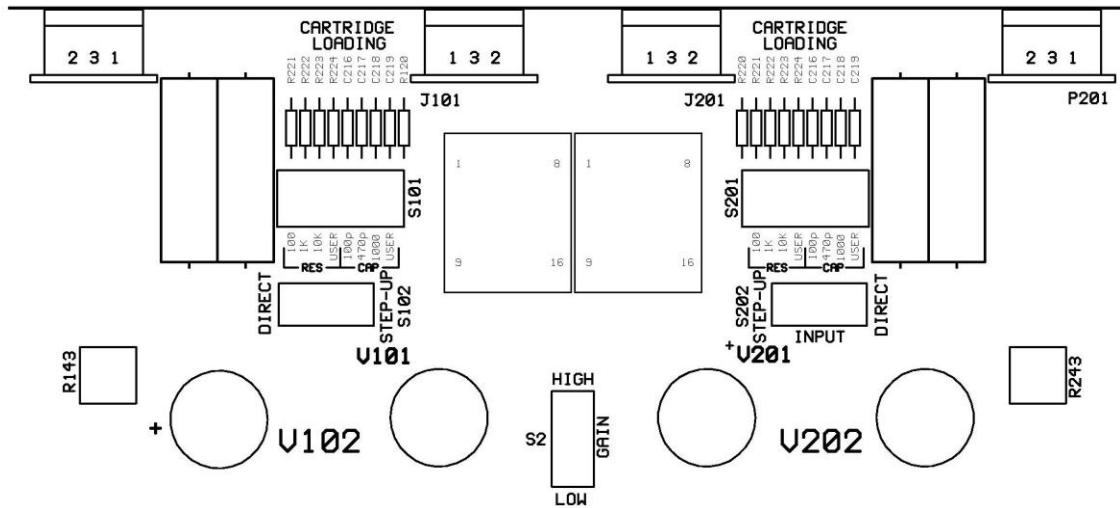


Figure 1

Cartridge loading switches S101 and S201

Resistance:

The 47K load resistor is **permanently connected** to the cartridge input. If a different loading value is desired, it can be obtained by switching in additional resistors, installed on the VK-P90 PC board. This is accomplished by using the two DIP switches, **S101** and **S201**, that allow multiple choices for resistive and capacitive cartridge loading. Four positions are reserved for the choice of resistance and four for capacitance. Out of each group of four, one position is loaded with female pins and allows the user to install any desired value component (this position is marked “USER”). Gold-plated solderable pins are supplied with the VK-P90 accessory kit, that should be attached to either resistors or capacitors supplied by the user. This allows for easy installation and upgrade of user-supplied components.

The following resistors can be added in parallel with the 47K load:

Switch position	Resistor Value
1	100 Ohm
2	1K
3	10K
4	User-Defined

Any parallel combination of the these values is also allowable.

Capacitance:

Various values of capacitors can be connected in parallel to the input via switches **S101** and **S201**. With these switches in the OFF position, there is no capacitive loading to the cartridge. The capacitance choices include:

<u>Switch Position</u>	<u>Capacitor Value</u>
5	100pF
6	470pF
7	1000pF
8	User-Defined

Any possible parallel combination of these values is also allowable.

Input Mode (Direct or Step-Up) Switch

The VK-P90 comes equipped with internal step-up transformers, which allow the user to achieve the best possible signal-to-noise ratio and dynamic range in any system configuration, including systems with very low output moving coil cartridges (down to .1mV or less).

By changing the position of the **S102** and **S202** switches, user may choose between **Direct** and **Step-Up** input modes. In **Direct** mode the cartridge is connected directly to the vacuum tube amplification stage. In the **Step-Up** mode the cartridge signal is routed through the step-up transformer, in order to boost it before it reaches the amplification stage. This allows for an additional gain of 20dB.

It is recommended that for phono cartridges with the output of more than .25mV, the Direct mode be used. For sources with lower output voltage, the user should experiment in order to find the combination, providing the best performance. Using the Step-Up transformers will usually provide a lower noise floor (see the **Specifications** chapter).

Gain Switch

By moving the switch **S2** from High to Low position, the amplifier's gain is reduced by about 15dB. While the High gain position provides the most universal setting, it may be desired to reduce the overall system gain when using some high output phono cartridges.

Fuse Protection

A blown fuse in the VK-P90 is an indication of a serious problem. If a replacement fuse fails as well, no further attempts should be undertaken. Please contact the factory for professional service.

The proper fuse ratings are as follows:

For 100-120 VAC Units: 2A 250V Slow Blow

For 200-240 VAC Units: 1.5A 250V Slow Blow

WARNING:

Factory supplied fuses should be only replaced with the same type and rating parts.

Servicing

The Balanced Audio Technology VK-P90 should require no service other than changing tubes to maintain its high performance. The vacuum tubes used in the VK-P90 are high quality 6922's and 6SN7's rated for approximately 5000 hours of use. Please direct any further service inquiries to the factory.

Cleaning

To remove dust, occasionally wipe the front and top surfaces of your VK-P90 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.

VK-P90 Specifications

Total Energy Storage: 200 joules

Gain at 1kHz: (The following user-selectable values are available)

<u>Input Mode Switch</u>	<u>Gain Switch</u>	<u>Gain</u>
Direct position:	Low	44dB
	High	59dB
With step-up:	Low	64dB
	High	79dB

Signal-to-Noise Ratio: (A-weighted, referenced to 1mV)

Low position	75dB
High Position	78dB
With Step-Up	86dB

Absolute Polarity: Selectable through front panel switch

Cartridge Loading:

Resistance: Selectable from 100 Ω to 47k Ω

Capacitance: Selectable from 100pF to 1000pF

Inputs: Two sets (one RCA and one XLR)

Outputs: XLR Balanced
(XLR-to-RCA adapters available)

Tube Complement: 4 6922's, 2 6SN7's and 4 6C45's

Power Consumption: 150 VA Max

Dimensions: 19" (W) x 5.5" (H) x 14" (D)

Weight: 35 lb. unpacked

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 registration form within 30 days from original purchase will result in a warranty period of one year from the date of manufacture.**

2. Vacuum Tubes

Vacuum tubes (including replacements under warranty) are warranted for one year from the date of the original VK-P90 purchase.

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.