

*Thank you* for selecting the PV10B as the control center for your audio system. The PV10B draws on two decades of research at conrad-johnson into the reproduction of recorded music. The result is a line-stage preamplifier with a remarkable ability to recreate the the dynamics, textures, tonalities, and ambience of live musical performances. With the PV10B, we believe that you will experience the excitement of discovery in hearing more from your favorite recordings than ever before.

At conrad-johnson, we expect our products to be a source of satisfaction and of pride to their owners for many years to come. Accordingly, circuit designs, parts and materials for all conrad-johnson products are selected with a view to maintaining optimal performance over the years. Our reputation for producing among the industry's most reliable components is a natural consequence of this engineering approach.

Although the PV10B has been designed to operate in an intuitively apparent way, you will find useful information on it's installation and operation in this manual. Please take a few minutes to read the manual to better understand the features and capabilities of your PV10B. *Note that the line-stage section of this unit is phase inverting.* See the section entitled "Getting The Most From Your PV10B" for details on correct hookup in your system.

In closing, we'd like to welcome you to the family of conrad-johnson owners. We want you to enjoy your conrad-johnson product to the fullest. To this end, our staff stands ready to answer any questions you may have about the function and application of your PV10B, and to provide any needed service both during, and after the warranty period. Our goal is to heighten your enjoyment of recorded music.

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## **L**imited Warranty For Conrad-Johnson Components

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**conrad-johnson design, inc.** will provide service under warranty to the original owner on products sold new in the United States for the lesser period of three years from the date of purchase by the original purchaser, or five years from the date of shipment to the authorized conrad-johnson dealer. During the warranty period, conrad-johnson will repair defective units without charge for labor or parts (with the exception of vacuum tubes and batteries).

**Exclusions.** The following are not covered under this warranty:

- a) Units which have been damaged by misuse, abuse, or accident.
- b) Units which have been modified, altered, or improperly repaired by anyone not specifically authorized by conrad-johnson design, inc.
- c) Units not purchased from an authorized conrad-johnson dealer in the United States for use in the United States.
- d) Normal wear.
- e) Incidental or consequential damages are not covered under this warranty. Some states do not allow the exclusion of incidental or consequential damages, so this exclusion may not apply to you.

**Obtaining Warranty Service:** To obtain warranty service, the unit must be shipped, along with evidence of purchase, in factory packing to conrad-johnson design (or designated service center) with freight and insurance prepaid by the owner. After repair, the unit will be returned with freight and insurance prepaid by conrad-johnson design to any destination in the United States.

*All implied warranties, including merchantability and fitness for a particular purpose are limited in duration to the duration of this express warranty. Some states do not allow limitations on the duration of implied warranties so the above limitations 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.

Conrad-Johnson products purchased outside the United States are covered by warranty terms of the importing distributor in the country in which the product was originally purchased, which may differ from the terms set out herein. Importing distributors are not obligated to provide warranty service for products originally purchased outside their country. Conrad-Johnson will provide warranty service for products outside the

United States, but the customer must pay all shipping, handling and customs costs both to and from our Service Department.

Questions about this warranty should be addressed to:

Service Department  
conrad-johnson design, inc.  
2733 Merrilee Drive  
Fairfax, VA 22031

The Service Department can also be reached by phone at 703-698-8581, or by fax at 703-560-5360

### ***Service***

If your conrad-johnson audio component requires service, repack it using the original box and packing material and ship to the Service Department address above. Boxes and packing materials can be obtained from our service department for a nominal charge, if you no longer have yours. Include with the unit a note describing the problem you are having in as much detail as possible. It is especially important for our technician to know if the problem is intermittent. If you want an estimate of cost for out of warranty service, be sure to request it in this note. Be aware that requesting an estimate will delay service to your unit as we will have to contact you for your approval before commencing service.

### ***Registering The Warranty***

Please return the enclosed card to the factory within 30 days of purchase to register the warranty.

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## ***I*nstallation**

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The PV10B dissipates up to 35 watts of heat, and must be adequately ventilated. Mount the unit horizontally on a flat, hard surface, and take care that the ventilation holes in the bottom are unobstructed. Allow at least two inches of clearance above the unit and keep the cabinet or shelf open at the back. Vertical installation is not recommended.

All PV10Bs sold in the United States are configured for operation on a 60Hz ac power line producing between 108 and 126 volts. Export versions will have the correct operating voltage and frequency clearly marked on the back panel of the unit, near the ac power cord. In all cases, the actual line voltage should be within + 5/- 10% of the nominal rated voltage.

### ***Electromagnetic Interference (EMI)***

Considerable care has been taken in the design of the PV10B to minimize its susceptibility to radio frequency interference and other forms of EMI. Choice of materials, physical layout, grounding practice, and power supply design have all been specified with a view to reducing the impact of electromagnetic fields on the performance of this unit. At the same time, however, our primary goal is the accurate reproduction of recorded music in the normal home environment, and we have elected not to compromise this objective by the application of heavy-handed RFI filters, or by using grounding practices that reduce RFI at the expense of degraded audio performance. We find that the approach we have taken has worked extremely well, resulting in only rare instances of EMI problems which could be treated locally as needed, rather than compromising the performance of our product in the 99.9% of installations where EMI is not a problem.

Care in installation can often avoid EMI induced problems. The following practices should generally be observed in any application, and will be especially important where EMI may be a problem.

Interconnect cables should be kept as short as possible (3 meters or less), and shielded cable should be used (cable which has two center conductors, and a separate external shield connected at only one end).

Physical location and cable "dress" can be an important factor in minimizing hum pickup. The installation should situate the preamplifier well away from the power amplifier, and power (ac mains) cords should be dressed to remain at least 4" (100mm) away from input/output cables.

### **Connection**

**AUX1/PH:** On a PV10BL, this is an additional line-level input, and is identical to the other inputs. On a PV10B with phono stage, this input provides the amplification and equalization required by moving magnet and high output moving coil cartridges. The phono input impedance is the industry standard 47,000 ohms shunted by approximately 100 picofarads capacitance. This is well suited to nearly all moving magnet and many high-output moving coil cartridges. If necessary, the input impedance can be lowered by soldering a resistor across (from center pin to ground) the input jack. To achieve a desired input resistance of RD, use the following formula to compute the required additional resistance RA:

$$RA = (47000 \times RD) / (47000 - RD)$$

Some moving magnet cartridges require higher capacitance for optimum performance. Increasing the input capacitance may be achieved by soldering a suitable value capacitor across the phono input jack. Use polystyrene capacitors for this purpose.

**TUNER, CD, VIDEO, AUX2, TAPE IN:** These are high level inputs and are electrically equivalent. They present a 50k ohm load to the source. The outputs of your tape recorders should be connected to "TAPE IN".

**TAPE OUT:** This output connects the selected signal to your recorder or external processing loop (eg. equalizer). The output signal is not affected by the level control. Connect "TAPE OUT" to the inputs of your tape recorder or external processor.

**MAIN OUT:** Connect this output to the input of your amplifier(or crossover in a bi-amped system). We recommend the use of an amplifier with an input impedance of 10k ohms or higher. Since the PV10B inverts phase, it may be necessary to invert the speaker leads to maintain correct phase. See the section on "Getting the most out of your PV10B" for an explanation of this.

**EXTERNAL TONE CONTROLS OR OTHER SIGNAL PROCESSING DEVICES:** Connect the output from your processor to the TAPE IN input, and the input of your processor to the TAPE OUT output on the PV10B. The **TAPE MON** position of the SOURCE/TAPE MON button will insert the processor into the circuit; the **SOURCE** position will provide flat, unprocessed response.

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## C**ONTROLS**

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**OFF, ON:** Because of the delayed warmup characteristics of vacuum tube equipment, a time delay muting circuit is incorporated in this preamplifier. The MAIN OUT connections are grounded via a relay for approximately 90 seconds after the unit is turned on in order to suppress warm-up transient noises. The relay grounds the outputs again immediately at turn off or in the event of any power line interruption.

**SELECTOR:** This switch is used to choose among AUX1/PHONO, TUNER, CD, VIDEO, and AUX2 inputs. The selected source will be available at the source position of the tape monitor switch and at the TAPE OUT output connection.

**SOURCE/TAPE MONITOR:** Tape monitoring is accomplished via a pushbutton control. The button, labeled SOURCE/TAPE MON, lets you select your tape deck as an input source, and is also used to compare the original program source with the playback from the chosen tape deck while recording from AUX1/PHONO, TUNER, CD, VIDEO or AUX2. inputs.

**LEVEL:** The PV10B volume control is a precise control, maintaining channel to channel accuracy to within 1 dB throughout most of its rotation.

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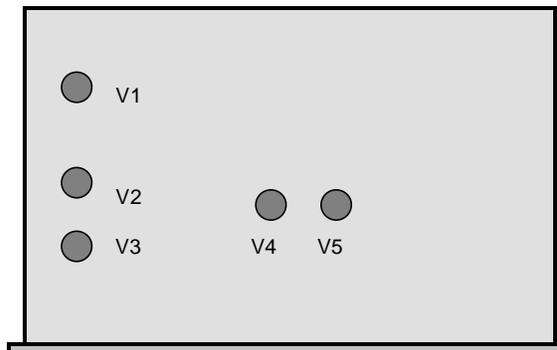
## **V**acuum Tube Replacement

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The audio circuit of the PV10B uses five vacuum tubes of three different types: two 12AX7 (V1 and V2), one 12AT7 (V3) and two 6189 (V4 and V5). The PV10BL uses two type 6189 (V4 and V5). The brands of tubes we supply have been chosen by first selecting those brands which are known to be most reliable, then by extensive auditioning of these acceptable brands with the final choices being made solely on the basis of sonic performance. We know of no vacuum tubes available which will improve the sonic performance of your PV10B. The tubes in your preamplifier have been tempered by a controlled burn-in procedure that permits them to perform for a greatly extended period without sonic degradation, then selected for minimum residual noise. Replacement tubes are prepared and selected in the same way. Therefore, we highly recommend that you purchase replacement tube sets from conrad-johnson design.

We anticipate tube life to accommodate two to three years of operation without degradation in normal use - if the preamplifier is switched off when not in use. If the preamplifier is left on at all times, tube life can be exhausted in a matter of a few months.

### **Tube Chart:**



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## ***G*etting The Most From Your PV10B**

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In a system of commensurate high quality components, the Conrad-Johnson PV10B offers a remarkable level of sophistication and refinement in music reproduction. To get the best performance out of any audio system, there are a number of important details which must be attended to.

### ***Absolute Phase***

Musical notes are heard through the ear's response to waves of alternating rise and fall of air pressure. Musical transients are almost exclusively positive: that is, the initial effect is a rise in pressure. The ear is capable of distinguishing these positive transients from the musically unnatural alternative of a negative transient (an initial fall in air pressure). In terms of your stereo system, these transients are created by your loudspeakers. If the speakers respond to musical transients by first moving out, they are creating a rise in pressure, and the system is said to be phase correct. If they respond by moving in, they create a fall in pressure and the system is said to be phase inverting. Each component in the stereo system either preserves the phase of the incoming signal, and is said to be phase correct, or inverts the phase and is said to be phase inverting. It is unimportant whether an individual component is phase correct or phase inverting, as long as the system as a whole is phase correct. This will be the case if the number of phase inversions is even (or zero).

*The line stage of the PV10B is phase inverting.* If your system has an odd number of inversions, (for example, if the PV10B is the only phase inverting unit in the chain) then you must add one phase inversion. This is conveniently done by reversing the positive and negative connections to your speakers (be sure to reverse both channels).

If you are not sure about the phase of every piece in your system, you can establish correct absolute phase by careful listening. When the system is in correct phase, transients will be noticeably cleaner and more sharply defined. The effect is especially apparent on plucked string sounds. A final warning - not all recordings are phase correct (including some "audiophile" recordings), so listen to several before concluding your investigation of absolute phase.

### ***The Importance Of Wires***

Interconnect and speaker wires are an important element in your stereo system. Interconnects are available which will permit a reference quality system to blossom and fulfill its promise of musical reality. Others will strangle the system to the point where it becomes little better than average. To complicate matters, our experience suggests that the choice of interconnects will be system dependent - those that are top ranked on one system may be a poor choice for a different system. Consult your conrad-johnson dealer for recommendations for your specific system.

### ***Performance Tip***

Warm up the PV10B before listening: The sonic performance improves noticeably as the unit warms up. The midrange becomes more lucid, the highs smoother, and the soundstage expands. The warm up period can be expected to last about fifteen minutes.

**Questions:** If you have questions about the installation or function of your PV10B do not hesitate to call Customer Service at (703) 698-8581.

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# **P**V10B SPECIFICATIONS

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## **Line Level Section:**

**Gain:** 21.5 dB

**Maximum Output:** 20V

**Hum and noise:** 92 dB below 2.5V output

**Distortion:** less than .1% THD or IMD

**Phase:** line section inverts phase of all inputs (including phono) at main out

**Output impedance:** less than 800 ohms

## **Phono Section:** Applies only to PV10B with phono stage.

**Gain:** 48.5 dB (to tape out)

**Overload:** in excess of 125 mv at 1kHz

**Phase:** phono stage is phase correct (at tape out).

**RIAA Equalization:** +/- .25dB (20Hz-20KHz)

**Hum and noise(20Hz-20KHz):** 75 dB below 10mv input

## **Mechanical:**

**Dimensions:** 15.75"W x 3.75"H x 11"D

**Weight:** 12 lbs.

## **Fuse**

The power transformer of the PV10B is protected by a fuse on the ac power line (mains). A failure of this fuses is a symptom of a more serious problem, and a competent service technician should be consulted. The fuse is located on the printed circuit board, near the transformer. ***In no event should the fuse be replaced with a value or type different than that originally supplied. The correct fuse value is:***

PV10B (with phono):

100 or 120V AC 3/4 amp, slow blow

220 or 240V AC 1/2 amp, slow blow

PV10BL (line stage only):

100 or 120V AC 1/2 amp, slow blow

220 or 240V AC 1/4 amp, slow blow