

Thank you for selecting the PF2 as the control center for your audio system. The PF2 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 dynamics, textures, tonalities, and ambience of live musical performances. With the PF2, 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 have been 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 PF2 has been designed to operate in an intuitively apparent way, you will find useful information on installation and on operation in this manual. Please take a few minutes to read the manual to better understand the features and capabilities of your PF2. *Note that this unit is phase inverting.* See the section entitled "Getting the most from your PF2" 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 PF2, and to provide any needed service both during, and after the warranty period. Our goal is to heighten your enjoyment of recorded music.

Limited Warranty For Conrad-Johnson Components

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.

***I*nstallation**

Because the PF2 dissipates very little heat (about 10 watts), ventilation is not an important consideration, allowing greater flexibility for custom or built-in installations. Of course, reasonable judgement must be exercised to see that the PF2 does not obstruct ventilation required by amplifiers or other equipment in the system. In custom installations, the unit may be mounted either horizontally or vertically.

All PF2s sold in the United States are configured for operation on a 60Hz ac power line producing between 108 and 126 volts. Export versions of the PF2 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 PF2 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.

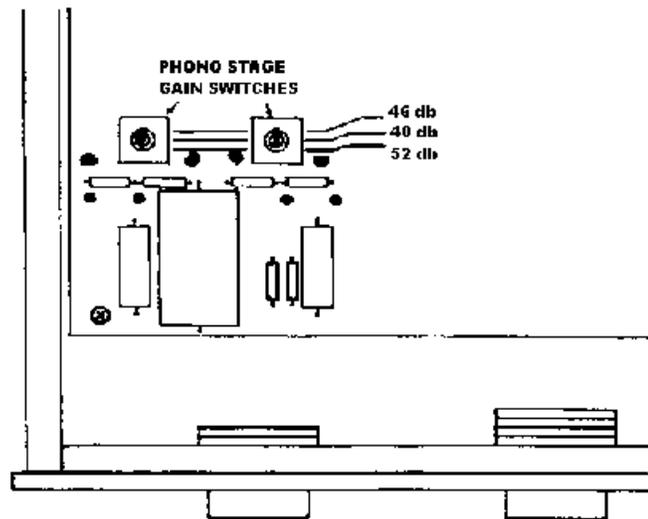
Interconnect cables should be kept as short as possible (3 meters or less), and shielded cable should be used (cable which has two center conductors, and a separate external shield connected at only one end).

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

AUX/PH: In the PF2L, this input is an additional line-level input, electrically identical to each of the other inputs.

In the PF2 with phono stage, this input provides the amplification and equalization required by moving magnet and high output moving coil cartridges. The PF2 phono section offers three different gain settings, 40, 46, and 52 dB, selected by switches inside the unit.



setting is 40 dB. If more gain is required (eg. for a low output moving coil cartridge), unplug the unit, and remove the cover. Consult the diagram for the desired switch setting. There is one switch for each channel. Be sure to set both switches. Replace cover. **Do not operate the unit with the cover off.**

The input impedance of the phono stage 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 parallel resistance **RA**:

$$RA = 47000 * RD / (47000 - RD)$$

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, TAPE 1, TAPE 2: 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 1 and TAPE 2.

REC1, REC2: These two pairs of outputs connect the selected signal to your tape recorders or external processing loop (eg. equalizer). The output signal is not affected by the level and balance controls. Connect from these outputs to the inputs of your tape recorders or external processors.

MAIN OUT: Connect this output to the input of your amplifier (or cross-over in a bi-amped system). We recommend the use of an amplifier with an input impedance of 20k ohms or higher. Since the PF2 line stage inverts phase, it may be necessary to reverse the connections of your speaker leads to maintain correct phase. See the section on "Getting the Most Out of Your PF2" for an explanation.

*C*ontrols

SOURCE SELECTOR: AUX/PH, TUNER, CD, TAPE 1, TAPE 2. This selector switch is used to choose an input for listening. The selected signal is routed to the balance and level controls, amplified by the line stage, and connected to the main output.

RECORD SELECTOR: AUX/PH, TUNER, CD, TAPE 1, TAPE 2.: This control selects the signal to the record outputs. The record output signal is not affected by the settings of the balance and volume controls. Selecting TAPE 1 will route the TAPE 1 signal to REC OUT 2, and will present no signal to the REC OUT 1. Similarly, selecting TAPE 2 will present the TAPE 2 input signal to REC OUT 1 only.

BALANCE: This control is an eleven position stepped attenuator, adjusting the channel balance in approximately .75 dB steps. The maximum attenuation is under 4 dB, so both channels will be present even in the extreme positions. In normal use the control will be centered.

LEVEL: The PF2 precision volume control is continuously variable, for full control of listening levels.

***G*etting The Most From Your PF2**

When connected to a system of high quality components, the Conrad-Johnson PF2 offers an unparalleled 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 PF2 is phase inverting. If your system has an odd number of inversions, (for example, if the PF2 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, it is our experience 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.

Warming Up

The sonic performance of the PF2 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 for several days, so make allowances when you first listen to your PF2.

Questions: If you have questions about the installation or function of your PF2 do not hesitate to call Customer Service at (703) 698-8581.

Specifications:

Gain:

Phono stage - 40dB, 46dB, 52dB selectable *
Line Stage - 21dB

Maximum Output: 10 V RMS**Phase:** The line stage inverts the phase of all inputs (including phono).**Bandpass:** 2 Hz to 75 KHz**Phono Equalization:** within +/- .25dB of RIAA Standard ***Hum and Noise (20Hz-20KHz):**

Phono: 84 dB (at 40dB gain setting) *
Line 94 dB

Distortion at 1.0v output: less than .1% THD or IMD**Output impedance:** less than 200 ohms**Mechanical****Dimensions:** 14.375D x 19W x 3.315H inches

* These specifications applicable only to PF2s equipped with phono stage.

Fuse

The AC line is fused to protect the PF2's transformer. This fuse will not fail in normal operation. Failure of the fuse is a symptom of a more serious problem, indicating the need for qualified service. ***In no event should the fuse be replaced with a fuse of different type or rating than that supplied by the factory.*** The PF2/2L uses a 1/4 amp 3AG fast-blow fuse (1/8 amp 3AG fast-blow for 220V operation).