

*Conrad-Johnson Owner's Manual:
Evolution 20 Vacuum-Tube Preamplifier*

conrad-johnson It just sounds right.

Congratulations on your purchase of the conrad-johnson Evolution 20 vacuum tube preamplifier. You have acquired one of the finest pieces of music reproduction equipment available today. The result of more than a decade of research by conrad-johnson design into the application of vacuum tube devices to the reproduction of recorded music, the Evolution 20 was designed to establish the reference standard among preamplifiers for reproducing the dynamics, tonalities, textures and ambience of a live musical performance. The design and materials have been carefully selected to yield years of unvarying excellence.

Please take a few minutes to read this manual so that you will better understand the features and capabilities of your Evolution 20. **NOTE THAT THE Evolution 20 LINE STAGE IS PHASE INVERTING.** See the section entitled "Getting the most from your Evolution 20" for details on correct hookup in your system.

***LIMITED WARRANTY FOR THE conrad-johnson
Evolution 20***

1. conrad-johnson design, inc. warrants to the original purchaser that the Evolution 20 will be free of defects in materials and workmanship for a period of three years from the date of original purchase.
2. conrad-johnson will repair defective units without charge for labor or parts (with the exception of the vacuum tubes) subject to the following conditions:
 - a) The unit must not have been altered or damaged through misuse, abuse, negligence, accident, or improper operation.
 - b) The purchaser must provide evidence of purchase at the time service is requested.
 - c) All repairs must be undertaken at the factory or other service center designated by conrad-johnson design, inc. Units submitted for warranty repairs must be shipped in the factory packing carton to conrad-johnson design or its designated service center, freight and insurance prepaid by the owner, and will be returned to the owner, freight and insurance prepaid by conrad-johnson design. Replacement cartons are available from the factory for a nominal charge.
 - d) Normal wear and maintenance are not covered by this warranty.
3. The above warranty may be transferred to subsequent owners provided that the warranty registration card has been returned to conrad-johnson design, inc. within 30 days of the original purchase and that the registered owner provides the factory with a signed notice giving the new owner's name and address and the model and serial number of the unit.
4. Where permitted by law, conrad-johnson design's liability shall be limited to that set forth in this warranty. No other warranty of any kind, expressed or implied, is made by conrad-johnson design, inc., and all implied warranties, including merchantability and fitness for a particular "purpose", which exceed the obligations and time limits set forth herein are hereby disclaimed. conrad-johnson design, inc. shall not be liable for incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

4. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Questions about warranty service should be addressed to:

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

REGISTERING THE WARRANTY

Please return the enclosed card to the factory within 30 days of purchase to register the warranty. The warranty may be transferred to a new owner if it has been properly registered initially and if the registered owner sends a signed notice providing the name and address of the new owner and the model and serial number of the unit.

Proper registration of the warranty is important! Not only will it preserve transferability of your warranty, it will also enable us to inform you of any alterations in the design of a given model and of any new products we offer which are likely to be of interest to you.

INSTALLATION

Because of the number and type of vacuum tubes used, the Evolution 20 dissipates a significant amount of heat (approximately 50 watts). It is essential, therefore, that proper attention be paid to ventilation. The unit should be mounted horizontally on a flat hard surface so that the ventilation holes in the bottom are unobstructed. At least three inches of clearance should be provided above the unit and the cabinet or shelf should be open at the back. Vertical installation is not recommended.

To minimize hum pickup, keep the unit well away from the power amplifier, and route power cords away from input cables.

The Evolution 20 requires an ac power line providing between 108 and 125 volts at 50 to 60 Hz. Alternatively, the Evolution 20 is optionally available for operation on 100, 220, or 240 volt power lines.

CONNECTION

Phono input: This input provides the amplification and equalization required by moving magnet and most moving coil cartridges. The phono input impedance can be selected by a back panel switch. The options are 70,100,150,250,470,1k,2k,5k,10k and 47k ohms. Most moving magnet cartridges will sound best at the industry standard 47k setting, though some may benefit from loading at 10k. Moving coil cartridges are more variable, and we recommend auditioning the system to choose the load most suitable for your cartridge.

Tuner, cd, tape 1, tape 2: These are high level inputs and are electrically equivalent. They present approximately a 20k ohm load to the source. The outputs of your tape recorders should be connected to tape 1 and tape 2.

Record output: The record outputs connect the selected signal to your recorders or external processing loop (eg. equalizer). The output signal is not affected by the level control. Connect "record out" to the inputs of your tape recorders or external processors.

Output 1, Output 2: Connect these outputs 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 line stage of the Evolution 20 inverts phase, it may be necessary to invert the speaker leads to maintain correct absolute phase. See the section on "Getting the most out of your Evolution 20" for an explanation of this.

***USE OF EXTERNAL TONE CONTROLS OR OTHER
EXTERNAL SIGNAL PROCESSING DEVICES:***

Use Tape 1 and Record 1 for your tape recorder. Connect the output of the tone controls to Tape 2 and the input of the tone controls to Record 2. To use the tone controls, select Tape 2 on the Source Selector and use the Record Selector to select phono, tuner, cd or tape 1. By selecting the input directly on the source selector, the tone control processor will be bypassed.

CONTROLS

OFF, POWER: Because of the delayed warmup characteristics of vacuum tube equipment, a time delay muting circuit is incorporated in this preamplifier. The main outputs are grounded via relays 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.

SOURCE SELECTOR: PHONO, TUNER, CD, TAPE 1, TAPE 2: This selector switch is used to choose an input for listening.

RECORD SELECTOR: PHONO, TUNER, CD, TAPE 1, TAPE 2: This control selects the signal to the record outputs, allowing the user to record one source while listening to another.

BALANCE: The balance control is an eleven position stepped attenuator that is out of the circuit at the center position. Each step away from center attenuates the opposite channel by approximately .75 dB. At the full extreme position positions, there is about 3.75 dB difference between the two channels.

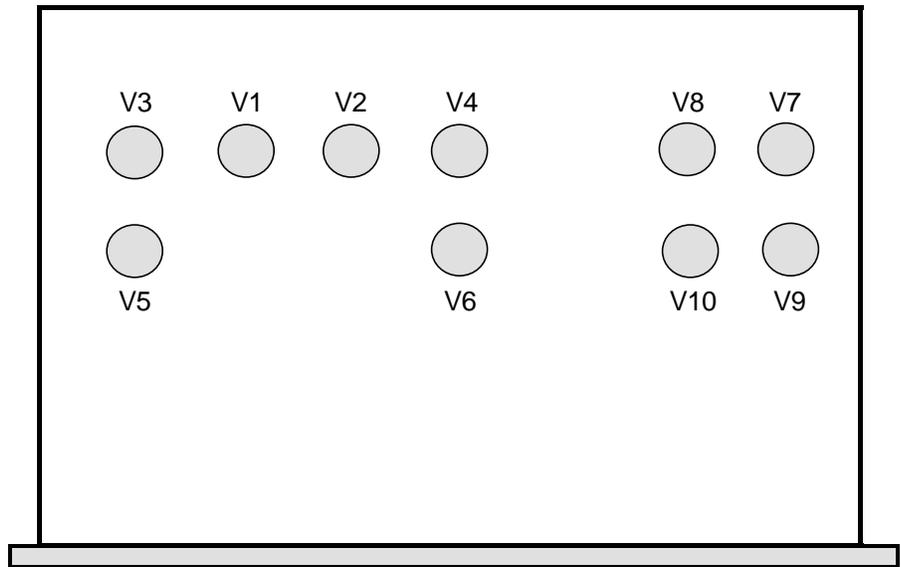
LEVEL: The Evolution 20 volume control is a twenty-three position stepped attenuator, selecting among twenty-three pairs of precision resistors.

V*VACUUM TUBE REPLACEMENT*

Each channel of the Evolution 20 uses five vacuum tubes: one 6CW4 and four 6GK5s. Each type has been carefully chosen for its particular circuit application. It is well known that tubes of a given type vary sonically depending on the manufacturer. We have chosen the brands of tubes we supply based on extensive auditioning of available brands with the choices being made solely on the basis of sonic performance without regard for either cost or prestige. We know of no vacuum tubes available which will improve the sonic performance of your Evolution 20. In addition, 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. We anticipate two to three years of operation without degradation in normal use. The tubes have also been hand selected to achieve the minimum residual noise in your preamplifier. Therefore, we highly recommend that when the time comes to replace the vacuum tubes, you purchase replacement tube sets from Conrad-Johnson Design.

Refer to the diagram on the next page for tube locations.

EVOLUTION 20 TUBE COMPLEMENT



V1 and V2 type 6CW4

V3-V10 type 6GK5

G₂₀ ***GETTING THE MOST FROM YOUR EVOLUTION***

The Conrad-Johnson Evolution 20 offers an unparalleled level of sophistication and refinement in music reproduction, but it cannot transform an inferior stereo system. Only high quality amplifiers and loudspeaker systems will be capable of fully revealing the capabilities of this precision instrument.

Given a system of high quality components, there remain 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 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 is either phase correct or phase inverting (including the source and speakers—these are normally phase correct). It is of no consequence if an individual component is phase inverting, as long as the system as a whole is phase correct. This will be the case as long as the number of phase inversions is even (or zero).

The line stage of the Evolution 20 is PHASE INVERTING. It inverts the phase of all inputs, including phono. If your system has an odd number of inversions, then you must add one phase inversion. This will be the case if the Evolution 20 is the only unit in the chain that inverts phase. **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 no better than average. To complicate matters, our experience suggests that the choice of interconnects will be system dependent- those that are ranked first on a given system may be a poor choice for a different system. Consult your conrad-johnson dealer for recommendations for your specific system.

TIP

Warm up the Evolution 20 before listening: The sonic performance of the Evolution 20 improves noticeably as the unit warms up. The mid-range becomes more lucid, the highs smoother, and the soundstage expands. The warm up period can be expected to last several minutes.

Questions: If you have questions about the installation or function of your Evolution 20 do not hesitate to call Customer Service at (703) 698-8581.

Evolution 20 SPECIFICATIONS

Phono Section:

Gain: Phono stage 40dB

Phase: Phono stage phase correct (non inverting)

Phono overload: in excess of 150 mv at 1KHz

RIAA equalization: to +/- .25dB (20Hz-20KHz)

Hum and noise (20Hz-20KHz): 80dB below 10mv input

Line Level Section:

Gain: 29dB

Maximum Output: 20V

Bandpass: 2Hz to more than 100kHz

Hum and noise: 88dB below 2.5V output

Distortion at 1.0 v output: less than .25% THD or IMD

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

Ouput impedance: less than 200 ohms

Mechanical:

Dimensions: 19"W x 7"H x 16 3/8"D

Net Weight: 60 lbs.

SERVICE

In the event your conrad-johnson Evolution 20 stereo preamplifier requires service, repack it in the original packing material and ship via United Parcel Service (UPS) to:

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

Be sure to include a copy of your sales receipt from the original purchase, along with a note explaining the problem you are having in as much detail as possible. If the problem is intermittent, please indicate. If you do not have the original packing material, replacements are available from conrad-johnson design for a nominal charge.