

Owners Manual and Set-up Guide Genesis Integrated 60-Watt Valve Amplifier

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Genesis Integrated 60-Watt Valve Amplifier

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A Message from Genesis

The Genesis Integrated 60-Watt Valve (or vacuum tube) Amplifier is a limited-edition product that was created as proof of concept that a well-designed, well-executed, value-priced amplifier will be able to drive any Genesis loudspeaker with ease and authority.

The transparency, detail retrieval, dynamics, and wide frequency extension of Genesis loudspeakers place great demands on the quality of amplification. Because of our emphasis on *absolute fidelity*™ above all else, the speakers do represent a difficult, but not impossible load for an amplifier to drive. The I60 was created as a partner to a pair of Genesis loudspeakers, and as a result, it has the quality of amplifiers costing much more.

The I60, together with a pair of Genesis loudspeakers, will give your entire music collection a whole new life. In a well set-up system, it is capable of transporting the musical performance into your room. The hiss and hum normally associated with vacuum tubes are completely absent, while retaining the richness and rightness of the best of this genre of amplifiers.

While developing a value-priced product, quality has not been scaled down. Hand-selected, precisely matched components are used throughout: custom-made military-spec paper-in-oil capacitors with aluminum cans are selectively used; tantalum-film resistors are used on a hand-built discrete resistor potentiometer as a volume control. The output transformers *and* power transformer are laboriously hand wound to precise specifications tailored to the circuit and tubes used. Point-to-point wiring using solid-core silver wire is used in the entire signal path. This reduces the resistance, capacitance and inductance normally associated with ordinary printed circuit boards. Each and every unit is first burned-in on the test bench, and then run in for over 100 hours before final test and packaging.

Very little feedback is used – just enough to make the amplifier unconditionally stable. *Not* the excessive amount usually employed to make amplifiers measure better at the expense of musicality. The result of all this obsessive attention to detail is a fabulously musical amplifier capable of driving almost any loudspeaker in the world.

Before using this unit, please take the time to carefully review the safety instructions and operating information contained in this Owner's Manual and Set-up Guide. Becoming familiar with your new amplifier and the correct operating procedures will help assure you of safe usage, reliable operation, and maximum musical enjoyment.

Please write the serial number and purchase details of your Genesis I60 Integrated Valve Amplifier here for future reference.

Serial No.: _____

Bought at: _____

Date: _____

Address: _____

Tel: _____

Set-up and Safety Information

Now that you have your new amplifier, we realize that you can't wait to hook it up and start playing! However, please read this set-up guide and safety information before you proceed.

Unpacking and Setting Up

Your amplifier is heavy, and its vacuum tubes are delicate and dissipate a great amount of heat. It is important that this product is never used near water or sources of water. Avoid bathrooms, washbowls, kitchen sinks, swimming pools, etc. Damp basements should also be avoided.

Get the help of a friend, because these amplifiers are HEAVY. Carefully remove the amplifier package from the carton and unwrap it. Place it on a solid, level surface with adequate ventilation. It should not be placed in a built-in installation or rack unless adequate proper ventilation is provided. Do not place your amplifier in a closed bookcase or cabinet. Never obstruct the top part of the amplifier with any objects that could result in the valves overheating.

The amplifier should not be subject to vibration of any sort. Do not place them directly in front of, or on top of your loudspeakers. As valve amplifiers can be microphonic, vibration of the tubes will distort the signal.

Next, carefully remove the tube cage by carefully lifting it vertically upwards. Remove the protective foam around the individual vacuum tubes, and replace the tube cage. This protects the tubes from damage, and also protects inquisitive fingers from the hot tubes!

Before you plug the power cord in, please make sure that you have the model with the proper voltage for the country you are in. Taiwan, Japan and North America will require the 115V version. Most European countries and other Asian countries will require the 230V version. We have found that a single voltage power transformer sounds better, and hence the amplifier is designed for a single-voltage only.

Safety Information

1. Never try to disassemble the amplifier as you may be exposed to dangerous voltages. Vacuum tube amplifiers operate at hundreds of volts. Even after turning the amplifier off and unplugging it from the wall socket, it will retain a lethal electrical charge for some time.
2. Do not attempt to modify the amplifier. The device has been tested and adjusted for optimal operation and should give you

years of trouble-free service. Please see Adjusting the Bias and Replacing Tubes (pages 9 and 10) for special instructions.

3. Vacuum tubes dissipate a large amount of heat and will result in very high temperatures:
 - a. Do not touch the tubes with bare hands during, and immediately after operation. It could cause severe burns.
 - b. The I60 features a removable “tube cage”. However, we recommend that for the sake of safety, you operate the unit with the tube cage left in place.
 - c. Do not leave the device within the reach of children.
 - d. Vacuum tubes are made of glass, and hot tubes will shatter if a single drop of water lands on it! Care must be taken so that objects do not fall into, and liquids are not spilled into the unit.
 - e. Do not expose the tubes to moisture.
 - f. Do not attempt to clean the device with a wet cloth, or any solvents or cleaning solutions.
4. The vacuum tube amplifiers are fragile instruments. Do not subject the unit to excessive shock, smoke, dust, or mechanical vibration.
5. Do not move the amplifier while the tubes are still hot. Allow the amplifier to cool down first before attempting to relocate the amplifier or to change the tubes.
6. Do not connect or disconnect the loudspeakers from the amplifier while it is playing. Turn the amplifier off, and wait a couple of minutes before making any connections. Before turning the amplifier on, it should be properly connected.
7. **Do not run the amplifier without the appropriate loudspeakers connected to it.**
8. This device should be operated at a maximum of 5A current. Do not replace the internal fuse with one rated higher than 5A.

About Your Amplifier

Introduction

The Genesis Integrated 60-Watt Stereo Valve Amplifier uses proprietary technology, high quality components, and state-of-the-art vacuum tube topology to deliver sonic performance rivaling other amplifiers costing much more. The design objectives of this product are to:

1. Deliver musically accurate amplification,
2. Provide a vacuum tube amplifier that would approach the reliability and ease of use of solid state amplifiers, and
3. Provide an affordable vacuum tube amplifier that would be able to drive the Genesis family of loudspeakers.

A valve amplifier matched with an appropriate loudspeaker can produce a sound that we can only call magic. The hard, brittle, and edgy presentation of many transistor amplifiers is contrasted with the rich, lush and silky sound of the tube amplifier. Often, tube amplifiers offer much better imaging and sound stage presentation compared to an equivalently priced solid-state amplifier. It is more musical, and the performance seems almost *alive*.

A properly designed and built tube amplifier, such as the Genesis I60, is capable of reproducing midrange and treble with crystal clear definition – the sound can only be described as smooth and silky, and musically accurate with the right timbre and harmonics.

As for the bass, the I60 is designed to maintain tight control over the bass, and deliver the powerful punch and dynamics at the low end with the solidity and weight of transistor amplifiers.

Design and Construction

The I60 is an integrated amplifier with four high-quality selectable inputs and a discrete resistor ladder potentiometer as a volume control. It uses a single 12AX7 per channel as the main voltage gain stage, with 6SN7's as the driver stage. No ordinary 6SN7's for the I60 – military spec 6N8P are selected for their reliability and durability, and then hand-picked for linearity and low noise. Two sets of matched-pair KT88 power output valves are used to deliver a very conservative 60 watts RMS per channel.

While the I60 is developed as a value-priced product, quality has not been scaled down. Extensive listening tests were done throughout the design process, and expensive components were used where they were appropriate. Custom-made military-spec paper-in-oil capacitors with aluminum cans are selectively used; a hand-built discrete resistor stepped

attenuator is employed as a volume control; low-noise gold plated military-spec ceramic tube sockets are used throughout.

Very little feedback is used – just enough to make the amplifier unconditionally stable. *Not* the excessive amount that is sometimes employed to make amplifiers measure better at the expense of musicality.



During construction, all components are hand-selected and precisely matched. The output transformers *and* power transformer are laboriously hand wound to precise specifications tailored to the circuit and tubes used.

Point-to-point wiring using solid-core silver wire is used in the entire signal path. This reduces the resistance, capacitance and inductance normally associated with ordinary printed circuit boards.

The only PCBs you see in the “guts” above are the boards associated with biasing of the power tubes, and the soft-start electronics.

The output transformers are custom designed and hand-wound with a core of grain-oriented silicon steel specifically for the output tubes used. Two output taps are provided on the secondary – 4ohm and 8ohm – with the 4 Ohm tap specifically tuned using Genesis loudspeakers.

Each amplifier is extensively inspected and tested at every stage of manufacturing. It is also allowed to burn-in before the valves are biased and calibrated, and then run-in for 100 hours before finally being electronically tested prior to packing for shipment. Hence, it should come to you ready to use straight out of the box.

Set-up and Operation

Speaker Connections

Matching the impedance between your speakers and the I60 is one of the most important sonic factors in your enjoyment of this amplifier. Please

check the specifications of your speakers. Speakers with 6 ohms up to 8 ohms impedance should be connected to the “8 ohm” speaker connectors. Genesis loudspeakers should be connected to the “4 ohm” connectors.

Two sets of 5-way insulated binding posts are provided on the rear of your amplifier, but we recommend that you use spade lugs or banana plugs instead of bare wire. Make sure that your speaker cables are firmly connected to the correct speaker connections. Loose or wrong connection of the cables or speakers may cause damage to the power output tubes. **DO NOT SHORT THE TERMINALS TOGETHER.**



Do not run the amplifier without speakers connected. This will damage the output transformers.

Source Input Connection

Use high quality interconnects to connect the source components to your amplifier. All the internal input connections are high quality with shielded silver solid core wiring internally. They are labeled “Tape”, “CD”, “Tuner” and “Aux” for convenience. You can use any input for any device.

Operating and Adjustment

Make sure that your amplifier is properly connected to a high-current power receptacle. Before you turn the amplifier on, check that the speaker connections are properly hooked up and tightened. Turn the volume control to minimum (fully anti-clockwise), and turn the power switch to ON. The blue LED will light up to indicate that the amplifier is working. In a few seconds, you will hear a faint click to indicate that the soft-start circuit has engaged and the vacuum tubes will begin to glow a soft, warm orange color.

Give your amplifier a warm-up period of at least a minute for the valves to stabilize before attempting to play any music. It should take less than 10 minutes to fully warm up the tubes. Because of the fast warm-up power supply, you will get 95% of the maximum sonic quality within 5 minutes of turn-on.

Do not leave your amplifier turned on 24 hours a day 7 days a week. Turn on the amplifier only when you intend to use it.

While a pair of KT88's will pump out up to 75 watts, the I60 is biased very conservatively for a longer lifecycle on the power tubes, and also more musicality. In normal usage of around 500hours per year, the power tubes should last 6 to 8 years. The preamplifier tubes, and the driver tubes should easily last twice to three times that. Military-spec tubes are used extensively

for their reliability and durability. Hence, your vacuum tube amplifier should give you years of trouble free service and magical musical moments.

Controls

Power Switch

Turn the switch clockwise to turn the amplifier on. The blue power indicator will light up, and the tubes will begin to warm up. A soft start circuit is incorporated for extended tube life and to prevent a turn-on thump at the speakers.

Within a few seconds, you will hear a couple of soft clicks, and the valves will begin to glow a beautiful soft orange color. Do not turn on the amplifier without speakers connected. Also, turn on the source components before turning on your amplifier. Otherwise, some components might produce turn-on “thumps” which could be harmful to your amplifier, your loudspeakers or your ears.

Turn the switch counter clockwise to turn the amplifier off. About 30 seconds after turning the unit off, the tubes will lose the soft orange glow. The valves will still be hot and could burn your fingers if you touch them. Leave the amplifier turned off for at least 30 minutes before cleaning or touching the tubes.

It is normal for a vacuum tube amplifier to run quite warm. If used for prolonged periods, the chassis will be hot to the touch. If you are using the included tube cage, that cage will also be hot.

Keep young children away from vacuum tube amplifiers. The hot valves could burn their fingers.

Volume Control

This knob is used to adjust the output volume. Turn the knob clockwise to increase the sound level, and counter-clockwise to decrease the sound level. When turning the unit on or off, it is recommended that the volume be turned to minimum (fully counter-clockwise).

The volume control is a precision discrete resistor stepped attenuator. Hence, do not attempt to set the volume between clicks!

Selector Switch

Use this knob to select the input source to be listened to. There are four selection positions. While they are labeled Tape, CD, Aux, and Tuner, they can be used for any line-level source. There is no quality difference between CD, Tape, Aux, and Tuner inputs. They all have shielded high resolution solid-silver cabling.

Maintenance

Periodically dust and clean your amplifier of the grime of daily living. Unplug your amplifier from the wall before cleaning. Do not use liquid cleaners or aerosol cleaners – just a clean, dry cloth. Do not use abrasive pads, scouring powder, or solvents such as alcohol.

Adjusting the Bias

Your amplifier should give you years of trouble-free service. Re-biasing the vacuum tubes will not be necessary unless you change the valves. However, we have provided a simple means to do it.

The bias adjustment controls the amount of current flowing through the tubes. Proper adjustment is crucial to the performance of the amp, and also to the life of the tubes. The wrong bias setting will result in excessive distortion and also shorten the life of your tubes. Do NOT listen to the guy in the corner store who tells you that running the tubes “hot” will give you more “slam”.



On each side of the I60, you will see a set of 5 little holes. Three of the holes are for the probe of a multimeter, and two that give you access to a little screw. Each set of holes is used to adjust the bias for the two output tubes of a single channel (left or right).

You will need a multimeter that reads to 2V DC, and a small, flat-bladed screwdriver. 2V DC is about as dangerous as playing with an

AA battery so don't worry about electrocuting yourself as you do this.

Poke the red probe of the multimeter into the hole labeled (+) and the black probe into the hole labeled (-).

Make sure that your usual speakers are connected securely, and then turn the amplifier on if it is not already.

Using the small screwdriver, turn the little screw between the two probes slowly until the multimeter reads 2 V. If you have a very accurate digital



voltmeter (like the RadioShack pictured) don't worry if you can't get to exactly 2.00V. Plus or minus 0.05V is more than accurate enough!

Once you have adjusted the bias of one tube, move the red probe to the other hole labeled (+) to adjust the bias of the other tube before moving to the other side of the amplifier to adjust the bias of the other channel.

Replacing Tubes

When replacement parts are required, make sure that the service technician uses parts that are as specified, or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

The only valves that may need replacement are the power output valves – these should be replaced with matched pairs of KT88's. As the I60 has individual bias controls for each tube, matched pairs need not be used. However, if matched pairs are used, the matches should be placed on both the left output pair, and the right output pair.

When you replace the power output valves, you will have to rebias the amplifier as described above. In normal usage of approximately 500 hours per year, the power output valves will last you 6 to 8 years.

The vacuum valves used on the I60 are high quality, reliable, low gas valves. It is highly recommended that you replace these valves with equivalent valves from reliable, quality suppliers.

Specifications

- Vacuum Tubes: KT88 x 4, 12AX7 x 2
6N8P x 4 (or 6SN7 equivalent)
- Rated Power Output: 60w + 60w RMS
- Frequency Response: 20Hz ~ 30kHz, <1% T.H.D.
- Input Impedance: 250k Ohms
- Output Impedance: 4 Ohms or 8 Ohms
- Preamp Input Sensitivity: 380mV
- Signal to Noise Ratio: >90 dB
- Dimensions H 185mm x W 480mm x D 380mm
H 7 ¼" x W 17" x D 15"
- Weight 60 lbs (27 Kgs)