

Certificate of Restoration

Component: Sansui G-5000 Serial Number: 828071380

Manufactured: Production line 82, July 1978 – 1,380th off the line

RESTORATION SCOPE

This vintage, high-fidelity receiver has undergone a comprehensive electrical and mechanical overhaul, meticulously restored to provide decades of reliable service. All life-limited components have been replaced with modern, high-tolerance equivalents to ensure long-term stability. Beyond a simple recap, the circuit has been stabilized with precision-matched transistors and flameproof safety resistors, ensuring excellent sonic performance, thermal stability, and long-term reliability beyond original 1970s component tolerances.

I. ELECTRICAL OVERHAUL

- **Capacitor Replacement:** Full electrolytic recap using high-quality, modern Nichicon/Panasonic/WIMA capacitors. For values of 1 uF or less, WIMA film capacitors were used. Voltage ratings were increased where appropriate, providing improved long-term reliability. A total of 85 capacitors were replaced.
- **Power Supply Capacitors:** Both main filter capacitors were replaced with high-quality, modern Nichicon capacitors. Voltage ratings were increased to improve reliability and operating headroom. A total of 2 main filter capacitors were replaced.
- **Output Transistors:** New gain matched OnSemi MJ21195G and MJ21196G output transistors were installed. New mica pads and thermal compound applied. 4 output transistors and 4 mica pads.
- **Semiconductors:** All known “noisy” or “failure-prone” small-signal and driver transistors were replaced with modern low-noise equivalents. Front-end differential pairs were hand-matched for gain (hFE) to ensure the lowest possible DC offset and maximum thermal stability. A total of 40 transistors were replaced.
- **Safety Upgrades:** All failure-prone factory safety and signal diodes were replaced with modern equivalents. A total of 7 VD1212 diodes were replaced.
- **Relay:** The original relay was replaced with a modern equivalent.
- **Safety Resistor Upgrades:** To improve long-term stability, all fusible and N.I.R. resistors were replaced with flameproof, metal film resistors. These ticking time bombs are among the first components that should be replaced. This unit is full of them. A total of 31 resistors were replaced.
- **Circuit Integrity:** Corrosive factory adhesives physically and chemically removed. The glue had damaged several components, requiring the replacement of 5 resistors. Select high-stress PCB traces reflowed with 63/37 tin/lead solder. Any damaged traces were professionally repaired.
- **Multi-turn trim potentiometers:** New Bournes trimpots installed for better precision and reliability. A total of 6 were replaced.
- **Grounding Points:** All chassis and board grounding points re-soldered.
- **Meter tracking:** Both signal meters operate correctly.

II. CALIBRATION & BENCH TESTING

- **DC Offset:** DC offset is exceptionally low due to the installation of matched differential transistor pairs.
- **Bias:** Bias current was adjusted and verified to the factory specification of 4.5 mV.
- **Laboratory Verification:** Performance confirmed via oscilloscope analysis, including 1kHz and 10kHz sine-wave and square-wave stability and full-power clipping symmetry.
- **Stress Test:** Under heavy equalization and high-volume stress, the receiver remains stable without breaking into parasitic oscillation, proving the robustness of the power supply and the health of the new output transistors.
- **Linearity:** The receiver was tested with the EQ flat to ensure the power stage provides transparent, uncolored amplification across the audible spectrum.

- **Burn-In:** Minimum 8-hour thermal stress test completed under an 8-Ohm dummy load at 50% rated power.
- **Factory Specifications:** The receiver was tested to meet or exceed published factory power specifications. While rated at 45 W/channel at 8 ohms, this unit was driven to rated output and beyond under controlled load conditions to verify protection circuit behavior and power supply stability.

TESTING DATA

DC Offset – L: 1 R: 1 (0-100 mV)

Bias – L: 4.5 R: 4.5 (service manual 4.5 mV)

Power – L: 50 R: 50 (service manual minimum 45 watts)

III. MECHANICAL & COSMETIC RESTORATION

- **Signal Path:** All switches and potentiometers deep cleaned and lubricated with DeoxIT D5/F5 and Fader Lube F100L to restore proper contact conductivity and reduce background noise to an exceptionally low-noise floor.
- **Lighting:** The G-5000 only came with a dial light on the left edge. An additional matching lamp assembly was installed on the right side of the dial to provide symmetrical illumination. Full dial and meter lamp conversion to warm-white LED illumination. A total of three LED lamps were installed.
- **Aesthetics:** Professional chassis detailing performed. The faceplate was removed and meticulously cleaned with metal polish. All knobs were cleaned and polished to their original luster.
- **Case:** Factory units came with vinyl veneer. Cabinet cleaned and polished.
- **Tuner Dial:** The tuner cord pulleys were all lubricated for smooth tuning.
- **Chassis:** The lower chassis was cleaned.
- **Tamper-Evident:** Key adjustment and inspection points are marked with tamper-evident lacquer seals.

WARRANTY & PROVENANCE

This restoration includes the "Bag of Bones" (the original replaced components, excluding the old output transistors and 3 replacement bulbs) and this certificate of restoration as proof of service. This unit carries a 30-Day Limited Warranty covering the restoration work. Warranty coverage is void if tamper-evident seals are disturbed or if evidence of unauthorized internal service is present.

Restoration documentation retained by restorer.

Restorer: Jamie Johnson

Date of Service:

Signature:

