SANSUI G9000/8000

Pure Power DC Stereo Receivers with FET Differential Input Design,
Advanced FM/AM Tuners and Four Large Meters.

Only hi-fi, everything hi-fi.

Sansui

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Archiv Michael Otto

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PURE SANSUI

At Sansui, every engineering decision is based, ultimately, on music. Pure music.

Reproducing perfect sinewaves on a graph or oscilloscope screen was not our goal in refining the basic electronic performance of the G-9000 and G-8000 to a level no other receiver has dared to claim. Such perfection *is* achieved in both Sansui Pure Power DC Stereo Receivers, however, largely because it is the surest way to guarantee their performance excellence when judged by the best precision "test instrument" ever "invented"—the human ear.

In creating these remarkable receivers we've surpassed conventional high fidelity requirements by a wide margin. Greatly expanded frequency response. Superior signal-to-noise ratios. The reduction of all forms of distortion far below audibility. But beyond the hi-fi basics, the emphasis is on startlingly clear and distinct sound image reproduction and impressive dynamic response. And vital to these achievements is our Pure Power DC or Direct Coupled power amplifier design, introduced in the following pages.

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For the first time in hi-fi, here are stereo receivers to equal the quality and value of separate components in the same price ranges. Tuner and phono equalizer specifications are strictly hi-fi. And no combination of separates can offer wider flexibility nor easier handling.

Your decision, too, should be based on pure music. Hear it in the Pure Power DC Stereo Receivers G-9000 and G-8000 from Sansui, where it's *all* hi-fi.

SANSUI'S G9000/G8000: HOW THEY ACHIEVE PURE MUSICAL PERFORMANCE

PURE DC POWER OUTPUT

DC Power Amplifier: The Reasons

Why do we use DC amplifiers in the Sansui G-9000 and G-8000 receivers? The pure musical performance of both models is the only answer that really counts. But for a technical explanation, we must start with the fact that the rapid advances in today's professional recording equipment and recording techniques put the *full* sonic range of a musical performance on tape and record more accurately than ever before.

Sounds which once were "clipped" and not recorded at all, or badly recorded at best, are now included in nearly all modern recordings. The sharp, percussive sounds of drums, and even the very deep bass notes below the limits of human hearing, are examples. To reproduce all sounds with low distortion and noise over the widest possible frequency range, most stereo amplifiers and receivers depend on a large amount of negative feedback. This involves returning a portion of the output signal *out of phase* to the input.

Negative feedback, if applied in large amounts, results in the deterioration of an amp's "dynamic response," however. Audio engineers have recently discovered that the *time lag* inherent in negative feedback is the cause. And the more refined the techniques for measuring such criteria as rise time, slew rate, transient intermodulation distortion (TIM) and so on become, the more able they are to determine just how severely negative feedback does influence an amplifier's ability to respond to and faithfully amplify transient and capricious musical signals.

To avoid the need for large amounts of negative feedback, it was necessary to create an amplifier whose basic performance—before the application of negative feedback—could provide a better phase-amplitude response than the types used in conventional hi-fi components. The breakthrough came with the invention of the DC amp and the extension of its advantages with the use of a differential input amplifying stages for each section of a component.

A DC amp, by definition, is one that employs no capacitors in its signal path nor in its negative feedback loop. Because this circuit is thus "Direct Coupled," it can amplify even a DC or direct-current signal, namely one with the frequency (Hz) of zero.

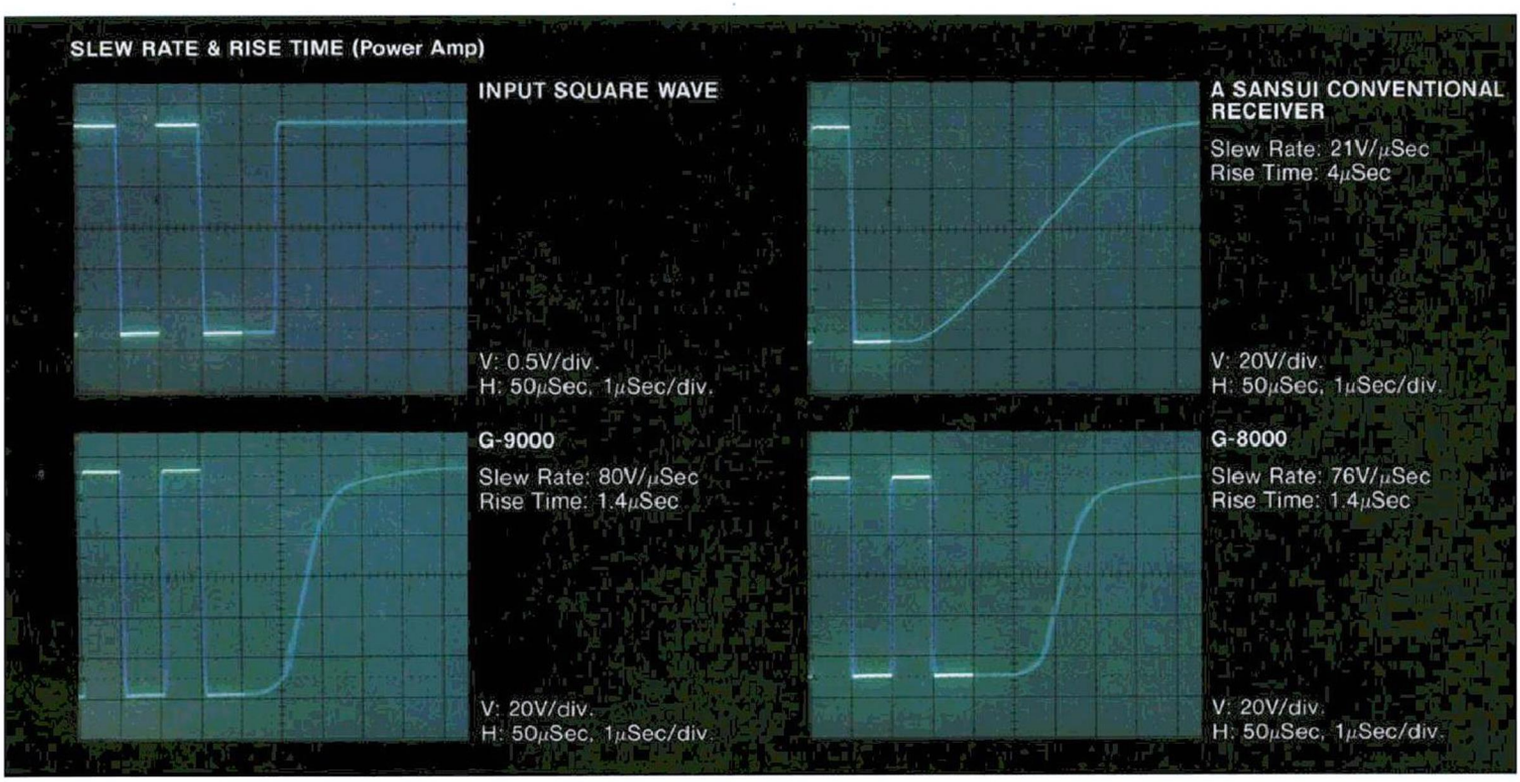
The minute time delays caused by capacitors are no longer a threat to musical reproduction when the DC design is used. This permits the reproduction of an unprecedentedly wide frequency range from zero Hz (DC) and up into the ultrasonics. It also means faster response to transient, musical signals *without* time lag.

In the Sansui G-9000 and G-8000 models, the frequency range of the power amplifiers is an astonishing zero Hz (DC) to 200,000Hz! It lets you enjoy the pure deep bass and superhigh trebles you've been missing in conventional stereo equipment, and this is the first time any stereo receiver has been able to make this claim. Finally, since both the G-9000 and G-8000 offer immensely improved dynamic response characteristics, higher stability over a broader frequency range in the *optimum* application of negative feedback, and far better noise and distortion characteristics. Sansui is proud to say (and happy to offer proof) that, at last, here are stereo receivers whose pure musical performance has reached a level never before possible with any receivers. Thanks to Sansui's DC amplifier design.

Separate Left/Right Power Supplies

Musical signals in one channel, no matter how instantaneously percussive or strong they may be, can never "rob" power from the opposite channel in the G-9000/G-8000. This is a major factor in ensuring the clean sound-image localization characteristics of both receivers, and it results from our use of separate power supplies for each channel.

The larger the receiver, the more important it becomes that all circuit blocks receive a stable, well-regulated supply of the power they require to perform their jobs perfectly.



Such supplies must have low "source impedance" across the entire audio spectrum. By using a large toroidal transformer with separate, dual windings in the G-9000/G-8000 models, we achieve these objectives and more. The quality, large-capacity capacitors of very low impedance in both models (special Dynamic Oval Power types in the G-9000), plus separate rectifying and voltage-stabilizing circuits for each channel, add further insurance of immensely reduced transient crosstalk and greatly improved transient response from zero Hz (DC) to the very high frequencies. By the way, both receivers feature very advanced power protection circuits to prevent damage to internal circuits and your speakers in the event of power-related mishaps.

ICL Amplifier Blocks

The FET differential input circuit design explained above is so effective, in fact, that we've also applied it to the tone control and DC power amp circuits in the G-9000 and G-8000. This means that for the first time in stereo receivers, an exclusive ICL or Input Capacitor-Less design has been achived for great improvements in overall tonal quality.

Phase and transient response characteristics—as measured by slew rate, rise time, TIM, etc.—have been raised beyond any comparison with today's competition in the stereo receiver field. Because no capacitors are used in the input stages, unnecessary tonal coloration and phase distortion are never allowed to degrade musical purity.

SUPER-CLEAN PREAMPLIFIERS

FET Differential Input Phono Equalizer

Ordinary hi-fi specifications don't always reveal the dynamic-state or actual musical performance of a phono equalizer, any more than the height and girth of an oak tree can show you its grain. Years ago, Sansui engineers were among the first to push the dynamic-state performance of equalizer circuitry to new heights in the search for purer musicality, not simply "better" specs. We found that simply applying a greater amount of negative feedback (to disguise dynamic-state inadequacies) is not enough, even though it may result in a more impressive-looking specification. Instead, we searched for and found effective ways to improve the basic or open-loop performance of our equalizer designs. These efforts have found their highest expression in the Pure Power DC Stereo Receivers like the G-9000 and G-8000 which incorporate our FET Differential Input Phono Equalizer. This circuit has permitted us to eliminate the input capacitor from the equalizer in what we call "ICL" (Input Capacitor-Less) design. Overall, the phono equalizers exhibit far higher stability and much less coloration than ever before. The improvements you can hear are reflected in the sharply responsive transients, the wider dynamic range and the fact that sound images are more transparent and resolute from the G-9000 and G-8000 alike.

NEWLY-DESIGNED FM/AM TUNER

The same quality designed into the amplifier sections is inherent in the FM/AM tuners. In particular, the FM tuner is designed not only for superb sensitivity and signal-to-noise ratios, but also incorporates a number of new technical developments that completely suppress or minimize all undesirable factors resulting from the process of converting the received radio-frequency signals into stereo audio signals. Among these developments are a Sansui-patented FM IF Group Delay Equalizer, a Power Ratio Detector, Adjacent Channel Filter and Auto Noise Filter—with all of these helping to minimize different forms of distortion and noise. The AM tuner also has a new circuit design that receives AM broadcasts with measurably improved tonal quality.

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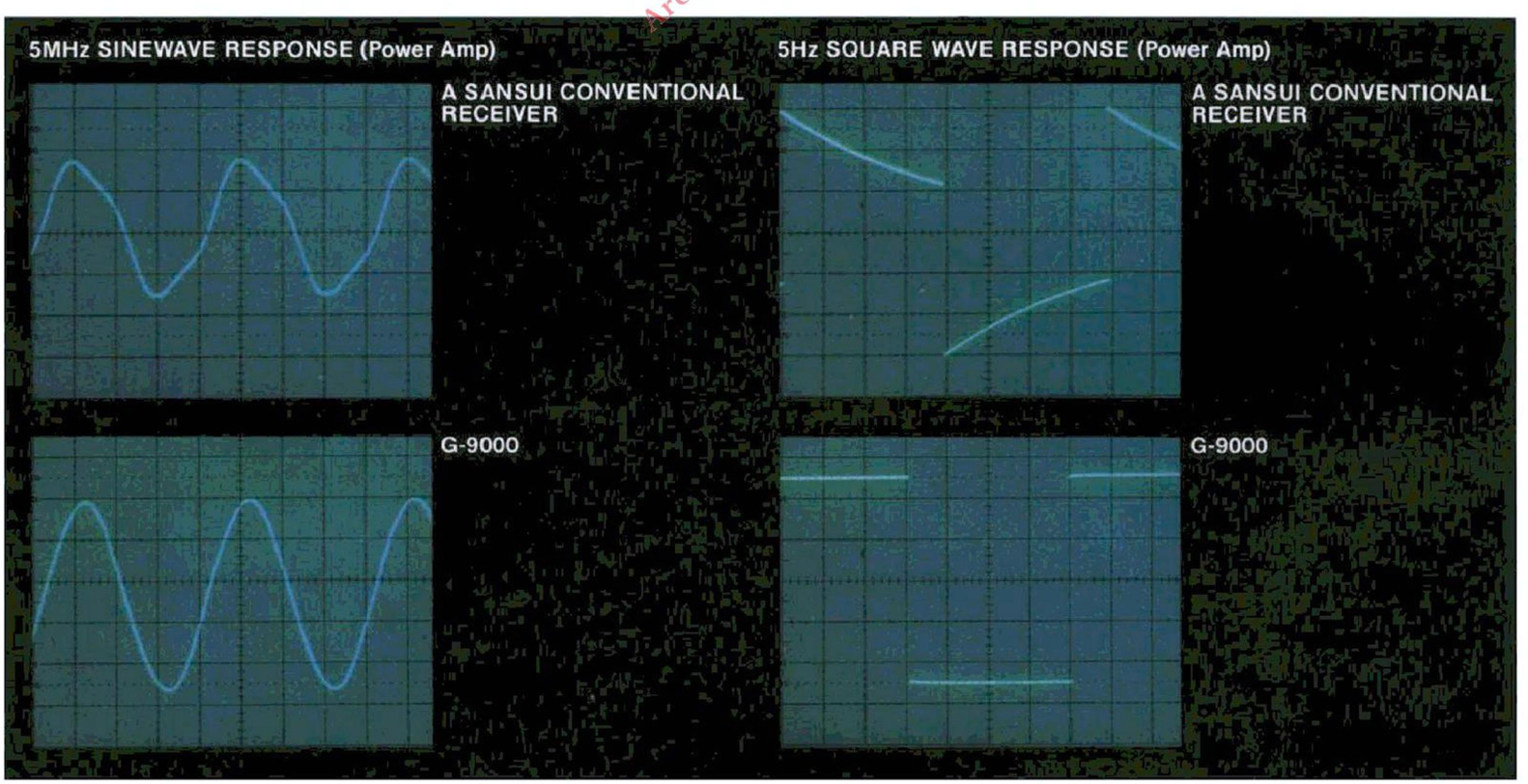

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WHAT THEY OFFER IN STRICTLY HI-FI FEATURES

World's first stereo receivers with DC power amplifiers which offer unprecedented 0~200,000Hz frequency response and superior "dynamic response" to transient musical signals.

The G-9000/G-8000 are two of the world's first stereo receivers to be equipped with DC power amplifiers, and there can be no question that these advanced amplifiers are much of the reason why the receivers can reproduce complex, pulsive musical signals clearly with a degree of "purity" not attainable even in many separate stereo amplifiers on the market today.

In designing the new DC power amplifiers, Sansui borrowed heavily from its own best-selling DC integrated stereo amplifiers such as the AU-717. The resulting advanced circuit design, the new, highly dependable power supplies, and the use of carefully chosen, top-quality parts and components, combine to produce outstanding music reproduction, and significant performance specifications. Frequency response is the widest *ever* in a stereo receiver—a wide 0~200,000Hz. Total harmonic distortion is a very, very low 0.02% (0.025% for G-8000). And dynamic response is very fast, as exemplified by the high slew rate—80V/μ sec. for the G-9000 and 76V/μ sec. for the G-8000—and ultra-fast 1.4μ sec. rise time.

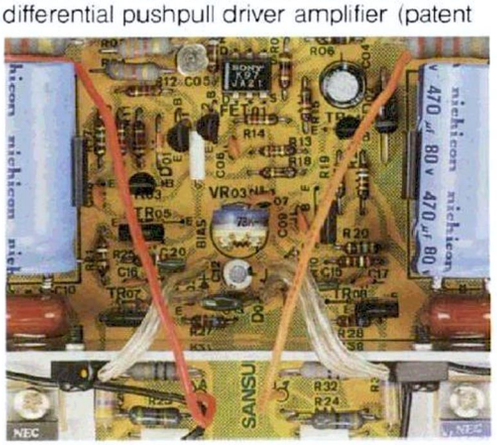
Sansui-exclusive circuit design contributes to superb tonal quality

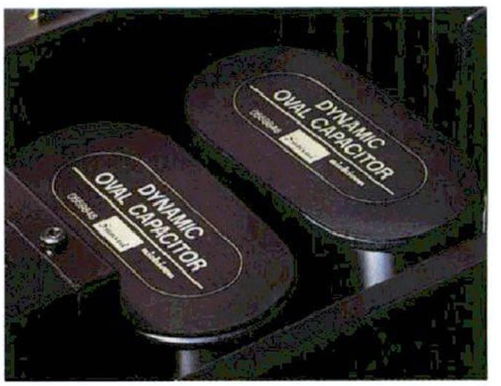
The DC power amplifiers in the G-9000/G-8000 incorporate a newly developed Dual-FET differential input circuit, followed by a current-mirror loaded, cascode-connected amplifier of low-noise transistors, a current differential pushpull driver amplifier (patent pending), a three-stage differential predriver amplifier, and, finally, a three-stage Darlington-connected OCL output circuit that holds four large power transistors of excellent linearity in parallel in each channel.

This is a highly advanced, stable circuit. It eliminates capacitors—the traditional cause of phase distortion—from the negative feedback loop, and thus completely avoids coloration of the tonal quality of reproduced sound. It also improves the amplifier's dynamic response to an unprecedented degree, as measured by such criteria as slew rate (indicating how many volts an amplifier can amplify within a unit time), rise time (showing how many micro-seconds are required for an amplifier to reach the voltage of the input waveform), and transient intermodulation distortion (TIM).

Stabilized, high-power power supplies separately service the left/right stereo channels

In the G-9000/G-8000, Sansui has included a very advanced power supply system. This provides two separate power supplies for the left and right stereo channels, and these comprise an advanced toroidal transformer with separate, dual windings, featuring very low magnetic and DC resistances. This is in addition to a pair of new Dynamic Oval capacitors in the G-9000 and eight quality capacitors in the G-8000, and separate rectifying and voltage-stabilizing circuits for the left and right stereo channels. This elaborate design offers significant advantages: Very low source impedance across the entire audio frequency spectrum and greatly reduced transient crosstalk, both of which assure high resolution of reproduced stereo sound images.





Complete safety assured by reliable protector circuit

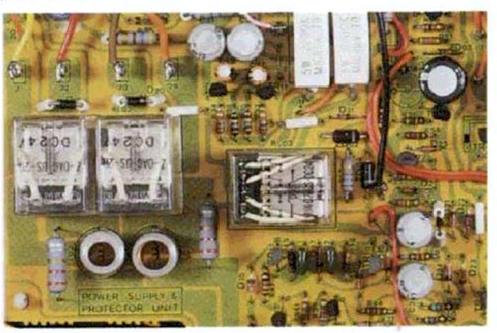
The higher the output power, the greater the need in an amplifier for a protector circuit that responds instantly and accurately to any accident. The G-9000/G-8000 fulfill this need with their newly developed triple detection protector circuit.

A review of this system would be the following:

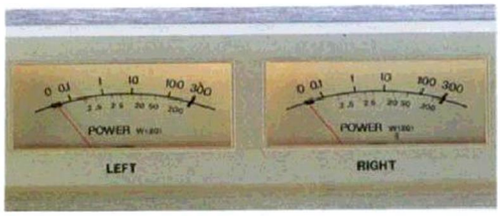
(1) DC detection protector circuit:
The moment a DC current exceeding a prescribed value appears in the output, this circuit instantly opens the output circuit to protect your valuable speaker systems.

(2) Overcurrent detection protector circuit:
Whenever the output terminals are short-circuited, this circuit instantly opens the output circuit and prevents an overcurrent from flowing into your speaker systems.

(3) Thermal detection protector relay:
A special device detects the temperature of the heat sinks, and whenever it exceeds a prescribed temperature, operates the relay to cut off the output circuit and protect the power transistors.



Direct-readout power meters offer easy viewing
These meters let you read out the instant-by-instant output power. You can read it out separately for the left and right stereo channels, and directly in watts from 0.1 watt up to 300 watts, thanks to the logarithmically compressed meter scales.

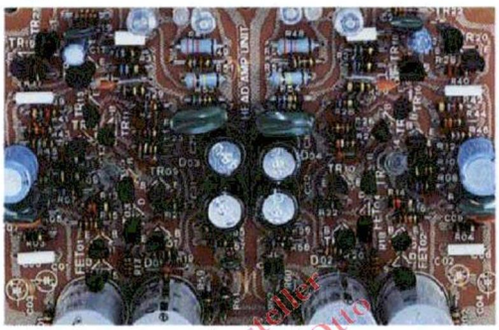


Superb FET-equipped Phono Equalizer makes these Sansui Pure Power DC Stereo Receivers far more musically accurate.

An advanced FET differential input phono equalizer design for improved stability
The G-9000 employs a precision negative feedback type phono equalizer of 12 low-noise transistors per channel; the G-8000 has a similar type of 6 low-noise transistors per channel. For the G-9000, circuit design includes an FET differential input circuit with a current source and a cascode current mirror circuit, followed by a buffer amplifier and then a class A amplifier. Finally, the design also includes an active-loaded inverted Darlington-connected complementary SEPP (Single-Ended Push-Pull) circuit. (The G-8000 uses a class-A inverted Darlington-connected complementary circuit.) This is all highly advanced and elaborate circuitry and it is specifically designed to achieve superior basic hi-fi performance before the application of negative feedback. It significantly enhances the amplifier's stability and, during music reproduction, especially improves its dynamic response. Further of importance is the use of the FET and the advanced circuit configuration, that has eliminated the traditional input coupling capacitors—cause of much tonal coloration and phase distortion. Phono signal-to-noise ratio is measurably improved, while the FET shuts out all external noise from the equalizer.

Accurate RIAA equalization of ±0.2dB (20~20,000Hz)
The phono equalizer in the G-9000/G-8000 employs high-precision equalizing components such as metalized film resistors of only 1% tolerances, and accomplishes a RIAA deviation of ±0.2dB across the 20~20,000Hz audio spectrum. It thus enables a faithful reproduction of the original waveforms.

Wide dynamic margin means musical reproduction without distortion
Because the high-performance phono equalizer is driven by dual stabilized power supplies of a high ±33.3V, it achieves an exceptionally high phono overload capacity of 330mV in the G-9000 and 240mV in the G-8000. This capacity, plus the outstanding 80/79dB signal-to-noise ratio assures that all music with a very wide dynamic range, is reproduced without being distorted or clipped at its entrance into the receivers.



New FET Differential Input Tone Control Circuit Design avoids unnecessary tonal coloration
As in the phono equalizer, the circuit does away with input coupling capacitors by using an FET differential input circuit with a current source and a current mirror circuit, followed by a Darlington-connected two-stage amplifier, totalling nine transistors per channel. The removal of the input coupling capacitors avoids unnecessary tonal coloration and phase distortion, which, in turn, noticeably improves the amplifier's transient response as measured by slew rate, rise time, etc.

The circuit is specially designed so that it is normally bypassed altogether unless and until it is switched on by turning the Tone Switch on, as in all top-quality separate stereo amplifiers. And with this tone control circuit you can control the three ranges of bass, midrange and treble separately.

The G-9000 comes with switches to let you select the Bass and Treble turnover frequencies.

Subsonic and High Filters cut out harmful super-low/high-frequency signals
Both models come with a Subsonic Filter to cut out harmful super-low-frequency signals below 16Hz, as generated, say, by warped records with a sharp 6dB/oct. cutoff slope.

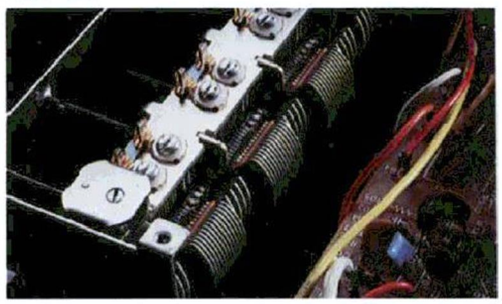
Both receivers also come with a sharp-cutting 10kHz, 6dB/oct. High Filter to remove high-frequency noise when desired.

Tape Play Switch Controls Two Tape Decks
Both receivers connect up to two stereo tape recorders or decks. The Tape Play Switch included lets you monitor either tape deck, and duplicate (copy) a recorded tape from one deck to the other in either direction.

Preamplifier and power amplifier can be separated
A single switch lets you separate the pre-amplifier and DC power amplifier sections of both the G-9000/G-8000. Thus you may use the DC power amplifier independently to build, if you wish, a multi-amplifier hi-fi system.

Newly designed FM Stereo/AM Tuners deliver Hi-Fi FM and Noise-Free AM reception.

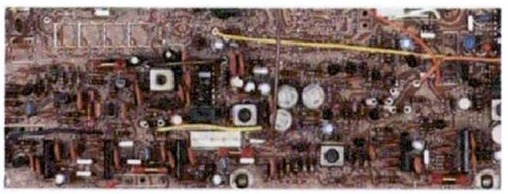
Linear-tracking FM frontend offers supreme FM sensitivity
This advanced FM frontend employs a low-noise dual-gated MOS FET in its RF amplifier, and a newly designed precision frequency-linear type wide-gap five-ganged (four-ganged in the G-8000) tuning capacitor. The RF amplifier and the tuning capacitor have been carefully aligned to elminate the possibility of any tracking error. The overall result is increased tuner sensitivity and considerably improved capabilities to reject crossmodulation and other forms of interference.



IF Amplifier with selectable WIDE/NARROW modes assures hi-fi quality FM sound anywhere
Both Sansui Pure Power stereo receivers in this brochure incorporate extremely advanced FM/AM tuner sections whose sound and performance specifications are *strictly* hi-fi. But in the G-9000 you have the additional advantage of a WIDE/NARROW selection for the FM IF bandwidth.

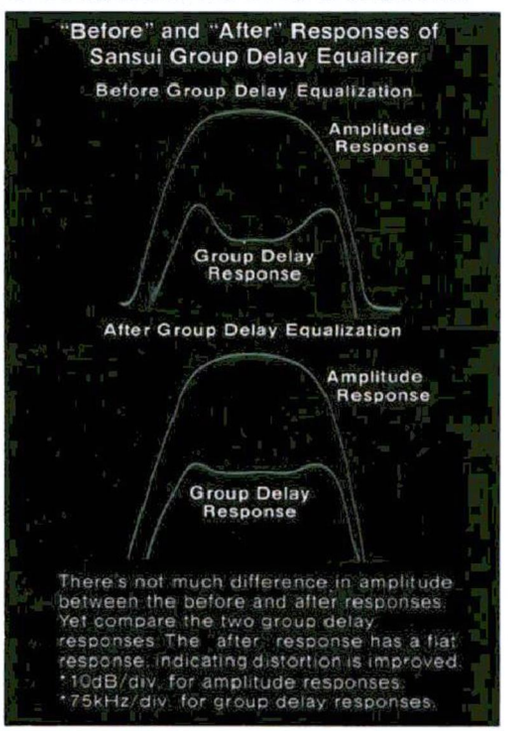
When receiving strong, nearby FM stations, you'll want to use the WIDE IF bandwidth mode so that the distortion, stereo separation, capture ratio and other factors are measurably improved. But when the station you want is too weak or too distant to be received without interfering noise, switch to the NARROW.

In the circuitry behind the WIDE/NARROW switch are a special bi-resonator ceramic filter (for NARROW) which improves the selectivity, plus the three bi-resonator ceramic filters for WIDE. The signal is then amplified by five newly-developed ICs or integrated circuits, five of which contain a two-stage differential amp each.



Patented Group Delay Equalizer reduces distortion, increases stereo in the high frequency range

Sansui has carefully determined the exact amount of group delay characteristic distortion caused by ceramic filters, and designed a special circuit in the G-9000 FM tuner to provide an exact mirror-image of that distortion to, in effect, remove it. This patented device restores the original fidelity of the signal you want to hear. Better performance in the high frequencies and in stereo separation are some of its benefits.



New Power Ratio Detector contributes to low-distortion FM sound

Also exclusive to the G-9000 is a new FM detector, called a Power Ratio Detector, formed of a newly-developed IC driver with a discriminator, the former driving the latter with high power so that overall linearity is greatly improved. The device is thus able to demodulate a wider frequency band than conventional detectors, and do so without output signal level reduction, to reduce the distortion in FM reception.

New Adjacent Channel Filter removes interference from neighboring stations

In both the G-9000 and G-8000, Sansui has included a special circuit to eliminate the so-called "beat" components in your received signal. Such components are caused by interference from adjacent stations entering any FM tuner with a wide IF bandwidth. The use of the Adjacent Channel Filter eliminates such beats, making it possible to enjoy clean music at any time.

New FM Auto Noise Filter activates automatically, eliminates noise, assures clean FM sound

LEDs are commonly employed as visual indicators in hi-fi, but we've used a few *inside* the G-9000 as a part of a new FM Auto Noise Filter. The LED or Light-Emitting Diode is automatically activated when and if the strength of a tuned-in broadcast signal falls below a pre-determined level for any reason, such as when an overhead airplane reflects out-of-phase signals toward your antenna. The light of the LED is detected by a cadmium sulfide or CdS cell and the resulting filter action improves the audible signal-to-noise ratio by more than 10dB automatically.

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PLL FM Multiplex Demodulator gives low distortion, wide dynamic range in FM stereo sound

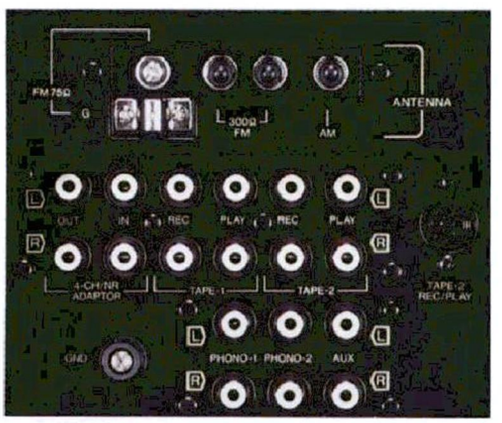
That the PLL (Phase-Locked Loop) system FM multiplex demodulator retains its superior demodulating performance against changes in temperature or time lapse is well known, as are its primary advantages of low distortion and a wide dynamic range. In the G-9000 and G-8000, Sansui has gone a step ahead and refined the related, peripheral circuits around the IC so that the PLL demodulator operates under the most optimum conditions. The result is FM stereo perfection.

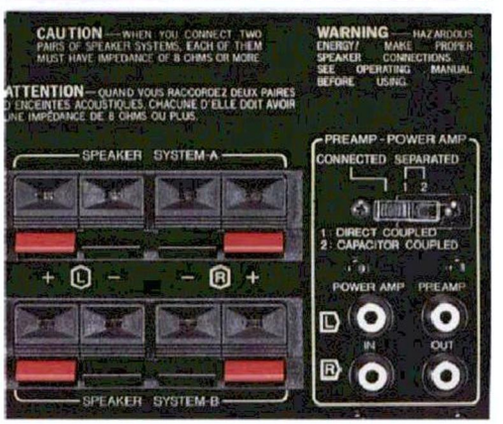
AM tuner with new circuit design reduces noise

Even the AM tuner has improved tonal quality, as Sansui's special technique of grounding helps improve the tuner's frequency response and other critical factors in these new receivers. The G-9000 uses a three-ganged tuning capacitor to improve both the IF Response Ratio and Image Response Ratio to 70dB, thus assuring clean noise-free AM sound. The G-8000 uses a two-ganged tuning capacitor.

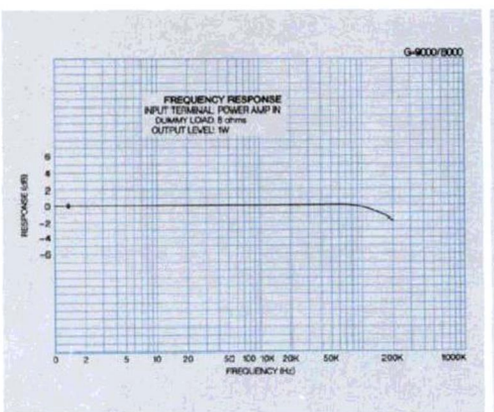
And that's not all

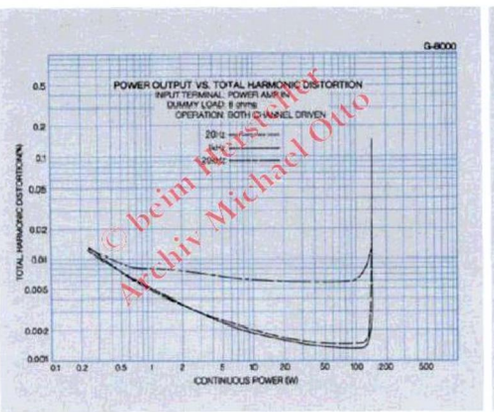
- Click-Stopped, Oversize Volume Control Has Preset Tab.
- Convenient −20dB Audio Muting Switch to Reduce Sound Volume Instantly.
- Loudness Control assures natural tonal balance during low-volume listening.
- Convenient Selector Switch and bright LED Indicators.
- Versatile Mic Mixing has its own volume control.
- 4-Channel/Noise Reduction Switch activates a connected quadraphonic or noise reduction adaptor unit.
- Convenient sidepanel input/output connections.
- FM Muting Switch gives smooth tuning, free of inter-station noise.
- Special Dolby FM De-emphasis Switch for FM Dolby adaptor.
- FM Multiplex Noise Canceller.
- Two large signal/tune meters for pinpoint tuning.

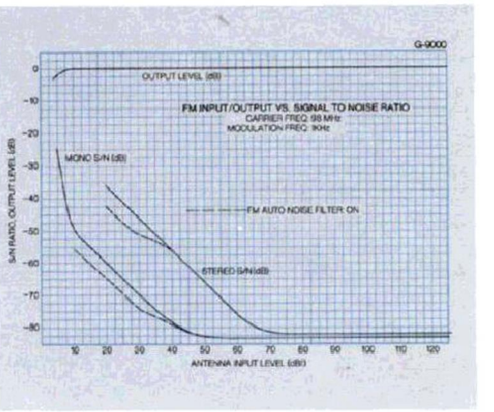


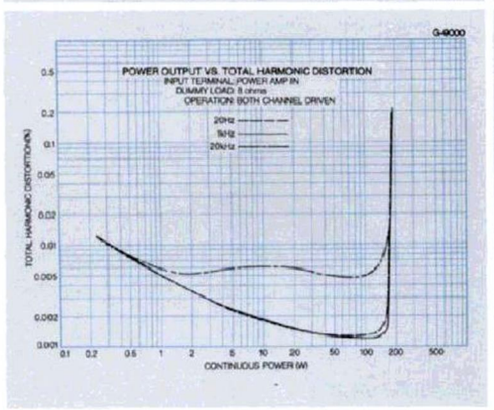


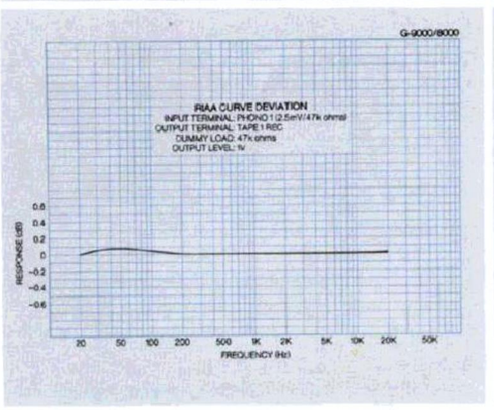
G-8000

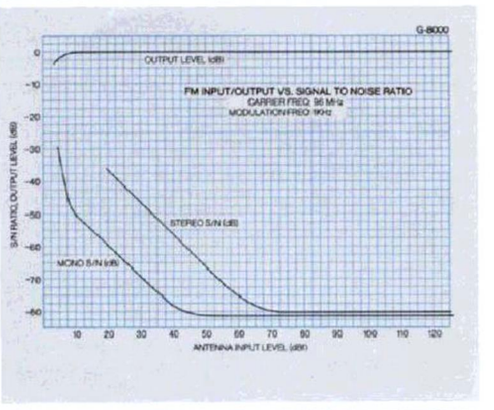








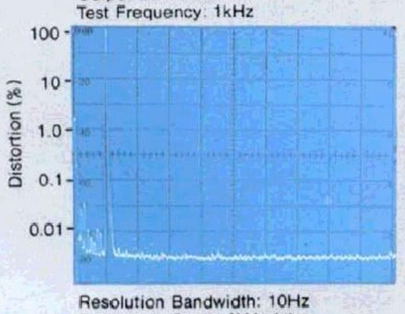




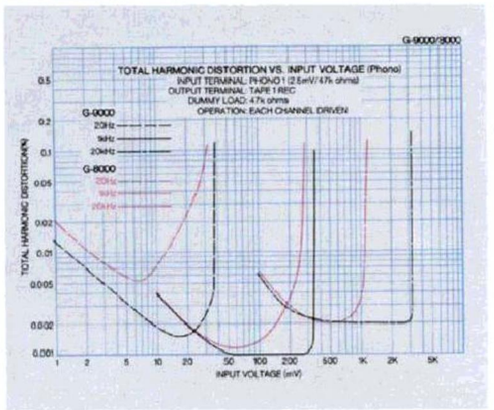
HARMONIC DISTORTION (Distortion Spectrum) 250mW

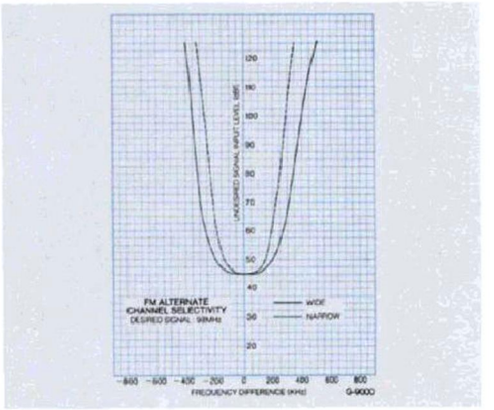
G-9000

Input Terminal: Aux
Output Level: 250mW
Test Frequency: 1kHz



Resolution Bandwidth: 10Hz
Frequency Span: 1kHz /div.





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SPECIFICATIONS

G-9000

AUDIO SECTION

POWER OUTPUT*

Min. RMS, both channels driven, from 20Hz to 20,000Hz, with no more than 0.02% total harmonic distortion

160 watts per channel into 4 and 8 ohms

Min. RMS, both channels driven, at 1,000Hz, with no more than 0.02% total harmonic distortion

190 watts per channel into 4 ohms
175 watts per channel into 8 ohms

TOTAL HARMONIC DISTORTION*
OVERALL (from AUX) less than 0.02% at or below rated min. RMS power output
OVERALL (from AUX) less than 0.005% at 1kHz, 160W power output

INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
OVERALL (from AUX) less than 0.02% at or below rated min. RMS power output

DAMPING FACTOR	60 into 8 ohms
LOAD IMPEDANCE*	4 and 8 ohms
RISE TIME	1.4μSec.
SLEW RATE	80V/μSec.
FREQUENCY RESPONSE (at 1 watt)	
OVERALL (from AUX)	5 to 50,000Hz +0.2dB, −1.5dB
POWER AMP IN	DC to 200,000Hz +0dB, −3dB
RIAA CURVE DEVIATION (20 to 20kHz)	+0.2dB, −0.2dB
HUM AND NOISE	
PHONO	80dB
AUX	95dB
CHANNEL SEPARATION (at 1,000Hz)	
PHONO	60dB
AUX	70dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)	
PHONO 1, 2	2.5mV, 47k ohms
AUX	150mV, 47k ohms
MIC	6mV, 10k ohms
(PHONO: Max. input capability more than 330mV RMS at 0.02% distortion)	
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)	
TAPE REC (PIN)	150mV, 47k ohms
(DIN)	43mV open
PREAMPLIFIER OUTPUT	1V, 47k ohms
MAXIMUM PREAMPLIFIER OUTPUT (0.03% T.H.D.)	7V, 47k ohms
CONTROLS	
BASS	+10dB, −10dB at 50Hz
MIDRANGE	+5dB, −5dB at 1.5kHz
TREBLE	+10dB, −10dB at 10kHz
TONE SELECTORS	
BASS	200Hz, 400Hz
TREBLE	1.5kHz, 3kHz
LOUDNESS	8dB at 50Hz, 6dB at 10kHz
FILTERS	
SUBSONIC	−3dB at 16Hz (6dB/oct.)
HIGH	−10dB at 10kHz (6dB/oct.)
MUTING (Audio)	−20dB

FM SECTION

TUNING RANGE	88 to 108MHz
SENSITIVITY	
MONO (IHF)	8.7dBf (1.5μV IHF T-100)
(DIN)	0.9μV
STEREO	15dBf
50dB QUIETING SENSITIVITY	
MONO	12.5dBf
STEREO	34dBf
(A.N.F. IN)	
MONO	7.5dBf
STEREO	29dBf
SIGNAL TO NOISE RATIO AT 65dBf	
MONO	80dB
STEREO	76dB
FREQUENCY RESPONSE	
MONO	30 to 15,000Hz +0.2dB, −1dB
STEREO	30 to 15,000Hz +0.2dB, −1dB
DISTORTION AT 65dBf	
MONO (WIDE)	less than 0.06% at 100Hz less than 0.06% at 1,000Hz less than 0.08% at 6,000Hz
(NARROW)	less than 0.2% at 1,000Hz
STEREO (WIDE)	less than 0.1% at 100Hz less than 0.08% at 1,000Hz less than 0.1% at 6,000Hz
(NARROW)	less than 0.5% at 1,000Hz
CAPTURE RATIO	0.9dB
ADJACENT CHANNEL SELECTIVITY	
WIDE	5dB (at 200kHz)
NARROW	18dB (at 200kHz)
ALTERNATE CHANNEL SELECTIVITY	
WIDE	55dB at 400kHz
NARROW	90dB at 400kHz
SUPRIOUS RESPONSE RATIO	110dB at 98MHz
IMAGE RESPONSE RATIO	110dB at 98MHz
IF RESPONSE RATIO	
Balanced	110dB at 98MHz
RF INTERMODULATION	75dB
AM SUPPRESSION RATIO	60dB
STEREO SEPARATION	40dB at 100Hz 50dB at 1,000Hz 40dB at 10kHz 30dB from 30 to 15kHz
ANTENNA INPUT IMPEDANCE	300 ohms balanced 75 ohms unbalanced
OUTPUT VOLTAGE AND IMPEDANCE	
Fixed	0.5V, 47k ohms
Dolby FM	0.5V, 47k ohms

AM SECTION

TUNING RANGE	530Hz to 1,600kHz
SENSITIVITY (Bar antenna)	50dB/m (300μV/m)
SELECTIVITY (±10kHz)	30dB at 1,000kHz
IMAGE RESPONSE RATIO	70dB at 1,000kHz
IF RESPONSE RATIO	70dB at 1,000kHz

GENERAL

AC OUTLETS	switched max. 50 watts unswitched total 150 watts
SEMICONDUCTORS	116 Transistors; 72 Diodes; 13 FETs; 9 ICs; 10 LEDs; 1 Photo Coupler
POWER REQUIREMENTS	
POWER VOLTAGE	100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION	680W
DIMENSIONS	560mm (22 1/16")W 201mm (7 15/16")H 495mm (19 1/2")D
WEIGHT	26.9kg (59.3lbs.) Net 29.7kg (65.5lbs.) Packed
FINISH	simulated walnut grain

G-8000

AUDIO SECTION

POWER OUTPUT*

Min. RMS, both channels driven, from 20Hz to 20,000Hz, with no more than 0.025% total harmonic distortion

120 watts per channel into 4 and 8 ohms

Min. RMS, both channels driven, at 1,000Hz, with no more than 0.025% total harmonic distortion

140 watts per channel into 4 ohms
130 watts per channel into 8 ohms

TOTAL HARMONIC DISTORTION*
OVERALL (from AUX) less than 0.025% at or below rated min. RMS power output
OVERALL (from AUX) less than 0.005% at 1kHz, 120W power output

INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
OVERALL (from AUX) less than 0.025% at or below rated min. RMS power output

DAMPING FACTOR	60 into 8 ohms
LOAD IMPEDANCE*	4 and 8 ohms
RISE TIME	1.4μSec.
SLEW RATE	76V/μSec.
FREQUENCY RESPONSE (at 1 watt)	
OVERALL (from AUX)	5 to 50,000Hz +0.2dB, −1.5dB
POWER AMP IN	DC to 200,000Hz +0dB, −3dB
RIAA CURVE DEVIATION (20 to 20kHz)	+0.2dB, −0.2dB
HUM AND NOISE	
PHONO	79dB
AUX	95dB
CHANNEL SEPARATION (at 1,000Hz)	
PHONO	60dB
AUX	70dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)	
PHONO 1, 2	2.5mV, 47k ohms
AUX	150mV, 47k ohms
MIC	6mV, 10k ohms
(PHONO: Max. input capability more than 240mV RMS at 0.025% distortion)	
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)	
TAPE REC (PIN)	150mV, 47k ohms
(DIN)	43mV open
PREAMPLIFIER OUTPUT	1V, 47k ohms
MAXIMUM PREAMPLIFIER OUTPUT (0.03% T.H.D.)	7V, 47k ohms
CONTROLS	
BASS	+10dB, −10dB at 50Hz
MIDRANGE	+5dB, −5dB at 1.5kHz
TREBLE	+10dB, −10dB at 10kHz
LOUDNESS	8dB at 50Hz, 6dB at 10kHz
FILTERS	
SUBSONIC	−3dB at 16Hz (6dB/oct.)
HIGH	−10dB at 10kHz (6dB/oct.)
MUTING (Audio)	−20dB

FM SECTION

TUNING RANGE	88 to 108MHz
SENSITIVITY	
MONO (IHF)	9.3dBf (1.6μV IHF T-100)
(DIN)	1μV
STEREO	15.5dBf
50dB QUIETING SENSITIVITY	
MONO	13dBf
STEREO	35dBf
SIGNAL TO NOISE RATIO AT 65dBf	
MONO	79dB
STEREO	75dB
FREQUENCY RESPONSE	
MONO	30 to 15,000Hz +0.2dB, −1dB
STEREO	30 to 15,000Hz +0.2dB, −1dB
DISTORTION AT 65dBf	
MONO	less than 0.07% at 100Hz less than 0.07% at 1,000Hz less than 0.1% at 6,000Hz
STEREO	less than 0.12% at 100Hz less than 0.09% at 1,000Hz less than 0.1% at 6,000Hz
CAPTURE RATIO	1dB
ADJACENT CHANNEL SELECTIVITY	6dB (at 200kHz)
ALTERNATE CHANNEL SELECTIVITY	80dB at 400kHz
SUPRIOUS RESPONSE RATIO	95dB at 98MHz
IMAGE RESPONSE RATIO	95dB at 98MHz
IF RESPONSE RATIO	
Balanced	100dB at 98MHz
RF INTERMODULATION	73dB
AM SUPPRESSION RATIO	60dB
STEREO SEPARATION	40dB at 100Hz 45dB at 1,000Hz 35dB at 10kHz 30dB from 30 to 15kHz
ANTENNA INPUT IMPEDANCE	300 ohms balanced 75 ohms unbalanced
OUTPUT VOLTAGE AND IMPEDANCE	
Fixed	0.5V, 47k ohms
Dolby FM	0.5V, 47k ohms

AM SECTION

TUNING RANGE	530Hz to 1,600kHz
SENSITIVITY (Bar antenna)	50dB/m (300μV/m)
SELECTIVITY (±10kHz)	30dB at 1,000kHz
IMAGE RESPONSE RATIO	40dB at 1,000kHz
IF RESPONSE RATIO	40dB at 1,000kHz

GENERAL

AC OUTLETS	switched max. 50 watts unswitched total 150 watts
SEMICONDUCTORS	104 Transistors; 70 Diodes; 11 FETs; 7 ICs; 10 LEDs
POWER REQUIREMENTS	
POWER VOLTAGE	100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION	560 watts
DIMENSIONS	560mm (22 1/16")W 201mm (7 15/16")H 475mm (18 3/8")D
WEIGHT	24.6kg (54.2lbs.) Net 27.4kg (60.4lbs.) Packed
FINISH	simulated walnut grain

*Power specifications measured pursuant to U.S. Federal Trade Commission trade regulation on power output claims for amplifiers.

- The FM performance of the G-9000/8000 is measured pursuant to the new Institute of High Fidelity standard, IHF-T-200, except specifications with the legend IHF-T-100.
- Design and specifications subject to change without notice for improvements.
- For European models, some specifications might change to comply with local safety regulations and standards.

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SANSUI AUDIO EUROPE N.V. NORTH TRADE BUILDING, NOORDERLAAN 133-BUS 1, 2030 ANTWERP, BELGIUM/TELEX: 33538

Sansui

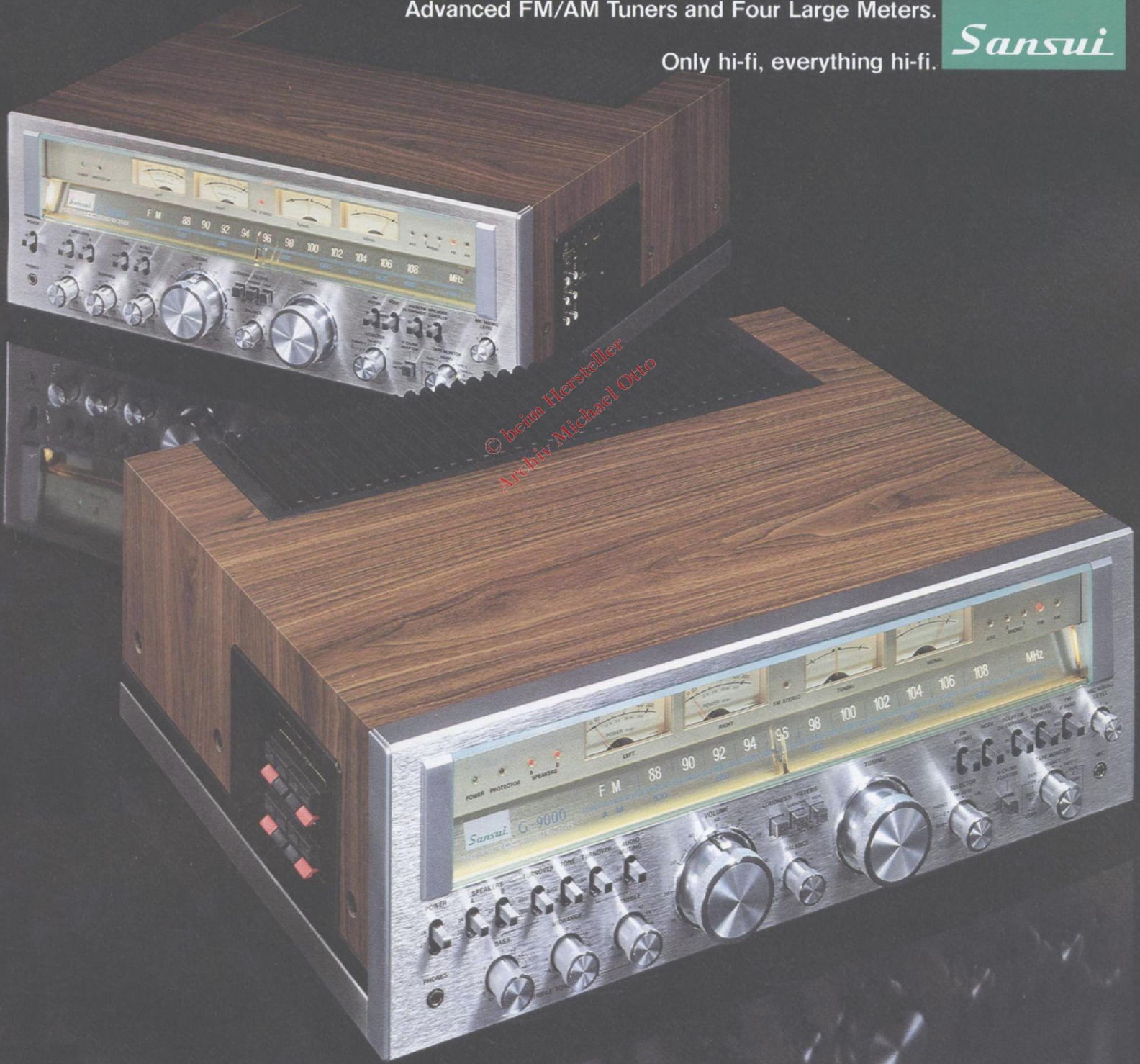
Printed in Japan (7D005K)

SANSUI G9000/8000

Pure Power DC Stereo Receivers with FET Differential Input Design,
Advanced FM/AM Tuners and Four Large Meters.

Only hi-fi, everything hi-fi.

Sansui



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PURE SANSUI

At Sansui, every engineering decision is based, ultimately, on music. Pure music.

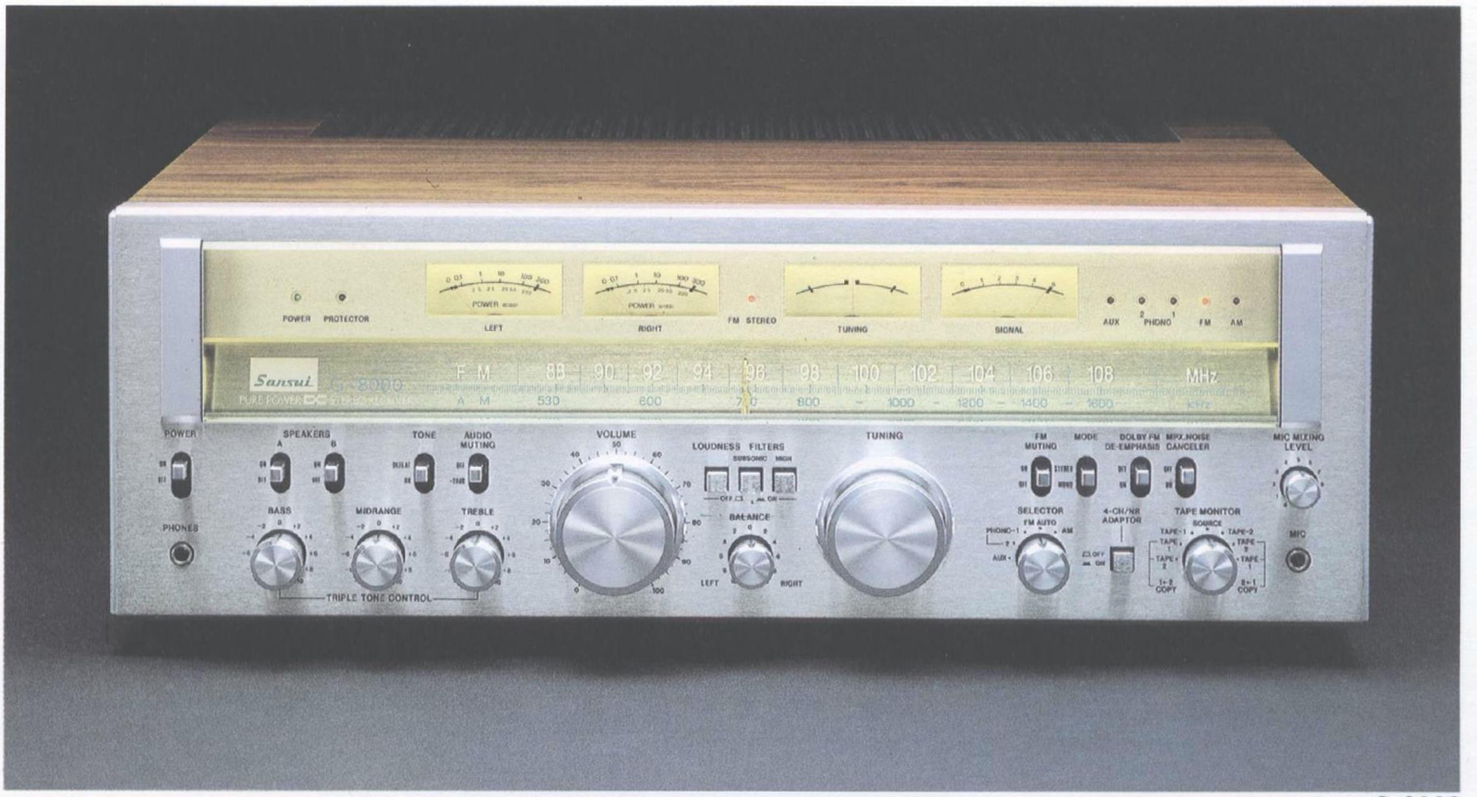
Reproducing perfect sinewaves on a graph or oscilloscope screen was not our goal in refining the basic electronic performance of the G-9000 and G-8000 to a level no other receiver has dared to claim. Such perfection *is* achieved in both Sansui Pure Power DC Stereo Receivers, however, largely because it is the surest way to guarantee their performance excellence when judged by the best precision "test instrument" ever "invented"—the human ear.

In creating these remarkable receivers we've surpassed conventional high fidelity requirements by a wide margin. Greatly expanded frequency response. Superior signal-to-noise ratios. The reduction of all forms of distortion far below audibility. But beyond the hi-fi basics, the emphasis is on startlingly clear and distinct sound image reproduction and impressive dynamic response. And vital to these achievements is our Pure Power DC or Direct Coupled power amplifier design, introduced in the following pages.

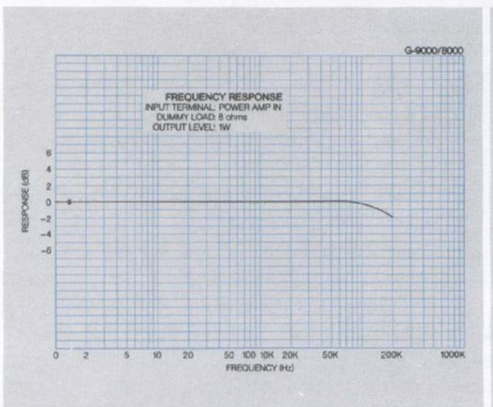
Archiv Michael Ochs Siegbert Hertweller

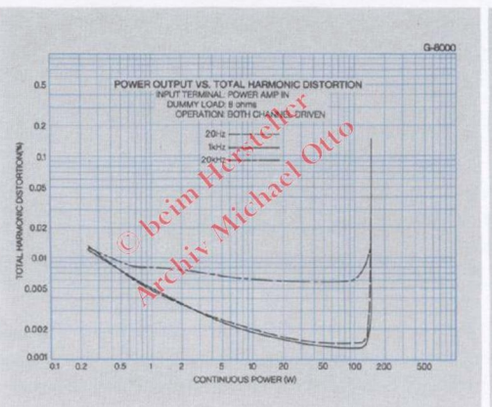
For the first time in hi-fi, here are stereo receivers to equal the quality and value of separate components in the same price ranges. Tuner and phono equalizer specifications are strictly hi-fi. And no combination of separates can offer wider flexibility nor easier handling.

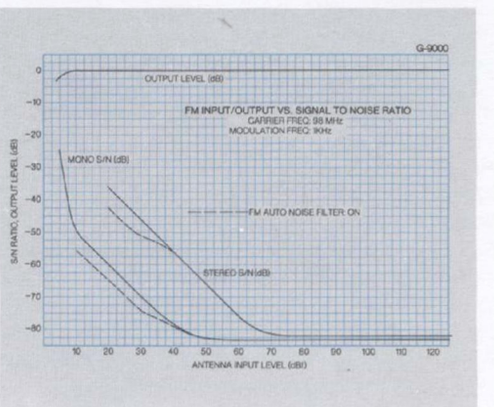
Your decision, too, should be based on pure music. Hear it in the Pure Power DC Stereo Receivers G-9000 and G-8000 from Sansui, where it's *all* hi-fi.

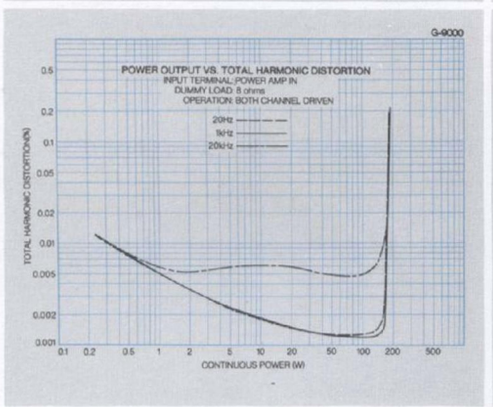


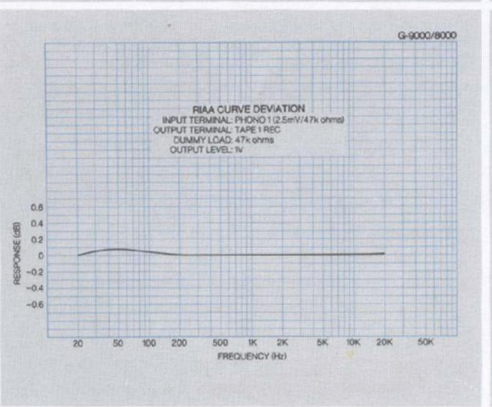
G-8000

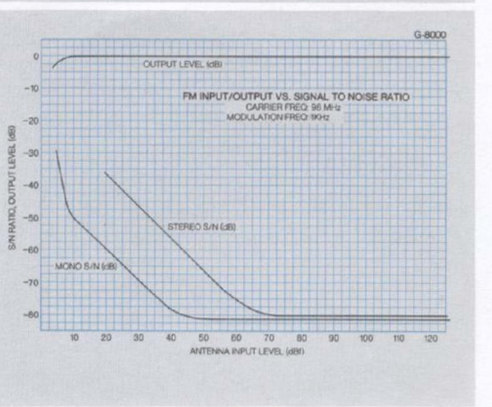








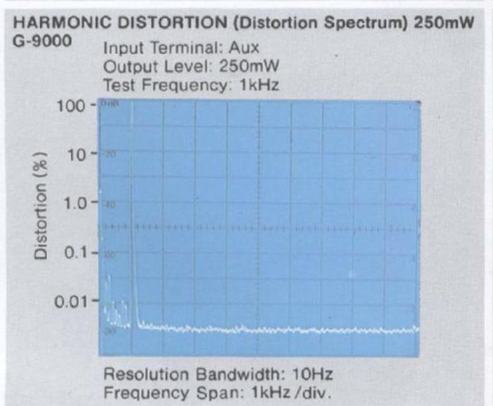




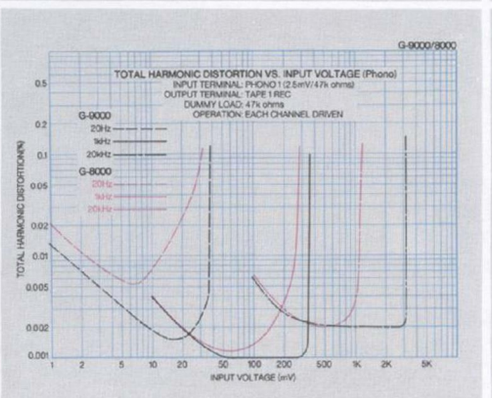
HARMONIC DISTORTION (Distortion Spectrum) 250mW

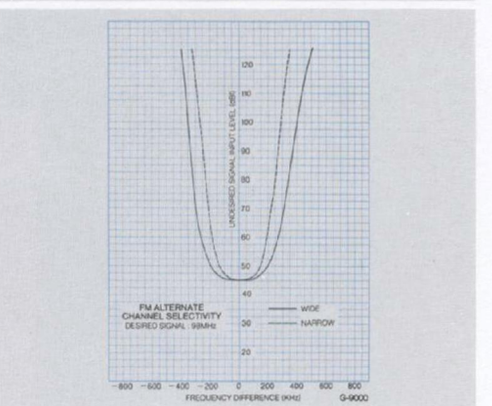
G-9000

Input Terminal: Aux
Output Level: 250mW
Test Frequency: 1kHz



Resolution Bandwidth: 10Hz
Frequency Span: 1kHz /div.





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SPECIFICATIONS

G-9000

AUDIO SECTION

POWER OUTPUT*
Min. RMS, both channels driven, from 20Hz to 20,000Hz, with no more than 0.02% total harmonic distortion
160 watts per channel into 4 and 8 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.02% total harmonic distortion
190 watts per channel into 4 ohms
175 watts per channel into 8 ohms

TOTAL HARMONIC DISTORTION*
OVERALL (from AUX) less than 0.02% at or below rated min. RMS power output
OVERALL (from AUX) less than 0.005% at 1kHz, 160W power output

INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
OVERALL (from AUX) less than 0.02% at or below rated min. RMS power output

DAMPING FACTOR	60 into 8 ohms
LOAD IMPEDANCE*	4 and 8 ohms
RISE TIME	1.4μSec.
SLEW RATE	80V/μSec.
FREQUENCY RESPONSE (at 1 watt)	
OVERALL (from AUX)	5 to 50,000Hz +0.2dB, −1.5dB
POWER AMP IN	DC to 200,000Hz +0dB, −3dB
RIAA CURVE DEVIATION (20 to 20kHz)	+0.2dB, −0.2dB
HUM AND NOISE	
PHONO	80dB
AUX	95dB
CHANNEL SEPARATION (at 1,000Hz)	
PHONO	60dB
AUX	70dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)	
PHONO 1, 2	2.5mV, 47k ohms
AUX	150mV, 47k ohms
MIC	6mV, 10k ohms
(PHONO: Max. input capability more than 330mV RMS at 0.02% distortion)	
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)	
TAPE REC (PIN)	150mV, 47k ohms
(DIN)	43mV open
PREAMPLIFIER OUTPUT	1V, 47k ohms
MAXIMUM PREAMPLIFIER OUTPUT (0.03% T.H.D.)	7V, 47k ohms
CONTROLS	
BASS	+10dB, −10dB at 50Hz
MIDRANGE	+5dB, −5dB at 1.5kHz
TREBLE	+10dB, −10dB at 10kHz
TONE SELECTORS	
BASS	200Hz, 400Hz
TREBLE	1.5kHz, 3kHz
LOUDNESS	8dB at 50Hz 6dB at 10kHz
FILTERS	
SUBSONIC	−3dB at 16Hz (6dB/oct.)
HIGH	−10dB at 10kHz (6dB/oct.)
MUTING (Audio)	−20dB

FM SECTION

TUNING RANGE	88 to 108MHz
SENSITIVITY	
MONO (IHF)	8.7dBf (1.5μV IHF T-100)
(DIN)	0.9μV
STEREO	15dBf
50dB QUIETING SENSITIVITY	
MONO	12.5dBf
STEREO	34dBf
(A.N.F. IN)	
MONO	7.5dBf
STEREO	29dBf
SIGNAL TO NOISE RATIO AT 65dBf	
MONO	80dB
STEREO	76dB
FREQUENCY RESPONSE	
MONO	30 to 15,000Hz +0.2dB, −1dB
STEREO	30 to 15,000Hz +0.2dB, −1dB
DISTORTION AT 65dBf	
MONO (WIDE)	less than 0.06% at 100Hz less than 0.06% at 1,000Hz less than 0.08% at 6,000Hz
(NARROW)	less than 0.2% at 1,000Hz
STEREO (WIDE)	less than 0.1% at 100Hz less than 0.08% at 1,000Hz less than 0.1% at 6,000Hz
(NARROW)	less than 0.5% at 1,000Hz
CAPTURE RATIO	0.9dB
ADJACENT CHANNEL SELECTIVITY	
WIDE	5dB (at 200kHz)
NARROW	18dB (at 200kHz)
ALTERNATE CHANNEL SELECTIVITY	
WIDE	55dB at 400kHz
NARROW	90dB at 400kHz
SUPRIOUS RESPONSE RATIO	110dB at 98MHz
IMAGE RESPONSE RATIO	110dB at 98MHz
IF RESPONSE RATIO	
Balanced	110dB at 98MHz
RF INTERMODULATION	75dB
AM SUPPRESSION RATIO	60dB
STEREO SEPARATION	40dB at 100Hz 50dB at 1,000Hz 40dB at 10kHz 30dB from 30 to 15kHz
ANTENNA INPUT IMPEDANCE	300 ohms balanced 75 ohms unbalanced
OUTPUT VOLTAGE AND IMPEDANCE	
Fixed	0.5V, 47k ohms
Dolby FM	0.5V, 47k ohms

AM SECTION

TUNING RANGE	530Hz to 1,600kHz
SENSITIVITY (Bar antenna)	50dB/m (300μV/m)
SELECTIVITY (±10kHz)	30dB at 1,000kHz
IMAGE RESPONSE RATIO	70dB at 1,000kHz
IF RESPONSE RATIO	70dB at 1,000kHz

GENERAL

AC OUTLETS	switched max. 50 watts unswitched total 150 watts
SEMICONDUCTORS	116 Transistors; 72 Diodes; 13 FETs; 9 ICs; 10 LEDs; 1 Photo Coupler
POWER REQUIREMENTS	
POWER VOLTAGE	100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION	680W
DIMENSIONS	560mm (22 1/16")W 201mm (7 15/16")H 495mm (19½")D
WEIGHT	26.9kg (59.3lbs.) Net 29.7kg (65.5lbs.) Packed
FINISH	simulated walnut grain

G-8000

AUDIO SECTION

POWER OUTPUT*
Min. RMS, both channels driven, from 20Hz to 20,000Hz, with no more than 0.025% total harmonic distortion
120 watts per channel into 4 and 8 ohms
Min. RMS, both channels driven, at 1,000Hz, with no more than 0.025% total harmonic distortion
140 watts per channel into 4 ohms
130 watts per channel into 8 ohms

TOTAL HARMONIC DISTORTION*
OVERALL (from AUX) less than 0.025% at or below rated min. RMS power output
OVERALL (from AUX) less than 0.005% at 1kHz, 120W power output

INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
OVERALL (from AUX) less than 0.025% at or below rated min. RMS power output

DAMPING FACTOR	60 into 8 ohms
LOAD IMPEDANCE*	4 and 8 ohms
RISE TIME	1.4μSec.
SLEW RATE	76V/μSec.
FREQUENCY RESPONSE (at 1 watt)	
OVERALL (from AUX)	5 to 50,000Hz +0.2dB, −1.5dB
POWER AMP IN	DC to 200,000Hz +0dB, −3dB
RIAA CURVE DEVIATION (20 to 20kHz)	+0.2dB, −0.2dB
HUM AND NOISE	
PHONO	79dB
AUX	95dB
CHANNEL SEPARATION (at 1,000Hz)	
PHONO	60dB
AUX	70dB
INPUT SENSITIVITY AND IMPEDANCE (at 1,000Hz)	
PHONO 1, 2	2.5mV, 47k ohms
AUX	150mV, 47k ohms
MIC	6mV, 10k ohms
(PHONO: Max. input capability more than 240mV RMS at 0.025% distortion)	
OUTPUT VOLTAGE AND IMPEDANCE (at 1,000Hz)	
TAPE REC (PIN)	150mV, 47k ohms
(DIN)	43mV open
PREAMPLIFIER OUTPUT	1V, 47k ohms
MAXIMUM PREAMPLIFIER OUTPUT (0.03% T.H.D.)	7V, 47k ohms
CONTROLS	
BASS	+10dB, −10dB at 50Hz
MIDRANGE	+5dB, −5dB at 1.5kHz
TREBLE	+10dB, −10dB at 10kHz
LOUDNESS	8dB at 50Hz 6dB at 10kHz
FILTERS	
SUBSONIC	−3dB at 16Hz (6dB/oct.)
HIGH	−10dB at 10kHz (6dB/oct.)
MUTING (Audio)	−20dB

FM SECTION

TUNING RANGE	88 to 108MHz
SENSITIVITY	
MONO (IHF)	9.3dBf (1.6μV IHF T-100)
(DIN)	1μV
STEREO	15.5dBf
50dB QUIETING SENSITIVITY	
MONO	13dBf
STEREO	35dBf
SIGNAL TO NOISE RATIO AT 65dBf	
MONO	79dB
STEREO	75dB
FREQUENCY RESPONSE	
MONO	30 to 15,000Hz +0.2dB, −1dB
STEREO	30 to 15,000Hz +0.2dB, −1dB
DISTORTION AT 65dBf	
MONO	less than 0.07% at 100Hz less than 0.07% at 1,000Hz less than 0.1% at 6,000Hz
STEREO	less than 0.12% at 100Hz less than 0.09% at 1,000Hz less than 0.1% at 6,000Hz
CAPTURE RATIO	1dB
ADJACENT CHANNEL SELECTIVITY	6dB (at 200kHz)
ALTERNATE CHANNEL SELECTIVITY	80dB at 400kHz
SUPRIOUS RESPONSE RATIO	95dB at 98MHz
IMAGE RESPONSE RATIO	95dB at 98MHz
IF RESPONSE RATIO	
Balanced	100dB at 98MHz
RF INTERMODULATION	73dB
AM SUPPRESSION RATIO	60dB
STEREO SEPARATION	40dB at 100Hz 45dB at 1,000Hz 35dB at 10kHz 30dB from 30 to 15kHz
ANTENNA INPUT IMPEDANCE	300 ohms balanced 75 ohms unbalanced
OUTPUT VOLTAGE AND IMPEDANCE	
Fixed	0.5V, 47k ohms
Dolby FM	0.5V, 47k ohms

AM SECTION

TUNING RANGE	530Hz to 1,600kHz
SENSITIVITY (Bar antenna)	50dB/m (300μV/m)
SELECTIVITY (±10kHz)	30dB at 1,000kHz
IMAGE RESPONSE RATIO	40dB at 1,000kHz
IF RESPONSE RATIO	40dB at 1,000kHz

GENERAL

AC OUTLETS	switched max. 50 watts unswitched total 150 watts
SEMICONDUCTORS	104 Transistors; 70 Diodes; 11 FETs; 7 ICs; 10 LEDs
POWER REQUIREMENTS	
POWER VOLTAGE	100, 120, 220, 240V 50/60Hz
POWER CONSUMPTION	560 watts
DIMENSIONS	560mm (22 1/16")W 201mm (7 15/16")H 475mm (18⅜")D
WEIGHT	24.6kg (54.2lbs.) Net 27.4kg (60.4lbs.) Packed
FINISH	simulated walnut grain

*Power specifications measured pursuant to U.S. Federal Trade Commission trade regulation on power output claims for amplifiers.

- The FM performance of the G-9000/8000 is measured pursuant to the new Institute of High Fidelity standard, IHF-T-200, except specifications with the legend IHF-T-100.
- Design and specifications subject to change without notice for improvements.
- For European models, some specifications might change to comply with local safety regulations and standards.

Achim Hellmich
Arthur Michael Ohm

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Sansui

Printed in Japan (7D005K)

SANSUI'S G9000/G8000: HOW THEY ACHIEVE PURE MUSICAL PERFORMANCE

PURE DC POWER OUTPUT

DC Power Amplifier: The Reasons

Why do we use DC amplifiers in the Sansui G-9000 and G-8000 receivers? The pure musical performance of both models is the only answer that really counts. But for a technical explanation, we must start with the fact that the rapid advances in today's professional recording equipment and recording techniques put the *full* sonic range of a musical performance on tape and record more accurately than ever before.

Sounds which once were "clipped" and not recorded at all, or badly recorded at best, are now included in nearly all modern recordings. The sharp, percussive sounds of drums, and even the very deep bass notes below the limits of human hearing, are examples. To reproduce all sounds with low distortion and noise over the widest possible frequency range, most stereo amplifiers and receivers depend on a large amount of negative feedback. This involves returning a portion of the output signal *out of phase* to the input.

Negative feedback, if applied in large amounts, results in the deterioration of an amp's "dynamic response," however. Audio engineers have recently discovered that the *time lag* inherent in negative feedback is the cause. And the more refined the techniques for measuring such criteria as rise time, slew rate, transient intermodulation distortion (TIM) and so on become, the more able they are to determine just how severely negative feedback does influence an amplifier's ability to respond to and faithfully amplify transient and capricious musical signals.

To avoid the need for large amounts of negative feedback, it was necessary to create an amplifier whose basic performance—before the application of negative feedback—could provide a better phase-amplitude response than the types used in conventional hi-fi components. The breakthrough came with the invention of the DC amp and the extension of its advantages with the use of a differential input amplifying stages for each section of a component.

A DC amp, by definition, is one that employs no capacitors in its signal path nor in its negative feedback loop. Because this circuit is thus "Direct Coupled," it can amplify even a DC or direct-current signal, namely one with the frequency (Hz) of zero.

The minute time delays caused by capacitors are no longer a threat to musical reproduction when the DC design is used. This permits the reproduction of an unprecedentedly wide frequency range from zero Hz (DC) and up into the ultrasonics. It also means faster response to transient, musical signals *without* time lag.

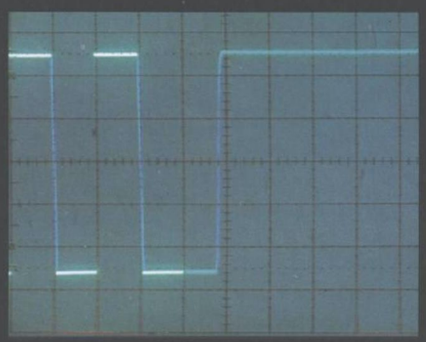
In the Sansui G-9000 and G-8000 models, the frequency range of the power amplifiers is an astonishing zero Hz (DC) to 200,000Hz! It lets you enjoy the pure deep bass and superhigh trebles you've been missing in conventional stereo equipment, and this is the first time any stereo receiver has been able to make this claim. Finally, since both the G-9000 and G-8000 offer immensely improved dynamic response characteristics, higher stability over a broader frequency range in the *optimum* application of negative feedback, and far better noise and distortion characteristics, Sansui is proud to say (and happy to offer proof) that, at last, here are stereo receivers whose pure musical performance has reached a level never before possible with any receivers. Thanks to Sansui's DC amplifier design.

Separate Left/Right Power Supplies

Musical signals in one channel, no matter how instantaneously percussive or strong they may be, can never "rob" power from the opposite channel in the G-9000/G-8000. This is a major factor in ensuring the clean sound-image localization characteristics of both receivers, and it results from our use of separate power supplies for each channel.

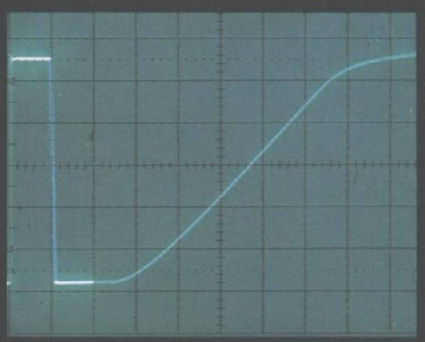
The larger the receiver, the more important it becomes that all circuit blocks receive a stable, well-regulated supply of the power they require to perform their jobs perfectly.

SLEW RATE & RISE TIME (Power Amp)



INPUT SQUARE WAVE

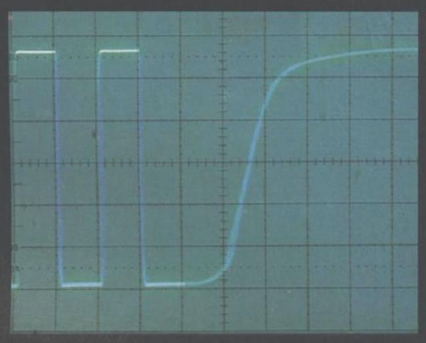
V: 0.5V/div.
H: 50μSec, 1μSec/div.



A SANSUI CONVENTIONAL RECEIVER

Slew Rate: 21V/μSec
Rise Time: 4μSec

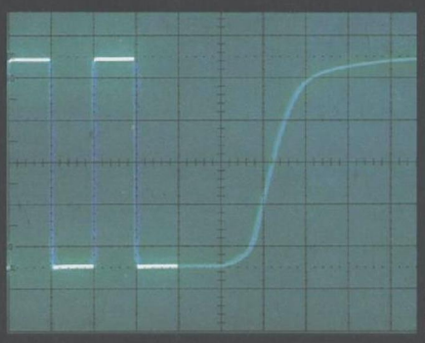
V: 20V/div.
H: 50μSec, 1μSec/div.



G-9000

Slew Rate: 80V/μSec
Rise Time: 1.4μSec

V: 20V/div.
H: 50μSec, 1μSec/div.



G-8000

Slew Rate: 76V/μSec
Rise Time: 1.4μSec

V: 20V/div.
H: 50μSec, 1μSec/div.

Such supplies must have low "source impedance" across the entire audio spectrum. By using a large toroidal transformer with separate, dual windings in the G-9000/G-8000 models, we achieve these objectives and more. The quality, large-capacity capacitors of very low impedance in both models (special Dynamic Oval Power types in the G-9000), plus separate rectifying and voltage-stabilizing circuits for each channel, add further insurance of immensely reduced transient crosstalk and greatly improved transient response from zero Hz (DC) to the very high frequencies. By the way, both receivers feature very advanced power protection circuits to prevent damage to internal circuits and your speakers in the event of power-related mishaps.

ICL Amplifier Blocks

The FET differential input circuit design explained above is so effective, in fact, that we've also applied it to the tone control and DC power amp circuits in the G-9000 and G-8000. This means that for the first time in stereo receivers, an exclusive ICL or Input Capacitor-Less design has been achived for great improvements in overall tonal quality.

Phase and transient response characteristics—as measured by slew rate, rise time, TIM, etc.—have been raised beyond any comparison with today's competition in the stereo receiver field. Because no capacitors are used in the input stages, unnecessary tonal coloration and phase distortion are never allowed to degrade musical purity.

SUPER-CLEAN PREAMPLIFIERS

FET Differential Input Phono Equalizer

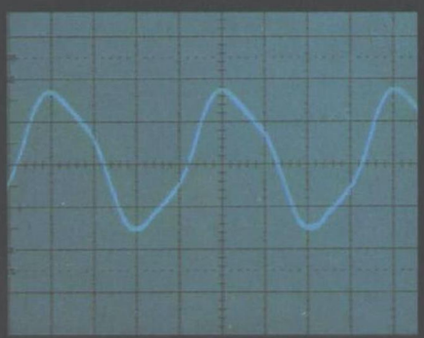
Ordinary hi-fi specifications don't always reveal the dynamic-state or actual musical performance of a phono equalizer, any more than the height and girth of an oak tree can show you its grain. Years ago, Sansui engineers were among the first to push the dynamic-state performance of equalizer circuitry to new heights in the search for purer musicality, not simply "better" specs. We found that simply applying a greater amount of negative feedback (to disguise dynamic-state inadequacies) is not enough, even though it may result in a more impressive-looking specification. Instead, we searched for and found effective ways to improve the basic or open-loop performance of our equalizer designs. These efforts have found their highest expression in the Pure Power DC Stereo Receivers like the G-9000 and G-8000 which incorporate our FET Differential Input Phono Equalizer. This circuit has permitted us to eliminate the input capacitor from the equalizer in what we call "ICL" (Input Capacitor-Less) design. Overall, the phono equalizers exhibit far higher stability and much less coloration than ever before. The improvements you can hear are reflected in the sharply responsive transients, the wider dynamic range and the fact that sound images are more transparent and resolute from the G-9000 and G-8000 alike.

NEWLY-DESIGNED FM/AM TUNER

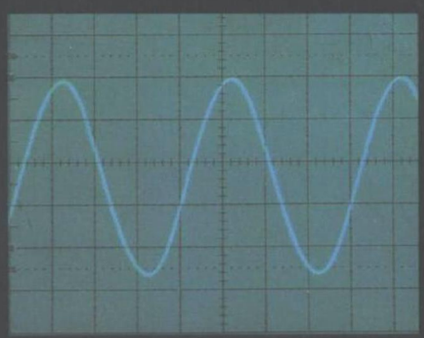
The same quality designed into the amplifier sections is inherent in the FM/AM tuners. In particular, the FM tuner is designed not only for superb sensitivity and signal-to-noise ratios, but also incorporates a number of new technical developments that completely suppress or minimize all undesirable factors resulting from the process of converting the received radio-frequency signals into stereo audio signals. Among these developments are a Sansui-patented FM IF Group Delay Equalizer, a Power Ratio Detector, Adjacent Channel Filter and Auto Noise Filter—with all of these helping to minimize different forms of distortion and noise. The AM tuner also has a new circuit design that receives AM broadcasts with measurably improved tonal quality.

Audio Designer

5MHz SINEWAVE RESPONSE (Power Amp)

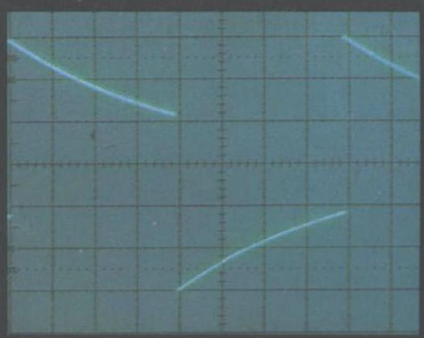


A SANSUI CONVENTIONAL RECEIVER

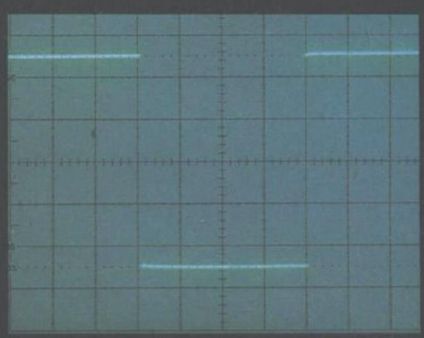


G-9000

5Hz SQUARE WAVE RESPONSE (Power Amp)



A SANSUI CONVENTIONAL RECEIVER



G-9000

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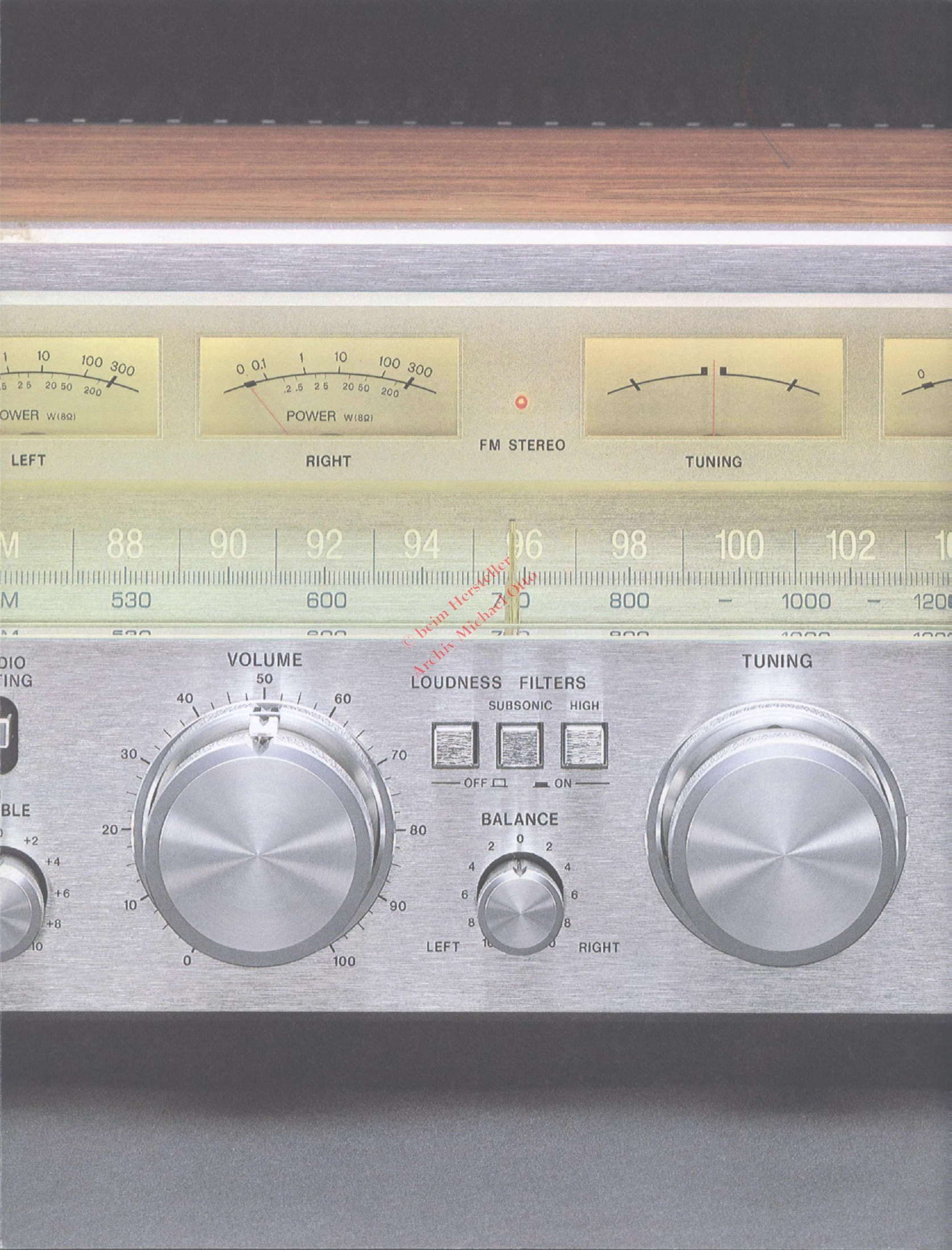

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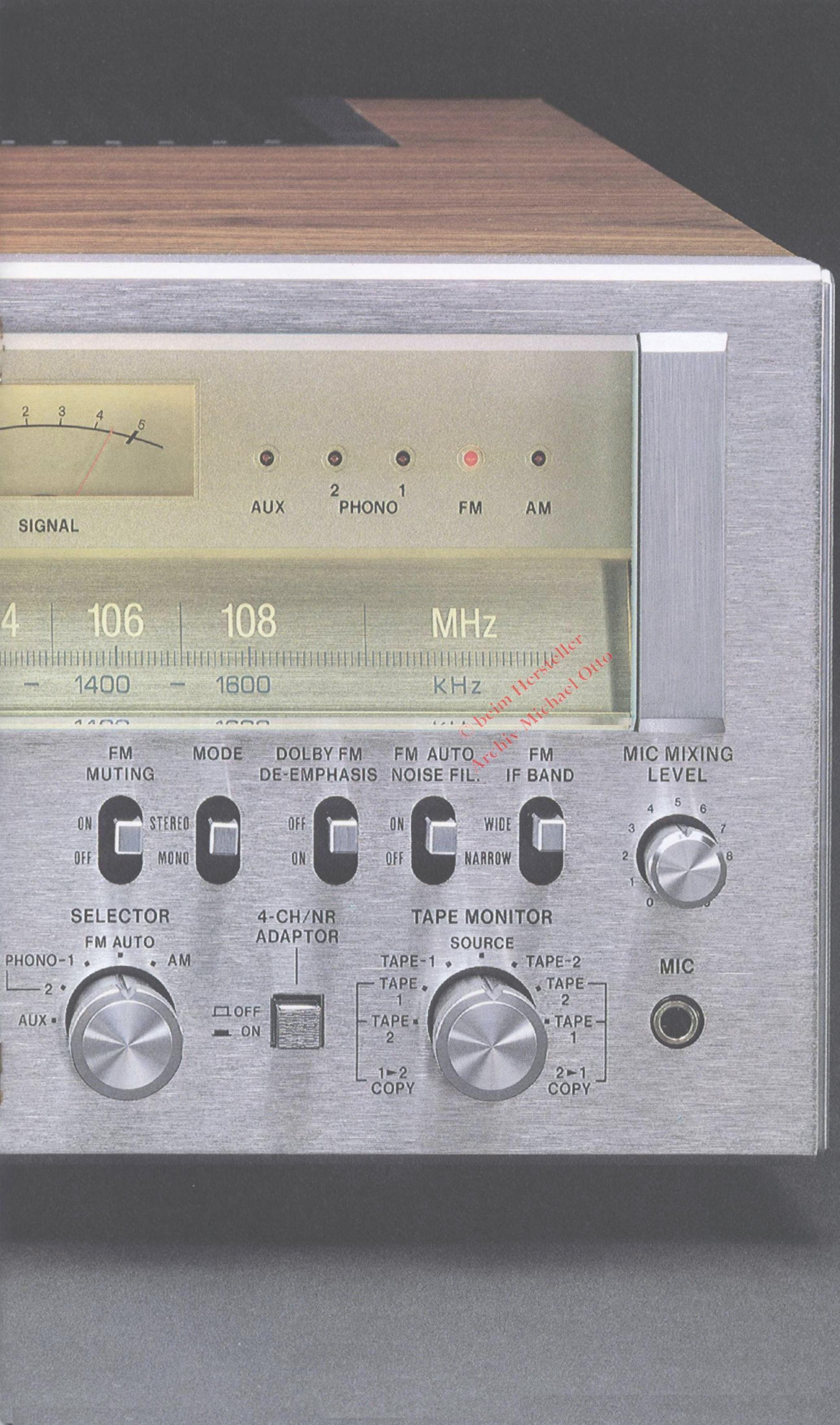

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WHAT THEY OFFER IN STRICTLY HI-FI FEATURES

World's first stereo receivers with DC power amplifiers which offer unprecedented 0~200,000Hz frequency response and superior "dynamic response" to transient musical signals.

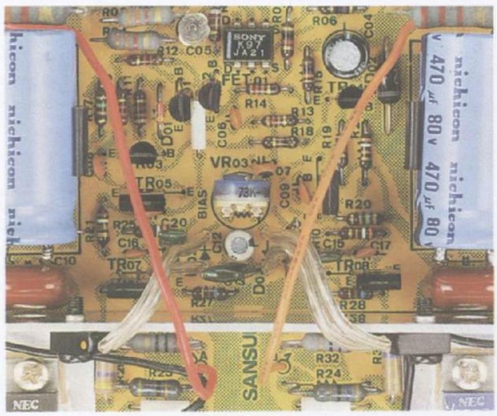
The G-9000/G-8000 are two of the world's first stereo receivers to be equipped with DC power amplifiers, and there can be no question that these advanced amplifiers are much of the reason why the receivers can reproduce complex, pulsive musical signals clearly with a degree of "purity" not attainable even in many separate stereo amplifiers on the market today.

In designing the new DC power amplifiers, Sansui borrowed heavily from its own best-selling DC integrated stereo amplifiers such as the AU-717. The resulting advanced circuit design, the new, highly dependable power supplies, and the use of carefully chosen, top-quality parts and components, combine to produce outstanding music reproduction, and significant performance specifications. Frequency response is the widest *ever* in a stereo receiver—a wide 0~200,000Hz. Total harmonic distortion is a very, very low 0.02% (0.025% for G-8000). And dynamic response is very fast, as exemplified by the high slew rate—80V/μ sec. for the G-9000 and 76V/μ sec. for the G-8000—and ultra-fast 1.4μ sec. rise time.

Sansui-exclusive circuit design contributes to superb tonal quality

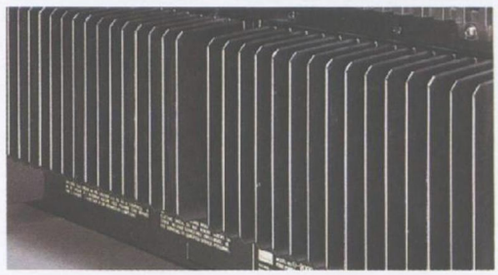
The DC power amplifiers in the G-9000/G-8000 incorporate a newly developed Dual-FET differential input circuit, followed by a current-mirror loaded, cascode-connected amplifier of low-noise transistors, a current differential pushpull driver amplifier (patent pending), a three-stage differential predriver amplifier, and, finally, a three-stage Darlington-connected OCL output circuit that holds four large power transistors of excellent linearity in parallel in each channel.

This is a highly advanced, stable circuit. It eliminates capacitors—the traditional cause of phase distortion—from the negative feedback loop, and thus completely avoids coloration of the tonal quality of reproduced sound. It also improves the amplifier's dynamic response to an unprecedented degree, as measured by such criteria as slew rate (indicating how many volts an amplifier can amplify within a unit time), rise time (showing how many micro-seconds are required for an amplifier to reach the voltage of the input waveform), and transient intermodulation distortion (TIM).



Stabilized, high-power power supplies separately service the left/right stereo channels

In the G-9000/G-8000, Sansui has included a very advanced power supply system. This provides two separate power supplies for the left and right stereo channels, and these comprise an advanced toroidal transformer with separate, dual windings, featuring very low magnetic and DC resistances. This is in addition to a pair of new Dynamic Oval capacitors in the G-9000 and eight quality capacitors in the G-8000, and separate rectifying and voltage-stabilizing circuits for the left and right stereo channels. This elaborate design offers significant advantages: Very low source impedance across the entire audio frequency spectrum and greatly reduced transient crosstalk, both of which assure high resolution of reproduced stereo sound images.



Complete safety assured by reliable protector circuit

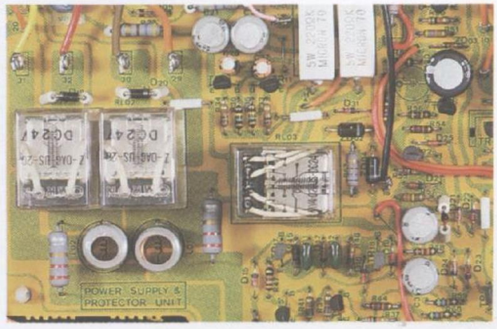
The higher the output power, the greater the need in an amplifier for a protector circuit that responds instantly and accurately to any accident. The G-9000/G-8000 fulfill this need with their newly developed triple detection protector circuit.

A review of this system would be the following:

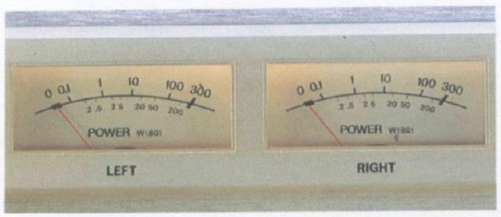
(1) DC detection protector circuit: The moment a DC current exceeding a prescribed value appears in the output, this circuit instantly opens the output circuit to protect your valuable speaker systems.

(2) Overcurrent detection protector circuit: Whenever the output terminals are short-circuited, this circuit instantly opens the output circuit and prevents an overcurrent from flowing into your speaker systems.

(3) Thermal detection protector relay: A special device detects the temperature of the heat sinks, and whenever it exceeds a prescribed temperature, operates the relay to cut off the output circuit and protect the power transistors.



Direct-readout power meters offer easy viewing
These meters let you read out the instant-by-instant output power. You can read it out separately for the left and right stereo channels, and directly in watts from 0.1 watt up to 300 watts, thanks to the logarithmically compressed meter scales.

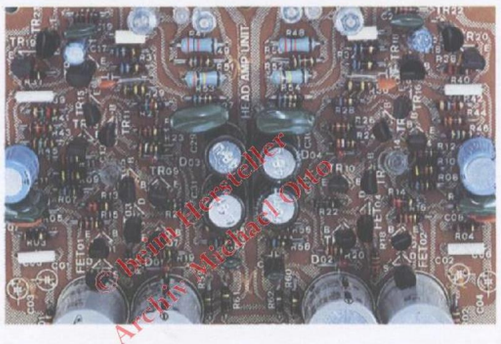


Superb FET-equipped Phono Equalizer makes these Sansui Pure Power DC Stereo Receivers far more musically accurate.

An advanced FET differential input phono equalizer design for improved stability
The G-9000 employs a precision negative feedback type phono equalizer of 12 low-noise transistors per channel; the G-8000 has a similar type of 6 low-noise transistors per channel. For the G-9000, circuit design includes an FET differential input circuit with a current source and a cascode current mirror circuit, followed by a buffer amplifier and then a class A amplifier. Finally, the design also includes an active-loaded inverted Darlington-connected complementary SEPP (Single-Ended Push-Pull) circuit. (The G-8000 uses a class-A inverted Darlington-connected complementary circuit.) This is all highly advanced and elaborate circuitry and it is specifically designed to achieve superior basic hi-fi performance before the application of negative feedback. It significantly enhances the amplifier's stability and, during music reproduction, especially improves its dynamic response. Further of importance is the use of the FET and the advanced circuit configuration, that has eliminated the traditional input coupling capacitors—cause of much tonal coloration and phase distortion. Phono signal-to-noise ratio is measurably improved, while the FET shuts out all external noise from the equalizer.

Accurate RIAA equalization of ±0.2dB (20~20,000Hz)
The phono equalizer in the G-9000/G-8000 employs high-precision equalizing components such as metalized film resistors of only 1% tolerances, and accomplishes a RIAA deviation of ±0.2dB across the 20~20,000Hz audio spectrum. It thus enables a faithful reproduction of the original waveforms.

Wide dynamic margin means musical reproduction without distortion
Because the high-performance phono equalizer is driven by dual stabilized power supplies of a high ±33.3V, it achieves an exceptionally high phono overload capacity of 330mV in the G-9000 and 240mV in the G-8000. This capacity, plus the outstanding 80/79dB signal-to-noise ratio assures that all music with a very wide dynamic range, is reproduced without being distorted or clipped at its entrance into the receivers.



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New FET Differential Input Tone Control Circuit Design avoids unnecessary tonal coloration
As in the phono equalizer, the circuit does away with input coupling capacitors by using an FET differential input circuit with a current source and a current mirror circuit, followed by a Darlington-connected two-stage amplifier, totalling nine transistors per channel. The removal of the input coupling capacitors avoids unnecessary tonal coloration and phase distortion, which, in turn, noticeably improves the amplifier's transient response as measured by slew rate, rise time, etc.

The circuit is specially designed so that it is normally bypassed altogether unless and until it is switched on by turning the Tone Switch on, as in all top-quality separate stereo amplifiers. And with this tone control circuit you can control the three ranges of bass, midrange and treble separately.

The G-9000 comes with switches to let you select the Bass and Treble turnover frequencies.

Subsonic and High Filters cut out harmful super-low/high-frequency signals
Both models come with a Subsonic Filter to cut out harmful super-low-frequency signals below 16Hz, as generated, say, by warped records with a sharp 6dB/oct. cutoff slope.

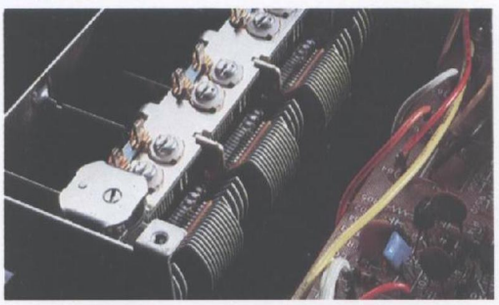
Both receivers also come with a sharp-cutting 10kHz, 6dB/oct. High Filter to remove high-frequency noise when desired.

Tape Play Switch Controls Two Tape Decks
Both receivers connect up to two stereo tape recorders or decks. The Tape Play Switch included lets you monitor either tape deck, and duplicate (copy) a recorded tape from one deck to the other in either direction.

Preamplifier and power amplifier can be separated
A single switch lets you separate the pre-amplifier and DC power amplifier sections of both the G-9000/G-8000. Thus you may use the DC power amplifier independently to build, if you wish, a multi-amplifier hi-fi system.

Newly designed FM Stereo/AM Tuners deliver Hi-Fi FM and Noise-Free AM reception.

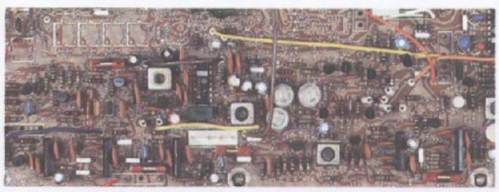
Linear-tracking FM frontend offers supreme FM sensitivity
This advanced FM frontend employs a low-noise dual-gated MOS FET in its RF amplifier, and a newly designed precision frequency-linear type wide-gap five-ganged (four-ganged in the G-8000) tuning capacitor. The RF amplifier and the tuning capacitor have been carefully aligned to elminate the possibility of any tracking error. The overall result is increased tuner sensitivity and considerably improved capabilities to reject crossmodulation and other forms of interference.



IF Amplifier with selectable WIDE/NARROW modes assures hi-fi quality FM sound anywhere
Both Sansui Pure Power stereo receivers in this brochure incorporate extremely advanced FM/AM tuner sections whose sound and performance specifications are *strictly* hi-fi. But in the G-9000 you have the additional advantage of a WIDE/NARROW selection for the FM IF bandwidth.

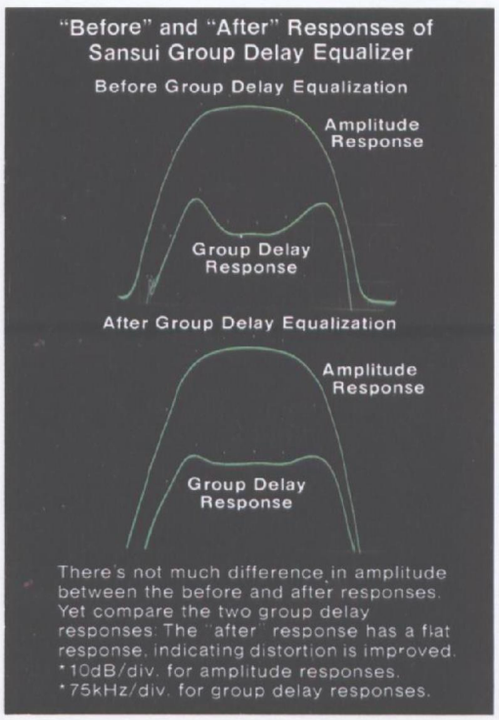
When receiving strong, nearby FM stations, you'll want to use the WIDE IF bandwidth mode so that the distortion, stereo separation, capture ratio and other factors are measurably improved. But when the station you want is too weak or too distant to be received without interfering noise, switch to the NARROW.

In the circuitry behind the WIDE/NARROW switch are a special bi-resonator ceramic filter (for NARROW) which improves the selectivity, plus the three bi-resonator ceramic filters for WIDE. The signal is then amplified by five newly-developed ICs or integrated circuits, five of which contain a two-stage differential amp each.



Patented Group Delay Equalizer reduces distortion, increases stereo in the high frequency range

Sansui has carefully determined the exact amount of group delay characteristic distortion caused by ceramic filters, and designed a special circuit in the G-9000 FM tuner to provide an exact mirror-image of that distortion to, in effect, remove it. This patented device restores the original fidelity of the signal you want to hear. Better performance in the high frequencies and in stereo separation are some of its benefits.



New Power Ratio Detector contributes to low-distortion FM sound

Also exclusive to the G-9000 is a new FM detector, called a Power Ratio Detector, formed of a newly-developed IC driver with a discriminator, the former driving the latter with high power so that overall linearity is greatly improved. The device is thus able to demodulate a wider frequency band than conventional detectors, and do so without output signal level reduction, to reduce the distortion in FM reception.

New Adjacent Channel Filter removes interference from neighboring stations

In both the G-9000 and G-8000, Sansui has included a special circuit to eliminate the so-called "beat" components in your received signal. Such components are caused by interference from adjacent stations entering any FM tuner with a wide IF bandwidth. The use of the Adjacent Channel Filter eliminates such beats, making it possible to enjoy clean music at any time.

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New FM Auto Noise Filter activates automatically, eliminates noise, assures clean FM sound

LEDs are commonly employed as visual indicators in hi-fi, but we've used a few *inside* the G-9000 as a part of a new FM Auto Noise Filter. The LED or Light-Emitting Diode is automatically activated when and if the strength of a tuned-in broadcast signal falls below a pre-determined level for any reason, such as when an overhead airplane reflects out-of-phase signals toward your antenna. The light of the LED is detected by a cadmium sulfide or CdS cell and the resulting filter action improves the audible signal-to-noise ratio by more than 10dB automatically.

PLL FM Multiplex Demodulator gives low distortion, wide dynamic range in FM stereo sound

That the PLL (Phase-Locked Loop) system FM multiplex demodulator retains its superior demodulating performance against changes in temperature or time lapse is well known, as are its primary advantages of low distortion and a wide dynamic range. In the G-9000 and G-8000, Sansui has gone a step ahead and refined the related, peripheral circuits around the IC so that the PLL demodulator operates under the most optimum conditions. The result is FM stereo perfection.

AM tuner with new circuit design reduces noise

Even the AM tuner has improved tonal quality, as Sansui's special technique of grounding helps improve the tuner's frequency response and other critical factors in these new receivers. The G-9000 uses a three-ganged tuning capacitor to improve both the IF Response Ratio and Image Response Ratio to 70dB, thus assuring clean noise-free AM sound. The G-8000 uses a two-ganged tuning capacitor.

And that's not all

- Click-Stopped, Oversize Volume Control Has Preset Tab.
- Convenient −20dB Audio Muting Switch to Reduce Sound Volume Instantly.
- Loudness Control assures natural tonal balance during low-volume listening.
- Convenient Selector Switch and bright LED Indicators.
- Versatile Mic Mixing has its own volume control.
- 4-Channel/Noise Reduction Switch activates a connected quadraphonic or noise reduction adaptor unit.
- Convenient sidepanel input/output connections.
- FM Muting Switch gives smooth tuning, free of inter-station noise.
- Special Dolby FM De-emphasis Switch for FM Dolby adaptor.
- FM Multiplex Noise Canceller.
- Two large signal/tune meters for pinpoint tuning.