

SANSUI 9090

FM/AM STEREO RECEIVER WITH FOUR METERS



Sansui power. The key to reliable good sound. And to go along with the abundant stereo power output of the new 9090 there's the latest control/preamplifier and FM/AM tuner circuitry. It adds up to spectacular musical performance from any program source.

The power and performance standards of this very sophisticated stereo receiver are judged not only by specifications.

Results are what count most. As rated by the U.S. Federal Trade Commission's ruling on power, the 9090 delivers a continuous 110 watts per channel, min. RMS, from 20 to 20,000Hz, both channels driven in 8 ohms, with no more than 0.2% total harmonic distortion. And your ears will confirm that such high-power/low-distortion excellence means exciting musical performance. It's because the

high power lets all the dynamic range and frequency response come through clean.

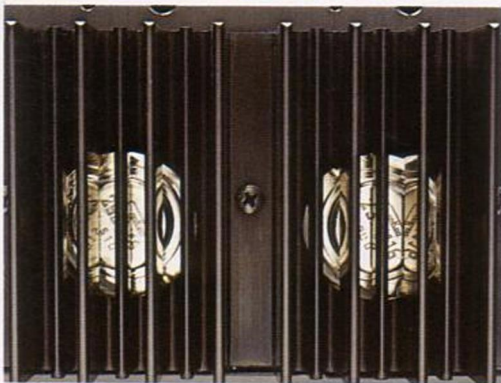
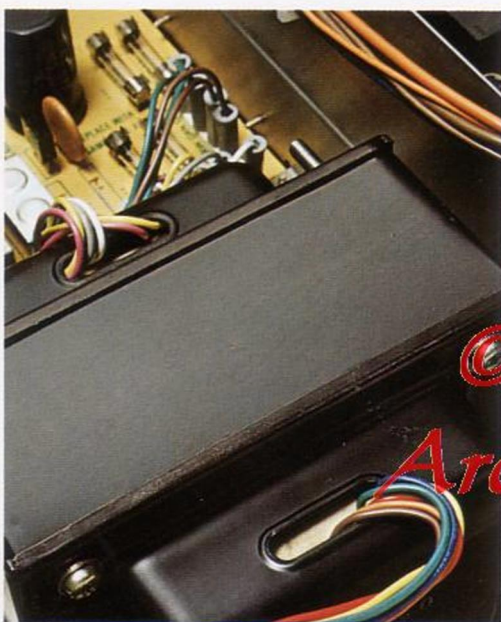
Particular care has been taken in the FM section. And phono equalizer, versatile Triple Tone Controls, mic mixing and much more reflect the most advanced electronic engineering ever. It's our very best and most powerful stereo receiver. Hear the 9090, from Sansui, where it's all hi-fi.

Sansui

THE SANSUI 9090

Sansui makes a powerful point about musical performance with the 9090 stereo receiver. Maybe you've noticed that underpowered amplifiers and receivers sound pretty drab with today's new sounds. That's because the latest records, tapes and broadcasts must be handled with high power for best results. Such things as dynamic range and frequency

response are always relative to power. And any amp or receiver that can't deliver the power you need at soft as well as loud volumes is sure to let you down. That's why at the heart of the 9090 we've put one of the most powerful, most reliable power amplifiers ever built. Learn more about it below.



POWER AMPLIFIER SECTION

Clean and Brilliant Sound

The 9090's all-stage direct-coupled OCL parallel push-pull power amplifier delivers clean-cut high fidelity at all listening levels and from all sources. The dual plus/minus power supply is independent from the power supplies for the rest of the receiver. And the power delivery, as rated according to the U.S. Federal Trade Commission, is a continuous 110 watts per channel, min. RMS, both channels driven into 8 ohms, over the entire 20 to 20,000Hz spectrum, with no more than 0.2% total harmonic distortion.

Active-Loaded Driver Amplifier

Active-loaded drive is applied to the driver stage to eliminate crossover distortion and other abnormalities which otherwise would be heard at low volumes.

Power Protection

The independent power supply section has two oversized capacitors and a huge and closely-regulated power supply transformer. To protect the vital power transistors from unexpected surges or shorts, four quick-acting fuses and a relay-operated protector are used. The latter also prevents speaker damage and power on/off crackling noise.

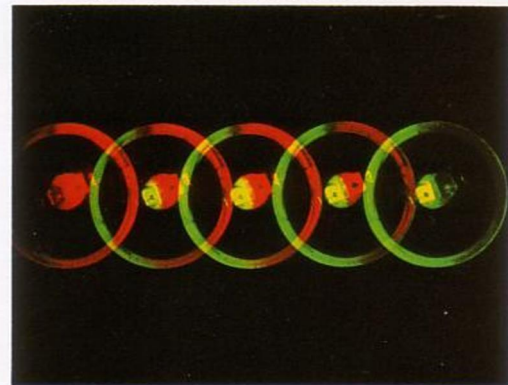
Twin Power Meters

The two meters (see illustration) indicate your exact, instant-by-instant power output over the wide range of 0.5 to 200 watts (8 ohms).



Power/Protector Indicator

An LED (Light-Emitting Diode) lets you know instantly if danger to the power circuit threatens. If and when the automatic power protection circuit operates, the red light will continue to flicker until the relay is automatically restored.



A BIG RMS 110 WATTS PER CHANNEL, PRECISE RIAA EQUALIZATION, AND IMPECCABLE FM STEREO PERFORMANCE



CONTROL/PREAMP SECTION

Wide Dynamic Range

The advanced phono equalizer has a high 40V DC voltage supply for a very wide phono overload of 200mV RMS (560mV p-p). This means that all of the information on the records you play is reproduced exactly as intended by the recording engineers. Precision equalization of phono signals is within a $\pm 0.5\text{dB}$ deviation of the standard RIAA curve between the frequencies of 30 to 15,000Hz.

IC Construction

Phono equalizer construction centers on an IC in a three-stage direct-coupled SEPP configuration. Since it has a

reduced time constant, phase margin is more than enough for ever stable performance. The reduced input capacitance of the circuit means better high frequency response from any cartridge.

Triple Tone Controls

This exclusive Sansui system offers a midrange in addition to bass and treble controls. In the 9090 the bass and treble have turnover selectors: bass 150Hz or 300Hz; treble 1.5kHz or 3kHz. Thus you have a choice of as many as 4,851 tonal variations. A tone defeat switch is provided for instant flat comparisons without resetting the tone controls themselves.

Baxandall NF Tone Control Amp

High signal-to-noise performance and smooth tonal characteristics are assured with the Baxandall circuit in the tone control amplifier using the NF (negative feedback) format. Each tone control has 11 click stops, each representing a fixed resistor, for precise acoustic tailoring.

Tape and Source Selection

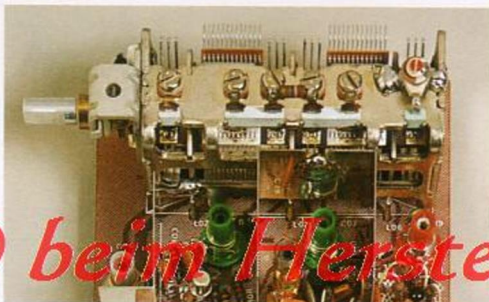
The 9090 has two full stereo sets of tape terminals (input/output) for the connection of a pair of stereo tape decks. The seven-position tape monitor and dubbing switch on the front panel lets you monitor either deck, and also dub one onto the other while monitoring either.



TUNER SECTION

The Finest FM Sound Around

A frequency-linear variable 4-gang capacitor in the FM frontend increases sensitivity to faint broadcasts and suppresses interference. The dual-gated, low-noise MOS FET, selected and installed by hand, accepts very strong inputs without overload and is free from temperature drift.



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Archiv Michael-Otto*

Hear the Station You Want

Improved FM selectivity in the 9090 accurately pulls in only the station you wish to hear, rejecting others. Try it. The three stage IF amplifier built around an array of ceramic filters (ten elements total) lets you select stations as close as 200kHz to 300kHz apart with ease while improving phase response and group-delay characteristics. The three differential amplifier IC limiters completely suppress AM amplitude for very high sensitivity and signal-to-noise ratio. Extraneous noise is eliminated by a newly-developed adjacent station interference filter.

PLL for FM Stereo

An advanced PLL circuit, one specially developed by Sansui, improves channel separation in stereo FM. This Phase-Locked Loop circuit also eliminates phase deviation by automatically locking the 19kHz pilot and 38kHz switching signals. Since it has no coils nor capacitors it suffers no deterioration by time. High-gain amplification and improved signal-to-noise are assured with the negative feedback differential amplifier, while a 2-stage LC carrier leak filter cuts extraneous signals sharply and eliminates the beat sound otherwise heard when recording FM stereo to tape.

Accurate Meters for Tuning

Inputs as high as 60dB are met with linear response in the new signal-strength meter in the 9090. It is never saturated ("fooled") by a weak signal, and aids FM and AM tuning. The meter can be switched to help you align your antenna to eliminate multi-path "ghosts." The second meter, a center-tune indicator, shows you when your FM station is tuned properly.

Automatic FM Stereo Noise Canceller

The weaker the signal the stronger this circuit works to eliminate noise; when a noise-free, strong signal is present, the circuit is disengaged.

AM for People Who Hate AM

Booms, whines and whistles in AM reception are gone forever. A high-integrated IC (equivalent to 22 transistors and 11 diodes) increases AM stability and reliability. The addition of an AM RF stage of high-gain amplification improves sensitivity. A bi-resonator Jaumann ceramic filter and a jointed, adjustable AM ferrite space-wound bar antenna, also improve AM sound.



Other Convenient Controls

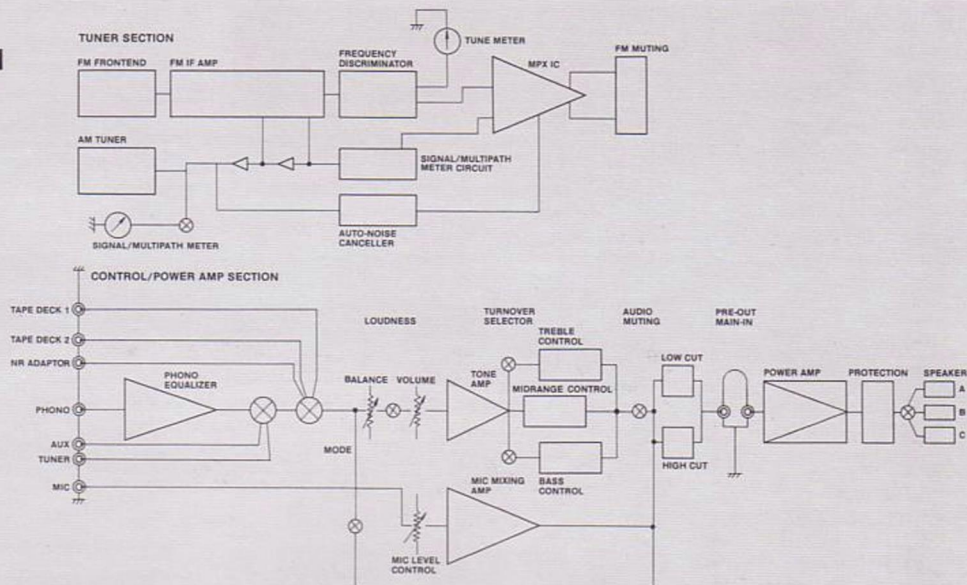
Controls also include a mono/stereo mode switch, loudness, high/low filters, source selector (PHONO, FM AUTO, DOLBY FM ADAPTOR, AM and AUX), an audio muting (-20dB) switch and more. The 9090 also features a professional-quality mic-mixing circuit with level control so that you may blend any microphone signal with any source for PA amplification or recording.

And That's Not All

- Dolby Adaptor/4-Channel Adaptor Circuit with Switch
- FM Muting
- Special FM 25μsec de-emphasis curve to aid Dolby FM reception when Dolby Adaptor is connected.
- Separable Pre and Power Amplifiers
- Two Stereo Headphone Jacks

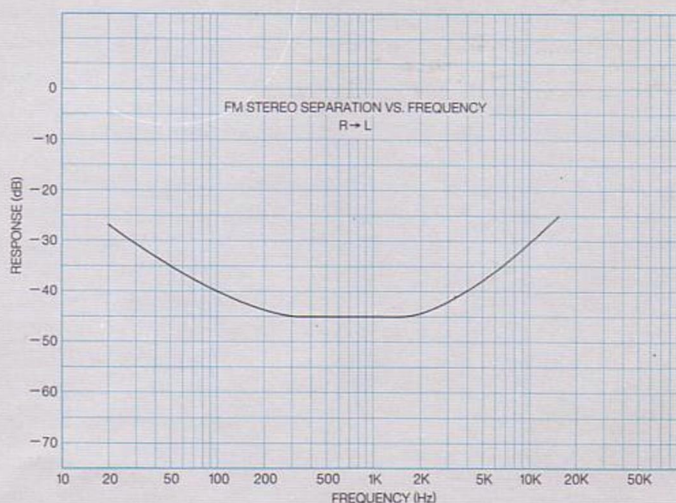
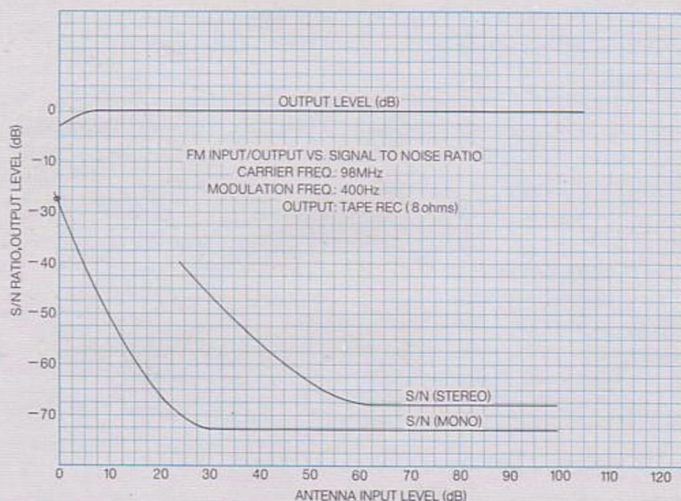
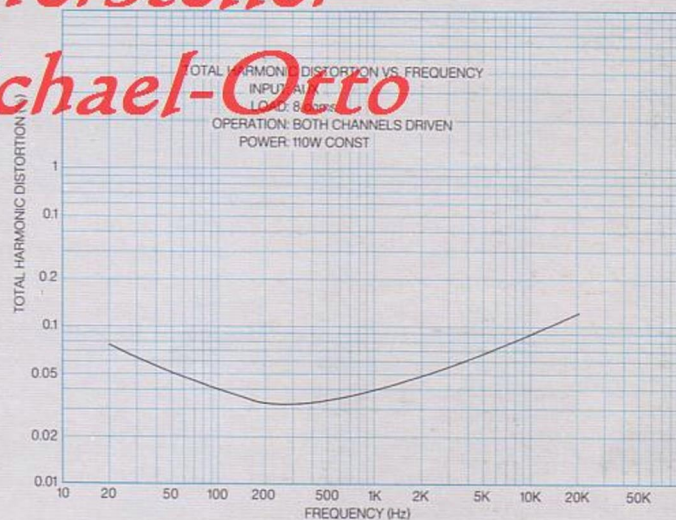
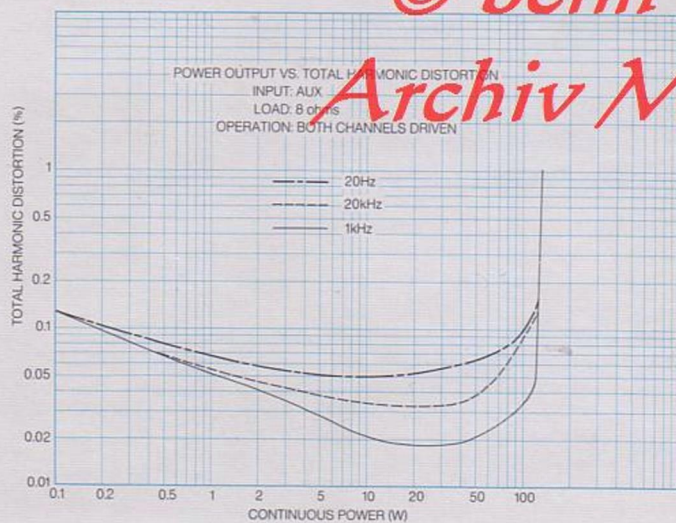
OUR BEST AND MOST POWERFUL STEREO RECEIVER

BLOCK DIAGRAM

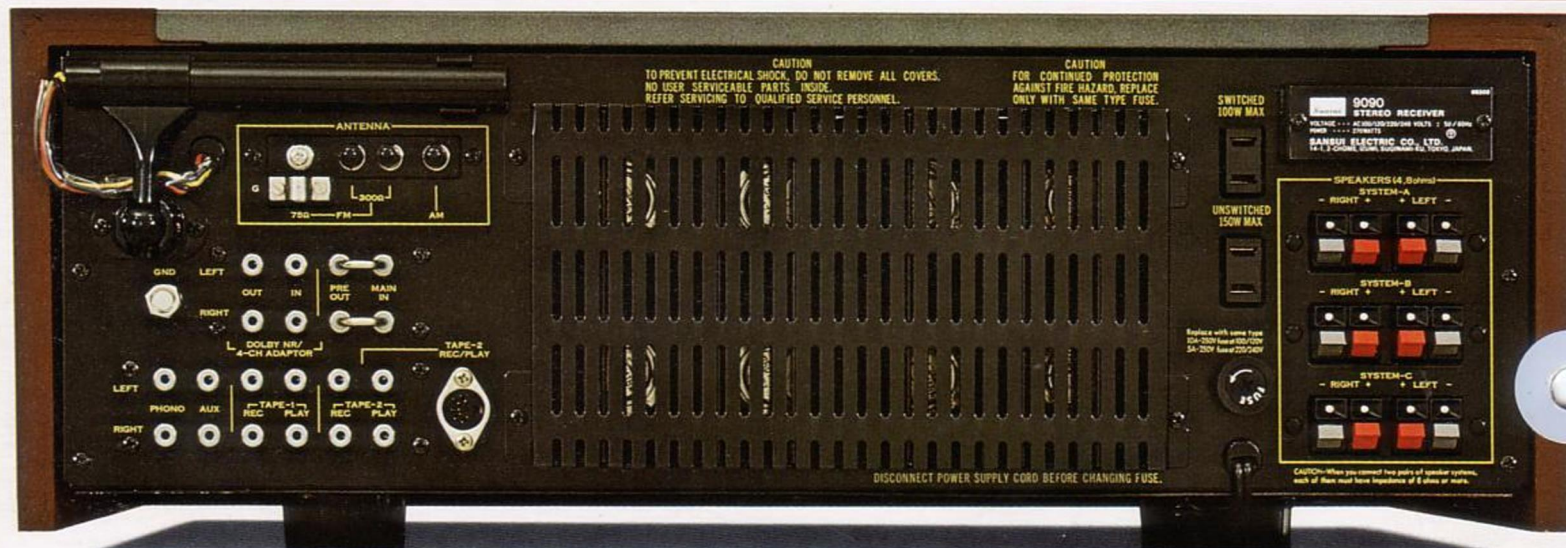


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SPECIFICATIONS



AUDIO SECTION

POWER OUTPUT (at rated distortion)

MUSIC POWER (IHF) 450 watts into 4 ohms at 1,000Hz
300 watts into 8 ohms at 1,000Hz

CONTINUOUS RMS POWER

both channels driven 150 watts per channel into 4 ohms at 1,000Hz
120 watts per channel into 8 ohms at 1,000Hz
110 watts per channel into 8 ohms from 20 to 20,000Hz

TOTAL HARMONIC DISTORTION

OVERALL (AUX to speaker terminals) less than 0.2% at rated power output

INTERMODULATION DISTORTION

(70Hz: 7,000Hz = 4:1 SMPTE method)
OVERALL (AUX to speaker terminals) less than 0.2% at rated power output

POWER BANDWIDTH (IHF)

5 to 45,000Hz at rated distortion
4 to 16 ohms

LOAD IMPEDANCE

FREQUENCY RESPONSE (at 1 watt)
OVERALL (from AUX) 10Hz to 30kHz +1dB, -1dB

RIAA CURVE DEVIATION (PHONO)

30Hz to 15kHz
+0.5dB, -0.5dB

DAMPING FACTOR

approximately 10 at 8 ohm load

CHANNEL SEPARATION (at rated output 1,000Hz)

PHONO better than 50dB
AUX better than 50dB
TAPE MONITOR better than 50dB

HUM AND NOISE

PHONO better than 70dB
AUX better than 80dB
TAPE MONITOR better than 80dB

INPUT SENSITIVITY AND IMPEDANCE

(1,000Hz for rated output)

PHONO 2.5mV, 50k ohms
AUX 100mV, 50k ohms
TAPE MONITOR 100mV, 50k ohms
PHONO Max input capability more than 200mV RMS at 0.2% distortion)

RECORDING OUTPUT

TAP 100mV
CONTROLS
BASS -10dB, -10dB at 50Hz
MIDRANGE +5dB, -5dB at 1.5kHz
TREBLE +10dB, -10dB at 10kHz

TONE SELECTORS

BASS 150Hz, 300Hz
TREBLE 1.5kHz, 3kHz
LOUDNESS +10dB at 50Hz
+8dB at 10kHz

FILTERS

LOW -10dB at 50Hz
HIGH -10dB at 10kHz
MUTING (Audio) -20dB

FM SECTION

TUNING RANGE

88 to 108MHz

SENSITIVITY (IHF)

1.7μV

(DIN)

0.9μV

QUIETING SLOPE (MONO)

3μV 50dB

TOTAL HARMONIC DISTORTION

MONO less than 0.2%

STEREO less than 0.3%

SIGNAL TO NOISE RATIO (MONO)

better than 70dB

better than 85dB

better than 1.5dB

SELECTIVITY

CAPTURE RATIO better than 75dB at 98MHz

IMAGE FREQUENCY REJECTION better than 100dB at 98MHz

IF REJECTION better than 90dB at 98MHz

SPURIOUS RESPONSE REJECTION less than 34dB

SPURIOUS RADIATION less than 34dB

STEREO SEPARATION better than 40dB at 1kHz

FREQUENCY RESPONSE

30Hz to 15kHz
+0.5dB, -2dB

ANTENNA IMPEDANCE

300 ohms balanced
75 ohms unbalanced

AM SECTION

TUNING RANGE

535 to 1,605kHz

SENSITIVITY (Bar Antenna)

50dB/m at 1,000kHz

better than 50dB at 1,000kHz

SELECTIVITY better than 80dB/m at 1,000kHz

IMAGE REJECTION better than 80dB/m at 1,000kHz

IF REJECTION better than 80dB/m at 1,000kHz

GENERAL

AC OUTLETS switched max. 100 watts

unswitched total 150 watts

SEMICONDUCTORS 51 Transistors, 35 Diodes

1 FET, 10 ICs, 1 LED, 4 Zener Diodes

POWER REQUIREMENTS

POWER VOLTAGE 100, 120, 220, 240V,

50/60Hz

POWER CONSUMPTION

MAXIMUM 750 watts

RATED 270 watts

DIMENSIONS

540mm (21⁵/₁₆") W

182mm (7¹/₁₆") H

397mm (15¹/₁₆") D

WEIGHT 23.3kg (51.4lbs) NET

25.7kg (56.7lbs) PACKED

Design and specifications subject to change without notice for improvements.