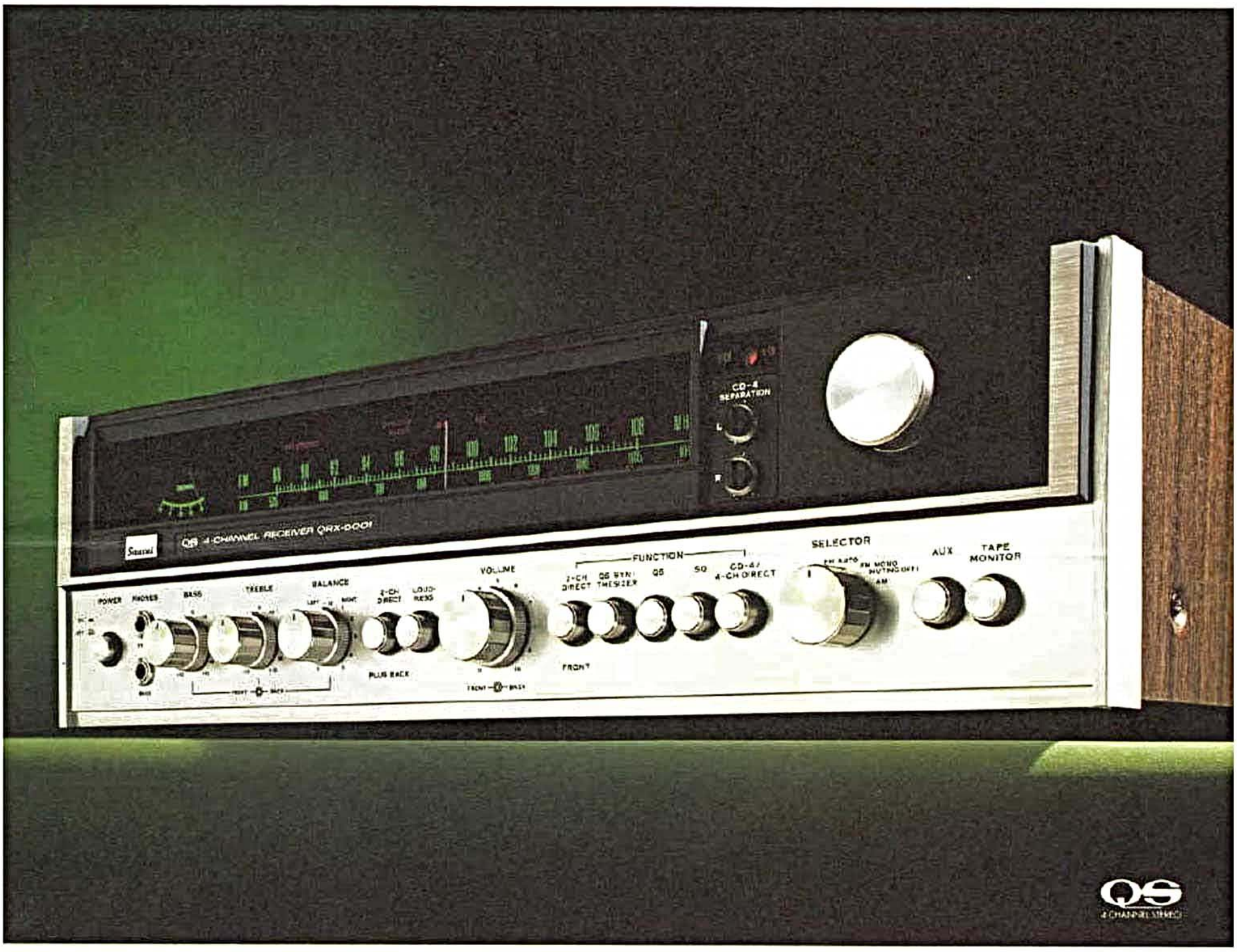
SANSUI QRX5001

ALL-SOURCE FM/AM 4-CHANNEL RECEIVER



Sansui's leadership in the field of 4-channel equipment is easy to explain—we make the best there is.

Prove it with your own ears. Hear our newest all-source 4-channel FM/AM receiver, the versatile QRX-5001. Despite its reasonable cost it has every facility you need to enjoy any 4-channel program source—our own QS* vario-matrix decoder for QS and SQ** matrix records, tapes and FM broadcasts, and our improved built-from-scratch CD-4† demodulator for CD-4 or Quadradisc records.

And thanks to its QS Synthesizer, you also enjoy convincing 4-channel sounds from most 2-channel sources.

All controls and circuits in the QRX-5001 make the most of the sound field realism possible with 4-channel. Its easy-to-use front and back balance, volume and tone controls, and the simplified program source selectors, take the complications out of quadraphonics.

IC-equipped FM/AM tuners, unique PLUS BACK circuit for 2-channel use, and many other advances make the QRX-5001 another classic from the 4-channel leader—Sansui, of course.

*QS TM Sansui **SQ TM CBS Inc †CD-4 TM JVC Inc

Sansui

Enjoy any and all 4-channel sources with the versatile QRX-5001.

4-CHANNEL DECODER SECTION

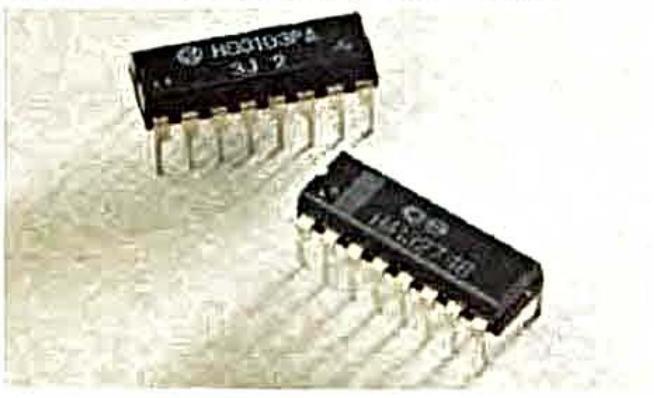
QS Vario Matrix Decoder

Sansui was the first to perfect and market (in 1970) a total 4-channel matrix encoding/decoding system, called QS. This unique system features a square decoding matrix with plus/minus 90° phase shifters, which means there is no loss or mislocation of any part of the original sound field information. Records produced and played via QS bring you precise sound-image location over a 360° listening area

The QS System also features the new IC-equipped QS vario-matrix to bring inter-channel separation to a par with discrete 4-channel tape. Not too technically speaking, the QS vario-matrix constantly controls the operating parameter (or "electronic shape") of the QS decoding matrix, emphasizing the directionality of whichever sound is loudest at any given moment.

Since *only* the crosstalk is cancelled, not the signals, the content and expression of music and other sounds do not change. This means that QS guarantees top quality high-fidelity sound reproduction at all times, with no lowering of standards in respect to dynamic range, distortion, frequency response, etc.

The QS vario-matrix circuit has two additional advantages: in the Phase Matrix mode it properly decodes sources made with SQ matrix system, and in its QS Synthesizer mode, you hear convincing 4-channel sounds from conventional 2-channel records, tapes or FM stereo broadcasts containing, as most do, any "hidden" phase information. The versatility of the QS vario-matrix and the incorporation of a CD-4 demodulator in the QRX-5001 give it total 4-channel capabilities unmatched by any other receiver in its price range.



Pushbutton Function Selectors

The six pushbuttons below the dialplate on the front panel give you instant selection of all of the receiver's many modes.

2-CH DIRECT sends regular stereo signals to the front two speaker systems.

PLUS BACK sends regular stereo signals to the back two speaker systems. (NOTE: In 2-CH DIRECT and PLUS BACK modes the receiver automatically doubles output power for 2-channel stereo reproduction.)

QS SYNTHESIZER creates a realistic 4-channel sound field effect from most conventional 2-channel sources, including FM stereo. It is hailed as the only truly 4-channel synthesizer available today.

QS is for decoding and reproducing QS-encoded 4-channel records, tapes and FM 4-channel broadcasts.

SQ allows the proper Phase Matrix decoding of SQ-encoded 4-channel sources. It does away with the gain riding logic (and its disadvantages) used in many SQ decoders, yet actually decodes SQ music with comparable front-back separation.

CD-4/4-CH DIRECT is used for playing CD-4 (and Quadradisc) records in 4-channel. Use it also when listening to any discrete 4-channel AUX or TAPE source.

Convenient 4-Channel Controls

There are independent, friction-coupled treble and bass tone controls for the front and back channels. These operate from an exclusive IC amplifier of very high-performance specifications for minimum distortion and improved signal-to-noise ratio.

Then, for accurate channel-to-channel balancing, there are friction-coupled controls to adjust relative left/right balance of the front and back channels independently. Each has a center click-stop for easy use.

When any of the 4-channel function push-buttons is engaged, a long-life LED (Light-Emitting Diode) indicator on the front panel glows red to indicate 4-channel operation; it glows green in 2-channel use.

Also on the front panel are controls for CD-4 separation adjustment. The carrier level adjustor is located on the rear panel.

Built-in CD-4 Demodulator

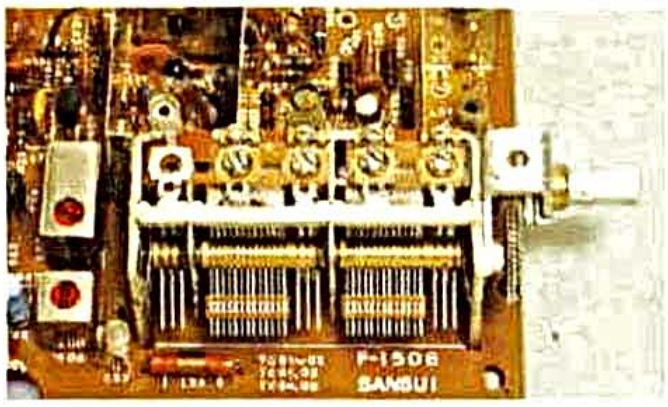
To ensure the best possible high fidelity reproduction of records made with the CD-4 system, Sansui engineers have designed a new CD-4 demodulator for our 4-channel products. Starting from scratch, they introduced a number of significant improvements including completely "beat free" reproduction by the of a sharp cut-off (better than 50dB at 13k...), 2-stage LC high-pass filter in the difference signal channels. This makes a great difference in 4-channel since clean and transparent sound is assured. Then, to avoid cutting off the high frequencies of records not made with CD-4, the CD-4 demodulator is completely bypassed when not in use. By the way, a free CD-4 adjustment record comes with the receiver.

FM/AM TUNER SECTIONS

MOS FET and ICs for FM Tuner

The frontend of the advanced FM section of the QRX-5001 has a high signal-to-noise ratio and outstanding sensitivity thanks to the combination of an elaborate 3-gang tuning capacitor and a dual gated MOS FET. The FM IF a uses two bi-resonator ceramic filters and a matching 3-stage transistor, IC amplifier and limiter circuit, making possible higher selectivity and improved capture ratio. Further, a superwide-range transformer, developed by

Sansui, is used in the FM discriminator to assure top tonal quality.



DDC FM Multiplex Demodulator

A special DDC (Differential Demodulator Circuit, Sansui patent pending) FM multiplex demodulator is used to maintain superior FM stereo separation well into the high frequencies also eliminates SCA beat interference.

Additional FM Features

The FM Muting circuit operates from a separate IC, activated the instant the tuner is put out of tune by as little as ±60Hz. Also, a 50μS/75μS FM de-emphasis switch allows the use of the QRX-5001 to receive FM broadcasts anywhere in the world.

The FM-linear dial features an oversized flywheel and special tension mechanism for all-weather ease of use; both the 75 ohm and 300 ohm type FM antenna terminals are provided. And finally, the QRX-5001 has an FM DET OUT jack to allow the connection and use of a 4-channel discrete FM demodulator when such equipment and broadcasts become available.

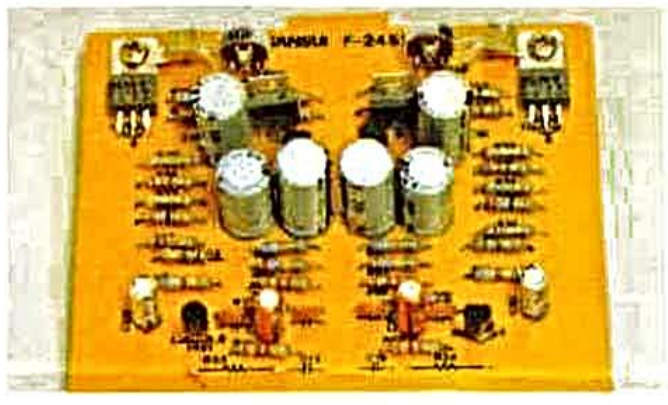
AM Tuner Features IC

An IC of the high-integration type (the equivalent of 22 transistors and 11 diodes) and bi-resonator Jaumann ceramic filter improve AM reception, sharpen selectivity and eliminate AM noises. The tuner features increased stability and reliability and includes a space-wound, extra-length ferrite bar antenna for ideal input.

4-CHANNEL AMPLIFIER SECTION

3-Stage Direct-Coupled Phono Equalizer

The all-important phono equalizer amp in the QRX-5001 is one of the finest available—a NPN-PNP-NPN 3-stage direct-coupled unit using extremely low-noise transistors. Wide dynamic range, low distortion and a wide frequency response to incoming signals are assured, especially important in 4-channel playback. RIAA equalization is an impressive ±1.0dB over the 30 to 15,000Hz bandwidth, meaning that you hear all sounds at the levels the recording engineers intend.



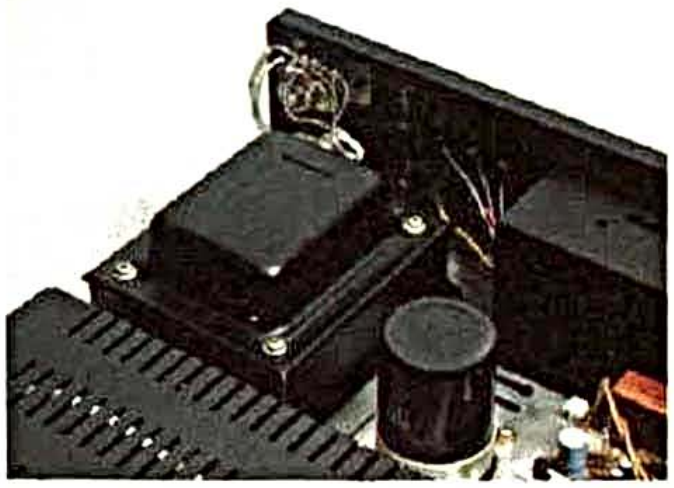
Plenty of Power for 4-Channel

A newly-developed all-stage direct-coupled SEPP semi-complementary OTL amplifier has been employed in the QRX-5001 to assure maximum power output with extremely low distortion. It delivers 17 watts per channel in continuous min. RMS power measured over the receiver's entire 30 to 20,000Hz power bandwidth, all channels driven simultaneously into an 8-ohm load at rated total harmonic distortion of 0.5% or less.

Very Large Power Supply

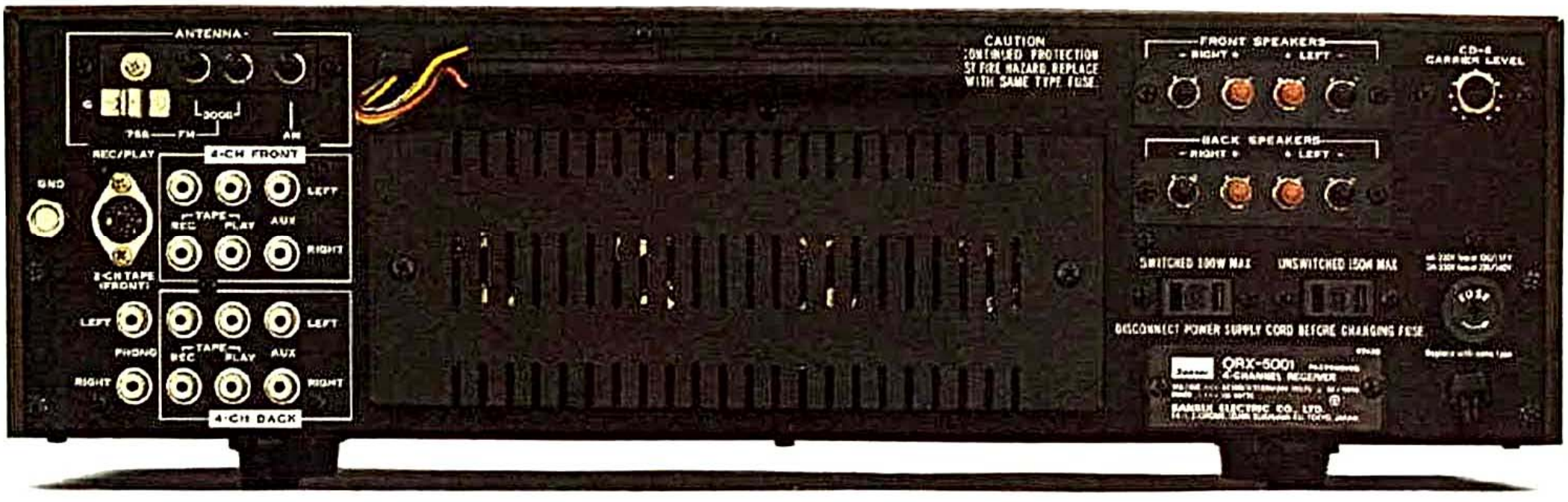
One of the significant factors in Sansui products' extremely stable and low-distortion high fidelity performance is the use of large power supplies wherever possible.

The QRX-5001 has a power supply circuit with an oversized transformer and a pair of 6,800μF capacitors to extend the receiver's frequency range and stability.



OTHER RECEIVER FEATURES

- 4-CHANNEL TAPE inputs and outputs enable the use of one 4-channel tape deck or two 2-channel tape decks. A DIN socket is provided for a 2-channel deck in the same circuit.
- 4-CHANNEL AUX input terminals for connecting either a 4-channel or 2-channel auxiliary component.
- LOUDNESS switch and circuit to compensate for less high and low frequency response during low-level listening.
- INDICATORS in dial panel for FM STEREO, QS SYNTHESIZER, QS, SQ and CD-4.
- SIGNAL METER to aid in accurate tuning of FM or AM.
- 4-CHANNEL HEADPHONE jacks on front panel (front and back channels).
- AC OUTLETS (one "switched") to connect other components.
- ALL-METAL CABINET in wood-grain finish for lasting good looks.



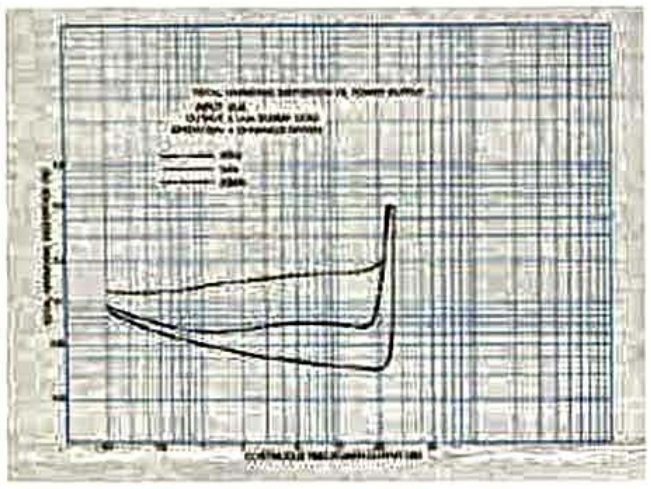
SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT†
17 watts per channel, min. RMS, all channels driven into 8 ohms from 30Hz to 20kHz, with no more than 0.5% total harmonic distortion

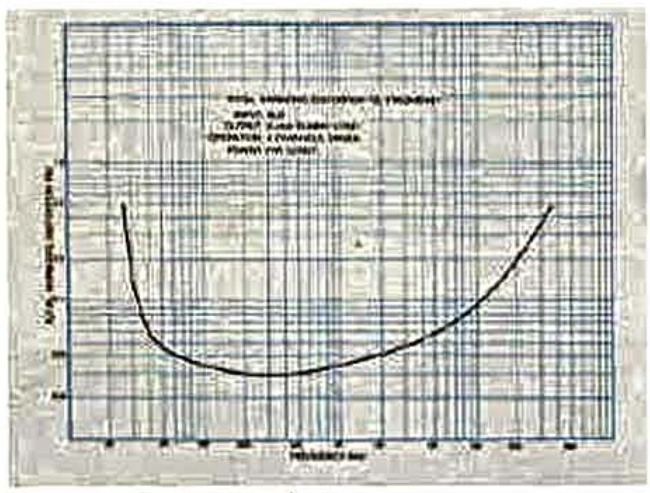
20 watts per channel, min. RMS, all channels driven into 8 ohms at 1kHz, at rated total harmonic distortion

TOTAL HARMONIC DISTORTION†
OVERALL (AUX to speaker terminals)
less than 0.5% at or below rated min. RMS power output



INTERMODULATION DISTORTION
(70Hz:7,000Hz=4:1 SMPTE method)
OVERALL (AUX to speaker terminals)
less than 0.5% at rated min. RMS power output

POWER BANDWIDTH†
30 to 20,000Hz at or below rated min. RMS power output and total harmonic distortion



LOAD IMPEDANCE† 8 ohms

FREQUENCY RESPONSE
OVERALL (AUX to power output)
30 to 30,000Hz ±1.5dB

EQUALIZATION
(at REC OUT)
RIAA Curve
30 to 15,000Hz ±1.0dB

DAMPING FACTOR approximately 10 at 8 ohm load

CHANNEL SEPARATION
(at rated output 1,000Hz)
PHONO better than 45dB
AUX better than 45dB

HUM and NOISE (IHF)
PHONO better than 60dB
AUX better than 70dB

INPUT SENSITIVITY (at rated output 1,000Hz)
PHONO 2.5mV 50k ohms
max. input capability more than 120mV RMS at 0.5% distortion
AUX (2-ch, 4-ch) 100mV 50k ohms
TAPE
PLAY Pin (2-ch, 4-ch) 100mV 50k ohms
REC/PLAY DIN (2-ch) 100mV 50k ohms

RECORDING OUTPUT
TAPE
REC Pin (2-ch, 4-ch) 100mV
REC/PLAY DIN (2-ch) 30mV

TONE CONTROLS
BASS ±10dB at 50Hz
TREBLE ±10dB at 10,000Hz

LOUDNESS +8dB at 50Hz
+3dB at 10,000Hz

4-CHANNEL DECODER SECTION (QS VARIO MATRIX*)

FREQUENCY RESPONSE 20 – 30,000Hz

DISTORTION less than 0.1% (at 1kHz)

FUNCTIONS QS, QS Synthesizer, SQ (Phase Matrix**)

CD-4 DEMODULATOR SECTION

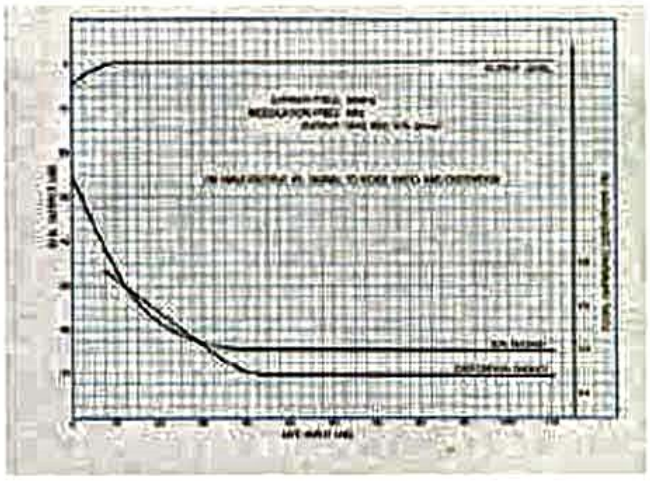
FREQUENCY RESPONSE 30 – 15,000Hz

TUNER SECTION

FM:
TUNING RANGE 88 to 108MHz
SENSITIVITY (IHF) 2.5μV
Max. input capability more than 110dB

TOTAL HARMONIC DISTORTION
MONO less than 0.4%
STEREO less than 0.7%

SIGNAL TO NOISE RATIO (MONO) better than 65dB



SELECTIVITY better than 60dB

CAPTURE RATIO (IHF) less than 2.5dB

IMAGE REJECTION better than 55dB at 98MHz

IF REJECTION better than 60dB at 98MHz

SPURIOUS RESPONSE REJECTION better than 65dB at 98MHz

STEREO SEPARATION better than 40dB at 1,000Hz

FREQUENCY RESPONSE 30 to 15,000Hz +0.5dB, −3.0dB

ANTENNA IMPEDANCE
300 ohms balanced,
75 ohms unbalanced

AM:
TUNING RANGE 535 to 1605kHz

SENSITIVITY (Bar Antenna) 53dB/m at 1,000kHz

SELECTIVITY better than 30dB at 1,000kHz ±10kHz

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

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

GENERAL

SEMICONDUCTORS 90 Transistors, 9 FETs, 34 Diodes, 3 Zener Diodes, 13 ICs, 1 LED

POWER REQUIREMENTS
VOLTAGE 100, 117, 220, 240V, 50/60Hz
POWER CONSUMPTION
110 watts (rated)
300 watts, 330VA (max.)

DIMENSIONS
480mm (18⁹⁄₁₆") W
135mm (5⅜") H
327mm (12⅞") D

WEIGHT
13.8kg (30.4 lbs) net
15.5kg (34.2 lbs) packed

* U.S. Patent No. 3825684
** U.S. Patent No. 3783192

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

Design and specifications subject to change without notice for improvements.

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Printed in JAPAN(55003T1)