

MODEL **SA-5200**

NATIONAL

HI-FI COMPONENTS

PANASONIC

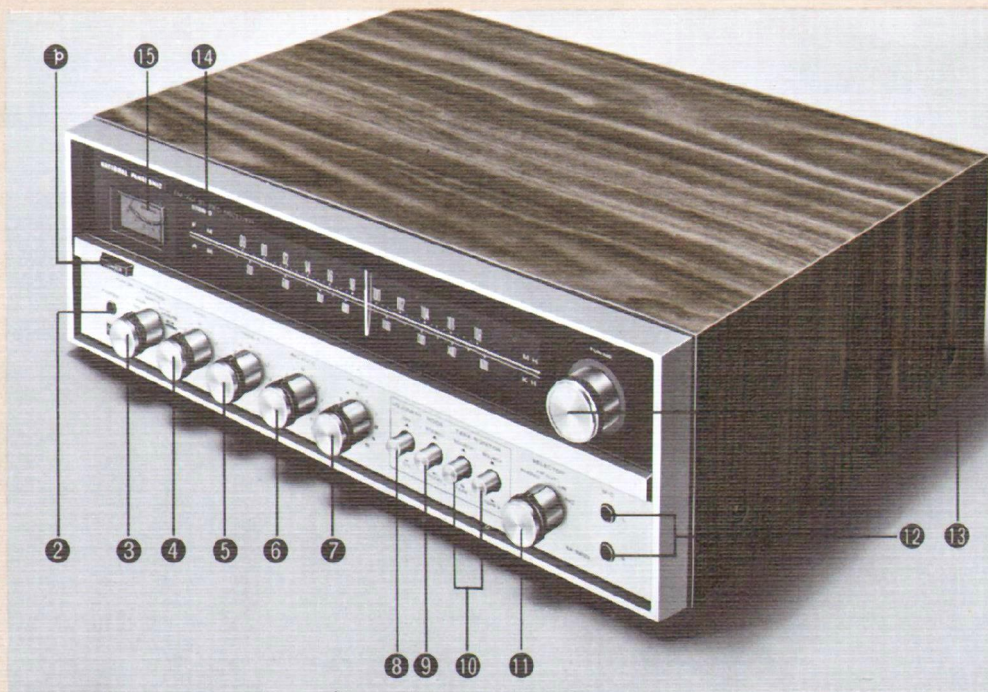
46-Watt FM/AM Stereo Receiver
with Direct-Coupled ITL-OTL-OCL Circuitry



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SA-5200: The 4-Channel Experience!!

National Panasonic's engineers have developed a stereo receiver that is at once ideal for stereo systems of modest cost and proportions, and at the same time has the capability to provide "4-channel enhancement" of conventional stereo program sources with the addition of two optional speakers. It's National Panasonic's model SA-5200. National Panasonic's famed Direct-Coupled circuitry results in spectacular sound reproduction over the entire audio spectrum, while such state-of-the-art circuitry features as a 4-Pole (MOS) FET and ceramic filters in the tuner section ensure high FM sensitivity and selectivity and low total harmonic distortion. And this receiver invites you to the exciting world of "4 CH-Matrix Sound"—a big bonus incorporated for your additional music enjoyment. With the simple addition of two extra loudspeakers—now or later—National Panasonic's 4 CH-Matrix Circuitry enables you to achieve 4-channel sound presence from conventional 2-channel sources, such as stereo discs, FM broadcasts, and tapes—without the need for additional electronics. This versatile receiver is also provided with two tape monitor inputs and outputs, so that two tape decks equipped with separate playback heads can be used simultaneously. Naturally, dubbing (recording on one tape deck from another) can be accomplished internally, too. The SA-5200's beautifully designed champagne-gold front panel with conveniently located controls harmonizes perfectly with the "blackout" tuning dial and walnut finished cabinet. Behind the impressive control panel are the latest engineering achievements of National Panasonic's advanced audio and RF technology—ready to afford years of trouble-free listening at a price you can afford.

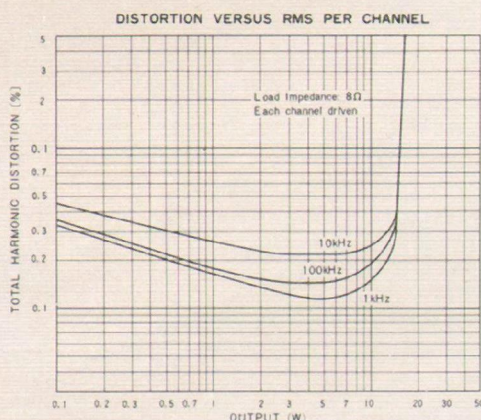


A full 46W FM/AM receiver featuring National Panasonic's exclusive

AUDIO SECTION

Clean 46W (4 ohms load) Output Power

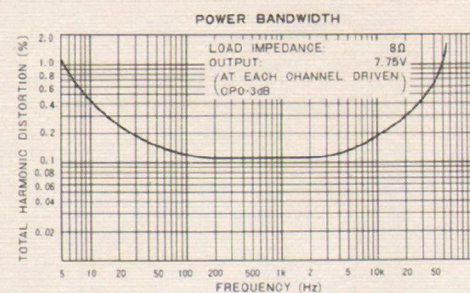
With 46 watts of power (4 ohms load), the National Panasonic's SA-5200 represents the very best investment you can make. And rated harmonic distortion is less than 0.8% at full power output. All power amplifier stages are direct coupled, and there is no coupling capacitor between the power output stages and your speaker systems to limit low-frequency power response or cause degrading phase shifts which might be particularly destructive to subtle 4-channel sonic balance and separation.



Stable DC Supply Circuit

Direct-coupled amplifier designs require dual balanced positive and negative power supplies. While costly to incorporate, their presence insures superb transient response and widest possible dynamic range. The audible advantages inherent in this design are improved linearity, wider power bandwidth, higher temperature stability and better damping factor. Here, then, are the same advanced space-age technology and solid-state engineering techniques which National Panasonic's applies to

its higher-powered, more expensive receivers—yours at a budget price in the new SA-5200.



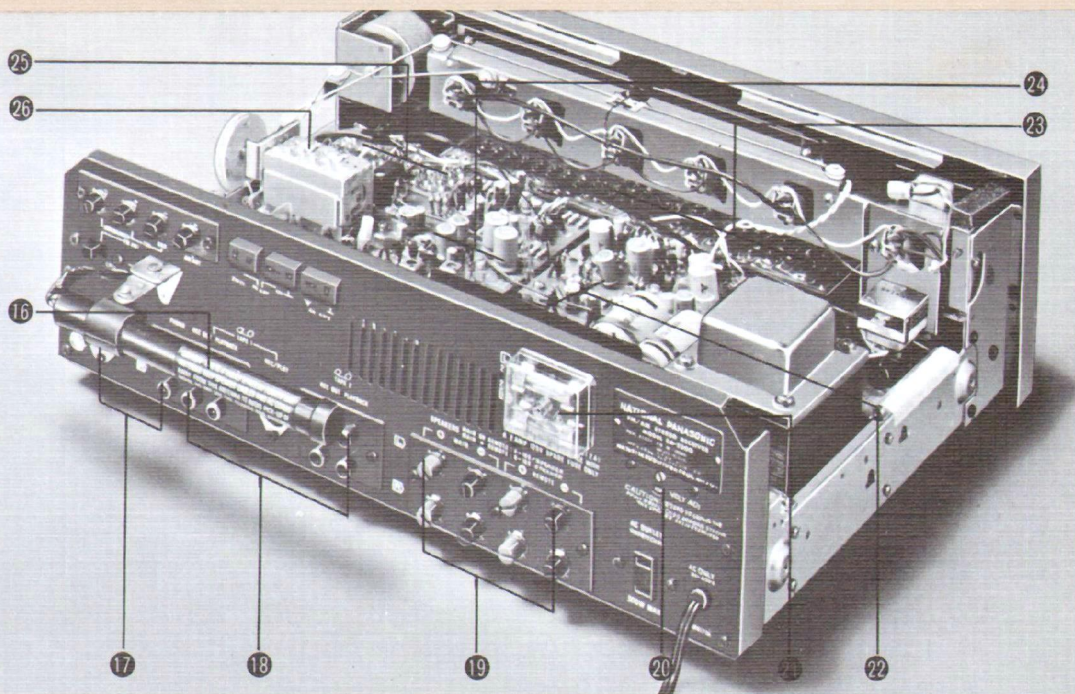
4-Channel Enhancement Of Stereo Programs

Stereo FM programs, stereo tapes and discs all contain "hidden" ambience and phase information which, when subjected to National Panasonic's new 4 CH-Matrix circuitry, produce "sum" and "difference" signals for driving your four loudspeaker systems. The degree of enhancement may vary from record to record, but the resultant ambience and "surround" effect obtained lends new realism and "presence" to all your stereo program sources and may well prove to be your favorite feature. To avail yourself of this "years ahead" built-in feature, simply switch the SPEAKER selector switch to the 4 CH-MATRIX position. If you have an extra pair of speaker systems positioned in the rear of your listening room, you're all set for this "new dimension" in musical listening.

Tone Controls

Separate BASS and TREBLE controls permit precise adjustment of response to suit your individual taste, the requirements of your loudspeaker systems and the acoustic environment of your listening room. In addition, the loudness-control automatically compensates for bass and treble emphasis required when listening to music at low volume levels.

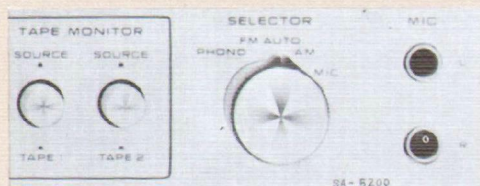
- 1 POWER PUSH-BUTTON
- 2 HEADPHONES JACK
- 3 SPEAKER AND 4-CH MATRIX SELECTOR SWITCH
- 4 BASS CONTROL
- 5 TREBLE CONTROL
- 6 BALANCE CONTROL
- 7 VOLUME CONTROL
- 8 LOUDNESS PUSH-BUTTON CONTROL
- 9 MODE PUSH BUTTON
- 10 DUAL TAPE MONITOR PUSH BUTTON
- 11 PROGRAM SELECTOR SWITCH
- 12 MIC JACKS
- 13 TUNING CONTROL
- 14 STEREO INDICATOR
- 15 SIGNAL STRENGTH METER
- 16 HIGH SENSIVITY AM FERRITE BAR ANTENNA
- 17 TURNTABLE (PHONO)
- 18 TAPE DECK (1 & 2)
- 19 EASY-TO-CONNECT SPEAKER TERMINAL
- 20 VOLTAGE ADJUSTMENT
- 21 CIRCUIT PROTECTION FUSES
- 22 MAIN AMPLIFIER CIRCUIT
- 23 TONE CONTROL CIRCUIT
- 24 RF STAGE
- 25 EQUALIZER AMPLIFIER CIRCUIT
- 26 3-GANG VARIABLE CAPACITOR



e all-stage direct-coupled (ITL-OTL-OCL) circuitry, two 4-pole MOS FET's, 1-IC, and all crystal filters.

Extra Tape Input And Output Facilities

With two pairs of tape input and tape monitor jacks you can connect two tape decks (having separate playback heads), record two tapes simultaneously or even dub from one tape recorder to the other, at will.



Microphone Input Facilities

The National Panasonic SA-5200 is equipped with a stereo pair of microphone input jacks, located conveniently right on the front panel. With the selector switch set to MIC, you can record live events, or use your system as a high fidelity stereophonic public address system right in your own listening room.

Speaker Versatility

The SA-5200 can handle two pairs of loudspeaker systems. You can listen to the main system, the remote system (located in another room, perhaps) or to both "main" and "remote" systems simultaneously. If you connect all four speaker systems in one room, you're all set to enjoy 4-channel sound presence when you set the switch to the 4-CH MATRIX position.

TUNER SECTION

The Promise Of FM Fulfilled.....

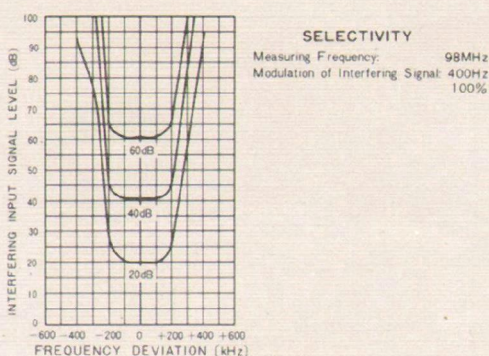
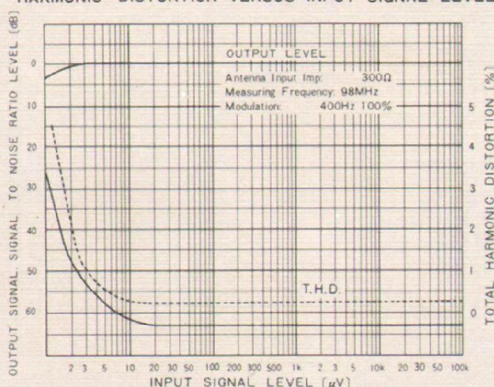
If FM is, as often stated, the "high fidelity broadcast medium" then the National Panasonic SA-5200 is surely the "means to the medium", as evidenced by the outstanding design and performance features which represent decades of dedicated

engineering research and development devoted to FM transmission and reception.

The All-Important FM Front End And IF System

The newly designed front end of National Panasonic's SA-5200 tuner section includes an RF amplifier and is equipped with a 4-pole MOS FET (Metal Oxide Semiconductor Field Effect Transistor). Combined with a 3-gang tuning capacitor, these design elements provide extremely high sensitivity and selectivity as well as freedom from cross-modulation and the effects of strong-signal overload. The use of ceramic filters in the IF system further contributes to the high selectivity (60 dB) and ensures stable-free performance.

OUTPUT LEVEL, SIGNAL TO NOISE RATIO AND TOTAL HARMONIC DISTORTION VERSUS INPUT SIGNAL LEVEL



Time Division Stereo FM (MPX) Circuitry

Extremely stable stereo decoding of stereo FM broadcasts is maintained by means of a time division multiplex circuit. With the SELECTOR switch set to the FM AUTO position, the receiver automatically switches to stereo reception when a stereo signal is received. A positive-acting indicator light becomes illuminated during stereo reception. Excellent stereo separation (35 dB at 1 kHz) is maintained over the entire audio spectrum. If stereo reception is too noisy (weak signal) for satisfactory listening, depressing the Stereo-Mono Mode switch enables you to listen to the signal monophonically, whenever you wish.

Precise Tuning System

National Panasonic's unique linear dial scale makes precise center-of-channel tuning easy, even with today's crowded FM dial. The large, easy-to-read signal strength meter further ensures accuracy of tuning of both AM and FM stations.

Total Flexibility

In creating this all new receiver, National Panasonic's challenge was to arrange the needed controls, inputs and outputs for maximum flexibility while at the same time retaining the simple elegance and human engineering which has become so much a part of the National Panasonic design approach and tradition. Your first encounter with the SA-5200 will attest to the success of this new design. The champagne-gold front panel, the totally blacked-out tuning dial (which is softly illuminated when power is applied to the receiver), the tastefully arranged controls and the flush-mounted walnut finish cabinet all blend together to give a feeling of ultimate control of the unseen electronics within.

Technical Specifications of the SA-5200

IHF

AUDIO SECTION

Music power (IHF):	46 W (4 Ω) 37 W (8 Ω)
RMS power (each channel):	16/16 W (4 Ω) 14/14 W (8 Ω)
Harmonic distortion:	0.8%
Intermodulation distortion (60 Hz: 7 kHz=4:1 SMPTE):	1.0%
Power bandwidth:	7 Hz~30 kHz, -3 dB
Frequency response:	
PHONO (RIAA standard curve)	± 1 dB
TAPE PLAYBACK	10 Hz~50 kHz, ± 1 dB
Input sensitivity & impedance:	
PHONO	3 mV 47 k Ω
TAPE PLAYBACK	200 mV 30 k Ω
Residual hum & noise:	1.0 mV

S/N (IHF, A):	
PHONO	70 dB
TAPE PLAYBACK	90 dB
Tone control:	
BASS	50 Hz +10, -12 dB
TREBLE	10 kHz +10, -10 dB
Loudness control:	50 Hz +12 dB, 10 kHz +5 dB
Damping factor:	30 (8 Ω)
REC OUT:	200 mV
Load impedance:	4~16 Ω
FM TUNER SECTION	
Frequency range:	88~108 MHz
Sensitivity (IHF):	1.9 μ V
Harmonic distortion (at 400 kHz, 100% modulation):	0.4%
S/N:	65 dB
Selectivity:	60 dB

Image rejection (at 98 MHz):	40 dB
IF rejection (at 98 MHz):	80 dB
Capture ratio:	2.0 dB
Stereo separation (at 1 kHz):	35 dB

AM TUNER SECTION

Frequency range:	520~1610 kHz
Sensitivity (IHF):	20 μ V
Selectivity (at 1000 kHz, ± 10 kHz):	20 dB
Image rejection (at 1000 kHz):	50 dB

GENERAL

Power consumption:	135 W
Power supply:	110/120/220/240V 50/60 Hz
Dimensions (W x H x D):	16 $\frac{1}{8}$ " x 5 $\frac{5}{16}$ " x 14 $\frac{3}{32}$ " (410 x 135 x 358 mm)
Weight:	17.6 lbs. (8 kg)

DIN 45 500

AUDIO SECTION

Music Power (both channels):	2 x 23W (4 Ω) 2 x 18.5W (8 Ω)
Rated power(RMS power, both channels):	2 x 15W (4 Ω) 2 x 13W (8 Ω)
Harmonic distortion:	
Rated power at 1000Hz 4 Ω	0.8%
Rated power at 40~16,000Hz 4 Ω	0.8%
Intermodulation distortion (Rated power at 250:8000Hz=4:1 4 Ω)	1.0%
Power bandwidth:	7Hz~20kHz, -3 dB
Frequency response:	10Hz~50kHz, -3 dB
Input sensitivity (PHONO):	3 mV 47 k Ω
Tape monitor (DIN):	
Input	30mV 80 k Ω
Output	200mV 30 k Ω
Tape monitor (pin terminal):	
Playback	200mV 30 k Ω
Rec out	200mV 1 k Ω
S/N:	
at rated power PHONO	65 dB

TAPE PLAYBACK	80 dB
at 50mW power output PHONO	58 dB
TAPE PLAYBACK	58 dB
Tone controls:	
Bass	50Hz +10, -12 dB
Treble	10kHz +10, -10 dB
Damping factor:	30 (8 Ω)
Load impedance:	4~16 Ω
FM TUNER SECTION	
Antenna terminal:	300 Ω (Balanced) 75 Ω (Unbalanced)
Frequency range:	88~108 MHz
Sensitivity (± 40 kHz deviation):	2.0 μ V S/N 30 dB 300 Ω 1.7 μ V S/N 20 dB 300 Ω 1.1 μ V S/N 20 dB 75 Ω
Harmonic distortion (± 40 kHz deviation):	Mono 0.4% Stereo 0.7%
S/N (± 40 kHz deviation):	Mono 60 dB Stereo 48 dB

Selectivity at 400kHz:	60 dB
Image rejection (at 98MHz):	40 dB
IF rejection (at 98MHz):	80 dB
Capture ratio:	2.0 dB
Stereo separation:	35 dB
Limiting point:	1.5 μ V
Bandwidth:	
IF amplifier	190 kHz
FM-demodulator	675 kHz

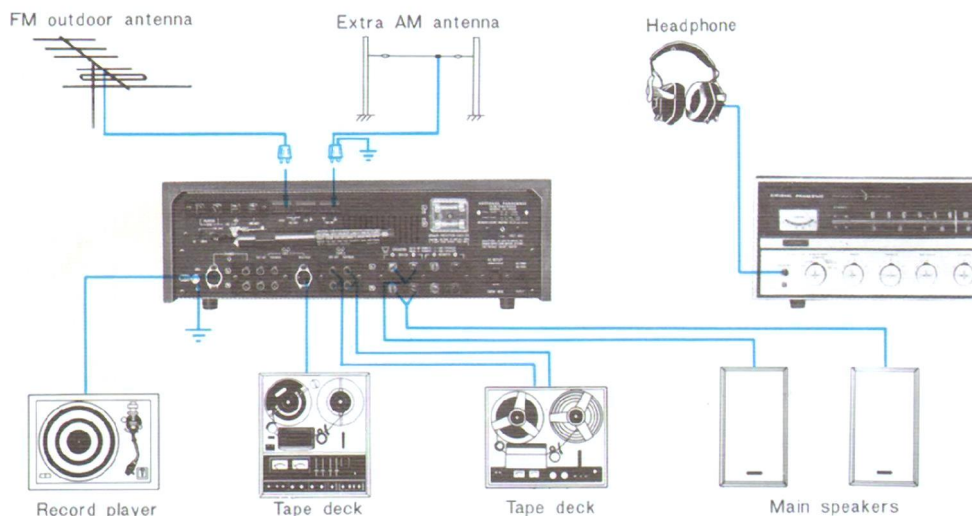
AM TUNER SECTION

Frequency range:	520~1610 kHz
Sensitivity:	20 μ V
Selectivity:	20 dB
Image rejection:	50 dB

GENERAL

Power consumption:	135W
AC power supply:	110/120/220/240V 50/60 Hz
Dimensions(W x H x D):	16 $\frac{1}{8}$ " x 5 $\frac{5}{16}$ " x 14 $\frac{3}{32}$ " (410 x 135 x 358 mm)
Weight:	17.6 lbs. (8kg)

One Single Unit To Pilot-Control All Your Audio Equipment



RS-736US
Professional stereo tape deck with HPF heads, 3-head system.



SL-41



SB-310

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National and Panasonic are the brandnames of Matsushita Electric