

ROTEL® AM/FM STEREO RECEIVER

RX-1603

Once again Rotel introduces a big-power receiver of incomparable quality.

And once again it's a hard-nose approach to faithful reproduction of the original musical performance. Evaluate the technology behind it. It's all on the pages to come.





THINK SOPHISTICATION. THINK POWER. THINK RX-1603.



RX-1603 has what any enthusiast can term 'genuinely awesome power.' It has the power to deliver continuously high-quality musical reproduction at all listening levels. But power is just the beginning of this receiver's remarkable performance story.

RX-1603 has all that makes it up-to-the-minute. Outstanding FM stereo performance. Precise RIAA equalization. And effective tone

controls and filters to name only several of its extensive audio offerings.

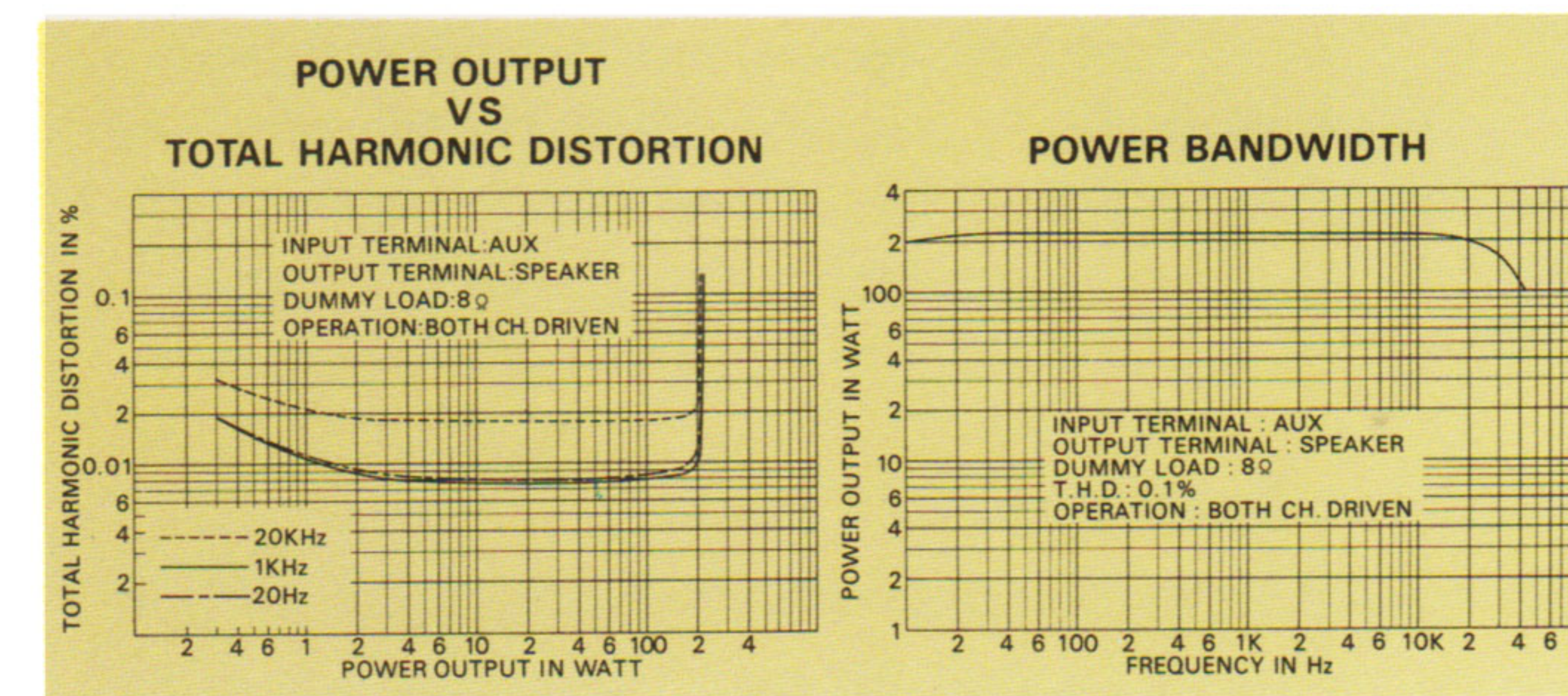
This is the one you will want. The best you can ever own. Big power and big performance from Rotel. Where quality is always uncompromised.

The power

RX-1603 delivers a continuous power output of 180 watts per channel, minimum RMS both channels driven into 8 ohms from 20 to 20,000Hz with no more than 0.1% total harmonic distortion—or 220 watts per channel into 4 ohms all else remaining the same.

Rotel's advanced power amplifier configuration assures constantly stable levels of clean-cut, high-fidelity sound from very small to very large outputs. While 3-stage Darlington direct-coupled OCL parallel push-pull circuitry assists in magnifying with extreme ease any large power output demand you place on the RX-1603. There

is even a special constant-loading circuit in the pre-driver stage for smooth maintenance of DC stability and high gain and negligible distortion.

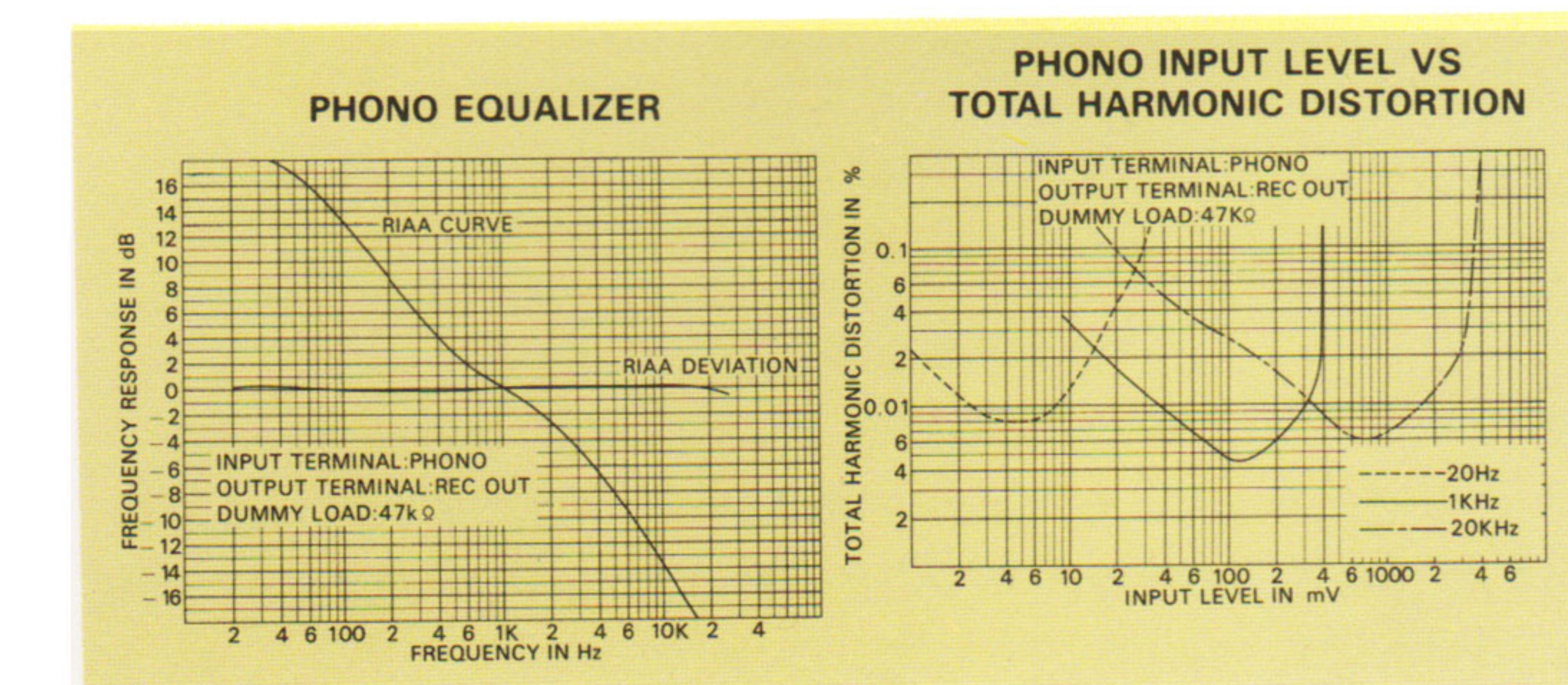


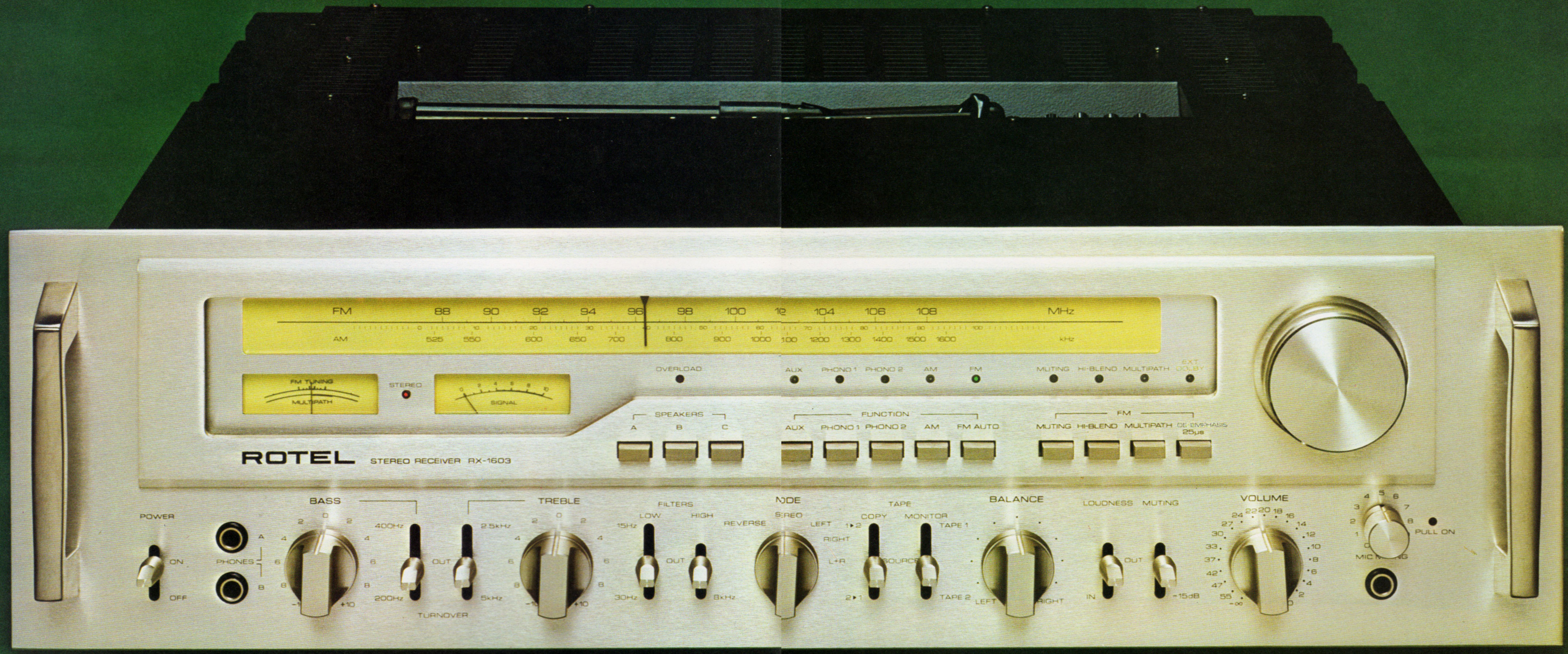
The toroidal power transformer

This specially-designed power transformer not only eliminates such problems as magnetic leakage flux and overheating, it also improves power regulation and transient response at the same time. Coupled to two enormous 22,000 μF electrolytic capacitors in the dependable split plus-minus power-supply configuration, the RX-1603's big toroidal power transformer maintains power with more ease than any comparable design in its class.

The equalizer

Three-stage direct-coupled SEPP (single-end push-pull) circuitry in the equalizer is the perfect complement to the large power capability of RX-1603. In addition, a split plus-minus power supply and first-stage differential amplifier highlight equalizer performance all the more by helping to achieve negligibly low distortion. The Class-A operation output stage with the SEPP format assures a very wide dynamic range and small output impedance. In other words, a perfectly flat frequency response is obtained and maintained, with RIAA equalization fully correct within ±0.2dB and distortion minimal.





ROTEL STEREO RECEIVER RX-1603

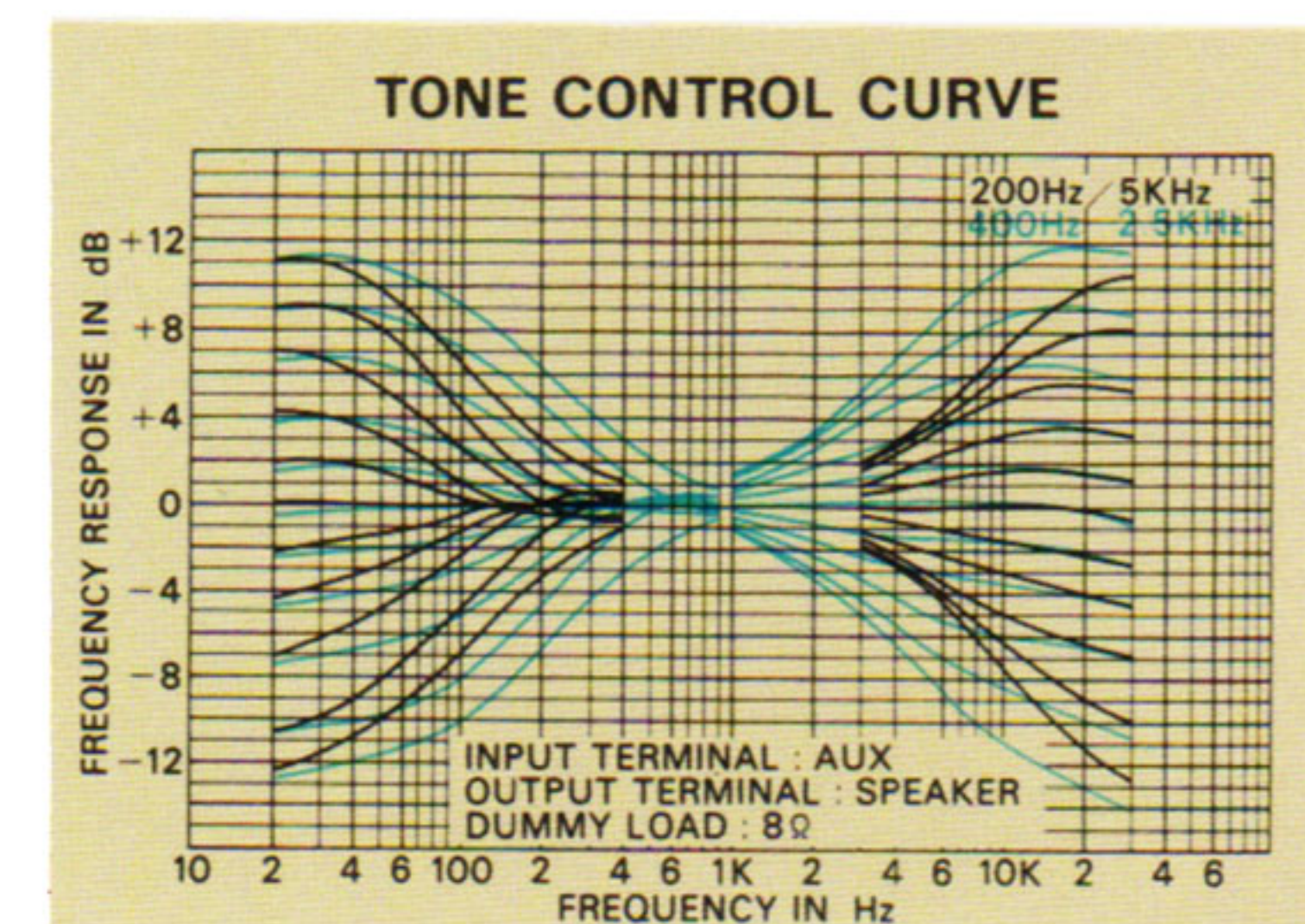


- OVERLOAD
- AUX
- PHONO 1
- PHONO 2
- AM
- FM
- MUTING
- HI-BLEND
- MULTIPATH
- EXT. DOLBY
- SPEAKERS A B C
- FUNCTION AUX PHONO 1 PHONO 2 AM FM AUTO
- FM MULTIPATH DE EMPHASIS 25µs

- POWER ON OFF
- PHONES A B
- BASS 2 0 2
- 400Hz
- 200Hz
- TURNOVER
- TREBLE 2 0 2
- 2.5kHz
- 5kHz
- FILTERS LOW HIGH
- 15Hz
- 30Hz
- 8kHz
- MODE S/REO
- REVERSE
- TAPE COPY MONITOR
- TAPE 1
- TAPE 2
- BALANCE LEFT RIGHT
- LOUDNESS
- MUTING
- VOLUME 24 22 20 18 16 14 12 10 8 6 4 2
- 3 2 1 0
- PULL ON
- MIC MUTE

The tone controls

Again, Rotel uses the advanced 3-stage direct-coupled SEPP configuration in the control circuitry of the RX-1603. To this, we add accurately calibrated 2-dB stepped bass and treble controls and corresponding 2-setting turnover switches to achieve a receiver capable of any frequency-response characteristic you desire. Combined with filters, these controls offer a versatile choice of tonal adjustments... from the most subtle to the most pronounced. A tone defeat switch is also one of the key controls on the RX-1603. With it, you can flatten tone control response or use it to check the effectiveness of the tone control system.



The high and low filters

Efficiency is the key here. High and low filters have sharp cut-off characteristics of 12dB/octave. They eliminate unnecessary frequency-range deviation without impairing tonal quality. The 8kHz high filter reduces high-frequency interference. While the 30 Hz low filter reduces low-frequency response to minimize record and tape noise. On the extreme low end, a 15Hz subsonic filter cuts out all undesirable noise characteristics at subsonic frequencies.

The protection

Two protection systems are incorporated in the RX-1603. The first is electronically controlled ASO protection circuitry using a relay to prevent damage to transistors and speakers if sudden overload should occur. While the second is DC-feedback power limiting circuitry for power transistor protection against impedance loads below 4 ohms.

The relay speaker switches

RX-1603 uses special relays for the speaker switches. This results in improved, interference-free operation without lengthy wiring from front to rear panels.

The tape facility

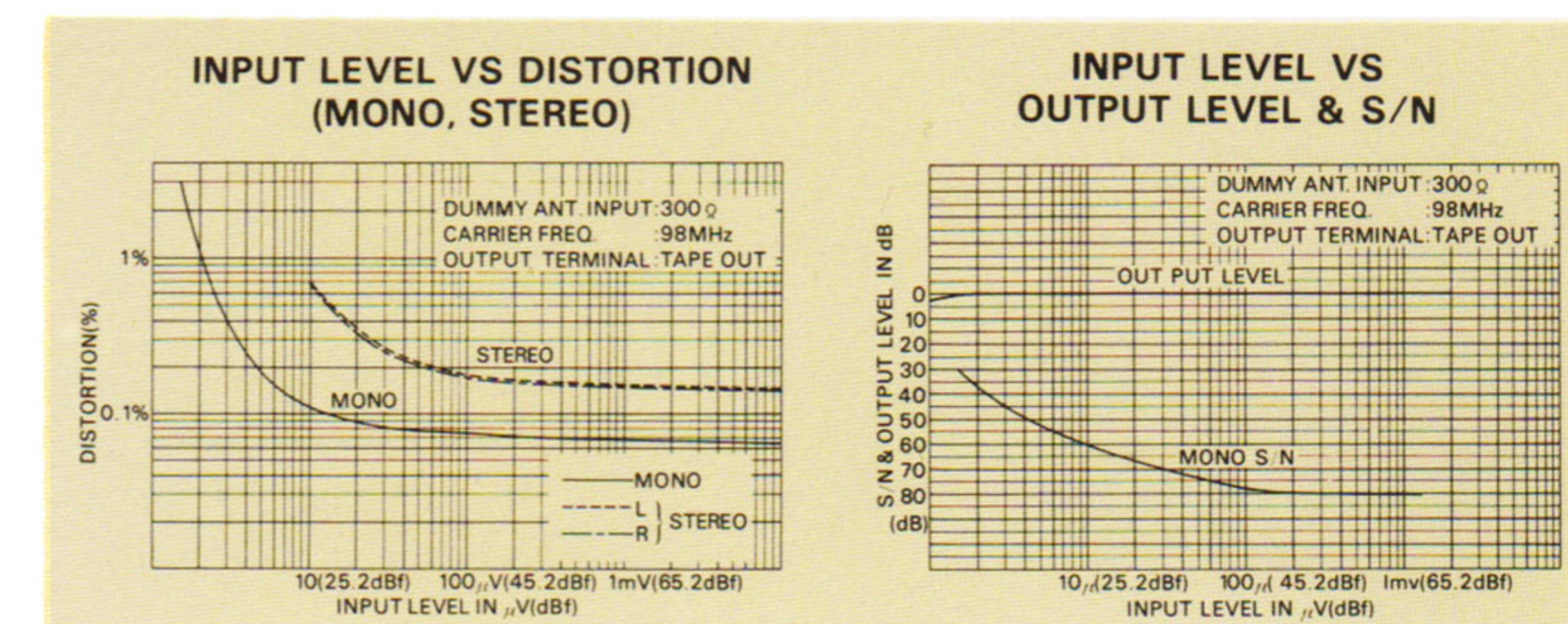
RX-1603 has two sets of connection terminals for stereo tape decks. This means recording and playback is possible using up to two decks. The receiver's 2-setting tape monitor switch allows playback or monitoring of any one of the two decks. While the 2-setting tape copy switch allows copying or dubbing from one deck to the other in both directions. Tape circuitry may also be used to hook-up a Dolby, dbx or other adapter.

The FM front end

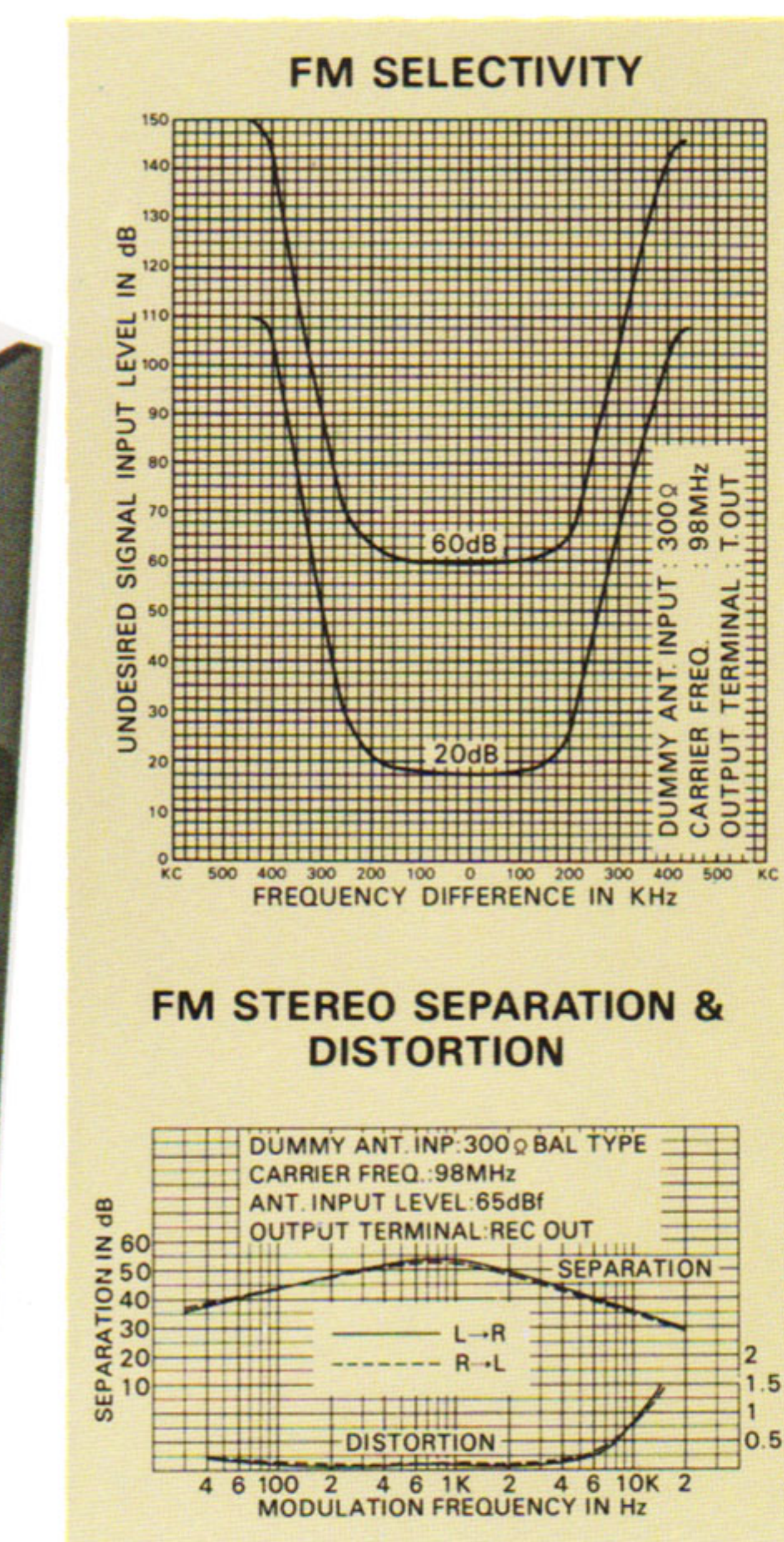
RX-1603 puts maximum emphasis on sensitivity as well as on big power. The highly sensitive front end features 4-gang dual gate MOS FET's. This configuration results in outstanding sensitivity—8.8dBf (IHF)—and rejection characteristics.

The FM IF section

The FM IF section achieves what Rotel set out to do in engineering RX-1603—



super high performance. Phase linear ceramic filters and IC's in the FM IF circuit result in improved selectivity and the least possible distortion. In addition, there is built-in IF detecting circuitry using bipolar transistors for the differential amplifier to improve the signal-to-noise ratio.



The PLL MPX circuitry

More state-of-the art is forthcoming in the PLL MPX circuitry. RX-1603's advanced PLL (phase-lock loop) design means outstanding stereo separation. Built into the MPX section also, is a super-sensitive three-element lowpass filter that contributes to (1) good carrier leakage characteristics and (2) flat frequency response from low to high end frequencies.

The other features

The facts speak for themselves: RX-1603 has all that makes for fine receiver performance. In addition, it has a 2-position phono sensitivity switch for matching the input sensitivity of your turntable's cartridge. Two tuning meters. FM multipath switch. Audio muting switch. Three speaker system connection. And a completely separable power and pre-amplifier section. Naturally, it also has full provisions for hook-up to all your other componentry, including facilities for 2 sets of headphones. Quality never look more inviting than the RX-1603. Nor sounded as good.



The AM circuitry

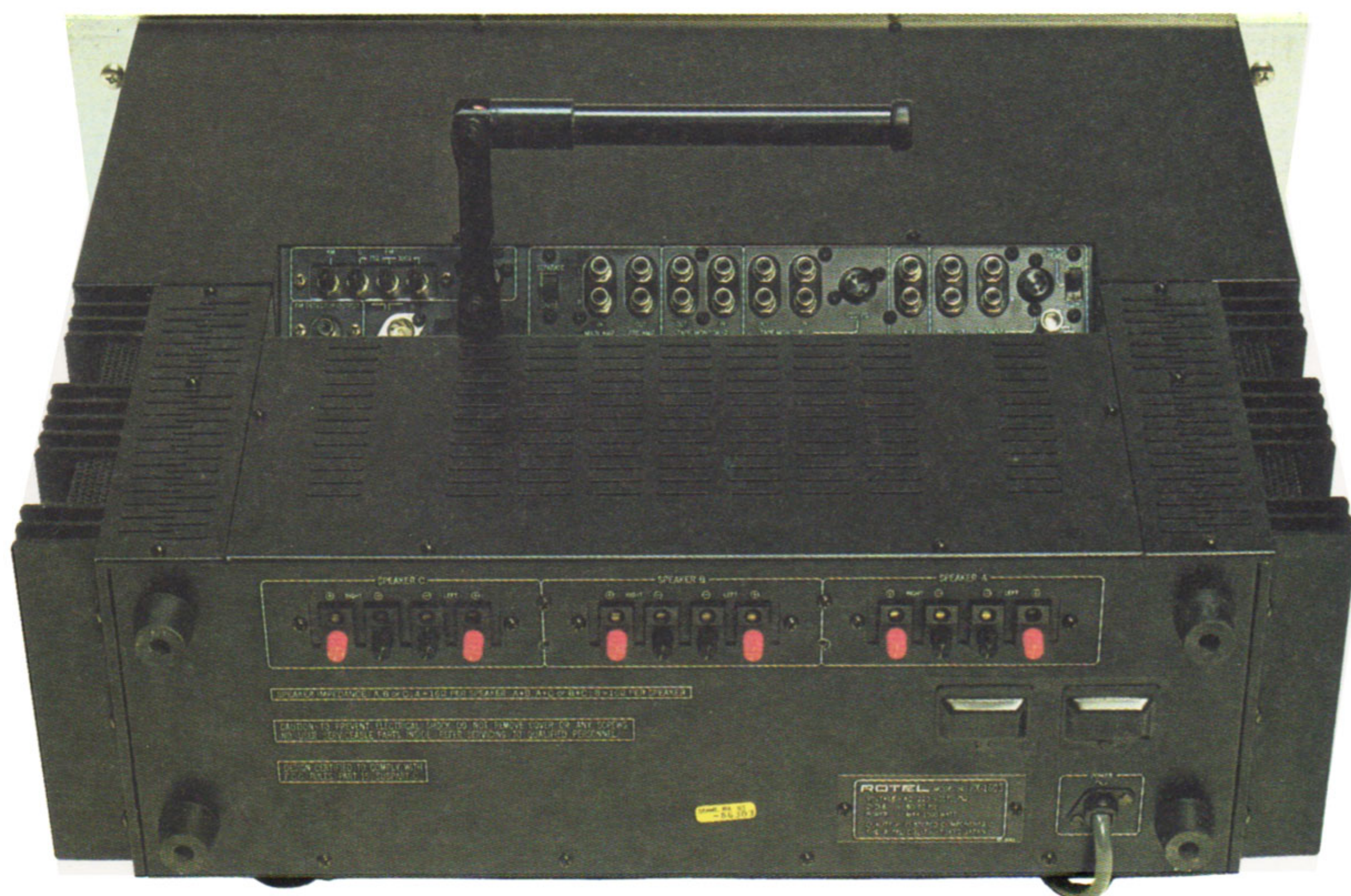
Rotel uses a new IC and 3-gang variable capacitor to guarantee peak AGC characteristics and maintain reception of incoming signals at full strength. What results is clean tones and low distortion even in areas characterized by a strong electrical field.

The FM muting

The circuit features a reed relay that cuts out interstation noise and the pops that characterize some receivers when stations are tuned or detuned.

The FM Dolby

A 25 μ F de-emphasis switch allows you to set the RX-1603 to the proper level of de-emphasis for FM reception when a Dolby noise reduction adapter is connected and Dolby FM broadcasts tuned.



SPECIFICATIONS

POWER AMPLIFIER SECTION:

Continuous Power Output:

180 watts* per channel, min. RMS both channels driven at 8 ohms or 220 watts* per channel both channels driven at 4 ohms from 20 to 20,000Hz with no more than 0.1% total harmonic distortion.

Total Harmonic Distortion.....	No more than 0.1%
(20 to 20,000Hz, from AUX)	(continuous rated power output)
	No more than 0.04%
	(140 watts per channel power output, 8 ohms)
	No more than 0.06%
	(1 watt per channel power output, 8 ohms)
Intermodulation Distortion	No more than 0.1%
(50Hz : 7,000Hz = 4 : 1,	(continuous rated power output)
from AUX)	No more than 0.04%
	(140 watts per channel power output, 8 ohms)
	No more than 0.06%
	(1 watt per channel power output, 8 ohms)
Frequency Response.....	5Hz to 100,000Hz
	+0dB, -1dB
	(1 watt per channel power output, 8 ohms)
Input Sensitivity/Impedance	1V/50 Kohms (MAIN AMP IN)
Output: Speaker	A, B, C, A+B, B+C, A+C (8~16 ohms)
Headphone.....	A, B (4~16 ohms)
Damping Factor	60 (20 to 20,000Hz, 8 ohms)
Hum & Noise	100dB (IHF, short-circuited A network)

PREAMPLIFIER SECTION

Input Sensitivity/Impedance:

PHONO 1	2.6 mV/50 Kohms
PHONO 2	2.6 mV/50 Kohms
MIC	5 mV/50 Kohms
AUX	150 mV/50 Kohms
TAPE IN 1	150 mV/50 Kohms
TAPE IN 2	150 mV/50 Kohms
TAPE IN 1 (DIN connector).....	150 mV/50 Kohms
Overload Level [Maximum Input Level] (T.H.D. 0.1%, 1 kHz)	
PHONO 1	350 mV (2 mV input), 1050 mV (6 mV input)
PHONO 2	350 mV (2 mV input), 1050 mV (6 mV input)
AUX	Not less than 12V
MIC	Not less than 12V

Output Level/Impedance (2mV PHONO input):

TAPE OUT 1	150 mV/2.5 Kohms
TAPE OUT 2	150 mV/2.5 Kohms
TAPE OUT 1, 2.....	60 mV/80 Kohms (DIN connectors)
PRE OUT	1V/3.5 Kohms

Total Harmonic Distortion..... No more than 0.03% (20Hz to 20,000Hz, 1V output)

Frequency Response:

PHONO	30Hz to 15,000Hz \pm 0.2dB (RIAA Equalization)
AUX, TAPE IN	8Hz to 50,000Hz +0dB, -1dB

Tone Control:

BASS.....	\pm 10dB (100Hz) 400Hz turnover \pm 10dB (50Hz) 200Hz turnover
TREBLE	\pm 10dB (10kHz) 2.5kHz turnover \pm 10dB (20kHz) 5kHz turnover

Filter:

SUBSONIC.....	15Hz (12dB/oct.)
LOW.....	30Hz (12dB/oct.)
HIGH	8kHz (12dB/oct.)

Loudness Contour +10dB (50Hz), +3dB (10kHz)
(volume control set at -40dB position)

Hum & Noise (IHF, short circuited A network, rated power):

PHONO	75dB
AUX, TAPE IN	95dB

Audio Muting -15dB

FM TUNER SECTION

Usable Sensitivity:

Mono	8.8 dBf (1.5 μ V/300 ohms)
Stereo	15 dBf (3.1 μ V/300 ohms)

Usable Sensitivity (IHF '58) 1.5 μ V

50dB Quieting Sensitivity:

Mono	11.5 dBf (2.1 μ V/300 ohms)
Stereo	36.0 dBf (35 μ V/300 ohms)

Signal-to-Noise Ratio (at 65 dBf):

Mono	80dB
Stereo	75dB

Distortion (at 65 dBf):

100Hz	0.1% (mono), 0.2% (stereo)
1kHz.....	0.1% (mono), 0.2% (stereo)
6kHz.....	0.3% (mono), 0.3% (stereo)

Frequency Response..... 30Hz to 15,000Hz +0.3dB, -0.8dB

Capture Ratio: 1.0dB

Alternate Channel Selectivity 80dB

Spurious Response Ratio 110dB

Image Response Ratio 100dB

IF Response Ratio 115dB

AM Suppression Ratio 60dB

Muting Threshold..... 13dBf

Stereo Separation 47dB (1kHz),
35dB (30Hz to 15kHz)

Subcarrier Product Ratio 75dB

SCA Rejection Ratio 75dB

Antenna Input 300 ohms balanced,
75 ohms unbalanced

AM TUNER SECTION

Sensitivity 250 μ V/m (IHF, ferrite antenna),
12.5 μ V (IHF, ext. antenna)

Selectivity 40dB

Signal-to-Noise Ratio 55dB

Image Response Ratio 65dB

IF Response Ratio 80dB

Antenna Built-in ferrite loopstick antenna

MISCELLANEOUS

Power Requirements 120V/60Hz or 220V/50Hz or
240V/50Hz or 100, 120, 220,
240V/50-60Hz (switchable)

Power Consumption 1,000 watts (Max.)

Dimensions (Overall) 600 (W) x 180 (H) x 480 (D) mm

Weight (Net) 33 kg

NOTE: Specifications and design subject to possible modification without notice.

* Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Claims for Amplifiers. (Applicable to the U.S.A. only)

• Dolby is a trademark of Dolby Laboratories, Inc.

Quality. Uncompromised.

ROTEL