

# The Vintage HiFi Shack

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## The Receiver Wars – 1974-1979

March 10, 2015 · admin



Once upon a time a long long time ago in a Galaxy far far away from the Empire and Darth Vader, there was a Golden Age of Audio. And for a time within this Age a war raged on Planet Earth for over half a decade, the likes of which had never been seen before or since, and for a short time powerful High Fidelity sound was available to the average consumer.

The Receiver Wars occurred during the 'Golden Era' of Audio (1971-1981) when the major HiFi manufacturers developed audio products that really were aimed at



producing the finest musical reproduction as possible and multi-billion dollar corporations invested massive amounts into R&D to achieve this end.

Commencing in 1974 and ending in 1979 the major manufacturers of retail HiFi components competed against each other in a ruthless all-out war to dominate the market and offer the most powerful, best sounding and most aesthetically stunning Receiver.



They were selling to a wealthier and more intelligent market than today (it was before "Diet, injections and injunctions" had reduced the average IQ) and the general public were expected to be capable of interpreting things like Nyquist

Charts and be familiar with terms like 'harmonic distortion', 'slew rates' & 'frequency response' which today are only reserved for that bizarre and tiny segment of the human population known as audiophiles.

Receivers are an audio component that combine a tuner, pre-amplifier and power amplifier into one unit, so that everything you need to listen to the radio or other music sources in High Fidelity is contained in the one box – sans speakers of course. The company that invented the Receiver was Harman Kardon, however other manufacturers were quick to introduce their own Receivers to market. By the end of the 1960s, Receivers had become a highly popular audio component genre.



*The World's First Receiver: The Harman Kardon Festival TA230*

Which is your favorite Receiver of the Receiver Wars?

Hitachi SR-2004

Kenwood KR-9400

Kenwood KR-9600

Marantz 2325

Marantz 2500

Marantz 2600

Pioneer SX-1010

Pioneer SX-1250

Pioneer SX-1980

Rotel RX-1603

Sansui 9090

Sansui G33000

Technics SA-5760

Technics SA-5770

Technics SA-1000

Yamaha CR-3020

Other

Vote

Votes  
100



*Excerpt from a 1972 Marantz Catalog Explaining the Concept of a Receiver*

Perhaps one reason for their popularity was their stunning looks, with their mixture of multi-coloured back-lit tuning dials, signal strength and alignment meters, VU meters and a multitude controls that all combined to produce something that looked remarkable.

Next to these most separate components would just look, well bland in comparison.

Receivers became a feature in the home, standing out without taking up a huge amount of space as the furniture based systems that had been so popular in the 1950s and 1960s.

Traditionally audio purists will tell you that for the 'best' sound separate components are the only way to go, and normally this is the case. However as the popularity for Receivers gained – R&D funding soon followed. Receivers began to see refinements and performance that out-paced what even the best 'high-end' reference components could offer. Receivers had become the flagship products of audio manufacturers.



## The Receiver Wars Commence

It was 1974 and two events would occur that would forever change the landscape of HiFi and trigger the 'Receiver War'.

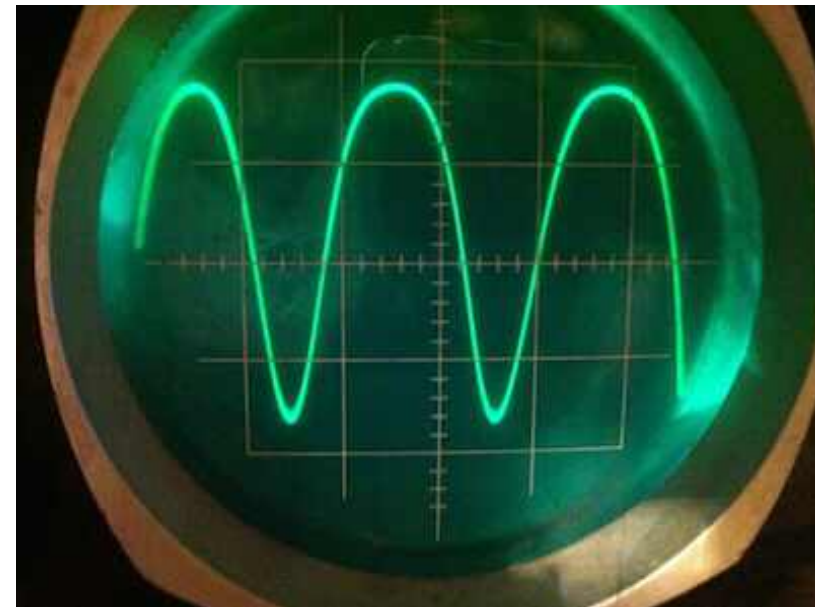
The first event of 1974 was when the United States Federal Trade Commission moved to introduce a new and rigorous standard for rating the performance of Hi-Fi gear. While not perfect, and some argue it is not even measuring the correct thing, it was at least a step in the right direction.

Prior to 1974 the audio market had suffered from confusion caused by a myriad of different power ratings making it very difficult to compare one brand to another in terms of performance. Often a manufacturer would pick a method that would give them the most impressive figure that they could quote in their marketing material, and there was very little control over how these measurements were made. The outcome of this meant that it was entirely possible you could purchase a 50 Watt amplifier only to find that your neighbour's 10 Watt amplifier would drown yours out!

The new FTC standard was directly aimed at combating the unrealistic claims being made by some manufacturers, and to arm the consumer with a rating system with which to compare one HiFi product to another.

The new metric was known as RMS or Root-Means-Squared and was a punishing test for amplifiers using sine-wave signal voltage to measure the maximum output that an amplifier could output into a resistive load before 'clipping' or distorting.

The RMS measurement was quoted as the maximum output in Watts an amplifier could produce with a corresponding measurement of harmonic distortion produced at that



rating. This measurement was taken over a given frequency range, typically 20-20000Hz.



The second event to change the course of Hi-Fidelity History was when Pioneer – true to their brand name – released to market the first 100 Watts RMS per-channel Receiver as rated by the new FTC standard.

And thus the first salvo in the Receiver War was fired.

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# 1974

*The First Year of the Receiver War.*



## SX-1010

The SX-1010 was Pioneer's flagship Receiver for 1974 and retailed for a hefty \$699.99 USD which would translate to around \$3,269.00 USD today.

Pioneer's revolutionary 1010 was driven by a Direct Coupled Parallel Push-Pull OCL Power Amplifier powered by Dual Power Supplies incorporating two massive 18,000uf

filter capacitors. This amplifier effortlessly produced its advertised 100 Watts RMS minimum output with only 0.1% THD and matched it with an impressive amount of head-room. Physically it was an impressive unit measuring over half a meter across and weighing a hefty 22.2 kg and was finished in genuine Walnut veneer and featured a stunning cool-blue backlit tuner dial and shining aluminum fascia filled with an array of toggle switches and dials.

This unit also came with a plethora of tone control options including Pioneer's unique dual, two-stage Bass and Treble controls along with a bunch of dubbing options and twin turntable inputs.

None of the other manufacturers had anything that came close to touching the performance of the Pioneer SX-1010 upon its launch in 1974.

Sansui's Top-Of-The-Line Receivers the 881 and the 9010 were measuring only 63 Watts per channel in an IHF rating (which means it would have been much less than 40 Watts RMS). Kenwood's KA-7002 was rated at 70 Watts per channel RMS, the Marantz 2270 was delivering 70 Watts per channel RMS and Yamaha's CR-1000 was rated at 70 Watts per channel RMS.

Pioneer had thrown down the gauntlet to the other manufacturers who had to scramble to respond.



**The finest stereo receiver the world has ever known.**

We recognize the awesome responsibility of making such a statement. Nevertheless, as the leader in high fidelity, we have fulfilled this responsibility in every way.

Pioneer's new SX-1010 AM-FM stereo receiver eclipses any unit that has come before it. It has an unprecedented power output of 100 watts per channel minimum RMS, with 8 ohm loads, at any frequency from 20 Hz to 20,000 Hz, with no more than 0.1% total harmonic distortion. Power is maintained smoothly and continuously with direct-coupled circuitry driven by dual power supplies.

To bring in stations effortlessly, clearly and with maximum channel separation, the SX-1010 incorporates an FM tuner section with overwhelming capabilities. The combination of MOS FETs, ceramic filters and phase lock loop IC circuitry produces remarkable specifications like 90dB selectivity, 1.7uV sensitivity and 1 dB capture ratio.

Versatility is the hallmark of every Pioneer component. The SX-1010 accommodates 2 turntables, 2 tape decks, 2 headsets, 3 pairs of speakers, a stereo mic and an auxiliary. It also has Dolby and 4-channel connectors. There's even tape-to-tape duplication while listening simultaneously to another program source. This is another innovative Pioneer exclusive.

The SX-1010 is actually a master control system with its fantastic array of controls and features. It includes pushbuttons that simplify function selection and make them easy to see with illuminated readouts on the super wide tuning dial. FM and audio muting, hi/low filters, dual tuning meters, loudness contour, a dial dimmer control and a fail-safe speaker protector circuit. Never before used on a receiver are the twin stepped bass and treble tone controls that custom tailor listening to more than 3,000 variations. A tone defeat switch provides flat response instantly throughout the audio spectrum.

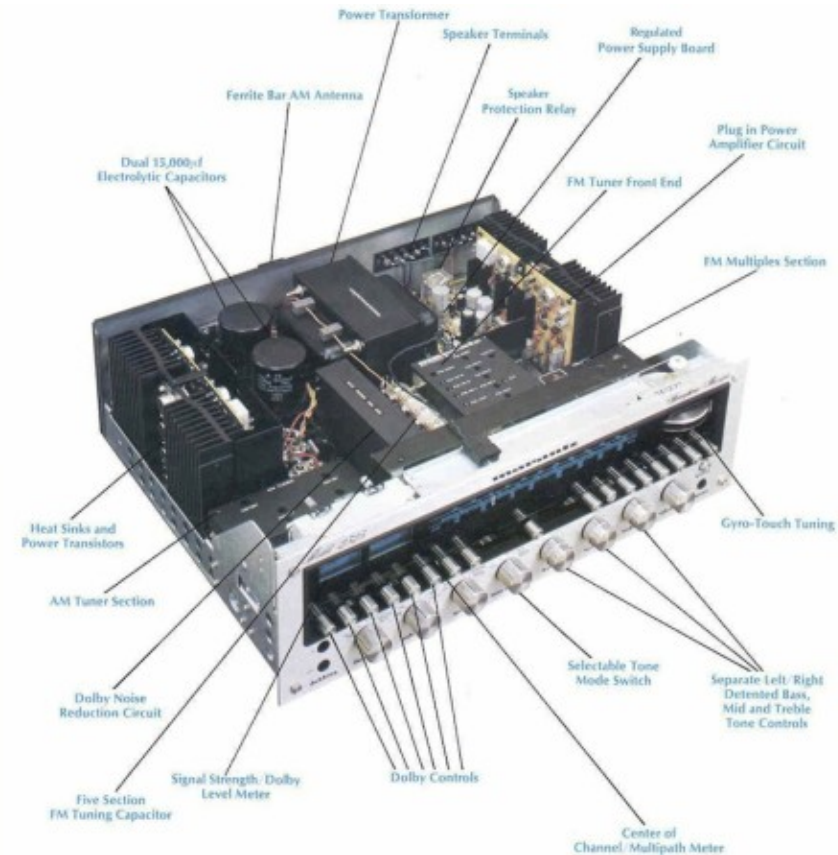
By now it's evident why the SX-1010 is the finest stereo receiver the world has ever known. Visit your Pioneer dealer and audition its uniqueness. \$699.95, including a walnut cabinet.

U.S. Pioneer Electronics Corp., 75 Oxford Drive, Moonachie, New Jersey 07074.  
West: 13300 S. Estrella, Los Angeles 90248 / Midwest: 1500 Greenleaf, Elk Grove Village, Ill. 60007 / Canada: S. H. Parker Co.

**PIONEER**  
when you want something better

**marantz®**

# Model 2325



Marantz was the first to topple Pioneer's claim to having the most powerful Receiver on the market, and in August of 1974 they released the superb and absolutely exquisite Marantz 2325 Receiver.



How had Marantz responded so quickly? Marantz already had a dedicated power amplifier component, the Marantz 250, that was producing 125 Watts RMS per channel. Marantz essentially took this amplifier and built a receiver around it.

To achieve 125 Watts minimum RMS per channel at 8 Ohms both channels driven the Marantz 2325 utilised a dual power setup (dual secondary windings sharing a primary) and two 15,000uf filter capacitors to drive a Direct Coupled Full Complimentary Symmetrical Output Power Amplifier.



The other important performance metric is of course Harmonic Distortion at the rated output, which the Model 2325 scored 0.15%, note that this is 50% more distortion than the Pioneer SX-1010. A difference of 0.05% might not seem like much but very shortly fierce competition was about to erupt on this metric as well.

Aside from performance the Model 2325 incorporated many top-of-the-line features including a Dolby processor that could be applied to various inputs, triple tone controls with adjustable frequency ranges, and that unique 'gyro' tuner dial that was to remain on all Marantz receivers into the next decade.



IMHO this generation of Marantz Receiver's are amongst the most beautiful ever made and featured a cool blue back-lit tuner dial with push-button controls. A walnut cabinet was available at an additional cost.

Retailing at \$799.00 USD (~\$3,855.00 USD in 2015) this system cost a full \$100.00 more than the Pioneer SX-1010, but then, that's what you had to pay to own the most powerful Receiver of 1974.

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# 1975

*1975 was busy year for audio component manufacturers, Pioneer and Marantz had blown away the competition the previous year with doubling and even tripling the power output of their rivals who were now scrambling to catch up. But would anyone topple Marantz's claim of the most powerful Receiver?*





The Sansui 9090

# Powerhouse.

The Sansui Model 9090 receiver is that rare combination of power, exciting features and outstanding specs. Such as the twin power meters which permit continuous monitoring of both output channels. Such as sensitivity of 9.8 dBf (1.7  $\mu$ V) to receive even weak and distant stations, and a selectivity of better than 85 dB to assure clarity without interference. Such as triple tone controls for creative listening. Such as mic mixing capability.

Sansui Model 9090 delivers 110 watts per channel into 8 ohms, min. RMS, from 20 Hz to 20 kHz with not more than 0.2% total harmonic distortion. All of this power is protected by a special protection circuit with Sansui's unique LED visual indicator. The 9090 is a superior value at less than \$750.00.\* Similar features are available in many of the other models in this series, all leaders in their respective price class. The Model 8080 at under \$650.00,\* 7070 at under \$520.00,\* 6060 at under \$420.00,\* 5050 at under \$320.00.\* Model 9090 cabinet in walnut veneer, all other cabinets in simulated walnut grain.

Listen to any of these Sansui receivers at the nearest Sansui franchised dealers in your neighborhood. It is a whole new world of beautiful music.

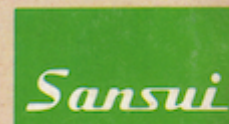
\*The value shown is for informational purposes only. The actual resale price will be set by the individual Sansui dealer at his option.



Sansui 9090

Sansui 8080

**SANSUI ELECTRONICS CORP.**  
 Woodside, NY 11377 • Gardena, California 90247  
 SANSUI ELECTRIC CO., LTD., Tokyo, Japan  
 SANSUI AUDIO EUROPE S.A., Antwerp, Belgium  
 In Canada: Electronic Distributors



Sansui's top-of-the-line 1974 Receiver the 'Eight' was being marketed as 200 Watts in an IHF rating but was only scoring around 60 Watts RMS in the new FTC standard. With their most powerful amplifier at the time only offering 85 Watts RMS, Sansui had to lift their game.

And that is just what they did in 1975 releasing two entirely new receivers – the Sansui 9090 and 8080. The Sansui 9090 was often advertised with a rating 120 Watts RMS per-channel as in their 1975/76 Buyers Guide, however when one turned to the back of the brochure where the model specifications were kept it could be seen that the 120 Watt rating was only achieved at 1000Hz and when rated across a frequency spectrum of 20Hz-20,000Hz that rating dropped to 110 Watts RMS per channel.



Power-house top-of-the-line receiver with auto noise canceller, HF blending and tone defeat facilities are just a few of the many innovative features.

While not claiming a new power title, Sansui had comfortably entered the ball park and had positioned themselves neatly between Pioneer and Marantz in the power scale.

One thing to note about the 9090 however was it's relatively small filter capacitors that were part of the dual power supply. The Sansui 9090 sported two 6,300uf capacitors, these were less than half the capacity of the capacitors contained in the Marantz and only slightly over one-third of the capacity of those contained in the Pioneer.

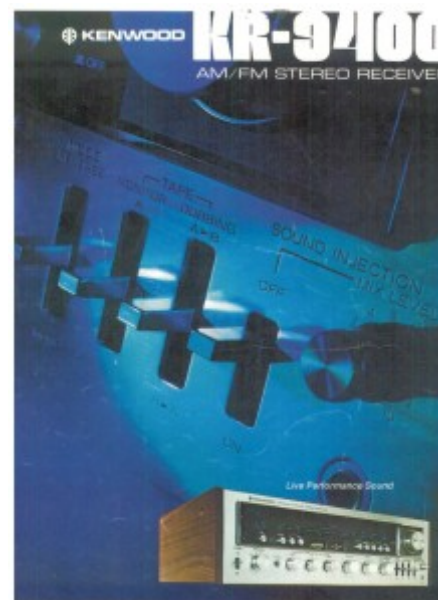
Typically filter capacitors are used to supply a ready reservoir of power to the amplifier so that if the music demands it, power is readily available to draw upon. This is often referred to as 'headroom' or 'dynamic power', however this can also be impacted upon by the type and size of the transformer used. Personally I have not as yet listened to a Sansui 9090 so I will reserve my opinion until I have.

The 9090 was to remain Sansui's top receiver until 1979 but did receive an upgrade to include a Dolby processor in 1977 and an extra 15 Watts RMS in power to deliver a total of 125 Watts RMS per channel across the 20-20,000Hz spectrum.

Today the Sansui 9090 and the 9090DB are considered by collectors and vintage audiophiles as one of the finest must have items of this era and are highly sort after items.



## KR-9400



Kenwood would also step-up into the RMS Battle of 1975 with the Kenwood KR-9400 featuring a power rating of 120 Watts per-channel RMS under the FTC standard.

The amplifier architecture employed was a Direct Coupled Pure Complementary Symmetry Output Circuit powered by a large Dual Power Supply featuring two generous 15,000uf filter capacitors.

Other features included triple tone controls for bass, treble and mid range calibration, inputs for two turntables, mic mixing and tape system that allows the user to listen to another source while dubbing.

Retailing for \$750.00 (~\$3,316.00 USD in 2015) Kenwood had priced their beast right in between Pioneer's SX-1010 and Marantz's 2325, no threat of a price war here!

By the close of 1975 Marantz still held the claim to fame as having the most powerful Receiver on the market! Had Sansui and Kenwood miscalculated market forces by ignoring the new-found thirst of consumers for RMS power? Had they unwittingly put themselves behind by only approaching the RMS power of their competitors existing products *from the previous year?*

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# 1976

*While in 1975 the Receiver War had seen no new victor rise to the top, 1976 would see the War enter a new gear and Pioneer would once again be the catalyst.*

 **PIONEER®**

**SX-1250**

Pioneer had not been idle during the course of 1975, and while their competitors scrambled to match the SX-1010 in power, Pioneer had been slowly and deliberately designing and perfecting their next beast. In 1976 Pioneer released the legendary SX-



1250. The SX-1250 Retailed for \$900.USD in 1976 which today (2015) would equate to ~\$3,760.00USD in 2015.



Smashing the performance of even their closest competitors in terms of RMS power the SX-1250 boasted a stunning 160 Watts RMS power per channel at 20 to 20,000Hz, Pioneer was once again top dog.

And Pioneer was not shy about it either! Their advertising material cheekily embarrassing their rivals by publishing their competitors top Receivers specs along side the SX-1250 with the tag line – *"Pioneer has developed a receiver that even Marantz, Kenwood and Sansui will have to admit is the best."*

Released as their flagship product the SX-1250's build quality and craftsmanship was astounding, virtually hand-made in their Japanese plants, no expense was spared in this units design and manufacture. Not only would this Receiver produce a whopping 160



Watts RMS per channel, it also introduced improvements throughout the entire system, the attention to detail in the design of this beast was evident on all levels, even down the the star-quad wiring implemented to reduce electromagnetically induced noise – today this same technique is now used in high-end studio microphones and boasts that it can reduce the noise from stage-lighting consoles to 1/10th that of 2-conductor cable.

HUGE POWER SUPPLY SECTION WITH TOROIDAL-CORE POWER TRANSFORMER AND LARGE ELECTROLYTIC CAPACITORS



The foundation of any amplifier is the power supply and the one in this unit was like nothing before seen in a Receiver. It featured a 22-pound toroidal core transformer with independent dual windings and four massive 'Coke Can' size 22,000uf capacitors! Toroidal transformers offer benefits of being less susceptible to power fluctuations and less likely to create noise than laminated core transformers.

As it turned out no Receiver of this period (or since?) can claim an equal to the power supply contained in the SX-1250 with it's 88,000uf total capacitance.

The amplifier sections utilised a two-stage Class A architecture in the pre-amp and a triple-stage Darlington Direct-Coupled OCL Circuit in the Drive Stage and a Parallel Push-Pull Circuit in the Output Stage.

This design ensured a thunderous minimum 160 Watts RMS per channel at 8 ohms with only 0.1% Total Harmonic Distortion measured from 20Hz to 20,000Hz.

The SX-1250 wasn't just a blunt instrument created simply to claim a title in raw power, it was truly revolutionary in it's design and features – and it's build quality was unrivalled by any Receiver before or since. It is not an overstatement to suggest that this Receiver redefined 'top-of-the-line'. To this day the Pioneer SX series from this 1976/77 range are considered to be by many enthusiasts the best Receiver line ever manufactured by Pioneer.



# Technics

## Technics SA-5760

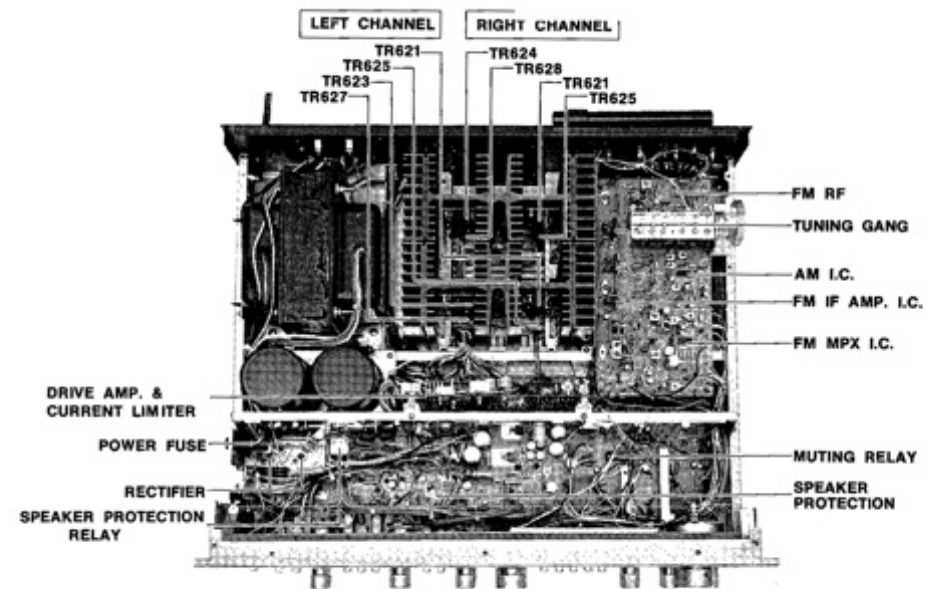


As if from nowhere Technics suddenly decided they needed to pump-up-the-volume and made their debut in the Receiver Wars with the introduction of the SA-5760. This Technics Monster was rated at 165 Watts RMS per channel with only 0.08% THD, just edging over Pioneer's SX-1250 power rating of 160 Watts.

It might not seem like much, but remember only a few short years earlier, component amplifiers had been offered by these brands with a total power equivalent of only about 5 Watts RMS per channel!

The SA-5760 power supply featured two 22,000uf caps and a laminated core transformer with dual secondaries, all to power it's amplifier consisting of 'Para-Push Pure-Complimentary, Direct-Coupled OCL Circuit with Single-Pack, Matched Differential Transistors.'

This item retailed at ~\$799.00USD in 1977 dollars, which would equate to around \$3,132.00USD in 2015 dollars. This priced it very competitively against Pioneer's SX-1250 and the other Monster Receivers of the time. This budget/price angle was also heavily promoted in Technics literature at the time.



2 SA-5760

#### Specifications

Tuning range: FM, MW Power output: 165 watts per channel into 8 $\Omega$  (stereo) Frequency response: 20Hz to 20kHz Total harmonic distortion: 0.08% Damping factor: 60 Input sensitivity: 2.5mV (MM), 200mV (line) Signal to noise ratio: 78dB (MM), 95dB (line) Output: 200mV (line) Speaker load impedance: 4 $\Omega$  to 16 $\Omega$  Dimensions: 550 x 175 x 493mm Weight: 23kg



## RX-1603



*Original 1976 USD RRP: \$1,100.00*

*Inflation Adjusted 2015 USD RRP: \$4,605.00*

180 Watts RMS per channel at 8 ohms with 0.1% THD from 20-20,000Hz

**R**otel has operated since the late 1950s and initially manufactured products for various HiFi brands including Harman-Kardon, H.H. Scott and Marantz. It wasn't until 1969 that the company started producing units under its own name, and in 1976 Rotel entered the Receiver War with a 180 Watt blast!

The RX-1603 is certainly a righteous Monster and Rotel showed that they were serious by topping the RMS power scales for 1976 by producing this 180 Watts RMS per channel mega-beast. A mega-beast because it weighed 33kg and was so deep the rear section containing the power and power amplifier section was made to be detachable for easy stowage — but does this disqualify this unit as a Receiver? Technically yes, but hey we'll make an exception 😊 (Actually this receiver shipped as a bolted together 'single' unit and the kit that allowed for separation wasn't even available until the year after it was released.)

This rear compartment contained a massive toroidal core transformer and two huge 22,000uf filter capacitors and the power amp. Aesthetically Rotel refused to imitate

the competition and produced their own unique look with their yellow/orange back-lit dials and futuristic-industrial styling.

The RX-1603 features included twin headphone jacks, frequency adjustable bass and treble tone controls, high and low filters, stereo and mono controls, dubbing controls, twin turntable inputs and outputs for three pairs of speakers.

**W**hile Technics had exceeded Pioneer's SX-1250 by 5 Watts and Rotel by 20 Watts they had done it with power supply's of only half the capacitance and of less sophistication than that of the SX-1250. But in a war of metric's Rotel now held on to claim of having 'The World's Most Powerful Receiver!'.

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# 1977

1977 saw another flurry of activity as those already in the competition released new models and some new players suddenly decided to enter into the Receiver War. It not only saw a quantum leap in terms of power but saw a new front in the Receiver War open up as well.

## Technics

### Technics SA-5770

# You're looking at what our competitors don't want you to see.

Stereo Receivers	Sugg. Ret. Price*	Min. RMS Power Per Channel into 8 Ohms	Total Harmonic Distortion at Rated Power (Max.)	FM Sensitivity Stereo—50dB <sup>†</sup>
SA-5770	\$799.95	165 watts from 20Hz-20kHz	0.08%	1.0µV 35.2dB
SA-5670	499.95	85 watts from 20Hz-20kHz	0.1	1.0µV 36.3dB
SA-5470	399.95	85 watts from 20Hz-20kHz	0.1	1.0µV 36.3dB
SA-5370	329.95	48 watts from 20Hz-20kHz	0.1	1.0µV 37.2dB
SA-5270	279.95	35 watts from 20Hz-20kHz	0.3	1.0µV 37.2dB
SA-5170	229.95	25 watts from 20Hz-20kHz	0.5	1.0µV 37.2dB
SA-5070	179.95	15 watts from 40Hz-20kHz	0.8	2.0µV 37.3dB

\*Technics recommended price, but actual retail price will be set by dealers. †Based on IEC standard.

PPR. The price performance relationship of Technics' new receiver line led by the SA-5770 (shown below). PPR is our way of telling you how much performance, technology and power you're getting for your money. And it may be the reason why so many people are buying and recommending Technics receivers.

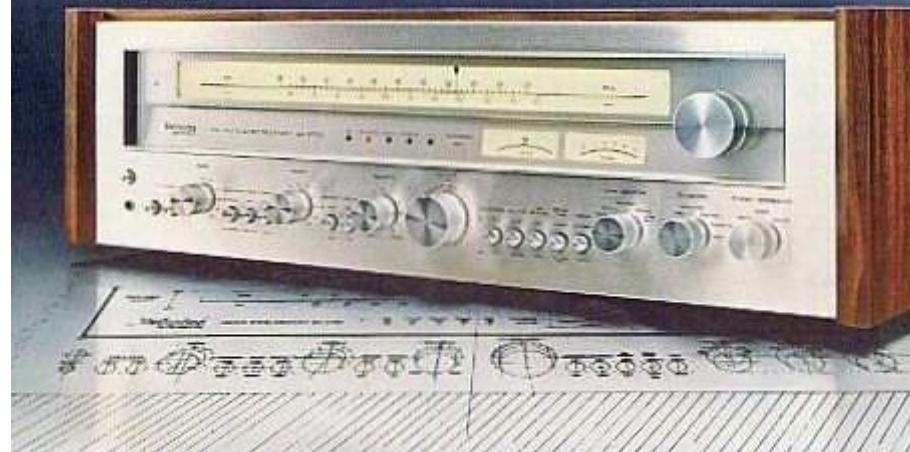
When you listen to our new receivers, you'll hear what PPR means to your ears. The big, wide-band power output of our direct-coupled amplifiers. Made possible by the current handling capacity of our large transformers and conservatively rated power supply capacitors. And the hidden dynamic range you'll discover in your records, up to 78 dB S/N. Thanks to load-resistant 3-stage IC's in the phono equalizer sections.

If you want to hear clear FM. From an over-crowded band or a marginal signal. You can. And with outstanding separation. Because every Technics receiver boasts Phase Locked Loop IC's, flat group delay filters and an FM linear dial scale.

What you won't hear is annoying distortion. Because it's so low, it's virtually inaudible, even in our economy model.

Technics' new receivers. Judge them on performance. But buy them on PPR.

**Technics**  
by Panasonic

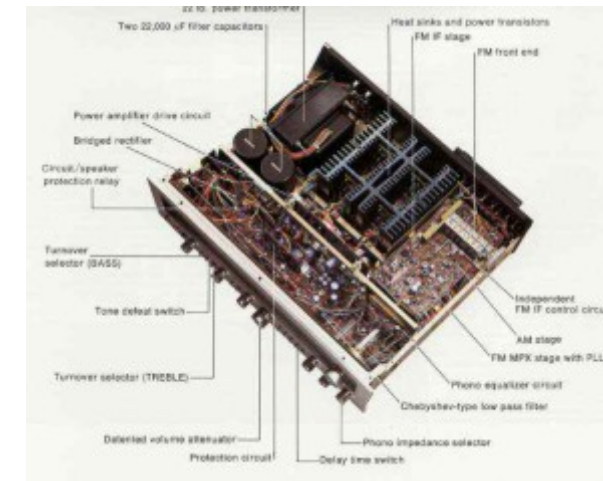


It was not typical for HiFi manufacturers in the 1970s to have such a short product life-cycle, but Technics released the SA-5770 hot on the heels of their previous years model the SA-5760. It did not appear to have any appreciable difference to the SA-5760 and produced 165 Watts RMS @8ohms with 0.08% THD.

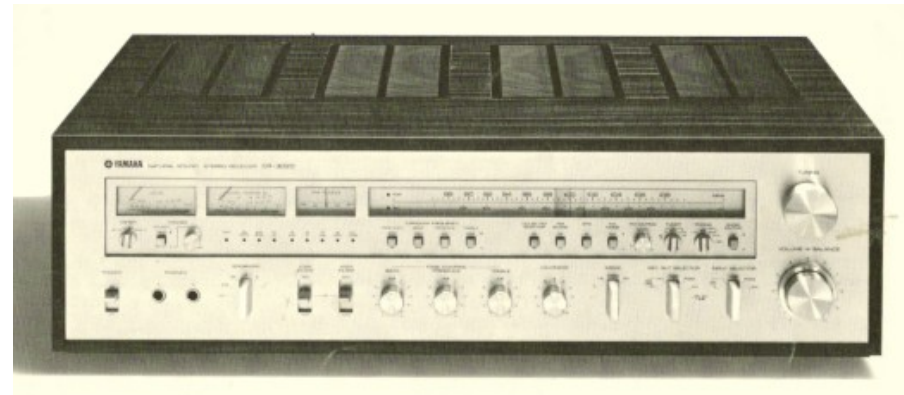
Inside it appeared much the same as the previous model as well.

The only reasons I can think of for it's release was either that it was purely for marketing purposes – as in 'Hey, look at our new model!' or perhaps it was a bug-fix

for the previous model??? (note: this is conjecture only and I am not aware of any actual problems in the SA-5760).



## Yamaha CR-3020



Yamaha receivers from this period are renowned for their unique sound and are considered very high speed amplifiers with some vintage audiophiles suggesting that these amplifiers make regular speakers sound like monitors.

Up to this point Yamaha had been content doing their own thing but in 1977 they suddenly woke up to the markets demand for power and entered the melee with their CR-3020 Monster, equaling Pioneer SX-1250 with 160 Watts RMS per channel.

Yamaha utilised a laminate core dual-secondary power supply with 2x 27,000uf filter capacitors to drive the amplifier. But what was remarkable about this Receiver wasn't it's power output, it was that Yamaha had made marked improvement in total harmonic



distortion reducing it down to 0.03% at its rated output of 160 Watts RMS across an amazingly wide harmonic spectrum of 5Hz to 100,000Hz!

This put the CR-3020 in a complete class of its own and heralded a new front in the Receiver War. Many manufactures had been content with a low THD rating of 0.1% however after the CR-3020, Monster Receivers now not only had to have the most RMS but also the lowest THD possible.

From a price perspective I have seen literature that indicated the the retail price in 1977 for this unit was \$1,500.00USD which would make this the most expensive receiver we have yet seen in the war and would price this unit at around \$5,890.00USD today! (2015)



## Kenwood KR-9600



The 1977 Kentwood KR-9600 featured 160 Watts per channel RMS power and was powered by a laminate core transformer with dual secondaries and 4x 10,000uf capacitors. It was heavily promoted as featuring a dual power supply. With the release of this model it appeared that Kenwood were content with 'keeping up' in the Power Wars as opposed to breaking new records.



This model also saw a slight improvement of THD with a rating of 0.8% at the rated power output but measured over a much broader frequency spectrum of 5Hz to 50,000Hz, perhaps this was influenced by Yamaha CR-3020.

The amplifier was a Three-Stage design with the Power Amplifier Stage consisting of a Pure Complimentary Parallel Push-Pull OCL design incorporating a large IC Darlington Power Block to produce what Kenwood described as '*exceptionally clear, smooth, silken sound*'.

This Kenwood also included other great features such as Dual Stage, Triple-Tonal Controls, Dolby FM and Two Phono inputs with Dual Phono Pre-Amps to allow for a wide selection of cartridges.

Cosmetically this unit was a very attractive piece and was aimed at the 'pro' market by including rack mount handles and integrated left and right channel VU meters, a feature almost all future Monster Receivers would come to incorporate.



**A**nother dark horse suddenly entered the Receiver War and raced to the top for a brief time and claimed the prize of having the worlds most powerful Receiver.

Not a name you would normally associate with high-end audio components today, Hitachi released in November 1977 the SR-2004 – a 200 Watt RMS per channel Receiver.

This surprising beast was built on a power supply of very similar design to Pioneer's SX-1250 with a large toroidal transformer with dual-windings upon a common core and 4 filter capacitors with a combination of 2x 18,000uf and 2x 10,000uf caps.

This Receiver stands alone in the Receiver War with it's unique Class G amplifier. Headroom in amplifiers from the mid 70s had been a big thing, but Hitachi claimed that this amplifier had the headroom to allow for brief periods to double it's rated power output, apparently a feature of Class-G amplifier architecture. Reportedly this amplifier would run cool even when being pushed to it's limits.

Hitachi being a electronics components manufacturer meant that almost all the components in this unit were produced by Hitachi with the exception of the transformer and the filter caps.

Again this amplifier was competing in the new front of the Receiver War and showed a slight reduction in THD with a rating of 0.08% across a broader frequency spectrum of 10Hz to 40,000Hz. Cosmetically this receiver was very similar to the Pioneer SX-1250, especially in it's rear-end, however it incorporated the now highly popular Analogue VU meters into it's fascia.

Dimensions: 580 x 186 x 447mm Weight: 25.5kg

**marantz®**

# Model 2500



## THE WORLD'S MOST POWERFUL RECEIVER.

250 WATTS PER CHANNEL (MINIMUM RMS AT 8 OHMS, 20-20,000 HZ) WITH NO MORE THAN 0.05% THD!

Not everyone can afford the Marantz Model 2500. In fact, you'll find that you have to spend a little more for any Marantz audio product. But when you do you'll possess the finest audio equipment in the world because you're buying better engineering and better quality.

What makes the Marantz Model 2500 worth more are innovations like the **Toroidal Power Transformer** that has been especially designed to give you **two independent power supply sections**, allowing each channel to perform at maximum efficiency and **remain unaffected** by the power demands of the other channel. Plus, our **tunnel "pin fin" heat sink** is the most efficient cooling system ever used in a high fidelity receiver or amplifier.

The Model 2500 includes virtually the most sophisticated amplifier section on the market today: a **full complementary symmetry direct-coupled output**. The result is the

**Plug-in optional Dolby\* FM noise reduction circuitry** for lowest noise possible with FM reception. And the most advanced noise filtering system ever developed. First, the **18 dB per octave Bessel-derived high filter**—the most advanced in audio—reduces high frequency noise with a more natural, less colored sound. The **18 dB per octave 15 Hz sub-sonic Butterworth low filter** assures that all your power is used to reproduce only actual program material, not wasted on unwanted noise or rumble. **2 LED peak power indicators** let you know when transients drive the amplifier to full output. **5-gang FM tuning capacitor**, and **dual-gate MOS FET FM front end** ensure superior linearity and rejection of spurious signals with an IHF usable sensitivity of 1.5 microvolts and a 50 dB "quieting sensitivity" figure in stereo of **25 microvolts**—the finest such specification ever obtained in a receiver—or

highest possible day-in, day-out operating reliability and lowest Total Harmonic Distortion: **no more than 0.05%.**

The Model 2500 also includes the most impressive performance feature package ever engineered into one receiver. You get a **built-in oscilloscope**, for precise signal display.

even a separate tuner.

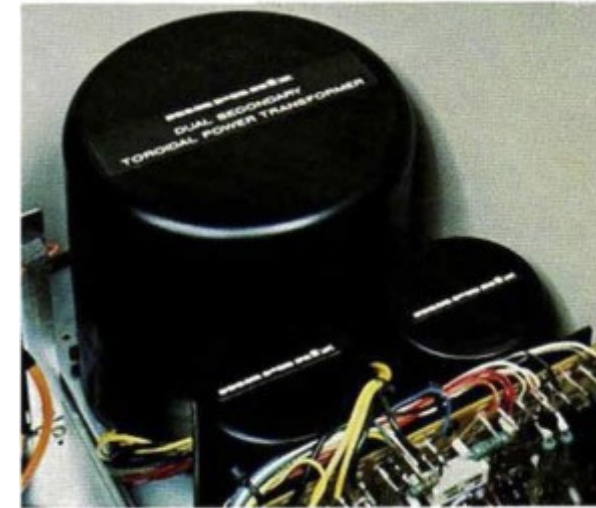
For music lovers who will accept nothing less than the very finest... and are willing to spend a little more to get it... the Model 2500 is the most significant receiver ever developed.

**marantz**  
We sound better.

\*TM Dolby Labs, Inc. © 1977 Marantz Co., Inc., a subsidiary of Superscope, Inc., 20525 Nordhoff St., Chatsworth, CA 91311. Prices and models subject to change without notice. Consult the Yellow Pages for your nearest Marantz dealer.

Marantz who had been pro-active in the battle from the get-go, understood that it was pointless to merely equal their competitors power ratings. To maintain a dominant position in the market they had to SMASH IT!

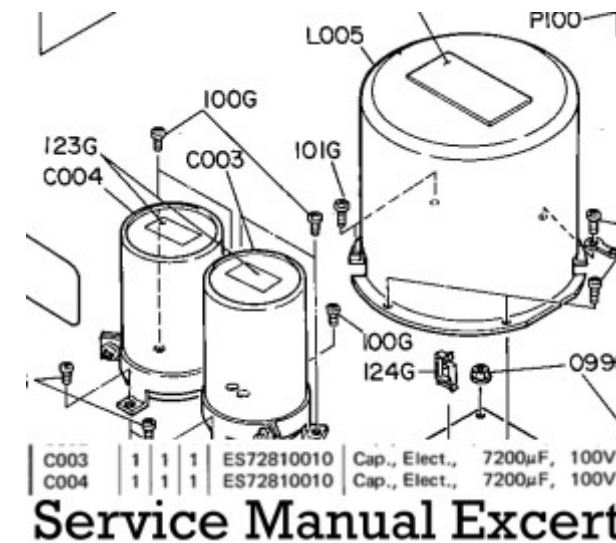
And that they did with the release of the Marantz Model 2500 in 1977 with a thunderous rating of 250 Watts RMS per channel, beating the SX-1250 by a whopping 90 Watts RMS per channel, and Hitachi's rating by a convincing 50 Watts RMS per channel!



Marantz had also moved to introduce a toroidal core transformer coupled to two 'dual' filter capacitors rated at 7,200uf x2 for a total capacitance of 14,400uf per 'capacitor'.

The curious thing to note here is that this Marantz 2500 has less total capacitance than their previous top model the Marantz 2325 but was delivering double the power? I will leave the question as to how this would effect its dynamic power performance up to the listener.

The amplifier section incorporated Direct Coupling with a Quadrupled-Parallel Output Stage and the chassis was fitted with a cooling fan which would have required further shielding to prevent noise from leaking into the amplifier, however this fan apparently did its job very well and reportedly this model ran very cool even when pushed to its limits.



The Model 2500 also saw a marked improvement in Harmonic Distortion with a rating of 0.05% THD at it's full power of 250 Watts RMS 8 ohms per channel measured between 20Hz to 20,000Hz.

An aesthetically impressive unit the Model 2500 also featured an oscilloscope display for added pleasure, along with all the bells and whistles one could expect in top model.

With an original retail price of \$1,750.00 USD on release in 1977 would price this unit at over \$6,870.00 USD in 2015, and make it the most expensive Receiver in the War to date.



Marantz had decisively won the power wars in 1977 in what can only be described as a quantum leap in power output. Marantz had once again made their mark as both leaders and innovators of High Fidelity.

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## The Receiver Wars – 1974-1979

March 10, 2015 · admin



# 1978

1978 was a year of giants among Receivers, these top end Monsters pushed peoples lounge-rooms and wallets to the limits as Pioneer and Marantz suddenly found that they were no longer alone at the top.



## SX-1980



Pioneer SX-1980 1978 RRP USD \$1,250.00  
2015 Inflation Adjusted RRP USD \$4,560.00

It wasn't long before Pioneer emerged back at top place in the Receiver Wars with the launch of what was perhaps the most famous Receiver to come out of this period, the Pioneer SX-1980.

Once again topping the pack, Pioneer's SX-1980 packed a whopping 270 Watts RMS per channel, a full 110 Watts more than their previous top model.



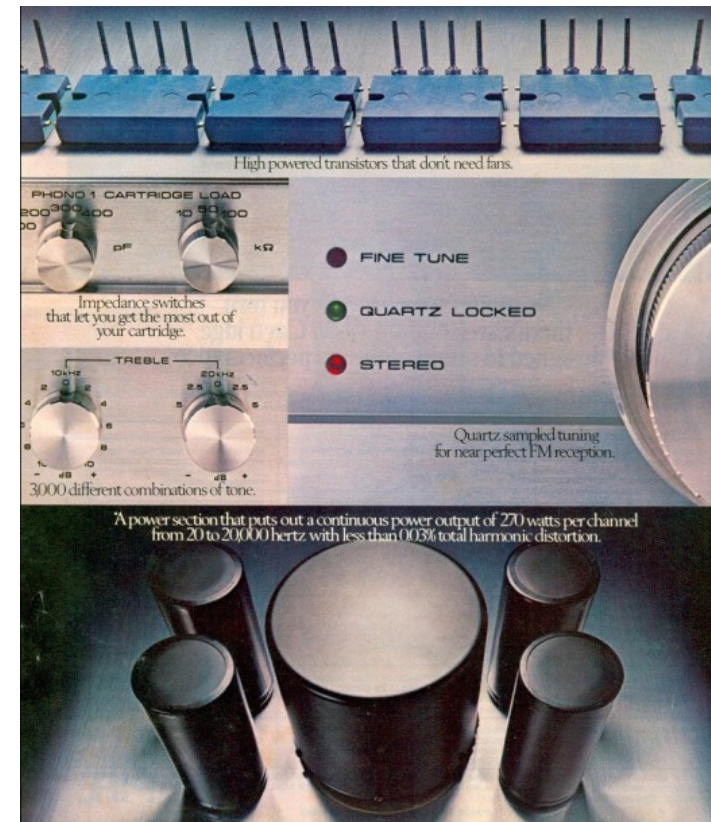
However unlike in the past where Pioneer had trumped all competition by a huge number of Watts, the SX-1980 was released with a convincing but modest 20 Watts RMS per channel more power than the Marantz 2500.

It appears Pioneer's focus had shifted to new fronts in the Receiver War and with the increase in power also came a decrease in total-harmonic-distortion with an incredibly low rating of 0.03% THD.

At its core was essentially the same amazing power-supply that powered the SX-1250 which featured a 22-pound toroidal core dual wound power supply with 4 Huge 'Coke Can' size 22,000uf filter capacitors. Pioneer had also invested heavily into a new transistor technology that generated less heat at higher power, negating the need for cooling fans that other brands were now integrating into their top models.

They had also caught onto the popularity of VU meters and incorporated attractive black backed meters into their fascia, which now featured brighter brushed aluminium. This Receiver also came with one of the most configurable phono pre-amp's I've ever encountered.

This was to be Pioneer's final salvo in the Receiver War, and boy, did they make it a good one!



**marantz®**



## Marantz Model 2600

Marantz didn't lag far behind Pioneer and released the Marantz 2600 in the same year. In typical style Marantz would not be satisfied in simply matching or just beating Pioneer's SX-1980 and so they hit the magic figure of 300 Watts RMS per channel.

Now while this is a huge power rating it does not represent the quantum leap in power Marantz had made with the Model 2500 – if they had we would be looking at a 500 Watt RMS per channel amplifier!

Bearing in mind that DJ's were at this time using various models of these 'Monster Receivers' in discos, clubs and bars – perhaps the Receiver War was approaching the usable and practical power limitations of what could be comfortably enjoyed in even the largest of lounge rooms!

Today the Model 2600 is one of the rarest and most sort after Monster Receivers and they have been rising dramatically in value in recent years, with the trend currently heading north of \$6,000USD and some have even been offered for \$67,000USD!

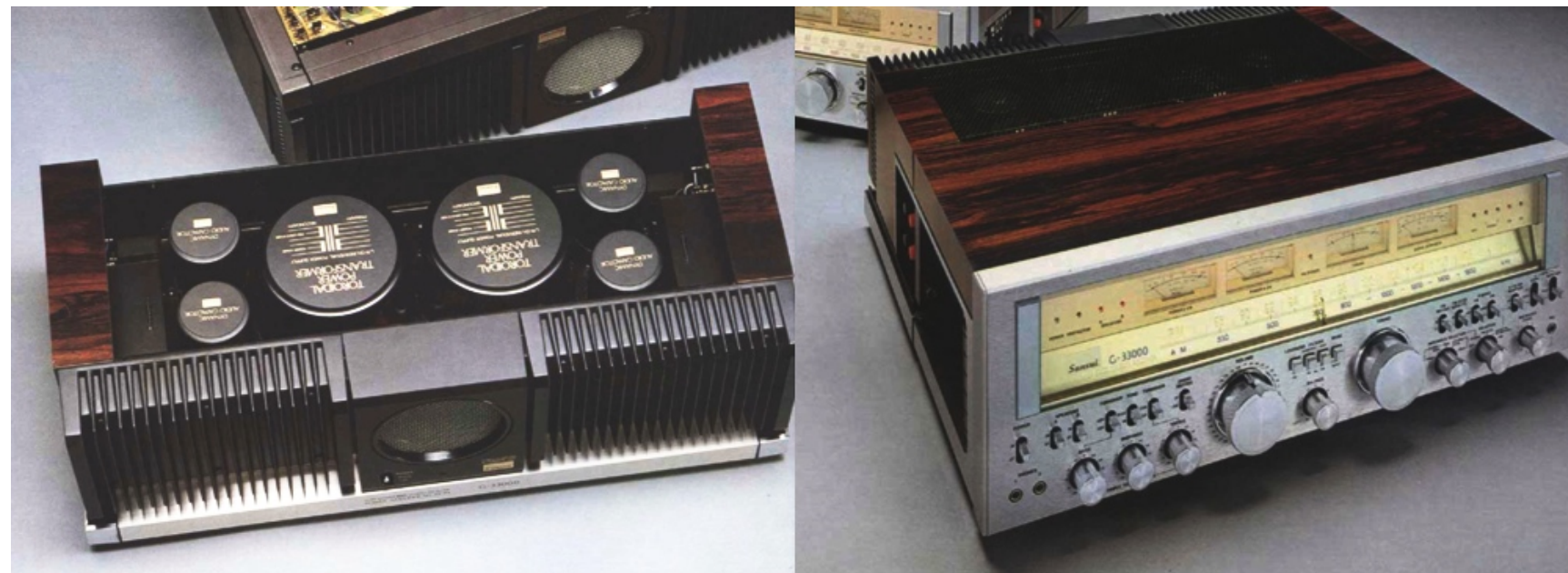
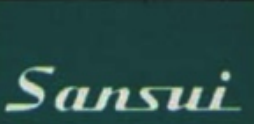
Short Specs: Power: 300 Watt RMS Per Channel @ 8ohms with no more than 0.03% THD from 20 to 20,000 Hz.



# SANSUI G33000/22000

Sansui Pure Power "Straight DC" Stereo Receivers  
with Unique Separable Construction.

Only hi-fi, everything hi-fi.



By late 1978 it seems that Sansui had finally woken up to the fact that there had been a Receiver War raging for most of the decade!

After cruising along from 1975-78 with the Sansui 9090 as their top receiver with a now seemingly measly rating of 125 Watts RMS per channel, Sansui took a shot at the top position and released a new monster line of Receivers with their top model, the G-33000, rated at a huge 300 Watts RMS per channel.

This massive beast was actually divided into two separate components with the power amp and power supply built into a separate box. Retailing for \$1,900 USD in 1979 this would price this unit over \$6,200USD today.

It's massive power supply housed two separate toroidal transformers and four 15,000uf filter capacitors.

Other monster receivers of this era had created toroidal power supplies with independent windings on the same core, now Sansui had introduced a Receiver powered by two completely separate toroidal transformers.



But it's raw power wasn't the only thing this receiver had to shout about, it had reduced harmonic distortion down to an incredibly low 0.009% at its full 300 Watt RMS per-channel output! It also sported impressive slew-rates which were becoming an

increasingly important metric towards the end of the 70s.



The winner of the 1978 Power Wars would have to go to Sansui. Although it ties with the Marantz 2600 in terms of power output, the Sansui wins out in another key metric being THD with Sansui's 0.009% trumping the Marantz 2600 rating of 0.03%.

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## The Receiver Wars – 1974-1979

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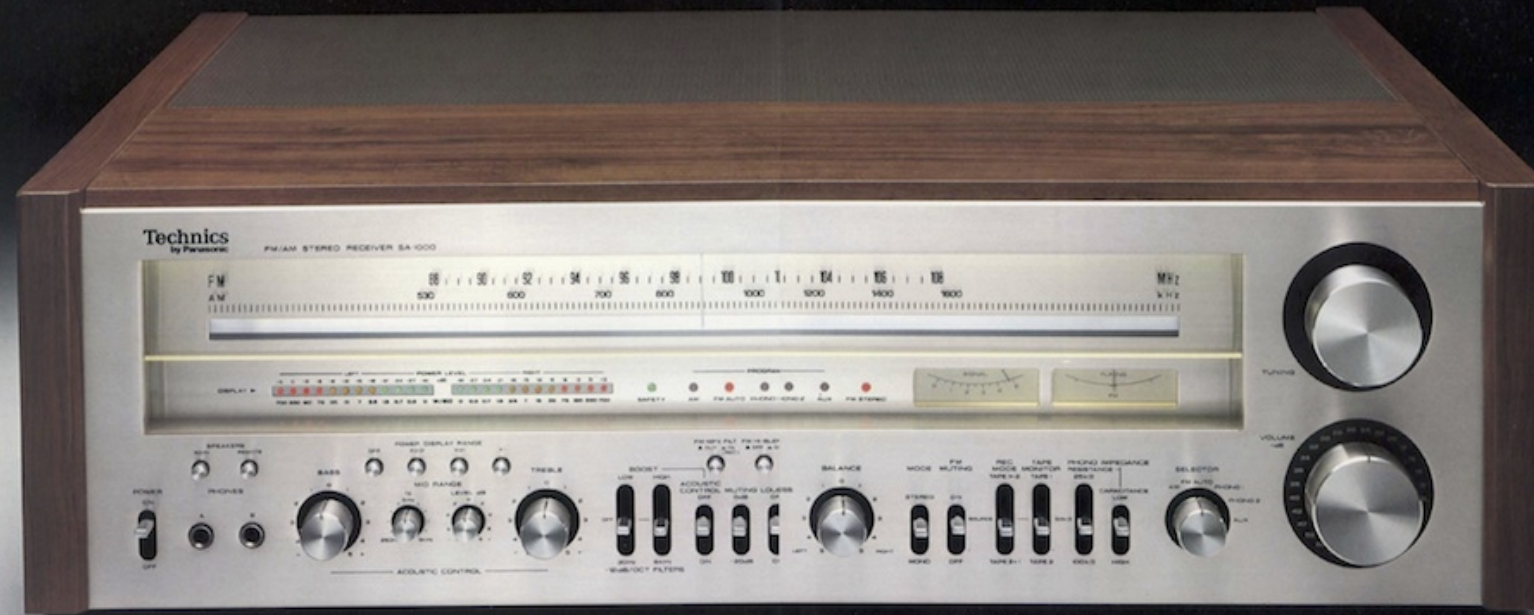
# 1979

## Technics



# Technics SA-1000

Tremendous, Yet Clean Power  
in a Purist's Receiver



With the ability to deliver 330 watts per channel at distortion levels far below audibility, the SA-1000 is more powerful than the majority of separate power amps now available.

In a practical audio system, do you really need all this power? Let's put it this way—if you occasionally like to listen at volume levels that make you feel "right there" at a live musical performance, you'll appreciate the SA-1000's enormous power capabilities. Because it can deliver the dynamic impact of a massive symphonic orchestra, a big jazz band, or a heavy-metal rock group. Under conditions that would make lesser-powered units clip noticeably, the SA-1000 will continue to sound smooth, clean and unstrained.

But even if high power isn't a requirement for you, the SA-1000 has a host of other qualities to recommend it to the purist. Because Technics engineers took a purist's approach from the start. They backed up enormous power with equally superb performance in all areas.

The phono equalizer stage provides the widest dynamic range ever in a Technics receiver. Not only is it extremely quiet; it will also handle the high voltages that can be generated by very dynamic records such as the new direct-to-disc types.

The tuner section is the best ever put into a Technics receiver. It has outstanding specifications, and also a very high degree of waveform fidelity. So it can process a radio signal into an audio signal that's a very close duplicate of the original sound at the broadcast studio.

And there are more features in the SA-1000 than ever before in a Technics receiver. So it will be as enjoyable to use as it is magnificent to hear.

If you're looking for the best possible performance, we know that the SA-1000 will be a top contender for your choice. Because we built it to be just that.

After standing still the previous year and being left far behind in the power rankings Technics paid attention and took aim at winning the Receiver War with the SA-1000. Weighing in with 330 Watts RMS per channel this beast pushed the power limit into the realm of the ludicrous, this is the amplifier that really did go to 11!

With a 26.4 lb laminate core transformer and four 18,000uf filter capacitors powering a Current Mirror Loaded Differential Amplifier and a Triple Push-Pull, 3-Stage Darlington Output this impressive amplifier produced 330 watts per channel

minimum RMS into eight ohms from 20 Hz-20 kHz with no more than 0.03% total harmonic distortion.

This was the most powerful Receiver of the Receiver Wars, and it was also the last. From a power metric point of view it appears Technics finally topped all other Receivers in terms of RMS power.

However was this a case of too much too late?



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# The winners?

By 1979 these Monster Receivers had all but disappeared from the catalogs of all other manufacturers and the ones on the drawing boards for 1980 and 1981 were all well south of even 150 Watts per channel. With the US going into the recession of 1980/81 perhaps sales had suffered as the price tags for these beasts had climbed too high for most consumers, and the numbers needed to sustain Receivers of this calibre in the Market were just not there.



Throughout the 1970s the Receiver War was driven primarily by competition between Pioneer and Marantz, each of which each were seemingly determined to outshine the other and eventually by Sansui and Technics coming in with very strong competition late in the War.





*My dogeared copy of Stereo Review from May 1978 with the famous picture of the proud Receiver owner on the front.*

The majority of the other manufacturers appear to have been forced to just keep up with the power offerings in order to even 'be in the game'.

While on the surface the Receiver War focused primarily on power it would be a mistake to think that power alone was pursued at the expense of all else. In fact the exact opposite was true, the Monster Receivers produced during this period were also focused on the finest musical reproduction and many innovations were introduced during this period to achieve this end. Not only were these Receivers incredibly powerful, but they were capable of producing clean, accurate and musical sound even at full volume.

Today all these top end beasts are incredibly rare, however there was a trickle down effect throughout the product ranges so that much of the technology and craftsmanship of these top models found it's way into the lower models as well. Often a great sounding unit can be purchased by choosing a Receiver a model or two below the Top-Of-The-Line.

Ultimately the real winners of the Receiver War are folks like you and me, who enjoy listening to music superbly and richly reproduced on a high-quality amplifier.

Music is supposed to engage the emotions and it is no wonder that so many have called it the language of the soul. However modern audio gear (with the exception of audiophile brands) has stripped away the warmth and character of music with it's clinical and sterile digital reproduction and homogeneous 'good enough' sound. It

might work well for a surround sound home theater but at the end of the day the music does not touch you like it should. The gorgeous analogue technology of the 1970s with its dedication to musical reproduction with warmth and character can even make an MP3 file sound beautiful.

While I have not personally auditioned all the models contained in this article I can vouch for the ones I have. And once you have listened to your favorite tracks on one of these beauties you will realise just what your music has been missing!

