

# A-S2000

Natural Sound Stereo Amplifier

*Full-Stage Balanced Signal Transmission*

*Floating Balanced Power Amp*

*Fully Balanced Control Amp*

*Parallel Volume and Tone Controls*



## *HiFi Began with Yamaha*

Yamaha's involvement with and passion for music goes back more than a century, to when we built our first reed organ in 1887. Now we are the world's leading producer of pianos and other musical instruments, and are involved with music in many other ways as well. We manufacture professional recording equipment, we design concert halls and we assist artists at concerts with set up and sound tuning. This knowledge and experience benefits our production of audio components in many ways. We introduced our first HiFi (High Fidelity) turntable in 1954, becoming the first company to actually use the term "HiFi." Thereafter we were one of the first to offer mass-produced, high quality audio equipment, and introduced many legendary stereo components. We hope you enjoy the genuine HiFi experience of Yamaha Natural Sound.

## Yamaha Introduces a New, Superior Approach to Analogue Amplifier Design.

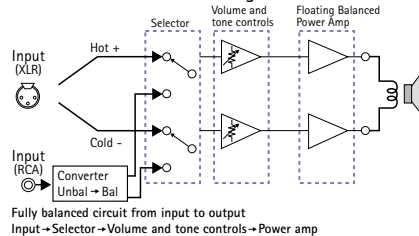
### Full Floating and Balanced Circuit Design Achieves for the First Time the Full Potential of Analogue Amplification

More than forty years have passed since the introduction and widespread adoption of full transistor HiFi audio amps during the 1960s. In the 1970s, high performance, high output PNP-NPN transistors made possible the pure complementary configured power amps that are now the main type of high quality audio amps.

In recent years, however, digital amps have become popular for their high conversion efficiency and superior uniformity of operating precision, as well as for their lower weight, size and heat production as compared to analogue amps. Which leads to the question, which direction will audiophile-level amps take in the future? Generally, two possibilities are considered: continuing to improve the traditional pure complementary configuration analogue amps or working to achieve higher sound quality from digital amps.

But Yamaha has selected a third approach. This is an entirely new floating and balanced power amp that, by using power transistors with the same polarity that are not complementary, achieves complete symmetry of pullable operation at the output stage and permits full balanced transmission (amplification) from the input jack to just before the speaker jack – a capability that has long been the dream of audiophiles.

#### A-S2000 Balanced Circuit Design



### Full-Stage Balanced Signal Transmission

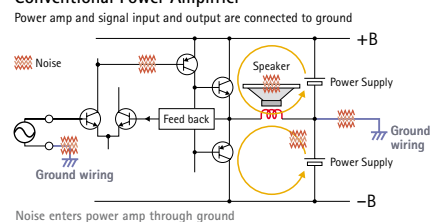
The A-S2000 achieves fully balanced signal transmission from input to output (balanced design refers to the use of two signal conductors that have equal impedances to ground). Balanced transmission is capable of canceling noise produced internally and externally, and so is considered to be an ideal amplification method, eliminating the sound quality degradation caused by noise. If it is only partially adopted, however, it will be largely ineffective and may even have negative effects. The A-S2000 is the world's first integrated amp to offer full-stage balanced transmission, combining high power output with good sound texture and outstanding S/N performance. Its capabilities will be heard to best effect when paired with the CD-S2000 CD player, which employs the same principle.

### Floating Balanced Power Amp

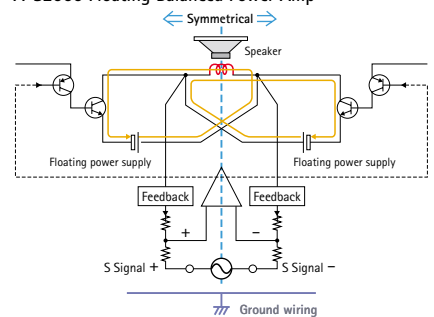
The Floating Balanced Power Amp configuration is completely different from the pure

complementary circuit design that has been the mainstream of HiFi amps for nearly forty years. It adopts an output element having identical polarity on the plus and minus sides of the output stage, with both sides having their own power supply and feedback, thereby achieving total symmetry of pullable operation at the output stage. The power supply unit has four floating elements (no restrictive grounding connections), two for each channel, so plus and minus and completely symmetrical.

#### Conventional Power Amplifier



#### A-S2000 Floating Balanced Power Amp



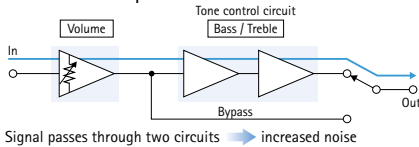
**Fully Balanced Control Amp**

To achieve fully balanced transmission, all audio circuits except for the phono equalizer are balanced. The line amp also uses a balanced configuration for its volume and tone circuits, achieving fully balanced transmission from the XLR balanced input jack to just before the speaker jack. Additionally, the output from the unbalanced RCA input and phono equalizer undergoes balance conversion internally.

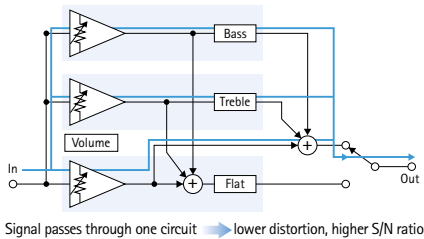
**Parallel Volume and Tone Controls**

To ensure ideal fully balanced operation, the volume and tone control systems must be extremely precise. Conventional analogue volume systems suffer from gang error, and cannot achieve sufficient accuracy, even when using high precision parts. Therefore, for the A-S2000 we developed a unique method: canceling out slight precision differences by the parallel operation of three high sound quality digital volume ICs for each channel and operating the system with an analogue encoder. When using the bass and treble tone controls, each of the three volume elements is applied in succession, and during tone default, three equivalent volume elements for each channel are used for volume adjustment. This ensures the best sound quality during both tone control and default operation.

**Conventional Amplifier**



**A-S2000**



**Power Supply**

The A-S2000 has four large capacity power supplies for the power amp that are



Completely symmetrical construction with integrated amp left-right separation.



Large heat sink, huge power transformer, custom-made block capacitors (24,000µF) and preamp board.

completely isolated from ground. Shunt type local regulators that prevent degradation of sound quality by amperage fluctuation ensure a clean and stable power supply for the preamp. Naturally, parts that directly affect sound quality such as the large power supply transformer and carbon sheath block capacitors were chosen only after careful evaluation.

**Symmetrical Construction**

The A-S2000 has a completely symmetrical construction intended to achieve the ultimate in integrated amp left-right separation, equal to that of separate amps. A central reinforcing bar ensures that the chassis is rigid and stable.

**Specially Designed Feet**

The extra-heavy feet provide a choice of two bases. You can leave the round, flat neodymium magnets in place or remove them to rest the

amplifier on four single points. The feet are also height adjustable. They ensure stability on any surface, with superior vibration damping.



**Headphone Amp for Low Impedance Drive**

The fully discrete, high performance headphone amp is compatible with low impedance drive. Its pure and powerful sound quality is best appreciated with high quality headphones.

**Discrete Phono Amp**

An extremely low-noise phono amp plus a dedicated MC head amp ensure excellent musical clarity and imaging with both MC and MM phono cartridges.





Black finish available.

**A-S2000 Main Specifications**

[AUDIO SECTION]		
Maximum Power	(4 ohms, 1 kHz, 0.7 % THD, for Europe)	160 W + 160 W
Minimum RMS Output Power	(8 ohms, 20 Hz–20 kHz, 0.02% THD)	90 W + 90 W
	(4 ohms, 20 Hz–20 kHz, 0.02% THD)	150 W + 150 W
Maximum Power	(8 ohms, 1 kHz, 10% THD)	120 W + 120 W
	(4 ohms, 1 kHz, 10% THD)	190 W + 190 W
Dynamic Power/Channel	(8/6/4/2 ohms)	105 W/135 W/190 W/220 W
Damping Factor	(8 ohms, 1 kHz)	160
Input Sensitivity/Impedance	CD, etc.	150 mV/47 k-ohms
	Phono MM	2.5 mV/47 k-ohms
	Phono MC	100 μV/50 ohms
	Main In	1 V/47 k-ohms
Frequency Response	CD, etc. to Speaker Out, Flat Position	5 Hz–100 kHz +0 dB/-3 dB
	CD, etc. to Speaker Out, Flat Position	20 Hz–20 kHz, +0 dB/-0.3 dB
RIAA Equalization Deviation	Phono MM	20 Hz–20 kHz, ±0.5 dB
	Phono MC	20 Hz–20 kHz, ±0.5 dB
Total Harmonic Distortion (20 Hz–20 kHz)	CD Balanced to Speaker Out	0.01% (90 W/8 ohms)
	CD, etc. to Speaker Out	0.015% (90 W/8 ohms)
	Phono MM to Rec Out	0.005% (2 V)
	Phono MC to Rec Out	0.05% (2 V)

Signal-to-Noise Ratio [IHF-A Network]	CD, etc. (S: 150 mV, Input Shorted)	98 dB
	Phono MM (S: 5 mV, Input Shorted)	93 dB
	Phono MC (S: 500 μV, Input Shorted)	85 dB
Residual Noise (CD, etc., IHF-A-Network)		33 μV
Channel Separation (1 kHz/10 kHz)	CD, etc., Input 5.1 k-ohms Terminated	74 dB/54 dB
	Phono MM, Input Shorted, Vol: -30dB	90 dB/77 dB
Tone Control Characteristics	Phono MC, Input Shorted, Vol: -30dB	66 dB/77 dB
	Bass Boost/Cut (at 50 Hz)	±9 dB
	Bass Turnover Frequency	350 Hz
	Treble Boost/Cut (at 20 Hz)	±9 dB
	Treble Turnover Frequency	3.5 kHz
Audio Muting		-20 dB (approx.)
Load Impedance	Speaker A or B	4 ohms to 16 ohms
	Speaker A + B	8 ohms to 16 ohms

[GENERAL SECTION]		
Dimensions	(W x H x D)	435 x 137 x 465 mm
		17-1/8" x 5-3/8" x 18-5/16"
Weight		22.7 kg
		50 lbs.



The perfect match:



**CD-S2000** Natural Sound Super Audio CD Player

For details please contact:

Visit us at our website:  
<http://www.global.yamaha.com>

