



An Italian amplifier company's consummate effort
per Constantine Soo's ears:
Audia Flight 100

October 24, 2005



Audia Flight 100 Specifications:

Output power: 100 W/8 Ω , 200 W/4 Ω , 400 W/2 Ω

Gain: 29 dB

Input Sensitivity: 1 V rms

Frequency response: 0.3 Hz ~ 1 MHz (@1 Vrms, - 3 dB)

Slew-Rate: > 200 V/ μ S (@8 Ω)

THD: < 0,05 %

S / N Ratio: 108 dB

Input impedance: (Unbalanced) 24, 28, 42, 57 K Ω ; (Balanced) 23 K Ω

Damping factor: (8 ohm) 85

Main voltage: 110-115/220/230 Vac 50-60Hz

Power consumption: 500W at idling, 1400W peak

Dimensions: 18.5 X 9.6 X 21.3 inch (w x h x d)

Weight: 106 lb

Price: \$10,995

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PROLOGUE

I had not reminisced over my earlier days in hi-fi since my encounter with Audio Note's 300B designs. I used to subscribe to the high-power notion and disregarded tubes as maintenance-ridden and imprecise. To solid-state amplification designers, that remains a statement of absolute truth; but my priority developed since then to the point where I believe even certain truth is not absolute.

Changes in hi-fi fashion at the end of the 20th century depicted a sizeable migration of users from solid-state to tube, and accordingly, from mainstream loudspeakers to high-efficiency types. Now that we're in 2005, SET designs have managed to occupy a place in

hi-fi history no less prominent than what the solid-state's have accomplished. With both types continuing to progress in design and performance, the solid-state design remains the one that has no need for collaborative efforts on the part of loudspeaker manufacturers, while SETs remain dependent on availability of efficient loudspeaker in order to perform.

Therefore, my preference in loudspeaker also migrated gradually to the more efficient kind over the years. No longer would I purchase powerful amplification just to succumb to choice of speakers requiring considerable output. Instead, I investigated the sound of efficient speakers, like the Audio Note AN-E/D, and experimented with their sound as driven by SETs.

Over the years, although I have continued to own various high-power solid-state designs, they only hastened my return to the SET method. Alas, I have never given up hope on the transistors, and my Apogee Duetta Signature and Celestion SL700 continue to gather dust.



BRIEF HISTORY

Audia Flight was founded by Massimiliano Marzi and Andrea Nardini in 1996, two men with background in professional electronics industry, and a shared objective in creating original amplification design in the Italian style. The company is located in the central Italian town of Civitavecchia near the Mediterranean, approximately 43.5 miles from Rome.

After founding the company, Marzi and Nardini began research and analysis on areas for improvement in existing amplification design, based on the premise that “a component of an audio chain must not alter the signal,” and insufficient signal speed could cause “low transient stability”.

From a research project that spanned from 1994 to 1996, the duo designed a new circuit that retired the traditional voltage feedback circuitry in their power amplification design. This new design utilized current feedback, generating a “high speed response” that could accommodate reactive speaker impedances simultaneously.

This new topology was introduced in 1997 in the form of the Audia Flight 100 power amplifier, which has gone on to conquering the hearts of the Italian audio publications. AF's subsequent offerings, such as the preamplifier Flight Pre, and a smaller amplifier, the Flight 50, are also of the current feedback topology and have been received enthusiastically by the Italian reviewing community as well.

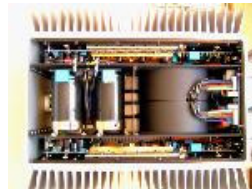
In 2005, Audia Flight comes ashore the U.S. by way of its importer, Q-USA. This review explores the marque's top stereo power amplifier, the 100. A separate review will highlight its companion premium preamplifier, the Flight Pre.

INSIDE THE AUDIA FLIGHT 100

The Italian company prides itself on the current feedback topology it has developed, citing the

design's superior ability in maintaining several performance parameters, namely extreme trans-impedance linearity, a bandwidth of 0.3Hz to 1MHz, ultra fast and stable signal propagation, and a slew rate higher than 200 V/ μ S. AF points out that conventional "voltage feedback" designs, also known as the differential design, could only attain transient stability after several cycles of oscillations when hit by a step impulse signal, inadvertently resulting in signal tempering and transient impediment. AF is also of the opinion that use of higher-grade components in the differential design can not correct the inherent flaws.

Hence, located in the center of the unit is the 11lb, modular, dual 700VA, toroidal power supply stage, flanked by two mirrored, modular amplification channels to the sides.



Measuring 3 inches tall and 7 inches in diameter, each toroidal transformer is rated at 10,000 Gauss and its core plate "autoclave resin sealed and dried in oven." One could expect no less originality from the country that gave us the pizza. Automatic machine tools monitor appropriate wiring tension in the coils, and multi-wire technology produces the main secondary.

Each channel draws from a dedicated, dual-stage power supply for feeding all stages up to the drivers, and providing energy to the power stage respectively. The dual-stage power supplies employ a 17,600 μ F, 8-high-speed capacitor design of discrete component and NFB design. The supply of the power stage then draws from four very-low ESR capacitors of 47,000 μ F each,



augmented by a 10 μ F polypropylene parallel capacitor. A logic circuit prevents turn-on current surges and monitors operational temperatures.

Once, I accidentally turned on the Flight 100 ahead of the preamplifier when connected to the Audio Note AN-E SEC Signature. Atypical of like instances with other powerful transistor amplifiers in which any speaker's tweeter would've been ruptured in smoke, and without a single decimal of noise, I had not realized my neglect at first and continued my incessant madness upon the miserable PLAY button. Hence, the Flight 100, with the logic intelligence

thus bestowed upon it by its creators, has since then worth a few times over its asking price to me.

Remember: people have different luck sometimes, so never tempt your loudspeaker's fate by trying to reenact my occurrence.



Each of the Flight 100's output channels employs 16 audio-specific, aged and computer-automatically selected Toshiba IGBT's, capable of delivering a continuous current of 160 Amperes and a 240-Ampere peak current. Transient current loss is further reduced with the provisioning of thin, high-current, 10 mm² and 5.3mm² OFC copper bars, as well as circuit boards with a copper layer 0.1mm wide.



Other delicious innards include 1% tolerance metal film resistors, Philips polystyrene capacitors, Roedenstein polypropylene (except those in the supply stage), electrolytic and tantalium capacitors and Motorola transistors. All PCBs are made with 70 μ m wide copper

plus 30 μ m wide metal layer, for a total width of 100 μ m.

Finally, the all-aluminum chassis is laser-cut and milled by the industrial NC (Numerical Control) units, producing an effective heat dissipation surface of 18,000 cubic centimeters.

Front panel labeling is also cut by the NC micro milling, followed by a blue-paint filling process, and even the labeling on the rear is also laser-cut, not silkscreened.

SET UP & AUDITIONING



Speakers of higher efficiencies constitute the pillars of my present reviewing system. Respectively, representing the most extraordinary implementations in horn, two-way and the unique Dual-Concentric™, they are the Acapella La Campanella, Audio Note AN-E SEC Signature and the Tenney Churchill Wideband. All have proven to be consistently

Signature and the Tannoy Churchill wideband. All have proven to be consistently exemplary and reliably non-fatiguing in music reproduction. Hence, they were the first ones being rotated with the Audia Flight Pre and 100 amplification system.

Digital front-end included the 47 Lab PiTracer (2004) and the Audio Note DAC5 Special (2003). Accoustic Arts' DAC1 Mk3 and Boelen Electronics-modified EAD Ovation Plus DAC also partook of the audition.

Preamplification rotated were the Flight 100's companion preamplifier, the Flight Pre, and Audio Note's \$10,000 M5 Phono preamplifier.

Cabling were of Audio Note's Sogon in digital, analog as well as speaker connections.

Tannoy's Churchill Wideband had few competition in dynamic scaling and tonal coherency

via the Harmonix Reimyo SET. Yet, when driven by the Audia Flight amplification, the 95dB/8Ω, 15-inch Dual-Concentric™ loudspeakers

asserted a dynamic prowess never before induced, imparting such rare lucidity and perseverance upon female vocals as to have renewed

my experience with music via the horn speaker. I have admired Barbara Streisand's *Eyes of Laura Mars* (Barbara Streisand - Greatest Hits Volume 2, Sony/Columbia CK 35679) for two decades since the 80's, despite its compressed dynamics; but in the most



unprecedented manner, it sounded lively and powerful with the Flight 100.



Other favorite female singers of mine were subsequently revisited via the playback system,

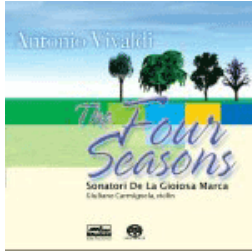
such as Whitney Houston's I Always Love You, and Shirley Bassey's Moonraker.

Also much appreciated is Jheena Lodwick's JVC XRCD24 rendition of Eric Clapton's *Tears in Heaven* (Jheena Lodwick Getting To Know You, JVC Musiclab XRCD24-1012SA). Hers is a much more listenable voice to Clapton's.



The Churchill Wideband's more petite sibling, the TD10, also displayed an exercise in dynamic and bottom-end via the Italian amplifier from Hollywood composer John Williams' Jurassic Park soundtrack (MCA MCAD-10859). Driven by the Audia Flight 100, the \$8k, 10-inch Dual-Concentric™, bass-reflex speaker's performance was expanded to the point where its usual spectral and output capacities had seemingly exceeded what can be bestowed upon any design with 1-inch tweeter and 10-inch woofer in the known universe.

Via the majestically resolving AN-E SEC Signature, I've never heard a solid-state amplifier to be as well-controlled and well-endowed as the AF 100. When recreating the 1722 Petro



Guarnei violin from the FIM disc, *Antonio Vivaldi: The Four Seasons*

(FIM SACD 052), I found the Audia Flight an equal of tube amplifiers in its portrayal of the priceless violin's subtleties. The AF gear not only approximated the \$24k Harmonix Reimyo PAT-777's continuity and liquidity, but the Italian system's dynamics, texturing and transients are unprecedented.

Then, the sound of the Acapella La Campanella when coupled to the Audia Flight 100 was one I have not encountered in solid-state amplification, one of lukewarm sentimentality, intricate intonation, and expeditious, powerful transients, with a slightly lighter tonal intensity than the PAT-777. As used to the 300B sound as I am, I find the Audia Flight sound of indispensable quality to the making of a high-end system.

THE KING OF CONTROL



What less efficient speakers need is not just any powerful amplifier, but one with sublime control of driver behavior, with absolute power to spare.

It was the other speakers at my household that provided the most blatant testimony of the kind of misuse I had exercised on them with all amplifiers preceding the AF. Genesis VI, Celestion SL700 and Apogee Duetta Signature -- all exceeded their past performances when driven by the AF100, and provided the most definitive testimonials on the extent of virtues a transistor amplifier of solid, thorough engineering can offer in pristine, high-output listening.

Take the most inefficient one of the group, the Apogee, for example. At 86dB/4Ω, the Apogee Duetta Signature is unrelenting in withholding its most superfluous against all amplifications. During the days of the McCormack DNA-1 Deluxe, and even with my dual-

mono Reference Line Silver Signature, I thought I had experienced the Apogee's most extended in frequency reenactment and its most vanquished in dynamic manifestations. That is, until it met the Audia Flight 100.

The AF100 made me realized that the Apogee never showed me its richest treasure, never offered me the timbre realism as charged by the Audia Flight; never surrendered its textural delicacy the way the AF induced it to; never sounded so willing and touching when commanded by other amplifiers as with the AF, and never filled the room so consummately with any other amplifiers but the AF.

Likewise for the smallish Celestion SL700, it transcended its Aerolam confinement and expanded its sonic capacity to fill up the room.

Known for its dynamic potential and an Apogee-like amplifier diet, the Celestion revealed a persona befitting the title of the classic of the 90's in British minimonitor design. For though it had always performed impressively with adequate amplification offering, such as the EL34-based, 125 Wpc Music Reference RM9 II, the Celestion transformed into a fiery beast of unprecedented sonic fullness with a newfound, disproportionate dynamic capacity.

By pairing the Celestion SL700 to the Audia Flight 100, I experienced the unmistakable sound of a full-range speaker from the minimonitor's 1.25" aluminum dome tweeter and the 6.5", double-surround Kobex driver. It was not so much a case as the Italian amplifier pushing hard, as the little minimonitor being sufficiently infused with power of the most exquisite degree for the first time in a full exploitation of its potentials.

This amplifier has renewed my passion for the SL700, as well as reaffirming the British minimonitor's value.



CONCLUSION

A solid-state amplification worthy of the presence of all loudspeaker systems at my residence, the Italian Audia Flight PRE and 100 was powerful enough to drive the Apogee Duetta Signature to unprecedented finesse, and at the same time possessing virtual SET subtleties to render the Audio Note AN-E SEC Signature most persuasively. It offered an alternate flavor that made a 300B user like me all the happier in this hobby.

Having been a Combak Harmonix Reimyo PAT-777 user for over a year, I have found satisfaction in the 300B sound, despite limitation in speaker selection. Hence, I was immensely surprised and gratified to bear witness each time the Italian solid-state amplification drove any of the aforementioned speakers, be it the \$40k Audio Note, or the sub-\$4,000 Celestion. The Flight 100's supple midrange detailing and superb texturing were simply unheard of in a solid-state design.

The fact that the Audia Flight 100 power amplifier was never ruthlessly assertive and was instead pleasantly subtle in tonal manifestations, and attentive at handling delicate transient swings, worked to assure me that its massive dimensions harbored a refinement commensurate to its asking price.

My first stare at the Audia Flight 100 power amplifier right out of the box was a prolonged one, the same kind many men have had when they first laid eyes on something so physically drawing to themselves that they would think of nothing rational but eternal companionship.

Simplicity is a foremost consideration in all design audio, and a good number of them, such as 47 Laboratory's Gaincard integrated amplifier, have met with resounding success. Yet, in many a few designs, even the most vigorous implementation in simplicity failed to distinguish itself.

Therefore, when it comes to circuit design, I believe the morale of the precedents lies in the forbearance of a fixated goal, but to tread mindfully with fore- and hindsight. In this case, the Flight 100 is a painstaking exercise in simplicity amidst a necessary complexity for the attainment of power to which its designers aspired.

The dreadfulness of a sizably intimidating and sonically reckless solid-state amplifier is a prospect that any 300B user, like me, has been seeking to avoid at all costs. But the Audia Flight 100 proved its worth among SETs in driving high-efficiency speakers in my household, at the same time exerted its unmistakable power in vanquishing power-hungry speakers I've known very well. For its unique assets, the Audia Flight 100 is present day's safest investment in solid-state power amplifier.

To want to own the Audia Flight 100 is to tread dangerously close to succumbing to one of the most common human flaws of overspending. Yet, it is mightily difficult to accept the notion of relinquishing ownership.

Fortunately, there is the \$8k Flight One, an intriguing integrated Audia Flight amplifier of

Fortunately, there is the \$6k Flight One, an intriguing, integrated Audia Flight amplifier of direct descent to the \$7k Flight Pre and \$7.5k Flight 50. Costing \$6,500 less than the \$7k Flight Pre and \$11k Flight 100 combined, the Flight One seems to hold great promises, and we shall see.

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