

HIFICRITIC

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THE SILVER DISC'S GOLDEN AGE

Five upmarket SACD players reviewed and compared, complete with panel tests

JERN14 DS A miniature speaker made of cast iron? Just add subwoofers to get close to the state-of-the-art

MQA – IS THE TIDE TURNING?

Andrew Everard asks whether the Tidal link means that MQA is finally coming of age

MUSIC BOXES Martin Colloms examines the dramatic sales explosion of sound docks and Bluetooth music boxes

LEJONKLOU BOAZU + GAIO

Chris Frankland tries an ultra-simple integrated amplifier and phono stage from Sweden's Lejonklou

MFA REFERENCE PHONO AMPLIFIER

Andrew Harrison tries one of the most elaborate and costly phono stages around

MUSIC & MORE

REVIEWED THIS ISSUE:

McIntosh MP100
NAD C368
JERN14 DS
PS Audio LANRover
Leema Tucana Anniversary Edition
Ayon CD-35
Luxman D-06u
McIntosh MCD550, Esoteric K-01X
T+A PDP 3000 HV
Music First Audio Reference Phono Amplifier
Lejonklou Boazu
Lejonklou Gaio

CD-35



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Today's hi-fi magazines are certainly struggling, for several reasons that are obvious enough, but worth pointing out nonetheless. Let's be frank about one thing: hi-fi is no longer the fashionable item that it was during the 1970s and '80s.

Part of the reason has to do with the music, which is arguably less interesting than it was, say, between 1955 and 2000. One aspect of the problem might be to do with changes in recording technology. Another concerns the relatively recent popularity of MP3-coded downloads, which certainly have served to undermine the whole concept of hi-fi.

While the music, the recording technology and its delivery methods may all have played their roles, and might well demonstrate some lack of creativity, that's not the only reason why hi-fi as a whole, and the magazines in particular are suffering.

The emergence of the internet has had the most dramatic influence of all, impacting on the hi-fi scene in a number of different ways. Besides dramatically affecting the delivery of music, it has had huge impacts on hardware retail, and the readership of magazines. The latter have seen the replacement of relatively costly print by free-to-readers online publishing. This has not only diluted the expenditure on advertising, while the decline in the whole hi-fi sector has also significantly reduced revenues.

Faced with this 'double whammy', there's a strong danger that the British hi-fi magazines will take the line of least resistance, sacrificing a hard-won international reputation for honest criticism in order to maintain profitability.

I hear tell that some UK magazines now routinely send reviews to the brands concerned prior to publication, presumably giving the brand concerned the opportunity to incorporate any modifications, and mollify any criticisms.

One problem which currently faces hi-fi is that most of the latest equipment tends to be rather good, so serious criticism can often be difficult. But there's still no excuse for the degree of blatant sycophancy that seems an integral part of most paper magazine reviews today.

We certainly don't send out or doctor any of the *HIFICRITIC* reviews for 'correction' or modification. And I don't think any of my reviews for other magazines have been tampered with. But one incident that does stick in my mind was when I received payment from another magazine for a commissioned review that didn't actually appear.

Apparently the review in question had been sent to the brand's leading people, who had deemed it 'insufficiently enthusiastic', and expressed the preference that it shouldn't appear. (They were probably also major advertisers in the magazine.) At least no attempt was made to alter the copy in any way, and I received the promised payment, ostensibly from the editorial budget, so I didn't worry about it unduly.

Paul Messenger

Editor

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Leema Tucana Anniversary Edition

MARTIN COLLOMS ASSESSES THIS SUBSTANTIALLY RE-WORKED VERSION OF ITS LONG ESTABLISHED TUCANA II INTEGRATED AMPLIFIER



Celebrating ten years of production, Leema Acoustics (of Welshpool in mid-Wales) has launched an *Anniversary Edition* (£4,995) of its long lived and well respected *Tucana II* integrated amplifier. The latest version has been improved and updated by Leema's founder/designer Lee Taylor, and also has a number of aesthetic enhancements. These include a new front panel with *Leema Delta* logo, plus an 'ANNIVERSARY EDITION' badge, and the amplifier may be ordered in black or silver finish.

When unpacking, the first impression is of its high mass, nearly 20kg (44lb), signifying a generous use of metal casework and massive power transformers, as was indeed the case. It stands on four semi-rigid feet, and may be linked with other Leema units for coordinated system control *via* a comprehensive remote control handset.

Facilities include a front panel 3.5mm jack input (*eg* to connect a portable player), A/V loop and tape connections, one balanced XLR and six RCA/phono audio inputs, and a dedicated 3.5mm headphone output (which I think should have been a full 1/4in size). Unusually, individual input gain can be pre-set, facilitating consistent volume settings.

Leema warns that the heat-sinks on the sides of this powerful amplifier might reach 70 degrees C after prolonged use at high power. These should not be touched longer than a few seconds in this condition, a necessary warning as the overall IEC recommendation for exposed metal surfaces is 40 degrees longer term. (In fact it did shut down temporarily when overheated.)

A mildly idiosyncratic specification quotes 150W/ch into 8ohms, 2x290W into 4ohms and 2x520W into 2ohms, but with no quoted duty cycle limitations and also without comment as to single or twin channel operation. Loads of less than 2ohms should be avoided, though the output current (presumably peak) is 50A, a generous value that indicates high adverse loading tolerance.

A 4ohm midband distortion figure of 0.006% (-84dB) holds from 10 - 290W. The claimed DC offset limit is a little high at $\pm 50\text{mV}$: I'd prefer less than 10mV, and we will check it in the lab. With no output limit circuitry the output impedance is a very low 0.05ohms, delivering a damping factor of 160 into 8ohms. Quite large -3dB limits are given for a wide frequency response (5Hz - 100kHz), which in practice should be more than wide and uniform enough. The size is 440x110x320mm, the weight 18kg, and this *Anniversary Edition* costs 20% more than the standard *Tucana II*. Its guarantee is a generous 5 years, and Leema operates a recycling policy when/if it's finally discarded.

Sound Quality

Our well run in demonstrator didn't take long to settle in. Its considerable mass warned us to expect something out of the ordinary, and the *Tucana AE* did not disappoint. With upbeat tempos and a crisp but not significantly aggressive character, it threw very large soundstages imbued with much grip and detail. The soundstage somehow seemed more brightly illuminated than expected, mainly due to a high degree of clarity and transparency that was considered most welcome, rivalling more costly audiophile creations. And there was more.

Noting that sometimes an initially positive judgment in the midrange may relate to a slightly compromised low bass or high treble, it was not so here, where the high standard of midrange definition was fully matched at the frequency extremes. It also sounded really powerful. Let loose on the *Magico S5 II* reference loudspeakers, it grabbed them by the throat and shook out a dynamic and expressively musical performance.

MARTIN COLLOMS

Here the 240W/ch claim was matched by really high levels of undistorted sound. The 15in equivalent bass area for each of these Magicos needs good amplifier punch to show the expected low frequency dynamics and this new *Tucana* did not flinch. Large drums were rendered most expressively and with a satisfying degree of room acoustic dominating low frequency presence.

The more one listened, the more the great cohesion and rock like stability of the presentation impressed. Nothing seemed to phase it, no matter how complex, while vocals remained well focused and highly articulate. While I felt that it did not time quite as well as the very best in its price class, the alternatives do not reach into the soundstage as deeply and have such a huge stereo image, nor offer the expressive dynamics, the dynamic range and sheer projected power which is so clearly on offer here. And realistically, the timing is pretty good, based on the audio industry's more widely accepted standards.

Conclusions

A well made and powerful workhorse, this tidy if weighty integrated amplifier is very well built and delivered a first rate lab performance, confirming its low distortion, accurate frequency response and very generous power reserves (of over 300W/ch into 4ohms). It will drive a wide range of loudspeakers to impressive volume levels, including substantial floorstanders with more difficult load factors. It has versatile and thoughtful input matching, including a balanced input and headphone output. All in all, it has barged its way into the Best Buy category for HIFICRITIC.

Technology

The *Anniversary* upgrades include printed circuit boards with doubled copper thickness to lower PCB track resistance. Selected capacitors have been upgraded to Nichicon's audio-grade *MUSE* Series, and the speaker output wiring is now Leema's *Reference 2* cable with 16 woven cores of multi-strand, silver-plated high-purity copper. For each amplifier, individual production test sheets are included with the supplied manual.

Transistors are hand-selected and precision-matched, and the power amplifier transformers are top quality Noratel for reduced vibration noise and losses. This dual-mono design uses three power transformers: one for each channel and one for the control circuitry. It has robust and highly refined multi-bipolar, paralleled transistor output stages. Overload and over-current protection is ultimately *via* fuses, acting if the electronic drive-disconnect

circuit proves insufficient. Typical of the care taken, input signals are switched *via* gold-plated relays and are then buffered by noted high quality *OP4275* op-amps which drive the Burr Brown on-chip precision volume attenuators at optimal low impedance. Construction comprises heavy duty machined alloy plates and panels.

Designer Lee discusses perfect musical timing in the context of a flawless squarewave result, as seen on an oscilloscope, but I beg to differ. A clean 1kHz squarewave result is certainly helpful, but does not reveal the subtle differences in musical timing heard between amplifiers. For example doubling the transformer rating often affects timing positively, but such a squarewave result remains unchanged.

Lab Results

The amplifier comprehensively met specification, with very good lab test results, delivering a high 2x160W into 8ohms, 2x300W into 4ohms and a 600W short term peak into 2ohms, with a matching maximum output current close to 40A. The exceptional power bandwidth showed no sign of faltering at the frequency extremes, so it will have no problem driving modern loudspeaker loads with awkward impedances. In standby it consumes under 1W while at idle it runs mildly warm at 52W (77VA). DC offset was not as great as the 50mV spec, but was still a little high at 30.5mV and 13.6mV respectively for the two channels. After 10 minutes of 50 + 50W continuous output per channel, it warmed sufficiently to automatically shutdown for 10 minutes in order to cool off. It reset just fine.

The frequency response was wide and flat, measuring just over -0.33dB at 10Hz and 33kHz, -1dB at 100kHz and just -3dB at 200kHz. The on-chip volume control was very accurate, holding channel balance within 0.015dB even at -60dB. For a 1W reference the signal-to-noise ratios were fine: 80.1dB CCIR at 1kHz, 80.2dB unweighted and 83.1dB A weighted (*ie* over 118dB relative to full output). Residual hum is very low. Its high linearity is shown by the very fine intermodulation data, -92.3dB at full power 19/20kHz, and -89dB at 1W.

The output impedance was very low at bass and mid frequencies rising harmlessly to about 0.08ohms by 20kHz, confirming the absence of the usual output inductor. Channel separation was also very good, about 82dB midband and in the bass, and still 71 dB by 20kHz. The harmonic spectrum for 1kHz (1W 8ohms) showed very low second harmonic at -87dB while third and higher harmonics were held at about -95dB, which is pretty harmless.



The System

Townshend *Allegrì* (passive pre-amp), Constellation *Virgo II*, *Inspiration 1.0*, Naim *NAP500DR*, *NAP300DR* (power amplifiers). Naim *SuperLine* phono stage Linn *LP12* player with *Keel* chassis and *Radikal* motor control, Naim *Aro* arm, Lyra *Delos* cartridge (analogue source). Naim *UnitiServe* network server and S/PDIF, Naim *NDS Streamer-DAC* with *555 PS(DR)* (digital sources). Magico *S5II*, Focal *Sopra-2*, Quad *ESL63*, BBC *LS3/5a* loudspeakers. Naim *FRAIM* racks; Transparent *MM2* and Naim *NAC A5* speaker cables, Naim *Super Lumina*, Transparent *MM2* and Van Den Hul *Carbon TFU* interconnect cables.

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