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Copland CTA-506 (£4498)

The most affordable product yet made to feature the KT120 'super valve', Copland's new power amplifier promises solid-state sound levels with the charm of tubes
 Review: **Nick Tate** Lab: **Paul Miller**

Lest we forget, much of the audiophile fraternity of the latter half of the 20th century was not particularly sad to see the end of glowing glass bottles – synonymous as they had become with size, weight, expense and unreliability. History, they'd assumed, was linear and thermionic valves would surely be well and truly part of it...

Not so, it seems. As vinyl has shown us, it's hard to keep a good technology down, and as far as the task of amplifying small electrical signals into larger ones goes, valves still have something to offer. Copland's Olé Möller believes this, but rather than sell nostalgia to pipe and slipper equipped stick-in-the-muds who polish their EL34s and secretly hanker for the return of the Home Service, he's come up with a brave new design purposed to run KT120 power valves – a new variant of the ubiquitous 6550/KT88 beam tetrode.

Yes, proof positive that the world isn't quite spinning on the same axis as before, the human race is still designing valves! The KT120 has caused quite a stir amongst the cognoscenti for what it represents, while transistor fans look on in despair, fearing that a new, more efficient type of steam locomotive engine is probably next. In short, think of it as a KT88 that's been to the gym and taken a course of steroids – it promises more power from the same old architecture...

It's described by the Danish company as 'an impressive power valve with a long plate structure and huge grid cooling', and some say the KT120 is the most powerful audio power tube in production today. It has a plate dissipation rating of 60W (compare that with the 35W of the 6550, the 42W of the KT88, and the 50W of the KT90). As such, a pair in push-pull configuration can theoretically deliver up to around 150W. Taller than its progenitor by a full 12mm, it also sports a larger

internal plate structure than the KT88. The internal control grid cooling fins are twice as large. The filament draws up to 300mA more current than a stock '88, and so direct fitment into a KT88-designed amp is not recommended.

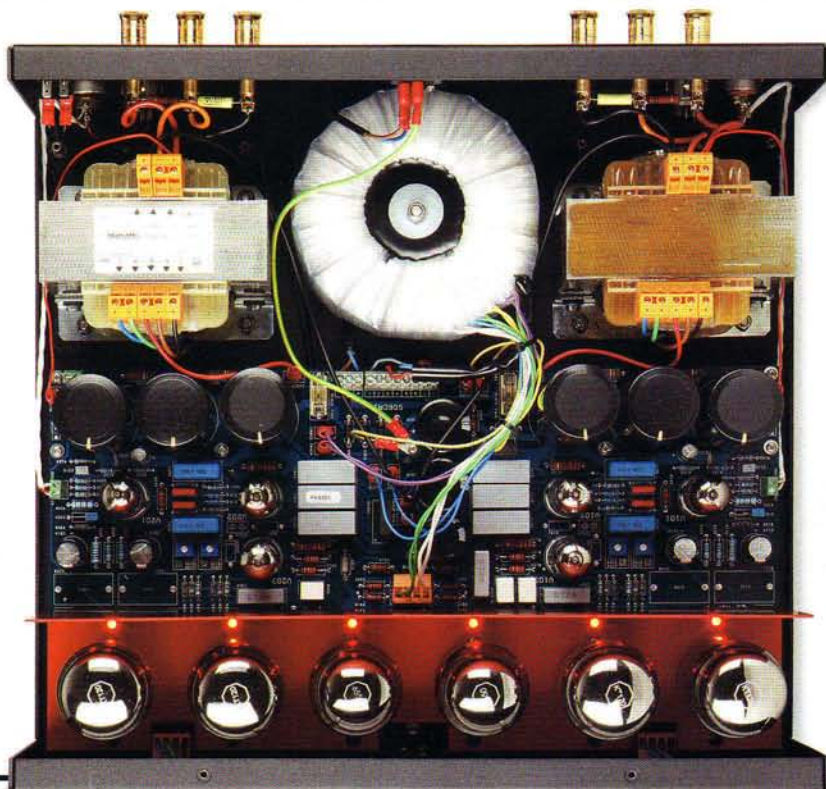
Indeed, tweaky types have been discovering this of late, substituting their KT88s for 120s and watching as their power transformers start glowing the same colour as Jensen Button's brake discs. The extra juice that the new tube's heaters drink is such that direct replacement of the 1956 bottle with the 2010 variant isn't a good idea without beefing up the power supply by about 15%. Rather, the KT120 needs its own bespoke 'ecosystem' with purpose-designed power on tap – precisely what the CTA-506 offers.

Möller says the driver stages have been redesigned to provide the increased voltage swing needed at higher power levels, so there's an additional gain stage

as well as low output impedance buffer circuitry to drive the KT120 valves. To meet the increased current demand of the new output stage, the storage capacitors of the power supply are twice the capacity of the ones used for the older CTA-505. Furthermore, active voltage regulation of the amplifying and driver sections has been implemented in this new amp.

LIGHTING-UP TIME

The CTA-506 is a long way from being just a simple circuit, then. Six 12BH7 Electro-Harmonix tubes take care of phase inversion and driver duties, with buffering to partition the load from the power valves courtesy of two JJ ECC81s. A dedicated power supply for the input stages sports 'massive central reservoir capacitors'. Voltage regulation comes from two Tung-Sol 6550s – one for the driver stages and the other for amplifying stages. Last but not least, four Tung-Sol KT120s in fixed ultra-linear configuration are claimed to



RIGHT: Huge PSU and output transformers account for much of the CTA-506's bulk. Note the optional red LED illumination, augmenting the orange glow of those KT120 bottles



give the low distortion of triodes combined with the power of tetrode valves.

The company says its new power amp pumps out no less than 90W, making it the audio equivalent of a Doc Martens boot compared to its plimsoll shoe predecessor, the KT88-equipped CT-505. The new design speaks to the animal spirits of every tube amp fan who knows and loves tube sound but frankly could do with more!

The box weighs an osteopath-friendly 26kg and is physically bulky too. The back panel sports both 4 and 8ohm taps for loudspeakers, plus a choice of single-ended RCA phono or balanced XLR inputs, and the usual mains IEC socket. Interestingly, Copland has provided an additional 'Light' switch on the back; click it on and, lo and behold, the inside of the case illuminates red to uplight all those glowing glass bottles. (Such stylistic whimsy didn't exactly endear me to the product...)

HERCULEAN HIGH-ENDER

Emitting what felt like similar levels of heat to a Colossus electronic computer, and likely drawing little less current, it didn't

take long for the CTA-506 to warm up. Within about 15 minutes its electrons all seemed to be aligned, and I was able to get a good sense of its sound. A useful way to describe it is to invoke the memory of the soft, opulent, silken presentation of an old Quad II and then imagine the precise opposite. The Copland is a ball-breaker of a tube amplifier, all power and purpose without a thought for the vagaries of traditional tube sound.

Listening to the CTA-506 reminds one just how weak-kneed most tube amps are; if it's not the valves working far too close to the edge, it's the output transformers getting as saturated as the fat in a trucker's breakfast. Nothing of the sort for the Copland though, which serves up ample power in a most insouciant way; there's no sense of it huffing and puffing as it's called on to deliver deep tracts of bass on Talk Talk's 'Life's What You Make It'. Those powerful piano cadences, strong enough to make


ABOVE: With its clean fascia lines the Copland is a handsome devil – until you flick the 'light' switch and it starts glowing red inside, like some of sort of post-modern fireplace...

lesser tube amps wilt, are but a mere bagatelle for this Herculean high-ender. Without shedding so much as a single bead of electronic sweat, the Copland moves your loudspeaker bass units by the required degree, relaxes and then moves them back again.

As its portrayal of a kick drum conveys, however, you're not fooled into thinking you are listening to a solid-stater. Even this, the Charles Atlas of

'Doubtless, tube aficionados will be grinning from ear to ear'

the thermionic world, lacks the ability to deliver bass transients with the sharpness of a blade. The best transistor power amps – we all have our favourites – appear to start and stop with the speed of a light-emitting diode, whereas the Copland is always just a tad soft and under-damped. This is in no way unpleasant of course: it just gives the low end a gentle extra weight that the CT-506 is not really entitled to call its own. Transistor amp owners will recoil in horror, whereas tube aficionados will doubtless break out into a grin spanning one ear to the other.

Move up to the midband, and there's no denying the Copland's fine provenance. Whereas lesser tube amps can sound like the audio equivalent of a May morning mist, this amplifier is really very open. True, it would be stretching credulity to talk in terms of 'forensic transparency', as there's always a subtle opacity lingering at the distant reaches of the recorded acoustic. Yet still the Copland manages to unpick 

OLÉ MÖLLER

Copland is a thoroughly modern amplifier maker: it was never around during the golden age of the thermionic valve. So founder Olé Möller isn't interested in simply punting out retro-sounding tube amps to people who hanker for times gone by. But he does love the sense of specialness that tube amps confer.

'Valve technology reminds us of a time where technologies could be comprehended by many, and you could enjoy to feel and watch the machinery inside the industrial design,' he says. Although Möller feels inspired by the challenge of working with tubes he doesn't rule future solid-state projects out.

'I enjoy using whatever technology I find interesting at any specific point of time. Generally, I make the products that I would like to own myself. The factory duplicates my ideas and I then hope that the market will find them interesting in the same way that I do!'

AMPLIFIER

LAB REPORT

COPLAND CTA-506 (E4498)



ABOVE: Single-ended (RCA) and balanced (XLR) inputs are joined by 8ohm and 4ohm 4mm speaker binding posts. The red illumination is switched in the top right corner

very dense productions with a consummate ease.

Rush's 'Subdivisions' is a gloopy wash of sound with layers of keyboards overlaid by long synthesiser glides, set around powerful electric guitars. Lesser amplifiers, especially those of the glowing glass variety, tend to turn it into a bland, bloated morass of music. The CTA-506 by contrast, dissects it all down to its constituent parts with unerring accuracy, yet still manages to string it all back together again with care and devotion. It's clean yet musical too – a trick that few amplifiers of either thermionic or solid-state persuasion manage. Part and parcel of this is its fine and solid imaging: the amp locks individual strands of the mix in their proper place, never letting them waver.

A PLEASING EXPANSE

In the cruellest light, one might say there's just the slightest hint of the 'stereo wide' about the Copland's soundstaging. The backing musicians in Sade's 'Diamond Life' seemed a little further apart than is normal, giving a pleasingly expansive sensation, yet one not altogether truthful, perhaps. Move back to a good solid-state amp and everything snaps into tighter, and smaller, focus – somehow all of human life is both clearer yet less beguiling. That's either 'the magic of valves' or 'coloration', depending on your politics, I guess.

4hero's 'Escape That' gave the thumbs-up for the Copland's upper reaches. It's not your normal tube formula of sucrose mixed with a dash of fructose – rather the CT-506 attempts an open, neutral top end with little of the ritualistic coloration found on tube amps voiced with

less noble motives in mind. The breathtaking hi-hat work was a joy to behold, the amplifier throwing out just the right amount of metallic 'ting', whilst singularly avoiding 'tizz'. It was tight rhythmically, too, showing some deft footwork – there was a real sense of urgency.

If there are criticisms to be made, you could lambast the CTA-506 for its slightly 'workmanlike' approach to rhythms – it lacks that final few percent of rhythmic grip which moves the music from a thoroughly enjoyable auditory experience to an almost supernatural one – where you find yourself whisked up on a wave of emotion and moved to your very soul. Instead, the Copland carries on in its very Danish way: it's lovely and clean and crisp, yet never shocks you to your very bone marrow with the power and glory of a piece of recorded music.

Copland's CTA-506 is a powerful, big-hearted performer that's unfazed by awkward speakers in the way that traditionally only a big transistor power amp can be, and it sounds smooth and musical too. ☺

HI-FI NEWS VERDICT

Copland's CTA-506 offers the smoothness of fine valve amps with the power and punch of top-notch transistor designs – a very desirable combination. Rather than offer the best of both worlds (logically, no amplifier can), it presents as a very cleverly voiced, highly intelligent working compromise, of appeal to those not inclined to extreme positions. As such it should win many friends. It certainly did me.

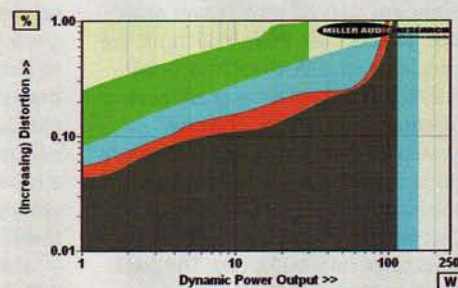
Sound Quality: 82%



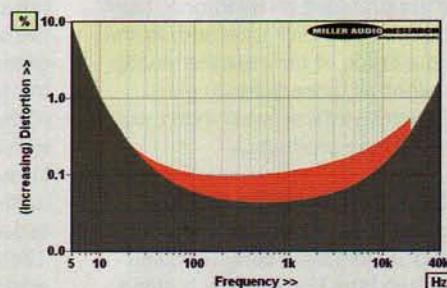
Following hard on the heels of the Audio Research REF150 [HFN Feb '12], this Copland CTA-506 is also in the vanguard of new high-end tube amps featuring the KT120 'Kinkless Tetrode'. Single pairs of the tube are used in ultralinear guise here, developing a full 2x95W/8ohm, some 2.1dBW less than the 2x155W/8ohm achieved by the £12,500 REF150 with its two matched pairs per channel. Judging by the symmetry of gain (a sensible +20dB) and very close tracking of distortion between left and right channels (<0.1% at 1W through the midrange) Copland has obviously also matched its tubes with great care.

Nevertheless, power output is very slightly down at 2x85W/4ohm via its 4ohm tap, a quality also reflected in its dynamic power output which stretches to 110W into 8ohm (8ohm tap) and 158W into 2ohm (4ohm tap) but only reaches 100W into 4ohm (4ohm tap) [see Graph 1, below]. The CTA-506 is no shrinking violet of the tube world, but very insensitive loudspeakers, and especially those presenting a nominal 4ohm load, might best be avoided. Copland also specifies 'less than 1% THD at all levels' and, indeed, this is met with a THD profile that increases linearly with power output from 0.04% at 1W to 0.12% at 10W and 0.5% at its rated 90W/8ohm, albeit through the midrange only [see Graph 2, below].

Frequency response is subtly tailored, rolling away at HF to -0.7dB/20kHz (8ohm) and -1.1dB/20kHz (4ohm) with an interesting subsonic lift amounting to +1dB at 1Hz. The sub 0.8ohm output impedance is usefully low for a tube amp. Readers are invited to view an in-depth QC Suite report for Copland's CTA-506 power amplifier by navigating to www.hifinews.co.uk and clicking on the red 'download' button. PM



ABOVE: Dynamic power versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (cyan) and 1ohm (green) speaker loads



ABOVE: Distortion versus frequency from 5Hz-40kHz re. 1W/8ohm (black) and 20Hz-20kHz re. 10W (red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	95W / 86W
Dynamic power (<1% THD, 8/4/2/1ohm)	110W / 100W / 158W / 30W
Output impedance (20Hz–20kHz)	0.49–0.80ohm
Frequency response (20Hz–100kHz)	–0.2dB to –5.2dB
Input sensitivity (for 0dBW/90W)	279mV / 2700mV (balanced)
A-wtd S/N ratio (re. 0dBW/90W)	85.1dB / 104.7dB
Distortion (20Hz–20kHz, 10W)	0.095–0.55%
Power consumption (Idle/Rated o/p)	213W/460W
Dimensions (WHD)	430x190x390mm