

# Old And New

Icon Audio's Stereo 300 MKII valve amplifier puts an old classic valve in a new setting. Noel Keywood listens.



**T**here aren't so many valve amplifier companies left in this world and those that do exist usually have their own specific design approach. Icon Audio's designer and MD, David Shaw, likes to build around classic valves (tubes) to exploit their specific strengths – and that's what I'm reviewing here, the Stereo 300 MKII built around the 300B tube. I switch to 'tube' because it is a U.S. valve, no – tube! In this amplifier delivering 30 Watts per channel.

The 300B is an old and much

respected power triode, designed by Western Electric way back in 1938 specifically for audio amplification. Raising two big issues: audio quality and cost.

Back in the 1930s feedback was rarely used – tubes had to be designed properly in the first place to give good sound quality, meaning low distortion. So at heart this is an amplifier built around a dedicated audio device; transistors are not good enough to be used like this. And I'll tell you straight away that the 300B triode valve gives a classically open and spacious sound that, once heard,

is difficult to forget.

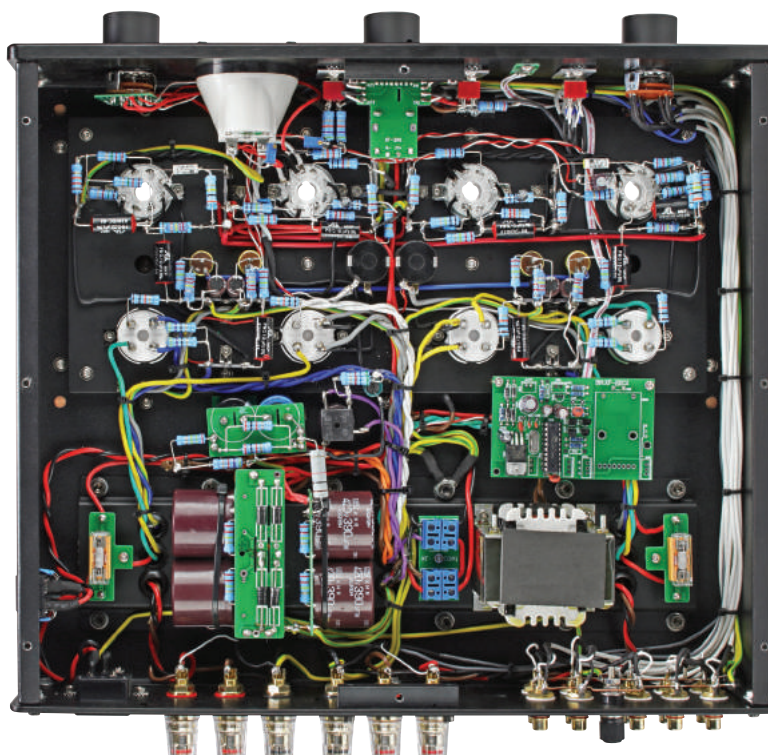
Second issue is that of replacement cost. A power tube like the 300B has a life of typically 3000 hours, so there is a running cost – one I well know about because I run a World Audio Design 300B amplifier (also with switchable feedback). The Stereo 300 MKII comes with valves, but a 300B amplifier is a more expensive animal to run than those with cheaper tubes.

What Icon offer in this recently updated version of their Stereo 300 amplifier is very good support for the valve to get the best from

it. This means big, quality output transformers, sturdy and reliable circuitry, all carefully packed into a relatively compact chassis measuring 380mm wide, 330mm deep and 230mm high. Needless to say, those three transformers at rear are heavy, making all-up weight a challenging 26kgs. The chassis needed to carry them has to be strong also, in this case folded and welded sheet steel with a satin black paint finish, plus thick alloy fascia plate.

Icon Audio are happy to style their amplifiers in keeping with the period, even though they use modern audio components. A brushed copper top plate and lovely analogue meter, back-illuminated yellow, ensure this amplifier catches the eye and is very obviously a classic, not a modern piece of consumer electronics destined for scrap after 5 years.

What does the meter do? To achieve 30 Watts per channel from 300Bs Icon Audio use 'fixed bias' that, confusingly, you must adjust – but only occasionally as the valves slowly change over time. Fixed bias gives more power than 'auto-bias'. It is possible to use fancy transistor circuits to do this job, but in a valve amp they tend to have a short life span! Better to keep things simple and reliable. The five position rotary control at left is set to one of the four 300Bs (V1-V4) and bias adjusted so the meter needle falls into a small black sector. It's a quick twiddle with a screwdriver, the only problem



**A complex internal assembly that is both hard wired with neat looms and has internal circuit boards. At bottom right is a large choke for power supply smoothing.**

being those 300Bs close by are very hot. Adjustment may be needed at 4 monthly periods or so, according to usage. At the Off position the meter shows output level, to warn if full output is approached.

To the right of the meter lies a three-position Sensitivity toggle switch that changes the level of feedback. Few amplifiers in the world have such a thing – its affect upon performance is large. I used it in

our 300B amplifier back in 1993 to demonstrate what the 300B valve can do when 'unfettered' by feedback. It is for enthusiasts, that's for sure, but Icon have tailored this option to have practical purpose as well.

Maximum feedback (15dB) gives minimum distortion, widest bandwidth, best loudspeaker damping, but low gain and sensitivity, hence it is labelled (L). It suits high output CD players.

Low feedback (6dB) increases gain, giving high sensitivity (H) that suits external phono stages or low output sources. Distortion and frequency response don't suffer much measurement showed.

Zero feedback (0) you must take a view on! It gives the most relaxed and open sound, but electrical damping of the loudspeaker goes out of the window and those that are acoustically under-damped will sound obviously soggy in their bass. However, over-damped loudspeakers designed for near-wall placement change little, so what you actually hear depends upon your loudspeaker.

Many prefer the sound with zero feedback as I once did, but now I feel a small amount is useful and both the L and H settings provide choice. At 15dB feedback for L and 6dB for H feedback levels are still way lower than that used in transistor amplifiers,



**The small valves at front are 6SN7 triodes, known for their deliciously smooth sound. Behind are adjustable hum buckers (left) and adjustable bias potentiometers (right).**



**The rear has three line inputs at left, plus tape in and out to their right. Sturdy gold plated loudspeaker terminals are 8 Ohms and 4 Ohms and accept bare wire, spade connectors or 4mm banana plugs.**

typically 30dB or more; those 300Bs are free to give their own sound – a distinguishing feature of this amplifier.

Near centre lies a high quality Alps motorised volume control, that facilitates remote control of volume, provided by a solid metal remote unit. It controls only volume, with a Mute function, not input selection.

Being a valve amplifier there is a stand-by switch that turns off HT but keeps the heaters running, to prolong valve life. Alongside it is a Tape monitor switch – unusual but useful if you have either a three-head cassette



**The 6SN7 (CV181) valves fitted both amplify and phase split to feed the 300Bs working in push-pull.**

deck or an open-reel recorder.

At far right is a rotary input selector with four line inputs marked CD, Aux, Tuner, Tape, plus tape/ source monitor switch.

To keep size down Icon use a solid-state power supply, but with classic choke smoothing for an ultra-quiet HT line.

David Shaw rightly likes the 6SN7 triode as a preamplifier – a wonderfully neutral sounding valve – using four of them arranged neatly in front of the 300Bs. Inside, the

"the clocks and heartbeat filled our large listening room"

amplifier is classically hard-wired using silver plated, Teflon coated wire. SCR capacitors are used but Jensens can be specified if you fancy getting into component fine tuning. Our amplifier came with Electro Harmonix 300Bs but there are now plenty of other brands.

The 300B is a directly heated triode that suffers hum when driven from a 50Hz/60Hz a.c. supply so hum buckers are fitted to minimise this. They too need occasional adjustment. This is an awkward drawback of the 300B; hum can be very low, inaudible at the listening position, but it cannot be eradicated completely, unless d.c. is used for the heaters – but this shortens their life.

I have to say a little here about what we found in measurement and what it means, in simple non-technical terms. Generally, valve amplifiers have higher levels of distortion than transistor amplifiers, but this amplifier managed just 0.01%! It achieved this with high and low feedback and got close at zero feedback. It gets the best from the 300B.

Warm or bloated bass is another weakness of valve amplifiers, caused by bass distortion in the output transformers and low damping factor. The Stereo 300 MKII output transformers have massive cores to achieve very low bass distortion.

Damping factor is low, just 6, but whether this matters depends upon your loudspeakers. If you have tight, dry sounding bass a low damping factor figure will seemingly add bounce and life – contrary to what you may have read (hypothesis) about this subject.

My World Audio Design 300B amplifier shows feedback selection depends upon the loudspeaker in use. The Stereo 300B gives three options here – a fascinating degree of flexibility that you'll find few places elsewhere.

The zero feedback option is for those suspicious about feedback's affect upon sound quality. As good as it is, the Stereo 300 MKII is not perfect here; treble rolls off above 10kHz and there's some bass distortion, although at 1% maximum it isn't great as valve amps go. Bear in mind that loudspeakers produce

at least 1% distortion at bass frequencies to get this into context. Zero feedback is a fascinating option, one that seemingly brings the technical perfection and sonic romance of the 300B out into the open, unshackled by feedback.

### SOUND QUALITY

I ran the amplifier from its 4 Ohm tap into our Martin Logan ESL-X hybrid electrostatic loudspeakers, connected with Chord Company Signature Reference cables. Sources were CD from an Oppo BDP-205D Universal player, and hi-resolution digital from an Astell&Kern AK120 player feeding the Oppo through a QED Reference Optical Quartz glass optical cable. An Isotek Evo3 Mosaic Genesis regenerated mains power supply fed the electrostatic supplies and Oppo player, the Icon being connected to its high current filtered but un-regenerated output. Power consumption of the Stereo 300 MKII



**A weighty remote control with volume and mute.**



**A 300B triode with its large, grey anode.**

is 150 Watts quiescent – a big light bulb (old sort!).

Anyone of the common view valve amplifiers sound warm would be surprised by this amplifier, at least with the new Russian Electro Harmonix 300Bs in our sample. They had a sheen and forward but super-insightful view, especially noticeable with Nigel Kennedy's Stradivarius violin (CD) when playing Spring, from Vivaldi's Four Seasons. Not only was the instrument prominently clear, but it was texturally richer and more complex in its sound than usual – and of course surrounded by a sense of open space that you only get with a refined valve amplifier.

The same comments apply to Nils Lofgren playing Keith Don't Go (CD) – different string instrument but vividly forward, cutingly fast and texturally more complex than solid-state. Captivating and deeply impressive. I was using L Sensitivity at this point (highest feedback).

Switching to 0 Sensitivity (zero feedback) made the sound even more dimensional and spacious, but a small amount of congestion appeared. Subjective trade-off here: you may prefer one or the other; I'm agnostic.

Moving on to strenuous Rock performances, spinning Safri Duo's Samb Alegro (CD) nailed differences in bass quality, zero feedback slightly softening the impact of the bass 'kick drum' beat, where L gave it massive power and presence. The H setting was all but as clean as L but a tad less heavyweight. On balance L had it for sheer heft and grip, making the Stereo 300 MKII a monstrously powerful sounding amplifier. I noticed the meter needles going up to high

levels as I worked through both CD and high resolution tracks, such as Pink Floyd's Time (24/96) where the clocks and heartbeat filled our large listening room (6500 cu ft). It was mesmeric.

The power and scale this amplifier brought to Rock also benefitted big classical works, the Chicago Symphony Orchestra taking on massive form in front of me, playing Rimsky Korsakov's Sheherazade. Horns were sonorous and had a fruity rasp, bassoons full bodied and large. They were all set out in sharp definition against a lucidly clear background, spread wide across the room.

I put in an alternative set of 300Bs that proved to need very different biasing. They gave a slightly more muted sound – also with a tad

less vivacity. Of uncatalogued usage I can't say much about this – whether they were aged or just intrinsically (and slightly) different in character. The amplifier coped however.

## CONCLUSION

Icon Audio's new Stereo 300 MKII captures the famously spacious and atmospheric sound of the 300B valve, underpinning it with strong deep bass and a sense of lacerative speed that few amplifiers match. With three sensitivity/feedback options to play with, it also has sonic configurability – almost unique. Add in compact dimensions, remote control and relatively low price, it stands out not just in the field of amplifiers but also amongst valve amplifiers. You should hear an amplifier like this before buying a new one.

## MEASURED PERFORMANCE

Power measured 32 Watts (8 Ohms and 4 Ohms), at 1% distortion limit.

High feedback (L Sensitivity) gives lowest distortion and at 0.015% at 1W (1kHz) it is very low, rising steadily to 0.5% just below full power output. High feedback kept bass distortion right down – 0.04% rising to just 0.22% at full power, low figures and good bass quality.

Zero feedback (0) did not worsen low level distortion figures but did worsen high level figures, and also bass distortion (0.5% at 1W / 1% at full output).

Low feedback (H) was a good compromise, lowering bass distortion and high level distortion usefully. It also gave flattest frequency response with steep subsonic roll-off below 20Hz, plus usefully high sensitivity.

Feedback affects frequency response too. High feedback introduced a small bass peak of +3dB at 6Hz caused by feedback LF phase error. Sensitivity was low at 0.9V for full output but this is fine for silver disc players. Few CDs have energy below 20Hz so the subsonic peak is inconsequential.

Low feedback gave flat frequency response down to 10Hz and a steep roll-off below – useful for low output phono stages and LP.

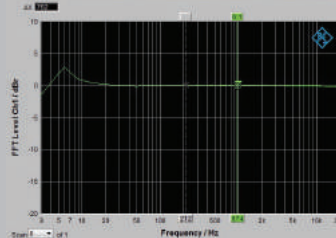
Zero feedback is an 'open loop' situation that big, linear triodes like 300Bs were designed for. All the same, big output transformers suffer treble roll-off (-1dB at 12kHz) and bass rolls off too, to minimise peaking when feedback is applied. With a damping factor of 0.9 zero feedback gives poor figures all

round.

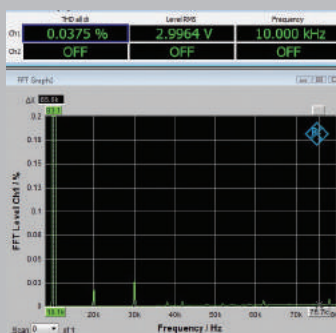
The Stereo 300 MKII gave 30 Watts per channel. With high or low feedback, measured performance was good, especially at low frequencies due to the large output transformers, avoiding soggy bass. At just 0.015% distortion this is a very linear amplifier. **NK**

<b>Power</b>	<b>32W</b>
<b>Frequency response (-1dB)</b>	<b>20Hz-30kHz</b>
<b>Distortion (10kHz, 1W)</b>	<b>0.04%</b>
<b>Separation (1kHz)</b>	<b>84dB</b>
<b>Noise (IEC A)</b>	<b>-88dB</b>
<b>Sensitivity</b>	<b>150/300/900mV</b>
<b>Damping factor</b>	<b>6</b>

## FREQUENCY RESPONSE



## DISTORTION



**ICON AUDIO  
STEREO 300 MKII  
VALVE AMPLIFIER  
£3,999.00**



**OUTSTANDING - amongst the best**

## VERDICT

A powerful and pacy amplifier that's open and spacious in sound staging. Massively impressive.

## FOR

- spacious sound
- powerful deep bass
- remote control

## AGAINST

- size and weight
- heat
- cost of valve replacement

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