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60 MKIII
amplifier with **KT150s**



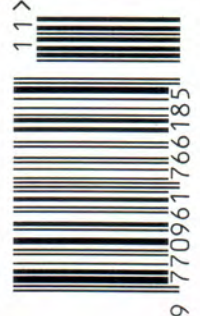
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NOVEMBER 2013



ROHDE & SCHWARZ
MEASUREMENT



8 PAGES OF LETTERS - THE BEST WINS A PAIR OF KEF Q100 LOUDSPEAKERS! (UK ONLY)





A new valve has arrived for tomorrow's valve amplifiers, the KT150. Icon Audio fit it to their Stereo 60 MkII and Noel Keywood listens to the result.

T Tomorrow

It isn't a new amplifier, but it might as well be. Icon Audio's powerful Stereo 60 MkIII gets its original KT120 output valves replaced by new KT150s and everything goes

skyward – power and sound quality. Suddenly, we are measuring over 80 Watts from an integrated valve amplifier – amazing. The new Stereo 60 MkIII is enormously powerful and very svelte too. Valve technology

moves ahead.

That new technology concerns the output valves. KT150s are the latest iteration of the KT120, a recent Kinkless Tetrode based on the old KT88, introduced in 1958.

The KT120 was a stretched KT88, made larger to handle more power. But the KT120 isn't a particularly subtle sounding valve. Less refined than the KT88, it can sound a tad fierce or piercing in its delivery, according to the circuit it is used in. An alternative view is that it has speed and incision, sounding considerably less soft, warm even

plugged in. The chassis is purposeful rather than beautiful, but its eye catching old-style illuminated meter glows satisfyingly yellow in the dark, beneath valves whose heaters glow a dull red – and extra icing on the visual cake is provided by an OD3 voltage stabiliser valve that glows a strange iridescent purple at centre front. In low lighting this is an amplifier you'll notice.

At 43kgs the Stereo 60 is a heavy lift onto a shelf. One person can do it, but two are best, especially if Health and Safety requirements have to be met. The weight is in its array of transformers. At centre rear sits a mains transformer and either side of it are large output transformers, all shrouded in screening cans. In front of the mains transformer sits a small smoothing choke, a classic valve amplifier item that ensures there's no noise on the internal power lines.

Then there are the valves, four KT150s that should be good for around 3000 hours, two 6SN7 drivers and two 6SL7 low level preamplifier valves that should last at least 10,000 hours. They're all commonly available.

To get as much power as possible 'fixed bias' is used, meaning it must be adjusted! The meter serves as a bias check and adjustment is usually needed only after months of use. Because the adjusters are clearly visible this is a quick and easy process. The bias

adjustment valve selection switch is a rotary at far left. To its right lies an Ultralinear / Triode switch that arranges the KT150 tetrodes to work as triodes, giving a choice between power and sound quality, Triode setting offers best quality but less power, 50 Watts on this amplifier. Output triodes hold all honours for best sound quality and I use 300B triodes at home. The big old triodes – 300B, 211, 845 – are much like old cars with large, unstressed engines – more relaxing than exciting. Modern tetrodes strapped as triodes sound good, if not quite the same.

There isn't a vast difference in sound quality between these two modes of working on the Stereo 60 MkIII, but Triode is sweetest and most liquid and most people will gravitate to it I suspect. Technically, triode working gives more degenerative feedback across the valve and lower distortion. Our measurements showed that on the Stereo 60 Triode mode produced second harmonic distortion, whilst Ultralinear gave a tad of third harmonic, levels being very similar. This is as hoped, so all works well here.

The volume control uses an Alps Blue potentiometer, for good sound quality, channel matching and long life. It is motorised and remote control is fitted. There is a Tape/Source switch and a three position input selector. This Icon amplifier has its power switch on the left side, at rear – not an especially convenient location. It makes electrical sense,

somnambulant than most other power valves, especially old triodes like the 300B.

New Sensor Corporation seemed to know the KT120 could be improved and have come up with just that in the Tung Sol KT150. It handles slightly more power, is better built and sounds far smoother. But it is also more than double the price, costing £100 apiece against £42 for the KT120. That makes replacing two matched pairs a hefty £400.

The Stereo 60 MkIII was designed for the KT120, but the KT150 is a plug-in replacement – so that's what Icon have done. They've plugged in KT150s and the result is an attractive amplifier that catches the eye: those KT150s look sleek and peculiarly modern, and they feel solid when being

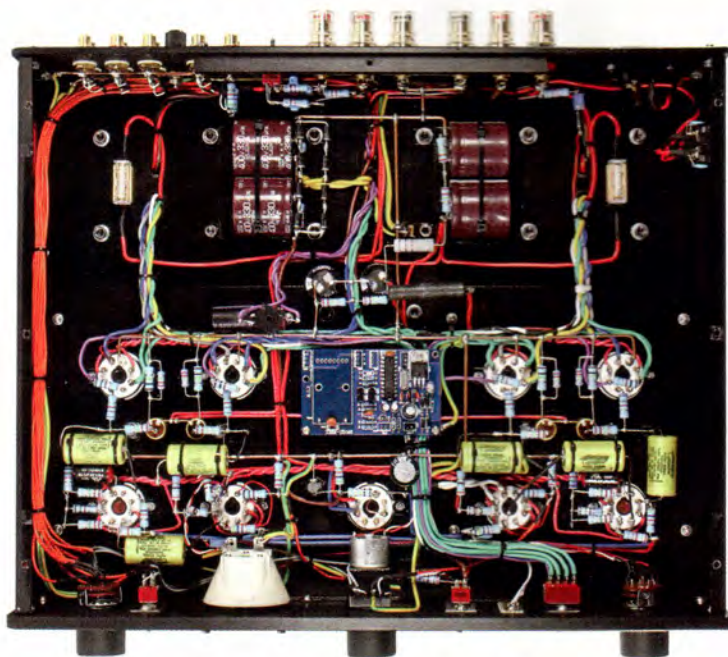


Loudspeaker output terminals are gold plated and fully shrouded, catering for 4 Ohm and 8 Ohm loudspeakers. The sensitivity switch sits between them and the inputs.

keeping mains away from input valves to avoid hum. Switching on is kept silent by an automatic mute circuit, making the Stereo 60 MkIII noise free at switch on.

The rear panel carries 8 Ohm and 4 Ohm loudspeaker terminals, four line inputs, one tape output and a small High/Low sensitivity switch, that needs some explaining. It switches feedback on or off – an unusual thing to do. I can recommend it is best at the down (on) position, marked L for low, meaning low sensitivity with feedback applied. Most amplifiers use feedback to lower distortion; virtually none work without it. However, valves can be used without feedback, giving a more relaxed, often more fulsome sound that many prefer. I can Audio recommend feedback is left on and technically I agree with them. It offers a good balance of properties, including well controlled bass with a large number of loudspeakers, particularly those with weak

A big illuminated meter shows bias setting, as well as output level.



Neat underside wiring in looms make for a clean appearance and easy servicing, because components are unobstructed by wires. White ceramic valve holders are used, plus quality audio components.

"turning feedback off, suddenly the stage opened up and developed a sense of cavernous depth"

acoustic damping and plentiful bass. Loudspeakers that are well damped acoustically, giving controlled but not heavy bass, actually benefit from low damping factor, however, and that was the case with the loudspeakers I used.

SOUND QUALITY

We ran in the amplifier for 40 hours to bed down both components and valves; there was just a small drift in quiescent current over this period in the output stage that a quick tweak of the bias adjusters fixed. Like the Audio Research VS175 I reviewed last month, I was happy to use a pair of Tannoy Precision 6.4 loudspeakers with this amplifier.

Set to vanilla flavour, meaning Ultra Linear, 8 Ohm outputs and sensitivity at Low, the Stereo 60 MkIII had a smooth midband that bordered on creamy. In contrast treble was strong and quite pronounced, bordering on sharp, whilst bass was in good balance, but not excessive and certainly not boomy, but then the Tannoys are not

bass heavy loudspeakers. In fact, as Tannoys go they're quite restrained.

All this was fine until I started winding up volume with some older CD rips from Gerry Rafferty like 'Its Easy to Talk'. This is an old CD (1992) and can come over as hard edged – as it did with the Stereo 60 at vanilla. The KT150 is a silkier, creamier kinkless tetrode than the KT120 and far more svelte, but it still has some top end bite, at least compared to the 300Bs I use at home. It doesn't flatter old material and it makes limitations explicit. With later (2007), cleaner CD like The Eagles 'It's Your World Now' single drum strikes were deliciously taut and resonant, accordion rich in harmonics and Glen Frey's vocals were shimmeringly clear, chiselled in crystal it seemed. The KT88 always gave a modern sound with a balance more like a transistor amplifier, yet with the dynamic punch and sense of depth you get with valves; the Stereo 60 MkII with KT150s offers a stronger, meatier but equally fast presentation.



As you might have guessed though I was eager to see how the options fared and this is where things got interesting. Switching from Ultralinear to Triode had least effect, a small but pleasant increase in sweetness of tone being just apparent.

Moving the loudspeakers to the 4 Ohm taps brought down upper treble level a tad and with tracks like Tom Petty's 'Refugee' (24/96) that has strong treble this offered an easier balance, one I preferred.

The big change came with turning feedback off. Suddenly the stage opened up and developed a sense of cavernous depth in which the performance was taking place. Bass strengthened with the Tannoys, lower electrical damping suiting their bass balance. I use my 300B amplifier without feedback for much the same reason; it makes transistor

amplifiers sound retentive in their delivery and the Stereo 60 MkIII does much the same, developing a sense of scale and freedom of dynamic expression that eludes conventional amplifiers.

This amplifier has so much power it idles along with loudspeakers like the Precision 6.4s, Marta Gomez sang 'Lucia' (24/96) centre stage with explicit clarity and a spacious acoustic, the accordion having a lovely rich tonality and an easy sweep of dynamic range, from gently held background chords to sudden moves into the foreground. A single block beat out a stream of percussive strikes that echoed in space.

Classical music fared especially well with feedback off. The Minnesota orchestra had a massive presence in the room, sudden crescendos being conveyed with easy power. A

kettle drum being struck at the back of the stage had a lovely resonant character that gave it solid presence in the Rimsky Korsakov's Snow Maiden, 'Dance of the Tumblers'. Strings were smooth but spaciouly represented as they danced in the background.

CONCLUSION

The Stereo 60 MkIII with KT150s is a big amplifier in every sense of the word. Producing more than 80 Watts per channel from new KT150 power valves, it has the output of transistor amplifiers and is more in line with buyers' expectations of what is normal and needed from a hi-fi amplifier. Adding to this, Icon Audio make it adjustable like few other amplifiers, with feedback switching and Ultralinear / Triode mode. Add in superb sound quality that, with feedback off, few other amplifiers can approach and you have a fabulous and almost unique amplifier. Cap all this with retro styling supported by the glow of valves and you have a KT150 amplifier that is difficult to beat.



MEASURED PERFORMANCE

The Icon Audio Stereo 60 MkIII with KT150s fitted produced 88 Watts into 8 Ohms and a trifle less, 82 Watts into 4 Ohms, using 1% distortion as the overload limit. Coupling of the 4 Ohm tapped section wasn't as good as expected: this should give the same power as the full secondary winding, and frequency response differed too. Otherwise, results from the 4 Ohm tap differed little. Triode mode produced 50 Watts, plenty enough to get very high volume from most loudspeakers.

The output transformers handled bass unusually well: full output was produced at 40Hz with just 0.15% distortion -1dB below full output, and switching out feedback didn't worsen the figures. The Stereo 60 MkIII also produced very little high frequency distortion, just 0.04%. It is remarkably linear with the KT150s, more so than any other valve amplifier we have tested by some margin. Switching from Ultra Linear to Triode did not change distortion level, but it did change its structure, Triode giving predominately second harmonic whilst Ultra Linear gave third harmonic. Triode mode should therefore give a slightly more neutral sound.

With feedback on (Low sensitivity) as suggested for normal operation, overall gain was very low, input sensitivity

measuring 1.1V. This suits silver disc players but not much else. Switching feedback off (High sensitivity) gave an input sensitivity of 370mV, a fairly normal value.

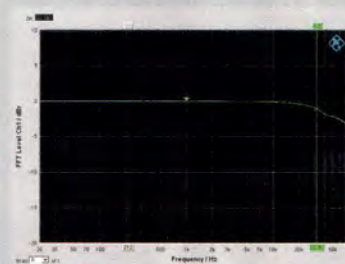
Feedback also affects frequency response, always widest with feedback on. The Stereo 60 rolled off slowly above 20kHz, measuring -1dB down at 32kHz. Switching feedback off reduced the upper -1dB limit to 20kHz. The 4 Ohm tap rolled off faster than the full winding and measured -1dB at 14kHz with feedback on or off. This will give the 4 Ohm output a warmer sound than the 8 Ohm output.

Damping factor (output impedance) is also affected by feedback, being highest with feedback on (Low sensitivity). It measured 5 with feedback on and 1.8 with it off. A DF of 5 will exert some useful electrical damping upon a loudspeaker, keeping bass sounding reasonably under control. Even 1.8 with feedback out isn't so bad and will suit loudspeakers that have strong acoustic damping.

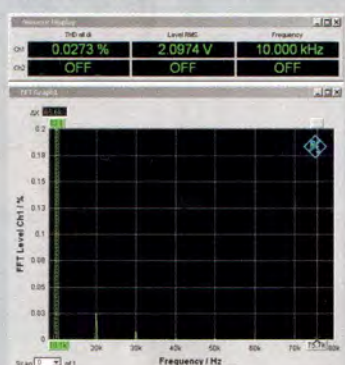
The Stereo 60 MkIII with KT150s produces a lot of power, with very low distortion. The 4 Ohm output will have a warmer balance than the 8 Ohm full secondary winding, the latter having extended treble. Overall, the Icon gave an impressive set of results with KT150s. NK

Power	88 Watts
Frequency response	2Hz-32kHz
Separation	82dB
Noise	-108dB
Distortion	0.03%
Sensitivity	1.1V

FREQUENCY RESPONSE



DISTORTION



**ICON AUDIO
STEREO 60 MKIII
KT150 £2599.95**



OUTSTANDING - amongst the best.

VERDICT

A lovely sound with plenty of power and adjustability. A well developed design.

FOR

- triode/ultralinear
- feedback switch
- big dynamics

AGAINST

- expensive power valves
- large
- heavy

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