

Icon Audio ST40 MkIV 6L6

Designer David Shaw has stripped the best-selling Stereo 40 tube amp back to its basics and replaced its KT88s with 6L6/KT66s for a less 'power hungry' musical experience
 Review: Ken Kessler Lab: Paul Miller

Who'd have believed that the world would be awash with affordable valve amps in the 2020s? Certainly not those who recall the desperation of trying to source fresh tubes during the era when solid-state ruled and valves were yet to make a comeback. But now the choice is so vast that you can look beyond nursing vintage Leaks or Quads, with the risks that entails. Arguably the doyen of affordable valve amps is Icon Audio, its latest the absurdly cost-effective integrated Stereo (ST) 40 MkIV 6L6, starting at £2200.

Be careful when ordering from Icon Audio – its catalogue is vast, as are the options. For this unit, you can add remote control for £200, and specify other valves. Although named after the 6L6 tube, our review sample arrived with its equivalent, and fondly remembered KT66, for £2400.

LEAN MACHINE

To lower the price in a sensible manner, this iteration of the Stereo 40 does away with a headphone socket, standby mode, remote-as-standard, and triode switching to create a no-frills, line-level-only model with a 28W/ch rating. It promises to be an ideal solution for an entry-level valve system, especially appealing in this country as the unit is assembled and tested here, with mainly UK-made components.

Everything about the Stereo 40 MkIV 6L6, despite the removal of the above functions, is so right: the comprehensive manual, the inclusion of a cage, easy-peasy user-adjustable bias via a meter on the fascia and screws next to each valve – indeed, all the necessities are present to preclude any thoughts of compromise. The front, from left to right, contains all you need to control a system: a rotary to select each tube when biasing, a meter to assist in that function, a volume control,

RIGHT: Point-to-point wiring features strongly in the Stereo 40 MkIV 6L6, and note separate PSU for the 6SN7/CV181 driver/phase-splitter triodes [top; and sockets, bottom]. The 6L6/KT66's transformer is topside [sockets, centre]

and a selector for three line inputs. The on/off rocker is on the left side, while the back invites a bit more than you might expect in a cost-cutting operation.

For openers, all the fittings – both the multi-way terminals for 4ohm and 8ohm speakers and the RCA sockets – are top quality and there are two bonuses for expansion. The first is the record-out facility for users requiring a tape loop, and the second is an earthing post despite no phono stage. That way, if you add a phono amp, you can earth the turntable and/or the phono amp to the Stereo 40 MkIV 6L6.

The amp arrives with its valves stored separately, each with a number on its base and the sockets clearly labelled, so it's just a case of matching the tubes to the

sockets. The main choices are the 6L6 or KT66, and a third option is the 5881.

LADDER LOGIC

Designer David Shaw does not advise going up the KT ladder, nor trying 6550s, because they require higher heater power. Just stick with any of the three, however tempted you might be to respond to your inner tweaker.

Bigger than the usual input tubes, the four forming the front row of the Stereo 40 MkIV were new to me; my life seems to be full of 12AX7s or ECC-prefixed valves. Instead of the usual suspects, Icon Audio uses a quartet of CV181 double triodes, sort of an equivalent to an ECC32 (yes, '32, not '82,

'This amplifier sounds like Quad IIs on steroids'



LEFT: Stripped of the Stereo 40 MkIV's features including the Triode/Ultralinear mode switch, speaker/headphone selector and socket, on/standby and tape monitor, the 'new' ST40's fascia sports a simpler array of volume, input selection and valve bias knobs

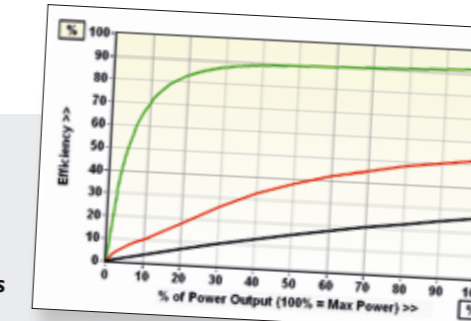
'83 nor '88) or a 6SN7. As does the period-look 'Easy Bias' meter, this valve serves to reinforce the vintage feel (which I'll get to) of the Stereo 40 MkIV 6L6 because the CV181 dates back to WWII.

TOP VALUE TUBES

And there's more good news, because a complete set of replacement valves costs £120-£160 depending on whether you opt for 6L6s or the dearer KT66s. That's less than most single power tubes. Why? It's due to the fact that 6L6s and KT66s cost, according to Icon Audio, over 50% less 'than KT88/EL34 types with only a relatively small loss in power (30+30W ultralinear)'. Up and running in 15 minutes, the Stereo 40 MkIV 6L6 needs another quarter

of an hour warm-up to come on song, while it continues to reward the listener with audible gains after 30 minutes [see PM's Lab Report, p57]. Like many of you, I have been driven to keep an eye on my smart meter and this amp certainly strikes me as less 'hungry' than quite a few others in my arsenal [see PM's boxout, below].

This confirmed what Icon's David Shaw told us were the Stereo 40 MkIV 6L6's *raisons d'être*. Says Shaw, 'I have developed this amplifier in response to the effects of inflation and the increasing costs of amplifiers and valves, as well as customers' concerns about power consumption'.



POWER SQUEEZE

Hi-Fi News has been at the forefront of the 'energy debate' for many years [see *HFN* Apr '08], publishing power consumption figures for every product tested. Integrated and power amplifiers typically soak up more AC power than source components and preamplifiers, and tube amplifiers are the least efficient of the lot. In order of efficiency (AC mains power in vs. amplifier power out) Class D amplifiers are the 'greenest'. At 2x100W/8ohm output, the best Class D amplifiers will be drawing just 230W from the wall, or <10W when idling [green trace, Inset Graph] while a Class A/B transistor amp of similar specification will draw 400W or more [see red trace].

Icon Audio is well aware of this and has made steady improvements over the years. For example, its Stereo 40 MkIII [see *HFN* Mar '13] drew 222W at idle (switched on but no signal) and 320W at the rated 2x40W while the ST40 MkIV [see *HFN* May '19] drew a reduced 198W when idle and 289W at the rated 2x50W output. The stripped-down ST40 we have here is some 5kg lighter, mainly due to the smaller iron transformer cores, while the reduced 0.9A filament current and ~20W dissipation of each 6L6/KT66 pentode results in a further reduction in idle consumption to 153W or 209W at the (reduced) 2x28W power output. While Icon Audio should be congratulated for addressing the consumption/cost equation for tube-focused audiophiles, in practice the efficiency of even this amplifier is still <30% over its full dynamic range [black trace, inset Graph]. PM

While the Stereo 40 MkIV 6L6 just about drives my Wilson Sasha DAWs [*HFN* Mar '19] when connected to the 4ohm taps, I used it mainly with Falcon Acoustics LS3/5As [*HFN* Dec '18] – a dream match – and (for reasons that will come clear) Quad ESL63s.

BACK TO THE FUTURE

My initial impression was that, even with digital sources, this amplifier is like an ode to analogue. That's because (and here it all falls into place) it sounds like Quad IIs on steroids. Indeed, I was reminded of John Howes' custom modified Quads [*HFN* Aug '09], as well as the Radford STA25 Mk IV – the latter number surely a coincidence?

What I am trying to convey is that the Stereo 40 MkIV oozes vintage valve 'humanity': warmth, a touch of velvet in the treble, no signs of bellicosity.

Then again, I didn't hammer it, suspecting that it wasn't voiced to optimise the sounds of AC/DC or ZZ Top. That said, the latter sounded just fine because there's an inherent 'tube-iness' in their albums. Remember, too, the amp works in ultralinear mode rather than the more romantic triode mode.

You can order the latter from the factory, and I can only imagine how lush it sounds.

It seemed only natural that LPs from a musicologist like Ry Cooder, with his love of acoustic instruments and the liquidity of his bottleneck work, would benefit from the Icon Audio karma. Wallowing in 1972's *Boomer's Story* [Mobile Fidelity MFSL 1-405], I was reminded how elegiac this roots music can be. Most emblematic of the sensation was 'Rally 'Round The Flag', written during the (American) Civil War.

Somehow, the historic feel of Cooder's 50-year-old performance was enhanced by hardware born 160 years after the song was composed. It was the fluidity of slide work contrasting with the twang of other

ICON AUDIO STEREO 40 MKIV 6L6



ABOVE: Two output transformers [far left/right] have dual secondaries feeding the 4 and 8ohm speaker outlets. Three line ins (no MM/MC) and a tape loop are included

acoustic instruments, shimmering resonances which possessed such natural timbre that if someone told me *Boomer's Story* had been recorded in 1956 by the geniuses at RCA or Mercury, I wouldn't blink.

Was this too easy a ride for the amp? Like feeding string quartets to BBC LS5/9s or bass-heavy rap to Cerwin-Vegas? A Japanese release of The Beatles' *Help!* [Audiophile Master Collection AMC8005CD] provided the answer: the Stereo 40 MkIV 6L6 may possess instant synergy with primarily acoustic sessions, but the crispness and detail of these high-res recordings showed its prowess at retrieving ultra-fine, low-level details.

LOW-END LAURELS

I have no idea how many times I have heard 'Dizzy Miss Lizzy', the most aggressive track on the album and a wall of noise worthy of Slade a decade on. Somehow – was it the disc? – the Stereo 40 MkIV 6L6 uncovered layers of lower octave information usually buried in the mix. With tracks such as 'Yesterday' and 'You've Got To Hide Your Love Away', the opposite was delivered with the very same aplomb – utter delicacy and refinement, with plenty of air in a super-wide soundstage. And you are probably guessing where this is leading.

If most hi-fi components excel in one area, precious few attain perfection across the board. This amp's forte is the reproduction of vocals. Textures, little stylistic tics, breathing – this could be called 'The Amplifier That The LS3/5A Was Waiting For' and the hyperbole of that observation would be hard to challenge. But the wider range of the Quad ESL63 showed that it has another trick up its sleeve.

Bass was never a particular strength of vintage valve amps, nor Quad ESLs or LS3/5As, but somehow

the Stereo 40 MkIV 6L6 managed to extract convincing lower reaches from both, although – unsurprisingly – the Sasha DAWs demanded more grunt. At all times, bass and scale were far better than merely satisfactory. The entire experience was authentic, as evinced by the big band sounds of the Living Strings' double open-reel tape, *Music From Camelot/Mame And Other Songs* [RCA Camden TC3 5004].

As the latter of the two titles proudly proclaims 'Plus Trumpet', it was an ideal test for the Stereo 40 MkIV 6L6. Would the strings stay sweet or turn steely? Would the brass have attack, punch and staccato transients?

It was almost a master class in why tape is *the* superior source, Icon Audio's 'austerity amp' defying the removal of a few (admittedly non-sound-related) functions and a small reduction in power. Still the strings soared, with no edges to set teeth a'grinding, while the vivacious brass bursting from the speakers was enough to impress Al Hirt. This amp may have limitations in power, but used judiciously? It's only January, but it could be Bargain of the Year. ☺

HI-FI NEWS VERDICT

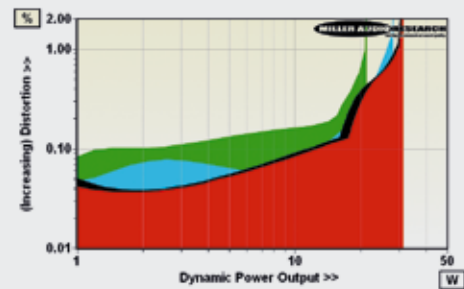
We often receive queries about cost-effective valve amps, so the no-nonsense Icon Audio Stereo 40 MkIV 6L6 has made our lives easier. It's a no-brainer if you 1) must stay below £2500, 2) own sensitive speakers, and 3) eschew frippery. The sound? So warm, lush and transparent that you'll soon be musing about Klipsch Heresies, Quad ESL-57s or JBL L100s. A blast from the past – with the emphasis on 'a blast'.

Sound Quality: 87%

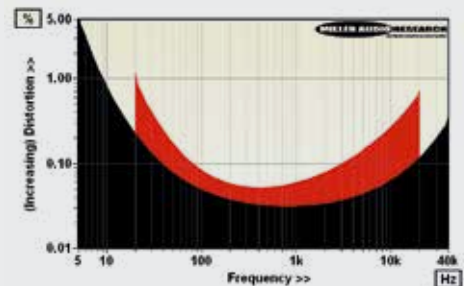


With 6L6/KT66 pentodes replacing the ST40 MkIV's KT88s [HFN May '19], and with smaller output transformers, power output is reduced from 2x55W to 2x28W into 8/4ohm loads at <1% THD, respectively. There's also a commensurate drop in dynamic output from 52W, 52W, 69W and 73W to 32W, 32W, 30W and 22W into 8, 4, 2 and 1ohm loads, respectively [see Graph 1, below]. The ST40 6L6 runs in ultralinear mode only (though triode mode can be ordered from the factory) yielding a total +32dB gain and fairly uniform ~1.8ohm output impedance across the 20Hz-20kHz audioband. Some variation in system response will result from its interaction with the swings in impedance that occur in 'real' loudspeaker loads but into a fixed 8ohm it's flat to within ±0.2dB from 20Hz-20kHz, with -1dB points at 10Hz and 56kHz. There's no buffering after the passive preamp/volume control, however, so there's also some change in HF response with volume position, and also hum and noise which impacts the achievable S/N ratio by some 20dB. The best-case A-wtd S/N ratio is 78.5dB (re. 0dBW) which is still slightly below average and significantly behind the performance of the KT88-equipped ST40 MkIV.

The KT66 tubes fitted here exhibited some slight drift – and feedback is a low 8.5dB – with distortion starting at 0.02/0.075% (L/R) when cold before coalescing at 0.030/0.035% (L/R) after 30 minutes at 1W/8ohm. Then again, Icon Audio accurately predicts the ST40 6L6's warm-up time in the user manual. Once stabilised, distortion increases with level from 0.035%/1W to 0.065%/10W and 0.3%/20W (all 1kHz) and at low/high frequency to 1.15%/20Hz and 0.75%/20kHz (re. 10W) [see Graph 2]. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 4.7A



ABOVE: Distortion vs. frequency (5Hz-40kHz at 1W/8ohm, black; 20Hz-20kHz at 10W/8ohm, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	28W / 28W
Dynamic power (<2% THD, 8/4/2/1ohm)	32W / 32W / 30W / 22W
Output imp. (20Hz-20kHz/100kHz)	1.75-1.85ohm / 2.8ohm
Freq. resp. (20Hz-20kHz/100kHz)	-0.15dB to -0.2dB/-3.6dB
Input sensitivity (for 0dBW/28W)	71mV / 380mV
A-wtd S/N ratio (re. 0dBW/28W)	78.5dB / 93.0dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.052-1.14%
Power consumption (Idle/Rated o/p)	153W / 209W
Dimensions (WHD) / Weight	390x210x410mm / 20kg