

EAR's ready-made

13W per channel 859

Enhanced Triode Mode

amplifier throws down

the gauntlet to the

Überwatt brigade

by KEN KESSLER

EAR 859

'Designing our single-ended amplifier has proved far more difficult than I first imagined. . . most of the fashionable tubes tested (300Bs etc) offered very poor performance. Driven hard in single-ended mode, these tubes give 10W, but with poor reliability. . .'

Common to all hobbies is the threat of repetition, of the sameness which can kill progress — and interest — stone-dead. So hi-fi enthusiasts, retailers, manufacturers and journalists end up pursuing novelty not just for the sake of it, but because we need it. But there's one individual to whom I can always turn if I need a jolt of some sort, be it genuine controversy or merely a new approach to a familiar problem.

Tim de Paravicini of Esoteric Audio Research is known as, among other things, 'the wild man of audio', 'the best tube circuit designer alive' and a few less flattering names which (at the very least) attest to both the fear he instils in his opposition and the respect which even his rivals hold for him. In the past couple of years, he's won me over with EAR products from both ends of the price scale, the £26,000 Yoshino amplifier and the £300 834P phono amp. Then there are his awe-inspiring Revox G36 tape deck mods, his regular range of EAR electronics, his work in the recording industry, *ad infinitum*.

But Tim's latest wheeze just might be the most 'political' move yet, something which borders on the guerrilla, and we at *HFN/RR* are willing, nay, grateful accomplices. Tim's proposition is a response to an epidemic of what, in the UK market in particular, he regards as third-rate amplifiers passing themselves off as the leading edge in tube development. He's shocked by the hype, the price tags and, above all,

the claims of originality attributed to such designs. But this is not the place to enter into a debate about the history of valve circuit design because Tim alone could wax furiously for, oh, six hours non-stop.

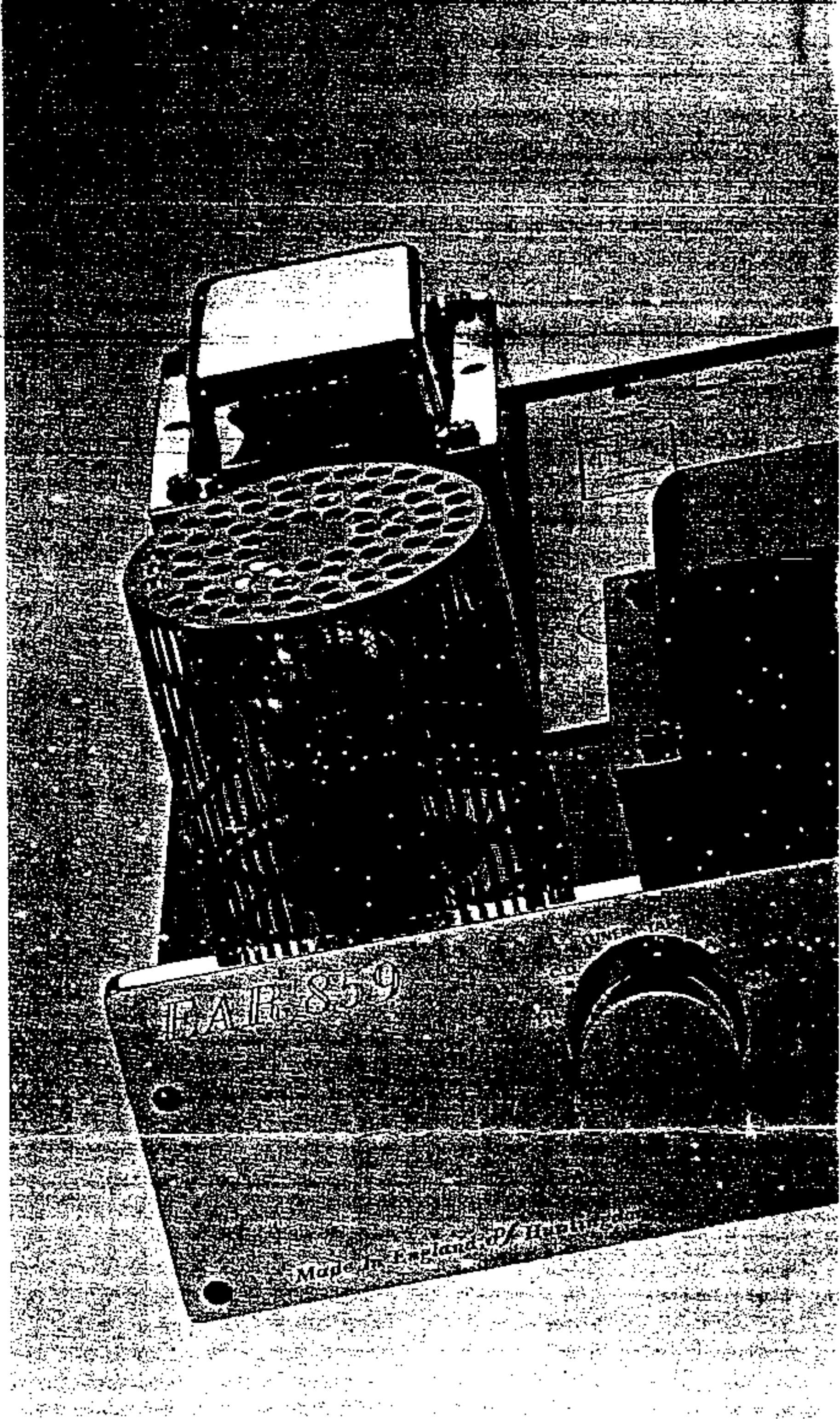
Suffice to say, he finds a bit too much revisionism going on today, to say nothing of the wholesale 'appropriation' of others' work. So he's chosen to put his money where his mouth is by placing in the public domain a fresh design, one which he also markets as a regular EAR model for those who would rather not build an amplifier from scratch.

He is giving this circuit away, gratis, free of charge, gornisht. So it can't be ripped off. We at *HFN/RR* are so taken with the unit that we're offering kit versions of it (though not the built-up version, which is available only from retailers) in this month's Accessories Club [see page 111]. The complete circuit diagram is published in this article with

EAR's approval. Tim de Paravicini feels confident that skilled hobbyists will be able to follow the circuit, building the amp from raw components they've sourced independently (EAR will sell its transformers to such readers who want to build from scratch, sourcing their own bits). It's probably his way of raising two fingers to those he regards as the new barbarians.

But first, I should let Tim tell you, in his own words, about the Esoteric Audio Research 859 Enhanced Triode Mode SE Integrated Amplifier:

'Designing our single-ended amplifier has proven far more difficult than I first imagined. The first major problems were the reliability and quality of current production triode tubes. Most of the fashionable tubes tested (300Bs etc) offered very poor performance. Driven hard in single-ended mode, these tubes give 10W, but with poor reliability — only a few hundred hours' use — and dia-





mode with the "gate" (equivalent to a valve's grid) positive with respect to the "source" (equivalent to the cathode). Normal FETs are biased in exactly the same way as a power valve, with the gate negative with respect to the source.

The input circuit is a cascade to give the high 150-times gain needed to drive the Enhanced Triode Mode correctly. Actual drive is via a cathode follower, DC-coupled to the ETM's grid. A minimum amount of negative feedback is taken from the output transformer, just to make sure that the amplifier stays spotlessly clean even when driving difficult loads. DC feedback is also applied across the three stages, as a self-biasing mechanism.

This provides rock-like stability, which helps to further lengthen the life of the valves as well as to improve sound quality.

Translated into a product you can buy, there is now a relatively compact, anguish-free gem called the EAR 859 which sells as an off-the-shelf product for circa £1600. It measures 400x400x150mm (wdh) and weighs a not insubstantial 19kg. The look alone is enough to justify Tim's nickname for it: Son of Yoshino. In deluxe form (the kit is available either gilt or guilt-free), the unit bears a perfectly-finished chrome fascia, plated transformer covers and deluxe, gilded knobs. These control the playback level and the selection of up to six line sources. (Quite rightly, Tim suggests that customers acquire an EAR 843 for phono duties, but one of the line inputs has been designated 'phono'. Maybe he's right in presupposing that those who own single-ended triode amps also use vinyl.)

Hidden from view are the three PCC88s used for pre-amplifier duties, while there for all to see are the EL509s, right at the front. Other illumination comes from the press-button on/off switch, which glows a tangerine hue. The review sample was absolutely identical to the production and deluxe kit versions, but minus the cages which protect the two output tubes. The rear of the unit contains the sockets and the 'proper' binding posts, which you can connect to loads as low as 4 ohms. Mains enters via an IEC socket. A nice touch is that the large badge gracing the area between the Yoshino-branded transformers features a map of the sockets, so you can just reach over and pretty much hit the right inputs. What Tim's description doesn't tell you is that the 859 is a true Class A design delivering 13W per channel, both channels driven and over a power bandwidth of 20Hz to 20kHz ±



Tim de Paravicini

bolical performance. I wanted a minimum of 10W of clean single-ended power, plus a good few thousand hours of valve life. Surely no customer wants to be spending hundreds of pounds on new output valves every couple of months?

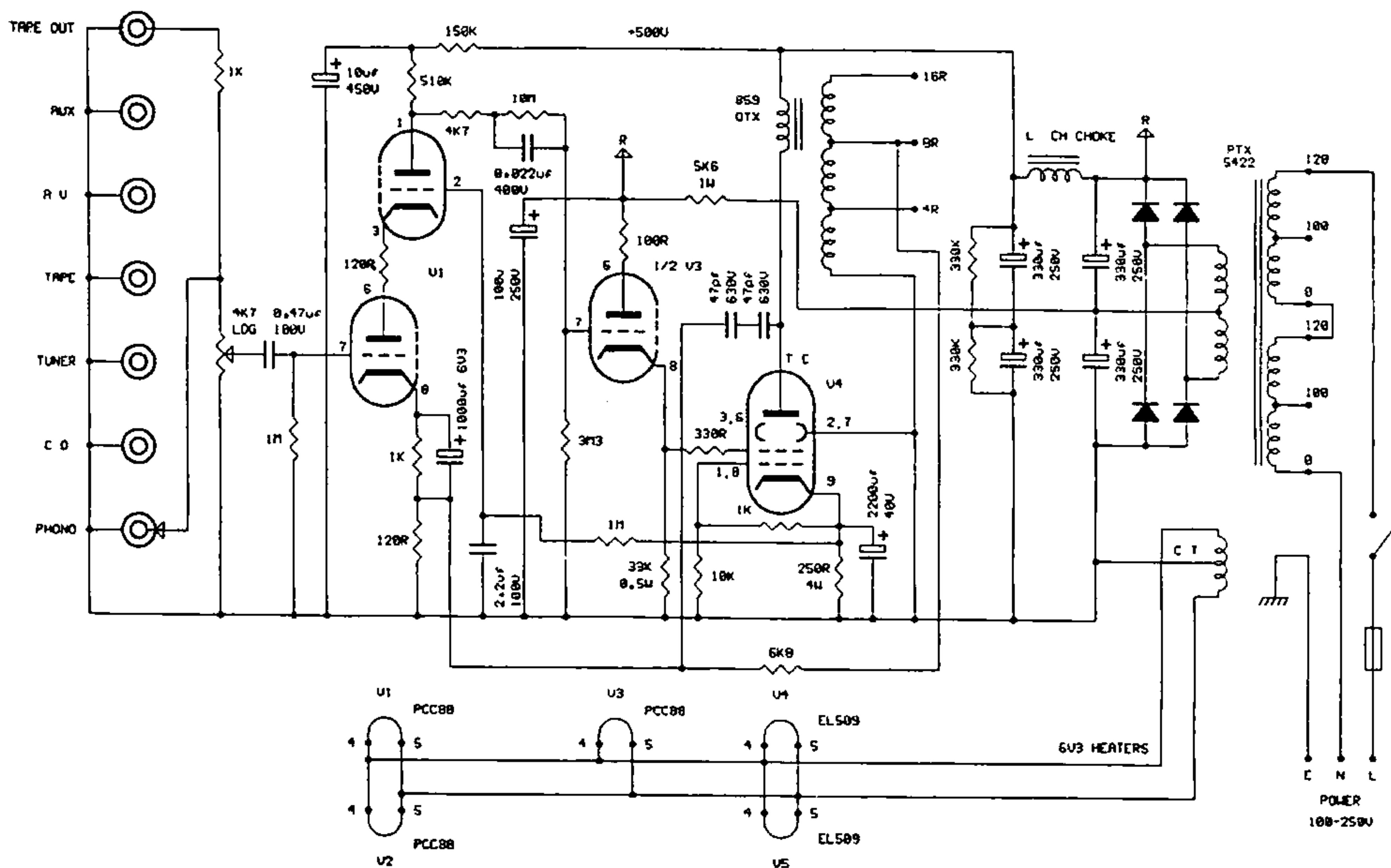
After deciding that current production directly-heated triodes were more of ornamental value than anything you would want to use in a powerful single-ended amplifier, I turned to conventional tetrodes and pentodes. Sadly, as was the case with the above-mentioned triodes, none could deliver the goods in either clean power or longevity. Parallel single-ended was tried but dismissed on sonic grounds; push-pull with the same valves sounded much better. But it kind of defeated the object somehow.

My own 549 amplifiers provided the inspiration. They use four PL519 valves in parallel push-pull to deliver over 250W midband. Most of

these are used by professionals in the studio environment, equipment which is left on 24 hours a day, seven days a week. The reliability of these valves has been superb. An average set lasts 20,000 hours — that's three years' continuous use. After reliability tests, the similar EL509 was chosen as the output valve. It's cheap and lasts for ages.

I was still unhappy. I really wanted a triode as an output valve, so after much head-banging I came up with Enhanced Triode Mode operation. Tests I conducted had the control grid (or Grid 1) connected to the cathode, with the audio signal fed into the valve via the screen grid (Grid 2). Operated like this, the output valve behaved as a true triode. In "normal triode mode", the screen grid is usually strapped to the anode. This is not as successful as Enhanced Triode Mode.

In the solid state world, MOS-FETs operate in an "enhanced"



EAR 859 enhanced mode triode stereo integrated amplifier (left channel only shown) © EAR 1994



Most specs are meaningless, especially those for power output. Otherwise, how would you explain that a seemingly "full-scale" 100-watt-per-channel can be deemed more than adequate even with speakers which aren't ultra-high-sensitivity designs?

0.5dB. Frequency response is 5Hz to 50kHz for 1W output, sensitivity for full power is 200mV, and distortion at full power is <2% at 1kHz and <5% from 20Hz to 20kHz.

By now I would hope that the more mature, balanced and open-minded readers have accepted that specifications only have meaning when designing a product or, if dealing with oddball hardware, when matching amps to speakers.

Even then most specs are meaningless, especially those for power output. Otherwise, how would you explain that a seemingly minuscule 13W per channel can be deemed more than adequate even with speakers which aren't ultra-high-sensitivity designs? I wasn't surprised when the EAR 859 worked a treat with £15,000-worth of Wilson WATT V/Puppy V because the latter's sensitivity is sufficiently high (90dB/W).

Normal partnering equipment, however, would be 300 watters from Krell or Audio Research or Mark Levinson. Yet the 859 drove them well enough to elicit shouts of 'Turn it down!' What of Sonus Faber Minima Amators? LS3/5As? ATC SCM10s? How could the 859 do so well? It should be obvious by now that single-ended triode amps capable of producing a maximum baker's dozen of watts are not about specifications. They're about sound, which is a shock! horror! statement to the myriad hi-fi enthusiasts who

still believe all the garbage forced down their throats by the mass-market brands of the early 1970s. The EAR 859 doesn't even look like a conventional amp (tube or otherwise), and it's absolutely minimalist right down to a lack of balance control. But hook it up to any speaker less voracious than an Apogee, with a decent source, and you have high-end amplification for less than most high-end brands charge for a power supply. Or an interconnect.

So scary is the EAR 859's prowess that I had to rethink a review of another triode system selling for twice the price of the built-up EAR. Factor in the savings the kit will offer, and it spells curtains for just about every low-power triode tube amp under two grand.

What I heard was the transparency and sweetness that all tube fans cherish, with a natural warmth which placed Sheffield Lab's *Power of Seven* CD in the room, each voice with its own turf.

The sax on BB King's 'Don't Get Around Much Anymore' on our free CD had an in-your-face honk made up of the requisite reediness, metallics and breathiness. And presence? The 859's way with imaging is the polar opposite of the typical Linn signature. You listen into the soundstage, with even off-axis seating provided with a satisfactory sonic picture. Heavy metal, large orchestral, reggae — I ran through

something like 50 CDs before accepting that, yes, the EAR 859 is capable of exceeding everything that its specs suggest.

It is, in a word, complete. It delivers a sound so truly musical that you find yourself not giving a damn about audiophile concerns. Alas, you will not accept that as a verdict because you know, as I do, that it is not perfect. If it were, I'd be saying that all other amplifiers have been made redundant.

Instead, you know what I'm going to say because of the Nature Of The Beast. I'm going to confirm that, yes, the power is a limiting factor if you have voracious speakers, an exceptionally large room and/or a penchant for earsplitting levels. And, yes, the bass lacks that final crispness and that thundering steamroller effect that passes for lower registers in this era of morons with a lust for the nausea-inducing BPM born at the rave party. But so what? Such individuals are partially deaf, intellectually deprived and listen only to portables or PA systems.

Am I happy with the EAR 859? Would I buy the kit if I felt confident enough to solder it together? Would I buy the built-up version if I couldn't solder? Would I recommend it to friends? Yes, yes, yes, yes. The EAR 859 has provided me with more fun than I can describe.

And I didn't even have the pleasure of building it. ✓