

ESL 57 • LOUDSPEAKER • QUAD

Quad ESL

It was a freak of its time, one of those off-the-wall designs more often found in the footnotes of audio history. Yet this full-range copper-coloured electrostatic speaker had a global impact. **Ken Kessler** on the masterpiece that was the Quad ESL...

With the possible exception of the Zippo cigarette lighter and a few classic wristwatches, it's hard to name any objects over 50-years-old that match or better the performance of their current equivalents. With hi-fi, and the appeal of vintage components of remarkably 'modern' levels of performance, we'd like to think that the challenge of my opening sentence would be moot. We all love Garrard 301s, old Ortofon MCs and any number of vintage valve amps. But only one product from hi-fi's Golden Age still causes designers to shake their heads in wonder.

Admittedly, the original Quad ESL, that electrostatic loudspeaker which looked like a room heater, delivers neither the bass nor the playback levels demanded of today's listeners. But those are quantitative rather than qualitative aspects, and do not detract from the core truth: from about 80Hz or 90Hz on up, no other

speaker matches the naturalness, the authenticity, the openness, the neutrality nor the *musicality* of Peter J Walker's design. And as so many of the 54,000 sold still survive, it's not impossible to hear them for yourself. In any collective of hi-fi nuts, one of them is bound to own a pair.

ALL ABOUT THE SOUND

Clearly, devotion to *any* product has to be based in some measure on reality, on qualities relating to the item's actual abilities, innate excellence or even uniqueness – however flawed. People worship AC Cobras, not Austin Maxis. They cellar cases of Sassicaia, not Irn-Bru. With the Quad ESL, aka the '57' because of the year it reached the marketplace, the near-religious devotion is 90% about the sound quality, and perhaps 5% each due to nostalgia and British jingoism. Which ain't bad ratios.

By any measure, it's a globally recognised masterpiece, hailed



ABOVE: Quad founder and ESL designer Peter Walker holds up an award from Japanese audiophile magazine *Stereo Sound*

in the USA, cherished in Japan, admired in Italy and (ironically) maintained in Germany by a corps of hard-core devotees.

But, you're thinking, if you feel that a component also must be influential to qualify for the honour of milestone status, how can the Quad ESL 57 be considered anything other than a *cul de sac*? Where are the legions of copies? Whom did it influence? Trust me: for such an original, iconoclastic design, its impact was felt globally. I understood and appreciated this the first time I met Gayle Sanders, the co-founder of MartinLogan, over 20 years ago, when he told me that the Quad was his yardstick.

Further study revealed that nearly every manufacturer of electrostatics since the Quad appeared was inspired by the copper/bronze-coloured speaker from Huntingdon. And the shape even influenced a



LEFT: The 1956 *Hi-Fi Yearbook* featuring the ESL on its cover and owner's manual from the mid '60s

manufacturer of dynamic speakers, who used almost the exact same form when creating the original Dahquist DQ-10. More telling was the use of Quad ESLs as the basis for the legendary Mark Levinson speaker system, the HQD, which employed a pair of Quads per channel, mounted vertically, with the sound augmented by a cone woofer and ribbon tweeter. And if that's not enough, Quad 57s in quantity provided the sound in SME's Music Room, until their successor, the ESL 63, arrived.

A COMMERCIAL FIRST

As the first commercially and sonically successful full-range electrostatic loudspeaker, the Quad was so radical and so far ahead of its time that one must marvel in retrospect at the perspicacity of many of the 1950s audio critics, who recognised this from the outset. Which is not to say that it was an immediate hit, certainly not at a heady £52 each – or roughly £2200. But many embraced it, even though it was, in the context of the period, a freak. Then again, it emerged in the mono era, and the civility of that age deemed much lower playback levels to be 'realistic' compared to what passes for realistic today.

Equally, audio authorities back then based performance on the reproduction of unamplified classical music. So, while they would

have surely appreciated the wider dynamics of an orchestra, they almost certainly would not have been exposed to the quasi-physical lower octaves of modern amplified bass. Either that, or they just didn't care about the shortcomings of limited SPLs and bass extension. Indeed, Peter Walker told *Hi-Fi News* in his last-ever interview that the only consumers who commented on either were those in the USA, who possessed far larger listening rooms than their British or European counterparts.

While for many the Quad ESL is the iconic, signature product of Peter Walker's Acoustical Manufacturing Company, it wasn't the company's first product, nor even its first speaker. Acoustical had been in business for 20 years when the ESL arrived, the company having produced both professional and domestic amplifiers, preamplifiers and a speaker, the now-coveted ribbon-hybrid, horn-loaded Corner Ribbon of 1949.

That same year, DuPont's Mylar appeared, a material that would make possible the production of an electrostatic loudspeaker. It would be six years later when Walker would be ready to unveil such a beast, having mused on the subject since 1945 and read about the technology in a book published in the USA in 1954.

Walker published three articles on the subject in *Wireless World*



ABOVE: A dream live demo of stereo Quads given by Griffin Radio at Solihull Civic Hall on the 10th of April 1963

in 1955, feverishly developing the speaker so that it was ready for production, appearing on the cover of the 1956 *Hi-Fi Yearbook*.

Acoustical sold 1000 Corner Ribbons, but Walker felt that its performance was limited, and believed that, even though the ribbon was an excellent solution for achieving extended upper frequency response, 'from a theoretical point of view, an electrostatic is an ideal way to make a loudspeaker – it matches the air perfectly and it's all predictable, as ordinary loudspeakers are rather variable. It has some problems which are rather difficult, mainly due to the stretching of the diaphragm. It mustn't shrink and that sort of thing.

BELOW: A retail display of Quad electronics and black-grilled ESLs in Sweden in the early 1960s

'It was not an immediate hit, certainly not at a heady £52 each – or roughly £2200'



Very high voltages, 10,000 volts make it difficult.'

Mylar changed that by providing a material that could serve as the diaphragm, which when chemically-treated was able to respond to the electrostatic charge and maintain its physical integrity so that the product could be sold commercially.

Walker demonstrated the ESL for the first time in 1955, but it wasn't the only electrostatic in the marketplace. Its competition consisted of electrostatic tweeters, eg the Janzen drivers from the US, and even a Leak ESL tweeter, which would be paired in those DIY days with conventional woofers.

Because the Quad ESL was unique, as Walker recalled, 'it just competed against other loudspeakers, and it wasn't as loud, so people who wanted to shake ☞

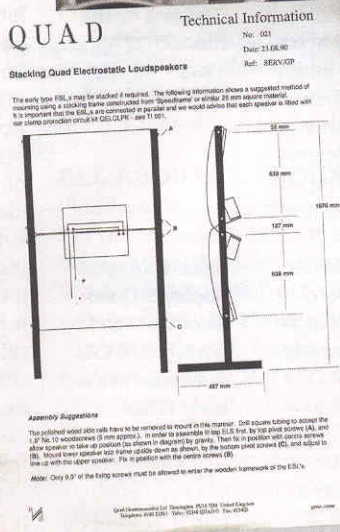
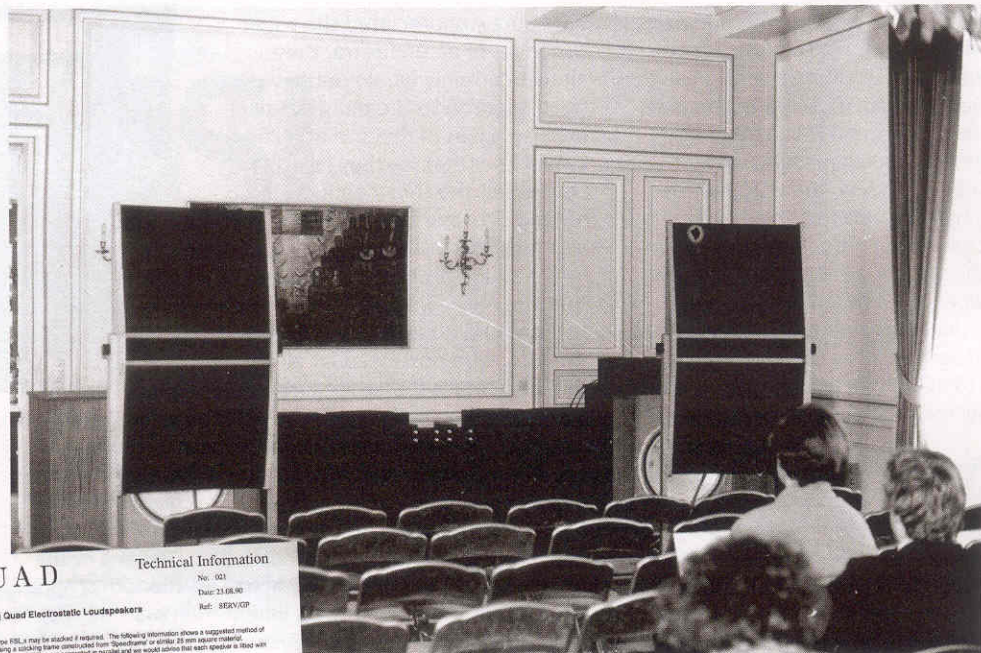
AUDIO MILESTONES

the windows didn't buy a Quad electrostatic speaker.' This slowed down its reception Stateside, at a time when export was crucial to an economy still recovering from the war that ended a decade earlier. In part, as mentioned above, it was simply down to the speaker's inability to fill a larger room. But as Walker also noted, 'it wasn't very good with American high-powered amplifiers, which would just bust 'em, spark 'em to bits.'

But salvation arrived with the LP and stereo. By adding a second speaker, there was an inherent increase in level, and the Yanks did embrace stereo before the home market. Again, according to PJW, 'When stereo came along, you had to have two of 'em. A bit big for that but it worked very well. In fact, after we made 400 of them, we modified the directivity because of stereo. The directivity pattern was made for mono – not quite the same as stereo. Serial number 409 I think it was.' For collectors, the change involved only the electrical distribution between the elements. Walker was emphatic: 'No other modifications as far as I know!'

TECH AND KNOW-HOW

While the idea of an ultra-thin, ultra-light electrostatically-charged membrane responding with breathtaking rapidity to the signal had been around since the 1920s, it took Walker and the technology of the 1950s to make it viable. So pure was his design, that the original ESL stayed in production until 1985, overlapping with the Quad 63 introduced in 1981.



ABOVE: Stacked ESLs – wooden side rails are used, as specified in Quad instructions

BELOW: Jig for stretching Mylar membrane

Never truly satisfied with his handiwork, Walker admitted that the original was difficult to develop and produce. 'It had what was in effect a woofer and a tweeter and getting those two exactly level and matching in response, that wasn't easy because they'd vary slightly – variation in the gap, variation in the tension of the diaphragm would upset it a bit, you see. One wanted to avoid that.'

As restorers – and Quad's later owners – found out, the original Quad ESL was indeed tough to manufacture despite the inherent simplicity of stretching a thin film diaphragm and suspending it between perforated conductive stator panels. Assembly was quite critical, with the distance between the stator and the diaphragm established as 0.5 to 2mm, to render it efficient enough to work with the low-power amps of the day.

Quad coated the Mylar diaphragm with a slightly electrically conductive coating, the coating charged to several thousand volts above the stator panels. An audio signal fed to both stators caused the diaphragm to be pushed and pulled towards one of the stators by electrostatic force. Because the diaphragm was light and fast, and

uniformly driven, it moved in a linear fashion, the antithesis of a cone driver troubled by its own mass and cone break-up. This endowed the speaker with quick and controlled transient response, and bandwidth and frequency response wide enough to satisfy hi-fi criteria.

PRISTINE PAIR

As the lucky owner of a pair of ESLs rumoured to be the last serviced by Quad before the diaphragm jigs went to the restorers at QUAD Musikwiedergabe GmbH in Germany (www.quad-musik.de), I am able to savour the pristine sound of a fresh, circa 1957 pair. They're partial – of course – to Quad II amplifiers, but (and I fear a curse from PJW in his celestial retirement home) I find the Radford MA15s to deliver the sweetest sounds from the Quads. With ears accustomed to current high-end excess, I still note that the bass and level limitations are meaningless when it comes to the music itself.

For my tastes, dominated as they are by vocals, the Quad ESL 57 delivers some of the most natural, open-sounding midband performances I can recall hearing. Properly set up, about a third of the way into the room, a few feet from the side walls and with slight toe-in, the Quads have the capacity to deliver pinpoint imaging, while disappearing with a facility that remains uncanny. In essence, their

sound spread is so seamless that one is hard-pressed, with eyes closed, to locate them in the room. Treble is ever sweet, transients fleeting, textures palpable.

Even if you have no desire to own a pair, do try to hear them. If one were to create a list like those '50 Things To Do Before You Die', then the Quad ESL 57 would figure on '50 Hi-Fi Components You Must Hear Before You Die'. Ideally with a Julie London recording, via an SME 30 and a Koetsu, feeding an Audio Research REF 3 into the aforementioned Radfords.

THE '57 VERSUS THE '63

An entirely different design, the ESL 63 that replaced it, remains in production as the basis of the current Quad models.

And I believe that nothing would ever induce Peter Walker to say that the '57 was its match. Indeed, I know Quad devotees who adore the '63 and find adulation of the older model to be little more than unbridled anachrophilia.

Be that as it may, the earlier speaker possesses a magic, a spirit that – while impossible to define or describe – renders it something special, in the manner of early Koetsu moving-coil cartridges or Krell Class-A amplifiers.

So strong is the siren call that '57 fanatics guard them like precious jewellery, and pray nightly to those stalwart German audiophiles who can restore, repair and maintain them. If a pair turns up at an audio jumble – or even a singleton – they're snapped up as quickly as SME arms, LS3/5As or Radford valve amps. And if that pair happens to be black rather than bronze, let the bidding begin.

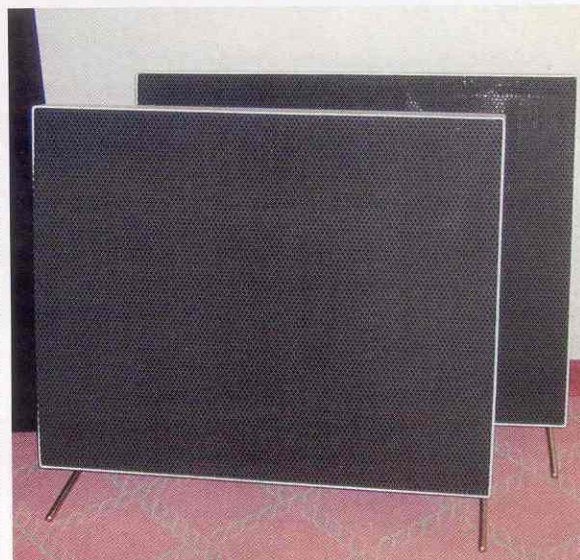
When I asked Peter Walker how would he have improved the speaker, with 37 years' hindsight, he told me he was limited by the technology of the day, and that he did the best he could at the time. Above all, he was delighted that the speaker sold so well that he had

'The original ESL stayed in production until 1985, overlapping with the '63'

to ration them to dealers. But one observation places this fantastic, Jules Verne-ian styled masterpiece on a par with Goldilocks' porridge: 'Would I have made it bigger? Well, then it would have upset a whole lot of people who wanted a small speaker. Would I have made it smaller? No, because then you wouldn't have enough bass. It was roughly the right size.' No, Peter. It was the right *everything*. ☺



ABOVE: A restored ESL from Germany, with the grille sprayed a satin white



QUAD RARITIES

Collectors love their Quads in mint, original condition. But certain enthusiasts couldn't leave their Quads alone. In addition to a plethora of dedicated stands offered over the years, here are some of the better-known oddities:

Quad HQD

Mark Levinson took two pairs of ESLs, stacked each pair vertically, and complemented them with a Decca ribbon tweeter and a massive Hartley woofer. Rare and expensive.

Braun Quad

In Europe, in the late 1950s, Braun applied its unique aesthetic to the ESL with a new housing and called it the LE1 [see above], an ultra-rarity of which only 500 are said to have been made.

Gradient

This company produced the Quad-approved SW55 subwoofer, a neat 520x230x150mm (hwd) design which fitted under the ESL, thus forming a handsome stand.

EAR-Yoshino

Tim De Paravicini and EAR make a dedicated add-on, a direct-driving valve amplifier fitted at the EAR factory and conceived to extract the maximum from an ESL.

ORIGINAL QUAD ESL SPECIFICATION:

Frequency Response:	45Hz-18kHz
Impedance:	15ohm
Mains Power Consumption:	6W
Dimensions:	33x25x3in (whd)
Weight:	35lb
Original Price:	£52
Numbers produced:	54,000