

INDEX

Page 1	General Notes on the ESL57
Page 2	General Notes on the ESL57 continued
Page 3	General Notes on the ESL57 continued

General Notes on the ESL57

The nature of the beast

Unlike a conventional loudspeaker, the Quad ESL 57 is unusual in that it will perform to a surprisingly high standard with one, or even several faults present. The fact that it still sounds half decent, and that deterioration has been gradual, leads many owners to assume that they are listening to a 'perfect' pair of Quads, when in fact they are performing well below specification. We believe this may apply to 50% of the ESL 57s 'out there', and as a recent estimate puts this in the region of 30,000 pairs worldwide, it is not surprising that they occasionally come in for adverse criticism. Usually the 'critic' has been listening to a faulty pair of Quads.

Servicing criteria

OTAUK engineers have had more than 30 combined years experience in the servicing of ESL 57s. They are not merely serviced, but stripped down totally to their five major component parts, each of which is serviced individually, tested individually, and finally reassembled with new wiring into their frames. Which have also been fully restored. The most modern components are used throughout, in most cases far exceeding the specification of the original components, which were nevertheless the best available at the time. The loudspeaker is then sweep tested and subjected to varying 'musical' tests for 2-5 days.

Myths and Tweaks

Removal of front grilles

Some people prefer to listen to ESL's with their front grilles removed: if you favour this preference, please be aware that potentially lethal voltages are present on the exposed panel electrodes. NOT recommended as a general rule.

Removal of rear felting of the treble panel

This is favoured in some quarters but only succeeds in altering the radiating characteristics of the loudspeaker. Robbing the treble of some of its 'Sparkle' and producing a vague omni-directional effect. Quad put the felting there for a very good reason, and even given varying environmental factors we have never found this 'modification' convincing.

Separate Power supplies

Assuming every component part of the loudspeaker is working to its proper specification, this expensive modification will not, and cannot, produce an audible improvement. However, just one faulty panel can put an unwanted load on the power supply, and if this happens, the 'good' panels as well as the defective one, will be affected by the presence of the fault. More than one power supply will ensure that some of the panels will be working correctly and not influenced by a faulty panel: however, properly identifying and correcting the fault would produce a more satisfying and cost-effective result!!

The midway option though is to use a rectifier board with two distinct HT diode ladders. This separates the Bass and Treble HT voltages, rather than the 'tapped-off' arrangement of the original ESL57 rectifier board. Our version of the rectifier board, and our complete EHT unit employ this arrangement.

General Notes on the ESL57

Frame reinforcement

We have seen some noble and effective efforts made in this department by dedicated DIYers. Whether the effort expended justifies the end results is perhaps questionable, but for those inclined, always worth having a go.

The reality is that in any electrostatic speaker the only moving part should be the diaphragm. This is now evident in the latest ESLs from Quad.

SME Engineer Robertson-Aikman who was noted in Ken Kessler's excellent book, *Quad: The Closest Approach*, made a number of alterations and important modifications, some which can be seen in the current ESL-28xx & 29xx series.

Running-in time

Electrostatic speakers are best left permanently plugged into the mains supply. There is no 'cost' to speak of: no more than the losses in the windings of the supply transformer. Should it be necessary to disconnect the loudspeaker from the mains supply, upon re-connection allow at least 15 minutes before serious music listening commences. Original Quad 57 panels may require as much as an hour to reach full charge: this is rarely a fault condition (what we call a 'lazy' panel) and is a known and accepted parameter in the long-term performance of this type of panel. New panels will tend to charge quicker. As a general rule, allow one hour for an original 57 panel to reach full charge (especially if the panel/s have been OFF charge for a long period). If full output has not been achieved after this period, the panel/s must be deemed faulty. New (or even refurbished) electrostatic speakers will need an absolute minimum of 40 hours' 'running-in' time to reach optimum performance.

Noises off

Noises in electrostatic speakers do not necessarily point to a fault condition, and sometimes 'come and go' depending on temperature and humidity. These are seldom more troublesome than low-level 'ticks' or 'fizzles' only audible in a quiet environment - particularly during hot summer spells. However, more persistent noises may indicate the onset of a fault condition - especially if the noise starts to intrude on quiet music. Such noises will usually be accompanied by a loss in sensitivity in the offending panel, but trouble-shooting can be difficult: a noise generated in one panel will often be transmitted to other fault-free panels, so that the defective panel can only be isolated by removing all the panels and testing them individually. An aging 57 bass panel can produce spluttering or oscillating noises and this is sometimes accompanied by a pungent smell from the area of the panel: this is corona discharge and indicates a serious internal leakage. The panel will eventually lose efficiency and need replacement.

Get them clamped!

Fitting clamp boards (One Thing CLP4) will significantly reduce the likelihood of damaging the ESL 57s treble panels with higher powered amplifiers. The CLP4 WILL NOT influence the sound of the loudspeaker over a range of 'normal' listening levels. However, NEVER drive an loudspeaker beyond the point at which it can handle the signal cleanly. If there is evidence of distortion, or a 'hardening' of the sound, be sensible and reduce the volume!!

Continued.....

General Notes on the ESL57

Get them clamped! Continued.....

The way these devices work in an electrostatic speaker is not clearly understood by a lot of people. The clamp circuit used in Quad's ESL63, 988s and 989s differs from that in the 57 only in the pre-determined voltage at which the clamp 'triggers'. (And rest assured, these great speakers are not 'degraded' by the use of such a clamp).

On the 57, the clamp operates on the treble panel only (the bass panels, are, more or less 'self-protecting') and the clamp circuit 'kicks in' at 2,200V. Despite the number of 'experts' who make claims to the contrary, there is no measurable or audible influence on the signal before or until this voltage 'plateau' is reached. Exceeding this voltage will cause the diodes to conduct. When they do conduct, the panel will see a very distorted signal indeed but it will be at only a fraction of the amplitude of the previous 'clean' signal, and as the panel's breakdown insulation is related to volts only, no damage can occur. The only 'improvement' one can make to such a circuit is to beef it up so that it won't overheat and fry!

So why does the humble and highly effective clamp receive such flack?

The explanation is simpler than most people think. Although original Quad 57 panels can soldier on for many decades, the original membrane coating Quad used (unlike the metalised coating on successive speakers) has a tendency to fall off in sensitivity over the years. Most of these panels in use these days are between 15 and 35 years old (FACT: note all whingers who complain about unreliability!) A 10 -15% drop in output from such a panel would reduce the SPL very noticeably encouraging the listener to 'screw up the wick' to get the impact he/she desires. Unfortunately the clamp board takes no heed of the sensitivity of the panel and triggers as the designer intended. You could 'up' the clamping voltage but don't complain if your treble panel turns into a superlative Christmas tree in or out of season!

The only solution is to fit a treble panel which plays as loud as you want -or as loud as can be reasonably expected - without triggering the clamp. You then have the best of all worlds.