

WEDGE HISTORY

Ben Duncan dips into the history of rock'n'roll stage monitors

Monitors didn't appear on the rock'n'roll stage until the late 60's, when bands began to employ multi-kilowatt PA systems out-front. At the time, PA developments in the UK were focused on WEM (Watkins Electric Music), who led the field. WEM's Charlie Watkins recalls that the need for monitors became painfully obvious in the summer of '68, at Camden Festival, after Duster Bennett complained that he couldn't hear himself sing, while thousands were enjoying the very loud sounds outfront.

A few weeks later at the Kempton Park Festival, blues singer Tal Farlow had struck the same problem. At the time, outfront mixing had yet to be invented, so Charlie Watkins was busy supervising the mix backstage. Being eager to hear the Savoy Blues Band, who were playing on another stage in a distant marquee, he'd sneakily rigged up an extension cable to a 12" speaker, so he could listen while mixing Farlow's group! The fateful moment came when Farlow saw the speaker cab and signalled 'Turn it up!' thinking it was his own voice.

After the inevitable torrent of upratable words had ceased, it seemed a diplomatic idea (at the very least) to link the 40 watt 'monitor system' to the vocals channel on the mixer. By a stroke of luck, WEM's Audiomaster, the forerunner of modern PA consoles, had the individual channel outputs needed to accomplish this. With the monitor cab hooked-up, Farlow's face then took on an unbelieving, ecstatic look. The horrific grimace came off, his hand came down from his ear, and the quality of his singing improved dramatically. Within minutes, the news of the 'stage monitor' had circulated amongst the other groups. Later, when Roger Chapman came on stage with Family, he snatched the 1 x 12" speaker cab down from the scaffolding. Plonking it on the stage, he tore off his jacket, rolled it up, and used it to tilt the speaker upwards. "So in one evening" recounts Charlie Watkins, "and at one festival, the side-fill and wedge monitor were both developed. Of course, the 1 x 12" speaker was inadequate, but it was so much better than nothing."

Stage monitoring was suddenly the 'in thing'. It was justified by audiences expecting to hear tighter, better timed live performances at a time when outfront sound was getting louder and was often highly distorted



Dave Martin's classic LE-200 Monitor was first introduced in 1973.

and incoherent. In these conditions, any kind of monitoring was a godsend, however rudimentary. Within a year, another pioneer sound man called Bill Hanley had successfully equipped the Woodstock festival in the USA with 'sidewash' monitors. These consisted of a pair of JBL 4530 bass cabs and Altec 311-60 multicell hf horns, placed in front of the rotating stage, at each end. By 1970, the PA rental companies of the time (eg Kelsey Morris) had graduated to individual monitor mixes using wedge-shaped cabinets, typically employing a single 15" bass driver, and a JBL hf driver. Being fitted with the 'crinkle plate' acoustic lens meant the treble spread just as wide as the low frequencies. One wedge could then cover a wide area; the spillage didn't seem to matter. Standard, mass-produced stage wedges of modern appearance and with some measure of directivity control first appeared in the UK around 1973.

This was the year Martin Audio introduced their first wedge, the LE-200. It featured a single 15" driver, a vented bass/mid enclosure, and a conical (90°) hf horn. Dave Martin recalls he built the first LE-200's for a tour of Switzerland in winter 72/73. Martin Audio's LE series has since gone through a number of incarnations and variants, and survives until this day as the LE-400, having become the world's most widely used (and imitated) wedge. Over 2500 have been sold in the past decade alone.

About the same time on the London scene, Court Acoustics were making a similar kind of wedge with JBL components, while a company called AMS (Artistes Monitor Systems),

run by a character called Nick Cohen, was specialising in building wedges and sidefills. Meanwhile, up in Scotland, Eastmill Audio (alias Neil Grant) was making 1 x 12" + horn wedges with distinctive, curved metal grilles. Wedges of this early genre were very loud over the key speech band (800Hz to 3kHz), but the sound was so piercing, it could easily become painful. Today's pro wedges may look superficially similar, but most have undergone prolonged fine tuning for improved clarity.

The musicians' attitude towards monitoring split into two camps. On the one hand, disciplined and well seasoned musicians just got on with their job, regardless of whether the monitors were good, bad, indifferent or just absent! Meanwhile, more anarchic players appreciated the buzz and adrenalin that loud stage monitors could stimulate. In time, the battle to achieve higher SPLs, while keeping howlround at bay, culminated in 1/3 rd octave graphic equalisers and bi-amped setups becoming the norm for each monitor send.

As the 80's dawned, Muscle Music, a London-based PA company specialising in working with hard rock acts experimented with 3-way active monitors. They'd already found that 4, 5 and 6 way active configurations could greatly improve the power handling and clarity of the main PA. At the culmination of their research late in 1980, they'd achieved 125dB SPL at the mic position with minimal EQ.

The wedges contained a 15" Gauss, a high power 9" ATC mid driver, and an Emilar driver mounted on JBL's Pepperpot, which had been favoured by wedge designers since it first appeared on the LE-200. The operating band of Muscle Music's wedge was extended down to 40Hz and out to 15kHz, which made the monitoring 'fuller' and less likely to be painful at very high SPLs. Today, 3-way wedges are still around, but in the intervening years, the majority of wedges have 2-way, in part because it's difficult to justify the added weight and size of cabinets fitted with a high-power mid driver. Anyone who's played on a small stage will know the pain of bashing ankles and shins against monster wedges, wedges which get in the way when it's time to leap about. . . Then there's the extra power amplifiers and crossover parts needed to equip a 3-way



Turbosound's TMW 215 grew out of wedges developed from 1972 onwards.



The Meyer UM-1A which was introduced in 1979.

system, unless exceptional SPL's are called for.

High-Tech approaches have been few and far between in the field of monitoring. In the mid 70's, Tim Isaac (today director of ATC) designed powered wedges (with integral amplifiers) for Turbosound Rentals. He even devised a bussing system, so each musician could set up their own mix on their personal monitor. The system was perfect, but the musicians were a failure!

The problem was the same one The Grateful Dead encountered with their 'self-drive' PA system: One or two members of a band would turn up their monitors (for a bit more excitement), others would follow, and a snowball effect would be set in motion, until everyone's monitors were being driven to maximum volume and the verge of feedback. In 1979, Meyer Sound in the US suggested a new direction with the launch of their Ultra Monitor, the UM-1A. In spite of its small size, it could produce exceptional sound levels without risk of destruction. It achieved this by being connected to a 'controller', a box of electronics arranged to

dynamically adjust the bass EQ, protecting the drivers from over-excursion.

Today, the production of wedges has diversified into three divisions. In the beginning, wedges were custom built by the PA hire companies for their own use. Many of the older hire companies still do this. Then there are countless makers of 'M1' cabinets for gigging musicians who include a simple wedge with a 1 x 12" driver + horn, in their repertoire. Broadly these are watered-down versions of what the PA rental companies have developed after the past 20 years of experimentation.

Thirdly, beginning with Martin Audio, a handful of manufacturers, notably Meyer, EAW in the US; and Turbosound in the UK, have grown up to supply the professional market, not just for live rock'n'roll, but equally for theatre, opera, video and TV productions, as well as for conferences and conventions.

In turn the majority of the wedges on major stages across the globe are still made by the handful of expert manufacturers who grew up with rock'n'roll PA rentals.

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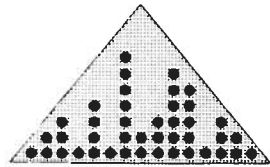
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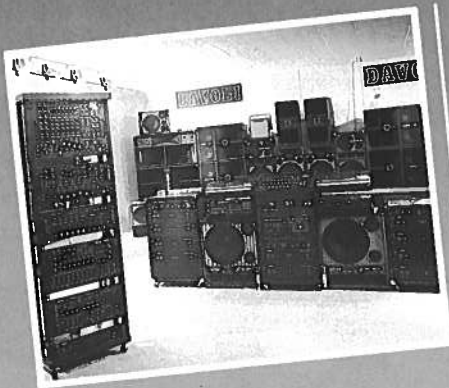
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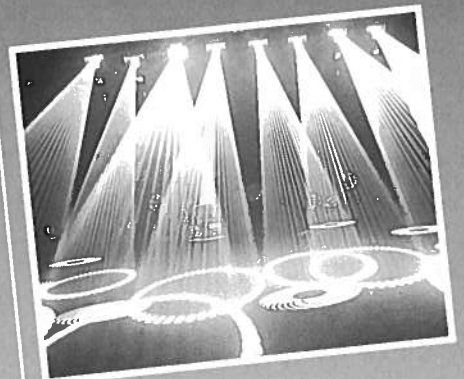
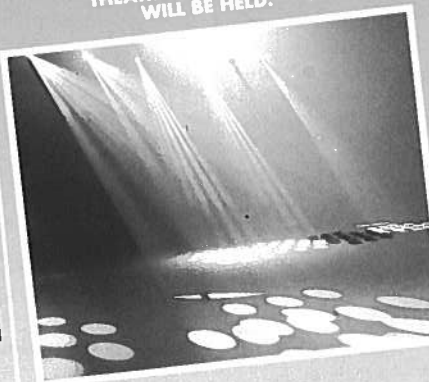
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