The Martin Audio Experience

Martin Audio

Dave Martin founded the eponymous Martin Audio in 1971 and was one of the leading pioneers of the professional and touring sound industry that we know today.

Two decades before meeting his untimely death in 1992, the Australian had defined the folded horn-loaded bass cabinet principle. And it was for this, and for the later MH212 'Philishave', which started the midrange revolution, that he will ultimately be best remembered.

Two decades further on and the legacy of horn loaded design combined with a passion for innovation has culminated in the award winning Multi-cellular Loudspeaker Array that is transforming the industry once more.

The driving force from Dave's time to now has always been about the audience experience. What started as a desire to enable bands to play to larger audiences and be properly heard now firmly stands with the mission to unite the audience ensuring front to back and side to side, everyone enjoys the same exciting powerful sound and joyous experience.

David Martin at R&D bench

The Very Early Days

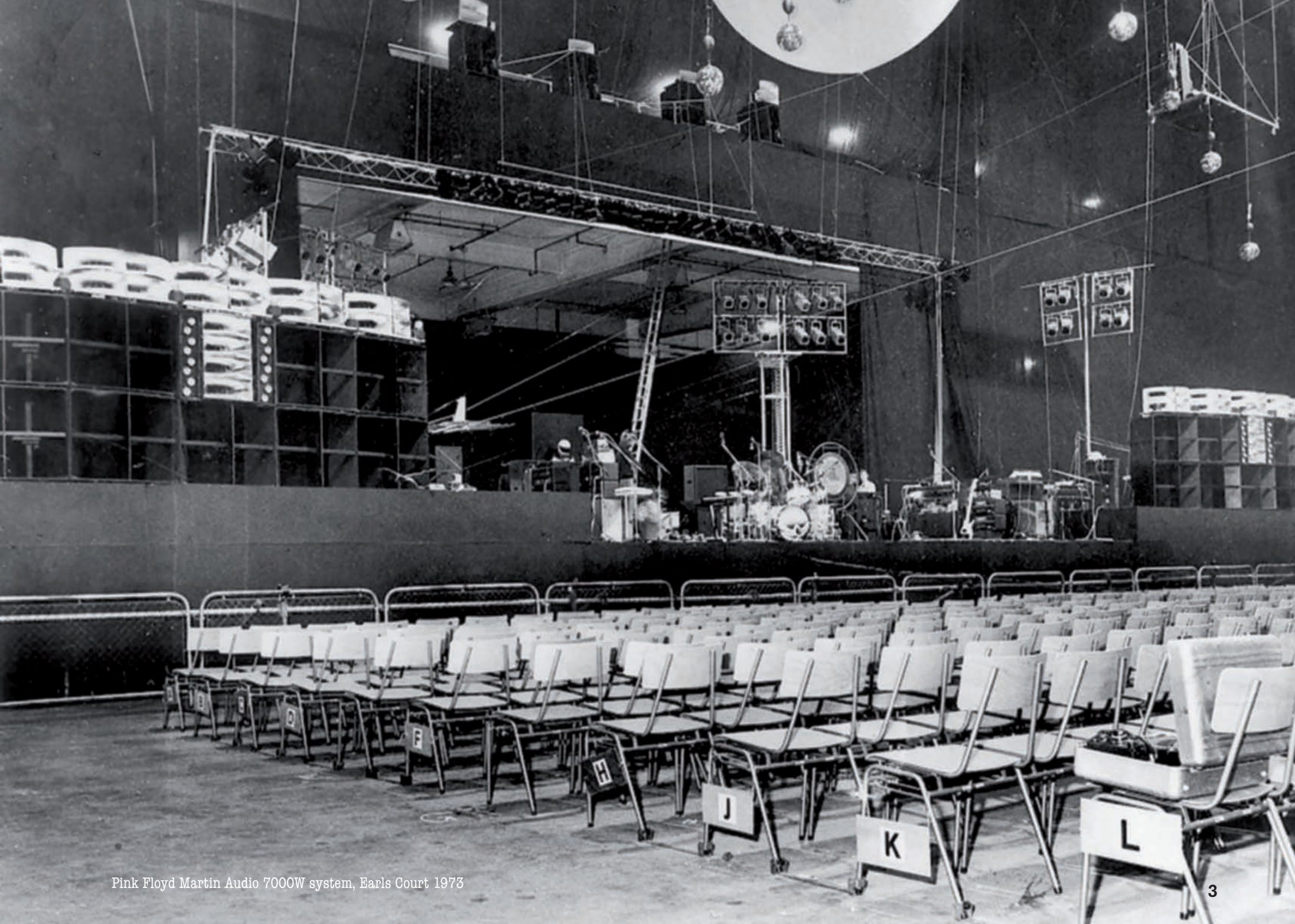
Supertramp gold album presented to Martin Audio

Dave Martin founder of Martin Audio

Martin Audio Bass Bin

The move to modular, horn-loaded principles heralded a new era in sound reinforcement after a generation of WEM direct radiator PA systems, which had dominated the early festival scene at the start of the 1970s.

Believing that bands could deliver a better audience experience at ever-increasing capacity venues, Dave Martin's early inspiration came from seeing the RCA W folded-horn cinema cabs when Iron Butterfly first toured with them. Because they measured 7ft high and weighed 500lbs the band didn't want to pay the return freight back, and so the system was sold to British rock band Yes.



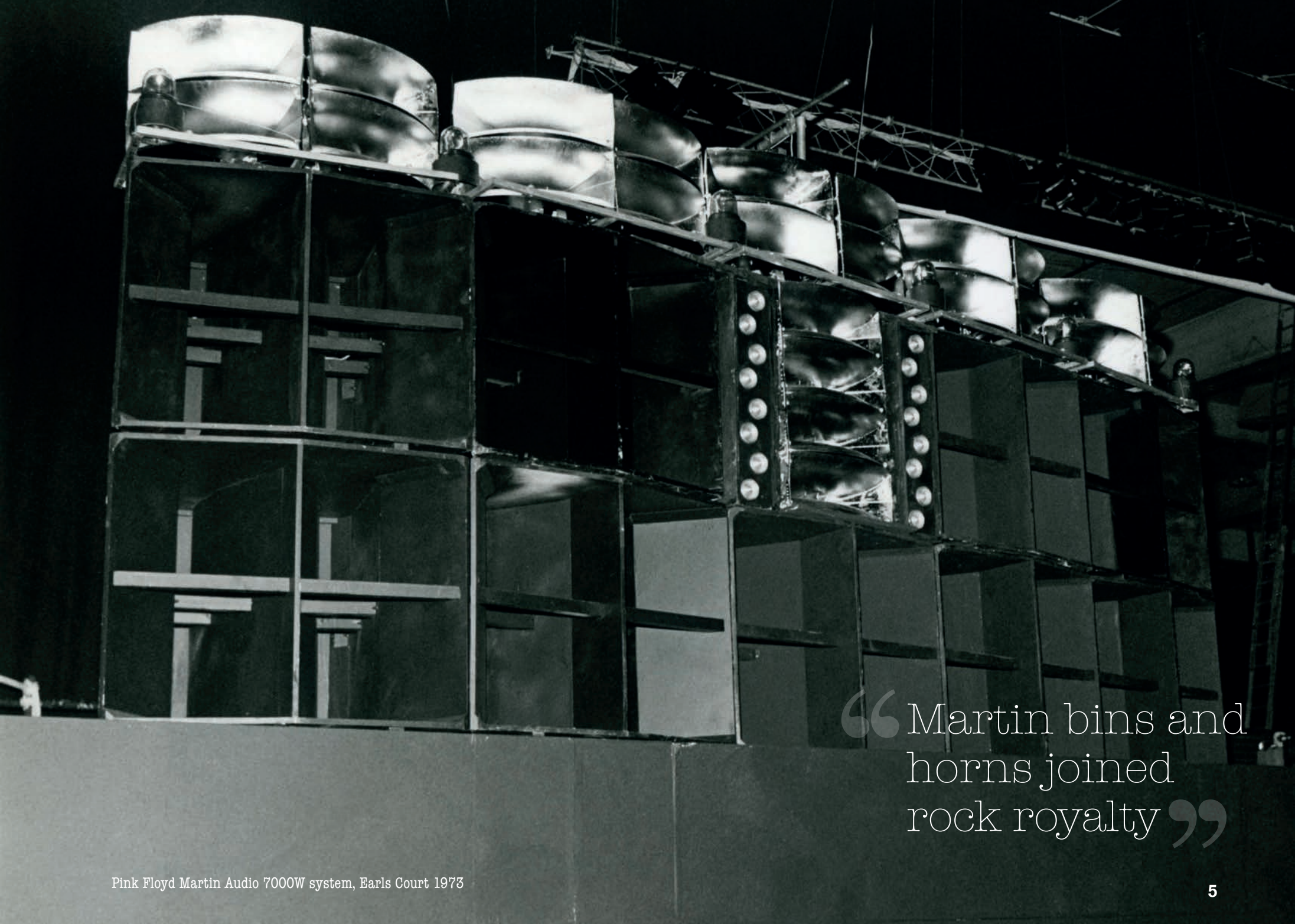
Pink Floyd Martin Audio 7000W system, Earls Court 1973

Prototype 215Mk1 bass bin, early 1970s

Martin, who had served his apprenticeship working with New Zealander, Dave Hartstone at IES, marked his UK PA debut at the Royal Albert Hall in October 1970 with these RCA 'W' cinema speakers and twin radial horns. He and Bob Auger installed the PA for a Johnny Harris concert for £51 and a bottle of scotch. "I bought the first speaker for £50, made an offer of £1 for the second which was accepted... and I rather wish I'd had more," he once quipped.

But because of the size, the inventor needed to rethink the folded-horn concept. The result of his research was to produce the famous 215 Mk1 (2 x 15") bass cab, which was later transformed into the equally iconic, but way more compact 115 (1 x 15"), he quipped at the time, "by sawing it in half." The bass horn crossed over into Vitavox horns with JBL2482 compression drivers at around 500Hz — and this combination became standard fare for many years to come.

Martin's horn-loaded systems proved to be a big step up from the earlier direct radiator columns, which couldn't keep pace with the demands of the emerging progressive scene. With early adopters including Pink Floyd, ELP and The Who, Martin bins and horns joined rock royalty through the 'progressive' era of the early-to-mid 70s.



“Martin bins and horns joined rock royalty”

Pink Floyd Martin Audio 7000W system, Earls Court 1973

Rank commissioned four Dave Martin systems

The Installation Breakthrough

‘Dave Martin systems’, as they were popularly known, also made a breakthrough in the installed world in the early-to-mid 70s when there was a tectonic shift from the old package tours, playing through pre-existing Odeon and Rank cinema systems, as American production values started to migrate to the UK.

This reached its apotheosis at the Rainbow Theatre, Finsbury Park, in 1972, a conversion from Rank’s former Finsbury Park Astoria and taken over by the ‘Sundancer’ consortium led by John Morris. Opening on November 4th, 1971 with a performance by the Who and Quiver, ‘Fillmore East’ production levels from New York were heard for the first time.

Unsurprisingly, it wasn’t long before another Rank Cinemas visionary John Conlan — who went on to become the cornerstone of the modern leisure industry, at the helm of pioneering operations like EMI Dancing and First Leisure Corporation during the golden ‘disco’ era — picked up the mantle.

In 1972 Conlan received carte blanche to set up the seminal ‘Sundown Theatres’ (faithful Rank cinema conversions) around the suburbs of London — the year after Dave Martin had set out his stall (almost literally) by locating his business in London’s Covent Garden market. And Martin Audio was central to his thinking.

The two men had been introduced by the late Ian Knight, following a sound system installation at the influential Roundhouse in North London which had been masterminded by Knight and his ‘Implosion’ partners, DJ Jeff Dexter, Rufus Harris and Caroline Coon (artist), activist and co-founders of Release, an agency set up to provide legal advice for young people charged with the possession of drugs. Implosion had grown out of the crew from Middle Earth Club and operated as a Release Trust with its Sunday afternoons at the Roundhouse featuring acts including The Who, The Rolling Stones, T Rex, Elton John and David Bowie.

The venue was responsible for producing a lot of breakthrough technology (and technicians) in the early days, and the Dave Martin bins formed part of that tapestry.

Rank agreed to talk to the sound genius, but weaned on WEM columns, they clearly had little idea of the power and muscularity of Martin's new generation sound. For this is what happened next …

The Rank delegation made a presentation based on their own house cinema systems, which had functioned to an acceptable standard in their Top Rank Suites. But Dave Martin, meanwhile, had decided to design a beefed up version of his Roundhouse rig, according to Conlan. "When we lifted the Safety Curtain and revealed the Dave Martin system it just hit you right in the guts," he remembers, "These Rank guys just stood in the middle of Sundown Brixton [now the Brixton Academy] and said 'Holy f***!"

Rank commissioned four Dave Martin systems — three large ones (for the Sundowns in Edmonton, Mile End and Brixton) and a smaller one for the West End venue (which later became Busby's), based on the 215 Mk1 bin (before it was split into the 115) — plus the popular Vitavox horns in use at the time. These had to be installed in record time (since the venues were scheduled to open pretty much back-to-back) and among well known industry faces in the installation team were the late Terry Price of Tasco, Mick Whelan and Bruno Wayte.

"We agreed a price but then realised Dave didn't have the money to build them so we had to somehow advance it to him," John chuckled when recalling the scene. "And that really took some doing!"

Support advertising in prominent music magazine Sounds, announcing the openings represented the company as 'Dave Martin Sound'. It was well before Dave had thought about a logo or a corporate name for his eponymous operation, and was almost certainly the company's first ever trade ad!

But John Conlan also acknowledged that none of this would have taken place without the influence of the Roundhouse, and its notorious Sunday afternoon Implosions.

Martin Audio 1975 PA system with 115 bins

The iconic 115 bass bin

The Roundhouse Factor

Jeff Dexter, who had been pivotal in the success of iconic London mod (and later hippy) venues like the Lyceum, Orchid Ballroom Purley, and Middle Earth acutely remembers the period between 1969 and October 1973 — the date when Implosion finally ended.

"Dave [Martin] turned up in around 1971 — his girlfriend and mine knew each other and so we were introduced at the flat in Hampstead's East Heath Road..

"We were doing Implosion and I had been using WEM systems, but Charlie [WEM owner Charlie Watkins] started to want Sundays off. Hiwatt stepped in, with Pete Webber and Phil Dudderidge, who had roadied for Soft Machine along with many others, and we announced the changeover from WEM to Hiwatt in our ads. We did a couple of shows and a couple of people came in with bins. RCA were popular at the time, as were the new Kelsey bins.

"It was during the Hiwatt era that people were starting to use these massive bin systems — and that was when my girlfriend's friend said she had an Australian boyfriend, who had a new speaker system …".

Dexter records that this even pre-dated the Jubilee Studios era in Covent Garden as Dave Martin's workshop back then on Brixton Road, near the Oval — ironically very close to where Charlie Watkins was based. "Dave had started building his bins above the old Taxi Service station and we listened to his first trials — I think using Celestion drivers, made from a metal cone. Charlie was very helpful and enthusiastic about Dave's work, even though it meant tough competition to the WEM Festival Stack, but Charlie was always a diamond.

"I arranged an afternoon at the Roundhouse so we could test them all — WEM Festival System, Hiwatt, Kelsey, RCA, Gaumont/Kalee and Martin — all lined up in an empty Roundhouse and what we got out of Dave's exponential horn was super. He also said that whenever the stage was set further forward he would put four bins in the gallery aimed towards the centre circle to avoid neighbour problems. He was a clever boy in that respect!

"At the same time I engaged with Allen & Heath who had built the first modular mixing system, and replaced the old WEM Audiomaster."

Once the Dave Martin system was installed in 1971, all incoming artistes and technicians were expected to use that system. The installation went in and stayed there.

Jeff always contends that "we had better sounding equipment than the Rainbow at that time, mainly due to Dave's speaker placement suggestion — and the only person who really listened was John Conlan!

"But I remember that as soon as Dave Martin had received several commissions he went out and bought a Bristol car!"

> "what we got out of Dave's exponential horn was super"
>
> Jeff Dexter

The Stanhope Street Years

The pivotal years in Dave Martin's extraordinary success came after he moved his workshop to Stanhope Street, Euston, after four and a half years in Covent Garden — probably leased to him by the aforementioned Dave Hartstone; fortuitously, it was situated right next door to Midas consoles, run by Jeff Byers. Thus the Midas/Martin axis was formed, which was to produce the de facto touring system during one of the most fertile periods in the company's history.

With Pink Floyd using all Martin bass bins and HF horns, it's easy to see why PA companies such as Concert Sound, Entec and ML Executives in the UK wanted to buy into the Martin Audio signature sound, and as a result other leading prog rock bands like King Crimson and ELP became customers.

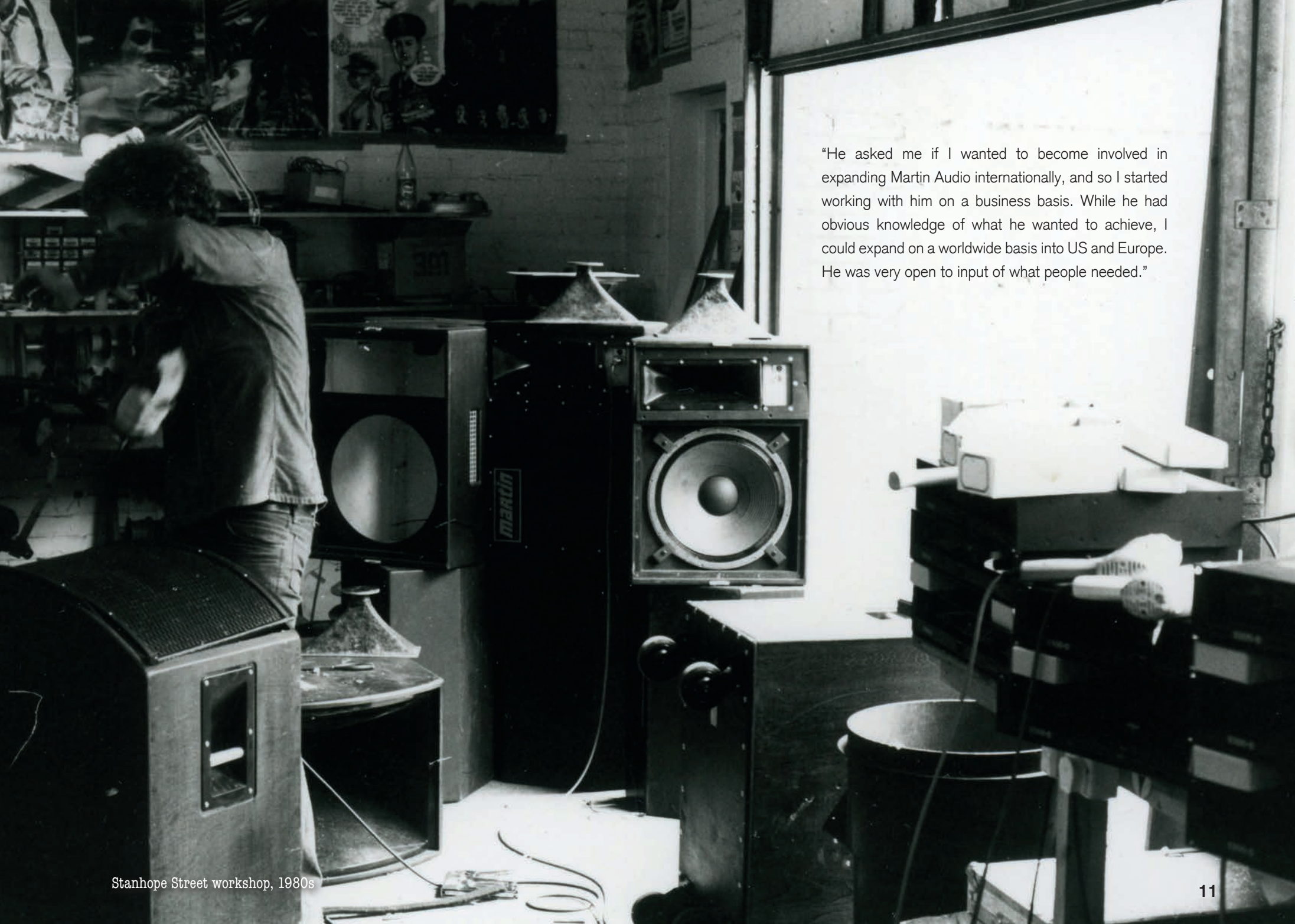
As mentioned earlier, Martin Audio's horn-loaded systems were a big step up from direct radiator columns. The design model during this era was still essentially two-way, with the bass bins going straight into Vitavox high frequency horns using phenolic diaphragm compression drivers. Whilst the early systems had the horns sitting on top of the bass bins, before long bins were being grouped together in a block, with the horns stacked on top of each other — a radical stacking principle that was to come to the fore a few years later with the Martin modular system.

With Martin and Byers pioneering their respective development programmes, a move towards complete PA system designs, using matched loudspeakers, crossovers, power amplifiers and multicore cables, was inevitable. The Midas/Martin Audio combo quickly established itself as the standard console and PA package for the serious rental companies as the empirical journey into electro-acoustic research continued.

Also a shareholder at the company between the mid-70s until 1981 was Nigel Olliff, before leaving with Midas engineer Chas Brooke to form the hugely successful Brooke Siren Systems (which became BSS Audio). He recalls that Geoff Lonstein, from Colosseum Acoustics in Johannesburg, also held a minority partnership in Dave Martin's company — while the office was largely held together by the popular Gwen Tory.

Although this was still very much a cottage industry, Olliff certainly arrived with the 'chops' to set up a business structure and international sales operation, and apply the knowledge he had acquired touring lighting with artists such as David Bowie and Roxy Music. "I also picked up a lot of audio engineering knowledge during that time but I got married at the end of 1974 and decided not to tour. Robin Mayhew was Bowie's sound man and he asked me to help rent out his Turner PA during the Ziggy Stardust period. We decided we needed to use some new monitors and that's how we got chatting to Dave Martin.

Above: Midas/Martin Audio complete PA system



"He asked me if I wanted to become involved in expanding Martin Audio internationally, and so I started working with him on a business basis. While he had obvious knowledge of what he wanted to achieve, I could expand on a worldwide basis into US and Europe. He was very open to input of what people needed."

Stanhope Street workshop, 1980s

As a result by the end of the 1970s, Regiscene's Zoli Schwarcz in France was starting to place big orders and Manolis Bofiliakos at Bon Studio in Greece had also taken note. The American revolution was also underway, with outfits like Delicate also heavily invested in Martin's bass bins.

But Joe Browne's Tasco had probably been first to kick-start the US momentum, and the 1975 system that saw Deep Purple playing large US venues (supported by Aerosmith) remained in the US as the basis for Tasco America. It then went out with Aerosmith and Ted Nugent. By the following year US tours, sourced in the UK, were awash with Martin Audio systems. "It basically outperformed the competition — it was not the prettiest but it was certainly the most dynamic," remembers Delicate Productions' Chris 'Smoother' Smyth.

All of which supported Nigel Olliff's theory that business developed mostly on the basis of demoing systems to people they knew, while continuing to develop leading edge equipment. "The LE200 wedge monitors were really fantastic — a big seller. We also developed the H350 2-way column speaker."

It wasn't long before Tim Boyle at Concert Sound started to take an interest. Boyle (who today heads Concert Sound Clair) was one of the early adopters of a Martin/Midas system in the 1970s. Like other rental companies it had evolved from a system purchased for a band, in this case Welsh rockers Man. Their manager Barry Marshall, along with Tim Boyle, who was their booker, were to become synonymous with Concert Sound in the years ahead.

The Martin/Midas system was chosen for the band by Boyle at a three-way shoot-out at London's famed Rainbow Theatre, hired for an afternoon. Beginning with 3 x 115 bins a side, Vitavox horns with JBL drivers and Midas power-block amplifiers, the Concert Sound inventory was to grow dramatically in the years to come.

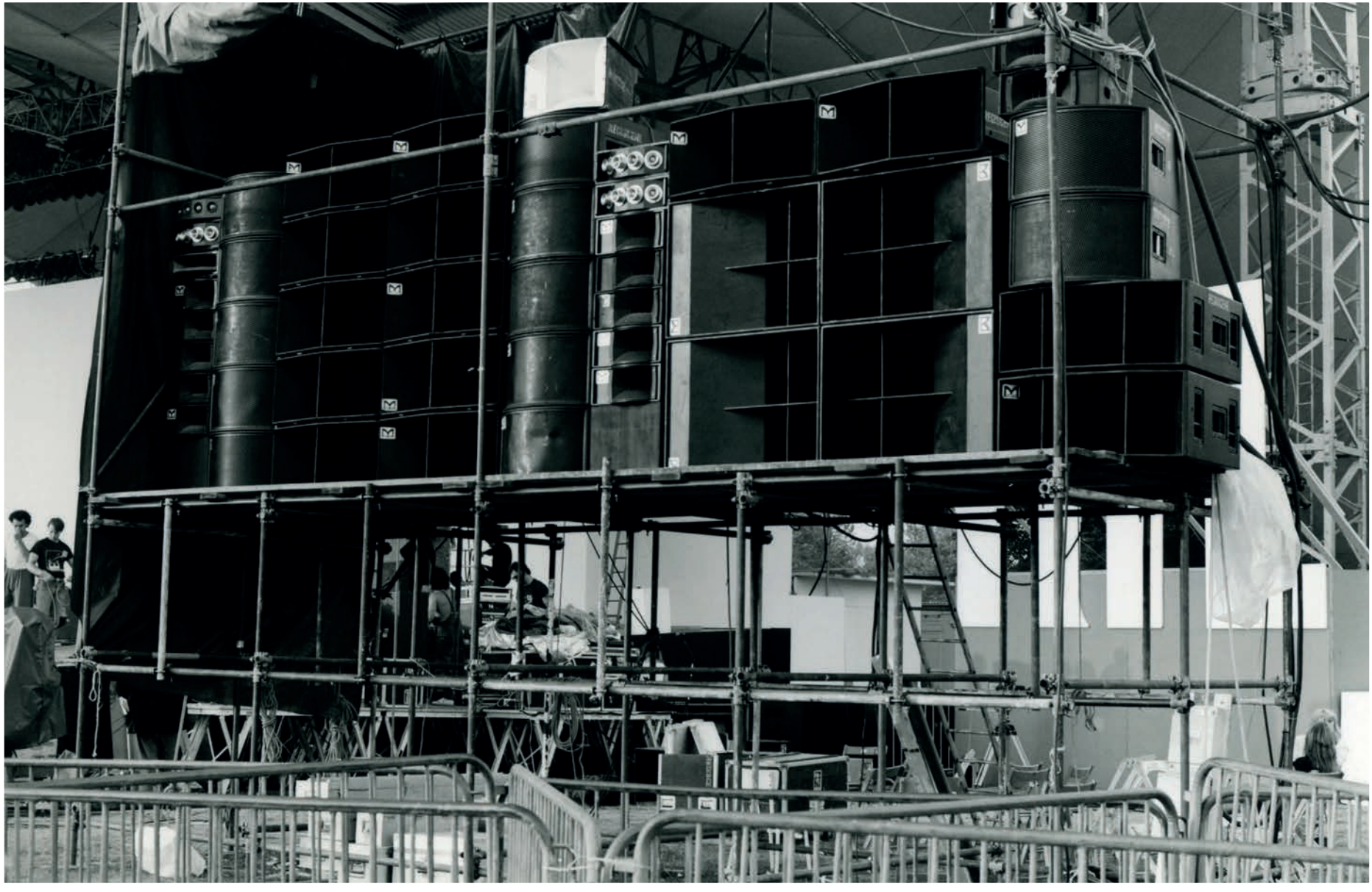
Olliff recalls that they also met up with Keith Davis and Derek Smith at the Batley Variety Club (later the Frontier Club). The system they put together inspired the young Keith Davis to ramp up his own PASE rental company, before heading south to set up what eventually became Capital Sound.

Also arriving at the company in 1976, before leaving in 1978 to set up Volt Loudspeakers, where he remains Technical Director, was David Lyth. Having served time with Jordan Watts and Gale Electronics he brought with him an electronics degree and masters in acoustics. At Gale he had worked with the similarly qualified Bill Woodman — who shared the same nationality as Dave Martin — before Woodman set up ATC.

After designing the crossover for the LE200, Lyth was to become a central figure in the development of midrange, and what became the MH212 'Philishave'. The next episode was about to begin.

Dave Martin with Zoli Schwarcz of Regiscene

The yard at Stanhope Street, 1980s



Modular stack – 115, 215Mk3 and S2 bass bins – Regiscene tour, France, 1980s

‘Philishave’, Supertramp and Delicate

As sound systems generally improved, Tim Boyle was one of several people who noticed the relative lack of midrange. “Martin Audio came up with an interim measure known as ‘the threepenny bit’”, he remembers. This contained three ATC 12” direct radiators, the central one forward facing, and the outer two (on either side) on an angle. There was also a 2 x 12” angled mid (the MR212).

Lyth recalls, “Although we had designed the LE200 Dave’s real interest was clearly in gaining more midrange. He had this angled ‘threepenny piece’ but it didn’t really throw. He had the mid up to a point with the ATC 12’s, but it wouldn’t go above 800Hz. I remember he would bring in bands like the Rubettes to try new things out.

Based on compression driver thinking, I produced a phase bung for the ATC 12 and managed to get it up to 1.5 kHz. The problem had been releasing the mass/volume of air trapped in front of the cone. We then had to get the fibreglass moulding produced and that led to the MH212.”

Introduced in 1978, the MH 212 quickly became known as the Philishave due to its resemblance to the electric razor of the time. It was compact, loud and crossed into the HF horns at 1.5 kHz. More importantly, it was the first ever dedicated midrange horn. The name Philishave resonated louder than the components from which it was made and it quickly became an industry standard around the globe.

“Dave knew what he was doing and was very professional, working to a high standard. He knew how to do things without cutting corners and I liked him immensely,” recalls David Lyth. But he modestly dismisses his own role in the Philishave development as “just something I did.” After Lyth’s departure, the following year Bill Webb was to fill the breach as head of the technical department, picking up the considerable legacy and evolving it further.

MH212 ‘Philishaves’ and HF2M horns

Popular folklore has it that the Philishave was produced for Supertramp to launch their Breakfast In America tour in 1979. The band, whose rig was eventually acquired by Delicate Productions of California in 1982, were one of a number of bands thankful to have more power in the voice/mid regions. But after the band had relocated to America's West Coast it was their production manager Spy Matthews, and British émigré Smoother Smyth, who made their mark by afterwards deciding to set up the rental company, Delicate Productions to accommodate it.

While Dave Martin continued to adopt a horn-loaded philosophy for maximum efficiency in minimum space, the MH212 was the deal maker and Smoother remembers that the touring PA system for Breakfast In America comprised 48 Martin Audio 215 bass cabinets, 36 Martin 212 'Philishave' mids, 48 Emilar compression drivers and horns, 24 Midas 'Block' amplifiers and 36 H+H S500D amps. A custom-designed Midas DA1 (Delicate Acoustics) 36/8 console was at FOH, along with three Klark Teknik DN27 graphic EQs, a Master Room reverb, two Brooke Siren (BSS) MCS200 modular crossovers and six dbx160 compressor/limiters.

On stage, there were 18 Martin LE200 floor monitors powered by H+H S500D amps. The mix was controlled by a Midas Pro4 32/8 console and the monitor racks housed eight Klark Teknik DN27 graphics and three Brooke Siren MCS200 crossovers. Mixing the band's lush sound was Russel Pope. "It was at that time that I came across the term 'the right way, the wrong way and the Supertramp way.' 'Delicate' thus became an aptly appropriated name for the new company when it started up in 1980.

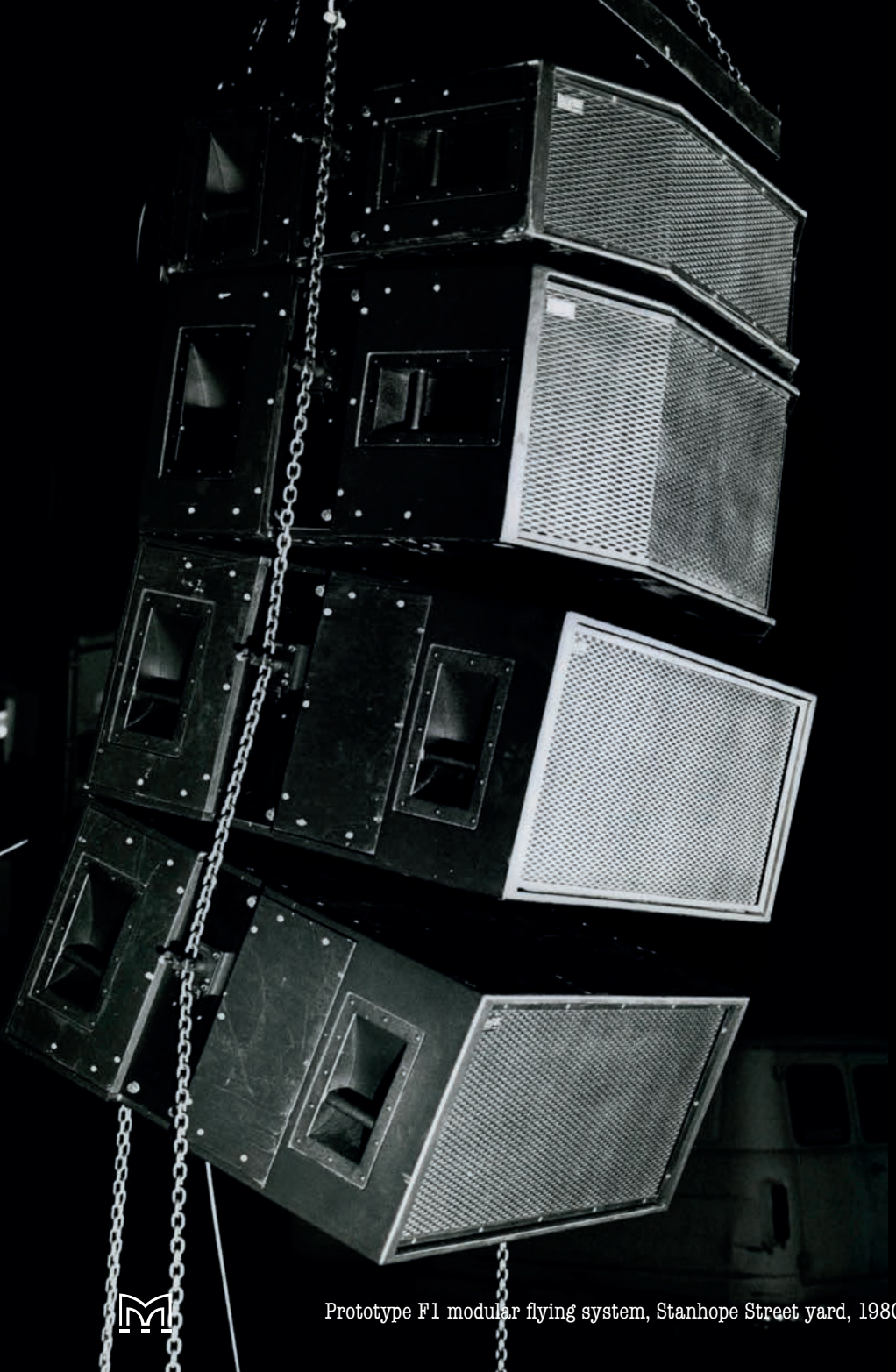
Smoother remembers that sound engineer Russel Pope's eye for detail and keenness to experiment played a major part in the tour's success. "The one thing that has always been inherent in a Martin Audio sound system is the mid range — especially the low mid range frequencies.

"On the '79 tour the Philishaves were actually placed on their side one next to the other. The side to side spacing between them was critical and Russel kept a close eye on this and the placement of the high frequency drivers arrayed in the same manner."

Prior to Smoother Smyth arriving on the Supertramp tour, the band's sound system had already been utilised by other artists including Kansas. "The band ran this through their books as Delicate Acoustics and had sole ownership. It was during the 1979 Breakfast in America tour that I approached the band and management with the idea that after the tour we form Delicate Productions which would have to be self-sustaining.

"I saw that the band music publishing was under Delicate Music and I went for the name 'Delicate Productions' as a mark of respect to the band. The entire road crew would have the option to be equal shareholders of Delicate Productions or simply move on. When the dust had settled we had 14 shareholders. Today we have two active and two non-active shareholders."

Thereafter, early renters of the Delicate Productions Martin Audio sound systems included The Clash, The Knack, The Little River Band, INXS and U2. "By the time we wound down from the 1983 Supertramp tour the band owned equipment had been paid for. This was attributed to a great commitment from our crew members and the generosity and support we received from Supertramp and their management."



Prototype F1 modular flying system, Stanhope Street yard, 1980s

The British PA Evolution: Tim Boyle, Concert Sound

As with Supertramp, and so many bands in the 1970s, the purchase of their own equipment was to provide the foundation stones for the emerging sound and lighting rental industry that we have today.

When Welsh band MAN completed their recording deal with Liberty/United Artists it gave them sufficient capital to buy their own PA system.

Tim Boyle recalls that their first PA only lasted a few months, but then they toured with Nektar and heard the Midas/Martin system. “After hearing it they realised they had bought the wrong PA,” says Boyle. “Their manager, Barry Marshall [Marshall Arts] said he would put his hand in his pocket so we hired the Rainbow for a day and we tried three PA system including Midas/Martin, with the Midas blocks and amps. It was streets ahead of the rest and the Martin PA just sounded so much better.”

With Jeff Hooper mixing the sound and Rob Collins handling lighting and backline they had a formula for success. Tim remembers, “You had the crossover in the Midas desk, and there were Vitavox horns with JBL 2440 2” exit compression drivers before Martin designed their own horns.

“The Vitavox horn had to go down a bit further because of the absence of mids [prior to the Philishave].

> “the Martin PA just sounded so much better”
>
> Tim Boyle, Concert Sound

But every time the band brought an album out they changed the line-up, and by the time the band eventually split up Barry Marshall had bought the PA and I said, ‘Why don’t we hire it out?’

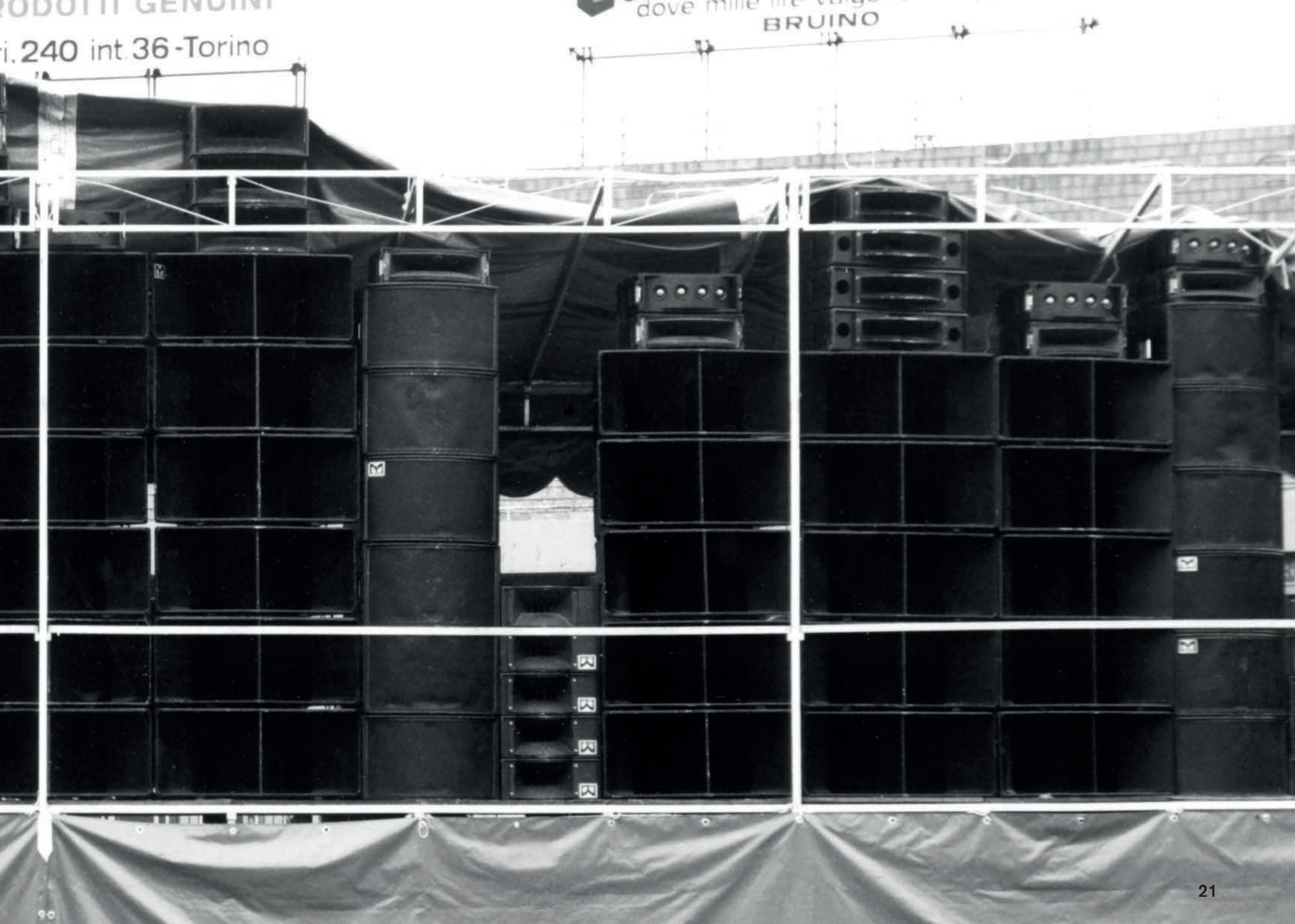
From a working unit in Battersea the company moved to Upper Street, Islington and then to a 1,000 sq ft warehouse in Watford. The new Concert Sound continued to take on more Martin Audio inventory. “We ended up with around 18 or 20 115 bass bins at which point Martin Audio brought out the Philishave and we would run three of those in the rig along with six horns.”

Concert Sound continued to upgrade their system, with other companies, such as ML Executives (The Who’s PA company at Shepperton Studios) and Entec following suit. “We kept the system for years,” reports Boyle. “We did Dire Straits all over Europe with a four way system — 20 or 30 boxes a side — and did the big Free Mandela concert at Wembley in 1988 with 98 x 215 Mk2 bins, 60 Philishaves and over 60 HF horns plus JBL bullets.

“We later tried the F1 [prototype modular flying system] with Leo Sayer in Harrogate and it was beautiful, stunning, but Dave only had a few systems. I asked ‘when are you going to make more?’ but he soon brought out the F2 and the whole philosophy of flying systems changed from that point onwards.”

Keith Moon monitors, 1977

Dire Straits, Juventus Stadium, 1981 – Concert Sound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Keith Davis' original Martin/Midas PA, 1978

Keith Davis, Capital Sound

Martin Audio's predominant rental partner Capital Sound Hire, owes its lineage to the pioneering work undertaken by sound technician Keith Davis up in Yorkshire as far back as 1978. He had worked at the Batley Variety Club and on leaving, Keith set up PASE Hire with partners who would later purchase the Variety Club and reopen it as The Frontier.

The first supercharged PA system that PASE purchased was very much the paradigm of the upper echelons of sound reinforcement and was initially built around Martin Audio 115 bass cabs. But this grew to 12 of the more compact 215 bins and six MH212 Philishaves along with some JBL 2350 horns with Gauss HF4000 drivers and four JBL 075 bullets all driven with Crown DC300A amplifiers. The sound was mixed through Midas consoles and Martin Audio LE200 provided the floor monitoring. Keith later fitted a Martin Audio system into the renamed Frontier Club, a sound rig which would be far removed from the 'disco' norm of the day.

"When I started PASE I looked at various options. I came to Stanhope Street and met Nigel Olliff and Jeff Byers. I had also recently visited the BADEM Show (precursor to PLASA) and met [freelance monitor engineer] Dick Hayes at Entec who had used Martin Audio monitors, and The Who also used a Martin Audio PA.

"Dick said it was revolutionary and after all the rubbish before, the bottom end was … wow! I looked at other systems but preferred the Martin Audio and after all the years of using Philips columns at the Variety Club this was a revolution." These went into the club where Derek Smith was the booking agent.

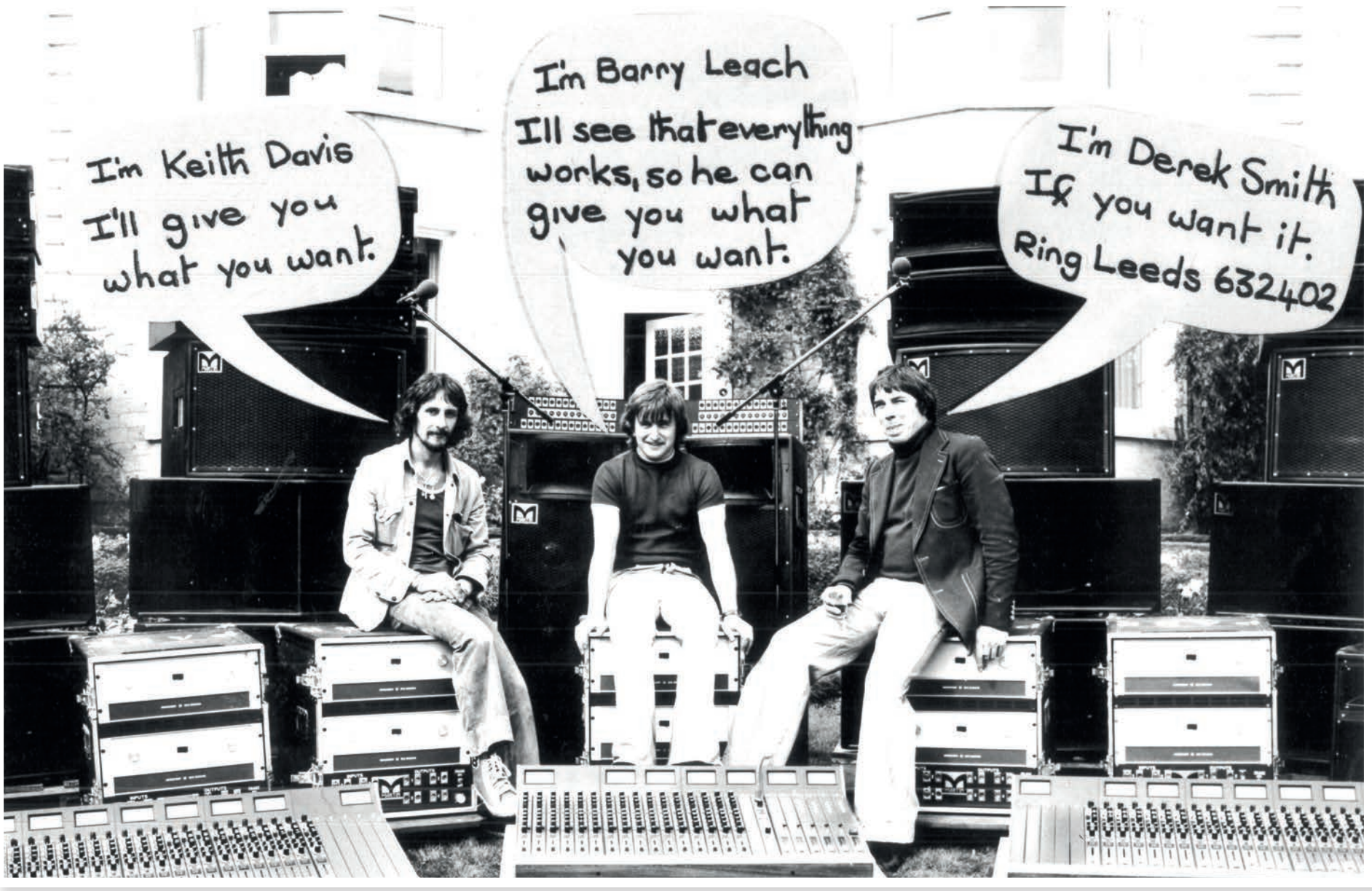
By 1982 Davis was down in London, running a company called ACS (Artist Concert Services) with Fray Miller and Shakin' Stevens — again with a Martin/Midas System — before setting up Capital Entertainments with John Tinline in 1985.

Keith Davis worked with other notable Martin Audio systems of the day, including RS1200 and RS800 cabs. In fact he supported Spandau Ballet with 24 of the RS1200 full range cab (with BSX subs) which had been designed in response to the call for a one-box system that could fly as well as stack.

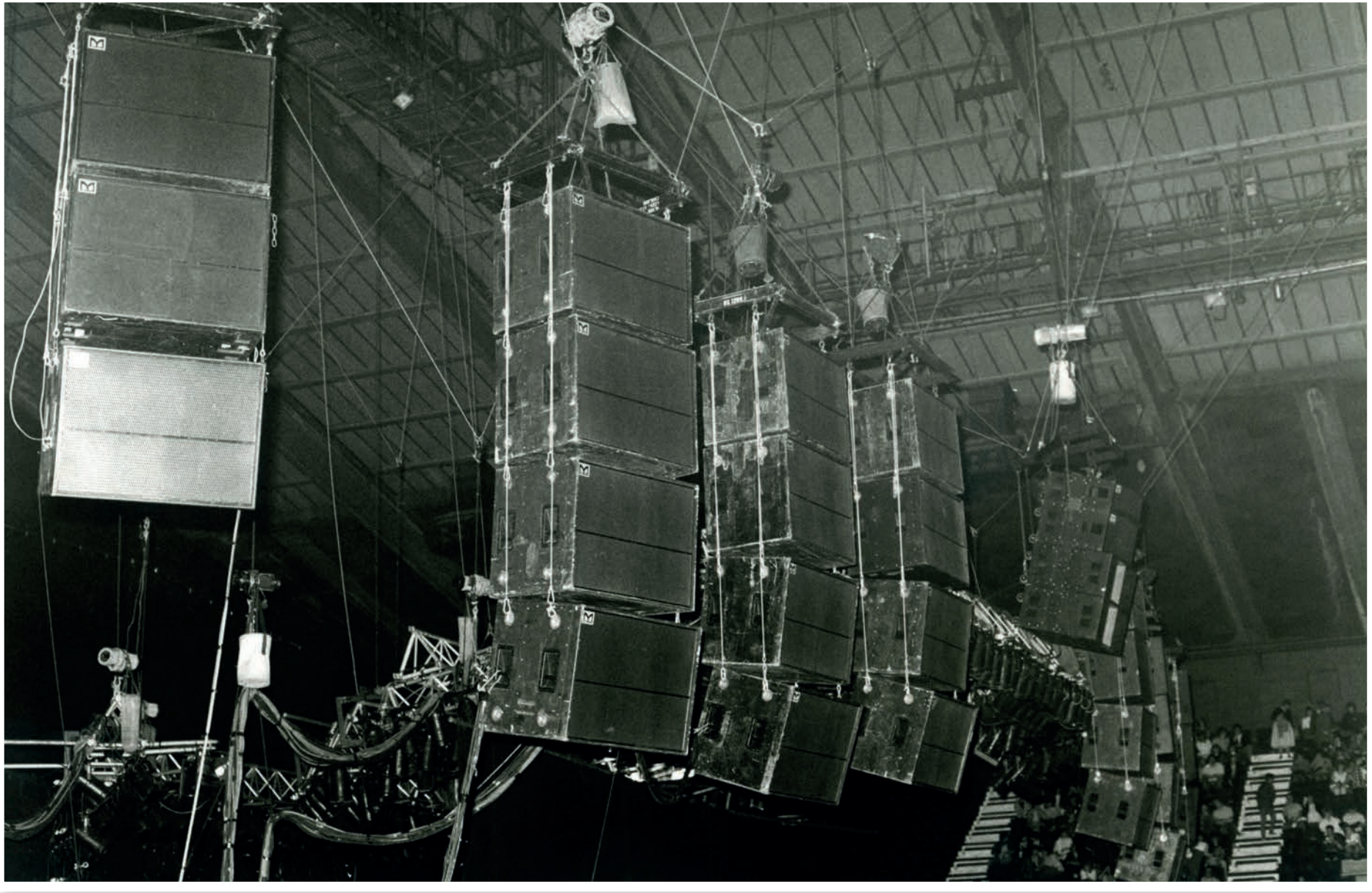
In 1987 Dave Martin produced his classic F2 two-box modular system, with 15in hyperbolic horn. With its close coupling characteristics it was designed to give PA companies more versatility and he always maintained that you'd have to go right back to those early 215 bins to stand comparison.

In fact 1987 was to prove a pivotal year in more ways than one. Midas was taken over by Klark Teknik and Martin Audio moved from London to High Wycombe's Cressex Industrial Estate.

Ironically the first sound engineer to use the F2 was anything but a Martin Audio fan. Roger Lindsay fired the two-box system up in anger when Keith Davis rang him to say that Sade was looking for an engineer with a track record to mix her upcoming world tour.



Keith Davis, Barry Leach and Derek Smith – PASE Hire



Flown RS1200 one-box system - Capital Sound 1980s

“So we went to a Sade rehearsal at Brixton Academy and Dave Martin was there with the F2 prototypes,” Roger recalls. “I remember joking at the time that Dave couldn’t have built it, because it sounded too good!

“Production rehearsals started in Atlanta and the system had never been used before, but Keith ordered 90 x F2 enclosures for the tour.”

With such a short delivery time, Mick Nash de Villiers [at rigging / engineering company, MAN Flying Systems] took the cabs to his warehouse and drilled them at short notice and the paint was still drying when they crossed the Atlantic. “They had to get a forklift truck to separate the cabs in Atlanta because they were shipped in containers to the States while the paint was still wet,” remembers Roger. “However, it was a great sounding system,”

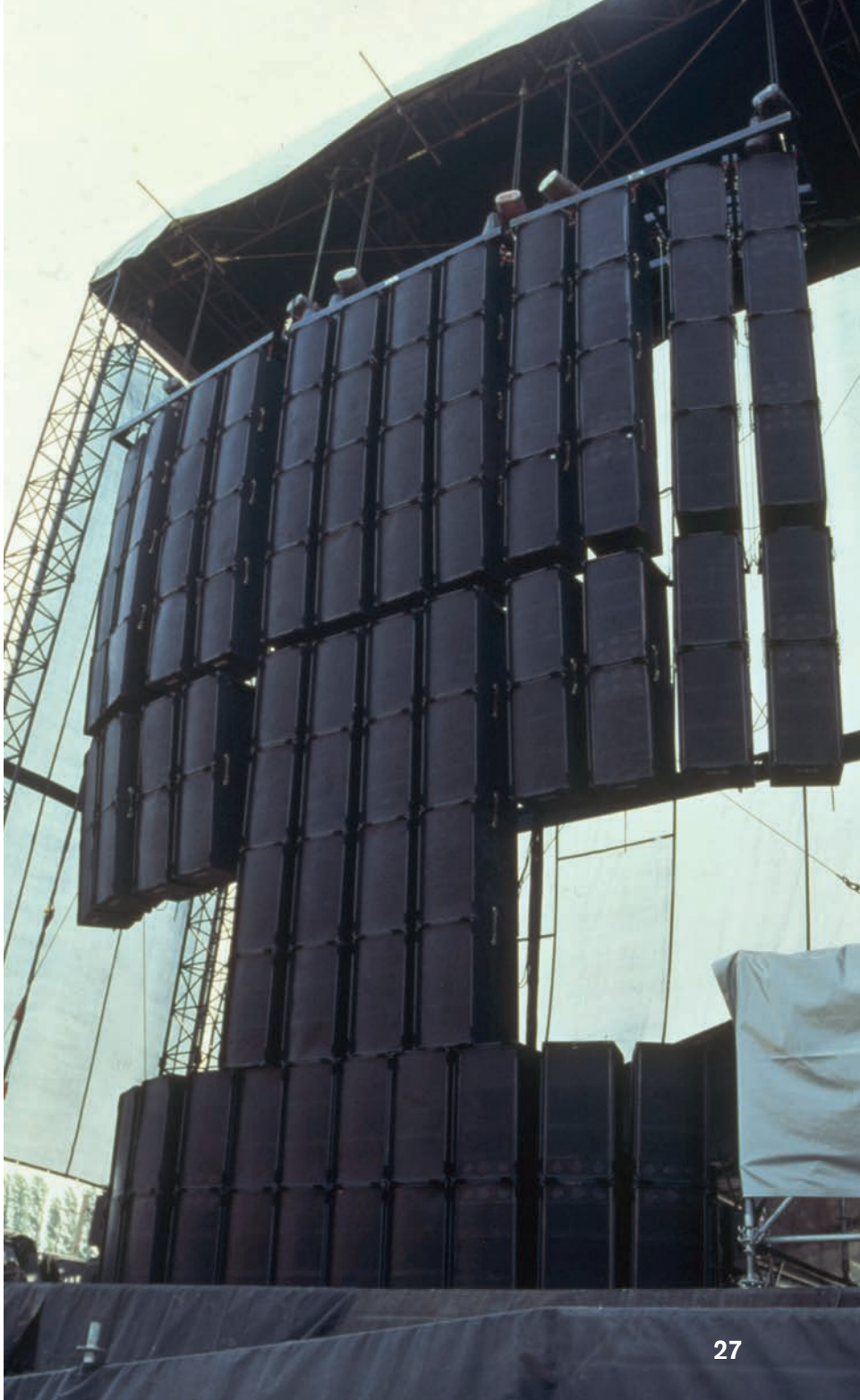
But the breakthrough for Capital was when they picked up the Simple Minds touring account for outdoor arenas and stadiums. “It was a huge step up for us and all thanks to FOH engineer, Nick Baker. He had heard the system and was 100% on our side. Although a lot of people said we were not big enough to support the tour, he backed us.

“The F2 modular system was very adaptable, it could handle long or short throw or be used as a combi cab and it always sounded good.”

When John Tinline left to start Encore, Keith set up Capital Sound Hire in September 1989 with the F2 system at his hub — subsequently adding significantly to his F2 inventory. In fact Simple Minds were to become synonymous with the system during the passing of the decade.

Capital Sound has continued to support Martin Audio right through their Wavefront and MLA development programmes. “We must have bought thousands of boxes over the years.”

Left: **Simple Minds, Capital Sound – F2 System, 1980s**
Right: **Torhout-Werchter Festival, Belgium – EML, Capital Sound and Ampco, 1994**



Cooper Cannady, Owner, RMB Audio

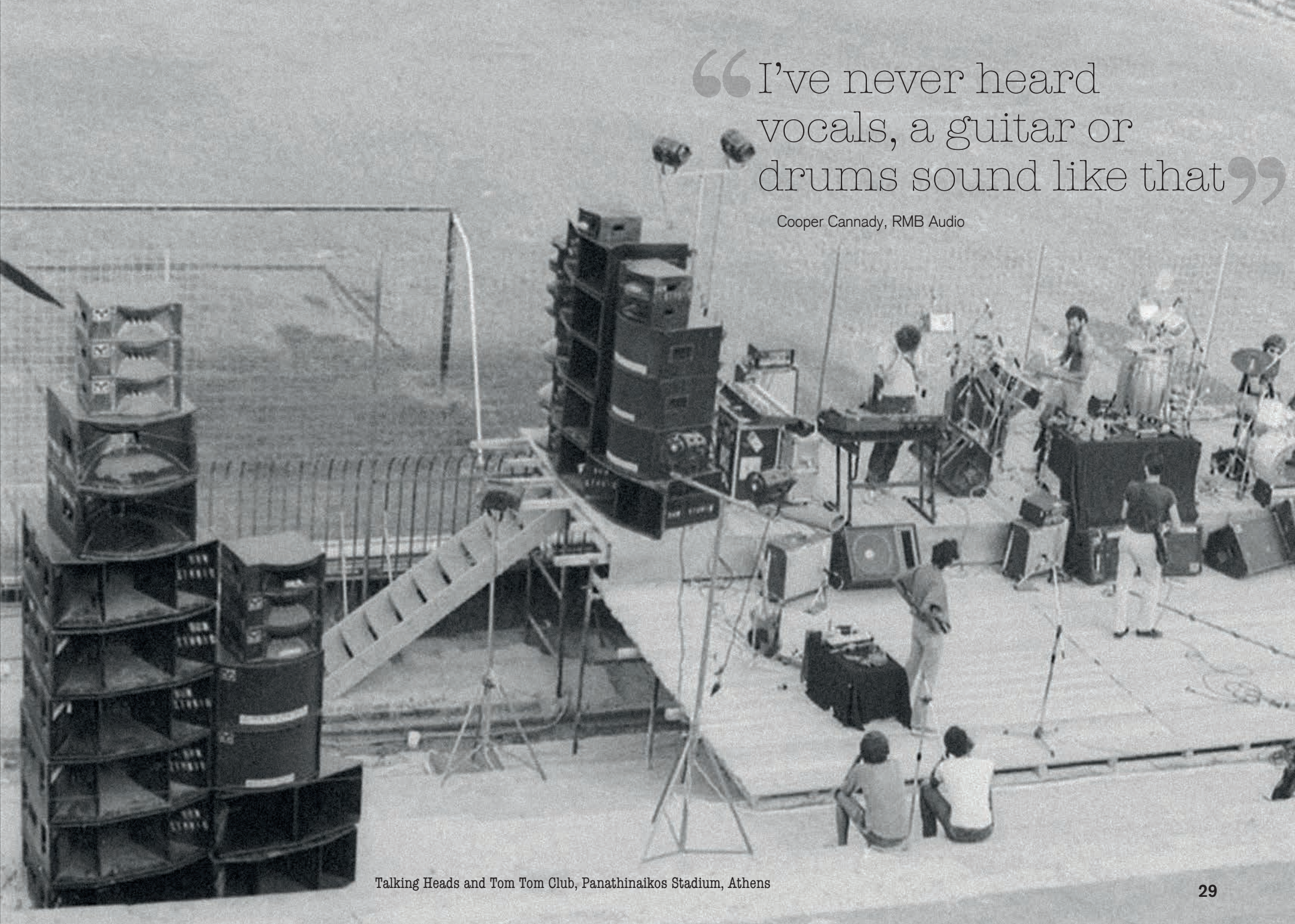
My first recollections of Martin Audio would be 1982—I don't recall the show or the venue but I remember being totally mesmerised by the Martin Philishave cabinets, the MH212 boxes in column stacks; about two to three stacks a side.

I was absolutely astonished with the capability of those cabinets. The rest of the system was really good, but the cabinets were what attracted my attention and marked the point where I started delving in to find out more about Martin Audio as a provider and the cabinet design, and within six months, I had four of those cabinets in our inventory.

It was the compression, the force and impact of the sound, not just the loudness. I've never heard vocals, a guitar or drums sound like that. At 150 feet, you could feel the snare drum slap you in the face and feel it on your skin. It was one of those moments where I was very much transfixed on the midrange devices. Later I found about the folded bass cabinets, and then the split bins, which I added to inventory.

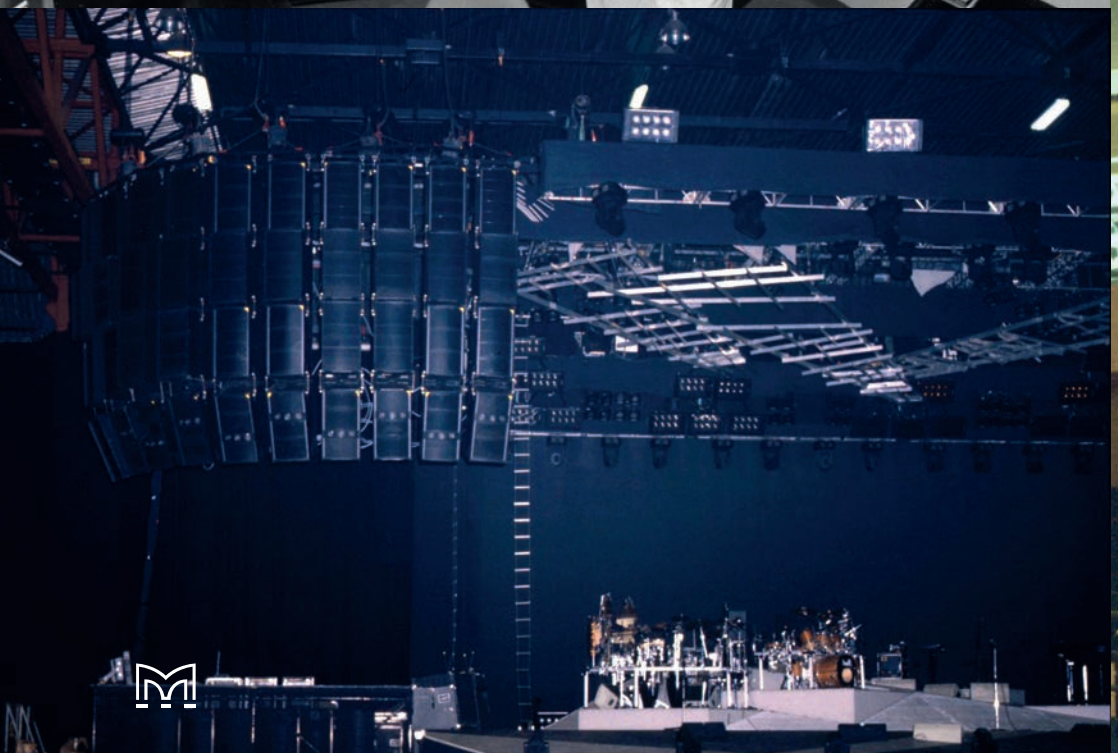
My first conversation with Dave Martin would have been in 1984 on the phone while he was in New York at an AES Show, a discussion of the split bins and the other products we carried at that time. I found Dave to be a very sophisticated businessman, tremendously wise. He was extremely helpful in discussing the design of the Philishaves, the purpose of the split bin and other Martin Audio speakers. That was my first introduction to Dave Martin. The high level we set in the first conversation continued in the following years. I found Dave to be very business-like, very analytical, technical and straightforward.

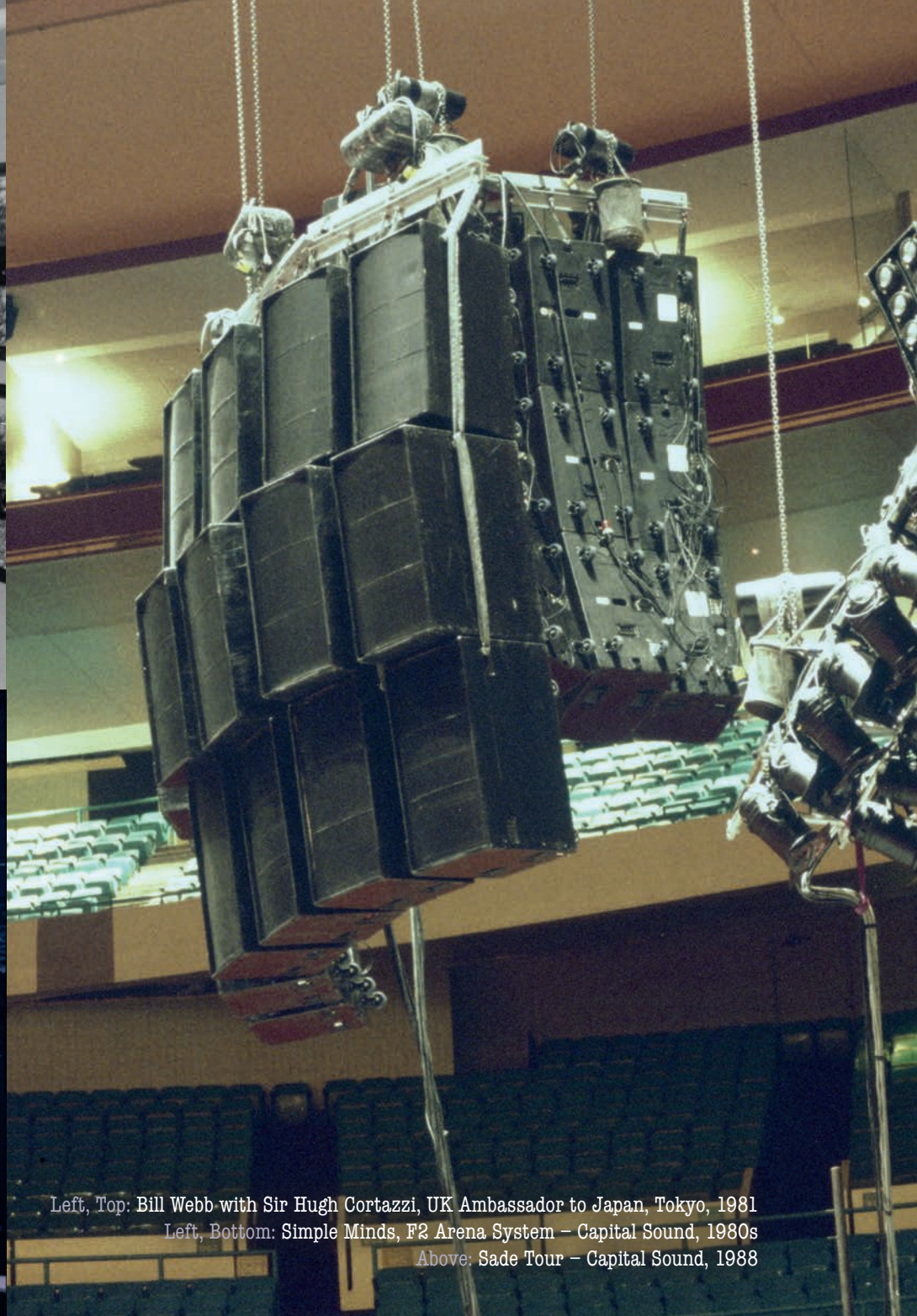
David Martin with the FR3 system, one of Bill Webb's earliest designs for Martin Audio, 1981



> “I’ve never heard vocals, a guitar or drums sound like that”
>
> Cooper Cannady, RMB Audio

Talking Heads and Tom Tom Club, Panathinaikos Stadium, Athens





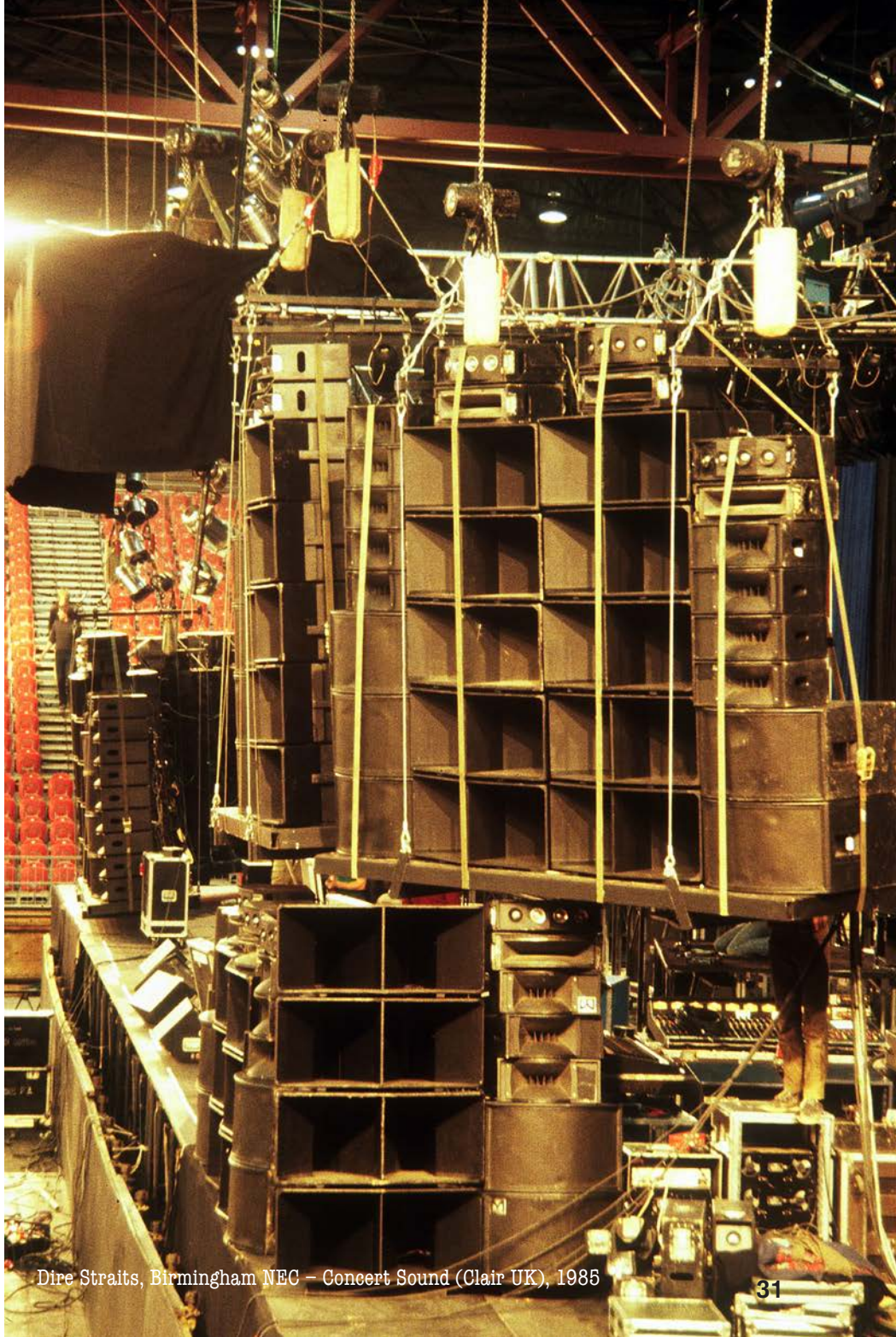
Left, Top: Bill Webb with Sir Hugh Cortazzi, UK Ambassador to Japan, Tokyo, 1981
Left, Bottom: Simple Minds, F2 Arena System – Capital Sound, 1980s
Above: Sade Tour – Capital Sound, 1988

One of the most perceptive things he ever shared with me was that he didn't want to be the "speaker cabinet builder for the world." He wanted to build the best product that he could for the users who adopted that product, and he was happy to support that. We developed a very good relationship understanding exactly what and whom he was designing for.

The Philishaves had so much sonic signature to them, vocals sounded unbelievable. Up until then, most systems were at best two-way and this was a three-way system with a high compression ratio in a very powerful mid device and the energy from it was just amazing. Once you heard a pair of those together, it was a signature you'd never forget. It was the thing that enticed me because before that it was two inches screaming at you at some distortion level and basically Dave had created a three-way system that was cutting-edge and moving away into a very sophisticated area.

> "Dave had created a three-way system that was cutting-edge"

Cooper Cannady, RMB Audio



Dire Straits, Birmingham NEC – Concert Sound (Clair UK), 1985

David Martin and David Bissett-Powell with visiting distributors

The 1990s – A Period of Great Change

For all his touring and design expertise, Dave Martin hadn't been able to really grow the business to the extent his ideas deserved.

He sold the company in 1990 and was to stay on as managing director for the next 18 months. It was hoped the move to High Wycombe would mitigate the huge costs and shipping problems associated with having a central London address, but it was eventually clear that what Martin Audio needed was someone dedicated in the role of MD, which would allow its founder to concentrate on loudspeaker design and development.

Coinciding with Dave developing outside interests, David Bissett-Powell came in as MD in April 1991, with Dave agreeing to stay on a part time basis as engineering director.

However, in late December 1992, Martin Audio's staff were quickly brought down to earth from their Christmas celebrations when they learnt that their founder was missing, presumed dead — apparently murdered following a confrontation with his business partner Colin James (in a non-audio business venture).

Dave Martin's body was never found, but his former partner was arrested and convicted of his murder.

Meanwhile David Bissett-Powell continued about his business with authority, ensuring that the company would enjoy a 20% year-on-year growth up to and beyond the time they moved to their luxurious new purpose-designed facility — across the Cressex estate at Century Point in 1996.

If it was going to be a world contender and deliver strong growth, the new MD realised that Martin Audio needed to diversify from its touring heritage.

It came about after the MD noticed increasing enquiries from customers who wanted to install the F2, but he reasoned that the touring products were over-engineered for this type of application.

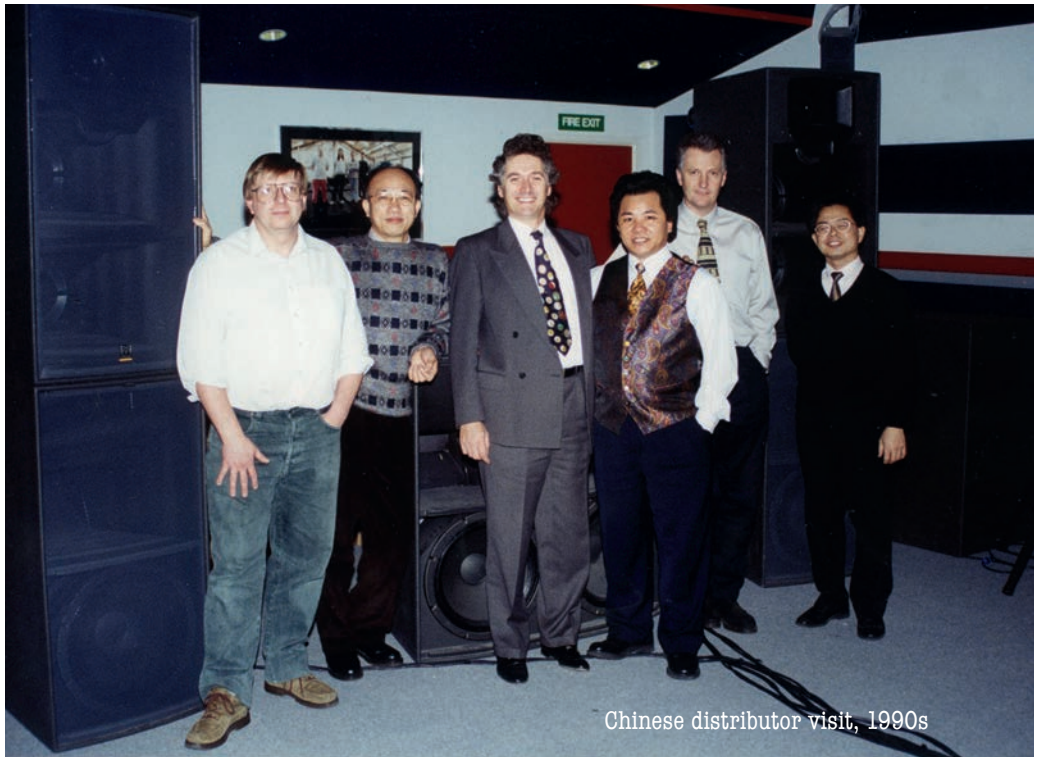
Hence from the beginning of January 1992 the company began development of installation-specific products, with the EM architectural range completed in time for the PLASA Show that September. The multi-component EM series would see them become a major player in installed sound at a time when both the retail pub chains were rolling out huge high street estates and the nightclub world was also burgeoning. The move to the contractor market had been crucial … and timed to perfection.

One of the new MD's first moves had been to bring back the long-serving Bill Webb, who had meanwhile become independent — undertaking design work for the likes of Turbosound and Trace Elliot, as well as contributing to the EM Series. Bissett-Powell reasoned, "I needed someone on the inside and I had tremendous respect for Bill's work." He was immediately made Director of Engineering.

Bissett-Powell also brought in Martin Kelly in sales, and together they began to expand the distribution network in Europe and into Australia and China, where there was a great appetite for the architectural range.

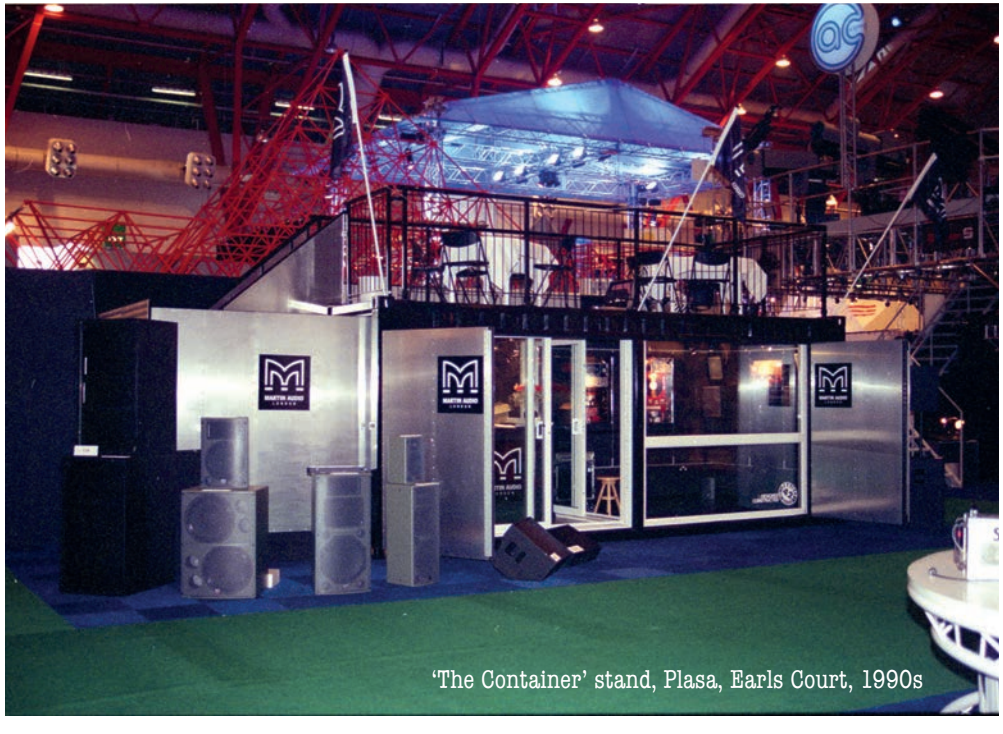
At the same time no-one was about to take their eye off the core touring business, and a recognition that the F2 system was getting long in the tooth led to Bill Webb designing the innovative Wavefront 8 and 8C. Augmented by the W8S and WSX subs, the tremendously successful Wavefront touring series reached the market in 1995 — baulking the widely held view, once and for all that "if it doesn't have a 2" compression driver it won't sell."

The Joint, Hard Rock Hotel, Las Vegas – F1 and LE Series install, 1990s



Chinese distributor visit, 1990s


The assembly floor, Lincoln Road, 1990s


'The Container' stand, Plasa, Earls Court, 1990s

125 Supersport Motorcycle – Jason Absalon 2, 1991-03

Riding The Wave with Bill Webb

Bill Webb takes up the story. “The thinking behind the Wavefront 8/8C touring system was for a versatile flown system that could be arrayed horizontally and curved in the vertical plane as well. I also placed emphasis on providing extended low end and extended high frequencies, in line with the changing nature of nineties music.”

This called for an array made up of near-full range enclosures that went down to 120Hz, plus ground-stacked subs. To cover the 120Hz-800Hz low-mid band, Webb initially went for a 2 x 12” horn arrangement. This was the W8, soon to be followed by the more popular W8C Compact with a single 12”.

“The rest of the frequency range from 800Hz and upwards would normally be covered by a large format compression driver but this is where we took a different approach.

“Large format compression drivers with 3” or 4” diaphragms get pushed to their limits in touring sound and are called upon to operate over four octaves or more. They suffer from distortion, power constraints and a falling response requiring a lot of HF lift at the upper end of the band. With the W8 and W8C, we replaced this single driver with a combination of a 6.5” cone hi-mid horn and a 1” exit horn dedicated to extreme high frequencies.

It is characterised by its smooth, transparent sound and clarity at levels which would be very distressing if produced by a single large-format compression driver. The frequency response of this 6.5”/1” combination is extremely smooth, both on and off-axis with no noticeable peaks or troughs and it is this level of refinement that makes the W8C so special.

Bill Webb, Technical Director – Lincoln Road, 1994

The short, toroidal phase bung of the 6.5” cone driver is particularly important in helping to keep the coverage pattern uniform.

“The versatility of the W8C meant it could also be used in small ground-based systems with two boxes a side. At this scale, it is incredibly clear, musical and exciting to listen to and specially modified W8C’s now provide the mids and highs in the award-winning sound system in The Box — the main room in the Ministry of Sound,” continues Webb.

The shift from a 2” compression driver to the 6.5 “cone/1” combination was a milestone and remains a cornerstone of Martin Audio philosophy. Webb explains, “I put a 2” driver and the 6.5”/1” combination side-by-side, set them up so that they produced the same output and listened at very high levels. Every time I switched to the 2”, I literally took an involuntary step back, it was so painful in comparison.”

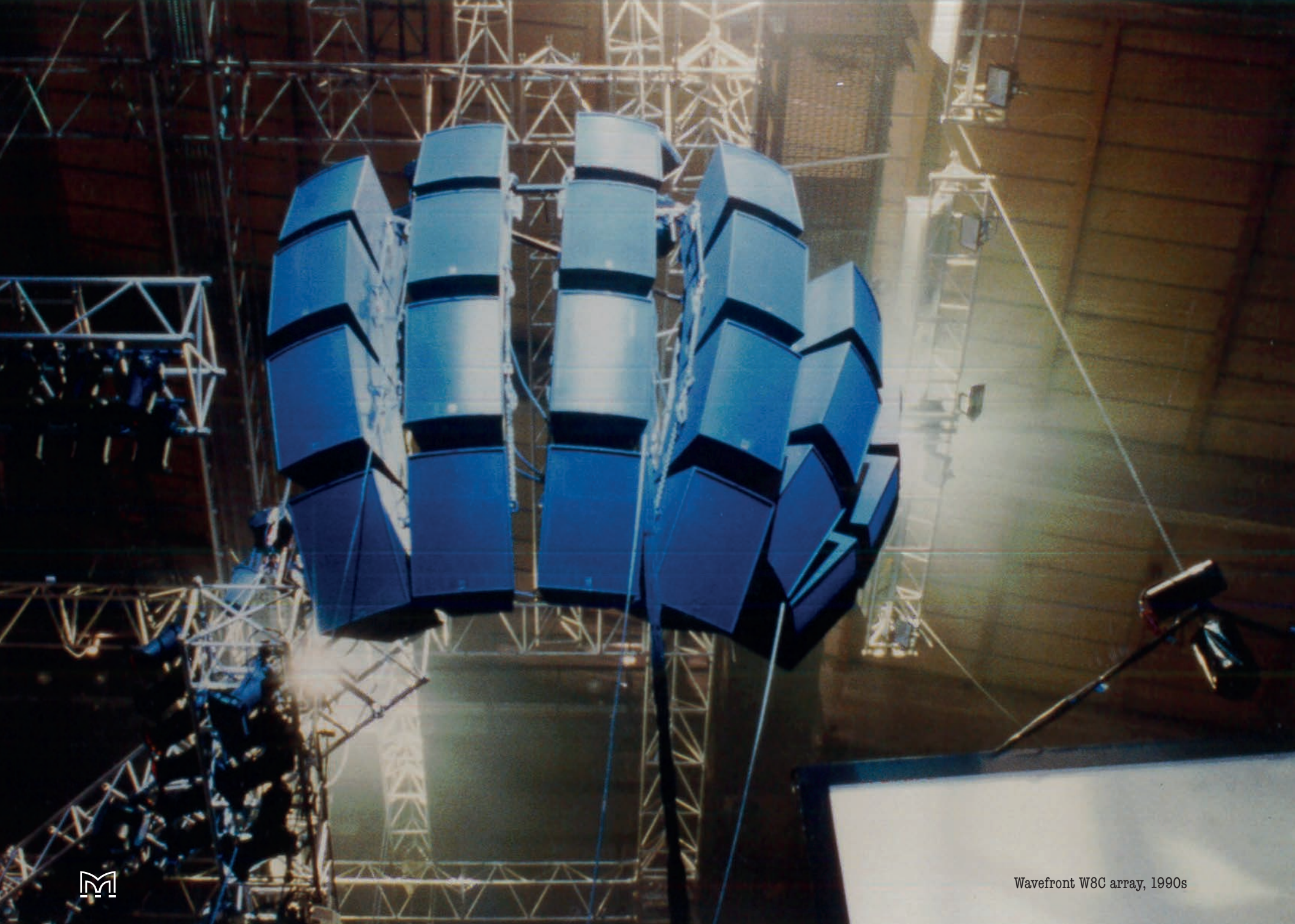
The Wavefront series grew to include a number of smaller cabinets for mission specific tasks (such as theatre) — some borrowing technology from the larger units, or otherwise based on conventional reflex-loading techniques.

The Blackline series, positioned below the Wavefront series, targeted portable and club systems, and THX approved cinema systems expanded the product portfolio further.

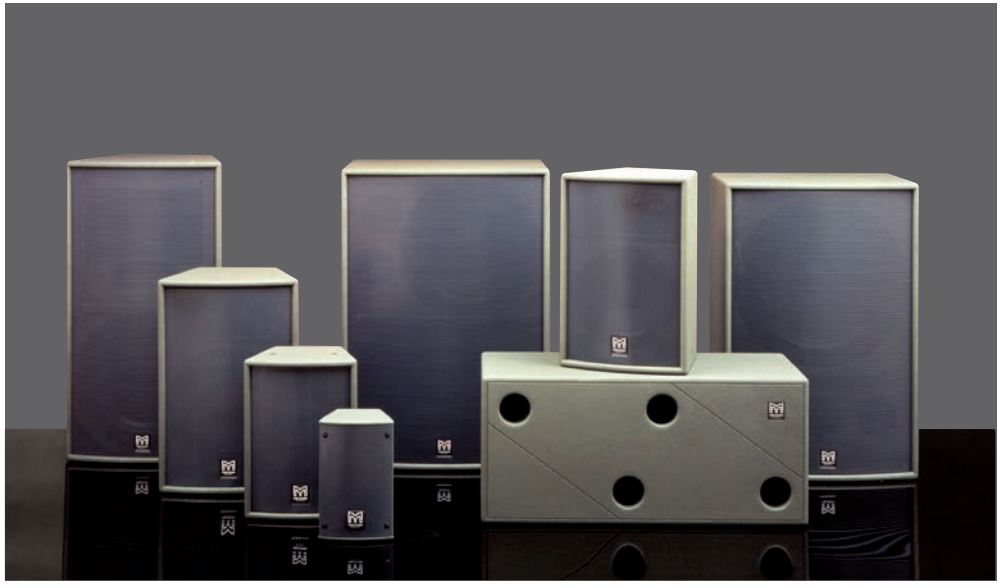
By the end of the 1990s Martin Audio’s sales had grown nearly tenfold over the decade following Dave Martin’s disappearance. This was largely due to a first class distribution and rental network around the world, augmented by new senior management in the form of pro audio stalwart Rob Lingfield, financial director Anthony Taylor and engineering lead Jason Baird.

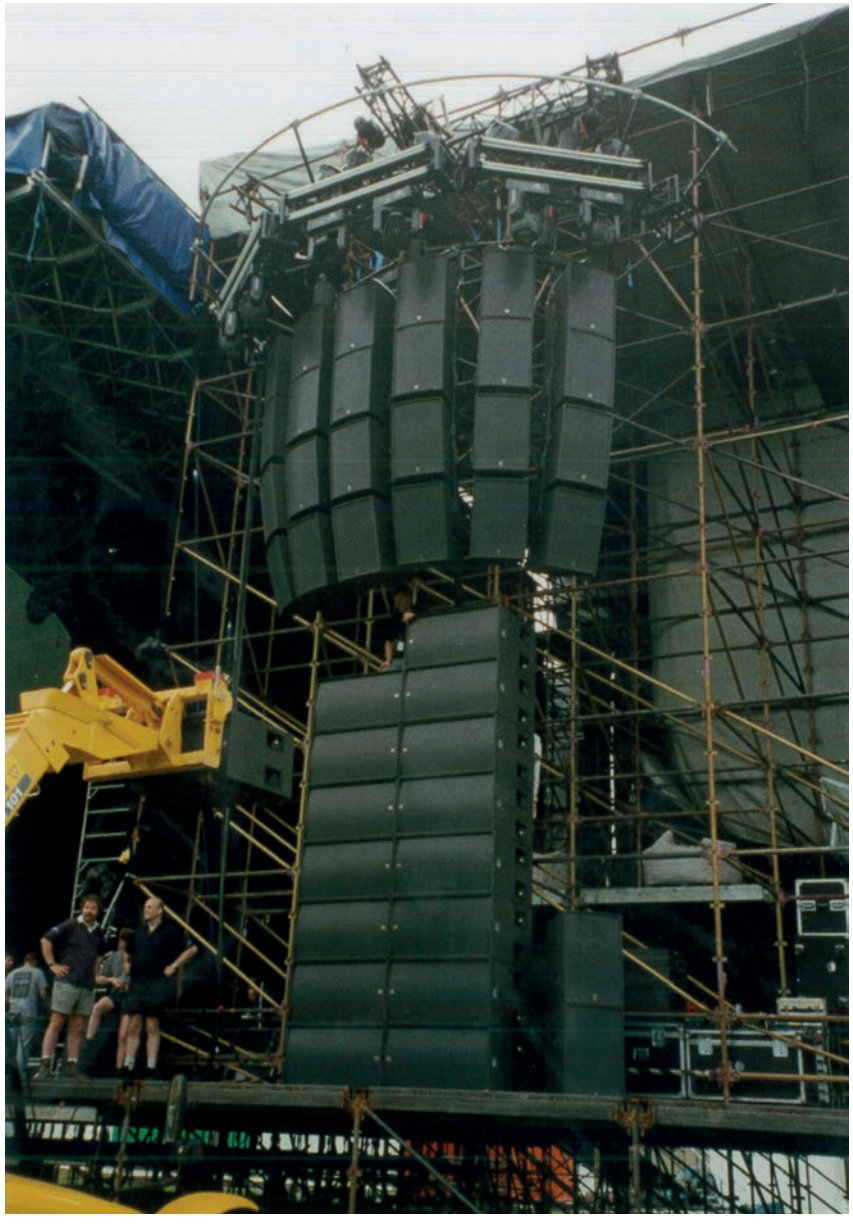
Growth in China, in particular, was spectacular — with Martin Audio rapidly becoming the undisputed leader in the high-end karaoke and club market. And in North America, Rob Hofkamp established the Martin Audio office to support the US customer base. With over 50 distributors worldwide, everything was set fair for the new millennium.

Wavefront W8 and W8C with W8S and WSX subwoofers



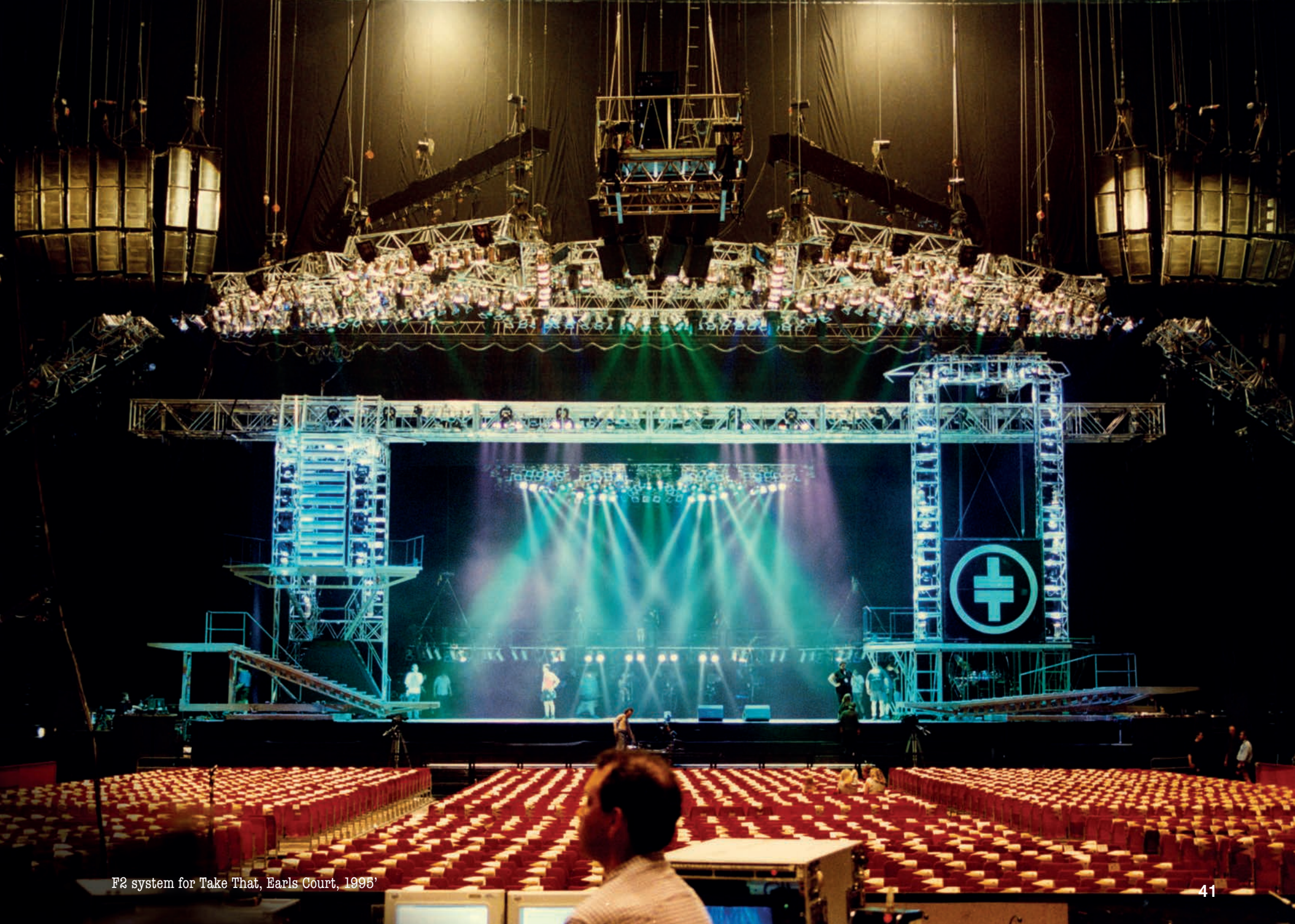
Wavefront W8C array, 1990s





Top: **EM Series, 1992** Bottom: **Screen 4 3-way Cinema System** Right: **Princess Diana Tribute Concert, Althorp House – W8C, W8CM, W8CT, WSX – Capital Sound, 1998**

Ocean Colour Scene, W8C and WSX Arena System, 1990s



F2 system for Take That, Earls Court, 1995'

“extremely powerful systems with maximum dynamic impact”

Take That, 1990s

The 2000s

Martin Audio entered the line array arena shortly into the new decade, with the W8L (later upgraded to the Longbow), followed by the W8LC and W8LM (Compact and Mini) line arrays.

These combined innovative horn-loading techniques — no-compromise vertically-coupled waveguides and true constant directivity horns with line array technology — to produce extremely powerful systems with maximum dynamic impact.

Providing levels of efficiency and coverage consistency not usually found in this popular format, with easy-to-fly rigging hardware, once again the Martin Audio brand quickly established itself throughout the world. Long-standing users Delicate Productions in California and Capital Sound in the UK quickly adopted the new line arrays, as did the Synco network of independent European rental companies.

RG Jones Sound Engineering has provided the sound for the legendary Pyramid Stage at Glastonbury since 2008, using W8L Longbow cabinets. Capital Sound also hit the road with the resurgent Take That.

Martin Audio Line Array System


Oxfam
NORTON FOLGATE
4
MERCURY
PRIZE

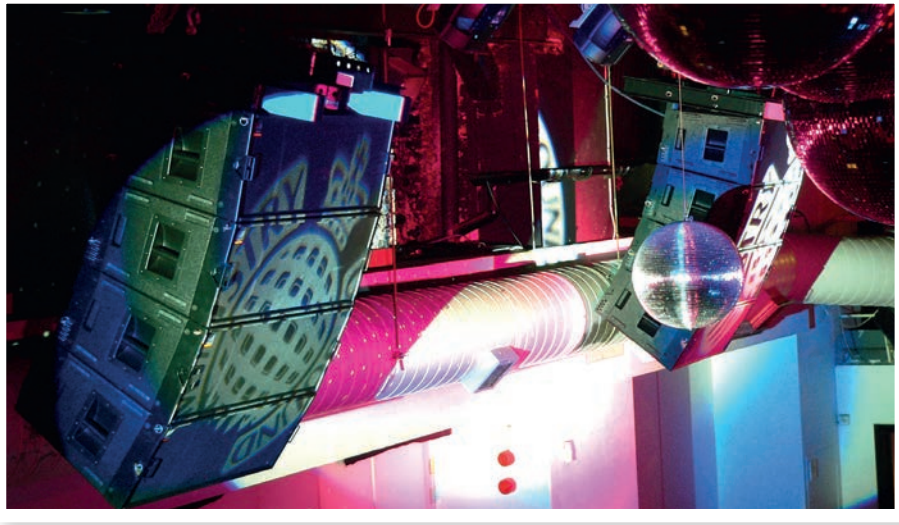
W8L Longbow Arrays at the Glastonbury Pyramid Stage

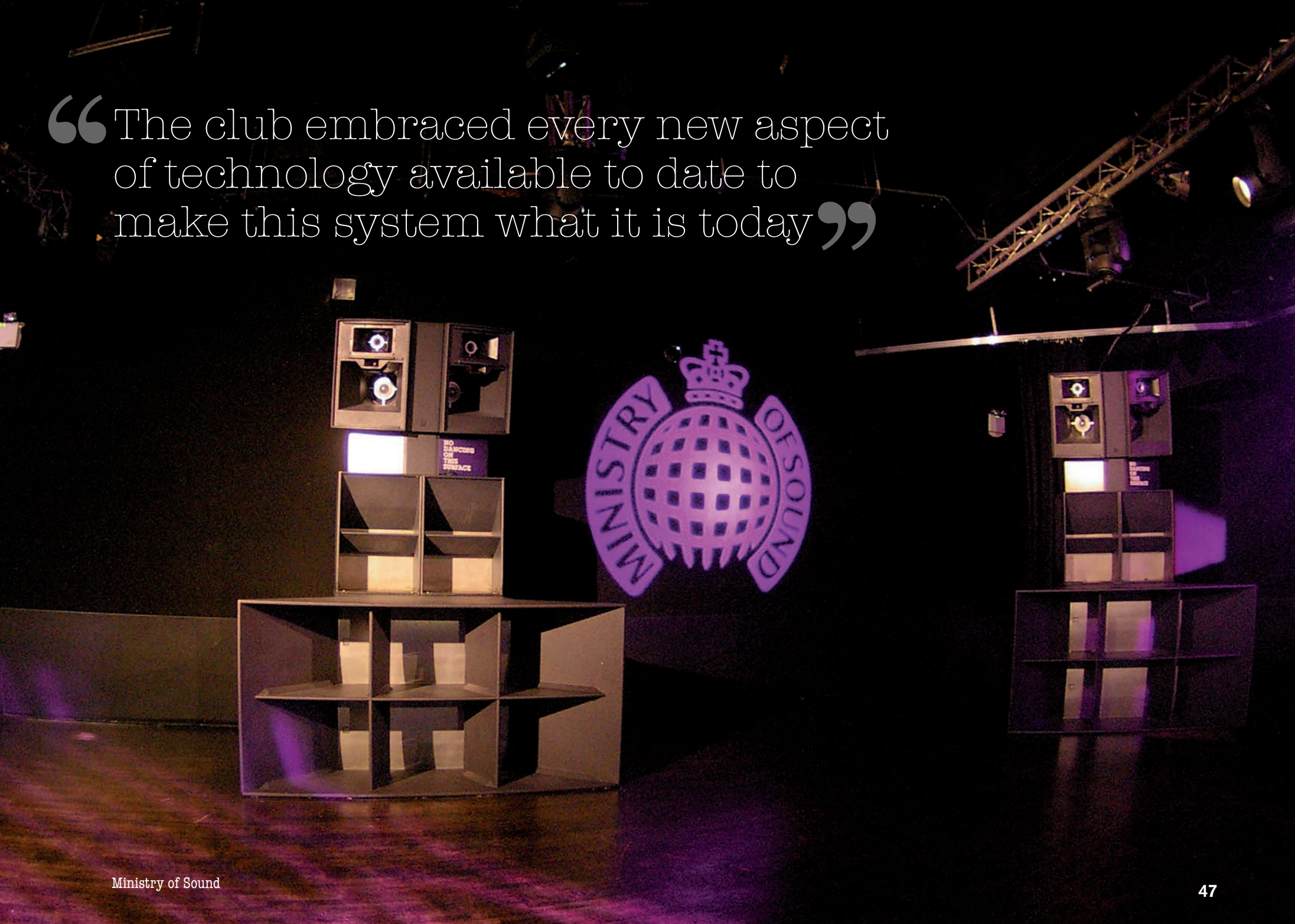

Ministry of Sound

Not only renowned for its touring systems, Martin Audio also enjoyed huge presence in the fixed installation and contractor markets across the world, from high end dance clubs, bars restaurants and hotels whilst gaining significant ground in the House of Worship market.

A pivotal installation that would contribute to its reputation across the globe was the relationship with Ministry of Sound, in London. Martin Audio's relationship with the Ministry runs very deep, and has been responsible for delivering the complete sound system throughout the club, everything from our Contractor ceiling speakers and Blackline system through to the now legendary custom 5-way 6 stack in their main room, The Box.

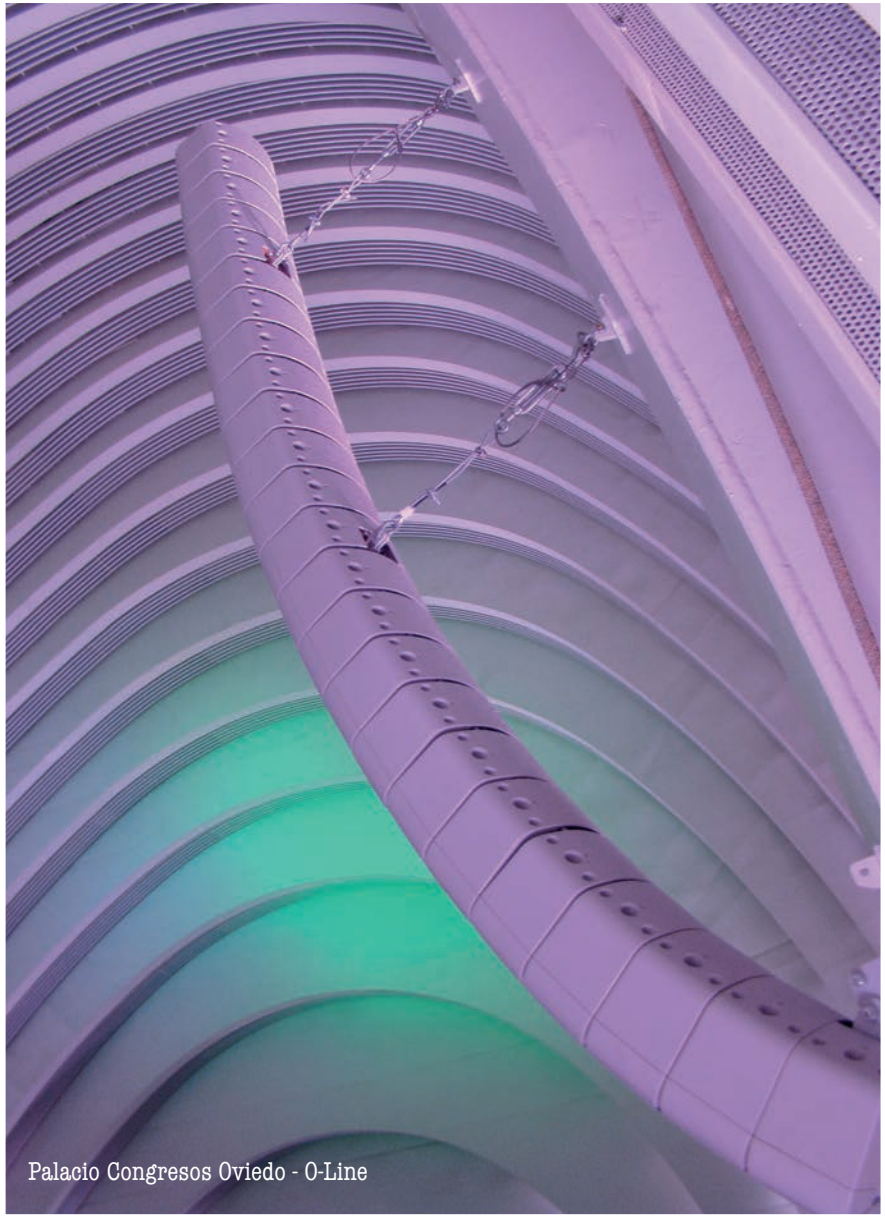
Ministry of Sound's desire to have a closeness of relationship with a premium loudspeaker manufacturer and their collective belief in the quality of the Martin Audio experience has been rewarded with the Best Club Sound System Design at the IDMA International Dance Music Awards in Miami for four consecutive years from 2010 to 2013.





> “The club embraced every new aspect of technology available to date to make this system what it is today”

Ministry of Sound



Palacio Congresos Oviedo - O-Line

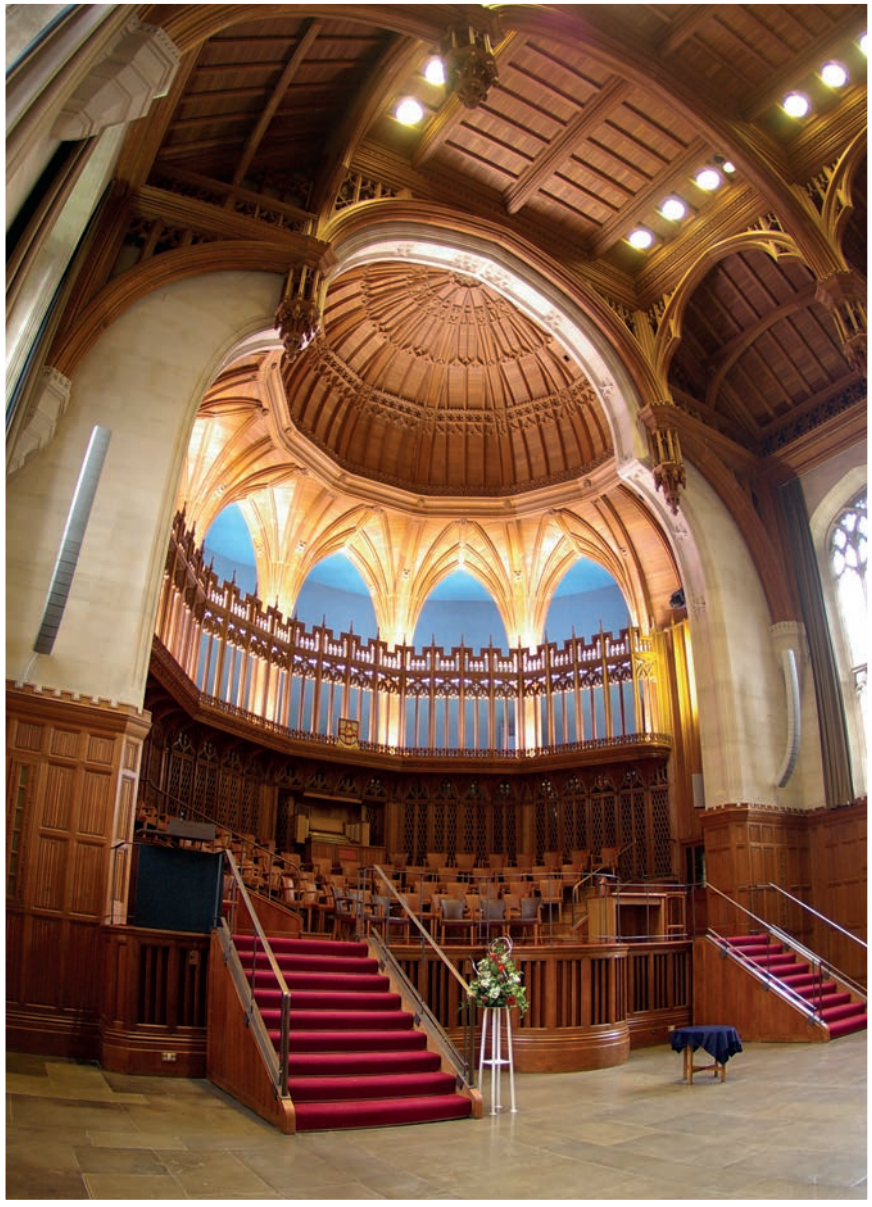
Another key development that would bring success in the installation market but also have a direct impact on Martin Audio's next assault on the touring market was the development of the award winning O-Line.

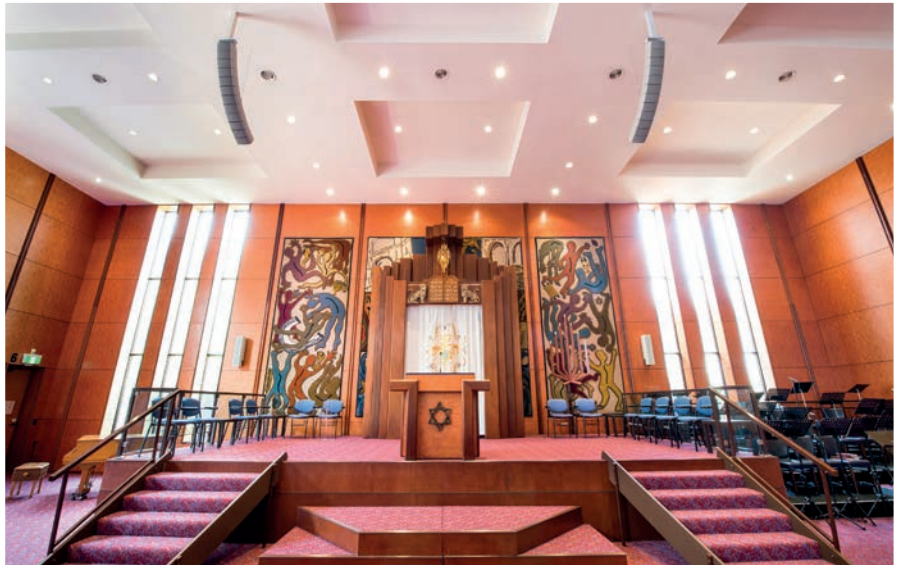
O-Line is a stunningly discreet micro line array that delivers consistent audio coverage with unprecedented accuracy in a wide variety of architectural environments. It's gone on to tame some of the most challenging reverberant spaces whilst looking immaculate in every application.

Its importance also lies in how it achieves this. Utilising a complement of unique, Martin Audio designed drivers, and mechanical alignment techniques, combined with a powerful software application providing extremely accurate intercabinet and array angles, O-Line would lay a foundation of new understanding that would make their next innovation possible.

The latter part of the 2000s was also another period of change in the company with David Bissett-Powell handing the MD reins to Anthony Taylor in 2008 in a time of Global uncertainty. At the same time, Bill Webb turned over the engineering director role to Jason Baird, remaining involved part time and offering an important bridge between the Dave Martin days and the technically exciting present.

But such change and global hiatus would be no barrier and Martin Audio's new generation of engineers knew no boundary, arguably developing the single biggest innovation in the company's history.





O-Line Left: Wills Memorial Building, Bristol University Top: United Church of Christ, Middletown, USA Right: Temple Beth, Melbourne

The Cellular Revolution

Every so often a new technology renders previous technologies obsolete, or relegates them to the second-tier. Just as line array took over from point-source systems to become the touring standard over the previous decade, in 2010 Martin Audio's MLA Multi-cellular Loudspeaker Array introduced a revolutionary new technology to touring sound.

To understand the development of MLA, it's important to revisit the array technology prevalent at the time — the line array

Martin Audio's R&D team quickly recognised the complex physics of line arrays, following their production of their first 'Longbow' system in 2001. "With line array we effectively had a technology aimed at producing coherent wavefronts exiting the speaker grilles, with the system tech tasked with 'managing' whatever came out of the array using zoning and preset libraries which had largely been derived by trial-and-error," reveals R&D director Jason Baird. "Undocumented interactions between adjacent array elements added a further layer of difficulty. Unsurprisingly, the frequency responses and SPLs at the audience plane itself varied significantly, depending on the distance from the array."

Jason Baird, R&D Director, Martin Audio

MLA Compact

> “Martin Audio’s MLA is the next generation and there’s nothing out there to match it”

John Caroll, Managing Director RG Jones

MLA Multi-cellular Loudspeaker Array

The R&D team reasoned, wouldn't it be more logical to completely reverse the situation and to specify exactly what SPL and frequency response is required at multiple points in the venue, then use that information to configure and control the array to produce the desired result? That inverse thinking was the simple 'big idea' behind the Multi-cellular Loudspeaker Array.

The lightbulb moment occurred around 2008 – partly a result of Baird's operational experience of line arrays, partly one of fundamental research into array behaviour conducted by research manager Ambrose Thompson during the design of the O-Line micro-line array.

This project involved the development of a BEM (Boundary Element Method) acoustic model which enabled virtual array configurations to be accurately modelled and investigated for the first time.

Since it is a practical impossibility to measure every possible array configuration with different combinations of enclosure numbers, splay angles and drive signals, an accurate acoustic model is essential. Without one, attempts to configure and optimise an array will never produce the right answer.

> "I have never worked with a system quite as clever as MLA"

Toby Donovan, System Technician

MLA, Alexandra Palace, 2013

MLA, Oprah Winfrey's Surprise Spectacular, Chicago

MLA, Hyde Park

MLA, The Killers

BEM models enable hundreds of “what-if?” virtual array configurations to be investigated in very fine detail in a virtual 3D environment. This level of research has transformed our understanding of how arrays really work and shown that the acoustic interactions between array elements are much more complex than originally thought.

It was the accuracy of that model that was key to implementing the MLA concept, whereby intelligent software determines the array configuration and controls each of up to 144 individually powered cells, each with its own DSP.

Development of the concept involved a multi-disciplinary team of engineers: Thomson oversaw acoustic modelling and the software optimisation algorithms; Phil Anthony was responsible for the acoustic design, working alongside electronic hardware developers Iain Quarmby and Rod Short. Mechanical design was undertaken by Peter Lawrence and the overall project leadership and design definition fell under the auspices of Baird.

MLA was launched in 2010 and made an immediate impression.

In a short time, the flagship MLA received multiple awards – including the PLASA Gold Award for Innovation, the MusikMesse International Press Award, and the Parnelli Indispensable Technology Award. In 2012 it was followed up with MLA Compact, and year later MLA Mini, both of which have also garnered international praise and awards.

As well as achieving award recognition, the MLA series has enjoyed overwhelming commercial success worldwide, as well as achieving landmark improvements to festivals and installations proving that MLA technology can deliver what was intended.

> “Martin Audio has reinvented the wheel in terms of PA design with MLA”
>
> James Gebhard, FOH Engineer

Commercial Success and our Partners

Martin Audio has been fortunate enough to have nearly eighty MLA partners around the world.

John Carroll, Managing Director, RG Jones

RG Jones Sound Engineering was the first UK Company to invest in the system in 2012 and has witnessed the systems growing reputation first hand. As John Carroll, MD, said, “We were not content to follow the crowd when it came to choosing our flagship system. The MLA is the next generation and there’s nothing out there to match it, and our continued support from Martin Audio is second to none.”

“Martin Audio’s MLA is the next generation and there’s nothing out there to match it”

John Caroll, Managing Director RG Jones

MLA – Glastonbury, UK, 2014

Iwao Tsurusawa, Director, MSI Japan

One of Japan's leading PA companies, MSI Japan, has been achieving growing success since purchasing a large number of Martin Audio MLA enclosures for its inventory in August 2013. In fact by the end of the year they were providing MLA systems for more than five tours at one time. Iwao Tsurusawa, director of MSI Japan, explained why the MLA system has been proving so popular.

"When we used the MLA system in the Tokyo Dome for the first time [with TVXQ in June 2013], it was even more accommodating than we had imagined as we were able to run it without using the delay tower. The production director was deeply impressed by the performance of MLA and specified it for use thereafter in large venues.

"It has not only performed excellently in huge venues, but also earned a good reputation in medium venue shows. Working with one of our long-time clients in a medium sized hall, the artist concerned awarded high marks for the unprecedented 'natural' sound quality and user-friendliness of the system. And so from the beginning of this year they have started to use the MLA system regularly.

"Without question, the number of clients and production teams now recognising the outstanding performance of the MLA system is rapidly increasing. In other words, we are establishing MLA systems in various sized venues," says Mr. Tsurusawa.

So, can we confidently say that the MLA system is living up to clients' expectations?

Mr. Tsurusawa explains, "Basically, by using other branded systems we have to deploy delay towers. In some cases, we have tried to set up the systems without delay towers to maintain high sound quality, but have never achieved the desired results. By using MLA we have saved time and effort in setting the towers, at the same time ensuring high sound quality, and living up to our clients' expectations. In addition, by not needing to apportion space for delay towers, we have freed up more available seats for the client, and for audience needs."

Furthermore, the MLA system has been great for open-air stadiums such as Seibu Dome and Pacifico Yokohama (in addition to Tokyo Dome), which have historically been dogged by offsite noise pollution. MLA could deal with this efficiently, and consequently neighbourhood complaints have drastically decreased, he says.

This has not only been beneficial from a technical aspect, but also enables good profit to be made. "For this type of huge venue we generally need to deploy between two and four delay towers by using other branded systems, and so now the production teams can make budget cuts on speaker systems and related expenses. And as for us, we are happy that MLA doesn't require a lot of time to set up and disassemble."

Mr. Tsurusawa believes that MLA will help to underpin the future prospects of MSI Japan.

"All the existing speakers in our inventory have been purchased in the past decade, so we take into account the deterioration of the systems and are concerned about their ongoing maintenance. Furthermore, it was to accommodate the growing demands of production teams these days that led to us to invest aggressively in MLA in August 2013, although we had been working with MLA systems for nearly two years. We believe MLA will now be our main weapon for the foreseeable future."

> We believe MLA will now be our main weapon for the foreseeable future

Iwao Tsurusawa, Director, MSI Japan

55,000 Seat Tokyo Dome

Oprah's Finale, Chicago

Jim Risgin, Vice President, OSA

Asked about the MLA acquisition, OSA Vice President Jim Risgin said, “We believe in the product, technology and, most importantly, the result that MLA delivers. It’s the first technology in the last 30 plus years that is truly delivering sound in a new and exciting way as far as I’m concerned. Even with the obvious benefits the Multi Cellular drive brings such as SPL control, consistent audience coverage as well as out of area rejection, it still amazes me how good it sounds every time I turn on the system. Simply input the room calculations and MLA in turn delivers the expected coverage as well as giving the engineer a stellar sonic canvas to work with. Now I can allocate my time to my craft and art of mixing rather than spending the time mastering conventional systems to gain similar results. This translates into a better end product for our clients as well as savings in time and labour.

In terms of its performance, MLA never runs out, it never stops. I think it’s the best sounding system with the most even coverage out of the box. Every seat gets the same high quality sound regardless of the location, which helps our clients reduce costs for acoustical treatments in some venues. At this point, the level of the MLA system control has become second nature. For me to work on something other than MLA has become an eye-opener rather than the other way around.”

Premier Boxing Championships

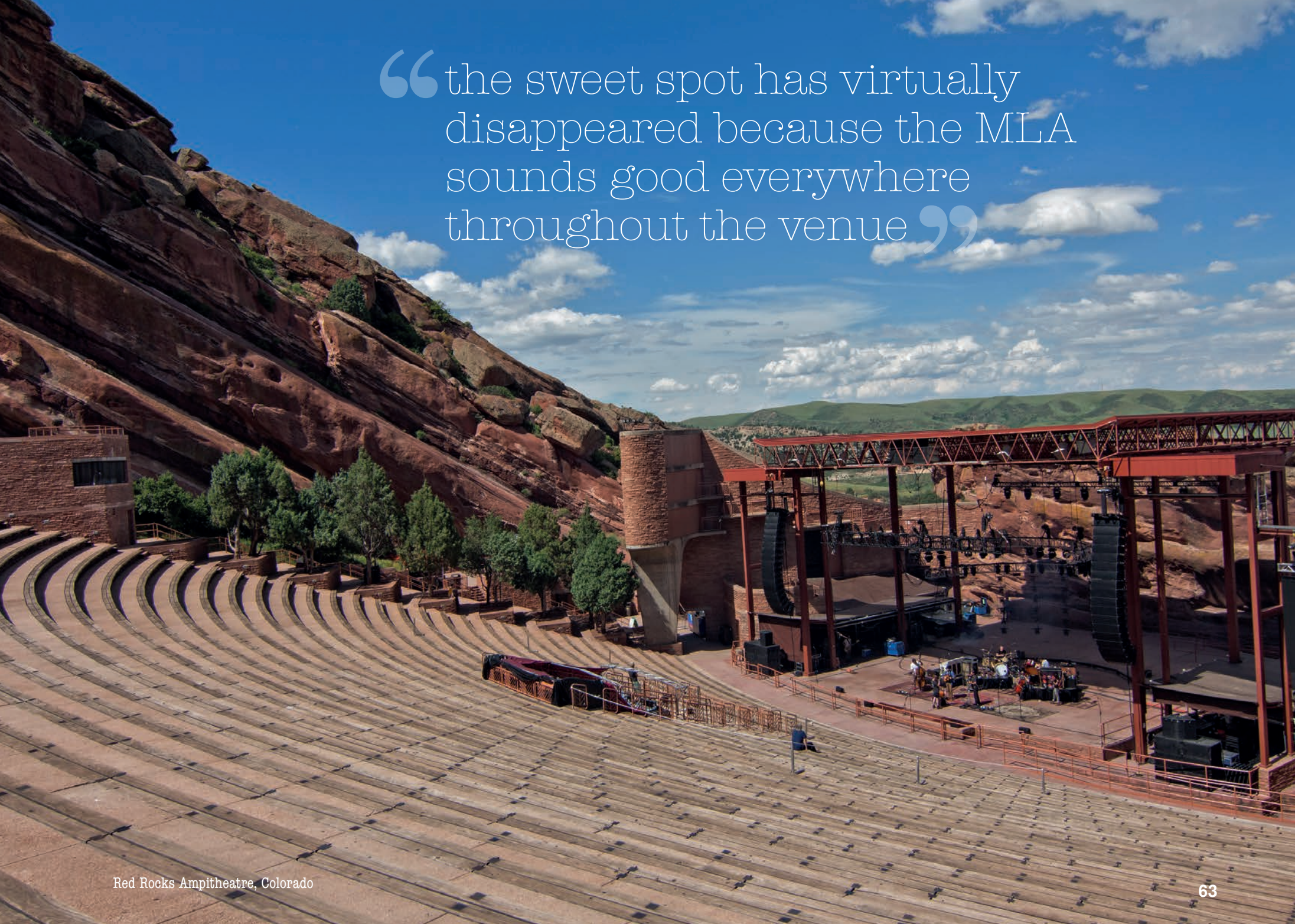
Red Rocks Ampitheatre, Colorado

Special Event Services

When breaking new technological ground it's critical yet challenging to gain early adoption. For that reason, Martin Audio will always be grateful to Special Event Services [SES] kicking things off in the United States, being the very first MLA partner there.

On purchasing the first systems, SES President Jim Brammer said, "The MLA system is extremely accurate, highly responsive and faithfully reproduces everything that goes into it. And the stereo imaging of the MLA is without equal. More importantly, compared to other systems in our inventory, the sweet spot has virtually disappeared because the MLA sounds good everywhere throughout the venue. MLA is without question one of the finest sounding PA systems in the world, if not the finest. MLA has definitely paved the way toward new possibilities for us and I'm excited to see where it takes us moving forward."

One of their many touring success have been The Avett Brothers. Describing how SES became involved with the 2013 tour, Michael Brammer, SES Director of Touring Operations, stated, "We did a trial show at the beginning of the tour, and due to the success of the MLA and the overwhelming positive fan response, the band decided to take us on the road. The band went from a bus and trailer to three trucks virtually overnight, in part because they fell in love with the Martin Audio MLA system."



Red Rocks Ampitheatre, Colorado

Red Rocks Ampitheatre, Colorado

Asked how MLA performed during the tour, Michael responded, “Their FOH Engineer Justin Glanville really likes the dynamic range and stereo imaging of the MLA system as The Avett Brothers are a very complex band. They play a variety of instruments and exchange them from song to song, so there’s a constant circle around the stage. The show ranges from very energetic moments down to just two guys singing into one microphone acoustically. It’s a very dynamic show and MLA really responds well to it.

“The coverage has been uniformly excellent in all kinds of venues, and MLA doesn’t take long to set up.”

In July 2015, The Avett Brothers did a 3-day stint in the iconic but challenging outdoor venue of Red Rocks Ampitheatre. Red Rocks is a particularly difficult venue due to the geometry of the space, with very steep incline to the back row, 110 metres from the stage, but with only a 10 metre high fly position. This is where MLA’s electronic coverage solution comes into its own and was one of the reasons why it was specifically chosen for the weekend.

Special Event Services [SES]

Red Rocks Ampitheatre, Colorado

Audio Perfection

Steely Dan's Pursuit of Perfection with MLA

In the summer of 2014, Rock and Roll Hall of Famers Walter Becker and Donald Fagen took Steely Dan's "Jamalot Ever After" tour across the U.S. and, with OSA International, Inc. providing Martin Audio's Multi-cellular Loudspeaker Array (MLA) sound system.

Steely Dan has a reputation among audiophiles and throughout Pro Audio for their fastidious attention to sound production, so much so that many FOH engineers and system techs use a Steely Dan track to tune a system. When it comes to live sound, their expectations for the PA are no less demanding.

Returning to mix Steely Dan is Mark Dowdle, whose extensive credits include Elton John, Gloria Estefan, Fleetwood Mac, Tina Turner and Jackson Brown, to name just a few. Last year's tour included a stop at Ravinia Festival in Chicago, where Dowdle mixed on two 7-box MLA arrays, the first year of a new OSA installation and the first new PA in a decade at North America's oldest music festival.

Late last year, Steely Dan's road manager, tour sound icon Robert 'Nitebob' Czaykowski, introduced Walter Becker to MLA at a demonstration at New York's Manhattan Center, where they were able to walk around and hear the evenness of its response and coverage. Steely Dan often plays theatres, where the mix position is usually at the back, beneath a balcony. "I go out there every day and listen to it; that's part of my gig," Czaykowski said. "What really knocks me out about MLA is that you can really control it so it's not splattering off a back wall or cluttering up in the lower balcony."

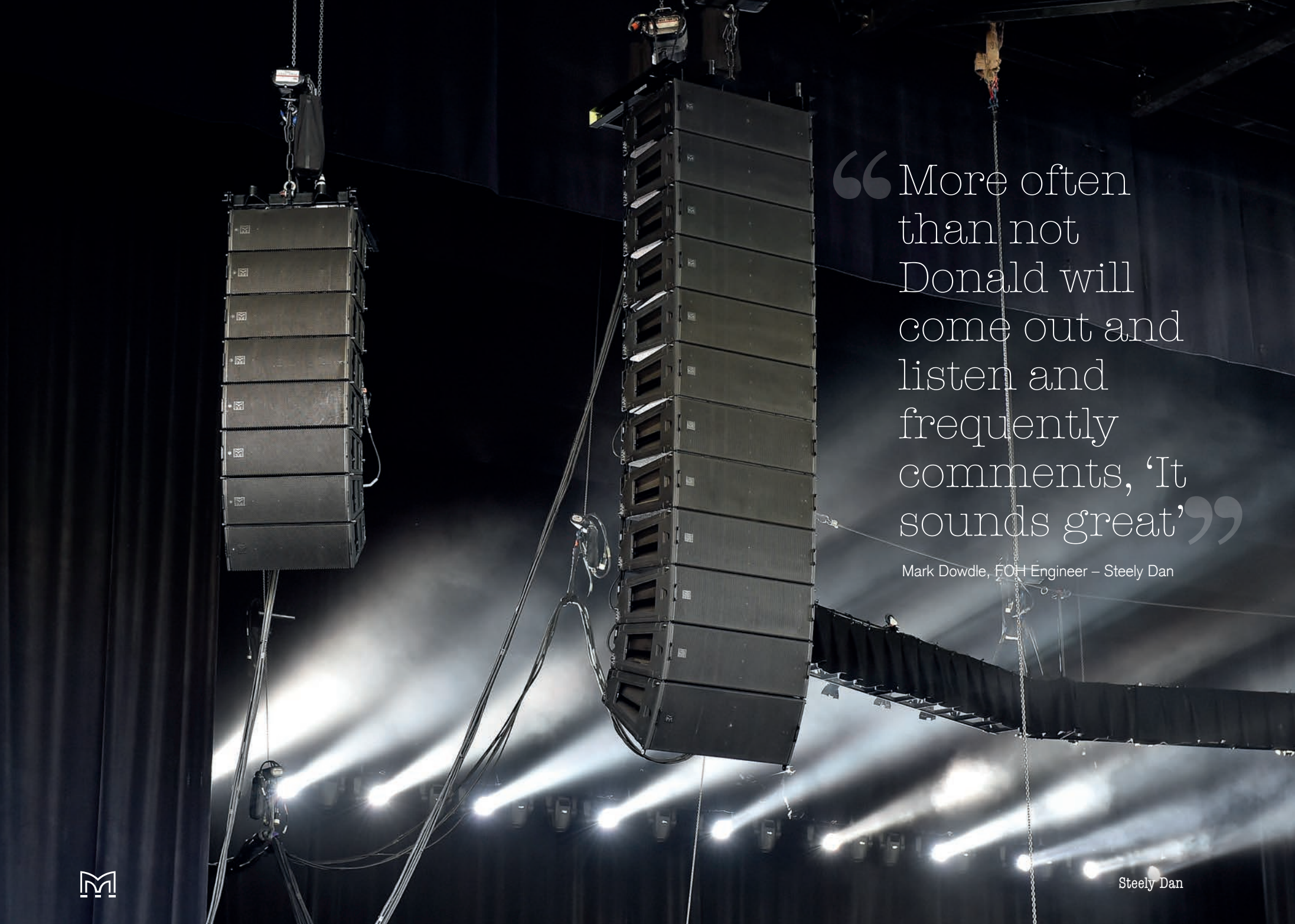
Present also at the NYC demo was Jim Risgin, Vice President for OSA –owners of the largest inventory of MLA in North America. With offices in Chicago, Las Vegas and now also Nashville, OSA have built an impressive reputation and client list providing complete technical services to some of the largest corporate, sporting events and concert tours in the U.S. The NYC demo was followed by extensive research from Mark Dowdle to confirm that the system would deliver the desired performance, and as a result Steely Dan added MLA to their tour.

Across the demanding 56-stop tour, MLA showed its versatility, control and overall sound performance credentials. Dowdle points out that the MLA provides extremely even front-to-back SPL as well as evenness of frequency response throughout the listening area. "The coverage is very smooth, especially its shading," he said. "You can walk up on the PA in the front and it sounds just like it does in the back of the room."

Dowdle also mentions an improvement to the stereo field. "Everything is more defined, so that automatically translates into the stereo field being more discernible," he said. "MLA gives me dynamic range, clarity and definition so that I'm able to position and layer sounds in the stereo field which you can really hear where they all are." He adds that the MLA's sound is extremely coherent and is very responsive from a mixing standpoint. "You make a small fader move and it's immediately noticeable."

Furthermore, Dowdle is surprised by the constant comments from the audience. "I've been mixing for a long time and usually nobody ever says anything. This particular tour I've had more response from the audience than any tour I've ever done in my entire career, and it's always been very positive and it's always been very poignant. That's in large part because of MLA allowing me to get it exactly how I want everywhere in the room."

Steely Dan



> “More often than not Donald will come out and listen and frequently comments, ‘It sounds great’”
>
> Mark Dowdle, FOH Engineer – Steely Dan

OSA crew chief and MLA system engineer Martyn ‘Ferrit’ Rowe is well known from his tenure at Martin Audio as an MLA product specialist before leaving to work for OSA as Director of Engineering. The Steely Dan tour travels in two trucks, carrying consoles and backline (including a Steinway grand) in one, and lights and PA in the second. “We’re carrying 26 MLA and 2 MLD down-fills, as well as 18 MLA Compacts, plus 8 MLX subs and 6 W8LMD used as front-fills,” Rowe explains.

The tour played Oklahoma City’s Chesapeake Energy Arena and New Orleans’ UNO Lakefront Arena using the 14-box MLA main arrays and 9-box MLA Compact side arrays that they carry. “The LA Forum was the only venue on our 56-show itinerary where we had to add PA,” said Mitchell Keller, Steely Dan’s production manager for the fourth year running. “It’s quite impressive that on a two truck tour we can carry enough PA to do arenas.”

The rest of the itinerary ranged from sheds and theatres to casinos. “The smallest venue was Humphrey’s in San Diego, putting in two subwoofers and ground stacking six MLA per side,” Rowe explains. “We recently did four shows in a row with single point hangs using ten MLA enclosures.”

As well as MLA’s flexibility and scalability, Rowe is keen to point out the simplicity of its operation. “It’s like fly by wire; you tell it what you want and the software produces a custom preset for your system and the room,” he said. “This isn’t auto EQ, you still have control over all the decisions that are being made, but the computer is doing the heavy lifting for you.”

So, coming full circle, what did Fagan and Becker make of the sound quality? According to Dowdle, “Both have come out into the audience on a number of occasions and have always been positive with their feedback and what was going on.

“More often than not Donald will come out and listen and frequently comments, ‘It sounds great,’ which is probably the highest compliment that I could ever receive in my career.”

Mark Dowdle, FOH Engineer – Steely Dan

> this is the first time such high levels have been achieved in the history of Glastonbury

Jason Baird, R&D Director Martin Audio

Metallica

The Noise Pollution Solution

Glastonbury 2014, UK

Martin Audio's groundbreaking Multi-Cellular Loudspeaker Array (MLA) system made Glastonbury history by delivering the highest sound levels to the audience without exceeding noise pollution levels beyond the perimeter.

Making its Glastonbury debut, the system deployed on the Pyramid Stage was impressive in every respect, utilising cabinets from the entire MLA™ range of loudspeakers. This comprised a total of 72 MLA for the main hangs, eight MLA Compact for stereo infill at the pit barrier and four delay positions of 14 MLA each. The latest addition to the range, the MLA Mini, also featured, providing stereo infill behind the FOH control structure and onstage coverage of artists' guest viewing platforms. A massive broadside array of 38 MLX stretched across the entire width of the stage to provide sub-bass support to the entire system.

The company's unique MLA technology enables very fine control of how each array covers its designated audience area. Acoustic cells housed within each cabinet are independently controlled by their own amplifier and DSP channel, a total of six in each MLA. This control allowed system engineer Mark Edwards to specify exactly what SPL and frequency response was required across the audience, with the intelligent software automatically controlling the array to produce that result. This amounted to just a 6dB drop off over the 300m long audience area, with incredibly even frequency response.

"We used our proprietary computer software to figure out how to drive each cell in each array to direct sound just at the audience, and then cut it off sharply just beyond the audience to dramatically reduce noise pollution," says Martin Audio's R&D Director Jason Baird. "As a result, headliners including Arcade Fire and Metallica could play at 104-105dBA – this is the first time such high levels have been achieved in the history of Glastonbury as noise limits are really strict."

More than 150,000 fans listened to headline acts Metallica, Arcade Fire, and Kasabian, as well as The 1975, Elbow, Rudimental, Nitin Sawhney, and Dolly Parton, mixed on the MLA system.

Summing up, Jason Baird says: "It was my career highlight back in 2008 working on our very first Glastonbury, but with MLA this year, it's been topped. To see the massive audiences in complete unison front to back enjoying the performances, combined with the constant stream of smiling faces at FOH, it's been the showcase for everything that Martin Audio and MLA stand for."

Jason Baird, R&D Director Martin Audio

Hyde Park, London UK

Historically, Hyde Park concerts have been dogged by offsite noise pollution leading to neighbourhood complaints and the need to reduce sound levels on site — meaning that the audience couldn't hear the performances. So, in 2013, new tenants AEG/Loud Sound adopted Martin Audio's award winning Multi-Cellular Loudspeaker Array (MLA) system to help solve the problem.

Knowing that its advance level of control would be the only scientifically proven system capable of maintaining an offsite level beneath the stipulated 75dB(A) threshold, there was the equal confidence of being able to raise the levels up by as much as 6dB from previous years to between 98dB(A) to 100dB(A) within the audience area, ensuring that the entire audience was united in the experience.

> “Headliners at Hyde Park are now performing at levels well in excess of 100dB which was unthinkable only two years ago”

These figures were verified by Ian Colville, technical manager of Capital Sound, who designed and supplied the complete audio infrastructure. He had nothing but praise for the MLA system that allows a site to be mapped and areas optimised for audience, non-audience and 'hard avoid' entirely.

As a result, neighbourhood complaints were reduced to an absolute minimum.

Loud Sound had already received categorical proof of MLA's wizardry at the 2011-2013 back-to-back Underage, Field Day and Apple Cart Festivals in Hackney's Victoria Park, serviced by Capital Sound. Immersed in a densely populated neighbourhood (as with Hyde Park), according to the event management, complaints about noise escapement suddenly ceased.

This gave Loud Sound, the site managers for AEG, the evidence that MLA would be a perfect tool for the Hyde Park concerts.

But given the sensitivities of noise thresholds in the Royal Parks, a site simulation was first set up at Hatfield House in Herts for the promoters and acoustics consultants Vanguardia Ltd — who routinely carry out measurement and analysis at outdoor events such as this.

Ian Colville and Martin Audio R&D Director Jason Baird confirmed that this location was chosen because of its similarities in shape and size to the Hyde Park site, and evaluation took place against other systems.

The Martin Audio system is unique in its ability to place the sound only where it is required — unlike conventional systems, which have largely depended on trial and error. As a result the sound coverage pattern can be programmed into Martin Audio's breakthrough MLA software to guarantee sound containment.

Vanguardia recorded near- and far-field measurements and asked Martin Audio to load in two different presets, which set coverage at 100m and then 50m.

The measured SPL data over the site was then fed into their own environmental model before giving the system the thumbs-up. Vanguardia's experience with MLA also caused them to believe that a better offsite sound could be achieved than with a conventional system.

The other key factor in the sound threshold increase was the reorientation of the Hyde Park stage by around 30° — from north facing to north-west (directing it away from Park Lane). "The result is that fans positioned out at the perimeter have been able to enjoy an identical sound experience to those at the front of the stage," said Capital Sound general manager, Paul Timmins. "But walk five yards outside the soundfield and it will vanish."

With its rapid loudness drop-off, the MLA system was created for environments such as Hyde Park. According to one sound engineer, who had earlier worked with the system, the ability to 'taper off' the sound at the perimeter "is as if an invisible ring has been drawn around the site." It was this that will have impressed those monitoring the offsite sound at typical nearby locations such as the Grosvenor House Hotel on Park Lane.

Assessed Ian Colville, "The ability to gain an extra 6dB of volume on-site, whilst keeping within the off-site maximum level of 75dB(A), provides a significant advantage. MLA is such a different system, with all of its acoustic cells individually controlled, to produce phase-coherent summation in the audience areas."

So how was the Hyde Park system conceived? Sculpted into the oak shrubbery of the concept stage's proscenium — the inspiration of set designers MDM working with Star Rigging — were left and right hangs of 16 x MLA elements (with a single MLD Downfill box at the base). Outfills were provided by 12 MLA (and a single MLD each side) with eight pairs of the small footprint Martin Audio W8LM Mini Line Arrays for front fills.

The subwoofer cardioid broadside array — made up of 32 MLX subs — is now a tried and trusted 'electronic arc' concept, with one back-facing enclosure for every two forward-facing ones providing cancellation at the rear. "The beauty of this design," says Colville, "is that you can adjust the horizontal dispersion and rear rejection electronically without needing to physically move anything."

In addition there were ten delay masts. The front two arcs of four MLA masts each contained seven elements and a single MLD. For the larger shows, two further delay towers at the back were enabled, made up of eight MLA Compacts. Critical distances were 50 metres (from FOH to stage), while the delays were set at 90m (from the stage), 160m and the 210 metres (for the MLA Compacts).

In summary, Ian Colville said, "At Hyde Park we proved how MLA technology allows us to significantly increase on-site volume whilst containing the sound within a strictly defined area. It's a great result for everyone involved in the project."

In 2014, it was a similar set up, but Martin Audio's R&D Director, Jason Baird, was determined that new optimisations would enable them to eke out as much as an additional 3dB at front-of-house without increasing offsite pollution.

As a result, they 102dB(A) was achieved for McBusted, with 73dB(A) recorded offsite, comfortably within the maximum allowable of 75dB(A), while both Tom Jones (during his more strident numbers) and Black Sabbath nudged 103dB(A).

Baird explained that the journey to accomplish this had begun three months earlier, with the concept tested and proven on the Glastonbury Festival delay rig, the week before.

"We conducted the propagation tests based on what we learnt last time around, which was that in certain measurement zones only LF and low mid was contributing to the A-weight measurements. We realised that if we could reduce that frequency band we could have a better differential."

So his R&D team set to work on the optimisation routines across the full frequency range to improve the differential between on- and off-site levels without extending latency. While Baird maintains that testing will remain ongoing he says the success at Glastonbury gave him the confidence to deploy it on additional arrays in Hyde Park including house left side hang and the two delays nearest to Park Lane.

He describes these early tests and the additional increase of around 2-3dB in max FOH levels over the previous year as "encouraging and significant". Capital Sound's Technical Manager and Systems Designer, Ian Colville, confirmed, "It all worked well and there were no issues with the three arrays we used the new optimisation algorithm on."

With more headroom available, FOH engineers could really focus on their mix.

BottleRock, Napa Valley USA

Simply controlling audio in a fairground located in the heart of Napa with houses just across the street was enough of a challenge for any production company, not to mention supporting the festival's five stages for four full days of music.

The need to provide exceptional coverage while eliminating noise spillage in such a tightly defined area was a critically important factor for BottleRock, which explains why the MLA (Multi-cellular Loudspeaker Array) system was chosen for the main stages along with a full complement of Martin Audio for the other stages.

Commenting on why they chose MLA for this situation, Jason Alt, President of Delicate Productions, said, "There's no system out there that could duplicate what we achieved in terms of audio control with MLA. The way we were able use to steer the subwoofers and the system, our ability to determine an accurate end point and really have audio die off before the end of the property line was so important. The fact that the fairgrounds property line is literally 100 feet across the street from houses and those residents were very concerned at the beginning about having a big rock concert going on that close would cause all kinds of problems in terms of the noise and even their paintings falling off their walls. But by the end of it, because of what we did with steering the system and especially the subs, there were no problems. We had interaction and worked with all of the people on that street throughout the festival and not one of them complained. Most sat on their porch and enjoyed the show."

"I don't think we could have achieved the same sonic goals with another system, especially with the county's noise ordinances."

Looking back at the festival and the need to fulfil the needs of 80 acts within necessarily tight time frames, Jason acknowledges MLA's many other advantages: "Besides the control, MLA helped us work much more effectively with all of the different acts at BottleRock. The system gives you such a blank canvas for what each artist wants the system to sound like; we were able to accommodate all of their sonic wish lists quickly and effectively. Deploying MLA and getting it up happened in a timely fashion so that every artist had enough time to set up and the headliners were all able to tune the system, take a good listen to it, and adjust it to their specific needs."

"I don't think we could have achieved the same sonic goals with another system, especially with the county's noise ordinances"

Jason Alt, President, Delicate Productions

BottleRock, Napa Valley, USA

MLA System – Paul Rogers, Royal Albert Hall

MLA System – The Invictus Games, Queen Elizabeth Olympic Park

It’s Not Just for Touring

With its ability deliver sound across the audience to meet the sonic goals required for any space, MLA Series has found equal favour in the world of permanent installation.

MLA technology is the only technology on the market to allow multiple sonic goals to be prioritised and optimised accordingly. For example, not only can MLA Compact generate an even sound field over the audience, it can contain it as well — significantly reducing the influence of the room.

> “The amazing ability to listening for hours on end with no fatigue is truly unique”

Anthony Russo, Director, TAG

Marquee Nightclub in Sydney, Australia

> the most advanced, cutting edge sound system in the world ... full stop

‘Hard avoid’ areas — such as behind and below the array, ceilings, balcony edges and beyond the venue perimeter — can also be programmed in. Vertical coverage can even be fine-tuned electronically in-situ to cope with perhaps last minute changes in audience capacity, without having to re-rig.

No wonder then that across houses of worship, theatres, and auditoriums that the MLA Series has been a go to solution.

> The MLA system has outperformed my expectations

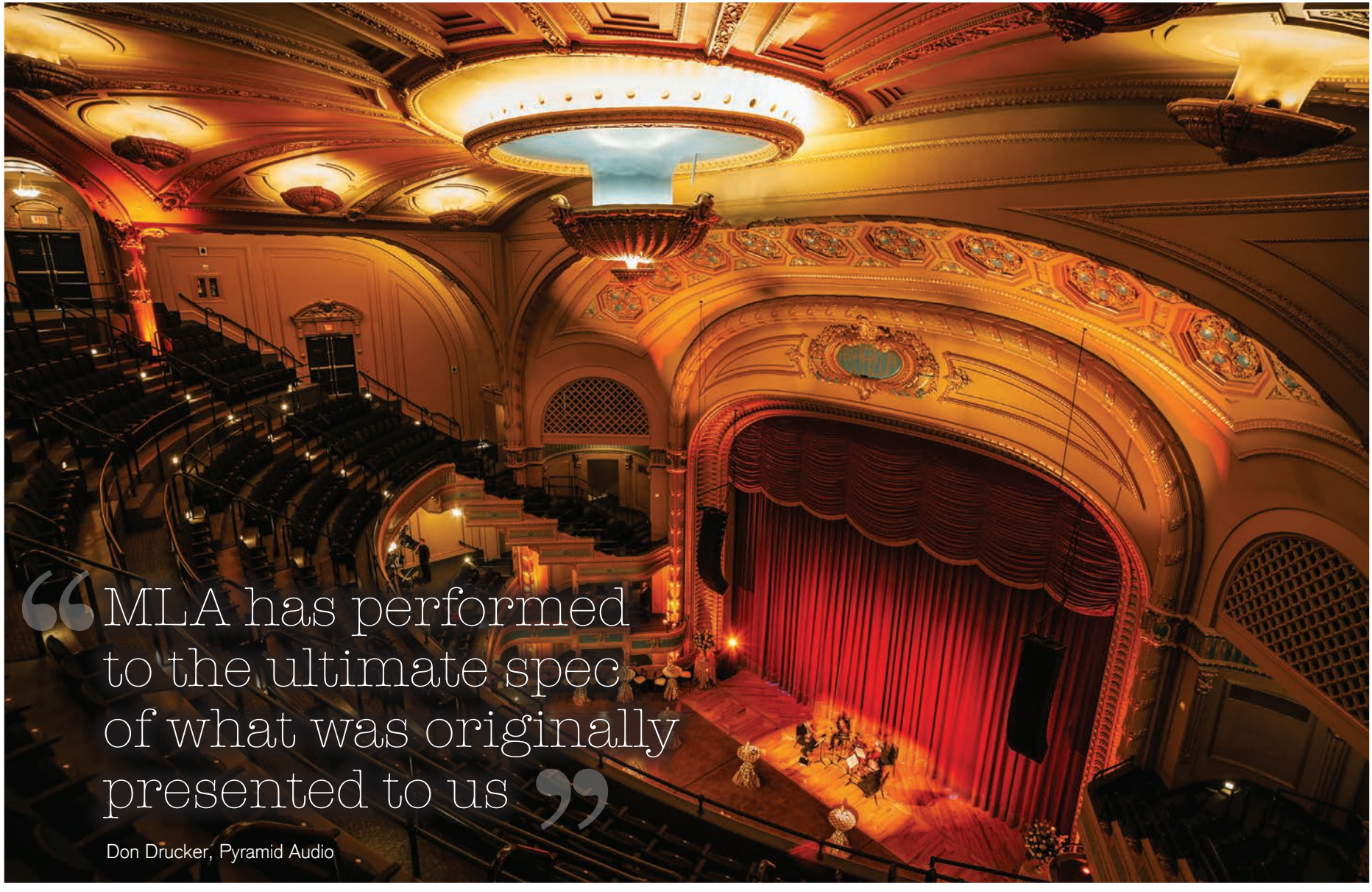
Tim Maughan, Redemption Lead Pastor

Central Christian Church, Arizona USA

> “I’ve mixed pretty much on every sound system there is at this point because of my touring and corporate background, and I’ve never had anything respond like the MLA system”

Milk Arnold, Central Christian Church

Redemption Church, Arizona USA



Orpheum Theatre, New Orleans USA

Sun Valley Church, USA

> MLA allows us to achieve smooth, consistent coverage from top to bottom and side to side with no gaps. We needed to achieve articulation and clarity for speech, and it handles that beautifully

Mark Torchia, Arts Brookfield

Brookfield Place Atrium, New York USA

“You have a dream when putting together this type of PA that every seat will have the same audio experience and it was truly amazing to walk all of those floors and not perceive a difference in the sound”

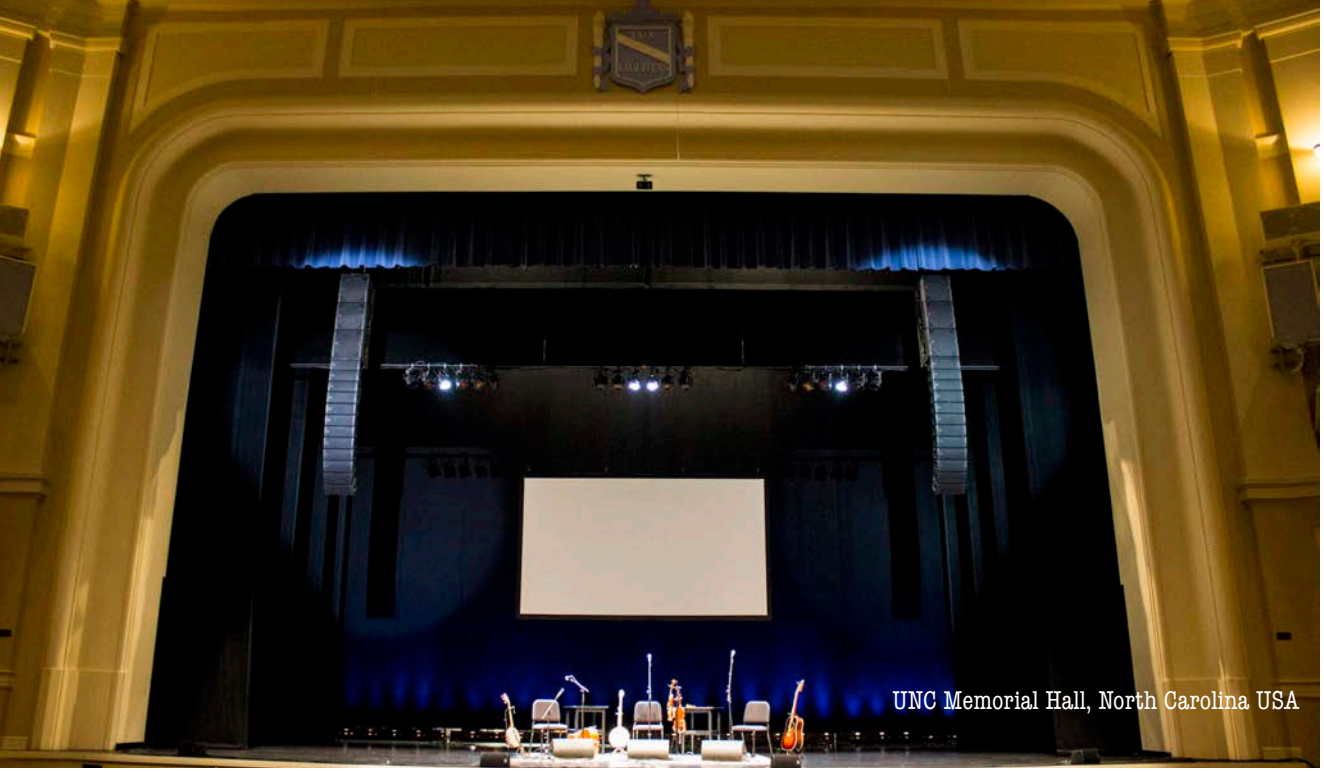
Houston Clark, Clark

Calvary Church, North Carolina USA

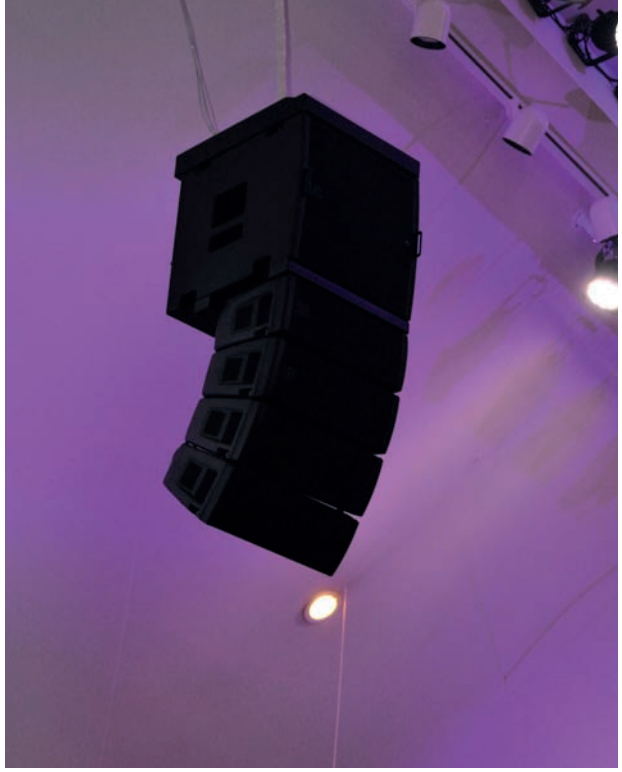
> The MLA Compact never left any doubt it would handle reliably whatever kind of audio we threw at it

Riccardo van Krugten, Sound Supervisor

Starlight Express, Bochum's Stadionring



UNC Memorial Hall, North Carolina USA



Edenton Methodist Church, Raleigh USA

> “MLA is the only technology on the market that allows multiple sonic goals to be prioritized and optimized”

Cooper Cannady, RMB Audio

“the sound quality is amazing”

Tim Pickett, President of Encompass AV

Inspirational Deliverance Center Church of God in Christ, Chicago USA

Innovation Accelerates

In 2015, Martin Audio introduced new transducer technology that would change the outlook and capability of point source loudspeakers.

Coaxial Differential Dispersion entered parlance, combining the ‘point-source’ benefits of delivering the coaxial designs without beaming, while delivery consistent coverage of differential dispersion technology.

The impact of the dedicated installation range CDD was immediate and quickly became Martin Audios fastest selling installation solution in the company’s history.

> “The CDD12 speakers are very impressive. They provide warm and balanced full frequency sound with absolute fidelity for speech and a five-piece band”

David Clemmer, Edenton Methodist Church

CDD Series

> The clarity of sound is stunning
>
> Keith Williams, Kent Hospitality

Top Left: K-Bar, University of Kent, UK
Bottom Left: Merivale Bar and Restaurant, NSW, Australia
Top Right: Edenton Methodist Church, Raleigh, USA
Bottom Right: Bottle of Sauce Bar, Cheltenham, UK

Central Christian Church, Arizona USA

> “Bottom line, if you’re a fan of the Martin Audio voice, CDD-LIVE! is a perfect continuation of that voicing and tonality. Its adaptability and consistency is remarkable, better than most self-powered speakers I’ve ever used”

Milk Arnold, Central Christian Lead Audio Engineer

StoneBridge Church, Nebraska USA

CDD-LIVE! Series

No surprise then that a year on, Martin Audio introduced a more portable solution – CDD-LIVE - that also added integrated amplification and Dante.

Furthermore, in 2017 the company took the technology into stage monitors with a revamped LE series utilising exactly the same CDD driver technology but inverting its orientation while the new XE series took the concept into an advanced state of power handling and pattern control.

LE Stage Monitors

> “They were thrilled. It was one of the easiest approvals I’ve ever had for a PA system”

Mike Sessler, CCI Solutions

XE Stage Monitors – BST Hyde Park 2017, UK

With XE, new high performance CDD drivers have a patent-pending, contour-moulded static third waveguide that increases the size of the horn mouth to maintain pattern control downwards and avoid spill outside the desired coverage area. Its rolled contour reduces diffraction and further improves pattern consistency at the lower end of the HF passband.

XE Stage Monitor

In 2017, which turned out to be a year featuring more new products from Martin Audio across multiple applications than ever before in its history, also saw the introduction of Wavefront Precision.

Drawing on the research and technology behind MLA Series, the Wavefront Precision Series is a new generation of multi-purpose line arrays designed to

bring Martin Audio's legendary sound, coverage consistency and control to a broader range of touring applications, installations and budgets.

Wavefront Precision line arrays are designed as complete systems with external iKON® multi-channel amplifiers and optimised by automated DISPLAY software.

iKON Amplifier

Wavefront Precision Series

Adopting the principle of scalable resolution, with external, dedicated multi-channel amplifiers, Wavefront Precision line arrays are uniquely flexible, upgradeable and financially accessible.

With exceptional line array performance guaranteed by the acoustic design itself, scalable resolution unlocks the full potential of a Wavefront Precision array and provides an adaptable pathway into the world of advanced optimisation.

The greater the resolution of the array in terms of individually driven enclosures, the more precisely DISPLAY can fine-tune audience coverage and hold the frequency response and SPL's throughout the venue within a tight window specified by the user.

For the first time in the marketplace the level of resolution and control could be scaled to adapt to the specific needs of install, client, event or budget.

WPC and WPM being installed into First Penticostal Church, Little Rock, USA

Stereophonics

Stronger than Ever

Martin Audio has witnessed tremendous change over the years: colourful characters have come and gone, as have owners, and leaders – alongside waves of innovative product.

Most recently, new Managing Director Dom Harter ushered in a revitalised period of product innovation and market understanding.

But somethings have to stay consistent. There has to be a soul to the company, a way of doing business that inherently feels the right thing to do, and a belief that the audience experience remains core to the company's competency and reason for being. Perhaps it's for this reason that many customers and end users have been extremely loyal to Martin Audio over the decades.

Dom Harter,
Managing Director,
Martin Audio

> "When I see how their speakers are constantly on the leading edge, that's very enticing"

Cooper Canady, owner RMB Audio

War of The Worlds – The O2 Arena

Cooper Canady, owner RMB Audio, gave his perspective on the enduring strength of Martin Audio:

"The foremost reason we've stayed with Martin Audio is based on my technological evaluation of the design and implementation of their products relative to the markets we work in—and we're looking at over three decades with me. When I see how their speakers are constantly on the leading edge, that's very enticing. And I get to balance that against my customer needs, my applications and usage, and Martin Audio's gear always falls into line. One of the things with the brand is the support I've received from R&D, manufacturing, sales, marketing and across the rest of the company itself which means I'm necessarily going to be very much involved with all of that. I do get the opportunity to talk with Martin Audio about where the products are going, things that may be useful to us in the future, so there's always a dialogue. This isn't just a sale down to a user."

"The support has been exceptional; the products have been tremendously well received by my customers to the point where they're very excited to have new Martin Audio products come in. Their speakers has been appearing on more and more riders in the last decade, and whenever we say we have Martin Audio gear coming it's always well received and has never been declined, so my relationship with the factory and with Sales and the Factory has been just wonderful. Recommendations from my end are considered on their end and if it's possible the answer is reciprocated. I get to hear what they're going to do and that ongoing dialogue is tremendously important and it really makes me feel like part of the company."

> "it really makes me feel like part of the company"


XD SERIES
MARTIN AUDIO
LONDON
Jason Baird
R&D Director
Simon Butt
International Sales Director
James King
Director of Marketing


LE SERIES STAGE MONITORS
MLA MINI
XD SERIES
MARTIN AUDIO
LONDON

“uniting the audience”

With thanks to everyone that has touched the history of Martin Audio and to everyone that will help build its future.

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MARTIN AUDIO
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What started as a desire to enable bands to play to larger audiences and be properly heard now firmly stands with the mission to unite the audience ensuring front to back and side to side, everyone enjoys the same exciting powerful sound and joyous experience.