

LIGHTING+SOUND *International*



IMAGINATION'S VISION FOR THE RISEN PEOPLE.

- The Risen People: Imagination accepts a Dublin challenge
- PLASA Award Winners: the stories behind the products
- Sounds Italian: RCF in profile
- ATM Flyware: Andrew Martin tightens the rigging
- News from the USA: LDI and AES Shows assessed
- The making of Meyer : a history of sound

DECEMBER 1994

Allow us to enlighten you with the new **FLOODLIGHT**, the latest development in audio engineering which provides sound reinforcement professionals with the most advanced loudspeaker technology available.

FLOODLIGHT shares its high-performance pedigree with the world-renowned, award-winning* long-throw, high-Q *Flashlight* system currently in use on tours by major hire companies in Japan, Singapore, Russia, Germany, Holland, France, Belgium, Italy and the U.K.

FLOODLIGHT is an optimum system for facilities with audience capacities ranging from 20 to 20,000. Developed for both touring as well as fixed installations, it offers engineers high power, high efficiency, proprietary wide bandwidth midrange as well as ingenious, compact packaging unique to *Flashlight* –



Floodlight delivers a 50° horizontal coverage pattern.

to provide a seamless coverage area with minimal overlap between adjacent cabinets. *Axehead* also increases system efficiency, power output and intelligibility – particularly in the ultra-critical mid-range frequencies.

Like *Flashlight*, FLOODLIGHT also features a three-way mid/hi enclosure (TFL-760H) with the industry's widest mid-bandwidth from paper cone drivers. Loaded onto a new generation *Axehead* device, a high-power 12" delivers impressive low-mid reproduction from 180 Hz to 1.3 kHz. A truly revolutionary 6.5" proprietary paper cone driver is loaded onto a specially-designed, hi-mid *Axehead* device and provides exceptionally clean response and projection up to 8 kHz! Lastly, a proprietary waveguide horn coupled to a 1" titanium compression driver handles high frequencies to 20 kHz. Depending on user requirements, a choice of sub-woofers is available, including one utilising our 6" voice coil, 600 Watt RMS, 21" bass driver as used in *Flashlight*.

Since all transducers in a single TFL-760H are mechanically aligned and in-phase, external time correction is not required (see *ETC diagram*).

Worldwide, live sound engineers have praised the smoothness of

* Winner, "LIVE!" magazine 1993/1994 Live sound Loudspeaker Award
Floodlight is manufactured by Turbosound under licence from Funktion One.



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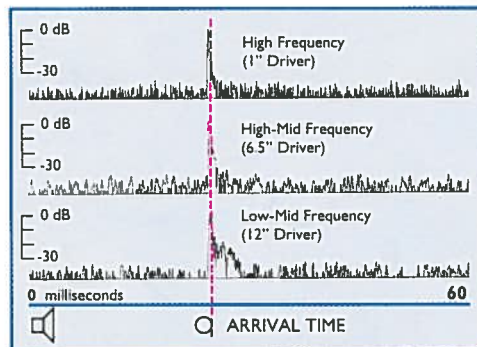
Turbosound's paper cone technology without relying on harsh-sounding, metallic compression drivers. This unique design dramatically reduces mid-range distortion typical of other systems, thus giving sound engineers and systems designers a significantly smoother and more musical sounding system response.

FLOODLIGHT's labour-saving and truck space-saving design additionally features U.K. government certified flying hardware and rugged, exterior grade birch plywood construction.

We have prepared an illuminating monograph which explains the technical merits of the FLOODLIGHT in detail, including

the **LMS-660** dedicated Loudspeaker Management System, a system-specific controller that includes crossover and limiting functions. To ensure consistent system performance, a select list of power amplifiers deemed compatible with FLOODLIGHT is available.

Energy Time Curve Diagram
As can be seen in this plot, external time correction is not required because of the near perfect arrival times for the 12", 6.5" and 1" drivers in the TFL-760H.



Now that you have seen the light on our next-generation, high-performance FLOODLIGHT, please contact your local distributor or Turbosound direct for complete technical information.



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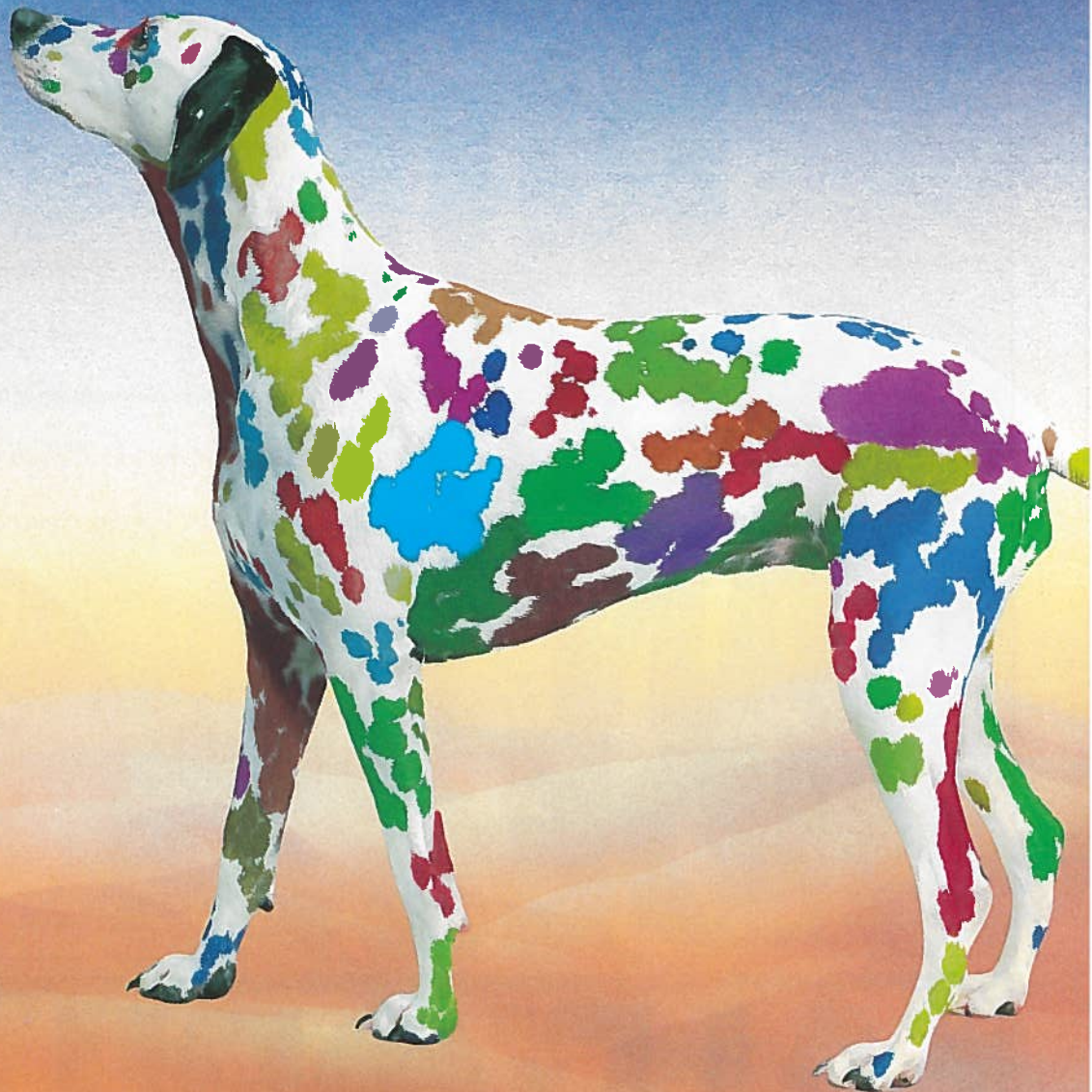
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DECEMBER 1994

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The views expressed in Lighting and Sound International are not necessarily those of the editor or the Professional Lighting and Sound Association

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All other worldwide patents granted or pending.

SCIF/PLASA Merger Now Official

Following several months of discussion between the Sound & Communications Industries Federation (SCIF) and the Professional Lighting & Sound Association (PLASA), the two trade bodies have agreed to a merger, and the Burnham offices of SCIF formally closed on 30th November.

The changes will result in an enlarged PLASA, whose structure and constitution will remain the same. To ensure that work in the sound and communications fields continues, Ken Walker and Brenda White of SCIF will be joining the PLASA team to assist with the extra workload and add continuity to the integration process, and, at the same time, aid the general expansion of services to all member companies.

All existing members of SCIF will be invited to join PLASA, which should ensure that the association now fully embraces all aspects of the sound and lighting industries. Two representative members of former SCIF companies will be invited to join the PLASA committee for 1995.

The two associations hope that many benefits will emerge from an enlarged and stronger PLASA, and several initiatives have been earmarked for immediate attention. These include further development of the Approved Installer Scheme which will consolidate work already undertaken by SCIF, reorganisation and integration of existing databases, including Light & Sound Show lists, a new-style Membership News and a further push into the promotion of Industry Standards.

This is only the start. Further benefits should naturally follow, including an improved advisory service for members, a growth in audio representation at the PLASA Light & Sound Show, increased activity on the conference, seminar and technical workshop front, an expansion in the coverage of L+SI, enhanced export promotion, inter-association liaison, strong BSI representation, a more comprehensive technical book service, and further work in the area of control protocols and the Credit Reporting Plan.

Commenting on the merger, PLASA chairman Mike Wood told L+SI: "The steps taken will place PLASA in a new and internationally leading position, with power at its elbow to achieve a lot more on behalf of its members. The combined resources of both associations will enable us to produce results a great deal quicker than may otherwise have been the case. PLASA will witness a rapid expansion of its activities and looks forward to welcoming SCIF members aboard."

Strand and Martin announce Alliance

At the recent LDI Show in Reno, Nevada, Strand Lighting formally announced an alliance with Martin Professional with the intention to market a range of scanners developed by Martin, in conjunction with Strand, for distribution to Strand's traditional theatrical and television lighting customers. This will enable fully integrated dynamic lighting and control systems to be provided by Strand.

Announcing the alliance for Strand, managing director Chris Waldron explained that the timing followed a successful demonstration during the LDI show of Strand's new 430/530 integrated control systems, operating a number of Martin scanners. He revealed that discussions with Martin had concluded that the development of scanners based on the highly popular Martin Roboscan 1220, and adapted to the specific requirements of theatre and television markets, would be a key product in the programme.

The Strand 430 and 530 control systems, unveiled at LDI, follow Strand's philosophy of separating hardware and software, enabling a high level of user custom configuration. With a choice of two different base operating software



Strand Lighting's Chris Waldron (left), Gene Griffith (second, right) and David Brooks (right) with Peter Johansen of Martin Professional.

packages - Lightpalette or Genius Plus - the new Strand controls offer a variety of specialist application software packages. The Strand 430/530 series include integral tracker ball and encoder wheels for motion control, enabled through the Tracker application software package.

According to Strand, an alliance with Martin will enable them to provide both static and dynamic lighting solutions through its global distribution and project capabilities,

For full coverage of the LDI Show, see our report starting on page 58.

New Era for Mark IV and Shuttlesound

Mark IV Audio of Switzerland have announced that they are to take control of their UK distribution company, Shuttlesound.

The agreement was reached on the eve of the AES show in San Francisco, finally bringing many weeks of intensive discussion and negotiation to a satisfactory conclusion. Larry Fransden, president of Mark IV Audio Europe, told L+SI: "I am delighted. For many years, the UK was one of the only key countries in which we did not possess our own distribution, so this move brings one of Mark IV Audio's most successful territories into line with operations worldwide."

Both parties are keen to stress that the decision will not affect the day-to-day running of Shuttlesound, and that all key personnel are to remain.



Shuttlesound director Mark Burgin with Larry Fransden, president of Mark IV.

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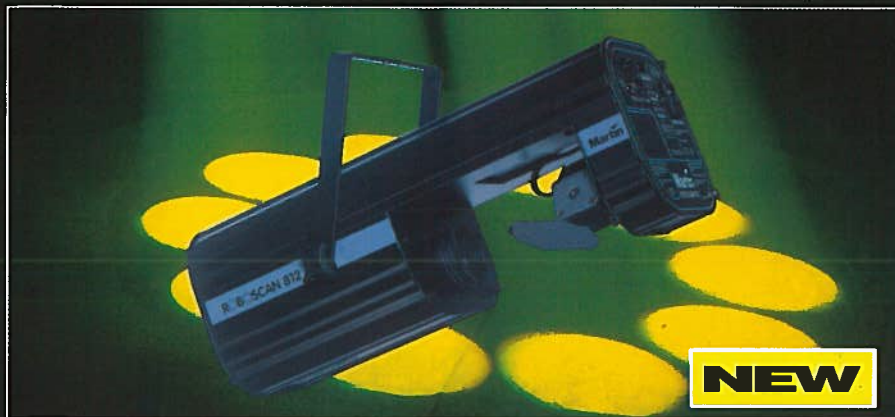
PW Enterprises Ltd are THE Starcloth company. Managing Director George Wetherill is the original designer of modular Starcloths. His vast theatrical experience and design flair have been used to stunning effect throughout the entertainment and leisure industry.

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A Christmas Tradition



'The Best Christmas Lights in London' are set to brighten up the city sky from the end of November.

Imagination has decorated the exterior of its award-winning building with what promises to be one of the most spectacular Christmas displays in London. Over 100,000 bulbs, half a mile of neon tubes and an array of theatrical effects bring the design to life. The overall scheme is in dramatic primary colours, with neon stars and parcels set against huge garlands of noble fir. These swathe the facade of the Imagination building, topped by four huge red bows.

Within the soaring atrium, a giant 60ft Grand Fir tree stands at the heart of the building. Weighing over two tonnes, this is the tallest live indoor Christmas tree in the country - garlanded with red ribbons to mark Imagination's support of World Aids day, which took place on the 1st December. It was open to the public from 1st - 3rd December, from 11.30am to 4.30pm as part of the Red Ribbon Art Show, sponsored by the HEA and held at The Imagination Gallery.

Designed by Gary Withers, the lights needed over 40 technicians to secure them, using three cherry pickers, a 120 feet crane and 15,000 feet of scaffolding. This is the twelfth year Imagination has treated its building in true Christmas spirit.



Theatre Direct

Ancient Lights Ltd, technical suppliers to the industry and the Strand main dealer for East Anglia, has been bought out by Stage Electrics, who have been majority shareholders since 1988.

The company will change its name to 'Theatre Direct', which more clearly reflects the services offered, and a move to larger premises in Cambridge is planned for February 1995.

Former managing director, Peter Nesbitt, who has been with the company for 14 years, leaves at the end of this year to pursue his own interests as a freelance sales consultant. Ian Driver will continue as hire manager and Paul Curtis as sales manager.

Theatre Software

TP Sound Services Ltd have launched Version 2 of their live sound equipment cueing programme.

Theatre Sequencer can control most live sound equipment, including effects processors, CD players, delay lines, digital equalizers and digital mixers, and up to 40 items can be controlled simultaneously.

Written in close consultation with many leading sound engineers and designers, Theatre Sequencer is suited for cueing live theatre and industrial shows, as well as long running exhibitions. The cue list gives quick, intuitive control over all the equipment, with clear displays of output levels, and all displays are in a language familiar to the sound engineer.

Notable features include the intelligent cueing of CD players, a CD database carrying information on what disk needs to be put in each machine, and a series of fader tools for programming complex spatial movements. Theatre Sequencer is a modular programme and new equipment can be added when released. Before the end of the year digital audio playback from Digidesign Pro Tools cards, Yamaha ProMix and video disk control will be added.

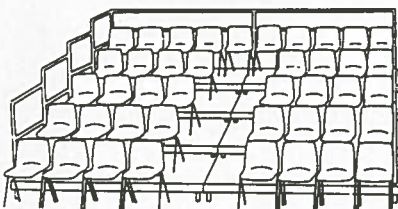
Theatre Sequencer is part of Theatre Projects' Multi-Art developments. Multi-Art equipment and software has been used worldwide, providing control for many light and sound shows.



A rack of processing under the command of Theatre Sequencer.

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Shell Shock Launch Lottery

Shell Shock Fireworks Company provided the spectacular fireworks display for the launch of The National Lottery in the early hours of Monday 14th November. They fired four simultaneous displays in London, Edinburgh, Belfast and Cardiff.

In London, the display was launched from a pontoon in front of the Tower of London and was watched by PM John Major, together with a number of celebrities, and was broadcast live by the BBC. Each display included the National Lottery logo and featured the colours of red, white and blue. Shell Shock specialises in such projects, and the company has won a number of major contracts this year, including the Tower Bridge Centenary, the opening of the new opera house at Glyndebourne and state celebrations in the U.A.E.

Cadac Hit Broadway

As highlighted in Richard Knight's article in L+SI last month, two new musicals opened on Broadway recently, both of which utilise Cadac J-Type mixing desks.

Sunset Boulevard, Andrew Lloyd-Webber's latest hit, opened on November 17th at the Minskoff Theatre, hoping to continue the success it enjoyed in the West End. The show is equipped with a 77-input J-Type mixer, specified by sound designer Martin Levan. Just prior to this, **Show Boat** opened in the Gershwin Theatre with a 74-input J-Type.

On **Sunset Boulevard** the J-Type comprises two frames (46 and 58 modules) with 14 x 28 matrix. In addition, Martin Levan specified a total of eight programmable routing modules to handle the show's complex sound design.

Levan is also responsible for the sound design on **Show Boat**. The 74-input J-Type is specified with a 14 x 28 routing matrix, complete with five programmable routing modules and 14 VCA masters. The production involves a massive complement of radio mics - 45 in total - representing one of the most complex shows currently in performance.

Sonic Solution For RNCM

Sonic Solutions Digital Editing has now been installed at the Royal Northern College of Music in Manchester. This is a new addition to the well-equipped studio facilities at the College, and the system has already been in extensive use for classical music recording, editing for clients both within the College and from outside, as well as a documentary programme for BBC Radio One.

New Frontiers

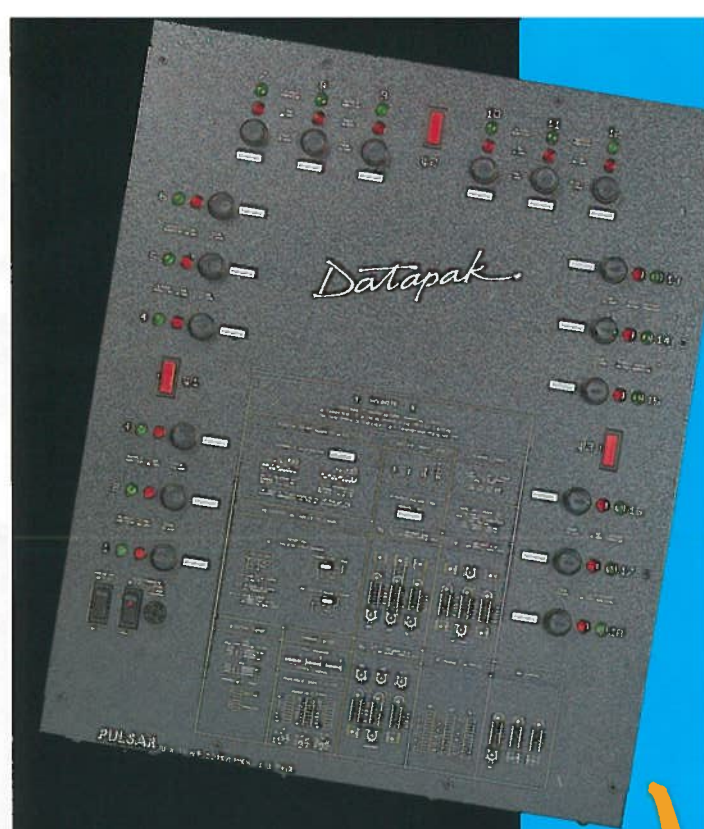
Gigs in South America are commonplace these days; everyone's been there, done that and drunk the cyperinias. But who would have thought of doing shows on Aruba and Curacao? And yes, you may well ask 'where the hell is that?' Well, they're two small islands off the northern coast of Venezuela, officially part of that nation (though some may dispute that), and they only really register in the western consciousness if you mention Black Jake or the Barbary Privateers of the Caribbean.

It is perhaps fortunate then, that UB40's tour manager Chris Vaughan is a son of Brazil and is fluent in Portuguese and Spanish. Curiously, as the tour ran, and Chris's advance man, the doughty Tom Armstrong moved from gig to gig, it was not these little-known islands that stopped the show, but Lima, capital of Peru! "Peru Chris? But loads of bands have been there, surely they are well used to gringo pop groups with outrageous demands." But Chris was not to be gainsaid. "You're right, of course, but no western band have ever played there - not in Lima at least - they've always cancelled." (We await the deluge of mail to counter his assertion).

So how did he pull it off? "Weeeell. When Tom first visited the stadium he was shown the band's proposed dressing room. 'Who are all these people?' he asked. 'Oh, they live here. We thought they could just move into one corner of the room for the day. They won't be any trouble. Honestly.' Not unreasonable you might think, especially in a poor and under-privileged nation, but a family of almost 30 in the corner of what was already a rather dingy sports changing room was asking a bit much. This was just the beginning. "Although not a huge show, we do require 100A/240V for the back line. When the generators arrived, the back line power had a 36 volt potential between neutral and earth. Despite our strongest protestations throughout the day, the promoter failed to take seriously our threat that we would really pull the gig if they didn't do something about it."

The army appeared and dispersed the anxious crowd outside in the tactful and diplomatic way that only South American troops can. Tear gas everywhere and bullets fired over the heads of the hardier souls. "That was fine by us, until we tried to load out, whereupon they turned their diplomatic finery and pointed it at us. Next day nothing seemed to change much, another generator turned up, this time a three phase (110V per leg). 'Hey it's 240V between phases'. They were right again, but that didn't really solve our problem. Fortunately, a phone call to Show Power in LA did (thank you Show Power), and we were able to do the show. Goodness knows what would have happened if we'd had to pull the second night." And the moral to this story, as if it needed mentioning, is, when visiting South America, take a good mains man on the tour, or switch to plan B and do as Wild Willie Barrett does - play guitar in your wellies.

Steve Moles

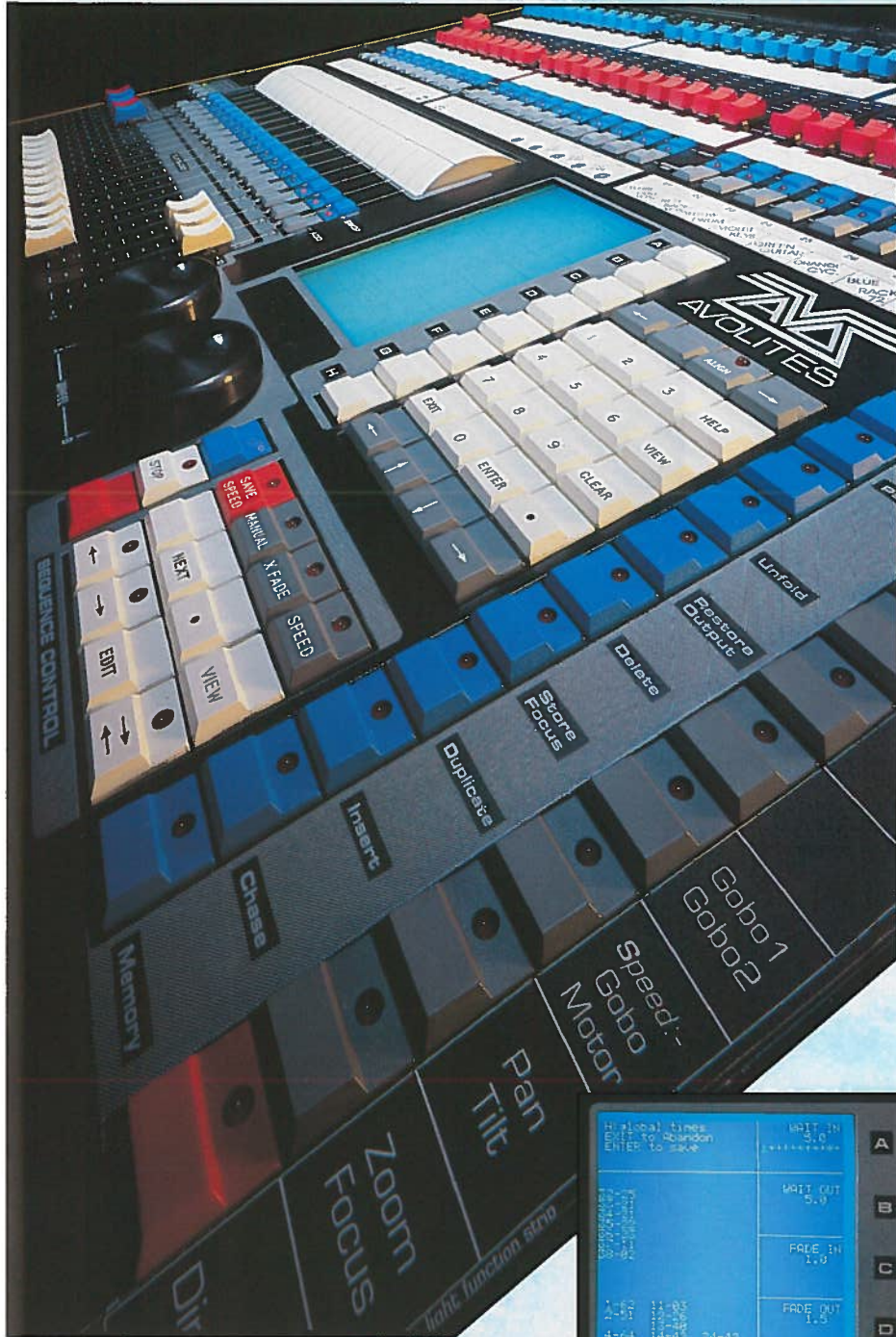


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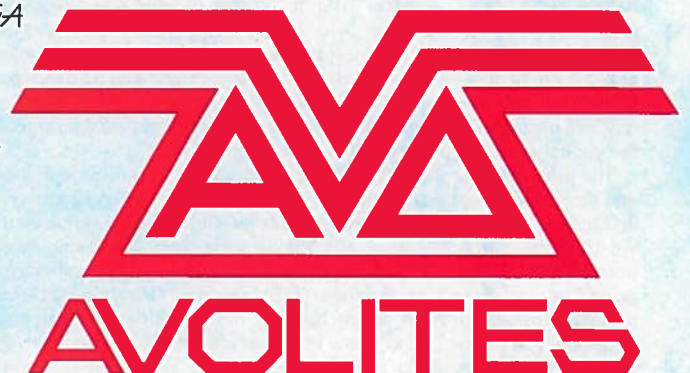
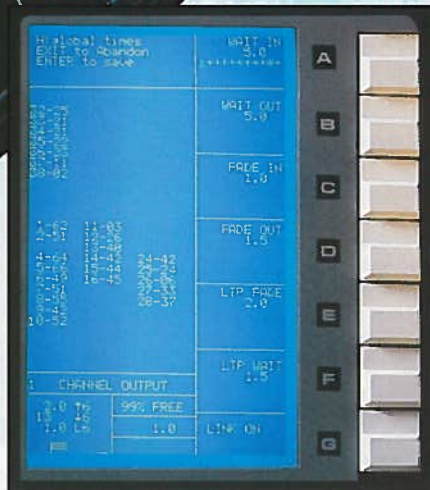
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People on the Move

EICC Ltd, the company established to build and manage the £38 million Edinburgh International Conference Centre, has appointed **Simon Kent** as technical manager and **Edward Costello** as house engineer. Costello will be responsible for the maintenance of the interior and exterior fabric of the building, whilst Kent will provide technical services for clients as well as co-ordinating the technical services department.

JBL Professional have announced three new appointments at their base in Northridge, California. **Marc Spector** has been appointed marketing manager for the musical instrument, broadcast and tour sound markets. He will be responsible for developing marketing plans for the firm's musical instrument distribution and is currently involved in the launch of a major new product scheduled for release early next year.

Mark Mayfield has been named market manager, and will focus his efforts on enhancing JBL's position in three key industry segments: sound contracting, cinema and residential sound. For the past 10 years, he has served in pro audio executive positions for the Bose Corporation.

Mark Halvorsen has been appointed project manager for Control Series speakers. His duties will be focused on bringing added value to this line of internationally distributed products. In addition to leading the new product development for these high-quality speaker systems, he will also provide sales and marketing support.

JYG has appointed **Mark Joseph**, formerly of Light Engineering, as head of trade sales. Joseph's track record at LE caught JYG managing director Garry Clark's attention several times, resulting in a head hunting bid. Clark hopes that Joseph will play a part in JYG's future plans and expansion.

Giles Woodhead has joined SSE Hire, of Birmingham, as operations manager. He is working alongside hire director Chris Beale and has responsibility for hire sales and support

Interactive Art

"The object of our live shows is to completely surround and immerse the crowd in visuals, and it's the ultimate feedback when people stop and take note."

This is what inspires two companies - Subvision and VLC - to produce the original work that includes lighting, visuals, animations and some of the most interactive club work on the scene today. It has led them to work with noted artistes such as Prince, The Orb, Primal Scream, The Shamen and Reel II Real, amongst others. It has also led to a large variety of commissions including interactive animated characters for the Bristol Old Vic's production of 'The Tempest.'

Subvision was formed in 1991 and its rapid development stems from working in the widest scope of multimedia, ranging from 16mm film to 3D computer animation. The Virtual Light Company, although only formed in 1992, brings together 20 years combined expertise of graphics technology.

Subvision and VLC have been collaborating for several years, and this has led to innovations in custom-designed software and hardware. The Virtual Light Machine is one such innovation. Built by VLC it manipulates graphics in real-time to a sound input. There are several sources that can be accessed at any one time, including live camera work and, in one currently developing project, a Virtual Reality Machine.

Future joint plans include a return trip to Krakow, where they introduced the city to House music, the possibility of a similar event in Kiev, while an upgraded version of the VLM will be on-line soon, and new control software to integrate live performances is also being produced.

DI and Live! Sold

After many months of negotiations, music industry publications *Disco Club & Leisure International* and *Live!* have been sold by St. Albans-based Mountain Lion Productions Ltd to Nexus Media Communications for an undisclosed sum. It joins the recently acquired *Making Music* and *DJ* in a new division of Nexus.

The new Music & Lifestyle division of Nexus, which also includes non-music specialist consumer titles, is run by former *Making Music* owner Adrian Walker, while Jerry Gilbert, previously editor of *Live!* and co-director of Mountain Lion Productions, becomes business manager of the music titles. His partner through the 18 years of MLP, Alan Donaldson, now plans to retire.

Both publications are currently based within the *Making Music* operation in London, but the entire division expects to move shortly to a Central London HQ. Commenting on the sale, Jerry Gilbert told L+S: "The opportunities offered by Nexus will enable our titles to consolidate as part of a much larger group. While we will be restructuring the staff levels of both magazines - including the appointment of a new editor for *Live!* - I intend to retain a strong hands-on editorial approach."

Included in the sale package is the *The Live!* Show, which will go ahead as planned (see L+S! news, page 14).

SIB Sponsorship

PLASA and the DTI will be sponsoring a group of UK exhibitors at the SIB/MAGIS show in Rimini again next year. The offer of sponsorship is open to the whole industry, and applications are welcome from PLASA members and non-members alike. Facilities offered to the group include a shared interpreter, telephone/fax and group publicity.

For more information contact Anna Pillow at the PLASA office, telephone (01323) 410335.



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Trace Elliot Expand

Trace Elliot Ltd, of Maldon in Essex, have recently acquired an extra 102,000sq.ft of factory and warehouse space in an attempt to meet growing orders for their Evolution series of loudspeakers.

Several Far Eastern markets are currently taking container loads of the new P.A. range, augmented by airfreight shipments to keep up with demand, and the launch of the range in Portugal has just resulted in a 200+ initial order.

Since its introduction at the Frankfurt Music Fair earlier this year, Trace Elliot say their Evolution Series range of sound reinforcement systems have been praised for their punchy, dynamic live sound reproduction. The company has been involved with several tours, including that of Toto guitarist Steve Lukather's Los Lobotomys during their recent European dates. One notable addition to the growing client base is legendary Deep Purple drummer Ian Paice, who has just purchased an Evolution 3 package.

The Evolution 1, 2 and 3 speaker enclosures provide the basis of three system concepts. Trace Elliot's 3-way Evolution 1 enclosure, for example, houses a custom Elliot 15" kevlar bass driver in a specially developed band pass configuration alongside a 10" Precision Devices midrange unit and an RCF high frequency horn. The Evolution 2 system expands this integrated theory, while the Evolution 3 concept offers separate bass and mid/high enclosures with expandability to suit larger venues. The three speaker systems are complemented by a range of power amplifiers, crossovers, wedge monitors and accessories.

Hardware in the US

Hardware Xenon have opened a branch for sales and hire in the United States. The full range of Hardware projectors will be available from their offices at 100 Louis Street 'B', South Hackensack, New Jersey 07606, telephone +1 201 440 0216.

Vegas Enterprise

More than \$500,000 worth of Turbosound's Flashlight and Floodlight systems have been ordered by new PA company, Enterprise West, based in Las Vegas.

The operation has been set up to supply sales and rental to the growing Nevada marketplace, which ranges from small casino showrooms to the large Las Vegas arenas. It is the newest addition to the Enterprise family, highly regarded in the USA, which includes Enterprise Studios in Burbank, as well as Audio Effects Rentals.

For its rental inventory, the new company has purchased a total of 64 Flashlight and Floodlight enclosures, complete with all control, amplification, rigging hardware and speaker cabling, and 12 TCS-612 enclosures.

Under the management of veteran audio engineer Chris Bex, Enterprise West is intent on becoming the leading audio supplier in Las Vegas.

With a Little Help from Above . . .

During the summer, The Grand Theatre at Wolverhampton was struck by lightning. Amongst the catalogue of blown power cables, burst water pipes and damaged electrical equipment, was the theatre's Strand Gemini Mk1 lighting console.

Understandably, the Gemini became a little unreliable, but the talents of Midland Theatre Services' David Checkley kept it operating while Paul Carter, also of MTS, clinched the sale to the theatre of the world's first Strand 430 console, with Genius Plus software.

The 430 will have the privilege of lighting the theatre's 101st year in operation.

Live!

The 1995 Live! Show is again to be held at The Royal Horticultural Halls in Victoria, London, on the 17th-18th January, 1995. The event will bring together the disparate aspects of live production from manufacturers and hire companies, to designers and service related companies, in an all-encompassing event.

Combined with the trade exhibition, visitors will be able to take advantage of 'hands on' product demonstrations and workshops on the Live! Show stages. The show will have a full programme of seminars, together with the Live! Awards which will be hosted by Jim Davidson.

Live! 1994 attracted over 1600 visitors covering the whole spectrum of the touring market and was up 50% on 1993, with over 50 exhibitors.

"Trimming the show to two days and moving it from May to January when everyone is not on tour was a good move," exhibition organiser Jay Green told L+SI. "With the Awards evening now on the first night, the new look gives the whole event a good vibe." The format of the show will not change but there will be more stands available and also a number of sound and rigging workshops, whilst the stage and hospitality areas will remain the same.

For more information telephone (0675) 442544.

Chain Reaction

Ten urgently needed Electric Chain Motors were supplied for the Glyndebourne Opera House by PCM (a division of Pfaff Silverblue Mechanical Handling Ltd). The motors, Columbus McKinnon Lodestars with one tonne safe working load and featuring 8m/min lifting speed, and 22 metre height of lift, were needed for the opening Saturday evening performance. PCM were able to dispatch the motors to Glyndebourne on Friday morning for installation ready for the opening performance on Saturday.

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HW to Distribute Camco Amplifiers

HW International have been appointed the UK and Eire distributor for Camco Power Amplifiers of Germany. The design of the amplifiers encompasses twin toroidal power supplies and bi-polar output circuits. They are force-cooled via a variable speed DC fan and have in-built adjustable limiters, together with switching for in phase/out of phase inputs, bridge and hot pin configuration.

Camco Amplifiers can be computer controlled via Camco's own Win Cai software, through Microsoft Windows 3.1 with interface using RS485 post. Win Cai software is also available for use with other manufacturer's amplifiers.

Chevin in Dispatch

Chevin Research and its French distributor DM2J have announced the sale of over 40 Q-6 amplifiers to Dispatch, one of Europe's leading PA companies. Dispatch are using the Q-6 amplifiers with Meyer UPA and UM speakers in both FOH and monitoring applications.

Chevin has also announced the appointment of Australian and Thai distributors for its professional A Series line of amplifiers. Audio Communication Technology (ACT), based in Sydney, will now be responsible for all sales, marketing and distribution of Chevin amplifiers within Australia. Sound System Business (SSB), based in Bangkok, will be responsible for the range within Thailand.

Wembley B-Line

Wembley Loudspeaker have sold 24 of their 18" B-Line bass loudspeakers to Northampton-based hire company, Tour Tech. Designed specifically for continuous, high-powered, low frequency bass reproduction, the B-Line is suitable for any custom-made cabinets designed to cope with high power levels for a sustained period of time.

BFPSA VA Code



The BFPSA Working Group: standing (left to right) Dennis Terrett, David Boxall, Kieron Chapman, Bob Harris. Seated (left to right) Bernard Laluein, Douglas Mason and Ken Rouse.

Voice Alarm systems have now become recognised as the preferred form of fire alarm, particularly for medium and large buildings. BS 6259, the established Code of Practice for Sound Systems, contains little or no information concerning the safety aspects of emergency sound systems and BS 5839: Part 1 and BS 7443, whilst addressing some of the issues, fail to provide all the information needed.

Because of the growing need for clear guidelines, the British Fire Protection Systems Association (BFPSA) set up a working group in 1992 to prepare a Code of Practice for the industry. Group representation included those from the fire prevention industry, sound industry and audio/acoustics consultancies. At a similar time, SCIF had, at the request of BSI, set up an Industry Committee charged with drafting updates to IEC 849 as the best way of amending BS 7443. This is also completed and is now with the IEC.

The new BFPSA code mirrors the familiar BS 5839: Part 1. Whilst covering technical requirements, such as intelligibility, it provides practical help to those involved or intending to be involved, with voice alarm systems. Copies are available, at a cost of £25, from BFPSA in Kingston Upon Thames, telephone 0181-549 5855.

Northern Exposure

White Light North held a series of open days in early November which enjoyed a continuous full house on the first day, Friday 11th and an impressive attendance on Saturday the 12th.

Leading manufacturers joined guests who ranged from top professional theatre groups and broadcasters to amateur societies. All visitors were given the opportunity to participate in live demonstrations and the chance to look around White Light North's premises.

A prize draw, with the first prize of a Strand Cantata Followspot, was held on each day, and the winners were Mr C. Mitchell of St Leonards College in Leeds and Mr R. Sallin of Theatre Royal, Manchester.

Nu-Light Appointed

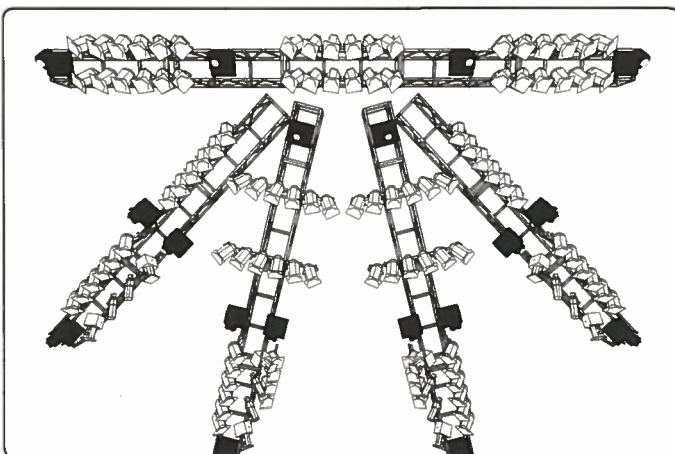
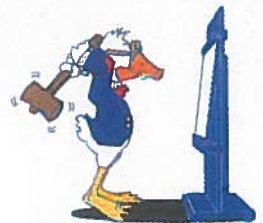
Laser Science have appointed Nu-Light Systems as the worldwide sales and marketing team for their products. The company have been exclusive UK distributors for Laser Science for the past 18 months and are currently talking to several overseas companies about setting up distribution links. This move falls in with the launch of new products from Laser Science in January 1995 - the Triscan and 3DFX lasers. The handing over of their sales enables Laser Science to spend more time on research and development for future products and expand their research into the commercial side of the business.

XTA Beyerdynamic

Beyerdynamic have been appointed as UK distributors for XTA Electronics. Current products include the RT1 Real Time Spectrum analyser, GQ600 Dual Channel graphic equaliser, and DS400 Mic/Line distribution system with PSU400 Dual Channel power supply. XTA was formed two years ago to produce signal processing products for audio professionals, and, until now, has been concentrating on the export market.

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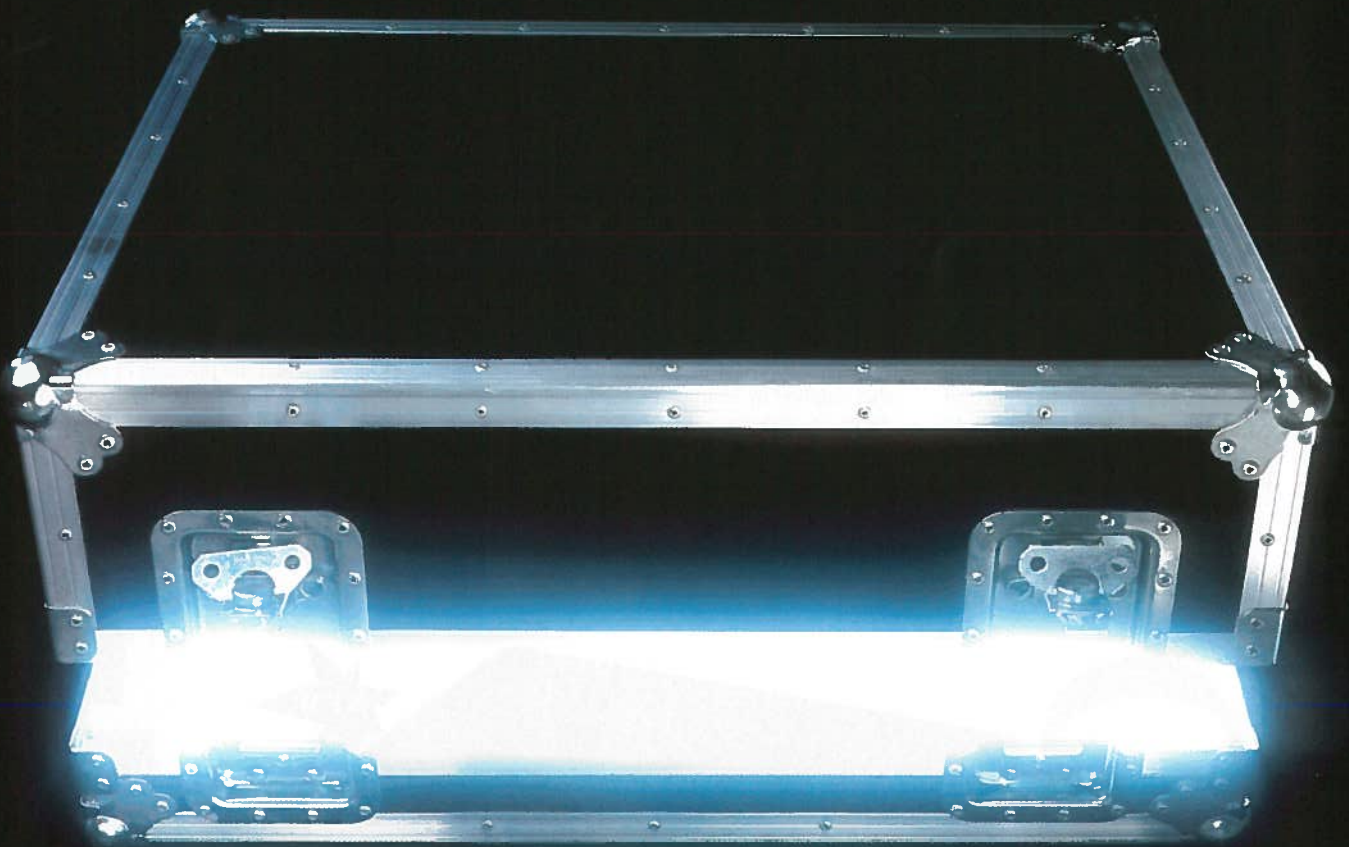
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Strand Lighting for Bolshoi Theatre

More news, as promised, on Strand's involvement with the Bolshoi Theatre in Moscow. The theatre's new season began on September 22nd, and the opening night also marked a new era in lighting control at the world famous Moscow theatre, with equipment supplied by Strand Lighting.

The story of the Bolshoi Theatre and their association with Strand Lighting began in 1989, when project sales manager Alan Luxford was involved with lighting for a series of BBC operas and ballets recorded at the theatre. It was at this point that interest in new lighting controls was first expressed. Discussions for the refurbishment of the theatre's lighting equipment began in earnest following the Bolshoi Theatre's performances at the Albert Hall in London in 1993. The outcome was an initial contract for new Strand theatrical luminaires and plans for an installation of EC90 digital dimmer racks and the top-of-the-range Galaxy Nova lighting control system. The luminaires were supplied in August 1993 and included Cadenza Profiles 19/32, 12/22, Cadenza F, PC, Cantata 18/32, PC and Pollux Bambino.

The Bolshoi Theatre stipulated in their specification for the project that the new electronic control and dimming system should be as reliable as the obsolete four preset manual desk and 360 x 5kW magnetic amplifier dimmers it was set to replace. Their second imperative was that the system displays and labelling should be in Russian characters!

Negotiations, proposals and discussions continued throughout 1993 and into January 1994, when in the best theatrical tradition the final specification was agreed in Moscow between Acts I and II of Swan Lake. A contract was signed in April 1994 for the following list of equipment to



A celebration toast on opening night, with Strand's Alan Luxford (left) and Chris Waldron (right) in attendance.

be supplied by Strand Lighting: Galaxy Nova dual electronics lighting control system with additional stalls pod, a custom designed 821 channel Geographic Button Mimic in Russian and 22 EC90 MD-Plus digital dimmer racks with 762 dimmer modules and SV90 supervisory software.

Strand's design team, together with a technical translator, Natasha Shankova, began work with the Bolshoi Theatre's lighting operators to prepare the Russian screen displays and the Russian-engraved keytops for the Geographic Mimic and two Galaxy Pods. Then, in July 1994, four technical specialists from the Bolshoi Theatre visited Strand's West London headquarters for operational and technical training. The total project was co-ordinated from London by Strand's Simon Roose.

Within seven weeks all 22 dimmer racks, consisting of 762 ways of Strand EC90 MDPlus high specification status reporting dimmers (including 162 x 10kW modules) were installed in two dimmer rooms at the Bolshoi Theatre. At the same time, the theatre's control room situated at first tier level to the rear of the auditorium had been completely demolished and a new floor installed, covered with a special anti-static carpet, also supplied by Strand. The re-modelled control room, a generous eight metres long, can



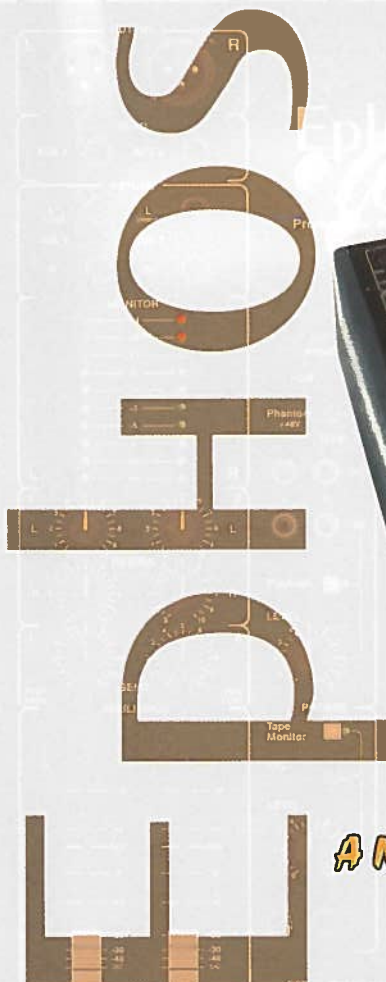
Bolshoi staff, with the 22 new EC90 racks.

accommodate up to four operators and now houses the two specially crafted wooden desks, in which are set the Galaxy Nova control surfaces, Galaxy electronics crates and the custom Mimic. The Nova can be operated in split mode, so that one pod can be used for live performance and the other to edit data for a different show. To provide further security the back-up mode allows the active set of electronics to swap with the tracking set to ensure absolute reliability. The Strand Lighting commissioning team comprising service engineer Samantha Waite and Peter Willis of Andera Limited, spent several weeks working closely with the theatre's installation team in Moscow to meet a very demanding installation schedule to be ready for opening night.

Strand Lighting's managing director, Chris Waldron, attended the first night as a guest, cementing the continued good relationship between the Bolshoi Theatre and the company, where he joined the general director of the Bolshoi Theatre in an interval toast to the new system.

A footnote to the story - as seen by millions of TV viewers - occurred when Her Majesty, Queen Elizabeth II had the pleasure of seeing the Ballet Giselle at the Bolshoi Theatre during her recent historic visit to Moscow.

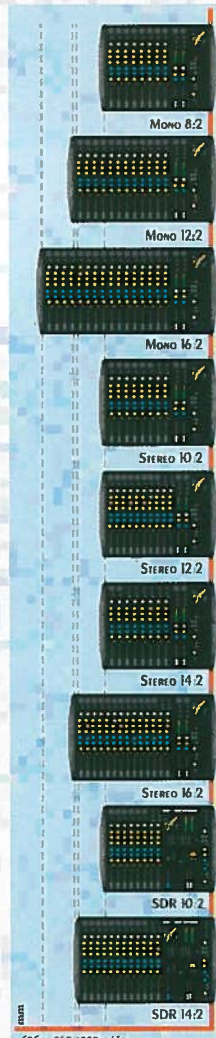
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Mach Vibrations

A company which has seemingly come from nowhere in the past few months, but has immediately made a big noise in the sound business, is Mach Systems. Already they have distribution agreements in 18 countries and in the UK they have recently completed several installations including Main Entrance in Blackpool and Zoots in Maidstone.

Steen Geertsen is the manager of the Danish based company. "A couple of years ago a group of leading figures in the Danish pro audio and entertainment business got together to ask themselves what it was, if anything, long established speaker manufacturers could do better and to determine from the results whether there was a gap in the market for a new marque and line in loudspeakers," Geertsen told L+S.

"Denmark is one of the leading speaker manufacturing countries in the world, which comes partly from our timber-based industries. This led us to get involved in the manufacture and design of cabinets," he added. The group is headed up by Peter Madsen, a consultant audio engineer who has previously designed speaker systems for JBL, and who is currently working on new concepts for Kef. The drivers selected by Mach are made by some of the top international names in the game, including Beyma and Audax.

Marketing is also playing a major part in the success of the range, not just for its aggression, but also by having carefully selected the market niches into which to design the series, and recognising that different needs are met with appropriate solutions. Thus, the Mach designers have created a line called Cafe, which consists of background speakers for shops, restaurants and bars; the Club Line is a foreground system for dance floors, and Stage Line is a PA system for live bands and venues. All have complementary sub-woofers. The company don't have a touring system yet but promise one within a few months.

New Chairman signed in at STLD AGM



Mike Jefferies, Ian Dow and Ronan Willson.

The AGM of the Society of Television Lighting Directors (STLD) was held recently at the headquarters of Elstree Light and Power, a subsidiary of Meteorlites, one of the sponsor companies of the Society. At the meeting, popular LD John Watt was elected chairman for the forthcoming year which will be the 21st anniversary of the society.

After the business was out of the way, members were wined and dined in the customary manner,



John Livingstone and Vince Price.



John Halpin, Rod Litherland, new STLD chairman John Watt and Clive Gulliver.

and following on, EL&P demonstrated their Moonbeam unit featuring a 40kW Sync locked generator with a hydraulic arm which supported a 12kW HMI remote control head.

Also on show was Cyberlight from High End Systems, with Wybron on hand to demonstrate their award-winning Autopilot. As is the style with STLD meetings, there was the usual blend of education, information and entertainment as our pictures of just some of the STLD members show.



Alan Walford and John King.

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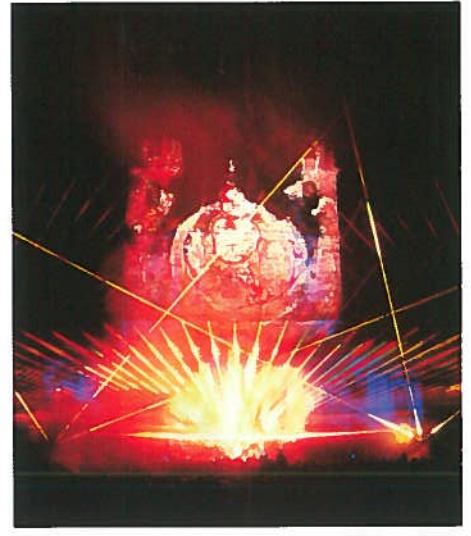
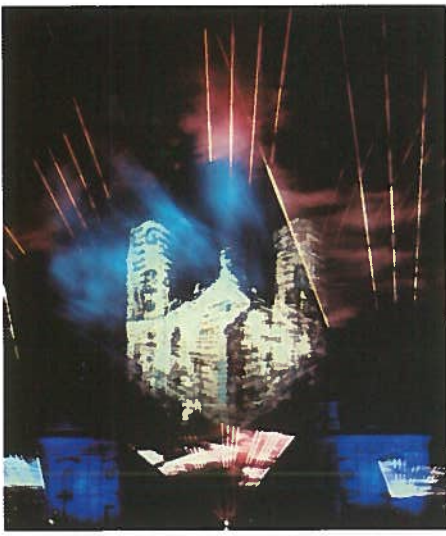
When the world's largest music fair takes place in Frankfurt from 8-12 March 1995, there are plenty of good reasons for visiting the fair. Nowhere is a wider product range on offer, more international exhibitors on show - last year there were already 1,250 exhibitors from 38 countries - and nowhere are the conditions for doing good business better. This is because the Frankfurt International Music Fair presents the entire spectrum of products. Musical instruments, sheet music and accessories as well as professional lighting, sound and stage equipment. And to help you plan a successful visit to the fair a wide array of information on "the sound of business" is already available. By fax or by post.

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General Public: 11-12 March 1995

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Musikmesse



Tarm picks up Award for Laser Artistry

Tarm Showlaser has won its third successive Award for Outstanding Laser Display. The International Laser Display Association (ILDA) awarded Tarm first place in the Mixed Application category in a competition that included more than 160 entries from all over the world.

Tarm Showlaser systems provide a choice of argon or krypton-ion-lasers with rated outputs of 2 to 31W. All hardware and software is designed, developed and manufactured in their own facility. The company have worked on a large number of projects including Pink Floyd's performance at

Knebworth 90, Starlight Express and the Olympic Games in Seoul, Korea.

Pictured above are scenes from Tarm Showlaser's spectacular laser shows at the Water and Light event which took place in Fulda at the end of September.

Leeds Lights Up 94

With over 3,000 motifs producing over nine and a half miles of lights, the City of Leeds will once again provide the biggest, if not the best, festive illuminations in the country. Every year the technical team responsible for the lighting look for new, innovative ideas to make the display even better. The result for 1994 is a sophisticated high tech look more akin to a Pink Floyd concert than a pedestrian precinct.

Using Clay Paky Golden Scan 3s (supplied by Coni Lighting), fast moving multi-coloured shapes and patterns dart around on the ground and lower levels of the surrounding shops, offering pedestrians an opportunity to actually interact with the display. The lighting effects are housed in the upper floors of the shops overlooking the precinct. A computerised Jands Event Plus links the lights and has been programmed to provide a constantly changing display

Case of Bubbles

If you want to catch the eye of the editor of L+SI, what better way to do it than send a bottle of wine and fluted glass through the post, packaged in the very product you hope will get a mention.



This is exactly what CP Cases did this month, when they sent to us their new Multitripper aluminium case, complete with aforementioned inducements, to demonstrate how delicate items and valuable equipment can be securely packaged in a reusable case and protected against the rigours of travel. CP have also enclosed a Multitripper logbook which records the mileage and destinations notched up to date. Thank you CP, the wine arrived in perfect condition, and as you can see from the photograph above, L+SI editor John Offord and James Brooks-Ward of P&O Events used it to toast the record sales level for the 1995 PLASA Show. The case is now on its way back to you, ready to be recharged and sent on another mission of mercy.

Of course, whilst we don't recommend that companies package up their products and send them to us for review, we can't stop you from sending smaller, more expensive items. Please make sure you have the correct postcode.

Hardware Trocadero

If you are located round the corner from Regent Street, how do you compete with the draw of the famous Christmas lights? This was the question faced by the managers of the Trocadero, the famous shopping centre and leisure complex off Piccadilly Circus.



Answer: you create the illusion of wrapping the building in Christmas paper. There may be several ways to do it: Imagination do it with neon bows at each window, Christo would do it for you in cellophane, but a more efficient way might be to do it with projection. That's exactly what the Trocadero have done this Christmas.

They have hired two 5k Hardware Titan projectors fitted with Image Scrollers, for the seven week period of the festivities, and sited them in a building opposite. The coloured images, which were created especially for the purpose, will change at regular intervals. The Titan can deliver images 50m wide at 330m distance on 18.5cm format transparencies from the 60,000 lumens rated xenon lamp. The innovatively engineered Image Scroller, which was shown for the first time at PLASA, uses two powerful DC motors working in counteraction and slaved to two micro-processors to give independent control of speed, position and tension of a scroll of images on film up to 30 metres long with extraordinary precision.

This ingenious solution yields a compact image scroller, with control via DMX512 or RS232, and the possibility of easy conversion for double scroll operation. Speed can be varied from 10 centimetres to eight metres per minute, with a random access speed of 0.7 metres per second, while positioning accuracy of 5/100ths of a millimetre is claimed.

Though Christmas shoppers in Piccadilly Circus will be unaware of the technical wizardry involved to bring this extra light into their lives, they will no doubt be impressed with the colourful result delivered by Hardware's equipment.

J Collyns apply for Chapter 11

J Collyns have applied for Chapter 11, the French equivalent of administrative receivership. L+SI understands that although the company has asked for 16 months protection from creditors (divided into four groups of four, with a period of accountability at the end of each), they are still trading on a cash up-front basis. Formed in 1983, Collyns manufactures and trades in sound and lighting equipment, and is well respected in the French discotheque industry.

Under the guidance of founder Patrice Miquelis, the company enjoyed its most successful period in the early nineties: in 1991, it bought the Freevox company, whilst at the same time developing its own range of complementary audio products under the Chelsey brand name. In the same year, they formed CCSI, a joint operation with Coemar, to distribute the Italian manufacturer's lighting products. In addition, Collyns has distribution deals with a number of companies, including Jem and FAL, and we understand outstanding monies are owed to these companies.

The tale has taken a further twist with Collyns now advertising the fact that they are a distributor for High End products who are market competitors with Coemar.

Pro Light & Sound at the Messe

The Frankfurt Music Fair organisers launched their new 'baby' to the UK press in late November, when project manager Wilhelm-P Hosenseidl, pictured right, visited London for the occasion.

The Pro Light & Sound element of the massive Fair now has its own distinct identity and will occupy Halls 5.0, 6.0 and 6.1, giving much better facilities for exhibitors and with a total of 27,000 sq.m of space.

In a special arrangement, stands for VPLT (the German Professional Lighting and Sound Association), PLASA and LDI will be grouped in a special foyer area. We look forward to seeing you there! (Dates: 8-12 March, 1995).



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◀ Illustrated: Power Tower

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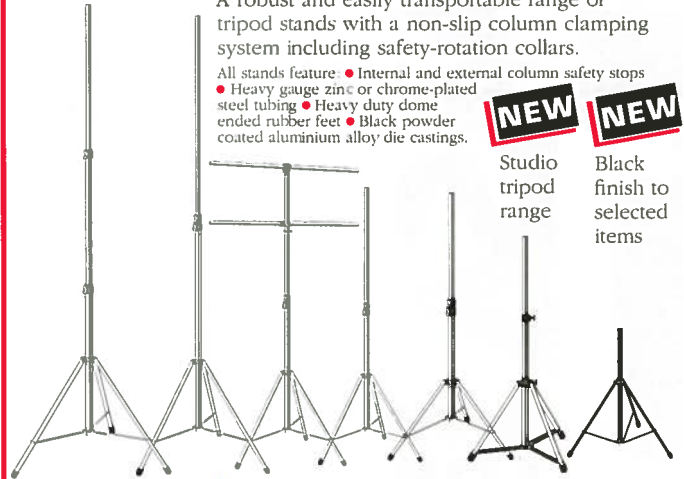
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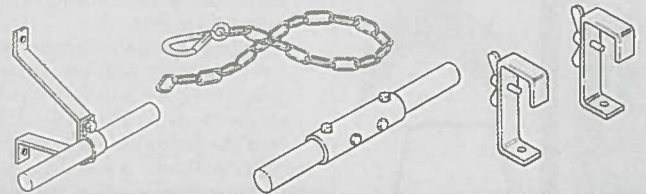
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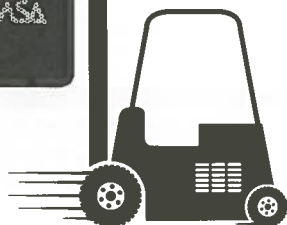
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The Leadmill

The Leadmill first opened in either 1980 or 1981, depending on which member of staff you speak to. (I certainly remember going there one very cold New Year's Eve in 1980 with Dave Wright, the then production manager for the French pop/punk band Telephone. What it was actually like I have virtually no recollection of for some strange reason). However hazy the club's beginnings, there is no doubt that today, it is not only well established in the culture of its home town Sheffield, but it has also, in the intervening years, created a model to which other clubs aspire.

Despite its name, the club is in fact a converted flour mill, a small irregular brick-built structure with just a single storey featuring exposed steel roof trusses. It started life with a bar built from beer crates, a few lights, a small PA and the thinnest veneer of decoration. What it lacked in creature comforts

it more than compensated for with electric atmosphere, fomented by a policy of promoting emerging grass roots bands. This was not a club to catch Saturday Night Fever, but with its close proximity to parts of the University campus and an easy walk from the Poly it was the happening place to be. However, it's not just a hang out for students: a typical week will feature an over 14's night with alcohol free bar (check out Veris Vegetables and their dynamic 13 year old vocalist if you get the chance); an eighties revival night; Hot Pants night (glam rock and glitter); an over 30's night, and a host of live bands which play most nights.

Since its humble beginnings, the club has consistently charted in the NME and Melody Maker venue polls - this year making number three in the NME and number one for the outside London category. Catering for such a wide and varied audience has led over the years to a constant search for innovation, and in March of this year, the decision was taken to end the tinkering and indulge in a total overhaul of the building. Designer Matt Rawlinson (BA Interior Design Teeside University) had his 'starter for ten' at Rafters club in Morley, and moved quickly on for a bonus at Beluga (Sheffield, no conferring), and the Beetroot (Nottingham), before coming to the attention of the Leadmill's owner, Phil Mills. Phil, incidentally, is the remaining owner from the original gang of three music lovers who started the club. Matt has had overall responsibility for the decor, with advice on the PA coming from Villa Audio and lighting from AC Lighting.

The club comprises a main room with foldaway stage, a big bar room with enough space for a 300 capacity side show, and a further small bar off to the rear, an escapist's oasis. The main stage was the idea of the club's technical manager Nick Pearson: "We wanted to make maximum use of the room - to be able to free up as much floor space as possible on dance nights. The stage is actually a development of foldaway tiered seating (by Auditoria). When extended, it locks down very securely." Folded away, it adds an extra 450 square



feet to the floor area.

The PA is 7kW of ElectroVoice's Deltamax system. The mid/highs are flown either side of the stage, while the subs (two cabinets per side) have been encased in massive concrete blocks and mounted on castors. The concrete provides enough mass and inertia to really beef up the bass, whilst the wheels mean the half ton cabinets can easily be repositioned for the variety of shows that are staged. Visiting band's sound engineers are spoilt with a 40 channel Soundcraft 8000 FOH, a 24 into eight Soundcraft 500 for monitors and a mass of professional mics and effects.

Lighting is made up of mainly theatrical fixtures and some basic effects

lights spread throughout the room and hung from the roof trusses. The re-fit has, however, seen the installation of four Golden Scan 3s and four Roboscans, with the acquisition of a Pulsar Masterpiece for control. To make superficial changes to the decor for the themed evenings, much use is made of slide and video projection. The club has a stock of over 1500 still images and a host of video footage which is projected onto a 15 x 8 feet screen at one end of the main room, with slides also shone onto muslin-covered three feet cubes suspended randomly around the roof.

The small bar has the most dramatic new decor - formerly a sort of homely pine furnished pub snug, it now sports bold new cloths. In the revived dec style, with pale blue-greens, shuttered lighting, and elegant tables and chairs, it now resembles a cross between a chic Berlin bar and a mod cafe from the trendy sixties. The main bar is basically an open square room, dominated by the huge full-length bar along one side. Local sculptor Robin Widdowson was brought in to provide light fittings and a full length optic rack. Heavy and hammered, his work reflects the city's industrial past.

In total, the club is licensed for 700 people. On a Saturday night it's not unusual for there to be five bands on - two in the bar and three on the main stage, with performances alternating between the two rooms. Live music ends at midnight (11pm prompt for the 14's events), but the DJs keep things going on the dance floor until 3am. Where the Leadmill wins out over its rivals, is in the sheer variety of entertainment available. To this end, and despite the money already spent this year, plans are now afoot to install a more integrated video system with LCD projectors and Kodak PC slide systems, and for all three rooms to be linked in to these new systems.

Finally, in case you were wondering, the Leadmill gets its name from the street it's on, not through any great affinity with heavy metal.

Steve Moles



Live performance at the Leadmill (left) and part of the unusual interior, complete with shoe sculpture (right).

JBL

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CREATIVE TECHNOLOGY

Avolites Gem Collection



The Mercedes-Benz stand at the Paris Motor Show.

Full production of the new Pearl console from Avolites, which was seen for the first time at PLASA 94, and recently made its US debut at LDI in Reno, will begin in January. The Pearl has 512 channels, 400 memories and has been enjoying a good deal of attention since its launch.

Meanwhile, an Avolites Sapphire console was in operation at the Paris Motor Show recently, controlling the lighting on the Mercedes-Benz stand. Design by Rolf Derrer, the lighting instruments included 48 1200W HMLs, 23 MSRs, 18 VL5s, six Cyberlights, six 5k fresnels with scrollers and eight HML fresnels with dimmer shutters. Also using the Sapphire console are Croatian Television, who have just taken delivery of a console for controlling Clay Paky, Lampo and FAL fixtures. Interest in the Sapphire began when Boris Popovic and Damir Smetko from Croatian TV visited Avolites during a recent UK visit. And finally, another Sapphire console, operated by Simon 'Boff' Howarth, took part in the Alton Towers end of season celebrations, controlling 36 Golden Scans via a 72-way dimmer rack.

Tannoy's CPA Success

Following an installation of eight Tannoy CPA 15 loudspeakers in August, Salisbury City Hall has been busy hosting a number of special events and well known entertainers.

A further four Tannoy CPA 10 SXB loudspeakers were specially bought in for the first performance, using the SuperDuals to provide back-up for Jools Holland's Big Band, who performed for one night only.

The City Hall has since boasted an impressive guest list, including comedians Frank Skinner and Robert Newman, as well as a conference on Corn Circles and UFOs hosted by Reg Presley from the band The Troggs!

Opus Audio have specified Tannoy's CPA 10S SuperDual drive units for incorporation into its new PSD1000 loudspeakers. The South Devon-based designer and manufacturer of audio systems has already sold a number of the units to BB Audio Systems who will shortly be using the loudspeakers for a Christmas pantomime starring the rather unusual combination of Roy Walker, Bet Lynch and the Gladiators. The PSD1000s are then booked for a summer season in 1995 for acts including Michael Barrymore, Ken Dodd and Jimmy Tarbuck.

Meyer In Europe

Meyer Sound's recently launched high power MSL5 long-throw loudspeaker is becoming increasingly active on the European concert circuit.

In France, sound hire company Dispatch rigged a Meyer Sound system for Patrick Bruel's concert at the Parisian POPB venue in September. The main system for the gig comprised a combination of 10 MSL5 units, supported by 20 DS2 mid bass speakers, 20 MSTs and eight USM1Cs, arrayed left and right. A total of 130 Meyer speakers were used, with the system complemented by 32 MSL2A speakers, plus 650-R2 subwoofers and MSL3 units. The show is touring 60 venues in France currently, with a date also set for Montreal, Canada.

Stylus Counsel

Stanton Magnetics Inc. are leading suppliers of professional cartridges and styli designed and manufactured in the United States to stringent specifications.

In order to stem the increasing trade in imitation Stanton styli, which are being sold by some dealers, Stanton have prepared a survey of performance standards conducted on Stanton styli and imitation styli.

If you are in doubt about a Stanton stylus you have purchased, Stanton can be contacted on (0727) 840527.



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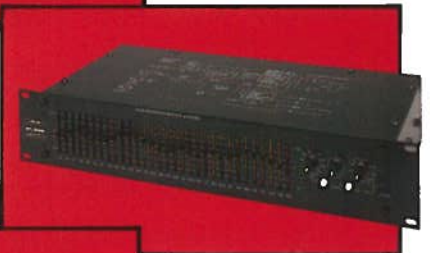
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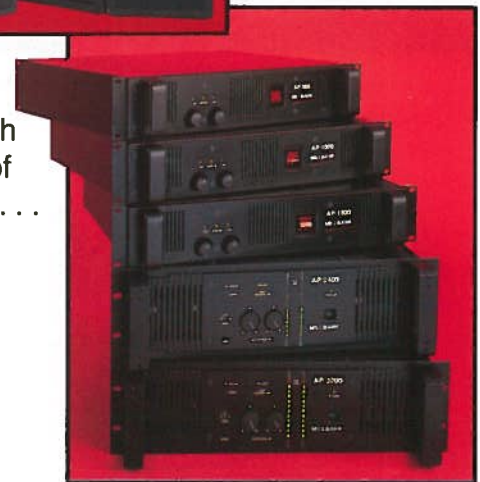
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Trantec and The Enraptured Air

A wet, grey October Sunday in Central London was hardly the most auspicious launch pad for a new musical tipped to take the country by storm. But, a determined audience of theatre financiers and promoters, with a generous sprinkling of the general public, turned out to see the preview performance of *The Enraptured Air*.

The new show is the brainchild of Michael Ward and Phil Henderson who are being widely promoted as 'the new Tim Rice and Andrew Lloyd Webber' and *The Enraptured Air* is their first attack on the theatre hierarchy.

Inspired by Robert Browning's *Pied Piper of Hamelin*, the musical takes the legend and gives the tale a twist, interpolating themes of greed, revenge and love. It has taken the project almost two years to reach this point, but the final result, although clearly a prototype, was an engaging performance. Michael Ward has worked well with composer Phil Henderson to produce several pleasant and some memorable songs. Performed on a remarkably bare stage at the Fortune Theatre, Covent Garden, by a cast of almost 40, there were few signs of the panics brought on by having had just 27 hours of rehearsal.

That is not to say that there were no hiccups, such as losing a key member of the cast, when Aled Jones disappeared midway through rehearsals, after receiving a better offer in the States. The staging of the show was helped considerably along by all involved giving their time at greatly reduced rates to foster this new talent.

The key sponsor for *The Enraptured Air* was Trantec Systems, who used the opportunity to showcase their new UHF radio microphones. Michael Ward was put in touch with Chris Gilbert at Trantec Systems through a mutual friend at Baldwin Boxall Communications.

The system featured the largest number of



Michael Ward and Mark Wynter busy on the workshop concert showcase for 'The Enraptured Air' based on Browning's *Pied Piper*.

Trantec microphones ever used at one time in a theatre, with eight of the new S5000 radio mics and seven VHF radio mics. The microphones performed excellently, with no drop outs or intermodulation problems as the cast moved in to the auditorium and around the theatre in the many scenes when they 'interacted' with the audience.

Kevin Swain acted as sound consultant on Trantec's behalf: "A great number of mics were needed to accommodate such a large and mobile cast, and it seemed an almost impossible task to get it all working in time. Fortunately, we succeeded, and the outcome was even more impressive than I had hoped for."

Chris Full of Autograph Sound, who was responsible for the sound for the whole show agreed, acknowledged that, despite time restraints, the sound system was "surprisingly good!"

The Enraptured Air will clearly benefit from a substantial investment in direction, choreography and staging. A larger theatre is also a must. But the initial response has been favourable and we may well be seeing much more of this new team in the future.

Teena Lyons

Smithfield Stock Up

Smithfield Electronics have announced that they now have in stock a selection of outdoor searchlights from Griven. These range from the HMI1200 Skyrose to the HMI4000 Tracer, which is visible at a distance of up to 20km. These lights complement the large number of Griven products already in Smithfield's stock.

Smithfield sold two of Griven's largest centrepieces, the Shuttle, which was launched on the Smithfield stand at the recent PLASA Light & Sound Show, in the month following the show. Free catalogues are available from Smithfield Electronics on (01244) 349062.

ISLEX 94

More than 20 companies exhibited at ISLEX 94, the first exhibition for the lighting and sound industry to be held in Ireland. The event took place in mid-October at the Green Isle Hotel on the outskirts of Dublin, and attracted a variety of visitors to see manufacturers from both the disco and theatre industries.

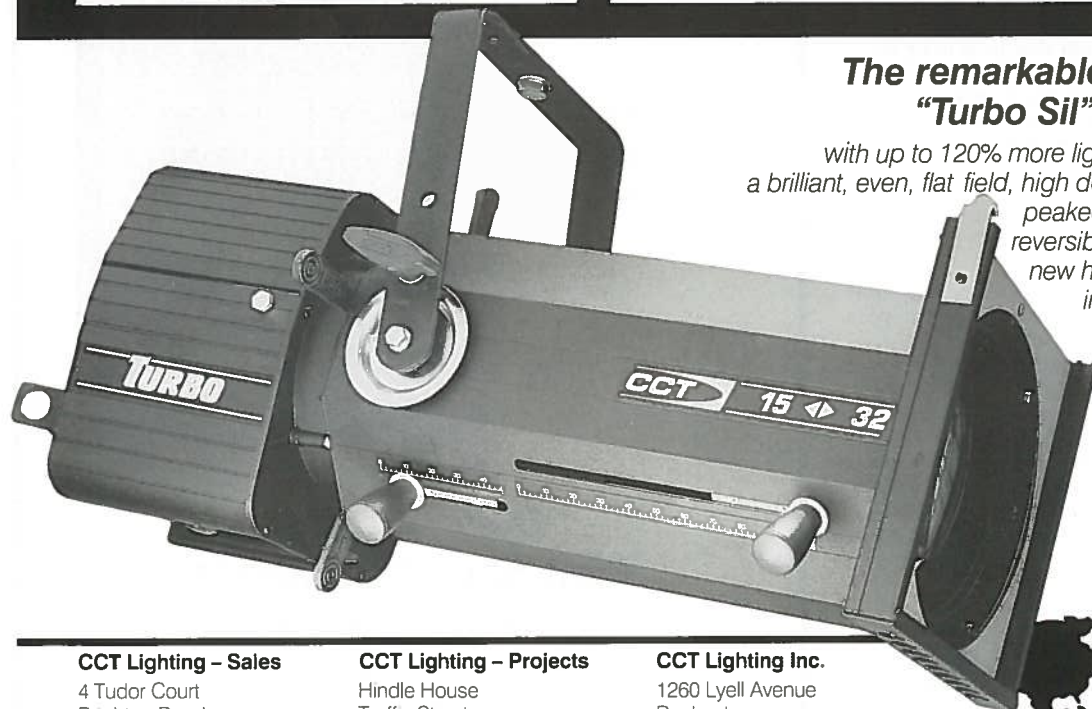
The largest stand at the show was taken by lighting hire and sales company Lighting Dimensions, themselves from Dublin, who were supported by a number of their suppliers, including Rosco, Zero 88, The Moving Light Company, Modelbox, Lee Filters, DeSisti, M&M and CCT. The stand showed a range of products from the humble Minulette Profile to the Golden Scan 3 and Pro Spot.

Beatfarm Studio

The famous Beatfarm Studios have reopened after three months of refurbishment. Based in Waterloo and run by Marco Perry, the studio boasts a formidable array of equipment including an ATC monitoring system designed and built by Perry and Peter Kellett of Encore Sound.

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SSE Hire

Birmingham-based sound rental company SSE Hire is providing systems for an increasing number of US tours.

During the year, SSE has fielded systems for several major US tours including Metallica, UB40 and Tori Amos. In Europe, SSE is currently working on productions for Counting Crows and The Cult. Greg Price, mixing for The Cult, is using one of SSE's TAC SR9000s with an Electrovoice Hi-Q MT4 system. Rob Killenburger with Counting Crows has a Yamaha PM4000 out front, working with an Electrovoice MT2 system. Current tours in Europe also include Elvis Costello, The Brand New Heavies, Thunder and Oasis. In the last year SSE has also worked with Poison, Arrested Development, Nirvana, Faith No More and Anthrax.

Rock Circus

San Diego-based RA Gray, a division of Communications Company Inc, has recently completed the installation and programming of a new control system for London's Rock Circus. The popular attraction in the London Pavilion at Piccadilly Circus is a creation of the Tussauds Group, and what the visitor sees and hears are tableaux of Rock legends with brief narrations and medleys of the artist's songs.

The RA Gray Performance Playback System was chosen to replace existing equipment for control of lighting, sound, video, and show action equipment in the mezzanine area of the exhibition. Consumer-style CD players were replaced with The Sound Solution, RA Gray's microprocessor controlled interactive CD player. The Performance Playback System provides control signals for 84 dimmers, four Trackspots, 11 Sound Solutions, four video disc players and a host of other equipment. All elements are controlled from a central location by the RA Gray equipment.

Stolen Equipment

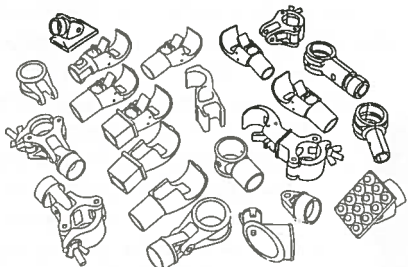
The following equipment was stolen from a car in Manchester Street, Reading, on November 4th:

Two Lightwave Research Trackspots (serial numbers 16141 4033 and 16141 4021), and a Zero 88 24 channel XLS desk (serial number 852804). All of the equipment was in excellent condition, having done less than 20 hours work.

Anybody with information on the whereabouts of the equipment should telephone Dan Hardiman on (0734) 860222, ext 213.

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Quo Go In-Ear

The latest customers for the Garwood Radio Station are Status Quo who are using the system on their current tour. The group's Francis Rossi and Rick Parfitt commissioned custom-moulded ear pieces for their Radio Station systems.

The lower volume levels required by Radio Station in-ear monitoring are proving popular with other more experienced stage performers. Recent Radio Station users include Pink Floyd, The Eagles, Aerosmith, Tom Jones and The Grateful Dead. The new breed of ageing rockers is also taking advantage of the Radio Station's hearing conservation: currently in rehearsal for their forthcoming world tour, R.E.M. are using four In-Ear systems.

Lighting Design Degree Course

Rose Bruford College, one of the leading drama schools in the UK, is offering a unique degree course - a BA (Honours) in Lighting Design, which will be the first of its kind in the United Kingdom.

The three year course will examine traditional and contemporary lighting design techniques, in both practical and theoretical performance context. It will be closely integrated with other degree courses at the College from both the School of Theatre (acting, writing and directing) and the School of Production (costume design and wardrobe, stage management, scenic construction and properties, theatre design and music technology). This mutual collaboration will give students an insight into the craft of other closely-related theatre disciplines.

Successful students will graduate into the profession with a developed artistic understanding of the role of lighting design in the staging of drama, the technical skills necessary to realise ideas, and the appropriate management, organisational and communicative skills.

The course will also be suitable for those wishing to gain knowledge of current lighting technology and practice for a career as a lighting technician.

For further information contact Rose Bruford College, telephone 0181-300 3024.

British Music Fair

The 1995 British Music Fair will be held at the National Hall, Olympia, London from 23rd to 25th July, next year. This new development is due to the success of the trade-only BMF at Olympia 2 over the past three years. The number of exhibitors has grown and the demand for space is such that it is now impossible to satisfy the requirements of exhibitors in Olympia 2. Moving BMF next door to the National Hall brings many advantages in the form of increased space, better layout and easier access.

Largest UK System

We are hearing a great deal about the forthcoming production of Oliver! - one of the major productions to open in the West End this year. The latest news comes from Sennheiser who will install the largest radio system ever deployed in the UK - using 34 channels in total.

The system is based around Sennheiser's EM1046 programmable receiver modules and SK50 miniature selectable frequency body pack transmitters and features the first ever use of their latest Version 3.1 computer display software. The upgraded software now enables the on-line remote control of receiver system parameters, in addition to the existing monitoring capabilities. Scene memories can be set-up, storing different parameter configurations of the receiver system that can be recalled to correspond to plotted sound cues.

Receiver frequency, display configuration, bar graph configuration (showing RF and battery status), text, squelch level and receiver status can all be altered from within the programme. The software system can control and display up to 64 receiver modules. The Cameron Mackintosh production opens on 5th December at the London Palladium. A total of 52 actors are required to wear radio mics during the show and the ability to recall scene memories is a useful aid when there are so many transmitter changes.

As noted in the last issue, L+SI will be running a major feature on Oliver! in January.

Trafalgar Lighting

Trafalgar Lighting of North London have announced the addition of a number of new products to their hire stock. These include a Cirro-Lite Micro Mist machine, Abstract Hypermoon effects lighting, electric chain hoists from Verlinde and mains distribution units and generators.

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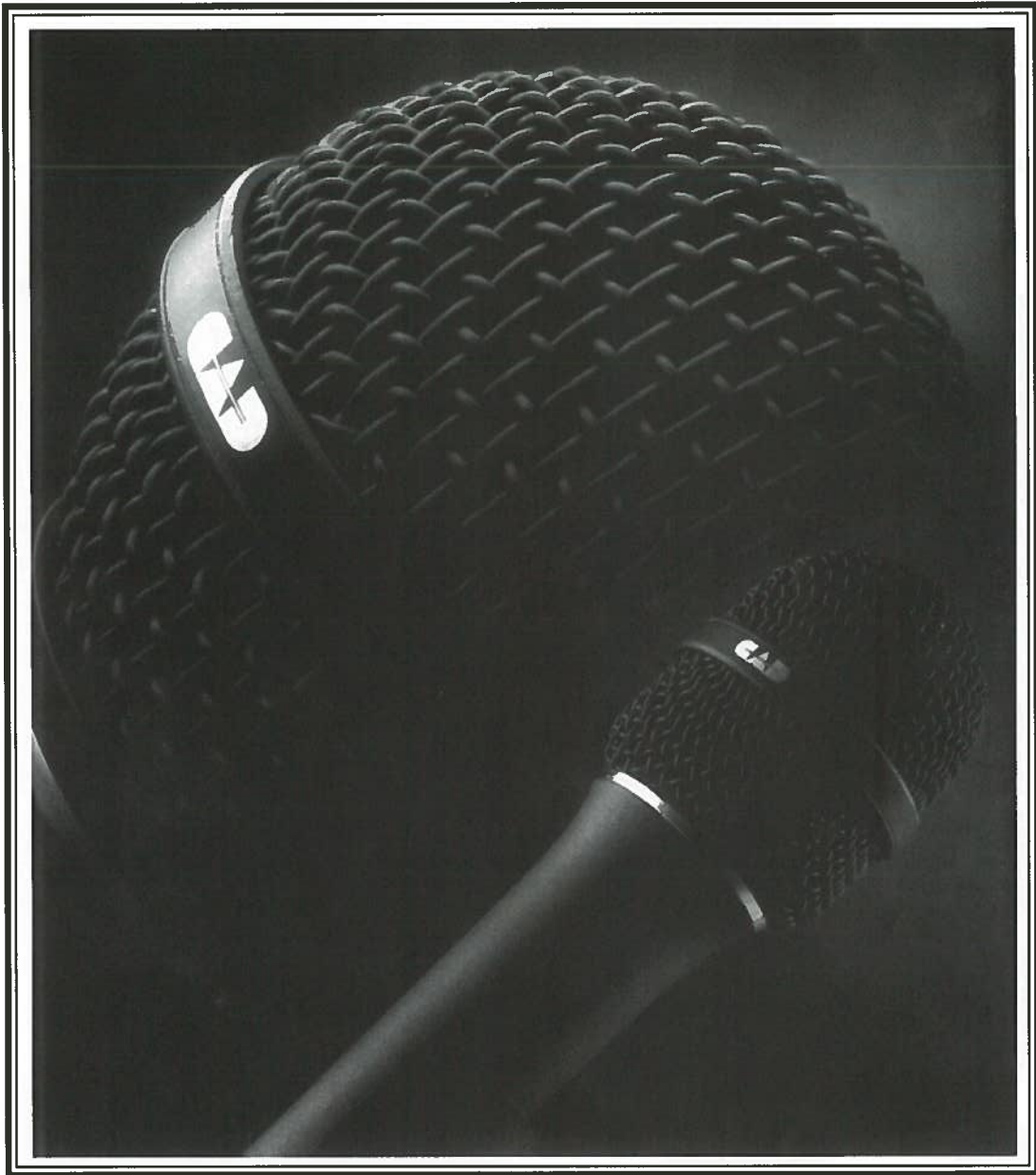
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LETTERS TO THE EDITOR

Dear Editor,

L+SI Amplifier Survey

I must thank and congratulate Ken Dibble, Allen Mornington-West and L+SI for undertaking the amplifier review programme published in the September, October and November issues of L+SI. Rarely do such reviews make their conclusions in such a clear and objective way as this series.

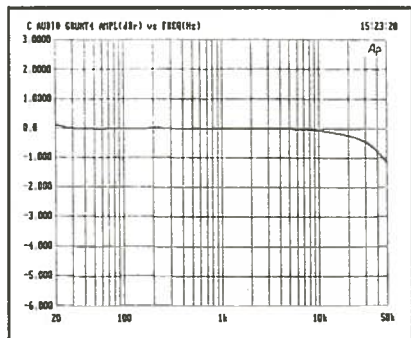
Naturally, C Audio are very pleased with the complimentary comments made by the reviewers about our XR5001 amplifier. There were, however, a number of detail errors which I would like to point out.

Firstly, with the exception of the heatsinks, handles and front panel cosmetic extrusion, the chassis of the amplifier is all steel, and hence is a good deal stronger than might have been implied in the article. Secondly, there are, in fact, 16 reservoir capacitors, eight mounted above the power supply PCB, eight mounted below. The influence of reservoir capacitance on subjective bass response is considerably less in our circuit topology than in more conventional designs, but does affect low frequency power delivery and it is, therefore, worth pointing out the error.

Unfortunately, C Audio had not been informed that the amplifier had been received with one channel inoperative and were not given the opportunity to remedy the situation. On return to us it was found that one of the 16-way ribbon cables interfacing the circuit boards had become unplugged, presumably in the course of Ken Dibble's internal examination of the amplifier. This would also explain the 2dB rise in response at high frequency that Ken measured, which is certainly not present in correctly operating units. I append a typical response curve from a production unit for your reference.

Regarding the EMC testing, the emissions detected are caused by rectifier switching and are easily reduced to 'acceptable' levels by fairly painless RC snubbing. Unfortunately, the tests performed are only a small sub-set of those which look likely to be required when the European EMC regulations come into full effect.

With some of the units reviewed utilising switch-mode power supplies and/or PWM output stages, the test performed provides useful and interesting information. The implication was, however, misleading. The many additional tests threatened by full implementation of the EMC directive are considerably more onerous than the one performed, and require considerably more expensive remedial measures to pass. The effect that this will have on the choice and cost of products offered for sale remains unclear, but is unlikely to be to the customer's advantage.



C Audio's response curve.

Chris Hales - C Audio

Dear Editor,

L+SI Amplifier Survey

I must congratulate Ken Dibble and Allen Mornington-West on their measurement efforts. I resonate with many of their findings, but would like to query the frequency response measurement of the XR5001, in case any readers wonder if BD Research and C Audio between us cannot come up with a flat response!

Before the prototype left my hands, and throughout the 18 month development period, its frequency response was extensively tested in our individual Audio Precision 'System One' test sets (which I believe to have an order of magnitude more resolution and accuracy than the UREI equipment used by Ken, itself very good) and found to be flat to less than +0.05dB below 20kHz, and actually between MINUS 0.5dB and 1dB at 20kHz. I also tested the unit, naturally enough, into a number of realistic loads, such as long cables, and at no time measured the mild treble boosting rise that is seen in Ken's graph in the October issue. In my own group amplifier tests in Live!, I did get some rising HF responses when the gain controls were backed off - because HF leaks around and through the gain pot wiring in most amps. Maybe Ken could comment on the possible cause of the anomaly if this latter cause is not the answer.

My other comment is cautionary. Whereas the amps with conventional supplies and ordinary audio circuitry (be it Class A-B like Malcolm Hill or C Audio, or G-H like Crest) have been the worst for polluting the incoming mains supply (because none of us believed there was that much RF injected until presented with these eye-opening EMC plots), they are highly unlikely to be radiating quite that much RF from their audio output ports. On the other hand, much as I admire switching supplies and 'smart' output stages using PWM etc. I have yet to see any units of this class that do not exhibit tens of millivolts of RF 'hash' or 'bubbles' on their outputs, often dependent on cabling and loading. Getting rid of this without degrading audio quality would likely prove more difficult than isolating the mains input from power supply noise. It follows that EMC compliance tests based on outputs would most probably turn the tables against most of the 'smart' amps that have justly scored well in the first round.

Ben Duncan - Ben Duncan Research



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- IRIS:** • Very high speed, opening/closing (100mS) extremely low noise and linear.
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- DIMMER:** • Very high speed, extremely low noise and linear for 100% - 0% dimming.



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Strand Developments

Following news that Strand was opening regional offices in Brussels and Stockholm (see L+SI, October 94), the company has now announced further details of its European expansion programme.

In a series of recent moves, the trading operations in Europe have been restructured to provide, in the words of Ian Haddon, regional sales director, "a greater customer focus". This has resulted in streamlining the administrative and financial operations in the UK, Germany and Italy, and doubling the sales force across Strand's European region. Recruitment for some of these positions is continuing with expectation that the new structure will be fully operational by January 1995.

The moves are aimed at strengthening support for Strand's distributor network across the region, as well as expanding the company's project capability. A European-wide team will work closely with distributors to expand Strand's increasingly successful standard product sales. New appointee Gerald Robins assumes responsibility for distributor sales throughout Europe and Steve Dawson is in charge of customer services.

New Wolf in the Pack

US company Lone Wolf has formed a new Electronics Group to handle increasing interest from lighting and sound industries. Headed by David Scheirman, the division recently named its first two licensing and applications engineers. They are Tobin Cooley, who joins Lone Wolf from Michael R. Yantis Associates, and has a BSE degree in Acoustical Engineering, and Rob Falconer, who joins the company from First Choice Marketing and has a degree in Recording Arts Technology. Also new is Jeri Keating, who has been named as licensee communications assistant.

A Share of TLG

The first day's trading in shares of the Thorn Lighting Group took place on Thursday November 10th. TLG's wide range of lighting products have been involved in recent installations such as the Channel Tunnel Terminal at Cheriton (in the UK), the interior lighting for Durham Cathedral (see L+SI, October 94) and the re-lighting of the French Museum of Natural History.

TLG has manufacturing facilities in eight countries and sales and distribution operations in a further 15.

Stage Accompany

Stage Accompany of Holland have been involved in a number of projects, recently taking them as far afield as Manaus, Jakarta, Penang and Amsterdam.

A new arena is being built in Manaus, Brazil, which will serve as a venue for all kinds of musical events. The Amazone Arena will hold up to 100,000 spectators, and, as a result, a complete Sound Accompany sound reinforcement system was installed in the arena. SA provided 22 mid high cabinets and 16 bass cabinets from its Performer series of speakers. The amplifiers used in the system are SA PPA1200s.

The new Blue Note Jazzcafe in Jakarta opened its doors recently, and like its established predecessor in New York, features a sound system by SA. The Performer sound reinforcement system consists of eight P27 mid high cabinets, four P17 bass cabinets and five PPA1200 amplifiers. For monitoring there are five GM15 floor monitors, one SA1600 and two SA400X amplifiers, and two Entertainer E24 cabinets. Equalisation is by a PPE2410 parametric programmable equaliser.

In Penang, Malaysia, the new discotheque Rockworld also has a sound system from SA. The Performer series speakers again feature, alongside a Grey series monitoring system. Also included is a Soundcraft Delta 32-channel mixing console.

Finally, MGM Cinemas recently ordered a Screen Series loudspeaker system built by SA, for their Amsterdam theatre, and this installation is to be followed by another in Maastricht. The systems consists of the S26 mid/high cabinet and the S16 and S32 bass cabinets.

LTP Go Metro

Since taking on the UK distribution of the Metro Audio range of intercom equipment in August, Lighting Technology Projects have seen significant sales. A nationwide stocking distributor network has now been established who have achieved high levels of sales in a wide range of market sectors.

The distributors so far confirmed are Raper & Wayman (London), MBI (Brighton), Pyramid Light & Sound (East Grinstead), Central Theatre Supplies (Birmingham), Paul Elkington Productions (Brecon), Sound Electronics (Newcastle), Wigwam Acoustics (Manchester) and East Midlands Sound & Light (Grantham). A range of new products is due to be launched early next year.

Graduation Showcase for Mountview Students



The Mountview Theatre School recently held a special West End Showcase for graduates of their One Year Acting and Musical Theatre Course and Two Year Stage Management, Technical and Design Course. Special Guest at the event was actor Douglas Henshall, who has appeared in TV adaptations of 'Common As Muck' and 'Lipstick On Your Collar'. The Showcase went well for the students, who also presented their year's work at the Cambridge Theatre. Nearly all of the graduates have gone on to their first jobs within theatre.

Rigging Master Class

A team of top stage rigging experts teamed up in November to run an International Master Class in Stage Rigging. The course was held in Hamburg, and comprised eight days of intensive theoretical and practical study of rigging skills. The areas covered by the course included theatre rigging, fastener technology, product and personal liability, wire rope technology and on-site inspection processes.

Lecturers on the course included Dr Randall Davidson, USITT commissioner for Health and Safety, Jay Glerum, chairman of the USITT Rigging and Stage Machinery Standards and Rocky Paulson, owner of Stage Rigging Inc.

The course, which constitutes Level One of the Master Class, has been running successfully for eight years in the US, and has now operated three times in Europe.

The next Level One Master Class will take place in Belgium, from February 4th-11th, and will be the last Level One course before the start of the Level Two course, which will take place for the first time from February 12th-19th.

For further information, contact Mark Dixon in Germany, telephone +49 8167 6738.

SIEL 95 . . .

SIEL 95, together with the 10th Theatrical Services Exhibition, will be held from 12-15 February next year in Paris. The show will present new products, services and equipment in sound, lighting, special effects, stage machinery, decoration and computerised management for leisure activities, entertainment and stage arts.

Further details from organisers OIP Showay, telephone +33 1 45 22 35 40.

A HUNDRED YEARS AGO THIS MONTH BRITISH THEATRICAL PATENTS 1801-1900

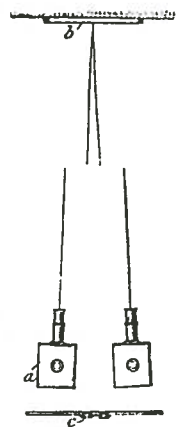
Intro' to Patent Abridgement 24821 of 1894 (W.G. Grottendieck)

You might have seen copies of the trendy new magazine called Dinosaurs directed to children (of all ages). If so, and you have had a look at the centre spread, you will know that the pictures are printed twice and overlapping, once in red and once in green, but the outlines do not exactly match. Unless you know how to view it, it is a visual mess. You need a pair of goggles with one red lens and one green and then it all makes sense. It hangs together as a 3D image because the differing colours eliminate one another and each eye sees a single picture. It is a stereoscopic effect and there is nothing new about it. Before the war, they were playing about with stereoscopic movies: a great novelty at the time, but stereoscopy was a gimmick and didn't catch on. And it wasn't new even then. A century ago, W.G. Grottendieck thought he had a fine idea for magic lanterns.

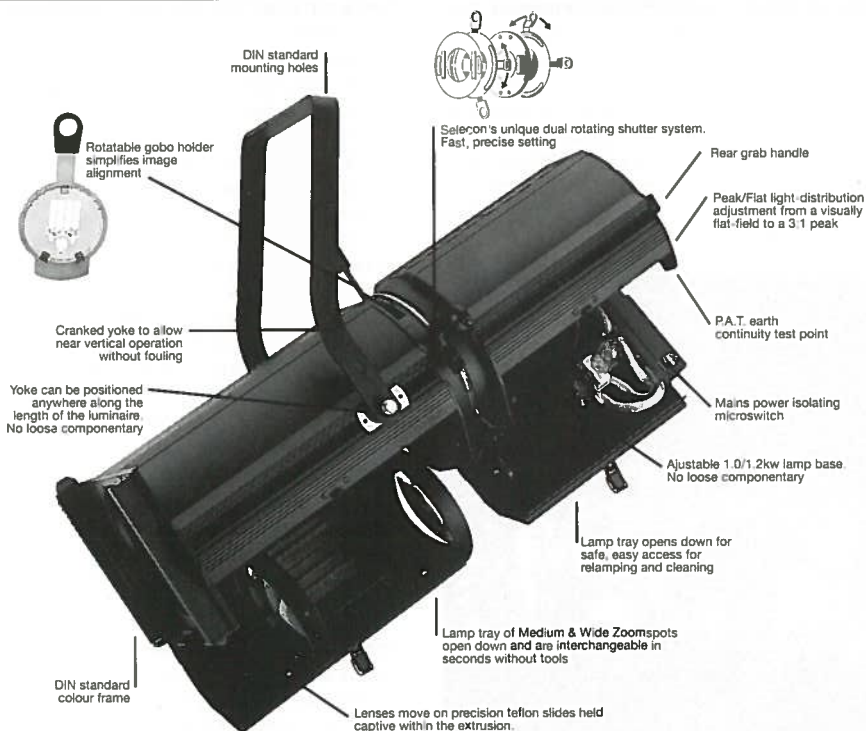
24,821.

24,821. Grottendieck, W. G. Dec. 20.

*Magic lanterns; stereoscopes. — Two or more lanterns *a, a* throw pictures, from stereoscopic photographic slides, on to a screen *b*, and the result is viewed through eye-glasses *c, c*. The pictures from the different lanterns may be tinted by glasses of preferably complementary colour, and the viewing apparatus *c* may be of glass, gelatine, &c. correspondingly coloured, and may be arranged in the wall of a dark room, as shown, or may form a pair of spectacles.*



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SELECON

THE RISEN PEOPLE

An L+SI Special Feature on Jim and Peter Sheridan's re-working of Jim Plunkett's Play

It's been hailed as one of the most innovative productions ever to be seen on a Dublin stage. 'The Risen People' marks the return of Oscar-winning film director Jim Sheridan to his first love - theatre. After a break of 14 years, and Hollywood success with *My Left Foot*, *The Field* and *In The Name of The Father*, Jim has joined his younger brother Peter to co-direct the play as part of this year's Dublin Festival. Their adaptation of Jim Plunkett's original has been the undoubted highlight of the festival, with even the most critical reviewers impressed by the combined talents of projection designer Chris Slingsby, set designer Sally Crabb (both for Imagination Entertainments) and lighting designer Rick Fisher.

In 1977, the Sheridans had staged a very successful, spartan production of the same play at the Project Arts Centre in Dublin - the last time they had both worked together. Then, the emphasis had been on the overtly political content of the piece, which tells the story of the Dublin workers' lockout by their employers in 1913 and the devastating effect this had on an entire community. In 1994, Peter and Jim revisited the play, and wanted to stage a reinterpretation that placed the love story between Annie and Fitz firmly at its heart.

Most significantly, they saw parallels between Annie's fate and that of Aida, the slave girl who would not betray her father. In 1913 Dublin, Annie is a wife trapped between loyalty to her father, an employer, and her husband, a striking foreman. Peter and Jim sought to interweave Verdi's opera with Annie's experiences, creating a seamless interplay between Annie's recollections of the lockout and her memories of a performance of *Aida* at the Gaiety Theatre on her first evening out with Fitz. The cast of over 40 actors was to include Donal Donnelly, Johnny Murphy, Lorraine Pilkington, David Herlihy and Maria McDermottroe.

Together with *The Risen People's* producer, Rupert Murray, the Sheridan brothers began an extensive search for a form of theatrical production that would bring this cinematic vision to life. With just over two months to go before opening night, Imagination Entertainments were approached to act as projection and set designers, working with Olivier and Tony award-winning lighting designer Rick Fisher to create a suitably operatic environment for the piece.

"We were delighted to have been asked to work on such a challenging production," observed Jeremy Sturt, the Imagination Entertainments' producer acting as design co-ordinator for the project. "The Sheridans are a very dynamic team, committed to constantly evolving, adapting and improving the production throughout the rehearsal and preview period. Experimentation was actively encouraged, which meant that Chris, Sally and Rick were able to work together to explore a variety of ways of achieving each single 'moment' in the play."

Chris Slingsby and Jim Sheridan agreed that original period photographic images, many of them from the actual lockout itself, would be the most effective way to immerse the audience in a 1913 setting. These were to be interwoven with more colourful, stylised images for the *Aida* scenes. The initial idea was to use two Pani BP4 projectors on the dress circle front, with 10 to a dozen 02060 Kodak Carousel



'The Risen People'. Imagination's projection and set design and Rick Fisher's lighting design combine to create an evocative sense of scale and intensity rarely seen on the stage.

projectors dotted around the rig to project smaller, more specific images. However, after a number of creative meetings, it was agreed that three Pani BP4s would achieve a stronger, more coherent effect. This was achieved using a total of 68 slides across the two Acts.

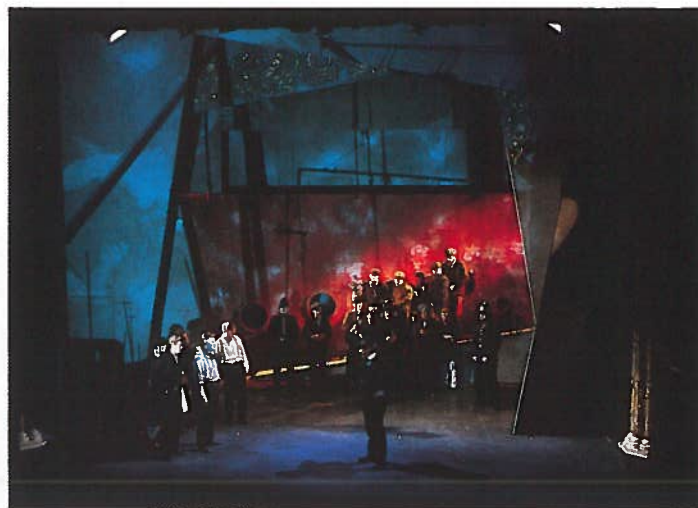
The search for the original photographic images took place on both sides of the Irish Sea. Their selection was influenced by the ability of each image to establish location, and then take the audience through a series of cinematic journeys. To support the story, it was also important to visually communicate the contrast between the differing tiers of Dublin society - from the grandeur of colonial architecture to the shabbiness of the tenements. The projection is able to add symbolic weight to a number of

key scenes, such as the meeting between an industrialist and a Bishop - the projected image of a crowd of young priests adding intensity to what would otherwise have been simply two people in conversation. It also works to replace 'real' scenery, creating intimacy for Annie's house and the pawnbroker's shop, and a vast sense of scale for the riot scenes and open tenements.

While these photographic images were to create atmospheric environments evocative of 1913, the '*Aida*' images had to represent opera 'scenery' in period form. These were hand-drawn by Trina Mahon as a series of images montaged together by Chris as single slides. Possible alternatives for each scene were then re-shot and re-touched at Imagination Entertainments, and projected onto a 1:10 white card model of Sally's set. Once Chris was happy with both the aesthetic effect and technical accuracy of each of the 68 images, it was re-shot for the last time and produced as a slide.

To add a perspective and depth to the inherent flatness of projected images, Sally devised a textured 'box' of three off-kilter portals, fore-stage sliders and three-dimensional flown pieces. These close to form a completely impenetrable wall, used at the opening and close of the play to suggest both Annie's and Aida's tomb. Of her design approach, Sally observed that "the challenge was to mix moving scenery with projection, so that both change in complete synchronicity. As this is a memory play, blurring fact and fiction in a dreamlike way, it was important that the audience question the 'realism' of the imagery. The set design deliberately creates a completely unpredictable perspective, 'smashing' the projected image to create unusual depth and shadows." She continued: "I hope I've succeeded in pacing the introduction of various moving pieces - the tablet, the washing line, the cloth - to continue create a sense of surprise as the play unfolds." The





veined sandstone effect of Sally's set was neutral enough to emphasise the strength of the projection, and pick up both 'hot' and 'cold' colours from Rick's lighting scheme.

Prior to his collaboration with Imagination Entertainments on 'The Risen People', Rick Fisher admits he had serious reservations about working with projection. "My major fear was lighting people well, that it would be impossible without washing out the projected image - but in fact that was never a difficulty. It was actually very similar to lighting a dance piece. What I hadn't anticipated, and found particularly liberating, was that I didn't have to light an atmosphere. Chris's imagery on Sally's design created that strength - I was able to focus on adding bold colour to undermine the 'realism' of the imagery, and add to the overall aesthetic effect."

Rick used four Parcans and 1K silhouette

fresnels in each of six bays to sidelight the cast. Another six lamps were placed on each side of the perches behind the proscenium, with two 500W R&Vs as followspots from the front-of-house boxes. These were set at a low angle to ensure that light travelled into the wings, rather than onto the portals or across the floor. The Gaiety's own followspot was used for 'theatrical' moments - such as the appearances of the inspirational, evangelical trade unionist Jim Larkin. A limited number of specials were used overhead, to colour the stage floor. "My most important aesthetic contribution was to add colour to some of the starker images, adding an emotional warmth - or coldness and anger - where necessary. I used deep blue, green, red or yellow washes to support the surreal impact of Sally's unpredictable perspective."

The projection Pani's were operated through

the Galaxy II lighting desk so Rick's most difficult task in rehearsal was ensuring that lighting cue changes didn't affect the projection sequence. As rehearsals involved considerable changes to lighting states, with the Sheridans continually restaging and redirecting the show, one operator, Brian McGuinness, was responsible for looking after projection cues - only a few of which were automated. Andy Joyes was the only projection technician on site, using the local crew to help set up and maintain the Panis.

'The Risen People' opened the 1994 Dublin Festival to mixed reviews, ranging from the enthusiastic to the sceptical. The design and execution, however, was universally praised as a vivid, spectacular evocation of the unfolding story. Its success is testimony to the strength of the creative team, and Peter and Jim Sheridan's extraordinary vision.



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FIRST CHOICE

L+SI behind the scenes of the 1994 Light & Sound Show Product Awards

At the Light & Sound Show in September, the third annual PLASA Awards were presented. Wybron picked up Best Product Award for their Autopilot tracking system, with two further products being highly commended - the 3DStorm surround sound system from Sound Kinetics and the latest advances from Jem in the form of their innovative HOT Technology. L+SI decided to take a closer look at the stories behind these products.

AUTOPILOT - WYBRON

The germ of Autopilot was first given life when Keny Whitright started to formulate a concept which would replace pan and tilt programming on moving lights. At that time only Vari-Lite and Morpheus were prominent in the market place and a moving head fixture offered a more viable alternative than the crop of mirror lights then around. The concept was to somehow allow the operator to use a Cartesian grid on a plane (the stage floor) to point the lighting fixtures. In this way the operator could think about moving the light stage right or upstage, instead of the traditional pan and tilt.

At the time, there were few resources to develop the concept because of the difficulties involved in getting the lighting fixtures to work properly. Keny Whitright and his team worked for a short time on a tracking system, but eventually abandoned the cause when lack of time and money forced the issue. The time was not wasted, because step one, being able to point a light at an x, y and z co-ordinate was now in place.

PLASA 92 provided the catalyst: Keny Whitright was underwhelmed with the interest his stand was attracting and began thinking of ways in which he could capture the imagination sufficiently to draw people onto the stand. In the plethora of intelligent moving lights, he decided to build a tracking system and to show it 60 days later at the LDI Show in Dallas. From the previous work on Syncrolite, Whitright felt he knew how to point lights. All that was needed was a focus for the light, a moving object to draw its attention. Nine years earlier, during some of his early research he had come across a company in Boston (which subsequently went out of business in 1992) who built a 3D co-ordinate measuring system using ultrasonics to locate the subject. The only drawback was that the object had to be fitted with a cord for the trigger pulse to send the ultrasonic pulse.

During a drive across Kansas in a thunder storm, the answer became obvious. Whitright realised that he could use an infra-red trigger pulse (lightning) and use that in turn to initiate the ultrasonic pulse (thunder). With this idea and seven weeks to go until LDI, Wybron started the project which became Autopilot. As the idea took shape, the next development was to have the light follow an object tossed across the stand. This eventually became a frisbee into which was built the first set of electronics. As time grew shorter, reality reared its head and Whitright realised that the new technology would not be capable of tracking a flying frisbee. Refusing to buckle to time constraints, Wybron built a pendulum to hold the frisbee and the electronics. The team arrived at the show with hours to spare and of course, generated a great deal of on-stand interest.



Keny Whitright of Wybron (right) with PLASA standards officer George Thompson and the Award for Best Product.



Which begs the question why it has taken two years for the team at Wybron to finish the product? The answer lies in the old axiom - it's not always better to be lucky than good. Wybron made assumptions during their design process which were wrong. Worse, the device worked in spite of these, so a large part of the two year interval was spent discovering the correct physics and geometry which Wybron had ignored.

Fortunately for the rest of us, they got there in the end, and Autopilot is the only system of its kind to locate a performer in three-dimensional space and translate that information in real time to aim automated lights.

How does it now work? The system consists of an unobtrusive transponder, computerised controller and eight receivers. The transponder is comprised of a small belt-pack which houses the electronics and 9V battery which is connected to a tiny transponder element worn on the upper body. This element communicates with the ceiling receivers and must remain within 50 feet of at least three receivers at all times. As many as four performer transponders can be accommodated by one set of receivers and one controller.

The controller provides the interface to the automated lights, as well as the power and signal interface to the receivers. A hand-held terminal is used for simplified system set up, status monitoring and information entry. The ceiling receivers are mounted 20 to 30 feet apart above the performance area. They are connected to the controller via multi-conductor cables which can be up to 200 feet in length. These receivers locate, within

three inches, the respective transponder's position while the controller translates this position to the pan and tilt of the automated lights.

Keny Whitright and the team at Wybron will be glad they persevered for hot on the heels of the PLASA Award came further vindication of their belief in the product when LDI awarded Autopilot Lighting Product of the Year (see LDI feature on pages 58-62).

3DSTORM - SOUND KINETICS

The company Sound Kinetics didn't exist until March of this year, but Tim Corkerton and Dave Whittleton, the brains behind the name, have, without the benefit of a

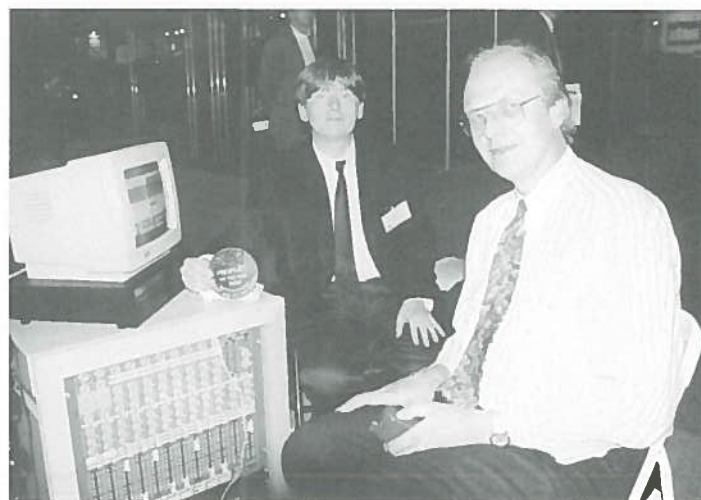
company identity, been developing the 3DStorm for several years.

The 3DStorm System is a software package which, in simple terms, acts as a computerised joystick, enabling sounds to be moved around a venue. Operation is probably about as straightforward as it can be, with all the necessary information for the setting up and storing of particular sound movements available on one screen, and accessible by the click of a mouse.

On-screen features include a sound 'stage area', used to position and build a trajectory for each sound, a master control 'tape deck' and the 'move library'. The trajectory of a sound can be created in real time, with the operator receiving an instant feedback of the effect from the sound track. Visual representation of the sound trajectory on the screen allows for easy operation, without the need for complex programming procedures. Once a trajectory has been satisfactorily produced it can be stored in the move library or saved on disk. Each move is saved with its own name and map number, and can be recalled at any time by manual selection with the mouse pointer, or remotely using MIDI 'Note-on' values.

The timing of each sound move, and the speed at which it travels along its trajectory, are controlled by the Beats Per Minute and Note values, which are shown on screen and can be selected with the mouse and stored alongside the programmed trajectory in the move library. Synchronisation of the sound positions can be clocked internally, or externally by using MIDI clock or SMPTE time code, allowing for the synchronised incorporation of video or intelligent lighting control. The facility to act on MIDI commands gives the operator the option of programming sound moves along with music or special sound effects, using MIDI sequencer software such as Cubase or Cake Walk.

The software, which was fully tested on Pink Floyd's 'Diamond Quad' sound system while it was set up for the recent Earls Court shows, as well as providing a range of 'sound moves' for the opening of Planet Hollywood in Jakarta, has certainly proved its worth - so now, a brief tour of its history can be undertaken.



Dave Whittleton and Tim Corkerton pictured at their offices (left) and Tim Corkerton with Paul MacCallum and award during the PLASA Show.

Tim Corkerton received a degree in Physical Electronics and Computing from Warwick University in 1986, and worked for a couple of large companies, including Thorn EMI, before moving to RDP Technology, a small robotics company, as a development engineer in 1990. It was here that he met project engineer Dave Whittleton. The pair were involved in developing computer controlled products, with Dave, who has a degree in Electronic Engineering from Bristol University, concentrating on the development of real time control software and Tim responsible for hardware design, development and testing. It was here, says Tim, that the idea for 3DStorm first surfaced.

"I've always been interested in music, in both performing and recording situations, and I'd experimented with quadraphonic systems in the early eighties. Whilst working with robotic control algorithms, it became apparent that similar processing could be used to control the position of a sound within a multi-speaker environment."

The chance to really come to terms with the project, however, did not materialise until the outbreak of war in Yugoslavia - the sister company of RDP was based there, and the war effectively halted operations for Tim and Dave, allowing them more time to develop 3DStorm.

By 1992, the pair had developed, working in their spare time, a prototype of a system designed to interface four speakers, which was given the name 3DStorm. "A simple panning technique was first developed, which only worked to a limited degree, and had the effect of 'hopping' around the speakers when a sound move such as a smooth circle was performed. Still, the effects were dramatic enough to give us encouragement, and we developed further processing techniques to counter this effect."

Changes were also made to the format of the software, as feedback from testing made it clear that the procedures had to be simplified, and different features made available if the system was to be of use within differing venues and applications.

Tim's chance meeting with Paul MacCallum of Wembley Loudspeakers whilst working on another project provided the opportunity for 3DStorm to be exhibited on the Wembley stand at PLASA 93. The system demonstrated was a complete surround sound system, using the 3DStorm with four Spyder speakers, two B-Line 2820 subs and a BASE unit (a binaural stereo enhancement processor). With Paul continuing to act as their agent, Tim and Dave went on to exhibit at SIB in Rimini in March 94, and then at the Pro Audio Sound and Light Show in Singapore in July, where the 3D Storm was

exhibited alongside the Hughes projector for HDTV and ACR's 3D Laser. Singapore also provided contacts with potential distributors for a number of countries.

The commendation at PLASA 94 marked a new stage in the growth of Sound Kinetics and the 3DStorm system. Tim, however, attributes the increase in interest to factors other than the publicity surrounding successive shows: "Neither Dave nor myself are salesmen. I think the recent growth in interest has more to do with us finding our feet in the marketing world, and gaining confidence in the way we approach people and present our product, than anything else."

In August this year, Sound Kinetics were awarded a DTI SMART award, which will fund research and development in AV areas for one year. This has given Tim and Dave the stability they require for the company, and will enable them to develop the next generation of products, which will, all being well, be ready to unveil at PLASA 95.

HOT TECHNOLOGY - JEM

JEM Smoke Machine Co's big launch at PLASA saw them wheel out the first two units (500W and 1000W versions) in their new range of Hydrosonic H.O.T. Technology machines, which offer a 'translucent optically reflective haze'. The marketing campaign linked them neatly to intelligent lighting: "None of the deep,

saturated colours or subtle hues are lost and you don't get clouds of distracting white smoke", said the brochure, adding that film and television users will particularly appreciate the almost completely silent operation and zero warm-up time.

The Best Product award team, chaired by PLASA's own Standards Officer George Thompson (non-voting), obviously considered the publicised claims and the on-stand results deserved recognition and decreed the company should win one of two 'highly commended' gobos given out at the 94 Show.

"Apart from special effects use it is rare that anybody actually wants the dense, white smoke produced by conventional glycol machines," said Mike Wood, JEM's technical sales director. "The hissing white cloud appearing from the wings looks artificial on stage, fire officers dislike it in night clubs, and it gets in the way of the close-up in a television studio."

"Led by Vari-Lite, but closely followed by the 'waggly mirrors', the use of intelligent lighting has increased enormously in recent years and consequently there has arisen a need for a light atmospheric haze to give definition and contrast to the sharp, high definition beams."

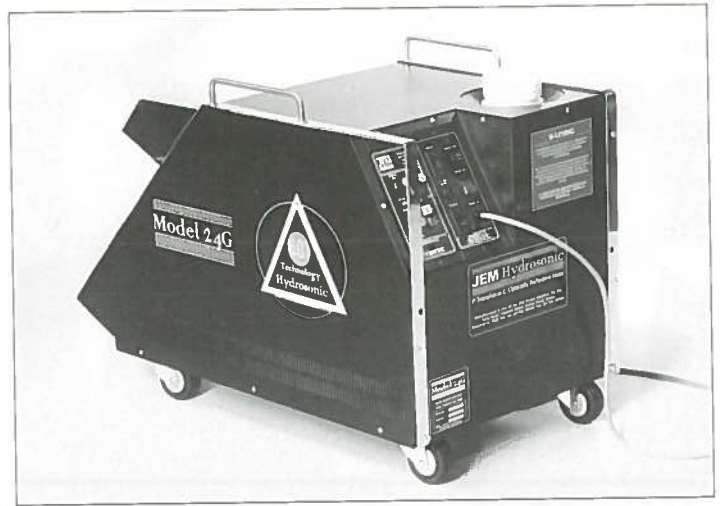
JEM had been investigating techniques to achieve this haze for many years, but there were many important design considerations to be taken into account and a great deal of capital needed to pay for the necessary research involved. "The machine had to be quiet and efficient with minimum warm-up time and obviously be completely safe," continued Mike. "We also wanted to minimise the amount of chemical used for obvious environmental reasons and produce a 'green' machine."

Having spent some time investigating the 'cracking' technique whereby compressed air is used to atomise a working fluid (often oil, but more recently a water-based glycol fluid), JEM's technical people quickly came up against the limitations of the technique. The inevitable noise produced by an air compressor is a serious problem, along with the possible build-up of deposits. What was needed was a technique of producing large quantities of tiny droplets which were predominantly water, whilst still retaining the ability to 'hang' in the air.

"We had seen ultrasonic cleaning machines for de-greasing metalwork," continued Mike, "and noticed drops of fluid being thrown through off the surface as they operated. We wondered if this technique could be applied to our problem. Unfortunately, on trying these products we found the output to be very low and quick to evaporate. Adding any glycols to stabilise the output completely stopped the



Close-up on HOT control.



Hermann Sorger (right) presents a Best Product commendation to Nigel Morris at the PLASA Show, and right, the focus of the award.

machines operating. However, the technique looked interesting and an intensive research and development programme was started."

JEM almost gave up as the problems seemed insurmountable. The generators were very inefficient; the power needed and heat generated were major problems. But they kept going, retaining confidence in the basic concept. "We employed consultants to help with the design, and with more time - and money! - the problems were slowly overcome. Finally, we found by modifying and enhancing the technique (in a number of patented directions) and developing our own special transducers, driver electronics and power supplies, we were able to improve the efficiency a few hundred percent and produce a viable product."

Tiny lens-shaped bubbles are produced within the working fluid with strong, oppositely

signed, charges on either side of the cavity. As these bubbles collapse, a minute 'hot spot' is produced by adiabatic compression of the constrained gas. By accurately controlling the viscosity of the working fluid this effect can be maximised to produce large numbers of bubbles.

The nett result is a machine that uses a completely non-toxic water-based fluid, which despite being 'HOT' uses no heat, aluminium blocks or temperature controls, and has no jets, nozzles or compressed air.

Since its PLASA launch the reaction has been "phenomenal" according to director Nigel Morris. "It's easily the most successful product we've ever launched," he told L+SI. "And that's sorting out exhibition talk from the real talk! We've had the idea in the back of our minds for 10 years or so, but the money wasn't around

for development. Two years ago we dragged the file back out and at the same time there came about a discernable change in the market place away from conventional machines.

"It's very much a 'now' product, and it's absolutely right for the market place. The PLASA award endorsed what we were doing and it was excellent to see our product recognised in this way."

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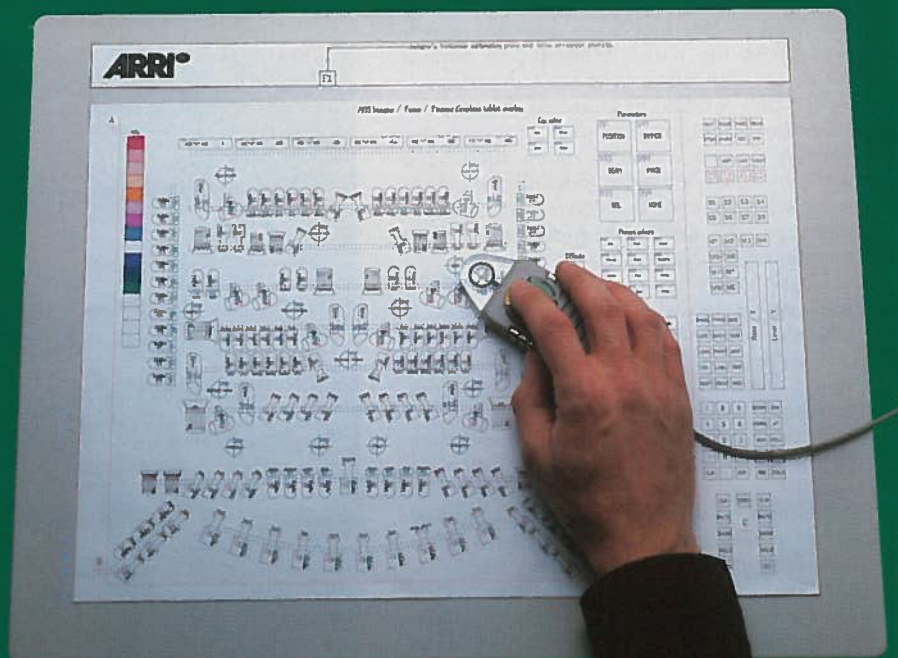
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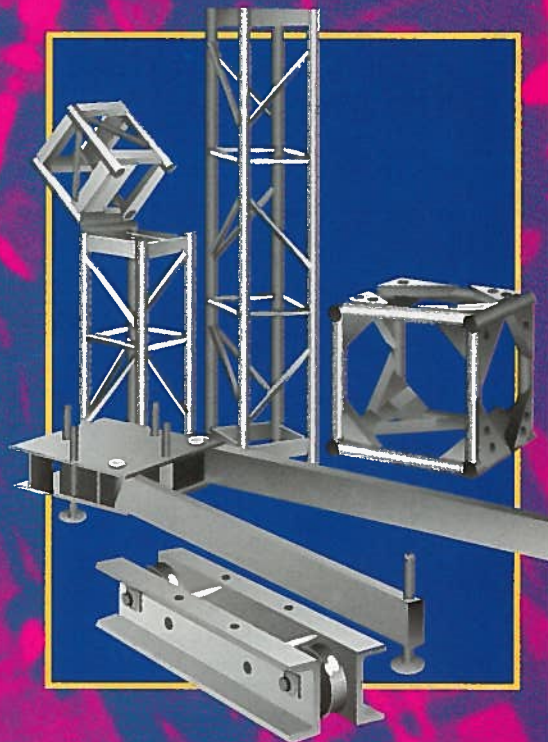
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L+SI FESTIVE FEATURE

... with apologies to the entire industry.

OK, it's Christmas, and the editorial team at L+SI has decided to let its hair down for just a moment and enter into the festive spirit.

Now rather than let this page go to waste, with lots of silly Christmas quizzes, and wordsearches, we thought we'd put it to practical use, and address some of the issues of the press. One of the most persistent questions we get asked is how one goes about getting editorial in L+SI. We don't see it as a problem because we pride ourselves on packing more information per square inch than any other trade publication, but there still appear to be readers out there who don't feel we get enough of their important copy in. So here, in a special, one-off L+SI feature, is the backdoor guide to getting your press releases published in L+SI.

The Blackmail Option

Do a little bit of digging and unearth a juicy titbit about one of the L+SI team. It doesn't matter who, just so long as they have access to the DTP password. Let them know that you are aware of their little peccadilloes and hey presto a 16-page commemorative feature in the next issue. For those who cannot find any decent information, and after all we are a fairly saintly lot at L+SI, refer to the 'Grease My Palm' Approach.

The Subtle Approach

Bombard any, and every form of, communication system with your press releases. Post it, fax it, modem it, ring it through and dictate it to whoever picks up the phone - you could even deliver it by hand. Then, 20 minutes after you're absolutely sure they've seen it, ring them up and ask them if they're going to use it. If this fails to elicit the hoped-for response offer to pop down and key it in for them. If this still doesn't work, ring again the next day, and the next, and the next and the next...

Grease My Palm Approach

This is probably the most successful way of getting your editorial into L+SI and comes with a built-in 'we'll give you your money back if we don't print' guarantee. All it requires is a little planning: find out who wields the red pen and target them with a 'whatever I can do for you' campaign. Contrary to expectations, you should bypass the editor, the assistant editor, the associate editor, the consultant editor, the managing editor etc - this lot are usually holidaying in Rio when the magazine's being put to bed - and go straight for the office tea-boy. If your

main line of work is theatre, offer him front-row tickets to Miss Saigon, if it's loudspeaker manufacture, kit out his bedsit with an expensive hi-fi. A little imagination in this department will work wonders.

The Clairvoyant Approach

Do not in any way, shape, or form, hint at the latest project you may be working on to anybody, and above all, never ever tell a member of the L+SI team. With their supernatural powers, they will, of course, know exactly what you have been doing and will get straight on that phone to glean from you further details to run with their headlining news story for the next issue. This way, you avoid having to ring the magazine three months after the event wondering why a piece on the project never appeared.

Makeover Approach

This is also a popular method. Do not employ a professional PR person to produce your press releases for you, but save money by spending anything up to 30 seconds scribbling a few indecipherable notes on a scrap of paper. Post it to L+SI, or better still fax it so it's even harder to read, and pray that they will transform the story into a major news piece. It helps if you can spell, because the editorial team are not keen on rifling through a dictionary, but they will give it their best shot, and with a bit of luck, something resembling the art of journalism will appear.

Free Advertising Approach

Write several paragraphs about your company or product, ensuring that each line includes one of the following words: excellent, exceptional, unbelievable, cute, extraordinary,

wonderful, brilliant, remarkable, astounding, amazing, unique, superior, outstanding and that old favourite, cost-effective. Then post it to us, or better still, cut out the middle-man by taking a pair of scissors to it and cutting it in half, thereby giving yourself some idea of what it will look like by the time it reaches our pages. Alternatively, submit any old advertisement but ensure the words 'Press Release' are written in bold at the top. Then simply hope that it gets published worldwide for free before we notice and charge you for it.

The John Major Approach

Wear a grey suit and drone on monotonously about your wonderful product, project, new sales team ad nauseum. Then be utterly surprised when nobody takes a blind bit of notice of you. (That's enough, Ed)

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P Johns, Birmingham**

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Stop Press . . .

Fari-Lite Inc have announced the launch of a new lighting product which has been designed especially with the festive season in mind. The idea behind the design was to produce a highly portable and versatile string of small, different coloured lights which could be hung almost anywhere, to give the effect of a row of small, different coloured lights. The product, which has already attracted interest from all quarters, comes in a small cardboard box, which it will never fit back into once removed. Extensive performance testing has demonstrated that the lights will work if you're lucky. Each kit comes with a pack of four replacement bulbs, which Fari-Lite guarantee will not correspond in colour to the surrounds on bulbs that fail. Plans are also in the pipeline to produce a version that flashes on and off, though quite why anybody should want to do this remains a mystery.

* * * * *

One of our readers in Israel has pointed out that far from being an innovation, the Autopilot System from Wybron was first developed nearly 2,000 years ago. It certainly drew interest from the Far East, when three potential buyers trekked all the way to Bethlehem for its first official demonstration. On further investigation, L+SI have discovered why the project was held up for so long - it seems the original maker didn't have Keny Whitright's money. Now, thankfully, the original software problems have been rectified.

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SOUNDS ITALIAN

Andy Wood at RCF in Reggio Emilia

I don't know about you, but I've always felt that the Italians have a 'certo qualcosa' when it comes to style. Shoes, clothes, cinema, football, food . . . the list is as impressive as the number of noughts in their lira prices.

Take their nightclubs for example. Whereas in Britain we place them in the centre of towns where the associated neighbours complain of noise from both the club and its customers, the Italians site them in business parks where, after 8pm, the surroundings allow for large amounts of parking and not a neighbour within earshot. To make the clubs easier to find, owners stick Skytrackers the size of WW2 searchlights on the roof to guide the faithful to their goal - and once inside, the interior design is uniquely Italian: over-the-top in whatever style is required, whether it be industrial or baroque. With all this in mind, it's no surprise that the country that gave us 'Italo-House' takes its club sound as seriously as its style.

Introducing therefore, RCF, home-grown Italian sound talent which is gaining a high profile not only on home territory but also in the UK and around the world. They are located between Milan and Bologna, in Reggio Emilia, famous for Valpolicella wine, Parmigiano cheese and a football team at the bottom of Serie A.

Founded in 1949, RCF S.p.A (Radio Cine Furniture) began their audio life manufacturing ribbon microphones and megaphones - a far cry from today's company, who, following a rich pedigree in public address, now incorporate hi-fi, in car, video projection, microphone, amplifier and enclosure products alongside their proprietary drivers and chassis units which have been provided to OEM customers around the globe ever since the late Dave Martin pioneered their use.

A staff of 240 employees work in two plants covering 12,000 sq.m, with a dedicated R&D lab employing 30 engineers split between electronics, electro-acoustic and engineering research. To help their cause, the company utilises the latest CAD-CAE systems, plus two tuned anechoic chambers, plus climatic and reinforced sealed chambers for destruction testing. If anything, this dedicated approach to R&D is one of the secrets of their success, with a constant stream of new product designs incorporating thousands of hours of component, cone and dome material tests to ensure that they surpass the most demanding of international standards (ISO series 9000, ML-STD etc.)

Head of the department is George Krampera, the near legendary Czechoslovakian, who joined RCF from Yorkville Sound in Canada around three years ago. Now living in Prague (he commutes for ten day shifts!), Krampera and his team have been responsible for the major leaps which the company has made since 1991 in the pro sector, with the emphasis now



The ins and outs of RCF. Their two plants span 12,000 square metres and house 240 employees.



shifting from speaker component domination to enclosure design. Reliability is the main factor, and the lessons learnt from OEM product development made the company realise that they could get a piece of the pie which the world's enclosure magnates had been getting by utilising their products.

Sales and marketing director Fausto Davoli and technical director Corrado Davoli (no relation), together with marketing manager Roberto Ballabeni, are keen to use their knowledge of the various audio markets to increase both company profile and sales - with Krampera's designs at the forefront.

"We have a lot of cards in our hand, knowledge of various markets, components etc., and we feel that we should use them to play the market strongly," explained Fausto Davoli. "As we are a primary source, the image of our components in the pro market is very high. Now, if we are clever we can capitalise on this, identify needs, and expand our product range. One of our main aims is to develop a line with a wide range of applications in the pro

market - high power, high sensitivity and reliability being the main criteria."

After taking their first steps with a range of studio monitor boxes, larger enclosures followed with the RCF France-designed Espace range. First manufactured in France with production transferring to Italy during the late 80's, these were soon followed by the Process Control range, which utilise external processors which act as a Linkwitz-Riley 24dB/oct crossover to equalise transducer response and additionally monitor amplifier output to eliminate clipping.

The Process Control system was shown to its best advantage at 'Mazoom' - a club on Lake Garda - where the main system consisted of eight CP515 cabinets (N980 compression driver plus 15" woofer) flown surrounding the circular dancefloor and run in mono with two subs. 'Mono?' I hear you cry! Yes, *mono*, and a darn good idea too. No unwanted shifting and phasing around the dancefloor, plus an intensity to get the most slovenly foot on the move. Needless to say the SPLs weren't for the faint hearted, peaking at up to 128dB, but the directivity of the cabinets and design of the club allow for lower levels in the seating areas.

Espace and Process Control were a major breakthrough for RCF, allowing the company to cover club and sound reinforcement applications from small to large venues, but what was required was a smaller enclosure. Enter, therefore, the Monitor series, which more than any other product broke RCF into the British market in particular.

Designed by Krampera and the team to take the company into the monitoring, AV and general sound reinforcement markets, the



Fausto Davoli, sales and marketing manager.



Italian colour on the production line.



Corrado Davoli, technical manager.



Preparing the cones.

Monitor series was one of the first products to attack the market dominated by the ubiquitous JBL Control. Any visitor to this year's PLASA Show will have seen how crowded this market has now become, and RCF must feel fortunate that they got in early, as the Monitor is now an established and extending range with a new Monitor 8 sub-woofer and Monitor 12 medium-sized box on the launchpad.

Whilst all this was going on, other sections of the company were equally hard at work producing amplifiers, as well as products for the in-car, home entertainment and hi-fi markets. Indeed, RCF Mytho hi-fi cabinets have found great favour in Japan, and their video projectors were voted Best Buy this year in the UK by *What Video?* magazine.

A network of agents now distribute the company's products throughout the world (the latest being to cover South America), and these, with wholly owned subsidiaries RCF France and RCF UK, have gone a long way to increase both profile and sales. For a company who were relatively unknown outside the 100V-line market ten years ago, the future looks very good. But what does it hold?



Magnetising the units.

RCF Event is the company's latest concerted push into sound technology. Launched at PLASA, Event features new components that combine high peak power capability with high efficiency in a wide dispersion package. The goal, quite simply, is the touring market. Fausto Davoli explained the reasons behind this decision. "Two or three years ago we decided to approach the professional markets. In the UK, you know better than here in Italy that the PA/100V-line and pro markets are getting closer, and this is why we made the decision to



The finished product.

create our pro-line of products. The way forward is to get a single distributor to look after both PA/100v-line and pro. I feel strongly that education is very important for the installer, which is why we have created system guides - how to install, what to install, etc. With our knowledge of other aspects of the audio market, we feel that we are now in a position to create a new line with dedicated components designed especially for those brands."

The first of the series, the Event 3000, is a compact, 2-way full range trapezoidal box which can be either stacked or flown in an array. The 3-way Event 4000 is soon to follow, and by Frankfurt 1995, the wraps should be off the 5000 and 6000 units, two big enclosures aimed fairly and squarely at top end installation and touring which will incorporate yet more specialist components. If a unit won't take high wattage peaks for long periods (7000W peak for 100 hours has been known) it won't get past the spec, and that gives an insight into how seriously RCF take their next challenge.

RCF have style, and they're coming your way soon. Capito?



The interior of the 'Mazoom' club, Lake Garda.

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IN THE RIGGING

Andrew Martin of ATM Flyware on the practice and the theory

The practice of rigging loudspeaker systems has become an integral part of high quality sound reinforcement production services. Flying loudspeakers is no longer confined to large scale touring companies: in fact, it is commonplace for small audio rental companies to provide flying hardware systems for a good portion of their productions.

The rental market demand for flyable loudspeaker systems has generated a need for safe and reliable loudspeaker rigging hardware systems. Many loudspeaker manufacturers offering flyable loudspeakers have done so by utilising hardware components from the aircraft cargo control industry. These types of systems can be difficult to array and often do not lend themselves to smaller loudspeaker array configurations. Recently, some loudspeaker manufacturers have started to implement rigging hardware that is requirement specific. This type of system works in co-operation with after market flying hardware systems to provide the user with a comprehensive loudspeaker flying hardware system for a wide variety of uses and array sizes. There is a trend toward this type of cooperatives rigging system concept due to the cost savings and acoustical advantages to the end user of the loudspeaker system.

Since there are many types of rigging hardware systems in the sound reinforcement marketplace, this article will examine many of the aspects associated with rigging systems for both portable and permanent installation applications.

The primary concern for anyone flying a loudspeaker system should be safety - a consideration which begins with the loudspeakers themselves. Most of the flyable loudspeakers available from professional loudspeaker manufacturers have been designed and rated for overhead suspension. However, there are structural limitations to any loudspeaker with rigging hardware, and it is always a good idea to ask the manufacturer for a copy of the certification on the loudspeaker prior to rigging. For touring rental companies, a copy of the certification on the loudspeaker and rigging hardware systems should accompany the system at all times.

RIGGING HARDWARE

Loudspeaker attachment points will vary from manufacturer to manufacturer. Therefore, most loudspeaker rigging hardware systems are not compatible. However, there are a few common rigging hardware designs that are worth reviewing. Perhaps the most common rigging hardware system in the marketplace today is the aircraft cargo control pan fitting. This type of hardware has been the most implemented hardware in the past. However, new loudspeaker designs have moved away from the aircraft cargo control pan fittings. Another common form of attachment hardware is the aircraft cargo control track. Here again, new loudspeaker designs are moving away from this type of hardware. The newest type of loudspeaker hardware system is the threaded hole or nut plate system. This type of hardware enables the user to choose how to attach to the loudspeaker, depending upon the specific use of the loudspeaker system.

With most flyable loudspeaker enclosures, the external hardware component is fastened to an internal enclosure brace which helps to



Andrew Martin, president of ATM Fly-Ware.

distribute stress through the loudspeaker enclosure. In some cases, the internal brace is the rigging hardware attachment point. Internal braces are usually small corner plates which distribute load from the top and bottom surfaces of the enclosure to the side panels. Internal braces can also be tied together so that loading is potentially transferred via the through-enclosure bracing rather than by the enclosure side panels. With through-enclosure braces, the loudspeaker enclosure only needs to support its own weight rather than the weight of each consecutive loudspeaker below it.

As a general rule, the loudspeaker enclosure bracing and hardware is very strong, and the

“Do not make the mistake of assuming that a rigger knows what they are doing, just because they are doing it: many riggers have a lot of experience at doing the wrong things.”

weak link in the loudspeaker enclosure can be found in the joinery and/or material used to construct the loudspeaker enclosure. For this reason, it is important to know the working load limit of the loudspeaker enclosure, and what design factor the working load limit reflects. Most professional loudspeaker manufacturers calculate loudspeaker enclosure working load limits utilising at least a 5:1 design factor. This means the point at which the loudspeaker enclosure breaks is five times greater than the working load limit. When considering working load limits, assume that the enclosure is suspended from only one point, this way if all other points fail, the enclosure will not fall. Also, if the enclosure is tilted at a severe angle, it is commonplace to have all of the load concentrated on only one of the enclosure suspension points.

The 5:1 design factor applies to all of the rigging hardware outside of the loudspeaker enclosure as well. It is the responsibility of the user to make sure that the design factor is adequate for every aspect of the rigging system: this includes the loudspeaker enclosure, the rigging fittings, the suspension truss, the steel cables, the fasteners and the attachment to the structure. It is for this reason that hardware with manufacturer specified working load limits must be used at all times. If the hardware does not have a working load limit or ultimate load strength stamped onto the part, a copy of the certification for the part must be in the

possession of the rigger when the parts are being used. This is particularly important for rental companies, as certain venues, concerned with liability issues, are beginning to refuse rigging productions if these minimal requirements are not complied with.

Other safety factors associated with rigging loudspeaker systems include suspension of the loudspeaker array, load distribution, and suspension hardware. Much of the time the venue riggers will handle all of the rigging requirements down to the array suspension hardware. However, the house riggers will rely on the rigging hardware and equipment provided by the rental company, and this hardware and equipment must be kept in excellent condition. While the venue riggers are charged with the task of safely suspending the loudspeaker arrays from the building structure, it is wise for the person in charge of the sound system to keep an eye on the riggers' performance. Do not make the mistake of assuming that a rigger knows what he/she is doing just because he/she is doing it: many riggers have a lot of experience at doing the wrong things. To learn more about rigging, one can contact entertainment rigging supply vendors and inquire about rigging books and instructional courses.

Some of the equipment that is of particular importance to the safe and reliable rigging of loudspeaker arrays includes; wire rope assemblies, shackles, locking steel carabiners, synthetic rigging slings, sling links, chain motors (hoists), motor distribution and control, safety harnesses, belay ropes and fittings, and pulleys. As a general rule, the lower cost items should be routinely inspected and discarded when they look worn or no longer perform their task properly. The higher cost items, such as the chain motors and motor control, should be routinely inspected and re-worked to bring them back up to specification. Some common areas of damage include; kinked, rusted, or stretched wire rope assemblies, shackles with widened jaws or pins that do not turn, carabiners without locking gates, synthetic rigging slings with holes worn in the cover or stiff sections within the sling, ropes with fibres torn or cut, and pulleys that wobble or rub.

As a result of continued market demand, rigging systems have become a necessity for the professional sound reinforcement company. The benefits of rigging loudspeaker systems are clear when considering sight lines and seating availability. However, the practice of flying the loudspeaker system can be equally beneficial to the sound company if the rigging hardware system is thought through and performs well in many situations. Loudspeaker rigging system flexibility and ease of installation is of extreme importance. In many instances, a little extra funding to purchase the right flying hardware system up front will save a tremendous amount of aggravation and additional expense in the future.

SUSPENSION SYSTEMS

One of the more important user features of a loudspeaker flying hardware system is the ability for the system to control the loudspeaker within the array. While there are many variations of loudspeaker array suspension hardware systems, there are two basic types of suspension systems; the grid truss and the

modular truss.

The grid truss system is often found in the large scale touring production marketplace. This type of system works well for large concert work since it is quick to set up and reasonably cost effective for large loudspeaker arrays. However, it does not work well for smaller venues, or productions which require sound system modification from venue to venue. The grid truss system usually incorporates some type of adjustable pull strap to tilt the loudspeakers column by column in the vertical plane - hence the grid truss system is termed a vertically configured system. The horizontal splay angle between columns can be varied by moving the grid truss suspension points around, or in some instances the grid truss will have a swivelling bar for each column of loudspeakers.

It is important to note that grid truss systems are usually not utilised when severe tilt angles are necessary from the loudspeaker array, as the grid truss becomes very large to accommodate the loudspeaker enclosures. The modular grid truss system is a variation of the traditional grid truss. With modular grid truss systems, the user is able to add as many columns of loudspeakers as the venue may require, and the splay angle becomes fixed between each column of loudspeakers. Modular grid truss systems are usually a great deal smaller than conventional grid truss systems.

The modular truss system is the most recent advancement in loudspeaker rigging hardware systems. The modular truss system is designed to hold a group of loudspeakers together rigidly in the horizontal plane, hence the modular truss system is termed a horizontally configured system or planer system. Each loudspeaker in a modular system is treated as an individual module which can be assembled into the whole array in any position. Since each loudspeaker module is identical, the removal or addition of a module is simple and predictable. Each of the loudspeaker modules is held together in the horizontal plane with the use of connecting bars which can be a fixed splay angle or variable, depending on the design.

Once a group of loudspeakers is held together in the horizontal plane, the entire group can be tilted without the use of additional adjustable pull straps. This is achieved by manipulating the centre of gravity with the suspension points for the row of loudspeakers. By moving the suspension points toward the rear of the loudspeakers, the entire row will tilt downward, and vice versa. Another feature of the modular truss system is the inherent wavefront coherency. Since the loudspeakers are held

together in the horizontal plane at a fixed distance in space, the wavefront across the horizontal plane is coherent. Also, the modular truss system will allow adjustment of the vertical acoustic wavefronts when multiple rows of loudspeakers are arrayed.

LIABILITIES

A loudspeaker rigging hardware system that works well and looks good is a beneficial asset to the sound reinforcement rental company and installer. However, there are many liability issues attached to the process of rigging loudspeaker systems.

Firstly, there is a legal responsibility for the owner and user of the loudspeaker flying hardware system to ensure that the system is insured, safely designed, safely constructed and appropriately used. Insurance for a rigging system can be expensive, but it is a necessity for both the owner's and client's protection. The safe design and construction of the rigging hardware system is also critical. One must remember that any system is only as good as the weakest link.

Many equipment failures can be avoided if the system is designed and certified by a structural engineer, and if the builder is a professional fabricator with the proper equipment and knowledge to produce structural assemblies. Even if the system is designed well, built properly and insured, the ultimate success and/or failure will rely on the user and assembler of the system. This area is often overlooked by sound reinforcement rental companies and installers. As discussed earlier in this article, it is not the responsibility of the rigger to implement the rigging hardware system safely - ultimately that responsibility belongs to the owner and/or user.

Another liability associate with flying hardware systems is cost. If the process is done correctly, flying loudspeaker systems is an expensive venture. On average, a loudspeaker flying hardware system will cost between 10% and 25% of the loudspeaker cost. As this article has discussed, it is not worth trying to cut back on the cost of the loudspeaker flying hardware as it may cost far more in the long run: in fact, a tragic accident will most likely put a company out of business. Flying hardware systems are an investment for the future: a company should not purchase a loudspeaker flying hardware system until the finances are there to do it right.

Many companies will attempt to design their own rigging hardware systems thinking that it will save money, however, it usually costs a great deal more than buying a flying hardware system from a reputable manufacturer. When one considers the research and development

(systems seldom work the first time), structural analysis and engineering fees for the certification, manufacturing costs for outside vendors with certified welders and fabricators, finishing costs, and destructive loading tests it becomes apparent that the cost of constructing a proprietary system can be in excess of 150%-200% of market-available systems.

Another hidden cost is found when the company needs additional loudspeakers for a large production, however the sub-rental company operates with a different flying hardware system. As discussed earlier in the article, most flying hardware systems are not compatible; therefore the company needs an additional inventory of flying hardware in order to accommodate the occasional sub-rental. Standardisation of a manufactured, available and popular rigging hardware system between rental companies is a much more economical option.

THE FUTURE

The future of the professional loudspeaker production industry holds a great deal of opportunity for loudspeaker flying hardware systems. However, the industry must be careful and act responsibly to protect itself from government regulation and restrictions. Sound reinforcement company owners need to work with loudspeaker manufacturers and rigging hardware manufacturers to exchange information and partake in training seminars.

Loudspeaker manufacturers have begun to co-operate with rigging manufacturers in order to provide cost effective and safe solutions for the users of their products. The future will bring more standardised products and hardware for flying loudspeakers. It will also bring new materials into the rigging business. The advent of modular truss rigging hardware systems has opened new doors for lightweight materials such as fibreglass and polymer plastics.

The computer age will also touch the loudspeaker rigging industry. It is conceivable that servo motor driven loudspeaker flying hardware systems will work in conjunction with computer simulation and control software in order to steer loudspeaker arrays and optimise loudspeaker array performance from venue to venue.

As the field of loudspeaker rigging becomes increasingly more important, there is a large potential for innovative solutions to complicated problems. Be assured that loudspeaker flying hardware manufacturers continue to look for new flying hardware systems that will add safety and efficiency to the practice of flying sound reinforcement systems.

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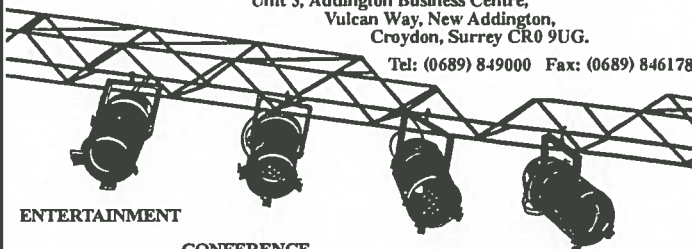
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AUDIO AMERICA

Georgina Garrett in San Francisco at the AES Convention



Bob Doyle of Midas in full flight demonstrating the brand new XL4 console.

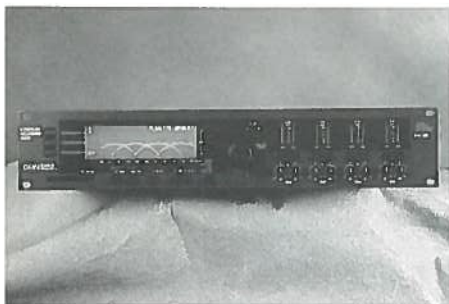
The 97th (is that all?) Audio Engineering Society Convention, held in San Francisco last month, was witness to an impressive range of new products from many of the sound industry's leading manufacturers. Among the exhibitors plying their wares at the Moscone Center were Sennheiser, Yamaha, BSS, Midas, Audio Technica, Soundcraft, Klark Teknik, Turbosound and Meyer, all of which were introducing new products, plus many more.

Midas finally unveiled the long-awaited XL4 console, deliberately kept something of a shadowy figure until its launch. The XL4 is intended to provide state-of-the-art live mixing and recording capabilities for front of house or stage monitoring use, and is the result of a great deal of time spent in researching the requirements of sound engineers, production designers and artistes. By creating a mixing environment in which repetitive functions are automated, the XL4 gives greater mix consistency and allows the engineer more time to concentrate on creativity. Needless to say, orders of the XL4 have been pouring in.

Next in (random) line, **BSS Audio** launched their Omnidrive loudspeaker management system, which, like the XL4 proved to be extremely popular with visitors, some of whose budgets were burning such a hole in their pockets that they were trying to buy the product off the stand. The compact Omnidrive includes, in a neat 2U chassis, two channels of 4-way crossover, parametric equalisation, phase correction, delay line and limiters. Also appearing for the first time on the BSS stand was the FCS-930 single channel graphic equaliser.

From **Soundcraft** came the new SM12 and SM24 monitor consoles. The SM12 offers 12 mono, plus one stereo send and is available in 32, 40 and 48 channel frame sizes, as is the SM24, which provides eight mono, plus 16 mono or up to eight stereo sends - giving a total of 26 busses.

The latest in **C Audio's** RA line of power amplifiers, the RA 501, was on show. This is a



The BSS Omnidrive loudspeaker management system - doing well in the popularity stakes.



Cadac's Concert makes a good first impression amongst both fixed and touring markets.

1U unit, rated at 150W per channel (4 ohms). Other features include full DC offset fault detection and load protection, as well as short circuit protection. The rugged unit also has soft-start power-up and instant mute power-down, preventing speaker 'thumping'.

Yamaha's PM3500 mixing console was making its debut, demonstrating the new stereo matrix system and MIDI muting scene control, which provides 128 memories, accessible using a numeric pad or with eight direct recall buttons. The PM3500 comes in 24, 32, 40 and 48-inputs for front of house use, plus 44 and 52-input monitoring configurations. Also new was the D5000 digital delay, giving times for each delay of up to 5,200 milliseconds in stereo mode, or 10,400 milliseconds in the mono mode. Depending on the application, delay times can be displayed in seconds, distance, musical tempo, or SMPTE frames.

Carver were exhibiting their new CA Series of contractor amps, as well as their line of source products.

The T-36-1.5 bass horn module from **Cerwin-Vega** was on show, with maximum power handling of 1500W and frequency response from 32Hz-320Hz for a two horn array. Also on show, the CO-AMT-15 15" driver and CO-AMT-12 12" driver.

On the **Tannoy/TGI** stand, a fully active System 8 and System 10 were on display, while **B&K** debuted the new Tube/FET dual stage microphone.

EAW showed the LA series Linear Activation medium throw/backline systems, the Stadium Array series full range systems and subwoofers, the JF series high definition multimedia systems, Virtual Array modules, SM series concert foldback systems and AS and UB series installation systems.

The new low distortion 1" exit VHF100 high frequency compression driver was shown by **Community Professional Loudspeakers**, along with their M4 and M200 midrange compression loudspeakers. Also on show were the NFB and RS series flying array loudspeaker systems.



The crowds gather to see Yamaha's PM3500 mixing console.



Dave Neal of BSS (left) with Graham Paddon of Autograph Sales.

AES was the US debut for **Cadac's** Concert desk, exclusively distributed in the US by ProMix. The Concert was reported to have drawn "strong interest" from both fixed and touring markets. Designer Patrick Baltzhal is due to take the first US-based desk on tour early in the new year.

Furman Sound Inc introduced their 'X' series of crossovers, which offer 24dB slopes, Linkwitz-Riley/Butterworth switches, mute, phase and horn equaliser switches, and limiters for each output.

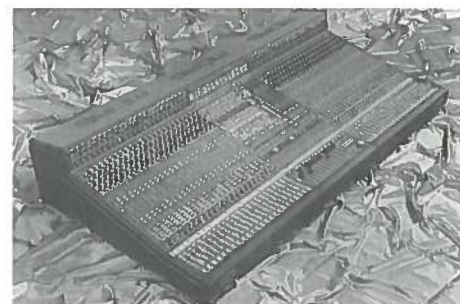
Sabine showed for the first time their new real-time adaptive digital equaliser, the Real-Q, which monitors programme material during a performance and maintains any specified equalisation curve.

From **TOA** came the new DACsys II, a digital audio control system that is capable of supplying over 20 different types of signal processing functions, signal routing and level control. The computer controlled DACsys II line is comprised of two signal processing devices and a digitally controlled 8x8 analogue matrix/mixer.

A new series of lightweight professional loudspeakers was on show on the **QSC Audio** stand. The PowerLight series shared stand space with QSC's EX, MXA, Series One and USA series of power amps and accessories.

Sennheiser were demonstrating some new additions to their range. The ME67 long shotgun capsule, designed to provide a high degree of directionality in capturing distant sounds, is the latest addition to the K6 modular condenser microphone system. The BF1053 wireless instrument pick-up is a medium cost VHF lavalier system, including a body pack transmitter with MKE2 lavalier microphone, true diversity receiver and carrying case, and can operate for up to eight hours on a single nine volt battery.

The increasingly popular in-ear monitoring was given a further boost by **Nady**, who were displaying their new SEM-6000 VHF and SEM-7000 UHF systems for live, broadcast and post-production applications.



The Midas XL4 mixing console, finally unveiled after a secretive development.

Allen & Heath introduced their GR1 multi-input zone mixer. Housed in a single unit, this mixer has six channels of mixing for three adjustable and assignable output zones, fed by a combination of 24 inputs.

Audio Technica presented a new wireless system, the 500 Series, complementing their existing top-end 1200 Series. The transmitter is available in two versions - the W515 UniPak body pack system, as a lavalier, clip-on instrument mic or headset, and the W516 handheld system, equipped with a WT16 handheld dynamic cardioid microphone transmitter.

Drawmer featured their new dual channel 1961 vacuum tube equaliser. This incorporates 12 active tube stages, four main equaliser sections (each with six switchable overlapping frequencies, variable bandwidth and +18dB of cut and boost), and variable high-pass and low-pass filter sections.

Crest Audio's high power range of amplifiers, the CA series, was increased by the addition of the new CA12. The 3U unit is rated at 1200W per channel at 4 ohms, and is designed to operate reliably and efficiently under difficult load and power conditions. The CA amps have twin tunnel-cooled heatsinks and variable speed fans to ensure longer life.

JBL Professional made two further additions to their Array Series of concert sound reinforcement loudspeaker systems - the vertically oriented 4891 and the horizontally oriented 4890 stage monitor systems (JBL apparently don't need catchy product names). Both use JBL's new 14" neodymium woofer, with vented gap cooling (VGC). Also new from JBL is the ASC24 analogue processor, which is aimed at making the Array Series a more feasible proposition for smaller venues. The ASC24 incorporates two independent channels of signal processing in a 1U cabinet.

DBX were showing two new reverbs. The Project One 290 is an inexpensive discrete stereo in and out studio reverb featuring a highly intuitive interface. The 790 reverb is the newest member of the DBX production series and boasts 24 bit processing, 44.1 and 48kHz sample rate, AES/EBU digital I/O, stereo in and out XLR and phone connectors.

Klark Teknik introduced the DN360, a slave derivative of the DN3600, having similar features, but with the benefit of a simpler front panel, featuring only twin LED meters, clip

LEDs, a LED numerical display and a power switch. The DN3601 can be controlled through a DN3600 or a suitable computer, or other MIDI control devices.

Meyer Sound (see special feature this issue) were busy with the launch of their HD2 studio monitor, as well as the energetic focus on the currently-doing-very-nicely MSL5 high power sound reinforcement speaker (see L+SI news, page 27).

Turbosound extended their TCS range of speaker enclosures with the TCS618 sub-bass cabinet. Also on stand were Turbosound's well-established Flashlight and Floodlight speakers, which have recently been doing the rounds with the likes of Pink Floyd, Peter Gabriel, Meat Loaf and Depeche Mode.

Soundtracs displayed their newest product, the Sequel II console. This combines DSP control with locally bypassable VCAs. Four functions are available via its assignable dynamics processor window - compression, gating, limiting and autopanning.

ARX Systems of Melbourne, Australia released several new products into the North American market at the Show - among them, a complete new range of power amplifiers - the SX series. All are 2U high, and are fan cooled, with full protection systems and new 'Extreme Duty' power supplies. Refinements to the UltraFin cooling system have increased the effective heatsink area by over 250%.

The MIXX and MIXXMaster 5 channel mic/line mixers, using the new ARX 'Open Buss' system were also launched, along with the MSX 4 four-channel active microphone splitting system, with ultra low noise circuitry and multiple electronic and transformer outputs, externally powered by the MPS-1 dual power supply.

Stage Accompany USA demonstrated their new SA8535 neodymium compact driver, as well as the new version of their very own stage control software for Windows, SAnet.

Two new subwoofers were introduced by **Celestion** as part of their CR Series loudspeaker range - the CR151X and the CR181X. Both speakers are sub-bass ported reflex enclosures that utilise an internal passive crossover network which allows the speakers to be used in a sub/top cabinet combination without the need for an additional amplifier and crossover network. Celestion were also demonstrating their KR1 professional loudspeaker, aimed at

smaller installations and places where a normal PA would be undesirable for cosmetic reasons. Each has a power handling of 75W, with the four-ohm speaker producing a 90Hz-20kHz frequency response.

New from **Panasonic/Ramsa** was a low-cost UHF wireless system, two digital processors, A DAT with instant start and sync capabilities, a line of near-field monitors and a state-of-the-art house/monitor console.

Sony were demonstrating a new wireless mic transmitter based on the same dynamic mic capsule used in their F-780 wired model. The new WRT-867A, Sony claim, has "a wide frequency response, a warm low-end and a smooth high-end". If it sounds as delicious as its description, it'll be a sure-fire winner.

A new rigging system from **ATM Fly-Ware**, which, they claim, is three times stronger than conventional Air Cargo tracking, was on stand. The new ATM-Track is fully rated for overhead suspension and can be welded to an internal brace instead of being attached with fasteners, improving strength and cutting attachment costs. The system received an excellent response during the show.

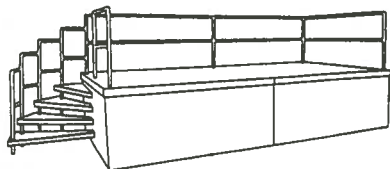
Renkus-Heinz introduced the MR121 complex conic stage monitor. The unit has a high powered 12" woofer with a 4" voice coil, a 400W power rating and a 90 degree by 60 degree complex conic horn. Renkus-Heinz also showed two new amplifiers to complement their loudspeaker range - the P-2600 (600W per channel) and the P-2750 (750W per channel).

Amek had the first showing of the 501 from Langley - designed for front of house applications as well as for on stage use as a monitor mixer using the Mix Path Reverse functions. This enables the audio subgroup faders to control the aux master levels. The 501 offers eight individual aux sends, eight audio subgroups, stereo and mono buses and a 10x4 matrix. It also has four dedicated and four freely assignable VCA group masters. Automation is based on the Showtime software. AES was also the platform for the worldwide launch of a new recording console, the Heinstein.

Despite the range of new products that were on display at AES, none of the above mentioned companies managed to come up with anything nearly as impressive as David Solari of **CyberLogic**, whose personal range of products had increased by one new baby daughter before the end of the show. Congratulations.

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Elizabeth Mort (Tel: 0428-682934)

Sound Technician: Requires a strong live mixing background and education. Must be able to mix live orchestra with studio tracks, in addition to variety and star performers. Will be required to do minor maintenance and trouble shooting. Previous studio and/or bench technician experience is a plus. Must be familiar with Soundcraft, DDA, Yamaha or other equivalent mixing consoles.

Lighting Technician: Requires a current, strong theatrical background. Knowledge of automated lighting fixtures (Martin, Wybron, Highend) and computerized consoles (ETC, Concept, Arri, Strand) is a plus. Must be capable of reading a musical score, with an ability to maintain, focus and trouble shoot. Previous Audio Visual design or bench tech experience welcomed.

ROYAL CARIBBEAN

ON TOUR

by STEVE MOLES

AND PRODUCTION NEWS



Diana Ross Sheffield Arena

LD: Warwick Price
SD: Ron Reaves

Diana Ross, with 30 years of performance behind her, is a *big star* - make no mistake about it. Despite the media focus (or is that myopia?) this is not just a show of sumptuous ball gowns, slick production and a collection of classic hits from the sixties and early seventies. There's something special here - that sprinkle of fairy dust is in evidence, and the fans that came to her two sell-out shows at the Sheffield Arena quite obviously adore her. Despite the scale of venue, what Diana Ross is able to bring to these people is intimacy. She has the common touch; for all the world we could have been in a small cabaret club downtown. She was there for us, for me and you, and it showed in the response she elicited. A largely (and let's be honest here) middle-aged audience spent the evening in an uninhibited whirl. Portly men with thinning hair danced in the aisles with gay abandon, couples flocked to the stage to dance with their idol, mums and dads felt the forgotten frisson of romance that kindled their love. As Hugh Richards from Britannia Row said: "She's a Goddess. These people love her."

SOUND

These dates are a fill-up - 17 shows to cover the gaps left by her earlier major tour - and one interesting legacy of this is the choice of PA. Britannia Row have been the contracting sound company for the past three years now. When the tour first started the newer Flashlight system that sound engineer Ron Reaves would have preferred wasn't available, and the TMS3 system was used. With the performance area being in the round, using a relatively small circular stage (barely 30 feet in diameter), cramming 60 cabinets above and around it without obscuring the lighting rig proved something of a task. However, riggers Mark Armstrong and Andy Tinavail seem to have overcome this, and for a big arena like Sheffield, a good, even dispersion was achieved.

What's perhaps a little ironic is that the results have proved so acceptable, in the rigging resolution as well as the sound quality, that the system has been retained for these add-on shows. Only one area of the hall seemed to suffer from

the TMS3's well-known lack of carry, and that was in the nose bleeds up under the sky boxes. One point of note here for the managers of Sheffield Arena and other similar venues in the UK. The in-house PA system includes a set of small cabinets slung beneath the floor of the sky boxes focused down onto the upper bleacher seats, which are there for much the same reason as alluded to above. In the US, it is commonplace for touring sound technicians to be allowed to plumb in parts of the house PA to their show system to reach acoustic dead spots. Ron Reaves did ask for this, but the house system was not configured to accommodate his request. It may only be five or six percent of the total audience this affects, but for such a small technical adjustment the improvement in quality would provide a long term benefit.

"Diana Ross is a tiny figure physically, but of immense stature as a performer."

Ron mixed from the ever-present PM4000 with Ken Parkin taking the monitor honours on a Ramsa 840. Apart from the band, who were separate from the stage in a small pit to one side, the monitors comprised Turbosound's single 12" dual concentric cabinets ringing the stage (no technical pun intended) with a set of Meyer UPAs beneath the stage deck facing out into the audience.

With Ms. Ross's frequent departures from the stage to indulge in some audience touchy-feely, coping with potential feedback was a major concern, and Ron was keen to laud the performance of the Sony RF microphone (supplied by Sensible Music) which she used. Ron, despite his US origins, was quick to draw attention to the British products in his front-of-house effects rack, particularly the BSS graphics and frequency sensitive compressors, but also "the nice old Tube Limiters Brit Row have given me," with the emphasis on old as in 'familiar' not 'worn out'.

LIGHTING

For a small stage the lighting system appeared enormous - a hexagonal truss above the stage with

another slightly elongated hexagon above the band. Beyond this stretched two great arcs of truss that seemed to reach out to the furthest points of the hall. This comprised over 400 feet of LSD's D3 pre-rig truss, but, surprisingly, with only 200 or so chrome Pars and 24 Icons hanging from it. The reason for this generous use of truss became clear as soon as the artiste hit the stage. Most of the Pars (160) were for audience light, and the wide-spread structure meant they could be focused down onto the crowns, rather than shining into their eyes at oblique angles. An important consideration if, like Diana, you want to be able to see your audience for most of the evening.

An interesting show lighting wise - apart from the audience lamps, 18 Pars with Colormags were focused on the stage, with another 24 (half with mags) on the band. The only other tools that lighting designer Warwick Price had in his arsenal were nine Lycian Stark lights slung beneath the trusses. Diana performs in a very vulnerable context - the stage is completely devoid of set, there's no crash barrier, and the few security men around the stage area are remarkably discreet. Warwick has to light the performer and the stage, but not to the exclusion of the crowd.

Despite the expense and sophistication of the Icons he has available, they are primarily a very flexible wash light for the stage. When he lights the stage, the Icons are deliberately allowed to overshoot and extend the wash area into the seats. This is very much a reach-out effect, and fits well with the whole inclusive approach of her performance - "Reach out and I'll be there" are indeed appropriate words.

Diana Ross is a tiny figure physically, but of immense stature as a performer. When the curtain goes up it's her and her alone who carries the night. Great attention is paid to the presentation of the show - for example, Diana will always consult with Warwick when she is considering a new frock to ensure that it will work with the lighting, but the members of the production crew all recognise the contribution they have to make for it all to work. Responsibility is not taken lightly. For example Chris Adamson is not only production manager for the tour, but also stage manager and promoter's representative. How ironic that as he was giving his second live radio interview of the day to Hallam FM, a tour truck driver should happen by and ask casually, but clearly audibly on air: "Have we got any f**king towels Chris?" It's a shame that we all have to come back down to earth some time!



The Manic Street Preachers at the T&CC. Bad throat, bad outfit, but a good show.

The Manic Street Preachers Town & Country Club LD: Brian Leitch SD: Rob Allen

"They shouldn't even be playing tonight. James Dean Bradfield the singer has a terrible throat infection - his face is swollen like a melon. But that's the sort of band they are - they don't like cancelling gigs."

An admirable sentiment, as expressed by the band's lighting designer Brian Leitch, and one that, on this occasion, proved to be true. Even by James' own admission, this was not a great show, though not for want of trying - 20 songs in 80 minutes is not a foreshortened set, but the strain on his voice was way too noticeable. The band's musical style is hardly delicate, but it was obvious that the poor devil was having to shout the lyrics, not just to achieve the desired sound level, but to overcome the pain he was obviously suffering. That being said, there was little else to fault the show.

SOUND

Sound was by Tour Tech, and with four of their own S4 cabinets per side, there was more than enough power available for what is quite a modest sized venue. With a stage barely 30 feet wide and an auditorium little wider, the PA dominated the stage, perhaps a little obtrusive visually, but it did little to detract from the band's performance style: a prowling bass player with his guitar slung around his knees, the obligatory quiet and static rhythm player, and James dressed as a matelot able, between lyric lines, to windmill his arms à la Pete Townshend with all the flamboyance required. For the swirling melee in front of the stage, the sound was loud and raucous, just as they wanted it. Up in the balcony, there was no danger of us falling into the crowd below, as we were gently pinned to the back wall.

Rob Allen mixed front of house from just under the balcony. The T&CC is no friend to touring sound men - unless you have a very modest desk set up you cannot realistically use the balcony thrust intended as a mix position as there is just not enough space. The auditorium is wider than it is long, and even tucked beneath the balcony the desk is still barely 20 feet from the PA line, hardly enough distance for this system to become coherent. The added nuisance that such a mix position is barely six feet in front of the bar with all the bustle that infers, makes for a less than

perfect environment. That said, the Manics are not the philharmonic - quantity, not quality, is the order of the day. So long as all the instruments are discernible and balanced, which (with the exception of the occasional distant tom-tom) they were, then the desired effect is achieved. No amount of audio tampering could have improved Ricky's voice, only a wire brush and Dettol would have sufficed.

LIGHTING

Brian Leitch has been designing light shows for the Preachers for three and a half years now. A firm believer in nurturing up-and-coming bands, his little known company, The Art of Darkness, provides all the lighting gear from its base near High Wycombe. The rig consists of five trusses, parallel across the stage. Two are just bars to support drape and cyc, whilst three are dotted with an assortment of Pars. Of the 100 or so lamps in the air, nearly all are tight beam, a combination of Raylights, very narrow Par bulbs and ACLs, these latter dummied and run in groups of four. The lamps are gelled with strongly contrasting colours, in strings of four. The rig is trimmed unexpectedly low, and this is enhanced by all the trusses being draped in camouflage netting.

Remarkably dense, the netting conceals most of the instruments, and this in turn leads to a quite claustrophobic, cave-like appearance for the stage. This adds a certain tension to the show which works well with the brooding content of the lyrics - songs like 'She Is Suffering' come across as acutely uncomfortable. The more up-tempo numbers, which predominate, are enhanced by a host of floor lights dotted about the tiny stage; 16 Pars, four Terrastros, a Megastar, and two Molemags (fitted with ACLs) as cross-stage shin busters all contrive to break up the image. I especially liked the odd Raylight aimed out into the hall at abstract angles, and the two open white eight-lights slung low from the rear truss were especially effective, focused as they were down across the backs of the performers, with no spill out into the hall. Brian ran the show from a 60-way Jands Event and used dimmers not usually (if ever), seen at rock shows - RVE of France HDD dimmers with built in digital patch, control and scene memory. Brian was particularly impressed with the ability to swap out failed two channel modules hot during a show: "Not only can you do it under load, but the new module figures out where it is in the patch from information it receives from surrounding modules." Not, of course, that they often fail.

An exciting band, a bit of a raw set, and maybe they pushed themselves a bit too far on this occasion. But then, God forbid they should ever stop trying so hard.

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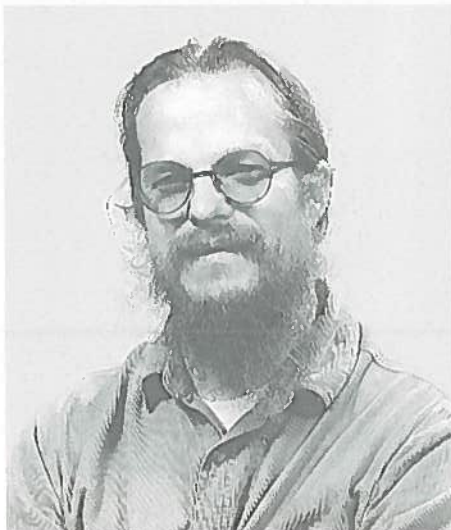
L+SI visit a legend of the Audio Industry

A week is a long time in politics, but 15 years in the professional audio industry is a lifetime, encompassing a period of quite incredible change in both technology and applications. This type of timescale is also just about long enough for legends to become hewn into the rock of audio history, and Meyer Sound is a company which certainly fits this bill. As they celebrate their 15th birthday, they are one of those stalwart manufacturers that can rightly claim to have contributed substantially to the development of the industry.

In the early 1970s, John Meyer revolutionised high-frequency horn drivers with a new, patented design that reduced horn distortion by a factor of 10. It was also in the 1970s that Meyer developed the concept of trapezoidal cabinet design, creating the first arrayable loudspeaker for live theatre applications in the form of the UPA-1. They also created a major impact with their SIM (Source Independent Measurement) system, which continues to represent a significant breakthrough in acoustical measurement technology and is a key operational tool in Meyer Sound's ongoing research, development, production and QC. SIM is designed to allow any element in a typical studio or live sound system to be measured under real-world conditions, using music or speech as the 'test' signal. With this weight of wisdom in mind, L+SI recently paid a visit to Meyer's head office in California to take a look at how they approach the business of loudspeaker manufacturing today, and to focus on one of their installation projects.

Meyer's main home is in Berkeley, where they conduct all core administration, as well as final assembly and testing of their loudspeaker and electronic products. Offices in Germany and the UK are complemented by a European Service Centre in Holland, providing more local support facilities such as driver rebuilding. Back in California, a recent addition to the facilities during 1994 were two new warehouses - doubling Meyer's total square footage in line with the increased manufacturing output. 1994 is on record as the best year ever for the company, with a total employee base of 75 worldwide.

One of the most telling factors about Meyer Sound is the obvious attention to detail. The SIM system is used at virtually every stage of



John Meyer, president of Meyer Sound.

testing and assembly to quantify the performance of individual units - a question of practising what they preach. The testing and quality control procedures themselves are exhaustive, enabling Meyer to maintain product performance to very consistent levels according to Jean-Pierre Mamin, vice president of manufacturing: "Every component and every procedure we use is very strictly controlled. The aim is to maintain absolute final quality, involving a highly trained team to test the products. The ultimate cosmetic appearance of the units is also of major concern - we have expended considerable effort to perfect our weather-protection treatments and special damping coatings, for example."

Jean-Pierre took us through the manufacturing process, highlighting how they have developed specific systems and procedures for each stage. To give you a flavour of the degree of perfection which is demanded during the manufacturing processes - versions of SIM or other proprietary systems are used at every step - from the driver assessment, through the burn-in and individual checking of each unit to verify all performance parameters, the testing of the electronics units in a separate manufacturing section, to a final test prior to packaging.

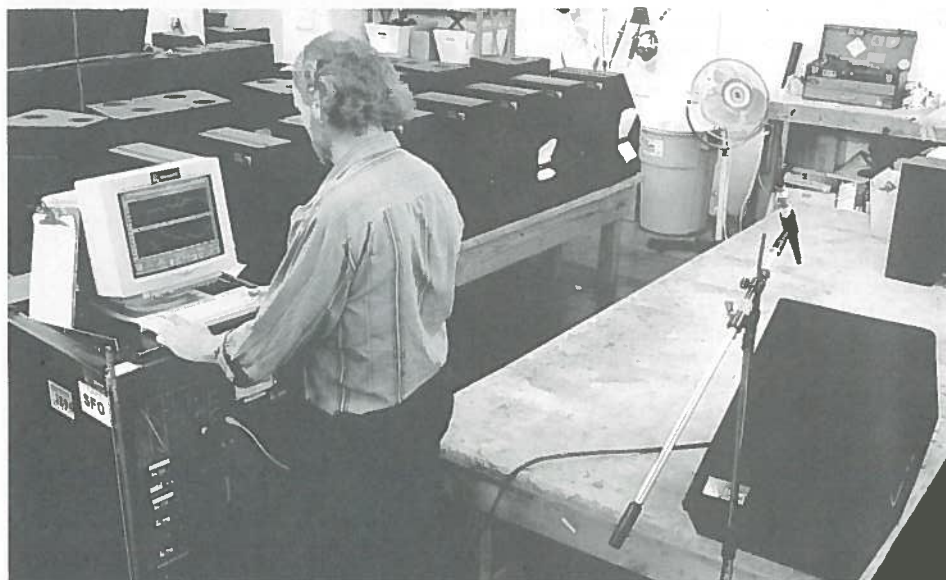
Distortion is measured using a Meyer Sound-developed system, based on a special version of the SIM Lab programme, providing extremely accurate analysis. For the Studio Monitor products - in particular the HD-1 and HD-2 monitors - all the final adjustments are made in Meyer's small anechoic chamber, where the electronics are finally married to the individual speakers. Each system undergoes a comprehensive measurement and alignment programme, covering over 20 performance parameters to ensure that all monitors provide a true and absolute reference, rather than simply being matched pairs.

Considering the sheer numbers of their products in use worldwide, it was somewhat surprising to see just 44 drivers awaiting repair. Apart from Europe, which has its own service centre - complete with anechoic chamber - this represents the total for the rest of the world! Mamin's comment was short and to the point: "We don't like to see our products come back!"

The high power MSL-5 enclosure is the latest PA product to be released by Meyer, making its debut in 1993 at the Montreux Jazz Festival and in the US on a Kiri Te Kanawa concert. According to John Meyer, this is a fairly typical example of new product development: "In essence, we responded to specific requests with the MSL-5 design, working closely with end-users to develop the MSL-10 concept into a more compact unit. We had already completed the DS-2 mid bass unit, which provides a perfect complement to the MSL-5 - the pairing provides a range below 150 cycles. The project took 12 months in all, with some particularly innovative thinking needed for the internal rigging and transportation aspects! They were the central component of the system for the Three Tenors Concert this summer, and we are receiving excellent reports back from other major users in South America, France and Spain."

Our visit concluded with a sneak preview of Meyer Sound's latest project - the construction of a large anechoic chamber adjacent to their manufacturing facility. Equipped with a moving platform designed to provide 0.01 degree measurement accuracy, the project is being constructed by astrophysics experts more accustomed to designing telescopes than loudspeakers - the result of John Meyer applying some lateral thinking rather than re-inventing the scientific wheel. The 950lb moving platform is capable of being rotated in every aspect for highly precise and flexible measurement. By using a laboratory measurement microphone under repeatable conditions, Meyer will be able to conduct far higher resolution measurements than ever before, quickly and efficiently - and on site.

As to the future, John Meyer perceives the need for more complete, 'finished' systems which are capable of being set up faster in the field, as timescales for installations are becoming more and more demanding, as well as providing even more predictable system performance. John also believes that the future will move towards more 'object-orientation', involving the design of speakers for more specific tasks, as opposed to the continuing emphasis on how a unit works and what it is made of. We would hazard a safe guess that Meyer will be continuing to set standards in the audio industry for at least the next 15 years - it should be fun to watch!



The SIM system seen in action on the factory floor is used throughout manufacture, testing and QC.

PROJECT: BOURLA THEATRE, ANTWERP

During 1993, Europe celebrated its multi-national cultural heritage by nominating Antwerp as the Cultural Capital of Europe for the year. In turn, the citizens of Antwerp sought a worthy cause to illustrate their city's illustrious past and present, channelling their energies into the restoration of the Bourla Theatre - an exquisite neo-classical opera house constructed between 1827 and 1834.

Bourla represented a major challenge, given that it had fallen into a sad state of disrepair, culminating in a closure of some 13 years' duration, after which a complete restoration was necessary.

The Cultural Capital of Europe initiative provided the rationale to instigate an intensive 24-month project - 700 million Belgian francs later, Bourla is once again open to the public. Every aspect of the theatre now reflects the care and attention to detail which has been lavished upon it, highlighting the management's complete refusal to compromise on any aspect of the refurbishment. From a technical point of view, the requirement was to create a state-of-the-art venue for a wide range of productions. On the basis that 'anything is possible', Bourla is equipped with the type of lighting and sound systems you would expect of leading modern theatres.

This combination of the new, blended with the old, is epitomised below the stage. The modern theatre machinery sits side by side with the original wooden equipment - one of only three such systems currently preserved throughout Europe. For the audience, the splendour of the stage is viewed from faithfully renovated balconies and boxes, complete with their original ante chambers and delicate furnishings.

The cluster of Meyer Sound speakers, positioned over the crimson and gold proscenium, may appear to be something of a contradiction to this synergy between past and present. In fact, the central cluster was only permitted after a lengthy consultation between architect and technician, on the basis of production needs as opposed to architectural integrity. The remainder of the PA system is ingeniously hidden from view when not in use, using a combination of swinging arms, sympathetic screens and careful siting.

The opera house is owned and managed by the City of Antwerp, operating alongside the modern Koninklijk Jeugd Teater (KJT). Part of the renovation included completely gutting the inside of the building, noting each architectural detail meticulously and faithfully restoring it on completion. All of the former technical equipment had long been removed, providing a clean slate to re-equip for the future.

The original specification was drawn up in

1990 by a special technical team, set up to design and oversee every aspect of the lighting, sound, communications and safety systems. The venue's acoustics are extremely sympathetic, illustrating the strength of the original operatic design, which had already proved so successful in Paris prior to Pierre Bourla building the theatre in 1827. The auditorium is arranged on a total of seven levels including four balcony tiers.

Local Meyer distributor, Trans European Music (TEM) was responsible for providing a full turnkey installation, comprising a comprehensive combination of 55 Meyer Sound units in all. One prerequisite for the sound installation was the ability to interchange equipment with the KJT, which is literally metres away from the Bourla.

The main stage system involves a combination of 12 UPA-1C bi-amplified loudspeakers and four USW-1 subwoofers, with the appropriate control electronics units. Monitoring is provided by eight UM-1C, together with eight UPM-1 units for effects, front and balcony fills, plus on-stage use. In addition, parametric equalisation is handled by four CP-10 units, featuring Meyer's own complementary phase circuitry.

Central to the Bourla set-up is the ability to reconfigure the whole theatre system extremely quickly, thanks to a comprehensive input output and loudspeaker patch system. Any of the speakers, positioned on any of the theatre's seven levels, can be configured for effects or other uses. The TEM team worked very closely with the theatre's sound department, with the brief involving designing a package capable of handling mainstream musical and voice productions. Mon de Leenheir is the technical director with Raf Lenssens and Stefaan Hessens responsible for the system design, and Jean Marie Lanove providing technical follow-up and installation.

Early experiments highlighted the fact that the theatre acoustics were sympathetic to the spoken word and low level sources, but when the team carried out tests using a guitar amplifier at the centre stage position with reasonably loud levels, they were alerted to a potential problem with reflections from the technical tower above the stage, giving a 'boomy' effect in the lower mid range.

After extensive consultation with the architect, they agreed to fly a removable centre cluster, positioned in front of the proscenium



The Bourla Theatre in Antwerp.



The swinging arm storage system, complete with Meyer UPA-1Cs.

and the orchestra pit to cover the centre section of the theatre. Two side arrays of four UPA-1Cs were then grouped, providing coverage for the left and right auditorium areas, as well as part of the centre and stalls. They had to ensure that nothing was on view when the speakers were not in use. To overcome this, they flew the UPA-1Cs individually, and designed a swinging-arm system with a pan and tilt facility for the alignment. This arrangement allows the technical team to move the speakers from their storage area into fixed reference

positions as required, taking just a few seconds.

Once the completed system had been installed, the CP-10 equalisers were used to set the overall system frequency response, with a minimum of fine-tuning required.

The theatre's two house engineers are responsible for providing full technical support to Bourla's production programme, which currently includes a six year tenure for its own company together with visiting tours. To date they have handled a wide cross-section from King Lear to Randy Crawford.

Meyer enjoys a very high profile in Belgium, with a large number of installations. Key theatre venues with Meyer include the Opera Gent, KNS, KJT, and the cultural centre De Singel. On the broadcast front, regular users include Belgian National Broadcast (BRTN) and independent television outfit, VTM.

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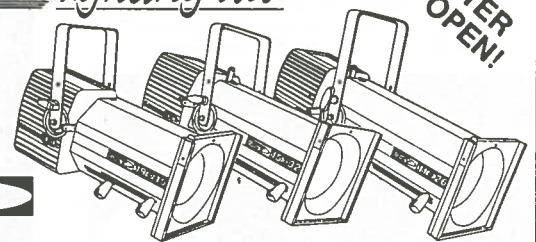
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RENO OR BUST

Tony Gottelier and Ruth Rossington report from LDI 94

Reno was always going to be an unpopular choice of venue for LDI - indeed it was branded 'Neveragainville' on the last occasion. Yet here we were again, this time in freezing conditions, in the land of quickie divorce and a million ways to lose your money fast, where seemingly there's a slot machine waiting to mug you on every street corner.

If that doesn't freak you out, the appearance of attendees at an NRA Convention in the hotel appearing at breakfast with automatic rifles slung over their shoulders, certainly will.

Getting there was another nightmare, at least for those Brits who chose to fly with United from San Francisco. All the flights had been over-booked in both directions - in fact you could have made gambling money if you were prepared to sell back your reservation. And then the weather intervened. Many arriving on the Friday night were turned back to Frisco, arriving tired and bleary-eyed the following day. The question is, did the location and the conditions lead to a reduction in attendance?

Unless you live on the West Coast, Reno is far from ideal. After all, it's a poor imitation of Vegas where, for all its brashness, it's a spectacle and things are really happening which are relevant to our industry. Some lucky people headed off there in an LDI-sponsored group afterwards. Still, next year Miami. More accessible and warmer, no gambling, but muggers of a different kind on the street corners. Hey ho.

As for the Show, with the sole exception of transport, it was as well organised by Pat MacKay and her crew as always, with the very intense Paula Millstone taking the front role as show director. This year the 'noisy hall' was entirely separated from the rest and quickly became branded 'the hall from hell'. And it looked that way, with clouds of smoke oozing from every crack, like some wreck of the apocalypse - some Japanese were even seen wearing those face masks! So now we have two forms of pollution to deal with, sound and more smoke than enough.

The seminars, always a big feature of LDI, were well attended and calmly invigilated by Ellen Lampert and Sandra Lea Carlson. The evening events surrounding the show were also plentiful with many exhibitor-sponsored parties. However, the two biggies deserving special mention were LDI's party at the Reno Motor Museum which was a terrific occasion in an inspiring setting, and High



The impressive lightshow from High End Systems.

End's 'If 60's were 90's' bash which took place in a huge empty hall at the Convention Centre. The latter was a pet project of Lowell Fowler's, to whom most humble apologies for the poor quality of last month's picture, which really did make him look like a relic of the earlier drug culture. Lowell put huge effort into organising this performance - a tribute to the liquid light shows of the Sixties, which had such a seminal influence on the lighting technology of today.

Following flashbacks from genuine relics of that era, such as the 'tuned-out' Dr Timothy Leary, in appearance less than a good commercial for his psychedelic philosophy, and the very loony presenter 'Wavy Gravy' who was very definitely 'out to lunch', we were treated to a live performance from Jefferson Starship, the rump of Jefferson Airplane less Grace Slick. Yet the excellent stand-in gave a more than Slick performance, and with considerable gusto. While all this was going on three large screens displayed the lighting art of the period, mixed with graphic imagery from Tecnation's Sonovista video effects generator. Curious that both old and new depended so much on the creativity of the Brits. Main protagonists in the Sixties liquid generation were Neil Rice, John Lethbridge and Peter Wynne-Willson, while the Sonovista system comes from the creative brain of Alex Blok, another Anglo now resident in Palo Alto.

Lighting for the band was provided by High End's own Cyberlights, which are reportedly

doing huge business in the USA, and the sponsor's artistic gobos were also shown to best effect on large scrims around the room. Quite a night, and a reminder of how far we've come in just 25 years.

Another feature of the American Show is its awards. The Yanks are big on awards, as anyone in the world with a telly will have discovered. At LDI there are two batches, the Wally Russell Awards, in memory of that great lighting man, presented by his colleague and close friend Richard Pilbrow, to an industry colossus of similar standing and, in deference to English slang connotation, called a 'Wally'. The other are the LDI awards, for 'best new product', 'best design' and 'best booth' etc.

This year there were two 'Wallies', an original Wally and a latter day Wally for best newcomer. The original Wally went to George Van Buren, whose citation tells us "he came from being a stage hand to developing the first commercial memory system for lighting control, and introduced innovative and ground breaking developments in entertainment technology through his long and distinguished career". The new Wally, 'a best newcomer' award, went to L+SI discovery, Robert Bell, for his highly innovative computer graphical software for lighting design and control - WYSIWYG - which is marketed worldwide by Flying Pig Systems.

High End Systems again featured in LDI's own awards, for their highly original stand design and product presentation, which featured live actors in a small staged performance. Lowell Fowler and ex-pat, John Adams, who is responsible for High End's exhibitions, shared the honours. Best stand design in the 'small booth' category went deservedly to Optikinetics, whose product-relevant and eye-catching stand design has been a feature of trade shows for many years. Martin Professional's light show, originally designed by another old light show hack and Englishman, Jonathan Smeeton, and considerably refined for Reno by Martin's in-house team of Steve Rawlins and Mark Ravenhill, earned the company and its distributor Tracom, the best light show award. Ellen Lampert's 'Widget of the Year' was City Theatrical's The Hook; Jonathan Deans of Level Control Systems won 'Best Sound Design/



Main players in the Wally Award presentation: Ed Powell, Don Hamilton, Larry Kellerman, Jimmy Brennan, Robert Bell, Pat Mackay, George Van Buren with his wife and mother, and Richard Pilbrow.



Flying Pig's Nils Thorjussen (left) and AC's Glyn O'Donoghue (right) move in on LSD's Peter Johns.



The 200,000sq.ft exhibit floor was temporary home to over 275 companies.



Part of the British group play host to the Overseas Trade Services of the British Consulate based in San Francisco: Mark Cadman (British Consul), Anna Pillow (PLASA), John Lethbridge (Cerebrum), Mike Wood (JEM), Ray Pringle (British Consul), Jon Petts (JEM) and Keith Dale (Celco).



Adrian Hicks of M&M with 'Wally' Junior Robert Bell of CAST Lighting.



Zoe Paine, a board member of ESTA, with Paul Vincent, the association's president.



Clive Salmon of GE Lighting (left) with Larry Nelson of LE Nelson who launched a new range of lamps.

Product' for his Cue Control software for the Mac, and **Strand Lighting** were rewarded for their Galaxy lighting control software. **Laser Spectacles** took the trophy in their category, while Luc Lafortune carried off the premier award for 'Best Lighting Design' for his work on Cirque du Soleil. **Wybron**, who are making a habit of it, collected another for Autopilot.

Something 'new' this year was the huge number of freebies being given out on various booths. 'Access all Areas' lanyards were most popular, with **Production Art's** 'Planetary Presley' the most collectable. High End scored a hit with their own number plate frame, or license plate as they are known locally, and for us **TMB** scored tops with their sponsored socks. Since Virgin Atlantic don't do them any more, these are just the job when the feet start to swell on those long-haul flights.

Talking of TMB, one thing which becomes apparent when you walk around any LDI is the large number of Brits in the industry who have decamped over there. Some have been mentioned already, but two new recruits deserve special attention - Tim Burnham who has become head of marketing at the hugely successful ETC and who was already apologising for his accent: "it's the only way I can be understood here," and Glyn O'Donoghue of **AC Lighting** who is cock-a-hoop with the American way of doing business.

Of the visiting Brits among the exhibitors, you could have been excused for missing the small low profile trade group of **Lighting Technology, DHA, White Light** and ourselves virtually hidden by Studio Due's (or in local parlance Stoodio Doo's), black curtained funeral parlour which somehow obscured virtually all visibility. However, it didn't stop brisk sales of Adam Bennette's 'Recommended Practice for DMX 512 Users' booklet from the PLASA stand. What a shame a few more manufacturers didn't read it before they ignored the standard and adopted 3-pin XLRs and, in at least two notorious cases, also got the polarity of the pins wrong to boot. There should be an obligation to provide adapters in such cases, as it causes no end



L+SI's associate editor Tony Gottelier is given an ETEC demonstration by ETC's Tim Burnham.



Gary Dove, with Dove System's new DM1224 Series of dimmers.

of problems on install.

PLASA's opposite number in the States, **ESTA**, is going great guns by all accounts, and has introduced a number of facilities which will be eyed with envy from this side of the pond. Shortly, they plan to appoint a safety officer, à la PLASA's George Thompson, the funding for which was achieved by a whip-round which raised well over \$100,000. Hopefully, the two of them will get together on DMX issues and force the pace a little with member companies who are not meeting the spec.

Talking of things of universal interest, L+SI stands accused of being lukewarm, at least in print, in our review of the PLASA Show on Pat Mackay's ETEC, which was being promoted in full force at LDI. This is the industry on-line database which she is launching from the TCI and Lighting Dimensions offices. In fact, we are not the least lukewarm on the concept, only on the application. As enthusiasts, one thing we have learned for sure is that no IR system works if it is not truly comprehensive in content, and this requirement is often in conflict with commercial interests i.e. the content should be editorial but, to make it pay, you probably have to charge for every page, and so the cycle of non-universality starts. To overcome this, shouldn't such a system really be in the hands of the two associations? Or should they not have some kind of inside track which could be to the mutual benefit of all parties? It is important also that it is accessible to as many users as possible, so the question is whether a basic rate of \$10 per month, plus \$12 per hour, plus local call charges will be an inhibiting factor for users. With the system due back on-line as we go to press, we will find out in time.

So to a brief rundown of the exhibitors which caught the eye.

AC Lighting would like to have been hogging the limelight, with both the Jands Hogs, and the Wholehog II, which sadly is not now going to be ready for release before March next year, according to the Pig's Nils Thorjussen. Nevertheless, the Pigs themselves were attracting



Fausto Orsatti of Coemar (left) with on-stand lighting designer Ted Mizrahi.



Robert Steel of Avolites Inc (left) talks Rolacue Pearl with LDs Chas Herington and John Rossi.



Lighting designer Rick Fisher with Bryan Raven and Peter Simpson of White Light.

a great deal of attention in Robert Bell's **Cast Lighting WYSIWYG** software, for which they must be hopeful of bridging a very painful gap before returning to full production. AC were also talking Rainbow scrollers.

In view of the above, I will avoid the pun about casting pearls before swine, and simply say that Rick Salzedo, **Avolites'** managing director and high tech, told me on the plane that they were having a huge success with the Rolacue Pearl, since PLASA, and he was expecting similar interest in the US. In contrast **By Design** are an English company who turn up at LDI every year (but for some reason never at PLASA), with their projected time pieces which are a very intriguing and attractive novelty if you can think of a use for them.

Clay Paky, and their **Group One** representatives were much in evidence in the 'hall from hell' and semi detached to one of Group One's other clients, **Space Cannon** who showed their 2k xenon Blade Runner sky tracker at LDI for the first time in America. CP's Pio Nahum told L+SI that things were at last taking shape in the States following previous commercial difficulties, though he was finding it a fickle market. As usual the wise cracking Vinnie Finnegan, one of three Group One VPs, told the best joke of the Show. As we passed him wrapped up in his overcoat one morning in the hotel lobby, he told us that it was really freezing outside: "It's so cold out there today," he said, "You know, I just saw a lawyer with his hand in his own pockets!"

Their great Italian rivals **Coemar**, who have suffered similar travails in the US market, unveiled the new lighter version of the NAT with 1200W MSR lamp, indexed rotating gobos and a beam with a proper field angle which, was pretty much the kind of product always envisaged. It is now affordable, quiet and not trying to be all things to all men and failing in the attempt. **Comulite**, who make the control for the NAT, were also very much in evidence at the Show with numerous versions of the Animator.

Electronics Diversified showed the compact



A truly international line-up with Daniel Dome (Philippo Showlights), Gerard Jongerius (Flashlight) Giovanni de Schampheleire (Arf & Yes), Tad Trylski and Nikki Scott (DHA) and Ignace d'Haese (Arf & Yes).



Dexter McNeil (left) and Bob Goddard with their Mini-DMXter, a complete DMX source monitor.

Omega 2. The control design is based on manual sliders with four automated faders for 'hands-on' control in live performances. Another Oregon company, NSI, focused on their new MC7000 console. This provides two-scene manual control with individual channel bumps, single-scene operation, with programmable memory scenes and wide mode operation, with single-scene, double-channel capacity control. Playing a supporting role was the new range of PMC consoles, now with a new cueing system and global fade control.

Altman returned to the show with the Shakespeare series launched last year, but concentrated their efforts this year on emphasizing its new optical system designed to improve the efficiency of the light output. Technos will be interested to learn that it also boasts a 180 degree indexed rotation of shutter centre, and interchangeable lens tubes. Altman also had a new, high intensity fresnel spot/flood backlight which they are confident will find its niche in the TV and studio markets. Andy Neal of DLD, the UK agents for Altman, was also on hand to promote the merits of the HP1000 bulb (in prototype at the moment) and the Maxstar, a replaceable Par 36 pin spot.

It's been quite a year for Richard Willis and the team at **Bandit Lites** who continue to collect nominations and awards apace. At LDI, they were keenly promoting the Motodata Baby, a small pushbutton computerised motor control system which can control up to 10 motors. Its progenitor, the original Motodata (Mamma!), still going strong, offers almost unlimited presets and sequences and can control up to 1,000 motors.

Whilst there were many companies at the show sending smoke signals skybound (including **Le Maitre** with the Red Devil and **Rosco** with the 1600), there were also those keen on achieving the opposite. **CITC** from Arizona were one such, running the CFS-2000 Chiller, a gadget that turns a haze effect into low ground cover that slowly rises to form a diffused effect as it warms. Actually, this lot get the L+SI Best Product Name Award for their aptly named 'POOF!', which is a non-toxic haze delivered straight from a spray can. **Reel EFX**, the Hollywood manufacturer of the DF-50, has an interesting gadget that can help put the smoke anywhere you want it. The CRE is an articulated version of the RE Fan. Pan and tilt are DMX-controllable, so you can blow off in any direction.

Interesting Products pitched for the middle ground and didn't much care whether you were after ground-hugging billows or fog curtains, because they had both. In this thick atmosphere, **JEM's** new HOT Technology should find instant success for its



Joachim Stoecker (Camco), Mike Wood (Slick), Graham Thomas (Lite Structures), Mark Wood (Slick), Vinny Finnegan (Group One), Paul Tardue and Eric Todd (Slick).

compact nothing-to-break approach.

If there was a trend this year it seemed to be towards DMX-related products and to underline this, there was a gathering mob of gadgets from all over the world ready to help sort out problems with DMX data links.

Doug Fleenor Design, introduced an enhanced DMX splitter which offers added protection against electrical storms. Not that we see too many of these in Europe, but it's an indication how seriously the Americans take the issue of retaining the integrity of DMX, while we are still making Y junctions in the data cable and wondering why we have problems, or why we don't, when we should! Similarly, **Goddard Design** launched the Mini DMXter, a cut down version of their very excellent DMX trouble shooter the Lil' DMXter, and soon to be available from Chris Cook's **XTBA** in the UK. Yet another DMX gadget was being shown on the **Slick** stand by **PM Lighting**, called the DMX Pro, this send-and-receive hand-held diagnostician is designed by an ex-rigger, with riggers particularly in mind.

The **Great American Market** had a line of four GAM Tools made to GAM's specifications in Australia (see November issue). The Test DMX is a cable tester that checks the signal from the console and lets you know if there's data on the DMX line, while the GAM Command is a remote focus that allows you to add data to the line. The GAM Switch DMX acts as a priority switcher that switched between consoles, while the DMX Opto-Iso protects systems from power surges and can split signals to prevent feedback.

Another British company getting in on the act is **Anytronics** who have produced a hand-held DMX tester. The Any Test One provides the user with a portable DMX512 source. The slider level control and simple channel address setting controls offer instant control of individual DMX channels, with a clear LCD reading of set channel and send data. Level settings on up to three DMX channels can be memorised in to allow testing of more sophisticated DMX units. For instance, iris, shutter and colour could be set in the memory, whilst the user has direct control over the motor functions. **Electrol Engineering** showed the Pro-Patch II, an isolated dual-port DMX512 decoding interface unit for analogue-controlled devices.

The aforementioned Doug Fleenor also popped up on the stand of **Dove Systems**, as the designer of their latest control desk. Dove have joined that growing number of companies putting their faith in the customer by inviting suggestions for a name for their new control board, designed by Fleenor. This will be a computer-assisted desk aimed at live



Peter May of PM Lighting Productions with the new DMXPro, hand-held diagnostician.

performance, which will output DMX and patch submasters and channels. Dove have even taken the brave step of inviting suggestions for product features also, which may prove to be either very inspired or a serious miscalculation, given the old axiom that what is meat to one is poison to another. They have fallen straight into that well-dug software pitfall, and will spend the rest of their lives re-writing the code as a result. The person who comes up with the best name will win the first production console. Aside from this, there were plenty of tangible new products on stand, notably the DM-1224 dimmer which runs 12 channels at 24kW per channel.

We have already said a lot about **High End Systems**, but we cannot ignore their new Dataflash AF1000 strobe product which can deliver an awesome continuous flash power of 250,000 joules, or single flash power of 200 joules with the ability to emit light continuously from one second up to 70 seconds at lower power. It is claimed that the AF1000's photon emissions can accurately simulate lightning, which at 20 Amps maximum current consumption, is quite a trick when Lightning Strikes call for 10 times as much. Now you can create your own electrical storm and run it from DMX! A special mention also for Lightwave Research's excellent LithoPattern gobos on thermo resistant, metal-coated glass, or coloured dichroics, which were shown off to such glittering effect on the Cyberlights at both the High End show and the after-hours sixties shindig.

The use of MIDI has expanded rapidly over the past few years and recent extensions have greatly widened its potential use. MIDI-Scope from UK company **Artistic Licence** (perched on a corner of the TMB stand) is a small, hand-held receiver and transmitter useful for debugging control problems and testing the kit. Any received data can be stored in a buffer for review or re-transmission. The receive buffer is controlled by a programmable trigger, allowing the user to capture specific blocks of data. Receive and transmit functions can operate simultaneously, allowing MIDI-Scope to test MIDI-Merge and MIDI-Filter units, whilst also providing a high power RS485 MIDI through output which can be used to boost the MIDI signal.

If Gordon Pearlman's IPS (Intelligent Power System) dimmers from **Entertainment Technology** are as successful as they appear potentially, we may have to re-write the book on 19" racks. For 36 of the 2.4kW chokeless, IGBT, universal plug-in dimmer modules, or 5kW at 240V, take up less room than a typical bathroom cabinet. And you can stack three of these on end in less than one metre of height. They even include diagnostic



Rick Wilson and Harold Berlinski of Le Maitre with Derrick Saunders of Pulsar.



Randall Altman (right) of Altman Stage Lighting with UK distributor Andy Neal of DLD Productions.



Bob and Rafael Hall of Anytronics promoting the Any Test One DMX device.



Duncan MacKenzie, Tom Young and Andy McArthur of JR Clancy, who launched several new products including LumaLift, a self-climbing lighting hoist and Shamrock 5000, a new rigging control system.



Jimmy Page of Syncrolite with Derek Pechman of Warlock, distributors of the luminaire.

talkback in the package. Glantre's Derek Gilbert, who drew our attention to this product, had been introduced to it as "the only dimmer rack which weighs less than the salesman," unfortunately some of the impact was lost on Derek since the guy in question didn't have the trim figure to match!

Colortran were keen to ensure that L+S's editorial team paid a visit to their stand and once there it was easy to see why, as they had no less than eight new products, including updated software for the Encore control desks which has expanded the channel capacity of all 24/48 and 48/96 models to 144 channels, a new SceneSaver back-up unit which receives and transmits DMX512, and two new DMX products - a splitter and relay controller. For the Medallion range of consoles there is now a hand-held designer remote, which provides control of functions such as running and editing cues, as well as recording submasters and groups, and Magic Sheet, a stylus/digitizer activated mimic pad, where commands can be created and edited, then assigned to any point on its surface, allowing the LD to use lighting plots as templates.

LDI was also the forum for the launch of Colortran's 'I' series dimming system built in a strong rack housing and featuring die-cast aluminium dimmer modules that span from 15amp to 100amp capacities. Each 48-rack module houses a fully redundant, completely digital control module system which accepts and transmits data over a wide variety of media. In addition, 99 dimmer looks with individual fade times can be stored in the control module's memory. Advanced patching/remapping features and pile-on priority levels allow each rack to receive, process and redistribute control information from direct DMX inputs and on the ColorNet Ethernet. Plus, it's got some nice self-diagnostic features too.

LSD were effectively demonstrating their new wash luminaire's ability to emulate a range of Par-like beam angles with a clever remotely



Colin Waters and Tommy Stephenson of TMB with the Mega-Lite 18 - an 18,000W incandescent fixture.



Cameleon's Roland Morvan (second, left) Marietta Batten and Jean-Yves Morvan (right) with UK distributor Jean-Luc Michaud of Alien Products.



Dennis Varian, Nigel Evans and Bill Hewlett, part of the design team for the new LSD Washlight.

adjustable reflector system. For even better results, a range of interchangeable lenses is offered. The company's Peter Johns was proudly showing off his 'detergent' packet promotion for the product.

The Martin and Tracoman combination launched several products new to the US market first seen at PLASA, including the Roboscan Pro 518, Robocolor Pro 400 and the Roboscan 812. Furthermore, with the American market very much in mind, a weatherproof 'architectural' version of the famous Roboscan Pro 1220 was also introduced. This, hard on the heels of the announcement of the second generation Roboscan Pro 1220 XR, with full DMX implementation and larger scanning mirror. During the Show, Tracoman and Martin staff stayed at the adjacent Clarion Hotel and Casino, which was singularly appropriate since a few days earlier 12 Martin Roboscan Pro 1220s with rotating gobos had been installed in the hotel's new tower. The idea, according to the Reno Gazette-Journal, is that the lights "can be seen from miles away". The strategic marketing link with Strand Lighting for the same product, announced during the Show, should open up new markets for Martin (see news story, page 6).

The Obie X-Scan, of both the Pink Floyd and Rolling Stones tours, was seen at close quarters for the first time. Its close cousin, Cameleon's Telescan, for which Obie is the US outlet, had their own booth nearby showing off the MKII, and the whole genial French crew were in attendance. Meanwhile, RK Industries were demonstrating a fascinating suspension system which enables luminaires to be slid into focus position at will on a grid system. This system, which may be familiar in the US, could have possibilities outside those shores, and caught the attention of several Europeans.

Strand Lighting, who are claiming a big success with their new Leko in the US, despite the intense competition from Source Four and Shakespeare, have also discovered that, despite decades of advice to the contrary, American theatre actually rather



The Obie team of John Roth, Mike Keeling, Patti Thurston and Dave Oberman.



Gordon Pearlman of Entertainment Technology with the IPS dimmer rack.



John Fuller and Tim Bachmann of Colortran with the new 'I' series dimmer rack.

likes European style luminaires and are now bringing them in, in substantial numbers.

They launched the 2/2.5kW Toccatto condenser spotlight and Videolux, a low energy soft-light based around the 36W compact florie and designed for TV studios. Their range of 'software-added' desks is making inroads also, as is the Premier network manager. The big launch at the Show however, was Strand's first attempt at a 'virtual' desk. The mid-range 430 and 530, quickly dubbed 'half past four' and 'half past five' by an observer, are, of course, named after the processors within. We say virtual, because they are designed to run a choice of operating software which enables either emulation of Lightpalette mode of operation, so that it will have a familiar feel to existing users, or with the Genius Plus package, a 'preset' style of management is implemented.

Add-on software includes Tracker, which enables programming of moving lights via direct access to the fixture's attributes, hence the logic of the association with Martin Professional, and Networker which provides connection to distributed inputs on the Ethernet system. Communicate Plus and Reporter are also available for this console. Sleek and neatly packaged, the desk only lacks a clear identity to ensure its success. No doubt this will be an on-going difficulty as we plough into the software age. How to avoid confusion between the platform and the software, while maintaining recognition?

Trussing was as popular as ever, with several companies showing their mettle. UK company Lite Structures were working with newly appointed distributors Tracoman, which should give LS a more than equal footing in the vigorous US marketplace. Tomcat had a new trussing system, the KT-II, a development they have been working on for the last six months, and which has recently found a home in such venues as the Tokyo Dome. It is designed to span 25 feet and carry 20,000lbs, but its best feature is its ability to fold flat, courtesy of a latching



Wayne Howell of Artistic Licence with MIDI-Scope, sister product to the DMX version launched at PLASA.



Headwater's enormous emporium designed to show their 22 new products to best effect.

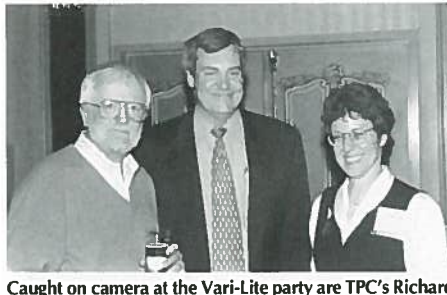


Jack Schmidt of Strong with the prototype version of the Super Trouper II.

concept. **Warlock** were also to be found at the show with their Mega Truss, carrying a bevy of **Synrolite** units for whom they are distributors. **Headwater**, the US link with Penn Fabrication, introduced no less than 22 new products. For the sake of sanity, we're going to concentrate on just one, the Staging System 2000, which is a fully levelling 40 feet x 40 feet system that can be set up in less than three hours by six people. It features total aluminium fabrication, is lightweight and practically tool-free to assemble. The 4 x 8 feet panels are a good deal lighter than conventional decks, and their surface is a newly engineered slip-resistant surface even when covered with water. We took their word on this last point, not wanting to get our TMB-issue socks wet. If you want to know about the remaining 21 - System 5000, System 1500, DT2000 motor system, safety systems and new dimming and control, you'll have to call Headwater in the States or Penn in the UK. The previously mentioned **Rosco** (whose 1600 fog machine incidentally is now in full production), had Light Shop, a Windows-based software programme for lighting designers, a range of seamless screens and three new colours of supersaturated paint.

Strong had a prototype version of the Super Trouper II which features a simplified xenon lamp housing with a completely redesigned lens mechanism. The axis of the bulb, the reflector centreline, the aperture and the lens system share a common optical centre, which should ensure quick, repeatable alignment from bulb to bulb. Many of the features familiar to users of modern xenon followspots remain unchanged, but there is a new, streamlined, self-contained lamp compartment which accommodates the 'short' 2000W xenon bulb. This requires no 'warm up', and an internal cooling blower is baffled for quiet operation. Strong's new DC Pulse Igniter requires no separate AC control circuit to provide instant xenon bulb starts, and a digital LCD display offers practical information, and, in the event of an ignition failure, spells out troubleshooting tips. With its new lensing designs, the ST II can now zoom from flood to small spot with only a mere 2" of movement on the spot size control handle. High speed optics, and high efficiency coated lenses combine to produce the best lumen-to-watt output of any Strong spotlight ever built. The product will be launched commercially at next year's USITT.

Skytracker, handled in the UK by Theatre Projects, introduced the Sky Tracker of America family of xenon sky beams aimed straight at Hollywood and the theme park market. Sky Beam II has a 14" Electroform reflector with a 1000W or



Caught on camera at the Vari-Lite party are TPC's Richard Pilbrow, Rusty Brutsché of Vari-Lite and latest addition to the team, Lee Magadini, who joins V-L from Vanco.



Strand's new 430 and 530 desks attracted a great deal of on-stand interest.

2000W xenon light source and built-in power supply that comes in either 120 or 220V single phase. The range builds progressively to the Sky Beam IV and Sky Beam VII, which feature 4000W and 7000W xenon light sources respectively.

Vari-Lite were at last able to launch the new Mini Artisan desk and, of course, were delighted to be able to show actual working models of the VL6, in prototype form last time around. Loren Haas and Tom Littrell told us that serious work is going on with the VL5 to identify accessible colour shades and hues as an aid to designers.

Then, last but not least, we have the product which most people must have seen on first arrival in the hall, the unusually named **Yag** Ultra Ray, 40W pulsed laser system. Yag is a truncated acronym for Neodymium Yttrium Aluminium Garnet (try to get your tongue round that one!), a man-made synthetic crystal from which this laser rod is made. Beyond that we won't go into the technicalities, just to say that Ultra Ray's output power of 40W at 532nm, produces an iridescent green, near the peak of vision sensitivity, which approximately compares to 100W of argon laser light. In high power operation the laser is pulsed at 25Hz and at this rate the pulse is unnoticeable. This has to be the most powerful entertainment laser around, unless you count Oxford's Copper vapour number used on the Floyd tour, yet it is tiny by comparison - no bigger than a typical robotic luminaire and, with power supply, weighs only 340 lbs. It uses only 10% of the power and water normally associated with lasers, and can run on single-phase power. An adaptable laser head, with a completely sealed resonator cavity and AR coated output window is available, into which the user can mount scanners, optics or optical fibres. At the Show it was demonstrated with four hugely impressive static beams via fibre heads. To our mind this is game, set, and match - the only issue is, can they make it safe for use indoors within PM19, perhaps with a lower power version.

One of the most interesting developments of



Mitch Clark, Michelle Voiles and John James of Tomcat.



Bill Spears, David Scheirman and Reek Havok of Lone Wolf with their Media-Link system.

recent years has been the increasing number of sound companies attending the show - this year a figure boosted to 31. As many of those attending have been covered in the AES report on pages 52-53, there's no merit in going into detail here, but there is one development which started life as a sound-dedicated product and which is now crossing the borders into lighting applications, worthy of mention. **Lone Wolf** were at LDI demonstrating their MediaLink networking system which can be used to provide control of both lighting and sound systems. Since MediaLink is a packet-type protocol and data carrier, it is independent of the command language used, and should simplify the connection of lighting system components to personal computers. It works in tandem with Lone Wolf's Visual Networking Operating System (VNOS) designed to make control and monitoring of dimmers much more straightforward, whether you fall in the Mac or Windows camp. Lone Wolf license the technology to a growing number of manufacturers, notably Apogee, Carver, EAW, JBL, Klark-Teknik, Toa and Yamaha. From this list it's clear that this is a protocol which finds favour with many AES members.

The show was larger than previous years and would benefit from a fourth day, though there was a regular noticeable thinning out by mid afternoon. Whether this was down to the workshops or the advanced military tactics required to get away from the Sparks Convention Centre will never be known.

Reading the Reno brochure on the flight home, it was interesting to learn that the city is claiming to take entertainment into the next century with 'Project C', a spectacular themed casino/resort featuring a 16th century Spanish seaport on the island of Atlantis, home of the lost city of Gold in its attempt to acquire 'Vegas' appeal. Whatever next? You can get pills for it you know, but count us in all the same. Meanwhile, we look forward to next year in muggy Miami. Can't wait.

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The course has been run over a period of eight years in America and was brought to Europe for the first time in Edinburgh in March 1993. Since then, successfully run in Munich in February '94 and October '94 in Hamburg. With over 240 students from 13 countries the course is one of the few ways of gaining instruction in the field of rigging.

The 8 days of intensive theoretical and practical rigging skills cost: DM1100, - plus 15% VAT.

The costs have been kept to a minimum to prevent this being an obstacle to those who may not be in full employment. For registration details contact:
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EQUIPMENT *News*

EAW MX8000i at LTP

Lighting Technology Projects have announced EAW's new MX8000i close coupled network processor, which ushers in a new generation of network addressable speaker processors, and the addition of the new EAW KF853 ultra long-throw stadium array system to the Stadium Array series.

The MX8000i is a mono four-way crossover with asymmetrical filters, HF horn EQ, LF cone excursion protection and three sub woofer modes. In addition, each frequency band has peak amplifier clipping protection limiting, as well as RMS limiting to prevent thermal overload. Limiters can be monitored and adjusted remotely using a computer through the serial control port or the optional Media Link card and advanced proprietary version of this widely accepted network audio control interface. The MX8000i also includes a direct sub woofer input.

The KF853 maintains the same frontal area as the KF850E, KF852, BH852 and other Stadium Array systems, but this system is purpose-designed to project midrange and high frequency energy over long distances. EAW engineers, under the direction of Kenton Forsythe, have developed advanced high frequency technology to meet the output demands of arenas, stadium concerts and outdoor festivals.

For further information contact Lighting Technology Projects in London, telephone 0181-965 6800.

Big Brother for Denon Twin CD

The success of the Denon DN-2000F twin CD player has led to the appearance of a big brother. The DN-2700F incorporates 16-bit sampling, jog wheels and extensive custom programming.

For further information contact Hayden Laboratories in Gerrards Cross, telephone (01753) 888447.

Selecon's New Accent

The latest addition to Selecon's Accent range of low voltage and metal halide display luminaires is the Frodo. A low voltage miniature fresnel, the Frodo provides a smooth, even field of light in a controlled beam which is adjustable between 16 and 45 degrees.



The Frodo takes all the standard Accent accessories, including the four flap, rotating barndoor, colour frame, suspension clamps and ceiling mount rose. Track adaptors include the Eutrac universal three circuit unit which mounts to Guzzini, Staff, Erco, Nokia and Hoffmeister tracks. Finished with a light texture epoxy resin powder coat in black or white, with special colours to order, the Frodo is available with or without an integral transformer.

For further details contact M & M in London, telephone 0171-284 2504.

New Topaz

Following in the footsteps of the Soundtracs Topaz eight bus project console is the new Soundtracs Topaz fader and mute automation system package.



Utilising a PC (a Mac version will be available shortly), this powerful system enables the recording, replay and editing of VCA fader movement to frame accuracy and mute information to quarter frame accuracy. Detailed graphic display, off-line editing, MIDI machine control and track-lists are included.

For further information contact Soundtracs in Surbiton, telephone 0181-399 3392.

Multiform 'M' Range

Multiform have announced that the 'M' range of smoke machines and their Mini 12 manual lighting control board, both first seen at PLASA 94, are now available in stock.

The 'M' range comprises the M1 high-power portable aerosol machine, the M2 high-power pump machine and the M3 turbo fan assisted machine. All feature sophisticated temperature control circuitry, plus a thermal safety fuse, and include an interlock to prevent the production of wet smoke if the block is too cool.

The machines can all be controlled from their own remote control unit, but because they use the industry standard of 0-10V control they can also be connected to any lighting board or DMX decoder for concert or club use. All machines include an easily cleaned sintered bronze fluid filter to ensure that no foreign materials are allowed into the pump or heater block.

The Mini 12 provides individual channel faders and flash buttons, plus a master fader and blackout switch. The unit, which occupies two units of a 19" rack, can also be table-top mounted using optional end cheeks. It is powered from the DC output of the dimmer packs that it is used to control, and is fitted with two eight pin locking DIN sockets at the rear. For further information contact Multiform in Uckfield on (01825) 763348.

SM12 for Blue Box

Soundcraft has delivered the first SM12 stage monitor console to PA hire company, Blue Box. Purchased through LMC Audio Systems, the 40 input console will be used for a variety of projects from one-off corporate shows to full tours.

Available in 32, 40 and 48 channel frame sizes the SM12's modular design meets a wide variety of on-stage specifications, whilst working equally well as a front-of-house mixer.

For further details contact Soundcraft Electronics in Potters Bar, telephone (01707) 665000.



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NEWCASTLE - Sound Electronics: 091 281 4248 • OXFORD - Lancelyn Theatre Supplies: 0865 722468 • TAMWORTH - Light Opera: 0827 693822.

Seven BAMs for Luna Tech Euro

Luna Tech Euro have achieved BAM certification numbers for seven of their new stage pyrotechnic products.

The BAM certification ensures that the product has been tested by the Bundesanstalt für Materialforschung und-prüfung in Berlin. It is necessary for all pyrotechnics which are imported, sold or used in Germany to have this certification. Without it, show permits cannot be obtained from local authorities. Luna Tech now offer more than 30 stage pyrotechnic products with BAM certification numbers.

For details call Luna Tech in Germany, telephone +49 4353 643.

Yamaha MX200

Yamaha has launched a new professional quality console into the most competitive sector of the mixer market. The MX200 is a live/general purpose mixer with stereo and mono output busses and available in 8, 12, 16 and 24-channel configurations. The MX200 is equipped with selectable A/B XLR and jack inputs, 3-band EQ and four aux sends on all channels, left and right stereo and mono output busses for maximum operational flexibility, and has a particularly clear and logical layout for ease of use.

A/B switching on channel inputs, allows, at the touch of a button, selection of either balanced XLR input for mic sources, or balanced quarter inch jack for line level instrument inputs. Phantom power is available via the XLR connectors, and the jacks will also accept unbalanced signals.

For further details contact Yamaha in Milton Keynes, telephone (0198) 369269.

Community CSX-S2

PLASA saw the launch of the Community CSX-S2. Designed for playback in mobile or fixed situations, the new loudspeaker line from Community features 11 models ranging in size from a compact two-way enclosure to full-range systems and subwoofers.

Each CSX-S2 features ferro-fluid cooled woofers and custom corner protectors have been added along with new acoustically-transparent grilles and routed faceplates which allow the drivers to be flush-mounted. As a safeguard, each device is equipped with Community's PowerSense proprietary circuitry, which constantly monitors the operating power levels and provides a positive indication of overload conditions.

For more details contact Sound Dept in Oxford, telephone (01865) 516800.

MPC65 Effects Mic

Beyerdynamic have launched the new Boundary Effect condenser microphone, the MPC65. It is ideal

for any application where it is essential that the microphone be unobtrusive. Its polar pattern is semi-cardioid, so sound from the rear of the microphone is excluded, which is important in theatre use, and where multiple mics are required.

The MPC65 features a flat frequency response between 65Hz and 18k Hz. A low-cut filter is provided on the separate pre-amplifier/adaptor to eliminate low frequency rumble and surface noise.

For details contact Beyerdynamic in Lewes, telephone (01273) 479411.



Electro-Voice PI Series from Shuttlesound

The PI Series enclosures were first seen at the recent PLASA show. Designed with the contractor and sound system consultant in mind, all large scale permanent installations including sports arenas, stadia and theatres are candidates for the PI line.

Electro-Voice's latest range of cabinets is the first group of permanent installation loudspeaker systems to combine concert sound performance and quality with the directivity control of large-format constant-directivity horns. There are 10 models in the range, all of which are designed to fly with each other in any combination, providing the contractor with every possible option when specifying a system.

The mid-bass/high-frequency modules in all PI Series enclosures are coaxially mounted, and the horns may be rotated through 90 degrees for coverage that is independent of enclosure axis orientation thus allowing the horizontal and vertical coverage patterns to be interchanged.

For further information contact Shuttlesound in Mitcham, telephone 0181-640 1900.

Megas II

The new Megas II Monitor has now been released by Soundtracs to complement the Megas II Stage front of house desk.

Available in four frame sizes - 24, 32, 40 and 48 channel- this new Monitor console provides 10 monitor mixes, plus stereo fills. A five band equaliser is on every channel along with dual band variable Q-notch filters on the monitor outputs.

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ASLEEP IN THE STALLS

The most fascinating exhibition of British theatre design in action - and the first since 1987 - has just finished its run as part of Manchester City of Drama. *Make Space!* included set and costume design, theatre architecture and, for the first time, lighting design. From this exhibition will be chosen the British entries for next year's *Quadriennale*, the world-famous theatre design jamboree which will take place in Prague from 26 June to 16 July. I'm not going to talk here about *Make Space!* - that can come in the next issue; instead I'd like to whet your appetite for Czech theatre and start you saving up for that air fare next June. I'm just back from Divadlo '94, an intensive four-day jolly that gave a quick introduction to what's going on there and in neighbouring Slovakia. It was held in Plzen, more familiar (and more pronounceable) as Pilsen, where the lager was invented and where it costs 50p a pint - surely recommendation enough. As well as the brewery, and the Skoda works (Skoda drivers might like to know that Skoda is the Czech word for pity, which explains quite a lot . . .), this town of 170,000 inhabitants can boast three civic theatres, including a 460-seater mini-replica of the superb national theatre in Prague, which between them put on 580 performances a year of opera, ballet, musicals and straight theatre. Imagine that in, say, Wolverhampton.

Apart from star guest appearances from our own Cheek By Jowl, with their stunning all-male *As You Like It*, and the fashionably inventive Lithuanian director Eimantus Nekrosius, whose company played entertaining games with a couple of Pushkin's 'short tragedies', the weekend's theatre and the intensive discussions that accompanied it were strictly Czech and Slovak. After Vaclav Havel's 'Velvet Revolution' the theatres of both countries have declared themselves to be 'in crisis', but they each have a different crisis - if they have one at all that we would recognise. In Slovakia the old tradition of centralised subsidy for a few favoured groups and suspicion of anything too innovative has hardly changed. In the Czech republic, although the old pre-Havel philistine hard liners have been weeded out, the structures are still much the same, and (to judge from Plzen) subsidy remains at a level that would be the envy of any English regional house. In both countries theatre is still in something of a privileged position, with far less competition from movies and TV than our theatres face, and relatively cheap tickets still making it an easy choice for a night out. The crisis lies in making theatre relevant to an audience that has been used to seeing it as the focus of dissent, when - in the Czech Republic at least - there is much less to dissent about, and much more open means of expressing it anyway.

Perhaps it's not surprising then, that the big Slovak entries were fairly undistinguished. We saw a *King Lear* from the National Theatre in Brno (directed by Roman Polak, whose work has been seen at the Edinburgh Festival) which moved along swiftly enough on a very functional RSC-style slatted rake, but featured one of the shortest and silliest storm scenes I've witnessed, with Lear and the fool spending a couple of minutes under a shower bar quite unaccompanied by any sign of wind, thunder, lightning or other possible effects. It all suggested that Lear's problem might not be madness, but a nasty chill. There was more to admire in the Bratislava National Theatre's production of Schnitzler's *Undiscovered Country*, where some strong acting skills were on display in this tangled but elegant sexual quadrille of a play.

"To take such a radical, yet inherently faithful, look at an old favourite is the mark of a very special director indeed."



'The Seagull' - director Peter Lebl wreaks havoc with Chekhov.

The Slovak critics themselves were more interested in the work of a couple of independent companies in small-scale, devised work, a new idea to them but one which can be seen all over the London Fringe, where the same economic constraints operate - if not the political ones. Still, the work of Blaho Uhlar with the Bratislava group Stoka (which translates, I'm afraid, as Sewer) in a series of sketches built by group improvisation had a considerable, miniaturised charm. Like other groups in the festival Stoka had to cope with a completely different atmosphere, compared to their own theatre, in their performing space, in this case the city's fine new 400-seater children's theatre. It was here, too, that Prague's Reznicka Theatre had to stretch out a tiny club production of *Hello Dolly*, which they managed quite well. The fascination of this *Dolly* was that the company had gone back to Thornton Wilder's *The Matchmaker* for the text, cutting back on the big Jerry Herman scenes and chorus numbers to leave a chamber piece that played well with a cast of nine and a four-piece band. Easily portable mini-tower scenery and a good stock of fairy lights made the transitions from Yonkers to New York smooth, and the whole evening had the easy, unassuming feel that comes from a group of straight actors moonlighting on a musical. The real find of the festival, however, was a young Czech director whose name is going to be heard a lot outside the republic before very long. Peter Lebl is only 29 and this year took over the direction of the Theatre on the Balustrade, the tiny 170-seater Prague theatre made famous by the late Jan Grossman with productions such as his adaptation of Kafka's *The Trial*.

Already Lebl has stirred up huge controversy and you could see why from the two productions he had on show at Pilsen. In *Our Swaggers*, the outside observer wouldn't have realised quite what degree of sacrilege he was committing on a nineteenth century Czech classic, a sort of

peasant *Our Town* - to me it just looked like Smetana's *Bartered Bride* without the tunes - but when he takes *The Seagull* by the scruff of its neck and wrings all manner of unexpected laughs out of it, you know you're watching a real, dangerous talent at work. Imagine the slapstick conventions of Chaplin's silent movies imposed on

Chekhov's more sedate concept of farce, with one or two more recent innovations like entrances and exits made (with becoming dignity) on a skateboard, and you'll have some idea of the havoc Lebl wreaks. All this would be unforgivable if the play was only being milked for cheap laughs, but after the interval (not taken until after three long acts have passed) there is a complete trans-formation: two years have gone by and the characters are not only sadder and wiser, but in one case terminally ill. Designer William Novak draws a protective gauze over his stage and costume designer Katerina Stefkov's black-and-white costumes retreat to pure white.

The action is viewed for a while as if outside an operating theatre, with shadowy figures moving within. The gauze is only fully ripped away when a black-clad Nina (amazing performance from Barbora Hrzanova, revealed as a brilliant natural comedienne in both shows) returns with her virginity lost and her Tinseltown ambitions shattered. All the frustrations and lost dreams of Chekhov's characters are painfully on view, and the hilarity of the past is stood on its head to achieve a finale to treasure. To take such a radical, yet inherently faithful, look at an old favourite is the mark of a very special director indeed - remember the name, it's Peter Lebl.

The stage staff of Plzen's theatres did wonders too, in the four days of the festival, mounting 14 productions in three theatres, most of them requiring far from simple sets - *The Seagull* required not only set changes, but a ballet for flymen as one of its settings danced in time to the incidental music. One show, a one-act piece by the Czech absurdist Josef Topol (played by Czech semi-pro actors in impeccable, highly idiomatic English), had both players and audience on the opera house's main stage only an hour before it was to become the setting for the festival's non-theatrical highlight, a chat between President Havel and his friends Arthur Miller and Tom Stoppard. Not a single curtain went up late in the four days.

If you can make it to Prague next summer, you can expect theatre of this standard, with technical skills to match. You'll have the added bonus of being able to visit some of the most interesting theatre buildings in central Europe - above all, the magnificently restored Estates Theatre, where Mozart's *Don Giovanni* had its first performance. The National Theatre (who, interestingly, weren't selected to take part in Plzen's festival) still play Mozart there, alternating with straight plays from the likes of Gogol, Goldoni, Ibsen, Racine and Shakespeare, all in the current repertoire.

Ian Herbert

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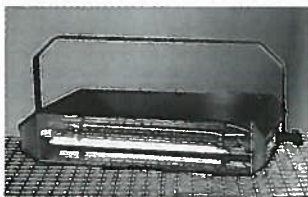
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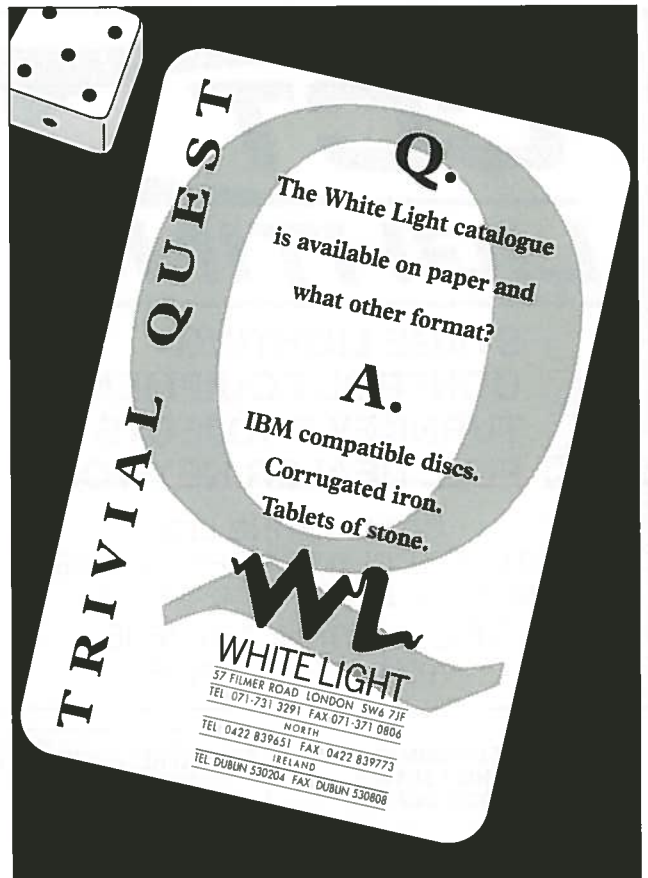
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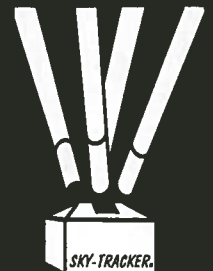
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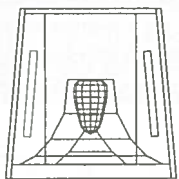
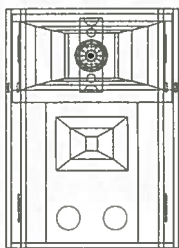
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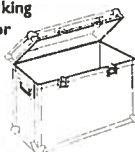
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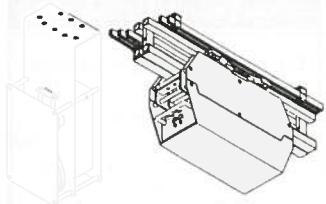
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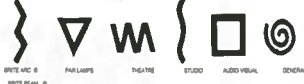
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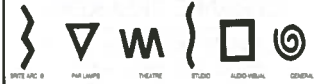


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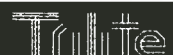
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VIEWPOINT

John Watt's New Year Resolutions

It seems to me that we television types are the most traditional of the lighting designers featured in this magazine. The concert lot are still very new, and have never been inhibited by knowing what can't be done; you only have to look at their dimmers to know there are far too many in a small box not to overheat and go up in smoke. And that's if they ever get rigged at all, given there are 25 tons of stuff to move to a new venue every day. In the theatre, the new generation - the dirty Apple Mac brigade - can plan their multi-million pound rigs months in advance and rebuild the theatres to accommodate them if needs be.

OK, occasionally TV designers get a bit carried away - Messrs Lythgoe and Pearce never do a production that costs less than a thousand pounds a shot, whereas I am more of a thousand shots for a pound man - we coarse lighting men have an ethic of get something up and running (lamp at each corner if all else fails) and then tweak it properly if you can before someone rolls the tape.

So, Mr. Murdoch, it's we who are the traditionalists, working in a traditional world. At this time of year, reverting to type, we ponder hard on what resolutions we can make that can advance the cause and leave the wonderful world of TV a better place if we should get the wrong side of an un-PAT tested ballast, or just conk out on an exclusive diet of Big Macs and Fruits of the Forest pie. I offer a few suggestions which you may care to place into your resolutions for '95.

1. Only use a dual purpose lamp for drying floor paint.
2. Never attempt to operate a pole-operated lamp with a pole.
3. If you manufacture pole-operated lamps, supply a free pair of steps with every 10 sold.
4. Never climb a tallscope without a parachute.
5. Only purchase lighting consoles that display the managing director's home phone number on the mimic.
6. Only hire moving lights from a company whose MD's mistress is known to you.
7. Never assume all barrels are 48mm in diameter.
8. Assume all manufacturers of gel strings sub-contract to St Dunstons.
9. Arrange hourly calls to your mobile phone so that you appear to be in great demand - maximum impact is made during takes.
10. Dress down - no one takes an LD seriously who wears a tie or a sports jacket.
11. Try to find enough budget for moving lights, regardless of the type of show whether actually needed or not (see below).
12. Move them all the time, preferably off the beat.
13. Always light cycs in blue - forget the other 800 colours available - Directors like blue. They particularly don't like green -



Well-known TV lighting designer John Watt has many programme credits to his name and has recently been elected chairman of the STLD.

God got it wrong luvvy.

14. Double the size of the crew if working in or near a pub to overcome natural wastage.
15. Halve the size of crew if shooting bedroom scenes (they all fight for the privilege of setting the lady's key and don't notice the passage of time).
16. Only use manufacturers' performance figures for followspots as useful lottery numbers.
17. Never never believe a director who says "I won't use that shot in the edit".
18. Never never believe a director who says "I will cut wide for the lighting change".
19. Always bash scaffolders over the head with a spare length of tube to get their complete and undivided attention before issuing instructions.
20. Defend all out of focus and under chroma pictures with the phrase "we're going for the film look".

But resolutions, no matter how well intentioned, tend to be forgotten long before the month's out, so what will the reality of 1995 really be? In spite of my normally optimistic nature, I do wonder how market forces will manifest themselves on us hack lighting men in the coming year. The rate for the job goes steadily down in inverse ratio to the cost of living. As all those pensioned-off company lighting directors with handsome golden handshakes swell the freelance list (nobody retires), some, who will remain nameless (but watch my eyes) work for the fun and camaraderie, plus £50.00, with never a thought for keeping the rates at a respectable level. Meanwhile, discounting amongst the hire companies is so rife that as one managing director told me, they will all go bust - even with all the stock out and working, so unrealistic are some rates. I suspect this is exactly what Mrs. Thatcher wanted, but then she never claimed to be a photographer, or in the entertainment business.

Presumably, budgets will continue to be pared down by the new breed of production managers (has a history degree, looks good in a skirt and thinks a 5k is their Christmas bonus), who see lighting as a soft target and don't notice the resultant three nose shadows created by someone's inept efforts with a kit of redheads.

Incredibly, there remains some strange ethic still built into the psyche of most lighting designers that makes them strive for quality, no matter how short the time, how basic the equipment or how tight the budget. I suppose, like me, they all have very bad memories and consequently cannot remember what a lousy struggle it was getting results on the last series.

Have a good Christmas and a fighting New Year, and you may yet win the L+SI Award to TV LD's inscribed unoriginally "Don't let the B***** grind you down."

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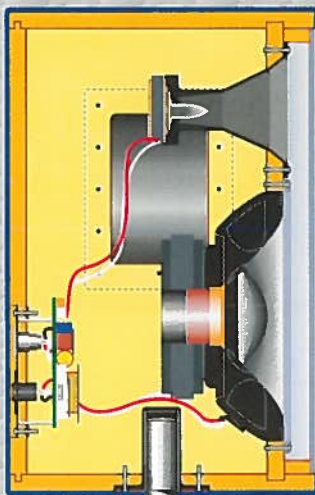
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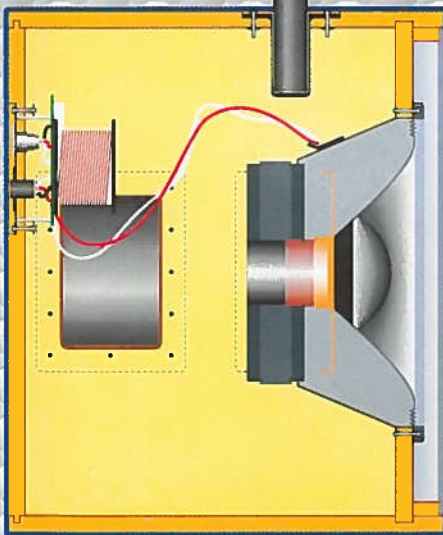
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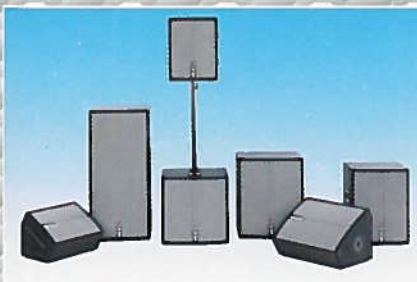
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