

LIGHTING+SOUND *International*

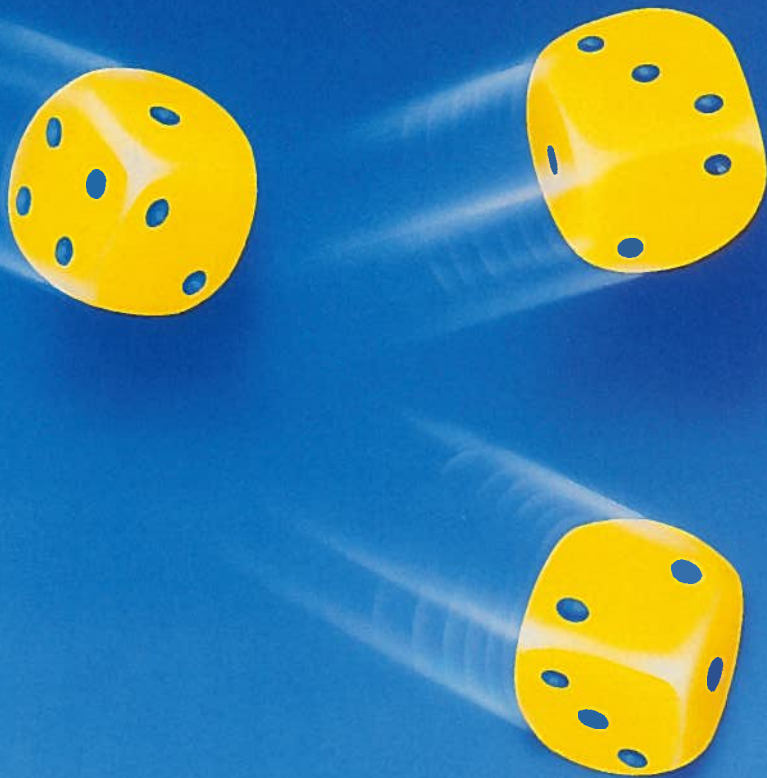


EROS RAMAZZOTTI IN ROTTERDAM

- Automated Luminaires: a major L+SI survey
- Tony Gotteller with reflections on Ramazzotti (Rotterdam)
- Radio Mics and the Spectrum Police
- Hair: Robert Halliday and a double take
- Ken Dibble reviews Cloud's new stereo compressor limiter
- Park Avenue's BMW Frankfurt ride

NOVEMBER 1993

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Chris James

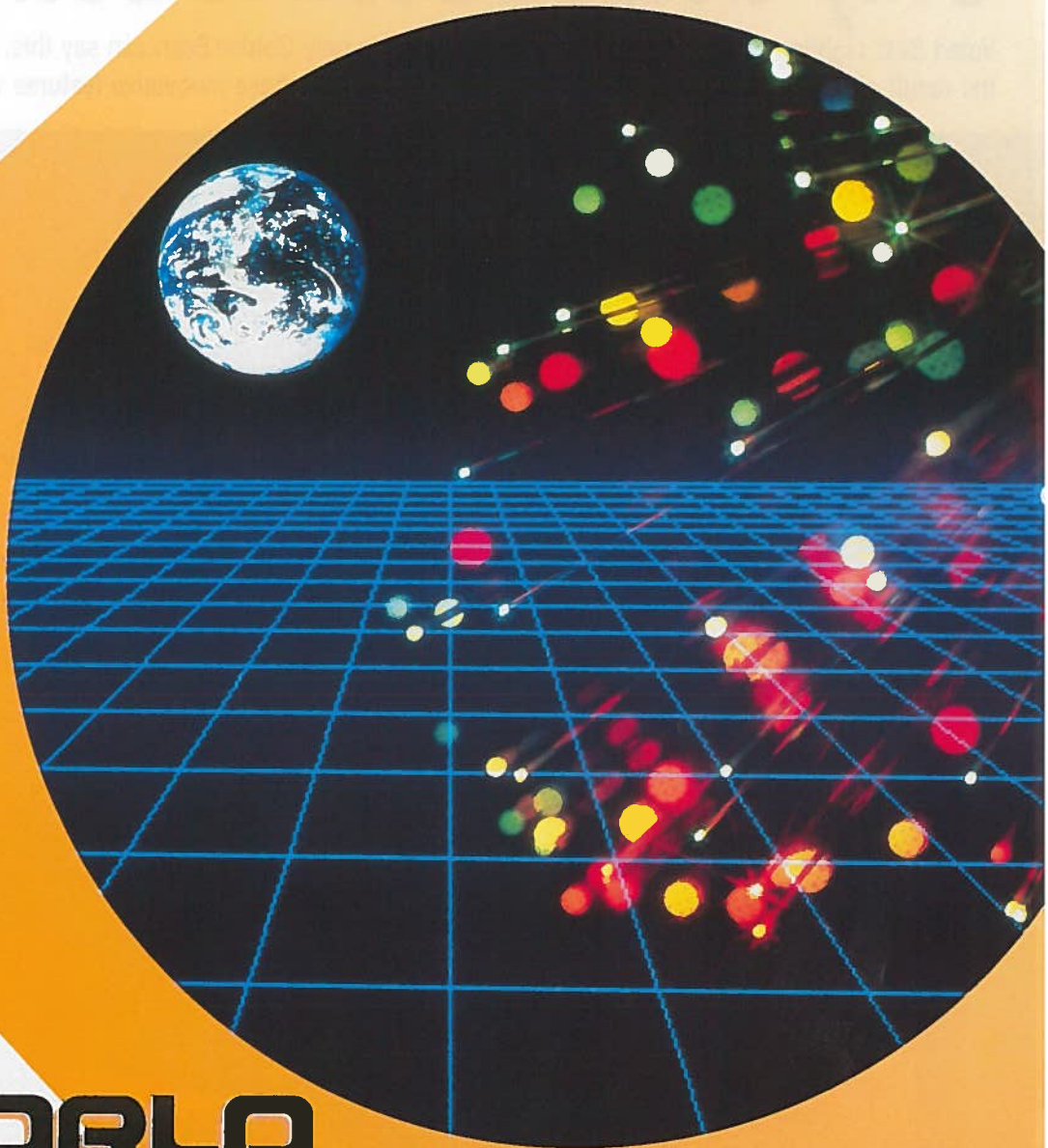
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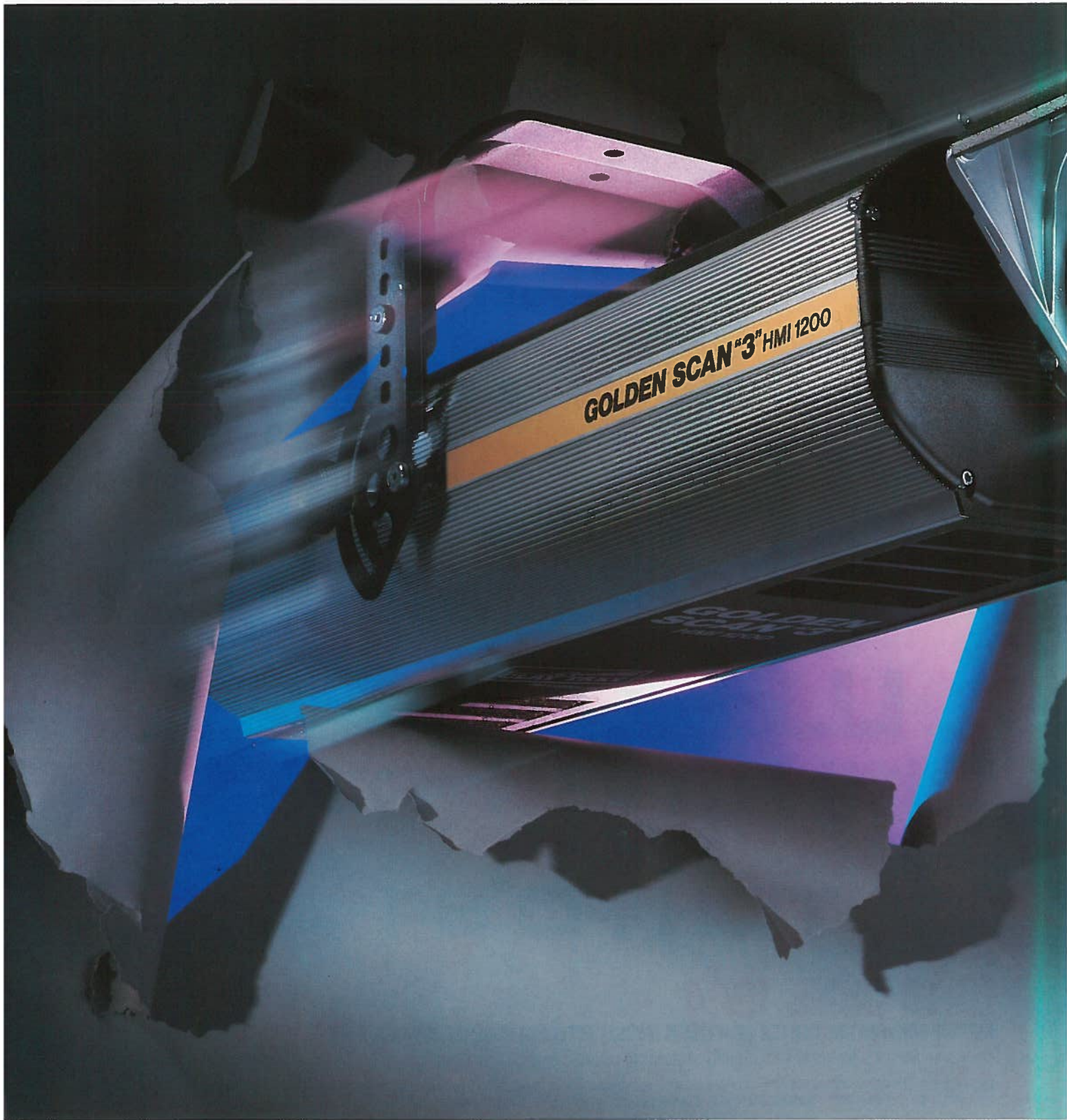
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LIGHTING+**SOUND** *International*

NOVEMBER 1993

VOLUME 8, ISSUE 11

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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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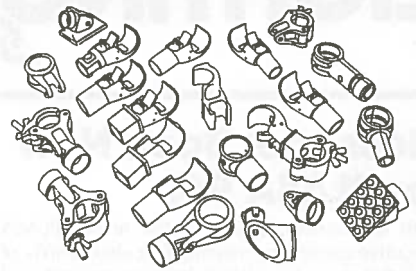
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PLASA
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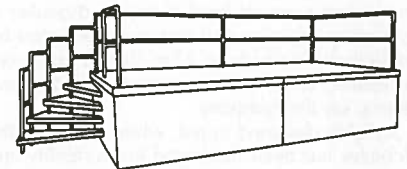
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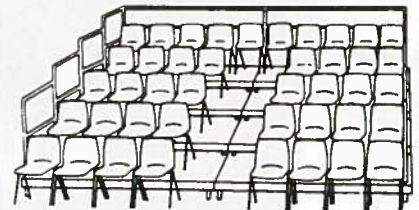
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LIGHTING+SOUND International News

Message: Book Now for PLASA 94!

With the announcement at the recent PLASA executive committee meeting that almost 80% of available space has already been contracted, and with the 'no sound' area almost fully booked, companies interested in taking prime sites are urged to make early contact with show organisers Philbeach Events Ltd. The situation has posed a problem for PLASA's officers and committee. Expanding into part of the north hall is now being considered and talks are in progress with other associations who have shown interest in backing PLASA's efforts to further develop the event. Whatever evolves, our advice is to **BOOK NOW** while you still have a sure chance of a site!

Audix Offer

Audix Communications has produced a sound system design 'slide calculator' to provide the exact sound pressure level of any loudspeaker at any wattage tapping and distance. Designed for simplicity and ease of use, it has already been used successfully as an aid in numerous sound system designs, say the company.

Stylishly designed in red, white and grey, the calculator has been laminated for durability and fits neatly into a personal organiser. Anyone wishing to receive one should write to Alan Bond, sales director at Audix Communications Ltd, Station Road, Wendon, Saffron Walden, Essex CB11 4LG or call 0799 540888.

Cirro Lite for Dedolight

Cirro Lite (Europe) Ltd have been appointed the UK agents for Dedolight. Alongside the sales operation they will also be running a comprehensive rental service from which many of the more specialized Dedolights will be available in the UK for the first time, including the 150W 24v kit and the 3200k cold light. A large selection of lens kits, many new accessories and standard kits will also be on the shelf.

Dawkes Leaves LSD

Light & Sound Design have announced that managing director Steve Dawkes has retired from the company to pursue his other areas of interest and that as a result of this, the management team at the company has been restructured.

Nick Jackson, who is based in Los Angeles, has assumed the role of president of the combined company, reporting to chairman Tim Hutton. Both are part of the UK management board on a non-executive basis.

The full UK management board reporting to Nick Jackson consists of Peter Johns (general manager), Simon Austin (sales director), Terry Lee (production director) and Bill Kane (finance and administration). In addition, Kevin Forbes (hire operations manager) and Chris Cronin (fabrication and external sales), along with the representatives of the management board, complete the newly-formed management forum based at the company's Coventry Road premises.

L+S1 understands that Steve Dawkes has purchased a farm in Warwickshire. An official statement from LSD wished him well: "All of his former colleagues wish Steve every success in his new venture, and thank him for his contribution and help over so many years."

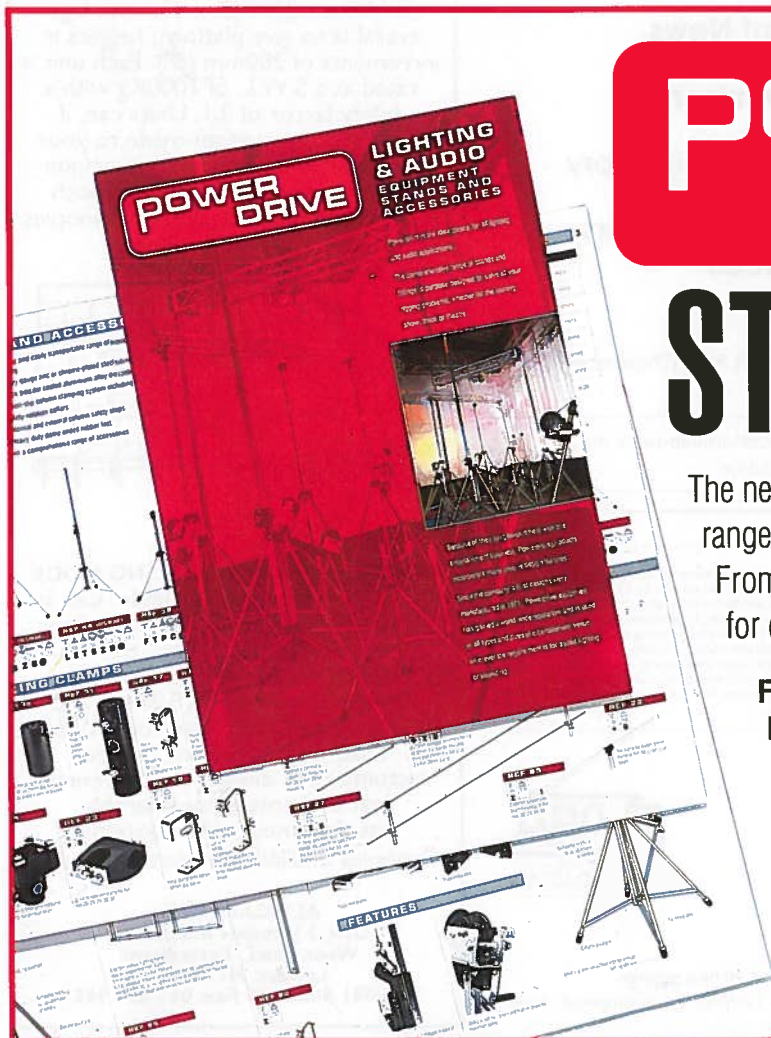
Pulsar Join Forces with Industry 15

Pulsar have announced a streamlining and restructuring of their distribution network. 15 of the UK's leading lighting companies have joined forces with Pulsar as CP&P UK resellers to endeavour to provide an extensive, efficient and supportive network of customer service. Derrick Saunders, Pulsar's sales director, told L+S1: "The resellers are the elite of our industry and working as a family will offer outstanding levels of sales service and technical support."

Product training also plays a vital part in the new scheme. The now well-established Pulsar in-house monthly seminars will be available to all the resellers on their own premises. Andy Graves, project support manager, will be responsible for organising these seminars and Pulsar will be expanding their range of courses for 1994. The first Reseller Training Day has already been confirmed with Sound Electronics for January. For details contact Pulsar on (0223) 66798.

New Australian Show

The owners of Australia's fast-growing Connections magazine have announced that they will be presenting Entech, a new biennial tradeshow event, on October 6, 7 and 8 1994 at the Sydney Exhibition Centre. A prospectus will be available later this month and copies can be obtained from Connections magazine in Sydney on (02) 876-2612.



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4,980,806; 5,010,359; 5,031,078; and 5,073,847. Japan Patent No.
1,742,923. All other world-wide patents granted or pending.

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Tel: 0212 36300 Fax: 0212 33982**United Kingdom****AC Lighting Ltd**Contact: Glyn O'Donoghue
Tel: 0494 446000 Fax: 0494 461024**Hare Trilogy Slides**

DHA Lighting Ltd has been responsible for producing over 160 Pani slides for 'The Absence of War' which opened recently at the National Theatre and which completes David Hare's controversial trilogy of plays which began with 'Racing Demon' in September. The slides were printed onto Cibachrome transparency material using P3 drum-processing. The original images were provided by Mark Douet who, working to Richard Eyre's brief, supplied the artwork in a format largely dictated by the shape of the screens onto which the slides were to be projected. In 'Murmuring Judges' and the 'Absence of War' these screens were a series of three 7mx10m back drops with an additional cloth flown in mid-stage in the latter production. For 'Racing Demon', however, a single screen was employed and this a narrow, letter-box shape.

The angles at which the Pani BP4 projectors were rigged necessitated the inclusion of a considerable amount of distortion to enable each image to fit the relevant screen precisely from the given projector points. This was done in-house by Wyatt Enever (pictured above) who, once he had calculated the shapes for the double plane distortion, used a 5" x 7" monorail Cambo camera with full movement to shoot a master image of each artwork. These masters, shot onto 5" x 4" Ektachrome T64 film, were then printed onto Cibachrome transparency material and mounted into Pani glassless slide mounts. The same Cibachrome process was used for all 165 images, both colour and black and white, since the intense heat given out by the Pani BP4 would create an unacceptable amount of burn-out or fading on a less resilient material.

These hand-produced slides can be seen in use in the Hare Trilogy at the National Theatre until the end of November.

L+SI for Alderney

L+SI can now claim total readership coverage of the island of Alderney in the Channel Islands with the addition of Ken Thompson to our mailing list. Formerly the tiny 2200 population island's telephone manager, once it became known Ken had some experience in stage lighting he was soon entrusted with the role of honorary lighting and sound designer, constructor and operator for Alderney's total entertainment programme. 'Technician manque' might be the term he would use, but taking a look at the range of entertainment involved across two venues, L+SI reckons he knows more than just a thing of two.

Recent visitors have included no less than Nigel Kennedy and Ken Dodd and numerous one-man shows and small events are organised in addition to son et lumiere productions. Local talent is well to the fore and helps keep the Island Hall and a modest 100-seater theatre-cum-cinema busy. When Ken began his involvement, the lighting equipment consisted of two 10 foot lengths of tongued and grooved floorboard "with batten lampholders screwed thereon" and a set of wooden footlight boxes which could be hung on the front of the stage. "The control board was a square block of wood with four five amp domestic light switches on it," he told L+SI. They have moved on since then - but not yet as far as memory boards or lasers.

"One way or another, lighting and sound are alive and well in Alderney," he told us.

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The control area heavily populated the range of MA Lighting desks.

Festival in the Forest

With most of its 15,000-visitor audience appearing out of their temporary tented forest homes, the festival at Skanderborg in Denmark, now in its twelfth year, provides a wide range of quality bands over its three-days of residency. And although the festival is not the largest in the country, it has a very high reputation, with a lakeside setting and provision of excellent technical facilities.

Two of the three main stages are linked, and bands play alternately whilst a third is tent-bound and meant for smaller bands. Responsible for lighting of the two main stages for the past 10 years is Gogler Lys of Arhus, and for the past two years Lightpower of Germany have supplied the appropriate control equipment. This year Henrik Hambro was in charge of the lighting design and Thomas Brockmann for the truss layout.

With two different layouts (one is built around a tree!), the lighting rig was specific to each stage. On the left-side stage there were 104 Pars (10 with Lightpaint changers), six Par floorlamps, 16 ACL's, eight Superscans, four GoldenScan 3's and four MiniScans. On the right-side stage were Pars and

ACL's, changers, a Thomas 8-Lite, 12 GoldenScans and two TigerScans. With no light from the front, side lighting (where necessary) was provided by three four-bars with Par lamps as well as by outlets with four Par spots in each. The natural light of late Danish nights in high summer gave adequate support! Two Niethammer followspots were employed.

Control was provided by MA Lighting 90-LCD and 120-LCD boards, two Scancommanders and one Light Commander. The Scancommanders were connected to the LCD's by DMX and employed as slaves, whilst the Light Commander ran special effects.

Vari-Lite Austria

Vari-Lite Europe has announced the appointment of a sixth sub-distributor - Vari-Lite Austria - to be based just outside Vienna.

The new operation will maintain two systems of Vari*Lite series 200 and 300 luminaires and the first production using them will be Kiss of the Spider Woman which is due to open at the end of this month in Vienna's Raimund Theatre. The rig will consist of 12 VL2Cs and six VL4s.



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Laser Media Las Vegas

Laser Media Inc, of Los Angeles, has completed the production of a unique outdoor laser feature as well as indoor effects at the new Luxor Hotel/Casino in Las Vegas, Nevada.

Recently wrapping up the production and installation of the successful 'Festival Fountain' project at Caesar's Palace's Forum Shops also in Las Vegas, Ed Auswacks, President of Laser Media and head of special projects, has moved down the strip creating another architectural feature for the Luxor built by Circus Circus Enterprises which opened in October.

Ed Auswacks told L+S: "Our mandate was to create an outdoor feature at the front of the Luxor, drawing people in from the strip. We incorporated our newest laser technologies along with high power scenic projectors and special lighting effects. What is unique about this feature is that all these visual elements are projected onto a 60 foot wide by 40 foot tall screen of water." Auswacks insists it is not a show, but an unusual architectural piece to attract people to the hotel. The hotel itself has an Egyptian theme with a monolithic 125 foot Sphinx and a 130 foot high obelisk positioned outside the hotel.

The scenic projectors will project Egyptian-themed images onto the water screen shot up from the middle of the reflecting pool while lasers, lighting and fountain effects enhance the look and interact with the scenic projections. Extensive research and development went into creating the water screen and preliminary concepts with a live demonstration convinced Circus Circus executives that Laser Media were the people for the job.

Inside the Luxor, the company has also been contracted to create a laser display in the centre atrium which includes a fibre optic illuminated obelisk and a substantial array of effects for Sega's Virtuland arcade.

In addition to the Luxor project, the company is betting on Casinos to be a lucrative market for their entertainment feature design a project management services. "Our Las Vegas Projects," continues Auswacks, "have really pushed us to develop interesting visual attractions so that they are not a carbon copy of each other and complement the space for each individual project." Such new projects include the Rio Hotel, also in Las Vegas, with a laser on the roof top shooting out over the city's night skyline and surrounding area; Lady Luck Casino and Casino Magic projects in Mississippi.

Le Maitre Move

After 15 years living on Purley Way near Croydon, Le Maitre have acted on a devious plan to combat the severe strain of climbing a long flight of stairs by moving lock stock and barrel to brand new ground floor premises five miles away at Mitcham.

Their new contact information is provided in the list of PLASA members to be found in this issue pages 64-66.

Down on the Farm

A job with a difference came the way of hire company Fremlab AB during the World Ploughing Championships in Sweden. Equipment was supplied for five different locations, but the most interesting work obviously took place out in the fields, where one man had to head over an area of around 150,000 square metres. No mains electricity was available and the field location moved every day for fresh ploughing.

Almost a tonne weight of long throw speakers in a 180 degree cluster were placed on a Trilite rig which was hoisted into the air on an all-terrain fork-lift truck. It was duly moved each day to the new location, followed by the necessary diesel generator. Carl-Fredrik, managing director of Malmgren, was the man in charge of operations.

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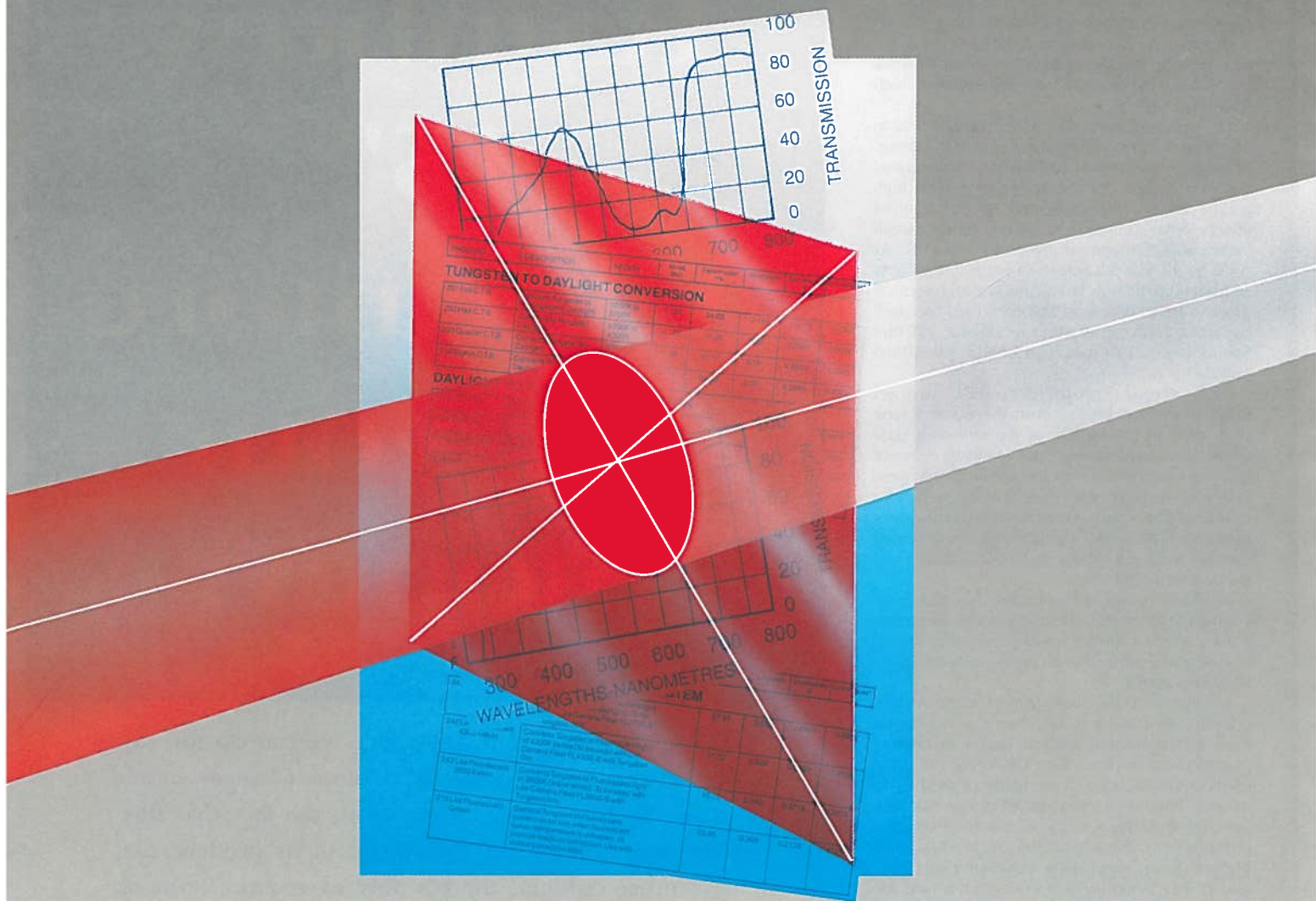
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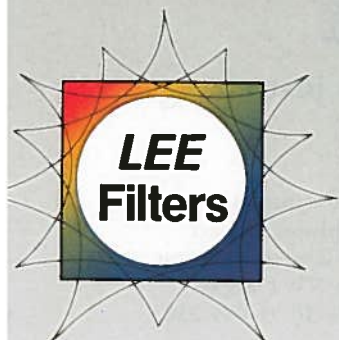


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Through the Safety Maze!

Experienced theatre practitioners Joe Aveline and Graham Walne have collaborated on the publication of a pamphlet which provides an overview of the safety legislation currently affecting the theatre. The pamphlet was commissioned for its clients by the Southern Arts Board and is now available direct from Aveline Walne Associates.

The 22-page publication describes how to develop a safety policy, lists employees rights and responsibilities, outlines procedures for boards and safety officers, explains the basics of each item of safety legislation and provides lists of further reading and contacts. The pamphlet has been well received and promises to help theatre companies meet their legal obligations sensibly and cost effectively.

Copies (£8 inc UK postage - cash with order) can be obtained from Aveline Walne Associates, 22a Blenheim Terrace, London NW8 0EB, telephone and fax 071-328 6174.

Working Front Line

Front Line Production Services, the Falkirk-based concert lighting design and production company is currently taking part in a placement programme run by Enterprise Europe, the London-based charity which places young East European entrepreneurs and managers with host companies in the United Kingdom.

Front Line is hosting Jiri Kuba, a 33 year old lighting technician from Prague in the Czech Republic. He has been in Falkirk since early October and will remain on the placement until December. Whilst in the area Jiri is staying with a family in Cambusbarron near Stirling and finding his placement highly productive in developing his knowledge of western technologies in the lighting design field.

Orbital Acoustics Busy Autumn

Orbital Acoustics have a busy autumn and winter ahead working on several West End and touring productions. In the West End they were contracted by Peter Wilson Productions' sound designer Rod Mead to provide equipment for the National Theatre's multiple award winning production of 'an Inspector Calls'.

The system is designed around three Denon DN2000F dual transport CD players. Orbital designed special hardware to allow all six CD mechanisms to be started simultaneously from a control panel built into the Soundcraft 8000 sound desk, and also to cue all the players to the next track automatically, features not available with the standard machine.

On tour Orbital are working on a six month tour of 'Scrooge - the Musical'. The sound design, by Kevin Swain, includes a 40-channel Soundcraft Europa desk, and loudspeakers from D+B Audiotechnik and The Hackney Cab Company. Orbital are also providing equipment for the national tour of 'The Woman in Black', now in its fifth year in the West End.

Wholehog Global

Following a tremendously successful year for the award winning Wholehog, A C Lighting have announced another major coup. Sogo Butai, a major rental company based in Tokyo, have just taken delivery of their first Wholehog desk, which means that a Hog can now be rented from all of the major tour capitals of the world. "Over the past few months we have been talking to several of the large rental companies in Japan, however Sogo Butai are the first to take the plunge and I have no doubt that they will benefit accordingly," A C's David Leggett told L+SI. "We will be working with them to help raise local awareness and to ensure that their operators are trained."

Russian Expo

The Moscow All Music Show will take place from the 16th-21st November, 1994 at The World Trade Centre in the city. Exhibitors at the show will represent the complete spectrum of the music industry including lighting and sound.

Rapid social and economic changes in Russia are opening brand new markets for a huge range of Western products and services, especially in the consumer marketplace. In the past, Russian imports of 'entertainment' related goods have been constrained by lack of currency, censorship and a lack of market knowledge. In recent months all that has changed with the introduction of market economics and the lifting of travel restrictions. All exhibitors will be given the opportunity to showcase their products/services at venues around Moscow. For more information contact Chris Meddleton at The Russia House in London, telephone 071-439 1271.

Barco Technology Showcase

Electronic presentation specialist Barco has opened a purpose-built demonstration centre at its Reading office, equipped with a full range of their large-screen monitors and projectors.

Designed to be completely customer-oriented, this new multi-media technology showcase allows people to see the equipment in action in a working environment, as they would use it themselves. An additional advantage is that potential customers can also bring in their own hardware and software to test the compatibility of the Barco display systems, before committing themselves. Among the products on display in the demonstration centre are the new Barcographics 801, flag-ship of the projection systems, the Barcovision 700HQ, the Retrographics rear-screen projectors, and the Multidata II monitors.

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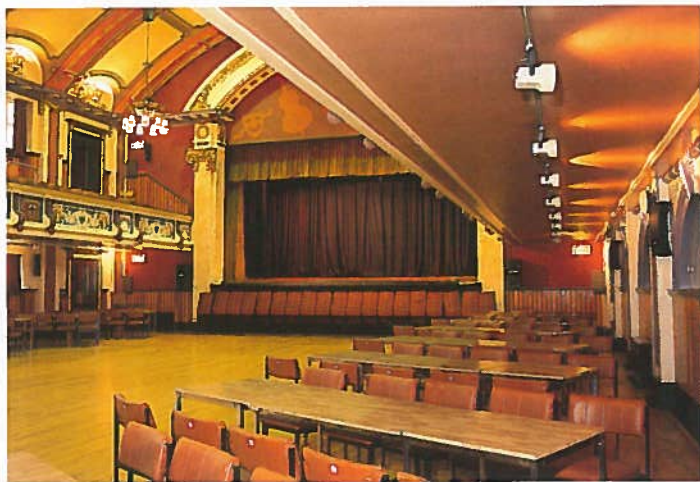


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Bose Panaray in Gaelic Festival

With the launch of the Panaray Sound System earlier this year, the Bose Corporation released onto the market a product aimed at providing specific solutions to sound reinforcement, and more importantly, sound intelligibility. Bose have vast experience in installation systems and the Panaray System was developed after four years' work involving, arguably, the largest group of designers (25 engineers in total) assembled to tackle a new pro audio product.

Panaray systems have already made their mark in the UK with installations ranging from Jacksons Nightclub in north Wales through to the use of 12 array systems at the Hospitality Inn in Glasgow as a dedicated speech system for conferences.

The complete system comprises a unique curved enclosure (the 502A controlled array) that houses five 4.5" drivers. The 502B Acoustimass Bass enclosure houses a 12" woofer with a 4" voice coil, and the set-up is completed by the 5020 systems controller.

The recent installation of a Panaray System at Airdrie Town Hall for the Scottish Gaelic Mod illustrates the system's flexibility. The event was recorded by the BBC and eventually networked around the world. Monklands District Council needed to improve their sound system radically and so called on GMS Recording Ltd, who brought with them 20 years experience in the supply and install of public address systems. Derek Blair, GMS' pro audio sales engineer, told L+SI: "GMS were initially approached to tender for a new auditorium sound system in June. The design brief detailed the use of the system for amateur and professional theatre, conference and music application. It also had to be capable of coping with the Scottish Gaelic Mod planned for mid-October."

The initial system specification was drawn up by Derek Blair, who then carried out an on-site demonstration with colleague Tom Clarke, sales director at GMS. The Panaray system was subsequently specified.

Mark Trequair, the architectural technical leader for the council, had specific requirements. "We were looking for a considerable amount of clarity, quality and stereo imaging," he said. The hall itself is large and can accommodate up to 1,000 people, so GMS used the Bose computer-controlled Modeler system for exact acoustic speaker placement to ensure an even coverage. The lack of boom was achieved by the Bose patented active equalization (the 502C) and 18dB/octave crossover circuitry. The actual parts of the bass enclosure (the 502B) were designed by an aircraft engineer with the express result of negating turbulence at the mouth of the port to enable smooth bass response without high SPL levels.

Alongside the Bose equipment, GMS installed a range of sound equipment including a Soundcraft Delta SR 24-4-2 mixing desk modified to accept Edac 90-way multipin connectors, Toa digital delay units and power amplifiers, EMO mains distribution units, AKG and Shure microphones, and a Yamaha SPX-900 multi-effects processor.

Pictured above is the Panaray system installed at Airdrie Town Hall, and below the Soundcraft Delta SR in situ.



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On Course to Export

The London Chamber of Commerce and Industry has devised two courses to assist British firms in their efforts to conquer new markets abroad. Entitled 'Planning Your Exports' (most relevant to manufacturers) and 'Exporting Your Services' (for service and professional organisations) both courses give an insight into assessing a company's suitability to various export markets. These courses are primarily aimed at small and medium-sized businesses who would like to develop export sales as well as those more export-orientated firms who want to expand already profitable export business.

To be held on 25th and 29th of November and the 8th and 9th of December at the Institute of Education in central London, these courses are open to both members and non-members of the London Chamber. Further information can be obtained from the LCCI in London, telephone 071-203 1834.

Sporting Chance

Trantec Systems, the largest manufacturer of DTI radio microphone systems in Europe, has recently supplied audio equipment to a national tour. However, it is not a tour involving a band, nor indeed a theatre company, but instead, one for a couple of the UK's most renowned footballers.

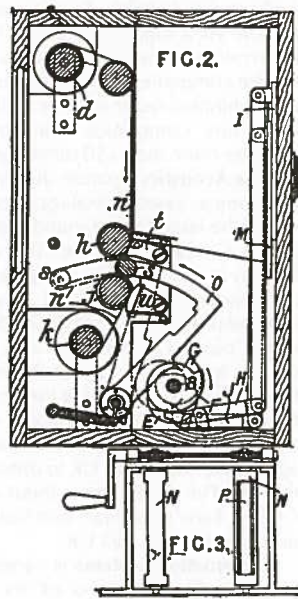
George Best and Rodney Marsh are about to launch 'A Sporting Night To Remember', a tour playing across the UK and Ireland, which promises a unique opportunity to hear the inside stories of two footballing greats.

The Trantec S2 series in use is based on the professional S2RX auto diversity receiver. It features two separate R F receivers which constantly monitor the incoming signal and, via digital audio switching, noiselessly switch between the two receivers to help eliminate the possibility of 'drop outs'. The S2 is also available in guitar, lapel and headband belt pack systems.

A HUNDRED YEARS AGO THIS MONTH

BRITISH THEATRICAL PATENTS 1801-1900

22,954. Friese-Greene, W. Nov. 29.



Theatres, scenic effects. The apparatus is for taking a series of photographs on a long band, and it can then be converted, by the addition of a lamp and a dissolving apparatus, into a magic lantern which is more especially used for scenic purposes in theatres. In the latter application, if space is limited, a special arrangement of a prismatic reflector is employed for deflecting the beam of light. Fig. 2 shows the camera. The band *n* is wound from the roller *d* to the roller *k* by turning a handle on the spindle *B*, which is geared with the spindle of the latter roller. The action is, however, intermittent, for spring arms *O* carrying a roller *s* are by the action of eccentrics *E* thrown rapidly forward between the guide rollers *h*, *j* and the spring clamp *u* preventing the strip being drawn off *k*, a definite length is pulled off the roller *d*. The slack is then taken up gradually, a spring clip *t* holding the band above it taut. As soon as the length of the band is in position the cams *F*, *G* come into action upon a pair of levers *H*, *J*, operating shutters *M*, in such a way that an instantaneous exposure is given through a common aperture, one shutter falling over the nose of the cam when the other has its aperture in front of the lens. This shutter mechanism and other details of the apparatus may be varied. When the lamp is introduced so as to convert the apparatus into a magic lantern, the views already produced can be exhibited in rapid succession, the shutters being removed. Fig. 3 shows a dissolving apparatus for use with a double lantern, the shutters being formed as slotted cylinders *N*, *P*, rotated from one handle, so that when one slot is fully open to the rays of light, the other shuts them off. The slides may be caused to gradually change colour by applying a substance, such as chloride of copper, which alters under the increasing heat due to the proximity of the lamp.

NO. 22,954, Nov 29th 1893: William Friese-Greene

Within the full specification of this patent Friese-Greene is described as a photographer, yet the patent possesses not only elements of the camera, but also a dissolving-view, magic lantern, and projected panorama for the theatre. Created at a time when cinema was in its infancy, it was attempting to provide something new and original for use within the theatre. This device is conceived for scenic purposes, perhaps a moving panorama, but essentially for the theatre. The concept of cinematic use is not really considered, though as the decade wore on, the patentees began to turn their attentions to the moving image as an entertainment medium in its own right.

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News Shorts

AKG's WMS 900 UHF Radio Microphone System is currently out on major world tours with Peter Gabriel and Rod Stewart. Gabriel's highly theatrical 'Secret World' (see L+SI July 1993) venture has seven channels of the AKG System covering vocals, backing vocals, bass guitar and violin. Rod Stewart's 'Unplugged' acoustic tour is using six channels of AKG WMS 900 covering lead vocals, backing vocals, and saxophone. Vocal Mics for Rod Stewart and B/V's are the new AKG Condenser Tri-Power C5900, as specified by sound engineer Lars Broggard.

Meanwhile, **Out Board Electronics** has supplied a 64 moving fader automation system fitted to a Midas XL3 console for the current Rod Stewart 'Unplugged' North American and European tour (pictured below). Although Out Board's systems have become firmly established in theatres worldwide where they are used on major musical productions, this is a first for the company in the rock and roll touring market.



A **Soundtracs Solo Midi 24-channel console** is winging its way from Larking Audio in Bedfordshire to sunnier climes in the Balearic Islands, having been bought by recording star Annie Lennox for use in her studio in Majorca.

Roadstar's Soundcraft Europa was in action recently at Edinburgh Castle, mixing

front-of-house sound for gigs on three consecutive night's by Run Rig, Nanci Griffith and Del Amitri. The gigs were held on the site of the Edinburgh Tattoo, using the same temporary grandstands to provide seating for 8,000 people.

'Dry hire' company **Gradav Theatre Services** has purchased the first Sennheiser EM 203 UHF 3-channel switchable diversity receiver system in the UK. As a support company, Gradav supplies radio microphone equipment to a large number of theatre companies, TV and film units, conference and exhibition organizers, as well as sub hiring to other hire companies. The company already operates more than 150 other Sennheiser kits.

Fane Acoustics' Spanish distributor, Gil Rissoto Electronica, based in Malaga, recently completed one of the largest disco sound system installations in the Granada province. The disco, the New Fantasy in Almunecar, was equipped with a series of custom enclosures, all powered by Fane loudspeakers. Gil Rissoto used four each of the new Colossus 15XB bass and 18XB sub bass drivers, four Studio 12L for the mid range, and a total of eight ST 5022 high frequency horn drivers for the top end. On the wider scene Fane has appointed two new US distributors, and also appointed Adam Hall UK to distribute its range in the UK. The tie-up came about after Adam Hall GmbH, Fane's German distributor for 17 years, purchased Adam Hall UK.

Audiomation Systems is currently the toast of New York, with two of its 'Performance Automation' motor fader systems on Broadway. Developed in conjunction with Manhattan-based Sound Designers Studio, 'Performance Automation' is designed for use with virtually any console. Working together again, the two companies have designed an Uptown 2000 system to fit the Midas XL in a wraparound 'sidecar' console. Broadway shows in production currently utilising the company's motorised fader systems are *Cyrano The Musical* at the Paul Simon Theatre and *Willy Russell's Blood Brothers* at the

Music Box.

B & H Sound Services have taken delivery of a new 40-channel Soundcraft Vienna II console, supplied by LMC Audio Systems. Among other tasks, the desk will see use in London's Royal Albert Hall, to which B & H is contracted to supply sound reinforcement equipment.

Swiss rental company **Audio Rent** are using EMO GEQ60 inductor-based graphic equalisers for FOH on the current 'Face the Heat' European tour by the Scorpions. Audio Rent have recently moved into the classical market and are touring with the NDR Orchestra and singers Peter Hofmann and Anna-Maria Kaufmann, who are playing to audiences of 10,000 upwards. EMO GEQ60 graphics are again being used to equalise the sound system.

Canegreen Ltd are using a new 40 channel Soundcraft SM16 monitor console for the current European leg of the Terence Trent D'Arby tour, supplied by LMC Audio Systems. This will be one of the first SM16s to be used by a major PA touring company. Soundcraft collaborated with some of the world's top monitor engineers in specifying and designing the SM16, resulting in a console entirely dedicated to monitor applications rather than a modified FOH design.

Sennheiser UK has supplied 1100 of their HDI 490 infra-red receiver headsets and 55 battery pack chargers to Madame Tussaud's famous Rock Circus exhibition in London's Piccadilly Circus. Rock Circus required to update and improve its audio relay for visitors and the HDI 490s were supplied as a state-of-the-art replacement for earlier equipment, installed when the exhibition first opened in 1989. Special lighting and effects augment the infra-red stereo soundtrack transmitted to the personal headsets. Sennheiser has also supplied a number of its SI20 radiators in order to improve the coverage of the transmission and will replace the remaining older transmission equipment as it is decommissioned over the coming years.

Continuing the good news

Fresnel 2000/25 - Two years ago we introduced our Selecon Fresnel 1200 with a 175mm (7 inch) lens. It immediately won industry plaudits due to the additional light output and quality of the beam compared to 150mm (6 inch) lens units. At this time we were requested to follow the same approach for a 2.0 Kw Fresnel (remember the 243) so we have! The new Selecon Fresnel 2000/25 has a 250mm (10 inch) lens in a body no larger than other 8 inch Fresnel and lighter (at 8.7Kgs.) than most. Light output is of course considerable greater than 8 inch 2 Kw Fresnels and compares more than favourably with some 2.5 Kw Fresnels. For example the spot focus of 7° provides 419, 4000 cd, the flood position of 60° 37,700 cd.

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SELECON

'A Slice of Saturday Night' in London's West end has an all-Apogee system, consisting of AE-5s, AE-3s AE-2s and SSMs. It was provided for the production by **Alpha Audio** rentals. Sound design is by Dave South.

Aliscaff, London-based manufacturers of Alistage, have joined forces with Headwater Industries of Canada for the LDI Show in Orlando. A 12.2m square stage has been shipped out from England to be part of the Headwater Industries Stand). On show will be the System 2000 ground support roof system from Headwater, together with the Aliscaff modular stage.

Production Services has completed its first sales to the Gulf region, with Madar Audio placing an order for a large LS5 system to go into their rental stock. This order is the start of a total changeover to Laboratory Series systems for Madar.

Richard Nowell Sound Services has taken delivery of a new SM16 monitor console, supplied by LMC Audio Systems. The company specialises in sound reinforcement for jazz and contemporary music - recent events include concerts by Steve Reich, Philip Glass, Brian Eno, Chick Corea, Sonny Rawlins, and Winton Marsalis' late night proms appearance this year. One of the uses for the SM16 will be as a FOH matrix for use in complex setups involving clusters and delays, TV and radio feeds, show relays and show comms, and for large orchestral reinforcement applications which might require anything up to 90 channels out front.

Yorkshire Audio, the rapidly-expanding Leeds hire company, has taken delivery of a Vienna II FOH console, supplied in a 40:8:2 configuration with VCAs.

SSE Hire has purchased more consoles to add to its growing stocks. Latest additions include a further Midas XL3, and the first TAC 6500 monitor console, which is being utilised on UB40's current world tour. The company has also purchased another TOA Saori digital crossover system, bringing their total to four, and added a further 20 Macrotech 2401s to its monitor system stock. The

amplifiers are PIP-AMC equipped and will complement the company's existing Macrotech driven monitor systems.

Trantec Systems' S2 Diversity radio microphones are being used on the autumn and winter tours of Scrooge and Pickwick (pictured below). Both of the tours are UK-wide and eight of the multiple channel systems are being used on each show. The actors will each wear the S2LM lapel microphone belt-pack system concealed in their costumes. Trantec's S2 series is based on the S2RX auto diversity receiver and is designed for theatre and other live productions. The S2RX has two separate RF receivers which constantly monitor the incoming signal and switch between the receivers to eliminate 'drop outs' as the actors move around the stage.



Carlsbro Electronics' joint managing directors, Stuart and Sheila Mercer, were guests of French distributor, Camac, for celebrations marking the tenth anniversary of the two companies doing business together. Another reason for the celebrations was the opening of Camac's new office and warehouse complex in Nantes, France. Further afield, Carlsbro's Hong Kong and Chinese distributor, Tommy Cheong, has just opened a PA rental/installation department at his major Hong Kong location. Cheong is also in the middle of erecting ten foot high Carlsbro logos outside all of his stores on the island and mainland China. Meanwhile Carlsbro has updated its company

logo with a new badge that will feature on all new Carlsbro amplification.

Eight pairs of **Tannoy** Monitors have been specified for the new Meridian News Studio in Maidstone due to open in early 1994. Quantel Broadcast Systems has the contract for the complete installation of the news studio and chose the Tannoy Monitor Series loudspeakers. The sound and production control rooms will each have Tannoy System 12 DMTIIs, whilst System 10 DMTIIs are to be installed in the bulletin control room and the three machine edit suite. A pair of Tannoy System 8 NFMIIIs will be used in each of the three two-machine edit suites and the traffic/logging area will take a further pair.

Latest contracts for the **Nexo** PS10 include an installation at the Lyceum Theatre in Crewe, where four cabinets hang in a central cluster, complemented by two futher cabinets, one each to stage left and right. A different configuration is used to suit an installation at the Spa Theatre in Bridlington, with two PS10's at balcony level and two more at stalls level, where the compact LS500 sub bass units have been added to maximise bass response. **Wigwam** has also supplied PS10s for touring applications including the New Generation Ministries, 65dBa, Barclay James Harvest and Duo D'Amour.

Faced with the problem of too few lanterns to go round, **Entec Sound & Light** opted to invest in Vision 1kW fresnel's for their prestigious Covent Garden lighting project. Entec's Paul Weber says "we chose Vision lanterns because they are light, robust, well engineered and extremely good value." (No small decision as Entec have over 2,000 lanterns in their rental stock).

As part of a planned programme to update all of their existing lighting control systems, The Dorchester has chosen to use the new Electrosonic range. The hotel in London's Park Lane has installed an ESR 12 system in the elegant Dorchester Bar. The system replaced Electrosonic ES6090 dimmers which were originally installed 20 years ago, and controls 12 channels of lighting.

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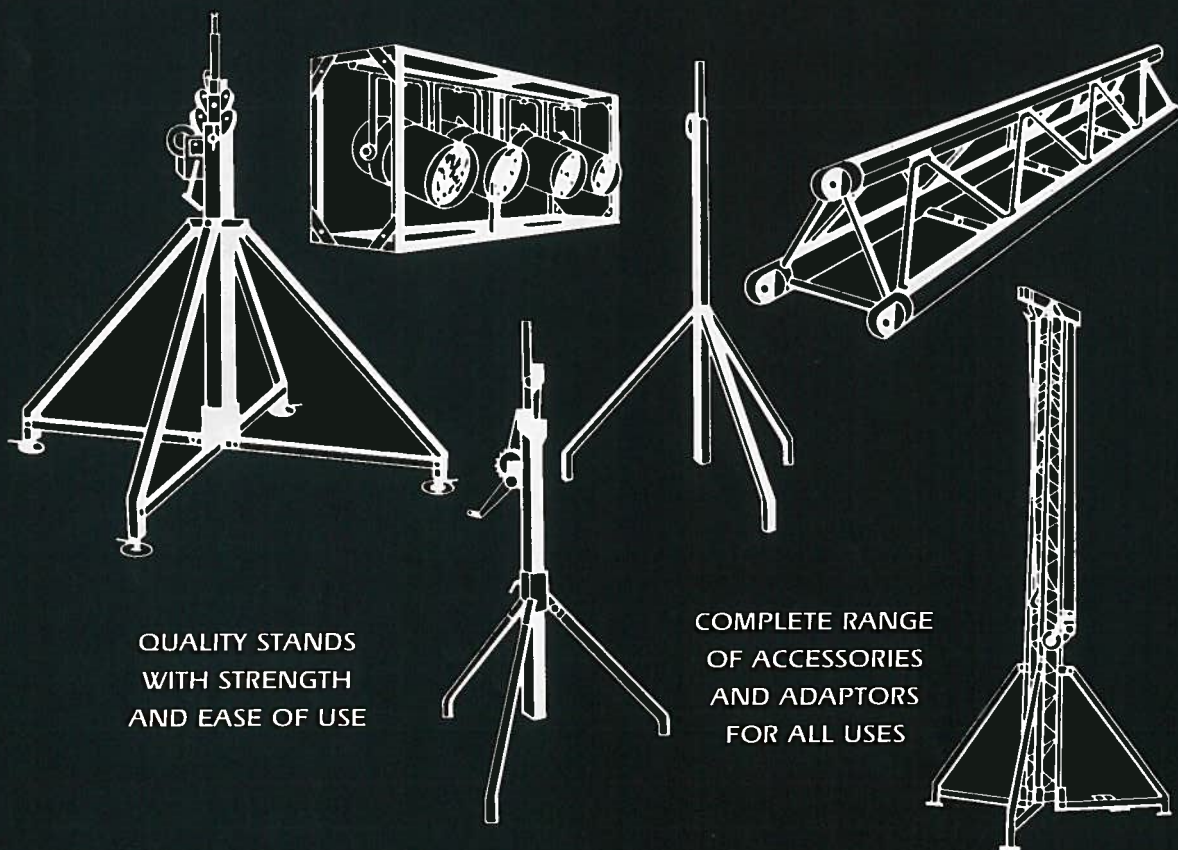
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Aviemore . . . and more

Following Squire's recent major installation of sound and lighting at Aviemore Mountain Resort in Scotland, the company have been asked to supply further equipment for this expanding entertainment complex.

The order this time included a foreground and fill-in sound system. The main unit included Technics SL1210 turntables, Citronic SM550 mixer, Rane AC22 CC1200 and 2800 power amplifiers (600W and 1000W respectively) and Tek JR600 bass bins and 350/15 mid-hi cabinets. The overall level was controlled by a Formula Sound AVC-2 (Squire has supplied dozens of these units to clubs all over the UK and overseas in the past few months). The fill-in system comprised Tek 350/12 cabinets powered by a PF500 power amplifier. Lighting effects included two specially modified Tas Syncro, Dominators, Futurescans, lasers and a number of Squire's own-branded lighting products. The second phase of the development has been another major co-operation between the retail and contracts arms of Squire. The Glasgow branch handled the installation, day-to-day contact and after-sales service. The Contracts Division, based in Guildford, provided computer drawings and design, as well as specialist advice.

Show Success For EMH

Euro Materials Handling Limited, the exclusive UK agents for Verlinde Lifting equipment, paid their first visit as exhibitors to PLASA 93 and beat their own expectations by walking away with orders for over 100 hoists. They also took an order to supply equipment to the Far-East and were happy to boast that the goods were arriving at their destination as the show closed on Wednesday.

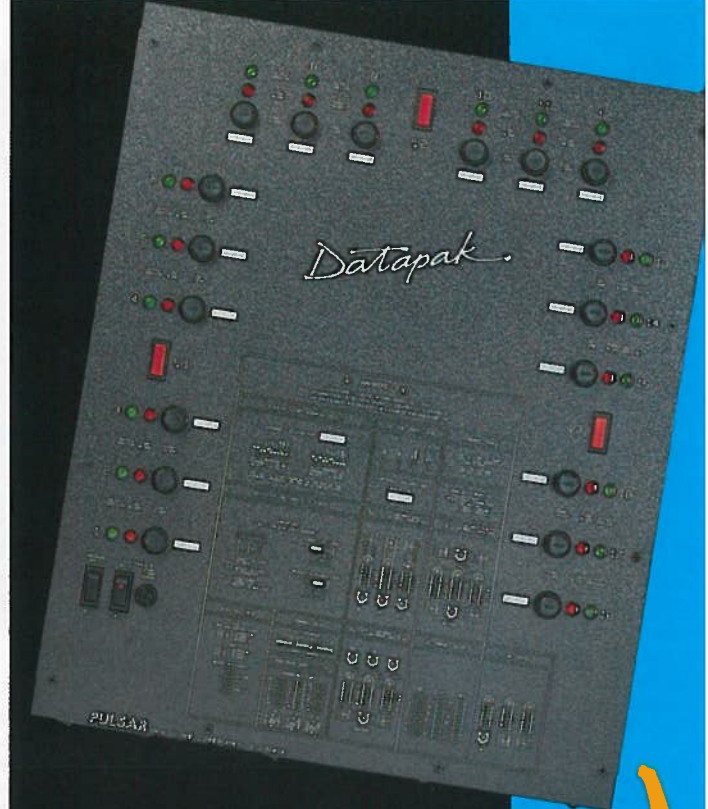
Roger Pates, Euro's managing director, told L+S: "We took the opportunity to launch the all-new, chain climbing, 'Litachain LI' range of hoists from Verlinde at the show and were extremely pleased with the reaction we received to our 'active displaying rig' from visitors." Our thanks go to 'Light and Sound Design' for allowing us to use one of their 7m gantry systems and motor control panels to provide a continuous demonstration throughout the show, a factor which we feel swayed buyers in our direction. All in all we feel that our first visit to PLASA 93 provided an ideal showcase for the UK launch of the 'Litachain LI' range and, from an orders placed point of view, it has been one of Euro Materials Handlings' most successful shows."

White Light's Heart 'n Soul

White Light has supplied a complete lighting rig to Heart'n Soul, one of Europe's most popular disability arts groups. Formed in 1986, Heart'n Soul has become widely recognised for its work in raising the profile of people with learning difficulties in the mainstream arts. It organises live shows, tours, training projects and workshops. The White Light equipment includes a lighting desk, dimmers, stands and smoke machines. It is primarily used on the two Heart'n Soul theatre training courses which aim to address the under-representation of people with learning disabilities in the arts. The courses give the students the opportunity to train to a level which will enable them to go on to further vocational training, work with peer groups, broaden their skills and gain relevant employment. Heart'n Soul is currently in discussion with White Light regarding setting up training work shops at its Fulham headquarters.

Cadac Phantom Appearance

Two new productions of 'Phantom of the Opera' are both using Cadac J-Type consoles. In Holland, a 61-input console was supplied recently for the new Dutch production of 'Phantom', running at The Circus Theatre in The Hague. On the home front, 'Phantom' has just opened in Manchester, using a similarly specified J-Type. Sound design in both cases is by Martin Levan, with Autograph Sound Recording supplying the sound system for Manchester and Focus for The Hague Production. The specification for the J-Type in both cases comprises a 12 x 24 sub group routing matrix, with five programmable routing modules and 12 VCA masters to handle the show's complex automation requirements. With these latest additions, over 12 productions and tours of 'Phantom' world-wide are now using Cadac consoles.



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Soundtracs take DAMMSTY



Jill Edwards (right) receives the cheque for £4585 from members of the DAMMSTY committee; (left to right) Tod Wells, Keith Hardy and Tim Chapman.

Southampton's sleepy Shamrock Quay was invaded by a group of approximately 50 audiophiles and their friends on the weekend of 3, 4 and 5th September during the annual 'pasty' charity sailing trophy which was this year officially renamed the 'Dave Martin Memorial Sailing Trophy (DAMMSTY)' for obvious reasons.

Seven eager teams including Soundtracs, Martin Audio, Klark-Teknik, Fostex, Abbey Road Studios, Crest Audio and a crew made up of various members of the press, as well as Ken Walker SCIF, took part in the weekend's events which raised £4,000 for the Elizabeth Foundation in pre-school Deaf Children.

At the end of a hectic weekend of 'ho-lympic' sailing techniques and a demonstration of rugby training during the evening's festivities, Soundtracs were delighted to win the trophy and are looking forward to defending the title next year.

For further information about DAMMSTY please contact Sally Haseman, telephone 081-399 3392, fax 081-399 6821.



The Soundtracs team preparing for victory during the Dave Martin Memorial Sailing Trophy.

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Citronic voted Number One

Readers of DI magazine recently voted Citronic Pro Audio audio equipment manufacturer of the year. Melksham-based Citronic won the award for its run-away seller, the SM250S Professional Mixer, which is also enjoying huge sales in the US, Europe and the Far East.

Acknowledging receipt of the double award, Mike Gerrish, Citronic's sales and marketing director, said: "Citronic has been producing quality DJ equipment for 20 years, but there can be no greater vote of confidence than from the people who know Citronic's equipment and use it regularly to create their own special sounds. These awards demonstrate our commitment to the continuing application of technology to the entertainment business."

Stick with Maris

The recently-formed electronics company Maris has been working on some unusual projects lately. Their Electronic Glue was used to provide the control of Gundermann videowalls, laser disk players and a CD player at the Olympic Museum in Lausanne, Switzerland, which opened earlier this year.

The installation comprises four Gundermann videowalls, provided by VideoPower; two of these are located on opposite sides of the impressive first floor of the Olympic Museum. On one side is the 'Summer Cyclorama', which depicts the Olympic Summer Games, whilst the 'Winter Cyclorama' on the other side shows footage from the Winter Olympics. The third wall displays a 'Spirit of the Games' programme, and the fourth, located on the ground floor, shows the progress of the Olympic flame through the ages.

The Winter Cyclorama is made up of three separate videowalls and the Summer Cyclorama, four. In both cases one of these walls is used as the master wall containing the overall show programme, with the remainder as slaves.

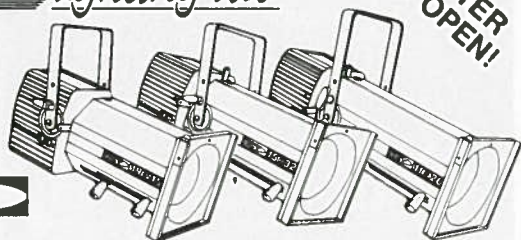
Commands from the master and a large number of video disk players are transmitted to the Electronic Glue system. This then synchronizes and distributes the commands to the peripherals. One of the problems with existing installations using a number of laser disk players is the synchronisation of the players. In order to make sure that the players remain together during the show, a video synchronization signal is fed to each. It was also important to ensure that the players all start at exactly the same time. This was handled by connecting the video input into a 'Thingey' time code reader/inserter which then generates time code locked to the incoming video, and outputs a synchronization signal for each frame of time code generated. This signal is then fed into the Electronic Glue laser disk controller boards.

To start the players, the wall sends a 'remember, but do not send the next lot of commands' message, followed by a 'play' command for each of the laser disk players. Commands received from the video wall are held by the controller until it receives an 'action' command. Once the 'action' command has been received, the controller waits for a synchronization pulse from the 'Thingey', at which time the commands are transmitted to the laser disk players.

Electronic Glue allows the Gundermann videowall system to be used to control anything from videowalls, to laser disk players, CD players, smoke machines, dimmers and indeed anything else needed to make a project successful. It can also handle a number of additional protocols including DMX and Electrosonic. The Maris Electronic Glue system has also been put to use in a certain well-known theme park just east of Paris.

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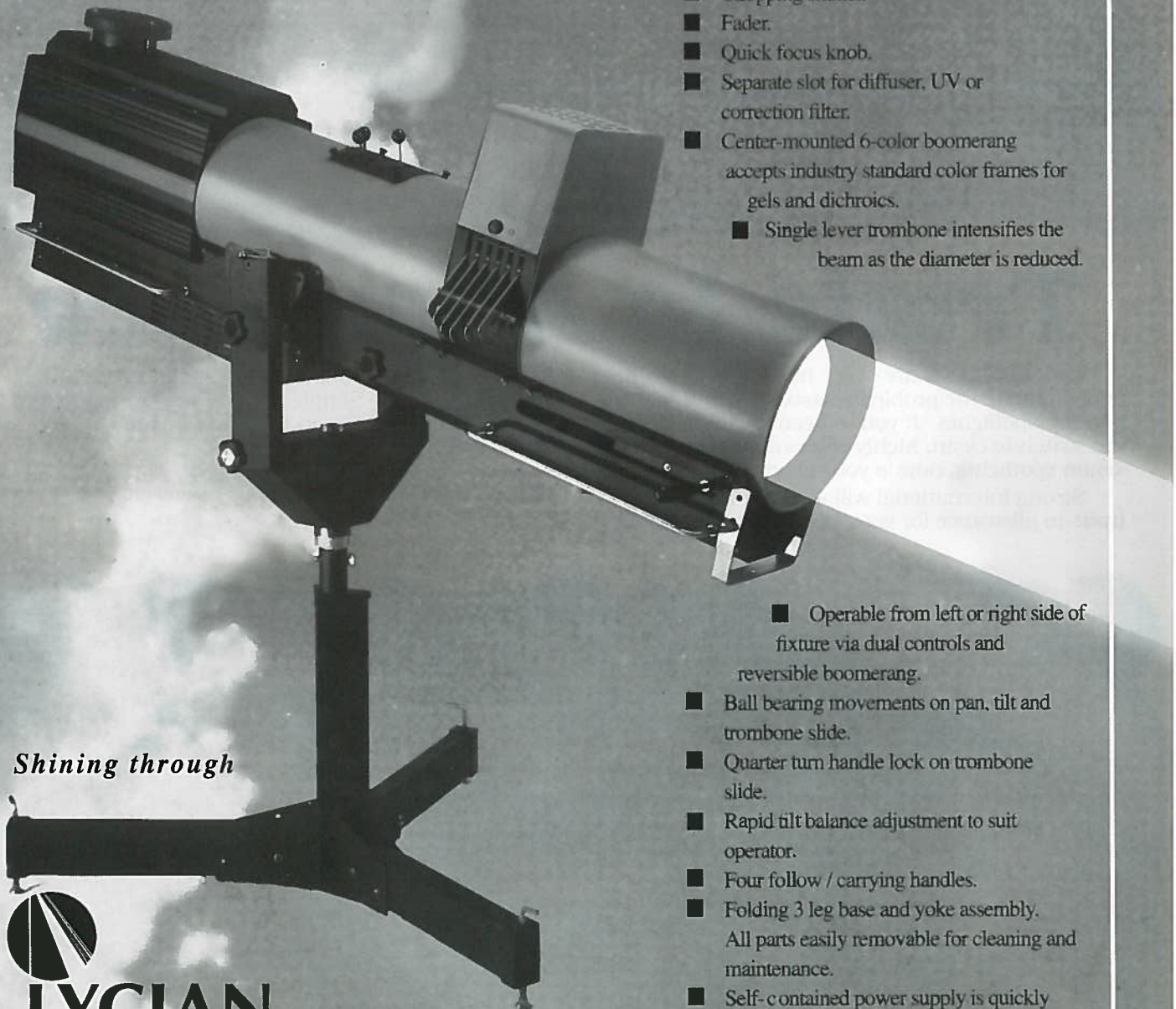
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Soundcraft Spirit put on 'Trial'

a special L+SI report

As if to prove that the production values of student theatre can match those of professionals, Oxford University Dramatic Society's recent production of 'The Trial' by Franz Kafka, at the Oxford Playhouse, featured standards of sound and lighting design that were second to none - and which were made possible with technical support from Soundcraft.

Imaginative, minimal sets and stark lighting set the tone for Steven Berkoff's adaptation of the oppressive fantasy, while sound designer Andi Hindle planned an ambitious surround sound installation in the Playhouse auditorium - which, he realised, was beyond the capabilities of the house sound system. He approached Soundcraft, who agreed to help out with the loan of a 16-channel Spirit Auto, the VCA-automated version of the Spirit Studio.

Sound for the show combined specially commissioned music - sequenced 'live' with a computer and a MIDI tone generator - with background and spot effects, plus radio and on-stage mics. Complex sound cues often involved flying effects around the auditorium whilst applying eerie treatments to actors' voices, picked up by the on-stage mics and processed via the Spirit Auto and a Yamaha SPX900.

The house desk was used essentially as a sub-mixer for the Spirit Auto, mixing into seven of its subgroups all of the various pre-recorded material: background atmos from CD and cassette; sequenced music; spot FX from a Revox B77; plus an audio feed from the projection booth (used to show two short 35mm films shot as part of the production - the play's director, Tom Hooper, has so far found the time to direct a short film for Channel 4, plus a string of ads for London agencies, as well as continuing with his third-year



Soundcraft's Spirit Auto (rear right) in use in OUDS' production of 'The Trial'.

English studies).

These seven group outputs were connected to input channels 1-7 of the Spirit Auto, which were in turn mixed with the various mics to seven of its group outputs, feeding sets of speakers around the auditorium: two at the back of the stalls; two at the back of the circle; two FOH; two FOH subwoofers; a centre FOH cluster above the stage; one in the auditorium roof; one in the LX flying gallery.

Dynamic movement of sound around the auditorium was controlled entirely with the Spirit Auto, driven in turn via Steinberg automation software running on a Mac LC II. Andi Hindle

triggered cues on the automation software and mixed the mics on the Spirit, while assistant sound designer Richard Austen piloted the house desk, and dealt with spot and atmos FX.

"What we were doing would have been quite impossible to achieve by hand," commented Andi. "We needed automation of some kind, and this proved a good solution. It actually turned out to be rather easier than we thought to implement - the Spirit Auto was highly intuitive in use. We just recorded all the fader moves during the tech rehearsal, and played them back in real time via the Steinberg software, with their associated spot effects."

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Mirage and Masterpiece

Due to increased interest from customers currently using or considering the award-winning Pulsar Masterpiece control desk, Laser Innovations has added additional software control functions to its Mirage show control software. The latest version allows the Mirage laser control desk to take control of up to eight Pulsar Masterpiece desks.

The new software allows the user to instantly trigger laser effects from a Mirage memory key, which then simultaneously selects scenes, environments, and chases on the Masterpiece Controller.

Utilising the in-built timecode system of Mirage means that an entire performance of laser and lighting can be synchronised to an audio or visual source. The timecode editing software gives the user the ability to insert and edit cues. Alternatively, the show can be controlled manually, or triggered by an audio beat using the Mirage Audio Trigger Unit. It is also possible to 'play' a complete light and laser show from a MIDI keyboard.

This recent development is a result of LI's technical department pursuing the idea of expanding system communications. Pulsar were pleased to offer assistance in the testing of the new software. Their technical director, Paul Mardon, said: "This means that lighting designers can now synchronise their intelligent, generic, strobe and neon lighting, running on the Masterpiece, accurately and sympathetically with the laser show. And all this using the standard MIDI and SMPTE protocols - congratulations to Laser Innovations!"

T-Shirt Giveaway

In a fit of generosity, Fane Acoustics is offering a free T-shirt to the first 50 people submit the weirdest, cleverest, or silliest application you've ever seen, heard about, or would like to dream up, for a Fane loudspeaker. And just to make life a little tougher, Fane sister company, Wharfedale would like to know whether the tour bus marked with the Wharfedale name (recently used for both U2 and Take That tours) was sponsored by them, or simply owned by another company called Wharfedale. Suggestions and answers on a postcard to: Competition, Fane Acoustics, Sandeas Way, Crossgates, Leeds LS15 8AL.

New Stadium Power

As part of the Sydney 2000 bid for the Olympic Games, a purpose-built Olympic athletic stadium has been constructed in the Sydney suburb of Homebush. A R Audio Engineering of Sydney have been chosen for the stadium installation and Australian Monitor are supplying the K Series, and nine specifically designed and manufactured AM2100 Monobloc Audio Power Amplifiers, each unit delivering in excess of 2,500 watts.

People News

NJD have restructured their sales administration. Whilst **Keith Greenwood** remains in overall charge of NJD sales, his experience and expertise will be directed to controlling and supplying the rapidly increasing overseas distributor network. The new addition to the sales team is **John Dolby** who will be dealing with UK sales and forming a personal link between NJD and dealers. In order to cope with the increase in UK sales **Sharon Bedford**, having been with the company for three years, has been promoted to the position of sales administrator and will have the responsibility of dealing with incoming UK sales.

As part of the company's planned expansion programme **Alan Cohen** has joined the Hall Stage Products Division - 'The Backstage Professionals' - as a technical representative. With a wealth of practical stage engineering experience gained over some 30 years in the business, Alan takes on a nationwide client service and development role. During a 'totally theatrical' career he has been responsible for the design, layout and management of stage equipment for many leading theatres, a technical writer for the ABTT and is a qualified draughtsman.

Laser Creations International Ltd has promoted **Tim Fothergill** to the post of operation director. Previously projects manager, Tim handled all projects including such events as Expo '92 in Seville and Taejon Expo '93 in Korea. He is to spearhead the development of large outdoor multi-media spectaculars, as part of LCI's continuing expansion.

Audio Analysts, based in Colorado Springs, Colorado, have announced the appointment of **Randy Wade** as vice president of the company. Wade will be overseeing the company's touring division, which includes such clients as Van Halen, Bruce Springsteen, John Mellencamp, The The, Emerson, Lake & Palmer, Ringo Starr, Gypsy Kings and New Kids on the Block, as well as many other artistes. Wade's extensive career in the music industry includes stints as technical director at Performance Magazine, marketing manager for Morpheus Lights, and account manager at Showco/Vari Lite.

ABTT '94

ABTT has announced that the Sixteenth Trade Show of Backstage Equipment, Services and Supplies will be returning to The Royal Horticultural Halls in Westminster on 21st and 22nd April 1994. Companies interested in exhibiting can obtain details from Theatrical Trading Ltd, 47 Bermondsey Street, London SE1 3XT. Tel: 071-403 3778, Fax: 071-378 6170.



NJD's John Dolby.

PLASA Show Audio Seminars

a report from Tim Frost

The first of two audio-related seminars exposed a lot of the last-minute growing interest and concern about the draft of a new 'standard' for sound installations published by the BSI. This Code of Practice will have far reaching consequences, since potential clients will use it as a 'bible' to work from when specifying sound installation systems of any size.

BS6259 is the result of five years' of deliberations by a committee made up of representatives across the audio installation industry from the speakers-on-a-pole brigade upwards. In the 'Sound Installs and BSI' seminar chaired by myself, it seemed that, according to Ivor Green, director of CTS and BSI committee member, few people seemed to be aware that the committee was active and fewer seemed to care; resulting in serious gaps in the work.

"It disturbed me to find there were hospitals, theatres, concert halls, cinemas factories and a huge section on race courses - because the race course industry has its own representative on the BS committee - but nothing on discos. It was disturbing to discover that as far as the standard was concerned, discotheques and discotheques sound systems didn't exist at all," he said. "The demands and constraints on a system designed for intensive use in a disco are quite different to what happens to a system put into a church and these points are not fully covered in the document as it stands. It seems one of the fundamental problems is that people in key roles in the industry didn't even know that a new standard was being written."

Instead of commenting directly on the draft itself the seminar turned to what the industry needs in the form of written codes and standards to help it develop. A contractor's view was expressed by Vic Dobbs from Glantre who felt that a standard with some level of enforceability would be preferable to a code of practice as this still left the situation wide open to installers to under-quote by ignoring the code.

"Why should contractor A incur the costs to meet a standard when contractor B chooses not to? There will only be a level playing field when there is some compulsion to comply with standards. This already happens in matters of life safety, but it seems unlikely that there will be any compulsion at this level with a code of practice. Who is going to monitor that the contractor is complying with these specifications when the client is often not in the position to understand the technical details? I think this is a very important area and particularly with a code of practice where there can be a lot of interpretation of the specification."

Consultant Ken Dibble agreed that to make the code really work, there needs to be at least some insistence that the installation will be inspected at the end of the job to ascertain the right design has

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been properly implemented to meet the needs of the client. "To get a decent engineering standard into an installation you need standards to work to, and they in turn need to be inspected. But gradually it is getting itself into shape, and the light is now growing larger at the end of the tunnel."

Alex Garner technical director of Tannoy, felt from a manufacturer's perspective that the draft has a lot to commend it. "I think the question we have asked ourselves is have we a standard here to work to? and the answer is 'yes'. There are one or two obvious errors and one main area that caused some concern is how we assess and measure how good a sound system is and that section isn't in there yet. Otherwise it's an excellent document as a code of practise, telling people what they ought to do rather than what they shall do."

Mark Burgin of the design/installation company Shuttlesound went back to basics and analysed the draft overall against the intentions laid out by BSI. He highlighted several areas and looked to how a code could help the industry to work more effectively.

"One of the most inefficient process that goes on at the moment is the competitive tendering process. We get about four or five documents a month to look at and decide whether to bid and prepare a compliant proposal. Unfortunately all those requirements are different depending upon the person who is issuing the document. This opportunity laid out in BS6259 is to be able to read a document which in broad terms refers to a single standard, and this would definitely set the goal posts for fair the competition and comparison between ourselves and others."

Comments from the panel produced active participation from the well attended meeting reaction from the well attended meeting and Ivor Green summed up by hoping that some of the feelings exposed by the seminar would be turned into active contributions to BSI. "I have picked up the frustration from the chairman and secretary of the committee in trying to canvas comments from the industry. I know the chairman John Woodgate would appreciate the response and view made today and is trying to get everyone who has something to contribute to get their comments to him within the next month," he concluded.

The second of two specifically audio related seminars at the Lighting + Sound Show investigated how far automation is moving in the audio side of live shows. Chairman noted that it has been recognised for sometime that the acceptance of automation in sound mixing for live events is lagging far behind automation in studio recording or automation of lighting desks for that matter. Wladyslaw Wyganski, whose Outboard Electronics systems are adding moving fader automation to many big shows, outlined a world where there are several fears surrounding the use of automation. "Anybody who has worked on a live show knows the tension, so any technical device should help to reduce that tension rather than increase it. The situation right now is that the mixing engineer needs some help, but he must have confidence in it and it must be reliable."

Outboard's systems use moving faders and Wyganski stated that this was the key to its acceptance as an automation aid. "With VCAs, the worry is that by the time you hear something has gone wrong, it is too late. With moving faders, the movement of the faders give the assurance that it will happen, and peace of mind is a very important part of the story. Finally we are living in the real world, and the real worry is what if it goes wrong. If the system is based on mouse clicks you are a dead duck, but with a fader system the digital system is supporting a completely analogue chain and you can immediately start using the faders manually."

Nick Franks, chairman of AMEK, was surprised at how slow the development of live sound automation is proving. "We've been making sound reinforcement consoles for 20 years and the found that by 1990 nothing much had changed. So we started looking at SR consoles out of a sense of boredom and an amazement that no-one had taken any of the studio technology and transferred it to the sound reinforcement industry. We have two fundamental systems, 'recall' which stores the settings of all the functions and recalls them so you can re-create the console settings quickly. This can save a lot of time in clubs with the same bands coming in weekly or in a festival you can set up a recall for each band. The other facility is 'snapshot' so you can build up a performance by recalling a series of desk snapshots."

But, recognising that fear of the system failing is still uppermost in engineer's minds, Nick Franks added: "Finally there is the panic button so if the automation system fails you can switch the whole console over to manual operation."

Roland Heming of Theatre Projects reported that he had been developing his own automation systems. His close working relationship with mixing engineers on TP events has reduced the techno-fear surrounding a computer based automation system that controls the outboard equipment. He felt that the moves toward digital audio opens up a whole new set of potential advantages for automation.

"We've been controlling the whole show as far as sound is concerned and the crusade is for ease of use. There are problems with computer control, but one main advantage is that you can dramatically reduce costs by using a computer. The next move will be into digital audio. This will affect the industry dramatically if you can take advantage of the ease of use of the computer and have virtual control."

Ultimately it was pointed out that engineers lack of enthusiasm about bringing in automation systems is driven partially by the fear that automation will do them out of a job.

Wyganski believes this to be unfounded. "They say, 'if its so marvellous I'm going to loose my job'. What our system does is do the repeatable things; what it doesn't do is give a judgement. There isn't a system that can do that - ours or anyone else's."



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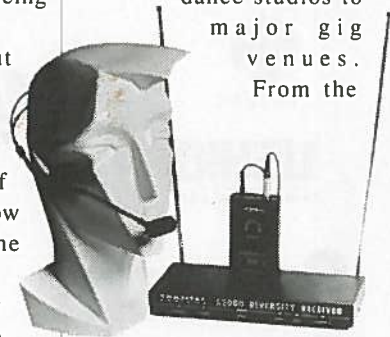
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VL5s Tackle the Smaller Scale

A special report on the NYT's summer season from Robert Halliday

Just under a year after their debut - a year filled with critical acclaim from practitioners in all areas of the lighting industry and many appearances in the rigs of rock gigs and large scale theatre shows - the Vari-Lite VL5 faced a new challenge. That of lighting shows in small scale venues.

This is an area that moving lights, despite their many advantages, have traditionally failed on. Cost is usually the first factor - shows performed in small scale venues have small-scale budgets. But beyond that are a host of related problems, such as their size, control difficulties, and above all, the noise they generate both when moving and, more worryingly, when still.

But the advantages can be considerable, and two shows in this year's National Youth Theatre summer season presented problems that moving lights seemed to provide the ideal solution to. 'Never Better', a multi-media piece at the ICA, was still being devised and altered in the week before it moved into the theatre. Lighting designer Jonathan Howard of Imagination needed as much flexibility in his lighting rig as possible, since he has no idea even of where people will end up standing when he has to produce a rig plan.

Meanwhile, lighting meetings for 'The Tempest', at The Place theatre, indicated that the rig would consist of a huge number of specials lighting small areas of the stage for separate scenes. Moving lights would not only be able to cover these areas with only a small number of units, but would also mean less climbing ladders to re-focus lamps when positions moved, as they inevitably would.

In both cases, the VL5 seemed to provide the ideal solution, mainly because at rest it is silent - vital since at the ICA the rig is only about 20 feet above the audience. It is also small enough to fit in with the rest of the rig quite unobtrusively, and easy to control now that it can run from DMX512. The NYT approached Vari-Lite and, thanks to the generosity of Brian Croft and his team, were able to incorporate six of the units into the design for Never Better and five into The Tempest.

Despite some initial trepidation, the lamps proved simple to set up and get running. At the ICA, the theatre's old Eurolight desk didn't offer DMX output, and so a Celco Pathfinder was brought in from White Light to control the moving lights. This board doesn't operate like a conventional theatre lighting control, and it thus took the operator some time to come to terms with its facilities. This didn't deter Jonathan Howard, however, who maximised his use of the lamps, lighting the many tiny, tightly focused scenes that made up the show. The comparatively small conventional rig filled in where the VLs wouldn't work, providing the general covers over the acting area. His work was complemented by Caroline Rye's still and video projection, which was made possible by the support of Imagination Entertainments who supplied the boosted Kodak Carousels and controller used in the show.

At The Place, lighting designer Kevin Fitz-Simons took a slightly different approach to the VL5s. Whereas Howard selected a narrow lens for the lamp, giving a very tight special which could then be diffused to give a slightly larger special, Fitz-Simons selected the wider lens. This gave a small 'area' of light, rather than a tight spot but, when diffused, allowed the lamp to be used as part of the overall stage coverage. Initially slightly sceptical about the 5s after his last experience with moving lights, Fitz-Simons quickly discovered their full potential.

Director Nick Hedges' interpretation of The Tempest is not the Shakespeare that many expected, and uses mime, movement, dance and only around 50 lines of the Bard's original text to tell the same story. The original discussions about the lighting, coupled with experience from the 1991 season, when the show was first produced, led to the use of fairly saturated colours, all kindly supplied by Lee Filters. With the VL5s, the colours

were taken deeper still, and it was fascinating to watch what will surely become the standard method of selecting colour for a show. Instead of having to worry about filter ranges or numbers, the production team would simply ask for 'more red' or 'less green' until the colour required appeared.

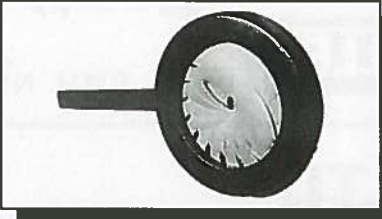
The flexibility the moving lights offered meant that all sorts of things never originally envisaged were worked into the show - live colour fades, slow moves of lamps to follow on-stage movement as well as the obvious 'movement' of the lamps when, as the cast went dancing across the stage so, too, did the Vari*LiteS. The conventional rig wasn't large to start with (and was much smaller than the 1991 version), but the VLs worked so hard that a fair number of Parcans were cut from the rig after the show opened.

Control at The Place was supplied by the theatre's own Arri Imagine desk. This was never designed as a moving light desk, and so required a fair amount of 'manual' work pre-setting the lamp's position and colour, and keeping track of all of the colours, but the board's familiar operating procedure meant that this work was easy to carry out and if mistakes were made, they were easy to correct.

All in all, the two shows provided a fascinating educational experience - the crews learnt about the advantages of moving lights (especially as we returned to a conventional rig and so the need to re-focus specials on the later production of Julius Caesar), but also about their associated problems - especially the problems of controlling them on non-specialist desks. If a lamp has to be replaced, for example, it is very hard to check that it will always move to the same place and the same colour as its predecessor.

The VL5s proved to be a useful chapter in the 1993 NYT electrics training course, which was expanded from previous years and included visits to White Light (who also provided additional lighting equipment), DHA, Imagination, the National and Her Majesty's Theatre (for a look around Phantom) as well as Vari-Lite and Theatre Projects, talks by Modelbox's Peter Byard, lighting designer Ace McCarron and sound designer John Leonard, and practical sessions both at the NYT's base and at the Bloomsbury and ICA Theatres.

If anything, the overall theme of the season seemed to be technology - while the lighting people had fun with the VL5s, those working on sound moved away from the traditional Revox and up to digital playback from samplers. This was demonstrated in John Leonard's talk early in the season, and actually put into practice in his design for Julius Caesar at the Bloomsbury. Here the complex design, including atmospheric underscoring and the sounds of storm and battles were all replayed from an Akai S1000 sampler,



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loaned by Akai UK, controlled from an Amiga computer running Charlie Richmond's Stage Manager 3000 software, and replayed through the Bloomsbury's Bose 802 rig and two Bose 302 sub-base units provided by Farrahs.

A simple MIDI keyboard was also used, so that extra bits of battle or storm could be 'played in' as required, and, since we were using MIDI, we also ran a link up to the Imagine 2 lighting desk and triggered battle lighting effects to ensure that they coincided with the sound. Once it was all set up, the whole system showed the way that theatre sound is moving as the 'next generation' of technology becomes commonplace, exactly as the VL5s did with the lighting. But a number of problems with both, clearly indicated that the most important lesson of all is how vital carefully backing up all of the data involved is. If a conventional lamp breaks, you simply focus its replacement as stated on a piece of paper; if a Revox fails, you put the take into another Revox. If a computer fails then the data's gone forever, unless you have that backup!

LETTERS

Dear Editor

Tension Wire Grid

I note on page 43 of the September issue of L+S that "the proposed (tension wire grid) for the Scarborough Odeon will be a 'first' for the UK."

Not so! Tension wire grids are used in the roof of Hall 3 at the International Convention Centre, Birmingham which opened in April 1991. These were designed and installed by Rae Stage, with Artec Consultants Inc (for whom I worked at the time) as consultants.

I believe the original design was by J.R. Clancy in the USA (a firm of theatre equipment contractors) and their use on many projects in North America was championed by George Izenour. The largest tension wire grid currently planned for the UK (to the best of my knowledge) is the 7m by 11m grid above the Taunton School Theatre. Architects for this project are Architecture for the Arts and I am the theatre equipment consultants. The project is currently in detailed design. The tension wire grid has significant advantages in terms of the technical flexibility and safety it provides; it is a shame that it has taken so long to be adopted in the UK. It is pleasing to see that Scarborough will be using one.

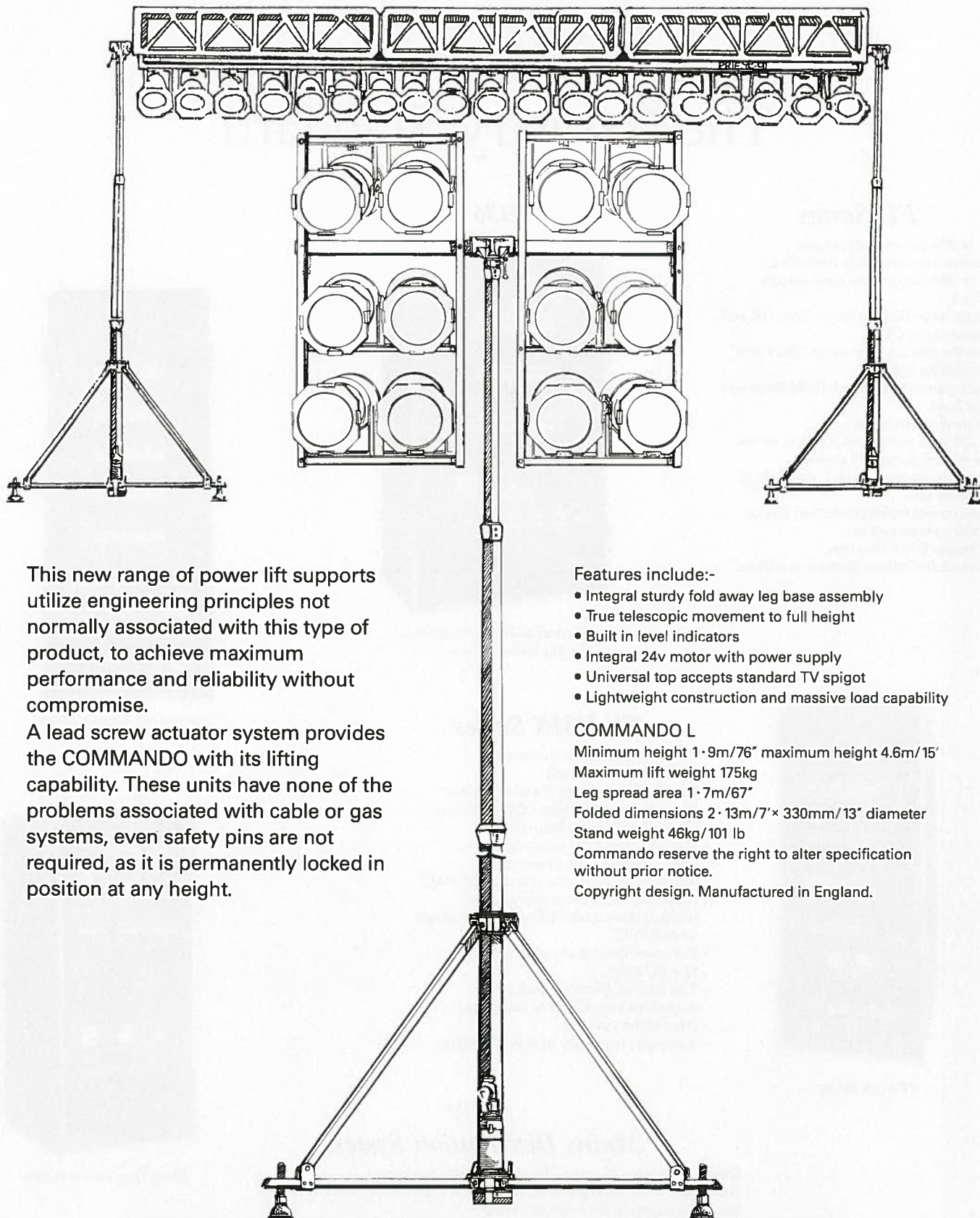
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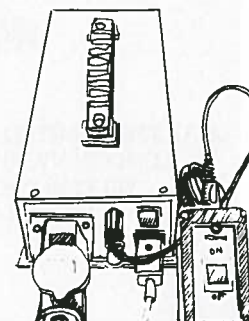


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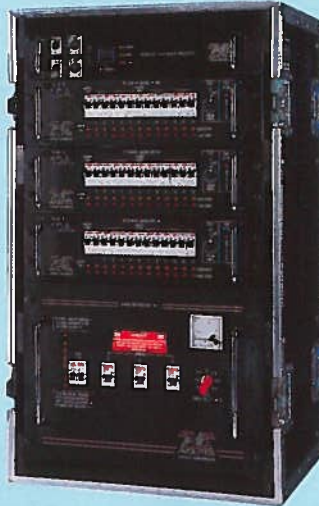
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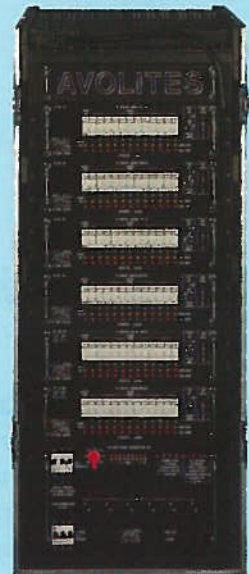
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EROS AND THE MAN WHO NEVER SLEEPS

Reflections on the Ramazzotti tour, from Tony Gottelier

Eros Ramazzotti. Never heard of him? (But isn't it a name to conjure with and to roll around your tongue?) Raiding the classical deities could open up a whole new larder of romantic names for an aspiring generation of performance artistes. So far, I have come up with Zeus Fastana and Hero Rollo, but there must be others, though doubtless some wag will point out that the late Freddy 'Mercury' pipped them all to it! (Anyway, a bottle of champagne for the best suggestion from L+SI readers).

If you are English you may have an excuse for not having heard of Ramazzotti, though this seems to be the only country in Europe which the diminutive Roman hasn't conquered. Right across Continental Europe, the Italian soft rock star sells millions of albums and his extensive tours routinely sell out. And his fame has spread beyond the Rubicon, to the Americas also, especially Latin America where he also tours and where a major television special from Revolution Square in Cuba is in the pipe on the current schedule. Even his illustrious forbear Julius Caesar didn't make it that far! This tour has already taken an entourage of 60 crew, technicians and production staff from numerous dates in Italy, to Switzerland, Holland and Belgium. During the month of publication they will be in Germany, Sweden and Denmark, followed by December in Paris (where the Bercy is sold out for three nights), and onwards to more Italian and German dates, plus Austria and Spain. After Christmas comes Australia, Argentina, Venezuela, Columbia, Panama and Mexico, then the USA and Canada, though probably without the whole entourage. All he needs is a big summer hit on the beaches of the Italian Riviera, and he will be big in the UK too!

I give you all this to show that there is a whole market out there for touring companies with performers unheard of in these sceptred isles. An indication of this is the impressive list of top-line British specialists participating in this tour which, almost certainly, only came about through the pre-production involvement of Robbie Williams, best known for Pink Floyd's productions and, let's face it, no small time operator! Brilliant Stages, Star Hire and Britannia Row are all contributing with substantial technical input, to say nothing of Flying Saucers who are providing substantial input of another kind, for it is well known that a rock and roll army marches on its belly.

Another participant, which seems to specialize in such esoteric artistes, outside the usual run of the dinosaurs of Rock and current Anglo Saxon music, is Unusual Automation, the motional off-shoot of Unusual Rigging. Consequently, they also seem to have a penchant for attracting acts with unpronounceable names, the previous most notable being the Japanese Yumi Matsutaya, for whom Unusual provided the automated Vari*Lite trolleys (see L+SI June 1993). The involvement with Ramazzotti is a more vertical dynamic, but Unusual's Jim Douglas is very excited at the potential of a new concept which combines his remote hoist system with positional mirrors and automated mirror luminaires in an intricate three-dimensional partnership which, he suggests,



New reflections: Ramazzotti on tour.

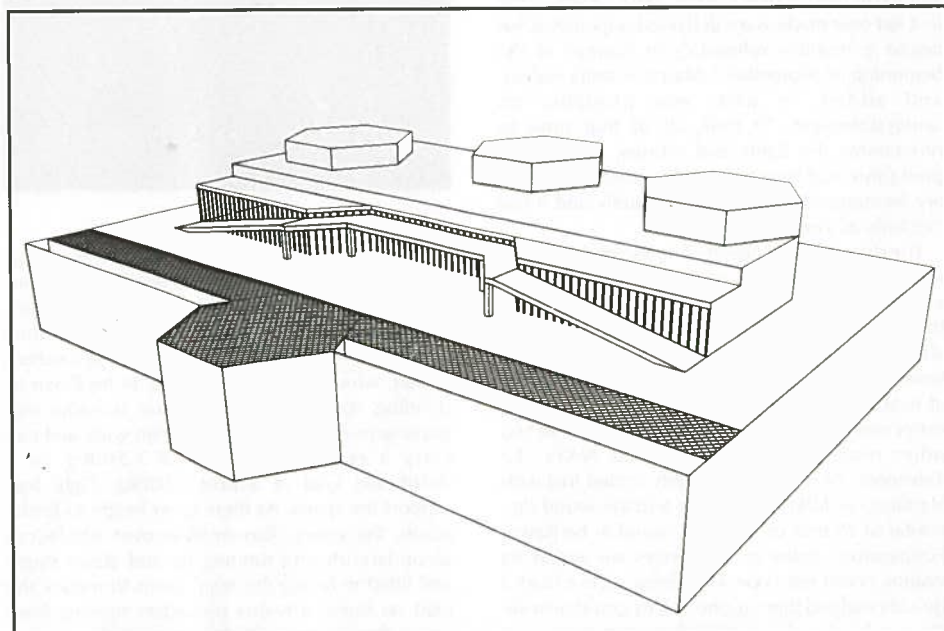
may present a radical new approach to rigging touring lights. So it was Jim who persuaded me to leg it to Rotterdam on a chilly Sunday afternoon in late October to meet the tour, and it was he who guided me round the legions of Ramazzotti's troops.

If Holland, like Germany, had struck me as an odd place for an Italian performer to have a following, though the Ahoy stadium was sold out for three nights with 30,000 expected, I was quickly disabused of any such thought by the lady cab driver who drove Jim and I from the tiny Rotterdam airfield to the venue. She had certainly heard of the Italian performer and confided that he went well with a glass of wine by the fire at night, which immediately gave me the impression of a Latin crooner in the mould of Julio Iglesias. Fortunately, this was another pre-conception which was to fall way short of the mark. Then, in what appeared to be a complete non-sequitur, she imparted that she liked Pavarotti also - clearly a lady of catholic tastes! Or maybe she's just into Italians. So there it was, in a microcosm of the political reality, Europe is getting smaller, but with the Brits still isolated beyond the cultural divide.

So, to the stadium, and the warm embrace of tour and production director Marco Astarita (is there no ending to these wonderfully evocative names?). Under the aegis of Trident Agency, who are organising the whole shebang, the expansive Marco had developed the show from the start, some 12 months previously, and worked closely with lighting designer Billy Bigliardi to achieve a unique result. "Of course, Billy is the one with the crazy ideas," Marco told me. "He has all these mad concepts in the middle of the night because he doesn't sleep." The current 'mad' revelation, which probably isn't crazy at all, did indeed come to Bigliardi one night at home when playing around with an arty mirror and

watching a sci-fi movie on the telly at the same time. "I love mirrors," Billy imparted. "In fact, I have a house full of them and it suddenly came to me that we could do something really extraordinary with them for this show."

The extraordinary idea, which he then had to sell to Astarita, was to turn convention on its head. "Why not use banks of mirrors over the stage as the main lighting instrument and install the sources in the floor, which would not only create a new geometry to the beam work, but also make the majority of the instruments totally accessible for rigging and maintenance?" Astarita immediately saw the potential, and not just in the spectacle, but also in the possibility of developing a totally new staging system. Mind you, he probably hadn't anticipated the problems that going on the road with such a new and untried technique would bring with it! For this was a case of linking five moving flown-rigs, carrying a total of 77 DMX-articulate positional mirrors, with 90 lighting instruments on the ground - 40 multi-function automated luminaires (Coemar Samurai 1200s) and 50 spotlights with colour changers (Coemar Polos with their Colour



Brilliant Stages' schematic for the tour set.



Some of the stunning lightbeam effects created by lighting designer Billy Bigliardi's 'mad' concept. Below centre is Ramazotti caught in the spotlight.



System). "To make matters worse, Billy also wanted to use the new Coemar NAT, of which the first ten ever made were delivered only just as we began a month's rehearsals in Cannes at the beginning of September." Marco Astarita sighed, and added, in what was probably an understatement: "It took all of that time to programme the lights and mirrors, in fact, we probably could have done with more time! But we are learning and improving constantly and it has certainly all come together."

The decision to make the frames (pods), for the mirror supports from steel, for strength and stability and, incidentally to design them for trucking, presented Astarita with quite a problem when it came to the rigging. "For the mirrors to work successfully, the pods have to be positioned at exactly the same height relative to the stage at every venue. In addition to the pods, we have two other moving rigs, the Coemar NATs, 12 Telespots, 24 double floodlights (called Iris) with scrollers, six followspot chairs and the sound rig - a total of 25 tons of light and sound to be flown. Furthermore, many of the venues we would be visiting could not cope with flying such a load. I quickly realised that no-one in Italy could provide the overhead grid and ground-support system we would need. It was Robbie Williams who



proposed the StarGrid."

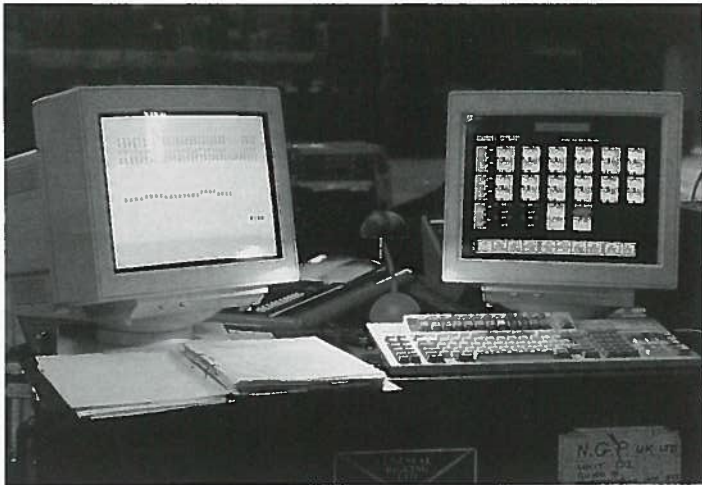
Star Hire, who are well known for their ground-supported systems and outdoor stages for Simply Red, Dire Straits, Phil Collins and others, tackled the problem with help from consulting engineers Scott-White and Hookins. The resultant design, which allows for the grid to be flown or standing, depending on the venue, provides four spans across the stage. Each is 19m wide and can carry a centre point-load of 3,500kg, or a distributed load of almost 9,000kg. Eight legs support the spans. As there is no height to bridal points, the system also employs over 300 feet of secondary trussing running up and down stage, and lifted to bridge the main spans to reduce the load on them. It is this secondary trussing from which the moving pods are suspended.

In ground-supported mode, the downstage span



continues to form a 'goalpost' at either side of the stage to support the two massive Turbosound Flashlight PA clusters. These masts, which are only 38cms across, have to be 12m high to accommodate the pods, at which height they are limited to a load of 3,250kg each. Four of the masts operate right on this limit and unusually, nearly half the production weight has to be on-board the grid when it is lifted into position, so extensive use has been made of loadcells to monitor the load as it is being applied. As Star Hire's Roger Barrett emphasized: "The truss between the masts is so stiff that it is impossible to balance the loads by the old stand-by of feeling the chain tension on the hoist. Indeed, we have found that a single 'bump' of one motor can transfer nearly a ton from one mast to the other! As any minute variation in hoist speed alters the loadings per mast, the need to monitor individual loadings is paramount."

In fact, each mast has two hoist motors which attach to a rocking head-block. When this is level each of the two motors is taking the same load. Thus a single loadcell can be placed on one of the two motors and the reading doubled to get the total load on the mast. These loadcells, supplied by John Bray Rigging, take the form of a regular shackle with an active pin connected to a small amplifier. Data cables are used to transmit the



Software control for Unusual's rigging and automation.



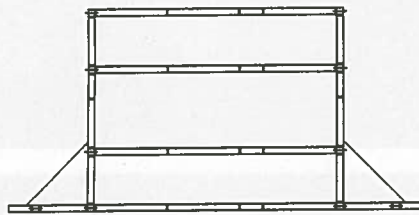
Lighting designer Billie Bigliardi focuses the Coemar NATs.

So, now we have two types of coincident movement to deal with, why not introduce a third for good measure? In order to achieve broader-stroke changes in the beam geometry, and for the pods to make a dynamic contribution of their own to the set, the five rigs needed the ability to raise, lower, and tilt forwards as well as sideways, in their own right. So, this was where the two Unusuals, Rigging and Automation, came in. Jim Douglas explained that they had developed a dedicated chain hoist system around their range of automated control systems for the purpose.

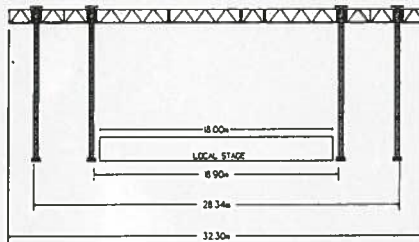
In this case, the system was designed specifically to co-ordinate the operation of encoded chain hoists, or other such fixed speed devices, the exclusion of variable speed parameters greatly simplifying the formidable task of plotting and operation. Named Hoist Master, the system on this tour controls all axes of movement on 28 chain hoists, which include two other moving rigs not yet described, and has the ability to drive each motor individually or in groups. One great advantage of Hoist Master is software which enables group moves to several different levels, but with all hoists coming to rest at the same time.

Together with the ability to drive motors individually comes the possibility of creating complex multi-part movement cues, linking together actions in time, position or by manual 'goes'. The resultant standard hire version of Hoist Master is capable of controlling up to 30 channels. As with all such developments, lessons have already been learned and new software in the future will make the operation and programming a great deal more logical by directing by function - no doubt to the relief of Gavin Weatherall and Adam Pulley, Unusual's programmer and operator for the project. Of course, Unusual Rigging are fiercely proud of their disciplined approach to touring, as exemplified on this tour by Steve 'Nippy' Williams and his mate Dave Brierley. The former's hidden talents at cake making, a technique "learned from mum", were much appreciated as supplementary puddings by all.

A quick look at the configuration of the overhead lighting to complete the jigsaw, before investigating what goes into the control of this little lot. The two additional motional rigs, upstage left and right, consist of a perimeter 'circle' of 28 ASL 250s on each, plus 12 Arri 2ks with gel scrollers inside. They are really rear stage effect machines with the ability to pan tilt and tip with dramatic results. 12 Iris twin 1k floods, fitted with Cameleon Molefay-type scrollers, light the cyc, and 12 more the side drapes which form a reveal for the three upstage rigs. 16 Cameleon 5k Telespots, a substantial motorized fresnel with a range from 2.5 - 6k HMI, remote focus, and colour scrolling, (and mechanical dimmer in the HMI type), provided stage washes and some spectacular



Above and below, the ground support elevations designed by Star Hire.



beam work over the audience. There are three followspot chairs on each side of the front stage using Coemar's Testa 1200s, while below four of these, and to the front of the tab track, there are ten of the new NAT 2500s from the Castelfreddo factory.

First seen, if you searched hard, at PLASA, but not officially launched until LDI in November, these new projection devices, which humble the expression 'all singing, all dancing', use an unusual periscope arrangement to achieve accurate beam placement through 360 degrees of both pan and tilt. In addition, the effects include everything bar the kitchen sink, from indexed, double-rotating gobos, to rotating prisms, to full colour mixing, to variable frost, to programmable focus, to zoom, to full mechanical dimming and on, and on, and on, to say nothing of the 2.5k MSR light source. Each unit requires 22 channels of control according to my information, although for some reason Billy seemed to think that it was 24; and who am I to argue with the lighting designer. For most of the show these were used to provide keylight and colour crossfades on the band members, but occasionally they leapt into life with beam projections into the audience, whilst making use of several of the facilities listed above, including one startling rolling effect.

Billy admitted that with more time and experience he could have achieved a lot more with this luminaire. "It's a very exciting, but complicated instrument, and consequently very demanding on programming time to get the most out of it," he said. "However, I believe it has enormous capabilities, and we will be working with Coemar to maximize its advantages after the tour." Apart from the wide choice of effects, he

cited NAT's potential to combine high speed movement with precise positioning as a possible breakthrough. In fact, as Coemar's sponsorship of the tour is through the provision of equipment, from which I imagine they hope to gain some experience of road-performance, I found it a bit surprising to be told that they had no senior tech on the tour - especially considering that this was the first outing of their new baby, fresh from the delivery room and three years in the gestation. Although reliability didn't seem to be an issue, I would have thought the experience gained and advice given, could have been invaluable to all concerned. Nuovo Service, the Italian rock and roll company who are responsible for the technical side of the tour, provide all the support for the lighting and sound systems.

Before moving on to control, just one small point about smoke. Obviously, with projected beams directed upwards from the stage floor, the lighting designer had to be careful about the placement of smoke, unless he specifically wanted to see the beams in front of the band, when a particular look required it. This seems to have been achieved satisfactorily with six Rosco 1500 machines, two of which were placed on the front stage and, presumably, individually controlled, though I didn't investigate.

You could immediately tell that this was an 'intelligent' tour by counting the dimmer channels, only 108 channels of dimming, split between Avolites, Arri and ADB, whereas a crude count of the active DMX control channels would run into more than an additional 700. Never mind, co-ordinated control of that lot through DMX512 shouldn't be a problem, after all, 1024 channels these days is relatively trivial, isn't it?

Wrong! First, Unusual Automation's Hoist Master does not use DMX because feedback of motor positions is vital, and DMX does not allow for two way transmission. Second, the Telespot uses its own digital multiplex and so required a dedicated Compulite Micron board. Third, programming required more than one lighting board so that the task could be shared between two or more operators. Fourth, Nuovo Service could lay their hands on an Avolites Sapphire and a QM 500-TD, which between them deliver up just about the right number of control channels, but only by using the softpatch on the QM to gang up some functions. So the task is split between two Avolites' specialists, with the Sapphire, driven by the Swede Pontus (Bullen) Lagerbielke, running the mirror arrays and the Samurais, while the QM 500 manages the NATs, and the Polos with their Colour Systems, under the direction of Chicco Vernocchi, who learned his craft when previously working for the Italian Avolites' importers. Between the two of them, they have plumbed the depths of Avolites technology and into uncharted territory - never before had all 512 channels on a Sapphire been used in real life and the call on the

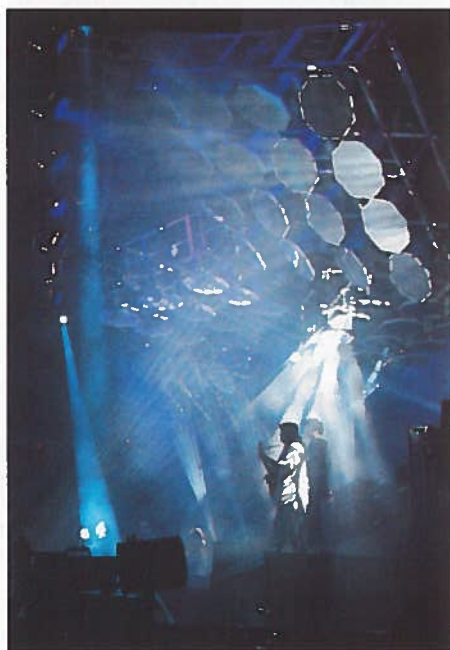
readings to a bank of VDUs at the side of the stage for close monitoring during the lift. Barrett claims that careful matching of bridging heights to deflection ratings has enabled accurate load transfer to be achieved: "All the rigging data for over 70 points was analyzed by computer to provide a total loading figure for each leg. This enabled our consulting engineers to analyze every piece of truss to ensure that it was within safe limits." In total, the system swallows up over eight tons of aluminium, 22 Verlinde hoists and requires two 45 foot trailers to accommodate it for transport.

Moving back to earth, Charlie Kail's Brilliant Stages adapted Marco Astorita's design to their standard staging modules and on top built a multi-level set with custom-built stage thrust, all of which conceals the battery of floor-mounted lighting equipment. In addition, there are a series of back-drops, used as a cyc or for two 35mm film sequences which form part of the performance, plus front and side tab closures. Two ranks of ten Coemar Samurai are buried upright in the floor on either side of the thrust, below a steel mesh like a large street drain, with 16 L 200 Polos, a 4.5 deg. halogen ellipsoidal, and the Coemar colour 'blenders' behind. (I call it a blender because it isn't a conventional scroller. Instead it moves three 'panes' of gel - red, yellow or blue - into the light path in varying proportions, in an exquisitely simple derivative of subtractive colour mixing which, they say, yields 21 different colours). These sources are aimed at the three downstage mirror arrays overhead.

Behind the riser, in vertical mode, stand a further 20 Samurai, with 12 Polos, again with colour blenders behind, which serve the mid-stage rig. Behind the side-tabs, the up-stage pod carrying 24 mirrors is supplied by a further 12 Polos. Now you can see why the trim height is so crucial and why a tape measure is routinely used to check the distance between the bottom station of the moving pods and the stage floor. The Samurai is a moving mirror device with 1200 MSR light source, 12 colours, 12 gobos, and remote iris, mechanical dimmer and shutter. So we're talking mirror to mirror here, though they don't (talk to each other, that is), as I was shortly to discover. With all this close integration of equipment and the mirror arrays to the set, and the dynamic they provide in performance, it would be hard not to credit the lighting designer with a share of the plaudits for the staging of the show.

To find out more about how this extraordinary concept was implemented, I talked some more to Billy Bigliardi. "When I have these crazy notions I often talk to my close friend Charlie Paterlini about how to bring about a technical solution. Charlie really is a genius in electronic control and software and we live not far away from each other." By convenient coincidence, Charlie is also the designer of much of Coemar's stepper motor control electronics, and so the final link in the chain is made, for Coemar are the technical sponsors of the tour and, as you will have noted, much of their equipment is in evidence.

The result of this collaboration is a lightweight plastic mirror approximately 30cm across, cut into an octagonal, and mounted onto a 'styrene backing' which, in turn, is connected through pulleys and belt drives to stepper-motors, and to the electronics, both contained in a housing behind. The mirrors are demountable for security during transportation and for cleaning, which is required every night due to the hostile environment and static build-up in the plastic. The pods which support these arrays, five in total, allow the motor housings to fold inside the frames for safety when demounted, and the structures divide to form modular trolleys for ground mobility. The mirrors' pan and tilt functions are controlled through DMX512.

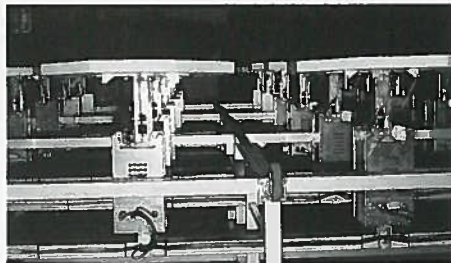


QM 500 left only one spare channel! The 480 preset focuses and 60 positional cues also set a new record, according to Avolites' Steve Warren, who saw through some of the rehearsals in Cannes. "Frankly, we are rather proud of our boards' performance, so close to the limit," Steve told me.

There is also a third operator, Glauco Mattei, running the Compulite Micron and an Avolites Rolacue 30 for the melange of Cameleon and Iris kit and associated colour changers. And everywhere in the background is the haunting presence of Billy Bigliardi who can barely keep his hands off the desks and, in fact, often operates the Sapphire himself. "It's true that he doesn't sleep," Steve Warren told me in direct evidence of the man's insomnia. "In Cannes he stayed awake for three nights in a row with, seemingly, no problem at all."

OK, so that takes care of the programming. Now they can call the cues via a MIDI link from just one of those desks during performance? Wrong! Each of the desks operates entirely independently. Indeed, during the performance I saw, the only operator wearing a headset was the guy calling the followspot cues. However, aside from an unfortunate DMX problem in which a data cable got shredded, though put back inside a couple of songs (and reminding us how important the careful planning, execution and security of the data link, and a redundant alternative, are in such situations), the results were truly spectacular as our pictures indicate and it was, without question, a brilliant show. Billy was desperately disappointed by this incident, though it is unlikely that it was noticed by anyone other than the operators themselves.

It should not be concluded that they are not all aware of the possibility and practice of the various options for linking the desks, after all SMPTE is being used to synchronize the band and the cine



Close-up of the mirror mechanism.

projector via an ADAT. Again, it was simply lack of time at the outset, with the high level of other new toys they had to play with. Apart from which, there's more art to doing it this way though they weren't busking it! The multi-part cues had been carefully scripted by Bigliardi and, by the time I saw the show, were simply coming in natural progression. And even the hiccup was dealt with seamlessly and without any overt panic. These guys are professionals!

I haven't allowed a great deal of space to cover sound, because it was with the lighting that the real innovation was going on, and which was the prime motivation for covering the tour. Also, since Nuovo Service had imported 70,000 watts-worth of the famous Britannia Row Turbosound Flashlight rig, there is a risk of boring you, as it has all been said before. However, credit must go to Maurizio Maggi and Vincent Perreux, the FOH sound engineer and his assistant (the latter operating on the night of my visit), who had coaxed a really 'kick ass' result from the system, which had the entire stadium on its collective feet and jumping. The hands-on gear consisted of a Tascam 3700/32 feeding a Midas XL3/40. (The rest of the audio processing equipment is listed in the panel to the right). At stage-side, Klaus Hausherr used a Ramsa 40 and DDA Q/16 to mix the stage side fills and wedges.

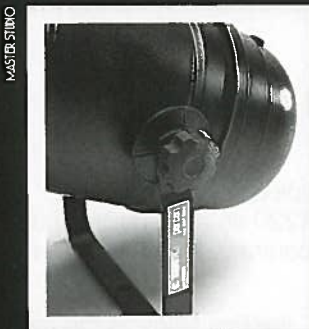
So there you have it, a thoroughly exciting performance resulting from a creative concept which pushed the limits of touring's tolerance to unfamiliar technology to the edge. And the result was the better for that, I am sure, though the risk of failure must have been considerable at the start. But then if you never take a risk, nothing ever moves forward. Not since some of the landmark Genesis shows, or the Pink Floyd specials, will you have seen a performance more guaranteed to shake you up, in the context of its time. And you can tell, from the combined attitude of the melting-pot crew, from as many countries as the tour plans to visit, that they know they are in on something special. Art it certainly is, but whether it is also something which will, literally, turn upside down our preconceptions about traditional rigging structures for the future, as has been suggested by some, I am not so sure.

Sound Equipment

48 x Turbosound Flashlight
20 x Turbosound TMS 3
8 x Turbosound TFS 3
18 x Turbosound TMW 215
4 x Turbosound TFM 350
BSS/QSC amplification
1 x 40-channel Midas XL
1 x Tascam 3700 mixer
BSS crossovers
Klark Teknik/Digal Montarbo analyzers
1 x Lexicon 480 L
2 x Lexicon PCM 70
1 x Klark Teknik DN780
1 x Yamaha SPX 900
BSS compressors/noise gates/equalizers
2 x ADAT 8-track digital audio recorder
1 x Ramsa 40-ch monitor mixing console
1 x DDA Series Q
Radio Station/Beyer headphones
AKG/Sennheiser microphones

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Light Years Ahead Of The Competition

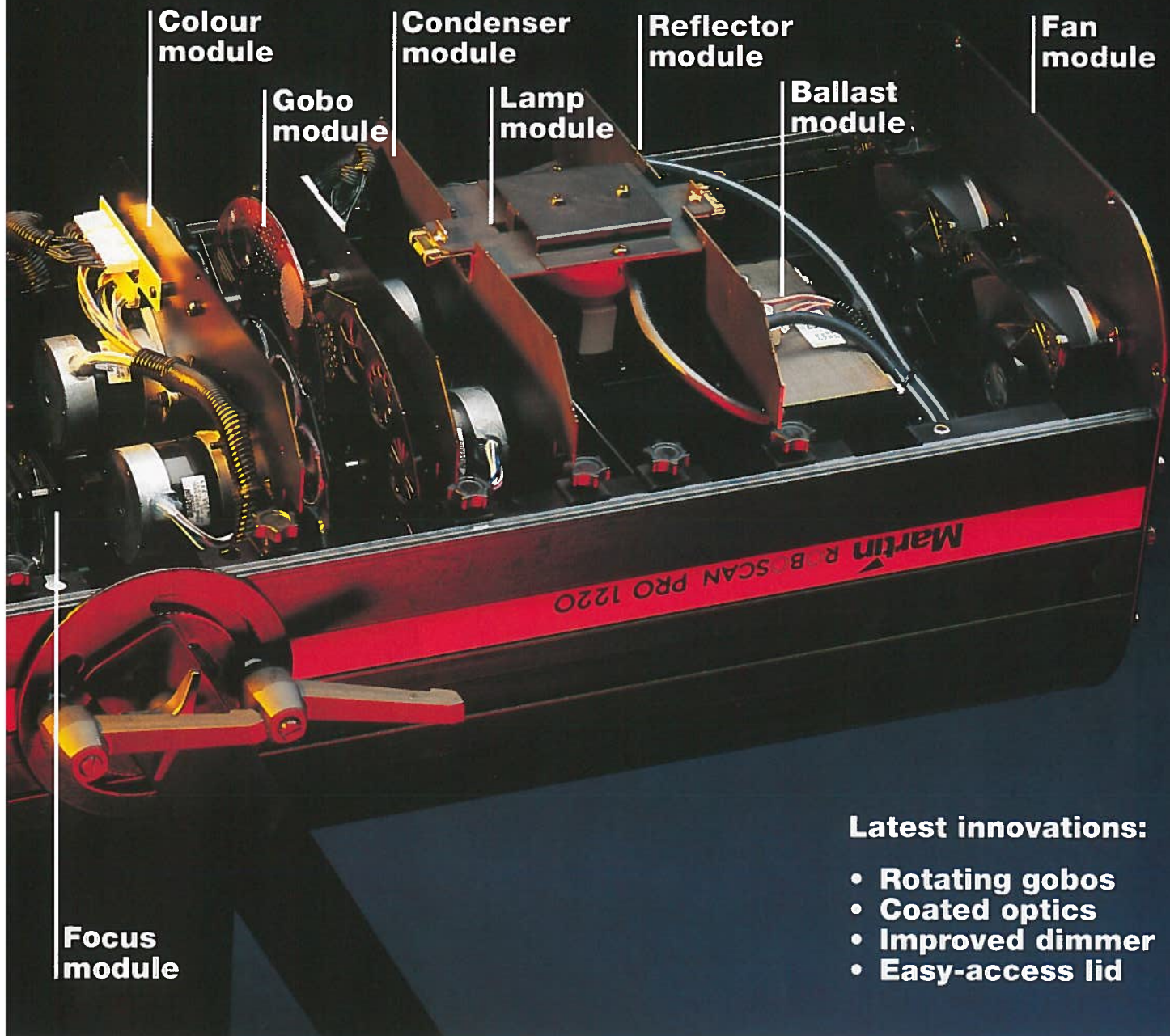
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- Your choice of 14 gobos w/5 rotating gobos or 18 non-rotating gobos
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SURVEY OF AUTOMATED LUMINAIRES

by Tony Gottelier and Richard Knight

The chart opposite, which continues on pages 45 and 47, is intended to be the first comprehensive survey of the current generation of performance quality automated luminaires, giving the opportunity for readers to review the characteristics of each in a single document.

This has not been an easy task. As has often been pointed out, manufacturers of all kinds like to present their data differently, making the task of the specifier doubly difficult. In this particular case, this is true of both lamp and lantern makers and will get considerably worse when we come to review the appropriate control systems in a later issue. (Indeed, it has been suggested that PLASA has a role to play in encouraging the standardization of the information required on suppliers' data sheets in each of the main product groups. Hear! Hear! we say). In a sense, we have had to tackle this task from much the same standpoint, by issuing a questionnaire that asked the appropriate questions in a standard form. Needless to say, we could not guarantee that the manufacturers would use the same approach in giving their responses. In all cases we have relied on the maker's honesty in his replies, as we did not have the resources for doing our own tests. It should be borne in mind, however, that there is often a difference between 'theoretical' data and 'actual' performance characteristics. Where this applies you would expect the manufacturer to succumb to the temptation to show his product in the best light and make allowances accordingly.

Frankly, just collecting and collating the data was a mammoth task; corralling all the participants gear for a 'shoot-out' with light meter and stopwatch, would have been beyond feasibility. So this is not a 'Which' report, nor, incidentally, is it a witch-hunt.

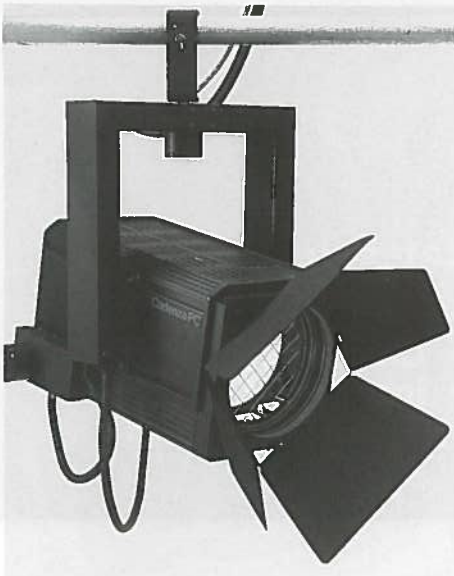
For the survey to be useful, it is important to know the parameters under which it was set. First, it is restricted to performance-quality luminaires. In other words, we wanted to snapshot all the instruments which might be suitable for use on a stage, irrespective of the mode of entertainment envisaged.

So this takes in plays, opera, musicals, concerts, television, touring and large venues. We set the limit at the 400W discharge level, and this is not entirely arbitrary because, below that lamp rating, there is a whole mass of kit which, if included, would have made the survey totally incomprehensible. (If we still have the impetus, we might try to cover these separately at a later date). It would also have reduced the survey's value to the targeted sectors of the industry. However, as with any rule of this kind, we have had to bend a little and use our discretion where an instrument did not strictly qualify, but was patently a stage-quality instrument - as in the case of some models of the Vari*Lite.

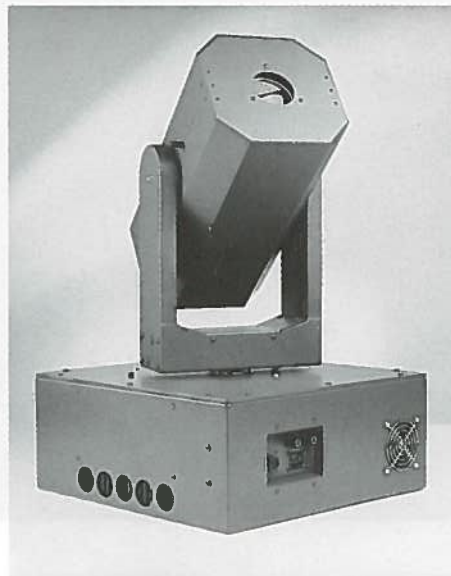
We started out with 18 participating companies, which has been reduced to 16 due to 'natural wastage'. While we were compiling the data, Summa filed for Chapter 7 in the US and went out

of business, while Stratford Staging Tech, who made the Aurora, failed to respond at all, despite our persistent attempts to make contact. In addition, we had included Ludwig Pani on the list, as we had heard that they were supplying such luminaires. However, Hermann Sorger told us that though they were making remote-controlled spotlights as long ago as 1959, and have sold and installed some 2,000, they don't have a current model in their range, so they preferred not to take part. However, they don't rule out the possibility of production units in the future. We ended up with 51 participating luminaires, though this includes all the various models of Strand Lighting's PALS system. Because this is basically a moving yoke system, onto which many of their luminaires can be bolted for automation, we have had to rationalize their data on the chart. We have included one typical Cadenza model on the 11/26, whereas there are several others in the range, and similarly for the Cantata. Only the optical and physical data should vary between models, however, and so, if you are interested in using this item, please request the specific information on the appropriate luminaires from your Strand dealer.

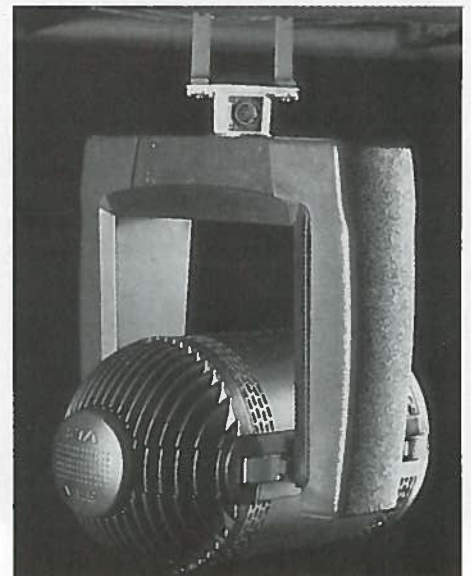
There are a number of 'firsts' with the survey in that it contains the first published data on the Coemar NAT (as much as is available), and the same for High End's Cyberlight, to be unveiled at LDI'93. It also has the latest improved spec on the Martin Professional 1220, so it should be bang up



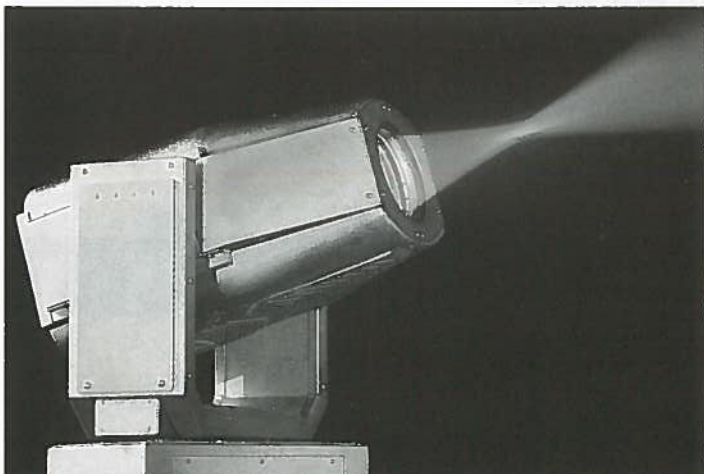
Strand Cadenza PC in a PALS yoke.



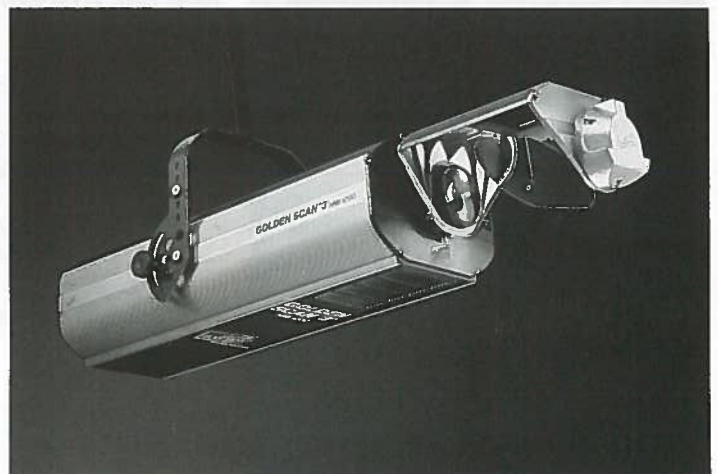
Synclorlite Mini Arc IISA HTI600 spotlight.



Vari*Lite VL5 luminaire.



New on the scene: the LSD Icon.



Clay Paky's Golden Scan 3.

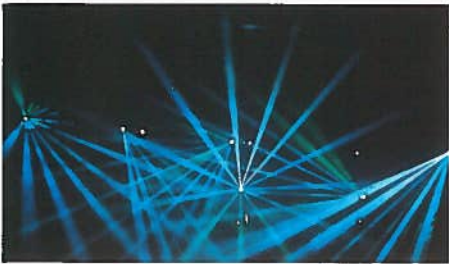
Manufacturer and Luminaire	TYPE		POSITIONAL DATA											COLOUR																									
	Luminaire Designation		Beam Articulation		Beam		Stepper Motor Drive			DC Servo Drive			Drive Philosophy		Drive Resolution			Positional Accuracy		Viable Speed				Colour Method															
	Spot	Wash/fresnel	Spot/fresnel	Driven Yoke	Moving Mirror	Pan Degrees	Tilt Degrees	Absolute Encoding	Hard Initialization	Initialization by Switch	Absolute Feedback	Incremental	Potentiometer	Microstepping	Control Tracking	Vector to Vector	8-bit	12-bit	16-bit	Pan Degrees	Tilt Degrees	In seconds				Wheel	Subtractive	'Dogtooth' Mixing	'Wedge' Mixing	'Tilt' Mixing	Scroller	Fader	Other	No of Colours (inc white)	Crossstades Timed				
																						Maximum	Minimum	Maximum	Minimum														
Altstar																																							
Starbeam Spot	•			*		360	360								•																					343	•		
Amptown																																							
ACC Posi Spot	•					180	180								•																						11		
Controlite PML	•					360	270								•																						25		
AVAB/Neithammer																																							
Auto Focus	•					540	145								•																						32	•	
Auto Focus	•					540	145								•																						32	•	
Auto Focus	•					540	145								•																						32	•	
Cameleon																																							
Telescan MkII	•					180	90								•																						all	•	
Telescan MkIII	•					340	90								•																						all	•	
Telespot		•	•	•		340	180								•																						12		
Clay Paky																																							
Superscan ¹⁵	•					150	110								•	•	•	•																		4	all	•	
Goldenscan 3575	•					150	110								•	•	•	•																			4	all	
Goldenscan 3 1200	•					150	110								•	•	•	•																			4	24	
Coemar																																							
NAT 2500	•	•				360	360	•	•						•	•	•	•																				all	•
Samurai 700	•					170	110								•	•	•	•																				12	
Samurai 1200	•					170	110								•	•	•	•																				12	
FLY																																							
FOS 1						180	90								•	•	•	•																			all	•	
FOS 2						180	90								•	•	•	•																			all	•	
FOS 3						180	90	•							•	•	•	•																			all	•	
FOS 4						180	90								•	•	•	•																			all	•	
High End																																							
Cyberflight	•	•				170	100								•	•	•	•																			all	•	
Intellibeam 700	•					170	110								•	•	•	•																				11	•
Intellibeam FX	•	•				170	110								•	•	•	•																				44	•
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Icon	•	•				360	270								•	•	•	•																			1,000+	•	
Martin Professional																																							
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Roboscan 218	•					180	90								•	•	•	•																			18		
Pan Command																																							
PC Spot	•					360	270								•	•	•	•																			all	•	
PRO-300	•					360	270								•	•	•	•																			all	•	
PRO-350		•	•			360	270								•	•	•	•																			all	•	
FaderBeam		•	•			360	270								•	•	•	•																			all	•	
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Strand																																							
Cantata	•					360	120								•	•	•	•																			16	•	
Polaris		•	•			360	120								•	•	•	•																			16	•	
Castor		•	•			360	120								•	•	•	•																			11	•	
Pollux		•	•			360	120								•	•	•	•																			11	•	
Pollux Bambi		•	•			360	120								•	•	•	•																			11	•	
Cadenza 9/15	•					360	120								•	•	•	•																			16	•	
Syncrolite																																							
Mini-Arc IISA	•	•				360	270								•	•	•	•																			216	•	
Vari-Lite																																							
VL2	•					360	270								•	•	•	•																			120	•	
VL2B	•					360	270								•	•	•	•																			120	•	
VL2C	•					360	270								•	•	•	•																			120	•	
VL4		•	•			360	270								•	•	•	•																			1000	•	
VL5		•	•			360	270								•	•	•	•																			1000	•	



Martin Professional's PLASA 93 light show.



High End Intellabeams in action.



Fos 3/4 from FLY of Italy: one of 56 available gobo mixes.

to date. Other new issues for some will be AVAB's Auto-Focus, Cameleon's Telespot, LSD's Icon, Amptown's Controlite PML and Vari*Lite's VL2C.

The Altstar Starbeam and the Coemar NAT 2500 have been given an asterisk, instead of a dot, under 'beam articulation' method because neither of them are mirror deflection devices as we normally understand them. Both use a periscopic method of diverting the beam, which enables a much larger envelope into which it is possible to direct the incident beam. Effectively this is 360 degrees by 360 degrees, less the blind spot caused by the instrument itself which can vary in size according to the structure and construction of the head. Coemar would probably argue that their threshold is greater as the NAT head is capable of turning in parallel to the body of the luminaire, whilst the Starbeam acknowledges a 90 degree unusable wedge. Both can provide continuous rotation, though in different ways. In any event, this development brings the moving mirror a great deal closer to being able to offer the same capabilities as those of a driven yoke in terms of positional choice and accuracy. You could argue it's the best of both worlds, but without the visual sexiness of the moving yoke.

The section dealing with 'Positioning Data' has revealed something of which we are not sure how many users are aware. This is, that there is a fundamental difference in the motor control philosophy, and therefore the way of executing a move from the desk, which seems to split roughly between those who have always used DMX512 as their chosen data protocol, and those who use their own dedicated system but who may, subsequently, be offering DMX as an option. Both philosophies have their advantages and disadvantages. Without getting over complicated, the systems most common in Rock-n-Roll and touring up to now, work on a point-to-point basis (vector-to-vector). This means that the parameters for each move are a function of speed, time and distance and, in addition, for each move the operator plots a start point and a target point. The lantern will respond on 'go' by moving the beam 'as the crow flies'. In a sequential move the dots are joined together, like a child's puzzle. The drawbacks are the complexity of programming and the lack of facility to create geometric patterns. One advantage, especially with the DC



The AVAB auto focus.

servo motors used by many, which are analogue in their trajectory is that they are inherently smooth moving. Others use this system with steppers and digital servo motors.

With most DMX receiving luminaires, a system of tracking the output of the desk is used. This makes programming a great deal easier, and by sending all instruments to the target stations at a common time, it is possible to ensure that all beams arrive simultaneously irrespective of their starting points, or the distance travelled. This is achieved by the constant high-speed refresh of the protocol which is continuously updating each heads position in relation to the target. Thus, control tracking enables advanced systems, such as Wholehog and ShowCAD, to generate of circular and elliptical moves without having to plot several points on the curve. The problem with steppers is that they do just that - they step, and visibly so.

Microstepping, in software, between the steps smooths this out considerably, and almost totally to the eye if 16 microsteps are used as with the Golden Scan 3, for example. This also limits positional accuracy and explains why there is a demand for an industry protocol with better than 8-bit resolution. (Where you see 16-bit resolution offered on DMX machines, this is done by using two control channels and sending 2 x 8-bits serially.)

There is argument as to whether this improves smoothness of movement, but it will certainly solve the accuracy problem. (However, 12-bits is more than adequate for this purpose). Also if steppers are not initialized by a switch, they can be very noisy at start reset.

The Intellabeam is one stepper motor operator which went down the other route, using the point to point system, which may go some way to explaining why it was the first mirror device to



The Vari*Lite VL2C.

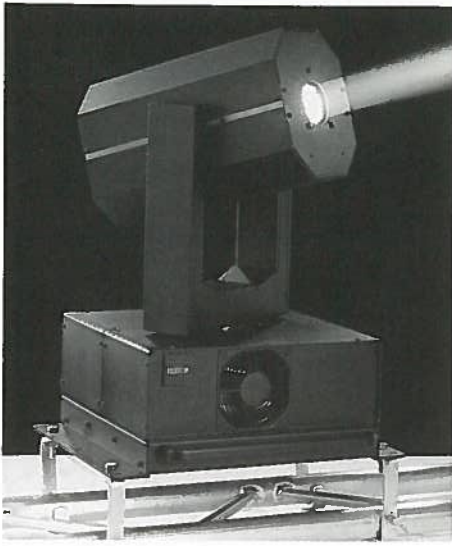
cross the divide into touring and stage production. It is interesting that some manufacturers, including Martin, LSD, FLY and Pan Command have now moved to offer both methods. We had heard that High End were also considering this, but their completed form for the survey gives no such indication.

We had some difficulty conveying the various methods of colour changing and mixing, so these require interpretation. Obviously, the simplest method is a colour wheel, but since the number of colours possible is restricted physically by this method, most manufacturers have moved to some form of mixing to achieve a wider range of colours and hues.

The theoretical potential numbers of colours can be mind boggling, and some even offer the facility to select Rosco or Lee colours by number. How practical this is in reality is uncertain; the dichroics, as used on the vast majority of these systems, deliver essentially 'clean' colours, some would say sanitized, whereas gel colours are 'dirty' which is what gives them their unique characteristics. Nevertheless, 'dial-a-number' is obviously a desirable goal. We leave you to decide which of these systems is most likely to deliver the colour choices you require.

The subtractive method uses the magenta, cyan, yellow technique of introducing different proportions of each colour in the beam, thus achieving a colour change. All the colour systems described are a variation of subtractive colour mixing. Uniquely, out of them all the Telescan Mark II is the only one to use gel for this purpose, and we wonder if this is why it has often proved popular with theatre and opera LDs. In the past some have even tried RGB, or additive colour mixing, which we would not have thought ideal, though it works on a television set. 'Dogtooth', is where the proportions of the three spectrals are mixed and varied by moving saw-edged plates in relation to each other. 'Wedge' is where three graduated colour wheels are rotated over each other. 'Tilt' is the method used, uniquely we believe, on the Vari*Lite VL5 and called by them 'dichro-tune'. In this method, three rings of radial vanes of the three essential colours, twist on their axes to yield different blends, as the angles of the filters to each other, and to the incident beam alter.

Manufacturer and Luminaire	EFFECTS										BEAM CONTROL										CONTROL												
	Gobos		Gobo Status			Other Effects					OBJECTIVE LENS DIAMETER (mm)	Dowser			Dimmer		Remote Iris		Other Facilities					Control Receiver			Control Transmitter						
	Number of gobos	Size of gobos	Fixed	Rotating	Positional indexing	Static Prisms	Rotating Prisms	Strobing Shutter	Gobo wheel	Continuous colour		Other	Shutter	Wheel	Other	Mechanical	Electronic	Yes	Max beam angle°	Min beam angle°	Zoom (ratio)	Focus (auto/remote)	Diffusion	Frost	Others	Analogue	DMX12 (full/part)	Own digital multiplex	Other	Dedicated desk	Any DMX/analogue		
Aitstar																																	
Starbeam Spot	7/7	E	•	•	•			•	•	•	1,2	58	•		•		•	25	15	2:1	auto				•	full	•		•	•			
Amptown																																	
ACC Posi Spot																	•								•	full	•		•	•			
Controlite PML				•				•			3		•		•			20	1.4		Rem					full					•		
AVAB Neithammer																																	
Auto Focus	6	A	•					•				185	•		•	•	•	38	1.5	2.5:1	both	•	•			full	•		•	•			
Auto Focus	6	A	•					•				185	•		•	•	•	38	1.5	2.5:1	both	•	•			full	•		•	•			
Auto Focus	6	A	•					•				185	•		•	•	•	38	1.5	2.5:1	both	•	•			full	•		•	•			
Cameleon																																	
Telescan MkII	6	M	•	•											•		•	18	0			•							•		•		
Telescan MkIII	5	M		•								200			•		•	18	0		Rem	•			4				•		•		
Telespot															•						Rem								•		•		
Clay Paky																																	
Superscan	8	M	•			•		•			1,3	98	•		•		•	12	.8		Rem			Lenses	•	full	•		•	•			
Goldenscan 3 575	4	M		•	•	•		•			3	98	•		•		•	12	.8				•	Lenses	•	full	•		•	•			
Goldenscan 3 1200	4	M		•	•	•		•			3	98	•		•		•	12	.8				•	Lenses	•	full	•		•	•			
Coemar																																	
NAT 2500	12	D		•	•		•	•	•	•	1,2,3	150	•		•		•				•	Rem	•	•	Pulse	6		full			•		
Samurai 700	12			•				•	•	•	3	80		•	•		•								Lenses	•	full	•		•	•		
Samurai 1200	12			•				•	•	•	3	55		•	•		•								Lenses	•	full	•		•	•		
FLY																																	
FOS 1	8	E	•					•	•	•	7		•		•		•									•	full			•	•		
FOS 2	8	E	•					•	•	•	7		•		•		•			1:4	both	•				•	full			•	•		
FOS 3	15	E	•					•	•	•	7,8,9		•		•		•			1:4	both	•				•	full			•	•		
FOS 4	8/7	E		•	•	•		•	•	•	1,7,9		•		•		•									•	full			•	•		
High End																																	
Cyberlight	7/4	E	•	•		•	•	•	•	•	11	88.9	•		•		•			1:2	Rem	•	•			full	•		•	•			
Intellabeam 700	11	N/S	•					•	•	•	11	65	•		•		•									full	•		•	•			
Intellabeam FX	11	N/S		•	•	•		•	•	•		65	•		•		•	17	1				•	•		full	•		•	•			
LSD																																	
Icon	7/7	D	7	7				•	•	•	1,3,12	150	•		•		•	38	0	1:2	Rem							•		•			
Martin Professional																																	
Roboscan 1220	9/4	E	9	4	•	•		•				60	•		•		•				Rem	•				inter	•		•	•			
Roboscan 218	18	12						•	•			50	•		•		•									inter	•		•	•			
Pan Command																																	
PC Spot	9	N/S	•	•										•		•	•	35	5	1:7	auto	•	•			inter	•		•	•			
PRO-300	9	N/S	•	•								89	•		•		•									inter	•		•	•			
PRO-350												140			•		•									inter	•		•	•			
Faderbeam												variable FL			•		WFL	NSP								inter	•		•	•			
Starlite Technology																																	
Starlite	5/3	N/S	•	•	•			•	•	•		90	•		•		•	60	2		Rem							•		•			
Strand																																	
Canlata 11/26	1	B	•									178					•	26	2									•		•			
Polaris												150									Rem								•		•		
Castor												250									Rem								•		•		
Pollux												300									Rem								•		•		
Pollux Bambino												250									Rem								•		•		
Cadenza 9/15	1	A	•									230					•	15	2									•		•			
Syncrolite																																	
Mini-Arc IISA	5	N/S	•					•						•		•	•	15	1.5		Rem	•	•			full	•		•	•			
Vari-Lite																																	
VL2	9	E	•									70			•		•	33	7		Rem							•		•			
VL2B	9	E	•									70			•		•	24	5		Rem							•		•			
VL2C	9	E	•									70			•		•				Rem							•		•			
VL4								•						•		•												•		•			
VL5																										full	•		•	•			



Amptown's Controlite PML.

The lamp life given is the lamp manufacturers rated average life. Most manufacturers offered special mechanical features for their touring models, which ranged from remote ballasts, power factor correction (PFC) to reduce the load for the larger lamp wattages, lamp life meter, safety mirrors, and extra carrying handles to modular mechanics. The following units are for rental only, while all the rest can be bought or hired: Altstar Starbeam, Cameleon Telescan MKII, III and Telespot, LSD Icon, and all models of Pan Command and Vari*Lites.

Various manufacturers asked us to make the following comments:

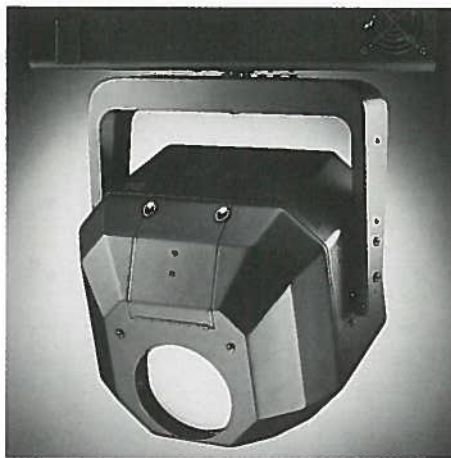
AVAB: "The Auto Focus is specifically designed for theatre, one of its main features being very low noise and the possibility of very smooth very slow movements. Each motor has its own delay, acceleration, deceleration, times/speeds."

CAMELEON: "We will shortly be launching the Tele Projector, which is an auto slide projector which has two slide scrollers, each with a capacity of 75 slides, which can be used in combination. Selection and speed is remote controlled. Subtractive dichroic colour overlays with colour temperature correction filters of diffusion are included and computer designed gobos and masks are used. The lamp will be a 2.5kW or 6kW HMI." (Tele Projector is out on the road with the McCartney New World tour at present, and has not been included in our survey as such because it doesn't meet the full parameters of what we consider an automated luminaire in the context. However, it looks really interesting in its own right - Eds). Telescans are modular.

CLAY PAKY: For the sake of space we excluded Superscan MRG from the survey as its essentially the same as a Superscan, but with four rotating gobos. Our attention was drawn also to the following features of all their models: the position of the mirror head can be adjusted to position the beam excursion at the most convenient angle. Also the direction of movement of the mirror can be reversed by switch to make the creation of symmetrical patterns from opposing instruments simpler. The Golden Scan 3 has a manually switchable wide angle lens.

FLY: All units have 92 other effects selectable from the desk. The Fos projectors are mechanically modular.

HIGH END: "We hope to see some interpretation of the specs given by the various manufacturers, especially when it comes to colours and the number of possible colours. It is easy to mislead with theoretical calculations when in reality there may be no visible difference between overlaid and subtractive colours. This calls for objective interpretation, also of the quality of the colour, how pleasing it is and how well matched form fixture to fixture. This applies to white light also." (While we agree with these comments, as we have already said, it was not for us to apply a subjective judgement to colour choices. One man's delicious colour, could be anathema to another!



Pan Command's PC Spot.

High End's associate Light Wave Research makes their own dichroics, so we would expect them to be touchy on this subject. I hasten to add that we like their colours very much, and have often said so.) High End also suggested that we should have surveyed warranty periods, an interesting suggestion, and pointed out that 'beam angle' is generally referred to, at least in the US, as 'field angle' or 'beam spread'.

MARTIN: "The 1220 dimmer offers full 0-100% fades with microstepping resolution and a hot mirror protects the gobos for longer life. The 1220 is modular in design, which offers maintenance advantages, as well as introducing the concept of retro-fitted up-grades."

PAN COMMAND: "Our colour system allows bump changes in less than 0.1 sec, or variable rate fade change. Where discharge lamps are used, our fader mechanism has the same performance characteristics. It has smooth field of illumination

NOTES TO TABLES	
1	Gobo superimposition
2	Continuous revolves
3	Split colours
4	Colour temperature correction
5	With PFC
6	Pulsating frost and zoom
7	Slide projection
8	Image animation
9	SFX projection
10	Interference patterns
11	Subtractive mosaic
12	Gobo crossfade
13	Raylite version also
14	2.5k -6k HMI versions available
15	Also Superscan MRG, with four rotating gobos
N/S	Not standard size

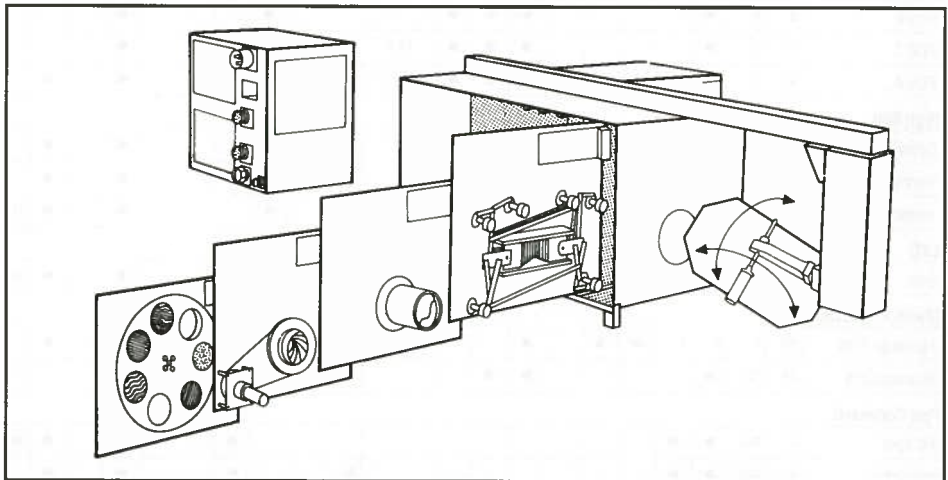
at all levels. DC servo motors are used for all functions for smoothness and control."

STARLITE TECHNOLOGY: "We will be launching a new system in 1994."

*Richard Knight was among the first people to specialize in the programming and operation of Vari*lites and their Artisan desk. His name is often associated with productions under lighting designers of the calibre of Andrew Bridge, Durham Marengi and Stan Snapes. Automated luminaires is to be the subject of a new book by the same authors to be published next year by Focal Press.*

Automated Luminaire Survey

Early in 1994, L+SI will publish a follow-up survey offering a major appraisal of automated luminaire control systems. Following the publication of this second survey a definitive copy of the combined surveys will be available to readers only on written request from the offices of L+SI.



Expanded schematic of the Cameleon Telescan Mark III.

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Manufacturer and Luminaire	TECHNICAL DATA														CONTACT DETAILS							
	Lamp					Ballast			Supply				Total Power		Dimensions		Weight		Manufacturer		UK Agent	
	Type	KWatts	Colour Temp - K, 00	initial luminaire flux Lux, 000	Life (hours)	Ext. adjustable	Magnetic	Electronic	Remote magnetic	100/110V	220/240V	Autobensing	Switchable	① 115V	② 240V	Specialized for touring	Length - cm	Width - cm	Height (inc brackets)	Total - kg	Remote ballast	
Altstar																						
Starbeam Spot	HTI	.6	56	55	300		●			●		●	8		●	38	38	91	27		Tel: 0101 914 476 2826	No Agent
Amptown																						
ACC Posi	CP	1	32		300				●	●			10	5	●	30	35	50	17		Tel: 010 49 40 64 60 04	Cerebrum Lighting - 081-949 3070
Controlite PML	HMI	1.2	56		750	●				●			6		●	50	50	73	36		Tel: 010 49 40 64 60 04	Cerebrum Lighting - 081-949 3070
AVAB/Neithammer																						
Auto Focus	MSR	2.5	56	240	500			●	●	●			25	12							Tel: 010 46 31 179 240	Zero 88 Lighting - (0727) 833271
Auto Focus	HMI	1.2	56	110	750			●	●	●			13	6.5							Tel: 010 46 31 179 240	Zero 88 Lighting - (0727) 833271
Auto Focus	HAL	2.5	32	64.5	500			●	●	●			25	12							Tel: 010 46 31 179 240	Zero 88 Lighting - (0727) 833271
Cameleon																						
Telescan MkII	HMI	1.2	56		750	●	●	●	●	●			14		●	150	50	45	45	22.5	Tel: 010 33 48 70 70 70	No Agent
Telescan MkIII	HMI	1.2	56		750	●	●	●	●	●			10		●	110	48	41	35	25	Tel: 010 33 48 70 70 70	No Agent
Telespot		14																			Tel: 010 33 48 70 70 70	No Agent
Clay Paky																						
Superscan	HMI	1.2	56	110	750		●	●		●			6	5	●	132	43	45	50	25	Tel: 010 39 35 663965	Pulsar - (0223) 66798
Goldenecan 3 - 575	HMI	5.75	56		750		●			●			3	5	●	110	43	45	30		Tel: 010 39 35 663965	Pulsar - (0223) 66798
Goldenecan 3 - 1200	HMI	1.2	56	110	750		●	●		●			6	5	●	123	43	45.5	42.5	25	Tel: 010 39 35 663965	Pulsar - (0223) 66798
Coemar																						
NAT 2500	MSR	2.5	56	240	500	●	●	●	●	●			32	16	●	150	36	58	66	46	Tel: 010 39 376 779336	Coe-Tech - (0604) 785878
Samurai 700	MSR	.7	56	56	750		●			●			12	6		44.5	40	34	34		Tel: 010 39 376 779336	Coe-Tech - (0604) 785878
Samurai 1200	MSR	1.2	56	110	750		●	●	●	●			17	5	●	9.3	33.5	42	23	15.5	Tel: 010 39 376 779336	Coe-Tech - (0604) 785878
FLY																						
FOS 1	HMI	1.2	5.6	110	750			●					8		●	115	34	40.5	31		Tel: 010 39 376 372975	Nulight (0925) 243075 or
FOS 2	HMI	1.2	5.6	110	750	●		●		●			8		●	140	34	40.5	37		Tel: 010 39 376 372975	A C Lighting (0494) 446000
FOS 3	HMI	1.2	5.6	110	750	●		●		●			8		●	140	34	40.5	38		Tel: 010 39 376 372975	Nulight (0925) 243075 or
FOS 4	HMI	1.2	5.6	110	750	●		●		●			8		●	125	34	40.5	33		Tel: 010 39 376 372975	A C Lighting (0494) 446000
High End																						
Cyberlight	MSR	1.2	56	110	750		●		●	●			16	5	●	110	31	33	42		Tel: 0101 512 836 2242	Lightfactor Sales - 081-575 5566
Intellabeam 700	MSR	.7	56	56	750		●			●			8	5	●	92.5	33	60	25.9		Tel: 0101 512 836 2242	Lightfactor Sales - 081-575 5566
Intellabeam FX	MSR	.7	56	56	750		●			●			8	5	●	92.5	33	60	25.9		Tel: 0101 512 836 2242	Lightfactor Sales - 081-575 5566
LSD																						
Icon	HTI	.6	53	45	300		●		●	●			10	5	●	36.5	48.5	98.5	35		Tel: 021-322 2212	
Martin Professional																						
Roboscan 1220	MSR	1.2	56	110	750		●		●	●			15	7.4	●	109	31.6	29.0	49		Tel: 010 45 86 21 44 11	Martin UK - (0622) 790164
Roboscan 218	MSD	.2	56		1000	●	●		●	●			2	5	●	33	28	18.5	14		Tel: 010 45 86 21 44 11	Martin UK - (0622) 790164
Pan Command																						
PC Spot	HTI	.4	60	30	250		●						6		●	50	50	67.5	23		Tel: 0101 408 297 7262	No Agent
PRO-300	HTI	.6	53	45	200		●		●	●			8	13	●	32	30	65	15		Tel: 0101 408 297 7262	No Agent
PRO-350	HTI	.6	53	45	200		●		●	●			8	13	●	32	30	65	15		Tel: 0101 408 297 7262	No Agent
FaderBeam	FEL	1	32	28	300				●				10		●	50	50	67.5	11		Tel: 0101 408 297 7262	No Agent
Starlite Technology																						
Starlite	HTI	.4	5.6	25	250		●		●	●			6	3	●	48	44	64	25		Tel: 071-511 4400	
Strand																						
Cantata 11/26	T29	1.2	30.5	29	400					●			5		●	90	45	90	23		Tel: 081-560 3171	
Polaris	CP40	1	32	26	300					●			4		●	45	45	80	14		Tel: 081-560 3171	
Castor	CP41	2	32	54	400					●			8		●	40	50	80	23		Tel: 081-560 3171	
Pollux	CP29	5	32	135	500					●			20		●	45	60	95	28		Tel: 081-560 3171	
Pollux Bambino	CP29	5	32	135	500					●			20		●	35	50	80	23		Tel: 081-560 3171	
Cadenza PC	CP79	2	32	54	350					●			8		●	50	50	75	25		Tel: 081-560 3171	
Syncrolite																						
Mini-Arc	HTI	.6	56	45	300	●	●	●	●	●			12	6	●	43	43	69	22		Tel: 0101 214 247 2098	Syncrolite UK - (0932) 772240
Vari-Lite																						
VL2	HTI	.25	56	45	250	●	●	●	●	●			10	5	●	45	45	76	27		Tel: 0101 214 630 1963	Vari-Lite Europe 081-575 6666
VL2B	HTI	.4	56	30	250	●	●	●	●	●			8	4	●	45	45	76	27		Tel: 0101 214 630 1963	Vari-Lite Europe 081-575 6666
VL2C	HTI	.6	56		250		●	●	●	●			6	3	●	45	45	76	27		Tel: 0101 214 630 1963	Vari-Lite Europe 081-575 6666
VL4	HTI	.4	5	30	250	●	●	●	●	●			8	4	●	35.5	35.5	86.5	17		Tel: 0101 214 630 1963	Vari-Lite Europe 081-575 6666
VL5	P	1	3.2		250					●			8	4	●	41	41	64	12.5		Tel: 0101 214 630 1963	Vari-Lite Europe 081-575 6666

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AND PRODUCTION NEWS

Eric Clapton Sheffield Arena LD: Tom Kenny SD: Various

Eric Clapton's recent charity show at the Sheffield Arena was not so much a concert, more a series of episodes. Not that this should be a problem, after all the rise and fall of pace and intensity in any live show is, in a sense, part of the series that creates a whole. Unfortunately, in this instance what was missing was a sense of continuity. However, with performances from Nine Below Zero, ZZ Top and an interlude in Clapton's set for Joe Cocker to come and front this most prestigious of backing bands, the show did provide something for everyone. Furthermore, Clapton's set was peppered with musical cameos from his career, a couple of Cream numbers, two Jimi Hendrix classics, a short acoustic interlude including 'Tears in Heaven', his touching ballad for his tragically lost son, and a brace of Chicago blues.

But, every time the show gathered pace, proceedings were interrupted for a change of style or band and the momentum was lost. In fairness, both performer and audience were equally to blame for the sometimes turgid passages in the show. As already explained, the set was fractured, but this was not helped by a crowd who had most definitely come primarily to see Eric Clapton and were unprepared for the variety of bands and Eric's varied set. They were, in truth, a 'greatest hits' audience and it took them a while to enter the spirit of the occasion with anything approaching enthusiasm. Both the lighting and sound were, by contrast, without fault.

As is usual with an Eric Clapton show, the stage was clean and uncluttered with a minimum of low profile risers, there merely to facilitate the rolling on and off of keyboards and drum kits as the show demanded. To the rear was an 80 foot truss with black tabs, not only to dress the back of stage, but to conceal the aforementioned drums and keys when not in use. The shape of Tom Kenny's lighting rig (provided by LSD) resembled a huge, traditionally-shaped kite framed from pre-rig truss, a diamond (as in the motif of a playing card) with the point facing the audience foreshortened, with the whole being divided by a central span of truss running up and down stage. This image was further reinforced by the spaces between the centre spine and the outer trusses being filled with slightly gathered white muslin sails. Trimmed at

32 feet to the upstage end, the structure was raked steeply upwards towards downstage appearing to soar above the band beneath. Uniformly spread about the truss system were 40 VL5s, 20 VLCs and 70 Par 64s. For the length of trussing up there, and considering the number of bands that were performing beneath it, the rig looked sparsely populated. I asked Tom Kenny about this: "Wherever I want to hang a Vari*Lite I have the Pars removed from the truss. I don't like to have these lamps out-hung on special brackets, it's unnecessary. As with all my designs for Eric, I like to keep the system straightforward. For example, all the trusses are singly hung, so the grid doesn't have to be built or stripped as a whole. When load-outs vary from gig to gig it's useful to have the flexibility to select which part of the system is most convenient to strip at any one time."

Eric Clapton is an unusual artiste to light; he is a 'no frills' performer other than in his playing, and could just as easily perform beneath a light bulb. Despite Tom's self deprecating summary of his design, his role is more than just to light the band. He does provide a show and, in this instance, a very accomplished one, and he also lights all the various performers. The premise of the show is to raise money for 'Sharp' a drug rehabilitation programme patronized by Clapton. In Tom's words: "Eric calls up some of his mates and invites

them to support the show, he pays for travel, accommodation and shipping of back-line equipment, covers all the production costs, sound, lights, etc and everyone uses the same system."

Two week's rehearsal at Bray Studios gave Tom ample time to build the show. Although working primarily towards the forthcoming Eric Clapton tour of Japan, Sheffield and also for the other two evenings they performed together for charity at the NEC in Birmingham. Eric is one of those civilized musicians who rehearses during the day and goes home at 5.00pm leaving Tom and other members of the production free to work comfortably. Tom continued: "With the evenings to ourselves it was simple to work on what to do in terms of presentation for the other artistes, none of that staying up 'til four in the morning rubbish trying to produce fresh ideas." There was no holding back of parts of the system exclusively for Eric's performance; Tom used all of his rig according to the demands of the music. As well as the overhead system there were four Lycian followspots on the rear truss that supported the tab-track. Four of the house zenon Gladiators were used front of house, whilst the 'leading edge' of the kite had seven Molefay 8-Lites facing out into the audience.

On the floor the set-up was, by necessity of back-line changes, very simple with two more 8-Lites facing towards the audience from either side of stage and a cluster of four VL2CS and four VL5s in the centre. These latter contributed greatly to the overall look of the show by providing a constantly differing tableau on the underside of the muslin sails. Tom was able to vary the dimension of the stage as the mood suited. During the acoustic section, he initially lit Eric and Chris Stainton (keyboards) with just two VL2Cs each, one in white and a second, from a slight angle, in a smokey pink for accent. On another occasion for Joe Cocker's rousing hit 'Leave Your Hat On' the stage was washed with a contrast of primary green and red from the 5s and 2s whilst the principals were picked out by the followspots in a deep yellow, the strong clash of colours lending the arena an atmosphere for all the world like a huge club. During 'Midnight Lamp', the Hendrix number, the stage was effectively shrunk by using the 5s as a light curtain along the diagonal edges of the rig. Strong colours predominated, overlaid by mostly open white followspots from front of house and a contrasting colour from the spots behind. Not limited to primaries there were some particularly rich deep hues used as washes; a saturated Fern Green was used on a couple of numbers and stands out for being the rarest of



Eric Clapton and friends in performance at the Sheffield Arena with a battery of Vari*Lites, Molefays and Pars in support.

creatures, a warm green. This was essentially the same rig Tom used for the last set of Royal Albert Hall shows for Eric but worked in a completely different way: "At the Albert Hall the show was blues-based which limited the way I ran it, now I'm getting everything I can out of the design."

Everything was also extracted from the EAW KF750 PA system provided by Concert Sound. Due to the complexity of the show two main consoles were used front of house to run the system: a Yamaha 4000 board covered Eric Clapton's band and others, whilst for ZZ Top a Midas Pro40 was used by 'ML' their cryptically named sound engineer (who hails from Showco) whilst Jeff Hooper from Concert Sound was technically responsible for the overall front of house set-up. On stage Kerry Lewis ran monitors from a custom built 40-channel Midas split in two halves. The wedges used are Concert Sound's own design and build and the combination of this monitor set-up and Kerry's prowess are obviously much to Eric Clapton's satisfaction, as both always accompany the artiste around the world.

Squeeze Sheffield City Hall LD: Simon Chandler-Honor SD: Mike Warren

Quintessentially British, Squeeze, through their highly evocative lyrics, conjure sea-side postcard images of lost youth, spotty adolescence and awkward, fumbling passion. Despite the fact that many of the hit songs performed were written in the late seventies and very early eighties, and that the band have matured and must now be at least thirty something, neither they, nor the songs they sing, have lost any of their freshness and vitality.

The show was simple and unsophisticated: tiny risers to bring keyboards and drums to a suitable height, plain front and rear trusses, a modest PA stack each side of stage, with the back of the stage completely masked in black and, finally, a white silk backdrop resembling an Austrian drape across the back of the playing area. In terms of presentation it was all that was needed. The audience, mainly of similar or greater vintage than the band, were on their feet from start to finish and thoroughly enjoyed every minute, welcoming the songs from the new album, 'Some Fantastic Place', with equal fervour to those hits of the past.

Mike Warren mixed the Martin F2 system, supplied by Capital Sound, on a new Midas XL3 (40 channels into 16), from just beneath the front edge of the lower balcony. With two deep balconies and an oval-shaped room to contend with, he was fortunate in having cabinets with a variety of different loadings to enable him to fulfil the various acoustic demands.

The three-way system could be loaded either as a combination of 1x12" and 2x2" or any pair of the three types of driver. It was noticeable that the

Mike Ponczek first mixed house for Clapton in 1984 and apart from a short interlude for Paul McCartney's tour in 90/91 has mixed for him ever since. Well used to working the arena circuit he found Sheffield "a straight forward room to work" and had a particularly relevant comment to make when I asked him about dealing with the problems of resonance in big halls. "You have to remember these places are primarily built for sports. Concerts might represent 20 percent of what takes place in them, but sports is what they're designed for. You cannot make them acoustically flat because a sports hall needs to be lively and resonant to give atmosphere for the fans. It's easier for me to control the sound I produce than it would be to try and inject some life into the room for a few thousand screaming hockey fans."

During the show I took the time to walk around all the upper levels of seating and down on the floor of the arena; the sound was consistently loud, clear and full. Subjectively the sound was better for Clapton than ZZ Top, but I attribute this more to the fact that Clapton's was a full band with horns

oval shape of the room accentuated the directional nature of the high end: when sitting to the side of stage centre in the upper balcony, the sound was full range with no discernible advantage in favour of any part of the sound range. Yet, if you turned your head towards the pair of flown cabinets at the balcony level, the high end easily predominated, presumably reflecting off the curved walls. Whether through luck or intention the PA was well positioned for those who kept their eyes on the stage.

On-stage monitors were mixed by Tim Warhurst, also using an XL3, through Martin wedges with both these and the PA powered by a combination of Crown 2400 and 2401s. With such an experienced band to deal with Tim appeared to have a relaxed time of things, although there was a moment during 'Soul Cruisin' when Paul Carrick overdid the input gain for his piano on his own keyboard mixer, producing some nasty distortion, but this was quickly rescued and Paul can be forgiven for over-enthusiasm whilst taking the lead vocals on one of his own songs.

Simon Chandler-Honor has designed lights for Squeeze before; on this occasion he chose to present himself with two new challenges - a new Avolites' Sapphire desk and a dozen VL5s. The 5s were spread about the two trusses, two groups of three on the rear and three pairs on the front. The rest of the rig (from Neg Earth) was made up of four lamp bars of Pars filling the gaps between the Vari*Lites and a pair of six lamp side frames hung from each end of the front truss. Along the front edge of the front truss were three 8-Lites for lighting the audience and out in the upper balcony were two Lycian long-throw Stark Lites. Simon used the Vari*Lites cautiously, but not timidly. There was no gratuitous movement, but effective advantage was taken of their powerful and uniform beam to light the backdrop, leaving the

and backing vocalists whilst ZZ's three piece ensemble, although true to type, seemed a little thin by comparison. Looking at all the various elements, the show was first class, the lighting was perfectly understated, the sound faultless, the line-up of inestimable prestige and the repertoire varied and interesting - a shame then that it ended so flat, many of the audience choosing to vacate the arena before the encore. There was a deliberate intention not to overplay the charitable nature of the show, not to create some sort of 'drug aid'. This was a concert of some stature where the artistes happen to have chosen to donate their services for free. Such a worthy stance is admirable in what has become an over-done genre; it is a shame that the contradiction of this down playing is that the crowd were unprepared for what was presented to them. Hopefully, this will be a learning experience for them and they will be prepared to come again and be ready to enjoy it more for what it was, an unpretentious effort by a modest man, an event and not an Eric Clapton concert.

Pars to wash the band.

For lighting the principals, especially Chris Difford and Glen Tilbrook, Simon used Pars with number one bulbs from directly overhead, in combination with the two followspots front of house which were kept quite busy during the livelier songs. His choice of colour was often garish; for example, clashing amber trusses, a rich turquoise back drop and alternating purple and amber wash on the band. Somehow this seemed to work, caricaturing a band who don't take themselves too seriously (the bare metal trusses were lit from within by Pars fitted with Wybron Colorams, with a further 24 of these changers around the rig).

During a reggae style rendition of 'Goodbye Girl' Simon produced a lovely colour scroll in time to the beat, alternating between different lamps on the side frames. Scrolling as each lamp went to black, the constant change of colour was across the front of stage, with the actual change hidden, and was simple, yet magical.

After 20 odd shows out of a tour of nearly 30, Simon was already quite at home with the new Sapphire but admitted he was a long way off exploiting the full potential of the VL5s: "Obviously, an experienced Vari*Lite operator could produce more from them, however, I had to design a rig for a one-truck tour and a modest budget. I could have chosen one of the many moving mirror lamps that are establishing themselves in rock and roll now, but I went for these and I've not been disappointed. They are fantastically reliable and every day I'm learning more about them."

A workmanlike approach from both band and production (even Chris Vaughan, the production manager, climbed the house grid to hang the black rear drape himself in the absence of a house rigger) made for a very complete and enjoyable evening. There's no substitute for songs you can hum to.

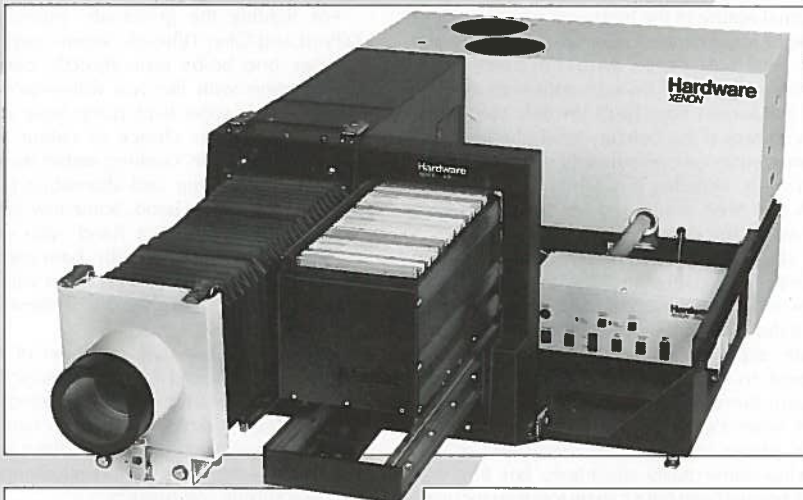


Simple and unsophisticated was the watchword for the appearance of Squeeze at Sheffield's City Hall.

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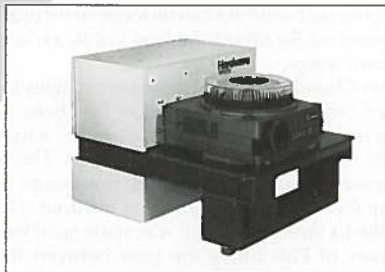


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**SALES AND
RENTALS**

THE PLANETS

Ruth Rossington reviews Goldsmith's staging of Holst's classic



Above and below: some of the stunning projected images for 'The Planets' at London's Docklands Arena.



Ever since the classics became 'popular' there have been those who have tried to bring high culture to the people. Harvey Goldsmith, perhaps best known for putting Pavarotti on the stage of the London Arena and hanging a price tag of £40.00 around his neck, has reversed this practice and set about bringing the people to the culture. He followed Pavarotti with successful stagings of Carmen and Tosca, and his most recent project, in collaboration with Raymond Gubbay, is the latest in the line: Gustav Holst's Planet Suite has always had a wide audience, and most schoolchildren have sat through long afternoons locked in the music room trapped between the teacher and an old gramophone churning out Holst. Goldsmith, of course, could never be satisfied with doing what has already been done; his stated intention was to create "an unrivalled audio-visual experience" and with a little help from his friends, this summer he promoted three stunning performances of The Planet Suite by the Philharmonia and the City of Birmingham Symphony Orchestra.

There is no great mystique to what he did. In essence he combined two disparate elements by transferring the flamboyant whole of the rock and roll circus to the austere world of the classics. The aim was unashamedly populist, and it was almost inevitable in the current climate that someone would hit on the idea of staging the classics as a rock show.

However, Goldsmith can't take all the credit. His ideas were only given life by the combined talents of a range of industry professionals. Step forward the lighting and sound industry whose stunning multi-media creation for the staging of The Planets, in the event, came close to stealing a march on Goldsmith and indeed, on Holst himself. So much so, in fact, that it is interesting to note that in a review of the concert in The Sunday Times, the critic concentrated his efforts on the technology in use and an appraisal of the actual performance of The Planets was notable by its absence. No surprise then that in the programme, a whole page is devoted to the show's technology: 100 moving lights with 30 different colours, computer-controlled motor hoists, a custom-made orrery arch, scrolling slides and the latest Meyer sound technology.

The prime movers behind the technology were Fisher Park, well known to readers of L+S I for their innovative work on such projects as the Rolling Stones Steel Wheels and Urban Jungle tours and The Wall concert in Berlin. It has long been a dream of Jonathan Park, one of the partners, to create more magical environments for large-scale classical concerts. The idea was to take the usually brightly lit orchestra of black suits and transpose them, with lighting and images, into a setting that would provide a wealth of evocative associations to enhance and concentrate the

enjoyment of the music. The Gubbay/Goldsmith collaboration provided the first chance to present classical music in this new way.

After initial consultation on the project, Fisher Park brought in lighting designer Patrick Woodroffe, past master of atmospheric lighting, to work with them on the design and staging of the event. The scale of the venture called upon a full armoury of rock and roll effects to produce a spectacle that would excite 10,000-strong audiences and play all the way back to the rear seats. The effects included a curved arc of lights moving over the orchestra, a 'spaceship' flying over the audience, a host of pyrotechnics and giant image projection behind the orchestra. It was Patrick Woodroffe who arrived at the idea of an arch of lights in response to a lack of more conventional trussing arrangements necessarily dispensed with in favour of clear projection sightlines. The arch was fabricated by Brilliant Stages, who designed a 16 metre curved I-beam. Onto this 16 Vari-Lite VL5s (operated by Dave Hill) were hung, and a range of pyrotechnics were built-in which produced silver rain.

The concert opened with this arc of lights lifting dramatically over the lip of the orchestra in the sunrise sequence from 'Also sprach Zarathustra'. The 20m diameter arc of VL5s tilted and moved to extend and alter the visual architecture of the stage. During 'Close

Encounters' the 'spaceship', the mother of all effects, which carried flashing Pars, ACLs, Molefays, strobes and smoke machines, brilliantly lit and with retro rockets firing, descended to skim the heads of the audience. The whole theming of the first half was dedicated to the modern space classics (is there such a thing?) and the audience was treated to a trip back in time through Star Wars, Superman, Star Trek and Thunderbirds are Go!

In the second half, it was the turn of Holst's Planet Suite. The set started spectacularly with the arc rising and immense images of Mars overwhelming the orchestra. As the music progressed, the projected images continuously developed - changing, unfolding, cross fading, tracking and overlaying to provide a rich and colourful collage of imagery on a 30m x 12m screen to accompany each of the Planet sequences.

Subtle lighting changes reinforced the atmosphere of each piece. Patrick Woodroffe offered up a range of colour combinations sensitive to changes in mood and rhythm. During the Blue Danube waltz, shafts of lights waltzed around the arena in perfect time. He certainly had his work cut out. Performers who sit down are never going to be visually engaging. The auditorium was transformed with a galaxy of lights, special effects and giant images, computer synchronised to Holst's powerful music.

Art directed by Fisher Park, graphic designers 4i Limited developed all the projection art. Park worked with them to produce the coloured images suitable for large-scale reproduction. Quite naturally, the images were chosen to link specifically with the Planets and each had its own visual illustration. Primarily a graphic design company, 4i have worked with Fisher Park on previous projects including the

forementioned Steel Wheels and Urban Jungle tours, the Berlin Wall, and more recently the Yumi Matsutoya tour. As projection is one of the main features of The Planets, it was essential that it bring to the performances a very dynamic quality and it was felt by Alex Quero of 4i that they could not rely on still imagery alone. Quero explained that that he didn't want to create a narrative about each piece in The Planets, but to create visual imagery that would not intrude, but work together with the music. The two companies discussed in detail the preliminary storyboards and the imagery that was eventually chosen was assembled on Apple Macs (using Photoshop software) and printed out on acetate film. Then came the really hard work: the painstaking and laborious hand-painting of the images, a sterling effort by 4i's Kate Hepburn, to produce intense colours and high contrast.

In terms of media, over 100 metres of footage was generated. The colour images were output onto 10x8 transparencies to give a fully digital pristine conversion of the MAC files. They were then spliced together and once assembled, dispatched to projection specialists ETC Audiovisual in Paris who coated the images with special plastic film to protect the colours and then assembled them into large-format slide scrolls to run in their own digital scrollers. (This double-scrolling system unites the features of traditional slide projectors with 'moving strip' units. The mechanical positioning of the two superimposed films is carried out by motors controlled by optical sensors precise to one hundredth of a millimetre. The range of practical speeds allows the movement of film from one millimetre per minute up to an image change that is practically instantaneous).

Whilst all this was taking place,

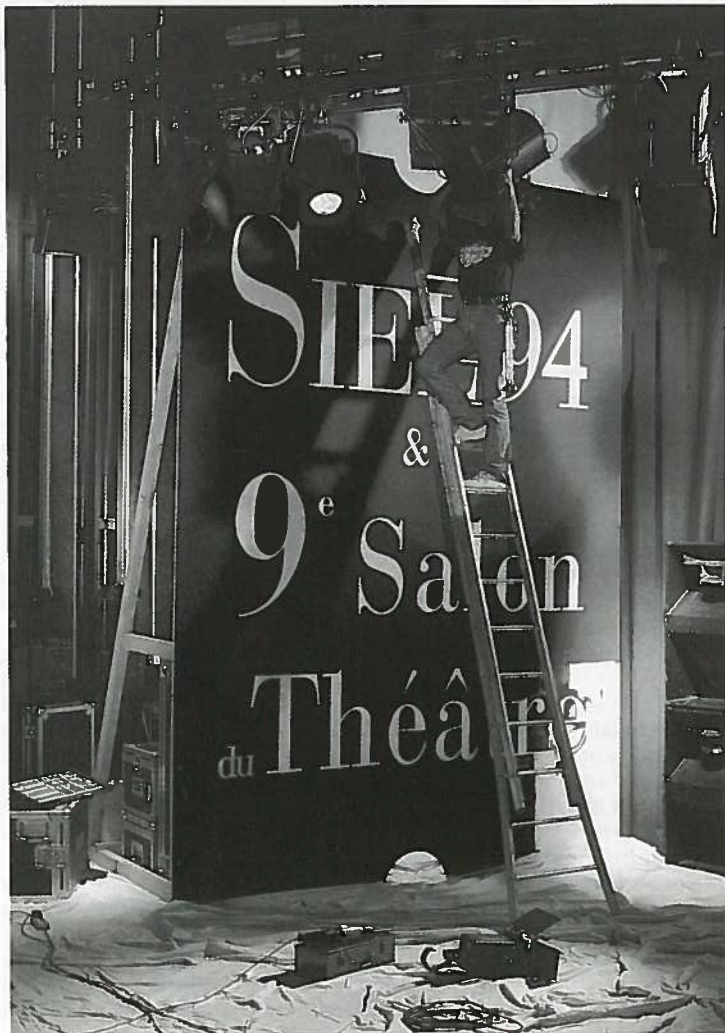
London-based Visual Techniques were working with Classical Productions, the production company, on the logistics of positioning and running the projection. The ETC scrollers were delivered to VT's warehouse on the 24th September from where all the equipment went into rehearsal at the Docklands Arena for three days.

The scrollers were mounted in pairs of four 5k Hardware for Xenon projectors and the projection sequences were programmed using ETC's software. The projection was cast onto a single image area of 20m x 12m, with the 10m centre section covered by both pairs of projectors.

On the main rig 40 Vari*Lite VL5s and 28VL2s shouldered the load, with the help of the usual line up of generic lights and scrollers, provided by Meteorlites, who also supplied the 450 feet of truss and 38 motors.

Sound-wise the main house PA consisted of MSL-3s and left and right UPA-1A and Meyer 650 subs, d&b infills at the front and six MSL-3s as delays. Wigwam crewed the performances with Ray Furze acting as FOH engineer. A Yamaha PM4000 was used FOH and the microphones were Sony ECM50s and Sennheiser MKE-2s.

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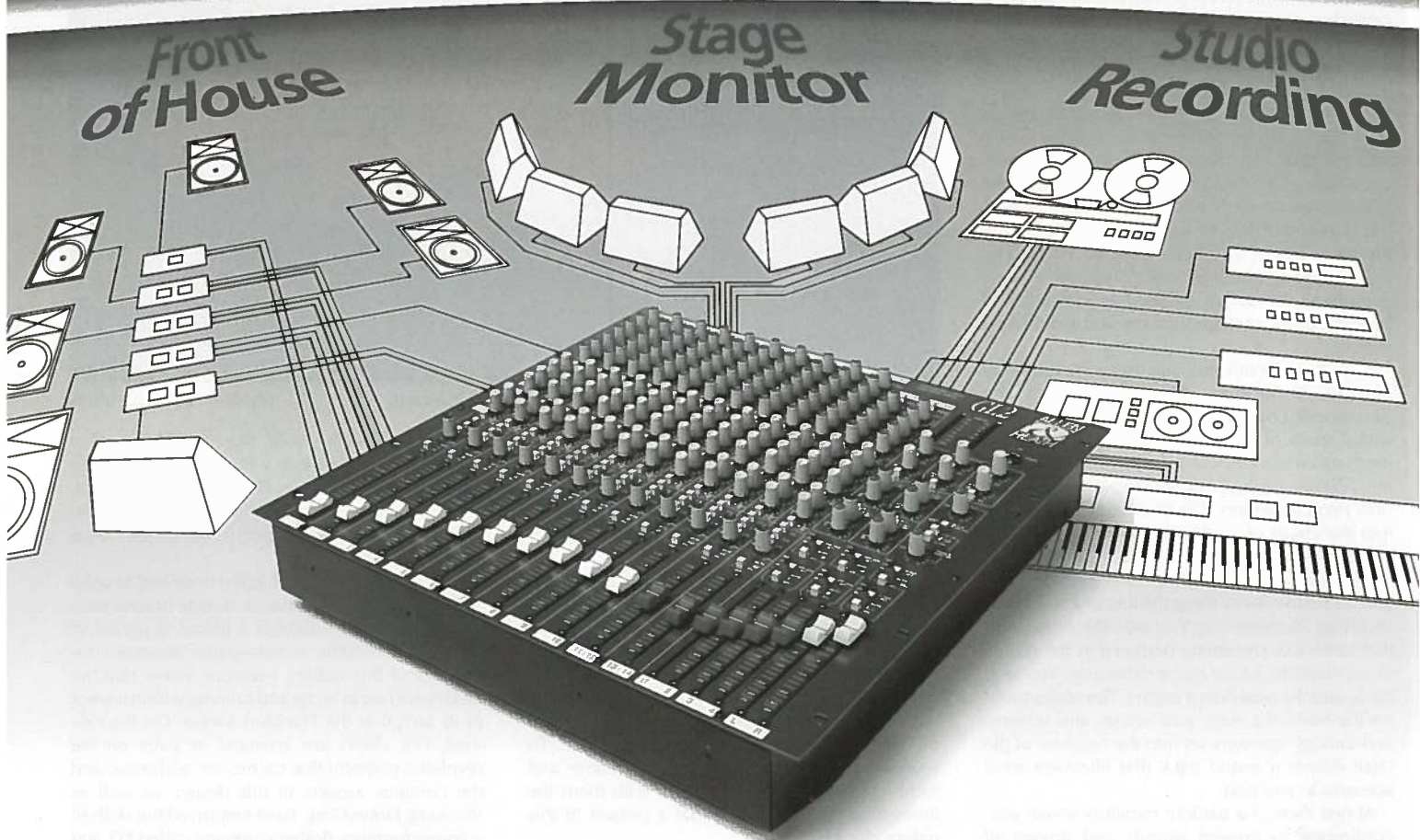
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TAKING PEOPLE FOR A RIDE

Jackie Wainwright takes a close look at Park Avenue Productions' multi-technique concept for BMW at the Frankfurt Motorfair

A Motorfair experience without a car; no dry ice, no dancing girls. For Park Avenue Productions working for BMW AG on their 1993 stand at the Frankfurt Motorfair the concept was, quite literally, revolutionary. You leave the melee of the crowded exhibition floor and approach the revolving 'dark ride' along a raised walkway.

On either side your attention is taken by a series of sculptures and animated displays. The theme of the show, and particularly of the pre-show area, is 'Mobility is Life' - mobility for survival, for leisure and for sport, all illustrated in a light-hearted, accessible way. You are asked to consider the natural movement of birds, animals and man. A fish twists itself free of a predator, whilst a little further on a man is lifted to safety from the sea by a scale model of a helicopter. There are displays comparing the use of mobility by animals and humans using animated figures and illuminated panels.

A huge monolith fills one section tracing the history of human mobility through the development of the wheel. To an accompanying sound track of ticks each wheel turns like the mechanism of a clock. And as progress ticks away the balls of a pin-ball machine show our headlong rush into congestion. The final section leads you into the chaos of roadworks and a future where our transport systems are at breaking point.

From here you enter the area of the ride; pairs of chairs curve away along the line of a constantly revolving 26 metre ring. You are ushered to a seat that looks like something designed in the school of minimalistic space-age architecture. You lean back, and the experience begins. The chairs travel on the revolving stage past scenes and screens, and through speakers set into the headrest of the chair comes a sound track that illustrates each scenario as you pass.

At first there is a bank of monitors above you, continuing to present sounds and images of congestion and the clamour for more. Then your chair twists to the left and you begin a journey through the contrasting calm of the FIZ BMW's R&D headquarters in Munich: the design team working in their office, a proto-type car, and in-car information systems that will bring up-to-date travel information directly to the driver in his vehicle. You travel on, past the city of the future



Part of the 'Ride' showing the 18 metre wide 700mm film screen.

photos: Paul Hutchings

illuminated out of the darkness. The chair turns back to the right. You travel forwards through a tunnel and then out into an auditorium area where a large screen is filled with images of BMW. A map of the world outlined in fibre-optics stretches away at your feet.

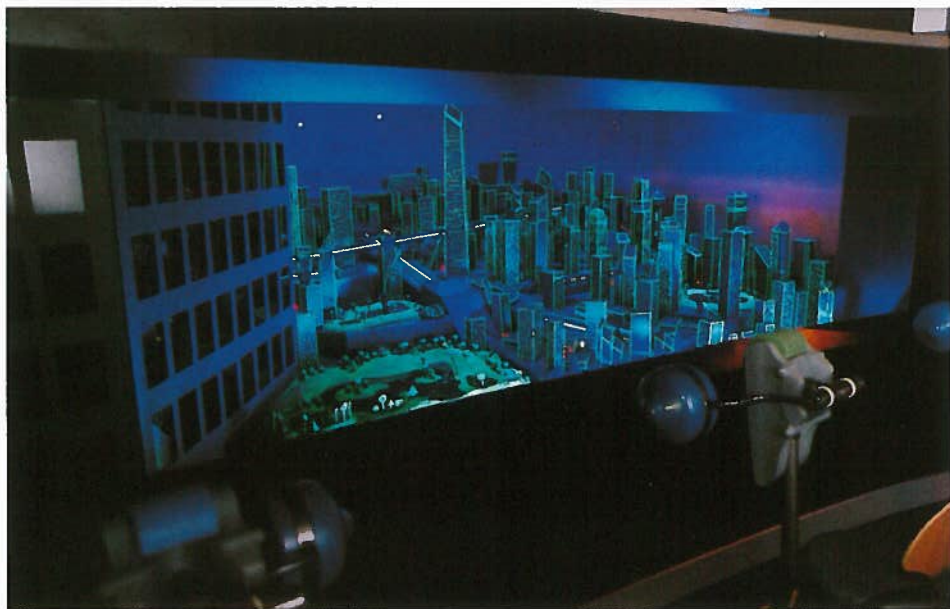
The design team headed by Simon Tapping has been working on the project since last year. The original concept was devised by Park Avenue's own Nigel Greening, but pressure of work meant his attention had to be directed elsewhere. Simon, who as a lighting designer has worked with Park Avenue regularly in the past, stepped into the post of creative director with complete success. To work with him, he chose a team of creative and technical designers who brought with them the innovative lateral thinking that a project of this nature required.

The set design has been under the control of James Grey. "His meticulous eye for detail, and knowledge of what a design conscious client such as BMW would demand, was an invaluable help," commented Simon Tapping. Simon also admits to thinking that Dave Bartlett as lighting designer had one of the hardest jobs. "This was the first time I had worked with another lighting designer rather

than doing the job myself. But he called on all of his previous experience with his company 'The Works' to include neon, fibre optics, ultra-violet, low-voltage and theatrical lighting to achieve an ambience which complimented the various areas very effectively."

All the design and production team had to work within the constraints that an on-site project such as this imposed. Although a planning period of over eight months is reasonably generous for projects of this nature, everyone knew that the final result had to be up and running with a week of its arrival at the Frankfurt Messe. On the ride itself 176 chairs are arranged in pairs on the revolving platform that carries the audience, and the complex aspects of this design, as well as involving James Grey, have employed the skills of a young furniture design company called FIT and sound designer Martin Pilton.

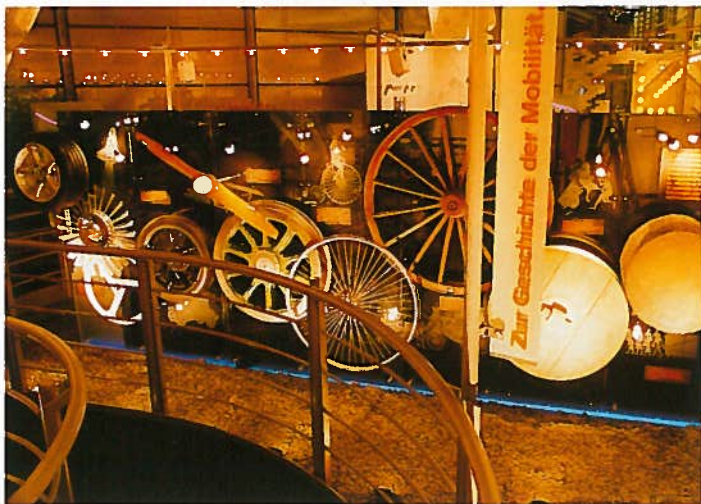
"We had to come up with a system that gave each seat its own sound track synchronized to its own particular position on the revolve," explained Martin. In the initial stages he looked to achieve this by mounting a replay machine within the bodywork for each chair to provide an individual sound source for each position. Digital compact



The futuristic cityscape.



Part of the pre-show area.



One of the pre-show exhibits showing the history of mobility through the development of the wheel (left) and the history of achievement.

cassette, minidisk and compact disc players were all considered. The first two were discounted; the cassette rewind time of the DCC machine made it unsuitable and the minidisk proved to be a power hungry machine unavailable in the numbers required. "I was worried that a CD machine sited within the seat itself would be susceptible to jolting," Martin continued. "So the original idea was modified. Instead of a sound source for every chair, the inner and outer seat at each position on the revolve were paired and it became possible to feed each pair from a single machine mounted on the revolve platform itself. In this more stable position the use of CD machines was again possible.

"Once we had the basic concept, I invited companies to quote for the equipment supply who would also bring their own ideas," Martin explained. A Solid State based system proved to be price prohibitive and the replay band width too narrow to give quality sound reproduction. Most of the other proposals were for untried systems which used external computer control for both the CD players and the sensing mechanisms. This would require the transfer of data on to the revolve via data rails. "From all the quotes we had, that from System Sound stood out," said Martin.

The attraction of this quote was that it used known and existing technology to provide individual control over each CD player, and sensors on the revolve itself that could pause the machines and restart them still at their correct relative position should the revolve ever have to stop. In an ingenious solution the amplifiers and control cards were to be built into the players themselves; a neat answer that offered the added advantage of being able to replace one complete box should any component fail. "We were anxious to award the contract for all aspects of the revolve sound to a single company. System Sound already had experience of the external control of CD players and of switching systems from their work on West End shows. Their solution was very clever. It involved minimal research and perfectly integrated the sound and motor control side of their operations."

Finding the appropriate hardware became a European affair. The compact disc players came from Germany, and the driver units for the headrest loudspeakers from France. The requirement for these had changed dramatically from the initial specifications. "From a high quality low-power option we were now looking for something that could provide emphatic high impact replay," explained Martin. He and the sound team returned to the drawing board to design speaker units with a greater power handling capability. The driver units actually used are similar to those found in television sets and the design of the speaker enclosures had to meet the aesthetic requirements of the creative team.

Unable to obtain prototypes of housing, System Sound improvised using small angle-poise lamp casings and microphone stands to hold the drivers in position. Much time was spent in equalising and positioning the mock-ups not only to achieve a good sound quality, but also to overcome the practical problems of positioning the speakers around the average head, in order to provide the best effect and maximum listening comfort whilst eliminating cross-talk from adjacent chairs.

The entire ride area was assembled for rehearsals in Birmingham. Here a block of chairs could be run with the show sound track. "We had a DAT copy of the sound track which we listened to through a programmable parametric equalizer to set up an EQ specifically for the headset loudspeakers. This EQ was then used to pre-emphasize the CDs that we produced on-site using a CD-R machine," explained Martin. The client, however wanted changes to the content of the sound track and to the speed at which the revolve turned, so ultimately both the music and the voice-over tracks had to be re-recorded. Again it was important that the equalisation of the new tracks was set up specifically for the speakers, so back in the studio the recording engineer was to be found at his Opus hard disc console in front of unused studio monitors, mixing down onto three inch television speakers slung over his head!

After the rehearsal the sound equipment was dismantled, but the basic installation remained within the metalwork of the revolve ready to be shipped to Germany. Everything had been proved. The concept and the technology worked. But just days before the equipment was due to leave disaster struck. The compact disc players were stolen from storage. "It was," said Martin Pilton, "my worst nightmare come true." (And was likely to prove so for the thieves as well, since the modifications made to the machines rendered them completely useless for domestic use.)

For the sound crew the whole process had to begin again. They located replacement CD players in Germany only to find that they had already left the factory and were now in the hands of shipping agents and subject to their own peculiar timetable. New PCBs had to be manufactured.

The first company promising a quick supply of boards kept extending the supply date. However, a new company was found, the CDs reached the UK and with the original team dragged back from holidays, a complete new system was assembled. Martin is eternally grateful to System Sound and considers their achievements to be quite remarkable.

The hardware for the pre-show area is drawn from standard hire stock supplied by Delta Sound, and they have also supplied the equipment for peripheral areas of the revolve. Here, on either side of a big front-projection screen Martin has

used Electrovoice S80s and Nexo PC Sub Bass Units to replay stereo sound effects in an effective combination with the headset sound track. "EVs and Nexos might seem a curious mix," he admitted, "but in reality they work very well together." The walkway approach is divided into individual sections each requiring independent background music as well as the facility for emergency announcements. JBL Control 1s are mounted on flag-poles above the walkway, firing down into the audience.

The sound track is split into eight different areas run off a 16 track machine. Here it is the control system which is innovative. The whole system is fully MIDI automated with real time fades and both the compact disc player and 16 track remotely controlled from a Macintosh Power Book. Martin has been working with Roland Hemming at Theatre Projects Sound for the last couple of years developing the use of MIDI-based automation. Originally it was used to fully automate large trade shows, considerably expanding the capability of the rigs. Now Martin feels that it can be applied in a whole range of circumstances.

"It is at the stage where it is simple to programme, reliable to use and has the massive advantage that it will interface with any piece of sound equipment that has MIDI implementation." Commenting on the sound across the whole stand, Simon Tapping said: "Martin Pilton, as always, brought a great sensitivity to the use of sound in all areas. It is a compliment to him, as much as to composer Peter Gordino, that so many visitors to the stand wanted to buy the sound-track!"

Under the supervision of producer Moira Hunter and production manager Andy Benn the entire show took shape in Frankfurt in 10 days, from the laser levelling of the floor to the client handover and Simon Tapping was justifiably pleased with the final result. "In 12 years in this business, I have often interfered with creative areas which were outside my brief, so I suppose in some ways it was a natural progression to be given the job of creative director on a project. But it still came as quite a surprise to be asked, and was the start of a process which involved a lot of learning on my part."

He attributes much of the success to the team he was able to put together. "As well as the great production team, we had a great deal of support from the equipment suppliers. In addition to the sound companies, Visual Techniques, Creative Technology and White Light were also involved, as well as set companies, model makers, sculptors and engineers too numerous to mention."

The 1993 International Frankfurt Motorfair opened to the press on 7th September, with the BMW stand attracting a great deal of attention. For many, Park Avenue's concept may well be a template for the shape of things to come.

THE ROAD TO INNOVATION

Ken Dibble reviews Cloud's CX-335 Stereo Compressor Limiter

It is interesting to see how several manufacturers who started off turning out rather crude loudspeaker cabinets and some pretty tacky disco mixers and lighting controllers have been transformed over recent years into producers of top quality professional equipment. Several have had a go and fallen by the wayside whilst probably the first - and certainly the most notable - to successfully make the transition was Citronic.

Heralded first by the CV power amplifier range, and then by the CXM modular production mixer, the latest to tread this path is Cloud Electronics of Sheffield. Having established the CXM almost as an industry standard in a very short space of time, they have now moved on into the boggy quagmire of signal processing with the stated intention of producing equipment aimed at filling an identified gap in the market place rather than copying what everyone else already makes. Such an innovation is the CX-335 Compressor/Limiter.

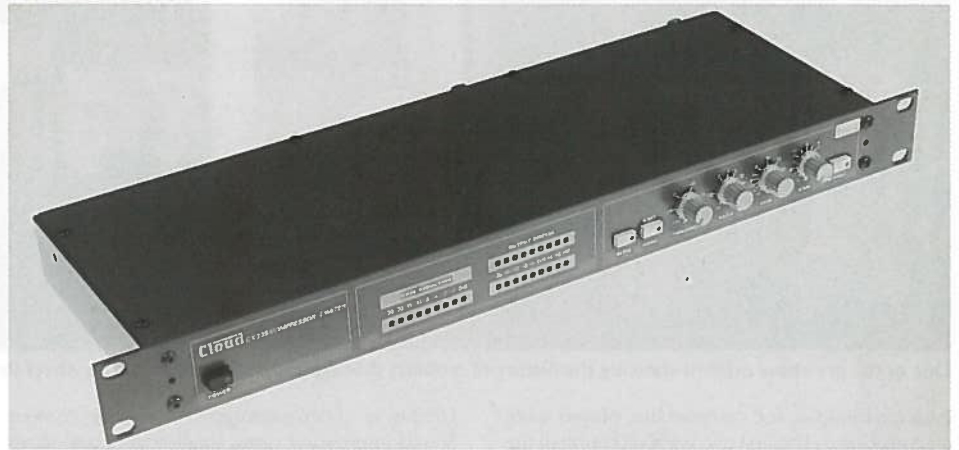
Sure, there are compressor/limiters to be had by the dozen - and some pretty good ones too - but how many operators outside the touring PA or studio markets actually know how to set them up? And how many are there which offer a true stereo device, with one set of simple controls, dedicated to combining maximum transparency with maximum protection in a music playback environment? In short, none, and this is the specific market area Cloud have targeted with the CX-335. Let's take a closer look.

Presentation & Construction

It comes in a simple, U-plan aluminium 1U rack case just 15cm deep with aluminium top and bottom covers, carried by a rather nicely screen printed steel front panel and all finished in an attractive shade of grey stove enamel. An anti-tamper security cover is supplied as standard. Top grade components are used throughout and are mounted on a superbly engineered, double-sided pcb which is in itself quite a work of art. Typical examples of Cloud's attention to detail include an encapsulated mains transformer with fixing screws immediately adjacent to avoid undue pcb fatigue, suppression capacitors across the mains power switch, Alps pots, That's 2150A VCA ICs etc.

Facilities

The CX-335 combines a separately adjustable stereo compressor and fast acting stereo peak limiter in one package. It is a dedicated stereo device and cannot be used as two separate compressor channels because much of the side chain detection and control circuitry is common to both channels. There are no front panel attack



Designed to answer marketplace requirements - Cloud's CX-335.

or release time constant adjustments as the unit will automatically optimise these parameters according to the signal characteristics, assigning different attack times above and below a 200Hz 'Crossover Point'. This means that only four front panel adjustments are necessary - compressor threshold and ratio controls, limiter threshold and gain. In addition, three press-button switches are provided for bypass, hard or soft knee operation or to select the slow release time constant. Separate left and right channel output level led bargraph metering is provided, along with a gain reduction meter.

Both inputs and outputs are electronically balanced via Neutrik moulded XLR/3 compatible connectors and a remote VCA interface socket is provided to facilitate external control of the VCA for future expansion. Although no such expansion devices are at present available, one such option currently on the drawing board is to enable the side chain to be controlled from an external source such as a microphone, with optional A-weighting filter - thus enabling the CX-335 to double as a sound level limiter in connection with the Noise at Work Regulations or where there is an environmental nuisance problem.

Operation

The unit comes with an excellent handbook and could not be more simple to operate. Firstly the peak limiter is disabled by setting it to its +26dBu maximum threshold, next the compressor threshold is adjusted to the required level - usually somewhere between -15dBu and -10dBu; the ratio control is set to something below 10:1 for compression or above 20:1 for limiting, then the gain control is set using the internal metering so

that the output level remains the same in bypass or operational mode, and finally the peak threshold is set to prevent clipping of the power amplifiers under transient peak conditions. And it's done!

The handbook gives a good deal of useful guidance in obtaining the best balance between sonic quality and effective dynamics control. The standard 'fall back' state is as a soft knee compressor with fast time constants, requiring the use of the front panel push button controls to obtain 'hard knee' dynamics or a 'slow' time constant. The descriptions of the various combination as given in the handbook I think are quite excellent and so I shall reproduce them with only minor clarification:

Soft Knee + Fast Release = Ultra transparent sound quality with good control of SPL and speaker protection.

Hard Knee + Fast Release = Transparent sound quality with more precise control of signal level and speaker protection.

Soft Knee + Slow Release = Very transparent sound quality but with more peaks allowed through unprocessed.

Hard Knee + Slow Release = least transparent mode of operation to reduce high level signals but with more peaks being passed unprocessed.

It is important to be aware that when driving any dynamics processing device into continual hard compression, whilst the waveform amplitude may be controlled, the amount of compression can be such that the energy contained within the signal envelope can increase significantly, thus leading

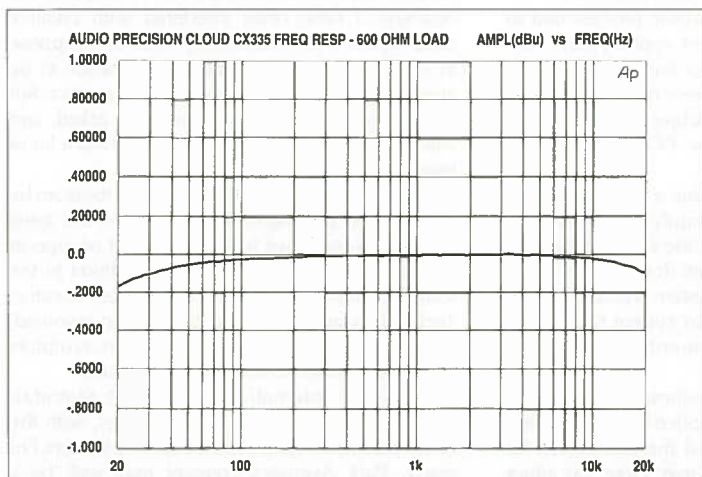


Figure 1: Cloud CX-335 frequency response with 600 ohm load.

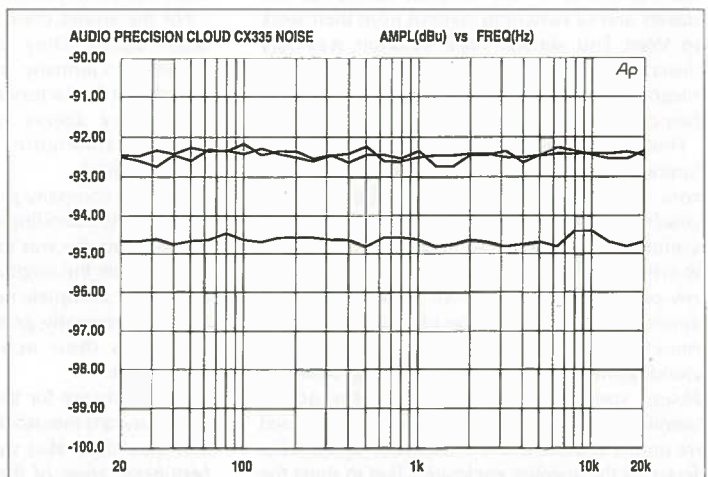
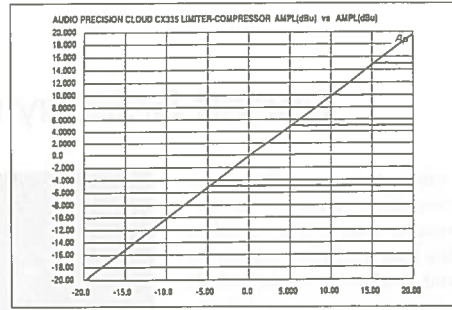
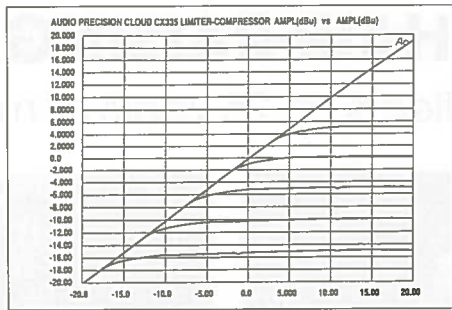
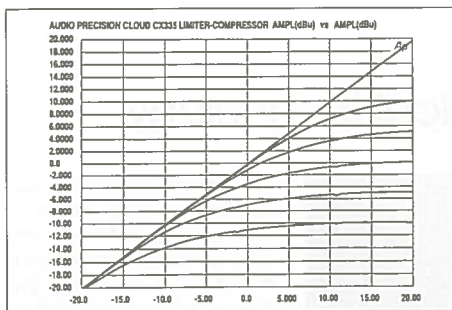


Figure 2: Noise floor - unweighted (upper) A-weighted (lower).



Input level vs output level: figure 3 (left) shows Infinity:1, soft knee mode, figure 4 (centre) shows Infinity:1, hard knee mode and figure 5 shows peak limit.

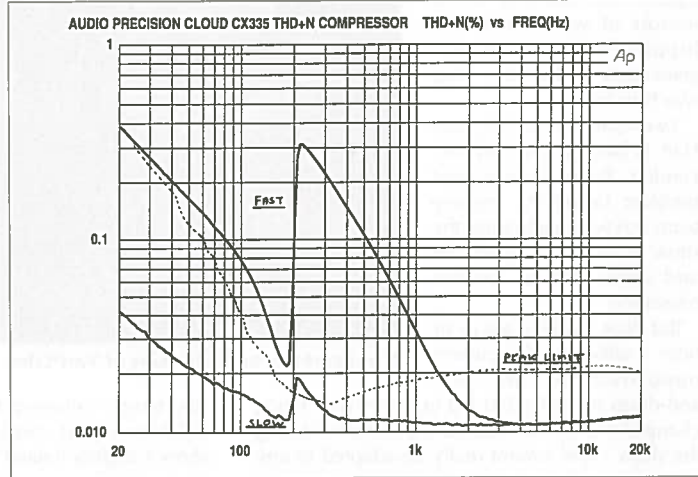
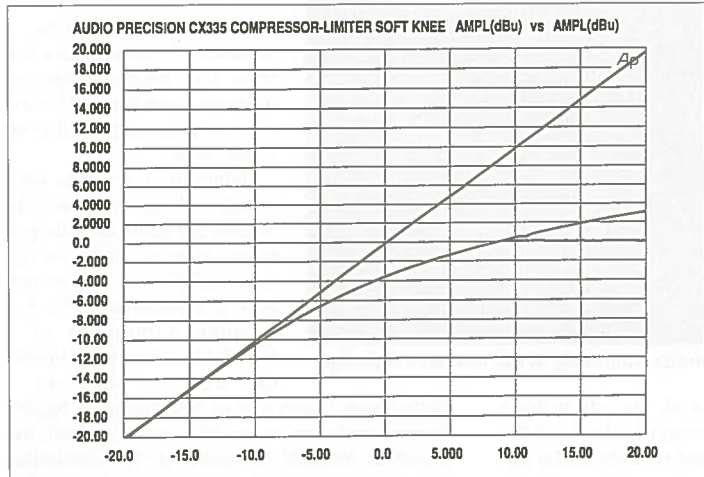


Figure 6: Typical set-up input vs output level.

Figure 7: composite THD + N for all operating modes.

to continuous high levels of monotonic sound and causing physical stress and/or overheating of loudspeaker voice coils. Therefore a degree of intelligence in the use of the system gain controls will always be necessary, no matter what limiter is fitted.

Over the years I have become convinced that half of DJs are either deaf or are intent on kicking up as much racket as possible and to hell with the consequences. There is no solution to that mentality.

Performance

I am indebted to Andrew Colley at Cloud for carrying out a full set of performance plots on their Audio Precision analyser. I have briefly checked the unit out on my own equipment and found sufficient parity that I am happy to use the AP results, as follows.

Fig 1 shows the frequency response curve and Fig 2 the noise floor - unweighted (upper) A-weighted (lower). Taking +26dB as the onset of clipping, this gives an incredible 118dB as the unweighted signal-to-noise ratio.

The essential function of a compressor and/or limiter is to vary the ratio between the input level and the output level - e.g. when set for a ratio of 5:1, the output level will increase only 1dB for

every 5dB increase at the input, or when set for peak limiting at a ratio of infinity:1, there should be virtually no increase in output once the input threshold has been exceeded. In order to show the characteristics of such a device it is thus necessary to plot input gain versus output gain.

Fig 3 shows a family of compression curves at a ratio of infinity:1, at various thresholds, with the device set to its normal 'soft knee' mode. Fig 4 shows a similar set with the hard knee switch activated and Fig 5 shows the action of the peak limiter. In the case of the peak limiter the threshold settings at +15dB, +10dB, +5dB and -5dB can be clearly seen whilst the 'hard knee' thresholds at -15dB, -10dB, -5dB 0dB and +5dBu are also self evident. For the 'soft knee' family however these are much less clearly defined.

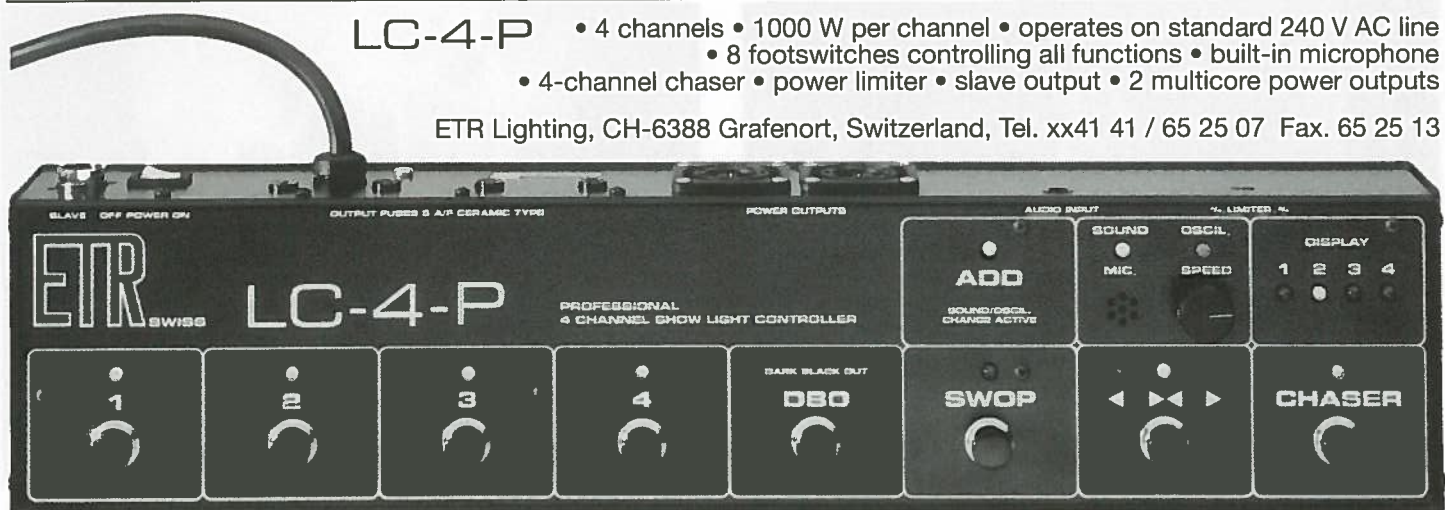
Although technically less accurate the smooth transition gives the 'soft knee' characteristic by far the better sonic performance but possibly insufficient protection for many applications when used on its own. Fig 6 shows a typical operating set-up with the compressor section set for a soft knee threshold of -10dBu and a ratio of 8:1, backed up by the peak limiter set to 0dBu. It can be seen that this gives the best of both worlds, with the soft knee transition, turning to hard limit

as input levels continue to increase beyond 0dBu. This plot clearly shows why it is necessary to combine compression and peak limiting in a single device if acceptable sonic performance is to be combined with a reasonable degree of protection.

Fig 7 shows a composite total harmonic distortion + noise curve for the three basic operating modes. Although none exceed 0.4% it is ironic that the best operating mode - i.e. fast release compressor plus peak limiting - produces the highest combination of THD! I guess you can never win them all.

Summary

I do think that for disco and live performance applications the CX-335 must be the most easy to use dynamics processor I have yet come across. Its sonic performance and interactive feel is as good as the best I have used (i.e. the Symmetrics 501) but with half the number of knobs and at £410.00 retail (including VAT) for a stereo device, half the price. It is superbly made and has obviously received a great deal of thought, both with regard to the basic concept and also to the engineering aspects of its realisation. I look forward with anticipation to the next development from 'Cloud Professional'.



HAIR-RAISING

Robert Halliday reflects on 25 years of musical technology

1968. A time of change, of revolution - a war in Vietnam, revolts around the world as the young rebelled against the old. And, in the midst of it all, a new musical highlighting both the conflict of young against old, but also of the horrors of war - all in the hippie language of the generation of the time. Thus was Hair born.

Twenty-five years on, and Hair is back at the Old Vic, London. Perhaps the biggest problem facing the creative team was whether to stage the show as a historic piece, or add some kind of modern relevance.

But Hair really is set in its time - although the current opposition to the sex-and-drugs mentality has led to some lyrics being changed and the cast distributing condoms during the show - and cannot really be adapted to any other time. The cast thus appear in traditional hippy dress and long hair, though this is more a testament to the wig-makers and wardrobe crew (credited as Hair: The Technical Team in the programme) than the cast's natural look. And while Ralph Koltai's standing set - grey walls, metal-wire fencing, metal staircases and part of the audience on the Old Vic's stage, behind the main twin-revolve with central lift acting area that thrusts out over the stalls area - is fairly neutral, it does still manage to suggest something of America in the sixties.

The rest of the production, though, makes no attempt to stay in the sixties. The original production pre-dated computer control, the thyristor dimmer (at least on Broadway!), and even the Par can. A rock and roll musical without Par cans? Not any more.

It is a clear measure of how the price of technology is plunging that lighting designer Chris Ellis, on what is not a Lloyd-Webber mega-blockbuster show, has been allowed to let rip with a whole range of advanced lighting tools - 37 Vari*Lite VL2s and 10 VL4s along with six 1200W Clay-Paky GoldenScans - as well as the standard equipment of any nineties musical: Silhouettes, Par cans, R&V beamlight followspots (including some carried on-stage by the cast), moving light curtains, Niethammer and Solo



A trio perform to the backing of Vari*Lites.



Sinitta, following in her mother's footsteps.

discharge followspots, and the ubiquitous Rainbow colour scroller (though evidence of the show's slightly limited budget remains in the use of semaphore colour changers on the front-of-house Silhouettes), all supplied by White Light. According to Paul Franklin, combining the roles of chief electrician for the theatre and production electrician for the show, pre-production time was quite short, and the rig evolved in a number of stages as the budget was altered, and then as people wanted to use different parts of the stage for different functions - the boxes had more lights put in them than they now have, but they were then needed for the revolve operators and as a props store. This led to some hard work for us," he said, "but the result is a good, enjoyable show."

To control the rig, 100 extra ways of dimming were brought into the building and installed in a combined dimmer city and Vari-Lite service area on one side of the stage. Control is split over three desks - an Arri Imagine 250 running the conventional rig and scrollers, an Artisan controlling the Vari*Lites, and a Celco Navigator for the GoldenScans. The Arri and Celco are linked by Richard Bleasdale's Multi-Art Macintosh control programme, as used in Grease, but the complexity of many of the manual chase and flash sequences running on the Arri meant that the show still needs two lighting operators.

Paul Franklin feels that there are still some benefits from such an arrangement, though, since

it means that the moving light operator can keep an eye on that rig. "The Vari*Lites on this show get banged around more than those on other West End shows like Sunset, Paul Franklin explained, "and we have had a few go down. If that happens, having a separate VL person means that they can concentrate on resetting a unit without having to worry about running the rest of the show."

Definitely a nineties rig - though only just. As Chris Ellis admits, the really new thing is being able to afford to use moving lights on a show that isn't a blockbuster. Ellis has become something of a Vari*Lite convert, following his use of VL5s on a Netherlands Opera tour of A Midsummer Night's Dream, and then some VL1s on Hot Stuff, the seventies musical currently at the Cambridge Theatre and part of the plot to have a musical covering every decade from the fifties to the nineties in the West End by Christmas. He admits to having had enormous fun with the lamps: "The VL4s do the washes, with the VL2s giving exactly the sharp, clean look I wanted," he told me.

For a show which began as a gig type of show, with the cast encouraging the audience to join in and be part of the tribe, it is now very hard to imagine it without all of this technology (indeed, earlier productions, such as the late-eighties Bill Kenwright production lit by Dave Horn, were also drawn to moving lights, although the technology was not quite up to it then) but it was done that way in 1968.

According to John Foley, who was involved with that production, the rig was then composed entirely of the then-standard Strand range, with 23s and 264s for profiles, and 123s and 223s for fresnels and control from an SP desk. Yet, according to Foley, the lighting, by that magic man Jules Fisher, looked beautiful. Although there were a few 'waggle the faders around as fast as possible' moments, it was mainly very good colour washes with some pinhole gobos for the starlight moments, and very wonderful feelings in terms of the speed of operation.

Putting the demands of mounting the new show into perspective, Foley also recalls the original



Hair and the hippies return to the Old Vic in London after a 25 year absence from the West End stage.

which was a very free and open show which they struggled like hell with to get together - until the DSM, who'd been trained by Tennants, turned up and in five days turned the shambles into a show that could be repeated with a high degree of accuracy, which was only possible with a certain traditional discipline.

He also feels that the show was important in pushing the technology up to the level required by that new generation of musicals, like Jesus Christ Superstar and on through the shows of the eighties. And leading on full circle to the new Hair, where the results also look very good, though in a different way.

The show now seems to differentiate between the songs and the dialogue more than the original. For in the songs, the Vari*Lites, programmed for the show by Andy Voller, do some now-standard Vari*Lite type moves (oh how easy it is to become so blasé!), but in the battle scenes especially, when Ralph Koltai's death puppets, the deep UV washes and gobo covers from the Vari-Lites and the spinning gobo-cones from the Goldenscans combine, the results are often superb.

All of these looks benefit from the controlled smoke provided (in a far cry from the sixties Smoke Genie machine, which used oil and gas cylinders to generate the haze, except on the nights where the gas ran out and a quick visit to the bar was needed to obtain a replacement) by Skywalker and DF50 haze machines, together with judicious switching of the theatre's air-conditioning. How long will it be before smoke design credits start appearing? Not in this show, although a much deserved thank-you is given to Jerry Hodgson and his team, who spent four days and quite a large sum of money wiring 8,500 low voltage bulbs into the staircases and walkway of the set. In the show, they only appear for about 30 seconds but, as they make the set burst into life out of the battles and into the Dirty Little War song, their efforts were worth it!

But this technology still brings some problems. As soon as you install a Vari*Lite rig, you need a sound system to cover up the fan noise - at least that's sound designer Andrew Bruce's theory as to the co-operation between lighting and sound on the show. Bruce's work is the area which most superficially resembles the original productions; then, the principals sang their songs into wired hand microphones. These remain, but the wires are gone.

In addition, in contrast to the original (which Bruce, then an enthusiastic audience member, remembers as having comparatively few microphones; Matt Faint, a sound operator on the original, remembers the hand mics being backed up by rifle and float mics) every member of the company has their own levalier head microphone. This was because Michael Bogdanov, the director, didn't want to go in and out of miked sound, Bruce explains, but it means that we have about the largest radio-mic rig in the West End, with 22 head mics, 10 hand mics with one spare, and a twelfth frequency used for a guitar microphone.

The show's live sound is mixed using a Cadac E-type desk. To reduce the operator's workload, the effects, replayed from an Akai S3200 sampler, are brought in through an eight by eight matrix automated mixer manufactured by Out Board Electronics, whose earlier work for Autograph has included automated systems for Miss Saigon and Into the Woods; all of the computer systems are under the control of Cadac E-type software written in-house by Autograph.

The sound is then taken through Varicurve equalisers and out through Meyer loudspeakers. The show saw Bruce use both the Varicurve units and the new Meyer MSL2 loudspeaker for the first time; he has been more than happy with the results from both.

The sound-rig, too, is thus one of the nineties, the complex radio-mic system, automated mixing and sampled sound-effects being unimaginable in the late sixties.

Then, PA equipment didn't really exist, and the production team tore the guts out of Marshall guitar amps to feed speakers mounted around the pros, since the more pokey stuff only really existed in musical instrument amplifiers. The mixing desk was also a complete contrast to the sleek Cadac - the sixties show was mixed on eight Shure 5-way mixers with rotary controls stacked together in a side-stage box. The battle sound effects were obtained by thumping the mixing stack to obtain the bangs and crashes required, although some care was necessarily required to avoid breaking the entire system.

The newer version gives much more control, yet all of this technology couldn't help Andrew Bruce with two fundamental problems. The first was the difficulty of providing a clear mix to the front-centre of the stalls. "Bogdanov wanted people sitting at the front of the stage with their legs hanging over, so we couldn't put a monitor there," Bruce explained.

The second came from the desire to make as much of the stage area of the Old Vic as possible visible to the on-stage audience, which led to the removal of much of the soft masking and so made it a difficult area soundwise. Technology has progressed a great deal, but the laws of physics remain unchanged!

The result, at least in the proper theatre seating, is a clean, crisp-sounding show, with the band, and in particular the brass section, coming through with a great deal of energy. Matt Faint, who worked his way up from sound operator to company stage manager through three-and-a-half years of the original, remembers that first production sounding much more rocky and energetic than the new version. It seems very cynical, but the current version is perhaps more in tune with what the audience, composed largely of men in suits arriving late, at least on the night I was there, now expect.

The show's central message remains. And while all of the technology helps present that message, giving a great sounding, stunning looking show, a section in the programme on a company who present the show each day in Sarajevo, Bosnia, to an audience who've made their way through sniper fire to get there, serves as a reminder that the cast, above all, tell the story.

At the Old Vic, Hair is a good night out with a message thrown in, and there's nothing wrong with that. Matt Faint, who claims that his experience on the original show shaped the rest of his life, enjoyed the new production greatly, as well as the memories it brought back. In the sixties, the show ran for five years and one short of two thousand performances, halted only when the roof of the Shaftesbury Theatre fell in.

Hopefully, despite the structural alterations needed to get the set in, the Old Vic won't meet that fate, the show instead needing only to survive the onslaught of the critics. But then some of the reviews from the sixties said that that cast would never work again - a cast which included Diane Keaton, Paul Nicholas, Tim Curry, Richard O'Brien, Elaine Paige and even, in the revival which appeared a year later at the Queen's Theatre, Miquel Brown, mum of current cast member Sinitta - proving once again that what the critics say and what the public think, can be two completely different things.

And if you decide to go and see the show, make sure you sit on the side of the stalls so that you can get up on the stage for a dance at the end. It won't be the long jam sessions that Matt Faint remembers ending the Shaftesbury shows (which even got turned into a record at one point), but it's a fun ending to a good show all the same.

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BEWARE THE SPECTRUM POLICE

The use of radio microphones in theatre

Although the use of the radio frequency spectrum is primarily controlled by the laws of physics, users also have to be aware of the legal implications. John Wykes, of Audio Engineering, explores the current position of radio microphone usage in the UK, with particular reference to provincial theatres.

The use of radio microphones in the theatre has escalated during recent years, driven largely by the modern musical's increasing dependence on the wireless solution, which has brought its inherent artistic and technical freedom to many a production. This radiomic expansion, from London's West End out to many provincial sites, has coincided with a toughening of the regulations that govern localised radio transmissions, brought about by general radio spectrum clutter and preparations for a fifth television channel.

The most recent change to the frequency allocations occurred in April 1993 and affected many of the major cities in the UK. Channel 35, a regulated part of the UHF spectrum, was now reserved in most regions for the supposedly imminent test transmissions from Channel 5 Television. Previously, this portion of the RF spectrum had been available throughout the UK for theatre use, but was now severely restricted. (see map for Channel 35 exclusion zones).

Following this change, a large number of theatres can find themselves operating radiomic systems illegally, running the risk of a visit from the Spectrum Police - the professional's nightmare equivalent of television detector vans. Policing the airwaves is currently the responsibility of the RIS - the Radio Investigation Service. This department is an off-shoot of the Radiocommunications Agency who, as the DTI, were the traditional radio spectrum guardians and whose success record is reflected in the number of pirate radio station convictions and confiscations.

Police Problems - the Surprise Visit

Any theatre that unwittingly transmits with illegal radiomic equipment needs to be aware of the consequences. The law can be broken in three ways - by operating type-approved equipment either without a licence or on illegal frequencies, or by operating non-approved apparatus. Mere possession of illegal or unlicensed equipment is as legally hazardous as unlawful transmission but is obviously less liable to discovery. A summary conviction could result in termination of use, a fine of up to £5,000 and six months' imprisonment, whilst an indictment can also carry the penalty of equipment forfeiture, two years' imprisonment and an unlimited fine. In order to prevent a surprise visit from the Spectrum Police, one needs to be aware of the current licence requirements.

The State of the Spectrum

In the UK, radio microphone usage is divided into two principal categories:

1. Licence Exempt (de-regulated)

This category permits the licence-free use of low power, wide band radio microphones, although transmissions are limited to the five spot frequencies of 173.8, 174.1 174.5, 174.8 and 175.0 MHz. Provided the equipment meets the current requirements of MPT 1345 - the type-approval specification controlled by the Radiocommunications Agency - it can be used without restriction. However, this specification states that the maximum effective radiated power (ERP) of the transmitter must not exceed 2mW.

Theatres considering the purchase of equipment in order to operate within this category should be

aware that anyone can use these devices, such as pubs, clubs and bingo halls. Therefore, their use for a professional production is not recommended, due to the strong possibility of random interference from other equipment on the same frequency.

2. Licensed

The frequency allocations of this category relate to equipment which is type-approved to the MPT 1350 standard. This allows higher transmitter power levels to be used, with the permitted maxima of 50mW ERP for a body-worn transmitter and 10mW ERP for a hand-held radiomic transmitter. Within this category, many frequency bands are reserved for the BBC and the independent broadcasting companies. For non-broadcast users, the licensed allocations are divided between fixed site and general use, independent program maker (IPM) frequencies. (See UK Frequency Allocation chart).

Since the end of 1992 there has been a welcome shift in the method of allocating radio microphone frequencies for fixed site use - the sector of greatest interest to theatres. Rather than defining individual spot frequencies, a frequency band has now been allocated. It is left to the individual manufacturer to maximise the use of this band, with the proviso that all primary transmissions are contained within

it. This block licensing arrangement applies to three of the fixed site bands:

The remaining fixed site allocation stays on fixed

173.7 - 175.1MHz	VHF
583.355 - 586.835 } 588.3 - 589.25MHz }	Channel 35 (where legal)
856.1 - 859.65MHz	Channel 69

spot frequencies due to the requirements of the primary users. The revised frequency allocations for fixed sites enable the use of large and legal multichannel radiomic sets.

Audio Engineering, who has been manufacturing Micron radio microphone equipment for over 20 years, can now achieve as many as 41 frequencies capable of simultaneous working as a single multichannel set within the London area. This target can be reached without conflicting with any of the deregulated VHF frequencies or using any IPM frequencies. The total allocation is arrived at by using 5 new VHF frequencies, the 4 in channel 22, 8 in channels 24/25 and 12 in channel 35, together with 12 in channel 69. The revived musical 'Hair' (see feature this issue), currently playing at the

THEATRE (fixed site)		INDEPENDENT- General use	
Freq. (MHz)	MICRON Channel	Freq. (MHz)	MICRON Channel
173.975	1G	191.9	21
174.250	1H	199.7 *	22
174.675	1J	200.3	25
176.4	1E	208.3	23
177.0	1F	216.1	24

* Also used for talkback-Higher power allowed

THEATRE (Fixed site)					
Freq. (MHz)	MICRON Channel	European 25KHz grid number	Channel 35 Indoor use ONLY Usable frequency Bands (MHz)		
478.70	22A	22/05D	583.335-586.835, 588.3-589.25		
479.65	22B	22/13B			
480.20	22C	22/17D			
480.40	22D	22/19B			
			Channel 69 Indoor use ONLY Usable frequency Band (MHz)		
497.50	24A	24/28A	856.1-859.65		
497.70	24B	24/29D			
498.48	24C	24/35E			
498.78	24D	24/38B			
			INDEPENDENT- General Use		
499.61	24E	24/44E	Freq. (MHz)	MICRON Channel	European 25kHz grid number
500.28	24F	24/50B	854.9	69/1	69/07B
502.44	25G	25/03D	855.275	69/2	69/10B
502.69	25H	25/05D	855.9	69/3	69/15B
Frequencies in TV channels 22 and 24/25 are normally for use in LONDON only. Other area use requires DTI approval.			860.4	69/4	69/51B
Frequencies in Channel 69 replace those in Ch 35 in areas where Ch35 is unusable, but may be used additionally where possible.			860.9	69/5	69/55B
			861.750	69/6	69/62A

UK wireless microphone frequency allocations. Microns approved to MPT 1350.

London's Old Vic theatre, is the most recent example of this kind of allocation maximising. A total of 34 radiomic frequencies are in use on the show, with a multi-channel Micron receiving system providing 12 full diversity channels from a single band.

In other areas where channel 35 may still be used, for example in Birmingham and Cardiff, the maximum total number of simultaneous channels is reduced to 29. For those areas where the use of channel 35 is now prohibited, the maximum set size falls to 17.

Although covered by separate licences, the IPM frequencies may also be used to increase legally the number of channels operated together in a fixed site multi-channel set. Typically, a further 10 frequencies can be added from the IPM allocation. The additional frequencies have to be selected with care to avoid serious intermodulation problems, and should be chosen by the manufacturer of the equipment.

A note of caution is appropriate here as intermodulation effects can be too easily overlooked when specifying multichannel systems. Some manufacturers quote a multichannel set size based on splitting the frequencies between two adjacent locations and not all operating on the same stage. Any prospective purchaser of this type of equipment needs to be very careful in checking the specification before making a decision.

The use of block licensed frequency allocation will encourage manufacturers to find ways of maximising the number of channels that can be fitted into the frequency band concerned. Thus the essence of radio microphone system design is in squeezing the widest low-noise audio bandwidth from within the narrowest possible segment of the RF spectrum. In a given band, if a customer requires a single large set, the frequencies supplied may differ from those specified, in order to maximise the number that can be split between adjacent halls.

With the withdrawal of channel 35 frequencies from much of the UK, many users have been left in an awkward position. As a manufacturer, Audio Engineering recognises the problem and is able to offer frequency changing and advice for fixed site installations where there's a need to move onto channel 69.

West Yorkshire Playhouse

A recent situation at the West Yorkshire Playhouse in Leeds is a prime example of the kind of problems that can occur when the frequency spectrum goal posts are shifted. Only three years ago, the theatre correctly and legally installed a 7-unit UHF Micron radiomic system operating on the then unrestricted channel 35.

However, following the regulation changes in April this year, they were faced with the decision to break the law or try to have the equipment changed. The West Yorkshire Playhouse is, outside of London's West End, one of the most prolific production companies in its own right. Mic Pool, the theatre's head of sound, explained: "It is ironic that having complied with the law only three years ago we had to change the equipment all over again. The irony is compounded by the fact that the frequency changes were designed to allow tests transmissions from Channel 5 Television, which have yet to begin. Fortunately, with much help from our suppliers Autograph Sales, and from the manufacturer, we were able to minimise the expenditure. The changeover of frequencies to high band channel 69 also had a consequential effect on other aspects of the system, with the total bill approaching the equivalent sound budget of six productions. Nevertheless, the end result is a very high quality system that is performing admirably across our many productions."

The theatre's original equipment was based on



John Wykes.

a non-CNS (Componder Noise Reduction System) circuit, as this was optional for operation on channel 35. However, CNS operation is an essential requirement for high quality performance on channel 69 and this facility had to be incorporated into the equipment. For other provincial theatres similarly affected, Audio Engineering would suggest that converting to the new VHF frequencies might prove a more economical alternative to a full conversion. This would depend on the number and type of radiomic units involved.

Spectrum Safety

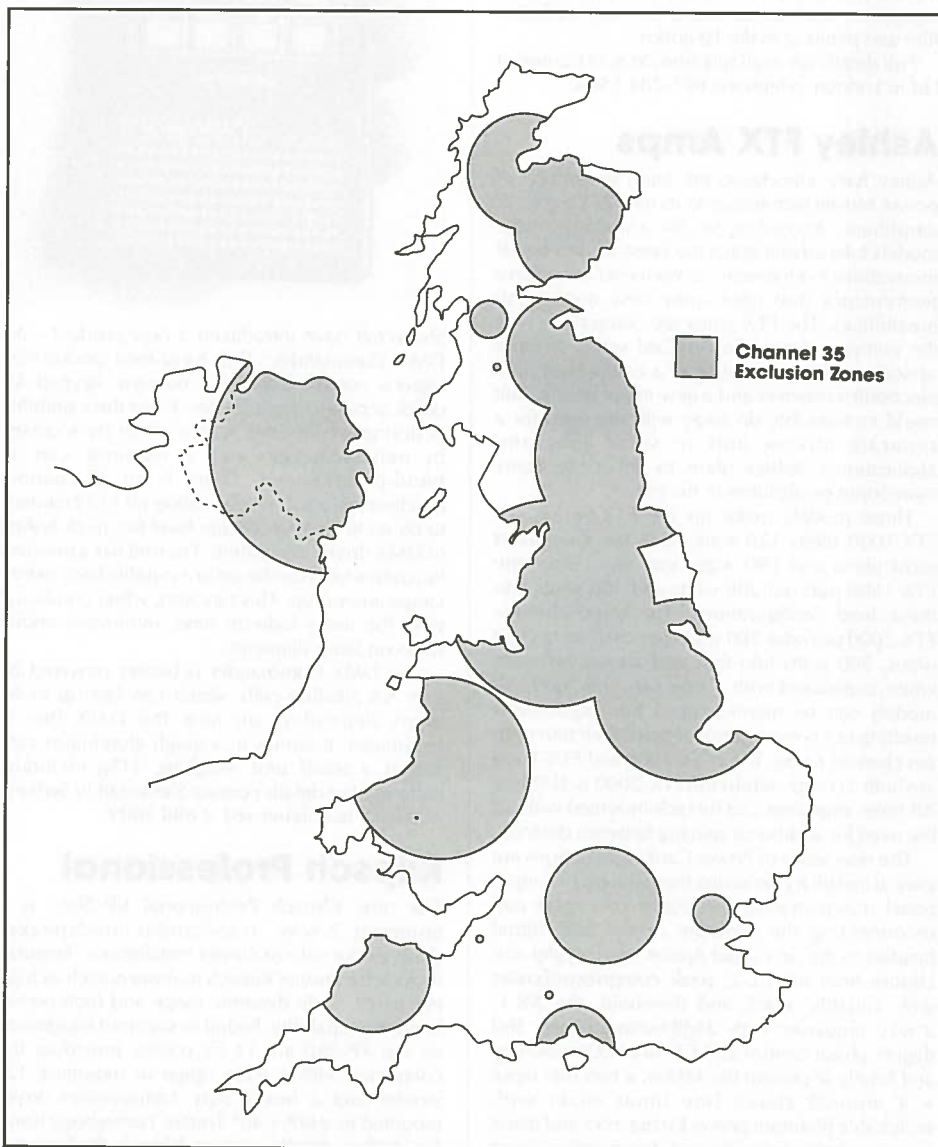
The technology is now available to enable the

highest quality and legal operation of radiomic equipment. Provincial theatres, just as much as their West End counterparts, should take advantage of this fact. The large musicals, for example, are making their way around the country - 'Les Miserables' has performed in Manchester and is now enjoying a season in Edinburgh, with 'Cats' also on a UK tour. Conversely a number of shows begin in the provinces before opening in London. This situation is likely to continue and widen, making it all the more important for theatres to be properly equipped.

Audiences have come to appreciate and expect high quality sound and this cannot be achieved on a corner-cutting budget using inappropriate or illegal equipment. The frequency allocations are designed to enable the greatest number of airwave users to co-exist simultaneously, with the minimum of interaction and, for better or worse, users have to respect this situation.

There is no guarantee that the current allocations will remain as they are forever, but the major manufacturers have joined together in order to exert influence on the appropriate authorities. All end-users should help with radio frequency housekeeping and this approach should ensure that the courts are kept clear and that the Spectrum Police do not pay unexpected calls.

John Wykes is Senior Engineer at Audio Engineering and also serves on the ETSI Radio Microphone Working Party. This Committee's principal objective is to establish pan-European frequency allocations and performance standards for radio microphone equipment.



Availability of frequencies for indoor radio microphones.

EQUIPMENT *News*

Make your own Gobos!



Next time you need a gobo in a hurry, there's no need to panic, because M&M Camelont have launched the Gobomaker (first seen at PLASA).

Designed and manufactured in the UK, this complete kit contains everything you need to make gobos - instantly. Using a unique, patented film, you can make your own aluminium gobo from any good quality artwork, including images produced on a laser printer, in just 30 minutes. According to the company, the resulting aluminium gobo is stronger than the traditional stainless steel gobo and lasts many times longer.

The kit has an integrated light box, containers for chemicals, automatic timer, protective equipment and comes complete with sufficient film and plates to make 10 gobos.

Full details are available from M & M Camelont Ltd in London, telephone 071-284 2504.

Ashley FTX Amps

Ashley have introduced the latest generation of power Mosfet technology to its new FTX-Series of amplifiers. According to the company, these models take advantage of the latest technological innovations in electronic components to improve performance and offer some new application possibilities. The FTX amps are compatible with the company's new Power-Card series of input options. Initially consisting of a compressor, and electronic crossover and a new mixer design (that could conceivably do away with the need for a separate mixing unit in small jobs and applications), Ashley plans to announce many more input possibilities in the future.

Three models make up the FTX-Series: the FTX-1000 offers 120 watts RMS per channel at eight ohms and 190 watts into four, while the FTX-1500 puts out 200 watts and 300 watts into these load configurations. The top-of-the-line FTX-2000 provides 300 watts per channel at eight ohms, 500 watts into four and almost 700watts when confronted with a true two ohm load. All models can be mono-bridged into eight ohms resulting in a power output of twice their four ohm per channel rating. The FTSX-1000 and FTX-1500 are both 2U high, whilst the FTX-2000 is 3U high. All three amplifiers can be rack-mounted without the need for additional spacing between devices.

The new series of Power Card input options are easy to install. By removing the standard FTX input panel, disconnecting the signal connector and reconnecting the separate power and signal headers to the new input option, the installer can choose from the CL-2, peak compressor/limiter with variable attack and threshold, the XR-1, 2-way crossover with 24dB/octave filters, 360 degree phase control and CD horn EQ switching and finally at present the MM-6, a two mic input + 4 mono/2 stereo line input mixer with switchable phantom power for the mics and insert points on both main channel. For details contact Sound Dept in Oxford, telephone (0865) 516800.

Masterpiece Upgrade

Since the initial launch of Masterpiece, Pulsar have produced many Software enhancements for the unit, the latest being version 1.0. The new features include: Fade In and Fade Out facility added to all Scenes and Scene Chases; Enhancement to the view system added; Remote Swap Memory and Card via MIDI added; and Grand Master level stored and loaded to and from memory cards. The upgrade EPROMs are supplied free of charge from Pulsar by written request confirming the serial number and current software version of your machine. For details contact Pulsar in Cambridge on (0223) 66798.

DMX Rigger's Control



Showcraft have introduced a new product - the DMX Commander. This hand-held pocket-size rigger's control features a numeric keypad for quick access to any dimmer. It has the capability of storing two separate scenes which are accessed by individual keys and, if required, can be blind-programmed. There is an all-channel function included which enables all 512 channels to be set to any percentage level for quick testing of DMX driven equipment. The unit has a pre-heat function which can be set to a suitable level before lamps are run up. This function, when combined with the unit's fade-up time, minimises undue stress on lamp filaments.

The DMX Commander is battery powered by four AA alkaline cells which can last up to 60 hours depending on how the DMX line is terminated. It comes in a tough aluminium case and is a small unit weighing 315g including batteries. For details contact Showcraft in Sydney, Australia, telephone +61 2 698 3009.

Klipsch Professional

The new Klipsch Professional KP-260 is a compact 2-way, trapezoidal loudspeaker designed for solo or cluster installations. Features include traditional Klipsch mainstays such as high efficiency, wide dynamic range and high power handling capability. Found as standard equipment on the KP-260 are 12 fly points, providing the contractor with a wide range of mounting 12" woofer and a heavy duty compression driver mounted to a 60" x 40" Tractix Technology horn. For further details contact Klipsch Professional Products in America on +1 615 689 2500.

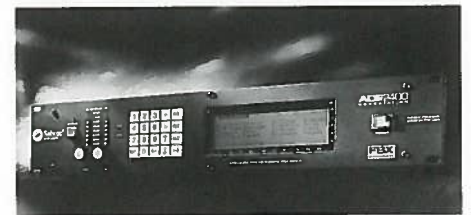
Citronic launch F1-Pro



Citronic Pro Audio have introduced a compact, powerful speaker to complement its range of remixer and consoles for the DJ market.

The F1-Pro has been manufactured in response to the demand for a high volume, small size, full range 4 Ohm monitor speaker for remixing and small installations. The loudspeaker has a frequency response from 70 to 20 KHz, and SPL of 90dB @1 metre and 180 Watts music programme power handling. The enclosure is made of mineral microsphere loaded polypropylene and fitted with a specially designed 5" cone woofer and 1" ferro-fluid cooled dome tweeter. The built-in crossover divides the input signal to make maximum use of the capabilities of each driver to produce the full range acoustic output. For further information contact Citronic in Melksham, telephone (0225) 705600.

Sabine Processors



Sabine have introduced two new digital audio processors, the ADF-1200 (single channel) and ADF-2400 (dual mono/stereo) workstations, the first set of fully adaptive digital filters for sound engineers. Fully programmable functions include 12 or 24 band digital parametric filtering, digital shelving filters, digital delay, noise gate, memory store for multiple configuration, password protection and 31 band real time analysis. According to Shuttlesound unlike any other device available the ADF's can also automatically detect acoustical feedback and assign a filter to remove it. This process typically takes less than half a second. Manually, each filter can be varied in width from 1 octave to 1/99th of an octave and varied in depth from +12dB to -80dB providing the engineer with unmatched filter control for very precise equalisation.

The ADF range complements the established Sabine FBX-900, a nine band digital filter device which automatically detects and removes feedback, which was recently awarded the 'Product of the Year' award at PLASA (see L+SI September '93). For details contact Shuttlesound Ltd in Mitcham, telephone 081-646 7114.

Community Leviathan II

Community Professional Systems have introduced a full-range system capable of a continuous 136dB from 40Hz to 12kHz.

The Leviathan II is a Tri-Axial all horn loaded system and is constructed of highly weather-resistant hand-laminated, balsa-reinforced fibreglass. The low frequency section of the Leviathan II is a massive straight horn driven by 6 15" high sensitivity, ferrofluid cooled and damped drivers, mounted in a radial format. With a 34Hz flare rate, a 36 square foot mouth and an overall length of 7ft, this is a true bass horn. The midrange is handled by the highly regarded Community M4 compression driver. This low distortion device is located in the centre of the 6 x 15" chassis drivers and is mounted on the community PC1542M, 40 x 20 degree horn.

The high frequency reproduction is provided by two new compression drivers. Developed by Community, the MH2.8 drivers are designed to handle frequencies above 1200Hz at the levels required by this system. The MH2.8 is a 2.8" exit device and employs a 3.55" ferrofluid cooled, high strength carbon fibre diaphragm and a low compression phase plug of a combined radial and circumferential design. The two MH2.8 drivers are mounted onto a single focused array horn providing 40 x 20 degree dispersion from 1200Hz to 12000Hz.

Leviathan II requires a three way electronic crossover capable of at least 24dB per octave. Crossover centres being 280Hz and 1200Hz with an overall hi-pass filter at 32Hz. Parametric or programmed equalisation, and one digital signal delay (for the high frequency signal) is also required.

For more information contact Sound Dept in Oxford, telephone (0865) 516800.

Sennheiser Dynamic Mic

Sennheiser has launched a new series of low-cost professional dynamic microphones. The MD 511 and MD512 are cardioid general-purpose models, while the supercardioid MD 515 and MD 516 provide even higher levels of feedback rejection and ambience elimination for live vocal and spot miking applications.

Incorporating the latest transducer technology, the MD series benefits from computer-optimized design techniques. The sound capsule is capable of handling very high sound pressure levels - beyond 160dB - while the ultra-light voice coil is particularly resistant to distortion and interference.

The Polyamide construction ensures low levels of handling noise further reduced by elastic suspension (MD 515 and MD 516) which isolates the capsule. All models feature a 50Hz-18kHz frequency response and excellent sensitivity.

For further details call Sennheiser UK on (0628) 850811.

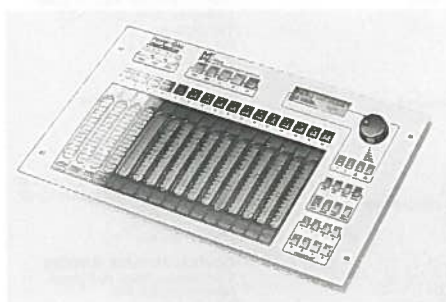
Integrated Controllers

Telegan Protection took over the Unity Programmed Lighting product range earlier this year and have now launched a new generation of PX-16 Integrated Lighting Controllers.

The PX-16 is a versatile all-in-one lighting controller and dimmer unit. It can control up to 16 dimmer channels of most types of load, with four 10 Amp dimmers integrated into the unit. Slave dimmers may be added for larger systems. The PX-16 includes an internal timer and scene rotation facility with all operations effected from a standard PX-16 remote handset. This makes it easy to set up a range of mood lighting scenes which may be automatically implemented. In public places, the on board fire/burglar alarm input will ensure lights full on regardless of status. The PX-16 will also control motors, so professional presentations involving curtains and rotating platforms can be managed.

For details call Telegan in Surrey, telephone 081-668 8251.

P&G MIDI Control



Penny & Giles have introduced a MIDI control system - the MM16 MIDI Management System. The first in a new range of digital hardware, the MM16 is designed to aid the programming and management of complex MIDI set-ups and offers a comprehensive assignable control surface. The front panel features 16 endless-belt controllers with integral LED displays, a data wheel, four data entry keys, 16 assignable keyswitches, a further 24 dedicated pushbuttons and a 2x20 LCD screen.

The MM16's design provides status feedback for operators, with control positions being instantly apparent. This aspect makes it an accessible and informative unit, especially when configured as a MIDI mixer and using the endless-belts as channel faders and group masters. Available as a 6U 19" rack mounting unit, it enables rapid real-time access to variable parameters in a MIDI installation, simplifying the task of programming and controlling changes to synthesizers and outboard equipment.

Capable of operating as a stand-alone generator of MIDI codes, the system can also operate in Update mode, which when linked to sequencers and similar external equipment facilitates automation. The product features separate Merge and Control ports, each with 6-way output splitters, together with Merge In/Thru and Control In/Thru facilities. Control assignments are stored in up to 64 'Programs', arranged in eight banks of eight, whilst data values are saved in up to 128 'Snapshot' memories. The internal battery-backed memory can be augmented by means of a plug-in 64k static RAM card or dumped externally via MIDI. For details call Penny & Giles in Gwent, telephone (0495) 228000.

EMO Filter Option

EMO Systems are now offering high quality, full current rated (13A) EMI filtering as an optional extra for all versions of their E60 range of mains distribution panels. The filter option, which should be specified at the time of ordering, provides effective suppression of noise and interference on the mains supply. The company's System's Sequential Switching system can now be linked to Formula Sound's environmental noise control unit. The Sentry CM6 Master Switchers may be ordered with the modification or a kit is available to update existing CM6s. Alternatively, they may be returned to EMO for modification. For further information contact EMO Systems in Durham City, telephone 091-373 0787.

LOBO Waterscreen

LOBO, specialist in laser systems, have developed a new water-based screen system assembled by modular water-distributing segments.

These two metre segments can be supplied with up to two submersible pumps, which can carry the water to a height of up to 15m depending on the kind of nozzles used. The downfalling water can be used as a screen for front or rear projection. A range of nozzles can be selected depending on the projection equipment, the height of the screen and the wind force. The nozzles can be altered without tools, by the help of quick-adjustment locks. All parts are made of shock resistant, solid plastic or corrosion-resistant material. For further information, contact LOBO in Aalen, Germany, telephone +49 7361 6095.

Lightwave updates LCD Controller

Lightwave Research's LCD controller for Intellabeam has been updated - refinements include a new front panel material and an enhanced series of user definable buttons. Included in the new LCD Controller are eight user keys that take the place of fixed effects keys on the former controller. The major improvement is that the user-definable keys may be custom-programmed as 'macros' by the operator for ease of operation. User keys 1 through 6 are pre-programmed at the factory, while user keys 7 and 8 are currently undefined; each may be re-programmed to suit the individual's needs. The new controller also sports a more durable Lexan front panel instead of silk screen. For more information contact High End Systems in Austin, Texas at +1 512-836 2242.

Soundtracs Solitaire



The Solitaire console is a 24 buss in line production console available with the latest Soundtracs ADP dynamics package providing gates, compression, limiting, expansion, modulation and autopanning on each of 24, 32 or 40 channels. Automation options of either VCA or moving fader will also be available in the near future. With dual line inputs on each channel the Solitaire provides an incredible 88 comprehensive inputs on mix down, combined with automation and dynamics in a remarkable package.

A second console, the Sequel II, is intended for touring and installation. It has four band FdB EQ, group muting, VCA grouping as standard plus the new ADP assignable dynamics package providing gating, compression, limiting, expansion, modulation and autopanning on each of the 24, 32 or 40 channels. For information contact Soundtracs in Surbiton, telephone 081-399 3392.

Rainbow PlusCard

The new 15" Rainbow colour changer, launched at Plasa '93, incorporates the PlusCard as standard to offer lighting designers greater flexibility and more control. With up to 12 bit resolution, users are no longer limited by the 256 steps of a DMX crossfade, resulting in a much smoother scroll, vital for slow scrolls on long gel strings. The new 15" Rainbow now also provides for a minimum of two and up to at least 16 colours.

The PlusCard can be set to display only full frames of colour, so the unit will step from colour to colour, again vital for the larger Rainbows. The 15" also offers the option of controlling the fan on a separate DMX channel, so it can now be turned down or even off, making it even quieter. In the event of over-heating, a thermal sensor brings the fan back on, and when the unit has cooled down sufficiently, automatically turn it off again. The linear fan is now incorporated into the housing unit of the changer itself, which has the immediate benefit of reducing the weight by nearly 50%.

The front section is detachable for access to the scrolls and various 'fronts' are available for use with barn doors and 2 and 5kW lanterns. A new universal adaptor plate with movable lugs is also now available.

Further information is available from M & M Camelont in London, telephone 071-824 2504.



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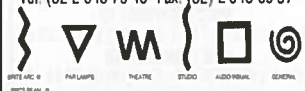
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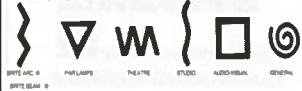


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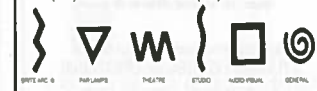
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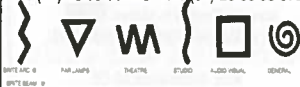
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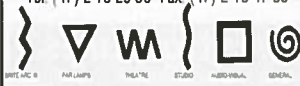
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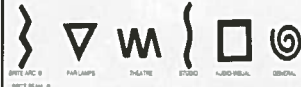
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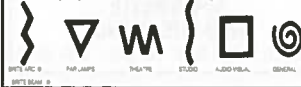


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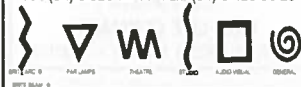
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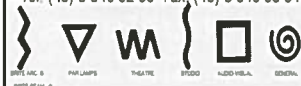
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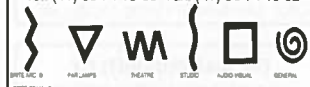
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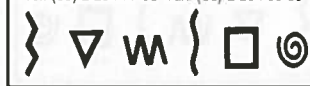
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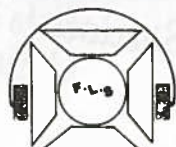
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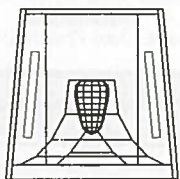
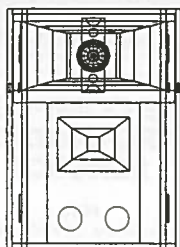
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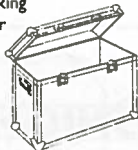
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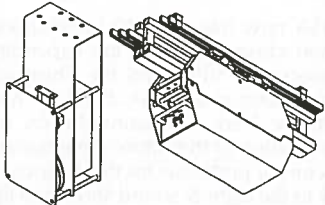
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The full programme of seminars appears in the August and September issues of the magazine.

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VIEWPOINT

PLASA at 10 - the Association Makes its Mark

Chairman Tony Kingsley develops the theme of our October news story

The first piece of news in L+S's October issue highlighted, albeit briefly, PLASA's ever-growing stature in the industry, both at home and overseas. The story came from the pen of our editor John Offord and he has for sometime now extended his editorial role by voluntarily taking on the guidance of PLASA's Eastbourne team in their year-long activities, and he is, of course, totally aware of the work that the Association does for our industry over and above running the annual PLASA Light and Sound Show.

As PLASA chairman, I thought I would further highlight what the Association has achieved and is working on for the future, in particular for non-member readers who may not be aware of our activities.

Since the name change to 'PLASA' ten years ago we have moved steadily and perhaps almost too secretly forward to our present position, aided all the way by the assistance and determination of many past and present officers, committee members and personnel at our Eastbourne HQ. Alongside this march forward, the industry has grown in professionalism as if arm-in-arm.

Which is exactly how it should be. An Association can take the lead in some areas, but if ultimately there is no energy or interest from the industry itself, there is no point in pressing the 'go' button.

What I believe the Association is ever more capable of doing is responding at short notice to the needs of the day, an increasingly important factor given the speed of current technological development. Linked in with this is that as we develop, and our skills become more noticed, a far wider range of applications for our equipment and technical skills also occurs. One of PLASA's aims is to put customers from within this ever-widening range of requirements in touch with the relevant PLASA members, and the new database currently being developed in Eastbourne will greatly assist this aim. It will also hopefully encourage PLASA members to use each others' products and services on a wider basis.

Across the past 10 years, the debate at PLASA's executive committee meetings has changed from one of dealing with complaints of equipment build quality and back-up service to just as important but far more esoteric matters such as control protocols and the urging of relevant member companies to get their equipment PAT tested and to join the ranks of the BS5750 accredited.

As we have moved on, these areas have been addressed by the staff in Eastbourne and our



PLASA chairman Tony Kingsley is managing director of Avitec Electronics (UK) Ltd. He has been a member of the Association's executive committee for 10 years and became chairman in July 1991 after serving as vice chairman for several years.

standards officer. An early seminar on PAT testing was well-attended and set many members on the right path. We have published our own unique and specifically tailored guide to achieving the BS5750 quality standard. There are numerous similar examples.

Right through the period, we've pressed on - as always - with support for our members exhibiting at trade shows overseas. From the old annual Frankfurt Music Fair mission that was almost all that was talked about (bar our own show) at meetings in the early eighties, we now get involved with at least three jointly sponsored missions every year and this year for the first time we got together our very own independent group for a visit to Kiev in the Ukraine. As a result, we now have the built-in experience and willingness to enable us to respond within a few months if and when a suitable opportunity arises that meets enough of our members' demands.

On the home front PLASA has taken the lead in talking to and sharing information with other associations, many of whom have responded enthusiastically to our initiative. As a result, several associations have started working with PLASA on various projects, and this is likely to result in tangible benefits for all.

This outward-looking perspective has also been carried strongly into the international

arena. PLASA now has over 40 international members and close links with the expanding German association VPLT and the Theatrical Dealers Association in the USA. PLASA is now taking a strong lead internationally on the discussions relating to the future development of lighting control protocols for the industry.

But back to the Light & Sound Show and this magazine. To many people in our industry, both at home and internationally, the show is one of the key events in their diary. Every month just as many people read the pages of Lighting+Sound International to obtain a mine of background information on the industry at large. (With a circulation overseas of over 2000 copies there is probably a readership of at least 5000 - the vast majority involved within the area of trade distribution and creative decision making.)

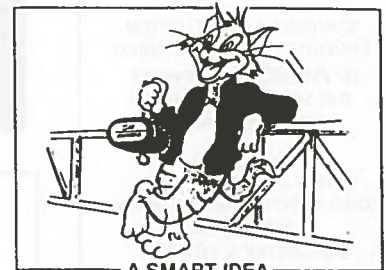
So, PLASA has control of one of the industry's major shows, its own well-established international magazine and an office that can respond to the needs of the day. With these three forces at our command, we have considerable power over events; I believe this power is being used responsibly and is to the common good of us all, keeping us moving forward dynamically and profitably.

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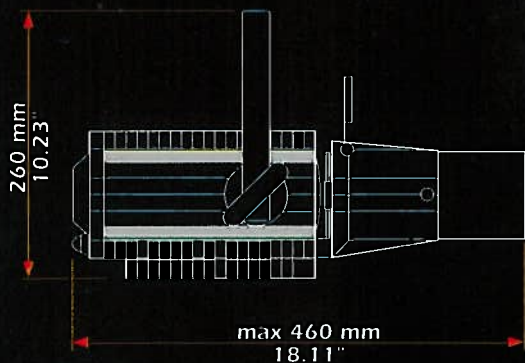
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