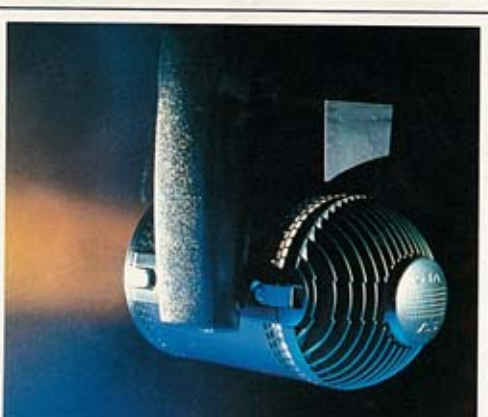
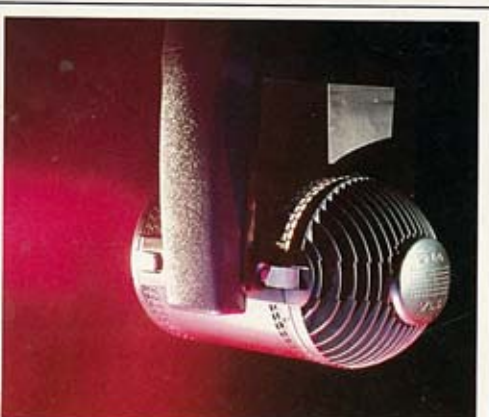
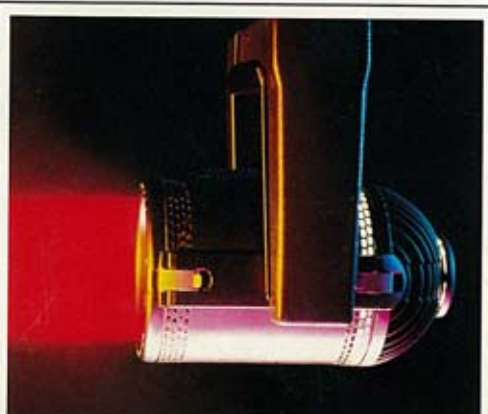
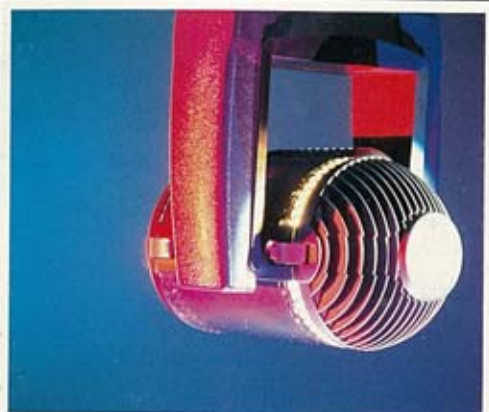
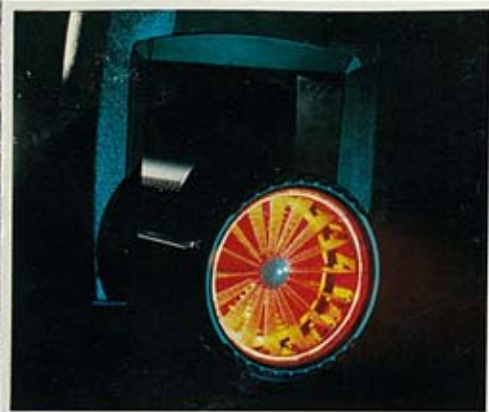


LIGHTING+*SOUND*

International



THE MANY FACES OF THE NEW VARI-LITE VL5

PHOTO: LEWIS LEE

- Vari-Lite's Soft Show Shuffle - the new VL5
- Suspended Animation: the Unusual Rigging story
- Viewpoint: is Exclusive Distribution Detrimental? asks Tony Gottelier
- Ken Dibble Test Drives the New Ramsa Mixers
- Sixty Years of Light Work - the Story Behind the Book
- Latest Tech: From MIDI to Colour
- Light and Sound Show Exhibitors, Plans and News

SEPTEMBER 1992



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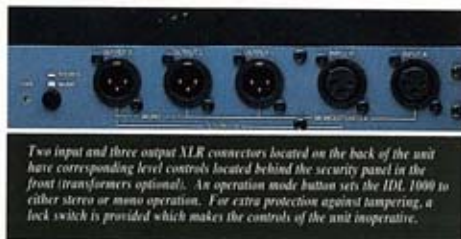
The IDL™ 1000 digital delay processor from Peavey Architectural Acoustics will make the task simple and accurate. With over 1.3 seconds of delay (over .25 of a mile), the IDL 1000 can align multiple speaker systems in churches and auditoriums, to even the largest permanent installations such as arenas and stadiums. Within an array, individual drivers can be aligned in 20.8 microsecond increments. If needed, a second delay line can be formed that dynamically shares the delay memory by switching to stereo mode and utilizing input "B" and output 3.



A sliding security door is provided on the front panel to prevent tampering with input and output level controls.

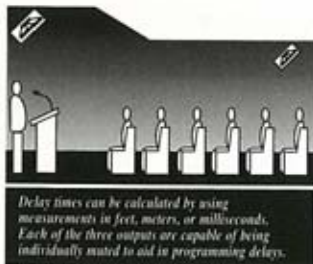
distortion low as well as to maintain a full 20 kHz bandwidth. Both the inputs and outputs are electronically balanced and use XLR connectors. Transformers for the inputs and outputs are optional.

To further speed setting the delays, the display can be set in units of milliseconds, feet, or meters. The IDL 1000 has a mute button for each output which can also be programmed to compare the current delay settings to a zero delay. The IDL 1000 utilizes a 16-bit Delta-Sigma A/D converter and a 48 kHz sample rate to keep the noise and



Two input and three output XLR connectors located on the back of the unit have corresponding level controls located behind the security panel in the front (transformers optional). An operation mode button sets the IDL 1000 to either stereo or mono operation. For extra protection against tampering, a lock switch is provided which makes the controls of the unit inoperative.

The IDL 1000 — simply brilliant.



Delay times can be calculated by using measurements in feet, meters, or milliseconds. Each of the three outputs are capable of being individually muted to aid in programming delays.



The display window provides information on the status of the IDL 1000. You can check or change the output delay times, delay units, and operation mode (stereo or mono).

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To receive a catalog showcasing Peavey Architectural Acoustics' full line of sound equipment, call or write: Peavey Electronics Corporation • 711 A Street • Meridian, MS 39302-2898 • (601)483-5365 / Telex: 504115

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LIGHTING+ SOUND *International*

SEPTEMBER 1992

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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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Light Angles and Kelco Fail

Several PLASA members and others will sustain financial losses as the result of the latest batch of failures with contracting companies in the discotheque sector.

Hard on the heels of the collapse of WB Lighting, two more businesses faced bankruptcy this month. Light Angles, one of the few companies to have been able to claim extensive work in the discotheque sector this year with contracts from First Leisure worth circa £600,000, are to close with immediate effect. As L+S went to press George Ashley-Cound advised this magazine that efforts to save the enterprise had come to nothing, so there was no alternative other than to close down. "We had geared up to handle a substantial turnover, but suddenly the work dried up," Ashley-Cound admitted. "We had hoped to trade out of it but, unfortunately, that has not proved possible. I suppose I must blame this endless recession." The premises at Gatwick have already been vacated, but no receiver or manager had yet been appointed.

Angles, who have been advertising extensively in the professional magazines in recent months, were in the middle of a major install for First Leisure plc at their new Paradox site in Aintree when signs of their financial problems first emerged. Following discussion with the entertainment group, suppliers and contractors were advised to complete their contracts by direct arrangement with First Leisure. Asked to comment, First's technical director, Shaun Doyle told L+S: "Light Angles were very forthright and honest in coming forward to keep First Leisure informed of their difficulties. They were very keen to ensure that this job was completed and worked with us on solutions. It seemed they wanted to leave on as good terms as possible. Their refreshing approach to design will be a loss to the industry."

Comments from the various suppliers involved do not, as you might expect, reflect the same generous viewpoint.

Kelco Industries, who completed light and sound for The Base nightclub in East Grinstead earlier this year, have issued a notice under the Insolvency Act 1986 notifying that a meeting of creditors will be held at the offices of Stephen Conn in Manchester on September 3rd.

Pulsar in Suspension

The stand of Pulsar and Clay Paky will tower 8m high and will be suspended from the roof structure of Earls Court 2 by eight winches. Incorporated within the scheme are two huge triangular projection screens. "They will distinguish our booth from surrounding competitors!" Pulsar's Jane Dorling told L+S.

The lighting rig will house around 100 Clay Paky intelligent moving projectors and a light show will take place every 30 minutes. Included in the inventory will be eight brand new Clay Paky Tiger Scans, and Pulsar were highly confident that these new units will hit the headlines. All new products launched throughout 1992 by both companies will be on view and the latest technology will be employed to control the light shows with Masterpiece consoles linked to SMPTE time code.

The shows will be split into four main areas: product information, the main light show with music from classical to 'techno house', a professional dance performance, and in conjunction with Peavey a live music demonstration involving keyboard and bass.

No less than 24 personnel will be manning the stand (C40).

Three Shows in One

Biggest stand at the PLASA Light and Sound Show will be the Martin Professional exhibit, and to cater to the wide variety of trade visitors the company will be holding three totally different lighting presentations each day. Individual product presentations will be going on at all other times.

The shows are designed for the discotheque, touring and general lighting markets and the stand will incorporate a 72 seat auditorium. Other features include a flying rig for the rock 'n' roll set and a Memotech videowall displaying the new Martin video. Sunday will see a special presentation for DJs and on Monday the club market visitors will have an individual lighting presentation. Several new products will be launched, including the new PRO218 compact unit which already has a pre-sale count of over 10,000 units, according to Martin.

PLASA's First Awards

This year's PLASA Light & Sound Show sees the introduction of a brand new industry awards scheme - the best stand and the best new product at the show.

The PLASA Par-can award for the best stand at the show will be presented to the exhibitor whose stand is judged to be the most aesthetically designed and also best represents the nature of the exhibitor's business. The judging panel will be chaired by Clare O'Brien, O'Brien Associates and includes Joe Hosken, Pro-Sound News Europe; Jeremy Jehu, The Stage and Television Today; Ruth Rossington, L+S; Paul Day, Disco Mirror and Licensed Design; Patricia Mackay, Lighting Dimensions International.

Any product launched internationally during 1992, and in full production at the time of the show, is eligible for consideration in the best new product category. The winner will undoubtedly be highly innovative with an outstanding price performance ratio for its intended markets. In addition to the Par-can award, PLASA members Ramsa have donated a lap-top computer for presentation to the winning manufacturer. The carefully selected judging panel includes David Taylor, Theatre Projects Consultants; Martin Tasker, First Leisure; Vincent Rice, freelance lighting and sound designer; Rod Litherland, Television Lighting and Simon Croft, freelance pro-sound journalist. George Thompson, PLASA's standards officer, will be chairing the judging panel.

"The PLASA Light & Sound Show Awards have been designed to acknowledge the excellence of our exhibitors and the effort they put into the exhibition every year," commented Tony Kingsley, PLASA's chairman. "We felt that our first year at Earls Court 2 was the perfect time to introduce awards as the open plan structure of the venue encourages adventurous stand design and we are promised product launches from over 60 per cent of exhibitors - more than ever before."

All exhibitors are invited to the PLASA Par-can awards presentation at 5.15pm on Monday 7th September, Cafe Bar 6, Earls Court 2. As no prior announcement of the winners will be made you'd better make sure you're there. The awards have been designed by Vicky Fairall and Barrie Guy of DHA Lighting.

**LOOK FOR
PLASA SHOW
NEWS WITH
BOLD
HEADERS
THROUGHOUT
THIS ISSUE**

Spanish Practices

L+S journalists visiting Seville earlier this year for the purpose of reporting on Expo 92 were made quickly aware of an undercurrent of mistrust between some of the companies involved, and others who would have liked to have been, and several of the Spanish lead contractors. Allegations of skulduggery behind the scenes were rife.

They heard of cases where British design companies had apparently been blatantly 'used', others who had had their bids for equipment and expertise sidetracked or manoeuvred, and still others who had been allowed to proceed only under strict confidentiality agreements which would make Disney non-publicity clauses look positively generous by comparison. Now the existence of these prejudices has been borne out in a recent article in the Spanish press.

The piece, which appeared in Iberian newspaper El Pais on August 2nd, was spotted by a bright-eyed PLASA committee member who also arranged a translation. The general tone of the article confirms that Spanish companies do not seem to mind importing products from abroad, but they do not appreciate suppliers or installers attempting any direct involvement in the market place. Nor do they want them providing expertise or technical support.

According to El Pais: "The Spanish Association of Showbusiness Services (AESE) was formed two years ago and now has 20 members. Though they believe there may be 300 companies in the sector, they are worried about foreign competition from British, French, Dutch and Belgian firms. They also complain about the poor technical standards in many venues, shortage of power outlets and poor quality electrical installations."

Several leading Spanish companies told El Pais that: "Though they have good equipment and good technicians, and are secure in their work in Spain, they do want foreign companies stepping in."

So much for European integration and cooperation.

Celco Fly in With Aviator

"For those of you that thought Navigator and Pathfinder broke new ground in lighting console design just wait until you see the latest product at this year's Light and Sound Show," reports Celco's Keith Dale. "At Earls Court 2 Celco will be unveiling The Aviator, a product range that, it can be safely said, will set the standard for console design well into the next century. And that's not marketing hype!"

Better fly in yourself and take a look. Celco are on stand B56.



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France
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14760 Bretteville Sur Odon
Tel 33-31 741001
Fax 33-31 734729

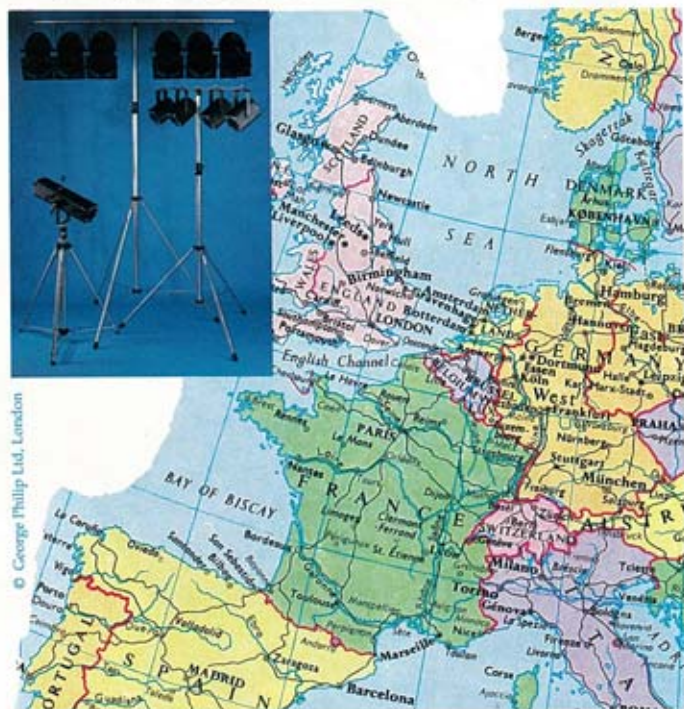
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Masterpiece is shown with optional case and monitor

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Doughty Launch

Doughty Engineering will launch their totally new 'Shadow' range of equipment stands at Earls Court 2. Comprising six units ranging in maximum height from 1.4 metres to 3.5 metres, this range of stands encompasses both double stage and triple stage units. Also new is the Zodiac 60 winch stand. A heavy duty wind-up stand, the Zodiac 60 is capable of lifting 150kg, to a height of six metres and is designed for studio or theatre applications.

The Nebula 42 winch stand is a medium duty wind up stand, which will lift a 60kg load to a maximum height of 4.2 metres, and accepts all the popular Doughty stand accessory tops.

High End Rash of Releases

High End Systems and, prolific development associates Lightwave Research, will be launching several new products through their UK distributors Lightfactor from their stand at the Light and Sound Show.



The one which will, no doubt, attract the most attention is Trackspot, US-made competition for existing Italian entry-level automated projectors. With a 400MSR lamp, Trackspot offers 10 dichroic colours and replaceable gobos, full dimming, microstepping and a break resistant mirror. (This latter item is a new feature of the Intellabeam also). Control options are DMX512, Intellabeam protocol, analog, or via a built-in microphone. The item is pitched at below £1,200 in the UK.

Touch Dimmer Twelve, is a compact rack-mountable panel which offers 12 dimmable outputs, 10 matrix and chase presets of 127 steps, real-time delay and crossfade modes. Total MIDI capability is also claimed for the touch panel, which outputs standard analog or TTL. A new Intellabeam LCD controller is also eagerly anticipated.

On a totally different track is Coldflow, a low fog generator. Capable of a generous output of low level, dry fog via supercooled CO₂, the unit is reasonably compact and lightweight. It runs quietly and does not suffer from the residue problems of the smoke producing alternate.

Interactive Video Pro-Active

Since Alex Blok launched his Tecnation Bit Bopper, the live graphics video system, a couple of years ago to great acclaim, and very few sales, the field for interactive video systems has been virtually the sole preserve of ex-TGA subsidiary Xylo. It seems that all of a sudden this is about to change with the announcement that Kaleidovision, previously Bit Bopper distributors in the UK, are to go it alone with a budget priced product of their own creation which they will unveil at the Light and Sound Show.

The new product called Kaleidolight, seems to feature novel graphics and special effects and is provided with a new real-time control interface based on a touch sensitive screen. Kaleidovision claim that they have been able to realise these features at a very economical price, rumoured to be as little as one third of the price of Bit Bopper, by writing multi-tasking software programs and by using custom made hardware rather than proprietary kit.

Meanwhile, originator of the Bit Bopper, Alex Blok, is currently in California developing his own 'radically new' and also budget priced system, which L+S can reveal will be called Sonovista, for a UK launch later this year.

OHM and Away

OHM Industries will be unveiling no less than six new audio products at the PLASA Light & Sound Show (stands B68). They will also be providing sound for Martin Professional, Fabtronic and Abstract where OHM will be the 'official' sound for the Abstract 'DJ of the Year' competition. OHM Industries have announced that they have been appointed official UK distributors for the Spanish audio manufacturers Ecler, whose products include amplifiers, mixers and graphic EQ. A full range of Ecler products will be on stand B80.

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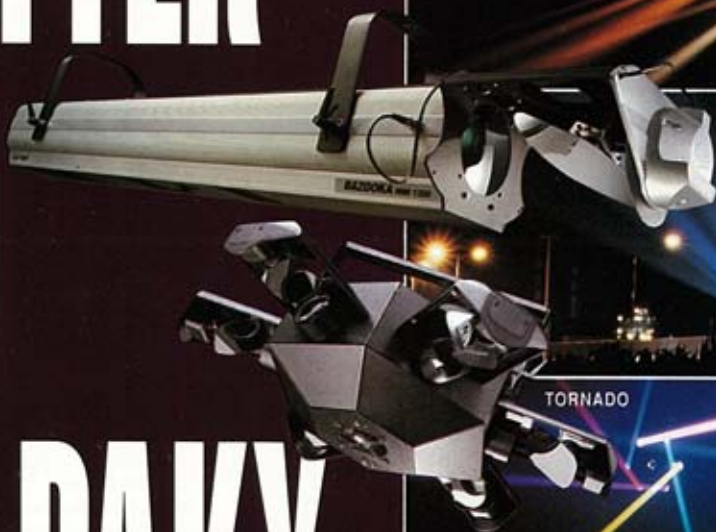
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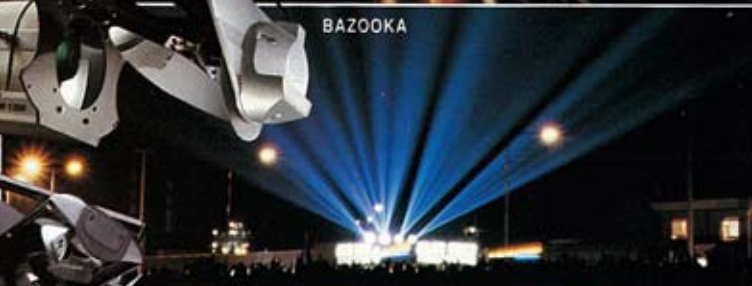
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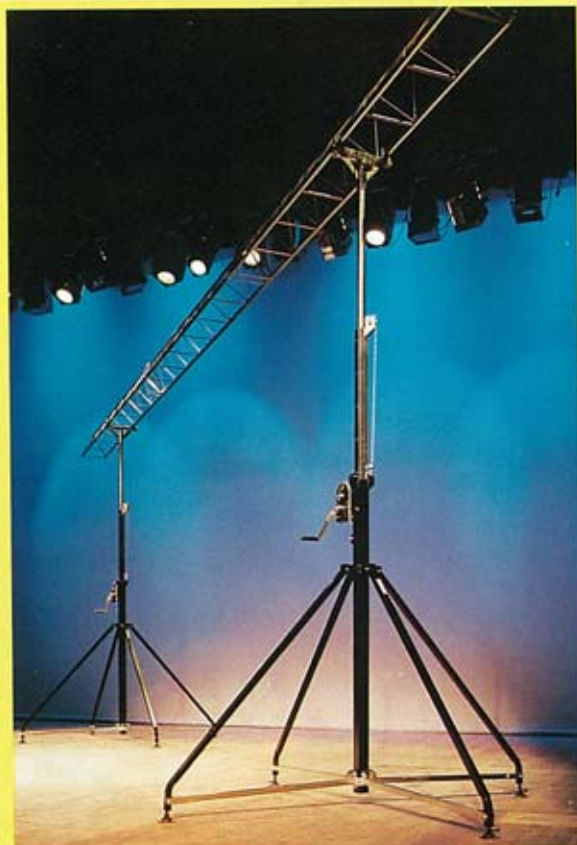
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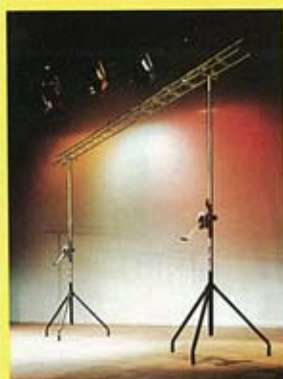
BROOKLYN



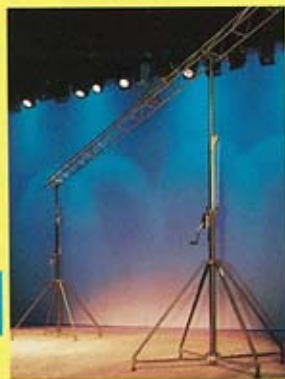
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1 m. ▶ 6 m.
150 kg.



ALU Δ400

STEEL Δ300

STEEL Δ200

STEEL Δ150

Triple E go Tracking

Triple E will preview Unicyc, its new curtain track system for television studios, at Earls Court 2 (stand A114). Although the Unicyc will not be in full production until the end of this year, Triple E will respond to customer demand and demonstrate the first sections of the track at the Light and Sound show. Ideal for television studio applications, the Unicyc is a cyclorama track designed to be more efficient and cost effective than traditional tracks. Motorised points and Dropout sections have been provided for in the design and the track can be constructed and bent on site to a minimum radius of 50cm. The new Unicyc track will use runners of a simpler, and consequently cheaper, design than Triple E's heavy duty Unitrack system.

The company's new Linear Motor System will also be continuously demonstrated at the show. The advanced Linear Motor System, on show for the first time at a UK exhibition, has already been installed in two major venues, the NEC in Birmingham and the Rhein-Main-Halle in Wiesbaden, Germany. The Linear Motor System is part of Triple E's award-winning Unitrack system.

Triple E will also be launching its new Trac Drive system. The new system which has already been used in several prestigious installations in Germany through Triple E's European distributor Gerriets, will go on show for the first time. The system is the result of a continuous development programme by Triple E and will be available for both sale and hire. It can motorise any length of curtain track and is available in three versions; fixed speed, variable speed and variable speed with intermediate presets.

Finally, Triple E has designed a new, simpler Hook Clamp for its curtain track systems. It is a simpler and more robust update of the existing design which will fix to all tube sizes between 48-62mm and will retail at a lower price. Triple E's new hook clamp has also addressed the problem of clamp damage to aluminium tubes and truss, a set-back of other types of clamp.

All GE Lighting

GE Thorn Lamps is now known as GE Lighting Ltd, following the integration of GE Thorn and GE Tungram as one company, in which Mazda remains the key brand for the consumer channel. To operate effectively as a single company, over a 14 month period the company has consolidated regional sales offices into the one customer service facility now located in Mitcham, Surrey. The sales operation has been reorganised into four main regions - all designed to help customers by making it simple to do business with GE Lighting. One united GE Lighting salesforce has been set up to deal with GE's wide range of products in the UK. Warehousing and distribution has been centralised through GE Lighting's new £10 million facility at Northampton.

Laplight Launch

Laplight, a powerful new software package from Modelbox, will be on show for the first time at the Light & Sound Show. The computer programme, designed by the Modelbox team of Peter Byard and Christopher Toulmin in association with CJG Consultants, has already created a lot of interest among lighting designers.

Laplight is a fast, accurate and easy-to-use programme which offers precise planning of lighting rigs and the facility to easily keep track of large amounts of technical information on screen. The software also incorporates a unique costing facility which will enable engineers to effectively plan lighting with accurate costings broken down for each lamp if required. Laplight also enables the user to compare hire rates from different rental companies, with the storage capacity for up to five sets of prices.

Over 1,400 lights are included on the Laplight database and there is the opportunity to simply add new lights as required. When planning a lighting rig, the user only needs to call up the particular light to be used and then plot in all the relevant information. Details which can be recorded about each light include: unit number, quantity, lamp code, wattage, gel and gobo references. Previous computer lighting software presented the user with a blank sheet and required details of each light to be added in from scratch.

Laplight enables the user to create and alter rigging areas which can be permanent for each show or planned differently for certain performances in a particular venue. The programme can also work closely with the Modelbox Autolight software, allowing cross referencing and the complete planning and design of detailed lighting rigs on screen. Modelbox is currently giving away sets of demo discs for Laplight, which give an easy-to-follow step-by-step guide.

Bush Goes Intellabeam

The Houston Astrodome and Astrocomplex hosted more than 45,000 delegates, foreign dignitaries, press and party officials during the recent 1992 Republican National Convention. Austin-based lighting company Lightwave Research supplied the lighting fixtures for the prestigious assembly, with 62 Intellabeam 700 HX automated lighting fixtures involved.

Emmy award-winning lighting designer Bill Klages of the California-based design firm The Klages Group composed the lighting scheme for the convention. Klages and his team of lighting technicians worked in conjunction with New Jersey-based production company BASH Theatrical Lighting. BASH provided installation and programming support.

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revealed

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The third poster in the series—shown on the opposite page—is an invaluable comparison chart showing which Lee Filters products are equivalent to those manufactured by other companies. It shows, too, which colours are only available from Lee.

Each Lee filter is defined as being either CLOSE, SIMILAR or needing a COMBINATION of grades to achieve the colour of its equivalent.

The poster represents an easy-to-use guide enabling you to source exactly the colour you need.

To get your free poster (size 33" x 23½") simply clip the coupon and send it to:

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This is what you've come to expect from Lee Filters. The art of light. And more.

LSD Olympic Winner



Light & Sound Design have just completed their biggest TV project to date in supplying all the television reinforcement lighting to COOB '92 the organising committee of the Olympic Games in Barcelona, and RTO the host broadcaster, together with the provision and installation of all the lighting to the four NBC studios used to transmit pictures of the Olympics all over the world. The whole undertaking commenced over nine months ago with the project planning stage and extensive involvement of LSD's design services department and a final presentation in December 1992. The contract was confirmed in March and the new 70,000sq ft factory complex at Gravelly Hill went into full production in order to meet the installation deadline.

In 12 weeks the new facility turned out 35 kilometres of cable, 2500ft of trussing, 1.2 megawatts of HMI lighting, one megawatt of tungsten lighting, and designed and built a new BS5550 standard mains distribution system in order to service the contract. The scope of the contract involved erecting 40' high towers in all the outside stadia to augment existing stadium lighting and involved 24 of the 43 Olympic sites. During the course of installation, LSD won a further contract to light all the mixed zone interview areas.

The production team of 30 comprising administration staff, electricians, riggers, scaffolders, lighting director and caterers were all

housed in two humble villas to the north of Barcelona, with pool, five acres of ground, tennis courts, and gin and tonic on tap!

Installation commenced in April and was completed several days ahead of schedule on the 22nd July with the exception of the main stadium lighting which had to be erected after the opening ceremony with a 38 hour 'window' for completion. The four 18 metre high scaffold towers, 24 x 12kW HMI lights and all power distribution were rigged and focused well within the time allotted.

"With yet another success LSD have proved that the expertise gained in 17 years providing lighting for touring concert productions can be utilised with great effectiveness in the specialist hire area of world-wide television and film productions," LSD's Dave Smith, production manager for the event, told L+S.

PAT at PLASA

John Revington, due to attend the Light and Sound Show as Sound Officer, will also have with him his Portable Electrical Appliance Testing equipment. Any PLASA members wishing to discuss PAT should make contact with John and PLASA Standards Officer George Thompson through the PLASA stand (A156) to arrange an appointment.

Please send my free copy of the Lee Filters Comparator Poster.

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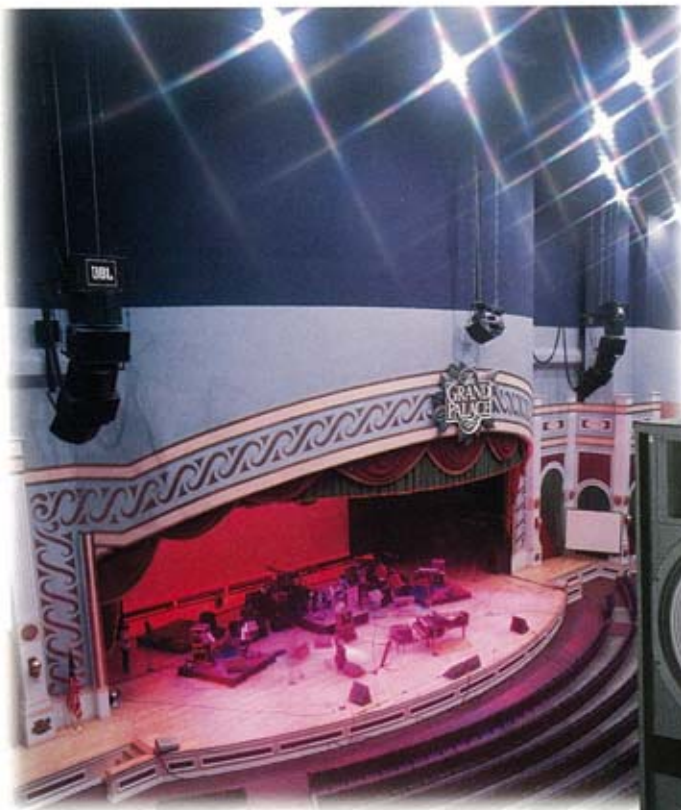
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Array Series. Designed To Impress Everyone Who Has Heard It All Before.



The competition to produce the "ultimate" sound reinforcement system is fierce. Each new system design brings claims of having *achieved perfection* or touts *this is the one*. Yet, in time, you can expect the very same manufacturers to introduce new models claiming to have further *perfected perfection* or that their *unorthodox* technology has rewritten the laws of physics. Sound familiar? So how do you impress everyone who has heard it all before? Simple.

JBL engineers have drawn upon proven advancements in loudspeaker design and state-of-the-art digital electronics to create Array Series: a comprehensive sound reinforcement system concept with performance second to none. Developed as dedicated array elements, Array Series systems can be easily configured to fill any venue with seamless coverage from a deceptively small package.

Such performance could only be achieved by designing the exact transducers required for the job. The Array Series is the first professional loudspeaker system to use neodymium magnets. The LF transducer's unique motor structure topology also includes proven Vented Gap Cooling (VGC™) and a deep copper-sleeved gap to significantly reduce distortion and power compression.

The 38 mm (1 1/2 in) exit HF compression driver also uses a neodymium magnet structure, a Coherent Wave™ phasing plug and damped titanium diaphragm. The result is effortless and reliable high frequency output with outstanding accuracy. A 45° Optimized Aperture Flat-Front Bi-Radial® horn assures proper matching and summing of multiple Array Series systems.

The 13 ply hardwood enclosure has 45° sidewalls to match the horn coverage in arrays, and is reinforced with integral steel attachment hardware, designed to interface with S.A.F.E.™ flying hardware for quick and secure cluster assembly.

Pictured above, Array Series installation at the Grand Palace, Branson, Missouri.

System functions, such as crossover filter points, transducer acoustic center alignment, system equalization and protective limiting are achieved totally in the digital domain by the ES52000 Digital Controller. The ES52000 employs Finite Impulse Response (FIR) filters for zero phase shift and requires no amplifier output sensing cables, so you can expand your system by adding Array Series loudspeakers without having to add additional controllers.

The sum of these parts is Array Series: a complete system providing extremely high power handling, very high sound pressure levels with full dynamic range, low distortion and unmatched fidelity. Truly a system capable of impressing *anyone who has heard it all before*.

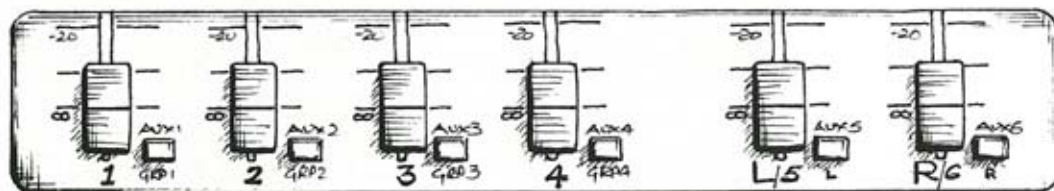
Contact your local JBL distributor for current product information and detailed specifications on Array Series and the ES52000 Digital Controller.



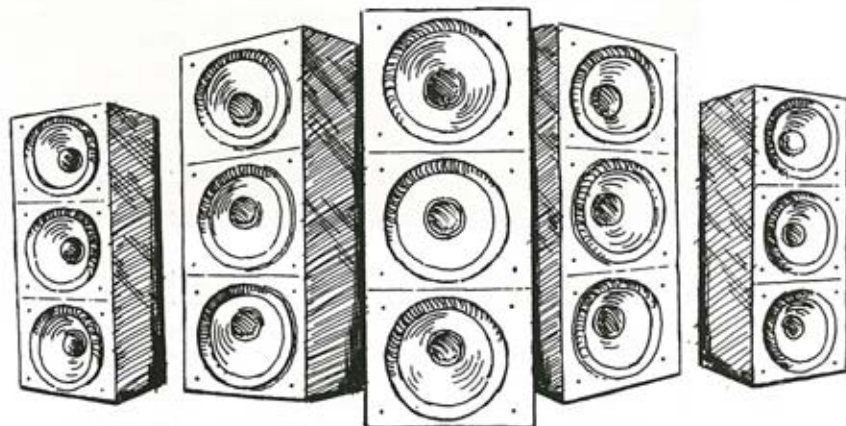
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Eastway Go Grand

A major logistical success was scored by Helsinki-based Eastway Show Services during the summer when they were heavily involved with supply of equipment and production services for the CSCE summit at the Finnish Trade Fair Centre.

Client was the Finnish Foreign Ministry and since the event was first mentioned in 1990 it grew to 30 times its originally proposed size. "In all, 30,000 square metres were booked and it made the technical demands that much greater too," said AV manager Kalevi Wilenius. He, together with architect Tapio Korpisaari and personnel at the centre had to change the hall usually used for car shows and the like into a meeting place for high level political delegates from across Europe.

A huge truss, pictured right, was built utilising 730 metres in all to bring the 'roof' down to a reasonable 9m height from the usual 22m. There was a huge amount of AV and communications equipment involved to keep press and other visitors in touch with what was going on in the main hall. Over 600 monitors were employed and three vidwalls. There were also live link-ups with CSCE guests as they arrived at Helsinki airport. To cope with all this extra activity, the centre's staff of manager plus five technicians grew to a co-ordinated team of 45 that worked 6,000 man hours to make it all happen.

Olli-Pekka Kallio was technical coordinator, Kimmo Merikivi, second technical coordinator, Reima Saarinen, sound engineer for the Plenary Hall, Jaako Peltomaki, lighting designer, Keijo Pilkkänen, rigger and lighting designer and Esko Pilkkänen video mixer.

In the Plenary Hall sound was provided by EV, Bose and Fostex speakers with QSC and Citronic amps. Lighting was a mixture of Thomas, Vision, Teatro and ADB lanterns with ADB dimming and a Celco Navigator in control. Truss was TAS-stage. Additional equipment to Eastway's own stock was provided out of the UK by Arrow Rigging and Theatre Projects.



VDC Cable Up

VDC Trading, the London-based pro-audio cabling and wiring company, have been appointed a dealer for Van Damme pro-audio cables. The range of Oxygen-Free cables consists of microphone, starquad, instrument and audio multicores.

The audio multicores have an overall braid and full Z-foil and are initially available in 8, 16, 24 and 32 cores. Also available are both 8 and 16 way pre-jacketed unbalanced monocores. VDC have taken receipt of the first shipment of £0.5m worth of cable which will be housed in their new 5000sq ft warehouse in central London.

USITT Stage Expo

Association Expositions and Services have been appointed to run the next USITT Stage Expo to be held from March 18-20th at Wichita in Kansas, USA.

Proposed plans include an expansion of the visitor promotion campaign, special events to ensure exhibitors have more opportunity for meeting each other, expanded categories on the show floor and an increase in the exhibition opening hours.

For more information about the show contact the organisers in Stamford, Connecticut, tel 203-325 5099.

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DIGITAL PROCESSING TECHNOLOGY

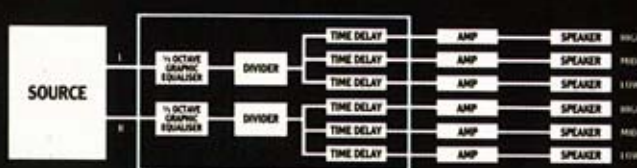


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SAORI DIGITAL SYSTEM





Martin Audio Launch EM Series

Martin Audio will launch a new system at the Light and Sound Show this month. The EM Series is designed specifically for smaller scale installation and corporate applications, and utilises the long experience Martin have gained in producing high quality sound reinforcement systems and new engineering design for compact high performance systems.

The EM Series contains four full range trapezoid cabinets, two sub bass cabinets and two dedicated system controllers. Spectacularly breaking with tradition, the EM Series is both small in size, and not black! It will be on display on Stand B20.

New Factory For Class

Following on from their success at the PLASA Show last year, CLASS has moved into a new factory in Wimbledon. Ken Hawes has put all their manufacturing facilities together to gain an economy of scale. "We make more than sound and lighting equipment for the licence trade: we also make testing products including a patented hand held level gauge for beer barrels . . . a god send to pub and club stocktakers," said Hawes. Partner Christine Hawes, now an MBA, is looking for a healthy return on capital from all the new investments!

Golden Ear Awards

Entries are now being sought for the Golden Ear Awards 1993 - the new award scheme for the public address and sound reinforcement industry. Sponsored by TOA, this year's scheme is fully endorsed by the Sound and Communications Industries Federation (SCIF).

The Awards recognise excellence and acknowledge professional standards within the industry. They will be divided into three categories: technological innovations, large scale projects and small scale projects. The awards are open to anyone working in the sound and communication industry and entries are in no way limited by the brand of equipment employed. The closing date is October 29th 1992 and forms can be obtained from SCIF. Tel: (06286) 67633.

Strand at the Circus

Holland's famous Circus Theatre, close to the shore at Scheveningen, is looking forward to a bright future, following a lighting re-fit negotiated by Strand Lighting's local distributor, Mechalectron. The re-fit included installation of a Strand EC90 digital dimming system, and both Galaxy 3 and MX24 lighting control desks.

The Circus Theatre was built in 1903 and, until 1966 when it was completely re-built inside, functioned as a traditional circus in the holiday resort. Since then its in-the-round format has proved to be ideal for large scale productions, including opera, ballet, ice shows - and the occasional visiting circus. Recent shows have included 'Phantom of the Opera', 'Barnum', 'Evita' and 'Les Miserables'.

Chief lighting engineer Ed Franso told L+S: "Before the new installation we had a Galaxy 1 and an MSR desk, one of the earliest generation of memory systems. We have such a varied programme of events that it was important for us to have a versatile configuration."



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Denmark**Highlight**

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Contact: Fikret Saadetdin
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France**SPL**

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 Tel: 010 33 84 228961 Fax: 010 33 84 223521

Germany**Multilite Lichttechnik GmbH**

Contact: Andreas Fahrman
 Tel: 010 49 40 670 6154 Fax: 010 49 40 670 6159

Greece**Alpha Sound**

Contact: Costas Constantinopolous
 Tel: 010 301 361 2630 Fax: 010 301 360 6459

Holland**Jansen Jansen**

Contact: Rob Berg
 Tel: 010 31 20 6821 821 Fax: 010 31 20 6828 326

Israel**Mazuz Bros**

Contact: Mazuz Zion
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Italy**Spotlight Srl**

Contact: Augusto Andraghetti
 Tel: 010 39 271 4078 Fax: 010 39 274 4721

Norway**AVAB Norge AS**

Contact: Kristian Heder
 Tel: 010 47 2 113030 Fax: 010 47 2 112300

PA System AS

Contact: Svein
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Portugal**Frei Audio**

Contact: Fernando Frei
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Slovenia**SST**

Contact: Jernej Podbevsek
 Tel: 010 38 61 301 434 Fax: 010 38 61 301 434

South Africa**B & R Dynamic/Intone Pty Ltd**

Contact: Ian Blair
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Spain**Spotlight SA**

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 Tel: 010 343 4908117 Fax: 010 343 4903934

Sweden**Teaterteknik AB**

Contact: Peter Hallin
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Switzerland**TDS**

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United Kingdom**A.C. Lighting Ltd**

Contact: Glyn O'Donoghue
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**Digital Light Curtains In 'Chicago'**

The London-based Central School of Speech and Drama's blockbuster end-of-year project for 1992 drafted in a professional creative team to produce the musical 'Chicago'. For lighting designer, David Taylor, of Theatre Projects Consultants, better known for his low-tech, white light designs the show offered no little challenge, particularly as scenic designer, Chris deWilde's set developed as a very low-key grey steel and chrome affair.

Through an unprecedented sponsorship deal Taylor saw four state-of-the-art Digital Light Curtains from David Hersey Associates and eight Rainbows from M&M Camelot arrive in his rig. "The Light Curtains enabled us to cut the main rig in half," said Taylor, "and the Rainbows allowed us to halve it again!" The 200 instrument design was rationalised by Taylor and production electrician Martin Doone to a little over 130 units on opening night.

"The DHA Light Curtains are the most exciting piece of kit to come along in the last five years," Taylor told L+S. "The rationalisation of wiggle lights into a machine that delivers a wall of coloured light to exactly the right position on stage allowed me to play with blocks of solid colour through the air and onto the floor into which the followspots keyed to highlight the action." Taylor rented the six Reich and Vogel beamlight followspots from White Light (who also supplied all the rental gear).

The DHA DLCs were controlled on an in-house Macintosh Classic computer running DHA's custom-written programme 'Light Moves'. The data transmission is via the DHA network protocol 'Light Talks' a surprisingly bomb-proof bi-directional communications system that not only configures itself but also shows remarkable intelligence about what is where on the network. Although the Rainbows were cued on DMX512 from the Arri Imagine console via an Arri Connexion unit, Taylor opted not to control the DLCs from the console but rather to trust the programming and operation to young deputy chief electrician, Sarah Brind-Winnen, who quickly mastered the relationship between DLC tenth-degree angle cues and the positions on stage.

The DLCs were fitted with 11-pane colour scrolls made up by Rosco's speedy scroll-string service, including Rosco's excellent new Royal Lavender #357, even though the DLCs will support many more panes - "it took a big step from me to get beyond just filling the scrolls with colour correction filter," explained Taylor.

The climax of the show, during the huge production number 'Razzle Dazzle', involved an effect where Taylor flew in a battery of three Digital Light Curtains before blazing them across the audience on the final cues. "The DLCs enabled

us to achieve the effect that we had wanted from the beginning of the production development without wasting a whole pipe of redundant equipment on one cue," said Taylor. "The potential for exploitation in rock and roll and trade shows is enormous, but in straight theatre uses such a sophisticated and accurate element of remote-control moving light opens a whole new palette."

Wembley Spyder

Wembley Loudspeaker have launched a new compact speaker system, the 'Spyder', which will be seen for the first time at the PLASA Light & Sound Show (stand B16).

The unit is a truly arrayable 2-way trapezoidal speaker system. Designed for a multitude of different applications including permanent installation, touring (the 'Spyder' comes with Pro flying equipment) and mobile use. The 'Spyder' can be used separately or in a cluster - the latter allowing tight coherent sound distribution. The new speaker utilises the Volt 15" Radial loudspeaker and is rated at 600 watts R.M.S. continuous and is usable from 40kHz-20kHz and weighs 36kg.



The new 'Spyder' from Wembley Loudspeaker.

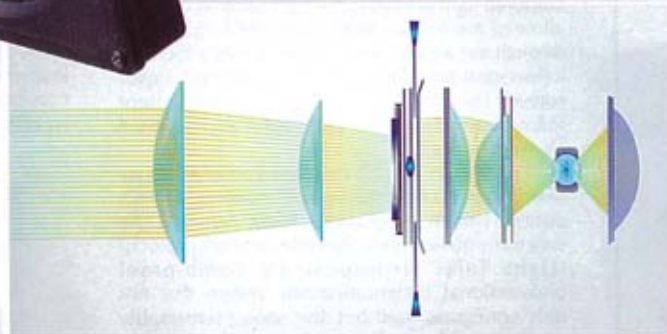
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LSD at PLASA

Light and Sound Design will be showing its full range of manufactured products for most professional lighting applications on stands A112 and A136. Centre stage will be the latest range of LSD products, manufactured at the brand new facility at Gravelly Hills, Birmingham.

The company has now moved into full production of lighting equipment for the film, television, theatre and concert lighting markets, with a range of products which covers the whole professional spectrum. These manufactured products are enhanced by the LSD accessories range which will also be on show.

The Total Fabrications range of hardware and accessories has expanded, now providing a full range of trussing, par cans, lighting bars and custom outdoor structures. Chris Cronin, sales manager for this range of products, will be available on the stand. Also new at Light and Sound Design is the special projects division, which is capable of turning the most innovative concepts into reality. Alan Spearing, head of special projects will be on hand to discuss ideas for practical construction. Stand personnel include sales manager Peter Boot, and other members of the Light and Sound Design sales team.

Architectural Lighting Centre

Siemens Lighting has opened an Architectural Lighting Centre at its Sunbury-on-Thames offices. The centre has been designed for architects, lighting consultants, engineers and others who specify lighting to use as a test area and demonstration facility for the many different lighting effects that can be created within commercial environments.



Vienna Fifty

Soundcraft is already celebrating 50 sales of its new Vienna sound reinforcement console since its successful launch in March at the AES event in Vienna. The New York Sound Company, a Sunderland-based PA hire company, set the pace when it bought the first Vienna from dealer LMC Audio. Other UK sales now include a 32/8 to the Mean Fiddler and 40 channel Vienna to PA company Farrahs, both supplied by Marquee Audio. The Vienna has also attracted a lot of attention in Continental Europe with numerous PA hire company sales including Artys and Dispatch in France, Winatoc Audio in Austria, Music Music and Plas Recording in Sweden.

Replacing the 8000, Vienna was designed for both the theatre market and touring applications, as well as fixed installations. Available in 16, 24, 32 and 40 frame sizes, Vienna's design reflects the input of many professional engineers from different disciplines.

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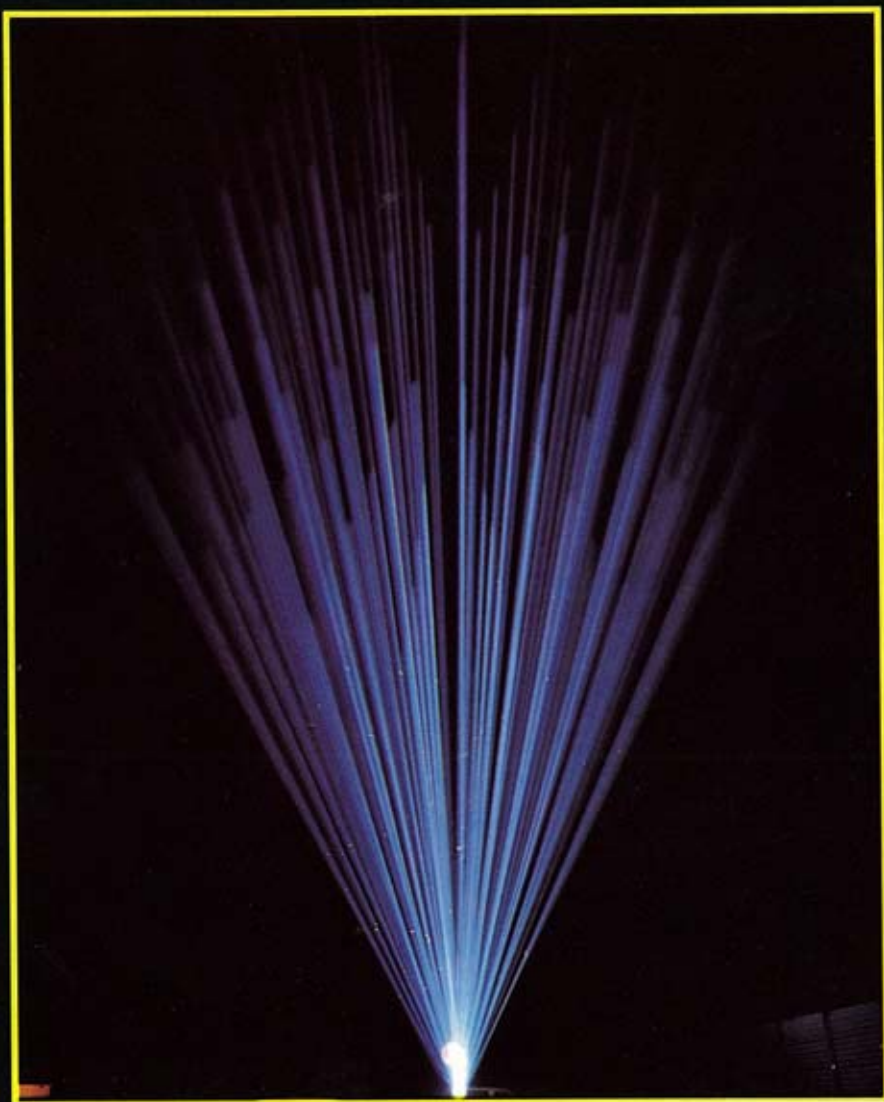


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Breakthrough at The Palace

In keeping with recent tradition, The Camden Palace is to stage an apres-show real world demonstration of some of the latest entertainment technology from this year's Light and Sound Show. Sponsored by High End Systems and their UK distributors Lightfactor, Cerebrum Lighting, Laser Grafix and The Palace's lighting designers Wynne Willson Gottelier, the event is scheduled to take place from 7.30pm on Tuesday September 8th. Special buses will ferry ticket holders from outside Earls Court 2 and also collect others from selected hotels.

Guests, who can obtain their privileged tickets from any of the sponsors' stands during PLASA, will be offered complimentary drinks in the 'Gods' cocktail lounge before watching an orchestrated light show conceived and implemented by Carl Dodds and John Lindsell.

Products featured will include ShowCAD, the latest brainchild of performance lighting control pioneers Axon Digital Design. Axon were the originators of Oska, which was first test bedded at Camden Palace nearly ten years ago now, making it probably the world's first digital multiplex control system. ShowCAD, its successor product, is based on a PC386 and uses a 'windows' format to graphically aid the operator to program automated luminaires and other lighting instruments through its powerful 1024 channel control card which resides in the expansion slot. ShowCAD is marketed by Cerebrum Lighting, who will also be putting their Gel-Stream cartridge loading colour scroller in the frame.

Another exciting and more visible 'first' will be the debut appearance in a 'real' performance space of the Intellalaser (pictured right). The product of a combined effort by Laser Grafix and Lightfactor who are UK agents for High End's Intellabeam, the new innovation uses automated mirror technology in combination with fibre optic fed coherent light to produce a stunning combination of hard and soft beams in controllable motion. "The advantage of using a mirror device is that, unlike our previous efforts with Starlaser, we can make

the laser appear to come directly from the centre of the light source," says Mark Brown of Laser Grafix, "and the speed of movement is greatly enhanced."

High End Systems themselves, along with associate Lightwave Research, will show off a number of devices which came on the scene this year, including MultiFlash, MultiRay and Coldflow. Many of these, along with Intellabeam 700 HX, now with unbreakable mirror, and Dataflash will be included in the Camden spectacular.



An indication of High End's commitment to the Camden event is that they will be transporting their guests by double decker London bus directly from the new David Hersey designed Starlight Express, to the Palace for after-theatre aperitifs. Two performances will be staged, the first for the early crowd and a later one for serious late nighters.

Wynne Willson Gottelier are there supporting all this new technology and demonstrating once again the longevity of their original lighting concept for the Palace which, in many ways, started it all in the early 80s. As Tony Gottelier says: "It will be an opportunity to see the latest lighting in a spatial environment difficult to achieve on an exhibition stand, however ambitious."

White Light's Superscans

White Light's recent purchase of 10 Clay Paky Superscans made their debut at the BBC Radio Show at Broadcasting House. The six week public show, starting August 22nd, celebrates 70 years of BBC Radio with a dramatic stage show, historical exhibition and practical demonstrations. White Light was awarded the contract by scenery contractors Terry Murphy to supply all lighting equipment and crew for spectacular 'Worlds of Sound' multi-media stage show.

White Light's Superscans were specified by the lighting designer, Adam Grater from DHA Design Services, and are part of a rig containing 18 Cadenza EPs with VSF optical effects, 18 Rainbow scrollers and over 100 lanterns. With an Arri Imagine 250 with a digitiser tablet as the control system, the whole system can be controlled from the AV system via the RS232 port. The Imagine also holds the advantage that only one programmer is required for both the moving and conventional lighting. The Superscans have been fitted with the wide angle lens which gives a 50% larger beam angle than the normal Superscan.

Bryan Raven of White Light told L+S: "One of the major reasons for choosing Superscans rather than alternatives on the market was the ability to vary the focus and the large colour range offered. This means that the units are suitable for theatre use."

Futurist Colour Call

Futurist Light & Sound of Dewsbury, West Yorkshire, have announced that they now have Strand Lighting's new scrolling colour change system available for hire and sale.

Futurist are the first company in the UK to have this system available for hire on a nationwide basis. Futurist will be exhibiting and demonstrating the Colour Call scroller on their stand at the PLASA Light & Sound Show (A162).

Soundtracs Appoint

Soundtracs Plc has announced the appointment of Beyerdynamic (GB) Ltd as UK distributors for their Solo and Megas ranges of consoles, and a new countrywide network of dealers will be announced in the near future. Established arrangements with Larking Audio Ltd, representing all the larger models of Soundtracs recording consoles on an exclusive basis, remains unchanged.

Integrator Steps Out

Hidden 'backstage' at the PLASA Show last year, Light Processor launches its new multi-function 256 DMX channel lighting controller the Integrator this year. Combining the capabilities of a chase sequencer, a lighting desk and an intelligent fixture controller, the Integrator offers 24 user-defined chasing zones plus static scenes, crossfades and intelligent fixture sequences. The Integrator's memory capability has been so designed that each operational aspect, zones, scene chases and intelligent lighting control, has its own memory allocation, so for example, zones don't spill over into where you were going to store your scene chases. See the Integrator on stand A140.

Owl Seleco Swoop

Owl Video Systems of Uckfield, Sussex, the concessionaires for Seleco Professional Video Products are the first agency to purchase a Seleco HDFP 1250 Projector. As a result of many years research and development working with High Definition Television, Seleco have manufactured a sophisticated video projector with 9" high resolution tubes variable aspect ratio for 16:9 and 4:3, also inputs for both 1125 or 1250 lines (Inputs, 15kHz to 64kHz). Projectors are supplied with a durable flight case and full training for operators. Owl have a projector on display in their showroom, and images can only be described as 'breathtaking', they say.

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Supermick Wembley Super Slam

Supermick is supplying the lighting equipment for the sell-out Super Slam Autumn Bank Holiday World Wrestling Federation (WWF) event at Wembley Stadium. Over 1000 kW Par lights will be set up to light the audience to help create the dramatic atmosphere for the televised event. Supermick will also be providing six Space Canons sky searchlights, six Gladiator followspots and four Xenon Super Troopers. The company's recently launched Serious Mark 1 Twin Head mist machine will also be used at the show. Both the lighting and sound systems will be built around a 12 ton ground support grid in the centre of the stadium.

Canon Set for Launch Sensation

PLASA's Light & Sound Show will mark Canon Audio's entry into the professional sound industry, with the unveiling of their first production model for background music applications, the V-100, and a totally 'new look' for the pro audio industry.

Following the highly-publicised debut of the Wide Imaging Stereo hi-fi loudspeakers in the consumer marketplace last year, Canon's Professional Audio division is now targeting the sound installation business in the leisure sector - with a new loudspeaker design philosophy, both in terms of cabinet construction and cosmetic appeal.

The Canon V-Series product range features both background and foreground music loudspeakers, as well as amplification in the form of the V-Amp. Manufactured in England, the new range of loudspeakers is wholly originated by Canon Audio's R&D centre in Woking, Surrey. The V-100 design team, led by Graeme Foy, has a substantial track record and numerous awards between them. Sean Martin, formerly of Harman Audio, is professional products manager.

Wide Dispersion Loudspeakers (W.D.L.) is the generic term used by Canon to describe the unique characteristics of the V-Series, namely the use of reflecting mirrors in the cabinet design to produce an even and controlled dispersion.

One of the most obvious benefits of the cabinet design is the elimination of a traditional installation problem. A 'hot spot' is created when volume levels are set to suit a venue as a whole, but listeners standing or sitting close to a loudspeaker are subjected to louder levels than those further away. W.D.L. loudspeakers, such as the V-100, generate a wider optimum soundfield than the majority of products currently on the market, say Canon.

The V-100 is a wall-mounting wide dispersion

Largest Wharfedale Stand Ever

Wharfedale's professional division continues to go from strength to strength. Latest addition to their popular 'Force' family is a new 2 x 15" 1200 watt sub woofer designated Force 10SB. Performance is "surprising" for the cabinet size of 120 litres and is achieved via the same electronic processor as the Force 9SB, say Wharfedale.

Fane Acoustics has consolidated its manufacturing position. Models covering low, mid and high frequency applications will be at the show, together with a working cut-away of the Colossus 15 X B bass driver. See both companies on stand B34.

loudspeaker, designed to be mounted flush with the walls in room corners and offering high-quality audio over a wide spread of listening positions. Inside the V-100, there is a 130mm low and mid frequency driver and a 14mm high frequency driver, together with internal crossover. The high frequency driver is positioned vertically, firing onto a specially contoured acoustic mirror, giving the speaker its unique sound dispersion characteristic. The cabinet has an open vent in the front, with a grille over the bass driver on the lower half of the unit.

It is designed to fit closely to adjacent walls on mounting, requiring barely 4mm clearance to accommodate the mounting bracket. Dispersion characteristics of the V-100 are designed to provide the widest optimum soundfield, and this can be generated at up to 70° downward. A listener sitting beneath a V-100 mounted at 2.25m high needs only to be 0.5m away from the wall to be within the soundfield.

Each V-100 is supplied complete with a corner mounting bracket, and it is the bracket which is connected to the amplifier. The brackets contain copper strips which automatically contact as the loudspeaker is loaded onto the bracket. The design offers greater flexibility to the installer and maintenance engineer, allowing pre-wiring to such a stage that just the V-100s themselves need to be lowered onto the brackets to complete the installation in minutes.

Different add-on options have been developed to exploit the flexibility of V-100, such as the full grille that can be painted for aesthetic purposes, and a cluster bracket that will allow up to eight V-100s to be fitted together, giving 360° dispersion. The Canon Audio stand is B86.



Sean Martin (centre) holds the V-100 flanked by marketing manager Lance Miller (left) and Graeme Foy, design engineer.



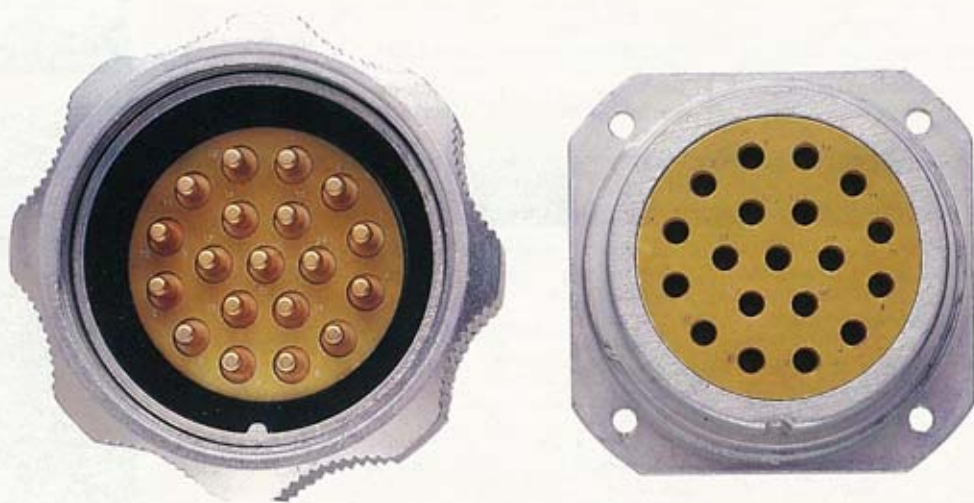
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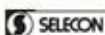
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INDUSTRY PEOPLE

Birchwatt Productions Ltd and Plus 1 Event Services Ltd joined forces under one roof in July. The new working partnership, under the banner of Birchwatt/Plus 1 Total Event Production Service, brings together the individual skills of two of the entertainment industry's foremost specialist event production teams. With all three directors each having over 20 year's experience in the business, the partnership offers a global perspective, sourcing services and personnel world-wide to match any production - whatever the nationality, language and style. Both Birchwatt Productions, headed by **Mick Kluczynski** and **Bob Birch**, and Plus 1 Event Services, headed by **Eve Ritscher**, have long shared a policy of total event services covering all aspects of show production.



From left to right: Mick Kluczynski, Eve Ritscher and Bob Birch.

Andrew Gibson has joined Le Mark T.V.S. to assist the expansion of the company's Portable Electrical Appliance Label section.

Lighting designer **Louise Stickland** has joined Neg Earth Lights as production and marketing manager.

Modelbox has appointed **Steve Appleby** as design assistant. Steve, who recently graduated in Stage Management from the Central School of Speech and Drama, has already worked alongside the Modelbox team during his college holidays. His first task is to completely update the Bureau Service's extensive database.

Low Price Fog

YES, who are exhibiting for the first time at PLASA this year, say they intend to attack the budget end of the fog machine market with their Y1 Fog Generator. The Y1, in common with all YES products, is British made and has an awesome output, say the company. The unit comes with a five year guarantee and a suggested retail price of £99.99.

To complement the budget machine YES are showing their more powerful Y2 and Y3 models. These have 1500W and 3000W heaters respectively and again carry five year guarantees. The prolific output of these machines are commanded by 0-10V hand held remote controllers with variable timers. Both machines have the capability to operate independently from mains power when hot - ideal for outside location work.

All YES fog machines can be enabled by single phase power supplies of 220/240V 50Hz for Europe or 110/220V 60Hz for USA/Canada and Japan. The company will be exhibiting at PLASA Light and Sound Show on the Lite Structures stand A60.

Audio Technica for FBT

Continuing the expansion of their pro-audio division, Audio Technica have announced the acquisition of the agency for FBT Systems of Milan, manufacturers of mixers, electronics and speakers for the live and music markets.

Founded in 1963, FBT have grown to become one of the largest suppliers in Europe of live music electronics and are also a major musical instrument distributor within Italy. The company has three factories near Milan where most of the products are made in-house on highly automated modern production lines.

LSD Filters

Following the recent move into the manufacture of professional lighting products for the film, television, theatre and concert markets, Light and Sound Design has announced the launch of its own range of colour filters.

Sales and marketing manager Peter Boot told L+S: "We aim to provide a complete service for our customers and this latest launch is in line with that policy. The filters enhance our range of accessories for the manufactured products, allowing our customers to buy a complete package from one source." Contact LSD on 021-322 2212 for further information.



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Xylo's Turbine Expands

Xylo's Turbine video control system has been expanded and features such as real-time sequence recording and full MIDI capability can now assist control integration. Hardware and software advances made as a result of developments for the Seville Expo are now available for club installations. Interfaces for lighting controllers such as Roboscan 2032, Strand MX, plus lasers, CD players, VCAs and mechanical devices are now available and custom interfaces using virtually any protocol are also available on request.

Effects from the Turbine's sensitive pad can include commands to any number of devices thus allowing the lighting jock to 'play' the whole venue, live, from one control panel. Alternatively, the LJ can put a whole show on one button and let three way audio triggers keep the show precisely in time with the music. For more information contact Xylo on 071-359 3509.

Calling all Lighting People

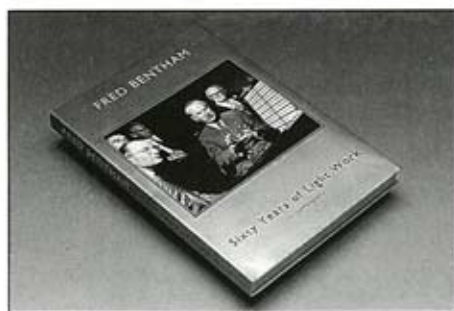
The Call for Papers for Showlight '93 taking place in Bradford from April 19th - 21st has now been issued and anyone wishing to offer contributions for the lecture programme should do so as soon as possible. The programme focuses on Performances, Special Rigs, Controlling Light, Light Sources, Moving Lights and Special Effects and the organisers hope that all contributions will be illustrated from personal experience and by practical examples of the chosen subject in a real lighting situation. Contributions contrasting lighting techniques in more than one of the entertainment media will be especially welcome. Equipment manufacturers are invited to submit proposals for papers on any of the selected topics to be presented by their own staff, but the organisers would like to suggest that a welcome alternative would be to sponsor a practising lighting designer to present a joint paper combining description of the manufacturer's product with illustrations of its merits in use in a real lighting design.

Meanwhile, exhibition space is selling well, with only a few stands now remaining. Any companies or individuals interested in either exhibiting or submitting a paper should contact Ruth Rossington at the PLASA office, telephone (0323) 642639.

Change the Name!

In our August issue (page 49) we stated that the Compulite equipment used at Teatro Centrale in Seville was supplied by Eurolight. It was actually supplied by Compulite's Spanish distributor, Eurolux.

SIXTY YEARS OF LIGHT WORK Fred Bentham



Fred Bentham's long-awaited autobiography will be published in hardback on 6th September
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Zero for AVAB and Niethammer

As part of their ongoing long term sales strategy for expansion in the UK, Zero 88 have acquired the distribution rights to the world renowned AVAB range of lighting controllers and the equally famous Niethammer series of high light output, top of the range, stage luminaires.

A spokesman for Zero 88 said: "It makes sense from our point of view. We have always serviced the small and medium systems market superbly well, and will continue to do so. It's universally accepted that AVAB make some of the best boards in the world, and they are at the leading edge of technology, so the choice was simple - either we would have to develop a range of boards to compete, which would not happen overnight or we distribute AVAB - it's quite synergous really."

NJD Own Range

NJD Electronics of Nottingham will be launching their own range of lighting products at the PLASA Light and Sound Show. "They are totally NJD, and as with all of our products, come at the best possible price," director Kevin Hopcroft told L+S.

The range includes a DMX compatible intelligent lighting unit with all the usual facilities, such as gobos, dichroics, etc. In all, 29 new products will be shown on stand that didn't appear in NJD's 1991 catalogue, with no less than 14 of them making their first-ever appearance.

Autumn Discoscene

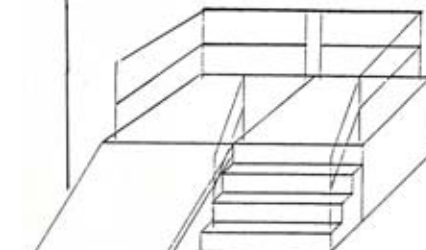
The 14th successive annual Discoscene Midlands will take place on Sunday, 18th October at the Edgbaston Banqueting Centre, County Cricket Ground, Edgbaston, Birmingham from 12 noon to 5p.m. Exhibits will cover sound and lighting equipment for the club installation, mobile shows and some overlapping products of interest to the theatre and touring sectors. In addition to the two halls normally occupied by the show, a third hall has been reserved exclusively for the club and services exhibitors.

For further information telephone the Exhibition Line on 021-707 1925.

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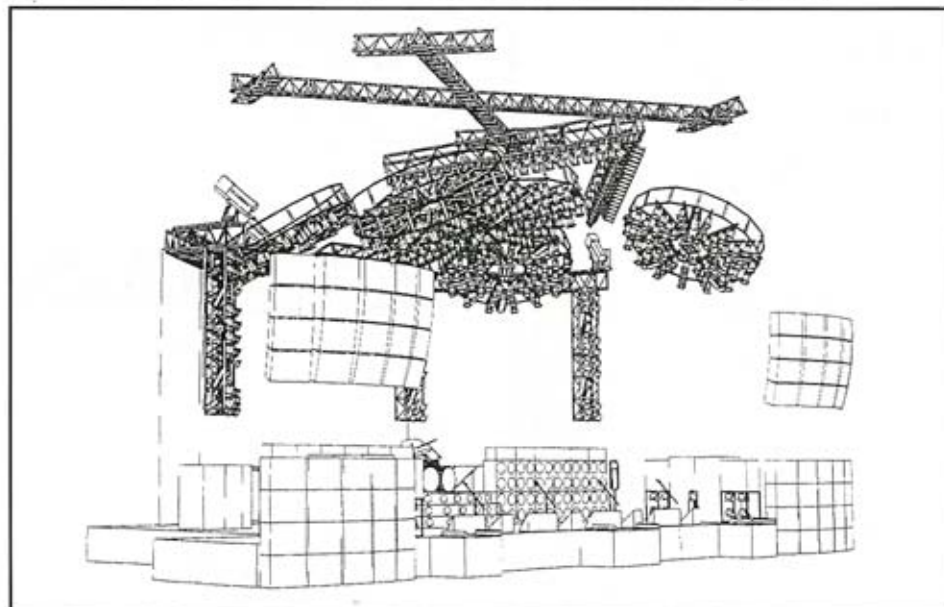
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Monsters of Rock - Castle Donnington



The headlining act at this year's 'Monsters of Rock' festival were Iron Maiden and, as a consequence, it was the lighting rig from their current 'Fear of the Dark' tour which was employed for the entire show. Lighting designer Paul Devine is 'road testing' 42 Intellabeams with two Intellabeam controllers on the Iron Maiden tour, these were supplied to Meteorlites by Lightfactor, whose John Adams explained how the system was set up:

"There are two Intellabeam controllers on this show and each runs 24 lamps. It is generally understood that hire companies cannot invest in technology as fast as it is being produced, so most hire companies in rock 'n' roll do not have the technology to direct drive intelligent lighting. Most rock 'n' roll hire companies stock analogue desks which are designed for running Parcans and similar lights and they can't control the number of channels you need for intelligent lights. Secondly, they don't present the right sort of interface to be able to programme effectively. There had to be a half way stepping stone and that was for the manufacturers of moving lights to come up with their own controller.

"The two Intellabeam controllers contain all Paul Devine's cues for the show and then these controllers are triggered by his lighting board. So he is still using a conventional lighting board to run all his Parcans etc and then he's got, typically, ten channels of analogue which will give him access to 1024 cues out of the Intellabeam controllers. They use a binary code system as, for example, if you call up preset no 63 we give it a binary code 63 which is channels one, two, three, four and five all up. If you put up all ten channels you get cue 1023.

"This also has a MIDI interface but rock 'n' roll hire companies don't have boards with MIDI in their stock. It also has RS232 which we can talk to but the standard rock 'n' roll desks in hire companies do not have RS232 which can talk to this controller. So we're working at the lowest

common denominator which is an analogue channel and that is where it scores."

As well as the 42 Intellabeams in the rig there are also 650 Parcans and a number of 9 lights with scrollers. I asked Paul Devine why he chose to use Intellabeams over other moving lights: "I like the intensity of the light source and I like the way I can control the complete units all through my desk. I can trigger all the cues through the Avo so I don't have to have somebody else operating - and that's a very big plus. They are reliable and the MSR700 bulb is nice and bright although Philips have had a problem with the standard of the bulbs. They haven't got the mix quite right yet but I'm sure it will happen. "Vari*Lite's have their own market and they are an excellent lamp but I think there is plenty of room for other moving lamps. I think Vari*Lite's have to put in a new light source because it's been the same 400 watt HMI for long enough. The intensity on all the new lights is much brighter than a Vari*Lite."

The lighting rig consists of five circular pods, a V-truss and a rectangular pod at the back of the stage. They were constructed by Thomas and the four 15ft circles and one 22ft circle were specifically fabricated to store compactly. For Donnington some extra Parcans and 8 lights were added mainly for the audience, PA scrims and additional header, but in essence the show remains the same. Compared to previous Iron Maiden tours the stage set is fairly minimal. Apart from the moving pod system, other effects include a walk-on 'Eddie' monster which one of the crew operates. The whole of the back risers behind the drums form the shoulders of the larger Eddie with two 8ft hands operated by mechanics inside to move them. There is also a large 10ft Eddie head that comes up in the centre to join the shoulders, with flashing eyes and opening mouth. These were constructed by Hangman as were the large amount of kabuki drapes displaying artwork from various past tours and albums.



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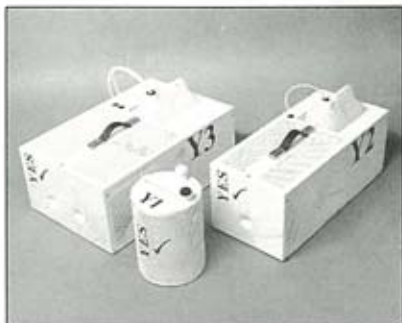
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Work Starts at Basingstoke

Work has started on Basingstoke's prestigious £12.4m Concert Hall. The project is the largest ever financed by Basingstoke and Deane Borough Council and will make Basingstoke the major arts and entertainments centre in the north of Hampshire and provide a welcome boost to the local economy.

Wigwam at PLASA

Wigwam say their stand will be "uncluttered and feature just four products." AVX induction loop systems/delays will be on show, including their new Pulsa PA amplifier. Soundcraft's Venue II, Delta SR and Spirit will also be on the stand. From Sennheiser will be the new multi-channel radio system and, last but not least, will be the new PS10 loudspeaker system from Nexo.

Donmar Scores Six with Arri

Donmar has had a busy summer and September is going to be no holiday either, with Arri installations featuring strongly in the order book. This summer Arri Mirages have been installed at Middlesex University, The Leas Cliff Hall in Folkestone and the Soho Theatre at the Cockpit in north London. A fourth Mirage, with colour monitor, wired riggers remote and Connexion output module, is for the Polytechnic of North London.

After a burglary robbed them of an earlier Arri, the Rose Bruford college decided that an Arri Impuls 2 was the ideal control desk for their requirements. The Impuls 2 offered the perfect fusion of computer and manual facilities for both concert and theatre productions as well as ideal training facilities. 108 channels and submaster faders (18 more channels than most rock boards) and 216 submaster memories and 200 cues or effects make this suited to the constantly changing set of production requirements.

In August the pressure was on to install the sixth Arri in quick succession. This was for the re-opening of the Warehouse Theatre in Covent Garden. An Arri Imagine 2 250 console, colour monitor, wired riggers remote, two Connexion output modules and a Reflexion universal back-up console with 60 submaster memories are the heart of the control system for this theatre with an ambitious repertory policy.

At the Warehouse Theatre Donmar scores another first for Arri. This is the first order by a West End theatre for Arri dimming. Two Arri 600 professional dimmer racks will house 96 ten amp and 12 twenty five amp dimmers. These high specification dimmers already well established in television, have already proved their reliability under continuous load conditions. Donmar is also supplying house light dimming equipment by Strand Lighting and installing specialist cabling and socket distribution panels for the stage lighting

Memotech Show

Memotech will be launching three new products of their own and one with Barco on their stand (C10) at the Light and Sound Show.

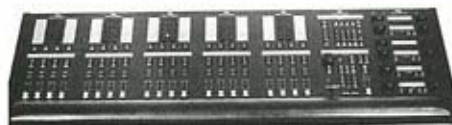
The XDEF 3000 is the first videowall electronics with 3D image processing, 2D digital filtering and time dependent motion adaptive non linear filters, resulting in almost complete elimination of pixelation effect.

The MINI 2 x 2-V4 is a source 2 x 2 videowall with video output for hook up to a standard TV monitor. MID-RES 1200 is a new budget videowall system, with a wide range of effects well suited for discotheques. From Barco comes the Probe SCM 2850, a new set up monitor.

No Pig In A Poke

In this era of new age travellers and resurgent hippies, a company calling itself Flying Pig Systems has a name not to be disregarded. Nor are the ambitious equipment plans of the company by that name a mere sow's ear. For founders Nick Archdale, Nils Thorjussen and Thomas Thorne plan an attempt to solve the well known control problems facing users of automated luminaires - or at least those with DMX512 capability.

They have produced a desk dedicated to the operation and programming of those infamously tricky devices with a capacity of 6000 control channels, so that it is capable of handling up to 1000 of the beasts, depending on their facilities. Following the Aldous Huxley thematic, the user interface is to be known as 'Wholehog' and is intended as a fundamental rethinking of how a desk should work rather than another remake of dimmer control technology. Instead, 'intelligent' lights are treated in a logical way: A fixture is a fixture - not a series of parameters to be remembered separately. In addition, fixtures can be custom grouped and manipulated as one. Blue is called 'Blue' - not indicated by a number. Names are given to every item on the desk. Colour, beam and focus are treated differently from intensity. Also, fixtures can have unique parameter characteristics, so colour scrollers snap change and don't have to crossfade.



Screen tools make it simple to configure the Wholehog for a show. A built-in fixture library has preprogrammed settings for most intelligent lights - no personality cards required. The on-screen DMX patch can then be used to rapidly assign parameters to channels. Plus, the on-screen light plot makes it easy to keep track of the lights.

Additional resident features are MIDI Show Control, SMPTE compatibility, DMX patch, 23 high contrast LCD displays, hi-res monitor and UPS. The board has already been on road test with Simply Red, The Wonder Stuff and Primal Scream.

Wholehog is to be launched at the PLASA Show, good timing considering Vari-Lite's recent partial conversion to the industry standard protocol (see story pages 61-64). Indeed, the Show will be an opportunity to view this equipment in a situation which enables comparison with other attempts to solve the same problem, being tackled currently by a number of systems designers. Celco's Navigator, Cerebrum's Axon ShowCAD and Compulite come to mind.

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PLASA'S FIFTEENTH LIGHT AND SOUND SHOW

In this 15th year of the Light and Sound Show, we can also celebrate London becoming, once again, the European centre of excellence for entertainment technology. For a while, the focus of attention had switched to Italy, spearheaded by its annual Fiera, but today more and more businesses are looking to the British capital and the PLASA Show as their major showcase.

While this is partly due to the further absorption of the United Kingdom into the EEC, the main reason for it is a change of emphasis within the industry itself. The 'chinese walls' between the different sections within the market for performance equipment have started to come down and the borderlines have become considerably blurred as the result. After all, these diversions, which embrace lighting and audio systems, together with other audio visual multimedia techniques, for the theatre, concert, promotional and presentation, film and television and dancing factions, to say nothing of burgeoning heritage 'experience' and theme park, businesses, have common cause - to entertain the public. To do this effectively, the technology, it is realised by all, is a most vital component.

Recognition by the manufacturers that, in this technologically-led market, each of these previously partisan sectors are simply too small to sustain the massive investment required and that, really, there is no fundamental difference in the equipment sought, is driving down these barriers across the board. For example, TV lighting award winner Bob Hyde told the Show organisers: "Television has definitely benefitted from developments in lighting in the world of clubs, rock, theatre and outside events. PLASA is a great place to see it all."

Today the Light and Sound Show is the only exhibition in the world which embraces all these factors. And where the latest technology is, the serious buyers and specifiers, the movers and shakers, will follow.

The major international players in this exciting arena have already served notice that London in September will be the place to be, if one is to keep pace with their latest developments and also the nuances and shifts in their global marketing policy. Equipment distributors from around the world will be making a beeline for Heathrow airport in their droves to meet this challenge and for the annual get-togethers and product up-dates with their suppliers. All will be on the look out for new gadgetry to add to their inventories and build new sales.

New relationships will be formed and old ones cemented. For the social aspect of the PLASA Show, and the various fringe events after hours, are part and parcel of the success of the event itself.

A significant new arrival from the US, is first time exhibitor and doyen of concert lighting

manufacturers, Vari-Lite. This trailblazing American corporation have selected the PLASA Show as the pivotal occasion for the launch of their much vaunted third generation automated luminaire, the Vari*Lite VL5 (see our report on pages 61-64).

That hallowed organisation, the BBC, represented by its Design Group, will also use the event for the first public exposure of its significant new development in voice control systems. This cutting edge technology holds out the promise for designers and operators to use their voices, where previously hands gliding over baffling arrays of sliders and buttons were de rigueur. In future cueing may, hopefully, be simply a question of saying 'Cue nine, go!' and 'more blue, now' for these changes to simultaneously occur.

A good example of technology which is bridging the gap across the disciplines is the previously mentioned automated luminaire technology. Where theatre and concert designers would previously have sniffed at the suggestion of using moving mirror devices, generally seen in the discotheque, matters of economy and improvements in execution have seen a significant shift in their direction this year. However, each of these instruments brings a different quality of light and performance to the scene and this will be the subject of debate at one of the many headline seminars which will take place during the Show. An expert panel, comprising representatives of all the leading makes and the designers who use them, will have the opportunity to discuss the issues - the pros and cons of universal usage and examples of successful combinations, such as the new London production of Starlight Express by David Hersey, and several recent concert performances by others.

Other people will cover a wide range of subjects including: the role of the international theatre consultant, equipment distribution in the new Europe, radio mics and new legal restraints, computers in audio, multi-channel sound systems and show lighting for television. Twelve important seminars in all.

With the revitalisation of the London Show - a new venue also. Visitors will find the facilities at Earls Court 2 head and shoulders above the kind of hospitality they have come to accept from the previous venue. As suggested by the infamous Mr. Parkinson (no relation to the ex-cabinet minister), the Show has grown to fill the extra space provided in this modern hall, with 25% more exhibitors than last year. At a time of general recession, that's some achievement by any measure. Over 150 exhibitors showing products from at least double that number of companies.

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Tuesday 8th September:	11.00 - 18.00
Wednesday 9th September:	11.00 - 17.00

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List of Exhibitors

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Plan: no sound area plan

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Plan: background sound area

Page 48

Plan: sound area

Pages 105/106

Seminar Programme and late booking form

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The information in this issue is based on information supplied by the Show organisers and correct at the time of going to press.

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EXHIBITORS AT LIGHT AND SOUND SHOW '92



6-9 SEPTEMBER 1992, EARLS COURT 2

Abacadabra	C100	Light Engineering	C56	Xylo Ltd	B84
Abstract Design to Light	C24	Lightfactor Sales Ltd	C91	XTBA	A167
Adam Hall Supplies	C60	Lighting Technology Group	A128	Yamaha Kemble Music UK	B12
ADDA Super Cases	A8	Lighting Dimensions International	A106	Zero 88 Lighting	A98
Anytronics	A90	Lighting+Sound International	A156		
Apogee Sound (UK) Ltd	B112	Lion Stands	B27		
Arri (GB) Ltd	A66	Lip-Singing Karaoke Ltd	B38		
Audio Technica Ltd	A164	Lite Structures	A60		
Autograph Sales Ltd	B50	Litton Interconnection Products	B52		
Autopia Terakat Accessories	A161	London Acoustical Developments Ltd	C74		
Avitec Electronics (UK) Ltd	C48	Ludwig Pani	A42		
Avolites Ltd	A144	LMC Audio Systems Ltd	B23		
AC Lighting Ltd	A80	LMP Lichttechnik	A12		
ADB Stage & Studio Lighting	A30	M&M Lighting	A120		
B+K Braun GmbH	B8	Marquee Audio Ltd	B28		
Batmink Ltd	C88	Martin Audio Ltd	B20		
BBC Design Group	A156	Martin Professional A/S	C12		
Blakes Fireworks Ltd	A166	Memotech Computers	C10		
Camelot Ltd	A120	Meridien Communications	A165		
Canon Audio Ltd	B86	Mico Lighting Ltd	A11		
Carter Voce Ltd	C59	Mobil-Tech France	A16		
Celco Division of Electrosonic	B56	Mode Electronics Ltd	B30		
Celestion International Ltd	B48	Multiform Lighting	A86		
Cerebrum Lighting Ltd	A146	Mushroom Lighting Services Ltd	A118		
Citronic Ltd	B104	Music Factory	B96		
Clay Paky	C40	MSL Pro Light and Sound Ltd	B36		
Cloud Electronics Ltd	A36	Night Owls	A124		
Coemar/Coetech Ltd	C92	Night Club News	C58		
Compulite GB	A128	Northern Lights	C8		
Court Acoustics Ltd	C57	Nu Light Systems Ltd	C49		
Cyberdescence Lighting Ltd	A20	NJD Electronics	B74		
CCT Lighting	A46	Optical & Textiles	A122		
CLASS	B82	Optikinetics Ltd	B60		
d & b Audiotechnik	A28	Osram	A72		
Dance Aid Trust	C14	OHM Industries	B68		
Databeat Digital Music Systems	B110	P&G Drapes/Stage Electrical	A54		
DeSisti Lighting UK	A108	Par Opti Projects	A138		
Disco Mirror and Licensed Design	B37	Peavey Electronics	C40		
Disco & Club International	A141	Penn Fabrications Ltd	B78		
Doughty Engineering Ltd	A1	PLASA	A156		
DHA Lighting Ltd	A34	Power Light Productions	A10		
DJ Magazine	B29	Primarc UK	A56		
DMC	C90	Protek Sound Systems	C76		
Ecler	B80	Pulsar Light of Cambridge	C40		
Electronic Lighting & Music	B58	PW Enterprises Ltd	B16		
ESP (UK) Ltd	A22	Ramsa Panasonic	C48		
Fabtronic Lighting	B33	Roscolab Ltd	B102		
5 Star Cases	B94	Ryger Electronics	B35		
Flying Pig Systems	A115	RAT (Music Stands) Ltd	A9		
Formula Sound Ltd	B26	RCF Electronics (UK) Ltd	B106		
Futurist Light & Sound	A162	Samuelson Group			
Gerriets GB Ltd	A74	(Lighting/Sound Division)	A132		
Gibson Morten Partnership	A24	Show Meeting	C15		
Glantre Engineering Ltd	A82	Shuttlesound Ltd	B6		
Griven snc	B109	Sky Light	A160		
Hardware for Xenon	B100	Stiers Innovation in Light & Sound Ltd	A18		
Harman Audio Ltd	B40	Stirling Audio	B9		
Harman Audio/EAW	C89	Strand Lighting Ltd	A76		
Howard Eaton Lighting Ltd	A68	Sylvania	A38		
HH Electronics	A134	SIB Rimini	A157		
HW International	B31	Teatro srl	A40		
IES	A53	Trifibre Containers International	A26		
James Thomas Engineering	A10	Triple E Ltd	A114		
JEM Smoke Machine Co Ltd	A62	Turbosound Ltd	B44		
Kaleidovision	B22	TOA Electronics (UK) Ltd	B64		
KAM Electronics Ltd	B32	Vestax (Europe) Ltd	B108		
Laserpoint Communications	B103	Volt Loudspeakers Ltd	B25		
Laser Creations	B112	VPLT	A158		
Le Mark TVS	A55	Washburn (UK) Ltd	B7		
Le Maitre (Sales) Ltd	A14	Wembley Loudspeaker Co Ltd	B25		
Lee Filters Ltd	A104	Wharfedale Loudspeakers	B34		
Leisuretec Distribution	A116	White Light	A102		
Light & Sound Design	A112/A136	Wigwam Acoustics Ltd	B59		
Light Processor	A140	Wybron Inc	A6		

Companies Represented

Advance Tapes	A55
ART	B40
ATM	B50
Audio Digital	B40
Audio Logic	B40
Avab	A98
AVX Systems	B59
Axon Digital Design	A146
Barron McCann Ltd	A55
BEDA	B37
BSS	B50
Bytecraft Pty Ltd	A68
C-Audio	B40
Cerwin Vega	C48
Crest Audio Inc	B23
EAW	C89
FAL (Italy)	C48
Fane Acoustics	B34
Fairlight	B84
FBT Elettronica	A164
FLY	C49
General Electric	A82
Genius	C88
High End Systems	C91
Hocken Sound	B110
Hoffend & Sons	A82
JBL	B40
Klark Teknik	B50
Lampo	C88
LED (Italy)	C48
Lexicon	B50
Lighting Dimensions (WL) Ltd	A102
Light Support Ltd	A56
Lightwave Research	C91
LSC	A12
McKenzie Acoustics	B34
MA Lighting Technology	A146
Meyer Sound	B50
Micron	B50
Milab	B50
Nexo	B59
Niethammer	A98
NSM Germany	B110
Powerdrive	A146
Production Partner	A156
QSC	B50
Reynolds of Raphoe	C88
Richmond Sound Design	A82
Sachtler	A122
Sennheiser	B59
Slick Systems	A118
Sony	B59
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3M Industrial Tapes	A55
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TSL AV	A102
Turnkey Projects	A128
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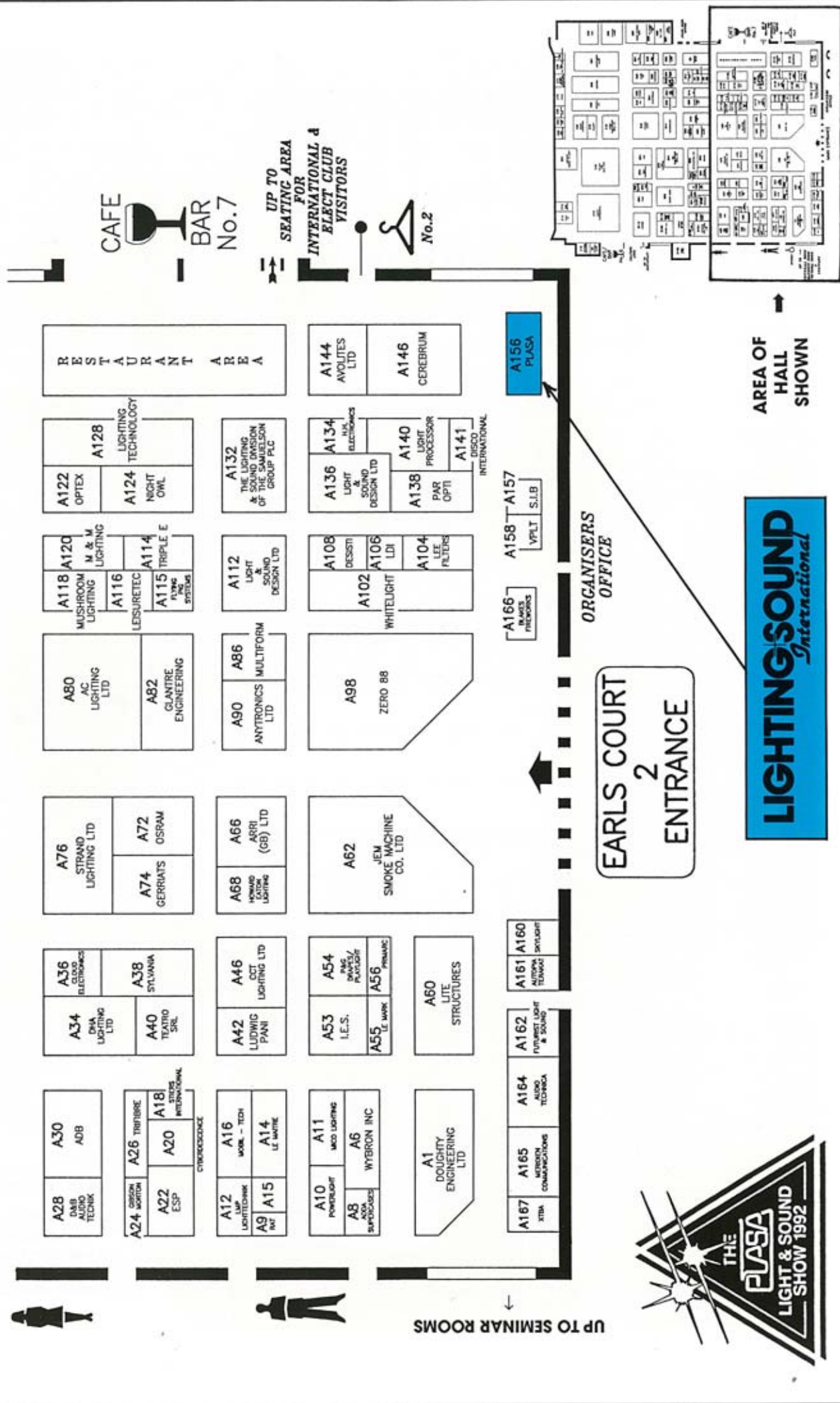


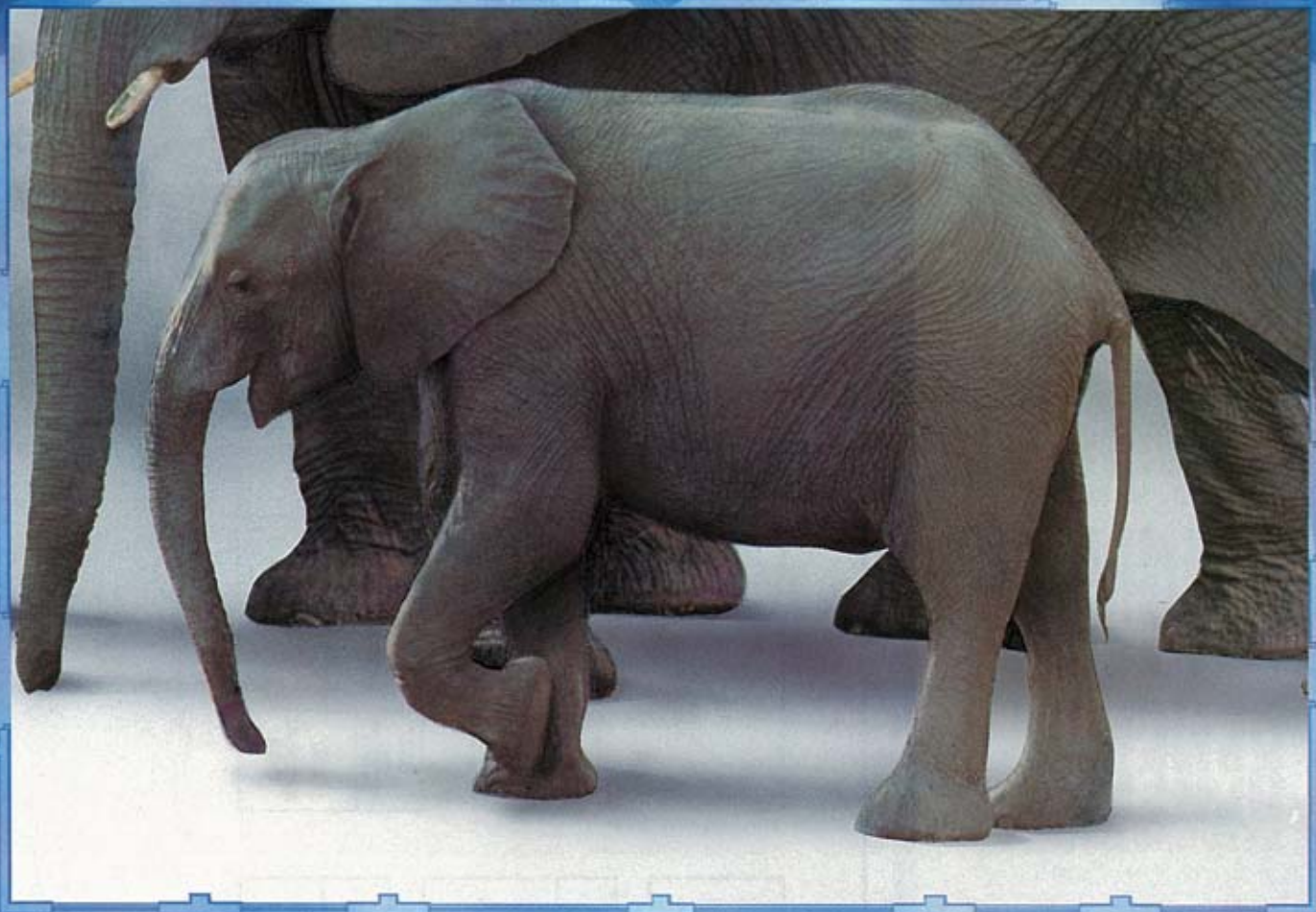
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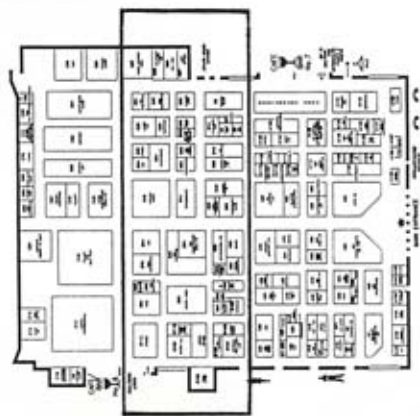
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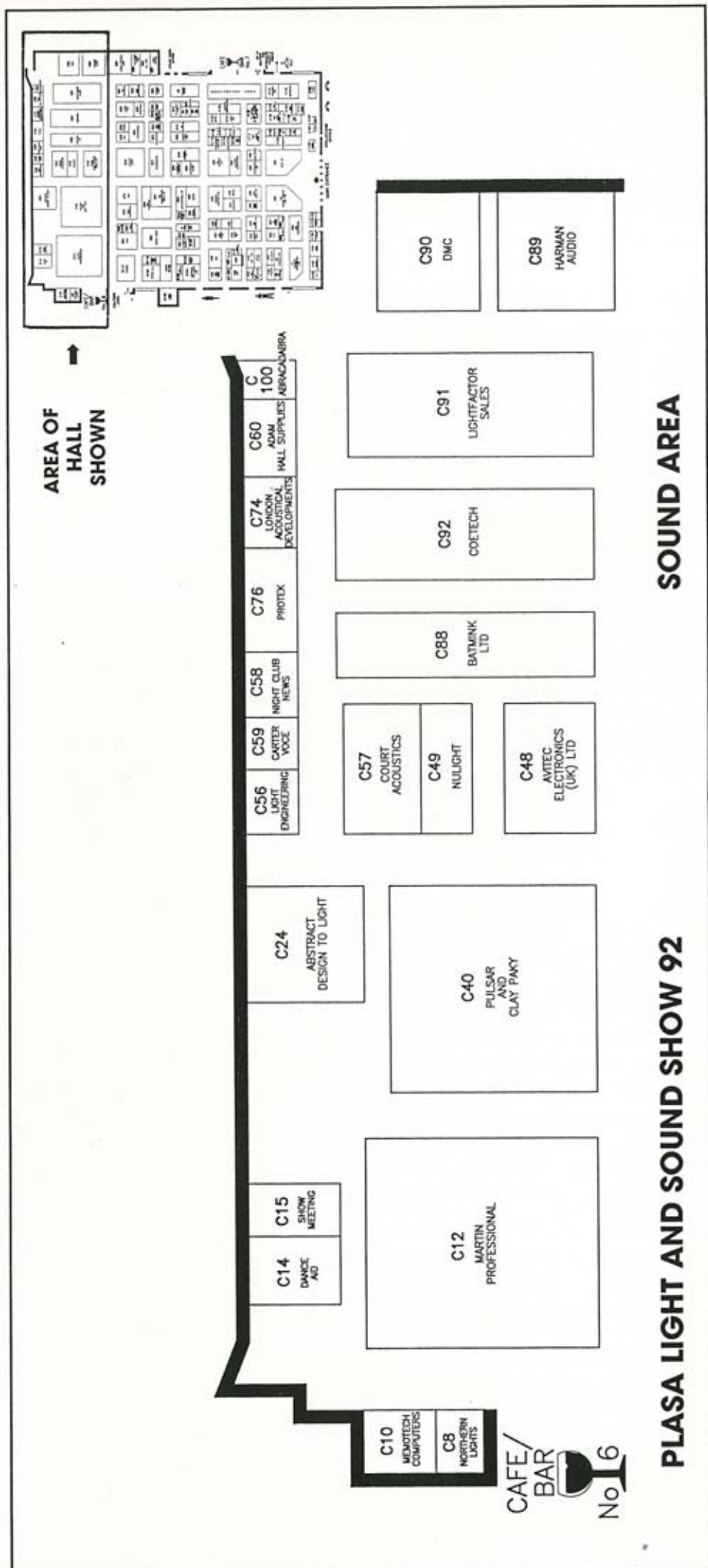
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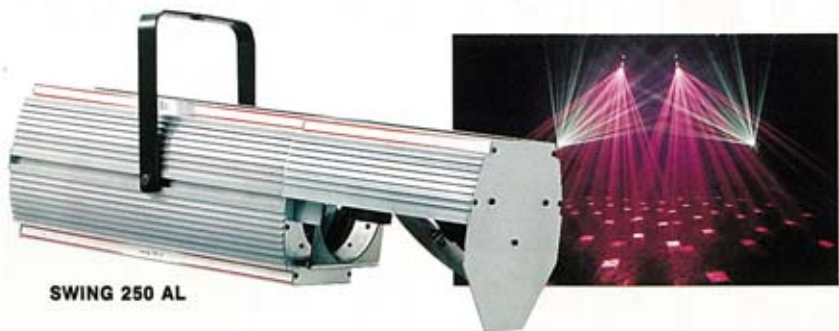
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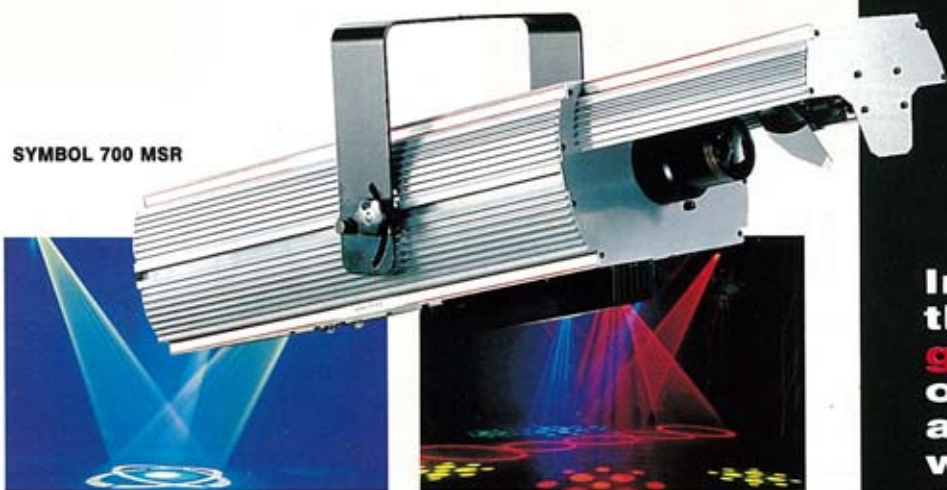


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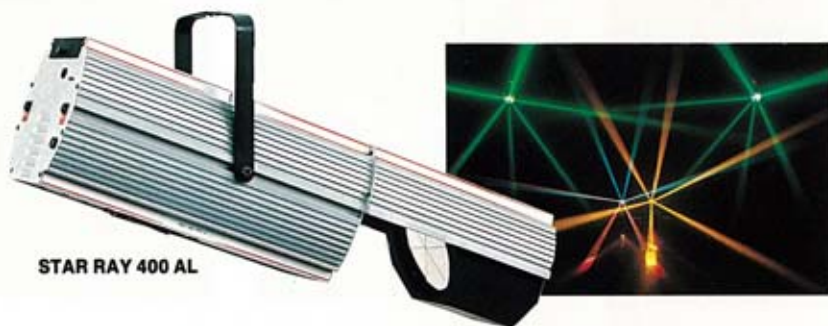




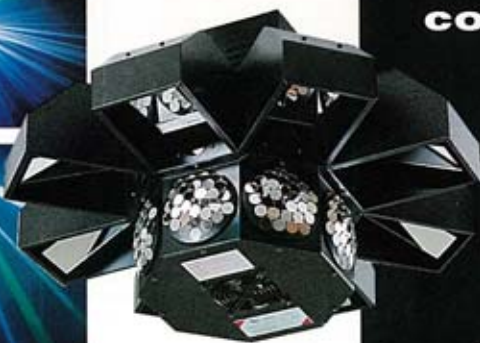
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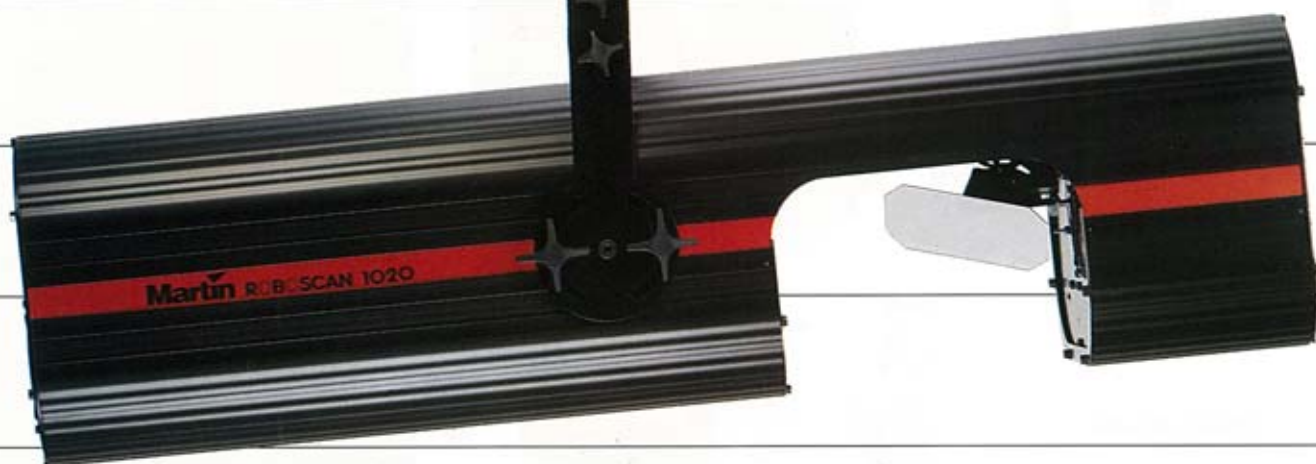
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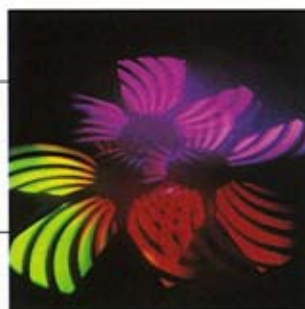
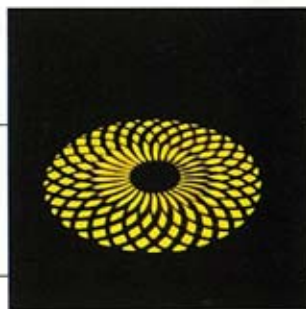


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Throughout the 15 years we have been in the lighting industry we have had countless discussions with just about every professional in the business. This feedback of information has given us a very clear picture of what our ultimate projector had to be able to do. It was no easy task to combine all the required functions in one unit and yet keep the size and weight reasonable and the price affordable. But we did it!!

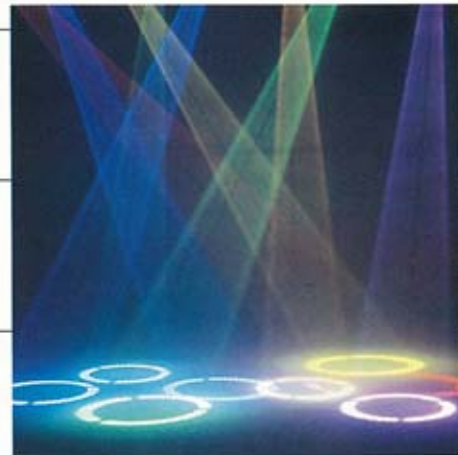
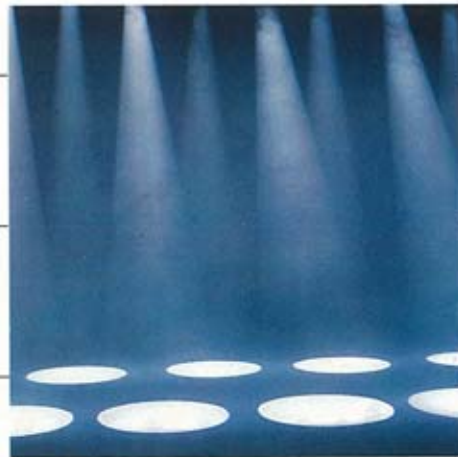
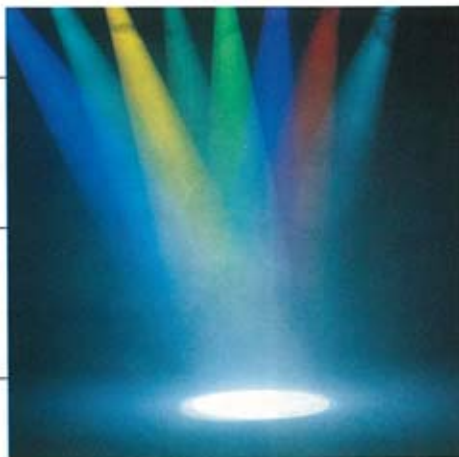
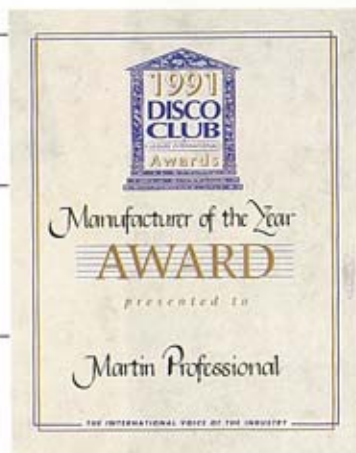
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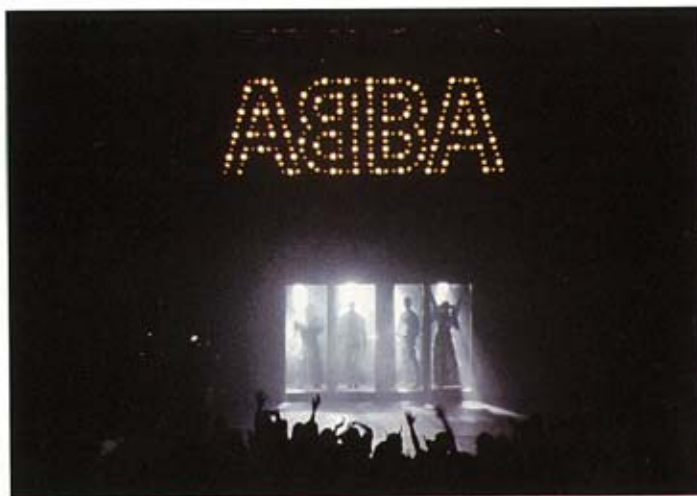
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Erasure going through their motions on stage at Hammersmith Odeon.

Erasure

Hammersmith Odeon

LD: Patrick Woodroffe/
Vince Foster

Vince Foster has been working with Patrick Woodroffe for nearly a year on various projects. "I first met Patrick six years ago when he designed Adam & The Ants and I was last man on the lighting crew," explained Vince. "From there I got involved in scaffolding and steel work but after a while I returned to lighting and have been interested in design ever since. "Whilst on the Bee Gees tour I spoke to Patrick about my desire to be a designer. I then tried to secure the job of lighting designer for Seal but I had problems getting to meet the right people, so I phoned Patrick and asked for his help. He managed to arrange an interview for me, then left me to my own devices. I got the job. Patrick also knew that I was very interested in Erasure, and when he got the design for it, he said I could co-design the show. He's been a very good teacher in so many ways. He's very positive in everything and never gives any negative feedback."

Predictably, the show was rehearsed at the 4:1 studio for several days. The model of the complex stage was built by students and Vince admits that lighting the show would have proved particularly difficult to design without the model. "It's a particularly challenging show

because the brief was to light the set and light the dancers as opposed to the music. It was a bit of a shock for me at first, because I'm used to lighting music with guitar solos, and suddenly there are no musicians on stage. Dealing with that for the first week was a bit strange but now I've begun to appreciate the subtler aspects of the show and can pay much more attention to details such as the spot calling."

The show starts with a beautiful Swan Lake scene where Andy Bell, the lead singer, makes his entrance on a large swan with dry ice covering the floor. The scene then shifts to a sailing theme with portholes and cabin doors and a host of special props including a boat that gently sails across the floor. Next on stage is the 'tank', a vehicle that houses Vince Clark's keyboard equipment and which he can trolley about the stage during the show. The scene shifts to a nightclub and then to the Abba part of the show, at which point Vince Foster has the opportunity to flash the lights gratuitously for about four songs.

The interval is particularly novel with the band calling Bingo, the audience having been given Bingo cards on their entrance. The second half of the show starts with a Western scene and a big dance routine to 'The Good, the Bad and the Ugly'. Andy Bell comes on stage dressed as a rhinestone cowboy with Vince Clark got up as Mae West to sing their own version of 'Stand by your Man'. After that

there is a space scene where Andy Bell gets into a hot air balloon and disappears up into the stage tower only to return dressed as someone else. The next scene is a completely clear stage apart from a park bench where Andy Bell sits to sing 'Somewhere over the Rainbow'. That progresses into a white out - white backdrop, headers and legs - and then it turns into a complete black box.

"The show really starts quite subtly, gets complicated towards the middle of the set and then reverts back to a very simple set at the end," explained Vince. "It has been a very expensive show to stage and it seems unlikely that they'll make a huge profit because of the types of venues they are playing. The tour could have stayed six nights at Wembley Arena, but the group have chosen to play theatres, which is nice. The set is very theatrical and there would be major problems in arenas with promoters wanting to sell tickets around the side of the stadium. It just wouldn't work because people wouldn't be able to see what was going on all the time."

There are three 40 feet main trusses - a front truss, obviously for front lighting, and two others for stage lighting. Five 5ks with colour changers provide the high back lighting for the dance routines. A fly bar over the bridge provides the lighting for the platforms on the bridge. The lighting is actually very minimal because Patrick and Vince were working towards a particular budget, which they were

keen not to overstep. Vince would initially have preferred more lighting, but having seen the results, he's quite happy with the overall look, and enjoys working the lights hard. He finds working with a relatively limited light inventory very challenging. A lot of the show relies on the Vari*Lites, 10 VL4s and 12 VL2Bs, although they do a minimal amount of moving. In the main the Vari*Lites are used to light certain areas, though they are flashed around during the Abba section of the show. The Vari*Lites were programmed by Dave Hill and operated by Telson James.

"We've had fantastic work out of the lighting hire company - Neg Earth," Vince added. "They've provided two fine crew members, brilliant equipment and the back-up is really good. I think they're very much an up and coming lighting company at the moment. I'm using the new Avo Diamond board which I thought at first was quite strange to use but, now I'm used to it, I wouldn't use any other board."

The elaborate stage set was built by a theatrical company called Heavy Pencil which is run by Mark Williams. The Erasure tour continues through Europe this summer before going to the USA and then South America.

Equipment List

- 2 x 4M Litebeam truss
- 2 x 3M Litebeam truss
- 2 x Tanktraps
- 16 x 3 phase motors + control + rigging
- 4 x 1 phase motors + control + rigging
- 1 x 12 rung Zarges
- 1 x Avo QM Diamond
- 2 x Avo 72-way DMX dimmers
- 1 x Avo 12 x 5k dimmer
- 1 x Avo 12 x 4k dimmer
- 30 x black bars 6 par 64/ray
- 10 x silver bars 6 par 64/ray
- 16 x Parcans with colourchangers
- 8 x loose Parcans
- 6 x Thomas cyclights
- 2 x Explorer longthrow spotlights
- 2 x Lycian short throw spotlights
- 5 x DWE 8 Lite Moles
- 6 x Selecon 30
- 6 x gobo rotators
- 2 x MR16 birdies
- 9 x Rainbow DMX par Colourchangers
- 6 x Rainbow DMX Mole Colourchangers
- 5 x 5k fresnels and barndoors
- 6 x Rainbow DMX 5k colourchangers
- 9 x Megastar strobes and Orion control
- 2 x crackers and breeze fans
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- 8 x Omnis and barndoors
- 12 x channel Clearcom comms system

Michael Jackson Wembley Stadium

LD: Peter Morse

"It's the most elaborate show of any artiste in the world," boasted a spokeswoman at Michael Jackson's record company. "Nobody else can touch him. It's a complete theatrical extravaganza."

The show, according to Jackson's promoters, aims to 'bring the audience into a multi-layered Dangerous album cover concept' so that everyone feels part of it. When lighting designer Peter Morse started work on the project he was constantly reminded that a large, spectacular show was required. There was no theme other than Jackson being on stage with a dazzling light show - a sort of second coming. Ideas for the stage and set evolved during the five weeks of rehearsals at the Universal Studios in Los Angeles.

"One idea we tried to work on, but that never really came together, was the use of a lot of xenon light," explained John Malamazian, the Telescan operator. "Michael loves xenon light sources. Originally we tried to use 10 or 12 2k moving xenon lamps but, unfortunately, after spending four weeks trying to get them to work, we had to drop them. The technology is not quite there yet, although they are going to be great lamps. We wanted a lot of xenon light on Michael, a lot of straight downlight for dramatic effect, so we replaced the automated 2k xenons with fixed 2k xenons. There is also one tracked 4k xenon which travels across the stage during the song 'Billy Jean'."

On the lighting rig there are 110 Vari*Lites, 18 Telescans and 15 Megamags from LSD along with 24 bars of ACLs across the stage. During the show there is a 'magic carpet' (see L+SI July) - a hydraulically operated steel stage, 260 feet wide and 90 feet deep, which lifts up about 20 feet to reveal a set for 'Thriller'.

Under the stage itself there are another 30 9-lite Molefays and 20 8-lite Molefays with colour changers. Rigging for the magic carpet was supplied by Arrow Rigging, and the construction was completed by Magic Craft. Peter Morse insisted on having actual lighting directors running each of the boards for the show. As a result there is Merle McClain on the Avo Diamond, Warren Flynn with the Artisan and John Malamazian in charge of the Telescans.

Pyrotechnics - Jackson likes to disappear in a puff of smoke and reappear somewhere else - uses up to 230 shots, or 3lbs of explosives.



Michael Jackson's love of the spectacular has resulted in one of the most complex technical concerts to be put together this year.

Three lasers are used during their show and they are run by Scott Cunningham. Four cameras film every step of the singer's performance and project them on to a pair of 21ft by 14ft video screens, the Jumbotron monitors showing clear pictures even in bright sunlight.

The next part of the set consists of an upstage wall 26ft high and 48ft wide which is three-sided and spins during the show to reveal one of the three different looks. There is a mirrored backdrop for the slower songs and also a 'light wall' which consists of 400 ACLs and 250 Dataflash units pointed straight out into the audience for an extremely effective wall of white light.

Special effects include a crane, which comes on during the song 'Beat It', to fly Jackson about 40 feet over the audience. There is also what the crew calls 'The Toaster' which shoots Jackson out on to the stage at the opening of the set and is similar to an effect used on the last Bon Jovi tour where the band popped out of a trap door.

Towards the end of the show, the stage once again lifts to reveal the set for 'Heal the World' which includes an enormous inflatable globe. At each gig 30 children from the host city join Jackson on the stage for the performance of that number. Most of the proceeds from this tour go to the Heal the World Foundation which



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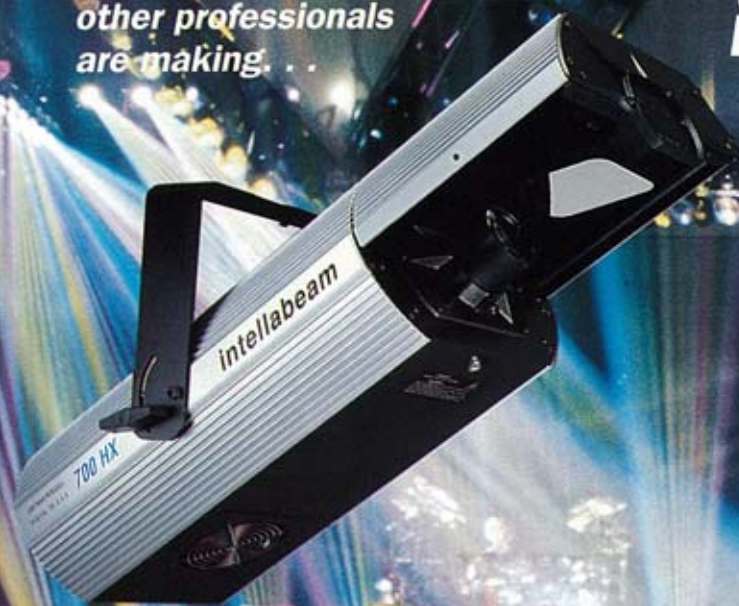
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Jackson started.

The finale to the show is the song 'Man in the Mirror' which ends with Jackson flying across and above the stage courtesy of a jet propelled personal rocket pack the same as the one used in the James Bond movie. It has a maximum flying time of 21 seconds. The 'trick' is one of several designed for the show by the famous illusionist David Copperfield.

The eight-man sound crew use a 115 channel system supplied by Clair Bros which pumps out 240,000 watts through 180 separate speakers. The tour started in Munich and so far has only travelled to the northern parts of Europe, including the UK. After playing Athens on October 10th, the entourage travels to Moscow to perform three shows and from there they go to the Canary Islands. Apparently, Jackson is keen to play such remote places as India and Africa. In December, he will play 15 nights at the Big Egg in Tokyo and in the New Year, there are plans for the tour to travel to South America.



Simply Red 'Stars 1992'

Simply Red were well into a successful indoor tour of Europe and the USA when they asked Fisher Park to design a stage set for their summer stadium dates. The group's music covers a range of moods and styles, from cool blues through jazz funk to hot pop. They wanted a design which was simple but unusual, something which could provide a relaxed background to Mick Hucknall's solo performance, yet create three or four strong moments in the show to match the changes in mood of the songs.

Fisher Park worked closely with lighting designer Patrick Woodroffe and with production manager Nick Levitt to create a show which used the conventional outdoor stage arrangement of PA wings and roof in an unusual way. They knew that more than half of the two hour show would be played in daylight, so Fisher Park designed some large-scale scene changes which could alter the appearance of the set during the first half of the show.

To create the basic form of the stage, Fisher Park hung the compact SSE PA system off the front of the scaffolding and cut the structure away to a rear wall more than 70m (230ft) wide and 16m (53ft) high. The wall was built as a truncated pyramid, and filled in with a black star-cloth. All the scaffolding in front of the rear wall was painted silver, and the roof was fitted with a 3m (10ft) deep fascia to conceal follow spots, finished in bright red. Patrick Woodroffe installed Vari*Lites, Golden Scans and fixed

lights with colour changers at high and low level in the scaffolding, arranged to light the scaffolding itself, the rear wall, and the scenic effects.



Above and below, Simply Red on stage for their 'Stars 92' outdoor shows. Photos: Fisher Park

The major changes in appearance were made by flying banners inside the scaffolding. One set of banners was made from bright red silk, the other carried a vivid graphic design which extended across the full width of the stage. The banners were stored in boxes at stage level, and pulled up by rigging fixed in the scaffolding. The technical design and installation of the banners was carried out by Blackout Ltd.

The show was performed under white light until it was dark enough for colour to read strongly. For the first three numbers the scaffolding was simply uplit in white. Then the

red banners were pulled up, lit in white, to create a brilliant red mass on stage. They were lowered after two songs, and after three more songs the graphic banners were pulled up, forming a huge pattern across the back wall. Two songs later they were lowered, and the show went to colour shortly afterwards. When Mick Hucknall sat down on the front edge of the stage to perform his final number 'Holding Back the Years', the whole of the rear wall lit up as a star cloth. For the shows in Wembley Stadium, which were performed with the stage on the south side instead of at the west end, the star-cloth was extended more than 200m (656ft) to cover the whole side of the stadium.

Credits:

Production manager: Nick Levitt
Stage and set design: Fisher Park Ltd
Lighting design: Patrick Woodroffe
Lighting operator: John Dipple
Vari*Lite operator: Mark Payne
Lighting: Light & Sound Design Ltd
Vari-Lite Europe Ltd
The Spot Co
DBN Lighting
Theatre Projects
Set construction: Brilliant Stages
Soft goods fabrication: Blackout Ltd
Stage set graphics: 4i Ltd
Neon: Neolec Ltd
Pyrotechnics: Le Maitre
Audio: SSE Hire
Staging: Edwin Shirley Trucking





Genesis On Tour

Having recently completed a tour of North America, Genesis are currently playing to sell-out audiences throughout Europe. To help them on their way, they are relying on a combination of US/UK expertise.

The American and British ends of Vari-Lite have supplied nearly 200 VL4 wash luminaires and 24 VL2B spot luminaires for the show, with further generic lighting supplied by Obies Lighting Productions of Torrance and Telescans from French company Cameleon. Showco Inc of Dallas have put together a sound package comprising Midas, Harrison, Yamaha and Prism.

The lighting design for the tour was created by Marc Brickman of US-based Propaganda Live, with the Vari*Lite on the European leg of the tour being operated by Mike Owen.

Stanmore-based Unusual Rigging have supplied the motion system, further details of which can be found in the Suspended Animation article on pages 92-94.



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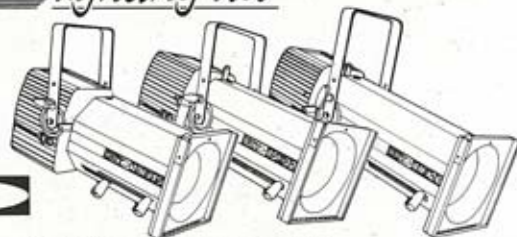
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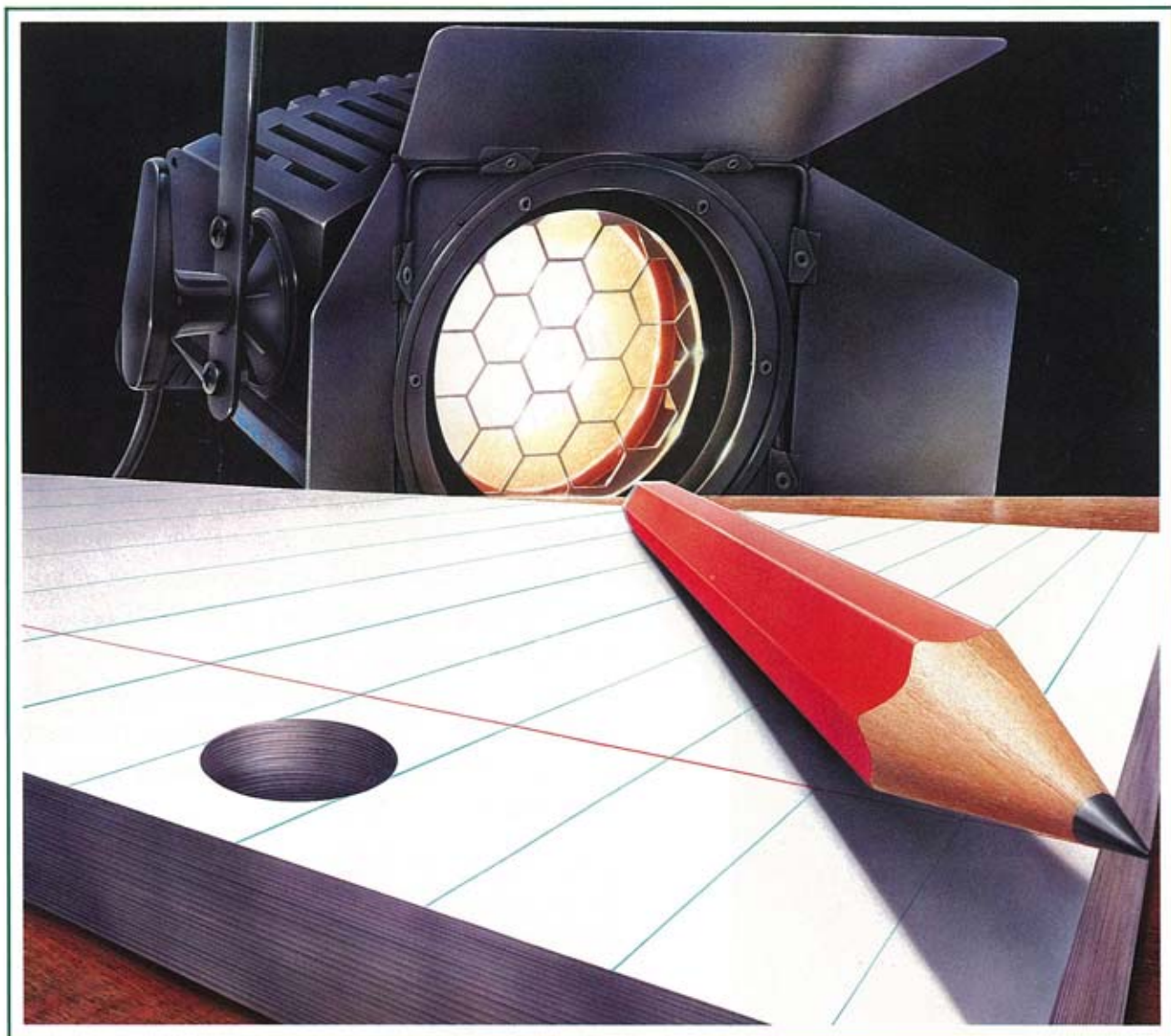
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S T R A N D S C A P E S

— No. 5 —



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A SOFT SPOT FOR VARI*LITE

Will Vari-Lite's coolest lamp be its hottest product yet?
Tony Gottelier reports on the launch of their new
automated luminaire, the Vari*Lite VL5

Q. What is cool, sleek and black on the outside - yet soft and full of colour. A red hot number, which speaks for itself without a sound?

A. Unquestionably, this is the VL5, Vari-Lite's latest automated luminaire.

The launch of this new automated luminaire, during the PLASA Show, will be seen as a significant milestone in the history of lighting developments. For uniquely, all the best aspects of good product design, including the external 'look', have converged to provide the industry with a product which will just about satisfy every point on most LD's wish lists. It also marks the end of a long tease from the American 'hot-shop' who, virtually single handedly, invented the mechanically driven moving light.

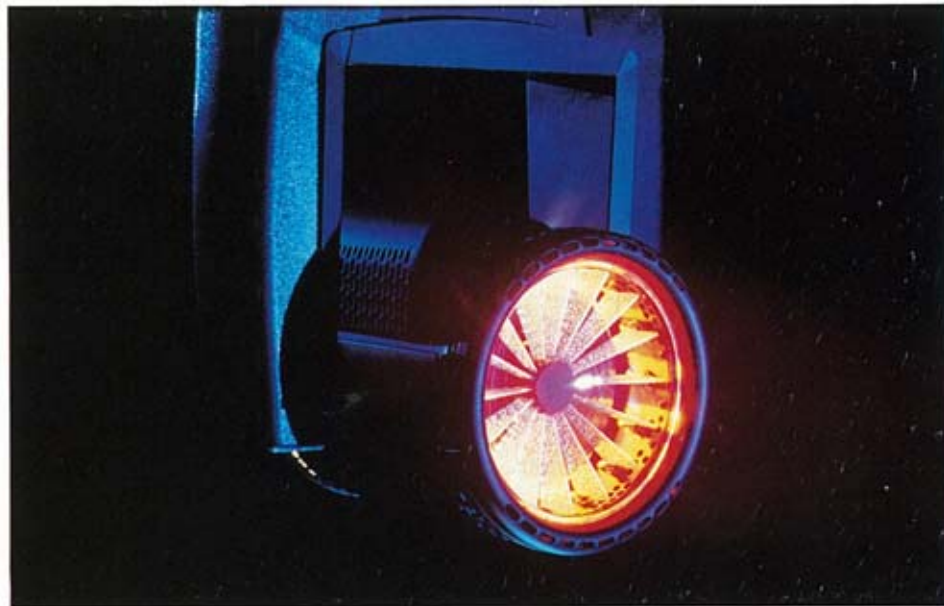
Starting with the VL3 and subsequently the VL4, Vari-Lite have been striving to achieve an ideal wash lantern for some years and have been in debate with lighting designers for most of that period as to which features this product required. During last year, the word leaked from the Dallas headquarters of the company that they had the technology licked and we waited with baited breath to see what would emerge at LD'91. What happened was the back room unveiling of a top secret prototype to selected viewers, who were chaperoned along the grossly baroque corridors of Reno's Bally Hotel (not the Bali Hi you understand, but with the decor to match) and sworn to everlasting secrecy. The incongruity of the setting was in strange paradox to the high technology gestation which was taking place at the time.

But still no product to get hands-on, and by now the anticipation for a lot of people, among them many who I have interviewed for this piece, was becoming excruciating. Almost without exception the plea was "I can't wait to get my hands on one." Steve Cohen put it more directly: "I am just pissed off that its taken so long. I had three shows lined up for VL5 this year."

As from September, we will all be put out of our misery as VL5 is launched, backed up with production quantity deliveries. (Oh yes, it will! I have it straight from the horse's mouth. And this horse is called Rusty Brutsché.)

So L+S formed our own ad hoc panel of lighting designers, all known to have some prior knowledge of the new product. For a voice from the stage we talked to Richard Pilbrow, doyen of theatre consultants; from rock and concert, to Steve Cohen, Jeff Ravitz and Rob Morrow; for a slant on commercial presentations to Jeff Engel, and with the TV view to Lee Rose. Clearly, many designers have a soft spot for Vari-Lite and now the object of their appreciation is responding in kind. For the new instrument delivers a soft focus, from medium flood, through fresnel and on to narrow spot via a selection of clip-on lenses.

What was the development strategy behind the VL5? I asked Brutsché, ex Led Zeppelin sound mixer, now the suave Vari-Lite president and CEO: "Our commitment is to the continuing development of more and more sophisticated automated luminaires, pushing the technology until we can find a really functional and truly reliable automated lighting



Cool, sleek and black - the Vari*Lite VL5.

system." So Brutsché sees the philosophy of the VL5 as just another stepping stone, albeit a giant stepping stone, on a long and rocky path: merely another statement of intent for a future family of high flyers in the same technological mould? After all, they already have both a second generation hard-edged and fast effect machine in the Series 200 VL2 and, so called, wash luminaires in both the VL3 and later the VL4. Yet they see the need to go beyond those previous developments in the search for the ultimate soft machine. After all, nowadays even the VL2 is being used more and more as an atmospheric by such designers as Andrew Bridge, a Vari*Lite enthusiast since before Time began, and Steve Cohen's recent looks for Elton John. A far cry from the 'wham, bam, thank you mam' of its genesis.

Rusty is no stranger to listening to his customers, something which businessmen elsewhere in the world are now prone to boast of as a new panacea, though I would have thought it the first rule for survival. He has been doing it ever since his Showco touring equipment company joined with Genesis to create the original Vari*Lite launched in 1981. (Yes it is as long ago as that!) So after the launch of the Series 200 in 88/89 he kept his ear to the grapevine for the designers' comments. The resultant list of development goals are exactly in line with our own research, from talking to those same designers about their expectations for the VL5.

What he heard was, that they needed a better wash-type lantern, totally silent and at a cost which made it feasible for use in mass quantities. In addition, it had to have an improved cross-fading colour palette, a tungsten lamp for the low maintenance and warmer beam, plus DMX512 on-board to widen control access. In addition, it must conform to the Series 200 family philosophy for inventory purposes.

Did Vari-Lite achieve all these goals without sacrificing anything en route? "Absolutely!" came the swift response, "we've realised it all, though I'll admit we were forced to make

sacrifice to timing getting there, and getting it right."

Does this new development herald a change in course for the Rolls Royce of driven light companies? Brutsché is positive on that one: "Yes, what we certainly see as a major change of direction is that we have made this luminaire applicable to all sectors of the market, enabling us to address it at every level. While VL5 is a high-level product technically, pushing the technological envelope in several areas, it will be more accessible than any of our previous products."

What is referred to here as accessibility is principally rental cost, an issue which certainly preoccupied several members of our ad hoc designers panel. For example, Steve Cohen: "What is crucial is that Vari-Lite put the VL5 out at the promised price, and they have not been too reliable on that score in the past. But if they do, it really will be the only way to go, because what they have lacked up to now is the equivalent of a moving Parcan and the VL5 could do it for them. It could be ideal for pre-mounting straight into truss sections for rapid deployment." And Jeff Ravitz: "I would like to use nothing but moving lights in my shows, but budget usually prevents that in its entirety. This is a big step in the right direction. "None of these people is seriously expecting the price to be directly competitive with a Parcan rental, but if it is within reach, allowing for the additional features the VL5 provides; then they can use less for more. In fact, projected prices will pitch the VL5 at roughly 10 times the average weekly rental of its static competitor. I will leave the designers to judge whether this will do it for them. It probably will."

All were enthusiastic about the ergonomics of the unit and the phrase relating to the ability to pre-truss mount re-occurred again and again. To an extent the practicality of this demand, and the sexy profile, has been dictated by the need to lose heat by convection which was essential to eliminate fan noise. On the sound of silence, I had this from Richard Pilbrow of Theatre Projects Consultants from his eyrie in



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Connecticut: "I have a 'Magic Flute' for the Los Angeles Opera coming up in January. My partner Wally Russell was the first to light an opera (Tristan & Isolde) entirely with Vari*Lite for that enterprising company. But the background hum was an undoubted problem. We hope to achieve some part of Mozart's glistening world of light aided by the new Vari*Lite, but this time we will be able to leave the soundtrack to the master." I pointed out that, since Wolfgang Amadeus was the Andrew Lloyd Webber of his time and his opera audiences were notoriously rowdy, I doubted if a bit of fan noise would have bothered him. But we take the point.

An eight inch (200mm) dichroic cold mirrored reflector has been used to remove the heat to the rear of the VL5 lantern, from which the coved fins of the cap disperse the heat by sinking. In turn, this technique necessitates the displacement of all the electronics to a new and more convenient location in the armature. The net result of all of this is a package that's the closest thing, in scaled up appearance terms only that is, to a true 21st century successor to Strand's ancient Pattern 23, a thing of considerable beauty in its own right, I always thought.

In fact, several designers on our hit list remarked on the charming effect generated when you look straight at the neck of the VL5 with those dichroic colours glowing prettily behind the radial diffusion mechanism. "Like looking down the throat of a jet engine, I can see a lot of people going for that as an effect in its own right!" Rob Morrow told me. Steve Cohen concurred. In fact, the textured turbine-like vanes of the diffuser are another technical success of the VL5 and provide a



Three clip-on lenses provide the VL5's beam patterns tempered also by a controllable diffuser.

continuously variable and controllable diffusion range for each of the beam shaping lenses. Jeff Ravitz is still a little sceptical on this score stating that, while he likes the filter, "which should make scenic and cyc toning, work very nicely... it does not make the beam change from wide to narrow in the strictest sense, as the Vari-Lite people originally suggested to me. It will spread the beam, but of course, as the diffusion goes in, intensity is lost and so is beam spill control. Nevertheless, the diffusion does shape the beam slightly in the absence of any other method." He makes

the point that once the lantern is in the air it is not possible to change the front lens and thus the beam diameter, unlike the VL3, but fully accepts this limitation in view of budgetary considerations.

I talked also to Jim Bornhorst, Vari-Lite's VP of Engineering and one of four techno wizards at the company to have been awarded an Emmy for outstanding achievement in engineering development. He was categorical in his claim that, "the combination of the radial diffusion mechanism and the choice of lenses, gives the most extensive range of beam patterns ever." More specifically, we discussed the light source for the new baby, and the control aspects which are another essential piece of the new accessibility jigsaw.

The incandescent lamp, which has been developed by Philips for the purpose, is based on the tungsten 6995P 1000W with compact bi-plane filament and GX9.5 base. Some proprietary protection has been applied to the pinch seals to allow the lamp to operate in an automated luminaire and particularly in the base-up position. It boasts a colour temperature of 3200K and is bright enough in comparison with other incandescent lamps, delivering centre beam brightness of 1000+ footcandles at 20 feet when using the clear lens. "The planar filament configuration produces a slightly oblong pool of light when used with our eight inch parabolic reflector," says Bornhorst. Designers who have seen the fitting demonstrated on a projection screen in the Vari-Lite demo suite are impressed with the even field produced. Three voltages are available, spanning the world's varying power requirements and, therefore, enabling external dimming of the light source, a major plus in the control area.

We discussed the issue of control, both in terms of widening access and compatibility with existing systems. Bornhorst explained: "By keeping the VL5 within 'Series 200' architecture we have ensured full control from our 'Artisan' desk, alongside our other luminaires, and dimmer control at any of the voltages mentioned via the 'Smart Repeater' interface. Additionally, a DMX512 port is provided on the lantern for those who may wish to use an independent control system or integrate VL5 onto another board."

Jim conceded that they had found the 'plain manilla' DMX adopted somewhat clumsy to deal with and, of course, there is a considerable loss in resolution over the 0.3 degs. attainable via their own higher-level protocol. Both features seemed very popular with our informal design group, who see the options as expanding horizons for the product, though the majority still prefer the Artisan as the most attractive alternative. Rob Morrow, for example, commented: "It's a great advantage to be able to use VL5 with or without the dedicated Artisan desk, since I can use a Celco or Avolites board when funds won't stretch." I was unable to confirm a forthcoming Mac-based DMX control system, rumoured from the Dallas power house.

The colour improvements have also been received enthusiastically by our designer friends. "As the result of computer modelling of the colour mixes, we have been able to enhance the palette by reshaping some of the characteristics of the dichroic filters," claims Bornhorst, and the colour crossfade works really well. "The 'Dichro*Tune' crossfadeable colour control system employed for this purpose allows subtle mixes, through pale shades to deep rich hues, via independent Cyan, Magenta and Amber dichroic sources, from 0.7 second snaps to long slow squeezes, like easing artists' paint from a tube. Steve

WHAT THE DESIGNERS SAY ABOUT THE VARI*LITE VL5

Richard Pilbrow, Theatre Projects Consultants:

"Another giant step for lighting... We theatre people have watched with some envy, as Vari*Lite has produced stunning lighting with mounting success in the music industry. Now they have broken the barriers again with the VL5 - the moving light for the rest of us. "Previous Vari*Lite models have led the field in moving lights, but the fans for the high intensity lamp cooling made noise. This was acceptable in the concert world or for the spectacular musical but problematic in opera and drama. The new VL5 is accurate and smooth, but above all else, silent. Its variable speed movement and subtle colour change will at last be possible in the dramatic realm."

Steve Cohen (Elton John etc):

"Its going to be an incredible instrument, especially for lighting scenery and soft goods. And it will be great to be able to do it all via the Artisan."

Jeff Ravitz, Moody Ravitz Design Partners:

"The VL5 is a cost efficient, versatile entry to the remote control luminaire family, in the halogen versus halide category. I am happy to see this... its a big step in the right direction."

Rob Morrow, (Joe Cocker):

"The VL5 will start replacing Par lamps, providing all sorts of different diffusions, colours and beams and can be mounted straight into truss which is neat."

Jeff Engel, Imero Fiorentino Associates:

"On seeing the prototype VL5 I was very excited about its features. Being a general illumination fixture with an almost unlimited colour palette, a 3200 deg. source, good beam shaping characteristics, and no noise, the VL5 should prove to be a valuable tool for many applications. For lighting scenery and other universal illumination needs, the VL5 should be exceptional."

Lee Rose, Ocean, Rose & Associates:

"The unit itself is a great product. It fills a need for an inexpensive fixture, that gives the advantages of movement and soft colour fading. Its small size makes it great for high density lighting plots. The fact that there is no power supply box on top of the lantern, that everything is in the yoke, makes it great for tight places."

I am grateful to all these designers for taking the time from their busy tour schedules to provide these comments.

Cohen: "Really good, subtle colours, a great pastel palette with wonderful lavenders and mauves and total absence of harshness due to the incandescent light source."

Both Brutsché and Bornhorst are confident that VL5 is more road-rugged than previous models, not just because of the truss mounting capability and what is probably the world's first rigid plastic flightcase, but because it has survived many tests unprotected. It has been operated in temperatures from -20F to over 120F, they tell me, and in conditions of great humidity, it was unscathed after shake table tests and a few have been dropped without too much damage. When I asked, tongue in cheek, whether it would survive being driven over by a truck, the pair excitedly revealed their packaging concept. Using rotational moulded, cross-linked polypropylene, a high impact flightcase has been developed which literally wraps around the VL5 and its accessories and, literally, cocoons it for maximum protection. Another advantage, from Vari-Lite's standpoint, is the ability to maintain the slick image of the product, bag and baggage included.

In researching this article I came across an earlier piece, written by John Offord in January 1989 following a visit to Dallas, coincident with the original launch of the Series 200 luminaires. In it he had grilled Rusty Brutsché as to the whys and wherefores of his rental policy. I thought Brutsché's explanations given at the time somewhat coy, but there was no economy whatsoever in his response to my request for a current update on the situation.

"We will continue with our rental policy for the foreseeable future," Brutsché insisted unequivocally. "In my opinion automated luminaires are not yet technically robust enough to be sold, though the time will come,

VARI*LITE VL5 AT A GLANCE

Power	100v, 120v, 330v AC. Dimmers accessible via 'Smart Repeater' interface.
Source	Phillips 6995P (mod) 1000w tungsten. Colour temp. 3200K.
Reflector	8" glass dichroic cold mirror.
Op. temp	0 - 120 degs. F
Cooling	Convection
Control	Vari*Lite Series 200 or DMX512 (not available until 1993)
Mounting	Any orientation
Pan/TiltPan:	380 degs., Tilt: 270 degs. Speed: 220 degs/sec. Resolution (Series 200 ref.): 0.3 degs.
Colour	Enhanced Dichro-Tune crossfadable selection from Cyan, Magenta and Amber programmable colour mixes.
Beam	3 interchangeable front lenses, MFL, Spot & NSP plus variable diffusion filter.
Dimensions	26.75" (H) x 16" (W) x 10" (D)/68cms(H) x 40cms (W) x 25cms (D) including armature and clamp
Weight	11.5kg

I am sure." After that statement of intent it is important to recognize, apart from all else, that the policy has been hugely successful in supporting the Vari-Lite product and maintaining both their quality and performance on the road. Nevertheless, they will be introducing an extensive leasing programme for VL5, including terms of particular interest to long term users which, again, they hope will increase accessibility.

Naturally, it was impossible to avoid the \$64,000 dollar question in the presence of such fertile and hyperactive brains so, with some temerity, I enquired about the next step. "We don't want to say too much, but you can expect improvements to the hard-edged luminaire to which we are still fully dedicated," came the reply. So the launch of the wash lamp, certainly doesn't herald a lessening in their devotion to the progenitor product.

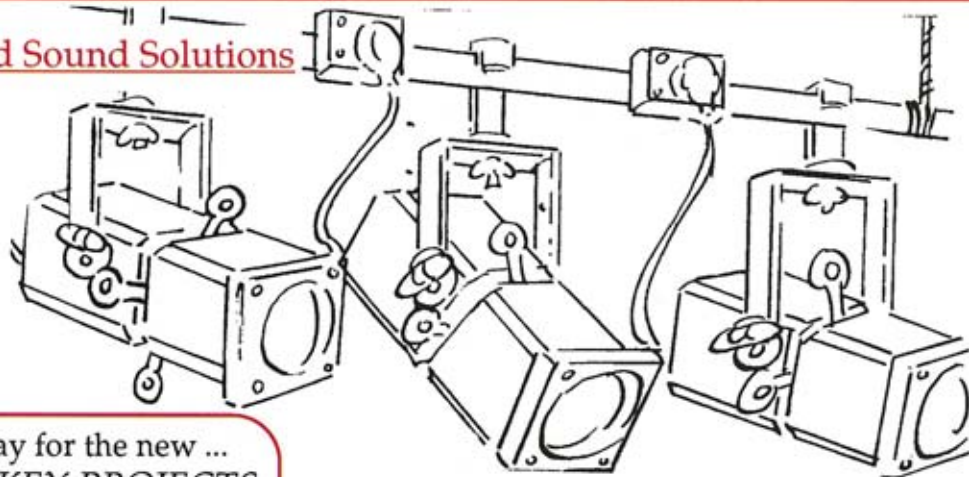
With all that going for it, Vari-Lite's coolest spot will doubtless be its hottest product yet.

The first we will see of the VL5 in the UK, other than during PLASA . . . will be if Mick Healey is able to get it on the road with Cliff Richard this autumn.

John Offord's earlier article referred to Vari*Lite as the ultimate 'dream machine'. Clearly Brutsché and his innovative colleagues believe they still have a great many more dreams to realize, before reaching that final goal. But if not the ultimate dream machine, then the ultimate soft machine? Close, I would say.

STOP PRESS: Shortly before this article went to press we were advised by Vari-Lite Europe that the new product would once again be out of public view at the show. So readers can picture privileged lighting designers spirited away from the PLASA show stand, stealing off to Greenford for special evening showings in the Samuelson Demonstration Theatre. The rest of us will have to remain unilluminated.

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Le Maitre - The PyroMasters

Europe's Leading High Tech Pyro Factory, produces a new range of Coloured Effects

Le Maitre, Designers and Manufacturers of the World beating Pyroflash System, have developed a new range of colours for their most popular effects. The Pyroflash range, long acknowledged world-wide, as the safest and most reliable system for detonating stage Pyro Effects, is now expanded effectively by over 80 new products, covering Jets, Gerbs, Fire, Smoke, Stars, Flashes and Fountains.

In addition to the standard colours of Silver, White and Gold; the dramatic new colours available are Red, Green, Amber, Mauve and Blue, making the Pyroflash System, the most comprehensive range of Stage Pyro Effects available world-wide.

The ability to produce this impressive inventory of new coloured effects, did not come over night, however. It has followed an 18 month period of intensive re-designing and rebuilding of Le Maitre's Peterborough Factory, coupled with the recruitment of leading chemists and engineers, to bring about the changes necessary for the development and manufacture of an ever growing list of product to satisfy the rapidly expanding stage pyro effect market.

Le Maitre Chief Executive, Colin Freeman, puts it "Everyone in the Industry knows of the problems we have had in the past, but we are well over that period now, and out of adversity has come progress!" And what progress. The factory is considered to be state-of-the-art, designed as it was in conjunction with The Royal Military College of Science and the Health & Safety Executive, resulting in a facility that is 'unique in Europe'. Few people witnessing the dramatic stage pyro effects generated by Le Maitre's Pyroflash System, can have an inkling of the complexities of the manufacturing process, which is made all the more intricate with all the necessary safety factors applied. Pressing rooms, for example, where the popular Gerb effects are manufactured, are fitted with 1/4 ton steel sliding doors with a fail-safe locking system that could have come straight out of Cape Canaveral! The preparation and mixing areas are kept scrupulously clean, and anti-static bracelets, overalls and special rubber overshoes, comprise the staff uniform. Custom built hydraulic presses, software driven, now perform the critical pressing



The high tech pressing rooms at Le Maitre's Peterborough factory.

operations once carried out manually, both speeding up the manufacturing process and ensuring optimum safety for the operating staff.

There is always a heavy price to pay for progress, and Le Maitre's investment to date is rumoured to exceed £500,000, demonstrating total commitment to ongoing excellence of design, reliability, safety and performance.

Another reason for Le Maitre's cutting edge position in the pyro industry, is the fact that their in-house display team perform all over the world, at all major events. Few people who witnessed the dramatic fireworks display fired from the roof of Buckingham Palace at the G7 Summit Royal Banquet, one year ago, could have realised that it was Le Maitre's Display team, headed by managing director Wilf Scott, that was responsible for the Royal mayhem. And yet, at almost every major Rock and Roll Concert, or outdoor event, Le Maitre products and personnel are the driving force behind the Fireworks and Special Effects.

There is of course, a world of difference between outdoor display product, and those that are featured on many of the World's stages, the Le Maitre Pyroflash System. However, the kind of technology it takes for split second timing in the firing of major outdoor effects, is exactly the same for indoor displays. Le Maitre Firing Systems have stood the test of time in both disciplines, and are universally acclaimed as being the safest and most reliable systems available, and at an affordable price.

The other link between the two markets, is of

course, the sheer experience gained from using their own product night after night in many different environments in many countries. Transport and licensing of pyro and fireworks is an extremely complex area, but to the Le Maitre team it has become second nature, such is their depth of knowledge and experience of this potentially explosive subject. Colin Freeman neatly sums it up by saying "We design it, we make it, and we Fire It!"

Le Maitre's new manufacturing facility

wouldn't function as well as it does without a first class team in place. Colin Lindsay, technical manager, has brought a wealth of experience from Brocks, and for the first time, Le Maitre now has a dedicated R&D department replete with laboratory equipped with the latest equipment. Factory manager, Graham Bax, also with a comprehensive background in fireworks, takes care of manufacturing, whilst other notables at Peterborough include Matt Baldwin, who revels in the title of pyrotechnic engineer; Keith Webb, display manager; Ronnie Towns, pyro crew and, last but not least, the ubiquitous Rodney Clarke, logistics manager who is based at the Croydon office.

Despite the severe recession that has dampened the spirits of many these past two years, Le Maitre Fireworks MD Wilf Scott is refreshingly optimistic about the future, whilst confirming that so far, 1992 "has been the busiest year ever". He goes on to say "We have several strings to our bow, and are sufficiently diversified so that a shortfall in one department is usually countered with an increase in demand in another." Wilf is quick to praise his Peterborough team, saying that "we have the best people in each department. It takes many weeks to train our production staff, and our employee turnover is the lowest in the industry. Now they have Europe's finest facility, we look forward to developing and manufacturing even more new effects."

Market leaders Le Maitre look set to capitalise on their investment, with an increasingly full order book, especially for the new colours in the Pyroflash range, when the many facets of Le Maitre will undoubtedly become known as the Many Colours of Le Maitre!



Colin Freeman, Le Maitre's chief executive.



Caught behind bars: Wilf Scott, MD and display manager Keith Webb.

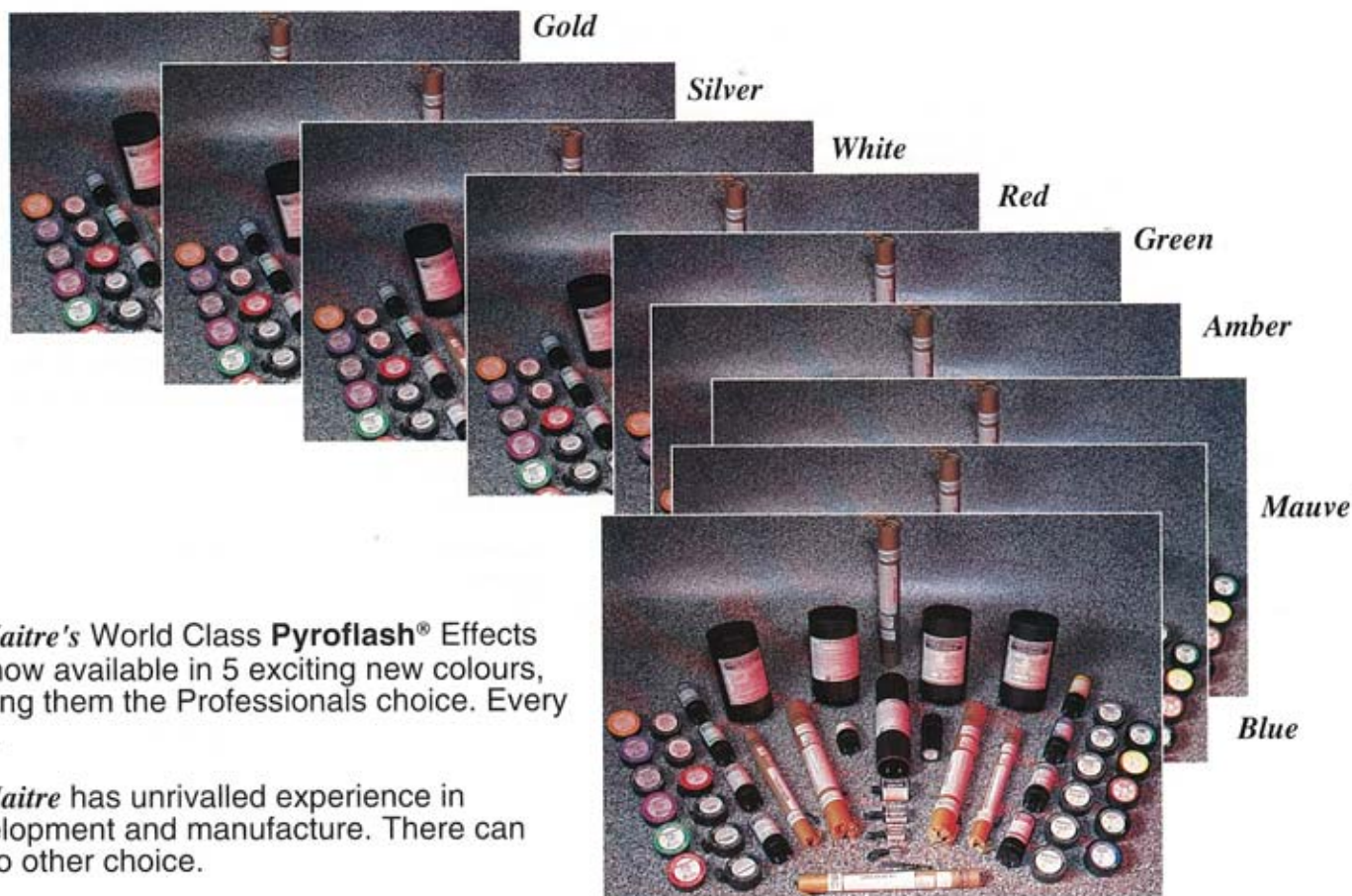


The ubiquitous Rodney Clarke, logistics manager.

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MIDI SHOW CONTROL AND MULTI-MEDIA

Charlie Richmond Distills Two MMA White Papers

Because it evolved quickly, the MIDI Show Control (MSC) standard is not widely understood and much of its power goes unappreciated, even by MIDI manufacturers. In reality, MSC has the universality and flexibility to be the backbone of a complete multi-media communications and control protocol.

Watching the computer industry grapple with the term 'multi-media' provides much entertainment these days. Many editorials begin with something like 'ask anybody what multi-media is and you'll get a different answer . . .' When there is consensus, it typically describes multi-media as a video display (or slides of computer graphics or videotapes made frame by frame) accompanied by sound from a pair of 75mm loudspeakers (or cassette deck with 'Dolby Mono' on one track and slide changes on the other.) Those of us responsible for true mixed media productions know better.

If more computer multi-media experts experienced good live productions, they might discover there are all sorts of (read 'multi') media involved with performance technology. Surely any multi-media specification should include technical elements essential to productions and shows. However, spotty publicity for MSC (its developmental working title was the uninspiring 'Theatre Lighting Cues Proposal') along with low awareness of all the components required for true multi-media has perhaps caused the computing industry to overlook MSC as a potential control standard - at least until now. And the public has not discovered MSC for multi-media because the computing gurus haven't. This needs to change!

Fortunately, some changes have begun. The Interactive Multi-media Association (IMA) recently formed a MIDI Special Interest Group (SIG) to provide an open forum for the discussion of MIDI topics as they relate to multi-media computing and to act as the focal point for technical exchange between the IMA and the MIDI Manufacturers Association (MMA). Representing the interests of MIDI users and vendors within the IMA, the SIG is currently studying, amongst other MIDI items, the MIDI Show Control Protocol.

MIDI Show Control 1.0

The current MSC protocol was designed to be easily expanded. It defines 55 media elements (called Command_Formats) within seven general categories and has room to add an almost unlimited number. It can address 112 individual devices and 15 groups within each Command_Format. 26 commands with varying complexity and multiple extensions have been defined again with the ability to expand almost without limit. Cues, Cue Lists, and Cue Paths may be labelled with numbers up to 50 digits long.

Systems with MSC light major Broadway shows including 'The Will Rogers Follies', 'Jelly's Last Jam' and several productions around the world of 'Miss Saigon'. They run lavish productions in Las Vegas including 'Siegfried & Roy', 'Into the Night' and the new audio system for the Mirage Hotel's 'Volcano'. At Disney World, they control Disney/MGM Studios' 'Sorcery in the Sky', 'Indiana Jones Epic Stunt Theatre' and 'The Little Mermaid Show', Magic Kingdom's 'SpectroMagic Parade', 'Anniversary Parade' and 'Surprise

Celebration Parade' and Pleasure Island's 'New Year's Eve Celebration.' At Universal Studios they run 'The Riot Act' (Hollywood) and 'The Wild, Wild West Show' and 'Rocky and Bulwinkle' (Florida). They controlled the production elements for Nintendo's touring trade show display, 'PowerDome Tour 1991' and recently controlled multi-dimensional sound and effects for IBM's industrial road show, the IBM 1992 Recognition Events. And Nintendo and IBM were probably unaware of their multi-media shows being controlled with an international standard called MSC!

Despite their credentials these users alone will not make MSC ubiquitous. The people we need to reach are the same ones who helped MIDI redefine the musical world - the average computer user searching for the tools to make multi-media a reality. And the way to reach them is the same; just like MIDI and musical gear, MSC and media gear will become inseparable as soon as every manufacturer of media equipment puts MSC in their new products. We must remind designers and users alike of the dramatic advantages of being able to connect together stock equipment straight off the shelf and have it all work together perfectly the moment it is switched on!

For example, to be added to a mixed-media show, the average slide projector still requires what amounts to a custom interface. Instead,

we should be able to simply plug a MIDI cable in and send MSC 'Slide Projector' messages. When it becomes this easy to control all these previously obscure devices, we will see a renaissance in show technology and new media forms by people who previously had neither technical expertise nor the money to buy it.

Marrying MSC and Multi-Media:

A quick-time Example

One example of a multi-media computing application is the Macintosh QuickTime (QT) environment, which is currently undergoing further standards definition. Though most developers see QT as a final presentation format, live show integrators view it as just another show element, possibly tied into a show control system. The Mac itself would probably be too busy controlling graphics and related peripherals to be the show control system as well, so it will most likely receive show commands via an external connection. Besides, live operator interaction with the Mac via the mouse would be visible on the video monitor and inappropriate if the audience was viewing the video image. To easily integrate QT presentations with a live performance, QT should respond as an intelligent controlled device using a language specifically developed for communications between intelligent media

MSC 1.0 SUMMARY PROTOCOLS

The current version of MSC encompasses the following devices and commands:
COMMAND FORMATS: (112 Devices/15 Groups addressable within each Format)

Lighting

Moving Lights
Colour Changers
Strobes
Lasers
Chasers

Sound

Music
CD Players
EPROM Playback
Audio Tape Machines
Intercoms
Amplifiers
Audio Effects Devices
Equalizers

All Types

Machinery

Rigging
Flies
Lifts
Turntables
Trusses
Robots
Animation
Floats
Breakaways
Barges

Video

Video Tape Machines
Video Cassette Machines
Video Disc Players
Video Switchers
Video Effects
Video Character Generators
Video Still Stores
Video Monitors

Projection

Film Projectors
Slide Projectors
Video Projectors
Dissolvers
Shutter Controls

Process Control

Hydraulic Oil
H2O
CO2
Compressed Air
Natural Gas
Fog
Smoke
Cracked Haze

Pyro

Fireworks
Explosions
Flame
Smoke Pots

COMMANDS: Most Commands can specify Cues, Cue Lists and Cue Paths
- each labelled with up to 50 digit numbers.

GO	ALL_OFF	SEQUENCE_+	MTC_CHASE_ON
STOP	RESTORE	SEQUENCE_.	MTC_CHASE_OFF
RESUME	RESET	START_CLOCK	OPEN_CUE_LIST
TIMED_GO	GO_OFF	STOP_CLOCK	CLOSE_CUE_LIST
LOAD	GO/JAM_CLOCK	ZERO_CLOCK	OPEN_CUE_PATH
SET	STANDBY_+	SET_CLOCK	CLOSE_CUE_PATH
FIRE	STANDBY_.		

With the above categories alone we believe this is a viable protocol for multi-media control. But MSC is open and can easily be expanded; anyone with suggestions for new command_formats or commands is invited to join on-going MSC working group discussions where all proposals are seriously received.

devices. Using MSC 1.0, QT could respond to one of the 'video' or projection command_formats whilst future versions of MSC could incorporate new categories such as 'multi-media' or 'computer presentations'.

It has been suggested that QT incorporate MIDI Machine Control (MMC) commands, but comparing the command structure of MMC with MSC it would be far more logical to use MSC if a single protocol had to be chosen. MMC is a more technical language and presumes the controlled device is relatively dumb, requiring the relationship to accomplish most functions and uses a substantial amount of controller time to handle the target device. QT is an intelligent application with built-in power to search, chase, lock to code, load shows, cue lists and cue paths, etc. MSC is a more appropriate choice since it assumes all devices are reasonably intelligent and needs a minimum of communication to perform very complex functions.

In a large control system, devices are frequently both controllers and controlled devices. MMC would be a logical protocol for QT to use as a controller since MMC devices are typical of types it normally controls, such as video tape machines, video disc players and audio playback devices. These devices are becoming more intelligent, however, so we are hoping they will eventually support MSC as well as MMC. Depending on the needs of the show, they could also be controlled directly by a show control system such as Stage Manager via MSC or MMC. Giving QT the ability to control peripherals via MSC as well as MMC would greatly increase flexibility for the system designer as controlled devices get more intelligence. MSC is fundamentally interactive, allowing intelligent devices complete freedom of control - very useful when several people simultaneously program different elements of

the show on different controllers.

There are many other software and media products similar to QT on a wide variety of computer and dedicated hardware platforms for which this example would be equally valid.

The Next Version of MSC

The MSC 1.0 specification expressly cautions against use in safety-critical conditions since this first version has not been designed for 100% fail-safe control. Certainly MSC is not yet intended to serve as a critical link between intelligent controllers and relatively unintelligent peripheral devices which have potentially uncontrolled responses to corrupt data.

To quote from the spec:

In no way is this specification intended to replace any aspect of normal performance safety which is either required or makes good sense when dangerous equipment is in use. Manual controls such as emergency stops, deadman switches, confirmation enable controls or like safety devices shall be used for maximum safety.

Automatic safety devices such as limit switches, proximity sensors, gas detectors, infrared cameras and pressure and motion detectors shall be used for maximum safety. MIDI Show Control is not intended to tell dangerous equipment when it is safe to go; it is only intended to signal what is desired if all conditions are acceptable and ideal for safe performance. Only properly designed safety systems and trained safety personnel can establish if conditions are acceptable and ideal at any time.

The MSC working group is now defining the next version of MSC, adding 'Two-Phase Commit' commands designed for fail-safe control. Equipment response in the case of communication errors or E-stop conditions will

be controlled, safe and predictable. Some of the most qualified people in the show and computer industries are involved and we invite all interested parties to participate in the 'MIDI Forum' on USITT's Callboard Network, where our discussions take place.

Along with wider awareness of the standard, we look forward to involving the multimedia computing industry in improving, expanding and refining MSC. Only by creating a standard which meets the needs of all potential users will we truly have a communications language that exemplifies the real meaning of Interactive Multimedia.

This article is a distillation of two 'white papers' by Charlie Richmond, of Richmond Sound Design, Vancouver, Canada, published in MIDI Manufacturers Association's Technical Standards Board Bulletin in July of this year.

Anyone interested in getting involved with the IMA MIDI SIG should contact Peter Farrett of IBM in Austin, Texas. Telephone (512) 838 9819.

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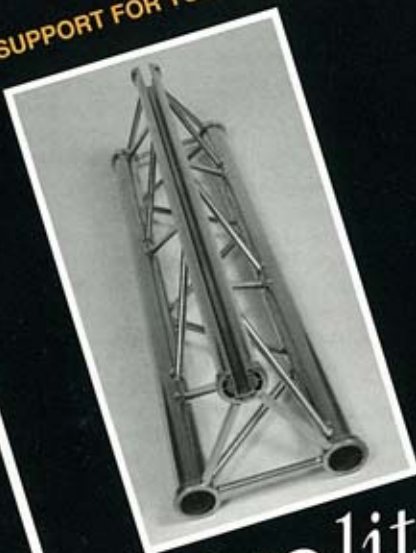
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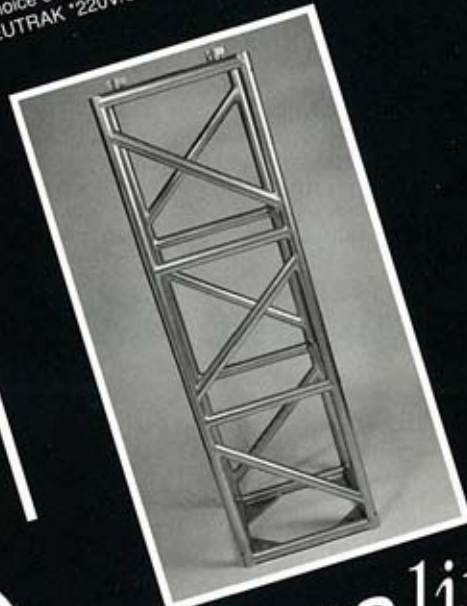
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BBC, Top of the Pops



RAMSA LIVE PERFORMANCE MIXERS

Ken Dibble Test Drives the new WR Series

The WR-S4400 series 4-bus mixers are based on the circuitry and design principles of the widely respected WR-S840 8-bus desks but are considerably more compact and more competitively priced. The new S-4400 series are dedicated live performance desks, of rugged heavy duty construction, providing all the essential facilities but none of the gizmos and frills which seem attractive at first glance but which in practice serve only to clutter up the panel. Also the build quality is superb. In other words we are looking at a professional live sound desk, rugged enough for the road whilst flexible enough for a permanent installation, but realistically priced so as to be within the reach of most serious users. The WR-S4400 series is available in three sizes, the WR-S4412 12 channel, WR-S4416 16 channel and the WR-S4424 24 channel. The three versions are of identical specification and construction, have identical facilities and layouts, differing only in the length of the console. The review sample was a brand new WR-S4416 in unopened Matsushita packaging, ex-Yokohama, Japan.

Facilities and Layout

The input channels are mono and comprise an input section, EQ section, auxiliary output section and channel fader/routing section.

Two switch selectable inputs are provided. Input A is via an XLR/3 compatible connector and has individually switchable 48V phantom power, whilst input B is via a TRS jack and does not have the phantom power facility. Both are electronically balanced. The selected input is fed to the usual rotary channel gain pot which is dual scaled -60dBu - +4dBu (XLR) and -54dBu - +10dBu (TRS jack). The channel



Ramsa's WR-S4424 24 channel professional 4 bus mixer - top of the WR range.

'signal' (-10dBu) and 'peak' (+12dBu) leds, and the TRS insert jack come immediately after this input conditioning stage.

The EQ section comprises a 70Hz fixed turnover shelving control (bass), a 12.5kHz fixed turnover shelving control (treble) and a single sweep-mid facility with a range from 200Hz to 6.3kHz. The range of control is +/- 15dB on all three controls and no EQ by-pass facility is provided.

The auxiliary section comprises four

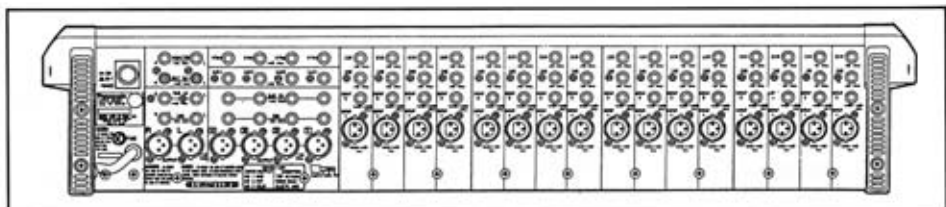
auxiliary level controls and two switches. In the 'normal' mode, all four auxiliaries are post-fader whilst by pressing the 'pre' key auxiliaries #3 and #4 become pre-fader, post EQ. The second key is labelled 'direct' and enables the post-fade output from auxiliary #1 to be accessed via a 'direct-out' jack socket on the rear panel, thus enabling in-line operation for multi-track recording applications or the use of dedicated external processing to any particular channel without tying up the overall auxiliary channels. This output is unbalanced and the nominal level is -2dBu.

The main channel level control is a 100mm long travel fader with a wonderfully smooth action, feeding the usual pan pot and routing buttons to groups 1/2, 3/4 or direct to the L/R masters. A channel muting switch and pfl facility is also provided.

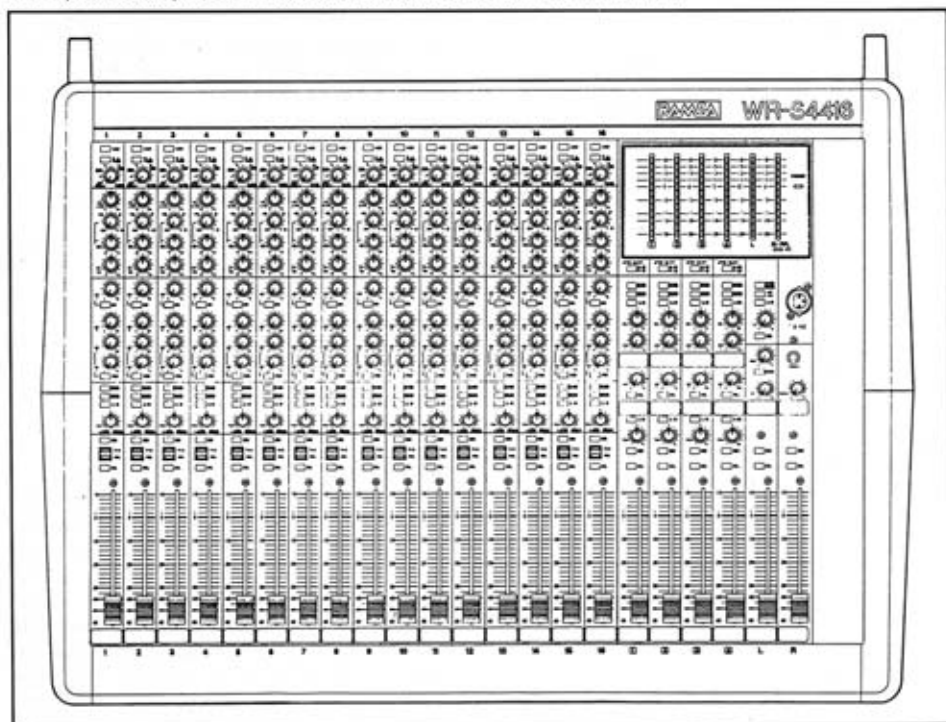
The output stage comprises the usual four group faders with panning to the left and right channel masters, all of which are provided with direct (sub-mix) input and pre-fader insert jacks with group muting and pfl keys. Unusually, all six outputs are provided with mute keys and the four sub-groups also have L/R routing keys, thus enabling a sub-group to be used to feed an external circuit without necessarily also feeding the masters. All six outputs appear electronically balanced on XLR/3 compatible connectors rated at +4dBu maximum. In addition the L and R outputs appear as a pre-insert, pre-fader 'record out' signal on two phono sockets at -10dBu - but these are not separately buffered and there are no level controls for these outputs.

The four auxiliary buses appear at four auxiliary master controls, with pfl, and are available unbalanced, on jacks, at +4dBu nominal, +20dBu maximum. Four auxiliary returns are provided, each with level, pan and routing controls, again at a nominal operating level of +4dBu.

The monitoring section is fed from the master L and R outputs except that when any pfl key is depressed, this takes priority. A ganged Monitor Master level control is provided and feeds the monitor L and R output jacks at +4dBu unbalanced. In addition a separate 2 x 160mW



Above, and below, the ins and outs of Ramsa's new desk - the WR-S4416.



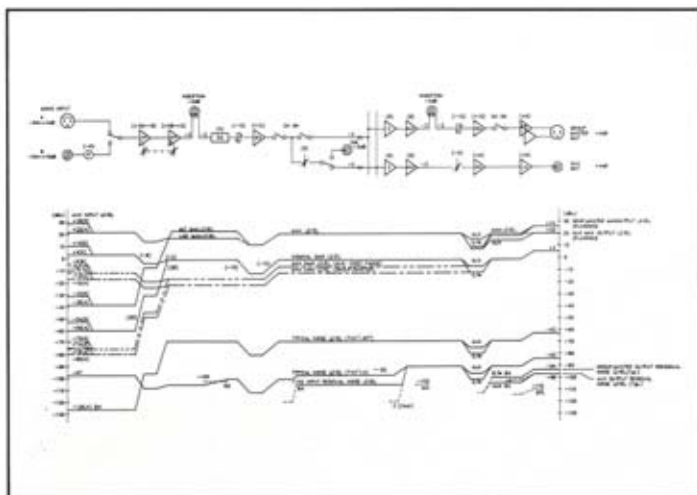


Fig 1. Level schematic.

headphone amplifier with its own independent volume control is connected to this output.

Unusually in a budget desk, a talkback facility is provided. This comprises a front panel XLR/3 compatible socket, with 48V phantom power, with level control and routing keys enabling the stereo output channels, all four sub-groups or all four auxiliary groups to be addressed.

Metering is by six 12 segment, three colour bar graph displays with VU ballistics. In the 'normal' mode, meters #1 through #4 are connected to the four group outputs, meter #5 to the left channel master output and meter #6 to the right channel master, or pfl whenever any pfl key is depressed, an led indicator being illuminated to show this latter condition. Alternatively, meters #1 through #4 can be assigned to the four auxiliary outputs.

The mains power supply is in-built, with a heavy duty latching on/off switch on the rear panel and an attached AC line cord.

The desk is of an entirely logical layout and unusually in a compact design, has all input and output connectors lined up behind the corresponding input or output channel. The connectors used are particularly robust and of high quality and pots have a really smooth action with a very light centre detent where appropriate. The keys too have a pleasing reactive feel, all making for a very professional and intuitive response from the desk generally.

I have just one or two minor criticisms. Firstly, I do not like attached AC line cords and find these are always an encumbrance when handling the desk or setting up. Secondly, I find the vertical spacing between the controls just a smidgen too tight and thirdly, I would like to have seen an EQ by-pass key and a 6dB/oct 80Hz high-pass filter - a facility I find invaluable in keeping out unwanted colouration and general LF garbage, especially on speech and acoustic stringed musical instruments. Also, and this is more of a personal comment than a valid criticism - I would like to see just two stereo line channels with switchable RIAA equalisation included in the package - just to avoid tying up four input channels and having to operate faders in pairs when music replay is required. I have never been able to figure out why this is not a standard provision on all road desks, instead of which it is the exception rather than the rule.

Presentation and Construction

The WR-S4400 series mixers comprise just three modules - a four channel input module, an output module and a regulated power supply. Thus the WR-S4412 gets three input modules, the WR-S4416 four and the WR-S4424 six, the output and power supply modules being common to all three variants.

Ten years ago, in a mixer of this level of sophistication, the channel cards would have been stuffed full of components, probably requiring a double-sided pcb. Because of the extensive use of integrated circuits however, the WR-S4400 pcbs look almost empty - as if three quarters of the components are missing! In fact, were it not for the dictates of the control and connector panel layout requirements, the electronics could be accommodated on a pcb no larger than a cigarette packet.

Each input module comprises a screen printed, pressed steel top and rear plate enclosing four separate channel cards, with all controls and connectors mounted on the pcb. Interestingly, the edge connectors are at the front end of the pcbs, not at the bottom, and the ribbon bus is run across the front lip of the chassis inside a screened compartment. The output module is of similar construction, with four identical group cards, each including two auxiliary send and return channels, a left master card which includes the monitor and talkback circuits and a right channel master which includes the headphone amplifier. The meter bridge is a separate assembly which mounts across a row of cutaways in the top edge of the six output boards. The power supply is of substantial proportions, comprising a large double screened mains transformer with copper banding and transverse mu-metal bridge feeding a fully stabilised high-current regulator board mounted right inside the RH end cheek which also forms the heat sink for the four regulator devices.

The chassis comprises a bedplate and two end cheeks, all of pressed steel. Whereas the modules provide the top and rear covers, the bedplate provides the structural front lip and bottom cover. The front lip, however, comprises a series of slots through which the modules are inserted and the ribbon bus run in a channel on the front face. Thus, once the cosmetic front cover is fitted the bus is fully screened. All the chassis components are assembled by means of screws and is therefore readily dismantled for service access.

The modules are held in place by screwing to the structural front lip member of the bedplate pressing and by an external rear lateral bracing member. Finally, come the cosmetics, which comprise moulded plastic side and front fenders and a cover strip to conceal the rear brace and module fixing screws. The net result is a sturdy, easily dismantled, entirely practical yet extremely attractive presentation, which is superbly engineered and incorporates a number of novel assembly ideas.

On the Road

The desk was used at two live gigs driving a

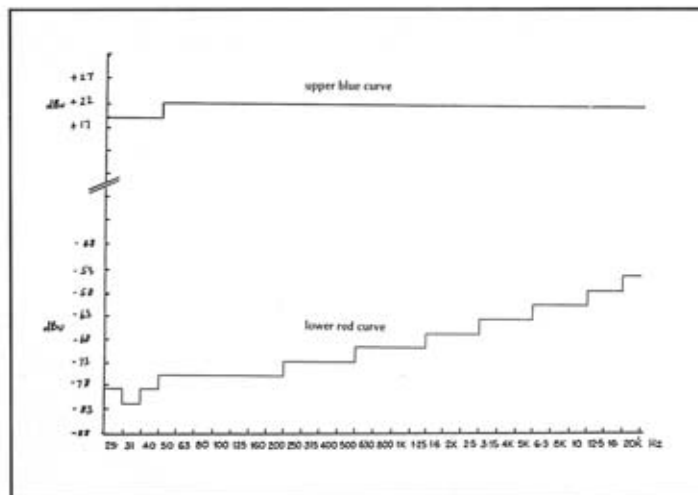


Fig 2. One third octave spectral response at clip level Vs noise floor.

2-way active PA consisting of Bose 802s with EV TL-606 bass cabinets and EV Stage 100 foldback, powered by Carver, with the desk front-of-house on 20m of multiway. A pair of Urei 31-band graphics were patched into the main out inserts and a Drawmer DL-221 dual compressor patched into the two vocal channels. Auxiliary #1 was used to feed the foldback system. It was found to perform superbly. It behaved just like a much bigger concert desk, with masses of headroom, superb gain structure at all drive levels, intuitive channel EQ controls and superb 'feel' in all respects. In fact, apart from the close vertical spacing of the controls and the smaller physical format, it felt just like getting behind a Midas or PM-3000. It has to be the best compact desk I have yet encountered from an operational viewpoint.

In the Lab

Whilst there is neither the time nor the space to run a full lab report, a few measurements just to see what is going on are never amiss, and are often quite revealing in identifying the strengths and weaknesses of a product and getting a feel for the way in which the specification is met in practice. So a quick look at the EQ characteristics, the gain structure and the metering seemed in order - that is assuming it still works after having dismantled it for the pictures and to scrutinize the build quality!

I consider the gain structure of a desk as one of the primary technical considerations. It is the explanation as to why one desk seems to be well in control and to drive the PA system with ease whilst another is struggling for level or continually peaking and feeding back. But clean, noise-free level requires high quality line driving amplifiers and robust power supplies, which is why lower priced desks are often not so hot in this respect, and this is frequently what sorts the men from the boys.

Fig. 1 shows the Level Schematic of the WR-S4400 series. Although the internal nominal operating level is shown as -2dBu the operating level as seen from the user is +4dBu. That is to say, with the input gain control set to the fully counter clockwise +4dB position, all EQ and the channel and group pan pots at centre detent, and with the channel, group and master faders at their calibrated 0dB positions, the pfl VU should read -2dB and the group and master meters 0dB, with +4dBu input and +4dBu at the output. So the first test carried out was to check this level structure, with the result that the review sample conformed exactly. From that starting point there is 64dB of gain available at the input stage and a further 10dB of gain available at the channel, group and master faders. Interestingly however, the output signal at the channel direct out jack, with

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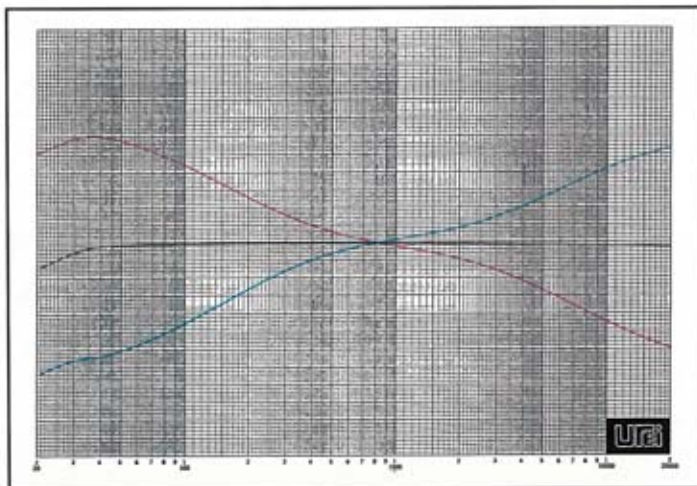


Fig 3. EQ response - flat, bass, treble and 0dBu level.

auxiliary #1 at maximum, was measured at 0dBu, not -2dBu as shown.

The next test was to identify the clipping levels. By monitoring at the channel direct out jack, the signal peak led was found to illuminate at the +14dB and onset of actual clipping at +23dB. In other words, there is a clear 9dB of headroom available even above the signal peak led, before the input channel is driven into clipping. With the input channel kept clean, onset of clipping at the group and master outputs was also measured at +23dBu. These results should be compared to the specified maximum levels of +22dBu (channel), +20dB (group) and +24dB (master) as shown on the Level Schematic of Fig. 1, and are pretty close.

Noise is another important consideration as this determines the available dynamic range and realistic gain levels that can be deployed. Fig. 2 shows the 1/3rd octave analysis of the desk response at onset of clipping (upper, blue curve) against the self-noise level with the inputs open circuit, the channel gain control at maximum (+64dB) position, EQ and pans to centre and the channel, group and master faders at 0dB (lower, red curve). At 1kHz for example, the residual noise is -70dBu and the maximum level +22dB. This gives a dynamic range of 92dB, rising to 97dB at 100Hz and falling to 82dB at 10kHz. Comparison to the Level Schematic of Fig 1 shows 62dB as the typical noise level under these operating conditions, giving 86dB as the rated dynamic range. So we're not far adrift here either. I did find a slight tendency to instability at this level of gain but did not investigate further.

Finally, I thought we should see what the EQ section is doing. Given the amount of headroom available before onset of clipping, and taking the +/-15dB rated EQ range, meant I could safely test at 0dBu. Fig. 3 shows the

frequency response of the desk with 0dBu input, channel gain set to +4dB, EQ and pans to centre and channel, group and master faders at 0dB, producing 0dBu at the main outputs. It can be seen that the response is ruler flat between 50Hz and 20kHz with a 3dB/oct roll-off below 50Hz.

The red plot shows the effect of turning the bass control to its maximum +15dB setting and the treble control to its minimum -15dB position, whilst the blue curve shows the opposite - i.e. bass at -15dB and treble at +15dB. Note the exceptional uniformity and symmetry of the filter curves and the maintenance of the -3dB/oct roll-off below 50Hz. The red plot shows the effect of turning the bass control to its maximum +15dB setting and the treble control to its minimum -15dB position, whilst the blue curve shows the opposite - i.e. bass at -15dB and treble at +15dB. Note the exceptional uniformity and symmetry of the filter curves and the maintenance of the -3dB/oct roll-off below 50Hz.

Fig. 4 shows the effect with the bass and treble controls at their centre detented positions moving the mid control to its extreme +/-15dB settings. The first red plot is with the mid sweep control set at its full counter clockwise position, which is scaled at 200Hz, the second (blue) plot is at the 12 o'clock position (approximately 1.2kHz) and the third (red) plot is at the fully clockwise position, scaled at 6.3kHz. Again we find exceptional symmetry and superbly uniform filter envelope, and unusually good agreement to the sweep control scaling.

Pricing, Dimensions and Summary

The WR-S4412 retails in the UK at £1515.00, the WR-S4416 at £1808.00 and the WR-S4424 at £2408.00 excluding VAT.

The end profile of all three desks measures 546mm wide by 165mm overall height. The

WR-S4412 is 650mm long, the WR-S4416 766mm and the WR-S4424 998mm. The WR-S4412 weighs 18.5kg, the WR-S4416 21kg and the WR-S4424 27kg.

Whilst perhaps not the most compact as compacts go, these are by no means large desks considering the facilities provided. Also they are far from lightweight, but that is due to the large power supplies fitted and the sturdy mechanical build quality.

From an operational aspect the desk altogether belies its compact proportions and pricing level. It is totally responsive, never runs out of headroom, and has ample drive level on all outputs - even the auxiliaries and monitor outputs are at +4dBu nominal with +20dBu headroom. It is also exceptionally flexible with the controllable channel direct-out facility, inserts on all channels, groups and masters and the group routing keys, and has the reassurance of properly calibrated metering. In short, it is simply a joy to use.

Of course, there's always the proverbial ha'peth of tar element, and every operator will have their own views on what should or should not have been included to round off the package. As mentioned earlier, I would like to see an 80Hz, 6dB/oct hi-pass filter and an EQ by-pass key added to the input channels and a couple of stereo line channels thrown in. Others would probably want to see two bands of mid range EQ - but then we are looking at a larger physical format and begs the question of where do you stop?

For my money, the engineers at Ramsa have done a superb engineering job in getting a desk with so many facilities, at a specification level which is virtually on a par with the large format road desks, and which is so responsive, into so compact a package. And at these prices I have yet to find anything else which even comes close.

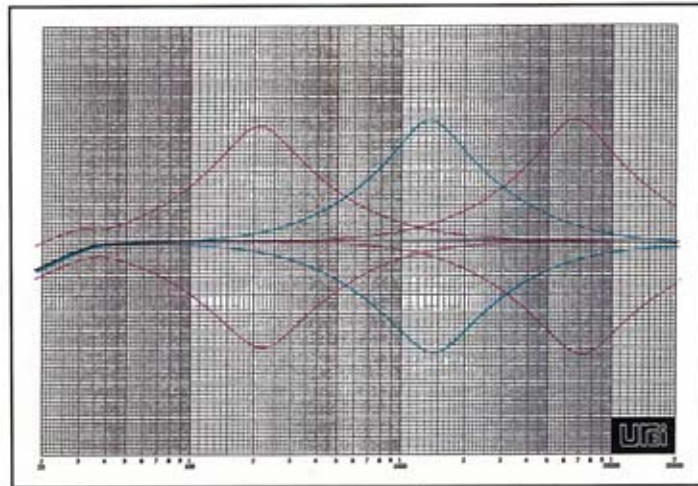
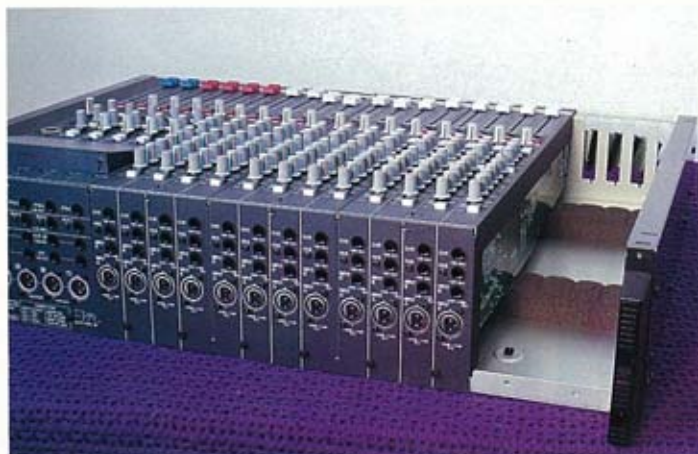
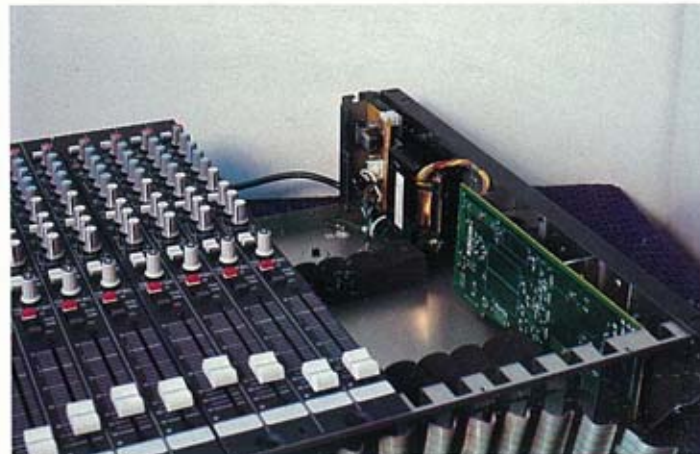


Fig 4. EQ response - midrange & 200Hz, 1.2kHz & 6.3kHz.

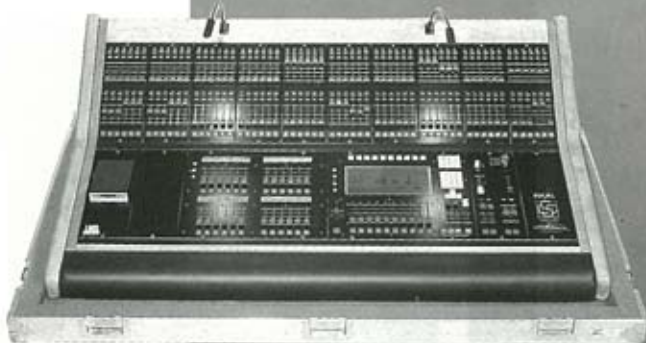


Rear view with I/P module removed.

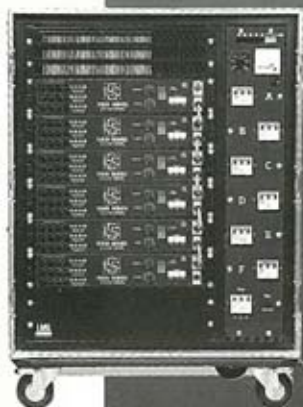


Chassis with output module removed showing ribbon bus and power supply.

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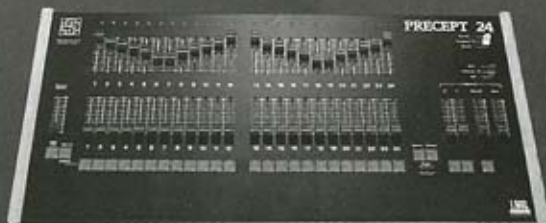
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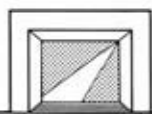
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EQUIPMENT *News*

Multiform at PLASA

At this year's PLASA Light and Sound Show, Multiform Lighting will be showing for the first time two exciting additions to their range of professional stage lighting control systems.

The Zodiac is an 18 channel two preset memory lighting control desk with 180 level memories that can be used as 10 pages of 18 scenes assigned to the B preset. Alternatively they can be accessed as a block of sequential memories via GO and BACK buttons using an illuminated display to indicate the current and next scene numbers in use. In addition the Zodiac includes a separate chase section that can be programmed with eight 64 scene level chases. These can be tagged together to form a single 512 scene chase. Facilities include single stepping, sound trigger, crossfade, and one shot operation. As well as 0-10V analogue outputs the desk provides options for DMX512 and MIDI format serial outputs and a memory card is provided for storage of programmed data.

Complementing this product is the DMX648 a competitively priced 48 channel DMX or MIDI demultiplexer housed in a 19" x 1U mains powered chassis. The unit can decode DM512, MIDI Music or MIDI Show Control format data and is provided with 8 six channel 0-10V outputs to drive dimmer packs or other low voltage controlled devices. Also on display will be the latest version of their 60 channel multi-level analogue soft patching unit the Multipatch, which is now available with backlit LCD display, improved operating software and an option for DMX512 input or output.

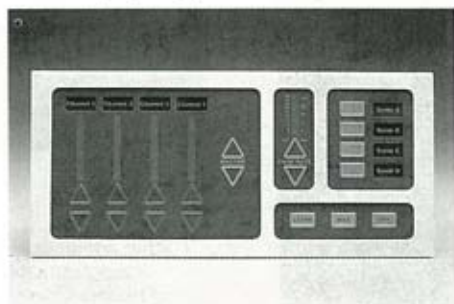
After ten years of successful sales the famous Multiphase 420 series of integrated four channel effects controllers has undergone a major redesign to include a 16 program chase pattern generator and additions to the range of output connector options. The new models are designated MkIII and are distinguished from the earlier models by two colour printing of their front panels.

For more details see Multiform at the Show on stand A86.

Lytemaster and Compli from Polatron

US lighting giant Genlyte/Lightolier has licensed its lighting control technology called Lytemaster and Compli to Polatron Controls Ltd of Watford.

Polaron's MD Joe Steltzer, commenting on the licensing arrangement said: "We are looking forward to providing the industry with a range of highly technical products at competitive prices. The modular nature of the range ensures a simple system design process even for the most demanding lighting specifications."



Polaron are adding Compli and Lytemaster products into their Lightlink range of architectural dimming systems. The Lytemaster and Compli Scenist control units have integrated 4 x 1kW dimmers. Other Lytemaster and Compli products can drive either Lightlink 3000 and 2000 dimmers which offer superstabilisation and true hardfiring or other commercially available 0-10V analogue dimmers. To cater for the ever-expanding energy management market, the Daylytemode photocell controller provides sophisticated dynamic control of artificial light levels. Polaron are offering Lytemaster and Compli products either as off the shelf items or as part of fully project engineered systems. Graham Bowen, Polaron's marketing manager responsible for the new products is actively looking for stockists and international distributors.

Contact Graham Bowen on (0923) 240272 for more details.

Toa's Dual Leveller/Limiter

To be launched at the PLASA show (stand B64) by Japanese sound and communication specialist Toa, the new L-1102 Dual Channel Leveller/Limiter protects loudspeaker system against excessive amplifier gain.

Two channels are available in either function and each channel is equipped with a noise gate. If the limiter is selected, speakers can be protected regardless of amplifier gain as the amplifier speaker output is used as a sense input; thus operating a VCA to control line output. If the leveller function is selected the unit acts as a compressor and the output level can be adjusted within the range 0dB - 20dB. If the 'link' control facility is operated, it is possible to duplicate the settings from channel 1 to channel 2. The L-1102 incorporates a gain reduction meter to check the operation of each channel.

Hiletron in UK



Michael Stevens & Partners have been appointed sole UK distributor for the Hiletron range of public address equipment which comprises mixers, amplifiers, signal processors and speakers. A complete information pack is available from Michael Stevens & Partners Ltd, tel 081-460 7299.

Break Resistant Mirror

Lightwave Research Inc. has introduced a break resistant optically flat surface mirror for their line of automated lighting products. The new mirror is impervious to mirror breakage normally associated with travel and rough handling. For details, telephone (512) 836 2242.



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New Additions at Canford

Manufactured specifically for Canford Audio, the C100PB is one of a family of three condenser gooseneck microphones in the Canford range. The C100PB is a 100mm slimline black gooseneck electret microphone with a threaded base intended for mounting directly onto rackmounting units, mixing consoles etc. The unit is not intended for use with phantom powered microphone inputs, but requires a single-ended supply for its operation. The C100PB talkback is suitable for intercom systems, mixing consoles, paging and conference systems.

The company have also recently launched the Canford Pro-Interface Mk.2 for interfacing semi-pro equipment to professional line levels is available in PCB and rackmount versions. The PCB version is supplied electronically balanced as standard, but has the provision for mounting of optional Lundahl transformers.

A multiturn preset provides gain adjustment for output levels up to +20dBm. The rackmounted units are housed in a 1U case and offered in combinations of one or two units with XLR/phono connectors fitted on the rear panel. The gain trim presets are accessible externally from the front panel. Units are available either electronically or transformer balanced as standard.



Further additions to Canford's catalogue are the American manufactured Oxmoor programmable equalisers, pictured above, digital control attenuators, mixing matrices, distribution and buffer amplifiers.

For further information contact Canford Audio, telephone 091-417 0057.

Mango Aims for Tastier Sound

Mango Electronics is a relatively new name to the disco and club market with company chief Colin Purves coming back to pro audio after a spell designing 36kW amplifiers for vibration testing. No wonder he was 'unimpressed' by many of the compact sound systems around today.

Purves designed house sound systems before entering the industrial market. When he re-entered the sound reinforcement market a couple of years ago, he avoided the more obvious markets in favour of an interesting niche - swimming pools. The typical swimming pool is a highly reverberant environment in which quality sound reproduction is extremely difficult. Purves' solution is a novel enclosure design in which a driver faces each end of a tube, with a mechanical distribution cone placed in front of it.

According to Purves, his design eliminates cabinet resonances that can cause poor bass definition. The two drivers combine to create a 'point source' performance with omni-directional dispersion characteristics. Some people might expect that non-directional units would be a recipe for disaster in a reflective room but Purves said the opposite was the case. His approach was more appropriate in difficult acoustic conditions, where it was important to consider the speakers, amplifier and room together, he said. Having made an impact on the swimming pool market.

Purves is now producing disco versions of his designs, dubbed Thundertubes. Purves claims the units are visually less obtrusive than conventional equivalents, while forming a powerful stereo image if two right and two left speakers are used in 'crossed pairs' with lefts and rights diametrically opposed.

Purves also produces the Mango Thunderseat, a sub bass unit disguised as furniture and the Thunder Horn, a unit whose adherents include the RAF during jet aircraft sound simulation. This unit will soon be supplemented with a unit tentatively called Atilla The Horn. If there is a drawback it is availability, as Purves only make his units to order, albeit with only high quality UK produced components.

For further details contact Mango in Hastings, telephone (0424) 428020.

Starlight Laser Express

Starlight Lasers of Windsor was set up earlier this year with a view to providing a low-cost mobile laser display for the medium size nightclub or disco. The company has commissioned the building of a variable high power argon laser (class 3B) using up-to-the-minute technology, which runs off a normal domestic 13 amp power supply and is air-cooled. No water or cumbersome hoses are necessary as with most lasers, according to the company.

The laser scanning control system allows the creation of tunnels, starbursts, flat beams and graphics in three colours. The laser is available for hire and comes with a fully trained operator, who is qualified in accordance with the Health and Safety Executive and Local Authority regulations (PM19). All the equipment is compact and can be assembled with ease. The hire includes a fog machine which provides the tunnel effects that lasers are known for.

For further details on the hire package, contact Starlight Lasers in Windsor, telephone (0753) 833011.

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1989

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1990

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1991

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1992

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Tribute

1993

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The Lighting Directors

Sachtler's new Director Series of luminaires is a comprehensive range of Fresnel lighting fixtures.

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Accessories such as poles, stands, clamps and spigots are all part of the comprehensive Sachtler Director series, which comprises the following lights:

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- Director 300H (Tungsten halogen)
- Director 270D (HMI Daylight)
- Director 575D (MSR Daylight)
- Director 1200D (MSR Daylight)
- Director 650H (Tungsten halogen)
- Director 1000H (Tungsten halogen)
- Director 2000H (Tungsten halogen)

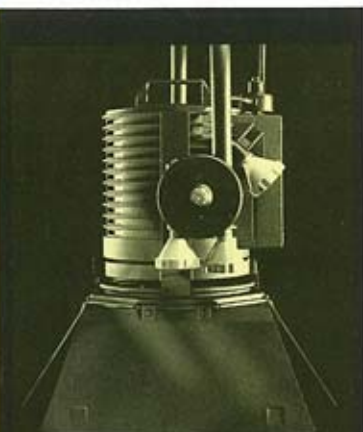
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OpTex

Squire Loudspeakers



Squire Sound and Light is launching a new range of loudspeakers for mobile DJs and bands. The NRG range, available from all Squire retail outlets, includes the NRG130, NRG190 and NRG390 loudspeakers.

The NRG130 features a single 12" dual concentric driver with bullet horn complete with top hat and is compatible with amps up to 225W rms into 4 ohms and can be attached to the Squire Megabass. The NRG190 is a single 15" full range loudspeaker featuring a wide-mouthed horn and HF bullet horn and is compatible with amps up to 300rms into 4 ohms. At the top of the range the NRG390 features a 15" bass driver and a wide-mouthed horn. It is compatible with amps up to 500W rms into 4 ohms.

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Cool Fibre-Optic Light

Edison Halo's new fibre-optic lighting system can give the same performance as conventional installations of dichroic low-voltage lighting or can replace such, with considerable savings in operating costs, say the company.



The simple Edison Halo retrofit kit enables existing dichroic lighting installations to be converted to fibre-optics with the major advantage of virtually eliminating problems of over-heating. The lightsource - a single-ended 150W metal-halide lamp - is housed in a precision-engineered projector with a remote control gear box. The system is based on the premise that each optical head approximates to a 35W low-volt lamp, so that an eight-tail system equates to 280W of T-H lighting.

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or fax us on (0323) 646905

Austin Armstrong Super 3

Austin Armstrong, the Cambridge-based market power amp manufacturer have announced their first specialist amplifier this year.

The Super 3, derived from their 4 x 750 watt Q 3000, has been designed to drive large sub bass loudspeakers such as the 21" driver from Precision Devices, used in enclosures such as the SB 121H and SB 221R from ASS, or Turbosound's TSW 121.

Measured every half octave from 20Hz to 320Hz and with distortion at no more than 0.1%, the Super 3 delivers over 1600 watts per channel into 4 ohms in Dual Channel mode. This 4U high, 40 kilo amplifier is not for the faint-hearted. It incorporates two conventional power supplies (the only source of sustained low frequency power) with a 2.3 KVA toroidal transformer and 110,000 uf on each side.

For further details contact Austin Armstrong in Cambridge, telephone (0223) 424732.

CO2 Confetti Launcher

Theatre Effects have recently introduced the Aero Stage Mortar, a CO2 gas powered confetti launcher, capable of being activated remotely from up to 25 feet away, without requiring the use of electricity. It will shoot confetti and streamers up to 60 feet. The barrel is 20" long and 2" in diameter. It has a capacity of 1lb of regular paper confetti and fifty 50' paper streamers.

A starter supply of lifting cups, back pressure caps and 16gm CO2 cartridges is included with the unit along with a starter pack of confetti and streamers.

For further details and product information contact Theatre Effects Inc in Hagerstown, USA, tel (301) 791 7646.

New Stanton Dual Cassette Deck

Stanton have decided to "consolidate their unrivalled position in the world disco market" by launching their own-brand professional cassette deck. The TT2200 is a workhorse dual audio cassette deck for professional applications and boasts a rack mount front panel, steel chassis, and top grade circuitry.

It is distributed by Kam Electronics on (0727) 40527.

Denon with a Difference

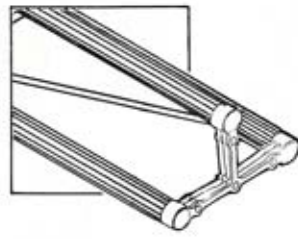
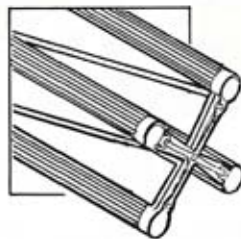
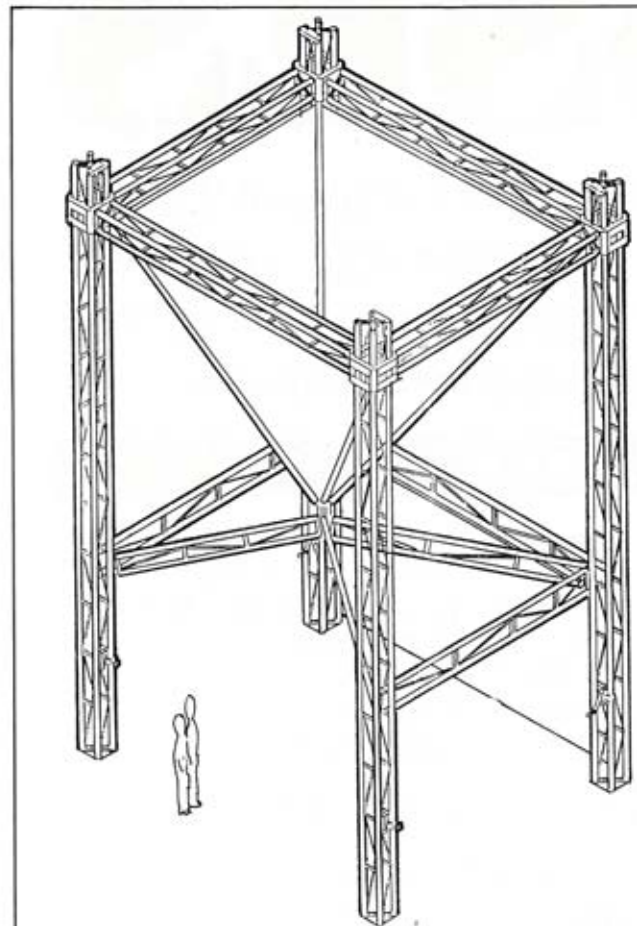
Standard Denon equipment has been listed in the Canford catalogue for some time, but the company has introduced a modification to the DRM710 cassette deck to fill a gap in the market



left by the now obsolete Luxman K112 and K260 machines, which offered wired-remote capability. The Canford modification permits wired remote control operation via a seven pin DIN connector on the area panel.

Due to the number of possible configurations, the user is left to provide his own external switching. The modification is approved by Denon's UK agent and has identical control pin wiring to the Luxman K112/K260 machines.

For further information contact Canford Audio on 091-417 0057.



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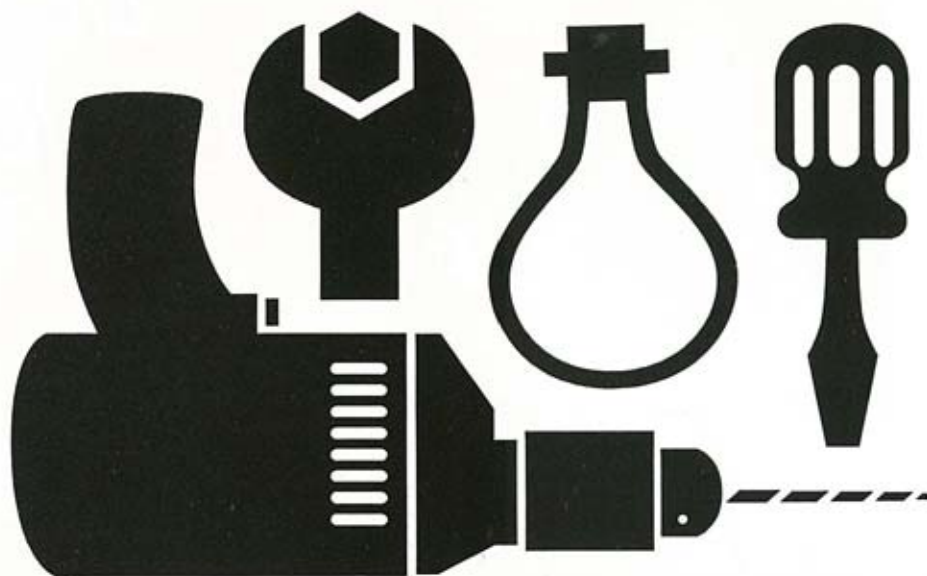
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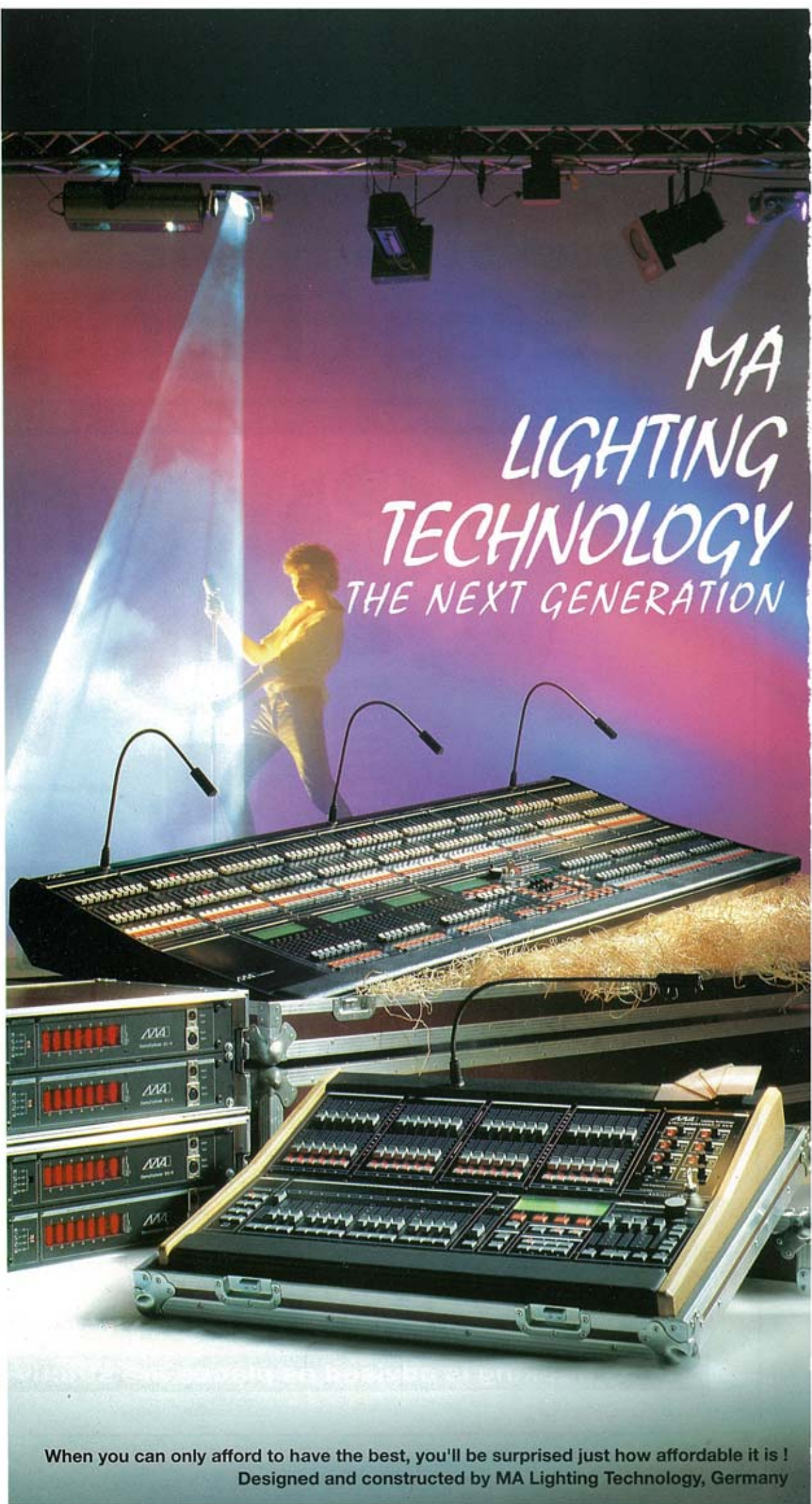
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WRITING ABOUT LIGHT YEARS OF WORK

Andy Collier on Fred Bentham's Autobiography

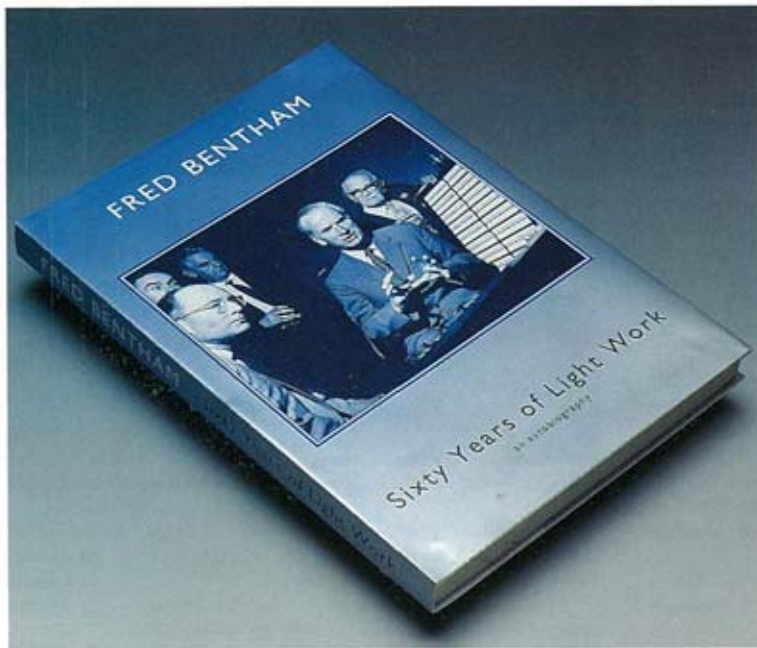
The PLASA show witnesses an unusual launch in the form of a new book. Not a technical handbook or designer's guide but the story of one man's work and life in the pursuit of creative lighting for stage, cinema and TV. Fred Bentham, now turned eighty years of age, chronicles his years of "light work" mainly with the same company - Strand Lighting. This is the story of how Fred's autobiography came to be published. Andy Collier of Strand Lighting takes up the story.

This was an autobiography that just had to be printed. Fred had mentioned to me in April that he'd finished his 'little project' and had resigned it to the filing cabinet in the belief that nobody would read it and even fewer be interested in publishing it. But this was no ordinary autobiography. His is a record of life in the entertainment world at a time of great changes happening around him and because of him. Cinemas equipping for the talkies, variety theatres embracing the big musicals, experimentation with all the varied forms of light for aesthetic reasons as well as simple illumination. As Fred explains, the motivation for 'Sixty Years of Light Work' was a departure from his usual writing approach.

"Writing this book has been different, this time there was no idea if and when anyone would want to publish it. The nostalgic urge to write came mainly from an occasional brief encounter with something in my archive while looking for something else. My other writing always had a destination, often because as *TABS* or *Sightline* editor I myself had commissioned it! Then again, who and what should one include in it? As an artist-engineer, whose career was referred to in a theatrical American's own 'autobiography' as 'The Strand-Bentham era', I must include some engineering."

Indeed, there are many engineering references, but not recounted as formal technical reports of how a particular piece of equipment was designed, rather the story behind the product, why it was developed or for whom and the circumstances surrounding the birth. The variety of what can best be termed 'applied engineering' and at times sheer elegance of an engineering solution are brought to life in a very readable way for engineers and non-engineers alike.

Strand Electric, as Strand Lighting was called, had fingers in most pies, but it did not exist in a vacuum of comfortable monopoly. There were many competitors, but Strand's strength was its ability to communicate with its users, and to influence them through personal contact, publications and lectures; a tradition which continues to the present. Fred was pre-eminent in influencing not only the users of lighting equipment, but equally the designers and architects of the buildings themselves. It is through Fred's contact with the people and indeed characters of this business that a host of anecdotes arise to flavour this tale of pioneering days and nights. Fred takes up the story with a couple of reminiscences to illustrate the point. "This tale is not about one man only, indeed it



is not. Back in 1932, I was sitting in Strand's Floral Street 'showroom' when enter right a middle-aged woman who wanted to see the theatre. Once inside, she asked for red light. Where upon she lay full-length on the stage floor. She then asked for blue, then green and back to red. After a while, she got up abruptly saying irritably 'it's no good, my Flame won't rise!' and departed. Suppose her 'Flame' had risen, what then? Or what about that odd chap who wandered in from time to time just to say that Strand Electric equipment was no good. He was also under the illusion that he was going to build an opera house of his own, somewhere in Sussex... Down the road, in a real Opera House, a Royal one, there were a couple of Germans who could be counted on to utter loud curses at Fred's work as a switchboard operator."

Sixty Years of Light Work is also a human story of a life oriented around the world of lighting where fortune and twists of fate have their part and strange coincidences shape the author's destiny. Fred Bentham talks about luck.

"The key to my life has been luck with more than a dash of ill-luck. Imagine it, a 70ft illuminated tower built in the pool at Earl's Court with an organ-console, and a light-console on which I could fulfil my ambition to play Colour Music duets with organist Quentin Maclean for the month of the 1939 Daily Mail Ideal Home Exhibition. And then, due to serious illness not even to see it, let alone play-it!"

Colour music is a theme to which Fred returns throughout the book; his passion for implementing a dream of realising a complete system to explore and develop such an art form is a story in itself. But to return to the story of publication, the question was that if Strand was going to publish the book, how could we transcribe the original, heavily amended, manuscript into clean copy and publish in time for PLASA, little more than three months later? The conventional route was a non-starter, but experience with desk top publishing suggested that maybe the solution lay in this direction. I have to admit that my first thought, before reading the sample chapter at the beginning of May, was that the book might be passionately

read by the six aficionados of tracker wires, Grand Master gear wheels, and Mansell's reduced-diameter clutch plate of 1954, but few others. This was my first error. The first sample chapters knocked out on Fred's manual typewriter revealed a fascinating glimpse into the reasons why this unique business of ours developed the way it did, and held the key to why Fred is so highly regarded throughout the world. In fact, the two young ladies at Strand who agreed to help with typing the manuscript, Wendy and Jane, were most indignant when they were deprived typing (and therefore reading) the whole book after early tests with computer scanning and optical character recognition software were successful. Thus it was the Macintosh computer which had the first sight of the book's

contents and proved the means by which publication could proceed at a pace dictated by our timetable.

Fred writes at length about all the 'Macs' who took part in his story of Strand, so it was fitting that it was a 'Mac' which took such an active role in its production. The text was edited, proofed and corrected in the little machine, and the author was able to make corrections to the final text and see the 'page proofs' instantly the changes had been done. It was obvious that editing and referencing would be the main task as the shape of the book was already established with a novel idea of street names, either connected with residence or work, providing the links and chapter headings. But let me say no more as the reader will discover for himself the meaning of this.

As the writing itself had developed over several years there was a need to change some topical asides and to view the book in its entirety rather than as a series of miscellaneous chapters. There was also the matter of a crowded and busy job in the Strand Lighting Marketing Department, so this project became homework and the cause of much burning of midnight oil. Pulling all the references together was simplified by a useful software facility. But even with the assistance of embedded index codes to provide the book's final index, the time needed to edit the index was underestimated.

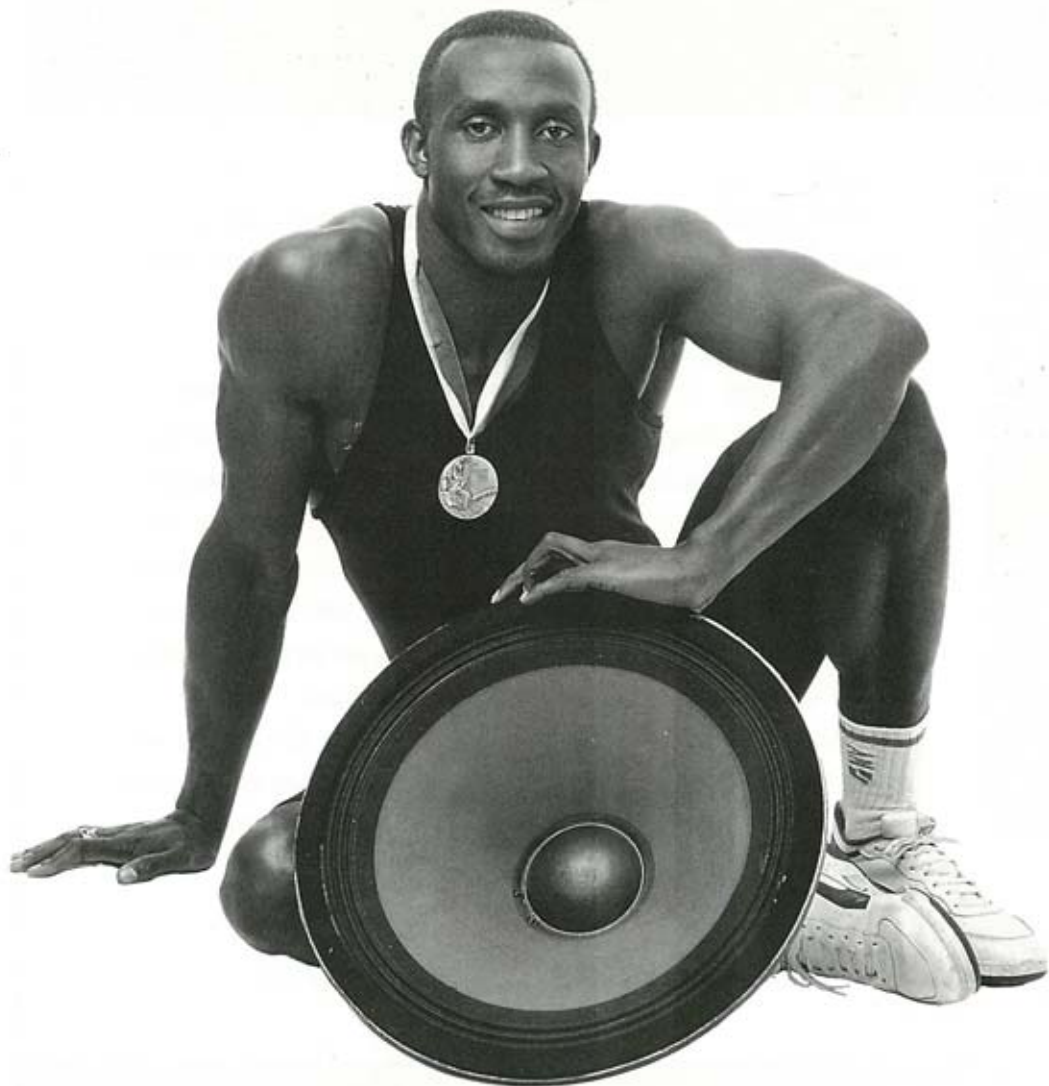
Final proof reading took on added urgency as the deadline for getting the text to the printers loomed ever nearer. Bill Crisp, Strand's ex-publicity manager, was summoned from retirement in leafy Kent to apply his veritable skill at proof reading to the work. Then it was over to the studio in Hereford and from one Mac to another as pages were fitted to the design style and an overnight session in the best theatrical tradition saw the book put to bed. Earlier Fred and I had trawled the Strand Lighting archives for the illustrations which were to be included. The book jacket illustrations were, Fred considered, both symbolic and representative of the feeling he had about the book.

Fred Bentham has become the father figure of theatre lighting, and although I had a perception of him from my own brief

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WOLSEY STUDIO THEATRE

L+SI Special Report

Six months ago the Salem Chapel in Ipswich was a derelict building full of years of dust and dirt, inhabited by pigeons and complete with Baptist tank. It is hard to believe the transformation which has occurred to convert it into the new Wolsey Studio Theatre.

It was originally built in 1812 as a Baptist Chapel and went into disuse some one hundred years later when the local museum took it over as a store. In the late 1950s the museum no longer required the space and it became empty and subsequently fell into a very bad state of repair with the roof falling in and the walls in danger of collapsing. As a listed building the council stepped in to make the building safe by installing structural steelwork inside the perimeter walls of the building.

In July 1992 the Wolsey discovered the building and plans started to convert it into a new Studio Theatre. The site was eventually obtained and plans approved, and work started in January of this year funded by Wolsey Theatre Trust with the help of an Arts Council grant.

The technical specification was put together by the Wolsey Theatre technical team headed by Geoff Spain. Their main brief was to put together the most flexible combination, as the venue would be used for a wide range of activities, while (as usual) spending as little money as possible. This was partly achieved by maximising the Wolsey's existing resources both in terms of manpower and equipment. Thus a large amount of the manufacture of specialist equipment and installation work was carried out by Wolsey staff. Once the basic specification had been written, Turnkey Projects and Action Lighting, the installation and sales divisions of the Lighting Technology Group, were brought in to assist in the final selection and positioning of equipment.

The building work needed to transform the building was fairly daunting. It included filling in the centre of the first floor gallery to provide the performance and seating area, the latter utilising the existing wooden raked gallery fitted with 100 new seats by Hussey Seating together with an additional 170 seats which are movable. A new fire escape has also been required along one side of the building to satisfy the local regulations.

On the ground floor the building was basically split into two halves, backstage and front of house. Originally the ground floor was completely open, but now has a new floor and



Mid-term construction underway.

incorporates two dressing rooms, a design room, a stage management office, showers and toilets together with a new bar and box office area. A spiral staircase has been installed to link the backstage area with the stage and a new staircase and wheelchair lift has been installed front of house.

Air conditioning was considered a priority as the building will have fairly heavy use and there will be quite a large number of people in a relatively small space.

Space is at a premium throughout the building and this was taken into consideration when deciding on the lighting and sound equipment. A number of lighting control desks were considered and eventually the ADB Cantor was decided on to satisfy the requirement for a compact 48 channel control desk which could in some cases be operated by a person with virtually no technical experience, whereas in others it would be used to light a sophisticated modern performance with possibly 200 lighting cues.

At this stage only 36 channels of dimming have been installed in the form of 6 x Zero 88 Betapack 500s driven from a Demux 48. The dimmer installation also incorporates a Zero Sigma 4 channel switchpack for the non-dims.

Space was really at a premium in the dimmer room which shares a small room with the air conditioning plant. The 'sharing' was somewhat unfair as is usually the case, and the dimmers, for their sins, ended up being crammed into a two metre square section of wall complete with mains distribution, patch panel, demultiplexer and contactors for the Sodium working lights.

Seven internally wired bars were supplied, manufactured in house by Turnkey, and these were installed underneath the wooden supports for the roof by the main contractor. This resulted in the bars being rather low but due to the myriad of wooden beams supporting the roof higher up this was the only suitable location. The bars were all wired multicore cable laid on cable tray to allow for the bars to be easily repositioned as different shows required.

A total of 84 socket outlets are provided on the bars together with a further 6 sockets at ground level, all of which are wired back to the patch panel in the dimmer room.

Lanterns are all ADB supplied by Action Lighting and consist of 25 x 500W PCs, 6 x 1kW fresnels and 10 x 500W zoom profiles.

The sound equipment was completely



The Wolsey Studio Theatre.



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when the liquid wheel first turned; before the Floyd first used a parcan; when the first pinspots lit up; when Camden Palace revolutionized discotheque lighting; when the first mirrors waggled; when the first multiplexed lighting controller blinked; when the first digital dimmer pack glowed
 . . . and now we're breeding caterpillars

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specified and installed by the resident staff. The mixer is an AHB SC series which was specially configured by AHB in a purpose made case in order to provide the maximum facilities in the space available. 6 x mono and 3 x stereo inputs are provided which can be mixed down through 4 groups into 2 main outputs.

Amplifiers are C-Audio RA2000 which are driving 4 x Celestion SR3 speakers permanently mounted overhead for general amplification and 2 x Celestion SR Compact speakers for effects which may be plugged in around the studio as required. Mic and speaker outlet boxes have been installed around the perimeter of the performance space.

The 6-way cue light and paging system was custom built by the Wolsey team and was specifically aimed at allowing all the technical equipment to be operated by one person, a sensible move in view of the fact that there really isn't much space for anyone else! The ADB desk was ideal for this as it provides the option for remote switches on the SM desk and a third is linked to the fire alarm system to automatically turn on the lights in the event of an emergency situation.

The venue can be used for a maximum of 150 evening shows every year, and these will mainly be between October and March. The shows will need to be staggered between the productions at the main theatre as the same team will be working on both. The first performance will be Don Juan' opening on October 23rd.

Lighting Equipment

ADB Cantor 48 channel control desk
 6 x Zero 88 Betapack 500, 6 x 10 Amp dimmer packs
 1 x Zero 88 Sigma, 4 x 5 Amp switch pack
 1 x Zero 88 Demux 48
 25 x ADB 500W PCs
 6 x ADB 1kW fresnels
 10 x ADB 500W zoom profiles
 7 x 12-way 15 Amp internally wired bars
 1 x 84 way 15 Amp patch cord box

Sound Equipment

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SUSPENDED ANIMATION

John Offord on Unusual Rigging



The Emperor flies in under computer control: Turandot, Wembley Arena, December 1991.

We tagged Unusual Rigging's Alan Jacobi 'London's Friendly Hangman' in L+SI a few years back. The title, luckily, didn't stick, but the company has hung around and gone from strength to strength over the intervening years. They had major projects, a coming move and expansion plus a new offshoot company to talk about when I visited their Stanmore base early in August.

This particular story began when I took up an invitation to take a look at the Royal Tournament at Earls Court in London in July. Unusual's general manager Adam Wildi was sitting next to me, and in a vacant mood it did cross my mind as to whether you had to have an 'i' at the end of your name to make it big in rigging.

Having noticed the hung centrepiece of piano performer platform, which duly went up and down, the flying saucer that surrounded him, and the lovely miniature flying aeroplanes - all things the company should be able to do every day of the year standing on its head - I boorishly asked Adam where the 'unusual' bits were.

Like most things usually are, of course, they were right in front of my nose. The massive revolving 'billboard' screen, for want of a better description, had also been constructed and controlled by Unusual Rigging. Adam confidently called this assemblage of triangular revolving structures a series of periaktoids, although you won't find the word in the Shorter Oxford. It sounds good though, and the operational techniques employed sounded even better, once explained.

Each section revolved on

computer-operated slewing rings, a simple mechanical solution. The complicated and highly sophisticated part was linking them all through a computer so that they reacted at exactly the same time; not only in sequence with each other, but with all the other 'flying' elements of the show. Unusual Rigging's computer technology got it right, exactly right, for every performance of this year's event.

Their latest production, for Genesis, involved the computer operation of tracked Sony Jumbotron screen trolleys as well as Vari*Lite and Telescan lighting pods, designed by LD Mark Brickman, which went up and down cables and stopped at pre-determined points to light the band. Unusual's computer was linked to the Vari*Lite Artisan control board so that the position of the pods was ensured, time after time.

"The screens weighed six tons each," explained Robin Elias, chief rigger on the tour, and were positioned high above the back of the stage. The centre section was fixed, while the left and right units, each driven by a 7.5kW winch, moved horizontally from the sides of the stage to the edge of the centre fixed screen where all three joined together to form a single, massive, 9m wide television.

"The moving screens were fixed to a huge wheeled gantry which ran along a horizontal track at the base of the screens. These were pulled in both directions by winch-driven spiral wound cable drums on each side of the stage. The screens moved at speeds of 0.5m per second and could be positioned to within a millimetre of their target point, thanks to digital accuracy. Position sensors on the screens

relayed the necessary information via the show's control computer back to the winches through the drive's serial communications interface.

"The lighting pods moved along two 25m long tensioned steel wire ropes. These ran at an angle of 45 degrees from floor level, one at each end of the set, to the top of 18 metre high masts on opposite sides of the stage, crossing centre stage above the band. Each pod weighed half a ton, including ballast, and was moved using a cable driven winch controlled by a 7.5kW motor."

Travel speed of the pods ranged from an almost imperceptible 0.1m per second during slow numbers to 1m per second for rapid positioning prior to the start of a new number. They were positioned by winching them up the gradient of the cables but moved down, with a controlled descent, under their own weight.

The control finery and rigging skills employed on this latest Genesis happening draws our attention to Unusual Rigging's new offshoot, Unusual Automation, a newish company that has its formal start-up on September 1st, and the expertise of Robin Elias, now a director and senior project manager at Unusual, who merged his company Zenavail with Alan Jacobi's outfit during 1990.

Jim Douglas, manager of Unusual Automation, the genius behind many a West End creation, designed all the electronic controls and control software for the show, whilst Robin Elias and his team installed the systems and hardware and operated it all from the computer console on a scaffold tower high above the stage.

Unusual Rigging's own genesis for the new era came out of Alan Jacobi's earlier vision. "Alan has always wanted to market a variable speed hoist," explained Adam Wildi. "As long as there's been a Vari*Lite Alan wanted to produce a 'rigging Vari*Lite', and it's been a dream as long as the company's been around."

"We broke it down, in its basic and fundamental parts, into being a winch system, a tracking system, and a control system," said Alan Jacobi. "The control system will control anything that's controllable - it's a PC computer programme, and that's that. The winch system consists of an electric winch controlled by a drive, on the end of which is an interchangeable gear box enabling us to achieve different ratios, and on the end of that goes a drum, which varies in size in terms of the amount of cable, pay-load and so on. Alternatively you can employ a revolve, or whatever. For tracking you can use a winch or linear motor. The idea was that everything should be interchangeable."

Alan Jacobi and Jim Douglas had worked together at the National Theatre in its formative days and got themselves properly re-acquainted whilst working on Miss Saigon



The Sony Jumbotron tracking screen trolleys for Genesis: apart (left) and almost together (centre).



Lighting pods (lower right) ready to climb.



Computer control for the 1992 Royal Tournament included movement of the piano-platform-cum-screen machine and the massive revolving end stage screen system, as shown in picture right.

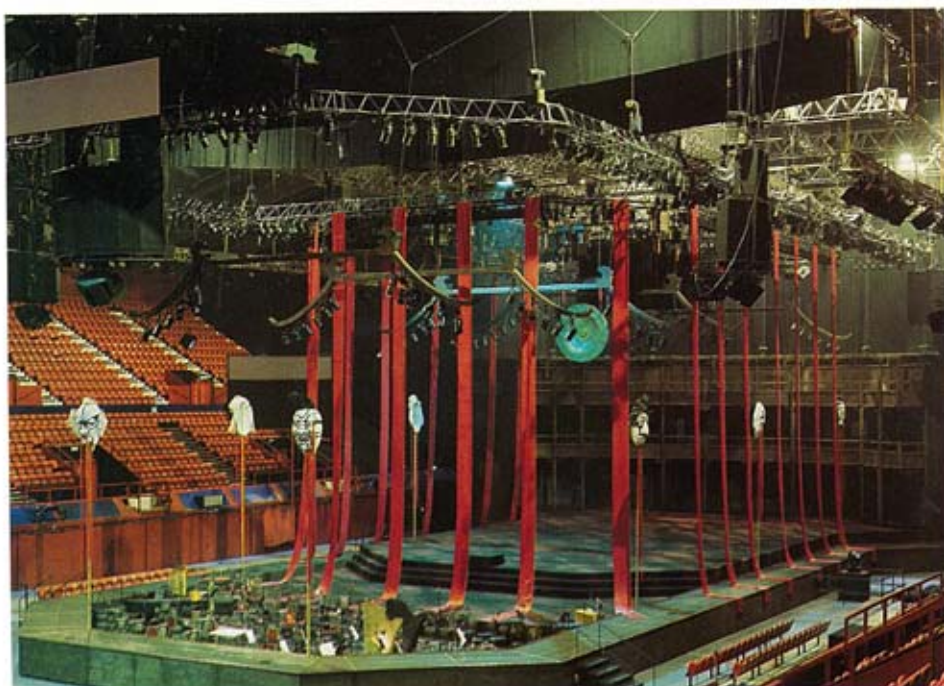
and Aspects of Love. "We had a project," said Alan, "and I asked him to get involved. He did, and it worked - naturally enough! We then decided to formalise our relationship with Unusual providing the finance and engineering elements and Jim providing the consultative element and the computerisation and electronics. Over the past couple of years things have developed to a situation where the system has just finished 60 shows in 90 days on Genesis - all without a hitch."



In control: Alan Jacobi pictured with his dream machine.



Suspended 'rope' bridge for Carmen at Earls Court, 1990.



The grid for Turandot, Wembley Arena.



Ford in suspense: Motor Show 90 at the NEC.

Unusual Automation is now set on a course of research and development whereby they can "get ahead of the game" rather than work specifically on developing systems that are project led. "We would rather be in a position where we can offer clients something off the shelf," explained Alan Jacobi. As far as the future of the group is concerned, there will soon be a move out of Middlesex and up the M1 to Northamptonshire where a freehold site and 25,000 sq feet of operational space has been purchased. "It is made up of a variety of units which satisfy our requirements beautifully," said Alan. "We can put the different disciplines in different areas, which is ideal."

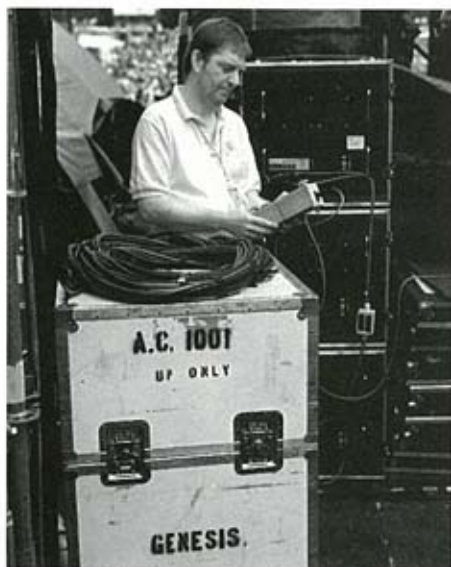
The company's operations have changed shape somewhat over the past few years, and it, like many others, has had to cope with the Gulf War and recession. During the Saddam Hussein period there were moments when they seriously thought life was about to end. "We could see disaster ahead," said Adam Wildi. "We had just merged with Zenavail, and almost immediately, because of the Gulf War, there were no American acts getting on aeroplanes."

"However, a few months later the acts came in and we did all the rock and roll work and a considerable amount in the theatre. A good thing has been that because we had to diversify and trim the operation to fit the market place we have survived and made profits."

Unusual's new adaptability took them into engineering, one of the major reasons they made the decision to move out into the country in their search for extra space. Apart from constructing steelwork and other elements for shows they are involved with, it allows them to undertake fixed installation work. They cite the full scale engineering scheme including lighting bridges they recently completed on the South Bank in the Queen Elizabeth Hall as the sort of project well within their grasp.

In their more traditional role one can too easily forget the range of skills speedily employed on rigging for all types of shows and presentations. "We have become proficient at doing things at the last minute, and doing things when other contractors have said 'I'm sorry, we can't do it'," continued Alan Jacobi. "As a company I have to admit we like it. Generally speaking, your intuition, or first hit, is right. More importantly the client doesn't have the opportunity to change his mind! We've developed a good administrative system, got a great managerial team, and for the first time ever since the company started I can happily say that there is no weak link in the business. It makes an enormous difference."

Take a quick look at Unusual's store and



Jim Douglas backstage on Genesis.



Adam Wildi pictured in Unusual's extensive warehouse at Stanmore.

workshops, and although not small you soon realise why they've got to move on. There is a huge stock of special equipment from nuts and bolts to a range of stock size circular truss units. To keep American riggers happy when they come to Europe they have the American hoists they are used to. There is a test area where all product gets rather more than a 'once-over' before it goes out on a job.

On the international scene Alan Jacobi told me they would be very interested in developing relationships with someone in Europe. "The major problem isn't the distance in miles, but the bit of water in between that separates us logistically," he said.

So Unusual Rigging has steadily widened its areas of expertise in parallel with the development of its control system. And they now meet up at a point where they consider almost anything is possible. Their computerised variable speed winch system - they'll have to get a trade name for that mouthful - is extremely sophisticated in that it's immediately programmable, it's swift, easy to edit on site and 'events' can be programmed to trigger other 'events' with no difficulty whatsoever. "It's a marvellous feeling," explained Adam Wildi, "seeing the winches in operation in that they are a result of all the different disciplines of the company operating in combination with each other, and it's something of which we are justifiably proud."

Alan Jacobi had the final word: "I would also say we are the biggest rigging company and entertainment industry structural service operation in Europe today - and the best!"

The people at Unusual Rigging

Alan Jacobi, managing director
Alan Jacobi started his career by spending more than a decade in the lighting department of the National Theatre. A spell with David Hersey at DHA followed, then a period of freelance work as production electrician and lighting designer before finally forming Unusual Rigging in 1983. Since its birth, Unusual Rigging has grown from being a two man operation to a large independent group of companies, keeping Alan Jacobi very busy as head of what he considers is the largest and leading rigging company in Europe today.

Adam Wildi, general manager
Adam Wildi began by spending 12 years in the music industry as production electrician and rigger. This period included a five year stint with 'Yes', and four years with Zenith Lighting as chief rigger. He joined Theatre Projects for three years in the lighting hire department in the early eighties and subsequently worked for the major conference production houses as a freelance

production electrician. He joined Unusual Rigging in 1987.

Robin Elias, director and senior project manager
Robin Elias started work at ESP Lighting before forming S2 Rigging under the auspices of Brian Croft. Some years later he formed Zenavail Ltd, which operated a successful rigging business before merging with Unusual Rigging in 1990. Since the merge, Robin has been manager on various large scale projects at Unusual: most notably the Gloria Estefan 1991 tour and as chief rigger to Genesis and project manager for Unusual Automation on the Genesis World Tour 1992.

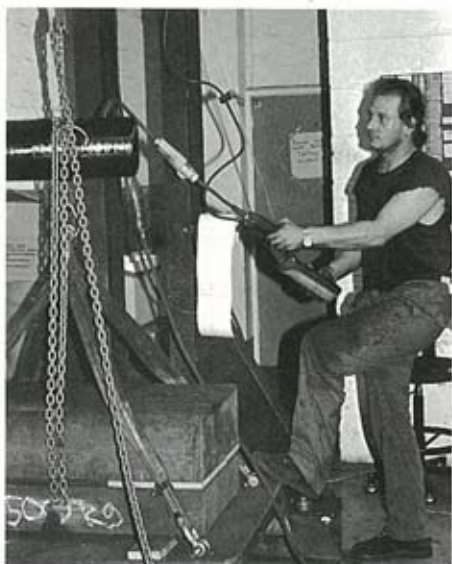
Jim Douglas, manager Unusual Automation Ltd
Jim Douglas' history began at the National Theatre. West End theatre projects followed and he founded Dramatec Effects Ltd. His company has played a very important part in increasing the use of automation to achieve theatrical effects. Among other projects, Jim has undertaken design, installation and operation on computer controlled systems for productions such as Aspects of Love and Miss Saigon.

Brian Rose, financial controller
Brian Rose joined Unusual Rigging in 1988 having previously worked for Martin Greene RAVDEN.

Operations managers:
Matthew Abercrombie, Ken Nock, Jasper Dada

Production riggers:
Steve Porter, Simon Tiernan, Nick Brown, James Lee

Stores manager: Phil Pocock
Design engineer: Neil Darracott
Control engineer: Paul Taylor

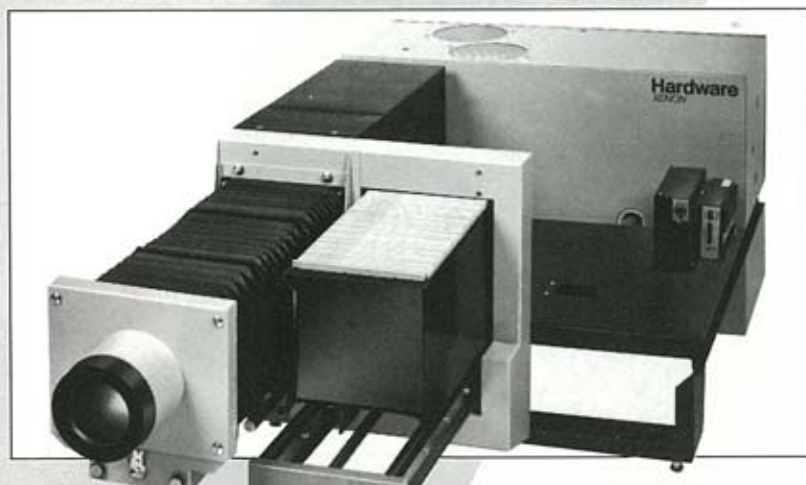


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THE COMING OUT OF FISHER LIGHTING

Ruth Rossington on the Debutante Party Lighting Company

Fisher Lighting's work is perhaps the most precarious in these times for it relies on somebody putting their hand in their pocket and pulling out an awful lot of Florence Nightingales for no particular reason other than sheer hedonism - albeit occasionally in the name of charity or company morale. In short, Fisher Lighting are involved in the party trade and customers are not thin on the ground. The society columns, a short hop in any newspaper from the recession-bound financial pages, pay witness to that. They are littered with tales of those who still have disposable income and most of them, at some time or other, have been clients of Fisher Lighting.

The company, which now finds itself working at the heart of this mini industry, was founded in 1985 riding on the tail of boomtime UK. Charles Woodward Fisher started it all after cutting his teeth in the industry with Julianas and prior to that the Central School of Speech and Drama, where he studied stage management. He didn't have much to play with, a small office and a few hundred square feet, but he did know what he wanted to achieve, having already tried at Julianas to set up a lighting hire division which the company wouldn't finance. (Fisher's office, incidentally, stands only yards from the infamous Westland helicopter base, scene of much political controversy, which by coincidence hit the headlines that same year).

He was later joined by Peter Barford, an ex-Starlight man, who originally worked as a freelancer for Fisher Lighting, but subsequently signed for directorship in 1989. The operation works along much the same lines as Noah's Ark with two directors, their two assistants and two full time technicians; the shortfall, if there is one, being made up by a team of freelancers.

Eight years down the path and the company have carved themselves a nice slice of the turkey and claim to design, supply and install equipment for approaching 500 parties a year - quite a schedule for even the most hardy good time guys. To help them in their endeavours,

they now have 2,000 sq ft of storage and 400 sq ft of offices. Their work has taken them from such venues as the Natural History Museum, Imperial War Museum, and the Queens House Greenwich (one does get around, doesn't one) to West End hotels such as Claridges, The Savoy and The Hyatt Carlton.

They've rubbed shoulders with the best of them, having worked on such notable events as Diana Ross's wedding in Lausanne, the 50th birthday party for the King of Greece, The Prince's Trust 15th Anniversary party, and Kerry Packer's daughter's wedding. It's the type of business you either love or loathe, and its few adherents would probably admit that it's neither vocational, in any real sense, nor does it apparently lend itself to a great deal of creativity. And yet it's undoubtedly an art form in its own right.

With lead up times often short and fait accomplis difficult to work with, Fisher try to get involved at an early stage, consulting on all aspects from the best florist to the most hygienic toothpick cleaner - even though it has little to do with the lighting service they sell. "Our clients know what's possible," explained Peter Barford, "because they've seen the son et lumiere events that are increasingly on our screens. But they don't have technical knowledge and, to some extent, we have to lead them by the hand." Of course, at a rate of

500 a year, Fisher have had plenty of practise and they know exactly what works and what doesn't and by process of elimination, they've arrived at a system of rules. Charles Woodward-Fisher expanded: "The client wants good lighting, but they don't want to see any lights. We compromise. If it's going to ruin the whole look, then we don't do it. Where it might be best to have a huge 2kW lamp, we go for multiple light sources. We've found that it's sometimes better to underlight and retain the feel of the venue than to end up with a situation of overkill."

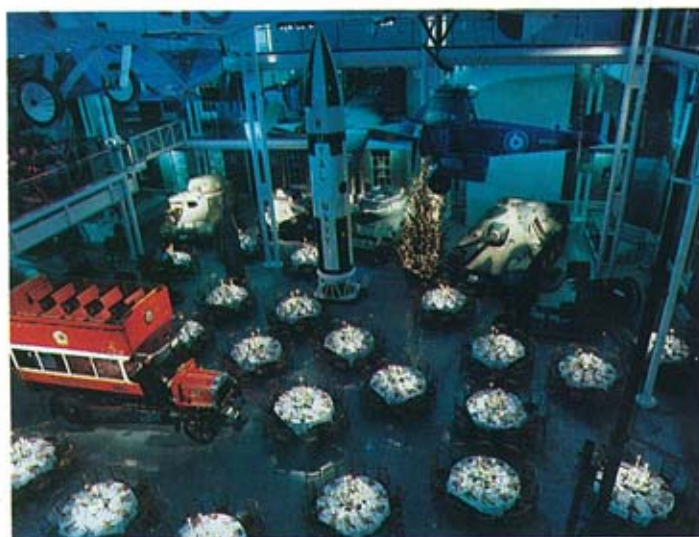
So, the nature of the beast dictates the use of low voltage, discreet fittings, which, by their very deployment, create an architectural look. As with most lighting it's there to play a supporting role and to enhance atmosphere rather than create, and as with most lighting, though it be but a wee blip on the bill in comparison to other things, it wouldn't be quite the same without it.

Take a recent job at Forbes House for Nicky Haslam, interior designer and darling of the glitterati set. The brief was to provide exterior night lights to the balcony and balustrades, together with uplighting in golds and reds to the two large trees, positioned front of house. Inside low voltage uplighting was used to highlight columns, fireplaces, floral displays and walls in the hallways, whilst for the waterfall, a blue colourwash overlaid with an effects projector was to add that certain touch of je ne sais quois. A blue wash came into play on the windows to simulate clear sky, fading to a darker blue, with stars projected thereon, and nightlights and gold washes for the walls in the committee room. Also on the list were a host of low voltage spots gelled with steel blue for the dining room, simple colour washes for the dancefloor, supplemented by projectors casting a flickering light over the dance area.

This is only a small taste of what's involved, and it might appear small beer when contrasted with the amount of equipment used in major theatrical productions or on the



Fisher Lighting putting lights to work in the most unusual of settings. Above at Ponlester Hall, below left at the Imperial War Museum and below right, at the Victoria and Albert Museum.





Charles Woodward-Fisher.



Peter Barford.

touring circuit, but without moving from their armchairs half the manufacturers in the industry appear at these parties: Strand Minim fresnels, CCT Minuette and Silhouette profiles, Teatro followspots, Pulsar Superspots and Par lamps, Rosco smoke machines, Anytronics giant strobes, Le Maitre pyrotechnics, Mode and Pulsar dimmers, Pulsar and Zero 88 control desks, and Slick trussing to name but a few. And they all have to be in the appointed place at the appointed hour in best bib and tucker because one spotlight out of place feeding glare into one very important person's eyes and the company's fought for reputation flies out the window. The champagne set may not do much, but they do like to indulge in society talk; last night's party is today's news, and if it hasn't been a huge success, it's back to the fireside ashes for Cinderella.

Fisher have worked hard on not being sent

home from the ball. They've trained up on working to deadlines, and claim, to date, a 100% record. They've also put together a range of package deals intended to cater to the diversifying marketplace. There's also the question of educating the end-user that a chandelier is not the only form of lighting possible and both note that there is now promising feedback from clients whose needs and expectations are becoming increasingly sophisticated.

Aside from the bread and butter tailor-made 'party' packages, they also flex a muscle in the sound, video and staging departments when required. "In most venues, we begin with nothing and have to create everything from the mains through to the rigging - it's the worst possible starting point," explained Charles Woodward-Fisher. "But it does mean that we are capable of putting together just about


anything, anywhere." Which should stand them in good stead with the party goers of this world whose only concern is that the good times should continue to roll. The recent demise of Bubbles Rothermere may reduce the quotient, but I'm certain that for Fisher Lighting the party is far from over.

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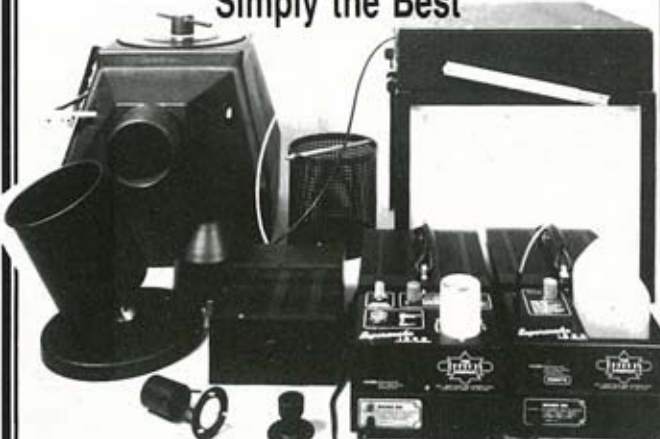
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NEW STANDARD FOR COLOUR FILTERS

Bob Anderson Charts its Establishment

BS3944:Part 1:1992 - Specification for Colour and Diffusion Material for Theatre, Television and Similar Entertainment Purposes.

Part 1 - Requirements for Flammability and Dimensional Stability.
Available Summer 1992

L&SI readers and PLASA members may think they are hearing too much about standards and safety these days - usually the dire effects on our industry of regulations made primarily to control the non-entertainment world. This is yet another story about a British Standard, but this standard is intended to benefit a field of activity at the heart of the entertainment industry - producing coloured light.

BS3944 has existed before. Some of you may have a copy in your archive. A little grey booklet dated 1965. Its title then was Specification for Colour Filters for Theatre Lighting. It required that filter material 'shall be of adequate robustness to withstand the hazards likely to be met in normal use'. It described a test for non-flammability, and tests for colour fastness to heat and artificial light. Finally, density curves were given for ten standard colours which included No.6 Primary Red, No.39 Primary Green and No.20 Deep Primary Blue. The other colours were also all strongly saturated and all seem to have been included because they were the only ones deemed acceptable by the Home Office and the GLC for colouring theatre and cinema exit signs. Despite the implied precision of the density curves only a 'good visual match' was, in fact, required. 23 organisations were represented on the BS committee of which nine

were credited with the actual work of preparing the standard. These nine included the British Kinematograph Sound and Television Society, The Cinematograph Exhibitors Association, The Illuminating Engineering Society, The Greater London Council, The Theatrical Manager's Association and 'manufacturers of colour filters'. Old stagers will realise that, in those days, there was only one significant UK manufacturer and that their representative was noted for expressing firm opinions.

"One faction expressed the view that the whole standard fulfilled no purpose and might as well be scrapped . . . Nobody was sure whether we wanted a basic minimum standard or to define aspects of quality."

According to BS procedures, the standard came up for review and ratification about ten years after publication and the descendents of the original committee gathered to determine what should be done. I was there representing, I think, the BBC, though I now represent the GB National Illumination Committee stage and studio lighting group. Everybody agreed that defining standard colours served no conceivable purpose. One faction expressed the view that the whole standard fulfilled no purpose and might as well be scrapped. Others said that the non-flammability section was of vital importance and must be retained and improved. The academics warned that the

scientific basis for the colour fastness test was suspect and out of date. Nobody was sure whether we wanted a basic minimum standard or to define aspects of quality. Finally, led by a strong minded GLC representative, we decided to try to set minimum standards to protect the small purchasers - eg. schools and amateurs, and to work on the non-flammability aspects to try and head off a problem that was a growing worry at the time: the propensity of fire officers to put a match to scraps of imported pop concert colours and then to condemn the rig.

Rewriting has taken a long time and the task still isn't complete. There were many reasons. Committee membership changed. The GLC was disbanded. The Association of British Theatre Technicians and the Society of Television Lighting Directors, quite properly, demanded to participate, as also did other more peripherally interested parties from the industry. Despite this, technical advice from acceptably non-partisan research organisations became harder to come by. Several new colour filter manufacturers had to be recognised and consulted, and support from the BSI itself all but disappeared for a while under the pressure of Europeanisation and the Common Market. Perhaps it will be better, then, to explain what has been done and why, before discussing the remaining problems.

The first achievement is to update the non-flammability requirements. There are now two tests, one with flame applied to the centre of an inclined square of material, and the other with the flame applied to the end of a strip held in the shape of an arch. Both have been developed for other branches of the plastics industry and are precisely defined in



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independent British Standards. After ignition the test sample may burn briefly but must extinguish within a limiting time and flaming droplets must not fall to the base of the apparatus. The pass criteria have been agreed with a representative of the influential Chief and Assistant Chief Fire Officers Association and should be expected to satisfy Fire Brigades throughout the country. Most of the products in common use in the UK can be expected to pass.

Given that this test is now agreed to be sensible and appropriate, the question then arises as to who is to test what and how often. The answer seems to be that every manufacturer who wishes to offer a product claimed to comply with this BS, must test samples of the materials used and confirm compliance as often as is necessary to be able to substantiate the claim, if necessary in a court of law in response to a breach of contract action or criminal charge brought under a section of the Health and Safety legislation, though both seem to be unlikely eventualities. A much harder question is how should the manufacturer mark products that comply with the BS to distinguish them, where necessary, from other similar products that do not comply? Remember that many users require high optical quality from their filters, and remember that the product is sold as rolls, cut sheet and in pieces cut to size. The committee could not envisage any way to stamp an indelible identifying mark onto the sheet itself without impairing the optical quality, so the BS requires that the material or the package in which the material is supplied to the purchaser from any vendor shall be labelled with the manufacturer's name or trademark and BS3944: Part 1: 1992. A note follows stating that it is important that vendors and purchaser should be able to identify material warranted by the manufacturer as conforming with the standard. Obviously the manufacturer has to depend on wholesalers and retailers for proper implementation of this aspect of the standard. Whether this will work to the satisfaction of licencing and fire inspectors remains to be seen. It is clear that every end user who needs to be able to 'prove' that only safe colour filters are being used must take steps to get their suppliers to mark the packaging and, desirably, invoices and shipping notes, with a clear statement to that effect. The problem may be simple if only BS3944 material is used but if stocks of non-complying material are kept for any reason they must be kept clearly separate. Manufacturers should be able to offer most colours and quantities in a non-flam version but there may be a continuing problem with diffusers. Like today's approach to safe electrical and mechanical maintenance, proper records may prove essential for peace of mind. Having reached agreement on these matters, and argued and consistently failed to agree on colourmetric and quality aspects, pressure mounted to publish this work in the interest of industry safety.

This, then, in principle, is what the published Part 1 of the standard contains. In addition there is the requirement that limits the shrinkage of a filter when heated to ensure it will not fall out of any reasonably designed colour frame. Even then it took time to sort out the wording to remove ambiguity and comply with BSI protocol. Copies can be purchased from BSI and should now be available. If you are interested please take care to check on details of the wording - the report above is, for clarity, only a summary.

But what of the promised Part 2?

Three possible 'quality' standards have been discussed. Variation of a given manufacturer's colour from batch to batch; fading due to heat;

and fading due to light.

All require a precise approach to the measurement of colour and no one denies that this can be done if you are only concerned with light transmission curves. But since the eye, or the eye together with TV or film cameras, is used for the ultimate evaluation, problems of metamerism and 'just noticeable differences' must be taken into account. In other words, different spectral transmission curves can sometimes produce the same colour to the eye, and who is to say how much change in the numerical colour measurement can actually be seen as being important. Formulae exist, but there is doubt whether they are sufficiently valid across the wide range of hue, saturation and density of all the many shades of filter provided for entertainment lighting. If the idea is to protect only the uneducated user then wide tolerances could be given, wider than the manufacturers use themselves, so only 'foreign' products of considerably inferior standard would be rejected. Probably a pointless exercise. To apply tighter standards requires considerable data and the recognition that different users have different needs. A film or TV crew filming on location may light, rehearse and record within a few hours and then throw away the colours. In a TV studio or theatre the cyclorama lighting provides critical conditions for recognising mismatches between nominally identical colours in adjacent floodlights, but in TV the rig may be cleared after a few days whereas in a theatre the colours may have to last for months or years. Some LDs may have a highly developed colour sense and colour memory and may object strongly if 'near enough' solutions are offered for their precisely planned rigs. Others may rely on the trial and error method of lighting design and find unexpected reward in an occasional out of tolerance filter. A few customers will want to pay for better than average quality. Many more, with severely limited budgets, will be prepared to ignore small colour differences and spend any money saved to better effect elsewhere.

This was the substance of the committee argument and, despite valiant work by the scientists from one filter manufacturing company, the committee was never presented with sufficient convincing evidence to be able to agree either the proposed test methods or figures. Hence the eventual decision to publish only the Part 1.

However, at the last committee meeting, the manufacturers and main distributors present did promise to work together to present new, unchallengeable proposals for colour quality evaluation, so that a Part 2 of the standard can eventually be agreed. It will be difficult and the committee's discussions, if they ever do get re-started, will need practical assistance from users of colour filters from all parts of the entertainment industry. If you have views or ideas, why not talk to your colour filter rep about them, or to a trade or professional association. I'm sure PLASA and L+SI would both be pleased to hear from you.

Finally, somebody is sure to ask "What about Europe?" The answer, if you can get one, is that when someone feels the need for a Euro Norm, then an international committee will be charged with making a suitable compromise from the best material from existing national standards. You may be told that the Germans also have a standard but that it is probably too typically precise and limited in scope to be welcomed for the rest of Europe. So BS3944 may, some day, re-appear with the added authority of an EN prefix. I wish the euro-committee members a speedier outcome to their discussions than the BS3944 team experienced.



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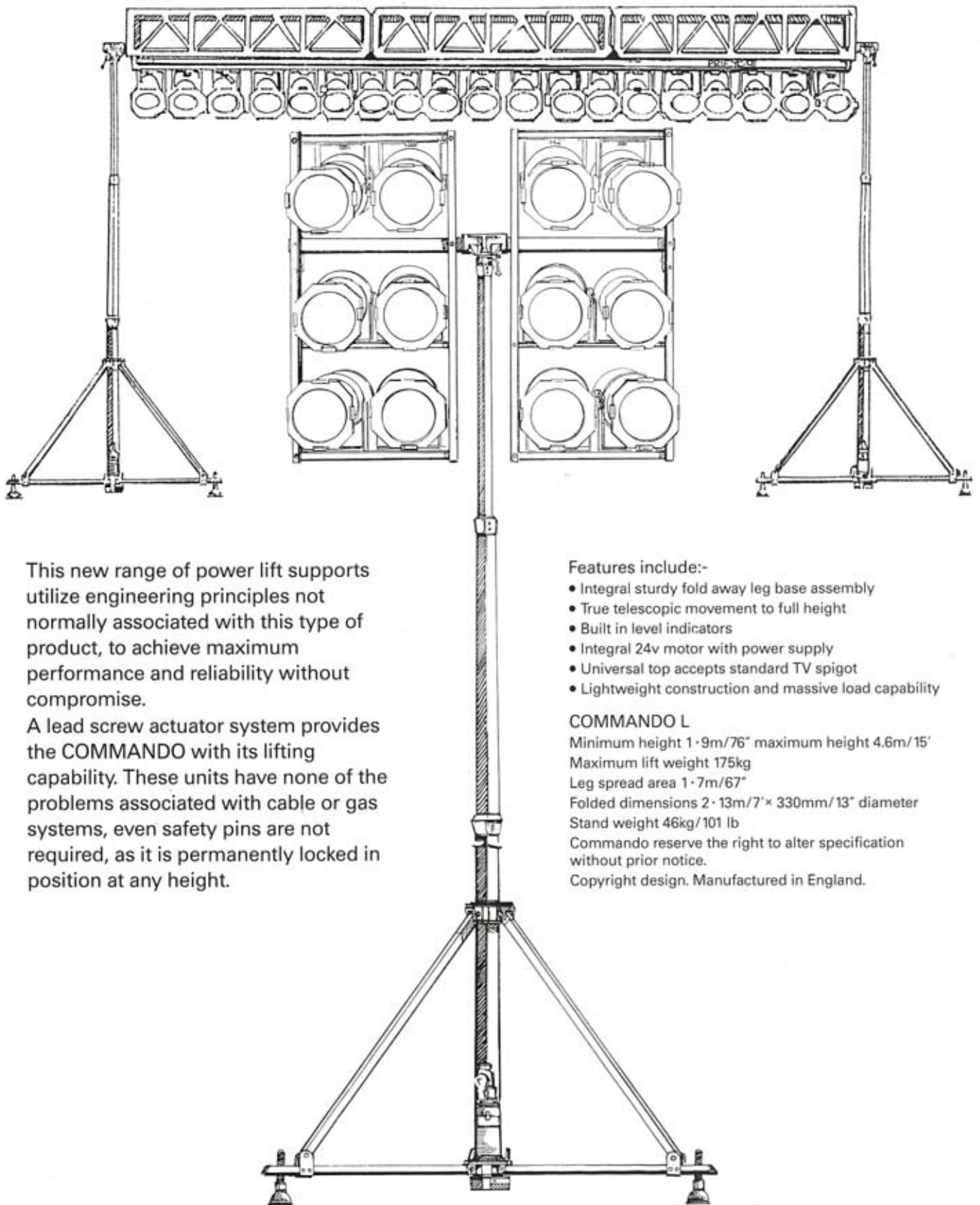
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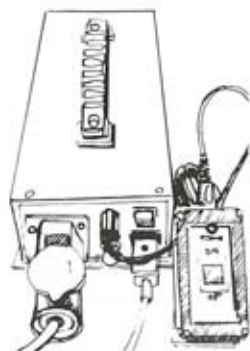
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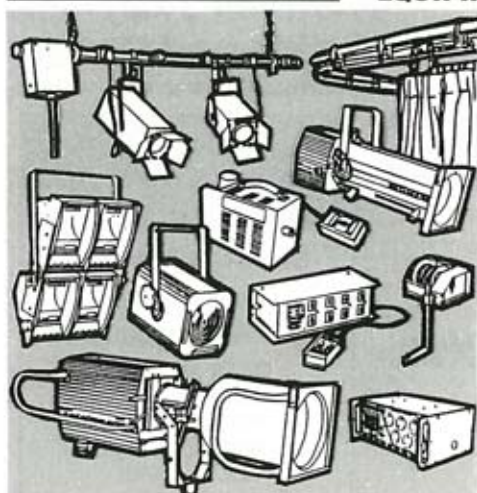
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VIEWPOINT

Tony Gottelier on Why Exclusive Distribution Deals may be Counter-Productive

Tony Gottelier is a partner with Peter Wynne Willson in their eponymous design practice, specializing in systems design and implementation and the development of new entertainment technology for others to manufacture and market. He is also associate editor of this magazine, though the opinions expressed here are entirely his own and are not necessarily shared by the publishers.

The first stresses of the New Europe were felt rather early-on in our industry especially in the Latin quarter. Since then reactions to the new order have been many and varied, from a stubborn defence of the status quo, to those who are in the process of establishing sales and service joint ventures across Europe. But is this the way to go?

It seems to me that almost everyone is in a distributor straitjacket; the only exception being relatively new companies who are able to break the mould and go their own sweet way. Given a choice, a great many would be more than happy to change arrangements, and shake off what was probably almost the first company in any country to beat a path to their door and with whom they are stuck with no flexibility of manoeuvre. In any event, some of these territories are far too large for a single company to cover efficiently.

Then there are the horizontal sectors within any given territory, where the same product may be sold more successfully by several different outlets specialising in those divisions within the marketplace. Again, in any product range there may be one or more products with major applications outside the main target sector and which we could call vertical divisions by product type, which may make a number of specialising distributors highly desirable. In Italy they have a duplicitous solution which seems to work for them, but which could never be acceptable elsewhere. The same product is often produced under three different liveries and marketed through different outlets to the theatre, concert and disco sectors. Nobody complains, apparently.

A fine example of a product, with this dilemma in plenty, is trussing, which spans (if you'll excuse the pun) several largely incompatible market sectors. Even if, theatre, concert hire and disco might be seen as one, exhibition and display certainly would not be. Personally, I would want specialist outlets in all these businesses, which is probably what most such companies do in their home market anyway. Few businesses would consider a single outlet within their home State, so why should it be different elsewhere? After all Europe is the home market now.

The problem is that when you try to change these arrangements, even in a way which may

well expand the market for all, the paranoia of lost sales is so great that bully-boy tactics, in the form of commercial blackmail, often ensue. On trussing again, I heard of one maker wishing to appoint an additional, but specialist, distributor in a certain country. On going to his original outlet to explain, he was told, in no uncertain terms, that if he did that, the distributor would go elsewhere or make his own. "Did you call his bluff?" I asked. "Not a chance," came the reply. But the net result was that the embittered unsuccessful bidder went off and had copies made of the designs. This case is now the centre of a costly and complex copyright claim.

There are no winners in a situation like this. Even the original distributor has gained a competitor over whom he can exercise no control and who will very probably be able to undersell. Patents have rarely proved affordable or viable protection. Naturally, such a situation as described above creates a vacuum. It also suggests that it is this very vacuum which results in a greater

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evil within our industry than price cutting and which is, in itself, a prime cause of that particular virus - and that is the copy-cat product, together with the plagiarising and re-inventing of the proverbial wheel, which all that entails.

What happens is a well observed treadmill: manufacturer A comes up with an interesting new lighting idea, spends a fortune developing it into a product, introduces it successfully into the market place at an exhibition and spends a commensurate packet promoting it. Result: everybody wants the product, but most cannot get it except at third hand, unless they are in direct line of accession from the maker. Thus the vacuum. Opposition salesmen and distributors alike run around like headless chickens demanding similar product from their suppliers. That wouldn't be so bad, if manufacturer B went to A and tried to negotiate a license, which would almost certainly be in the best interests of both. For A, it would mean setting off their development costs and expanding the total market for the product, and, for B, getting into the market faster, with zero R&D and the opportunity to tailor the look of the product to their own image. (Far less radical, in my opinion, than the Italian version.) But, oh no, what actually happens is that a lower development cost alternative is drummed up in time for the next show. And so the pernicious cycle runs... what a waste of development talent,

engineering skills and everyone's natural and financial resources.

The net result: margins are eroded, marketing costs rocket and everybody gets a little slice of what is a pretty small pie in the first place. Prices also are kept artificially high, which will always create the backdoor pressure which ultimately leads to phony price wars and behind-the-scenes dealing. With the industry contracting at an alarming rate in this recession, we simply cannot afford to waste resource in this profligate fashion.

Don't get me wrong, I still believe in firm pricing policies, but I am beginning to doubt whether this first line of distribution is necessary or desirable. My doubts relate to the basis of the structure, rather than to a structure per se. When I emerged battered and bruised from the last Thatcher induced recession in the early 80s, I remained convinced that order and defence of that structure we had established was vital. After all, the argument went, those whose businesses survived were generally committed to that order, in fact I may even have been the life raft of their survival.

However, the negatives weigh on my mind heavier now, as I am forced to look at the marketing, by others, of products designed and developed within my practice. Time and again products which do not fit into the general basket of the maker's other merchandise have lost out in the market place due to an inability to be flexible within such a rigid distribution policy. For example, there may be products which are not distributor items at all, but which can be most satisfactorily handled by installers dealing direct with the manufacturer. The difference in margin can then be used to alleviate the selling price improve support or increase profitability.

Maybe, just maybe, the status quo suits only those who have a vested interest, the distributor and nobody else. Will the new order in Europe break those shackles to the benefit of all? Whatever, it would be extremely dangerous for a concerned not to be aware of the implications. I hope the discussion, to be chaired by Mike Low at his seminar during the PLASA Show, will throw some new light on current opinion regarding this tricky dilemma and help us all to some rational thinking on an explosive topic.

The seminar to which Tony Gottelier refers called 'Distribution and the New Europe' and will take place at 11.30 a.m. on Monday September 7th, in the Whitehall Room at Earls Court 2. Mike Lowe is the proprietor of Italian luminaires manufacturers Teatro. His panelists include German super-distributor Uli Petzold of LMP and Hermann Sorger of Ludwig Pani the scene projection people.

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