

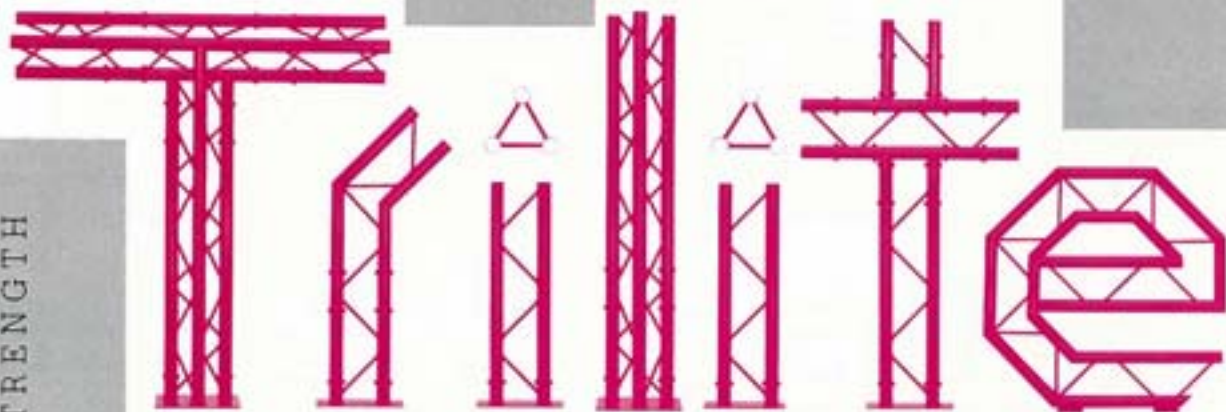


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LIGHTING+*Sound* International

FEBRUARY 1989

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1989 Frankfurt Music Fair

L+SI's report from Frankfurt appears in this issue commencing on page 25. Pictured above is the stand of Cerebrum Lighting and Presentation Consultants which featured a wide range of equipment including Powerdrive and Light & Sound Design products and Celco control equipment.

Our front cover picture shows the Galleria which provides an impressive link between hall complexes 8 and 9 at Frankfurt. A continuous programme of entertainment and seminars runs throughout the event.

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Major Changes at Lee Colortran

Following the purchase of the Lee group of companies by Warburg Pincus Capital Company, a holding company, Lee Panavision International Inc., has been formed as the world-wide parent. William C. Scott is chief executive officer of Lee Panavision International Inc. based in New York. For more than 10 years he was President of Western Pacific Industries Inc., a successful Public Company with manufacturing operations in the USA, UK, the Continent and Brazil. Jim Pollard has been appointed managing director of Lee Panavision Limited with responsibilities for the company's manufacturing, equipment rental and film studio operations throughout the UK and Europe.

Pollard also remains managing director of Lee Colortran Limited for the UK and Europe and heads a new board of directors which has been established by Lee Colortran to manage the company's TV, film and theatre manufacturing operation. Other board members are: David Leonard, finance director; John Burgess, director, manufacturing and sales; Eddie Ruffell, operations director, filters and Paul Tipler, director, R & D. Martin Duff will continue to head Lee Environmental Lighting, the architectural lighting subsidiary of Lee Colortran. As part of the overall consolidation and restructuring programme at Lee Colortran, the company's northern sales office will move on

April 3rd from Eccles, Manchester to the company's main site at Kearsley near Bolton. Lee Colortran manufacturing administration and R & D operations are already based at the Kearsley site.

In a separate, unconnected move, Lee Colortran sales director, Haydn Edwards, has announced that he is to leave the company to take an equity share as managing director of a group of companies located in the south of England. Jim Pollard told L+SI: "Haydn has been a highly valued member of our team - first at Lee Filters and more recently at Lee Colortran. We wish him the very best of luck in this exciting new opportunity. I have no doubt he will prove as successful there as he has been with the Lee organisation."

As a result of the reorganisation at Lee Colortran, associated cut-backs have resulted in the redundancies of several members of staff. These include: UK sales manager, Gordon Smith; dimming control manager, Chris Cook and John Price who covered northern sales.

Steve Hall, head of marketing, told L+SI that Lee Colortran is maintaining its base in Thetford. "We are looking to improve our lines of communication, hence making the operation more streamlined. We expect to remain at 'No. 2' in the market, sales are still buoyant and we anticipate no unwelcome effects from the cutbacks," he said.

Manchester's AVABs

After a thorough investigation which covered 11 lighting control systems from UK and overseas manufacturers, Manchester's Library Theatre company's production manager, Michael Williams and his technical staff chose CCT AVAB 'Viking' systems to replace the aging controls in both the Library and Forum theatres.

Viking, which is probably the most powerful and user-friendly system in the world, was the clear winner, not just on facilities, but in particular on its operator-performance relationship and ease in dealing with visiting productions, say CCT.

There had been suggestions that neither theatre needed such excellent systems and could manage with simpler controls. (see L+SI, August 1988). "However, the scope, flexibility and controllability needs of control systems, as well as luminaires for that matter, owes nothing to theatre size. The implication that only 'big' theatres deserve the best technology, denies the level of technical excellence achieved by even the smallest British regional theatre," said CCT's Phil Rose.

CCT were responsible, not only for the supply of the systems, but their installation, personnel training and commissioning.

As is often the case with a change-over, time was of the essence. Site work began on

September 15th, with both theatres opening to schedule.

The smaller Library Theatre has a 96 way system, which includes 'Processor', 'Command', 'Designer', 'Cross-fade', 'Mixer 1-4' modules, together with 2 colour VDU's, twin floppy discs and 'Viking' voice control. "The Library control room is unusually small, but with some careful planning the result is a compact, yet comfortable room," said Phil Rose.

System back-up is a 24 scene master panel completely independent of the 'Viking' desk, but integrated with the dimmer racks. There is also wiring for an AVAB 202 XP portable micro processor system. The 96 10A digital dimmers, also supplied by CCT are located at the site of the stage.

The system in the Forum Theatre is somewhat larger, having 192 channels. In all other respects the same as the Library Theatre except that it has three mixer modules, with the 202 XP as back up. In this theatre, the existing dimmers have been up-graded and retained.

"The first 'Viking' system was installed in the mid 70's in Sweden's National Theatre in Stockholm and, as far as we know, was one of the first lighting control systems to be computer based," Phil Rose told L+SI.

UEI Buy Avolites

It has been announced that UEI plc have bought Avolites Production Company Limited, together with Avolites Inc. UEI specialise as a group in the acquisition of companies who are recognised as world leaders in their particular field, and already have under their umbrella companies such as Solid State Logic, Cosworth Engineering and Quantel.

Derek Halliday, at present acting manager of Avolites, told L+SI that he anticipates no immediate changes as far as the day to day running of the company is concerned. "In the long term, it is hoped that the company will grow under the guidance of UEI, whilst retaining its own identity," he said.

No management reorganisation is planned but a slight reshuffle of Avolites' board has taken place. A director of UEI will join the board, the original shareholders, Ian Walley and Murray Thomas, having sold their shares. However, L+SI understands that Ian Walley will continue to assist the company in an advisory capacity.

Teatro at the ROH

The Royal Opera House Covent Garden has placed a substantial order for spotlights from Teatro of Italy. The order was negotiated on behalf of Teatro by Eric Baker of Wandsworth-based BEMCO for immediate delivery. The 40 new 1000 Watt Tratto 15/28 G profile spotlights were chosen for their high-quality construction and operational features, said the Teatro press release. The new spotlights are fitted with a G22 lampholder which accommodates either a 1000 Watt or 1200 Watt lamp without modification.

Lee Lighting

Lee International has brought together all its film and TV rental operations into a single organisation Lee Lighting Limited. The new company brings together Lee Electric (London), Lee Northern (Manchester), Telefilms West (Bristol) and Andrew Ritchie (Glasgow). In addition a new rental operation has been established at Thetford in Norfolk to serve the East Anglian region.

Managing director of the new Lee Lighting organisation is Ron Pearce, and the senior management team includes Tony Lucas and Bernard Moylan, who will control the London and Manchester operations respectively. Managers of the other regional organisations are Ken and Stuart Ritchie, Glasgow; Len Wilson, Bristol and Ray Hall, Thetford.

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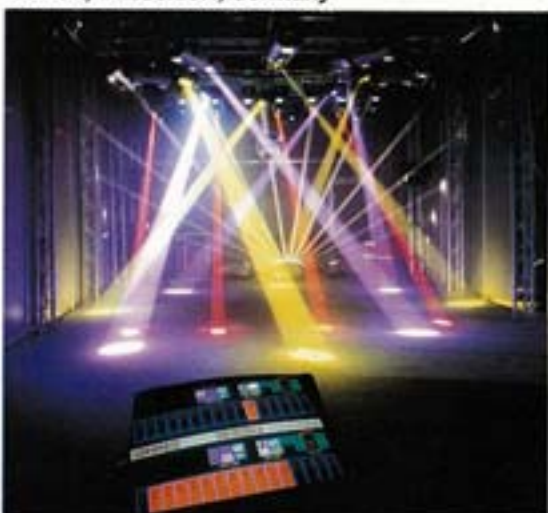
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New Daylight Follow Spot from Ludwig Pani

Ludwig Pani of Vienna have announced the launch of their new HMV 1202 daylight followspot which replaces the HMV 1200.

A new optical system has been designed which reduces distortion, producing a sharper light circle and a substantially reduced colour edge. A new lamp holder enables easier change of the HMV lamp, and the lamp adjustment has also been simplified. The unit also has a new handle and safety yoke, and a new lens rail enables more accurate focusing. The gate unit incorporates a new shutter and iris assembly.

For more information contact AC Lighting on (0494) 446000.

New Image for HHB

HHB, one of Europe's best-known pro-audio suppliers, has embarked on a major marketing initiative to coincide with the most dynamic phase in its 13 year history. The company has established a new corporate identity, appointed a new senior manager, and commissioned a major refurbishment programme at its Scrubs Lane premises in London NW10. The new corporate identity, which will appear on all stationery and documentation from 1st March, also involves a new name: **HHB Communications Ltd.**

Competition Time

Roscolab are once again running their Supergel Competition, offering two winners an all-expenses-paid three day trip to Showlight 89 in Amsterdam.

Organised last year for the first time, the Rosco Competition is held not as a promotional exercise, but to help the company towards a better understanding of colour and world-wide creative and technical use of gel in theatre and television. Entries for the competition are used to assist Rosco in the choice of new colours for Supergel, anticipating designers' needs around the world.

See page 43 of this issue for information.



Playlight Expand into Film and Television Lighting

Playlight's managing director Mike McMullan has announced the launch of Playlight Film and Television Lighting. A massive investment in additional equipment has taken place to augment the existing Playlight stock, and the division is headed by managing director Bill Summers.

With around 25 years experience in the business, Bill Summers was formerly with Cinequip where he was involved over the years with building up the company to become one of the largest film and TV lighting contractors in the country. He was with Cinequip for 12 years in all.

He told L+S: "I have joined with Mike McMullan to form Playlight Film and Television Lighting, and with our joint experience I feel there is a tremendous future for companies like ours because we will be more streamlined than the big lighting moguls. With low overheads, particularly with a small select staff, we will also be able to make the company more competitive and this will be reflected in competitive prices."

The new company has already handled several major contracts including Bye Bye Baby for BBC Bristol which was recently filmed in London.

Bill Summers is pictured above (left) with Mike McMullan.

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Opus at Wickers World

Wickers World in Middlesbrough has recently installed a new sound and lighting system.

The sound system, which was supplied and installed by Opus Amplification of Burnley, is comprised of 20 Opus sound control 10" installation enclosures, five Citronic PPX 450 amplifiers, a Citronic MX2 mixer, Citronic Tamar deck, TOA BA 400 tape unit and Beyer 300 microphone.

The layout of Wickers World caused some initial problems for Andy Kay of Opus, due to the first floor mezzanine balcony overlooking the main bar. There was also a mirrored wall behind the main bar stretching from floor to ceiling (25ft) making fixing points difficult to locate. After consultation with Graham Baron of Lizard Lighting who supplied the lighting, it was decided to hang two clusters of cabinets above the bar but below the lighting rig.

The design and installation of sound control 10" with its system of integral captive nuts, allowed for brackets to be easily made for the clusters. The remaining 12 cabinets were spaced between the first and ground floor. Opus completed the sound installation in just two and a half days.

Lighting equipment includes; 2 Coemar Bellos, 2 Sat 1, 1 Clay Paky Astrosphere, 2 Moonflowers, 2 Little Stars, 8 Coemar Spartans, 32 Par 36 Pinstots and 10 Par 36 Scanners. Control is by Light Processor. Smoke is by JEM.

Expansion all Round

A major expansion plan is underway at Astron involving the development of a new product for a client - a product which, we are assured, is quite unique. So exclusive in fact, that the company has felt it necessary to build a 20ft wall around it! Batmink's business is on the increase and the company are currently instigating a programme of expansion. Though still based in Leicester, Effects Lighting have moved to new premises as part of an expansion programme. The company are looking to broaden their client base. Laser Creations have taken over the Shepperton Studio-based LaseFX. The company will continue to handle all film/TV and rock 'n' roll work. Laser Creations are also involved in a new launch for Thomas Cook.

As a result of moving more into the installation market, Lightning Sound and Light of Birmingham have doubled their floorspace and increased their showroom facilities by adopting premises adjacent to their present site. Lynx Lighting of Somerset have also increased significantly their production space. Having moved to new premises last June, Mushroom Lighting is now finding that growing business may necessitate a further move later in the year. Marquee Audio have opened a new demonstration facility after a recent expansion of the company's offices. A large office exten-

sion has been effected at the Reading site of Orange Disco Centre, along with a full refurbishment of the company's showroom.

Last month, Oxtron Digital Systems moved into new premises and now have 15,000 sq. ft available. General expansion, including the securing of three contracts on hotels in Southern Ireland, has meant a doubling in size for PA Installations, who have now attained extra workshop space of 6,500 sq. ft. Supermick Lights will begin work on their new TV Studios in the next few months. The £2 million facility will comprise half offices and half TV Studios. A period of growth and a commitment to new developments has prompted Studio 1 Electronics to seek new staff.

Trafalgar at Brixton

A major installation project at St. Matthews Meeting Place, Brixton Village, is the culmination of two years planning and consultation between Brixton Village and Trafalgar Lighting. The brief was to supply a versatile lighting, sound and communications package to cover two adjacent auditoria with a common control room. The 400-seat theatre has a thrust stage, over which is suspended a partially pre-wired grid with outlets for lighting and sound. Because of the requirements of the second room, the Hall, outlets have been placed on the side walls, to facilitate the feeding out on temporary cables overhead, to drop at the required positions.

Equipment supplied and installed by Trafalgar includes a Zero 88 Sirius, a Green Ginger Micropack 102 and Strand Environ for control for houselights. Lanterns are Strand and CCT. Sound equipment includes a Studiomaster 8-4 mixer and various HH, OHM and Shure amps, speakers and mics. Communications is based on Tecpro with Beyer headsets.

BUSINESS

● Apart from its general sound equipment hire services for live performance, Hardware House has always been known for specialist knowledge in the radio mic field. The company has just taken delivery of its first 10 Micron radio mics on the new UHF frequencies recently confirmed by the DTI for live performance use. These systems will be added to the company's large rental stock of Nady, Samson and Micron radio mics. For details contact 01-986 6111.

● ADDA Super Cases of Cambridge have brought out a complete new range of smoke machine, scanner and Technics cases. For further details contact Monica Saunders on (0223) 233101.

● Concert Light Systems started the new year with a major contract to Frankfurt for a 35' Tomcat tower system, complete with motors and control equipment. February gets the advertising under way with an increasing line up of distributors and dealerships which include Tomcat, Le Maitre and Le Mark. As of this month, CLS Sales Ltd will be official distributors for Avolites Production Co Ltd. CLS also supply CCT, Zero 88, Lytemode/Green Ginger plus cables and theatre lamps. For further details contact Jeff Demain on 0204 364139.

● The London Press Centre has commissioned two Bose sound installations for conference suites at the heart of its facility. The 500 capacity Caxton Suite has been equipped with six pairs of Bose 402's arrayed in a central cluster, designed by Simon Spragg of Orange ALSD, amplification being provided by Citronic PPX450s. In the second room are eight pairs of Bose 102 speakers.

● Marquee Audio have revamped the Mean Fiddler in Harlesden. New equipment includes: Soundtracs MX 32 channel console and MCX 24 channel monitor console and H&H amplification. The company have also installed new control equipment at the Marquee Club, London. Monitoring in the booth is by the new JBL Control 5 loudspeakers powered by H&H amps.

In the City of London, part of the Broadgate development has been equipped by Marquee Audio, utilising a TOA BA400 4 play cassette deck, Denon tuner, H&H amplification and JBL Control 1 speaker systems and in Covent Garden, the company has provided a custom-built preamplifier, Shure microphones, Denon cassette decks and the new JBL Control 12 speaker systems for use by buskers and other street entertainers.

● Hollywood Ipswich, has been awarded a major Club Management accolade, only three months after its opening. Club Mirror has named the venue Discotheque of the Year.

● Hard work and dedication to product has paid off for Zero 88 Lighting. Their entire lighting controller range was commended by the Thames Valley Disc Jockeys Association in a recent ceremony.

● Allen & Heath have published the second issue of 'Sonics'. Copies are available from the company.

● Labtek have launched a new range of speakers. The systems are designed for the PA, disco and audio-visual markets and Labtek have appointed Smithfield Electronics as their UK distributor. The latter has a full expansion programme underway throughout the north, and has its own design and installation department and can supply complete systems on request. For details contact 0244 349062.

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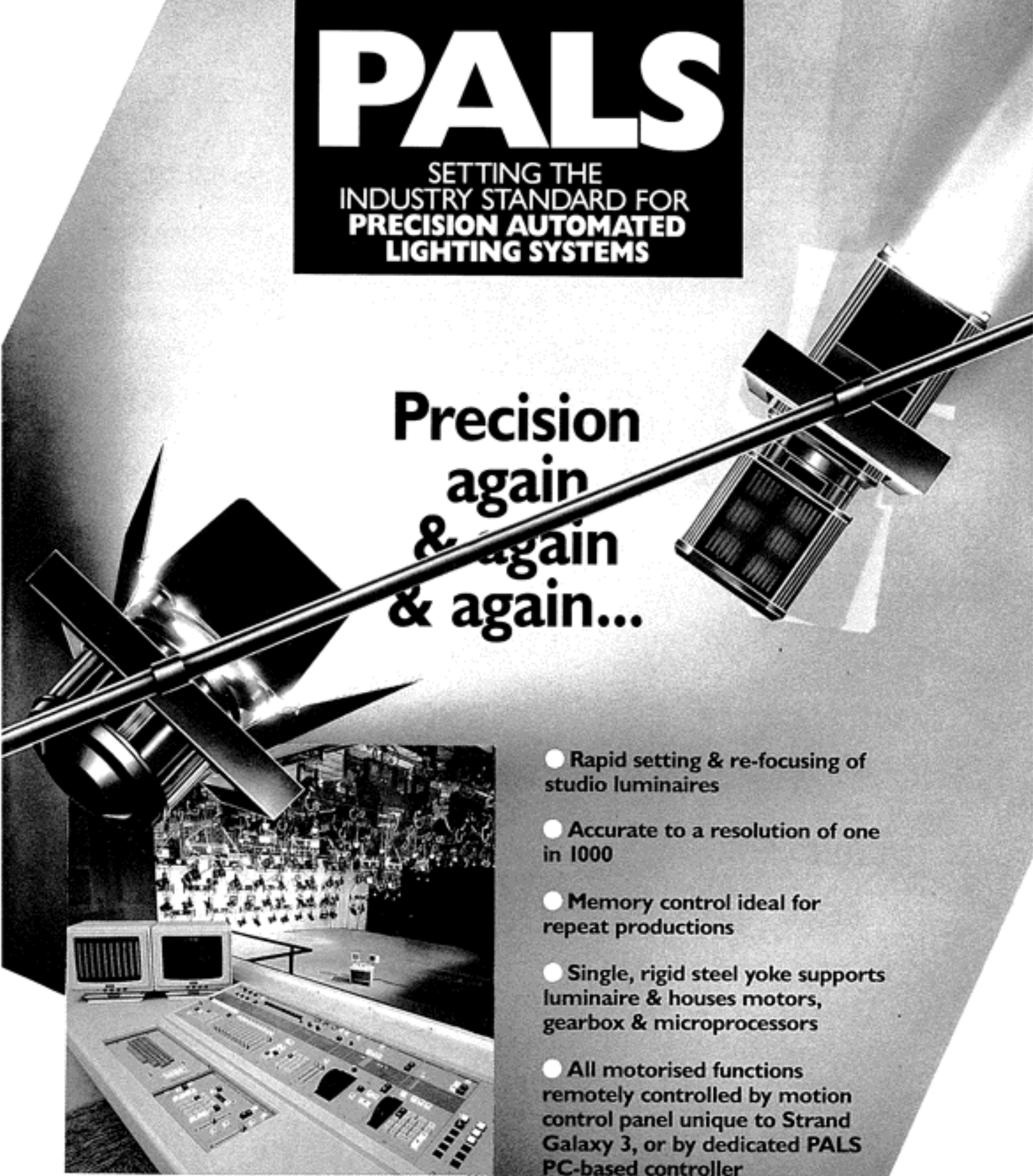
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Lighting rig in Studio 1 at VTO-Medienzentrum Studio Complex, Hannover, showing Galaxy Studio remote control (on studio floor) & Galaxy 2 lighting console (in vision control room)



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BUSINESS

● A charity event with all profits donated to the 1989 D.E.A.F. nominated charity, **PASTY**, the Professional Audio Sailing Trophy, is the ultimate challenge says organiser Tim Chapman.

This year's event is to be held out of Southampton on the 15th and 16th April, and the organisers have hired a fleet of Sigma 36' 10-berth yachts and all the tackle and training necessary to ensure a good week-end's racing. Each boat is being 'sold' to firms or individuals involved in the audio industry at £1500 all-in, and the profits, estimated at between £750 and £1000 per boat, will be donated to charity. An experienced yachtsman will be provided on each boat and spare crew are available for those boats short of adventurous landmen.

Ring Tim Chapman on Brighton 693610 if you fancy a salty week-end.

● **RG Jones Sound Engineering** has won the contract to install a complete new sound system featuring more than 400 loudspeakers for the home of cricket, Lord's Cricket Ground at St. John's Wood in London. The installation will take place over the coming months and is due for completion in April ready for the 1989 cricket season.

● **Shuttlesound's Tony Oates**, in the unlikely guise of the caped crusader, went to the rescue of the recent BP Student Film and Video Expo 88 at the Riverside Studios. He provided several sound systems and audio components completely free of charge.

● **McKenzie Acoustics** have appointed Inter Mercador as their distributor in Germany. They will be carrying the entire range of McKenzie chassis loudspeakers and accessories including the Professional Series, the flagship Studio 7 Series and the Bullet BHF 520 high frequency unit.

Pulsar Light of Cambridge have recently negotiated for High End Systems Inc. of Austin, Texas, to distribute their Oska lighting control system in the United States.

● 1989 will be an exceptionally busy year for **Glantré Engineering**. Based in Reading, the company entered 1989 with a forward order book of over £5.5m.

The largest contracts, each valued at over £0.6m, will see Glantré's staff scattered at different points across the globe. In Greece, lighting, sound, communications, video conference and box office computer systems are being provided for a major concert hall in Athens which will also convert to a proscenium stage theatre. In Oslo, stage rigging, lighting, sound, communications and fixed and retractable seating systems will be installed at Aker Brygge, a docklands multi-purpose arts centre development.

In Istanbul, stage rigging, lighting, sound and

conference and projection systems have been ordered for the new Cultural Centre where an interesting feature of the project will be the inclusion of an Electronic Reflected Energy System (ERES). This will permit easy adjustment of the hall's acoustic characteristics for the different requirements of music and speech. Other major contracts are under way at Trondheim for the new concert hall and at the Officers Club Theatre in Abu Dhabi where a complete systems package is being provided for a conventional 700-seat proscenium theatre.

● American **Eminence Loudspeakers** are now available in the UK through Leeds-based **Audio Equipment Limited** who recently signed a new UK distribution agreement with the Kentucky-based Eminence Loudspeaker Corporation.

Eminence loudspeakers offer not only exceptional sound quality and reliability, but are reasonably priced too, largely due to the investment the company has made in advanced automated production facilities and high-tech materials say Audio Equipment.

The original idea was to incorporate Eminence speakers in their Custom Sound backline and PA products, but Audio Equipment Limited decided to make the units available to the general public through their network of UK retailers.

● **Astralloy** of Leeds have recently supplied over 2km of pre-wired trussing, together with lighting systems and a Turbosound PA rig, to Kristal Klear Exhibitions for an innovative on-site scheme at the NEC in Birmingham.

The trussing systems, a mixture of Astralite, Quatralite and Blüte, are being used to create evening leisure and entertainment theme areas during exhibition open days. Three rooms at the NEC are involved in a contract worth £150,000.

The Pendigo Suite converts into a disco. The Caribbean Room will reflect a West Indian-cum-cabaret theme, and the Salamander Suite - a large 30m square room - is being used to create an English pub-with-garden scheme, and includes a 7m wide octagonal and canopied bandstand constructed from Astralloy's new Quatralite and Blüte trussing.

Apart from the specific areas, Astralloy systems finished in white and including colour-matched cabling, plugs and power outlets, are also employed to create frameworks around the perimeter of each room from which decorative graphics panels can be hung. Adjacent foyers and entrances are also fitted with trussing frameworks, in this case pre-wired Astralite.

Since the rooms are used for other purposes during the day, the majority of the frameworks have to be set up in the afternoon. Kristal Klear are able to carry out the complete operation in the space of just four hours - a tribute to the flexibility of the system!



Harrison at the 1989 Frankfurt Music Fair

A profile of the company is included in this issue - see pages 45-47.



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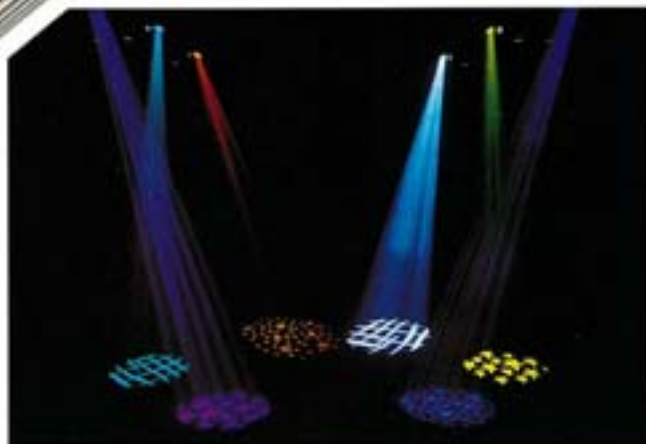
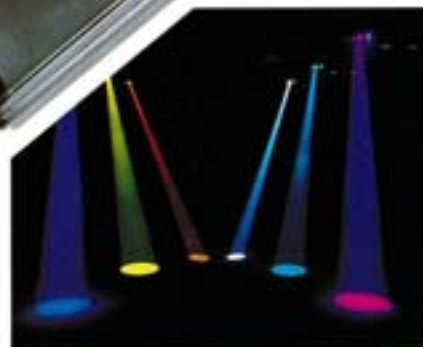
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Malacca Son et Lumiere

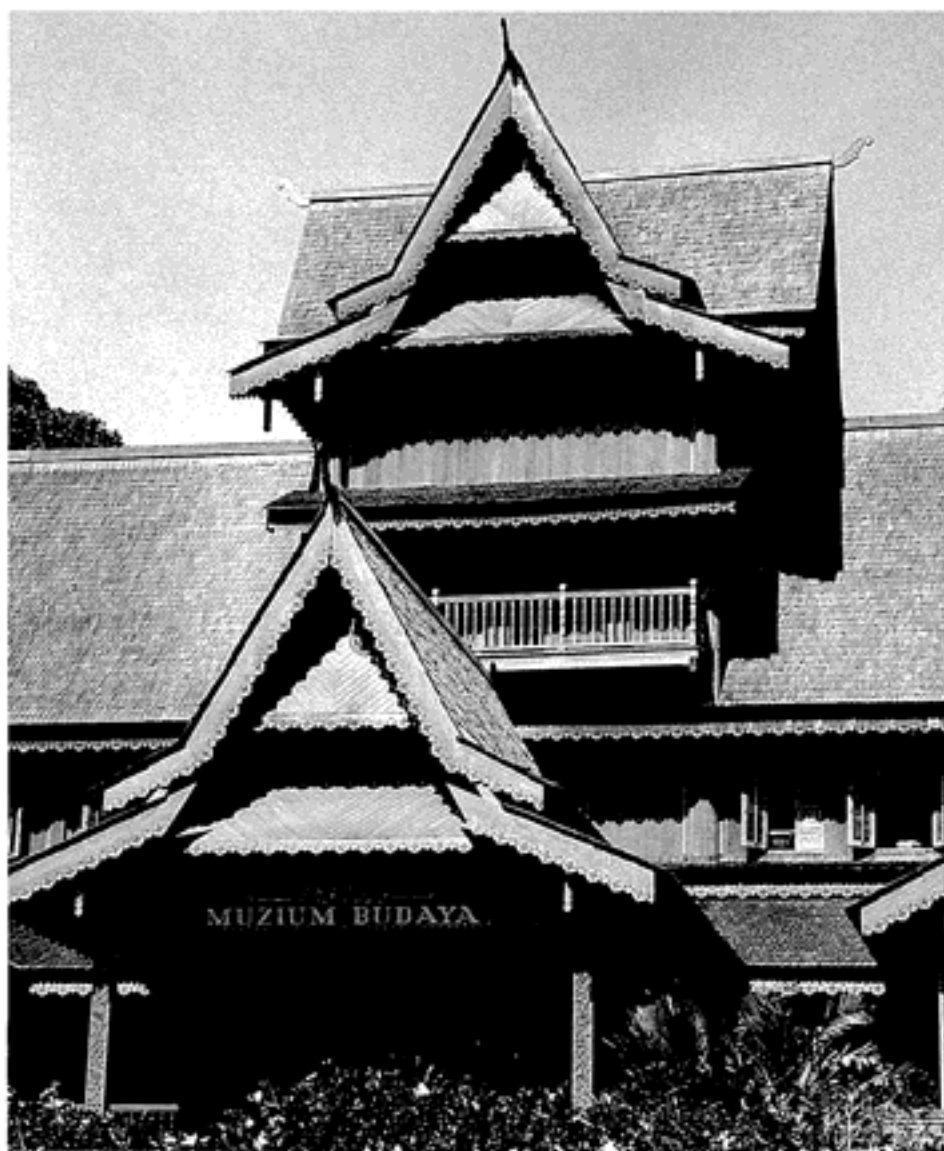
Bob Halsey, Xanthe Parkin and Derek Gilbert of Glantre Engineering describe their involvement in a spectacular Philips presentation.

Many of the world's principal historic tourist attractions are equipped with son et lumiere presentations furnished by Philips on a turnkey basis that includes all production and artistic services. Philips are undisputed leaders in this specialised field and have provided permanent installations at venues ranging from the Pyramids at Giza, the Red Fort Delhi and the Acropolis in Athens to the Pyramids of Teotihuacan in Mexico. Malacca in Malaysia can now be added to this distinguished list. Mention the name to most people, and they may recall from their school-day geography lessons the Malacca Straits or Malacca canes. But they would be hard-pressed to conjure up the exact location or importance of this once thriving trading post. Malacca is in fact sited on the west coast of the Malaysian peninsula, half way between the ports of Penang and Singapore, with which it was once united as the British Straits Settlements.

Malacca today is a relaxed town whose nautical and economic pre-eminence has sadly declined with the silting of its river and the rise of Singapore in the 19th Century. Although small vessels still ply the Straits to trade with Indonesia in charcoal, Malacca's future is felt to lie in the promotion of its historical importance as a means to attract tourists to Malaysia. And this government-sponsored tourist campaign is being spearheaded with the imminent opening of the Malacca 'Sound and Light Spectacular' - an open-air son et lumiere presentation that charts the growth of Malaysia by reference to historical monuments and buildings at the site.

The son et lumiere, recently installed by Philips Malaysia as main contractor, with support from Philips Projects Centre (PPC) of the Netherlands and Glantre Engineering Ltd, is an hour-long show presented each evening in English and Bahasa Malaysia. A Japanese version is expected to be added later this year in an attempt to attract more tourists from that country, and it is hoped that the show will convert many day-trippers into overnight visitors to Malacca, whose quality hotels presently have low occupancy levels. The £1.2 million project took nearly two years of negotiation before the go-ahead was given and the ground broken in May 1988.

Philips Malaysia's turnkey contract covered complete artistic and production services as well as supply and installation of lighting and sound equipment, electrical distribution and considerable civil engineering works including the construction of a control room and equipment building. Site management, building and electrical installation design and supervision of local civil and electrical sub-contractors at the site was provided for Philips by Glantre Engineering Ltd, who worked closely with the client, the State Government of Malacca and their Public Works Department, to have the installation completed for the December 1988 deadline. Despite independence 31 years ago, the Malaysian government still operates on the British colonial model, along with its formality and bureaucracy. Many of the local



The Sultan's Palace, Malacca.

engineers had been trained at United Kingdom universities or polytechnics and are of high calibre; however the decision-making process and protocols within the client organisation were such that considerable courtesy and patience was essential for a successful and harmonious implementation of the project. English is also spoken extensively in Malaysia so that Philips' decision to use a British site team was an inspired move.

The lighting scheme was designed by Philips' Bram Koebrugge, whose work has won several international awards, and who was recently involved in floodlighting design for the Tower Bridge in London. In Malaysia, Bram has used 101 different lighting circuits incorporating 500 luminaires over the power range of 60 to 2,000 watts for both floodlighting and special effects lighting.

While the majority of the luminaires are from Philips' standard outdoor floodlighting product range, additional equipment including Pani BP/2 optical effects projectors is also used where appropriate. Many of the floodlights are used with high temperature

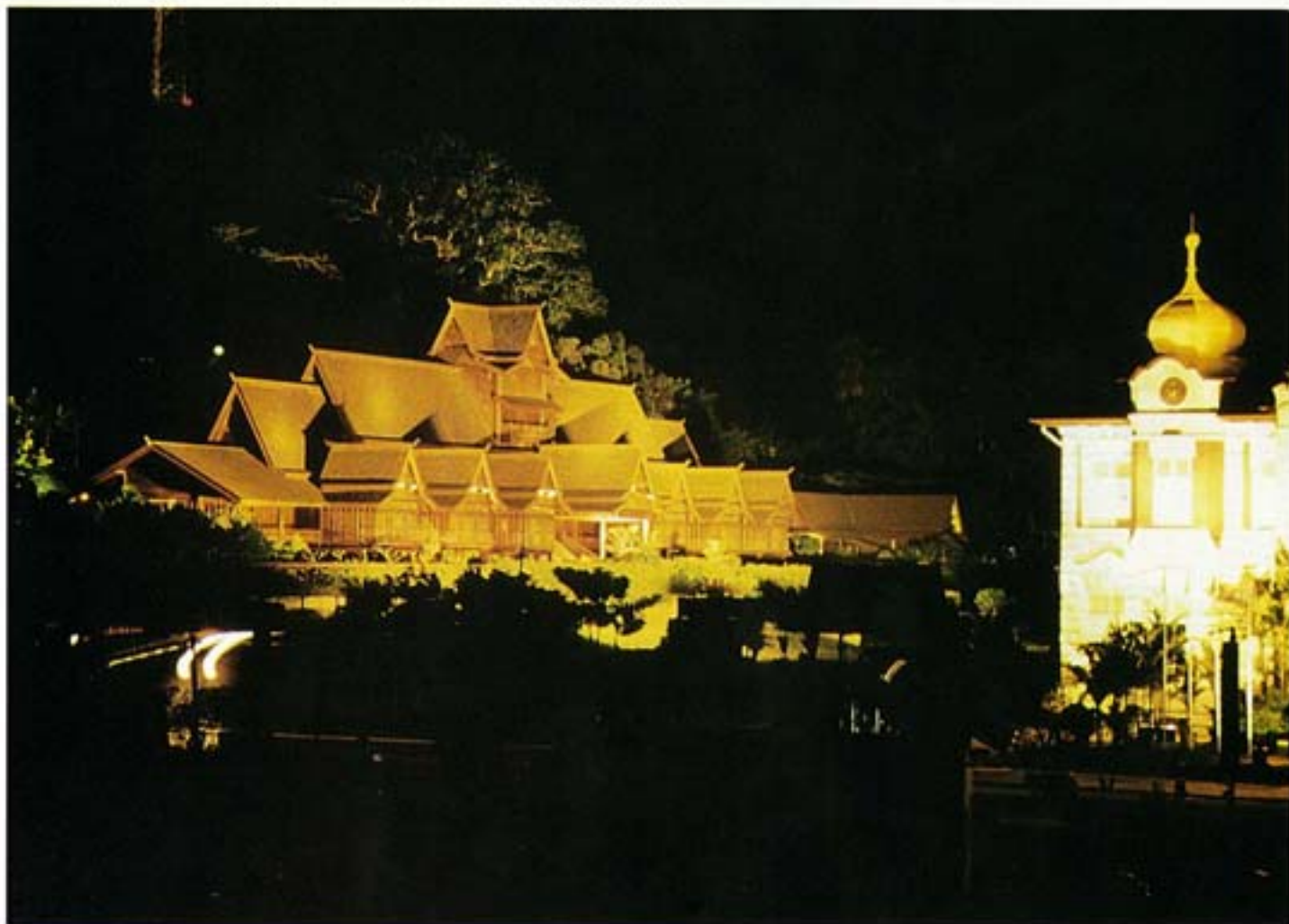
colour glass filters with rings to eliminate peripheral white spill light. One of the key parameters in achieving successful lighting design for son et lumiere is to produce theatrical-type lighting effects using industrial-type luminaires. Fortunately nowadays the range of long life coloured glass filters is much wider than it used to be, and includes some very acceptable tints as well as saturated colours.

Floodlighting luminaires mounted at ground level are all housed in green-painted steel enclosures with wire guards over their apertures and fixed on to concrete bases. From the beginning, these became known as 'dog-cages' to all and sundry! From past experience provision of such enclosure has been found necessary to prevent tampering, theft of fittings and accessories and vandalism.

Careful beam control was needed due to the buildings dating from vastly varying periods and the chronological nature of the script. Spill light too had to be eliminated, particularly to avoid illuminating an unfortunately located telecommunications tower



Luminaire 'dog-cages' in the foreground; bullock-powered tourist transport behind.



The Sultan's Palace at night, with the Malacca Museum to the right.

as well as to placate the present Governor of Malacca who quite naturally did not appreciate his bedroom window being brightly lit up from the outside!

The special effects incorporated in the programme include a sea-effect which gives the visual impression of waves rolling on to the beach at the original shore-line prior to land reclamation, bomb and machine-gun flashes to represent fighting during the Second World War, and a flame-effect around the Palace to represent its destruction in 1511.

A major power distribution installation is provided involving much underground cable trenching including road crossings. Several kilometres of armoured multicore power cables is employed with conductor sizes ranging from 2.5 to 25sq mm, and there are weatherproof local distribution pillars for each lighting circuit.

Dimmers comprise 36 20A Strand Permus modules fitted in two racks. Each of the 101 circuits may be patched to a pre-designated dimmer by a contactor controlled from pulses originating on the show's magnetic master tape. In this way, dimmer capacity can be efficiently utilised and there are precautions to prevent overloading.

The sound system includes six 100W outdoor column loudspeakers and four 50W effects loudspeakers surrounding the audience, who sit in a covered stand accommodating 500. The show is run from an Otari eight track reel-to-reel tape recorder using a system devised by Anton Thellier of Philips ELA division. Five tracks are used for sound effects while the remaining three provide lighting level, fade speed and contactor control data. A second Otari tape recorder and duplicate show tape are provided for standby purposes.

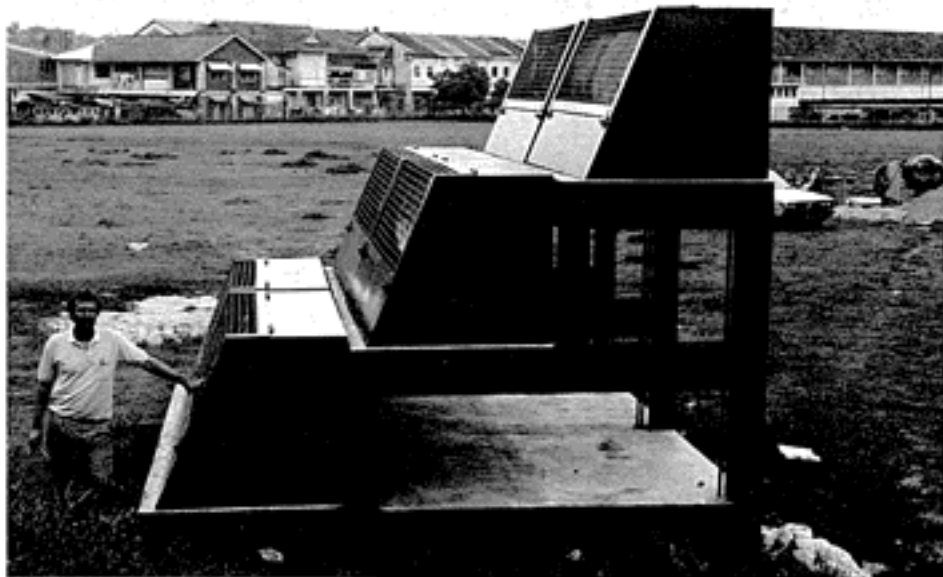
Operation of the show is simplicity itself, and only requires the start-up of the tape recorder. Servicing has also been kept to a minimum by, wherever possible, using maintenance-free equipment. Lamp-checking is carried out using a separate test tape which gives the maintenance engineer time to walk around the site from circuit to circuit as they are sequentially illuminated.

The control equipment is housed in a purpose-built air-conditioned building which also includes a 200KVA Volvo engine diesel generator with automatic mains failure start-up for use in the event of power-failure. The generator, distribution switchboard, pillars and mimic panel were all custom built by Scorpio Electrics Ltd of Worthing. The building was designed with particular attention paid to the ambient conditions required by the electronic equipment and the very high levels of rainfall in the tropics. It is divided into control room (housing the tape recorder and control racks), switchgear and dimmer room, generator room, spare parts store, washroom and toilet. A halon gas fire-suppression system is included to provide protection to the equipment. The building was constructed on open ground behind the Malacca Museum; in colonial days this grassed area served an important function as the cricket pitch for the Malacca Cricket Club - the MCC.

The artistic direction has been undertaken for Philips by Emile de Harven, internationally renowned for son et lumiere production. Emile's first task was to adapt the script produced by the government-appointed writer into a dramatic production using local actors and actresses. Initial recording was performed at Rediffusion's studios in Kuala Lumpur, while subsequent mixing, editing and recording of music and sound effects took place at



Another view of the Sultan's Palace.



Bob Halsey beside the floodlighting bank for Sultan's Palace. In colonial days the field behind was used by the Malacca Cricket Club!



Audience seating stand under construction on reclaimed land. The road in the foreground is closed to traffic during son et lumiere performances.



The Formosa Gate.



Sultan's Palace with Formosa Gate to left.



Control equipment racks with two Otari multi-track tape machines (duty and standby), UPS and halon gas cylinder.



The standby diesel generating set.

Wissalord studios in Holland. Cueing, synchronisation and lighting programming were completed at the Malacca site.

The location chosen for South East Asia's first permanent son et lumière installation is ideal because of the close proximity of many historical buildings and monuments as well as being the site where Malaysia's independence was officially announced by the country's first prime minister, Tunku Abdul Rahman.

The central subject of the show is the beautifully reconstructed replica of the original Sultan's Palace, a representation of the period of the Sultanate before invasion by western trading nations intent on colonisation. In the centre foreground is the Formosa Gate, a solid 16th Century structure flanked by cannons, which is all that remains of the walled fortress of Malacca built by the Portuguese after their capture of the town in 1511. High on the hill behind the Gate is the ruined church of St. Paul which spans the time of the Portuguese and the later Dutch colonists who conquered Malacca in order to safeguard the passage of their valuable cargoes from the spice islands of Indonesia en route to Europe.

The Dutch period is also represented by a typical colonial building to the far left of the site. Between this building and the Formosa Gate stands the Bastion house, formerly the Dunlop building and representing the more recent British colonial period. The right side of the site is occupied by a museum dedicated to Malaysian Independence, formerly the British Club as well as the Astakka temple. Additionally, the site is fortunate in possessing a number of prominent trees which when lit provide an excellent backdrop to the historical buildings.

The nature of the site gave rise to numerous problems for the project management team. Considerable administrative effort had to be expended on numerous non-engineering matters ranging from negotiating relocation of market stalls to arranging temporary closure of public roads. Tree lopping and surgery also demanded much attention, the sun, rain and fertile soil causing many trees and bushes to have grown prolifically since the original design had been undertaken eighteen months previously. One urgent phone call back to Glantre's Reading office resulted in hasty purchase of a book on forestry! Other publications in regular use by the site team covered diverse subjects from building regulations to quantity surveying.

Around the site, tourists were often more interested in the cable trench excavations than they were in the monuments, and they found the protective housings for the luminaires to be ideal resting points as they climbed St. Paul's hill under the hot tropical sun. The massive bullocks used to haul the tourist wagons were equally interested in the goings-on, and on more than one occasion made their own special contribution to premature backfilling of the cable trenches. During commissioning of the project, it was necessary to undertake the trial runs very late at night in order to avoid disruptive lighting from car headlights, and to minimise the numbers of curious onlookers who could have been given a wrong impression of the finished product. Three weeks were needed for the lighting and sound programming to be refined.

A major consideration for the design team was the tropical weather. Although experiencing a constant year-round

temperature of about 28°C, Malaysia is a country affected by monsoon conditions, and even in the driest months it has a heavy rainfall. The high humidity coupled with the corrosive atmosphere caused by Malacca's coastal location, meant that wherever possible stainless steel fixings and adequate equipment ventilation were a necessity to prevent rusting and internal condensation that could lead to short-circuit faults. Wildlife too played its role. Quite apart from the afore-mentioned bullocks, snakes were encountered, while the frequent heavy rain storms would flush out rats from the drains. Numerous lizards attempted to create new homes in the luminaire housings and distribution pillars. Most hostile however, were the numerous warrior ants who, as the lighting designer will testify, can bite most painfully.

For both the Philips management team (headed by Will van Bragt assisted by Lee Hing) and for the Glantre site team, working on the project proved to be both a stimulating and rewarding experience. The coastal resort environment was much appreciated by all, and provided a real treat for those whose earlier overseas site experience had largely been gained during the construction booms of the past decade in the rather less relaxing surroundings of the Middle East and Africa. Outside working hours, there was time to fit in sightseeing, tennis, sunbathing, swimming and barbecues - and for one, the odd hunting trip in the jungle.

The project was successfully completed on time and to critical acclaim; the audience levels during the early months will be closely monitored by other South East Asian tourism ministries who are contemplating similar projects.

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Beating the Drum for Databeat

The Databeat automatic CD-based background music system, with manual and foreground options, was formally launched at two presentations held at Raffles in London's Kings Road in January. Tony Gottelier reports.

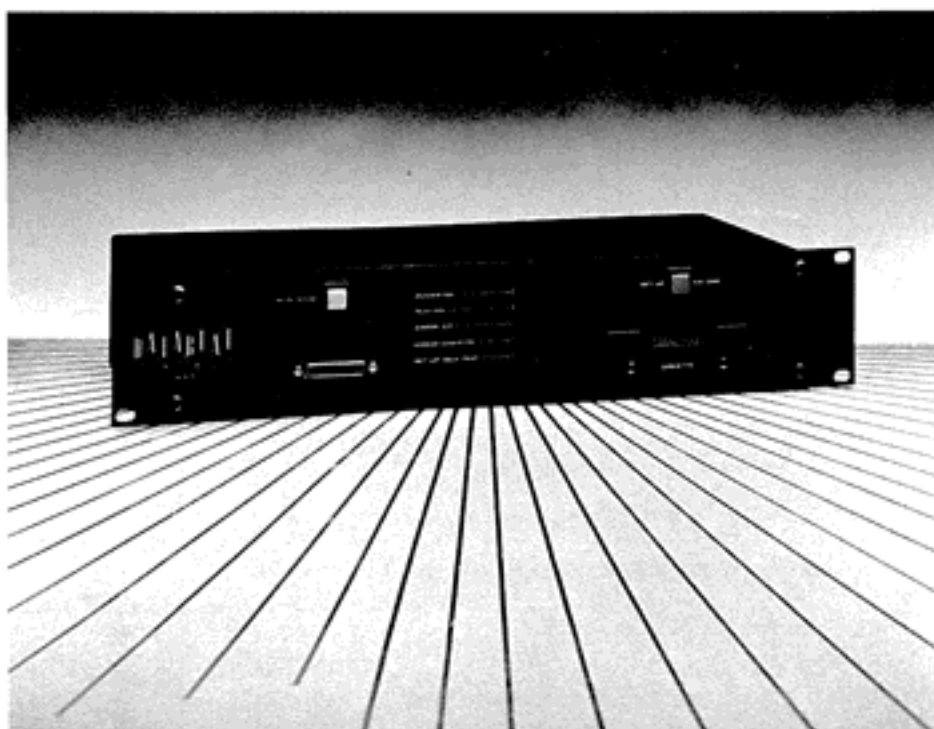
Each presentation, involving roughly 30 or 40 brewery and hotel execs, bar owners, equipment distributors and other trade aficionados, was addressed for 20 minutes or so by John Leefe, ex Julianas/Bacchus technical director and Databeat's managing director, on the why's and wherefore's of the system. Subsequently time was allowed for questions and answers and the opportunity to take a closer look at the system. During all this time, about three hours in total, eight sessions of music played automatically in the background, changing every 15 minutes to a different style, apart from 15 minutes of programmed silence to allow Leefe to speak. Easy Rock, Classical, Rock'n'Roll, 60's Rock and Pop, Disco, 80's Rock, Pop and Easy Rock from 1983-'89 were among the categories chosen.

Developed over several years, and with the benefit of considerable advice from the breweries, the company claims to be offering a state-of-the-art background music system and the next generation after tape. "The problem with tape and indeed other C.D. systems is that they are totally dependant on the original programming, as the play order remains the same day-after-day and can get very boring," John told me. "The beauty of Databeat is that, unlike all other systems, we have developed an unique software-based control system which selects compatible tracks, but in no routine or rigidly fixed running order. So you never get exactly the same programme although it will always reflect the mood required at the time."

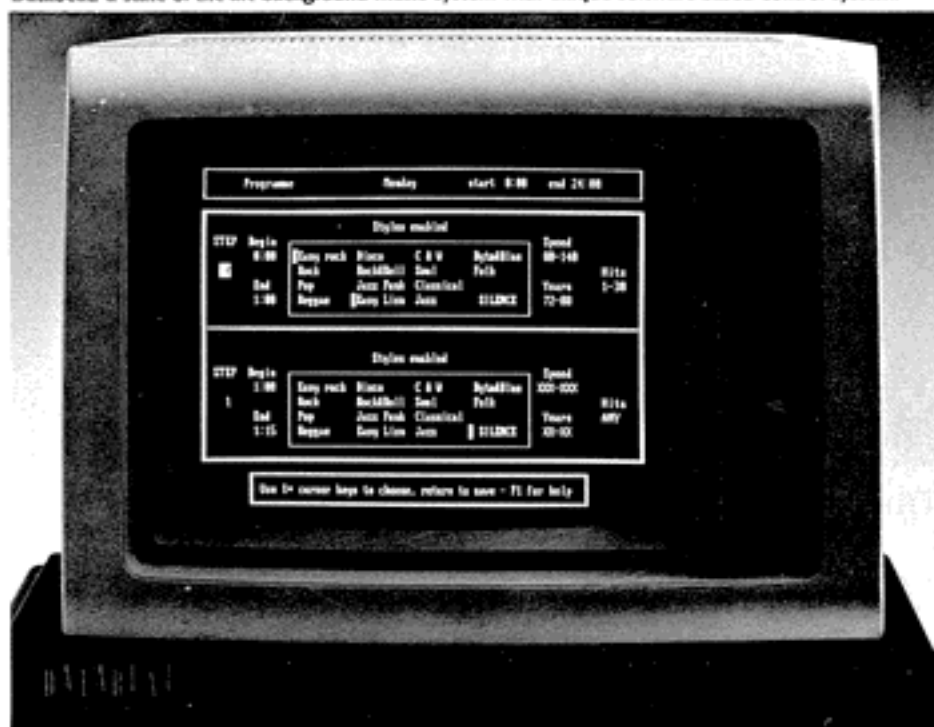
This is achieved by programming into the Databeat software the unique code existent on all C.D.s, and provided it has been included in the library the system recognises, via its memory, each selected track according to its style, speed and tempo together with any other relevant data. The computer then searches for a tune which is in sympathy with the one already playing and will make a random choice from the ten or more suitable options which may be available from the overall library of 1400 plus tracks from up to 120 discs. The individually prepared master music programme takes care of any known changes of mood or target audience during the day, or day-to-day, and automatically governs this and, the switch on/off, via its calendar clock. This timed programming will normally be produced and provided by Databeat's local distributors, who will also up-date the play material monthly or more regularly as required.

A single button-press to start, and from there on the computer takes over and will automatically cue and play a sequence of songs using the appropriate criteria. As each disc is playing the next is searched and selected, but randomly within the given parameters, and eventually crossfades in. And all heard at the quality only digital reproduction can provide.

Two other models, offering a greater facility for local control, were also announced. The P.C. version, which like the automatic unit uses two or more Sony CDK-006 players, each capable of storing up to 60 full



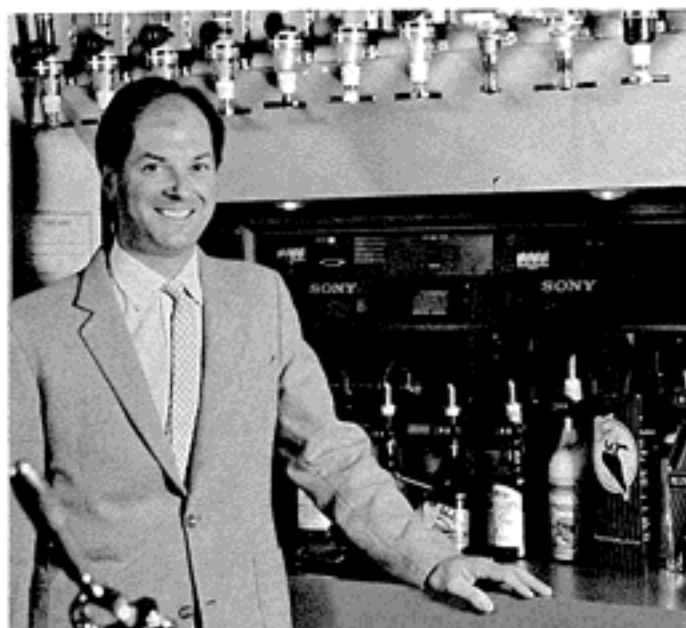
Databeat: a state-of-the-art background music system with unique software-based control system.



length compact discs, uses an industry-standard PC/AT compatible card. This provides the option to set-up and control music programming via a keyboard on-site; useful, for example, in a situation where unpredictable events are known to occur or where personal input is preferred. This model also allows instant alterations to the mood of music should there be an unexpected change in the emphasis of the audience. The kind of situation which may happen, for example, in a fun pub or high energy Cafe Bar.

A D.J. operated foreground system makes

up the initial set and will make its debut in the spring. This model will prompt the operator with an on-screen selection of up to 12 suitable tracks from which the computer would normally make its final random selection. In this case the operators make their own choice from the prompt-list as they go along thus allowing the construction of a fully professional music programme with a human element. Furthermore, they can also enter their own parameters to frame the selection process, thus making it truly individual to their own conceptions.



John Leefe: "Databeat will always reflect the mood required at the time."



Databeat in situ.

This package uses two or more Technics SL-P1200 players, which take single compact discs selected manually, thus potentially more flexible for 'live' performance. The Sony CDK-006 may also be used.

John Leefe was also able to advise his audience that systems have been running successfully at the Bass-operated Pier 6 and in The Brasserie, a 24 hour restaurant operation, at the Olympia Hilton. "Due to the wonderful reception we received at the PLASA exhibition I am pleased to say that we have already received orders for in excess of 50 machines," Leefe told me. "And as from

January we will be producing them at the rate of 24 per month. I am particularly pleased to see a system going into The Maybury - Scottish and Newcastle's flagship operation in Edinburgh. Up to now they have relied on cassettes. In fact, when I was there recently, the Graceland tape played end-to-end for over three hours at lunch time," bemoaned John. "And this is typical of the situation which often occurs." It's hardly the standard which might be expected of a high profile operation such as the Maybury, which has received numerous accolades in the trade press for its unusual interior, modelled

around a luxury cruise liner.

Initially appointed distributors of the Databeat system are Tobysound, Supervision and Oxtron Digital Systems, who also manufacture the electronics under licence, and Julianas Sound Services who have a financial stake in the business. The latter will, no doubt, be impressed to hear that two systems have been sold to private homes without any deliberate marketing effort. So if there is a domestic market, as well as a commercial one, for the Databeat system at £6,000, it could be very good news for Juliana's share price.

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Ice, Fog and Lights at Alton Towers

L+SI reports on The Ice Spectacular at Alton Towers.

Oadby born Mike Snape has had theatre in his blood since he was a small boy. By the age of 16 he had begun to specialise in the technical side of entertainment, concentrating on the application of lighting and sound. He then moved on to the Department of Drama and Dance at Knighton Fields before attending the London Academy of Music and Dramatic Arts.

Six months ago, at the age of 24, Mike was appointed stage technical manager with one of Europe's leading leisure parks - Alton Towers. In this position, his brief is to supply lighting, sound, special effects and general technical support for all live entertainment that takes place in this popular North Staffordshire leisure complex. And it necessarily involves him maintaining as wide and diverse a portfolio as possible, ranging from the provision of small PA systems to the heading of a large technical team to stage an Ice Spectacular as part of the first-ever Christmas Festival at Alton Towers.

The Ice Spectacular, an hour-long production, was mounted in a circus big top using a portable ice tank 20 metres by 15 metres, manufactured on site using 5½ kilometres of piping, 30,000 litres of water and a 120 ton ice compressor and cooling tower.

Mike Snape spoke to L+SI about the complexities he and his team had to surmount: "The lighting of such a large surface area in a confined space was quite a challenge and meant avoiding the use of floods for cover



The lighting grid and stage set for Ice Spectacular at Alton Towers.

Using a mixture of Parcans and fresnels it was possible to create a very varied and colourful cover.

"I felt that special effects were most important in a fast moving show, so I packed a lot into the one hour duration. This included the prototype of the JEM Heavy Fog machine which was extremely effective and proved ideal for our purposes."

Installed above the ice was a lighting rig containing over 250 spotlights, special effects, four follow-spots and moving scenery. Time scales on a production of this size are often very tight, and four days were all that were available for Mike and his team to create the spectacular, which included a sloping ice tank.

"Condensation was inevitably a problem,



The Alton Towers Ice Spectacular in action.

photos: Irene Cooper, IMC Studios.

but the Teatro lanterns and Pancans stood up brilliantly, as the rig was dormant for up to four days at a time during the run. More often than not, it was dripping with water and a careful warming process had to take place," he explained.

One could be forgiven for thinking that the daily wrestling with such logistics might be enough to put anybody off, but not Mike Snape and his crew, they are looking forward to the next challenge.

As Mike told L+S: "It was an enormous project and involved several sleepless nights, but it was well worth the effort to see the professional and very popular show that emerged. We're hoping that the next winter season will make even more demands on our capabilities."

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Lighting Equipment: Mushroom Lighting
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Skating lighting designer Mike Snape.

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FRANKFURT 89

John Offord and Brian Davies report from the Messe Halls.

SOUND

The numbers game at Frankfurt is always big. In 1989 more exhibitors than ever took part, with 973 companies from 39 nations. 399 came from the Federal Republic of Germany, with the USA heading the league table of foreign exhibitors and the UK second with 106. The only other highlight amongst the figures was the fact that the US exhibitor tally (112) had risen from 68 last year when they were third behind Great Britain and Italy.

Otherwise it was the same big and busy well-organised show, and personally I was only disappointed by the non-appearance of both Steinway and Bechstein in Hall 9.0. No opportunity this year for a relaxing half-an-hour dreaming of those beautiful pianos away from the rush of Halls 9.1 and 9.2!

Citronic launched the latest addition to their fast-expanding SPX signal processing range in their pro-audio product line. This equaliser is a very high performance low noise unit that has a Second order State Variable Parametric Notch Filter designed to address the feedback problems associated with high power sound reinforcement as well as foldback systems in live PA applications. In addition to the impressive array of equaliser control functions, the notch filter has a variable range from 30Hz to 20KHz, variable depth from 0 to 20dB and the Q is adjustable from 0.2 to 7.6 from the front panel after installation.



Citronic's new SPX7-27 graphic equaliser.

Speaking to sales and marketing director Mike Gerrish, he told me that Citronic had been working hard on the European market for two years, and since October things had really taken off. "Sales in both Spain and Italy in particular are absolutely excellent," he said.

On the **Bose** stand the Acoustic Wave Cannon was being promoted heavily as part of the 'Bose Cinema Sound System'. They reckon 500 new cinema screens will be opened in the UK over the next two or three years, and they were pushing the same message in Europe.

The stand of Expotus featured **Allen & Heath's**



Cinema sound from the Bose Cannon.



Toa's 'P' series was launched at Frankfurt.

Sigma with full patchbay and the new **Saber Series** console. Both were operational in a 'semi-studio' environment. Also on stand were operational racks of **Klark Teknik** and **Drawmer** audio processing equipment, including KT's new gates and compressors.

A new range of 'totally versatile' 2-way loudspeaker systems was launched by **Toa Electronics**. The F500 and F600 Series loudspeakers are available in either standard or SR versions. Total reliability is guaranteed, say Toa, thanks to built-in overload protection circuitry, while a variety of fixing methods enables convenient mobility and easy installation. Also receiving a first Frankfurt showing were Toa's CX Series mixing consoles and the MR-8T 8-track cassette multi-recording system, a 19" rack mounted unit which provides eight audio tracks by the use of the two separate four track heads.

McKenzie Acoustics had on view their entire range of chassis loudspeakers, crossovers and accessories including the Professional Series, Studio 7 Series and Bullet BHF 520 high frequency unit. Other products were the Q-Max Mosfet power amplifiers and portable PA systems and the Compact Series of multi-purpose sound reinforcement equipment.

No less than five new products were launched by **Carlsbro Electronics**: two new stereo powered mixers join their PMX range, the PMX 16:2 and the PMX 8:2; the PX15B cabinet is capable of delivering 300 watts; and the SX600 power amplifier and a budget version, the SX300, completed a very competitive package.

Roy Millington of **Cloud Electronics** was kept busy showing the new range of products launched at the PLASA Show last September, and now in full production, including the Buckingham and

Chatsworth consoles and the Discomaster 1200 mixer.

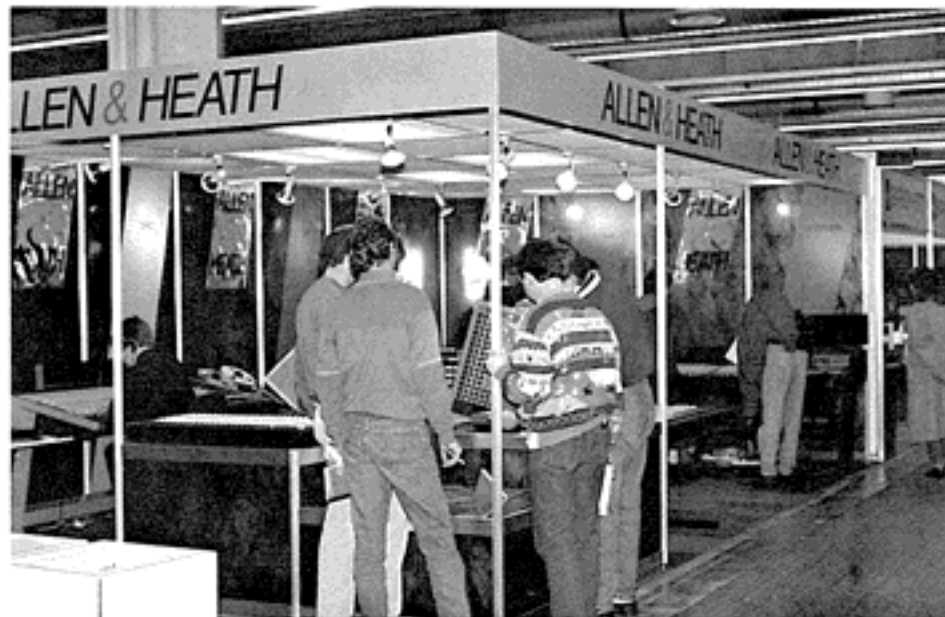
Also in the PLASA 'area' was **Musicraft**, who had a new active crossover to demonstrate under the **Soundtex** banner. Musicraft are opening a 16 track demonstration studio at the end of this month, and it will be located above their existing premises at 303 Edgware Road.

C Audio had their RA Series of Mosfet power amplifiers, rated at 250, 450 and 650 watts per channel. The series offers front to back cooling, LED bar graph and status indicators, and front handles and rear rack supports fitted as standard. Also on stand was a new mixer aimed at the studio market and available in four months time in 8, 16 or 24 track versions. In addition C Audio had a new graphic equaliser which will come on stream in eight weeks time. They also pre-viewed two new professional amps - the TRA Series - which are due to be launched shortly at AES in Hamburg.

Nexo had examples from their range of professional speaker systems including the new S11000 and the S112000. The latter will handle over 2000 watts of amplifier power per cabinet with overall dimensions of only 1.4 metres high by 700mm wide and 560mm deep. The new systems feature the S1 TD controller, a new processor system which allows real time control of voice coil temperature and cone displacement of each loudspeaker. The controller monitors the loudspeaker at all times and can introduce selective frequency filtering and amplitude control when required, to prevent voice coil damage with minimal influence on the overall sound quality, say Nexo. The stand also featured a demonstration of the Nexo CAAD computer-aided design software, a PC-based system that can construct 3D computer models of buildings to demonstrate the acoustic effects of the relative placement of speakers.

Cuedos, a software package developed by **Cue Systems** to control programmable mixers in live performance and fast production environments, was shown on the **Sellmark** stand. It is now available for the Yamaha DMP7 digital mixer.

Harrison Information Technology had an extensive range, including four new designs, and highlights were the SP2000 modular mixer launched at the PLASA Show, and the SL80 digital sampler, engineered specifically for the disco market. (For more information on HIT's latest trickery you can read the special feature on the company in this issue of L+S).



Allen & Heath's 'studio' on the Expotus stand.

Hill Audio were showing prototypes of their new LC series of power amplifiers on the stand of Zitron Musik, their distributors for Germany and Austria. The range consists of four versions, all of which are 2U with variable speed fan cooling, new protection circuitry incorporating remote logic muting of the speaker inputs and options for VCA controlled remote attenuation and plug-in transformer balancing of the inputs. Other products on display included the recently expanded Concept range of modular consoles.

A joint stand in the PLASA block was taken by Kelsey Acoustics and Volt Loudspeakers. Kelsey were showing the complete range of IsoTrack patch panels including the new MIDI panels CPM22M and CPM22T featuring 22 Din sockets with either Din socket or hardware terminations on the rear of the panels. Also on display was the new IsoTrack XLR panels featuring either 16 male or 16 female XLRs in a 1 unit rack mounting strip. XLR configurations can be changed by simply releasing four bolts and rearranging the connectors.

Kelsey products included the K20-BNC - a 1 panel unit featuring 20 BNC bulkhead through adaptors. Rear connections are on BNC so that the first time the panel is removed from the rack half the connections do not break off as happens with soldered versions. Debuting at the show were Electronic Audio Systems' multiple active D.I. boxes which are available in 8 channel rack-mount or 4 channel free standing units.

There was also a Frankfurt debut on the Kelsey stand for Court Acoustics' range of signal processors including the PE1 parametric equaliser, the NF1 notch filter and the EC7 electronic crossover.

Volt Loudspeakers were showing their full range of high power drive units, designed for use in compact systems with applications ranging from distributed installations to studio monitoring.

News from Fane Acoustics is that they've now established an operation in America. At Frankfurt a wide range of products was on view including power amps and PA speakers plus their established chassis speakers.

John Offord



Richard Vickers (left) of Kelsey Acoustics.

One of the UK's leading multi-channel mixer manufacturers was to be found demonstrating highly sophisticated front of house sound mixers with enough facilities to satisfy the needs of live recordings. Todd Wells, chief executive of Soundtracs PLC, told me that in 1981, at the nadir of the discotheque decline, the company employed just 11 staff. Today the research and development division employs this same number, four of whom are employed solely to write software for the computer controlled desks. All desks are modular in construction and can be adapted to serve pretty well all needs and variations. The MX/MCX being particularly suited to sound reinforcement whilst the MRX also satisfies the recording engineer.

Several new products were on show for the first time by HH Electronics. These included the TA series of loudspeakers, ideally suited to the small club, pub or restaurant. Also available is a tailor-made system controller for the TA series. This performs frequency response alignment, crossover and optional limiter functions. Various rigging ac-



Ryoichi Omachi, manager of engineering development of RAMSA, pictured at the new console featured in our 'Close-Up', pages 33-39 this issue.

cessories are provided such as tamper proof cover and adjustable bracketry to permit either flush or recessed mounting. To complete the installation, two versions of a 2/3 octave graphic equaliser have been introduced. For space limiter applications the EQ215P is a 1U high unit utilising rotary faders whilst the technically identical 2u case uses 45mm sliders.

Recent additions to the SR series of Celestion loudspeakers is the SR3 and the complementary SRC3 system controller. This injection-moulded polymer enclosure has threaded inserts provided



The EQ215S graphic equaliser from HH.



Citronic's Frankfurt line-up.



Cloud Electronics' Roy Millington (right) on tech-speak.



Fane Acoustics: newly-established in the States.



Wembley Loudspeakers: establishing the range.

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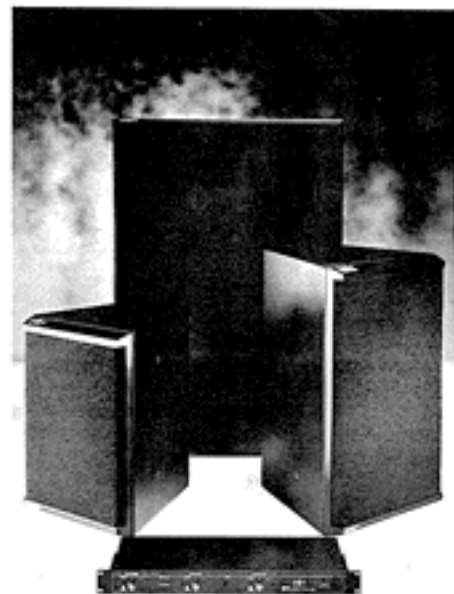
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HH's RA series loudspeakers and system control.

to allow many mounting variations from pole to ceiling to wall as well as surface. The controller provides the necessary frequency adjustment to ensure smooth response from 60Hz to 20kHz and is intended as a fill in for discotheque and night club installations.

For the OEM, Celestion have produced a new range of dedicated PA systems drivers including the B18-1000W sub-bass unit, this I would love to hear!

Also demonstrating, never before seen, well by me at least, loudspeakers were **Electrovoice**. The MT4 system really must be heard to be believed. At Frankfurt, the MT4 was installed and switched on with little attention being paid to EQ of the sound booth. Various members of the company brought along their favourite CD, but without too much consideration of their suitability for demonstration purposes. The result was saddening to hear, the Pasadena's mix-down was abysmal, and the Alexander O'Neal lacking in low bass. Scouting around, I found the CD I wanted to hear which I borrowed from Paul McCallum of Wembley Loudspeakers. The best of UB40, track 17 (Rat in the Kitchen), has to be one of the finest tests of audio fidelity ever produced. The resultant demonstration was mind-bending. I can only say - get to hear it if you can! 120dB at 2 metres was clean and sweet. No signs of distress to either the sound systems or the listeners. Undoubtedly, most impressive, but at around 7k per side I suppose they ought to be!

For the OEM manufacturing loudspeakers comes a new range of drivers from **RCF**. These include a high output midrange unit utilising a carbon fibre cone, a coaxial unit covering the full audio spectrum from 68Hz to 18kHz. Three bass drivers are included - one intended for horn loading, and one for extended low frequency use. Clearly the leaflet has some printing errors as the third bass unit is correctly shown photographically, but incorrectly detailed technically, as it suggests that it is a coaxial driver - which it isn't. For high frequency application the N482 compression driver complements the others in the range, with a sensitivity well over 100dB for 1W/1m this should be easy to drive.

For the small nightclub it is often difficult to decide whether to install your own front of house mixer and PA system or rely on the entertainers to provide their own. Whilst the latter is cheaper, it is sometimes fraught with problems, with some groups bringing vast quantities of excessive power capabilities or conversely inadequate equipment with much distortion. Undoubtedly, the best solution is for the club to install a suitable system of their own with the musician providing only backline equipment. One economical solution is the **Carlbro** stereo powered mixer range. Either 12 or 8 input channels mixing to 2 output channels and complete with integral power amplifiers ready to drive suitable loudspeakers. These mixers are small enough to be installed in a perma-

nent location or stored ready to be brought out when a PA is required. A wide range of suitable loudspeakers are also available.

If you already have an unpowered mixer and require only power amplifiers, take a look at the range produced by **Rauch Precision Engineering**. These are using the newest of current technology, switch mode power supplies. Essentially this means cooler running, greater efficiency, lower running costs and greatly reduced weight. Typical weight of a 1000W system is 17Kg at least 30% lighter than conventional techniques. Although switch mode power supplies have been around for many years, until recently they have been confined to low voltage supplies. Probably their major markets have been in the computer industry. We have had to await the arrival of reliable high voltage power Mosfet devices in order to fully enjoy this development.

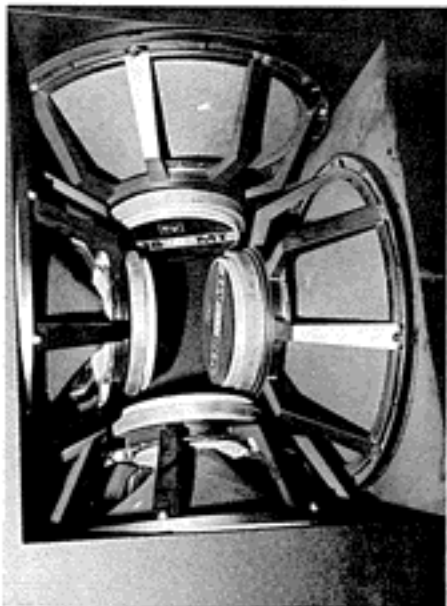
At most exhibitions and fairs as big as Frankfurt, a word or phrase becomes all of a buzz, and 1989 was no exception. This year the buzz word on everyone's lips was 'neodymium'. Neodymium is a rare earth, metallic, trivalent element occurring naturally with cerium and other rare earths. It is now being used as a magnetic material in both microphones and high frequency loudspeaker compression drivers. Its major advantage over other materials is its flux density to weight ratio. It can be magnetized to a greater flux density and weigh less than, say, cobalt. This means higher power, or greater efficiency at lower weight.

Several manufacturers were displaying new products using neodymium and **Beyer Dynamic** were no exception. Four new microphones have been introduced, these being announced only 24 hours before the Fair opened. They are to be known as the HP/MM series, and are intended as vocal microphones each with slightly different facilities or specifications, therefore suiting a wide range of voices. Talking to Stephanie Wake of Beyer Dynamic UK, a neodymium-based microphone has been in the Beyer catalogue for more than a year, but it is only now that this material is finding its major use.

Harman GmbH are the German importers of



Beyer Dynamic's HP/MM series microphones.



The EV MT4 bass driver section.



The SR Compact from Celestion.

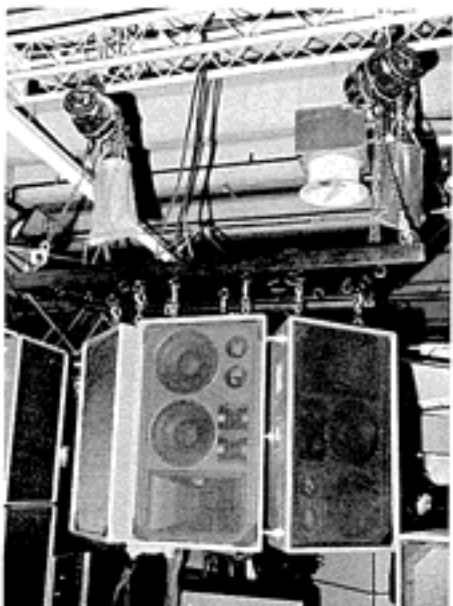
both **JBL** and **Shure** products and some of the latter's mics are now using neodymium technology. On show were versions which I recognised under their old designations such as the SMS8 and the Unisphere - much vaunted, copied and used by many, many artistes. I have no doubt that the new versions will be acclaimed as much as the old. JBL have introduced many new drivers for the OEM market as well as systems suited to both the small club/restaurant as well as venues such as NEC, Birmingham. In this review it is not possible to talk about them all, but the one which did catch my eye was the new compression horn driver using a neodymium magnet. It was sufficiently new that no other written data was available.

Brian Davies

LIGHTING

Cerebrum Lighting had the complete range of both **Powerdrive** and **Light & Sound Design** products on display. Powerdrive's lighting and equipment stands and L&SD's lanterns and rigging are world exclusive lines for Cerebrum. A moving display of L&SD trussing utilising their motor control system featured the popular 'Colourmag' lighting system centre stage. Stage left a Powerdrive truss tower was hosting a group of Mkl Gel Jet units. All dimming and control was by Celco.

New, and a bit different, Cerebrum also had an example of the L&SD folding truss system plus some water resistant Parcans, incorporating glass front and rubber gasket, ideal for architectural



A JBL stack showing hoist system for flying.

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applications.

Managing director John Lethbridge told L+S that sales on Light & Sound Design products were taking off very well, not only with established companies such as Theatre Projects, Supermick Lights and Samuelsons, but also into new areas and most particularly overseas. Colourmag was certainly the star of the new line-up available through the **Presentation Consultants** set-up. In addition, new distributorships were now being set up world-wide.

From 1st April this year, **Celco Limited** will be selling all their lighting control products direct from a new range of distributors. For the past eight years Cerebrum Lighting have been exclusive world distributors, but they will now share the UK with AC Lighting, The States, Mexico and Canada will be looked after by Celco Inc, whilst another dozen or so distributors will handle the bulk of the rest of world sales.

Celco had a full range of products on view at Frankfurt, including the famous 'Gold' console, the 60 Major and the 30 Major, plus the modular Series 2 range of dimmer systems. They've also introduced a neat new line of shirts and jackets in true Celco style. Available from distributors (but not for free, unless you've bought a 'Gold' recently) anyone wearing one of their leather-sleeved baseball jackets will be the envy of everyone at Meteorites, Avolites...

"We have in the last couple of months appointed new distributors for our Scorpio and other stage products in Sweden (NLC in Nybro), Holland (Litecom in Utrecht), and Belgium (Flitecar)," said Iain Price-Smith of **Multiform Electronics**. The Scorpio 18 channel programmable rock board was demonstrated as a prototype at the PLASA Show and is now in production. "It has

all happened since November," he enthused. Multiform will be releasing a new 2 preset 18 channel desk in about three months time in predicted.

Zero 88 were showing their new high density dimming pack, the Rackmaster 260. This rack mounting unit has 6 10A dimming channels in a unit only 2u high, and complete with fan assisted cooling. It is fitted complete with front panel diagnostic indicators, fuses and fuse blown LED's, channel selector and a pre-heat preset control to encourage long lamp life.

A new package from **Pulsar** is 'System 8', consisting of two stands, 4 Par 56 lanterns, 2 4-channel Mini Packs, and an 8 channel Rock Desk. It comes complete with 2 fibre cases for easy transportation, and is a neat little starter kit. At the top end, Oska was in evidence yet again, as were **Clay Paky** Golden Scans. Director Ken Sewell told L+S that Pulsar and Clay Paky hoped to have 'Super Scan' ready for a prototype demonstration at Rimini in April. Basically it will be a professional version of the Golden Scan, whilst at the lower end of the scale 'Crystal' Scan was shown at Frankfurt. This one is a budget version of Golden Scan at about half the price. It comes without remote control of iris or gobos and is available in 400W and 500W versions.

Main feature of **Anytronics** stand was Light System One and Light System Two which are now in production. Bob Hall reported that many more European countries are now set up as distributors as a result of the Frankfurt show. They'd even received their first-ever order from France!

Mike Latter of **MJL** was showing a new foot control unit - the 'Footace'. Designed primarily for bands, it will also have numerous applications

wherever a basic four channel light control system is required in one complete package. Place the unit on the stage, plug in the mains and stereo lamp channels, and away you go, say MJL. Footace provides static (on-off) channel switching, a variety of effects, or a combination of both via its 'memory' facility. With infra-red footswitch detectors, reliability will be retained when with the most speedy size 12 boot says the brochure.

Not exhibiting at the Fair, but much in evidence were **Astralloy**. Their trussing was used by at least six exhibitors to construct entire stands. Mark Reed told L+S that a complete container of trussing was delivered to Astralloy's German importer a day or two prior to the exhibition and had been completely sold out well before the end of the second day.

Eminence Audio had their UJ lighting jacks on display together with literature that was nearly as tall. Difference with these units is that lift is provided by a lead screw actuator system which means the unit is locked in position at any height.

Mushroom Lighting of Northampton had bits and pieces from their hire/sale range including **Teatro**, **Eminence**, **Slick** and **Felstar** products plus 'Starframes' and some pretty pictures of some of their most recent giant trussing exercises.

Many other 'regulars' were on view at Frankfurt in some shape or form, usually on their German distributors' stands or even just walking about the halls, doing their business on foot. **Coemar** product was evident as was **Avolites** who were showing a complete range of control equipment. John Walters and Mervyn Thomas of **James Thomas Engineering** told L+S that they have now lined up both Amptown and LMP to act as their distributors for Germany.

John Offord



Cerebrum's Rod Bartholomew (left) with Presentation Consultants' new German distributor, Gerd Knüttel of Media Design, Hannover.



L+S's latest 'prototype' Ruth Rossington (left) with Sandra Cockell of Formula Sound and Zero 88's David Catterall.



Pulsar's small but exceptionally busy stand.



Celco's Matt Deakin (second from right) explains the 'Gold'.



Citronic's Tony Akers (left) and Larry Dane with the new SPX7-27 graphic (see page 25).



Zero 88's development director Richard Thornton Brown (right) gets his selling act checked out by sales director Freddy Lloyd (second from right).



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CLOSE-UP

RAMSA WR-S840 RAMSA WR-X01

Ben Duncan checks out an exciting new live sound board from Japan, supported by comments from engineers who've been on tour with it. In the second part he examines the smallest mixer in RAMSA's new range, the WR-X01.

RAMSA is a division of Panasonic devoted to manufacturing sound reinforcement products. Although the company was launched around a decade ago, RAMSA speakers, amplifiers and consoles are at present better known in the USA . . . but maybe not for long. The **WR series** console described here was launched at the New York AES in November 1987. RAMSA proclaimed it embodied the results of working hard at market research into the requirements of large scale music PA. In effect, its design and configuration is said to be a condensation of many 'why can't you do this' and 'I'd like two of those' from countless US sound engineers.

Last year **Britannia Row Productions** (B.R.P.), based in London, and today the biggest PA rentals company in Europe, were appointed sole distributors for RAMSA's WR series consoles. I asked Mike Lowe, manager at B.R.P. how they'd initially chosen to use and then go on to distribute RAMSA's new series of boards:

ML: "Early last year we began to see how quickly the console was taking off in the US. For a console to be launched in the US just over one year ago, and for it to be used regularly in that year by such artistes as Roger Waters, Hall & Oates, Dan Fogelberg, Frank Sinatra, Dean Martin + Liza Minelli and Sammy Davis, is surely an instant recognition that no other mixing console has ever achieved."

By the spring, we had been asked to supply three consoles for American acts coming over in the autumn. We finally got the first demonstration model, the stage-monitoring version together with a 240v power supply into the UK in June 1988, in time to show it at the APRS. Afterwards, we immediately put it out on a Santana tour. The results gave us the utmost confidence in the console."

Since then, the **WR-S840** stage monitor console reviewed here has gone on to tour with Roger Waters, Earth, Wind & Fire, Belinda Carlisle and Boy George. In this review, I've combined my own measurements and critique with observations from **Steve Spencer** and **Pete McDowell**, two engineers working for Britannia Row, who've been touring England and Europe, all the time 'doing monitors' for the bands listed above, on this same console.

Channel analysis

The console's inputs comprised forty WU-S83 'Stage monitor' modules, several being plugged-in on the right of the Groups and outputs, for ease of working. The line up of controls is evident from the illustration (right). Noticing there are no switches for line/mic

sensitivity, and no switch for 'padding' the mic input either, I was keen to test the input overload margin on the low gain settings, to discover whether this was an oversight or not. Measurements revealed the input withstood just over 20dBu/dBm with the input gain wound down to minimum. At the same time, I found the input contributed negligible noise with a mic plugged in, and the gain set at maximum. Steve's experience backs up the measurements: "It's one of the quietest inputs I've encountered on a PA console," he said.

Still, it's easy for a console to appear to sound quiet if the maximum gain is restricted. Is the range 60dB enough? At this juncture, Steve Spencer replied that in his experience, which includes working with orchestral string sections, the inputs had always had enough gain in reserve, for quiet acoustic work and with mics having a lower than average sensitivity. Altogether, Ramsa appear to have succeeded in producing a truly universal mic/line input for live sound, one which needs the bare minimum of controls.

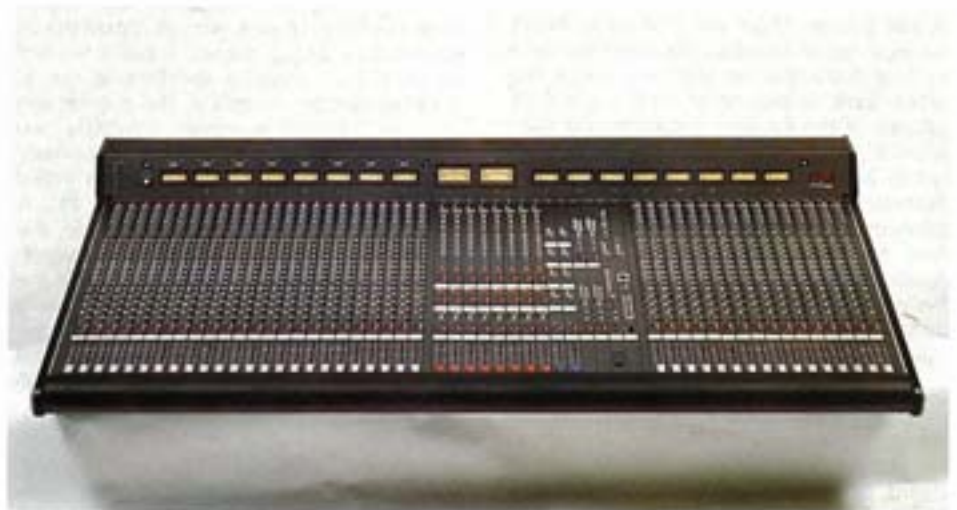
The input gain knob has 40 detented positions, or 4 per division. If needed, the engineer could record any precise settings by counting the number of detents. Steve hadn't used this facility, but could see its value when sharing the console with an opening act, or at a festival. Moving on to the EQ, it's conventional, 4 band and sweepable. The high and low mid bandpass centre frequencies cover 8K down to 800Hz, and 1600Hz down to 400Hz, with an octave (800 to 1600Hz) overlap. The inner boost/cut controls are detented at their central, 0dB position.

The high and low EQ controls have the usual shelving characteristic, with a frequency sweep which fully overlaps the adjacent mid control. Steve commented: "The EQ's simplicity of use is impressive. On this RAMSA, the dual-concentric knobs are workable; the controls are easy to get the fingers around. In many ways I would compare this board's EQ with the Yamaha PM3000. Like how it sounds. And the simplicity of design. OK, the RAMSA has no 'Q' controls. But this doesn't matter so much."

Immediately beyond the main EQ is a high pass (HP) filter, sweepable from 20Hz up to 200Hz. It comes with a switch which I don't believe is fully necessary, though most console makers fit it. If the control range was extended a bit lower, down to 15Hz, the HP filter is effectively out of action when swept down this low, but would continue to protect the PA from dropped mics. Steve Spencer's comment: "That's exactly how I use it. I leave the switch in all the time, and just turn the highpass frequency down to 20Hz when a higher frequency isn't needed."

Being designed to befit both FOH and monitor mixing, each routing switch is accompanied by send level controls, and a PRE/POST -fader selection switch. Further routing options can be preset on the channel PCB. The Group sends are followed by 4 sets of concentric Auxillary send controls. In stereo mode, the inner control sets the send level, while the outer provides pan. In mono mode (an option that's preset by a switch on the PCB), the inner and outer knobs set the **odd** and **even** buss send levels respectively. Alongside each control are two buttons: one selects PRE/POST mode, the other mutes the send until depressed.

Below this, Aux, Group and stereo outputs sends are all muted by a big red button - one that's easy to stab at in a hurry and easy to see, even though it's not illuminated. The associated 'channel on' LED is yellow, so it won't get confused with the signal indicator LED, which turns from green (= signal present), to red, giving a warning with a decent safety margin, one that's 6dB below clip. The same can't be said for the LED associated with the PFL button, which lies immediately below the signal LED and is red also. An



The WR-S840 configured as a 40 x 18 stage monitor console.

orange LED would be less confusing in a tense situation. The channel fader is made by Matsushita. How good is it? It feels as smooth and seems to work as well the traditional P&C.

Groups and outputs

The console frame came fitted with eight WU-584 Group modules, and two WU-585 master modules. Beginning with the Groups, there's an insert switch at the top, the insert location being preset by three internal programming switches. Alongside, a pair of switches can be used to mix Aux, talkback and/or oscillator signals with the matrix output. The matrix output is simply a mixdown of Groups 1 to 8 (and L+R if required). The next 10 knobs are used to set the individual levels. The 11th knob below is the matrix master, determining the output level to each monitor channel. Pete McDowell comments "The output matrix is a very useful facility. You can use it to set up derivatives of the other mixes, for example mono sub-bass for the stereo drums or keys. It can also be used to send a given mix to several locations at different levels, also giving the facility of muting those monitors on different cues. Examples would be upstage ramp-fill monitors, drummers' headphones, and feeding different mixes to 'Ego' ramp monitors, for solos."

The next section of the Group module's panel echoes the facilities on the input channels. For the Group, Matrix and Aux outputs respectively there are three individual groups of mute/on and PFL pushbuttons, and a bi-colour LED each. Again, the LEDs glow green to show 'signal present', changing to red well before overloading occurs. Towards the front of the module lie the principal Group controls: a panpot, a rotary 'preset' gain and the main fader. Pete observed: "The 8 Aux, 8 Group and 2 LR busses are all used in a stage monitor configuration, usually post-fader. By routing so the Group Busses are isolated from the LR busses, there are 18 sends, and a total of 28 if you use the matrix -making it the biggest production board available!"

Monitoring, PFL and returns

The console's densely woven web of audio signal paths continues into two WU-586 FX returns modules. FX returns aren't often used in stage monitoring configuration. As Pete McDowell observed: "If FX are used, they're usually returned via input channels to provide full routing." But let's pretend you're using the console front of house. To begin with, FX returns can be routed with a single pushbutton, to either the Group or the Aux output busses. There are 8 of each, hence the next tier of selection is carried out on a bank of 8 pushbutton switches. Below the switch bank, a pan control adjusts the L/R balance of the Group's output to the main (stereo) output module. Back amidst the switch bank, there's a pan button. When depressed, the related pan control also balances successive odd/even (Group or Aux) channels, ie. 1/2, 3/4. As usual, even numbers are right, odd left. When the button is released, the pan control continues to control the L/R output busses.

FX return EQ comprises the usual, basic high and low-end correction, namely a pair of ± 15 dB shelving EQ curves at 100Hz and 10kHz respectively. These are enough to correct response deficiencies arising in FX chains, or to attenuate frequencies in the uppermost octave, where cheaper digital FX get a bit grainy. But I'd have expected RAM-



With the meter bridge removed, each module can be withdrawn, complete with their associated rear panel.

SA to have taken it a little further. If a pair of sweepable low and high-pass filters had been provided, then the FX return response could be accurately tightened down to cover no more than the bandwidth of the instrument(s) concerned. By filtering out hiss, hum and acoustic pickup that's not relevant to the instrument being processed, it would help avoid the loss of clarity resulting from the use of FX. It may not matter much for HM bands. But for some musicians, extra sonic detail would be welcome.

The FX return level is controlled by a single rotary master, alongside the same cluster as we met on the channels: Mute/on switch; Bi-colour signal present/overload LED; and PFL button & LED. So far, we've only travelled half way down the panel. There are in fact two identical FX returns on each module, the other one occupying the lower portion.

Most of the facilities on the monitor module (WU-587) are described in studio terminology, but are nonetheless occasionally useful for PA work. The module begins with a pair of Auxillary mic inputs for additional talkback or ambient SPL monitoring. Both are routed through a sweepable 20 to 200Hz hi-pass filter. From there, they can be routed through to the matrix section via an overall send level control. For stage monitoring purposes, this arrangement allows the engineer to speedily communicate with specific musicians through their own monitors.

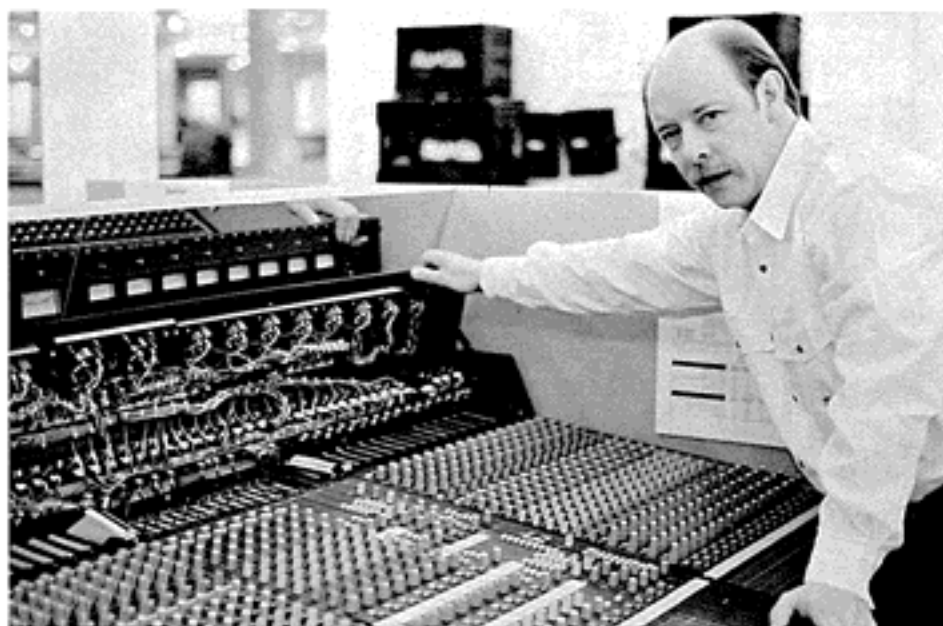
The 'control room' output section comes next. For PA purposes, we can regard this as an Auxillary stereo output. If it isn't needed to drive local monitor speakers, it can at least be used for recording. The outputs can also be switched to mono, providing two L+R feeds. In the module's lower portion, there's a large red LED (again, orange would be better) which lights whenever PFL is selected on any channel. In this mode, the PFL feed overrides the control room output, which is otherwise normally present on the headphone outputs. The PFL feed has a separate gain/volume control, used in conjunction with the headphone volume control to even out differences in level when switching back and forth.

The headset output worked fine on high impedance (200 ohm) cans. So far so good. But Steve Spencer uses an 8 ohm Sony headset (V7), as do many of his colleagues. He commented: "This is one of the few mix-

ers which can drive 8 ohm cans loud enough so you can hear the PFL over the monitors, and without so much distortion it's painful." I asked him why this was notable. "There's a well known PA console made in England that's generally very highly regarded. Except that it can only drive 300 ohm cans. So having chosen a pair of headphones I'm comfortable working with, I can't use them without suffering painful distortion, even though 8 ohms is a common enough impedance. When I spoke to the company's technical department, the designer said the output was optimised for driving such a high impedance, purely because he happened to have a pair of 300 ohm cans. I asked the company to make 8 ohm operation possible, but they didn't seem to be interested." Back at the monitor module, RAMSA have sensibly provided two headset outputs; it saves a lot of hassle whenever there are two engineers, or one engineer and producer. Pete added: "You also have full stereo monitoring available on the local monitor and headphone" . . . and at all times.

WU-588 is the 'utilities' module. Test tone frequencies of 100Hz, 1kHz and 10kHz can be chosen from a row of buttons. These frequencies are cardinal values, ideal for PA system tests, unlike some of the odd frequencies (who needs 800Hz?) found on some established consoles. Even better, a fourth button introduces a pink noise source. Most users will already have an outboard pink noise generator. Still, RAMSA's onboard one is ultra compact, and a welcome backup if your regular one packs up, or disappears, or gets sent out with another act.

Below the test signals section is the usual talkback mic socket and volume control. Two banks of switches lie immediately below, to route (or 'assign') the test signals to the stereo outputs, the sub-Groups, the 8 Aux outputs, the associated matrix and to the 'control room outputs'. In PA terms, the latter are a spare set of stereo outputs, increasingly used by engineers to provide stereo monitoring through a pair of small wedges, or the beefier kind of nearfield recording monitors. Last and nearest to the operator's hands, is the talkback speaker/headset volume control, and a 3 position switch. For ease of talkback, it provides both latching and momentary positions.



Ian Sharpe, RAMSA's UK sales manager, folds back the SR840's meter bridge, showing the pluggable ribbon bussing.

Assembly overview and some test results

Unlike many of today's 'industry standard' modular PA consoles (excepting early MIDAS consoles), each channel strip can be unplugged complete with its associated sockets and rear panel metalwork. This is achieved by flipping back the meter bridge, and unplugging the buss ribbon, which runs on top of the channel boards. Steve Spencer explained: "Being flexible, the ribbon bussing gives you confidence that everything will stay connected after the console's flightcase has been bumped about en route. There's an advantage too in having the channel integral to its rear panel. It minimises the number of connections there are to go wrong."

The channel boards are unshielded. However, crosstalk between adjacent channels is substantially below the noise floor at high audio frequencies. The simplicity of the PCBs helps. On every module, the main gain and control blocks have been reduced to a dozen or so thick film (or hybrid) ICs, greatly reducing the parts count and the number of tracks that are vulnerable to pickup.

Turning to the power supply, RAMSA have sensibly arranged for a 4 second switch-on delay, during which period the outputs are all muted. This is a valuable feature, meaning PA speakers won't get wrecked by switch-on thumps caused by powering up the PA in the wrong sequence, or whenever there's a sporadic power failure, too short-lived for the PA to be muted.

With over 2500 knobs and switches, the permutations for testing are endless. At best, passing through everything with a 1kHz sine wave might reveal minor shortfalls in gain structure, headroom, hf distortion or whatever, at a few extreme settings. But if these were significant enough, they'd have shown up on the road. Instead, measurements were confined to key tests in areas where consoles have been found lacking in the past.

First question: Did the HF EQ carry on boosting the signal above 20kHz? Yes, but the shelving response was good enough to remain flat before rolling off above 30kHz. And what happens if the Mid-High (MHF) and HF controls are both set to boost 3kHz? The overall boost is now +27.7dB, a painful event (at 3kHz . . .), but at 30kHz, it's fallen off by 15dB, to a satisfactory +12dB, with an initial slope of -3dB/octave. Except for the

polarity ('phase change') switch, which produced a click on all the channels tested, there's little to criticise on the input channels, beyond what's been said. If the click were any louder, it might become an embarrassment when checking (for example) the best miking polarity for a touchy, *prima donna* vocalist.

The highest level of crosstalk was between the stereo outputs. Reading -70dBu (measured unweighted, over the audio band), most of it was evidently introduced by the pan-pot. Also, the stereo outputs were the sole cause of audible hiss. They measured -83dBu with the output fader fully down. However, the noise was purely hiss, without hum. This is fine for the F.O.H. mixing of Rock'n'Roll performers, but might not be quite good enough for theatre sound. I'll leave you to judge by listening for yourselves. Of course, for stage monitoring, the stereo outputs aren't in use. Instead, the Group outputs registered noise levels considerably below -90dB. This is almost too good. How can the engineer check his monitors when there's no hiss as he walks past them?

The Ramsifications of Touring

When evaluating a product as complex as a large console, there's nothing to beat actually using it for real. In this section, I've let the users speak for themselves about their experiences.

(ML=Mike Lowe; PM=Pete McDowell)

PM: "I immediately found it to be a friendly, well laid-out console. All of the buttons and knobs are the right size and in the right places. This might sound silly, but in the context of monitor mixing that is important, when you're operating in dim light with no time to look at the console. On a Midas PR40 console for instance, the output Group PFL buttons are minute and located among others where you have to look for them. On the Series 4 Soundcraft, they are too small and located in two different banks next to another button which can be a trap. This console can also provide stereo sends, which are brilliant for stereo keyboard monitors, and for stereo reverb in the drum monitors."

ML: "The facilities on the monitor version of the console far outstrip those of-

ferred by the competition. A most pleasing aspect is that they're far quieter than their major contender, also Japanese!

The attention to every detail is excellent. Where available components haven't met the designer's requirements, or, if they have, their price would have made the end product more expensive than planned, then Matsushita, the component manufacturing arm of the combine have painstakingly developed and manufactured their own components. For the flight case design, a sample was sent to Japan, loaded with a console, and drop tested many times. It was then put in the back of a truck simulator set to reproduce a rough road without air-ride, and tested for 36,000 miles. The console and case were then subjected to a rigorous scrutiny before final approval was given to the intended flightcase.

Most of the other PA console manufacturers are in the cottage industry league by comparison. Nobody should be fooled by the console's price. Currently at £22,500, it's hardly indicative of its position in the market place. In being without the economies of scale and resources of the Matsushita/Panasonic/Technics/RAMSA combine, European and US manufacturers would probably have to charge twice as much to make a product of this calibre viable. It is doubtful whether any of them would be willing to fund the immense cost of R&D and component development in the first place."

PM: "Audio Analysts in the US had the first one of these consoles on tour with Roger Waters 'Radio Kaos' in 1987, and couldn't fault its reliability. For Earth, Wind and Fire's tour, which lasted throughout 1988, we used two RAMSAs, interconnected for 80 inputs and 24 monitor sends."

ML: "It was controlling what was undoubtedly one of the largest monitor systems ever used on stage. The console's grounding technique is excellent. No increase in noise has been encountered when linking them. The E,W&F system plugged together as clean as a whistle day after day, months on end."

PM: "The complete access to all the bus inputs on XLRs allows just about any configuration of consoles you may care to devise - however complex. This is in contrast to most of its peer group. It would be my first choice in a multiple console set-up. I think RAMSA are definitely on the right track with this one; I'm looking forward to seeing what next they've got up their sleeve."

ML: "Although the FOH version of this console doesn't have VCA groups, as one world class Classical Orchestra engineer recently proclaimed 'After using RAMSA WS840, I now realise that mixing on **** (another top class console) is like mixing through cheese cloth.' So at Britannia Row, we're very pleased to be handling such a well-regarded board. Since we're going over to RAMSA consoles ourselves, we are doubly committed to offering a level of backup and after sales service that befits its class."

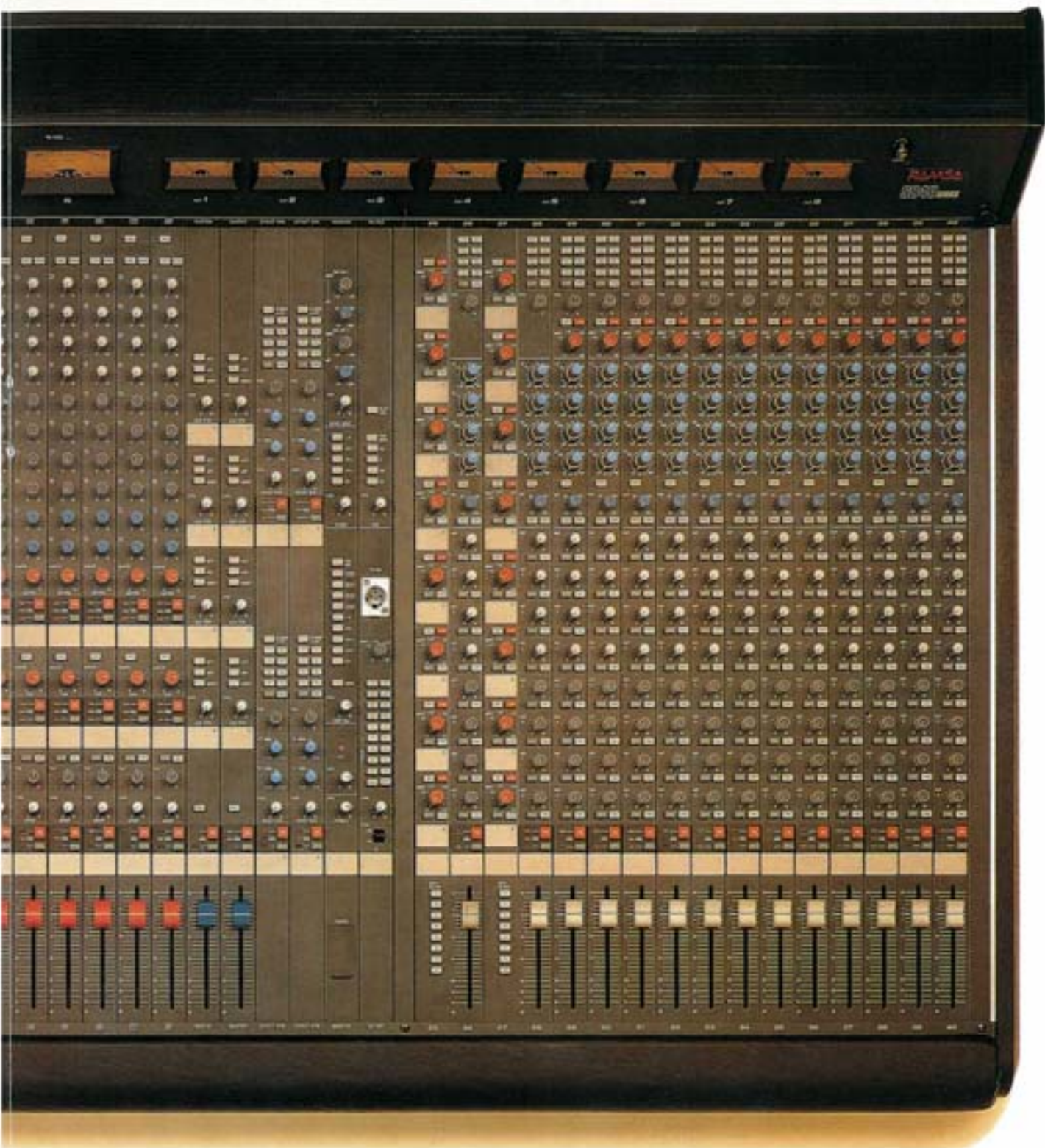
BD: "One question remains: How soon are they available?"

ML: "We take delivery of the first production console this month (Feb '89). We've just taken an advance order for



Our house...is a very

WR-5840 Series console in "house/monitor configuration available". For more information call Ian Sharp on 0753 34522 ext 2477 PCE (UK)
by Graham Nash



very very fine house.

RAMSA

Pro-Sound By **Panasonic**

our fourth console. Cane Green is buying the first of these, for initial use on the Rick Astley tour."

Aside from the modules described, other options include a mono input module (standard FOH configuration), and more radical, a double-width, 8 input sub-mix module. Four of these sections will take care of an orchestra, and turn the mainframe into a 64 channel board. For further information, contact: Britannia Row Productions Ltd., 35 Britannia Row, London N1 8QH tel: 01-359-0955.

Graphic Test Data

WR-S840 Series

Total Harmonic Distortion & Noise:

Channel Input to Group Output

Input +14 dBu, output +14 dBm into 600Ω: $+0.006\%$

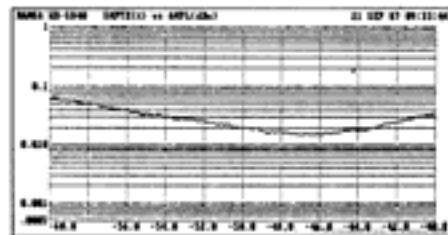


Here, the input and output levels are 10 dB above nominal. Some low frequency distortion begins to appear, though it is still below 0.006% at 20 Hz, and below 0.005% at 20 kHz. The midrange is still showing the noise floor (0.004%).

Intermodulation Distortion:

Channel Input to Group Output

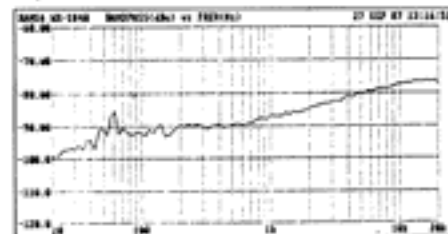
Input Trim -60 dBu (mic pre @ max. gain): 0.04%



Here the mic preamp is at maximum gain, a "worst case" condition. The IMD from -60 to -48 dBm input (+4 to +16 dBm output) is basically mic preamp noise. Actual IMD rises slightly from 0.02% at -48 dBu input to 0.04% at -40 dBu input (+24 dBm output into 600 ohms). That's low!

Output Noise, All Inputs Assigned:

All 40 Faders @ nominal, Channel On/Off switches on, and all EQ in-circuit: 73 dB S/N



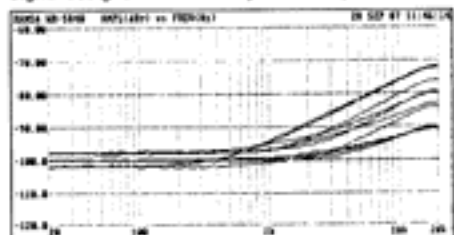
Here all 40 channel equalizers are now in-circuit, a "worst case" measurement. The console would not really be used this way; faders would be pulled down somewhat to avoid overdriving the bus, thus lowering the noise.

Channel On/Off Switch Crosstalk

There are two primary sources of crosstalk in a console; capacitive coupling of adjacent components and circuits, and coupling through the audio common (ground). Capacitive crosstalk tends to be at higher frequencies (above 1 kHz), and is not nearly as objectionable as ground

induced crosstalk, which typically occurs below 1 kHz and can seriously degrade audio quality (it creates a "muddy" sound).

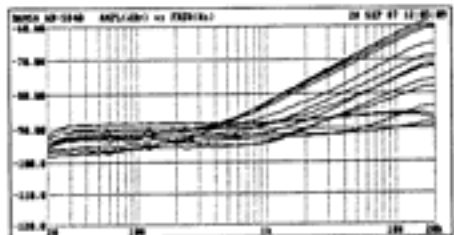
Signal assigned to all 18 output busses, Channel Off



Here signal is assigned to all 18 output busses from the input module, but the channel is switched off. With +20 dBu input signal level, the crosstalk is still below the noise floor at frequencies below about 1 kHz — virtually total kill!

Fader Crosstalk

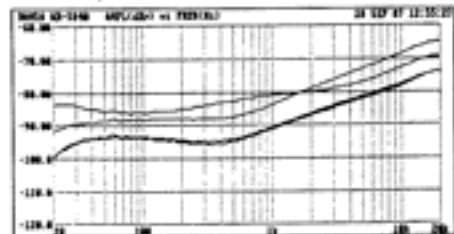
Signal assigned to all 18 output busses, Channel On, Fader Down



You may never have seen most of these crosstalk specifications, but this one is certainly very significant. It shows better than 80 dB of fader kill midband. If other consoles had this spec published, it would be 20 to 40 dB worse.

Adjacent Signal Path Crosstalk

4 randomly chosen, but adjacent paths, In to out



Despite the long, parallel signal paths, the crosstalk is very low, thanks to the interspersed grounds in the ribbon cable bus structure and on the circuit boards, and to the large ground bus bar running the length of the console.

Stereo Pan Crosstalk

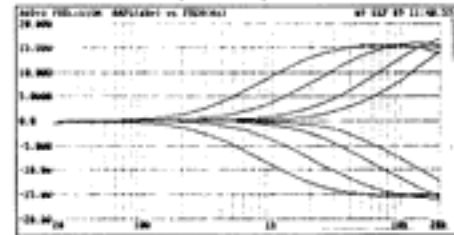
R>L and L>R crosstalk demonstrating pan pot kill



Stereo crosstalk is usually less critical since the program is assumed to be coherent. Here, the crosstalk is so low that completely unrelated programs could be mixed in the left and right channels. This is due to the superb pan pot.

High Freq EQ (Shelving)

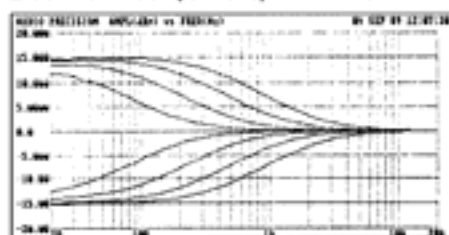
±15 dB EQ w/ -3 dB point swept 1.5 kHz to 16 kHz



Note how closely the actual amount of boost or cut, and the knee frequencies, correspond to the labeled EQ control values. This accuracy, and symmetry, is helpful in repeating settings, especially with a quasi-parametric EQ.

Low Freq EQ (Shelving)

±15 dB EQ w/ -3 dB point swept 40 Hz to 400 Hz



Notice how these, like the HF section curves, truly shelf. Many consoles tend to "curf" at the extreme ends of the shelving EQ characteristics, but the WR-S840 really flattens out once the set boost or cut is reached.

RAMSA WR-X01

RAMSA's WR-X01AE is in elegantly named, but promises much. For a start, its layout is immediately different to the majority of small mixers made for all kinds of sound reinforcement duties. Instead of rows of identical input channels, like a scaled down recording or large PA console, its inputs are divided into two distinct zones. Each provides tightly tailored facilities for specific sources with the minimum of knobs and switches. Altogether, the mixer has provision for 12 inputs in a small space.

In Mono

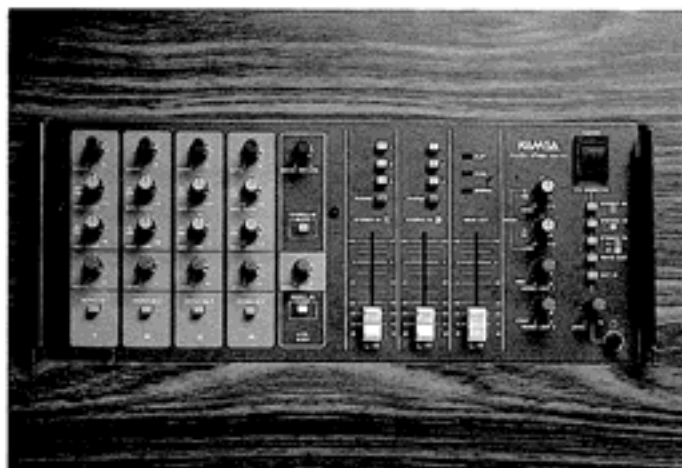
Beginning on the left, there are 4 mono input channels. Being principally intended for mics, they're accessed via XLR sockets and are balanced. Subject to dynamics, they can also be pressed into use for -10dBu line sources and keyboards, as the input impedance is fairly high at 5kohm, while the input attenuator can be set to accept -6dBu at maximum. RAMSA's handbook even implies that guitars can be connected to the mono inputs, but unless the pickup is first interfaced with a headamp, the input impedance is rather too low.

Turning to the controls, each channel has just a single, combined gain/fader control. The knob in question saves panel space and reduces the scope for distortion in the hands of heavy drinking DJs, first because it's rotary (so liquids roll off it), and second, by simultaneously controlling the input gain while acting as the channel's output fader. Another unusual feature on a mixer of this class is a two band 'bell-curve' (bandpass) equaliser, instead of the traditional Baxandall-type 'bass' and 'treble' shelving EQ. The centre frequencies are fixed and cover the low and high midrange, being centred on 450Hz and 3.5kHz respectively. Boost and cut are both +12dB. In many ways, the mid EQ is a good idea. Control over key vocal frequencies is certainly absent in any ordinary mixer with just two EQ knobs. On the other hand, it's at the expense of loosing control over the extremes of the audio range, which is sometimes more important.

Overall, RAMSA's aim of providing what users actually find they need, is to be congratulated, but they may not have gone far enough. At 3kHz, the +12dB setting sounds painful. And who needs it? An asymmetric boost/cut range of +6 to -18dB would be rather more useful. Two controls remain: Above the EQ, there's a single echo/FX send knob. Down below, a pushbutton mutes the channel and the FX send together.

Stereo Inputs

There are two stereo input channels, but one of 4 stereo sources can be fed into each. In-



RAMSA's WR-X01 pro micro mixer.



The WR-X01's simple control layout belies the number of inputs and outputs provided on the rear panel.

put selection is (like a Hi-Fi preamp) accomplished with a row of 4 pushbuttons, 1 to 3 being for line level signals. Input 4 selects RIAA EQ for turntables. A separate ground terminal is provided. The line level inputs present a 20k impedance, which is good enough to match just about any line source. All sixteen inputs are unbalanced, on phone sockets.

The one other control is a fader. The feel was tight, but smooth. Oddly, RAMSA don't seem to have used their '2 faders in one' trick here. Instead, the line input sensitivity (for +4dBu out) is -20dBu, while the manual wisely cautions that line level sources should be externally adjusted so that "... optimum levels can be obtained when the ... fader is ... in the 0 position". The fader includes a handy microswitch at the minus infinity position. Its contacts, rated at 24v DC and 500mA, are accessible from an 8 pin DIN connector on the rear panel.

Master control

Sundry master controls are placed between the mono and stereo input zones. For the mono inputs, there's an echo/FX return control, and a master gain, which is effectively a group control for the four mono sources. Equally innovative, a single pushbutton introduces a compressor. Threshold and ratio settings are adjusted via recessed presets, sensibly placed on the base, out of sight of DJs. The compression ratio can be varied up to 8:1 for hard limiting, while the threshold can be set between -10 and +20dBu.

The next pushbutton gives priority to the mono sources. When depressed, stereo signals are ducked if a mono signal is present. If/when the mono signal(s) cease(s), the stereo fades-up within 5 seconds. When released, mono and stereo sources are mixed in the normal fashion. Again, recessed presets are provided to set the ducking parameters. Fade level can be set between -6 and -20dB, while the mic level needed to trigger override can be swung between -6 and -36dBu.

More master controls are located on the right side of the mixer. Output EQ comprises a conventional LF and HF shelving equaliser, with nominal 80Hz and 12kHz break frequencies. Above and aside from a single fader which controls the overall stereo output, two additional knobs provide independent control over two auxiliary outputs. Each is mono. Aux output 1 is the sum of the 4 mono input channels, pre the main stereo fader. As such, it's useful as a stage monitoring send. Aux 2 a mixdown of the main stereo outputs, normally derived post the main fader. A typical application is routing music to bars and remote areas. In both

cases, the pre/post derivation can be changed if desired, by moving jumpers on the PCB inside.

Above are three LED's, indicating signal present, peak level and clip in 'traffic light' sequence, viz. green, amber, red. At +14dBu, the 'peak' LED's illumination threshold is unlikely to be lit often, considering most pro power amplifiers are driven into clip with input between -3 to +6dBu. The 'clip' LED has a good safety margin, being activated at least 10dB below actual clip. On the other hand, the 'signal present' LED only responds to signals higher than 20dB below the nominal +4dBu output level, ie. -16dBu. This is fine for disco programme, but in some situations, a higher sensitivity would be desirable.

Monitoring, outputs and interconnections

Signals to be monitored are selected from a row of push buttons. From these, the operator can choose to monitor stereo channels 1 or 2; or a split feed, so the left channel of stereo input 1 is heard along with the right channel of stereo input 2; or the ultimate stereo output; or any external source that's plugged into the 'EXT IN' jack on the back panel. This could be a return from a stage monitoring set-up, or from a VJ booth, for example. The associated headphone socket is capable of driving 1/2 watt into 8 ohms, but just 7mW into 600 ohms. If we accept that the power available has to be optimised for one impedance or the other, this is surely the right way round to have it.

Except for the main stereo pair, all outputs are unbalanced. The stereo line level outputs for recording and for monitor speakers are on phono sockets. The record output has a particularly high output impedance of 10k, meaning it can't be pressed into driving cables much longer than 1 metre, beyond which high frequencies will be lost. The mono 1 & 2 outputs and echo/FX send and return are all accessed via 1/4" jacks. Similarly, the main stereo outputs are on 'A' gauge stereo (a.k.a. 'T.R.S.') jacks. The FX return has a 20k input impedance, which is fine, and a rather high sensitivity (-20dBu). All outputs have a 3k output impedance, which restricts lead lengths to under 3 1/2m if high frequency losses are to be avoided. An installer aiming to connect this mixer to remote power amplifiers would get around this by feeding the outputs into a nearby graphic, an active crossover, or some other processor, to provide a lower output impedance (100 ohms is usual) for successful line-driving.

Mechanics and electronics

The WR-X01AE is unusually flexible when it comes to installation. The rack mount ears can be reversed for wall mounting, or turned

sideways, allowing the unit to be bolted down to a table, or recessed into a surface. All-round mechanical design and assembly is excellent. Examples of attention to detail include printed confirmation on the rear panel that '0dB = 775mV', together with details on XLR pin connections. Equally, all sockets are marked with their output/input levels and impedances.

Measurements focused on EQ, headroom, noise and crosstalk. When set at maximum, the output section's maximum HF EQ (nominally +12dB) reached +15.7dB at 30kHz, dropping off to 10dB at 100kHz. Similarly, the LF EQ, nominally +12dB, reached +17 at 20Hz, and is still +16dB at 6Hz, close by the classic rumble frequency for turntables. The excess out-of-band EQ is only likely to be troublesome if an operator is silly enough to use the EQ at maximum boost. Still, it happens, and as the maximum boost is considerably in excess of the stated +12dB, it's to be hoped that RAMSA will take steps to improve their shelving equaliser's behaviour. By contrast, the mono inputs' Low and High-mid bandpass EQ behaved perfectly and came within 1/2dB of its specification.

Headroom was excellent, particularly on the mono (mic) inputs. Output noise with the mono and stereo inputs shut-down was acceptable at -72dBu. Inter-channel crosstalk between any one pair of stereo inputs was average at between -40 and -45dB. Measurements were made at 10kHz; figures taken at 1kHz would be considerably better. Crosstalk between selected and unselected sources connected to the same stereo input was negligible, being below the noise floor (-72dBu), even at high frequencies (10kHz).

In use, the compressor was found handy for catching mic howlround. Microphone EQ was effective and quickly accomplished. The switches were completely free from clicks and 'splahhts'.

Conclusion

RAMSA's smallest mixer combines originality and an unusual degree of versatility with many of the refined audio qualities of its bigger brothers. Being built to a price, it can't be perfect. Even so, it avoids most of the pitfalls that previous budget mixers have suffered. It clearly suits almost any small PA assignment, from live music and disco through to A-V, public speaking, and drama.

The WR-X01AE pro micro mixer's list price is £591.29. A list of suppliers is available from Pro-Sound division, RAMSA/Panasonic UK, 300-318 Bath Road, Slough, SL1 6JB tel: (0753) 34522. Potential dealers are welcome to contact Ian Sharpe at this address.



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A Change for all Seasons

Ruth Rossington visits the newly refurbished Blackpool Winter Gardens.

Blackpool's Victorian Winter Gardens, designed by Oldham architect Thomas Mitchell, was heralded in its day as one of the finest examples of contemporary architecture and design. Such was its importance that the Lord Mayor of London felt sufficiently moved to travel to Blackpool in a 15 coach train in order to partake of a sumptuous banquet, firework display and torchlight procession, after which the Winter Gardens were officially declared open. For sixpence, visitors to the Gardens were made a promise that was in time to become a legend - 'not a dull moment'.

Well, dull moments there must have been, for nine years later the Gardens were bankrupt. Having crossed the Rubicon once, the Winter Gardens determined to cross it again and engaged Frank Matcham to design the Opera House. Since that time many alterations and extensions, not all to the good, have been added. By the 60's and 70's the values of former times had totally lost their currency and much of the Gardens' early splendour and unique character was gradually eroded when inferior materials and the harsh geometry of present-day design took their toll.

In 1986, however, First Leisure Corporation, in tandem with Blackpool Borough Council, commenced a major programme of restoration, and decided to create one of the foremost conference centres in the country whilst retaining the quality and spirit of the Victorian age. The restoration was a trail of discovery as gross façades were removed to reveal elegant plaster mouldings and fine sculptured pieces. A tapestry of history unfolded that had lain dormant for many years.

The Opera House, the largest purpose-built theatre in Europe, has received a £150,000 facelift and the Arena, formerly the Planet Room, has



Above and below: the Winter Gardens re-launch spectacular in progress.

benefitted from a £500,000 refurbishment scheme completed in under 12 months. The loudspeaker cluster suspended in the Ballroom (reported on in a previous issue of L+SJ) is the largest in Britain and the system incorporates a sophisticated induction loop device to benefit the hard of hearing.

The attention to detail, and there are numerous examples, has provided the platform from which First Leisure have created a new 'season' for the Winter Gardens. Whether the complex will once again become the premier conference facility remains to be seen, but it certainly possesses all the characteristics for the effective and successful





Winter Gardens' house sound engineer Ernest Dooley.



Show control: Concert Light Systems' Steve Nicholson.

staging of exhibitions and conferences.

Olympia is a self-contained exhibition centre occupying 3,251 sq.m. and the Horseshoe and Pavilion Piazza provide a show area of 1,480sq.m. However, one aspect that has contributed more than any other to its rising status is the emphasis placed on allied services, facilities, and provision for satellite meetings.

To mark the culmination of the £4 million restoration programme, First Leisure hosted a re-launch of the Winter Gardens complex to demonstrate the benefits of combining the Victorian age with the technique and flexibility of modern conference planning.

The launch was coordinated by Lewis Productions on behalf of the Winter Gardens. They describe themselves as 'image makers' and they have certainly updated the 'image' of this Blackpool landmark, deliberately steering it away from the more familiar conference formats.

Lewis Productions brought together a number of lighting, sound, video and staging companies including Laser Creations, Le Maitre and Concert Light Systems, to demonstrate the potential of the Winter Gardens complex. The result was a state-of-the-art firework, light and laser display.

The presentation opened with a bank of television screens rising from the stage, a myriad of images flickering across the surface. As the screens relayed the message of the current flexibility of conference staging, others joined them to heighten the impact. Then all was darkness as the screen banks returned silently below stage.

From the shadows, three cars began their slow descent (by courtesy of a local garage who took advantage of the car-launch opportunity), and within seconds the stage was awash with the spectacular pageantry of lasers, fireworks and lighting. The lasers swept a huge curve around the auditorium as the lights dimmed to colour washes of red, blue and orange. Smoke filtered across the platform providing an atmospheric backdrop to the whole tableau, as fireworks cracked and sparkled in the foreground. The tempo rose to a climax as a volley of firecrackers boomed out and streamers darted up, hanging temporarily in the air before falling to garland everything beneath.

The beam effects created by Laser Creations were taken from a Laser Video Projector. Feeding the projector were a Spectra Physics model 171, 18 watt Argon laser, a Spectra Physics model 2030, 18 watt laser and a dye laser. These lasers combined produced the three primary colours red, blue and green, which were then mixed to produce a white beam. Once the white light is achieved, all the colours of the spectrum can be produced by special filters. Up to 16 beam positions can be produced from this one system.

The show was of special interest in that it featured 12 Eagle remote control dichroic colour change lanterns complete with gobos. In addition, Concert Light Systems used 182 Par 64's, 64 long nose Par 36's, 6 B-light Molefay units, Thomas profiles and floor specials, and 2 zenon followspots to create an impressive visual diorama. Trussing was all Thomas, and control was by a Celco Series 2 60

with Avolites dimmers.

To complement the presentation, Laser Creations utilised their unique Laser Video Projector to demonstrate a whole range of special effects. The projector can produce large high-quality video images, graphics and laser beam simulation effects. It combines both raster and vector techniques to make a 'complete' image machine. Time-sharing of the laser beams between raster and vector scanning has produced a projector with an ability to make very large screen images of high colour and definition whilst at the same time providing high power laser beam effects, logo writing and patterns.

To further launch the Winter Gardens into its new future, and as part of the hundredth anniversary of the 3000-seat Opera House, First Leisure have secured the first UK provincial tour production of 'Cats' for the 1989 summer season. It opens on May 25th and runs through until November 4th. Needless to say the box office business hasn't stopped since.

Coupling 'Cats' with the glories of the fabulous Empress Ballroom (complete with £90,000 worth of new carpets) and numerous other specially featured and renovated facilities will certainly give the Winter Gardens a much talked-about lift-off for 1989 and the future. And we should applaud First Leisure and Blackpool's endeavours in preserving the best of Britain's entertainment heritage in a way that its future will remain both exciting and viable.



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Harrison's Hits

Harrison Information Technology has propelled its name on to the leader board of sound technology products and is intent on spreading its wings even wider. John Offord talked to directors Mike Harrison, Hazel Simpson and David Kempson.

Harrison Information Technology Limited was formed in January 1984, but managing director Mike Harrison had his first incarnation in the industry when he began HH Electronics in 1969. (He still carries a treasured 'HH' number plate on his Range Rover).

It was during this first period that his name became synonymous with Mosfet amplifiers. "Some people have called me the 'father' of Mosfet power amplifiers," he told me. "It's probably a reasonable description, because I was the first person in the world to introduce Mosfet power amplifiers (in 1977) and that tradition has been continued."

HIT began operations in a very modest way in the garage at Mike Harrison's home. "I started with an engineer and a draughtsman, and the first products we designed were the X series Mosfet amplifiers which we started producing in March 1984," he explained. We then went on and did the PA series of mixer amplifiers, and later that year the SP2, a little pre-amp for the installation market. So within 12 months from scratch we'd got a family of products into the market place. We moved out of the garage after about four months and into the premises here at Button End, Harston (near Cambridge) where we've been ever since.

"We then set about establishing distribution - which is where Hazel Simpson came into the scheme of things. Hazel joined us in August 1984 and her brief was to establish national distribution and later international distribution."

"During the course of 1985 we went on to design some more new products including the AC series crossovers and the GP series graphic equalisers. In '86 we launched the SP series mixer amplifiers, and at the end of the year the DSA series digital amplifiers. So there was quite a rapid rate of product design and development going on, and by 1988 we'd something like 25 or 26 products in our range - all of which are complementary to each other. We had decided to design things that 'worked together' and were compatible."

I asked Mike Harrison what was 'special' about HIT's products.

"Well, I think we've innovated in the sense that if you look at the specification of, for example, the SC600 crossover, it offers extremely good value for money. It's a stereo 4-way unit with built-in compressor limiters, with built-in phase correction and so on, and all at a very keen price. We've tried to offer people a combination of good specifications, state-of-the-art performance, in a product that is packaged attractively. If you look at the packaging and presentation of our products we've tried to make them good enough to sell internationally."

I asked Mike Harrison how things changed in the industry since the heady days of the early seventies.

"Well, if you go back to the seventies they were good times for the industry in a way. It was relatively easy in terms of competition. There wasn't that much! If you were able to produce reasonable products you could make a very successful business, and make a lot of money. I think it is characteristic of the eighties that the environment is much more competitive. There are many more manufacturers all slicing up the cake, all trying to take their bit, and fighting each other - not only in the UK but also overseas. The Americans particularly are enjoying good times in the eighties because the dollar is so weak, and of course there is growing competition from the Far East and some from Germany."

"What remains to be seen is how much impact 1992 will have, but it is true to say that in the eighties the consumer and the installer and the sound equipment user has a great choice of equipment - an enormous choice - and therefore companies' profit margins are squeezed. We're



Mike Harrison.

being forced to be more and more efficient, and our designs have got to be more cost effective. It's very very competitive. But then I suppose that's true of many industries now."

How do HIT decide on which new products to introduce, and when?

"Having been in the audio industry for many years and having gained a lot of experience, I think that as time goes on you develop a very close relationship with your customers. You get to understand what people actually need and want, and we as a company are all striving hard to give people what they want. We don't sit in an ivory tower and design widgets and then try to sell them. The process is that you find out what people need, what they require and so on. Then you go to your engineers. We're marketing led, but within that we're also innovative."

"We innovate technically and physically as well, and obviously we try and present ourselves to the market place attractively. In 1988 we decided that the company had expanded very rapidly - we'd grown at a compound rate of something like 50 per cent per annum since 1984 when we started - and we'd set up our international distribution and got some products under our belt. But it became increasingly apparent that technically a lot of things were happening in audio. I'm sure your readers are aware that digital electronics is making a major impact on the way musicians behave and perform. As an example of that, the Japanese keyboard industry has come from nowhere to become an enormous consumer industry now - and it's all digital electronics. If you look at our present product range, with the exception of the DSAs they are principally analogue. And of course, if you look at our competitors products they are analogue in nature: mixers, amplifiers, crossovers and so on. The technology is well proven, but I think its going to change fairly dramatically in the foreseeable future."

"We decided as a manufacturer that if we were

going to have a future in audio we had to invest in emerging technologies, in new things that by their nature are much more complex than anything we had done previously. That costs money, so we've had to dig very deep and make an enormous investment in R and D. That's what we've done, and as you can see we've bought a new building, and we've bought some very advanced computer-aided design equipment. We've actually got five computers all of which are equipped with some specialist software. And we've brought on board skills that are not commonly found in the audio industry."

"We have recruited people from aerospace companies - military-type people - people with a 'digital' background, but we also have working with them experts in the analogue field in audio as a team; because you can't just go off on a tangent and design digital things and expect them to sound good, they don't. You've got to have this quite important blend between logic and analogue."

HIT changed their ways, and began a major new phase of development in June last year. "We established our new team of people with all their new equipment, and we set them a brief to design a number of products," said Mike Harrison. "And the first offerings from this new team are here now: the SP2000 and also the sampler. Obviously the sampler is very heavily dependent on computer-type technology; it's a blend of analogue and logic, and indeed the SP2000 is an interesting blend of analogue and digital electronics. The microprocessor-based beat counter, for example, which is actually a computer, is quite a specialist computer designed just for the music industry. And blowing our own trumpet just a little bit, there are very few companies in the British Isles who have got the expertise to come up with that type of product. There are some, but not many."

There are some major new products hidden

under covers at Cambridge, so I asked Mike Harrison for some clues as to what HIT were up to, and what we could expect to see from them in 1989.

"I must emphasise that these are the tip of an iceberg" he said, pointing in the direction of the covered objects. "Clearly for certain parts of the industry the SP2000 is a very significant offering. If you look at the details it has some very unique features. It's a very exciting product indeed, and we're very confident about its prospects. Being modular in the way it is, we can very easily design new modules to fit, and some of our customers have already said 'why don't you do a digital delay module or a reverb module or whatever to go with it'. Obviously we shall be adding to the menu by using our computer technologies wherever necessary."

Mike Harrison is justly proud of the time-scales of the SP2000. "We actually started work on it in May last year, and we are just about to ship our first products. This sort of time-scale can only be achieved using computer technology throughout. Even the circuit boards are done on computers. We are speeding up the cycle of concept, design, and into production, and the people who benefit are going to be the end-users. They are going to see fast introductions of new technology as it emerges."

I tried to get Mike Harrison back to the product under cover, but he wouldn't give much away.

"The mystery product, which I cannot at this point reveal to you, is truly revolutionary. I know it sounds a bit hackneyed, but it really is something very exciting and very special. It will be formally launched in June this year. There will be a full press reception, champagne, all the usual bits, with trumpets blaring.

"It promises to do a lot for us, but the expertise we have on board is also certainly going to be applied to expanding the full Harrison product range. During the course of this year we shall be seeing the launch of at least another three product ranges, not just single products, but product ranges. So 1989 promises to be one hell of a year for us."

Charged with the task of ensuring HIT's products reach the ends of the earth is sales director Hazel Simpson.

"After I joined the company in mid-1984, I spent the first six months travelling the length and breadth of the country with a few samples, being away from home almost every Monday to Friday," she explained.

"We then exhibited at the Frankfurt Music Fair in 1985 which was the biggest thing that happened for the company. At that first Frankfurt show we picked up 15 overseas agents and our export trade started from there. We went from a first year turnover of £180,000 through to a second year (1985) of £650,000 - which wasn't at all bad. We didn't have to increase the sales force because we were getting enough orders to sell everything we could manufacture.

"When I came in at the very beginning I knew nothing about the audio industry sales structure, and it was quite difficult to get to grips with. Coming from the semi-conductor industry I was used to single orders of perhaps half a million pounds, certainly never less than £25,000. Coming into a little industry where you were grateful to sell an amplifier for £500 was a shock to the system! There was also a lot of 'unprofessionalism' at the time. I spent a lot of time ringing up competitors and potential dealers as a punter, trying to find out the sort of attitude and responses I got. It was pretty awful in those days.

"We decided to capitalise on this situation, and decided that we must have an excellent standard of service, so that as soon as anybody rings about anything, they'd get an answer and speak to somebody right there and then. We found we could gain an awful lot of brownie points, never mind the products. And that's what we set out to do. One of the things we have a high reputation for is the service that goes with the products, and this is very important - particularly for the export trade.

"Our export distributors are encouraged to feel like an extension of our sales force, and they are asked to tell us about any problems so that they can be resolved quickly. This attitude accounts for 50 per cent of success of the company, in that people trust us and believe in us and get informa-



Hazel Simpson.



Turning point: the 1985 Frankfurt Music Fair.

tion from us."

HIT's list of overseas agents now numbers 36, and establishing such an extensive network has involved a lot of investment in time and travel.

"In 1987 I visited 28 countries and spent a total of 26 weeks out of this country," explained Hazel Simpson. So it's been fairly heavy going. One thing that has helped us find good distributors is the fact that I don't come from the audio industry. As opposed to having a preconceived idea of who is who, and where they are, I have actually gone to each country with a list of names and some magazines, walked the streets, knocked on all the doors, and made a totally independent decision on who is best.

"This means some of our distributors are new

boys on the scene, and they are hungry and they have fears like us, and their philosophy is the same as ours. They've done very very well. We're not interested necessarily in the big fat cats, but in the people who will do the best job. And we always investigate - we never appoint a distributor in any country without going to visit that country first. We pay a lot of attention to export sales details; for instance we now print brochure translations in French and German, which very few of our competitors do. We also provide advertising finished film in French, German and Italian so that we can issue them to our distributors who can advertise in their domestic magazines. It helps our international identity and the identity of the products."

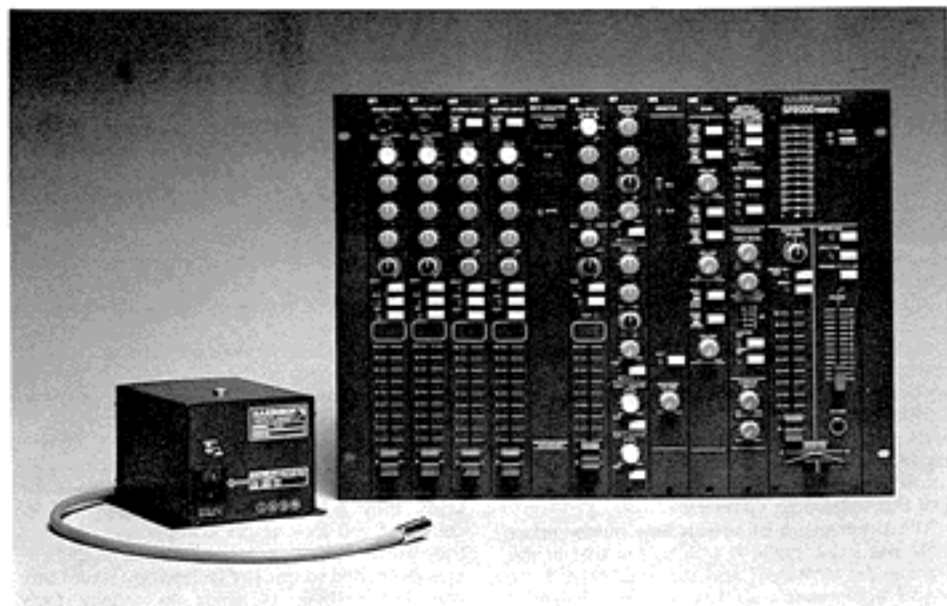
Harrison Information Technology now employs a total of 28 full time staff, and almost half of these are design engineers. Expansion is the name of the game. "Across the industry companies are buying or grouping together and bringing the industry of age by making sensible sized companies. We don't necessarily want to take that route, but what we are doing is investing our money to grow from within, so that our product range is becoming broader and broader. We don't think there's a long term future for the little quarter of a million pound turnover company in five years time.

"We now have six thousand square feet of our own, excluding production, which is done by other factories outside."

Harrison's production methods stray away from the traditional in this respect. They design the products, buy in all the components, and then on a monthly basis kit and free issue to approved manufacturers. Basic products are then delivered back to Harrison on a bi-daily basis for final assembly, test, QA and despatch.

"The advantage of this method is that we keep stocks of finished products to a minimum, thus saving space, and we also have very real control of quality in that if it isn't right we bounce it back on the person who put it together," said Hazel Simpson. "We don't have to have an internal row with production staff, and we literally don't have to pay for it until the quality is right. And it also gives us a great deal of flexibility. We're probably the only company in the industry that can double production on a four week lead time. Most of our competitors are stuck within the parameters of their own production force, and the actual amount of space they have. We don't have to worry about that. If we employed those people directly ourselves we'd be into employing at least another 50 people, and all the problems that go with that.

"We have eight sub-contractors and we never utilise more than 25 per cent of their labour force. We approve every single member of their staff that works on our products. We interview all the staff who will be working on our products, and we also have the right in our contracts to take certain members of staff off our products if they are not doing a good enough job. It's as if we actually rent



The latest: Harrison Information Technology's SP2000 professional stereo mixer.

a piece of factory space off of them, and we sub-contract their staff.

"Each product is shared either by one sub-contractor only or between two sub-contractors, and all products are coded. When it arrives here there is a visual check inspection on arrival, and if it's found to be not up to standard at that stage it can go back and the right person informed. It then goes through test, and at any single stage it can be thrown out by us. Our test procedure includes a full test cycle on every product including a full soak test, before a visual QA and packing. All of this takes between two and three hours per product."

Bearing in mind Hazel Simpson's earlier comments on professionalism in the industry, I asked her where she thought things stood today.

"The majority of our competitors now operate to a professional standard, and do give reasonable service. We still profess that we are better, and we are always looking for ways to be better, but nevertheless, yes, things have improved a great deal. If they hadn't then we'd be storming ahead!"

What about the world market. Where do British products sit, and what sort of reaction do you get when you walk in doors overseas on a selling trip?

"British audio products are exceptionally well regarded. In fact, if you go to any country in the world there will be two countries' products which will be recognised and acknowledged: British and American. They are the only true international products, and they are very highly regarded. The British element, as with lighting, is for the electronics. Even the quality of American audio electronic manufacturing is not as highly extolled as the British, and there is this vague subjective thing which is still talked about an awful lot - the British Sound - which we seem to have got right."

"I can't define it, and I think it's just a traditional feeling people have. It's probably a rub-off from the fact that our recording industry has led the world for so long."

Technical director David Kempson joined HIT mid-way through 1988, having spent around nine years in the audio industry.

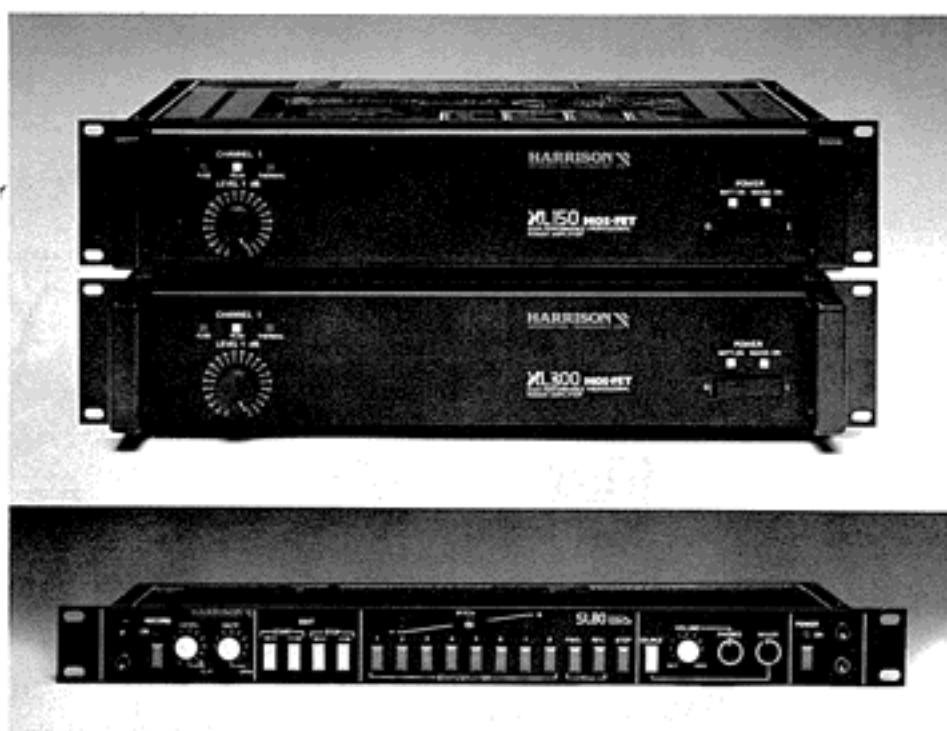
"I hadn't been looking around for a job," he told me, "but this position offered a good opportunity for more involvement rather than just detailed technical work. I knew basic facts about Harrison's range of equipment and it seemed there was a good scope for improving on it. Also, the company seemed to be going places."

"I am responsible for all technical matters, including all of the design work, although Mike Harrison still undertakes some of the detail on the mechanical design himself. But in that respect he is a member of my team, if you like, rather than my boss! Mike has a very strong background in detailed mechanical work and I think a lot of the appeal of the product is actually the cosmetic appeal. And this is due very much to Mike and his design abilities."

"My first three months were spent getting to know the existing product range and there were a number of things I didn't particularly like, and we've made a few changes. I think every unit has



Harrison's technical director David Kempson.



The XL150 Mosfet power amplifier and the SL80 digital sampler.

had something changed on it, and some changes have been quite drastic. I also had new ideas which we've discussed here and also with some of our distributors, and the fruits of this are just coming into production: for instance the SP2000 and the sampler, and also the XL series of amplifiers - which was in direct response to a customer's requirement."

David Kempson's next task was to recruit five degree level engineers. All are equipped with CAE work stations, and sophisticated systems for designing the hardware and the software. "It's directly compatible with the sub-contractor we use for laying out the boards. So we go from circuit design directly to PCB layout and then directly to PCB manufacture without introducing any of the manual translation errors, which is a big step forward. The team is working very well, and I'm very pleased with them. Four of them are spending all of their time on new products whilst the fifth engineer also has a task to support the existing Harrison product range."

Although David Kempson admits to having been a DJ himself for several years, a trip out with Hazel Simpson to see just how roughly equipment gets treated opened his eyes to the real state of the game.

"They do use broom handles to scratch with, and they really do dance on top of the tape-decks and stuff like that," interjected Hazel. "David has been round certain places like that just getting to grips with just how rough people can be with their equipment."

Back to David: "Well, there's a big change on things like the SP2000 and the SL80. They can be operated with the feet if necessary, and I'm sure some DJ's will consider that an option. Things like PCB mounted sliders, for example, are out. We won't use those again."

I asked David Kempson about standards and approvals, and how he saw the future.

"There are an awful lot of people, including some very small outfits, who in the last few years have started selling high technology things. I think they've got to be a bit careful in the coming years because standards are being enforced very rigorously now for the Common Market in 1992 and the States as well. And these companies are going to find it very difficult. But what we have here I think is a correctly set up company that is growing in the right way and is able to respond to that sort of challenge."

"Even so, the whole subject's a moving target; that's the real problem! A few months ago you could say that a certain country had a given standard, but now we're all trying to bring things into line for 1992, and some countries seem to be jumping the gun, with Spain as an example."

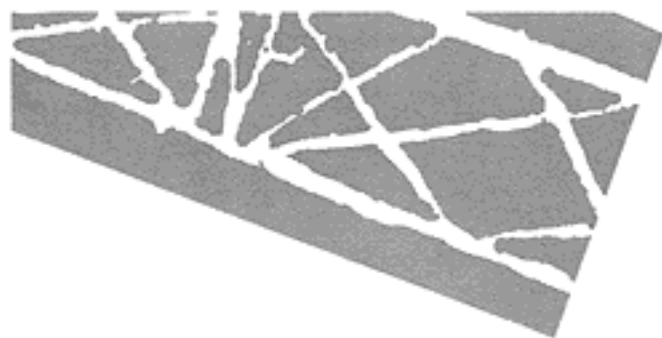
Harrison's annual turnover is now well in excess of £2m, and Hazel Simpson told me that they will be looking for as much diversification in product type as possible. "It means that anything which is rack mountable and used in an audio application, be it a theatre or a discotheque or whatever, we would like to have a piece of that in our product range. Specialist manufacturers are difficult for importers to get to grips with because it's administratively costly to have several supplies. They're looking for multiple equipment manufacturers, and we're aiming to be one of those."

And with the company's exports accounting for between 75 and 85 per cent of turnover, it's easy to understand the reasoning.

For the rest of the Harrison story hinted at in this article, we'll have to wait until mid-summer, when the covers are pulled off and Harrison launch a new company and its new products to the blare of trumpets and fizz of champagne.



Final assembly and test at Harrison's HQ.

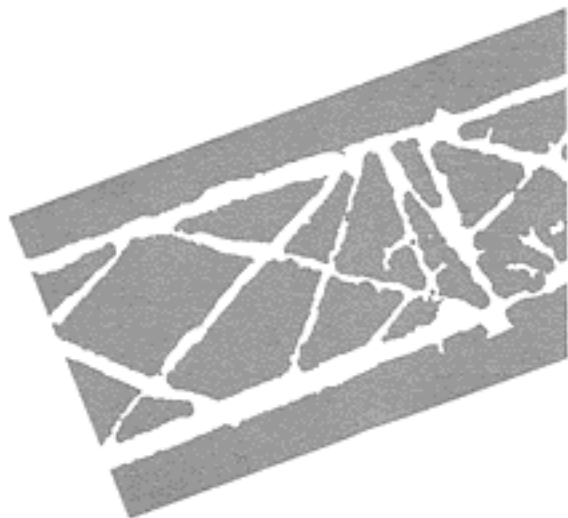


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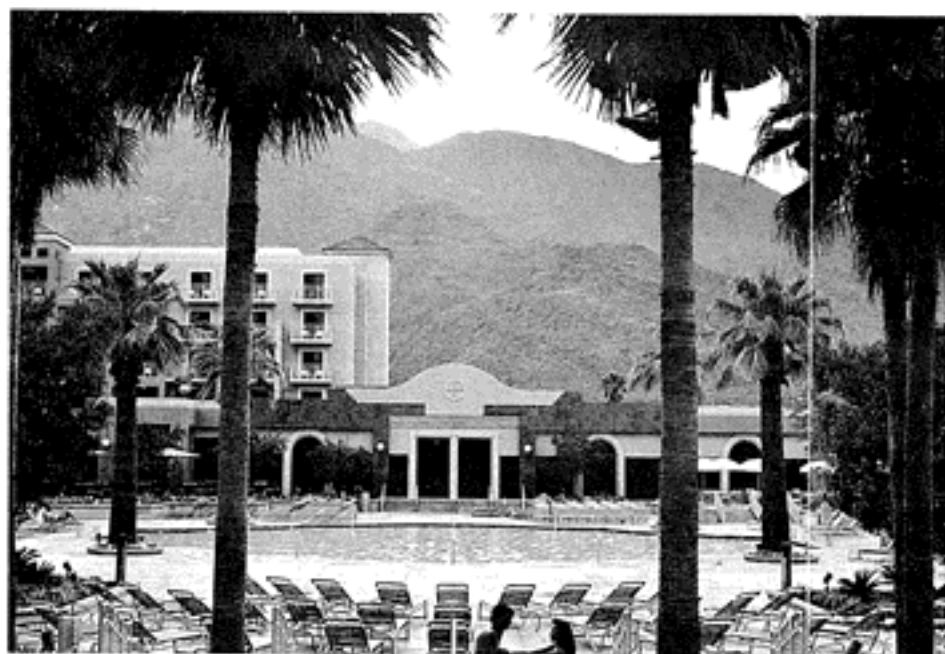
PLASA News

● DTI approval has been secured for the marketing trip to the Far East. PLASA general secretary Tony Andrew told the February meeting of the executive committee. The proposed itinerary details visits to Sydney, Australia from Jan 29-Feb 2, Osaka (Japan) from Feb 5-9 and Singapore from Feb 12-16. The Australian and Japanese dates have been confirmed, but final confirmation for the Singapore visit is awaited from their consulate. Any companies interested in participating in the marketing trip should contact Tony Andrew immediately on 0323 410335.

● PLASA have provisionally reserved 2,500 sq ft of space at the Lighting Dimensions exhibition in Palm Springs in November this year. A joint venture has been organised with the DTI, which will take the form of a substantial grant towards the cost of hiring space. A travel grant has also been negotiated which will cover the travel costs of two representatives from each company. Precise details are still awaited from the DTI, but anyone requiring further information should contact Tony Andrew at the PLASA office in Eastbourne.

● An application for joint venture for Musika '89 Moscow (July 18-25) was rejected by the DTI on the grounds that the show is not, as yet, an established exhibition. However, PLASA is currently exploring ways of reducing the costs of attendance at Musika.

● A legal seminar is to be held at the Crest Hotel, South Mimms (see Legal Notes), on Thursday March 23rd. The seminar, beginning at 9.00am, will be conducted by Alex Carter Silk of Kenneth



Wyndham Palm Springs Hotel, the venue for Lighting Dimensions 89.

Shaw & Co with the assistance of two barristers. The discussion will cover all facets of contractual law and its effects on the lighting and sound industry. The price per delegate is £15.00 plus VAT,

which includes a buffet lunch. All members will be mailed with full details in due course.

● Two PLASA member companies have resigned from the Association - Vitavox Limited of Middlesex and London-based Watkins Electric Music Limited.

● Readers of L+SI may have noticed that we now have an 'editorial advisory group' (see page 5) which meets twice a year. If you have any comment to make on the magazine, please feel free to contact the editor, or if it's something worse than that have a word with any member of the group!

● Sorry we didn't have room for PLASA Members in this issue (the editor messed up the pagination). A revised and totally checked list will appear in our March issue.

● PLASA Light & Sound Show organiser David Street reports that both the ground and first floors of Olympia 2 are now 'as good as booked out', with many regular exhibitors increasing space well above their 1988 allocation. Six major new exhibitors have also already booked space. An increased area on the second floor means an adequate amount of space is still available, but companies thinking of exhibiting should not wait too long before contacting David Street about their requirements (01-994 6477).

Coffee Break

PLASA general secretary Tony Andrew has been scouring Eastbourne and beyond in search of an expensive coffee percolator for his own personal use. Other staff in the Eastbourne office will be expected to continue using the crappy kettle and cheap and nasty cups, while Tony, will be charging them 25p per china beaker just to smell his coffee.

Exhibition Diary 1989

Sound Eighty-Nine

February 21-22, 1989.
Heathrow Penta Hotel, London.
Enquiries: SCIF, 4b High Street, Burnham, Slough SL1 7JH.
Telephone: (06286) 67633.

SIEL 89

April 9-12, 1989.
Porte de Versailles, Paris, France.
Organised by Bernard Becker Promotion,
161 Boulevard Lefebvre, 75015 Paris.
Telephone: (1) 45.33.74.50

Pub, Club and Leisure Show

April 11-13, 1989.
Olympia 2, London.
Angex Ltd., Europa House, St. Matthew Street,
London SW1P 2JT.
Telephone: 01-222 9341.

SIBIMAGS

April 10-13, 1989.
Rimini, Italy.
Ente Autonomo Fiera Di Rimini,
PO Box 300, 47037 Rimini, Italy.
Telephone: 0541782000.
UK enquiries: PLASA general secretary,
Tony Andrew, 7 Highlight House, St. Leonards Road,
Eastbourne, East Sussex BN21 3UH.
Telephone: (0323) 410335.

USITT Conference & Stage Expo

April 12-15, 1989.
Calgary, Canada.
National Office: 330 West 42 Street, Suite 1702,
New York, NY 10036.
Telephone: (212) 563 5551.

Expo Musica, Madrid

May 17-20, 1989.
Madrid, Spain.
Organised by IFEMA (Institution Ferial de Madrid),
Avda de Portugal, s/n Casa de Campo,
28011 Madrid 1101.
Telephone: 470 10 14.

Audio Visual 89

May 8-11, 1989
Wembley Conference Centre, London.
Organised by emap McLaren Exhibitions Ltd.,
840 Brighton Road, Purley, Surrey CR2 2BH.
Telephone: 01-660 8008.
Contact: David Copeman.

Showlight 89

May 15-17, 1989.
Hilversum Studios, Amsterdam, Holland.
Organised by The National Illumination Committee GB
in association with Netherlands Broadcasting Svs.,
NOB, PR Department, Postbus 10, 1200 JB Hilversum,
Netherlands.
Contact: Maureen van Woudenberg.
Telephone: 035-775115.

ABTT Trade Show

May 18-20, 1989
Riverside Studios, Hammersmith, London.
Enquiries: ABTT, 4 Great Pulteney Street, London
W1R 3DF.
Telephone: 01-434 3901.

NOIT 89

May 28 - June 2
Copenhagen, Denmark.
Union of Theatre Technicians in Denmark
Telephone: (1) 245808.

APRS Show

June 7-9, 1989.
Olympia 2, London.
Enquiries: APRS, 163a High Street, Rickmansworth,
Herts WD3 1AY.
Telephone: (0923) 772907.

Musika '89 Moscow

July 18-25, 1989.
Enquiries: Clahé International Group Ltd.,
Tel: (0787) 228086.
(Also Tony Andrew, PLASA general secretary,
0323 410335).

PLASA Light & Sound Show '89

September 10-13, 1989.
Olympia 2, London.
Exhibition Organiser: David Street,
Telephone: 01-994 6477.
General Enquiries: PLASA general secretary,
Tony Andrew, 7 Highlight House, St. Leonards Rd.,
Eastbourne, East Sussex BN21 3UH.
Telephone: (0323) 410335.

Lighting Dimensions International 89

November 3-5, 1989.
Palm Springs, California.
Enquiries: Patricia Mackay or Jackie Tien,
Lighting Dimensions, 135 Fifth Avenue, New York,
NY 10010, USA.
Telephone: (212) 677 5997.

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on 0323 642639

LEGAL NOTES

Alex Carter-Silk

The lighting and sound industry has grown beyond all expectations in the last five years and associated with that growth has been a vast change in technology and a complementary increase in the 'capital intensive' nature of the industry. The handshake has been replaced by a bill of exchange and letter of credit as the international dimensions of the industry expand.

As 1992 approaches and potential markets widen, so too does the force of competition. The lowering of frontiers is indeed a two-way street! In addition, the industry must now cope with an ever-increasing amount of legislation and regulation - from technical specifications to VAT, and from contractual difficulties to product liability. The conservative era has brought with it more statutory codification in the field of commerce than ever before.

The industry is, however, well-placed to take advantage of all the potential now open to it. The increase in net per capita wealth of the nation is a good indication for a bright future. But that future is dependent on actions taken today, and the expansion of expertise within the industry - not only in the technical aspects of production, but also in the more specialised areas which underline corporate growth including corporate finance, management, contract administration, export control documentary credit and currency exchange management. It is perhaps within these areas that the strength of PLASA, the industry's trade association, can play a major role negotiating, consulting, guiding, researching, advising and informing. In the present political and economic climate it is for the industry to look after its own interests. If it fails to do so it will weaken its ability to guide its own future and shape the policy decisions of government and Whitehall alike. The industry certainly has the numerical strength to make its voice heard.

In the course of considering the areas in which practical assistance can be given to members in the industry, education and information must be placed high on the list.

The invitation by PLASA to contribute to L+SI on a regular basis is one which is therefore willingly accepted. The column which will appear in future editions of this magazine will revolve around issues which are relevant to the industry both generally and specifically, and will hopefully give a 'no nonsense' overview of areas which we ought to be aware of at least in outline. A wide ranging schedule of articles and papers is now being prepared and suggestions from readers are welcomed.

More detailed 'company related' subjects will be covered in synopsis in the magazine and the full version made available to PLASA members on application. Other specialist articles relating to wider facets of entertainment will be included as fully detailed features.

PLASA's first-ever full day legal seminar will be held in March, and outline details are given in PLASA News on page 49. This seminar will, I hope, introduce myself and my firm to members of the Association, and provide some thought-provoking material in relation to the legal environment in which the industry operates. Depending on demand from the members and the response from the seminar, further such events will be arranged calling on specialists in areas of particular relevance to the membership.

The objective of the seminar will be to take the medium-sized company through all aspects of Contract Law on a whistle-stop tour. It will not teach individuals all aspects of the law, but those who attend should leave with a good grasp of the essential features of a contract, and the principles which they must bear in mind when buying or selling expensive equipment. By working through from the basic method by which people normally do business, and showing the areas of problems through to formal procedures for creating and administering a contract, and on to the effects of badly administered contracts and the problems with running a full-blown dispute, should give the delegates attending the conference a very good overall picture.

The individual areas which will be dealt with by the first seminar can be picked up in later seminars with the help of experts called in to deal with individual areas. Not scheduled in is one very important area, that of doing business with foreign companies. This is a huge field and one which will be left for a later date - though it may be touched on in the context of creating and suing on contracts generally.



Alex Carter-Silk.

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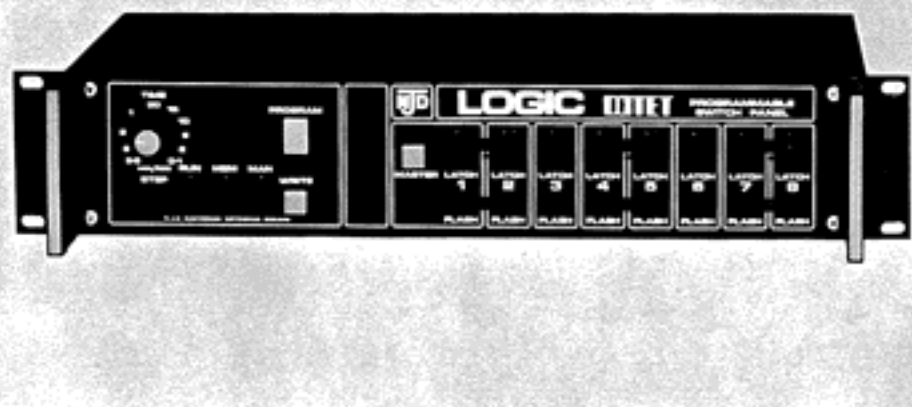
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EQUIPMENT *News*



Logic Octet from NJD

The new Logic Octet utilises the latest advances in technology from the computer industry to provide a versatile switch panel with nine permanent memories, say NJD Electronics. It was shown for the first time at the 1988 PLASA show, and is now in full production.

The unit allows for eight-way switching with 'manual operation' selected the 'latch' and 'flash' switches give direct control over the outputs. The 'mem' switch allows a new programme of effects to be pre-selected whilst the previous selection is still running. Red LED's show the outputs that are on; green LED's show the new selection. 'Write' replaces the old selection by the new and stores the new programme in memory zero. 'Manual' will override the 'memory' function providing direct control of the outputs as above - the stored pattern will return when the 'man' switch is turned off. The numeric display shows 'zero' during 'memory' mode.

Access to the eight sequence memories is provided by the 'step' button. The memory is selected using 'step'; the pattern is set up on the green LED's using the 'latch' switches and stored by pressing 'write'. Patterns will remain in memory even if the power is disconnected and any pattern can be selected for display using the 'step' button. 'Run' will run through the memory sequence at the rate selected on the 'speed' control and whilst the sequence is running the 'mem' button can be used to return to a favourite pattern stored in memory zero (all memories are write protected during the 'run' mode). 'Manual' can be used to restore direct control of the outputs to the user.

At any time, the master switch will force channel 1 'on' and all other channels 'off' - ideal for strobe effects - and the flash buttons can be used to force any output on at any time.

The Octet provides standard 0-10V low-voltage outputs from each channel for connection to any external slave pack. (The Octet's built-in slave pack is fully compatible with inductive loads).

For full details contact NJD on (0602) 394122.



The PR 'Angle'

Lynford Christie, silver medallist in the Seoul Olympic Games last year, meets a fellow powerhouse from West London, the Wembley Loudspeaker Company's 18" B-Line 500 Watt bass speaker.

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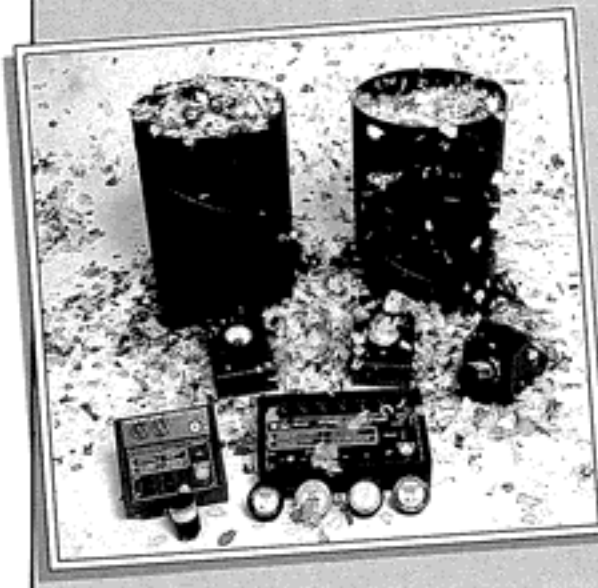
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The new FS 400 range from LDMS.

LDMS Launch FS 400

The new FS 400 range introduced by LDMS is the result of extensive development by Franz Sill, a European leader in discharge lighting. The range comprises an exterior fitting of compact dimensions, but with a wide choice of distribution for not only all the low wattage Metal Halide and Son lamps currently available, but for new lamps planned in the future.

LDMS have been showing prototype fittings to the industry for the last six months and the concept has been welcomed to such an extent that, prior to production commencing last November, many hundreds of fittings were already specified, say the company.

Spearheading the new range is the narrow 6 deg. beam spotlight for the 150 watt - 70 watt Metal Halide and the 50 - 70 watt High Pressure Sodium lamps which is ideally suited to many exterior applications such as the floodlighting to buildings. To complete the range, medium, wide and asymmetrical reflectors are all available ex stock from LDMS and their authorised distributors.

For further information contact LDMS telephone (0268) 759681.



New From Audio Logic

The new mono SC 610 6 channel mixer and SC 611 6 input expansion module from Audio Logic occupy only one rack space apiece. Four inputs in each unit are designed for microphone use, while the other pair may be used for this purpose or as line level inputs. Each mic input offers both switchable phantom powering and low-cut filter, gain trim pot and clip indication, with headroom LED indication on all six inputs. For increased versatility, the main output is also switchable between line level and mic level and the SC 610 carries an additional stereo input. All inputs are XLR.

Further information from John Hornby Skewes on (0532) 865381.

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QUARTZCOLOR IRIS 1 1KW CYCLITES
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● RIGGING

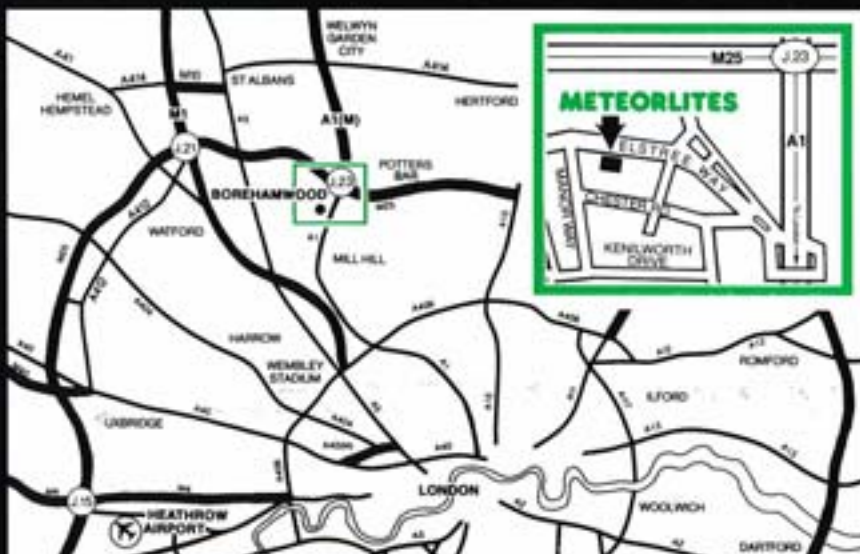
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New Floodlights

An entirely new series of portable tungsten halogen floodlights suitable for a variety of business and domestic uses has been introduced by Liteway Limited, of St. Columb, Cornwall, manufacturers of security, amenity and display lighting.

Called the Carrylite range, they are available in three different designs: tripod mounted, ground spike mounted and freestanding. All come complete with 5m of cable which only has to be plugged in to an electrical supply to provide 500 watts of brilliant illumination.

The tripod mounted unit can be adjusted up to 7ft high, but folds down into a convenient box with carry handles when not in use. Finished in



A Carrylite flood with ground spike.

chrome and black, it is ideal for floodlighting of indoor and outdoor work areas and for use in photographic studios, for home photography or videos.

Available in either a black or green finish, the ground spike version is particularly suitable for use in garden centres, garage forecourts, boatyards and car sales areas, or to floodlight buildings. Its 9" long spike in non-corrosive aluminium can easily be pushed into the ground to provide a secure anchorage.

The freestanding unit, also available in a choice of black or green, will either stand on bench tops or hang from beams for use in garages and loft spaces. This unit is also suitable for exterior use.

All three units are fully weatherproofed to international standards, and are suitable for improving

the security of outdoor areas as well as for general amenity use.

For full details contact Liteway Limited telephone (0637) 880015.

Second Generation T11(19) from Philips

The design of the Philips second generation T11(9) 1kW theatre lamp has been further developed and it is now even more robust than before, whilst maintaining all of the advantages of bi-plane construction, say the company.

The first generation of bi-plane theatre lamps was launched by Philips in 1980 and they have conclusively proved the effectiveness of a smaller filament package to achieve the optimum light output from theatre lanterns.

The bi-plane lamp, as its name suggests, has two rows of filament coils as opposed to the single row of a monoplane lamp, thus providing a high light output per sq. cm. at the focus of the optical system. This enables a greater proportion of the emitted light to be gathered into the beam; a factor not overlooked in the design of the latest lanterns from the most prominent manufacturers.

The most outstanding benefit is enjoyed with long throw lanterns, with 35% extra beam intensity being common. However, fresnel lanterns benefit too, and when spotted down will give up to 30% more useable light. At flood settings, more even distribution may be obtained with minimal striations or bright rings.

The second generation construction is also utilized in the Philips 1kW Studio types CP40 (71) and CP24 (70).

New From Lee Filters

Lee Filters has strengthened its product line-up for 1989 with a number of new additions designed to satisfy all the filter needs of the lighting cameraman.

An important addition to the Lee portfolio is a

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range of new ground glasses, manufactured using state-of-the-art technology, and available as standards, or custom-made to user specification. The company's extensive range of glass camera filters has also been widened with the introduction of high quality star and diffusion filters. The problem of grid spacing appearing in the shot is eliminated with Lee star filters.

The company, who pioneered the use of resin camera filters in the early 1980's, has now developed a second generation resin family with higher optical standards and quality, and a new range of ND grads and custom-made grads to order.

Lee continues to supply a very wide range of polyester camera and lighting filters, and has recently introduced a new polycarbonate range - the HT series - for high temperature applications. The most durable filter available, the HT has unbeatable heat resistance for prolonged use and situations where lamps are difficult to reach. Available in sheets (0.56m x 0.53m) or rolls (4m x 1.17m), the HT range conforms to BS3944 and carries the same colour consistency guarantee as Lee polyester filters.

For further information, contact Lee Filters Ltd on (0264) 66245.



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Concert TD Series

Samson Technologies of Long Island, New York has launched the Concert TD Series wireless system incorporating DBX noise reduction. Unlike standard wireless systems, Samson's Concert TD Series analyses the information led to it and, with the aid of a pair of receivers connected to aerials situated in two different locations, automatically reacts to and compensates for any potential signal aberration, due to phase cancellation.

Recommended for all professional applications where the highest levels of signal integrity and complete freedom from interference are required, Concert TD Series wireless systems are offered in three formats: hand-held, instrument and lavalier (lapel) type. The CH-2 and CT-2 hand-held transmitters are available from Samson with a wide range of dynamic and condenser type capsules from Shure and Electrovoice.

For further information contact Executive Audio, telephone 01-541 0180.

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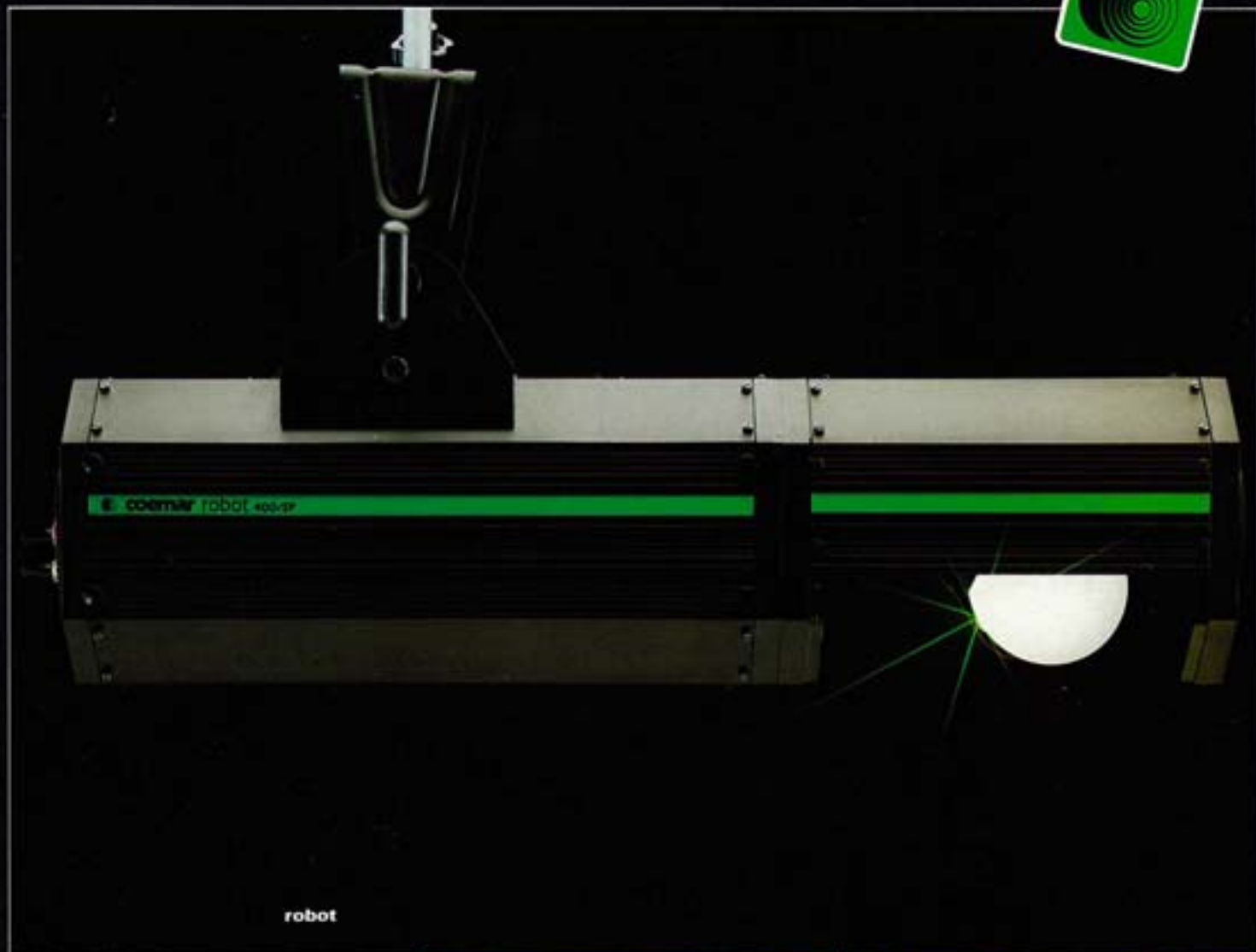
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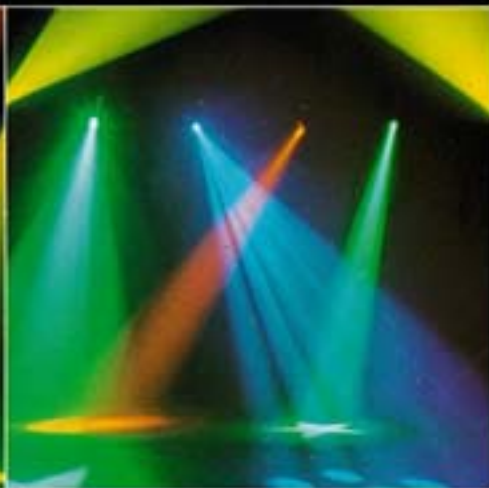
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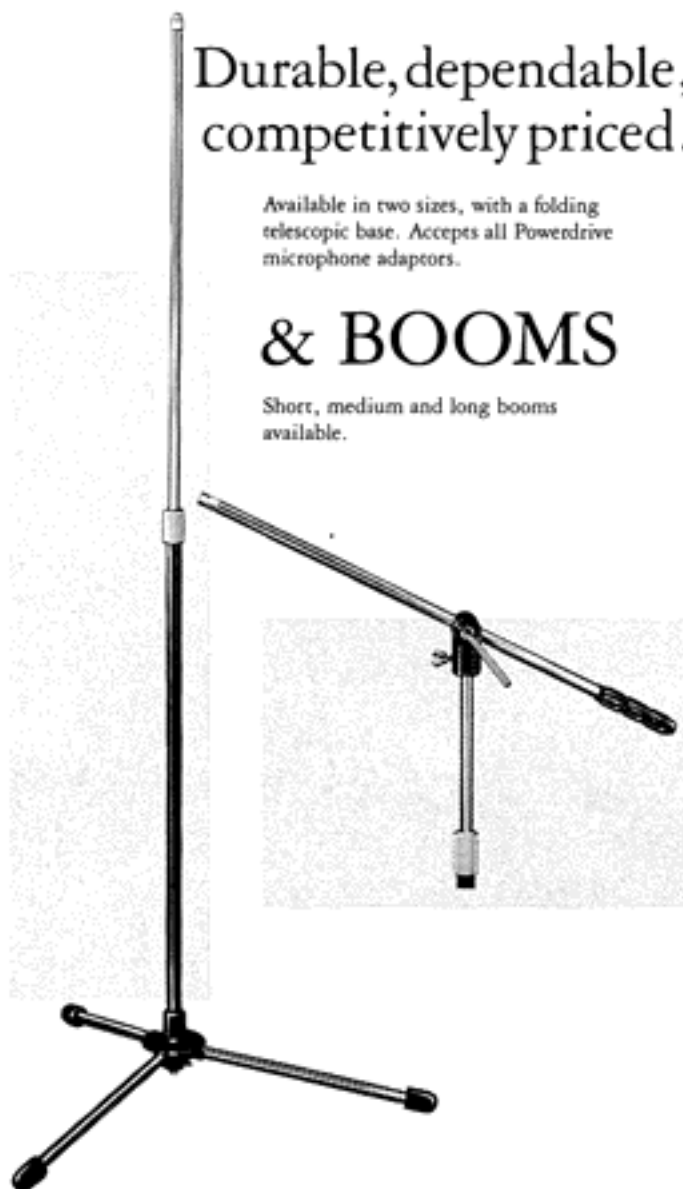
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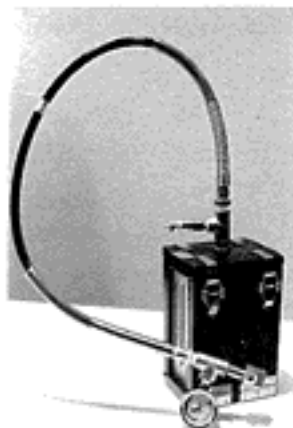
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ON TOUR

Carltona Forcer

Apologies for the lack of photos for the Rick Astley show! It does seem silly that artistes such as Rick Astley spend a lot of time and money producing magnificent stage sets and lights, and then don't allow people to photograph them. Even his record company, RCA, don't have any photographs of what was a very good show. All they could provide was this lovely shot of our Rick for you to pin up on your tour bus.

While my heart was still fluttering over Rick Astley, I was invited by lighting designer Pete Barnes to see what he had done for those other teenage idols Bros. You're probably sniggering at this, but surprise, surprise, it turned out to be a very professional and entertaining show, and Pete Barnes' lighting design was amazing. And no, I didn't faint or throw my knickers on to the stage at either concert!

Jonathan Holt

**Rick Astley
World Tour 1988/89
Wembley Arena
December 15th 1988**

This is Rick Astley's first tour. How did you get the contract?

"I met Rick's manager at the BPI Awards last February and he invited me to meet Rick so that we could discuss this production. During the following months I showed him several rough ideas whilst I was doing other tours. It was Rick who eventually came up with the idea to have a screen which he could walk into and then project an image of himself on to it. This gave me a good basic brief to work from and, after working out the screen size, I decided to have it built into the set with back projection. In fact, the whole set was built out from the screen. I've been very involved with this show right from the beginning - from getting 3D drawings and models made, to getting the quotes on the set, lights and Vari*Lite. I also got key people in like the projectionist and a wardrobe girl."

How have you composed the lighting for tonight's show?

"I have kept the lighting relatively simple because the stage set is the feature of the show. I designed the set, backdrop and the overall look to the show. Vari*Lite feature strongly, and in fact I'm operating the whole show through the Vari*Lite board, which is a little worrying with everything being digital but so far it has been fine. Vari*Lite tell me that this is probably the biggest system that has been out in Europe run by a Vari*Lite board."

"Rick is very keen on being involved in all aspects of the shows production, and he has been strongly influenced by the Prince shows. I saw the last Prince show but I wasn't that impressed - probably because I didn't know any of his songs. Rick gives me a fairly free hand to do what I like but he does tell me if he has an idea. I prefer this because it is very difficult to design for people who haven't got a clue as to what they want."

This is a big, bright, flash pop show with a lot happening in it, and I think that many people are going to be surprised. They come out of politeness and leave a fan, having enjoyed the whole show and not just the music."



Rick Astley.

How long is this tour?

"The tour started here in Britain, and this is only our fifth show. We go to Europe in February and then the Far East, Australia and America - probably through to next September."

Tell me about your career as a lighting designer.

"I gave up a degree course at college to become a lighting designer and within three months I had my first tour. In the beginning I worked mainly for Light & Sound Design for about five years. It's funny because I started off designing and since then I've worked backwards! Now I usually go out as crew boss and I've been responsible for some pretty big shows like getting Level 42 out, and last year I did Bryan Adams. I eventually started working for SuperMick and I got much more interesting work - not just designing, but also crew work, a lot of TV work and Prince's Trust work."

"I originally started my career as a lighting designer for UB40 who I worked with for a long time. I was always quite unlucky as I got bands that were either coming to the end of their career (TOCC, ELO), were one-hit wonders (Fashion, Jo Boxers, Belle Stars, Toyah) or bands that just couldn't make it the second time round (Go West)! I did Shirley Bassey for about a year and earlier in 1988 TPau. As you can see, I've designed for quite a broad range of acts although I do make a point of trying to steer clear of Heavy Metal. This is because, from the experience I've had as crew boss, I don't get on with that area of rock'n'roll touring."

"I've also worked for New Order, who are very atmospheric, but they only ever want blue light! They only did six shows in one year and I couldn't wait around for them!"

Which lighting designers do you respect?

"I really liked what Pete Barnes used to do for Siouxsie and the Banshees and also Big Country but I haven't seen any of his more recent work. I always seem to like what Chameleon do."

"John Broderick influenced me early in my career with his spot calling and I think that Mac who does The Cure is very good. I was also very impressed with Jonathan Smeeton on the last Peter Gabriel tour which I worked on for three weeks in Europe."

Rick Astley, Europe and UK 1988/89

Equipment List

Lighting supplied by Supermick Lights
Lighting designer: Jonathan Holt.
40 x 30 Thomas pre-rigged grid complete with 300 lamps
7 x truss mounted HTI follow spots
4 x audience mounted Lycian longthrow follow spots
6 x 1 ton Thomas ground support system
13 x 1 ton Verline motor system c/w Avolites control
2 x Optokinetics Terrastros
2 x 72 way Avolites dimmer racks
24 x Vari*Lite VL1's
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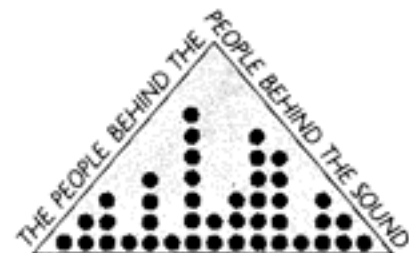
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Bros **'The Global** **Push' Tour**

Lighting designer
Pete Barnes

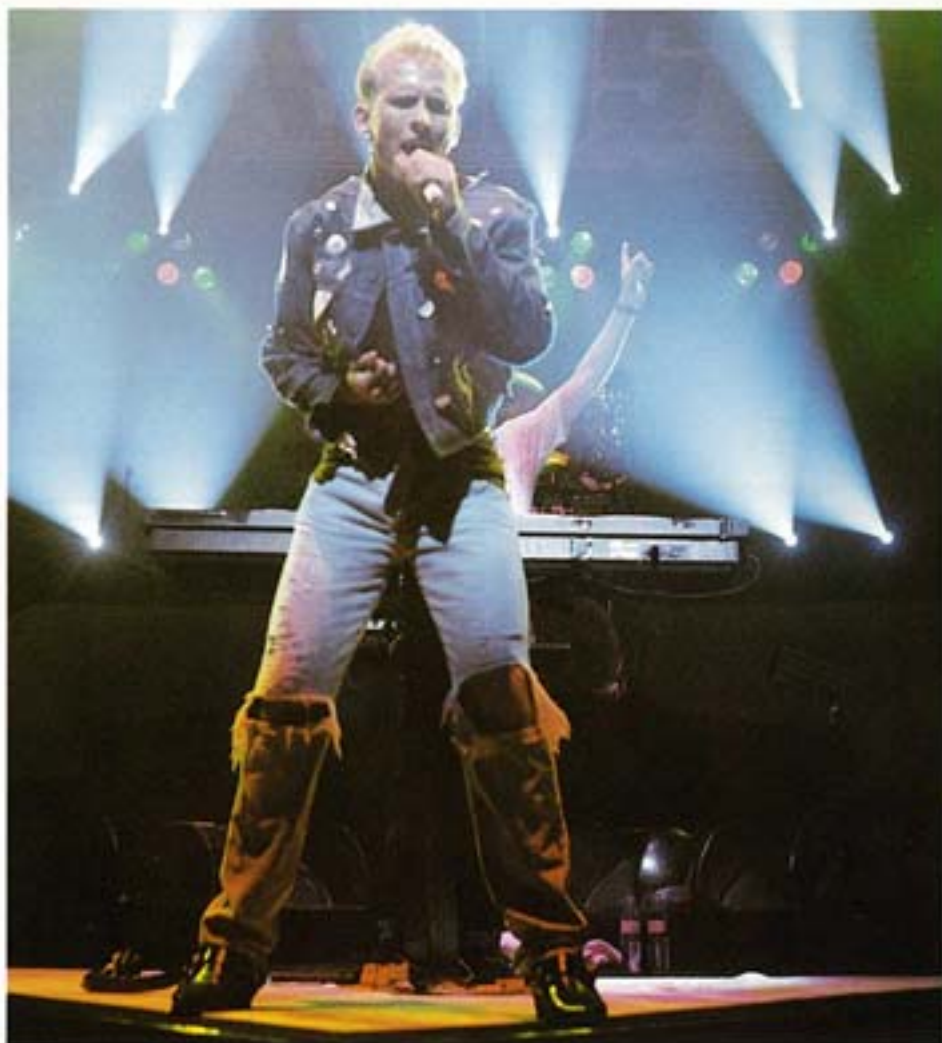
Vari* Lites Andy Gibbs

Wembley Arena,
December 28th 1988

When the tender for the Bros 'Push' tour went out, Pete Barnes leapt into action. He asked Charlie Kail at Brilliant to design a stunning stage set, while he came up with the novel idea of having a pod either side of the set which incorporates the Bros logo of a man with two arms stretched in the air, forming a V shaped truss. A model was made and presented to the band who decided that Chameleon were outright winners. Hangman were recruited to do the artwork for the set.

Pete: There are many critics of Bros out there, but I've found the band to be very helpful and nice to work with. Musically they are a lot better than I thought that they would be, and it's a good show.

Andy: People take the micky when you say that you're working with Bros; there's a lot of laughter and hilarity. But it's a good show and they sing brilliantly. It was nice going into rehearsals because they didn't have any pre-conceived ideas. We all sat down together and worked ideas out; there was no artistic interference.



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3-4

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6

AUX 1

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10

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Pete: Another good thing about the show is that it isn't very 'arty', although I quite like doing the odd arty show like Siouxsie and the Banshees. In this situation you are appealing to 12 to 14 year old girls, and if you try to get too subtle they wouldn't notice it because they are too busy jumping up and down screaming! The things that get reactions are the very blatant moves like when the pod comes down over the drum kit so that Matt can walk across it or when he goes up on a lift and the follow spots open up.

Andy: It's a very well lit show which works effectively now because we've been doing it for three months and it's now very tight. The show has a lot of samples - midi and keyboard sequences - so it's really good for doing chases, and you can get the timing just right every night as it's always the same. The music is varied as well, from fast disco tracks to the slow numbers like Cat Amongst the Pigeons.

Pete: I have to admit that it helps not having a very long set and so we have the chance not to repeat effects during the show. Every song is different. It's been good working with Andy because, although I had certain pre-conceived ideas, we have worked out ideas together.

One problem I've had has been the fact that the third member of Bros has had to drop out of the tour due to illness and that has really messed up my opening to the show. The original idea was to have two of them fly out of flaps either side of the stage whilst Matt flew out of the pod. Now only one person flies out of the side and it looks rather unsymmetrical! Also you are lacking another personality to light on the stage. This is a shame, because one of the remaining two is always stuck behind a massive drum kit and you can't light him too much as all you see is a big glaring drum kit with a little head behind it!

The tour started in October and has been to Australia, Japan and some of Europe. After the British dates we go back to Europe until mid-February. Bros's record company CBS are here tonight to look at the show because Bros aren't happening in America and they will need a lot of



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backing to tour there. So it's undecided whether we go to the States or not in March.

Andy Gibbs has worked with Vari*Lite for four years although he's been in the lighting industry for ten years. Last year was very busy for Andy starting with the Hollywood Rock in Brazil, then he did Supertramp for two months, he was electrician on Fleetwood Mac for two months and then he worked with Roy Bennett on the Prince tour for a couple of months. Andy told me that the Prince show was one of the best light shows that he has ever seen.

**Bros Global Push Tour
Equipment List**

Lighting supplied by Chameleon
208' Tomcat/Thomas 'A' type truss
44' Teletage Mk 3 truss



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EQUIPMENT ON TOUR

Level 42 Europe & UK 1988/89

Equipment List

- Lighting supplied by Supermick Lights
- 40 x 32 Tomcat grid on 6 x 2 ton Tomcat ground support towers.
 - 15 x 1 ton Verlinde motors c/w 8 way Avolites control
 - 350 Pars, Lekos, Molelays and ACL's
 - 1 x Commander computer motor control
 - 20 x 1/2 ton Verlinde motors with computer sensors
 - 2 x 30' beam travellers
 - 14 x Macspots c/w controls
 - 8 x Optikinetics Strobeflowers c/w control
 - 4 x Tomcat 'pods' for computer controlled movement
 - 24 x Vari*Lite VL2 c/w control
 - 1 x QMS500 180 channel Avolites desk
 - 3 x Avolites 72 way dimmer racks
 - 2 x Lycian longthrow follow spots
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- gum.
- 5 crew members (for the gum)

The Darling Buds, British Tour 11-27 January, 1989

Equipment List

- Lighting equipment: Street Light Designs
Lighting designer: Carl Burnett
- Control: 30 channel Celco Series 2 desk complete with Soft Options; 30 channel Celco Series 2 dimming system.
- Lamps: 60 Par 64, 24 Par 64 CP62, 36 Par 64 Rays, 1 String ACL's Par 64, 4 White Lightning strobes.
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VIEWPOINT

David Neale on Exhibitions

This season's exhibitions are now up and running. The course now lasts from January to December.

A quick glance at last month's (Jan) L+SI revealed the field for this year's exhibition stakes. So far, 15 runners have been declared, 12 from Europe, 3 from the USA, and I have a sneaking suspicion we may see a few late entries before the race is over.

So why do we do it every year?

In Disco International, an end of year Jerry Gilbert was moved to write:

"It's a crazy old world when we have to go to Dallas or Dusseldorf merely to have a drink with our next door neighbours, but it seems to be the way it is folks; a drink you've never heard of until yesterday and are unlikely ever to encounter again, with a bloke who runs a similar business to yours ten miles up the road in Runcorn."

So, for those of you who have already looked at this year's wall planner and mistaken it for the battle plan of Waterloo, read on.

We all know of the handful of diehards who attend every exhibition and are later to be seen pictured in all the trades, but for lesser mortals we have a few tips on how to survive the course.

Choosing which exhibitions to visit need not be that traumatic. Follow these basic steps and you'll find yourself at the right show at the right time, even if all your equipment/partner is still at Dover or Heathrow.

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Excuses for going (to be used for MD/Staff/Bank Manager/Wife/Husband etc.)

- "Why Bangkok? Well, I promised to see our Finnish agent there."
- "I promised to drive these Irish installation guys over." (Why are there always so many Irish visitors at every exhibition?)
- "I have to take this laser."
- "I've got O level Spanish"
- "Honestly, I'm learning Spanish/Italian . . ."



Hotel Booking

Advanced booking is essential. If you discover an hotel that acknowledges your fax/letter/telephone call/telex, has your room ready when you arrive, remembers your name . . . for God's sake keep stum! Don't tell a soul! Remember any city worth its salt will have several international exhibitions running at any one time and the 'ladies' whatever business is far larger than ours. They muscle in, get there early, book all the rooms/restaurant etc . . .

As far as most European city hotels are concerned, Bethlehem was a pushover.

Remember, when all else fails - CRY!

Registration

Always try to pre-register. If not, avoid the first morning. Sell a half share in your company for a car pass. Overworked members of the trade press of course have their own problems and therefore are given 'press passes'. These enable them to check the show at breakneck speed and then retire to the press bar where they can recoup, swap stories, job hunt and wait for the happy hour. Should you find a member of the press out in the open, grab him and explain you need to talk over next year's budget (at the press bar, of course).

A few useful phrases to learn in the local language:

- "Do you have a UK distributor?"
- "No, I said 'exclusive'."
- "Delivery? No problem."
- "I don't work for them anymore."
- "Is that retail?"
- "Do you do it in pink?"

So whether it's worth it or not, I don't know, but I'm sure we'll all make the pilgrimage to various locations. A prize will be given to the first person to sort out the log jam in April/Paris/Rimini/London and Calgary all at the same time.

Of course, you could always stay at home and see if you're missed. At last year's Light and Sound Show a visitor was telling his colleague that we'd met in Rimini. I smiled and nodded. The fact that I've never been there matters not. Beam me up, Scottie.



DAVID NEALE

In 1976 David Neale and Jerry Gilbert teamed up to launch 'Disco International'. In the same year the first industry association (BADEN) was formed, and he served on the committee for several years, and through its change of name to PLASA. In 1984, after a break of two years, he was re-elected to the PLASA committee where he served until his resignation in 1986.

Throughout this period he witnessed the growth of the industry from humble beginnings through 'Saturday Night Fever' and the heady heights of the late seventies to the recession and 'Disco is Dead' in the early eighties. A regular visitor to exhibitions over the years, he was one of the first to represent the embryo Disco media at home and abroad.

A founder member of the Derrick Saunders Appreciation Society, he has worked tirelessly for the cause. Since leaving Disco International in 1986 he has worked as a partner in Smith McCormick, a design consultancy.

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