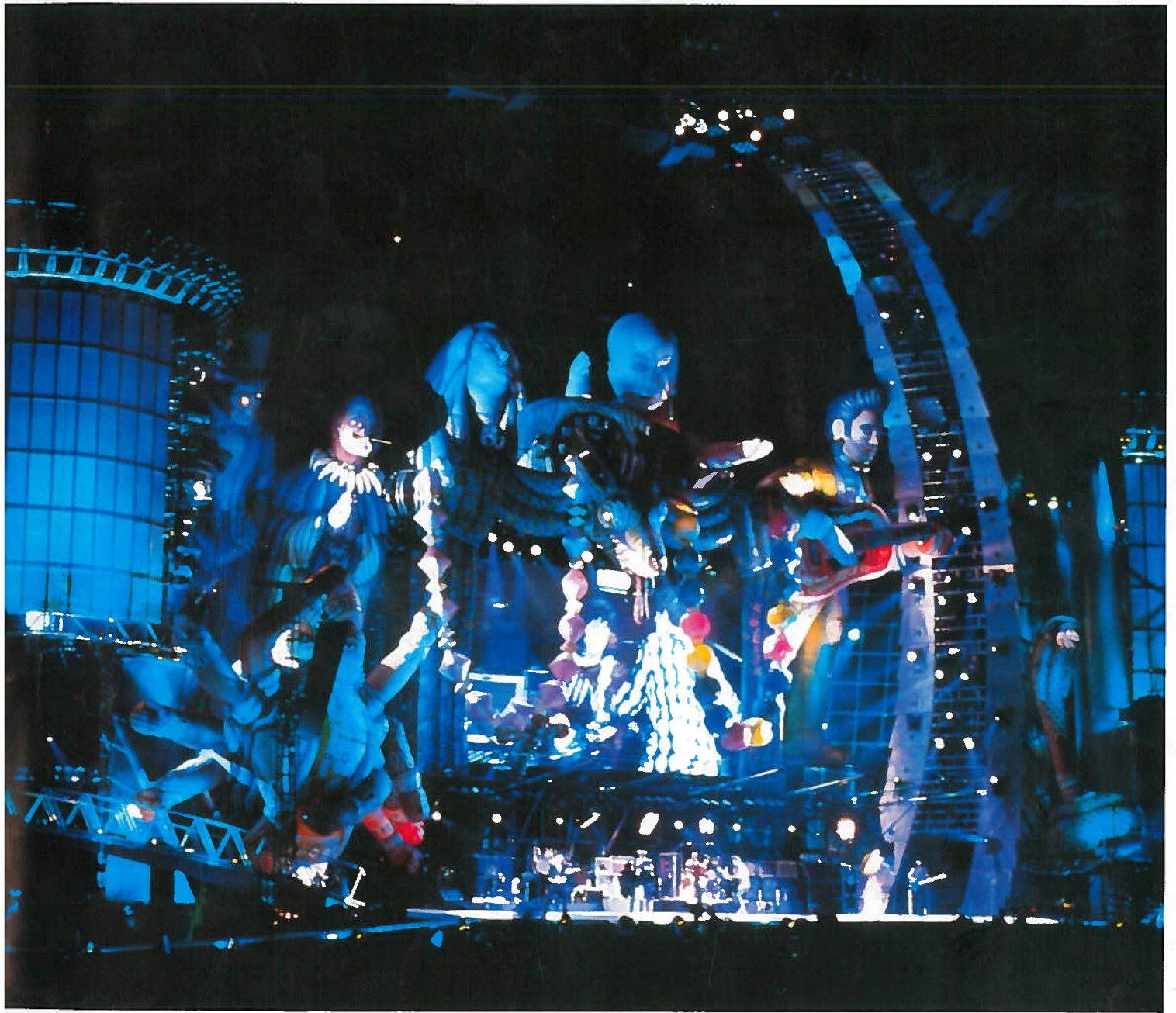


# LIGHTING+SOUND *International*



ODOO, MAGIC AND MYSTERY FOR THE ROLLING STONES

PHOTO: MARK FISHER

- Black Arts for the Rolling Stones' 'Voodoo Lounge' tour
- Power, Performance and EMC: part one of a major L+S Amplifier Survey
- Company profiles: Martin Professional and Audio Technica
- The teamwork behind the technicals for Madame Tussauds
- Scenic Sorcery for productions of St Joan and Hamlet
- Automation in the Studio: Toronto's CBC Broadcast Centre
- Plus, all you need to know about the PLASA Show

**SEPTEMBER 1994**

new advanced technology/total movement

**nat**  **tm2500**

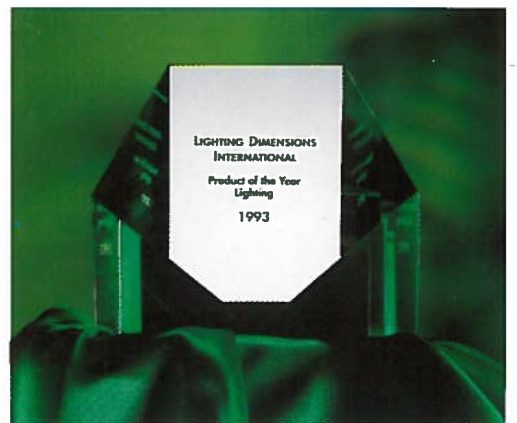
- 16 bit positioning system for absolute accuracy
- total movement - 360° in both axis; multi rotation modes with speeds available from 0,23 to 52 revolutions per m.
- ultra smooth software tracking eliminates the need for primitive speed channels
- totally smooth dimmer for complete intensity control with no optical degradation at any point
- variable speed strobing shutter with position control for accurate image wipe/reveal possibilities and blackout
- slick iris with built-in variable speed pulse facilities
- focus separately programmable at all sizes
- programmable frost usable at all settings from sharp to totally diffused (fade to white) with variable speed frost flash facilities
- two gobo wheels give a total of 36 image combinations with additional +/- 3° positions for quick, accurate moiré effect creation; all gobo's and effects are rotatable in both directions at independent variable speeds and are positionable to give accurate, repeatable image line up facilities; rolling gobo effects are available in either direction or in combination to give new contra-rolling effect
- additional effects wheel with 3 optically optimised image multiplying prisms (3, 4 & 6 facet) and seamless quad and bicolour for internal colour rotation
- colour wheel featuring unique seamless quad, tri and bi colour possibilities together with variable speed rotocolour; full cyan, magenta, yellow colour mixing
- all systems can be used in combination
- function channel for remote lamp operation and power up/down
- all functions available from standard DMX 512 control via 3 or 5 pin cannon connectors
- Back panel LCD display for menu driven digital address setting, DMX reception indication and analysis, operation mode options, lamp and unit life display and unit test facilities
- power factor corrected as standard
- discrete elegant styling with user adjustable handles for easy rigging
- ultra powerful HTI 2500 W/SE lamp
- optimised optical systems give a light output that is at least double that of any other currently available articulate projector



# The real revolution in light.

NAT was conceived as a complete range of machines. Built without compromises, they not only out perform the competition in all respects, but also represent absolutely, the state of the lighting art. Once again coemar leads the way...

The flagship of the range is the acclaimed NAT TM2500, which on it's first major showing at the LDI exhibition in Orlando, won the prestigious "Best New Product in 1993" award.



**coe-tech**  
2 hartburn close  
crow lane industrial park  
northampton nn3 4ue  
ph (0604) 785878  
fax (0604) 786606

**coemar nat**



Only one company can  
deliver what you need...

**NEW** for **PLASA**  
**1994**

# CX POWER!



Professional applications demand  
the ultimate in power and reliability.  
Why settle for less?

- The most powerful and cost effective luminaire in its class
- Remote focus
- 1200w, 5600° Kelvin high intensity light source
- 50% higher photonic output than typical 1200w-based fixtures
- Manual zoom (selectable: 13°, 17° and 22°)
- Variable iris, full optical dimming / fade to black
- Variable speed strobe: 1 to 13.5 fps
- 8 position indexed color wheel with a versatile selection of dichroic colors
- Upward, downward, and centered color correction
- Dual indexed gobo system combines 7 fixed and 4 rotating gobos and delivers gobo mixing facilities
- Standard Lithopattern™ high resolution glass gobos include:
  - Wheel 1 (radial spokes)
  - 3 dimensional toroid
- Special effects wheel includes:
  - multi image prism effect
  - diffusion
  - wide angle lens
- Bi-directional link sends serial data, lamp hours, lamp strikes, current and voltage, line voltage and fixture temperature
- Auto selection of LWR and DMX-512 protocol
- Integral power factor correction
- Break-resistant mirror
- MSR lamp technology improves output to age ratio with exceptional color stability throughout life
- 2 year warranty



The most power  
available in its class



Advanced 32-bit  
internal architecture



8 fixed and 4 rotating  
Gobo positions

FIRST CAME CYBERLIGHT™ - NOW COMES

# CYBERLIGHT™ CX

Engineered and  
Manufactured in the  
U.S.A.

"The Science  
of Lighting"



For more information, contact:

High End Systems Inc • 2217 West Braker Lane  
Austin, Texas U.S.A. 78758 • Tel (512) 836-2242 • Fax (512) 837-5290



All specifications are subject to change without notice • Some features have been omitted due to available space

# I WAN



**a zoom or adjustable aperture lens** which produces a perfectly uniform light beam that can be projected in its entirety in any direction at any aperture

**a sharp, impeccably focused image** at every projection distance, obtained using gobos that can be changed quickly while at the same time being available in an unlimited range, including from different suppliers

**a concentrated or diffused light beam,** precise and repeatable positioning without deviation and smooth, continuous movement even at the lowest speeds

**unrivalled luminosity** generated by a professional lamp with a guaranteed long life and constant photometric parameters over time

**an infinite choice of colours,** from a trichromatic mixing system using selected, saturated colours to special multicolour effects, together with a colour temperature which can be selected from 5600, 3200 or 6000 °K

**graphic effects** from gobos which can be fixed or rotated, combined or superimposed as desired, fixed or rotating prisms that can be used independently or combined with the gobos as required - prisms which create a real multiplication and separation of the image and three dimensional effects

**a modular** construction for quick and easy maintenance

**total reliability,** recognised by thousands of satisfied users worldwide

**I want Super Scan Zoom and Golden Scan 3 - two luminaires that give their best to you demand the highest levels of technology and versatility.**

#### **Distributor**

**Pulsar Light of Cambridge Ltd**  
Henley Road  
Cambridge CB1 3EA - U.K.  
Tel. +44 (0) 223.66798  
Fax +44 (0) 223.460708

#### **FRANCE**

**Clay Paky & Pulsar sarl**  
Bâtiment 4  
5 à 9, Rue Marcel Paul  
94800 Villejuif  
Tel. +33 (1) 49588686  
Fax +33 (1) 49588687

#### **GERMANY**

**Clay Paky & Pulsar Vertriebs GmbH**  
An der Talle 26  
33102 Paderborn  
Tel. +49 (0) 5251.14340  
Fax +49 (0) 5251.143490

#### **NETHERLAND**

**Jac Van Ham Licht, Geluid & Beeld bv**  
Kraaivenstraat 13  
5048 Tilburg  
Tel. +31 (0) 13.638585  
Fax +31 (0) 13.638435

#### **SPAIN**

**Show Trading sl**  
Centro Comercial Ind. Pentasa, 3  
Juan Ramon Jimenex s/n  
Nave 270 - 09007 Burgos  
Tel. +34 (9) 47.484464  
Fax +34 (9) 47.485878

# T

Wherever you go, you'll find us nearby.  
Clay Paky technical service.  
At your service in every corner of the world.

ARGENTINA - DICROLAMP s.r.l. - BUENOS AIRES - Tel. + Fax +54.1.7759748  
• AUSTRALIA - SHOW TECHNOLOGY AUSTRALIA - SYDNEY - Tel. +61.2.8981111 -  
Fax +61.2.8981222 • AUSTRIA - TECHNIK DESIGN - WELS - Tel. +43.724.266633 -  
Fax +43.724.265570 • BENELUX - JAC VAN HAM - TILBURG - Tel. +31.13.638585 -  
Fax +31.13.638435 • BOLIVIA - SONILUM - SANTA CRUZ DE LA SIERRA - Tel. +591.3.  
425217 - Fax +591.3.425216 • BRASIL - TRANSLUX ILUMINACAO INDUSTRIA E  
COMERCIO Ltd - S. PAULO - Tel. +55.11.8346446 - Fax +55.11.8345892 • CANADA -  
DARPEX - MONTREAL - Tel. +1.514.5245500 - Fax +1.514.5267727 • CHILE - STAGE



BOULEVARD - SANTIAGO DEL CILE -  
Tel. and Fax +56.2.2037194 • CHINA -  
ADVANCED COMMUNICATION  
EQUIPMENT - HONG KONG -  
Tel. +852.4240387 - Fax +852.4240788  
• CZECH REPUBLIC - MAX s.r.o. -  
ZLIN - Tel. +42.67.24105/30016/31349 -  
Fax +42.67.37463 • DENMARK - NOR  
BUSINESS - Tel. +45.31.16700 -  
Fax +45.31.161850 • FINLAND - LIGHT  
& SOUND TECH - HELSINKY -

Tel. +358 0 555100 - Fax + 358.0.5651774 • FRANCE - CLAY PAKY & PULSAR - VILLEJUIF  
Tel. +33.1.49588686 Fax +33.1.49588687 • GERMANY - CLAY PAKY & PULSAR -  
PADERBORN - Tel. +49 5251.14340 - Fax +49 5251.143490 • GREAT BRITAIN - PULSAR  
LIGHT OF CAMBRIDGE - CAMBRIDGE - Tel. +44.223.66798 - Fax +44.223.460708  
• GREECE - ALPHA SOUND - ATHENS - Tel. +30.1.3612630 - Fax +30.1.3606459 • HONG  
KONG - LASER THEATRE Ltd - HONG KONG - Tel. +852.7979803 - Fax +852.7970708  
• HUNGARY - PELYHE & TARSA - BUDAPEST - Tel. and Fax +36.1.2504305 • INDONESIA  
- HAWKO TRADING - SINGAPORE - Tel. +65 2.870011 - Fax +65.2.885805 • ITALIA -  
CLAY PAKY S.P.A. - PEDRENGO (BG) - Tel. +39.35.663965 - Fax +39.35.665976 • JAPAN -  
ATELIER JAPAN - TOKYO - Tel. +81 3.36644171 - Fax +81.3.36644366 - GENB - OSAKA -  
Tel. +81 6.2990150 - Fax +81 6.2290558 - JEMCO - TOKYO - Tel. +81.33.5723028 -  
Fax +81.33.5722879 • KOREA - TOTAL LIGHTING - MYUNG-DO ELECTRIC - SEOUL -  
Tel. +82.2.5493311 - Fax +82.2. 5476929 • MALAYSIA - HAWKO TRADING -

SINGAPORE - Tel. +65 2.870011 - Fax +65.2.885805 • MALDIVES - UNIVERSAL  
ENTERPRISES - MALE - Tel. +960.323080 - Fax +960.322678 • MALTA -  
SONLIT - PAOLA PLA - Tel. +356.663684/677751 - Fax +356.665569  
• MEXICO - GROUP ONE - NEW YORK - Tel. +1.516.2493662 -  
Fax +1.516.7531020 • NEW ZEALAND - ANDY WILSONS DISCO  
ROADSHOW - AUCKLAND - Tel. and Fax +64.9.2673965 • NORWAY - CP  
NORWAY - BERGEN - Tel. +47 55.297170 - Fax +47 55.296950 • PHILIPPINES -  
LASER THEATRE - HONG KONG - Tel. +852.7979803 - Fax +852.7970708 •  
POLAND - GIG TECHNIKA ESTRADOWA - WARSZAWA - Tel. +48 22 322959 -  
Fax +48 22 322095 • PORTUGAL - EDUARDO & BIZZARRO - LISBOA -  
Tel. +351.1.533283 - Fax +351.1.577983 • RUSSIA - DOKA - MOSCOW -  
Tel. +7 095 5356295 - Fax +7 095 5365887 • SINGAPORE - HAWKO TRADING -  
SINGAPORE - Tel. +65 2.870011 - Fax +65 2.885805 • SLOVAKIA - JGS Ltd -  
SALA - Tel. and Fax +42.706.6974 • SOUTH AFRICA - WIZARD ELECTRIC -  
DURBAN - Tel. +27 31.323777 - Fax 27 31.323931 • SPAIN - SHOW TRADING -  
BURGOS - Tel. +34 47 484464 - Fax +34 47 485878 • SWEDEN - CP SWEDEN AB -  
STOCKHOLM - Tel. +46 8.6789980/6799980 - Fax +46 8.6112685

• SWITZERLAND - ANIMATEC - VILLENEUVE - Tel. +41 21.9604191 -  
Fax +41 21.9604282 • TAIWAN ROC - CHASE ACRO -  
TAIPEI - Tel. +886 2.9376722 - Fax +886 2.9376745  
- ROLLING STONE - TAICHUNG -  
Tel. +886 4.2366430 - Fax 886 4.2312939  
• THAILAND - HAWKO TRADING -  
SINGAPORE - Tel. +65 2 870011 -  
Fax +65 2.885805 • TURKEY - SF Palanga Cad.  
- ISTANBUL - Tel. +90 212.2595966-7 - Fax  
+90 212.2609654 • UNITED STATES -  
GROUP ONE - NEW YORK - Tel. +1 516.2493662 -  
Fax +1 516.7531020 • VENEZUELA - AUDIO CONCEPT  
CA - CARACAS - Tel. +58 2 2377203 - Fax +58 2 2379480.



precisely when

CLAY PAKY SPA  
Via G. Pascoli, 1 - 24066 Pedrengo (BG) Italy  
Tel. +39 (0) 35.663965 - Fax +39 (0) 35.665976



PROFESSIONAL SHOW LIGHTING

First, there were lighting consoles.  
Then came moving light consoles.  
Now Avolites produces a full range compatible consoles  
designed for moving lights and conventional lights,  
fully integrated and able to control any instrument.

**1992 The Rolacue Sapphire 1993 The Diamond II 1994 the Rolacue Pearl**

# AVOLITES LATEST GEM

## THE PEARL

### IS ABOUT TO ARRIVE

### CALL STEVE WARREN

### 081 965 8522

### AND SEE IT AT PLASA



Avolites Ltd. Manufacturers of Lighting control desks  
and dimming systems for every application.

# LIGHTING+SOUND *International*

SEPTEMBER 1994

VOLUME 9, ISSUE 9

## 10 News In L+SI

### 60 Waxing Prolific

Madame Tussauds is not only about waxworks. Tony Gotteller finds out why

### 64 No Stone Unturned



Tony Gotteller and Deborah Loth track the Stones Voodoo Lounge tour

### 71 Trials and Tribulations

Lesley Harmer discovers that in Prague, where there's a will...

### 75 Power, Performance, EMC

L+SI Exclusive: Ken Dibble and Allen Mornington-West run the first pro-audio products review to include EMC conductive emission testing

### 83 Audio-Technica in the UK

John Offord talks to Shig Harada and Paul Maher in Leeds

### 88 The S'can Do Principle

Tony Gotteller catches up on the family affair which is Martin Professional

### 92 Phoebus Amphitheatre

L+SI reviews Bangkok's new entertainment complex

### 95 Scenic Sorcery

Rob Halliday reveals a box of tricks for St Joan and Hamlet

### 99 Towards Computer-Generated TV Shows

Gilray Densham takes us on a studio tour around the all-digital CBC Broadcast Centre

### 104 Equipment News

### 106 On Tour

Steve Moles in concert with Elvis Costello and Aswad

### 108 Asleep in the Stalls

Ian Herbert out front on the technicals

### 111 Cambridge Folk Festival

Andy Wood settles down for some good music

### 115 PLASA Show Introduction

### 118 Full List of Exhibitors

### 124 PLASA Show Floor Plan

### 126 Seminar Information

### 128 PLASA Members

### 131 Directory of Suppliers and Services

### 136 International Directory

### 138 Viewpoint

Collin Whittaker on the PLASA Show: Onwards and Upwards

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

# LIGHTING+SOUND *International*

published monthly by the Professional Lighting and Sound Association  
© Copyright Professional Lighting and Sound Association ISSN 0268-7429

Editor: John Offord  
Assistant Editor: Ruth Rossington  
Associate Editor: Tony Gottelier  
Advertisement Manager: Barry Howse  
Production: Sheila Bartholomew  
Advertising assistant: Jane Cockburn

Published from the PLASA Office  
7 Highlight House, St Leonards Road, Eastbourne, East Sussex BN21 3UH England  
Telephone: (0323) 642639 Fax: (0323) 646905

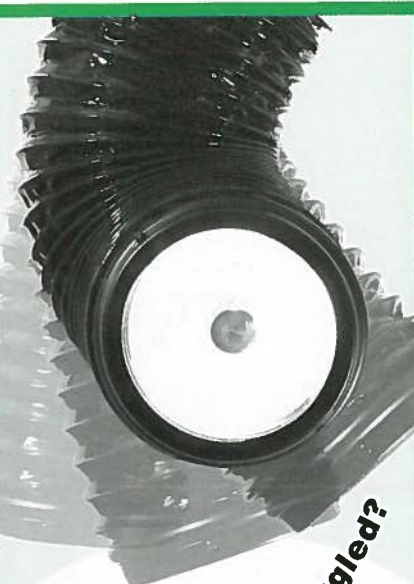
No part of this magazine may be reproduced without the permission of the Editor

The magazine is available on annual subscription  
UK £45.00 Europe and rest of world £60.00 Airmail £85.00. Single copy price £3.50 plus postage

Editorial Advisors: Tony Akers, Peter Brooks, Wyatt Enever, Mike Gerrish, Matthew Griffiths, Kevin Hopcroft, Tony Kingsley, John Lethbridge, Ian de la Vingne, Iain Price-Smith, Neil Rice, Jackie Staines

Lighting + Sound International is published monthly for \$90.00 per year by The Professional Lighting and Sound Association, 7 Highlight House, St Leonards Road, Eastbourne, East Sussex BN21 3UH. Second class postage paid at Rahway, N.J. Postmaster: Send USA address corrections to Lighting & Sound International, c/o Mercury Airfreight International Inc, 2323 Randolph Avenue, Avenel, New Jersey N.J. 07001

**PLASA**  
PROFESSIONAL LIGHTING  
AND SOUND ASSOCIATION



Did you say it wiggled?

DMX Controllable

# Where Does yours wobble?

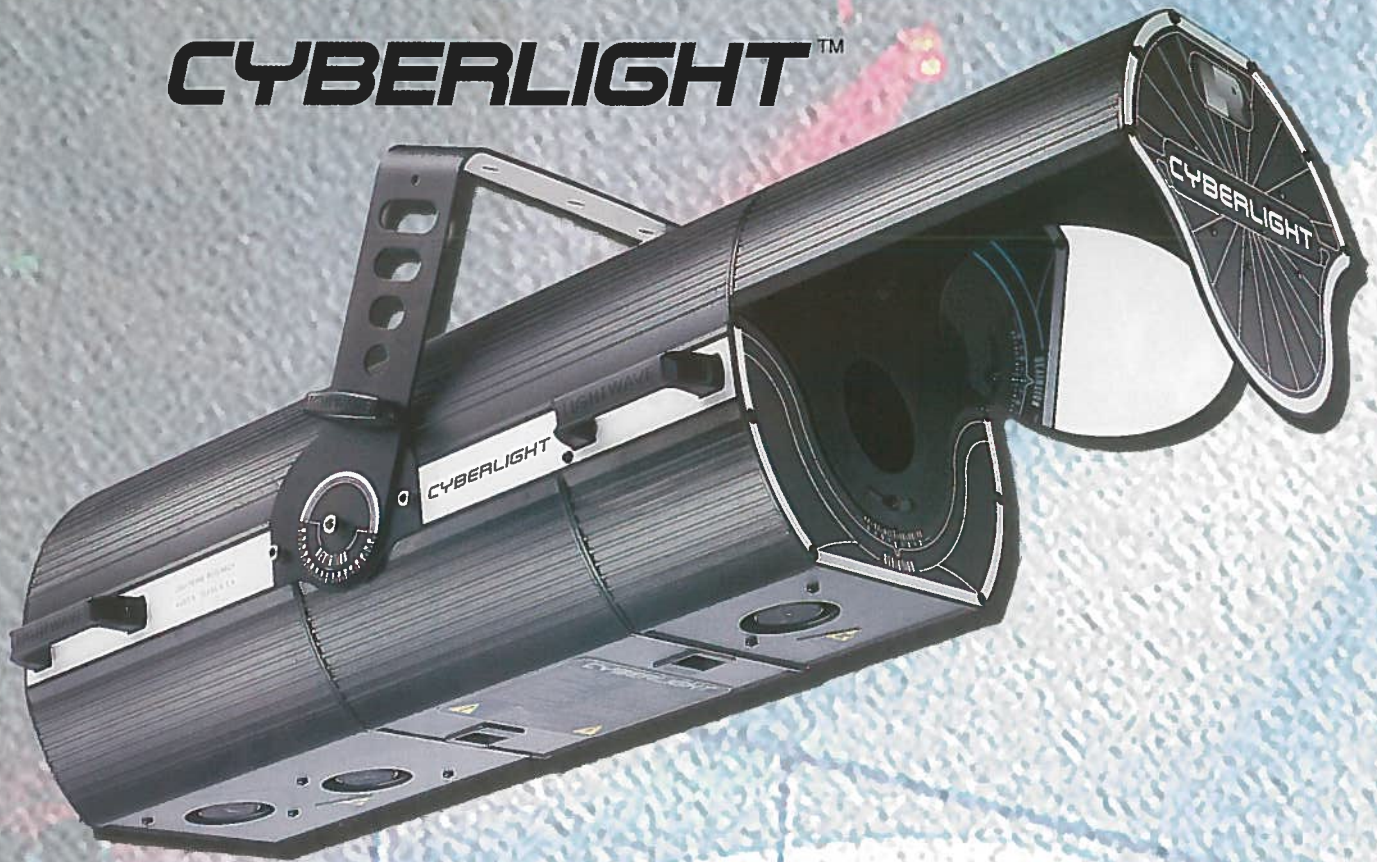


for further information contact:

LIGHTING TECHNOLOGY  
2 TUDOR ESTATE, ABBEY ROAD  
PARK ROYAL, LONDON  
U.K. NW10 7UY  
TEL: 44 (0) 81-965 6800  
FAX: 44 (0) 81-965 0970

# Unlimited *Power*

## CYBERLIGHT™



- 1200w, 5600° Kelvin high intensity light source
- Significantly higher photonic output ( 50% ) than typical 1200w based fixtures
- Variable frost, under continuous program control, from hard edge to soft edge
- Field angle up to 36°
- Motorized variable zoom ( selectable: 13°-22°, or 16°-26° )
- Motorized variable irris
- Selectable diffusion
- Full optical dimming and fade to black
- Remotely programmable focus
- Infinitely variable dichroic subtractive color mixing system
- Eight position indexed color wheel with rich dichroic colors
- Upward, downward, and centered color correction
- Dual gobo system combines fixed and rotating gobos, gobo mixing
- Optical tunnel gobo needs no supporting posts
- Eight position indexed gobo system with four replaceable metal gobos
- Four bi-directional variable speed indexable rotating gobos
- Rotating gobo assemblies of metal or glass substrates may be used
- Standard and optional LithoPattern™ high resolution glass gobos deliver customizable, near photo-quality image projection
- Multi-image prism effects
- Subtractive color dichroic mosaic effects
- Variable speed strobe - 1 to 13.5 fps
- Wave glass creates unique aqueous motion effects
- Custom effect modules may be used
- Split and rotating color effects
- Multi-color gobo effects

- Intelligent 'switchless' soft addressing for fast easy setup
- Bi-directional high speed serial data path provides complete command of fixture parameters and reporting of serial data, lamp hour, lamp current/voltage/strike count, line voltage and fixture temperature
- Software upgrades may be sent by link to fixture memory
- LWR and DMX-512 control protocol implementation
- Operating voltage: 200 - 240 VAC 50/60hz
- Current consumption: 8A @ 230 VAC
- Integral power factor correction
- Recessed power switch with circuit breaker
- Weight: 43.5 kg ( 95.7lbs )
- Dimensions (without yoke): 311mm x 343mm x 1066mm ( 12.25" x 13.5" x 42" )
- Break-resistant mirror
- Mirror head pan and tilt: 170° by 110°
- High resolution microstepping motor control for smooth motion at all speeds
- Interlocked rear lamp replacement system for easy access
- External lamp position adjustment controls
- 6 carrying handles
- MSR lamp technology improves output-to-age ratio with exceptional color stability throughout life
- Performance-oriented exterior design prevents stray light scatter
- Low noise, high efficiency cooling system provides sonically balanced output without peaking whine of standard fan systems
- 2 year warranty supported by a worldwide network of service providers

High End



Engineered and  
Manufactured in the  
U.S.A.



# ...and *Control*

The combination of Cyberlight™ and Status Cue™ form the first intelligent lighting system to offer *limitless* design capabilities.

An integrated system with this many advanced features, unmatched performance, and outstanding customer support worldwide could only come from Lightwave Research.



## S T A T U S C U E™

- Simultaneous control of Cyberlight™, Intellabeam™, and Trackspot™ automated luminaires
- Console operates in conjunction with 486 personal computer
- Status Cue software runs under Microsoft Windows™
- USITT DMX-512 control to be available
- Menu and window driven displays, editing, and program storage
- Windows software functions without link card as off-line editor
- Performance mode operation without console
- Memory storage limited only by computer hardware
- System supports 4 link cards
- Controls up to 32 Cyberlight fixtures per link card
- Controls up to 64 Intellabeam or Trackspot fixtures per link card
- 128 Palettes for "Preset Focus" of all parameters
- 6000 Scenes consisting of construct parameters, position information, and timing information are used to build Songs
- 32 Instant Presets plus 16 Fader Presets per Song, unlimited number of Songs
- 32 Group Selections
- 32 Macros
- 16 control faders with bump buttons
- Master dim
- Crossfade time up to 36.4 minutes
- Instant blackout function
- "Human engineered" ergonomic design
- Easy access to hardware for maintenance and troubleshooting
- Convenient console internal storage trays hold keyboard, cables, disks, etc.
- Two console auxiliary plug-in lamps
- Supports MIDI Show Control
- Two year warranty

For more information, contact:

**High End Systems Inc • 2217 West Braker Lane  
Austin, Texas U.S.A. 78758 • Tel (512) 836-2242 • Fax (512) 837-5290**

All specifications are subject to change without notice. Some features have been omitted due to available space.

**"The Science  
of Lighting"**

**LIGHTWAVE  
RESEARCH**

## Merger Discussions

Following the August meetings of the board of directors of SCIF (Sound and Communications Industries Federation) on the 10th August and the Executive Committee of PLASA five days later, it has been announced that both bodies have agreed to commence negotiations towards a merger. There has been growing communication between the two organisations over the past few years, with both chief executives in close contact, and this expanding inter-association link has culminated in a situation whereby SCIF has now committed itself to combining its exhibition efforts with the PLASA Light & Sound Show.

SCIF also announced that it has invited Tony Oates to be its new Chairman, with former Chairman Peter Barnett remaining as a director.

## EMC Exclusive

Starting on page 75 of this issue you will find the first part of a major L+SI exclusive survey of amplifiers. Co-authors Ken Dibble and Allen Mornington-West were able for the first time to run a series of EMC conductive emission tests on the amps submitted for review. Access to the test rig was made possible by RFI Ltd in Ayrshire who offered L+SI full use of their facilities for a day. In a tie-up with the article, the rig used will be on the ISCE stand at the PLASA Show and visitors will be able to see first-hand a 150kHz to 30MHz conductive emission test set-up on the new C Audio XR5001 amplifier. See it on Stand A190.

## New Chairman for PLASA

At the PLASA Executive Committee meeting held on 15 August, Tony Kingsley of Avitec Electronics informed the committee that he had decided to step down as Chairman of the Association as he had served his maximum three year term in office.

Mike Wood (pictured above), vice-chairman and technical sales director of Jem Smoke Machine Co Ltd, will take over as Chairman until the committee elects its officers for next year at the January 1995 meeting. Mike commented: "We owe Tony a debt of thanks for leading PLASA through the difficult recession years. He hands over a strong, forward-looking Association with great plans for the future."



## Packed Full of PLASA Show Information

This issue is just brimming with all you need to know about the forthcoming PLASA Light & Sound Show. Throughout the news sections you will find a host of stories relating to products and events all destined to make their mark at the Show. These are picked out in black box headings (as above) so that you can't possibly miss them.

On page 115 there's a brief introduction to some of the highlights of the Show including updated information on the Seminar Programme, the Awards Presentation, visitor registration, opening times and just about anything else you might need to know. Following that there's a full list of exhibitors at the Show, together with a floor plan for location of stands. We've also reprinted the Seminar Programme in full. If you'd like to attend or simply get more information on the content of each, call the number below. The bookings are beginning to flow in and as seating is restricted at each session, it's important that you declare your interest in attending now.

- **Pages 10-58 - News, News News**
- **Page 115 - Show Introduction**
- **Page 118-122 - Exhibitor List**
- **Page 124 - Floor Plan**
- **Page 126 - Seminar Information**

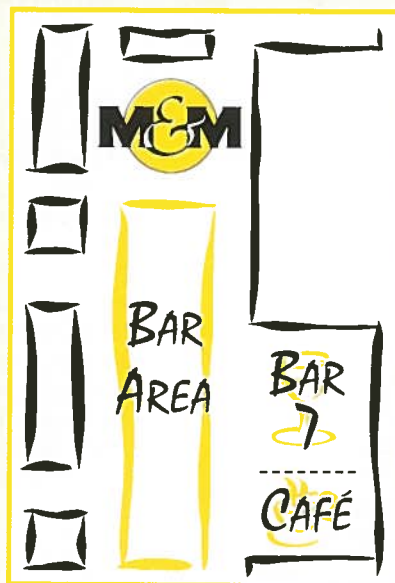
**PLASA HOTLINE (0323) 642639**

## Down the Tube!

For visitors heading to the PLASA Light & Sound Show, special arrangements have been made to open West Brompton station on the District Line (opposite Earls Court 2) on Sunday 11th September. (The station is normally closed on Sundays).



**There's no fear of a drought in our little garden at PLASA.**



Visit us on Stand A228 at PLASA and we'll show you some hardy perennials as well as this season's new blooms.

M&M, STUDIO 12, CAMERON HOUSE, 12 CASTLEHAVEN ROAD, LONDON NW1 8QW TELEPHONE 071 284 2504 FAX 071 284 2503

**rainbow**  
COLOUR CHANGERS



**MA**

**MICROSCROLLER DIFFUSION**

**SELECON ACCENT**

**SMOKE FACTORY**

**JBL**

When the Ministry of Sound wanted to recreate their world-famous dance music sound on the road, they turned to touring specialists JBL for some help. They had decided on JBL I Series Sound Power for their installed club system but wanted the same sound on tour. Enter JBL's T Series, a 26 box 30kW system with the agility to deliver tight, punchy bass together with a smooth and clear top end.

It's a rig that made a seamless crossover between in-house "dance" and live tour to create the ultimate show. Its versatility meant it was able to handle all that the men from the Ministry were able to throw at it - including a non-stop dance music playing to crowds of over 15,000.

Only JBL could have successfully taken such a unique sound on the road, because of its winning combination of leading technology and legendary sound. So if the way you sound is as important to you as it is to the Ministry, get a Sound Power system from JBL.

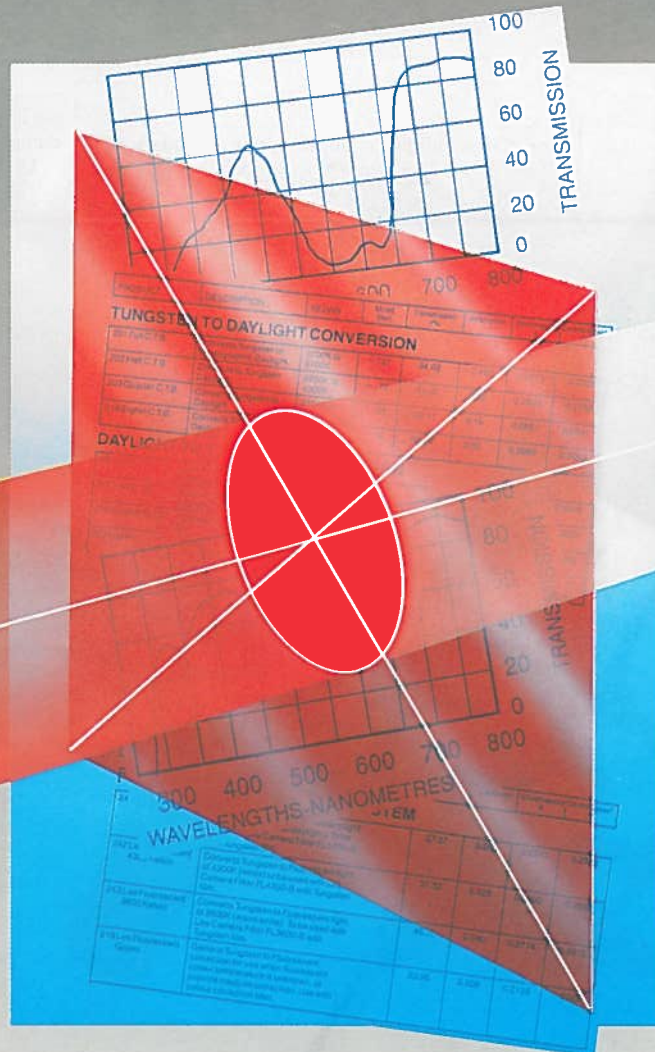


# TOUR CLASS

**JBL**

**H** A Harman International Company  
JBL Sound Power is a versatile range of professional systems designed for specific uses:  
T Series for Touring  
I Series for Installations  
P Series for Portability  
M Series for Musicians  
For more information, contact Harman Audio UK  
0181 207 5050

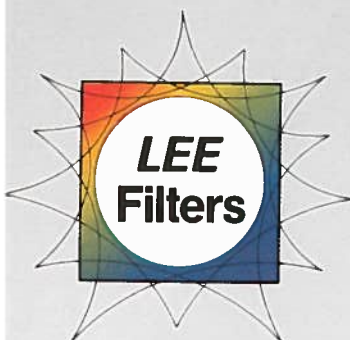
# Light Engineering



There's a new dimension in lighting filter production. Called Light Engineering, it has been pioneered by Lee Filters.

Lee products perform with absolute accuracy and total consistency to meet the demands of the lighting industry. In achieving this, the company has developed a dedicated manufacturing system - supported by an immense technology database - which is unmatched by any other filter manufacturer or vendor in the world.

A system so sophisticated that it adds another dimension to lighting filter production. Light Engineering. So much more than the ordinary way of making filters.



**Lee Filters**, Central Way, Walworth Industrial Estate, Andover, Hampshire SP10 5AN England  
Tel : 0264 366245 Fax : 0264 355058

Light Engineering. Another first from the original European.

## Dancing with WL

White Light has commissioned a dance and light spectacular to show off its products and those of its subsidiary, the Moving Light Company. The star of the show is billed as the ProSpot!

Entitled 'Dancing with Light', will play throughout the first three days of the PLASA Light & Sound Show. The first performance will be at the MacOwan Theatre, in Earls Court, at 4.30pm on Sunday 11th. Choreographer Stephen Mears has combined the skills of professional dancers and students to produce a moving sequence of dances. Taking music from various disciplines including jazz, classical and rock, he has worked closely with lighting designer Nick Richins to link music, dance and light in a spectacular routine.

All PLASA visitors are invited free of charge to the event. Courtesy buses will be available at the back of the Earls Court Exhibition Centre to take visitors to and from the show, which will run for approximately half an hour at 4.30pm, 5.30pm and 6.30pm. Refreshments will also be available. M&M, DHA and Arri have also contributed to the event with supply of skills and equipment.

If you would like to see 'Dancing with Light', visit the White Light Stand (A68) for more details or contact Bryan Raven on 071-731 3291.

## Emmy for Vari-Lite



The Academy of Television Arts & Sciences recently announced that Vari-Lite, Inc will be honoured with a 1994 Primetime Emmy Award for 'Outstanding Achievement in Engineering Development'. This is the second Emmy Award for Vari-Lite. In 1990-1991 they were awarded an Emmy for the Vari\*Lite Series 200 automated lighting system. The 1994 Emmy specifically recognizes the Vari\*Lite wash luminaire and its key inventors - Jim Bornhorst, Tim Stacy, Tim Terleski and Rick Hutton. They, along with Vari-Lite CEO Rusty Brutsché, will be formally acknowledged with Emmy statuettes at the Creative Arts Emmy Awards on September 10, 1994. Pictured above is the set for the 1993 Emmy Ceremony, lit by Vari-Lite.

## DLD Take Plunge

It's been a busy year for DLD, and PLASA, which they are exhibiting at for the first time, will be the culmination of a frantic schedule. It commenced with the launch of the Maxlight reflector earlier in the year, followed soon after by a re-designed version, featuring variable focus and advanced cooling system.

A number of products will be launched at PLASA including a Par 56 Maxlight and the Maxstar, a Par 36 pinspot. Also on the DLD stand will be the first UK appearance of the Altman Shakespeare range of profile spots which feature the new DLD Electric HP 600 240V lamp - a compact-filament tungsten bulb.

DLD are also European distributors for the Rockbestos Company, and, for the first time in the UK, their Heat Zone cables will be on show. These are high quality cables, specifically designed to be used on luminaires and lamp bars.

As an integral part of the DLD Group, AA Optics will also have a strong presence on the stand. The company offers a consultancy service as well as manufacturing their own range of state-of-the-art CAD-designed spun aluminium reflectors.

DLD will be on Stand A191.

## Farrahs EV 200

Shuttlesound have reported that Paul Farrahs, the London-based theatre rental company, has taken delivery of a substantial number of the new Electro-Voice System 200 launched at Frankfurt earlier this year.

The cabinets are currently making their commercial debut in Glasgow for a big concert theatre production called 'The Picnic'. The production is taking place in a massive warehouse 25m high with floorspace the size of a football field. A mobile crane is being used to suspend a platform carrying a 23-piece band.

## Leisure Industry Week '94

International Leisure Industry Week (LIW) (September 27th-29th, Birmingham) has announced a new feature at LIW'94 that they claim will be a 'first'. This year's show will feature a fully operational discotheque - Club Chameleon. The project was managed by architect and designer, John Glover, whose recent work includes club design for European Leisure and the well-known dell'Ugo restaurant in London's Soho. Glover has included in his design a fully operational Sound Ceiling PA from VSI Clublife and state-of-the-art lighting systems from Nulight Systems and Lightfactor. Among other features will be videowalls from Owl Video, rigging from Lite Structures, dance floor provided by Sico Europe, Pioneer Audio Visual products from AWE Europe. For free tickets to the show and details of Club Chameleon call LIW on 081-773 1313.

# COMPACT!

**Big features, tiny price.** They say that good things come in small packages, and this space-saving mixer is no exception! The Ross RCS1402 packs a full array of features into this sleek 7 lb., 14" x 11" x 2.2" chassis. And talk about features! The new RCS1402 has 18 total inputs, 6 balanced Mono inputs, 6 studio grade Mic inputs, 6 insert points, 4 Stereo inputs,

For further information send large S.A.E. (Inc. Tel. No.) to:  
Dept. Ross: John Hornby Skewes & Co. Ltd.  
Salem House, Parkinson Approach, Garforth, Leeds, LS25 2HR.



2 stereo Aux returns, 2 Aux sends, Rack mount option, 3 band EQ, Headphone output, Tape in/out, two segment LED metering, internal power supply, and much, much more! All of this is designed into a stylish, compact unit with an attractively compact price! Check it out at a dealer near you!

**Ross RCS1402 Mixer**

# POWER

With

# SIMPLICITY



## ESP III



ESP II has power, with a 68000 microprocessor and many of the functions of our acclaimed Event Lighting Console. ESP II also has something it's famous predecessor ESP offered. Simplicity.

Get your hands on ESP II and it all falls into place. The LCD Window prompts you while the Graphic Keypad spells out the functions available to you. Jands unique software allows you to work the way you want to, intuitively.



Jands Electronics Pty Ltd, 578 Princes Hwy, St. Peters 2044 N.S.W. Australia.  
Phone 61-2-516-3622, Fax 61-2-517-1045. (Australian Company Number 001187837)

### WIDE MODE

- 48 Control Channels (ESP II-24)
- 96 Control Channels (ESP II-48)

### SOFTPATCH

- Proportional to 512 Dimmers, 3 tables

### MASTERING

- 10 Pages via 12 Scene Masters -ESP II-24  
24 Scene Masters- ESP II-48
- 10 50 step chasers
- 100 random accessible effects memories
- 10 100 entry cue stacks, programmable dipless crossfade times
- Up to 498 memories

### FEATURES

- One button recording and editing
- Random access to cues
- MIDI control
- Multiple chases via Scene Masters
- Set-up options

### OPTIONS

- Analogue output (soft patched)
- M CARD storage

# JANDS

## DEALERS

### Austria

#### M Tec

Contact: Erwin Mittermann  
Tel: 07242 60860 Fax: 07242 60740

### Belgium

#### Stagelight NV

Contact: Jan Franck  
Tel: 053 831726 Fax: 053 834054

### Denmark

#### Highlight

Contact: Jakob Hansen  
Tel: 31 831288 Fax: 35 820020

### Finland

#### RMC Showservice

Contact: Rabbe Hjelt  
Tel: 905 063010 Fax: 905 51220

#### TFP Markkinointi Oy

Contact: Fikret Saadetdin  
Tel: 931 143933 Fax: 931 133077

### France

#### SPL

Contact: Alain Jacquinot  
Tel: 84 228961 Fax: 84 223521

#### ESL

Contact: Alain Comevaux  
Tel: 67 692717 Fax: 67 690089

### Germany

#### Multilite Lichttechnik GmbH

Contact: Andreas Fahrman  
Tel: 040 6706154 Fax: 040 6706159

### Greece

#### Alpha Sound

Contact: Costas Constantinopolos  
Tel: 01 363 8317 Fax: 01 360 6459

### Holland

#### Jansen Jansen

Contact: Rob Berg  
Tel: 020 6821 821 Fax: 020 6828 326

### Israel

#### Mazuz Bros

Contact: Mazuz Zion  
Tel: 3 476889 Fax: 3 476889

### Italy

#### Spotlight Srl

Contact: Augusto Andraghetti  
Tel: 02 714078 Fax: 02 744721

### Norway

#### PA System AS

Contact: Svein  
Tel: 2 2679313 Fax: 2 2682101

### Portugal

#### Frei Audio

Contact: Fernando Frei  
Tel: 01 9416870 Fax: 01 9419976

### Slovenia

#### SST

Contact: Jernej Podbevsek  
Tel: 61 301434 Fax: 61 301404

### South Africa

#### Lighting Unlimited

Contact: Ofer Lapid  
Tel: 011 4042620 Fax: 011 4041458

### Spain

#### Spotlight SA

Contact: Hector Vidal  
Tel: 93 4908117 Fax: 93 4903934

### Sweden

#### Teaterteknik AB

Contact: Peter Hallin  
Tel: 086 409290 Fax: 086 409394

### Switzerland

#### TDS

Contact: Jean Jacques Schenk  
Tel: 0212 36300 Fax: 0212 33982

### United Kingdom

#### AC Lighting Ltd

Contact: Glyn O'Donoghue  
Tel: 0494 446000 Fax: 0494 461024

## Anneka Challenges PLASA Members

Lighting Technology Group was recently approached by the directors of the Patti Pavilion Trust, a registered charity, to participate in a renovation programme supported by Swansea City Council and West Glamorgan Arts Council, that would be the subject of a BBC Challenge Anneka programme, in a new series that starts transmission in September. Everything needed to be donated free of charge by the supporting companies and with some £80,000 of sound and light equipment, plus labour, required, Mark Satchell of LTG set about the task of persuading some of their leading suppliers to lend support.

The response was both swift and generous. James Thomas Engineering donated a complete truss system and 24 Par 64s. Rosco donated all the colour, plus a slit drape backdrop. CCT put into the mix a wide selection of theatre lanterns, whilst GE Lighting provided the Par 64 CP62 lamps for the cans, plus T-29 lamps and spares. Able to donate equipment from stock, David Catterall of Zero 88 was on site to hand over a Sirius 48 lighting desk, eight Betapack UK and a Demux 48 to Ms Rice and her team.

On the sound side, Allen & Heath provided a sound mixer desk, the AKG division of Harman whisked a set of theatre microphones down the M4 to Swansea, Bose gave two pairs of 802 speakers and stands and Kelsey Acoustics supplied sound cabling and accessories.

Lighting Technology's own input included



cables, plugs, sockets, trunking, safety chains and hook clamps, but perhaps, most importantly, the technical staff to install the equipment and get it up and running. Mark Satchell was able to persuade a small band of local technicians and students from Gorseinon College to assist.

Overall, enough technical back-up was provided to put on a first night Gala Performance that was well up to the most demanding modern standards. The project, however, required some amazing personal sacrifices. A night crew stayed up all night with two welders while they struggled to modify steel brackets to support the three long spans of Thomas trussing across the auditorium which then had to be drilled and bolted into place ready for the rigging of lanterns in the morning.

The programme will be screened in the UK on BBC 1 in mid-September.



David Morgan of Lighting Technology Group and a host of Thomas trussing.



Zero 88's David Catterall arrives on site with a Sirius 48 desk, eight Betapack UK and a Demux 48.

## Tannoy's Latest

Tannoy are utilising ICT technology in their latest product for the public address market.

To be launched at PLASA, the CMS 6.5 ICT is a ceiling loudspeaker, which utilises a 1" deralumin inductively coupled HF unit and features a tuned vented enclosure to provide wide dispersion, high quality reproduction at levels up to 109dB.

Additionally, the company will be showing their highly successful SuperDual and Contractors ranges of sound reinforcement enclosures, together with their award-winning range of monitors.

All these products, plus details of the latest prestige installations can be found on Stand B146.

## Missen Acoustics

Having recently celebrated 30 years of custom cabinet design and production, Trevor Missen has designed what is claimed to be "the ultimate mobile sound system" - which will be shown for the first time at PLASA.

Microprocessor controlled, the system consists of a pair of compression driver/flare assemblies with linked mid cabinets which house a pair of 10" drivers. A pair of 15" sub-bass boxes complete the set-up, which has a total loading of 1500 watts. The system, including amplifiers, has been designed to fit into a small saloon car.

UK distributors Leisure Services (UK) Ltd will show the system on Stand B8.

# LONDON LASER

Company

EXHIBITIONS  
CONFERENCES  
PRODUCT LAUNCH  
TV & FILM  
OVERSEAS

## FOR THE VERY BEST IN LASER ENTERTAINMENT.....CALL NOW

### SALES HIRE DESIGN PRODUCTION

CANBURY HOUSE, 24, TOLWORTH CLOSE TOLWORTH, SURREY, KT6 7AW  
TEL 081 399 1754 FAX 081 399 0931 MOBILE 0836 766599

## Playlight for Strand

Playlight Manchester has been appointed a Strand Lighting main distributor. Barry Hampson, sales director told L+SI: "We are delighted to be offering a truly nationwide Strand package of product and service. These products enhance our existing range of lighting equipment, ensuring our continuing ability to provide the right product mix for each installation. Playlight's London depot already operates a Strand Lighting distributorship, and is also an authorised service centre.

The company has also recently appointed Brian Simmonds as technical sales manager for North East England. He will be developing hire and sales of lighting, sound equipment and drapes across all market sectors. Based in Wakefield, the new regional sales operation will now enable the company to service customer requirements more effectively. Brian has 20 years experience in the industry, having previously worked as hire manager and general manager for Futurist.



Brian Simmonds.

## VL Appoints Canadian Dealer

Westsun International, Inc. with offices in Toronto, Vancouver, and Winnipeg has been named as the authorised Canadian Dealer for Vari\*Lite Series 300 equipment.

As a Series 300 dealer, Westsun will have a Canada-based inventory of Vari-Lite equipment which currently includes the VL5 wash luminaire. Westsun will provide rental services to customers in its local and regional markets.

## Artistic Licence

Artistic Licence will be launching two new products at the PLASA Show.

The first, Lamp-Tramp, is a 1,000 channel lighting console specifically designed for the control of two-and-three dimensional arrays of lamps. Features include MIDI remote control, the ability to write text directly onto a lighting rig and automatic generation of animation sequences. Two systems are already out on tour with Pink Floyd (see L+SI July, 1994) and The Rolling Stones (see main feature this issue).

Also to be launched at the show is Micro-Scope - a hand-held, battery-powered DMX512 tester. When reading DMX512 from a console, Micro-Scope has the ability to display the information in bar-graph form and can also generate DMX512 for use as a Rigger's Remote, as well as testing cables.

Artistic Licence will be on Stand A130.

## BKSTS President

The new President of the British Kinematograph Sound and Television Society (BKSTS) is Ian Mackay who has been treasurer of the Society for some eight years.

A director of Amity Ventures plc, which he co-founded and which owns companies in the micrographics, imaging and information technology industries, he sees his year of office as one of consolidation. Key aims will be to improve and further stabilise the society's financial position.

He also hopes to see an increase in membership and sponsorship and to raise the association's profile as a pivotal support to all those individuals and organisations covered by the society's mission statement.

## Theatre Style

1994 is proving to be a bumper year for builder Joseph Kay (1780-1858) for it sees the re-emergence of two of his most splendid buildings in Huddersfield: the grand railway station which has been restored, and the old Methodist Chapel in Queen's Square, which will open as the new Lawrence Batley Theatre in September this year.

The original sacred geometry (ad quadratum) used to set out the chapel was taken as the starting point for the creation of a new three tier 'courtyard theatre' holding 475. The design team was led by Rodney Atkinson of the architectural department of the Kirklees Metropolitan Council whose officers have contributed all the other specialist skills save those of Theatre Projects Consultants, Arup Acoustics and the interior designer.

The new theatre venue comprising the main auditorium, Cellar Theatre, bars, bistro and public areas will cost approximately £5.3m. The Theatre Projects Consultants' team, led by Iain Mackintosh and Leonard Greenwood, has worked hard to create an auditorium which will 'hold' the performers in a 'friendly embrace' whether the seating layout is in thrust format, flat floor or with a traditional raked seating area and proscenium arch. The Theatre also breaks through some of the current embarrassment about glamour and decoration. The decorative approach has been richly detailed in the crucial area at the front of the tiers and their coupled boxes. Ironwork provides openness while circular panels and curved flower shaped light brackets give definition and a theatrical glamour.

The director of the new centre is Ron McAllister and the theatre opens with a gala performance on Sunday 11th September. The venue will be the centre-piece of the Huddersfield International Festival of Contemporary Music which will take place as usual in November, but has hitherto lacked a 'real' theatre.

# Only with Supergel

Colours that are cleaner,  
stronger, hotter -  
and better than  
ever before.



Supergel colour filters - and only Supergel colour filters - allow you to reach the new levels of design so many designers, technicians, producers and audiences are now demanding.

In the last couple of years alone, the range has been enhanced with many new colours, colours that designers everywhere describe as "cleaner, hotter, stronger".

With a vocabulary of well over 100 colours and diffusers the range gives incredible freedom of expression, and every tint, shade and nuance is the product of collaboration with designers from around the world. And because Supergel colour filters tend to last longer, they are more economical.

All of which means it is probably time for you to take another look at the better-than-ever Supergel range. And that means better than anybody else's.

So call, write or fax us for a current swatchbook.

**ROSCO**  
**SUPERGEL**

Cleaner, stronger, hotter.  
And better than ever before.

Roscolab Ltd, Blanchard Works, Kingley Bridge Road,  
London SE26 5AQ Tel. 081-659 2300 Fax 081-659 3153



With the Denon DN-650F you'll recognise many of the features of the DN-951/961FA...



## ...and your audience will appreciate the benefits.

In the world of professional broadcasting, post-production, theatre and live sound, the name Denon is top of the bill. (And rightly so with quality performers like the DN-951/961FA.) So to make the features that have given these CD players such an impressive reputation available to wider audiences, we've introduced the DN-650F.

With its smooth, sophisticated ergonomical

design and sensitive fine-tuning facility, you'll find it as easy on the eye as it is to programme.

And, from your public's point of view, as much a pleasure to listen to as it is to operate. So if you want to pick up on the best features of a professional CD player, pick up details of the new Denon DN-650F.

You can't get closer.



# DENON

DENON PRO-AUDIO, HAYDEN HOUSE, CHILTERN HILL, CHALFONT ST. PETER, GERRARDS CROSS, BUCKS SL9 9BS. TELEPHONE: 0753 888447. FAX: 0753 880109.

For details of this, or any of our other products, please telephone **The Denon BrochureLine: 0234 741200**. Or fill in this coupon and send to: DENON PRO-AUDIO, FREEPOST, HAYDEN HOUSE, CHILTERN HILL, CHALFONT ST. PETER, GERRARDS CROSS, BUCKS SL9 9BS.

Name: \_\_\_\_\_ Address: \_\_\_\_\_

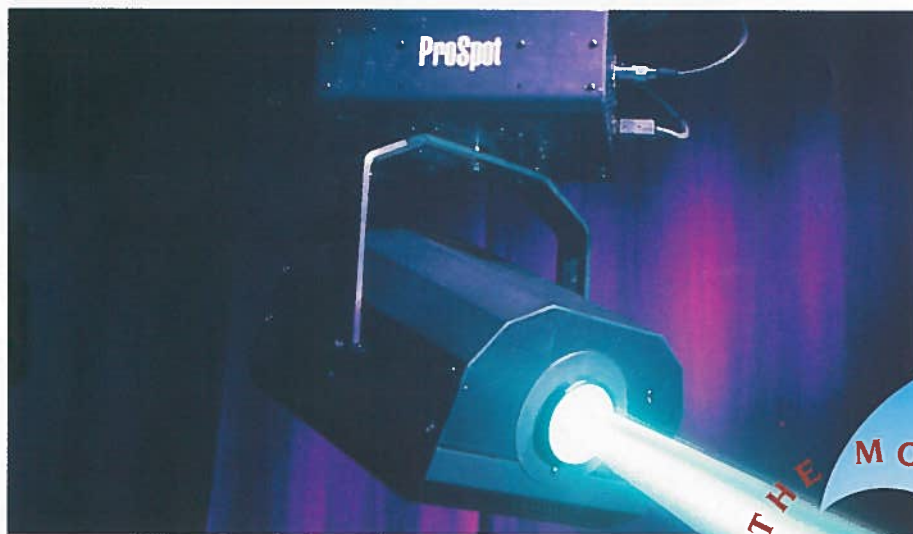
Postcode: \_\_\_\_\_ Tel. No: \_\_\_\_\_

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Single CD Players. | <input type="checkbox"/> Broadcast CD Players. | <input type="checkbox"/> Pro Cassette Recorders. |
| <input type="checkbox"/> Twin CD Players.   | <input type="checkbox"/> 200 Disc CD Players.  | <input type="checkbox"/> HiFi Products.          |

# DENON



# CONTROLLABLE RELIABLE VERSATILE



## **The new ProSpot from The Moving Light Company**

The lightweight ProSpot (15kg) is a new moving light, controlled by its own user friendly console, that will suit every application and budget.

The ProSpot has a 600 watt HTI light source, a dichroic colour system with 90 pre-programmed and 5000 customised colours, nine gobos and a 360° pan and 270° tilt - all at a cost comparable to moving mirror fixtures.

For automated lighting, there is now a reliable alternative - the *ProSpot*..



**THE MOVING LIGHT COMPANY**  
STUDIO 9, 75 FILMER ROAD LONDON SW6 7JF  
TEL: 071-731 0885 FAX: 071-371 0806

**FOR THE NEW ALTERNATIVE IN AUTOMATED LIGHTING RING 071 371 0885**

## A1 from Doughty

Whilst visiting the PLASA Show why not drop in on the Doughty stand and take the opportunity of viewing not one, but three 'nightclubs'. How is this possible? Well, the 'nightclubs' in question are in fact three additions to the company's existing Club range of lighting stands.

The range is coated black, unlike the existing Club range which is bright zinc plated. All the stands have the same specification as their Club counterparts. 'Nightclub' stands will be available from Doughty distributors worldwide in early October.



The Doughty Griptruck.

A new version of the Doughty Clamp range of aluminium couplers will also be unveiled - the Clamp Weld Fitting. This unit, although primarily designed for use in the construction of specialist equipment, has led to the development of several other products.

The company are also launching Bulldog, a complete range of grip equipment for the film and television industry. Bulldog provides the film or television technician with a range of supports and fixings for use in the studio and on-location. All components of the range are fitted with stainless steel helicoils for a prolonged working life, whilst stands additionally feature a brake shoe clamping system which prevents damage to the tube assemblies.

The range comprises over 200 products encompassing such diverse elements as 'C' stands, roller stands, combo stands, gaffer clamps, overheads, grip heads, flag arms, and flag/scrim kits - all of which are manufactured within Great Britain under quality assurance systems which comply with ISO 9000.

To complement the new Bulldog range, Doughty have produced Grip Truck, a compartmentalised trolley specifically designed to carry vast amounts of lighting and grip equipment. The Truck is fitted with large diameter wheels and is sufficiently narrow to fit through a standard doorway. To facilitate storing smaller items, all compartments accept standard euro size containers and is fitted with telescoping, expandable side mounts capable of holding more ungainly items.

For those unfamiliar with the TUV, it is the engineering construction inspection service of Germany, whose testing procedures and standards are accepted by most EU member states. Doughty have submitted two samples of the T57000 Doughty Clamp for TUV approval at a testing facility just outside Munich. Both clamps were subjected to a load of 2.5 tonnes and neither failed nor deformed!

The company have not only manufactured some new derivatives of this product, but have also issued a new full colour brochure which details the complete range. Amongst the new clamps which will be launched at the show are the T57250 pivot hinge assembly, a device which provides a firm fixing between two adjacent bars whilst allowing 360 degree rotation and 180 degrees of lateral movement.

All Doughty's products can be viewed on Stand A1.

## Hot Stuff

Comulite have just provided an Animator 24 moving light control desk for the new tour of 'Hot Stuff' - the first UK show to use the new Vari\*Lite VL6. The desk was supplied to Playlight London who are supplying all the lighting equipment for the 16 week tour.

The Animator is also currently taking Blackpool by storm with three systems in place for the summer, an Animator Compact in the cabaret bar of the Pleasure Beach and on the Brian Conley show in the North Pier and an Animator 24 on the Rocky Horror Show at the Grand Theatre.

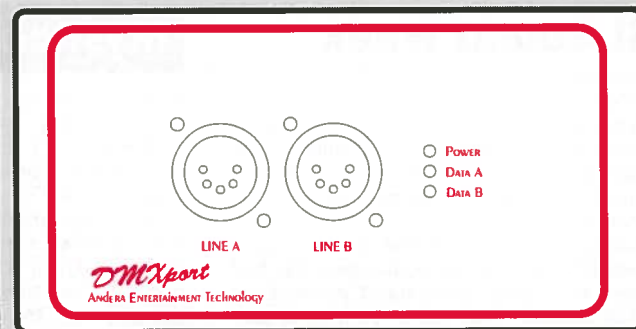
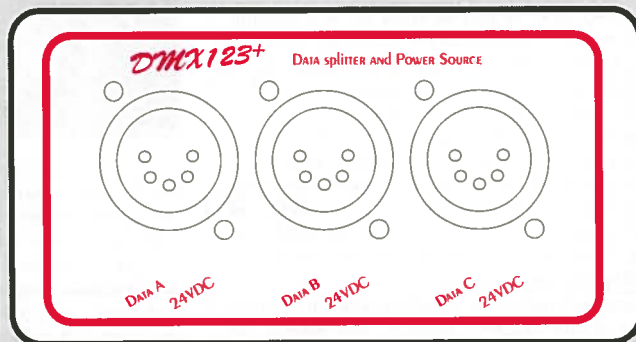


**DISCHARGE LAMPS**  
NMI-200. NMI-575. NMI-1200  
NMI-2500. NMI-4000. NMI-7000  
(analogues of HMI - lamps)

**DICHROIC FILTERS**  
**STEPPER MOTORS**  
*Very competitive prices*

**DOKA Company, Moscow, Russia**  
Tel: +007 (095) 534-0603 Fax: +007 (095) 536-5887

## DMX PROBLEMS ? THE SOLUTIONS ...



Designed to alleviate data distribution problems .... a new range of RS485 buffer products specifically intended for use in entertainment lighting installations requiring multiple outlets of DMX512 or similar data.

By providing an isolated and buffered signal at each outlet point in the venue, installation designers can ensure that the connection of portable or rental equipment does not interfere with permanently installed equipment.

## DMXport

Dual line buffered DMX distribution module for permanent installations. Data activity LED provided for each output.

## DMX123+

Mains powered, single line buffered DMX distribution module in rugged extruded housing for Concert, Touring and Outside Broadcast use. Includes 24VDC power supply for use with DMXport products.

Suitable for use in testing of Rainbow or ColourCall scrollers.

## DMXmultiway

Mains powered, Dual line buffered DMX distribution system in 2U rack mount enclosure. 24VDC power supply for use with DMXport products. Data activity LED provided for each output.

Designed in the United Kingdom by ANDERA LTD  
copyright ANDERA Ltd 1993, 1994

## HOWARD EATON LIGHTING LIMITED

Winterlands,  
Resting Oak Hill,  
Cooksbridge, Lewes  
East Sussex UK BN8 4PR  
Telephone +44 (0)273 400 670  
Facsimile +44 (0)273 401 052

SEE US AT PLASA  
STAND A176

## Soundcraft Duo

Two stage monitor desks head Soundcraft's list of new products to be unveiled at the PLASA Show.

The SM24 is a purpose-designed stage monitor desk which features 8 mono, plus 16 mono or 8 stereo sends together with Soundcraft's SM logic-controlled solo system as used on the existing SM16 model. Completing the SM range, the new SM12 is a successor to the Series 500 and features 12 mono, plus a stereo send, 4-band sweep EQ and SM logic-controlled solo system.

Theatre applications are covered with a new version of the Delta desk. Featuring individual routing to the four group busses, six aux sends with pre/post switching, two faders to control stereo return levels and a 6x4 matrix as standard, the Delta Theatre is a powerful feature upgrade which should prove popular.

These new products, together with the Vienna II and Venue Theatre consoles, will appear on Stand B144.

## PSL Sound Week

PSL recently opened their doors for a week, to show their product line to as broad a range of professional audio people as possible. Members of the music community who were able to come included dealers, distributors, PA and installation companies, other manufacturers and the media.

Visitors were invited to put the new Vp range of PSL amplifiers through exhaustive tests. PSL had arranged for a range of Amcron, C-Audio, Crest and Lab Gruppen amplifiers to be there to give everyone the chance to participate in blind A/B testing. One of the PA companies even brought in a van load of test equipment and spent hours poking, prodding and plugging. PSL hope to repeat the success of the 'Open Week' with another one next summer.

## Grease Lighting



White Light has joined in with the celebrations of the hit musical Grease as it marked the end of its first successful year at the Dominion Theatre. The lighting hire and sales company has been hiring equipment for the show since its opening night in July last year. Grease has proved a major success with bookings already confirmed to January 1995 and over £18 million grossed at the box office.

## Mystical Debut

Mystical Lighting, originally a Northampton-based company, was taken over by Sonic Sound in January 1993 from John Nutt. The company manufacture light screens, infinity screens, spot banks, record, CD and tape cases.

Since taking over the company, Peter Horrocks has expanded the business and now employs skilled workmen in the factory, a technician and office staff to cope with the demand of orders going through. The company has been trading for 17 years, and will be taking a stand at PLASA for the first time since the take-over where they will exhibit their full range of equipment.

For further details of Mystical Lighting's range of products telephone the international hotline on (0803) 666590 or visit Stand B150.

## Canon V-200

An upgrade to the highly successful V-100 background music speaker will highlight Canon's new product at PLASA.

'Big Brother' to the V-100, the long-awaited V-200 is a high-power, wide dispersion speaker designed to bridge the gap between background music and dance floor systems for the permanent installation market. Suitable for various configurations from wall-mount to multiple clusters, the unit features an unique two-stage protection mechanism and automatic output reduction circuitry with LED warnings, thus, claim Canon, making the V-200 virtually impossible to blow up!

A new twin satellite speaker and sub-bass package will also be launched in the shape of the SV-15/S-B20 system. Aimed at the smaller venue as a background music package, the reasonable price of this should guarantee a lot of interest on Stand B116.

## Encore with AB

Encore Sounds, in conjunction with Bonza Sounds, have taken on exclusive dealership for the complete range of AB amplifiers. The company will also be distributing AB's graphic equalisers, designed and constructed to meet the needs of sound technicians, recording engineers and musicians. They have already lined up installations for AB equipment at both The Grand and The Forum venues in London.

On other fronts, Encore have recently completed the sound system for the Atlantic Bar and Grill, owned by the flamboyant Ollie Peyton. The company installed Sony signal processing equipment, Ohm speakers, and a radio mic for the chef! Other recent projects include installations at the oddly-named 'Frog and Nightgown' and 'The Elusive Camel' public houses.

**TELESCAN™ MK IV 2,5 HMI**  
ALREADY THE MOST POWERFUL  
INTELLIGENT LUMINAIRE  
AVAILABLE TODAY,  
NOW BECOMES THE ABSOLUTE BRIGHTEST  
WITH THE INTRODUCTION OF  
ITS COLOUR-PICTURE SCROLLER.

- 2500W HMI source
- X and Y Mirror controlled in true 12 bit resolution
- Trichromatic colour changer
- Built-in colour correction and diffusion
- Linear mechanical dimming
- Iris controlled from 0 to 100%
- Film scroller for projection of colour images and gobos patterns (50 images capacity) in true 15 bit resolution
- Rotation system by prism
- Remote controlled focus

CAMELEON

TELESCAN™

1 ter, Rue du Marais 93100 Montreuil FRANCE - TEL : (33).1.48.70.70.70 - FAX : (33).1.48.70.99.65

# the GLADIATORS

...enter the arena

...to give you the new DMX effects projector that is probably the most advanced and versatile gobo and strobe lighting effect of its kind for size, reliability and at an affordable price.

Combined with the latest state of the art masterstroke controller, all scenes can be chased and pre-programmed, saved on the DMX controller, and connected to a midi keyboard to give you total control.

**ABSTRACT**

the symbol of quality.

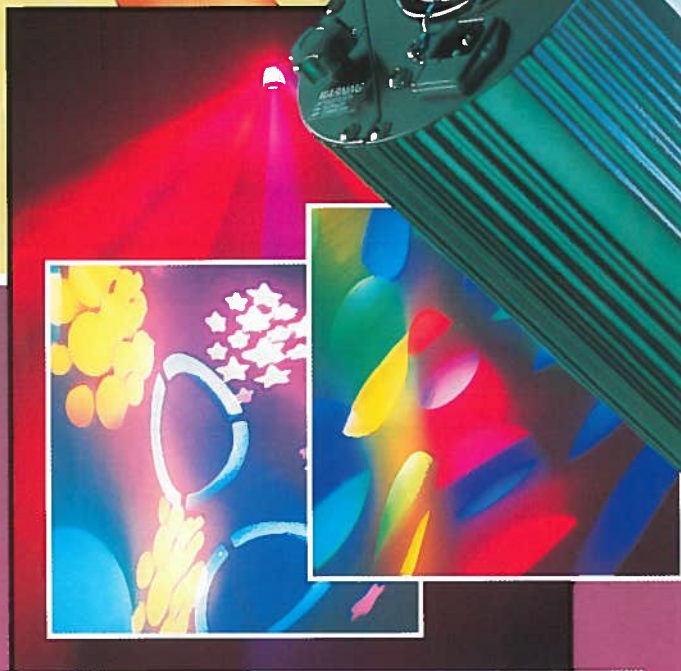


**ABSTRACT**

DESIGN TO LIGHT



JET - TM © LWT Productions Ltd. 1993



Meet special guests WOLF & JET  
launching the new ABSTRACT GLADIATORS  
on stand C46 at the  
PLASA LIGHT & SOUND SHOW EARLS COURT 2  
on Sunday 11th September

## Rhyl Arena

Playlight Hire Ltd of Manchester has supplied lighting, trussing, sound and control room equipment for permanent installation at the recently opened Rhyl Events Arena. The company's stage electrical division carried out the installation for the stage area.

This purpose-built facility will support a number of leisure activities, outdoor events, displays and exhibitions. Products supplied by Playlight for the performance area include internally wired barrels, Par 64 lanterns, Ramsa A200 speakers, stands and cabling.

The control room equipment included Strand Act 6 dimmers, demultiplexers, a Strand MX24 lighting desk, an Inkel PC1200 powered mixer, Ramsa WMD65ER dynamic microphones, boom stands, a Teac CDP3500 CD player, and a Teac V1010 cassette player.

## BMF Success

As temperatures soared in the UK, the Music Industry gathered for BMF '94, three days of action at Olympia, London, in late July.

The show saw an increase in new product launches from the 150 plus exhibitors traditionally the preserve of NAMM and Frankfurt. The redesigned layout, to cater for the expected increase in exhibitors and size of stands, worked well, creating easier access to all areas. This year saw 30 first-time exhibitors at the show, together with a small contingent of French and German companies and exhibitors from the Far East and the USA. Daily attendance figures were up in general over the three days though trade attendance was severely affected on the Tuesday by the rail strike. The overall attendance figure for the three days was 6,516.

One of the highlights of the Show was a 'live' broadcast on BBC Radio 5 Live on Education Day. The dates for BMF '95 are Sunday 23 - Tuesday 25 July 1995.

## Light Processor

Light Processor will launch no less than six new products at PLASA 94.

The company now offers complete 12 and 24 channel dimming racks, incorporating the new hardwired Q Pack. Other elements can be chosen according to specific requirements, but could typically include the QDmux demultiplexer. Input/output is provided by a three panel unit (also available separately), incorporating a 63 amp Ceeform input connector and Socapex outputs. Distribution is provided by a separate 3U panel with a 63 amp isolator at 20 amp. It also has single pole breakers to each dimmer.

The hardwired Q Pack has been re-designed into a fan cooled two rack unit enclosure. All the existing Q Pack features are retained along with several enhancements. DMX is now standard, although analogue capability is still retained. Rear panel options allow the retro fitting of Socapex or Harting connectors.

Q Pack dimmers retain their full quota of output sockets while adding a mini slider on each channel, plus a master slider. Q Pack local control will be available in UK 15 amps, Schuko, French and CEE 17 versions.

The Q Pack Switch physically resembles the Q Pack dimmer, but is a switching version for the triggering of discharge lamps and other non-dimming applications.

The Q Store one unit rack mounted package stores 64 presets of up to 512 DMX channels and can be used either as a safety net in case of desk problems or alternatively (once programmed) in place of a desk for simple applications.

Designed to run on Windows 4, LPWIN provides full on-screen light-show design facilities for your PC. The full system outputs DMX to 512 channels, and a smaller version will follow later that accesses 256 channels.

Light Processor are on Stand A168.

## Show Production Finds its Voice

A new association for the touring concert and major event industries has just been formed.

The idea stemmed from a breakout meeting at the last ILMC where it was decided that after many years of discussion, a group of people should take the plunge and establish a steering committee. Those people were Jon Cadbury, Alan Escombe and Mike Llewellyn of Rock-It Cargo, Bryan Grant and Mike Lowe of Britannia Row Productions, Mick Kluczynski of MJK Productions, Tim Norman of Edwin Shirley Staging, Sophie Ridley of GP Presentations and Simply Red Tours Ltd, Tony Wheeler of Aztech Productions and Les Clifford of Stage Miracles.

Amanda Crane, who has three years' experience working with Artiste Management and who toured extensively with Simply Red in 1992/3, has been appointed as association secretary.

Setting up the association as a formal legal entity is underway and it is envisaged that the original working title of The Entertainments Services Bureau (ESB) will be changed to The Production Association (TPA) in due course.

ESB will be a voice for British companies and individuals working in technical and support services, production and design. Its immediate aim will be to campaign to rationalise the confusion of the EC VAT laws relating to international touring.

Future issues to be addressed include improving communication and understanding between members and other sections of the entertainment industry, and formulating a code of practice for safe working conditions. These and other issues will be addressed at an annual conference at which a new committee will be democratically elected.

For further information on ESB contact Amanda Crane in London, telephone 071-793 1117.

# Light Coordinator®

*Control for now . . .  
and the next century.  
Programming made  
effortless for the most  
complicated shows.*

*Also, now available Color Coordinator, to run  
color changers of all kinds. Both available for  
sale or rental. For more information contact us:*



**SEE  
FACTOR**  
INDUSTRIES INC.

37-11 30th Street, Long Island City, NY 11101  
Tel: 718-784-4200 ♦ Fax: 718-784-0617

see us  
at PLASA  
stand  
A110

# WHOLEHOG II

SON OF HOG



FLYING PIG SYSTEMS PRESENTS WHOLEHOG II "SON OF HOG"

STARRING 2048 CHANNELS AUTOMATED EFFECTS AND 3D SPACE

FEATURING MULTIPART CUES AND HTP DIMMERS

WITH MIDI SMPTE DMX IN AND NATIVE FIXTURE PROTOCOLS

AND INTRODUCING TOUCH SENSITIVE DISPLAYS

DISTRIBUTED BY AC LIGHTING UK 0494 446 000 US 818 707 0884

© 1994 Flying Pig Systems Ltd.

JAMES LOVEGROVE



TRANTEC SYSTEMS

THE NAME ON EVERYBODY'S LIPS

**I**deal for all applications that require the ultimate in radio microphone technology, Trantec Systems have no rivals.

Available as either free standing units or in 19" rack mounting format, Trantec systems can be used in all single and multi channel combinations and are available as either handheld, body pack or guitar systems.

Designed and manufactured in England to D.T.I. specifications, Trantec systems are widely used by leading hire and broadcast companies and are specified by the top production companies.

Trantec systems are suitable for all theatre, music production, audio visual and broadcast applications and are available on all DTI approved frequencies to MPT1345 and MPT1350 as well as all dedicated broadcast frequencies between 173.800 and 217.000.

For further information, a comprehensive catalogue and prices, please contact:

TRANTEC SYSTEMS

A DIVISION OF BBM ELECTRONICS GROUP LIMITED  
28-30 WATES WAY, MITCHAM SURREY CR4 4HR  
TEL: 0181 640 1225 FAX: 0181 640 4896

DTI APPROVED

## Black Light First

Black Light in Edinburgh recently supplied the first Arri Finesse 300-channel console in the UK to the Tramway Theatre in Glasgow. The comprehensive package includes a 17" x 12" designer's graphic tablet, a wireless remote control for riggers control and a DMX512 to D54 protocol converter to run the 120-ways of Strand dimming. Launched at ABTT '94, the Finesse is the replacement for the Imagine II 250 and features most of the functions available on Imagine III.

General manager David Gray told L+S: "The potential of this system in a venue that supports many diverse events is enormous: the graphic tablet and monitor will allow a designer to plot from various locations within the Theatre whilst cues can be simultaneously recorded by in-house technicians using the wireless remote." Following the installation of 96 channels of Arri SmartRack and an Imagine II in the Cumbernauld Theatre, the Tron Theatre in Glasgow have placed an order for 72 channels of SmartRack and custom patch panels which will be installed during July. In what is proving to be a very busy period, Black Light have secured the contract to supply and install the Royal Scottish Academy Summer Exhibition System - a project that includes in excess of 300 custom track-mounted self-dimming birdies and 200 metres of track.

## ModelBox Introduce MacLux

Modelbox has been named as the sole UK importer of the MacLux Pro programme, and will be showing work created on it at the PLASA Show.

MacLux Pro is a lighting programme written especially for the Macintosh system and has been developed from the American shareware MacLux programme. It has already received a four star rating from USITT's director of software for technical theatre. The programme produces lighting drawings, provides interactive feedback during the design process and also records all the necessary technical details.

It requires a minimum of a Mac Plus with at least 800k of free RAM and System 6.0.3 or later. However, the recommended hardware specification is a hard drive, colour, math co-processor, 4mb of RAM and System 7. Modelbox is adding the MacLux Pro programme to its long-established Autolight and Laplight programme and hopes that the new addition to the range will give UK-based lighting designers and production electricians the opportunity to use the latest state-of-the-art technology which was previously unavailable to them. Modelbox will be on stand A68.

## Holy Lights

Lighting Technology Projects have recently completed a lighting installation in the refurbished Holy Trinity Church in Brompton, West London. The lighting design, by Bruce Kirk of LTP, was chosen from a shortlist of three proposals. It features nearly 300 luminaires selected from a range of manufacturers including Microlights, ADB and Teatro.

As well as providing lighting for general use, a stage and video lighting system is incorporated into the design. An important aspect of the design was the requirement for all lighting to be fully dimmable. Two thirds of the light sources are low voltage MR16 dichroic lamps, the remainder being tungsten halogen lamps used in a small stage lighting system and long-range applications. The control system is in two sections with a simple push button pre-set Lytemaster unit for general and architectural lighting, whilst a 12-channel Zero 88 desk controls the stage and video lighting. Both control systems dovetail through the 36 channels of Zero 88 dimmers in a central dimmer room.



## ShowCAD Around and About

ShowCAD will be on the stands of distributors Coe-Tech and Cerebrum at the PLASA Show this year, as well as running SMPTE-timed shows for both Avitec and UKD.

Set for launch at the Show is the ShowCAD interface panel, a product of Lynx Lighting, and manufactured as a response to several requests for a hard playback panel specifically tailored to ShowCAD. The interface will add to the connectivity already provided through analogue, digital and MIDI devices. Numerous advances have been made, all designed to increase the power of the programme and decrease the workload of the operator. The 'multiple insert' rapid patching feature enables several fixtures to be entered and patched into the system with one command.

The most important new feature will be 'Autogenerate'. This function will enable the creation of scene building blocks and routines with improved ease and speed. In combination with 'multiple insert' and ShowCAD's library of fixture specific templates for intelligent lighting, this feature will make possible the programming of comprehensive and involved shows using many different fixtures and effects in only a short period of time.

ShowCAD can be seen on stands C64 and A122, amongst others.



**E.S.P.** (UK) LTD  
Distributor for



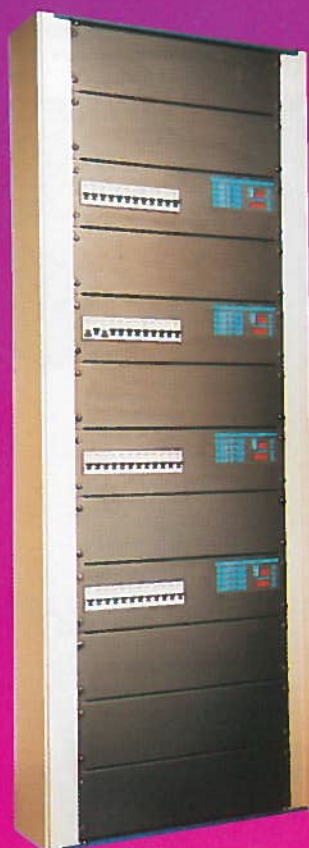
SEE US ON  
STAND A126

ALWAYS ONE STEP AHEAD IN DIMMING WITH  
THE ULTIMATE AND INNOVATIVE HDI SYSTEM



**HDI DIGITAL  
AND ANALOG  
DIMMING SYSTEM :**

- DMX 512 and 0/10V<sub>dc</sub> control
- Soft Patch
- Individual curve selection
- Individual fluo threshold setting
- Programmable chase effects
- 3 KW and 5 KW mixing possibility
- Three phase power input
- Control from PC
- 128 Back up cues
- Very compact size
- Very easy to operate



**E.S.P.** (UK) LTD  
UNIT 5 - FURMSTON COURT -  
LETCHEWORTH -  
HERTFORDSHIRE SG6 1 EX  
TEL : (0462) 482411 - FAX : (0462) 673856

**RVE**  
23, rue Beausire  
93250 VILLEMOMBLE FRANCE  
TEL : 33 (1) 48 54 31 63  
FAX : 33 (1) 45 28 67 53

FOR OTHER EUROPEAN  
DEALERS CONTACT RVE

## All's New at Vestax

Visitor's to the Vestax stand at PLASA may be forgiven for thinking that a technology overdose has taken over the company, as there are no less than a dozen new products aimed at both the DJ and sound engineer.

These include new CD Players, a scratching digital sampler, the Beat-1 software beatcounter, a direct to disc digital six track recorder, PMC-05 Mk3 scratch and PMC-26 rotary control mixers, the PDT-5000 direct drive turntable, DCR-1200 frequency band splitter and GE-33S stereo 30-band equaliser, plus the new XR range of speakers and VE-X range of Mosfet amplifiers with internal assignable crossovers.

Vestax also promise to have on stand the full range of mixers, samplers, CD players, home recording and PA equipment and still have space left for visitors.

Vestax can be found on Stand B136.

## Fireworks on Stand

At PLASA this year, Le Maitre will be showing their re-vitalised range of smoke machines, which have undergone a great deal of change over the last 18 months. Alongside the Microfog, The Red Devil, and the Mini Mist and Show Mist, the company will be showing the first pre-production model of their new smoke machine the Genis 3000. Le Maitre's R&D department have spent the past 18 months developing this new machine.

They will also be launching a new range of pyrotechnics, as well as showing their full range of special effects and established pyrotechnics. Already this year, the company have provided outdoor displays at the opening of the Channel Tunnel, the European Song Contest and the D-Day celebrations at Portsmouth. On the entertainment front they have been involved in shows for Take That, Meat Loaf and East 17.

Le Maitre are on Stand A170.

## White Light's New Store/Prep Facility



White Light has taken on an extra 12,000 square feet of warehouse space in Parsons Green. Located just five minutes from their offices and workshops in Fulham, the warehouse has been designed for a mixture of long-term storage of equipment, and as a large preparation area for the major tours for which White Light supply lighting hire.

The warehouse only came into use in the first week of August and has already been used to prepare the rigs for the current tours of Me & My Girl, Carmen Jones, Les Liaisons Dangereuses and Five Guys Named Mo.

White Light's Bryan Raven told L+S: "It was the right time to expand our facilities as we are working with an increasing number of shows which require 'pre-rigging'. The fact that we have managed to find such a good space which is only 20 minutes from the West End is a definite advantage too."

## Sonovista Effects

BCS are now supplying PAL European versions of the Sonovista sound to light video effects generator. Developed in America by the company who produced the BitBopper it uses the same 'sound to video technology'. The unit has been designed for the leisure and music industries.

## Cyberlight CX

1994 has been an exciting year for Lightfactor, dominated by the introduction of the Cyberlight from High End Systems to the European Market. PLASA 94 sees the debut of the Cyberlight CX, a refined version of the aforementioned fixture.

Utilising a 1200W MSR light-source, the optical design offers maximum power and intensity. It has remote focus, selectable diffusion, full dimming, variable iris and fade to black. Other features include adjustable zoom, variable speed strobe, remote lamp enable and remote cooling system shut down. The colour wheel offers seven saturated colours and an open slot, which, together with the three colours on a further effects wheel, make a total of 24 colours.

Also to be revealed will be the Cyberlight LCD controller that gives simple and effective control of up to eight Cyberlights. The well established range of LCD controllers can be pre-programmed and cues triggered from any analogue lighting console. Also on show will be the Status Cue controller, capable of controlling all the High End Systems range - Cyberlights, Intellabeams and/or Trackspots on the same system. The Status Cue interfaces with a 486 PVC which in turn talks to the luminaires. It also runs from Status Cue For Windows software. This mimics all the console operations, and thus enables blind programming.

In addition to these new products, Lightfactor will be showing the full High End Range, including Cyberlights, Intellabeams, Trackspots, Dataflash and Multirays on the stand, together with a selection from other product lines. In true Lightfactor style, conviviality will also be high on the agenda at the stand, where visitors will be able to dabble inside the products as well as see them demonstrated. They will also be able to pick up the new Lightfactor catalogue together with a special PLASA edition of the regular company newsletter 'Listen'.

All this and more on Stand A58.

# LOOK

What  
CITRONIC  
is Doing

Ephos Model	Inputs		19" Rack Option
	Mono	Stereo	
MONO 8:2	8	x	✓
MONO 12:2	12	x	x
MONO 16:2	16	x	x
STEREO 10:2	6	2	✓
STEREO 12:2	8	2	✓
STEREO 14:2	2	6	✓
STEREO 16:2	12	2	x

## The Ephos Family

### A great new range of professional mixing desks

# Ephos Series

Professional Mixing Desk

## From the Quality British Company

Certificate No : 926882

**Citronic Limited, Halifax Road, Bowerhill, Melksham, Wilts, SN12 6UB, England**  
 Tel: 0225 705600 Int: +44 225 705600 Fax: 0225 709639 Int: +44 225 709639

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

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

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

combined with the flexibility of a 50° horizontal by 25° vertical coverage pattern.

FLOODLIGHT utilises unique **Axehead™** horn-loading technology



*Floodlight delivers a 50° horizontal coverage pattern.*

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

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

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

Worldwide, live sound engineers have praised the smoothness of

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

## THE NEW TURBOSOUND FLOODLIGHT 760

**"Nothing else can hold a candle to it."**

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

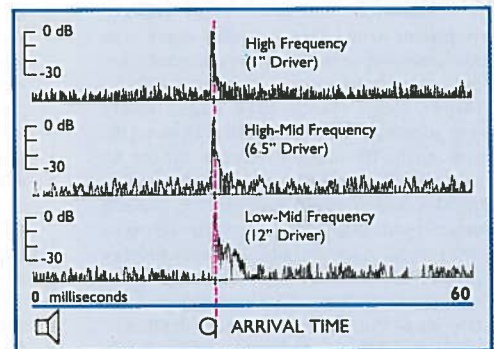
FLOODLIGHT's labour-saving and truck space-saving design additionally features U.K. government certified flying hardware and rugged, exterior grade birch plywood construction.

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

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

### Energy Time Curve Diagram

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



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



**Turbosound**  
ONCE HEARD NEVER FORGOTTEN

Turbosound Ltd., Star Road, Partridge Green, West Sussex, RH13 8RY England Tel: +44 (0) 403 711447 Fax: +44 (0) 403 710155

## Come Fly with HW

Celebrating its 30th anniversary, HW International plans to dominate its section of the show with a fully flown rig of the German-manufactured GAE speaker system. Making its PLASA debut after a successful appearance at the Cambridge Folk Festival (see feature this month), HW will show a full selection of product, and will also be offering full product appraisals of GAE at a venue of your choice via their mobile demonstration unit.

Complementing the GAE speakers will be a new series of diversity radio microphones from Shure, first PLASA look at the Camco amplifier range, as well as the new Silk range of live and studio mixers and upgraded HP Series amplifiers from British manufacturer 3G. Also expect an appearance from the 'Woodstock' mic, the Shure 565D. All this, plus a full selection of product from Shure, QSC, and Ultimate, can be found on Stand A132.

## Laser Spectacular

The Definitive Laser Company, Dubai (DLC) have just completed their most ambitious project to date, for the 28th Accession Day Celebrations in Al Ain.

With only three days' notice from the signing of contracts to show day, a massive sound lighting and laser show was provided on a mountain top site - Jebel Hafeed. Equipment from DLC's Dubai base was supplemented with 17 tonnes of hardware flown in by military plane from the UK.

Three large frame 25W Argon lasers were supplied from Definitive Lasers UK, each with 10 channel beam tables to project spatial effects around the arena. One also had graphics capability to project images onto the mountain face across a giant screen. A spectacular fireworks display by Shellshock Fireworks also featured. Over 1,000 rockets, 864 mortars and six batteries of Roman Candles were fired over a period of 30 minutes with a grand finale of a veil of pure gold hanging in the air from 1,000 feet to ground level backed with a drum roll of 3" and 4" maroons.

The Turbosound Flashlight/Floodlight sound system was supplied by Britannia Row and featured both long-throw Flashlight cabinets and medium-throw Floodlight cabinets.

## Award for Lightbody

Derek Lightbody is pictured holding the Lighting for Television 1993 award received from Paul Jackson, controller of Carlton Television, at the Society of Television Lighting Directors Annual Dinner.



This prestigious award is in recognition of Derek Lightbody's contribution to broadcast lighting for over 40 years. Many of those years were with the BBC where he instigated many new innovative lighting products and techniques to assist in the transition from B/W to colour. More recently he has been involved with Optex, one of the UK's leading broadcast equipment companies. In this new role he has developed a new light that according to Optex is going to change current attitudes to studio and OB lighting.

## Aviator V2.0

Celco plan to launch their revamped Aviator consoles in Version II guise at the PLASA Show.

According to the company, the new consoles feature improved ergonomics and increased functionality. The upgrades are a result of research over the past 12 months into the requirements of television and theatre users. All consoles now offer moving light control as standard, using Celco's patented scrolling and compacting preset.

On display will be two of the newly styled consoles, the Aviator R360 and the T1 80, the latter with full monitor display. The company will also be launching Version 2.0 and 3.0 of their biggest selling console - the Navigator. Both of the new consoles feature increased functionality, largely implemented at the request of users world-wide. In Version 3.0 form the console more than doubles in capacity to allow control of 40 Golden Scan 2s, 40 Golden Scan 3s, 20 Super Scans or 30 Intellabeams. All desks now include MIDI Show Control, auto loading stack, autofade masking, lamp grouping and longer sequence lengths.

Also on show will be the latest addition to the Personality Card system for Navigators. This continually updated library now includes the Golden Scan 3 - the 12 functions of which are mapped to the Navigator's 12 rotary controls.

Navigate your way to Stand B26.

## Surround Sound

London-based Sound Kinetics will be using PLASA to demonstrate its latest range of surround sound products which are based around the 'Soundstorm' software.

An advanced visual programming tool that allows sounds to be moved around an audience, 'Soundstorm' offers producers, performers and recording engineers the opportunity to create spectacular surround sound effects for adventure rides, simulators, theatres, live concerts and club applications. Sound Kinetics will also be showing a range of surround sound tools suitable for use in a wide range of mediums including CD, LD, CDI, and Multimedia, and will be based with Wembley Loudspeakers on Stand C8.

## Keylight Activity

Manchester-based Keylight Theatre Lighting have been active on several fronts recently.

The annual conference of the electrical appliance retailing division of Norweb has been lit for the last few years by Keylight. This year, for the first time, VL5s were in evidence (eight in total) giving a completely new dimension to the event and helping to provide a look that was different from previous years. These were combined with four Intellabeams, four Trackspots and a number of colour scrollers. Programming was made easy with the Avolites' Rolacue Sapphire.

During the summer break Keylight installed a completely new lighting system at Ashton-under-Lyne Sixth Form College. A 40-way lighting grid was installed over the body of the hall and the existing stage circuits rewired. Four 6-way Anytronics DMX512 dimmer packs were installed which will be controlled by a Zero 88 Sirius 24. The college will now not only be able to use the stage for productions, but also the floor of the hall itself for non-proscenium performances.

## ID Tag for Zero 88

Ready to make a significant impact in the world-wide rental/portable markets, the 6 x 25A version of Zero 88's ID 'Intelligent Dimmer' makes its UK debut at the PLASA Show. This 'ready-to-go' high-density digital dimmer has a self-extinguishing polyethylene casing providing heavy duty protection, whilst its interlocking design facilitates stable stacking both in use and transportation. Zero 88 Lighting are on Stand A64.

## ALISTAGE

PORTABLE MODULAR STAGE SYSTEM



SEE US AT LIW

Available for both hire and sale, the system offers a flexible, robust but lightweight solution for all your staging requirements. Standard deck units are 2.44M x 1.22M (8' x 4'), with legs available to give platform heights in increments of 200mm (8"). Each unit is rated at a S.W.L. of 1000Kg with a safety factor of 3:1. Units can, if necessary, be custom-made to your requirements. Accessories include fascia, guardrails, ramps and both straight and spiral staircases. Canopies are available if required.

ALISCAFF LTD  
Unit 2 Hotspur Ind Estate  
West Road, Tottenham  
London N17 0RJ  
Tel: 081-808-5005 Fax: 081-801-9851

## The Fibre Optic Lighting People

We manufacture and distribute all fibre optic lighting materials. Parglas harnesses and conduits. Parflex polymers, light sources, theatre curtain washers, spot ball and bullet lenses, side emitting fractured fibres, ceiling fittings and large bore fibre optics.

Examples of our fibre optics may be viewed at our London showroom, from subtle backgrounds to fibre optic fireworks. Leaflets available.



Trade & Export call Paul Raymond  
Par Opti Projects Ltd  
67 Stirling Road  
London W3 8DJ  
Tel: 081-896 2588 Fax: 081-896 2599



THE MINI DRY ICE BOX  
PORTABLE DRY ICE MAKER  
☆ Back by popular demand ☆



- RSC STRATFORD
- STAGE CREW SWEDEN
- THE LITTLE THEATRE LEICESTER/SOUTHPORT
- THE HARLEQUIN REDHILL SURREY
- POLKA CHILDREN'S THEATRE LONDON
- THEATRE ROYAL PLYMOUTH
- PERTH THEATRE SCOTLAND

- No mains or battery requirements •
- Compact and lightweight design •
- Safe and convenient •
- Produces dry ice in just 40-60 seconds •

ABTT 'Product of the Year' 1989  
Available for sale or hire  
For further details contact  
A & B Theatre Services  
4 Norwich Road, Wheatley Park, Doncaster DN2 4QD  
Tel: (0302) 364808

THE  
SHAPE  
OF  
THINGS  
TO  
COME

**ID**  
SERIES



SEE THE  
**NEW**  
25 AMP  
**ID 625**  
ON STAND No.  
**A64**

- ▶ INTERLOCKING DESIGN FOR STABLE STACKING.
- ▶ HIGH IMPACT, SELF EXTINGUISHING POLYETHYLENE CASE WITH PROTECTIVE DOORS FRONT AND BACK.
- ▶ SIMULTANEOUS CONTROL BY DMX512, AND + OR - 10V ANALOG.
- ▶ FRONT PANEL PUSH BUTTON ACCESS TO MULTI-LANGUAGE MENUS.
- ▶ BACK LIT LCD DISPLAYS FOR SELECTABLE DIMMER LAWS AND START ADDRESS.
- ▶ DIAGNOSTIC TEST MENU.
- ▶ EMERGENCY PROGRAMMABLE BACK-UP MEMORY.
- ▶ FAN COOLED.
- ▶ PROGRAMMABLE PROGRESSIVE SHUT-DOWN OF CHANNELS IF OVERLOADED.

**INTELLIGENT**  
**12 CHANNEL PORTABLE**  
**DIGITAL DIMMER**

**zero 88**  
*A touch of Brilliance*

Hart Road, St. Albans, Hertfordshire. AL1 1NA England  
Telephone: St. Albans (0727) 833271  
Fax: (0727) 843676

NEW FOR  
PLASA '94

# ARRI



---

## LIGHTING

The all-new Focus console from ARRI provides a new level of instant, hands-on control for creative lighting in any situation

- Ideal for TV, live entertainment, touring and rental
- Based on powerful 32bit RISC processing technology
- 324 channels, 600 cues, 2000 macros
- 108 simultaneous effects or submasters
- Direct access to first 108 channels via dedicated faders
- Special support for moving lights and colour changers
- Wide variety of options including SMPTE, MIDI, networking, graphics tablet and remote controls
- All this with ARRI's excellent worldwide support



# *Focus on the performance!*

ARRI UK distributors:

#### **Black Light**

18 West Harbour Rd  
Granton  
Edinburgh  
EH5 1PN  
Tel: 031 551 2337  
Fax: 031 552 0370  
Contact: David Gray

#### **Donmar Limited**

54 Cavell Street  
Whitechapel  
London  
E1 2HP  
Tel: 071 790 1166  
Fax: 071 790 6634  
Contact: Dermuid O'Shea

#### **Lighting Technology Projects**

721 Tudor Estate  
Abbey Road  
London  
NW10 7UY  
Tel: 081 961 6858  
Fax: 081 961 6857  
Contact: Richard Harris

#### **White Light**

57 Filmer Road  
London  
SW6 7JF  
Tel: 071 731 3291  
Fax: 071 371 0806  
Contact: Paul Simson



ARRI (GB) Ltd, 1-3 Airlinks, Spitfire Way, Heston, Middlesex TW5 9NR, England  
Tel: 081 848 8881 Fax: 081 561 1312

# Fiddler on the Roof



Theatre Projects Sound Services were chosen to supply the sound system for the 'Fiddler on the Roof' tour currently at the London Palladium. The tour is scheduled for 28 weeks in the UK and will play to venues in London, Edinburgh, Bristol, Sunderland and Manchester, with a Blackpool appearance recently confirmed. Dates for 1995 are also being considered, with the possibility of the tour extending to the Far East and USA. Supply of the TP sound equipment is being co-ordinated by their production manager, Dave Perry.

A range of equipment has been specified including a Cadac J-Series desk, featuring updated software release 4, a Soundcraft Venue 32:8:2 console, Meyer, Proac and Community speakers, Amcron amplifiers, BSS digital delay lines and the company's Varicurve remote and interface, together with a range of microphones from Sennheiser, AKG, Neumann, Beyer and Shure.

As Dave Perry told L+SI, the principle of the system is that the vocals are picked up by the radio, float and off-stage chorus mics, and fed through the Cadac desk which groups, mixes, mutes, assigns and routes them via VCAs (and the sound operator!), through the processing units, and via matrix outputs to the various components of the loudspeaker system, which are time aligned and equalised for the area of the auditorium that they are covering. Likewise, the orchestra microphones are grouped and mixed on the Soundcraft Venue and re-routed back to the Cadac, which can then have VCA control over various orchestra levels. All the cues are recorded and recalled via the Dell 486 computer running the Cadac automation software.

The loudspeaker system is divided into proscenium and cluster (further sub-divided into vocal and band systems), frontfills and delays. These systems are time aligned via the TCS 804 units and equalised via the Varicurve programmable equalisers. With the Varicurve remote control, the sound designer is able to sit anywhere in the auditorium and control all the equalisers situated at the desk position via a radio transmitter link, thus enabling him to hear the sound that he is creating instantly. He is also able to change the sound during rehearsals, and even performances, without returning to the desk position or disturbing the sound operator.

## What's in a Fane?

Fane Acoustics, the professional product arm of Wharfedale, will exhibit the full range of Fane, Wharfedale Force and other commercial models from a stand twice as large as any previously taken by the company in previous years. Of specific interest are eight new models added to the Fane Classic K Series chassis loudspeakers which now extends to 14 different models. Of particular note are the new 12" 300 watt chassis offering high power handling and wide frequency response for more compact two-way systems. Similar models offering the same output are also available as 15" chassis.

Sound out the complete range on Stand B174.

## Experienced Sound Sales Person Required

For leading lighting and sound  
distribution company  
Salary Negotiable



Please apply in writing with full CV to:  
Lighting+Sound International  
(ref: BH/09)

7 Highlight House, St Leonards Road,  
Eastbourne, East Sussex BN21 3UH



S  
O  
U  
N  
D

ON DISPLAY AT  
PLASA ON STAND B4



# The "Full Range"

FROM

## MILLBANK

*The Communicators*



The right mix . . .

with graphic  
examples . . .

of quality  
loudspeakers . . .



driven by  
high powered  
amplifiers . . .



complete with  
a full range of  
accessories . . .



Quality assured  
Total Sound Solutions  
from Millbank Electronics

BS 5750 Registered Firm  
Certificate No. FM23072

### MILLBANK ELECTRONICS

Bellbrook Industrial Estate, Uckfield, East Sussex TN22 1QL  
Tel: 01825 764811 Fax: 01825 761620

# UNLEADED



# CHIAYO

wireless systems

# USER FRIENDLY

Send for a free Chiayo brochure (Enclose A4 S.A.E.)

Name \_\_\_\_\_ Address \_\_\_\_\_



JOHN HORNBY SKEWES & CO. LTD., SALEM HOUSE,  
PARKINSON APPROACH, GARFORTH, LEEDS, LS25 2HR

## MEC and Multiform Connect

This year MEC Systems and Multiform Lighting will be sharing a flamboyantly styled multi-level stand built from MEC Systems' 250 and 500 series trussing and designed by MD and founder Roland Sollner.

The stand has been designed to show the versatility of the MEC Trussing System which allows two, three and four tube sections of truss to be interconnected without the need for custom-made junctions. Particular emphasis is made of the different curved sections available by the construction of a hemispherical dome framework at the top. Included in the design is a staircase to the upper deck and examples of the winchable support carriages.

Also on stand will be MEC Rack, a 19 rack system manufactured from aluminium tubing that can be used free standing or integrated into the trussing structure to house power amplifiers or dimmer packs powering the loudspeakers or luminaires installed on the rig. On display for the first time will be the Light Beam, the first of which was supplied to Central Television, which is a temporary support for luminaires. Adjustable in length it provides a horizontal or vertical load bearing support that can be clamped between two walls or ceiling and floor.

Scheduled for its first public showing from Multiform is the Zodiac 36, big brother of the Zodiac 18 memory lighting board released last year. As well as a doubling of the number of output channels, the desk includes programmable cross-fade times and 'highest' or 'latest' takes precedence modes of cueing. Also on display for the first time are three additions to the ever-expanding range of 19 x 2U dimmer packs - Rakpac 2410, Rakpac 2605 and Rakpac 2610.

In recognition of a need for small desktop control boards, Multiform are releasing a 12-channel single preset board, the Mini 12 plus desktop consoles for this, the Mini 6 and Aquarius 6. After designing and manufacturing the electronics for smoke machines for a number of years, Multiform are releasing their own range of smoke generators - the M range. Initially, this will comprise of three models - M1 Hi-Power, a portable aerosol machine, M2 Hi-Power, a pump machine + 0-10V remote control, and M3 Turbo, a fan-assisted machine + 0-10V remote control. Also on stand will be Lite Smiffs Ltd, their distributor.

The three companies and their products can be found on Stand A142.

## Richard Crane Reach their Peak

Richard Crane Productions (RCP) of Orlando, have been appointed as the designers and production manager for two state-of-the-art attractions at the new Victoria Peak Development in Hong Kong - the Peak Tower. As special event designers, RCP are a multi-disciplined company with international experience in the design of themed attractions. The company's range of experience extends through animatronics, special effects, interior design, illustration, lighting, set and sound design, as well as story writing, film and video production and total project management.

This monumental project at Peak Tower will mark the beginning of a new chapter in the history of one of Hong Kong's most treasured landmarks, the Peak Tram. Since its completion in 1888, it has been one of the island's greatest tourist attractions and will provide a memorable experience for visitors on their way to Peak Tower.

The seven storey Peak Tower has been designed to take full advantage of a site which commands spectacular views both to the North and South of Hong Kong. The Peak Tower is owned by developer Peak Tramways Co and should be completed in late 1995. Created and designed by RCP, 'The Magnificent Adventure' is a mini motion theatre within Peak Tower that will provide the visitor with an exciting view of Hong Kong, unlike any they've ever seen, according to RCP. With a wild and crazy ride where every twist, turn, rise and fall has the visitor's stomach in their mouths, this will be an adventure they won't forget. To celebrate the history of the island, the company have also worked on a new ride for the Peak Tower - 'Fragrant Harbour and the Nine Dragons'. Visitors will travel through narrow and mysterious streets encountering much more than they bargained for.

Richard Crane Productions have also been selected to design and theme the exhibits of the New Orlando Science Centre. The exhibits alone will cover nearly 50,000sq.ft. of the new science centre, which is scheduled to open in the Spring of 1997. Included in the 13 new exhibits will be an exciting, highly interactive Kidstown, a Career Center designed for careers of the next century and the Dr. Phillips Planetarium and IWERKS Theatre which will provide the venue for large format films and Digistar planetarium shows.

One of the largest exhibits will be Nature Works, which alone will cover 7,000 sq.ft. and will allow the visitor to discover Florida's diverse environment, experiencing everything from insects and sinkholes, to a giant 3D topographic map of the state. The design will utilise theatrical and entertainment techniques that put exhibits into context, and will offer hands-on, interactive experiences for visitors. This contract marks RCP's first steps into the museum and science industry arena, a move which was dictated by a growing demand for more integration of art and science in exhibits.

## Team Work for L+SI and PLASA

L+SI will once again be sharing a stand with PLASA at the Show. If you want to know more about any of the range of services we offer, subscriptions to the magazine, or simply acquire one of our very desirable Polo Shirts, then drop by Stand A24 and make yourself known.



## SOME SYSTEMS ARE DESIGNED TO STAY PUT...

Martin Audio are world famous for touring systems. Why produce a Contractor Series?

The answer was to fulfill an increasing demand for high quality, high power and highly attractive permanent install systems, for clubs, theatres, conference centres, places of worship; in fact any application where high quality sound is demanded.

Now with the addition of the EM15, incorporating the powerful and unique 5" ICT™ driver, the arrayable EM Series with dedicated sub-basses and controllers is the complete answer.

## THE MARTIN AUDIO EM CONTRACTOR SERIES



**A HARD ACT TO FOLLOW.**

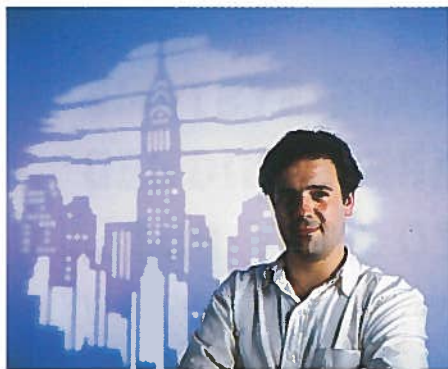
Martin Audio Ltd, 19 Lincoln Road, Cressex Industrial Estate, High Wycombe, Buckinghamshire HP12 3RD, England.  
Tel: 0494 535312 (International: +44 494 535312) Fax: 0494 438669 (International: +44 494 438669)

TGI North America Inc. 300 Gage Avenue, Kitchener, Ontario, N2M 2CB, Canada  
Tel: (519) 745 1158 Fax: (519) 745 2364

*TGI*

A member of TGI plc Group of Companies

## Rosco Winner



The winner of the Rosco Supergel competition is Jonathan Howard (pictured above), who earlier this year joined Design Services, the lighting design arm of David Hersey Associates, as associate designer. As David Hersey was one of the competition judges, Jonathan actually entered under a pseudonym to avoid accusations of a fix, although he needn't have done so, because Rosco made sure that the judges were unaware of entrant's names.

The panel of judges, which also included Francis Reid, Rick Fisher and Nigel Morgan, was looking for originality, flair and an understanding of light and colour, and considered that Jonathan's entry stood head and shoulders above the others. He flew off to New York at the end of August for his three day prize holiday, where he'll enjoy dinner at Sardi's and a Broadway show, as well as meetings with other designers and some time for sightseeing trips.

Prior to joining David Hersey, Jonathan was at Imagination where his design work included musicals, exhibitions (The Dinosaur Gallery with Hugh Vanstone at the Natural History Museum and Cadbury World's new Fantasy Factory), product launches and television specials.

In 1989 he was awarded the Arts Council Lighting Bursary, spending six months at The Central School of Speech and Drama as its resident lighting designer, where his work included Judi Dench's production of 'Macbeth'. As a freelance designer his credits include the London premiere of Carl Davis's musical 'The Vackees' and the award-winning production of Beckett's 'Company'. Most recently he has lit Polka Theatre's premiere of 'The Magic Paintbrush'.

## HUNDRED YEARS AGO THIS MONTH

BRITISH THEATRICAL PATENTS 1801-1900

*Intro to Patent Abridgement No: 17077, September 7th 1894*  
**Patentees: Walter Pfeffer Dando & James Eglington A. Gwynne**

Walter Dando (pictured right), produced several patents during the 1890s (see Lighting + Sound International, December 1993, p.21), whilst working as the stage manager at the Palace Theatre, Cambridge Circus, London (formerly known as The Royal English Opera House). James Eglington on the other hand was not directly associated with the theatre, being described in the patent as an 'engineer of the Brooke Street Works, London'.



The arc lamp was by 1894 commonly used within the theatre world, though modifications and improvements were constantly being made. Here the patentees list two major improvements, the grinding of the edges of the lens to reduce uneven light dispersion resulting in rings. Secondly, the introduction of a colour medium in front of the lens, or alternatively the lens could be tinted to reduce the harsh 'whiteness' of the light. It must be remembered that the introduction of an arc light against a gas light produced enormous comparative differences in light output levels, and quality.

## Meyer's SIM School

Meyer Sound's SIM System II is the main topic for the series of SIM Schools being staged around Europe. Designed to provide an intensive, in-depth introduction to using SIM (leading to SIM System II Operator certification), the schools have already attracted strong support, including delegates from rental companies, fixed installations and a number of Meyer Sound European dealers. Venues to date have included the UK and Germany, with further schools scheduled for Southern Europe and Scandinavia.

The programme is being co-ordinated by sound consultant Jim Cousins, and the first school of the season was held during April in the UK at Reading. The intensive week-long session for 10 delegates included a field trip to the Royal Shakespeare Company Theatre in Stratford-upon-Avon. The Theatre provided an excellent example, having recently commissioned a Meyer Sound MSL-2A/MPS-355 system, involving the use of SIM to test and optimise the final installation.

The key course segments span the principles of laboratory measurements and their applications; the principles of stereo system measurement; standard stereo applications; the principles of multi-channel measurement and multi-channel applications. SIM System II is widely used throughout Europe, on major West End shows, on tours and for fixed installation applications.

## LSC Collection

The highlight of Melbourne-based LSC's stand this year is the Axiom lighting control desk. First seen in prototype form at last year's PLASA, Axiom has been in production since March this year. According to the company, the desk will provide power to the user not offered before in a console of its size. Available in 12/24, 24/48 and 36/72 versions, it boasts a true LTP control for operating moving mirror fixtures, moving lights and scrollers. Each channel can be selected to be either HTP or LTP permitting a mix of moving fixtures and normal lighting. It boasts 1022 scenes (memories), chases, stacks, four patches, DMX512 output, optional analogue output (+ve or -ve), optional disk back-up, menu-driven operation, context sensitive help menus and a unique construction.

Also at the Show will be the new Tour Series dimming system comprising inbuilt power and condition monitoring. A comprehensive hot patch gives the unit flexibility and visitors to LSC's stand will have the opportunity to poke and prod a 36-channel version. The company will also be airing their well-known range of multiplexers, demultiplexers, splitters and softpatching facilities used by clients such as the BBC, RSC and the Helsinki Opera House.

LSC will be on Stand A172.

## ALISCAFF

Primary manufacturers/suppliers worldwide of aluminium couplers (scaff clamps), aluminium snap hooks and many other aluminium fittings to fit either 2" (50.8mm) or 1.29/32" (48.4mm) tubes  
 Ask for collage of full range -  
 Custom design work undertaken



SEE US AT LIW

ALISCAFF LTD  
 Unit 2 Hotspur Ind Estate  
 West Road, Tottenham  
 London N17 0RJ  
 Tel: 081-808-5005  
 Fax: 081-801-9851



NORTH

A Trade Exhibition of Supplies and Services  
 for the Entertainment World

The Royal Northern College of Music, Oxford Road, Manchester

Thursday October 13th 2.00pm to 7.00pm

Friday October 14th 10.00am to 7.00pm

Saturday October 15th 10.00am to 2.00pm

ADMISSION FREE

### SEMINARS

Thursday 13th October at 14.30  
**Curtains!!! 2**  
 or **A New Life for Old Theatres Continued**  
 John Earl

Friday 14th October at 15.30  
**A Conversation about Lighting**  
 Gil Binks (long time Chief Electrician)  
 with Philip L Edwards

Thursday 13th October at 19.15  
**Theatre Architecture of Today**  
 for Tomorrow  
 Nick Thompson and Richard Brett

Friday 14th October at 19.15  
**Theatre Around the World**  
 Francis Reid

Friday 14th October at 13.30  
**NVQ Theatre Skills Assessor D32**  
 Gabby Haynes

Saturday 15th October at 11.00  
**What is a wire rope?**  
 Mike Curtis with Bridon Ropes

YOU  
CAN

... from THE AUTOPILOT™ system.

Whether it's Broadway or Las Vegas,  
The Apollo or Hollywood Bowl,  
THE AUTOPILOT is the ideal  
complement for automated lights. In

RUN

BUT  
YOU  
CAN'T  
HIDE...

fact, it's the only system to locate a  
performer in three-dimensional space  
and match light movement to performer  
movement. Flawlessly. In real time.  
Naturally. So don't be left in the dark,  
call Wybron today, to share the vision  
of perfect lighting control.

**#AUTOPILOT**

WYBRON • 4830 List Drive • Colorado Springs, CO 80919 • 719-548-9774 • FAX 719-548-0432  
WYBRON LTD • Acton Business Centre • Unit G04 • School Road Park Royal • London NW10 6  
081-838-2254 • FAX 081-838-2253

# VISION

## Stage Luminaires



SEE US AT THE PLASA LIGHT AND SOUND SHOW  
**STAND A214**

### A Futuristic Range of Stage Luminaires Manufactured Today

- DIECAST AND EXTRUDED ALUMINIUM HOUSING For maximum robustness and heat dissipation
- MICROSWITCH ISOLATION For safe lamp replacement and maintenance
- UNIQUE COMPRESSION LEVER Giving quick positive tilt locking and focusing
- USER FRIENDLY Easy accessibility to optics for cleaning detachable electrical system for fast maintenance
- COMPUTER DESIGNED For optimum efficiency

#### FRESNEL

VISION 650F  
 VISION 1200F  
 VISION 2500F

300W/500W/650Watt Lamps available  
 650W/1000W/1200Watt Lamps available  
 2000W/2500Watt Lamps available

#### PEBBLE CONVEX

VISION 650PC  
 VISION 1200PC  
 VISION 2500PC

300W/500W/650Watt Lamps available  
 650W/1000W/1200Watt Lamps available  
 2000W/2500Watt Lamps available

#### PROFILE SPOT

VISION 650ZN 14-30°  
 VISION 650ZW 23-40°  
 VISION 1200ZN 13-35°  
 VISION 1200ZW 24-50°  
 VISION 2500ZN 9-15°  
 VISION 2500ZW 12-25°

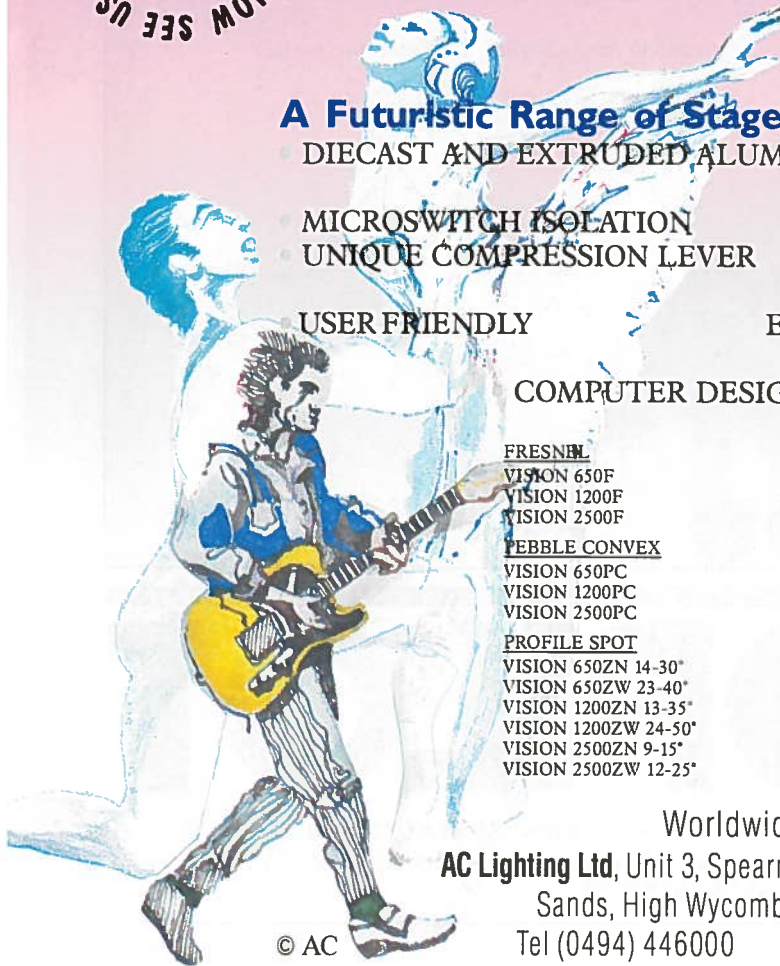
300W/500W/650Watt Lamps available  
 300W/500W/650Watt Lamps available  
 650W/1000W/1200Watt Lamps available  
 650W/1000W/1200Watt Lamps available  
 2000W/2500Watt Lamps available  
 2000W/2500Watt Lamps available

Worldwide Distribution:

**AC Lighting Ltd**, Unit 3, Spearmast Industrial Park, Lane End Road,  
 Sands, High Wycombe, Bucks HP12 4JG, England  
 Tel (0494) 446000 Fax (0494) 461024

CEOM: via Zanella 59/1, 20133 Milano, Italy

© AC



## Avolites Sapphires Hit the Spot

An Avolites Sapphire has been specified and installed at one of London's hottest music venues - The Astoria. A dramatic lighting facelift has taken place, with an installation completed by The Spot Co, overseen by Mick Scullion. This follows on from his installation at LA2 last year. The Spot Co have been hiring moving lights to the Astoria for club nights for some time, and were offered the chance to quote for installing the new rig.



Bryan Mason (left) and Jerry McCabe (right) of The Astoria with lighting designer Andy Emerson and the Avolites Sapphire.

In addition to the two trusses of shiny new Parcans that have been installed, the Spot Co will continue to hire moving lights and effects to the venue as and when needed. These currently include Cyberlights, Trackspots, Strobeblowers, Terrastobes, UV guns, Solar 250 projectors, Arcline and smoke machines.

The plan is that The Astoria will be upgraded every few months, with more permanently installed fixtures being added each time. The Sapphire is ideal in this situation say Avolites, as it contains the personalities of all commonly used intelligent fixtures which can be added swiftly and effortlessly.

The Astoria features band and club nights; the latter often wield elaborate themed sets that are revealed on stage as the evening builds up to an atmospheric crescendo. Thus, the lighting rig and designers/operators have to cope with a huge variety of lighting situations within the same space. One of the regular LDs is Gerry Caulderhead, who told L+SI that this is the first time he has used a Sapphire, and that he finds it well laid out ergonomically.

Sapphires have also had an active month in a completely contrasting environment. Mushroom Lighting provided lighting for a 4-way simultaneous TV conference. The linked venues were London Weekend Television Studios, the Birmingham Metropole, The Royal College of Music in Manchester and The SEC in Glasgow. All four links featured a Sapphire desk controlling eight Golden Scan 3s, 10 VL5s, a selection of Pars, profiles and fresnels, as well as numerous theatre lanterns. The four 'main area' lighting rigs, designed by Chris Kempton, were identical. Rehearsals were held at Black Island Studios, where one Sapphire was programmed with the show. The disk was copied and loaded into the other three Sapphires before they were dispatched to their relevant destinations.

## What's New at Harman?

This year's Harman Village will have more than its fair share of new product, with launches from many of the companies within the Group, including JBL, Allen & Heath, UREI, C-Audio, ART, AKG and dbx.

JBL's Control 1 speaker now has a dedicated installation version in the shape of the Control 1C, whilst new 4652 and 4655 two-way sound reinforcement systems will be launched, together with the MPX power amplifiers first seen at Frankfurt. With two new compression drivers and three mid format horns as used in the SoundPower series also new to the show, Harman's sound booth should again be a centre of interest.

Allen & Heath will be introducing the long-awaited GL4 live mixing console, plus the GR1 1U rack-mountable 6-3 zone mixer, whilst UREI's Platform modular signal processing system will be extended with three digital signal and computer control modules.

Making their first appearance at the PLASA Show since becoming part of Harman, AKG will launch two new radio microphone systems. The WMS 50 is a cost-effective system for smaller venues and musicians, whilst the WMS 100 is a fully professional spec system with six variants incorporating AKG Tri-Power mic capsules.

C-Audio's XK5001 2kW 'super-amp' plus new processors from dbx and ART will fill the frame on Stands B178 and B134.

## Celco Reorganisation

Celco have made two important changes to their operations to provide a better level of support to their customers world-wide.

The first of these centres around Mike Rotheron, Celco's ex-Bellingham Road service manager re-joining the company earlier this year in the capacity of technical product manager. After serving a six month familiarisation course on Aviator, which took him off to Japan for several weeks, Mike is now concentrating on improving the overall service Celco offers its customers, both old and new. His much wider responsibilities now include all matters of a technical nature, from quality control to after-sales service, the latter with assistance from Celco service engineer Steve Hathaway.

The second phase undertaken was to improve the company's response to incoming telephone calls or fax messages and avoid the 'bottleneck' that sometimes occurs on switchboards of large companies. To this end Celco have installed a computerised fax system for outgoing messages, a dedicated switchboard for Celco clients and a separate direct dial fax machine for incoming messages. The new numbers are - switchboard: +44 (0) 1322 282 218 and fax: +44 (0) 1322 282 292.

# penn fabrication

## YOU HAVE OUR TOTAL SUPPORT!!

### TRUSS SYSTEMS AND LIGHTING

Single sided Truss, Triangular Truss,  
Square Truss, Box Truss, Drop Truss,  
Par Cans, Linear Floods, Accessories



### CUSTOM TRUSSING

**OXYD Discotheque-Turkey**

(Photo courtesy of Lightfactor Sales)



### SYSTEM 2000 GROUND SUPPORT

**Theatrebus**

(Photo courtesy of HTV  
and BRIAN TARR)

### OTHER RECENT PROJECTS INCLUDE:

- Cardiff Astoria
- Winter Olympic Exhibition - Lillehammer
- Dimension Leisure Centre, Stoke-on-Trent
- Wilmoths Rover Dealership, Hastings
- Kettering Leisure Village

### Penn Fabrication (Hastings) Limited

Theaklen Drive, Ponswood Industrial Estate,

St Leonards-on-Sea, East Sussex TN38 9BX

Telephone: (0424) 718576. Fax: (0424) 718572

## Batmink's Biggest

At the PLASA Show, Batmink will have its largest stand yet. Covering 100 sq.m and rising 11 m high, the massive double-decker stand will be showing a host of new products, including the Pioneer CDJ 500 CD player and new lighting effects from Genius and Lampo, including the first showing of the Ghost and Columbus II intelligent lights.



Products to look out for include Vortex, a large all-action centre-piece which uses 16 mirrors to produce an array of different patterns and effects coloured with dichroic filters. Two sets of eight mirrors are driven by stepper motors controlled via either DMX512 or 0-10v. Alternatively, a pre-programmed controller can be plugged into the unit to allow automatic operation. The unit is available in either HMI 575 or MSR 1200 lamp versions.

Ghost (pictured above) is a spectacular centre-piece using an MSR1200 lamp fitted with six mirrors which reflect beams of light onto rotating drums. Gobo and colour combinations can be selected, whilst the six stepper driven mirrors can be independently moved via either DMX512 or 0-10v control. Alternatively, a pre-programmed controller can be plugged into the unit to facilitate automatic operation.

Columbus II is a budget-priced projector featuring rotating gobos, colour mixing and an MSR 400 lamp. The unit is fitted with stepper motors throughout and with five rotating gobos which are interchangeable - colours are via dichroic filters and can be mixed. The unit is fitted with variable speed strobe shutter, whilst control is via DMX512, 0-10v. As with Ghost, it can also be controlled via a pre-programmed box which plugs into the unit to operate it automatically.

Also on stand will be two 'minis' from Genius. These are self-animated lighting effects which add to an already extensive range. Batmink also promise personalities from the world of showbiz and a special 'freebie' to every visitor to the stand. Visit C56 to find out more.

## Theatre Talk

Those interested in the practical challenges facing theatre managers and administrators should consider attending a seminar entitled 'Theatres - Is there a Future?'. The event, to be jointly organised by the National Council for Civic Theatres (NCCT) and Mansfield City Council, will be held on Friday 23rd September at the Civic Centre, Mansfield.

The seminar has been specifically designed to focus on key aspects which offer scope for the development and promotion of theatres in the years to come. As a result, it will cover three main areas - marketing for competitive advantage, product development and networking for the future.

A number of eminent speakers, including Denys Hodson, chairman of the Public Arts Council's Agency, who will co-ordinate the proceedings, have agreed to participate in the seminar, which will be supplemented by workshops structured for maximum participation. Delegates will have the opportunity of working together to determine key responses to the main aspects outlined above, initially sharing experiences, followed by planning a course of action, the mantle of which will be taken up by the NCCT in the coming months.

The full day seminar costs £55.00+VAT. Further details are available from Mansfield District Council, telephone (0623) 663031.

## Woodstock Legends

Whilst the attention of a 200,000 strong crowd was drawn to the legends standing on the Woodstock stage, a few 'legends' of our industry were doing their thing backstage. Strong followspots were lined up along the control towers like marines on parade, highlighting the performers. On the south stage, a Wholehog lighting control system, under the skilful hands of lighting designer Chris Craig, was putting the substantial Vari\*Lite, Clay Paky and High End lighting rig through its paces. He managed to create a collage of looks and effects which remained fresh through out, which on a marathon event such a Woodstock is indeed no mean feat.

## SOL Autumn Event

The SOL 'Autumn Event', the largest of the Entex shows and now in its sixteenth year, will take place on Sunday 23rd October at the Dome II nightclub in Birmingham (winner of the 'UK Discotheque of the Year' award presented by Disco Mirror magazine).

This one-day regional trade exhibition will bring together a full range of sound, lighting, special effects and services for the discotheque, theatre and leisure industries.

Full exhibitor details are available from either the Entex Stand at PLASA (B154) or from organiser Terry Lees on (0527) 502830.

## ALD News

The Association of Lighting Designers (ALD) will be taking a stand at the PLASA Show. This will act as a base from which they will be welcoming both old and new members and will, in addition, have on stand their new generic design stencil and the first UK directory of professional lighting designers (see ALD feature, L+SI, August 1994).

The Association have recently announced that Strand Lighting have joined their growing list of Corporate Sponsor members. The ALD's publicity officer, Alison Wheeler, told L+SI: "The increasing number of manufacturers and suppliers associating themselves with the ALD shows an increasing awareness of our status as advisors in the lighting field."

Members of the ALD visited Glyndebourne Opera House (see main feature, L+SI, July 1994) at the end of August. Members of the association, which include many of the top LDs in the UK, welcomed the opportunity to visit the new house where resident lighting manager Keith Benson gave those in attendance a guided tour of the high-tech facilities. The ALD, of course, hope that some of their members will be lucky enough to light productions at Glyndebourne well into the next century.

For details on joining the Association of Lighting Designers, drop in on Stand A186.

# Another loudspeaker manufacturer?

**No matter how carefully you hone the acoustical behaviour of a loudspeaker it will always remain just one important link in the signal chain. The holistic approach to excellence taken by d&b audiotechnik means that we always build loudspeaker systems with control electronics and power amplification all carefully matched to the performance of the drivers and cabinets. At least as much d&b innovation, intelligence, engineering and craftsmanship go into designing and manufacturing the electronics as into making the cabinets themselves.**

**Just another loudspeaker manufacturer?  
No, not really.**

**d&b audiotechnik AG, Locks Mill, Brewery Lane, Nailsworth, Stroud,**

## French Connection

French company Robert Juliat will make a return visit to the PLASA Show, and centrestage will be the latest addition to their range of luminaires, a product so new that it doesn't even have a name yet.

With a beam angle of 8/26 degrees the new followspot is suitable for medium to short throws, and measuring a little over a metre it is also very compact. Based on the SNX 2500W HMI profile, it has double condenser optics giving high light output with a very flat beam. It will have a fully closing iris and diaphragm style fader mounted well away from the focal plane. The CAD 900 digital control system will be available allowing full DMX control and a smooth fade (5120 steps between open and closed). The CAD 900 is fitted to all Robert Juliat's digital products including the long range 'Aramis' followspot.

In common with all Juliat products servicing is easy as all the lenses and electronics are accessible through hinged lids on the casing. A prototype version will be on stand at PLASA. A bottle of champagne is the carrot being offered to anyone who can come up with a suitable name for the product. The name must be French, of course, but have a 'wider significance'. The L+SI panel has no bon-mots to offer at this time.

Parlez-vous Francais on stand A164.

## Moscow Bound



The largest single order ever placed in the history of Paderborn-based Lightpower came, surprisingly, from Moscow. It was for lighting equipment to be installed in a renovated theatre to be used by the Red Army and was placed by Lightpower Design (no relation) of Moscow. Part of the inventory included the new MA Lighting LC 12/2 console which was officially presented to the company during Lightpower's recent series of Open Days (see L+SI, June 1994). Our photograph above shows Ralph Jörg Wezorke, of Lightpower (second from left) with the consignment of equipment destined for Moscow.

## LETTERS

Dear Editor,

### Strand Lighting - L+SI, May 1994

L+SI produced a splendid May 1994 commemorative issue detailing Strand Lighting's 80 year history. For those of us who savour history it was quite a nice treat. In the midst of all the history, my attention was caught by the sidebar on page 40, where under the year 1932 one may read: "In the USA, Century Lighting develops the Leko ellipsoidal principle for Stanley Kingsley's 'Dead End' on Broadway, but it was to be several years before it found its way into the catalogue."

An astonishing statement! Edward F. Kook, a Century Lighting Equipment Company founder and President for most of its independent years, was a masterful marketing genius, and developments at Century, frequently even anticipated developments, received the kind of publicity that the present day Strand would envy. Kook was not one to hold back . . . your own Fred Bentham will attest to that.

So, a quick look at the real history, and Sidney (not Stanley Kingsley's 'Dead End' was produced on Broadway, opening on October 29, 1935, not 1932 (staged by the author with a really marvellous setting by designer Norman Bel Geddes). There was, in fact, no hiatus before the Leko . . . found its way into the catalogue". 'Lekolites by Century' (New York, Century Lighting Equipment) illustrated these units for the first time. I place the publication date at not earlier than late 1934, and most probably 1935. The reason this dating is suggested is that Century Lighting Equipment Catalogue C-2 is dated 1934, and the units listed (although not illustrated) under Lekolites are: a 1000-2000W spotlight with an 8" lens, a 100-500W spotlight with an 8" lens and a 5000W spotlight with a 10" lens. Hardly likely! Indeed the four-page Leko sheet (1934/1935?) shows a basic 500W size available with 6" and 8" lenses and a 2000W size with an 8" lens. That seems closer to the record!

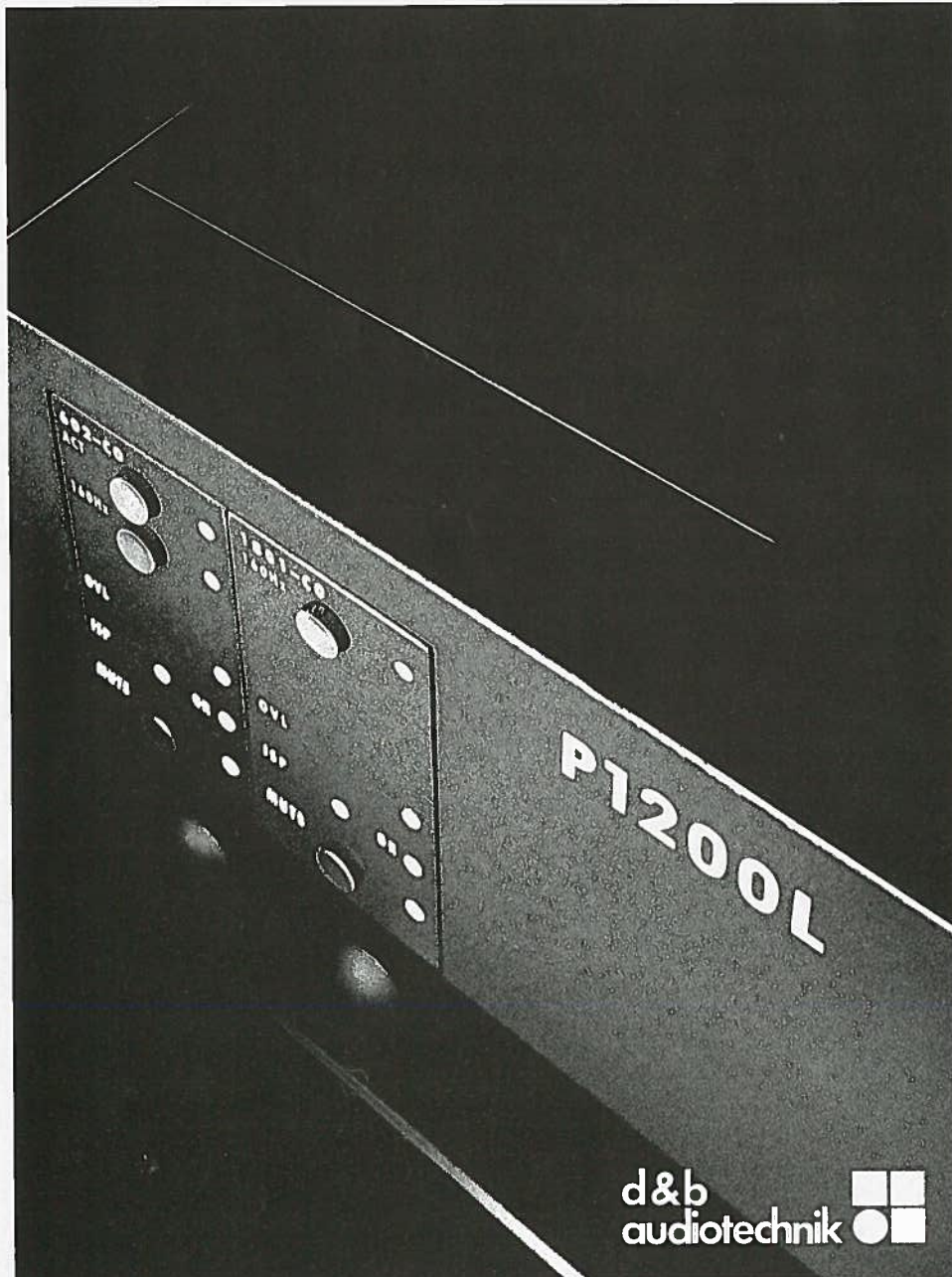
In the United States the Kliegl Bros. (Universal Electric Stage lighting Co.) demonstrated a spotlight based on the ellipsoidal-reflector principle to a meeting of the Illuminating Engineering Society (USA) in Chicago in April of 1933, and there are several installations of record later in 1933. Kliegl started with the larger units (1500-2000W, Kliegl Catalogue B, 1934) and a special bulletin later that year for 'New Junior Klieglights' showed the 500W unit.

Some 20 years after the actual development, Stanley McCandless, famed for his teaching of theatre lighting at Yale University, and also as director of research for Century Lighting, wrote to the present author: "Kliegl . . . made the first ellipsoidal spotlight." The principle of the ellipsoidal reflector spotlight had long been known. (Another story!). Patent applications by Kliegl and by Century, date respectively from April and from October of 1934, and are not basic, applying more to individual methods of securing the lamp. The same thoughts were going on in Great Britain: see, for example, Ridge and Aldred, 'Stage Lighting: Principles and Practice' where pages 37 and 38 of the 1935 edition describe the British 'Stelmar' lantern. However, the advantage was with the Americans and the 120 volt system. The American lamp companies were pressured to make the pre-focus base concentrated-filament lamps that made the units practical. As late as 1955, Fred Bentham was moved to write "Lacking the lamps over here, we can only sigh enviously."

Congratulations to Strand Lighting on its 80 year history and many more birthdays. But, for shame - who was ingenious and moved the date of 'Dead End' up by three years? And who has the records which prove that 'Dead End' actually employed those new Lekos?

Joel E. Rubin

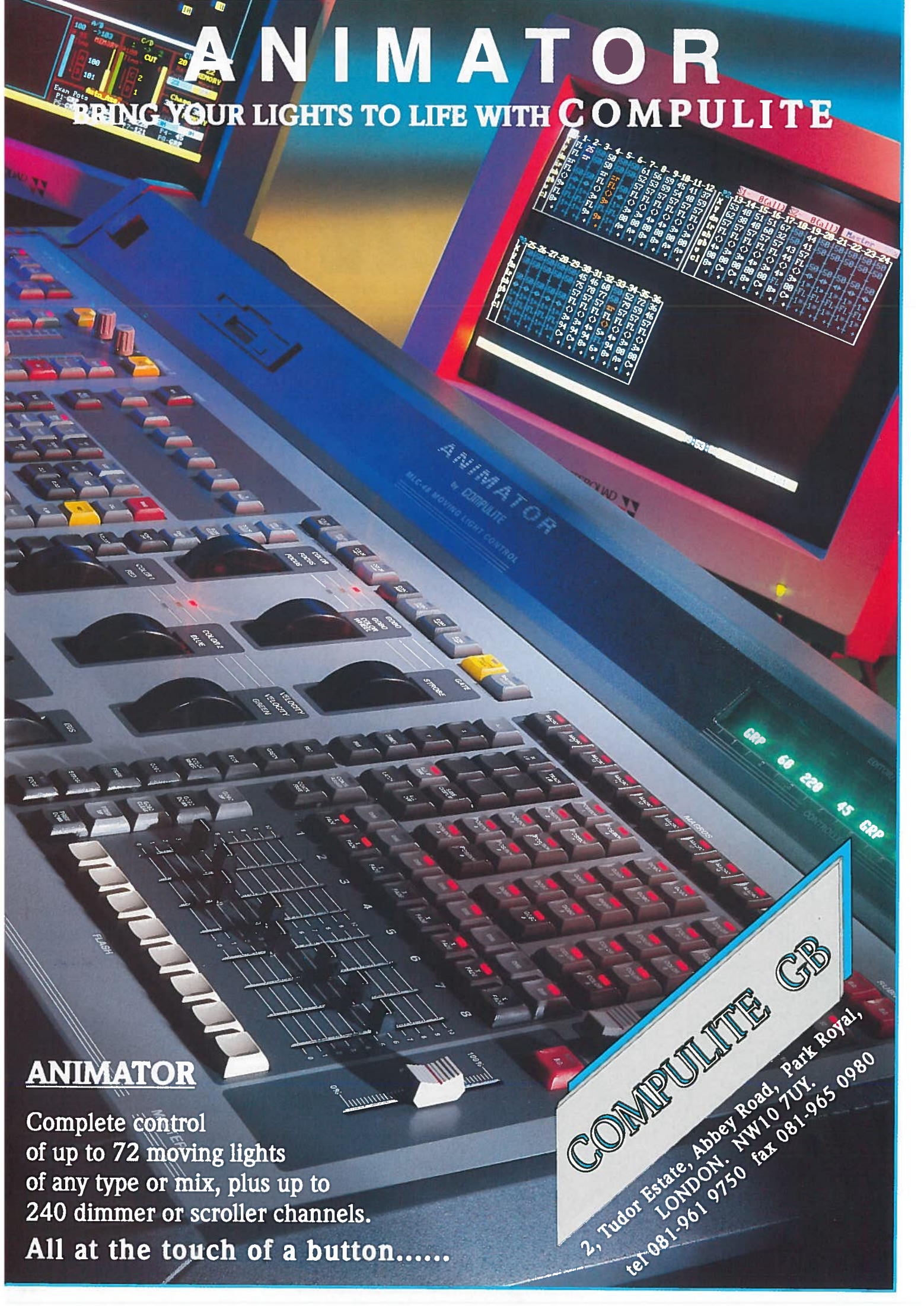
Chairman of the US Center of OISTAT, and senior advisor (theatre) at Artec Consultants, New York.



Glos. GL6 0JQ. Telephone: 0453 835884 Facsimile: 0453 834193

# ANIMATOR

BRING YOUR LIGHTS TO LIFE WITH **COMPULITE**



## ANIMATOR

Complete control  
of up to 72 moving lights  
of any type or mix, plus up to  
240 dimmer or scroller channels.  
All at the touch of a button.....

**COMPULITE** GB

2, Tudor Estate, Abbey Road, Park Royal,  
LONDON. NW10 7UY.  
tel 081-961 9750 fax 081-965 0980



## MM Productions' Stock Grows

MM Productions of Colchester, are continuing their expansion. Following their success at the ABTT show with the award of 1994 'Product of the Year' for their relay controller, several new items have been bought for their hire stock. In line with their championing of Akai samplers for sound effects work, two more S3200s and an S2800 machine have been added as well as a DR4 4-track hard disk recorder which is currently on loan to the National Theatre for a field trial.

In addition, they have also increased their numbers of Renkus-Heinz equipment by purchasing four SR1A6 Speakers and added to their amplifier stock with eight Crest FA amplifiers all from Audio Projects in London. The stock of Electro-Voice equipment has grown to include 10 of the new EV SX200 speakers. A BSS Varicurve system is now also available and the Derby Playhouse will see its first outing along with a Soundcraft 32-channel Vienna II console. Both items have come from Marquee Audio.

## Soundcraft Enter Club Market

After 20 years in the audio console market, Soundcraft have chosen the PLASA show to announce their entry into the DJ/Club market.

Guaranteed to be one of the products of the show, the D-MIX 1000 is a modular 19" rack-mountable mixer for custom configuration which features angled faders and a replaceable plug-in cross-fader.

The Mono Input modules feature mic/line inputs with gain and pre-EQ inserts with optional routing to a three-band EQ section, peak LED, main L/R or cross-fade routing, 100mm faders and PFL monitoring. Stereo Input modules feature dual inputs with gain, the same EQ section and faders as the mono modules, output routing with illuminated switches and remote start facility.

The Modular master module can be fitted anywhere in the frame, with metered L/R outputs and separate headphone meters, plus Aux Send and Return controls, voiceover ducking and DJ booth plus Auto cue monitoring feeds. DJs and club installers should form an orderly queue on Stand B144.

## ABTT North Trade Show

Applications for the ABTT North Trade show (Royal Northern College of Music, Manchester, from 13th-15th October, 1994) are hotting up as we go to press. Confirmed bookings are ahead of previous years, and the show is growing all the time, say the organisers. This is indeed encouraging news as the ABTT itself begins to expand and enlarge its initiatives and membership. Despite the so-called recession, theatre activities in the North appear to be busier than ever. To complement the Trade Show itself, a number of seminars have been arranged and promised to attract large audiences. Admission is free, though seats are limited.

Naturally enough, the ABTT will have its own stand at the show and members of both the council and the ABTT North committee will be on hand to talk to visitors about the issues which concern the industry. They would also be interested to hear any thoughts, ideas and aspirations for the ABTT of the future. Full details on the Show and the seminar programme can be obtained from Phil Windsor in Bolton, telephone (0204) 304479.

Meanwhile, the Association has announced that for their seventeenth ABTT Trade Show, they are returning to the Royal Horticultural Halls in London on Thursday 6th and Friday 7th April, 1995.

## Marquee Mix it Digital

One of the highlights of the APRS Show is due to make an appearance on the Marquee Audio stand at PLASA.

The Yamaha Pro Mix 01 console offers affordable digital mixing with 18 inputs with 20-bit linear/64 times oversampled AD converters. Instant recall of the entire desk is also available with 50 scene memory and dynamic automation of every console parameter, and, of course, being fully MIDI compatible, it will even run a lighting programme.

As well as the Pro Mix 01, full demonstrations of the JBL CADP2 and ShuttleCAD design software and BSS Varicurve remote system will be given, together with product on display from JBL, Turbosound, Soundcraft, Denon, EMO and Formula Sound.

Digitally speaking, Marquee Audio will be situated on stand A230.

## Six of the Best

White Light is continuing its busy year and has announced six new lighting hire contracts for new shows and an extended tour.

The Fulham-based sales and hire company is continuing its successful run with the Rocky Horror Show and is supplying equipment, including Pro Spots, for the eight week extension of the tour in the Duke of York Theatre. Meanwhile, in Plymouth, the company is working with lighting designer Mark Henderson on Apollo Leisure's new production of Oklahoma. Further along the south coast, Sweet Lorraine is opening in the Mayflower Theatre in Southampton with a White Light rig designed by Simon Opie. In London, White Light is now supplying equipment to Lady Windermere's Fan which has just opened in the Wyndham's Theatre, St Joan at the Strand Theatre and 900 Oneonta in the Old Vic.

# Europe on stage - magic moments for your company.



## SHOW TECH

## International Trade Fair and Congress

Entertainment Technology,  
Stage Engineering,  
Equipment, Organisation

Berlin, 30 May - 1 June 1995

International contacts, new customers, new markets, trends and innovations. At ShowTech '95, the leading European fair in the field, all those who set the tone or show productions, events and functions in a favourable light will meet with a clearly increased demand from around the world.

Reserve magic moments for your company. Now. Ask for your exhibitor's documents:

Tel. +030/30 38 20 88

Fax +030/30 38 20 59

**Application not later than  
31 Oct. 1994**

We would like to take part in the ShowTech. Please send us an invitation for exhibitors.

Company

Sector

Name

Address

Messe Berlin GmbH,  
Messedamm 22, D-14055 Berlin

Patron



Sponsoring associations:




Patron



Messe Berlin GmbH  
Messedamm 22 · D-14055 Berlin  
Telefon 030/30 38-0 · Telefax 030/30 38-2059



Messe Berlin



## NAVIGATOR

### **NEW! Navigator V3.0**

An affordable moving light console. Now, with added functionality and increased channel capacity.

- 240 Control Channels
- Up to 480 Memories
- Choice of lamp personalities
- V3.0 software and personalities available as separate upgrades to existing users



## PATHFINDER

### **Pathfinder**

Designed for the budget conscious professional user, Pathfinder combines quality and innovation for all entertainment or educational applications.

- 60 Control Channels
- Up to 480 Memories
- 512 patchable DMX channels
- Individual Submasters and Theatre Stack Playback

# Celco



## FUSION

### **NEW! Introducing Fusion 1210**

First of a range of intelligent dimmers featuring Celco's all new digital dimming engine, designed for permanent installation in any application world-wide.

- Configurable as 12 channels @ 10A, or 6 @ 16A, or any combination
- MCB protection throughout
- Control by digital, or analogue inputs
- 100% duty cycle
- Voltage stability
- User programmable features
- Various load types
- Will comply with mandatory European EMC, RFI and safety regulations



## AVIATOR

### **NEW! Aviator V2.0**

A range of advanced technology lighting control consoles for dedicated concert, theatre, television and nightclubs.

- From 180 to 720 plus Control Channels
- 1000 Memories
- Simultaneous control by Fader, or Keypad
- Individual Submasters and Theatre Rate Playback

# u a r i e t y

Celco, Hawley Mill, Hawley Road, Dartford, Kent, DA2 7SY, England. Tel: +44 (0) 1322 282 218 Fax: +44 (0) 1322 282 292

*Celco is a division of Electrosonic Ltd.*

concert ♦ theatre ♦ television ♦ nightclubs

*Aviator and Navigator consoles are subject to UK patents. Other patents pending.*

## People News

Soundcraft have appointed **Mike Johnson** as the company's new managing director. He succeeds Philip Hart as MD, following the latter's move to head up Harman's newly-formed Pro Group. Johnson began his career at Metal Box, working in production control management. From there he moved on to Thorn EMI, working under Philip Hart on complex manufacturing and assembly, before succeeding him as production director. He joins Soundcraft from Livingston Hire, Europe's largest electronic (non-audio) equipment rental company.

**Sean Turk** has joined John Hornby Skewes as southern area pro-audio products sales manager. He brings to the JHS team experience gained with Bose UK Ltd and more recently L.B. Communications. Apart from his knowledge of selling into the audio market, Turk is also experienced in the design, installation and implementation of sound reinforcement systems. **Paul Gowlett** has been promoted from the JHS sales office to Northern Area pro-audio sales manager. He is an experienced semi-professional musician specialising as a guitarist and is well versed with technical knowledge of PA systems and allied hi-tech products.

The appointment by the Toa Corporation of **Dave Egan** and **Kevan Childs** to general manager and company secretary respectively, reflects a significant restructure in the UK for the Japanese sound and communications manufacturer. Dave Egan, with Toa for 16 years, took the company through BS5750 certification. In addition to his new management role, he will continue to manage the engineering and repair side of the business. With the company three years, Kevan Childs is responsible for financial management control and Toa's infrastructure development, including additional computerisation.

AEI Rediffusion Music have appointed **David Nibbs** as AV Systems senior sales manager. He will



**Mike Johnson, Soundcraft's new managing director.**



**Toa MD, Harry Greenaway (right), with Kevin Childs (left) and Dave Egan.**



**Numark's Nick McGeachin (left) with Paul Oakenfield.**

be responsible for expanding Orpington-based AEI Rediffusion's newly created system sales division. This incorporates the design, sale and installation of high profile audio, video and lighting systems to both the leisure and retail markets. Having previously worked for MAM Communications, Nibbs brings a wealth of experience and industry knowledge to this new position.

Coe-Tech Ltd of Northampton have appointed **Chris Rolph**, formerly sales manager of Laser Grafix Sales and Hire Ltd, as UK sales manager.

**Bob Kelley** has been appointed secretary general of the Music Industries Association. He took up the position in August and succeeds John Fox who retired in July after eight years with MIA. Kelley is a chartered secretary and former branch chairman of the Institute of Chartered Secretaries and Administrators. He is a director of the Institute of Management (formerly BIM), where he also chairs the economic & social affairs committee.

Meetings held in London recently between leading British DJ/remixer **Paul Oakenfold**, his manager, Brian Reza and Numark's Nick

McGeachin, have resulted in an agreement whereby Oakenfold will be endorsing the Numark brand name in future. This will apply particularly to Numark's new mixer/digital sampler, the DM 2175XLS. Oakenfold has used Numark DJ equipment for many years and has used the equipment for his 'Perfecto' remixes for many major recording artistes including U2, New Order, Snoop Doggy Dog, Happy Mondays, The Stone Roses, D:Ream, Simply Red and others. Oakenfold's first appearance for Numark will be at the PLASA Show in London.

### ACT NOW!

**IF YOU ARE A FIRST TIME VISITOR TO THE PLASA SHOW, IT'S NOT TOO LATE TO REGISTER AND GET A FREE T-SHIRT. CALL (0323) 642639 TODAY, AND WE WILL SEND YOU DETAILS OF HOW TO APPLY.**

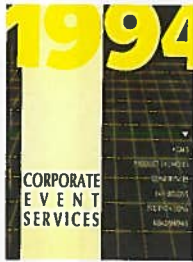
**Above All: CTS Trussing**

CTS Trussing steals the show with its unique design and features. It not only allows you to pre-rig your conventional lighting, you now have the capability to pre-rig your automated fixtures! The truss is precision-engineered and crafted with special shock mounting to protect even the most delicate of electronics from vibration in transport. The results are time and labor saved, thus lowering production costs. Exclusively through The Idie Company. USA: (310) 767-6000

**CTS TRUSSING**™

## The Right Contacts

Published by Showcase Publications of London, the fifth edition of the Corporate Event Services Directory provides a comprehensive reference guide to the wide range of services required by both in-house organisers and professional companies involved in staging product launches, AGMs, conferences, exhibitions - indeed all types of business events.



Over 5,500 entries, which include full contact details, have been thoroughly checked and updated to provide an accurate and easy-to-use reference book. It is clearly indexed with 90 classifications covering all aspects of the presentations industry from AV/video equipment hire through to voice-over agencies and everything in between, including such diverse information as conference production, sound and lighting, marquees, staging, transport and venues.

Corporate Event Services is a useful aid for any individual or organisation involved in planning and organising events from a small conference to a large technically innovative product launch.

The book costs £30.00 and can be obtained from Showcase Publications on 081-348 2332.

## Class Commitment

As part of their continuing commitment to customer service, Zero 88 have recently opened a showroom and training centre at their St. Albans office. The centre promises regular training sessions and new product presentations for dealers and customers. The showroom has been kitted with the company's current UK product range to enable on-the-spot demonstrations.

## Big Event for RCF

RCF's Event Series speakers will be shown for the first time at PLASA. Featuring the Event 3000 two-way high definition full range and matched ESW1018 compact high power subwoofer, both products are aimed at club, live music and sound reinforcement applications.

Other new product will include the MSW8 Sub Bass system and the RCF DWM Diversity Radio Microphone system which is available in hand-held and lavalier belt-pack variants. These new products will be joined by a full selection of RCF products including process control systems, digital switching matrices, PA amplifiers, loudspeaker components and the LS4001 video projector, recently voted 'Best Buy' by What Video Magazine.

RCF can be found on Stand B124.

## Looney Toons

Tannoy's Contractors Series loudspeakers have been specified for all new Warner Bros Studio Stores.

The new stores are dedicated to everything from Looney Toons mugs through to leather Bugs Bunny jackets. Innovative Design Technologies, the contractor for all the stores, was given a brief to create a dynamic audio sound in all shopping zones, whilst still maintaining 'dead zones' at transactional locations. After testing various brands, the company chose 20 CPA 5 loudspeakers, coupled with two CPA 5SB II for each location. Their compact design allows for an easy fit within the overall design of the stores.

The audio system reinforces the large videowall which plays continuous Warner Bros material throughout the day.

## Laser Media Scores with World Cup

The World Cup Soccer champions, Brazil, wasted no time planning a series of victory parties in their homeland following their victory over Italy. Laser Media, of Los Angeles, was contacted only four days prior to the final match between Italy and Brazil held on July 17th, and told to be ready to send a laser production team to Sao Paulo and Rio for a party between the two cities should Brazil emerge victorious.

With a sizeable cash deposit (which the company were told to keep even if Brazil lost the match) the wheels were set in motion and a team of six laser technicians, with a total of three high power projectors were assembled, the equipment being tested, packed and ready for shipment pending the final outcome of the match. Kevin McCarthy, sales and market development director for Laser Media, worked closely with the Brazilian group to organise visas, freight, airline tickets and logistics for the two mega-events. "What we had to accomplish up to and after the victory seemed near impossible," he told L+S: "The parties were outdoors and taking place only six days after the final win!" He added that the freight logistics alone were a handful, and were further compounded by the airlines being completely sold-out due to the number of Brazilians returning home from Los Angeles.

With all the elements in place, the team and equipment safely arrived in Brazil. The three hour shows included an array of Brazilian bands, appearances by members of the Brazilian team and a barrage of pyrotechnics provided by Luna Tech of Huntsville, Alabama.

Amongst the companies working with Laser Media on the project were Laser Mid-West of Dayton, Ohio, Stone Mountain Lasers of Atlanta and Space Cannon from Venezuela.

## Is Robert Juliat as good as they say it is ?

First Sighting !

We will have the prototype of the new medium range 2500w HMI followspot on show.

We want you to tell us what you think of it !

See you on stand A164.



"D'ARTAGNAN"  
2500w HMI Profile

### Robert Juliat SX Profiles

- Double condenser optics
- 1/1.2 and 2kw tungsten
- 1.2 and 2.5kw HMI/MSR
- HMI versions have full DMX control of fadelignition
- Double gobo holders
- Rotating zoom assembly
- Shutter locking device

### DMX Dimmer Shutters

- DMX and 0/+10v control
- 6 standard sizes
- Custom fitting service

### Followspots

- 575w-2500w HMI
- Full DMX control option
- Soft glass filter built in
- Digital Dimmers
- DMX booster
- Fluorescent
- Low voltage

## PLASA 94 See For Yourself...

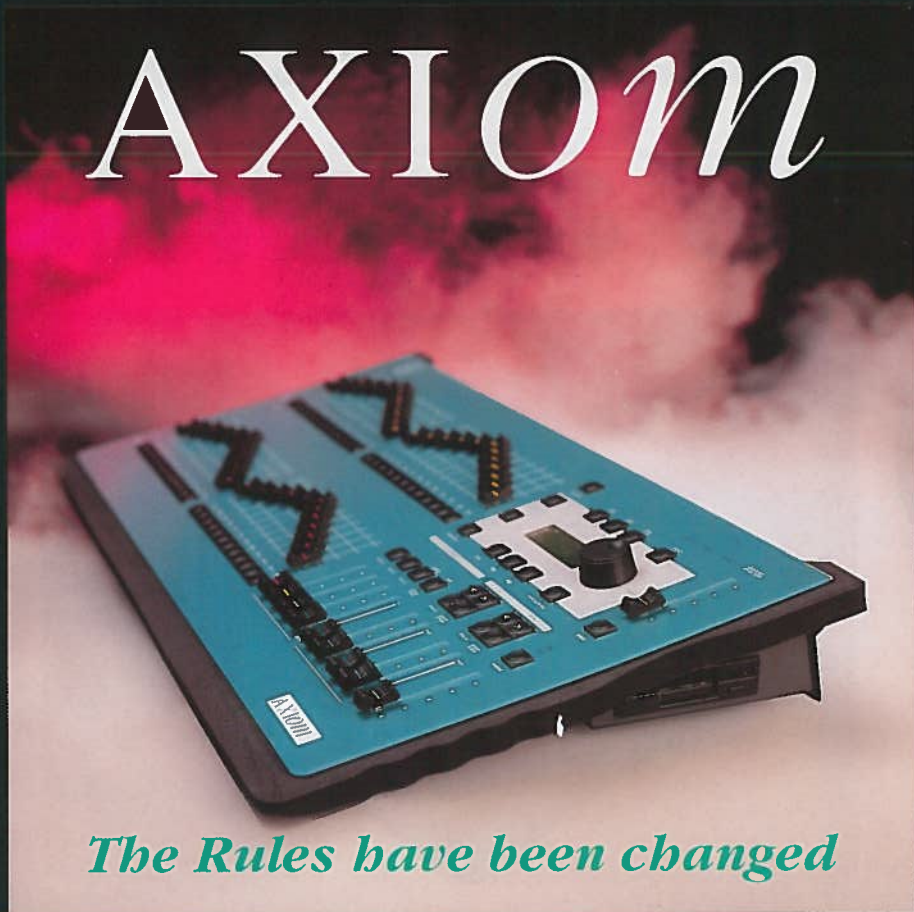


Robert Juliat, 62/64 rue Danielle Casanova, F93207 Saint Denis Cedex, Paris  
Tel: (33) 1 42 43 35 35 Fax: (33) 1 42 43 08 05

UK Office: **Decoupe Ltd**, 73 Crescent Road, South Woodford, London E18 1JA  
Tel: (44) 81 505 8522 Fax: (44) 81 504 4755



# AXIOM



*The Rules have been changed*

*The most technically advanced,  
user - friendly control system in its class.*

- Proportional Soft Patching • On-line Help at the Touch of a Button • LTP Control
- Chaining of Chases & Stacks • 80 Character LCD Display, Edit Wheel & Function Buttons
- Features once only available on major consoles are now affordable!

## Detailed Specifications

- Available in 12, 24 and 36 channel models

Channels - Normal Mode	12	24	36
Channels - Wide Mode	24	48	72
Scene Memories - 12 pages	144	288	432
Total Memories	1022	1022	1022
Scene Masters	12	24	36
Chases - 99 steps per chase	12	24	36
Stacks - 99 Cues per stack	12	24	36
Sound-to-Light setups	12	24	36

- Proportional softpatching - 4 patches - multiple dimmers per channel allowed
- Crossfade or snap steps on individual chases
- Stack cues can be linked with fade times
- Chases and stacks may be chained
- Channel selection for Highest-Takes-Precedence or Last-Takes-Precedence (for colour changes and moving fixture control)
- Timing Fader with View/ Ride facility
- 20 character by 4 line LCD with edit wheel and six function buttons ensuring easy operation
- Help button with readout on LCD
- 3 preset masters - A, B and Grab

- 2 effects playback masters
- Grand Master with DBO button
- Add/Kill master with mode button
- Isolated DMX512/1990 output signal
- MIDI In/Thru/Out
- RS232 serial port
- Universal power supply - 80-240V 50/60Hz
- Attractive slim case

### Options

- 3 1/2" PC compatible floppy disk backup unit
- Analog outputs
- Gooseneck desk lamp

*Specifications are subject to change without notice.*

LMP Lichttechnik, Ibbenbüren, Germany  
Ph: 05451/5900-0 Fax: 05451/590059

AUKES Theatertechnik BV, Amsterdam, Netherlands  
Ph: 020 694 49 96 Fax: 020 694 62 61

Parasound, Stockholm, Sweden  
Ph: +46-8 641 66 40 Fax: +46-8 624 77 99

*Contact us for your  
nearest Agent*

L.S.C. Electronics Pty. Ltd.  
Melbourne, Australia  
Ph: +61 3 561 5255 Fax: +61 3 561 5277

Sound & Light Image AG. Männedorf, Switzerland  
Ph: 01 920 3388 Fax: 01 920 4245

Light Partner, Herring, Denmark  
Ph: +45 97 269 600 Fax: +45 97 269 699

Andersen & Co. Copenhagen, Denmark  
Ph: +45 31 21 42 90 Fax: +45 31 21 42 85

# At last there's a console you can take anywhere

SEE US AT THE PLASA LIGHT AND SOUND SHOW  
STAND A214



## Concerts • Theatre • Industrials

The Event by Jands is available with 24, 36 or 48 channels but if a show comes up which needs more the console can be switched to wide to double the number of channels by using the bottom preset faders to control the extra outputs.

Recording and editing is a breeze with Event. 450 Memories are available and each can be given a label which displays in the LCD window, fade times and a cuestack link. Chases can include up to 99 steps and offer all the features of a memory plus controls for direction, speed and attack / decay.

The total flexibility of the Event is seen in the Assign Master faders, these can be used to control a Page of memories just like

regular scene masters but that's just the start. They can also control Chases and any combination of Memories and Chases can be assigned to the faders.

For theatrical applications a pair can be used as A/B crossfade masters, in fact it's possible to run 6 crossfades simultaneously.

Once the assign masters are set the way you want that selection can be saved as a File and recalled at any time.

With its on board softpatch to 512 dimmers, midi input, and options for a VDU, RAM card, and analogue outputs the Event is unquestionably a major contribution to the art of lighting design.

**JANDS**

Jands Electronics Pty Ltd  
Distributed By:

**AC Lighting Ltd.**

Unit 3 Spearmast Ind. Park ■ Lane End Road ■ Sands  
High Wycombe ■ Bucks HP12 4JG ■ UK  
Tel: +44-494-446000 ■ Fax: +44-494-461024

**AC Lighting Inc.**

5320 Derry Ave ■ Unit V Agoura Hills  
California 91301 ■ USA  
Tel: +1-818-707-0884 ■ Fax: +1-818-707-0512

# JANDS

## DEALERS

### Austria

#### M Tec

Contact: Erwin Mittermann  
Tel: 07242 60860 Fax: 07242 60740

### Belgium

#### Stagelight NV

Contact: Jan Franckx  
Tel: 053 831726 Fax: 053 834054

### Denmark

#### Highlight

Contact: Jakob Hansen  
Tel: 31 831288 Fax: 35 820020

### Finland

#### RMC Showservice

Contact: Rabbe Hjelt  
Tel: 905 063010 Fax: 905 51220

#### TFP Markkinointi Oy

Contact: Fikret Saadetdin  
Tel: 931 143933 Fax: 931 133077

### France

#### SPL

Contact: Alain Jacquinot  
Tel: 84 228961 Fax: 84 223521

#### ESL

Contact: Alain Comevaux  
Tel: 67 692717 Fax: 67 690089

### Germany

#### Multilite Lichttechnik GmbH

Contact: Andreas Fahrmann  
Tel: 040 6706154 Fax: 040 6706159

### Greece

#### Alpha Sound

Contact: Costas Constantinopolos  
Tel: 01 363 8317 Fax: 01 360 6459

### Holland

#### Jansen Jansen

Contact: Rob Berg  
Tel: 020 6821 821 Fax: 020 6828 326

### Israel

#### Mazuz Bros

Contact: Mazuz Zion  
Tel: 3 476889 Fax: 3 476889

### Italy

#### Spotlight Srl

Contact: Augusto Andraghetti  
Tel: 02 714078 Fax: 02 744721

### Norway

#### PA System AS

Contact: Svein  
Tel: 2 2679313 Fax: 2 2682101

### Portugal

#### Frei Audio

Contact: Fernando Frei  
Tel: 01 9416870 Fax: 01 9419976

### Slovenia

#### SST

Contact: Jernej Podbevsek  
Tel: 61 301434 Fax: 61 301404

### South Africa

#### Lighting Unlimited

Contact: Ofer Lapid  
Tel: 011 4042620 Fax: 011 4041458

### Spain

#### Spotlight SA

Contact: Hector Vidal  
Tel: 93 4908117 Fax: 93 4903934

### Sweden

#### Teater teknik AB

Contact: Peter Hallin  
Tel: 086 409290 Fax: 086 409394

### Switzerland

#### TDS

Contact: Jean Jacques Schenk  
Tel: 0212 36300 Fax: 0212 33982

### United Kingdom

#### AC Lighting Ltd

Contact: Glyn O'Donoghue  
Tel: 0494 446000 Fax: 0494 461024

## Celebrity(?) Opening of New LTP Premises



L+S's editor John Offord (left) leans forward to cut the tape and open Lighting Technology Projects' new demonstration facility at the company's building in Park Royal, London. Although John had no previous warning that he was due to be hauled into the limelight during a recent visit to the Lighting Technology Group, he none-the-less felt deeply honoured to be invited to play a leading role in the ceremony, and give assistant editor Ruth Rossington a chance to include his picture in the magazine's pages.

Also in picture are LTP's Bruce Kirk, Bev Bigham and Andy Stone.

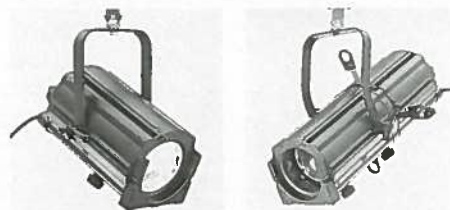
## SF Competition

A whole week's free hire of the Space Flower searchlight is the prize being given away by The Searchlight Co, on their stands at both the PLASA and LIW exhibitions in September.

A visit to the company's stand will provide visitors with the opportunity to obtain further information on the Space Flower and to get their name entered into the all-important draw.

To enter, visit The Searchlight Co in the Pavilion, Stand P9 at PLASA. At LIW, the company can be found on Stand 1889.

## Selecon Briefing



The Acclaim range of luminaires from Selecon was launched in Europe at the Richmond Theatre in August. An invited audience of representatives of the press, members of the Association of Lighting Designers and other special guests were brought together for the unveiling.

In order to illustrate the comprehensive re-design of this new 500W/650W luminaire range, Selecon UK (a trading division of AJS Theatre lighting and Stage Supplies Ltd) complemented the new lanterns with a display of the entire Selecon range, demonstrating the emergence of a 'house style' throughout the product range, with a notable accent on safety and serviceability.

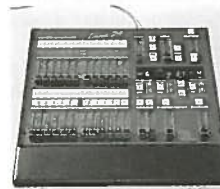
According to AJS, the performance of the Acclaim will surprise many who have hitherto expected only modest light output and limited features from lanterns in this category.

## Second-Hand PA

Pro Audio, a new sound company based in the Bordeaux region of France, are looking for quality second-hand PA systems, and are especially interested in purchasing either Martin or Turbosound PA systems.

Anybody who may have appropriate equipment for sale should fax the company in France on +33 56 33 48 49.

## ETR Luna 24



The Luna 24, first shown by ETR at this year's Frankfurt Music Fair, is now in full production. Initial orders indicate that this 12/24-channel desk will do well in the marketplace.

Visitors will get a second chance to view the desk at PLASA. The Luna 24 incorporates an array of features, including manual and programme modes, DMX and MIDI-control, a sequencer, a chaser, and a running-light. The manual mode allows the operator to blend the two 12-channels as presets. 24 channels can be stored as a scene, whilst up to 12 scenes go into each of the 10 memory locations. These can be altered and restored during performance. Up to 99 scenes can be replayed manually or automatically via the sequencer which features 10 programmes. The same capacity with up to 99 steps in 10 sequences is incorporated in the chaser. Its velocity follows either the level or the frequency of the music, or can be controlled manually.

Luna 24 is set in a simple-to-use 19" console and it operates via push buttons and faders. A large display and arrays of LEDs show the actual function and status. The desk also features control of the dimmers via DMX or analogue signals (available as an option) together with MIDI input for control signals. ETR are to be found on Stand A1.

# TOMCAT<sup>®</sup>

Staging, Lighting and Support Systems  
Serving your Tour and Fabrication needs Worldwide

Call us in the United States on

Tel: (915) 694 7070

Fax: (915) 689 3805

See us at PLASA - Stand A200

## Trantec S5000



Trantec Systems are aiming for awards with their new S5000 UHF true diversity radio microphone system (pictured above) which will receive its PLASA debut on Stand A6.

Considered to be one of the most technologically advanced UHF systems in its price range, this UK-built and developed system offers up to 64 channels in four groups of 16 as assigned by ASP frequency management. A fully synthesized system, the S5000's receivers offer full LCD indication of channel frequency, output levels and transmitter battery status. This final facility is achieved via a tone which is sent from the transmitter above audio level, alongside a ChannelGrip tone which identifies the transmitter to stop spurious and other intermodulations from entering the system.

Systems have been undergoing beta testing since the preview at APRS in July, and with systems now in full production, Trantec expect to announce substantial orders at the show and will also be celebrating the first successful year of production of the S2000 true diversity VHF system.

## As Featured on TV

Modelbox's new Renderfarm service has already attracted a lot of attention since its launch in May. The new facility, in conjunction with Sony and Autodesk, has even been one of the main features on BBC2's 'The Net Programme'.

The London-based operation renders broadcast quality output from 3D Studio files and transfers them to full motion video. It has attracted enquiries from companies in a variety of fields, including broadcasting, advertising, audio visual and pop promotion.

Christopher Toulmin at Modelbox is hoping to announce a number of the projects at PLASA. He told L+SI: 'We have been very encouraged by the initial response to the launch and have been discussing several exciting projects. People who've seen the Renderfarm in action have been amazed at how the service can improve the speed, quality and cost of rendering and animation using the 3D Studio programme.'

The Renderfarm is suitable for professionals in all design disciplines who would like to use Autodesk's 3D Studio to its full capability. Generally accepted as one of the most powerful 3D visualisation programmes on the market, 3D Studio has found applications in many fields from architecture to advertising, and from conference planning to rock video production. However, although it is relatively straight forward to set up visualisations and render simple stills, few users take the programme to its full capacity to create high quality animation. To do this they require relatively expensive dedicated graphics.

## Shuttlesound Posse

It's 12 years since Shuttlesound first started trading, and in that time the Mitcham-based company have acquired an enviable portfolio of products including such notables as Crown, ElectroVoice, Rane, Sabine and Dynacord.

Getting its PLASA debut will be the System 200 speaker range from ElectroVoice, which includes matched mid/high and sub boxes with a dedicated controller, plus two new upgrades to the award-winning Sabine Terminator feedback control range (see L+SI, September 1993).

The Dynacord DSP224 Digital Sound System Processor is a new tool providing complete system control in a single unit, whilst new amplifier technology can be found in the Macro-Tech 3600VZ from Crown which incorporates Crown's latest 'variable impedance' VZ circuitry (see Amp Survey, this issue).

Technology of a software nature will be represented by the latest versions of both ShuttleCAD and ShuttleVIEW, plus a sneak preview of ShuttleCAD V. 3.0 due out in October. Shuttlesound will be logging in on Stand B6.

## Eden Court Vienna

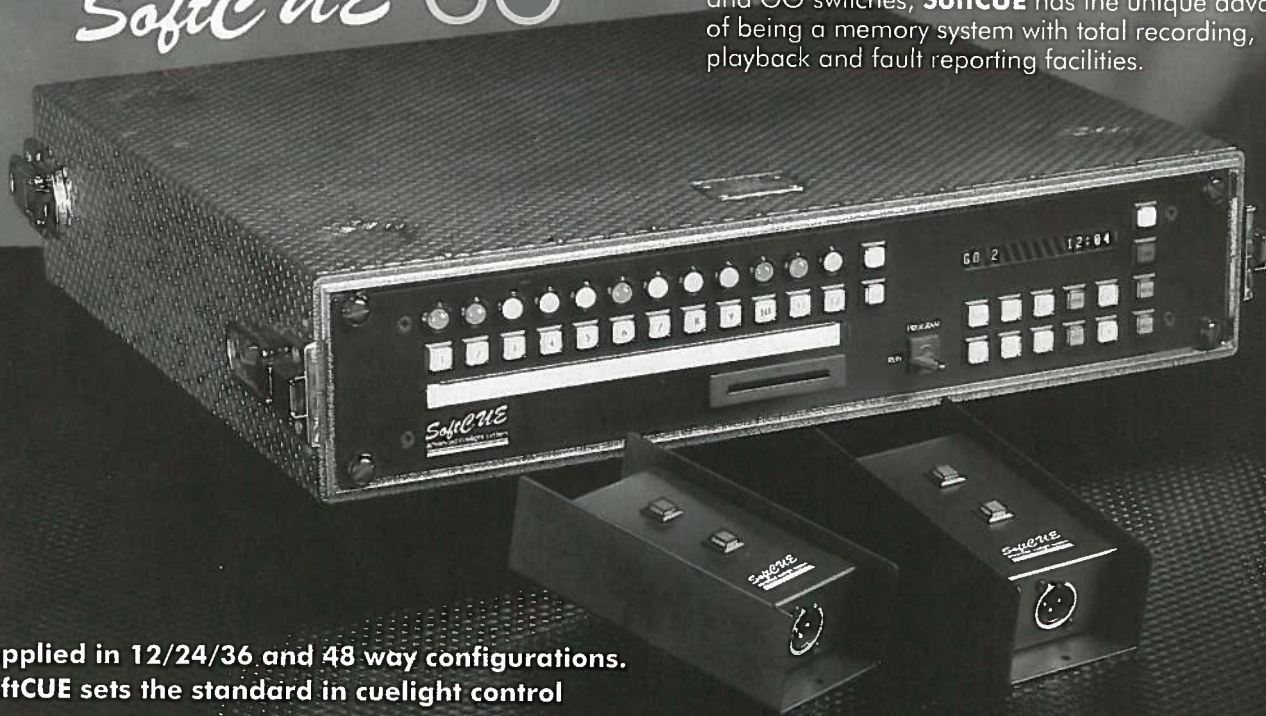
The Eden Court Theatre and Conference Centre in Inverness has installed a 32-channel Vienna II, supplied and installed by The Warehouse. Among the first events to benefit from the new desk was the recent Scottish Conservative Party Conference.

The Eden Court is a multi-purpose arts and conference centre with an 800-seat auditorium. As a theatre, it regularly plays host to visiting theatre, opera and ballet companies. The 32-channel Vienna II is fitted with both mono and stereo input modules, with VCA automation and a matrix to feed seven speaker clusters

Standby Tabs

Standby LX Q1

SoftCUE GO



Supplied in 12/24/36 and 48 way configurations. SoftCUE sets the standard in cuelight control

HOWARD EATON LIGHTING LIMITED

Winterlands  
Resting Oak Hill, Cooksbridge,  
Lewes, East Sussex, UK BN8 4PR

Telephone +44 (0)273 400 670  
Facsimile +44 (0)273 401 052

SEE US AT PLASA  
STAND A176

DESIGNED IN THE UNITED KINGDOM BY  
ANDERA LTD FOR HOWARD EATON LIGHTING  
© COPYRIGHT ANDERA LTD 1992, 1993





# Depends what you're looking for, really...



...but if you're looking for the best in Audio Mixers look no further than the range of Award winning mixers from Formula Sound – a company with over 20 years experience in the design and manufacture of professional audio equipment. From the AMX6 to the System 2000 we have a mixer to suit your needs.

AMX6 – a 6 channel 19" IRU mono mixing unit which is ideal for the unskilled operator. A very flexible unit designed to cope with varied applications such as background music systems, churches, health clubs, bars, etc.

PM-90 – Award winning modular stereo production mixer in 3 standard sizes – 4, 8 (19" rack mounting) and 12 channels. An ideal mixer for discotheques, multi-purpose venues, audio-visual suites, etc.

SYSTEM 2000 – another Award winning modular production mixer in 8 (19" rack mounting), 12 and 16 channel format. The comprehensive range of facilities in this mixer make it suitable for use in radio stations, discotheques, clubs, cabaret, production studios, etc.



*Often imitated – never equalled*

## Runway's Range

First-time exhibitors at PLASA, Surrey's Runway Sound & Light have a new range of loudspeakers for the installation and DJ markets.

As the first UK dealer for Surrey manufacturer Zone Amplification, Runway will be launching the Red Line Series which consists of three high specification enclosures: the R1000, a 500W bass unit; the R2000, a 500W mid/high unit which can also be used as a 35W full range speaker; and the R3000, a smaller 350W mid/high enclosure with a 250W full range rating.

All these models can be used with active crossovers or connected to the R1000 bass unit using the internal passive crossover networks.

Prospective UK dealers and European distributors are invited to Stand C36.

## EMH Feature New Hoist from Verlinde

Euro Materials handling Limited will be featuring a brand new hoist from Verlinde on their stand at the PLASA Show. 'Eurolift' is a belt-type hoist which will have many applications in the entertainment industry.

Its polyester belt offers low noise levels and is free of contamination from oil or other lubricants. Capacities range from, 500kg to 2000kg and speeds are variable according to capacity. One feature of the new hoist is a characteristic which produces a variable speed lift. As the hoist lifts, so the speed of the lift increases automatically and as it lowers the speed decreases, giving a level of in-built braking.

The preview of the Eurolift is exclusive to PLASA - the new hoist has not been seen at any other trade show. It will be available on the home market later this year.

See the Eurolift on Stand A82.

## AVL '94

The audio, video and lighting industries will take centre stage in October at a new exhibition - AVL '94 - which takes place at the Megatrade Hall of SM Megamall in the Philippines from October 7-9th, 1994.

Organised jointly by Trade and Show Management, Inc, the Technical Guild for Entertainment, the Disco Mix Club of the Philippines, with support from the Audio Engineering Society of the Philippines, AVL '94 aims to professionalise the Philippines' entertainment and service industries by bringing together the latest technology in the professional light, audio and video industries.

With the proliferation of entertainment venues including concert halls and discotheques, and the increasing popularity of hi-tech audio and video systems for use in business and leisure, AVL '94 will provide a valuable market-place for product and service options for this sector. The exhibition will bring together a range of products including professional sound systems, studio equipment, broadcasting and post-production equipment, acoustic design equipment, lighting systems, videowall systems, special effects and control equipment.

The show will also offer an organised forum for the exchange of ideas through its technical seminar programme, hosted by the Philippines section of the Audio Engineering Society and the Technical Guild for Entertainment, with highly respected practitioners in a variety of fields leading the discussion. Subjects covered will include the fundamentals of a sound system, microphone application and use, design of a sound reinforcement system, distributed sound system design, practical approaches in systems set-up, speaker arrays and alignment and design of a project studio. In addition, the Technical Guild for Entertainment will also run seminars on backstage production for beginners, club lighting, special effects and concert lighting and intelligent lights.

One of the highlights of the show will be the DJ mixing elimination and concert dance party to be hosted by DMC Philippines which will take place on the middle day of the show..

The Show has been running for four years, but this is the first year that the organisers have opened up the event to include overseas exhibitors. Next year, they plan to hold the Show directly after Pro Audio & Light Asia, to make it easier for visitors to attend the shows in tandem.

For more information on AVL '94 contact the Technical Guild for Entertainment in Quezon City, telephone +63 721-4587



The organisers of AVL '94, Tom Borromeo (left) and Khalil Khodr of the TGE (right) are captured on camera with PLASA's Nicola Evenden (second left) and L+SI's Ruth Rossington, at the Pro Audio & Light Asia Show in Singapore.

# Leisuretec

## Your Positive Option

LEISURETEC DISTRIBUTION LTD

DISTRIBUTORS OF PROFESSIONAL SOUND, LIGHTING AND SPECIAL EFFECTS EQUIPMENT  
TO THE LEISURE INDUSTRY. UK AND EXPORT.

UNIT 15, PORTLAND IND UNITS, KINGSWAY, LUTON, ENGLAND LU4 8HA

TEL: 0582 23300 5 LINES FAX: 0582 400237

# VISION 10

A new Generation in Lighting Control



- IMAGINE ... A lighting control system with totally integrated control of intensity, motion, colour and any other parameter!
- DREAM OF ... Customising front panel controls and personalising software!
- IMAGINE ... A system which responds at the same speed with 100 or 1000 channels!
- DREAM OF ... A hard disk system so powerful that capacity and speed become problems of the past!
- IMAGINE ... Direct control and access of any element at any time!
- DREAM OF ... Inbuilt compatibility and response to MIDI, SMPTE, DMX, RS 232 and RS 485!
- IMAGINE ... 499 macros you can programme with your functions!
- DREAM OF ... On-board displays with 250 LED characters for instant and permanent information!

Imagine no longer ... Your dream has come true!

It's VISION 10

ADB - Your Partner for Light

Belgium Tel : 32 - 2 - 722.17.11 Fax : 32 - 2 - 722.17.64  
France Tel : 1 - 41.17.48.50 Fax : 1 - 42.53.54.76  
Germany Tel : 06108 - 66204 Fax : 06108 - 66205  
Great Britain Tel : 0932 - 75.28.85 Fax : 0932 - 75.28.83

**ADB**  
A Siemens Company

## First for K-T

Exhibiting for the first time at PLASA, Klark-Teknik will be showing the new Preset Equalisers which were launched at the NSCA in Las Vegas during April. The DN320 Dual Channel 16 Band Preset Equaliser and DN330 Single Channel 30 Band Preset Equaliser have been specifically designed for permanent installations which require the units to be sealed after system set-up.

1U units, both DN320 and DN330 feature 24 volt DC operation in addition to 115/230 volt AC, making them ideal for emergency evacuation systems and other applications where mains power fail-safe facilities are required.

A full selection of Klark-Teknik equalisers, crossovers and signal processors will also be shown on the DDA Stand - A10.

## The Risen People

Play Time Productions Ltd, in association with Groundwork, has appointed Imagination Entertainments as scenic designers for the forthcoming premiere of 'The Risen People' in Dublin's Gaiety Theatre. Directors Peter and Jim Sheridan are working closely with IE to create an atmospheric environment for this new version of James Plunkett's original play. The production's shifting historical perspectives lend it an almost cinematic quality, which the creative team are seeking to express through an imaginative fusion of traditional three-dimensional set design and the latest projection techniques.

Jeremy Sturt is co-ordinating the overall design concept, with Sally Crabb as set designer and Chris Slingsby as projection designer. The play opens on 3 October.

## Live! '95

The 1995 Live! Show is again to be held at the Royal Horticultural Halls in London from the 17-18th January, 1995. The event will bring together all aspects of live production from manufacturers and hire companies to designers and service related operations. Combined with the exhibition will be a series of product demonstrations and workshops, a full programme of seminars and the Live! Awards, which will be hosted by Jim Davidson.

For more information contact MLP Exhibitions in St Albans, telephone (0727) 861821.

## Up Anchor

New sound reinforcement and radio microphone products are promised for visitors to the Sennheiser stand at PLASA.

The US manufactured Anchor range of self-powered enclosures is already in wide use throughout industry, sports and recreation facilities, not to mention its use by the emergency services, and the range has now been increased with the introduction of the new Explorer portable speech and music reinforcement enclosure.

Available in both mains powered or rechargeable battery variants, this two-way box is moulded in indestructible cross-link polyethylene and is completely sealed and weather proof with an internal 50W (AC version) or 25W (battery version) power-amp.

Also making their PLASA debut are two new radio microphones: the 1053 mid-price true diversity VHF belt-pack system for vocals and instruments, and the high-end SKM5000 hand-held UHF transmitter which offers 16 switchable frequencies and interchangeable omni, cardioid and super-cardioid capsules. Sennheiser will be based on Stand B16.

## New EQ from BSS

Best known for its signal processors for the touring and theatre markets, BSS is now moving into other installation markets with a new set of products.

The first of these is the FCS-930 graphic equaliser which will be shown for the first time at PLASA. A single-channel, dual-mode graphic, the FCS-930 can be used in either touring or feedback elimination applications. Featuring switchable filter width (Q mode), the unit incorporates sweep high pass filter, clip LED indicator and constant Q filters. Another PLASA newcomer is the MSR-604 II Active Signal Distribution systems, which provide four outputs from a single mic or line input. Each unit features four channels, switchable gain, headphone monitoring and headroom metering.

BSS's industry standard Varicurve and other processing equipment and amplifiers will all appear on Stand B144.

## Oscar-Tech

The amazing life-like qualities of the main dinosaur characters in the new Flintstones movie rely on state-of-the-art computer control technology designed by Cambridge-based MicroRobotics.

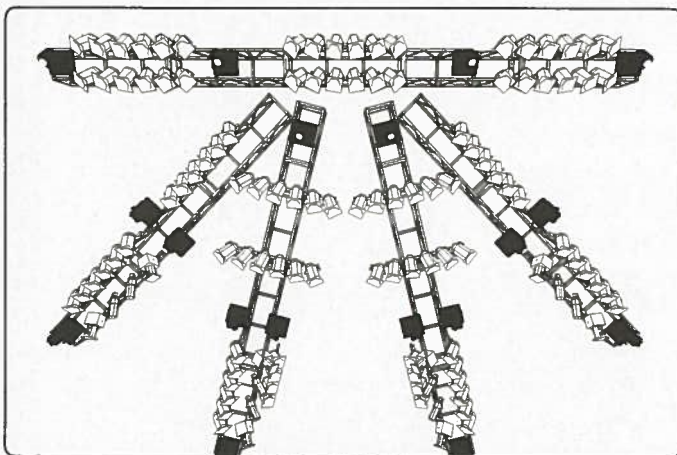
Inside the head of dinosaur characters such as Dino the Dinosaur or the doctbird are tiny embedded controllers driving as many as 20 motors which activate eyes, lips, jaws etc in real-time. These effects are controlled remotely by command signals sent by radio or wire from a puppeteer using a super fast RISC-based computer and special joystick-like controls.

For high speed response, MicroRobotics used a 32-bit ARM processor. Also designed in Cambridge, this chip is based on RISC (reduced instruction set computing) architecture, and provides the fast computational rates needed.

# © STARDRAW 3D



At last, an affordable, fast, user friendly 3D CAD package designed specifically for lighting designers



Stardraw 3D is a powerful, standalone 3D Computer Aided Design package which runs under Windows 3.1 and enables designers to create stage sets, lighting designs, and detailed presentations. Included is a large library of lighting equipment and trusses, so you can quickly produce highly detailed plots. You can also use the built-in editor to create your own libraries.

## 30 DAY FREE TRIAL

We will send you a complete copy of Stardraw 3D absolutely free (excluding delivery). If you like it, keep it. Only after 30 days have elapsed will we deduct your credit card. If you are not completely satisfied, send the package back to us within 30 days and you will only be charged for the original shipping cost.

## Starlite Systems Technology Ltd

Design, Manufacture and Hire of Automated Lighting Systems.  
South Eastern House, 1 Knights Road  
London E16 2AT

Tel: (44) 71 511 4400 Fax (44) 71 476 2922

©1994 Starlite Systems Technology Ltd. All rights reserved

®Microsoft Windows is a registered trademark of Microsoft Corporation

£595  
excl. VAT



# TOTAL SOUND SOLUTIONS

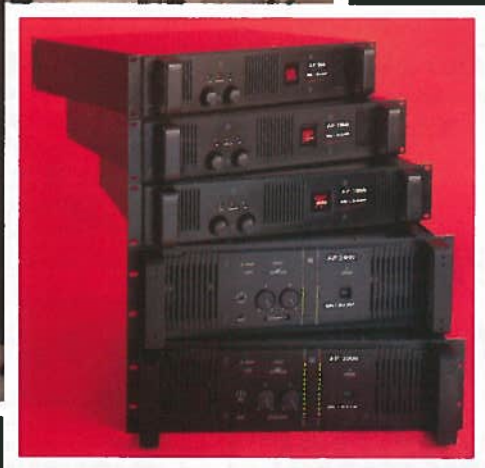
*From Concept . . .*

Sound Communication, Public Address and Sound Reinforcement Systems by Millbank Electronics have, for over 25 years, led the world in innovation, capability and absolute reliability.

Millbank systems offer fully integrated Sound Solutions, combining the highest quality component parts from a thorough range of audio products, with proven reliability, designed to provide the ultimate in every form of public address, voice alarm and Sound Reinforcement application. Modular equipment design allows compliance to current and future British Standards, both for operational and performance specification.

With a wealth of experience accumulated over 25 years in the communication industry, which covers all aspects of Audio reproduction, in every conceivable application, Millbank can offer a fast and accurate solution, whatever your requirement.

*. . . to Completion*



## MILLBANK DESIGN ASSISTANCE

Millbank's technically experienced System Sales & Design personnel offer comprehensive advice and assistance on 'Total Sound' system design, equipment configuration and acoustic performance. Coupled with Millbank's highly experienced 'Sound Solutions' Sales force this means the achievement of the optimum performance with compliance to specification at the right price. In addition we offer in house system build, either from our design or your own.

Your peace of mind is assured with our ability to offer in house Project Management, together with a comprehensive after sales service which includes nationwide installation and commissioning the 'Total Sound Solution'.

**For a free information pack contact  
MILLBANK ELECTRONICS**

UCKFIELD, EAST SUSSEX TN22 1QL ENGLAND  
TEL: 01825 764811 FAX: 01825 761620



# MILLBANK

*The Communicators*

BS 5750 Registered Firm Certificate No: FM 23072

# Join the Family.

For over 30 years PANI has

## BP 2

set the standard in innovative

## BP 5

lighting technology.

## BP 1,2

8 Projectors and a wide range of

## BP 2,5 *New*

effect accessories, from the BP 2

## BP 4

to the most powerful Projector in

## BP 6

the world - the BP 12 Platinum,

## BP 6 Gold

give you the opportunity to make

## BP 12 Platinum

your projection-dreams a reality.

We guarantee that you will have the power for the hour.

Call us or send a fax for more information.

Phone (43) (1) 521 08-0

Fax (43) (1) 526 42 87



Ludwig Pani, Company for Stage Lighting  
A-1070 Vienna, Austria, Kandlgasse 23

## Sound Shorts

Tannoy's SuperDuals have been specified for the new Kings nightclub in Eastbourne. Neon Lites are handling the lighting and sound installation for the split-level club which is due to open in late September and chose four of the ultra compact CPA 10S mid/high cabinets and four CPA 12.3B SuperDuals. 24 Series CPA 5 were also specified for background sound in the bar and seating areas.

Bedford-based sound hire company **Star Hire** have just taken delivery of two 24 channel Soundcraft Vienna II consoles from Marquee Audio for their busy summertime classical touring schedule. Pictured below is John Cooper of Star Hire with one of the new units.



EMO GEQ60 graphic equalisers have been installed in both the Plaza Music Hall and Ribas Music Hall in Athens and in the Zoom Music Hall in Northern Greece. Athens-based installation company Alpha Sound supplied and installed the equalisers.

Thespi Light, Nexo's distributor for Central America, reports high demand for the PS10 in Cuba. This year alone systems have been installed in multi-purpose halls in Holguin and Camaguey, in two similar halls in Havana, and in a further two in Varadero. PS10s have also been supplied to Villa Clara's Cultura Regional for portable use, and an installation just completed at the Centro Historico conference centre in Havana.

Fane Acoustics has produced a new full colour brochure in loose leaf form. Covering the company's entire range of audio components, it includes the new Fane Classic K Series loudspeakers. Upgrading the former range, the new Classic K Series comprises models featuring both cast and steel frames with most models being fitted with fabric cone edge terminations.

Within 48 hours of seeing service at an open air ZZ Top gig in Schuttort, the t.c.electronic 6032/1128 remote-controlled EQ system was

used as part of the sound system for President Clinton's historic speech to an estimated 50,000 citizens in former East Berlin. The 6032/1128 is at the heart of Westfalen Sound's large PA and monitor rig. An M5000 digital audio mainframe and 2290 delay were also used for ZZ Top, on the front-of-house mix, whilst for Clinton, the EQs were patched into the inserts of several channels of the main console to EQ a total of eight separate mics - including backup mics.

For the third consecutive year, CAV will be supplying a Martin Audio F2 System for 'Fete du Lac', a sound and light extravaganza held annually at Lake Annecy in France. The 68 box F2 System which is specially configured for the event, has to be floated 100m towards the centre of the lake to provide the sound coverage for the large audience seated around its shores. CAV, who are based in Stroud, Gloucestershire, have also recently supplied an F2 System for Barbara Dixon for her performance at Ludlow Castle.

Martin Audio has appointed Continental Far East Inc as distributor of its products within Japan. Based in Tokyo, the company handle top end professional products including Dolby. They will support Martin Audio's existing customer base throughout Japan and will distribute and market the manufacturer's complete range.

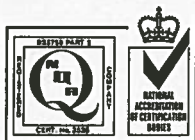
Out Board Electronics has supplied a moving fader and switch automation package to the Salzburg Festival. The heart of the system comprises a stand-alone automated 24 input, eight output switching matrix and moving faders on the outputs. The inputs to the matrix are driven by the channel line outputs from a Soundcraft Venue desk which is also fitted with Out Board's motorised faders.

SCV London, part of the largest independent pro-audio distribution group in Europe, has been appointed by Fostex Corporation of Japan to take over the UK distribution of the Fostex analogue multitrack and professional digital product ranges.

US PA companies **Eighth Day Sound** and **Crystal Taylor** recently collaborated on what must be one of the most spectacular movie premieres ever. Disney took over the Three Rivers Stadium in Pittsburgh, Pennsylvania, to premiere its new baseball movie 'Angels in Outfield' to an audience of 40,000. With three 80 foot projection screens in action, the PA arrangement was equally impressive. Four cranes acted as temporary PA towers, each supporting eight Turbosound Flashlight cabinets suspended 100 feet up, with 12 Floodlights clustered some 40 feet below. Bass was provided by 48 subs.

**HIRE AND SALE**  
*Of Sound, Lighting and Effects*  
**IN THE MIDLANDS**

# Central Theatre Supplies

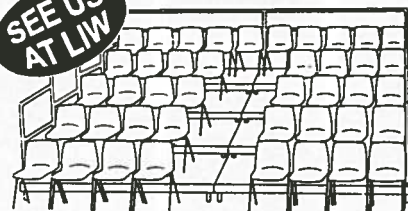


**021-778 6400**

## ALISTAGE

**PORTABLE MODULAR  
STAGE SYSTEM**

**SEE US  
AT LIT**



**MODULAR TIERED SEATING MODE**

Available for hire, sale or lease. Can be supplied minus seating so that client may use own seats. Each tier has 200mm rise for perfect audience viewing. Guardrails at 500mm and 1000mm height. Modular construction ensures that the unit can be customised to client's requirements. Seat unit cost is considerably less than most other systems.

Canopies available for outside events.

**ALISCAFF LTD**  
Unit 2 Hotspur Ind Estate  
West Road, Tottenham  
London N17 0RJ.

Tel: 081-808 5005 Fax: 081-801 9851

# *we have the technology!*



# **scroll express™**



By implimenting state of the art technology and investing heavily in stock and advanced production techniques we are able to bring you; **scroll express™** the definitive **scroll making service.**

## **Fast**

- Express 24 hour *or sooner* service available
- Complete range of all major gel ranges in stock

## **Efficient**

- Advanced manufacturing facility to ensure accuracy
- All orders despatched via 24 hour or same day courier

## **Service**

- Custom scrolls of all types are our speciality
- All makes and sizes of colour changers catered for
- Export and colour cutting enquiries welcomed

**AC Lighting Inc. USA**

Tel: 1+ 818 707 0884

Fax: 1+ 818 707 0512



**AC Lighting Ltd. England**

Tel: 44 (0) 1494 446000

Fax: 44 (0) 1494 461024

**World Class Products, World Class Service**

## Wembley's Cube

Wembley Loudspeakers are entering the background music sector with the UK launch of their new Maxi Cube enclosure at PLASA.

A compact, full range box, the MC2K Maxi Cube has already been shipped to the Far East where it is finding favour for karaoke use as well as conventional background applications. A full range of Wembley enclosures will also be on show including Mini Cube, Deuce, Spyder, 2820 Sub and mid/top package plus the 18" B-line 500 enclosure. Birthday celebrations will add to the occasion on Stand C8.

## Islex '94 - Dublin

Islex '94, taking place in Dublin on the 18 and 19th October has already secured the participation of over 40 leading companies in the lighting and sound industry. Some space is still available at the show and anybody interested in exhibiting should contact Tony Andrews at Knight Management Services, telephone (0323) 442747.

## Giant Scroller



Wybron's Keny Whwright recently headed up to the hills (more precisely, the Rockies in Colorado) with one of the company's new Garganturam giant scroller systems. As the name suggests this is a real monster scroller and 22 are in use on the current Rolling Stones 'Voodoo Lounge' tour (see feature, pages 64-69). Not content with showing off just the scroller, L+SI also has an exclusive on the Whwright legs.

## Arri Focus on the Cardiff's Big Weekend

As a result of meeting Cardiff City Council's Ceri James during the PLASA-organised trade mission to Kiev last year, Arri GB's Mark Thompson found himself being invited to 'help out' with a special week-end event during his holiday period a few months later. "I've got a lot of experience of rock and roll lighting, felt it would be fun to be back on the road, and originally thought I'd tuck a lighting board under my arm and set out West. I ended up designing the show and running it!" he told L+SI.

Seeking to repeat the success story of last year's event, James asked Mark back for Cardiff's Big Weekend 94 (August 13-14) with the enticement of a more serious budget to play with. Smiling as he set off, Mark Thompson had agreed, but this time took more serious advantage of the opportunity, and went along with Arri's latest board, the Focus (pictured right), for a pre-PLASA Show launch test.

"It's never been used in anger until now," he explained, as L+SI's editor found his way under tarpaulins and into the FOH control position. "Last year this was a beg, borrow or steal type of event, but this time round they've got more serious money, and with a little help from Mick Hannaford at Lightfactor and Adrian Hicks and M&M we had enough to set up a rig of 72 Pars, 10 Vari\*Lite VL5s, two Intellabeams and 72-ways of Avo dimming."

So, you can take it as read that Mark was obviously enjoying his holiday break, and the board, too. "It's fun, and it's good to keep your hand in. Added to that, I will know what I'm talking about when I meet with customers!"

The new board is basically an amalgamation of the Impuls concept with Imagine 3. "It's a full-blown Imagine 3 in every way," explained Mark, "apart from the fact that it's got 108 sub masters on two pages. One of its greatest features



is that these can all run simultaneously, so you can, effectively, have 108 effects running on the console at the same time, without any serious degradation of the speed.

"It makes for a very live board: you can record effects, cues, everything, on the submasters as well as on the two playbacks, so you have a great variety of places you can call up lighting states from. Also, with the flash buttons on the submasters, you can do it very quickly. So, for a show such as this, where I haven't got a clue what the band's going to be doing, or what music they are going to be playing, I can programme a lot of submasters and call them up as and when needed. The target for the board is therefore very much for live shows and rental companies in particular, where it should be an ideal addition to the rental stock. It's a perfect vehicle for them. In effect it's a full-powered theatre board and a full-powered rock and roll touring board all in one."

For a closer look at the attributes of Focus, Arri and Mark Thompson can be found on Stand A106 at the Show.

By the way, the sound set up for the show was the same system as reported for the Jazz Stage at Glastonbury (see L+SI August).



Inter-act and evening closes in at Cardiff (left) and Arri's Mark Thompson with Focus (right).

## ESE Crossover

A new range of crossovers will dominate the Eminence stand at this year's PLASA Show.

Four variants make up the PX range: high-pass, low-pass, two-way and three-way, with a range of frequencies to create a total of 10 models, all of which are specified with a 600W RMS rating and designed to complement the existing Eminence loudspeaker range.

The Eminence ME Series will be enhanced with two new models (ME8-100MR and ME15-300LF), and the long-awaited pro PSD-2002 compression driver will also be on show, together with the range of Acoustech horns.

Eminence Speaker Europe are on Stand A222.

## 4:1 Sold to Showtec

Having successfully completed his lighting design and rehearsals for the Rolling Stones tour, Patrick Woodroffe has recently announced the sale of his 4:1 Studio to Showtec GmbH of Germany.

4:1 is the only lighting studio in quarter-scale world-wide and was developed by Woodroffe in 1991. Since that time a variety of artistes have used the studio to develop their lighting and staging. Showtec plans to open the new 4:1 (which will operate independently from their other operations) later this year, though they are still negotiating for space in a TV Studio complex near their base in Cologne. Woodroffe's involvement with 4:1 does not end as he will continue to make use of its facilities in his future design work.

## Celestion Upgrade

Celestion's popular SR1 enclosure gets an upgrade at this year's PLASA with the launch of the new SR1 MkII.

This enclosure will take pride of place alongside Celestion's new KR1 and KR2 install/monitor boxes, with full demonstrations also being performed of the SR and CR systems which are to be driven by the latest SRA1000 power amplifiers.

Celestion can be found on Stand B20.

## CP&P Asia

Following our news story within the Pro Audio & Light Asia review last issue, CP&P have advised us that in addition to the new arrangements with ACE Co as their new exclusive distributor for China, they wish to point out that Laser Theatre Lighting of Hong Kong remain as distributors for Hong Kong and Macau, and will also represent CP&P in the Philippines.

## Audio Projects

Audio Projects, a division of London's LMC Audio Systems, are exclusive UK distributors for a wide range of quality audio names and are using the PLASA Show to launch several new audio products from Crest and Renkus-Heinz, whilst also announcing a new product range.

As well as working demonstrations of the latest versions of Crest's NexSys Management System, there will also be launches of Crest's LM-20 dual output 20-send monitor console, plus the new Crest CA dual fan-cooled amplifier range.

New from Renkus-Heinz comes the European launch of an innovative speaker range, and there will be demonstrations of the existing Co-Entrant touring boxes.

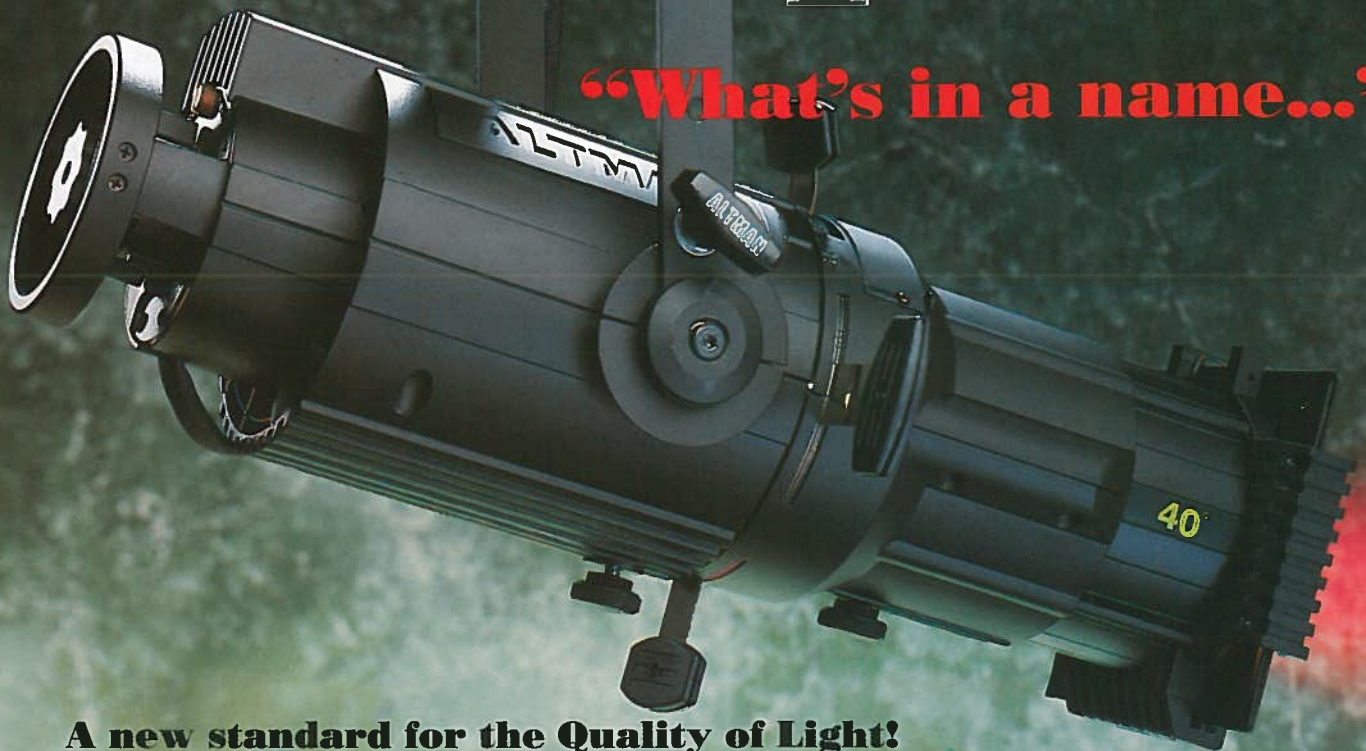
Finally, Audio Projects will be showing the latest product to come under their distribution from US manufacturer, Audix, who will be represented by a selection of microphones, powered monitors and studio monitors.

All that's new from Audio Projects can be found on Stand B166.



# Shakespeare

**“What’s in a name...”**



## **A new standard for the Quality of Light!**

### **INTRODUCING: THE SHAKESPEARE SERIES 600 PROFILE**

Until recently the industry standard 1000 watt profile spots had run at, not surprisingly, 1000 watts. But now that has changed. There is a new standard. We've named it Shakespeare.

It is simply more light with less power. How can you operate more lighting instruments with fewer dimmers (and labour)? The answer - a new custom-designed lamp. The HP600 developed by DLD ELECTRIC in conjunction with Altman to produce a 580 watt lamp @ 220/240 volts resulting in greater light output than the CP77/FEP 1000 watt equivalent. FACT. It is also a much more rugged design, so it will also outlast the opposition.

But lighting instruments are our business, not lamps. So we designed the new Shakespeare Profile with 180 degree indexed rotation of shutter centre, a generous slot to accept rotating gobo accessories, easy lamp focusing and sharp full field, distortion-free pattern projection.

PLUS, an exclusive unbreakable dichroic metal reflector which pumps the hot infra-red radiation out the back, and projects cool, full spectrum light forward through the lens. So colour changers, shutters, gobos and gels work cooler and look better, longer. Versatility is designed in with a rear handle that not only acts as a cord wrap, but as a solid reliable stand for quick, no-tool lens tube changes on all fixed focus units, thus less labour and smaller inventory.

So get to know Shakespeare, our new state-of-the-art with superior performance and lower operating costs.

***What's in a name?  
Everything when it's Altman!***

Made with pride in the USA © 1993 Altman Stage Lighting Company, Inc

# ALTMAN

T H E Q U A L I T Y O F L I G H T

Altman Stage Lighting Company, Inc., 57 Alexander Street, Yonkers, NY10701, 914-476-7987 or 212-569-7777. Fax: 914-963-7304

European distribution: AA OPTICS LTD, Unit 4, Second Floor, 1-4 Christina Street, London EC2A 4PA. Telephone 071-613 3825 Fax: 071-613 1254.

# IT'S SHOW TIME!



## **CLAY PAKY AND PULSAR**

would like you to be  
our guests at PLASA 94.

We are inviting you to  
our show on STAND C44,  
where you will witness  
a highly entertaining  
cabaret style production  
with a difference.

With over 125 luminaires,  
this is definitely a show  
not to be missed!

At this exciting time,  
we will also be hosting  
'the party of the year'  
at the award winning  
**MINISTRY OF SOUND**  
**TUESDAY 13th SEPTEMBER,**  
kindly sponsored by  
**RED STRIPE LAGER.**

Visit us on the stand  
for your invitation.  
We hope you will join us  
and we look forward to  
seeing you there!

**CP&P**  
Clay Paky & Pulsar



## **Off-Site Programming Feasible**

Following our news item in the March issue about Robert Bell's real-time CAD system for both automated and conventional lighting, it did not take long for Flying Pig Systems to take to the air and snap up the rights from the Toronto-based software expert. Now they are to launch it as a stand-alone system.

'What You See Is What You Get' (WYSIWYG), is a PC software package which graphically displays the position, colour, intensity and, even, the gobo pattern of a luminaire on a computer screen and enables editing and manipulation. You don't even need to have the fixtures, it can all be done on screen with standard lighting desk and an IBM compatible computer.

The Pig's marketing director Nils Thorjussen told L+S: "In my opinion this product is destined to re-invent light show programming. When I first saw it in Toronto, I could hardly contain myself with excitement at its potential." Eventually, Thorjussen hopes to see the product incorporated into the new Wholehog, but in the meantime, it will be available as a separate design tool, consisting of the software and an interface card for the PC.

The code was originally written for use within AutoCAD, when it was an in-house project within the Canadian Broadcasting Company, so Robert Bell has had to re-write it to unshackle it from those dependencies. (The article on Page 99 of this issue was written by Bell's associate in CAST Lighting, Gilray Densham, and sent to the printers before news of the product's emergence as WYSIWYG was released by Flying Pig. Consequently, it is still referred to there as LXCAD, as it was in the March piece.)

WYSIWYG will give lighting designers the flexibility to programme from whatever location is convenient and over whatever length of time is required. Thorjussen again: "Designers no longer need to feel that they are held hostage to crazy production schedules and logistics. Nor will they be captive to the stage environment, regardless of obstructions or extraneous light sources."

Thorjussen claims that the software is very user-friendly and requires no special computer knowledge, though it runs under DOS. Once hooked-up, lights are patched and placed in the software's three dimensional space and the resultant cues are stored in the lighting board as usual. The monitor will show the lighting rig responding to the output of the board and displaying views from any perspective. A library of set templates and stage layouts are included so that most sets can be drawn in three dimensions without the need to use complicated CAD programmes, though such designs can be imported as DXF files.

The hardware required, aside from any lighting console outputting DMX, is a PC-486 with eight megabytes of RAM on board and spare expansion slot for the interface card. WYSIWYG is available directly from Flying Pig Systems and can be seen on Stand A214.

## **First ProMix at the Proms**

Yamaha's new digital-audio mixer, the ProMix 01, has performed its first official engagement as part of this year's 100 year anniversary BBC Promenade Concerts. The occasion was a performance by the BBC Singers of Giles Swayne's composition 'Cry' in early August.

The event featured 28 close mic'd singers, arranged into seven groups of four, the signal from each group being sent to one of seven corresponding reinforcement enclosures, placed around and facing into the auditorium 300 feet above the audience in the gallery (with an eighth cab positioned in the roof), placing the audience in the midst of a 360 degree soundfield. The signal from each group of singers was fed to the speaker stack diagonally opposite, with a variety of heavy electronic treatments, from delays and reverbs to harmoniser and ring modulation, applied to each signal.

The PA in question, provided by Richard Nowell Sound, comprised eight Meyer MSL3 cabs and a FOH Yamaha PM3000 console sited in the middle of the Albert Hall. The extensive use of electronics and continually changing treatments of the seven subgroup signals - there are over 300 cues in the piece, each requiring a different configuration of effects - made some degree of global effects scene change control an essential aspect of the performance. The ProMix 01 provided MIDI control of its own internal effects, of a Yamaha DMP7 and a number of Lexicon reverb units.

### **GLANTRE ENGINEERING LIMITED PROJECT ENGINEERS**

For UK-based position working on interesting and varied contracts covering stage and studio lighting, sound reinforcement, stage engineering and audio visual systems. Some overseas travel involved. Would suit recent college leaver.

Applicants should preferably be qualified to at least HNC level and have a keen interest in theatrical or studio engineering.

Attractive remuneration package and good employment conditions with long-term prospects.

For further details and application form please contact:

Carolyn Cerrino

Glantre Engineering Ltd.

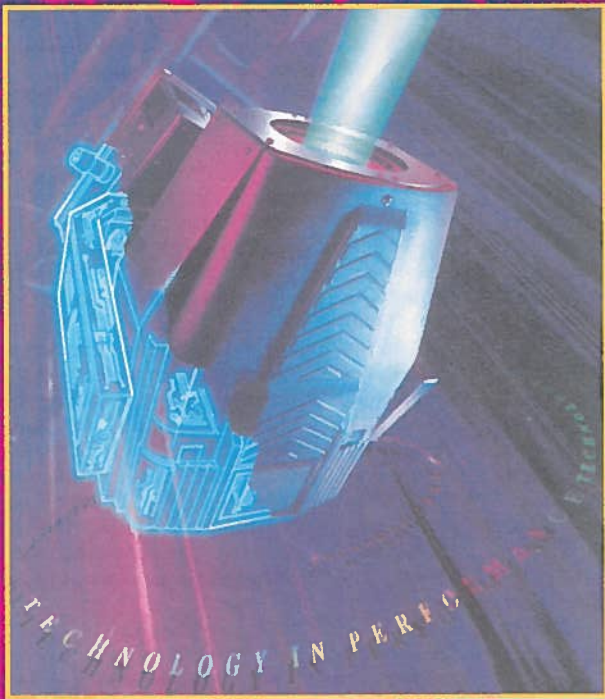
2 Cremyll Road, Reading, Berkshire RG1 8NQ.

Tel: 0734 509 711 Fax: 0734 505 808



THE  
CLASS  
LIGHT & SOUND  
SHOW 1991  
EARLS COURT 2, LONDON  
11-14 SEPTEMBER 1991  
SEE US ON STAND A226

# Light & Sound Design



A COMPLETE  
RANGE OF  
PROFESSIONAL  
LIGHTING  
SERVICES  
AND PRODUCTS  
FOR THE FILM,  
TELEVISION,  
THEATRE,  
CONCERT &  
SPECIAL  
EVENT  
INDUSTRIES



  
**icon**

**TOTAL**  
FABRICATIONS

RENTALS • SALES • MANUFACTURING

England, 201 Coventry Road, Birmingham B10 0RA,  
Tel. 021 766-6400, Fax 021 766-6150

NOW IN NASHVILLE  
8175 W.W. Williams Drive, Smyrna, TN 37167  
Tel. 615 355-4664, Fax 615 459-0864

1415 Lawrence Drive, Newbury Park, CA 91320  
Tel. 805 499-6886, Fax 805 499-5545

NOW IN LONDON  
Unit 10, West Point Trading Est, Alliance Rd, London W3,  
Tel: 081 993 7000, Fax: 081 993 6666



# WAXING PROLIFIC

If you think Madame Tussauds is only about waxworks - then you're a dummy. Tony Gottelier finds out why

If you told our American cousins that the most popular tourist destination in London was a Waxworks, it would be greeted with a disbelieving 'yeah right'. Yet up to about five years ago you would have been correct. Recently, however, competition has stiffened; after all you can actually enter the Palace now, and possibly find yourself standing next to the real monarch.

Now the waxy lady is fighting back and, as I was to find out, these days the lady is a tramp. At least, the entertainment group to which she has given her name are turning so many tricks that they practically own British tourism. Since becoming part of financial conglomerate Pearson in 1978, intent on diversification through acquisition into leisure markets, The Tussauds Group at its various establishments is host to over 8 million visitors annually and is hungry for still further expansion. Indeed, the unexpected wobble from The Mouse and friends in Paris, seems to have served to provide even more encouragement.

Not content with M'me Ts and the Planetarium, and over the past few years gobbling up Warwick Castle, Alton Towers, the Chessington World of Adventures, a Scenerama in Amsterdam, plus establishing Rock Circus in Piccadilly, they are about to acquire a major stake, and become the operating arm, of what will prove to be Euro Disney's major competition. Port Adventura, in Salou near Barcelona, is probably exactly the location Disney should have gone for had they not lost their sense of direction somewhere en route. Tussauds also have ambitions in Manhattan and plan a new UK theme park based on BBC television hits and history.

And their investment in technology, improvements to facilities and attractions at all these places is far from trivial. In the past year alone, £21m has been poured into Alton Towers, Warwick Castle and Chessington, £10m the previous year on the dark-ride in Baker Street and now the huge investment in Catalonia. This means that the spending on AV, lights and sound is considerable, and the technical issues so complex, that they require the control of a man with a cool head and special experience.

That man is Phil Pike head of AV at MTG. Phil and I have known each other for a while, we met at the Hippodrome when it was last under metamorphosis. He had come there from being a theatre chief and left as the technical manager. Since then, his life has been swallowed up by the voracious lady, for ubiquity seems to be a prerequisite of the job as virtually everything is done in-house with a very small team of people. Consequently, Pike is possibly the hardest man in the business to find. It's not that he's hiding under a glass-fibre rock somewhere, it's just that he has to be a man for all locations (and Madame does not approve of mobile phones).

So, when it was suggested that we get together with another old mate, John Sabell (pronounced as in 'sable', not a Française) who is now sales development executive of Bose UK, and pay a visit to Warwick Castle to



The Forge - a vignette from 'Kingmaker'.

photos: Warwick Castle

see what they have achieved with 'Kingmaker', the new heritage experience which opened in April, it seemed like a fun way to spend an afternoon. It also seemed like a good example of what the Group are achieving technically under Pike.

So one sunny day in June saw me driving through the splendid gates, scattering ducks and a cat, or were they animatronics, as I approached the car park. Later, as I walked through the trees and the rhododendrons towards the visitors centre, the only sound other than my own crunchings on the gravel, were the plaintive shrieks of the peacocks, or was it a soundtrack? I passed a little boy standing on a sawn-off tree stump, exhorting his father: "Come on dad, tell him to fan his tail for me." I bet he wished he could touch a button

**"The Tussauds Group is host to over eight million visitors annually and is hungry for still further expansion."**

and make it happen. That's the world we live in now. Interaction on demand and that's precisely what I had come to Warwick Castle to see and hear, or more accurately, living history on demand.

## THE BOSE AND ARROWS OF WARWICK CASTLE

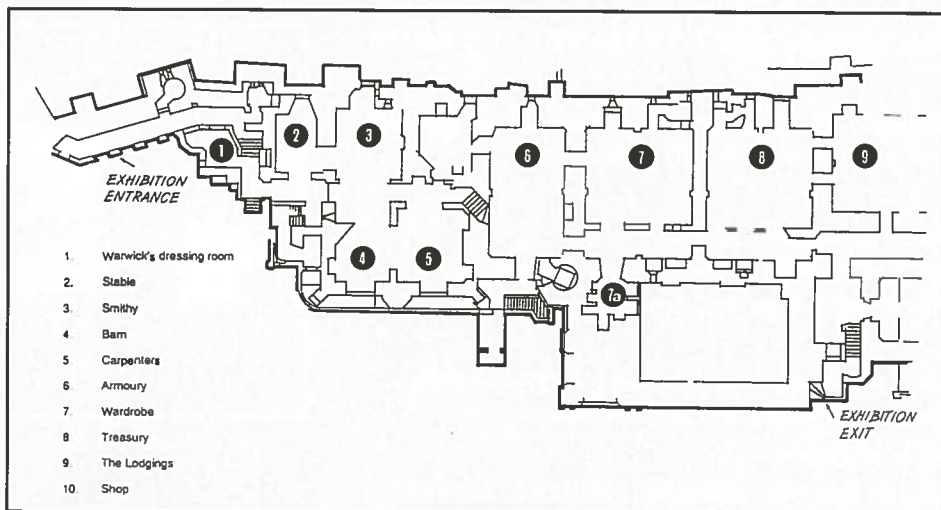
Not that any virtual history is necessary, for once there, you are surrounded by it. The moated castle built on a hill on the banks of the Avon in Shakespeare country, is a location which couldn't be bettered by a Hollywood mogul, or if it had been planned as the fairy castle in an Elizabethan theme park. Its history is synonymous with England's in the Middle Ages, from William the Conqueror, who fortified it two years after his invasion, to the Wars of the Roses, when it changed hands between the two warring factions, to the Hundred Years and Civil wars. Consequently, it is also a mecca for fans of the Shakespearean Histories.

The first resident during the floral wars, who supported the whites, was Richard Neville, Earl of Warwick, though within 14 years the castle was occupied by Richard III, who was born into the reds. The theme of the walk-through Experience, however, is the former, known as 'The Kingmaker', as he prepares for a march South to his demise at the battle of Barnett on Easter Sunday 1471.

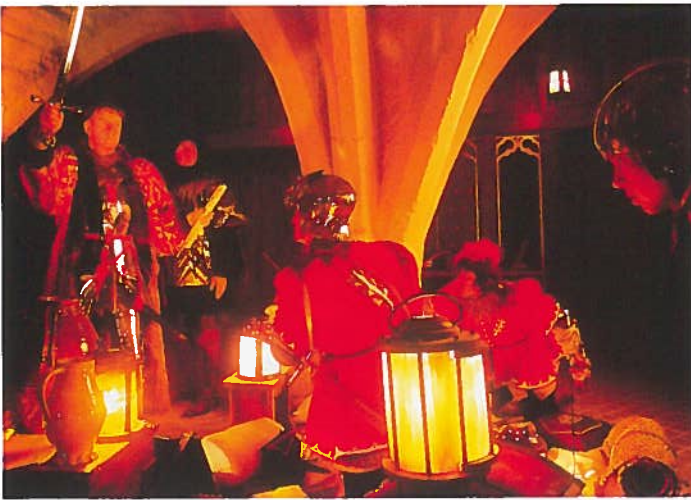
As, in the final analysis, Pike was unable to make the time and we arranged to meet him at Alton later, my guides on this occasion were to be no medieval heralds, but rather Tussaud lighting designer Steve Wentworth, Vic Dobbs, director of Glantre Engineering, who made the audio replay installation, and John Sabell of Bose, whose company supplied all the speakers. We were also joined by Bernard Whates who has installed speakers for Bose at both Warwick and Alton.

First, we went through like tourists soaking up the atmosphere in the ancient cellars in which the pageant is set. The presentation starts with the call to arms against Edward the King "great enemy, rebel and traitor", through several rooms featuring battle preparations with accompanying and appropriate sounds and smells, even a stable complete with animatronic charger, swishing its tail against the flies, culminating in the Lodgings where Neville himself prepares, surrounded by his family.

The great challenge in such a walk-through show is to create the illusion of reality with both



Outline plan of 'Kingmaker' at Warwick Castle.



A call to arms for 'Kingmaker'.

sound effects, music and commentary, together with unobtrusive atmospheric lighting. The technology must be concealed and the background audio seamless between areas.

On the sound front, this was achieved by concealing 89 Bose 101 music monitors dispersed throughout the attraction at strategic points, often hidden in artefacts and used for spot effects. In addition, two Bose Panaray, small bow-shaped, 5-driver array auditorium speaker systems are used in the Robing Room and Lodgings for music reproduction, in conjunction with three Acoustimass 2, passive bass modules. Amplifiers, which were part of Glantre's supply, are Austin Armstrong 8-channel x 100W, models. To create the sound effects and the whole sound experience, no digital sound stores or samplers were used, instead Rob Shard and Vic Dobbs of Glantre opted for 28 CD-ROMs which give a total of 56 audio tracks. This enabled them to make the CDs from 16-track recordings mixed in the actual space by the audio producer, so that he could hear exactly what he was getting, and apply the required balances to the master prior to recording the CDs. Standard compact discs could be used for stereo and spot effects.

The result is that no equalisation is required on playback in situ and, overall, this proved by far the most cost-effective solution. Although the Experience is divided into ten zones, with as many as eight tracks in each zone, the entire soundtrack was composed as a single entity to provide synchronisation from one area to the next. I have to say that the results certainly justify the means.



The stable setting housing the rear end of the animatronic horse.

Glantre are European distributors for Charlie Richmond's show control products, so it was inevitable that they would seek to find their control solution amongst his inventory. Fortunately for them, he had launched MIDIShowCD at LDI last November which he told me at the time was more of a concept than a reality. Nevertheless, used in combination with the Richmond Stage Manager 3000, which would master the cues to the CD-ROM controller, disk synchronisation and track selection could be accurate to one CD frame (1/75th of a second). Though this system worked really well during my visit, despite being notorious for sending machines haywire, Phil Pike told me later that there are still some intermittent teething problems with the software that runs on an Amiga 4000, which Richmond and Glantre are now working hard to resolve.

On the lighting front, or more accurately behind, since everything is so discreet, lighting designer Steve Wentworth gave me the low-down: "The lighting is designed to simulate, as far as possible, what it may have been like at the time, though obviously it is often undesirable to be too accurate as light levels would have been very low in the middle ages with only candles and oil lamps. At the same time it is important to make the route for the public as safe as possible, despite the fact that we wanted some dark areas, concealing all sources apart from practicals, such as Lighting Technology's candle lights which we have used extensively. Obviously, we have to light all the figures and avoid shadows on their

faces. They are our actors, so I drew it up just like a theatre plot."

There were also restrictions applied by English Heritage, and very stringent heat and power requirements in the absence of the possibility of proper air-conditioning. In most of the areas used for the attraction, those built in the Victorian period which are timber framed, it was possible for Flint Scenery, the set builders, to create a false ceiling above which it was possible for Steve to run fibre-optic light guides invisibly. This allowed him to light in a theatrical manner using miniature fittings carrying a focusing lens only, instead of lanterns. Furthermore, lots of fittings could be run from a single remote 75W light source with in-build dimmer. Hand painted wheels in the light boxes were used to create the warm flickering required.

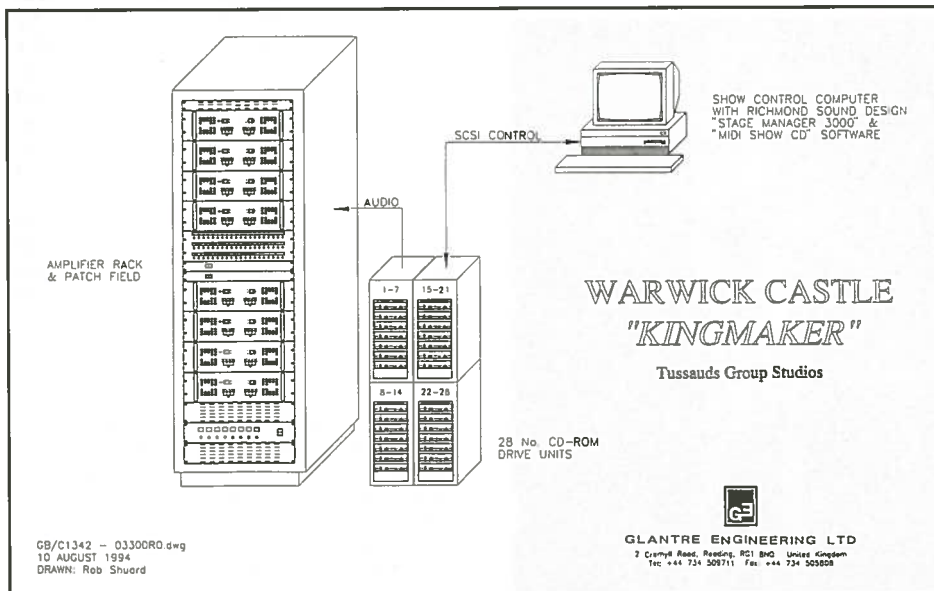
As Wentworth said of the Eurotech optical fibre system he used: "It was an eye-opener for me, only having used fibre for effects previously. But its use in a dramatic way in a small-scale environment was a godsend. Quite simply, I do not believe that the Experience would be half as effective without the use of fibre optic lighting." Additionally, he was able to adopt the same principle for the emergency escape lighting by Menvier, so that all the areas remain brightly lit even during an alarm situation without the fittings being visible in the normal way.

In the Treasury and Lodgings areas which are in the vaulted 14th century part of the cellar, at the end of the historical journey, such fittings were not possible. So chandeliers and candle sconces were used with flickering uplights, Par 30s and wide angle MR16s, to give the impression of candles. A Strand MX board, supplied by Leslie Hire and Sale, provides the sequence used for this purpose.

I particularly appreciated the daylight effect which Steve Wentworth had achieved in the Barn area, which has a tented ceiling supported by back-projection material, that Flint's have made to roll back for access, an important issue throughout. Some 45cms above this surface are numerous 120cm 'daylight' floorries. A Bowers wind machine blowing on the tenting adds a further degree of realism.

Smells throughout, such as hay and fodder, coal gas and wood smoke, and others called musty, earthy and more are produced by Dale Air Conditioning's smell machines, which are basically small electric heaters warming up the essence of the pong in question. There are also two smoke machines, one in the forge, the other in the armoury.

In conclusion, Wentworth told me: "One thing I strived for has worked really well - there are no visible 20th century light sources to be seen anywhere in Kingmaker."



Glantre Engineering's audio control schematic.



An eye for an eye, Phil Pike under the glare of Nemesis.

### NOW TO BE SCARED WITLESS

And so to Alton Towers to see more of Bose's handiwork in the UK's most popular theme park. I must say I hadn't realised it was quite so far north, secreted away in the beautiful Peak district of Derbyshire. When approaching from the leafy access road, it came as quite a surprise. Here Phil Pike was already waiting for us to act as the tour guide. The park-wide PA system is provided by 200 Bose 151 environmental speakers discreetly installed, and there are six 102 flush-mounts at the entrance, plus a Bose Freespace system in the Fabulous toyshop. Freespace is an active speaker system with dynamically equalised amps built into the bass module. This system automatically adjusts the spectral balance at all levels and consists of four small mid to high frequency boxes, styled to be invisible, and a single bass unit. All these systems at Alton Towers are the result of close liaison between Phil Pike and John Sabell.

The big deal here this year is the £10m Nemesis ride in which the punters are literally racked together and corkscrewed into oblivion. The Rollercoaster from hell. The story is that an alien has dug itself into a cavernous pit out of which its steaming, skeletal remains are revealed. The ride takes place outside the loop of the alien's frame, twisting, writhing and swooping through narrow ravines and dark tunnels. Fellow flyers are subjected to inverted loops, stall turns and four seconds of weightlessness while travelling at four Gs. To add to their terror, they are suspended from open chairs. As they passed me standing transfixed on terra firma, for there was absolutely no way I was going for it, I could see the skin on their faces stretched back in a collective comic grimace revealing the staring whites of their eyes.

Needless to say, they cue for hours for their shot of adrenalin, and this is all part of the anticipation, the wind-up. It culminates in suitably spooky music at the docking station, where the next batch of terror travellers are loaded and strapped in; this eerie accompaniment delivered effectively by three Bose Panaray sound systems.

Now to gentler pursuits. Obviously theme parks are for young kids and Tussauds has invested a further £2m on new features for them. In Toyland Tours, family groups boat through a fantasy factory where the toys, oversized, and colourful fibreglass figures, are supposed to be manufacturing themselves. There's a 'think tank' where the ideas are dreamt up, a production line and a gift-wrapping department culminating in a birthday

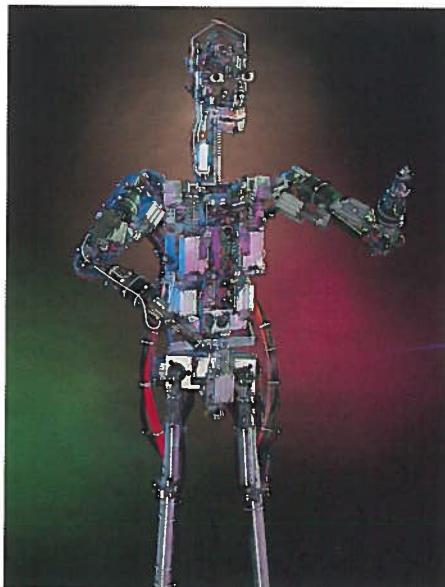


Two men in a boat, Phil Pike (right) with John Sabell of Bose UK afloat in Toyland.

party with giant jellies, coloured fountains, balloons, a band - all designed and produced in-house at Maison Tussauds. Once again 100 Bose 151s and six Acoustimass II passive bass modules deliver the sounds.

The lighting, designed by David Hurst from Phil Pike's AV department in Acton, involves no dimming or centralised control system, everything being powered on permanent lives or Pulsar chasers to contain the costs. Similarly, the selection of fittings was deliberately restricted by Hurst to minimise maintenance problems and to keep the different types of lamp used to a minimum. Only three types of fitting are employed for the main body of lighting: the Strand Hilite, both fresnels and profiles, and the MR16 Birdie with integral transformer, which means Arcstream 4000 and MR16 lamps only. All the light boxes have Philips traffic signal lamps inside, for all the same reasons.

"Finding effects lights that will run 12 hours each day, seven days per week was a different matter and some flexibility was allowed to install a small number of these," David told me. A few Optikinetics Solar 250s and High End Trackspots are used in the finale. "I have tried to achieve a very bright and colourful ride, complementing the sets and the figures, as well as being maintenance friendly," added Hurst. "I think it's successful despite the cost and other restraints." All fittings and lamps were supplied



Another member of the Tussaud's team.

by Action Lighting and Lighting Technology.

The last attraction of our day was an endearing ice show based on Beatrix Potter's 'Peter Rabbit' with costumes designed and made in Tussauds' wardrobe department at their Acton Studios. Again the speaker system is Bose, using the Panaray auditorium system. The stage lighting, largely consists of a number of Parcans under the control of a Celco Gold.

### THE ACTON STUDIOS

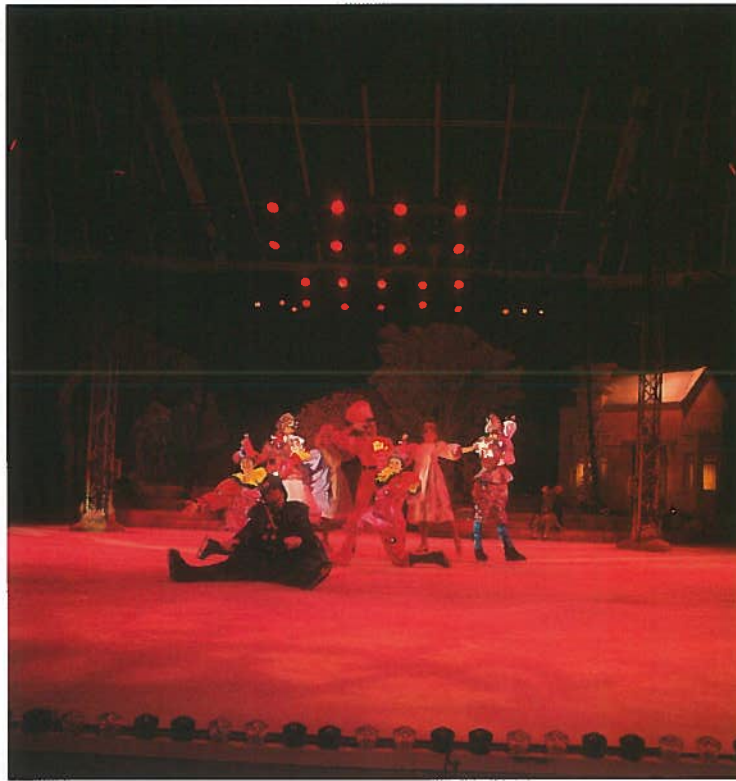
So I thought that I had better have a snoop around the Acton Studios, where Pike's department is now based, and from whence all this creativity emanates. There you find the design department that will have created the Toyland toys, the modelling and wardrobe departments which produced the Kingmaker figures and the Peter Rabbit costumes. One also comes across all the spare-part surgery involved - eyes, hair and teeth, which for exhibition purposes have to be carefully matched to the individual. The scripts, themes, ideas and concepts are created and realised all in this one building. There is also an engineering shop and assembly space for making and servicing animatronic figures.

So now you see how it might just be possible for Tussauds to produce, for example, The Spirit of London dark-ride for its Baker Street flagship entirely in-house (see L+SI, September '93). Understandably, Pike's AV department is clearly severely pressed with a small compact staff of two lighting designers, Steve Wentworth and David Hirst, who often get distracted by maintenance issues, Tony Morris, Phil's assistant, who kindly showed us round, production manager Scott Desborough, and Pam the department secretary. While I was there Steve Rose, a Tussauds' electronic engineer was also working in the department on animatronic development.

For my visit, Phil Pike arrived directly from the airport following an unexpected and, by all accounts, harrowing weekend in the States visiting a trade show and investigating some new equipment. Typical of the man, he wasn't going to back out now, despite the obvious fatigue: "We'd better do it now or we'll never do it!"

There is no doubt that Madame Tussauds is a great British success story, despite its Parisian origins. Having grown into a multi-national leisure company, it seems almost overnight, and poised to do more, it is totally appropriate for this report to grace the pages of our PLASA issue. After all, our members should expect to gain considerable business from the ambitious lady with the fetching French accent.

# Do you value your customers enough to treat them to a Bose® Sound System?



*The new Beatrix Potter Ice Show, Alton Towers.*

Sound quality is an asset that is often difficult to quantify from a business perspective. Customers, at a venue utilising sound reinforcement, may not realise the degree to which it enhances their impression of that venue. But imagine for a moment, their reaction if you were to reduce the sound quality, or worse still remove it altogether.

In today's world, where people go to be entertained, music has become recognised as an important asset. Until now safety, reliability and cost have been the prime factors in deciding the music system to be used. However, the advance of

*“The new Beatrix Potter Ice Show at Alton Towers required the highest standard of intelligibility and quality available from a sound system. We listened to many that are on the market and found Bose® to be the best.”*

*Martin Barratt,  
Presentation Director, Alton Towers.  
A Tussauds Group attraction.*



digital technology in domestic music systems has resulted in your customers demanding higher

standards of quality and fidelity from commercial music systems. At Bose® we believe that fidelity and intelligibility are fundamental to all commercial music systems, and can never be compromised. This philosophy, coupled with our commitment to reliability, aesthetics, and full safety requirements, have placed Bose® among the elite in the global markets of sound reinforcement.

Choosing Bose® can mean the difference between just satisfying your customers and positively delighting them. So, if you value your customers enough to treat them to a Bose® sound system, complete the coupon below, and post it to Bose® today.

For a FREE Brochure and full details on Bose® Professional Products offer fill in this coupon and send to Bose Limited, Trinity Trading Estate, Sittingbourne, Kent ME10 2PD

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

Tel. No: \_\_\_\_\_

If you do not wish to receive future product information from Bose® or our appointed dealers please tick this box

**BOSE®**  
Better sound through research.

**BOSE®**  
Better sound through research.

LSI/9/94

# NO STONE UNTURNED

## Tony Gottelier and Deborah Loth track the mega production of the Stones Voodoo Lounge Tour

It is an unusual year that finds the Rolling Stones and Pink Floyd, to say nothing of The Eagles, all putting on stadium shows. It may never occur again, so wallow in it while you can.

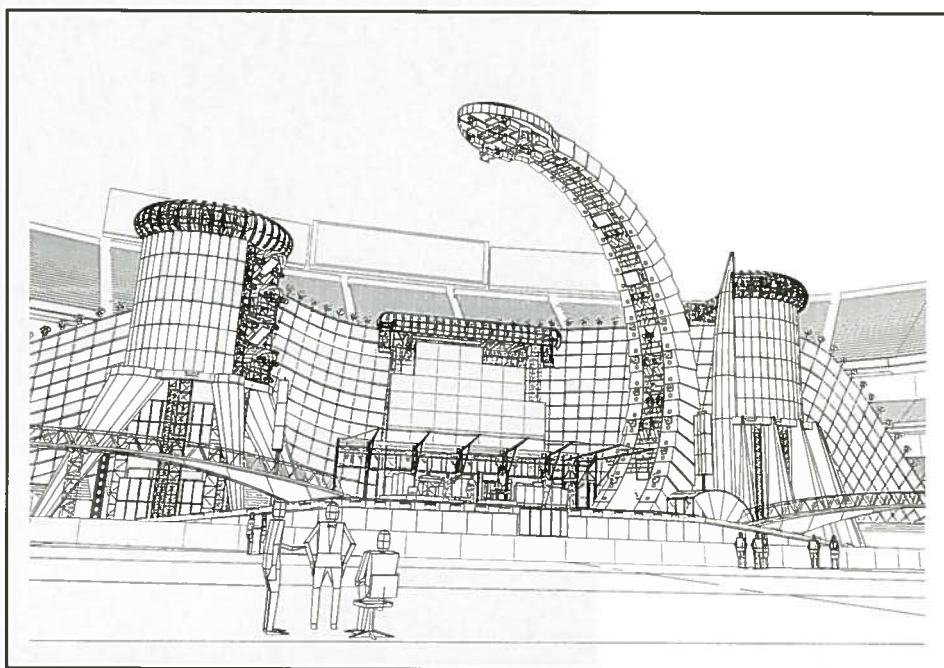
In January this year, Mick Jagger contacted key members of the design team responsible for the previous Steel Wheels tour - lighting designer Patrick Woodroffe and stage-set designers Fisher Park - about plans for a 1994 tour.

Steel Wheels had radically departed from the then-standard stadium show format: the stage set, designed by architect Mark Fisher and his now erstwhile partner Jonathan Park, was inspired by hot, grungy, post-Blade Runner science fiction and looked like a cross between an abandoned oil refinery and a derelict shuttle launch platform. It evoked an anarchic, cyberpunk, post-industrial future, reflecting a transition from the machine age to the information age.

So how to match that performance now that we are entering that very age? "The Stones are fearless and powerful people who make a statement and stand by it," said Mark Fisher. "This intense explosive attitude can translate into a tremendous visual statement. His criteria for the new set would be that "Barbra Streisand couldn't sing on it and Prince Charles wouldn't like it!"

Fisher met with or spoke to Jagger and Charlie Watts every other week from February, until the technical fit-up in Toronto in July, in order to come up with something special that everyone liked. "The hard part is getting everyone in a multi-faceted and opinionated group of people such as the Stones to agree," he said. "They represent, to their audience, metaphors for the state of the world around them, and we had to reflect that even though not that much has changed since Steel Wheels." Jonathan Park described it as the challenge of trying to 'visualise the unvisualisable. Jagger wanted it to look futuristic, not retro. 'We already know what disused factories look like,' he said. The solution turned out to be a stage set which evokes the information-age of the future, but from a more contemporary, optimistic, wired-up point of view. Completely made from metal and metallic surfaces, this set is colder and cleaner, but the use of curved shapes makes it also more organic and flowing.

"With Voodoo Lounge," Fisher added, "we wanted to change the way people see the rock



Fisher Park's perspective of the massive set showing the rearing head of the Cobra to the right.

show. We wanted to get some ideas across - ideas about the 21st century, about the future as clean and cool and technologically upbeat. A place filled with computers, where information is something you traffic in. And we also wanted a stage that knocks you over when you see it." The biggest design issue was that the Internet has no physical manifestation and if they succeeded in creating a metaphor for the information highway, there was a need to provide an antidote to that depersonalised and abstract world. "The biggest issue for people living in it, is their fear of it. People in their technofear turn to the supernatural, to the mystical to defend themselves against the invisibility of the new technology coming into their living rooms." Hence the black art.

Designing and building the set was something of an information-age project in and of itself. During the critical months of early spring, Fisher was based in California, overseeing the fit-up of the set he'd designed (with Marc Brickman) for Pink Floyd's tour (see L+SI June 1994). While this was convenient for meetings with the Stones, who were in L.A. finishing their new album, it made working

with Jonathan Park back in London a little difficult. However, the pair had long relied on AutoCAD software to produce design and production drawings. To work together on drawings for Voodoo Lounge, they used electronic mail to send AutoCAD drawing files back and forth around the world.

Eventually, as contractors and consultants using AutoCAD came aboard from locations throughout Europe and the States, E-mail replaced the facsimile machine and couriered dyelines, as the means of accomplishing a complicated project with a short deadline. Non-computer literate consultants like Richard Hartman did not always appreciate the 'virtual' exchange of design information. He was for ever badgering someone to print out the current drawing for him.

The stage, which cost around \$4 million to build, progressed in four months from sketches, to scale models, to a technical fit-up in a Toronto aircraft hangar, and finally to the opening show on 1st August at RFK stadium in Washington DC. It took 600 tons of steel to construct the set, 176 of which was for the 80 metre wide stage alone. The set was variously







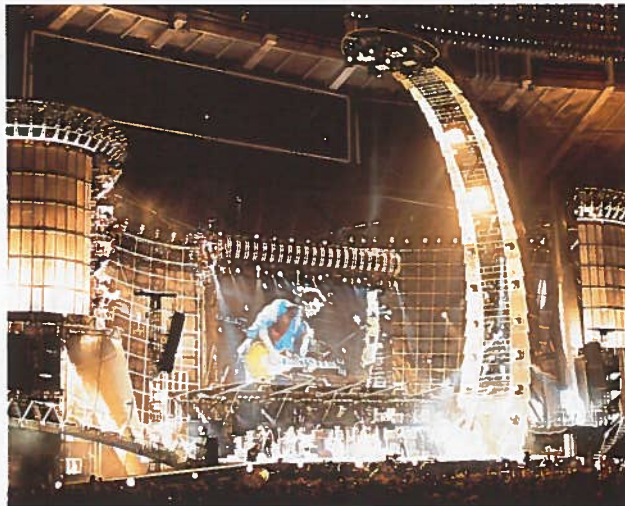
is another Mark Fisher extravaganza, and a real technical challenge. The very beautiful, open structure with no roof, made positioning of the fixtures absolutely critical both aesthetically and from a lighting viewpoint. It meant that there are virtually no fixing points, there is only minimal trussing, and there is no overhead lighting, apart from the cobra's head, and that's 95 feet away!" So there is absolutely no front light, just a bit of side lighting from the so-called 'spot bar and grill' and, otherwise, all back lighting. Without a roof, the fittings, especially the automated luminaires, also needed to be protected against hostile elements. This turned out to be prophetic.

The skeleton of the Cobra's neck and its cladding were produced and tested in just three to four weeks by the Nottingham-based architectural fabricator Sheetfabs. It was designed to be made in stackable sections 3m long to occupy minimum volume for air freighting, though much of it was produced early enough to be sent by sea. Fisher and Park wanted the structure to have a metallic, snakeskin quality, and specified a quilted, brushed stainless steel surface which was found to take lighting dramatically, producing iridescent

fabricated in France, Belgium, England, Texas, Pennsylvania and California, and it will be hauled around the States this autumn in 50 artics. The end result is a vast, apparently free-standing, burnished steel screen which wraps itself around the stage and its two technical silos, like a huge flexible network of gleaming electronic circuits. Just to make it more 'interesting' as far as fitting the visual technology is concerned, as a screen, it has no cover. So there is no roof, as such, over the stage.

While the Steel Wheels stage set looked as though it had always been there, the Voodoo Lounge looks aerodynamic, as though it has just landed. Structurally, rather than designing the set around a scaffolding structure, Fisher and Park used 20 of the structural towers developed by Hedwig de Meyer's Stageco - originally as roof supports - to support the entire edifice. Foundations for this supporting tower structure are housed in a 90cm-high sub-stage with extra ballast provided by steel tanks filled with more than enough water for an Olympic-sized swimming pool, 45 tons of it. Wanting nothing to detract from the performance environment, all the subsidiary kit-spaces, which usually obscure the back of the stadium (control systems, dimmers, equipment, etc), were incorporated into this sub-stage.

This approach to the basic structure, which abandons traditional reliance on huge steel scaffold systems, liberates the set design from the usual grid thus imposed, permitting the designers to create the desired shapes with unusual freedom and place them wherever they want with no apparent support. While it also meant that much more of the stage set had to be custom-built, the trade-off is that the production could do without the vast armies of



men and equipment needed to erect scaffolding (though there are 250 across the three crews) and construction of the modular main stage can take place within a window as short as 24 hours prior to showtime. Richard Hartman, consultant supplier negotiator, commenting on the new emphasis on structure and engineering, observed: "It's like a plane. You don't make aircraft of steel. You've got to use lightweight materials and push them to their limits."

The Voodoo Lounge design team used the resulting freedom to produce a stage set that was to look more like a single integrated piece of lighting equipment than a stage set with lights bolted on. This set is dominated by an enormous eccentric, but gracefully arched object known as the 'Cobra' which cantilevers out 25m above the stage. When fully loaded the head weighs some 30 tons. This precarious looking structure, redolent with phallic symbolism, was engineered with great aplomb by Neil Thomas and Richard Bentley of Atelier One (London) and was made by two contractors on opposite sides of the Atlantic.

All of this created huge problems for lighting designer Patrick Woodroffe: "Voodoo Lounge

reflections and contours, and a textured appearance.

The Tomcat-manufactured Cobra head and hood, and the lighting grid it houses, contains seven Telescan Mark IVs and a pyrotechnic platform. It was also intended to house two Theatre Projects' Sky-Art searchlight heads which have been re-engineered to be flown upside-down (but this didn't work out), and two Obie X-scans form the Cobra's eyes. In addition to the array of 48 aircraft lights which run up its curved body, the Cobra houses eight Telescan Mark IVs, four TMB 18kW Mega-Lites with Wybron scrollers, numerous Vari\*Lites and other lighting. The techs are able to climb up the inside of the Cobra to service the equipment it houses, and the lighting grid in the head can be lowered to stage level.

The Chameleon Telescan Mk IV, which Woodroffe also uses around the set to create contrast, is the latest of the pedigree, having a 2500W HMI lamp. Though also used on the current Floyd tour, they will not be officially launched until PLASA. Voodoo Lounge was also quite a challenge for Chameleon for it often meant that they had to stretch their mirror coverage to the limit." Nevertheless, the 24 Mark IVs provide broad enough coverage as every strategic angle of the set is included in Patrick's design," commented Jean-Yves Morvan, the chef de Chameleon. The co-operation with Woodroffe is a mutual admiration which dates from Stevie Wonder's European Tour in 1984 when he pioneered the use of Telescans. "The Fours are really bright and easy to program. They make a nice contrast to the Vari\*Lites because of the big wide, fat beam," Patrick explained.

Someone else who goes back even further with Woodroffe is ex-pat Marshall Bissett who worked with Patrick in the seventies when they were both crewing for Brian Croft. Bissett now runs TMB Associates with partner Colin Waters in beautiful downtown Burbank. The Stones turned out to be timely for Marshall, for TMB had been working for some time with a manufacturer to produce a film light which was extremely bright, lightweight, with an

incandescent light source (nine 2k double ended FEYs, 18k per fitting!) - still just an 'audience blinder' in rock and roll terms. Bissett sent Woodroffe a cheeky little fax to whet his appetite, and then toted his prototype along to the lighting 'auditions' which were held in Dallas. Later he set about finding out whether or not the promised colour scroller was really feasible with the high temperatures created. "At that point only Keny Whitright and myself believed it could be done!" The resultant scroller is dubbed 'Gargantuan' by its makers, who also made the scrollers for the DeSisti 20k fresnels. A total of 22 of these monster 18ks are used. Aside from the four in the reptile, there are ten units with scrollers to flood the stage, and eight open for audience lighting. The fitting is barely three feet square, with nine parabolic reflectors and a focusing mechanism which can 'spot' and 'flood' the whole unit. It weighs only 32 kilos and produces an awesome 100 foot candles at a distance of 20 metres, with an exceptionally smooth field.

Concert Productions, the newly acquired Vari-Lite company, are the lighting contractors for the tour, with Carol Croft and Wayne Boehning out front. For them and the rest of the crew, the main story of the tour was that the hotline to the supernatural failed miserably when it came to the elements. It didn't just rain, it came down in shed-loads at the opening concerts. Everybody, including the designers, discovered very quickly why outdoor stages are normally covered. (The evidence of Woodstock in the adjacent State, at the same time of year, could have been a bit of a hint). In Washington they were obliged to have waterproof capes made, in designer trim, to protect the kit. "Conventionals were no problem," said Carol. "But the new breed of moving lights, with their electronics, don't like water at all!"

She tells me that Concert now have a substantial stock of hairdryers to rent! (The rest of the kit provided by CP for the 'Weather Permitting' tour was: 120 VL5s, 30 VL2Cs, 30 VL4s, 24 Telescan Mark IVs, six DeSisti 20k fresnels with Wybron scrollers, 22 TMB 18k Megalites with Wybron scrollers, 52 Molefay 8-Lites with Rainbow scrollers, 40 High End Dataflash, four Lightning Strikes, 12 DF50 Diffusion Foggers, two JEM Roadies, 10 Lycian Starklites, eight Gladiator 3ks, nine Theatre Projects Sky Arts and 12 Obie X-Scans. The desks are Vari-Lite Artisan and Wholehog with Avolites dimmers.

Woodroffe also singled out the Lightning Strikes as a particularly 'big' effect within the sparkling set: "They are awesome," he added.

The Cobra's-arch frames the second major built-in lighting feature, a 7m x 12.5 m Sony Jumbotron wall containing 35 video modules, supplied by BCC Video. The giant video is intended to function as an integral part of the lighting and theatrical effects of the show. Though run at a fraction of its potential intensity, it provides a bright, clear complement to the other front projecting lighting effects. The designers wanted to break down the frame of the video screen and had specified an irregular, castellated shape. Sadly, when BCC erected the irregular screen at production rehearsals in Washington DC, they rudely discovered that they had been supplied with underspecified fixings, and the system crashed 20 metres down onto the stage. Fortunately, no-one was on stage at the time: it was 1.00am, the production managed to recover the lost time, and the show was able to go on using a standby.

According to video director Christine Strand, her task was to come up with a range of material



# ST SERIES AMPLIFIERS

Most budget PA amplifiers add a bit of distortion, some noise, maybe some hum. Nice, clean laboratory signals and very stable dummy speaker loads are needed to make their specs look good on paper.

But that's not the real, imperfect world where all C-Audio amplifiers have to earn their specs - and the new budget-priced ST Series models are no exception.

Every C-Audio amp is built to the highest standards on the same production line as the legendary C-Audio SR 707, the choice of so many touring professionals and installers.

Even at the end of a gruelling gig when the output of most other amps has fallen off the bottom of the spec sheet, the ST-600 still delivers 2 x 600 *real* Watts (1200 bridged), right across the audio spectrum from 20Hz to 20kHz and at less than 0.06% distortion.

You may think that C-Audio quality is beyond your pocket, but we've engineered the ST Series to give you high audio quality with on-the-road reliability, for much the same as you'd pay for a budget amp without such a pedigree.

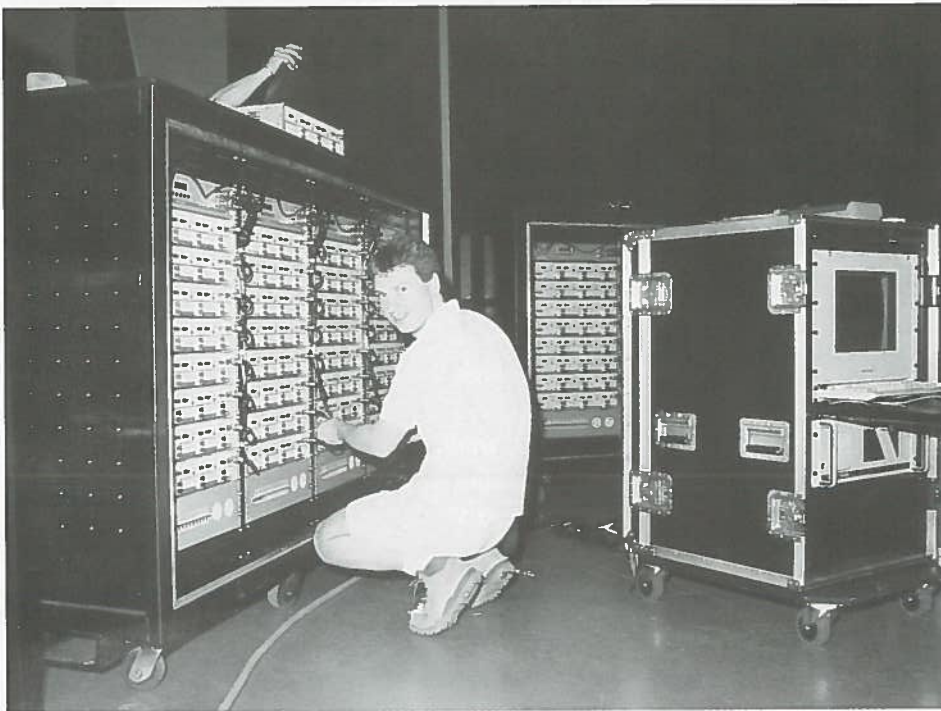
It all adds up to an easy decision.

The logo for C-Audio, featuring a stylized 'C' with a gap, followed by the word 'AUDIO' in a bold, sans-serif font.

## Just add speakers

PROFESSIONAL POWER AMPLIFIERS

C-Audio Limited, Barnwell Road Business Park, Cambridge CB5 8UY, UK. Tel: +44 (0)1223 211333. Fax: +44 (0)1223 410446  
Distributed in the UK by Harman Audio, Unit 2 Borehamwood Industrial Park, Rowley Lane, Borehamwood, Herts WD6 5PZ. Tel: 0181 207 5050. Fax: 0181 207 4572

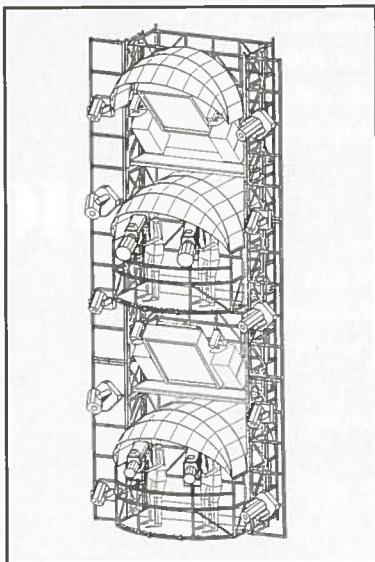


Andy Cave of Brilliant Stages with the bank of Zero 88 Rackmaster 290s (above) and the CAD drawing of the spot bar and grille from Fisher Park (below).

that she could use to create patterns and looks to co-ordinate with Patrick Woodroffe's lighting. Mike Short's Arti (Advanced Remote Technologies, Inc.) computer system permitted seamless synchronisation of live video, special effects, pre-recorded video and videographics.

Strand commissioned some video footage and, in conjunction with Fisher and Woodroffe, she briefed London-based graphic designers 4i to produce the material. The result is a varied and exciting interaction between picture and performance. At times the live video is enhanced and manipulated by special effects, at others pre-recorded footage is projected, and sometimes Jagger interacts with the animated graphic figures. Of the interaction, Woodroffe said: "After the fall, we chickened out on the irregular screen, which was a great shame. But the balance between the screen's effects and the lighting was an issue on which I think we have been pretty successful. We all sat down with Christine to co-ordinate and integrate all the visual effects. Eventually we decided to turn the level right down because, being were it is, if you don't do that, you focus too much on the screen and it can be overpowering."

The other significant 'built-in' lighting feature is the 75m wide x 20m high back wall of the stage set, a curving and distorted aluminium grid with a Par 20 lamp at each of its 900 nodes. The wall itself is constructed in elements which are pinned and hinged together to enable the structure to be stacked for transport; when erected, the wall is strong enough to permit the lampies to climb up and replace light bulbs. The lamps are individually controlled, permitting the back wall to act as a giant matrix. Woodroffe uses this to create an even field of sparks of light so when the whole set is displayed on the video screen, an infinite



mirror of stars appears which is quite mesmerising. At other times it produces comet sweeps, washes, waves and ripple of light. This set was built and wired-up in Greenford by Brilliant Stages, also now a Vari-Lite adjunct. The Sylvania Par 20 lamps, a new lamp in their 230v range, are controlled by 128 Zero Rackmaster 290s and 16 Demux 48s, all part of Lighting Technology's role in the supply, which also included the electrical 'nuts and bolts' of the set. In fact, Marshall Bissett had a hand in this also as he had recommended the Par 20 as a better alternative to the Par 30, which

was originally suggested to Jonathan Park as a waterproof alternative to the MR16 by Lighting Technology. The control is provided by Artistic Licence's Lamp-Tramp 'newscaster' as used by The Pink Floyd.

Jagger had told Patrick Woodroffe that he wanted to see more lighting on the audience than on previous tours, and Woodroffe certainly took him at his word. He uses massed ranks of his most powerful lights to blast the audience from back stage. These include more TP automated Sky Art searchlights, which at 300,000,000 candlepower are no mean lights. They come at the audience in massed ranks with the TMB Megalites, the Obie X-scans, and the Telescan Mark IVs, plus all 18 followspots. "As everyone knows, lights coming at you are always more effective, but this is like Nuremberg all over again," beams Patrick in child-like enthusiasm for his batch of new toys. "It was nice using a mixture of all these lights, and, additionally on stage, the Vari\*Lite create different textures and dynamics on the clean, brilliant surfaces of the set."

The 25m wide stage, built by Tait Towers, runs out into low-level curved ramps close to the audience and futuristic high-level spring-boards which jut 20m out beyond the

side of the stage at a height of 6m, taking Jagger out close to the stadium balconies. Tait also built the structure for the small, dedicated 'roofette' and catwalk. The roofette is minimal, a skin intended to be sufficient to protect the band and its equipment during a snap thunderstorm which can be deployed or removed in 15 minutes. They also made the high-level catwalk which takes Jagger up to the base of the Jumbotron. The design, which dispensed with an overhead roof and lighting rig, also permitted a high, wide, slim PA configuration. Fisher Park went to great lengths to ensure that the PA speakers did not look like a conventional stack of PA speakers. The 310 cabinet grilles of Showco's customised 1.5million watts Prism sound system were painted metallic silver and they topped with curved aluminium crowns of lights. The PA stacks were visually buttressed at the bottom by inflatable silver cones arranged to provide no audio obstruction.

These cones, along with the transparent, waterproof membranes, a durable black gauze behind the back wall grid, heavy rainproofing for the Cobra and other items, were all supplied at the eleventh hour by Landrell Fabric Engineering of Wales. Robin Magruder of Showco pointed out that this was the biggest assembly of their Prism speakers ever, where absolutely everything is special from the treatments of the grilles to the size of the massive array: 1.5million watts of sound power. Both stadium and stage monitor system are under the control of Harrison SM5 consoles, with the addition of a Yamaha DMP-7 programmable console for the main system.

Looking down the audio equipment list there is a sprinkling of most of the most famous names in power audio: AMS, Brooke Siren, Crown, DBX, Drawmer, Eventide, IRP, Lexicon, Orban, Panasonic, Roland, Summit, Tascam, TC, UREI, Clearcom and Klark Teknik. If your name's not on the list, you probably missed out. According to Magruder, the plan was to incorporate enough signal processing, mixing and effects into the overall sound, under the direction of the artistes and the mixer, to achieve something really exceptional. The front-of-house mixer is Londoner (with a French surname), Benji Lefèvre, and veteran of 26 years of rock from Led Zeppelin on, with Chris Wade-Evans on monitors.

Woodroffe makes a joke about the fact that he was expected to light these sexy looking speaker arrays. "It conjures up an image of the sound engineer saying 'can you colour it yellow tonight Patrick' or 'you won't colour it pink will you?'"

About three quarters of the way through the show, the set is transformed into a suburban voodoo shrine by 22 inflatable characters, described as a 'satanic cast' by one reviewer. The transformation is prefaced by a surreal 3D video 'fly-through' down an urban alley towards a Voodoo Lounge club and by a costume change (Jagger appears in a Baron Samedi hat). Slowly, the inflatables completely populate the stage, framing the Jumbotron like mementoes. The whole tableau has an elusive disturbing quality.

The cast of inflatables includes dice, a heart pillow, a 20ft cobra, a 15ft goat's skull, a 45ft tall Elvis Presley (complete with guitar), a 35ft tall black friar (nicknamed 'OJ' by the crew), a 45ft tall Baron Samedi (nicknamed 'Slash') with lights for eyes, a huge goddess (nicknamed 'Fat Chick'), a snake, a Madonna, a 15ft clock and a baby's head.

These monsters appear during Monkey Man and, to add further to the surreal nature of the

event, they even had three metre tall female stilt walkers on stage at the same time. "Keith is famous for not wanting to share the platform with anybody, or anything for that matter," Woodroffe told us. "But when the stilts didn't seem to be working too well in the giant scale of things, we even paid them double to strip at one point. I begged him to let me have a couple more days to work it out. He was very cool about it and he acquiesced saying 'OK, but I bet they'll be out by the end of the week!'. He was dead right."

Woodroffe's retribution was to announce to the band that he had found an 'elephant on stilts act' in Memphis that he wanted to try. "Elephants on stage has been an on-going joke between Jagger and myself from our early association," he explained.

This inflatable assemblage was manufactured over a six week period by Rob Harries' Air Artists in Norfolk. The crew spent another two weeks at rehearsals in Toronto and Washington DC doing modifications and sorting out rigging issues. Jagger felt that the black friar was too bland, so Air Artists added a necklace of teeth and a bone through his nose to convert him into a more ambivalent character, perhaps only recently converted to Christianity.

The Rolling Stones end their performance as it began - with pyro. A burst of red, or sometimes green, flame launches the concert. It ends with a series of their classic favourite songs and an outstanding display of scenic fireworks by MP/PPA Associates of California.

The Jumbotron wall and the projected lighting take the action way beyond the performance on stage and make it more interesting for the 50,000 people not privileged to be sitting in front of the mixer tower. For those who like the stats, in case they get buried among the rest of the hyperbole, the show takes

3,840,000 watts of generated power and absorbs eight miles of cable.

Since the late sixties, the Rolling Stones have led the way, not only in terms of rock and roll music, but also in defining a live rock and roll show. They were the first group to move in a tactical way from clubs into sports venues in 1969, and when the Stones began playing arenas, they took the necessary lighting and sound equipment on the road with them. The Stones have also led the way in the profitable world of corporate sponsorships, first signing Jovan Perfumes as a sponsor in 1981 for the 'Tattoo You' tour. They pioneered the partnership with merchandisers which has financed their outstanding mega-tour productions.

Patrick Woodroffe, talking to 'Rolling Stone' reporter Barry Diller, described the Voodoo Lounge production as a 'disposable corporation'. "The Company will run for a year and a half and have an income of hundreds of millions of dollars and employ doctors and travel agents and accountants," he said. "And then we'll throw it all away." Merchandising is a \$300 million deal on this tour.

In this context, production designer Mark Fisher's emphasis on integrated design-branding - makes perfect sense. The CD you buy, the ads on TV, the posters, the billboards, the T-shirt you wear and the show you see, all combine to make the tour an indelibly memorable experience and a commercial brand as recognisable as Coca-Cola. But Fisher's devotion to design detail is not entirely, or even primarily, born of a desire to sell T-shirts. A maverick architect who has managed to avoid ever taking a real job, Fisher seems motivated more by a desire to perfect his specialty, the transformation of a barren sports field into an instant temple for one night. Theatre

on this scale requires something more than the willing suspension of disbelief. The audience and its frenzy is very much part of the show.

American audiences respond well to the hype that accompanies the tour when it rolls into town. For the first show at RFK in Washington, the cable network VH-1 converted itself into 'Stones-TV' for the entire week and featured a marathon 'Special' around the dress rehearsal hosted by Dan Ackroyd the night before the concert. Fox interspersed its normal programming with live footage from the opening night concert. Budweiser's TV ads featured footage from the 'Steel Wheels' tour - Stones songs dominated the airwaves. The experience of stadium rock in America is so unique that Mark Norton, managing director of London-based 4i Limited, the graphic designers responsible for everything from album covers and T-shirts to video-graphics for the show, put his entire office of 12 - including the receptionist - on a bargain Virgin Atlantic flight for Newark to see the show in Giants stadium. After three months of long hours and no weekends, he felt that the team would probably appreciate it more than a Christmas party or a bonus.

Hours before the gates opened, fans gathered in the stadium parking lot, partying, listening to the Stones, barbecuing out of the backs of their station wagons and generally revving themselves up for the show to come. And from the moment when the lights went down and the first strains of saxophone and bass guitar grabbed their attention, until the final pyrotechnic explosion of fireworks over the field, the audience rocked so hard that the very bleachers bounced. The world's greatest rock and roll band ever had done it again (with a little help from their friends).

*All photos courtesy of Mark Fisher.*

# OUR WARRANTY DEPARTMENT

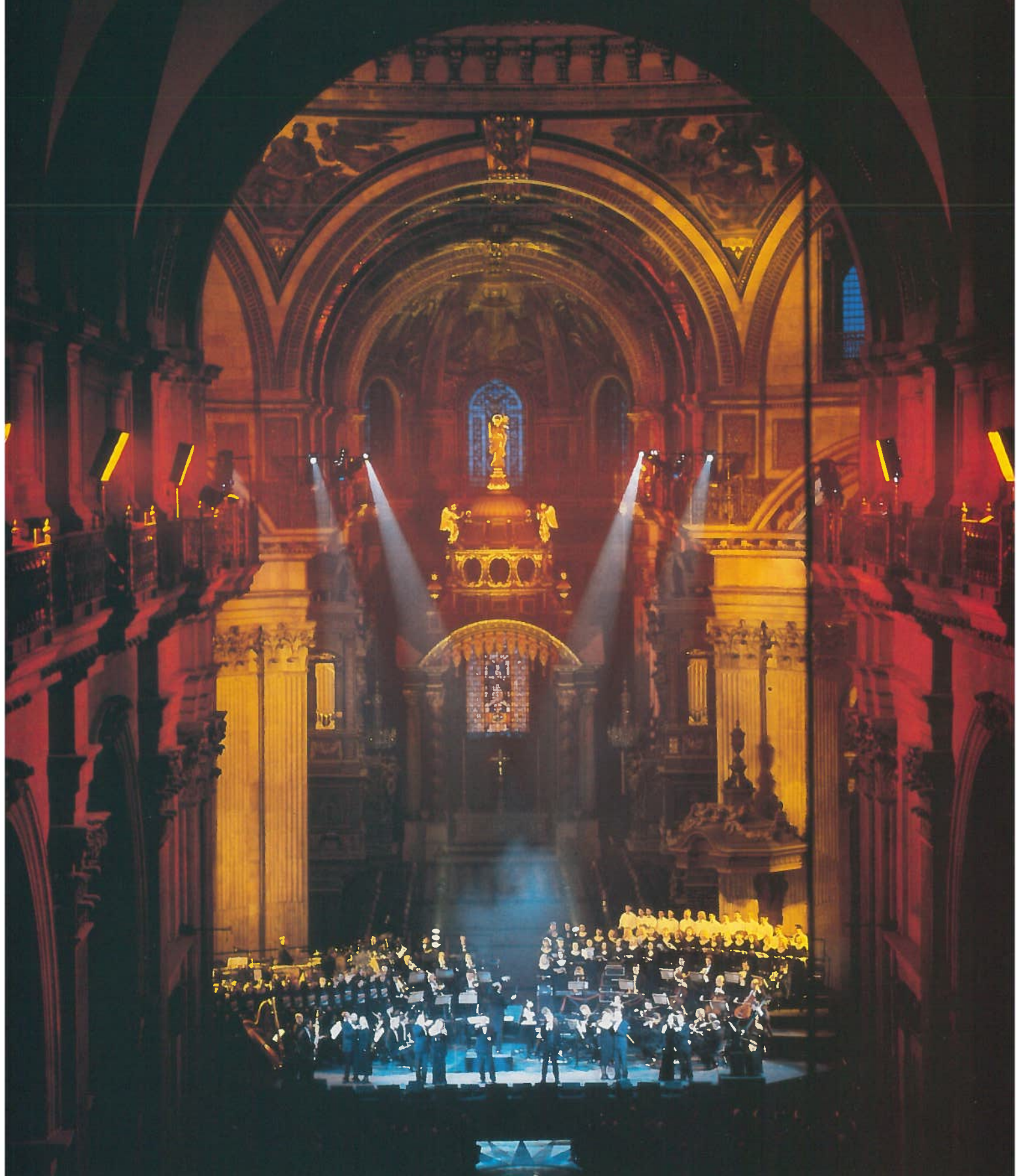
The EFFECTS COMPANY's reputation for quality engineered products is spreading fast. With almost twenty years' experience in the design and manufacture of smoke machines and associated equipment, we produce a comprehensive range of innovative products that are only released into the marketplace after an exhaustive R&D/test programme.

**EACH AND EVERY** item of equipment is built to exacting standards and thoroughly soak tested before despatch to our customers. Remember - apart from looking good, our products are built to last, and last, and last.

## INSIST ON THE BEST!

UNIT 43. BARNS COURT, TURNERS HILL ROAD, CRAWLEY DOWN, WEST SUSSEX RH10 4HQ. TEL: 0342 718399

# ANDREW LLOYD WEBBER AT ST PAUL'S CATHEDRAL



LIGHTING DESIGN BY DURHAM MARENGHI. TEL: 0482 659178

# TRIALS AND TRIBULATIONS

Lesley Harmer discovers that in Prague, where there's a will . . .

Theatre-goers in Prague, once a thriving centre for the performing arts, have a very limited choice of shows to go to. Although there are plenty of small venues, of which the Black Theatre and the Opera House are two, there are no sizeable, high calibre shows with mass market appeal - and certainly no musicals. But it is the dream of Slovak-born Jozef Celder, chief electrician for the RSC at the Barbican Theatre, and his two new-found Czech partners Petr Novotny and Stanislav Aubrecht, to bring the musical back to Prague. Two-and-a-half years ago, when Czechoslovakia was divided into the Czech Republic and Slovakia, the three of them formed what is jokingly known as the First International Czecho-Slovakian Company, which in reality is called Musical spol. s.r.o. (Limited).

Jozef first met Petr and Stanislav when he was translator on the Prague production of 'Les Miserables'. Petr was the local director and Stanislav his assistant, but all three had one thought - we could do this better! It is this dream that has kept them going against the time-consuming struggle to stage their first production.

I met with Jozef in London and asked him about the problems the company faced - and the opportunities open to British manufacturers in Central Europe.

"Having decided on the musical we wanted to stage, our first problem was to raise the money. Most of the financial side was handled by Stanislav, who I'm told is a very good actor - but I think he is a brilliant organiser! He has done tremendous work, raising bank loans and sponsorship against enormous odds. It was the old Catch 22 situation - show us the licence and we'll lend you the money - but we couldn't get the licence until we had the money. It was a very, very slow process, but eventually we raised some 13m Krowns (approx £300,000), a great deal of money in Czech terms.

Originally, we wanted to stage 'Cats', but it all got too complicated. In the end, we decided to do our own production of 'Jesus Christ Superstar'. This not only gave us more control over costs, it also gave us more freedom, but even better than that, everyone - from the bank manager down - had heard of it. The musical itself helped us to raise money and sponsorship where otherwise we might have failed. Even the banks were eventually prepared to carry some



Jesus Christ Superstar in Prague's Spirala Theatre.



photos: Antonin Maly

of the risk.

"We also had a lot of outside help, mainly from British companies. I persuaded Mike Goldberg of M&M to lend us some Rainbow Colour Changers, Arri lent us an Imagine lighting desk and Florian von Hofen from the Smoke Factory of Hanover lent us a Skywalker smoke machine. Without them, we just couldn't have put on the show we now have.

"In tandem with raising the money came the problem of finding a suitable theatre. Although

***"Whoever designed the theatre had never thought about actually lighting people's faces, only the tops of their heads and the soles of their feet!"***

the State theatres in Prague will eventually be passed back to their original owners, there is a period of 10 years grace in which to give the companies time to learn how to run a commercial venture. In the meantime, if you want to hire a theatre, you hire all of it - the technicians, the actors, the singers and the orchestra - and that could involve 120 people in the orchestra alone. So we have rented a 'new' theatre for a year.

"The Spirala, which is part of an exhibition complex in a park just outside the city centre, may look like a converted gasometer but it was in fact built as a circlorama-type cinema in the late sixties. The conversion to a theatre by the architect Smetana won him the 1993 Grand Prix of the Czech Architects' Association, so we cannot take all the credit for creating the space.

What we have done is take out the ground floor, centre stage - which was just a huge void - and sub-stage, and built a 10m centre stage with hydraulics below.

"The stage was designed specifically for our production of Jesus Christ Superstar and now consists of eight movable plates which are on a level with the stalls. These plates slide back so that the audience is looking down into a pit. At the centre of the plates are blocks which can move up and down independently, rising to different levels from one-and-a-half metres to two metres above the height of the stalls. We also installed an electric-powered tower which runs on rails from the wall of the auditorium to

almost centre stage. This tower has two levels on the first of which are stairs which connect with the centre blocks.

"The upper seating of the theatre was already in existence. It forms two circles round the walls of the auditorium, and each circle has three rows. The stalls seating, which we put in place, is five rows of chairs - literally! Buying these was a classic example of the attitude of people who are used to living in a State-run country. The 400 chairs that were delivered to us were nothing like the ones we ordered - they fall apart as soon as you sit on them. No excuses were offered - just that the chairs we ordered weren't available!

"The audience enters the theatre below the stage, reaching the auditorium through one of four entrances. The seats are reached via spiral ramps round the walls of the auditorium. What the audience doesn't realise is that when they are in the sub-stage area they are actually 'back stage'. Once they have cleared the area, it buzzes with activity - the props table, the wardrobe - everything is there!

"My own problem was the lighting equipment. Whoever designed the theatre had never thought about actually lighting people's faces, only the tops of their heads and the soles of their feet! Of the 60 circuits available, 20 are under the stage and the rest above. That was the other thing - I'm spoilt! I'm accustomed to having 480 circuits to work with!

"I am used to a proscenium and with theatre-in-the-round everything is so exposed. I had to think twice about how to approach it. It had to work for everyone in the audience, there are no 'best seats'. This was probably the most difficult



The remarkable building (left) which is home to the performance of Jesus Christ Superstar (right) looks more like a gasometer than a theatre.

MAIN DISTRIBUTOR



# RAMSA ON THE RACK

the whole range



**audio-technica**

INNOVATION PRECISION INTEGRITY

Technica House, Royal London Industrial Estate,  
Old Lane, Leeds LS11 8AG

Tel: 0532 771441 Fax: 0532 704836

MAIN DISTRIBUTOR

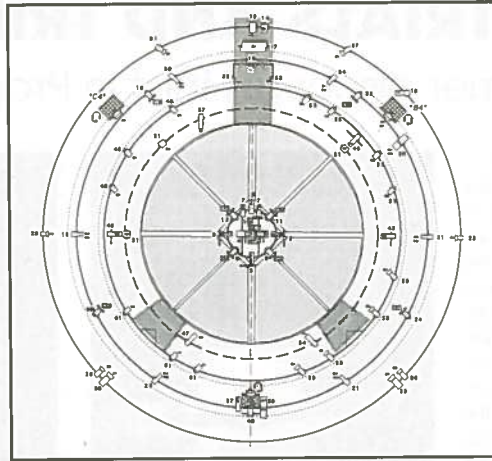
thing for me to get together. As time went on I realised the best way was not to light it - I exposed very little of the set, so that the mystery is constant. I was questioned about this, which was a bit disconcerting, until I discovered that theatre lighting on the Continent is not very subtle - designers light so brightly that you cannot see the actors for light.

"The production is set in the context of an architectural dig, an idea which Petr Novotny, the director, conceived following a visit to Pompeii. The musical starts with sliding plates covered in sand and an archaeologist, dressed in jeans and T-shirt, walks on stage from among the audience. The theatre goes to blackout, the stage opens - as if the 'dig' were coming to life - and we take the audience back in time to the last seven days of Christ's life. The central blocks are used at different heights as tables, rocks and, at the end, form the actual cross of the crucifixion. The main actors are lit by followspots, and the scenery is slightly touched by light, but very little. The Rainbows are used for various colour washes which, in the confined space and with the limited number of dimmers, was the only way I could suggest to the audience where the scenes were set and the time of day.

"Here again I was frustrated by the 'State' mentality. I placed what I thought was a simple order for Par 64s, assured that they would be delivered in time for my return a week later. When I got back there were no lanterns. They would be another three weeks - but we didn't have three weeks! I think it was at this point that I started smoking again, after 14 years, because I thought we'd never get the show together. In the end I had them flown in from England, because there was no other way. It cost us twice as much, as there was no alternative.

"We actually lost four or five preview nights because of public holidays, or it was too hot, or people just didn't care that maybe next time they wouldn't get the contract. And yet occasionally we were amazed by people's initiative. The show required the projection of five different slides but five projectors were way beyond our budget. I had an idea of how to do it using one projector and drew a rough sketch of what I had in mind. A couple of guys went away and came back three days later with a brilliant design of what I wanted and it worked. They used the motor from a windscreen wiper! Which proves that if people really want to achieve something, they can.

"One of the main problems facing production companies in Prague is the lack of high quality equipment. Although the equipment available from hire companies is fairly modern, it is very much at the cheaper end of the market. We would love to upgrade our radio mics, which are very conspicuous, but we had no choice. Sure, there are financial limitations - what is on offer is what is affordable at



Josef Celder's lighting rig for Jesus Christ Superstar.

the moment, but this will change and the potential for British companies is enormous. If you can imagine the theatre in England in the late sixties, maybe even further back, that is what it's like in Prague now.

"There are some moving lights but they are mostly way above budget. The National Theatre and the subsidised companies have modern equipment, but it may be that they are sinking their entire budget into a lighting board and not buying the lanterns. I suspect, looking at the

lighting, which is so different, that they need to learn to use the equipment properly. Of course, as money gets easier, standards will get higher. We are hoping to mount a first class production next, and that most certainly will raise standards because they will be specified to us by the licensor.

"There is also a certain amount of dogmatism. For example, I was told that some of the equipment in the Spirala had never worked and never would work. I discovered it was because it was analogue and technically couldn't work. I had to prove to the other technicians that our equipment did work and would work night after night - on DMX! Since our opening night we have had almost every director in the country come to look at what we're doing and the equipment we're using. We are seen as pioneers, not only in what we are trying to bring back to Prague, but also in the areas of pricing and publicity.

"Prague's prestige theatre, the Stavovske Theatre, a most exquisite building, where Don Giovanni was conducted for the first time by Mozart himself, charges about 900 Krowns (£20) for the sort of seats that would cost something like £80 at the Royal Opera House. When I went to see *Così Fan Tutti* there recently, I saw hardly any local people - just tourists.

"The idea of pre-booking or being sold out in advance is unknown in Czechoslovakia. People generally just buy tickets at the door. We are selling tickets for about £9, which is cheap compared to English prices, whereas subsidised theatres charge less than £1 for the best seats - but then they don't have to make a profit, or repay a bank loan. Having said that, it's our best seats that are selling out first, so I'm not sure we have our pricing policy correct yet!

"But it has all been worth it - we opened on 22 July and the response has been absolutely wonderful. The opening night crowd was shown live on TV, just before the evening news. We've had tremendous reviews and the spin-offs are beyond belief. Czech TV is planning a mini series on the history of the musical and the CD of the show comes out soon. For 40 years the attitude has been take it or leave it, but that is changing. The learning curve is a steep one, but we'll get there!"

*Lesley Harmer is public relations consultant to M&M, Northern Light and Rosco*



Josef Celder at the Arri desk (left) and the Pani projector, with slide changer, getting some fine tuning (right).



# Chameleon

power amplifiers

- the best sound you've ever heard



SEE US  
AT PLASA  
STAND C20

MALCOLM HILL ASSOCIATES



Hollingbourne House  
Hollingbourne,  
Kent ME17 1QJ  
Tel: 0622 880 601  
Fax: 0622 880 664

The Premier Inverted Hoist/Motor

**NOW STOCKED IN UK**



- ◆ Black powder coat finish ◆
- ◆ Up to 40 metres lift - high duty factors ◆
- ◆ Protector ® overload protection ◆
- ◆ 110 volt controls ◆
- ◆ Upper/lower adjustable limit switches ◆
- ◆ Motor suitable for use in UK, Europe or USA ◆
- ◆ Capacities 1/8 to 3 tonnes ◆
- ◆ Fast speed units available ◆
- ◆ Single phase versions available ◆
- ◆ For Inverted Use ◆

Contact for motors/spare parts/service:-  
PCM,

A Division of Pfaff Silverblue Mechanical Handling Ltd,  
Prenton Way, North Cheshire Trading Estate,  
Prenton, Wirral L43 3DU

Tel: 051-609 0101 Fax: 051-609 0200

## AUTOSTAGE

'the future is  
NOW' . . . . .

See it on Stand **A34**

PLASA LIGHT AND SOUND SHOW

**HARKNESS SCREENS  
& HALL STAGE LTD.**

THE GATE STUDIOS  
STATION ROAD  
BOREHAMWOOD, HERTS.  
WD6 1DQ ENGLAND

TEL: 081 953 3611

FAX: 081 207 3657



# Planned endurance

We live in a fast moving world where every year the pace of technology gets faster and faster. As an example just look at the capacity of today's low-cost PCs compared with a few years ago.

The same is true in the lighting business, particularly at the cutting edge in entertainment lighting and more especially with the more high-tech products such as robotic scanners. So, the question is, will your investment in automated lighting be rusting in the roof in three years time?

Not if it's a Roboscan Pro 1220 from Martin Professional it won't - not just rugged but modular, the Pro 1220 enables swift replacement of all parts without the need for special skills or removal from the fixing point. Using up-dated or off-the-shelf modules you can up-grade or renovate your state-of-the-art Pro 1220 whenever you want so it will never let you down.

**At Martin Professional  
we go that extra mile.**

**Martin**

**Forever  
young**

# POWER, PERFORMANCE AND EMC

Ken Dibble and Allen Mornington-West run the first pro-audio products review to include EMC Conductive Emission Testing

## THE BRIEF

Eight manufacturers were invited to submit a power amplifier intended for the professional market for this project, the stipulation being that it had to incorporate some form of new technology which offered the user some practical benefit over conventional boxes of iron, copper and capacitors, either in terms of reduced size or weight, cost, or some clear improvement in sonic performance.

## THE PLAYERS

**C-Audio XR-5001:** this beast is so new that we had to fly the only existing pre-production prototype from Singapore and argue with Harman as to who had it first!! It is due for launch at PLASA 94.

**Carver PM-1400:** this sample came from a pre-production run flown in from Seattle especially for Tottenham Hotspur FC's new PA and voice evacuation system. This too makes its market debut this month.

**Chevin Research A-750:** a quite unique British amplifier now well established in continental Europe, but which has had little exposure in the UK to date.

**Crest 9001:** this battlewagon operates in Class A at low to medium output levels, slides to Class AB for medium to high signal conditions and then to Class H to meet transient power demands. It has an FTC rating of  $2 \times 2\text{kW}/4\Omega$  and weighs a hefty 40kg.

**Crown MacroTech 3600VZ:** you'd hardly describe it as small, and it's certainly not lightweight. But 3.6kW in the space of a Micro-Tech 600?

**Lab Gruppen LAB-2000C:** this hi-tech, safety-conscious lightweight Swede has recently been adopted by Concert Sound for their major touring rigs. We hope to find out why.

**Malcolm Hill Chameleon 1400S:** the Chameleon range is probably the established front-runner in the compact market and is very popular for studio monitoring applications. Again, it would be interesting to find out why.

**Peavey DPC-1000:** another brand new arrival on the UK market employing a revolutionary circuit topology in which the amplifier and power supply elements are integrated as one. A comfortable 1kW in 1U - and it's not 10ft deep!

*This month we get to play with the Crown, Chameleon and Peavey contenders. I'm afraid you'll have to wait for the October issue to read up on the Carver, C-Audio, Chevin, Crest and Lab-Gruppen.*

## ENGINEERING APPRAISAL

Each amplifier was given the once-over visual inspection and we shall provide a brief description of its constructional quality and features, alongside an overview of its unique technological topology.

## AUDITIONING

Lab test results are all very well, but they can never tell you how an amplifier will sound. This is why I consider auditioning an essential part of a product review, even though it is subjective



The EMC tests being carried out.

and can only represent the opinion of the individual(s) doing the review.

Each amplifier was hooked up to a pair of Urei 809 'blue horn' monitors and fed from a Hafler DH-110 control amplifier using a Mission PCM-7000 CD player. A number of 'standard' auditioning tracks were used including Flim and the BB's 'Tricycle', Straits 'So Far Away', Tina Turner's 'What's Love Got To Do With It?' and 'Private Dancer', Floyd's 'The Happiest Days of our Lives' etc. We have tried to give a clear impression of our opinion using concise adjectives instead of the flowery language of auditioning used in the hi-fi press.

Whilst the hi-fi boys nit-pick every imagined imperfection or niggles with a 50W domestic amplifier, the sheer scale of difference when listening to music in a high headroom environment such as comes from a 1kW amplifier and an efficient loudspeaker system is nothing short of stunning - to the extent that minutiae is of little or no interest.

Instead, one can focus on practical performance criteria like control over the LF cone excursion - does the LF stay clean or is it muddied? Does the mid stay clean at high listening levels or does it fuse over and lose definition? Are the highs accurate or splashy? Do Tina Turner's vocals stay naturally aggressive or does she shout and hurt your ears? The use of this type of criteria at least provides a consistent basis by which the basic performance can be conveyed.

## THE TEST BENCH

We have neither the space nor the time to carry out a full spec-check on eight amplifiers so we have confined the lab tests to measuring the things you want to know about - e.g. checking the rated power output data as given in the manufacturer's data sheet. We used a 1kHz continuous sinewave tone for these tests, measured using a true RMS DVM at the onset of clipping.

Some review samples came with an integral clipping eliminator circuit which could not be disabled, so these were measured at the precise point of lock-up. The supply voltage was generally held at 240V except for the C-Audio, Crest and Crown, which drew too much current for our variable transformer supply unit and so had to be run straight off the raw mains.

Because clever circuits sometimes do unexpected things we have also run 20Hz-20kHz power bandwidth plots at 10W, 50W,

half power, and full power in those instances where the product is rated for full power sine-wave operation. The sweep duration was 15 seconds and we have taken full rated output into  $4\Omega$  as the 0dB reference points for the plots.

Many of the amplifiers tested are dual rated - 'continuous' and 'headroom' or 'programme'. This is because in many cases the amplifier section is capable of greater signal excursion than the power supply circuits and/or cooling systems can support on a continuous basis. Carver, for example, were amongst the forerunners in this technology with their 'magnetic field' power supply technology and application

of class G 'commutated rail' output stages. KD has shown in earlier reviews that this type of product is often able to provide short duration bursts or transient power well in excess of its continuous rating and thus provide greater headroom when used to replay programme with a significant crest factor or of large dynamic range.

Only the MHA Chameleon however actually specifies the headroom capability in terms of power increase vs. time duration. Since audio is rarely sinusoidal or continuous - even heavily compressed rock and roll presents less than a 50% duty cycle - it is likely that we shall see an increasing amount of product coming onto the market specified in this way.

In an attempt to investigate this aspect we applied a 1kHz tone burst of 100ms duration with a repetition rate of 500ms. The peak-to-peak amplitude at onset of clipping was measured using a calibrated display oscilloscope and the corresponding RMS power calculated. The results are shown in the test results tables.

We've also checked the self noise level so that the useful dynamic range can be shown. This was again measured using a true RMS DVM, unweighted, with inputs open-circuit and gain controls set to maximum. Oddball technologies involving switching techniques are not renowned for low noise performance so this was considered an important test.

## E-DAY '96

Another problem associated with switching technologies is that of interference caused to other apparatus. This comes from the harmonics of the various switching frequencies used and shows up rather like the interference often picked up on AM radio sets. It's easier to think of this in terms of radiation from the enclosure of the offending apparatus - but there is more to it.

This is because the AC mains power cord can also act as an aerial inside the apparatus and can easily pick up evidence of the internal RF pollution. This, along with the unwanted distortion of the mains caused by most power supply designs, is carried down the mains cabling until it reaches the inlet connector of some innocent apparatus where it causes unwanted interference. In severe cases it can corrupt emergency communication or data transmission systems.

So we have the notion that modern electronic

apparatus should not radiate or conduct interference and that it should not be unduly sensitive to it either. But it's gone way past the 'notion' stage.

From January 1st, 1996 the EMC (Electro-magnetic Compatibility) Directive 89/336/EC and its later amendments will be implemented throughout the EU. From that date it becomes a criminal offence to offer for sale or take into use any electronic apparatus which cannot show that it complies with the appropriate EMC standards.

The EMC standards cover both emission and immunity performance, and in the absence of a standard which relates to a specific type or 'family' of equipment, it is usual to revert to the Generic EMC standards. In the case of our industry, a group of concerned engineers have spent the past four years working with BSI and the European electrical standards authorities in producing just such a family specific set of standards. These are referred to as the PAVI (Professional Audio and Video and Lighting Control Industries) standards. ABTT, AES, IABM (International Association of Broadcast Manufacturers) APRS, PLASA and SCIF have all been directly involved in the preparation of the PAVI Standard, which is expected to be published shortly as a draft for public comment.

At present the UK has a head start over the rest of Europe with some 24 registered EMC test sites whose reports will be recognised throughout the EU, Germany has 11 and Italy only four. We know that a number of the more responsible manufacturers and importers have been carrying out tests in readiness for E-Day, but that leaves a large number in the dark. Until now perhaps? Because this, we believe, is the first ever review of pro-audio gear which has taken even a brief look at EMC performance.

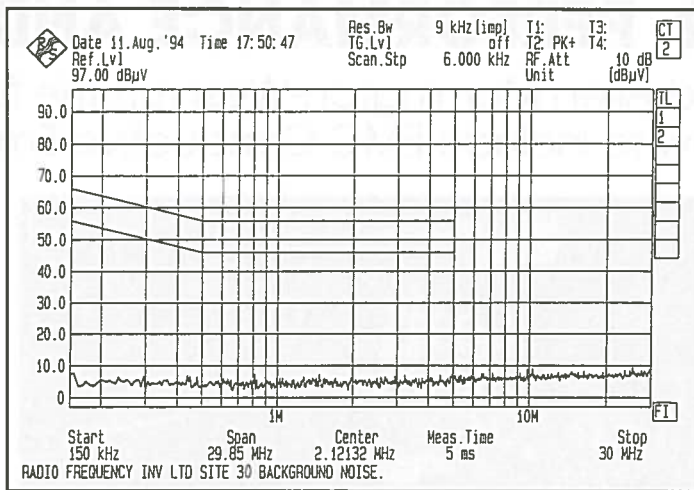
## EMC TESTING

To carry out a full set of emission tests on all amplifiers would be very time-consuming and expensive. Even the standard radiated emission tests require either an anechoic RF room or an open area test site. Another problem is that testing a single amplifier for radiated emissions may not show the problems which might occur when a number of amplifiers are working together in the same rack or the effect of including a low-cost, possibly 'illegal' DSP device like a DDL within the system. Maybe in the future we may be in a position to look at radiated emissions in more detail.

For the purposes of this review, since it was the power supply topology that led us into this minefield in the first place, we decided that conducted emission testing should be our primary concern. These days, electronic product design - even for one-off or custom jobs - must start with a recognition of the EMC impact of the design. It is a skill which most of us left behind when we left college to play with audio - blissfully unaware that the problems of audio equipment design spanned from DC to 1GHz!!!

There are several sections to the draft PAVI standard and the section we'll be looking at covers conducted emission from 150kHz-30MHz. Magnetic field radiation in the region of 50Hz to 10kHz and current distortion between 0-2kHz are referred to in other sections of the standard, which we had neither the facilities or the time to investigate.

Neither the test gear, nor access to the test sites come cheap, so we are indebted to Chas



EMC conducted emissions background noise plot.

Simpson, Rob Graham and Joe Wilkinson of RFI Ltd in Dunlop, Ayrshire, for offering to carry out a set of conducted emission tests on these amplifiers. RFI is a NAMAS Accredited test house and because of their association with the professional audio industry, offered us a day at their test site facility for this review at no cost to L+S.

Each amplifier in turn was installed in an RF shielded room and its mains input cable connected to a Line Impedance Stabilising Network (LISN). Greatly simplified, this device provides filtered AC mains power to the apparatus under test (AUT) from a uniform impedance source and makes the interference component available at a test socket. The particular LISN we used was a Rhodes and Schwartz ESH2-ZS, which was connected to a Rhodes and Schwartz EHBI-RF receiver unit and ESAI-D display unit. These two devices together might be considered as an advanced variant of the kinds of spectrum analyser used in audio but is more complex, operates over the range from DC to 2GHz and cost a mere £93,000!!!

The next question was to determine the audio operating conditions under which the EMC test would be conducted. The draft standard directly applicable to the 150kHz-30MHz conductive emission test is EN 55 022 but this does not assist us in the matter of operating conditions. EN 60 065 however (which is primarily concerned with safety) stipulates that audio power amplifiers should be operated at one eighth full power using a band limited pink noise source whilst the EMC 'measurement standard' EN 61 000 states that any apparatus whose average power consumption varies by more than 15% is to be tested at one eighth rated power. This 'grey area' we stumbled across is a good example of how the EMC standards are not yet fully worked through and leave loose ends still to be resolved. In practice, one eighth power pink noise is the point where the signal peaks should be just free of clipping and so in the absence of absolute guidance we decided to adopt one eighth power into 4Ω as the reference operating condition.

As RFI do not possess any audio test gear we had to truck KD's 6kW non-inductive dummy load, a Thurlby 1905A true EMS DVM, a dual channel oscilloscope and a pink noise generator up to Scotland to enable each

amplifier to be set up to the standard. This peripheral equipment which is not part of the AUT is termed 'supporting apparatus' in EMC jargon and is powered from a separate AC mains power supply.

First, we measured the level of conductive emissions with only the test rig operating which appears as the background noise trace in Figure 1. This is a necessary preliminary in order to be sure that what is measured is actually generated by the AUT and not by the test equipment itself or the supporting apparatus. This chart also illustrates the format of the results presentation we shall show for each product tested. The two limit lines about half way up show the Class B

limit levels, similar to international standard CISPR 22 (not FCC), for the average (lower) and quasi-peak (upper) emission levels as set down in the draft standard.

The standard requires that both quasi-peak and average levels are measured for the live and neutral conductors separately, but with eight amplifiers to test in one day, a compromise had to be made. The alternative was to run a simple peak measurement which takes about one tenth of the time necessary for a quasi-peak or average sweep. In the event this turned out to be no great handicap because the amplifiers under test were either very obviously well beyond the limits, or were sufficiently close to it that in a few minutes we could look at the quasi-peak and average values at relevant isolated frequencies.

## RESULTS PRESENTATION

Where the live and neutral results are similar we shall show only the live plot in the form shown at Figure 1. Where there is a significant difference we shall show both on a smaller scale and discuss the differences. We can say straight away that only two of the eight products tested came even close to meeting the quasi-peak limit line and surprisingly, both were of a switching topology! Clearly, some manufacturers already have a grip on the problem whilst others have hoped it will simply go away - which it won't!

## PEAVEY DPC-1000

SER. NO. 00-06860695

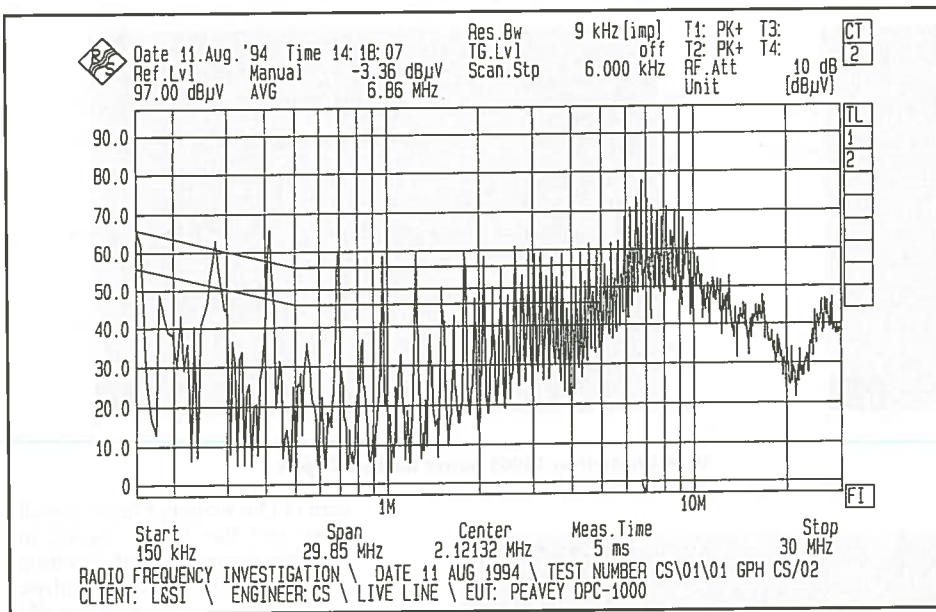
### GENERAL DESCRIPTION

This is a 1U x 38cm deep rack package weighing in at just 6kg and rated at 2 x 500W/4Ω. It has to be the smallest, lightest, and neatest genuine 1kW rack-mount amplifier yet.

Because it's so small and light, the chassis is of much lighter gauge than conventional amplifier construction, comprising a simple pressed sheet aluminium tray with an attractively formed bevelled channel section as the front panel and bolt-on rack ears if required - more like a larger digital delay processor than an amplifier. One constructional feature that gave cause for concern was that a centrifugal fan draws air in from the top rear of the casing,



The Peavey DPC-1000.



Peavey DPC-1000 EMC conductive emission result.

thus preventing these amplifiers from being racked without spacing panels. Whether the thermal design would in any event permit stacking is another matter, but the upshot is that although the DPC-1000 itself is a 1U device, if more than a single unit is to be housed, then the rackspace requirement is 2N-1 rack units.

The finish is a uniform matt black stove enamel all over, with attractive pale grey and blue screen-printed front panel. The only control on the front panel is the AC mains power switch, which is supplemented by signal present and status LEDs for each channel. There isn't even a bridge mono indicator. Interestingly, the volume controls are on the rear panel adjacent to the input connectors.

The back panel, however, gives the impression of a 'home studio' or 'musician' product rather than a piece of serious professional equipment. The inputs are on balanced 3-pole jacks - not XLRs, and even more surprising is that the loudspeaker outputs are also on jacks - although these are duplicated on 4mm binding posts. This amplifier is generating up to 56 volts and up to 12 amps at its output terminals and the outputs are on standard 2-pole 1/4" jacks!

### CIRCUIT TOPOLOGY

Removing the top cover reveals an interior which has more in common with a radio transmitter or a DSP device than a power amp. There are chokes, ferrite core wave-traps and other inductors all over the circuit boards, and of note in the context of EMC is a substantial AC mains RFI filter unit which incorporates the CEE 22 mains input connector. The only mains

transformer is about the size of a door bell transformer and is used to provide DC rail volts for the input and control circuits which comprise mainly microchips. The usual output devices are replaced by high-speed power switches mounted in a small fan-cooled air-tunnel/heat sink and the output stage power supplies are an integral part of the amp circuitry.

The DPC-1000 is not really an amplifier at all in the true sense of the word, and, in fact, is called a 'Digital Power Converter' by its manufacturers. In essence, it is a variant of the PWM (pulse width modulation) technology in which the output audio signal is derived from the phase difference between two switching waveforms. Thus the device is, in effect, a switching amplifier and as such does not need the conventional high current DC rails to operate. Also, due to the absence of negative feedback and a very low output impedance the damping factor is very high and the amplifier cannot slew-rate limit.

### AUDITIONING

The DPC-1000 has excellent low frequency control and is very fast and accurate - 'tight' (as borrowed from the musicians' vocabulary) is a word that comes to mind. The drum break on the Flim and the BB's track 3.17 minutes in, is nothing short of spine chilling whilst the jazz guitar rift half way in (which is muddled into oblivion by some amplifiers) is resolved with superb accuracy and warmth. Tina Turner's vocals retain all their raw energy but without screeching. The lead-in to So Far Away is as good as I've heard anywhere. Yet, despite all this there is a splashiness about the upper mid and HF

range - just a hint of aggression which caused listening fatigue after a while.

### TEST BENCH RESULTS

This was one of those amplifiers with an integral clipping eliminator and so was tested at point of lock-up. It can be seen that the rated power figures are fully confirmed. Although the whole amplifier was getting remarkably hot after a couple of full power 4Ω sweeps it does not sag under sustained sine wave drive conditions.

It is difficult to know what is meant by Peavey's 'up to 750W RMS (programme) into 4Ω with both channels driven' statement as contained in their brochure. We could not achieve one ounce more than 500W, even by halving the burst period and doubling the repetition period, before the clipping eliminator locked in. Our results represent an increase of just 0.6dB above the continuous power, which is of negligible significance or benefit.

Note that our signal-to-noise ratio measurement is 12dB worse than the specified figure and this is reflected by auditioning, where the background noise is quite audible between passages of music. Otherwise, it's an impressive product.

### EMC PERFORMANCE

The live and neutral plots were not dissimilar as regards general characteristics so only the live plot is shown. The trace shows clear evidence of the switching frequency which we suspect to be about 66kHz. Despite the isolated peaks, which exceed the limit line below about 2MHz and the dense grouping around 7MHz, the result suggests that with improved filtering this amplifier could well be brought within the limit values.

### MHA CHAMELEON 1400S

SER. NO. 1451231

### GENERAL DESCRIPTION

The Chameleon range gave birth to the '1U x 10ft deep' or 'slab amp' terminology - and certainly, the larger rated versions measure up to 500mm deep! The 1400S however, is a more manageable 400mm deep, weighs 10kg and develops a 2 x 500W/4Ω sinewave, 2 x 575W/4Ω 'dynamic power' and 2 x 700W/4Ω 'transient power'. Although several of the amplifiers submitted for review claim a transient power capability over and above the rated continuous power, MHA are the only manufacturers to actually specify the parameters applied to such ratings.

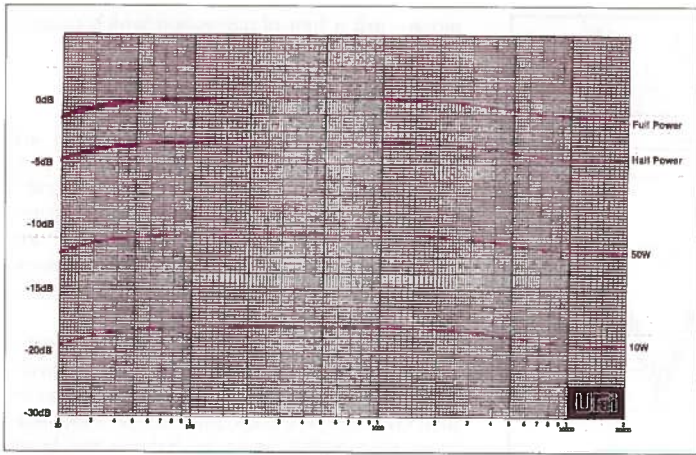
In essence, the 1400S is identical to the earlier 2200S model but does not incorporate the 'Headlok' or softstart features of its forebear.

The visual impression is of sheer high-tech engineering quality. The unique case construction comprises four polished, extruded/machined, rilled, hard aluminium sections and a front and rear panel. The side members have an exponentially expanding ventilation slot along their entire length and carry the output devices and output PCB as an integrated assembly. The top and bottom panels are inserted between the heat dissipator side sections and are secured with hexagon socket screws and provided with neoprene compression air seals.

In fact, a lot of thought has gone into the cooling system to enable the amplifiers to be racked without the need of a spacing panel between - i.e. a true 1U design. Air is drawn in through the front panel via particle filters and blown by a high speed centrifugal fan into the air-sealed electronics compartment, and

### PEAVEY DPC-1000 - SPECIFICATIONS AND TEST BENCH RESULTS

	SPECIFICATIONS	TEST BENCH RESULT
Frequency Response:	20Hz - 20kHz +0, -1.5dB	20Hz - 20kHz, +0/-2.5dB constant between 10W and full power
Rated Power - continuous:	600W/4Ω one channel 2 x 500W/4Ω both channels 1000W/SR bridge mono	650W/4Ω one channel 506W/4Ω both channels 390W/8Ω one channel 350W/8Ω both channels
Headroom Power (prog):	750W/4Ω both channels	580W/4Ω both channels
THD:	<0.2% @ 450W/4Ω	360W/8Ω both channels (100ms burst)
Transient Intermod Dist:	0%	
Slew Rate:	Cannot slew-rate limit	
Hum and Noise:	N/S	typically -42dBu unweighted
Signal-to-Noise Ratio:	>90dB below full power	typically 78dB.
I/p sensitivity:	1.0V (0dBV) for 500W/4R	
Power requirements:	120/240V 50/60Hz, 1200VA	



Peavey DPC-1000 power bandwidth plot.

exhausts via the exponential slot through the heat dissipators. These are some 110mm deep and leave a space only 220mm wide for the electronics.

The front panel is also a departure from convention comprising a 'nose' profile aluminium extrusion carrying only the mains power switch, two stepped, calibrated, push-button gain controls and the signal present, signal peak and bridged mono LEDs.

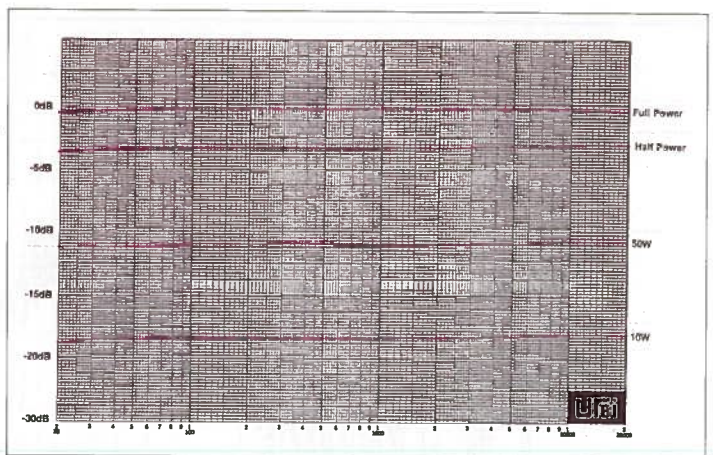
The inputs are on balanced XLRs and duplicated on 3-pole jacks. Loudspeaker connections are on 4mm binding posts only, and the AC mains input is by a CEE 22 connector with voltage selector and ground lift switches. The bridge mono switch is also on the rear panel, but is not legendary and has no protection against inadvertent use.

### CIRCUIT TOPOLOGY

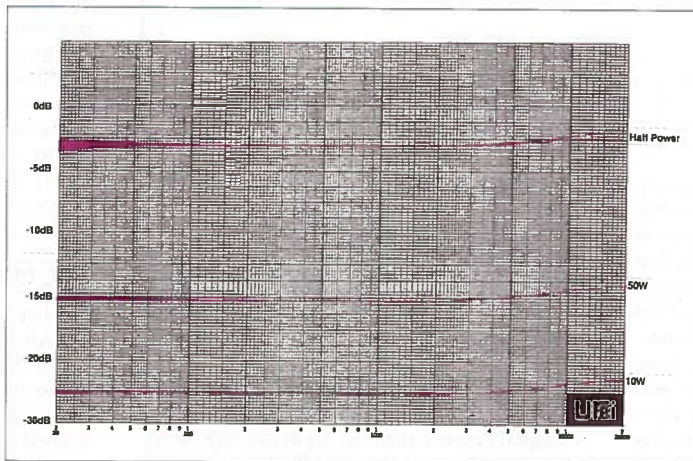
The electronics appear extremely sparse, with ultra-compact input stage and control/protection PCBs at the rear, a power supply PCB which carries the electrolytics, fuses and a centrifugal fan at the front and a very large, squat, toroidal mains transformer at the centre. It is essentially a conventional class AB complementary output stage employing the 'minimum signal path' topology presently fashionable amongst the hi-fi fraternity. It operates from a conventional rectified and smoothed power supply providing  $\pm 105\text{VDC}$  unregulated for the output stages and around 40V regulated for the input and control circuits.

The compact size and relatively low weight is attributable in part to the reduction in the component count resulting from the 'MSP' approach and to the layout format, to the aluminium construction and to a very small power supply for a 1kW continuously rated amp. This has been achieved by the use of a new esoteric high permeability steel for the transformer core which halved the size and turns necessary for a given VA rating. The smoothing capacitors have particularly low residual impedance and rapid charge time constant, enabling smaller capacitors to be used.

It seems that having experimented with switch mode supplies and other amplifier topologies, MHA found an analogue 'MSP' design always sonically outperformed more hi-tech notions and so embarked on a 'component technology' mission instead of looking for yet another clever switching circuit with all the filtering and EMC related problems that entail. Malcolm Hill says that each amplifier can be regarded as a large op-amp and this is the basis of the Chameleon family -



MHA Chameleon 1400S power bandwidth plot.



Crown 3600VZ power bandwidth plot.

whose crowning glory, a  $2 \times 1.6\text{kW}/2\Omega$  design in the same case format, is now in prototype form, but was not available for review at the time we went to press.

### AUDITIONING

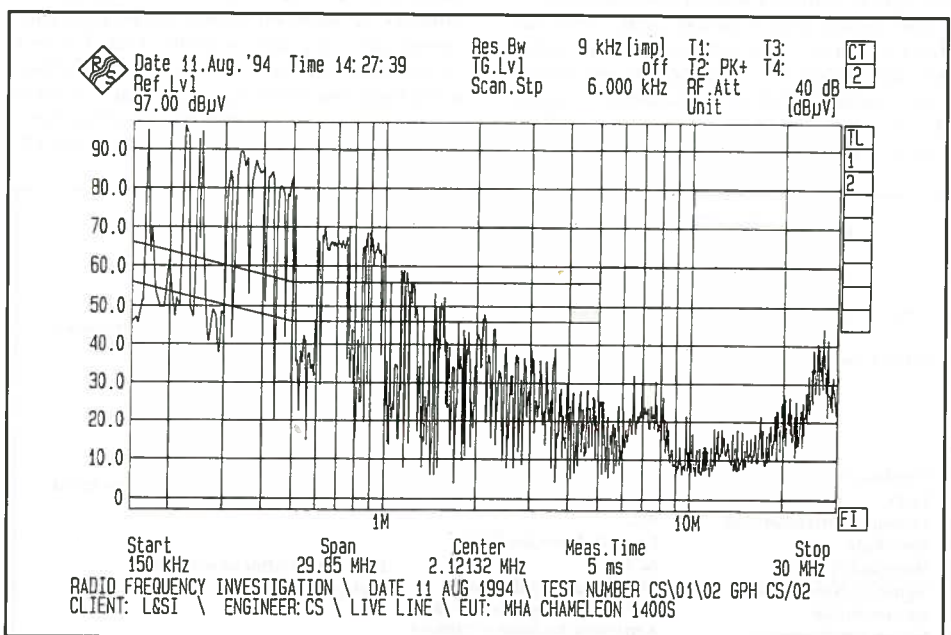
The Chameleon 1400S exhibits excellent control and provides accurate and tight bass, and plenty of it. That Flim and the BB's drum break is quite as controlled as expressed in the Peavey DPC-1000 review and if anything, less splashy and with still better definition. The piano sound on this track is exceptionally smooth and natural. Again, Tina Turner's vocals stay raunchy, but do not scream. So Far Away is also handled superbly, the transient

slam of Our Happiest Days was all there and the 1400S stayed in complete control. It's not surprising that Chameleons are finding widespread acceptance for studio monitoring applications - especially the 900S which has double the complement of output devices usually necessary for its rating and is passively cooled to avoid fan noise.

### TEST BENCH RESULTS

This amplifier has absolutely no difficulty in meeting its power output or signal to noise specifications, although like the Peavey (which has almost identical specifications), it tends to run fairly hot when driven hard. Also it's quite noisy mechanically due to a combination of fan noise and transformer buzz. The glitch in the 50W/4Ω power bandwidth plot is unexplained - the amplifier suddenly clicked mid-plot, stepped up about 0.1dB, then clicked back - rather like a relay clicking in and out. We were however, unable to qualify the manufacturer's transient or dynamic power figures. Our test gave a drop of 0.1dB at 4Ω and an increase of 0.05dB at 8Ω, compared with the continuous results. Again, halving the burst period and doubling the repetition period, made no difference to the voltage swing at which clipping occurred.

The Chameleon product range has been



MHA Chameleon 1400S EMC conductive emission result.



**Switzerlight**

...THE UPGRADE COMPANY

**Unveiled**

**Intellabeam - the upgrade**

Switzerlight  
Breitensteinstrasse 58  
CH-8037  
Zurich  
Tel + 41-1-271 1847  
Fax+ 41-1-271 1474

A Division of KJT Group  
Switzerland

PLASA  
STAND A223

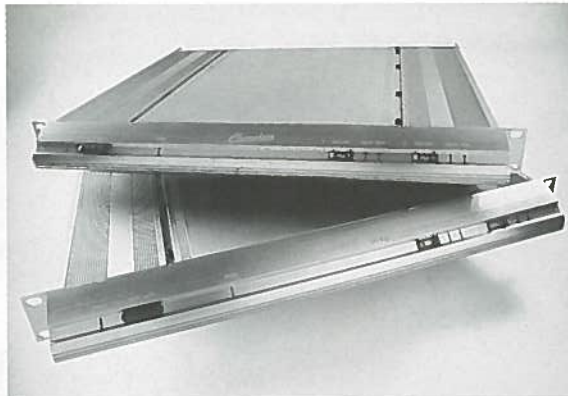
## MHA CHAMELEON 1400S - SPECIFICATIONS AND TEST BENCH RESULTS

	SPECIFICATIONS	TEST BENCH RESULT
Frequency Response:	20Hz - 20kHz +/- 0.25dB	20Hz - 20kHz, +/- 0.5dB constant between 10W and full power
Rated Power : - continuous	600W/4Ω one channel 2 x 500W/4Ω one channel 360W/8Ω one channel 2 x 310W/8Ω both channels 1000W/8Ω bridge mono.	650W/4Ω one channel 540W/4Ω both channels 392W/8Ω one channel 338W/8Ω both channels
Transient Power : (20/80ms)	2 x 700W 4Ω both channels 2 x 400W/8Ω both channels.	528W/4Ω both channels 342W/8Ω both channels (100ms burst)
Dynamic Power: (200/800ms)	2 x 575W/4Ω both channels 2 x 325W/8Ω both channels	
THD:	<0.005% @ 1kHz (DIN)	
Intermod Dist:	<0.05%, 0.1W clipping (SMPTE)	
Slew Rate:	70V/μS.	
Rise time:	2μS.	
Damping Factor:	500 @ 50Hz @ 8Ω.	
Hum and Noise:	N/S	typically -62dBu unweighted
Signal-to-Noise Ratio:	100dB A-weighted	typically 98dB ref 500W/4Ω
1/p sensitivity:	1.0V (0dbV) for 500W/4Ω	

around for some time now, but this is the first opportunity presented to play with one. Its performance is impressive.

### EMC PERFORMANCE

Again the live and neutral characteristics are basically similar so only the live plot is shown. This shows none of the periodic behaviour of the Peavey, but instead has an envelope of interfering signals which lies well outside the limit line. Their randomness is in part explained by the use of a pink noise excitation signal, but we were surprised to see so much RF noise arising from a relatively conventional power supply. Had we the time it would have been instructive to re-test under no signal conditions and using a 1kHz sine wave tone at one eighth and at full power to gain some insight into the origins of the RF noise spectrum. That information would not be needed for compliance with the standards, but would have made interesting reading.



MHA Chameleon 1400S.

## CROWN MACROTECH 3600VZ

SER. NO. 644193

### GENERAL DESCRIPTION

This is amongst the more substantial amplifiers submitted and ranks alongside the C-Audio XR-5001 and Crest 9001 as the most powerful. It is rated at 2 x 1.8kW/2Ω bridged mono and 3.6kW/1Ω in parallel mono, yet it comfortably resides in a 2U package, is designed to be racked without the need for spacing panels and measures 400mm deep - it occupies exactly twice the volume of the Chameleon 1400S but is almost four times the rated continuous power. It weighs in at 25.4kg.

The MT-3600VZ incorporates Crown's now well established ODEP (Output Device Emulation Protection) circuitry, and new for this model (and its sibling MT5000VZ) is the grounded bridge output stage and VZ (pronounced VeeZee) variable impedance power supply - of which more later.

The MT3600VZ is of the traditional Crown build quality and butch appearance, with its thick section cast aluminium, purposeful front panel, machined aluminium control knobs and 'radiator grille'. The chassis comprises two pressed steel side flanges, a rear panel, top and bottom covers and a mezzanine deck, all stove enamelled in a semi-matt, 'speckled hen' black.

The output devices are carried on electrically live heat spreaders for improved thermal conductivity, which in turn are connected to copper foil thermal diffusers which line the two side chassis flanges. Air is drawn in from the front grilles and exhausted through the sides via these foil diffusers in much the same way as the MHA Chameleon. The difference is that Crown use an axial fan, mounted in the middle of the mezzanine chassis divider to generally waft the air around the amplifier interior where MHA use a centrifugal fan to direct the airstream through the sealed central electronics compartment.

The build quality is excellent with unusually high grade components throughout, heavy duty AC power and loudspeaker wiring and gold plated output terminals. Also, because of the mezzanine deck plate, the chassis is unusually rigid for a simple pressed steel shell and is held together with properly bushed screws instead of self tappers. The power transformers are intelligently placed up against the front panel so that the weight is carried on the substantial rack ears, but even so, Crown are rightly adamant that the amplifier should not be rack mounted without support rails.

The front panel is surprisingly simple for such a complex amplifier, carrying only the start-up enable switch (see Circuit Topology), two detented rotary gain controls and the signal present and ODEP LEDs. The rear panel however, is fairly busy, with balanced inputs on XLR3s and duplicated on 3-pole jacks, duplicated loudspeaker connections on two sets of 4mm binding posts per channel, a mode selection switch and comprehensive connection information. AC mains input is by a very substantial 'cab tyre' rubber, 12 AWG attached cable. As the amplifier draws 15A at

full power it should be used with a CEE 17 (C-form 16A) outlet rather than a standard UK domestic 13A socket.

The MT3600VZ has a number of additional features which should not be overlooked, even in a brief review. One such is the choice of three operating modes. Besides the usual two-channel mode, there is a choice of bridged mono or parallel mono. In the former mode the two amplifier channels are driven in series to provide a 3.6kW voltage drive across a 4Ω load, whilst in the parallel mode they are paralleled to provide a current driven 3.6kW across a 1Ω load - although there are one or two precautions necessary when using this configuration.

Also the amplifier features a Programmable Input Processor (PIP) facility. The standard module supplied with the amplifier carries the four input connectors and provides pcb space for any necessary passive input filters or matching components, along with a sensitivity switch to select between 0dBu and 26dB fixed gain. A whole range of alternative PIP modules are also available including active crossovers, compressors, automated mixers, source selectors and voice-over modules, a Bose equaliser module, mic/line pre-amplifiers, and full computer control and condition monitoring via Crown's IQ data highway. The range is quite extensive and will open up a huge market in commercial applications outside what we think of as the music business.

### CIRCUIT TOPOLOGY

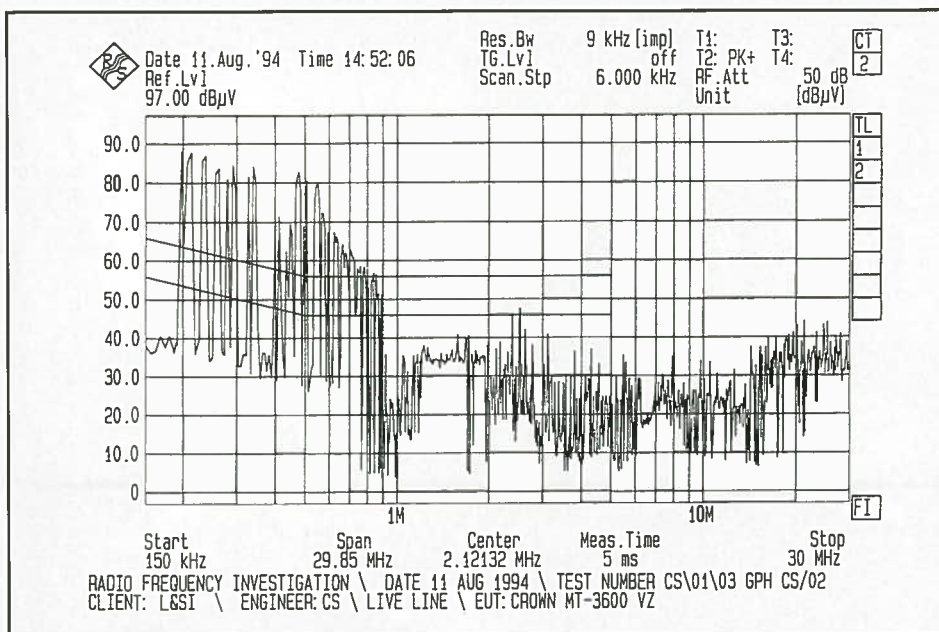
Although sharing a common basic layout with the Chameleon - the power output stages and heat sinks down the sides with the control and power supply components at the centre - this highly sophisticated amplifier is the antithesis of the 'MSP' approach of the MHA product. Although the power supply and basic amplifier topology is conventional, the way in which those principles have been applied are entirely original and have resulted in an amplifier of incredible power/size ratio and which is capable of adapting itself to match virtually any load conditions.

Each channel has its own independent power supply including separate mains transformers, whilst the control logic and protection circuits are supplied from a separate, regulated ±15V supply derived from the cooling 'fanformer' (remember the old Dansette valve portable record players of the late 1950s in which the turntable motor was tapped to double as the HT transformer? Well here we have the return of that same technology almost 40 years later - except that I don't recall it being called a 'fanformer' in those days!). The front panel 'enable' switch simply starts the 'fanformer' which fires up the control and protection electronics. If all is in order the start-up solenoids in the primary side of each mains transformer are energised and the two channels are soft-started.

The VZ technology is concerned only with the power supplies. In essence, each channel has two, separately rectified DC supplies which are derived from separate secondary windings on a common transformer. Through a complex load/drive monitoring circuit these supplies are seamlessly switched in series or parallel according to the load conditions. The series configuration gives a high voltage drive, whilst the parallel mode provides for high current demand - for example, when driving low crest-factor signals into low load impedances.

The ODEP technology is intended to prevent amplifier shutdown during sustained high





Crown Macrotech 3600VZ EMC conductive emission result.

power operation and to increase output stage efficiency. It does this by simulating the operating conditions of the output devices and comparing this to the known safe operating area data. When the safe operating conditions are about to be exceeded the drive level is automatically reduced and the data made available at the PIP module to facilitate computer condition monitoring.



Crown Macrotech 3600VZ.

The output stage also is worth a quick comment. It employs a 'grounded bridge' topology which enables the load to receive twice the peak-to-peak voltage seen by the output devices or the power supply rails. Because the current requirements exceed the limits of presently available components, output devices are combined in threes to function as gigantic NPN or PNP devices. Each grounded bridge channel employs two such PNP and two NPN composites. One side of the bridge is grounded and referred to as the Low Side Drive, whilst the pair connected to the load form the High Side Drive.

Clearly a great deal of original engineering has gone into these latest models in the long-running Crown Micro-tech/Macro-tech line and it has to be said that the conceptual thinking is fully matched by the quality of the realisation.

### AUDITIONING

It goes without saying that the 3600VZ is extremely powerful, but whilst auditioned on its own it is indeed impressive, under scrutiny it does not have that ultra-tight control, accuracy or transparency as demonstrated by either the Peavey or the Chameleon.

The bass has an artificial warmth to it: Tina Turner's vocals are aggressive and the Flim and the BB's drum break is confused by comparison with the cymbals sounding damped. Also it does not seem to be as fast, lacking the dramatic slam on the Tricycle and Happiest Days tracks, despite its phenomenal headroom capability. I don't doubt that many would say it sounded great. It certainly delivers the power in ample measure, but to me it's just not quite as musical as some amplifiers we have listened to on this session.

### TEST BENCH RESULTS

As reported in the introductions, because of the AC line current requirements of this amplifier, we could not run it from our 240V maintained supply unit. However, as the review sample was actually rated at 230V and the test bench supply volts varied between 232V off load dropping to 230V when driving one channel only and 228V with the amplifier on full load into 2Ω, I would consider these conditions to satisfy the rated voltage requirements.

The load voltages from which the power results were derived were measured at the instant of clipping and onset of the ODEP protection circuit. In the case of the 4Ω tests the limiting factor was the amplifiers internal AC line power breakers, which repeatedly tripped the instant clip point was reached, making it difficult to record a sustained result. It can be seen that although substantial amounts of power are indeed being delivered the 3600VZ fell short of its rated power output on all counts although to be fair, we are talking of a fraction of a dB in all instances e.g. -0.7dB at 2Ω and 4Ω and -0.4dB at 8Ω.

What is strange however is that the 'both channels' results are lower than the single channel results, whereas having separate power supplies I would have expected minimal differences. I can only attribute this to the 2V line sag or maybe it has something to do with the control/protection circuits which are fed from the fanformer and are common to both channels.

Because of these difficulties it was only possible to carry out the swept sine wave power bandwidth plots at 10W, 50W and half power, as it was not possible to operate the amplifier at sustained full power into 4Ω for the 15 second sweep duration, without tripping the breakers. Although no transient or similar power capability is specified we thought it would be of interest to see if the ODEP circuitry would allow any further headroom on account of the significant reduction in duty cycle presented by our 100ms burst. The answer is it did not to any useful extent. The results show an insignificant 0.4dB increase at 4Ω and 0.2dB at 8Ω.

A fascinating amplifier which produced some interesting results, it is clearly the workhorse of this month's trio, but certainly not the most musical. The test bench results are surprising.

### EMC PERFORMANCE

The main difference between the live and neutral lines is that the envelope between about 1.4MHz and 2MHz is infilled with spikes on the neutral plot. Otherwise, the characteristics are again similar. It can be seen that this amplifier is somewhat quieter than the Chameleon with the noise level dropping well below the limit lines above about 900kHz. Nevertheless, it would not comply with either the quasi-peak or average limits if the EMC regulations were in force today due to the significant exceedance below this frequency. It is difficult to say what the culprits might be.

Although the power supplies are derived using conventional diode rectifiers and storage capacitors, the amplifier topology - a form of grounded bridge - forces the whole power supply to appear as a large common mode signal as far as the mains transformers are concerned. It might be that this signal is coupled to the mains conductors in this way.

***This series will be concluded with five more amplifier reviews in our October issue.***

### CROWN MACROTECH 3600VZ: SPECIFICATIONS AND TEST BENCH RESULTS

	SPECIFICATIONS	TEST BENCH RESULT
Frequency Response:	20Hz - 20kHz +/-0.1dB	20Hz - 20kHz, rising 0.5dB/octave above 5kHz at all power levels.
Rate Power: - continuous	2 x 1165W/8Ω both channels 2 x 1655W/4Ω both channels 2 x 1800W/2Ω both channels 3310W/8Ω bridged mono 3600W/4Ω bridged mono 3310W/2Ω parallel mono 3600W/1Ω parallel mono	1512W/2Ω one channel 1352W/2Ω both channels 1406W/4Ω one channel 1332W/4Ω both channels 1058W/8Ω one channel 1012W/8Ω both channels
Transient Power:	N/S	1457W/4Ω both channels 1055W/8Ω both channels
THD:	20Hz - 1kHz inc linearly to % at 20kHz	
Intermod Dist:	<0.05% between 10mW and full output	
Slew Rate:	30V/µS.	
Rise Time:	2µS.	
Damping Factor:	>1000 between 10Hz and 400Hz	
Hum and Noise:	N/S	typically -61dBu unweighted
Signal-to-Noise Ratio:	100dB below full output unweighted	typically 100dB ref full power.
I/p sensitivity:	0.775V (0dbu) or 26dB gain option.	
Power requirements:	100/240V 50/60Hz options, 3.6KVA.	

# All the leading lights

hang out

# With the leading *lite*...

# Astralite

Ask for details of our  
new super-durable HQ  
and exciting UV finishes.

Custom structures too!

SEE US ON STAND  
A50  
AT THE



EARLS COURT 2, LONDON  
11-14 SEPTEMBER 1994

DURKAR LOW LANE, DURKAR, WAKEFIELD WF4 3BQ, WEST YORKSHIRE, ENGLAND  
TELEPHONE 0924 240800 FAX 0924 254083



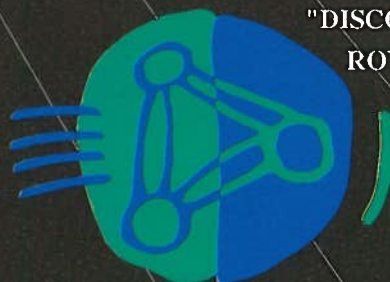
B.B.C. T.V. TOP OF THE POPS



C.M.T.V.  
LORD  
HALEWOOD'S  
70TH BIRTHDAY  
PARTY



FIRST LEISURE CORPORATION -  
"DISCOTHEQUE  
ROYALE"



# *lite*structures

# AUDIO TECHNICA AND THE UK

John Offord talks to Shig Harada and Paul Maher in Leeds

In the Audio-Technica company brochure from 1988, then president and founder Hideo Matsushita is pictured sitting cosily adjacent to an old and well-polished gramophone cabinet. The obvious connection, apart from the fact that it's a pretty PR shot, is that Audio-Technica is a world leader in the technology and production of phono cartridges.

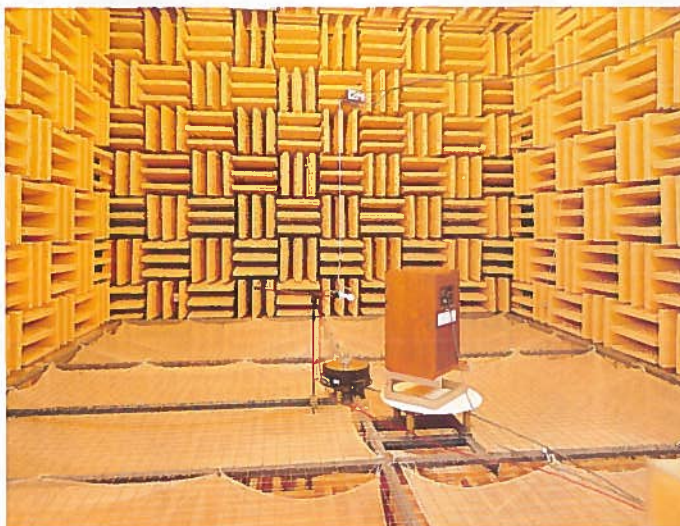
But there is another and more sensitive strand to the story behind the picture. Hideo Matsushita, who started the company in 1962 with two employees, specifically to make cartridges, was also an avid record fan, and after reading further into the brochure you learn that he built up a collection of over 100 gramophones and historical phonographs dating back to Edison's talking machine.

Located in a purpose-built gallery and auditorium complex behind the company's Machida factory in Tokyo, which was opened in 1977, the collection, which is open to the public, is testimony to Matsushita's personal dedication to his chosen field.

Today, the company employs 800 people in Japan across five production complexes, with a turnover of over £100m at ex-factory prices, and is represented in at least 90 countries worldwide. It has Audio-Technica USA in Ohio, plants in Mexico and Taiwan and a new one is soon to open in China. There are established own-name sales operations in both Germany and the UK, the core subject of this story.

All operations are wholly owned by Audio-Technica Japan apart from the Mexico plant which is a joint venture, and the UK where they own 49 per cent of the company's shares.

Call in Shig Harada, the man who owns the other 51 per cent of the UK operation and as such is managing director of Audio-Technica Ltd, based near Leeds in West Yorkshire. He decided to make the UK his home after some quick finger movements on his calculator made him aware that he could get in at least 10 more rounds of golf for his money here than back



Mic testing in Audio-Technica's Seiki anechoic chamber (above) and below, the manufacturing base at Shimizu.



home in Japan. Also, he would no longer have to queue up for his round.

Before he took up his shareholding role, Harada had overseen the establishment of the UK operation as Audio-Technica's export manager for Europe. That was in 1978, and when structures were changed in 1986 (and he'd worked out his golf schedules!) he put forward the plans to Japan that ended up with him taking a controlling interest in the operation.

"Initially, the company was hi-fi related," explained Harada. "It had an accepted world

name, and was in the top echelon of suppliers of cartridges and styli." However, Audio-Technica could see the coming decline of hi-fi, and the emphasis began to shift to other market sectors, and most particularly the pro audio field.

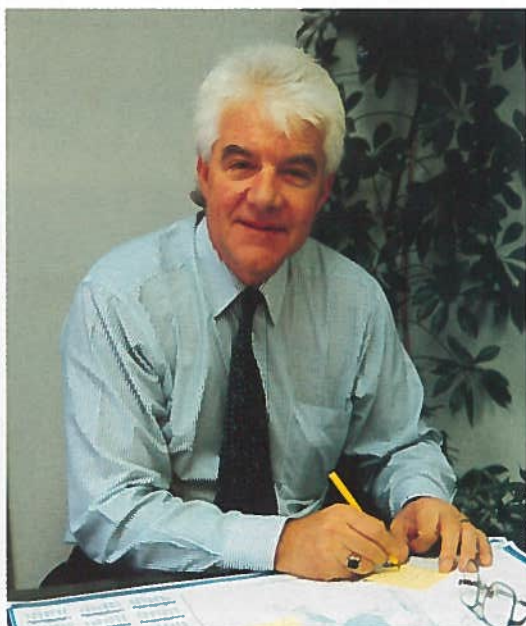
"I'm amazed when we sit down internationally, that we are looking at plans right through and into the next century," said Paul Maher, sales director. "Very few British companies go that far; a ten year plan is almost unheard of. It gives us the feeling of security.

"Initially, as far as microphones were concerned, Shig decided to work with a number of established distributors in particular markets, but the ideal situation is to do it yourself. You can never guarantee that distributors will give full effort to your products when they have other lines

to sell, and a situation arrived where in order to do justice to an ever-increasing range of Audio-Technica products, you have to consider becoming more directly involved in their distribution. You can only establish a proper profile yourself, and this was the stage at which I got involved with Audio-Technica UK, nearly three years ago."

The growth of the operation has been pragmatic rather than spectacular, but the platform the company now has in the UK pro audio hierarchy provides a solid foundation, and both turnover and profit are an ever-rising line on the graph.

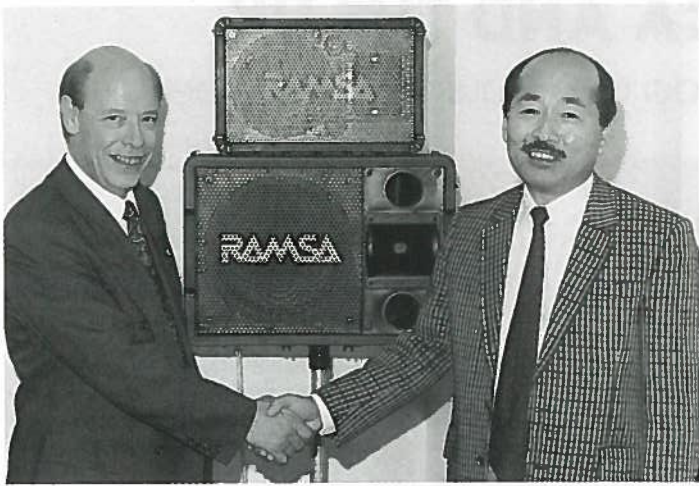
"Everybody has an area of expertise," said Shig Harada. "I have been with Audio-Technica for many years now, and know my own limitations - in the running of this company I apply three basic rules. You need the right personnel, finance and products. We have the best products. We have never had to borrow



Paul Maher, sales director.



Shig Harada, managing director of Audio-Technica Ltd.



Panasonic's Ian Sharpe (left) is welcomed to Leeds by Shig Harada before briefing staff on the Ramsa product range (right).



money and we have a strong cash position. The key therefore has to be in the people we involve. Luckily Paul Maher joined the company and through him we have established an excellent sales team on the road.

"It has taken a lot of effort to establish our products in the UK and to build ourselves up to a level of acceptability. It wasn't easy and it took time, and it eventually got to the stage where we could no longer manage the UK effectively on our own. So we set out to recruit sales managers who were qualified in various elements of the business. Between us we can provide a total sales service."

As Audio-Technica shifted its product stance, so the company has continually broadened its range of offerings to the pro audio market. Following the early concentration on styli, headphones were added to the catalogue of products and in due course microphones.

"The first Audio-Technica mics were of the basic kind - quiz night at the pub type of equipment at the lower end of the market," said Paul Maher. "However, over the past six years we have progressively introduced microphones at all levels and right through to the studio and broadcast area. Because of the demise of hi-fi, which the company had foreseen, the concentration of effort internationally has been on professional audio products. We still produce AV and consumer-type products, but the accent is very much towards high quality installed studio and broadcast products.

"In the most recent phase, over the past two or three years, we have now started to produce digital signal processing products such as wireless microphones, automatic microphone mixers and so on. There are more products on the way, and we are starting to move steadily into the real hardware of the business."

One of the strongest areas for input on the



The Gramophone Collection at the Machida factory in Tokyo, which was opened in 1977.

design and development side of AT products is their US operation where a dedicated research and development team of around 20 people is employed. "Much of the impetus for products is coming out of the US," explained Paul Maher, "and they are coming out with some very good product. Japanese companies were always seen as copiers of other peoples' products, but we have a lot of satisfaction now in noticing that some of our competitors are copying our products. It makes us feel we've arrived somewhere!"

The current split of Audio-Technica UK's business sees microphones of all types responsible for around 60 per cent of turnover, styli and cartridges 15%, headphones 10%, hi-fi accessories 5% and if I've done my sums correctly, Ramsa the final 10%. And I deliberately left Ramsa to the end to give me the opportunity to introduce that part of the story.

Paul Maher: "We decided two years ago that

whilst we are selling microphones we could also sell other products. We've developed a good customer base and a lot of confidence and we support our customers well. We felt that the microphone is the smallest part of an installation - almost an accessory - and in order to justify the investment we were making in staff etc, we needed to sell other products.

"At international level Audio-Technica have now decided that each company within each country can represent other companies if they wish, as long as AT products are the prime products. So, as we visit exhibitions around the world we obviously take a close look at product, and have our eyes open for suitable opportunities.

"During 1993 Panasonic approached us and asked if we would consider becoming distributors of their Ramsa products. We thought about this long and hard, because we had to be sure that we could do justice to the product, and that we are compatible as an organisation to sell and service it. Also, we would require a degree of exclusivity so that we could put our full weight behind the range.

"Because of the profile of Ramsa products and the fact that they are complementary to our own range, we decided to forget the exclusivity equation as there are a limited number of distributors in any case. We like to feel that we are one of the few 'real' distributors as we really do stock Ramsa products. We have the financial clout to carry and exhibit the range and we consider we are almost a manufacturer's representative, as opposed to being a normal distributor, which in the UK often means you have bits and pieces from everyone.

"It has worked well for us. We have introduced Ramsa into markets where it was weak, MI in particular and into the installation market, and I think we have improved its



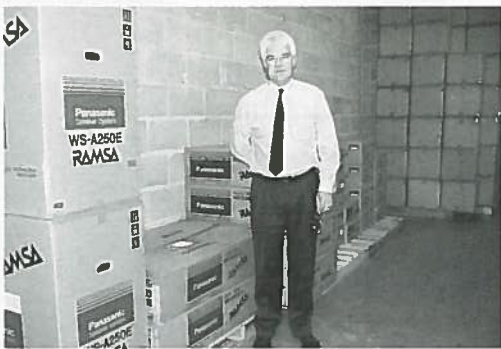
Service manager Terry Fearnley (right) with Paul Lannen from dispatch.



Janet Fearnley, Audio-Technica's operations manager.



The Audio-Technica 300 Series professional wireless system which will get its official launch at the PLASA Show this month.



Paul Maher with a selection of Ramsa stock.



Part of the warehouse and dispatch area.

coverage. We have expanded sales and there is a lot more growth to come. We are pleased with what we have achieved so far, and sales are on an upward profile.

"On a similar basis, we will continue to look for other products and sectors to expand in to, but we will be very selective and always look for exclusivity. In order to grow it would be foolish for us to think we could do it with a static range of products," said Shig Harada. "We are looking for continued growth in the UK, so it is very important that both our own factories and the companies we represent continue to be dynamic and continue to produce new product to keep us moving forward. Our projections in terms of turnover are geared to new product coming in at specific times, and we are looking now at a very high growth rate."

Like many of the readers of this magazine, and particularly at this time of year as the PLASA Show bears down upon us, I never cease to be amazed at the mass of new product that enters the 'system'. Who buys it all, and where does it end up? How much room is there for more and more new product?

Shig Harada had one answer. "There is no perfect product in this world: there is always a way to improve something. With this in mind, Audio-Technica's policy is to stay as a specialised manufacturer in a niche market, but to continually add value to products. With the design, technology and automated manufacturing methods at our disposal we can reduce costs, improve quality and offer ever-increasing value for money."

To cope with the growing range of products they handle, the test and service facilities at AT's Leeds facility is now in the process of an expansion, test-kit-wise. Whereas in the past the occasional problem meant the simple replacement of a pre-packaged piece of kit, the more complicated high end products demand a deeper degree of technical involvement. "Despite the fact that we don't expect major problems, after-sales service has always been one of our strengths," said Shig Harada. "There are stringent quality controls in place back in Japan, but we insist on being fully prepared as we expand into a wider product range."

There was an equally strong reaction to my questions on pricing. "We have set up a price structure with a suggested retail price and a trade price for distributors," explained Paul Maher. "We're not the slightest bit interested in discounting, because we want to be here for a long time yet. Companies who enter the discounting game simply won't be here in the next century, and if we lose the occasional business to discounters then we have to live with that situation. If you start discounting it is exceedingly

difficult to recover the situation and get products back up to the original price."

"Discounting happens for very simple reasons," said Shig Harada, "over supply, a lack of good and consistent distribution channels and a lack of understanding of the product. There is a huge lack of product understanding as you descend the chain from factory to end-user. By the time you reach an advertising agency, at least 50 per cent of product knowledge has disappeared!"

Taking his cue, Paul Maher explained Audio-Technica UK's approach to the situation. "We have made sure as best we can that when a customer contacts us we have the pre-sales service in place: friendliness, back-up from staff, advice on application of product and so on. And we dispatch instantly with a guaranteed 48-hour service, but generally product is with our customers by the next day. With dedicated staff, this is one of the prime reasons why we have managed to carve our way into the market. I know it's an old cliché, but we try hard never to lose sight of the customer, as it's much more difficult to get them back again!"

With a huge range of products, most by nature very small, I asked how stock levels were managed and related to the necessary ordering-in from Japan. Like you, I fully expected to be presented with spread-sheets of computer print-outs of a carefully managed stock control system. Correct - to a degree. "Every day, before I go home, I check the stock situation," confirmed Shig Harada. I had the feeling, however, that even without the computer, he could tell you at any moment what number of items of a particular product he had on the shelf, how many were two weeks away on a ship at sea, how many were on the quay awaiting stowage, and how many were currently being packed for dispatch.

He owns 51 per cent of the company, you see, and coupling that with good business discipline seems to me to produce an excellent recipe for success. He also has a rather nice line in humour.

#### Audio-Technica Ltd

- Shig Harada - managing director
- Paul Maher - sales director
- Maria Marshall - accounts manager
- Janet Fearnley - operations manager
- Terry Fearnley - service manager
- Bryony Edwards - sales assistant
- Nick Powell - sales liaison
- Paul Lannen - warehouse and dispatch
- Rod Geary - Southern sales manager
- Ray Collins - Scottish sales manager
- Vicky Boyes - Northern sales manager
- Neil Howe - Midlands sales manager



Scottish sales manager, Ray Collins.



Vicky Boyes, Northern sales manager.



Rod Geary is Southern area sales manager.



Neil Howe covers the Midland sales area.

## ARTIST SERIES

Hi-ENERGY



### NEW BREED

ON THE  
WORLD'S  
TOP  
STAGES



audio-technica®

INNOVATION PRECISION INTEGRITY

Tel: 0532 771441 Fax: 0532 704836

ATA/004

BELGIUM

DENMARK

FRANCE

# SINGLE MARKET

NETHERLANDS

LUXEMBOURG

ITALY

TOURMATE

JANDS

TOURPEX



VISION



cam-lok

PanCommand



CELCO

WHOLEHOG



ADB

SPOTLIGHT MILANO

ALTMAN  
STAGE LIGHTING

Light & Sound Design

High End

PULSAR

OPTIKINETICS



DFA

GEL-STREAM

Le Maître

USHIO  
For the best light has to offer.

POWER DRIVE

LODESTAR  
MOTORS

space cannon VII  
ELECTRONIC ENGINEERING

Amphenol Socapex

Concept



zero  
A touch of Brilliance

DAYMAX

ROSCO

IANIRO



Genie Industries

FABRONIC  
LIGHTING

ARRI  
LIGHTING

Strand Lighting



With over £1 million stock available for immediate World-wide despatch, A.C. Lighting has Europe's most comprehensive range of professional lighting equipment under one roof.



24 hour European delivery service.



48 hour US delivery service.

*In certain countries some products listed may not be available from A.C. Lighting.*



GERMANY



GREECE



UK

# SINGLE SOURCE



PORTUGAL



IRELAND



SPAIN

**LYCIAN**  
STAGE LIGHTING

**TOURFLEX**

**COMMANDO**  
MOTORISED TOWER



**TOMCAT**



**Martin**

**rainbow**  
COLOUR CHANGERS

**ANY** tronics

**AVAB**



**Thomas**



**VERLINDE**

**OSRAM**

**Trilite**

**LIGHT**  
PROCESSOR

**SLICK SYSTEMS**

**coemar**

**litestructures**

**DF50**  
**DIFFUSION**  
Fogger

**JEM**



**GE Lighting**

**PHILIPS**



**HANOVIA**

**MODE**  
ELECTRONICS

**CANFORD**

**tecpro**

**EMIL NIETHAMMER**



**SYLVANIA**



**A.C. LIGHTING LTD**

Unit 3, Spearmast Industrial Park  
Lane End Road, Sands  
High Wycombe  
Bucks HP12 4JG ENGLAND



Phone (International +44) 494 446000  
Fax: +44 494 461024

# THE S'CAN DO PRINCIPLE

Tony Gottelier catches up on the family affair which is Martin Professional

The last time I wrote anything at length about Martin Professional was in the February 1992 issue of L+S, or pre-war you could call it, that is before the battle of the mega-exhibition stands really started in earnest. At the time we captioned the article on the cover under the banner heading of 'Success comes in Scans', a pun on the Madison Avenue slogan 'Success comes in cans not in can-nots'.

If this seemed appropriate at the time, it must now be imprinted on the desk, or bench of every individual working in that organisation - from owner Peter Johansen down. This is a philosophy that pervades every aspect of the business and it comes from the top: in fact, as you walk around their premises, it comes at you from all sides. And it is from this attitude, they call it the Martin spirit, that yet another transformation has been made since my last visit.

Then, they had just moved into a new 3,500sq.m factory, now they are on the verge of moving to a new 11,500sq.m facility. Then, they promised a move to new corporate headquarters in Aarhus, now they are installed with a massive showroom and already tight for office space. Then, they had just produced the 20,000th Roboscan and the sceptics didn't believe it. Last December they clocked up the 100,000th, and now whose doubting it?

Then, their products were almost entirely targeted at the club market. Now they also produce a 'Pro' range which has attracted attention from such well-respected lighting designers as Roy Bennett, Jonathan Smeeton and Patrick Woodroffe who plans to use their robotic lights for a Blues Brothers concert in the local Aarhus Theatre.

Now they have the Roboscan Pro 1220, an MSR 1220W articulating mirror luminaire of modular construction with an eye to the future and with all the whiz-bangs necessary to make it a serious show light. It now comes with interchangeable modules for rotating gobos, full colour mixing and zoom. There is also a special configuration based on the alternative HMI lamp module for television use. All Martin's Pro products employ coated lens technology.



**Martin's new factory to be. You won't be able recognise it from this photograph by the time the refurbishment is finished.**

Possibly because the original inspiration for the Roboscan series came from the USA, the units started out with their own RS-485 control protocol which was based on the vector-to-vector principle normally associated with servo-motor drive. However, Martin's R&D engineers have been working very hard

***Martin Professional had just produced the 20,000th Roboscan and the sceptics didn't believe it. Last December they clocked up the 100,000th, and now whose doubting it?***

to deliver, in time for PLASA, an auto-sensing system for the Pro 1220 to enable it also to be controlled by DMX512 with the 2-line high resolution option for precision placement of the beam. The addition of DMX will provide elliptical movement, tracking the output of the control system, while microstepping, already incorporated, should smooth out the trajectory under stepper motor drive.

This facility will require an optional control card module, because of the extra two channels necessary for the 16-bit resolution on pan and tilt, and this will be incorporated as a matter of

course into the TV combination.

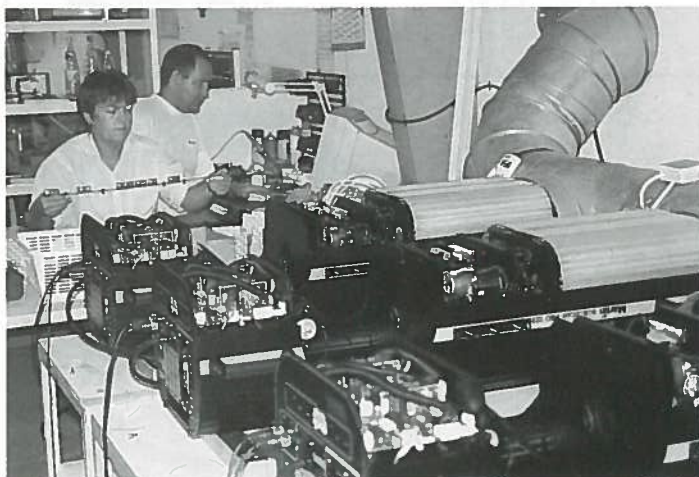
Other new products are the Roboscan 400, which really could pose a threat to the Parcan and scroller combination, where previously the claim had been made, but hardly fulfilled. By combining two dichroic colour wheels, and hot and cold colour modifiers, 32 colours can be achieved with this high power version of Martin's well-known Robocolor. Furthermore, it will be very cost-effective as, having a shutter, it doesn't require external solid-state dimmers. It also offers a choice of four different field angles including a wash effect, so it's like having the full-range of Par 64 lamps on board a single fitting. Neat huh?

There is also the new Roboscan Pro 518, which takes the successful package of the Pro

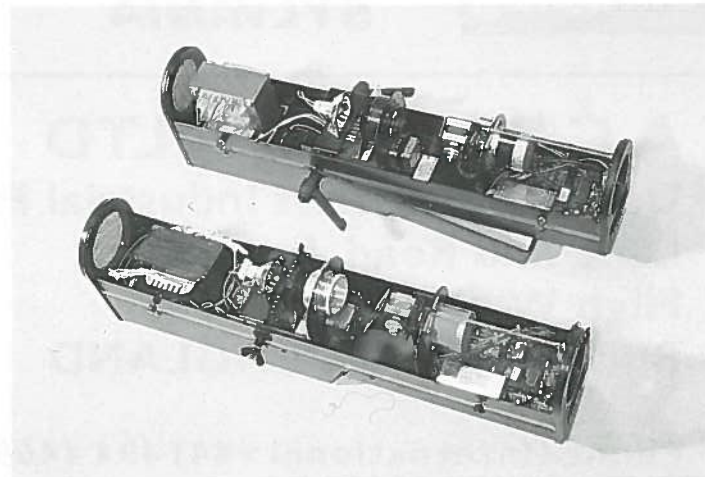
218, also based on the ENH lamp and adds five rotating gobos. The Pro 518 also delivers 17 dichroic colours, including two multi-colours, and a new Ultra Violet. A CT corrector enables Martin to claim that this range of colour is effectively doubled, adding 18 warmer shades. On the same wheel as the colour temperature corrector, there is also a frost filter for softer shades or wash effects. Both these products rely on the MSD 200 discharge lamp developed by Philips especially for Martin Professional, and it is claimed to be brighter than a 1k Par 64 lamp and offers a very economical lamp life of 2000 hours.

With this thrust up-market, Martin have not lost sight of their roots, which still probably represents 50% of turnover, and have introduced two new DJ Series effects for the small club and portable system operator - The Spinner and the Wheeler. I will leave the names to evoke the images of the products' capabilities.

Since that last visit sales turnover has increased two and a half times, indeed it seems likely that Martin may be judged this year's most successful young Danish company by Borsen, their equivalent of the FT. (It is decided by an evaluation based on a series of financial criteria gleaned from filed historical accounts for the company.) This has caused a flurry of activity amongst the media in Denmark and even live interviews on national television

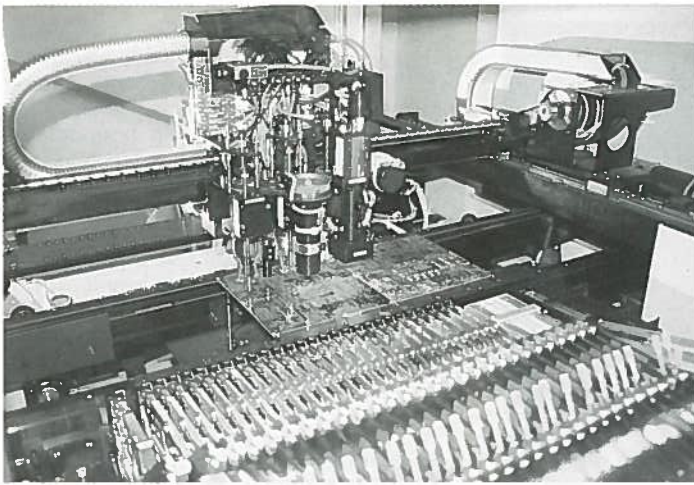


**Massed Roboscan Pro 1220s put through their paces on a test jig.**

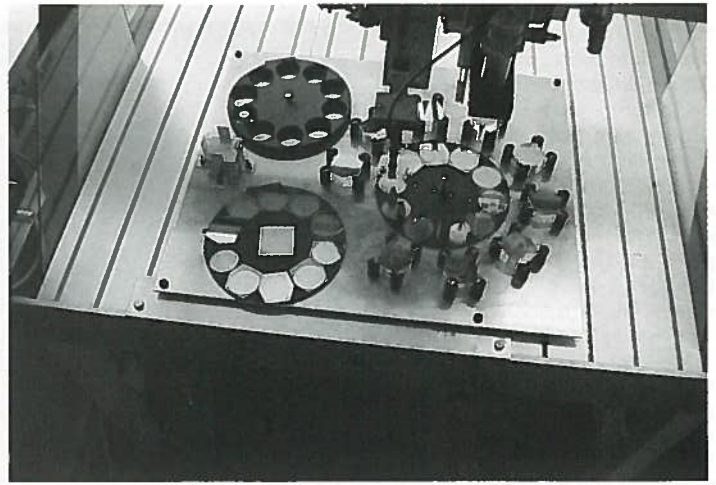


**Spot the difference! Will the real Roboscan stand up please?**





Robotic PCB assembly for robotic projectors at the Martin factory.



Colour fast - robotic assembly of dichroic colour wheels.

news, and is the only time I have seen Peter Johansen's inherent confidence truly shaken.

In 1992 Peter Johansen was alone at the top, now he has been joined by Poul Schlüter, previously the Prime Minister of Denmark for over ten years, and now a Vice President of the European Parliament, who sits as a main board director. When you think that this is the equivalent of having Margaret Thatcher or George Bush at your boardroom table, though possibly a trifle more convivial, it puts it into a certain perspective.

Then, Martin Professional were just another pitcher at an exhibition: now they have taken the business of outdoing the opposition at trade shows to an art form.

One thing I have learned is that one should never doubt anything Peter Johansen says his company is going to do. No sooner said than done! Never to be underestimated is the impish Mr Johansen - you should take him seriously, even when you think he's having you on.

It is inevitable in such a success story that you acquire your detractors, but possibly worse, also your imitators. In the case of Martin Professional this has reached totally ludicrous proportions with exact copies of the original Roboscan 1016 and 1004 appearing in some quantity in the Far East. These really are Chinese copies in the very sense of that phrase. As a result, Johansen made the only decision possible in the circumstances, to call the forger's bluff and kill the two marques as Martin products before any more damage is done.

"This was more a matter of protecting them from their own success. Initially, it wasn't a serious problem because the fake copies are more expensive, but they are so poorly made I don't want potential Martin customers being conned into buying shoddy and unreliable goods under our good name."

The imitations even carry Martin labels and logos, indeed the entire livery, and the circuit boards are, literally, photocopies of the originals. "If your readers are offered any of these forgeries, they should look inside before they buy - the quality of the parts and components will tell their own story. If anyone is offered a new 1016 or 1004 from now on it has to be a rip-off since we will not be making them ourselves any more."

It is significant that even the fabled ingenuity of the Chinese, and their low wage economy, to generate significantly lower-cost products failed in this case. When Peter Johansen founded Martin Professional in 1981 one of his first ambitions was to create a very reasonably priced robotic light. While Finn Kallestrup, technical director, set about the task of creating the demanding mechanical, electronic, and software requirements for such a complicated device, Peter worried about how to make the

right impression in the market-place with the new product.

First, he had to come up with a catchy name for his new baby which would conjure up the right image and stick in the mind of potential users. "At the time, there were really only two other products on the market, both a lot more expensive - one was called The Robot and the other Golden Scan," Johansen recalls. "I thought, well, it's robotic and it scans, so Roboscan seemed like a really good, descriptive name." And so it proved, for the name has subsequently been used across the whole range of Martin's automated lights.

At the same time Peter Johansen took the bold step of engaging the services of a leading Danish industrial designer to create the shape and style of the new Roboscans. "I wanted something sleek and elegant which would make an immediate impression on the customer," Johansen remembers. The design which was finally approved and became the trademark look of the early Roboscans, was a slim, hooped case placed over two arched mouldings at each end of a flat base plate. It was efficient to assemble, sleek in appearance and made a lasting impression on the market. Indeed, even now the design lives on in the Martin Robozap which has adopted the same clothing.

Of course, such a striking design is copyright and synonymous with the company which produces it, but as Cartier, Rolex, Mont Blanc, and other makers of designer products have discovered, this does not stop dishonest producers from stealing and faking such designs. "They say that imitation is the sincerest form of flattery and in some ways it is," says Peter Johansen. "Of course, it's an indication of our success that anyone should bother to such

an extent. After all we are not in the same sort of volume business as designer products which are often copied, but this kind of flattery I could do without."

Unfortunately, it is extremely difficult to track the perpetrators down, and even if you can, the whole business of undertaking legal process in a foreign land is no simple matter. Meanwhile, steps are being taken through diplomatic channels to ensure that there will be no repeat of the counterfeiting process applied to other Martin products.

Johansen's biggest fear is the damage such shoddy copies may do to Martin's reputation as a producer of reliable and robust products. "That's really why we decided in the end that the time had come to bury the 1016 and 1004, on which the lookalikes are based, effectively to cut the ground from under the forger's feet."

The fact that the forgers have failed to produce a copycat product which can sell for less than the genuine article (and to this extent they have certainly shot themselves in the proverbial foot), shows how successful Martin's prognosis of such a possibility actually was. In fact, it has come about only because Martin Professional have been aware from the beginning of the threat of competition from that area of the world, and operate a tight policy of cost controls in manufacturing their products.

So now you know, if a man in a dirty raincoat offers you a consignment of new Roboscan 1016 or 1004s, even with the distinctive Martin livery on the lid, they are fakes and you should tell him to stuff them up a suitable orifice.

All of this was my cue to look at the manufacturing facility to see how they achieved this low cost strategy, so off to Friederikshavn, a two hour drive North from Aarhus.

I was shown around by Torben Johansen, Peter's younger brother, who is the production manager. Though very different physically from his sibling, in every other way Torben has acquired the Johansen filial exuberance. He absolutely radiates enthusiasm for his job and especially the task of improving efficiency and saving on parts cost, which he sets about with a missionary zeal. In seconds he will convince you that nothing gives him a bigger thrill than saving a few pennies on a part. He also explains his determination, in the face of current production mores, to unshackle Martin entirely from any dependence on sub-contractors. "They are nearly always far too expensive and we are at their mercy when it comes to disruption of our programme," he says. This last point is a major consideration in a factory that is virtually run by computers, with several month's planning sitting on the LAN. "If we are held up for one part, the system breaks down," Torben emphasized.

To illustrate his point he grabbed a small



Peter Johansen with his new baby, the Pro 518.

turned and threaded aluminium piece, part of a gobo rotator assembly, complete with two captive ring nuts. "This whole item is produced on one automatic lathe in one process and costs one sixth of the price paid to the original supplier," he proudly states. These machines work round the clock, 24 hours per day, seven days each week. If there's a breakdown during the weekend the system calls the supervisor on the telephone and he gets on his bike and comes in to fix it. Beside each

machine-tool sits a networked PC that tells the operator what he is expected to produce next.

The main thrust of Torben's mission is to make several pieces at a time in a single pass of the machine, and it is in this area that he has been particularly successful. 35 people work in this metal shop and on the automatic presses across three shifts, produce up to 40,000 individual pieces per week. "The great thing is that we are now producing three times as many components each week, with the same number of people as we had two years ago," Torben enthuses. "And across the board we are reducing suppliers' prices by one tenth."

In the automatic powder-coating plant it's the same story, by hanging up several parts, Christmas Tree fashion, on one hook-point, he can greatly multiply the numbers getting finished in a single run through the system.

In the assembly shop, where all this comes together, the operatives work together in little teams, each with a team leader which is all part of Torben's highly effective but home-spun industrial psychology. "It makes people feel valued if you can save them from unemployment and then raise them up after a time," he says. Generally they work at carousel style tables, which probably also has a bearing on the team spirit, which are turned as work progresses. Most Martin products contain some of the same components, such as lenses, dichroics and stepper motors, and this has been policy from the start, again keeping costs down.

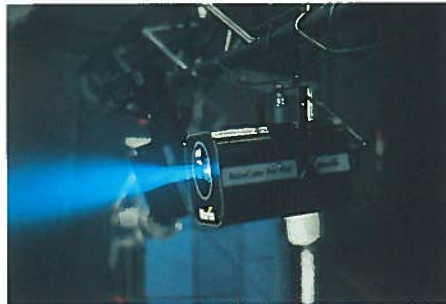
In order to improve their production in this area still further with greater volume and more secure results, the company has recently acquired a fully automated printed circuit assembly plant supplied by the Dutch consumer electronics giant Philips. This robotic, laser-guided system, linked to an automatic flow-soldering process, can assemble one complete card each minute, slotting in components at the rate of one per second. The final assembly and testing is done manually.

I also admired the Roboscan Pro 1220 test procedure, which involves ten projectors being run through all parameters by computer, while connected to air-conditioning extract, not dissimilar from a row of Jumbos off-loading passengers at Heathrow. The idea is, that by 'burning' them in, the initial smoke generated by all such 'hot' products on switch-on, will have been removed.

I asked Torben to sum up the secret of his success in conveying his own enthusiasm to his staff so effectively without the use of productivity incentives. "We are going to introduce such a system. Meanwhile, I like to get everyone involved and encourage them to offer ideas for improvements, but other than that I guess it's just the Martin spirit!" That



Above, an early set-up for this year's PLASA Show, and below, showing its true colours - the new Robocolor 400.



unfathomable and indomitable Martin spirit again.

While this is not a family business - Peter Johansen is definitely the owner - it is certainly a family affair. Torben took over the production mantle from his father who has now 'retired'. "He only comes in 70 hours a week now," Torben jokes. There is another brother who is technical manager at the factory and Mrs Johansen senior also takes a close interest in production of the DJ Series products. Torben himself claims to work only for his two hours sleep each night, but I wonder what wage negotiations would be like amongst the brothers?

Although it is only a few years since Martin Professional moved into these, then new, factory premises in the picturesque fishing port on the North coast of Denmark, they have already found the 3,600sq.m site too small to continue satisfying their fast-expanding market share. Now they are poised to treble this facility by moving into premises in the same town with a floor area of nearly 12,000sq.m. The administrative offices and R&D department at Aarhus will be retained after the move.

In view of the location it may not surprise you to know that the massive new building started out life as a fish processing plant, though all of that residue has been exorcised in the meantime. And there is nothing fishy whatsoever in Martin Professional's plans for the property. They will even include a creche for the many young mothers among the production workers.

When I walked around the cavernous space it was already a building site and a hive of activity as the bulldozers moved in to demolish existing walls to create the new structure to Martin's stringent requirements. By the time they move in, which should be within the next three months, the building will be unrecognisable. A brand new fascia of stainless steel and black metal planking will present a 21st century techno-feel to the outside world and a clutch of Roboscan Pro 1220s will arc corporate logos across the new sleek frontage.

Inside the factory, all will be white paint and efficiency as a totally clean and static-free environment must be maintained in the

assembly shop. Indeed, in order to overcome any possible problems with static electricity, which can wreak such havoc with micro-processors and other microchips, Martin are installing a special wooden floor totally isolated from the structural elements of the building. Built on a bed of sand, the top surface will consist of strips of dark brown African hardwood specially imported for the purpose.

This environment should be perfect for the handling of the complex circuit boards used in Martin products. And if you thought the statistics on the robotic circuit board assembler were impressive - the machine being installed by Philips at the new factory will be up to six times faster than that!

In view of their position as the leading protagonist in the stand wars, I thought this time it would be fun to visit them during the build up to PLASA to see what was going on. The answer was a little disappointing, but only because this year's rig is so enormous that they can't even erect it fully in the large showroom at Aarhus, so it has to go to Woolwich for rehearsals prior to PLASA. In fact, Joe Brown's old ex-Tasco warehouse, which started out life as a bus depot, has been selected for the purpose by James Dann, who is production manager for the occasion. Unfortunately, it won't be up and running there until after we've gone to press so no fun for TG. Never mind, I know the background story, so here it is.

Jonathan Smeeton volunteered to design the light show after he had seen Bennett's effort at last year's LDI, and apparently expressed himself astonished at the Roboscan Pro projectors. Anyway, he persuaded Peter Johansen that a big reveal was called for, followed by a massive rig opening up like a flower, an idea apparently borrowed from his previous work with Phil Collins. Asked for a comment, California-based Smeeton told me: "I don't just want to show Martin's lights doing beam work and effects in the air, which are certainly important, but just as valid is the need to light performers, objects and scenery."

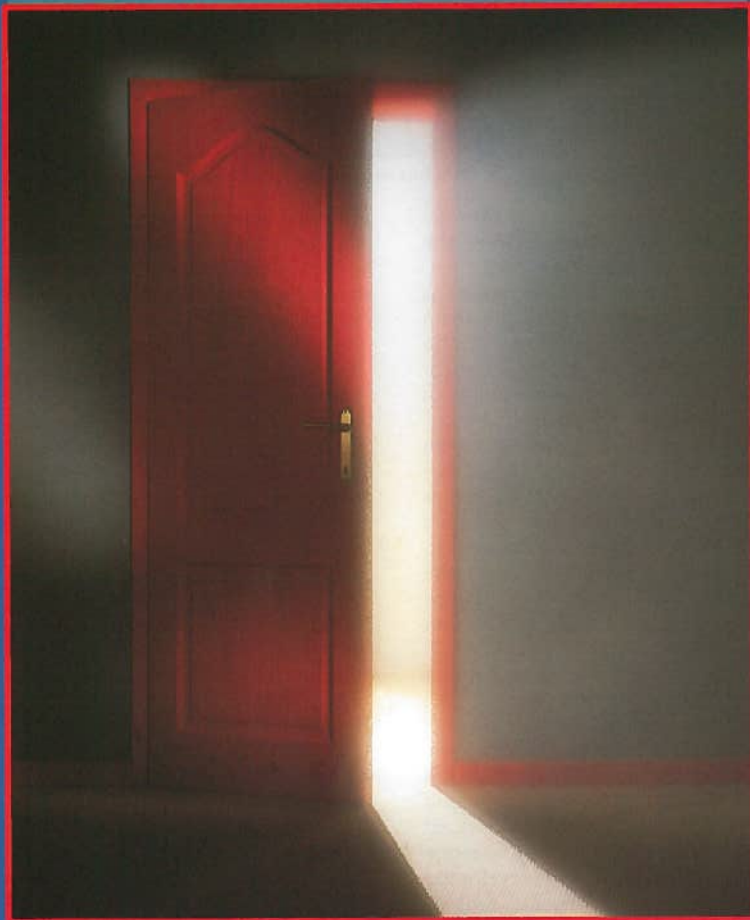
So there will be large numbers of Roboscan Pro 1200s, Pro 218s and Robocolors doing their stuff, plus the little Pro 518 which Jonathan was really looking forward to using. Control will be by a series of linked 3032s running on SMPTE time-code. Programming is being carried out by Martin's Mark Ravenhill and John Barnes, who is a lighting associate provided by the Robomick offshoot of Supermick Lighting.

At the end of my two day visit to Denmark I began to feel that I had started to get the measure of where some of this so-called Martin spirit comes from, and it wasn't the Martin labelled beer, or the range of Martin clothing now on offer. No, it came to me when I was enjoying my open sandwich in the canteen with Henrik Bang, who has recently seceded to the task of marketing. I noticed that the fact that I was occupying a chair at all was causing some consternation. Then I noticed that there was a seating plan on the wall and each chair had a designated number and a member of staff's name against each one. "The names are moved every day," Bang told me, "so you don't always sit next to the same person or in a specific group. It ensures interaction between all of us."

Since this is a very disciplined office, and sales staff have been threatened with severe stricture for entering the R&D department uninvited, this struck me as an extremely bright move. But then bright moves are what Peter Johansen and his people are all about both metaphorically and product-wise. Is it this attention to detail and level of thought about personal motivation, that makes Martin Professional tick so effectively?

# SYLVANIA

a source of inspiration



**BRITEARC®  
BRITEBEAM®**



**PAR LAMPS**



**STUDIO**



**AUDIO-VISUAL**



**THEATRE**



**GENERAL**



## **SLI Special Products Group**

Industriepark  
B-3300 TIENEN (Belgium)  
Tel. +32.16.800 369  
Telefax +32.16.800 367

Graf Zeppelinstraße 9-11  
D-91056 ERLANGEN (Germany)  
Tel. +49.9131.793 220  
Telefax +49.9131.793 418

Otley Road, Charlestown  
SHIPLEY, West Yorkshire  
BD17 7SN (Great Britain)  
Tel. +44.274.59 59 21  
Telefax +44.274.58 06 32

# PHOEBUS AMPHITHEATRE

L+SI reviews Bangkok's new entertainment complex

Seventeen acres of land along Ratchadapisak Road in Bangkok, Thailand, is the 'homeport' of the Phoebus Amphitheatre Complex. This is an entertainment facility so vast and modern in design, you feel as if you're boarding Battlestar Galactica as you approach the main entrance.

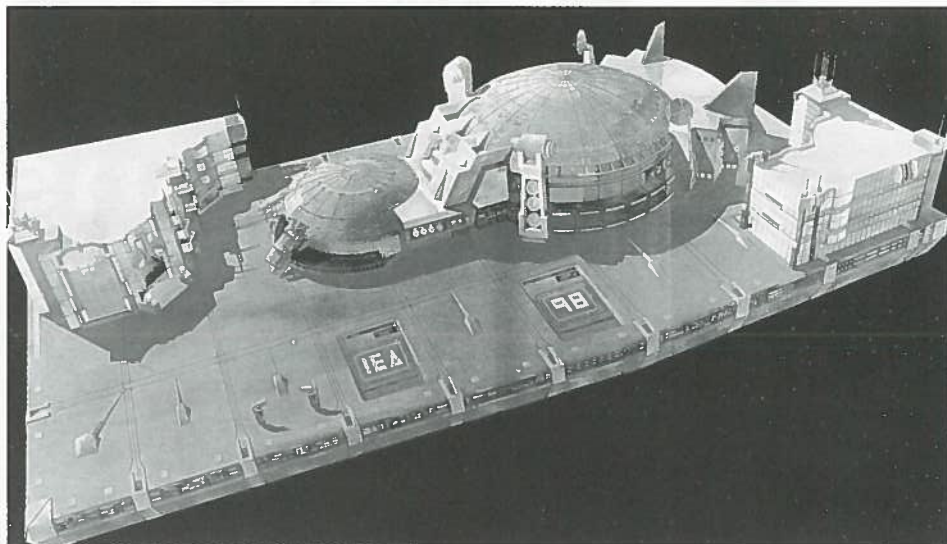
The crowning glory of the entire facility is the main building of the Phoebus Amphitheatre Complex. An ultra-modern edifice that would be more at home on the pages of a Ray Bradbury novel, than in its current setting of Bangkok. Its space ship theme, features domes and causeways, plus some massive fins protruding from the building. The exterior has decorative beacon police lights and egg strobes to give it that extra splash of spacey ambience.

It houses one of the most technologically advanced entertainment centres in this quadrant of the solar system, which features a 9,150 square feet rotating main stage capable of elevating two storeys high, two hydraulically controlled elevating dance floors, large screen video monitors stage left and right, a computer-controlled lighting system, private lounge and VIP rooms and a 10 store mini-shopping mall.

The architect for the 4,000 capacity complex approached LSD's Chris Cronin at the Pro Audio & Light Asia Show in Singapore last year. Designed to cater for a range of events from conferences and product launches to bands to discos, it obviously required a versatile and dynamic lighting rig.

LSD's ability to custom fabricate was a major deciding factor in the company winning the contract. They designed, manufactured and installed the complex trussing system that holds the lighting rig. This involves some 2,000 feet of moving truss, 75 chain hoists and one of LSD's computer-controlled Motor Managers. The venue consists of two main areas - the dance floor and the stage area. The dance floor houses the main trussing system that is configured as eight cheese-like wedges with a centre circle - similar to a huge wheel with a hub in the centre. The wedges all move independently, as well as together, to form a variety of stunning positional effects. The stage area trussing has a fan of five triangles, starting at a central point and spreading out across the stage, all of which move. LSD also supplied the front of house trusses, and were partially involved with supplying the 1,000 odd Par cans and Coemar moving lights.

The Motor Manager is situated in the control room of the venue. It has LED displays showing the motor positions numerically. Each motor has a level of intelligence in the sense that it counts the rotations of the drive shaft, and the



Stardate 1994: the futuristic styling of the Phoebus Amphitheatre complex in Bangkok.

computer gauges the motor position by monitoring these. The system enables the pre-setting of up to 99 consecutive cues.

LSD's Chris Cronin described the project as an "incredible challenge". One of the main elements of this was calculating all the logistical issues involved in moving the sheer body of truss, taking into account centres of gravity, weight shifts and cable movements.

Naturally, another important aspect has been the safety of moving large heavy objects above the heads of the public. The Motor Manager has various in-built safety devices, one of which means that it is necessary for the operator to have their hand on the 'go' button, whilst the system is moving. Additionally, there has to be a second person at ground level beside another 'dead person' switch.

The Motor Manager shuts down if one motor fails or does anything out of character with the cue, and similarly, if any motor disobeys a cue, the system halts. In the event of any part of the system jamming in the 'on' position, there is a manual power disconnect adjacent to the unit in the control box, and another at ground control position. For LSD, the Pacific Rim is one of the company's most rapidly developing areas and as a result of the Phoebus project, they have already landed another major contract in Thailand.

An all-Apogee sound system provided by Audio Visual Land PTE of Singapore is the other main player in the technical set-up.

The entertainment area of the facility features a staggering 24,000 sq.ft main floor, a 7,000

sq.ft first balcony and 4,000 sq.ft second balcony. The main FOH sound system consists of left, centre and right clusters of Apogee Sound 3 x 3s2 three way concert loudspeakers. The left and right clusters have nine 3 x 3s per side and the centre cluster consists of six 3 x 3 loudspeakers. Five Apogee Sound model P-3 x 3 PVD (permanent version, dual channel) processors are utilised for the three FOH clusters. Thundering bass response is provided by 12 Apogee AE-12 concert subwoofers installed six left and right of the main stage. Two Apogee model P-12 PVS (permanent version, single channel) processors are used in conjunction with the AE-12 subwoofers. Power for the FOH system is supplied by 12 Crest 7001 and 17 8001 power amps, whilst mixing is handled by a Yamaha PM4000 48-channel desk with two PW4000s and a SU4000.

Since the sound system is primarily used for the playback of recorded dance music, an eight 3 x 3 loudspeaker surround sound system reinforces the FOH system in this application. Two 3 x 3s are arrayed on either side of the main floor halfway back from the main stage. In addition, four 3 x 3 loudspeakers are arrayed in a single cluster at the back of the main dance floor area. Two Apogee model P-3 x 3 PVD processors and three Crest 7001 and four 8001 power amps round out this aspect of the sound system.

The delay/under balcony sound system comprises 11 AE-2s2 single-amped, two way wide angle loudspeakers. Six AE-2s are installed to cover the first floor balcony with the

**ASTROCLOTHS... For Effect**  
**Starcloths**  
 Fibre optic background effects for the stage and entertainment industry.  
 ● Theatre ● Product launches ● Conferences ● Corporate events  
 ● Discothèques ● Social clubs ● Film & Television ● Concerts ● Exhibitions

**Peacloths also available**  
 Manufactured at our Manchester production facility, all products are flame retardant conforming to BS 5867 Part 2.

**MAKE A COST EFFECTIVE DECISION -**  
 buy direct from the manufacturer.  
 Astrocloths can be purchased or hired.  
 For advice or a quotation please contact:-  
 Playlight FREEPOST-MR9555  
 Manchester M16 8HB  
 Manchester: 0161-226 5858  
 Birmingham: 0121-328 1591  
 London: 0181-965 8188

Jackie Staines  
 would like to thank  
**FUTURIST LIGHT & SOUND**  
**LIGHTING SYSTEMS**  
**INTERNATIONAL**  
 and **M&M**  
 for their help on the  
 Stephen Joseph Theatre Productions  
 of **HAUNTING JULIA**  
**GASLIGHT**  
 and  
**TWO WEEKS WITH THE QUEEN**  
 and for their continued support  
 throughout the summer season



The facade features domes and massive fins protruding from the building, alongside decorative beacon police lights and egg strobes for the space theme.

remaining five AE-2s installed over the second floor balcony.

According to Winston Goh of Audio Visual Land PTE: "Since the Phoebus has such large areas of under balcony space, even and uniform sound coverage without obstructing sight lines was of prime concern to the sound designers." The delay/under balcony Apogee sound system utilises Apogee model P-2 PVS (permanent version, single channel) processors and is powered by four Crest 7001 power amps.

On stage, monitoring for the 'front line' musicians (keyboards, guitarists, back-up vocalists) is handled by 10 Apogee AE-4M single-amped, two-way stage monitors with four accompanying P-4 PVD processors. Lead singers, drummers and percussionists utilise a total of six high output AE-8B bi-amped, two-

way concert stage monitors with two accompanying P-8 PVD processors. Since the entire stage area is over 9,000 square feet, a powerful full range loudspeaker system was required to provide ample side fill to prevent dead areas on stage. Four Apogee Artist Systems Model 8000 full range cabinets, two per stage side, are utilised for this application.

The Artist Systems 8000 loudspeaker utilises twin, high power 15" cone drivers for the low end, one 10" cone driver for the mid range and a 1" throat proprietary fluid-cooled compression driver for the high end. Each 8000 cabinet is capable of generating 130dB continuous to 136dB peak at one metre with a frequency response of 38Hz to 17kHz + 3dB. One Artist Systems P-8001 processor is utilised by all four model 8000 loudspeakers and

power is supplied to the entire monitor system by seven Crest 7001 and four 8001 power amps. One Crest LM 40 x 12M mixing console with two power supplies complete the monitor system.

The facility also comprises two other buildings. The four story 'Plaza' building (with shuttlecraft) houses a shopping mall, restaurants and an open-air catering facility that also plays host to an open-air market. The smaller three story 'multi-purpose' building houses a 24 hour supermarket on the first floor, a 24 hour coffee shop on the second floor and on the third floor are three banquet rooms, each capable of hosting affairs up to 300 people per room. The rooftop of the 'multi-purpose' building can also be hired for larger open-air events.

# CCT LIGHTING



**With a Worldwide reputation for excellence, quality and innovation –**

*a comprehensive range of Stage and Theatre lighting; Control Systems; Colour Change and Optical effects; Stage Accessories, Spot Bars, Rigging and Curtains; Mobile Service Teams and Portable Appliance Testing.*

**SEE US ON STAND A100**

#### CCT Lighting – Sales

4 Tudor Court  
Brighton Road  
Sutton SM2 5AE  
Surrey, U.K.  
Country Code: 44  
Tel: (0)81 770 3636  
Fax: (0)81 643 9848

#### CCT Lighting – Projects

Hindle House  
Traffic Street  
Nottingham NG2 1NE  
United Kingdom  
Country Code: 44  
Tel: (0)602 862722  
Fax: (0)602 862546

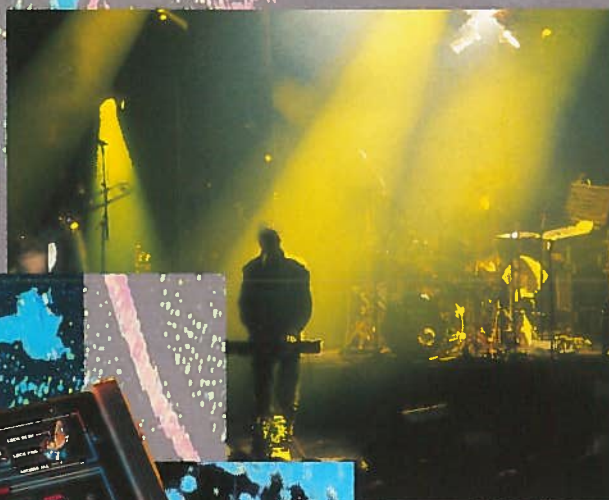
#### CCT Lighting Inc.

1260 Lyell Avenue  
Rochester  
New York 14606  
U.S.A.  
Country Code: 1  
Tel: 716 458 5790  
Fax: 716 458 5793



# THE REAL SOLUTION

TECHNOLOGY



Today's rapidly developing technology opens new dimensions for stage and effect lighting. Moving lights, colour scrollers and intelligent systems have generated more opportunities for the creativity of the designer. We see the lighting console as the tool in which technology and creativity can meet for optimum results. Traditionally M.A. have combined the best operator assistance, organised system intelligence and ergonomic construction which have now become the hallmarks of all our products.

Incredible features combined with ease of operation and constant direct access do the MA Scancommander credit as the best moving light console on the market.

Together with the new SC Extension it gives you perfect control on an unlimited number of scans. But the best effect of all is – it will even control all the new scans you may buy in '95!

PLASA Stand A 228

# M A L I G H T I N G

## SCANCOMMANDER

TECHNOLOGY by  
**MA** LIGHTING

UK Distributor  
M & M  
Studio 12, Cameron House  
12 Castlehaven Road  
LONDON NW1 8QW  
Tel. 071/284 2504  
Fax 071/284 2503

M.A. Lighting  
Höhenweg 6  
97249 EISINGEN  
Germany  
Tel. (49) 93 06/24 59  
Fax (49) 93 06/24 73

# SCENIC SORCERY

## Robert Halliday reveals a box of tricks for St Joan and Hamlet

A long time ago, theatre scenery was flat. The uncontrolled lighting from candles or gas meant that depth could not easily have been revealed, even if the scenery had been three dimensional. The illusion of depth was given by skilful painting. As time passed, however, and lighting developed into the controlled, precise art that it now is, painted cloths were no longer effective enough. Solid scenery could be lit to reveal its depth, and also to match the lighting being used on the actors.

This progress has continued to this day, with scenery becoming progressively 'real', solid and three dimensional. The problem is that most British theatres have suspension systems that are a legacy of the old-fashioned 'flat painted cloths' traditional school of scenic design - flying bars running across the stage at regular intervals, parallel to the front of the stage. While this is fine for the majority of shows, it does leave more demanding designers with a difficult decision: to compromise their 'vision' for a show to make it work in a theatre, or to go for broke with the design, and stretch the production team and the theatres to make it happen.

The 'go for broke' approach has been common for some time now on large-scale, large budget musicals where time and money are available to customise one particular theatre for a long running show. But, as with many other innovations that start off in the blockbuster shows, the same approach is now increasingly being taken in conventional dramas and, currently, in two tours of straight plays.

The more dramatic of the two is **Saint Joan**, a revival of Bernard Shaw's play produced by Duncan Weldon and now settled at the Strand Theatre in London after a national tour. With the title role played by Imogen Stubbs, the RSC actress more recently seen on television as Anna Lee, the show is obviously aiming to draw fans of the actress from both 'sides' of her career, and the production as a whole is a lavish one. Designer Peter Davidson's opera background - he spent nine years as an assistant designer at the Royal Opera House before setting out as a designer in his own right - is obvious from the first glimpse of the set, which starts as a boxed-in area with high marbled walls containing embossed text of religious messages, and neatly arranged rows of armour on the floor. His background becomes even more obvious as the evening progresses and the set reveals the rest of its tricks, for this show has everything up to and including a lake, rain and (pretend) dry ice!

The set's basic structure is three walls; the back wall contains three sliders which can lift individually to reveal another acting area behind. The whole back wall can also lift out at once, and is used to great effect for the last scene in the show. The side walls contain sliders as well, with a winch track in the floor between them to allow furniture to be run on and off stage. Other tiny flaps and traps are dotted around the walls and used as windows.



An operatic feel for Imogen Stubbs in the title role of St Joan.

Behind the upstage area is a water tank which at times is used for people to paddle around in, and at other times is covered with walkways to give a drier acting area. This area is put to a huge range of uses; going from a river (complete with a flag blowing in the wind which, through a neat bit of fan cross-fading, changes direction as Joan's sign from god) to a chamber housing a line of people, the size of the cast being increased by the use of dummies, to a huge cathedral with six enormous gold pillars. In the second act the area is boxed in so that, instead of the central slider leading to an open space, it opens into a narrow corridor through which Joan is led to her inquisition and out to her death.

Making all of this work with the set parallel to the proscenium arch would have been difficult, but possible. But as the final touch in his 'go for broke' design, Davidson has angled the set at about 40 degrees to the arch. Enter a team of production carpenters and riggers led by Colin Small and Jerry Hough who, along with Kirk Granger, Martin Gelder and Richie Rosette, had to make the show work. To add to their problems, work in a range of venues that are not the easiest touring dates in the world, with the show coming out to Theatre Clwyd and passing through Malvern, Richmond and Newcastle before landing at the Strand.

Squeezing the show into the latter involved several weeks of pre-rigging work over the show that was then running there, and, in between, fitting the show up and taking it out on tour which was a two day and six artic process. The whole back wall unit is supported on two Verlinde 108 motor hoists. The sliders within the wall run on tracks within the back

wall structure, but are actually lifted by counterweighted flying lines. When the whole wall flies, the brakes on these lines are released and the sliders are lifted by the wall itself.

Further upstage, the gold columns are flown using counterweight lines and, upstage of these is another truss supporting two runs of Triple E track which, in turn, support a set of metal doors and a crucifix. One last scenic element: the corridor used behind the control slider during act two had nowhere else to fly and so is carried on and set in place during the interval; to facilitate this the unit is made from aerolam to ensure that it is both as light and strong as possible.

The team were helped in the final installation by the fact that the Strand is usually a hemp house; all the counterweight flying sets had to be installed specially for the show and so could be run in as required, even if the grid is a cat's cradle of flying lines as a result.

On tour, Small and Hough simplified the show slightly, using two flying bars to pick up drifts from each of the sliders. Though this saved on rigging time, it required careful thinking through to ensure that bars wouldn't clash with each other at any point in the show, and also a weekly adjustment of the drift lines to suit the positions of the flying bars in each venue.

With the set at a funny angle and much of the flying already spoken for, Mark Henderson chose to put the bulk of his overhead lighting rig on truss, using a four-sided triangular shape that had the upstage line following the line of the set and the downstage line parallel to the front of the stage. Henderson and production electricians Simon Needle (who re-lit the show on tour and into London as Henderson was by then away lighting Oklahoma in Plymouth) and Dave Boswell, also tucked lamps away on ladders, booms and drift bars in any corner of the set not occupied by scenery. They included a peculiar triple-purpose backlight bar which had a ladder hung from a bar containing a line of Parcans, and then another bar drifted to sit below the ladder.

The show's rig, supplied by White Light, is a mixture of very conventional units - around 72 110v Parcans of various beam angles, 20 Cantata PCs, eight old-faithful Patt 743 fresnels, 42 Silhouette 30 profiles, six Thomas light curtains, five Iris 4 cyc units, a 5k fresnel, 10 par 56 lamps, six Raylights, and an assortment of Cantata 11/26s, Sil 15s and Sil 30s front-of-house all controlled by the Strand's house Gemini control. There is not a moving light, or even a scroller, to be seen, though heavy use is made of two Pani 1k beamlight followspots mounted in the auditorium boxes.

Henderson and Needle have used the rig to great effect though, with the result that there is no point in the show where the lighting looks less than good, and many moments when it is excellent, aiding and abetting Davidson's set design in the many fleeting 'visuals', such as the image of Joan with sword raised in front of a crucifix at the top of the show, yet keeping the



Peter Davidson's set featured marbled walls containing embossed text of religious messages, here just discernible behind Imogen Stubbs and Philip Quest. photo: Ivan Kyncl

actors clearly visible even in the long, dim scenes during the second half. The emphasis of the lighting is towards cool, and often low, sidelight, giving the actors a strong look while keeping the light away from the set. The set is then coloured cool using Lee 200, which seems to be one of the 'in' colours of the moment, though the colour palette varies from double Rosco 09 for sunsets, through to the gorgeous deep blue Rosco 78 used to wash the walls of the set during the inquisition.

There is also a warm backlight used to pick out Joan's red hair as she seeks to receive divine inspiration - Stubbs herself described the purpose of this lighting as giving the character a 'heavenly glow' in a Radio 4 interview! Yet the lighting is not 'clever' - it is how lighting is supposed to be, so good that you never consciously notice it unless you sit there deliberately studying it. And to do that on this show is a shame, because there is so much quality work going on elsewhere.

That includes the show's sound, which features music by Max Lambert and a sound design by Paul Arditti. The replay side of Arditti's design is what is now becoming the standard, up-market drama sound rig, supplied, as is so often the case, by Autograph - a 16-8 Cadac B-type desk sending signals out through 10 Meyer UPA loudspeakers. These provide a standard stalls, circle, upper circle set-up, with a further two units hidden in the back wall of the set and carefully concealed using acoustically transparent material, with the remaining two mounted upstage on stands, allowing them to be moved during scene changes.

Arditti has also installed six Meyer monitor loudspeakers at the rear of the stalls and the circle to enable him to turn some of the music and effects into 'surround sound' effects, with two UFW sub-base units to give extra kick to effects such as thunder.

However, he then departed from the standard rig by using two Akai S3200 samplers rather than the more common S1100s he has used in the past. The 3200s were chosen because they offer 32 voices rather than the 16 voices available on the earlier model. These are used to store both the musical sounds and sound effects used. In plotting the show, Arditti has stored short samples for each particular sound

and then, with composer Lambert, actually 'played' the music and sound effects, recording the Midi events using Version 1.4 software running on a Macintosh LCIII fitted with an OpCode Studio 3 Midi interface. The Midi chain also includes a Roland U220 sound module, used to create the piano and some of the synthesiser sounds, and a Yamaha SPX1000 reverb unit, used to add a cathedral feel to some scenes by adding reverb to the signal from two rifle mics on the pros boom. Sound operator Simon Baker is very happy with the control system, both because of the ease of triggering cues in the first place, and the ease of repeating

---

***"... the lighting is not 'clever' - it is how lighting is supposed to be, so good that you never consciously notice it unless you sit there deliberately studying it."***

---

them should some part of the set become stuck!

The sound is like the lighting - successful because it does its job without getting in the way of the superb performances on the stage. If the set, lighting and sound are triumphs, so too, is the casting and acting. And, most importantly, all function superbly well together from the dramatic opening as an actor is thrown onto the stage, sending the carefully ordered armour flying noisily in all directions, to the potentially OTT last 'post death' scene complete with LSX low-level fog and a starcloth. However, L+S! can answer the question which seems to have concerned most people (or, at least men) who've asked me about the show: no, Imogen Stubbs hasn't cut her hair short for the show - it's all done with wigs!

Saint Joan is a show that placed demands on all concerned, yet emerged triumphant. The second show, **Hamlet**, also features a set which, while nowhere near as demanding as Saint Joan's again meant that conventional theatrical rigging was not completely suitable.

On first viewing, Lucy Hall's set for father Peter Hall's production isn't complicated - a grey tiled floor with a raked, tiled disk in the centre. At one point the disk splits, with the

front half trucking downstage slightly to leave a gap for the gravediggers to lift earth from. The only other scenic transformations come from a set of flown red ropes, which can drop in to mark the perimeter of the disk, a second set of ropes which can drop downstage of the disk, and a mini pros arch with red drapes, used in the Players scene. The standing set is backed by a curved, wrap-around cyc featuring a painted seascape. In front of these, following its curve, is a slitted back projection screen which adds haze and depth to the cyc painting, and was reputedly introduced as the best match to the effect the designer obtained by looking at the model of the cyc through tracing paper.

The rigging complications arise partly because the flying red ropes have to follow the curve of the central disk, and partly because of the 35 feet height of the cyc.

The full height will rarely be seen by anyone sitting beyond the second row of the stalls, yet someone took the decision to leave it unobstructed at the full height, rather than making it lower and then using conventional masking. The lighting rig thus sits over 35 feet in the air, immediately rendering it inaccessible using the conventional tallescope method. The lighting also couldn't be rigged on conventional bars running straight across stage because these would obstruct the flying ropes. Truss was brought into play once again, and rigger Jerry Hough was responsible for getting the show in the air.

The rigging for the lighting on Hamlet is more complex than for Saint Joan, though the scenic rigging simpler. Two outer trusses follow the line of the cyc; these are formed from Thomas tower truss and linked to allow easy access from one to the other and are supported on two motor hoists. These sections carry a mixture of profile spots (some originally Lekos, but swapped for Cantatas on tour) on six-way internally wired bars, some armed with Lightpaint scrollers and all cross-lighting or backlighting the disk. A downstage line of the same truss carries Cadenza profiles providing toplight downstage and frontlight upstage.

Centred above the disk is a second truss formed from Trillite and supported on four motors. This truss carries four Thomas light curtains giving toplight onto the disk, and more Cadenza profiles. The flying ropes drop down and around this central truss, while the cyc and back projection material hang from curved bars drifted from conventional flying bars. The trusses are accessed for focusing by climbing two vertical truss pieces used to support booms just downstage of the cyc. All of the truss and lanterns it supports are supplied by Playlight.

The trouble is that the set places huge demands on the lighting to define the many locations that Hamlet calls for, yet prevents it from doing so by blocking many of the useful lighting positions. Add to this the demands from director and designer that light should not hit the cyc or BP screen and the enormity of the task that faced lighting designer Joe Atkins quickly becomes clear. The sharp sidelighting employed by Mark Henderson on Saint Joan, for example, is not possible because of the wraparound cyc. Where it is possible, in one narrow strip downstage beyond the end of the cyc, it can't cross too far upstage or it would hit the cyc on the opposite side. Any kind of uplighting, similarly, is out because of the effect it would cause on the cyc.

Atkins' rig thus went through several large-scale revisions as he worked to keep the other members of the creative team happy. At times Lucy Hall's design does outrageous things with colour - the bright red of the flown



ropes are sometimes matched by characters with bright red hair, for example. Atkin's rig originally took similar bold steps with colour, but was eventually almost entirely re-coloured to Lee 202, with just hints of lavender and blue from the scrollers creeping in from time to time. At the show's opening venue, the Thorndike in Leatherhead (mounting the show, in association with Bill Kenwright Ltd, as their 25th Anniversary production), he was also not helped by the comparatively low front-of-house lighting positions. When played against the light from the high flown rig, the result was often very dominantly 'front-lighty', despite the work that had been put into rigging a special advance bar which provided a better angle for lighting the show while missing the cyc than any of the Thorndike's architectural lighting bridges.

The show thus, sadly, seems to be an indication of what happens when a creative group of people somehow fail to function as a creative team. Sound designer Paul Arditti has worked to his usual high standard to replay an electronic score by Stephen Edwards and add some eerie, non-naturalistic sound effects, again using his favourite rig of Cadac desk, Meyer loudspeakers and Akai samplers controlled by a Macintosh. Yet apart from Stephen Dillane in the title role, the cast and production as a whole fail to hold interest through the four hours of the show.

Despite that, the show has already played in Athens and is now touring Britain before becoming the first show to play in the newly-renamed Gielgud Theatre (formerly the Globe) in London. It will be interesting to see how audiences take to it, since on the last night of its run in Leatherhead, the auditorium had more empty seats than full ones. Similarly, Saint Joan is playing in a theatre where the top two



Some of the main scenic transformations in Hamlet are created by the set of flown ropes.

circles are quietly gathering dust (even though the box office is still selling tickets at all prices - you can either pay £25 for a dress circle front seat or £8 for an top-circle seat which will then be upgraded to somewhere near the front of the dress circle. It's amazing that more of the audience haven't figured this out!). 'Going for Broke' with a design that perfectly matches your vision of the play is fine, but it will be interesting to see how much longer producers continue to support that attitude on shows which fail to make money.

What both shows do demonstrate however, apart perhaps from the fact that audiences really have to be persuaded to come and see

drama in the middle of a hot summer, is that all areas of the technical entertainment industry should now be treated as a whole. On these two shows directors and set designers from drama, musical and opera backgrounds have worked with lighting designers with experience in all areas of theatre and beyond into trade shows, using crews and rigging techniques brought in from theatre and rock and roll, to get two straight, non-musical but large-scale dramas on the road. Not everyone may realise it is happening, and not everyone may like it, but this cross-fertilisation of ideas and techniques can, in the long term, only be of benefit to everyone.

## MUSIC MERCHANDISING SERVICES LTD.

SUPPLIERS OF

PROMOTIONAL/CORPORATE ITEMS & LEISUREWEAR

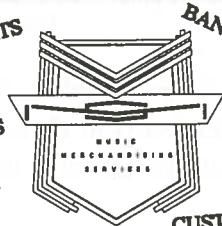
T-SHIRT \* SWEATSHIRTS  
TIES

POLO SHIRTS \* VESTS  
PATCHES

TRACKSUITS \* SHELL SUITS

\*EMBROIDERY

BASEBALL CAPS \* SUN VISORS



BANNERS \* MAGNETIC SIGNS

KEY FOBS

MUGS \* BADGES

CUSTOM MADE GARMENTS

BALLOONS

BAGS/HOLD-ALLS

SWEATERS \* JOGGING PANTS

\*SCREEN PRINTING \*

QUICK TURN-AROUND TO TIGHT DEADLINES

WHATEVER YOU NEED - WE'LL GET IT!

### RING NOW

FOR ALL YOUR REQUIREMENTS

## TEL 0536 763600

M.M.S. "THE WAREHOUSE"  
60 QUEEN STREET, DESBOROUGH,  
NORTHANTS NN14 2RE



## DLD PRODUCTIONS LTD

presents

### Maxlight Par 64/56 Replacement



- Variable Focus
- Replacement Lamp
- Very High Output
- Lightweight

### Maxstar Par 36 Replacement

- 2000 Hour Replaceable Lamp •
- 35 Watt 6 Volt Lamp •
- Direct Replacement
- for the 'Pinspot' Lamp •



### HP 600 FEL/FEP Lamp Replacement



- Higher Light Output
- Lower Power Consumption (only 600W)
- Rugged Design
- As specified on the Altman Shakespeare Luminaire

DLD Productions, Unit 4, 2nd Floor,  
1-4 Christina Street, London, EC2A 4PA  
Tel: 071-613 3825 Fax: 071-613 1254

~ SEE US ON STAND A191 ~

# Lighting Control System of the Year at the new Gothenburg Opera



Photo | Jens Karlsson / Hasselblad

2048  
control  
channels

Europe's newest Opera House, the Gothenburg Opera, is opening in October equipped with the Lighting Control System of the Year, a 2048 control channel SuperVIKING VLC system from AVAB.

The AVAB VLC control system was named Lighting Product of the Year in Theatre Crafts International magazine in March this year.

It is also being installed at Det Konglige Teater, Copenhagen, and at Aarhus Theater

in Denmark. The Kirov Ballet at the Marinskij Theatre in St. Petersburg and the new Music Hall theatre in Stuttgart, being built for Miss Saigon, are

also going to open this autumn with the award winning lighting control system. And



in France Theatre Chatelet, Theatre de la Collin, Theatre de la Ville in Paris and Maison de la Culture in Bobigny are going to follow

# AVAB

AVAB Niethammer AB

Salsmästaregatan 32 • 422 46 Hisings Backa • Sweden  
Tel +46 31 585200 • Fax +46 31 582999

# TOWARDS COMPUTER-GENERATED TV SHOWS

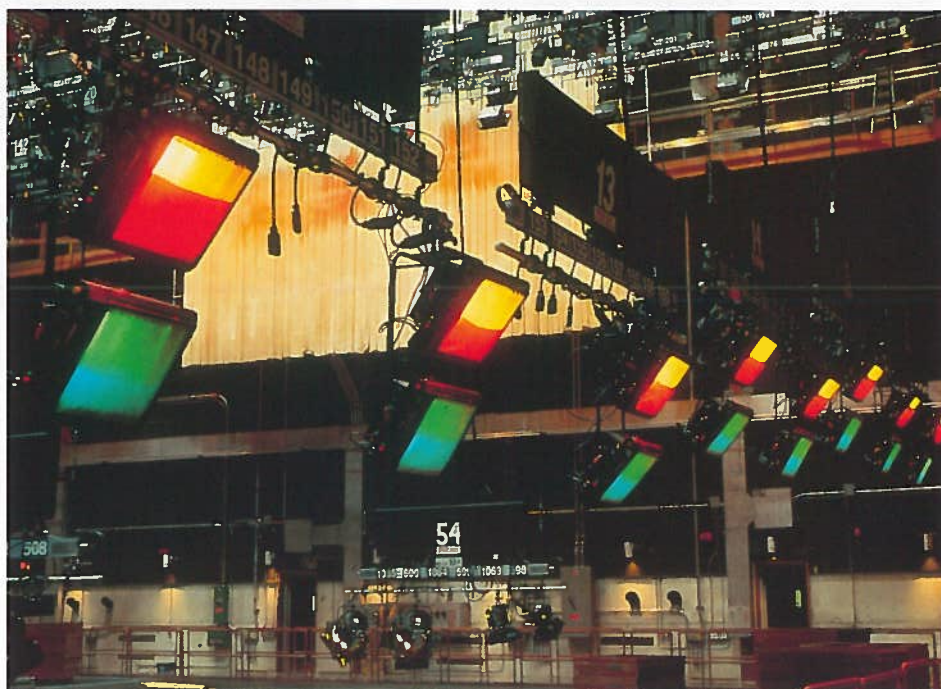
Gilray Densham takes us on a studio tour around the all-digital CBC Broadcast Centre in Toronto, Canada

Having been employed in the lighting field for some 20 years, I began talking about what should and should not be included in the new CBC Broadcast Centre project, which was being designed and built in downtown Toronto (directly north of the CN Tower for those of you that know this area). It wasn't long before the powers-that-be started listening. My function in the corporation is that of a lighting director/designer, and for the dubious sum of \$19 a day, whenever it could be justified, I was given the extra title of Broadcast Centre consultant. My goal was to make our complex much more efficient than the original designers had anticipated.

We are now in our second year at the centre and I feel that we have accomplished the task admirably. Some of you out there may already have seen a video, produced for Showlight 93, outlining how we light and prep our shows. This video provides insight into the use of computers in our field, which we feel is the direction of the future, and I am working towards the complete computer generated television show. That is, the ability to design, prep and cue, in real-time, the final version of a show before a nail is hammered into the first set pieces. This allows all concerned to view and approve the final product before beginning the expensive task of physically producing the show.

We feel that we have tackled a lot of problems and come up winners. The new CBC complex is the first of its kind: an all-digital building. In fact, our main cameras have not yet been purchased pending technology which matches our facilities. The centre houses eight fully equipped television studios with the largest at 14,000 sq.ft, five rehearsal studios averaging 3,600 sq.ft, as well as all of the usual editing and effects suites too numerous to mention. It also houses our full contingent of radio and recording facilities that are already famous in their own right.

The largest studio lives on the top floor of the building. It has a fly height at the south end of 65 feet, which runs approximately one third of the studio before dropping down to 55 feet for the remainder. There are 160 motorised lighting battens, each approximately ten feet long, and 80 motorised staging fly lines (all built by Hoffend & Sons). The lighting battens are now being flown by a computer system capable of running cues and editing off-line. There is also a horseshoe-shaped ground row pit 226



One of the eight studios at CBC with Strand iris cyc units fitted with the new, specially adapted, Rainbow 15" scrollers, suspended on the motorised light battens. photos: Steve Austin

feet long by 4 feet deep.

Also on the top floor of the Broadcasting Centre are two more studios, each 11,000 sq.ft in size. All three studios are controlled from two control rooms which are sandwiched between them. For dimming we use Strand CD90s: 1300 in the larger studio, and 900 in each of the smaller ones. ETC's Obsession consoles are used for control, and full designers remotes or dumb terminals can be popped in at numerous locations throughout the studios.

We own 24 Summa 400W HTI moving lights and lease 16 VL5s. By the end of '94 we will have added 24 more VL5s and 12 more Summas. We are also looking into adding a dozen VL6s to our list, or a comparable 'quiet moving light'.

To help make our productions more efficient, we also have an abundance of Rainbow scrollers. To date we have 140 8"; 40 old style two piece 15" units and 240 new style 15" units that are adaptable for any 2kW, 5kW, Iris cyclorama or Orion ground row fixtures.

This list could go on for days, but what I

should add is that there was only a limited budget with which to make all the changes that were needed. It was necessary to buy fixtures to add to our already ageing equipment. Needless to say, we opted for pole operated fixtures for ease of focusing - permanent cycs were only installed where needed.

OK, you ask - where is all this leading to?

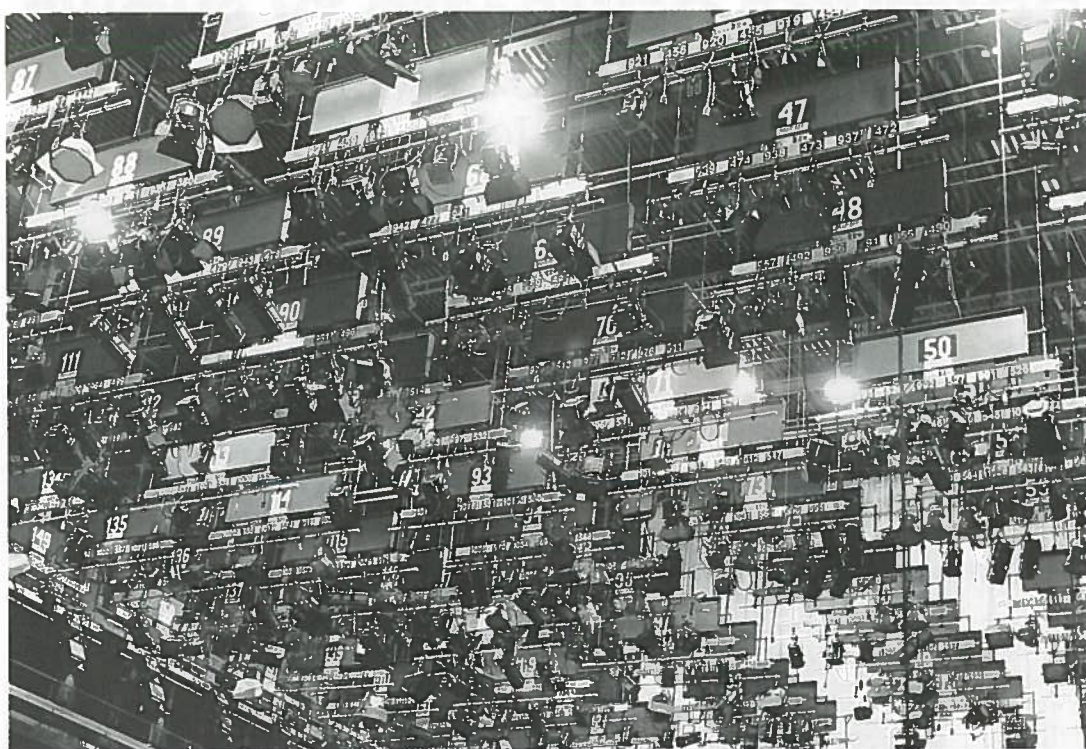
Most of you know by now just how time-consuming and labour intensive it is dealing with all the different types of lighting equipment. The wiring required for one type of device alone can lead to some severe headaches. If you are trying to add all types of automation throughout your rig, the amount of wire that has to be installed increases enormously. The studio has 160 lighting battens which can fly anywhere from 55 to 65 feet. Only 12 battens can be flown at one time at a rate of 40 feet per minute. (That is an increase of four units and seven seconds faster than the original spec allowing the entire rig to fly in 20 minutes). You may well imagine the complications of flying the correct set of battens



One of CBC's studios rigged up for recording.



The main studio control centre.



The largest of the studios with row after row of light battens stacked with an array of luminaires.

so as to not rip your control or non-dim power lines. You also have to contend with staging battens flying in and out between yours.

Our battens originally came equipped with only dimmed outlets. The dimmers were fed a boosted voltage and each trimmed to correct the pigtail voltage. (Any non-dim device at the racks would result in too high a voltage at the outlet. If you locked our dimmers at full output it would result in a chopped wave which is unacceptable for sensitive automation devices). In order to use any device other than a standard tungsten dimmer-driven light would have resulted in cabling and uncabling from the grid down to the battens, and pulling the cables up as they flew. We could, of course, cross cable to other battens in groups of less than 13; sorting out which battens must be dropped together to change a bulb would be difficult to say the least!

For these reasons we planned a non-dim and control cabling network that feeds the entire studio from a central patch bay mounted at the 35 feet level. Built into an originally-non-existent corner of the catwalk, its purpose was to accommodate as many of the different types of equipment as possible that we owned, or were likely to use in the future.

I can now say that we have the first 400 line, five-wire control system. The big studio is equipped with two lines per batten, four lines in the pit, and 16 lines dotted throughout the studio. I am very careful not to say that this is a DMX512 capable system only, as we are already using it for more than that.

We built a standard module housing two five-wire female XLR type outlets that are also paralleled to two male XLR outlets, allowing for maximum versatility. The same module houses

the non-dim power supplies, which are two 110V-15A U ground and one 208V-15A twistlock. These modules appear on the battens and about the pit and the walls of the studio to allow controlled distribution wherever needed. The patch rack itself houses only the control cabling, with the high voltage feeds connecting directly to their respective breaker boxes.

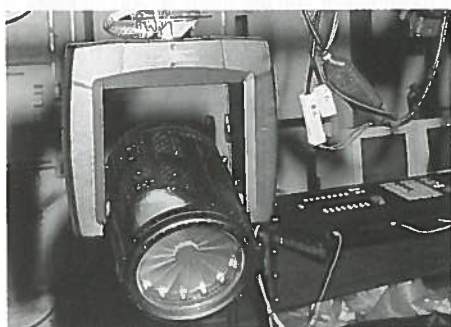
All of the XLR plugs terminate in the rack in a female type outlet and can be jumpered by male to male XLR patch cords (this method was chosen for versatility; it also keeps all our patch cords from walking).

In addition, the rack houses 180 optical isolators and repeaters, built in units of five or 15 outlets, each with loop-throughs and terminators. There are also six five-wire DMX-type cables running into the patch rack from both control rooms on their way to the dimmer rooms. All three studios can be controlled from any control room or even from the outlets on the studio walls. This,

of course, saves a lot of cabling.

We are only now beginning to explore the possibilities of this system! Our Summas can be patched through it, as can our VL5s by simply making up adapters. We also had Rainbow build a mini power supply and splitter for us: five pin XLR and 110V in, to four pin XLR out at 24V DC. This can run up to eight 8" or four 15" scrollers, as well as supply 24V DC power to any other device that needs it.

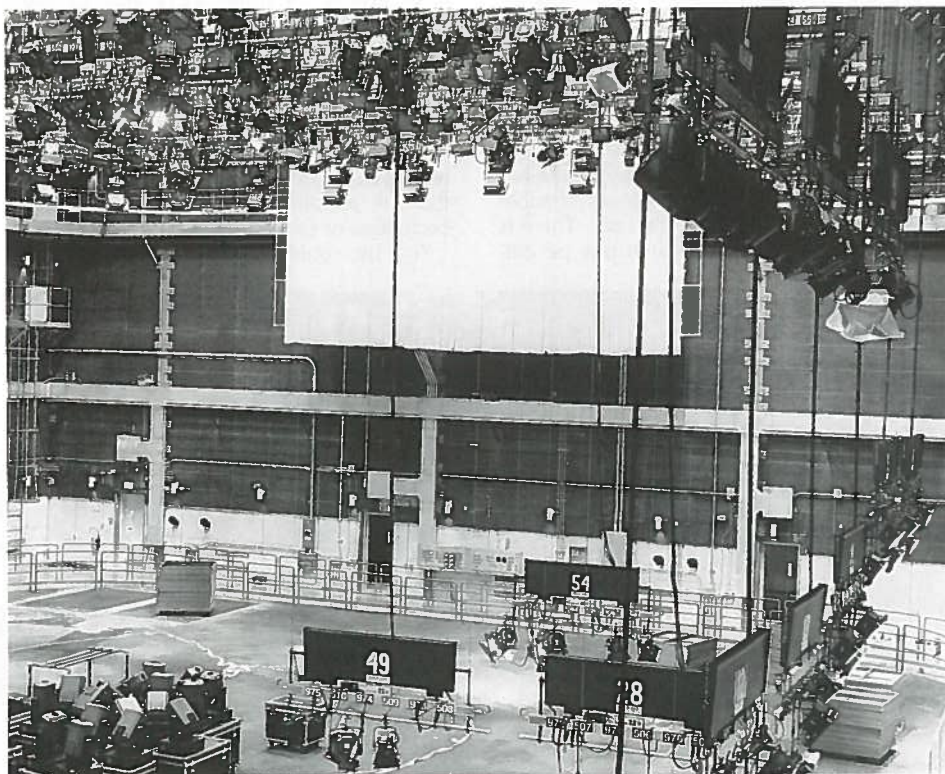
We now have our top cycs and ground rows permanently installed into this studio. Two colours of top cyc and two colours of ground row were used with the new 15" Rainbow scrollers. It was a nightmare coming up with two 16 colour scrolls to give us the most flexibility in the colour range to satisfy all; installing the correct types of gel into the rolls was no easy task either. Part of the spec called



One of 16 VL5s on lease to the studios.



High End System's Cyberlight in situ.



A forest of luminaires in typical show configuration.

# IT'S CURTAINS FOR ANYTHING ELSE IN THEIR CLASS.

## THE NEW *A* CCLAIM RANGE

The performance and operational standards for 500/650w luminaires have just been rewritten as a result of Selecon's custom optical development software and innovative design.

An entirely new range of luminaires engineered from aluminium extrusions and die castings.

Unmatched choice and features exceed the performance and budget requirements for theatres, schools, entertainment venues and display lighting.

The range includes three types of profile luminaires with six different models.

**Acclaim Condensors** - precise projector like beam quality ideal for pattern projection. 18° to 32° and 24° to 44°.

**Acclaim Zoomspots** - ellipsoidal variable beam profiles with 30 to 100%

more light output than comparative luminaires. 18° to 34° and 24° to 44°.

**Acclaim fixed beam profiles** - efficient, simple to use, excellent performance 25° and 40°.

And a **Fresnel** and **PC**.

**Operational features:** Safety-mains power disconnect on opening, complies with EN 60598 • Interchangeable variable beam lens trays • Maintenance is simple, safe and fast as the lens and lamp trays open down

• Adjustable yoke • Variable beam profiles have cranked yokes

• New spring tensioned shutter system.

For more information, see your local Selecon distributor.



### MORE LIGHT



Fresnel



PC

### MORE FEATURES



Fixed Profile - 25°



Fixed Profile - 40°

### MORE CHOICE



Zoomspot

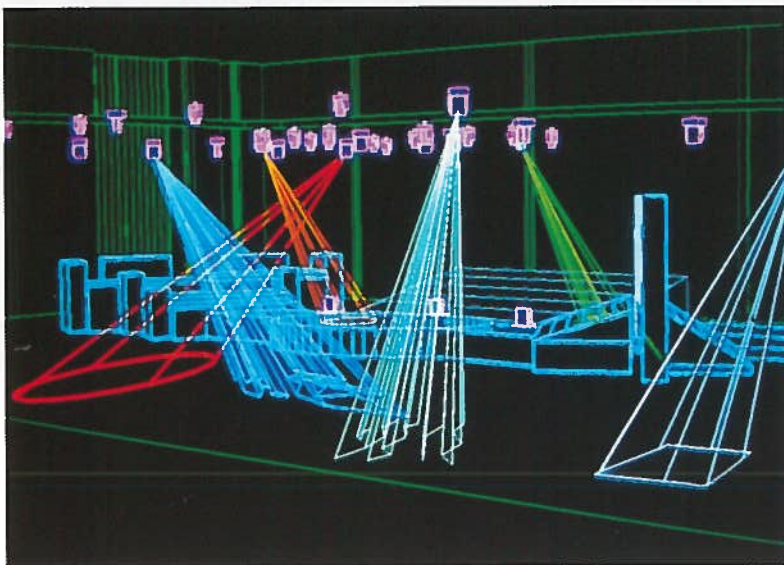


Condensor

**UK** AJS Theatre Lighting & Stage Supplies Ltd. Ph: 425-470 425, Fax: 425-471 398  
**NETHERLANDS** Aukes Theatertechniek BV Ph: 020-694 4996, Fax: 020-694 6261  
**SPAIN** Stonex S.A. Ph: 1-471 5597, Fax: 1-471 9703

**Selecon New Zealand Ltd.** 26 Putiki Street, Grey Lynn, Auckland, Ph: 64-9-360 1718, Fax: 64-9-360 1719.

# SELECON



The LXCAD system which works under Windows on AutoCAD.

for the ability to scroll horizontally, as well as control the fans in the scrollers with the lighting consoles. The cyc itself is in the order of 40 feet high, and the ground row units, because of the pit, are below the floor by four feet. The original design called for the top units to be mounted eight feet out from the cyc, and the bottom units four feet out.

Our first attempts were disastrous, leaving huge holes in the middle of the cyc. After consultation with others and a lot of spreader gels, I can now say that the cyc looks quite reasonable, and the ability to come up with almost any colour, at the push of a button, is incredible. Although this studio is primarily a Variety type, the bookings unfortunately don't keep to that rule. We see dramas being shot, so in order to avoid rehangs the cyc fixtures each time that this happens, we are going to under-sling a secondary lighting pipe below the cyc lights. This will allow us to bring lights close to set height for conventional back lighting.

This flexibility cost a lot, but we are already seeing savings in many ways. Predictions have it that the payback will take around two years, but you cannot put a price on the ability to say to production: "You don't like my colours? Then I will change them for you instantly!!" This option comes without the price-tag of a crew and lots of overtime to make it happen.

I am used to doing major size award shows, and can tell you that compared to conventional methods, I figure that the new way requires approximately half as many man-hours. Turn around times for this studio have been cut down considerably, and if the homework has been done in the office prior to starting, the set-ups also go in very quickly and with very little confusion.



Part of the CBC Studio lighting team: Gilray Densham (centre) with Robert Bell (left) and Brad Trenaman (right).

What's next? We turn the studio into what we call a Smart Facility. When in the office, prepping for a show, the computer will keep track of all the elements of the studio, including the dimmers. Every time we enter a fixture onto the plot, it will automatically be connected to the closest dimmer of the right size. This also means that the dimmer patch information would be edited off-line directly into the console. Automation has a similar role with our fly system, and in generating the paperwork for the different DMX patch assignments for each show.

Here's the biggy - complete visual real-time simulation of the set and lighting, pre-cued using your existing DMX512-type console, before building a set.

Since last September we have been using, on a regular basis, a prototype version of this

software that has proven to be 100 percent accurate. This environment shows moving beams of light interacting with the set in 3D perspective. These beams are shown in their true colours, and can be projected through any of your custom gobos. (See 'CBC spawns CAD System', L+S, March 1994).

The beauty of this system is that you don't have to learn any new skills to use it; if you can already run your console, you can utilise this system. Here's to the future coming!

(Production Arts acted as consultants/designers on the DMX distribution system, with Westsun being the installing contractor).

**Gilray Densham will be presenting a seminar at the PLASA Light & Sound Show covering the innovative technology used by CBC. Full details are to be found on page 68.**

## GILRAY DENSHAM

Gilray started work as a licensed electrician, installing dimmer systems in England. He emigrated to Canada in the early 1970's and started work for CBC Toronto as a lighting technician. He has steadily progressed in the lighting department over the years, and is now a designer and consultant for lighting systems in the new Toronto Broadcast Centre.

During the last five years he has been involved in most of the main variety and drama shows CBC has produced on video for television, such as five major Anne Murray specials, and six Juno awards shows, among many others.

As a result of this work he has been nominated for five Gemini awards, receiving one this year for the lighting at last year's Juno awards. He has also received three Anik Awards and three Kodak awards for photography in lighting for television.

His abilities have led to international acclaim for innovations established at CBC television. One of these innovations is the world's first permanent 400 line DMX lighting control system, which saves large on-going capital and labour costs. He was also instrumental in promoting the computer simulation of lighting systems that is now in use at CBC.

This wide experience in television lighting is now available to a wider clientele from CAST Lighting Limited, which he heads as president.

BBC TELEVISION - THAMES TELEVISION - ROYAL VARIETY SHOWS - GRANADA TV - BBC WALES - ITV - VIDEO/FILM - PRODUCT LAUNCH - WEST END/TOURING - HOTELS - DISCOS - OPERATIC

**PW Enterprises Ltd**

**Starcloths ~ Drapes ~ Sound ~ Lighting**  
Unit 11 Chelsea Fields Industrial Estate  
278 Western Road, Merton, London SW19 2QA

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

For more information contact George, Perry or Dave on  
Tel: 081-646 6131 - Fax: 081-646 5983

**WE'RE RIGHT BEHIND YOU**

LWT - MICHAEL HURLL SERVICES - CARLTON TV - TRADESHOWS - CLUBS/MARQUEES

SEE US AT  
PLASA 94  
STAND A14

# CM LODESTAR<sup>®</sup> MOTORS HOLD UP THE SETS THAT BRING DOWN THE HOUSE.



Whether you're lifting sets and backdrops or flying light grids and sound equipment or whatever your imagination desires - CM Lodestar motors put on one powerful performance. That's because CM has over 115 years of experience designing and manufacturing lifting devices for industry. So every Lodestar motor is built to meet the same tough standards we demand for our industrial material handling products.



Lodestar motors let you create sets that come to life on stage. And when it comes to professional field support, our creative engineers can help you design the right solution for your particular lifting application. Before the curtain goes up, set the stage to bring down the house with CM Lodestar motors. For more information, contact Columbus McKinnon Theatrical Products Division.

# EQUIPMENT *News*

## DHA Moves On-Line

DHA Lighting are now operating a bulletin board/electronic mail system which allows customers for custom gobos to transmit their artwork directly. This saves the customer both time and carriage costs and avoids any studio time charges incurred from re-drawing faxed artwork.

The FirstClass client software for this system is free for users of Apple Macintosh or Microsoft Windows - it also allows text/command line access for users with other computers. It is available on floppy disc or the client can log onto DHA using any standard communications package. The client will be automatically registered the first time they log on, but will be asked a number of questions before being given full registration. Any artwork can then be uploaded and sent via mail message.

Digital Light Curtain users will be interested to know that the latest versions of Light Moves software can be downloaded through the same system and that a 'conference' on Digital Light Curtains exists on the same number.

A number of clients have already used this system whilst taking advantage of the special offer for complimentary gobos for the PLASA Light & Sound Show. All exhibitors were offered two free gobos of a design of their choice (generally their company logo) the results of which will be seen all around the show.

DHA make many non-standard shaped gobos to fit the growing number of moving lights available on the market. For example, Gladiators and Futurescans, Prospots and Trackspots, Roboscans and Cyberlights are all catered for. Designs can be incorporated into these shapes from standard DHA catalogue or library designs, or from the customer's own unique artwork, generally with a turn-around time of four to five working days.

It is now possible to fit many of these moving lights with glass gobos. Consequently, images with much greater detail can be put into moving lights than has previously been possible, thus allowing designers to take full advantage of the subtle half-tones obtainable from glass reproduction, combined with the flexibility of a moving light. Recent commissions include glass gobos for Cyberlights and Goldenscans.

DHA will be exhibiting many of these gobos at PLASA along with the new DC Controller MK4, the full range of DHA moving effects and slide projections. The Digital Light Curtains with their award-winning pitching attachment will also feature strongly in the White Light/Moving Light Company show at the Macowan Theatre, Logan Place, SW5.

For further details contact DHA in London, telephone 071-582 3600.

## Electrosonic's new Imagestar Processor

Electrosonic have introduced the new Imagestar videowall processor.

The Imagestar incorporates the latest technology from Electrosonic, improving image quality and reducing set up time. It is a totally self-contained system that requires no additional set-up for use and accepts either a composite or Y/C input, and outputs RGB. The system is pre-configured for a 3x3 videowall, simplifying installation and training. The system can utilise any of the Electrosonic family of control products.

For more details contact Electrosonic in Dartford on (0322) 222211.

## More Power from JBL



Following the success of their MPA power amplifiers, JBL have introduced a complementary range of three new MPX amplifiers.

Reliability is a key feature, and all MPX amplifiers are protected against short circuits and a variety of other fault conditions, returning to normal operation once the fault has been removed. Multi-speed fans keep internal temperature within safe limits.

Active differential input circuitry offers the benefit of balanced operation without the need for an input transformer. Input connectors may be made with either XLR connectors, 1/4" balanced (TRS) or mono jack plugs, or via a removable barrier strip. Output connections are on 5-way binding posts. The front panels feature detented, lockable gain controls for both adjustment ease and security. Switchable 30Hz high pass filters are also accessible from the front panels. A rear panel switch selects stereo, parallel or bridged mono operation. The MPX range includes models with rated output power of 300, 600 and 1200 watts per channel (both channels driven into 4 ohms, 20Hz to 20kHz).

For further information contact Harman Audio in Borehamwood, telephone 081-207 5050.

## Glo-Decs from Party House

Party House Ltd (part of the Stardream Group) is launching a brand new range of flame retardant decorations and party novelties with a high density reaction to UV light called Glo-Decs. These create a bright, luminous glow with the aid of UV/Blacklite lighting creating unusual visual effects. The company has spent the last two years researching and developing Glo-Decs which involve a special coating of dye and are flame-retardant.

For more information contact Party House in Blackpool (01253) 302602 or catch them on stand at PLASA, A144. Don't forget your sunglasses.

## BSS FCS-930

Following the success of the FCS-960 two channel dual-mode graphic equaliser, BSS Audio has introduced a single channel version, in a 2U rack chassis, specifically for the fixed installation markets. The FCS-930 is identical in features to its two-channel counterpart, including the dual mode filter Q-switching and with constant-Q filter technologies employed. Other features include a variable high-pass filter, adjustable gain and a peak warning LED. Further details are available from BSS in St Albans, telephone (0727) 845242.

## Son of Hog

Amid stories of second-hand models changing hands at 50% above list price to satisfy tour demand, Flying Pig Systems have cut the throat of the Wholehog to make way for the second generation product to be launched at the PLASA Light & Sound Show '94.

"There was no point in making a further batch of the original product, as we were at the point where it would have taken just as long as getting the new one out," Nils Thorjussen told L+SI. "Once out everyone will want the new model anyway. By all accounts there was quite a debate about what to call the new piglet: 'The feeling was that Wholehog had stuck firmly in people's minds,'" said Thorjussen. So Wholehog II it is, with 'Son of Wholehog' as the subhead.

In the two years since the original Wholehog won the 'PLASA Product of the Year' award, it has made a major impression on the touring market and become standard fare at most concerts these days, wherever moving lights are the other ingredient. It is currently on the road with the Rolling Stones, Pink Floyd and The Eagles among others.

The claim for Wholehog II is that it will allow moving lights to be programmed as quickly as conventional luminaires, and for automated lights of different marques and protocols to run simultaneously. Up to four different protocols may be put out at the same time. The new console goes beyond the original, incorporating previously unmet requirements from theatrical, television, industrial and disco lighting designers.

With Wholehog II you enter the luminaire type and the quantity in use, and the system automatically patches to the appropriate personality set-up and configures itself for use. From here, programming is a matter of touching the display to select the instrument's functions, colour, gobos etc. It is also possible to use command line syntax on the keypad to immediately access the board's other features such as multi-part cues, split fade-times and many others.

Son of Wholehog can generate its own effects library which will produce sequences such as 'ballyhoos', circles, and shutter chases, which can be applied to your selected fittings at a touch, or you can add your own to the library for future use. Cues, cue lists and presets can be interchanged between Wholehog II consoles, so shows can be combined, and programming can also be swapped between fixture types.

Version II sees the introduction of intelligent XYZ programming for beam positions, so that the screen keeps track of the beam in three-dimensional space, and you can track a performer in real-time using the touch-sensitive screen or an external tracker ball. Rig schematics and plans can be displayed.

In addition to DMX, the console also runs MIDI, SMPTE and manufacturers' own protocols where available. A new 'DMX In' port enables 'snapshots' of cues from other desks to be saved. Touch panels can be connected for tactile playback.

The advanced RISC processor used in Wholehog II should have sufficient processing reserves to enable up-grades for many years to come and the touch-sensitive displays ensure full flexibility for future expansion. Worldwide distributors AC Lighting will be showing the new system for the first time on their Stand No A214 at PLASA '94.

For details in the meantime, call A C Lighting in High Wycombe, telephone (0494) 446000.



# SIEL 95

## & 10<sup>th</sup> Theatrical Services Exhibition

12-15 February 1995  
Porte de Versailles - Paris

### *The right place to meet the right people*

- By exhibiting at SIEL, you meet the users and find new retailers among 28 000 professional visitors.
- By visiting SIEL, you discover an almost exhaustive offer of products, equipments and services relating to the leisure and show business presented by 300 exhibitors.

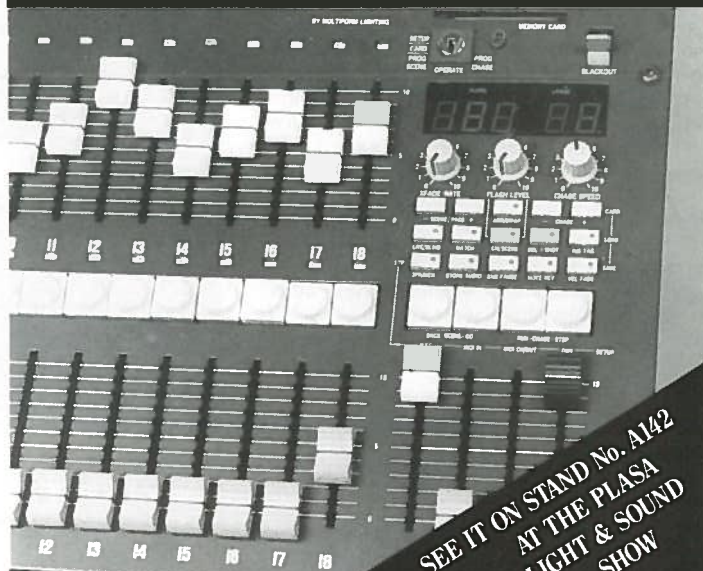
### NEWS 95

- The Theatrical Services Exhibition's 10th anniversary celebration.
- Special event centers dedicated to each sector represented on the show: audio, disco and theater.
- Information and orientation pavillion for visitors.

*For information,  
phone the hotline number (33-1) 45 22 35 40  
or fax (33-1) 42 94 25 96*

# MULTIFORM TAKES PRECEDENCE

At last – an inexpensive lighting board to outperform the competition, with the features of a large theatrical memory desk as well as the facilities of a live Rock & Roll console.



THE

# ZODIAC 18

- 18 Channels & 2 Presets
- 180 Scene Memories
- Scene, Page or 2 Preset Operation
- Dipless Crossfades up to 5 mins
- Level Match Editing
- Flash Scenes or Channels
- Add/Swap Flash Buttons
- 8 x 60 Chase Memories
- Manual/Audio/Beat Synchro Triggering
- Continuous/1 Shot/Tag Chases
- DMX512 & +10V Analogue Outputs
- 128 Channel DMX Soft Patch
- MIDI Music or Show Control Interface
- Memory Card Facility

#### AND NOW WITH

- Latest Takes Precedence mode for Colour Scrollers and Intelligent Lighting



MULTIFORM  
LIGHTING

Tel: (0825) 763348. Fax: (0825) 763310

Please send me more information.

Name: \_\_\_\_\_ Position: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Postcode: \_\_\_\_\_

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Post to: Bell Lane, Uckfield, East Sussex TN22 1QL, UK or  
Telephone: (0825) 763348 or Fax: (0825) 763310.

# ON TOUR

by STEVE MOLES  
AND PRODUCTION NEWS

## Elvis Costello Newcastle City Hall LD: Dave Maxwell SD: Dave Zammit

"Tonight is the anniversary of the first gig we ever played together: we opened for Wayne County and as a tribute to that night we are going to play his/her songs." Irony, with a poisonous tinge of sarcasm, characterises a great deal of Elvis's songs, but this is just a superficial impression. Scratch deeper below the surface and exquisitely observed rituals from life are exposed in lyrics and tunes that are as fresh now as when he first started performing them in 1976. Having not performed with the Attractions for eight years, and having in the interim received both hot and cold responses to his varied efforts with seemingly every other artiste available, there was a great sense of expectation in the atmosphere. A show for aficionados, Elvis and the band did not disappoint.

### SOUND

Dave Zammit has been engineering front of house for Elvis since '91. Mixing from a Gamble EX 56 he runs a big (for Newcastle City Hall at least) Electrotech LabQ series PA, with nine cabinets and two sub bass each side, plus a further two cabs per side in the balcony. The monitors, and two further cabinets as side fills, are run by Steve Flewin from a Midas XL3. One notable improvement to the City Hall is the addition of flying points above the balcony: no more balancing precariously on what was a very rickety platform built over the seats to stack the upper PA. Though it may seem excessive to run a chain hoist to each side for what is a lift of barely six feet, in terms of safety for the local and visiting crews it's well worth the effort.

Dave has a very straightforward set up out front: "I don't use many effects as this is very much straight rock and roll. There are several channels on which I use valve effects (Summit TL100a and DCL200s), something I've been using for a couple of years now, mainly for Elvis on his vocals and guitar, but also for Pete Thomas's bass." The sound is tight and almost claustrophobic, as befits the musical content, which has not one ounce of spare fat - it's quiet, crisp and tidy.

### LIGHTING

Dave Maxwell came upon the job of lighting designer via a couple of strong recommendations. His rig is very simple, though for this show - the



Elvis Costello at Newcastle City Hall.

*"As with the sound and the songs, nothing is used gratuitously, but instead is measured and precise."*

last with the Supermick system before going on to play festivals through the summer - it is very much a scaled-down version of the main touring rig. The tour in the US has seen the bulk of the performances, playing outdoors on the 'shed' circuit. In the UK, shows have been limited to London, Newcastle and Glasgow. Because these venues are smaller, Dave has, in the main, sacrificed the Pars. The rig is simply a front and rear truss full of Pars, with narrows on the back, mediums to the front, no colour changers and just six Roboscan 1220s spread across the rear truss as the only sign that this is not a 1979 design.

The back truss supports a white cyc lightly masked by a black gauze lit traditionally with 1kW groundrows. Dave uses the scans sparingly: "I don't use them that much, only in the songs that they fit, so the five followspot guys have a lot of work to do." There are four Lycians front of house and one centre stage on the back truss. True to his word, Dave works the spots very hard (one of the truck drivers counted off over 60 cues in the first

two numbers!) and Dave does not use a cue sheet himself. Despite this he runs a very tight show, even the scans which he triggers from the Avo QM flick in and out with perfect timing, and, after all, precision is what this show is all about. Dave explained the pressure to keep things tight. "Elvis, like a lot of performers, knows clearly what he dislikes, but doesn't actually know what he wants. I've kept it straightforward, just five washes and a bit of key light from the back with all the real hard work in the spots."

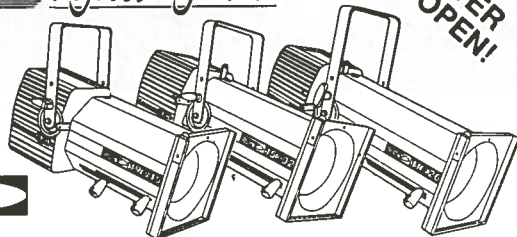
There is no stage set; the band and their back line gear is all there is to see. Dave wraps them in light, a heavy 12kW wash from the front (his colours are predominantly dark and mostly cold) with just a pair of Pars from the rear. Even the cyc is used sparingly. As with the sound and the songs, nothing is used gratuitously, but instead is measured and precise.

Elvis and the band were in the pub across the road from the City Hall before the show, much to the delight of the many concert-goers who were indulging in a pre-show drink. Relaxed and at ease, even when obviously in the public eye, it is this aspect of him that makes the intensity of his performance bearable. When he's playing, be there as each song starts or you'll miss out and between numbers be prepared for wit and intimacy. His songs are a reflection of life, not of himself.

# RB Lighting Ltd

Main Supplier of

CCT



CCT Lanterns and Spares available from stock.

081-977 9665

RB Lighting Ltd, Unit 10, Teddington Business Park,  
Station Road, Teddington, Middlesex TW11 9BQ.

Fax: 081-977 5687

NEW SALES  
COUNTER  
NOW OPEN!

## SET LIGHTING & DESIGN

SET LIGHTING & DESIGN  
THEATRE & NIGHT CLUB  
LIGHTING & SOUND  
SPECIALISTS

119 DARTFORD ROAD, DARTFORD,  
KENT DA1 3EN

Q. ARE YOU LOOKING TO EITHER UP DATING OR HAVING A NEW LIGHTING OR SOUND SYSTEM?

A. WELL IF YOU ARE, LOOK NO FURTHER BECAUSE WE CAN PROVIDE ALL OF THIS FOR YOU, AND AT A PRICE TO SUIT ALL BUDGETS.

SO CONTACT US NOW  
TEL: 0322 271954/288938 FAX: 0322 294628

# Aswad

Lincoln Castle

LD: Dave Dray

SD: Mark Aitkin

Not having performed in the UK for over four years, it was perhaps no surprise that Aswad's concert at Lincoln Castle was poorly attended. Despite recent showings in the charts and on Top of the Pops, the band have been less than conspicuous of late, besides which, Lincoln is not renowned for being the heartland of reggae music. With Lincoln not the most mainstream of venues in which to test the waters, the band nevertheless turned in a professional performance and made strenuous efforts to fill the void. They were amply rewarded for their efforts by an enthusiastic and partisan crowd. What the audience lacked in numbers they certainly made up for with incessant whistling and cheering, and the band's exhortations to sing and yell (which were frequent) were enthusiastically obeyed.

The castle itself is a delightful setting for an outdoor show, the perimeter fortifications sit atop enormous earthwork embankments some 40 feet high which serve to push the sound up rather than outwards. For the town's residents in the immediate vicinity, the level of noise disturbance is minimal - the highs are absorbed into the embankments and the mid-to-bottom end is just a distant drumming. Standing immediately outside the Castle in a residential street the noise of the concert was easily drowned out by any passing car. The Castle, being a tourist attraction, is well served with ample parking within easy walking distance. Inside the walls, promoters Lincoln County Council had provided more than adequate facilities for food, drink and calls of nature - all in, this is a great location for an outdoor show with space for up to 5,000 people.

## SOUND

With this being a one-off show, rather than part of a tour, all equipment, sound, lighting and staging was sourced locally. The sound equipment was provided by Yorkshire Audio based in Leeds, with UltraSonics of Brigg in Humberside supplying a Renkus-Heinz system for the two delay towers. For those who think regional suppliers are the poor cousins of the big service companies in London, think again.

Yorkshire Audio supplied an EAW system of 16 KF and SB850 cabinets using EAW's top-of-the-range processor, featuring attenuation for each frequency, all driven by Crest 8001s. While firms in London have had difficulty in the past 12 months sustaining cash flow, YA have doubled their turnover each year for the past four years and not a penny of the £100,000 they spent on new equipment last year was borrowed. Although the core of their business is one-offs and the University and club circuit, this does not detract from their



A hot look, with lots of pinks, mauves and magentas for Aswad.

ability to supply not only top-of-the-range equipment, but also the personnel and service to go with it. Front of house was a 40-channel Soundcraft Vienna II for Aswad and a Soundcraft venue for the support band. The monitoring was run from a Crest 40-channel Century desk: a new console on the market it had in fact been loaned to UltraSonic for promotion purposes.

Mark Aitkin, Aswad's own FOH engineer mixed the show. Inevitably with a reggae band, bass sound was heavy, however, it did not overwhelm the rest of the mix - vocals were crisp and clear and the horn section was especially bright. The potential for all the sound to be subsumed into a mush of bottom end was never fulfilled and although the gut-churning thump to the stomach was ever-present, the overall sound was well balanced.

## LIGHTING

The lighting was, like the sound, from a local source. Q-Lights are actually based in Lincoln, but again are not to be sneered at for their rural location. As well as one-offs, the company (owned and run by Dave Dray) provides lighting for trade shows like the Motor Show at the NEC each year and a substantial number of theatrical shows.

For this show the rig, designed by Dave, featured 100 chrome Parcans and six Golden Scan 3s, mainly hung from the existing roof trusses. The roof and stage was supplied by Serious Stages. The Golden Scans and six ACL bars were hung from an independently flown Thomas A-type truss which formed a vertical hexagon shape and neatly framed the rear of stage. Three six foot wide white

flats were hung behind this to provide a projection surface for the Golden Scans without restricting access to and from what is a very narrow backstage area. Dave has toured with Third World, Shaba Ranks and Maxi Priest in the last year and was well prepared for the reggae idiom.

The band were always well lit from front, side and rear, usually a combination of at least three colours with the singer picked out by the two front of house Strand CSI spots. The Golden Scans were used variously to backlight the band, for sweeping effects out into the audience, but mainly to put some movement onto the stage (the band, with the exception of the singer, were surprisingly static) by projecting assorted rotating gobos onto the flats. The presentation looked very TV, that is generally hot with lots of pinks, mauves, magentas and light blues. With chases running up and around the curved hood of the roof, the stage often resembled a large Wurlitzer juke box.

Although not a financial success, the concert was an accomplished event and suffered nothing in terms of presentation from any of the suppliers or the band. The promotion was organised for Lincoln CC by Andy Deighton of Serious Events (no relation to Serious Stages) who promises that at least one more show will be staged this summer, probably in mid August. Perhaps some consideration might be given to staging an all-day event in the grounds with non-musical entertainment during daylight. Nonetheless, a pleasure to attend.

*A slight error was made in the Primal Scream review last May. The monitor engineer was in fact John Jackson, and not Ian Barton as printed.*

## 11 YEARS IN THE LIMELIGHT!

CALL US TODAY FOR OUR NEW ILLUSTRATED BROCHURE

Since 1884 we have been manufacturing and supplying Iris diaphragms. Today, with a reputation second to none, we supply many of the leading companies in the Television and Theatre industry, from our wide range suitable for all applications

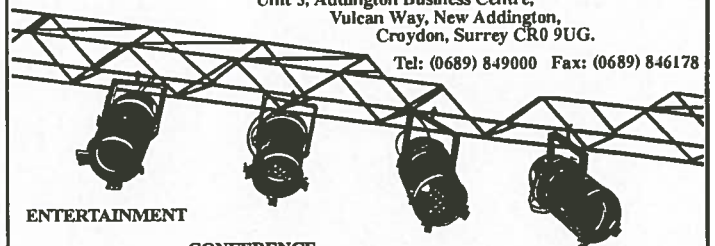
Wilkes Iris Diaphragm Co Ltd

Widco Works, London Road, behill-on-Sea, Sussex, England Telephone: (0424) 217630 Fax: (0424) 215406

## Stage-Door Lighting Productions Ltd

Unit 3, Addington Business Centre, Vulcan Way, New Addington, Croydon, Surrey CR0 9UG.

Tel: (0689) 849000 Fax: (0689) 846178



THE COMPLETE LIGHTING SERVICE

# ASLEEP IN THE STALLS

It's time for a few bites of humble pie.

Back in 1985 *Les Misérables* opened at the Barbican to a very mixed reception from the critics, including some far from complimentary remarks on the technical staging of yours truly. Since then the music has seldom been far from my car stereo, but I've never been back to check out the production that has been filling the Palace in London ever since it transferred in December 1985. That is until this week, when I saw the umpteenth cast in the show's ninth year and found it fresher than ever, playing to the delight of a packed house - and me.

That original first night was a long one, with the show coming in at three-and-a-half hours. There were those in the audience, including my companion, who were moved to tears, but my tears were tears of helpless laughter at the show's technical ineptitude. That Barbican cast was a fine one, giving us a first sight of the singing talent of RSC regulars like Roger Allam, Alun Armstrong and Peter Polycarpou, and starting the careers of future stars like Michael Ball, Dave Willetts, David Burt, Rebecca Caine and Frances Ruffelle; alternative theatre divas like Caroline Quentin and Beverly Klein were among the whores and revolutionaries, and of course there was Patti LuPone in the lead.

All of them seemed overwhelmed by the revolve, which had them spinning around like manic mice for most of the evening. I found David Hersey's lighting "uninspired and at times embarrassingly obvious in its search for cheap effects." Andrew Bruce's sound was "too darn loud", the orchestrations over the top. Apart from the wretched revolve I didn't like John Napier's junkyard set ("leftovers from *Cats*") or the olde worlde furniture, either. So why did I enjoy the show so much at the Palace the other night? Have I changed or has it? I reckon a bit of both.

The first pleasure was the refurbished Palace itself, with sumptuous marble approaches to its rich but not gaudy interior of chocolate and burnished gold. The sense of a big night out is there at once - the guy sitting in front of me was even wearing evening dress, though I assume he was a member of FOH staff checking out the levels. He will have been pretty satisfied, because what I think was the key difference in the current *Les Mis* was the hugely increased subtlety of its restraint in levels - not just the sound, which now has infinitely more effective contrast (i.e. some soft bits), but the lighting, which more dramatically shadows much of Napier's junkyard, picking out sections of the set with more variation and leaving the upstage in darkness for much of the evening.

Above all, the machinery now serves the production rather than taking

it over: I'm sure the revolve is slower, and I'd swear the amount of meaningless movement on it has been usefully reduced - as has the tonnage of olde worlde furniture. This improvement has a lot to do, too, with the deep but pros-enclosed stage of the Palace - the Barbican's thrust from a slightly larger pros arch gave an over-exposure to the effects - hence, perhaps, my jibe about Hersey's obvious lighting.

I wish I could remember where the band went in the Barbican - were they perhaps off-stage altogether, relayed entirely? Certainly they are much more at home in the Palace's pit, where a 22-piece orchestra can produce natural sound, needing minimum amplification. The quality of theatre sound has been improving steadily over this decade and I'd guess that this production has been keeping abreast of it, for mid-stalls audibility was excellent, without any of the overkill that can still mar today's shows. (The company stage manager will no doubt be asking questions about the non-availability of the Bishop's mic in the opening scene, but this minor blemish was quickly over when he was able to pick up from a fellow-actor).

On the other hand, there's no sign of alteration to the lighting rig - which already had five light curtains - to take advantage of developments like colour changers or moving spots. The big flat-bodied Pani followspots that were something of an innovation at the time are still doing their job perfectly well, too, and what I found obvious then, looks almost subtle now - perhaps in contrast to the brash effects that have since become a commonplace of new musicals.

The programme claims that the production is now three hours in length, and this cutting has produced some useful simplifications in plotting and development that help the show's coherence - it was an amazing enough endeavour to reduce 1300 pages of Victor Hugo in the first place, but it

seems much tidier now. Some of the cuts mean musical losses, but emotional gains: in the second half there is a little boy, Gavroche, who had seemed like an escapee from *Oliver!* and had his own bouncy Lionel Bartish number that held up the tension on the barricades terribly. It's still there on the cast album, but now

Gavroche is cut down to size, the sentimentality reduced. I have an awful feeling he even had a dog at the Barbican; perhaps I was hallucinating by then (it was a hot night) but at least it's been put down now. The show comes in at three and a quarter hours, rather than the claimed three, but that does include a well-deserved standing ovation, which it will get every night if the production continues to be as well nursed as this.

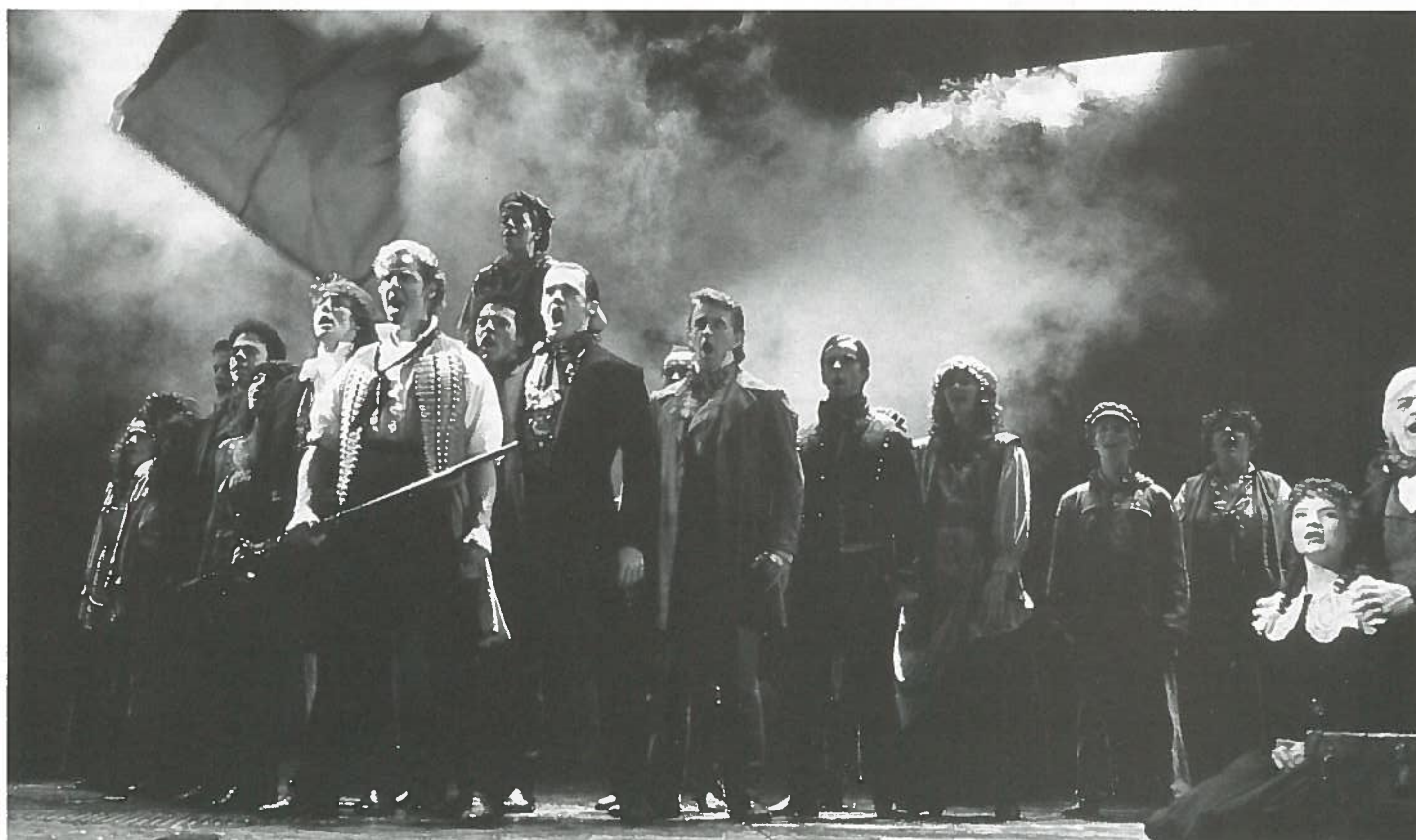
There's only one feature of the original that I miss terribly: Susan-Jane Tanner, as the innkeeper Thenardier's wife, had the dirtiest laugh I've ever heard on stage. Her successor sings well, is suitably wicked in the pantomime dame-style of the Thenardiers - but she doesn't have that laugh.

Ian Herbert

---

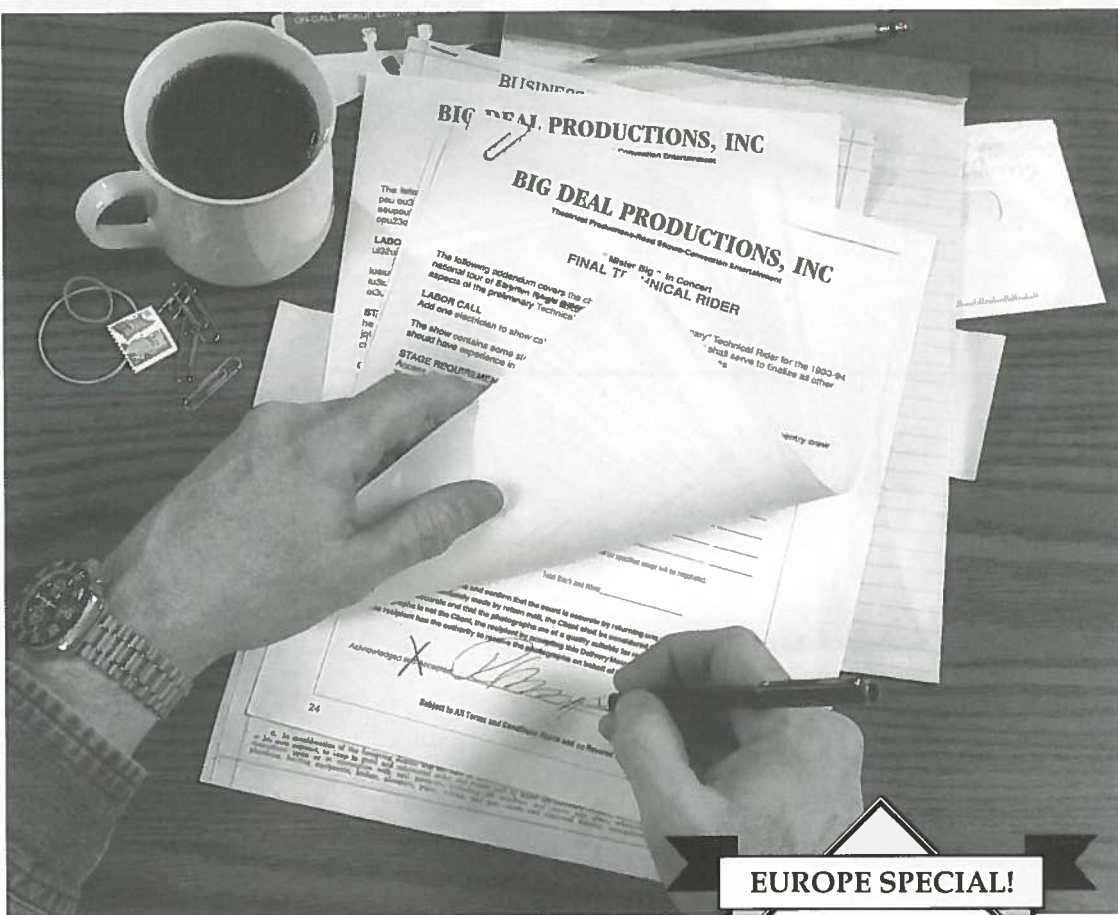
*"The key difference in the current *Les Mis* is the increased subtlety of its restraint in levels - not just in the sound, but also the lighting."*

---



*Les Misérables* at the Palace - the musical adaptation of Victor Hugo's classic novel.

photo: Michael Le Poer Trench



**EUROPE SPECIAL!**

Now Exclusively  
Distributed by  
A.C Lighting  
In Europe

# X Marks The Spot.

**Performers Put Their Preference For Strong Spotlights In Writing.**

Big-name entertainers can be very picky when it comes to spotlights. At the time that a performance contract is signed, the spotlight overwhelmingly specified in technical riders is the Strong® Super Trouper.



Why Strong? Because quality and reliability are still important. Strong has a 40-year reputation for putting together a durable spotlight that will hold up to the demands of any performer who steps on stage...or ice...or...



For full technical specification  
and dealer opportunities contact:

A.C. Lighting Ltd  
Unit 3, Spearmast Industrial Park  
Lane End Road, Sands,  
High Wycombe, Bucks  
HP12 4JG

Tel: (44) 494 446000  
Fax (44) 494 461024

37

selected colours now available in

HT+

carefully  
for colour changers and high  
temperature applications



SEE US AT THE PLASA LIGHT AND SOUND SHOW  
STAND  
A214

# TOTAL CONTROL

If you are lighting theatre, rock & roll, television or video, the new Pro Color Filter range is for you. With six specialist designer reflectors, 83 effect and eight soft cosmetic colours, 14 diffusion and 21 colour correction filters  
Pro Color gives you total control.



World-wide distribution and dealer opportunities:  
AC Lighting Ltd, Unit 3, Spearmast Industrial Park, Lane End Road,  
Sands, High Wycombe, Bucks HP12 4JG  
Tel (0494) 446000 Fax (0494) 461024

# CAMBRIDGE FOLK FESTIVAL

## Andy Wood settles down for some good music

Despite the increasing number of festivals and outdoor music events now appearing, the summer calendar just isn't complete without 'Cambridge'.

Celebrating its 30th Anniversary this year, the Cambridge Folk Festival has always been able to deliver a high standard of music in an uncrowded and friendly atmosphere that is totally English.

Reading has its mud, Donnington its mosh pit and Glastonbury its fusion of cultures, but Cambridge is all about garden chairs on the lawn with a pint of fine ale, listening to good music while the sun shines down. Only the strawberries and cream are missing.

This year's event was a tribute to Ken Woollard, founder and co-organiser of the festival, who sadly died in October last year, and Cambridge City Council. And for 1994, the artiste roster reflected the high standard which has been set over the years, featuring Joan Baez, The Saw Doctors, Steeleye Span, Jools Holland, Mary Black and Ralph McTell to name but a few.

The festival's sound aspects were provided by Doug Beveridge and the crew at The PA Company of Kingston, who, whilst making their fourteenth appearance at the festival, provided one of the main audio interests of the summer with a choice of PA systems split across the three stages, thus creating the opportunity to hear festival use of the latest systems from GAE, JBL and Turbosound.

It seems nowadays that no festival is free from those ubiquitous Blue Boxes and this time on Main Stage 1 it was the turn of the Floodlight system to make its first appearance at Cambridge. An active system with a wider dispersion than the Flashlight, the system needed to provide two important criteria for The PA Company's use - namely, to provide accurate dispersion and long throw in a portable package.

A tented area with covered sides, Stage 1 provided a couple of headaches for the sound staff in that not only was the tent/arena long and relatively thin, but the stage itself was actually moved forward and outside to the front of the tent for the early afternoon sessions and returned under cover for the evening acts.

Portability was achieved by siting each Floodlight stack on a steel deck which was then moved into position on a forklift. "We've got the transfer down to a fine art now, but in



The main stage featured two stacks of the Turbosound Floodlight system.

previous years we had a problem as each stack was split onto two palettes, giving us a problem lining up the two halves of each stack," explained PA Co's Doug Beveridge. "With a

the subs became part of the array providing a smooth, tight and controlled coverage to the arena, plus according to visiting engineers, a surprisingly even spread of sub-bass given the low number of boxes.

Indeed, the system was used to its best advantage during sets by Jools Holland and Joan Baez, with Holland's Big Band producing a wide, punchy uncluttered sound with easily definable instrumentation, whilst Baez, returning to

Cambridge after 12 years, sounded crisp and smooth.

In its 'front' position, the system was augmented with three towers of Bose 802 delays in a centre and L/R configuration, whilst in the 'back' position, five pairs of Bose 802s were flown inside the tent with four Bose 402s and two French ATG boxes positioned up on the front and sides of the tent as delays.

Stage monitors were controlled by engineer John Greenough, whilst front of house Doug Beveridge took control of the Sountracs Sequel II for the visiting engineers.

With its on-board ADP processing and 4-band quasi-parametric EQ, the Sequel II is finding favour as it cuts down the amount of effects racks needed FOH. Indeed, racked processing was minimal with the feeds going

***Reading has its mud, Donnington its mosh pit and Glastonbury its fusion of cultures, but Cambridge is all about garden chairs on the lawn with a pint of fine ale. Only the strawberries and cream are missing.***

more compact stack on a single deck, things become much easier, but we've also had problems with systems fanning out and bouncing off the sides of the tent creating out-of-phase sections within the area. We therefore needed to get a tighter dispersion, but with a throw suitable to get to the back of the arena."

Turbosound staff were on site in force, with Martin Reid, Dave Bruml, Richard Vivian, Steve Burrell and Sven Olsen all in attendance. Given the problem, Olsen - Turbo's head of R&D - worked with Beveridge to plan an array using four TFL769H vertically aligned full range boxes and four TSW721 horizontally aligned subs with the centre 760Hs stacked so that the two mid/high drivers were coupled together, thus creating a longer throw. As there was no room under the stage skirt to place units,



The FOH mix position with the Soundtracs Sequel II.



The Turbosound Floodlight right-hand array with monitor engineer John Greenough in position behind.



The Floodlight system, run from the Soundtracs desk (right) was used to best effect when producing a wide, punchy sound for Jools Holland (left).

into Turbosound's standard Flashlight rack which included BSS amps and a proprietary LMS Speaker Management system to control crossover points and time alignments. Portability here was also of importance as the complete FOH position was moved forward with the stage inside the tent, and with only an hour allocated to move everything plus set and line check for the evening bands, the value of the experienced crew hired by The PA Company becomes obvious.

One of the benefits of Cambridge is that many artistes play both Stage 1 and Stage 2 during the three days which always gives a neat insight into system performance. This year stage-swapping gave a wonderful switch from Turbosound's active Floodlight system to GAE's passive rig.

Since announcing their distribution deal with German speaker manufacturer GAE at Frankfurt this year, HW International have been heavily promoting the quality of this passive system, which is why The PA Company invited HW to install a rig in the tent-covered Main Stage 2. For its first usage in the UK, both HW's Peter Barnard and GAE's Steve Smith were on site to introduce the rig to chief engineer Mark Aitken. Running through a 32-channel Yamaha PM2000, over 25 artistes used the system over the three days which was stacked stage L/R.

Each side stack consisted of GAE Concert system boxes with two 212T high/mid cabinets arrayed on two laterally stacked 351L vented floor standing subs, with two additional GAE ATUE 152 sub-bass units under the front skirt of the stage. Additionally, two GAE Modular system side-fill stacks of 15/2 TI, 15/low and ATUE 151 were placed L/R with a further pair of 121T compact full range boxes flown as a



Stage 2 was the platform for the first UK outing of the GAE rig.

delay. GAE BF1 controllers were used throughout and monitors were a selection of GAE 212M and Yamaha wedges run through a Yamaha MC24-8 by Sefton Herman, ably assisted by Seamus Fenton.

A selection of distributed amplifiers including QSC, a German built Camco DL3000P on the subs provided the juice, and although over 18kW was available, the system was never driven above 30% capability due to local Environmental Health requirements of a 60dB limit at the perimeter fence.

The GAE's main claim to fame however is the fact that it is totally passive, a point reinforced by HW's Peter Barnard, who with 22 years experience of sound engineering, is impressed with the system. "Being passive, set up and break down times are that much shorter, but the main difference is that GAE's crossover design doesn't absorb any power and as such makes the system extremely linear for reference use," he explained.

Certainly, with no tent walls to reflect dispersion unfavourably, the system had both

attack and punch, and was put through its paces with a wide variety of usage from simple acoustic sets through to full blown folk-rock. The highlights came from veteran blues guitarist Sherman Robertson and Irish traditionalists Dervish, who both produced storming sets which benefited from a combination of quality sound engineering and system clarity and accuracy.

Currently in use in large numbers by top German hire company, Westphalen Schavent of Biedefeld, the future looks bright for this system, and with news of GAE Concert System sales to Gordon Gappa's Music Room and clients in The Gambia, this could be the beginning of a passive resurgence.

The third stage featured a new system from Harman Audio in the shape of a JBL SR11 system for the Club Tent.

The SR11 range of cabinets are an active system of US design and build, and, since their UK launch last year, have been used ostensibly for small PA and installation environments. Running through a Yamaha MR1642 desk with JBL/C-Audio amps and crossovers provided by Harman, the system consistently performed in the smaller Club area with a wide range of artistic styles from Bert Jansch to Wild Willy Barratt. The legendary sound of JBL it seems, can now be utilized in small as well as large environments.

As far as sound was concerned, Cambridge provided a lot of interest for the audio anorak, with three systems each with their own characteristics and application benefits. All three systems will be appearing at this month's PLASA show in London, where unlike Cambridge, there will be a distinct lack of tents selling Guinness and Bombardier Bitter. The acoustic qualities of these will need to be examined further before publication.

### Main Stage 1

**PA:** Turbosound Floodlight System two stacks comprising; 4 x TFL760H 3-way full range boxes. (Dispersion 50 degrees horizontal, 25 degrees vertical) Each incorporates 12" low, 6.5" mid and 1" high horn loaded drivers with axeheads on the low/mids. 4 x TSW721 sub-bass units.

**Amplification:** Standard Flashlight rack incorporates 2 x BSS EPC780 amplifiers running the sub/low mids. 2 x BSS EPC760 amplifiers running the top end. 1 x Turbosound LMS780 Loudspeaker Management System.

**FOH:** 1 x Soundtracs Sequel II 32-8 mixing console rack containing Klark Teknik DN780,

Yamaha REV 5, REV 7 and SPX990 effects units.

**Delays and monitors:** Bose 802, 402, Turbosound, Yamaha and ATG

### Main Stage 2

**PA:** GAE Concert System 2 stacks comprising; 2 x 212T high/mid cabinets (Dispersion 90 degrees horizontal, 45 degrees vertical). Each enclosure features dual RCF 12" low/mid, JBL 2" HF plus 2 Beyma bullits. All horn drivers are hand-laminated by Ralf Limmer. 4 x 351L floor standing, vented 3-chamber 3x15" sub-bass enclosures.

**Amplification:** 2 x QSC EX2500 (high mid) 2 x QSC EX4000 (floor subs) 1 x Camco DL3000

(stage subs) 1 x QSC EX2500 (delays)

**FOH:** Yamaha PM2000 32-channel console. Rack containing Yamaha REV5, SPX990 effects units plus Klark Teknik valve compressors and Drawmer Gates.

**Delays and monitors:** GAE 121T, GAE 212M and Yamaha.

### Club Stage

**JBL SR11 system** 2 x SR4733A enclosures. Each enclosure is a 2-way full range box with 2x15" and 2" horn loaded.

**FOH:** Yamaha MC24-8 mixing console. Rack containing JBL/C-Audio amplification and JBL crossovers.



**70**  
Years Of  
Sound  
Innovation

# ROCK OF AGES



Celestion have rocked the entertainment and music industries with innovative products for 70 years. Continuing the tradition, the CR Series provides a truly affordable solution for a wide variety of sound reinforcement applications.

## CELESTION

BARNSTABLE Soundpad 0271 23686 • BEXHILL Birds Music 0424 220204 • BOURNEMOUTH Eddie Moors Music 0202 395135 • CANTERBURY Socodi Music 0227 760948 • CARDIFF Gamlin Music Centre 0222 220828 • CARLISLE AVI 0228 45599 • CHELMSFORD Whirligig Music 0245 496336 • COLCHESTER Music Warehouse 0206 765765 • CORBY Rocky Road Music 0536 203810 • CORBY Hot Strings 0203 222146 • DEAL KBS Sound 0304 362104 • DONCASTER Electro Music Services 0302 369999 • EASTBOURNE Bonners 0323 639335 • EDINBURGH Scayles Music 031 667 8241 • FOLKESTONE Music Bay 0303 277869 • GLASGOW Biggars Music 041 332 8676 • GRANTHAM East Midlands Sound & Lighting 0476 79574 • HEREFORD Head, Hands & Feet 0432 279549 • HOUNSLOW Project Music 081 570 4444 • ILKESTON Zebra Music 0602 308362 • IPSWICH Marks Music 0473 254150 • KETTERING Make Music 0536 510400 • LEICESTER Humbucker Music 0533 769318 • LINCOLN Charisma Sound & Light 0522 722624 • LINCOLN Music Cabin 0522 525104 • LONDON Rhodes Music 071 240 7696 • LOUGHBOROUGH Beatroute 0509 217848 • MAIDSTONE ESE Electronics 0622 675986 • MANCHESTER The Basement 061 237 3886 • MANCHESTER Deansgate Music 061 834 1946 • MANSFIELD Electrolite 0623 633113 • MILTON KEYNES Hollywood Music 0908 225888 • MORECAMBE Promenade Music 0524 410202 • NEATH Neath Music 0639 631337 • NEWCASTLE Sounds Live 091 230 3422 • NORWICH Cookes Band Instruments 0603 623563 • NOTTINGHAM Music Inn 0602 784403 • SHREWSBURY Salop Music Centre 0743 364111 • SKEGNESS Electrolite 0754 765580 • STOCKTON ON TEES Bandland 0642 605444 • STOKE ON TRENT Route 66 0782 286217 • SUNDERLAND Kings Music 091 567 9310 • WALSALL TR Music 0922 613101 • WISBECH Wisbech Music Centre 0945 61496 • WREXHAM Richard King Sound & Light 0978 752079

For more information on Celestion products, please complete and return to Celestion International Ltd, Foxhall Road, Ipswich, IP3 8JP

Name \_\_\_\_\_

Address \_\_\_\_\_

Postcode \_\_\_\_\_

I do not wish to be placed on your mailing list

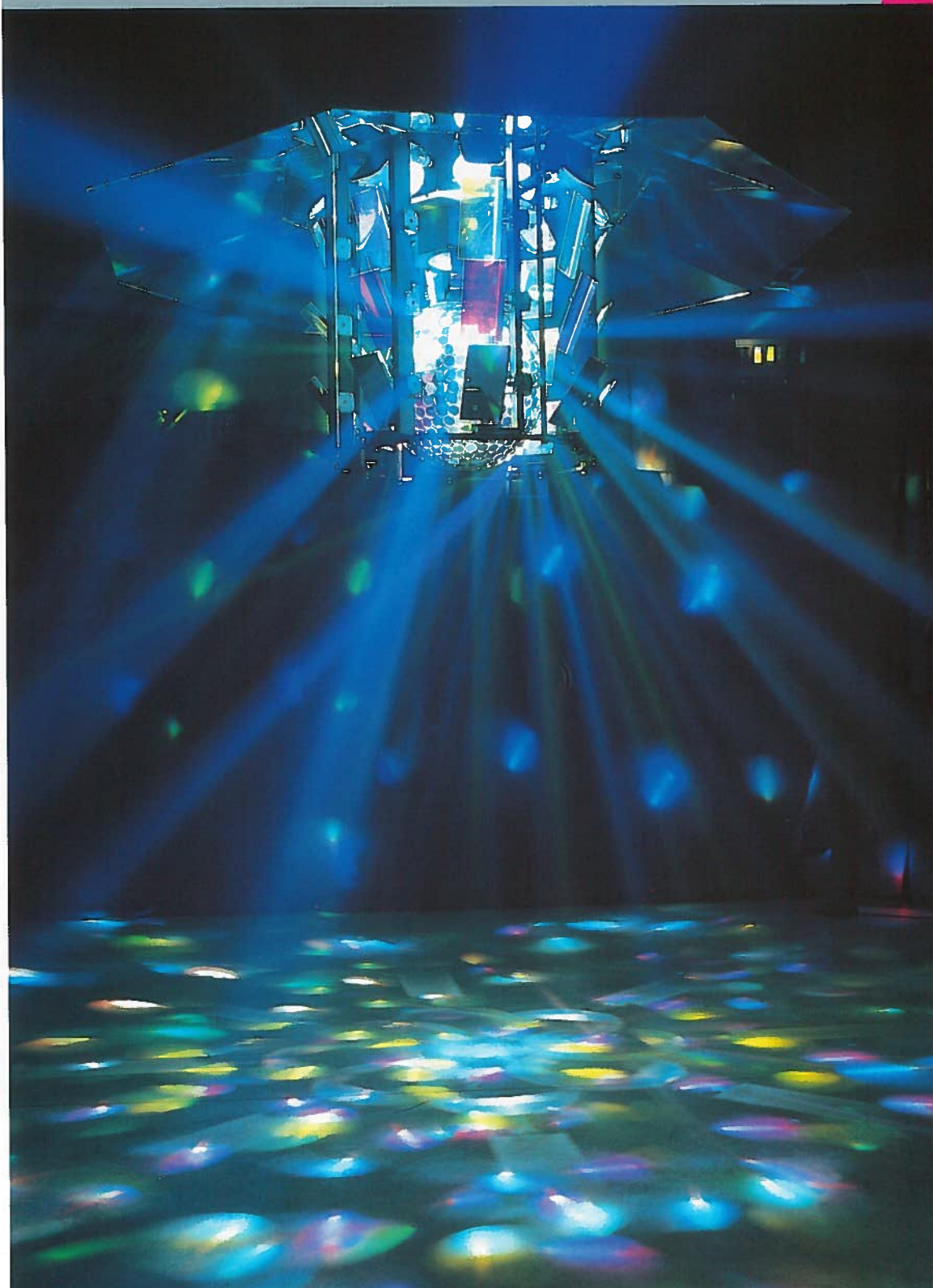
# GRIVEN

## BRIGHT IDEAS

### SHUTTLE

Oversized  
centerpiece  
Quality and  
design  
GRIVEN

Music induced  
automatic  
movement on 5000  
steps of 24  
semi-transparent  
dichroic mirrors -  
stepper motors  
controlled by an  
integrated module  
on 8 presetted  
sequences and  
recallable through  
a 0 + 10 V remote  
controller. High  
intensity single  
central lamp which  
offers two  
versions: 1200 w  
HMI double ended  
and 2500 w HMI  
single ended.  
Separate power  
unit. Easy handling  
and mounting.



SALVAGNI GRAFICA - MN -

CASTELGOFFREDO - MN - ITALY - Tel. 0376 / 779483 Fax 0376 / 779682

## Don't Miss this - it's the Event of the Year!

Final preparations are now well underway for the biggest PLASA Show ever. Many companies will still be working into the small hours to get product, body and soul together for the Show, but for the staff of L+SI it's feet up, cup of tea, and read the papers. If only . . .

In actual fact, we'll be working hard putting the Show Catalogue together, which is free to all visitors and will be available at the entrance to Earls Court 2 throughout the Show. In it visitors will find reference to all the exhibitors at the Show, a full set of floor plans, a comprehensive index section to help locate specific products and services, together with further information on the seminar programme.

Advance registrations for the show are growing by the day and look set to blast past last year's figure of 10,000 plus. If you haven't registered yet, now is the time to do so, as pre-registration will actually save you time and money.

Not to be outdone, the number of exhibitors at the Show has also surpassed all expectations. Of the 170 representing over 300 companies, at least 50 will be in attendance for the first time, including sound companies Baldwin Boxall, DDA, Soundcraft, John Hornby Skewes and Millbank Electronics and lighting companies Switzerlight, DLD and ETC Audiovisual.

If advance press information is anything to go by, the number of new products at the show will run into the hundreds. Whilst many of these will be enhancements of existing product, PLASA has long had a reputation for springing a few surprises and is the Show that gets manufacturers and designers working ever harder in their R&D departments. Attendance

at the event is mandatory for those who wish to keep abreast of developments within the industry.

A new feature of this year's Show will be the early evening reception for exhibitors on the opening night. This will be the first of many special events held by individuals and companies who head off into the London night with distributors, clients and friends in tow for a night on the town never to be forgotten. Disco Club & Leisure International will once again be holding their Awards Night at the Hippodrome in Leicester Square on Monday night (12th).

Now in their third year, the PLASA Awards have become a highlight on the Monday afternoon when the announcements are made. The winners of the Best New Product and Best Stand awards will receive the specially designed PLASA 'Parcans'.

The seminar programme offers a real opportunity to broaden your horizons. The full details are printed on page 126, but to what the appetite delegates can expect to be propelled into the future to see what technology has in store for the industry in the years to come, to engage in meaningful discussion on a wide range of protocols, to have an opportunity to compare the techniques and practices of others, and even a chance to take a look behind the scenes of one of the biggest tours this year - Pink Floyd.

Visitors who have not yet sorted out their accommodation in London should call Res-o-tel 081-542 6611. Just mention you're a visitor or exhibitor at the PLASA Light & Sound Show and they will arrange a room for you in one of London's many hotels at a special rate.

And, of course, there's an L+SI special offer



### Opening Times:

Sunday 11th September: 11.00-18.00  
Monday 12th September: 11.00-18.00  
Tuesday 13th September: 11.00-18.00  
Wednesday 14th September: 11.00-17.00

### In this Issue . . .

List of Exhibitors - page 118  
Floor Plan - page 124  
Seminar Programme - page 126

**SEE YOU AT THE SHOW!**  
**- STAND A24**

for first time visitors to the Show. Call us now on (0323) 642639 and we'll tell you how to pre-register and claim a free T-shirt.

For anything else you need to know about the PLASA Show, its exhibitors, the events taking place around it, how to get there - or even what colour the carpet is - call our show organisers P&O Events Ltd in London, telephone 071-370 8215.

### GERRIETS GB LIMITED

J412 Tower Bridge Business Complex,  
Drummond Road  
London SE16 4EF  
Tel: 071 232 2262  
Fax: 071 237 4916



*Gerriets, the specialists in the supply and fabrication of drapes, cloths and projection screens, have had another successful year directly influencing the entertainment industry on projects large and small: From manufacturing and installing a 100m wide cyclorama for the Metropolitan Opera in New York, to sewing a couple of metres of canvas for Belmont School in London; from making the projection screens for the rock tours of Duran Duran and Pink Floyd to fabricating the fibre optic curtains for "Wind in the Willows", at the Royal National Theatre.*

*In addition to the offices in Germany, France, England and the USA, we are pleased to announce that Gerriets Japan was opened in Tokyo on 1st August.*

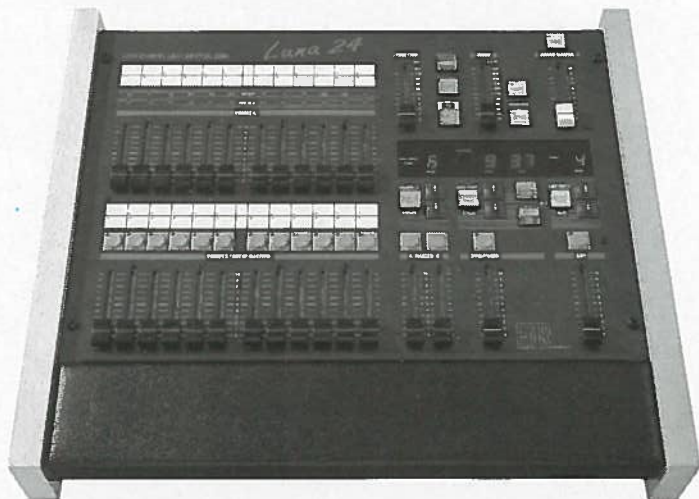
*Whatever your design requirements, do give us a ring or come and see us at PLASA Light and Sound Show 1994*

**Stand A198**

## LUNA 24



- ◆ 12/24 channels ◆ 12 scene masters / 10 pages
- ◆ 10 chasers / 99 steps ◆ 10 sequences / 99 steps
- ◆ 5 audio modes / 10 pages ◆ MIDI in and out
- ◆ DMX output / 3 patches ◆ footswitch ◆ RS 232
- ◆ 19" rack mounting



ETR Lighting, Hofwald, CH-6382 Büren, Switzerland,  
Telefon (++41) 41 - 65 25 07. Fax (++41) 41 - 65 25 13

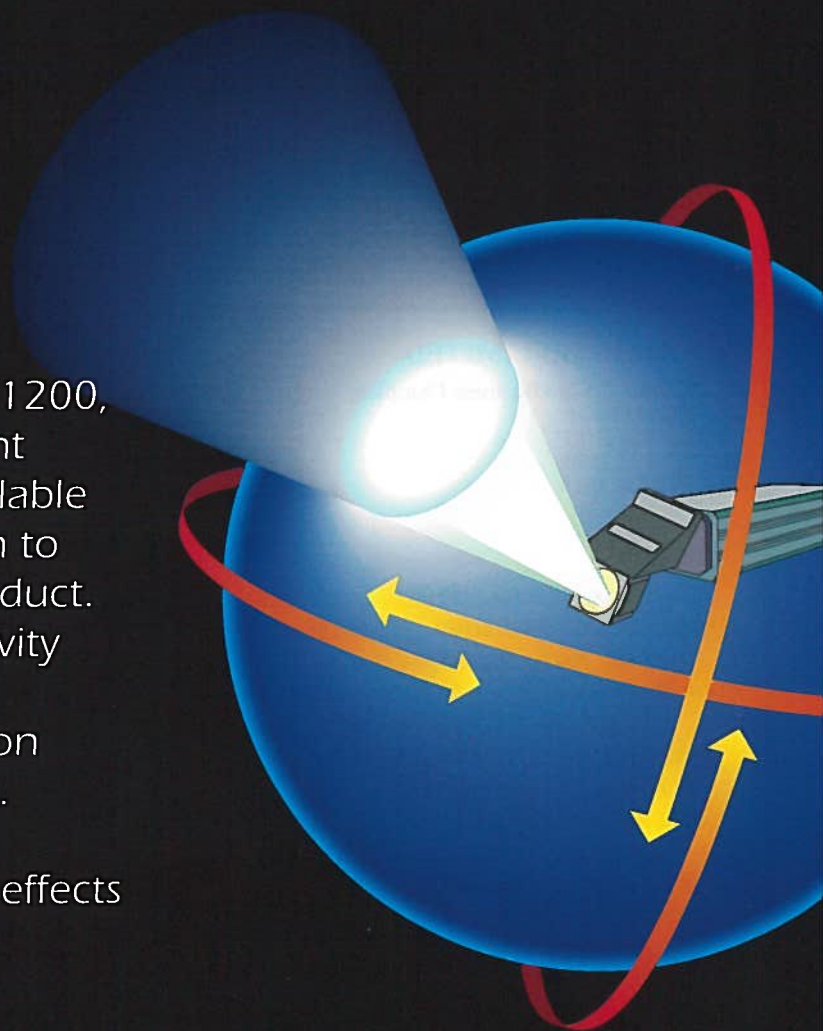
# coemar

For the others, a dream.

For coemar it is already  
real, for the others  
it remains a distant dream.  
coemar nat **tm** 2500 and **tm** 1200,

at the forefront  
of effects available  
in comparison to  
any other product.  
coemar creativity  
sets trends  
in the evolution

of professional show lighting.  
Today and tomorrow.  
With luminaries and lighting effects  
of unrivalled superiority.



# reality.

## coemar nat

### tm 2500

### tm 1200



#### predominant features

- total movement 360° in both axis; full 360° light beam movement continuously rotatable in both axis; multi rotation modes are available with speeds from 0.23 to 52 rpm
- 10 interchangeable gobos give a total of 36 image combinations; all gobos and effects are rotatable in both directions at variable speed; rolling gobo effects are available in either direction or in combination to give new contra rolling effect,
- full cyan, magenta, yellow colour mixing
- variable speed strobing shutter with black-out facility
- totally variable frost with built-in variable speed flash frost effect (coemar nat tm 2500)
- motorized high speed long range focus
- colour wheel with 9 colours give unique seamless multicoloured light beams; variable speed rotocolour effect
- additional effects wheel with 3 optically optimised image multiplying prisms (3, 4 and 6 facet) which can rotate at high speed to give tree-dimensional effects
- motorized iris with built-in variable speed pulse facilities
- totally smooth dimmer for complete intensity control (0 to 100%) with no optical degradation at any point
- 3 and 5 pin male and female cannon connectors for easy wiring

**For more information please ask for the detailed catalogue**

■ Available on the coemar nat tm 2500 and tm 1200, the total movement system. The ability to move the beam of light in any direction, a full 360 degrees in both x and y planes.



## coemar

coemar spa via inghilterra ■ 46042 castelgoffredo (mn) italy  
tel. (0376) 779336 ■ fax (0376) 780657

# Exhibitors at the PLASA Light & Sound Show '94 - Earls Court 2

Abstract Design to Light	C46	Coemar Spa	C60	JYG	B198
Acoustic Sound Systems Ltd	C10	Columbus McKinnon	A14	Knight Electronics	B122
Adda Super Cases Ltd	A32	Compulite GBA	150	LSC Electronics	A172
Advanced Lighting Systems	A2/C2	Courage Ltd	C1	Lighting+Sound International	A24
Allen & Heath	B138	CCT Lighting	A100	Lamba plc	B192/C4
Altai Group Ltd	A188	CP Cases	A12	Le Mark TVS	A30
Andolite	P6	Dance Aid Trust	A199	Le Maitre (Sales) Ltd	A170
Anytronics Ltd	A104	DeSisti Lighting (UK)Ltd	A116	Lee Filters Ltd	A74
Applause	A189	Disco International	A193	Leisure Innovations (UK) Ltd	B100
Ark Acoustics	P11	Disco Mirror	B104	Leisure Lighting	C40
Arri (GB) Ltd	A106	Doughty Engineering Ltd	A1	Leisure Services (UK) Ltd	P8
Artistic Licence (UK) Ltd	A130	Duplico	P4	Light & Sound Design Ltd	A226
Audio Projects	B166	DAS Audio SA	B42	Light Processor	A168
Audio Technica Ltd	A224	DDA Ltd	A10	Lightfactor Sales Ltd	A58
Audio Design Services Ltd	B118	DHA Lighting Ltd	A225	Lighting Technology Group	A160
Autograph Sales Ltd	B14	DJ Magazine	C52	Life Structures (GB)	A50
Autopia Terakat Accessories Ltd	A16	DLD Productions	A191	Lifton Veam (UK) Ltd	A165
Avitec Electronics (UK) Ltd	C48	DMC Ltd	C26	Ludwig Pani	A194
Avolites Ltd	A94	DMXtra	P7	Lighting Dimensions	A220
ABTT	A182	DNH World-Wide Ltd	B128	LED/UKD	B140
AC Lighting Ltd	A214	Eminence Speaker Europe Ltd	A222	LES Ltd	A181
ADB Stage and Studio Lighting	A98	Envetron Standby Power Ltd	B98	LTM	A128
AETTI	A182	Euro Materials Handling	A82	M&M	A228
ALD	A186	Everwell Lighting	P5	Mainstage	B32
APS	P12	EMO	A52	Malcolm Hill Associates	C20
B+K Braun GmbH	B12	ESP	A126	Marquee Audio Ltd	A230
Baldwin Boxall	B114	ETC	A174	Martin Audio Ltd	B22
Batmink Ltd	C56/57	5 Star Cases	C50	Martin Professional A/S	C42/A163
Beyma UK Ltd	B168	Fabtronic	C6	Mico Lighting Ltd	A218
Brefford Manufacturing Ltd	A197	Formula Sound Ltd	A86	Millbank Electronics Group Ltd	B4
Bygone Times	B108	Gerriets GB Ltd	A198	Multiremote	B28
BBM Electronics	A6	Glantr Engineering Ltd	B38	Multiform Lighting	A142
BC Technology	A184	Griven SNC	C12	Mushroom Lighting Services Ltd	A78
Cameleon Telescan Sarl	A210	HP Bulmer Ltd	B44	Music Factory	B150
Canon Audio Ltd	B116	Hardware for Xenon	B30	MGC Lamps	A70
Cardiff M Disco Services Ltd	C32	Harkness Screens & Hall Stage Ltd	A34	MTR Ltd	A199
Ceep Ltd	P2	Harman Audio Ltd	B134/B178	Next Two Ltd	A192
Celco Division of Electrosonic	B26	Howard Eaton Lighting Ltd	A176	Numark Industries	B130
Celestion International Ltd	B20	Hz Audiotech	C66	NJD Electronics	C16
Cerebrum Lighting Ltd	A122	HW International	A132	Optiknetics Ltd	B31
Citronic Pro Audio Ltd	B40	IES	A80	OpTex	A18
Clarke and Smith Industries Ltd	B170	ISCE	A190	OHM Industries Ltd	B162
Clay Paky	C44	Jem Smoke Machine Co Ltd	A209	Par Opti Projects Ltd	A76
Cloud Electronics Ltd	A202	John Hornby Skewes	C22/B34	Party House	A144
Coe-Tech Ltd	C64	JAMO (UK) Ltd	B24		

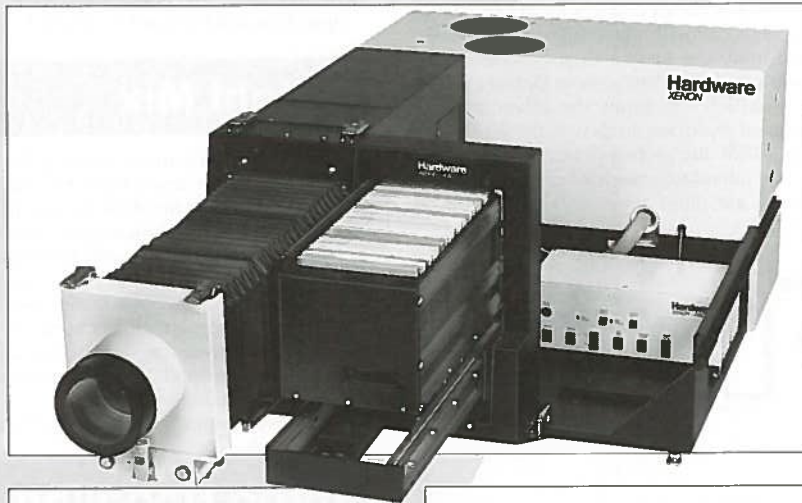
*continued on page 122*

SEE US AT PLASA  
PHOTOSTAND - B30  
PHOTOKINA (HALL 14.2)  
PHOTOSTAND 36

# Hardware Xenon

## High power projection

SLIDE PROJECTORS FROM 600 TO 5000 WATTS

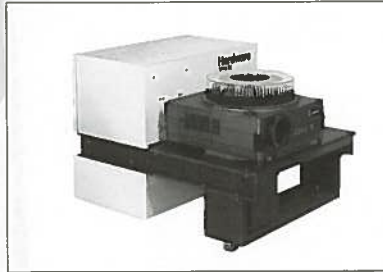


All Hardware Xenon projectors are portable and entirely automatic. The DHX models are also compatible with multi-image dissolve systems.

◀ **5000 Watts Xenon** - 75000 lumens  
18 x 18,5 cm slides  
Image up to 40 metres wide.  
Designed for giant image projection in large auditoriums, onto monuments, châteaux, inflatable structures or any background created for special events.



▲ **600 Watts Xenon** - 4000 lumens  
24 x 36 mm slides  
Image up to 7 metres wide with this compact projector. Black-out not required, allowing ambient light to be used for note-taking during seminars.



▲ **1000 Watts Xenon** - 8000 lumens  
24 x 36 mm and 6 x 6 cm slides  
Image up to 10 metres wide, with a popular 24 x 36 mm version for multi-image use in conferences, sales conventions, etc...



▲ **XENON FOLLOW SPOTLIGHTS**  
• high quality definition, thanks to 5-element lenses,  
• optimized cooling of coloured filters, iris and gobos.

**2000 Watts Xenon**  
Use range from 15 to 150 metres.

**5000 Watts Xenon**  
Use range from 15 to 300 metres.

◀ **SKY LIGHTS**  
Hardware Xenon Sky Lights are either fitted to mobile mountings slaved to microprocessors, with obturator and colour change commands from 0 - 10 volts, or to a DMX 512, or fixed to adjustable supports.

**2000 Watts Xenon**  
**5000 Watts Xenon**



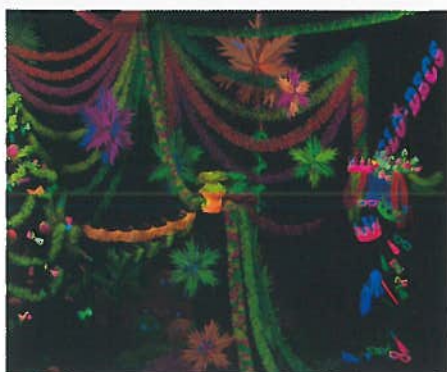
**Hardware  
Xenon**

**SALES AND  
RENTALS**

## PLASA Show Stop Press

We've been inundated with advance press covering the PLASA Show, so we've cheated a little and used this page for more news in an attempt to get as much information into this issue as space would allow. It's not been possible to cover every company exhibiting, and we will be running a major review of the Show in the October issue of L+SI and will feature more new product and news stories then. Look for us on Stand A24.

## Go with the Glow



We liked this picture so much that we were determined to do it justice by running it on a colour page. You'll find the full story behind it in equipment news this month, but if you'd like to experience the real thing seek out Party House at the PLASA Show and prepare to be dazzled.

Party House are on Stand A144.

## M&M Chill Out

When you're tired of the hustle and bustle of PLASA, chill out on M&M's green and pleasant stand where a cool calm welcome awaits. On stand there will not only be an oasis of trees and flowers under a Rainbow sky, but plenty of new products to whet the appetite as well.

New products such as the Lightcommander 12/2, 12-way lighting control desk with the major attributes of its big brother the Lightcommander; the SC Extension, a mini Scancommander designed specifically for installations such as AV shows and dark rides; the brand new software programme 3.3 for the Scancommander and the Microscroller, a colour changer for MR16 fittings; the Spaceball, a low-budget, high output smoke machine from The Smoke Factory in Hanover, alongside which will be the new Diffuser smoke machine which combines the advantages of conventional glycol fog fluids with those of the oil crackers. M&M also promise a couple of surprises which they intend to make a lot of noise about.

Get your ear plugs ready and find M&M on Stand A228.

## Power from PMA

Paul Martyn Audio Services may be an unknown name to some, yet their Stirling Power SP1 system is well known to radio station Capital Gold 1548, who have been using it for promotional shows. Consisting of a mid-high cab with outboard sub, the SB1 has recently upgraded and is now joined by a SP2 system, the specifications of which will be announced at the show on Stand C68.

## Next Two Horns

Next Two are best known for their range of PA loudspeakers which are used in the leisure, hotel, public transport and air travel industries as well as general PA sound reinforcement applications.

A new range of IP rated horn loudspeakers will be launched at the show, which will be available in 8, 15 and 25 watt versions. These will be complemented by a wide selection of loudspeakers including the latest SUB-200 and SUB-500, moulded cabinet speakers.

Next Two will be based on Stand A19.

## Knight Mix

One of the companies making their debut following PLASA's association with SCIF, Knight Electronics, will use the show to launch their new automatic microphone mixer, the Auto-Mix-8. As the name suggests, the unit will automatically mix up to eight mic channels via micro-processor control and not only comes flight-cased and with 12V DC power capability, but needs no operator in full-time attendance. A full selection of the companies renowned Addabox portable sound systems will also be on the stand.

Knight Electronics can be found on Stand B122.

## Turbo Floodlights

A unique demonstration of the new Floodlight club speaker system is to be the centre-piece of the Turbosound stand at this year's Show.

A recognised leader in the touring and concert PA market, the company has recently had much success with its 'skeletal' Floodlight system which features no standard enclosure. These, together with the complete range of Floodlight products plus TCS-612 compact speakers and LMS loudspeaker management system will be on display. Fans of the ubiquitous 'Blue Boxes' can find them on Stand C24.

## AC Action

AC Lighting gets the prize this month for churning out the greatest number of press releases covering new product at the PLASA Show. It's just impossible to cover everything in depth, so here is just a brief overview of what will be on stand.

The company will be showing the new Shakespeare profile luminaires from Altman, now available in a 240v version. From Manfrotto, there will be a range of stands, clamps, brackets and gizmos, whilst from Jands will be the new HP digital dimmers which feature built-in memory, voltage output options and the selection on built-in chase programmes to control lights without a desk. Jands have also developed the new Ferrodiap chokes which the company claim will eliminate interference with sensitive sound systems. That's not all Jands have also entered into a partnership with Flying Pig Systems to create the Jands-Hog 250 and 600 range of lighting controllers. Space has run out, so we'll have to leave you in suspense until the next issue. Or you can see for yourself on AC's Stand - A214.

**PINK FLOYD**  
TOUR RELATED OFFICES

**STAGING** STAGECO-US  
8745 VOLLMER ROAD  
COLORADO SPRINGS  
CO 80908  
USA  
TEL: 719/495-9497  
FAX: 719/495-9098  
CTC: STEVE THOMAS

**PA & MONITORS** BRITANNIA ROW PRODUCTIONS  
9 OSIERS ROAD  
WANDSWORTH  
LONDON SW18 1NL  
ENGLAND  
TEL: 081 877 3949  
FAX: 081 874 0182  
CTC: BRYAN GRANT

**LIGHTING CONTRACTOR** CONCERT PRODUCTIONS LTD  
20-22 FAIRWAY DRIVE  
GREENFORD  
MIDDLESEX  
UB6 8PW  
ENGLAND  
TEL: 081 575 5555  
FAX: 081 575 0105  
CTC: GARETH SPOTT

**SPECIAL FX LIGHTING** WYNNE WILLSON GOTTELLIER LTD  
THE OLD MISSION HOUSE  
IDE HILL  
KENT TN14 6BZ  
ENGLAND  
TEL: 0732/750 204  
FAX: 0732/750 617  
CTC: PETER WYNNE WILLSON

**VARI\*LITES** VARI\*LITE UK      VARI\*LITE US  
20-22 FAIRWAY DR      201 REGAL ROW  
GREENFORD      DALLAS  
MIDDLESEX      TX 75247  
UB6 8PW      USA  
ENGLAND      TEL: 214 630 1963  
TEL: 081 575 6666      FAX: 214 630 5867  
FAX: 081 575 0424      CTC: LOREN HAAS  
CTC: JIM DOUGLAS

x



# When reliability is crucial



## Pro 2000 The big smoke

The new second generation smoke machine the Magnum Pro 2000 is built like an armored tank - with both strength and firepower. These features make it ideal for touring purposes.

- The Pro 2000 is easy to maintain due to its modular design.
- It's microprocessor-based technology makes it very reliable, and it gives you extra controlla-

bility, including auto-timing and memory functions.

- It is extremely quiet compared to other smoke machines.
- It has a newly developed long-life heating element.
- It has a high pressure pump which delivers more smoke where you want it when you want it.

All this and a price that will knock your socks off.

**The Pro 2000 -  
it's rock hardened.**

# Martin

Paul Martyn Audio Services	C68	Show Meeting	A177	Theatre light	A221
Peavey Electronics (UK) Ltd	B190	Shuttlesound Ltd	B6	Trifibre Containers International	B18
Penn Fabrications Ltd	C49	Slick Systems International Ltd	A90	Turbosound Ltd	C24
Pfaff Silverblue Ltd	A118	Smithfield Electronics	C58	Uni-Par Lighting Corporation	P1
Playlight	B10	Sound & Communications	A188	Unusual Rigging Co Ltd	A216
PLASA	A24	Soundcraft Electronics	B144	Vari-Lite Europe	A40
Primary Colours	A162	Stage Electrics	A138	Vestax (Europe) Ltd	B136
Pro Sound News	B110	Stage Technologies	A195	Volt Loudspeakers Ltd	A8
Profek Sound Systems	B132	Starlight Systems	A178	VPLT	A20
Pulsar	C44	Steinigke Showtechnic GmbH	C61	Wembley Loudspeaker Co Ltd	C8
PSL	B142	Strand Lighting Ltd	A206	Wharfedale Loudspeakers	B174
Regent Carpets Ltd	A187	Streatley Consulting	P3	White Light	A68
Robert Juliat SA	A164	Switzerlight	A223	Wybron Inc	A38
Roscolab Ltd	A46	Sylvania	A112	XTBA	P17
Runway Sound and Light	C36	SCV Electronics	A102	Zero 88 Lighting	A64
Ryger Electronics	B202	SPA Till Technology	P15		
RAT (Music Stands) Ltd	A208	STLD	A186		
RCF Electronics (UK) Ltd	B124	Tannoy Ltd	B146		
S&VC	A180	Teatro srl	A196		
See Factor Industry Inc	A110	Technique	B141		
Selecon (UK) Ltd	A166	Telestage Associates	B17		
Sennheiser UK Ltd	B16	Terralec	A4		
Sensible Music	B120	The Searchlight Company	P9		

*If you can't find the company you are looking for, it may be that they are sharing a stand with others at the Show. There are over 300 companies exhibiting, but we have only listed the main standholder here. A more detailed list will appear in the Show Catalogue freely available to all visitors to the show.*

ROYAL HORTICULTURAL HALLS  
CONFERENCE CENTRE  
off VINCENT SQUARE, LONDON SW1.



ONE DAY SEMINAR

## VOICE EVACUATION SYSTEMS

FRIDAY 7TH OCTOBER 1994

by: the Institute of Sound and Communications Engineers

Presentations will include:

Specification -	Rob Harris, Arup Acoustics
Voice Alarm Benefits -	Doug Edworthy, FinstSCEAdvisor
Battery Backup -	Cyril Bennett, Envetron
Surveillance -	David Boxall, Baldwin Boxall
Speech Intelligibility -	Peter Mapp, FinstSCE, Cons.
Certification -	Peter Barnett FinstSCE, Cons.
Fire System Interface -	Doug Mason, Planned Equipment

This is a must for those responsible for buildings operations and services. Registration commences at 9.15am and the first presentation will be at 10.00am. The day will finish around 6.00pm following an open forum.

The full delegate rate for the day will be £150.00 + VAT. SCIF, ISCE and PLASA members are eligible for a 50% discount, whilst members of BFPSA or C&ACFOA will also benefit from a discount.

The fee covers coffee, lunch and afternoon tea, together with a copy of the day's proceedings.

*If you manufacture or supply sound equipment or products related to Voice Evacuation Systems, you are invited to take 'table top' space at the Seminar.*

For more information telephone: 0628 667633

## EXCELLENT BUSINESS OPPORTUNITY

*We are an established UK-based curtain & scenery track manufacturer specialising in automation.*

*Due to favourable response to our products from overseas markets, we are now seeking representation from overseas companies with complementary technical expertise to assist in further developing those markets for our product range.*

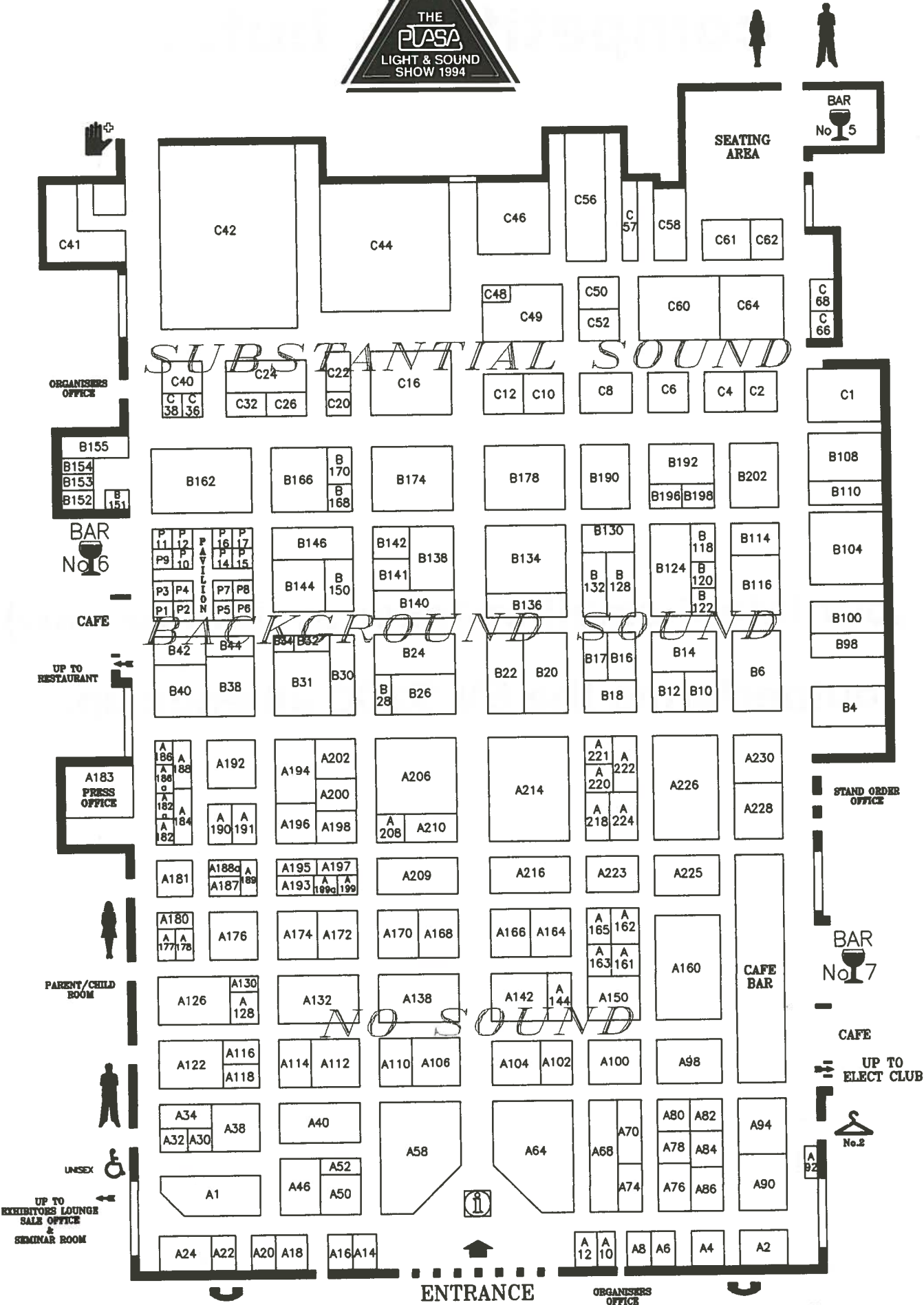
*Interested parties are invited to apply in the first instance to the address below with a brief company history, sales literature, details of existing product ranges and contact names for references.*

**Box 181, c/o Lighting and Sound International,  
7 Highlight House, St. Leonards Road,  
Eastbourne BN21 3UH, England**

**We hate to knock the  
competition, but...**

**...our latest small speaker system (see over)  
outperforms the EV S200 all ends up.**

---



# The EV Sx200.

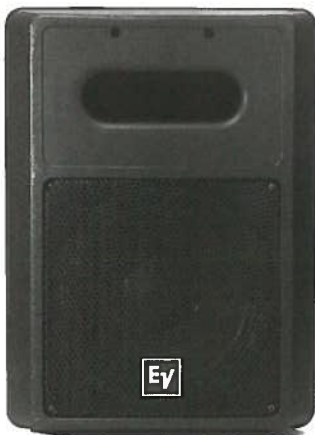


**Sorry, guys.**

**We've done it again.**

## The Sx200 Full-Range System

For ten years no-one has been able to produce a small speaker to rival the EV S200, and frankly, we're not surprised. It's taken us that long to research new materials and technology to make a stronger, stiffer, truer and *louder* cabinet. And to develop a new horn for added cut, coverage and intelligibility, even in noisy, reverberant rooms.



## The Sb120 Bass Module

Having built the Sx200, we went on to design an entire system. For the bottom end we've redefined speaker geometry to make the DL12sb — a 12" woofer that's thinks it's a fifteen. The result is a new bass bin that gives 40Hz low bass, weighs only 32.2lbs, and fits easily in the back of a saloon car to boot.

## The Xp200 Electronic System Controller

Now you'll want to make sure that all these extra frequencies are matched and manageable. Our Xp200 Controller not only keeps the output clean, no matter how you configure your system, but even provides adjustable enhancement of the low frequencies.



We could take six pages to tell you all about the new EV System 200. In fact, we have. Phone Shuttlesound for your free leaflet.



## Shuttlesound

4 The Willows Centre, Willow Lane  
Mitcham, Surrey CR4 4NX  
Tel: 081-646 7114. Fax: 081-640 7583

# SEMINAR PROGRAMME

12, 13, 14 SEPTEMBER, 1993

Victoria Room, Earls Court 2, London SW5  
during the PLASA Light & Sound Show

## • FUTURE TECHNOLOGIES •

Chair: Tony Gottelier, L+SI associate editor

The keynote seminar will look at the impact of 'future technologies' and offer some insight into just what we as an industry may be up against in the years to come. This may well prove to be an eye-opening experience for those who have yet to realise the potential impact of the Information Super Highway and forthcoming applications of Virtual Reality.

## • RETURN TO DMX512 •

Chair: Peter Brooks, Zero 88 Lighting

The seminar will be targeted at those who are about to use DMX or are experiencing problems with its application. There will be a brief overview of the protocol followed by a 'DMX' clinic with members of the audience invited to raise questions on DMX and other protocols.

## • CBC STUDIOS •

Gil Densham of CBC Studios in Toronto will offer an insight into the TV studio set-up in Canada. The audience will learn of the innovative techniques being employed by CBC and its move towards increasing levels of automation. CBC have an impressive 14,000sq.ft studio which is completely pre-wired and features the latest moving lights and scrollers on the market, as well as employing a sophisticated computer software system to simulate lighting in real-time.

## • THE LINK TO SOUND •

Allen Mornington-West of Quad Electroacoustics will discuss the number of protocols and formats which have been devised in order that audio - and by simple extension video, stagecraft and lighting - can be controlled remotely. The seminar will review existing protocols and signal formats. It will also seek to establish whether there is any desire to reach a common standard in order that all equipment might be controlled through a similar protocol structure.

## • PINK FLOYD AND MORE •

Well-known for his work for some of the top performance artistes, Mark Fisher, formerly of Fisher Park, will offer an insight into the design processes that produced the stunning stage sets and multiple entertainment technologies for the recent, much praised, Pink Floyd and Rolling Stones tours.

## • RIGGING FOR SOUND •

Chair: Andrew Martin, ATM Flyware

This seminar will cover the technical and practical aspects of rigging for sound. Highlighting important safety issues, the discussion will also focus on loudspeaker rigging in particular, encompassing touring event and fixed installations.

SPONSORED BY PRO-SOUND NEWS

## • ANGLO-GERMAN DISCOTHEQUE •

Chair: Colin Gawne, World Discotheque Review

A comparison between British and German approach to design will form the basis of the discussion with contributions from some of the leading exponents in the nightclub industry from both countries.

SPONSORED BY BEDA

## • ACOUSTICS FIRST •

Chair: Peter Barnett

Peter Mapp will steer the audience through a two-tier approach on acoustics discussing first the planning and licensing applications for entertainment venues and secondly, acoustical considerations when designing and installing sound systems.

SPONSORED BY THE SOUND & COMMUNICATION INDUSTRIES FEDERATION

## TIMETABLE

MONDAY 12TH SEPTEMBER	TUESDAY 13TH SEPTEMBER	WEDNESDAY 14TH SEPTEMBER
11.30 AM ~ FUTURE TECHNOLOGIES	11.30 AM ~ LINK TO SOUND	11.30 AM ~ ANGLO-GERMAN DISCOTHEQUE
14.30 PM ~ DMX512	14.30 PM ~ PINK FLOYD	14.30 PM ~ ACOUSTICS FIRST
16.15 PM ~ CBC STUDIOS	16.15 PM ~ RIGGING FOR SOUND	



***“Yes Gordon, that’s what’s so incredible. You can even turn up on the day.”***

Incredible as it may sound there’s still one or two of you out there that haven’t pre-registered for PLASA 94.

*Shame!* And with just one week to go.

After all where else can you gem up on the latest developments in the worlds of touring, live, disco and broadcast apart from at the biggest and best PLASA ever.

And if that wasn’t enough we even enticed you

with a massive carrot of half price tickets.

So just in case you’ve all been on a two month’s expedition up the Orinoco, your final chance to get your hands on some £5 tickets is to quickly phone the Hotline Number on 0784 243535.

N.B. They’re £10 on the door, Gordon.



**EARLS COURT 2, LONDON  
11-14 SEPTEMBER 1994**

***“Call the PLASA 94 Hotline on 0784 243535, why don’t you!”***



## UK Members

### ABSTRACT DESIGN TO LIGHT

3-5 Narborough Wood Park, Desford Road, Enderby, Leicestershire LE19 5XT.  
Tel: (0533) 393577 Fax: (0533) 387743  
Contact: Steve Watts

### A.C. LIGHTING LTD

Unit 3, Spearhead Ind Park, Lane End Road, Sands, High Wycombe, Buckinghamshire HP12 4JG.  
Tel: (0494) 446000 Fax: (0494) 461024  
Contact: David Leggett

### ADB UK THEATRE AND STUDIO LIGHTING DIVISION

Siemens, Siemens House, Windmill Road, Sunbury-on-Thames, Middlesex TW16 7HS.  
Tel: (0932) 752885 Fax: (0932) 752883  
Contact: Russell Dunsire

### ADDA SUPER CASES LTD

P.O. Box 366, Cambridge CB4 5AX.  
Tel: (0223) 233101 Fax: (0223) 233080  
Contact: Monica Saunders

### AJS THEATRE LIGHTING & STAGE SUPPLIES LTD

Crow Arch Lane, Ringwood, Hants BH24 1ND.  
Tel: (0425) 470888 (Sales) (0425) 470088 (Hire)  
Fax: (0425) 471398  
Contact: Simon Sketchley

### ALLEN & HEATH

Kemick Industrial Estate, Penryn, Cornwall TR10 9LU.  
Tel: (0753) 576911 Fax: (0753) 535306  
Contact: Glenn Rogers

### ALPHA AUDIO

5 Brooklands Close, Sunbury-on-Thames, Middlesex TW16 7DX.  
Tel: (0932) 765550 Fax: (0932) 788512  
Contact: Jenny Moir

### ANCIENT LIGHTS

The Old Maltings, Ditton Walk, Cambridge, Cambs CB5 8QD.  
Tel: (0223) 410249 Fax: (0223) 411300  
Contact: Peter Niesbitt

### ANYTRONICS LTD

Units 5&6, Hillside Industrial Estate, London Road, Horndean, Hants PO8 0BL.  
Tel: (0705) 599410 Fax: (0705) 598723  
Contact: Bob Hall

### APOGEE SOUND (UK) LTD

Mezzanine Floor, 5 Brooklands Close, Sunbury-on-Thames, Middlesex TW16 7DX.  
Tel: (0932) 765550 Fax: (0932) 788512  
Contact: Jenny Moir

### ARRI (GB) LTD

1-3 Airlinks, Spitfire Way, Heston, Middlesex TW5 9NR.  
Tel: 081-848 8881 Fax: 081-561 1312  
Contact: Dee Reed

### ARTISTIC LICENCE (UK) LTD

A2 Livingstone Court, Peel Road, Harrow, Middlesex HA3 7QT.  
Tel: 081-863 4515 Fax: 081-863 4515  
Contact: Wayne Howell

### AUDIO PROJECTS INC

Unit 10, Acton Vale Industrial Park, Cowley Road, London W3 7QE.  
Tel: 081-740 0057 Fax: 081-743 1925  
Contact: George Thom

### AUDIO TECHNICA LTD

Technica House, Royal London Ind Estate, Old Lane, Leeds LS11 8AG.  
Tel: (0532) 771441 Fax: (0532) 704836  
Contact: Shig Harada

### AUTOGRAPH SALES LTD

102 Grafton Road, London NW5 4BA.  
Tel: 071-485 3749 Fax: 071-485 0681  
Contact: Aviva Ozin

### AVITEC DISTRIBUTION LTD

80/81 Walsworth Road, Hitchin, Herts SG4 95X.  
Tel: (0462) 420910 Fax: (0462) 431019  
Contact: Tony Kingsley

### AVITEC ELECTRONICS (UK) LTD

80/81 Walsworth Road, Hitchin, Herts SG4 95X.  
Tel: (0462) 458961 Fax: (0462) 431019  
Contact: Tony Kingsley

### AVOLITES LTD

184 Park Avenue, London NW10 7XL.  
Tel: 081-965 8522 Fax: 081-965 0290  
Contact: Steve Warren

### BALDWIN BOXALL COMMUNICATIONS LTD

Wealden Industrial Estate, Farningham Road, Crowborough, East Sussex, TN6 2JR.  
Tel: (0892) 664422 Fax: (0892) 663146  
Contact: Terry Baldwin

### BATMINK LTD

Glastonbury Warehouse, Silver Street, Glastonbury, Somerset BA6 8BT.  
Tel: (0458) 833186 Fax: (0458) 835320  
Contact: David Churches

### BOSE (UK) LTD

Unit G2, Trinity Trading Estate, Sittingbourne, Kent ME10 2PD.  
Tel: (0795) 475341 Fax: (0795) 427227  
Contact: John Sabell

### BRILLIANT STAGES

20-22 Fairway Drive, Greenford, Middlesex UB6 8PW.  
Tel: 081-575 8888 Fax: 081-575 0105  
Contact: Charlie Kail

### BYGONE TIMES LTD

The Green, Eccleston, Chorley, Lancs, PR7 5PD.  
Tel: (0257) 453780 Fax: (0257) 450197  
Contact: Steve Higham

### CANFORD AUDIO

Crowther Road, Washington, Tyne and Wear NE38 0BW.  
Tel: 091-417 0057 Fax: 091-416 0392  
Contact: Iain Elliott

### CANON AUDIO

Unit 6, Genesis Business Park, Albert Drive, Woking, Surrey GU21 5RW.  
Tel: (0483) 740005 Fax: (0483) 740054  
Contact: Sean Martin

### CCT LIGHTING LTD

4 Tudor Court, Brighton Road, Sutton, Surrey SM2 5AE.  
Tel: 081-770 3636 Fax: 081-643 9848  
Contact: David Manners

### CEEP LTD

Unit 7, Haslemere Industrial Estate, Haslemere, Surrey GU27 1DW.  
Tel: (0428) 661515 Fax: (0428) 644147  
Contact: C J Rees

### CELCO

Hawley Mill, Hawley Road, Danford, Kent DA2 7SY.  
Tel: (0322) 222211 Fax: (0322) 282282  
Contact: Colin Whittaker

### CELESTION INTERNATIONAL LTD

Foxhall Road, Ipswich, Suffolk IP3 8JP.  
Tel: (0473) 723131 Fax: (0473) 729662  
Contact: Phil Pell

### CENTRAL THEATRE SUPPLIES

1186 Stratford Road, Hall Green, Birmingham B28 8AB.  
Tel: 021-778 6400 Fax: 021-702 2046  
Contact: D G Harwood

### CEREBRUM LIGHTING LTD

Units 4 and 5, Shannon Commercial Centre, Beverley Way, New Malden, Surrey KT3 4PT.  
Tel: 081-949 3171 Fax: 081-949 3649  
Contact: Mike Fisher

### CHRIS JAMES & CO LTD

43 Colville Road, Acton, London W3 8BL.  
Tel: 081-896 1772 Fax: 081-896 1773  
Contact: Grant Blockley

### CITRONIC LTD

Halfax Road, Bowerhill Estate, Melksham, Wiltshire SN12 6UB.  
Tel: (0225) 705600 Fax: (0225) 709639  
Contact: Mike Gerrish

### CLASS LTD

837 Garratt Lane, London SW17 0PG.  
Tel: 081-944 1400 Fax: 081-944 0141  
Contact: Denis Stanbrooke

### CLOUD ELECTRONICS LTD

140 Staniforth Road, Sheffield S9 3HF.  
Tel: (0742) 447051 Fax: (0742) 425462  
Contact: Roy Millington

### COMPLUTE GB

2 Tudor Estate, Abbey Road, Park Royal, London NW10 7UY.  
Tel: 081-961 9750 Fax: 081-965 0980  
Contact: Andy Stone

### C P CASES

Unit 11, Worton Hall Industrial Estate, Worton Road, Isleworth, Middx, TW7 6ER.  
Tel: (081) 568 1881 Fax: (081) 568 1141  
Contact: Peter Ross

### CREATIVE TECHNIKAL SERVICES LTD

Unit 8, Anglia Way, Southwell Road West, Mansfield, Nottinghamshire NG18 4LP.  
Tel: (0623) 656390 Fax: (0623) 420893  
Contact: Ivor Green

### CREST AUDIO EUROPE

5a Wilbury Grove, Hove, East Sussex BN3 3JQ.  
Tel: (0273) 325840 Fax: (0273) 775462  
Contact: Lee Wiltshire

### CYBERDESCENCE DESIGN LTD

63 Lancaster Road, New Barnet, Hertfordshire EN4 8AS.  
Tel: 081-447 1010 Fax: 081-447 0419  
Contact: Del Trew

### DE SISTI LIGHTING (UK) LTD

15 Old Market Street, Thetford, Norfolk IP24 2EQ.  
Tel: (0842) 752909 Fax: (0842) 753746  
Contact: William Smillie

### DECO LEISURE

218A Monument Road, Edgbaston, Birmingham G16 9UU.  
Tel: 021-455 8710 Fax: 021-455 8710  
Contact: Sammy De Havilland

### DHA LIGHTING LTD

3 Jonathan Street, London SE11 5NH.  
Tel: 071-582 3600 Fax: 071-582 4779  
Contact: Wyatt Enever

### DIAL SOUND AND LIGHTING

Unit 4G, Wharfedale Road, Euroway Trading Estate, Bradford, West Yorks BD4 6SG.  
Tel: (0274) 651600 Fax: (0274) 651190  
Contact: Andy Blackwell

### DISCO CLUB & LEISURE INTERNATIONAL

35 High Street, Sandridge, St. Albans, Herts AL4 9DD.  
Tel: (0727) 843995 Fax: (0727) 844417  
Contact: Jerry Gilbert

### DISCO MIRROR

Suite 2, Waterloo Place, Watson Square, Stockport, Cheshire SK1 3AZ.  
Tel: 061-429 7803 Fax: 061-480 8896  
Contact: Colin Gawnne

### DISCO NEON

Unit 34, Bonville Business Centre, Bonville Road, Brimlington, Bristol BS4 5QR.  
Tel: (0272) 717727 Fax: (0272) 717715  
Contact: Sean Beech

### DONMAR LTD

Donmar House, 54 Cavell Street, Whitechapel, London E1 2HP.  
Sales and Hire - Tel: 071-790 1166  
Service and Installation - Tel: 071-790 6624  
Fax: 071-790 6634  
Contact: Nick Weeks

### DOUGHTY ENGINEERING LTD

Crow Arch Lane, Ringwood, Hampshire BH24 1NZ.  
Tel: (0425) 478961 Fax: (0425) 474481  
Contact: George Chiverton

### ELECTRONIC LIGHTING AND MUSIC

Unit 8, Scornier Workshops, Redruth, Cornwall TR1 6 5AU.  
Tel: (0209) 820599 Fax: (0209) 820599  
Contact: Eric Matthews

### ELECTROSONIC LTD

Hawley Mill, Hawley Road, Dartford, Kent DA2 7SY.  
Tel: (0322) 222211 Fax: (0322) 282282  
Contact: Kevin Murphy

### EMINENCE (AUDIO) LTD

Combe House, Stoke-St Michael, Bath, Somerset BA3 5HN.  
Tel: (0749) 840102 Fax: (0749) 840887  
Contact: Fernley Roch

### EMINENCE SPEAKER EUROPE LTD

381 Bamsley Road, Wakefield, West Yorkshire WF2 6BA.  
Tel: (0924) 279297 Fax: (0924) 263998  
Contact: Arthur Barnes

### EMO SYSTEMS LTD

Durham Road, Ushaw Moor, Durham City DH7 7LF.  
Tel: 091-373 0787 Fax: 091-373 3507  
Contact: Mike Reay

### E.S.P. (UK) LTD

The Arches, Unit 5, Furnston Court, Letchworth, Herts SG6 1EX.  
Tel: (0462) 482411 Fax: (0462) 673856  
Contact: Ann Brodhurst

### EURO MATERIALS HANDLING LTD

EMEC Buildings, Forge Lane, Halesowen, West Midlands, B62 8EA.  
Tel: 021-585 5818 Fax: 021-585 6127  
Contact: Roger Pates

### EXCITING LIGHTING & DECOR

Units 7, 46, 47 The Business Centre, Enterprise House, Balloo Industrial Estate, Balloo Avenue, Bangor, Co. Down BT19 7QT.  
Tel: (0247) 462338 Fax: (0247) 271755  
Contact: Harry Filmer

### FABTRONIC LIGHTING

54/56 Tenter Road, Moulton Park Ind Estate, Nonhampton NN3 1AX.  
Tel: (0604) 790765 Fax: (0604) 492856  
Contact: Mel Henderson

### 5 STAR CASES

12 Sandall Road, Wisbech, Cambs PE13 2RT.  
Tel: (0945) 474080 Fax: (0945) 64416  
Contact: James Willis

### FLYING PIG SYSTEMS LTD

53 Northfield Road, London, W13 9SY.  
Tel: 081-579 5665 Fax: 081-579 8469  
Contact: Nick Archdale

### FORMULA SOUND LTD

Ashton Road, Bredbury, Stockport, Cheshire SK6 2SR.  
Tel: 061-494 5650 Fax: 061-494 5651  
Contact: Sandra Cockell

## EXECUTIVE COMMITTEE

### CHAIRMAN

Mike Wood (JEM Smoke Machine Co Ltd)

### TREASURER

Matthew Griffiths (TSL AV Ltd)

### MEMBERS

Tony Kingsley (Avitec Electronics UK Ltd)

Paul Adams (PA Installations Ltd)

Tony Akers (Citronic Ltd)

Andy Collier (Strand Lighting Ltd)

Freddy Lloyd (Zero 88 Lighting Ltd)

Matthew Tonks (Giantre Engineering Ltd)

Colin Whittaker (Celco Ltd)

### STANDARDS OFFICER

George Thompson

Join PLASA and have the backing of the world's premier entertainment technology trade association and receive numerous technical, trade and back-up services, all for £240 per year.

PLASA is now inviting membership enquiries throughout the world, so wherever you are, contact Anna Pillow or John Offord for more details and an application form:

Professional Lighting and Sound Association  
7 Highlight House, St Leonards Road  
Eastbourne, East Sussex  
BN21 3UH, England  
Tel: (0323) 410335 Fax: (0323) 646905

Corporate membership at £80.00 per year is available for UK Group companies wishing to provide PLASA facilities for their associate or subsidiary operations.



PROFESSIONAL LIGHTING AND SOUND ASSOCIATION



**FRANCIS SEARCHLIGHTS (1990) LTD**  
 Union Road, Bolton, Lancs BL2 2HS.  
 Tel: (0204) 27196 Fax: (0204) 361567  
 Contact: John Orentas

**FUTURIST LIGHT & SOUND LTD**  
 Hoyle Head Mill, New Street, Earlsheaton,  
 Dewsbury, West Yorkshire WF1 2BJ.  
 Tel: (0924) 468183 Fax: (0924) 458667  
 Contact: Brian Simmons

**G E LIGHTING LTD**  
 Miles Road, Mitcham, Surrey CR4 3YX.  
 Tel: 081-640 1221 Fax: 081-640 9760  
 Contact: Marney Lowe

**GERRIETS GREAT BRITAIN LTD**  
 J412 Tower Bridge Business Square,  
 Drummond Road, London SE16 4EF.  
 Tel: 071-232 2262 Fax: 071-237 4916  
 Contact: Stewart Crosbie

**GLANTRE ENGINEERING LTD**  
 2 Cremyll Road, Reading, Berks RG1 8NQ.  
 Tel: (0734) 509711 Fax: (0734) 505808  
 Contact: Derek Gilbert

**HARDWARE FOR XENON LTD**  
 140 Clayton Road, Hayes, Middlesex UB3 4SH.  
 Tel: 081-848 1387 Fax: 081-848 1135  
 Contact: Alan Bardouil

**HARKNESS SCREENS & HALL STAGE LTD**  
 The Gate Studios, Station Road,  
 Borehamwood, Herts WD6 1DQ.  
 Tel: 081-953 3611/9371 Fax: 081-207 3657  
 Contact: Eddie Daniels

**HARMAN AUDIO UK LTD**  
 Unit 2, Borehamwood Industrial Park, Rowley Lane,  
 Borehamwood, Herts WD6 5PE.  
 Tel: 081-207 5050 Fax: 081-207 4572  
 Contact: Guy Hawley

**HAWTHORN THEATRICAL**  
 40 Pate Road, Leicester Road Industrial Estate,  
 Melton Mowbray, Leicestershire LE13 0RC.  
 Tel: (0664) 410122 Fax: (0664) 63542  
 Contact: Martin Hawthorn

**HOWARD EATON LIGHTING LTD**  
 Wentlands, Resting Oak Hill, Cooksbridge,  
 Lewes, East Sussex BN8 4PR.  
 Tel: (0273) 400670 Fax: (0273) 401052  
 Contact: Howard Eaton

**HW INTERNATIONAL**  
 167-171 Willoughby Lane, Brantwood  
 Industrial Area, London N17 0SB.  
 Tel: 081-808 2222 Fax: 081-808 5599  
 Contact: Alf Allenstein

**JAMES THOMAS ENGINEERING LTD**  
 Station Approach, Pinvin, Nr Pershore,  
 Worcester WR10 2DB.  
 Tel: (0386) 553002 Fax: (0386) 552321  
 Contact: Mervyn Thomas

**J.E.M. SMOKE MACHINE CO LTD**  
 Vale Road Industrial Estate, Boston Road, Spilsby,  
 Lincolnshire PE23 5HE.  
 Tel: (0790) 754050 Fax: (0790) 754051  
 Contact: Jon Pets

**JOHN HORNBY SKEWES & CO LTD**  
 Salem House, Parkinson Approach,  
 Garforth, Leeds LS25 2HR.  
 Tel: (0532) 865381 Fax: (0532) 868515  
 Contact: John Hornby Skewes

**JYG LTD**  
 Unit D10 & D11 The Seedbed Centre,  
 Davidson Way, Romford, Essex RM7 0A2.  
 Tel: (0708) 762696 Fax: (0708) 741579  
 Contact: Garry Clark

**KAM ELECTRONICS (LAMBDA PLC)**  
 Albion Mills, Albion Road, St Albans, Herts AL1 5EB.  
 Tel: (0707) 840527 Fax: (0707) 837811  
 Contact: Damon Crisp

**KELSEY ACOUSTICS LTD**  
 27 Beethoven Street, London W10 4LL.  
 Tel: 081-964 8000 Fax: 081-964 1010  
 Contact: Richard Vickers

**KEN DIBBLE ACOUSTICS**  
 Old Rectory House, 79 Clifton Road,  
 Rugby, Warwickshire CV21 3QG.  
 Tel: (0788) 541133 Fax: (0788) 541314  
 Contact: Ken Dibble

**LASER CREATIONS LTD**  
 55 Menthay Terrace, Bames, London SW13 9DL.  
 Tel: 081-741 5747 Fax: 081-748 9879  
 Contact: Marlyn Weeks

**LASERPOINT COMMUNICATIONS LTD**  
 44/45 Clifton Road, Cambridge CB1 4FD.  
 Tel: (0223) 212331 Fax: (0223) 214085  
 Contact: Ron Turpie

**LE MAITRE (SALES) LTD**  
 6 Fonval Close, Wandle Way, Mitcham, Surrey CR4 4NE.  
 Tel: 081-646 2222 Fax: 081-646 1955  
 Contact: Dave Winfield

**LE MARK TVS**  
 Unit 24, Stevenson Road, St Ives,  
 Huntingdon, Cambs PE17 4WJ.  
 Tel: (0480) 494540 Fax: (0480) 494206  
 Contact: Stuart Gibbons

**LEAMINGTON SIGHT & SOUND**  
 Rigby Close, Heathcote Ind Estate,  
 Leamington Spa CV34 6TJ.  
 Tel: (0926) 833617 Fax: (0926) 883120  
 Contact: Ian Potter

**LEE FILTERS LTD**  
 Central Way, Walworth Industrial Estate,  
 Andover, Hants SP10 5AN.  
 Tel: (0264) 366245 Fax: (0264) 355058  
 Contact: Ralph Young

**LEISURE SERVICES (UK) LTD**  
 7 Westerham Trading Centre, The Flyers Way,  
 Westerham, Kent, TN16 1DE.  
 Tel: (0959) 562254 Fax: (0959) 564564  
 Contact: Ian De Le Vingne

**LEISURETEC**  
 Unit 15, Portland Road Industrial Units, Kingsway,  
 Luton, Beds LU4 8HA.  
 Tel: (0582) 23300 Fax: (0582) 400237  
 Contact: Mike Henden

**LIGHT & SOUND DESIGN LTD**  
 201 Coventry Road, Birmingham B10 0RA.  
 Tel: 021-766 6400 Fax: 021-766 6150  
 Contact: Simon Austin

**LIGHT ENGINEERING LTD**  
 64 Eden Road, Walthamstow, London E17 9YJ.  
 Tel: 081-520 2336/7  
 Fax: 081-509 1332 Telex: 898005  
 Contact: Mark Joseph

**LIGHT PROCESSOR LTD**  
 11 Fairway Drive, Fairway Industrial Estate,  
 Greenford, Middlesex UB6 8PW.  
 Tel: 081-575 8828 Fax: 081-575 8678  
 Contact: Mick Hannaford

**LIGHT RELIEF**  
 Ellar House, Alexandra Industrial Estate,  
 Wenttoog Road, Rummy, Cardiff CF3 8EE.  
 Tel: (0222) 779555 Fax: (0222) 778575  
 Contact: Simon Baker

**LIGHT SUPPORT LTD**  
 121 Loverock Road, Reading,  
 Berkshire RG3 1DZ.  
 Tel: (0734) 393955 Fax: (0734) 505964  
 Contact: Colin Morton

**LIGHT WORKS LTD**  
 2a Greenwood Road, London E8 1AB.  
 Tel: 071-249 3627 Fax: 071-254 0306  
 Contact: Charlie Paton

**LIGHTFACTOR SALES LTD**  
 11 Fairway Drive, Fairway Industrial Estate,  
 Greenford, Middlesex UB6 8PW.  
 Tel: 081-575 5566 Fax: 081-575 8678  
 Contact: Mick Hannaford

**LIGHTING TECHNOLOGY GROUP LTD**  
 2 Tudor Estate, Abbey Road,  
 Park Royal, London NW10 7UY.  
 Tel: 081-965 6800 Fax: 081-965 0950  
 Contact: Ron Knell

**LMC AUDIO SYSTEMS LTD**  
 Unit 10, Acton Vale Industrial Park,  
 Cowley Road, London W3 7QE.  
 Tel: 081-743 4680 Fax: 081-749 9875  
 Contact: Paul Hinkl

**LITE SMIFTS LTD**  
 266 Church Road, Northolt, Middlesex UB8 5AW.  
 Tel: 081-845 9337 Fax: 081-842 0294  
 Contact: Gordon Smith

**LITE STRUCTURES (GB) LTD**  
 Durkar Low Lane, Durkar, Wakefield,  
 West Yorkshire WF4 3BQ.  
 Tel: (0924) 240800 Fax: (0924) 254083  
 Contact: Adrian Brooks

**LITON VEAM UK**  
 72 Whitetrays Road, Glenrothes,  
 Fife, Scotland KY6 2RX.  
 Tel: (0592) 774018 Fax: (0592) 774143  
 Contact: John Cameron

**LYNX LIGHTING LTD**  
 5 Oxford Road, Pen Mill Trading Estate,  
 Yeovil, Somerset BA21 5HR.  
 Tel: (0935) 29290 Fax: (0935) 79439  
 Contact: Nick Searle

**M & M CAMELONT LTD**  
 Unit 2, Cameron House, 12 Castlehaven Road,  
 London NW11 8QW.  
 Tel: 071-284 2504 Fax: 071-284 2503  
 Contact: Michael Goldberg

**MARQUEE AUDIO LTD**  
 Shepperton Studio Centre, Studios Road,  
 Shepperton, Middx TW17 0QD.  
 Tel: (0932) 566777 Fax: (0932) 565861  
 Contact: Spencer Brooks

**MARTIN AUDIO**  
 Cressex Industrial Estate, 19 Lincoln Road,  
 High Wycombe, Bucks HP12 3RD.  
 Tel: (0494) 535312 Fax: (0494) 438669  
 Contact: Sara Kendrick

**MICO LIGHTING LTD**  
 Troydale Lane, Pudsey, Leeds LS28 9LD.  
 Tel: (0532) 567113 Fax: (0532) 572358  
 Contact: Michael Kitching

**MIDDLESEX SOUND & LIGHTING LTD**  
 6 Village Way East, Rayners Lane,  
 Harrow, Middlesex HA2 7LU.  
 Tel: 081-866 5500 Fax: 081-866 3757  
 Contact: Mike Olivier

**MIDLAND THEATRE SERVICES**  
 Junction 1 Industrial Estate, Dartmouth Road,  
 Smethwick, Birmingham B66 1AX.  
 Tel: 021-525 4545 Fax: 021-525 2413  
 Contact: Mike Savage

**MIDNIGHT SALES LTD**  
 Unit 1, Chelsea Bridge Business Centre,  
 326 Queenstown Road, London SW8 4NE.  
 Tel: 071-498 7272 Fax: 071-498 8845  
 Contact: David Rose

**MODE ELECTRONICS LTD**  
 Chelsing Lodge, Tonwell, Ware,  
 Hertfordshire SG12 0LB.  
 Tel: (0920) 462121 Fax: (0920) 466881  
 Contact: Andrew Morris

**MODELBOX**  
 57 Filmer Road, London SW6 7JF.  
 Tel: 071-371 0110 Fax: 071-371 0806  
 Contact: Chris Toulmin

**MSL CONNECTION LTD**  
 125 Blackstock Road, London N4 2JW.  
 Tel: 071-354 2254 Fax: 071-226 9994  
 Contact: Ashley Lewis

**MULTIFORM LIGHTING**  
 Bell Lane, Uckfield, East Sussex TN22 1QL.  
 Tel: (0825) 763348 Fax: (0825) 763310  
 Contact: Iain Price-Smith

**MUSHROOM LIGHTING SERVICES LTD**  
 76 Tenter Road, Moulton Park Ind. Estate,  
 Northampton NN3 1AX.  
 Tel: (0604) 790900 Fax: (0604) 491118  
 Contact: Paul Butler

**NIGHT FLIGHT SOUND & LIGHTING**  
 Torwood, Bowling, Strathclyde, Glasgow G60 5AB.  
 Tel: (0389) 79261 Fax: (0389) 79260  
 Contact: Bill Smith

**N.J.D. ELECTRONICS LTD**  
 10 Ascot Industrial Estate, Lenton Street,  
 Sandiacre, Nottingham NG10 5DJ.  
 Tel: (0602) 394122 Fax: (0602) 490453  
 Contact: Keith Greenwood

**NORTHERN LIGHT**  
 39/41 Assembly Street, Leith, Edinburgh EH6 7RC.  
 Tel: 031-553 2383 Fax: 031-553 3296  
 Contact: John Allen

**NORTHERN LIGHTS**  
 89 Scotforth Road, Lancaster LA1 4SD.  
 Tel: (0524) 845584 Fax: (0524) 845583  
 Contact: Ray Wilkinson

**NU-LIGHT SYSTEMS LTD**  
 Unit 1, Athertons Quay, Warrington,  
 Cheshire, WA5 1AH.  
 Tel: (0925) 243075 Fax: (0925) 243077  
 Contact: Debbie Clayton

**OCLi OPTICAL COATINGS LTD**  
 Ridge Way, Hillend Industrial Park  
 Dalgety Bay, Nr Dunfermline, Fife KY11 5FR.  
 Tel: (0383) 823631 Fax: (0383) 824287  
 Contact: Dr Ian Muirhead

**OHM INDUSTRIES LTD**  
 Wellington Close, Parkgate Ind. Estate  
 Knutsford, Cheshire WA16 8DX.  
 Tel: (0565) 654641 Fax: (0565) 735641  
 Contact: Darryl Thorpe

**OPTEX**  
 22-26 Victoria Road, New Barnet, Herts EN4 9PF.  
 Tel: 081-441 2199 Fax: 081-449 3646  
 Contact: Ian Lake

**OPTIKINETICS LTD**  
 38 Cromwell Road, Luton LU3 1DN.  
 Tel: (0582) 411413 Fax: (0582) 400613  
 Contact: Neil Rice

**OSRAM LTD**  
 P.O. Box 17, East Lane, Wembley, Middlesex HA9 7PG.  
 Tel: 081-904 4321 Fax: 081-901 1122  
 Contact: Andre Musset

**OWL VIDEO SYSTEMS LTD**  
 8-9 Horsted Square, Bellbrook Industrial Park,  
 Uckfield, East Sussex TN22 1QW.  
 Tel: (0825) 766123 Fax: (0825) 760246  
 Contact: David Jubly

**P.A. INSTALLATIONS LTD**  
 26-28 Inkerman Street, Llanelli, Dyfed SA15 1SA.  
 Tel: (0554) 752490 Fax: (0554) 777848  
 Contact: Paul Adams

**PAR OPTI PROJECTS LTD**  
 67 Stirling Road, London W3 8DJ.  
 Tel: 081-896 2588 Fax: 081-896 2599  
 Contact: Paul Raymond

**PCM**  
 Prenton Way, North Cheshire Trading Estate,  
 Prenton, Wirral L43 3DU.  
 Tel: 051-609 1010 Fax: 051-609 0200  
 Contact: John Jones

**PEAVEY ELECTRONICS (UK) LTD**  
 Hatton House, Hunters Road,  
 Corby, Northants NN17 1JE.  
 Tel: (0536) 205520 Fax: (0536) 269029  
 Contact: Ken Achard

**PEGASUS SOUND & LIGHT**  
 23-25 Canongate, The Royal Mill, Edinburgh EH8 8BX.  
 Tel: 031-556 1300 Fax: 031-557 6466  
 Contact: David Hunter

**PENN FABRICATION LTD**  
 3 Armstrong Road, Armstrong Industrial Estate,  
 District 2, Washington, Tyne and Wear NE37 1LH.  
 Tel: 091-416 1717 Fax: 091-419 3715  
 Contact: Frank McCourt

**PENN FABRICATION (HASTINGS) LTD**  
 Unit D1, Theaklen Drive, Ponswood Ind. Est.,  
 St Leonards-on-Sea, East Sussex TN28 9BX.  
 Tel: (0424) 718576 Fax: (0424) 718572  
 Contact: Riad Mehio

**PLAYLIGHT HIRE LTD**  
 67 Ayres Road, Old Trafford, Manchester M16 7QN.  
 Tel: 061-226 5858 Fax: 061-232 9510  
 London: 081-965 8188  
 Birmingham: 021-328 1591  
 Contact: Barry Hampson (Manchester)

**POWERDRIVE DRUM CO. LTD**  
 Unit M1, Cherycourt Way,  
 Stanbridge Road, Leighton Buzzard,  
 Bedfordshire LU7 8UH.  
 Tel: (0525) 370292 Fax: (0525) 852126  
 Contact: Keith Dowzell

**PRIMARC (MARKETING) LTD**  
 121 Loverock Road, Reading, Berks RG3 1DZ.  
 Tel: (0734) 596777 Fax: (0734) 505964  
 Contact: Donald Major

**PROTEK SOUND SYSTEMS**  
 83 Farclough Road, Dungannon,  
 County Tyrone, N. Ireland BT71 4DU.  
 Tel: (08687) 47327 Fax: (08687) 47478  
 Contact: Stephen Kennedy

**PULSAR LIGHT OF CAMBRIDGE LTD**  
 Henley Road, Cambridge CB1 3EA.  
 Tel: (0223) 66798 Fax: (0223) 460708  
 Contact: Derrick Saunders

**P W ENTERPRISES LTD**  
 Unit 11, Chelsea Fields Industrial Estate,  
 278 Western Road, Merton, London SW19 2QA.  
 Tel: 081-646 6131 Fax: 081-646 5983  
 Contact: George Wetherill

**RAINBOW INTERNATIONAL**  
 448 Uxbridge Road, Shepherds Bush, London W12 0NS.  
 Tel: 081-743 9999  
 Contact: Mervyn Thomas

**RAMSA PROFESSIONAL AUDIO SYSTEMS**  
 Willoughby Road, Bracknell, Berks RG12 4FP.  
 Tel: (0344) 853176 Fax: (0344) 853705  
 Contact: Ian Sharpe

**RAPER & WAYMAN LTD**  
 Unit 3, Crusader Industrial Estate,  
 167 Heritage Road, London N4 1LZ.  
 Tel: 081 800 8288 Fax: 081 809 1515  
 Contact: Rodney Wayman

**REFLEXION LIGHTING GROUP**  
 Lanwades Business Park, Kentford,  
 Newmarket, Suffolk, CB8 7FN.  
 Tel: (0638) 750088 Fax: (0638) 750030  
 Contact: Richard Dixon

**RCF ELECTRONICS (UK) LTD**  
 2 Blenheim Court, Hurricane Way,  
 Wickford Business Park, Wickford, Essex SS11 8YT.  
 Tel: (0268) 570808 Fax: (0268) 570809  
 Contact: Philip Price

**R.G. JONES SOUND ENGINEERING**  
 Beulah Road, Wimbledon, London SW19 3SB.  
 Tel: 081-540 9881 Fax: 081-542 4368  
 Contact: Mark Adams

**RICHMOND ELECTROTECH**  
 Unit 1, Willow Court, Bracewell Avenue,  
 Poulton Le Fylde, Lancs, FY6 8JF.  
 Tel: (0253) 893688 Fax: (0253) 899226  
 Contact: E Mather

**ROSCOLAB LTD**  
 Blanchard Works, Kangley Bridge Road,  
 Sydenham, London SE26 5AQ.  
 Tel: 081-659 2300 Fax: 081-659 3153  
 Contact: Peter Richards

**RYGER ELECTRONICS**  
 Gladstone Street, Langley Mill, Nottingham NG16 4EN.  
 Tel: (0773) 530053 Fax: (0773) 530855  
 Contact: Tyrone LeMercier

**SAMUELSON COMMUNICATIONS**  
 20-22 Fairway Drive, Greenford, Middx UB6 8PW.  
 Tel: 081-566 6444 Fax: 081-566 6365  
 Contact: Melville Davis

**SAMUELSON CONCERT PRODUCTIONS**  
 20-22 Fairway Drive, Greenford, Middx UB6 8PW.  
 Tel: 081-575 8888 Fax: 081-575 0105  
 Contact: Dave Keighley

**SHUTTLESOUND LTD**  
 4 The Willows, Willow Lane, Mitcham, Surrey CR4 4NX.  
 Tel: 081-640 9600 Fax: 081-640 0106  
 Contact: William Woods

**SLICK SYSTEMS INTERNATIONAL LTD**  
 Portland Street North, Leek, Staffs ST13 6LA.  
 Tel: (0538) 372109 Fax: (0538) 381315  
 Contact: Mike Wood

**SMITHFIELD ELECTRONICS**  
 3 Emme Road, Hooe, Chester CH2 3PN.  
 Tel: (0244) 349062/349158 Fax: (0244) 347331  
 Contact: Chris Aberdeen

**SOFOCOTECH**  
 1440 Leeds Road, Bradford, West Yorkshire BD3 7AA.  
 Tel: (0274) 661406 Fax: (0274) 666463  
 Contact: Keith Walker

**SOUND ELECTRONICS (NEWCASTLE) LTD**  
 201-205 Jesmond Road, Newcastle Upon Tyne NE2 1LA.  
 Tel: 091-281 4248 Fax: 091-281 1194  
 Contact: Ray Scott

**SOUNDCRAFT ELECTRONICS LTD**  
 Cranborne House, Cranborne Industrial Estate,  
 Potters Bar, Herts EN6 3JN.  
 Tel: (0707) 665000 Fax: (0707) 600482  
 Contact: Jon Ridel

**SOUNDTRACS PLC**  
 91 Ewell Road, Surbiton, Surrey KT6 6AH.  
 Tel: 081-399 3392 Fax: 081-399 6821  
 Contact: John Carroll

**SPECIALIST LAMP DISTRIBUTORS LTD**  
 10 Sovereign Enterprise Park, King William Street,  
 Salford, Manchester M5 2UP.  
 Tel: 061-873 7822 Fax: 061-873 8089  
 Contact: John Edwards  
 83 Lomond Grove, Camberwell, London SE5 7QZ.  
 Tel: 071-708 0751 Fax: 071-708 2251  
 Contact: Jane Grater

**STAGE ELECTRICS**  
Coton Road, Marsh Barton, Exeter, Devon EX5 2NG.  
Tel: (0392) 55868 Fax: (0392) 410592  
Contact: James Bishop

**STAGE TWO LTD**  
Unit J, Penfold Trading Estate, Imperial Way,  
Watford, Herts WD2 4YY.  
Tel: (0923) 230789 Fax: (0923) 255048  
Contact: Terry Douris

**STAR HIRE**  
Blackburn Hall, Milton Road, Thurleigh,  
Bedfordshire MK44 2DG.  
Tel: (0234) 772233 Fax: (0234) 772272  
Contact: Roger Barrett

**STARDREAM AUDIO VISUAL LTD**  
Pary House, Mowbray Drive,  
Blackpool, Lancashire FY3 7JR.  
Tel: (0253) 302602 Fax: (0253) 301000  
Contact: John Barnett

**STARSTRUCK PRO SOUND & LIGHT LTD**  
Block 2, Unit 2, Tollcross Industrial Estate,  
Causewayside Crescent, Tollcross,  
Glasgow G32 8LY.  
Tel: 041-778 4848 Fax: 041-763 0015  
Contact: Hardy Mattu

**STRAND LIGHTING LTD**  
Grant Way, Isleworth, Middlesex TW7 5QD.  
Tel: 081-560 3171 Fax: 081-568 2103  
Contact: David Brooks

**SUPERMICK LIGHTS**  
119-121 Freston Road, Holland Park, London W11 4BD.  
Tel: 071-221 2322 Fax: 071-727 8693  
Contact: Peter Clarke

**SYLVANIA**  
Otley Road, Charlestown,  
Shipley, West Yorkshire BD17 7SN.  
Tel: (0274) 595921 Fax: (0274) 580632  
Contact: Ken Rickman

**TANNOY LTD**  
Rosehall Industrial Estate, Coatbridge,  
Strathclyde, Scotland ML5 4TF.  
Tel: (0236) 420199 Fax: (0236) 428230  
Contact: Derek West

**TECHNICAL INSIGHT LTD**  
Unit 8, 75 Filmer Road, London SW6 7JF.  
Tel: 071-371 0875 Fax: 071-371 0806  
Contact: Bryan Raven

**TEK LOUDSPEAKERS**  
Unit 7, Denton Drive Industrial Estate,  
Northwich, Cheshire CW9 7LU.  
Tel: (0606) 40447 Fax: (0606) 40448  
Contact: Andrew McLuckie

**TERRALEC LTD**  
3 Featherby Way, Purdy's Industrial Estate,  
Sutton Road, Rochford, Essex SS4 1LD.  
Tel: (0702) 547571 Fax: (0702) 548543  
Contact: Richard Lord

**THE MUSIC COMPANY LTD**  
Unit 3E, Hillam Road Industrial Estate,  
Canal Road, Bradford, West Yorkshire BD2 1QN.  
Tel: (0274) 370966 Fax: (0274) 308706  
Contact: Miles Marsden

**THE MUSIC FACTORY**  
Studio 4, Canalot Studios, 222 Kensal Road,  
London W10 5BN.  
Tel: 081-960 2739 Fax: 081-960 7937  
Contact: Peter Parkin

**THE SPOT CO LTD**  
53 Northfield Road, West Ealing, London W13 9SY.  
Tel: 081-566 5012 Fax: 081-566 5013  
Contact: Peter Miles

**THEATRE PROJECTS SERVICES LTD**  
20-22 Fairway Drive, Greenford, Middlesex UB6 8PW.  
Tel: 081-575 5555 Fax: 081-575 0105  
Contact: Alan Thomson

**TOA CORPORATION PLC**  
Tallon Road, Hutton Ind. Estate, Hutton,  
Brentwood, Essex CM13 1TG.  
Tel: (0277) 233882 Fax: (0277) 233566  
Contact: Harry Greenaway

**TP SOUND SERVICES LTD**  
13 Field Way, Greenford, Middlesex UB6 8UN.  
Tel: 081-813 1112 Fax: 081-566 6365  
Contact: Rachel Henshaw

**TRANTEC SYSTEMS LTD**  
Unit 30, Wates Way, Willow Lane Industrial Estate,  
Mitcham, Surrey CR4 4HR.  
Tel: 081-640 0822 Fax: 081-640 4896  
Contact: Chris Gilbert

**TRIFIBRE CONTAINERS  
INTERNATIONAL LTD**  
Unit C, Britannia Way, off Melton Road,  
Thuraston, Leicester LE4 8JA.  
Tel: (0533) 698989 Fax: (0533) 698959  
Contact: Nigel Cox

**TRIPLE E LIMITED**  
B3 Tower Bridge Business Square,  
Clements Road, London SE16 4EF.  
Tel: 071-237 6354 Fax: 071-237 7650  
Contact: David Edelstein

**TSL (AV) LTD**  
Studio 9, 75 Filmer Road, London SW6 7JF.  
Tel: 071-371 5020 Fax: 071-371 0503  
Contact: Matthew Griffiths

**TURBOSOUND LTD**  
Star Road, Partridge Green, West Sussex RH13 8RY.  
Tel: (0403) 711447  
Fax: (0403) 710155 Telex: 878723  
Contact: Amanda Stormont

**UNITED KINGDOM DISTRIBUTORS**  
Rigby Close, Heathcote Industrial Estate,  
Leamington Spa, CV34 6TH.  
Tel: (0926) 314878 Fax: (0926) 883120  
Contact: Ian Potter

**UNUSUAL RIGGING LTD**  
4 Dalston Gardens, Stanmore, Middlesex HA7 1DA.  
Tel: 081-206 2733 Fax: 081-206 1432  
Contact: Adam Wildt

**VARI-LITE EUROPE LTD**  
20-22 Fairway Drive, Greenford, Middlesex UB6 8PW.  
Tel: 081-575 6666 Fax: 081-575 0424  
Contact: David March

**VESTAX (EUROPE) LTD**  
18 St Christophers Road, Haslemere, Surrey GU27 1DQ  
Tel: (0428) 653117 Fax: (0428) 661021  
Contact: Rob Peck

**VOLT LOUDSPEAKERS LTD**  
Enterprise House, Blyth Road, Hayes, Middlesex UB3 1DD.  
Tel: 081-573 4260 Fax: 081-813 7551  
Contact: David Lyth

**WASHBURN UK LTD**  
15 Amor Way, Letchworth, Herts SG6 1UG.  
Tel: (0462) 482466 Fax: (0462) 482997  
Contact: Steve Wright

**WEMBLEY LOUDSPEAKER CO LTD**  
Unit 4, Askew Crescent Workshops,  
Askew Crescent, London W12 9DP.  
Tel: 081-743 4567 Fax: 081-749 7957  
Contact: Paul MacCallum

**WHARFEDALE INTERNATIONAL LTD**  
Sandlax Way, Crossgates, Leeds,  
West Yorkshire LS15 8AL.  
Tel: (0532) 601222 Fax: (0532) 600267  
Contact: Gary Orrell

**WHITE LIGHT (ELECTRICS) LTD**  
57 Filmer Road, London SW6 7JF.  
Tel: 071-371 3291 Fax: 071-371 0806  
Contact: John Simpson

**WHITE LIGHT (NORTH)**  
Corporation Street, Sowerby Bridge,  
Nr Halifax, West Yorks HX6 2QQ.  
Tel: (0422) 839651 Fax: (0422) 839773  
Contact: John Anderton

**WIGWAM ACOUSTICS LTD**  
St Annes House, Ryecroft Avenue,  
Heywood, Lancashire OL10 1QB.  
Tel: (0706) 624547 Fax: (0706) 365565  
Contact: Mike Spratt

**WYNNE WILLSON GOTTIELER LTD**  
The Old Mission House, Ide Hill,  
Sevenoaks, Kent TN14 6BZ.  
Tel: (0732) 750204 Fax: (0732) 750617  
Contact: Tony Gottelier

**ZERO 88 LIGHTING LTD**  
Hart Road, St Albans, Herts AL1 1NA.  
Tel: (0727) 833271 Fax: (0727) 843676  
Contact: Freddy Lloyd

## International Members

**ADB**  
Leuvensesteenweg 585, B-1930, Belgium.  
Tel: (32) 2 7221711 Fax: (32) 2 7221764  
Contact: Mike Musso

**ANDERSON & CO**  
Struenseegade 13-15,  
DK-2200 Copenhagen N, Denmark.  
Tel: (45) 35 37 19 40 Fax: (45) 35 37 18 38  
Contact: Jan Hjorth-Jensen

**AUDIO VISUAL LAND PTE LTD**  
94 Kallang Avenue, #01-00 Atlas Ice Warehouse,  
Singapore 1233.  
Tel: (65) 2942522 Fax: (65) 2942500  
Contact: Winston Goh

**BYTECRAFT PTY LTD**  
23-27 Fonceca Street, Mordialloc 3195,  
Victoria, Australia.  
Tel: (61) 3 587 2555 Fax: (61) 3 580 7690  
Contact: John Drummond Montgomery

**CLAY PAKY SPA**  
Via Pascoli 1, 24066 Pedrengo (BG) Italy.  
Tel: (39) 35 663965 Fax: (39) 35 665976  
Contact: Pio Nahum

**CLAY PAKY & PULSAR VERTRIEBS GmbH**  
An der Talle 26, D-4790 Paderborn, Germany.  
Tel: (49) 5251 409051 Fax: (49) 5251 409931  
Contact: Gunther Olbricht

**COEMAR SPA**  
Via Inghilterra Zona Industrial Estate, 46042  
Castel Goffredo (MN) Italy.  
Tel: (39) 376 779336 Fax: (39) 376 780657  
Contact: Ivano Burato

**COEMAR BELEUCHTUNGSSALAGEN  
VERTRIEB DEUTSCHLAND GmbH**  
Schiller Str. 47-48, D89077, ULM/Donau, Germany.  
Tel: (49) 731 96664-0 Fax: (49) 731 96664-4  
Contact: Hamy Ratzler

**COEMAR DESISTI AUSTRALIA PTY LTD**  
36a Clemest Avenue, Bundoora,  
Victoria 3083, Australia.  
Tel: (61) 3 467 8666 Fax: (61) 3 467 8667  
Contact: Peter Kemp

**COLLYNS SARL**  
3 Avenue des Freres Lumiere,  
92168 Antony Cedex, France.  
Tel: (33) 1 46 11 41 00 Fax: (33) 1 46 66 10 73  
Contact: Patrice Vandenbusche

**CREST AUDIO INC**  
100 Eisenhower Drive, Paramus,  
New Jersey 07652, USA.  
Tel: (1) 201 909 8700 Fax: (1) 201 909 8666  
Contact: Donna Lee Cordes

**d&b AUDIOTECHNIK AG**  
Locks Mill, Brewery Lane, Nailsworth,  
Stroud, Gloucestershire GL6 0JQ, England.  
Tel: (0453) 815884 Fax: (0453) 834193  
Contact: Simon Johnston

**D.A.S. AUDIO S.A.**  
C/Isas Baleares, 24, Poligono Industrial  
Fuente del Jarro, 46988 PATERNA (Valencia) Spain.  
Tel: (34) 6 134 02 06 Fax: (34) 6 134 06 07  
Contact: Jack Palacio, Jr.

**ELECTROSONIC S.A.**  
P.O. Box 73515, Fairland, Johannesburg,  
RSA 2030, South Africa.  
Tel: (27) 11 476 5888 Fax: (27) 11 476 6705  
Contact: P.J.L. Coetzee

**ETVC AUDIVISUEL**  
27 rue Maurice Gunsbourg, 94851 Ivry-Sur-Seine,  
Cedex, France.  
Tel: (33) 1 45 15 28 28 Fax: (33) 1 45 15 28 29  
Contact: Ross Ashton

**ELECTRONIC THEATRE CONTROLS INC.**  
3030 Laura Lane, Middleton, Wisconsin 53562, USA.  
Tel: (608) 831 4116 Fax: (608) 836 1736  
Contact: Bill Gallinghouse

**FLASHLIGHT**  
Tractieweg 190, 3534 AP Utrecht, Holland.  
Tel: (31) 30 444 842 Fax: (31) 30 447 606  
Contact: Gerard Jongerius

**GØGLER LYS SALG A/S**  
Grønnegade 61, DK - 8000, Aarhus C, Denmark.  
Tel: (45) 86 12 1966 Fax: (45) 86 19 0835  
Contact: Paul Tønder

**GRIVEN SNC**  
Via Bulgaria, 16, 147032 Castel Goffredo, (MN), Italy.  
Tel: (39) 376 779 483 Fax: (39) 376 779 682  
Contact: Anna Cimmino

**GROUP ONE**  
80 Sea Lane, Farmingdale, NY 11735, USA.  
Tel: (1) 516 249 3662 Fax: (1) 516 753 1020  
Contact: Norman Wright

**H. ITO & COMPANY LTD**  
Rms 301 & 302, No. 13-8 Koamicho,  
Nihonbashi, Chuo-ku, Tokyo, 103 Japan.  
Tel: (81) 3 3667 3268 Fax: (81) 3 3667 3267  
Contact: Harumichi Ito

**HIGH END SYSTEMS**  
2217 W. Braker Lane, Austin, Texas TX 78758 USA.  
Tel: (1) 512 836 2242 Fax: (1) 512 837 5290  
Contact: Bob Schacherl

**I.E.S.**  
Maaskant II, 4051 ED Ochten, The Netherlands.  
Tel: (31) 444 3196 Fax: (31) 3444 3415  
Contact: Jan de Jonge

**JAC VAN HAM LICHT, GELUID & BEELD B.V.**  
Knaivenstraat 13, 5048 AB Tilberg, The Netherlands.  
Tel: (31) 13 638585 Fax: (31) 13 638435  
Contact: Ben Weijters

**JANDS ELECTRONICS PTY LTD**  
P.O. Box 171, St Peters, N.S.W. 2044, Australia.  
Tel: (61) 2 516 3622 Fax: (61) 2 517 1045  
Contact: Paul Mulholland

**JOELN TECHNICS AND ARTS INC**  
#468-24 Sogyo-Dong, Mapo-Gu, Seoul, Korea.  
Tel: (82) 02 325 2501 Fax: (82) 02 325 2511  
Contact: G H Cho

**KUNNELCO A/S**  
Bragesgade 10, 2200 Copenhagen N, Denmark.  
Tel: (45) 35 82 27 28 Fax: (45) 35 82 41 41  
Contact: Kurt Neldahl

**LASER THEATRE LIGHTING LTD**  
6/F Rear Portion, Microtron Building,  
38 Hung To Road, Kwun Tong,  
Kowloon, Hong Kong.  
Tel: (852) 7979803 Fax: (852) 7970708  
Contact: Lawrence Chan

**LED SRL**  
S.S. 100 - I.L. Baricentro - L.2 M.5,  
70010 Casamassima (Bari), Italy.  
Tel: (39) 80 6977377 Fax: (39) 80 6977399  
Contact: Onofrio De Nitto

**LUDWIG PANI**  
Kandlgasse 23, A-1070 Vienna, Austria.  
Tel: (43) 1 521 080 Fax: (43) 1 526 4287  
Contact: Hermann Sorger

**LSC ELECTRONICS PTY LTD**  
7 University Place, Clayton, Victoria 3168, Australia.  
Tel: (61) 3 561 5255 Fax: (61) 3 561 5277  
Contact: Gary Pritchard

**LYCIAN STAGE LIGHTING**  
P O Box D, Kings Highway, Sugar Loaf N.Y. 10981 USA.  
Tel: (1) 914 469 2285 Fax: (1) 914 469 5535  
Contact: Lou Farina

**M A LIGHTING TECHNOLOGY GmbH**  
Höhenweg 6, D-97249 Eisingen, Germany.  
Tel: (49) 9306 2459 Fax: (49) 9306 2473  
Contact: Thomas Stanger

**MACOSTAR HONG KONG LTD**  
2/F Union Industrial Buildings, 48 Wong  
Chuk Hang Road, Hong Kong.  
Tel: (852) 814 1881  
Fax: (852) 814 9106/(852) 873 1259  
Contact: David Law

**MARTIN PROFESSIONAL A/S**  
Vejlbergvej 16, 8240 Risikov, Denmark.  
Tel: (45) 86 21 44 11 Fax: (45) 86 21 50 01  
Contact: Peter Johnsen

**NOVATEC GROUP INC**  
20-6415 Northwest Drive, Mississauga,  
Ontario, Canada L4V 1X1.  
Tel: (905) 672 8811 Fax: (905) 672 8770  
Contact: Brock McGinnis

**POWER LIGHT PRODUCTIONS LTD**  
Fabrikmatenweg 8, CH-4144 Arlesheim, Switzerland.  
Tel: (41) 61 701 8228 Fax: (41) 61 701 8338  
Contact: Nicholas de Courten

**PRODUCTION ARTS LIGHTING INC**  
636 11th Avenue, New York NY10036, USA.  
Tel: (1) 212 489 0312 Fax: (1) 212 245 3723  
Contact: Steve Terry

**PRODUCTION PROJECTS (PTY) LTD**  
33 Schoeman Street, Pretoria, P O Box 40115,  
Arcadia 0007, Republic of South Africa.  
Tel: (27) 12 211 180 Fax: (27) 12 215426  
Contact: Nic Michaletos

**PROF SOUND SYSTEMS B.V.**  
Kruisstraat 116, 5502 JH Veldhoven, The Netherlands.  
Tel: (31) 40 538235 Fax: (31) 40 549446  
Contact: Cor van Avezaath

**R. L. SHOWEQUIPMENT**  
Nehlerde 93 D. 2521 WV Den Haag, The Netherlands.  
Tel: (31) 70 3999095 Fax: (31) 70 3999098  
Contact: René v.d. Luit

**ROBERT JULIAT S.A.**  
62/64 Rue Danielle Casanova, F-93207  
Saint-Denis Cedex, France.  
Tel: (33) 1 42 43 35 35 Fax: (33) 1 42 43 08 05  
Contact: Chantal Claret

**RULE 1 ASIA**  
M.V.F., 2 Shelley Street, Central, Hong Kong.  
Tel: (852) 525 2112 Fax: (852) 525 8631  
Contact: Jeeta de Pasquale

**SEE FACTOR INDUSTRY INC**  
37-11 30th Street, L.I.C., New York 11101, USA.  
Tel: (718) 784 4200 Fax: (718) 784 0617  
Contact: Annemarie Jocka

**SELECON**  
26 Putiki St., Grey Lynn, Auckland 2, New Zealand.  
Tel: (64) 9 3601718 Fax: (64) 9 3601719  
Contact: Jeremy Collins

**SGM ELETRONICA SRL**  
Strada Romagna 307,  
61010 Colombarone Di Pesaro, Italy.  
Tel: (39) 721 208200 Fax: (39) 721 308 231  
Contact: Franco Zachini

**SHOWTEC GmbH**  
Mathias-Bruggen-Str. 21, 50827 Cologne 30, Germany.  
Tel: (49) 221 582081 Fax: (49) 221 581979  
Contact: Thomas Ickenroth

**STAGECRAFT INTERNATIONAL INC**  
RM 3565 Secretariat Bldg, Pico CCP Complex,  
Roxas Blvd, Pasay City, MM, Philippines.  
Tel: (63) 2 816 1903 Fax: (63) 2 817 1867  
Contact: Raymond Salvacion

**STIERS GmbH (STIERS EFFECTS)**  
Munich 8 Liebigstr,  
08000 Munich 22, Germany.  
Tel: (49) 89 221 696 Fax: (49) 89 23 17 0425  
Contact: Denis Stiers

**STRONG INTERNATIONAL INC**  
4350 McKinley Street, Omaha NE 68112, USA.  
Tel: (1) 402 453 4444 Fax: (1) 402 453 7238  
Contact: Jack Schmidt

**SYNCRILITE SYSTEMS, INC.**  
11142 Shady Trail, Dallas,  
Texas 75229, USA.  
Tel: (1) 214 350 7676 Fax: (1) 214 350 8051

**TEATRO SRL**  
Via Inghilterra 2, 46042 Castel Goffredo, (MN) Italy.  
Tel: (39) 376 780702 Fax: (39) 376 780888  
Contact: Mike Lowe

**TFP MARKKINOINTI OY**  
Hatanapaanvaltie 4a, 33100 Tampere, Finland.  
Tel: (358) 31 214 3933 Fax: (358) 31 213 3077  
Contact: Fikket Saadetdin

**TMB ASSOCIATES**  
2102 W. Kenmere Avenue, Burbank, CA 91504, USA.  
Tel: (1) 818 842 9652 Fax: (1) 818 842 1064  
Contact: Colin Waters

**TOMCAT USA INC**  
P O Box 550, Midland, Texas 79702, USA.  
Tel: (1) 915 694 7070 Fax: (1) 915 689 3805  
Contact: Mitch Clark

**UNIVERSE STAGE LIGHTING INC**  
308 West 47th Street, New York NY10036-3115, USA.  
Tel: (1) 212 246 0598 Fax: (1) 212 315 0300  
Contact: Scott Thurm

**VANCO LIGHTING SERVICES**  
380 RT. 210, Stony Point, NY 10980, USA  
Tel: (1) 914 942 0075 Fax: (1) 914 942 0099  
Contact: Dale Ward

**VARI-LITE INC**  
210 Regal Row, Dallas, Texas, TX 75247 USA.  
Tel: (1) 214 630 1963  
Fax: (1) 214 630 5867  
Contact: Tom Litrell

**WIZARD ELECTRIC**  
P.O. Box 33271, Montclair 4061, South Africa.  
Tel: (27) 31 323777  
Fax: (27) 31 323931  
Contact: Bing Bissett

**WYBRON INC**  
4830 List Drive, Colorado Springs, CO 80919, USA.  
Tel: (1) 719 548 9774 Fax: (1) 719 548 0432  
Contact: Keny Whitright

# DIRECTORY

Lighting + Sound  
Equipment Sale/Hire  
Installation and Design

**TSL A LTD**

specialists in  
audio visual  
presentation

Studio 9, 75 Filmer Road,  
London SW6 7JF  
Telephone: 071-371 5020  
Fax: 071-371 0503

**BDS  
CASES**

Designers and manufacturers  
of flight cases

BDS Northern - Tel: 061 873 8181  
BDS Southern - Tel: 071 624 2134

**LIGHTING  
HIRE  
SALES  
SPECIAL F/X**

**STAGE CONTROL LTD.**  
STATION PARADE,  
WHITCHURCH LANE,  
EDGWARE, MIDDX. HA8 6RW

TEL: 081-952 8982  
FAX: 081-951 4178

LIGHTING HIRE & SALES

**Philip L. Edwards  
(Theatre Lighting)**

5 Highwood Close, Glossop,  
Derbyshire SK13 9PH.  
Tel/Fax: 0457 862811.

The  
**Fibre Optic  
Lighting  
People**

We manufacture and distribute all fibre optic  
lighting materials, Parflex harnesses and conduits,  
Parflex polymers, light sources,  
theatre curtain washers, spot ball and bullet lenses,  
side emitting fractured fibres, ceiling fittings  
and large bore fibre optics.

Examples of our fibre optics may be viewed at our  
London showroom, from subtle backgrounds to  
fibre optic fireworks. Leaflets available.



Trade & Export call Paul Raymond  
Par Opti Projects Ltd  
67 Stirling Road  
London W3 8DJ  
Tel. 081-896 2588 Fax. 081-896 2599

**DONMAR Ω**

**ELECTRICAL CONTRACTING  
LICENSING CERTIFICATION  
NATIONWIDE SUPPLY & SERVICING:  
ARRI, GREEN GINGER, PULSAR  
STRAND LIGHTING & ZERO 88**

Technical Support Mon-Sat until 23.00 hrs.

**DONMAR LTD. 54 CAVELL STREET LONDON E1 2HP**  
INSTALLATION & SERVICE 071-790 6624  
SALES 071-790 1166 FAX 071-790 6634

**IEC EIC**  
APPROVED  
CONTRACTOR



**SOUND & LIGHTING**

Stereo Sound & Effects Lighting Specialists

**CLAY PAKY**  
zero 88  
**ROSCO**  
**Panasonic**  
**PULSAR**  
**JBL**  
DENON

**FEAVEY**  
**ABSTRACT**  
**RAMSA**  
**POWER DRIVE**  
**MODE ELECTRONICS**  
**SHURE**

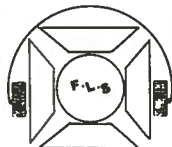
**BOSE**  
**OPTIKINETICS**  
TECHNICS  
**CITRONIC**  
**TEATRO**  
**Le Maitre**  
**JEM**

**DIAL SOUND AND LIGHTING**  
Unit 4G Wharfedale Road, Euroway Ind. Estate, Bradford BD4 6SG.  
Tel: (0274) 651600 Fax: (0274) 651190

**DHA**

- ◆ The complete gobo service
- ◆ Projection slides - all formats
- ◆ Animation effects
- ◆ Fibre optic equipment
- ◆ Digital Light Curtains

• 3 Jonathan Street • London • SE11 5NH • UK •  
Tel. +44 (0)71 582 3600 • Fax. +44 (0)71 582 4779



**HIRE and SALES**  
0924 455586

**FUTURIST  
LIGHT & SOUND**

**SERVICE**  
0924 468183

HOYLE HEAD MILLS,  
NEW STREET  
EARLSHEATON, DEWSBURY  
WEST YORKSHIRE. WF12 8JJ

FOR COMPETITIVELY PRICED

**FILTERS**

CONTACT  
**FIRST LIGHT**  
TEL: (0850) 349913

**P.A. Music**

Lighting • Sound • FX • Video  
**Hire & Sales**  
Whatever you are  
running We can help  
you make it a Success.

**081-883 4350**

**NORTHERN  
LIGHTS**

**Sound & Lighting**

**Distributors**

Trade representation for

**PULSAR**

**POWER DRIVE**

**MODE ELECTRONICS**

**OPTIKINETICS**

**Le Maitre**

**MULTIFORM**

**Cloud**

**ANYtronics**

**Martin**

89 Scoforth Road, Lancaster  
Tel: (0524) 845584  
Fax: (0524) 845583

**FABTRONIC  
LIGHTING**

Manufacturers of a complete range of quality  
effects lighting for the leisure industry

**PROFESSIONAL LIGHTING FOR  
PROFESSIONAL PEOPLE**

For a full brochure and price list call the  
Sales Hotline

**0604 790765**

54-56 Teniter Road, Moulton Park Ind Estate,  
Northampton NN3 1AX  
Fax: 0604 492856

**ANYtronics**

manufacturers of  
high quality:-

- ★ **Strobes**
  - ★ **Lighting Control Equipment**
  - ★ **Amplification**
- trade & export  
enquiries most  
welcome

**Anytronics Limited**  
Units 5 & 6 Hillside  
Industrial Estate  
London Road, Horndean  
Hants PO8 0BL, England  
**Tel: (0705) 599410**  
**Fax: (0705) 598723**

# Strand Lighting

- Stage & TV Lighting
- Lighting Control Equipment
- Effects Projectors
- Colour Filters
- Dealers throughout the UK

Grant Way (off Syon Lane),  
Isleworth, Middlesex TW7 5QD

**081 560 3171**

# POWER RENT

"SILENT MOBILE GENERATORS  
5Kva - 1500 Kva 50/60 Hz  
CABLES TRANSFORMERS ETC."

Complete Distribution Systems  
Specialist Location Engineers  
Depots throughout UK & USA  
24 Hour Service Worldwide

Tel: - 0304 - 813555

Fax:- 0304 - 813502

Telex:- 965324. Power G



just reliable  
skilled  
technicians  
for hire

**No Bull**

P.A. LIGHTS  
0524 388 044

# LIGHT & SOUND Productions

## EQUIPMENT RENTAL & SERVICES

6 Vine Street, St. Helier,  
Jersey, Channel Islands.  
Tel. 0534 78351  
(0860 740584)

## LITE ALTERNATIVE

# FIBRE-OPTIC

Colour or  
Flicker Sources

SALE OR RENTAL

PH 0706 627066

FX 0706 627068

# NU-LIGHT SYSTEMS LTD

DISTRIBUTORS OF EFFECT  
LIGHTING AND CONTROL  
TO THE LEISURE INDUSTRY  
ALSO

EXCLUSIVE UK IMPORTERS  
OF FLY AND LA NOVALIGHT

Nu-Light Systems Ltd,  
Unit 1, Athertons Quay,  
Off Liverpool Road,  
Warrington,  
Cheshire WA5 1AH.  
Tel: (0925) 243075  
Fax: (0925) 243077

# VILLA AUDIO

Professional Systems House

## THE COMPLETE PRO-AUDIO SERVICE

### Hire

EV Deltamax concert system,  
Bi-Amped monitors, Soundtracs  
boards. Large dry hire stock.

### Installations

Theatre, Clubs, Churches, Hotels

**CHELMSFORD**  
(0245) 361694

# TUFFLITE

## FLIGHT CASES

SUPPLIED TO THE  
ENTERTAINMENTS  
& LEISURE INDUSTRIES

CONTACT RICK (0255) 432612  
FAX (0255) 430699

TUFFLITE CASES & CABINETS  
11 LITTLESTONE COURT,  
CLACTON, ESSEX CO15 1NG

# STARDREAM

S.A.V. LIMITED  
AUTHORISED WHOLESALE  
DISTRIBUTORS  
FOR

NJD TOA  
ZERO 88 LeMaitre

PULSAR Hill

SONY. REVOX

OPTIKINETICS BOSE

JEM MODE ELECTRONICS  
POWER DRIVE TEATRO  
Party House, Mowbray Drive,  
Blackpool Lance.

Tel.: (0253) 302602 Fax.: (0253) 301000

# LHS

Leslie Hire & Sale

For  
Stage and TV Lighting  
and Stage Equipment,  
phone

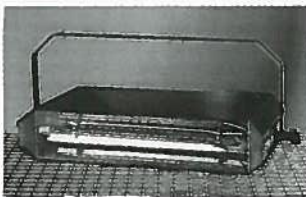
**081 871 5132**

LHS Limited The Business Village, Broomhill Road,  
Wandsworth, London SW18 4JG  
Telex 917003 LPCG



837 GARRATT LANE  
LONDON SW 17 0PG  
TEL: 081 944 1400  
FAX: 081 944 0141

## THE CLASS STUNFLASH II



2.5Kw FLASHPOWER  
RIFLASH OUTPUT  
BRIGHTNESS CONTROL  
MANUAL REMOTE CONTROL (SUPPLIED)  
STYLISH 2 COLOUR CHASSIS

Call our office for details



SOUND  
ADVICE  
FROM THE  
EXPERTS

PROFESSIONAL SOUND SYSTEMS  
LIGHTING VIDEO DESIGN AND INSTALLATION

Phone office: 0932 779624 Fax: 0932 779623

Mobiles: 0836 216632 0831 356860

# CHARLES FISHER

S.T.A.G.I.N.G L.I.M.I.T.E.D

EXHIBITION and CONFERENCE  
DESIGN and CONSTRUCTION

Specialists in Something  
Different

Straw House Farm, Kirkby Road, Ripon, North Yorkshire HG4 3JU.

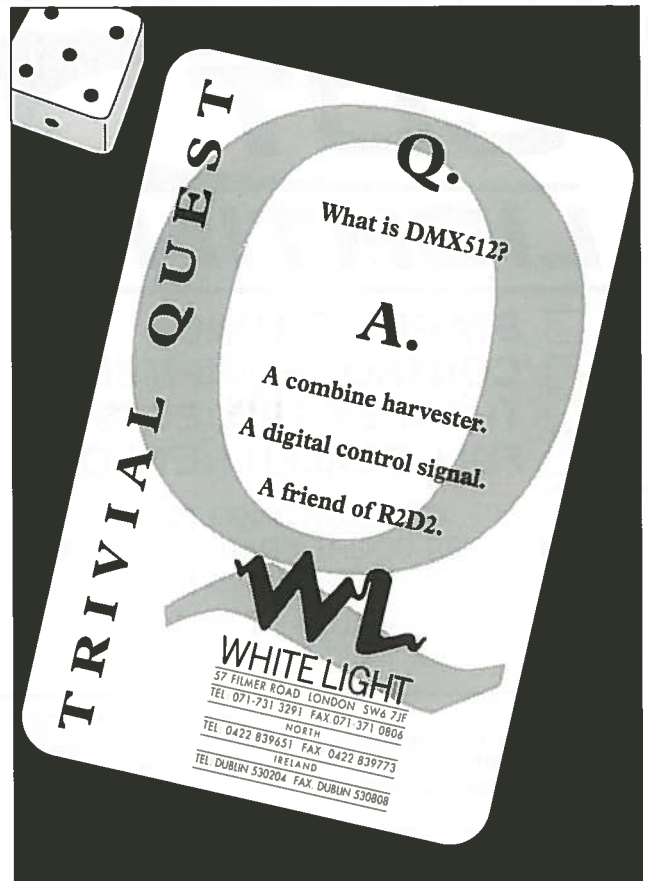
Tel: 0765 701604 Fax: 0765 701389



**THE DATE:**  
11-14th SEPTEMBER, 1994

**THE PLACE:**  
EARLS COURT 2, LONDON

**THE BUSINESS!**



**SALES — INSTALLATION — SERVICE**  
**OF PROFESSIONAL LIGHTING**  
**AND EFFECTS EQUIPMENT**  
190 PAGE CATALOGUE LISTING 1,000s OF  
TECHNICAL PRODUCTS INCLUDING:-

**PULSAR** **MAGLITE** **ANYTRONICS** **LE MAITRE** **AEROTECHNICS** **ROSCO** **OPTIKINETICS** **LEE** **JANDS** **GAM**

**MIDNIGHT SALES**

Unit 1, Chelsea Bridge Business Centre,  
326 Queenstown Road,  
London SW8 4NE  
Fax: 071-498 8845  
Tel: 071-498 7272

**SKY-TRACKER®**  
BY  
THEATRE · PROJECTS

*A unique  
lighting  
spectacular  
for ANY  
special event*

Telephone  
081-575 5555

**D & D**  *Lighting*

*Suppliers of Lamps  
to the Leisure Industry*

65 Ainslie Wood Gardens, Chingford, London E4 9BL  
Tel: 081-532 9989

**PLASA**

PROFESSIONAL LIGHTING  
AND SOUND ASSOCIATION

**JOIN US!**

For full details and a  
Membership  
Application Form  
please write to:

Nicola Evenden  
PLASA  
7 Highlight House  
St Leonards Road  
Eastbourne  
BN21 3UH

**UNITED KINGDOM  
DISTRIBUTORS**

Appointed sole uk-distributors for ProgrammSistem

Trade Suppliers of Professional Sound,  
Lighting and Special Effects Equipment  
Telephone: (0926) 314878  
Fax No: (0926) 883120  
MOBILE No: (0860) 544934



Situated in the heart of England gives us the right con-  
ditions to serve you via the  
M1, M6, M45, M69, M42 and the M40 with these  
facilities.

- Wholesale trade supply to retailers, installers, contractors etc.
- Extensive stock on all major manufacturers and some minor ones too
- Some own brand products, concentrating on quality and availability
- Manufacturers trade prices used, sometimes bettered considering delivery service
- Vehicles travelling the country carrying orders and stock
- Regular personal contact.
- Regular visits averaging 5/6 weeks to Wales, S.E., S.W., London, East coast, N.W., N.E., Scotland and of course the Midlands
- No delivery costs when orders coincide with visits (nominal in between times)
- No minimum orders.
- Use of our technical staff - for enquiries and help.

If you are not being offered these facilities at the moment, but would like to and would like to know more, we will be only too pleased to hear from you.

**Rigby Close, Heathcote Industrial Estate  
Leamington Spa CV34 6TJ England**

**HARLEQUIN**

**PERFORMANCE  
FLOORINGS**



Stage ●  
Dance ●  
Event ●  
Show ●  
Display ●  
Television ●

**BRITISH HARLEQUIN PLC**  
Kent House - High Street  
Farningham - Kent DA4 0DT  
Telephone 0322 865288 - Fax 0322 864803

# CCT LIGHTING

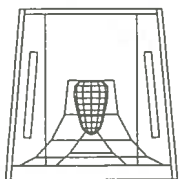
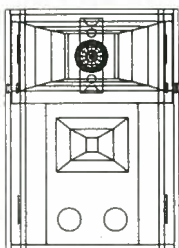
- STAGE LIGHTING
- CONTROL EQUIPMENT
- TURNKEY PROJECTS
- FULL DEALER NETWORK

**CCT LIGHTING LTD**  
 4 TUDOR COURT, BRIGHTON ROAD,  
 SUTTON, SURREY, SM2 5AE, U.K.  
 TEL: 44 (0)81 770 3636  
 FAX: 44 (0)81 643 9848

**FOR SPEEDY INFORMATION  
 TO LIGHTING + SOUND  
 Telefax (0323) 646905**

**PRODUCTION  
 SERVICES**  
EUROPE LTD

## The LS2 System



### The Arena Building Block

Efficient  
 Compact  
 High Power  
 Flyable  
 Arrayable  
 30Hz to 20KHz bandwidth  
 Over 3 kilowatts RMS  
 More punch per square foot  
 than any system available

6 Whorlton Road  
 Riverside Park  
 Middlesborough TS2 1JQ  
 Tel: (0642) 218133  
 Fax: (0642) 218144

### THEATRE CRAFT

**DRAMA EQUIPMENT**  
*Eltec Lighting Controls*  
 Internally Wired Bars  
 Rostra & Scenery Kits  
 Braces, Weights etc  
**TRADE ENQUIRIES**  
 TEL: 051-334 0831 • FAX: 051-334 4047



### UNIVERSAL FIBRE OPTICS MANUFACTURERS OF FIBRE OPTIC EQUIPMENT

FOR LIGHTING AND DISPLAY  
 • HARNESES • LIGHT GUIDES •  
 • SIGNS • FIBRE OPTIC DISPLAYS •  
 LIGHT SOURCES AVAILABLE  
 FROM 50w TO 150w

BUYING DIRECT MEANS:  
 LOW PRICES • FAST DELIVERY  
 PROMPT AFTER SALES SERVICE

GALLOWESKNOWES,  
 LENNEL ROAD,  
 COLDSTREAM,  
 BERWICKSHIRE, TD12 4EP

TEL: 0890 883416  
 FAX: 0890 883062

### MEC SYSTEMS

#### THE ULTIMATE TRUSS

#### MECcano for BIG BOYS

FOR TRADE ENQUIRIES AND  
 CUSTOM RIG DESIGN

Tel: 0424 893 424  
 Fax: 0424 892 178

The 'Garage', Bexhill Road,  
 Ninfield, Battle, East Sussex,  
 England TN33 9EE



## Trafalgar Lighting Ltd

Tel 081 887 0082

Sales & Hire Of:  
 Lighting, Control,  
 Trussing, Mains  
 Intellabeams,  
 Sound Equipment

Used Equipment Bought & Sold

## DORIS . . .



SLIM, DARK, ATTRACTIVE,  
 WEDGE-SHAPED WITH  
 BRIGHT COLOURFUL  
 DICHROIC CHARACTER  
 SEEKS CARING,  
 IMAGINATIVE OWNERS  
 FOR MUTUAL FUN  
 AND EXHIBITIONISM

A PERFECT  
 DISPLAY EVERY TIME  
 CALL ME NOW AT  
 LIGHT ENGINEERING  
 ON 081-520 2336

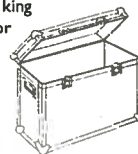
CALLS COST 5p MIN CHEAP,  
 7p ALL OTHER TIMES  
 (PLEASE ASK PERMISSION FROM  
 YOUR SUPERIORS BEFORE CALLING)

## Quentor Cases

Quality custom-built  
 transportation cases  
 made **FAST!**

Phone (0603) 721 604

We specialise in making  
 transit cases fast. For  
 a simple briefcase  
 or for complex  
 rackmounts call  
 Quentor - you'll  
 be glad you did!



Quentor (EC) Limited  
 Units 4 & 5 Fitzmaurice Court,  
 Rackheath Industrial Estate, Norwich  
 NR13 6PY.

Tel: (0603) 721 604 Fax: (0603) 721 992

## NIGHT FLIGHT

Sound and Lighting

### THE BIG ONE IN SCOTLAND

Installation, Design,  
 Hire, Repair and Service  
 041 941 1001

## ABQ (London)

• Stage Lighting •  
 • Design & Hire •  
 Tel/Fax 081-866 6202

## Lancelyn

TRADE SUPPLIES

### Lighting Hire & Sales

Equipment from all  
 major manufacturers  
 Hire of Outdoor Equipment  
 including Staging and Seating  
 Special Effects, including  
 smoke machines, snow machines,  
 projection, pyrotechnics, etc.

HIRE: Oxford (0865) 722522  
 SALES: Oxford (0865) 722468  
 Hire and Sales Northwest:  
 051-334 8991

## MICO LIGHTING

The specialist for  
 LAMPS used in the  
 THEATRE and  
 ENTERTAINMENT  
 industries.

Excellent Trade terms  
 available.

Mico Lighting Ltd.  
 Troydale Lane, Pudsey,  
 Leeds, West Yorkshire.  
 Telephone: (0532) 567113  
 Fax: (0532) 572358  
 Telex: 556469 (MICO G)

# Northern Light

**Lighting & Sound Equipment Hire & Supply**  
 Technical Equipment for the Leisure & Entertainment Industry

### Sale • Installation • Hire

Stockists for Strand, Hall Stage, Roscolab, DHA,  
 Tecpro, Allen & Heath, Bose, Tannoy, Toa, AKG,  
 Le Maltre, Silck Systems Trussing.

Manufacturers of Socket Boxes, Working Light and Specialised control systems

**Edinburgh 031-553 2383 Glasgow 041-440 1771**  
 (Fax 031-553 3296) (Fax 041-445 4406)

## HOWARD EATON LIGHTING LIMITED

DESIGN AND MANUFACTURE  
 OF SPECIALIST LIGHTING EQUIPMENT AND EFFECTS

LIGHTING DESIGN CONSULTANCY

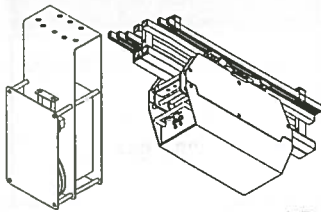
DIGITAL DIMMING SYSTEMS

Telephone: (0273) 400670 Fax: (0273) 401052

# Specialist Technical Equipment and Services for the Entertainment and Allied Industries

## Triple E

TRACKS, MOTORS, CONTROL SYSTEMS  
AND SCENERY AUTOMATION



TRAC-DRIVE

LINEAR-DRIVE

Our comprehensive range of manual and motorised  
UNITRACK systems is available for sale and hire.  
Catalogue available on request



The Triple E Group

Tel: 071-237 6354 Fax: 071-237 7650  
B3 TOWER BRIDGE BUSINESS COMPLEX  
CLEMENTS ROAD, LONDON SE16 4EF

THE TOTAL PACKAGE

■ Lighting, sound, communications, rigging, audio visual, conference and projection.

■ For theatres, halls, studios, leisure and presentation.

■ In-house electrical contracting service.

■ Schemes prepared.

■ UK and worldwide.



**GLANTRE ENGINEERING LTD.**  
2 Cremyll Road,  
Reading, Berks  
**0734 509711**  
Fax: 0734 505808

## THINK

**Dramatec Effects Ltd**

## CONTROL

• Products to get you moving

• From simple AC, DC and Linear motor drives to computer controlled sets

• The Electronic Control Experts

15 Hunton Bridge Hill, Hunton Bridge  
Kings Langley, Herts WD4 8PX  
Tel: 0923 263751  
Fax: 0923 261727

**THEATRICAL AUTOMATION**

## GERRIETS

GREAT BRITAIN LIMITED

MADE TO ORDER &  
CUT GOODS SERVICE

ALWAYS IN STOCK:

FILLED CLOTH

SHARKSTOOTH GAUZE

SCENIC COTTON

BLACK WOOL SERGE

plus

PROJECTION SCREEN  
MATERIALS IN SINGLE &  
DOUBLE WIDTH

And much much more  
call us

**071 232 2262**

FOR SPEEDY INFORMATION  
TO LIGHTING + SOUND  
Telefax (0323) 646905

## MOTOROLA CERAMIC SPEAKERS

PULSAR DEVELOPMENTS LTD  
MARLOW, ENGLAND  
TEL: (0628) 473555  
FAX: (0628) 474325

## THE ANDRONE RANGE

STANDARD AND CUSTOM  
PRODUCTS MANUFACTURED  
BY ANRO TO SUPPORT  
THE SOUND & LIGHTING  
SYSTEM INSTALLER

INCLUDING:  
WIRED LITEBARS & GRIDS  
CORD PATCH PANELS & RACKS  
SOCKET BOXES  
BRACKETRY & FITTINGS  
& LOTS MORE

CALL US ON (0264) 356445  
FAX US ON (0264) 334401

7 WESTERHAM  
TRADING CENTRE  
THE FLYERS WAY  
WESTERHAM  
KENT TN16 1DE

Tel: (0959) 562254  
Fax: (0959) 564564



## THE EFFECTS CO.

contact us for full  
details of this  
great range of  
special effects  
smoke machines  
and pyrotechnic  
equipment and accs.

**Now Available**

## P.J. LIGHTING (Products)

Trade Supplier

Manufacturers of stage & disco lighting equipment.

Parcans, Pincots, Stands, Par-Bars, Equipment Stands etc.

Tel: 021 515 2125

Unit 14, 35/37, Nursery Road, Hockley, Birmingham, B19 2XN.

## transtechnik

- LIGHTING CONTROL CONSOLES
- MODULAR THYRISTOR DIMMERS
- CUSTOM ENGINEERED TOTAL SYSTEMS

For TV studios, Theatre Stage, Concert Hall installations with transportable systems for outside presentation events

Otterfanger Weg 11 8150 Holzkirchen Germany Tel 0 8024 30080 Fax 300830

## SEMINAR TAPES

Recordings of the seminars which ran throughout the PLASA Light & Sound Show are now available from the offices of Lighting+Sound International.

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

The tapes cost £10.00 + VAT each and are available on the following seminars only:

Control Transmission • Discharge Lamps  
Sound Installs/BSI • Sound Control: studio to road  
Video Live • Automated Lighting  
Robert Nesbitt Interview • Dichroics versus Gel

Please telephone (0323) 642639  
or fax through your requirements on (0323) 646905



**RAT**  
the music stand  
specialists

R.A.T. (Music Stands) Limited  
41 High Street, Brentford, Middx, TW8 0BB.  
Tel: 081 847 3331, Fax: 081 568 1059

# INTERNATIONAL DIRECTORY

World-wide contact information for import/export, concert touring, exhibitions, etc.

## AUSTRALIA



**L.S.C.  
ELECTRONICS P/L**

7 University Place, Clayton,  
Victoria 3168, AUSTRALIA  
Tel: (61) 3 561 5255  
Fax: (61) 3 561 5277

## SYLVANIA

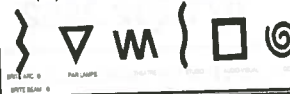
Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
SYLVANIA LIGHTING INTERNATIONAL  
PTY Ltd  
Tel: (61) 43 28 31 11 Fax: (61) 43 28 26 05



## AUSTRIA

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 65 Fax: (32) 16 80 03 67  
LTV  
Tel: (43) 1 60902 Fax: (43) 1 6090220  
MTEC Vertriebsges.m.b.H.  
Tel: (43) 7242 60 860 Fax: (43) 7242 60 740



## LUDWIG PANI

A1070 Vienna, Kändigasse 23  
Tel: (1) 521 08-0 Fax: 526 4287  
Range of follow-spots and projectors  
Exclusive Agent for Strand

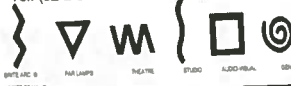
## VARI\*LITE

**VARI-LITE AUSTRIA**  
Tel: (43) 1 609 02 Fax: (43) 1 609 0220

## BELGIUM

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 65 Fax: (32) 16 80 03 67  
LUXILLAG  
Tel: (32) 2 242 59 28 Fax: (32) 2 242 11 54  
PPV-LIGHTING  
Tel: (32) 2 648 70 45 Fax: (32) 2 648 69 97



## litestructures

Astralite Bilite Quatralite Minilite  
LA ROY B.V.B.A. Tel: 091 86 12 99

## EVER RADIO VIOLETTE

Rue de Ribaucourt, 154-156, 1210 Brussels  
Disco and stage equipment - Import and Export  
Tel: (32) 2 428 31 00  
Fax: (32) 2 428 21 65



Tel: (02) 4283100 Fax: (02) 4282165

## VARI\*LITE

**VARI-LITE BENELUX**  
Tel: (32) 16 60 83 11 Fax: (32) 16 60 88 61

## CANADA



Tel: (613) 836 5856 Fax: (613) 836 6491

## DENMARK

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
BICO A/S  
Tel: (45) 42 84 54 45 Fax: (45) 42 84 20 55



SERVICE PARTNER  
**COPENHAGEN 96**  
CULTURAL CAPITAL OF EUROPE

GØGLER LYS SALG %  
Grønnegdsvej 61  
DK-8000 Århus C  
Tlf. + 45 86 12 19 66  
Fax + 45 86 19 08 35

## FINLAND

## TFP MARKKINOINTI OY

Import and Export of Lighting and Scenic  
Equipment. Exclusive distribution in Finland for  
Jands, CCT, Rosco and Tomcat.  
Always interested in new product ranges for  
theatre, concert and television.  
Contact: Juha Ihanamakki,  
Telephone: INT+358+31+2143933  
Fax: INT+358+31+2133077. Address:  
Hatanpaanvaivatie 4A, 33100 Tampere, Finland

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
ELECTRO POWER OY  
Tel: 358 0 17 54 00 Fax: 358 0 65 93 95



## FRANCE

## Clay Paky and Pulsar Sarl

10 Avenue du Fresne, 14760 Bretteville sur Odon  
Tel: (33) 1 45 07 97 09

## VARI\*LITE VARI-LITE FRANCE

Tel: (33) 1 45 07 97 09 Fax: (33) 1 45 07 96 79



Tel: 20 31 85 06 Fax: 20 78 18 37

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (33) 1 64 29 62 14 Fax: (33) 1 64 29 62 83  
ESL  
Tel: (33) 67 69 27 17 Fax: (33) 67 69 00 89  
EXPELEC  
Tel: (33) 50 60 32 93 Fax: (33) 50 60 37 80  
GOTE S.A.  
Tel: (33) 50 60 23 14 Fax: (33) 50 60 21 87  
LOPOLUX  
Tel: (33) 1 34 10 43 43 Fax: (33) 1 34 10 49 63  
MHD  
Tel: (33) 46 64 41 89 Fax: (33) 46 65 54 40



## litestructures

Astralite Bilite Quatralite Minilite  
S.E.D. FRANCE TEL: 27 25 48 38



TO HIRE  
ALL OVER  
THE WORLD  
THE ONLY ONE INTELLIGENT  
4 KW XENON WITH 16 COLOURS  
Tel: (33) 1.49.63.23.69  
Fax: (33) 1.49.63.23.90

## GERMANY

## Clay Paky and Pulsar Vertriebs GmbH

An Der Talle 26, D-33102 Paderborn  
Tel: 05251/409051 Fax: 05251/409931

## VARI\*LITE

## VARI-LITE GERMANY

Tel: (49) 221-582088 Fax: (49) 221-5801979

**LMP** GILDESTASSE 55  
49477 IBEBNBUREN  
Tel: (49) 5451-59 00 20  
Lichttechnik Fax: (49) 5451-59 00 59

## AMPTOWN LICHTTECHNIK GmbH

Wandsbeker Str. 26, 22179 Hamburg  
Tel: (49) 40-64600440  
Fax: (49) 40-64600445

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 65 Fax: (32) 16 80 03 67  
COEMAR  
Tel: (49) 731 60 12 05 Fax: (49) 731 62 852  
ECKERT BUEHNENLICHT  
Tel: (49) 202 59 20 58 Fax: (49) 202 59 15 03  
LIGHTPOWER SHOWTECHNIK GmbH  
Tel: (49) 5251 41 84 Fax: (49) 5251 40 74 04  
LIGHTRONIC  
Tel: (49) 40 753 40 54 Fax: (49) 40 752 13 17  
LMP

Tel: (49) 5451 59 000 Fax: (49) 5451 59 00 59  
STEINIGKE SHOWTECHNIK GmbH  
Tel: (49) 931 46 971 Fax: (49) 931 46 901  
STIERS GmbH  
Tel: (49) 89 22 16 96 Fax: (49) 89 231 704 25

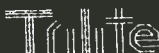


## litestructures

Astralite Bilite Quatralite Minilite  
LMP LICHTTECHNIK TEL: 05451 590020

## TOUR SERVICE LICHTDESIGN

Hanse Str. 9,  
33689 Bielefeld  
Tel: 0 5205 22 800 Fax: 0 5205 22 889  
Concert, stage, TV and industrial lighting  
Design and Production Services  
Representative of PanCommand systems



Tel: (0221) 534081 Fax: (0221) 534083

## GREECE

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
ATH. GOURGOULAS CO.  
Tel: (30) 31 73 92 70 Fax: (30) 31 74 50 02  
OMIKRON  
Tel: (30) 1 363 79 79 Fax: (30) 1 363 67 61



## HONG KONG

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
SYLVANIA LTD  
Tel: 852 369 55 31 Fax: 852 721 86 21



## VARI\*LITE

## VARI-LITE HONG KONG

Tel: (852) 715-7878 Fax: (852) 761-1593

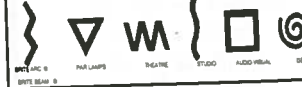
## ENGINEERING IMPACT LIMITED

6/F, Bld 2, Tien Chu Cir.  
1E Mok Cheong St. Kowloon  
Tel: (852) 711-0222 Fax: (852) 761-0633

## ITALY

## SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (33) 1 64 29 62 14 Fax: (33) 1 64 29 62 83  
GPELETRONICA  
Tel: (39) 90 71 81 81 Fax: (39) 90 71 81 81  
ILCS.r.L.  
Tel: (39) 6 89 62 96 Fax: (39) 6 89 32 61  
TECLUMENS.r.L.  
Tel: (39) 376 77 92 00 Fax: (39) 376 77 93 83  
TECNTRONELETRONICA  
Tel: (39) 831 39 21 36 Fax: (39) 831 39 28 41



## litestructures

Astralite Bilite Quatralite Minilite  
SPOTLIGHT S.A.R.L. TEL: 392 714078



Tel: (031) 773539 Fax: (031) 773798



## TEATRO

Teatro Srl, via Inghilterra 2  
46042 Castel Goffredo (MN), Italy  
Tel: +39 (0)376 780702

Fax: +39 (0)376 780888  
Manufacturers of stage lighting. Profile, fresnel,  
PC, flood, cyclorama, followspot  
'With a touch of Italian elegance'

## JAPAN

**litestructures**  
Astralite Bilite Quatralite Minilite  
H.I.TO TEL: 81 33 667 3268/9

## NETHERLANDS

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
ULTRIX LAMPS LIGHTING B.V.  
Tel: (31) 20 65 33 663 Fax: (31) 20 65 33 672



### LIGHTING SOUND RIGGING

#### Flashlight®

Flashlight Utrecht Holland Sales B.V.  
Tractieweg 190  
3534 AP, Utrecht  
Tel: 030-44 48 42  
Fax: 030-44 76 06



Tel: (020) 6332307 Fax: (020) 6332044

### JANSEN & JANSEN

light sound  
& rigging  
Isolatorweg 36, 1014 AS  
Amsterdam-Sloterdijk, Holland  
Tel: (31) 20 6821 821  
Fax: (31) 20 6828 326

**litestructures**  
Astralite Bilite Quatralite Minilite  
STAGE TELEPHONE 03402 45780

## NEW ZEALAND

### SELECON

Manufacturers of high quality stage and  
display luminaires - Zoomspots, Fresnels,  
PC, CYC, Floods, L. Voltage, Metal Halide  
Display Spots. Dealer enquiries to: 26 Putiki  
Street, Grey Lynn, Auckland 2, New Zealand  
Tel: 64 9 3601718 Fax: 64 9 3601719

## NORWAY

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
LARN FARNES A/S  
Tel: (47) 2 16 29 30 Fax: (47) 2 16 47 39



**litestructures**  
Astralite Bilite Quatralite Minilite  
AVAB NORGE A/S TEL: 47 2 11 3030

## PORTUGAL

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67



## SINGAPORE

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
SYLVANIA LIGHTING INTERNATIONAL LTD  
Tel: (65) 734 38 55 Fax: (65) 733 04 98



## SPAIN

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (33) 1 64 29 62 14 Fax: (33) 1 64 29 62 83  
COMLUX I LUMINACION  
Tel: (34) 1 405 06 94 Fax: (34) 1 405 09 62  
FRESNEL S.A.  
Tel: (34) 3 210 73 51 Fax: (34) 3 219 94 60  
GRAULUMINOTECNIA S.A.  
Tel: (34) 3 325 76 11 Fax: (34) 3 426 30 29



### VARI\*LITE

#### VARI-LITE SPAIN

Tel: (34) 1 470 23 30 Fax: (34) 1 479 58 25

### litestructures

Astralite Bilite Quatralite Minilite  
SPOTLIGHT S.A. TEL: 34 3 4008117

## SWEDEN

### Autotrack

The NEW powerful sky- and  
eventlight for in- or outdoor  
use. Full/MSR 4000 W lamp  
Pan-Tilt-Focus-Shutter-Colour  
Soft-Set™ and DIMX-512  
EVENT - TRADE Sweden  
Tel: (46) 8 730 21 61 Fax: (46) 8 730 11 37



### VARI\*LITE

#### VARI-LITE SCANDINAVIA

Tel: (46) 8 654 1855 Fax: (46) 8 652 8358

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
TEATERTEKNIK AB  
Tel: (46) 8 640 92 90 Fax: (46) 8 640 93 94



**litestructures**  
Astralite Bilite Quatralite Minilite  
TEATERTEKNIK A.B. TEL: 08 40 92 90

### AVAB

Salsmästaregatan 32B  
422 46 Hisings Backa Sweden  
Tel: (46) 31 585200  
Fax: (46) 31 582999

## SWITZERLAND

### POWER LIGHT

Fabrikmattenweg 8, CH-4144 Arlesheim  
Tel: (41) 61 701 82 28 Fax: (41) 61 701 8338  
Equipment rental and services. State-of-the-art  
lighting equipment for TV, stage and concert  
productions, exhibitions and product launches  
throughout Europe. Xenon Troopers, Paris, Avo,  
Celco, Thomas, Varilinda, Strand, CCT,  
Sky Trackers and searchlights  
At the heart of Europe!

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (33) 1 64 29 62 14 Fax: (33) 1 64 29 62 83  
BACKSOUND  
Tel: (41) 21 36 68 68 Fax: (41) 21 36 78 88  
ECM S.A.  
Tel: (41) 91 93 25 61 Fax: (41) 91 93 38 09

SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 65 Fax: (32) 16 80 03 67  
DIGILIGHT SHOW  
Tel: (41) 31 961 60 40 Fax: (41) 31 961 40 10  
MINILUX  
Tel: (41) 56 74 13 66 Fax: (41) 56 74 13 62



### litestructures

Astralite Bilite Quatralite Minilite  
A.S.L. ELECTRONICS TEL: 061 361 2220

## THAILAND

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (32) 16 80 03 69 Fax: (32) 16 80 03 67  
SYLVANIA (Thailand) LTD  
Tel: (66) 2 254 77 86 Fax: (66) 2 254 33 69



## USA

### VANCO

New York  
Tel: (914) 942 0075 Fax: (914) 942 0099  
Orlando  
Tel: (407) 855 8060 Fax: (407) 855 8059

### TMB ASSOCIATES

PRODUCTION SUPPLIES & SERVICES  
2102 W. Kenmere Ave.  
Burbank, California 91504  
Tel: (818) 842-9652  
Fax: (818) 842-1064

### TOMCAT®

Staging, Lighting and Support Systems  
Serving your tour and fabrication  
needs in the USA  
Tel: (915) 694 7070  
Fax: (915) 689 3805



Tel: (804) 752 2570 Fax: (804) 752 2888

## DAYMAX

Metal Halide Lamps  
• Stage • Film • Disco • Theatre •

ILC Technology, Inc  
399 Java Drive  
Sunnyvale, CA 94089  
Tel: 408 745 7900 Fax: 408 744 0829



**STRONG INTERNATIONAL, INC.**  
FOR THE WORLD'S BEST FOLLOWSPOTS  
4050 McKinley Street, Omaha, Nebraska 68112  
Tel: 402-453 4444 Fax: 402-453 7238

## THE COLORAM

### Wybron Inc

The ones the pros use.  
And use. And use.  
TEL: 719-548 9774  
FAX: 719-548 0432

## UNITED KINGDOM

### litestructures

Astralite Bilite Quatralite Minilite  
CEREBRUM LIGHTING TEL: 081 949 3171

### litestructures

Astralite Bilite Quatralite Minilite  
LITESTRUCTURES TEL: 0924 240800

### SYLVANIA

Special Products Group  
SYLVANIA LIGHTING INTERNATIONAL  
Tel: (44) 274 59 59 21 Fax: (44) 274 58 06 32  
AC LIGHTING  
Tel: (44) 494 44 60 00 Fax: (44) 494 46 10 24  
ACTION LIGHTING  
Tel: (44) 81 965 68 00 Fax: (44) 81 965 09 50  
ACTION LIGHTING (North) LTD  
Tel: (44) 61 876 05 76 Fax: (44) 61 876 05 17  
ARRI (GB) LTD  
Tel: (44) 81 848 88 81 Fax: (44) 81 561 13 12  
CPLIGHTING  
Tel: (44) 81 547 05 00 Fax: (44) 81 547 08 84  
DCLIGHTING  
Tel: (44) 235 77 07 15 Fax: (44) 235 77 07 20  
INTERNATIONAL LAMPS LTD  
Tel: (44) 992 55 44 11 Fax: (44) 992 58 77 66  
LAMP MERCHANT  
Tel: (44) 932 23 10 10 Fax: (44) 932 23 25 87  
LIGHTING TECHNOLOGY GROUP  
Tel: (44) 81 965 68 00 Fax: (44) 81 965 09 50  
MGC LAMPS LTD  
Tel: (44) 473 46 18 75 Fax: (44) 473 24 00 81  
MICO LIGHTING LTD  
Tel: (44) 532 56 71 13 Fax: (44) 532 57 23 58  
PKE LIGHTING LTD  
Tel: (44) 61 72 84 593 Fax: (44) 61 72 84 594  
PRMARC (MARKETING) LTD  
Tel: (44) 734 59 67 77 Fax: (44) 734 50 59 64  
SPECIALIST LAMP  
DISTRIBUTORS LTD  
Tel: (44) 71 708 07 51 Fax: (44) 71 708 22 51  
SPECIALIST LAMP  
DISTRIBUTORS LTD  
Tel: (44) 61 873 78 22 Fax: (44) 61 873 80 89  
TECHNICAL LAMPS LTD  
Tel: (44) 81 979 66 52 Fax: (44) 81 979 90 07  
VALIANT ELECTRICAL  
WHOLESALE LTD  
Tel: (44) 71 736 81 15 Fax: (44) 71 731 33 39



Tel: (0582) 411 413 Fax: (0582) 400613

# VIEWPOINT

Colin Whittaker

## PLASA Show: Onwards and Upwards

When I was invited to write about this year's PLASA Light and Sound Show the most appropriate words I could think of to describe the exhibition's progress to date were 'onwards and upwards'.

The Light and Sound Show has gone from strength to strength and in its third successive year at Earls Court 2 is now 20 per cent larger, in terms of space, than it was last year. Visitor levels are also expected to soar with an anticipated 11,000 professionals attending during the four day period.

For those of you that are impressed by figures (and aren't we all?) that's an average of approximately 407 visitors per hour, or 6.79 visitors per minute, registering at the door. For those of you that aren't impressed by figures the quality of visitors should catch your eye. This year's show advertising and PR reached unprecedented levels with the majority of the world's trade press targeted to attract visitors from all sectors of the entertainment industry. Particular emphasis was placed, as always, on key buyers and specifiers.

This year will also see an increasing number of fringe activities including an exhibitor welcome party that is certain to put everyone in the right frame of mind for the show. PLASA will again present a selective number of awards during the exhibition and the evening entertainment at some of London's most celebrated discotheques, will keep most of us 'socialising' throughout the night.

The Light and Sound Show has now firmly established itself as one of the few international exhibitions that simply must be visited on an annual basis. But is the current economic climate positive enough for major buyers to commit themselves to those all important orders that are so vital to the success of the show? We think so!

The recessionary years of the early nineties look set to fade into obscurity as companies and individuals put the past behind them and look toward the rest of the decade with a fresh enthusiasm. This has, to some extent, been fired by the dramatic events of the past few years which have seen rapid political change - with the opening of borders and relaxation of customs and trade restrictions presenting a whole new challenge to those bold enough to accept them.

With the ever-expanding EU (Economic Union) allowing more and more countries to join 'Le club' and the eventual signing of the GATT (General Agreement on Tariffs and Trade) agreement, the potential for trade has never looked brighter. The Show provides a unique platform for professionals to come and see the widest range of equipment and services that the industry has to offer. With sensible sound levels that are strictly enforced, it provides a congenial environment where manufacturers, distributors

and suppliers can discuss serious business. It is in this environment that old friendships are revived, new contacts made and major orders taken, which, at the end of the day is the reason why most companies exhibit.

Someone once said to me that the three most important things you look for when buying a new house are location, location and location. Well they may or may not have been right, but location is certainly important when you attend an exhibition. The Light and Sound Show is planted in the heart of London close to relatively inexpensive hotel accommodation, where exhibitors and visitors alike can sample the cuisine of a truly cosmopolitan city and continue their discussions long into the night.

When something is successful it attracts competition and the PLASA Show is no different. Over the years a number of companies have attempted to organise competitive untried shows in the UK, but none so far have managed to emulate the success of the Light and Sound Show. Not only will the exhibition give nearly 200 exhibitors the opportunity to meet 11,000 professionals from 60 countries around the world, it also contributes a lot more to the entertainment industry than most people realise.

The reason behind this is that unlike most other exhibitions the Show is owned and run by PLASA, the Professional Lighting and Sound Association, which also owns the magazine you are now reading! With an annual turnover in excess of £1,300,000 sterling (US\$2,000,000) you may be forgiven for thinking where, or who, does the profit go?

The answer is simple because, in essence, PLASA has no shareholders. It was established in order to provide co-operation between, and act generally in the common interest of, the members in all matters concerning the lighting and sound industry. This means that profits generated from the exhibition and Lighting and Sound International are used to fund a number of activities that are of benefit to the members and industry alike. But it's not just the membership that benefits, it's everyone connected with the industry.

Since its original inception as a discotheque association, PLASA now encompasses all aspects of light, sound and image wherever or whatever that may be, which is perhaps best summed up by the phrase 'entertainment technology'. With the introduction of international membership, PLASA is a unique source of information and advice available to any member or individual involved with the industry, regardless of the language they speak.

With a number of full time staff, including a standards officer, PLASA has become a globally respected association that is continually expanding. We actively encourage links with



other industry associations and are particular pleased to see the Sound & Communications Industries Federation (SCIF) and the British Entertainment & Discotheque Association (BEDA) strongly represented at this year's Show.

With the ever-increasing pace of life, leisure time to many of us has become so precious that we think carefully about how to spend it. However, to many people around the world the idea of leisure has only just, or is still to become, a reality. We hope that when the need arises PLASA will be there to advise and assist in making the right contacts through our database of members.

The last word should go to the members of the association, and the companies that have supported the exhibition year after year. Without you we would not have an exhibition, and without that there would be no PLASA as we know it - so thank you on behalf of PLASA. We hope that you will all enjoy and profit from this year's Light and Sound Show.

Colin Whittaker has been a member of the PLASA committee for several years and is chairman of the exhibition working group. He was a director of Cerebrum Lighting for around ten years before joining Celco as a director. Following Celco's merger with Electrosonic in 1991, he became sales manager and next year celebrates 20 years in the industry.

## LIGHT OPERA

ARE DEALERS FOR

### BLAKE'S FIREWORKS

THE NEW PYROTECHNIC SYSTEM  
FOR THE MODERN PRODUCTION

CONTACT PAUL OR RICHARD

**0827 69382 or 0973 22132**

ADVERTISERS INDEX									
AC Lighting	55/86/87	Citronic	26	Harman (C Audio)	67	Malcolm Hill Associates	73	Showtech	41
ABTT North	34	Clay Paky	4/5	Harman (JBL)	11	Martin Audio	33	Shuttlesound	123/125
ADB	51	Coemar	3/116/117	Hayden Pro Audio	17	Martin Professional	74/121	SIEL	105
A&B Theatre Services	28	Columbus McKinnon	103	High End Systems	IFC/8/9	Millbank Electronics	31/53	Stage Door	107
Abstract	21	Compulite	40	Howard Eaton	48/58	Multiform	105	Strand Lighting	OBC
Aliscaff	28/34/54	d&b audiotechnik	38/39	Jands	14/15/46/47	Music Merchandising	97	Starlite Systems	52
Altman	57	DLD Productions	97	JEM	IBC	Pani	54	Strong	109
ARRI	30	Durham Marenghi	70	JHS (Chiayo)	32	Par Opti Projects Ltd	28	Switzerland	79
Audio Technica	72/85	Decoupe	44	JHS (Ross Systems)	13	Penn Fabrication	37	Sylvania	91
AVAB	98	DOKA	19	Lee Filters	12	Pfaff	73	The Effects Company	69
Avolites	6	ESP	25	Leisuretec	50	Playlight	92	The Obie Company	43
Bose	63	ETR	115	Light Opera	138	ProColor	110	Trantec	24
Cameleon	20	Flying Pig Systems	23	Light & Sound Design	59	Pulsar	19	Turbosound	27
CCT Lighting	93	Formula Sound	49	Lighting Technology	7	P W Enterprises	102	Vision	36
Celco	42	Gerriets	115	Lite Structures	82	RB Lighting	106	White Light	18
Celestion	113	Giantre Engineering	58	London Laser Co	15	Rosco	16	Wilkes Iris Diaphragm	107
Central Theatre Supplies	54	Griven	114	LSC Electronics	45	Seefactor	22	Wybron	35/102
		Hardware Xenon	119	M&M	10	Selecon	101	WWG	56
		Harkness Screens/Hall Stage	73	MA Lighting Technology	94	Set Lighting & Design	106	Zero 88	29

# THE SCIENCE OF LIGHTING

1984 - JEM DEVELOPS THE FIRST HIGH POWER SMOKE MACHINE










1988 - JEM PIONEERS HEAVY FOG TECHNOLOGY

1991 - JEM INTRODUCES STAGEFX PYROTECHNICS SYSTEM

1993 - JEM INVENTS THE REVOLUTIONARY WATER CRACKER

1994 - JEM LAUNCHES



-  **NO Heat**
-  **NO Aluminium Blocks**
-  **NO Temperature Controls**
-  **NO Jets**
-  **NO Nozzles**
-  **NO Compressed Air**
-  **NO Warm-up Time**
-  **NO Toxic Chemicals**
-  **NO Noise**

## SO HOW DOES IT WORK?

H.O.T technology produces tiny lens shaped bubbles within the working fluid with strong, oppositely signed, charges on either side of the cavity.

As these bubbles collapse a minute 'hot spot' is produced by adiabatic compression of the constrained gas. In fact the instantaneous temperature in these microscopic bubbles can reach that of the surface of the Sun! By accurately controlling the viscosity of the working fluid this effect can be maximised to produce large numbers of bubbles.

These miniature explosions produce shock waves which expel micron sized particles from the surface of the working fluid. These particles are filtered and refined before being blown into the air as the perfect enhancement for your lighting!

## THE LIGHTING EFFECT OF THE FUTURE



European & Worldwide Patents & Patents Pending. All Trademarks protected

# JEM

Technology

A Transluscent, Optically Reflective Haze



JEM SMOKE MACHINE CO. LTD.  
VALE ROAD INDUSTRIAL ESTATE,  
BOSTON ROAD, SPLSBY,  
LINCS. PE23 5HE. UK

TEL: (INT 44) - (0790) 754050

FAX: (INT 44) - (0790) 754051

ACT 6+



**Your favourite budget - priced dimmer now has another big PLUS ...**

Act 6, the popular budget-priced, 6 way analogue dimmer - plus DMX512 - equals new Act 6+, an exciting new low-cost digital / analogue dimmer pack from Strand.

**NOW WITH ANALOGUE & DMX512 INPUTS**

The same size and weight as the previous Act 6 design, the new Act 6+ features double sockets and +/- 10 Volt analogue inputs as standard, plus:

- Optional plug-in multimux module
- Standard multiplex protocols - DMX512 and D54
- Mux input combines with analogue inputs
- Stand alone programmable chaser functions

Affordable digital dimming has arrived. Call us today, or talk to your Strand dealer for more information about Act 6+.



**Strand Lighting**