

# Connections

AUSTRALIA'S ENTERTAINMENT & TECHNOLOGY MONTHLY

## BUYERS GUIDE

Lighting Control  
DJ Mixers and Samplers

## TAPE LIVES

Leading studios tell

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Singapore \$9.00

## PRODUCT REVIEWS

Clay Paky Stage Scan,  
Roland VPS-880, Strand 530,  
MiniDisc pro conversion

ISSN 1320-5595



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**You Love Them  
For Their Live  
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*The Cranberries*



*Dolores O'Riordan with her U2/BETA 58 Wireless Transmitter.*

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**Jands Electronics Pty Ltd** ACN: 001 187 857  
40 Kent Road Mascot NSW 2020  
Phone: (02) 9582 0909 Fax: (02) 9582 0399

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# Connections

JULY 1997. Number 45

## Reviewed inside this issue



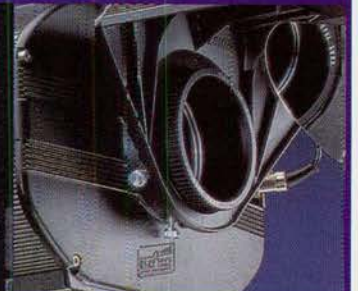
The PA without wires



Strand 530 LX desk



Roland VS-880



Clay Paky Stage Scan

## Tascam set to replace DA 88

**MELBOURNE:** Tascam will shortly replace the very popular DA-88 MDM with a new machine called DA-93. The DA-83 8 track digital recorder has found wide use in recording studios and broadcast applications.

The new machine promises backward compatibility with DA-88 and its recently released companion machine, the DA-38.

Feature improvements include a new LCD screen, sync support for the MMC (MIDI Machine Control) and Sony P2 protocols in the basic system.



The DA-98, which has 20-bit, 64 times oversampling A/D converters — has input monitor switches which will be a welcome addition to critical listening requirements; these are positioned directly below each

track's record select switch and facilitate the checking of source/tape levels, greatly simplifying the process of alternating between the two signals.

• Call Travers at Tascam Australia, (03) 9644-2442 for more.

## PLASA woes

**LONDON:** The Professional Lighting and Sound Association (PLASA) faces uncertainty after its chief executive John Offord stood down suddenly last month. A terse statement was issued by the Chairman Paul Adams, to the effect Mr Offord had disagreements with the executive committee and thus was departing.

PLASA is wealthy, with over 400 members and owns the highly successful PLASA tradeshow held each year in London. Mr Offord is widely regarded as the architect of the success of PLASA and his departure, along with the absence of goodwill in the official statement, will make it difficult for his replacement, as yet un-named.

## COL WEST BUILDS A TV STATION

**DARWIN:** Top End Sounds have launched an open narrowcast television service in Darwin, equal in transmission power to the commercial station, Channel 8.

The service is called INFO Television and will transmit a continual tourist information program on UHF channel 64.

The TV station is being run from the premises of Top End Sounds, who are the leading entertainment technology outlet in the far North. The license allows for transmission of up to 2kw, in excess of the transmission power

of existing TV stations in Darwin. Owner Col West was surprised at the latitude granted by the ABA.

"The only hiccup is that the ABA nominated we must put the transmitter at the top of NT House - where everyone else's transmitter is".

The station will be wholly funded by advertising and operate a nonstop mixed program which repeats every half hour.



Weather and other data will be regularly updated.

The signal from Top End Sounds HQ is relayed to NT House by a microwave transmitter, more powerful than first planned due to the intensity of the monsoonal rain at certain times of year.

Top End typify the resourcefulness of many similar firms in the region - who see an opportunity and go for it!

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## PEOPLE & FIRMS:

After several projects together in 1996, Active Television has appointed **Chris Paterson** on behalf of Picture This! Television to a contract position as Producer of Special Projects. Initial projects have included presentations for Australia Post, Sportech, Sheraton on the Park and Associate Production for GPTV's on-course television coverage of the Australian Grand Prix. T 03 9314 2763.

Yamaha Australia has appointed **Technical Workshops** of Melbourne as a preferred service agent for professional audio and computer products including the range of compact disc recorders and digital mixing consoles. AWA has also appointed Technical Workshops as preferred service agent for their professional range of HNB, AKG and Denon professional audio products. Technical Workshops, T 03 9866 6655.

International distributors of Galaxy Audio, E and E Exports have appointed **Horwood Australia** as their exclusive distributors for Australia. Horwood will concentrate initially on the Micro Spot and Hot Spot models of personal monitors and speakers; the Chameleon controlled bandwidth, permanent installation compact loudspeaker system; and 'The Traveller' portable P.A. system. Horwood have also announced they will now carry the full range of **Bellari** product manufactured by the

Rolls Corporation, Utah, including their range of Tube Signal Processors. T 02 9585 1011.

Sound And Visual Innovations have a new staff member: **Mark Taylor**. His previous employer was Eurovision. T 9417 4388.

Technical Productions have two new staff: **Agostino Marcello** and **Ro Tynan** as respectively Production Manager and Event Development Manager. Also they have moved, see below.

**Disco World** is now on the internet, so go browse them at: [www.discoworld.com.au](http://www.discoworld.com.au)

## NEW ADDRESSES:

**Technical Productions** new address is: Studio 113, Level 2, 51 Spring St. Bondi Junction, NSW 2022. T 02 9386 9494 or Net: [www.techprod.com](http://www.techprod.com)

**Australian Audio Supplies** (Mackie, Prisma, CAD & more) are moving to a new place on the Central Coast because their business is getting BIGGER! Find them at Unit 1, 8 Ketch Close, Berkeley Vale NSW 2258. New phone number: (043) 884-666, new fax (043) 884-688.

**Syncrotech Systems Design** (Beyer, Soundtracs, KRK, Neve etc) are continuing a trend amongst pro audio distributors who are EXPANDING. Their new premises are at: Unit 6, 43-51 College street, Gladesville 2111. Phone (02) 9879-0800, fax (02) 9879-0899.

Due to their expanding hire and production departments **Active Lighting** has moved into a 13000 SQ FT factory space located at No. 1, 7 Queens Ave, Hawthorn 3122. Call them on 03 94819 6912.

## CONTEST! WIN AKG...

**AWA** will be running an Emotion Competition from July 1 through to September 30 to promote the Emotion Series microphones. The first prize will be a kit of AKG microphones valued at over \$3000. For further details on how to enter the competition or on the microphones contact your local AKG dealer or AWA Distribution on 1800 252 391.

## NEW SYDNEY SAE:

**SAE Technology College** has set up its new Australasian headquarters in Sydney with the purchase of a building in Surry Hills. The building has been purposely designed as an audio/multimedia college including five new recording studios: a 24 track analogue studio with full automation, 16 track full digital studio, a digital post production studio, 8 track digital studio and mastering/remixing studios in addition to a number of audio workstations. Professor Clive Pascoe recently joined SAE as Director of Education.

'SAE courses train graduates in all aspects of sound engineering, not just how to operate a recording studio,' said Tom Misner, owner of the SAE Technology College. T 02 9211 3308.

## COMING EVENTS:

### The National Entertainment Industry Conference

Friday and Saturday August 1-2 at the ABC Radio Centre, 700 Harris St. Ultimo.

Presented and organised by Immedia! the National Entertainment Industry Conference program of events include internet and interactive technology exhibits and panel sessions conducted by key music and entertainment industry representatives.

The sessions will outline the current trends and development in the Australasian music and entertainment market, as well, all attendees will receive a 10 kilo show bag crammed with contacts and publications!

Contact Immedia! for a brochure and registration information, T 02 9557 7766 or see their Net site for more details at: [www.immedia.com.au](http://www.immedia.com.au)

### • Illuminating Engineering Society International Convention

Melbourne, October 27-29.

To be opened by the Hon. Mark Birrell MLC Minister for Industry Science and Technology. Features 40 exhibits and a full convention program. There is also a push to launch an Aussie chapter of the IALD during the convention (see LX pages).

For more information on the IES convention: 03 9596 4333.

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**USA A\$95, Europe/UK A\$110.**

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## WHO'S BUYING WHAT

Big spending at **Staging Connections**, who are the largest hire and production firm in Australia. The Melbourne branch has lashed out and has a serious number of Meyer MSL-4 powered composite speaker enclosures permanently located at the Palladium showroom at the Crown Casino. Suddenly instead of Jands P.S. doing those international concerts as was mooted, it seems Staging Connections suddenly have the equipment. Other big ticket items added to SCM recently: 20 channels of Shure UHF wireless, and a Soundcraft K3 mixer.

**McLean Audio Services** in Melbourne have just received their first delivery of EAWs KF-850EF Virtual Array Series Cabinets to complement their existing range of EAW KF-650s that have proven popular. Other new additions to their rental inventory include the Shure UHF wireless systems with Beta 87s and bodypack transmitters; Clear-Com wireless intercom system with TW-20 & IFA-B2 interfaces; Lexicon PCM-80; Denon DN-1100R minidisk recorder; 32 channels of BSS MSR-604II active microphone splitters; Tascam DA-30II DAT recorders; AKG C-3000 condenser microphones and the Crown CM-311 Microphones. McLean Audio Services also have a new rental price list. Contact them for a copy, T 03 9429 5381.

Tim Van Den Berg from **Events** in Wollongong NSW has just purchased a pair of MACH M156R Road Series double 15" and horn cabinets for their hire department. Also with new Mach: **Entertainment Installations**, Central Coast and **Custom Audio**, Newcastle, have both added Mach Terminator Series X1500 15" and horn cabinets to their hire stock. Custom audio also added a pair of X1510 15" subs to complement the X1500s.

**Australian Audio Supplies** inform us of recent news including; the purchase of four Spectral Prisma PC based workstations by the **Australian Radio Network** and have been installed at 4KQ in Brisbane and MIX 106 in Sydney. Other news: **Studio 301** have recently installed a 32ch Mackie 8 Bus; **George Gorga** installed the same model desk (with Ultramix) in **Margaret Urlich's** studio. In Melbourne **Graham Goble** (of Little River Band fame) has installed a 32ch 8 Bus plus 24ch Expander with Ultramix. Other recent notable users include film sound mixer **Bruce Rowland** and **Sony Music** who have both installed Ultramix systems.

**Rod McKinnon**, head of Pro Sales at Jands reports the sale of 24 JBL Array cabinets to **TCP** for a major project in Asia, more Array to **Staging Connections** in Adelaide, and various lighting and Clearcom products to SC offices in Perth and Melb.

## LATE NEWS

### MACKIE -VS- BEHRINGER

**SEATTLE:** At press time Mackie Designs Inc has announced legal action in the US District Court against Behringer GmbH, the leading German audio firm.

Mackie allege in their action, (yet to be tested in court), that Behringer and others conspired to manufacture and distribute copies of Mackie audio products, using copied layouts and identical components. The copies were manufactured and assembled in China, the action states. Mackie is seeking actual damages of US\$109 million, trebled under US law to US\$327 million, plus costs.

Mackie turnover last year was US\$73.2 million.

### NEW FACILITY

Equator has opened its new facility in Crows Nest (Sydney) providing a full range of communications facilities and marketing support services for the advertising and commercial post production sector. Equator's facilities include a dry hire cyc studio (9 x 6 x 4 metres) with three phase power and Media 100 OnLine and OffLine edit facilities. Graham Quigley is behind the Equator concept. Call them on 02 9439 9099.

Call our news desk: (02) 9876-3530, or fax (02) 9376-5715 email: mail@conpub.com.au

## New Editor at Connections

Well, as we steam towards our sixth year, it's time to re-appraise. The road to hell is littered with people who tried to produce independent magazines. But we're still here.

I'm still going to be the editor, the headline above is to indicate I've been (kind of) reborn. Don't get the wrong idea. Since ENTECH I've been out there more, talking to readers, and getting a fresh perspective on the industry. So I'm not going.

But hit me if it gets boring!

When I talk to readers they can usually nominate something we could fix or do better, or some story we could run which'd be useful to them. I'm delighted we've been around long enough now that you - our reader - is comfortable to tell us what you think.

• **This issue we carry on with our new REVIEWS**, which were extremely well received last month. In recent months we've been the first magazine to profile the new 03D mixer, the Meridian - the big brother for ADAT, and last month commenced the first regular lighting product reviews in the world (aside from some in France to our knowledge!)

This month we have reviews, and stories from different corners of our one entertainment technology industry. Like I said, hit me if we get boring.

Or just drop us a line.

**-Julius Grafton**



## RETRACTION

We recently published and circulated a newsletter advertisement 'DIGITAL REVOLUTION MEETS AUDIO INSTALLATION' which compared our QSC CX6T amplifier with that of five competitors including the AMPPOWER AM6200 sold by Amps Unlimited.

Amps Unlimited has objected to the comparison.

The AMPPOWER 6200 is a 200 watt 6 channel mixer amplifier.

To configure amplifiers which are comparable with our QSC CX6T you would need to use two Amps Unlimited IS 250 amplifiers. These are single channel amplifiers of 250 watts. The RRP for these units is \$770.00 each.

As you can see, two AMPPOWER IS 250 amplifiers would retail at \$1,540.00 as compared to our QSC CX6T at \$2,195.00.

**WE APOLOGISE FOR ANY MISUNDERSTANDING WHICH MAY HAVE ARISEN**

**ENTECH  
1998**

# Early Booking Rate Ends July 31st

Book your exhibition space at ENTECH 1998 by July 31st and enjoy the benefits. **Save money**, and be in the planning loop for involvement in Seminars, education attractions, promotions and sponsorships. Get the best space too!

*This is the LAST ENTECH before 2000.... and the BIGGEST YET.*

**Join over 130 exhibitors from the pro audio, lighting, vision and staging sectors of the entertainment technology industry.**

**Entech**

**ENTECH 1998**

Halls 1 and 2,

Sydney Exhibition Centre, Darling Harbour

**Wednesday April 22, Thursday April 23, Friday April 24, 1998**

For more information, contact the organiser, Caroline Grafton, at Connections Publishing. Call +61 2 9876-3530, fax +61 2 9876-5715, or email [mail@conpub.com.au](mailto:mail@conpub.com.au)

# NEW

## Peavey's new CS 800S amp



A replacement for the world's best selling amp

Peavey has been a player in the top 5% of the amplifier market in Australia and New Zealand for years. The new CS 800S is set to build sales. It is a replacement for the classic CS 800 which itself is claimed to be the world's best selling amplifier!

The crucial issues are weight: (12kg), cost (A\$1695) and features (yes). The amp is a 2 rack unit tall device using TO-3 output transistors. With good specs.

Peavey have 'idiot proofed' the inputs, so that an idiot may plug speaker level into the inputs. Not

that anyone would ever want to. Furthermore, the DDT fast acting limiter is retained, such a feature is becoming mandatory because People Hate Blowing Speakers.

Options include a plug in crossover module, and Speakon output connectors.

Inputs are balanced, power output is a maximum of 1,200-watts. Plus it's got 2 fans.

- Retail A \$1,695
- Contact Australis, Australia (02) 9698-4444, Australis NZ (09) 837-3230.

## New Swiss Hoist

A new type of electric chain hoist is to be released this month by Swiss Manufacturer GIS AG offering low noise level and high speed operation. The new 'Speedy' SP05 is available in 3 different, 2 speed models capable of lifting 50-200kg at speeds of 16, 24 and 32 metres per minute. A six pocket hardened chain wheel drive ensures a low vibration in application. The 2, 3 or 4-stage worm gears are permanently lubricated for low maintenance and the brake and slipping clutch are maintenance free.



Standard lifting heights are 4, 6, 8 and 12 metres although lifts of up to 50 metres can be readily accommodated. The Speedy, with a weight of just 20kg and a headroom of only 390mm is also very compact. The new Speedy and the complete

range of GIS Products are available through T.C. Hasemer or their agents around Australia.

- The Speedy SP05 range: \$1400-1600 inc. tax.
- Contact: T.C. Hasemer, 02 9519 8188.

## Ramped-Up Multi Processor by TC Electronics



T.C. Electronics have released a new stereo multiband dynamics processor called DBMAX. Developed in conjunction with professional broadcast facilities, the new DBMAX provides equalisation, stereo adjustment, automatic gain control, 3-band lookahead compression, limiting and expansion simultaneously in the one unit. T.C. Electronics have identified three specific areas the

DBMAX can be utilised:

- As the final link in broadcasting DBMAX is a useful Transmission Processor compatible with FM, AM, TV and DAB formats and is equipped with dedicated presets for on air use and a security lock function to restrict unauthorised access.
- In Outside Broadcast applications DBMAX can help resolve on-air problem frequencies with

its selective dynamic equalisation while delivering a louder and clearer signal. The unit monitors level and phase relationships, maintains dynamics processing according to defined station standards and includes automatic gain control for unattended operation.

- For Post Production applications the units 5-band equaliser, 3-band expander/compressor/

limiter, A/D conversion and dithering is ideal for mastering. Other useful functions here include: comprehensive analysis functions include a phase meter, level flow meter, peak-hold meter, digital I/O status indication and a calibration tone generator.

The DBMAX also has an intuitive help function which implements an ideal setting based on the users response to four simple questions concerning the program material and the desired effect. • Professional Price: \$ 5900 inc. tax. • Contact: Amber Technology, T 02 9975 1211

## Features Coming in Connections.....

**AUGUST:** Hire & Production Co. Directory  
• Who does what - with what? Deadlines 15th July  
**Buyers Guide:** Studio mixers, & Dimmers

**SEPTEMBER:** Education : get a job guide  
• Courses and training review Deadlines 1st August  
**Buyers Guide:** Microphones, & Fresnel spots, floods

Advertising: contact Caroline Grafton. Editorial: contact Dan Cole. Phone (02) 9876-3530

## ARX Endorse Loudness!

ARX Systems have announced the release of the new processor-controlled 925 Concert Series Sub/Low Frequency Loudspeaker system.

The 925 has been designed as a subwoofer for the 922 Full Range Loudspeaker or can be used as a complimentary low frequency component for the 212 High Q Mic/High Pack.

Component-wise, the 925



features two 380mm 15" long throw drivers loaded into an all plywood, triple chambered, optimally vented bandpass enclosure. Cabinet impedance is 4ohms and the power handling is rated at a conservative 1000 watts.

The 925 is designed for use with the new LSP-1 Low Frequency Loudspeaker Processor.

• A\$3305 inc. tax.

• **Contact: ARX Systems, call 03 9555 7859.**



# NEW

## NEW ATC

ATC have introduced a sexy new 2-Way nearfield monitor based on the earlier SCM20 model. The new SCM20A is a Powered Active configuration incorporating ATCs new Super Linear magnet structure

drivers in an aircraft alloy structured enclosure. ATC say it's the ultimate in transportable monitor systems as the alloy construction braces more rigorously than wood. The construction also provides for cooling fins for the SCM20As in-built amplifiers, a carry handle and omnimount inserts. A 250w amplifier drives the Mid/Bass transducer with a 50w unit for the 1" Tweeter.

• Around A\$9000 inc. tax.  
• **Call A.R. Audio Engineering, 02 9810 5300.**

## SHURE EAR MONITOR SYSTEM

Shure has entered the in-ear monitor market with the release of the PSM600 Series. Available in both hardwired and wireless versions, the PSM system is supplied with Shure's E1 earpieces, a universal earpiece that can be used as supplied or fitted inside a custom mould. In addition users can select between three modes of operation: Mono, Stereo or the MixMode.

In this Mode the transmitter sends a multiplexed two channel signal but not in the traditional stereo L/R configuration. At the

receiver-end the signal is decoded into two channels and the balance wheel controls the relative level in both ears in mono instead of stereo LR. This presents new options, for instance;

• If channel A is the mono mix and Channel B the user's instrument or voice, a balance control allows the user to mix the two signals according to personal requirements making instrument either louder or softer,

• If A is a frontline mix (lead) and B is backline mix (rhythm section) users have similar ad-

vantages. For club type acts this could be a way to put several people on ear-monitors inexpensively (only one transmitter along with several receivers),

• In broadcast applications if A is program out and B is directors cues, talent can adjust to hear the director at the preferred volume.

All Shure PSM beltpacks receivers also have built-in peak limiters. The wireless version offers the choice of two on board



frequencies while the hardwired version offers a choice of input attenuation.

• *Wired from A\$1795, wireless from A\$3395 with options.*

• **Call Jands, 02 9582 0909.**



## MAJOR TRADE SHOWS

- **SMPTE**, Sydney Exhibition Centre. July 1 - 4. Call (02) 9977-0888
- **PALA '97**. July 14-16, Singapore WTC. +65 227-0688
- **PLASA 1997**. Sept 7-10th, London. Call +44 323 410-335
- **AIMS '97**. Aust Int Music Show.
- NOTE NEW DATES Sept. 19-22. Ph (03) 9867-4222
- **AES 103rd**. Sept 26-29, New York. Fax +1 212 682-0477.

- **LDI 97** October 24-26, Las Vegas. Ph.+1 212 229-2965
- **REPLitech Asia**, new dates: H K, Nov 5-7 Fax +1 914-328-2020
- **Vision & Audio 97**, Nov. 4-6, Earls Court, London.
- **ENTECH 1998**, April 22-24, Sydney. Fax + 61 2 9876-5715
- **AES 104th**, May 16-19, 1998. Amsterdam. Fax +1 212 682-0477.
- **AES 105th**, Sept 26-29, 1998. San Francisco. Fax +1 212 682-0477.



## GOING to:

**PALA Singapore July 14-16**

Just call Rhonda: SYDNEY 9237-2905 for travel- great QANTAS airfares and best, nearest accomodation!

# STAGE & SCREEN

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# How do you improve the world's best selling power amp?

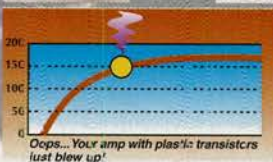
Popular wisdom says "don't change the recipe when you're making good biscuits." The reason the CS®800 has remained dominant for over twenty years is that we've only changed it a few times and when we did, we knew what to throw out and what to keep.

## What to Keep

The new CS800S uses metal (TO-3) power transistors, because plastic devices just don't deliver equivalent thermal performance.

While metal devices can be used right up to silicon junction failure, plastic devices degrade 50°C (90°F) sooner. This margin of "thermal headroom"

can be the difference between a really loud finale and something more final.



Books have been written about thermal management, but it all boils down to three things: air flow, heat sink area, and  $\Delta T$  (the difference between the heat radiator and ambient air). The CS 800S uses a unique "parallel flow" heat sink alignment so every transistor receives the same cool temperature air for optimum  $\Delta T$ .

With two variable-speed 32 CFM fans cooling hundreds of square inches of heat sink area, and metal (TO-3) power devices (in the air stream), the CS 800S will play very loud for very long (years - not minutes or seconds).

The audio amplifier section uses proven Class A/B ultra-linear complementary topology with several improvements that further reduce the distortion/noise floor even lower than the already "audiophile quality" CS® 800X (40 v/ $\mu$ sec, <0.03 % thd, etc.).

## 1200 W 23.5 lbs.

# Very carefully!

Our exclusive output circuit design (patents pending) completely compensates for amplifier output impedance. We conservatively spec damping factor at 1000 but it is only limited by component tolerance.

Modular inputs and outputs provide flexibility in configuring the CS 800S for your application. Binding post, or Speakon® outputs, it's your call. A clever input circuit accepts anything from XLR balanced line level signals to single-ended speaker level signals. Caution: don't try this with a non-CS amplifier; speaker level input signals will fry most amps on the market today!



Plug-in crossover module- One of the benefits of 30+ years making sound systems is being able to look beyond textbook filter solutions for speaker crossovers. When you have intimate knowledge of how the drivers get and interact, you can correct much of their non-ideal performance. While a flat bandpass filter looks good on paper, flat combined response out of the speaker sounds good. In this case, we choose to sound good rather than look good.

Note: we have other plug-in modules under development.



**DDT™** - A fast-acting limiter, triggered by clipping or current limiting, which prevents speaker/equipment damage, is probably our most copied feature. Only Peavey Electronics offers "true" DDT. (U.S. Patent #4,318,053)



## What to Change

The new CS 800S is two rack spaces high and weighs only 23.5 lbs! The CS800S wasn't lightened by using a smaller power transformer and fewer output devices on a "trick" heat sink. We used our years of digital and "switchmode" experience to develop an advanced high frequency power supply. More than just a replacement for the old heavy iron transformer, intelligent load and thermal sensing dynamically interact to provide more power, longer, and more reliably than previous approaches.

This, combined with our more than 30 years of experience building the most reliable solid-state amplifiers in the world, allowed us to redesign the whole amplifier from input to output, merging the best of the old with the best of the new to deliver 1,200 watts of superior performance without breaking your back or your pocketbook. The CS800 just keeps getting better!

# \$1695



## CS® 800S



Australis Australia: 88 Bourke Road (or PO Box 61), Alexandria NSW 2C15  
Ph: (02) 9698 4444 Fax: (02) 9698 4543  
Australis Music NZ: 5 Amokura Street, Henderson, Auckland Ph: (09) 837 3230 Fax: (09) 837 3232



Write in Reader Service Number: 177

The BM15  
is a new  
direction  
for  
nearfield  
monitors,  
one which  
will set  
standards  
for years  
to come.

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# NEW

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## Cheap but cheerful Peavey effector

Peavey Electronics announces the DeltaFex, a stereo multi-effects processor designed for working bands and home studios. The DeltaFex features stereo input/outputs and 16 different effect types, including 7-reverb effects, 4-delay effects, 1 multi-effect, chorus, flange, phaser and rotary speaker with switchable,

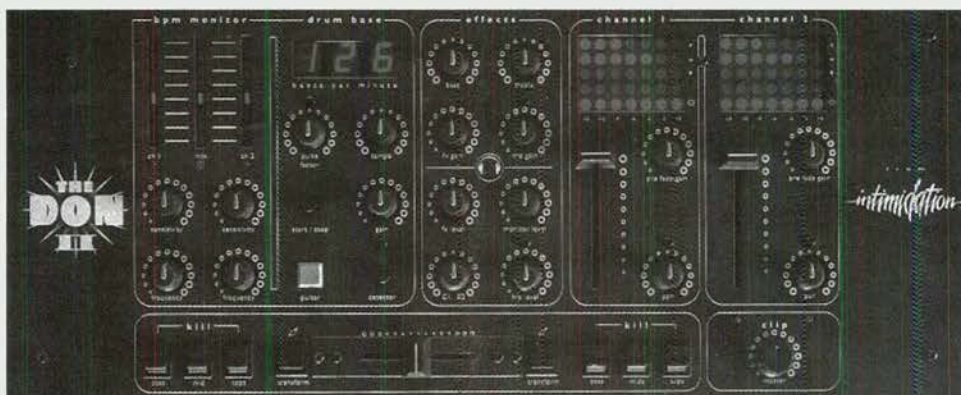
morphing speed control.

Each effect has two adjustable parameters so the effect can be customised and the DeltaFex's reverbs range from small vocal plate to gated. There are various celayas to choose from, including stereo ping-pong and the multi-effect is a paralleled delay + reverb. The front panel has a Wet/

Dry mix control, Input and Output level controls and a bi-colour clip LED. The DeltaFex also has a rear-panel jack to plug in the optional defeat switch which doubles as an on/off switch for each effect.

• A\$449 inc. tax.

• Contact: Australis Music Group, T 029698 4444.



## IS DON IS GOOD. DJ MIXERS

Entertainment Lighting and Sound Technologies Australia (ELSTA) have added the Intimidation brand to their range of product. Some useful features found on Intimidation mixers include; Kill Switches, Slaughter Chamber, EQ on input channels, Pre Fade gains, Spectrum Analysers, Pan Pots, BPM Monitor, Drum Base.

These options can be found on The Don II DJ Mixer by Intimidation. The Kill Switches are of interest, designed for DJ applications, they isolate low, mid and high frequencies through a range of filters which aim to increase the DJ's mixing 'palate'. The Pan Pot functions can be used to 'float' the isolated frequencies around the

acoustic space while leaving the low frequencies static, avoiding the possibility of clipping or overloading one speaker. Other features of the Don II include an FX channel with bass and treble controls, removable faders, transform buttons and single mic input with EQ controls. • \$1900 inc. tax.

• Call ELSTA, T 9568 2100

## TOOLS

A non-contact thermometer has been devised by Linear Laboratories

called quickTEMP. The unit measures temperature using non-contact infra-red technology which converts infra-red energy into electrical signal proportionate to the temperature of the target surface. Just point it at the area to determine any variance in heat. Temperature is displayed digitally in

degrees Fahrenheit or Centigrade and the temperature measurement range is -18 to 315C (0 to 600F). • Price rrp \$299 • From MacService, T 03 9562 9500



## WHITE DISTRIBUTION LINE AMPLIFIER

US firm White Instruments manufacture a range of high end pro-audio product now available and on the Australian market. Of interest is the 4926 Distribution Amplifier which

provides 2 inputs/6 outputs which are assignable from either or both inputs with a Calibrated Level Adjust function. The unit is claimed to produce better than 110dB dynamic

range and is fully servo-balanced. Other specifics: Maximum level +21dBu; Input Gain 0-15db selectable in 1dB increments; Connectors are removable screw terminal connectors

on inputs and outputs, all in 1U unit. • \$2196 inc. tax.

• Contact: Horwood Australia, T 02 9585 1011.

\* We've shown the REAR because it better shows what is going on!



# Roland VS 880: a studio in one box?

By Dan Cole

No doubt about it, the Roland VS880 has won awards, it's had a number of upgrades, everybody in the industry has heard of it, there's a 'vibe'—old news, right? Well no, the VS-880 Hard Disk Recorder still warrants a closer look; the market in digital recorders has stabilised and manufacturers are now refining their products and going toe-to-toe with each other on options and upgrades in an attempt to entice customers. Which way to go?

On the weekend I saw an advertisement in a street paper reducing the VS880s price from \$5k+ down to \$3,9 something—cheap for a fully digital eight track recorder and mixer. I have to admit I have a Tascam 344 in storage which requires new heads—they've have been lapped once; the input/sync function is dubious and it cost me dollars four years ago. Now its an expensive doorstep.

So it's with interest that I look at the VS880 and I spoke to a dedicated user, **Andre Idato** about how he applies this happening machine. Andre works as Assistant Manager at Brashes (Sydney) which also entails selling PA and recording equipment. Has been there for 4.5 years and is also a musician and on his time off he demos and records acts with the VS880, a key component in his home studio. He's a end user for sure.

## VS880 is a...

Eight channel, 64-track recorder with built in digital mixer. There are eight 'real' tracks with 8 virtual tracks per channel so clean digital bounces of multiple tracks is possible. Four tracks can be recorded at once and eight tracks can be auditioned simultaneously. As a mixer the VS880 becomes a 14 channel desk with EQ and FX to allow mixing of recorded tracks and external sound sources. The unit is expandable via a single expansion board to include two internal stereo effects processors.

To handle the many options and functions the VS880 employs Roland's proprietary data compression algorithm. It is important to note that this is not the same as audio compression software which reduces dynamic range. The VS880s data compression process does not remove frequencies from the audio program allowing more complex audio features.

## The Choice

The VS880 has been on the market for a few years now and Andre Idato was dedicated to analog but waited "until things settled down" before taking the plunge.

'For my purposes the VS880 is ideal; I can produce products from home which are remarkable and it is very responsive. I've had it for 4.5 months and I use it mainly as a sketch pad for my own work and recording other artists and singers.'

Andre has expanded the capacity of his VS880 which is a simple operation and also added the VS8F-1 FX board himself.

Andre prefers to mic up his guitar amplifier then send it to the VS880 but other instruments such as keyboard go direct.



## Main Features

The VS880 has eight inputs and stereo outputs, 4x1/4" and 4x RCA stereo jacks in. You can only record on four tracks at once in any of its four modes.

'There are no XLRs but I use an impedance matching converter worth about \$30 but the internal pre-amps are very quiet. Balanced is good if you have problems with noise but if not...'

Recording time and memory capacity depends on the application and how you distribute processing power. Andre continues,

'I now have an 810Mb hard drive but the VS880 can now be delivered with 1.4 Gig drive as standard. At the moment I have two songs loaded which leaves me roughly 315 minutes to play around with. That's heaps. Once I've got about 400 minutes of music stored it's all over.' He said.

Again these figures depend on what sampling rate you use either 48k, 44.1k or 32k and which record mode you are in—a higher sampling rate will use more memory space per minute of recording time, but as a rule of thumb, a 1Gb drive will provide about 1 hour's recording time across 8 tracks at 44.1kHz.

The standard VS880 is not supplied with either a hard-drive or any FX processing such as delays reverb but a dual 24-bit processor board (VS8F-1) can be installed which provides a range of handy effects and algorithms such as compressor, distortion, noise suppression, wah, low pass filter, deep chorus, mic simulations.

'You can run couple of FX at the same time depending on the algorithm as there is a multi-fx setting with different FX in the chain. I use a lot of the reverbs, halls delays etc.'

## Using It

'Transport functions and jumping to locate points is very clear and easy,' Andre continues. 'This can be done with the Tap



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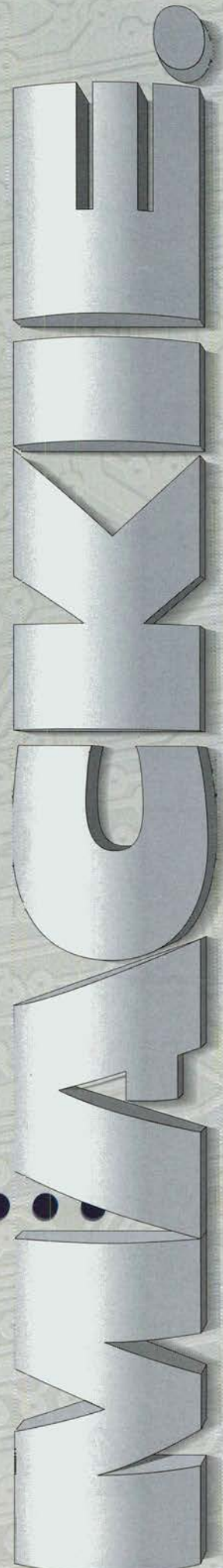
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**Roland VS-880 (continued)**

function which is a marker or locate point. The Solo function is easy too; by pressing shift and solo you can listen a track. It is also easy recording by just arming, disarming, enable record and play.'

All settings and changes can be stored in the internal drive simply so when reviewing a session all reverbs, parameters and all scenes are recalled. There are a few options if you want to master or archive material, either to DAT in real time or as 'data' or to a Zip drive. If choosing the Zip option one 100Mb disk can hold approximately one 4 minute song.

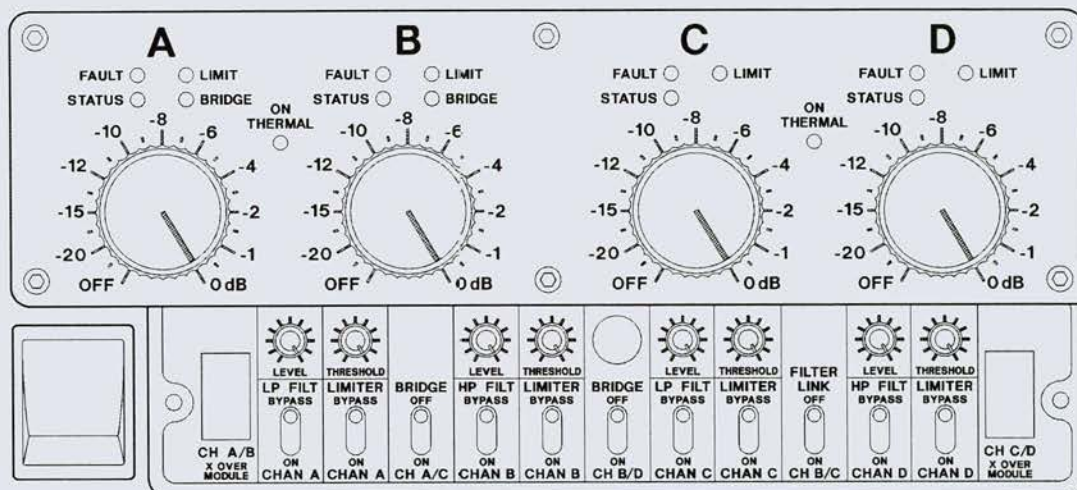
'I usually mixdown to a DAT recorder which is in real-time. If you want to archive data to DAT it takes longer; as a rule of thumb about 1 and a half times the total record time. A typical song might take about 25mins whereas data back up to zip drive is very quick and takes seconds.'

The VS880's design makes it compatible with a range of software architectures/languages and software and has MIDI timecode, digital out/in etc and will converse with most external digital equipment except those using optical ports.

'Beware of this, as some units use optical digital in/out whereas this uses RCAs.' Says Andre.

The pre-digital user [like me] will be familiar with the transport keys, faders, track status and select/enable functions and in this sense the VS880 continues in the tape/analogue mind set. Most of the VS880s options are accessed by banks of memory pages but no button has any more than two functions and key functions are enabled by a shift and hold manoeuvre. More complex options require a few steps but are easily

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learned. Andre continues,

'I've dealt with people that no matter how much time there is they won't grasp something but generally I'd say people who spend 1 or 2 hours a day over a two week period will really get a grip on it.

'I hardly use the manual; I've never read a good one and this one is no different, it's complicated—I learn by pressing buttons and making mistakes. For instance I stumbled across the short cut for the enhance function which raises the dynamics of a low level track. It now takes three button hits instead of fifteen.

'I find the VS880 very easy to work, for instance punching in/out, dropping in/out is seamless and you can program location points which it will automatically drop into record but I prefer a hands on approach and do it manually. It has a solid construction and has good faders and controls—they don't feel loose.'

The VS880 can become a 14 channel mixer with levels controllable at once. In this mode the user has the choice of running 14 channels with a 2 band sweepable digital EQ, or 8 channels with 3 band sweepable EQ. There is an anomaly to be aware of when in 14 channel mix mode where you can record and merge tracks but you lose the sweepable mids! Andre explains,

'If I wanted to run a sequencer and put six inputs in a recording, that is, eight tracks on top of the six inputs, I would be using it as a 14 channel mixer. It is in this mode that for some reason you lose the mids.'

'You can break it down and use it in one of two modes: an eight track recorder and an optional mixer. As a eight channel mixer it has full sweepable mids and cueable high and low EQ controls—you just select the frequency you want and cut.'

Two auxiliaries are available for external FX or whatever else.

### Other Uses

Aside from home studio applications the VS880 can also be used as a vocal editor.

'This means you can transfer material to the VS880 and remove or edit and signal, usually vocals, allowing you to scrub and shift audio by frames.

'Another application is its capacity to copy and loop phrases for instance a segment of percussion. If there is a bass-line you can section it and copy it.'

Other uses for the VS880 have been in video and film houses and broadcast facilities as a subsidiary editor. Often TV/radio stations will dump program into the VS880 and edit it and then do a digital transfer into larger dedicated hardware, all in the digital realm.

### Interface

Main sections of the VS880 are divided clearly. Key elements are

the transport controls, the mix and function sections. The display is a LCD window and data is represented in minutes, seconds, milliseconds but frames is the key term here. There are two negatives with the display: The dimensions of the machine are 434mm x 317mm yet the LCD window is small, only slightly larger than some 1U high processor displays. Another problem is its position. The display is on the same plane as the work surface so the user has to lean over to read level and data.

'It's not back lit and it's on a bad angle,' says Andre, 'With some equipment you can adjust the contrast according to viewing angle, with this you can't. After three hours of hovering over the display you get tired...'

It's not possible to raise the angle of the unit as it is always advisable to keep a disk drive running flat. Andre intends getting around this by adjusting his work table.

'This is what it is so I use a light above the unit and that's OK.'

Ideally a tilt-able back lit display would solve this design problem but this would probably raise the VS880s price significantly. On the positive side the display provides a large amount of information for its size such as waveform display and is certainly quite useable. Some Software firms supply software which displays most VS880 functions on a terminal display. These include Cakewalk and MusicMaster among others.

### Conclusion

'I looked at all the options and although I didn't have a lot of money I can buy equipment at cost at Brashs so all products were available to me. The reason I opted for the VS880 was because Roland did it right, right from the jump—it's just got so much in it for what you pay. There are a few inherent things which could be redesigned as with anything but the good points far outweigh them.

'Unless you want to spend 10k on board outboard gear, mixer and effects, there isn't anything else.'

- Standard VS880 without drive or FX is \$3995. Roland will outfit a VS880 with a hard-drive depending on source and capacity of drives for approximately \$4475. The VS8F-1-1 effects board retails for \$695.
- Roland Australia, 02 9982 8266
- Roland NZ, 09 309-8715

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## P E R F E C T I O N

The Wavefront 8 Compact - conventional? Forget it! If you want convention, you'll need to look elsewhere. With constructive coupling, true 55° constant directivity and distortion free mid/highs from our unique toroidal technology 6.5" cone driver, the Wavefront 8 Compact is anything but conventional.

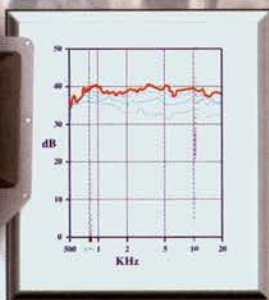
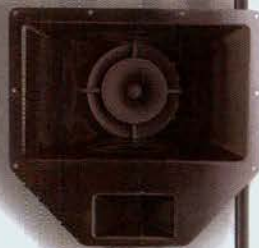
In fact, when we looked at the way most systems are designed one thing always stood out - they were very conventional, or in other words - ordinary! That's why no one arena system could really 'cut' it - until now.

The Wavefront 8 Compact incorporates unconventional technical advances in an extremely compact and flexible package. It can be stacked or arrayed to achieve both short and long throw for any size of venue. When flown in an array, its inversion capability together with constructive coupling of adjacent array elements enables it to throw further than conventional dedicated long-throw systems.

Coupled with the powerful impact of the ground stacked WSX horn-loaded sub-bass, the Compact leaps way ahead of its conventional competition in terms of sheer purity, and power. Until now, it has been impossible to combine such competing musical qualities as warmth with clarity or high sound levels with transparency. Martin Audio offers a new approach to eliminate these old compromises.

The combined high-mid and high section maintains true constant dispersion over its 55° horizontal coverage angle, as shown here in the off-axis response curve - ensuring smooth transition to the next cabinet in the array without beaming.

Furthermore, the toroidal technology loading of the 6.5" cone driver increases its efficiency whilst employing a much lower compressor ratio than that of the more commonly used 2" exit compressor drivers - so the W8 Compact does not exhibit the "OI" factor or "shout" produced by the high distortion levels inherent in these traditionally used devices. This means it can be criven harder and will run cleaner at much higher levels than conventional systems.



For more information on how to experience less of the "OI" contact your local Martin Audio distributor.

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## WAVES : the PA without wires

*A digital wireless distributed PA and Data system? It's not a wired world anymore.*

By Julius Grafton

The design of a commercial PA system for -say- an airport, a shopping centre or a football oval is based on a triangle. At the top of the triangle is the audio input, one central place where all audio starts. At the bottom of the triangle are the loudspeakers, usually far distant from the top. Between is cable, metres or miles of cable. Cable is the funniest part of the installation, right? Ever done a big installation with a lot of cable?

In Sydney during June I saw a fresh new approach to the distributed PA system which will perhaps make cable manufacturers and copper miner owners weep and quake. Because this new system is wireless - digital wireless - but not wireless as you know it.

If I say wireless, you think 'wireless microphone' or 'wireless in-ear monitor' or 'mobile phone. If I say microwave, you think oven, if I say extremely high frequency, you say 'duh?' The system is made by Madah.Com, and it uses the S-Band, or upper part of the frequency spectrum around 2.4GHz - that is 2,400,000,000Hz (3) three times the frequency your UHF wireless microphone which works in the 800MHz range, or 800,000,000Hz. It uses a fully digital frequency hopping spread spectrum technology previously only available in advanced military systems.

It transmits MPEG 1 Layer 2 digital audio, rather than plain old analogue audio plus RS232 data and so has some capabilities way beyond just audio and PA. More on this later.

### SYSTEM OVERVIEW

You have your audio source in one place and for the sake of the argument it comprises a stereo line source, like the output of a small mixer. You plug this into the WAVES system Base Station, it then transmits the signal, full bandwidth in stereo, out to where the speakers are.

At the speaker end you have a WAVES Transceiver which is mains powered (and it can have a battery backup). Within the Transceiver is 2 x 15 watt amplifiers

as well as line level output to which you can connect your speakers or larger power amplifiers.

The Transceiver is also a relay unit, it relays the signal to the next Transceiver, which does the same thing. In theory



you could keep relaying to up to 16,383 more Transceivers. SO NO CABLE!

If that was it, it'd be a simple equation, you work out the cost of the cables and the amplifiers and the labour and redesign. But the WAVES system allows a major rethink of your audio system design methodology. Because WAVES is a Communications Link which also transmits digital data, bidirectionally. This continuous data includes an RS-232 port, a 0 - 5 volt analogue port and 4 assignable Input and/or Output ports on each and every Transceiver.

Added to these user definable features is the fact that WAVES continually monitors its own operational status

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**WAVES** (continued)

via the BIT, Built-In-Test function which checks the audio, digital and RF circuitry and reports this back to the Base Station continuously. If a fault is diagnosed you will know immediately and even total failure of a Transceiver also flags an error at the Base Station. Using this BIT function the system can also re-configure itself in the event of a Transceiver failure due to such events as fire or explosion.

Data in the field can be anything at all. It could be DMX, you could utilise the data transmission part of the WAVES system to control lighting around a site. It could be AMX or DATATON control. It could just be remote computers scattered around the place or it could be a variety of visual devices such as LED displays.

The essence of the Waves system is that it is a frequency hopping, Wireless local area network, with two channels of digital audio, one channel of data (RS 232), multiple I/O ports and a housekeeping (or system) channel.

**THE HARDWARE**

The Base Station is a one rack unit tall box, which is hard wired to the first (or Base) Transceiver. This is physically identical to every remote Transceiver, which is a neat, wall mounted unit made from extruded alloy with a removable top cover (antenna underneath) and bottom cover (connections are all there).

**HOW IT GOES TOGETHER**

The cable-free installation simply requires some common sense planning in terms of placement of the components. You do your usual assessments, measurement and maths to determine where your speakers will go.

The control end is wherever it usually goes. If it's a simple system you need nothing more than the WAVES Audio Data Unit (ADU). This has a microphone input, 2 x line inputs, a line level input for connecting a computer sound-blaster output and a (DB9) RS232 connector. It is a one rack unit tall box which you hard wire to the Base Transceiver using a data cable. This Base Transceiver can be at the control area or up to a couple of hundred metres away.

Using data supplied by Waves you then determine where

you will put the first Field (Remote) Transceiver. This could be from 50 to 5000 metres away depending on what happens to be in between the Base and Field Transceivers. The system does not need line of sight and works well indoors through walls and floors, outdoors it has been tested up to 5 miles and even underground (like in a subway system or mine). Math says you could relay the signal via 16,384 Transceivers to well beyond South Africa, if you had a Transceiver (and power) every 5 miles or so!

A Transceiver needs any mains power from 90 - 250V AC or 12 - 16 volts DC. It can be mounted next to the speakers or nearby. Two speaker outputs and two line outputs are on the base of the unit. The system can be run as two separate channels or as a stereo system. Each Transceiver also has some extra connections. There is an Input / Output strip where you can wire on switching or sensing devices which is then multiplexed with all other digital back channel information.

In a simple scenario you could have a movement, or smoke, or noise detector wired to a Transceiver, with the data going back to the control room via the back channel. While this is going on the RS 232 bus is still unaffected and available for use.

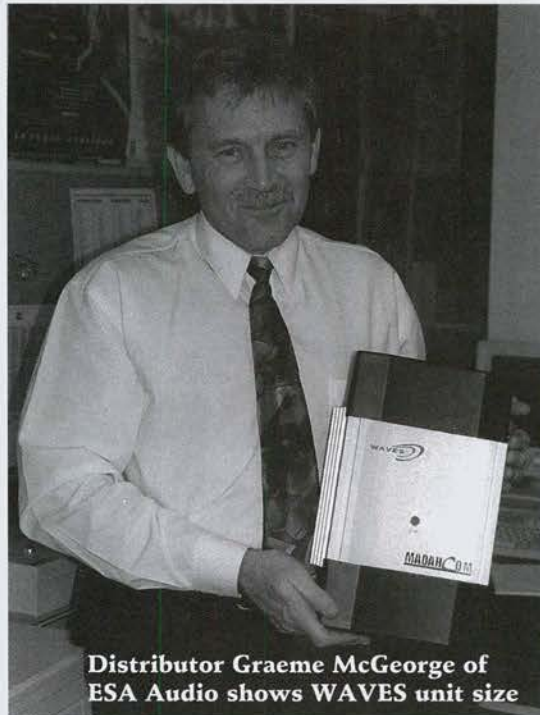
With all the units in place you commission the system, using a PC or laptop running WAVES software. The contractor can do this and then remove the computer, or a more complex system can be computer controlled in continual operation.

Each Transceiver is assigned a unique address by the software, although this is even optional because the unit serial number is the default address.

Working in the digital audio realm, the software can also apply level, EQ and signal delay to each and every remote Transceiver.

**HOW IT WORKS**

Madah.Com call their technology 'frequency hopping', which is code for "making it completely reliable and can't be eavesdropped". It means the system will step through as



Distributor Graeme McGeorge of ESA Audio shows WAVES unit size



Back of the 1 rack-unit tall base station, pretty ordinary to look at, but it gives you an idea what is going on. The first Transceiver connects to the serial port. The rest just bounce the left/right signal and take data returns!

many as 100 different frequencies per second in the S-Band.

This is not 'frequency agile', which is a marketing term to describe a wireless microphone system which allows users to switch channels. Rather it is a method of beating interference unspecified and perhaps usually not present anyway.

This is because the S-Band bandwidth is available for use licence free worldwide - for scientific and other applications. As it is unregulated you need to accept whatever interference comes along. Thus the frequency hopping, which is also pretty smart, as the system will ditch a suspect frequency and test it again later to ensure maximum bandwidth.

But to fulfil emergency evacuation PA functions, and as a pure common sense proposition a wireless system that is guaranteed to work no matter what, is a good concept.

WAVES is capable of working in the event of a disaster, given that you have redundancy in your design. You could have a second Base Station and battery power - but in an earthquake or fire the integrity of your cabled system is very dubious. WAVES would in theory keep going.

This also means the data transmission is still happening both ways too.

### ZONES AND PLACES

Aside from the obvious two audio channels the system utilises at each Transceiver, you can have up to 64 different Zones, each having up to 16 Subzones with 16 Transceivers in each Subzone, thus  $64 \times 16 \times 16 = 16,384$  addressable nodes. All these are defined at your base station using software control and can be changed at any time. No physical system re configuration is required.

Simply throw a number of Transceivers around your site, then decide who is where and what's on which. Data and audio will be transmitted where you decide. If you need a simple zone control feature you can make up a matrix switcher to the Base Transceiver to manually switch up to 16 zones using the I/O ports only.

If the installation required it, Panic or Medical Alert Switches could be installed at any or all Field Transceiver locations, which is a simple application considering each Transceiver has an RS 232 port as well.

### CONCLUSION

Very clever, and the start of something new and big. Dr. Alan Avidan from Madah.Com (makers of WAVES) told me the firm was on the cusp of something pretty substantial with a major audio firm which would turn things upside down in the pro audio world. He wouldn't say what or with whom but I've got more than one idea! An optional 'Voice Back' facility from each Field transceiver will be available in about 2 months.

While each WAVES unit is not cheap in itself, (Distributor Graeme McGeorge of ESA Audio insists you must cost your entire system design with and without WAVES to see the savings) you get a well engineered solution which saves huge amounts of installation time, and packup time for temporary installations, together with many other communications features basically free of charge. It also addresses some unique applications, like easy outdoor distributed PA for huge sporting events.

If you stretch your design imagination and come up with some way to use the RS 232 data and configurable ports transmission ability as well, then the system could change your life.

- Madah-Com, 50 West 23rd street, New York, NY 10010.  
Fax: +1 212 620-4413.
- Australian distributor: ESA Audio, + 61 2 9562-4605

### Reader feedback appreciated

It should be noted this is a 'First Look' not a formal review. We welcome readers comments on this story, as well as on any aspect of our magazine. See page 4 for contact details!

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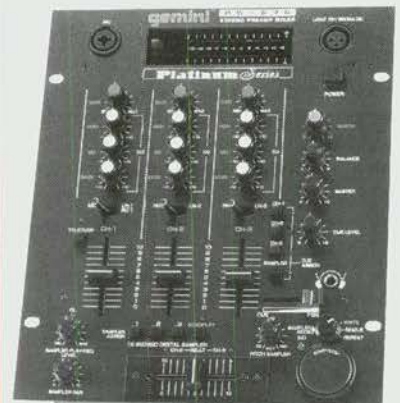
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Write in Reader Service Number: 102

# 'MD Report': convert an MD to a pro unit

By Dan Cole

Designed for either Sony's MiniDisc MZR 30 and DAT Walkman recorders, the MD-Report' is at its simplest a protective chassis which improves on some design limitations of these formats. Made by ASC in England (no relation to distributors Audio Sound Centre), the MD-Report' takes the MiniDisc/DAT Walkman from 'domestic' products to semi professional machines. I spoke to Peter Brady, a Facilities Manager at Charles Sturt University to get a feel for the unit.

## What is it?

The MD-Report's design aims to make field recording easier and less taxing on equipment. The unit reviewed here is a upgraded version being fully balanced with a new charge circuit. The MD-Report' replicates all input and output functions of the recorder and turns unbalanced in's and out's into balanced inputs and outputs, either microphone or line level, mono or stereo, headphones level control and preview amp and speaker—all in a military grey metal chassis. In other words it can take a bit of rough trade. Another nice feature of the MD-Report' is its power options but more on this later.

Plugging in has always been a problem with smaller sized MiniDisc/DAT Walkmans: the mini-jack format is fragile and frequent and sometimes rough usage can stress socket and terminal connectors causing signal crackles buzzes or worse, zick signal. This is one of the shortcomings with MiniDiscs and DAT Walkmans. To compound the problem sometimes cheaper mini-jacks are used that actually have a slightly larger diameter than what Sony recommends and tend to stretch all the connectors, by 0. something of a mm, but that's enough to cause headaches (Sony provide a moulded right angle connector which is the right fit)

With the MD-Report' you just plug in the recorder and leave it. In the long term the alternative could be expensive: the repair of MiniDisc/DAT Walkmans are tricky because of their size and everything is attached to the board. Plus it costs at least \$50 per hour for a qualified technician.

## Specifics

The MD-Report's inputs feed into the recorder's line inputs and signal comes out of the recorder's line output back into the MD-Report', so its a simple wiring job. Once set up it's also possible to



run it in what the manufacturers call a 'minor' mode which splits a mono signal into two channel at the same level which is useful.

The MD-Report' has its own microphone pre-amps (which are manufactured elsewhere) and are good quality—certainly not studio quality, but for the application and the price these pre-amps better than the MiniDisc/DAT Walkman's internal pre-amps. There is also an on-board speaker/amp for previewing program, also handy for editing on the run.

The MD-Report' also provides more user power options either operating on either four 'D' cells or a rechargeable lead acid gel cell. A 'start' lamp charge circuit determines which battery to charge so it will not send voltage into the dry cells, which could be ugly.

The gel-cell battery is about 15mm x 5 mm (rectangular) and can provide roughly 6 hours of solid recording time. A standard MiniDisc/DAT Walkman will provide about one hours use on four 'AA's so there are definite advantages here. Other advantages of lead acid batteries is they are more constant and tend to be stable, especially when low on power: they don't fade but stop whereas dry cells will decay—there still will be charge but not enough to run anything.

Removing the recorder from the housing this is also straightforward: four screws in total hold it in place and it is very solid; two screws in the base-plate and two on the side hold the MiniDisc housing secure.

## Who Uses

The MD-Report' is aimed at anyone using MiniDisc/DAT Walkmans in a semi-pro or pro application. According to Alex at ASC a number of radio stations and educational institutions are interested because they work with the MiniDisc format which is cheaper and easy to use for simple journalist requirements. Apparently many film location recordists also like the format because of its instant start and random access capacity which is handy for critical listening in the field. Wildlife recordists or anyone after a cheap option for digital audio, and are aware of the difference between DAT and MiniDisc, would certainly be a users of this technology.

One enthusiast is Peter Brady who is a Facility Manager at Charles Sturt University and works closely with media and radio students. The Bathurst campus has a radio station and runs an hourly national news service for the Community Broadcasting

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Write in Reader Service Number: 163

Association. This is the scene: radio students jumping into cars and collecting interviews to go to air that day. The gear has to be hard wearing. Mr Brady explains,

'MiniDisc is our main format and we have been using them for three years, in fact we were one of the first users in Australia.

'The MD-Report' gives us more options on inputs and outputs; there are balanced inputs and outputs which is compatible with other equipment. On its own the MiniDisc's connections were fragile, also, if we wanted to run a long lead we were losing levels being unbalanced. Battery life was quite limited as well. We have fifteen MiniDiscs and run them all with Sony rechargeables but we still find the battery life limited compared to the chassis battery pack.' Peter Brady is objective about the unit, as he explains,

'We have been using an earlier MD-Report' and I believe the new model has sorted out some of its problems but they still haven't fixed what I think is a major problem and that's the size of the chassis which is slightly too big. However the compromise here would be a smaller battery pak which means shorter battery time.'

Certainly the MD-Report's limitations are small compared to its advantages such as the built in external speaker and amp. Mr Brady continues,

'This is handy because it saves carting headphones around. If you want to you can edit inside the recorder, on-site, so students can listen to the edit there and then.'

### Conclusion

Peter Brady sums up:

'The MD-Report' makes the MiniDisc bullet proof. It's a typical piece of pommy engineering; students can drop it, bash it and it will rattle around in the boot, which they do all the time.

'We were quite impressed. More impressed with the engineering than the electronics: any thing that's bullet proof with my students I think is a great device regardless of its technical shortcomings.'

- Complete package weight approx. 6kilos
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**We seek Reader feedback on anything in this magazine. Contact details on page 4.**

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# LETTERS

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## What's RIGHT and WRONG with Connections

This months letters reflect our call for feedback in the June issue, and also some extensive survey work we have been doing amongst our readers. If we got survey info from you, then thank you very much.

### Half assed, pompous, etc

I am writing to inform you of how appalling I found your report on the PA Crescendo.

Connections xis a magazine that was originally published to inform the professional audio and lighting industries of what was happening within their fields, including new products and comparisons.

I, as a reader, could only afford the \$4.50 to find out what happened at Entech '97. I could not afford the \$450.00 it would cost me to attend from Sydney. I believe it is time for you to actually put some credibility back into your magazine and give the

consumer some sort of idea what goes on and how products perform in comparison to each other.

Have some intestinal fortitude Mr Grafton or has the almighty dollar got you by the short and curlys. We, as the paying public, deserve to know how products perform and you, as the magazine editor, have to responsibility to your readers to tell them the facts.

Do not sit on the fence Mr Grafton, it shows your true pompous, arrogant, half assed style. Do not cheat us out of the information we, the paying public have a right to

know.

As my hearing performance cannot reach to Melbourne I would like to know how each system faired in the PA Crescendo. I am not asking for a winner, just an overview of each systems performance and how you (or an impartial attendee of the crescendo) would rate them on a value for money scale.

**• Disillusioned & Cheated, Menai, NSW.**

*\* I actually enjoy getting letters like this, Mr D & C. Thanks! The real appraisal took place each day when visitors talked amongst themselves. We didn't promise an 'official' result. -Ed*

### Where's the report?

I have been scouring over each edition of Connections since ENTECH looking for a report and subsequent result of the Hard Disk Recorder/Editor Shoot-out, which, as I understand it, was the first of it's type in the world.

At the time of ENTECH, I was demoing DSP at the Broadcast Indonesia exhibition. I have heard only sketchy reports of DSP's success at the shoot-out, what is the official view?

**• Rob Scott, KosPro, WA.**

*\*Other audio magazine reporters at ENTECH managed to miss it too. But we didn't promise an 'official' result. -Ed*

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Write in Reader Service Number: 172

## Good and challenging reader feedback from the road

I am a subscriber and I noticed for the first time in this month's issue that there are various references made by you and your staff to the effect of "tell us what you think".

First off, two points re the latest issue.

#1 being - I think you should announce who the recording device manufacturer was, mentioned in your editor's note. It pisses me off to see honest money spent on products +/or services that are overrated or not to spec, however I am aware that there are legal ramifications to doing so.

#2 - what's the price comparison on USA + Nashua gaffa?

Second, yeah good mag, not what I call addictive or life supportive but unbiased, wide ranging and generally in terms that a lighting operator and so

I assume most, can understand. Your photography and general presentation are as good as any.

I like the way you make corrections and apologies when required in a straight forward genuine manner and also the evidence of a sense of humour eg. the koala testing the USA gaffa.

Third, I like to buy a magazine that I can really use the information from. It seems to me more and more now that what you present me with each month is more of interest than value. This may be due to my gradually increasing experience but I would look forward to each issue more if I knew there was perhaps going to be something that I could learn between cues in the control room and perhaps even pull out and have with me whilst maintaining or bumping in or out.

• **Dave Mansfield (currently on the Phantom tour).**

\* Thanks. Regarding point # 1- the recording device culprit isn't an employee of the manufacturer rather it was the employee of a distributor.

*So to name the brand wouldn't be fair. The reason I punked out in the editorial was the last minute hassle of resetting the page and the continual running drama with the firm in question. I think if they treat us with disdain and contempt (which they do) then their customers are getting it too!*

*Next point: Nashua gaff hasn't got a 'formal' set retail price.*

*Comments in your third item are unlikely to be published by any other publisher, we get an attack of the vapours when a target reader (you) say the publication isn't vital. I'm printing the comment because we are keen on honest open debate, and it is up to us to build this magazine so it is vital to you.*

*Dave went on to make some useful suggestions (not published here today) about content we could include in future which would interest him, and we are looking closely at these.*

*Thank you Dave, and thank you readers for your concern. -Editor.*

## I won an award!

I received a phone call informing me that I had been nominated for an Entech Award, asking if I would like to attend the awards dinner. My mind struggled to think of who could possibly have nominated me (apart from Mum) I was sure it was some kind of prank, after all Frontline in all it's complexities is generally not considered for that sort of 'thing'. After details were exchanged I found myself in conversation agreeing to send a photograph (of myself), which incidentally is still in an envelope somewhere on my desk.

Thursday April 24th started out a normal shoot day, with a decent wrap time of 6.30pm. We started off the day ahead, a couple of the Geoff and Mike scenes knocked off from the day before, and the wind behind us (Annie Maver 1st AD) leaving plenty of time to get changed  
*continued next page*

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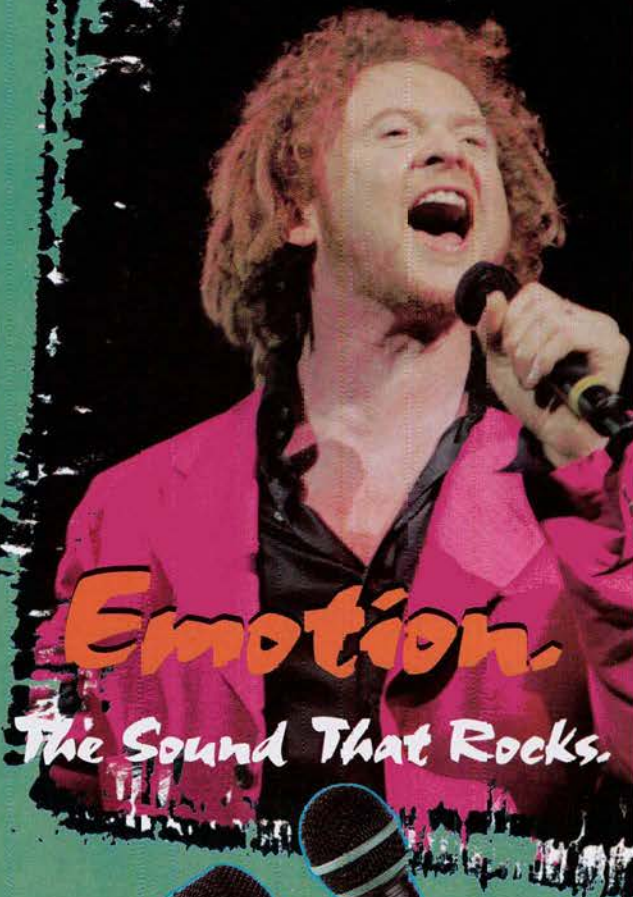
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# LETTERS

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(continued)

and make it to the Plaza Ballroom... now who was I kidding. It was about 8pm when I realised that I wasn't going to make it at all.

Monday May the 12th, a rather strange message from Nicky the production assistant at Frontline regarding a courier wanting to drop off a package for mr. What package?

Wednesday May the 14th I eventually took possession of a rather dodgy and odd looking Microsoft box. After popping my way through the bubble wrap I found the award, and stood with my mouth agape in absolute shock and amazement.

I'm sorry I couldn't make the evening, I feel like such a 'party pooper'. Now I would like to indulge thanking who ever nominated me; voted for me; ENTECH; Connections Magazine; my assistant Matthew James who has his work cut out for him; Doug; Jim and the other lighting techies at the ABC who put up with the constant tweeking and last second changes that come with a show like Frontline, the sound department who are extremely good natured and understanding of the top lighting and it's incredible ability to throw in boom shadows.

Thanks to my best boy and assistant gaffer; Carrie and Ben who do such a wonderful job in the art department; Kitty in wardrobe who lives in constant hope that one day what strobes and bleeds will not; catering; Mr Dedo for inventing such a great tool; A big thanks especially to Hirsh, Rob, Tom, Jane and Santo for taking a huge leap of faith in letting a 23 year old at their plot and still using her three series on...

Mum, Dad, Peter and my sisters and brothers....etc.

Yours in Shock,

**Joanne Donahoe**  
Lighting/camera Frontline

\* Joanne won the Lighting Designer of the Year, Film/TV award. Congratulations! -Ed

## Tuning port info required

I am trying to locate the distributor of a software product by the name of Bassbox 5.1. The Australian distributor is listed in several Sonics Yearly's as Audiosoft. I have a name Steve Montgomery, US audio and Earthquake. Apparently this guy sells this product with a passive xover package. I've looked at Leap V-4 but I'm not trying to design systems just trying to find out how long the PVC plumbers pipe needs to be to replace the EV15L's in the old Cobra's with 2225's - or if 2226's can be used without driver damage. Also how low I can run them as subs, etc.

- Paul Fenelon. (Email).

\* Can someone advise? -Ed

## We ditched the MACS!

Your piece about the Mac computer (June, page 30) mirrors my experience. In my "other" job, where they have always been one-eyed Mackos) I have just ordered a complete PC network and software, starting from scratch, which actually circumvents most new gear problems.

This not-to-be-taken-lightly decision to dump all existing IT stuff was pushed by the fact that there just is not in existence a Mac expert who knows anything (about everything) who could put together a complete usable system at ANY price. Most interesting, since I had spent a huge amount of time trying to make the Mac solution work thinking that the owners wouldn't consider changing. Once I explained the difficulties and suggested going over to Win95, the decision was made very quickly. Even the die-hards are doubting.

-Steve Moulton, Email.

Thanks for the vote of support. Our email and fax is running hot with Mac Lovers sending me flame mail. -Ed



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# Duncan Fry



## UNCOMMON VALOUR

*"Travel the world, explore other cultures, meet interesting people...and kill them!" (Army recruiting slogan)*

I see from the TV guide that Gene Hackman's movie, *Uncommon Valour* is coming on TV soon. Advertised as 'The first time on this channel!' which means it's probably been on all the other channels about 10 times.

The last time I saw the movie was at the snow. Somehow the band had organised that rarity of touring - a night off! So on this night the inn's management decided to put on a movie.

I was hanging around the bar in the afternoon, getting stuck into a couple of jugs of *après ski*, when a wizened old man in a dust coat wheeled in a movie projector and set up a screen on the stage. The projector could easily have been one of Thomas Edison's factory rejects (*Crazy Tom's Projector bargains - come on down!*), and when he turned it on it wheezed, groaned, and then started clattering like a team of castanet players on speed.

Satisfied that the thing actually ran, the projectionist carefully placed a tiny speaker box on the stage. It looked like an early 40's guitar amp, with scrollwork on the speaker grille, and a whopping 6 inch speaker!

The thin sound that came out of it barely covered the

clattering noise of the projector, so I went up to the projectionist.

"Why don't we run the sound through the PA?" I asked. He shook his head.

"No, mate, you can't do it. The last band here told me it's got a special plug, and it wouldn't match up with their system. Then they told me to \*\*\*\* off. (*Expletive deleted but it has to do with sex and travel!*)

"Hmm, let's have a look at this 'special' plug then," I asked. How different could it be? He uncoiled the lead and showed me.

It was a guitar jack!

"Well, it'll be a bit tricky mate," I said, trying hard not to laugh, "but I think we'll be able to match it up somehow." His face lit up.

"Gee, do you reckon you'll be able to do it, then? That would be great. Thanks a lot young feller" He shuffled off, probably for a training session with the geriatric bobsled team, and left me to it.

For those of you who haven't seen the movie, it's a rip roaring adventure where Gene Hackman goes back into the

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jungles of Vietnam after the war to retrieve some M.I.A.'s (Missing In Action). Chuck Norris had also made a string of 'Missing in Action 1, '...2', '...3,' 'Missing in Action goes to Hawaii' 'Missing in Action and the Temple of Doom' movies with a similar theme, not forgetting lord of the mumbles in Rambo 2. So there was to be plenty of action.

First, I ran his signal (with the 'special' plug!) from the projector into the mixing console, and from there into a couple of bi amp monitor wedges, placing one each side of the screen facing the audience. The sound was a vast improvement, but I wasn't finished yet.

I took a line out from the first channel and ran it into a gate, a compressor, and then out to the main system, a couple of Series 2 ARX 1812's, big all horn loaded boxes with a couple of 18's for bottom end, which was just sitting there on stage doing nothing. I wound up the level of the low frequency end, carefully set the Thresholds on the gate and compressor, and then went out to roll around plastered in the snow, just like everybody else!

At showtime that evening, I fronted up to the mixer just as the old projectionist was hand cranking his projector. I pushed up the levels to where I had marked them in the afternoon, and settled back to watch the movie.

For the first twenty minutes of the movie there was just dialogue, which came from the two monitors, and the audience seemed quite happy with the sound of things.

But with the first explosion of the movie, BANG, the whole PA system erupted into life, with an enormous amount of bottom end, literally knocking everyone backwards in their seats!

It sounded great. Each time there was an explosion, or machine gun fire, the main PA would turn on, and then go back to the monitors for dialogue.

The audience loved it, and so did the management.

"Shit, that sounded fantastic," they said, coming up to me and shaking my hand. "How much would a system like this cost? We've got to get one."

However, when I indicated that something in the region of twenty thousand dollars would be necessary, they became distinctly less enthusiastic, and the idea was never mentioned again!

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Write in Reader Service Number: 162

# The launch of *Anastasia*

## A stunning event

By Madeleine Murray

Leave no stone unturned, and no banana unlabelled. Twentieth Century Fox is about to launch the biggest, most aggressive marketing campaign in its history, an international juggernaut 35% bigger than the *Independence Day* blitz.

The film is *Anastasia*, the first animated feature from Fox's new \$US150m animation studio. With *Anastasia*, Fox is turning its full firepower onto Disney for the billion dollar animation market. Fox is aiming to make a film that appeals to children, teens, and parents, in every country. Yes, that's a lot of people. And part of the saturation/penetration/cross promotional strategy includes *Anastasia* character stickers on 200 million bananas in the US. Yes,



that's a lot of bananas.

The stakes are high, and Murdoch is nothing if not competitive, aggressive, and dominating; assets in the big league.

The worldwide launch of *Anastasia* started in Melbourne, went to Sydney, then will be in Hong Kong, Japan, Paris, and South America. The show has already toured part of the US.

I went to the show at the State Theatre, Sydney, and it was brilliant. About 400 people from retail, merchandising, marketing and exhibition, sat for three hours, and watched a seamless presentation.

On a giant screen, we saw clips from Fox successes, and Fox previews. Speakers gave us the corporate overview, and then the music overview. There were two live numbers, complete with smoke, lights, and Broadway performers.

The main part of the show was the screening of *Anastasia* in Cinemascope, as a work in progress. Pat Wyatt, President of 20th Century Fox licensing and merchandising, took us through the story with links between clips. The segments were a mix of different

animation stages. A fully coloured aerial zoom over St Petersburg would turn into outline characters acting over a monochromatic background. It was fascinating to see the elaborately drawn scenes come to life with colour, then change back into sketches.

*Anastasia* looks amazing, with the most complicated, sophisticated animation I've ever seen. And when it comes out in June '98 (these people plan ahead) I'll rush out and see it.

The film was followed by several marketing speakers, with illustrations and unfolding points on the huge screen behind them.

The show was fascinating, fun, and stylish, with beautiful quality projection, and great sound. The podium barely existed, and the many crosses between the speakers and the screen were fluid.

### Production

The show was created in the US by Fox, and Double Take, an Event Organiser based in Arizona.

Michelle Bizzarro, the technical producer, and LJ Wentworth the creative producer are from Double Take. "The biggest challenge we had technically was finding venues that would accommodate the specifications that we needed for the Hughes JVC projector," Bizzarro explained. "The film is Cinemascope. We had a squeezed down version on video, and we technically unsqueezed it with the Hughes JVC. We needed an enormous amount of space backstage to get the throw.

"The crew here are wonderful. Equipment is one thing, but the people that run it is definitely what makes or breaks a show. These guys are great. I couldn't have wished for anything better, first time in Sydney. I'll be back!

"The cross cueing wasn't so bad. The most challenging



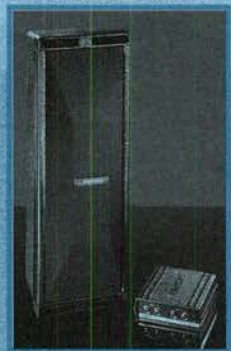
LJ Wentworth, show producer

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Bose® Australia have a tradition of difficult and different field trialing for their products. One of these test bed scenarios is the annual Australia stage of the World Rally Championship. Rally Australia was held in September across the southern corner of West Australia. As usual it was a precision event, culminating in a monster concert in Perth.

Bose West Australia representative Peter James explains why Bose are involved with Rally Australia. "It gives us the chance to try different products in different situations. Last year we used a point source system comprised of long throw Panarays for the first time. This year we used a distributed system based on the trusty Bose 402. The reason we do the Rally is to give our dealers the chance to get their hands on the product, to see the many different ways Bose products can be used, and for us at Bose to keep our hands in".



## *Results?*

Well, Tommy Makinen in a Mitsubishi Rally Art won, of course! All the Bose 402s have gone on to less arduous work around Perth. And Eventscorp are very pleased. John Bradbury said Bose help out every year, and it just gets better. And the Rally sells out too - with next year's event scheduled even bigger, dirtier, and meaner!

## *The Rally As An Event*

As just one stage of a global car rally, the Australian section covers just four hard days and nights. Eventscorp package the rally and stage the concert, held in Langley Park (Perth). It comprises a display rally section where truckloads of gravel are brought in to make jumps and tracks for the cars.

Dancers, fireworks and music make the event an event. 30,000 people converge. Cars crackle and blat around. The weather in September lends itself to people enjoying an outdoor event.

## *Bose On The Job*

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Equally exciting was the four day rally itself - where Bose supplied little sound systems for each of the 30 stages around the state. Across a 2,000 kilometre course. Peter James explains: "We had four teams, each basically in a car. They had a little generator, a small mixer, an amp and four Bose 402 speakers. We literally hung them from trees with coathangers! The teams had to leapfrog and schedule carefully to keep ahead of the rally itself - no mean feat given the speed of the whole thing!"

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## Anastasia (continued)

thing was using two different size tapes. We had the film on Cinemascope on one projector, and standard video with the 4:3 ratio on another projector. Switching between the two projectors added another little twist, on top of the live performances and the presentations."

I commented on how young she seemed. "I wish I was," she laughed. "I'm just short! Actually I'm 31."

Bizzarro is a big fan of the Hughes JVC. "Not many people use them," she said. "Barco is probably much more popular. But I cannot say enough good things about the JVC. It's extremely expensive, extremely heavy, about 200kg per unit. But the image quality is incredible. Those film clips weren't even colour corrected yet, and were downed several generations, projected onto a 3x8m screen. You could see every little detail, it's beautiful."

### CaribinerWavelength

CaribinerWavelength (CW) were the event and technical producer for the Australian part. Merryn Hughes, from CW, was the executive producer. "Putting the show together at this end in two weeks was a challenge," she said. "That was a bit frightening, because we didn't know what to expect. We didn't know the show, or Double Take. We didn't really know how the show was going to run until the day before, which is when they all arrived from the States."

Steve Brlekovic was the technical producer for CW. "It was probably one of the largest indoor projections that has happened in this country, including some of the rock bands that have been here," he said. "The JVC Hughes, which cost \$250,000, are by far the brightest in the world. They are made in the States, initially for the space launch at the Kennedy Center. There are only two in the country for hire, at Hay Communications. Kerry Packer's got one in his house, and Crown Casino in Melbourne has five."

"Double Take wanted four Hughes projectors, two for use, and two for backup. I couldn't get four, so I ended up using another brand. The JVC Hughes 360 was projecting the Cinemascope, with a 2.35:1 ratio. We used the Barco

9100 for the backup. The other Hughes was used for all the video rolls, 3x4m. We backed the second Hughes up with two Sony 1292s. We lined them up together to get more brightness. So from the projector angle, it was quite an expensive little exercise backstage.

"I think it was a high standard technically. In Melbourne, we ended up with 33 video rolls in an hour presentation. In Sydney they cut it down to 29. It was a very tricky operation, it was one of the tightest shows I've worked on in the 18 years I've been in the industry."

The audio used was a Meyer system for the FOH, provided by Audio and Recording.

The lighting was designed by Tony Davies, from Chameleon. "There were no real problems with lighting. It was just a beautiful easy show, it was great! We toured the rig, and changed beam angles for Sydney. We used Shakespeares, so we shuffled new lens tubes in."

The Melbourne show finished at 4pm. The crew had to pack all the equipment, get it to Sydney, and rig it for rehearsal at 2 the next afternoon. "It is a minimum ten hour drive for a semi," Brlekovic said. "We were all packed up, and the truck doors were closed by 7pm. That was quite an achievement, especially from the Sofitel, the old Regent hotel, in Melbourne. It's one of the nastiest load outs, because you have to use the hoist that blocks the entrance and the exit to the main car park. So we had to load the hoist, drop it down, unload it, put it in the truck, let a few cars out of the car park, and do it several times."

"We had to do a stage extension at the State, in order to fit the cast, the piano, and the lectern. We needed such a throw for the projector. We had the crew working from 3am to get the stage done for when the truck arrived at 6am."

### Excess Energy

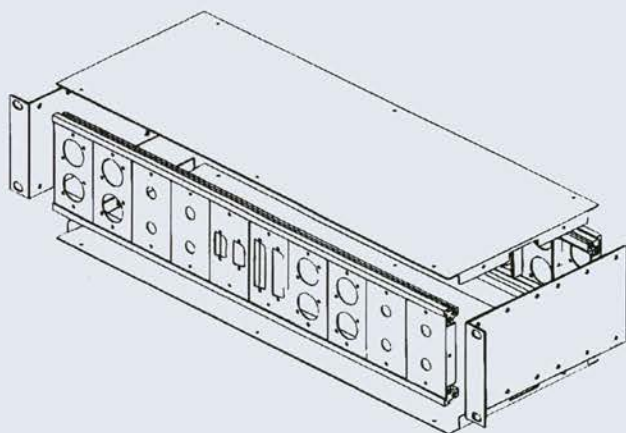
John Gover, aka Gonzo, came in with his portable OB studio, known as the yellow submarine. Gonzo did all the vision mixing between the different sources. The show had two Macs running with the Powerpoint speaker support

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presentations for all the presenters, and two Sony BVW75 machines which ran all the video rolls.

"The tricky part," said Brlekovic, "is that we used two vision mixes for all the sources. We ran the Beta machine. All the show segments were running off one tape, but they were switched to the Cinemascope, or the standard video source. The second machine was running simultaneously as a backup. We basically had a backup of everything."

Fox had put on this roadshow in Las Vegas last year. "That was NTSC, so it had to be PALised," Gonzo explained. "Fox had used some of the expensive hardware from its new animation studio in Arizona, for the Las Vegas show. So we had to translate it from the gear which was unprocurable, into something that could be shown and taken on the road, anywhere in the world, especially South East

Excess Energy's 'Yellow Submarine'



John Aquilana, video operator

Asia. It had to be able to fly, so weight was a factor.

"Fox packed up here with a bunch of tapes, in three different shapes, letterbox, standard, and Cinemascope. We did the maths, we had spoken to the engineers and agreed on the ratios, but you never know if it is going to work. Luckily our maths was correct, and it worked.

"The Americans didn't want to do anything digitally, because you lose resolution. We had to go right back to basics, and come back up through all the maths again. We had to resize one thing very quickly, and send it off. We succeeded, and they took some of our calculations to Hong Kong and Tokyo.

"The rig time was moderately critical, although we had a lot of planning time, and you can normally trade one for the other."

The mixing was demanding, as there were over 40 cues in half an hour. Some of those cues involved cross fading between two switches. "We didn't get anything wrong in the two shows, so everyone was happy," he said. "It was interesting, because no one ever sticks religiously to their script.

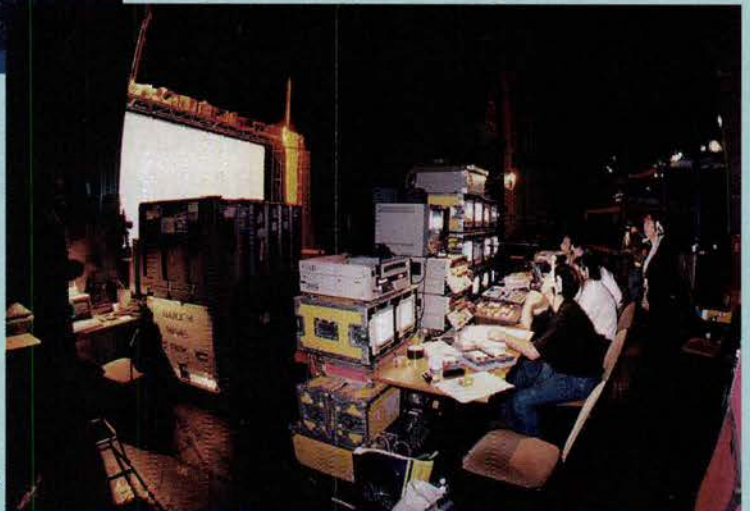
"The show ran in both component and composite modes concurrently, and they were both backed up. That imposed quite severe vision switching timing constraints on the setup. Even a cable 2 feet long becomes an issue. Because one tape machine is feeding two devices at the same time, you've got to worry about how long it takes for the electrons to tumble through the piece of wire."



Jamie Centofanti, lighting operator

## Crew list

Executive Producer	Merryn Hughes
Technical Producer	Steve Brlekovic
Producer/show caller	Andrews Edwards
Project manager	Simone Hulse
Stage manager	Tony Papp
Graphics tech	John Aquilana
Video tech/switch	John Gover 'Gonzo'
Lighting tech	Tony Davies
Lighting asst	Jamie Centofanti
Audio tech	Garry Hall
Audio tech/backstage	Bruce Thomas
JVC Tech	Russell Soltau, Wayne Nietz



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## This month: all about **TAPE**

What breed of tape should you use and what to watch out for are crucial questions. Compiled by Dan Cole

**Duncan Wood** is from World Record Studios and Tap, Brisbane, and says that whether it's good or bad, tape will be here for many years to come. He continues, 'Even if just for the fact that 70% of digital hard drive recording systems are backed up onto where? Tape!! Modular digital multitracks use tape as does DAT and this list goes on. I use both formats as do many other professionals.'

**Greg Dixon** from Aphek Studios (NSW) contributes: 'I use Ampex 456 multitrack because what you give it is what you get back—sometimes better. The hotter tapes don't sound as good because they add to the sound and also shed particles like nobodies business. Regarding DATS, we are currently experimenting with different brands since Denon are no longer available (stupid distributors). TDK seem unreliable. For the moment you can't beat analog tape on a good machine for tone. Ultimately they will get digital right with a significantly higher sampling rate and then hard disc will be the way to go but for now, tape wins.'

'We record direct to disc,' says **Darren Halifax** from Satellite Recording Studios, WA, 'We do however mix down to TDK DATS purchased from Parr Pianos. The only hassles we have had are with digital clipping. We now avoid this by using Waves L1 look-ahead limiter and waveform enhancer. It has saved us literally hours of time. We also back-up our sessions (computer backup) onto Sony data storage discs which have a capacity of 4Gb uncompressed, also saving us a major headache.'

From **Damien Gerards** in Sydney: 'We use Ampex 499 Gold Master. 499 was one of the first of the new breed of high level analog tapes to hit the market in the early '90s giving analog a new lease of life in the face of digital developments. Since then other manufacturers have released their own high level tape such as BASF 900 which we have tried but always find Ampex better and more reliable from batch to batch. 499 is designed to run very hot; around +9 to +12 and generally the more you give the better it sounds. If you want to run tape at more conservative levels and don't want the char-

acter that 499 gives to the program Ampex still produce the legendary 456 tape which was the industry standard for over 20 years. In fact FLOOD just used 456 on the latest U2 album. Analog tape lasts a long time if stored correctly, up to 30 years or more, (George Martin recently did a video special on the making of Sgt. Peppers using the original 1" 4-track reels). Analog tape will last longer than digital tape which is prone to drop outs and data loss after 5 to 10 years also, Ampex provides a service called baking which will restore your tape enough to allow a backup to be made. This service is free of charge for ANY genuine Ampex tape. No other manufacturer does this. We've never had any Ampex tape break in over 12 years. For DATS and cassettes we also use Ampex: Sony for DATS and TDK for cassettes depending on the client's budget.'

**Greg Hopping** from Nu-Town Studio (NSW) adds: 'For the past few years we have been using BASF 911. This is because it will tolerate a hotter signal to tape and leaves less residue on the heads compared to other brands. Overall sound quality seems to be better. We get it from Audio Visual designs; it lasts well, never breaks and as I said you can run it nice and hot. Tape is definitely part of our future, we love it!'

**Guy Dickerson** from Megaphon Studios (NSW) said: 'Analog 2" costs about \$280 per roll for 16 1/2 minutes recording time at 30 i.p.s. We buy it from Quantegy, Ampex 499 which is calibrated at +9 — 510nWb/m for our Otari Mk3 24 track. (I also often run DA-88s in sync for extra tracks). Without a doubt analog tape provides more information and is dynamically only a little short of digital machines when considering tape hiss. The Sony 8mm tapes are considered better mainly due to how easy they are on the heads of the DA-88. Tape is sharing the future with hard disk for us because analog still sounds better. I constantly A-B analog and digital. I think it's early days for anything other than analog but I look forward to any improvement.'

**Norman James McCourt** from C'est Ca Recording Services (VIC) said: 'We had hundreds of Masters stored from

1979 onwards, all Ampex 456. When we came to use them they had all deteriorated so badly they were mostly unusable. It was a huge loss as there were some very valuable masters involved, some historical in fact. Since then we have been reluctant to put all our eggs in one (tape suppliers) basket and we now mix our tape supplies. Marketing and image seem to be what sells tape nowadays, not quality and long term stability. Most brands are very good today but long term stability is the question (?).'

**Gordon Hervey** from Charing Cross Studio (NSW) adds: 'We once bounced a DAT tape down the stairs to see what would happen and found that it played with a much higher error rate than before. Digital mastering, DVD and digital TV (formally HDTV) are heading towards 96 kHz sample rates so doing your mixes to 96k DAT (such as the Pioneer from A.W.A) or analog tape is essential for better high frequency reproduction in the future if you are using an analog multitrack. At high volume levels most engineers like the high end of an original half-inch analog master compared to its 44kHz backup DAT tape.'

**Rick Cameron** from Festival Studio and Mastering (Sydney) says: 'Our studio uses Ampex tape for multitrack recording and we source it from Quantegy. Our house standard level is 510nW/m for 999. Some of our other Ampex master tapes date back to 1973. The majority of projects recorded at Festival are analog. Long live analog.'

Wombat Rd Recording Studio's (VIC) **Barrie Clissold** chips in: 'We use a variety of tape depending on the particular requirements. Our analog 16-track machine is aligned for Ampex 499 which works well: you can push this tape so hard to 8+ or 10dB and it still sounds great! We have found TDK is the most reliable in our ADAT machines although the SE-240 length tapes are a bit "iffy". We also use TDK-SA or BASF chrome for all our cassette duplication. Ampex DAT tapes seem to be totally reliable.'

Our tape of the future is probably a hard disc as used in our 16-track hard disc system.'

• Thank you to all our contributors!

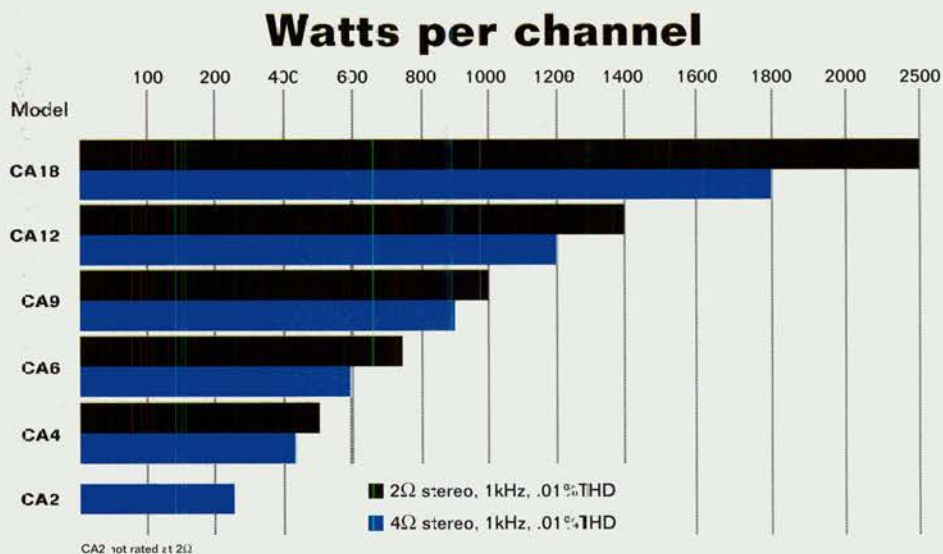
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## MINIMALIST RECORDING

*So how do you record a choir in a large acoustic space? Andrew Broadhead offers some practical advice in an account of a recent location recording project.*

In late 1996 I was called to record the annual Three Choirs Festival at the Holy Trinity Cathedral in Wangaratta, Victoria. On the bill were the Wangaratta Choristers, the Beechworth Singers and the Murray Conservatorium Choir, all conducted by Dr. Phillip Ledger, Principal of the Royal Scottish Academy of Music and a man with a list of credentials after his name as long as a 30 foot multicore.

Once more I was on a tight budget (is there any other kind?) for this recording so the call for a simplistic approach was loud and clear. A stereo pair of microphones recorded direct to DAT was the decided method. My aim was to capture the sound of the performers as naturally as possible and this meant also capturing the ambience of the room as this contributes as much to the sound of a choir as the voices themselves. In a perfect situation I would've had two Neumann TLM-170's at my disposal. However we live in a fallen world and I had to be content with a pair of Shure Prologue 16L, battery powered electret condensers. I reminded myself that it also mattered where you put the mics as much as what brand they were.

There are various stereo microphone techniques that are taught and although there are many variations the main three are M-S, A-B and X-Y (see any audio text for more information). I chose the X-Y technique for two main reasons:

(a) you need a microphone with a figure of eight polar pattern for the M-S technique and -

(b) X-Y technique minimises the mysterious problem of phase cancellation that occurs when the same sound hits two different microphones at two different times.

For those of you who aren't familiar with the X-Y technique (no, it's not an algebra formula!) it involves placing the diaphragms of two cardioid microphones together on the same vertical axis so that they form an angle of 90-130 degrees which contains the sound source in the middle.

In this case I pointed one microphone at the left side of the choir and one at the right so that their diaphragms made a V-shape. The microphones, as a pair, were placed 10-12 metres back from the stage. I also made an effort to put the microphones as high up as I possibly could. The ceiling of the cathedral is around 80 feet high (the next door bell tower is almost twice that), therefore I needed to be careful that the majority of the sound didn't just travel up and over the microphones.

From there the microphones were run through a Mackie 1202-VLZ mixer and to a Tascam DA-30 Mk II DAT. The Mackie is a great little desk with very clean and quiet microphone pre-amps which were perfect for this situation. I used the smallest amount of top end boost at 12 kHz on the microphone channels but apart from that the signals were left unprocessed. I ran balanced lines between the mixer and the DAT and this combined with the low noise of the Mackie kept the recording very quiet despite running the gains fairly high. Recording to DAT was a great advantage due to the huge dynamic range of the performance. I needed all of the DA-30's 95+dB S/N ratio. I didn't use a compressor as the budget didn't allow for one of sufficient quality that would've done the recording justice.

So after setting up and copping a few "what are you doing here?" looks from the audience it was showtime. In any live recording situation, even a two-mic. direct to DAT one, you still have to be on the ball. There was no time for a soundcheck or recording

test and I was shoved in the corner with only a pair of earphones for reference. Luckily the levels I'd set out of the gate were pretty close to correct so forty five seconds into Handel's "The King Shall Rejoice" it was all systems go.

Throughout the gig I kept a keen eye on the recording levels allowing a 1dB safety margin and occasionally riding the faders. Two hours and a couple of Apogee DAT tapes later the deed was done. The verdict: Great! The

acoustics of the cathedral had a lot to do with it — it's a fantastic venue with a high ceiling and stone walls and the recording captured that ambience simply and efficiently. The event co-ordinator was pleased and had 250 cassette copies run off for all the choir members.

Again, simplicity saved the day and proved the adage that in audio sometimes less is more.

• Andrew Broadhead is a lecturer in Sound Production at Collingwood/Wangaratta TAFE and also offers 24 track recordings at \$25 per hour. Contact: T 03 9525 3890.

• For more information on microphone placement techniques for either studio or location recording *Modern Recording Techniques* by David M. Huber and Robert E. Runstein is a good start. The Connections shop has this book in stock. \$49.50

**Simplicity  
saved the  
day and  
proved the  
adage that  
in audio  
sometimes  
less is more.**

# STUDIO NEWS

Compiled by Dan Cole

**Skylab Studio** have recently upgraded their studio wiring with a 400 point balanced patchbay installed by ex-301 technician Greg Cammeron. Also added in the upgrade: 2 x Lexicon reverbs, a Roland SRV Reverb and a BBE Sonic Maximiser. Skylab say all outboard gear is now balanced and running at +4 including the 4 x ADATS which have been wired to +4 balanced Elco connectors. A total of 32 MIDI outputs have been added at the patch for instant access to the Roland 750's outputs. A CD-Rom drive has also been added and memory upgraded to 18Meg of sampling (Roland 750). A T.C. Electronics Finalizer has also been added offering EQ, Compression (in multi bands), Stereo Adjust, Harmonic Exciter and other functions in 20-bit audio. This will be used both in production and mastering activities. Contact David at Skylab: T 02 9310 4774.

**Wombat Rd. Studio** has recently upgraded their range of microphones with the addition of a pair of Rode Nt-2 mics as well as a Rode Classic valve microphone. They say that they are proud to be in possession of quality Australian products, adding to their collection of Neumann, Calrec, E.V., Sennheiser, Audio Technica microphones among others. They have also purchased a Valley Audio Digital Dynamics processor for their CD Mastering and production facilities. T 015 314 297.

**Radio 97 Network** has taken delivery of four Otari PD-80 Disk Recorders designed to replace conventional analog open reel machines. The systems have been installed in the new studios of: 2DU and ZOO-FM, Dubbo, 2PK/ROK-FM, Parkes and 2MG/GEE-FM, Mudgee. The Otaris were supplied by Amber Technology, T 02 9975 1211.

Australasia's largest post-production house **Soundfirm** has installed a Bag End ELF subwoofer system in its Melbourne facility. The system was installed in Theatre 1, their primary dubbing studio which is approximately 11 metres wide by 16 metres long by 4.8 metres high. It now contains six Bag End S18E-I drivers powered by a Bag End ELF-1 and controlled by a Harrison Series Twelve mixing console. 'Bass is becoming a more and more important part of the audio spectrum,' said Soundfirm owner Roger Savage. 'With the advent of digital format releases, the criteria for monitoring has become more critical than ever.' The subs are located in the base of what Soundfirm call its Infinity Wall. When testing the new equipment Soundfirm engineers discovered that they had to increase the design parameters and introduce wall bracing to withstand the amount of low-end power and extended low

frequencies produced by the system. The system was installed by Acoustisearch of Melbourne, a sound design company owned and operated by audio engineer Graham Thirkell. Acoustisearch are Bag End's exclusive distributor in Australia.

Contact: Soundfirm T 03 9645 4522 or Acoustisearch, T 03 9568 4022

**Velvet Sound** recording studios are pleased to announce their consolidation with Pathway Studio formally located at E.M.I. Sydney. Frank Kerestedshjian now joins Paul Cussen and Dave McCunn as part of Velvet's ownership group.

'We're really looking forward to having Frank on-board,' says McCunn. 'He's not only bringing a lot of fantastic gear with him but also years of experience and expertise.'

The team at Velvet along with Gerald Stuart from I.T.C. Acoustics have finished remodelling the control room to accommodate a (rather large) Soundtracs CP-6800 midi-automated mixing console (one of a kind in Australia they say) and twenty+ pieces of new gear. Also included was a changeover to new bantam patchbays and a new air conditioning system. Cool!

Main additions to Velvet's extensive gear list include: an S.S.L. stereo mix compressor, T.C. electronics Wizard Finalizer and line delay, Neumann and Sennheiser microphones, Brook Audio amps & valve microphone pre-amps, Yamaha Rev 1 and CD burner, a Bel 7 second delay, and the Soundtracs CP-6800 mixing console. For full studio specifications or a view of the facility: T 02 9264 3420.

Meredith Brooks and Bill Syrratt from **Soundwarp-CD Bureau** have welcomed Steven McMillan to the fold. He can be found behind the main desk at many live gigs when he's not busy editing or cutting discs at Soundwarp-CD Bureau. Other recent news include new equipment additions such as a T.C. Electronics Finalizer, a new Pentium Pro200 workstation. The latter proving useful for large number crunching activities such as hiss removal and ROM and data CD mastering and recording. Soundwarp-CD Bureau are located in the original Emerald City Studios in Brookvale on Sydney's lower North Shore. T 02 9905 7144.

**Cloudburstz Studio** in Fitzroy has retired their 16-track analog machine and installed 16-tracks of digital using the Tascam DA-88/38 combination, utilising the sync card in the DA-88. The Tascam IF88 interface allows digital domain transfers in sync between the new recorders and the existing ProTools set-up. A Lexicon PCM-80 is also



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new along with improved monitoring. Cloudburstz also welcome Michael Pollard to the engineering and production team. T 03 9416 1038.

David and Lyn Hinds from **David Hinds Recording Studios** in Port Macquarie recently upgraded their facility with the purchase of some new gear including: 2 x Tascam DA-88s, a Yamaha O2R console, an Audio Technica AT4050 studio condenser microphone (from Rosco at SOS Communications) and 2 x Fostex D-5 DAT recorders (from Syntec), making David Hinds Recording now totally digital. A change in business direction has accompanied the new equipment with a swing away from bands to concentrate on commercial work. T 065 81 1235.

**C'est Ca Recording Services** report the acquisition of a new 24-track digital machine now installed—up and running, complementing their traditional 2" 24 track. They have also added new DAT machines and microphones to their hire department. T 03 9419 1506.

**Audioscapes** has moved to Newtown! They can now offer larger studio facilities and are only two blocks from King Street. Their full address: Audioscapes, 25 Camden St. Newtown NSW 2042. T/F 02 9550 4205, M 015 224 227.

**True Form Music** in Melbourne have recently purchased a Fostex CX-8 and RMC-8 Autolocator to compliment their Fostex ADAT. Other new acquisitions include: Valley People Kex gates and compressors, N.E.I. and Furman dual parametric EQs and other assorted odds and ends. The control room has also been modified with the addition of extra bass trapping and a raised floor in the front half. It sound better than ever, they tell us! T 03 9391 0907.

**Rockinghorse Studios** at Byron Bay has commissioned its Neve 'V' Series 48 channel mixing console in their refitted 'A' Studio. The installation was assisted by Andrew

Nicholls of the P.A. People Brisbane and it tests out 'better than new specs' across the board, they say. T 066 88 4131.

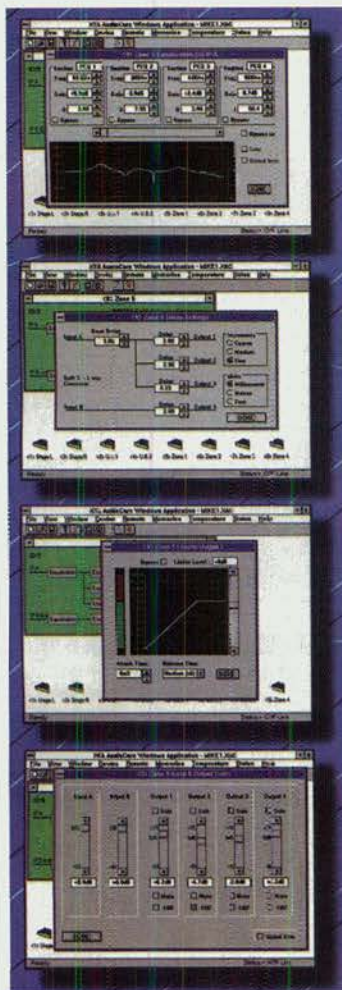
**Prodigious Audio** is undertaking an equipment upgrade and now has a 16-output AudioWerk/Logic Audio System and Soundcraft 32 channel Ghost Mixer connected to the video suite. Output and effects include Focusrite, TLA, Sony and Ensoniq. Co-Owner/Producer Mark Munro is busy doing remixes for several artists. T 07 557 1140.

**Soul Studios** long standing staff of Daniel Winter (studio manager) and Mick Stills (production manager) is happy to announce the new additions of Daren Williams as Studio Representative, Kaleb Smith as Graphic Designer and Sten Christensen as Photographer. Soul Studios have also added basic graphics film capturing and editing equipment making it possible to develop multi-media projects on either of their PC or Mac platforms. Recently Soul Studio acquired a DigiDesigns ProTools 4 hard disk recording and editing system running on a Mac platform and to co-incide with this they are offering a 6-day full recording package for \$2500. They will also help you arrange accommodation on the very pleasant Gold Coast. T 07 5592-2222

Producer, Engineer and Owner of **Brisbane World Record Studios** Duncan Wood has joined forces with the Maroochydore based television and audio production studio known as Tap. Duncan joins Barry Morrison and Paul O'Conner with the intention of setting up a label. World Record Studios will cease operation in Brisbane at the end of its lease in June and Duncan will then be permanently based at Maroochydore.

Send us news! Contact Dan Cole, fax (02) 9876-5715, email mail@conpub.com.au or PO BOX 439, Epping NSW 2121

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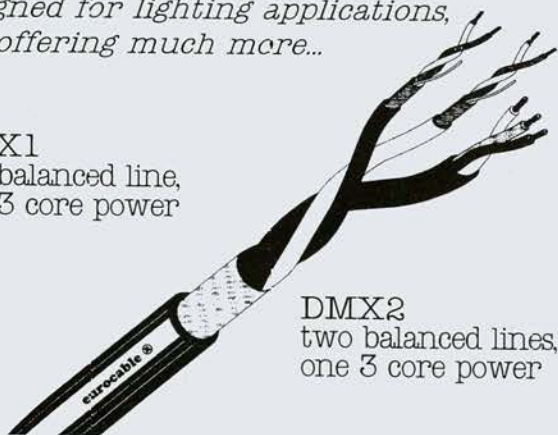
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## Tracking Guide

ARTIST	PRODUCER	ENGINEER	PROJECT
New South Wales			
<b>A#Sharp</b> Jeff Cripps (02) 9534 4440. 24 Track 1"			
Margaret Bradford	Jeff Cripps	Jeff Cripps	Kid's CD
Grounded	Jeff Cripps	Jeff Cripps	CD
John Ng	Jeff Cripps	Jeff Cripps	Christian CD
R2 Am Not	R2 Am Not	Jeff Cripps	CD
<b>Alberts Studios</b> Leesa (02) 9953 2544. 48 Track Digital			
The Whitlams	Rob Taylor/Tim Freedman	Rob Taylor	Album Track/Mix
Helena	Steve	Mike Ross	Debut Album
Alex Kilroy	Craig Portails	Craig Portails	Album
Frenzal Rhomb	Donell Cameron/Mark Thomas	Donnell Cameron/Mark Thomas	
Brielle	Bruce Brown	Bruce Brown	Forthcoming Album
<b>Aphek Studio</b> Greg Dixon (02) 9876 8170. 16 Tracks to 1" analogue			
The Season of Rousseau	Band	Greg Dixon	Demo
Cyan Brass	Band	Greg Dixon	Album Mixes
Conspiracy Theory	Greg Dixon/Doug Williams	Greg Dixon	Album
Martin Reeve	Martin Reeve	Greg Dixon	Album
<b>Audioscapes Jim Blackfoot</b> (02) 9550 4205. 16 Trk. Digital			
Tony King	Jim Blackfoot	Jim Blackfoot	Film Soundtrack
Geraldine Turner	Brian Castles Onion	Jim Blackfoot	Album Tracks
Rod Lee	Rod Lee	Jim Blackfoot	Demos
Roz Phillips	Burbank Animation	Jim Blackfoot	Dialog Recording
Roz Phillips	Burbank Animation	Jim Blackfoot	Dialog Assembly
<b>Bush Traks</b> Ruth Miller (066) 891 290. 24 Track Recording & Multimedia Studio			
Coral Spawn	Doug Johnson	Dave Highet	Album
Grinspoon	Christian Hopes	Greg Courtney	Demos
Gigs For Kids	Bob Pierce	Greg Courtney	Demos
<b>Charing Cross Studio</b> David Sykes (02) 9387 8362. 8000 Series Neve/24 Track Studer			
Juliana Hatfield	Nic Dalton	Peter Jones	Tracking
Hot Rollers	Paul McKercher	Paul McKercher	Mixing Album
Introverse	Greg Wales	Greg Wales	Track & Mix
Sidewinder	Martin White	Martin White	Tracking
Golden Ruff	Wayne Connelly	Wayne Connelly	Album Mixing
Bag	Greg Wales	Greg Wales	Album Mixing
<b>Cloud Studios</b> Parris Macleod (043) 532 429. 24 Track 2" 32 Digital			
"13"	Parris Macleod	Parris Macleod/Fabian Weston	Album
Amsterdam	Parris Macleod	Parris Macleod	Album Mix
<b>Crystal Clear Studios</b> Dave Tozer (02) 9684 1152. 24 Tk. Dig. (Adats), 32 Ch. Console			
Sole Creator	Dave Tozer/Band	Dave Tozer	Album Mix
Danakill	Dave Tozer/Band	Dave Tozer	Album
YOGN	Dave Tozer	Dave Tozer	EP
Zelophillips	Dave Tozer	Dave Tozer	CD
Salvation Jane	Dave Tozer	Dave Tozer	Demo
Peter Firth	Dave Tozer	Dave Tozer	Demo

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# BASF National Tracking Guide

ARTIST	PRODUCER	ENGINEER	PROJECT	ARTIST	PRODUCER	ENGINEER	PROJECT
<b>Damen Gerard Studios</b>	Marshall (02) 9660-8776. 2' 24 Trk., 1/2' 16/32 Trk.			<b>Paradise Studios</b>	Jason Lea (02) 9357 1599. Custom Console, Studer A800, Valve Outboard		
Finiscad	Band	Russell Pilling	Pre Production	Firesign	Billy Thorpe	Greg Clarke	EP - Mixing
Nic Dalton	Nic Dalton/Jordan Bach	Jordan Bach/Michelle	EP	Bobby Gebert	John Morrison	Michael Henshaw	Album - Live
Hummer	Jordan Bach	Jordan Bach/Michelle	EP	Cruel Sea	Band/Phil McKellar/Daniel Denholm	Phil McKellar/Daniel Denholm	Album/Tracking
Andy Holm	Andy Holm	Russell Pilling	Single	The Wheel	Band/Ted	Ted Howard	Album/Tracking
Simpletons	Band	Jordan Bach/Michelle	2 x EPs	Bullrush	Band/Greg Clarke	Greg Clarke	EP - Mixing
Austen Tayshus		Russell Pilling	Voice Cvers	Tina Martyn	Larry Muhoberac	Michael Vidale	Album/Tracking
<b>Darling Harbour Studios</b>	Ike (02) 9211 1474. 24 Track MCI 32 Channel Automation			<b>Paul Bryant Mastering</b>	Paul Bryant (02) 9748 0222. Mastering Suite		
Hobo Posh	Ike	Mike Stavrou	Single/Mix	R2 Am Not	Jeff Cripps	Paul Bryant	CD Master
Xiang	Xiang	Sucka Fish	Demos	Sheena Mackie	Martin Cilia	Paul Bryant	CD Master
Thami	Thami	Sucka Fish		Simana Kami	Jeff Cripps	Paul Bryant	CD Master
Two Tribes	Owen	Sucka Fish	Demos	SBS Youth Orchestra	Matthew Krel	Paul Bryant	CD Album
Karma Zoo	James Caskey	James Caskey	Album	Charmaine Pout	Rob Brees	Paul Bryant	CD Album
Giraffe Casino	(Keno)	Sucka Fish	Demos	<b>Q Recording</b>	Gordon (02) 9212 4851. 24 Track		
<b>David Hinds Recording Studios</b>	David & Lyn Hinds (065) 811 235. 16 Track Digital			Voices From The Vacant Lot		Richard Muecke	Album
Balance	David & Lyn Hinds	David & Lyn Hinds	CD Mixing	Love Me	Daniel Denholm	Daniel Denholm	Album
<b>Festival Mastering</b>	Catherine Knapman (02) 9395 8070. Sonic Solutions			Wayne Goodwin	Wayne Goodwin	Dave Cafe	Footy Anthem
Martin Taylor	Wally Wrightman	William Bowden	Album	Phloem		Richard Muecke	EP
"Outback Adventures"	Garth Porter	William Bowden	TV S/T & Album	<b>R &amp; R Recordings</b>	Robert Zimola (02) 9672 4494. 16 Tk. 1'		
Smudge & Sneeze	N/A	William Bowden	EPs	Kerrie McInerney	Mike Kerin	Robert Zimola	Album
Simpletons	N/A	William Bowden	EP	Kaire Aust.	Robert Zimola		Motivational
Neanderthal		William Bowden	EP	Brooks Pest Control		Robert Zimola	Corporate Message
Fendahlene		William Bowden	"Single Malt Theory"	<b>Rockinghorse Recording Studios</b>	Grant Hilton (066) 884 131. 48 Tk. Analogue, 32 Tk. Digital		
<b>Festival Studio</b>	Catherine Knapman (02) 9395 8070. MCI or Studer Analogue or Mitsubishi Digital			Dream Killer	Andrew Baldwin	Andrew Baldwin	Album
Australian Jazz Guitar Trio	Wally Wrightman	Mark Thomas	Tracking	Deborah Bond	Keith Williams	Keith Williams	Demos
Wonderkind	Wonderkind	Mark Thomas	Album Track	Dog Collective	Keith Williams	Keith Williams	EP
silverchair	silverchair	Wayne Connolly	2 Tracks	Orlando	Keith Williams	Keith Williams	Techno Track
<b>JMF Sound Studio</b>	Fran Esther (02) 9790 4097. 32 Trk. 1' Digital, 24 Trk. 1' Analog			<b>Skylab Studio</b>	David Russell (02) 9310 4774. 32 Track Digital Automated		
The Soda Caesars	Band	Simon Meli	Demo	Flapjack	Dylan Foster	David Russell	
Corcoran & Worrall	Corcoran	Simon Meli/Ralph Esther	CD Album	The Nevils	Mark Marriott	David Russell	
James Long	James Long	Ralph Esther	CD Single	Street Ruffian	Band	David Russell	
<b>Lucinda Street Recordings</b>	Rick Mostyn (042) 252 272.			Andy Jones	Mastering	David Russell	
Dicky Valentine	Rick Mostyn	Rick Mostyn	CD	Definite Article	Brad Grimes	David Russell	
The Groves Project	Rick Mostyn	Rick Mostyn	CD	Maxim Stockard	Mark Marriott	David Russell	
<b>Megaphon</b>	Guy Dickerson (02) 9550 6576. 24 Track Analogue & Digital			<b>Sony Music Studios</b>	Ross A'Hern (02) 9383 6320. 24 Track		
Tim Finn		Peter Contini	Tracking	Polynesian Sunset		Simon Tonx	Album
Jacky Orczaski		Guy Dickerson	Album	Elizabeth Lord		Ross A'Hern	Recording Tracks
Chad Wakerman		Guy Dickerson	Album	Mark Taylor		Ross A'Hern	Album
Hot Rollers		Paul McKercher	Album	Rebecca Rennie		Ross A'Hern	Album
<b>Nu-town</b>	Greg Hopping (02) 9516 3306. 32 Trk. Digital, 16 Trk. Analogue						
Green Tangerine	Greg Hopping	Mark Worrall	Single				
Lisa Monique	Greg Hopping	Mark Worrall	Album				
Mark Chong	Mark Chong	Mark Worrall	Album				
Waldo Fabian	Waldo Fabian/Greg Hopping	Mark Worrall	Single				



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# BASF National Tracking Guide

ARTIST	PRODUCER	ENGINEER	PROJECT	ARTIST	PRODUCER	ENGINEER	PROJECT
Black Mountain Jazz Band		Louise Taylor	Album	Barry Pearson	Barry Pearson	Ian Peters	Aerobic Video Music
Copasetic		Simon Tonx	Demos	Paul Heffernan	Barry Pearson	Ian Peters	Album Tracks
<b>Sound Level Studios</b> John Soane (02) 9552 3200. 16 Track Digital		Jason Blackwell	Demos	<b>Suite 16 Audio Productions</b> Murray Lyons (07) 3369 8733. 24 Track Analogue, 16 Track Digital		David Champion	Album
Bondi Cigars	Bondi Cigars	Randy Fransz	Live to DAT	Aim 4 More	Garry Smith	David Champion	EP
Normals	Normals	John Soane	Album	Jungle Boogie	Gareth Benson	David Champion	Commercial
Jennifer Soane	John Soane	John Soane	Album	Queensland Day	Garry Smith	David Champion	Commercial
Liquid Chill	John B.	John Soane	Album	<b>Television &amp; Audio Productions (TAP)</b> Duncan Wood (07) 5479 2277. 24 Track ADAT, Digital Desk,		Duncan Wood	Album
Dilemma	Jordan Brebach	Jordan Brebach	Demos	Don Gaydon	Duncan Wood	Duncan Wood	Album
Crack	John B.	John B.	Demos	Sienna	Duncan Wood/Sienna	Duncan Wood	Mixdown Album
<b>Soundwarp</b> Meredith Brooks (02) 9905 7144. Mastering		Meredith Brooks	Album	<b>Vandersound Studios</b> Eric Vandersande (07) 5546 8100. 24 Trk. ADAT/XT, HDR, 02R, CD-R, MM, Mastering		Eric Vandersande/Ian Francis	Album Tracking
Eureka	Andy Gray	Meredith Brooks	Album	Ian Francis	Eric Vandersande/Ian Francis	Eric Vandersande	Album Tracking
Phil Taylor	Phil Taylor	Meredith Brooks	Album	Soil	Eric Vandersande	Eric Vandersande	Demo CD
Kath MacManamon	Kath MacManamon	Meredith Brooks	Compilation	Scott Patterson	Eric Vandersande/Scott Patterson	Scott Patterson	Album Tracking
Shapeshifter	Josh Brown	Meredith Brooks	EP	Major Move	Eric Vandersande	Eric Vandersande	Commercial
Grundy TV	David Byak	Meredith Brooks	Restoration	Marilyn Smallwood	Eric Vandersande	Marilyn Smallwood	Demo
Car Rodeo	Fred	Meredith Brooks	Album	Wayne Gwyer	Eric Vandersande	Eric Vandersande	Album Tracking
<b>Studio Arts Productions</b> Ed Lee (042) 849 128. Independent Studio		Ed Lee	Soundtrack A/V	<b>World Record Studios</b> Duncan Wood (07) 3832 2830. 24 Track ADAT Commercial Studio		Duncan Wood	Album Tracking
Yen Winddancer	Yen Winddancer	Ed Lee	CD	Sienna	Duncan Wood/Band	Duncan Wood	Album Tracking
Movement	Band/Ed Lee	Ed Lee	CD	Don Gaydon	Duncan Wood	Duncan Wood	Album Tracking
Altered States	Band/Ed Lee	Ed Lee	CD	One	Glenn Scott	Glenn Scott	Track/Mix Album
P. Harness	Band/Ed Lee	Ed Lee	Mix Tracks for Demo				
Steven Robinson	Steven Robinson	Ed Lee/Steven Robinson	Album Tracks				
<b>Trackdown Digital</b> Marcus Leadley (02) 9550 6890. 16 Track Pro Tools x 3 ADAT 24 Track		Katrina Schiller/Torei Lista	Playschool Songs	<b>Agro Fish Studios</b> Julie Raynes (08) 8223 7211. 24 Track Video Sync, Hard disk recording, midi & Mixdown		Andrew Bayfield	Kid's TV Show
ABC	Max Lambert	Simon Leadley/Tim Ryan/Skippy	Animated Series	The Music Shop	Wilson Maine	Andrew Bayfield	Demo
Yoram Gross Films	Yoram Gross	Katrina Schiller	Single	Phil Salter	Phil Salter	Andrew Bayfield	Jingle
Lee Catelle	Lee Catelle	Torei Lista	Corporate Presentations	Creative Forrest Productions	Mike Forrest	Andrew Bayfield	Training Sessions
Bold Interactive		Torei Lista/Marcus Leadley	Mastering	Marshman Consulting Group	Peter Marshman	Andrew Bayfield	Production
Idarus	Julie Vulcan	Katrina Schiller/Torei Lista	EL Tapes	Colin Pearce & Assoc.	Colin Pearce	Andrew Bayfield	Jingle
Adams & Austin	Garry Adams			Hitmen Audio Prod'ns	Tim Jones		
<b>Troy Horse</b> Micky Levis (02) 9319 1799. 2" Tactile 24 Track Console		Richard Allcroft	Mixing	<b>Disk-Edits</b> N. Clark (08) 8340 1377. CD Pre Mastering		N. Clark	CD Master
D.I.G.	Richard Allcroft	Dan Griffin	Album	Timothy	Band	N. Clark	CD Master
2 Litre Dolby	Skull McPead	Russell Pilling	Album	The Miltons	Band	N. Clark	CD Master
Peter Baxter	Dave Steel	Dan Griffin	Album	The Borderers	J. Patterson	N. Clark	CD Master
Challenger 7	Rod Wishart	Tom Kazas	Album	Chris Finnen	Finnen/Wordley/Burge	N. Clark	CD Master
Beat Haven	Rocky Ramskill	Tom Kazas	Album Mix	Capt. Pyjama	Band	N. Clark	CD Master
The Necks	Chris Abrahams			Fruit	Band/Webster	N. Clark	CD Master
<b>Up Productions</b> Chris McKusker (063) 373 572.		Chris McKusker	Album	<b>Mixmasters Productions</b> Mick Wordley (08) 8278 8506. 24 Track 2"		Steve Fieldhouse	Album Mix
The Upswing	Band	Chris McKusker	Album	J.B.E.	Chris Davies	Mick Wordley	EP
Ken Dawsman	Ken Dawsman	Chris McKusker	Album	Crisp	Mick Wordley/Band	Mick Wordley	Amnesty Song
<b>Velvet Sound Recording Studios</b> Dave McCunn (02) 9264 3420. 24 Tk., 32 Ch., 2" Analogue		Craig Portells	Tracking	Borderers	Jim Patterson	Matt Mattick	Album
James Reyne	James Reyne/Craig Portells	Adrian Grigorieff	Drum Tracks	Rash	Rash/Matt Mattick	Evan James	Tracking
Tom Doss	Tom Doss	Adrian Grigorieff	Contest Winner	Coal Face	Shaun Wilson		
Sodasm	Adrian Grigorieff/Band	Tony Wall	EP	<b>Reynolds &amp; Love Recording Studio</b> Nick Love (08) 8410 3044. 16-24 Tk. Digital, 16 Tk. Analogue		Doug Jane	Album
Dopemine	Sam Jackson	Michael X	Demos	Rob Guest	Carl Doy	Nick Love/Edditt Sikorski	CD Single
Roller	Greg Clark	Michael X	Demos	Adult Toys (Zep Boys)	Ray Axisa	Nick Love/Louis Panayiotou	CD Single
Kaitlin Devlin	Kaitlin Devlin	Adrian Grigorieff	Demos	Stolen Waters	Band	Louis Panayiotou/Nick Love	Album
				Captain Pyjama	Band/Louis Panayiotou	Eddie Sikorski	EP
				Hobsons Choice	Band	Nick Love	Album
				King George the VII	Nick Love		
				"the fridge" Nigel Sweeting (08) 8231 3588.		Nigel Sweeting	Demo
				Indulgence	Nigel Sweeting/Band	Nigel Sweeting	CD
				Eucalyptus	Band	Nigel Sweeting	CD Remix
				Akhtar	Nigel Sweeting/Band	Nigel Sweeting	

## South Australia



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# BASF National Tracking Guide

ARTIST	PRODUCER	ENGINEER	PROJECT	ARTIST	PRODUCER	ENGINEER	PROJECT
<b>Victoria</b>							
<b>Big Beat/Equinox Studios</b>	John "Shadow" Toth (03) 9898 5815.	Analog-Digital, 32 Channel	Allan & Heath etc.	Jousaince	Jousaince	Trevor Carter	Album
Order of Chaos		Williams/Borgeest	Demos	<b>True Form Music Services</b>	Neil Gray (0500) 509 509.	16 Tk. Digital, 12 Tk. Analogue	
Seedless		Williams/Borgeest	Demos	SCO	Ross O'Driscoll	Ross O'Driscoll	Demos
Ian Flood		Williams	Demos	Grief Parade	Band	Neil Gray	EP
Amanda	Amanda/"Shadow"	Williams/Borgeest	CD	Clare Heywood	Neil Gray	Neil Gray	Voice Overs
Slider		Williams	Demos	Surdo	Ross O'Driscoll/Band	Ross O'Driscoll	EP
Buddy Reid	"Shadow"/Williams	Williams	Demos	Melodic Swell	Band/Neil Gray	Neil Gray	Album
<b>C'est Ca Recording</b>	Moira (03) 9419 1506.	Automated 24 Track Digital and Analogue		Deadpan	Band/Neil Gray	Neil Gray	Pre Production
Bernard Bolan	Norman McCourt	Norman McCourt	Album	<b>Wombat Road Studio</b>	Barrie Clissold (03) 5145 4204.	24 Tk. Digital, 16 Tk. Analogue	
Yarraville Footscray City Band	Norman McCourt	Norman McCourt	Double CD	Crossroads	V. Garth/C. Twite	Barrie Clissold	Album Tracking
Shenanigans	Gary King	Norman McCourt	Children's Dance Music III	Barbara Suter	Gary Bantock	Barrie Clissold	Album Tracking
Australian Paper Mills	Danielle	Genn Coath	AV Doco	G. Rawlings	Barrie Clissold	Barrie Clissold	Album Tracking
Alison Durbin	Norman McCourt	Norman McCourt	Mastering Best Of CD	Ryan Hilton	G. Hilton	Barrie Clissold	Demo Tracks
Various	Girl Zone Records	Genn Coath	Compilation CD	S & K Perry	Steven Perry	Barrie Clissold	Album Tracking
<b>Cloudburst Studio</b>	Bruce Jacques (03) 9416 1038.	24 Tk. Digital, Recording/Production		Gavan Arden	Gavan Arden	Barrie Clissold	Album Tracking
Robert Brattetich/Mario Lattuado		Bruce Jacques/Band	Bruce Jacques	<b>Western Australia</b>			
CD Album				<b>Bonsai Recording Studio</b>	Tom Thorpe (09) 9246 4408.	24 Track	
Andrew Bianco	Michael Pollard	Michael Pollard	CD	T. Pergamalis	Tom Thorpe	Tom Thorpe	Album
Tin Dogs	Dale Warren	Dale Warren	Demo	Dumb Angels	Tom Thorpe	Tom Thorpe	Demo
Pornstar Moustache	Myles Barlow/Band	Myles Barlow	Demo/CD	Kay-Redman	Tom Thorpe	Tom Thorpe	Jingles
Nick Randall	Dale Warren	Dale Warren	Theatre Soundtrack	Mike Blake	Tom Thorpe	Tom Thorpe	Album
Lucky Star Band	Bruce Jacques/Band	Bruce Jacques	CD Album	<b>Tropo Sound</b>	Mick Connolly (08) 9192 2394.	24 Track Dolby S	
<b>Crystal Mastering</b>	Joe Carra (03) 9326 2318.	CD Mastering		Mark Bin Bakar	Unknown	James Edwards	Jack Davis Project
Empire	Band	John Ruberto	CD Mastering	Gonada Band	Band	Tropo	Gonada Shuffle
Peter Field	Peter Field	Joseph Carra	CD Mastering	Stan Cockstand	Band	Tropo	Hard Album
Darren Conaghty	Darren Conaghty	John Ruberto	CD Mastering	<b>Witzend Recording Studio</b>	Alan Dawson (09) 9331 1818.	16 Tk. Automated	
Purple	Band	John Ruberto	CD Mastering	Greg Huntley	Greg Huntley/Alan Dawson	Alan Dawson	Album
Bill Beverley	Bill Beverley	John Ruberto	CD Mastering	Heads We're Dancing	Alan Dawson	Alan Dawson	Album
Nick Charles/Alex Burns	Nick Charles/Alex Burns	John Ruberto	CD Mastering	Tom Haran	Tom Haran	Alan Dawson	Demo
Amarcord Records	Gorazd	Joseph Carra	CD Mastering	Mardi Picasso	Martin Gamba/Alan Dawson	Alan Dawson	Album
<b>Dex Mastering</b>	Adam Dempsey (03) 9372 2266.	2 Suites, Sonic Studio, Custom Sony A/D & D/A Converters		Jack & The Beanstalk	Joe Algeri	Alan Dawson	Tracks
Blue Grassy Knoll	Steph.	Adam Dempsey	Album Mastering	<b>Satellite Recording Studio</b>	Darren Halifax (08) 9470 4003.	16 Tracks Pro Tools	
Runt (NZ)	Tim Kitto	Ben Hurt	Album Mastering	Sean Christie	Sean Christie	Nick Hassall	CD
Plastic Spaceman	Brett Harrington	Ben Hurt	Album Mastering	Beatroot	Alan Clarke	Nick Hassall	CD
Dreamland		Adam Dempsey	Demo	Vibe	Band	Nick Hassall	Demo
Jochen Schubert		Ben Hurt	Edits & Mastering	Stick	Adam & Dean Lillee	Darren Halifax	CD
Marie Wilson	Marie Wilson	Adam Dempsey	Live Album Mastering	Plague	Band	Nick Hassall	CD
<b>Kiss Music Recording Studios</b>	Paul Kosky (03) 9827 1500.	SSL Console, 48 Trk. Digital, 48 Trk. Analogue		<b>Northern Territory</b>			
N.I.L.	Paul Kosky	Paul Kosky	Album	<b>Kakadu Studios</b>	Ken Hutton (08) 8941 1344.	24 Tracks	
Monique Brumby	David Bridie	Adam Rodes	Single	Rising Wind	Ken Hutton	Ken Hutton	Album
Crow	Paul McKercher	Paul McKercher	Album	Robyn Green	Ken Hutton	Ken Hutton	Album
Chong Lim	Chong Lim	Doug Bradey	Score	Indigenous Compilaton	Ken Hutton	Ken Hutton	Album
Earthmen	Daniel Denholm	Daniel Denholm	Single	Masters Studio & Production	Lindsay Masters (08) 8932 1754.		
<b>Newmarket Studios</b>	Ben Hurt (03) 9329 2877.	24 Track 2" Analogue /Valve Mics		Peter Ciriotis	Lindsay Masters	Lindsay Masters	CD
Alex Burns/Nick Charles		Chris Corr	Mixing Album	<b>YOUR BASF TRADE SALES OUTLETS:</b>			
Gnome		Ben Hurt	Demo EP	<b>NSW:</b> Audio Visual Designs (02) 9281-2444,			
Ray Anderson		Chris Corr	Single	Silver & Ballard (02) 9439-5355,			
David Gardiner		Chris Corr	Album	Independent Tape Services (02) 9436-0666			
Mark Jones		Ben Hurt	Musical Demo	<b>VIC:</b> CATS (03) 9529-3177, Chapple Tape (03) 9580-6620,			
Daryl Emerson		Ben Hurt	Musical Demo	DEX Audio (03) 9372-2266, MTA & Assoc. (03) 9819-6455			
<b>Seed Studios</b>	David Warner (03) 9682 8488.	32 Ch. Harrison console/24 Track Analogue		<b>SA:</b> Adelaide Tape Duplicators (08) 8212-7111,			
Brill	Brian Canham	Tim Johnston	Album	Pro Media (08) 8276-6793			
Tex Perkins/Lisa Miller	Tex Perkins/Lisa Miller	Tim Johnston	Song Record/Mix	<b>WA:</b> Ausmag (09)314-1953, Pro Copy (09)375-3902			
Mercy Bell	Victor Van Vugt	Victor Van Vugt	Album Record	<b>QLD:</b> Musiclab (07) 3862-1633, Tek (07) 3239-4000			
Even	Ashley Naylor	Tim Johnston	Record	<b>BASF YOUR MUSIC IS SAFE WITH US</b>			
Kim Salmon	Kim Salmon	Tim Johnston	Song Record/Mix				
Incurtion	Incurtion	Matt Maddock	B Sides				
<b>Sound Around Mobile Sound Studio</b>	Trevor Cronin 019 439 721.						
Augie March	Michael Lettho	Trevor Cronin	Live Recordings				
Youngie	John Hall	Trevor Cronin	Mixdown				
Smick	Band	Trevor Cronin	Live Recording				
<b>Studio 52</b>	Paul Higgins (03) 9417 7707.	Studio A - Automated 48 Tk. Studio B Adat 24 Tk					
Carols By Candlelight	Peter Cupples	Trevor Carter/Paul Higgins	Live location Mix				
Lazy Dames Band	Barry Hills	Trevor Carter	Blues Album				
Tractor	Band	Trevor Carter	"Nu-Music 13" Track				
Supremacy	Trevor Carter/Band	Trevor Carter	New Album				
Toadstool	Band	Rowan Jarl	Demos				

## Buyers Guides in Connections

**Deadline for editorial is one month prior to publication**

Issue:	Buyers Guide
<b>Feb</b>	Studio Monitors. <i>Truss, Flying systems, rigging</i>
<b>March</b>	Wireless Microphones, Video Projectors, <i>Moving Lights</i>
<b>April</b>	EQ's, Crossovers, Limiters, Signal Processors, <i>Film &amp; TV Studio lighting</i>
<b>May</b>	Effectors, Reverbs, delays. <i>Effects Lighting</i>
<b>June</b>	Live Mixing Consoles. <i>Profile, PC Spots</i>
<b>July</b>	DJ mixers & samplers, <i>Lighting control</i>
<b>August</b>	Studio Mixing Consoles. <i>Lighting dimmers</i>
<b>Sept</b>	Microphones. <i>Fresnel spots, Floodlights</i>
<b>October</b>	Amplifiers, <i>Followspots</i>
<b>November</b>	Loudspeakers. <i>Fog Machines</i>
<b>Dec/Jan</b>	Recorders & software. <i>Scrollers, colour changers</i>

# BUYERS GUIDE

## DJ MIXERS • SAMPLERS • SAMPLING MIXERS

Each firm nominated four models for each brand. There are usually others available too, so this is a guide only.

### SAMPLING DJ MIXERS

#### AKAI

from Australis Music Group (02) 9698 4444

**S20 NEW!** 16 pads. Up to 17 megabyte memory using simms TAP TEMPO button on board editing. Hold/Loop/Pause functions. \$1195.

**Remix 16** 16 pads, cross fader, 4 track sequencer. Up to 18 megabyte memory using simms. Up to 1168 seconds (mono 8Khz). CD/Phono input. \$1595.

#### NUMARK

Universal Lighting & Audio 1 800 648111

**DM 1685** 5-8 line and/or 3 switchable phono inputs, 2 mic inputs, dual 6 band graphic, master + monitor level control, effects send on all channels, 12 sec sampler, 4 memory banks. \$1130.

**DM 1885** 5 line, 3 phono, 2 mic inputs, master + 2 zone outputs, treble, mid + bass cut switches on crossfader, effects send, PFL, 12 sec sampler, 4 memory banks, full edit facilities. \$1572.

**DM 2075** 7 line, 3 phono, 3 mic inputs, 6 band graphic, master + zone level control, balanced and unbalanced outputs, 12 sec 16 bit sampler, 4 memory banks, intro and outro editing. \$2565.

**DM 2175** 7 line, 3 phono, 3 mic inputs, 6 band graphic, master + zone level control, echo and delay effects, 45 sec sampler, 4 memory banks, intro and outro editing. \$3449.

#### ESP TECHNOLOGIES

ELSTA (02) 9568 2100

**DX45** 4 channel, switchable to 8, dual 7 band EQ, fully assignable crossfader, 2 mic inputs, assignable 8 second variable pitch sampler, LED display. \$699.

#### GEMINI

Disco World (03) 9735 0588

**PDM 1012** scratch master, 10" rack mixer with built-in 12 second digital sampler and speed control on playback, 2 channel (2 phono/2 line - inputs), mic input, LED meters, auto talkover switch, compact. \$535.

**PS 676** platinum series, 3 channel mixer (3 phono/3 line - inputs) and separate mic input with built-in 12

second digital sampler, EQ and gain on each channel, split cueing, booth output, beat indicators, compact. \$699.

**PDM 4012** DJ choice, 19" rack mixer with built-in 12 second digital sampler, 3 channel (3 phono/4 line - inputs), split cueing, mic input, assignable/removable crossfader, booth output, special 'Roboplay' function. \$829.

**PS 812** platinum series professional, 19" rack mixer with built-in 12 second digital sampler, 4 channel mixer (2 phono/6 line - inputs), auxiliary mono channel (mic/line - input), split cueing, mic input, EQ and gain on each channel, many other features. \$1059.

### SAMPLERS

#### AKAI

Australis Music Group (02) 9698 4444

**S2000** 32 voice sampler, expandable to 32 megabyte with simms and up to 48 mbyte using flashrom. Optional EB16 multi effects and output board, 2nd filter board. MESA MAC editing software. \$2195.

**S3000XL** 32 voice sampler. 2 mbyte up to 32 mbyte with simms and up to 48 mbyte using flashrom. 10 outputs standard and digital in/out. Hard disk recording. Optional EB16 and 2nd filter board. MESA MAC editing software. \$3495.

**S3200XL** 32 voice sampler. 16 mbyte up to 32 mbyte with simms and up to 48 mbyte using flashrom. EB16 and 2nd filter standard. SMPTE in/out, digital in/out and Hard disk recording. Comes with MESA for MAC \$5995.

**CD3000XL** 32 voice sampler with 4 x CD ROM. 8 mbytes up to 32 mbyte with simms. 10 outputs standard. Comes with MESA for MAC \$4995.

#### YAMAHA

Yamaha Music Australia (03) 9699 2388

**A3000** 2U rack mount sampler; expandable to 128 meg. RAM; 64 note poly; 3 effects processors (inc. Lo-fi effects for DJ's); 4 band total EQ; sequencer; SCS; load and saving during play; optional digital I/O; Akai/EMU/WAV/AIFF. \$3495.

**SU10** desktop sampler; 19-53 seconds sampling; LPF/

BPF/HPF; ribbon controller; reverse/hold/scale functions; loop mode; sequencer; max 48 samples; external processing. \$799.

#### GEMINI

Disco World (03) 9735 0588

**DS 8** 8 second digital sampler, 2 inputs (1 line and 1 phono/line), special 'Roboplay' function, pitch control and pan control for sampling playback, cue section, compact. \$399.

**DS 824** 24 second digital sampler, three 4-second and one 12-second memory banks, battery back-up to retain memory banks, other features the same as Model DS 8. \$489.

**DS 1224** 24 second digital sampler, two 2-second, two 4-second and one 12-second memory banks with battery back-up, special 'Roboplay' function, cue section, other features the same as Model DS 8. \$539.

**DS 2024** 24 second digital sampler, 5 memory banks comprising two 2-second, two 4-second and one 12-second, other features the same as Model DS 1224, 19" rack mount for live or studio use. \$575.

### DJ MIXERS

#### BIAMP SYSTEMS INC

Production Audio Services (03) 9415 1585

**DJ5600** 9 stereo inputs, 2 microphone inputs, 2 band EQ on mic inputs, 3 band EQ on each side of crossover, cue system, headphone outputs, level meters and beat sync indicators. \$2795.

**SCM7600** 10 stereo inputs, inputs assignable to either side of crossfader, 3 band EQ on mic and line inputs, VCA controlled crossfader, cue system, headphone outputs, level meters and beat sync indicators. \$4250.

#### FURMAN

Horwood Australia P/L (02) 9585 1011

**DJM-6B** six stereo inputs; mic input; sub-harmonic processor; outputs for subwoofer and lighting system; all outputs XLR balanced; excellent headphone system; 3-band equaliser. \$1370.

**DJM-8B** eight stereo inputs; 2 x mic inputs; 2 x auxiliary zone outputs; sub-harmonic processor; outputs

for recording, subwoofer and lighting system; balanced outputs; excellent headphone system. \$2196.

#### PEAVEY

Australis (02) 9698 4444

**CD 7032 A** 3 phono/CD inputs, mic input with bass cut talkover button, crossfader, cueing for each channel and 3 band EQ. \$595.

**CD 9072 A** 7 music input, CD/phono switch on all. 4 way assignable crossfader, two mic inputs - 7 band EQ. \$899.

**DSM 752** 3 channels, CD/phono switcher, 3/5/12 second sample lengths. FX loop, variable speed playback. \$699.

#### SOUNDCRAFT

Jands Electronics (02) 9582 0909

**D-Mix 300** 3 x stereo, 1 x mono, 3 band EQ, rugged field replaceable crossfader, split headphone cueing, variable voice over on mic input. \$1495.

**D-Mix 500** 5 x stereo, 2 x mono, 3 band EQ, rugged field replaceable crossfader, main stereo out, music stereo out and 2 mono outputs. \$2495.

**D-Mix 1000** fully modular - you choose between mono mic/line and stereo line modules - high performance, external PSU, 19" x 8U rack mount or drop through. 3 band EQ, aux send, assignable to mix or crossfader. \$5995.

#### NUMARK

Universal Lighting & Audio 1 800 648111

**DM 1090** 2 phono, 4 line + 2 mic inputs, bass + treble on treble on mic inputs + talkover function, 5 band graphic EQ, fully assignable crossfader, booth level control. \$529.

**DM 1260** 3 phono, 3 phono 1 mic input, gain, master + booth level controls. PFL, 3 band EQ on each channel, treble, mid + bass kill switches on each channel. \$529.

**DM 1190** 5-8 line and/or 3 switchable phono inputs, 2 mic inputs, dual 6 band graphic, master + zone level controls, separate DJ mic channel with 2 band EQ + talkover function, fully assignable crossfader. \$705.

**DM 1635** 5-8 line and/or 3

switchable phono inputs, 2 mic inputs, dual 6 band graphic, effects send, built in beat keeper, BPM tracking of 8 inputs (4 simultaneously) accurate BPM updating on every beat. \$1130.

#### ESP TECHNOLOGIES

ELSTA (02) 9568 2100

**DSM15** 2 channels, switchable into 4 (2 line, 2 phono), smooth removable crossfader, trigger buttons, cue monitor, mic input. \$199.

**DX4C** 4 channels (switchable to 8), 2 mic inputs, assignable crossfader, cue monitor crossfader, dual 7 band equaliser, 19" rack mountable. \$499.

**MIX 1** 2 channels (2 line, 2 phono), mic input + headphones, compact removable 20mm crossfader, separate gain controls, LED display. \$119.

**MIX 2** 3 channels (3 line, 3 phono), pre fader level, bass-mid-treble for each channel, beat indicators DJ booth control, replaceable crossfader, LED display. \$399.

#### AMERICAN DJ

American DJ Supply Australia 1 800 643 1111

**XDM-221** 2 channel (2 line, 2 phono), smooth removable crossfader, bass + treble for each channel, beat indicators, mic input with bass + treble control, LED displays. \$300.

**XDM-343** 3 channel (4 line, 3 phono, 3 mic inputs), smooth removable high quality "feather" fader, bass, middle + treble for each channel, pre fader LED's, balance control, booth volume + master, LED displays. \$450.

**XDM-242** 4 channel (4 line, 2 phono, 2 mic inputs), assignable "feather" fader, bass + treble control for each mic, beat indicators, 5 band graphic equaliser, 19" rack mountable. \$400.

**XDM-352** 4 channel (5 line, 3 phono, 2 mic inputs), separate bass + treble for each channel, assignable "feather" cross fader, bass + treble on mic, beat indicators, 7 band graphic equaliser, LED display, 19" rack mountable. \$600.

#### INTIMIDATION

ELSTA (02) 9568 2100

**The Don** 2 channel, crossfader, BPM monitor, drum bass, pan controls

(bass, mid, treble), kill switches, spectrum analysers, attenuators, FX channel, mic input. \$1900.

**Blue** 2 channel, smooth crossfader, headphone monitor, pre fade gain, kill switches and rotary kills (bass, mid, treble), punch buttons, blue LED's, attenuators, FX sends, external transformer. \$900.

**Apex** 2 channel, smooth removable fader, phase shifters, slaughter chamber, pre fades, rotary kills, punch buttons, external transformer, pan dials, headphone pans. \$500.

#### CLOUD

Lightmoves Technologies (02) 9560 0000

**DM 1200** 10 music sources over 6 channels, remote start switching, auto voice over, two low impedance microphone input channels, internal EQ, by pass switch for sub mixing. \$1500.

#### GEMINI

Disco World (03) 9735 0588

**PMX 7** trackmaster, 6" rack mixer, 2 channel (2 phono/2 line - inputs), mic input, LED meters, talkover switch, rotary gain control on each channel, cueing, removable crossfader, compact. \$239.

**PS 626** platinum series, 10" techno rack mixer, 3 channel (3 phono/3 line/1 mic - inputs), EQ and gain on each channel, split cueing, DJ booth output, beat indicators, XLR gooseneck lamp facility, removable crossfader, compact. \$469.

**PMX 2001** DJ choice, 19" rack mixer, 4 channel (2 phono/5 line, 1 aux mic - inputs), split cueing, mic channel (2 mic inputs with bass/treble), assignable/removable crossfader, DJ booth output, 14 band equaliser, cueing light facility. \$729.

**PS 747** platinum series professional, 19" rack mixer, 4 channel (2 phono/6 line - inputs), auxiliary mono channel (mic/line - input), split cueing, mic input, EQ and gain on each channel, 6 built in drum effects, beat indicators, many other features. \$919.

Prices include sales tax, and were correct at June 15th, 1997. Connections takes all care but cannot be responsible for errors.

# Randall Waller and the **EXPENSIVE** habits of an occasional rock star .....

By Dan Cole

The life of a freelance professional audio practitioner can be a busy one. Dan Cole spoke with audio specialist Randall Waller about some recent projects and the recording process.

Randall Waller is a freelance producer and music technologist and has been a 'player' in the Australian music industry since the early 1980s. You may have heard his music: he was the lead singer and guitarist of the power-pop band Avion who had some success and a following in Sydney in the 1980s. Avion put out two albums the first with RCA and the second with EMI.

## The Freelancer

Mr Waller has maintained a busy pace in the audio industry since Avion dis-banded utilising the skills acquired from this experience.

'There are just not enough hours in the day at the moment; I've been doing night sessions too. The nature of the business demands this sometimes so on these projects I work continuously until the job's done.'

Apart from regular session work (including vocals for *60 Minutes* and Panasonic promotions), Randall keeps in touch with playing and live performing with an acoustic trio called Kid Sister and has just completed another Australian tour with Billy Thorpe. He has also toured with acts such as John English and Dragon.

Typically the music technologist must be able to work across a range of audio disciplines so demands for versatile skills are high. Randall had just done F.O.H. for Ian Moss the night before I spoke with him.

'Being a freelancer in any industry is difficult but the trick is to have as many 'irons in the fire'. I also work on projects in the music publishing industry with a firm that has copyright in Australia for some well-known blues music including Chuck Berry and John Lee Hooker. The album for them will be by Kid Sister, the trio I play with.'

## Easier Recording

'Because we're doing 15, 30 and 60 second versions of these tunes it was important

to do what I call 'templates' on a sequencer just to get the timings right. I believe the making of a record is in the pre-production; you don't want to muck around with arrangements and parts in the studio. All you want to do at that point is get a great performance of the songs using sounds that are great before they get anywhere near a microphone.

'For the templates I just use my Akai/Linn sequencer, the ASQ 10. Its very easy to operate, very intuitive with 4 MIDI outs and it will sync to just about anything. If the sequences were to be heard on recordings I would have used Studio Vision or Cubase with my Mac because there's more control and much better editing facilities. But for templates the Akai is quick and efficient.

'After arranging the templates at home I went to the studio and dumped the work tracks onto the 24 track machine for the band to play along to. This made it easy for Paul DeMarco (drums) and Andy Cichon (bass) to play the feels I was looking for.'



## The Joy of SSLs

Randall got a start in recording industry by working at the now defunct Eclipse Studios. After Avion called it a day Randall lived in London, setting up a home studio and working for Bonnie Tyler, initially as her guitar technician and then as a player, whilst doing demos at the same time. Through working in large studio's he picked up an

expensive habit, preferring to work on SSLs, although the range of studios with these consoles is limited now.

'Many people complain about the sound of the SSL but in this country you can't be too choosy about top-end consoles since there are precious few around any more.

'I like the SSL console because it is set out in such a way as to make many operations quick and easy. It's great for setting up monitor mixes when you're tracking, for example. The way the board is designed you can send just about any signal anywhere, anytime with little or no patching. The dynamics control on every channel is extremely fast and functional. Being a quad channel board often I'll use the rear left and right outputs to send a stereo mix of the drums to the compressor (prefer-

ably a Focusrite 3), crunch it pretty hard and mix it back into the rest of the mix. This would require all sorts of signal path gymnastics on other consoles. As well the quad processor is a beauty.

'Sometimes people will decide that they can't afford the cost of a studio like this which is often a false economy because much time can be wasted on figuring out how to route signal. I have had engineers say to me, "I couldn't work on an SSL 'cause there'd be too much to think about", but in reality it's very straightforward and kind of takes care of itself, leaving you to concentrate on more important things like the music. After working on an SSL everything seems like hard work.

'Having said this a couple of months ago I recorded an album on the Yamaha 02R. It requires a bit of a shift but still operates on all the same principles and is easy to get around. It has something like 50 compressors, two multi-effect processors and automates absolutely everything. I'm also very keen to hear the Mackie (digital) later in the year.'

## The Personal Touch

Randall's recent recording and engineering credits include Phil Emmanuel on album tracks (over four days at Damien Gerards), and in 1992 he went to Seattle where he co-produced and engineered for a local group and in 1993 Randall engineered and co-produced an album in L.A. for a band from Atlanta. His most current project was feature vocals on a tribute song for Port Arthur called *Side By Side* (Produced by Sam McNally and engineered and mixed by Randall at Ramrod Studios). Funds raised were donated to support groups from the incident.

'Being a musician and composer is a real advantage when it comes to engineering or producing because often I know exactly what the client wants or needs. Musicality and sonics is difficult to learn and I feel my job is to try to see things from the artists' perspective. Often this can be helpful with, say, chord voicings, arrangements or a singer's particular breathing patterns. My philosophy is to work for the artist and not put my stamp on the project.'

• As a professional musician and producer Randall has developed contacts with a range of studios and can pull together all elements required for a recording project, including pre-production in his own studio. For project ideas call him on: 02 9874 3904 or 0414 308 108.

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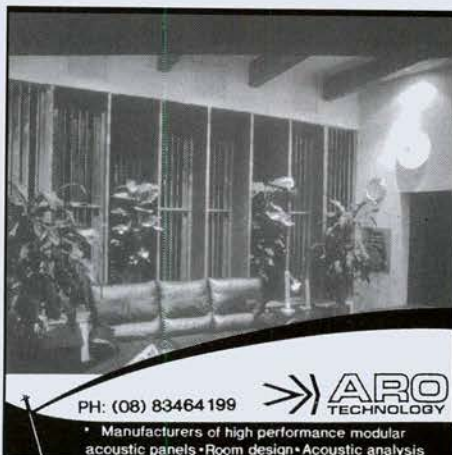


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# THE PA COMPANY

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Michael Orland is The PA Company (TPAC)- along with partner Margaret, and long time associates Jim Peisley and John Pascoe. They head up a production company with a lot of ability and a lot of equipment.

Coming out of the independent PA market, they still have PA systems in trucks - but these days you'll find a lot of chopping and changing equipment to meet a specification. The trucks are efficient, because the core systems need not be broken down, and so labour costs are minimised and today's show is different to the one you do tomorrow morning.

## THE MAIN PA

The main speaker boxes are whatever the job requires. The rig I saw uses the standard rock and roll Revolver B32 and M32 boxes. The B32 (bass box) has 2 x JBL 2226' 15" woofers, and are powered by Crest CA 12 amps. The M32 mid/high box has 2 ATC monster mid 12"s, on phase plugs, with a bi-radial horn and a JBL 2450 compression driver for high frequencies. The M32's are powered with C-Audio 3000 amps.

Amp choice is a question of power requirements, says Michael. "2226's handle 600 watts each, so the Crest C12 amps are a good match at 1,200 watts per side. The mid speakers are rated at 300w each, so I wanted an amp that put out 600w a side, the C-Audio delivers 650w.

I believe in matching power perfectly as much as possible, rather than using a ridiculously over powered amplifier then using all manner of processing and limiting to try and stop the amplifier delivering too much power into the speaker!

TPAC always use the B32 for bottom end, and in fact own 20 of these, with 10 CA-12 amplifiers. The box was originally designed by Lee Conlon of Revolver Audio, it is a semi-compact W bin design, and is probably the most popular stand-alone bass box in use in the tour-



ing market in Australia.

"When we do corporate shows we usually scrim them off or hide them under the stage so they don't exist. We have a JBL Sound Power system, which uses the 4750A box. It has two 2206 twin 600w 12" speakers and a horn in each box. We have six of those. We have so many boxes to choose from - JBL Array's, Bose 802's, whatever the job demands" says Michael. "You can't afford to say 'look, we only do THIS sort of business'. You have to be flexible and adaptable these days. We do a lot of corporate work for other companies, sub work. For example, we've done a concert for Prince Charles, a function for Fergie, lots of shows where there are a lot of compliments all round - but we don't get the return work. It's flattering that

big companies trust us with their reputation, they reason it's not viable to do a show with any less than a semi load of gear so they call us. It's still a struggle to get known for what we can do!"

"In some ways it's easier to come into a large sum of money and start a company and get recognised than it is for us, who have been doing this for years".

## SOUNDTRACS SEQUEL II CONSOLE

Driving the main PA is a concert console which is not terribly common in these parts,

a Soundtracs Sequel II console.

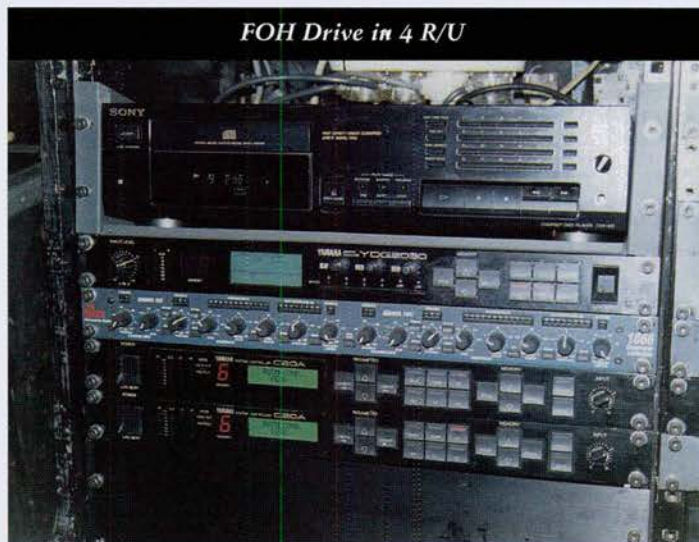
"It came down to a tossup between this and the K3 Soundcraft. This does more for the money. We've had to battle a little bit of brand snobbery with the Soundtracs name, but everyone wants to re-use it, so it has paid off. That makes it a good business decision".

It's a 48 channel desk, with 32 mono and eight stereo inputs. "The wonderful thing is the assignable, individual dynamics on every channel, you can have limiting, and noise gates and it's clean". The desk has frequency sweep on all four EQ bands, and all frequencies overlap. There are 8 auxiliary sends on each channel, and assignable mutes. It has 8 VCA subgroups, 8 subs, 8 effects masters and a matrix output section.

The board itself is reasonably compact, which is a big issue these days. From my cursory look-see I think it's got the right balance of features without anything you wouldn't use, and the ergonomics are good.

## FOH DRIVE

It's amazing what you can do with just a little rack space these days. TPAC have a Yamaha digital graphic equaliser (YDG 2030) with is a stereo 30 band unit in one rack space. It's deceptively simple once you get your head around it. You dial to select the frequency on the display, then



cut or boost it. It'll only display one (channel) side at a time, but you can change both sides together if you like. It has high and low pass filters plus you can delay a side - so you can run one side as a delay zone. It has notch filters too, and of course you can save your settings for next time you visit this venue.

Michael says: "There are a few people who prefer older style graphics but most people are coming around. More importantly they can hear the difference. With an analogue graphic you grab a slider, pull it down and you can hear it going 'gwarrk'. Which is what people are used to hearing, it's phase shift which is a design compromise with analogue graphics, because you're using capacitors. But using the digital equalisers it's all done in the digital domain. There is no phase shift. Some people don't hear the 'gwarrk' and think it isn't working!

Over the whole mix is a dbx 1066 compressor limiter.

Then there is are two Yamaha C20A system controllers, which act as crossovers. You can time align the components so the mid and the horn drivers are all virtually aligned in the same vertical plane. This aids the signals from each of bass, mid and high all 'propagating' together. It has a set of factory presets for generic EQ of different room configurations, like 'dry room' and suchlike.

#### EFFECTS

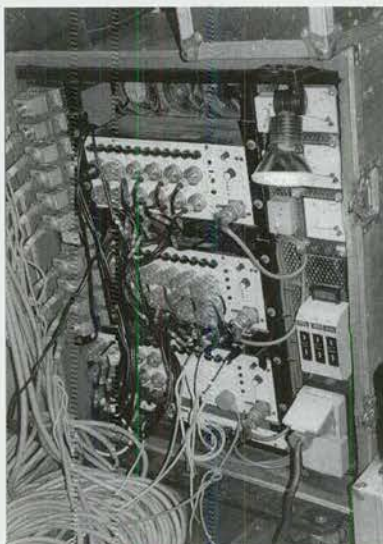
The standard system configuration has Yamaha SFX 1000, 900, 990, Rev 5 and a D1500 delay, and a Sony DPS-R7 effects multi processor.

#### MONITORS

There is a rack with four DBX 323:1 graphic equalisers, these are a dual 31 band equaliser recently released by DBX and finding friends everywhere.

These do equalisation for the monitors, which is driven by a Soundtracs 24 channel Solo Stage Monitor console with 10 sends. It's small enough to fit on most stages which is always an issue.

The monitor amp choice is Australian Monitor AM 2400, a dual triamp which is god's gift for stage monitoring according to Michael. There are 4 amps, each with 4 channels. Each amp has 2 channels which are, according to Michael, very conservatively rated at 800 watts per channel, and 2 channels at 400w per channel. It has crossovers and limiters on each side, elimi-



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nating the need for external units. So self contained! One lead in, and one lead out for each channel.

"The amps are flexible - take off the front panel and flick a switch for four separate channels if we need to add a bunch of passive wedges. No extra amps to throw in the truck! It's the ultimate monitor amp".

Out on the stage, TPAC have sidefills which have a top pack sitting on a twin 15" box. The top pack has an EV DH-1A compression driver on a horn, and a JBL 10" on a Turbo style mid flare, they are internally passively crossed.

For wedges TPAC use customised JBL AF-42's, with EV DH1-A drivers on the horns and JBL 15" woofers. "It's a beautiful, loud, sweet sounding high efficiency driver", says Michael. "We never loose any through over powering, the only diaphragms we loose are due to excessive drinking. You open them up and pour out the beer the next day". TPAC own 18 of these wedges in total. "They are due for change, later in the year we will go to a three way wedge with 10" midrange".

The drumfill has the same top pack as the

*continued on page 52*

## ROUGH RIDERS

Imagine that you're a technician in a venue, any venue, and management come to ask your opinion of something. Okay okay, I hear you laughing at the mere thought that management would ever ask the technical staff for their opinion on anything unless it had to do with saving money or asking you to fix the cappuccino machine in the executive kitchen that you're usually not allowed into. But I did say IMAGINE.

This is not a trick question but I want you to think about it very carefully. Management come to ask you if you'd rather have a world famous mega rock band with a reputation for bad behaviour or an internationally renowned symphony orchestra in for a three night season. To complicate matters let's say that you've just had a dance school in for a week and you're on the verge of a nervous breakdown after nearly overdosing on glitter.

If you've never worked with a full size professional orchestra before you probably think they're the easy gig of the two choices. All those sensible classical musi-

cians neatly dressed in evening clothes, dedicated to their art; as opposed to raucous rock musos who can play three chorcs, get paid a bundle, spit on stage and trash the dressing rooms. So you choose the orchestra looking for a bit of peace and quiet in your life.

#### WRONG CHOICE.

I hear you protest, how can it be the wrong choice? On paper the orchestra look great; a very straightforward rider. They want 80 identical black chairs without arms, a few high stools, music stands and a couple of risers for the poor musos who have to sit up the back of the stage. And of course a podium for the conductor. They'd like tea and coffee but they'll bring their own biscuits and they'll eat at the motel after the show. DEAD EASY. The rock band on the other hand have chewed through two fax rolls with their Rider, which has just taken several hours to transmit.

The orchestra arrive to bump in, so far so good. A few little hiccups but nothing too serious. Then the musicians file on stage and this is where the fun begins. I bet you

never imagined that there could be so many differences between eighty identical chairs. This is where you spent the next hour, on stage swapping chairs around until everyone's happy. Then you have to get out the masking tape and write individual names on the bottom of each chair. By curtain up you're exhausted.

You try to figure the logic of taking twenty minutes to reset the stage in between two, ten minute pieces. If you didn't have to spend all your time reading the names on the bottom of chairs the reset would have only taken five minutes; but chair allocation is serious business in an orchestra. You do the final reset during interval for the big symphony that takes all of the second half and then settle back for a well earned rest.

You think, "this isn't so bad" until you see the entire brass section take a breath, tip their instruments upside down and empty onto the floor what looks suspiciously like spittle. Who said only rock musos have bad habits?

*Rufus B.*

sidefill, but it sits on a 2 x 15" w-bin. Drummers want a 60hz wavelength up close, the only way is a folded box. It'll pulverise the drummers kidney and put a smile on his/her face. That's the requirement!

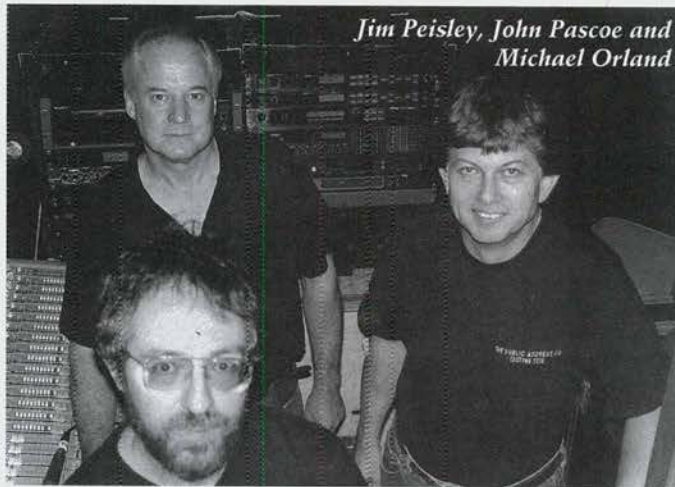
Microphones are anything you want, the normal kit has Shure Beta 58A for vocals, and Beta B52 for kick drums, and then a mixture of what is needed around a stage. TPAC can satisfy virtually any rider from stock anyway.

Finally, the main system is usually system engineered by Jim Peisley, a very dignified looking sound engineer.

## LIGHTING

At the lighting end of the company is John Pascoe, who like Jim has been part of the team almost forever. Between them all there are these days a lot of children, it's a family kind of business.

His basic system revolves around an Event Plus 48 console, with the rig made up of 64's, Ray's, Patt 23's, Mole Fays, and a selection of moving lights- Clay Paky 300 HTI's, and Martin RoboColor



Jim Peisley, John Pascoe and Michael Orland

2's. It has 11 colours, white and a strobe. I can fit twice as many of these on a truss as I could Pro 40C's. The lamp is an ENH 250w, it's probably equivalent in output to a Par 56 so a little underpowered but I like them. They're versatile, you can use them on as a lightshow alone, in a small venue you can control them direct from a controller or set up random chase.

"Power in a lot of places is a problem, I like compact and small fixtures".

days, a production would work for one band alone. These days the only one I know of is Arthur in Sydney, whose production works for Enormous Horns.

TPAC also have a network of friends interstate who pass work each way, so these days a national tour is more likely to be serviced by a different firm in each state. This saves on trucking, and means TPAC mostly work regionally or as far away as Canberra. Most of their work is in or around Sydney. How times have changed!

●Julius Grafton

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# LIGHTING MONTHLY

July 1997

Edited by Catriona Forcer

## 1997 TV WEEK LOGIE AWARDS

**Rohan Thornton details the dramas involved in producing the high profile awards show and he gives his opinion of the Crown Casino's Palladium Room**

Awards shows are the sort of thing, everybody loves to hate. Nobody admits to watching them, but everybody seems to know what happened. This year's Logie Awards that were held at the Palladium Room at Melbourne's new Crown Casino Entertainment Complex rated the highest that any award show has since television began in this country. I guess someone did watch it.

This year's production is a result of a renewed collaboration between renowned special event producer Peter Wynne and choreographer/director David Atkins. The combination worked well and the result was a more refined presentation. The biggest change was to the awards process itself, where some of the 'popular' awards, making way for some peer voted awards. This in some way, helped restore some of the 'industry cred' that maybe the Logies began to lack.

### THE VENUE

Well it happened again. People who designed venues once again did not listen to those of us poor bastards who have to use them. I do have to admit, that as far as ballrooms go, it is by far the best one in Melbourne, but that does not necessarily make it good. On the down side, access is via one of the strangest loading docks around. You can just get a 40' van into it as long as you block the traffic on the main thoroughfare for a while. This leads to a large truck lift that you can't drive a truck into. It is then a 100m push into the room. Although they boast the largest ballroom stage in Victoria, it is still comparatively small. There is one ingenious idea. As there is limited wing space, the wings also double as hydraulic ramps. A good, clever use of limited space. There are 3 hand winch bars on stage for lighting. For the logies we had to quadruple the stage size by filling in the sunken dance floor with a stage extension.

Lighting wise, it's not too bad. The room

*continued on page 56*



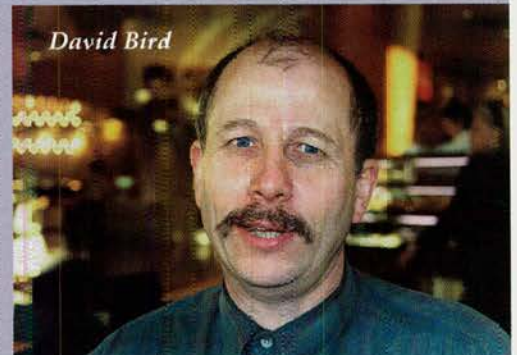
## Call for a local chapter of IALD

### David Bird seeks meeting in October

Leading Melbourne based theatre designer David Bird is canvassing interest in establishing an Australian chapter of the IALD (International Association of Lighting Designers). The New York based body is a peak industry association for people whose primary source of income is architectural lighting design.

"I've written to about 50 people I've identified, mainly in the Eastern states. The idea is to encourage them to come to the Illumination Engineering Society (IES) conference in October this year in Melbourne. I'm trying to get someone from IALD to be out here, to give a paper at the conference and to kindle the flame to start a local body. I'd suspect we'd probably end up with a chapter in Sydney and in Melbourne" said David Bird.

David Bird



David will work towards holding a meeting just after the IES, held October 27th through 29th. Once established, an inaugural IALD meeting would be held at ENTECH 1998 in Sydney next April.

Interested industry professionals should contact David at: Phone (03) 9613-9219 or fax (02) 9629-3929.



# BUYERS GUIDE

## LIGHTING CONTROL

### UNDER \$10,000

#### COMPULITE

Coemar De Sisti Australia (03) 9467 8666

**Photon** full feature compact console of 144/240/512 control channels, 48 scrollers, 512 DMX channels, 20 multi-purpose controllers, instant memory/channel/group/snaps/macro/chaser access, Rigger's remote, SMPTE, MIDI, DMX in/out. From \$9,995.

#### AXON DIGITAL DESIGN

Coemar De Sisti Australia (03) 9467 8666

**ShowCAD** PC-based lighting control software and propriety DMX card for 1024 control channels. Fixture specific templates for moving lights, auto generate scene and patch creation, off site editing, comprehensive soft patching, SMPTE, MIDI, DMX in/out, Analogue, & audio input. \$5,995.

#### CRESCIT SOFTWARE

Coemar De Sisti Australia (03) 9467 8666

**SoftPlay DMX** user-friendly PC-based (Windows) lighting/motor controller. 96 control channels and 12 moving lights (8 parameter) plus 4 motor controllers. Infinite scene creation, soft patch, joystick control, off site editing, programmable effects macros, timed crossfades. \$949. **SoftPlay MIDI** user-friendly PC-based (Windows) lighting/motor controller. 48 control channels plus 4 motors. Infinite scene creation, soft patch, off site editing, programmable effects macros, timed crossfades, MIDI output - trigger scenes via MIDI. \$450.

#### L.S.C. ELECTRONICS

L.S.C. Electronics and Agents 03 9561 5255

**ATOM 12/24** **ATOM 24/48** designed as an entry level console yet offers enough features and power to suit more demanding installations. Nine pages of 12 or 24 scenes or chases (108 or 216 total) Full edit, manual or programmed in and out time fades, bass triggered chase facilities are standard. Options - Disk drive, VGA Video, Analogue outputs and desk light. **ATOM 12/24** \$1,420.00 **ATOM 24/48** \$2,300.00

**AXIOM 24/48** **AXIOM 36/72** mid ranged console offering true moving light control with in-built moving light library and a host of other features which make it ideal for touring, theatre and hire. A LCD prompts the operator and provides online help to allow the Axiom's powerful features to be accessed. Options - Disk drive, Analogue outputs, and desk light. **AXIOM 24/48** \$3450.00 **AXIOM 36/72** \$4850.00

#### ANYTRONICS

TechScape Lighting & Audio Distributors 1 800 773 187

**Mini Desk 6** 6 channel fader panel with master level, master blackout and individual positive feel flash buttons. Output is 0 to +10V and requires power supply of +18 to +25V @ 20ma. \$193.

**Mini Desk 12** 12 channel 19" rack mount version of Mini Desk 6. Requires power supply of +18 to +25V @ 40ma. \$335.

**Aurora 6** 6 channel 2 preset desk in 19" rack mount format with 0 to +10V output, A/B master level faders, Auto/Manual crossfade adjustable to 6 minutes and flash buttons. \$392.

**Aurora 12** 12 channel 2 preset desk with 0 to +10v output with all features of Aurora 6 plus flash level control and available in freestanding or 19" rack mount format. \$624.

#### HIGH END SYSTEMS/ LIGHTWAVE RESEARCH

TechScape Lighting & Audio Distributors 1 800 773 187

**AF1000 Mini Controller** controls 12 addresses of AF1000 Dataflash Strobes (24 DMX output channels), Controls include rate, intensity, flash, program and audio functions. 19" rack mount format. \$1022.90.

**Studio Color LCD Controller** controls 8 addresses of Studio Color fixtures. 891 scenes, 1024 presets, 99 po-

sition presets, Scene edit/copy, full control and programmability of fixture parameters, LC Display. \$4865.73.

**Status Cue Link Card w/- software** supplied with VER 3 software, Windows tm 95 compatible, requires Pentium PC, 1024 DMX channels or LWR protocol, powerful cueelist implementation including time code from Compact Disc, can operate stand alone w/o console. \$4536.47.



JB Lighting Scancontrol 1612

#### STRAND LIGHTING

Bytecraft (03) 9587 2555, (02) 9550 3955

**LX** 2-scene preset manual analogue control console with slider per dimmer operation. Basic lighting control for small venue, drama studio, clubs etc. 12 and 24 channel versions. Split dipless manual or timed crossfades, individual flash buttons per channel. From \$1388.

**MX** 2-scene preset manual control console with memory. Ideal for small venues which require basic memory capabilities and special effects. 12, 24, or 48 channel versions. 4 'pages' of memories, 24 programmable effects, two proportional channel/dimmer patches, optional memory storage card. From \$3027.

**GSX** Compact lighting hardware platform with a choice of software packages allowing channel number and feature upgrade paths. Command panel, two playbacks, wheel, LCD display and 24 submasters. Can control up to 512 DMX dimmers or scrollers using 25, 50, 75, 100, or 125 channels. From \$5962.

**LBX** Compact memory + manual lighting console platform with a choice of software. Designed for concert lighting, multipurpose venues and touring, it is user configurable allowing the 96 channel manual faders to be used as a single or two preset desk with or without submasters. From \$9121.

#### MARTIN

Show Technology (02) 9898 1111

**3032** can manage up to 96 Roboscan fixtures with over 65,000 possible sequences - each up to 9999 scenes. Software based running on a PC 486 with a minimum of 4MB. Friendly Graphical User Interface, supports high resolution, full colour, super VGA display, and can be controlled by other lighting boards. \$2458.20.

**2308** individual control of up to 8 Martin Roboscans. Stores up to 10 different shows. Memory capacity of 611 scenes. Upload/download interface allows user to download entire lighting programs to PC. \$1392.60.

**2510** play back controller can be downloaded from a 3032 controller. It enables scenes and chases from front panel manual mode. Also features auto, blackout and music trigger controls. \$1064.75.

**2504** pre-configured to run up to 8 Martin 812's. Has 40 pre-programmed sequences and 200 scenes in total. \$736.90.

#### MA LIGHTING

Show Technology (02) 9898 1111

**Scancommander Ext. Unit** extends the Scancommander by another 16 channels. Can also be used as a "playback" controller and has a memory card slot for back up. \$5327.87.

#### THEATRELIGHT

Lightmoves Technologies (02) 9560 0000

**Cuemaster** dedicated scenemaster controlling up to 240 scenes, chase beat function, memory card. Auto loading fade times for fast scenes and show cues. DMX512. \$4650.

**Cuemaster Plus** DMX mixing of two DMX inputs, full soft patching of 512 dimmers, full VGA screen display, memory card, house lights control, storage of four independent patch lists. \$9250.

**Scenemaster 3F** 4 pages of scenemasters. Single button show operation record beat, wide mode. Dynamic VGA colour display. Available in 12 and 24 channel variety. 12/24 channel \$1695 24/48 channel \$2195.

#### ROSCO

Rosco Australia (02) 9906 6262

**Horizon** with a capacity of 3072 DMX512 dimmers and 3072 control channels your Windows 95 Pentium PC with Horizon CD ROM becomes a lighting board. A Horizon DMX interface (\$1800) is required to run a show, dim lights, control automated lights, scrollers and fog machines. \$Free.

#### CELCO

Electrosonic Systems (02) 9714 0400

**Pathfinder** includes 60 control channels, DMX512 patch, 12 submasters, rate playback, sequencing, music signal input and slot for Q-card archive storage. \$5919.

**Pathfinder EPX** as basic Pathfinder plus SVGA monitor output, mini keyboard, floppy disk drive port and MIDI input/output. \$8704.

**Navigator** moving light console, 240 control channels, DMX512 patch, 12 submasters, rate playback, sequencing, music signal input and slot for Q-card archive storage and personality card. \$5919.

**Navigator EPX** as basic Navigator plus SVGA monitor output, mini keyboard, floppy disk drive port, tracker ball and MIDI input/output. \$8704.

#### ABSTRACT

Universal Lighting & Audio 1 800 648 111

**64ch CE Controller** DMX console, 512 scenes, 128 chases, controls 16 x 4 channel fixtures, soft patch, LCD display, MIDI in/out, audio input, in-built pre-programs. \$1245.

**32ch Controller** DMX rack mountable controller, 48 scenes, 6 chases, 6 pre-program chases, controls up to 8 x 4ch DMX fixtures, crossfade and auto functions. \$820.

#### JB LIGHTING

Universal Lighting & Audio 1 800 648 111

**1612 Scancontrol** controls 16 intelligent fixtures + 24 Par cans, in-built mirror movements, in-built shutter chases, 576 scenes, RAM card memory back-up. \$3550.

**DMX Controller** controls 12 intelligent fixtures, 880 memory scenes, joystick control, fade times, 20 chases of up to 22 steps, audio input, rack mountable. \$1920.

#### NSI CORPORATION

Universal Lighting & Audio 1 800 648 111

**MC 7008** 8/16 channel DMX desk, 2 manual presets, 8 memory scenes, 2 programmable chases, dual split dipless crossfade function, made in USA. \$775.

**MC 7024** 24/48 channel DMX desk, 2 manual presets, 24 memory scenes, 2 programmable chases, dual split dipless crossfade function, made in USA. \$1475.

**MC 7524** 24/48 channel DMX desk, 384 memory scenes, 24 chases, 24 submasters, encode wheel, MIDI in/out, soft patch, memory stack function. \$3450.



**MLC 16** DMX intelligent light desk, 16 pre-configures fixture buttons, disk drive back-up and fixture library, 96 programs, 1000 memory scenes, MIDI in/out, DMX in/out, audio input. \$3480.

### SHOWCRAFT

*Showcraft (02) 9698 3009*

**DMX Isolator Model 204** has 4 outputs, 2 DMX line inputs, riggers control input; constructed for 24 hour continuous operation; features an automatically switched input; can be user configured as 1 in 4 out or 2 in 2 out on individual lines. \$1400.

**DMX Isolator Model 104** has 4 outputs, 1 DMX line inputs, riggers control input; features an automatically switched riggers input to enable quick and easy access for dimmer testing or riggers control input. \$1300.

**DMX Isolated Wall Socket** fully DMX compliant isolated line outlet with a 5 pin XLR connector. Boxes can be fitted with single or dual outlets and provided with custom labelling for specific applications. \$270.

**DMX-Analog Converter Model DA12** compact 12 channel unit provides up to plus 10 Volt DC output from a DMX input. Can be set to start on any channel from 1 through to 512. Powered from a plug pack, this unit converts a single analog dimmer rack to digital. \$395.

### GREAT AMERICAN MARKET

*Showcraft (02) 9698 3009*

**Gam Command** hand held riggers control for direct access to DMX512 dimmers. Full function keypad can control a full scene or just a single dimmer. Functions as battery operated test device for all 512 dimmers. Checks all 5 pin cables and tests DMX presence on the line. \$425.

**Gam Command Two** hand held riggers control with LED channel number and level display. Quick to operate both solo and scene controls and provides access to all 512 dimmers. Functions as line and console tester, ideal for when DMX patching mysteries occur. \$620.

**Gam Switch** DMX automatic line switcher for DMX. Designed to provide a riggers control input to the DMX line without having to plug and unplug DMX connectors which may lead to faults. Switch is activated by turning the power off on the riggers control which returns control back to the main desk. \$295.

**Gam Opto-Iso** optical isolator and line splitter. Isolates control signal and boosts signal to provide a fully split line with no interference to the main signal. This battery or plug pack powered unit provides a quick solution if trouble develops at the last minute. \$255.

### JANDS

*Jands Electronics (02) 9582 0909*

**Stage 24/48** 24 channel, two preset DMX512 console or wide mode 48 channel operation. Two grab masters, flash buttons and chaser controls. \$1695.

**ESPII 24** 24 two preset or single preset 48 channel operation.

Three proportional patches of up to 512 dimmers 498 memories and up to 30 chases. Timed dipless crossfades and 12 submasters on 30 pages, \$3995.

**ESPII 48** as for ESPII 24 except with 24 submasters and two preset 48 channel or wide mode 96 channel operation. \$5995.

**Event 36** 36 channel two preset or wide mode 72 channel control. Theatre style timed crossfade stacks. Cue linking multiple playbacks, MIDI control and proportional soft patch as standard. \$8995.

### DYNALITE

*Various distributors (02) 9319 5055*

**Studio 4** 4 x 1000w desk and dimmer with flash and fade, audio triggered chases, master fader with chase gain and speed control. \$961.

**Studio 12** 12 channel analogue desk with two presets with masters, flash buttons, four channel chaser with separate control for flash and chase. \$865.

### METEOR

*ELSTA (02) 9568 2100*

**Omni DMX512**, 256 DMX channel, 64 objects (all can be different), 32 groups of objects, 240 scenes, 48 chases (Of 64 steps), 20 shows, virtual 4 track DMX recorder, MIDI controllable, RS232 port for Windows software, fully programmable. \$2210.

**Omni Pad** used in conjunction with Omni - allows for 'live' shows to be played through the Omni, has 56 key combinations and can be used in conjunction with other MIDI devices. \$1228.

### LITE PUTER

*ELSTA (02) 9568 2100*

**CX-12** dimming, 96 channels (24 faders, 4 pages), 96 scenes, DMX or analogue signal outputs, 24 chases of 64 steps, 2 independent dipless crossfaders, read + write into external memory, LCD display shows all operations. \$2458.

**CX-3** dimming, 48 channels (12 faders, 4 pages), 12 programmable scenes, 48 scene memory, programmable chases, crossfaders, DMX512 or 0-10v analogue signal output. \$1143.

**C1202** 12 channel dimming desk, 0-10v analogue output, master control, chasing - speed variable or by sound, 12 flash buttons, sliders for chase speed. \$573.

**T1205** 12 channel programmable touch panel, 0-10v analogue output, hold and flash buttons, 13 scenes, programmable to 100 steps. \$819.

### BOTEX

*ELSTA (02) 9568 2100*

**TP1202** 12 channel DMX/analogue programmable touch panel, 12 scenes, chaser with auto/audio/manual operation.

ated by touch sensors, 40 key-pads. \$491.

**TP2401** 24 channel DMX/analogue programmable touch panel, 12 scenes programmable, 24 manual scenes, chases up to 99 steps, chaser function, built-in mic for audio sensitivity. \$819.

**DC4P** 4 channel dimming chaser controller - 99 built-in chase programs, individual dimming on each channel, master dimmer, fade time settings, audio sensitivity, 10 amps per channel.

**DC12** 12 channel dimming desk, DMX and analogue output, 99 built in chase programs, sound to light animation (by frequency and volume). \$560.

### PULSAR

*Show Technology (02) 9898 1111*

**Masterpiece 108** flexible and versatile controller that accepts 0-10v, DMX512 or PMX. Control signals - features 108 channels, 216 scenes, 54 chases and 48 environments. Designed to replace a collection of controllers that would have been necessary in a modern environment. \$5319.60.

**Masterpiece 48** brother of Masterpiece 108 controller, features DMX512 and 0-10v and PMX. Control signals-features the same as big brother. Capacity for 48 channel, 96 scenes, 24 scene chases and 22 environments. \$4426.20.

**Masterpiece Relay Unit** designed for pre programmed applications where complex control is required from a 1 unit 19" rack mount. Program on Masterpiece 108 then download. Ideal for "install" controller - as unit cannot be corrupted once loaded. \$2450.80.

### GROUP ONE

*Show Technology (02) 9898 1111*

**Elektralite CP10 XT NEW!** Features 128 DMX channels and is a universal moving light controller capable of programming all personalities of moving lights. Only 2 RU in rack space. \$2458.20.

OVER \$10,000

### COMPULITE

*Coemar De Sisti Australia (03) 9467 8666*

**Ovation (Mini 3B)** fully featured memory lighting console with integrated options & peripheral moving light adaptor (MLA), 1500 control channels, 20/40 controllers, system customisable, riggers radio & infra red remotes, MIDI, SMPTE, DMX in, Backup unit, internal hard-disk storage & floppy backup, networkable, off-line editor. From \$28,000.

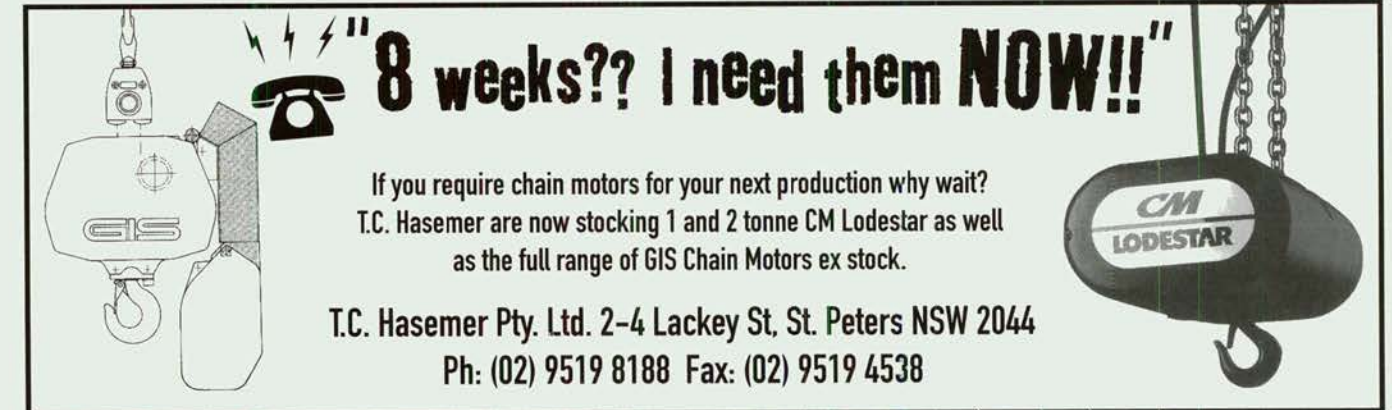
**Applause (Micron 3B)** fully featured memory lighting console with integrated options. 600 control channels, 20 controllers, system customisable, riggers radio & infra red remotes, MIDI, SMPTE, DMX in, Backup unit, floppy backup, networkable, off-line editor. From \$18,000.

**Animator Moving Light Consoles** control 24/48/72/96 moving lights (22 parameters) and 512 DMX control channels in all configurations. Total integrated control and direct instant access to all functions. Trackball & Multiple Wheel control, macros, in-built chasers, snap, disk storage, DMX in/out, MIDI, SMPTE, multiple protocol (Coemar/High End/PMX/Data, etc) Leader effect for multiple moving lights. From \$19,600.

**Spark** control 24 moving lights (22 parameter), 48 scrollers, and 144 control channels 512 DMX outputs,



Gam Command II



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T.C. Hasemer are now stocking 1 and 2 tonne CM Lodestar as well  
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# 1997 TV WEEK LOGIE AWARDS

continued from page 53

is covered by a series of boxes that are around 8m square. On each side of the square, there is a 4m spot bar with 6 patch points. These points go to a series of strategically positioned areas where there is a 40 amp wilco, DMX points and the space to put racks. This side of things is pretty good. Most of the house bars are accessible via removable panels on the very extensive catwalk system. On the down side, the bars are too far into the boxes. To get a decent angle, you need to put them on dropper bars which kind of defeats the purpose a little bit. The outlet numbers are incredibly hard to read. It's funny how the little thing irritate the most. The in house A/V, audio and lighting patch is quite extensive and by all reports, works extremely well. There is a bit more work to do on that front, but it is getting there.

Rigging as usual is the area that was completely forgotten. I have to say at this point, that Ian Messner from Jands deserves a Knighthood. My arse was well and truly saved by his experience, knowledge and ability to speak fluent engineer. When the crews doing the opening, walked into the building three weeks prior to us you were lucky to be able to hang a balloon from the roof.

After a lot of discussion, a spreader beam situation developed and you are able to take a point load of 200kg from the house lighting bars. The capacity of the bars themselves, altered quite considerably depending on who you asked at the time.

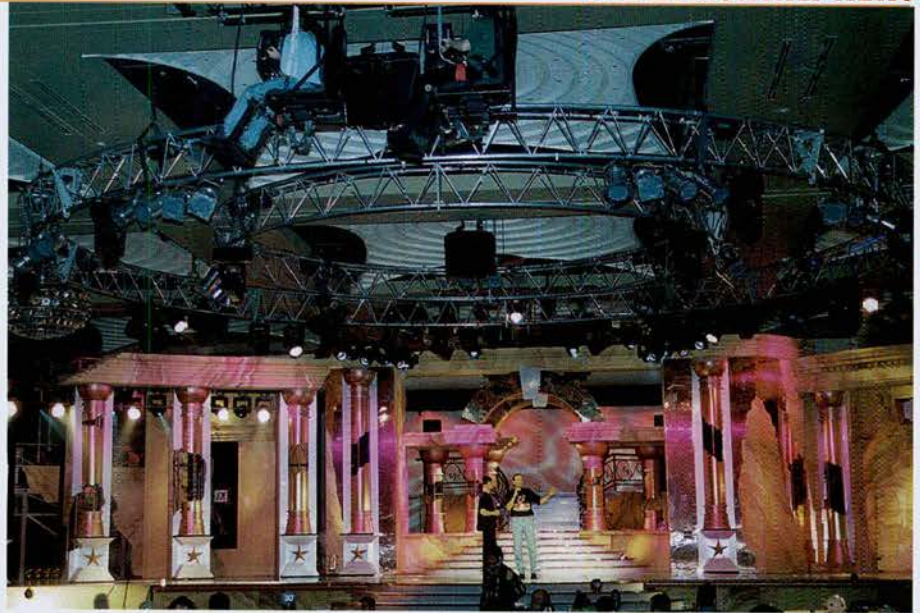
Staging Connections are the house A/V company, and Richard Grenfell was a great help to us in the week we were there. Showtech are the designated and most expensive (somehow I don't think this is Showtechs fault) riggers for the Palladium.

## THE PRODUCTION

The presentation was broken down into three fundamental parts

- 1 Presentation of awards
- 2 Videotape packages
- 3 Production numbers.

The presenters of the awards changed almost on a daily basis. The production and



schedule requirements of actors, altered their availability quite considerably. Patrick Stewart (Star Trek) who was to present the Gold Logie, did not arrive in the venue until five minutes after the production had started.

Peter Wynne cut most of the Videotape Packages with Mark Fennesey putting together the Sports and Arrivals packages and Deb Byrne editing the moving Port Arthur piece.

There were three production numbers, the last was Human Nature, direct from a

assisted by Colin Gersch, he came up with what I feel is the best Logies set I have ever seen. The brief was to enhance the quite impressive Casino structure and create something that appears to naturally fit in. The general concept could be described as 'decayed opulence'. The basic shell was truss constructed in steel by Stagedwell. It had a cladding that had a ceteriorated finish which was constructed and finished by Neon Graphics. The colours chosen allowed the set to take light very well and gave it a lot of depth.

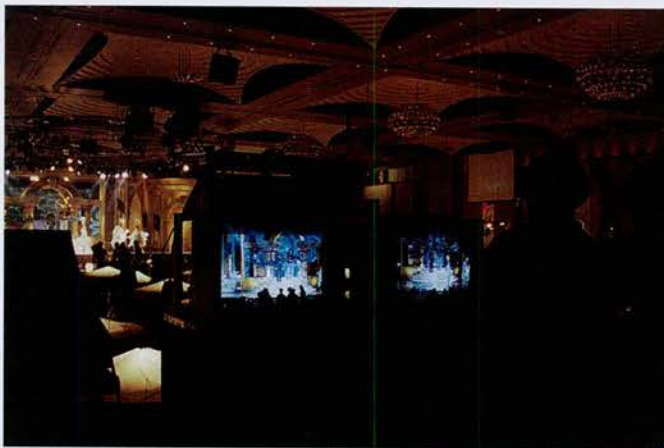
## LIGHTING

The lighting rig was determined entirely by the availability of rigging points. Not the ideal environment to start with. The lighting suppliers were Active Lighting and Jands Production Services. The main consideration again was the lectern. As this was about 70% of the show's visual content, the angles had to be right for that. Everything else grew from that. As the set had a 'truss

feel', I continued that into the shape of the rig. Front of house, there were two concentric rings one 13m and one at 7m. These were last seen on John Barnham's last tour. The rest of the truss was predominantly 300mm tri-truss as that was all that fit between the set and the roof. We utilised the set as a fixing point for lights, more than was originally planned as when the set went in, it didn't all quite fit.

Most of the truss toners were the Martin Pro400 (32 in fact), which are proving to be most reliable and versatile. As always seems to be the case, the only grief I had amongst the millions of dollars worth of equipment I had was with the scrollers. As opposed to what I had specified, Active supplied me with Series 1 Colorset Scrollers. I am a big fan of Colorset

*continued on page 58*



European tour, singing a great version of 'People Get Ready'. The second was the unlikely but successful combination of Tim Ferguson and Don Lane singing 'What a Swell Party'. The first and by far most complicated was the opening illusion and dance choreographed by David Atkins. The illusion initially created by Ross Skiffington eventually became an ensemble effort. Although we can't divulge how it worked, there were many relieved people when it did. There were some of us who weren't as confident.

## THE SET

Mal Nichols was the set designer. Ably

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Rohan consults his watch



provide by Metropolis Audio. They were fed by sub groups from the broadcast console. Rod Matheson was the monitor engineer.

The broadcast coverage was divided in to two sections. The band and the music was mixed on a Midas XL-4 by Steve Delmenico. The talking heads, video tape packages and audience mics were mixed on a Yamaha PM 4000 by Mike Smith.

**THE BROADCAST**

The telecast was directed by Adrian Dellevirgin. Using the Nine Network OB facilities, the coverage was spread over two OB vans. The first one ran nine cameras, 4 hard cameras, 2 Jimmy Jibs, 1 soft camera and 1 Hot head. The second OB van had three soft cameras and covered the arrivals and audience shots. All signals were fed via optic fibre to Channel Nine Richmond where it was distributed to the appropriate networks. Almost all of the tape packages were played out down stream.

**THE CREW**

Lighting Designer Rohan Thornton  
Vari Lite Operator Peter Lothian  
Wholehog 2 Operator Andrew Edis  
Analogue Operator Jason McKinnon  
Show Cad Operator Brendan Madden  
Lighting Crew Chiefs Steve McNair, Derek Weith  
Vari Lite Techs Rocky McKenzie, Andy Mutton  
Intelligent Lighting Tech Jason Saunders  
Audio Directors Mike Smith, Steve Delmenico  
Front of House Sound Richard Bilinski  
Monitors Rod Mathieson  
Structural Consultant Ian 'Rock God' Mesner

**1997 TV WEEK LOGIE AWARDS**

continued from page 56

scrollers, but 22 of these ones cost me more time and effort than the rest of the intelligent light rig.

Sixteen of the new and excellent Clay Paky Stagescans gave me some rotating gobo and fast move capability. This was the first time I had used the Stagescans and I was very impressed. They are fast, bright and above all, quiet. The colours and effects make them in essence, a composite of all the good features of the better moving mirror fixtures available on the market today. The rest of the rig was Varilite consisting of 18 VL\*2c, 36 VL\*5, 12 VL\*5b, 24 VL\*6 medium field and 6 VL\*5a. Some of the new Varilite product is indeed excellent. The VL\*6 medium field lenses gives an increased beam angle without the usual loss of intensity. The VL\*5arcs are great. They combine the colour palette of a VL\*5 with the intensity benefits of an arc lamp source. The liquid silicon diffusion system is impressive purely on its engineering value. The VL\*5b is by far they best intelligent light product around at the moment. The improvements

to the colour palette have to be seen to be believed.

The last of the intelligent lighting was 4 DHA light curtains which added a nice touch.

The rest of the analogue rig was 200 Par64's, 106 Profiles (Lekos, Shakespeares, Selecons and Source 4's made up that lot), 14 1.2KW fresnels and lots of strange bits and pieces. The host set was covered by two Lycian Starklite follow spots and the rest of the room was covered by four Selecon Performer follow spots and two Xebex 2KW.

There were four operators to control the myriad of different lighting protocols required. The Artisan was operated by the best in the business, Peter Lothian. The DMX based intelligent lighting was run off a Wholehog 2 operated by Andrew Edis. The analogue was initially controlled by an Avolites Sapphire but we ended up giving that the flick as it lacked the features most 12 channel consoles have today. We ended up replacing it with a LSC Focal. These were operated by Jason McKinnon. We also availed ourselves of the Martin 518's that are in the house rig and these were operated by Richard Grenfell. The table lamps were run off a ShowCad system operated by Brendon Madden.

The famous table lamps was one of those simple ideas that just required a lot of thought in its execution. It was simply a light, a cable, a dimmer and a control system. It also required 2000 Gallons of coffee.

**SOUND**

The sound component was broken up into two sections. Firstly the broadcast element and secondly the room element. The sound to the room was provided by a series of clusters of JBL arrays. They were mixed by Richard Bilinski via a Midas XL-3. He had the usual combination of compressors and signal processors to assist the mix. All of the front of house sound equipment was provided by Jands Production Services. The layout of the band provided some monitoring headaches. The band was split in half with all of the coordination and delay problems you would expect. The base monitor system was provided by the Garwood In Ear monitoring system. The rest of the stage used JBL wedges. The monitors were mixed by a Soundcraft SM24 monitor console. The in ear monitors were mixed using a portable powered mixer whose name escapes me but were



this FREE CD-ROM from ROSCO will turn your Pentium™, Windows 95® equipped PC into a powerful lighting control console with incredible performance specs. The HORIZON CD-ROM software offers 3,072 channels of control and is designed to control any DMX512 compatible device. This includes dimmers and traditional fixed lighting but also includes automated lighting, colour scrollers, fog machines and show control systems.

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AXIOM 48/96 AXIOM 60/120 newest release console, offering the ease of fader per channel whilst offering moving light control features typically found only on high priced dedicated moving light consoles. The AXIOM 48 allows for control of up to 96 intelligent fixtures (1024 channels) and 120 fixtures (1536 channels) on the AXIOM 60. Standard with Disk drive, VGA Video, Desk light and console cover. AXIOM 48/96 \$9450 AXIOM 60/120 \$10990.

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MA LIGHTING

Show Technology (02) 9898 1111



Jands Hog 250 and 600

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MARTIN

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Case Pro 2 coupled with monitor and LCD displays to ensure a fast and instant review of the controller. Offers 1024 to 2048 channels. It is possible to run different protocols simultaneously, and also features 72 different pre-programmed movement patterns, and stage layout with integrated CAD module. \$25,561.54.

CELCO

Electrosonic Systems (02) 9714 0400

Explorer 120 control channels, DMX512 patch 12 submasters, rate playback, sequencing, music signal input and slot for Q-card archive storage. \$10,383.

Explorer EPX as basic Explorer plus SVGA monitor output, mini keyboard, floppy disk drive port and MIDI input/output. \$12,548.

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Jands Hog 250 250 channel moving light console. HTP or LTP control. Automenu and Palette button programming for quick access to beam, colour, position and groups of fixtures. \$15,995.

Jands Hog 600 600 channel moving light console. HTP or LTP control. 24 Playback Masters. Automenu and Palette button programming for quick access to beam, colour, position and groups. \$20,995.

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Express 125 125 channels, 24 overlapping submasters on 10 pages, 2000 macros, 600 cues, 500 groups. ETC link and ETC net connection as standard. Real time event programmes. \$14,995.

Express 250 250 channels, 24 overlapping submasters on 10 pages, 2000 macros, 600 cues, 500 groups. ETC link and ETC net connection as standard. Real time event programmes. \$25,995.

Expression 2X 500 channels, 1536 DMX512 dimmers, 600 cues, 250 groups. ETC link and ETC net connection. Sub routine cues with 24 steps. Intel 1960 microprocessor control. \$56,900.

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ACTCONNO01



# Clay Paky Stage Scan

Many more features in a GS3 sized package

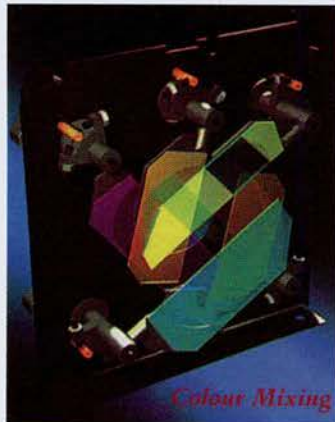
By Julius Grafton

Golden Scan and more recently Golden Scan 3 and the Golden Scan HPE have carved a respectable market share in most parts of the world. Clay Paky have now added the Stage Scan to the range, bringing new features into the same sized unit.

Stage Scan packs almost every possible combination of gobo projection, prism diffraction, colour mixing and beam control into one device, in many ways replacing the considerably physically larger SuperScan unit.

Stage Scan, Golden Scan 3 and Golden Scan HPE share the same external body. The GS3 is finished in silver, the HPE is black, and the Stage Scan is a Gun Metal Grey finish. The lamp is a HMI 1200w unit (from Osram) which will deliver 750 hours. The lamp replacement cost is around \$350, around half the cost of an MSR lamp.

How different are they? The DMX channels tell the story. GS 3 needs 6 channels or 8 channels in wide mode. HPE needs 12 channels or 16 channels in wide mode. Show Scan uses 16 channels plus an extra channel if you wish to use the lamp hot re-strike feature - for a total of 17 DMX channels.



Where there's channels, there's features. Essentially looking at the unit tells the story - the signal and power go in one end, and at the other is a big mirror which scans 110° one way and 150° the other.

To get the inside story on Stage Scan I spoke with Kevin Gaynor, a Production Manager at Active Lighting.

"We purchased 16 for Sweet Charity at Her Majes-



ties Theatre in Melbourne. We got the 2nd order in the world - they seemed good on paper, but it was a bit of a risk buying the units unseen".

### LAMP AND OPTICS

Big news in the Stage Scan is the hot restrike feature. Getting your lamp back after power has been disconnected is always a good thing, and there are many reasons that power to a fixture or a lamp can be interrupted. The Hot restrike works, I saw a potentially unhealthy (for the lamp itself) series of on-off applications in a demo - but hey, it wasn't MY lamp! Kevin says: "The lamp strike channel is bloody handy".

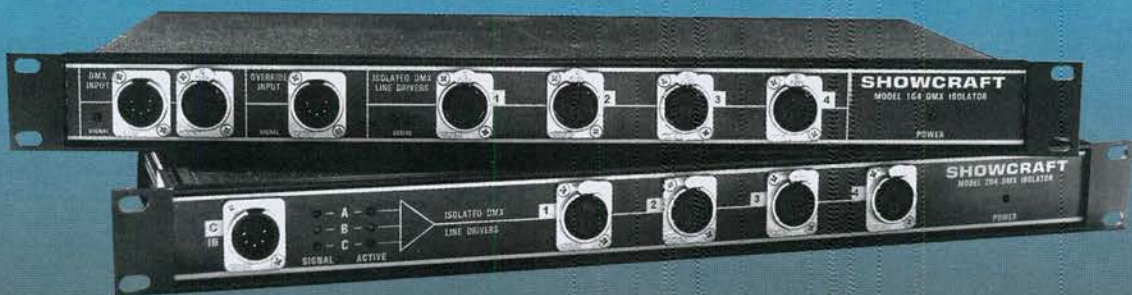
A blatantly obvious benefit when using channel 17 is that you can turn your lamps ON without hauling yourself or your rigger all the way up to the fixture before the start of the show, then turn it off as soon as the show is over.

The lamp helps produce a flat field (or: more even) image with less of a centre peak, which is what you want for gobo projection. It has a colour temperature of 6000° Kelvin - close to daylight. Who was Kevin anyway?

The optical train is essentially the same in the 'Scan family, Golden Scan, HPE and Stage Scan. The differences start inside,

*continued on page 62*

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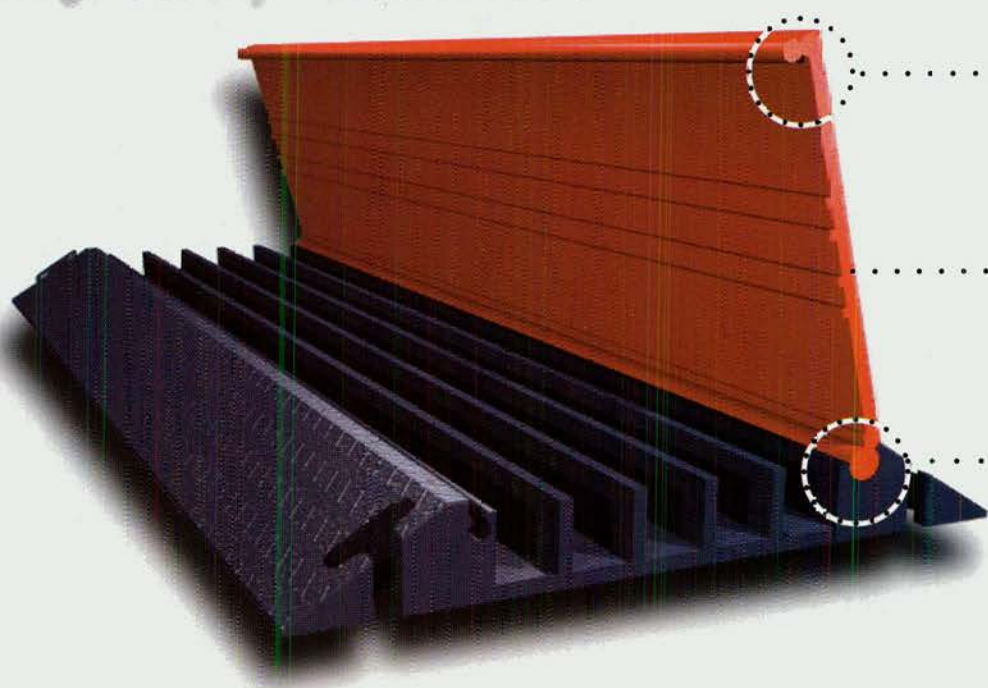
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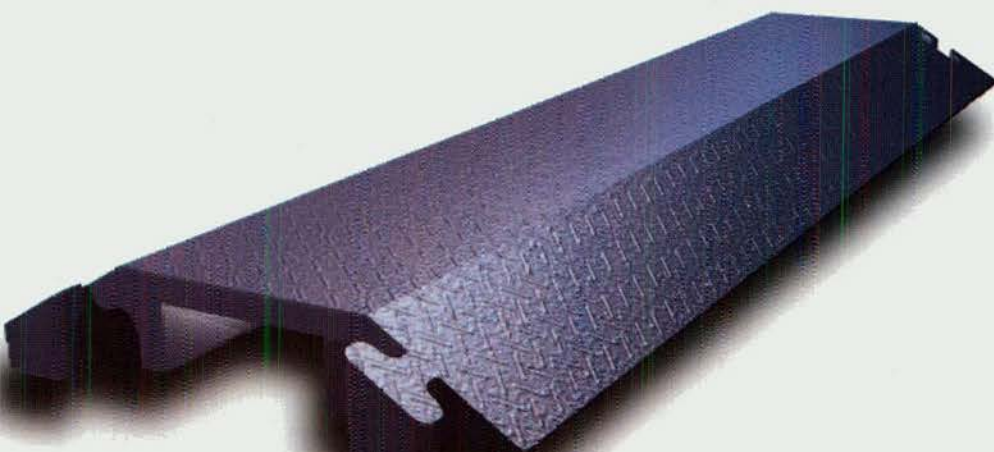
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~ REVIEW ~



## Clay Paky Stage Scan

continued from page 60

with a whole new fan assembly under the lamp base to draw out heat. The cooling system itself is considerably quieter than GS3 or HPE.

The lamp housing has a separate cover now, which means you can take the cover off the gobo and wheel section while the unit is running, for fast changes or even run the unit with the cover off. You can change gobo's while the unit is on.

*Back View, more friendly & has DMZ address readout too!*



### CONTROL PANEL

At the back of the unit, the control panel has a DMX address display which helps when you are on the ground looking up at the unit. It also has a lamp hour counter GS3 just has the selection dip switches, which require you to get really close to identify which DMX address you have chosen.

There are two banks of DIP switches, DMX selection is through adding together 10 switches. An example: switch these on: 1 + 2 + 128 = 131 which would be your desk start channel for that fixture - then you would need 16 or 17 channels, so your next fixture would start at channel 147 or channel 148 if you were using the hot restrike channel.

To get the address fixed on the next unit, you would switch these DIP switches: number 128 + 16 + 1 + 2 = channel 147; or 128 + 16 + 4 = channel 148. I was never good at maths. The DMX address read out will tell you what start channel you have selected, so you need not do the head maths. "Handy, because addressing is getting so complicated these days" says Kevin.

You can also select an auto power down function if no signal is received after 5 minutes. There are DIP switches to invert Pan and tilt and do things you can now do from most control desks.

The DMX connector is mercifully 5 pin, which is after all The Standard. You can drive with normal DMX or use a Pulsar controller which utilises PMX protocol for finer resolution. This means the mirror movements will be smoother in theory using a Pulsar controller.

Active use Scan Command and Jands Hog Consoles, and with the Stage Scan being a new fixture there is not a software 'personality' for the fixture yet on the consoles yet, but it's just a question of patching around, says Kevin.

### FEATURES INSIDE

"The colour mix system is the same as on the Super Scans", says Kevin. "It's good, it gives you flexibility to make lighter tints which are appropriate for a theatrical installation and handy for corporate jobs where you just want to take a bit of white out of the light for a lecture. There are a couple of colours which are hard to get, like a good amber. (This is a product of the red, blue, green mixing system). I haven't seen an amber colour mix I like yet. You'd need to buy a dichroic amber and put it in the colour effects wheel".

There is a Rotating gobo wheel, which is fully indexed. Indexed means the gobo will retain it's position next time you use it and not arrive upside down. "The

*Lamp housing has separate cover, note fan directly under lamp*





indexing of the gobos is important, we often make custom gobo's with the customers name on them, you have to be able to index it so you can get the writing straight on the wall" says Kevin. It comes with four gobos, 2 glass and 2 metal. There are 4 fixed metal gobo's in second wheel. Inside the unit is a Gobo stash for 10 gobos.

Then there is the colour wheel, with quad colours, colour correctors and a UV filter "quite handy to have" says Kevin. There are 7 filters on the wheel, plus open white. Used with the colour mixing system you can create some concentric colours as well.

The frost wheel has three frosts, heavy light and 'flu', and there is a 5 facet prism on this wheel. This can be overlaid in front of the standard prism wheel for extra extra wide and numerical iterations. The standard prism wheel offers 4 prisms which can be rotated and indexed.

**BEAM CONTROL**

A very significant feature is the variable beam spread, arranged via 6 lens' on a disc. They can be dialed in to change beam spread from 13° to 24° - in six increments. "I would have liked it to go narrower than 13°," said Kevin. "It's a 1200w HMI and has plenty of punch. It's better than the Super Scan Zoom in so far as the optics are better. It is handy having it go down to 13° but I'd have liked to have see it go as tight as possible. You don't need it wider than 24°, you can frost or prism to get a wide light".

"The (remote) focus I like, it makes it a far more theatrical fixture. You can furry things up, use frost filters, take it out of focus, change the lens. Lots of ways of making it exotic. You can do all the flash dance floor stuff and use it as a theatrical fixture as well."

There is of course a mechanical dimmer, a strobe shutter, and an iris which moves very fast - perhaps as fast as a Vari\*Lite iris!

**MECHANICAL**

It's quiet. "We had 15 out in front at Her Magesties, all running at the same time, we didn't have to do any baffling. They were nice and quiet".

"It's a nice versatile light. You mightn't use all the features but they're there. As a hireable item you can send it out and it'll fulfill all functions".

As to durability: "Time will tell. So far we are quite happy.



Kevin Gaynor

Maintenance and accessibility are good. What sometimes happens with movers is that you'll loose a (control) chip here and there. A mirror will be disturbed so you can't move it and it'll take out a chip. It's quite simple to change it over, if you can access it. The back cover hinges out and all the chips are accessible there"

**CONCLUSION**

"It would have been nicer to see the lens go tighter to 8° (spread) or so. I'd like to see some more commonly used colours on the effect wheel, the UV is quite handy to have but the deep red is hard to use. It'd be nice to have a good blue green and a good amber. It's

easy enough to change colours on the wheel though".  
"It's not revolutionary, rather it's a refinement. Everything works well, it seems a good reliable unit and a nice size - it's thin and flat and shorter than the SuperScan. Clay Paky have good mechanicals, when things start to come loose over time as they do, we expect we will be able to fix them on the fly".

- List Price: \$16,999.00 including sales tax
- Size: Same as Golden Scan or HPE - ie: 1230mm long, 435mm wide, 330 tall including yoke.
- Weight: 40.9kg with mirror head.
- Power: 7 amps running, with PFC (power factor correction)
- Power Allocation: 10 amps per fixture to allow for strikeup peaks.
- Stage Scan has a mains circuit breaker instead of a fuse.
- Weather covers made from Dacron are available. They have a wire extrusion around them to keep the material clear of moving parts, and a clear section for the light to come through.

**Distributor:**

Australia: Show Lighting Australia Pty Ltd, +61 2 9898 1666  
New Zealand: Show Lighting Australia Pty Ltd, +61 2 9898 1666  
**Good people to know:** Active Lighting Pty Ltd +61 3 9819-6912

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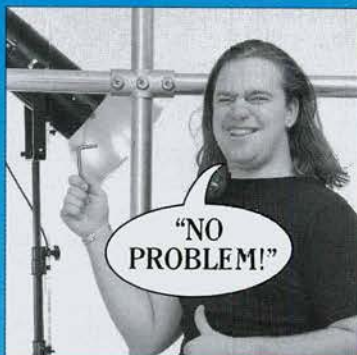
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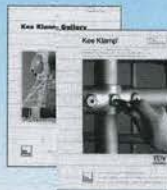
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~ REVIEW ~



## Strand 530

By Mandy Jones



The 530 is one of a range of high performance lighting consoles by Strand running off a PC platform. With 24 submasters and a possible 1500 channels plus 500 attributes, the 530 is automated light and network ready. These features have made the 530 a popular choice for concert halls, theatres and even touring.

To find out what a Board Operator thinks of the 530, I went to the Victorian Art Centre to speak to House Electrician Rebecca Smith, and Head of Lighting Leon Dark.

The State Theatre at the VAC underwent a major upgrade earlier in the year and the Galaxy 3 was replaced with the 530. All of the venues at the VAC have always used Strand desks, except for the Concert Hall which recently changed from a Strand Galaxy to an LSC Focal. The George Fairfax Studio at the VAC uses a Strand 430, and both the Playhouse and the State uses the 530s.

The 530 at the State Theatre uses the Strand GeniusPlus operating software. Access to the VAC network allows the 530 to become a fully functioning workstation with email and internet applications. Four monitors are used - two for the 530 display, one for the PC back up, and one for video monitoring of the stage. An LSC Avid digital control is used for the houselights.

### OPERATION

Leon says the 530 is roughly the same size as the Galaxy, although in operation it is slightly more compact. As the last Galaxy 3 show operator and the first 530 show operator at the State Theatre, Rebecca told me about her first experiences with the board.

"The transition between the Galaxy and the 530 was rather easy because they are both Strand desks so they use the same terminology. With the new features on the 530 I have found the help screen very helpful because it tells you every step of the way what it's doing. Before it records anything an alarm sounds and asks if you're sure you want to record, so there's not much trouble you can get into by just playing around and getting the feel of it.

"It's extremely user friendly. There are a lot of safety features on it that stop you from making terrible mistakes. Little things like a guard around the GO button and other little things like that make you more at ease when you're operating. It won't let you make mistakes like recording worklights into a cue

Rebecca Smith at the 530



continued on page 70

# the professional choice



## Futurescan III CE/CED: Specifications

Lamp type: (CED) GE 150W 4000K Arc Discharge  
(CE) 250W 24v A1-223/M33

AC Voltage: (CE) EEC 230/240/250v 50/60Hz  
US 120/130v 50Hz  
(CED) EEC 230/240/250v 50/60Hz  
US 120/130v 50Hz

Power Consumption: 180 VA 0.8 amp 230v

Motorised Colours: White + 11 Dichroic Filters

Motorised Gobos: Open + 11 Gobo Patterns

Remote: CE: Lamp On/Off  
CED: Shuttered

Controlled: Via DMX 512 or Internal Programmes

Cooling: High Flow 12v DC Fan

Input: 3 pin XLR (In/Through)

Casing: Aluminium/Moulded End Caps

Mounting: 3mm bar with locking adjuster

Dimensions: (LxWxH) 480 x 260 x 195

Weight: 10 Kilo

Shipping Dimensions: (LxWxH) 540 x 410 x 300

Packed Weight: 12 Kilo

	open		open white
	laser		red
	star		blue
	slice		green
	tunnel		yellow
	heart		cyan
	eurostars		orange
	sunburst		pink
	triangle		neon green
	slash		UV purple
	bubbles		magenta
	segment		aqua

## futurescan III CE/CED

Designed with professional users and installation applications in mind, Pro Futurescan III has been developed using two of the finest lamps available. The CE uses the M33 250W long life Halogen lamp, while the CED opts for the 150W 4000K Arc Discharge lamp producing a stunning 6000 hours of lamp life.

Combine this with a colour palette of some 12 shades, projected through

precise, high quality optics, shaped by a further 12 separate gobo patterns, and it is clear that the Futurescan III has the power and abilities to impress the most discerning audience.

Control of the Futurescan III beam is via DMX 512, or from its own immense internal light show processor. Full micro-stepping of all channels is standard to further enhance the capabilities of Futurescan III.



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# DIMMING IS A DIRTY BUSINESS

Dynalite's John Gunton looks at the future for dimming technology

Dimming is a dirty business. What I mean is, that dimming generates electrical pollution in the form of undesirable electromagnetic interference and harmonic distortion on the mains supply. Interference (both conducted into the mains and radiated as radio waves) is a well-known problem, and regulating authorities around the world are now enforcing compliance with a number of standards based on CISPR 22 and CIS PR 14 (IEC guidelines). These standards are becoming more important in the approaching information age as pollution of scarce bandwidth in the radio spectrum affects us all with poor TV reception, radio interference, and communications problems generally. Conducted interference limits are just as important, as this type of interference causes 'crashing' computers, buzzing in sound systems, equipment 'hanging up' and unexpected failures of often critical equipment.

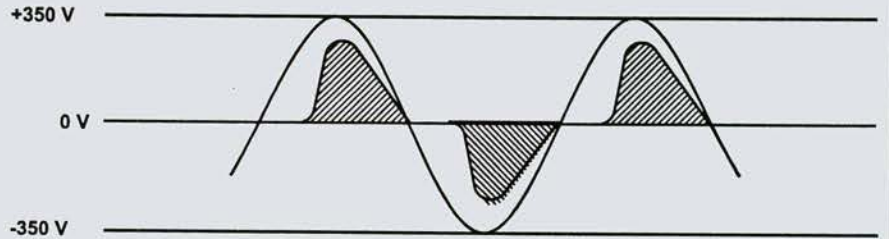
ANZS 3548, the Australian interpretation of the IEC guidelines for Electromagnetic Compatibility became law in Australia on 1 Jan 1997 and any new product sold in Australia must comply. Applying a special marking to products, known as the 'C-Tick' mark indicates compliance. Failure to comply can result in heavy penalties and enforced product recalls for both manufacturers and importers of sub-standard products.

In Dynalite's case, every new product released since 1994 carries the European 'CE' mark, which is the direct equivalent of the 'C-Tick'.

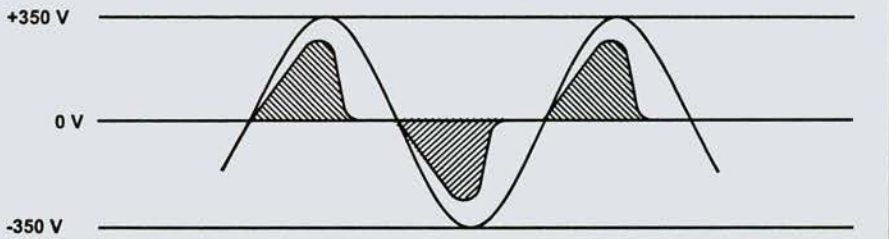
The new interference regulations (known as EMC) are a reasonable solution to interference problems for the time being but, as I said before, dimming is a dirty business. There is a fundamental problem associated with current dimming techniques that will never go away - that is wasting energy. Energy wastage associated with dimming ultimately results in degradation of our environment. The regulating authorities are extremely concerned about this, and have stated many times that dimming and similar techniques must eventually be eliminated (sooner than most people think - new rules already exist in Europe).

Energy is wasted in two major ways: -

## How Trailing Edge Transistor Dimmers Work



## How SCR Phase Control Dimmers Work



## Harmonic disturbance and supply chopping

There are two common techniques used to dim lights in virtually all high power dimmers. Phase control using SCR's and Triacs, or 'phase cut' using transistors which operate at low frequency. Phase cut dimming is the current 'flavour of the month', but really has the same environmental effects as phase control, as both techniques chop the incoming supply current waveform (see diagrams).

As you can see, in both types of dimming current flows only for a portion of the time. During the rest of the time, no current flows at all from the mains supply to the load. This means that, to deliver a unit of energy to a lamp connected to a dimmer set to 50%, the peak current will be twice as high as for a lamp connected directly to the supply. This results in inefficient utilisation of generating and delivery infrastructure within the mains supply grid such as power stations, high tension and low tension distribution wiring and step-down transformers in sub-stations. The problem is that the equipment is, in effect, working twice as hard for half the time. All of these elements must be designed to carry the peak current at any particular instant and all of these elements have significantly in-

creased losses at peak load. Additionally, transformers and power stations also have a fixed background of losses at low loading. These problems can only be eliminated if all loads connected to the grid present a sine-wave current loading to the mains supply.

## Dimming reduces efficiency

If an incandescent lamp is dimmed to 90%, only about half as much energy is converted into light as with a lamp at 100%. The rest is wasted as heat. This problem gets even worse as the dimming level is reduced (see diagram). Incandescent lamps are extremely popular for entertainment lighting as they emit light with perfect colour rendering properties (they emit 'black body' radiation).

The cost of achieving this is in energy terms is extremely high. A typical incandescent lamp has a conversion efficacy of less than 20 lumens/watt for tungsten lamps, and up to around 40 lumens/watt for 'state of the art' halogen lamps (theoretical limit is less than 50Lm/W). This doesn't compare very well with discharge lamps, all of which are 90 Lm/W or better! To your average environmentalist or energy minister, using incandescent lamps is madness - connecting it to a dimmer is even worse!



FUTURE SOLUTIONS

Harmonics Problem

Dynalite have been investing heavily in future technology for some time now. We can see a time not too far into the future when both phase control and phase cut dimmers of all types will be illegal.

Dynalite have developed a new technique for controlling lamps, which presents a sinusoidal current waveform to the mains supply. This new type of dimmer is called an SVC (Sine-Wave Voltage Converter). The SVC is the electronic equivalent of a variable transformer. The SVC employs exotic IGBT transistors operating in a similar way to 'switched mode' power supplies in computers and UPS power supplies.

The current operating frequency of existing models is around 30kHz with a conversion efficiency of a little over 96%. Dynalite are already trialling these devices for energy management applications, as they are ideal for controlling metal halide, fluorescent and other discharge lamps. Our aim is to make sure that lamp life is not affected by this control process before we release the SVC for sale. This revolutionary new device should be on offer within 6 months or so.

Fundamental efficiency problems of incandescent lamps

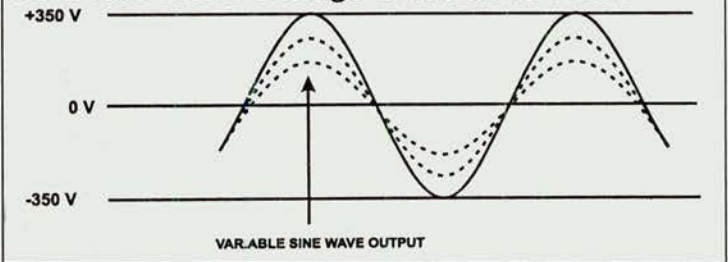
The time when use of incandescent lamps will be heavily restricted by law is already upon us. In the UK, for example, building codes for most types of building restrict energy usage to around 12 watts/sq m with a limit for incandescent lamps of less than 10% of the total lighting load. Similar regu-

lations are spreading quickly throughout Europe and will soon reach Australia.

The solution to these efficiency problems is already with us in the form of discharge lighting. New types of PL fluorescent, and the recently introduced alumina-ceramic jacketed lamps (such as the Philips CDM) are set to revolutionise lighting for both commercial and entertainment applications. Accompanying these new lamp developments are technology improvements in components for electronic ballasts. Ballast prices are crashing in Europe and the US, as large companies like Motorola, Tridonic (marketed in Australia by Atco controls), Helvar, Huco, Magnatek, Zumtobel and Siemens are setting up manufacturing plants and fighting for market share.

In the near future, we expect that lighting control will be largely distributed throughout the installation in the form of 'smart' ballasts and transformers built into each fitting. Ballast control networks with individually addressable fixtures will be on the market from many sources within a year or two. A system called DSI (Digital Signal Interface) has already been adopted in Europe. Other systems using LON, CE-bus and other network standards are already being evaluated in the USA and Europe. These methods will allow discharge lamps to be dimmed from 10-100% with a power factor of >98%

How Sine Wave Voltage Convertors Work



and extremely low losses.

Dynalite have been selling controllers for these new types of ballast for some time in Europe. These controllers have output circuits that support the new digital interfaces as well as the 0-10V DC system already in wide use for regulating ballasts.

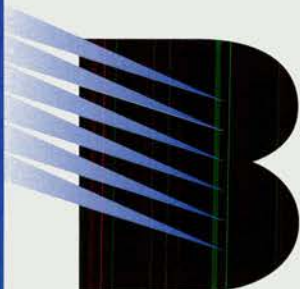
The trend towards 'smart fixtures' and 'green' lighting controllers can only accelerate. This will tend to close the gap between entertainment lighting manufacturers and mainstream industrial control companies, like Dynalite, as regulators continue to force the issues of energy efficiency and electromagnetic pollution reduction in all areas of energy usage.

Dynalite are now investing now in the lighting controls of the future. For example, we are currently engaged in a European project which, we believe, is the largest lighting control system ever attempted using DIS networking (over 7000 controlled circuits). Our investment in developing SVC technology will soon result in quiet, efficient, and 'green' controllers that will have applications in all lighting markets, including entertainment lighting control.

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# Red Hot & RHONDA

**1997 Entech Award Winner  
David Murray talks about his  
latest spectacular**

David Murray's work on Red Hot and Rhonda should have finished on opening night but four weeks later he was still at the new Showroom in the Crown Complex. Following savage critiques of the cabaret style show starring Rhonda Burchmore, major restaging occurred from costume changes, to the running order, and even to cutting whole numbers and choreographing new ones from scratch. David's attitude was admirable: "I'm quite happy to come in and help where I can. When segments are restaged, as the Lighting Designer you do have to come back in and re-light it, you can't just throw something over the top!"

The Showroom itself is a somewhat unique space. Originally designed to be a television studio (no-one knows why) the room looks just like a studio apart from the massive stage at its front. The 23m x 8m (masked to 6m for Rhonda) proscenium arch stage makes designing for the space an interesting task.

"The greatest challenge was the width of the stage. As much of this show depends on the choreography, I spent a lot of time at rehearsals.

"I was a musician before becoming a Lighting Designer or Stage Manager, so I do rely a lot on the score and tempo and key changes, and of course the choreography.

"As a Lighting Designer you have a responsibility to make it all work as one element. Sometimes that's a little difficult. And there were moments in this show where it was a little too difficult - fortunately now they're gone!"

## Supplying the Equipment

Chameleon Touring Systems won the tender to supply the lighting and control system, and as David explained, they did an incredible job pulling together such a large order so quickly.

"We only had one week after a supplier

was decided and budgets were agreed on to get the package together for the installation, and then one week of fit up."

Geoff Kelly was the Systems Engineer of the show. He looked after the DMX topology, cabling, dimmers and the control system.

"It was a phenomenal achievement to get it all together. Most of it was an international agreement, so to think it was in the country and through customs in a week, it's astounding.

"Even when we had a set of faulty bubbles for the Mac 600s and the whole batch had to be replaced, Chameleon were just great, very supportive considering the lamps are worth \$500 each."

Lightmoves acted as local maintenance contractors, and David explained that the lamp checks and maintenance of the show were quite high because it was so technical. To assist in thorough lamp checks, Gary Senior devised a program that went through each of the moving light system's functions as a long cue so that by standing on stage and looking at each unit as it went through its functions, the operator could test the system.

David said that despite being a new venue there were no major problems during fit up, apart from the lights having to be re-made at the last minute. Features of the Showroom such as the lowerable front of house Bridges 1 and 2 made rigging easier. The bridges lower on chain motors in three sections and can be raised to a maximum of eight metres high in line with the proscenium, making front of house lighting positions quite low.

To compensate for this, David used the side catwalks running up the auditorium as lighting positions, and hid ladders in between set flats to allow more side lighting options on stage.

"We used ladders because in a show with this much dancing it is important to have side lighting, and especially on a stage 23

metres wide with little height to cover it from above. Side lighting lets you cover a bit more width, a bit more logically."

## The Design

The basis of David's design was Martin Mac 600s Clay Paky Stage Scans, and Altman Shakespeares.

"Once we had created libraries for the new lights and the system was up and running we didn't have too much trouble with the Stage Scans and the Mac 600s."

David said the versatility of the Stage Scans and their quiet operation made them a good inclusion in the rig.

"The scans have a lens system which rather than a zoom has a wheel of different lenses with soft and hard focus. The gobo system seems to work well with the double gobo wheel and indexable rotating gobos; the effects wheel is good with prisms and breakups, and there is an additional colour wheel to give you colour corrections and colour effects.

"We had a couple of problems with the Stage Scans because they were on day and night for a lot of fit up, and the fader blades were bending and hitting each other. That was rectified pretty quickly - I guess it means they shouldn't be on for a week continuously!"

David used a bar of Light Curtains which proved to be very useful on a stage that wide, and with colour scrollers he was able to give them a bit of colour variety.

"We're using Colourset Scrollers - we're being very Australian minded. They've been behaving themselves very well and if they do play up on occasion it's very easy to just reset them. The new Colourset software seems to be working very well too."

Scrollers were also used on the Altman UV Fresnels as a dimming device, being a discharge lamp.

Due to the design of the auditorium and the stage, followspot positions were

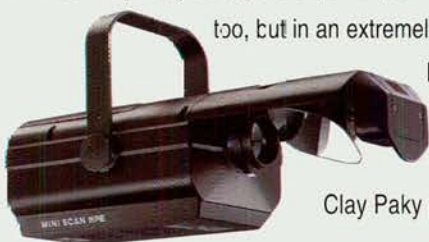
*continued on page 72*

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# Strand 530

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when you're working blind, which is an easy enough mistake on other boards. And even having the single Record button cuts out any confusion between recording live and recording preview states.

"The board works in pages so there is an output page and a preview page, and in any of those pages you can go to a Help Screen which tells you about the functions that are under that page. So if you ever draw a blank during a plotting session, you don't even have to go to a manual to get the basics of the board."

## FEATURES

Rebecca explains that with the diversity of shows in the State Theatre - from musicals to strict opera or ballet, they needed a board that was able to do a bit of Rock n' Roll as well as being able to run a show disk that has come from another venue.

"The 530's best feature is its flexibility. We both started off pretty new - It had only had its first software update when I met it, and it was my first PC based board, so we taught each other a lot along the way."

Rebecca says functions such as macros make the board extremely adaptable to the types of shows that come to the State Theatre. A favourite macro works on an alarm to turn on worklights for a rehearsal and then switch them off again at a designated time, all without the need of an operator being present. Macros are also created to suit the type of plotting and even individual designers that come through the theatre. And with the same companies performing in the theatre, many times the entire show or even the patches can be saved in the hard drive of the board to be accessed like a file in the new show which can be a huge time saver.

Rebecca says that while they haven't used the attributes on the board for moving lights yet, they were used for colour scrollers during a recent Australian Opera Season.

"It's a matter of re-education. A lot of designers prefer to do the scrollers through an intensity method which is the way we used to do it - 50% is roughly the fifth colour, instead of using the attributes so it would be attribute 5. Once designers work with the board twice or three times they'll get to know its good points and its quirks. Nigel Levings is very au fait with the way the 530 works - he's the only designer I have come across who has used the tracking facility on the board. But he and Jamieson Lewis are both very aware of what the board is capable of which is great for me as an operator on their shows."

Rebecca's favourite function is Pre-heat. It allows her to set any channel at different levels of pre-heat

Back view of the Strand 530



and even individual lamps depending on where their dimmer curve is. "When you record a cue with any of those channels in it, it will go back in its memory and go to the cue previous and put in those pre-heat levels automatically."

Jamieson Lewis is an advocate of the Pre and Post heat functions on the 530. He incorporates the post-heat function into his states to allow for smoother blackouts.

The 530 has three DMX ports out (1536 dimmers) and a fourth DMX in or out port which can be used for extra dimmers through the SN 100 Ethernet node, basically allowing a fourth universe of DMX.

## SERVICE

Service is not a problem with the boys from Bytecraft at their beckon call. Rebecca says Darren Irving and all the technicians have been fantastic from getting them up and running after installation, to coming into the theatre during an overnight plotting session when something has gone wrong.

## UPGRADES

Software upgrades from Strand are an ongoing service feature of the 530. Although specified as a 1500 channel desk, the State Theatre's 530 is currently only running on 800 channels, but a software upgrade in June will bring them up to speed. Basically being a PC with a customised keyboard for lighting operation, the 530 also benefits from upgrades in terms of developments in pentium processors, memory cards and motherboards. This is not a desk that will be obsolete in 5 years time.

## SOFTWARE IMPROVEMENTS

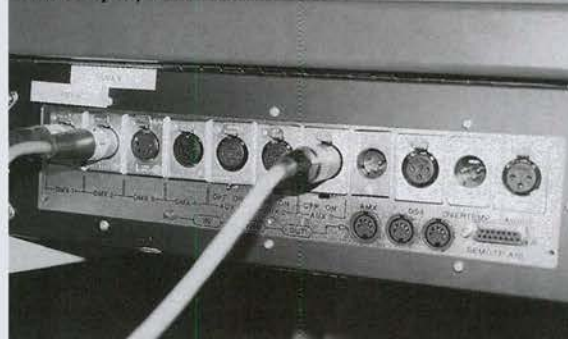
Leon explains that there have been problems with their installation, but both Bytecraft and Strand have been quick to act on making the necessary alterations.

"Strand are listening to us. Stuart McKellar and Glenn Parry, two of our head technicians here have had lots of ideas over time which have been passed on to Strand via Bytecraft. There have been some problems with the third DMX outlet

on the 530s and we're still not happy with it but it's a software problem. So far it hasn't done 100% of what Strand originally said it would do, for example we wanted to be able to plug the riggers into the networkers. That hasn't happened yet so we still have to have it hardwired all the way back to the desk. We believe that with the next software upgrade that will be possible."

Other improvements Rebecca and Leon would like to see include

Close up of back view





the ability of the back up PC to mimic the cue the board is in without the operator having to do it; being able to change between pages from the production desk without the operator having to manually do it through the board; and increased disk compatibility between other Strand desks and the 530.



The SN100

**HARDWARE IMPROVEMENTS**

Leon says that the one hardware problem with the 530 that everyone is up in arms about is the current Riggers Control.

The VAC chose the American style riggers over the European one, however Leon says that neither of them are user friendly.

"It may be very good in a one off situation where you just bring up a few channels at a nice relaxed pace, but for the hurried changeovers that we are often required to do between one opera and another in repertory, I know that when I have had to use it, and other operators have complained, it is most unpleasant, physically, trying to operate it."

Rebecca says, "It also has a record button on it, which as an operator during an opera season when you know there are 20 other people who are going to touch that riggers before you get back to the board with five minutes before the curtain goes up, and you have a look and everything is re-recorded, I don't like that."

"The riggers can do exactly what the board can do - it can playback cues, playback groups, create groups, record a cue, it does so many things, but at the end of the day all we want it to do is bring up channels quickly so we can focus some damn lights!"

**FINAL WORDS**

Leon: "There was some negativity towards upgrading among the technicians because most technicians don't like change, but I've seen the attitude towards the 530 change as people become familiar with it. They have become positive and have grown to

enjoy operating it. Even with its purple buttons!"

Rebecca: "It's lovely to operate. Its always the little things - the guard around the GO button, I haven't plunged the stage to black, I haven't recorded worklights during a cue or over a cue. There is a lot of room for this board to move on with software updates. It will keep getting better and as designers become more familiar with it and realise what they want out of it, new features will go into the software to make everyone's job easier."

**SPECS**

Size: 1220 x 620 x 150mm, Weight: 45kg, Supply Voltage: 120V-240V universal 50/60Hz, Dimmers: 1536 (console) 2000 (network), DMX512, D54 (Strand European Analogue multiplex standard - 384 dimmers per cable), 3.5" disk drive, Intel Pentium 90 Processor, three backlit graphic LCD displays, dedicated tracker ball and rotary controls for automated light attributes, simultaneous digital and analogue multiplex protocols, 6 pages of individually programmable submasters plus any submaster can be configured as one of 6 user selectable super masters, two split crossfade playbacks for software selectable single or twin playback operation, twin programmable Grand Masters and user selectable blackout/stop control, thirty effects playbacks.

**Price:** From \$50,000 ex tax

**Manufacturer:** Strand Lighting

**Distributor Australia:** Bytecraft - Melbourne (03) 9587 2555, Sydney (02) 9550 3955

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# Red Hot & RHONDA

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difficult in the low front of house area and impossible to incorporate on stage from behind, so to create some controllable back light, David used the Wybron Auto Pilot system. A special smaller transmitter belt-pack was designed for Rhonda to wear as she sang and danced on stage, and the moving lights followed her signal serving the purpose of follow spots.

"It has been a good system, but not easy to set up because none of us had used it before. The system belongs to On Air Productions so they frequently sent someone down to help us out. Thank you to Jason Saunders, Rohan Thornton and team for their help in this area.

"I don't think the system had been used on such a low and wide stage before. Just the placement of the receivers was difficult, and then with a wooden set in the way when you need good sightlines, it was very tricky. We started the installation before the set was complete. We probably should have waited so that we could actually eyeball all of the positions and set it up more rationally.

"Also we didn't have the EPROM for these lights because the Stage Scans and the Mac 600s were so new. It didn't exist so that had to be done in the States, they had to get the lights to make sure it worked and then air freight it out to us."

## Staying in Control

With four streams of DMX being run, David needed a desk that could really handle the job.

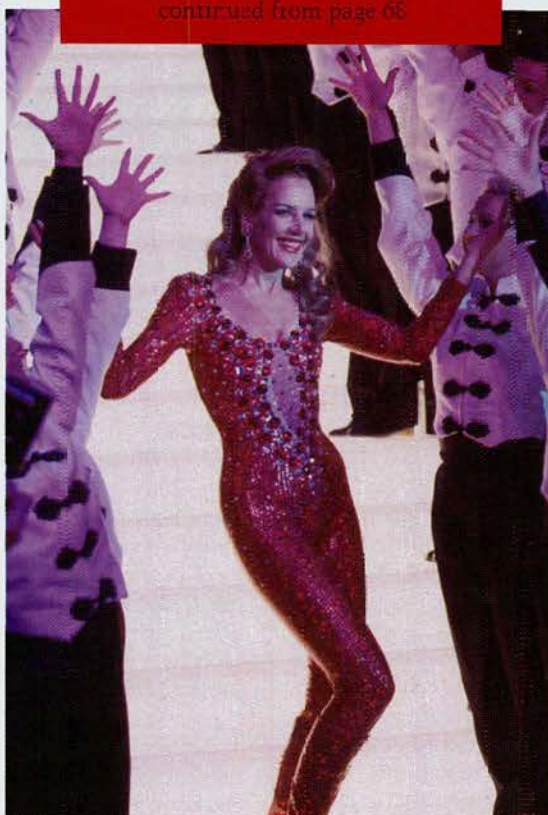
"I'm using a Whole Hog II lighting control system which has just been an amazing experience. Using the tracking system rather than a state to state system is ideal for moving lights."

With 2000 channels there was enough room to allocate 17 channels per light for gobo and colour presets which turned out to be a necessary feature.

For Board Operator Gary Senior, working on the Whole Hog was a new experience, and one he didn't have too much preparation time for.

"It was a real challenge and Gary has done an amazing job. He understands the board very well now. I downloaded a manual off the internet and sent it off to Gary in New Zealand because he was touring with *West Side Story*, he had a quick look at it, and then we were into it."

Through the effects functions David was able to have complex wave chases for two moving stair units on stage which had 17



internally lit steps that would chase up and down. Normally complex programming was reduced to a simple effect through the Whole Hog

"I'm very pleased with the Whole Hog because it was the only desk we could have used that was a single unit lighting system that could control all the moving lights, the standard lights, and the scrollers. It's so much better than three lighting control systems linked together as we did on *Rocky Horror* and when one gets out of sync and they don't trigger each other, and you're suddenly operating all three boards manually to get them back in sync... it can get very messy."

The rig was grouped into scrollers, Mac 600s, Stage Scans, and standard lamps, and each group was run off its own stream of DMX. David said it was necessary to keep them separate, and that they basically filled capacity with the number of channels they needed.

"It was fantastic for one desk to control all of that system, and in such a rational manner. And the software based boards are so tiny these days, and you can upgrade and download stuff from the net and keep it up to date as you go along. That was indispensable during fit up."

With so many changes being made to the staging, David found it was best to

allocate a page to each scene and start the cues at one each time so that the whole show could be programmed out of order. When the order was finalised it was a simple task of creating links between the pages.

David intends to learn more about the Whole Hog.

"Designers have a responsibility to know the systems and the equipment that we're using, and how it should be used. I've noticed some American designers call keystrokes for what they want to happen instead of channel numbers, so they speak as a programmer. I think it's a good thing."

## The Show

As for the look of the show, it's very glitzy in keeping with the cabaret theme. Against a huge red set, David somehow makes it not too red through his clever use of intense colour, fog, beams and blacklight. Flown curtains and set pieces help to fill the enormous stage and give the audience a break from the all encompassing red.

"It's basically a revue show so it's in about twelve segments and each one has its own feel. Each needed its own visual strength and a lot of that came from the choreography and when you get all the costumes and sets together it becomes fairly apparent what it needs."

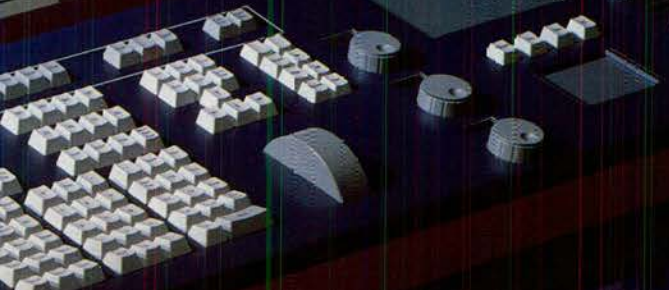
David says that through it all - the bad critics, the changes in the show, the technical demands and then the demands of performance, Rhonda has been lovely to work with. "She's been phenomenal - an absolute professional. God knows how she does it but she's helpful to everyone, she's kept morale up - she keeps everyone going. I suppose that's why I'm still here four weeks down the track."

• Mandy Jones

**The Lighting Spec**  
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# CROWN

Readers will recall over the past 2 issues we have detailed some of the entertainment technology inside the new Crown Casino complex in Melbourne. It is the largest entertainment complex in the Southern Hemisphere. This issue we wrap it up - and there are whole venues we haven't reported on. Please understand it's just not possible to fully chronicle a place like Crown in the space we have had available. Notable work which passes unrecorded: Vision Design Studio: were responsible for a vast part of the overall lighting design, and were the major consultant on site. David Bird from Vision gave up some valuable hours to guide us through the complex - thank you David. TCP also had a large role, they outfitted the Showroom and several other spaces. And finally Rutledge Engineering did a huge amount of audio visual / video work, much of which is by necessity secret. It is a Casino, after all. There were other firms too, it seems most of Melbourne had a slice of the action.

## Odeon Crown Cabaret

Cunning sound design and a custom built matrix, on a budget. By Julius Grafton

**T**he Odeon is one of the entertainment options at the crown Colossus. It's more suitable for older people like your editor, and features superior live music and also disco. The audio and lighting was installed and designed by Sven Langebeck, owner of Warehouse Sound. He was invited to quote by Jamie Nasser, Odeon owner, and previous owner of Chasers nightclub.

The sound is essentially a distributed stereo system. The room itself is an ellipse, an elongated circle so the audience is seated in a semi circle around a trust stage which is also elliptically shaped. The left/right system is a single 15" JBL and a 2" throat JBL driver (2447). Then there are 6 x JBL 2226 15" woofers under the stage in 3 Jands System cabinets acting as sub woofers.

There are 2 System 44 boxes over the dance floor for disco, and then four System 44's are fanned out in front of the stage a little further down the room, forming a stereo delay.

"The low ceiling means I wanted as near as possible a continual low sound pressure level throughout the room", said Sven. It's designed to work at 110 to 112dB, with a 115dB maximum. "It's what the audience want. They don't want to hear a trace of distortion. The whole point is the system sounds like a hi-fi".

The design process was done from the plans. "I drew some polar patterns of the

speakers from various angles at the ceiling height, and cut them out and superimposed them over the room plan so I got even coverage".

"The delay is very short, 8 or 10 ms. I Wanted to get away from the doubling of the high hats you hear sometimes. By delaying the clusters the sound image stays on stage".

Every pair of speakers is powered by a Crest V1100 amps. For foldback there are a couple of System 400 wedges on stage and two flown above the stage, so there's 2 foldback sends from the FOH. There is a split multicore for people to bring their own foldback if they choose.

The desk is a Yamaha MX400 24 channel, "a surprisingly good desk for its price. It's basic but very quiet. The EQ is nice and open without ringing. Obviously we had to make a few compromises because of price".

For the system drive: "we're using new DBX 2231 dual third octave equalisers and have two - one for FOH and one for monitors. The (inbuilt) limiters are a bit savage you'd only use them (the limiters) for a last resort. The signal goes to the house limiter, an Aphex Dominator Mk II. It's simply the best limiter on the market in terms of audible quality, you don't hear any harmonics being generated by it. It acts like a three band compressor, it is designed for FM radio, it'll attenuate the low, mid and highs separately. We've been using it in disco's for years,

this is the first time we've put one into a live system". The results have been fantastic, it's inaudible. It has an 'overeasy' type curve in each of the three bands, there's only gentle compression as you approach the threshold then it gets heavier. In practice it works as a compressor limiter".

The disco has a Rane MP24 mixer, going to a Mojo stereo equaliser, then it's own Dominator It feeds into a matrix, which has 8 inputs:

- 2 foldback sends,
- 2 FOH (left and right),
- 2 from the disco
- and 2 delay returns

Then this matrix outputs to every amp. It's custom made, no-one makes anything like it, although it's simple, just 32 op amps and 16 pots. Sven explains what it does:

"It's permanently configured, when the disco fades into the band they just start, their signal is live and active all the time, the FOH person turns up the fader and the DJ pulls down the fader so there's no fading required".

"The reason the foldback goes through the matrix is that send 2 gets routed to the 2 speakers flown above the stage as sidefill, so the disco send can be sent to those in stereo. When there's no band they can use the stage as a dancefloor. There's a kill switch so when the bands on stage they don't get blasted, you can decide not to pump disco onto the stage".

The room gain on the matrix is setup so people can talk when the disco is playing, yet the live sound is fully audible when the band is on. In the live mode there is less level

*(continued on page 76)*

# Filling in big gaps at Crown

## Lightmoves - the consultant's friend

By Julius Grafton

So you need 8,000 channels of architectural dimming. You have different areas, different consultants, and different control protocols. ShowCad, Dynet, Dataton, AMX, MIDI, DMX and a few more. Who's going to make sense of all this?

Then you have a gaming floor with 1,920 little ceiling lights to dim. The spec says 384 channels of dimming, so do you buy 32 x 12 channel dimmer racks for this?

Then some of the dimming is in unlikely places, such as the Very High Roller suites (for magazine publishers) on the very top of the Crown hotel tower. There

you have 156 control channels - for each suite! With 34 control panels! The mind boggles - is there lighting in the Jacuzzi? On the bed? In the fridge?

Amongst the myriad of consultants, contractors and suppliers to the Crown project were Lightmoves, the Melbourne arm of the Ciddor family dynasty operated by Braham Ciddor and his partner Andrew Sherar. They delivered some neat and cost effective solutions.

Their scope of work totalled over \$4.5 million (and still climbing), and included control for the huge neon signs on the Western entrance, the 8,000 channels of architectural dimming (see attached list), and various architectural lighting features and building of speciality lights on the

gaming floor.

The 1,920 little lights we talked about earlier are in the Las Vegas room, the less said about the room and what goes on in there the better. However, the dimming job was dealt with by Lightmoves custom building 12 racks with 32 low voltage dimmers in each.

"It's just a low budget rack. We designed these while we were at LDI, (in Orlando), with low voltage lamps you need to look at your cost per dimmer channel. From my experience with dimmers in an electrically noisy environment you can't beat an older analogue dimmer- they'll never lock up. With a digital dimmer you get flickers and flashes where the mains is noisy or on a genera-

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going to the dancefloor speakers, they're down 6db in live mode, but in disco mode they're run at full with the delay speakers down about 6db. It's all preset for the room by Sven, it works, and it's good design.

The basic PA outboard effects are an Aphex AX 106 4 channel compressor, "which is a very musical compressor in my view" says Sven. There is also an AX

105 4 channel gate, and of course the house system has a basic microphone kit of 6 Shure SM 58s and 4 Audix D2's. "It's quite a nice drum mic" says Sven.

**LIGHTING**

Sven suggested that because of the low ceiling they install automated lights. Thus there are 8 Abstract Future Scan 3CED's, these have 12 colours, and 12

gobo's along with blackout function. The attraction is the lamp, which is a 150w MBI discharge lamp, running for a whopping 6,000 hours lamp life.

These are controlled by an Abstract 64 controller, which will run up to 16 fixtures. Effects include a Le Maitre Red Devil fogger, 2 Infinity DMX 1500w strobes (controllable for speed and intensity) and a bunch of

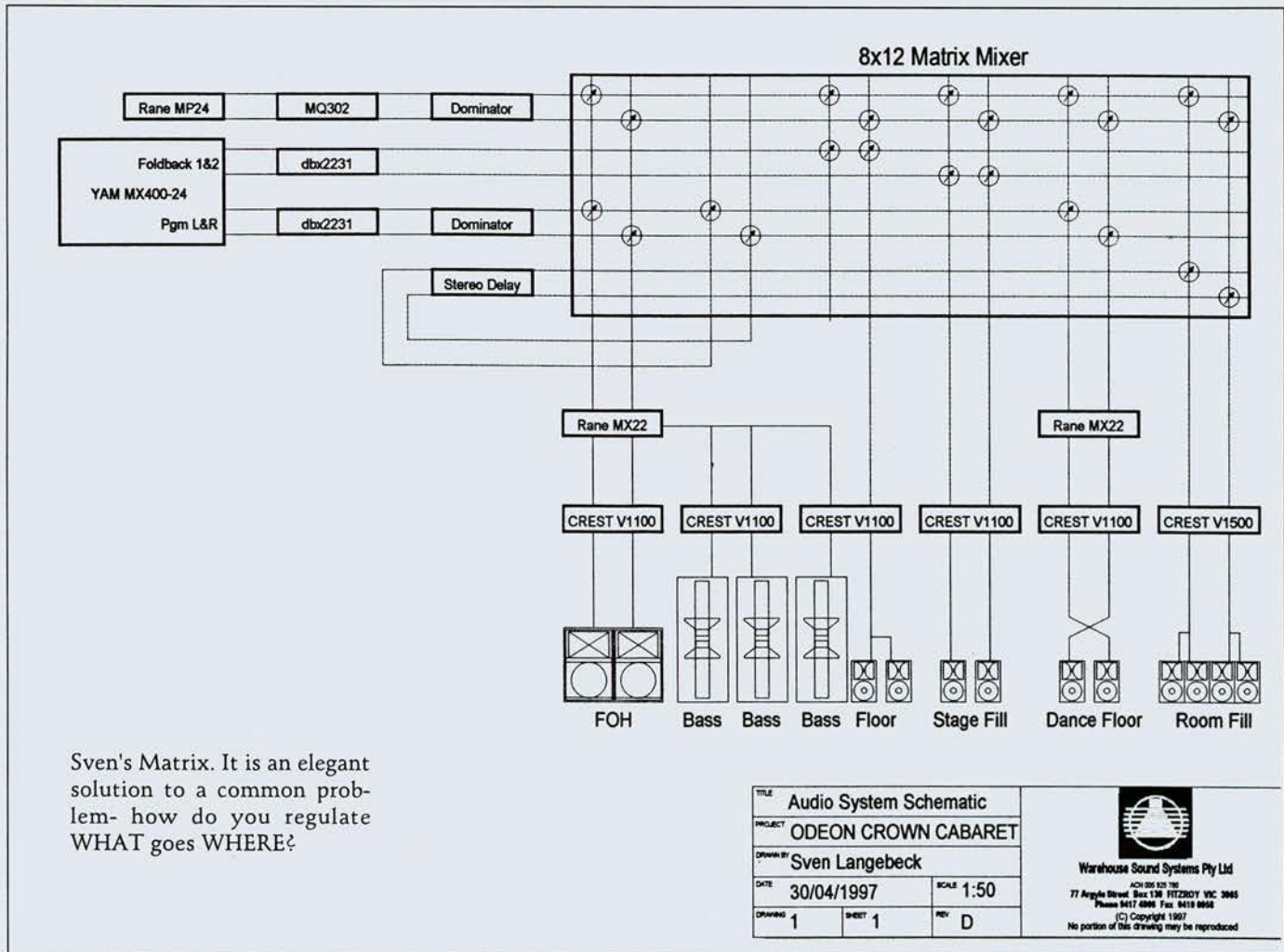
mirrorballs. They are illuminated by the Abstract Future Scan's.

The stage lighting is 24 chrome cans, driven by a Jands ESP II 24 console and a dimmer rack, and a Pro Lite PR22-FS2K follow spot.

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## Lightmoves and the 8,000 dimmers

(continued)

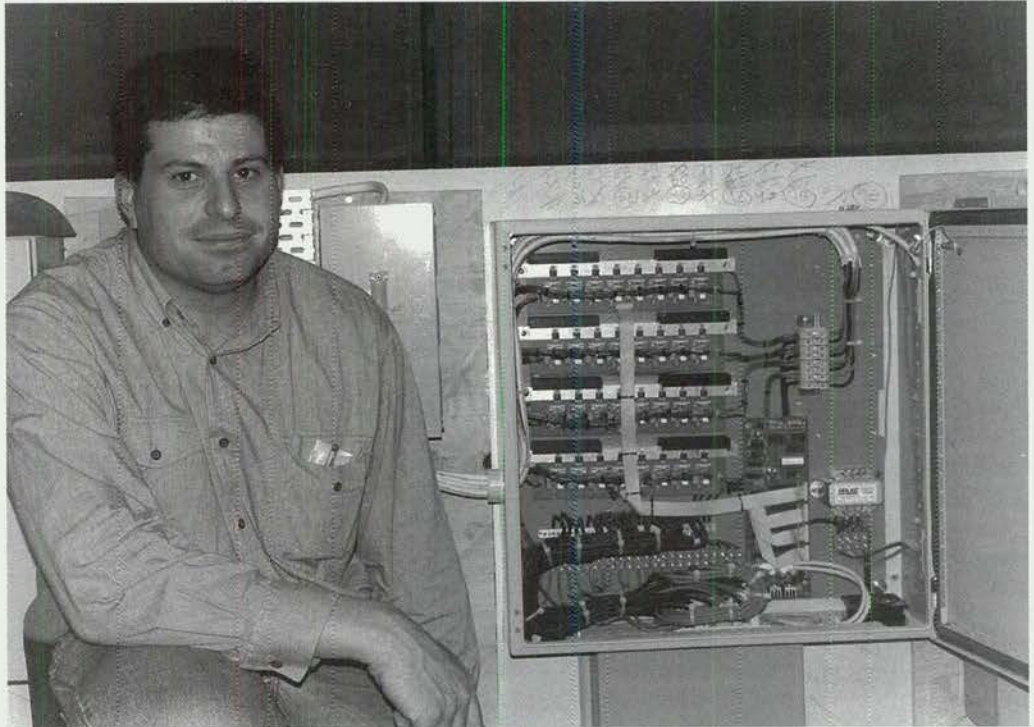
tor, and they're expensive. So we made a straight analogue dimmer with a DMX decoder at the front end. Each has 32 low voltage channels with a 1Kva transformer supplying 24 volts at the input".

An elegant solution, then these ceiling light dimmers are addressed by a PC running ShowCad to each of the 384 channels.

The Neon sign control contract was a challenge. On the Western side of the building are huge neon signs built by Bentleigh Signs, the control was designed and built by Lightmoves. Barry Webb and Associates were the consultants for the sign contract. There are 3 big -huge- neon signs, and a bunch of smaller sets of letters.

There are four Showcad systems, one for each of the three signs, and one for the Crown letters. The signs are dimmed, with Dyalite DMX racks, there are 18 racks for each sign, each with 12 x 5 amp outputs on each. Lessee now, 18 x 12 x 3 = 648 dimmer channels for three signs, plus another 6 racks for the Crown letters. 60 racks, located in the signs!

How it works is foggy to me, but basically they use ShowCad control software on a PC with a DMX card for output, which sends DMX protocol up to the signs. The four Showcad controllers are controlled by MIDI, via an AMX control unit which is spoken to remotely via a Dataton control system somewhere else, and so the dance goes on.



Andrew Sherar with his 'el cheapo' (to build, anyway) 36 channel low voltage dimmer

Andrew has a better solution next time, and that is to do away with Showcad (Cost: \$4000+) and to put a DMX card on a PC (Like ShowCad do) and use his own software. It's all about cost, cost and cost.

Another contract for the firm is up near the Tea House where there are 10 Martin Mac 1200 colour changing automated lights and 10 Golden Scan HPE automated moving mirror devices, all run off MA Scan Commander consoles. These 20 automated lights currently have nowhere to project because a large sign was placed at the target area in a last minute snafu. Soon a new screen will be placed nearby to utilise and run the original concept.

The Dyalite Dynet dimming system is the big end of the firm's work at Crown. Sydney based Dyalite (owned by John and Jenny Gunton) is the brand Lightmoves represent in Melbourne, they assert they have the majority market share in

architectural lighting in Melbourne.

Essentially there are dimmers absolutely damn everywhere, even in shops on retail row. Up in the Hotel (previously discussed) are 14 x 12 channel racks on every floor. Andrew reels off the numbers as we walk around the site ..... dimmers there, Dynet here, dimmers with an interruptible power supplies (UPS) backup over the gaming tables, 4 sub stations powering the site, you can co-generate to any of them, the possibil-

ity of a brownout is impossible....." I'm exhausted just listening!

Consultant David Bird from Vision Design has the last word on Lightmoves:

"I would say their general understanding of what had to be done, and their ability to liaise with electrical contractors, other building trades, and the design people helped pull it all together. They're here sorting out wires on a daily basis, and are very proactive in identifying problems and fixing them".

### Try this for a shopping list.....

- 8000 channels of Dyalite architectural dimming
- 1000 architectural control plates
- 300,000 budlights, various shapes and sizes
  - 2000 Patch panels
  - 1 Jands Hog
- 33 Optikinetics K2 effects projectors
  - 1000 various theatrical fittings
- 20 moving lights
- 55 Isoports
  - 1000m prewired circuit tube
- 275 strobes
- 150 custom sign controllers
- 10 ShowCad systems

# THE ATRIUM AT CROWN- A WONDER OF THE WORLD

*Entertainment Technology drives a truly magnificent display, 24 hours a day*

The Atrium display at Crown Casino is perhaps one of the wonders of the world - or at least a wonder for the region. It is certainly an entertainment technology marvel.

Located at the East end of the Crown Casino the atrium serves as a very grand entry to the complex. It is a four story tall indoor space which has a themed 'show' called Seasons of Fortune running non-stop.

The show uses audio, water, lasers, liquid nitrogen fog, mechanisation and significant quantities of lighting - all integrated into the space and the finishes. Black marble, glass and ornate decorations are all integrated into one environment.

For example, the ceiling is made up of miles of crystal strings, above which is a 3m space loaded with hundreds of automated lighting fixtures. Two giant crystal chandeliers descend from it, themselves loaded with hidden lighting and spouting fog.

Fountains on the ground level produce orchestrated bursts of water, with leap frogs and hidden lighting interacting with laser effects. Cascades of water are featured either side of a grand staircase.

The show features the four key seasons, in one day. There are some variations, to produce eight different segments, each 22.5 minutes long. These alternate throughout a day, and are randomly put together - programmed so you'll probably never see the same thing twice.

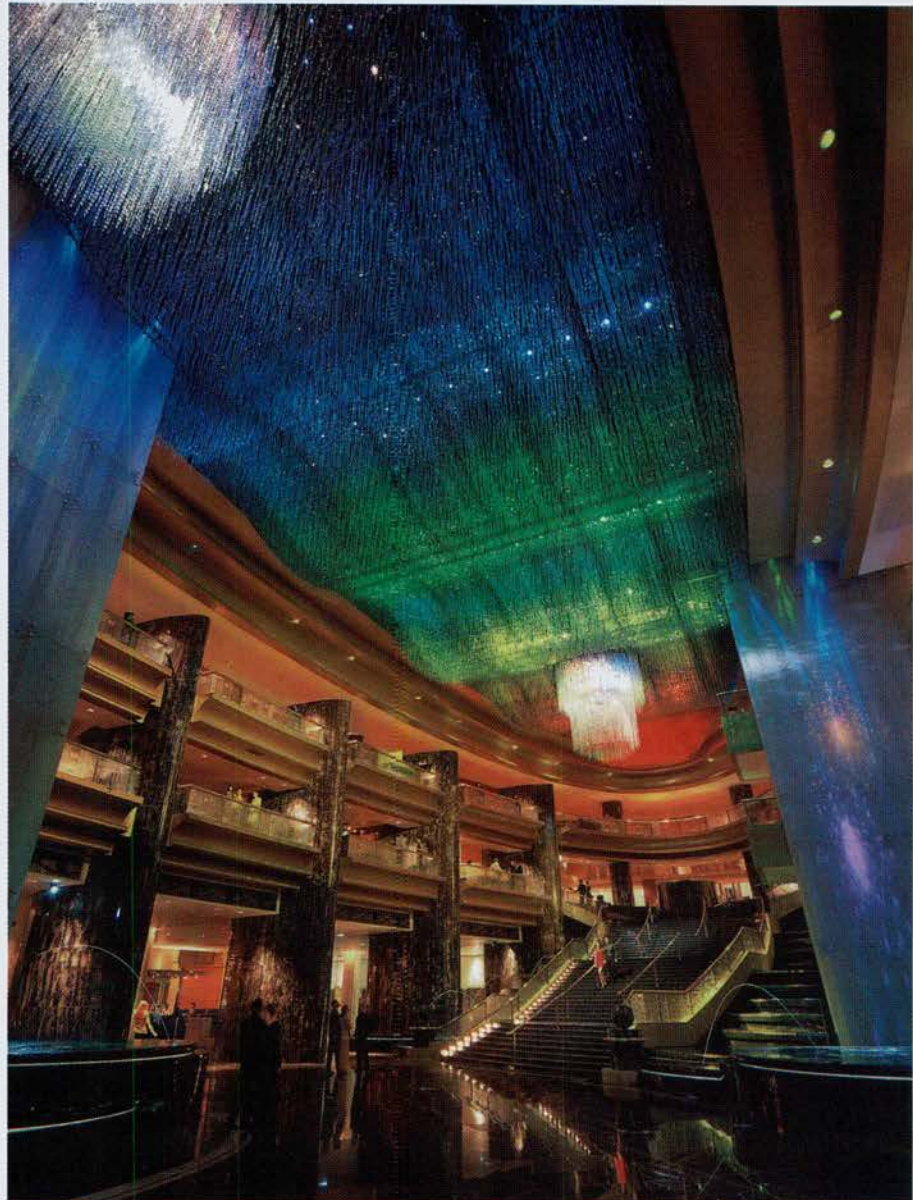
With control and integration by local company Bytecraft, the Atrium was designed by a team from an American firm called MSB.

## SPECIAL EFFECTS MANAGER

George Nejtek is the operations manager, special effects, at Crown. He works for Bytecraft who have the operations contract for effects at the Casino.

Bytecraft were one of the main contractors for the Atrium, designing and manufacturing the massive automated chandeliers, supplying lighting fixtures and control systems, providing a great deal of the system programming and bringing together all of the various disciplines into a coherent 'show'.

George's realm also includes the Gas Brigades, which are 8 towers on the riverside which do live fire balls and big candle effects.



They are a major drawcard, and work at regular intervals during each evening.

Special effects also supervise outside signs, some lighting, and the Western Entrance (featured in Connections June).

George supervises everything from an effects control room perched high over the Atrium. It is surprisingly large and loaded with a staggering array of equipment.

The Atrium show runs from 6.45am until

3.15am Sunday through to Thursday, then 24 hours per day Friday and Saturday. A technician is on duty during show hours. There is at present a considerable body of technicians and sub contractors on call. George manages all this - and orders the gas.

## HOW IT WORKS

The Atrium control system is fully automated. It is orchestrated by the MEDIAPRO



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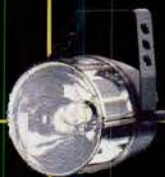
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4000 from ANITECH. BYTECRAFT picked this computer for its robustness and ease of programming. This equipment is mainly used in dark rides such as Universal, Warner Bros or Disney. The main criterion in designing fully automated control systems are safety and reliability. To get close to perfection, all sub-systems are linked to the main system via voltage free contacts and/or serial communication. Should any of the sub-systems fail, the main system is not affected.

In the control room resides the master PC. It selects which show to play according to the time of the day and the day of the week from a pool of 8 segments of 22 and half minutes each. Once selected, the show number is made available to the memory of the PLC. The PLC checks the sub-systems for safety and readiness and makes the same number available to the memory of the MEDIAPRO. The MEDIAPRO then starts the hard disk which stores the audio for the show segment selected. The first seven tracks store the music and the effects while the eighth track stores the time code. Once the Audio is started the time code is distributed to the complete installation. Some sub-systems react directly to the time code received while other operate from dry contacts sequenced by the MEDIAPRO via the PLC. Accuracy of synchronisation is the resolution of the time code selected, in this case 30 frames per seconds.

The MEDIA-PRO communicates with the audio, the lighting, the hard disk, the tape machine and the CD juke box serially. Upon completion of a music segment, the MEDIAPRO returns all sub systems to a idle situation and flags the PLC. The PC can then restart the next show... typically after a pause of 3 seconds....

## AUDIO

The audio system in the Atrium is an utter triumph. Stand anywhere in the Atrium and sound pervades, apparently omnidirectionally. Orchestral music forms the audio track for the various 'shows', and plays continually. The Atrium itself is large and audio unfriendly - being marble and hard surfaces.

But in execution it is brilliantly designed. Extreme care has been taken to produce a large number of time aligned zones, carefully equalised and optimised in an operation which must have been complex. Unfortunately I was unable to learn more about this.

Up in the large SFX control room, an Akai DR 8 hard disk 8 track recorder replays the audio, non-stop. It is SMPTE locked to the show controller, and there is an additional DR 8 on hand for redundancy. A pair of MDM (modular digital multitrack) players are also on hand in case audio for a unique show - like Chinese New Year - is required.

This replay system is in the show control rack, with the PLC which takes the SMPTE code and distributes commands throughout the technology.

The audio 'processing' occurs in a system rack, itself portable.

Audio mixing, equalisation and time delay functions all happen in a Peavey Media Matrix system, the actual mainframe unit (the system 'guts') is away in the amplifier room, quite remote from the SFX control room.

"It seems to be a very powerful audio system. We can look at block diagrams, re-route and do anything", says George referring to Media Matrix".

"The only problem is the transition from backup to system operation can take a minute and a half to re-format. Considering the complexity, we have 70 Cyberlogic multi channel amplifiers, delays, and effects - it's a beaut system".

We've got the capacity to have limited other sources, if we need to play a CD we can, we have a wireless microphone, and a Mackie mixer for extra inputs. We can take a signal from elsewhere in the building for example".

The audio operation 'system' rack is portable, with tielines at different places so it can be hauled off while the system is working and used elsewhere without interrupting the program.

Rutledge Engineering were the audio contractors, they also did all the video and AV systems in the Casino itself, a massive contract.

## CHANDELIERS

The two chandeliers are framing the Atrium, one above the main entrance, the other above the stairs. Designed and built by BYTECRAFT, they are the 'piece de resistance' of the mechanical animation for the show. Each one is made of three rings and a core. The core which travels more than 10 metres contains four Cyberlights, a network of optical fibres and four outlets for liquid nitrogen. The other rings are fitted with 11 AR5s, optical fibre bundles and 45 stroboscopes. During the show, the liquid nitrogen is released in the atmosphere to create clouds of smoke.

Each ring and the core are driven by AC motors installed in dedicated rooms above each chandelier. The variable speed drives from ABB take their speed reference from BYTECRAFT JOEY cards. The commands are transmitted on fast serial communications between the main PLC and the local PLC.

A sophisticated retraction system allows all the electric cables, fibre optic bundles and

nitrogen pipes to retract without the need of motors.

Each chandelier can be configured ad infinitum, however, it has been decided that 15 combinations were ample to satisfy the artistic demands of the show. Either chandelier can go from flush to full extension in 23 seconds.

Since all the elements are covered with



glass, it is extremely important that the rings travel smoothly to avoid shaking the crystals off. Tolerance in travel is extremely tight.

## LIGHTING

Supplied and installed by BYTECRAFT, the Atrium features 58 Cyberlights, 32 Irideon AR500s, 161 AR5s, 339 Prolights, 120 Data

Flashes and 80 Star Strobes.

SMPTE (time code) is received from the Atrium audio track by eight Light Cue hard disk DMX recorders. Initially the job was going to be done by a Whole Hog locked to SMPTE and playing back shows - "the Whole Hogs don't have enough memory or storage to cope," says George. There are eight streams of DMX used for the shows - that is, 8 x 512 channels for a total of 4,096 channels!

There are two Whole Hog's on hand for backup. They have one show loaded between them, and can be used to drive the show, bypassing the DMX recorders.

The DMX recorders output to a crosspoint matrix where the 8 DMX lines are divided into 128 separate lines for distribution, some of which are converted from DMX to Irideon protocol.

The system also sends to architectural lighting on the outside of the hotel tower, Irideon AX-5's which wash the building in colour.

Besides the show lighting which is handled by the DMX recorder, the overall installation is switched on or off via BYTESWITCH from BYTECRAFT under the control of their architectural computer ARC. A purposed designed program monitors the BAS and EWISS in parallel with the main PLC for redundancy. Should any of these signals become low (in this kind of application a positive acting logic is always used), the ARC restores the full lighting rig of 135 HID PROLIGHT and simultaneously orders the proximity dimmers to return to full.

Projections are a big part of the show, and are generated from gobo's within High End Systems Cyberlights. Colour washes and feature spotlighting mostly from Irideon AR-5 fixtures, Irideon is the architectural arm of Vari\*Lite.

## NUTS AND BOLTS

There are rooms for lasers, fountain pumps, liquid nitrogen foggers, an amp room and a maintenance workshop. George moves around the place with the confidence of someone who knows how everything works, and that impressed me, since all I was doing was asking questions.

Down in the Laser control room are the two lasers, an Argon (green) 30w unit, and a Krypton (red) 6w device. The Lasers are built by Coherent Systems, and the optical bench and distribution system is by Image Engineering (USA). The whole optical bench is vibration isolated on air shock absorbers, and inside are all the usual control actuators and crystals. Things to make laser effects, for scanning and beam splitting.

What is always surprising with lasers is that all that brute output can run through tiny fibre optic tubes. The 16 optical fibres from the Laser room go to various places in the Atrium.

Chilled water is fed through each laser on a closed loop system. Water goes in at 18° and comes out at 38°.

Commissioning problems are often unexpected, and there has been a lot of work to

do in relation to the Cyberlights. They needed a modification to protect a capacitor from overheating. There aren't many places where any fixture like this is powered for 24 hours a day, George says. "As soon as the fault was diagnosed High End were very good working with us to rectify it".

Each of 60 Cyberlight SV's were pulled down from their various locations in maintenance time and a new capacitor and heat shield installed. The Cyberlight SV version is a studio version for quieter running, and as such uses one fan instead of three.

Lamp life in the whole installation requires continual changes, with everything burning almost 160 hours a week.

"The maintenance shift is critical - we've had to throw up to eight people onto it, some jobs take longer than the limited time available - which is when the show is not running".

## LIQUID NITROGEN ROOM

5 machines are used to make as much low lying fog as is required anytime. In each machine a body of water is kept heated at 75°, there's a pump circulating the water for an even temperature. When required, Liquid

Nitrogen is injected into the middle of the tank and sprays over the water.

The big tank like machines are made by Interesting Products in the USA. Under the timing of the MEDIAPRO show controller, the PLC sends a switch closure to a diverter at the same time as turning the Liquid Nitrogen valves on. The diverter vents off the first plumes of fog, with whatever steam has accumulated in the machine, then re-diverts the stream to the pipe system.

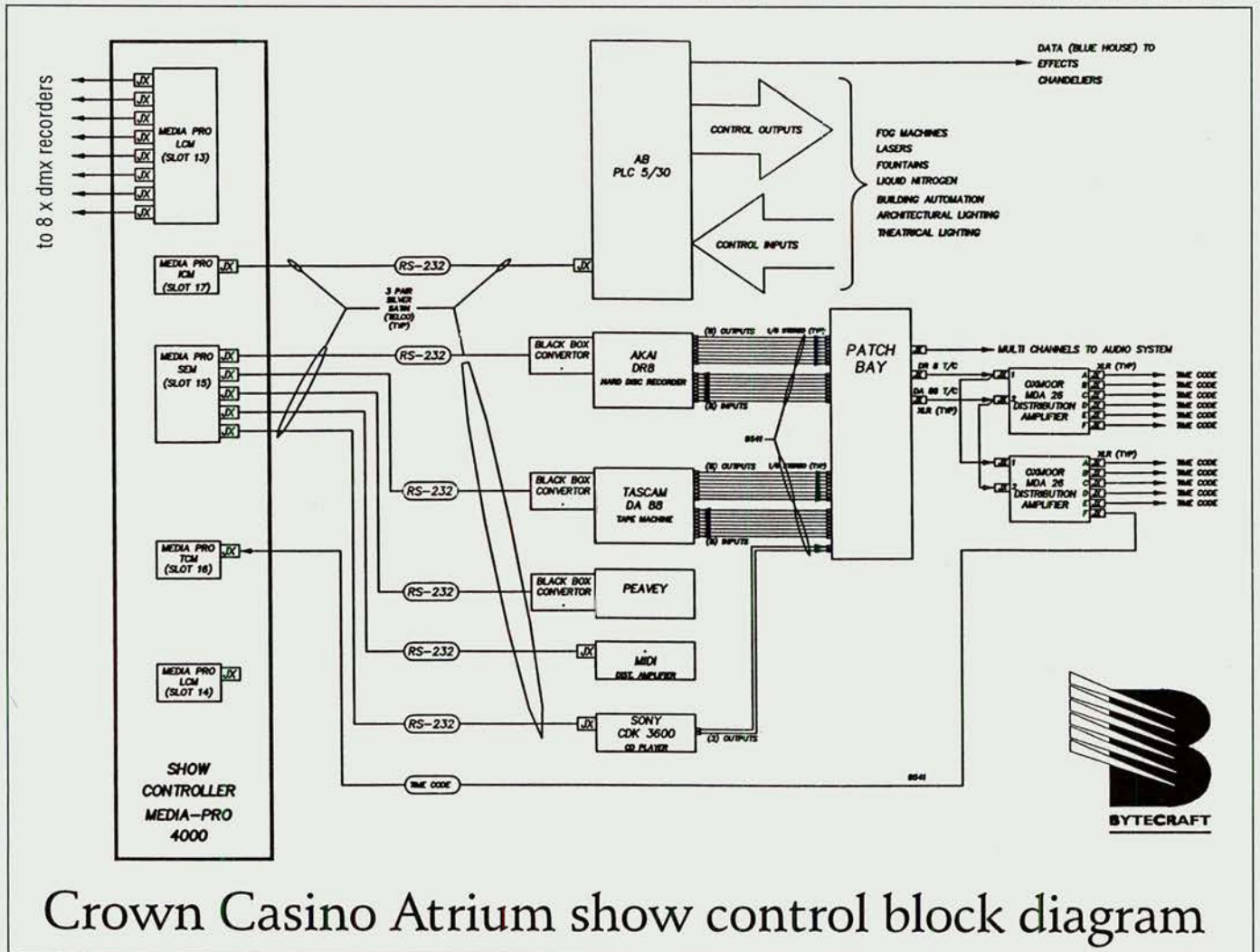
## IT'S JUST HUGE!

What impressed me is that the Atrium is there to be experienced by all. Just walk in and take it all in - as it seems most of Melbourne has been doing. It gets full at times.

The show is a creation by a team of designers, if you pull out elements you lose design integrity. So the commitment of the owners is enormous, as no doubt are the running costs.

Check it out yourself as soon as possible, and when you do spare a thought for George and his team, hidden away tending to the masses of entertainment technology.

*\* With thanks to Patrick Bravard at Bytecraft for assistance.*



Crown Casino Atrium show control block diagram

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# THE PA PAGE

*Don't Panic! Part 2. By Michael Orland.*

So there you are, rooting around in the back of a rack, juggling a soldering iron, a multimeter, and a torch. The band's manager approaches you to remind you that the main act is on in five minutes. Is there a problem?

YES, there's a problem! We've lost three of our four engines. I have only limited rudder control! Half the instruments don't respond at all and we're losing altitude fast! Go back to your seat and put your head between your knees. It won't save you when we slam into that mountain, but it will make it easier to kiss your butt goodbye!!

The band's manager approaches you to remind you that the main act is on in five minutes. Is there a problem?

No problem. Just a little turbulence.

Now, I'll let you in on a little secret. From time to time, things go wrong with all P.A. systems, regardless of size or cost. You say, nothing ever goes wrong with Joe Bloggs' P.A.! Actually it does. Joe Bloggs just doesn't let you know about it. Now you may think of underplaying a potential crisis in front of clients and punters as deceptive. I don't. I think of it as maintaining a calm, professional demeanour in the face of adversity. The stuff they give out medals for. And the fact is, panicking doesn't help. I know. I've tried.

And at the end of the gig, long after the problem was gotten around, and the musos are patting each other's backs and tucking into their rider, the turbulence remark will have long been forgotten. Whereas the outburst will always be remembered.

Let's look at problems and solutions. This month: amplifiers.

One of your amplifiers doesn't power up at all. Check all mains connections. Swap IEC leads if applicable. Check mains fuse.

One of your amplifiers is registering no signal on its input. Swap input leads with the working side to ascertain whether the fault lies before the amp or within it. If the fault is within the amp, try giving it a burst of signal to resuscitate it. Unplug the speakers, turn down all other amps connected to the same signal, and set up a megablast from the desk. A noisy CD track with channel and master volumes up full should do it. Go back to the

amplifier, yell "Clear!", and crank up its attenuator.

If the signal indicator/meter suddenly kicks in, this is indicative of a poor connection, dry solder joint, or intermittent component, usually in that order. Turn the amp back down, reconnect the speakers, adjust the signal source and recheck. Connectors within amplifiers, especially within a preamp stage, often give trouble. One of the most reliable amplifiers ever built in this country was the Jands J600. A major reason for this reliability was the absence of any internal connectors. Everything was hardwired and soldered together.

One of your amplifiers is registering signal input but there is no output. Swap speaker leads to confirm whether the problem is within or after the amp. If within, turn the power off the check the rail fuses, if user accessible (external). Visual check first. If a fuse has splattered and the glass is internally blackened, try disconnecting speakers and putting a meter across the connector that plugged into the amp, to check for shorts that may have triggered the reaction.

If the connector is a Speakon, you'll need to unscrew and remove the jacket to get a reliable connection for testing. If the load seems fine, replace the fuse and turn the amp on without the speakers reconnected. If the fuse blows again straight away, turn the amp off and put it aside for servicing. If on your initial visual check of the rail fuses, they seem fine, recheck them with a meter. I have often seen fuses which looked fine, but measured no connection.

Sometimes the itty bitty weld at one end of the fuse will come undone. Fuses are like lightbulbs. Under awkward gig conditions, meters with a continuity beep make this sort of checking much easier.

If the fuses seem fine, or if they are internal, or as in the case of some Yamaha amps, they don't have rail fuses at all; and you still get no output, and there are no fault indicators on, then perhaps you have a faulty relay. Many modern high power amps have a relay circuit on each output which not only protects the speakers from switch on surges by delaying internal connection by a few seconds, but also senses any harmful

CD at the output and hopefully disconnects it before frying the speakers.

Trouble is, they can wear out. Some amplifiers are notorious for using underrated relays. The quick gigfix is, leaving volumes down, to turn the amp off and on listening carefully for the double click of each channel's relay turning on, milliseconds apart. Often that second power off/on will kick it in. Of course the long term fix is to have it replaced.

If one side of an amplifier starts making unpleasant noises through your speakers: coughing, spluttering, loud bangs, etc, turn down its volume to ascertain whether the noises are being internally generated or being fed in. If turning the volume down has no effect on the noises, then turn the amp off. If you are short of amp sides for the gig you're doing, then removing the rail fuses from the faulty side should allow you to safely turn the amp back on and use the good side. Failure to remove the rail fuses from the faulty side, even with nothing connected to its input or output, can be costly. Whatever component is frying away can set off a chain reaction, turning a small repair into a large one.

If turning the amp's volume does stop the noise, then the amp is simply amplifying a noise being fed into it. Tracing it back to this point, amplifiers like the Crown DC300, which together with the J600, ruled the world (well, as much as I knew of it anyway) when I was starting out. The DC in the model number means Direct Coupled, right? Wrong. Actually DC means DC, as in voltage. When all you know is rock and roll, it comes as a surprise to learn that such amplifiers were designed for amplifying voltages for many diverse applications such as operating machinery. For audio applications, a small modification is advisable. Remove the front panel and silicone stick a 1 microfarad crossover type greencap next to the volume pot wiring as per fig. 1. If any harmful DC is then fed into the amp, this will block it, rather than let the amp happily amplify it as it was designed to, frying any speakers in its path. More next month. Meanwhile stay cool...

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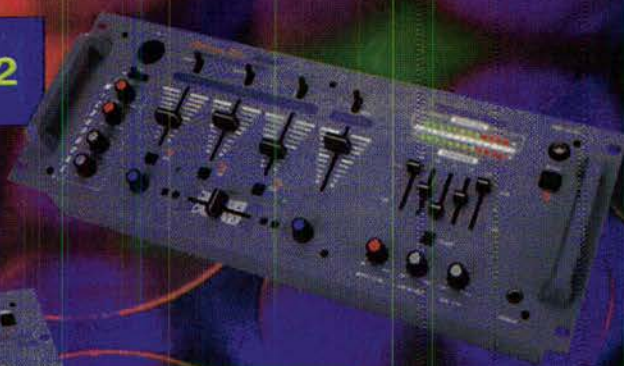


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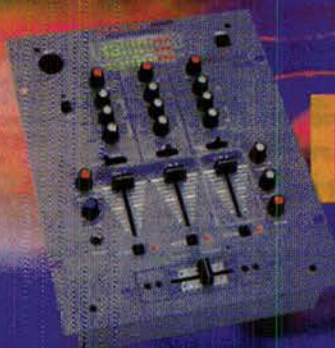
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