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The Entertainment & Presentation Technology monthly

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## COMING IN CONNECTIONS:

**JUNE:** Buyer's Guides: Live mixing consoles. Profile and PC spots. **Deadline** 15th May. **Onsale** June 2nd.  
**JULY:** Buyer's Guides: DJ mixers and samplers. Lighting control. **Deadline** 15th June. **Onsale** July 7th  
**AUGUST:** Buyer's Guides: Studio Mixers, Lighting Dimmers. **Deadline** 15th July. **Onsale** August 11th.  
Call -61 2 9876-3530 for listings and info. **Deadline for Buyer' Guide is EARLIER!**



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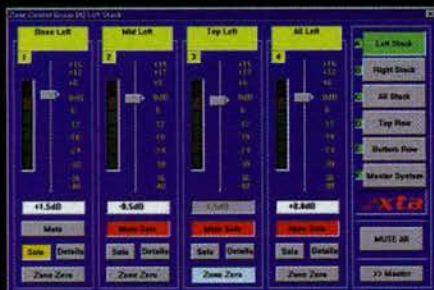
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# Connections

THE PRESENTATION & ENTERTAINMENT TECHNOLOGY MAGAZINE

## REVEALED: SECRET SKUNK WORKS IN AU

**A** top secret audio project is under way in Sydney featuring some serious audio core players. The project details are classified, however Connections understands it entails changing the face of how we look at and manipulate audio. It is thought that the project aims to give audio engineers a completely new set of tools to make their job easier.

Investment from the USA is believed to be funding the team,

which includes legendary expatriate audio guru Bruce Jackson, who has just been named Audio Designer for major Olympics' events. Jackson's CV is touched upon elsewhere in this issue - he is based in L.A.

The core team includes Marcus Altman, (Software and Logistics); Stewart Bartlett, (Chief Engineer and Chip Designer); and David McGrath, (Mathematician and Theoretician). Gary Jackson and Val

(Valentyn) Udoenko head up the Art Direction and Animation department.

Each player is considered brilliant in their own field. Additional support is coming from Santa Monica and Canada, from Analog Electronics and Converter guru Ed Meitner respectively.

Contacted at presstime, Bruce Jackson would not comment further, other than to say: "The cross pollination of lots of

cool science and art into our sometimes boring audio world is an exciting experience for me. It's been a great learning experience working with this much talent on board".

He declined to discuss who else may be involved, although sources say that US audio company Clair Brothers has some interest. The project has been under way for eighteen months.

**By Julius Grafton (Sydney) and Buck Freeman (Detroit)**

## It's DVD Audio. (Finally!)

Hard to believe, but the formal specification for DVD Audio has only just been ratified. This is after Connections reported the draft specification last winter.

Gearing up to supply material on DVD could prove expensive. You can forget mastering to DAT - its resolution is limited to that of a regular CD.

An increasing number of facilities are equipping for 96kHz/24-bit using A/Ds and D/As by the likes of dCS and Apogee, although the choice of recording systems is somewhat limited at present. Sonic Solutions and other workstation manufacturers are supplying pre-mastering systems capable of handling these extended frequencies.

Redesigning and upgrading control rooms and mastering suites for 5.1, however, is another issue altogether.

• **Bill Foster reports on DVD Audio, page 16.**

## CROWN CHASE LEADERSHIP IN OZ

*JANDS come up with an amp brand and announce surprises*

**J**ands Electronics has won distribution of Crown audio equipment in Australia, after a courtship lasting some eighteen months.

Crown are market leaders in power amplifiers in the USA, but have lagged in market share down under. Jands have been seeking a strong amplifier brand after losing distribution of Crest Amplifiers two years ago. Previous to co-distributing Crest, Jands built power amplifiers at its manufacturing facility.

Jands distribute market leading brands including Shure, JBL and Soundcraft. Offering virtu-

ally everything required to build a sound reinforcement system, except amplifiers, is a handicap.

Now Crown have capitulated to a strong argument and appointed Jands as distributors - at a time when Crown have expanded their range and aggressively pushed into the price sensitive mass market pro amp sector with the CE series (CE1000 pictured below).

The CE range comprises the CE 1000 which is expected to retail at about A\$1,700 and the CE 2000, which should sell for around A\$2,400.

Sales of these entry level amplifiers should be boosted by a three year warranty which Jands claim is very comprehensive. Jands also say they will honour warranty claims on Crown product purchased through the previous distributor, Bose Corporation - provided users have proof of purchase.

Crown have built amplifiers for over 30 years, and also manufacture a range of specialty microphones.

Bose issued a statement wishing Jands well with the range.

• **Jands Electronics, call +61 2 9582-0909**



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**ETHICS:** We operate under the journalists code of ethics, as detailed by the Australian Media Entertainment and Arts Alliance. We also agree with the principles of media honesty expressed in Brill's Content magazine. Respect for truth and the public's right to information are over-riding principles for all journalists at this publication. In pursuance of this principle we have always committed ourselves to these ethical and professional standards:

1. We shall report and interpret the news with scrupulous honesty by striving to disclose all essential facts and by not suppressing relevant, available facts or by distorting by wrong or improper emphasis;
2. We shall not place unnecessary emphasis on gender, race, sexual preference, religious belief, marital status or physical or mental disability;
3. In all circumstances we shall respect all confidences received in the course of their calling;
4. We shall not allow personal interests to influence us in our professional duties;
5. We shall not allow our professional duties to be influenced by any consideration, gift or advantage offered and, where appropriate, shall disclose any such offer;
6. We shall not allow advertising or commercial considerations to influence us in our professional duties;
7. We shall use fair and honest means to obtain news and documents;
8. We shall identify ourselves before obtaining any interview for publication;
9. We shall respect private grief and personal privacy and shall resist the compulsion to intrude;
10. We shall do our utmost to correct any published information found to be harmfully inaccurate.

# EDITORIAL

JESUS I hate 'rote' editorials early in a magazine. Those wasted columns or worse still, pages- where an editor, whose real role as *custodian of the content* is forgotten, imposes his or her views on their salivating readers. Boring as batshit. Dream on, editors. That's why I hardly ever do this.

But this month I have a **major issue** to report. Read on.....

## DEFAMATION CASE

Connections magazine has finally had defamation action against it by former OTS Publisher Noel Crabbe thrown out of court. Lawyers Gilbert + Tobin succeeded in an application to the District Court of NSW on April 8th this year to have the claim struck off the list.

The action by Crabbe and OTS alleged that Connections had published a story in 1994 that contained material adverse to the publisher of OTS. The story originated from a news release issued by a publicist acting for a major insolvency accountancy practice, Prentice Parbery Barilla - and was published in other publications including the Australian Financial Review. Crabbe and OTS alleged that due to a technicality, the Prentice Parbery Barilla release was incorrect.

Against legal advice, Connections quickly published an apology to the publisher of OTS (On The Street). But we were served with a defamation action in the Supreme Court of NSW anyway.

The long running case was all about money. Lawyers for Noel Crabbe wanted \$25,000 from me way back then. Because we were one of several other publications who reported the original story, but to my knowledge the only one to be sued, I defended the action. We operate to the Journalists code of ethics - and actually reproduce the code in every issue so people know where we stand. I'm happy to take it on the chin if we accidentally do the wrong thing, but don't like being singled out as a potentially soft target for a quick buck.

Connections will now pursue Crabbe for our hefty legal costs.

Our aim is to produce a quality journal which can be benchmarked against any magazine serving our industry worldwide.

## ABOUT YOUR WRITERS

I'm delighted in the calibre of our writers. This issue has a DVD Audio report by one of the nicest people in journalism, Bill Foster. Everyone he met when he came out from London for our first DVD Conference at ENTECH in 1997 commented on how well informed, intelligent and what a downright gentleman he is. Thanks, Bill!

Then there are our growing stable of contributors, including Zenon Schoepe and Mark Cunningham - who both edit vital and market leading magazines in London. Our new AV specialist Gary Kayye is carving an authoritative role too, he is based in North Carolina, USA.

Internationally we are lucky to have utilised the services of industry pro, Buck Freeman, on retainer in Detroit since 1993. His background information is always accurate, his sources impeccable.

Locally our stable of writers now covers the region, with the exception of New Zealand. **Where are you, NZ writers?**

In Australia I still need more articles on film and studio audio, and AV. In fact, I'll consider submissions on any topic related to this magazine. Just send them in. See details on formats at left.

*Sometimes, unfortunately, I can't respond to writers who have submitted material to Connections. If you have sent me your story and not heard from me, call or email me. I am not as unapproachable as is sometimes rumoured.*

Perhaps you have an idea, or a comment on a story you've read here. Our stock in trade, our currency if you like, is information. If you need to communicate with me CONFIDENTIALLY, just mark your communication 'NFP'. If you need to write a Letter To The Editor under a nickname, be sure to give me your REAL name and contact details. These will not be revealed to ANYONE, I guarantee you. But I must ensure you are GENUINE.

**-Julius Grafton, editor.**

## MOVED

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(Call +61 2 4324-3873)

## BIRTHED

To **Gordana** and **Richard Skarzynski** (Total Concept Productions, Sydney) a baby girl, Mikayla. Congrats

## AWARDED

To **Georg Neumann GmbH** of Berlin, a 1999 technical grammy for their consistently excellent record of achievement in audio technology since 1928.

## ... AND ICED

In the severe Sydney hailstorms last month, **Gearhouse** (Sydney) warehouse suffered inundation, as did many other businesses and houses in the line of the storm. Hail stones as large as cricket balls badly damaged countless numbers of cars as well, including that of **Jands Production Services** CEO Eric Robinson, which was parked at Sydney Airport.

## MACKIE DIGITAL 8 BUS SEMINARS

Mackie new D8B Digital Console designed for Audio Post and Music Production will be the subject of a demo tour this month.

The D8B is the first digital console that doesn't stand in the way of your creativity, says Mackie.

Dates: Melbourne; 18th May, Sydney on the 25th of May.

The Seminars are free, but tickets are limited. Tickets online at [www.ausaudio.com.au](http://www.ausaudio.com.au), or fax your details on +61 2 4388 4688, or call +61 2 4388 4666.

## DOLBY DEAL KICKS IN FOR LAKE DSP

SINGAPORE: Dolby Headphone technology will be available to Singapore Airlines (SIA) passengers on all classes of travel, thanks to a technology deal between Dolby Laboratories and Sydney audio pioneers Lake DSP.

This will be the first time the new technology, the subject of a deal done last year with Dolby, will be available anywhere in the world.

Dolby Headphone technology provides cinema-quality surround sound to listeners using standard stereo headphones. Originally developed by Australian company Lake DSP, Dolby Headphone will soon be used in consumer electronics and personal computers. It will be SIA customers, however, who will experience this new technology for the first time, while enjoying SIA's in-flight entertainment system, KrisWorld.

Said SIA's Executive Vice President (Commercial), Mr. Michael Tan: "Singapore Airlines has been in close liaison with the reputable Dolby Laboratories and the original creator, Lake DSP for some time. We see this exciting innovation as breaking the sound barrier in inflight entertainment. Our customers will have the

privilege of being the first in the world to experience this amazing high quality surround sound. We are confident that this innovation will clearly make SIA's inflight entertainment more enjoyable."



DOLBY HEADPHONE



John Kellogg, General Manager of Multichannel Audio Production at Dolby Laboratories in Hollywood and Director of the Dolby Headphone InFlight program said: "Dolby Laboratories is very excited about the

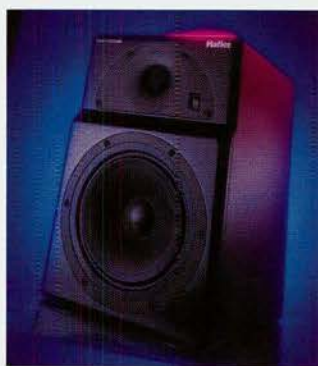
application of Dolby Headphone to in-flight entertainment and is very happy to be working with a very progressive airline in Singapore Airlines."

Dolby Headphone was born out of pioneering work by Australian company Lake DSP over a period of eight years.

Lake DSP made a series of breakthroughs in the simulation of acoustics using computers, and licensed the technology to Dolby Laboratories in October 1998.

"It has been gratifying to work with an airline with such a strong commitment to in-flight entertainment and services," said Leonard Layton, Marketing Director at Lake DSP.

[www.lakedsp.com](http://www.lakedsp.com)



## Hafler Shifts to GUET

Australian Audio Supplies has resigned as Distributor for US based amplifier and active speaker manufacturer, Hafler.

Dave Croxton, Managing Director of AAS cited Hafler's expansion into the Active Monitor market as the reason.

"We have enjoyed a good deal of success over the years with Hafler's range of studio amplifiers however this sector of the market is now diminishing with the boom in active monitoring. Hafler have addressed this and expanded into their own range of active monitors (picture above) however we are already heavily committed to Mackie in this area."

GUET will now handle the Hafler range of products in the Australian market. Distribution Manager Billy Mawer says the handover was very smoothly handled by AAS.

GUET: +61 2 9420-4888.

## Fairlight expands

**SYDNEY:** Fairlight ESP have announced their intention to strengthen their position in the Radio Broadcast market with the acquisition of the business of Ogenic On Air Systems, Australia and Asia's leading manufacturer of radio broadcasting products. The new company Fairlight Ogenic Pty Ltd will trade as FAIRLIGHT ON AIR SYSTEMS.

Fairlight have been planning to move into the on air radio broadcast market for some time and saw Ogenic as a timely opportunity to facilitate strategic growth into this industry.

Fairlight recently raised investment in excess of \$11 million to acquire businesses like Ogenic and to grow them significantly. Fairlight On Air Systems will remain focussed on the Radio Broadcast Industry with a commitment to producing a new

range of digital products from accelerated R&D.

Quentin Cribble, General Manager of Fairlight On Air Systems was pleased to confirm that all Ogenic staff have transferred to the new company, so business will continue as usual during the expected transition phase. "The only significant changes you'll see apart from the company name will be a new range of products and increased support from our Sydney-based office for stations located in the Eastern States of Australia".

□ Fairlight ESP and EVS Broadcast Equipment, Belgium, have announced an agreement that will see a financial investment by EVS in return for a minority ownership stake in Fairlight. The agreement forms part of Fairlight's recent venture funding deal, raising capital to bolster growth through acquisition. "This marks the beginning of a mutually beneficial strategic alliance," said Fairlight's Managing Director, David Hannay.

## .....MICROPHONES

I concur with John Matheson (*Mics, April Connections*). I hear enough muddy vocal's from PA systems I wonder whether the operator has ever wondered what the bass cut and high pass knobs are for? The effect is so obvious and the improvement so dramatic.

How about a few words of support for the poor old diaphragm? Why not suggest that a good place to start with lecturn and studio mics is by shifting the mic to one side rather than directly in line with the talkers mouth?

Nonetheless E still equals MCsquared. That is the Energy dissipated equals the Mass times the velocity squared (I guess

Einstien had a word that starts with C for Velocity but I don't).

Now diaphragms have very low mass so it doesn't matter what the speed of impact is ... the low, low mass of the diaphragm means it will hardly dissipate any energy at all ..... ie accidental drops, kicks, knocks etc are more terrifying to the owner than the diaphragm in most cases.

People who blow into a microphone to see if it's live give me a great urge show them a new use for microphones in alleviating the effects of diarrhoea.

Thanks John for the good oil on EQ'ing but please help us understand it IS a last resort .... not the first line of defence.

**-Peter Patrick, Scientific Acoustics, TOOWOOMBA**

## .....BOOTS

In regards to John Grimshaw's article (*April 99 edition*) on Mack Trucking Boots. Although I agree with you in part, I also own a pair of Mack boots and work in the industry (as a specialist Rigger and Action co-ordinator..) A job that takes me to various locations and terrains. In the past I have found the Mack boots like yourself to be a little uncomfortable long term and more importantly some what slippery in the wet.

I have since graduated to a different boot. The company is Steel Blue Australia (All Australian owned as opposed to Mack) they are the most comfortable boots I have ever worn and come with a Comfort guarantee.

There is a supplier for these boots in the Sydney Metro that will also come out on site and fit the boots for crews.. His Name is Jason Heaney and his company (you'll like this) is: 'The Kikarse Workboot Co.'

If you are going to give Mack A rap give these one a go too Give him a call 02 9699 1422.

**-Jon Heaney, EMAIL**

## ....MORE NANCY BOYS?

My fiance is a dancer with Manpower Australia. Your story (*April*) is a joke. Obviously Cat Forcer doesn't get it like I do. Pumped up and loving themselves? The boys I know are all VERY serious about their work. Stick to your roadie stuff in future.

**-Name supplied and withheld on request, BY EMAIL**

## .....& NANCY BOYS!

What a bunch of purse-carrying nancy boys they must be at Charing Cross. (*Studio Shuffles, Connections April*).

It only took 10 able-bodies plus a Scottish removalist with a weight-lifting belt and a trolley to get our Neve into really really BIG productions.

Anyone for an arm-wrestle?  
**-Phil Muscatello, really really BIG productions, SYDNEY**

## .....AND A PIG TOO!

WHAT is the point of Rock Pig? I question any platform where a bitter, anonymous(JG?) failed sound engineer launches attacks on supposedly soft targets like booking agents. Who cares? They sure don't. For one: they cannot read anything without a dollar figure on it. And to slag off Australian Rock groups - why?

**-Name supplied and withheld on request, (is this a trend?) BY EMAIL**

## PARS IN THE STUDIO

I didn't realise that Par Cans were studio lighting devices. Thanks for enlightening me.

**-Sparky, EMAIL**

• Seems some of our responding distributors decided that a PAR, otherwise known as a PAR in location and studio lighting, is a PAR CAN. But it's a funny world. There were HUNDREDS of Par 64's used on *The Matrix* for instance. It wasn't our INTENTION to list Par cans, just Studio Par FIXTURES. -Ed

Write: PO Box 439, Epping NSW 2121 Aust, or mail@conpub.com.au

## MAJOR EVENTS

- NSCA, April 27 - May 1, 1999. Nashville. Ph +1 904 273-2760. web: www.nasca.org
- AES 106th, 8-11 MAY, Munich. Fax +1 212 682-0477. web: www.aes.org
- InfoComm, June 10-12, 1999. Orlando. Info fax +61 2 9531-6777. www.icia.org
- PALA, July 8-10, 1999. Suntec City, Singapore. Ph. +65 227-0688.
- SMPTE, July 13-16 th, 1999. Sydney. Ph. +61 2 9977-0888.
- National Entertainment Industry Conference, Sydney. Aug 6,7. +61 2 9557-7766
- PLASA, Sept 5-8, 1999. London. Earls Court. www.plasa.org.uk
- INFOCOMM ASIA, Sept 15-17, 1999. Singapore. Ph. +65 297-2822. www.icia.org
- AES 107th, Sept 24-27, 1999. New York. Fax +1 212 682-0477. web: www.aes.org
- LDI Nov 19 - 21st, 1999. Orlando. Ph +1 212 229-2965 web: www.etcync.net
- NAMM, 3 - 6 Feb 2000. LA. www.namm.com
- ENTECH 2000, March 5th - 7th, 2000. Sydney Exhibition Complex at the Olympic site, Homebush. Fax + 61 2 9876-5715. web: www.conpub.com.au
- MusikMesse, March 15- 19th 2000. Frankfurt. www.messefrankfurt.com
- SIB, Mar 26 - 29th, 2000. Rimini, Italy. Ph +39 541 711711. www.fierarimini.it
- NAB, April 8-13th, 2000. Vegas, USA. www.nab.com
- NSCA, April 27 - May 1, 2000. Las Vegas. Ph +1 904 273-2760 www.nasca.org

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# PRO AUDIO NEWS

MAY 1999

**This Month:**

## MIDAS REPLACE THE XL3

*Heritage 3000 is the first of three new live mixing console lines. Mark Cunningham investigates*

**LONDON:** It was a year ago, as a fellow patron of a certain Irish Pub in Frankfurt, that David Webster of what is now The Klark Teknik Group, gave a vague indication that Midas was on to something interesting with its next major console. Thankfully, he took little notice of my ridiculous suggestions of names for this mysterious product, and instead, the replacement for the XL3 - the desk which helped to define the state of mixing technology in the '90s would later be dubbed the Heritage 3000.

Eighteen months in development, and unleashed to coincide with Klark Teknik's silver anniversary, the 3000 is the first console in the new Heritage Series which marks yet another landmark event in the 30-year Midas story. The promise of a high quality product was not lost on Charlie Davies of US rental firm Mercury Sound. With 10 Midas XL4s and four XL3s, Davies reportedly owns the largest inventory of Micas consoles in the world with the exception of Clair Brothers Audio. Such is his faith in the brand that he placed an

order for two Heritage 3000s before he even saw the product being assembled at Klark  
*(continues on page 18)*

## Meyer demo tour in May

*John Meyer to host free sessions in major Australian cities*

**M**eyer Sound is conducting a series of one-day seminars in Australia late in May. Mark Johnson, Public Relations Manager, and Mike Cooper, Director of International Sales will present the Seminars. In attendance will be Meyer founder and CEO, John Meyer as well as representatives from Meyer Sound Australia.

The seminars will provide attendees with a wealth of information and cover many topics, including:

- Arraying loudspeakers
- Demystifying the amplifier
- Ancillary equipment
- Acoustics
- A brief introduction to SIM

Concluding the seminar will be a "hands-on" session with John Meyer and the opportunity to evaluate Meyer Sound Loudspeakers.

Seminars will be held in:

- Sydney - Monday 24 May
- Melbourne - Wed. 26 May
- Adelaide - Friday 28 May
- Brisbane - 1st June.

Free ticket and venue information and session details are online at [www.meyersound.com.au](http://www.meyersound.com.au)

To get a ticket, fax your name, company and contact details to Meyer Sound Australia, via fax +61 7 32523380 or mail: PO Box 595 Albion QLD 4010. Info: Call Steve Devine or Harley Richardson on +61 7 32524493.



## DVD AUDIO DETAILED

*BY BILL FOSTER. Next page*

## Studio News

*Page 20*

## Circular fixup

*A bad venue made good. P.23*

## 5 CD-Rs

*Zeon Schoepe lines them up, starting on page 26.*

## 2 condensers

*Sid Kindman road tests two new microphones. Page 34*



**& MUCH more!**

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## *Now There's a Choice!*

Don't settle for speakers that are large and unsightly to get the directional control you require. Apogee's new family of Linear Array Loudspeakers deliver the sound where you need it: to the audience. ALA speakers let you focus the sonic energy with astounding accuracy and precision, keeping it off walls, ceilings and other surfaces that cause destructive reflections.

Off-axis rejection is equally impressive, allowing sensitive podium and lavalier mics to achieve levels that were previously unheard of. The result is greater articulation, clarity and intelligibility than ever before.

A wide range of vertical dispersion patterns can be created quickly and easily, thanks to our flexible rigging system. And only Apogee provides a choice of models to meet any requirement. The ALA-3 (pictured above) comprises dual 10" cone drivers and dual 1" throat horns, and is ideal for theatres, ballrooms, houses of worship and similar venues.

The ALA-5 is equipped with dual 15" cones and higher power HF drivers, for larger venues ranging from theatres to sports arenas. And finally there's the ALA-9, a three way, tri-amped system suitable for the biggest concert venues, indoors or out. Apogee Linear Array Loudspeakers give you the means to win the war against problem venues. Just think of what they'll do in the easy ones!

Call, fax or write today to learn more about this advanced technology or to arrange for a demonstration.



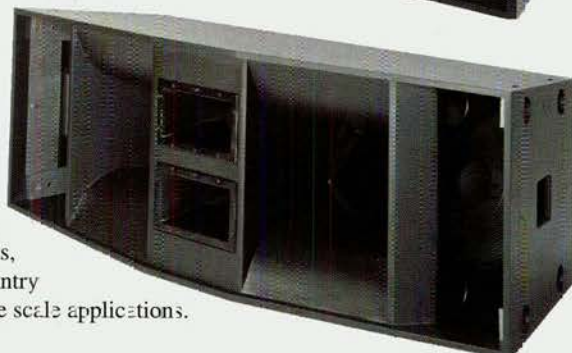
### **ALA-3**

Suited for theatres, hotel ballrooms, houses of worship and more.



### **ALA-5**

Ideal for concerts, musical theatre, industrials, theme-parks, and performing arts centres



### **ALA-9**

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**APOGEE**  
SOUND INC.

# DVD-Audio (finally) arrives

The missing piece of the DVD jigsaw so far has been an audio format, so the recent news that v1.0 of the DVD-Audio spec is finalised is good news- or is it? Bill Foster reports from London.

**W**hile DVD-Video is a major leap forward in quality that can be appreciated by almost anyone, and DVD-ROM's multi-gigabyte capacity should keep the computer world happy for a year or two, the big question surrounding DVD-Audio is: do we really need a higher definition successor to the CD - a format that would seem to satisfy most of the music buying public?

Back in 1997 the International Steering Committee (ISC), a group representing the record industry, compiled a list of what it required from a new audio format. Among the ISC's demands, aside from a 'bomb proof' copy protection system, were a minimum of 74 minutes of both stereo and multichannel 96kHz/24-bit audio (with the capability to extend this to 192kHz in the future), plus provision to accommodate video, graphics, Web links and various other 'extras'.

While 96kHz and 192kHz sampled audio at 24-bit resolution will be appreciated by the top end of the hi-fi market, it is without doubt the addition of surround sound that will have the most widespread appeal. For the consumer, this will simply involve buying a decoder, five full-range speakers and a subwoofer, but for the pro-audio and DVD authoring communities there are numerous issues to contend with.

The maximum data transfer rate of a DVD is just under 10 megabits/second, which places a limit on the number of high resolution audio channels that can be played back simultaneously. It is simply not possible to have six channels of 96/24, as desired by the ISC, without some form of data reduction.

The solution chosen by the DVD Forum was Meridian Lossless Packing (MLP), an audibly transparent coding - not compression - algorithm that saves disc space by shedding redundant bits, without losing any of the audio information. Savings vary according to the programme material, but a minimum of 30% is normally achievable.

But even using MLP, the only way to fit a long programme on to a disc is by reducing the sampling frequency and/or bit rate of some channels, normally the rear surrounds. To this end, the DVD-Audio format allows channels to be divided into two groups and coded separately.

Where space is at a premium, instead of including a separate stereo mix the 5.1 channels can be 'folded down' using a system known as SMART (System Managed Audio Resource Technique). This is more than just a combining of the six channels - codes can be introduced during the mixdown that determine the level of each channel during playback.

The ISC also desired the inclusion of a CD layer to ensure backwards compatibility with CD-Audio players. This was apparently rejected by the DVD Forum, but was picked up by the rival Super Audio CD camp, who hail it as one of the key selling points of their format.

Super Audio CD (SACD) is based upon Sony's 1-bit Direct Stream Digital (DSD) recording technology (which they claim is the closest to analogue you can get) and a system of lossless coding

known as Direct Stream Transfer. SACD is a dual layer DVD-type disc that incorporates both a high resolution audio layer and a CD layer, thus ensuring backwards compatibility with the estimated 600 million CD players in use worldwide. The high resolution layer can hold 74 minutes of both 6-channel surround and stereo, sampled at 64 times CD's 44.1kHz. SACD launches in Japan on 21 May, although the CD layer is not being included there due to the desire by the marketers to create an 'elite' disc. (Sony is adamant there are no technical reasons for the omission.)

Another requirement laid down by the ISC was that the new discs should be compatible with other members of the DVD 'family', and it is this point is likely to cause the biggest problem.

SACD is a proprietary format and will not be playable on either DVD-Video or DVD-Audio machines - with the possible exception of any video information on the disc that is likely to be recorded in the DVD-Video format and therefore playable on DVD-Video machines. (Philips and Sony are, after all, still members of the DVD Forum.)

The rush to get DVD-Video to market also meant that the

**The rush to get DVD-Video to market also meant that the DVD Forum was not able to wait for the ISC to finalise its 'wish list'. As a result, first and second generation DVD-Video players will not play the pure audio portion of DVD-Audio discs.**

DVD Forum was not able to wait for the ISC to finalise its 'wish list'. As a result, first and second generation DVD-Video players will not play the pure audio portion of DVD-Audio discs. Last minute revisions to the specification have made provision for the inclusion of a DVD-Video compatible Dolby Digital audio stream, which will at least allow owners of existing DVD-Video players to hear an album in 5.1 surround (albeit technically at a lower fidelity than the linear PCM

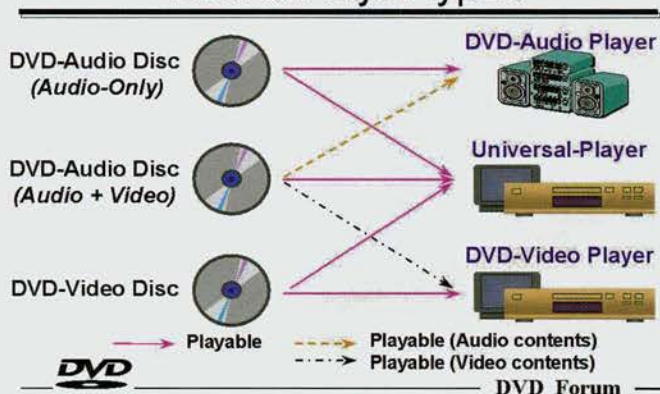
version), but it is not mandatory to include this feature. With a finite amount of space on the disc there will inevitably be a trade-off in reduced playing time if such a track is included.

For SACD machines to survive in the marketplace it would seem imperative that they at least include support for DVD-Video, while the key to widespread acceptance of DVD-Audio is likely to be the projected 'Universal' DVD player. These are expected to appear quite soon and will have the capability to play back both DVD-Video and DVD-Audio discs (see diagram).

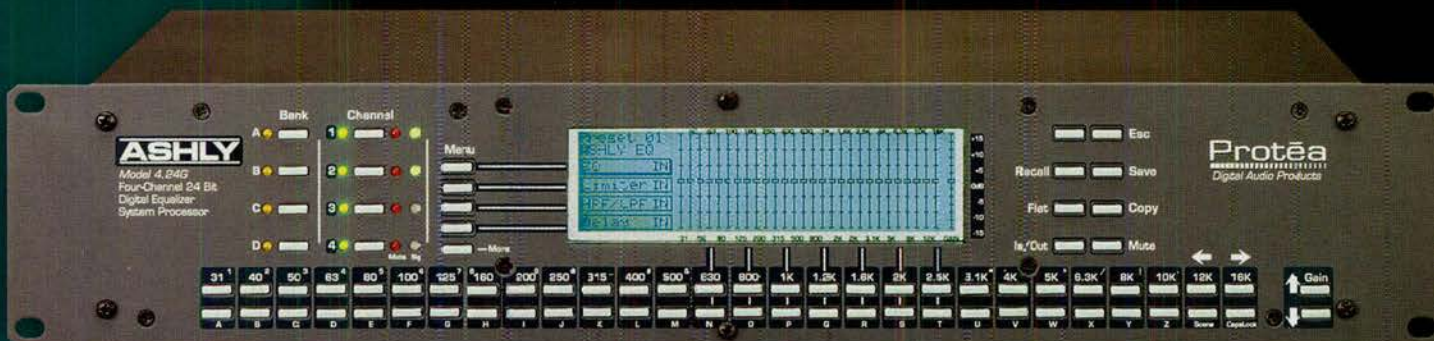
Then all that remains to be seen is whether the music buying public will pay a premium for a better sounding audio disc.

The fact that most people already think CDs are too expensive does not auger well for DVD-Audio's success.

## Disc & Player types

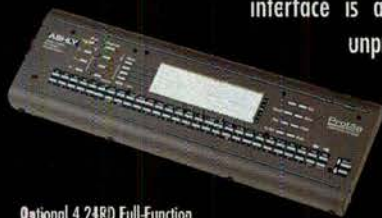


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from page 14

Teknik's Kidderminster base. More orders, he insisted, would be forthcoming. "Don't limit me!" he joked.

So what exactly will Davies be getting for his money? Although custom configurations can be ordered, the standard 3000 has 52 input channels - 44 monos and four stereos - plus a further 26 direct inputs on the group and master modules. A 24 input model is also on the cards.

The main design aim was to start from where the XL3 left off and bring it up to meet the demands of 1999 and beyond. Whereas the XL3 was initially designed for monitoring applications (but ended up also handling FOH duties by default), from its inception the 3000 was intended to cater for any job that the average PA hire or theatre company needs to tackle. Therefore, at the flick of a button it will easily cope with FOH, wedge or in-ear monitor mixes - there are, in fact, 24 sends which can each provide traditional mono or stereo for in-ear monitors or audio subgroups for FOH at any one time.

Compared to its predecessor, the 3000 comes out well on top, and the bigger frame is just the tip of the iceberg. For instance, the XL3's 16 auxes were becoming a limitation, hence the 3000 has 24, as well as 10 VCA sub groups (instead of eight), and eight matrix outputs as opposed to just two. There is fully four-band parametric EQ, whereas the XL3 did not have parametric on the bass and treble, and another non-XL3 feature is the direct output with a level control which can be pre- or post-EQ. Also, the flexibility of the 3000 lends itself to having stereo modules retro-fitted after manufacture.

The physical control surface has a lot in common with the XL3 although Midas has taken the XL4's EQ and mic pre-amps and improved the XL4's Common Mode Rejection by 30dB - that's some improvement over what is already a very quiet desk.

## AUTOMATION

The Heritage 3000 has a total of 1,043 automated switch functions, and on first sight the setting up or editing of automated scenes appears to be incredibly straightforward. Automation on this board controls all muting and fader levels, and also sends out MIDI program changes per scene to control outboard equipment. Off-line editing is also possible via a PC, so in theory it is possible for an engineer to set up basic scenes whilst travelling to a gig, and then download information into the desk.

A look at the computer panel reveals that the display is considerably smaller than that on the XL4. Midas is currently developing PC software and will be encouraging engineers to use a PC monitor as the visual reference for all automation settings. This is all part of a re-design process, as Dave Cooper, Midas's International Sales Man-

ager, explained: "The XL4 was designed in conjunction with Out Board Electronics, but we've started from scratch with a Midas design. There are dual redundant micro processors with a LED indication, so if one micro should go down the other one will take over. The automation side of the desk can also be run remotely from a PC, which can also be used as the ultimate back up in the unlikely event that both micros fail. If the PC fails, one should remember that this is an analogue audio console and therefore signals will continue to pass through it, even though the automation will be lost."

Thoughtfully, the digital automation section is screened off from the modules to prevent any interference from the visual displays affecting the audio path.

## RESEARCH

More than nine months was spent fine-tuning the specification for the Heritage 3000. However, as Midas's Director of Console Engineering Alex Cooper points out, when the spec was in development it became obvious that there was room for expansion into a whole range of consoles. Hence, at least two other models (the 2000 and 1000) are expected over the next few months.

Says Cooper: "The spec involved a huge amount of customer research, going to see PA hire companies and inviting users to Kidderminster to show them our ideas. If you can get the right feedback the rest of it is fairly easy, and we've benefited from nine years of feedback from XL3 users. In the background we're checking that all the features we want to fit will be accommodated within the front panel and within budgets. One of those features is left-Centre-Right panning which we know will be appreciated by installers - an additional image potentiometer allows fading between true LCR and stereo".

"It's the customers who tell us things like whether the knobs are the right distance from each other, and we react by taking those comments on board and assessing how difficult it might be to assemble the product in these ways. Our priority is to get the control surface right before anything else, which is unlike some other manufacturers who are mostly interested in how they can design something that can be manufactured efficiently. That often leads to a control surface which is not as friendly. So we do set ourselves difficult tasks, but the end products speak for themselves."

Even though the board I saw was a prototype, my first impression was that it looks inviting and extremely solid, thanks to three box sections within the frame which ensure rigidity and prevent twisting in transit. The difficult to assemble metalwork of the XL4 also encouraged the design team to take a more logical approach to the 3000's frame, and a drastic reduction in internal wiring has resulted in a much tidier board.

From the blue surface colour scheme to the streamlined sides, the aesthetics of the 3000 are different to anything the company has ever produced - although Pink Floyd's UV-lit mirror image Midas

## MIDAS REPLACE THE XL3





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Write in Reader Service Number: 108

## Midas concludes

boards of the late '70s were pretty radical. The colour, says Cooper, was a happy accident. "Our printer wasn't working well one day and our drawings came out in some very strange colours. Several customers saw these, and with the exception of a few, they all remarked that it was a refreshing change. Of course, that colour scheme was never our intention but we now realise it's a great departure for Midas and it's established a whole new design approach."

Other superficial delights include Littlites which are permanently installed in the top cover. You simply flip the top cover up and pull the lights out - a real boon for engineers whose lamps on stalks routinely go missing from their 'odds and ends' flight case.

I don't think anyone could complain about us replacing the XL3," said Dave Cooper. "It's worked very hard for so many rental companies around the world, and actually made them some money. The Heritage will continue that trend. Without exception, every XL3 and XL4 user who has had a sneak preview the prototype 3000 has been gagging to work with it."

There is, naturally, much more to say about this new Midas board and the Klark Teknik Group has taken a sophisticated approach to the marketing of the Heritage Series. Complete with a soundtrack from Marketing Director David Webster's own band (That'll work. - Ed), a CD-ROM containing comprehensive information (in English and German), and a multi-media animated presentation on the 3000, plus the forthcoming 2000 and 1000 models can now be obtained via the [www.midasconsoles.com](http://www.midasconsoles.com) web site, or by telephoning your nearest EV or Midas office.

• In Australia call EVI Audio on +61 2 9648 3455.

## DG's to move

After the forklift and twelve able bodies got the Charing Cross Neve into Damien Gerard Studios, the Sydney facility got notice to quit their building. The landmark old warehouse is to be redeveloped.

A relaxed **Marshall Cullen** told Connections it was onwards and upwards, he was looking at buying or leasing premises at presstime.

Final sessions at DG's will be held this month. It isn't clear if Charing Cross will move alongside DG's.

## New at Dex Mastering

Melbourne CD Mastering outfit DEX Mastering, have installed The Real Deal. They say their modified vintage valve compressor/limiters and custom built switchable mastering EQs beat solid state 'valve' processors! Could this be in response to the new Focusrite Blue gear at Edensound? (See below).

♦ Well known sound engineer, **Paul Le Couteur** has joined Melbourne studio, Flagstaff Studios. With over seventeen years experience including six years at George Pattersons as Audio Manager and ten years at Flint Webster, Paul established a strong reputation for his mixing talent. +61 3 9698-6306.

♦ Velvet Sound Recording Studios (Sydney) are hosting Canadian group Indecision, with US producer/engineer **Femi Jija** in session. The

hunky Vancouver band are apparently on the hunt for Sydney females. This is what we were told. Call +61 2 9264-3420.

♦ **Allan Eaton Studio** is NOT closing down - Robin Gray says that business is successful. Call +61 3 9534-0752.

♦ **Anthony Lycenko** is the new manager at Rockinghorse in Byron Bay, they have a new ProControl console for ProTools Mix24. +61 2 6688-4005.

# Edensound go Focusrite Blue



Edensound is based in the acclaimed former Studio One at Metropolis where they have recently installed the first Focusrite Blue series mastering suite in Australia.

The main function at Edensound is mastering, editing and compiling final mixes of recording to a production master ready for pressing/dubbing. If recording and mixing the individual songs can be considered the creation of parts, then mastering takes these parts and constructs the album or single.

Mastering is the final opportunity to eliminate any dullness, rumblings, sibilance, unwanted noises and frequency anomalies that may have gone undetected whilst mixing the recording.

The tools and the accurate monitoring environment required for mastering create the opportunity to carry out many other functions in audio post production with the highest quality results.

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# R-1000

## Reference series

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### SPECIFICATIONS

| Model                  | R-15                                | R-18            | R-212                         | R-215                             | Sub-18          | Sub-218          |
|------------------------|-------------------------------------|-----------------|-------------------------------|-----------------------------------|-----------------|------------------|
| Frequency Response     | 50 Hz - 20 kHz                      | 35 Hz - 300 Hz  | 50 Hz - 20 kHz                | 35 Hz - 20 kHz                    | 35 Hz - 1 kHz   | 35 Hz - 1 kHz    |
| RMS Power Handling     | LF 400 W<br>HF 200 W                | 500 W           | LF 800 W<br>HF 200 W          | LF 1000 W<br>HF 200 W             | 500 W           | 1000 W           |
| Program Power Handling | LF 800 W<br>HF 400 W                | 1000W           | LF 1600 W<br>HF 400 W         | LF 2000 W<br>HF 400 W             | 1000 W          | 2000 W           |
| Nominal Impedance      | LF 8 Ohms<br>HF 8 Ohms              | 8 Ohms          | LF 4 Ohms<br>HF 8 Ohms        | LF 4 Ohms<br>HF 8 Ohms            | 8 Ohms          | 4 Ohms           |
| Sensitivity (1W/1m)    | 100 dB SPL                          | 100 dB SPL      | 102 dB SPL                    | 102 dB SPL                        | 98 dB SPL       | 101 dB SPL       |
| SPL at Full Power/Peak | 126 dB/129 dB                       | 127 dB/130 dB   | 131 dB/134 dB                 | 132 dB/135 dB                     | 125 dB/128 dB   | 131 dB/134 dB    |
| -6 dB Coverage Angles  | 90° H x 45° V                       |                 | 90° H x 45° V                 | 90° H x 45° V                     |                 |                  |
| Crossover Frequency    | 1250 Hz                             | 160 Hz          | 1250 Hz                       | 1250 Hz                           | 160 Hz          | 160 Hz           |
| Components             | LF 15" B-30<br>HF 1.5" Driver ND-10 | 18" G-45        | 12" B-20<br>1.5" Driver ND-10 | 2 x 15" G-35<br>1.5" Driver ND-10 | 18" G-45        | 2 x 18" G-45     |
| Dimensions (HxWxD)     | 71 x 51 x 38 cm                     | 71 x 51 x 72 cm | 98.5 x 51 x 41 cm             | 112 x 56 x 49 cm                  | 74 x 51 x 41 cm | 112 x 55 x 48 cm |
| Weight                 | 33 kg / 72.6 lbs                    | 50 kg / 110 lbs | 52 kg / 114.5 lbs             | 59 kg / 129.8 lbs                 | 36 kg / 79 lbs  | 59 kg / 130 lbs  |

**MAGNA**  
SYSTEMS AND  
ENGINEERING

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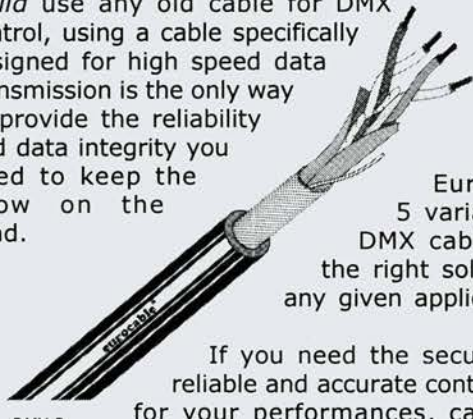
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## Circular Solutions

**T**he Roundhouse at the University of NSW in eastern Sydney was a notorious venue with atrocious acoustics. Many readers have worked or been there, and never has reinforced audio been satisfactory.

Now an installed Meyer P.A. system has overcome the inherent problems of a circular room with a domed roof, thanks to the addition of acoustic baffles and accurate design.

Peter Knowland's PKA Acoustic Consulting were engaged by venue operators, the Students Union, to clean up the room. The design brief, according to audio systems consultant Adam Townsend, was to improve room acoustics and provide a sound system suitable for speech.

PKA went back with a nice Bose Panaray design, only to discover the room P.A. requirements had expanded somewhat. Dance parties and live sound reinforcement were to be run through the P.A. - so a new design was required.

The room had already been acoustically analysed on Bose's Modeller software, so Townsend ran some calculations and came up with a system philosophy that would deliver the SPL that mainstream dance music requires. After consultation with the Union a decision was made and the Meyer system was finalised and documented.

To fix the room acoustics, which were characterised by horrible focused reflections, a series of vertical and horizontal baffles were designed, covered in mini orb perforated foil and filled with fibreglass insulation. These catch incidental sound reflections on the way to the top of the dome, and those that get there get treated on the way back again. The shape of the baffles was improved by the architect, and they are a visually interesting addition to the room.

The sound system design is un-usual in that four subwoofers are flown under the dome pointing directly down. These are Meyer PSW-6 self amplified units, which offer a cardioid dispersion. This is un-usual for a subwoofer, which generally projects bass in an omni-directional or uncontrolled manner. The semi directional ability of the PSW-6 assists in getting the low frequency energy to where it is desired, on the dancefloor.

To fly these cabinets face down, rigging consultant Ian Messner worked with Meyer Sound to ensure internal cabinet bracing would support the massive 210 kg weight of each unit, because although fitted with flying hardware, the hanging design of any flown loudspeaker usually allows for vertical flying with the box facing forward and down - not for the box to be flown facing directly down. Messner added some reinforcement before signing off the rigging.

Six Meyer UPA 1P self powered speakers are flown in a ring facing outwards from the middle of the dancefloor with another two facing down onto the centre of the floor itself. The result is a system which caters to upwards of 1,500 people and can deliver in excess of 130dB(A) on the floor, claims Adam Townsend. (Of course the system has been limited so this will not occur).

This disperses the main audio program 360 degrees outwards, to the edges of the circular venue. Because the Roundhouse has some under balcony areas, extra UPA 1P's are flown out there too, and run on a time delay so they deliver sound at the same time instant as the main circular array.

Additional audio zones are located in the bar area and arcade room as well as an upstairs chill-out bar, well away from the circular part of the venue, but still visible from the general venue



*Four Meyer subs flown facing down, above the circle of UPA-1P's - six facing out, and two facing down. More UPA's are placed on time delays through the venue.*

The bar can be a stand alone DJ system incorporating its own DJ booth, stage and FOH system, or run on a further delay to form part of the main system.

Interestingly the system is also used as a main PA for visiting bands, who can set up anywhere in the room on a portable, modular stage. In this mode, a pair of additional UPA 1P's, and/or a pair of CQ-1's can be set up, one either side of the stage, to provide localisation of the band mix. Then the mix is sent to the circular array, with the UPA 1P's facing the stage turned off or running as a foldback send! Adam says the actual result is far better than you may expect - because when standing under the array the distance to the stage speakers and the dancefloor fill speakers above, is almost the same - so time coherence is conserved.

To facilitate the switching of the various sources to the various output zones, a Peavey Mecia Matrix X-frame is used. This mini version of Media Matrix allows up to eight button activated presets, each of which can allow almost any signal processing necessary.

The audio system is controlled from the main DJ booth, where a 24 channel Allen & Heath GL-2200 mixer is situated for live bands. The system also consists of three Meyer CQ-1's, two Meyer UM100P wedges and two space UPA-1P's which can be used or any of the four foldback sends from the mixer. A full complement of Beyer microphones as well as a complete 12 channel portable system complete the audio provisions of the project.

When the system design was finalised, the Union put the installation out to tender - with a very short timeframe of under a month. The winning contractor was G.U.E.T., who by chance had their 'A team' of installers in NSW at the time. Iain Everington from GUET says that the firm was able to install and have Adam Townsend commission the system within four weeks of winning the tender.

The overall cost of the new system, including some lighting, was over A\$600,000.



*Rigging Consultant Ian Messner with Audio Systems Consultant Adam Townsend*

# NEW ERA FOR THE APPLE MAC

*The G3 is touted as the next new thing. But ours had birth problems and: Warning! Mac OS 8.5 may reject your older software*  
 By Julius Grafton

**T**he Mac G3 is touted as the fastest thing in personal computing. Many readers will be interested in this box, whether it be for hard disk recording or graphics manipulation. We did the latter. Connections purchased a top of the line model last month for A\$6,295 ex tax. It is the 400 model, in our case with 500Mb of RAM, and the price includes the CPU, keyboard and mouse. Add your own monitor.

To set the scene, Connections have a Mac network for print publishing, which sometimes requires file sizes of up to 80 megabytes *per page*. Handling these is time consuming, and deadlines immovable. So we seek speed.

A while back we went to a server environment, where we have a central P.C. running Windows NT, onto which we place all our work files. Having one central file repository makes backup easier, we have a DDS 3 DAT drive on the server, and using Seagate Backup Exec, we can save 24 GB to one DAT tape. It all works reasonably well. Why NT? We also have PC's here, and needed a server which could work as a 'bridge'.

To assist the quest for speed we upgraded our main proofing printers and some of our existing Mac's to fast ethernet, 100 base-T. This runs on the same Category Five cabling that our cottage is wired with, using the same RJ-45 connectors from the wall to the machines.

Having the fastest of everything else, the top end Mac can be seen for what it is.

## OUT OF THE BOX

We collected the G3 from a Mac vendor near us in Sydney called Next Byte. We had a discussion with them as to whether the G3 has a SCSI port, which is the large connector to which you plug your outboard things, like your scanner, and external hard drives. The SCSI card occupies one of four PCI slots, there are three left.

We already knew it had no serial port, but since we don't use MIDI gear we didn't worry about that! Instead as most punters now know, Mac has embraced the USB bus. It's a connectively thing of the future. As is FireWire, a rad way to transfer big files off things like digital video cameras.

But we use SCSI big time, because we have to be able to open files that people send us on a variety of portable media. We have 1.2GB Magneto Optical, Jaz, Zip and Syquest external drives which connect in daisy chain fashion with our Scanner.

The NextByte salesperson said that lesser G3 models do not come with a SCSI card. Assured that our curvy blue G3 had the hardware, we brought it back to the cyber cottage.

We immediately shut down the major graphics site, which is where Sharon Micelli works, and dismantled her older Mac, a PowerMac 9600/200MP. It's a slow dog of a thing. Thus the clock was running and we allowed four hours to install the G3, load it with software, and get all the SCSI running.

Initially the G3 sprung into life with a giddy rush, as all new computers do - before you bog them down with all your extensions and snapdads. Like all new Mac's, the G3 is preloaded with Apple OS 8.5, our network standard is OS8.0.

We already knew from an earlier experiment with a software upgrade we purchased from Apple that System 8.5 does not run some older software and extensions. This came as a shock when we loaded OS 8.5 initially, and caused a good day and a half of trouble while we established what wouldn't run anymore.

Losing the functionality of some old and no so old software presents a big problem when the upgraded version that does work is not useful. Example: Microsoft Word for Mac V5 is what we use.

## PROBLEMS, PROBLEMS

The first snafu was that that the SCSI chain wasn't showing up on the Apple System Profiler. Trial and error was undertaken - SCSI is a black art because every SCSI device has a different address, and the last item in the chain needs to be terminated. Sometimes a perfectly configured SCSI chain will not work but then come good when you swap the order of the apparently identical cables!

The vendor suggested we return the G3, we did, it was the next day when they confirmed the SCSI card was dead on arrival. They could swap one out of another G3 - but it appeared the SCSI plug adaptor they had sold us was also suspect. They ordered one from Melbourne.

Having taken delivery on Wednesday, it would now be Monday at least before we got the machine back. Meanwhile the vendor offered to approach Apple to retrofit a ZIP drive into the G3, since a special 'free ZIP' offer had just been published.

On Tuesday the dealer confirmed that the SCSI adaptor had arrived and that the ZIP also arrived. They would install it and we could collect the G3 the next day - Wednesday.

## IN ACTION

Sadly the internal ZIP didn't work, and we spent a good hour or two online with Iomega to see if downloading the latest driver extension would make any difference. It didn't.

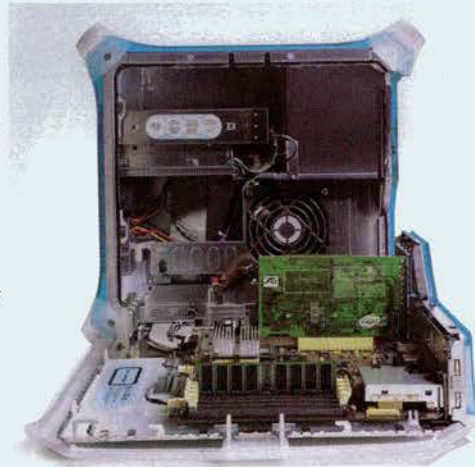
We whipped off an email to NextByte's central email number, describing the problem and asking if they thought there was a software solution. A few days later an email came back from the Adelaide branch of NextByte, explaining they were the custodians of the email address, and that they would chase this up with the Sydney office and get back to us.

They never did.

Absolutely sure the ZIP was properly installed by the dealer, I nevertheless pulled the machine out of its location, unplugged the myriad of cables, and opened the neat side door to see inside. (Picture of the easy access feature is above). Lo and behold, the ZIP sat snugly in its port - without anything plugged in! The data connector and the power harness were both in the manufacturer's default positions within the case. Once connected, the ZIP did its thing.

In the interim, we hadn't been able to get the G3 or OS 8.5 to 'see' the MaxOptics 1.2GB Magneto Optical drive or even the Jaz drive, so we were forced to set up an older Mac to run these.

Conclusion? Yes it's fast. At least as fast as our similarly configured NT server. The keyboard is weird, the new mouse dumb- you can't 'feel' which way is up, because it's round and trendy. Are we happy with our purchase? Half and half. •



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# 5 PRO CD RECORDERS

Reviewed by Zenon Schoepe

*DVD audio has finally arrived. But the CD is the mass medium for the foreseeable future. This is because MOST people appreciate convenience - and the cost of recording on CD is progressively falling. But there are issues! There are in fact THREE kinds of CD recorders. The common PC or Mac peripheral, using software like 'Toast' will burn audio onto common CD-R media, which costs as little as A\$2.80 per disk. A hifi or 'consumer' CD recorder has SCMS protection and so will only record onto special 'consumer' CD media, on which copyright has been paid. These blanks cost anything from A\$4.50 to \$6.50 each, and are scarce. They will then play on any audio CD player. The third way is the Pro CD Recorder, which will record onto standard cheap CD-R media, just like the PC CD burner. - Zenon Schoepe has gathered five of these together for one monster review .....*

## Marantz CDR630

Now here's an interesting little box if ever there was one. You must have been cooked up in solitary confinement for the last year if you have failed to notice the rapidly escalating take up of CD-R as a personal distribution media. Depending on who you ask, you will be told that the personally burnt CD-R is a replacement for the cassette, DAT and/or MD the last two of which, lest we forget, were replacements for something else themselves.

It is the now completely wearable cost of the CD-R blank that has precipitated this action and you know that acceptance is at hand when you start to hear the media manufacturers trying to score points off each other. The issue is no longer if CD-R is good enough, it is a case of who can differentiate themselves as better within an established market. Throw in the interesting development of the rewritable CD-R as the answer to the last real objection to the one-take platter and it would now seem that the circle is complete.

However, it is not just the drop in cost of the media or the drop in price and increase in choice of desktop CD duplicator machines, a new generation of audio targeted CD-R recorders is attacking the market with this Marantz CDR630 responsible for making a lot of people sit up and listen with its low tag. Other similarly priced products are now also being promised from other manufacturers.

Marked with large 'professional' legending and sporting broadcast style multicoloured buttons this 2U-high Marantz beige unit handles the original CD-R audio and the new rewritable formats although the manual does point out that 'an increasing number of players and recorders will be suitable for these discs in the future' in the case of the latter.

Control layout is straightforward but then it should be as the machine includes few true Luxe features. Dedicated buttons take care of stop, play, pause (also adds 3 second silence), track increment and decrement, record, finalise, and erase (last track or the whole disc in the case of rewritable media).

CD sync handles the business of block recording a selection of tracks and digital I-Os provided are optical and SPDIF phono. Analogue inputs arrive at -10/+4 switchable XLRs with paralleled phonos. Analogue output is only available on phono. I might have been prepared to have traded these for grown up outputs and passed on the XLR inputs as I believe most of this box's target market are likely to have assembled at least in part on a digital source.



A reasonably sized display works in conjunction with buttons that select auto or manual track marking, input selection, and the whole lot is capped off with a fine headphones circuit with plenty of gain and a nice stereo record level pot.

An infrared remote duplicates most front panel functions and adds direct numeric track access. It's fine for playback purposes but it just doesn't feel positive or substantial enough to trust it for recording.

The rewritable erase processes require some nifty finger work if you are not to select the wrong mode. Erase last track asks you to hit Erase and then hit Record within 2 seconds - while erasing the disc asks you to hit Erase twice within 2 seconds and then hit Record within 2 seconds. Getting this about-face would be serious.

I'll say right away that a long term assessment of a CD-R machine's ability to continue to do what it is supposed to do are beyond the scope of an appraisal like this. CD players are not above misbehaviour with inexplicable jumps and clicks with hard use and meagre servicing and it would be foolish to think that CD-R machines are somehow spared these vagaries. Certain early generation recorders did develop bad reputations eventually and listening to the rumour mill is often the best way to be forewarned.

However, the CDR630 seems almost too good to be true. It's outrageous value for money. The price is amazing, the performance solid, and it handles CDR-RW into the bargain - plus it will play these back should your existing machinery not be able to.

The CDR630 works best in instances where you have prepared your master well and are just looking for a machine to burn it on.

Little things like the fixed duration silence record and fixed threshold automatic incrementing position it at the entry level of CD-R machines but then that is what it is. By the same token it makes it about as simple to operate as they come.

If you haven't got a CD-R machine already then it's probably time you did. Start looking here.

• A\$2,995 rrp. Call TAG, +61 2 9810-5300.

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## Marantz CDR640

Picking up from where its CDR630 left off as Marantz's entry level professional CD-R with CD-RW capability, the CR640 is a much more serious proposition. Benefiting most pertinently from an elegant optional wired remote complete with a duplicate of the main deck's display and proper real buttons, you get as standard balanced XLR analogue I-Os, AES-EBU I-O, phono analogue output and SPDIF coaxial I-O.

There's also a 9-pin control port for pulling out transport and major function keys.

The front panel 'professional' moniker manifests itself in the use of large coloured keys for the main function buttons but the remote adds a few extra such as a dedicated switch for the sample rate convertor complete with associated LED and LED indicators for the status of the all-important manual and auto track increment modes.

Similarities with the CDR630 are purely passing and the deck employs an off-set mounted drive rather than the cheaper machine's centrally located door and I'd have to add that the loading mechanism feels substantially more robust. Those acquainted with earlier Marantz CD-R machines will spot a similarity with the company's late CDR620 which boasted a very similar looking remote, general approach and a good deal of the features. However, significantly, and I think this indicates just how far these things have moved along in the last two years, the CDR640 has no SCSI II port or those annoying DIP switches for doing those smart things that the CDR620 promised to do when connected to a computer. It's an example of how simple CD-R burning has become when only a couple of years ago it seemed necessary to make it complicated.

The concept of a preset to store a set of rather straightforward configuration settings into the deck has been carried across from the CDR620. On the CDR640 we are presented with programmable audio delay time (up to 4s) which off-sets the programme against the track increment, and auto and manual track incrementing, the former firing from a fully programmable threshold level. A real boost is the ability to enable an auto stop mode which serves as a good safety net for all those unattended dupes. You can also alter input sensitivity (-10/+4), activate pre-emphasis and fool with the SCMS status of what you are burning from this menu.

However, there are a few features that the CDR620 had that have been omitted. For example, there is no programmable mute, it's fixed at 3 seconds, no index increment (what ever happened to this feature on CD-Rs?), and, perhaps most significantly from the operational side, no peak hold metering or available headroom display. I'd reckon the metering issue is the most irritating, not because I can't live without it but because it's just handy to have.

Even so the addition of CD-RW capability is undoubtedly an important one with individual track or total disc wipe options and the machine boasts yet another of those super sweet headphones circuits that most of the Marantz's I've ever played with seem to have.

So how does it go? The remote is superb and essential if you intend to work this machine hard. I know it shouldn't make any difference but I remain uncomfortable about thumping the front panel manual increment buttons with the sort of gusto associated with a particularly tricky cue when writing. Opting for the remote also means you don't have to perch permanently near the rackmount for the duration of the proceedings and by virtue of including a numeric keypad it also means getting more value out of the machine when using it as a player - and this includes



programming play orders.

Recording duties are as straightforward as could be and there is enough customisation available to optimise the process for the job in hand.

Predictably there's a sync mode for translating IDs into track increments and in line with most machines of this type you can employ it as a standalone convertor or SRC providing you put a disc in the drive. The SRC can be 'forced' to be on permanently regardless of the incoming rate or bypassed on a 44.1kHz input in acknowledgement of the observation that unless this action is taken then a 'true' 1:1 copy does not occur.

Convertors are 18-bit A-D and 20-bit D-A and sound fine to me and certainly better than some of the monstrosities that are found on older generation DAT machines.

I like my CD-R machines simple and easy and it's an excellent recommendation for the CDR640 that once you grasp what it is that this unit can do then operation progresses without the need to keep the manual nestled in your lap.

There are some small omissions that would undoubtedly have strengthened the device's hand but the pro level of interfaceability alone and the existence of a proper remote elevates the CDR640 well above more budget oriented machines including the CDR630.

A nicely balanced and straightforward package.

• Around A\$4,995 rrp. **Call TAG, +61 2 9810-5300.**

**5 PRO CD RECORDERS**

## Tascam CD-RW5000

You'd have to see the entry of Tascam into the pro CD-R arena as a significant one. The manufacturer is steeped in all sorts of drive technology through its umbrella Teac operation and has been producing high performance CD-based drives for years in the computer market. Yet it has held back on a dedicated standalone audio product until now.

The CD-RW5000 is a good first effort that must imply that there is more to come. Like the other current generation machines around it will handle CD-R and CD-RW and comes with a full complement of interfaces - balanced XLR and unbalanced phono analogue I-Os, AES-EBU output plus coaxial and optical I-Os. A strong selling point must be the inclusion of a wired remote and while this is not as substantial as that found for the Marantz CDR640, which also has a display, it betters the infrared hi-fi-style 'wands' found on HHB's current range.

The remote offers the usual duplication of front panel switches such as transport controls but adds cue searching and a Fast mode that skips more rapidly than the cue mode but without fragmented audio playback.

The remote also adds direct track access and programming and a repeat mode for playback duties.

You'll also find duplications of the FINALIZE, ERASE (for CD-RW operation), SYNC START, AUTO/MANUAL track increment, TRACK INCREMENT, and DISPLAY found on the front panel.



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DISPLAY permits the viewing of track time, remaining track time and total remaining time. You can also switch the meters off, which helps to avert the confusing inconsistent level results from the same disc between the metering of different brand machines and helps you to forget that there is no peak hold or indication of margin remaining, the latter being a marvellous feature of Tascam's DAT machines.

However, it's to the front panel you must go for the source selection of analogue or digital and the allocation of digital input source. This is all admirably straightforward but the inclusion of individual left and right channel pots for analogue input level, while it may nod towards more traditional times, is never as convenient as the type of ganged controls you now find everywhere. The 2 o'clock position represents nominal level on these pots but they are not detented.

Two digital sync modes are supported, the first optimised for a single track (Sync-1) digital dub, the second (Sync-All) prepared for multiple track recording. This is fine and dandy for Sync-1 as recording will be terminated when the machine sees the next track ID. Recording can be also terminated by pressing STOP for Sync-1 and Sync-All but otherwise both modes will look for a full 20-seconds of -36dB before they stop automatically. This last case could pepper a CD with some long gaps if you're not paying attention.

All in all it's a nice machine with great ergonomics, good Tascam-style transport buttons and livery and its interconnection possibilities extend to the thoughtful inclusion of a 15-pin D sub connector for control I-O.

A couple of omissions spring to mind. First there is no facility to record paused silence, something that is usually performed by the PAUSE button on other machines. The significance of this will depend entirely on your experience of other CD-R machines as many use this as a means of adding rills at the end of recordings. It means you can then add tracks simply by cueing up tight on the source program and firing the two machines simultaneously. When you don't have a pause mute creating quality silence between tracks becomes an issue. If all you do is dupe from a prepared master then there is no problem but piecing CDs together from a multitude of sources will require care if you want slick results.

The second point concerns the Sample rate Convertor. The CD-RW5000 has one but it is not user controllable for bypass.

For the majority of quality, stable 44.1kHz sources this will not be an issue but should the source stray by +/-100ppm then the SRC will kick in and kick back out should it return within tolerance. Interestingly Tascam says that this switching in and out of circuit will be audible; I had no easy way of simulating this fine degree of jitter and was not aware of any spurious audio goings on in the time I ran the box but you have to take their word for it. Perhaps most significantly there is no indicator to tell you that the SRC has engaged and that would be useful. The inclusion of a switchable SRC would have avoided this philosophical discussion altogether.

I do like the remote, admittedly it is wired but the cable is plenty

long enough at around 5m which means you can put it well away from the machine and the remote itself is small enough to not dominate. You still have to maintain sight of the deck though.

The switches are small but they're well spaced. I also like the simplicity of operation which requires no recourse to the manual as nothing is hidden (apart from the SRC) and I would reckon that you could be burning a CD within five minutes of connecting this thing up.

So, in summary, we have a good solid performer with a couple of irritations that sounds good, runs well and certainly qualifies as a contender in the entry-level CD-R stakes.

• **RSP: A \$ 2,699. Call Tascam, +61 3 9644-2442**

## HHB CDR850

YOU WILL REMEMBER the stir that HHB's first own brand CD-R, the CDR800, caused when it was announced and you will recall how it set something of precedent for what could be realised and expected in a standalone dedicated audio machine for not a lot of cash. There was little wrong with the original CDR800, indeed I still consider it to be class leading in its time and functionality, but things move along, much as it has in Marantz's CD-R range, and the new CDR850 adds extra features, CD-RW handling and a more elaborate interface over HHB's first attempt.

But first politics and fact. The observant will have noticed great similarity between the CDR850 and the Fostex CR300 CD-R machine, which was shown for the first time at NAMM, in much the same way that HHB's CDR800 had a great similarity to CD-Rs from Fostex and Otari that followed it and that is because they are, apart from cosmetic differences, extremely similar if not identical. Both sets of happy coincidences can be traced back to two different generations of Pioneer originated machines.

The CDR850 is a significant development in functionality over the CDR800 and employs the traditional business side down orientation of the disc rather than the upside down platter found in the CDR800.

I-O interfacing is better with balanced analogue XLR I-Os, phono I-Os, AES-EBU input, plus optical and coax digital I-Os. There's also an 8-pin parallel remote control port.

A small infra red remote control, extremely similar to one supplied with the CDR800, is provided and for the most part duplicates the central functions of the front panel and adds the sort of programmable and direct access track playback functions with repeat that you might expect. However, most significantly the remote allows you to activate fixed rate fade in and fade out recording on a single button press. Both are selectable to 6, 9, 12 and 16s times and their are instances where this could be useful on record once media.

Other than this, the machine works very nicely from the front panel which centres around a large and very informative display and the tray, which opens and closes with reassuring deliberation and smoothness, has a large LED above it to indicate record,

pause,erase or playback status.

Analogue input levels pots are ganged while input selection is made from a six-position rotary switch. Nice. Other features worth

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mentioning include pause mute, which is preset at 4s but can be extended indefinitely by simply holding it down for longer, and a TIME/MARGIN switch.

Repeated presses of the latter cycles through elapsed time, remaining recording time, total recording time and a margin indicator in recording which shows remaining headroom on the two channels independently and can be reset. Marvellous.

During playback you get to view elapsed and remaining time on tracks and the disc and the margin indicator. You can also enter Skip IDs and fix these with the finalise process although I am not sure whether all CD machines will be able to recognise them. In addition to manual analogue and digital source recording, the CDR850 gives you single-track digital sync recording, which stops when the next ID from the source is detected, and an all-track synchro mode. This second mode has the option of instigating automatic finalisation when completed.

The MENU button accesses set up options such as setting SCMS, analogue input auto track ID marking level, and auto stop delay (the length of silence in digital recording required to flip the machine in to record pause - 0, 10s and off). The SRC can be fully bypassed.

In terms of CD-RW erasing you're offered, last track, TOC, all tracks and all disc erasing options.

Playback features that add value to the total CDR850 package include auto pause at the end of a track, fade in start from pause and fade out to pause. Clever stuff and smarter than many standalone CD players. A-DCs are 1-bit and D-ACs are multilevel Delta Sigmas.

I felt immediately at ease with this machine as it exudes capable confidence and feels solid and chunky. Operation really is very simple although I'm still not happy with the remote's size and ineffectual squidgey close-clustered buttons and you are required to use it if you want to perform certain operations as there is no equivalent available on the front panel. I still want to be able to enter track indexes and it's perhaps strange that with all the extras piled in to the unit that a delay function has not been included for those tight manual track number entry moments.

But I'm attempting to split hairs here and these complaints are more than compensated for by the simple inclusion of a margin readout alone.

It sounds good and the headphones circuit is loud and clean. This is a very, very good audio CD-R that has raised the ante yet again on what can be expected for the money. You have to consider it if you're after the best. Recommended.

• RRP A\$3,195. Call AWA Audio Products, 1-800-642-922.

## Tascam CD-D4000

Falling right between the new spread of standalone audio optimised CD-R machines and the sort of desktop short-run contraptions that have also begun to appear in increasing numbers, Tascam's CD-D4000 is a one-to-one CD duplicator.

Based quite clearly on the sort of slot-in drive you might want to attach to your PC and upon which so much of TEAC's expertise has been drawn, this unassuming device is simplicity itself. But then what it attempts to do is pretty straight forward with very little room for deviation from its rather limited set of options. This is an audio CD and CD-ROM duplicator that doesn't even have I-O's on the back in any form, performing all its functions from two drives marked Master and Slave, accompanied by an SPX90-sized LCD, two associated buttons and a power switch. Each of the drives additionally has a mini stereo headphones socket, thumbwheel volume pot and an EJECT button.

## 5 PRO CD RECORDERS

The front panel's 'Professional' legending alludes to the fact that there is no SCMS involved.

To say this machine has a menu is probably aggrandising the matter. You have five modes paged through with the MODE

button and selected by the other one (ENTER) and then options within each mode are adjusted on the MODE button and confirmed with the other.

You can copy a disc, instigate a test write mode, which dry runs the copying process without writing to see if it is indeed possible to perform the function you have asked of it at the selected speed, and you can set write speed. It will tell you if either disc is bad, whether they have incompatible storage capacities, or if the transfer rate at the speed requested is too much for it (more likely to be a problem with CD-ROMs). You can also compare data on master and slave CD-ROMs, but not audio CDs, and if it does



detect inconsistencies then you'll just have to try again. The last mode allows you to play back CDs in either drive with jumps to the next track.

That really is about all there is to explain about the hidden secrets of this innocuous looking rackmount.

One of the problems with using two standalone CD-R machines for duping purposes is ascertaining which record mode would do the process most justice given the circumstances and this can become more complicated if you don't know the machines involved and need to connect them up yourself- as certain I-Os can have conditions attached to them.

The CD-D4000 avoids any such complications by simply not giving you the option to get involved. You want to copy disc A, put it in the Master drive, onto disc B placed in the Slave drive. How desperate are you for it, (real time, 2x or x4?) you ready, then hit the button and go and do something else.

The temptation, like with the first automatic washing machine in the household, to sit and watch it do its stuff is unrewarding as aside from a display that tells you how much there is to go there's not much to see so you really ought to be taking the opportunity to finish up on a little dusting or making executive decisions on the condition of the grapes in the fruit bowl. Forget about it, because once underway you can't stop it short of pulling the power and that will trash the destination disc anyway. When it's done it finalises the slave disc and tells you it's finished. Next.

It can't record onto CD-RWs which is no big issue but imagine the flamboyance of menu options if it did. The drives are blatantly PC-style in feel and operation. This is not a complaint, treated well there is no reason to believe that they wouldn't last and last, it's an observation.


It generates a surprising amount of ambient noise, sounds like a fan, for so simple a unit. I did come up against a couple of instances where it refused to dupe due to space incompatibilities on the discs involved- even though I knew these to be marginal and do-able manually and digitally with two standalone drives.

However, that is missing the point because what this box does is automate one of the most boring and repetitive tasks known to man -and as such I welcome it. Now where's that duster...

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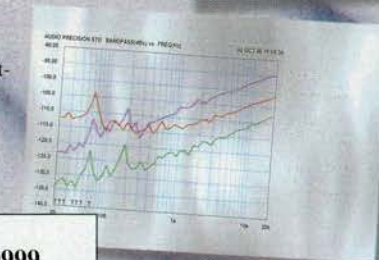
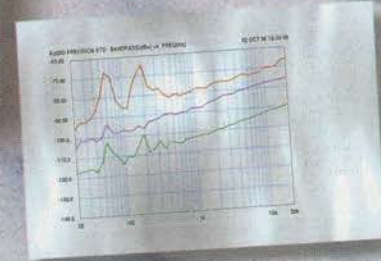
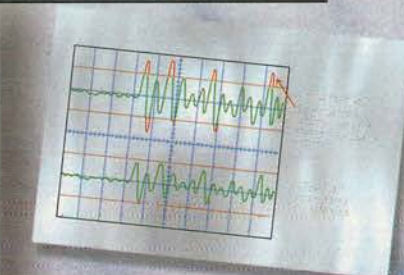
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## 2 popular condenser microphones

Sid Kidman takes a close look at the Shure KSM32/SL and the audio-technica AT4060 studio condenser mics

### Yet two more mics on the market!

With so many good mics available, why bring more onto the market? The answer lies in the total lack of the perfect mic; the mic which is all things to all engineers. Even manufactures of the most carefully designed and built product go to great pains to produce a matched pair, when two mics of identical performance are required. Indeed, microphone construction and use is an art benefiting from the science behind the product.

In defense of the companies investing in R &D, much choice is provided, which is most favorable for you, the consumer. With particular reference to the two mics being reviewed here, they are quite different in design approach, pricing, and just what nuances each can evoke in transducing the compression and rarefaction of air molecules into electrical energy, but it is easy to predict that the Shure KSM32 will prove popular for studio, and live gigs, whilst the AT4060 will give satisfaction where the budget is tight, but both quality, and valve characteristics, are desired.

### Appearance

The **Shure KSM32** cardioid condenser microphone is 187 mm tall and 56mm diameter at its widest point, and weighs in at 490 grams. The design has an elliptical theme, and is best appreciated by viewing the accompanying photograph. It maximizes the function of the modern die-casting, yet presents a aura of nostalgia. It definitely feels very comfortable in the hand.

Two versions are available; for A\$1595 the KSM32/CG is a mat charcoal finished version, with ShureLock swivel mount and padded zippered carrying bag, and for A\$1795 there is the KSM32/SL which is a rather attractive color described as "champagne", and includes a neat locking aluminum carrying case, the ShureLock elastic-suspension shock mount, the ShureLock swivel mount, and a protective velveteen pouch.

The front bears the name Shure, just under the grill, and the KSM32 identification at the base. On the rear side, the Shure decal sits just below the grill between the three position bass roll off switch and the 0 dB/ -15 dB pad switch. The roll off offered as alternative to flat is -6 dB from 115 Hz, or - 18 dB from 80 Hz. Printing at



the base advertises the need for 48 volt phantom power, and identifies it's manufacture in the USA.

The **audio-technica AT4060** cardioid vacuum tube capacitor studio microphone is conventional in appearance, having a cylindrical body, but with some slight tapered flattening of the grill front and back. It stands 210 mm high with a diameter of 54 mm, and weighs 640 grams. For \$3300 it comes nicely packaged in a padded carrying case, along with a 10 meter six core mic lead, the shock mount cradle, a power supply and cable and the hardware for rack mounting the power supply.

The accompanying power supply, AT8560, is a half rack (tall) unit weighing 1.9 kilograms. The mic is finished mat black, and the power supply, a black semi gloss. The top 80 mm of the AT4060 are front and back metal mesh grill. The audio-technica logo gives simple discrete relief to the front of the mic, some 30 mm below the acoustic chamber, and directly opposite on the back it is identified with subtle printing as a vacuum tube capacitor studio microphone.

### Construction

The engineering of both of these mics demonstrate quality. The audio-technica appears to have been machined from a brass cylinder, and the accuracy of machining is such that it is hard to tell that the bass plate with its six pin XLR extension is a separate piece. The Shure appears to be assembled from two die-cast pieces which are sculptured to both look and feel superb.

The KSM32 has a sixteen mm diameter gold deposited embossed high-compliance diaphragm, which is housed in a solid gold coated frame with a short connecting stork. This is joined to a short rubber leg expanding into a conical base which inserts into the molded top section of the sub-frame. This molded section reciprocates into the top outer section, to isolate the acoustic chamber.

The acoustic chamber is very acoustically transparent. It easily passes the ear test recommended by Paul Melevende. ( DB Condenser Microphone, Paul Melevende, Connections, March 1999 ) An outer fine mesh is supported by an inner course mesh, the front and back pieces of which are fused to a solid 5 mm rail, sides and top, and the circular base. A very fine inner nylon mesh provides some protection from pop and spittle.



(continued next page)

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The sub frame top piece has a pair of T section rails connecting to the tube section base which houses the three pin XLR male connector, and is threaded externally to take the base flange nut which locks in the lower outer section casting, and also to thread into the ShureLock cradle holders. This sub-frame appears to be one neat casting, to which the electronics are solidly secured. Both the electronic components, which are miniaturized, and the switches, appear to be priority components. The switches are beautifully neat, work positively, but are totally rugged.

Inspection of the manor in which the mic is constructed, lends faith to the notion that Shure products, and this one in particular, can withstand being dropped from shoulder height of a tall man.

The AT4060 has a dual 22 mm diaphragm suspended from a thick circular disk which is the result of a lot of careful developmental work. A number of claims with respect to frequency response and capsule development are made in the promotional pamphlet that accompanies this mic, and these claims tended to hold up in the testing that was carried out.

The diaphragm disk has a short stork which appears to be transfixed into a specially molded isolating rubber grommet with a silastic type material. The grommet rides on the tubular section of a solid T type metal piece which is supported by the wall of the outer cylinder, and forms a floor to isolate the acoustic chamber. Covering the front and rear of the this chamber are an outer medium metal mesh, and a moderately fine inner mesh. Use of a spit barrier for vocals would be recommended. A lateral band 10 mm wide supports the sides and top of the mesh, and appears as if it could be part of the machining process of the original brass cylinder.

The flange forming the base of the acoustic chamber supports a disk of circuit board on which the standard but high quality electrical components, and the SOVTEK 6922 valve are mounted, and two stainless steel rods which structurally connect this section to the base section, in which a large transformer is secured. This base section fits precisely into the body cylinder, and is again a T piece with the extended tubular section containing the six pin XLR connection.. These pins carry the ground, circuit power, heating current, polarizing voltage, and AC source signal. The AT4060 has structural features that will instill confidence into a prospective owner, and should provide reliability and longevity.

## A look at the manufacturers quoted specs

Both microphones are generally quoted as flat from 20 Hz to 20 kHz, and are cardioid in polar pattern. The frequency response graphs indicate that the AT is very close to flat all the way, with a very gentle rise of +2 dB from 20 Hz to 50 Hz and back to flat by 200 Hz, and a rise from 2 kHz up to about +4 dB at 6 kHz, and maintaining this level to 12 kHz, where it rolls off to -6 dB at 20 kHz.

The Shure is at -2 dB at 20 Hz, and 0 dB by 25 Hz and remains

flat, except for a couple of little peaks of +4 and +3 dB at 7 kHz and 11 kHz. At 18 kHz, it rolls off to be -5 dB at 20 kHz. These little hi-frequency peaks are reminiscent of, but not as big as the SM series cardioids, and indeed the vocal sound is somewhat reminiscent of that well known series.

Sensitivities are quoted at -36 dBV/Pa, for the KSM32, and -34 dBV/Pa for the AT4060, signal to noise ration at 81 dB and 75 dB, and maximum SPL at 133 dB ( impedance dependent and no attenuation ) and 150 dB respectively.

## Testing in the studio

It should be noted that a warm up period of fifteen minutes is recommended for the AT4060, and the mic does become warm to feel . This is not such a burden, as other fiddling bits can be carried out during this period.

Both mics exhibited a good lack of handling noise; the KSM32 being quite useable as a hand held mic. Also the shock mount suspensions for both were very effective, absorbing movement shock of, and knocks on, the mic stands, and neither exhibiting resonant notes from the elastics.

Both mics offer only the cardioid pick up pattern, which has some limitations, but is probably the most useful pick up pattern function if only one is on offer. Whilst the AT4060 has no switching facilities apart from on/ off at the power supply, this limitation is somewhat compensated for in the design of the valve circuitry. The mic seems not to suffer from lack of attenuation - more on this later. The KSM however has the switching for the two roll off positions, and a 15 dB pad, both of which will prove useful. These factors immediately start to differentiate the usage of the two mics.

Both mics were used to record a passage of reproduced symphonic music, at a distance greater than critical distance (the distance at which the reflected sound is equal to the direct source sound). The fact that they both failed this test badly, indicates that neither should be used for live room recording in medium to small spaces where the ambient sound is the dominant source. (ie: past critical distance). This does not detract from either mic, as it is a general problem resulting from the use of a cardioid pick up pattern, and not the design of the mic, but it does narrow the usage of either mic.

The human ears/brain combination has become very good at rejecting precisely that component of the room sound that the mics are recording in this instance, which added to the frontal sound, degrades the resultant recording. An about face of this situation is that an instrument recorded in this manor in a sound booth may sound just right for a particular result, ( including for example, such effects as suggesting distance ) with either of these mics.

Close recording of hi frequency percussive instruments is always a good test for a mic. High level high frequency signals tend to become distorted in most electronic circuitry long before meters

### 2 popular condenser microphones

and leds indicate peaking. The AT4060 did well with maracas, tambourine, and bells, producing good sounding recordings of the initial impact, and with all the natural decay present, particularly with the bell sounds; a benefit of the valve technology involved. With the use of the -15 dB pad, the KSM32 managed to also handle these sounds in a respectable manner.

In close micing melodica, the breath sounds were accurate, and the reed sounds also pretty close to the acoustic sound of reeds, (a reed which closes over a slot or hole produces a series of half waves) for both microphones. Both mics were also very satisfactory when used to record a nylon strung acoustic guitar.

Whilst both mics produced acceptable recordings, trained ears would quickly pick which mic was used for which recording. This is most noticeable with the guitar recording. The KSM32 sounds very convincing, meaning the recording captures a life-like essence of the instrument, however it is here in particular that the AT4060 captures a degree of detail that makes the recording of the instrument sound rather more beautiful. This is a good indication of the value and capability of the AT4060.

On male voice, both mics were good. With the bar-gong test where there is a complex sound with a wide frequency range, starting from well under 100 Hz, the KSM32 was very good, but the AT4060 proved to be a surprisingly tactile mic-producing physically palpable sound.

## Impressions and conclusion

The Shure KSM32 will prove to be just right for much studio use. For some vocalists in the studio recording situation, it would seem like a good idea to allow hand holding of the KSM32, for a particular result, and rely on the Shure reputation for ruggedness.

The included roll-off and pad

switches will be as useful as a good gearbox is to a racing car, and probably get as much use, doing duty on all sorts of instruments from vocals, to Marshal stacks, to drums. It will do the job, with the usual advantages offered by the condenser principle, and the price will be ultimate draw-card.

In contrast to this, the AT4060 has no switches to make use of, (nor should they be wished for in this package) but like fluid drive, can handle a big range of signal. When real finesse is required, perhaps on a series of orchestral instruments, this mic will do the job. It would be overkill for kick

in rock or grunge, but would do justice to many instruments, percussive or subtle, including rich voices.

When the studio operator needs a mic to get that certain sound that requires the combination of dynamics and accuracy available here, the price will seem very reasonable.

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# Film Sound Exposed!

John Matheson doesn't often like what he hears.....

It may come as a surprise to many people that the sound tracks on most contemporary Australian and Hollywood films are usually not what was recorded during filming – the incidental ambient sound entirely re-created in a foley studio and dialogue re-recorded in a dialogue replacement studio. The reason for this is mainly to do with control – the ability to eliminate ruined vision takes caused by extraneous noises or problems with sound pick-up.

I hadn't given this much thought myself until I once saw two films in a short space of time and noticed the sound of each was incredibly similar. The penny dropped when I realised that the sound of both films had been re-recorded by the same facility.

Since then I have found film sound on mainstream movies a source of irritation. Just as your eyes and ears are intrinsically linked when it comes to balance, so your brain, at least in my case, expects a relationship between the vision and sound in a film.

Equally, I enjoy watching and listening to low budget and continental movies, which predominantly leave the original recorded sound intact. It adds a great sense of ambience and quite often charm to the movie.

And, as much as I hate to admit it, it is a joy to watch and listen to *Home & Away*. Here is an example of a program, which uses, as far as I can tell, no dialogue replacement and minimal foley, combined with excellent microphone technique. (I haven't had a home theatre set-up for some time, so I trust this is still true.)

I believe they also use M-S (middle-side) stereo microphones (see Figure 1). The beauty of this technique is its complete mono - stereo compatibility combined with inherent Dolby Surround compatibility (see Figure 2).

Listen to *Home & Away* on a decent home theatre set-up and it's fantastic: the ambient sound field completely surrounds you. I particularly like the beach scenes with surf

crashing in and seagulls squawking in the background.

## Wild sound makes a cameo appearance

The process of recording film sound starts in the field where *wild* sound is recorded along with the vision. A boom operator is employed to position a microphone as near to the action as possible, whilst still keeping it out of shot. Occasionally you will see a boom drop into view; apparently the crew has not noticed it during filming and can't re-shoot the scene, so the microphone makes a cameo appearance.

Typically a shotgun type microphone is used in order to maximise ratio of the desired sound picked up over incidental sound, which will likely include components not related to the vision, for example background traffic noises. Most of this effort, however, ends up on the metaphorical editing room floor.

Dialogue is re-recorded in the Automatic Dialogue Replacement (ADR) suite, where the edited vision is played on a screen and the actor recites the script in sync with the picture. If he or she fluffs a word or two, a replacement can easily be cut in without the need to re-record a whole scene.

In the foley studio, the *foley engineer* operates the mixer, effects and recorder, whilst the *foley artist* or *walker* recreates the sounds of everything from dingoes gulping down babies to space shuttles crashing into buildings. And all with a fairly standard collection of tools and toys. (The term is named after radio and movie sound pioneer Jack Foley, a technician at Universal Studios in the 1950s who became famous for synchronised sound effects.)

Each foley studio has a collection of surfaces for footfalls: a gravel box, a sand box, a grass box, and a collection of shoes for the foley artist to wear: thongs, high heels, boots, sneakers and so on. Add to these: coconut shells for horses, cutlery draws and boxes of junk for crashes, doors and frames for slams, cabbages for decapitations, and you

start to get the picture.

It's no wonder that two films recorded in the same studio by the same engineer, the same microphone and the same foley artist wearing the same shoes in the same gravel box will sound the SAME! (See Figures 3 and 4!) And, often, nothing like what you or at least my eyes see.

## Foley Fallacy

What I find annoying is how film sound is compromised by some poor recording techniques. For example, the sound of an opening drink can should be a subtle pSSsss, not an atomic PPFOOSHT. It is normal practice for the foley and ADR engineers to use the same microphone as used for wild sound recording during shooting on the premise that the wild sound and re-recorded sound will have the same timbre. This is a fallacy.

Directional microphones have distance dependent transfer functions. During filming, the microphone is used at a significant distance from the sound sources, in its own free field. It is also often in the free field of the sound source. Both of these conditions are desirable from a recording point of view.

However, in the studio the microphone is typically much closer. Not only does the microphone's transfer function become very position dependent in relationship to the sound source, but for many sound sources, the microphone will be in the near field of the source, so the sound of the source will also be position dependent.

This is starting to sound like a lot of gobbledegook, so I had better explain what I mean. The free field is the space in which, in the case of a sound source, the sound of the source is essentially position independent. In the case of a microphone the free field is the space in which sound sources can be placed without position dependent timbre changes. HumÖounds like I've been on the sauce!

Let's consider a piano, the sound of which is physically made of several components. There is percussive thudding noises from the hammers, fuzzy buzzes from the dampers, the musical "notes" from the strings and the woody resonance of the sound board. All of these sounds come from different places on the instrument and all must be captured in balance for a recording to sound like a real piano.

The free field of a piano is a distance far enough away for all of these sources to

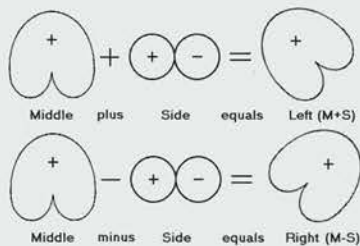


Figure 1: Middle - Side microphone set-up

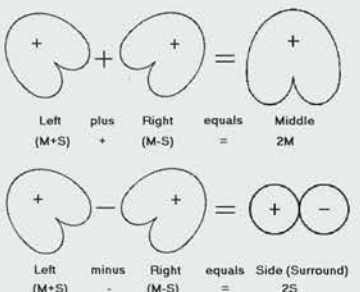


Figure 2: Multi-channel outputs from M-S



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## Film Sound Exposed!

have blended in proportion. Obviously a piano is not an omnidirectional source so the sound will differ in different directions, but past a certain distance the timbre will be constant in any given direction. The near field is where the parts of the piano closest to the microphone or listener will be emphasised.

### Shotguns at ten paces

Now let's look at microphones. The predominant distance dependant effect for directional microphones is bass tip-up. This is characterised by unnatural emphasis of implosives on vocal sounds, can openings and general low frequency garbage when the microphone is placed close to the source.

The free field of directional microphones starts several feet away from the microphone. Any sound recorded inside this distance will need low frequency compensation, which is properly achieved by a combination of a high pass (sub-sonic) filtering and bass cut.

Consider the piano example: parts of the piano closest to the microphone will be given more bass emphasis than parts further away! And on top of this the parts of the piano off the axis of the microphone will be coloured and de-emphasised. For a natural sounding piano, or for that matter a drink can opening, the microphone must be placed at a distance great enough so that the two free field distances do not overlap.

Most sound sources, even vocals, are not produced at one point in space. The long and short of all this is that a shotgun microphone in a studio isn't going to sound anything like what it did at the film shoot, and is a lousy choice for recording anything other than wild sound!

OK, so how should foley be recorded in the studio?

My tip would be to use omnidirectional microphones wherever possible. They do not suffer from position dependent transfer functions, so can be placed very close to a sound source without unnatural artefacts caused by their native response. And because omni's theoretically record sounds equally well from all directions, you

will capture the whole of the sound even with a relatively close placement.

The trick with omni's is to be able to control the ratio reverberant to direct sound. This is easily achieved by adjusting the distance between the source and the microphone. However, if too much of the recording room is evident in the sound, it will impart a sameness to all sounds that doesn't always match the vision. On the other hand, an acoustically dead studio will

allow the sense of space to be controlled by a digital reverberation device.

### A word on dialogue

I find it incredible that so often the sound of dialogue does not match the vision. For example, words delivered in a loud voice when the vision

shows lips hardly moving. Or whispering dialogue in a battlefield!

The timbre of voice should also match the vision. Close-ups need to have more breath and intimacy in the sound. A large diaphragm omnidirectional condenser very close would be my choice. But this would be totally inappropriate for recording shouting seen at a distance. That demands a microphone distance of a meter or more, and probably a cardioid pattern to minimise room pick-up.

Matching sibilance between takes is also a basic requirement. Have you ever noticed the quality of a voice change dramatically in the same scene? My guess is that part of the sound track has been re-recorded to fix a problem not noticed during the first session. If omnidirectional microphones



Figure 4: Recording footfalls for "Shakespeare In Love"

were used for recording dialogue, matching timbre and sibilance would be a doddle!

### Documentary evidence

Apparently producers of contemporary programs featuring vintage documentary footage think that audiences will not watch vision without sound, so the old footage gets sent off to the "B" grade post-production studios for sound field recreation. I find the results particularly laughable. Next time you watch some old black and white documentary footage, have a critical listen to the soundtrack.

The splashes to accompany people swimming sound like they were made with a teaspoon in a soup bowl! Cars on a racetrack all have the same motor -it's probably in your collection of sound effects CD's! Marching always sounds the same, irrespective of the visual perspective. Often the problem is that sound effects CD's are deliberately recorded with no context. When put to a picture, they just don't work.

I really wish producers wouldn't do it.

*John Matheson designs electro-acoustic systems for Bassett Acoustics. Call him on +61 8 8363 1000.*

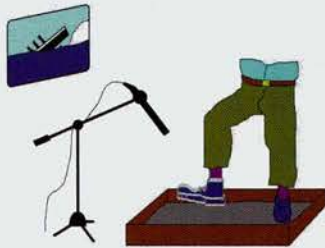


Figure 3: Recording footfalls for "Titanic"

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## Get yer Ya Ya's Out

*The Rolling Stones at Kooyong*

I was rummaging around in a box of old reel to reel tapes the other day. Remember them, you young kids? Before cassettes, 8 track cartridges, Elcasetts, digital compact cassettes, DATs, etc., there were these things that had to be threaded up by hand and unless you locked them on tight, would fly off during fast forward spilling kilometres of shiny brown entrails around the room.

The wife of LL, (names changed to protect the innocent) had come across this horde of stuff taking up valuable parking space in the garage, and dumped them on him with the command - move them or lose them. So, not having a reel to reel player any longer, naturally he took the option of moving them...to my house!

"See if there's anything decent on them, will you?" he asked. "Shouldn't take long!"

Yeah, right, about three months if I listened to them 24 hours a day was my guess. LL being a person who knew the value of a dollar, most of them were in mono on four separate tracks in each direction to save tape. Fine in theory, but a prick of a thing to weed through thirty years later!

Some of them had turned brittle, especially one branded not 'Scotch', but 'Irish', which broke into pieces as I tried to thread it up. Whatever was on there is gone forever. Which, considering it was most likely a very bad recording of teenaged Old Farts on Heat rehearsing in a garage (as a lot of the tapes turned out to be) is probably a blessing to the world of music.

Most of the tapes were larger 7" reels, but at the bottom of the box were some 5" reels. Hmm, I thought, these were the tapes that fitted LL's

Sony 'Watergate', the suitcase sized portable that always seemed to clandestinely accompany us to concerts. (See *The Hunchback of Festival Hall, Connections* sometime 1995).

So, with the family out of the way for the day, I spooled up the first tape and hit paydirt straight away! Unless I was very much mistaken it was The Rolling Stones at Kooyong tennis court, c.1970. I settled back in my seat with a fist sized glass of Southern Comfort, cranked up the speakers, and was immediately transported back to, well, if not the summer of love, then at least the autumn of post coital depression!

A blazing hot day greeted us at Kooyong, an open-air stadium. LL, leading his usual charmed recording life, had disguised the Sony as an Esky, covered it with beer and ice, and managed to neatly combine recording and drinking in the one action.

In fact the recording nearly stops before it starts, since the first thing you hear on the tape is "Loo-out - shit, you've just poured a beer over the tape deck!"

And then, with an "Aye aye, 'ere we go," Mick and the boys launch into Brown Sugar, followed by the single's flip side Bitch, both tracks featuring Bobby Keyes on Sax. Ragged, rough, but everyone's in tune and they rock along.

The whole of the stage was covered in a white cloth, hiding all the amps, with a canopy over the top to (unsuccessfully) protect the band from the heat. At one stage on the tape Mick says "God it's 'ot," and later on "It's not just 'ot...it's f\*\*kin' 'ot!" as he throws a large basin

of water over the audience.

My recollection of the PA system is of a whole lot of smallish grey boxes and not enough bottom end grunt. This is borne out by the sound on tape - a lot of midrange honk and grating top end.

The songs grind on, some good, some plodding, and some sounding *extremely* unrehearsed. Gimme Shelter is followed by Keep Me Happy, then Tumbling Dice, Sweet Virginia, Honky Tonk Women which kicks along pretty well, then All Down The Line, Midnite Rambler, and Jumpin' Jack Flash. I imagine that somewhere in there must have been Satisfaction, but it doesn't seem to have been preserved on tape. The concert finishes off with a very ragged version of Street Fightin' Man that's so sloppy and untogether that Mick stops everyone half way through, and they start it again!

My only regret is that they didn't play their last single for Decca at the concert.

Most bands felt that they were robbed blind by the record companies (rightly so - The Beatles made a *farthing* - a quarter of an old penny - on every record that EMI sold - 960 of them equal 1 pound!!!), and the Stones were no exception. Which is why as soon as their contract was finished they set up Rolling Stones Records. But the band owed Decca records one more single - a contractual obligation record. Why not give them a song that they couldn't possibly release? Its title? C\*\*ksucker Blues!

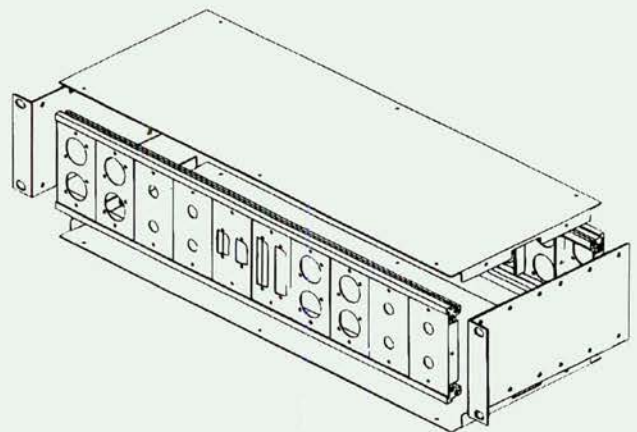
Imagine old Sir Edward Lewis, the head of Decca, choking and spilling his tea all over his morning Times as he listened to this classic!

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## National Tracking Guide

**ARTIST      PRODUCER      ENGINEER/PROGRAMMER      NOTES**

### New South Wales

|                                    |   |                                |  |                      |
|------------------------------------|---|--------------------------------|--|----------------------|
| <b>A # Sharp</b>                   | Jeff Cripps Tel: (02) 9153 9988 Fax: (02) 9541 1518. 24 Track Analogue  |                                |  |                      |
| Juke Box Jive                      | Jeff Cripps   | Jeff Cripps                    |  | CD                   |
| James Brennan                      | Jeff Cripps   | Jeff Cripps                    |  | CD                   |
| Chris Splash                       | Jeff Cripps   | Jeff Cripps                    |  | CD                   |
| Subculture                         | Jeff Cripps   | Jeff Cripps                    |  | Demo                 |
| Rukus                              | Jeff Cripps   | Jeff Cripps                    |  | CD Remix             |
| <b>Aphex Studio</b>                | Greg Dixon (02) 9876 8170 16 Track analogue, 8 track hard disc  |                                |  |                      |
| 3RD Wheel                          | Band/Greg Dixon   | Greg Dixon                     |  | EP                   |
| Break Away                         | Band  | Greg Dixon                     |  | Demo                 |
| Syd Helan                          | Syd Helan   | Greg Dixon                     |  | Demo                 |
| Smiling Poitely                    | Band/Greg Dixon   | Greg Dixon                     |  | EP                   |
| Bwn Whitaker                       | Ben   | Greg Dixon                     |  | Mixing               |
| <b>Damien Gerard Sound Studios</b> | Marshall Tel: (02) 9660 8776 Fax: (02) 9692 9915. 2"24 Track or 16 Track Music Studio   |                                |  |                      |
| John Hemans                        | John Hemans/Russell Pilling   | Russell Pilling                |  | Album                |
| One Dollar Shot                    | Band  | Russell Pilling                |  | Album                |
| Heatwave Compilatio                | Norma O'Hara Murphy   | Russell Pilling                |  | Album                |
| Drop City                          | Band  | Jorden Bach                    |  | Demo                 |
| Mr Blonde                          | Band  | Jorden Bach                    |  | Demo                 |
| <b>Enrec Studio</b>                | Steve Newton 0418 683 431 Ampex, A-DAT, PC Based Digital  |                                |  |                      |
| John Williamson                    | Artist  | Steve Newton (E)               |  | Album Tracking       |
| <b>Feral Studio</b>                | Jon Robertson (02) 6299 3224 16 Track + Mastering   |                                |  |                      |
| Kandi Doz it                       | Jon Robertson   | Jon Robertson (E)              |  | Demos                |
| Mr Fista                           | Jon Robertson   | Jon Robertson (E)              |  | Demos                |
| Monypeni                           | Jon Robertson   | Jon Robertson (E)              |  | Demos                |
| Rohan                              | Jon Robertson   | Jon Robertson (E)              |  | Demos                |
| J.D. Brothers                      | Jon Robertson   | Jon Robertson (E)              |  | Album                |
| <b>Fishtank@Festival</b>           | Bianka Vukelic (02) 9395 8069 Digital Recording/Sequencing  |                                |  |                      |
| Sample People                      | Josh Abrahams   | Clare Manhood                  |  | Film-Soundtrack      |
| Strange Planet                     | Josh Abrahams   | Clare Manhood                  |  | Film-Soundtrack      |
| Nomad                              | Josh Abrahams   | Clare Manhood                  |  | Tracking             |
| Amiel Daemion                      | Josh Abrahams   | Clare Manhood                  |  | Demos                |
| <b>Hullabaloo</b>                  | Glenn Heaton (02) 9906 2933 Audio Post & Music Production   |                                |  |                      |
| Disney Special Event               | John Berrick  | Glenn Heaton                   |  | Easter Show Events   |
| Strum                              | Heaton/McGarvey   | Heaton/Bowens                  |  | Album                |
| Alien Sex Gods                     | Peter Northcote   | Glenn Heaton                   |  | Album                |
| Australian Maritime Museum         | Andy Goldsmith  | TVC Sound                      |  | Design               |
| Hoist                              | Daniel Bowers   | Daniel Bowers                  |  | Album                |
| <b>Infinity Digital</b>            | James (02) 9672 4802 ProTools Mix 24, Comprehensive MIDI Setup  |                                |  |                      |
| Cairns Casino                      | Paul Venables   | James Nowiczewski              |  | Conservatory Show    |
| Jel                                | Josh  | James Nowiczewski              |  | Mastering EP         |
| Grease Lightnihg                   | Stefan Nowak  | Stefan Nowak/James Nowiczewski |  | Edit                 |
| <b>JMF Recording Studio</b>        | Fran Esther (02) 9790 4097 X50, 24 Track, 24 Trk ADAT   |                                |  |                      |
| Miss Coordinated                   | Band  | Mike Ward (E)                  |  | Demo                 |
| Girls R Us                         | Band  | Ralph Esther (E)               |  | Demo                 |
| Staging Connections                | Maryanne Kyriakou/Ralph Esther (E) Wayne Burkin (PR)  |                                |  | Film Score           |
| Willows Connections                | Trish Watts   | Ralph Esther (E)               |  | Demo                 |
| Wogs R Us                          | Band  | Guy Saminaden (E)              |  | Demo                 |
| <b>Lucinda St. Recordings</b>      | Rick Mostyn (02) 4229 4169 8 Track Digital Pro Tools  |                                |  |                      |
| Dr Michael Rosen                   | Rick Mostyn   | Rick Mostyn                    |  | Remastering          |
| <b>Megaphon</b>                    | Guy Dickerson (02) 9550 6576 24 Track   |                                |  |                      |
| Backsliders                        | Band/Guy  | Guy Dickerson                  |  | Album                |
| Gumption                           | Steve James   | Steve James                    |  | E.P.                 |
| Renaissance Players                | Winsome Evans   | Guy Dickerson                  |  | 2 Albums             |
| James Miller Trio                  | Band  | Guy                            |  | Album                |
| <b>Nu-Town Studios</b>             | Greg Hopping (02) 9516 3306 Analogue/Digital Production   |                                |  |                      |
| Environment                        |   |                                |  |                      |
| Nova                               | Neuen/Hopping   | Sofie Loizou (PR)              |  | Single               |
| Erana                              | Hopping/Artist  | Sofie Loizou (PR)              |  | Demos                |
| Rory O'Carrol                      | Hopping/Artist  | Sofie Loizou (PR)              |  | Demos                |
| Elie                               | Greg Hopping  | Sofie Loizou (PR)              |  | Single               |
| Wanda Dee                          | Greg Hopping  | Sofie Loizou (PR)              |  | Single               |
| <b>Rockinghorse</b>                | Anthony Lycenko/Michael Worthington Tel: (02) 6688 4005 Mobile 016 281 551 Fax: (02) 6688 4115. 24 Trk Analogue./64 Trk Digital & Mastering |                                |  |                      |
| Rollerball                         | Band  | Michael Worthington (E)        |  | Mastering-Album      |
| Rollerball                         | Band  | Anthony Lycenko                |  | Album Mixing         |
| Pirol                              | Christian Pyle  | Anthony Lycenko                |  | Album Mixing         |
| Mindecay                           | Band  | Anthony Smith                  |  | EP Tracking/Mixing   |
| Screaming Jay Hawkins              | Peter Noble   | Michael Worthington            |  | Album Remastering    |
| <b>Skylab</b>                      | Dave Russell (02) 9310 4774 Analogue/Digital/Hard Disk  |                                |  |                      |
| Max                                | Paul Gomersall  | Dave Russell                   |  | Logic Audio Tracking |
| Big Bang Theory                    | Justin Briggs   | Dave Russell                   |  | Album                |
| George Dreamchild                  | Josh McLeod   | Josh McLeod                    |  | Single               |
| Captain Nemo                       | Mark Scully   | Dave Russell                   |  | Album                |
| Greg Crease                        | Rich Burchell   | Josh McLeod                    |  | Musical Soundtrack   |
| <b>Sony Music Studio</b>           | Sarah Tel: (02) 9383 6461 Fax: (02) 9383 6467. Recording facility with audio and video production   |                                |  |                      |
| Vince Jones                        | Artist  | Ross A'hern                    |  | Mixing Album         |

**ARTIST      PRODUCER      ENGINEER/PROGRAMMER      NOTES**

|                                       |  |                    |  |                      |
|---------------------------------------|--|--------------------|--|----------------------|
| As I Am                               | Simon Tonx   | Simon Tonx         |  | Recording Album      |
| Peter Bull                            | Artst  | Louise Taylor      |  | Recording Demo       |
| Zomba                                 |  | Adrian Bolland     |  | Recording Album      |
| Seventh                               | Band   | Ben Hudson         |  | Recording Single     |
| <b>Sound Level</b>                    | John Soane Tel: (02) 9552 3200 Fax: (02) 9692 9552. DA88, 24 Track Digital,                |                    |  |                      |
| Paris Hard Disc System                |  |                    |  |                      |
| John Raso/Andy Kent                   | Cameron  | Cameron            |  | Paris Tracking       |
| Willie McCracken                      | Artist   | Jorden Brebach     |  | Mixdown              |
| Jamie Clifford                        | Pat Salloch  | Pat Salloch        |  | EP                   |
| Bluebirds                             | Pat Salloch  | Pat Salloch        |  | EP                   |
| The most                              | Pat Salloch  | Pat Salloch        |  | Mixdown Paris        |
| <b>Soundwave</b>                      | Meredith Brooks (02) 9905 7144 Mastering   |                    |  |                      |
| Juke Box Jive                         | Mark Bowden  | Meredith Brooks    |  | Album                |
| Gsa                                   | Mark Atkinson  | Meredith Brooks    |  | Album                |
| Krash Kenney                          | Nathan   | Meredith Brooks    |  | EP                   |
| Francis Hipwood                       | John Maher   | Meredith Brooks    |  | EP                   |
| ICE Breaker                           | Simon  | Meredith Brooks    |  | EP                   |
| <b>Studios 301 Mastering</b>          | Jacqui Espie Tel: (02) 9211 7301.CD Mastering Facility                                     |                    |  |                      |
| Pollyanna                             | Don Bartley  | Don Bartley        |  | Forthcoming Album    |
| Weddings, Parties, Anything           | Chris Thompson   | Don Bartley        |  | Album                |
| Lino                                  | Andrew Lancaster   | Steve Smart        |  | Album                |
| Graeme Connoes                        | Artist   | Don Bartley        |  | Album                |
| Alex Lloyd                            | Artist   | Steve Smart        |  | Single               |
| Powderfinger                          | Artist   | Don Bartley        |  | Single               |
| <b>Tiger Recording</b>                | Greg Devine (02) 9922 4700 Music, TV, Film Post, Radio                                     |                    |  |                      |
| Human Nature                          | Paul Begaud  | David Hemming      |  | Album                |
| Cherry                                | Michael Szumowski  | David Hemming      |  | Album                |
| Leah                                  | Paul Begaud  | David Hemming      |  | Album                |
| <b>Top Cat Recording Studio</b>       | Brad Wann (02) 6628 0843 24 Trk Digital & Mastering/Automated 24 Trk Analogue 1"           |                    |  |                      |
| Mudskipper                            | Band/Brad Wann   | Brad Wann (E)      |  | EP Tracking & Mixing |
| Sphank                                | Band/Brad Wann   | Brad Wann (E)      |  | Single               |
| John Glen                             | Artist   | Brad Wann (E)      |  | Mastering EP         |
| Joe KENNING                           | Artist   | Brad Wann (E)      |  | Mastering Edits      |
| Specomen                              | Band/Brad Wann   | Brad Wann          |  | Album Tracking       |
| <b>Velvet Sound Recording Studios</b> | Dave McCunn Tel: (02) 9283 5968 Fax: (02) 9264 3490. Automated 32Ch 24 Trk 2 inch Analogue |                    |  |                      |
| Kohlapse                              | Band/Tony  | Tcny Wall (E)      |  | Album Track/Mix      |
| Universe                              | Steve Balbi  | Tony Wall (E)      |  | Album Tracking       |
| 60 Watt Silver                        | Craig Portails   | Craig Portails (E) |  | EP Mixing            |
| Sandy Klose                           | Sandy/Tony   | Tony Wall (E)      |  | Album Mixing         |
| Indecision                            | Charles Fisher   | Femi Jiya (E/PR)   |  | Album Tracking       |

### Queensland

|                            |   |                      |  |                     |
|----------------------------|---|----------------------|--|---------------------|
| <b>Domenic Sound</b>       | Shane Hughes (07) 3216 5187 32 Trk ADAT Studio              |                      |  |                     |
| Jaquie Major               | Shane Hughes  | Shane Hughes         |  | AV CD Rom           |
| Richard Austin             | Artist  | Shane Hughes         |  | Classical Recording |
| Debra Grace                | Artist  | Shane Hughes         |  | Country Album       |
| Free Fall                  | Shane Hughes  | Shane Hughes         |  | EP Demo             |
| Elizabeth Cann             | Shane Hughes  | Shane Hughes         |  | Single              |
| <b>Grevillea Studios</b>   | Bruce Tel: (07) 3262 8422 Fax: (07) 3862 1422.              |                      |  |                     |
| Mike Hayes                 | Artist  | Bruce Jacobson (E)   |  | Album               |
| Vicki o'Keefe              | Artist  | Bruce Jacobson (E)   |  | Backing Tracks      |
| Swing Central              | Tony Byrne  | Tony Byrne (E PR)    |  | Demo                |
| Celtic Soul                | Leroy Bath  | Matt Bodman (E)      |  | Album               |
| Laura Downing              | Leroy Bath  | Matt Bodman (E)      |  | Album               |
| <b>Taramalin Sound</b>     | Allan Lahey (07) 3208 9736 16 Trk Analogue, Pro Tools       |                      |  |                     |
| Fire Truck                 | J.Daley   | A.Lahey              |  | Album               |
| Phoenix                    | Band  | A.Lahey              |  | Album               |
| Open Arms                  | Barry Cavey   | A.Lahey/Barry Cavey  |  | Life Time Album     |
| Ray Hoppman                | A.Lahey   | A.Lahey              |  | EP                  |
| Damon Fealey               | Artist  | A.Lahey              |  | Acoustic Demo       |
| <b>Vandersound Studios</b> | Eric Vandersande (07) 5546 8100 Digital & Valve 02R CDR HDR |                      |  |                     |
| Daisy Cutters              | Adnrew Hines/Damien   | Damien Newel (E)     |  | Tracking            |
| Arrowmist                  | Andrew Hines/Kyran  | Kyran Halpin (E)     |  | Pre-Master/Mixdown  |
| Amphibious                 | Andrew Hines/Joel   | Joel O'Reilly (E)    |  | Edit & Mixdown Demo |
| Ian Francis                | Eric Vandersande/Andrew Hines (E)                           |                      |  | Pre-Prod album      |
| Pre Dance School           | Eric Vandersande  | Eric Vandersande (E) |  | Tracking            |

### South Australia

|                   |   |               |  |                    |
|-------------------|---|---------------|--|--------------------|
| <b>Disk-Edits</b> | Belinda Kent (08) 8340 1377 Audio Mastering & Post Production CD & Cassette Manufacturing |               |  |                    |
| Downflow          | Band/Jame Sweeney/Cran Wilston  | Neville Clark |  | Premastering/Album |
| Sue Ridgeway      | Artist/Silver Moon  | Neville Clark |  | Premastering/Album |
| Snap to Zero      | Band/Nigel Sweeting   | Neville Clark |  | Premastering/Album |
| Self Titled       | Steve Fieldhouse  | Neville Clark |  | Premastering/Album |
| E Type Jazz       | Band/Mick Wordley   | Neville Clark |  | Premastering/Album |
| Cavan Te          | Artist  | Neville Clark |  |                    |

-continues-

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# BASF

## National Tracking Guide

ARTIST                      PRODUCER                      ENGINEER/PROGRAMMER                      NOTES

|                               |   |                    |             |  |
|-------------------------------|---|--------------------|-------------|--|
| <b>JR Recording</b>           | Darren Conway (08) 8410 6488 24 Trk Analog/Digital    |                    |             |  |
| Bavakers Nest                 | Eddie Sikorski  | Eddie Sikorski (E) | E.P.        |  |
| Offensive                     | Eddie Sikorski  | Eddie Sikorski (E) | E.P./Single |  |
| Stoaker                       | Eddie Sikorski  | Eddie Sikorski (E) | E.P.        |  |
| Scissor Pretty                | Eddie Sikorski  | Eddie Sikorski (E) | E.P.        |  |
| Cat Louis Band                | Eddie Sikorski  | Eddie Sikorski (E) | E.P./Single |  |
| <b>Mixmasters Productions</b> | Mick Wordley Tel: (08) 8278 8506 Fax: (08) 8278 6295. |                    |             |  |
| 24 Track 2"                   |   |                    |             |  |
| Alien Dave                    | Mick Wordley  | Mick Wordley       | Single      |  |
| Anomolie                      | Mick Wordley  | Mick Wordley       | Album       |  |
| Peter Combe                   | P.Combe/Mick Wordley                                  | Mick Wordley       | Album       |  |
| The Superjesus                | C.Tennant   | S.Fieldhouse       | Demos       |  |

### Victoria

|                                    |  |                                 |                    |  |
|------------------------------------|--|---------------------------------|--------------------|--|
| <b>Dex Mastering</b>               | Adam Dempsey Tel: (03) 9372 2266 Fax: (03) 9376 5118. High End CD  |                                 |                    |  |
| Mastering and Dish                 | Band   | Adam Dempsey (E)                | Album              |  |
| Geelong Football Club              |  | Ben Hurt (E)                    | Club Song CD       |  |
| Rainbow Products                   |  | Adam Dempsey (E)                | Disney Stories     |  |
| Ansett Australia                   |  | Jasmine Bourke (E)              | Inflight Masters   |  |
| Gerard O'Donnell                   | Artist/White   | Adam Dempsey (E)                | Album              |  |
| <b>Edensound Mastering</b>         | Martin or Robbie (03) 9682 9066 Professional CD Mastering using Focusrite 'Blue' Mastering Suite.                      |                                 |                    |  |
| Judith Lucy                        | Judith Lucy  | Martin Pullan                   | Album              |  |
| Renee Geyer                        | Paul Kelly/ Joe Camilleri  | Martin Pullan                   | "Sweet Life" Album |  |
| Pseudo Echo                        | Brian Canham   | Martin Pullan                   | 2 Song Demo        |  |
| Kirsty Stegwazi                    | Kirsty Stegwazi  | Martin Pullan                   | "Keep Still" Album |  |
| Spectrum Plays the Blues           | Mike Rudd & Bill Putt  | Martin Pullan                   | "Spill" Album      |  |
| The Brown Hornet                   | The Brown Hornet/Chris Dickie  | Martin Pullan                   | Album & Single     |  |
| <b>Metropolis Audio</b>            | Toni Wright (03) 9696 2111   |                                 |                    |  |
| Muggers (Film)                     | Frank Strangio   | Doug Brady (E)                  | Film Soundtrack    |  |
| Angie Cox                          | Paul Begaud, Tony Cvetkovski   | Doug Brady (E)                  | Album              |  |
| Human Nature                       | Andrew Klippel   | Doug Brady (E)                  | "Eternal Flame"    |  |
| <b>Music Lab, Elwood, Wc</b>       | Dean Horler (03) 9531 6627 32 Trk Music Production   |                                 |                    |  |
| Ruby Fruit Single                  | Jeremy Allom   | Jeremy Allom (E)                | aLBU               |  |
| Jeff Warner                        | Artist   | Dean Horler                     | Album              |  |
| Jimi Hocking                       | Artist   | Dean Horler                     | Album              |  |
| Driveway Service                   | Nick Philips   | Dean horler                     | Album              |  |
| <b>Newmarket Studios</b>           | Ben Hurt (03) 9329 2877 24 Trk 2" Analogue, 40 Ch Harrison MR4   |                                 |                    |  |
| Wonderpants                        | Ben/Band/John Reece  | Ben Hurt (E)                    | Album              |  |
| Mango House                        | Fritz  | Ben Hurt (E)/Mike Pollard (E)   | Album              |  |
| Warren Smith                       |  | Ben Hurt (E)                    | Jazz Demos         |  |
| Second Honeymoon                   | Christian  | Ben Hurt (E)                    | Album Mix          |  |
| Michael Currie                     |  | Ben Hurt (E)                    | Jazz Demo          |  |
| <b>Petrophonic Productions</b>     | Petros Georgiades (03) 9553 0176 Digital Studio/MIDI Suite   |                                 |                    |  |
| Client Direct                      | Jeff Richardson  | Petros (E PR)                   | Sales Tapes        |  |
| Wayne Berry                        | Artist   | Petros (E PR)                   | Sales Tapes        |  |
| Colin Marshall                     | Petros   | Petros (E PR)                   | Solo CD            |  |
| Thomas Brumhead                    | Artist   | Petros (E PR)                   | Video Tracks       |  |
| Kerry Larkin                       | Artist   | Petros (E PR)                   | Sales Tapes        |  |
| <b>Sing Sing</b>                   | Phil or Kaj (03) 9428 4622   |                                 |                    |  |
| 28 Days                            | Kalju Tonuma   | Kalju (E)                       | EP Record/Mix      |  |
| Vika & Linda                       | Paul Kelly/Renee Geyer   | Chris Dickie                    | Album mix          |  |
| Jebediah                           | Mark Trombino  | Album                           |                    |  |
| Automatic                          | Magoo  | Magoo                           | Single Mix         |  |
| Mach Pelican                       | Chris Thompson   | Chris Thompson                  | Album              |  |
| <b>Sound Around/Front Room</b>     | Trevor Cronin (03) 9531 3891 24 Trk Digital & 2 inch analogue  |                                 |                    |  |
| James Reyne                        | J.Reyne  | Michael Letho                   | Album mix          |  |
| Tina Kopa                          | Cameron McKensy  | Michael Letho                   | Album mix          |  |
| Horse Head                         | Band   | Michael Letho                   | Album Mix          |  |
| Michelangli                        | Band   | Trevor Cronin                   | Mastering          |  |
| Crawfish Dave                      | Band   | Trevor Cronin                   | Editing/Mastering  |  |
| <b>Studio 52</b>                   | Paul Higgins Tel: (03) 9417 7707 Fax: (03) 9417 5294. Studio A: 32 Track Automated, Studio B: 24 Trk Automated ADAT XT |                                 |                    |  |
| Jacquee Rae                        | Trevor Carter  | Trevor Carter (E PR)            | Demos              |  |
| Delta                              | Trevor Carter  | Trevor Carter (E PR)            | Demos              |  |
| The Music Men                      | Trevor Carter  | Trevor Carter (E PR)/EJ Whitten | Single/CD          |  |
| Geronimo                           | Andrew Meakes  | Andrew Meakes (E)               | EP in Studio B     |  |
| Mick Tenace                        | Andrew Meakes  | Andrew Meakes (E)               | Album in Studio B  |  |
| <b>True Form Music Services</b>    | Neil Gray Tel: 0500 509 509 Fax: (03) 9391 0907. 24 Track Digital, 12 Track Analogue and Hard Disk                     |                                 |                    |  |
| Michelle Greco                     | NA   | Neil Gray                       | CD Compilation     |  |
| Ray James                          | Neil/Band  | Neil Gray                       | Live Jazz Album    |  |
| Blackseed                          | Ross/Band  | Ross O'Driscoll                 | Demos              |  |
| Bleeding Rose                      | Neil/Vincent EH  | Neil Gray                       | Album              |  |
| Audabon                            | Finn/Band  | Finn Keane                      | EP                 |  |
| <b>Wombat Rd. Recording Studio</b> | Barrie Clissold Tel: (03) 5145 4204 Fax: (03) 5145 4204.32 Digital & 16 Analogue                                       |                                 |                    |  |
| Gary Berriman                      | G.Berriman   | B.Clissold (E)                  | Album Tracking     |  |
| Jim Ayres                          | L.Hammond  | B.Clissold (E)                  | Album Tracking     |  |

ARTIST                      PRODUCER                      ENGINEER/PROGRAMMER                      NOTES

|                |                    |                |                |
|----------------|--------------------|----------------|----------------|
| Andrew Robison | Artist/ B.Clissold | B.Clissold (E) | Demo           |
| J.Ayres        | L.Hammond          | B.Clissold (E) | C.D. Mastering |
| J.Couzens      | Artist             | B.Clissold (E) | Backing Tracks |

### Western Australia

|                                   |   |                       |                       |  |
|-----------------------------------|---|-----------------------|-----------------------|--|
| <b>Bonsai Recording Studio</b>    | Tom Thorpe Tel: (08) 9246 4408 Fax: (08) 9246 4408.               |                       |                       |  |
| Pro Tools Digital                 |   |                       |                       |  |
| True Learning Centre              | Tom Thorpe  | Tom Thorpe            | Corporate/Educational |  |
| The 2-ins                         | Tom Thorpe  | Tom Thorpe            | Demo                  |  |
| Blue Thing                        | Tom Thorpe  | Tom Thorpe            | Album Tracking        |  |
| Matt Williams                     | Tom Thorpe  | Tom Thorpe            | Demo                  |  |
| Peter Bevan Advertising           | Tom Thorpe  | Tom Thorpe            | Corporate Jingle      |  |
| <b>JR Recording</b>               | Darren Conway (08) 8410 6488 24 Trk Music Studio                  |                       |                       |  |
| Fallen Angle                      | Eddie Sikorski  | Eddie Sikorski (E PR) | Single                |  |
| Deluge                            | Eddie Sikorski  | Eddie Sikorski (E PR) | EP                    |  |
| Cohort                            | Eddie Sikorski  | Eddie Sikorski (E PR) | LP                    |  |
| Nick Bruce                        | Eddie Sikorski  | Eddie Sikorski (E PR) | LP                    |  |
| The Cat Louise Band               | Eddie Sikorski  | Eddie Sikorski (E PR) | Demo/EP               |  |
| <b>Planet Sound Studio's</b>      | Kevin Peak & John Villani (08) 9382 2211                          |                       |                       |  |
| Rebecka                           | Kevin Peek  | John Villani          | Album                 |  |
| Jeff Brownrigg                    | J.B./J.V.   | John Villani          | Single                |  |
| Gill Duffy                        | Gill & J.V.   | John Villani          | EP                    |  |
| Vanessa                           | Kevin Peek  | Les Williams          | Demos                 |  |
| <b>Poons Head</b>                 | Rob/Sam/Bush Tel: (08) 9339 4791, Fax: (08) 9339 4791. 32 + Track |                       |                       |  |
| Boredumb                          | Rob Grant   | Rob Grant (E)         | Album                 |  |
| Chelsea Crook                     | Artist  | Rob Grant (E)         | Mastering/Mixing      |  |
| Rob Casaldi                       | Rob Grant   | Rob Grant (E)         | Album                 |  |
| Next Big Thing                    | Band  | Rob Grant (E)         | Mastering             |  |
| Subtruck                          | Band  | Rob Grant (E)         | Mastering             |  |
| <b>Satellite Recording Studio</b> | Darren Halifax Tel: (08) 9470 4003 Fax: (08) 9472 8040.           |                       |                       |  |
| ProTools                          |   |                       |                       |  |
| Billie Read                       | Darren Halifax  | James Hewgill         | Album                 |  |
| David Hyams                       | David McDonald/Darren Halifax/Gavin Tempamy                       |                       | Album                 |  |
| Wayne Halifax                     | Darren Halifax  | James Hewgill         | EP                    |  |
| No Flowers                        | Band  | Darren Halifax        | EP                    |  |
| Sulk                              | Ridge Hanson  | Darren Halifax        | EP                    |  |

### Northern Territory

|  |  |               |       |  |
|--|--|---------------|-------|--|
| <b>Masters Studio &amp; Production</b> | Lindsay Masters Tel: (08) 8932 1754 Fax: (08) 8932 2068. 8 Track Digital & VST edit etc. |               |       |  |
| Marc Smith                             | Artist/L.Masters   | L.Masters (E) | Album |  |

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|      | Silver & Ballard (02) 9439-5355          |
|      | Independent Tape Services (02) 9436-0666 |
| VIC: | CATS (03) 9529-3177                      |
|      | Chapple Tape (03) 9580-6620              |
|      | DEX Audio (03) 9372-2266                 |
|      | MTA & Assoc. (03) 9819-6455              |
| SA:  | Adelaide Tape Duplicators (08) 8212-7111 |
|      | Pro Media (08) 8276-6793                 |
| WA   | Ausmag (09)314-1953                      |
|      | Pro Copy (09)375-3902                    |
| QLD: | Musiclab (07) 3862-1633                  |
|      | Tek (07) 3239-4000                       |



# BASF YOUR MUSIC IS SAFE WITH US

# How to do it

## DUNCAN FRY'S LIVE SOUND MIXING SERIES

- CABLES & CONNECTORS (Part 14)

### A STANDARD DISAGREEMENT

In the past, just about the only thing that was in universal agreement on XLR connectors was that Pin#1 is the audio Ground. Debate raged over whether it should be Pin#2 Hot or Pin#3 Hot.

Mercifully, all that has pretty well much changed. The AES (Audio Engineering Society, an organisation that worries about these things on our behalf) has campaigned long and hard to win international agreement, officially, for Pin#2 to be HOT.

Manufacturers, TV, Radio, Sound Reinforcement, Studios, Installation Contractors, have at last all come around to a common way of thinking, and all currently sold products should be Pin#2 Hot.

However, you will very likely come across older equipment that has been wired Pin#3 Hot, and so it's wise to be aware that there is a difference.

### WHY SHOULD IT MATTER?

Well, as long as every lead is balanced, there is no problem. It's only when you have to interface Balanced with Unbalanced that problems occur.

Have a think about this situation:

If you are using Pin #2 as HOT, and you wire #1 and #3 together for an unbalanced line, and you plug it into a piece of equipment that has Pin #3 HOT, then your HOT signal is going to run down the audio Ground braid, picking up so much noise that it will make you tear your hair out trying to track it down.

And, it only takes ONE lead in the system to do it!

If you have to link up with some other equipment that isn't your own, then it's a good idea to have some Phase Change connectors handy, in the same XLR package as the Plug In Pad connector we mentioned earlier. You can use them anywhere, even on the microphone input of the mixing console if it doesn't have phase change switches.



PHASE CHANGE ADAPTOR: PIN #3 ON ONE END CONNECTED TO PIN #2 ON THE OTHER END

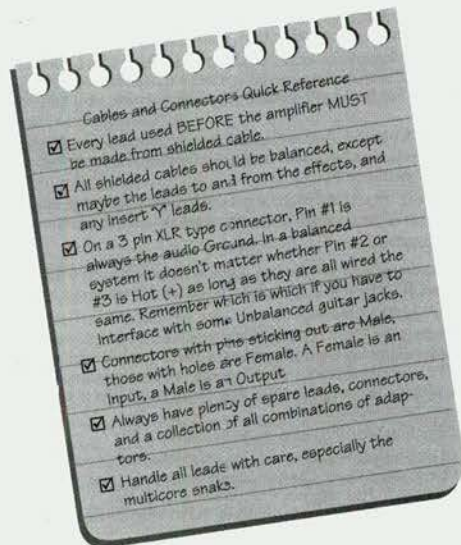
Always know how your equipment is wired, and always ask if you have to use other equipment with your own.

### LOOMS

It's a good idea to make up a set of leads especially for a typical drum kit, and tape them together to make a Drum Loom. Mark the leads KICK, SNARE, HATS, TOM 1, TOM 2, FLOOR, and maybe AUX 1 and AUX 2 to cover any extras, like extra Kick drum or extra Snare Bottom. Don't forget to mark the leads before you tape them together, otherwise the job will take 5 times as long as you carefully trace each lead!

Using a drum loom speeds up drum miking, looks much neater, and lessens the chance of any errors, especially during quick changeovers.

Any collection of leads that needs plugging up the same way every time is worth making into a loom. Monitor sends from console to equalizers, from equalizers to amps, all the effects rack Ins and Outs, etc. They all speed up the system setup, leaving you more time for soundchecks, or sleeping!



This is extracted from the top selling book: LIVE SOUND MIXING, by Duncan Fry. © D.R. Fry 1998. ISBN0 646 11235 X. Retail: \$39.00. Available from book stores and music shops everywhere, also through the Connections Shop, call 1-800-635-514.

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# How to do it

## TOM MISNER'S PRACTICAL STUDIO TECHNIQUES

### - TAPES AND FORMATS (Part 14)

#### INTRODUCTION

Magnetic recording tape has two main components known as the base and the coating. These two ingredients form the integral part of all open reel and cassette tape, whether it is analog or digital, audio or video. Different types of tape vary in cost and adaptability depending on the varying base materials, coatings, dimensions, magnetic characteristics and manufacturing techniques used in their production.

#### BASE MATERIAL

Base material requires a high level of resistance to stretching and deformation, and must be capable of production in very small thickness - around 0.008 mm to 0.04 mm. PVC and other durable synthetics are commonly used as base material.

#### TAPE COATINGS

Most coatings consist of very fine metallic Oxide 'needles', suspended in a binder. The original and most widely used coating was ferric oxide. Other coatings include chromium dioxide and ferrochrome. Chromium dioxide has a higher output, but with more tape hiss and greater head wear. Ferrochrome is an attempt to combine the best properties of both ferric and chrome formulations. Cobalt has been added in the chemical manufacture to improve the performance of ferric coatings, particularly in audio cassettes.

The back side of the tape has a matt finish which provides a lower friction coefficient resulting in smooth winding. The overall tape thickness is determined by the combined dimensions of the base material and the coating.

#### REMANENCE AND RETENTIVITY

Different oxide formulations have different magnetic properties, which are critical to tape performance. Remanence is related to retentivity and describes the ability of the tape to hold a magnetic charge. When a magnetic field is applied to the tape, only a certain percentage will be retained as permanent magnetism. The higher that percentage the greater the output of the tape during playback. Remanence is expressed in lines of flux per linear quarter inch of tape width.

Retentivity is measured in Gauss and is the magnetic tape's flux density after a saturation - producing magnetic field has been withdrawn.

#### DOMAINS

The molecules of oxide on the tape organize themselves into small groups known as magnetic domains. Each domain acts as a small magnet and can hold a magnetic charge. In the unrecorded state the domains' poles are randomly oriented - pointing in all different directions. Under these conditions the domains' magnetic fields cancel each other out, so the tape has no average magnetic charge. When a magnetic field is applied to the tape, the domains all line up in the same direction and produce an average magnetic force on the tape. Increasing the strength of the magnetic field causes more domains to align themselves with it.

At its most basic level, this is the principle of recording a signal onto magnetic tape. Nature rarely works in such a clear-cut manner, and the actual recording process is just a shade more complicated!

#### TAPE SATURATION

If a very strong magnetic field is applied to the tape it will force all domains to align themselves with it. At that point the tape is said to be saturated. Most tapes currently used for professional recording are known as 'high energy' and can accept a higher magnetic force before saturation, resulting in a high output level on playback. Once a magnetic tape has reached maximum saturation any additional magnetic forces will have no effect upon it. Distortion will become clearly audible long before maximum saturation has been reached.

#### PRINT-THROUGH

Print-through is a problem that can affect magnetic tape after it has been recorded on. It is the transfer, by magnetic induction, of recorded signals to adjacent tape layers on the windings of the reel. The risk of print-through increases with greater signal levels on tape, thinner tape bases, longer storage time and higher temperature. The transfer from one tape layer to another decreases by about 2 dB for each 1 dB decrease in recorded signal level. Tailout storage of tape is recommended, since the print-through will be heard after the original signal that produced it, and will therefore be masked by the original signal. Tapes stored head-out will be affected more drastically, since the recorded signal will precede the main signal as a ghostly pre-echo which is clearly audible.

#### BANDWIDTH

The bandwidth of a tape is defined as that portion of the audio frequency spectrum in which the tape's frequency response remains within a small percentage of a linear reproduction of the applied signal. At the high and low ends of the frequency spectrum, where various losses occur, the frequency response will start to decrease. In an analog system this drop-off is gradual, not instantaneous, and a cut-off point must be defined. The most common convention is that a signal more than 3 dB down from a flat response is considered to be 'below par'. Thus an expression of bandwidth - whether for a tape or an electronic circuit - is incomplete unless it states its limits of measurement. Therefore, 20 Hz to 20 kHz  $\pm$  3 dB means the frequency response deviates no more than 3 dB above or below the flat response.

#### PRACTICAL INFO:

#### Inserting a gate

When using a gate and compressor in sequence you should always use the compressor ahead of the gate. The gate eliminates the background noise created by the compressor when it's not in use.

This is extracted from the top selling book: **PRACTICAL STUDIO TECHNIQUES**, by Tom Misner. ©Tom Misner 1988. ISBN0 646 16704 9. Retail: \$40.00. Available from book stores and music shops everywhere, also through the Connections Shop, call 1800 635 514. Tom Misner is the owner of SAE International.

# buyers guide::

## EFFECTORS

Prices INCLUDE sales tax and were correct on 15th April 1999. All care taken, no responsibility for errors. Four models only are shown in each category although these manufacturers have many more. Indicative only.

### REVERBS

#### PEAVEY

Audio Telex Communications (02) 9647 1411

**Deltafax** Stereo digital reverb unit with simple front panel selection of up to 16 presets. Each preset has 2 adjustable parameters. Effects include Reverbs, Delays, Chorus, Flange. Remote footswitch option. 1RU. \$520.78.

**Adverb III** 24 Bit stereo effects unit with 128 factory presets. Create your own sounds with 35 different effects types and up to 8 effects in any order per preset. Effects include, reverbs, delays, flange, chorus, overdrive, distortion, pitch shifting, EQ etc. MIDI controllable. 1RU. \$1092.94.

#### ROLAND

Roland Australia (02) 9982 8266

**SRV-3030** 24 bit digital reverb processor, 30 bit internal processing. New "Dynamic Separation Algorithm" splits signals into two independent reverb paths by sensing differences in dynamic, frequency range or note density. SRV 3030D has coaxial digital in + out. 1RMU. \$1495.

#### TC ELECTRONIC

Amber Technology (02) 9975 1211

**M3000** state-of-the-art digital studio reverb using proprietary VSS (Virtual Space Simulation) technology. Precise control of early reverb reflections allows the 250 factory presets to be tailored for shape, size, decay and direction for unparalleled realism. \$5495.

#### TCIWORKS

Electric Factory (03) 9480 5988

**TCINative Reverb** High Quality TC Reverb for VST (Mac). \$549.

**TCIMega Reverb 3.0** TC reverb for TDM (Mac). Better diffusion, denser tails and more realistic room impressions than ever before. \$1699.

#### YAMAHA

Yamaha Music Australia (03) 9693 5185

**REV100** True stereo digital reverb. 99 professional quality pre-programmed reverb and delay effects, unbalanced jack inputs & outputs, MIDI, 1RU. \$645

**REV500** True stereo digital reverb, 20 bit AD/DA with 32 bit processing, with 100 preset/100 user programs, balanced XLR & TRS I/O with switchable -10 / +4dB level, foot switch & MIDI control, 1RU. \$895

**PROR3** Professional true stereo dig-

ital reverb, with extended parameters - dynamic filter and compressor, pre & post reverb EQ, programmable gate, 90 preset + 90 user programs. Balanced XLR & TRS inputs / outputs with switchable -10 / +4dB level, MIDI control, 2RU. 20 bit AD & DA converters with internal 32 bit processing. \$2,645.

### DELAYS

#### DOD

CMI (03) 9315 2244

**SR-D12** Digital/Delay Sampler with 4 banks of 6 second delay or 2 banks of 12 seconds, editable start and stop sampling times for loop and stutter, up to 24 seconds of delay, reverse play and continuous play functions. 1RU. \$799.

#### RANE CORPORATION

Jands Electronics (02) 9582 0909

**Rane AD22** Precise system alignment delay utilising Dolby's Time Link for delays accurate to 1/100 ms. Your choice of measurement units makes setup easy. Dual memories with contact closure remote access capability - channels can be run separately or cascaded for over 650ms of delay. 1RU. Terminal Strip I/O. \$2495.

**Rane AD22B** As per above, but with XLR inputs and outputs. 1RU. \$2595

**Rane AVA22** Audio Video Alignment Delay - 2 channel Dolby Timelink, Adjustable in Field and Frame increments, NTSC / PAL / SECAM. 1RU. \$2795

#### SHURE

Jands Electronics (02) 9582 0909

**Shure DFR11EQ Version 4.0** 10 filter Intelligent Feedback Reducer with Equaliser and Delay. Can be used as a stand-alone suppressor or in conjunction with supplied Windows software for all functionality. RS232 Computer Port. \$ 2,350.

**Shure DP11EQ** PC Controlled, digital dynamics processor with up to 9 bands of parametric EQ, high and low cut/shelving filters, Compressor, Limiter, AGC, and up to 1.3 seconds of delay. RS232 Computer Port. \$ 2,350.

#### SONY

Sony Australia (02) 9887 6666

**SRP-L300** Digital Limiter/Delay, 20.8u sec. Step, 4,500ms max, Bal analogue & AES/EBU. \$1,990.

#### TC ELECTRONIC

Amber Technology (02) 9975 1211

**2290** classic digital delay design with

the world's number one  
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HUGHES AND  
KETTNER  
HZ INTERNATIONAL  
KUSTOM MUSIC  
LINE 6  
LOBER & HICKEY  
M & K  
MAJ  
MARSHALL  
MATCHLESS  
MCGREGOR  
MICRO-MIX  
MILLER & KRIESEL  
MODULAR SOUND  
MTS  
MUSICIAN SYSTEM  
OAP  
PEAVEY  
POLYTONE  
P.R.O  
PROMANN  
PULSE  
ROLAND  
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SLM  
SOLDANO  
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## EFFECTORS continued from previous page

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**Microverb 4** 128 factory preset & 128 user-editable programs; Stereo, dual mono & dual stereo; 18-bit 128x over sampling A/D converters; 18-bit 8x over sampling D/A converters; 20bit DSP engine; Online help menus; MIDI I/O w/ soft thru function; 19" rackmount in a single space. \$449.

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**QUAD-4** 4 in - 4 out multi-effects processor with S-DISC2, multiple Input/output routings, large custom display, automatic input levelling, dynamic parameter modifiers, full MIDI implementation. 4 independent inputs and outputs. \$1,299.

**Studio-400** Dual stereo multi-effects with 2 x S-DISC2 processors, up to 8 memory hungry effects at once, unlimited internal routing, large custom LCD display. Effects include state-of-the-art reverbs, delays, compression, EQ, detune, intelligent pitch shifting. 2RU. \$2,349.

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**SR-D3** Stereo digital Multi-effects with multiple reverbs and delays (in series or parallel), chorus, flange, phase, pitch-shift, tremolo, rotary speaker, panning, adjustable noise reduction etc. 32 effect combinations with 15 presets each (total 480) Footswitchable. \$399.

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*EVI Audio (02) 9648 3455*

**DRP 10** stereo Midi controllable multi effects device with an onboard effects for both PA and instrument applica-

tions. Classic European sound at 20kHz band width with extensive parameter control. \$2309.

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**DLS 300** stereo Midi controllable digital Organ simulator. Multiple on board effects including classic Hammond, Leslie etc. \$1899.

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**Kaoss Pad** stereo FX processor with reverb, delay, filters, time and pitch compression and expansion. All controlled by an XY touch pad for total real time control and expression! \$899.

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**DL8000R** true stereo delay processor - 5200 ms per side or 10,000 ms in mono (10 seconds). Independent 3 band EQ, pre-delay and four delay taps with filters. Features WARP control! \$1499.

### PEAVEY

*Audio Telex Communications (02) 9647 1411*

**Deltafax** Stereo digital reverb unit with simple front panel selection of up to 16 presets. Each preset has 2 adjustable parameters. Effects include Reverbs, Delays, Chorus, Flange. Remote footswitch option. 1RU. \$520.78.

**Adverb III** 24 Bit stereo effects unit with 128 factory presets. Create your own sounds with 35 different effects types and up to 8 effects in any order per preset. Effects include, reverbs, delays, flange, chorus, overdrive, distortion, pitch shifting etc. MIDI controllable. 1RU. \$1092.94.

### SONY

*Sony Australia (02) 9887 6666*

**DPS-V55M** 20-bit, 4 Channel, Multi Effects Processor, user friendly operation. \$990.

**DPS-V77** 24-bit Multi Effects Processor, Two Independent Blocks, Morphing Transitions. \$2,990.

**HR-MP5** Digital Multi Effect Processor, 51 Effects, 2 Effects Blocks, 48-bit Processing. \$990.

### TC ELECTRONIC

*Amber Technology (02) 9975 1211*

**M2000** digital multi effects processor: "Dual Stereo Engine" configuration w/

- 250 factory presets, digital and analogue I/O's, 24-bit A/D/A's, "Wizard" interface for rapid set up, dynamic morphing, dithering, full Midi control etc. \$3495.

**Fireworx** designed to offer the "weird and wild" effects with the latest in digital technology. Effects include Vocoder, Ring Modulation, Reverse Delays, Fractal Noise etc - all with extensive editing and routing. Full 24-bit A/D/A's and processing, Midi control etc. \$5195.

**M5000** advanced digital effects mainframe system: modular design approach allows frames to be configured/expanded from single to quad stereo processors with digital and/or analogue I/O's with 96kHz processing and 24-bit A/D/A's, optional "ATAC" remote. \$8495.

**G-Force** dedicated digital multi-effects for guitar/instruments. Runs up to 8 effects simultaneously with 225 factory presets + 100 user memories. Optional "G-Card" provides a further 245 exclusive "artist" presets. Full 24-bit digital processing. \$3495.

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*Electric Factory (03) 9480 5988*

**TCINative Essentials V2** TC software Multi-effect bundle for Direct-X (Windows 95/98/NT) Reverb, 3 Band EQ, Single Band Compressor and Modulated Filter. \$399.

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**TCIMasterX 1.5** TC Multiband dynamics processing for TDM (Mac) Includes Band Expansion, Compression, Limiting and dithering. \$1999

**TCITools 3.0** The Classic TC TDM suite. (Mac) Includes TCIMegareverb, Chorus, Delay and Parametric EQ with Softsat. \$1999.

### YAMAHA

*Yamaha Music Australia (03) 9693 5185*

**SPX990** Professional true stereo multi effects processor, 80 preset + 99 user programs (optional RAM card). Effects include EQ, chorus, compressor, intelligent pitch change, flange, reverb etc, balanced XLR & TRS inputs/outputs with switchable -10 / +4dB level, foot switch, trigger & MIDI control, 1RU. \$1,895.

next month::

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# Connections

## AV PRESENTATION & EVENTS NEWS

### Olympics Tech Team Announced

On September 15th 2000 the people occupying the whole planet will be expecting to see the greatest show yet staged in human history. The event will be the 2000 Olympics opening ceremony in Sydney, and Ric Birch (pictured below), CEO of Spectak, is the Director of Ceremonies. Consequently he has been dubbed the "five-ring circus master".

Ric has already presented the International Olympic Committee delegation with an outline of his plans for the ceremony, an event which will cost about \$35 million. It has been reported that the script for the event is already 80% written.

It was Ric who gave us the opening ceremonies for the Brisbane Commonwealth Games in 1982, Los Angeles Olympics in 1984 and the unforgettable Barcelona Olympic Games in 1992.

The all-important creative team for the ceremonies has just been announced and Ric Birch spoke to Connections ahead of the official announcement about who has been selected - and why.

#### BRUCE JACKSON

##### Audio Designer for Opening & Closing Ceremonies

He is considered the greatest live sound engineer in the world by many. Bruce Jackson has mixed for Elvis, Springsteen and others, after relocating to the USA from his Sydney home.

He founded Apogee Electronics and is one of the fathers of digital audio. Bruce is currently involved in some kind of secret audio skunk works project.

#### EXCLUSIVE By Cat Forcer

Bruce holds an ENTECH Award for Technical Excellence, an EMMY and a TEC Award.

"Bruce and I met some 30 years ago when I was producing GTK for ABC TV and Jands was in its early stages," said Ric Birch. "Bruce's original partner, Phil Storey, still has some of the GTK invoices and I was so impressed by their pricing that I approached Bruce to work under the same conditions again. After a bit of arm-wrestling, we decided that both of us would work for the same rate with 30 years of compound interest."



"He is probably the world's leading sound designer and I am absolutely delighted that he has agreed to work on the Sydney 2000 Olympic Games ceremonies."

#### JOHN RAYMENT

##### Lighting Designer for Opening & Closing Ceremonies

At the end of last year, John Rayment resigned from his position of Technica Director and resident Lighting Designer for the Sydney Dance Company, a position he had held for six years. He has already started researching his lighting design for the Olympics as well as freelancing for clients such as the Netherlands Ballet. John is also a member of the Board of Directors of the Australian Dance Council.

John was the Entech 96 Stage Lighting Designer of the Year.

"I first met John in '86 when I appointed him as Head of Technical

(continued next page)



Bruce Jackson with a happy customer

### Destination: Orlando for InfoComm in June

It's become an international must-see for anyone in the audio visual or presentation industries. These overlap into the consumer market too, so the proceedings at the InfoComm International tradeshow and convention in Orlando are frenetic. Many people from our region attend this show.

On arrival 25,000 visitors are confronted with almost 50,000M2 of exhibits - almost five times the size of ENTECH, with over 450 exhibitors.

The show opens on Thursday, June 10 and concludes Saturday, June 12 at 4:00 p.m. The Orlando Convention Centre is in a special precinct, seemingly removed from the rest of the planet. It's surrounded by hotels and a short bus ride from Disney World and a host of attractions in Florida. The weather will be hot-hot-hot.

The show is promoted by the ICIA - the International Communications Industries Association. They operate an office in Australia, and run an Asian version of InfoComm, in Singapore this September.

Teleconferencing software every kind of presentation hardware is on show. HDTV will be featured in the Projection Shoot-Out, a major side by side comparison event. This year a new feature has been devised: the Projection Encounter Exhibit.

The ICIA Projection Encounter is an educational event designed to provide INFOCOMM attendees with everything they need to know about projection technology in one place, at one time. (Go to P51)



## Events Industry Ball

*Industry rallies to assist charity at showcase function*

**W**ith the enthusiastic input of many of our industry's finest, the inaugural Special Events Industry Ball - the Miracle Ball - will take place on May 22nd, 1999 at the Exhibition Space in Australian Technology Park at Eveleigh.

More than thirty companies involved in aspects of Special Events will be contributing their best to the event, which was initiated by Naomi Joslin of Staging Rentals.

The beneficiary of the night will be the Hope for the Children Foundation, with monies raised helping to expand their Community Family Networks. There will be an auction and raffles, with prizes reflecting the 'miracles' theme.

Chameleon Touring Systems will be lighting the entire event, including stage lighting using Martin fixtures, and lighting of all elements in the room.

Sound reinforcement on the night is the responsibility of Norwest Productions who will be using the new EAW KF750 speaker cabinets. 'This will be the first time these cabinets are seen and heard in Sydney,' said Chris Kennedy of Norwest. 'They will be perfect for the venue because of the challenges such a large space and large audience pose.'

Gearhouse Australia is responsible for A/V on the night, and will be using their new, exclusive Opti screen, just out from the U.K. 'This is the brightest LED screen on the market today,' explained Paul Zinn, from Gearhouse, 'so it is clear and bright under any conditions. It is exciting to have one of its first uses in Australia for such a landmark event.'

As well as the Opti screen, measuring 5m x 4m, Gearhouse

will be using state of the art digital projection, live cameras to screen and various other technical 'miracles'.

Large scenic and effect panoramas will float around the room and across the ceiling (on special panels) thanks to the 7kw PIGI large format scrolling image projectors exclusive to The Electric Canvas.

Pollard Productions, house riggers for most of Sydney's major entertainment venues and benchmark providers for the new Olympic site, will be providing specialist rigging throughout the venue.

Staging from Staging Rentals will include 250m of white chiffon, a 'stairway to heaven', and a seriously big (375m<sup>2</sup>) dance floor. Meri Took is Executive Producer for the ball.

Peter Milne from PM Production Design & Management has taken on the challenging role of Technical Producer for this event, which will showcase the best of A/V, sound, lighting, staging and rigging.

With what is planned every guest should feel as if they've enjoyed a little slice of heaven. Guests will experience The Angels (live and unplugged), a 70 voice choir and The Big Big Band to name just a few.

Some of Australia's leading Event Themeing and Design companies will be competing for the best 'Slice of Heaven' to be judged by Mrs Barbara Holborow, ex Children's Court Magistrate and patron of Hope for the Children. And of course the food and entertainment will be the *creme de la creme*.

Tickets are \$175 a single, or \$1500 for a table of ten. For further details and bookings contact Sarah Corbett on 02 9519 6300, or Tania Lang on 02 9580 9889.



- May 22nd, 1999
- Exhibition Space in Australian Technology Park at Eveleigh
- \$175 single

## Olympics Tech Crew

*(continues)*

Services for Expo 88 in Brisbane," Ric Birch said. "Although at that time John (pictured, right) was responsible for all areas of technical services, which of course included lighting, he did not get much opportunity to show his skills as a designer. Since Expo, John has produced outstanding work for the Sydney Dance Company, among others.



"It is his ability to produce theatrical lighting effects on a large scale which has interested me and has challenged him. I am delighted to working with John again and look forward to some spectacular effects for the Stadium spectators as well as the TV viewers of the ceremonies."

### MORRIS LYDA

**Head of Technical Services for Opening & Closing at the Olympic Stadium, Medal Ceremonies at all sporting venues, IOC Opening Session at Concert Hall, Opera House, and Team Welcome Ceremonies at the Olympic Village.**

Since 1971, the Morris Lyda Organisation has developed, produced and consulted on major entertainment projects in every corner of the world. Employing a small permanent staff and, when prudent, a larger group of freelance specialists, MLO has actively participated in the production of thousands of events.

Recently Morris has been working as a Project Consultant at DisneyFest Asia. He has been voted Production Manager of the Year three times by Performance Magazine - for David Bowie 1983, Genesis in 1985 and Phil Collins in 1990.

Other tours he has worked on include The Three Tenors (International Site Coordinator/Production Consultant), four Phil Collins Tours (Production), Pink Floyd (Production Manager), five Genesis Tours (Production), Rolling Stones (Special Consultant to Promoter), Prince (Production Advance), and McCartney/Wings (Sound Engineer).

"I worked with Morris in Bar-

celona where he was Lighting Project Manager for the '92 Olympic Games," said Ric Birch.

"I was not only impressed by his technical ability and knowledge, but also his personality which I thought would connect very well with Australians and this was proven when he had the good sense to marry an Aussie gal and become an Australian resident, thus making himself available to work on the Sydney 2000 Olympic Games.

"Morris possesses a broad technical knowledge acquired from many years of production management with some of the biggest rock and roll tours to take place and even though he is a Texan, we think of him as one of us."

### REG DEW

**Lead Rigger for Opening & Closing Ceremonies**

Reg Dew has been working all around the world as a rigger since 1963 and worked with Morris Lyda in 1979 on the Linda Ronstadt Australian Tour.

In the following years, he continued to travel the world with bands such as: Bob Dylan and Joan Baez; Elton John; 5 David Bowie tours; Rolling Stones; 6 Genesis tours; Pink Floyd; Michael Jackson; Dire Straits; Three Tenors and many more.

"Reg is a legend in our business - one of the great unsung heroes of the rock & roll music industry, a foreman rigger and construction supervisor who doesn't have an equal anywhere else in the world," said Ric. "Again we are fortunate that Reg has moved back to Australia and is now available to work on the ceremonies."

## ORLANDO: JUNE

(FROM PAGE 49)

The massive exhibit covers more than 12,000 square feet of exhibit space and features 10 high-tech rooms staffed by today's leading manufacturers representing different aspects of projection technology.

A group of 30 attendees will be guided through the exhibit every eight minutes to learn the difference between raster and pixel imaging systems. The major types of projection technology and determines key-purchasing criteria such as brightness, output, resolution, why size matters and key applications.

The ICIA Projection Encounter is a unique exhibit different because attendees are led through and taught by a talking animated digital host called 'Pro-



fessor Projection' and a sidekick called (wait for it) 'Pixel.'

A friendly competition to find North America's best presentations and presenters will be held, an eye opener for most non-Americans! They compete for more than \$120,000 in cash and prizes and an opportunity to face-off against other first-round winners during the Presentations Playoffs finals at INFOCOMM.

ICIA will offer 80 seminars and workshops to its attendees covering virtually every market in the audio/video/presentation industry.

Connections will be there!

• **InfoComm details from ICIA, call +61 2 9531 6777 or browse the net at [www.icia.org](http://www.icia.org)**

## HDTV: Hyped Digital TV

I am going to vent. Over the past six months, I'll bet I have seen and read at least 20 articles about HDTV in the Newspapers and on various web sites. What troubles me in these articles is how mis-informed the public is becoming by reading and, Heaven forbid, believing their hype. The articles are about as accurate as an episode of Jerry Springer. Not a single article that I have read has been more than 50% accurate and all of them are full of hype.

OK, I'm setting the record straight. Unfortunately, however, it's being set straight for a bunch of the readers of Connections who already know the facts; but maybe, just maybe, one of you out there knows

By Gary Kaye



someone who works for a mainstream publication and will pass it on. I am going to report the facts in the hope that it clears up any misconceptions about our industry, our products and the future of television and how it will affect

us all.

### Myths and Facts

Digital Television and HDTV are NOT one in the same. Yes, the US governing body of TV, FCC, approved a US 'standard' for broadcasting. HDTV is a digital format, but it's NOT the only digital TV signal. In fact, Hughes' DirecTV has been broadcasting digital TV for three years. For the most part,

*(please turn the page)*

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## HDTV: Hyped Digital TV

including Australia, the world has adopted the US standards (good and bad).

The new HDTV 'standard' I put that in quotation marks as it really isn't a standard, yet - see #3) is not being driven by the PC industry. In fact, of the three proposed standards, Microsoft is only supporting one of them and their standard happens to be the lowest resolution proposal. Microsoft's Craig Mundie (Senior Vice President, Consumer Platforms) is pushing for adoption of the 480p standard so that each broadcast network can accommodate interactive television using Microsoft's WebTV technology.

A world standard, much less a US standard still doesn't exist. In fact, the major US networks can't even agree on which of the three proposed standards they wish to adopt. Each standard has its own anomaly:

### 480p

This is basically non-interlaced PAL where all 480 lines of resolution are displayed progressively (simultaneously) instead of alternately (interlaced), as they are now in the Australian system with the PAL (video) standard. Since the FCC granted much more bandwidth for each network than is required for 480p, the rest of the bandwidth could be used for more TV channels, interactive TV and to carry phone traffic into the home as well.

This is the standard that Microsoft's Mundie would like to see adopted.

Thus far, FOX and TCI cable (the USA's largest cable provider) have announced support for the 480p model and plan to gin offering HDTV broadcasts this fall using it. I don't like this standard at all. Its resolution is too low.

### 720p

With 720 progressive lines of resolution, it's a compromise between what we have now with PAL and what has typically been

displayed at INFOCOMM and NAB over the past five years (around 1000 lines). USA's number one network, ABC (known worldwide as Disney) has announced that this is the standard they are supporting. Again, leftover bandwidth could be used to offer more channels from one broadcaster as well as Internet access and other features. Sony and Panasonic say this standard will delay the introduction of HDTV in the home as there is currently very little development of 720p TV sets in the works.

### 1080i

The only proposed interlaced standard with 1080 lines or resolution at 1.45 million pixels; it being supported by both the other two major US networks, NBC and CBS. However, their plan is to offer prime time shows in 1080i and offer daytime TV in some lower resolution standard, presumably so that we can see more Jerry Springer clones each afternoon.

The limitation of 1080i is the ability to push this signal through the existing cable TV providers. It will require a substantial upgrade of equipment. So, believe it or not, when you (in Australia) tune into ER, you will need to use rabbit ears (yes, rabbit ears or a rooftop antennae) to receive it later this year or early in 2000.

### WISDOM

The average HDTV set is NOT going to cost \$5000. This is a 'shock-value' sidebar inserted into almost ever HDTV story printed. All this price hype was scaring the ---- out of everyone back in the early 1990's and was the reason the FCC, in their infinite wisdom, required downward compatibility to NTSC and PAL and delayed HDTV for over six years.

During that six-year period, most of us upgraded our PCs two times and spent probably two to three times what the final HDTV consumer set will cost.

So, now you know the state of the HDTV industry. The schedule may surprise you though. Early next year in Australia, as I mentioned, many of you national network broadcasters plan to offer off-air HDTV shows on a limited basis.

The FCC mandated that by 2002 (in the USA), every station must be simultaneously offering TV programming in both HDTV and NTSC formats.

Then in 2007, we all get to throw our old TVs away as HDTV will be the only signal broadcast. The schedule in Australia is a bit later as it offers a

plan that presumably gives everyone until 2009.

The fact is HDTV is long overdue. We've been watching TV with a standard (NTSC and PAL) that was developed over 40 years ago. Forty years ago Bill Gates was just a baby and a car was cheaper than the TV in my living room.

• Gary Kayye is Principal of Kayye Consulting, and teaches projection technology for ICIA at the INFOCOMM shows. In addition, he publishes a free e-mail newsletter, *Knews*! Subscribe at [www.kayye.com](http://www.kayye.com) or E-mail Gary at [gkayye@kayye.com](mailto:gkayye@kayye.com)



## Fujitsu ramp up flatscreen displays

*Prices fall as resolution steps up*

**F**ujitsu have announced the release of a new model in the award-winning Plasmavision family that optimizes the 42" flat panel monitor for presentations from computers. The new model PDS 4207, can display up to XGA compressed resolution.

The Fujitsu signal conversion feature enables users to connect computers without having to adjust the display setting for an optimized picture. The PDS 4207 is recommended in applications where the Plasmavision 42" will handle a variety of computers, such as in boardrooms, conference rooms and training centres.

The PDS 4207 has the highest signal conversion available in plasma monitors, accepting up to XGA (1024 vertical lines) and a refresh rate as high as 120 frames per second. The resulting image is displayed in the Plasmavision 42's native resolution of 852 x 480 pixels. The PDS 4207 also shows a variety of video signals, including every available standard including those for DTV.

Fujitsu now have a variety of 42" flat panel displays. Significantly, the PDS4204 model features an internal PC card viewer, allowing stand alone operation in either portrait or landscape mode. This enables the screen to act as an information or advertising medium, standing alone. •Info: contact Lawrence Hooke Fujitsu General (Aust) Pty Limited on Phone +61 2 9860 0222

## ONE EVENT, SEVEN VENUES ~ AND 3000 PEOPLE

*The staggering logistics of this event were handled with ease by Sydney event company, tp Events.*

**A**fter the ground breaking success of the 1998 United Israel Appeal sit down dinner for 3,500, tp events was engaged to again produce the 1999 appeal in Sydney. In line with the theme of the seven gates of Jerusalem, their brief was to stage the same function in seven different venues, while maintaining a feel of communal togetherness.

The tp team included Danny Yezerski as Event Producer, Peter Pecotic: Technical Director, Rowan Isaacs: Production Coordinator, Agostino Marcello: Production/Vision manager, Gabdelle Pinkstone as Stage Director and Brigid Paton overseeing Event Operations.

The Australian Jockey Club in Randwick accepted the challenge to host the event and our Jockey on site was John Rohanna. Global Television developed the concept to bind the venues together via an outside broadcast television link-up.

This function was primarily vision orientated. tp decided early in the planning stages that each room would be treated as a mini theatre and function centre. Therefore each room was to have its own operators and stand alone systems, including PA systems and internal IMAG and video rolls. Each room then went into 'transmission mode' to receive vision and audio from the OB van or switched to 'local mode' to their own event. In each room there was a minimum of two vision screens. Quality was of utmost importance, and tp chose DP Gv and Dv projectors from Gearhouse in the main rooms and organised appropriate projection

tunnels to maximise projection quality, as the function began before sunset. All rooms were linked via the OB truck, with video send and Return plus Backup line for each, as well as Audio send and return with backup lines for each.

Following numerous site inspections and adjusted CAD plans tp successfully developed a solution. The six-page Bump IN Schedule covering the three-day Bump IN period worked like clock work. it was the 'tp bible' - if it was in the schedule it was going to happen, the only variations were suppliers or equipment arriving early.

Rehearsals took place the day before, so show day was rather relaxed with crew calls from 1100. Due to the nature of the event, there were extremely tight security checks with Federal and local Police on site. The main task track side was getting 3000 people through the gates in 45 minutes. Two entry points were available with bus loads of people, being dropped off. All tickets and venues were colour coded and patrons were advised which colour to look for. This was aided by massive coloured balloon totems outside corresponding venues. Teams of marshals were also instrumental in ensuring all guests were seated within the 45min time frame.

The function was an outstanding success: a result of excellent teamwork between tp Events and the dedication and support from their suppliers.

They would like to thank: Chameleon, Norwest, Gearhouse, Haycom, Eurovision, GAS, lateral linking, and Global Television.

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## Australian War Memorial World War II Galleries

The Australian War Memorial in Canberra is currently going through some major redevelopment, stage one of which was recently finalised - the complete rebuilding of the Second World War and Orientation Galleries.

The Memorial's gallery redevelopment program has been designed to upgrade the Memorial's galleries to reflect modern museum practice and to maintain the Memorial's standing as one of the world's greatest museums. To assist in achieving this goal, numerous multimedia displays were incorporated into the galleries. Around 45 separate multimedia installations in the Second World War galleries alone, ranging from single LCD monitors to multiple projector installations with 8-channel audio.

The systems were designed by Gary Warner and Tim Gruchy from CDP Media in Sydney and Art Lewry & Victoria Maxwell-Davis from ABT in Melbourne, all exhibits were installed by Audio Solutions headed up by Dave Primmer.

Audio Solutions' is mainly known for their event staging for most of Australia's top corporate producers, but they also have a solid base in premium installations. In addition to the War Memorial, they have done installations at the Australian Defence Force Academy, Apple, Bankers Trust in Sydney, the Canberra Visitor Centre, Questacon and Parliament House to name a few.

There is one master control room, which then feeds 4 sub control rooms. All signals in the system including audio, video, contact closures and serial data run on a network of Category 5 unshielded twisted pair data cabling (UTP).

Everything is on UTP, quite a new way of doing things.

Intelix Baluns are used to match the video and audio signals to the UTP whilst all of the other signals were connected directly. Dave Primmer commented that "we found that we had little or no earth loop issues to deal with as a result of the baluns. The only

problems we had were a few faulty units and some of the outputs of the playback devices were insufficient to drive long lines. This was solved with some Quest VDA's."

Most of the video for the major displays is sourced from Phillips ISP 3004 MPEG2 players. They are brand new single rack unit box that have no moving parts at all. The concept was attractive, but Audio Solutions found that they were doing some of the pioneering work with the product. "Phillips had to send out a couple of software revisions before we got them talking to the control system", says Simon Byrne, Audio Solutions' managing director.

The compressed video is stored on PCMCIA flash RAM cards so instant access is possible, as well as the ability to indefinitely display a single frame. The remaining video sources are from Prodisc MPEG 1 and MPEG 2 machines. Prodisc are a Sydney company who provide custom video and audio playback solutions. Depending on requirements, they provide both the mastered software and hardware, sometimes they are based around PC's, sometimes video CD players or audio CD players. There are many of their solutions in the galleries.

### DISPLAY SOLUTIONS

There are a large amount of display devices throughout. They range from 10" and 14" Sony LCD monitors, modified Apple LCD computer displays, many traditional CRT video monitors, Toshiba Cubes, several plasma display panels and many types of data/video projectors. All the monitors are fitted into custom housings designed to integrate the equipment into the exhibits. The War Memorial did not wish to draw peoples attention the to technology, but rather to the message itself.

Most of the projector installations are non-standard. "We used a lot of mirrors to achieve the results that we have. As well as

projecting on traditional projection screens, we projected on to a 3 dimensional map, a concave wall with custom masking and in one instance, a hole was cut into the cement floor for a screen that people could walk on" says Simon Byrne. A lot of custom fabrication was done to mount the projectors in such strange locations.

Most exhibits have audio, so it is important that they do not compete with each other and raise the overall level in the rooms. Therefore about 70 small Martin and Bose speakers are installed in close proximity to the displays. The levels are kept down and local to each display. On the major exhibits multi-channel audio is used.

Playback is from Akai 8 channel hard disc recorders, Denon cd players and Prodisc machines.

Dataton brought the 100 or so devices together. Most devices were controlled using IR or RS-232 serial communications via the UTP. What couldn't be controlled serially, is controlled by contact closures. The designers did not want the presentations to run when people were not watching them. This is mainly to reduce to overall sound level in the galleries as well as

### AV Multimedia Installation



maximizing the viewing of the programs. Therefore, all of them have infrared detectors above the screens. When someone walks up to a screen, it starts. To increase the life of the equipment, Quest Electronics developed remotely switched 240 volt outlets. This allowed every remote item, irrespective of their design, to be turned on and off automatically.

One of the exhibits attracting a lot of attention is Bomber Offensive (right) designed by Australian Business Theatre. It is a stunning simulation of a world war 2 Lancaster bomber mission-as seen from the aircrews perspective. A Toshiba video cube in the front provides the viewers with images of the aircrew preparing for flight. When the plane starts the floor literally vibrates. The steel floor is suspended on rubber mounts and 4 different vibration modes are achieved by 2 large electric motors and custom gearing. The audience then hears the aircrew preparing to bomb around them. 8 channels of audio are installed around the room so the effect of being amongst the crew is re-enforced.



Anti-aircraft fire is simulated with four strobes and a Miniscan HPE & convex mirror are used for searchlight & fighter aircraft effects.

The bomb bay doors are the next effect to occur. This is achieved with a Sony S600 video projector installed underneath the bomber shell on the level below. The rear projection screen is part of the floor so the audience looks down to see the bombing. When the display was launched, a WW II bomber veteran decided to leave half way through the presentation and said "that's way too real for me!"

The Kokoda trail & Buna offensives are part of the Papua experience, another of the major installations. A portion of a large circular wall is the projection surface and an Eiki LC-X1 provides the images. Designing the optics for the projection was very challenging as the projector couldn't be fitted into the space. Therefore it is ceiling mounted outside the circle and a convex mirror was used to bounce the image back. As the screen is a totally non-standard shape, the mirror edges were "black'd out" to match the screen shape. "The Eiki's are great, they put out around 2100 ansi lumens and they are well priced. You can get different lenses for them so they can be quite flexible", says Simon Byrne.

In one of the installations there was a requirement for the floor to rumble. Zombie Territory is a representation of a ship and the designers wanted the rumble to re-enforce the visual effect of the ship. The floor was constructed out of steel and several Pioneer car stereo bass engines are welded to the underside of the steel floor. Suitable audio material is fed to the engines to create the effect. It is so good that the curators had problems keeping the display pieces on their stands, as they kept falling off as a result of the floor movement. The vision is displayed on a Fujitsu 16.3 Plasma Display Panel above the steel floor so people are watching the screen in conjunction with the rumble. The effect is very realistic.

Overall the installations were very demanding for the Audio Solutions' team as the pace was extreme. "Originally we were supposed to have about 5 months to do this job, but because of delays beyond the project manager's control, we ended up only being given 2 months" commented Simon Byrne. They started in December and were completed on time even though there were significant procurement delays over the Christmas/New year break. "We found that if we designed something on one day, we often had to build over night so that the producers could continue their work the next day." To compound the pace, half way through the job, the War memorial decided that they wanted Audio

Solutions to take over the work of others, even though the company did not supply the equipment. "They decided that because of the integrated nature of the systems, that we should take over the work of others to maintain quality and continuity right throughout the Memorial." •

## Elegant Efficiency

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Series 4000 Microphones  
from DPA

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## DR. G's Gadget Grab Bag

Gadgets, hints and tricks are what continue make this industry interesting to work for. We all come across them periodically - but very rarely at the time when we actually needed to know about them. So as **John Grimshaw** wanders through his list of helpful gadgets, he hopes that some of these can be useful to you before you start your next project.

Chances are that you will see something that could have been really useful - six weeks ago!

### Power Transformers for Lighting

Power transformers come in thousands of configurations for thousands of applications. The popular 12V 50W dicroic lights need at least a 4.2A rated transformer to run one lamp, so here are two cost effective alternatives to the standard one you might buy off the shelf.

#### ATCO Chopped Waveform power supply for 12V lamps

This device works in the same way that most theatrical lighting dimmers work - by "chopping" the 240VAC mains power instead of "transforming" it to the required voltage. If you really want to know more, jump into some physics books, or talk to a theatrical electronics technician. The end result is that this one unit has the power to drive 2 x 12V 50W dicroics happily.

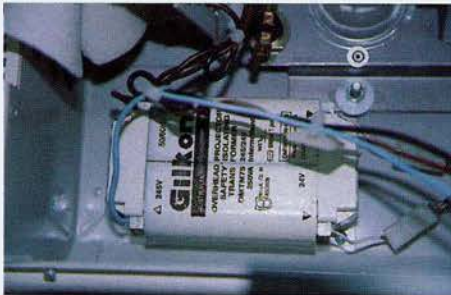
- Light Up Pty Ltd - Ph +61 2 9787 2822
- ATCO 105VA Electronic Dimmable Transformer \$38.00 (& tax)



#### Gilkon 4004 OHP Power Supply (spare part)

This item is a classic example of finding the solution to a problem long after I needed it. I was running a slide projector in a show, and I wanted to control the lamp in the unit from the lighting desk.

The idea is simple enough - interrupt the projector's own power supply to the 24V 250W bulb, and use a completely separate transformer to drive the bulb. The power could be run to the



projector all the time - operating its fans and changing mechanism as well as energizing a simple relay to allow power from my second transformer to the bulb.

Great!

I could fade up my projector at will, and change the slides as required with the lamp off. Except, then I could not find a transformer from any supplier that could do the job. To cut a long story short, I had to use a completely different method that wasn't as good.

Some two weeks later I was changing a bulb inside an overhead projector, and there was the transformer I wanted. Gilkon will supply this transformer as a spare part, and as it is rated at 250W, you could happily run between 2 and 5 of the 12V 50W dicroics on the one device. However, be sure you know the difference between wiring in series and parallel before you start. I haven't actually

used this idea yet, so the transformer pictured here is the one in my OHP.

- Gilkon Australia - 1800 640 520 or +61 2 9914 0900
- Spare Part for OHP Model No 4004 - 24V 250W Transformer \$48.00 (& sales tax)

### Rigging Safety

As the safety rules governing what we are doing become even more strict, anyone in charge of a venue or event should be making sure that all equipment and installations are safe.

#### Safety Cables for lights

Be careful. A piece of chain and cheap D shackle bought from the local hardware may not be enough to stop a 15kg light from falling. I have seen some very dodgy "safety" chains over the years, yet they are so easy to get right. I have recently replaced all of the chains and wire ropes on my lights, and at \$7.50 ea, it was worth it. The ones I bought were called "WIRE SLINGS SOFT EYES BOTH ENDS 1m X 3.5mm DIA C/W CAPTIVE SNAP HOOK". I hope they come up with a part number one day. Essentially, it is a 3.5mm dia wire rope, with swaged eyes at both ends, and a captive snap hook permanently attached to one end.

#### Harness

These days, you need to wear a harness in almost every situation where you are raised off the ground. The "No. 481 L/W G.P. Harness" (at least it has a number!) is a light weight, general purpose harness. It requires the use of a lanyard to attach the harness to whatever item will prevent you from falling. You should seek advice to get the lanyard length and type you need for your application.

- Hoisting Equipment Specialists - +61 (0)2 9584 1177
- Safety Rope \$7.50 (& sales tax)
- No. 481 Harness \$148.00 (& sales tax)
- 1.8m Poly Lanyard with shock absorber \$105.00 (& sales tax)
- 600mm Poly Lanyard \$65.00 (& tax)

Note: The "481" harness is attached to the safety rope by a "D" ring on the back. For a harness that has the "D" ring on the front, you may want to look at the "484". There are numerous options.



### Resistor Kit

Do you build your own electronic bits and pieces? Do you have



trouble finding the exact resistor you need for a particular job or repair? Then this kit may be helpful to you. Jaycar have created this tray which neatly displays every resistor value from 1ohm to 10M ohm. The resistors are the 1/4W 5% type. The trays can also be bought empty.

- Jaycar Electronics - outlets throughout Australia
- Professional Resistor Storage Tray with resistors HB-6340 \$37.95
- Storage Tray (empty) HB-6342 \$11.95

## Talkback Substation

As an integral part of any production, talkback is one of the most common systems to find in any theatre. Like any other audio product, you can spend heaps on master stations, sub stations, radio comms, dressing rooms paging etc. For those of you with a tight budget, there are some alternatives that are worth considering. Most popular talkback systems like the ones made by Jands and Creative Audio conform to a universal design, which would allow the sub stations made by one company to work on another company's system. You could expect to pay at least \$380 (ex tax) for a basic belt pack sub station - or you could build your own for \$75.

Altronics have a sub station in kit form that will work with standard talkback systems. The kit took me about two hours to put together, and unless I was charging \$150 per hour, this is much cheaper than the pre-built name brand versions. Another benefit in working this way is that if the system develops a fault, you may be able to fix it yourself. A basic knowledge of electronics is useful, but the kit comes with detailed instructions.

The obvious drawbacks with doing this is if a particularly unskilled person decides to make this kit, then it may not work properly (if at all). You could avoid this by having an electronics technician put it together. Get your local television repair shop to quote on doing the job. If I can put it together in two hours, they could do it in at least that time - (and really they should be faster than me!).

If you are going to put it together yourself, you may find the odd resistor missing in the kit - mine had a capacitor and resistor



missing. Don't worry, these kits are complicated to package, and Altronics is always quick to rectify these problems.

- Altronics - +61 8 9328 1599 or (in Australia) 1800 999 007
- Sub Station K5250 \$74 rrp
- Power Supply Unit (Master Station) K5255 \$69 rrp

## XLR Mini Cable Reeler

This little "do-hickey" is a fabulous idea. Simply put, it is a 10ft/ 2.6m 3pin XLR cable. The reeling mechanism works in the same way that a window blind works, with the cable being able to be latched into the length of cable to desire at that moment. Great for being able to make height adjustments for hanging mics, this device will eliminate hours of time spent untangling cables.

The cable itself is quite unusual, as its outer cover is a braided cotton-like material. Although it is about the same size as a skinny boot lace - 2mm diameter, I have been assured that this cable is quite strong (but I didn't really want to test this feature). Imported from the USA by Audio Sound Centre, this product is not "cheap", but it might be exactly what you need to solve some peculiar problems out there.

- Audio Sound Centre +61 (0)2 9901 4455
- Reel Cable XLR 10ft (2.6m) \$135 rrp
- Reel Cable XLR 25ft (6.5m) \$281 rrp
- Reel Cable Multi-Cable Snake 18ft (5.4m) 2xXLR, 1x3.5mm stereo \$779 rrp



*If you know of any devices that are worth mentioning here (or are better options to the ones I have listed), please let me know.*

*Email: mail@conpub.com.au attention Dr. G. Mail: Dr G, Connections Publishing, PO Box 439, Epping NSW 2121, Australia.*

*Fax: Attention Dr G: +61 2 9876-5715*

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## PRODUCTION REPORTS



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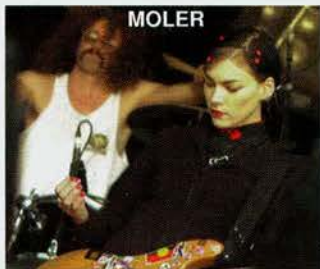
Photos: Julie Kimpton

# Offshore 99

**F**or three days over the Easter long weekend, Torquay became a mecca for anyone wanting that last fix of summer. Offshore 99 was staged at a farm near Torquay, and combined great bands, camping, and the Rip curl Pro and Sun Smart Classic surf competitions.

With two previous Offshore Festivals as well as the hugely successful Falls festivals under their belts, organisers Simon Daly and Tim McGregor know what they're doing when it comes to staging large outdoor music festivals.

The musical line up featured Custard, Josh Abrahams, Blink 182, Celibate Rifles and John Spencer Blues Explosion, among others. But the stand-out acts were Ben Harper and Regurgitator who commanded the 15,000 strong crowd on the final day.



MOLER

Audio was provided by Big Beat Productions for the third year. Chief Audio Systems Engineer, Paul Gould said audio for

the show went very smoothly.

The FOH system used 24 Meyer MS1 3s and 24 R650s driven by Yamaha and QSC amps. The FOH console was a Yamaha PM4000 and effects included SPX 990s and 900s and Lexicon reverb. Delays were TC2290. At monitors the desk was a Ramsa E40, with Clair Brothers SLP and EV Delta Max drum fill and sidefills.

"We had to work to a 67db restriction for the

nearest boundary which meant the sound was 102db at the desk. Even when we had to turn it down to 92db at night it was still rocking. It just had a great vibe. We all enjoyed ourselves so we like to turn the system up and see what it can do."

Peter said the best sound he heard all festival was the mix Bruce Johnston did for Polyanna because it sounded great outside the tent as well as inside.

"It sounded fantastic. No wonder he gets to mix Oasis, he's really

## Bee Gees for one night only

**T**he recent Bee Gees show at Stadium Australia, Sydney used the latest LED screen technology from Screen.co as the main set element. Eighty-one modules were air-freighted from the UK to provide almost 56m<sup>2</sup> of vision area. However only 50 cubic metres of space on the Jumbo was needed, and the freight weighed in at nine tons.



## FULL HOUSE :: THEATRE NEWS

• Brisbane's New Farm Powerhouse is set to undergo a \$17 million facelift that will transform the facility into the Powerhouse Arts Precinct. Apparently inspired by the Malthouse complex in Melbourne, the old Powerhouse's turbine room will be made into a 400 seat theatre with

an additional 200 seat performance space. Due to open in February next year, the complex will also house workshops, rehearsal spaces, offices and cafes. Hire rates will be approximately \$3750 per week for the 400 seat theatre and \$2500 a week for the 200 seat performance space.

• Rumours continue about a deal being struck between the Really Useful Company, the International Management Group and a third producer to stage the musical **The Lion King** in Australia. Initial suggestions were that Michael Edgeley was part of the consortium but the rumour mill now has money on Paul Dainty.

got an ear for it. And I'm not just saying that because he's my boss!"

The rest of the audio team was Dave Allpress: Audio Production Manager, Brent Gray: FOH Engineer, Nick Marsden: Monitor Engineer, Chris Lee: Audio Systems Engineer, Paul Sproge: Stage rigger. And Paul said that Howard Freeman did such a fantastic job as Stage Manager that the whole event was one of the smoothest he's ever worked on.



THE CRUEL SEA



CUSTARD

Concert Lighting Systems provided lighting and staging for the festival. Leigh Greig and Matt Hanson were on site for the four days and according to Leigh the show went off without a hitch. Control was all Jands with an Echelon, Event Plus and HP racks. The rig consisted of 120 par 64s, 24 ray cans, 4 x 9-lites with XL Farger colour changers, 6 Cyberlights, 4 Mac 500s, and 9 Selecon 1.2k profiles.

Offshore employed 450 people as the core festival staff, with an additional 2000 employed as security, catering and bar staff. Buses ran between the farm and the centre of town for the duration of the festival moving an estimated 66,000 people between the sites.

A 3 day pass was \$65 or \$55 for entry on the final day only. And it was good to hear that alcohol wasn't too expensive and was responsibly controlled. Cans of beer were \$3 and UDLs were \$5. Alcohol was sold by a colour ticketing system and only two drinks could be purchased at a time. Different colour tickets were used for each day so tickets couldn't be saved up for binge drinking.

• Mandy Jones



Screenco provided four crew for the show with the screens fed images from a full camera production team, two hand-helds, two rostrum cameras front of house and a remotely operated mini-cam positioned behind the drummer for reverse angle shots out into the audience.

The Lighting division of Gearhouse won the Bytecraft contract to provide over 110 moving lights for the Sydney and New Zealand show. The equipment used included: 72 x Studio Colors, 32 x Technobeams; 2 x Whole Hog II; 4 x Lycian 127; Starklight Followspots; and 4 x DF-50 Diffusers.

Although primarily a dry-hire, Gearhouse did have a representative on site. Bill Surtees was the automated lighting technician touring with the Bee Gees for two weeks during their New Zealand & Australian shows. Lighting Supervisor was Mischa Temple whilst the lighting designer was Peter Morse.

• Cat Forcer



## THE COLUMN

The 'I can't believe he's fifty' party/tour of Australia in June by John Farnham and friends looks an absolute winner. It's significant that a third party promoter isn't involved, instead Glenn Weatley is doing it all in house. Still more sensible is the choice of timeframe, production costs are very low in June as there is a choice of inventory and crew of any kind. This is due to a lack of northern hemisphere touring acts, who are all at home making money in the northern summer.

◆ That other certain success story Neil Diamond arrives in the region this month for a sellout tour that has a staging look similar to the last one in 1996. Funny how those posters of The Niel show a very hairy person .....

◆ The Australian music scene is rejoicing a proposed quota to force radio stations to play up to 25% local content, and songs released within 12 months to boot! ARIA and FARB say the standard will be enforceable as part of the station's broadcast license, and will result in new local music getting played. The current quota allows stations to fulfill local content requirements by playing mouldy oldies.

◆ Try this: <http://www.roadie.net/sitemap.htm> -it's a good site. Thanks to Frank Calvi for the tipoff.

◆ Pig admires sensible musicians. Lord knows, there are so few of them. Instead of slagging off our least favourite band this month, we will praise one instead.

Andrew Hill is the left handed bass player (and long term subscriber) from band "Sixtiesmania". They are not a recording band but an international showband.

"We were one of the first bands to perform in Vietnam over 8 years ago and we have been coming here to Canada/USA now every year for the last 7 years" he says.

"After years building up our profile headlining gigs like the Calgary Stampede (3 years straight beating USA acts trying for the spot) we have now ventured on our biggest project here. We are doing a theatre format show called "Flashback" (yes, not an original name, but it sells tickets!) and we have quite a big setup on the road. It's friggin huge actually, 2 full size tour buses fully decked out, a 24 wheeler semi trailer with 60 foot pan, 8 crew, 4 drivers and a huge stage set up with 10 Vari\*lights, 40 channel Midas, 8 send foldback mix (32ch desk) and a huge new JBL FOH PA. Multi media is used throughout show with multi slide projectors, and video projectors which show historical clips & events of the 3 decades we cover (50-60-70s music). At this stage we are booked in theatres in BC, Vancouver Island, Alberta, and Saskatoon throughout April-May-June. After this the entire production will go into USA and Nevada".

"We are a basic bunch of Aussies who have worked our arse off to get successful overseas as I saw the writing on the wall many years ago of the "scene" (if that's how you describe unemployment in Australia) and decided to do something about it".

Check out their web page at [www.aljan.com.au/~60smania/](http://www.aljan.com.au/~60smania/)

# AUDIO for SALTIMBANCO

I was lucky enough to be given the grand tour of the audio set up for Saltimbanco by Michael Amstadt, Head of the Audio department and FOH Engineer. Mike has been with Cirque Du Soleil for 9 months and plans to see out the entire three year tour of the current show. Hailing from Montreal and having done the rock'n roll and studio 'thing' for fifteen years, Mike jumped at the chance to join the world's biggest circus organisation.

The original audio design for Saltimbanco was created seven years ago by Jonathan Deans for the first production in Montreal. The basis of the design at the time was the Apogee speakers which were bought as a kit from a company in Amsterdam. Since then the design has been slightly modified to incorporate newer models but it basically the same tried and true design redesigned for this adaptation production by Francois Bergeron.

The main sound requirements for the show is the reinforcement of the five piece live band. The band plays from an elevated stage made from brightly coloured perspex with the Cirque's trademark gold trimming. At the back of the stage is a perspex booth for the drummer, and positioned around the stage are tight spaces for keyboard, guitar, saxophone, bass and a singer. Each musician has their own 16 channel Mackie LM 3204 console as part of their instrument set up. A

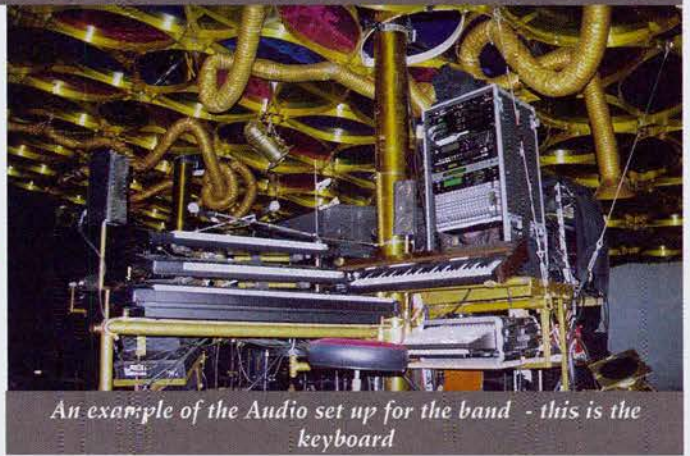
Soundcraft SM20 is used as the Monitor console and sends sub mixes to each musician who then creates their own monitor mix on their personal Mackie.

"It works really well because it allows the musicians to have total control over the mix they want. We used to use Roland M-12E mixers but we found the Mackie's were better with the 16 channels, EQ, and mic pre-amp. And they're smaller and quieter than the Rolands."

A Sennheiser EM-3532 in-ear system is used for foldback for the singers with an Aphex Dominator as protection against any spikes. Vocals are mixed on a Yamaha O1V digital mixer from the monitor position. In all, there are 48 inputs from stage to FOH.



Mike Amstadt



An example of the Audio set up for the band - this is the keyboard

The FOH position is incorporated into the audience seating directly opposite the band platform. More of a bunker than a centre of operations the FOH position is extremely...compact.

Mike explained that each seat in the tent is worth \$60 so the idea was to take up as little room as possible. The best way to do this was to have all the racks under the FOH desk so they are accessible from under the audience bleachers or by climbing over the top. To see over the top of the console during the show, Mike either has to stand on a road case, or perch on a makeshift stool he's created.

The FOH console is a Yamaha PM-4000 with 48 channels and 4 stereo returns. Rack modules include 5 x SPX 990s, a Lexicon PCM 80 reverb unit used for vocals, BSS and Apogee stereo equalisers, BSS Delays, dbx compressors, dbx and Drawmag noise gates.

"The room can become quite humid so I've got a Klark-Teknik DN350 Equaliser on the main mix so I can change the EQ if necessary."

Amplifiers are Crest 6000 and 8000 series with Apogee processors.

A Peavey PC1600 Midi Controller command station linked with a Macintosh controls all digital effects, EQs and delays. Mike uses LCS (Level Control System software) which allows him to move between time alignment programs quickly and easily.

The challenge in reinforcing the sound in the tent is in keeping it all in time because of the highly reflective nature of the tent. As a result there is little in the way of monitors to the stage for the performers, only two small Apogee SSM's are used. Mike explained that the goal is to keep the sound as natural as possible and to keep the sound coming from the source.

"Six Apogee AE-8s are flown around the tent - basically one for

*continued over*

## FULL HOUSE:: THEATRE NEWS

● Dainty Consolidated Entertainment will stage the musical version of **Saturday Night Fever** at Sydney's Lyric Theatre in March next year. The Bee Gees have adapted their original film score for the stage production. In the past 12 months the musical has taken London's West End by storm

grossing over \$40 million.

● Despite a few problems in securing additional sponsors for their Australian tour, **Cirque Du Soleil** is enjoying a huge response from Australian audiences. After a sell-out season in Sydney, the show's arrival in Melbourne created record breaking ticket sales when 13,500 tickets were sold in a single day.

● Only thirty-something more sleeps until Johnny, sorry, 'John' Farnham returns to the touring scene (did he ever leave it?) with

his modestly titled **I Can't Believe He's Fifty** Tour. The concert will feature lots of John's musical friends including Human Nature, Kate Ceberano and James Reyne and will play in all major capitals.

● Tasmania's Gaety Theatre has re-opened after 10 years of loving restoration by a group of local supporters. The 1000 seat theatre was built in 1898 and was once the largest in Australia.

● Melbourne's art-deco Capitol Theatre has been saved from the

wreckers ball. Ending months of uncertainty about the heritage venue's future, RMIT bought the cinema for an estimated \$1 million and plan to use it as a lecture facility. It is hoped the venue will one day be used again as a theatre.

● The EIEA have launched their new web site called On Cue Online which provides information about the organisation as well as current shows playing around the country. The site will eventually post industry employment opportunities, auditions and training courses on its billboard. Check it out at [www.oncueonline.com.au](http://www.oncueonline.com.au)



# Source Four Zoom



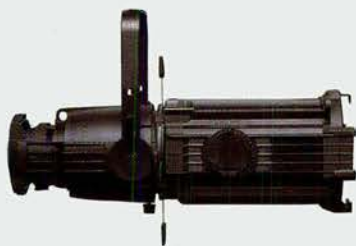
INNOVATION

ELEGANCE

RELIABILITY

DEDICATION

15° – 30° Source Four Zoom



## 25° – 50° Source Four Zoom

ETC's unique zoom focus mechanism provides precise single handed adjustment of field angle and hard/soft focus. Graduated scale markings make pre-focusing and rep work easy and quick.

## ETC's 1200 watt zoom profile uses a 575 watt lamp.

You're a Source Four user. You're extremely discerning. You're only satisfied with the world's best light output, field quality and energy efficiency. Now, ETC Source Four Zoom gives you more — a zoom profile dedicated to the world's most demanding lighting professionals.

Brighter than most of the top name 1200W zoom profiles\*, and with superb imaging and beam quality, Source Four Zoom is available in two versions, at 25°–50° and 15°–30°.

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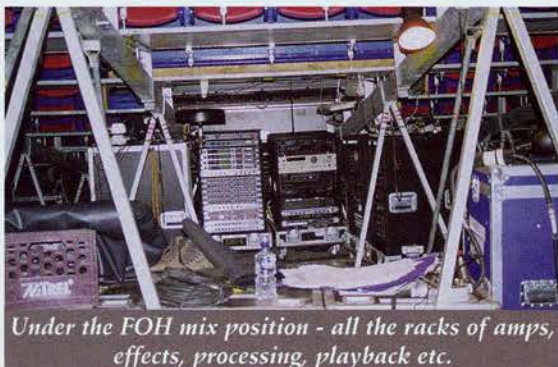


## AUDIO for SALTIMBANCO

*continued*

each block of seating. We have them turned upside down so the horn is at the bottom and pointing right at the audience rather than just the seats.

"The AE-8s give a really good coverage and their high end and low end is quite equal. We've got them flown and angled down at the crowd - they have to be because there is so much reflection in the tent if the sound isn't angled right at the audience it hits the canvas and gets out of phase."



*Under the FOH mix position - all the racks of amps, effects, processing, playback etc.*

Six AE-2S2 wide angled speakers are flown pointing towards the canvas to take advantage of the reflective characteristics of the tent. Mike says these are particularly effective for a keyboards to create spinning

effect and also for reverb for vocals. "They make vocals sound four times bigger."

Under the band platform there are two AE-12 sub bass cabinets pointing towards the audience, and four others located under the audience bleachers which are cranked up for special effects during the show. Mike's favourite is a simulation of a space ship taking off that makes the audiences seats shake.

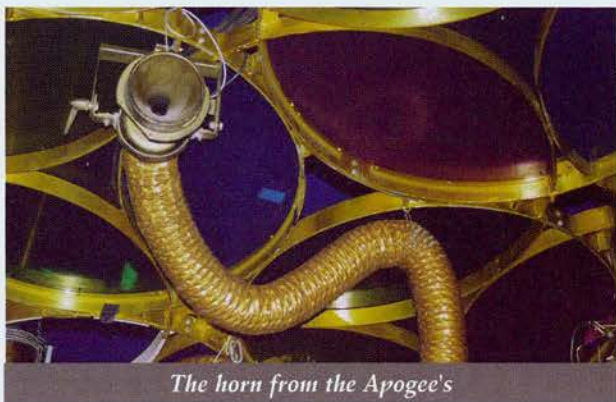
"We're always trying to improve the sound of the show - it's an ongoing process. If I could I'd add two more AE-8s to the main rig. They were part of the original design but then they were dropped because of cost. I'd also love to add another set of the AE-12 subs for special effects, and maybe some more compressors at FOH."

Mike and his crew perform a 30 minute soundcheck with the full band and singers every day and a line check before each performance. The company performs the three hour show between eight and ten times per week and in the nine months Mike has been with the show he said there have been no problems with the audio system.

● *Mandy Jones*

### Audio Credits

**Original Sound Design** Jonathan Deans **Adaptation Sound Design** Francois Bergeron **Head of Sound/FOH Engineer** Michael Amstadt **Sound Assistant/Monitor Engineer** Borneo Brown



*The horn from the Apogee's*



## Billy Budd

The opera Billy Budd is a co-production between the Welsh National Opera and Opera Australia. Originally designed for a small Cardiff theatre and to travel in rep, the lighting designer was Nigel Levings, set designer Erian Thomson and director Neil Armfield.

Nigel had to make sure the production was suitable for both companies especially as the WNC lighting rig is quite different to the OA one. Consequently it was important that the overall look was not reliant on the geography of the lighting rig. As a result Nigel

*continued over*

## DATES OF DISASTER

Thankfully times have changed and most road crew need never drive a truck. Back in the busy days of rock a heavy vehicle license meant you would never lack a gig, no matter how poor your technical skills were. I was changing a tire on the Commodore the other week and had The Flashback as to just how often I did this banal chore when On The Road. Mainly because the Rolling Wreck truck rental corporation fitted their fleet with cheap retreads. These would shed whenever the weather turned hot and sticky, especially when the truck was fully (over) loaded - which was all the time. Usually on a narrow main road with a muddy shoulder on a slope. And the wheel nuts were seized so hard that a twelve foot winchup stand was required as a tire iron extension!

But the little things stick in your mind, and they always relate back to driving a Ford F350, the standard carriage for 1970's rock groups. I owned two at different times, both with a Cleveland 300cu six engine.

Example one required a quart of oil every half hour and had perpetually leaking rear axle seals. Example two was possessed by a ghost. The only good thing about the F truck was the wide vinyl bench seat which was suitable for fornication with willing, gullible young groupies! (Or whatever else was available. -Ed)

It was early in the morning after a show and the Pacific Highway was almost deserted. The bends, corners and narrow bridges kept me well awake, which is why I decided I was having trouble with my eyes.

Blink. There it goes again!

Nothing.

Blink! Yes ... the headlights just flashed off for a nano second.

Two weeks later I am on my way home and most unusually fall asleep at the wheel. The truck drifts to the left and the cargo body starts to hit a series of overhanging tree branches. The noise wakes me and I violently brake to a halt, heart pumping, sweat forming.

The headlights are off, the glow from the dash the only illumination, and the switch is on. How can this be? I push the switch off, then pull it on. The lights come on.

As I drive the remaining hour home I realise the headlight switch is faulty, because the lights are by now turning on and off for duration's of up to a few seconds. It makes the trip interesting.

I can happily say I do not mind if I never drive another Ford F350 in my life!

- Bandag Bandit

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**Billy Budd** *continued*

used extensive side-lighting with purpose-built booms, four either side, provided most of the illumination. However he had to tackle the problem of not just lighting the stage height but also the action taking place on the 4 metre level and all inbetween, a lot of vertical coverage.

Nigel tried to suggest the idea of the constant shifting weather and sea, the restlessness of the piece. The show is heavily cued, often run slowly with the emotional shift of the music.

The creative team went for a non-naturalistic representation of the opera hoping to trigger the imagination of the audience. The team wanted the space that they were using to be represented as an actual stage, with the performers onstage telling a tale, there's no pretence to it



being anywhere than on the Opera House stage. Consequently lights were not masked and stagehands were visible moving props around.

"It allows the subtext of the piece to come through more clearly," said Nigel. "You can relate what is happening on the stage to your own life and the dilemmas of human existence."

Nigel had a problem with control as in Wales two different control systems were used - a Compulite desk for touring and inhouse control at the venues for FOH lighting. None of which related to the Galaxy Nova at the Opera House with the channel numbers being totally different and a disk no good.

Nigel solved the problem with MacLux Pro software which enables him to swap fields around fairly easily. Nigel copied the WNO rig into the program, swapped channel numbers to an empty circuit field, and then revised the plan to fit the OA rig and channels. The software then generates paperwork which directly relates the OA numbers to the WNO's circuit number.

"It was surprisingly accurate and there was only minimal adjustment to be done," Nigel told me. "It certainly saved a lot of time."

● *Cat Forcer*

SHOWS WE'VE SEEN LATELY

*A Punter's Perspective*

REMEMBER YOU'RE OUT

Everyone knows Barry Humphries is brilliant, but to see him live on stage as he transforms in and out of his alter egos is just amazing. Humphries' current touring production **Remember You're Out** is more than just a 'Dame Edna and Friends' show. Of course there's singing and dancing, and the obligatory 'Gladdies' but this production traces the history of Humphries' career from his childhood through to the beginnings of his most famous characters.

In Barry Humphries' home town of Melbourne, the show was performed at the suitably decadent Princess Theatre.

The first half of the show was narrated by Barry as he talked about the origins of his characters, and then with a few simple props, became them. With help from his Musical Director and accompanist on piano Andrew Ross, Barry performed an original 'Edna' sketch from 1955 about billeting athletes for the 1956 Melbourne Olympics.

While he filled the audience in on the background to the Edna sketch, Barry changed into pyjamas and a well worn dressing gown and became Sandy Stone with the help of a wig and a lot of talcum powder.

Then there was a booming voice-over to "please welcome Murray Buzzacott, National Treasure". While the audience mumbled 'who the hell is Murray Buzzacott', out stepped Humphries' least liked persona, the quintessential Aussie magnate Sir Les Patterson. He may have been vomit-stain free, but Les had all of his other trademarks including something running down the inside of his trouser leg that could only have come from a delicatessen.

After interval, 'the artiste formerly known as Dame Edna' took the stage. And after doing a quick 'reccy' of the audience the victims were chosen. Edna found a lady from Rosebud who was there with her son and hadn't had time for dinner before the show. So out came the telephone with a pick-up attached to it so the audience could hear the phonecall. Edna rang a local café and after identifying herself and requesting two pasta dishes to be delivered to the Princess Theatre stage door there was a moment of silence before the girl at the café said "Is that you Frank?"

Sure enough, half an hour later the pasta was delivered to the stage and the woman and her son were called up on stage and sat at a special table where they ate their dinner in front of 1000 people.

Proud of her accomplishment, Edna smiled and said "I'm so maternal I'll be lactating next. I can't imagine RENT feeding their audience."

All of Edna's victims were brought up on stage for one of the final numbers based on the idea that Edna should be on the Australian currency. Her reluctant volunteers were then taken off and dressed up as other Australian icons deserving of currency status - Ned Kelly, Kylie Minogue, Elle Macpherson and Dame Joan Sutherland. An obvious choice when you think about it.

And as a souvenir of the whole embarrassing event, Edna posed with each victim for a polaroid photo. You can just imagine how many dinner parties those photos are going to do the rounds of over the next 5 years.

With such great material sitting in the audience I got the impression that a large portion of the script was dropped as Edna concentrated on the 'fresh' meat' in the stalls below.

The staging was fairly simple although a bit messy at times with crew members running on an off to help with the changeovers. And the lighting was pretty average considering the rig was VL5s and VL6s - the old trick of 'Let's blind the audience so they can't see the set change' wore a bit thin after a while. But most importantly, the sound quality was excellent so not a line of Humphries' brilliance was missed.

● *Mandy Jones*



FULL HOUSE: THEATRE NEWS

● Another handy website is the Australia's Cultural Network site at [www.acn.net.au](http://www.acn.net.au) The site is an initiative of the Federal Department of Communication and the Arts and provides access to hundreds of Australian cultural organisations

online. The site hosts calendar listings of cultural events, and has a discussion list to promote the sharing of ideas and resources.

● Bangarra Dance Theatre



and Circus Oz have joined forces to create a performance for the Melbourne Centenary of Federation celebrations in Melbourne in May 2001. According

to a report in The Australian the performance will tell the story of an indigenous circus performer, Con Colleano, who at the turn of the century perfected a front somersault on the high wire then took it to the US, where he became one of the stars in the Barnum & Bailey circus.

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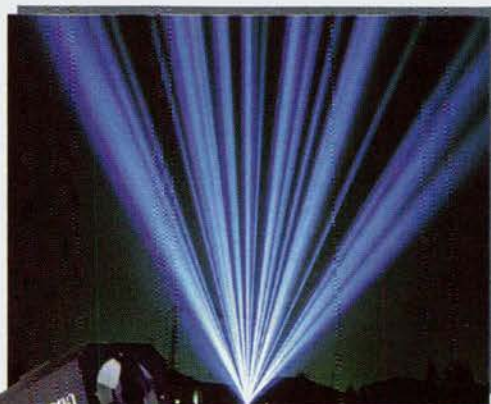
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# LIGHTING

edited by Catriona Forcer

## HIGH END SYSTEMS ANNOUNCES MERGER WITH FLYING PIG SYSTEMS

Austin, Texas based automated lighting manufacturer High End Systems, Inc. has announced the preliminary details of a merger with Flying Pig Systems, Ltd. Flying Pig is known throughout the professional lighting industry as the manufacturer of the Wholehog control console series.

As part of the merger, High End Systems will become the exclusive worldwide distributor of the Whole Hog range. Customer service support for Flying Pig products will also be accommodated through HES.

According to Flying Pig's Nils Thorjussen, "Everyone at High End and Flying Pig is very excited about this merger and the opportunities it creates. This alliance makes strong strategic sense and will accelerate de-

velopment of cutting-edge products that set the standard for lighting and control."

According to Thorjussen, while the merger will have a significant impact on future product development, not much is likely to change for Wholehog II users and customers in the short term. Consoles will still be available from the same dealers; technical support functions will be handled directly by Flying Pig. "Everyone will continue to enjoy the same positive experience they've come to expect from Wholehog II and the team behind it".

The ramifications for Jands, who use the Whole Hog Operating System in their Echelon consoles, was not clear at presstime. Jands declined to comment for the moment.

## INSIDE LIGHTING

### Theatre Special



THE SICK ROOM

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## TECHTALK

with Andy Ciddor

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STEEL CITY AT RADIO CITY

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# Panavision Lighting

## NEW COMPANY TO SERVICE FILM MARKET

With more and more large scale American feature films being shot in Australia the need for quality lighting equipment and crews is growing. With this in mind, Panavision is currently negotiating with some of Australia's top gaffers to supply expertise and lighting to these major productions under the banner of Panavision Lighting.



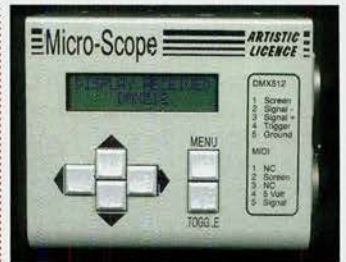
Gaffers believed to be in discussion include Reg Garside, Simon Lee and Mr. Morris. Nothing has been signed yet, expect an announcement soon.

Panavision Asia Pacific chief executive Denis Noonan stressed that they were not seeking to monopolise the film lighting industry but to be competitive in the world market.

Off-shore companies are already doing packages to supply film productions within Australia. Denis also emphasised that they did not want to alter the Australian system and that they would be in more of a position to support it. With the size of the American feature films, such as *Mission: Impossible*, finding the finance to supply gear is too much for most gaffers.

Panavision Lighting would also service overseas markets. Call Panavision + 61 2 9439 6955.

• Cat Forcer



COMPARED DMX TESTERS

page 76



KAOS THEATRE

page 82

## MY FAVOURITE GEL COLOUR

### GAVAN SWIFT

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I don't have one - it's an impossible question to answer. Generally you chose the colours to suit the show. However, maybe I hedge towards Lee 12C.

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## BUYERS GUIDE: EFFECTS LIGHTING

# The Beauty of Stillness

## A look at the lighting design for The Sick Room



The Sick Room is a new Australian play by Stephen Sewell which deals with the collapse of a family unit facing the imminent death of their teenage daughter, and then financial ruin. The family retreats to the grandfather's secluded house in the country where the action of the play takes place.

Produced by Playbox, The Sick Room is performed in the Merlyn Theatre at the CUB Malthouse.

Lighting Designer for The Sick Room is Matt Scott. Matt is young, innovative and in demand around the country. He has designed for many different companies, and several Playbox productions including *Stolen* which was nominated for a Green Room Award, and *Thieving Boy/Like Stars in My Hands*.

### The Concept

"The piece itself read like a classic text rather than a contemporary piece even though it is about very contemporary themes. It has an epic structure to it so we wanted it to be really hyper-real and not particularly naturalistic in the way we approached it. The writer Stephen Sewell talks about the last scene being like an Edward Munch painting - Munch was the artist who painted *The Scream* - and so we went back to his work as the start of our ideas. We wanted to make it look expressionistic and have that 'painting' look about it. That's why it's staged in the proscenium arch style. We came up with the concept of the box and Richard Roberts the Set Designer and the Director Kate Cherry wanted to obliterate the Merlyn because as a space it's a cold harsh metallic barn, so the ceiling and the walls in the set redefined the space."

The set is a box with a sloping ceiling that runs down to a perspex wall at the back of the stage. A black scrim traveller masks the perspex for most of the show, and beyond it bare twisted gum branches stand fixed in the polished aluminium lake in front of the exposed cyclorama. The box set is made from black gloss sheets of floorboards so that the entire set is highly reflective and subtly lined. Antique style furniture is moved on and off by the actors during silhouetted transition states. In contrast to the set is the pure white bed in which the sick daughter spends the entire play. The bed is draped with oversized white bedclothes and she is dressed in a white

nightgown. Another black scrim curtain is at the front of the space and is flown in as an act curtain. When it is sidelit with horizontal line gobos, the scrim looks as impenetrable as a metal cage.

"I've worked with Richard and Kate before so we all talked about the concept. I was actually a bit resistant to the ceiling initially because I thought

it was going to be difficult but it turned out to be good because it closed the space in really well. It was a very collaborative and open approach, even when we got into production week which was great because I tend to work really fluid, I don't like to set things in stone.

"Kate and Richard were very open to trying things out, they were very supportive and trusting. It's amazing how simple the overall design became because in the start it was very complex. The initial plan had some 250 odd units which was quite big for that theatre but then we ended up only using around 190."

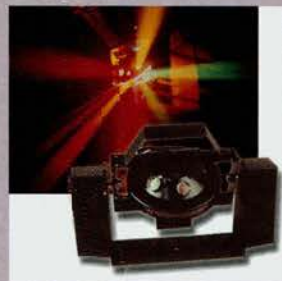
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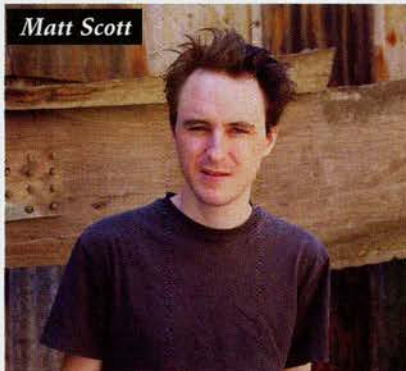
#### DE SISTI ADDITIONS

Coemar De Sisti Australia now have some new De Sisti professional film and television luminaires including the **Rembrandt Piccolo 6/12kW** discharge fresnel. It features the new Auto Sensing DEB (De Sisti Electronic Ballast) allowing users to purchase a single ballast to cater for both lamp wattages.

The range of **Auto Sensing DEB's** has been increased to include: 200/400w, 575w/1.2kW, 2.5/4kW, 4/6kW, 6/12kW and 12/18kW models. Features include electronic dimming, low noise/flicker free mode selection, local/remote lamp strike and optional DMX control.

The range of **Goya Shadowlights** has also been increased to include discharge units from 400w through to 12kW, as well as tungsten versions from 1kW to 5kW.

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Matt Scott

BY::Mandy Jones

## Colour

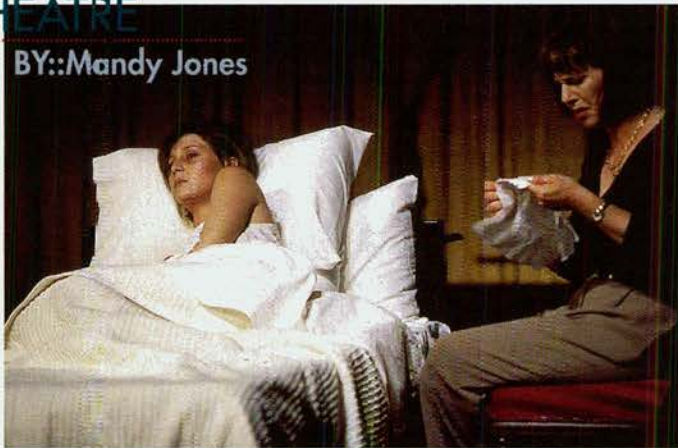
Matt makes good use of the cyc as a way of symbolising the outside world. His choice of vibrant colours on the cyc draws all the more attention to the sick daughter bathed in white light and the dullness of the other family members.

"We talked about it being a fairly colourless world so I didn't want to use much colour. Initially I used a lot of colour correction and blues, and by the end of our first week in the space I ended up pulling out a lot of the gels. Most of the light on the actors is just open white, and we used an indigo blue on Kate as the main character to symbolise her connection to the outside world. So she's the only character that's lit with any sort of colour.

"A lot of the designs I have done in the past, particularly for Playbox shows have been quite colourful. I've only recently tried to use a lot of colour correction and white light which I've found works really well on actors, and it was good to do that in relation to the vibrant colour in the cyc. It was mostly blues and one yellow state on the cyc which was a good parallel to the blues. The dominant colour was the dark blue R385 (Royal Blue), it's almost Congo but its got a bit more blue to it. Originally I was going to use Congo but it was too hyper-real. I guess I was trying to find a colour that was like black, so it was the closest I could get to black that was still quite vibrant. So that was the dominant signature of the show. It was almost like that filmic element of Chroma-key with someone standing in white in front of the intense blue background - it sort of helps to do what back-light would normally do. So I was really glad to have the cyc there.

"I used Gam 890 (Dark Sky Blue) on the sick girl Kate because it was a really luminous indigo blue. It was really vibrant because most of the times it was on her it was only at 40% but because it was so deep and intense it looked a lot brighter. It made her stick out - you could always see her out of the corner of your eye. It was about keeping her in focus in a very heightened way and a very simple way. It made her look quite unearthly.

"Colour is usually the last thing I decide with a design. Especially with this show, I was thinking of going black and white when I first started talking about ideas, just trying to block it down in black and white and then fill it in with colour. It was going to be lots of shades of white light and I was quite pleased with it, but due to the watt-



age of lamps in the Marilyn it tended to be a bit dim. For one scene I use Lee 204 in one of the night scenes as a kind of outside key light coming from inside, it's a pale orange but in this setting it's a really bright orange because everything else is so white.

Matt relied heavily on footlights to light the actors because of the problems of reflection with the angled ceiling.

"I also wanted to give it that quality of German expressionistic cinema with the harsh shadows and harsh white light on white faces so that they disappear into the background, but in sharp contrast to the cyc. So the footlights were very effective."

"I wanted it to be very economical in its use of light. Some of the original states had hardly any lights on. We ended up adding more and more fill to see the actors faces but I didn't want to compromise that, and that was the main reason I didn't use much colour."

Portals were cut out of the walls to allow for side lighting of the actors and the furniture.

"It wasn't obtrusive - you knew they were there but they appeared as if they were part of the architecture. They ended up being really valuable - they were only 650 watt profiles and they weren't as punchy as they could have been but for key lighting certain parts of the stage they were really good."

In order to create the effect of the lake outside the window, Matt had to find a way to light sheets of polished aluminium.

"I discovered that if you tried to light it directly, it just looked terrible. All you saw was the reflection of the lamp and the element, so any of the light on the lake had to be bounced off the top of the cyc. I wish I'd had more time to experiment with that but the Director and the Artistic Director were happy so I didn't want to tamper with it."

To create the effect of a violent storm, Matt resisted the temptation of strobes and other 'effects lighting' opting instead to use flashes of white cyc. Backlit water running down the back of the perspex windows created a subtle rain effect although it was only seen briefly.

"It wasn't a show about effects, which was something I really liked. Unless an effect is really necessary it always seems gra-

*continued over*

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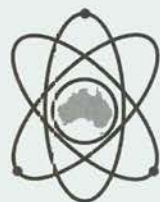
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## Choosing the Right Replacement Lamp



In your hand is a blown lamp, the likes of which you've never seen before. This wouldn't be so bad if your lamp supplier hadn't revealed that whilst they can order a direct replacement from a warehouse in Darmstadt, Germany, or their branch office in Valley Falls, Oregon, the only chance you've got of seeing light out of that luminaire this week is to take one of several "close equivalent" lamps which are available ex-stock. Let's look at the difference between an exact replacement and a close equivalent and whether or not an equivalent may actually do a better job than the replacement.

There are many parameters which specify a particular lamp; some of them critical for correct operation in a given luminaire and others that offer a range of possibilities for different applications. The list of parameters includes: voltage, wattage, current, colour temperature, base type, rated life, burning position, ignition voltage, light centre length (LCL), maximum overall length (MOL), envelope type, beam angle/s, CIE chromaticity coordinates, envelope finish, arc length, gas filling, filament type, luminous efficacy, Colour Rendering Index (CRI) and output lumens. Whatever else we do, a replacement lamp must at least fit the luminaire, requiring a match of base type, burning angle and either LCL for single-ended lamps or MOL for double-ended.

Base types are generally identified by a letter indicating the base family and a number indicating the size, although there are exceptions such as the EMEP (Extended Mogul End Prong) bases found on PAR 64s and the MEP (Mogul End Prong) found on PAR 56s. Common base families are: bayonet (B), Edison screw (E), prefocus (P), bi-pin (G), uneven bi-pin (GY), medium bi-pin (GX) and recessed contact (R). The size indicates the diameter in the case of a round base and the pin centre spacing for bi-pin bases: the common domestic Australasian BC lamp has a B22 base (bayonet -22mm in diameter), most modern 1kW luminaires have a GX9.5 base (medium bi-pins at 9.5mm centres) and most cyc floods have R7s bases (Recessed base - 7mm diameter, single contact).

The Light Centre Length, the distance between the top of the lamp base and the centre-point of the filament, defines where the light-centre of the lamp is located in relation to the optics of

a luminaire. Lamps of different wattages, and therefore filament sizes, can have identical LCLs, whilst lamps of identical base type and wattage can have different LCLs. Installing a lamp with the wrong LCL will produce a distorted blob rather than the normal beam shape of a luminaire. The MOL of a double-ended lamp will govern whether or not it will physically fit between the mounting points in the luminaire.

A lamp's burning angle indicates the range of angles over which the lamp was designed to operate. Typically figures are quoted as an orientation and range of angles such as VBD45 (vertical, base-down +/- 45deg) or H15 (Horizontal +/- 15deg). A lamp will almost certainly work outside its specified range of burning angles, but it may not work for long.

Wattage and voltage are obviously important to match, but in desperate times, even though a 220volt lamp may not last too long, it may get you through the day or two until the 240volt version is available. Similarly, if the other parameters match, a change of lamp wattage will at least get light coming out of the luminaire; even if you have to tweak a few states. Most older 500Watt luminaires will cope perfectly well in the long term with 650W or 750W lamps, and for a couple of shows with a 1kW lamp.

For such applications as skin-tone or product imaging for film and video, colour rendering is critical, requiring very close tolerances of colour temperature (for incandescent sources) or CRI and CIE Chromaticity coordinates (for discharge sources). In most situations where colour filters are used or where the performance is not for the camera, almost any shade of white is acceptable and frequently undetectable. In view of the very close relationship between colour temperature and rated life, it may be worth looking to see if there is a longer-life version of the lamps you use, even though you may lose a hundred or two Kelvins in the process. (The mysteries of colour temperature will feature in an upcoming Tech Talk page.)

If that lamp in your hand is an incandescent (filament) lamp without a halogen gas filling (say a T/1), you will almost certainly benefit in luminous efficacy, rated life and lumen maintenance (how rapidly light output declines during the life of the

lamp) by replacing them with their Quartz-Halogen equivalents. If however it's a discharge lamp, you had better make sure that the alternative lamp you are considering matches all of the critical criteria; if in doubt check with the technical support (not sales) staff at your luminaire supplier or, heaven forbid, RTFM.

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## The Sick Room *continued*

tuitous. And lighting effects, unless they're really good, always appear to be effects rather than reality. It's a hard line. And unless you can get the best equipment to produce the effect there's no point going for it, because a really bad cloud wheel will always look like a really bad cloud wheel."

Incorporated into the rig of mostly Selecon and Strand stock were seven Selecon Pacifics.

"Playbox own 10 x 12 - 28 Selecon Pacifics but most of them were being used on another production. I was left with 4 Pacifics that I used for specials on the bed and the snow. We hired 3 x 26 - 50s from Clearlight and I was really pleased with the blue pinch lamp because Playbox run T27s in theirs. I probably would have used Source Fours if I had the choice, but for a lamp that's fairly new I was quite impressed by the Pacific. The light output is amazing.

"The one thing that's getting more and more frustrating the longer I go as a lighting designer is how dilapidated the equipment is getting in venues around the country. And how much better the best gear is that you can't afford to buy or hire. But at the end of the day it's not what you have, but how you use it."

Matt is full of praise for the production team of *The Sick Room* - he has quite obviously enjoyed the experience of collaborative design. He also makes special mention of the Head Technician at the Malthouse, Frank Stoffels.

"It was also great to have a Sound Designer working on the show because audio is very important to the way I work. I tend to use sound as a bounce for mood and in setting lighting cues. Sound and lighting worked really well together on this show - the way it should. It should be as collaborative as the relationship between lighting and set designer. David Franzke put the sound together for the show, it's very soundscapy, and very non-musical, it helps that stillness because the lighting design is very much about stillness and moving from one stillness to another. It's about the still beauty of things rather than the fast moving changes."



### Production Credits

**Director** *Kate Cherry* **Designer** *Richard Roberts* **Lighting Designer** *Matt Scott* **Sound Designer** *David Franzke* **Production Manager** *Andrew Barker* **Technical Manager** *Baird McKenna* **Stage Manager** *Alyson Brown* **Venue Technician** *Frank Stoffels*

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# AN AMERICAN TALE

## LD TRUDY DALGLEISH KEEPS A DIARY OF PUTTING STEEL CITY INTO RADIO CITY

**21-1-99** Thursday - Rigged Lights.

**22-1-99** Friday - Continued to Rig. At midnight on this night we had to break the yellow card (the bump in crew), anything that was not rigged by this time did not get rigged. Needless to say I didn't get my whole rig up! At Radio City you have to use a certain amount of bump in crew - whether you need them or not - therefore the producers try to break them as soon as possible to go down to the performance staff. Before breaking the yellow card, every light must have been touched by the yellow card crew!

**23-1-99** Saturday Plot. We had five hours to plot into the show all the new lamps which was the same number of lamps that the original show had used. Tim and I were very tired.

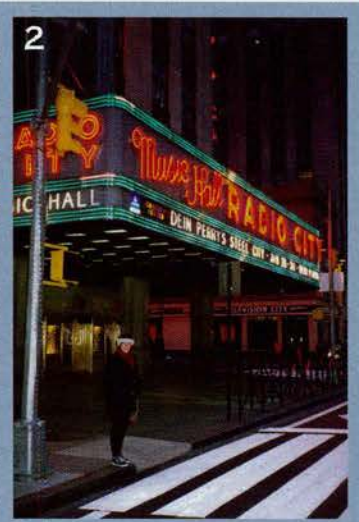
**25-1-99** Monday Rehearsals. Needless to say we were still frantically plotting this day.

**26-1-99** Tuesday Australia Day. Our opening night, how apt.



1. Me in the auditorium with the lighting rig behind. The carpet was fish on it - the idea being that the roof (see photo 2) is lit in such a way that it looks like a sunset and then the floor is meant to be the sea with fish in it. When the roof is lit in blue - they have a four colour wash on the roof - the floor comes alive and it looks like fish swimming in the ocean. Sounds strange but it actually works. This is all 1936 lighting with the original dimmers and old desk still operational.

2. Me outside the theatre looking very cold. I had just come from Bay From Oz in Queensland mid summer to New York with ice and snow midwinter - it was freezing!!!



**23-1-99** Saturday Plot. Andrew Peacock and the Australian Embassy staff attended the performance which was well received.

All in all we performed three shows to full houses (6000 per show). The reviews were mixed but none were bad. It was a very hard bump in but we are all glad that we had the opportunity to play in Radio City.



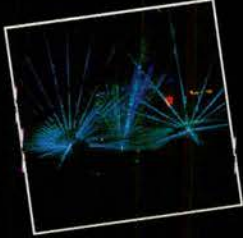
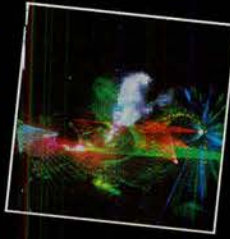
3 Set up of the show with the 100ft proscenium opening - our usual show was 60ft wide so a lot of set and lighting redesign was necessary. The size of our normal show was as wide as the gantry that is sitting on the floor surrounded by people. The curtain was operated by 16 motors of 1936 vintage and a control desk made of brass which looks like it should be in a museum.



4 The detail wall - in Australia we had 6 operators whilst in New York we had twelve, so basically we doubled the stage space to play Radio City. In the foreground is the production desk with Tim Newman, my programmer and desk operator. The Americans loved this bit of the show.

### STEEL CITY EQUIPMENT LIST

36 x V16 (10 with medium lens); 36 x V15 Arc (must be fitted with black out); 14 x V15; 204 x Par 64 (80 med., 20 narrow, 104 v. narrow); 24 x ETC Source 4 260 Profiles; 24 x ETC Source 4 360 Profiles; 4 x Rotators Varispeed to fit Source 4 Profiles with radial gobo; 1 x Varispeed controller; 4 x floor stands with spigots; 9 x 2K Fresnels with barndoors; 1 x 1K Fresnel with barndoor; 1 x 5K Fresnel; 20 x Wybron Colour Scrollers; 7 x MR16 birdies standard; 12 x MR16 birdies stubbie size (4 are on forklifts straight into the battery); 17 x 150 VA transformers for birdies and gimbel units; 18 x Gimbel swimming pool lights with yokes; 8 x Altman 3 channel zipstrips; 4 x Terra Strobes with 4 channel controller; 8 x red or amber Police beacons; 14 x Molefay duets; 16 x 650w Fresnels; 2 x DF50 Diffusion Fogger and fans; 2 x F100 smoke machines and fans; 1 x WholeHog 11 lighting console (V.2.3); 2 x SVGA monitors; UPS Cleanline 7.5 amps; 233 x 2K DMX dimmers; 1 x 5K DMX dimmer; 2 x FOH long throw followspots; 1 x 60ft box truss; 2 x 4m box truss; 2 x base plates for 4m box truss.



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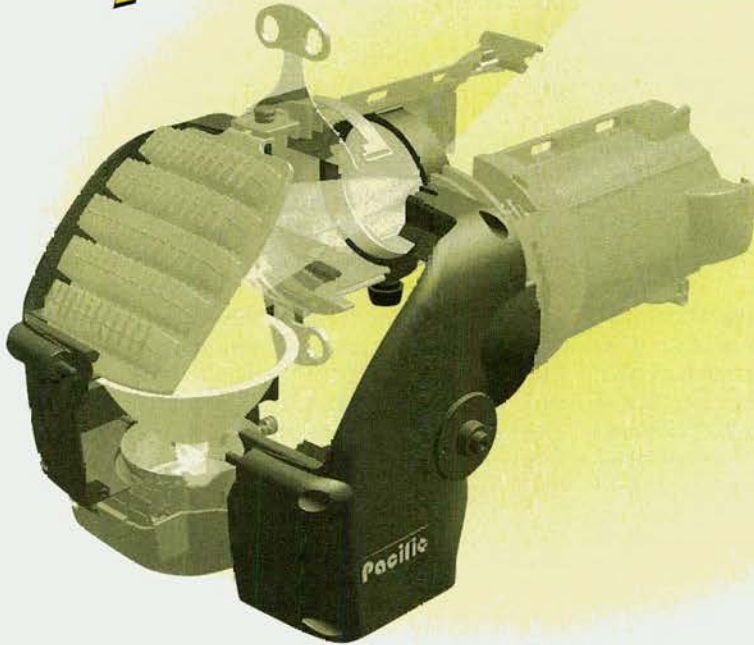
Photos courtesy of Space Cannon, Given, The Electric Canvas and Laservision Macro-Media.

Write in Reader Service Number: 161.

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**SELECON**

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compared::

## DMX TESTERS/REMOTES/BACKUPS

This time we're comparing a rather mixed bag of DMX tools that overlap each other in function: there are rigger's remotes, remotes with test functions, testers with backup capabilities, testers with remote capabilities and a backup with test capabilities. If you think that sounds confusing you will have some notion of the difficulty of deciding what should be included in this report.

The devices compared are:

- Any One Test by Anytronics
- CX-1 by Lite-Puter
- GAM Commander II by Showcraft
- Lil'DMXter by Goddard Design Co
- Linebacker by Zero 88
- Micro-Scope by Artistic Licence
- Focus 60 by Deltatronics

### DMX OUTPUT

Tests were conducted to measure the stability and adherence to standard of the DMX output of each device. All devices were within specification although there are some differences in the DMX packet size and the output packet rate which are shown in the table. For a full discussion of DMX parameters see *Recommended Practice for DMX512* by Adam Bennette (PLASA Publishing, London, 1994) which is still available from the Connections bookshop for a very reasonable \$19. Some of the devices were able to merge their output with that of an incoming DMX stream, such as the output of a desk which allows them to work simultaneously with the desk, while others pass the DMX through from input to output, regenerating the signal according to their settings. Where torture-testing of dimmers, robotic luminaires, or perhaps the mythical DMX coffee pot is required, (apparently there is such a beast: isn't it marvellous what the human brain can think up to waste time on,) a couple of the devices have the capacity to change the "flavour" of DMX they produce, even to the extent of generating packets of non-standard DMX with wrong timings and too many data bytes.

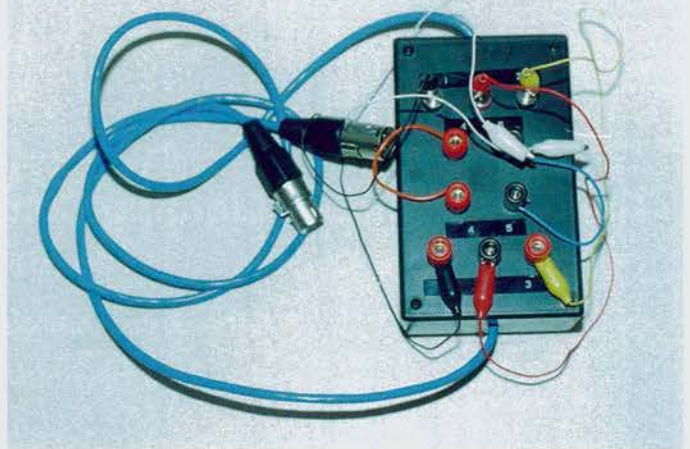
### DMX INPUT

The testers offer a window into the incoming DMX data stream, showing channels and their levels, the more advanced testers also provide information on DMX data rates, signal timings, start codes, etc. The flicker finder facility which is found on several of the units grabs a snapshot of the incoming DMX at a given moment then monitors the data stream for changes. This enables the detection of either controllers with flaky outputs, unterminated DMX networks or questionable cabling. An oscilloscope trigger function is provided on some of the units to enable a CRO display to be synchronised with the start of each DMX packet – this feature is for seriously technical people only, but then who else *has* an oscilloscope.

### CABLE TESTING

Almost all bizarre DMX behaviour comes down to either missing terminations or faulty cables. In a DMX network a cable can be slightly broken, that is, it can appear to work reliably, except during cue numbers with a 7 in them or if there's a tall dancer standing next to No. 3 OP Boom. Double-ended cable tests refer to the ability

### Cable Fault Emulator



to get to both ends of the cable under test, whilst a single-ended test is often the only possibility in a system which is already rigged. Cable tests need to indicate the presence of broken wires, shorted lines and crossed lines. To test the capabilities of the units under scrutiny a Cable-Tester Tester (line fault simulator) was constructed in order to replicate all types of fault.

### DMX BACKUP

Most DMX receivers, dimmers, robotics, smoke machines, strobes etc will maintain their last state if, for some reason, the incoming DMX stream stops. DMX backups go several steps further by providing a means of capturing DMX snapshots and replaying them when required, enabling them to be a backup controller or in some cases such as display applications, to be a stand-in controller.

### DMX REMOTE

To be suitable as a remote controller for fit-ups and focussing a device must be sufficiently light-weight and of a shape and size to actually fit in a human hand and stay there for many hours. The number of keystrokes needed to perform common tasks is also a measure of suitability to task. The numbers quoted in the comparison chart are for the number of keystrokes required to bring channel 44 to full and the number required to bring all channels down to a DBO. The term "held key" is used to refer to a key which is held down for some time whilst a scrolling action takes place on the unit. This frequently results in overrunning the desired number, requiring a reverse scroll or an number of additional keystrokes to get back to the desired channel or level.

### DOCUMENTATION

Each of the devices being examined tries to cram huge amounts of functionality into a package with a limited number of buttons, which makes the user instruction guide an absolutely critical part of the device. Attempting to come to terms with operating seven of these devices, most of them for the first time, brings home the necessity for clear, well structured manuals which must accompany the device into the field.

**THE DEVICES**

**ANY ONE TEST**

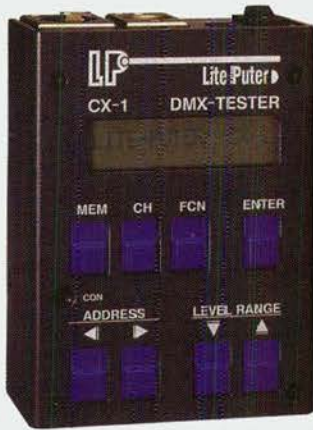
The review unit looked like it had been used as the puck for the las: three seasons of GUET's in-house street-hockey competition, but it worked like a charm: a tribute to the robustness and usefulness of this unit in the GUET service department from where it was loaned. It's great to use a



fader to set channel levels instead of keys, but this unit, one of the pioneer DMX remotes, with the limited capability of controlling a mere four channels, lacks many of the useful functions of its more modern brethren. There's probably an Any One Test MkII (Any Two Test ☺) somewhere at Anytronics.

**CX-1**

Lite-puter appear to have some kind of quality assurance problem as the evaluation unit was supplied with a plug pack suitable for China, and even after the office Caller ID display was robbed of its wallwart, there were a series of baffling intermittent problems with the functioning of the unit. The CX-1 appears to be a sturdy, if slightly heavy-to-hang-on-to-all-day device, with some excellent features. The manual is hard to follow and there seem to be steps missing from some of the step-by-step instructions.



ELSTA the Australian distributor would do well to consider rewriting the manual as there are some functions that could not be verified. At \$499, the CX-1 looks like great value for money if only these minor difficulties can be overcome. The absence of cable test functions on an otherwise very sophisticated unit is a bit surprising.

**GAM COMMANDER II**

A solid, fully-featured device which is let down only by the rather slender two-sheet "manual". There is no indication in the documentation that the device even uses batteries, much less how many of what type or how to change them (which, incidentally, necessitates prying them out of the holder with a screwdriver). Whilst some functions on the Commander may not be immediately obvious to use, they are quite logical once you've deciphered the manual.



**LIL'DMXTER**

The Lil'DMXter is the industry standard, all-singing, all-dancing DMX tester

*continued over*

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CON-99

# Lighting::PRODUCT COMPARISON

BY::Andy Ciddor



which seems to have been around since the beginnings of DMX. The loan unit, which has been kicking around at the WA Academy of Performing Arts for most of the decade, did not have the moving light software installed and consequently no evaluation of those functions can be made. The real bugbear of these units is still the reliability of the lead acid battery. The cute little lunch-box device is too big and heavy to be considered as a serious rigger's control and the far-too-cute screen displays and manual are as irksome as ever. "Lil'DMXter is sleeping", gimme a break!

## LINEBACKER

This is a very serious piece of backup and test equipment, with

compared::

## DMX TESTERS/REMOTES/BACKUPS

| Unit                     | Any Test One                             | CX-1   | GAM<br>Commander II                                     | Lil'DMXter  | Linebacker   | Micro-Scope  | Focus 60                                     |
|--------------------------|--|--|---|---|--|--|--|
| Manufacturer             | Anytronics                               | Lite-puter   | Showcraft   | Goddard Design Co                                 | Zero 88  | Artistic Licence   | Deltatronics                                 |
| Distributor              | GUET                                     | ELSTA  | Showcraft   | LSC Electronics                                   | Mediavision  | Bytecraft  | Deltatronics                                 |
| RRP (22% tax inc)        | \$566.61                                 | \$499.00   | \$620.00  | \$2,257.00  | \$1,612.84   | \$2,682.78   | \$680.00                                     |
| Version                  |  | 2.1  | 3202  | 1.6 (Current 1.7)                                 | 1.2  | 1.9 (current 3)  | P013A  |
| Test / Remote / Backup   | Remote                                   | Remcte   | Test & Rem  | Test, Rem, Back                                   | Test & Backup  | Test & Rem   | Remote (cordless)                            |
| DMX O/P Packet Size      | 512 bytes                                | 512 bytes  | 512 bytes   | Up to 512 bytes                                   | Up to 512 bytes  | 5-2 bytes  | 60 bytes                                     |
| DMX O/P Packet Rate      | 31/sec                                   | 45/sec   | 42/sec  | 42/sec  | 37/sec   | 24/sec   | 310/sec                                      |
| DMX O/P Merged           | No                                       | No   | No  | No  | Yes  | No   | Yes  |
| DMX Through              | No                                       | Yes  | No  | Yes   | Yes  | Yes  | Yes  |
| Double-ended Cable Test  | No                                       | No   | Pins 1-5  | Pin 1-5   | Pins 1-3   | Pin 1-3  | No   |
| Single-ended Cable Test  | No                                       | No   | No  | Pins 2&3  | No   | 2&3 shorted  | No   |
| Cable break Indication   | No                                       | No   | Yes   | Yes   | Yes  | Yes  | No   |
| Cable Phase Indication   | No                                       | No   | All Pins  | Pins 1-3  | Pins 1-3   | Pins 1-3   | No   |
| Cable Shorted Incication | No                                       | No   | All Pins  | Pins 1-3  | Pins 1-3   | Pins 1-3   | No   |
| DMX Data Views           | No                                       | No   | Yes   | Yes   | Yes  | Yes  | No   |
| DMX Parameter view       | No                                       | No   | No  | Yes   | Yes  | Yes  | No   |
| DMX Frame Size Test      | No                                       | No   | No  | Yes   | Yes  | Yes  | No   |
| DMX Update Rate Test     | No                                       | No   | No  | Yes   | Yes /derived   | Yes / derived  | No   |
| Flicker Finder           | No                                       | No   | No  | Yes   | Yes  | Yes  | No   |
| Snapshot Memory          | No                                       | Yes  | No  | Yes   | Yes  | No   | No   |
| Oscilloscope Triggering  | No                                       | No   | No  | Yes   | No   | Yes  | No   |
| Robotics Capabilities    | No                                       | Extensive  | No  | Extensive in latest software (Not supplied)       | No   | Extensive in latest software (Not Supplied)                        | No   |
| Configurable DMX Output  | No                                       | No   | No  | Yes   | Yes  | No   | No   |
| Back up States           | No                                       | No   | No  | 8   | 60   | No   | No   |
| Local Memory             | 3 channels                               | 10 presets of 48 channels                                | 1 Preset of 4 channels and/or ranges                    | 1 snapshot  | N/A  | No   | No   |
| Controlled Channels      | 4  | 48 channels or ALL                                       | 4 channels or ALL                                       | 512   | 512  | 512  | 60   |
| Keystrokes per Channel   | ~10                                      | Several Held Keys  | £   | 15  | N/A  | Several Held keys  | Held key + 1                                 |
| Keystrokes to DBO        | ~10                                      | 8 (change modes)   | £   | 6 (change modes)                                  | 6 (change modes)                                       | 6 (Change modes)   | 1 held key                                   |
| Format                   | Lightweight handheld                     | Chunky Handheld  | Handheld  | Lunch Box   | Desktop  | Chunky Handheld  | Lightweight Handheld                         |
| Display                  | LCD no backlight                         | Backlit LCD  | LED   | Backlit LCD                                       | Backlit LCD  | LCD no backlight   | LED, adjustable brightness                   |
| Power Supply             | 4 x AA                                   | Rechargeable. Wrong pins on plug pack                    | 4 xAA (Not Supplied) New batteries read as LO           | Rechargeable Lead Acid- slightly flaky            | Pluggack only  | Rechargeable. UK pluggack but Adapter supplied Receiver : Pluggack | Hand piece: 9 volt battery (not supplied)    |
| Documentation            | 1 x A4 Sheet. Complete and intelligible. | 12 x A4 Pages Comprehensive but very difficult to follow | 2 x A4 loose sheets. Comprehensive but slightly unclear | Comprehensive and intelligible but a bit too cute | 12 x A5 (tiny) pages, comprehensive but hard to follow | 12 A4 Pages comprehensive and intelligible.                        | 1 xA4 Sheet. comprehensive and Intelligible. |

# Lighting::PRODUCT COMPARISON

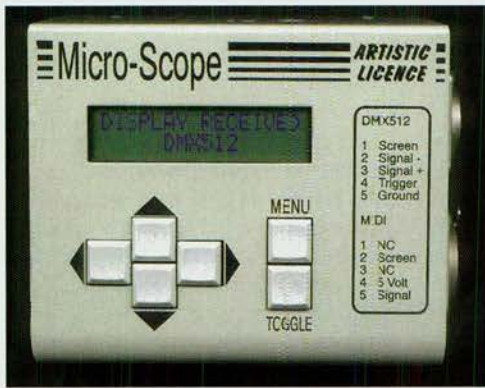
BY::Andy Ciddor

which amazingly, it is almost impossible to bring up a single dimmer. A very useful desk backup or replacement device with a hard to read and difficult to follow manual. Thanks to Pro-Design Lighting for the loan unit.



## MICRO-SCOPE

There isn't much this handheld device won't do in the areas of remote and testing. The latest software, which so far hasn't made it to Australia, has a range of moving light functions and an accompanying editor program for the PC which enables the custom configuration of moving light attributes.



## FOCUS 60

A cordless, light-weight rigger's remote was just a green-room talking point until recently. If the Focus 60 has a problem it's probably the fact that the device only controls sixty channels, although having to scroll through channel numbers with up and down buttons is a bit painful on a rigger's control. Placement of the radio receiver may prove to be slightly problematic in some setups, but it isn't much more hassle than a radio mic. The biggest difficulty with the

Focus 60 is that its designer, Tim Schofield, is really an audio guy.

While it may be abundantly clear that a Linebacker would be pointless to have up the tallescope or that you can't trace the fault that's made the robotics twitchy with a Focus 60, the choice of device for your particular DMX control situation will no doubt be the usual delicate balancing act between aspirations and budget. Hopefully this comparison will help you to make a more informed choice.



# NEWS

## NEW GEAR IN THE HOUSE

● Gearhouse Lighting have recently acquired new equipment including: 200m of Total Fabrications 52cm x 52cm box truss and 100m of their 12" box truss; 16 Total Fabrications 8-Lites; 12 Wybron Coloram II 8-Lite colour scrollers; and 24 x 1 tonne CM Loadstar chain hoists plus various Motor Controllers. Additionally, Gearhouse will soon take delivery of two roofs for these ground support systems which will then be used as outdoor stages.

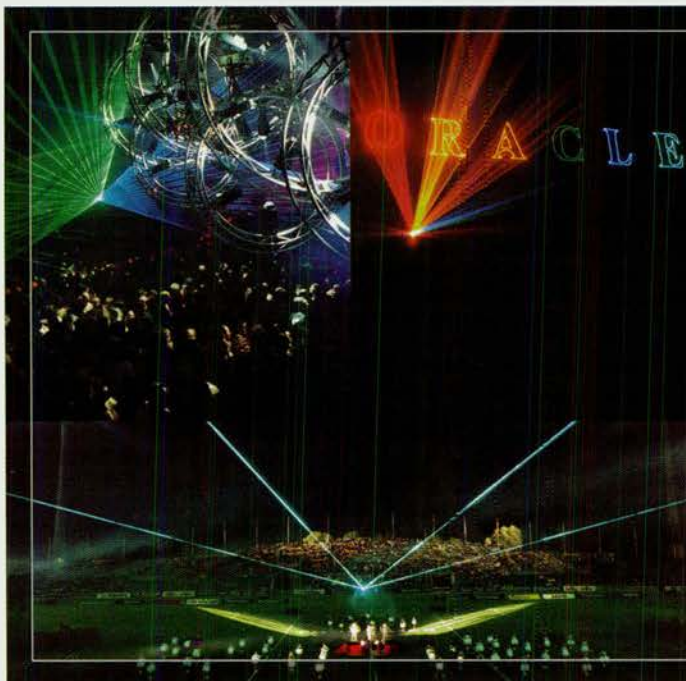
ment Installations have moved to a new delivery shop address: Unit 1, 401 Manns Rd, Gosford West, NSW 2250. Their new postal address is: PO Box 6045, Gosford West, NSW 2250. Phone numbers are unchanged.

## BYTECRAFT NEWS

● Bytecraft Hire Department provided much of the lighting at the Logies at Crown Casino and have a system cut on the national tour of Deep Purple. Gear includes 20 Icons, 20 Icon washlights and Icon desk, 16 lengths of pre-rig truss and Wybron scrollers, Bytecraft dimmers, safety gear and two crew.

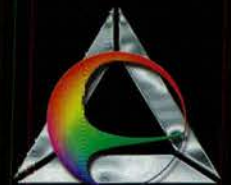
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# LIGHTING OVERHAULED AT THE QUEENSLAND PERFORMING ARTS COMPLEX



Lighting at Australia's newly completed performing art complex has been overhauled with the largest ETC installation in the country.

Forming part of the vast Queensland Cultural Centre on the Brisbane River, the Queensland Performing Arts Complex was opened in 1985 and is housed alongside the state's museum, art gallery and library.

The facility originally comprised three venues: the 2000-seat Lyric

Theatre and 2000-seat Concert Hall, and the intimate 320-seat Cremorne Theatre. All were fitted out with Rank Strand PAM plug in 5kw and 10kw dimmers - 240 in the Lyric, 120 in the Concert Hall and 60 in the Cremorne - all running on analogue control wiring from their respective Galaxy desks.

In 1990 the three Galaxy desks were replaced with AVAB Expert desks configured for 384 channels. These became the base of lighting designers and crews with their 'reverse Polish logic', a complete reverse to the widely used Rank Strand operating philosophy of 'channel @ level'. At the same time the number of dimmers in the Lyric theatre was upgraded with 20 portable Bytesize H.Tcp 6 x 5kw dimmer racks and new DMX wiring.

When QPAC Executive Manager Richard Stuart joined the Queensland Performing Arts Trust in 1992, plans were foot in government to complete construction with the addition of an 850 seat drama theatre and associated rehearsal, backstage and public facilities.

"The QPAT staff and I were very involved in the design and specification of the new theatre," Richard said. "We wanted to ensure the design of the new facilities was absolutely leading edge and integrated into the rest of the complex."

QPAT was making inroads into the entrepreneurial arena at the time, co-producing national tours of musicals including *The Secret Garden*, *Smookey Joe's Cafe*, *A Chorus Line* and *How to Succeed in Business Without Really Trying*.

"We recognised the opportunity to support these tours with new lighting equipment which could later replace the ageing stock in the venues," Richard explained. "We purchased 250 ETC Source 419s and 426s for the national tour of *Smookey Joe's Cafe* to give the lighting designer Donn Byrnes the great punch he needed for this very up and hot Broadway show. We also used the first ETC Obsession to be used for a tour in Australia for lighting control."

Stuart said the old AVAB desks were on their last legs and required constant servicing. Different options were considered but the state-of-the-art Obsession won hands down. A 1500 channel console was installed in the Lyric Theatre in 1997, then replaced with the Obsession II 1500 ML with full tracking back-up on its release.

The installation now includes a record back-up console, remote focus unit on stage, and remote video interfaces at the dimmer racks on stage and at

New company **The Great Outdoor Lighting Company** aims to present for hire, the widest and most powerful range of search lights, architectural and projection lighting equipment in Australasia, they say.

The Great Outdoor Lighting Company also offers **Sky Productions** fully choreographed and sequenced lights, lasers and pyrotechnics for Festivals, Celebrations and Sporting Events. Sponsors will have the option to include their logos and corporate messages in a variety of visual mediums.

The range of fixtures includes: the **Space Cannon Ireos** Search light, a powerful 7K Xenon automated search light with full colour mixing, visible at up to 50km;

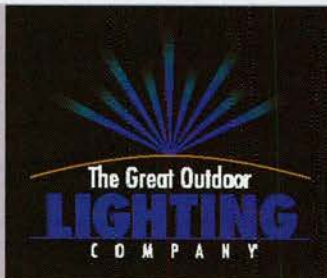
**Griven Kolorado** Wash Light, an architectural colour changer which features DMX 512 or manual control, full colour mixing, dimmer/shutter and weather-proof; **Griven 4K Xenon Imperial Search Light** a compact search light with a big punch incorporates stand alone preset sequences or DMX, pan and tilt, visible at up to 30km; **Griver 4K Xenon Tracer Search Light** a power moving multi-beam search light visible up to 20km; **Martin PAL 1200 Effects Projector** a versatile

effects projector ideal for corporate, advertising, sponsor messages and short throw effects.

The Company say that their research has revealed that for many years there has been a lack of resources in this virtually untapped, but somewhat specialist segment. With the vast number and volume of events planned to take place within the next two years, including the Sydney 2000 Olympics and celebrations surrounding the year of Federation, it certainly seems like a good idea.

Several themed shows are under development for festivals, celebration events and annual shows ie; the Royal Easter Show, the Brisbane Show and Moomba. Clients may choose from a list of existing themed packages, or brief us on specific themes that can be developed into a sky production.

Contact Colin Baldwin at TGOL ☎ +61 29966 9888.



# Lighting::THEATRE

the stalls production desk. A designers control will be added when it is released. The whole system run over an ETC Ethernet plus three streams of DMX with LSC opto-isolation at all points.

Meanwhile the old analogue dimmers in the Lyric were replaced with high intensity cabinets. Each house up to eight rack mount 12 channel 2.5kw or 6 channel 5kw Bytesize 483 dimmers, giving a total dimmer complement of 408 x 2.5kw and 108 x 5kw dimmers. The next phase will be the installation of cable reelers above the grid to directly feed spotbar sections from another 400 dimmers.

The smaller Cremorne Theatre currently uses one of two ETC Express 250s supplied for the two new rehearsal studios but will ultimately have the spare Obsession II desk from the Lyric Theatre when funds permit an additional ETC control crate and peripherals. Earlier this year the theatre's dimmers were replaced with 192 Bytesize rack mount dimmers housed in three high density cabinets.

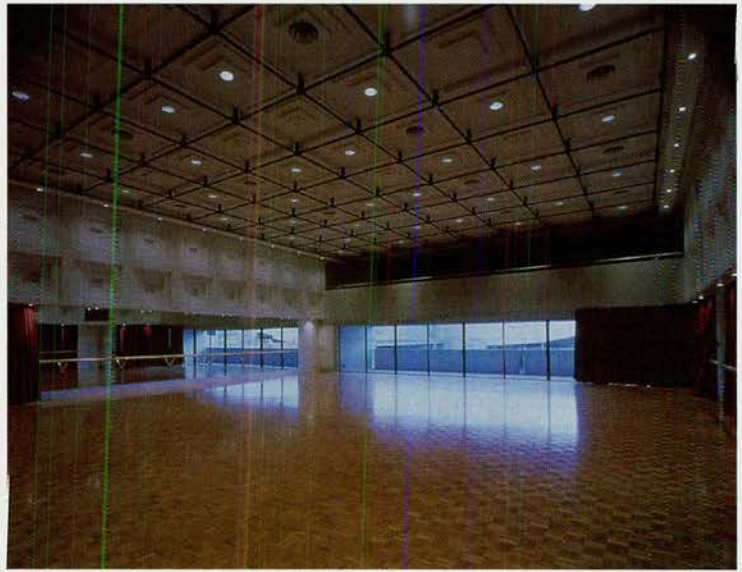
The Concert Hall now has two ETC Express 72/144 desks running through two ETC DMX Response Mergers and ETC Ethernet with remote focus unit on stage, and remote video interfaces on stage and the stalls production desk.

"The Express consoles allow great operational flexibility. The venue has to cater for shows including symphony orchestras, trade shows, rock concerts, graduation ceremonies, television productions and the like, all of which benefit from a console with instant hands-on as well as memory operation," Richard said.

The pride of the complex, the 850-seat Optus Playhouse, was opened in August last year. It has an ETC Obsession II 1500 channel desk with full tracking back up, remote focus unit on stage, and remote video interfaces at four of the six dimmer rack locations, on stage and at the stalls production desk which will ultimately have a designers control.

The new venue also has the largest installation of ETC Source 4 spotlights in the country with 5 x Source 410, 224 x Source 415, 168 x Source 426, 20 x Source 436, 20 x Source 450 and 20 x Source 4 PARs, as well as a full compliment of fresnals, zip strips, eye floods, PAR cans, beam lights and the like.

"The choice of Source 4 as the stock profile spotlight for the Optus Playhouse wasn't hard - they've proved themselves time and time again on a variety of productions for many designers. Great perform-



ance characteristics, ease of rigging and focussing plus significant energy savings made it a winner all round," Richard said.


Distributed dimming is used with Bytesize 483 HiTop dimmers located in six dimmer room/patch bays, and includes a total of 690 dimmers with additional 3 phase outlets at all dimmer locations for touring or special racks.

The two new rehearsal studios, designed to double as small performance and corporate function spaces, each feature 36 x 2.5kw dimmers, full patching and use ETC Express 250 consoles,


Both the Lyric Theatre and Opera Playhouse have Bytesize's DimMaster dimmer interrogation system fitted between dimmer racks and the lighting control rooms. All the venues have either 400 or 500 amp take off points on stage for touring shows as well as a network of 3 phase outlets and temporary wiring ducts for use on set ups of outside broadcasts, foyer performances, festival events and corporate functions.

"The choice of ETC lighting consoles has tremendous benefits for David Schultz, the lighting co-ordinator," Richard said. "It means having one type of operating system common to all venues which greatly assists rostering staff by having lighting technicians who can work any control system in any venue.

"ETC lighting consoles have been installed in most of the regional Queensland arts centres now, which is proving to be a great benefit for touring companies transferring their productions between venues.



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BY::Jacqueline Molloy

# KAOS THEATRE

*The Fantastical Adventures of Leonardo da Vinci*

KAOS Theatre Australia started in Perth in 1994 with a commitment to an "investigation of technology in performance" as part of their manifest. The company have created around half a dozen productions in that time with their latest being "The Fantastical Adventures of Leonardo da Vinci", a show that was eighteen months in the making and which celebrates the imagination of one of history's greatest thinkers. KAOS Theatre have the distinction of creating the Festival of Perth's first commissioned production with "Leonardo", which was chosen from a high calibre batch of applications to receive substantial development and production funds from the festival.



**A**lan Surgener, the show's lighting designer came to be involved by rather unusual means, he and his skills were a "gift" to the production from Fremantle based Deckchair Theatre Company, who were approached to offer some form of support to KAOS Theatre and their festival production: they opted to very generously hand over Surgener who is the company's production manager and lighting designer.

Originally from Scotland, Surgener has been involved in theatre from the age of thirteen, when he used to follow spot at a busy 300 seat venue after school from 5:30pm until 11:30pm. Surgener didn't have any particular passion for lighting at that stage of his life but because he was too young to be legally employed he was kept hidden away in the lighting control room. Once he hit the age of sixteen and could be legally employed he started working onstage as a flyman until he eventually ended up studying stage management. He then freelanced in theatre, working in various capacities until he arrived in Australia, inspired to leave the United Kingdom by the

devastating impact of Thatcherism.

After spending time in Queensland and then Melbourne, where he grew tired of waiting for the rain to stop, Surgener finally found himself in WA, via a stint in Sweden where he helped convert a sex shop into a 200 seat theatre and a year working cruise ships on the Bali-Singapore-Hong Kong route.

Over the last fifteen years of his career Surgener made a conscious decision not to specialise in one area but diversify, which he's certainly done, having worked as a stage carpenter, set builder, stage manager, lighting designer and production manager. Even with all that experience he was apprehensive about embarking on the creative journey with KAOS: "I was nervous that projection was going to play such a major role in the production as it's something that you rarely see done properly in theatre, in fact it usually causes more problems than anything else." "Leonardo" was performed at the Playhouse Theatre, a 400 seat proscenium arch venue and fortunately the space was free for the three weeks prior to the season opening and the crew were able to bump in early and experience the luxury of having the time to get the technical elements right, particularly the projection and the lighting.



## MY FAVOURITE GEL COLOUR

**SEAN 'MOTLEY' HACKETT**

currently working on *Deep Purple*



"Lee 126 because it's purple and that's my wife's favourite colour!"

(If you know Motley, you know this is stating the bleeding obvious)



*continued over*

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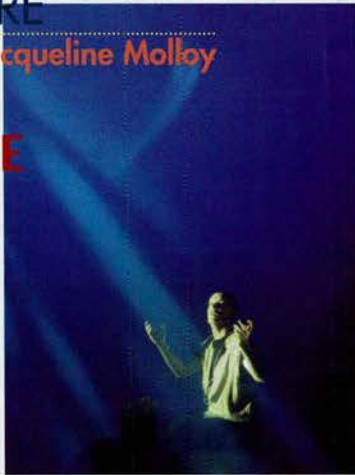
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BY::Jacqueline Molloy

## KAOS THEATRE

Chris McLay from Eycon Studio was the projection designer for the production and he and Surgener struck up a successful working relationship that resulted in intriguing and unusual images for "Leonardo". The set design was relatively simple and consisted of a configuration of 3metre high rostra positioned centre stage with an open space behind in the centre for performers to disappear into. A cloth cyc was hung upstage with a scrim positioned 4 metres downstage of it. McLay and Sturgener kept the scrim in for the first half but out for the second half to separate the action and the story visually.



Sturgener waited until he knew what the set and projections were going to do before he embarked on the lighting concept as he realised he would have to fit in around the projection which according to McLay "had to create the visual universe for the show to exist in." The projection was simple but expensive with an Epsom Data Projector positioned 16metres away from the cyc about half way up the raked seating in the auditorium. Some of the images projected were as wide as 8metres and at times the images were smoothly blended with live performance to create visual games. An Apple-controlled the projection and McLay was proud of the fact that all of the equipment required for fit in a bag on his shoulder.



The lighting rig was very colourful about specific colours and when pressed he favoured the result. "What colours didn't I use?" The result was rich, interesting and clean. Surgener enjoys the challenge of using whatever equipment he believes this adds an edge and a challenge to the design. Since the projection was such a significant part of the production this presented him with limitations as to the angles and positions he could use in order to keep clear of the scrim and the cyc.

"I had six booms aside hung with wide-angle profiles and very steep gobo washes from front-of-house to create texture and in fact we set a convention with the gobos in that if I couldn't get enough light into a certain area because of the projection I would hit it with the gobos which became an established look, which fortunately I didn't have to use very often." The onstage lighting bars were not heavily rigged except for around centre stage which was quite congested as it offered the best angles to hit most of the action."

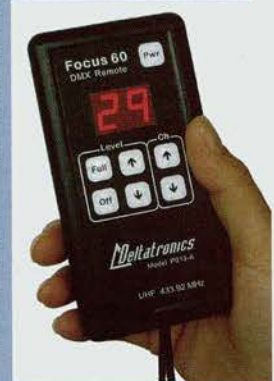
Surgener ended up enjoying the process of working on "Leonardo" and felt the projection and the lighting melded very successfully to create a seamless visual environment. "The whole thing turned out to be a pleasure, Chris was fantastic to work with and we were fortunate in that we had the time to experiment and get it right before opening." The pair are now collaborating with KAOS on producing a fully automated one-man show that will combine projection, lighting and sound into a system that can be carried around in a case small enough for one person to carry.

## new products::

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**75W Strobe** popular economy strobe suitable for all applications, adjustable speed control, separate remote control available. \$177.38.

**Giga Strobe 0-10V** Powerful 1500W Xenon strobe tube, ideal for serious applications, large clubs and theatres. adjustable speed control on the unit, or via 0-10V remote control. \$576.38.

**Giga Strobe 0-10V DMX** Version of the popular and powerful 0-10V Giga Strobe. Features 1500W Xenon strobe tube, ideal for large clubs and theatres. \$907.39.

### LYTEQUEST

*Disco World (03) 9735 0588*

**ST25E** 25Watt Mini Strobe. Variable speed control 1 - 10 flashes per sec, 10 million flash life. \$37.

**ST35E** 35Watt Mini Strobe. Variable speed control 1 - 10 flashes per sec, 10 million flash life \$48.

**ST175E** 75Watt Strobe. Variable speed control 2 - 14 flashes per sec, dual 1/4 inch input/output jacks, synchronous operation with RCS-2 controller sold separately. \$189.

### TAS

*Coemar De Sisti: Australia (03) 9467 8666*

**Saetta Strobe 1500A** high-powered strobe with variable rate strobing in an aluminium housing c/w safety glass and lamp. \$1,326.23.

## FX PROJECTION

### ABSTRACT

*Universal Lighting & Audio 1800-648-111*

**Twister4** NEW release from Abstract (UK), Flower effect with coloured gobo projections, features Abstracts ultra responsive Super Sound system for stand-alone operation or DMX remote control. Supplied complete with 12V 100W lamp. \$899.

**Gladiator Revolution** Features a mirror barrel which twists and tumbles creating a myriad of multicoloured beams from built in dichroic colour/gobo wheel. Sound-to-light or DMX operation. \$1324.78.

**Hypermoon** rotating beams moving 180degree left to right. All colour is dichroic for pure colour saturation. Built in sound to light or constant selection switches. Ideal for model dj's and discotheques alike. \$834.64.

**FutureScan 1 CE** (set of 4) Combining the features of a professional installation scanner into compact units. The FutureScan 1CE package of four moving mirror scanners each feature powerful 12V 100W output, eight colours and gobos, dmx control, synchronised sound-to-light system or DMX512 remote control. Value for budget orientated applications. \$45654.25.

### ACME

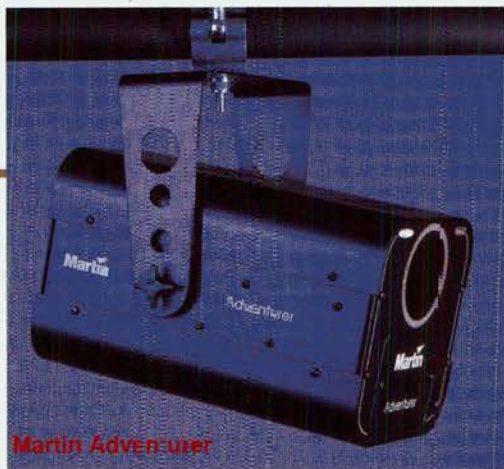
*Universal Lighting & Audio 1800-648-111*

**Leo** Affordable moving light technology. 8 gobos plus white, 2 multicoloured, one four colour. Features powerful 24V 250W output, dmx control, synchronised sound-to-light system or DMX512 remote control. \$699.

**Scimitar** 9 gobos plus shutter with 5 one-colour, two dual colour and one quad colour. Master/ slave linkable for sound-to-light operation or DMX512 remote control. \$694.

**GoboFlower** 20 multicoloured dichroic beams of gobos rotating back and forth to the music. Features

24V 250W lamp and 16 gobos, and dichroic colour. \$480.  
**SuperNova DMX512** version of the GoboFlower, master/slave linkable, 16 gobos, dichroic colour on board sound to light and powerful 24V 250W lamp. \$527.



Martin Adventurer

**ADJ**

Show Technology (02) 9898 1111

**Skylight II** 36 strong beams project back and forth, activated by an accurate audio trigger while changing colour via the internal colour wheel. Lamp: 2 x 24V 150W FDV. \$389.22.

**Future Derby II** multicoloured beams criss-cross each other to the beat of the music. Sound to light activation and a bright output because of its twin lamp design. Lamp: 2 x 120V 300W 64514. \$389.22.

**Gobo Moon** gobo flower effect, multicoloured rays of light project over 18 gobos while swaying to the beat of the music. Lamp: 24V 250W ELC. \$389.22

**Little Derby II** Ideal for small nightclubs, pubs, clubs and parties the Little Derby II is a smaller version of the popular Future Derby II, where multicoloured beams dance over the floor to the beat of the music. Lamp: 2 x 12V 50W BRL. \$194.22.

**ALTMAN**

Chameleon (02) 9310 5222

**Shakespeare Projector** a custom adapted Shakespeare to project images from transparencies. \$PGA.

**AMERICAN DJ**

American DJ Australia (02) 9568 2100

**Spiral Graph** vibrant kaleidoscopic effect that produces a multi-coloured and multi-textured effect. Slow and continuous movement no sound needed. Full focussing. Includes a hanging bracket. Lamp: EYF 12V, 75W. \$286.

**Spiral Graph 400** vibrant kaleidoscopic effect that produces a multi-coloured and multi-textured effect. Separate colour and texture wheels rotate independently. Wide beam spread, great for wall washes. Slow and continuous movement and no sound needed. Includes a hanging bracket. Lamp: EVD 36V, 400W. \$531.

**APOLLO**

Coemar De Sisti Australia (03) 9467 8666

**Polaris** Rotating oil-wheel effect utilising standard effects wheels to produce a psychedelic effect. A new generation will be thrilled by this effect. Utilises an M28 lamp. \$1,057.38.

**The Fan** effect simulating incandescent light through a rotating fan. Utilises a low cost M33 lamp. \$563.57.

**Atomix** Reminiscent of the Coemar Fictor flat-beam effect, the Atomix utilises a powerful HQI 150 lamp coupled with a sound-activated, slotted gobo wheel to produce multi-coloured, flat beams of light which rotate and turn through the air. From \$1,057.38.

**CLAY PAKY**

Show Lighting Australia (02) 9895 1666

**VIP 300** features two electrified guides attached to the lighting unit; the guides carry a 24V supply for total user safety and are protected against short circuits. The lens support, which is supplied with the standard objective lens, is mounted on the guides. The lens support can accommodate lenses with a different focal length and of a different type from the standard one, and it can also mount some types of

optional effects. Lamp: HTI 300. \$1344.60.

**VIP 300 DIA** identical to the V.I.P. 300, except that it is specially designed for projecting slides. Contains special optional accessories and uses an efficient forced-ventilation cooling system. The cooling system and the special

metal protection for slides, which are supplied as standard, protect the delicate slide film and frame from the heat of the lamp. Lamp: HTI 300. \$1556.10.

**VIP 250 ALO** When the use of a normal halogen lamp is required for reasons of operating economy; this model features the same performance and operation as the V.I.P. 300 - the difference is in the low voltage (24 V), 250 Watt lamp. \$1130.22.

**S.I.P. 300** This system uses a 300 W halogen lamp and, not equipped with electrified guides, is compatible with the full range of optional static effects. Lamp: M38 Osram (230V) or M38 General Electric (120V). \$966.42.

**COEMAR**

Coemar De Sisti Australia (03) 9467 8666

**Versatile** 750w or 1Kw static "finger" beam projector with 115° beam angle and a 3 to 12m throw. Uses Roundlux lamp to produce cones of light through eight lenses. Able to utilise integral reflector lamps to produce shafts of light. Effective in a chase sequence. \$421.31.

**FUTURELIGHT**

Coemar De Sisti Australia (03) 9467 8666

**FX-150** Instead of a mirror the unit has a vari-speed rotating barrel to split the light into six beams over 120 degrees. Twelve gobos including two multi-colour. Strobing function on every gobo. Eight colours. Full DMX control. \$726.23.

**RT-150** Instead of a mirror the unit has a vari-speed rotating effect mirror (Flower, Pizza Pie or Convex Curve) to split the light into a myriad of beams over a large area. Twelve gobos including two multi-colour. Strobing function on every gobo. Eight colours. Full DMX control. \$726.23.

**FX RANGE**

Coemar De Sisti Australia (03) 9467 8666

**Splash** Powerful, strobing moonflower effect. Twin or 4 beam fixtures feature sharp dichroic coloured beams which rotate in sound to light mode. Available in a variety of coloured finishes. Utilises powerful yet economical low voltage lamp. \$139.34.

**Moon Range** Range of compact moonflower-type projectors utilising a range of economical lamps from 50w to 250w. Available with static, rotating, and sound-to-light beams, as well as pure white and brilliant dichroic coloured output. From \$132.79.

**Gobo Tunnel** Sharp focusable 250w lamp produces brilliant gobo tunnel effects with sound-to-light operation and gobo rotation actions. Additional gobos included at no extra charge. Fan cooled with a range of crisp dichroic colours. \$424.59.

**Aquarius** effect producing liquid light without the liquid! Glass fibre and dichroic colours together with accurate adjustable focusing produces a wide wash of liquid morphing light. Utilises a powerful and economical 150w lamp. \$TBA.

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## EFFECTS LIGHTING *continued*

### GENI

Show Technology (02) 9898 1111

**Spyro 250** makes a twisting, spinning vortex of colour and is the perfect complement to the Nimbus/Shiva scanners. With nine colours, DMX and audio control, Two-way, fast action rotation and a strobing feature. Lamp: 24V 250W ELC. \$545.22.

**XTC** A pyramid head, mirrors, high torque motors and dichroic reflectors combine to create sharp coloured light rays that move to music. The XTC also features audio control for ease of use. Lamp: 24V 250W EHJ/M33. \$389.22.

**Wild Blaze** Panning, scanning, moving dichroic "flowers" sweep across the dance floor to the beat of the music. Wild Blaze features a special scanning mirror head with an adjustable angle setting. Lamp: 24V 250W EHJ/M33. \$311.22.

**Blaze** Brightly coloured light beams twist and turn to the beat of the music, making a moving, grooving, non-stop "flower" effect. Superior optics, pure dichroic colours, and long-life, high torque motors. Lamp: 24V 250W EHJ/M33. \$272.22.

### INFINITY

Universal Lighting & Audio 1800-648-111

**Goblin Colour** Budget moonflower effect supplied complete with 12V 50W lamp, on board sound-to-light. \$177.87.

**Star Blazer** Features a convenient remote controller to switch the 500W lamp. Sound activated multicoloured beams through 30 optical lenses, strong, thin beams. \$288.60.

**Wildflower** Sound activated moonflower effect creates beams swinging through the air from a mirror

panning 180degrees. A selection switch is included to select between continuous rotation or sound to light operation 12V 100W lamp. \$263.32.

**Infinity SceneSetter** One of the smallest, most inexpensive DMX/sound to light dichroic colour changers on the market. 8 colours plus white, accurate focusable optics system, blackout feature. The SceneSetter features in built sound to light programs

**Punisher** features a multi-faceted, revolving/vibrating parabolic reflector, controllable rotation speed and direction, variable flash and combined gobo wheel and shutter with 12 fixed metal gobos: 5 white/7 colour. Has a unique controllable "shake" speed while also being capable of stand-alone mode with music trigger. Lamp: 24V 250W EHJ/M33. \$779.22.

**Destroyer** features multi-faceted revolving parabolic reflector, controllable rotation speed and direction, combined gobo wheel and shutter and variable flash. Also features a Motorised gobo wheel with 12 fixed metal gobos: 5 white/7 colour. Lamp: 24V 250W EHJ/M33. \$701.22.

**Voyager** projects light through a colour/gobo wheel and onto a rotating disc reflector with front end mirrors. The light is then focused through an optical lens to create an ever-changing effect in which colours, gobos and beam rotation mix instantly to the beat of the music. Provides 19 gobos + open as well as 11 full dichroic and 3 split dichroic colours + 6 white. Is totally self-contained, reacting in time to the music without the need for external control signals. Lamp: 12V 100W EFP. \$572.95.



and can be linked to other SceneSetters for a coordinated effect. 24V 250W lamp. \$463.30.

### LIGHT EMOTION

ELSTA (02) 9568 2100

**Peacock** Projects a multi-coloured Kaleidoscopic effect as fluid moves through coloured dichroic glass pieces and is focusable. Excellent mood projector. Comes with bracket, lead and plug. Uses ELC lamp 24v 250w. \$286.

### LYTEQUEST

Disco World (03) 9735 0588

**Acidbeam** Psychedelic Projection Effect Variable speed wheel rotates continually creating an ever changing psychedelic type effect. Light and compact the Acidbeam is perfect for mobile and fixed applications and comes with 2 wheels liquid and dry. \$570.

**Prism 4 LQ-441** Rotating multi gobo display effect - great for custom gobo displays, the Prism 4 uses a prism lens to display three rotating gobo patterns simultaneously. The prism 4 automatically switches through 4 standard replaceable gobos with three coloured lens and is fan cooled. \$590.

### MAD LIGHTING

GUET (07) 3358 5022

**QCOLAP** 150w Arcstream, 33 colours, 6 gobos, 4 beam widths, frost filter and shutter. Lamp not included. \$1399.

**QSTARAP** 150w Arcstream, rotating barrel effect, 11 colours, 12 gobos, and shutter. Lamp not included. \$1795.

**QSCANAP** 150w Arcstream, 11 colours, 12 gobos, and shutter. Lamp not included. \$2149.

**SCAN611ARP** 150w Arcstream, 11 colours, 10 rotating gobos, and shutter. Lamp not included. \$2695.

### MARTIN

Martin Professional Australia (02) 9898 1111

**Lynx** Using a 100w halogen lamp, this compact lighting effect contains a revolving parabolic reflector to create a burst of light beams, each turning around the other while also changing colour. With thirteen colours, plus clear and even split colours, the Lynx is totally self-contained, reacting in time to the music without the need for external control signals. Lamp: 12V 100 W EFP. \$467.22.

### OPTIKINETICS

Lightmoves Technologies (02) 9560 0000

**K1** 300hr lamp life, approx. 1200 lumen output. Sister model to the Solar 250, accepts wide variety of effects, lenses, slides, custom graphics and accessories. \$1580.

**K2+** 2000hr lamp life, approx. 2600 lumen output. Big brother to the K1, it also accepts wide variety of effects, lenses, slides, custom graphics and accessories. \$4865.

**K4** 750hr lamp life, approx. 4000 lumen output. The father of the K range. Accepts wide variety of effects, lenses, slides, custom graphics and accessories. \$6520.

**GoboShow NEW!** 150w HQIT lamp, 9000hr lamp life equals 24hrs a day for 365 days. 1400 lumen output. The father of the K range. Accepts wide variety of effects, lenses, slides, custom graphics and accessories. \$2295.

### PANI

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

**Pani BP 2.5HMI** 2.5kW Stage Projector compact construction and high light output due to the aspherical condenser system with cold mirror spherical reflector. Can be hung or floor mounted, and a range of lenses and effects is available. \$28,000.

**Pani BP4 Compact** 4kW HMI Projector includes condenser lens, slide carrier, adjustable slide mask, universal ballast. Available for hire or purchase. From \$35,000.

**Pani BP6 Gold** high performance 6kW HMI projector was developed for applications requiring great projection distances, for extremely large projection images or extremely high intensities. Available for hire or purchase. From \$40,000.

### VISION LIGHT

ITI-Image Group (02) 9555 7221

**LV1 DMX** promotion projector - 150w high output lamp; 12000 lumens; 6000 hr lamp life; 5 colour filter; 4 x 35mm slide holder + 1 gobo; controllable mirror and lens focus; 23kg. Made in Germany. \$5600.

**LV1 IFB + DMX** promotion projector - 150w high output lamp; 12000 lumens; 6000 hr lamp life; 1R remote with memory + DMX/RS485 control; 5 colour filter; 4 x 35mm slide holder + 1 gobo; 23kg. Made in

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Germany. \$6000.

## PROJECTION ACCESSORIES

### BEACON

*Lighting By Design (07) 5537 7002*

**Colour Gobo** full colour gobos. Create low quantity, full colour images fast and economically. \$750 first image, \$560 identical copies.

**Greyscale Gobo** high definition litho glass gobos with up to 3600 dpi images. Replace steel with glass in most fixtures. \$215 first image, \$143 identical copies.

**Steel Gobo** necessary when a fixture is too peaky to accept glass. Stock range - \$24. Custom image - \$150 first image, \$45 identical copies.

### FX RANGE

*Coemar De Sisti Australia (03) 9467 8666*

**Coloured lenses** Available to suit Par 36 & 46 lamps, these versatile accessories are available in a wide selection of colours. \$1.64.

**Coloured beacons** A range of high quality coloured beacons, solidly constructed, and available in a variety of different coloured domes. Use a powerful 100w lamp. \$109.84.

### ROSCO

*Rosco Australia (02) 9906 6262*

**Steel Gobo** widest range of gobo patterns available anywhere in the world. More than 800 patterns as stock and custom design can be supplied. \$22.

**Glass Gobo** full colour dichroic patterns in a stock range and can be custom designed. \$varies.

**Gobo Colorizers** used in conjunction with metal gobos to create multi-coloured projection effects. Can be used alone for dramatic colour effect. \$varies.

**Gobo Prismatics** made up of tiny chips of dichroic coloured glass to give deep and brilliant colour textures. Can be combined with metal gobos for stunning effects. \$varies.

### WHITELIGHT

*Chameleon (02) 9310 5222*

**Objective Lens** three standard objective lenses are available (15cm, 10cm, 6.5cm) to suit VSF90, VSF DMX and Wave FX units. Priced from \$490. Special adaptors are available for Altman Shakespeare or ETC Source 4 lenses for long throw applications priced from \$280.

**VSF Discs** for use in VSF 90 and VSF DMX rotators. These discs are available in Thunder Cloud, Fleecy Cloud, Storm Cloud, Rain, Snow, Flame and Running Water. From \$480.

**VSF Drives** The Whitelight VSF 90 system produces striking and realistic projected moving images. Custom discs are available for corporate designs etc. \$1800.

**Whitelight EP** full range of accessories for use with the VSF 90, VSF DMX, Wave FX and effects projector heads like Strand 252, Strand Cantata, Strand Tocatta and CCT Starlette. Accessories include: 3.25" slide carriers, adjustable masks, beam diverter mirrors, break up glass, custom slides, discs and flags. From \$100.

## UV's & UV PRODUCTS

### ALTMAN

*Chameleon (02) 9310 5222*

**UV703** a 400w fresnel based on an Altman 10" metal halide location fresnel which provides superior spot/flood performance for illumination of fluorescent material at distances of up to 150'. From \$5825.

**UV704** a compact 400w outdoor UV illuminator weatherproof available in spot, medium or flood. From



**Nocturn 250FL6**

\$3850.

**UV705** 400w flood features internal ballast and will accept a barndoor for control of UV distribution. From \$2400.

### APOLLO

*Coemar De Sisti Australia (03) 9467 8666*

**Blacknight** A robust L.V flood fixture utilising a 400W UV lamp and with a beam angle of 160 degrees. An integral safety wire guard protects the lamp from accidental damage. \$533.61.

### GRIVEN

*Show Technology (02) 9898 1111*

**UV Cannon** A highly reflective ultra Violet flood system. High output 400W lamp. Ideal for night clubs and rock concerts. Lamp 400w lamp. \$496.75.

### GRIVEN

*Universal Lighting & Audio 1800-648-111*

**Wood 400** 400W UV Projector complete with ballast and reflector and hanging yoke. \$695.31.

### LIGHT EMOTION

*ELSTA (02) 9568 2200*

**UV 4 foot uv tube in battren**, complete with starter, lead and plug. Ready to go. \$55.

**UVBOX** Professional wooden case for above UV battren. \$40.

### NOCTURN

*GUET (07) 3358 5022*

**N250FL6** 250w Ultraviolet Flood Fixture. Output exceeds the performance of many 400w UV floods providing a throw of 100ft. Edge-to-edge intensity in an extra wide field means more effect from the same fixture. Lamp included. \$4100.

**N400FL6** 400w Ultraviolet Flood Fixture, all-around performer for film, video, stage or architectural effects. Extra-wide field, powerful intensity and long-range. Lamp included. \$4995.

**N600FL6** 600w Ultraviolet Flood Fixture, provides the power needed for extreme long range and maximum fluorescent brightness in attractions, on stage, film or video. Instant-on hot-restrike DMX controllable allows full integration of UV effects into show planning and design. Lamp included. \$7995.

### ROSCO

*Rosco Australia (02) 9906 6262*

**Permacolor** dichroic woods glass filters to filter ambient light and pass UV light from standard lighting fixture. Activates UV treated materials including fluorescent paints. \$35.

**Fluorescent Paint** vivid, vinyl acrylic colours that are

visible and brighter in normal light and fluoresce under UV light. Available in 1 litre containers. Water based. \$30.

**Vivid FX** new range of 13 colours fluorescent paints. One coat coverage, can be mixed and blended to make colours. Available in 1 litre and 1/2 litre cans. Clean up with water. \$35.

**Clear Colour** invisible in normal light and fluoresces in 6 colours including black under UV light. Test kit available. Create 'now you see it - now you don't' effects. \$105.

### WILDFIRE

*GUET (07) 3358 5022*

**Long Throw UV Fixtures** range of 9 UV fixtures from 200 beam angle to flood and including ellipsoidal fixture. From \$1595.

**Effects Master Series UV Fixtures** range of 6 UV fluorescent fixtures in manual and DMX controlled models, both dual and single tube configurations. From \$1795.

**Wildfire Paints** range of visible (fluorescent), invisible paints and phosphorescent paints. From \$53 per 473ml.

**Wildfire Luminescent Make Up & Hair Products** range of lipstick, grease paints, hairsprays and hair gels. Lipstick prices \$14 each.

next month::

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# The PA Page

## Down to earth - again. By Michael Orland

I suppose I tend to think of mixing consoles I have owned over the years in much the same way some petrolheads think of cars they have owned.

Ain't no two ways, I have owned a few lemons. But when I talk about other desks I have owned I sometimes can't help but get a little misty eyed.

Might seem a little funny coming from someone who has gained a reputation as the Jeff Wiggle of the mixing fraternity ("Wake up, Michael!), but when you clock up enough hours with such tools of trade, well, relationships develop.

One such console that I purchased a few years back as our "flagship" console, was the first of its type and price range that I actually purchased new. Buying preloved gear had previously been a necessary compromise, so the new smell was quite exciting. I think I even broke into a few choruses of Barry Manilow's "Looks Like We Made It" while accepting delivery.

At the time, we were hiring systems to lots of thrash/grunge bands, both local and international, where background system noise wasn't a problem. But occasionally we'd do a cabaret or "event" type show where my suddenly noisy system became a major source of embarrassment.

The worst part was the noise from the lighting dimmers. Off or up full wasn't too bad, but when lighting console faders were on halfway, the noise was unbearable. Our regular LD, John, tried his best to operate in full on/off mode to minimise the noise, but many of the internationals brought their own LDs who refused to compromise the look.

Stress factor warp 5.

So I was repeatedly called to gigs with my toolbox. I'd try doing the logical process of elimination thing. Always the same scenario. Unplug/bypass this, noise still there. Unplug/bypass that, noise still there.

When I'd bypass the whatsit, the noise was reduced; but hang on, that was just a gain thing.

When you brought the gain back up, the noise was still there. It didn't make any sense. The only thing that stopped the noise was unplugging the desk. But there

couldn't be a problem with the desk because 1: It was new, 2: It cost a lot.

Everybody had an answer to the problem. Just not necessarily the correct answer. Many said "If the dimmers are creating noise, fix them!". Would you believe, I actually had them checked out! Like der, of course they created noise. That's what dimmers do! The whole bleedin' world as we know it creates noise!

If I was operating a sound system on the outermost moon of Jupiter, there would be no noise. The point is, a nicely set up system is relatively immune to the world's noise. A poorly set up system is prone to having this noise induced into it. And the closer the noise source (dimmers) the worse the problem.

What was really frustrating was that it was only the high profile gigs where we had the problem. When we did the cheaper gigs, the system was fine. Actually, when we did the budget gigs, the crew wouldn't bother with the new console, which took six people to lift. We kept a little Spirit desk in the truck for these for these gigs, which worked fine.

The penny took ages to drop. Finally, at one of the noisy high profile gigs, my crew unplugged the new desk, and brought in and plugged in the Spirit instead. Silence.

I won't bore you here with details about trying to get my new desk looked at under warranty. Suffice to say, I was sadly on my own. I consulted as many technical minds as I could and got a variety of suggestions. Including replacing the light switch mode power supply with a beefy heavy one.

But there's an expression "When you hear hooves, think horses, not zebras". Meaning the most likely answer is usually the correct one. Which was handed down to me from one of this country's top tech gurus.

"You have no earth connection to any of the console's pin 1 XLR inputs".

I pulled an input module out and looked. Well, there was a metal fastener attaching the circuit board to the module's metalwork. And the

fastener definitely made good contact with the circuit's earth. But when I put my meter between the fastener and the metalwork, no connection! The paintwork was stopping any connection!

The suggested cure: add a hefty earth buss. I remembered looking inside a couple of TAC Scorpions I once owned. Now they had earth busses. A serious copper rail that ran the length of the desk internally, with each module's earth securely anchored to it.

I toyed with the idea of adding something like that to my new desk, but in the end I simply soldered a length of serious guage wire between each board's earth, including a central connection to the console's frame at the earthing binding post as well as the relevant pin on the power supply input.

The console's manual warned against making a direct connection between mains earth and the console's earthing binding post. This puzzled my guru friend who considered a hefty length of green wire connected between the earth pin on a mains plug and a banana plug for the console's binding post to be a sensible backup. Not that I've really needed it. Ever since adding my earth "rail", the desk has been a beaut.

Now ordinarily, I would consider a story of this type too specific to form the basis of a PA page. But I have talked to lots of other system owners about my experience, and I've been surprised by the number who have been through much the same sort of stuff with various consoles, regardless of size and replacement value.

One particular guy who owns one of the country's biggest and most prestigious hire companies, adds a serious earth buss to almost every modular type console he buys simply as a matter of course. Even when the supplied earthing seems secure enough, he says, there's earthing and then there's EARTHING.

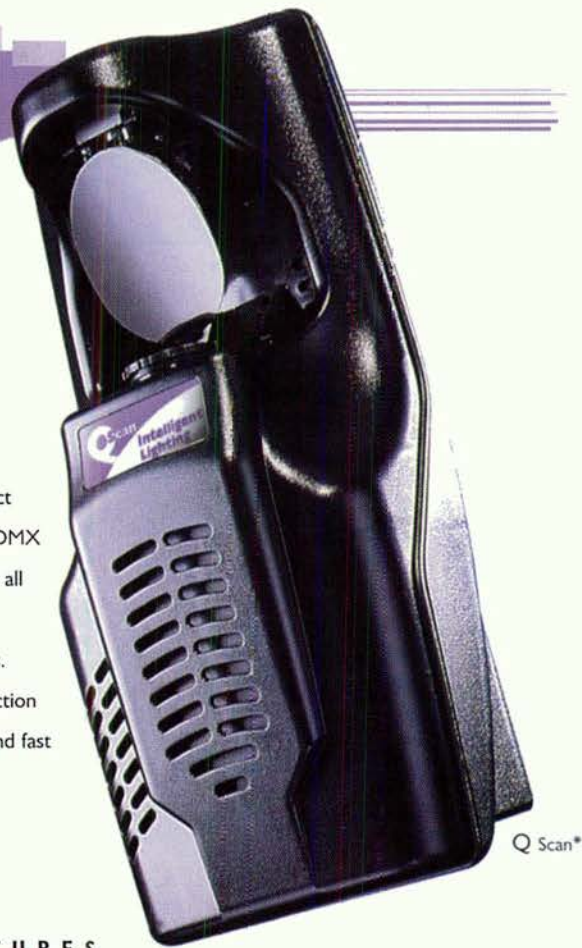
Which puts the above more into the helpful hints/advice category. New console owners: ignore at your peril!

Contact Michael at TPAC, on +612 9799-7219, or email him at: [t.pac@bigpond.com.au](mailto:t.pac@bigpond.com.au)

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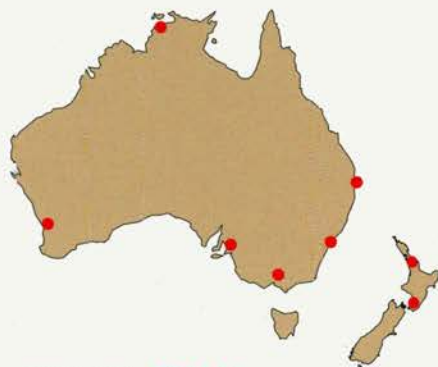
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